Final Environmental Impact Statement - Volume 2
APPENDIX

Brynwood Golf & Country Club

568 Bedford Road
Town of North Castle
Westchester County
New York

(Section 2, Block 8, Lot 7.C1A)

Prepared for **Brynwood Partners, LLC**
New York, New York

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White Plains, New York

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APPENDIX A

THE TOWN OF NORTH CASTLE, NEW YORK

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BRYNWOOD GOLF AND COUNTRY CLUB

DEIS PUBLIC HEARING

THURSDAY, June 27, 2013, 7:00 P.M.

H.C. CRITTENDEN MIDDLE SCHOOL

10 MacDonald Avenue, Armonk, New York

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PRESENT: HOWARD ARDEN, Chairman

DIANE DIDONATO ROTH, Member

JOHN J. CRONIN, Member

STEPHEN D'ANGELO, Member

MICHAEL SCHILIRO, Member

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SUPERVISOR ARDEN: Good evening, everyone, and thank you for coming to the June 27, 2013 open public hearing on the draft generic environment impact statement for the Brynwood Development.

Is there an informal opening you have to read?

MS. CURRAN: I have a few things.

SUPERVISOR ARDEN: Before you present the documentation, I would like to go over some ground rules. Note that the hearing is duly published and is on file with the town clerk as part of the record of these proceedings.

I want to thank the public for all coming tonight. You can also watch it on TV not live, but it will be on TV in a day or so.

The purpose of this public hearing is to hear comments from the public. The town board's role is to listen and all comments and all points of view objectively both written and verbal. The town board will take no position until the hearings are closed and the final environmental impact statement is

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reviewed. All comments, both written and verbal, will be responded to in the final environmental impact statement.

The court stenographer is in attendance recording everything so that we have a complete record. All comments will be read by the town board, as well as by the planners and the sitting boards and committees.

The scheduled time for tonight is from 7 o'clock until 11 o'clock. At 11 p.m., we will adjourn the hearing and reconvene on July 10. For approximately 10 minutes, Brynwood will give us an overview of the project and then we will start the comment period.

The comment about speakers:

If you like to speak, there is a sign-up sheet provided for, name, address, whether you speak on behalf of an organization. Speakers should approach the microphone and state and spell their name and addresses, then state the question and comments. Please be accurate and try to limit your comments to five minutes.

If someone else has already asked that

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question or made that comment, I appreciate you not repeating it. If you need more than five minutes, we will be glad to grant that, but try to limit your time since other people may want to speak also. In addition, we will be taking written comments for approximately a 30-day period.

With that, Ann, I will let you go ahead and open.

MS. CURRAN: I would like to add that the proceedings from tonight will be taped and will be available on the website.

The tape from tonight will be available on the town website and will be on NCTV, the government cable channel beginning Monday at 3 p.m. and every day for a period of two weeks or 10 days or so until the next hearing is reconvened.

The documents are also all on the website. You can access them from northcastleny.com under quick links and also on your news and announcements. So everything that is referred to is posted there.

We have the notice of public hearing

which brings us here tonight on the draft environmental impact statement prepared in connection with the Brynwood Golf and Country Club Development. Proposed action includes amendments to North Castle zoning board ordinance. So we have an affidavit of posting of this hearing and an affidavit of publication, the accepted DEIS dated June 11, 2013, the local law of proposed 10 amendments and circulation of these documents to all interested parties has been confirmed.

Finally, we have a letter from the board of commissioners on the fire department dated June 14, 2013.

SUPERVISOR ARDEN: Thank you.

Do we have a list?

First Brynwood will make a presentation.

MR. WEINGARTEN: Thank you, Mr. Supervisor, members of the board. My name is Mark Weingarten. I am a partner in the law firm of DelBello Donnellan Weingarten Wise & Wiederkehr. It is my pleasure this evening to be here on behalf of Brynwood Partners in connection with their approval or their application for approval to permit a beautiful 88-unit luxury condominium residence on the grounds of the Brynwood Country Club here in the Town of North Castle. We have a limited time, so I will keep my remarks brief because the concept is to hear from you, the public, with respect to your issues and your response to DEIS that is sitting there in front of some of the council people. You will see how large it is and how much work that has been done with respect to the studies done by our experts and by the town's experts.

A brief history. Many of you are aware that back in December of '09, that the current ownership group purchased the Brynwood Country Club. Since that time, they made a very substantial investment for a short-term fix of more than $13 million to keep the club open.

Unfortunately, as many people know with the market the way it is and the golf course community, that fix is not sufficient for the long-term and we needed to come up with a solution to make the club sustainable for years in the future.

The owners are trying to avoid the fate of many of their colleagues and their competitors; many of them nearby such as Ridgeway Country Club in White Plains closed, and the idea is to use something that is used throughout the country and to create luxury housing on the grounds of the country club which will allow us -- and will provide the return, the money, which will allow us to go ahead and make the fix to create the type of country club that is necessary to compete with its competitors in the future and allow Brynwood to stay open and to have the financial viability and wherewithal to continue.

This is our second attempt before the community. We were here more than two years ago. The first application was a much larger plan. Frankly, we have changed it now. It was rejected by the board. We think this is much better. It is much smaller. It is higher end. It is much more luxurious and we think it fits the community, but it is still, although smaller, is the same economic basis and will allow the country club to continue.

As far as this process is concerned, that petition came forward in September of last year. In January of this year, a scope was adopted where there was a public hearing, and it was determined that all the environmental issues that needed to be studied. In March of this year, a DEIS draft was sent by the consultants to the town for its review and after three months of back and forth, those documents were created, and your board said it is now ready for the public to comment on. Thus, the hearing.

Just briefly, the project benefits and some of the reasons why we believe this project is good for the community, they are all in that book, but I will highlight the ones that are important to us and we believe to you.

We are creating a new residential choice, an option for seniors and empty nesters in your community and the surrounding communities; for people who want to downsize

but want to stay here. They don't want to retire and leave and go somewhere else; maybe put a little money in their pocket, but not give up the luxury and quality of life but to stay here in your community.

We are also going to be creating, you will see in the book all the studies, $1.5 million a year in property taxes. That is a big number for your schools, for your town and for your county.

The project benefits -- it is very important to understand this. This project is not your typical residential project. There are two elements to it. We are not just building housing.

We have a country club which is a commercial use which creates taxes on its own; it doesn't create any school children, and then we have a residential use. That is very different from what is allowed in the zoning. If we had a proposal that was consistent with the current zoning, we would only be creating housing; there would be no commercial elements. So what you're actually comparing;

people, say, for example, condominium versus single family home. That is not the choice. It is commercial property, the golf course, plus the condominium versus single family home.

We will tell you if you do and you look at the studies, you will see this is much more to the economic benefit to your community to have that commercial element continue to be existing within your community.

We are also going to have 1.4 million of fees that we pay to the community in connection with this as outlined in the studies and as I mentioned earlier, more than $1 million to the schools; very few school children. You will hear more about that in a moment.

You will also have the preservation of the existing golf course. Over half the members are town residents. We believe this is an amenity that is important to continue for the community, special events and charitable functions that continue there.

You will preserve in perpetuity 140

acres of open space in your community in the form of a golf course, 100 permanent jobs and eight or nine, we will explain that in a moment, affordable units where the town will be assisting the county in connection with its federal and affordable housing. Those are the highlights as we see them. I will turn it now over to the planner, Bonnie, who will take you to the specific highlights of the DEIS.

We apologize in advance. The format of this does not allow us to answer your questions tonight, but by law -- it will be taken down, every one of your comments. By law, we will answer every one of your comments in writing. So we apologize for not giving the answers tonight, but we will be in contact with you, as we have been in the last couple of years, and we will answer you in writing.

Thank you very much.

MS. VON OHLSEN: Good evening, everyone. My name is Bonnie Von Ohlsen. I am from VHB in White Plains. I am a senior project manager there and I worked to compile the DEIS which is the subject of the hearing

tonight.

What you see above you is the proposed

master plan showing the entire site. You can see the golf course. It is 140 acres of a 156 acre total. Route 22 is at the bottom of the page, and you can see on the left, the existing clubhouse is -- where the proposed clubhouse will be. It sits behind the parking area. To the left of that is in the same location and you see Coleman Hills School which is in the gap.

The center of the developed area, you see the proposed new tennis courts. There will be six instead of 14, and where the proposed luxury housing is on the right hand side where the existing 14 tennis courts are now. To the far north to the right on this map is Embassy Corp. The entire top is where 684 passes the site, along the entire border on that site.

The driving range, that is three green large masses in the middle. To the left of that is the maintenance area where the existing sewage plant is now. It will

continue to be upgraded, water treatment plants, and the water treatment facility and renovated and improved maintenance area all in one central location.

This slide shows you, once again, Route 22 along the bottom of the slide. The faded out area is where the club facilities are. As I said, they are generally in the same location and the darker toned are the proposed units and several different types, three different types. The single family are up just to the north or just above the tennis courts and the rest are either villas or golf fairway residences.

So to proceed, the DEIS as stated was compiled by a team of consultants. Actually, up to 16 professionals and experts contributed to this in addition to our firm, as well as the town engineer, the town planner and the town have all reviewed the technical adequacy of this document.

The DEIS contains three primary sections, the project description, the project acts of mitigation measures, and then there is

a section on alternatives, and also the other two volumes are appendices with all the technical reports and data that were compiled to support the DEIS.

This is the middle section, impacts and mitigation measures. These were all the chapters we put together as per the scope that were to be studied regarding the project. I won't read them all, but I think there is again about 18 chapters. I will read -- not read. I will discuss about six of those just to give you a brief overview since we are not going to take all of your time going through the whole book.

Regarding affordable housing, the first topic. The proposed action includes development of fair and affordable housing units equal in number to 10 percent of the market rate housing units proposed, and in this case, this commitment will be met by the affordable housing on site or off site, and the proposed plan with DEIS is eight affordable units on site that relate to 88 total.

Regarding visual impacts, the DEIS documented existing visual conditions and also analyzes potential impacts. Some of these proposed conditions you will see tonight will be seen in the slides. The DEIS includes a proposed plan with special attention paid to re-vegetating and enhancing the landscape along Route 22, as well as you can see this slide, the renovated clubhouse will have an entirely new facade. It will be improved, and the landscape and entrance and stone walls will be improved as well in order to enhance the Route 22 frontage.

Our experts tell DEIS that due to the terrain of the site, preservation of existing vegetation with the visualization of the project will not be significant.

Regarding environmental features, the existing golf course obviously has fairways and it also has developed areas, as well as slopes, ponds, wooded areas. Some of the technical data in the DEIS includes functional analysis, wildlife inhabitant studies, soil borings and integrated turf grass and a

pesticide management plan for the golf course -- for the future maintenance of the golf course. The vast majority of trees on site, including the significant trees regulated by the town, will be preserved.

Ninety-six percent of the site ultimately will either remain with existing vegetation or will be re-vegetated. The development of the site is already cleared and developed and planned thereby reducing any future vegetation problem.

Regarding water supply. New water supply wells have been drilled and tested on site. The new on-site water supply is proposed for the project. The geological consultants on the team has completed their testing on the six wells and has determined that these wells are -- supply a sufficient water supply to serve the project.

Regarding traffic, traffic consultant studies show the intersections, and given the nature of what is being proposed which is a golf course community, the study shows it will not significantly affect area roadways. The

traffic consultants also analyzed the scenarios as if it was not empty nesters and as if it was just conventional units and still came to the same conclusions.

Taxes and schools. If this were a

non-community, single multipliers would indicate 10 to 20 stories of the project. However, this is an age-targeted project for active adults. Based on the research, approximately sixty are anticipated.

Mark mentioned the tax numbers. Regarding taxes, according to our estimates, a total of approximately $1.5 million in annual taxes to the school district, town and county will be generated from the project. Of this, over $1 million will be for the school district alone and this is much more than necessary to educate those six children that are anticipated to the district with the project.

We also looked at other community facilities and services, including police, fire protection, highways. Since this project will have private roads, the homeowners

association that will maintain the road and provide security, there should not be significant impacts to the community as well.

The last section of the DEIS is the alternatives. There are five alternative studies, including no action which means nothing would happen.

Alternative 2 was a conventional subdivision and a conventional zoning which is R 2 A.

Alternative 3 was the same with the R 2 A approximation subdivision.

Alternative 4 was cluster alternative.

Alternative 5 was three different scenarios, reduced density alternatives.

This is the conventional subdivision plan layout. It is using the existing R 2 A zoning and shows 49 blocks, minimum two acres. The club and golf course are both eliminated and there is no open space provided. This plan does not meet the applicant's objectives, nor does it preserve the club or the 140 acres for the town.

That is the summary of what I was going

to present regarding DEIS and some of the important impacts. I am open to questions.

MS. CURRAN: The first name is Steve Buschel.

MR. BUSCHEL: Good evening. My name is Steve Buschel. I live at 4 Fox Ridge Court in

Windham. I am not speaking as a member of ROWI. I am speaking as an individual.

In reviewing the study, it seems very clear to me that the board -- and I thank the board for making the correct decision in January for letting this study go forward, but the results of this study clearly show that the legitimate concerns of those who were opposed to the project have been addressed.

Roads and traffic, schools, water, taxes, land use, these items have been very favorably looked upon by the study. There is no doubt in my mind that continued use of the property as a golf course and only as a golf course is not viable. I won't get into the economics, but I don't believe as a golf course, in and of itself, it would be viable.

The main concerns which were voiced, I

think particularly with regard to the impact on the schools, impact on the roads, et cetera, clearly have been shown by the draft report to be of a immense benefit to our community. Therefore, I think that the next part of this study should go forward.

I urge the board to go forward with whatever it has to do to go through this study again, have its own experts look at everything, and then in the fall, come to a vote, and I hope the vote will be to continue and support this project.

The important thing is for this board, and I would also hope that the board of ROWI, will keep an open mind on this thing until all of the studies and the research are in.

As far as -- I would like to just close by saying that some people have a fear of change. That is the wrong way to look at this. Change done properly is something that will advance our community and make it better. Change is to be embraced and not feared. Therefore, again, I urge this board to do what it has to do and then hopefully we will come

to an affirmative conclusion in the fall. Thank you very much.

MS. CURRAN: Next is Karen Davis.

MS. DAVIS: My name is Karen Davis. I live at 22 Hickory Kingdom Road in the Town of North Castle. We have been a resident for over 30 years. One of the reasons I wanted to speak was when I kind of previously looked at the report, there are certain things that can't be measured, and one of them is empty nesters who want to stay in the community, who have been active participants in the community, financially support the local organizations, and a lot of empty nesters, including my husband and I, would like to remain here, but we don't want to stay in our house any longer. The property is too much to take care of. We go to Florida for half the year, so we won't be involved in that much traffic in the winter.

We have a daughter who lives in Windmill. We would like to be near our children and grandchildren, and there are other empty nesters who live in North Castle

and neighboring communities who feel the same way who would seriously consider moving to Brynwood.

I hope that the board will take that into consideration and realize that especially up in the section where we live, a lot of people are definitely considering selling after we had all these storms because we have big problems with lots of trees, and it is getting too much at our age to take care of them.

Thank you very much.

MS. CURRAN: Next is Stuart Kovensky, 18 Long Pond Road.

MR. KOVENSKY: Hi, my name is Stuart Kovensky. I live in Windmill Farms. I am speaking on behalf of myself and also on behalf of ROWI. Before I get into my specific comments, I will just thank you for your general comments.

Of course I understand, and our organization understands, that there are a lot of people in this town that would speak out for this. You know, there is the developer,

residents who are members of the club, empty nesters who would like to move to these residences. That is fine; that makes a lot of sense for a lot of people, but we are a community here. Our community isn't just made up of that subset. There is a lot of people that live in this town; we all pay taxes; we all pay tax at the same rate. For this development to go forward, it no only has to work for the people that I mentioned before, it has to work for everybody in this town.

The reason why we have been so vocal about this project is that we are worried that it doesn't work for everybody in this town.

I have seen a lot of change here, going to your comment that you made, Steve, for a long time. I am not so sure that the change is good because the changes I have seen here for the last 15 years since I have been a resident here hasn't been all good. So there are times when I am worried about change, and the reason why I spent so much time going through the DEIS statement is to make sure that we are doing everything we can to insure

that this change is good for the town, and I won't go through a lot of specifics about the concerns I have; additional questions that I think need to be asked and hopefully, the town board will listen to and will respond to, but before I get into the nitty gritty, the weeds, let's just take a step back think about something.

Look at the amount of time that the town board is spending on this; look at the amount of time that the developer is spending; the amount of fees being spent on a project that on its face, the first thing that is so clearly troubling about this project is that the developer is not only asking for the taxation of the owners that buy these units to be different than everybody else in this town. We all pay one rate, but the people who buy these units get half off. That seems to me to be blatantly unfair. I don't understand why we are spending so much time on something where the taxation is that different. We all pay the same thing right now. Why should it be any different?

The developer said, one, in a secret approval process back in November, and even in the documents of the DEIS, that they will not consider a deal. They will not consider a structure where these units are taxed as fee simple units. They will only consider a structure where these units are taxed as condominiums. So we will get into so much nitty gritty here, but I don't understand why we are doing that when what they are asking for is so unfair to everybody else in this town.

They talked extensively in the DEIS about why it needs to be a condo development. It is all that we can sell right now. It needs to match the other types of developments that we think are comparable to this, the Trump development, Christy Place in Scarsdale, the Ritz Carlton in White Plains. We can't fit 88 units as fee simple townhomes. We don't have the amount of land to make that work, but what I don't understand is, those are their issues and they are legitimate issues for sure. They are economic deal

issues for them, but why do they have to become the town's issue? That is what I don't understand.

I don't see an explanation here about why it needs to be condo's, but I did find something very deep in the DEIS which simplifies it for us. I will read it verbatim. This was in the marketing analysis.

"Condominiums are more attractive than

fee simple units to households, particularly seniors looking for a lifestyle product because they are taxed at an approximately half the regular rate."

Everybody loves half off. Why are they doing this? Obviously, to make more profit. There is nothing wrong with that, but that is potentially at the town's expense and you, the town board, have the power to make sure that this project is right for the rest of the residents in town. That is what we are asking you to do.

So first, I am going to list out some simple questions and then focus on two parts of the DEIS, the economic structure, as well

as the school projections with a little more detail.

First, I think we need to get some more answers and some more information on the economics of the golf club and golf course because that is a substantial economic driver. They are saying $1.5 million in taxes will be generated from this development; 500,000 of that comes from just the golf course operation. Interestingly, in their previous analyses, that number was over 800,000. So before they even started building, it is down by $300,000. We need to get more information about that because just as Mr. Weingarten said earlier, golf course economics are strained. We have local private clubs closing down, but yet, here we are counting on $500,000 a year coming from a golf club that might be unprofitable and it is all really unprofitable today. So here, with the stroke of a pen, the changes here, all of a sudden, we have to believe that is going to become profitable and there is no analysis in here to walk us through that and make us comfortable, and I

think we need to expand on that.

Second, there was something I think was mentioned back in the November secret hearing, that if I remember correctly, there are existing state or local laws, whether it be county, town, I am not sure, that give a guideline for open space, for a certain amount of open space that the town gets, how much bone density a developer would get from zoning. We need to understand that in the

DEIS and the public should know that.

A study on the as-of-right number. The number put forth is 49 units, but there is no supporting information for that whatsoever, either from the developer's consultants or the town's consultants. We need to see that number because so much of their analysis is compared to that as-of-right number, whether on two-acre zoning or some smaller amount, cluster home -- same number of cluster homes, but on smaller acreage, but it is important to know that the 49 number is correct. I think that should be laid out in DEIS. I am not specifically questioning the number, but we

need to be comfortable with that.

Next, has the town done some financial analysis on the tax projection that the developer is putting forward in the DEIS? If so, that should be shared with the public.

In the DEIS, they mention the town might use a different capitalization rate to come up with what the tax numbers should be, which leads me to believe the town probably has done this analysis. I think in fairness to all the town residents, we should be able to see that and see if it agrees with the developer's estimates on what the tax revenue would be.

The other thing that is a very big part of this DEIS is figuring out how many school children this community will actually generate. It is all based on this Rutgers study. I will get into that in more detail, but what I would like to say right now is that, we should understand that there are other studies like this available to analysts. I know in my business when I am making very big assumptions on something, I don't look at

just one input from one source. I want to compare that source to others. Here, we are given only one source, the Rutgers study. There must be other studies out there and if there are, we should be able to see the other studies.

Now, all of their analyses on this 88-unit condominium development is based on their assumption that at least 80 percent of the units are going to get sold to empty nesters.

Now, that might work out, but what happens if it doesn't? That case isn't in here. What happens if they renovate the golf course; they build these units and all of a sudden, empty nesters don't buy them? These are large units. I will walk you through that in a minute, but what if empty nesters don't buy this, all of a sudden you can have many more school children come in.

Lots of other comparisons are made, but there isn't a comparison here to 88 units that don't sell to empty nesters. I think there is a risk there and I think that case ought to

get included. The same thing can happen if you drop the price, families will start buying and admittedly, they are very expensive.

Lastly, age restriction, and then I will get into specifics. So if 80 percent of the units will get sold to empty nesters, why can't be this to age restricted? That is a question that needs to be answered.

They do provide information on a successful condominium project as an example of why this project should be a success which is the Christy Place Condominium in Scarsdale, which is age restricted. So why can't this be age restricted? That answer is not laid out in the DEIS.

Now, I want to get more specific on two things, the financials and the school age children projection, because Mr. Weingarten said this project is sustainable on an economic basis. That could be true, again, if everything works out according to plan.

I have been in business for a while. We have all done lots of different things that rarely things work out to plan.

As I mentioned before, if these units wind up getting sold to people other than empty nesters, all of a sudden, the model that they present starts to go haywire. That is going to cost us, the residents of this town, potentially a lot of money. It already is if you approve it as condominiums.

Let me walk through a couple different ways. I mentioned before, what if there is no clubhouse? All of sudden, $500,000 of tax revenue is gone, poof.

In terms of the size and price, these

units could be very attractive to families, but they will argue that that is not true because if you add association fees and club dues, it becomes very expensive for people. Therefore, young families won't buy this, but empty nesters will who want to belong to the country club. But again, if the golf course and club don't work, all of a sudden there is no need for the high maintenance fees and club dues and the cost to move in drops precipitously and it opens the place up for young families and then there is more school

kids, and that is not analyzed.

If that happens, the value of the whole place goes down. Then what happens? They come back and put on an assessment like they did in the past six months and it costs us more money. So we have to be very careful and we have to analyze these things and I don't see that here.

Their comparison of the condo scenarios versus fee simple, I think, requires more detail. Their analysis makes it look like their plan generates strong tax revenue versus the fee simple alternative, but there are a number of assumptions made that we can't see and we should ask to understand -- we should ask for the information as to what those assumptions are.

For instance, the selling price and size of the home in those fee simple alternatives is not given. We can derive it and when we do that derivation, we start to look at it and say, maybe the number they are using is a little too conservative.

Here is my example: In the 49-home

alternative they use, doing it as an R 2 A subdivision, they say they will generate \$1.47 million in taxes. That would be about maybe -- if you divide that \$1.47 million by 2 percent, you get to about 73 1/2 million dollars of assessed value. Divide that by 49 homes and you get to \$1.5 million per home. In this town, a brand new home that is four or five bedrooms on two acres is probably going to sell for more than that. It could be on more than two acres. Again, they don't lay that out. We need to see those assumptions to understand the analysis.

There is another thing not included that matters a lot to people in this town which is, how will this development impact other people's home values?

If you live in Whipperwill Hills or Whipperwill Ridge or Wampus Close, and you have attached housing townhomes very similar to the units to be sold here and you're taxed at the same rate as everybody else, now, all of a sudden, your taxes are so much higher than these units, the home value for those

people will go down precipitously and that is not laid out here and the town residents should know that and understand.

I am trying to follow my notes.

One of the other things you might want to consider why you want to have these taxed as condo's is because money is fungible. When people go to buy a home, they have a certain amount to pay in cash or a down payment and how much they are ready to spend every month on their mortgage, maintenance or taxes. If we allow these to be taxed as condo's, there is an interesting thing that can happen.

The taxes in these condo's are lower by

half. That leaves room in a monthly payment for some of it that would normally go toward taxes to go toward club dues and maintenance which makes the golf course potentially economically viable where the developer can attract and demand still very high prices for the units. So it is profitable for the developer and it allows the golf course to stay open because it is being subsidized. The way it is being subsidized is because they are

paying half the taxes than the rest of us. That should be considered by the town board and analyzed in the DEIS.

Now, let's talk about the Rutgers study. Before I get into my prepared notes, I want to address something that the woman before me said. She said there is a lot of people in this town that would love to stay in this community; their kids live in the community; they love the town; they have been here for a long time, but they don't want to keep up a home anymore and all of the issues that come with that.

There is no analysis in here of what

that impact will have on our schools as those people sell that house; frees up a four or five-bedroom home in town and they move into this community. That is a secondary impact in terms of more kids in our schools that is not analyzed here that ought to be included.

Now, there are some issues of flaws in the use of the Rutgers study in this analysis. One of which I will call apples and oranges and the other has to do with size which really

does matter here.

The size of these units is large. Their two and three-bedroom units are anywhere between 1900 and 2900 square feet. I looked in the Rutgers study for information on the size of the units that they use when they talk about a two or three-bedroom unit in a multifamily development, but I couldn't find anything. When I think about the average two or three-bedroom unit, it is generally not two or 3,000 square feet. We have three-bedroom homes in Whipperwill Hills that are 2300 square feet. Those are homes, not condo's. I had a fairly large condo in New York City that was two bedrooms and this is almost twice the size of that.

They run their analysis through the Rutgers study taking a two-bedroom unit and putting it through the Rutgers analysis of a two-bedroom unit and that distorts the analysis concerning the number of school children.

There is another thing in this DEIS that I found kind of shocking. It cuts right

to the reliability of the Rutgers study. This is the words of the consulting developers. The reason they use the Rutgers study, and I quote, "We have found this source, the Rutgers study, is reasonably reliable in most instances." So let me ask you a question. Would you buy a car; would you buy a computer; would you use a consultant study that had that type of qualification disclaimer on it? I don't think you would because it is not concrete enough. There is too much risk there. One of the things they did in their exhibit, talking about the reliability of the numbers they are generating from the DEIS, is they said, let's analyze the past draft environmental impact statements from Whipperwill Hills and Whipperwill Ridge. They tried to use that to support the fact that they were getting reliable numbers out of the Rutgers study which confused me because it was completely different.

Originally, if you look back at the DEIS, Whipperwill Hills and Whipperwill Ridge, they proposed it being 323 units and 96 units

were speculative, and in those 323/96 unit developments, 110 total school kids were expected to be generated; 89 from Whipperwill Hills and 21 from Whipperwill Ridge.

They actually only built 210, so about half of -- you know, the 210 versus the original projection of 419, so about half, but how many school kids came through even though they cut it by half? A little bit more, because 119 school age children versus 110 that were projected.

So how can you look at that and conclude that these DEIS statements are reliable? Again, the number of units were cut in half and this was actually a little more school children.

They give us a lot of info on how you can try to use the Rutgers information to rely on and predict the outcome at Whipperwill Hills and Whipperwill Ridge, but again, I bring you back to the same apples and orange comment I made earlier. The units are much larger here. They are pushing these larger units. A two-bedroom unit only generates a

small amount of school age children, but if you have a 1900 and 2900 square foot two-bedroom unit with a separate den, that even with the developer's own document they call something that has the potential to be a third bedroom, how can you be comfortable looking at that as a true two bedroom as in the Rutgers study? If that is wrong, it can create a more school children.

I will walk you through this again. Whipperwill Hills, when you put it altogether, it is 150 units and 100 kids. That ratio is about two-thirds.

The ratio for Whipperwill Ridge is 19 kids for 55 units which is a ratio of .34. They are projecting a ratio of about 15 kids for 88 units which is a ratio of .17.

Let's take the ratios of Whipperwill Ridge and Whipperwill Hills. If you put those two together, you get a ratio of about .5. So if you have a ratio of .5, you get 44 kids. That is at least 20 to 25 more than what the developer has projected. Those aren't tangible numbers. It is not in the study that

was put forward in 2000. It is already 13 years sold. It is real life experience and more work has to be done on it to understand what the real cost is.

I am almost done. Thank you.

Lastly, the type of sale matters, and this is something that I think is not focussed on adequately in this report.

They draw the analysis, if you look at the average home in North Castle, how many children it has, it is around .8 or something like that, but maybe we should be looking at not the average home currently because we have many empty nesters living in our homes. What if we looked at how many kids come into new homes or resales of homes this large? Is it the numbers that they are saying or is it larger? I think that is something that ought to be studied here because a lot of these things can lead to a higher school population. I know one of the things is, well, the school population is down right now. We have a lot of excess capacity in the schools, but please don't forget to consider the fact that the

only condominium construction we have in this town is the old school house behind the Citibank. That was closed down because we thought we had too much school -- too many school classrooms, so we closed that down. Then we had two very big bonds to pay for to add classrooms because the school population started growing.

It is a wave; it comes and goes. The economy, the home turnover, so we can't count on that. I think that needs to be analyzed further, but what I really -- the other point I want to end with here is I talked about a lot of detail, a lot of specifics. The danger in all of that is that we get caught down in the weeds and we can't see the forest for the trees. We all debate about this little piece of minutia versus that little piece of minutia instead of really looking at the whole project, holistically from 30,000 feet. If we do that, we will be very concerned.

The developer is asking for a change in their favor in terms of zoning, density and taxation. What I always learned about from my

parents and school and in business is, when you have a negotiation, what you really want to end up with is a win/win, but both sides walk away grumbling a little bit because they didn't get everything they wanted, but what I see for us is a win and a possible lose and the walk-away is a high five and a grumble on the part of town residents. They get the right to sell more units at much higher prices because they are condo's and are taxed by 50 percent more than the rest of us pay. We get more crowded roads; the risk of our schools; less tax revenue when our budgets are extremely strained. So they are winning and high five-ing each other and the town just walks away grumbling and I don't think that is fair to the rest of the town residents. That is why I had the amount of comments I had, and

I appreciate you letting me take the time to
go through all of them.
MS. CURRAN: Next is Michael Ferrari,
30 Bedford Road.
MR. FERRARI: Good evening. I have
some serious concerns about this development.

All I think are correctable with some good guidance.

Some of the properties that Stuart was referring to, I had the pleasure of building. I built Wampus Close. It was the first multifamily development in North Castle about 20 years ago. I had a very difficult time getting approval. When I finally got it approved, we offered it to the town because they didn't want to expand the park. The final determination was that the town would go out and -- we gave the opportunity to buy the property, and if they didn't purchase the property, we were able to develop it. There were 189 single three-family units on a small piece of property and when we started the construction and built the property, it was very successful.

At that time, like this lady spoke, there was certainly a need for people who wanted to get out of big homes. I then went forward and did Whipperwill Ridge as well. It was 55 units and that was like Wampus Close, very successful. We built it; it took two

years, built, sold and very successful.

We then went and we did Whipperwill Hills which was 150 units which was bought by a man by the name of Mr. Rashid (phonetic) and then I did all the roads and sold it. They had a lot of success. So what Rashid did that was different was Whipperwill Commons.

Whipperwill Commons is the old school, that is a condominium. That is the only condominium in the Town of North Castle. The only reason that was a condominium is because the structuring that was already built lent itself that it could only be a condo. It couldn't be fee simple because so many things are shared, like elevators and hallways. That is primarily the difference between -- physically between a fee simple job and a condominium, is that you had shared services that you can't segregate, like elevators, hallways, heat, et cetera.

My concern goes back from -- back to '09 when Jeff Mandel's father-in-law, a very dear friend of mine and probably one of the foremost developers in the County of

Westchester, with Marty Berger (phonetic), who was one of the co-owners. He asked me if we could have lunch with his son-in-law. We sat down and he asked our opinion why -- and what do you think about this particular job? My answer to Jeff at that time was the same answer I have today. I am not in favor of a project that has the connotation of condominium. Condominium to me is not something that you find in a suburban area, like North Castle. It is something that you find in White Plains where you have the apartment structure, but I don't believe it is the right thing to do in the Town of North Castle because really what a condominium is is nothing more than small apartment houses and you can make the apartments within those apartment houses as large as you want to. I am not so sure that is the character that we had in this our community.

Primarily, Stuart did mention -- and I am sorry to repeat it, but I think it is significant in words, a condominium pays -- I don't think it is 50 percent of the real tax.

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It is about 40 percent. So here is my real concern that should be concerning to every homeowner in this community.

If you have a house in Windmill or any other part of our town, and let's say the value is $2 million. If you boil down the tax rates, the taxes you will pay on that $2 million house is about 2.3 percent of that value which would be $44,000.

If you had that $2 million house as a condominium, you would be paying 40 percent of those 44,000 or approximately $17,000. So you will have the same value but be paying significantly less tax. So the question I think is damaging is that, if you were to buy a house that is valued at $2 million and pay $44,000 or buy a condo at $2 million and pay $17,000, which one would you buy?

So that is a concern that I have.

Now, I turn around and take a look at

the properties that are closest to it which is Windmill and that concerns me because if you have those houses there that are older and let's say the houses, they are paying

roughly -- they are $1 million houses and let's say they are paying $20,000 in taxes and now you have a new house across the street at $2 million paying $17,000 in taxes, it makes the houses at Windmill not as desirable as if they were paying the full quote. That is a concern that I think really has to be studied.

That is my position when I had lunch with Mr. Berger and Jeff, and the position I had then is the same position I have today. I am not sure if the condominium structure in our town is the best thing for our community. Architecturally, I don't believe it is an argument. So those are concerns that I would like to have everybody think about when they make their decisions.

Another method -- I don't mean this to be negative; I don't mean it to be hurtful, but it is a concern that I have that I think needs to be addressed at the very beginning of this project rather than at the end of the project when it could be much more detrimental to the applicant and much more detrimental to the people in our community.

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I have found out over the last -- and as everybody knows when you get into politics in a political season and election, it is often called silly time or crazy time, but it is certainly not normal time.

Something that I have discovered that I think needs to be addressed, and the town will have to address this issue, is I have found -- and it has been told to me, but the person who told it to me is not able to stand up here and present it and I will.

Maybe I am stupid for doing it.

The question is, I believe that several of our town board members have received contributions, political contributions over the past years by the applicants, and I think the applicants probably did something very nice to be able to contribute to somebody's campaign. The problem that exists because of that is if it isn't discovered now that that doesn't present a conflict which the ethics board has to determine, then let the process go through.

If it is a conflict, then it should be

addressed at this point in time because if this process was continuing on and more money was spent by the developer in engineering and other studies that are going to be required because of the DEIS, and then determine that some of the people on the board can't vote for it, it might create very, very significant financial impact for the developer. So I believe that several of the people; I think they know who they are, I would like them to confer with the -- if any financial donations were accepted by the developer in good faith and if so, does that present a conflict of interest? If so, should it be addressed and brought to the ethics committee for a hearing and a determination and then have the process continue forward?

Those are my comments.

SUPERVISOR ARDEN: We will take a 10-minute break.

(Recess taken.)

SUPERVISOR ARDEN: Take your seats. We would like to emphasize that you keep your comments to five minutes, please. We will

give you a signal as time runs out.

We will call the next person.

MS. CURRAN: Next is Jan Bernstein, 34 Evergreen Road.

MS. BERNSTEIN: Hi, everybody. I am Jan Bernstein. I am here representing myself and the residents of Windmill. I will be brief and mention a couple of things.

I know you guys have heard a lot about the tax structure, but I just want to emphasize that all estimates in the DEIS for this Brynwood proposal, all the estimates are derived as a result of -- they are totally based on conjecture, every single thing, the sale price of the condo's, the number of the children in the development, whether the golf club is going to stay in business, all of that is conjecture, but the only thing that is fact and the only thing that is not conjecture is that the town is throwing away 50 percent of potential tax revenue that could potentially derive for condo's rather than fee simple homes, and while the developer might argue this is the best interests of those residing

there, and definitely in their best financial interests, it is not in the best interest of all the taxpayers in the town which, other than the old school property, pay 100 percent of the taxes.

So why should the Brynwood homeowners be entitled to a 50 percent tax break? There are 12,000 other people in the community. They speak about, you know, wanting -- the retirees need a place to go? I think retirees should have a place to go, but retirees in all different parts of North Castle pay 100 percent of the taxes. Why shouldn't retirees on the Brynwood property pay 100 percent of the taxes? It just -- it makes no sense to me. It will only hurt the value of other homes in Armonk. Why would you buy a home in Whipperwill Hills or Cider Mill when you basically have a similar property, often the same size, yet it is 50 percent more taxes? It doesn't make sense. This is not a local area -- this is not a local problem. This is a problem for all of North Castle. It will devalue everybody's property values. That is

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my little pitch to you on the tax structure and why that is a real problem for the town.

A couple of other things that I want to talk about, if I can find them. One is the conservation easement. When the board accepted this petition for rezoning in the fall, Supervisor Arden was adamant that the one thing his approval hinged on was the protection in perpetuity of all the Brynwood property other than the piece of property on which the improved structures were built. However, the DEIS as it stands now is so loosely worded, that it offers no such protection.

This project should not move forward until the section regarding the conservation easement is worded so carefully that it protects the land accordingly. In addition, the DEIS should state and the board should require that a third party is required to monitor any of the -- all of that land and insure that it remains permanently open space in perpetuity because it does nothing of the kind right now.

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Regarding the water and pesticide contamination of groundwater. Golf courses more than four to seven times the amount of pesticides. Pesticides run a large risk of leeching into the soil and contaminating the groundwater. It is important to know where the Brynwood aquifers are replenished, as some areas are more likely to have precipitation and seep into the drinking water. This needs to be addressed in the DEIS.

We would also like to see a comprehensive list of which pesticides have been used during the history of the golf course. We would like to see any groundwater monitoring studies evaluating the extent to which pesticides used for 50 years on a golf course have leached in the groundwater and contaminated it.

Regarding the on-site water resources and wells. According to the DEIS, an initial program would have to be conducted to determine if the aquifer material is suitable for the development of a high yielding well.

This program should be undertaken now and the

results of this program should be shared before the project is able to move forward.

Sufficient water supply should be determined before the project is also able to move forward.

The test to determine the potential of the development to impact water levels in existing wells near the site was done during a 72-hour pumping test in May, but a test performed during a rainy time of the year when water leeching is low is not indicative of the potential impact during the hottest dry times of the year and the condition should be required to perform this test at other times of the year as well.

That is all I have for now. Thank you for your time.

MS. CURRAN: Next is Stan Simon, 50 Windmill Road.

MR. SIMON: What I would like to address is the traffic study in the DEIS.

Many of you know how bad it has gotten on 22, going down 22 to the railroad station. It takes quite a bit more time to get down to the station. I am not a commuter, but I hear this from many people in the town. I think it is going to get worse with this development.

I am a walker. I have been running or walking the roads of Windmill for 35 years. I have seen the significant increase in the number of cars on both Thornwood Road and Long Pond Road during peak traffic periods. More importantly, I have seen a major increase in speeding on both of these roads at times when children are going to school or being dropped off. By the way, many of you probably see me walking during the morning, including Roland Baroni who walks his dog at 9 o'clock.

On three different occasions at town board meetings regarding the Brynwood Development, I have asked that a traffic study be done to determine the number of cars bypassing Route 22 at Middle Pan Road into Thornwood and Banks River Road into Long Pond. Except for a mention of Banksville Road in this DEIS, I see nothing in the DEIS that addresses this issue.

I again request that this be done based

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on the current conditions and the anticipated increase in traffic caused by the residents of the Brynwood Development.

One of the things I would recommend is that the town or the police department set up some type of device that shows how many people are speeding down both Long Pond and Thornwood Road. Thank you.

MS. CURRAN: Next is Steven Tanenbaum, 8 Mulberry Lane, White Plains.

MR. TANENBAUM: My name is Steven Tanenbaum. I live and work in White Plains. I would like to thank the board for the opportunity to address this. I am a little bit of an outlier, not being a local resident. However, I am a empty nester which I think might put me in a constitutionally protected class. I like to play golf. I belong to Brynwood Club and to Canyon before it was Brynwood. I am certain that would put me in kind of a protected class.

I am in support of this development, but before I start, I would like to endorse something that one of the prior speakers said.

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It was a gentleman that -- this gentleman, I don't recall your name, I think his point at the end was that it is important to look at this project on a holistic basis. That is what I tried to do. I read the DEIS. I admit that I didn't get too much detail into the hydro geological or geological stuff; I stay away from the scientific stuff, but on a holistic basis, it seems to me that it is almost inconceivable to me to think of or develop a set of facts and circumstances where implementation of the Brynwood plan would adversely affect this community. I just don't see it.

I understand that on a detail-by-detail basis, there are obviously legitimate concerns, but I would ask everybody to look at it on a from-the-top-down basis and think about what the overall impact of the community is. In my opinion, it economically, environmentally, from a community standpoint, it is extraordinarily positive.

The last point I want to make is that I happen to be a practicing attorney. I practiced about 30 years. One of the most important things I have learned as a result of my practice is that it is very important to know who you're in business with; to know who your counterparty is and to understand the character of those people.

On a personal basis -- nobody has discussed this tonight, I happen to know many of the principals of the Brynwood group. I know Ed for about 20 years. I worked with Jeff Mandel and most of the other principals.

Personally and professionally, I find them to be people of extraordinarily high character and I have no doubt that this board will never be disappointed if they make a commitment and comply with it.

That is about all I want to say. In terms of closing, I very much endorse the plan. Thank you for your time.

MS. CURRAN: Next is Mike Oestreich, 13 Maple Way.

MR. OESTREICH: Thank you to the board and the applicant. I want to reiterate a couple of points.

I believe the Rutgers study is somewhat flawed. If you look through the handbook that guides how to use the Rutgers study, it calls for the adjustments to be made not just for the baseline study numbers to be used as was in the case in DEIS.

There have been no adjustments made for the school system excellence, for proximity to New York City and the commutable distance and the fact that there is alternative multipliers such the EULI and others that could be used to take into effect what would happen and the impact from the development, but more importantly, whether the developer is right or there should be some adjustments, I don't see why we should play Russian Roulette with our town finances.

If you do go forward with the condo form of ownership which I think is a mistake, I would ask that you consider mitigation or things like escrow and bonding of the developer's projections. Why should we bear all the economic risk even for a defined period of time?

I do think the condo form of ownership is inappropriate for the site and probably for this community. I do think that empty nesters deserve a place to go and I think that town planning is best done outside of the applicant's application and that there is a town plan. It was updated. It didn't contemplate this type of development at this site and that if we want to do developments of this nature, we as a community should come together and perhaps place this in a business park, and other spots should consider different types of housing, but we shouldn't do it inside the confines of an application. I think it was a fundamental mistake to take this application into the process without first resolving the zoning.

I think it sets us up for future issues. There are plenty other sites in town that can be transformed into condo's.

You guys would be well served and I think the town would be well served to look at the process differently. It shouldn't be through a developer's application.

I also think that -- I don't want to touch anymore. That was it. Thank you.

MS. CURRAN: Next is Pete Weiller, Windmill Road.

MR. WEILLER: Good evening, Pete Weiller, Windmill Road, 49-year resident of Armonk, very proud and happy I made that decision. I think this is a fantastic place to live.

However, I think our town board is not doing their due diligence in this particular case. Now, we are talking about spot zoning changes. We have the Armonk Tennis Club down the street which would love to see this happen so they could start building.

This is a flawed idea to begin with.

The developer seems to be promoting this golf course as the utopia that everybody is going to run to. I don't know how many people -- this gentleman from White Plains seems to like the course and he is obviously a golfer and good at it and probably stronger and younger than I am. I am not only a empty nester for a lot of years, but I am

considerably older. This has no appeal to me and it can't imagine it appealing to the average person over 55.

When you get out of the golf cart to address your ball, you have to walk up or down a mountain or slope. It is a lousy golf course. They say they are going to fix it up and sell it to lots of people, but the fact of the matter is that it is a highly competitive market. I think that has been brought out by everybody and in this environment, to think they can make this golf course economically sound to me is a crazy idea.

If it doesn't work, then all these numbers go out of the window and we are stuck with a bunch of property, not even completed condominiums that aren't paying their fair share. There is no golf course paying these taxes, and they also want to turn this into, I believe some sort of event situation. They talk about it being a help to the community. I am not so sure that having a couple of hundred people there on the weekends is a help to our community. I don't know where the

hundred people who are going to be employed come from, but I doubt they are coming from North Castle, Armonk, so I don't know where that fits into this discussion.

I don't know that the developers have exposed to any of us that they have experience in building this kind of development. Whether they have built developments around golf courses and what they know about the golf course business, they seem to be promoting through name or finding people and so forth, but I am not sure these developers have done it, nor do they care about the golf course. They want to sell the 50 or 80 units and then I think they will abandon ship and leave those people there stuck with supporting this golf course. That seems to be what happens in Florida, and these developers are from Florida. As soon as they sell all the units, they try to turn the golf course over to the residents and how they will support this with a minimum number of residents, I have no idea.

I am also concerned that Mr. Ferrari -- I don't always agree with him, by the way, but

I am concerned that he brought up the fact that there's members of the town board that have conflicts in terms of contributions. I really think this has to be addressed and I think the Armonk community wants to know about this. This is a dangerous precedent. It kind of smacks at a lot of things we read in the newspaper every day which are kind of ugly. I suspect you should do that immediately. I don't know where you stand on this, Roland, but I think this is within your bailiwick. I see you every morning when I walk, so I know you have a nice dog.

I would like to talk again a little more about what the last gentleman said which is, if the developers are so sure that these statistics are right, will they back it up with funding and bonding and things that leave the town in more secure positions so they are not left holding the bag?

I am in great fear we are going to be holding the bag and they will walk off and make some money. I don't know why we should be paying for it.

I think the whole project needs to be rethought out and obviously it looks beautiful on papers because pictures are magnificent. I was in advertising. I sold this all my life and you can do an awful lot with a picture. I don't understand how they think they will sell this golf course to senior citizens of 55 and over, people that -- the units are too big to think they will only be occupied by empty nesters. I think it will be a place that young families will move in and start sending their kids to school.

You can gather from all this, I don't like the project the way it is designed.

We have had our problems with the Canyon Club going bankrupt. All of Westchester has its problems with country clubs going bankrupt and this might very well be the next one in line. Thank you.

MS. CURRAN: Next is Frank Benish, 9 Sterling Road North.

MR. BENISH: Hi, I am Frank Benish.

Tonight we heard a lot of hypotheticals, what if's. Hypothetical

scenarios that basically make this a project that can die from paralysis by analysis. If we don't move forward and let our town progress to the next step, then we are all stuck with tumbleweeds in the end.

I was thinking about this analogy today. We have been down this road before very recently. Think about CVS, think about the A&P. There was a huge uproar in the town against putting the CVS in. Now what do we have? We have a legal limbo of CVS that is not being developed. We have an eyesore sitting in the middle of our town where the A&P used to be.

We cannot let the process get highjacked by a vocal minority. For you people watching tonight, I would advise you to contact the town board and tell them that you support this project because I will tell you something, no one is thinking about what the alternative is.

The developer has the right to build 50 houses; that is the zoning. That is going to equate to -- Stuart, in your analysis, 50

houses, how many kids going to the Byram Hills schools? Just a number.

MR. KOVENSKY: I can't answer that --

MR. BENISH: Okay. It is a tremendous amount of burden on town services and overall, the fire department, the police department and every other service you can possibly imagine. Be realistic. Think about the future and think about what the alternative is.

Getting back to CVS, the main question should not have been, do you want a CVS? Because I don't want a CVS, but the question should have been, would you rather have a CVS or an eyesore sitting in the middle of Armonk?

Getting back to this development, if the developer -- we should learn that when a developer says they are going to do something and they threaten to do it, they are going to do it. They have a legal right to do it.

We need to really wake up and try to preserve this open space for what it is -- by the way, I am in support of maybe putting up a bond to preserve the town's rights as well. That, I agree with. But we can't just condemn

this project in a hope that we can sort of sprinkle fairy dust on it and it continues the way it is.

Since 2006, 499 golf courses have

closed in our country. In 2012, 154 golf courses closed alone, so the pace seems to be accelerating. The golf course model, as it stands right now, does not work in today's economy.

So in order to sit -- to keep this as open space, think about the alternatives. All right. Let's say the town board shoots this down. Brynwood could turn around and build 50 major mansions. Your taxes can go up 25 percent and your school district will have a boom in enrollment again. We have to look at it, like Stuart said, holistically and think about what the alternatives are if we just base this own emotion.

I am going to say one thing in a final statement. Mike Ferrari was right, by the way. This is the political season and maybe there is a lot of political football being played back and forth in the background that

none of us can see, but I can tell you one thing. I read all about Armonk this week. Mike Ferrari said -- and we know that Michael Schiliro is running for town supervisor.

I don't think they should play politics with this. The town board should do what is right for the town and the town board should think about the future and the ramifications of what can happen if we let a vocal minority hijack this process; it grinds to a halt and now we are stuck with mega mansion village.

Thank you very much.

MS. CURRAN: Next is Amy Zipper, One Oak Ridge Court.

MS. ZIPPER: Hi, I am Amy Zipper. I live at One Oak Ridge Court. Thank you for the opportunity to be here this evening.

Before I begin what I wanted to say, I just wanted to point out that it is not a zero sum game, that we end up with either this project or nothing, like an eyesore. There are other alternatives and the town, the planning board and others have the authority to make them put in less than 49 homes and to

build a more reasonable development than what we are being led to believe is the alternative tonight. But what I would like to say, on behalf of myself and my young children in the school system, is that we all have to think about our legacy in life and what we leave behind, whether we are leaving a board, a plant, a company, and the legacy that the board tonight will leave many of us who live in this town with is not a good one based on the proposal as it currently stands.

I would like to go through what I think that legacy will be to those of us who will be here for hopefully 49 years, like some of the previous people have been.

The first is the legacy to allow certain residents to pay less than their fair share of taxes.

I work hard, really hard to pay a lot of taxes in this town and to support my family. I don't think it is fair that other people, for no reason, should pay less than their fair share. There are other places in town that pay just as much.

There is an alternative to this. The alternative is not nothing but townhouses, just as nice, just as beautiful, just as easy for empty nesters around the world to live in. There is no reason why we can't have townhouses as well that pay their fair share of the taxes.

The second legacy is a burden on our infrastructure. There are 88 condo's coming in; 88 more families at a time when our infrastructures are already dilapidated. I don't know about you, but I have traveled around the world and have seen third world countries that have better roads than we have here and I am not exaggerating.

If this goes through, there will be a lot more traffic on the road and a lot more burden on our emergency services at a time when the new facilities are going in, which means you will get a slower response time when you call 911. Unfortunately, I have had to make those calls for my children's medical issues, and I hope I don't have to make them again, and I don't want to have a delay and I

certainly don't want tax increases to have to support additional paid members of the fire department and the emergency services team. That is the second legacy which is an additional burden on our infrastructure.

The third legacy is a burden on our

schools. If, as this gentleman pointed out, these developers are of such great character and what they say is true, they are really developing this for empty nesters and people who are 55 and older, then why not put that in writing? Why not make a restrictive covenant that makes that the case?

I am willing to support this proposal with those types of restrictions, that it is only for people that are 55 and older, and then I don't have to worry about my kids' education, one of the primary reasons I moved here, being burdened. It is an easy solution.

Then I would like to talk about the legacy of an inappropriate political process. This is not anything personal against anyone, but I am a firm believer that politics should be done with the proper motives in place.

There is a serious question in my mind when political contributions -- campaign contributions are made to members of the board by people that don't even live in the town who had no other reason to make the contributions than the development of their project.

So I think that it calls into scrutiny why certain board members are viewing things a certain way and should seriously be evaluated.

To be clear, I think we can have a great community with a strong legacy that combines young families who pay their fair share of taxes, along with empty nesters who pay their fair share by tweaking this plan in a way that allows for townhouses; that puts age restrictions of the people who can live there and that reduces the number of units. That is a more reasonable solution. It is not all or nothing. There is a more reasonable solution than what has been presented to us tonight.

I know for myself and for my young children, I respectfully request that you reject the proposal in its current form. You

think about all the young families in this town that will have to live with the burden for years to come that you're putting on us.

There are a lot of good changes that can be made. I am thankful there is now a grocery store, so I don't have to travel miles and miles after a long day at work. In its

current form, I don't think this is one of the
good changes. Thank you.
    MS. CURRAN: Just to update, there are
six more speakers.
    Next is Bruce Wenig, 58 Cedar Hill
Road.
    MR. WENIG: Hi, Bruce Wenig. I work
for Rakow. We are a commercial real estate
group.
    One of the things I want to say is,
over the past 25 years, what has happened with
the town -- and I am surprised Mike said what
he did, is you had a bowling alley in
locations that were very valuable that turned
into a zero tax basis.
    So Brynwood, when it was Canyon Club
was a cow pasture. So right now, it has

turned into a beautiful golf course which
potentially can be a benefit to Armonk for the
houses, the value of the houses.
    So when I am listening to everybody at
Windmill say how the taxes are 50 percent,
everybody in Windmill has the right of moving
into this complex. So, you know, you can

clap, say whatever you want, but these houses will be going for over $1 million. When I look at comps of some of the houses that go for sale today, they are 6, $700,000. So I don't know if you're paying too much in taxes; maybe grieve them and the town will be collecting less tax, but to let this not happen, one is, they don't have to build 50 houses. They can also do nothing and that is actually what is happening.

So you can fight it and fight it or you can let it happen and have your kids have a place of employment, which I don't know if anybody has been there, but I think it is a big plus, and I think to let this fail would be a big, big loss.

MS. CURRAN: Next is Chris Fugazy.

MR. FUGAZY: Chris Fugazy. I am a resident of Pelham Manor and a member of the Brynwood advisory board and a club member since 2010. I wrote to a number of the board members since last September. I am here tonight to share my thoughts as a Westchester county resident, as well as a golfer.

The county has many fine clubs and

courses, but like others, I have chosen Brynwood as a terrific place. It is a unique property and one that definitely will not be replaced, if lost to a single home development. It would be a devastating loss to all of Westchester County, not simply North Castle. The economic activity of this club will be lost to other facilities in the county and those communities.

Golfers are a funny bunch. We take enormous pride in ownership of our golf courses and consider ourselves the stewards of the property. We are pretty passionate about this course, and we urge you to do everything in your power to enhance this land. If you have never seen a Brynwood sunset, I urge you

to go over sometime in the next few weeks late in the day as the sun is setting and stand on the pool deck or walk over to the 18th green. The unique beauty of this property will become quite evident.

This development plan will not only preserve the special green space but make it even greater for future generations. As I said, if we lose this golf course, nobody will replace it. That would be a tragic comment on the collective stewardship of this great land and our obligations as county residents.

Thank you for your time and consideration.

MS. CURRAN: Next is Ed Goldin, 11 Sarles Street.

MR. GOLDIN: My name is Edward Goldin. I live at 11 Sarles Street.

A few comments from some things that people said and a few prepared comments I made. In regard to the hilly course, a good golfer can hit a golf ball if you just choke up on the club.

Comments about the fire department and

tax revenue. More people -- if we have people coming into this, hopefully we have people coming into the community that maybe want to be volunteer fire department members. So more people coming in there may actually mean more volunteers. It also may mean more tax revenue to help fix the roads that have their problems.

Another issue. Making accusations --

just so you know, I am a dentist. I am a medical professional and making accusations from something you heard someone else say is a dangerous thing to do. If I treated my patients based on hearsay, I would lose my license. I think it is cowardly to make such accusations and promptly disappear.

Anybody who knows anything about research knows that all research studies are flawed in some way or another. The Rutgers studies and this study, we have to use the best evidence we have at the current time and make the best decisions we can based on the evidence we have.

Nothing is in the best interest of all

members of any community. That is why we have these meetings, to discuss these issues.

We need to know that the actual taxes paid by these new owners is -- it is one of the things we need to find out from the board. There are so many things being thrown around, so many numbers thrown around that we don't know what the actual numbers are, and I agree we need to know those numbers.

On the empty nesters issue. Empty nesters we heard just this evening said they won't be here half the year. So maybe taking half the taxes is reasonable for somebody here only half the year. If you want that deal, if you like that, then move there. Okay.

This place is going to fill up so fast at that rate, you will have no choice but to buy in Whipperwill Hills or Cider Mills. People will be waiting in line to get into the Brynwood Development. Those opposed to the Brynwood vision, I think may be the environmentalists.

With this open space, may the dear eat heartily from your gardens.

All right. My family and I have been members of Brynwood for the past three years. The club has been a great introduction to our guests and friends that come to visit.

I run an annual golf outing for dentists each year that has been very successful. We just had an event a few weeks ago and some friends at the outing have said, I wish we had a place like this near us.

Armonk is already the envy of many

surrounding areas with great restaurants, a beautiful new grocery store and even a world class art show. Two top tier country clubs would round it out nicely.

I know if there are new condominiums and there is more tax revenue, there will be more people to spend more money and that will support our local businesses. I know that 50 individual houses will bring more families with more commuters, more cars during rush hour, but club condominiums will bring more retirees to travel at off-peak times. Due to the cost of purchasing and associated club fees, most of these units will be purchased by

empty nesters. I know there is concern regarding the larger units and that families might move in. I refer you to the school situation and suggest that the school system can absorb the small amount of new kids that may result.

Brynwood has been a job creator, a good neighbor during storms, a local events venue and a special valued land in the Town of Armonk. Perhaps there can be some modifications to the plan to make it more palatable to more people.

Some people suggested maintaining the status quo and leaving Brynwood as it is. This is not an economic or viable option. Developing the Brynwood property at this point has only two options. Although people have come up with other situations here, it seems at this point there are likely only two options. Fifty houses and the construction of open space ecosystem or the Brynwood vision which will preserve the open space, create a commercial element, limit traffic distractions and bolster the Armonk economy.

Thank you.

MS. CURRAN: Next is Kerry Kazak, Windmill Road.

MS. KAZAK: Good evening. My name is Kerry Kazak. I am chair of the town open space committee.

We are still in the process of working our way through the many topics and materials in the DEIS and we will submit detailed written comments later in the comment period, but there are a few points I would like to bring to the attention of the lead agencies.

First, the DEIS now contains references in several places to place a conservation easement or deed restriction on the property to protect the open space. However, it does not elaborate on the specific terms of the conservation easement and who specifically will hold it.

Furthermore, and what is of greater cause for concern, is while the DEIS now mentions the conservation easement, the proposed zoning text amendment has not been modified to reflect the conservation easement

that Mr. Weingarten promised the town board on videotape at the start of this process on September 22.

When you look at the actual words they proposed to amend the code with, they are not protecting it forever but only for so as long as the golf course community exists. Under their proposed language, if the golf course ceases to exist, protection of the golf course goes away, and they can attempt to develop the remaining 141 acres, in addition to the 88 homes on the 14 acres they will have already built. It is time to make the language match what the applicant promised in September. I am not sure what the hold-up is.

Second, I would like to address the site's specific wildlife analysis that the applicant was required to do.

Specifically, the applicant has to conduct a site specific analysis of migratory wildlife which includes an assessment examining the breeding habitat, transitional staging areas and travel lanes. The DEIS reveals that the site specific analysis

conducted by the applicant is grossly inadequate and needs to be redone.

First, the site visits conducted by the applicant concerning wildlife did not occur at the times required to maximize species attached, resulting in insufficient and inaccurate data collection.

To be done correctly, the surveys must be done during breeding seasons which occur from May to early July. The applicant, however, conducted field visits during fall of 2010, which is three years ago, fall of 2012 and January and February and March 2013. One additional field visit was made in April 24.

In the DEIS, the applicant writes that "The highly mobile and seasonal nature of avian populations contributes to the difficulty of verifying the presence or absence of individual species."

I would submit that the difficulty of verifying the presence or absence of individual species on the property was because none of the applicant site visits were conducted during the breeding season. It is

difficult to find migratory birds that arrive in the spring when you conduct a field visit in the dead of winter.

The same is true for the data collected or not collected, as the case may be, for amphibians and reptiles on the property. Proper field conditions for amphibians should be conducted between late March and late June, which is right now, and field surveys of reptiles should be conducted between April and June. However, they were conducted during the fall and winter and one day in April. No site visits were made in April, none in May and none in June. The result was inaccurate and insufficient data was collected.

Not only were the site visits conducted at the wrong time of year, but I also asked the lead agency to note that the persons hired by the applicants to conduct the field studies were not qualified to do so. One of the data collectors owns a architecture and design firm and the other is a licensed landscape architect who works for him.

When we commissioned the study to be

done of the area west of I 684 to 287, we hired biodiversity experts and the study was collected by field herbal biologists. We didn't use landscape architects.

Because the applicant didn't conduct the site visit during the correct time of year to collect accurate data from the species on the property and because the data collectors were not sufficiently qualified to do so, I ask that the agency find that the applicant failed to meet the requirement in the documents as to how the site visits be conducted.

Another item I like to bring to the attention of the lead agency is that the applicant states that "The information format and conclusions in this section rely heavily on the North Castle biodiversity plan."

As a member of the team that commissioned the biodiversity plan, I will explain why it can't be relied on to analyze the species on the Brynwood property.

First, the biodiversity plan is set in an area comprising approximately 970 acres on

the west side of 684 consisting of the preserve, seven springs and private homes and approximately 30 acres on the east side of 684 on Baldwin Road.

The study described I 684 as "An insurmountable obstacle for the vast majority of species that bisects the Town of North Castle into two separate ecological zones; one to the east and one to the west of I 684. Because it is an insurmountable barrier for reptiles, amphibians and many mammals, you can't assume that the species found on one side of the highway are the same ones found on the other side of the highway.

Furthermore, the majority of the area is very wooded, so clearly certain species found in that area won't be found at Brynwood. That is another reason why a biodiversity study can't be applied to Brynwood.

Bottom line, it is simply wrong for the applicant to use a biodiversity study. When I look at the DEIS section of the site specific analysis, I see the applicant was just interested in getting it done. They weren't

interested in doing it right. I ask that you require the applicant to do the study right.

As noted above, we will have further comments as we continue our review of the DEIS. Thank you.

MS. CURRAN: Next is Tony Futia, North White Plains.

MR. FUTIA: Tony Futia from North White Plains. I sat here tonight and I listened. I am going to comment to some of the issues that were brought up tonight as someone that doesn't live very close to this project.

First of all, we are talking about condo's a lot.

Now, I was on the Valhalla school board in the '70's. We do have condo's in North White Plains and in the Greenburgh section of the Valhalla school district and it is not a good thing to have.

Well, what you have to do is to go after your elected officials at every level of government, which no one is doing, and have the law changed. It is unfair and we can do something about it if enough people get behind

it. So that issue is what it is. It can be changed and if we just sit here and complain about it, it is never going to be changed.

Traffic. You have got traffic problems all over. I got problems in North White Plains just getting from one side of 22 to the other side, especially when people are going to work and coming home.

There is problems up here because when the roads were developed, they weren't developed for this kind of development. So we all have to live with that and make the best we can do with it. You just can't stop development because maybe we got a few more cars on the road. You got to look at better traffic signals and traffic controls and that is the way to have to address that.

Three, I listened to good arguments on both sides. The town board has to really look into those issues. That is important. Everybody needs a fair hearing. So let's listen to them and -- you know, some of them didn't make much sense to me, but, you know, still have to look at it.

I have watched -- I have attended town board meetings for almost 50 years and almost every town board meeting. I worked for the town for 44 years, so I have been pretty closely involved in what goes on in our town. I have watched these small groups in different areas. I watched the problems that they have when we have big projects and -- in fact, you probably wouldn't -- because all those kids would go to private schools. They wouldn't even go to Byram Hills.

I watched it when -- the A&P. I mean, a group of people complained and it didn't happen. So what do we have now?

Small groups of people.

The mulch pile behind town hall. These are past administration's disasters. The bowling alley, that is where the supermarket should have been; enter and exit off Route 22. The most ideal place for a supermarket in town and because a small group of people that lived next door didn't want it, it didn't happen because that board at that time was looking at 200 votes, and that is all they were

interested in. So it wasn't the best deal for the town, but that is what is happening.

If any of these projects would have been sent to a referendum town-wide, they would have all been successful, but the small groups working together for selfish reasons don't want it.

I mean, nobody wants something next door. It is just human nature. That is the way it is. I watched it for 50 years. They move in; they want to close the door. Nobody else should move in. That is really the problem.

Contributions. I heard a developer here tonight talk about contributions, but he didn't mention anybody's name. I think that is unfair. If he is going to bring it up, bring up the name. If people are giving contributions, you can see who they are. I have been around the block a lot of times. You have got to watch the developers that are putting the money under the table that you can't afford. What are they getting? That is where the action is, and you don't see any of

it. It happens all the time, and over the next few months, I am going to bring up some of those kinds of deals because I was here. I watched it. Don't be conned by a few people.

That is basically what I have to say, but the town board has to look at how did this project affect the entire Town of North Castle? Not just one road, not just one little area, but what is the impact on the entire town? Is it good for the entire town or it isn't? That is the only decision they should be looking at right now.

Thank you.

MS. CURRAN: The last person to sign in is Ed Lashins, Stone Hollow Way.

MR. LASHINS: Good evening. My name is

Ed Lashins. I am a resident of the town. I have actually been in business in town for about 40 years. I am the original developer of Business Mart Drive.

First of all, I would like to say that it is most appropriate that I follow Tony Futia because having my office next to the sewage treatment that he has run for 30 years,

I followed him a lot seeking better air quality, but what I am here to talk about now is just the issue of condominium versus fee simple.

There are a lot of inequities in our tax system. For example, homeowners get -- who have mortgages are able to write off the interest on their mortgages. Renters don't have that privilege. On the property tax system, older homes are taxed at a much reduced rate as compared to newer homes.

One thing that has always been a little bit of an irritant to me is commercial properties get taxed at a higher rate to full value than residential properties do. The law in New York State is inequitable. It allows condominiums and co-ops to be taxed as rental apartments, not based upon their market value but based upon when the yield as a rental unit. It is unfair, but it is the law and just as anybody might take advantage of other inequities in the law, I think that the developer in this case has every right to take advantage of this. It should not be held

against them.

I think that the town should look at the fiscal impact in its totality and not get hung up as to whether the -- it is unfair for them to be taxed as a condominium rather than as a fee simple owner.

Thank you.

MS. CURRAN: That is all the speakers we have.

MR. WEINGARTEN: Our comments were limited at the beginning. We would like to point out a couple of things. I think Mr. Lashin's comments were very appropriate with respect to the condo versus fee simple, but I just want to say a couple of things.

People are not while they say given certain specifics, really looking at the math.

So to give a little bit of math, the Armonk school system estimates that it costs $27,000 per year to educate a student in North Castle. That is a lot of money. It is more than most everywhere else in Westchester County.

We estimate six school children out of the 88 condominium townhomes. If you do the

math, that is roughly at $27,000 per around, $176,000 per year. The reason I give you that number is that because if you look at it annually, we have $1 million of school taxes going into the schools.

If we are wrong by double, as some of these other places were wrong it was pointed out, there is still hundreds of thousands a year ready for the Armonk school district every year. If we are wrong by triple, there is still hundreds of thousands of dollars a year left over in net revenue for the Armonk school district.

It is very important for you to look at the math and not just hear the studies are no good. You can pick apart any study, but the bottom line here is 88 townhomes. These are

not single family homes. They don't have
backyards. They don't have play areas. There
is absolutely no reason for these people to be
buying these if they have homes. It is not
what it is targeted for, but even if the
Rutgers study is flawed by double, by triple,
there is plenty of money left over for the

school district. We think that is important
to point out.

Also, I want to mention many of your
neighbors do have condominium complexes and it
does not threaten them. There are townhomes,
and the reason for this, for the condominium
change, and you may disagree with state law,
but I remember when I was first married, I
bought a town home that was in Chappaqua that
is not a bad place to live, and I moved there
because I wanted to live there because I
wanted my family there and all I could afford
was a townhouse. Just as some of these empty
nesters are saying the only thing they can
afford is a condominium.

I moved into Chappaqua and I wanted to
be this and I paid less taxes and I got in and
you know what, when I got done a few years

later, I bought a big house because I could afford it then.

A lot of the things behind the state law and behind these so-called inequities is to create a diversity of housing so that your community is able to support more than just

you who can buy a multimillion dollar home and live in this community. So it is not fair to say that there is only one reason here and there should only be one way to live and one way to pay tax. I think frankly, that is why Albany has not made those changes and you can agree or disagree, but there is a rationale behind that.

A couple of other small things. The numbers. The golf course right now pays $300,000 a year in tax and with the additional investment in the golf club, it is the $500,000 and I can't stress enough as I did earlier that when you compare this, this is a commercial component together with the residential component and that is why even with the reduced taxes in the condominium that so much money is left over for your school district.

In addition, there was a suggestion that there is no analysis of the 88 single family units without the golf club. That is not accurate. It appears at Roman numeral III.N-21. We will ask this specifically in

writing in the FEIS, but all of these things, we didn't make up what needed to be studied. It was done after a public hearing. These comments took place. We answered the questions. It is not something to apologize for. It is hard to digest all of that and that is why we will answer you in writing, but those things when it was suggested tonight that they are not studied, they are studied. They are in there, and a fiscal impact analysis without the golf course exists.

There is a suggestion that this is a disaster; people are going to move out of their homes and people are going to move into Brynwood, and people with kids are going to move into these other homes. That is going to happen anyway. These are your seniors. If they don't move into Brynwood, they will move elsewhere. That is what happens in your community. People move out of their homes and new families come in.

Finally, I will also mention with respect to the conservation easement, it is accurate. We made a comment. We stand by the

Proceedings

comment that was made in the hearing a few months ago. It is typically treated within the time of the findings that the conservation easement itself is drafted. We have made the public statement, and we continue to make the statement that it will be in perpetuity, as we said the last time, and we will make the changes and we will draft the documents when the town feels it is appropriate, but we have not changed our position with the conservation easement.

Finally, there was some comments with respect to water and traffic. Suffice it to say, the DEIS has shown that the water is sufficient on the property to be able to take care of the water needs that are being created by the new homes, and that is what the DEIS states.

With respect to the traffic study, not

a single intersection will change its level of service which is the type of study that is used in New York State when we analyze these types of things by this development, not a single one.

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So people can say we are scared and there is going to be more cars and changes, but the fact of the matter is, we believe these 88 townhomes with people who will be -- required to be members of the club will create a better traffic environment than the 49 single family homes.

I thank you for your time. We look forward to the continuation of the hearing and we look forward to talking to the community about many of the good ideas that came up tonight.

Thank you very much.

SUPERVISOR ARDEN: Thank you all for coming tonight. Again, you can post your written comments to us within the next 30 days.

(Time noted: 9:25 p.m.)

Proceedings

C E R T I F I C A T E

STATE OF NEW YORK)

: ss.

COUNTY OF NEW YORK)

I, BARBARA DRISCOLL, a Shorthand Reporter and Notary Public within and for the State of New York, do hereby certify that the foregoing proceedings were taken before me on 27th day of June, 2013;

That the within transcript is a true record of said proceedings;

That I am not connected by blood or marriage with any of the parties herein nor interested directly or indirectly in the matter in controversy, nor am I in the employ of any of the counsel.

IN WITNESS WHEREOF, I have hereunto set my hand this 8th of July, 2013.

BARBARA DRISCOLL

APPENDIX B

THE TOWN OF NORTH CASTLE, NEW YORK

BRYNWOOD GOLF AND COUNTRY CLUB,

DEIS SCOPING SESSION

WEDNESDAY JULY 10, 2013 7:30 P.M.

TOWN HALL
15 BEDFORD ROAD
ARMONK, NY

PRESENT:

HOWARD ARDEN, Supervisor
MICHAEL J. SCHILIRO, Member
DIANE DiDONATO ROTH, Member
JOHN J. CRONIN, Member
STEPHEN D'ANGELO, Member
ROLAND A. BARONI, JR. Town Counsel
ADAM R. KAUFMAN, Dir. Planning Dept
ANNE CURRAN, Town Clerk

July ten, 2013. Brynwood golf and country club DEIS

MR. ARDEN: Good evening everyone. We'll get started. I'll open the July 10th Town Board Meeting of North Castle with the Pledge of Allegiance.

(All stand for the Pledge of Allegiance.)

MR. ARDEN: Do you have any public announcements?

MS. CURRAN: I do not.

MR. ARDEN: Steve?

Mr. D'ANGELO: No.

MR. ARDEN: John?

MR. CRONIN: No.

MR. ARDEN: Diane?

MS. DiDONATO: Not today.

MR. ARDEN: Mike?

MR. SCHILIRO: No.

MR. ARDEN: I won't break the trend so I have no announcements either. I'd like to hear a motion to approve the Town Board minutes of June 11th and June 26th.

MR. D'ANGELO: I'll make that motion to approve the minutes.

MR. ARDEN: All in favor?

(All affirm with aye.)

MR. ARDEN: We will be moving right into reconvening the Brynwood public hearing.

MS. CURRAN: I have a couple of announcements -- notations. This is a continuation of the public hearing that was adjourned from June 27th and the following correspondence has been received since the June 27th hearing. A letter from John Clem dated June 28th. Two e-mails from John Gratta dated July 6th and July 10th. A form letter received July 10th, the signature is not readable and an e-mail from Mitchell Cohen received July 10th.

MR. ARDEN: I'd just like to go over the ground rules as we did last time. So this is the continuation of the public hearing for the Draft Generic Environmental Impact Statement on the Zoning and Text Amendment. The purpose of this public hearing is to hear comments from the public. The Town Board's role is to listen to all comments and to all points of view objectively without both written and verbal. The Town Board will take no action or position until the hearings are closed and the final environmental impact statement is received. Please try and limit your talks to five minutes. If you need additional time at the end after everybody else has a chance to speak, we can back up. There will be written comment received for thirty days from this meeting and that falls on a Friday. So we are extending it two more days to August 12th. So it's quite a long window.

Is Jennifer here? I'd like to have Jennifer from the law firm of Keane and Bean to come up to tell us a little bit about the procedure just run it over, so the public has a good understanding of the steps involved. You need to take this microphone. Jennifer Gray.

MS. GRAY: For the record, my name is Jennifer Gray. I'm an attorney with the law firm of Keane and Bean and we represent the town tonight as special counsel for this application. So we are in the middle of the SEQRA process as you all know to the public hearing on the environmental impact statement. Should the Board choose to close the public hearing tonight, the written public comment period will be left open for a period of thirty days as Supervisor Arden just mentioned to August 12th. What the Applicant will then do, is the Applicant will take all of the comments that have been received, both written and verbal. There is a court stenographer here who has been taking down verbatim everyone's comments at the last public hearing and also tonight at this public hearing. The Applicant will have to respond to every single one of those comments in writing in what's called a Final Environmental Impact Statement. The Town will have an opportunity to review that Final Environmental Impact Statement when it's submitted in draft to determine whether the responses are sufficient and adequate. The Town Board will then decide whether to accept that Final Environmental Impact Statement and then the Town Board will be charged with the responsibility of preparing a Finding Statement which will be the conclusion of the SEQRA process and that will set forth the Town Board's conclusions with respect to whether the mitigation measures proposed by the Applicant have mitigated all of the significant environmental impacts to the greatest extent possible.

So that's sort of an outline of where we've been, where we are now and where we are going in the SEQRA process. I can answer any questions the Board may have.

MR. ARDEN: Thank you, Jennifer. Barbara, is there a sign-up list?

MS. CURRAN: Yes. I would like to remind anyone who comes up to speak, to speak at this microphone for the court stenographer. The first person that has signed the list is Pete Coviello.

MR. COVIELLO: Good evening. I'm Pete Coviello. I'm at 4 Valley Lane in Armonk. I think one of the things that is really missing from the environmental impact statement in draft form is the study of what seems to me to be a likely scenario which would be a high density development but one that, despite the stated intentions of the developers, doesn't have a state of the art golf course and white glove service and is more similar to perhaps like a like a Whippoorwill Hills or Whippoorwill Ridge or something like that. I don't see anything in their filings that wouldn't allow them to do just that. I don't see a requirement for them to age restrict or I don't see a requirement for them to maintain the golf course or leave it open or charge annual fees for people who live in these homes. It is important to do this kind of study so you can understand the possible tax impact to the Town so that you can have a better understanding of the number of school age kids, for example, who might be living in such a community.

And to back this up, I would like to submit for the record here some comments, this is from an article in the Patent Trader in 2004 they were referring to the Cider Mill development, which is in our town, and the article states that Mr. Ferrari, who was the developer, reported it would yield seven school aged children and, at worst, eleven school aged children. Some time shortly after getting approval, it was sold to Anteres Development run by Mr. Beneatti. He began to offer homes for sale there and began touting the Byram Hills School District. When asked about the study, he said, quote, I have no idea who did that study. I think anybody who listens to that study has wasted their time and money. Unquote.

Byram Hills School District Superintendent at the time, John Chambers, in this same article said, quote, there's another development in Byram Hills called Whippoorwill Hills that yielded significantly more children than the developer predicted.

This DEIS is over 2000 pages long. It's full of a lot of information. The issue with that information is it can't help but be skewed. The whole business is paid for by developers. There is virtually no one who studies these things or are paid for by neighbors. There just isn't the money. There isn't the backing. It's up to you guys, our Town Board, to make sound business decisions. That's why I think you need to study that. You can't just take them at their word. I'm not saying they have evil intentions at all. What I am saying is, they will do what is in their best business interest. If at some point that means not doing a high-end exclusive development the way they are talking about it, then that's what they are going do. And it's up to you right now to make a sound business judgment. You may have a bunch of studies that you're going to be handed by them. But you have things right here in our community that you can look to for far better information. I'm talking about the high density developments that we currently have.

I'd also like to say that there are a number of things that are still very uncertain and ambiguous in their paperwork. It makes it extremely difficult for anyone to analyze their proposals.

I heard you, Supervisor, say that thirty days from today you would have -- up until thirty days you would have an opportunity to submit written comments. I know that thirty days from the date this hearing closes is the time the written comments can be made and I hope I'm not reading it correctly that you're intending to close the meeting today. I think that would be a great disservice. I think there has been far too little time to analyze all the information they put in. I also don't see how you can close this meeting when there are so many unknowns still out there.

For example, water. They have said on the one hand that they may have water on their property. On the other hand, that they may wish to join water district number two. I don't know what the analyses is of their water. I believe I've seen some things where they've done test wells and drilled test wells. I would find it much preferable if they would tell us which option they are going to go with, which option is more likely. They've had a lot of time to study this. They put together a lot of documentation. Let's have a choice so that we can move in one direction. Neither of them is necessarily bad. I think it's probably very difficult to have a fifty home water district. I think that's probably very expensive. And I think there are also problems, real or imagined, with getting your water from under a golf course. If the way to go is going into water district number two, that's what we should be talking about.

I think the tax treatment is pretty much unknown. They are saying condominium tax treatment. It's seems astonishing that that would be granted. Maybe it's being considered. I don't see the reason or benefit for it.

The language in their easement is very loose. I know the Supervisor particularly noted that the easement language is very important to him. I don't think it would be terribly difficult to fix the easement language yet but I don't believe it has been fixed. When I last read it, I believe it said essentially if the golf course was still not in operation that the property easement would no longer -- the conservation easement would no longer be in effect or something along that line.

That essentially really is not a very solid easement, it's not something you can rely on. I think one of the important points here is if you are going to give them any kind of increase, any kind of density bonus, one of the important points was ensuring that they can't come back in five or ten years or some other owner of the property can't come back at a later point and easily get more development rights on the property and be able to build more.

I'd like to know also whether you have asked or looked into these developers experience in building a golf course community. They have hired -- they themselves are an impressive group of professionals and they have hired a very impressive group of professionals who have experience in the world of golf courses. But I'm not aware of Mr. Mendell or the two partners, the larger out of town partners who he is working with, having built golf course communities. This is something you need to consider. We're asking you to represent our Town and make a sound business judgment. I'd like to know that whether they have experience doing it.

I'll reserve comments. I think I'm around five minutes. I may come back.

MR. ARDEN: Thank you.

MS. CURRAN: Next is Ed Golden. Sarles Street.

MR. GOLDEN: My name is Ed Golden. I don't represent all of Sarles Street, just 11 Sarles Street. Okay. I'll read some prepared comments to keep it brief.

I don't want to reiterate that which has been said by me or others regarding the Brynwood development plan. I'd like to make statements regarding some of the points that were raised at the last town meeting and in the discussions since then. I have been a member of Brynwood since it began in 2010 and my family and I enjoyed it immensely. As for comments made regarding the golf course at the last meeting, I have had many a guest, even scratch golfers, make compliments regarding the challenges our course has to offer. Also, one might note that part of the development includes a major course redesign to make a good course even better.

It seems to me that there is no number of units, be they single family homes or condominiums, that would satisfy some members of this community. The major concern of schools, roads, environment impact, etc. are real issues but not ones that will just disappear if this particular development plan is thwarted. There is also the issue of economics driving the development process. If this group cannot development the property in a profitable way then it will likely lay stagnant again as it did after the Canyon Club while new owners figure a new development plan. As much as we may want them to, things don't stay the same way forever. Growing schools and increased traffic in the face of environmental protection efforts are part of the process of a town's normal growth and development. It is our job as citizens of our community to help guide the process as we are doing today such that the entire town and its amenities are made better for the majority of its citizens. Stagnation rarely increases property values.

There is no solution that suits everyone. Period. Do you prefer a dilapidated yellow barn furniture store or the new Modern Barn and shops? Should the fire station still be on a dangerous curve in the middle of town? Do you prefer the old falling down Sheep Shack or the Armonk Square development? Do you think the A&P with a facelift would have been better than our new DeCiccios? We must move forward.

Contrary to what has been said, this condominium development project is not like any other that has been built in Armonk before. Someone I spoke with the other day said that they predicted this development would end up just like Whippoorwill Hills; they said families wouldn't buy the condos and they did. However, there is a big difference here. These condo owners would be required to pay membership in the club as well. How many people in Whippoorwill Hills would be willing to add a five digit fee every year in addition to their mortgage? I don't think too many.

This vision will bring housing primarily for empty nesters and a few families. It will also increase the value of Armonk as a destination and place to live. People with no of our world class schools, great restaurants and shopping and world class county clubs. This is why you moved here; this is why people will come here and when they grow old will stay here at the new Brynwood. Thank you.

MS. CURRAN: Next is Ed Woodyard.

MR. WOODYARD: Good evening. I have about four comments. I'll keep them kind of short. A couple echo what Pete said. I have some questions about the conservation easement. I believe in the September 2012 meeting which was held at Crittendon, the Brynwood people agreed to protect the golf course from any subsequent development. In looking at the DEIS I don't see how that -- it seems to be a little vague in how that's going to be handled.

I also had some questions about the Perry Court and Blair Road access that was going to be happening, that was proposed and how that was going to be filled out.

Echoing what Pete said about the water. There was test drillings done in May which was two months ago and it seems odd to me there weren't any done prior, even any perk tests or anything like that. There is a part of this reminds me of the great line in

Chinatown which when Jack Nicholson starts figuring the whole thing out and he looks at some very arid land and he says, boy, can you imagine what this would be worth with a steady supply of water, it would be $30 million dollars more than what they would be paying for.

The other issue concerns the kids at Coman Hills. There was a line that was in the DEIS which says the noise and fugitive dust was not anticipated to be significant. I'd like the definition of the word significant. I believe Betsy Gordon who's the nurse there would have some things to say about all the asthma inhalers and all of the students who have respiratory situations. I think that really needs to be clarified. And those are my comments for right now. Thank you.

MS. CURRAN: Next is Earle Yaffa of Evergreen Row and ROWI.

MR. YAFFA: At this point I would

like to address the traffic aspect of the proposal. I'll have some comments later on in the overrule process as other people have talked about. I think each aspect of the DEIS should at least have some cursory review of what we've done. And while I'm not a traffic engineer and there is a lot of numbers in there and they are hard to understand, some of it comes through very clear.

As Ed said, the word significant teams to be a favorite word of the engineers. But without defining significant, the best they could say from all of their traffic studies is it has no significant impact. That to me means it will have some negative impact and no one has told us what that is.

The transportation industry from the study uses a grading system for the level of service. The intersections are projected to fail during this and they have three intersections that are graded F. F is the worst rating you could have. And they are projected, two are already F and one is projected to be F with this. Now maybe once you're at an F, it's as bad as you could get. So it has no significant impact because it's already bad. But that doesn't seem to satisfy me. I don't think the Town Board can proceed ahead on the assumption that traffic is bad. Brynwood will make it worse, but since it's already bad, who cares. I don't think that's a definition that we would go ahead on.

With regard to accident data. They use the same term, significant. There aren't a lot of accidents on the road. There were twenty accidents in each of the last three years, fifteen injuries over that period of time. It won't significantly increase. That doesn't mean it won't increase. Do we really want to go ahead when we run the risk of adding to an area that's already got significant -- I'm using significant too, that already has serious traffic problems.

Looking at the DEIS itself, it's got certain problems associated with it. And maybe it doesn't matter because when the roads are already graded F, again if you fix the deficiencies they will still be graded F. But it does leave something out. It starts with a basic assumption that the 88 units will only generate 39 trips in the morning rush hour between 7 and 9:15. Now they use some standard data for that. To me that's one half a trip per household per day of the families living there. I ask everyone around this room to ask themselves how many trips do they take out of their house between 7 and 9 in the morning. Is it a half a trip a day or I think there are some people even those who access this who may be on the Town Board who will tell you they take two trips a day during the busy rush hour period. So they start with an assumption that's bad. That at least to me is incredible.

It should include a sensitivity analyses because if it is sensitive to that then you shouldn't just use this one point they got from a book. But what happens if they are wrong? What happens if you increase the traffic coming out of there? I do know a little about queuing theory which is what traffic engineers use to study lines and delays and I will tell you that queuing theory says when you add something to a bad situation it doesn't increase linearly. So if you add an extra three trips, it doesn't take three more of what you got but it increases exponentially. They should have some analyses in here, what if we're wrong, what if we double the number of trips coming out of there? What does that really mean? I think that's really more realistic of what this Town is likely to generate. You should look at that.

They include some estimate from the new seminary. They make some reference to data from Armonk Square. But I don't think we can really proceed ahead and know what the traffic impact would be until we really get the supermarket up and running and we get the CVS up and running and they include no estimate for the CVS. I don't know how many extra trips those two things will generate. But they're the two prime shopping areas in town and I think it will be significantly worse than they currently look at.

The DEIS forgets one major intersection. It doesn't include data from traffic turning from Cox Avenue north on to Route 22. I don't know how many of you people have tried to make that turn at five o'clock at night and how long that takes and dangerous that turn is? They chose, and I can't tell you it was on purpose, they chose not to study that. That's certainly an intersection that is already dangerous and will become worse.

They also decided to ignore people turning from Sterling Road or Creemer Road are the residents who own houses on 22. While the volume of this traffic may not be large in terms of its impact on 22, that is a very dangerous turn for the drivers on that road who are trying to either come out and take a left into town or if you are going from the west side take a left turn too. So in either case they ignored that data and they ignored the fact you have households who try to make that turn and someone driving out of a driveway on 22, it's already dangerous, and if you got an increase in traffic, maybe not significant, but an increase in traffic, you'ree only going make it worse.

Ed mentioned the Perry Court and Blair Road. I think that's a fiction. I don't think this Town Board would really go forward to the residents of Blair Court and Perry Road and tell them we're going to building a road there and put a significant number of school buses through that intersection and we're going to have high school kids driving along those roads. There are fifteen residents on each street. If you've taken the time to drive those streets, you'll see they're very residential, they're not at all a thoroughfare. And I don't think it's appropriate to include those as alternatives in the DEIS. So there is really no alternative to Route 22.

And then there is no discussion on the problems during the construction period. I think we've got a three year construction period. We've got some heavy equipment that will be moving into town. Maybe they have an alternative to deal with that. I didn't see it in the DEIS and I think it really will exacerbate the traffic on Route 22. I really think traffic alone is enough to tell you that the number of units that we are proposing is way out of line. Any number of units will make it worse, but the number of units that we've got is double the number of units that they have a right to expect under our zoning requirements. And by doubling it you're just going to make it significantly worse than if they can proceed ahead with a project that at least they are currently zoned for.

I have some general comments but I'll wait for later on for those.

MS. CURRAN: Next is Stuart Fraser of Maple Way.

MR. FRASER: Hi everybody. My name is Stuart Fraser. I lived in Armonk for about 25 years, a little longer. I've had three kids go through the entire school district. They actually graduated college and they actually all have jobs and they've actually all moved out. I live in Windmill. I own three properties in Windmill. I'm a member of ROWI. So I guess in a way, I'm one of the biggest percentage holders of ROWI in a way. I'm also Vice Chairman of Cantor Fitzgerald in the city. You've probably heard about us. Number of our employees live in Armonk. I've encouraged people to move out here because of all the positive things that we have going. I commuted for 25 years. I've been a member of Brynwood and before that the Canyon Club for I think twenty years. I might be the oldest, I hope I don't look it, member there. I give a lot back to this town. I eat here three, four times a week now. Because we have good restaurants finally. I like the value of this town. That's why I bought more property here. I think this project the way it's presented in this format is a very positive thing. I have a number of friends, I'll only speak for myself, I would be very interested in looking at a property there. My lawn guy makes more than I made my third year on Wall Street. Our houses have a certain value and I think a lot of people don't want to own up to that. They don't want to realize that we live in probably one of the richest communities of America. Because maybe then people think you've got to fix the hundred year old pipes under your million dollar house or it's worth nothing. They don't always see the value of what is going on. It's a beautiful property across the street. I looked at purchasing it when it went for sale. I didn't see a big line behind me of people wanting to moth ball it. It does bother me in a way when all people can say is no about things. I think this is a great thing.

I am glad we got past the first wave to this. Everybody deserves a hearing and these hearings and this type of citizenship gets us to the right answers and I hope we are looking for the right answers.

I commuted like I said for 25 years. I got to work on time because I know not to drive down that road at that time. When the road is closed when Sandy hit for four days I went a different route. Oh, Byram Lake Road. There are other ways to do these things. It isn't always no, no, no, it doesn't work and not in my backyard. And in this case what makes it an overwhelming positive for me is I know the people involved. My son went to school with Jeff's kids. I know Leslie. When I go to Brynwood I see everyone else I know from Armonk and I see Jeff there almost everyday and I see the other principal's wife managing it everyday. You know, granted, they could do a Ferrari and sell it off to the guy that bought Arnold Palmer golf tomorrow and they could put up some crazy thing there but I imagine that we'll all do our jobs here and make sure there are certain things that happen and I applaud those people for bringing up those questions. They should be looked at. But overall, a quality golf course is going to make my house worth more. Drawing people over there is going to make our homes worth more. It took me three and a half years to get my pool put in in this town. If that club was built I probably wouldn't have done it. I wouldn't have needed it. So we pick our spots and things like that, but ultimately we really need to get together here and look into proactively dealing with these issues instead of putting ourselves in these positions where we feel like it's no or yes and this and that's the only way to get it done. Like I said, Jeff hires these kids in the summer, he's been very good to the golf team at Byram. When I sell my three houses I don't think, you know, people older than me are going to buy it. Somebody with kids are going to move there too. So you can't just pick and choose and say 55 year old people are going to live here and 35 year old people are going to live here. I don't even know if my kids can afford my house. They can't now. So I think we all have to take a hard look at this.

I applaud everybody from all points of view coming up here trying to come to the right answer. But the bottom line from my point of view is the problems that I see from this whether it's water, traffic, I mean, it's all going to happen no matter what, if we do it with somebody we trust, somebody that's going to do a good job and maintain that golf course and that open space and provide something in Armonk that's just pretty good. I think it's a very positive thing.

On the tax issue, if you don't like the way Conyers are taxed, get your state Congressman involved. My sister lives in St. Andrew's over by the St. Andrew's Country Club, she lives in that complex. Not everybody is a member there. They encourage people to be a member there. Her house is worth, I don't know, a couple of million. Her taxes are nothing compared to mine. But you know what, the guy that built the house on 11 Upland, I know his taxes are a lot bigger than mine. Because my house was built in 1780. If you really want to get to the answer here, there is going to be harder decisions that everybody has to make and I just would like to see a little more of everybody willing to buy into it.

ROWI does a great job. I'm up

here, I'm not one to bash anybody, I pay into ROWI. I wish they'd fix the wall along 22. That's what they're supposed to be doing. And then they can represent us here if they feel they have a group thing. That wall diminishes the price of my house.

The water issues in Windmill that depreciates my house. This new golf course, the whole thing, I think it's going to be a wonderful thing. I think we need it in Armond. We don't have enough of it. I'm sorry if some things happened in other spots. No one liked Wampus Close. Sold out. My sister lived there. She sold it for more than she paid for it. You can't always stop the world. But I mean at the same time look inside yourselves, your house, you're all millionaires whether you like it or not.

One last thing I'll say, I had a kid come to me when my kids were younger. This kid comes to my house and he goes you know, Mr. Fraser, I hear you're one of the wealthiest guys in town. I'm like oh really? Where did you hear that? He goes from my dad. I go really. Where do you live? He tells me. I go you know that house got to be worth about two million bucks. What kind of car does your dad drive? He's got a BMW. Where does he work? Oh. I bet you go home and I bet your dad is worth five or ten million bucks. The kid never asked me another question. If you live in a glass house don't throw stones. We are all wealthy people and you can come up with a good answer for this stuff.

I applaud Jeff and these guys for working with all of us including the people that you want to build something new, so build me something new over here. It doesn't work that way. Yeah, they're going to make money on this. If we didn't make money we wouldn't own our houses and be able to stay in them.

These are people we can trust and I fully applaud what they are doing. I'm supportive of them. I own three houses. And I hope it gets done. I hope I can keep playing there. What would Whippoorwill be like without that golf course? I don't know. We'd never go there. Probably couldn't afford to live there either. Thank you for your time.

MS. CURRAN: Next is Alan Cohen of Meadow Hill.

MR. COHEN: Hello. My name is Alan Cohen. I live at Meadow Hill Place. I lived in Armonk for almost 19 years. I raised three children here all through high school, middle school and elementary school. What seems to be lacking in this process is a little common sense. Everybody has their points of view. Good points of view, bad points of view. But a world-class country club community designed for affluent empty nester and retirees which will enhance this town as both a recreational facility and as a newly designed venue in town for weddings, bar mitzvahs and social events and place for people to call part of Armonk is very important. We can't lose sight of that.

We have a choice, we could have a 49 single family homes subdivision. While this facility right now works, it's tired. I used to belong to Canyon Club. It's better than it was but it's past it's useful life. If North Castle intends to be an upscale community with rising real estate values it must provide more than just high quality schools. You must prescribe amenities and like Scarsdale and Greenwich. We must keep up everything with those villages and towns to be able to get the prices of the houses that we all expect and the values we expect and the services we expect. Losing one of only two country clubs in town is exactly the wrong thing to do.

Also it's been suggested that Brynwood simply make this new community age restricted. Why? I'm the target market here. I can assure you I do not want to live in an age restricted community or be labelled in any way.

Aside from that, age restriction will lower the home values and thus lower the tax revenue. Our taxes are raised every single year for good reasons, for more services we've been given. But we cannot -- we need to lower the tax revenue. Brynwood will add taxes.

I've been present at many of the information sessions and hearings and I think I can summarize the prime issues.

Schools. Approving the plan will generate over one million dollars annually for our schools, with few, if any, school children. One million dollars a year of recurring cash flow to the school system is equivalent to a twenty million dollar gift or endowment. We need that money. We need that money to survive. The alternative is 49 single family homes which will generate easily seventy-five school children and cost the schools far more than they could ever collect in taxes.

Traffic. You don't have to be a traffic expert to know that a community of empty nesters and retirees will generate less peak hour traffic than 49 new single family homes. The homes will have both parents driving to work and driving kids to schools and nannies who will drive and one day the kids will all have cars. That is what's going on in Armonk today. The kids have cars, everybody drives.

How could that possibly have less impact than a community of affluent and semi-retired people that may only need one car and will remain on the grounds for many of their activities such as dining, exercising, playing golf, tennis. Also I know many of the buyers in the community will be snowbirds. They will go to Florida in the winter so the traffic impact will be far less than stated in the DEIS.

If think about what is going on in the world today the demand for empty nesters and retiree housing is the fastest growing segment of the US housing market. It is the market North Castle should be competing for, not fighting to exclude. We need that. That's where we're headed.

Some of the characteristics of the market are affluent buyers, with grown children living elsewhere; possibly North Castle. People who sell their houses want to stay in Armonk. I want to stay here. My kids want to stay here. Few town services are needed as the homeowners association will take care of roads, garbage. This group is a high disposal income with increased spending that will benefit all local businesses.

North Castle has a history of bad land use decisions. I've lived in this town and I've seen good things happen and I've seen a lot of bad things happen. It happens. But we've got to be smart about the choices we make. The bowling alley is probably one that sticks in my craw. A new supermarket would have generated a million dollars a year in taxes. It could have lowered my taxes. But instead it was sold to the NYDEP. It happens. We've got to get past that. We make mistakes. We move forward.

You can't compare any of the things that have gone on whether it be Whippoorwill Hills, Whippoorwill Ridge, Cider Mill. You can't compare these with Brynwood. Brynwood has put together a world class team between the architectural firm Hart Howerton and Rees Jones. They are at the top of their game. Have you seen the types of places these guys have designed and the awards they've won? Check out their websites. We have to do the due diligence in the teams that are there. Howard Howerton did seven of the top ten golf communities in the United States. This could be transformative for our town to have a place at this level of quality. It will put North Castle on the map and it will tell people to come to Armonk.

The A&P and the Westwood recycling center are all examples of or poorly executed land use decisions. Armonk Square is a fantastic project, but the only reason a high end specialty supermarket is there is that the Town Board failed to reach an agreement at the A&P site. We can't make another mistake. Tell the Board to listen to the experts. Brynwood partners is a talented experienced development team that will build a very high quality project if you allow them to.

I want to talk about Windmill for one second. Great community. The project is better than having 49 homes there. You really should think about that. A golf community designed for empty nesters will attract and raise the value of your homes. There will be modern homes with modern proportions and they will be technologically and energy efficient homes. Having a beautiful country club close by is nothing but a plus to your neighborhood. To assume it would hurt your values is totally absurd.

Regarding your water issues. Why aren't you working with them instead of fighting them? The reason you are facing nine million dollar project to replace the distribution pipes in your streets, you can borrow less money in your bond issue and lower every homeowners water expense in Windmill Farm. You need to work together. It's common sense that more participants in the water district means lower overall burden for each household. Everybody in Windmill wants to lower their costs and lower their expenses, not raise them. Seems to me you should be working together not against them.

Taxes. As a taxpayer in North Castle I support the condominium ownership structure as it will result in a much better net result. You care about the net, you don't care about the gross. The gross collections may be roughly comparable to the single family home subdivision but the net result to the Town and school is much better under the condo plan. I've stated that the schools are the big winner and so is the Town. This community will have 24/7 security and the roads, trees and refuse removal will be handled on site. It will not drain the services that right now we get from the Town. The Town already supplies police and fire protection to the property. We can't lose sight that the club itself is a taxpayer. While the condo owners will be directly paying into the form of dues, therefore generating additional taxes. Additional taxes means our taxes could be lowered. I'm sure if you did the numbers you would see the difference between condo and fee simple is much smaller if you think you take into consideration the club's taxes. The club currently pays less than $300,000 in annual taxes. To assume it would be $500,000 of property taxes is reasonable. If you take into consideration they will be investing tens of millions of dollars in completely redoing the entire property. Some people said the club will fail and close and be worthless. Impossible. I'm in the real estate business. It's impossible. The value of the money they will put into the property it will fail. Please use common sense. With millions of new dollars invested in the club, it cannot ever be worthless. It will pay taxes which prime any mortgage put on the property.

Community impact. Brynwood serves this community. During Sandy Brynwood had over hundreds of people using their showers, eating their food. They didn't ask for money from anybody. They are in this community. Byram Hills Foundation they had a great dinner there. How many people went there, five, six, seven thousand people went there? The PBA just had its outing there. My daughter had her Bat Mitzvah there. We were the first ones to have a Bat Mitzvah there. It was a total success. I could not have gotten a better value and I could not have had a better time at that party. I'll be short.

Permanent loss of open space. The proposed plan preserves over 140 of the 156 acres as green open space forever. If you are concerned about the environment this is far better than demolishing the property, cutting down trees and paving a grid of new roads to create a subdivision.

I said it before and I'll repeat it one more time. You have one chance to get this right. We cannot let vocal minorities stop a first class project. We are all in this together. We all live in this community and we want the best for this community to make North Castle more desirable. We cannot stop open space. Everyone loves coming here and seeing green trees and flowers. That's what we live here for. Let's all be smart about this and give serious repercussions of the alternatives. Something will eventually happen here at this property. It's inevitable. Let's make it Brynwood and give this Town something we can all be proud of. Thank you.

MS. CURRAN: Next is Bob Green. And that marks about half way of those that have signed here so I thought maybe we could decide for the stenographer's whether we would take a break after Bob.

MR. GREEN: I'm Bob Green. I live in Windmill. 42 North Lake Road. I think I should start by saying there is a lot of comments I've heard from some people that -- gee, ROWI, I'm a member of ROWI on the board. But I've lived in Windmill for forty years and only been on the ROWI board for a few. I have a different perspective. I'm not here and I don't think ROWI is attempting to kill this project. I think it's not -- it doesn't have the idea that it's all bad. But what I feel is that right now -- this is the DEIS. I will hold this up for the folks at home to see what we are talking about when we're talking about reviewing a document that explains what

Brynwood attempts to do. It's more than a couple of thousand pages and I've already started to go through this and I'm a real estate developer. I've done these before and I'm used to seeing them. I can tell you it's a daunting task, as you might imagine, to read this. But my appeal tonight is that so far as I've been able to tell going through the DEIS, I've attended every meeting that Brynwood has had, every public meeting that they've had. I've probably heard Mark Weingarten's pitch about twelve times, and Mark would agree with that. It appears to me that this, like I would do if I were the developer, is a one-sided position. It's what you would expect and I would think less of them if they hadn't made it one sided. I don't think my position or ROWI's position is that this is all a bunch of nonsense and we don't want to do any of this. But what I want to do is come to a more balanced position with respect to this development. Something is going to happen there. It can't be nothing. But it also can't be this. It has to be a reasoned negotiated new plan that will have some of what's in here and some of what's in the comments that you've heard from people who live in Windmill, and others. It's not just Windmill, frankly you probably cut the time down immensely if you just said let them do what they want to do but tax them fee simple. No one can think of why anyone should give owners or a developer the ability to build residences at half taxes. But that's only part of it. So I'm going to hold this up, the devil is in the details and the details are in here.

So my appeal to you, I will not argue about what's right or wrong, I will just argue we need more time. I'm maybe -- I've been dealing with this since it was published. I have it online. Anyone in the audience can tell how tedious it is to go through this on your computer. So you get to page 167 and you see something and you remember that something back on page 60 -- it's a very, very time consuming process. I'm taking the effort -- in fact ROWI has divided up the sections, someone has traffic, someone has economics, someone has environmental and we're trying to do this as quickly and as thoroughly as possible. But the Town Board owes us more time. We can't -- I can't finish a reasoned analyses of this tremendous tone in the next thirty days. It can't be done. Again, what I'm trying to do is understand this so thoroughly that I can make coherent comments that will help come up with a responsible position that doesn't throw these guys out of town. They don't deserve to be thrown out of town but this needs to be cut back in some substantial ways and whatever ways we think it has to be cut back, it has to be justified. As I said the devil is in the details. I can't just tell you -- let me give you an example, I'm about here in book one. And I discovered in here that if you compare the horrible result of if they have to build 49 homes versus what they want to do. Okay. What's 49 homes? So I added up the amount of bedrooms you could have in 49 homes. We can all do that but a little less than 200 bedrooms. Then I added up the number of bedrooms that they are suggesting in their 88 condos. It's more than that. 225. So, wait. School children are probably a product of bedrooms more than they are a product of anything else. So I think to myself, well, maybe now I have to go back and see what their argument is against school children. It's a process. I'm not done with the analyses. I might be wrong. But the point is if you don't let me or give me the amount of time to finish the work and you don't let the others of ROWI take their assignments, and by the way, it's not just ROWI, I'm sure there are other people in Town with the same issues or problems that I do, rather than attack any particular thing tonight that I think is wrong, I've started to make a list. I'm telling you, folks, I'm only a quarter way through, and I'll never finish and do the right kind of job and I can probably do it as fast as anyone in the next thirty days.

So what I would implore you to do, I don't know how you do it, I don't know, there is some confusion in my mind as to whether the end of the public hearing triggers a thirty day absolute deadline or whether that deadline can be extended. But either extend the public hearing and don't trigger the thirty day deadline, or tell me that you'll consider making the thirty days ninety days or some extra period of time otherwise you're not going to get a fair analyses from the citizens. I think that's what we deserve. Thank you.

MS. CURRAN: Next is Dan Davis of Hickory Kingdom Road.

MR. DAVIS: Good evening. I will speak for myself and I have a letter from Jeff Stein and I've been asked to read his given his inability to be present this evening.

I'm Dan Davis of Hickory Kingdom Road. I'm a resident for 20 years. I have grandchildren in the school system here in Byram Hills and more than pleased with the caliber of education that my grandchildren are receiving and special attention they receive when necessary.

It seems to me that what hasn't really been understood and what I'd like to address this to the Board Members, is that every transaction that is negotiated has a tipping point. You've negotiated already with the developer. They started at 220 plus units. They're down to 88. Eight of which are designated for low income housing or moderate income housing. I suspect, and you know this better than anyone, that you realize that the developer is probably at or very close to the tipping point where he will give up pursuing this transaction and opt for the 49 home option. As a citizen, I would be very unhappy with that result because it will be a net negative to the schools, a net negative to the community, because they would lose their open space. You have to make that decision. I think it's a choice of two things, the 49 homes or this development pretty much how it is currently presented.

There isn't a lot of choices. People have argued that the condominium taxes are unfair. If this was to be taxed as fee simple, it changes the economics of the development. He probably couldn't survive with only 88 units. That's a fact of life. If you changed it to townhouses he couldn't have the same number of units. It would destroy, again, his economics. So I think that that is problematical and that is why I think the choice is very simple.

People have objected to the input of the various findings of the professionals who provided information on the DEIS. As I understand it, these were not selected by the developer, but rather by the Town. The developer had to pay for it. So these are objective findings. It's not the responsibility of the citizens to make these findings, they are free to comment on them. But, the Town in it's wisdom has selected Mr. A, B and C to perform these tasks and I assume they are all professionals and it has been performed. If people don't like those findings, it's for a reason. The vocal minority, as they've been referred to here, they would like the status quo. The status quo being that the country club will continue, the 49 homes won't be built and the developers will go away. I think they are gambling. And I don't think the Town Board should participate in that gamble. If you believe you've got the best deal you can get from the developer, and I think that's likely the case, then I think you should be encouraged to proceed.

That's all I have to say and now I will read a few words from Mr. Stein who wrote a letter to Mr. Mendell.

He says: I will not be able to attend the public hearing, however, I wanted to share my thoughts with you.

I read the local paper regarding Brynwood Country Club's planned improvements and some of the opposition discussed at the last public hearing.

The tax concerns regarding lower tax rates for condominiums versus individual house rates is quite irrelevant. Brynwood has nothing to do with establishing that law. The traffic issue on Route 22 is only on school day mornings just prior to the start of school. And most of that is due to many students being driven to school rather than using the buses. I expect many of the two or three bedroom condo unit owners will be retirees. If this plan is not approved and the land is divided and sold for individual four or five bedroom homes for larger families, there is sure to be more school hour traffic.

Brynwood Country Club's planned improvements have, in my opinion, everything to do with making the area more desirable place to be part of. The improvements Brynwood Country Club have already done to the club are admirable. I would expect Windmill residents to benefit from having a premium club located across the street from their homes. I'm sure the houses in the neighborhood surrounding Westchester County Club or Whippoorwill Country Club have benefited and created additional value for their property owners.

Jeff, feel free to forward this to the appropriate Town Board members. Regards, Jeffrey Stein.

MS. CURRAN: Next I have difficulty reading the name. Vicky Schott of Spruce Hill.

MR. SCHOLT: Good evening. My name is Vicky Scholt shot. I live in Armonk 33 years and I don't believe what I heard about ROWI represents my interests. I feel that whatever will be done should be done with the majority of homeowners and not just a group coming from Windmill. I find that the objections to Windmill -- to Brynwood are unfair and unreasonable.

We're not talking about a Walmart here ruining the neighborhood, although CVS is really pushing it. We're talking about beautiful green space. We will gain taxes from the condos. They might not be what they are for the homeowners but then again the condos will also pay taxes for school tax and I guarantee to you empty nesters will not have as many school children as 49 homes which will be probably two to three children per house and which will certainly add to the school district more children and busier traffic.

North Castle does a lot for children but really nothing for seniors. And, well, we do have the library. But when we move, we pay taxes now two or three times the additional taxes for water which not yet but we've been told that. Brynwood has offered to pay for their part in the water problems which would give Windmill owners less of a tax and less of a tax burden.

Brynwood was a very big lifesaver for me during Sandy. Our streets were impassable and they were cluttered with logs and we could not drive or get out. If it wasn't for Brynwood for the showers, the coffee, a place to recharge and to sit and be warm, I would have lost a couple of -- I would I have been no where. I don't know where I would have been. I appreciate it so much. And I don't understand why this bickering goes on for years and years and years. Can't we do better than our politicians are doing in Washington. Can't we agree on anything. I certainly hope so. I'm very much in favor of Brynwood. Thank you.

MS. CURRAN: Next is Jim Tinson of Fleetwood, New York.

MR. TINSON: Hi. Good evening. My name is Jim Tinson, as you've mentioned. I'm a resident of the

County. I also happen to be the architect of the project that we talked about and I appreciate the positive comments expressed tonight. But I'm actually here tonight to talk as a member. I'm a member of the club with my wife and my three small children. As we sat at the club this weekend and I looked around and we spent this great holiday weekend and I watched the activity that was happening there, the mix of people at the club, it's never been better, quite frankly, with the mix of people there. I saw my kids swimming in the pool and I saw them playing with new friends that they made by being here. I saw an operations team that was killing it to cover this and deal with the facilities and everything else that goes on in the place and all those things you do to try to make it work. And I couldn't help but think as I sat there with them where the club has come from and the vision that we had for the future from the beginning when we first sat down together.

If you let me take a step back, in 2009 I sat with Jeff and Ed McCarrow and we sat in the old Canyon Club and I looked around and said what are we doing here. We are sitting down in the basement which if anybody remembers being in there, it was a pretty scarey experience. We looked around and I listened to two guys talk about a vision to create a place, a place that would extend the legacy of this community, a place that would be a lasting part of this community well into the future. Quite frankly, the one reason that I believed it could happen and I believe we had a chance to do this is they weren't in the golf development business. And if they were, and this is what they did every day, on a daily basis, this wasn't what they did, I'd have said they would be too stuck in the old models to do a project that's going to work, too grounded, and the way of doing things that doesn't work to actually come forward with a project that would. So from that moment going forward we set out to create a vision for a new place, a place that would work and a place that would be successful, a place that I could turn to. We talked about seven of the top ten golf communities in the US, those were all done in different real estate cycles. So we talked about the chance to look at all the best lessons of what I see being done around the country and then assemble a team of the best people in this industry. And that starts with the water consultant that's the same as the Town's water consultant to come up with a strategy because of the point that was raised earlier. I raised my hand from the beginning and said how do we deal with water. So that's how we do it. Bring in the Town's consultant. We bring in the best engineering team we could find and we put them together. We bring in my friend Rees Jones, best golf course designer in the business. And say let's do something different. Then we set out to think about what is the best way to create a neighborhood here. A neighborhood that reflects everything special about this community. I've had a chance to spend a lot of time here since becoming a member of the club and I've gotten to love this community and I've said this before when we stand at these meetings. I said this is why I like bringing my family here. I like the shorter commute from where I live, so that's part of it too. I love bringing my family here. I love being in this place. We want to incorporate that all in the design.

I only work in the best projects in the world. I'm fortunate to be able to do that. The way I was going to do this project was that we had the chance to make that happen. We had a chance to make it here. Because my projects work. They're successful. They're the top in the business. And they're lasting. They work year after year. And the most important part is they are not only successful ventures for their developers, but they do create value to the surrounding community. And that is fundamental to creating some place that works in the future. So we set out to do that. We thought about what's the right mix of real estate that we could put here. What are the right kind of real estate? One of the things I found, I'm getting a chance to work with some of the best active adult developers in the country and to think about those types of units and facilities. We knew right from the beginning that we didn't want to create another subdivision here. We didn't want to just add a bunch of big houses that competed directly with your houses across the street and the surrounding community. That is the one way we could assure we would decrease the real estate value in the surrounding area, because we would create homes that were in direct competition with yours. So we set out and said what can we do? How can we make this work? We've designed this specifically for the active adult market. And that's a very unique market. We've incorporated all the things that we know. And when we talk about room count, the key is the configuration of those rooms within the buildings. So what we did was we created smaller units, but units that are still comfortable for people to down size and move into. Those were the things we needed to do to make sure that the club that I enjoy visiting and the place I come with my friends would still be here. And it's a place that my kids can continue to come year after year. So there are always a lot of questions how do you make sure you're going to do a successful project? How do you get all the pieces in place? It starts with a conversation we did in 2009 and it extends through a very comprehensive process.

I participate in some of the most extensive entitlement processes in the country and those are in areas that are very difficult to get projects approved and in places like this that are special context, that you want to be very careful about what you do. But I've been impressed through this process and why I thought this is going to be successful and it's going to maintain this club, is rarely have I ever been in a process that was this interactive with the town, this interactive with the community, this much participation from all of you. You've shaped the project. You've informed the project and you've guided it and we've rarely been able to work with a Board this closely. So that process, that back and forth, where the developer didn't just walk in and say this is what I want to do but actually work back and forth is fundamental. Again, as it's been pointed out to creating a place that works.

So I'm very excited and optimistic about the future here. Because what I have seen is the one way to ensure that everybody gets what they're afraid of is the kind of project that's going to decrease values in this area, that's going to impact all these other things is to squeeze and squeeze and squeeze. And to take everything out of the project that you need to make it successful.

So I'm very confident with the project we've been able to put together. We have a world class team behind this. I mean this truthfully. I get to work in a lot of places. I don't work with a better development team or operations team or development team more committed to the success of a project to a club and to it's contribution to a community. And everybody I hope can appreciate that and value that. Because it's a really hard thing to find. And I get to walk around and see a lot of different projects. Thanks for the chance to comment. This is a special project in a special community. And I really look forward to the future here, both being part of this community and part of this club. Thanks.

MS. CURRAN: Next is Joe Paresi of Pond Lane.

MR. PARESI: A lot of you know me from my wife, she's driving home from Pittsburgh right now in the rain. She tried to tell me to be nice tonight. I said I'll let you know. I'll be myself. She said, no, that's what I mean.

First I'll say some of the last

group of speeches were really on the mark. Alan, I think you hit the nail on the head many, many times. This lady here I don't know but very well stated. So a lot of what I will say is going to be repetitive. Because I think people said a lot of things. This is a background. I lived here twenty years. My wife and I moved up here from Fleetwood, Jim, to go to the great schools of Armonk, and some of the amenities that Armonk has to give. And when I meet people and I say, you got kids, you got to move to Windmill, you've got to move to Armonk.

This was my last weekend, the Fourth of July weekend, golf on Wednesday, barbeque on Thursday, then we went to Brynwood. Carl invited me for fireworks and drinking. Golf on Friday afternoon at Brynwood with you. Saturday we did golf and then we did Windmill Club volley ball and then we did the Whippoorwill Club fireworks.

This is why I live here. I don't have to go anywhere. The only place I go is I'm a snowbird -- no, I'm a snowflake. I'm sorry. I have a house in Florida. We shut it down. There's a big storm coming up. Twenty years here and I just opened a new business, above the Modern Barn, if you go to the front door and look up that's my desk. I really like Armonk and I really like Windmill and I like this community. I'm very happy to see DeCiccio's. It was like forever to get there. I hope some day we'll have the CVS. I like that option. I don't like going up to Mt. Kisco. We need some change here. I'd like to see the dog park some day, I'd like to see the mulch thing go through. Why isn't it happening? Because we have a group of people that I call the citizens for the no change of Armonk.

And so today, and I will bring this up, because it's very pertinent. I went to work not knowing anything, I got the usual ROWI message, there is going to be this terrible building that's going over in Brynwood. We need you to come down and fight against it. And then I get a word from a group I never heard of, it was the Responsible Development of North Castle. So I decided to respond to it and I said, wow, yet another group on this matter. I said what's wroing with this deal. We get a great golf course,a new clubhouse. A good plan for condos. Increased tax base. Improving our Town's overall value and attraction. I'm a member of Whippoorwill. There isn't a house in Whippoorwill that's worth a low amount of money. They're all very wealthy homes up there. I've been in Windmill for twenty years. And when I heard that Jeff was buying the property, I was really happy. Because the Japanese were running it down. We really needed a change. Number one.

But number two, I knew this was a guy who was going to take it over for the purpose of making it better. He wasn't going to come in there and say I'm just going to make a little money here. And I was against it at first, 243 facilities they were going to put in there. I said wait, wait, that's way too much. I called up Bob Green. I said let's sit down with Jeff. I know you both. Let's sit down and talk see if we can negotiate it. Bob said, yeah, yeah, yeah, I'm interested in moving ahead quick. I'm on the planning committee and we want to move this ahead quick. I'm a developer. I know the pain of developers. Bob wants to take ninety more days to look over the plan. Hey, Bob, I'm an engineer. You don't need ninety days to look through plans. You hit the highlight pages. So cut the crap.

Now, five e-mails today on this subject. This new group I respond to.

I respond all. Not just respond -- respond all. Who responds? Stuart Kivetsky. Bob Green's son-in-law. So I've seen this movie before. So I guess Peter joined the team and Bob's been putting on this three man attack. I'm really disappointed, to tell you the truth. Disappointed in that. Because we should be looking at this as a great opportunity. Alan hit a lot of key points on that.

Just looking at -- here is one of the arguments, this is important. So they agree the taxes are a wash, but what if the golf course fails. Oh my God. We're going to have 140 acres and an open golf course that's not going to be usable. What are you kidding me? Rees Jones putting a golf course in Armonk is going to fail? I'm going to join there. I'm at Whippoorwill. That's going to be a great course. Canyon Club is a lousy course. This is going to be great. I've seen the plans.

So I think it's just reaching for an argument that doesn't exist, for facts that don't exist. 58 out of these 88 units, we came down from 243, right, versus 49 homes. Oh, now we're at 88 and they only get taxed at one percent, not because of anything anybody did. It's state law. I guess if we changed the number to 110 versus 49 at two percent, then it would've been a wash just on face value,right, because one percent of that versus two percent of the other number.

But then you have the golf course and value of the taxes, the jobs for the people who will do the work to build it, the people that will run the course and you get the benefit of the course itself, the new clubhouse. Everybody in here has been to Canyon Club. Come on. You're going to end up there if you don't belong there. You're going to use it. It is going to appreciate the value of Windmill significantly. Stuart is absolutely right. He has the value of three homes there. I can't imagine how if people come up here and they start looking at condos and it's a family and they say oh, I can have this one million dollar condo or I can get this five bedroom house across the street in Windmill and it's got some amenities there, that's going to look pretty damn attractive to people and our value is going to go up and therefore our taxes are going to go up but, of course, that goes with it. It used to be impact on the school. If you have 49 houses those houses are going to families. 58 out of the 88 condos that are being built are two bedroom. You ain't putting a family in a two bedroom condo. You're just not doing it. Nobody is going to come up here and buy something like that to start a family. It's for people like me who eventually sell my house, live in Florida and come up here and do the snowbird thing. So makes sense to most rational people I think that have looked at this thing that this a very, very solid advancement for Windmill and Armonk and it's going to be something that people will look at, and say wow, this place has two great golf courses, a great supermarket, a great town, a great overall offering and it's a great place for me and I want it to stay that way.

What else did I want to say? I agree with some of the very key points made about not being confrontational especially when it comes to the water deal for Windmill. ROWI has to do their job. Their job is not this. They're not representing me and I think I'm a lifetime member of ROWI. What we need to do is we need to sit down and say I've got a street, this gray house and I drive down this crummy street because they aren't able to finish paving it because we got to figure out what to do with the pipes. Why aren't we solving the pipe problem? They have to fix the water problem over in Brynwood when they do it. They're going to separate from us. They're willing to work with us to come up with a plan so that we can get a relief on some of the impact it's going to be to the Windmill people to get that water pipeline fixed. This is going on too long now. We're talking a year now. We haven't gone anywhere on the pipes. We've got to this thing straightened out.

So again, I'll close with new jobs for Armonk. A great community. A great opportunity that's at hand, not ninety days from now, thirty days from now I hope. And, I think Alan's points were very well taken from a statistical stand point. This is a chance to build for the future of Armonk and make it an even greater place for us all to live.

Thank you very much.

MS. CURRAN: Next is Peter Weiller of Windmill Road.

MR. WEILLER: Good evening. Peter Weiller 45 Windmill Road, long time resident and being accused of not liking change. To begin with I don't think I could have lived here fifty years if I didn't like change. I would have been out of here a long time ago. I love this town. I'm in favor of the change and in favor of this project if it's done right. I'm not a negative person in terms of getting rid of it.

Mr. Fraser and Mr. Epstein say to us, the developers are very trustworthy and they will do all the right things and I think that's very nice and I'm sure they intend to do it. What happens if they don't? Is there any way they should put up a bond or do something that would protect Armonk should it not be 9 students that go into the school but 60 students or if the golf club fails which I've just been told by Joe it will never happen. But I've played that golf course and they're going to have to do a lot to change the surface of it to make it world class, which they may very well do. Golf clubs all over the world are failing. I think in the last meeting, even these developers pointed out the fact it's very hard to make a golf course work. So if doesn't work and they do abandon it then we are left holding the bag. I don't think that should be the case. I think that's the terminology of the easement and the conversation has to be done in a much stronger way to guarantee that this never gets built on again.

I think the tax problem for me is a burden because I've been an empty nester in this town for 35 years. And I never got lower taxes. I don't understand why any person called an empty nester should get lower taxes. I think it's just giving something very nice to the developers which I'm not getting and other people are not getting and I don't consider that a fair tax burden for the Town.

I hope you will reconsider some of these things and move forward with a project. It's very exciting to hear all the positive information that comes out. I'm sure it will be beautiful. But I would like someone to back this up with something other than promises.

Some of the things in DEIS do not make sense. Some of them are contradictory so therefore they're at question and that's why I think we need more time to look at this and to analyze them. Thank you very much.

MS. CURRAN: Next is barbara DiGiacinto of Stony Brook Place.

MS. DiGIACINTO: Again my name is Barbara DiGiacinto. I live at 5 Stony Brook Place. I'm a life long resident of Armonk and I'm third generation to call North Castle home. I'm not opposed to the Brynwood application. And I don't think many of the people who spoke tonight or in June were against this application. I think because we have a real affinity for our Town; that we do want some questions answered and I think we are going to look to our Town Board to perhaps clarify and answer some questions because we elected them, we trust them and they are part of our community. Not that I certainly mean anything contrary to the developers.

My concern is the impact on our schools and all I'm asking is for is a true account of how many children we really can expect with Brynwood. I know the eighty fair market value condos, the two, three and four bedrooms are targeted, I've heard, many times for empty nesters. I understand I'm sure quite a few of them will be for empty nesters. But there is a part of me that wonders that can we play out-- what if we have a certain part of the percentage are nesters that bring those children to the school district that we're really not counting on.

In addition, on site there are eight affordable housing units proposed and if my facts are correct, six two-bedroom units which would have a maximum of four people and these maximums are all set by HUD, not by the Town, not by Brynwood. And so if you look at two-bedrooms units with a maximum of four people, you could say two parents with up to two children, two parents with one child, a single parent with one child but you could also have a single parent with up to three children. One three-bedroom unit with a maximum of six people. Two parents with up to four children, one parent with up to five children. One four-bedroom unit, maximum eight people. Two parents with up to six children. One parent with up to seven children. A low ball total would be eleven children.

Option two for Brynwood would be the eighty fair market value condos on the property and then nine affordable off site units and it would be increasing the two bedrooms by one. So it would be seven two-bedroom units.

My suggestions to the Town Board before going forward would be, number one, to perhaps contact Rose Newman, the executive director of the Housing Action Council in Westchester and find out what is the average number of children in a two bedroom, a three bedroom or four bedroom affordable housing unit.

I would also ask the Board to perhaps look at the impact on schools in neighboring communities for condo applications that have some, I know it's not going to be exactly the same, but similar to this one. Once again, I would like to see real numbers. I understand the taxes that will be generated and it could very well be that there will be a surplus that is not -- we are not going to see our school taxes go up but I would like to see more realistic numbers and it's a wonderful application but it's a formidable application and I really do think our Town Board should take the time to do some very important research before going any further.

And finally, the Brynwood application has an affordable housing component, but to date the Town of North Castle does not have in place a model affordable housing zoning board mix. How can you give this application serious consideration when there is absolutely nothing in the Town zoning code that addresses affordable housing? Thank you.

MS. CURRAN: Next is Steve Buschel of Fox Ridge Court.

MR. BUSCHEL: Good evening. Members of the Board, members of the audience, my name is Steve Buschel. I've been a Windmill resident for close to 34 years now. I've had three children go through the school system. It's a great school system. During those 34 years I've seen ups and downs, remember the Princeton Plan, it's no good, it's this, it's that. Things worked out. Why? Because there were compromises. We've heard many, many discussions regarding the issues involved, the roads, the schools, etc. The reality is everyone is not going to be satisfied. If the Board decides one way, there's going to be a group that's not going to be satisfied. If they decide another way there's another group that's not going to be satisfied. It's the duty of the Board to listen to the citizens and make an informed decision. It must do that independently. And it's my understanding from doing some of the reading that the Board will in fact after all these hearings are done independently review the results of the study to see whether or not a lot of the arguments that have been made for and against are reasonable and should be considered as part of the final decision.

Now, there's been a lot of discussion here about numbers and this and that and what you get are people looking for absolutes. You can't look for absolutes at this time in the project. Because there are no absolutes. We don't know the number of children. We don't know the number of cars. And, you can't say it's going to be 50 or 20 or 39 or 21. You have to take the information that's available from the best sources possible and make your best guess. And that's what we are doing here. It's a sophisticated guess. It's a guess that's been done with significant analyses and that's the way it has to be done. And I use the word significant because it's been used a number of times this evening.

What is significant? Well, what's significant to you is not significant to you. What's significant to that lady back there, is not significant to this lady sitting on the Board. Everybody has there own definition of what is significant. But that doesn't mean compromise cannot be achieved. And that's what we need to do. We need to make compromise for a positive change. It's the only way things are going to get done. Without change things will die. That is a guarantee.

Now there's been talk about fairness, particularly with regard to the tax issue. Well, what's fair? Suppose we have two neighbors living in our million dollar houses and one neighbor has $500,000 a year of income and it's all long term capital gain.

Well at the Federal level he gets that taxed at fifteen percent. The other neighbor has $500,000 the exact same amount of income, but it's salary. So now what happens? That person pays $175,000 in tax, where the person with $500,000 only pays $75,000. Is that fair? Well, to the person paying $75,000, yeah, it's fair. To the other person, it's not. Why? Because the law is not fair. If you don't like what the law says, get the law changed. But everybody takes advantage of the law. I bet there isn't one single person in this room that when they prepare their information for their accountants don't go to that accountant and say make sure you give me every single deduction and every single tax break I'm entitled to. And the same thing is true with the people who are going to buy the condominiums, they know their real estate taxes are lower. Why? Because they're making a conscious choice. The person buying the house that the empty nester is going to sell is going to make a choice to pay a higher rate of tax because they may be getting more, a yard, a pool, a five or six or seven bedroom house, a five or six thousand square foot house. They are making the choice. There's nothing wrong with that. That is the way things are. Look, the reality, folks, life is not fair to everyone. We all know that. But I believe that when you talk about taxes in particular there's a very interesting quote from an old judge, Learned Hand and he said in 1934 anyone may arrange his affairs so that his taxes shall be as low as possible. He is not bound to choose the pattern which best pays the Treasury. There is not even a patriotic duty to increase ones taxes. And the same thing is true here. If the developer, and we don't begrudge the developer for trying to put up a project and is going to make money on it, because that's what developers do, we go to work to make money, whether it's a developer, or a lawyer or CPA or insurance person, or you run a business, it doesn't matter. We are all in it to make money. We want to do it in a way which is fair and reasonable. And for that reason I believe very, very strongly that the Brynwood Partner Development Team is putting forth a project which is going to benefit this community, not for years, but for decades to come. And I strongly urge the Board to give it the independent analyses that it deserves and then make the right decision so that the majority of residents in this Town will ultimately benefit, not only in the short term, but more importantly in the long term. Thank you.

MS. CURRAN: Next is Alicia DiVicenzo.

MS. DiVICENZO: I'm Alicia

DiVicenzo. I live on Round Hill Road in Armonk. I've been a resident of both Armonk and Pleasantville for the past several years and have four children in the school district and soon to be high schooler. I am here tonight on behalf of Brynwood and I promise to make this brief because I really have to go to the bathroom. I was so afraid to leave.

Although I am very well informed to date, I'm not going to pretend that I have dissected all the components of the entire planning process. I leave to Windmill, the Board and Jeff and the team to handle that. I think we can all agree we can talk in circles for the next twenty years. Windmill has valid points and Brynwood has valid points. Everyone has done their due diligence. As someone had stated at the last meeting, the most frightening outcome of this would be paralysis by analyses which is a very slippery slope to go down.

I'm here tonight really to speak not as a resident of Armonk. I've yet to hear a mother speak, hear her voice up here and what Brynwood has brought to me, my family and other families in Armonk as well as the other surrounding areas. It is a community within a community. The same sense of community spirit that Windmill residents have had the pleasure of enjoying from their own club for the past several years. Like Windmill, it is a place for families to gather, adults to socialize. It's a wonderful venue for events. I've held two very important occasions there, the Education Foundation Gala, I held there this year and it's a wonderful venue few for both children and adults. That's why I have to say I find it both frustrating and disappointing that there are people who yet understand the importance and concept of family and community but will not and cannot see the positive impact on Armonk as a whole.

The Canyon Club was a country club long before most of us were residents of Armonk. So why not work with a group of individuals, and I dare say I think they are visionaries, who want to take this club from the past and not into the future but into the present. Thank you.

MS. CURRAN: There is a gentleman in the back of the room who, I'm sorry, I don't hae your name, that would like to come and speak.

MR. SCHNEIDER: Good evening, Board. I'm Steve Schneider. I've lived in Armonk for more than twenty years. I live on Thornwood Road. I do not assume a change in zoning is an easy decision for this Town Board to grant. If it is, I'll be right in line behind Brynwood to have my house torn down and build condos. After reading the entire draft, all 2200 pages, I see no compelling reason for the Board to grant this request. However, I do like the idea of the club. So it's a tough one. After hearing people speak last week, I realize there is compelling issues that should be brought to the public. In the end this location is the problem, not necessarily the plan. The plan to open a golf community of seniors is a wonderful idea but this one is filled with holes and quick sand, and I don't mean golf holes and sand traps. If the Brynwood plan is allowed to proceed in three years we'll see 88 home with overnight facilities for an additional twenty people plus ten guess suites and I'm not sure about the nine affordable rate units. While these units are advertised as supporting the seniors, it seems more likely a hotel. When considering what else is included in the proposal and deep in the 2200 pages, there was a mention of a tiny amount of traffic this facility would add to our local roads. In the morning only 39 people are allowed to leave of the 88 homes and in the evening only 37 are allowed to come back. That's on page I-2 under traffic and transportation. Total year round population of about 250, 260 people.

Let us not forget the hotel and employees that live on the site. Tha's an additional 32 people. This is a 24/7 365 day year operation. On the weekends from May through September additional six to seven hundred people may be coming here per day based on their facilities. Banquet hall, restaurant and bars with seating for 570 people. Yes, that's banquet hall with 250 seats; restaurant 80 indoor seating; 70 outdoor; bar with 40 seats; grill with 50 seats; outdoor terrace with 30 seats and additional bar with 50 seats.

My discussion today is about five

years from today and the club's facilities. This is not a talk about 88 condos versus 44 single family homes. This is a talk about a very non-residential use project coupled in a residential package to make it plausible by the Board.

This may be a traffic nightmare on any given spring, summer or fall weekend. It may take twenty minutes to get into and out of the facilities with several police directing people back down 22 to 684, and on their way home and by the way, after your corporate golf outing mid-week you can only make a right turn on to Route 22 when you leave. Where do you go to make your U-turn to go to Bedford? In the elementary school or perhaps Windmill Road entrance to Windmill? That's nice and wide and you can do that fast because nobody is there.

Next, the Town will ask us to remove the gatehouse because you can't see to the right when you come out of the Windmill exit. Right? Can you see to the right?

Now, don't forget the full tractor trailers going up 22. It's nice and slow and pulling in and delivering food and liquor and the garbage trucks and restaurant kitchen exhaust. This will be a full time everyday operation during the summer and you expect there to be no negligible impact on police, fire and rescue? What I'm saying here it's not only about the 88 condos and taxes. How about the bicycle riders? If you don't like them now, don't worry the A-riders will no longer be on our roads because of this traffic.

It's a full commercial facility. And it will be beautiful but I really ask you to really take a tough look at how to fix these issues. Because these issues are issues. And they are there.

There is another issue that does concern me. I did not see any reference to it in this document. And that's the water run off off the property. This property is heavily sloped and water run off should be looked at and zero run off should be designed into the project this size. So that the people at the bottom of the slope and off to the sides will not be washed out. I understand that 160 acres is a large track of land. However, everyone down the hill is on wells with the largest reservoir serving Mt. Kisco Byram Lake is just 200 feet down, straight down the hill.

It's a tough issue. I haven't heard anyone from Byram Lake here and their reservoir system. That's their water.

There was a 1990 document in this Town where there was mention to a stream that travels adjacent to this property as being a possible contender for water system number four as a back-up. If there is ever a spill of any type, this could wash out the water for both towns, if it's that bad. So I really ask you to take a look at this and do what you can now to see that it does go forward but that they look at these issues. Because there are issues.

Please realize that what you are being asked to do here you are responsible for decisions that support the benefit of the community in accordance with the governing law. Please see that that happens. That's all.

MS. CURRAN: Jeff Wenig.

MR. WENIG: I wrote stuff down. But just to really reiterate. Everybody said terrific things tonight. Very positive. A couple of things I just want to say. One of the things that Brynwood is going to bring, and I think, Mark, maybe I'm wrong, what's the starting prices of the condos.

MR. WEINGARTEN: A million two.

MR. WENIG: I hope it wasn't my son that asked what you what you're worth. Because I have a mortgage on my house. A lot of houses in Windmill are six, seven hundred thousand. I know when I first moved up to Millwood,I bought a condo. It was $200,000. Houses were 500. Now it's reversed. So if I were moving up today with my family, I'd be buying in Windmill or a house somewhere else. I wouldn't be buying a condo on a golf course, not with my kids. So to me, I think that really should be thrown out. The other thing is when you delay things like this, Jeff lost a lot of members from the club because they weren't sure what was going to happen and they moved on. So to delay something is bad.

The second part is to me if it doesn't get built nothing is going to get built. And I don't want to see another bowling alley. So to me it should move forward. I think we need it. I think the retail stores in town need it and I think the income that it would generate with the taxes and with the people moving up with higher income is a plus. So what I think everybody said including a lot of people from Windmill was very positive. And thank you.

MR. WEINGARTEN: Good evening, Mr. Supervisor, members of the Board. My name is Mark Weingarten. I'm a partner in the law firm of DelBello Donnellon Weingarten, Wise and Wiederkehr, and I represent Brynwood Partners and I'm very proud of that. There have been a number of comments made tonight, a number comments made at the last hearing and a number of comments that have been written and circulated to us prior to this evening. So I apologize.

I want to go through a few of things. First, to talk a little bit about the process so everybody understands what that is. It came out quickly. It's hard to understand. There are a lot of documents there. That's all fair. A couple of things that were said tonight are just not factual. One is said these reports are all done by the developers and the developer's experts and you can't believe a word that they say. But that's not how it works. The way the process works was you came in first of all and you told us, I heard it earlier said, we ignored certain things? You put together the list with your Town Board who is the lead agency and told us what to study. Every single thing was put into what was called a scope. The scoping document which was the subject of three public hearings was put together by your Town Board in consultation with experts that they've hired that they pay for, we reimburse them, because we're required under the law. But they're hired and they report to your Town Board and they put together the comprehensible table of contents for all the studies we needed to study. It wasn't up to us what to study, it was up to you and your elected officials what we had to study.

The second point of it is everything that we submitted we do the first, the initial, part of the work. We have traffic experts, for example, that say what do they think is going to happen with traffic. But then it's studied by the Town's experts and they come back and there were months of process. Remember, we've been at this now for more than two years and that process is between our experts and the Town's experts. And if the Town is not satisfied with what we gave them in the study, they told us which intersections to look at, we didn't ignore any, but if they come back and tell us we've read through this, we are not satisfied with the way you studied the traffic, we have to go back and re-do it until they're satisfied. And until they're satisfied this Town Board wouldn't say that the document is complete and ready for a public hearing. That's what's been going on for the months that we've been going through this. So I just wanted to point out right from the start of the procedure it's not fair to say these are our studies. These are joint studies. But when the time the final decision is made, there will be a final environmental impact statement and I do want to get into Mr. Green's comments as far as timing is concerned because it is important that we get through this because we've been at this for more than a couple of years.

But basically what we talk about is you have to understand what typical procedure is. Typically a comment period is ten days. We negotiated this two months ago, when we were talking about how long it should be that this process should take. We came in, it says I've gotten through a quarter of it. This document was available for review June 6th. It's been already almost six weeks, five weeks since that document has been out and now we are being told it's another thirty days. Comment period is usually ten days, in most municipalities in Westchester County and I appear in most of them. So it's just not fair to say that the process is not open, that it's not honest and that everybody here hasn't been given an opportunity to speak. In fact many of the people here have spoken more than once.

I will go through some of the specifics now that we talk about procedure a little bit. I do want to make it very clear, that we would urge the Board that we maintain the position that we negotiated with the public present at the initial meeting when we were here back in June with respect to timing. Because it's very important for us to proceed.

There were comments made at the last hearing about the single family home plan. Because at the end of the day what really is the analyses is comparing not what you want to see but what the alternatives are. The alternative now is an 88 unit condo plan with a golf course versus a single family home plan. And the reason the single family home plan is the alternative, is because that's what the zoning allows for. And if the zoning change is not granted, that's what's going to be built. And some people said at the last hearing, well, don't worry about that. It's not really 49 homes. Where do they get that number from? But just so you understand where that 49 number comes from. We have 157 acres. We have two acre zoning. We would, in theory, if you go through, and hopefully I'm getting the math right, be able to build roughly 78 homes. But we came in with a plan of 49. We, of course, want to build as many as we can. But you have laws and restrictions and the engineers go through that plan and it had to be approved by the town planner had to look at it. And there's steep slopes and wetlands and things that require you to say you can't build out to the maximum number there because you have constraints and we put a plan forward that showed the 49. It's in the DEIS and that's the number that we believe that can be proved out. So again, it's the 88 plus the golf course versus 49 homes. And that's why when you put that in context of all of the specific things, you can go in with these reports that are thousands of pages and pick out a little something here and a little something there and keep saying it's not right, it's not fair, it doesn't work but the bottom line is what's the net.

So let's talk about taxes which is one of the main thing people focus on. We said it the other day. There is a million dollars to your school district. A million dollars a year on the 88 unit plan plus the golf course. The reason is for that is if you have $500,000 of what we estimate to be with the improvements that are being made to the club house of what the commercial facility would be paying in property taxes. So it's not like your usual thing where it's 88 condos by itself. It has this extra $500,000 coming in with it. So now they're arguing with us. Well, maybe it's not quite empty nesters or maybe it's not quite this or maybe it's not quite that. Well, we estimated somewhere around ten school children. We think that's high. But we also looked at other things and looked at other projects here and say what if it's 20, 25. Take a little bit of the math. It's $27,000 per year per pupil in your school district. An astonishingly high number but that's the number we got from your school district. So if you have the ten and we are right, you have $270,000 a year. And you have a million dollars to pay for it. That's a pretty good net benefit to your school district. If we're wrong by double and it's 20 students, you roughly go up to the almost $500,000. But there is still a half million dollars a year to your school district. Keep going. Go do your own thing. Don't get lost in they're lying about this and they're lying about this. There is general common sense to apply to the comments. There are hundreds of thousands of dollars of years to your school district as a benefit if we are able to keep the commercial facility and then build the condominiums.

The only thing I will say on the

issue of fairness, and there's lots of issues of fairness, of them which was mentioned tonight, one of the reasons that it's not fair or people complain is because of the way the system is set up and that's true we're sitting here with a system that we take it as we get it. But I'll tell you what's not fair, I have two kids in my house and I put them through school, that's what most people do, it's not fair when someone has six kids in their home and sends six kids through the school district. It doesn't matter the value of their home is a million five, and they're paying their two percent of taxes but if they've got six kids in their home, there is a heck of a lot more. If Stuart goes and sells one of those three homes and five students move in it, you don't do it per student. So the bottom line is you have to have some system that you apply that works out to averages that make these things work. And if you think about it in the context of common sense and they are built as empty nesters as Jim who works all around the country talks to you about how those are designed, requiring you to pay for membersship and things of that nature, why in the world would you move into one of those? Even if the taxes are in half if you could move across the street and have a backyard and have a swing set and raise your kids there. Just doesn't make any sense. And that's what this is going to attract. And as other people said, that's what the market is in Westchester right now. And that's who we are going to attract.

I'm going to go through a couple of other things briefly. I want to talk about one of the other big benefits of this because I saw a flyer that went out today in an e-mail that went out in a blast to the entire community that talked about the taxes. Well, one thing that was rather ironic and we were being told was that the extra million dollars that was going to the school district wasn't an extra million for the school, the impact actually was that it would lower the other people's taxes. That was strange to me to be attacked with the net result would be we were lowering the taxes of everybody else in the community. Frankly, every year the school district has to make that decision. They create the budget. They create the levy. They'll decided. If our extra million dollars should go to more programs, they'll get a bigger budget. If our million dollars should go towards lowering the taxes of everybody else in the community, although that happens rarely, that would be their decision. But again, nobody can say that we're not putting a fresh million dollars into the school district because we are and that's the comment.

But there is also one other benefit I wanted to point out, because they reminded us of this. You have a tax cap in New York State now and it requires a super majority to go past that tax gap. That tax gap is two percent a year plus certain exemptions. The only way that tax gap gets expanded, there's four exemptions, and one of them is for new development. So I don't have the exact numbers, your assessor can give them to you. But if for example, your school district feels constrained because it can only raise the taxes by two percent, because we build new homes and add new value to your tax roles, that two percent gets multiplied by a multiplier, it's called a tax cap, a tax base growth factor and you now are able without a super majority vote to raise your taxes by more than two percent. So that is another benefit of new benefit in New York State under that new plan that people are trying to understand.

A couple of others things that have been mentioned. People say the 49 homes, let's make them do 49 homes, we'll cluster the homes and have great open space for the public. That's not how it works. Even if you have a plan which would require a form of clustering which, by the way, we would probably say is a good idea to some level, because just good planning would require you to want to build in the better places than next to 684, or that kind of thing. We would want to do that, that doesn't make it public open space. As a matter of fact, it would be private open space and the Supreme Court of the United States this week made a decision where in Florida they tried to put a condition on the developer to open up that space to the public and it was determined by the Supreme Court of the United States that that was an unconstitutional provision and condition to put on a developer of real property. That if you can force them to have a cluster development, you can force them to have open space. But you can't force them to open it to the public. And I don't know why a private community would open their grounds to public open space if they weren't required to do so and it can't be done.

A couple of other things. Water. It was asked what our plan is? The plan clearly in the document states we've done our tests and the water is sufficient on our property for our needs. End of discussion. That's what we have proposed. However, some of the confusion may be that we have said in certain meetings that we are willing to entertain a discussion if it is to the benefit of water district number two to work together and partner with that group and do it together to see if we can help you with a problem that's there. We are still open to that discussion but for right now our proposal because we are able to take care of our own water needs. As some people said, we would like as part of this final decision to have that discussion, we think it would benefit everyone to do that.

There was questions about the easement language. We made it clear in the last meeting and again and we will put it in the FEIS, that the golf course will never be built on if this project plan is approved. Well it normally goes in the findings time when you negotiate an easement. There is no easement. It's language in the proposed zoning code, amendment text change drafted a long time ago, we'll give you the language. You will be comfortable. You have our commitment that land will not be built upon if our project is approved.

We were asked also about bonding and guarantees. Your code has bonds and guaranteed issues and we would comply with those and there is nothing in the law that we would not follow so I don't know what that was doing.

A couple of last points. It was talked about facilities. I just want to make sure everything is clear. You can't listen to the traffic report or this. Look at that huge commercial facility there. The facility that's proposed is part of this project has less seats and less people than the one that's open right now. So if you want to compare apples to apples, we have a smaller facility, a smaller catering facility, add up all the seats that will be in the new plan than the old plan. That is a red herring. The only thing we are adding is 88 condominiums and traffic for that has been studied in every different direction and you can see that from all the experts that have done that.

There was a comment about water run

off. I don't say it facetious, it's hard to understand it. Forty pages of text and there are hundreds of pages in the appendix that are dedicated solely to water issues and wetlands and things of that nature. Please don't come away thinking it wasn't studied. It was studied. One of the best parts of the plan is you are preserving the golf course forever. It will not be built on. All the things a golf course does that is to the benefit of your community when it comes to drainage and ponds there and retention ponds and all the things we do with respect to drainage that will continue on.

This has been a very positive discussion. We look forward, as we have, to continue to talk to everybody here and listen to your ideas. But somebody said it earlier and I will mention it tonight. There is a tipping point you say I just can't do that, economically it doesn't make sense. We are all here and worked very hard. We hope, we appreciate the process, and we hope people continue to listen. What we have, we believe it's beautiful and we believe it will be to the benefit of the community. But if you push too hard, we are very concerned you will wind up with a plan that none of us will be very happy with. Thank you very much. Mr. Supervisor.

MR. ARDEN: We are about to finish the night. This is the second session. Everybody has had a chance to speak.

MR. COVIELLO: Pete Coviello 4 Valley Lane. I'll try and be brief. A lot of what we heard today, touched on a couple of things and then I want to point out when people spoke on both sides of the issues here. I think we are closer to agreeing with each other than we might realize. One thing is just to clarify about the 49 home building plan, my understanding is the Town laws or rules do allow the Town to force clustering on a smaller part of the property, essentially you would be allowed to build your as of right number, whether it's 49, 45 and you could be forced to build on a smaller parcel of land. You might be told you can build them and each be one acre or three quarters of an acre. That is my understanding. I think that needs to be studied and I think that type of development therefore. Time spent studying that if the Town can force that sort of clustering would be better designed than 49 two acre homes over the entire property. As long as the Town is going to force that kind of clustering, a 49 home two acre each development sounds as if it would not be possible.

But to point out that we are not necessarily so far apart. People spoke on both sides. I think most people even those who raised concerns, and may be opposed to the plan, might be happy if a state of the art golf course five years from now exists there and if very few school age kids live there and if they sell at 1.2 million dollars and up and generate tax revenue most people would be happy. I also think most people who spoke out in favor of this development would be very upset and disappointed if there was no golf course, if the developer had decided to go a different route in spite of their assurances and their suggestions that they plan to go the high end route. Most people would be very, very disappointed if we end up something that's a typical high density development that has lots of school aged kids, where offices and studies are third and fourth bedrooms. The tax numbers will be very, very different under those two separate scenarios and both are very feasible under things as currently written.

A lot of people said these are good

guys. These are the right guys. We can trust these guys. If you are a friend of one of the people involved, that's a very valid point of view. Our Town Board can't take that position. You can't sit here and manage our Town and just trust people to do what they are suggesting they might do. So I think what you need to focus on, if there are ways to assure that the risk scenario doesn't occur. I don't know that there really are. Once you let the cat out of the bag there are problems. This is what you need to look into. If you are going to grant a density increase, especially a substantial one which is virtually double of what is permitted on the property. How are you going to protect from the down side? You are giving them a tremendous up side. Any business is a gamble. It's wrong to say that I personally or even ROWI Board is opposed and don't want any change. If we didn't change anything we would all be living in caves. We want something there to benefit the Town. It seems like the developers are getting all the up side if they can build it. If they can sell the type of development I'm worried about for our Town they make a lot of money. The Town is stuck with most of the down side, if the development fails and properties are not sold. And if it's built in a way that draws on the Town and school services much more than they suggest it will. I think it's important for you guys to represent us in this. That's your job. Two years from now someone may say you ROWI guys slowed us down. Town Board you were not quick enough. The economy changed. We trusted them. I don't want to be left thinking that way. It's up to you guys to not think that way. You have to be business people about this and make the best decision and protect us from the down side and allow them at the same time to achieve the maximum up side on the property for the Town. Thank you.

MR. ARDEN: Anyone else would like to make a last comment? Okay. We now concluded the second night for comment. We mentioned before we were planning to leave written comment open for 32 days. A total of almost 60 days of public comment and two public hearings. At this point I would entertain a motion to close the DEIS public hearing.

MR. D'ANGELO: I make that motion.

MR. SCHILIRO: Can I make a comment? When we agreed Mark was right when we talked about planning the previous meeting and this meeting. At that point we didn't agree that we would close it. We entertained the notion we would close it if we didn't have any request or valid reason to continue it. So we've had requests from several people tonight to keep it open. Personally I'm not trying to drag this out very, very long but if there are people that really want at least another meeting to do this, aside from the written comment, I have no problem with that.

MR. ARDEN: What would be the benefit of that, Mike? That if they could make written comments.

MR. SCHILIRO: There is a difference between written comment and verbal comment. The same difference between we had the first meeting and this meeting. If you use that premises we should just have one meeting and written comment after that. Part of any hearing is we hear from the public. In this case, you have people that are asking if they can have more time to review this information, at least one more meeting to give us not just written comment but verbal comment. If that need is out there, which I heard it, I have no problem extending it one more meeting.

MR. FISH: Do you want me to address that?

MR. ARDEN: Okay.

MR. FISH: I'll mention again I'm Frank Fish with BFB Planning. We are the Town's planning consultant to assist your Town planning in reviewing this. Mike, I remember early June we had suggested that when a request was made rather than have one hearing to have these both hearings. You suggested the thirty day period. And my response was I thought that would be good, in fact I recommended it to the Board because you are still within the overall SEQRA time frame. In other words, SEQRA provides normally for, it can be as short as thirty days, it can go out sixty days on a comment period for the DEIS. But what I want to suggest is there are a number of further steps which doesn't preclude -- I remember a gentleman saying, Mr.

Green, if you need more time what happens in the process for the moment say you did vote to close the hearing this evening, you have thirty days for comment on the DEIS. What's going to happen is the Applicant has to answer, as said earlier by Jennifer from your special counsel's office, they have to answer all the questions. But while they are answering them, there is nothing that precludes people from continuing to study the DEIS. What is going to happen which when the FEIS is submitted, we are going to review that again on your behalf. And if you need, by the way in that interim period, September, October, whatever, if you need for instance to hear from the traffic experts or we have a person who specializes in public school children, any of those issues you need, we can supply those to you. The FEIS is very important. It's seen as more your document. But there is nothing to prevent us at the end of that FEIS when you are comfortable with it, it then gets distributed to the public. They have another chance to make written comments before what's called Findings. The end of this SEQRA process, just the SEQRA process is Findings. And the state law provides not less than ten days nor more than thirty days after that FEIS comes in for anybody to submit comments. So that is not going to happen. It can't happen until some time in late September or early October because they have to submit the FEIS. They have to review it. You have to be comfortable. What I am trying to say to the residents here, if you need more time on it they can take it. They can take that time. I'm sure the Board will listen to all those comments up to Findings. Findings complete all the SEQRA process. And all SEQRA is supposed to be is an objective, as objective as we can get, a neutral dissertation on the impacts of this for you and for the public. Only then can you then get to consider the zoning request itself and site plan. I don't want the public to feel, or you to feel if you close the hearing, Mr. Green, he will have additional months to review everything. This is not a static process that everything ends if you close the hearing tonight. We will be able to take into consideration any comments made after the FEIS comes in. And also the public will be able to read that FEIS and make comments to you they want. Those comments are normally done in writing at that point. I just wanted to go over those steps with you. I don't want you to feel that you are closing off comment tonight if you do close the hearing. It's up to you whatever you are comfortable with doing. I want to, not warn, that's too heavy a word. SEQRA sets up time lines. The time line for the comment period is 60 days. There is not a penalty, as Roland and the attorneys know, there is not a penalty for any local municipality that violates that. There is not a penalty to it. You can go further if you have to. If you don't have to, it's always good to meet the SEQRA time lines, if you can. If you are comfortable doing it.

MR. SCHILIRO: A question. You are saying on this particular document once the thirty days expires, there is no more comment related to this document?

MR. FISH: No, I think there can be. I will defer to Roland on this. What we find as a practical matter, yes, the official comment period ends if you close the hearing tonight. It ends 32 days from now, which is August 12th. However, it's a dynamic process. It keeps going. They are going to have to submit a final environmental impact statement. If somebody wants to submit comments both on DEIS and FEIS before findings they can do that. And we are going to read them. If there is something new in the comments that we missed in the DEIS we are going to pick that up. And you will see that. So this is going to go on for some time. I can't predict when they will submit. Let's say you close the hearing. They can't submit until August. I would not want to be in the position of their consultant. They have to do an adequate job of that FEIS in answering all the questions tonight and then our job on your behalf and the Town engineer's job and the planner and special legal counsel now reviews that FEIS, that is going to take us a bit of time. Theoretically best case on their proposition, and their consultant is smiling, is that they submit it which is highly unusual. I can't believe they would get it in by the end of August. Maybe they can. We are going to need weeks to review it. You will have the document. Meanwhile people who want to study the DEIS more, they are studying it more. And if when and if we accept that document everybody has a chance to submit comments on the FEIS and they can submit more. We can take everything into consideration for findings itself.

MR. BARONI: I don't want a misunderstanding. Once we are past the official comment period, the applicant will not necessarily have responded to new questions which may come in late.

MR. FISH: That's right.

MR. BARONI: Those people coming in with late comments after the 32 day period cannot expect their questions will necessarily have been answered.

MR. FISH: That's correct. SEQRA is set up that way to not get into an endless circle.

MR. SCHILIRO: That's fair. It sounded like after 32 days people could ask questions. I don't think that is fair to any Applicant. It just becomes open ended. What you are saying is after the 32 days, that's it. If people decide to make comment, the Applicant can address it or not. It's not their legal -- they don't have to legally address it. When the FEIS is produced, then there is another round of comment beyond that.

MR. FISH: That's right. We will see any comments that come in and you will see them. We have a chance to review those comments and be knowledgeable about them. So when we, I presume, it's a joint effort of counsel and us to write the Findings, we are not going to be in a vacuum writing them. If someone comes up with a new issue, something we missed we will see that. People will have a chance. I want to add to what Roland just said. Once the comment period is over they are not obligated -- we are not starting at DEIS again, they are not obligated to answer those questions. However, we will see them and take them into consideration and then it's the end of SEQRA. There are other issues of zoning and site plan approval that are not necessarily SEQRA issues. They might be conditions to the zoning change. If you get that far and proceed on that there might be conditions to zoning that you want to make. There will be other opportunities. I think there is about a half dozen steps to go and chances for public to comment.

MR. SCHILIRO: There were comments made towards the beginning of the meeting about not closing it and prefer it being extended. If any of those people have any comment at the end of the meeting if they prefer that or they are satisfied the written period is adequate.

MR. YAFFA: One of the frustrations of dealing with this is there are documents that we've talked about, I will be specific with one of them. There could be other examples and Bob may have others. We have talked about the deficiencies in the easement for a long time. And we want to see what that looked like. We hear today maybe a new easement written. Without that easement and without being able to see that we can't really comment on whether we think it's adequate or we don't. How does that get translated into this process because we are not going to see the easement? They are going to put it in the file. 32 days are up. It's now there and what happens?

MR. FISH: I will defer to legal counsel on this. From our point of view, the draft environmental impact statement is just that. It's a draft. Based on the comments they have heard they may now refine that and we will be looking for that in the FEIS when it's submitted. When it's submitted and sufficient and the Town Board has in it what the Town Board wants in it and that will include a review by legal counsel and their special counsel as to that easement question then that gets put in the FEIS and you get a chance to see that revise and a chance to comment on it. It goes further than that, because that easement also is the subject of their zoning. Once the SEQRA process is -- all SEQRA does is allow them to get into the actual rezoning hearing and process and site planning process so they will see the easements they need to see for the zoning. I presume if you don't see them the applicant will not get the zoning and you will see everything too. It is somewhat an interactive process. We have commented on the easement, it's not an issue forgotten. /HOF /HOF /HOF and the town will have an opportunity after it's seen it.

MR. BARONI: Although the Board is

considering closing the public hearing on DEIS tonight, it's going to adjourn the public hearing on the rezoning. So when that's reconvened, that easement document will be available and everyone will be free to speak on it.

MR. COVIELLO: People who requested to state they want more time. I do want more time. This document is 2200 pages. It's out there for the Town people to look at and review. Joe said read the highlights and you'll get it. That might be an approach that satisfies him. There's probably a thousand of pages of filler in. I can't skip massive sections of this and later be told, sorry, you should have known it was on page 855. I am requesting more time.

MR. GREEN: Robert Green. 42 North Lake Road. In the scheme of things two more weeks would be more to me. It has been available to me for all of us for a month. I have a wife and children and grandchildren. I'm trying to have a life. I have a job. There is only a certain amount of time anyone can spend on this. We are citizens trying to do the best job we can in giving the best comments we can. I'm not trying to knock this out. I'm looking for common ground in ways we can come together on this and make a project that is a win win for everyone. I will ask again for a two week extension on this public hearing is more than reasonable and in my view a very big help. Thank you.

MR. PARESI: You've had it for thirty days. Steve read all 2200 pages. Take a day off from golf. If you can't read a document like that, and get to the meat parts of it. I don't know how you are a businessman. This Board has been on this thing a year. Two. I'd like you to work on some other stuff we need to get done in this Town. The man explained to you that after you've gone through the draft and you have 32 days you can still put in comments and there is a final and when the final goes in you will have an opportunity to put comments in on the final. As far as there is a little bit of politics going on. If we drag it out long enough maybe get a different group of people on the Board, maybe vote in favor of not doing it. I hope you guys don't put up with this crap. Move this forward. This is no way to run a town. You guys are all businessmen. You got to move things quick. We continue to waste time and money. Our lawyers get paid. Everybody here gets paid. It's costing us money to do this. I hope you don't accept their request. Thank you.

MR. D'ANGELO: Is there a way to not close it but extending comment period.

MR. SCHILIRO: I'm saying if you close it tonight you have thirty days.

If you allow it to go to the next meeting, you shorten the period after the next meeting to twenty days.

MR. D'ANGELO: I don't know if that gives the same amount of time.

MR. ARDEN: If there wasn't a mechanism for people to come back and have input later I would agree with you. I really feel we're stretched to the SEQRA time table in every area. We've been at maximum on every area of this. Frankly, Bob is a developer he knows SEQRA better than I do. He knows what the maximum is. We've done this so well and been so lenient with this. I think you need to close it at this point. If there is something that comes up in the next thirty days, comment on it. If not, we can review it again in the FEIS and move it long.

MR. D'ANGELO: Are we at the limits of the SEQRA. If we went another fifteen days would we still be in the time limits.

MR. FISH: I want to answer two ways. We have 60 days in the SEQRA comment period on the DEIS. We discussed this early June. With August 12th you are about 65 days. You are at the max. Having said that, there is not a penalty. The state has no penalties for you not following the SEQRA regulations. If you have an extraordinary circumstance and you need to extend that, it's your discretion. I was pointing out that is the SEQRA guide. The Supervisor is correct, you took the maximum amount of time for copying. Which is good. We advised you to do that. I advised in early June. I thought you should take the maximum amount of time so the public had input on this. You are at that. It's discretionary in your part if you want to go over that and that's up to you.

MS. SCHIMER: Susan Schimer. My assumption what you said when the final

DEIS comes in there will be a time to comment. But the comments which come in in response to the present document will require a response. So comments that come in now are going to be treated somewhat differently in that there will be a response; is that correct?

MR. FISH: In brief, what you just said is correct. In the sense the law requires, the regulation requires that a comment made now within the comment period needs to be addressed or answered in the final environmental impact statement. In that sense, that's correct. However, what I was trying to indicate is as a practical matter, if a comment comes in after that, we are not going to ignore it. We are going to look at those comments and that's going to feed in, we've been giving the Board memos on every step of this. We are not going to ignore a comment that comes in. So it will be as a practical matter listened to and if it's substantive in the sense it needs to inform the Finding statement on SEQRA it would. If it's not and related to zoning, there may be issues of pure finance that are not really SEQRA issues that there may be conditions to do a zoning that may not be pure SEQRA. As your neighbors like to say Diane Fox in Greenwich, they handle these issues, they don't have SEQRA in the state of Connecticut. What SEQRA is, is the pre-step, if you will, to get into the actual application. So we are not into the application yet. As Roland said, the recommendation of counsel which we agree with is not to close the hearing tonight on zoning, to keep that open, so that that hearing remains open and you will have a chance to comment again. But the simple answer to your question is yes,

MS. SCHIMER: So you will respond

to comments made in response to the final document as well?

MR. FISH: No. The simple answer to that is no. Let me explain that. The draft enviornmental impact statement, that's why we have an FEIS. That has to address all comments made now as Mr. Barone has said. However, the FEIS is published. You are going to have and everyone will have, ourselves included, a chance to read that. Comments made then do not need to be responded to by the Applicant. However, we are not going -- I have never just ignored those comments. We are going to read those comments and, if necessary, those comments will be reflected in the Finding statement that we will participate in writing with legal counsel and that goes to the Town Board. They will see that. They will see all your comments. As a practical matter, your comments are not going to be ignored.

MR. SCHILIRO: To be fair to the Applicant, they shouldn't have to respond to those if beyond the 32 day period.

MR. ARDEN: If it's significant what comes out that we have not discussed, it's obviously going to be responded to. Nothing of any significance is not going to be responded to. It's a process here and we are over that process time. And I think we are being more than fair with the time schedule and leaving the zoning hearing open. I don't see any down side of moving ahead. If there was not another chance to respond or comment, I would agree with you. But at this point we are in a time schedule that is required or stated in the SEQRA process. We should move ahead with that.

MR. D'ANGELO: Maybe we could split the difference. We may have a consensus it might be something to do.

Close the public hearing.

MR. ARDEN: The suggestion is to close the hearing and split the difference to fifteen days.

MR. SCHILIRO: It's the same thing as having to extend the hearing and shorten the time frame.

MR. ARDEN: I don't see a point in doing that frankly.

MR. SCHILIRO: The point is that's why you have a public hearing. You have people who are requesting that additional time and that additional meeting. That's all.

MR. WEINGARTEN: The Applicant strongly urges we stay on the path set originally which includes complying with the state directory quality review act. It may not have a particular penalty, it is the responsibility of the Town to follow that if there is no reason not to. We believe there is adequate time to review this and you've been given more than enough time on the written comment. You could put pages and pages, there is no limit, five minute limit, that hasn't even been enforced which is typically done in other municipalities. We urge you to stick to what was discussed early on. There are a series of public hearings beyond DEIS. There are lots of opportunity for public hearing, if we do this every time this will extend another year and that's what we are trying to avoid. Thank you.

MR. ARDEN: I would entertain a motion to close the DEIS section of this hearing and adjourn the zoning part of the public hearing.

MS. DiDONATO: I will make the motion.

MR. BARONI: And have the comment period on the DEIS August 12th, 32 day period.

MR. D'ANGELO: I would make a motion to August 20th.

MR. CRONIN: It's a week. It's a

compromise. In the spirit of the gentleman in the back. I don't have a problem with one additional week. And I take counsel's point we can't get into this game at every hearing.

MR. D'AGNELO: We have some residents who would like a little extra time.

MR. ARDEN: Okay. Enough.

MR. FRASER: Why are they more important than me? They are more important? Okay. We'll remember. We all vote.

MR. ARDEN: I don't see a reason to extend it. If you think it's critical. What is your opinion?

MR. SCHILIRO: I prefer to keep it open. In the spirit of compromise, if we close it we grant more time. Again to be fair to the Applicant, I understand your point after 32 days. If not applicable, no response to them. Once the FEIS does come in it's another round of hearings where the supporters and people with concerns have another ability to review that document and then have comment beyond that, I would be okay closing it. Extending it the extra seven days, eight days. That gives people a little more time to review it. And I would be comfortable with that.

MR. ARDEN: I'm sure any more comments will come in an extra seven days. I would be glad to amend the motion.

MR. RUGGIERO: Mario Ruggiero. Has anybody visited town hall in Mt. Pleasant?

MR. ARDEN: I have.

MR. RUGGIERO: Anybody know the old Mooney property? What they want to develop there? You see the development? We're like the cowboys and Indians surrounding us. You'll never get out of this town. You love to play golf. Play golf. I have nothing with this. I don't like golf.

I don't care. They could build it or not have to build it. Look at the whole picture of the town. Now we're going on in our town, what's going on around us. That's a big development to put up there. And you have to look at that. And you have to keep that in your mind. Not only what they want to do as what Mt. Pleasant wants to do and Donald Trump still wants to do. Never say they can force something on us. It's not true. The fence went up around the reservoir. You can't fight City Hall. The fence came down. You know it's easy for people to say because you like golf and you live there and you have friends. It means nothing to you. Think of everything. You get a truck going up there, it takes you twenty minutes to get up the hill. The bicyclists on Sundays, it's going to be a state of the art golf course. Where are they coming in? By helicopter? Everything is funny.

People want to put things off. People don't want change. Everybody is a long time resident. Well, my great, great grandfather came here in 1856. Does it mean I have a better say than you? No. Think of the right thing to do. Don't say they could force this on us. Nothing can ever be forced on us if we don't want it.

There is a lot of problems in this town and it is all political. That's all I have to say.

MR. ARDEN: Motion as amended.

MR. D'ANGELO: Yes.

MR. ARDEN: Do I hear a second all in favor?

(All respond aye.)

MR. ARDEN: Comment period will stay open until August 20th.

oOo

I, Susan M. Lanzetta, Senior Court Reporter for the Supreme Court of the State of New York, do hereby certify that the within transcript is a true and correct record.

____
Susan M. Lanzetta
Senior Court Reporter

APPENDIX C

BOARD OF FIRE COMMISSIONERS
NORTH CASTLE FIRE DISTRICT NO. 2
400 BEDFORD ROAD, P.O. BOX 188
ARMONK, NY 10504-0188

BRUCE WUEBBER – CHAIRMAN
DONALD DEHMER
MICHAEL GIACCIO
RONALD MACELLARO
EDWIN SCHULTZ

KATHLEEN PETRE
TREASURER

MITCHELL SIME
TREASURER

TEL: (914) 273-2984 Email: NCFD2@optonline.net FAX: (914) 273-3484

June 14, 2013

Letter #1

Anne Curran
Town Clerk
Town of North Castle
15 Bedford Road
Armonk, NY 10504

On January 7, 2013, the Armonk Fire Department received a request from VHB Engineering, Surveying and Landscape Architecture to respond to specific questions regarding an Environmental Impact Statement for the proposed Brynwood Golf and Country Club. The department responded on February 22, 2013. Upon review of the DEIS received on June 14, 2013, there were errors, omissions and misleading statements in the DEIS based upon what we provided in our letter. They are listed below:

DEIS Page	DEIS Statement	Our Letter
III.L-13	*"There is a Fire Hydrant approximately 20 feet left of the clubhouse's front entrance that is regularly tested by the Fire Department. Water supply and capacity is sufficient"*	*"Water flow for firefighting is unknown by this department. One hydrant near the existing clubhouse is a private hydrant, and we have no information regarding water flow, pressure, etc. In addition, history provides that hydrants across the street in the Windmill neighborhood have not always been reliable during fire department operations."*
III.L-14	*"Annual Property taxes from the Project to the Armonk Fire Department would exceed current taxes".* [There is no breakdown for Armonk Fire Department (North Castle Fire District 2) in the DEIS for estimated tax. The Fire Department is included in *"County and Other Districts"*.]	*"The additional calls will cause an increase in fuel consumption for the vehicles and additional costs associated with medical supplies. It is hoped that the tax revenues received from the site would offset these costs."*

III.L-14	*"The Fire Department also indicated that the Project would be a potential source of new volunteers"*	This statement is quite misleading. Our actual statement was: *"Any additional call volume puts strains on our Volunteer Fire Department. It is hoped that some of these new residents may be willing to join the Fire Department as firefighters or EMT's. Unfortunately, it has been our experience that with other recent housing constructed in town that this has not been the case."*
III.L-14	*"No significant adverse impacts are anticipated for the Armonk Fire Department;"*	*"In regard to fire protection in the parking garages, if sprinklers and standpipes are not provided the District may have to purchase an additional firefighting vehicle with a low height which could be utilized to fight fires in the parking garage. The approximately 200 foot distance from the entrance to the furthest underground parking space may necessitate this type of vehicle to adequately fight a fire and protect the structure."* [If standpipes and sprinklers are not provided, it is anticipated that purchase of this vehicle associated with the corresponding firefighting tactics should be considered a significant impact.]
N/A	Not addressed	*"Based upon the size and weight of our apparatus adequate access must be provided. Ambulance access must have wide enough roadways and paths to get close to the homes/units. All necessary equipment including a stretcher must be carried or wheeled to the emergency location and then returned with the patient to the ambulance. We request that there be no dead-end streets like the one shown on Exhibit 2 – draft rendering – this would be unacceptable."*
Exhibit III L.1	The Fire Station is not plotted at the correct location on the DEIS map. The Fire Station is located at 400 Bedford Road.	

Our original letter is attached.

Sincerely

Bruce Wuebber
Chairman

cc: Ex-Chief Labriola-Cuffe
Chief Waterbury

ARMONK INDEPENDENT FIRE COMPANY
P.O. BOX 116 • ARMONK, NEW YORK 10504
OFFICE OF THE CHIEF
TEL. 914.273.3357 FAX 914.273.3178

January 22, 2013

Lauren E. Wang, Planner
VHB Engineering, Surveying and Landscape Architecture, P.C.
50 Main Street, Suite 360
White Plains, NY 10606

Dear Ms. Wang,

The following information is provided in response to your January 7, 2013 letter regarding the Environmental Impact Statement for the proposed development to the existing Brynwood Golf and Country Club. The specific items have been addressed:

Existing Conditions

(1) A discussion of the size of existing force and organization of service providers. The discussion shall include the location of stations in relation to the subject site; number and type of apparatus for service providers; average response time to the subject site for service responders; adequacy of access for service providers, with confirmation requested in writing from service providers.

The Armonk Fire Department provides Fire and EMS protection for Fire District #2 which includes Brynwood. The Fire Department is a 100 percent volunteer organization, and currently has approximately 50 active members. The Fire Station is located at 400 Bedford road; 1.5 miles from 568 Bedford Road. Below is a listing of the number and type of apparatus available:

- Basic Life Support Ambulances: 3
- 1500 Gallon per minute (GPM) Pumpers: 3
- Rescue/1500 GPM pumper: 1
- 3000 Gallon/1500 GPM Tanker: 1
- All Terrain Vehicle: 1
- Chief's vehicles: 3
- Utility Vehicle: 1

The average response time was calculated using actual responses to 568 Bedford Road for the past five years. During this period there were 30 calls and an average response time of seven minutes and 34 seconds.

In order to provide access for ambulances and fire apparatus, roads and pathways must be wide enough to get close to the homes/units. Ambulances are 9'6" high, 8' wide and 24' long. Our Fire apparatus is 10'2" high, 9' wide and 36' long. In addition the roads must be able to support our Tanker weighing (GVWR) 67,600 pounds. In addition to Armonk Fire

Department apparatus, the roadways must be able to accommodate ladder trucks from neighboring towns.

(2) *Water Supply and Capacity for fighting purposes*

Water flow for firefighting is unknown by this department. One hydrant near the existing clubhouse is a private hydrant, and we have no information regarding water flow, pressure, etc. In addition, history proves that hydrants across the street in the Windmill neighborhood have not always been reliable during fire department operations.

If in fact the hydrant systems do not produce enough water pressure and flow, we would opt to utilize tanker operations. Depending on the size of the structure and amount of fire, we would calculate the amount of additional tankers needed to respond from mutual aid departments.

Potential Impacts

(1) *Increased demand for services (based on normal usage of the subject site)*

It is unknown what if any the increase in catering, golf, etc. activities may be. Over the past five years there have been 30 alarms at 568 Bedford Road, averaging 6 per year. Due to the anticipated increase in activities at the site, an additional 2-3 calls per year can probably be assumed.

In regard to the demand for services from the 88 planned housing units, we utilized a development in town with a similar number of residential units for the purpose of estimating potential call volume. Whippoorwill Ridge for the past five years has averaged eight (8) EMS calls and five (5) fire related calls per year. According to information on the Brynwoodvision website these units are being marketed to empty nesters. These empty nesters are an older population, and based on our experiences, older populations tend generate more ambulance calls. With the older population our best guestimate is that there will probably be an additional 12-15 ambulance calls per year for this site.

Fire Calls, which includes everything non-EMS, including Carbon Monoxide, Fire Alarms, smell of smoke, actual fires, etc., is more difficult to estimate. Placement of detector heads is critical to avoid false alarms. If these heads are located too close to a kitchen or bathroom, there is the potential for numerous false alarms. In addition, the buildings that have underground parking would be more susceptible to Carbon Monoxide alarms based upon the ventilation systems of the garage. At this time, the best guess estimate would be an additional 8-15 fire calls per year.

(2) *Increased costs for service providers, if any*

The additional calls will cause an increase in fuel consumption for the vehicles and additional costs associated with medical supplies. It is hoped that the tax revenues received from this site would offset those costs.

In regard to fire protection in the parking garages, if sprinklers and standpipes are not provided the District may have to purchase an additional firefighting vehicle with a low height which could be utilized to fight fires in the parking garage. The approximately 200 foot distance from the entrance to the furthest underground parking space may necessitate this type of vehicle to adequately fight a fire and protect the structure.

(3) *Adequacy of access to/from the subject site, including roadway surface and width, barriers and maintenance.*

Based upon the size and weight of our apparatus adequate access must be provided. Ambulance access must have wide enough roadways and paths to get close to the homes/units. All necessary equipment including a stretcher must be carried or wheeled to the emergency location and then returned with the patient to the ambulance. We request that there be no dead-end streets like the one shown on Exhibit 2 – draft rendering – this would be unacceptable. On this same rendering the yellow hatched paths should be large enough for Fire Department use.

(4) *Concerns of Fire Department, Ambulance Corps and Emergency medical providers.*

Many of our concerns are listed above; below please find additional concerns, requests:

- The water Supply should be designed by a professional engineer and submitted to the Fire Department for review
- Although not required by code, we would like to have all buildings fully sprinkled including the below grade parking.
- We are concerned about Carbon Monoxide levels in and around the parking garage. This concern may be alleviated by the design of the structure and/or integrated ventilation systems.
- In the buildings which plan to have elevators, we would prefer that the elevator cars to be able to hold a 6 foot stretcher with ease to better care for patients as needed.
- Any additional call volume puts strains on our Volunteer Fire Department. It is hoped that some of these new residents may be willing to join the Fire Department as firefighters or EMT's. Unfortunately, it has been our experience that with other recent housing constructed in town that this has not been the case.
- We also have a concern that affordable housing be available for our existing members so they can stay in the community and be able to respond. It is our hope that affordable housing be provided with this proposed development.

(5) *Fire protection water supply pressure*

We would like hydrants to have adequate pressure and flow for fire protection. For normal pressure, they hydrant should have a minimum of 50 psi to maximum of 120 psi. Fire flow should be a minimum of 1000 gallons per minute.

(6) *For each of above analyses, also include consideration of potential impacts of other developments planned or proposed in the immediate area of the subject site. (List developments to be supplied by Lead Agency)*

At this time we are not aware of any other developments planned for this area. However having better operating hydrants can potentially impact the entire area with providing those neighbors with better fire protection.

If you should need anything further, please don't hesitate to contact us. Chairman Bruce Wuebber: 914-273-2984 ncfd2@optonline.net and Chief Luci Labriola-Cuffe: 914-273-3357 ArmonkFireChief@optonline.net

Thank you,

Bruce Wuebber
Chairman of Board of Fire Commissioners

Luci E. Labriola-Cuffe
Chief of Operations

Letter #2

John J. Klem
43 North Lake Road
Armonk, NY 10504

June 28, 2013

Town Board
Town of North Castle
15 Bedford Road
Armonk, NY 10504

Re: Brynwood Rezoning Application

Dear Supervisor Arden, Councilmen Schiliro, Cronin, D'Angelo and Councilwoman Roth:

Attendance at last night's meeting to seek input on the Brynwood DEIS was surprisingly sparse. I counted approximately 50 attendees, including perhaps 15 Brynwood employees, 5 Windmill residents who support the application and 20 Windmill residents who oppose the application. Back out those numbers and it is clear that the rest of the town doesn't care much one way or the other. Assuming a willingness to stand up to the ROWI "nimby" crowd, you are free to decide the issues on their merits without taking into account whatever the effect might be on the upcoming election.

I am a forty-four resident of Windmill Farms and a member of Brynwood. As a general proposition I support the club's rezoning application and believe approval would be a net benefit to the town and the school district. However, there are some significant issues that you will need to decide before approving or denying Brynwood's proposal.

One significant issue that is poorly addressed in the DEIS is affordable housing. It should be obvious that locating MIU's on the Brynwood property is a poor choice because renters of those units would not have access to the club or the golf course and would be at considerable distance from any shops, parks, restaurants or public transportation. A much better solution would be to build MIU's (and/or fair and affordable housing as required by the Westchester settlement) at a location such as the old lumber yard in concert with other developments, such as the Cider Mill, that have similar requirements to build affordable housing. Allowing the Cider Mill to be developed without actually building MIU's was a mistake. Brynwood's development should not repeat that mistake.

Yours truly,

cc: Jeffrey Mendell

Letter #3

From: Von Ohlsen, Bonnie
To: Megan Maciejowski; Saccardi, John; jeffrey b mendell; Peter J. Wise; Mark P. Weingarten
Cc: T. CUSACK; Bob Roth; Gallant, Jill; Stacey Stieber
Subject: FW: Direct Impact on our Home by Proposed Brynwood Development
Date: Monday, July 08, 2013 10:24:35 AM

For FEIS

Bonnie Von Ohlsen, RLA, LEED Green Associate
Senior Project Manager
914.467.6600 ext. 6612

www.vhb.com

From: Anne Curran [mailto:acurran@northcastleny.com]
Sent: Monday, July 08, 2013 9:51 AM
To: Von Ohlsen, Bonnie
Subject: FW: Direct Impact on our Home by Proposed Brynwood Development

Bonnie – Below is another DEIS comment. The 3rd written comment we have received.

Anne

From: Liz Freund [mailto:lizfreund@verizon.net]
Sent: July 07, 2013 7:14 PM
To: Adam Kaufman
Cc: David Freund; Liz Freund; Michael Schiliro; Diane DiDonato Roth; Stephen D'Angelo; John Cronin; Howard Arden
Subject: Direct Imact on our Home by Proposed Brynwood Development

Dear Mr. Kaufman,
We are writing to you with regards to the proposed Brynwood development project and its affect on our home at 8 Embassy Court. Our home directly abuts the golf course.
We have several concerns:

Well Level and Water Flow – We voluntarily participated in tests conducted by Brynwood's hydrology consultants, Leggette Brashears & Graham, Inc. They conducted tests from May 19-June 3 on our well in conjunction with the testing on their wells. To my knowledge as a layperson, these tests are ideally not conducted during these wet spring months. Even so, their tests showed that our well level dropped by 11 feet (letter from Leggette Brashears & Graham, Inc. dated June 20, 2013). This may not sound alarming. However, our well is only 80 feet deep and this is a drop equal to 13.75% of the total well depth. Furthermore, we had a well company inspect our well one-week after Brynwood concluded their tests. The water in our well was 32 feet from the surface. In this context, 11 feet is equal to a 34.375% drop. Brynwood's consultants sent a letter stating that they are aware of this. However, we did not see anything to this effect in the Draft EIS.

Sedimentation in Well Water - Simultaneous with Brynwood testing their wells, our home has had a whole host of issues related to sedimentation that we have not experienced in the 15 years that we have lived here.

a. Whole House water filter – this is a filter that we change every 3-months. However, due to increased sediment in our well water, our water ceased flowing at all. After plumbers concluded (John Hobby JR Plumbing on 6/10) that it was the sedimentation in the whole house filter and changed the filter, the water returned. Our water failed a second time when sedimentation built up in the sensors in our water tank. After correcting this, we have had to change the filter every few days.

b. At the same time (6/11) sediment built-up in our French drain beneath our basement floor. The drain clogged with sediment and failed. The water backed up flooded our basement with 1 – 2 inches of groundwater. We have had to hire ServiceMaster of White Plains to remove the wall-to-wall carpeting and sanitize the floor. We are now in the process of repairing the drain, but we want to make sure that we have the proper documentation to show that this failure was due to new sediment created by the Brynwood development.

Water Quality and Safety – We also have ongoing concerns over water quality particularly if the course re-design involves explosives and construction. We are concerned that the machinery, equipment fuel and ground digging could cause ecological and environmental damage to the land and natural underground water.

Please understand that we are unsure as to the affects that any large-scale construction abutting our property may have but we are worried and are asking for your help. Our concerns do not involve traffic patterns, taxes, or additional school children. We do understand those concerns of our neighbors, but our concerns are directly related to the quality of our well water and damages that could happen from construction. We feel a bit like David and Goliath and we must mention that we have been Brynwood members since its inception in 2010. We have genuine concerns and just want to protect our lives, home and family's future here. Please advise what your thoughts and suggestions are. We are active volunteers in our community in particular in the Byram Hills School District (Byram Hills Education Foundation & PTSA) and Congregation B'Nai Yisrael. We ask for your help in this matter.
Respectfully,
David and Liz Freund
CC:
Howard Arden - harden@northcastleny.com
John Cronin - jcronin@northcastleny.com
Stephen D'Angelo - sdangelo@northcastleny.com
Diane DiDonato Roth - ddidonatoroth@northcastleny.com
Michael Schiliro - mschiliro@northcastleny.com
==================

David and Liz Freund
8 Embassy Court
Armonk, New York 10504
Tel. 914-273-2759
davidefreund@verizon.net
lizfreund@verizon.net

Letter #4

Embracing the Future

Developing empty nester housing in Armonk is too long in coming. A master plan needs to be formulated to attract a number of projects at various price points catering to people like myself who no longer require the school system, are at the end of their working careers and want to remain in this town. The tax generation and minimal town resources required to support these residents makes it a win-win situation. Armonk will also benefit through employment opportunities and bring additional customers to local businesses.

As baby boomers reach retirement age in enormous numbers this is a growing marketplace. Unfortunately most are forced to leave the area or even the state to find a suitable housing alternative, which offers lower taxes, less upkeep and a safe environment.

The Brynwood CC project is an attempt to fill a portion of that gap. It has been under consideration for over 2 years. The owners took a decrepit club and made it into a viable golf facility, renovated the club house and now offer an upscale catering event venue long missing in the area. Now they have offered a trimmed down plan to develop 88 condominiums targeted for affluent empty nesters plus improvements to the golf course and club facilities.

If the Brynwood project is shut down it will signal the unwillingness of the town to address the needs of a growing number of its residents, which will result in a continued exodus of long-term residents to other towns or out of state. After all why should Armonk pass on what Greenwich and White Plains have already discovered to be an attractive model for growth and sustainability?

Its time for Armonk to Embrace the Future for the overall good of the town and spearhead opportunistic development to make Armonk a leader in active senior living for the good of all.

Chuck Dunn
Armonk New York
Golf Member of Brynwood CC

RECEIVED
JUL 15 2013
TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

839 Mt Kisco Road
Armonk, NY
10504

914-273-4546

Westchester gov.com

RECEIVED

JUL 17 2013

TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

Letter #5

JUL 17 2013

Robert P. Astorino
County Executive

Sherlita Amler MD
Commissioner of Health

July 16, 2013

Andrew Kaufman, AICP
Director of Planning
Town of North Castle
Town Hall
17 Bedford Road
Armonk, NY 10504-1898

RE: Brynwood Golf & Country Club
568 Bedford Road
Armonk, NY

Dear Mr. Kaufman:

The Westchester County Department of Health (WCDH) has reviewed the submitted Draft Environmental Impact Statement (DEIS) for the above referenced development and has the following comments.

<u>Section 2 page I-2 of the DEIS</u>

"The Proposed Action consists of the proposed amendments to the Town Zoning Ordinance and includes: (1) construction of a new exit…(2) renovations and upgrades to Club core…(3) development of a residential community 80 market rate condominiums and 8 "fair and affordable" rental units..The proposed residential development called the "Residences at Brynwood," will include 80 market rate condominium units located in 19 structures in the area to the north of the clubhouse (on the approximately 14.5 acre "North Parcel"). The affordable rental units will be located in one structure in the area to the south of the clubhouse (On the approximately 9,000 sf "South Parcel"…A new, upgraded wastewater treatment plant will be constructed to accommodate new demand form golf course community...a new water system with on-site wells will be developed to serve the clubhouse and residential community.. ."

This development will require approval as a realty subdivision from this Department in accordance with Article X of the Westchester County Sanitary Code.

Any proposed public water supply to serve this development will require approval from this Department in accordance with Article VII of the Westchester County Sanitary Code.

145 Huguenot Street
New Rochelle, New York 10801 Telephone: (914) 813-5000 Fax: (914) 813-5158

Any proposed wastewater treatment facilities to serve this development will require approval from this Department in accordance with Article XXII of the Westchester County Sanitary Code.

Any proposed public water and/or sewer mains to serve this development will require approval from this Department in accordance with Articles VII and XXII of the Westchester County Sanitary Code.

Any proposed petroleum bulk storage tanks to serve this development may require approval from this Department in accordance with Article XXV of the Westchester County Sanitary Code.

Should you have any questions please feel free to contact this writer at 914-813-5149.

Respectfully,

Natasha Court

Natasha Court, PE
Associate Engineer
Bureau of Environmental Quality

cc: Delroy Taylor, P.E.
Fred Beck
Carlos Torres
File

From: Anne Curran [acurran@northcastleny.com]
Sent: Wednesday, July 24, 2013 11:15 AM
To: Adam Kaufman; Von Ohlsen, Bonnie; Diane DiDonato Roth; Howard Arden; jcronin@northcastleny.com; Michael Schiliro; Stephen D'Angelo
Cc: Barbara Pesquera; Roland Baroni
Subject: Comment Re: Brynwood Development

FYI...

Letter #6

From: Liz Freund [mailto:lizfreund@verizon.net]
Sent: July 19, 2013 6:01 PM
To: aadelman@northcastleny.com
Cc: Adam Kaufman; rbaroni@sbrllaw.com; aadelman@northcastleny.com; jdelano@northcastleny.com; ssauro@northcastleny.com; gmezzancello@northcastleny.com; ccarthy@northcastleny.com
Subject: Re: Direct Impact on our Home by Proposed Brynwood Development

Dear Art,

We wanted to forward you the correspondence below regarding our home at 8 Embassy Court and the direct impacts that the Brynwood Club and its proposed expansion is currently having on our property. We are in favor of the proposed development, however we must first and foremost protect ourselves against any direct negative effects that have occurred and may occur in the future to our property.

As you can see in the attached email below, our well levels decreased significantly (34% drop from the previous surface level) after Brynwood's consultants testing. There has been a dramatic increase in sediment that was stirred up from drilling new sample wells that has damaged our french drains causing a flood in our basement. This sediment has clogged our home's water softener filtration system. This has happened several times since Brynwood drilled the test wells and tested at the end of May. Today, July 19th at 4:15 PM today, we had zero water in our house. We checked our filters but this time it was not a clogged filter. This time it appears that our well was empty. Thankfully it is slowly refilling but please note that this has never happened in the 15 years that we have lived here. It seems clear that these water issues were caused by Brynwood.

Today we left a message on Josh Lowney's voicemail requesting a meeting with Josh and/or Jeff Mendel to discuss the matter. We are hopeful that they will be proactive in making this right so that our property can be repaired and protected from any further damage. We hope to be able to continue to support Brynwood's development as neighbors and members since 2010.

We would appreciate your support and we welcome any suggestions that you may have.

Best Regards,

Liz and David Freund

On Jul 8, 2013, at 7:56 AM, Adam Kaufman <akaufman@northcastleny.com> wrote:

Mrs. Freund,

All of your questions and concerns are relevant. Each one of your questions will be documented and answered in the Final Environmental Impact Statement. In the short term, have you contacted Brynwood to talk about what has happened on your property? If not, I would do so. However, all of the issues you raised will be addressed and if necessary, mitigated.

Adam

Adam R. Kaufman, AICP
Director of Planning
Town of North Castle
17 Bedford Road
Armonk, NY 10504
(914) 273-3542
(914) 273-3554 (fax)
www.northcastleny.com

From: Liz Freund [mailto:lizfreund@verizon.net]
Sent: July 07, 2013 7:14 PM
To: Adam Kaufman
Cc: David Freund; Liz Freund; Michael Schiliro; Diane DiDonato Roth; Stephen D'Angelo; John Cronin; Howard Arden
Subject: Direct Imact on our Home by Proposed Brynwood Development

Dear Mr. Kaufman,
We are writing to you with regards to the proposed Brynwood development project and its affect on our home at 8 Embassy Court. Our home directly abuts the golf course.
We have several concerns:

1. Well Level and Water Flow – We voluntarily participated in tests conducted by Brynwood's hydrology consultants, Leggette Brashears & Graham, Inc. They conducted tests from May 19- June 3 on our well in conjunction with the testing on their wells. To my knowledge as a layperson, these tests are ideally not conducted during these wet spring months. Even so, their tests showed that our well level dropped by 11 feet (letter from Leggette Brashears & Graham, Inc. dated June 20, 2013). This may not sound alarming. However, our well is only 80 feet deep and this is a drop equal to 13.75% of the total well depth. Furthermore, we had a well company inspect our well one-week after Brynwood concluded their tests. The water in our well was 32 feet from the surface. In this context, 11 feet is equal to a 34.375% drop. Brynwood's consultants sent a letter stating that they are aware of this. However, we did not see anything to this effect in the Draft EIS.

2. Sedimentation in Well Water - Simultaneous with Brynwood testing their wells, our home has had a whole host of issues related to sedimentation that we have not experienced in the 15 years that we have lived here.

    a. Whole House water filter – this is a filter that we change every 3-months. However, due to increased sediment in our well water, our water ceased flowing at all. After plumbers concluded (John Hobby JR Plumbing on 6/10) that it was the sedimentation in the whole house filter and changed the filter, the water returned. Our water failed a second time when sedimentation built up in the sensors in our water tank. After correcting this, we have had to change the filter every few days.

    b. At the same time (6/11) sediment built-up in our French drain beneath our basement floor. The drain clogged with sediment and failed. The water backed up flooded our basement with 1 – 2 inches of groundwater. We have had to hire ServiceMaster of White Plains to remove the wall-to-wall carpeting and sanitize the floor. We are now in the process of repairing the drain, but we want to make sure that we have the proper documentation to show that this failure was due to new sediment created by the

3. Water Quality and Safety – We also have ongoing concerns over water quality particularly if the course re-design involves explosives and construction. We are concerned that the machinery, equipment fuel and ground digging could cause ecological and environmental damage to the land and natural underground water.

Please understand that we are unsure as to the affects that any large-scale construction abutting our property may have but we are worried and are asking for your help. Our concerns do not involve traffic patterns, taxes, or additional school children. We do understand those concerns of our neighbors, but our concerns are directly related to the quality of our well water and damages that could happen from construction. We feel a bit like David and Goliath and we must mention that we have been Brynwood members since its inception in 2010. We have genuine concerns and just want to protect our lives, home and family's future here. Please advise what your thoughts and suggestions are. We are active volunteers in our community in particular in the Byram Hills School District (Byram Hills Education Foundation & PTSA) and Congregation B'Nai Yisrael. We ask for your help in this matter.

Respectfully,
David and Liz Freund

CC:
Howard Arden - harden@northcastleny.com
John Cronin - jcronin@northcastleny.com
Stephen D'Angelo - sdangelo@northcastleny.com
Diane DiDonato Roth - ddidonatoroth@northcastleny.com
Michael Schiliro - mschiliro@northcastleny.com

==================

David and Liz Freund
8 Embassy Court
Armonk, New York 10504
Tel. 914-273-2759
davidefreund@verizon.net
lizfreund@verizon.net

Letter #7

M E M O R A N D U M

July 10, 2013

TO: North Castle Town Board

FROM: Earle Yaffa
44 Evergreen Row
Armonk, NY 10504

SUBJECT: Comments on DEIS for Brynwood Golf and Country Club III-m Traffic and Transportation

Attached for your consideration are my comments and analysis of the Traffic and Transportation portion of the DEIS. Based on my review, I would respectfully request that the Town Board reject this application.

Enclosure

Traffic Impact Study
<u>Brynwood Golf and Country Club</u>

Based on the Traffic Impact Study included in the DEIS submitted to the Town Board for review, I believe the Town Board should reject this application. The Study is based on certain assumptions that may be inaccurate, omits a traffic analysis at a major intersection which is currently experiencing (and will continue to experience) major delays (Rte 22 and Cox Avenue), and does not include delays in access to Rte 22 from Creemer Road, Sterling Road and the houses directly on Rte 22. However, even with these deficiencies in the study, it still concludes that traffic is so bad at certain major intersections that the increase in the number of cars from Brynwood will have no SIGNIFICANT negative impact; that means that it will have some negative impact.

The Transportation industry using a grading system for the level of service along a road. The intersections that are projected to fail during one of the time periods studied under this system, are:

Rte 22 and Tripp Lane - grade "F".....
Rte 22 and I 684 So - grade "F"
Rte 22 and Upland Rd – grade now "E", projected "F"

I am not a traffic engineer so I make no claim to understand all of the data in the study . . . but I do understand that "F" is bad. How often are projects undertaken to increase traffic where traffic is already considered failing? I don't think the Town Board can approve a project on the assumption that "<u>traffic is bad, we'll make it worse, but since it's already bad, who cares</u>."

The DEIS is just as noncommittal with regard to accident data. There were approximately 20 accidents in each of 2009, 2010 and 2011 on the stretch of road from Chestnut Ridge Road to Rte 433. While most of the accidents were related to property damage, there were approximately 15 injuries over that period. The study's conclusion is that Brynwood will not have a SIGNIFICANT impact on the accident rate. Does that mean that there will be 1 more accident a year,or maybe 5....will 1 more person get injured, or 2 or 3. Is this a risk the Town Board wants to take on a road that is considered below par on any measure of traffic?
<u>The conclusions from the DEIS should lead the Town Board to reject the project without further study</u>.

Deficiencies in the DEIS

The DEIS has certain deficiencies which would lead to underestimating the traffic impact (although if it's graded "F", it can't get a lower grade).

- The DEIS uses assumptions on the number of cars leaving the development. They assume that the 88 units would generate only 39 exiting trips in the morning rush hour. While this may be standard data for condominium/townhouse projects, it seems totally unrealistic. This is less than ½ trip per household per day and likely does not take into account that this is the major route for all commuters, and provides access to all services in town.

- They also include a minimum estimate on the impact of the St Nersess Seminary which is currently under construction. None of us have any idea on the traffic the Seminary will generate but there is a significant risk that it may be in excess of the current estimates. Furthermore, while they do include estimates for Armonk Square, it is not possible to accurately gage the increased traffic from our new supermarket or the anticipated opening of the CVS. Both are likely to generate significant traffic southbound traffic on Rte 22.

- A study of this type should include a sensitivity analysis (common in most business and scientific analysis) which would show the impact if traffic leaving Brnywood (particularly during the morning peak periods) is far in excess of the projections used. My understanding of the "queuing theory" used in this analysis is that increasing the number of vehicles entering the queue does not increase wait times linearly but will instead create an expotential increase in the wait times at already failed intersections.

- The DEIS does not contain data regarding traffic turning from Cox Avenue north onto Rte 22. Cox Avenue is a major transit route for residents going to/from the north of town to the west portion of the village and to Mt. Kisco. In my view, this is one of the more dangerous intersections on that stretch of road as cars enter Rte 22 Northbound from Cox Avenue must cross the line of cars heading South on Rte 22.

Obviously cars from Brynwood proceeding South through this intersection will exacerbate the problem.

- The study includes no information on traffic issues experienced by cars entering Rte 22 from either Sterling Road or Creemer Road (or by residents who own homes along Rte 22). While the volume of cars may not be large, this is already a dangerous turn for those drivers and increasing traffic or Rte 22 will only make it worse.

- The DEIS mentions alternate access the Bryan Hills High School through either Perry Court or Blair Road. Both roads are 100% residential with about 15 homes on each. I do not believe that either alternate is practical as they are not suited for extensive school bus traffic or high school drivers. Without a public presentation to the residents of those streets, it is inappropriate to include or consider these routes as an alternative in the DEIS.

- The DEIS ignores traffic issues during the construction period. Given the poor conditions already on Rte 22, adding a significant number of heavy construction and earthmoving equipment, along with the traffic from construction workers will make conditions much worse.

<u>All of this should leave you to conclude that the detriments of this project to Town residents will far exceed the benefits to the Town and the only reason to move forward is to enrich the developer</u>.

Thank you for your consideration.

New York State Department of Environmental Conservation
Division of Environmental Permits, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1620
Phone: (845) 256-3054 • **FAX:** (845) 255-4659
Website: www.dec.ny.gov

Letter #8

Joe Martens
Commissioner

July 26, 2013

Adam Kaufman, AICP
North Castle Town Board
15 Bedford Road
Armonk, NY 10504

Re: Brynwood Golf & Country Club – **Comments on DEIS**
DEC ID: 3-5538-00041-00001
Town of North Castle, Westchester County

Dear Mr. Kaufman:

The New York State Department of Environmental Conservation (DEC) has reviewed the Draft Environmental Impact Statement (DEIS) for Apple Ridge, last revised June 4, 2013, and offers the following comments:

In general, the DEIS appears to address the Department's jurisdictional concerns and potential permits.

Archaeological Resources
Department permits are needed for this project, therefore, coordination of project review with the New York State Office of Parks, Recreation and Historic Preservation (OPRHP) is required, and the applicant must supply a "letter of effect" from OPRHP to the Department.

Stormwater Management
Compliance with the State Pollutant Discharge Elimination System (SPDES) General Permit is required for any project that disturbs greater than one acre of land area. Coverage under GP-0-10-001 may be obtained by the preparation of a Stormwater Pollution Prevention Plan (SWPPP) and the filing of a Notice of Intent form with the DEC pursuant to the permit requirements. In addition, because the project site is located within a regulated Municipal Separate Storm Sewer Systems (MS4) area, an "MS4 SWPPP Acceptance Form" must also accompany the sponsor's Notice of Intent filing.

Water Supply
If the facility will have its own private water supply and it exceeds the threshold volume of 100,000 gallons per day or if future study determines that on-site well-yield capacity is not sufficient to meet water demand requirements and the project pursues connection with the existing Town of North Castle Water District No. 2, then an Article 15 Water Withdrawal permit will be required. See http://www.dec.ny.gov/permits/6379.html for additional information.

Wastewater
In addition to Department review and approval of the new proposed treatment facility proposed for construction in Phase 1 of the project, if the new wastewater treatment plant results in any changes to wastewater discharge locations, these changes must be identified and included in the request to modify the existing Article 17 SPDES Permit NY0069299.

Thank you for the opportunity to comment on the DEIS for this proposed project. Department staff is available to further discuss these comments upon request. If you have any comments or questions, I can be reached at (845) 256-3165.

Sincerely,

Jean McAvoy

Jean McAvoy
Environmental Analyst
Division of Environmental Permits

Letter #9

Westchester gov.com

Robert P. Astorino
County Executive

County Planning Board

August 6, 2013

Adam R. Kaufman AICP, Director of Planning
Town of North Castle
15 Bedford Road
Armonk, NY 10504

Subject: **Referral File No. NOC 13-006 – Brynwood Golf & Country Club**
Draft Environmental Impact Statement
Zoning Text Amendments
Comprehensive Plan Amendment
Site Plan and Subdivision Approvals

Dear Mr. Kaufman:

The Westchester County Planning Board has received a draft environmental impact statement (EIS), dated accepted June 11, 2013, prepared pursuant to the NYS Environmental Quality Review Act (SEQR), for the above referenced proposal.

The application involves proposed modifications to the 156-acre Brynwood Golf & Country Club (formerly known as the Canyon Club), which is located between NYS Route 22 and Interstate 684, north of the Armonk hamlet. Nearby land uses include the Coman Hill Elementary School (to the south) and the Windmill Farm subdivision (to the east). The applicants are seeking to modify recreational facilities on the site, including proposed changes to the golf course, and to renovate the existing clubhouse. The clubhouse, which would be reduced in size from 65,000 square feet to 64,000 square feet, would contain all current uses plus new employee housing (8 rooms) and 6 guest lodging rooms. While new swimming pools would be added, tennis court space would be reduced from 14 courts to six courts. The existing parking for 178 parking vehicles would remain the same.

By reducing the tennis court space and re-working other open spaces in the front of the site, the applicant intends to create space for a new residential community of 88 dwelling units. Specifically, a 14.5-acre "north parcel" and a 9,000 square foot "south parcel" would be set aside for the residential uses, separated by the clubhouse facilities. The proposed residential component of the project would include five, four-bedroom single family dwellings (known as "golf cottages) and 14 semi-attached three bedroom townhouses (known as "club villas"). Eight multi-family buildings would also be constructed. Seven would be known as "golf residences" and would contain a total of 55 two-bedroom and six three-bedroom units throughout all the buildings. All of the above units would be constructed on the "north parcel." The eighth multi-family building (known as "fairway residences") would be constructed on the "south parcel," next to the parking lot for the club, and would contain eight affordable units intended to affirmatively further fair housing (AFFH) in accordance with the housing settlement between

Westchester County and the federal government. The building would contain a mix of one four-bedroom, one three-bedroom and six two-bedroom units. Four to five member guest rooms may also be provided in this building.

According to the draft EIS, all residential units on the north parcel would have condominium ownership while all of the affordable AFFH units would be rentals. All condominium unit owners would be required to purchase a club membership. Tenants of the affordable AFFH units would not have to meet this requirement. Total parking provided for the condominium units is 169 spaces, with each unit receiving two garaged spaces, plus nine additional spaces. The affordable AFFH units would be allotted garage spaces underneath the building at a ratio of one garage space plus ½ space per bedroom.

The proposed action requires a number of approvals. The applicant is petitioning the Town for amendments to the Town Zoning Ordinance to add "golf course community" as a new special permit use for R-2A district, which is the district the site is located in. The applicant is also petitioning to amend the existing Town regulations for "membership clubs" to change the allowable ownership and operational structures of such clubs to permit the flexibility necessary to add residential units. A Town Comprehensive Plan amendment is also sought to allow "golf course community" as a land use in the Town. Site plan and subdivision approvals would be required. In addition, the applicant may also seek inclusion of the site into a Town water district which serves the surrounding area; the site is currently not within this district but purchases water from the district as an out-of-district user. Wastewater is proposed to be handled on-site through the construction of on-site wastewater treatment facilities and subsurface discharge areas.

The County Planning Board has reviewed the draft EIS under the provisions of Section 239 L, M and N of the General Municipal Law and Section 277.61 of the County Administrative Code. A meeting was also held between the applicant and County officials on July 17 to provide additional project information. We offer the following comments and recommendations:

1. <u>Consistency with County Planning Board policies</u>. The proposed application is consistent with the County Planning Board's long-range planning policies set forth in ***Westchester 2025—Context for County and Municipal Planning and Policies to Guide County Planning,*** adopted by the Board on May 6, 2008, amended January 5, 2010, and its recommended strategies set forth in ***Patterns for Westchester: The Land and the People***, adopted December 5, 1995. Most notably, the project is consistent with County policies with regards to two major aspects:

> **PROVISION OF AFFORDABLE HOUSING** ***Westchester 2025*** calls for the promotion of "a range of housing types" which this development will include. We commend the applicant for the provision of eight affordable AFHH units in the development which will assist the County in achieving its goal of providing 750 affordable AFFH units under the housing settlement.
>
> We note that the Town has not adopted the Model Ordinance Provisions with respect to affordable AFFH. We encourage the Town to do so. The Model Ordinance Provisions contain recommended guidelines as to the placement of affordable units within developments. As

adopted by other municipalities, these provisions ordinarily require the integration of affordable units within a given development so that they are "indistinguishable in appearance, siting and exterior design." Because a golf course community presents different development challenges than a standard single or multi-family development, in addition to the different legal structures for condominium and rental ownership, it is understandable that it may not be feasible to fully integrate the affordable AFFH units into the development. We recommend that the final EIS include a discussion of this aspect.

We also note that the draft EIS includes a development option where the applicant may construct the affordable AFFH units off site, with 88 market rate units constructed at the country club and nine affordable units constructed elsewhere.

PRESERVATION OF OPEN SPACE The preservation of open space is another major policy goal of Westchester 2025. Brynwood Golf and Country Club, as a privately owned open space subject to 2-acre residential zoning, is susceptible to being subdivided and developed should the country club cease operations. It is known that socio-economic changes, as well as changes in tastes for recreational activities, are part of an ongoing trend that has weakened the viability of many privately owned country clubs under traditional ownership models and led to the placement of new uses on golf course properties. This trend can have major implications on open space protection. Although privately owned, golf courses maintain areas of open space character and provide some benefits of open space.

The applicants have recognized that by changing the model of how this club can operate, the viability of the club may be assured, continuing the open space benefits. These benefits would not be achieved if the site were to be subdivided into lots for 49 single-family dwellings, as considered in the draft EIS alternatives section.

2. Water supply. The draft EIS presents two scenarios regarding the increase in water supply necessary to accommodate the addition of 88 residential units. The country club currently uses two on-site wells for irrigation purposes when the on-site ponds do not contain sufficient water to be utilized. Potable water for the clubhouse operations is obtained from Town Water District No. 2 under an "out of district" user agreement. To accommodate the additional development, the draft EIS discusses the potential drilling of additional on-site wells to supply all potable water needs on the site. If this were to occur, the applicant would end its "out of district" consumption of water from the Water District. A second option, if on-site wells were determined to be infeasible, would be to petition the Town for inclusion into Water District No. 2.

While the draft EIS states that well testing will have to be undertaken to determine the feasibility of an on-site well water supply system, we have been advised that subsequent to the circulation of the draft, test wells were drilled, with County Health Department approval, and the availability of sufficient supply was demonstrated. Further, it our understanding that the Town Water District must make major infrastructure improvements and upgrades whether or not the golf course property joins the district or stops drawing on the water supply as an out-of-district user.

As the County Department of Health always promotes a centralized water system rather than decentralized systems, the County Planning Board encourages the applicant, the Town and the Water District to work toward adding the country club property to the water district as it would strengthen the viability of the existing district. The applicant should be willing to contribute the equivalent cost of construction for the on-site well water supply to the Water District in exchange for inclusion in the district, and the lower usage rates such inclusion will provide.

3. <u>Recycling</u>. We note that the draft EIS includes an adequate discussion regarding County recycling law, noting that all recycling regulations will be followed. This is important given the recent expansion of the County's recycling program to include all plastics numbered 1 through 7.

We also commend the applicant for proposing an organic recycling area for plant-based debris cleared from the golf course. This will help eliminate waste from the waste stream that can otherwise be put to use for landscape maintenance on the site. We urge the applicant to take this one step further and consider on-site composting of food waste generated from food service operations at the club house. This would further reduce the waste that would need to be carted from the site and would provide another resource for landscaping maintenance.

4. <u>Pedestrian connectivity.</u> We commend the applicant for stating in the draft EIS that a complete sidewalk network would be provided to connect all of the proposed residences to the recreational facilities. We encourage the applicant and Town to consider working with the Byram Hills Central School District to provide a pedestrian connection between the site and the elementary school on the abutting property. This would be a substantial benefit to any school children living within the development since they could walk to school.

5. <u>Bicycle parking and access</u>. We recommend that the applicant consider bicycle storage or parking areas for the residential units that do not contain individual garages. We encourage the applicant and Town to consider working with the NYS Department of Transportation to determine if a potential roadway shoulder widening (or bike lanes) could be provided in the immediate area along Route 22 to more safely accommodate the large numbers of bicyclists who use this roadway.

Thank you for providing the opportunity to provide comments.

Respectfully,
WESTCHESTER COUNTY PLANNING BOARD

FOR:
~~B~~y:

Edward Buroughs, AICP
Commissioner

EEB/LH
cc: Rick Morrissey, MPA, Deputy Commissioner of Environmental Health Services, Department of Health
Richard Dillman, PE, SEQR Unit, NYS Department of Transportation, Region 8

Letter #10

SANDRA ADELMAN
17 Miller Circle
Armonk, NY 10504-1357
Phone: (914) 765-0542
E-mail: sandyadelman@optonline.net

August 8, 2013

North Castle Town Board
15 Bedford Road
Armonk, NY 10504

This is in reference to the Brynwood application.

I have a friend who belongs to Century Country Club in Purchase, and I meet with her very often at the club. It's a beautiful place, probably very much like what Brynwood would try to be. Besides the main building, in which are dining rooms, indoors and out, there is a golf course, tennis courts, paddle courts, and at least three parking lots for the members.

When I come there on Mondays it is often difficult to find a place to park, despite there being three parking lots. My friend said that on Mondays, other country clubs are invited to spend the day at Century, playing golf and eating in one of the restaurants, all for a very big fee (about $500!) per person. The problem is that on those days, there are hundreds of cars into the area, as well as about a hundred additional personnel from Century (valet parking attendants, golf cart drivers, greeters, additional kitchen and wait-staff, etc.). All-in-all, a tremendous amount of vehicles and people coming into the area.

When I asked my friend why Century has these guest days, after all, Century is a very rich club with very high fees and membership charges, she said they have to do that to survive financially. She said that although the fees are high to the members, it still doesn't cover the enormous expense of running a top-tier club. So they put up with all the extra people and traffic on Mondays.

My thoughts go to how Brynwood would handle a similar situation. It's likely that Brynwood would also have to invite other clubs in, as Century does, to help them survive financially. Route 22 would be very congested and have difficulty handling several hundred extra cars, even if it's only on Mondays. All these extra cars would be coming in for the day just as Windmill Farms residents and others would be trying to get onto Route 22 to begin their day, creating traffic jams in both directions.

The other thought is, if Brynwood cannot attract other rich clubs to come for a day of golf and hospitality, would they soon come before the Board again, asking for still more concessions, to help them survive. North Castle homeowners would already be paying more taxes, to pick up the part the condos in Brynwood would not be paying. So what more would this development bring, besides road congestion, higher tax burden for other North Castle homeowners, and more children in our schools. It doesn't sound good.

Sincerely,

Sandra Adelman

Sandra Adelman

Barbara Pesquera

From:	Yaffa, Earle <Earle.Yaffa@skadden.com>
Sent:	Tuesday, August 13, 2013 2:57 PM
To:	Adam Kaufman
Cc:	Town Clerk External Account
Subject:	Brynwood DEIS Deficiencies in the traffic analysis
Attachments:	[Untitled].pdf

RECEIVED

AUG 13 2013

TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

Letter #11

Dear Adam
Attached are my comments on the deficiencies in the traffic analysis included in the Brynwood DEIS

I assume these will be addressed in the final EIS

Thank you

Earle Yaffa
44 Evergreen Row
Armonk, NY

RECEIVED

AUG 1 3 2013

TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

Deficiencies in the DEIS

The DEIS has certain deficiencies which would lead to underestimating the traffic impact.

The DEIS uses assumptions on the number of cars leaving the development. They assume that the 88 units would generate only 39 exiting trips in the morning rush hour. While this may be standard data for condominium/townhouse projects, it seems totally unrealistic. This is less than ½ trip per household and does not take into account that this is the major route for all commuters, and provides access to all services in town. A study of this type should include a sensitivity analysis (common in most business and scientific analysis) which would show the impact if traffic leaving Brnywood (particularly during the morning peak periods) is far in excess of the projections used. My understanding of the "queuing theory" used in this analysis is that increasing the number of vehicles entering the queue does not increase wait times linearly but will instead create an exponential increase in the wait times at already failed intersections. We request that the analysis be reviewed using additional data points including an assumption of double the number of cars.

- They also include a minimum estimate on the impact of the St Nersess Seminary which is currently under construction. None of us have any idea on the traffic the Seminary will generate but there is a significant risk that it may be in excess of the current estimates. Furthermore, while they do include estimates for Armonk Square, it is not possible to accurately gage the increased traffic from our new supermarket or the anticipated opening of the CVS. Both are likely to generate significant traffic southbound traffic on Rte 22. The traffic analysis should separately estimate the impact of these events.

- The DEIS does not contain data regarding traffic turning from Cox Avenue north onto Rte 22. Cox Avenue is a major transit route for residents going to/from the north of town to the west portion of the village and to Mt. Kisco. This is one of the more dangerous intersections on that stretch of road as cars enter Rte 22 Northbound from Cox

Avenue must cross the line of cars heading South on Rte 22. Cars from Brynwood proceeding South through this intersection will exacerbate the problem.

- The study includes no information on traffic issues experienced by cars entering Rte 22 from either Sterling Road or Creemer Road (or by residents who own homes along Rte 22). While the volume of cars may not be large, this is already a dangerous turn for those drivers and increasing traffic or Rte 22 will only make it worse. Brynwood could significantly increase these delays.

- The DEIS mentions alternate access the Bryan Hills High School through either Perry Court or Blair Road. Both roads are 100% residential with about 15 homes on each. I do not believe that either alternate is practical as they are not suited for extensive school traffic or high school drivers. Without another study including a public presentation to the residents of those streets, it is inappropriate to include or consider these routes as an alternative in the DEIS.

- The DEIS ignores traffic issues during the construction period. Given the poor conditions already on Rte 22, adding a significant number of heavy construction and earthmoving equipment, along with the traffic from construction workers will make conditions much worse.

Thank you for your consideration.

TOWN OF NORTH CASTLE
Town Hall Annex - 17 Bedford Road
Armonk, New York 10504
Established 1736

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AUG 14 2013
TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

Letter #12

VICTORIA SIROTA
ASSESSOR

(914) 273-3324 (voice)
(914) 273-3554 (fax)
vsirota@northcastleny.com

August 14, 2013

Dear Supervisor Howard Arden and Members of the Town Board:

Kindly note that I have reviewed the Brynwood Golf & Country Club Draft Environmental Impact Statement (DEIS) dated June 11, 2013 to determine an estimated assessment for this project. Please find my comments/questions below necessary to complete my assessment analysis:

Section II - Description of Proposed Action

1. Page II-6 and II-7– "Residential unit types and Architectural Design" – the # of 2 bedroom golf residences in buildings L-5 to L-7 in the verbiage does not agree to # stated in Table II-1 on page II-8. Please correct.
2. Pages II-21 - If proposed plan is approved, what type of ownership structure will be in place for the 3 parcels (golf/clubhouse, "North parcel with the residences" and "South Parcel" with affordable housing units.) Will the applicant manage operations for the entire project?
3. II-10 and II-17 – please confirm that the "golf course community" means 80/88 condo unit development.
4. II-10 d) Golf Course – "for so long as the affiliated golf course community exists, the club property shall be used solely for a membership club….and the portion of the site on which the golf course is located shall be maintained either as a golf course or otherwise as open space…." Please explain what this means? What happens in this scenario if golf residences are never built? Would the conservation easement never exist?

Section III - Socioeconomic/Fiscal Resources

Pages III.N 3 - 4
e) Existing Golf Communities –

1. Since the condominiums are assessed based on capitalizing income, please provide comparable rents and values.
2. What tax revenues have been generated from the golf courses and residences in these communities in the last 5 years?

3. Are there any Certiorari proceedings completed/pending in these communities?
4. What are the demographics in these communities?
5. Trump – why have there only been 16 units built when more were approved? Golf course/clubhouse – what is the value and taxes being generated?

Pages III.N 7 – 12
d) Estimated Tax Generation

1. Please provide calculation details as to how you calculate market value of the residences. You indicate that you are using $5,600 – $6,500 for monthly rents, however, details such as the vacancy & collection loss reserve, expenses against the gross income, capitalization rate, tax loaded factor, if applicable, are not included.
2. Please provide the actual comps you used in arriving at the rental income. What tax revenue is generated from this project?
3. Please indicate the sales/rental history of Ritz Carlton Towers in in White Plains. Has this project been built according to the initial marketing plan? Are both buildings completed and sold out? What is the current market value of the units? What is the assessed value? Are there currently Certiorari pending/settled? If so, how many years and what is the value being claimed?
4. Have you surveyed Townhouse (RMF) units and long term rentals within the Town of North Castle (specifically the hamlet of Armonk?) Are there any units in Whippoorwill Hill, Cider Mill, etc. being rented? If so, what is the monthly rental? What is the monthly rental amount of long term rentals? What is the average market value of these units?
5. Table III.N-2 indicates that the existing the property tax total is $275,671.15 (based on the 2011 assessment and 2012 mill rates). You are projecting that once the golf course/country club is renovated, tax revenue will essentially double. Please provide details as to how you arrive to the $25,000,000 value. As in #1 above, please provide with the detailed financial analysis, breaking out the projected income from golf/country club/lodging rooms, etc.
6. What are the values of comparable golf courses in Westchester County? New York area?
7. Table III.N-6 - If all approvals are granted, please define "year 1, 2 and 3."
8. What assurances are there to the Town that if this project is approved, it will be built as approved? What is your back-up plan if the project is not sold out as planned?

Page III N – 21
j) Fiscal impacts if the Club were to close and of the Conservation Easement

1. " there is no state or local statue that requires the Town tax assessor to consider a conservation easement in the assessment and valuation of land…" – Isn't it true that the conservation easement dictates what can and cannot be done to the property irrespective

of the zoning? Would not those limitations create an effect on value for assessment purposes? In other words, a change in the use of the property (from golf course to open space), would create an impact on the valuation and the assessment of the property.

Sincerely,

Victoria Sirota
Assessor

cc: Anne Curran, Town Clerk

Peter Coviello
4 Valley Lane
Armonk, NY 10504

Letter #13

August 19, 2013

Town Board
Town of North Castle Town Hall
15 Bedford Road
Armonk, NY 10504
By Hand and Email To:
harden@northcastleny.com
mschiliro@northcastleny.com
ddinatoroth@northcastleny.com
jcronin@northcastleny.com
sdangelo@northcastleny.com

Re: Brynwood DEIS

Dear Town Board Members,

This letter is to request that the following information be included in the Brynwood DEIS and FEIS. Due to the relatively short amount of time (during July and August) given to review the developer's more than 2,100 page DEIS these comments do not represent a full review of the DEIS. Given more time I would likely have been able to point out additional areas where the DEIS is not sufficient and does not support your ability to make a fully informed decision regarding the proposed development. Having said that, I would like to take this opportunity to thank each of you for your efforts in working through this development proposal, which will have a major impact on our community.

The Brynwood developers should be required to fully analyze another alternative in addition to the five included in the DEIS. The sixth alternative should review all reasonably predictable aspects of an 88 unit condominium development where the units are sold at prices consistent with typical two, three and four bedroom dwellings in North Castle and which has no requirement to pay annual fees related to golf club use and other luxury services and amenities (similar to Whippoorwill Ridge). I believe that this alternative is a very real possibility and that nothing in the DEIS requires the developers to improve or maintain the golf course, provide (and charge for) luxury amenities or sell their units with high end finishes and at the relatively high prices they have indicated. How can you make an educated assessment of this proposal if you do not study such a (typical high density) development? Remember, the Brynwood developers have built many developments but, to my knowledge, not a single one that includes a golf course. A similar request for a study of a typical high density development was made at the SEQRA scoping stage. I am deeply concerned that such information has not been included in the DEIS. The developers and their professionals did not specifically respond to such requests, as I believe is required by SEQRA. In my opinion, you should not have adopted the Scope Document without them at a minimum stating why they did not include a study of a typical high density development. Please require the inclusion of this alternative now.

Regarding the number of school age children estimated for the Proposed Action and the studied alternatives, the developers have included local impacts when they make comparisons and adjust numbers to account for a golf course community but they have completely ignored the appeal of the very highly regarded Byram Hills School district. They have also ignored the directly related impact of families with school age children moving into homes vacated by empty nesters moving into a Brynwood development. The DEIS and FEIS school age children estimates should be adjusted to include these factors. I believe that such adjustments are called for by the Rutgers study which the developers cite in arriving at their estimations.

Regarding water, the DEIS and FEIS should include a full and final analysis of the 72-hour pumping test program conducted in May of 2013. It is inadequate for the DEIS to say, as it currently does that:

> "Preliminary results indicate no significant interference with off-site wells. However, if after analyses have been completed, significant off-site water-level interference is determined to have occurred during the 72-hour pumping test program. . ."

Analysis of this test should be completed by now and details of what that analysis entailed and the conclusions reached should be included in the DEIS and FEIS. How did they come to their preliminary conclusions? This information should be included in the DEIS and FEIS. Also, it appears that their off-site well monitoring did NOT include the wells supplying North Castle Water District No. 2. If this is the case then the tests should be redone with the District 2 wells being monitored. This would somewhat easily allow for an analysis of the impact on the water supply of the hundreds of homes in District 2. I believed that District 2 has a much larger number of homes than those served by the off-site wells studied during the 72-hour pumping test program.

The DEIS and FEIS should include copies of all written correspondence and not only the developers definition of "all official correspondence" related to issues discussed in the DEIS (see DEIS Appendix B.) For example, please see my letter, dated November 26, 2012, attached hereto which is not currently included in the DEIS.

Sincerely,

cc: Adam Kaufman - akaufman@northcastleny.com
Ann Curran - acurran@northcastleny.com

Peter Coviello
4 Valley Lane
Armonk, NY 10504

RECEIVED
NOV 27 2012
TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

November 26, 2012

Howard Arden, Supervisor
and Town Board Members

Re: Brynwood Partners Scoping Document

Dear Supervisor Arden and Town Board Members,

I have identified the following issues which I request be included in the scoping document for Brynwood. This is not intended to be a complete list and I plan to add additional comments after tonight's meeting. I understand that the period for public comment will remain open for several days.

1. A full analysis of a development at the as of right number of units which does not include any golf course or high end services and where the selling price of the units is in line with what is typical in developments such as Whippoorwill Ridge and Whippoorwill Hills. This analysis to include number of school age children, tax revenues, traffic, water and all other pertinent information.
2. Analysis of the water source located on the Brynwood property including the economic viability of the proposed development's water system assuming that it is a standalone system which is in no way associated with Water District No. 2.
3. A complete analysis of what is the actual number of as-of-right units permitted on the Brynwood property under current zoning law, taking into account water setbacks, slopes, streets and all other relevant factors.
4. A full tax analysis of the proposed development and any alternatives to be considered including what estimates town employees and officials have developed.

As I said, I may have additional comments but wanted to see what is being covered by the Town at the meeting tonight first.

Sincerely,

Peter Coviello

Letter #14

Stephen A. D'Angelo
PO Box 253
Armonk, NY 10504
914.689.0245

Comments regarding the Brynwood project:

1. The safe guarding of the golf course, not just the open space associated with it, must be preserved. If the golf course no longer exists, there ids no golf course community. Therefore, the ownership structure of the non-housing components of this plan MUST be addressed before any approvals are granted. Additionally there must be guarantees that the golf course and clubhouse will continue to operate as such as long as this zoning is in effect.

2. The DEIS on page 11-22 implies that Brynwood and its predecessor Canyon Club, have operated as a not for profit membership club. This is not true. The present owners, the applicant and Mitsubishi Corp. before that, of the club in fact the club do/did not operate as a member owned club. The DEIS should be corrected.

3. Sales tax benefits should not be considered in the DEIS as there is no direct benefit to the Town.

4. Why must all residences be one floor if you are targeting to 55 and older so called "active seniors" The golf course will require a lot of walking from carts to ball regardless of how much work you do to level the course. Therefore, the townhouse model can easily be marketed to "active seniors" and the individual golf home can remain as one level living. Then if most of the units are town homes, fee simple ownership can be accommodated.

5. Has any so-called golf course community in the Northeast closed? If so what happened to the golf course? Please detail the circumstances.

6. How many of these communities have been built in the Northeast in the last 15 years? How many were started and remain unfinished?

7. Have you done a survey of the existing membership to determine how many will remain members after the reconstruction and at what can assume will be much higher rates? If so, what are the results?

8. Where do you expect to get the roughly 250 outside members to supplement the 80 resident members?

Thank you for answering these concerns.

Stephen D'Angelo

Town of North Castle Open Space Committee
17 Bedford Road
Armonk, NY 10504

Letter #15

North Castle Town Board as Lead Agency
Town of North Castle
15 Bedford Road
Armonk, NY 10504

August 20, 2013

Re: Comments to Brynwood DEIS

Dear Supervisor Arden and Town Board Members,

Below please find comments from the Open Space Committee on the Brynwood DEIS dated 6/13/13. Thank you for your consideration of these comments.

Sincerely,

Kerri A. Kazak

Kerri A. Kazak, Chair

cc: Adam R. Kaufman, Director of Planning
John Fava, Chair, Conservation Board
Joan Goldberg, Town Administrator
Anne Curran, Town Clerk

CONSERVATION EASEMENT

Comment: The DEIS must be changed to reflect the Applicant's promise to the Lead Agency to put a conservation easement not a deed restriction on the open space on the site. The specific terms of the conservation easement must be detailed and the third party that will hold the easement must be identified. The proposed zoning text amendment must be modified to reflect the conservation easement.

WILDLIFE

Comment: There is no accurate support and data for DEIS statement on P I-6 that "No federal, State, endangered or threatened species of special concern plant or animal occur on the Site."

- As detailed below, Applicant's data collection on wildlife present on the site is inaccurate and insufficient. There is no accurate support for this statement.

- **Note:** When the site was visited by members of the North Castle Open Space Study Committee in April 2003, the members concluded that based on the types of habitats present on the property, it was "probable" that species lived there that are found on the County List of Species that are Threatened, Endangered, or of Special Concern.

Comment: DEIS statement on P I-7 that "Significant impact to wildlife is not anticipated" is unsupported and contradicted by Applicant's statements in other parts of the DEIS.

- Applicant plans to remove 1,007 trees and impact 4.34 acres of the 6.6 acres of wetlands, including dredging of two ponds. This will obviously have a significant impact on the wildlife present.

- P III.E-39 of the DEIS contradicts the statement on P I-7 by stating "Dredging the existing ponds on the Site ...will directly impact the animals utilizing the aquatic environment. These include largemouth bass, bluegill sunfish and sterile triploid carp; bullfrogs, green frogs, and pickerel frogs; and painted turtles and snapping turtles."

- P. III.H-6 states that the two ponds on the northern part of the course "function as a habitat for reptiles, amphibians and fish..."

Comment: The DEIS reveals that the site specific analysis required by P. 18 of Scoping Document as conducted by the Applicant is completely inadequate. Site visits to collect data on wildlife did not occur at the times required to maximize species detection resulting in insufficient and inaccurate data collection. This data cannot be used to make conclusions. The study should be redone and data collected correctly.

- The Applicant did not conduct its field visits at the right time of year for accurate data collection. Field visits were conducted during Fall of 2010 (i.e. three years ago), Fall of 2012 and January, February and March of 2013. One additional field visit was made on April 24th.

- Bird surveys <u>must</u> be conducted during breeding seasons which occur from May through early July. During these times, data collection must be done during peak song period, starting approximately thirty minutes before sunrise until approximately 12:00 noon, assuming weather conditions remained favorable. Data collected cannot only be based on visual observance. Data should be collected through auditory cues (i.e., listening to bird songs and calls). Playbacks (recordings of bird songs and calls) should be used to help confirm or document uncommon birds, or common birds that had not yet been detected in an area.

- P. III.E-28 states that "The highly mobile and seasonal nature of avian populations contributes to the difficulty of verifying the presence/absence of individual species." It is precisely because birds are mobile and seasonal, that data collectors must conduct field visits during breeding seasons and at peak times of the day.

- Amphibian and Reptile Surveys - Proper field surveys of amphibians should be conducted between late March and late June and field surveys of reptiles should be conducted between April and June. The Applicant's field studies were conducted during the fall, winter and on one day in April. No other site visits were made in April, none in May and none in June. The result is inaccurate and insufficient data collected. No conclusions should be based on this data.

Comment: Persons hired by Applicant to conduct the field studies were not qualified.

- One of the data collectors is the owner of a landscape architecture and design firm and the other data collector is a licensed landscape architect who works for him. A biodiversity study must be conducted by biodiversity experts and the data must be collected by field ornithologists and field herpetologists. The fact that the field visits were made at the wrong time of the year emphasizes that the data collectors were not qualified.

Comment: Applicant cannot rely on the 2007 North Castle Biodiversity Plan in place of doing it's own biodiversity study of the site.

- The Applicant states on page III.E-29 that "The information, format and conclusions in this section rely heavily on the North Castle Biodiversity Plan."

- The North Castle Biodiversity Plan cannot be relied on for the following reasons:

    - First, the Biodiversity Plan, studied an area on the west side of I-684 and approximately 30 acres on the east side of I-684 on Baldwin Road, known as the DuBos Property. The Study describes I-684 as "an insurmountable obstacle for the vast majority of wildlife species" that "bisects the Town of North Castle into two separate ecological zones, one to the east and the other to the west of I-684." Because I-684 is an insurmountable barrier for reptiles, amphibians and many mammals one cannot assume that the species that are on one side of the highway are automatically on the other side of the highway. For this reason, the DuBos Property which was initially included in the study area was ultimately excluded from the Plan and no data was collected there. See p 16 of North Castle Biodiversity Plan.

    - Second, the majority of the area that was studied in the Biodiversity Study was very wooded. Clearly certain species would be found there that would not be found at Brynwood, another reason that the Biodiversity Study cannot be applied to the Brynwood Property.

Comment: As outlined above, Applicant fails to meet the requirement that a site specific analysis be conducted. The Lead Agency should require Applicant to conduct an accurate site specific analysis by scientists duly qualified and experienced in conducting such analyses.

Comment: No sources are cited for Table III.E-5 Herpetofauna Diversity, Table III.E-6 Mammal Diversity, or Table III.E-7 Avian Diversity.

Comment: P. III.E-28 states that the Park Place at Westchester Airport DEIS (AKRF, 2011) is one of the documents relied on to create the Vegetation and Wildlife Section of the DEIS. The Park Place DEIS is not relevant.

    - Copy of Park Place DEIS is not provided. In addition, it is for the development of a site by the airport miles away from the Bynwood site. This is not a valid source of information on wildlife at the Brynwood site.

ENVIRONMENTAL PLAN FOR GOLF COURSE

Comment: Applicant provides no details to support its statement that "Club is currently working towards becoming a Certified Audubon Cooperative Sanctuary."

- Applicant should provide details and documentation of steps taken to date.

VISUAL RESOURCES AND COMMUNITY CHARACTER

Comment: Applicant's statement on P. III.C-6 that the project is compatible with the current pattern of development in the area and would preserve overall visual character is factually unsupported.

- Bedford Road by Brynwood is currently a country road with a viewshed of open space and trees that create the rural sense of community that defines Armonk in this section of town.
- Applicant provides no facts only opinion that adding 88 residential units to this viewshed is both consistent with the current development in the area and that it would preserve the overall visual character.
- Applicant also fails to provide evidence how the proposed multi-family development is consistent with the historic use of the area and how it will evoke the history of Armonk as stated by Applicant on P. III.C-6.

TREE REMOVAL

Comment: DEIS does not address efforts to preserve the trees in the Project Area to the "maximum extent possible" as required by P. 18 of Scoping Document.

Comment: DEIS does not document why removal of 57% of the trees over 8" dbh is "unavoidable.

- P. I-6 states that 879 trees with a dbh between 8 inches and 24 inches will be removed in connection with the Project plus 128 significant trees (24" dbh or greater) for a total of <u>1,007</u> trees to be removed.

- P. V-1 notes that the removal of <u>992</u> trees over 8" dbh is unavoidable.

PUBLIC ACCESS

Comment: Applicant has not addressed requirement on P. 32 of Scoping Document to discuss opportunities for public access to the site in conjunction with a conservation easement.

- In contrast to Scoping requirement, P. III.L-10 of DEIS states that there will be “no public access” to any of the open space on the property.

DEVIATIONS FROM TOWN COMPREHENSIVE PLAN

Comment: DEIS fails to address requirements on Page 11of Scoping Document that justification should be provided for “needs and benefits not supported by the Town’s comprehensive plan.”

- Page III-5 of the DEIS cites the following goals set forth in the Comprehensive Plan but does not provide adequate justifications for why its proposed project deviates from them:
    - Housing densities should be concentrated in the hamlet centers;
    - Certain areas of Armonk, including Windmill Farms, should continue to retain their low-density residential, open and scenic character.

BFJ Planning Letter #16 **MEMORANDUM**

Via email and regular mail

To: Supervisor Arden and Members of the North Castle Town Board

From: Adam Kaufman, AICP, Director of Planning, Town of North Castle
Frank Fish, FAICP, Principal and Sarah K. Yackel, AICP, Associate Principal, BFJ Planning

Contact: T. 212.353.7375 F. 212.353.7494 E. s.yackel@bfjplanning.com

Subject: Substantive Review of Draft Environmental Impact Statement (DEIS) for the Brynwood Golf & Country Club

Date: August 20, 2013

In coordination with Adam Kaufman, Director of Planning of the Town of North Castle Planning Department, we have completed our substantive review of the Draft Environmental Impact Statement (DEIS) for the Brynwood Golf & Country Club project, which was accepted by the Town Board on June 11, 2013 and the subject of a public hearing held on June 27 and July 10, 2013. . Detailed natural resource and engineering related comments on the DEIS will be provided by the Town's Consulting Engineer, Kellard Sessions, under separate cover.

Based upon our review of this document and associated plans, we offer the following comments for your consideration:

1. Throughout the DEIS the Applicant presents various options/scenarios for project specific details (i.e. affordable housing, secondary access, water supply, water tank design, etc.). The Applicant needs to choose a preferred action in the Final Environmental Impact Statement (FEIS) and provide more detailed information on each of these outstanding items so that the Town Board has a full understanding of the proposed action and all associated environmental impacts.

2. The Applicant has stated in the DEIS that the affordable units, if located on-site, would either be condo units owned by the Applicant, or that the South parcel would be subdivided. The Applicant should indicate which option is preferred at this time and clearly indicate the impacts associated with the selected option. In addition, the DEIS also states that the Applicant is unsure whether the affordable housing requirement will be provided on-site or off-site; this determination needs to be made in the FEIS. If the units are to be provided off-site, the Applicant should specify the proposed location of the affordable housing units at this time. If uncertain as to off-site location,

then the Proposed Action should state affirmatively the affordable housing units shall be on the Applicant's present property. Any subsequent change of location will be subject to SEQRA and the existing Code provisions of the Town of North Castle.

3. The Applicant should include a draft of the proposed amendments to the conservation easement language as discussed previously with the Town Board.

4. The DEIS states the golf course will be owned by the Applicant or a successor for-profit company and that the continued use of the course will be required as part of the required approvals. However, the DEIS also contains language that suggests the golf course could be converted to open space, apparently without the operation of a golf club.

5. The Applicant should submit a draft of all covenants and deed restrictions proposed for the project.

6. The DEIS states that all potable water will be provided with on-site wells. The DEIS also talks about the potential for expansion of Water District #2 to incorporate the subject site. The Applicant should indicate whether expansion of Water District #2 scenario will be pursued. If so, the Applicant should provide additional information at this time. What approvals are required and would there be any cost to the Town from this option?

7. The DEIS states the Applicant would be willing to contribute to the cost of providing secondary access to the Byram Hills High School campus. The Applicant should provide additional information with respect to which of the two access locations identified in the DEIS is proposed. In addition, the impacts associated with the new access should be studied. Furthermore, the Applicant should indicate the amount proposed to be contributed toward the proposed access.

8. The gross floor area of the proposed maintenance facility should be identified. In addition, floor plans and elevations of the maintenance facility should be provided.

9. The DEIS contains two water tank storage options. The Applicant should indicate which water tank will be proposed at this time.

10. Many of the proposed engineering plans (also lighting) are not legible at the scale included in the DEIS. Larger plans should be submitted.

11. The Applicant should submit a Phase IB and II archeological studies for the identified sensitive areas of the property. The results of the Phase II should be summarized in the FEIS.

12. The DEIS discusses potential rock crushing on the site. The Applicant should include a plan indicating where rock crushing would occur, duration of rock crushing activities, identification of the type of equipment proposed to be used and the hours of operation. In addition, the Applicant should discuss any noise and/or air quality (dust) impacts associated with the rock crushing operation and propose mitigation measures if any impacts are anticipated.

13. During the DEIS public hearing many members of the public indicated a preference for fee simple units as opposed to condominium ownership. The Applicant should address whether there are alternatives that contain a mix of ownership types on the property. While it is not possible to provide fee simple lots for the apartment units, the Applicant should indicate whether it would be possible to create fee simple lots for the proposed Fairway Residences, Club Villas and Golf Cottages.

14. The existing and proposed golf course is managed by Troon Golf. The Applicant states in the DEIS that it wishes to become a Certified Audubon Cooperative Sanctuary. Does Troon Golf have any other courses that are certified?

15. The DEIS proposes night tennis court lighting. The Applicant should provide additional information regarding impacts the lighting of the courts would have upon the road/streetscape and neighborhood ambient lighting.

16. The most comparable development to the proposed Brynwood project is Trump National located in Briarcliff Manor as both projects include a mix of housing types, quality golf and club amenities along with an excellent school district. In the school child analysis, that study lumped Trump National's higher generation of school children with other golf developments in Westchester containing significantly more units for an average generation rate of 0.06 students/unit. However, the generation rate for Trump national alone is 0.3 students/unit. If this rate were applied to the proposed project, approximately 26 students would be anticipated rather than the 19-20 included in the DEIS. The FEIS should provide an analysis of the impact to the School District and Town from this higher generation rate.

17. For all of the reasons identified in the Market Analysis/Socioeconomic section, lower taxes (condo) yields higher marketability and lower school children. What methods will be utilized in order to assure these assumptions are correct? Specifically, it appears that an age-restriction would be an appropriate mechanism to put in place to ensure the DEIS assumptions become reality.

18. DEIS states that any type of fee simple proposal will result in the abandonment of the Proposed Action and the construction of a single-family, zoning compliant subdivision. However, it is noted that pursuant to the Town Code, the Planning Board can *compel* the submission of a conservation subdivision layout. This could result in a plan that preserves the golf course (or open space) and allows for the construction of attached townhomes (with Town Board approval). This Town Code provision should be addressed.

19. It is recommended that Exhibit III.H.2 be revised to include a note indicating the proposed area of wetland and wetland buffer disturbance (in square feet).

20. The proposed Town Code amendments to membership clubs would codify an expansion of uses for membership clubs that will extend beyond the Proposed Action. Specifically, the Applicant is proposing to permit membership clubs to include restaurants, and lodging facilities for use by the general public and members. The Town Board will need to determine the appropriateness of these expanded uses on the subject site as well as at all of the other membership clubs located within the Town of North Castle. It is recommended that this section of the Town Code be revised to include specific limits with respect to the maximum permitted size (potentially using FAR) for each of the proposed uses. The FEIS should include an analysis of all sites that would be affected by the proposed amendments.

21. The proposed Town Code amendments to membership clubs contain a section entitled "Parking." It is recommended that this section be eliminated since off-street parking is addressed in ARTICLE IX, Off-Street Parking and Loading of the Town Code. It is also noted, that Section 213-45 of the Town Code already contains an off-street parking requirement for golf or country clubs.

22. The Applicant is proposing a new special permit entitled "Golf Course Community;" however, given the fact that the proposed conservation easement has been drafted to permit the discontinuation of the golf course and the preservation of the golf course land as open space, it

seems possible that the golf course community could exist without a golf course. If that is ever to be the case, it would appear that the golf course community would be a misnomer. Consideration should be given to revising the name of this special permit or the Applicant should address measures that could ensure the continued operation of the golf club in connection with the residential community. At the very least, the discontinuation of the golf course should trigger an immediate review and amendment to the special permit with respect to the golf course community and potential re-use of the club house.

23. The proposed Town Code amendments relating to creating a golf course community contains a section entitled "Design flexibility." Given the size, location, and uses associated with the golf course community it is recommended that this section be revised so that site plan amendments require the review and approval of the Planning Board.

24. Under Alternative 5 (60 unit option), the Applicant should consider relocating the Club Villas (V-6 and V-7) located at the northeast corner of the site (closest to the property line) to the north of Club Villas V-8 and V-9 in order to provide additional open space buffer between the proposed development and properties located to the north and east of the project site. In addition, under the proposed action as well as under Alternative 5, the Applicant should explore options for eliminating the proposed access road that runs parallel to Bedford Road, as well as the large loop road that connects the Club Villas to the Golf Residences. Cul-de-sacs could be added to ensure adequate access for emergency vehicles. By eliminating a portion of the roadway, the proposed amount of impervious surfaces on-site would be decreased and additional open space buffer could be provided along Bedford Road and the northern property line.

* * * * * *

Once all of the written comments have been submitted, responses to all substantive comments will need to be included in a FEIS. This document is typically prepared by the Applicant and then submitted to the Town Board, as the Lead Agency, for its review. Once accepted as complete, the Town Board will need to prepare a Notice of Completion, which will be filed and published together with the FEIS. After the FEIS is filed, public comments may be submitted to the Town Board for consideration. Finally, the Town Board will need to prepare a Findings Statement with respect to the proposed project, potential environmental impacts and proposed mitigation measures. This step must precede the Town Board's determination on the zoning changes and special use permit application, as well as any actions to be taken by the Planning Board on the environmental permits and site plan applications.

Cc: Roland Baroni, Town Counsel, Stephens, Baroni, Reilly & Lewis LLP
Richard L. O'Rourke, Special Counsel, Keane & Beane

KELLARD SESSIONS CONSULTING, P.C.

Letter #17

John Kellard, P.E.
David Sessions, RLA, AICP

MEMORANDUM

TO: Supervisor Howard Arden and Members of the Town Board

CC: Chairman Art Adelman and Members of the Planning Board
Roland Baroni, Esq.
Richard O'Rourke, Esq.
Adam Kaufman, AICP
John Fava, Conservation Board Chairman
Sarah Yackel, AICP
Bonnie Von Ohlsen, RLA
Robert Roth, P.E.
Mark Weingarten, Esq.
Brynwood Partners, LLC

FROM: Joseph M. Cermele, P.E., CFM
Consulting Town Engineer

John Kellard, P.E.
Consulting Town Engineer

David J. Sessions, RLA, AICP
Town Wetland Consultant

DATE: August 20, 2013

RE: Draft Environmental Impact Statement (DEIS) Review
Brynwood Subdivision
568 Bedford Road (New York State Route 22)
Section 2, Block 8, Lot 7.C1A

As requested, Kellard Sessions Consulting, P.C. has reviewed the Draft Environmental Impact Statement (DEIS) submitted in conjunction with the above-referenced application. The applicant is proposing the development of an 88-unit residential golf course community; renovations and upgrades to the existing Brynwood Golf & Country Club including the clubhouse, tennis courts and other club facilities; upgrades to the existing wastewater treatment system and water supply; and improvements to the 18-hole golf course. As part of the application, amendments to the Town Zoning Ordinance to permit the proposed residential use and modify the regulations for "membership clubs" will be required. The site is 156 acres and located in the R-2A, One-Family Residence District.

The DEIS was accepted on June 11, 2013 by the North Castle Town Board.

We have reviewed the following sections of the Accepted DEIS pertaining to engineering, wetlands and construction methods (Chapter 3, Sections E-K and P-R, Alternatives and relevant Appendices). Consultation specific to Section J - *Hydrogeology, Groundwater and Water Supply* was provided by HydroEnvironmental Solutions, Inc. We have provided our comments below:

General Comments & Alternatives 1 Through 5 and Tables IV-7

A. The proposed development provides for access to the residential community and golf club from a single main entrance on NYS Route 22. A proposed gatehouse located on the entry road and in close proximity to NYS Route 22 would be manned 24 hours a day. The proposed location provides limited room for vehicle queuing likely to be required for social functions at the golf club and club house, deliveries, etc. Relocation of the gatehouse away from NYS Route 22 would provide the additional area necessary or, as an alternative, as the gatehouse seems more appropriate for the residential component, it may be better suited on the main boulevard drive to the residences.

B. The internal road network for the proposed residential development appears excessive. It seems that minor plan modifications could be made to the unit and/or road layout that would eliminate the need for two looped roads possibly eliminating a large portion of the road along NYS Route 22, thereby providing additional green space. Similar plan modifications could be made to the proposed alternatives, specifically the cluster subdivision (Alternative 4) and reduced density alternatives (Alternative 5).

C. The proposed development includes the construction of fair and affordable housing units; eight units on-site or nine units off-site. If developed on-site, they are proposed to be built in place of the "Fairway Residences". No off-site locations have been proposed in the DEIS. If the units are to be built off-site, the FEIS would need to include the proposed location and a discussion of how and when they are to be built. A site plan analysis would need to be provided within the FEIS in order to assess potential environmental impact.

D. As part of the proposed development, the existing wastewater treatment plant will be replaced. The area will be used for a new treatment plant building, as well as a water storage tank, various storage and maintenance buildings and outdoor storage areas. Plans and elevations of the buildings, storage tank and outdoor storage bins should be provided. The use of each building should be described further, as should the various materials/chemicals to be stored in each.

<u>Chapter III, Section E - Vegetation and Wildlife</u>

<u>General Comments</u>

A. The applicant shall not install, within 100' of any regulated area, any plant material that is not native to the region. Under no circumstance shall any invasive or potentially invasive plant material be introduced to the property, whether within 100' of a regulated wetland or outside of the 100' regulated setback.

Pg. III.E-21 A detailed invasive species removal and management program shall be prepared and presented in the FEIS. Details such as specific methods to remove specific invasives, graphic representations of various invasives to be removed, times of year proposed for removal of various invasives, etc., shall be presented in the FEIS. In addition, a specific post-removal maintenance and monitoring program shall be prepared to insure the long-term success of the plant removal and the re-planted areas. If not properly monitored and maintained, the invasive plant material will likely, over time, re-establish and outcompete the newly-planted species.

Pg. III.E-22 There should be a commitment by the applicant to plant evergreen trees along the northern and eastern periphery to screen neighboring properties.

Pg. III.E-22 A long-term commitment by the applicant needs to be established to ensure that all installed plant material (i.e., wetland planting, shrub, tree, visual screening material, residential landscaping, etc.) be appropriately maintained. Plant material shall be guaranteed for the duration of the golf course operation and all plants that do not survive shall be replaced in like, kind and size.

Pg. III.E-38 The applicant states that habitat for aquatic dependent animals will be eliminated during dewatering for the proposed pond dredging operation. The applicant shall identify all species of animals that will potentially be impacted, displaced or lost as a result of the dredging operation.

<u>Chapter III, Section F - Geology and Soils</u>

Pg. III.F-14 The Erosion & Sediment Control Management Program described as part of the mitigation includes the requirement for a pre-construction site assessment by a qualified professional on behalf of the applicant. Additional requirements should include periodic inspections by Town personnel and the need for a pre-construction meeting with the Town, owner and contractor(s).

Chapter III, Section G - Topography and Steep Slopes

Pg. III.G-5 Project phasing has appropriately been proposed as a mitigation effort for disturbances to steep slopes. The applicant should clarify whether they intend to petition the New York State Department of Environmental Conservation (NYSDEC) to extend the disturbance limit in excess of the five acre maximum requirement. Phases provided are as large as 40 acres. The Phasing Plan should be modified to illustrate sub-phases and a discussion regarding the decision included in the FEIS.

Chapter III, Section H - Wetlands and Surface Water Resources

Pg. III.H-7 The applicant states that "There will be no direct disturbance or impact to this wetland (W-4) associated with the residential construction". The DEIS also states "There are no direct impacts to wetlands or watercourses from the renovation of the golf course". Although no direct physical disturbance to the wetlands or watercourses is proposed, the applicant shall clarify which specific forms of mitigation will be implemented to ensure that no direct or indirect disturbance will occur, both during construction and following construction.

Pg. III.H-8 Based on the applicant's proposed method of pond dredging, the ponds will need to be dewatered to allow for construction equipment (backhoes, dump trucks, etc.) to access the (dewatered) pond area. Traditionally, this form of dredging has the potential for causing significant erosion due to haul roads, stockpile of wet dredged spoils ("slurry"), etc. The applicant shall prepare a specific pond dredging sequencing plan showing precise locations of staging areas, soil stockpile areas, haul roads, routes of water return locations. A specific plan shall be prepared illustrating the entire operation with a detailed sequence plan.

Pg. III.H-8 While pond expansion will require construction equipment, have any alternative methods of dredging of the existing ponds been explored by the applicant? For example, hydraulic dredging has been shown to result in significantly less site disturbance. A barge with cutter heads breaks up the deposited spoils and is pumped to a designated "decant area" where the pond spoils are allowed to dewater. As the soils dewater, the water flows back to the pond through a gravity piping system. No earthmoving equipment is necessary to transport pond spoils from place to place. Hydraulic dredging does not require the pond to be completely drained of water. In fact, a minimum of a few feet of water is required to be maintained within the pond to allow for the dredge barge to maneuver throughout the pond during dredging operations.

Pg. III.H-8 Has the pond dredging been considered in the cut and fill analysis performed for the project? If hydraulic dredging proves to be a viable option, it may be possible for dredged spoils to be pumped directly to areas of the golf course requiring fill material. This could reduce the number of dump truck/construction vehicle trips throughout the golf course and further reduce the potential for soil erosion and sedimentation of the downstream wetland areas.

Pg. III.H-21 The applicant lists certain forms of mitigation which are intended to offset the impacts to the site's wetland buffers. The stated mitigation measures include:

- Water quality basins.
- Stormwater management plan/BMP's.
- Use of native, non-invasive plantings.
- Implementation of new ITPMP and reduction of fertilizer/pesticide use.
- Low-maintenance grasses/vegetative buffer strips.

It is noted that the implementation of water quality basins and stormwater BMP's cannot be considered wetland mitigation. These stormwater improvements are required as part of the applicant's obligations under the NYSDEC SPDES Stormwater General Permit (GP-0-10-001) and the Town's Stormwater Ordinance. In addition, the applicant states that the use of native, non-invasive plantings is a form of mitigation. The use (and approval) of native plantings within the Town is always encouraged and is required within the limiting distance (100') of a regulated wetland. The "Mitigation Proposed" table presented in the DEIS (Table III.H-3) should be revised and presented in the FEIS with updated acreages based on the discussion above. Other appropriate forms of mitigation and/or larger areas of acceptable mitigation should be included in the FEIS and accompanying plans.

Pg. III.H-27 The applicant should memorialize with easements the specific areas of no-mow/naturalized grass areas and vegetated swales so that these areas remain vegetated as intended for the duration of the golf course operation (i.e., not mowed down).

Conservation easements should also be established for all areas proposed to be vegetated for visual buffering (Bedford Road, proposed maintenance area, etc.), and for all areas containing water quality/stormwater detention BMPs.

Chapter III, Section I - Stormwater Management

Pg. III.I-2 We do not believe any portion of the project site is located within the Mianus River watershed. Runoff from the eastern portion of the project site is tributary to NYS Route 22 which is within the Byram River watershed.

Pg. III.I-6 The applicant should clarify whether they intend to petition NYSDEC to extend the disturbance limit in excess of the five (5) acre maximum requirement. We would request that the phasing plan be modified to illustrate sub-phases, whether limited to five (5) acres or a larger acreage, based on the anticipated waiver request.

The proposed phasing plan indicates an area of disturbance of approximately 40 acres in Phase I and 30 acres in Phase II. Phase I, located within the northern portion of the project site includes regrading of Golf Hole #'s 10, 11, 12, 13 and 14 which drain to a discharge point in the northwest corner of the site. Phase II, located within the southern portion of the project site, includes Golf Hole #'s 1, 3, 4, 8, 9 18 and part of Hole #15 tributary to the central valley and Hole #'s 5, 6, 7 and part of Hole #15 tributary to the southwest discharge points. The plan should provide more detail specific to the sequencing of construction and stabilization within these drainage areas.

Pg. III.I-11 The applicant is proposing green infrastructure practices to meet their obligations under the NYSDEC stormwater regulations. These practices include filter strips, emergent marsh shelfs within the ponds and fescue areas adjacent to the ponds which will provide treatment to surface runoff. Conceptual details have been provided which illustrate the proposal. Detailed design drawings shall be required under the site plan review of the project.

While we are pleased with the applicant's agreement to incorporate stormwater treatment practices which will help reduce the pollutant loads presently discharging from the project site, we do not feel that sufficient treatment has been provided with the northwestern and southwestern portions of the project site. These subsheds contain a significant area of golf course to be re-constructed on moderate to steeply sloping lands. We would request that the applicant re-examine these areas for inclusion of treatment practices.

Pg. III.I-12 Soil testing was performed at various locations around the property, not always located at the treatment practice. The proposal includes three (3) stormwater basins located at Hole #6, between Hole #'s 14 and 15 and at the residential community; two (2) rain gardens and three (3) bio-retention basins within the residential community; and three (3) infiltration systems located at the wastewater treatment plant, proposed tennis courts and at Hole #17.

No soil test data was provided for the stormwater basins located at Hole #6, the basin between Hole #'s 14 and 15, the rain garden at the club villas or the infiltration practices. Bedrock was encountered within the stormwater basin proposed at the residential community, within the bio retention basin at the club villas and the bio retention basin at the golf residences.

The applicant needs to perform testing at each of the stormwater practices and provide a design of each practice based on the soil conditions. Such information is required to properly evaluate the proposal and should be presented within the FEIS.

General Comments - Stormwater Pollution Prevention Plan

A. The applicant is seeking a waiver from the NYSDEC Stormwater Design Guidelines relative to mitigation of channel protection volume, overbank flood protection and extreme flood protection. The development, as proposed, is required to meet these post-construction stormwater management obligations for compliance with the NYSDEC Phase II Stormwater Regulations. We are in total disagreement with such waiver request. The current study indicates an increase in stormwater runoff peak discharge rates for a majority of all storm events analyzed. The project site drains to the Byram River which is directly tributary to floodplains within North Castle in the vicinity of H.C. Crittendon Middle School and Business Park Drive. The subject property has ample room to mitigate storm flows which, if not detained, will add peak runoff to the downstream floodings. The applicant will be required to provide the appropriate mitigation to attenuate the increased flows. This issue, which would result in changes to the proposed site plan, must be presented and addressed within the FEIS.

B. The applicant proposes the use of hydrodynamic separators throughout the site. The locations of these devices shall be clearly indicated on the plan and described in the FEIS. Sizing calculations will be required for each unit and can be deferred to site plan review.

Chapter III, Section J - Hydrogeology, Groundwater and Water Supply

Pg. III.J-3 We recommend removing the sentence "None of the existing on-site wells are currently used or proposed for future use as potable water sources", as currently the applicant is seeking to use newly drilled Wells #1, #2B, #3, #5 and #6A as water supply wells that will support the development.

Pg. III.J-4 The DEIS states that two existing irrigation wells (Wells #4 and #5) located in the central portion of the golf course were sampled for herbicides and pesticides. The wells were free of constituents of concern; however, as part of the future hydrogeologic analysis, we would recommend re-sampling of these wells. In addition, we would recommend that the following additional wells be sampled for herbicides and pesticides: Well #TW-A (as shown on Exhibit III-J-1), Well #2B, and Well #TW-5. In addition to a background (pre-construction) sample, these wells should be sampled on a quarterly basis throughout the construction period and during the 'grown-in' phase of the golf course, as well as on an annual basis for three additional years following completion of construction and grown-in phase of the course. The sampling plan should include a provision to increase the sampling frequency should the sampled groundwater from any of these wells contain detectable concentrations of herbicides and/or pesticides.

Pg. III.J-5 The calculated bedrock aquifer recharge during a 30-year drought is 54,340 gpd after project build-out and the average daily demand for the project is 51,955 gpd. Given that the calculated 30-year drought recharge for the property is just above the average day demand without consideration of the impact of irrigation withdrawals on the water budget, we would recommend that the FEIS discuss that during times of 30-year drought, the recharge may be lower than the demand for groundwater and irrigation water at the property. In this regard, and while we understand that the watershed acreage and recharge values have been conservatively estimated, the FEIS discussion should include how the proposed on-site water supply wells could be monitored in the event of a 30-year drought to ensure that the demand can be met and what groundwater use reduction measures could be put in place during a drought (i.e., reducing or eliminating the use of groundwater based irrigation water during summer months and/or requiring certain water use restrictions of future residents). This discussion could be included in Section 2f, *Potential Impacts to Groundwater Recharge, Quality, and Quantity* or Section 3, *Mitigation Measures* of the FEIS.

Pg. III.J-7 The project is projected to have an average daily water usage of 51,955 gallons to be supplied from on site bedrock wells. The bedrock groundwater recharge of the site is expected to be 54,340 gpd during drought conditions based on historical precipitation data. Furthermore, irrigation of the golf course averages 51,240 gpd with a maximum day of 193,000 gallons and a peak month of 2,298,000 gallons or approximately 76,600 gpd. The irrigation system would be supplied from two (2) bedrock wells presently producing 80 gpm or 115,200 gpd. Assuming a 30% increase in irrigation water required during drought conditions, it can be expected that irrigation would use approximately 70,000 gpd. The combined irrigation and domestic usage could require approximately 121,000 gpd during drought conditions, while recharge is estimated at 75,340 gpd (54,340 + 70,000 x 0.30 = 75,340), approximately 38% less than required withdrawal.

The applicant has evaluated North Castle Water District #2 servicing the Windmill neighborhood and provides documentation that the aquifer contains an abundant amount of groundwater available for withdrawal. Expansion of the District would require new wells, contact storage, pump upgrades, etc. Although the applicant is pursuing an on-site community water system, the expansion of the Windmill system may very well prove to be the most financially prudent alternate for both the Brynwood and Windmill communities. Although, annual budgets may increase slightly, the expansion of the customer base would be expected to reduce annual costs and future bond indebtedness cost to existing North Castle Water District #2 customers. The applicant should provide a detailed financial evaluation of North Castle Water District #2, with inclusion of the Brynwood project. The evaluation should outline the capital costs to be provided to the Windmill infrastructure, which is required to service the Byrnwood project, the reduction in water rates resulting from the expanded district consumer base and the reduction in annual bond payments per customer based on the expanded customer base. It would also be helpful to outline the capital improvements to be constructed within North Castle Water District #2 by the Brynwood project and the pending capital improvements for replacement of water mains.

Pg. III.J-7 The DEIS indicates that grey water from the on-site treatment sewage plant may be used to supplement the ponds and irrigation wells to provide a substantial and "green" source of irrigation water. It is our opinion that the FEIS should specify the quality of the proposed grey water that could be applied and indicate compliance with NYSDEC Surface Water Discharge Standards.

In addition, we would recommend that the second paragraph of Section 2a be modified to indicate that yield and water quality testing has already been conducted. Similarly, the third paragraph discussing the results of the pumping test should be updated to indicate that the test well drilling results have been favorable from a water supply perspective.

Pg. III.J-9 The DEIS in calculating fire flow volume uses a required minimum flow of 1,000 gpm. In our experience, fire flow requirements for multi-family units are typically 1,250 gpm and flows for large buildings similar to the clubhouse are even higher. Fire flow is typically determined based on building volume, occupancy type, type of construction and other related factors. The fire flow rate will differ between the multi-family units and clubhouse building. The preparer will need to provide the calculations used in determining fire flow requirements for the various on-site buildings.

Pg. III.J-9 The estimated potable water demand listed on Table III.J-1 appears to be appropriately calculated. However, clarification should be provided as to how the "Golf Course" demand was calculated. Specifically, how 2,000 s.f. of golf course was arrived at in the calculation.

Pg. III.J-10 We would recommend that the FEIS include a 2-year, long-term water level monitoring program for wells that showed interference effects during the two pumping tests. These wells include #8 Embassy Court and #26, #30 and #34 Blair Road.

In addition, the FEIS should include a discussion of the anticipated effects that could be observed in other private wells in the area that were not included in the off-site monitoring that was conducted (including vacant lots).

Pg. III.J-12 The FEIS should include the results of the monitoring of off-site private wells during the two pumping test conducted this spring.

Pg. III.J-18 The applicant has proposed a centralized wash down area for maintenance equipment and golf carts. The location has been designated within the maintenance area. A second location should be provided for golf carts close to the storage location.

General Comments

A. In general, there are a few places in the sub-sections of the text where the previously implemented pumping test program and test well drilling are referred to in future tense. To add clarity to the document, these sections should be updated.

B. We would recommend that Exhibit III-J-1, *Existing and Proposed Wells* be modified for the FEIS so that the locations of Test Pumping Wells #1, #2B, #3, #5 and #6A are all depicted on the plan. On the Exhibit that was reviewed, Well #6A is absent from the Exhibit and Well #3 is labeled "TW 1". In addition, we recommend removing the sanitary radii on any wells that are not to be considered for potable use.

General Comments - LBG Brynwood Golf & Country Club Groundwater Exploration and 72-Hour Pumping Test Program Report

We agree with the finding and conclusions of the report as presented, but offer the following comments:

A. Groundwater Exploration Program (Page 2): The report discusses the results of the exploration drilling that was conducted. However, there is no graphical information provided regarding the placement of these wells on perceived fracture traces and/or lineaments. It would be helpful if this information were presented in the report or the FEIS so that the relationship between the proposed site potable wells and off-site private residential wells can be better understood.

B. Pumping Test Program: It is our opinion that the pumping test was conducted in a technically sound fashion meeting the requirements of New York State Department of Health (NYSDOH) Appendix 10 TOGS 3.2.1, *Recommended Pump Test Procedures for Water Supply Applications*. In this regard, it appears that Wells #1, #2B, #3, #5 and #6A were appropriately tested and the results clearly indicate that the pumping scenario is capable of providing two times the average daily demand of the proposed project with the best well out of service and while providing irrigation water. The pump test results did reveal that there were interference effects noted in four private wells (#8 Embassy Court and #26, #30 and #34 Blair Road) during the simultaneous pumping test when the pumping rate was more than two times the average daily demand. Only one well exhibited interference effects during the pumping test of Well #6A (#8 Embassy Court). We agree with LBG that the documented interference should not result in the loss of use of any of these wells, as the interference is expected to be less significant at operational pumping rates; however, to be conservative, these wells should be monitored for two (2) years after build-out of the project. These private wells should be monitored on a quarterly basis at a minimum. If significant interference effects are noted that prevents use of these wells, then the applicant should be required to rectify the issue (i.e., lowering the pumping in the impacted well, hydrofracking the well, or drilling a new well).

C. Chemical and Groundwater Under Direct Influence Data (Page 29): The report does not currently include the chemical and microscopic particulate analysis testing data from the proposed wells. As this data is an essential part of determining whether or not the water sources are potable, the FEIS must include a discussion of these results for our review.

General Comments - July 29, 2013 Letter from LBG to Mr. David Freund

A. We have reviewed this 'Complaint Response' letter and agree with the observations and conclusions made by LBG. In short, based on the information presented, we do not believe that the pumping test program executed at the Brynwood Golf & Country Club in May 2013 adversely impacted the well at #8 Embassy Court.

Chapter III, Section K - Wastewater

Pg. III.K-2 The applicant has established an average daily flow of 52,000 gpd as the project's design flow. The flow was determined based on NYSDEC accepted criteria and appears to be appropriate for the intended use as long as no unforseen usage occurs within the facility. If unusual flows occur, they are typically related to a commercial kitchen, laundry and/or shower related issues. We would recommend that the project approval require the applicant to design and maintain the clubhouse with automatic shut off fixtures within the kitchens and restrooms, water saving devices within the showers and low flow laundry equipment.

Pg. III.K-3 The proposed project will include the construction of a new sewage treatment plant with advanced biological treatment and a new sewage collection system which will service the proposed on-site residences and clubhouse. The existing plant, which has available capacity, is proposed to be used during the initial phase of the project while the new plant is being constructed. The new plant will be brought on-line as the existing plant reaches its capacity. The applicant anticipates the new plant would be placed in service when club membership reaches 200 members and occupancy of 15 residences or other equivalent is reached. We understand and concur with the need to transition between the plants, however, we do not recommend that the Town be required to monitor memberships. The applicant's proposal is reasonable and we would recommend regardless of the number of members that the plant be operational prior to the 15th Certificate of Occupancy, the existing plant reaching full capacity or a set time frame of 18 months after approval, whichever occurs first.

Pg. III.K-4 The sewage treatment plant and collection system is proposed to be constructed by the applicant at their expense. Annual maintenance costs are proposed to be split between the club (39%) and residences (61%). The cost to residences is projected to be between \$1,386.00 and \$1,733.00 per year. The applicant, however, has not yet decided on how costs will be proportioned between residences. We would recommend that costs be proportioned between residences based on water usage as determined through metering, since such methods typically encourage conservation.

Pg. III.K-6 The project is located within the Byram River watershed, tributary to Long Island Sound. Long Island Sound is a TMDL which has allowable pollutant loading quality standards for point and non-point sources in both New York and Connecticut. North Castle Sewer District #2, which also discharges to the Byram River, recently performed a multi-million dollar project to reduce the nitrogen discharge from the District's plant. We would recommend that the project's sewage treatment plant upgrade be required to comply with the TMDL water quality standards without impact on future expansion, or limitations on North Castle Sewer District #2 plant.

Pg. III.K-6 The DEIS discusses the use of the sewage treatment plant discharge as grey water re-use for golf course irrigation during the summer months. The summer months are typically when the golf-country club will experience the greatest water-sewage usage. The document states that the applicant will consider such re-use. In our opinion, re-use of sewage effluent is a positive beneficial re-use of resources which should be encouraged with the project. The green practices can be expected to reduce discharge to Long Island Sound, recharge groundwater, reduce groundwater withdrawal and reduce pumping costs.

Chapter III, Section P - Noise

Pg. III.P-6 The noise study evaluated potential sensitive locations (receptors) in the vicinity of the project. We agree with the applicant's conclusion that noise associated with I-684 would be the dominant noise source to houses west of I-684 both during and after construction. We would recommend, however, that the residential uses south and southwest of the project site be included in the analysis, particularly for noise generation during construction of the project.

<u>Chapter III, Section Q - Hazardous Materials</u>

Pg. III.Q-2 The applicant has proposed a surface water sampling program to monitor stormwater runoff water quality from the site. One sampling location has been proposed at the central stream channel downstream of the confluence of the irrigation pond outfall and wastewater treatment plant discharge point. We would recommend that additional collection and monitoring points along the westerly property boundary be included in the program. The sample locations would coincide with the stormwater discharge points indicated on the Proposed Drainage Area Map (total of five).

Pg. III.Q-2 The surface water monitoring frequency, as proposed, includes one year of background (pre-construction) sampling and sampling for a period of five years from the start of construction. It is recommended that the monitoring be extended to five years from the completion of the project before the two year reduced monitoring program is initiated. This extended sampling will capture the grow-in time for the turf and provide extended data trends to support the success of the Integrated Turfgrass and Pest Management Plan (ITPMP).

Pg. III.Q-2 There are no provisions for groundwater sampling proposed by the applicant. This office recommends, as is recommended in the Phase I ESA, that groundwater sampling be performed at representative on-site wells. See Comment III.J-4 for recommended wells and sampling frequencies.

Pg. III.Q-2 In general, sampling protocol should include results for constituents of concern typically associated with fertilizers, pesticides and herbicides. These results should be compared to acceptable toxicity levels for human consumption and aquatic life.

Pg. III.Q-2 The applicant indicates that bi-annual soil testing and monthly surface flow and irrigation audits are performed at the site. Copies of these reports should be included in the FEIS with a summary of results.

Pg. III.Q-4 The applicant has a current Spill Prevention and Containment Protocol (SPCC) in place as per NYSDEC Regulations. The list of existing bulk petroleum storage facilities provided in the DEIS should match those noted in the SPCC.

Pg. III.Q-5 The applicant proposes the relocation of an existing green waste debris pile elsewhere on-site. As part of the relocation, soil testing is proposed to be performed during construction to determine the need for any remediation or special handling. We would recommend that this testing be performed at this time and the findings provided in the FEIS.

Pg. III.Q-6 The DEIS references the development of a facility operations manual to insure proper implementation of the ITPMP, as wells as reporting on all phases of the project, including renovation and annual maintenance. While information contained in the DEIS and subsequent studies will be necessary to develop the final operations plan, a draft copy should be prepared for preliminary review. This should be included in the FEIS.

General Comments - Integrated Turfgrass and Pest Management Plan

A. The ITPMP states that the golf course superintendents will be responsible for implementing the plan in accordance with the Troon Golf Standards and Procedures Manual. A copy of this manual should be included in the FEIS, as well as any qualification/certification requirements for golf course management and maintenance staff.

B. The ITPMP should be expanded to discuss what necessary steps will be required and the expected benefits of becoming a Certified Audubon Cooperative Sanctuary.

C. The recommended management routine included in the ITPMP shall include a discussion on irrigation management and equipment cleaning.

D. The scouting forms referenced in the ITPMP, to be used to monitor pest populations have not been included in the report as noted.

E. The ITPMP should include an anticipated preventative pesticide application program assuming all other alternative prevention measures are followed.

F. The fertilizer and pesticide storage and handling discussion in the ITPMP should be expanded to include provisions for chemical access, expected stored quantities and storage requirements, any special building construction considerations, safety precautions, hazard communications, training and spill response.

G. The fertigation program described in the ITPMP should include provisions to minimize potential for airborne transmissions (drift) of fertilizers during application.

H. The ITPMP includes a risk assessment of pesticide application of humans and aquatic wildlife. A similar risk analysis should be performed for potential surface and groundwater contamination (leaching and runoff) based on estimated runoff and groundwater recharge rates. Only pesticides having a low potential for contamination should be considered for use.

I. The ITPMP reporting requirements should clearly note that Town approval will be required prior to any proposed changes, not only as indicated during annual updates.

Chapter III, Section R - Construction

Pg. III.R-2 The project is divided into three overall construction phases with total disturbances of ±40 acres, ±30 acres and ±3 acres, respectively. As previously commented, the applicant should clarify whether or not a waiver from the NYSDEC limiting disturbance areas to five (5) acres will be sought. The Phasing Plan should be revised to reflect sub-phases.

Pg. III.R-2 The DEIS is contradictory as it relates to temporary parking facilities during construction. The DEIS states that workers would use existing parking areas on the site, which would accommodate club employees and members as well. The DEIS continues to state that construction workers will be confined to gravel surface areas within the staging areas. Of particular concern is the proposed Phase I staging area located within the existing parking lot. The FEIS should describe the uses within this staging area and provide support demonstrating that adequate parking for club employees and members will be maintained. Otherwise, alternative staging and construction worker parking areas shall be provided and shown on the plan.

Pg. III.R-4 Reference to pond dredging operations discussed in Section H of the DEIS should be included in the sequence of construction.

Pg. III.R-9 As proposed, the project will require disturbance to approximately 73 acres of land and demolition of existing buildings or portions thereof. Given the size of the disturbance and proximity to the surrounding neighborhoods and Coman Hill Elementary School, a Community Air Monitoring Program (CAMP) may be warranted. The CAMP would monitor potential air quality impacts resulting from construction vehicle and machinery emissions and fugitive dust caused by earthwork, rock removal and rock crushing operations.

Pg. III.R-11 In addition to permitted hours of operation, the discussion regarding rock crushing activities should be expanded to include expected overall durations. This information should be presented for each phase of construction based upon anticipated volumes of rock to be processed.

As additional information becomes available, we will continue our review. It is noted that an itemized response to all comments will facilitate completeness and efficiency of review.

Document Reviewed, prepared by VHB Engineering and dated (last revised) June 4, 2013:

- *Draft Environmental Impact Statement* - Volume 1 (Sections I - VII), Volume 2 (Section VIII, Appendix A-K) and Volume 3 (Section VIII, Appendix L-P)

JMC/dc

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To members of the North Castle Town Board

Letter #18

August 20, 3013

Comments and Questions on the Brynwood DEIS:

1. Has Town Engineer John Kellard (or other engineering consultant) reviewed the 49 home, 2-acre subdivision plan to verify that the 49 lots can, in fact, be legally created? It appears that a few of the lots may be impossible to build on because of steep slopes, wetlands, and normal set backs – plus the need for sufficient septic system area with the required set backs for wells. Since the as-of-right number is the basis for all comparisons, the accuracy of the subdivision plan prepared by the applicant should be carefully reviewed and confirmed as accurate, in writing, by a qualified land use engineer.

2. The property tax analysis contained in the DEIS is based on a 2% rate in North Castle. The actual rate is at least 2.2% (it may be a bit larger at this point). To be accurate, the financial analysis and comparisons which are used throughout the DEIS should be restated to reflect the actual current property tax rate.

3. The estimated annual property tax payment, which would result from all improvements to the Brynwood facilities is $500,000. At a 2.2%, tax rate, this translates to a total market value of $22,727,272 for all the Brynwood fee-simple components. Please explain how this valuation is supported by providing an estimated fair market value for all facilities that will be taxed on a fee simple basis including: a new/renovated 64,000 SF clubhouse; a new security gate house; new 8,000 SF two-story maintenance building; 6 new tennis courts; 3 swimming pools; new sewer plant; new 225,000 gallon water storage tank; new half way house; chemical storage building; 3 material storage bays; fuel tanks and wash area; and parking area.

4. The estimated property tax payments generated by 49 homes in a conservation subdivision is $1,225,000. At 2.2% tax rate, this translates to a total market value for all homes of $55,681,818 – or $1,136,367 average selling price for each home. A construction cost analysis recently completed by several developers with experience in building this type of subdivision (sent under separate cover) indicates that the cost to build 49 homes, using the plan provided in the DEIS, will be substantially greater than $1,136,367 each, which would make the proposed plan impractical. Please provide the cost analysis used to support the proposed 49 home subdivision so that we may judge the practicality of such a plan and judge the accuracy of the projected tax revenue.

5. The DEIS estimates Rec Fees at $3,000 per unit. The current North Castle Rec Fee is $10,000 per unit. What is the justification for such a large discount? Is this amount fixed, or subject to negotiation?

6. The proposed site plan for a 49 home, one-acre, conservation subdivision should be reviewed by an experienced land use engineer. As presented, the plan simply uses the same road system as provided in the 49 home, two-acre, conventional subdivision – with lot sizes made somewhat smaller. The reason for imposing a conservation subdivision is to preserve as much open space as possible. The plan presented in the DEIS is too spread out and the lots are unnecessarily large. Out of 157 acres, the resulting preserved open space is only 59.5 acres. The applicant should be required to revise its conservation subdivision plan to reduce the overall size of the developed area by reducing the amount of roadway and by making the large lots closer in size to meet the one-acre requirement.

7. A recurring theme throughout the DEIS is that Brynwood needs to build 88 condos in order to save the golf club. A quote from the DEIS is clear: *"A year-round residential neighborhood for active adults will support the operations of the club, the preservation of the golf course, and our member base."* However, nowhere in the DEIS is there an explanation of how this will happen. The applicant should be required to provide an explanation, supported by financial projections, to show how it plans to save the golf club operation. This is a core issue that should be carefully vetted because the merit of the applicant's entire proposal rests on the validity of this premise.

8. The applicant represents that it's marketing will be age-targeted to active adults (page I-3). How is age targeting different from general marketing? What assurance do we have that the condo units wont be sold to families (of any age) that have children?

9. The applicant represents that its proposed residential use will "be consistent with existing residential uses in the surrounding area" (page I-4). How is this representation justified?

10. The applicant has asked that it be given "certain types of limited design flexibility after site plan approval is granted." (page I-4). Please be more specific as to what kind of flexibility is contemplated. North Castle has rules in place that govern what can, and cannot, be changed once a site plan has been approved. Is the applicant asking to be exempted from the established rules? If so, to what extent?

11. All residents on site will be required to be members of the golf club. In its public presentations, the applicant said that the cost to be a member will be

approximately $30,000 per year which is substantially higher than the cost to belong to golf clubs in this area. What does this fee include?

12. The applicant has projected the number of school age children based on the "Rutgers Study". This study is not an accurate indicator because its quite old, measured a very different community, and does not take into consideration the extraordinary attraction that the Byram Hills School system has for young families looking for a top rated education. The applicant should be asked to provide an analysis of the number of school children that actually attend our schools from local subdivisions such as Whippoorwill Hills – and base new estimates of potential school children using local knowledge.

13. What assumptions are used to calculate the estimated property tax rate for condominiums? (page I-12). What estimated rental rents were used? What expenses were deducted to calculate the NOI?

14. The applicant estimates its construction cost to be approximately $104.5 million. (page I-14). How is this allocated between the residential component, improvements to the golf course, and the various fee-simple facilities? Does this include construction of the required MIU units?

15. Under the "No Action" alternative, the applicant represents that it will demolish the existing facilities and develop 49 homes. (page I-15). A financial analysis, sent under separate cover, indicates that it is not practical to build 49 homes on the Brynwood site due to the expense of providing necessary infrastructure (roads, sewer, water, utilities, drainage, site work, landscaping, etc.). The cost to develop homes in a conservation subdivision, combined with the reality of today's conservative real estate market values, is likely to make it impossible to build 49 homes, and sell them at a profit

    If this is the case, then there is no practical alternative single home development plan to consider. The applicant should provide a financial analysis of its costs and projected sales to support its contention that a single family conservation subdivision is possible. The estimated development cost items should be reviewed by an appropriate Town consultant and should include:

    - Investment to date (land cost)
    - Demo 65,000 SF club house, out buildings, 3 pools and parking lot
    - Engineering, design & construction drawings for 49 lots
    - Grading, paving and curbs for 9,500 LF of public roads
    - Water distribution system
    - Force Main sewer system
    - Storm water drainage system
    - Buried utilities and 49 stubs

- Fire protection system – 98 hydrants
- Site work to create 49 lots
- Landscaping for 49 homes
- Cost for new well and new main to tie into District 2 water system
- Pro rata share of District 2 past and future capital expenditures
- Permits and approvals for SPDES, sewer, water and highway
- Construction hard costs – 49 homes
- Building permit fees @ 1.1% of hard costs
- Architecture, engineering & construction drawings – 49 homes
- New sewer plant and plant management costs during sell out term
- Marketing expense during sell out term
- Admin, insurance, legal, accounting during sell out term
- On site security
- Site lighting, if any
- Selling expense, brokerage commissions
- NC rec Fees @ $10,000 / lot
- Estimated utility expenses during sell out term
- Real estate taxes during sell out term
- Interest expense during sell out term
- General conditions
- Contingency

16. The applicant has proposed making improvements to the golf course the clubhouse, as well as numerous the infrastructure upgrades. (page II-10). However, no line item budget is provided and no total investment is mentioned. How can we be confident that any improvements will be made unless there is an approved line-item budget? The applicant should provide its construction budget for all alleged improvements.

17. As suggested in comment 16, the applicant should be required to present a line item investment summary indicating what it proposes to spend on improvements. Once the Town is satisfied that promised improvements are reasonably budgeted, there must be a system for insuring that the promised investment is actually made and that the work is properly done. What mechanism is proposed to be sure that these substantial improvements are done? This is a critical component of the applicants promise. If the applicant should sell the property to another developer once it obtains approvals (which is always a possibility), there should be specific provisions contained in the town approvals that will require the current owner, or a subsequent owner, to follow through and complete the promised improvements. What is the plan. If any, to provide this protection?

18. The applicant has an as-of-right opportunity to build 49 residential units on the same 14 acres that it proposes to use for 88 condos, thereby leaving room

for the golf course, club house and the rest of the infrastructure needed to support the golf operation.

The applicant should explain how the difference between the economic benefits associated with 49 fee simple units vs. 88 condo units will make, or break, its long term financial goals. How will the addition of 39 bonus units make enough of a difference to secure the long range success of the club? This is a critical point of understanding because unless NC taxpayers can be confident that the golf club will survive – they (taxpayers) should not accept the risks associated with bonus units – or the tax discounts for condos.

19. The applicant represents that it will construct a luxury complex with fist class appointments and amenities. What assurance do we have that it will fulfill that promise? How can we be protected from a reduction in quality as the units are being built? If the applicant were to obtain the approvals that it seeks, it could easily sell the project to another developer who may target market to a completely different, and less affluent, audience. The applicant's estimated selling price point is $600 PSF – very pricy in today's real estate market. The 88 condo project is to be built in phases. What will be the result if phase one sales are disappointing? What mechanism is contemplated to insure that the quality of the construction is maintained and the so-called marketing strategy to empty nesters is not abandoned?

20. The traffic study should be redone to include Cox Avenue as it meets Route 22. Anyone who travels the Route 22 corridor will realize that leaving this critical intersection out of the study is a serious flaw.

Thank you for considering these questions and comments. I appreciate having the opportunity to contribute to the SEQRA process.

Robert Greene
42 North Lake Road
Armonk, NY 10504

TOWN OF NORTH CASTLE CONSERVATION BOARD

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Letter #19

RECEIVED
AUG 20 2013
TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

North Castle Town Board
Town of North Castle
15 Bedford Road
Armonk, NY 10504

August 20, 2013

RE: Conservation Board Comment
Brynwood Golf & Country Club - DEIS

Supervisor Arden and Town Board Members
Lead Agency

The Conservation Board regards the Brynwood Golf Course as an important community facility and open space connection.

The proposed development of 88 or more residential units and reconstruction of the golf course will affect over 74 acres of the 156 acre site with substantial disturbance. Significant impacts and concerns are identified regarding water resources, storm water controls, loss of vegetation, erosion and sediment control, wildlife, noise, construction activities and reduction of existing residential vegetative buffers. Identified inconsistencies and omissions are also noted. The Conservation Board hereby submits pages 1-11, Comments on the Brynwood DEIS dated June 11, 2013.

John F. Fava, Chairman
Conservation Board

Comments from the Conservation Board to be addressed in the Brynwood FEIS

General Comments

1. Reference is made to Sniffen Brook throughout the DEIS. This stream has been locally known as Redbrooke. The name is presently used as nearby Redbrooke Place and Redbrooke Glen Subdivision located contiguous with the south property line of the Brynwood Site.

COMMENT: Determine the historically correct name for this brook and correct references as needed.

2. Review by the Consulting Town Engineer concerning engineering, wetlands and construction methods for completeness and consistency with the Adopted Scope were provided in an 18 page memorandum dated, May 1, 2013.

COMMENT: The Kellard Sessions Consulting, P.C. Memorandum: Draft Environmental Impact Statement (DEIS) Review to the Town Board and the Planning Board dated May 1, 2013 should be included in the FEIS.

3. **Environmentally Green**

This project should fit into the current strategies of the town, state and federal initiatives for conservation of resources. New construction and orientation of roofs should enhance the possibilities or the installation of solar electric power and other opportunities.

COMMENT: Identify opportunities that are available and describe how they might fit into the design, orientation of buildings and for the conservation of energy in the long term.

4. **Clubhouse & Parking Area - Existing Plantings**

The white pine screen planting at the existing main parking area was required as an original condition of approval for the golf course complex. These trees have long outlived their function. The entire landscaping along Rte. 22 should be completed in a Phase I Plan prior to any building construction.

COMMENT: Provide a Phase I landscape plan that would provide screening along the entire length of Rte. 22 and along the south property line adjacent to Coman Hill Elementary School.

Description of Proposed Action

II-15-h) **Phasing Plan**

The Preliminary Phasing Plan indicates Phase I as a major disturbance to the site. This includes the demolition of buildings/structures and rebuilding/renovation of structures and primarily the northern portion of the golf course. Construction will take place over a period of years.

The proposed Club Villas adjacent to Rte. 22 are shown as three separate phases over a period of three years or more. Concerns with Club Villas and other construction activity are years of extended noise in close proximity to existing residences at Windmill Farm and Embassy Court where a buffer is limited and construction noise levels will be high.

COMMENT: Prepare a single phasing plan for the proposed Club Villas residential development along Route 22.

Exhibit II-16A **Overall Site Grading**

Overall site grading is shown on Exhibit II-16A where much of the site grading is located in the northerly steep sloped area of the course and contiguous to residences on Embassy Court.

COMMENT: Provide an alternative plan for golf course improvements that avoids site clearing and disturbance in this steep-sloped area adjacent to existing residences.

Exhibit II-20 **Preliminary Phasing Plan**

The plan is shown as preliminary, however a revised plan that would complete all proposed Club Villa building along Rte. 22 as a single phase is appropriate and suggested. (along with a stone wall and vegetative buffer).

COMMENT: Provide a revised plan that would complete the proposed stone wall, landscaping and adjacent buildings in Phase 1 with the goal to reduce noise over a long term construction period and the resultant disruption of existing residents across the street in Windmill Farm.

Exhibit III.C-2 **Views into Site west side Rte. 22**

This view shows a stone wall deep within the Site adjacent to Club Villas and does not show the structures of the close-by Villas. In addition, the Project Proposed Zone Amendments is requesting a reduction in the 25 ft. buffer along all lot lines adjoining or across the street from properties in residence districts (Windmill Farm and Embassy Court).

COMMENT: Provide a realistic view west from Rte. 22 of the proposed development together with buildings showing the proposed height and size.

Chapter III Environmental Analysis

Existing Environmental Conditions, Anticipated Impacts and Mitigation

III.13, 3. **Mitigation** - "This impact will be mitigated in part through the addition of a landscaped buffer between the proposed housing units and Bedford Road/Rte.22". However, the Brynwood Petition Zone Text Amendment requests a Code change that would reduce the present 25 ft. requirement for a landscape buffer.

COMMENT: Explain how a reduction in the 25 ft. landscape buffer could be considered mitigation.

Exhibit III.C-3A **Cross Sections B and C**

These simulations show a stone wall and mature vegetation along the entire length of the project at the Bedford Road/Rte. 22 area. Presently construction is scheduled in three phases.

COMMENT: Develop a plan and text that includes the stone wall and landscaping along the entire Club Villa area in a Phase I alternative.

Exhibit III.A-1 **Surrounding Land Use**

The two town park parcels on Willow Pond Road are shown on Exhibit III.L-3 but are omitted on Exhibit III. A-1.

COMMENT: Include both park parcels on Exhibit III.A-1

III.C-5 **Visual Resources & Community Character**

Potential Impacts

Nearly 100 percent of vegetation along Rte. 22 will be removed for construction in the vicinity of Club Villas.

COMMENT: Identify the number of significant trees and square feet of naturalized vegetation that must be removed along Rte. 22 in the vicinity of the Club Villas.

III.C-5 **Potential Impacts**

North Castle Code - Article VII Special Permit Use

3). Buffer Areas. A landscaped buffer area of at least 25 feet in width shall be required along all lot lines adjoining or across the street from properties in residence districts. Proposed development of the 10th Tee in the vicinity of residences at Embassy Court and the extensive removal of existing vegetation along Rte. 22 in the vicinity of the interior roadway at Club Villas are below or barely meet the above standard.

The <u>Brynwood Petition Proposed Zone Text Amendment</u> proposes to allow a reduction of the 25 ft. buffer along all lot lines adjoining or across the street from properties in residence districts.

COMMENT: Revise the Proposed Zone Text Amendment related to amending Section 213-33.I, IV-3 pg. 2, Buffer area, and eliminate the proposal to reduce existing residence buffer widths at Brynwood.

COMMENT: Provide a revised layout that will increase landscape buffer areas in the vicinity of proposed new units.

COMMENT: Explain why <u>expansion of residential buffers</u> related to major development areas such as Brynwood Villas and the larger Golf Residences should <u>not</u> be considered?

III.E-7 **Wetland Communities (and Watercourses)**

W-1, Wooded Wetlands. Wetland -1 and Wetland - 6 lie contiguous to wetlands along Sniffen Brook/Redbrooke and Town Conservation Easements within the Redbrooke Glen Subdivision and are contiguous to the Brynwood site.

COMMENT: Include reference to and show the extensive Conservation Easements related to Redbrooke Glen Subdivision on Exhibit III.A-1 and III.E-1 or on an appropriate site plan.

III.E-12b. **Potential Impacts**

Disturbance impacts related to reconstruction of the golf course are stated as 53.3 acres and for the residential component as 20.6 acres, a total land disturbance of 73.9 acres.

A reduction in the Residential Component should also reduce the acres of disturbance required for golf course improvements, however alternatives for residential units show no decrease in golf course disturbance. The disturbance related to the re-routing of golf holes is primarily to accommodate space for housing units.

COMMENT: Provide an alternative reduced Residential Component Plan that will also reduce overall site disturbance of the golf course.

III.E-15 **Potential Impacts**

It is estimated that 1,524 trees over 8 inches in diameter will be disturbed and approximately 879 will be removed. In addition, 241 trees over 24 inches in diameter are identified to be disturbed and 128 will be removed. This does not include trees under 8 inches in diameter or various shrubs and undergrowth.

COMMENT: Describe the meaning of "disturbed".

COMMENT: Identify the areas of "trees to be disturbed/removed" on an existing vegetative conditions plan.

III.E-27 **Vegetation & Wildlife**

Existing Conditions

Brynwood site inspections were made only in the Fall of 2010; Winter, March and one visit in April in 2013.

COMMENT: Provide additional site investigation and inspection information for bird, reptile and amphibian species during spring and summer months during the primary nesting and breeding season.

III.E-38 **Potential Impacts**

Proposed Construction Phasing

The site is proposed to be significantly disturbed and altered over a period of 2 to 3 years or more.

COMMENT: How can the project be staged to minimize disruption of wildlife during that time period.

III.E 27 to 41 **Wildlife**

The Brynwood site comprises a significant area of open space in the Town of North Castle. It is part of a wildlife corridor of many hundreds of acres on the east side of I-684 that extends from Sniffen Brook/Redbrooke on the south to Westmoreland Sanctuary on the north. It includes town owned Willow Pond Park and the former Dubos Property as well as extensive rear yards along Chestnut Ridge Road to Westmoreland Preserve and beyond. Bobcats are known to inhabit this area.

COMMENT: How will the alteration of this site affect this biotic corridor.
COMMENT: How can disturbance to the site be minimized or vegetation enhanced to facilitate opportunities for wildlife survival.

III. E-40 **Mitigation Measures**

The North Castle Biodiversity Study by MCA is generously referenced in the DEIS, however that study was limited to the west side of I-684 from School Street to the Meyer Preserve and beyond. The Dubos Center property along Baldwin Road was excluded as not relevant due to the I-684 barrier. The environmental conditions as well as flora and fauna are likely incomparable.

COMMENT: Identify where some of the strategies suggested by the MCA study can help to mitigate potential environmental impacts.

COMMENT: The survey of wildlife is inadequate and should be expanded to include surveys of pond life, bird nesting, reptiles and amphibians at the proper time of the year.

The Audubon Cooperative Sanctuary Program for Golf Courses

The Audubon International Environmental Management Practices for Golf Courses, www.auduboninternational.org, identifies environmental planning, wildlife habitat enhancements and protection, cultural practices and IPM techniques, water quality management & monitoring, outreach & education and many other items useful to golf course managers. By following the suggested practices, the Brynwood Golf Course could work towards an Audubon Certification.

COMMENT: Provide the Audubon Cooperative Sanctuary Program for Golf Courses (ACSP) to Brynwood owners, managers, designers, members of the golfing community, North Castle officials and residents with the expectation that many of the planning and management practices would be adopted.

III.H-1 **Wetlands & Surface Water Resources**

Existing Conditions

Table III.H-1 shows 6.61 acres of wetland and 25.98 acres of town-regulated buffer/adjacent area. Text on page III.H-3 indicates 6.61 acres of wetland and 24.34 acres of town regulated buffer, a difference of 1.64 acres.

COMMENT: The correct acreage for town regulated buffer/adjacent area should agree and be noted on table III.H-1 and as related to text on pages H-3 to H-6.

III H-8 **Pond Dredging and Wetland Enhancement**

Excavation of an estimated 15,000 cubic yards of soil and sediment is proposed. It is usually stockpiled to dry and in this project used on site?

COMMENT: Where will the dredged material be used and how will it be transported to a final destination.

III H-9 **Beneficial Use Requirements**

The Applicant must receive a Beneficial Use Determination from NYS DEC for pond dredging.

COMMENT: If the Applicant does not dredge the ponds, will the previously mentioned enhancement marshes still be created.

III. H-19 **Sustainable Stream Flows**

Reference is made to using on-site wells to keep the ponds filled because of "the large amount of water withdrawn … on a daily basis to irrigate the golf course".

COMMENT: During a drought period could this water use affect the well water supply on adjacent properties.

III H-24, **Stormwater Best Management Practices**

Statement is made that these Practices will incorporate design of the proposed residential community to reduce impervious surfaces. It was previously stated that there would be a net gain of 6.6 acres of impervious surfaces. The small proposed pond in the vicinity of the Golf Residences and driving range may be sufficient for staged construction, however additional methods of storm water controls must be considered.

COMMENT: How will the proposed additional storm water runoff be controlled both during and after construction.

III.I **StormwaterManagement**

The major stream on the site identified as Wetland 3 is currently badly eroded. This perennial watercourse is located in the center of the golf course and flows to and under I-684 to the Byram River. In order to avoid additional erosion of stream banks and further deposition of silt and debris within the I-684 drainage systems and the Byram River, remediation of existing the condition as well as reduction in storm water runoff is essential.

COMMENT: Describe the current state of the stream in detail and identify the proposed remediation for the existing eroded stream banks within Wetland 3, W-3.
COMMENT: In one paragraph/chart, identify the total additional impervious area, storm water runoff including added sewage flows) etc., created by this project.
COMMENT: Describe the proposed mitigation to compensate for the additional volume of drainage/stormwater runoff from the Site.

III.J-3 **Groundwater and Water Supply**

III J-1 1a) Groundwater Geology

Six test wells meeting the test requirements of the County Health Department for a public water supply have been drilled on the site. The results indicate that sufficient yield can be found to meet the Project water demand requirements.

COMMENT: Exhibit III-J-1 Existing & Proposed Wells. The reference to existing test wells and proposed wells are not clear. Well 6A is not shown.

Although six wells are discussed in text, only five new wells are shown. Provide a revised Exhibit J-1 that correctly identifies the name and location of the six test wells.
COMMENT: Reference should be made to Appendix Vol. 3, R-3 Well Completion Reports provided only on disc.

Exhibit III J-3 1c) **Water Storage & Supply**

In this section J, there is no reference as to why Well 8 was abandoned. One must go to the Appendix L, Phase 1 Environmental Site Assessment (ESA) Conclusion of May 15, 2008 to learn why well 8 is not used. Well 7, south of the clubhouse in close proximity to the underground fuel storage tanks is not discussed.

The DEIS states that a 1000 gallon underground storage tank (UST) adjacent to the maintenance building was removed in 1996 with 56 tons of petroleum contaminated soils. A 3000 gallon UST was removed south of the clubhouse in 2002 with 96 tons of petroleum contaminated soil.

At some point after the Coman Hill School connected to the Windmill Farm Water District, the Canyon Club was also provided with a connection.

COMMENT: Were wells 7 & 8 taken out of service due to contamination.
COMMENT: The soils in the vicinity of the former tanks should be tested for contamination and wells No. 7 and 8 should be tested for volatile organic compounds, gasoline and MTBE especially if excavation may require moving soils from one area of the Project to another and excavated soil may have to be treated as regulated waste.
COMMENT: Provide the date and reason for connecting the Clubhouse to the Windmill Water District.

III J 4-1e) **On-site Chemical Use**

"The available records show no overuse of any fertilizer or pesticides in the past" Groundwater samples were collected from the Irrigation Wells 4 & 5 in November 2012. All constituents analyzed for were reported as not detected in the samples from both wells". Test methods used were for semi-volatile organics, pesticides, insecticides, chlorinated acids and 1,2 dibromoethane and not just herbicides and pesticides as stated in the DEIS.

The Envirotest Lab results indicated that one chemical, 4-Terphenyl-d14 (a polycyclic aromatic hydrocarbon PAH) had a " % Recovery that exceeded control limits" in both Well 4 & Well 5 samples - 191% and 183%, respectively when the stated %Recovery is 77-143. Polycyclic hydrocarbons, PAHs, contain aromatic rings and are among some of the most persistent organic pollutants. In analysis for oil-characteristics PAHs their presence may serve as a marker for fuel oils.

COMMENT: Based on the history of gasoline, fuel oil spills as the detected presence of PAH, it may be advisable to also include MTBE to detect gasoline and another marker for fuel oil in future water quality tests of not only the potable

source wells but some surface waters.

III J-9 2b) **Water Quantity**

Table III J-1 calculates the average water demand of 51,955 gallons per day and a twice average water demand of 103,910 gpd. Since these numbers are used throughout the DEIS for establishing that the criteria has been met, it is important to fully understand the meaning of this Table.

COMMENT: What is the reference for the water usage rate?

III J 10. 2d) **Well Capacity** - III J 12. 2e) **Water Demand and Availability**

"The use of on-site water-supply wells has the potential to impact water levels in existing bedrock wells located near the Site". No statement is made either in this paragraph or in 1e) or 1f) that adjacent residents would also have wells meeting peak water demands or the water demands in a drought period.

Consulting Town Engineer, Joseph M. Cermele, P.E, in his May 1, 2013 Memorandum pg. III.J-10 also stated: "The off-site monitoring program should include locating monitor wells along regional fracture traces and/or lineaments that coincide with drilled water supply test wells as much as possible. Typically wells on the same secondary fractures or lineaments will exhibit hydraulic connection and this should be analyzed carefully as it relates to impacts to existing off-site water supply wells".

COMMENT: Include details regarding the monitoring of off-site wells in the vicinity of the Project Site that would satisfy this recommendation.

III P-4 A **Noise Impacts**

Construction noise levels are not allowed to exceed 70dB(A) in a residential district during the hours of 8:00 am to 6:00 pm or sundown , whichever is later to 8 pm.

COMMENT: The North Castle Code regarding noise may be more limiting and should be identified and included in the FEIS.

III Q-1 **Chemical Storage**

As of 2013 the sampling of streams - - - will become standard as part of 2012 Audubon certification of the Site. Baseline information is necessary.

COMMENT: Chemical testing of ponds and stream water, especially irrigation ponds and the main stream(Wetland 3) is strongly encouraged. A testing program should be identified and developed.

III R-2 e) **Construction - Rock Removal**

Any rock crushing would occur between the hours of 7:30 am to 7:00 pm? It is expected that this activity would be carefully monitored and controlled.

COMMENT: The location of any on-site rock crushing/hammering should be identified and the hours of operation agree with North Castle Codes.

VII-1 **Sources, References and Bibliography**

Byram River Watershed Plan - Although this study was included as a Reference, the essential recommendations of the plan related to the Brynwood project were not identified. The Brynwood property is one of the largest in the Upper Main Stem of the Byram River. Concerns that were identified are sources of pollution, sewage, bacterial contamination, parking areas, additional impervious areas, landscape maintenance, golf courses, storm water controls, sediment from upstream construction, stream bank erosion and the like. The study was a federal, interstate, county and local agency project.

COMMENT: Provide a website link to the Byram River Watershed Plan and describe the relevant sections related to the proposed Brynwood Proposed Project.

BRYNWOOD PETITION PROPOSED ZONE TEXT AMENDMENT

IV. (1) Amend Section 213-33.I

- - - uses are developed and managed so as to protect the quality of environment and the property values of adjacent and nearby residential areas.

(3) Buffer area. A landscape buffer area of at least 25 feet in width shall be required along all lot lines adjoining or across the street from properties in residence districts, <u>except a lot line adjoining a golf course community.</u>

The proposed Golf Course Community will impact adjacent residences with the existing minimum 25 ft. buffer. The requirement for a 25 ft. minimum buffer should not be reduced but expanded.

COMMENT: Eliminate the proposed text amendment to reduce the current minimum buffer width to below 25 feet adjacent to residential districts including across a street. An <u>expansion</u> of a buffer adjacent to a Golf Course Community should be considered.

V. Amend Section 213-33 to add a new subsection U as follows:

<u>U. Golf Course Community</u>

8(b) "The golf club of the affiliated membership club functions as the open space for the golf course community, and preservation of that open space is the basis for the permitted density of a golf course community. - - - the property which as of the date of development plan approval of the golf course community is subject to the membership club special permit shall be used solely for a membership club in accordance with the requirements of 213-33.I of this chapter, as may be amended from time to time, and the portion of the property on which the golf course is located shall either be maintained as a golf course or <u>otherwise as open space</u>. The declaration of covenants shall be in form and substance reasonably acceptable to the Town Attorney".

COMMENT: Does this translate to: If the corporation fails or exits a month or a year or sometime after completion of a portion or all of the development, the golf course can revert to developable land in addition to any housing already approved?

COMMENT: If the alternative of a golf course is <u>"otherwise as open space",</u> what entity will be responsible for the open space or will it become fallow and become a naturalized woodland?

COMMENT: The various proposals to rezone residential areas far beyond the existing zoning at the time of purchase to accommodate a perceived bounty is very troublesome. These proposed actions may have consequences on lands throughout the town.

From: Steve Schneider [mailto:Steve@curtisent.com]
Sent: Tuesday, August 20, 2013 8:43 PM
To: Town Clerk External Account; Anne Curran
Subject: SEQR questions re Brynwood

Letter #20

To the town Clerks office, members of the town board, and Brynwood partners regarding the DEIS and SEQR.

#1
As I understand the developer is asking NY State to increase its output by 3x on the SPDES (State Pollution Discharge Elimination System) permit so that it can use the current system and build the septic system after all else is completed. If that is done there may not be any reason to build the infrastructure until all else is built. They are currently dumping this sewerage Gray water into Sniffen Brook a tributary that leads on to town property and goes past 15 +/- homes and on to The Byram River . This is an old plant that may be in use for several more years while the builder builds out his units. Is this in line with what people are expecting out of this project. The area surrounding the golf course is some of the areas pristine properties as far as environmentally clean.
#2
Byram River, as of this past year just got listed in 2012 on a State document of **Impaired Waters Requiring a TMDL . This is very important as the status of the river has changed and the State is attempting to clean it up.** Was this material change in the rivers status done before this report or after ? As this is a time line of information that may cause a material change in the outcome of these issues. TMDL is a process where the total amount of pollutants is exceeding a set of standards based on water flow. This water ends up in Long Island Sound, the waterway is currently on town property as I understand, and as such, the town representing the collected interests of all of its residents has a higher standard to assist NY State in cleaning up our pollution problems. In Nassau and Suffolk county's you are responsible for all of the run off from your property. Is our town saying to its residents that you are allowed to dispose of your waste water onto your neighbors property or allowing its residents to dump into our public lands.
#3
If Gray water is used in irrigation what happens to overspray on to a neighbors land how much does it reduce the value of your property when it becomes public that the golf course irrigation system is toilet water, this cannot be good for anyone but the builder? Will people want to live in a community that uses this water as there may be containments that we are currently unaware of because it is so new of a permitted use. This may be setting a precedence, as the town is responsible for our park lands. Will birds still nest in an area that is sprayed with our waste water everyday will raspberries that we pick along our roads taste the same? This is adjacent to one of our parks although currently it is in a wild state, it is still a park land, and as such it should be free of any gray water discharge.
#4
The current septic plant this past year had 12 exceedances from May through August and during October, which averaged 22,307 GpD (gallons per day). As they currently have not been able to live within the set of standards that were designed into the original plant at higher water rates there is no sure way of knowing if there assumptions are correct at all. As I read the documents the system is capable of 17,500 GpD and 12 exceedences from a clubhouse that is barley at capacity what will happen when full capacity is reached 40,000-50,000 GPD and still using the old system. How long will it be permitted for is there any time line events for start or completion dates for infrastructure.
#5
As the state realizes that there is a problem with this waterway many assumptions are made here that will force the town to make changes after the fact, once these permits are issued, as this may be the case please explain how this project will address these issues. As far as I know and understand this currently just happened with another property in our town and the town is being forced to purchase/ arrange for land for parking with or without parking meters.
#6
The building of a sewerage treatment plant surrounded by homes in a residential community is not why people invest in. In so doing the town will have no ability to control it, as it will be a state issue if it is

allowed. In addition if the developer can no longer support the infrastructure the town may have no choice but to take over the water treatment facility, is it within the standards of what would be required if it belonged to the town from the beginning. At 200,000 thousand dollars per year this is a very expensive proposition to maintain if it is not built to our standards.

#7

Regarding the traffic study

There clearly was an intersection left off of the original report and I made mention to it in my original questions. Windmill road should have been included in the road study portion because an additional no left turn sign is planed in the exiting of traffic from the property. As the Windmill road entrance is larger than normal and vision is curtailed at that point due to the gate house. Further study needs to be performed at that intersection.

#8

Early morning traffic backs up to Sniffen road and sometimes to Windmill rd on NY 22 in addition this property is after 2 schools and emergency vehicles cannot pass within reasonable timeframes, during school hours. the road appears to be at capacity yet the builder is planning food service for 570 seats plus the support people. is there an accurate count as to why there is such a major difference between what is being printed and what the perception is.

#9

There are several overnight accommodations planed for the facility, at what point is this property considered a hotel? I understand that there are only 10 units but if there are different standards because of this we would like to know now. Or once the license is in place can it be expanded upon, can it be raised to 20 rooms 30 or 40 rooms with out to much difficulty. After all if the units do not get sold they may make a convenient hotel.

#10

The town board is being asked to change the zoning on this property this is not an easy decision to have to make, with us the residents being told by a reliable source that has consistently built in this community at an open forum that 2 board members have accepted campaign contributions in excess of what is average, and therefore I ask that those people involved recues themselves from this vote to avoid any improprieties.

I look forward to a response to the above issues as they pertain to the entire process .

Thank you

Steve Schneider
Thornewood Rd
Armonk NY

August 20, 2013

Letter #21

By Hand
Supervisor Howard Arden and Town Board Members
Town of North Castle
15 Bedford Road
Armonk, New York 10504

Re: Brynwood Country Club
568 Bedford Road, North Castle, New York
Zoning Amendment, Site Plan Approval,
Wetlands Permit, possible Subdivision

Dear Supervisor Arden and Town Board Members:

I am submitting these comments pursuant to the SEQRA process and respectfully request that they be addressed in the Final Environmental Impact Statement.

1. Water Quality and Environmental Issues

The DEIS does not fully analyze the on-site water resources and wells. According to the DEIS, an initial drilling exploration program must be conducted to determine if the aquifer material is suitable for the development of a high yielding well. The goal is to develop an on-site water supply, but the feasibility of this goal is not yet determined. This program should be undertaken immediately and the results of this program should be shared prior to the project moving forward. Sufficient water supply should be determined before this project is allowed to continue. Moreover, the 72-hour pumping test on the proposed potable water supply wells for the project should include a substantial number of homes from Water District 2 in order to properly assess the impact to District 2 users.

Another area in which the DEIS is insufficient is with regard to the presence of potential environmental hazards on the grounds of a pesticide treated golf course. As golf courses use more than four to seven times the amount of pesticides as treated agricultural land (which is considerably more than that used by a typical homeowner), and as pesticides run a large risk of leaching into the soil and contaminating the groundwater, the DEIS should provide extensive studies on all pesticides that have been used throughout the history of the golf course. The DEIS should also include the exact location below the surface at which the Brynwood aquifers are replenished as some areas are more likely to have the precipitation infiltrate and trickle down the soil and seep into the drinking water.

Although certain insecticides have been banned for residential use, they have been used continuously on golf courses. If one is living on the grounds of such a golf course, the potential harm to such an individual may be similarly severe. As a result, a full inventory of present and past pesticides is necessary to determine the potential risks of pesticide exposure.

2. Economic Analysis

Another area in which the DEIS is incomplete is in the economic analysis of the project. As the economic success or failure of the project has widespread ramifications on the environmental impact of the project, the FEIS should include an economic analysis by the Town and by an independent third party. The analysis should include, but not be limited to, a thorough tax analysis, an analysis of property values, and a thorough analysis of school impact. If the Rutgers study is used as the basis for the projected number of school children, as per the study's suggestion, the analysis should be modified to consider the high quality of the Byram Hills School District, the size of the units, and the high bedroom count of the proposed development (bonus rooms should be considered bedrooms in this analysis).

In addition, a proper economic analysis should include the costs of developing and maintaining an independent water system and the costs of developing and maintaining a sewage treatment facility.

3. Conservation Easement

The DEIS does not sufficiently protect the open space that is the basis for this clustered development. Both Supervisor Arden and the petitioner have agreed that a conservation easement will ensure that all of the land that is not developed as part of the current proposal will remain open space in perpetuity. The DEIS does not reflect this understanding and this project should not move forward until the conservation easement protects the land accordingly. In addition, a third party should be required to monitor the land and ensure that it remains permanently open space.

4. Traffic

The DEIS notes that certain intersections (Route 22 and Upland Lane, Route 22 and Tripp Lane, Route 22 and I 684) are projected to fail, yet provides no solution for this problem. In addition, the DEIS fails to include an analysis of other major intersections that will be negatively impacted by the proposed development, i.e. Route 22 and Cox Avenue, Route 22 and Sterling Road North, Route 22 and Sterling Road South, and Route 22 and Creemer Road. Not only should all of these intersections be properly analyzed in the FEIS, but effective solutions should be offered as well. Finally, the DEIS does not sufficiently address the consequences of an access road running through the residential Blair Road/Perry Court community. The FEIS should address the implications of this access road as well as offer solutions to minimize adverse impacts.

Thank you for your consideration of these comments.

Best regards,

Jan M. Bernstein
President, Residents of Windmill, Inc.

APPENDIX D

From: John Grotta <JSGrotta@verizon.net>

Subject: Response to my concerns

Date: July 8, 2013 5:50:49 PM EDT (RE-SENT and RECEIVED 7-10)

To: acurran@northcastle.com

Cc: Tom Grotta <tgrotta@verizon.net>

Anne... Many thanks for your quick response and explanation to my e-mail of July 6TH....I have just recently learned that a number of board members have returned the contributions they had received from Brynwood which pleases me very much. I still believe that they all should do so.

I therefore reverse my suggestions as to any sanctions against those who returned the said contributions...Gwen and I hope to attend the meeting this coming Wed. evening but neither of us wish to speak.....Thanks again for your time and I'll see you on 7/10.... John

~~~~~~

From: John Grotta [mailto:jsgrotta@verizon.net]

Sent: Saturday, July 06, 2013 3:11 PM

To: Anne Curran

Subject: July 10, 2013 town board meeting

Hi Anne.....Gwen joins me in requesting that you read this letter at the upcoming town board meeting 7/10 and that copies be distributed to each board member.

It is alleged that one or more of the current North Castle Town Board members have accepted gifts from the owners of Brynwood which may have exceed the $25.00 limit that is permitted under the Town's Code of Ethics.

We consider this allegation to be a serious matter which has placed a cloud of suspicion over the management of the Brynwood application for a zoning change and believe such Board members should recuse themselves from the process.

We ask that the Town Board and the North Castle Ethics Committee conduct a full investigation into this matter and present the findings of such investigation to the public as soon as possible..

Many thanks Anne and I look forward to seeing you at the meeting...... John S. Grotta
~~~~~~

Anne Curran, North Castle Town Clerk

We request that the Town Clerk read this letter at at the July 10, 2013, town board meeting and that copies be distributed to each Town Board member.

Dear North Castle Town Board Members,

It is alleged that one or more of the North Castle Town Board members have accepted gifts from the owners of Brynwood that exceed the $25 limit that is permitted under the Town's Code of Ethics.*

We consider this allegation to be a serious matter which has placed a cloud of suspicion over the management of the Brynwood application for a zoning change and believe such Board members should recuse themselves from the process

We ask the Town Board and the North Castle Ethics Committee to conduct a full investigation and present the findings of such investigation to the public as soon as possible.

Thank you,

RECEIVED

JUL 10 2013

TOWN OF NORTH CASTLE, N.Y.
ANNE CURRAN, TOWN CLERK

APPENDIX F

-WATER-QUALITY ADDENDUM-

BRYNWOOD GOLF & COUNTRY CLUB
GROUNDWATER EXPLORATION AND
72-HOUR PUMPING TEST PROGRAM
ARMONK, NEW YORK

Prepared For:

Brynwood Partners, LLC

September 2013

Prepared By:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive, Suite 301
Shelton, CT 06484

-WATER-QUALITY ADDENDUM-

BRYNWOOD GOLF & COUNTRY CLUB
GROUNDWATER EXPLORATION AND
72-HOUR PUMPING TEST PROGRAM
ARMONK, NEW YORK

The following report is an addendum to the Leggette, Brashears & Graham, Inc.'s (LBG) June 2013 "Brynwood Golf & Country Club, Groundwater Exploration and 72-Hour Pumping Test Program, Armonk, New York" report. This addendum report contains the results of the water-quality analyses completed on samples collected from Wells 1, 2B, 3, 5 and 6A during the 72-hour pumping tests conducted in May 2013. The water samples were taken to Envirotest Laboratories, Inc. located in Newburgh, New York for analysis. The samples were analyzed for all parameters required by the NYSDOH (New York State Department of Health) Sanitary Code Part 5, Subpart 5-1. In addition, microscopic particulate analysis (MPA) samples were collected as part of the assessment for potential groundwater under the influence of surface water (GWUDI), and dioxin, endothall, glyphosate and diquat analyses were completed. Copies of the laboratory reports for the May 2013 samples are included in Appendix I.

Low level detections of a chlorinated herbicide, picloram, were reported in Wells 2B, 3 and 5 in the NYSDOH Part 5 water-quality results. The Brynwood Club has no record of the purchase of picloram or of its use on the golf course in the past. In addition, the chemical picloram (product tradename Tordon/Grazon) is not a typical chemical used in golf course maintenance and is known primarily for use in tree and brush control by power companies. Additional water samples were collected from Wells 2B, 3 and 5 on July 23, 2013 and analyzed for picloram to confirm the reported detections of picloram in the original samples were not a result of laboratory error. A copy of the laboratory report from the July 2013 resampling event is included in Appendix II.

<u>Well 1</u>

The water-quality results for Well 1 meet NYSDOH drinking water standards for all parameters with the exception of sodium. The sodium concentration in Well 1 was 30.1 mg/l (milligrams per liter) which exceeds the NYSDOH notification level of 20 mg/l for people on sodium restricted diets. However, the sodium concentration in Well 1 was below the NYSDOH's recommended limit of 270 mg/l and no treatment to reduce the sodium concentration would be required. The chloride concentration in Well 1 was low at 7.05 mg/l. This data indicates that the slightly elevated sodium is naturally occurring and not the result of contamination from road salt application.

The MPA sample collected from Well 1 reported a low potential risk for GWUDI and giardia and cryptosporidium were reported as not detected in the sample collected.

Well 2B

The water-quality results for Well 2B from the May 2013 Part 5 analyses meet NYSDOH drinking water standards for all parameters. In addition, the MPA sample collected from Well 2B reported a low potential risk for GWUDI in this well and giardia and cryptosporidium were reported as not detected in the sample collected.

A low-level detection of picloram was reported in the May 2013 sample at a concentration of 0.85 ug/l (micrograms per liter). This detection is significantly below both the NYSDOH principal organic compound (POC) criteria limit of 5 ug/l and the unspecified organic compound (UOC) criteria limit of 50 ug/l.

Well 2B was resampled for picloram on July 23, 2013. The sample was taken to Envirotest Laboratories, Inc. for analysis. The results from the July 2013 sample reported picloram at a concentration of 0.80 ug/l, which confirms the original detection in the May 2013 sample was not a laboratory error.

Well 3

The water-quality results for Well 3 from the May 2013 Part 5 analyses meet NYSDOH drinking water standards for all parameters with the exception of sodium. The sodium concentration in Well 3 was 73.2 mg/l which exceeds the NYSDOH notification level of 20 mg/l for people on sodium restricted diets. However, the sodium concentration in Well 3 was below the NYSDOH's recommended limit of 270 mg/l and no treatment to reduce the sodium concentration will be required. The chloride concentration in Well 3 was low at 7.55 mg/l. This data indicates that the elevated sodium is naturally occurring and not the result of contamination from road salt application.

A low-level detection of picloram was also reported in the sample from Well 3 at a concentration of 0.22 ug/l. This detection is significantly below both the NYSDOH POC criteria limit of 5 ug/l and the UOC criteria limit of 50 ug/l.

Well 3 was resampled for picloram on July 23, 2013. The sample was taken to Envirotest Laboratories, Inc. for analysis. The results from the July 2013 sample reported picloram at a concentration of 0.56 ug/l.

The MPA sample collected from Well 3 in May 2013 reported a low potential risk for GWUDI in this well and giardia and cryptosporidium were reported as not detected in the sample collected.

Well 5

The water-quality results for Well 5 from the May 2013 Part 5 analyses meet NYSDOH drinking water standards for all parameters with the exception of sodium and the presence of total coliform. The sodium concentration in Well 5 was 81.5 mg/l which exceeds the NYSDOH notification level of 20 mg/l. However, the concentration was below the NYSDOH's recommended limit of 270 mg/l and no treatment to reduce the sodium concentration will be required. The chloride concentration in Well 5 was low at 12.5 mg/l. This data indicates that the elevated sodium is naturally occurring and not the result of contamination from road salt application.

The presence of total coliform was reported in Well 5; however, e. coli was reported as absent. Well 5 would need to be disinfected and resampled for total coliform prior to being placed into service if the well is pursued as a potable water-supply source.

A low-level detection of picloram was also reported in the May 2013 sample from Well 5 at a concentration of 0.49 ug/l. This detection is significantly below both the NYSDOH POC criteria limit of 5 ug/l and the UOC criteria limit of 50 ug/l.

Well 5 was resampled for picloram on July 23, 2013. The sample was taken to Envirotest Laboratories, Inc. for analysis. The results from the July 2013 sample reported picloram at a concentration of 1.1 ug/l.

The MPA sample collected from Well 5 in May 2013 reported a low potential risk for GWUDI in this well and giardia and cryptosporidium were reported as not detected in the sample collected.

Well 6A

The water-quality results for Well 6A from the May 2013 Part 5 analyses meet NYSDOH drinking water standards for all parameters with the exception of sodium. The sodium concentration in Well 6A was 27.0 mg/l (milligrams per liter) which exceeds the NYSDOH notification level of 20 mg/l. However, the sodium concentration in Well 6A was below the NYSDOH's recommended limit of 270 mg/l and no treatment to reduce the sodium concentration will be required. The chloride concentration in Well 6A was low at 9.07 mg/l. This data indicates that the slightly elevated sodium is naturally occurring and not the result of contamination from road salt application.

The MPA sample collected from Well 6A reported a low potential risk for GWUDI in this well and giardia and cryptosporidium were reported as not detected in the sample collected.

CONCLUSIONS

- The May 2013 Part 5, subpart 5-1 water-quality results from Wells 1, 2B, 3, 5 and 6A meet all NYSDOH drinking water standards with the exception of the presence of total coliform in Well 5 and elevated sodium concentrations in Wells 1, 3, 5 and 6A. Well 5 will need to be disinfected and resampled for total coliform prior to being placed into service if the well is pursued as a potable water-supply source. The sodium concentrations in Wells 1, 3, 5, and 6A exceed the NYSDOH notification level of 20 mg/l for people on sodium restricted diets. However, the sodium concentrations are below the NYSDOH's recommended limit of 270 mg/l and no treatment to reduce the sodium concentrations will be required. The chloride concentrations in all of the wells were low indicating that the elevated sodium is naturally occurring and not the result of contamination from road salt application.

- Trace detections of the chlorinated herbicide picloram were reported in the May 2013 samples from Wells 2B, 3 and 5 at concentrations of 0.85 ug/l, 0.22 ug/l and 0.49 ug/l, respectively. These concentrations are below both the NYSDOH POC criteria limit of 5 ug/l and the UOC criteria limit of 50 ug/l. The Brynwood Club has no record of the purchase of picloram or of its use on the golf course in the past. In addition, the chemical picloram (Tordon/Grazon) is not a typical chemical used in golf course maintenance and is known primarily for use in tree and brush control by power companies. Additional water samples were collected from Wells 2B, 3 and 5 on July 23, 2013 and analyzed for picloram to confirm the reported detections of picloram in the original samples were not a result of laboratory error. The results from the resampling event reported detections of picloram in Wells 2B, 3 and 5 at concentrations of 0.80 ug/l, 0.56 ug/l and 1.1 ug/l, respectively. These concentrations are also below both the NYSDOH POC criteria limit of 5 ug/l and the UOC criteria limit of 50 ug/l.

- Because there is no record of purchase or use of picloram (Tordon/Grazon) at the golf course and that this herbicide is not routinely used in golf course applications, it is likely that the source of the picloram is from an offsite application. Based on the watershed configuration and the likely usage of the chemical by a utility company, the likely source is from application upgradient of the project site to the east along Route 22. However, additional investigation would be required to confirm this as the source area.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Stacy Stieber
Senior Hydrogeologist

Reviewed by:

Thomas P. Cusack, CPG
Principal

etn
September 4, 2013
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APPENDIX I

EnviroTest Laboratories Inc.

ANALYTICAL REPORT

Job Number: 420-66373-1

SDG Number: Brynwood

Job Description: LBG, Inc.

For:
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
06/28/2013

The test results in this report meet all NELAP requirements unless specified within the case narrative. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. EnviroTest Laboratories Inc. certifies that the analytical results contained herein apply only to the samples tested as received by our laboratory. All questions regarding this report should be directed to the EnviroTest Customer Service Representative.

EnviroTest Laboratories, Inc. Certifications and Approvals: NELAP Accredited, NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554, EPA NY00049.

Envirotest Laboratories, Inc.
315 Fullerton Avenue, Newburgh, NY 12550
Tel (845) 562-0890 Fax (845) 562-0841 www.envirotestlaboratories.com

ACCREDITED IN ACCORDANCE WITH nelac 06/28/2013

Job Narrative
420-J66373-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

Metals
Method 200.8: One or more compounds (Tl) in the continuing calibration verification (CCV) for batch 66183 recovered above the upper control limit. These compounds are flagged with carrots (^) on the sample result sheet. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported with high confidence of no false negatives.

No other analytical or quality issues were noted.

General Chemistry
Method SM 4500 H+ B: The holding time for pH is 15 minutes, the samples were received outside of the holding time.

No other analytical or quality issues were noted.

Biology
No analytical or quality issues were noted.

METHOD SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
SDG Number: Brynwood

Description	Lab Location	Method	Preparation Method
Matrix: Water			
ICP Metals by 200.7	EnvTest	EPA 200.7 Rev 4.4	
200 Series Drinking Water Prep Determination Step	EnvTest		EPA 200
ICPMS Metals by 200.8	EnvTest	EPA 200.8	
200 Series Drinking Water Prep Determination Step	EnvTest		EPA 200
Apparent Color	EnvTest	SM21 2120B	
Mercury in Water by CVAA	EnvTest	EPA 245.1	
Digestion for CVAA Mercury in Waters	EnvTest		EPA 245.1
Anions by Ion Chromatography	EnvTest	MCAWW 300.0	
Anions by Ion Chromatography	EnvTest	MCAWW 300.0	
Purgeable Organic Compounds in Water by GC/MS	EnvTest	EPA-DW 524.2	
EPA 900 Series GA/GB/RA226/RA228/Gamma		EPA 900	
Uranium		STL-STL EPA	
Heterotropic Plate Count	EnvTest	IDEXX SIMPLATE	
Turbidity	EnvTest	SM20 SM 2130B	
Odor, Threshold Test	EnvTest	SM20 SM 2150B	
Alkalinity, Titration Method	EnvTest	SM18 SM 2320B	
Corrosivity LSI Calculation	EnvTest	SM20 SM 2330B	
Hardness by Calculation	EnvTest	SM20 SM 2340B	
Total Dissolved Solids (Dried at 180 °C)	EnvTest	SM18 SM 2540C	
Cyanide, Total: Colorimetric Method	EnvTest	SM18 SM 4500 CN E	
Cyanide: Distillation	EnvTest		SM18 SM 4500 CN C
pH	EnvTest	SM19 SM 4500 H+ B	
Nitrite by Colormetric	EnvTest	SM20 SM 4500B	
Total Coliform and Escherichia coli by Colilert - Presence/Absence	EnvTest	SMWW SM 9223	

Lab References:

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EnvTest = EnviroTest

METHOD SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
SDG Number: Brynwood

Description	Lab Location	Method	Preparation Method

Method References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

IDEXX =

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SM19 = "Standard Methods For The Examination Of Water And Wastewater", 19Th Edition, 1995."

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SM21 = "Standard Methods For The Examination Of Water And Wastewater", 21st Edition

SMWW = "Standard Methods for the Examination of Water and Wastewater"

STL-STL = Severn Trent Laboratories, St. Louis, Facility Standard Operating Procedure.

METHOD / ANALYST SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
SDG Number: Brynwood

Method	Analyst	Analyst ID
EPA-DW 524.2	Andersen, Eric C	ECA
EPA 200.7 Rev 4.4	Pistole, Maria	MP
EPA 200.8	Palentino, Gus J	GJP
EPA 245.1	McPhillips, Julie	JM
SM20 SM 2340B	Pistole, Maria	MP
SM21 2120B	Harmon, Kelly	KH
MCAWW 300.0	Sutcliffe, Bethany L	BLS
IDEXX SIMPLATE	Harmon, Kelly	KH
SM20 SM 2130B	Harmon, Kelly	KH
SM20 SM 2150B	Harmon, Kelly	KH
SM18 SM 2320B	Sutcliffe, Bethany L	BLS
SM20 SM 2330B	Pistole, Maria	MP
SM18 SM 2540C	Harmon, Kelly	KH
SM18 SM 4500 CN E	Sutcliffe, Bethany L	BLS
SM19 SM 4500 H+ B	Harmon, Kelly	KH
SM20 SM 4500B	Sutcliffe, Bethany L	BLS
SMWW SM 9223	Harmon, Kelly	KH

SAMPLE SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
SDG Number: Brynwood

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
420-66373-1	PW Well 1	Water	05/23/2013 1140	05/23/2013 1340
420-66373-2	PW Well 2B	Water	05/23/2013 1040	05/23/2013 1340
420-66373-3	PW Well 3	Water	05/23/2013 1110	05/23/2013 1340
420-66373-4	PW Well 5	Water	05/23/2013 1020	05/23/2013 1340

Stacy Stieber
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 1**
Lab Sample ID: **420-66373-1**

Date Sampled: 05/23/2013 1140
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	NONE	Dilution
Method: 2120B		Date Analyzed:	05/24/2013 1525	
Apparent Color	2.50	Color Units		1.0
Method: SM 2330B		Date Analyzed:	05/31/2013 1442	
Langelier Index	-0.400	NONE		1.0
Method: SM 9223		Date Analyzed:	05/23/2013 1655	
Coliform, Total	Absent	CFU/100mL		1.0
Escherichia coli	Absent	CFU/100mL		1.0

Stacy Stieber
Leggette, Brashears & Graham, Inc.
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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 1**
Lab Sample ID: **420-66373-1**

Date Sampled: 05/23/2013 1140
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: 524.2		Date Analyzed:	05/24/2013 1643	
1,1,1,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,1-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1,2,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,2-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethene	<0.500	ug/L	0.500	1.0
1,1-Dichloropropene	<0.500	ug/L	0.500	1.0
1,2,3-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,3-Trichloropropane	<0.500	ug/L	0.500	1.0
1,2,4-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,4-Trimethylbenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloroethane	<0.500	ug/L	0.500	1.0
1,2-Dichlorobenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloropropane	<0.500	ug/L	0.500	1.0
1,3-Dichloropropane	<0.500	ug/L	0.500	1.0
1,4-Dichlorobenzene	<0.500	ug/L	0.500	1.0
2,2-Dichloropropane	<0.500	ug/L	0.500	1.0
Benzene	<0.500	ug/L	0.500	1.0
Bromobenzene	<0.500	ug/L	0.500	1.0
Bromochloromethane	<0.500	ug/L	0.500	1.0
Bromomethane	<0.500	ug/L	0.500	1.0
n-Butylbenzene	<0.500	ug/L	0.500	1.0
cis-1,2-Dichloroethene	<0.500	ug/L	0.500	1.0
cis-1,3-Dichloropropene	<0.500	ug/L	0.500	1.0
Carbon tetrachloride	<0.500	ug/L	0.500	1.0
Chlorobenzene	<0.500	ug/L	0.500	1.0
Chloroethane	<0.500	ug/L	0.500	1.0
Chloromethane	<0.500	ug/L	0.500	1.0
Dibromomethane	<0.500	ug/L	0.500	1.0
Ethylbenzene	<0.500	ug/L	0.500	1.0
Dichlorodifluoromethane	<0.500	ug/L	0.500	1.0
Hexachlorobutadiene	<0.500	ug/L	0.500	1.0
Isopropylbenzene	<0.500	ug/L	0.500	1.0
p-Isopropyltoluene	<0.500	ug/L	0.500	1.0
Methylene Chloride	<0.500	ug/L	0.500	1.0
m-Xylene & p-Xylene	<0.500	ug/L	0.500	1.0
Methyl tert-butyl ether	<0.500	ug/L	0.500	1.0
o-Xylene	<0.500	ug/L	0.500	1.0
Tetrachloroethene	<0.500	ug/L	0.500	1.0
Toluene	<0.500	ug/L	0.500	1.0

Stacy Stieber
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4 Research Drive
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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 1**
Lab Sample ID: **420-66373-1**

Date Sampled: 05/23/2013 1140
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
trans-1,2-Dichloroethene	<0.500		ug/L	0.500	1.0
trans-1,3-Dichloropropene	<0.500		ug/L	0.500	1.0
Trichloroethene	<0.500		ug/L	0.500	1.0
tert-Butylbenzene	<0.500		ug/L	0.500	1.0
Trichlorofluoromethane	<0.500		ug/L	0.500	1.0
Vinyl chloride	<0.500		ug/L	0.500	1.0
Xylenes, Total	<0.500		ug/L	0.500	1.0
Styrene	<0.500		ug/L	0.500	1.0
sec-Butylbenzene	<0.500		ug/L	0.500	1.0
1,3,5-Trimethylbenzene	<0.500		ug/L	0.500	1.0
N-Propylbenzene	<0.500		ug/L	0.500	1.0
1,3-Dichlorobenzene	<0.500		ug/L	0.500	1.0
2-Chlorotoluene	<0.500		ug/L	0.500	1.0
4-Chlorotoluene	<0.500		ug/L	0.500	1.0
Surrogate				Acceptance Limits	
4-Bromofluorobenzene	92		%	71 - 112	
Toluene-d8 (Surr)	106		%	79 - 121	
1,2-Dichloroethane-d4 (Surr)	95		%	70 - 128	
Method: 200.7 Rev 4.4			Date Analyzed:	05/28/2013 2139	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Iron	<60.0		ug/L	60.0	1.0
Manganese	<10.0		ug/L	10.0	1.0
Sodium	30100		ug/L	200	1.0
Zinc	<20.0		ug/L	20.0	1.0
Method: 200.8			Date Analyzed:	05/29/2013 1220	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Pb	<1.00		ug/L	1.00	1.0
Arsenic	<1.40		ug/L	1.40	1.0
Beryllium	<0.300		ug/L	0.300	1.0
Cadmium	<1.00		ug/L	1.00	1.0
Chromium	<7.00		ug/L	7.00	1.0
Nickel	0.670		ug/L	0.500	1.0
Antimony	<0.400		ug/L	0.400	1.0
Thallium	<0.300	^	ug/L	0.300	1.0
Barium	8.00		ug/L	2.00	1.0
Selenium	<2.00		ug/L	2.00	1.0
Method: 245.1			Date Analyzed:	05/24/2013 1537	
Prep Method: 245.1			Date Prepared:	05/24/2013 1138	
Mercury	<0.200		ug/L	0.200	1.0

Stacy Stieber
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 1**
Lab Sample ID: **420-66373-1**

Date Sampled: 05/23/2013 1140
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
Method: SM 2340B			Date Analyzed:	05/28/2013 1241	
Calcium hardness as calcium carbonate	44.5		mg/L	1.25	1.0
Method: 300.0			Date Analyzed:	05/23/2013 1951	
Nitrate as N	0.330		mg/L	0.250	1.0
Nitrite as N	<0.250		mg/L	0.250	1.0
Chloride	7.05		mg/L	1.50	1.0
Sulfate	25.9		mg/L	5.00	1.0
Fluoride	<0.500		mg/L	0.500	1.0
Method: SM 2130B			Date Analyzed:	05/23/2013 1655	
Turbidity	0.105		NTU	0.100	1.0
Method: SM 2150B			Date Analyzed:	05/24/2013 1649	
Odor	2.00		T.O.N.	1.00	1.0
Temp @ Odor Measurement	60.7		Degrees C	5.00	1.0
Method: SM 2320B			Date Analyzed:	05/30/2013 0953	
Alkalinity	101		mg/L	5.00	1.0
Method: SM 2540C			Date Analyzed:	05/28/2013 1630	
Total Dissolved Solids	174		mg/L	5.00	1.0
Method: SM 4500 CN E			Date Analyzed:	05/29/2013 1400	
Prep Method: SM 4500 CN C			Date Prepared:	05/28/2013 1000	
Cyanide, Total	<0.00500		mg/L	0.00500	1.0
Method: SM 4500 H+ B			Date Analyzed:	05/23/2013 1612	
pH	8.05	H	SU	0.200	1.0
Temp @ pH Measurement	16.2		Degrees C	5.00	1.0
Method: SM 4500B			Date Analyzed:	05/24/2013 1615	
Nitrite as N	0.0120		mg/L	0.0100	1.0
Method: SIMPLATE			Date Analyzed:	05/23/2013 1610	
Heterotrophic Plate Count	53.0		CFU/mL	2.00	1.0

Stacy Stieber
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 2B**
Lab Sample ID: **420-66373-2**

Date Sampled: 05/23/2013 1040
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	NONE	Dilution
Method: 2120B		Date Analyzed:	05/24/2013 1526	
Apparent Color	2.50	Color Units		1.0
Method: SM 2330B		Date Analyzed:	05/31/2013 1442	
Langelier Index	-0.600	NONE		1.0
Method: SM 9223		Date Analyzed:	05/23/2013 1655	
Coliform, Total	Absent	CFU/100mL		1.0
Escherichia coli	Absent	CFU/100mL		1.0

Stacy Stieber
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 2B**
Lab Sample ID: **420-66373-2**

Date Sampled: 05/23/2013 1040
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: 524.2		Date Analyzed:	05/24/2013 1711	
1,1,1,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,1-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1,2,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,2-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethene	<0.500	ug/L	0.500	1.0
1,1-Dichloropropene	<0.500	ug/L	0.500	1.0
1,2,3-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,3-Trichloropropane	<0.500	ug/L	0.500	1.0
1,2,4-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,4-Trimethylbenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloroethane	<0.500	ug/L	0.500	1.0
1,2-Dichlorobenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloropropane	<0.500	ug/L	0.500	1.0
1,3-Dichloropropane	<0.500	ug/L	0.500	1.0
1,4-Dichlorobenzene	<0.500	ug/L	0.500	1.0
2,2-Dichloropropane	<0.500	ug/L	0.500	1.0
Benzene	<0.500	ug/L	0.500	1.0
Bromobenzene	<0.500	ug/L	0.500	1.0
Bromochloromethane	<0.500	ug/L	0.500	1.0
Bromomethane	<0.500	ug/L	0.500	1.0
n-Butylbenzene	<0.500	ug/L	0.500	1.0
cis-1,2-Dichloroethene	<0.500	ug/L	0.500	1.0
cis-1,3-Dichloropropene	<0.500	ug/L	0.500	1.0
Carbon tetrachloride	<0.500	ug/L	0.500	1.0
Chlorobenzene	<0.500	ug/L	0.500	1.0
Chloroethane	<0.500	ug/L	0.500	1.0
Chloromethane	<0.500	ug/L	0.500	1.0
Dibromomethane	<0.500	ug/L	0.500	1.0
Ethylbenzene	<0.500	ug/L	0.500	1.0
Dichlorodifluoromethane	<0.500	ug/L	0.500	1.0
Hexachlorobutadiene	<0.500	ug/L	0.500	1.0
Isopropylbenzene	<0.500	ug/L	0.500	1.0
p-Isopropyltoluene	<0.500	ug/L	0.500	1.0
Methylene Chloride	<0.500	ug/L	0.500	1.0
m-Xylene & p-Xylene	<0.500	ug/L	0.500	1.0
Methyl tert-butyl ether	<0.500	ug/L	0.500	1.0
o-Xylene	<0.500	ug/L	0.500	1.0
Tetrachloroethene	<0.500	ug/L	0.500	1.0
Toluene	<0.500	ug/L	0.500	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 2B**
Lab Sample ID: **420-66373-2**

Date Sampled: 05/23/2013 1040
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
trans-1,2-Dichloroethene	<0.500		ug/L	0.500	1.0
trans-1,3-Dichloropropene	<0.500		ug/L	0.500	1.0
Trichloroethene	<0.500		ug/L	0.500	1.0
tert-Butylbenzene	<0.500		ug/L	0.500	1.0
Trichlorofluoromethane	<0.500		ug/L	0.500	1.0
Vinyl chloride	<0.500		ug/L	0.500	1.0
Xylenes, Total	<0.500		ug/L	0.500	1.0
Styrene	<0.500		ug/L	0.500	1.0
sec-Butylbenzene	<0.500		ug/L	0.500	1.0
1,3,5-Trimethylbenzene	<0.500		ug/L	0.500	1.0
N-Propylbenzene	<0.500		ug/L	0.500	1.0
1,3-Dichlorobenzene	<0.500		ug/L	0.500	1.0
2-Chlorotoluene	<0.500		ug/L	0.500	1.0
4-Chlorotoluene	<0.500		ug/L	0.500	1.0
Surrogate				Acceptance Limits	
4-Bromofluorobenzene	91		%	71 - 112	
Toluene-d8 (Surr)	107		%	79 - 121	
1,2-Dichloroethane-d4 (Surr)	98		%	70 - 128	
Method: 200.7 Rev 4.4			Date Analyzed:	05/28/2013 2147	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Iron	<60.0		ug/L	60.0	1.0
Manganese	<10.0		ug/L	10.0	1.0
Sodium	14500		ug/L	200	1.0
Zinc	<20.0		ug/L	20.0	1.0
Method: 200.8			Date Analyzed:	05/29/2013 1223	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Pb	<1.00		ug/L	1.00	1.0
Arsenic	<1.40		ug/L	1.40	1.0
Beryllium	<0.300		ug/L	0.300	1.0
Cadmium	<1.00		ug/L	1.00	1.0
Chromium	<7.00		ug/L	7.00	1.0
Nickel	0.935		ug/L	0.500	1.0
Antimony	<0.400		ug/L	0.400	1.0
Thallium	<0.300	^	ug/L	0.300	1.0
Barium	21.6		ug/L	2.00	1.0
Selenium	<2.00		ug/L	2.00	1.0
Method: 245.1			Date Analyzed:	05/24/2013 1543	
Prep Method: 245.1			Date Prepared:	05/24/2013 1138	
Mercury	<0.200		ug/L	0.200	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 2B**
Lab Sample ID: **420-66373-2**

Date Sampled: 05/23/2013 1040
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
Method: SM 2340B			Date Analyzed:	05/28/2013 1241	
Calcium hardness as calcium carbonate	89.6		mg/L	1.25	1.0
Method: 300.0			Date Analyzed:	05/23/2013 2004	
Nitrate as N	1.01		mg/L	0.250	1.0
Nitrite as N	<0.250		mg/L	0.250	1.0
Chloride	7.04		mg/L	1.50	1.0
Sulfate	27.6		mg/L	5.00	1.0
Fluoride	<0.500		mg/L	0.500	1.0
Method: SM 2130B			Date Analyzed:	05/23/2013 1701	
Turbidity	0.237		NTU	0.100	1.0
Method: SM 2150B			Date Analyzed:	05/24/2013 1651	
Odor	2.00		T.O.N.	1.00	1.0
Temp @ Odor Measurement	61.2		Degrees C	5.00	1.0
Method: SM 2320B			Date Analyzed:	05/30/2013 0953	
Alkalinity	111		mg/L	5.00	1.0
Method: SM 2540C			Date Analyzed:	05/28/2013 1630	
Total Dissolved Solids	194		mg/L	5.00	1.0
Method: SM 4500 CN E			Date Analyzed:	05/29/2013 1400	
Prep Method: SM 4500 CN C			Date Prepared:	05/28/2013 1000	
Cyanide, Total	<0.00500		mg/L	0.00500	1.0
Method: SM 4500 H+ B			Date Analyzed:	05/23/2013 1625	
pH	7.52	H	SU	0.200	1.0
Temp @ pH Measurement	17.7		Degrees C	5.00	1.0
Method: SM 4500B			Date Analyzed:	05/24/2013 1615	
Nitrite as N	<0.0100		mg/L	0.0100	1.0
Method: SIMPLATE			Date Analyzed:	05/23/2013 1610	
Heterotrophic Plate Count	<2.00		CFU/mL	2.00	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 3**
Lab Sample ID: **420-66373-3**

Date Sampled: 05/23/2013 1110
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	NONE	Dilution
Method: 2120B		Date Analyzed:	05/24/2013 1527	
Apparent Color	2.50	Color Units		1.0
Method: SM 2330B		Date Analyzed:	05/31/2013 1442	
Langelier Index	-0.500	NONE		1.0
Method: SM 9223		Date Analyzed:	05/23/2013 1655	
Coliform, Total	Absent	CFU/100mL		1.0
Escherichia coli	Absent	CFU/100mL		1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 3**
Lab Sample ID: **420-66373-3**

Date Sampled: 05/23/2013 1110
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: 524.2		Date Analyzed:	05/24/2013 1739	
1,1,1,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,1-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1,2,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,2-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethene	<0.500	ug/L	0.500	1.0
1,1-Dichloropropene	<0.500	ug/L	0.500	1.0
1,2,3-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,3-Trichloropropane	<0.500	ug/L	0.500	1.0
1,2,4-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,4-Trimethylbenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloroethane	<0.500	ug/L	0.500	1.0
1,2-Dichlorobenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloropropane	<0.500	ug/L	0.500	1.0
1,3-Dichloropropane	<0.500	ug/L	0.500	1.0
1,4-Dichlorobenzene	<0.500	ug/L	0.500	1.0
2,2-Dichloropropane	<0.500	ug/L	0.500	1.0
Benzene	<0.500	ug/L	0.500	1.0
Bromobenzene	<0.500	ug/L	0.500	1.0
Bromochloromethane	<0.500	ug/L	0.500	1.0
Bromomethane	<0.500	ug/L	0.500	1.0
n-Butylbenzene	<0.500	ug/L	0.500	1.0
cis-1,2-Dichloroethene	<0.500	ug/L	0.500	1.0
cis-1,3-Dichloropropene	<0.500	ug/L	0.500	1.0
Carbon tetrachloride	<0.500	ug/L	0.500	1.0
Chlorobenzene	<0.500	ug/L	0.500	1.0
Chloroethane	<0.500	ug/L	0.500	1.0
Chloromethane	<0.500	ug/L	0.500	1.0
Dibromomethane	<0.500	ug/L	0.500	1.0
Ethylbenzene	<0.500	ug/L	0.500	1.0
Dichlorodifluoromethane	<0.500	ug/L	0.500	1.0
Hexachlorobutadiene	<0.500	ug/L	0.500	1.0
Isopropylbenzene	<0.500	ug/L	0.500	1.0
p-Isopropyltoluene	<0.500	ug/L	0.500	1.0
Methylene Chloride	<0.500	ug/L	0.500	1.0
m-Xylene & p-Xylene	<0.500	ug/L	0.500	1.0
Methyl tert-butyl ether	<0.500	ug/L	0.500	1.0
o-Xylene	<0.500	ug/L	0.500	1.0
Tetrachloroethene	<0.500	ug/L	0.500	1.0
Toluene	<0.500	ug/L	0.500	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 3**
Lab Sample ID: **420-66373-3**

Date Sampled: 05/23/2013 1110
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
trans-1,2-Dichloroethene	<0.500		ug/L	0.500	1.0
trans-1,3-Dichloropropene	<0.500		ug/L	0.500	1.0
Trichloroethene	<0.500		ug/L	0.500	1.0
tert-Butylbenzene	<0.500		ug/L	0.500	1.0
Trichlorofluoromethane	<0.500		ug/L	0.500	1.0
Vinyl chloride	<0.500		ug/L	0.500	1.0
Xylenes, Total	<0.500		ug/L	0.500	1.0
Styrene	<0.500		ug/L	0.500	1.0
sec-Butylbenzene	<0.500		ug/L	0.500	1.0
1,3,5-Trimethylbenzene	<0.500		ug/L	0.500	1.0
N-Propylbenzene	<0.500		ug/L	0.500	1.0
1,3-Dichlorobenzene	<0.500		ug/L	0.500	1.0
2-Chlorotoluene	<0.500		ug/L	0.500	1.0
4-Chlorotoluene	<0.500		ug/L	0.500	1.0
Surrogate				Acceptance Limits	
4-Bromofluorobenzene	93		%	71 - 112	
Toluene-d8 (Surr)	107		%	79 - 121	
1,2-Dichloroethane-d4 (Surr)	98		%	70 - 128	
Method: 200.7 Rev 4.4			Date Analyzed:	05/28/2013 2154	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Iron	<60.0		ug/L	60.0	1.0
Manganese	<10.0		ug/L	10.0	1.0
Sodium	7320		ug/L	200	1.0
Zinc	<20.0		ug/L	20.0	1.0
Method: 200.8			Date Analyzed:	05/29/2013 1226	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Pb	<1.00		ug/L	1.00	1.0
Arsenic	<1.40		ug/L	1.40	1.0
Beryllium	<0.300		ug/L	0.300	1.0
Cadmium	1.38		ug/L	1.00	1.0
Chromium	<7.00		ug/L	7.00	1.0
Nickel	0.728		ug/L	0.500	1.0
Antimony	<0.400		ug/L	0.400	1.0
Thallium	<0.300	^	ug/L	0.300	1.0
Barium	30.2		ug/L	2.00	1.0
Selenium	<2.00		ug/L	2.00	1.0
Method: 245.1			Date Analyzed:	05/24/2013 1545	
Prep Method: 245.1			Date Prepared:	05/24/2013 1138	
Mercury	<0.200		ug/L	0.200	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID:	**PW Well 3**	Date Sampled:	05/23/2013 1110
Lab Sample ID:	420-66373-3	Date Received:	05/23/2013 1340
		Client Matrix:	Water

Analyte	Result/Qualifier		Unit	RL	Dilution
Method: SM 2340B			Date Analyzed:	05/28/2013 1241	
Calcium hardness as calcium carbonate	94.2		mg/L	1.25	1.0
Method: 300.0			Date Analyzed:	05/23/2013 2018	
Nitrate as N	0.840		mg/L	0.250	1.0
Nitrite as N	<0.250		mg/L	0.250	1.0
Chloride	7.55		mg/L	1.50	1.0
Sulfate	32.6		mg/L	5.00	1.0
Fluoride	<0.500		mg/L	0.500	1.0
Method: SM 2130B			Date Analyzed:	05/23/2013 1703	
Turbidity	<0.100		NTU	0.100	1.0
Method: SM 2150B			Date Analyzed:	05/24/2013 1652	
Odor	2.00		T.O.N.	1.00	1.0
Temp @ Odor Measurement	60.9		Degrees C	5.00	1.0
Method: SM 2320B			Date Analyzed:	05/30/2013 0953	
Alkalinity	116		mg/L	5.00	1.0
Method: SM 2540C			Date Analyzed:	05/28/2013 1630	
Total Dissolved Solids	220		mg/L	5.00	1.0
Method: SM 4500 CN E			Date Analyzed:	05/29/2013 1400	
Prep Method: SM 4500 CN C			Date Prepared:	05/28/2013 1000	
Cyanide, Total	<0.00500		mg/L	0.00500	1.0
Method: SM 4500 H+ B			Date Analyzed:	05/23/2013 1626	
pH	7.60	H	SU	0.200	1.0
Temp @ pH Measurement	17.4		Degrees C	5.00	1.0
Method: SM 4500B			Date Analyzed:	05/24/2013 1615	
Nitrite as N	<0.0100		mg/L	0.0100	1.0
Method: SIMPLATE			Date Analyzed:	05/23/2013 1610	
Heterotrophic Plate Count	<2.00		CFU/mL	2.00	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 5**
Lab Sample ID: **420-66373-4**

Date Sampled: 05/23/2013 1020
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	NONE	Dilution
Method: 2120B			Date Analyzed:	05/24/2013 1528	
Apparent Color	2.50		Color Units		1.0
Method: SM 2330B			Date Analyzed:	05/31/2013 1442	
Langelier Index	-0.600		NONE		1.0
Method: SM 9223			Date Analyzed:	05/23/2013 1655	
Coliform, Total	Present	g	CFU/100mL		1.0
Escherichia coli	Absent		CFU/100mL		1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 5**
Lab Sample ID: **420-66373-4**

Date Sampled: 05/23/2013 1020
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier	Unit	RL	Dilution
Method: 524.2		Date Analyzed:	05/24/2013 1807	
1,1,1,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,1-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1,2,2-Tetrachloroethane	<0.500	ug/L	0.500	1.0
1,1,2-Trichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethane	<0.500	ug/L	0.500	1.0
1,1-Dichloroethene	<0.500	ug/L	0.500	1.0
1,1-Dichloropropene	<0.500	ug/L	0.500	1.0
1,2,3-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,3-Trichloropropane	<0.500	ug/L	0.500	1.0
1,2,4-Trichlorobenzene	<0.500	ug/L	0.500	1.0
1,2,4-Trimethylbenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloroethane	<0.500	ug/L	0.500	1.0
1,2-Dichlorobenzene	<0.500	ug/L	0.500	1.0
1,2-Dichloropropane	<0.500	ug/L	0.500	1.0
1,3-Dichloropropane	<0.500	ug/L	0.500	1.0
1,4-Dichlorobenzene	<0.500	ug/L	0.500	1.0
2,2-Dichloropropane	<0.500	ug/L	0.500	1.0
Benzene	<0.500	ug/L	0.500	1.0
Bromobenzene	<0.500	ug/L	0.500	1.0
Bromochloromethane	<0.500	ug/L	0.500	1.0
Bromomethane	<0.500	ug/L	0.500	1.0
n-Butylbenzene	<0.500	ug/L	0.500	1.0
cis-1,2-Dichloroethene	<0.500	ug/L	0.500	1.0
cis-1,3-Dichloropropene	<0.500	ug/L	0.500	1.0
Carbon tetrachloride	<0.500	ug/L	0.500	1.0
Chlorobenzene	<0.500	ug/L	0.500	1.0
Chloroethane	<0.500	ug/L	0.500	1.0
Chloromethane	<0.500	ug/L	0.500	1.0
Dibromomethane	<0.500	ug/L	0.500	1.0
Ethylbenzene	<0.500	ug/L	0.500	1.0
Dichlorodifluoromethane	<0.500	ug/L	0.500	1.0
Hexachlorobutadiene	<0.500	ug/L	0.500	1.0
Isopropylbenzene	<0.500	ug/L	0.500	1.0
p-Isopropyltoluene	<0.500	ug/L	0.500	1.0
Methylene Chloride	<0.500	ug/L	0.500	1.0
m-Xylene & p-Xylene	<0.500	ug/L	0.500	1.0
Methyl tert-butyl ether	<0.500	ug/L	0.500	1.0
o-Xylene	<0.500	ug/L	0.500	1.0
Tetrachloroethene	<0.500	ug/L	0.500	1.0
Toluene	<0.500	ug/L	0.500	1.0

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Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 5**
Lab Sample ID: **420-66373-4**

Date Sampled: 05/23/2013 1020
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
trans-1,2-Dichloroethene	<0.500		ug/L	0.500	1.0
trans-1,3-Dichloropropene	<0.500		ug/L	0.500	1.0
Trichloroethene	<0.500		ug/L	0.500	1.0
tert-Butylbenzene	<0.500		ug/L	0.500	1.0
Trichlorofluoromethane	<0.500		ug/L	0.500	1.0
Vinyl chloride	<0.500		ug/L	0.500	1.0
Xylenes, Total	<0.500		ug/L	0.500	1.0
Styrene	<0.500		ug/L	0.500	1.0
sec-Butylbenzene	<0.500		ug/L	0.500	1.0
1,3,5-Trimethylbenzene	<0.500		ug/L	0.500	1.0
N-Propylbenzene	<0.500		ug/L	0.500	1.0
1,3-Dichlorobenzene	<0.500		ug/L	0.500	1.0
2-Chlorotoluene	<0.500		ug/L	0.500	1.0
4-Chlorotoluene	<0.500		ug/L	0.500	1.0
Surrogate				Acceptance Limits	
4-Bromofluorobenzene	90		%	71 - 112	
Toluene-d8 (Surr)	106		%	79 - 121	
1,2-Dichloroethane-d4 (Surr)	98		%	70 - 128	
Method: 200.7 Rev 4.4			Date Analyzed:	05/28/2013 2221	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Iron	<60.0		ug/L	60.0	1.0
Manganese	<10.0		ug/L	10.0	1.0
Sodium	8150		ug/L	200	1.0
Zinc	<20.0		ug/L	20.0	1.0
Method: 200.8			Date Analyzed:	05/29/2013 1230	
Prep Method: 200			Date Prepared:	05/24/2013 1209	
Pb	1.12		ug/L	1.00	1.0
Arsenic	<1.40		ug/L	1.40	1.0
Beryllium	<0.300		ug/L	0.300	1.0
Cadmium	<1.00		ug/L	1.00	1.0
Chromium	<7.00		ug/L	7.00	1.0
Nickel	1.45		ug/L	0.500	1.0
Antimony	<0.400		ug/L	0.400	1.0
Thallium	<0.300	^	ug/L	0.300	1.0
Barium	68.3		ug/L	2.00	1.0
Selenium	6.73		ug/L	2.00	1.0
Method: 245.1			Date Analyzed:	05/24/2013 1547	
Prep Method: 245.1			Date Prepared:	05/24/2013 1138	
Mercury	<0.200		ug/L	0.200	1.0

Stacy Stieber
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Job Number: 420-66373-1
Sdg Number: Brynwood

Client Sample ID: **PW Well 5**
Lab Sample ID: **420-66373-4**

Date Sampled: 05/23/2013 1020
Date Received: 05/23/2013 1340
Client Matrix: Water

Analyte	Result/Qualifier		Unit	RL	Dilution
Method: SM 2340B			Date Analyzed:	05/28/2013 1241	
Calcium hardness as calcium carbonate	123		mg/L	1.25	1.0
Method: 300.0			Date Analyzed:	05/23/2013 2031	
Nitrate as N	1.22		mg/L	0.250	1.0
Nitrite as N	<0.250		mg/L	0.250	1.0
Sulfate	30.3		mg/L	5.00	1.0
Fluoride	<0.500		mg/L	0.500	1.0
Method: 300.0			Date Analyzed:	05/24/2013 1616	
Chloride	12.5		mg/L	7.50	5.0
Method: SM 2130B			Date Analyzed:	05/23/2013 1712	
Turbidity	<0.100		NTU	0.100	1.0
Method: SM 2150B			Date Analyzed:	05/24/2013 1653	
Odor	1.00		T.O.N.	1.00	1.0
Temp @ Odor Measurement	61.0		Degrees C	5.00	1.0
Method: SM 2320B			Date Analyzed:	05/30/2013 0953	
Alkalinity	136		mg/L	5.00	1.0
Method: SM 2540C			Date Analyzed:	05/28/2013 1630	
Total Dissolved Solids	294		mg/L	5.00	1.0
Method: SM 4500 CN E			Date Analyzed:	05/29/2013 1400	
Prep Method: SM 4500 CN C			Date Prepared:	05/28/2013 1000	
Cyanide, Total	<0.00500		mg/L	0.00500	1.0
Method: SM 4500 H+ B			Date Analyzed:	05/23/2013 1630	
pH	7.34	H	SU	0.200	1.0
Temp @ pH Measurement	18.2		Degrees C	5.00	1.0
Method: SM 4500B			Date Analyzed:	05/24/2013 1615	
Nitrite as N	0.0240		mg/L	0.0100	1.0
Method: SIMPLATE			Date Analyzed:	05/23/2013 1610	
Heterotrophic Plate Count	2.00		CFU/mL	2.00	1.0

DATA REPORTING QUALIFIERS

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
Sdg Number: Brynwood

Lab Section	Qualifier	Description
Metals		
	^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA or MRL standard: Instrument related QC exceeds the control limits.
General Chemistry		
	H	Sample was prepped or analyzed beyond the specified holding time
Biology		
	g	Result fails applicable NYS drinking water standards

Definitions and Glossary

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1

Sdg Number: Brynwood

Abbreviation	These commonly used abbreviations may or may not be present in this report.
%R	Percent Recovery
DL, RA, RE	Indicates a Dilution, Reanalysis or Reextraction.
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit - an estimate of the minimum amount of a substance that an analytical process can reliably detect. A MDL is analyte- and matrix-specific and may be laboratory-dependent.
ND	Not detected at the reporting limit (or MDL if shown).
QC	Quality Control
RL	Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence.
RPD	Relative Percent Difference - a measure of the relative difference between two points

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 060373

PROJECT REFERENCE	Brynwood
PROJECT NO	Brynwd
PROJECT LOCATION	Armonk
ENVIROTEST PROJECT MANAGER	Debra Bayer
P.O. NUMBER	
TOWN	Armonk, NY
CLIENT (SITE) PM	LBG, Inc.
CLIENT PHONE	203-929-8555
CLIENT FAX	
CLIENT NAME	Stacey Stieber
CLIENT ADDRESS	4 Research Drive, Suite 301, Shelton, CT 06484
COMPANY CONTRACTING THIS WORK (if applicable)	

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓; QUICK ___; VERBAL ___

#OF COOLERS: ___

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES – NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio	250ml Amber Sodium Thio	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/23/13	1140	PW Well 1	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta,
Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: [signature]	LBG	5/23/13	1140	Katherine Alexandrovski	LBG	5/23/13	1200
RELINQUISHED BY: Katherine Alexandrovski	LBG	5/23/13	1340				

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES/NO	Cooler Temp:	LABORATORY REMARKS:
L. Cintosh	5/23/13	1340		3.9	ICE ✓ pH___ CL2___ Reveiwed by___

Rec'd 5/23/13 Radio, metals, wetchem, VOA 5/23/13 DB

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66373

PAGE 1 of 1

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwood	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

TURNAROUND TIME: NORMAL X; QUICK ___; VERBAL ___

#OF COOLERS:

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	~~Bladder~~	40ml Vials HCL	~~40ml Sodium Thio~~	~~250ml Amber Sodium Thio~~	~~Liter Amber HCl/Na2SO3~~	250ml Plastic Nitric Acid	~~40ml MeOH/Sod Thio(liquid)~~	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	~~40ml Vials Unpres~~
5/23/13	1040	PW Well 2B	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/23/13	1040	Katherine A Jorendrak	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine Alvendrak	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS
L Curtash ET	5/23/13	1340	YES / NO	3.9	ICE ✓ pH___ CL2___ Reviewed by___

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66373

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION
Brynwood	Brynwd	Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX
CLIENT NAME: Stacey Stieber		

CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484

COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 of 1

TURNAROUND TIME: NORMAL X; QUICK ___; VERBAL ___

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *INDICATE*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	~~Bladder~~	40ml Vials HCL	~~40ml Sodium Thio.~~	~~250ml Amber Sodium Thio~~	~~Liter Amber HCl/Na2SO3~~	250ml Plastic Nitric Acid	~~40ml Mon/Sod. Thio(liquid)~~	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	~~40ml Vials Unpres~~
5/23/13	1110	PW Well 3	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl) -
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) Stacey [signature]	LBG	5/23/13	1110	Katherine Alexandrou [signature]	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine Alexandrou [signature]	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES / NO	Cooler Temp.	LABORATORY REMARKS
[signature]	5/23/13	1340		3.9	ICE ✓ pH___ CL2___ Reviewed by___

EnviroTest Laboratories, Inc.

CHAIN OF COUSTODY

REPORT# (Lab Use Only): 66373

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

PROJECT REFERENCE: Brynwood	PROJECT NO: Brynwd	PROJECT LOCATION: Armonk	PAGE 1 of 1
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY	TURNAROUND TIME
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:	NORMAL: X
CLIENT NAME: Stacey Stieber			QUICK:
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484			VERBAL:
COMPANY CONTRACTING THIS WORK (if applicable):			#OF COOLERS: 1

Matrix type: COMPOSITE (C) OR GRAB (G) *Indicate*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	~~Bladder~~	40ml Vials HCL	~~40ml Sodium Thio.~~	~~250ml Amber Sodium Thio.~~	~~Liter Amber HCl/Na2SO3~~	250ml Plastic Nitric Acid	~~40ml Mon/Sod.Thio(liquid)~~	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	~~40ml vials Unpres~~	REMARKS
5/23/13	1020	PWWC115	2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
															Metals II (Sb,Be,Ni,Tl)
															Cn, F, Sulfate, 524.2 (POC,MTBE,
															Vinyl Chloride)
			2-40ml Amber Thio												SOCs (504,508,515,525,531,
			1-Liter Amber Plastic Sodium Thio/Sulfuric												547, 548, 549), Dioxin
			1-500 Amber Sodium Thio												Radon, Gross Alpha/Beta,
			2-Amber Liter Unpres.												Radium 226/228, Total Uranium
			Total Containers: 30												Additional Tests: Total coli
															thru Zinc
															MPA including Giardia & Crypto

	COMPANY	DATE	TIME		COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)			
SAMPLED BY: (SIGNATURE) Stacey	LBG	5/23/13	1020	RECEIVED BY: (SIGNATURE) Katherine Alexandriuk	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine Alexandriuk	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS:
Hentash 92	5/23/13	1340	YES / NO	3.9	ICE ✓ pH____ CL2____ Reviewed by____

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66373-1
SDG Number: Brynwood

Login Number: 66373

Question	T/F/NA	Comment
Samples were collected by ETL employee as per SOP-SAM-1	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is recorded.	True	3.9 C
Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C	True	
If false, was sample received on ice within 6 hours of collection.	NA	
Based on above criteria cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	False	pH
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only) 660373

PROJECT REFERENCE: Brynwood	PROJECT NO: Brynwd	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL ✓ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/NaSO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/23/13	1140	PW Well 1	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

	COMPANY	DATE	TIME		COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)			
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/23/13	1140	RECEIVED BY: (SIGNATURE) [signature]	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) [signature]	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp.:	LABORATORY REMARKS:
[signature]	5/23/13	1340	YES / NO	3.9	ICE ✓ pH____ CL2____ Reviewed by________

Rec'd 5/23/13 Radio, metals, wetchem, VOA 5/23/13 DB

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

REPORT# (Lab Use Only) 66373

Lab Name / Address & Phone: EnviroTest Laboratories, 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

PAGE 1 of 1

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwood	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

TURNAROUND TIME: NORMAL X; QUICK ___; VERBAL ___

#OF COOLERS

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	~~Bladder~~	40ml Vials HCL	~~40ml Sodium Thio~~	~~250ml Amber Sodium Thio~~	~~Liter Amber HCl/Na2SO3~~	250ml Plastic Nitric Acid	~~40ml Meth/Sod. Thio(liquid)~~	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	~~40ml Vials Unpres~~
5/23/13	1040	PW Well 2B	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS: Metals I (As,Ba,Cd,Cr,Hg,Se) Metals II (Sb,Be,Ni,Tl) Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride) SOCs (504,508,515,525,531, 547, 548, 549), Dioxin Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium Additional Tests: Total coli thru Zinc MPA including Giardia & Crypto

	COMPANY	DATE	TIME		COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)			
SAMPLED BY: (SIGNATURE) Stacey [signature]	LBG	5/23/13	1040	RECEIVED BY: (SIGNATURE) Katherine A Jewendush	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine A Jewendush	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS
[signature] EL	5/23/13	1340	YES NO	3.9	ICE ✓ pH___ CL2___ Reviewed by___

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66373

PAGE 1 of 1

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwd	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

TURNAROUND TIME: NORMAL X; QUICK ___; VERBAL ___

#OF COOLERS: 1

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *indicate*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	D or W	SOLID OR SEMISOLID	OTHER	~~Bladder~~	40ml Vials HCL	~~40ml Sodium Thio.~~	~~250ml Amber Sodium Thio.~~	~~Liter Amber HCl/Na2SO3~~	250ml Plastic Nitric Acid	~~40ml Mon/Sod. Thio(liquid)~~	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	~~40ml Vials Unpres~~	REMARKS
5/23/13	1110	PW Well 3						2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
																				Metals II (Sb,Be,Ni,Tl) -
																				Cn, F, Sulfate, 524.2 (POC,MTBE,
																				Vinyl Chloride)
								2-40ml Amber Thio												SOCs (504,508,515,525,531,
								1-Liter Amber Plastic Sodium Thio/Sulfuric												547, 548, 549), Dioxin
								1-500 Amber Sodium Thio												Radon, Gross Alpha/Beta,
								2-Amber Liter Unpres.												Radium 226/228, Total Uranium
								Total Containers: 30												Additional Tests: Total coli
																				thru Zinc
																				MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/23/13	1110	RECEIVED BY: (SIGNATURE) Katherine Alexandrovski	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine Alexandrovski	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS:
Lentash [illegible]	5/23/13	1340	YES / NO	3.9	ICE ✓ pH___ CL2___ Reviewed by___

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66373

PAGE 1 of 1

PROJECT REFERENCE: Brynwood	PROJECT NO: Brynwd	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

TURNAROUND TIME: NORMAL X; QUICK ____; VERBAL ____

#OF COOLERS: 1

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml Vials Unpres
5/23/13	1020	PW Well5	2	3		1	8	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) Stacy [signature]	LBG	5/23/13	1020	RECEIVED BY: (SIGNATURE) Katherine Alexandruk	LBG	5/23/13	1200
RELINQUISHED BY: (SIGNATURE) Katherine Alexandruk	LBG	5/23/13	1340	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp.	LABORATORY REMARKS
Kentch EZ	5/23/13	1340	YES / NO	3.9	ICE ✓ pH____ CL2____ Reveiwed by____

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8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

June 25, 2013

Ron Bayer
EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: LBG, INC
Pace Project No.: 3594479

Dear Ron Bayer:
Enclosed are the analytical results for sample(s) received by the laboratory on May 24, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bo Garcia

bo.garcia@pacelabs.com
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories Inc.
Renee Cusack, EnviroTest Laboratories Inc.
Joyce Esposito, EnviroTest Laboratories Inc.
Janine Rader, EnviroTest Laboratories Inc.
Meredith Ruthven, EnviroTest Laboratories Inc.

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CERTIFICATIONS

Project: LBG, INC
Pace Project No.: 3594479

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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SAMPLE SUMMARY

Project: LBG, INC
Pace Project No.: 3594479

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3594479001	**PW Well 1 (420-66373-1)**	Drinking Water	05/23/13 11:40	05/24/13 11:40
3594479002	**PW Well 2B (420-66373-2)**	Drinking Water	05/23/13 10:40	05/24/13 11:40
3594479003	**PW Well 3 (420-66373-3)**	Drinking Water	05/23/13 11:10	05/24/13 11:40
3594479004	**PW Well 5 (420-66373-4)**	Drinking Water	05/23/13 10:20	05/24/13 11:40

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SAMPLE ANALYTE COUNT

Project: LBG, INC
Pace Project No.: 3594479

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3594479001	**PW Well 1 (420-66373-1)**	EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	MAW	1	PASI-PA
		EPA 908.0	LAL	1	PASI-PA
3594479002	**PW Well 2B (420-66373-2)**	EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	MAW	1	PASI-PA
		EPA 908.0	LAL	1	PASI-PA
3594479003	**PW Well 3 (420-66373-3)**	EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	MAW	1	PASI-PA
		EPA 908.0	LAL	1	PASI-PA
3594479004	**PW Well 5 (420-66373-4)**	EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	MAW	1	PASI-PA
		EPA 908.0	LAL	1	PASI-PA

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ANALYTICAL RESULTS

Project: LBG, INC
Pace Project No.: 3594479

Sample: PW Well 1 (420-66373-1) **Lab ID: 3594479001** Collected: 05/23/13 11:40 Received: 05/24/13 11:40 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**2.77U ± 0.998 (2.77)**	pCi/L	06/09/13 10:57	12587-46-1	
Gross Beta	EPA 900.0	**2.15U ± 1.09 (2.15)**	pCi/L	06/09/13 10:57	12587-47-2	
Radium-226	EPA 903.1	**0.741U ± 0.447 (0.741)**	pCi/L	06/10/13 13:07	13982-63-3	
Radium-228	EPA 904.0	**0.621U ± 0.312 (0.621)**	pCi/L	06/07/13 11:59	15262-20-1	
Total Uranium	EPA 908.0	**0.798 ± 0.209 (0.257)**	pCi/L	06/07/13 17:52	7440-61-1	

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ANALYTICAL RESULTS

Project: LBG, INC
Pace Project No.: 3594479

Sample: PW Well 2B (420-66373-2) **Lab ID: 3594479002** Collected: 05/23/13 10:40 Received: 05/24/13 11:40 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**1.41U ± 0.827 (1.41)**	pCi/L	06/09/13 12:41	12587-46-1	
Gross Beta	EPA 900.0	**2.36 ± 0.385 (0.533)**	pCi/L	06/09/13 12:41	12587-47-2	
Radium-226	EPA 903.1	**0.858U ± 0.442 (0.858)**	pCi/L	06/10/13 13:20	13982-63-3	
Radium-228	EPA 904.0	**0.806U ± 0.369 (0.806)**	pCi/L	06/07/13 11:59	15262-20-1	
Total Uranium	EPA 908.0	**0.885 ± 0.226 (0.281)**	pCi/L	06/07/13 17:52	7440-61-1	

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ANALYTICAL RESULTS

Project: LBG, INC
Pace Project No.: 3594479

Sample: PW Well 3 (420-66373-3) **Lab ID: 3594479003** Collected: 05/23/13 11:10 Received: 05/24/13 11:40 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**1.12U ± 0.657 (1.12)**	pCi/L	06/09/13 12:41	12587-46-1	
Gross Beta	EPA 900.0	**2.72 ± 0.429 (0.589)**	pCi/L	06/09/13 12:41	12587-47-2	
Radium-226	EPA 903.1	**0.771U ± 0.418 (0.771)**	pCi/L	06/10/13 13:07	13982-63-3	
Radium-228	EPA 904.0	**0.756U ± 0.315 (0.756)**	pCi/L	06/07/13 11:59	15262-20-1	
Total Uranium	EPA 908.0	**0.845 ± 0.217 (0.276)**	pCi/L	06/07/13 16:21	7440-61-1	

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ANALYTICAL RESULTS

Project: LBG, INC
Pace Project No.: 3594479

Sample: PW Well 5 (420-66373-4) **Lab ID: 3594479004** Collected: 05/23/13 10:20 Received: 05/24/13 11:40 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**4.35 ± 1.07 (1.39)**	pCi/L	06/09/13 12:42	12587-46-1	
Gross Beta	EPA 900.0	**4.30 ± 0.533 (0.688)**	pCi/L	06/09/13 12:42	12587-47-2	
Radium-226	EPA 903.1	**0.876U ± 0.606 (0.876)**	pCi/L	06/10/13 13:07	13982-63-3	
Radium-228	EPA 904.0	**0.851U ± 0.410 (0.851)**	pCi/L	06/07/13 13:01	15262-20-1	
Total Uranium	EPA 908.0	**5.40 ± 0.415 (0.273)**	pCi/L	06/07/13 16:21	7440-61-1	

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QUALITY CONTROL DATA

Project: LBG, INC
Pace Project No.: 3594479

QC Batch: RADC/16016 Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

METHOD BLANK: 589783 Matrix: Water
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	0.345 ± 0.333 (0.683)	pCi/L	06/07/13 11:58	

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QUALITY CONTROL DATA

Project: LBG, INC
Pace Project No.: 3594479

QC Batch: RADC/16014 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

METHOD BLANK: 589781 Matrix: Water
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	-0.169 ± 0.640 (1.87)	pCi/L	06/09/13 10:58	
Gross Beta	0.040 ± 0.761 (1.88)	pCi/L	06/09/13 10:58	

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QUALITY CONTROL DATA

Project: LBG, INC
Pace Project No.: 3594479

QC Batch: RADC/16019 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

METHOD BLANK: 589786 Matrix: Water
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	0.134 ± 0.492 (0.945)	pCi/L	06/10/13 12:51	

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QUALITY CONTROL DATA

Project: LBG, INC
Pace Project No.: 3594479

QC Batch: RADC/16042 Analysis Method: EPA 908.0
QC Batch Method: EPA 908.0 Analysis Description: 908.0 Total Uranium
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

METHOD BLANK: 590838 Matrix: Water
Associated Lab Samples: 3594479001, 3594479002, 3594479003, 3594479004

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Total Uranium	0.0135 ± 0.120 (0.218)	pCi/L	06/07/13 17:52	

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QUALIFIERS

Project: LBG, INC
Pace Project No.: 3594479

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty

(MDC) - Minimum Detectable Concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LBG, INC
Pace Project No.: 3594479

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3594479001	PW Well 1 (420-66373-1)	EPA 900.0	RADC/16014		
3594479002	PW Well 2B (420-66373-2)	EPA 900.0	RADC/16014		
3594479003	PW Well 3 (420-66373-3)	EPA 900.0	RADC/16014		
3594479004	PW Well 5 (420-66373-4)	EPA 900.0	RADC/16014		
3594479001	PW Well 1 (420-66373-1)	EPA 903.1	RADC/16019		
3594479002	PW Well 2B (420-66373-2)	EPA 903.1	RADC/16019		
3594479003	PW Well 3 (420-66373-3)	EPA 903.1	RADC/16019		
3594479004	PW Well 5 (420-66373-4)	EPA 903.1	RADC/16019		
3594479001	PW Well 1 (420-66373-1)	EPA 904.0	RADC/16016		
3594479002	PW Well 2B (420-66373-2)	EPA 904.0	RADC/16016		
3594479003	PW Well 3 (420-66373-3)	EPA 904.0	RADC/16016		
3594479004	PW Well 5 (420-66373-4)	EPA 904.0	RADC/16016		
3594479001	PW Well 1 (420-66373-1)	EPA 908.0	RADC/16042		
3594479002	PW Well 2B (420-66373-2)	EPA 908.0	RADC/16042		
3594479003	PW Well 3 (420-66373-3)	EPA 908.0	RADC/16042		
3594479004	PW Well 5 (420-66373-4)	EPA 908.0	RADC/16042		

WO#: 3594479

3594479

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

Record

EnviroTest Laboratories Inc.

Client Information (Sub Contract Lab)		Bayer, Debra	Carrier Tracking No(s):
Client Contact: Shipping/Receiving	Phone:	E-Mail: dbayer@envirotestlaboratories.com	
Company: Pace Analytical Ormond Beach			
Address: 8 East Tower Circle, ,	Due Date Requested: 6/6/2013		
City: Ormond Beach	TAT Requested (days):		
State, Zip: FL, 32174			
Phone: 111-222-3333(Tel)	PO #:		
Email:	WO #:		
Project Name: LBG, Inc.	Project #: 42001269		
Site:	SSOW#:		

COC No: 420-6470.1
Page: Page 1 of 1
STL Job #: 420-66373-1

Analysis Requested

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2SO3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - ph 4-5
Z - other (specify)
Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ 900 GA/GB/RA 226/RA 228	SUBCONTRACT/ Total Uranium	Total Number of containers	Special Instructions/Note:
				Preservation Code:						
PW Well 1 (420-66373-1)	5/23/13	11:40		Water			X	X	1	
PW Well 2B (420-66373-2)	5/23/13	10:40		Water			X	X	1	
PW Well 3 (420-66373-3)	5/23/13	11:10		Water			X	X	1	
PW Well 5 (420-66373-4)	5/23/13	10:20		Water			X	X	1	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:	
Relinquished by: [signature]	Date/Time: 5/23/13 1630	Company: ETL	Received by: Paula [signature]	Date/Time: 5-24-13 1140	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 04 712	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Pace Analytical	Document Name: Sample Condition Upon Receipt Form Document No.: F-FL-C-007 rev. 04	Document Revised: September 23, 2011 Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number:

Client Name: Enviro Project # 3594479

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking # 7998 3649 7527

Custody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other

Thermometer Used T-112 Type of Ice: Wet Blue None

Cooler Temperature°C 0.9 (Visual) -0.5 (Correction Factor) 0.4 (Actual)

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐Yes ☐No

Date and Initials of person examining contents:

Receipt of samples satisfactory: ☐Yes ☐No

Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution (use back for additional comments):

Project Manager Review: [signature] Date: 5 28 13

Finished Product Information Only

F.P. Sample ID:

Production Code:

Date/Time Opened:

Number of Unopened Bottles Remaining:

Extra Sample in Shed: Yes No

Size & Qty of Bottles Received

x 5 Gal
x 2.5 Gal
x 1 Gal
x 1 Liter
x 500 mL
x 250 mL
x Other:

EnviroTest Laboratories Inc.

ANALYTICAL REPORT

Job Number: 420-66305-1

SDG Number: Brynwood

Job Description: LBG, Inc.

For:
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
06/28/2013

The test results in this report meet all NELAP requirements unless specified within the case narrative. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. EnviroTest Laboratories Inc. certifies that the analytical results contained herein apply only to the samples tested as received by our laboratory. All questions regarding this report should be directed to the EnviroTest Customer Service Representative.

EnviroTest Laboratories, Inc. Certifications and Approvals: NELAP Accredited, NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554, EPA NY00049.

SAMPLE SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66305-1
SDG Number: Brynwood

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
420-66305-1	PW Well 1	Drinking Water	05/22/2013 1250	05/22/2013 1400
420-66305-2	PW Well 2B	Drinking Water	05/22/2013 1145	05/22/2013 1400
420-66305-3	PW Well 3	Drinking Water	05/22/2013 1220	05/22/2013 1400
420-66305-4	PW Well 5	Drinking Water	05/22/2013 1100	05/22/2013 1400

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only) [illegible]

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwd	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *INDICATE*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/22/13	1250	PW Well 1	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

PAGE 1 of 1

TURNAROUND TIME
NORMAL ____
QUICK ____
VERBAL ____

#OF COOLERS

REMARKS
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 624.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1250	Katherine Afenendiski	LBG	5/22/13	1250
RELINQUISHED BY: (SIGNATURE) Katherine Afenendiski		5/22/13	1430	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp.:	LABORATORY REMARKS:
[signature]	5/22	1430	YES / NO	4.6	ICE____ pH____ CL2____ Reviewed by________

Recd 5/22/13 SOC's, Dioxin, Radon, MPA Giardia + Crypto 5/22/13 OB

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 06805

PROJECT REFERENCE: Brynwood
PROJECT NO.: Brynwd
PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer
P.O. NUMBER:
TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.
CLIENT PHONE: 203-929-8555
CLIENT FAX:
CLIENT NAME: Stacey Stieber
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484
COMPANY CONTRACTING THIS WORK (if applicable):

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE / AQUEOUS (WATER) / D (Drinking Water) or W (Waste Water) Indicate / SOLID OR SEMISOLID / OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres	REMARKS
5/22/13	1145	PW Well 28	2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
															Metals II (Sb,Be,Ni,Tl)
															Cn, F, Sulfate, 524.2 (POC,MTBE,
															Vinyl Chloride)
				2-40ml Amber Thio											SOCs (504,508,515,525,531,
				1-Liter Amber Plastic Sodium Thio/Sulfuric											547, 548, 549), Dioxin
				1-500 Amber Sodium Thio											Radon, Gross Alpha/Beta,
				2-Amber Liter Unpres.											Radium 226/228, Total Uranium
				Total Containers: 30											Additional Tests: Total coli
															thru Zinc
															MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1145	Katherine Altenendulk	LBG	5/22/13	1145
RELINQUISHED BY: (SIGNATURE) Katherine Altenendulk	LBG	1430		RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES / NO	Cooler Temp.:	LABORATORY REMARKS:
[signature]	5/22	1430		4-6	ICE ✓ pH____ CL2____ Reviewed by________

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only) [illegible]

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER	TOWN
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *indicate*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Composite/Grab	Aqueous	D or W	Solid	Other	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/22/13	1200	PW Well 3						2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

	COMPANY	DATE	TIME		COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)			
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1220	RECEIVED BY: (SIGNATURE) Katherine Alexandridis	LBG	5/22/13	1220
RELINQUISHED BY: (SIGNATURE) Katherine Alexandridis	LBG	5/22/13	1430	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS:
[signature]	5/22	1430	YES NO	4.6	ICE____ pH____ CL2____ Reviewed by____

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 160305

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwd	PROJECT LOCATION: Armonk, NY
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *INDICATE*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/22/13	11:00	PW Well 5	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE,
Vinyl Chloride)
SOCs (504,508,515,525,531,
547, 548, 549), Dioxin
Radon, Gross Alpha/Beta,
Radium 226/228, Total Uranium
Additional Tests: Total coli
thru Zinc
MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1100	RECEIVED BY: (SIGNATURE) Katherine Allendick	LBG	5/22/13	1100
RELINQUISHED BY: (SIGNATURE) Katherine Allendick	LBG	5/22/13	1430	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES / NO	Cooler Temp.:	LABORATORY REMARKS: ICE____ pH____ CL2____ Reviewed by____
[signature]	5/22	1430		4.6	

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66305-1
SDG Number: Brynwood

Login Number: 66305

Question	T/F/NA	Comment
Samples were collected by ETL employee as per SOP-SAM-1	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is recorded.	True	4.6 C
Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C	True	
If false, was sample received on ice within 6 hours of collection.	NA	
Based on above criteria cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	False	pH
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only) [illegible]

PROJECT REFERENCE: Brynwood	PROJECT NO.: Brynwd	PROJECT LOCATION: Armonk
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) *indicate*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/22/13	1250	PW Well 1	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

REMARKS
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

	COMPANY	DATE	TIME		COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)				RECEIVED BY: (SIGNATURE)			
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1250	RECEIVED BY: (SIGNATURE) Katherine Afenendiski	LBG	5/22/13	1250
RELINQUISHED BY: (SIGNATURE) Katherine Afenendiski		5/22/13	1430	RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES / NO	Cooler Temp.:	LABORATORY REMARKS:
[signature]	5/22	1430		4.6	ICE____ pH____ CL2____ Reviewed by____

Recd 5/22/13 SOC's, Dioxin, Radon, MPA Giardia + Crypto 5/22/13 OB

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only) 06305

PROJECT REFERENCE	Brynwood
PROJECT NO.	Brynwd
PROJECT LOCATION	Armonk
ENVIROTEST PROJECT MANAGER	Debra Bayer
P.O. NUMBER	
TOWN	Armonk, NY
CLIENT (SITE) PM	LBG, Inc.
CLIENT PHONE	203-929-8555
CLIENT FAX	
CLIENT NAME	Stacey Stieber
CLIENT ADDRESS	4 Research Drive, Suite 301, Shelton, CT 06484
COMPANY CONTRACTING THIS WORK (if applicable):	
PAGE 1 of	1

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres
5/22/13	1145	PW Well 2B	2	3		1	3	1	4	4	1	2	1	2

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

TURNAROUND TIME
NORMAL ____
QUICK ____
VERBAL ____

#OF COOLERS

REMARKS
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta,
Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA Including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1145	Katherine Aflenendufi	LBG	5/22/13	1145
RELINQUISHED BY: (SIGNATURE) Katherine Aflenendufi	LBG	1430		RECEIVED BY: (SIGNATURE)			

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp.	LABORATORY REMARKS
[signature]	5/22	1430	YES / NO	4-6	ICE ✓ pH____ CL2____ Reviewed by________

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

REPORT# (Lab Use Only) 60305

Lab Name: **EnviroTest Laboratories**
Address & Phone: **315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890**

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION	PAGE 1 of 1
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER	TOWN	TURNAROUND TIME
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX	NORMAL ____ QUICK ____ VERBAL ____
CLIENT NAME: Stacey Stieber			
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484			
COMPANY CONTRACTING THIS WORK (if applicable):			#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres	REMARKS
5/22/13	1200	PW Well3	2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
															Metals II (Sb,Be,Ni,Tl)
															Cn, F, Sulfate, 524.2 (POC,MTBE,
															Vinyl Chloride)
				2-40ml Amber Thio											SOCs (504,508,515,525,531,
				1-Liter Amber Plastic Sodium Thio/Sulfuric											547, 548, 549), Dioxin
				1-500 Amber Sodium Thio											Radon, Gross Alpha/Beta,
				2-Amber Liter Unpres.											Radium 226/228, Total Uranium
				Total Containers: 30											Additional Tests: Total coli
															thru Zinc
															MPA Including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	COMPANY LBG	DATE 5/22/13	TIME 1220	RECEIVED BY: (SIGNATURE) Katherine Alexandrovich	COMPANY LBG	DATE 5/22/13	TIME 1220
RELINQUISHED BY: (SIGNATURE) Katherine Alexandrovich	COMPANY LBG	DATE 5/22/13	TIME 1430	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE) [signature]	DATE 5/22	TIME 1430	CUSTODY INTACT YES NO	Cooler Temp.: 4.6	LABORATORY REMARKS: ICE____ pH____ CL2____ Reviewed by________

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

REPORT# (Lab Use Only): 160305

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

PROJECT REFERENCE: BrynWood	PROJECT NO.: Brynwd	PROJECT LOCATION: Armonk, NY
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O. NUMBER:	TOWN: Armonk, NY
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE / AQUEOUS (WATER) / D (Drinking Water) or W (Waste Water) Indicate / SOLID OR SEMISOLID / OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G)	AQUEOUS (WATER)	D or W	SOLID OR SEMISOLID	OTHER	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres	REMARKS
5/22/13	11:00	PW Well 5						2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)

2-40ml Amber Thio
1-Liter Amber Plastic Sodium Thio/Sulfuric
1-500 Amber Sodium Thio
2-Amber Liter Unpres.
Total Containers: 30

REMARKS:
Metals I (As,Ba,Cd,Cr,Hg,Se)
Metals II (Sb,Be,Ni,Tl)
Cn, F, Sulfate, 524.2 (POC,MTBE, Vinyl Chloride)
SOCs (504,508,515,525,531, 547, 548, 549), Dioxin
Radon, Gross Alpha/Beta, Radium 226/228, Total Uranium
Additional Tests: Total coli thru Zinc
MPA including Giardia & Crypto

Signature	Company	Date	Time	Received By	Company	Date	Time
RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
SAMPLED BY: (SIGNATURE) [signature]	LBG	5/22/13	1100	RECEIVED BY: (SIGNATURE) Katherine Allendecker	LBG	5/22/13	1100
RELINQUISHED BY: (SIGNATURE) Katherine Allendecker	LBG	5/22/13	1430	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	Cooler Temp:	LABORATORY REMARKS:
[signature]	5/22	1430	YES NO	4.6	ICE____ pH____ CL2____ Reviewed by________

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June 12, 2013

Ron Bayer
EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: LBG, Inc.
Pace Project No.: 3594230

Dear Ron Bayer:
Enclosed are the analytical results for sample(s) received by the laboratory on May 23, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bo Garcia

bo.garcia@pacelabs.com
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories Inc.
Renee Cusack, EnviroTest Laboratories Inc.
Joyce Esposito, EnviroTest Laboratories Inc.
Janine Rader, EnviroTest Laboratories Inc.
Meredith Ruthven, EnviroTest Laboratories Inc.

NELAP ACCREDITED LABORATORY

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: LBG, Inc.
Pace Project No.: 3594230

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: LBG, Inc.
Pace Project No.: 3594230

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3594230001	**PW Well 1**	Drinking Water	05/22/13 12:50	05/23/13 12:00
3594230002	**PW Well 2B**	Drinking Water	05/22/13 11:45	05/23/13 12:00
3594230003	**PW Well 3**	Drinking Water	05/22/13 12:20	05/23/13 12:00
3594230004	**PW Well 5**	Drinking Water	05/22/13 11:00	05/23/13 12:00

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SAMPLE ANALYTE COUNT

Project: LBG, Inc.
Pace Project No.: 3594230

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3594230001	**PW Well 1**	EPA 504.1	JLR	2	PASI-O
		EPA 508.1	JTT	19	PASI-O
		EPA 515.3	LJM	8	PASI-O
		EPA 531.1	WFH	9	PASI-O
		EPA 547	WFH	1	PASI-O
		EPA 549.2	WFH	1	PASI-O
		EPA 525.2	WFH	7	PASI-O
		EPA 548.1	EAO	1	PASI-O
3594230002	**PW Well 2B**	EPA 504.1	JLR	2	PASI-O
		EPA 508.1	JTT	19	PASI-O
		EPA 515.3	LJM	8	PASI-O
		EPA 531.1	WFH	9	PASI-O
		EPA 547	WFH	1	PASI-O
		EPA 549.2	WFH	1	PASI-O
		EPA 525.2	WFH	7	PASI-O
		EPA 548.1	EAO	1	PASI-O
3594230003	**PW Well 3**	EPA 504.1	JLR	2	PASI-O
		EPA 508.1	JTT	19	PASI-O
		EPA 515.3	LJM	8	PASI-O
		EPA 531.1	WFH	9	PASI-O
		EPA 547	WFH	1	PASI-O
		EPA 549.2	WFH	1	PASI-O
		EPA 525.2	WFH	7	PASI-O
		EPA 548.1	EAO	1	PASI-O
3594230004	**PW Well 5**	EPA 504.1	JLR	2	PASI-O
		EPA 508.1	JTT	19	PASI-O
		EPA 515.3	LJM	8	PASI-O
		EPA 531.1	WFH	9	PASI-O
		EPA 547	WFH	1	PASI-O
		EPA 549.2	WFH	1	PASI-O
		EPA 525.2	WFH	7	PASI-O
		EPA 548.1	EAO	1	PASI-O

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 1 **Lab ID: 3594230001** Collected: 05/22/13 12:50 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
1,2-Dibromo-3-chloropropane	**<0.0052**	ug/L	0.021	0.0052	1	05/29/13 14:27	05/29/13 19:00	96-12-8	
1,2-Dibromoethane (EDB)	**<0.0066**	ug/L	0.011	0.0066	1	05/29/13 14:27	05/29/13 19:00	106-93-4	
508.1 GCS Pesticides	Analytical Method: EPA 508.1 Preparation Method: EPA 508.1								
Alachlor	**<0.032**	ug/L	0.19	0.032	1	06/03/13 08:00	06/04/13 12:11	15972-60-8	L3
Atrazine	**<0.020**	ug/L	0.095	0.020	1	06/03/13 08:00	06/04/13 12:11	1912-24-9	
gamma-BHC (Lindane)	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:11	58-89-9	
Butachlor	**<0.014**	ug/L	0.095	0.014	1	06/03/13 08:00	06/04/13 12:11	23184-66-9	
Chlordane (Technical)	**<0.045**	ug/L	0.19	0.045	1	06/03/13 08:00	06/04/13 12:11	57-74-9	
Dieldrin	**<0.013**	ug/L	0.095	0.013	1	06/03/13 08:00	06/04/13 12:11	60-57-1	
Endrin	**<0.0019**	ug/L	0.0095	0.0019	1	06/03/13 08:00	06/04/13 12:11	72-20-8	
Heptachlor	**<0.0057**	ug/L	0.038	0.0057	1	06/03/13 08:00	06/04/13 12:11	76-44-8	
Heptachlor epoxide	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:11	1024-57-3	
Hexachlorobenzene	**<0.010**	ug/L	0.095	0.010	1	06/03/13 08:00	06/04/13 12:11	118-74-1	
Hexachlorocyclopentadiene	**<0.011**	ug/L	0.095	0.011	1	06/03/13 08:00	06/04/13 12:11	77-47-4	
Methoxychlor	**<0.013**	ug/L	0.095	0.013	1	06/03/13 08:00	06/04/13 12:11	72-43-5	
Metolachlor	**<0.010**	ug/L	0.095	0.010	1	06/03/13 08:00	06/04/13 12:11	51218-45-2	
Metribuzin	**<0.033**	ug/L	0.095	0.033	1	06/03/13 08:00	06/04/13 12:11	21087-64-9	L3
PCB, Total	**<0.076**	ug/L	0.095	0.076	1	06/03/13 08:00	06/04/13 12:11	1336-36-3	
Propachlor	**<0.0095**	ug/L	0.095	0.0095	1	06/03/13 08:00	06/04/13 12:11	1918-16-7	
Simazine	**<0.042**	ug/L	0.067	0.042	1	06/03/13 08:00	06/04/13 12:11	122-34-9	L3
Toxaphene	**<0.58**	ug/L	0.95	0.58	1	06/03/13 08:00	06/04/13 12:11	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	127	%	70-130		1	06/03/13 08:00	06/04/13 12:11	2051-24-3	
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
2,4-D	**<0.081**	ug/L	0.10	0.081	1	05/31/13 08:00	06/02/13 06:32	94-75-7	
Dalapon	**<0.89**	ug/L	1.0	0.89	1	05/31/13 08:00	06/02/13 06:32	75-99-0	
Dicamba	**<0.067**	ug/L	0.10	0.067	1	05/31/13 08:00	06/02/13 06:32	1918-00-9	
Dinoseb	**<0.16**	ug/L	0.20	0.16	1	05/31/13 08:00	06/02/13 06:32	88-85-7	
Pentachlorophenol	**<0.030**	ug/L	0.040	0.030	1	05/31/13 08:00	06/02/13 06:32	87-86-5	
Picloram	**<0.094**	ug/L	0.10	0.094	1	05/31/13 08:00	06/02/13 06:32	1918-02-1	
2,4,5-TP (Silvex)	**<0.16**	ug/L	0.20	0.16	1	05/31/13 08:00	06/02/13 06:32	93-72-1	
Surrogates									
2,4-DCAA (S)	86	%	70-130		1	05/31/13 08:00	06/02/13 06:32	19719-28-9	
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Aldicarb	**<0.64**	ug/L	2.0	0.64	1		06/04/13 14:04	116-06-3	L3
Aldicarb sulfone	**<0.35**	ug/L	2.0	0.35	1		06/04/13 14:04	1646-88-4	L3
Aldicarb sulfoxide	**<0.30**	ug/L	2.0	0.30	1		06/04/13 14:04	1646-87-3	
Carbofuran	**<0.32**	ug/L	2.0	0.32	1		06/04/13 14:04	1563-66-2	
3-Hydroxycarbofuran	**<0.26**	ug/L	2.0	0.26	1		06/04/13 14:04	16655-82-6	
Methomyl	**<0.57**	ug/L	2.0	0.57	1		06/04/13 14:04	16752-77-5	
Oxamyl	**<0.41**	ug/L	2.0	0.41	1		06/04/13 14:04	23135-22-0	
Carbaryl	**<0.20**	ug/L	2.0	0.20	1		06/04/13 14:04	63-25-2	L3

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 1 **Lab ID: 3594230001** Collected: 05/22/13 12:50 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Surrogates									
Propoxur (S)	110	%	80-120		1		06/04/13 14:04	114-26-1	
547 HPLC Glyphosate	Analytical Method: EPA 547								
Glyphosate	**<2.1**	ug/L	6.0	2.1	1		05/28/13 15:10		
549.2 HPLC Paraquat Diquat	Analytical Method: EPA 549.2 Preparation Method: EPA 549.2								
Diquat	**<0.15**	ug/L	0.40	0.15	1	05/24/13 14:45	05/30/13 12:54	85-00-7	
525.2 Base Neutral Extractable	Analytical Method: EPA 525.2 Preparation Method: EPA 525.2								
Aldrin	**<0.034**	ug/L	0.095	0.034	1	06/03/13 08:00	06/04/13 13:46	309-00-2	
Benzo(a)pyrene	**<0.018**	ug/L	0.095	0.018	1	06/03/13 08:00	06/04/13 13:46	50-32-8	L3
bis(2-Ethylhexyl)adipate	**<0.36**	ug/L	1.5	0.36	1	06/03/13 08:00	06/04/13 13:46	103-23-1	
bis(2-Ethylhexyl)phthalate	**<0.48**	ug/L	1.9	0.48	1	06/03/13 08:00	06/04/13 13:46	117-81-7	
Surrogates									
1,3-Dimethyl-2-nitrobenzene(S)	88	%	70-130		1	06/03/13 08:00	06/04/13 13:46	81209	
Perylene-d12 (S)	106	%	70-130		1	06/03/13 08:00	06/04/13 13:46	1520963	
Triphenylphosphate (S)	104	%	70-130		1	06/03/13 08:00	06/04/13 13:46	115-86-6	
548.1 GCS Endothall	Analytical Method: EPA 548.1 Preparation Method: EPA 548.1								
Endothall	**<2.7**	ug/L	9.0	2.7	1	05/28/13 13:00	05/30/13 10:36		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 2B **Lab ID: 3594230002** Collected: 05/22/13 11:45 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
1,2-Dibromo-3-chloropropane	**<0.0051**	ug/L	0.021	0.0051	1	05/29/13 14:27	05/29/13 19:15	96-12-8	
1,2-Dibromoethane (EDB)	**<0.0064**	ug/L	0.010	0.0064	1	05/29/13 14:27	05/29/13 19:15	106-93-4	
508.1 GCS Pesticides	Analytical Method: EPA 508.1 Preparation Method: EPA 508.1								
Alachlor	**<0.033**	ug/L	0.19	0.033	1	06/03/13 08:00	06/04/13 12:31	15972-60-8	L3
Atrazine	**<0.020**	ug/L	0.096	0.020	1	06/03/13 08:00	06/04/13 12:31	1912-24-9	
gamma-BHC (Lindane)	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:31	58-89-9	
Butachlor	**<0.014**	ug/L	0.096	0.014	1	06/03/13 08:00	06/04/13 12:31	23184-66-9	
Chlordane (Technical)	**<0.045**	ug/L	0.19	0.045	1	06/03/13 08:00	06/04/13 12:31	57-74-9	
Dieldrin	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 12:31	60-57-1	
Endrin	**<0.0019**	ug/L	0.0096	0.0019	1	06/03/13 08:00	06/04/13 12:31	72-20-8	
Heptachlor	**<0.0058**	ug/L	0.038	0.0058	1	06/03/13 08:00	06/04/13 12:31	76-44-8	
Heptachlor epoxide	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:31	1024-57-3	
Hexachlorobenzene	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 12:31	118-74-1	
Hexachlorocyclopentadiene	**<0.012**	ug/L	0.096	0.012	1	06/03/13 08:00	06/04/13 12:31	77-47-4	
Methoxychlor	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 12:31	72-43-5	
Metolachlor	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 12:31	51218-45-2	
Metribuzin	**<0.034**	ug/L	0.096	0.034	1	06/03/13 08:00	06/04/13 12:31	21087-64-9	L3
PCB, Total	**<0.077**	ug/L	0.096	0.077	1	06/03/13 08:00	06/04/13 12:31	1336-36-3	
Propachlor	**<0.0096**	ug/L	0.096	0.0096	1	06/03/13 08:00	06/04/13 12:31	1918-16-7	
Simazine	**<0.042**	ug/L	0.067	0.042	1	06/03/13 08:00	06/04/13 12:31	122-34-9	L3
Toxaphene	**<0.58**	ug/L	0.96	0.58	1	06/03/13 08:00	06/04/13 12:31	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	134	%	70-130		1	06/03/13 08:00	06/04/13 12:31	2051-24-3	S3
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
2,4-D	**<0.081**	ug/L	0.10	0.081	1	06/05/13 09:00	06/07/13 05:09	94-75-7	
Dalapon	**<0.89**	ug/L	1.0	0.89	1	06/05/13 09:00	06/07/13 05:09	75-99-0	
Dicamba	**<0.067**	ug/L	0.10	0.067	1	06/05/13 09:00	06/07/13 05:09	1918-00-9	
Dinoseb	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 05:09	88-85-7	
Pentachlorophenol	**<0.030**	ug/L	0.040	0.030	1	06/05/13 09:00	06/07/13 05:09	87-86-5	
Picloram	**0.85**	ug/L	0.10	0.094	1	06/05/13 09:00	06/07/13 05:09	1918-02-1	C0
2,4,5-TP (Silvex)	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 05:09	93-72-1	
Surrogates									
2,4-DCAA (S)	75	%	70-130		1	06/05/13 09:00	06/07/13 05:09	19719-28-9	
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Aldicarb	**<0.64**	ug/L	2.0	0.64	1		06/04/13 14:49	116-06-3	L3
Aldicarb sulfone	**<0.35**	ug/L	2.0	0.35	1		06/04/13 14:49	1646-88-4	L3
Aldicarb sulfoxide	**<0.30**	ug/L	2.0	0.30	1		06/04/13 14:49	1646-87-3	
Carbofuran	**<0.32**	ug/L	2.0	0.32	1		06/04/13 14:49	1563-66-2	
3-Hydroxycarbofuran	**<0.26**	ug/L	2.0	0.26	1		06/04/13 14:49	16655-82-6	
Methomyl	**<0.57**	ug/L	2.0	0.57	1		06/04/13 14:49	16752-77-5	
Oxamyl	**<0.41**	ug/L	2.0	0.41	1		06/04/13 14:49	23135-22-0	
Carbaryl	**<0.20**	ug/L	2.0	0.20	1		06/04/13 14:49	63-25-2	L3

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 2B **Lab ID: 3594230002** Collected: 05/22/13 11:45 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Surrogates									
Propoxur (S)	112	%	80-120		1		06/04/13 14:49	114-26-1	
547 HPLC Glyphosate	Analytical Method: EPA 547								
Glyphosate	**<2.1**	ug/L	6.0	2.1	1		05/28/13 15:24		
549.2 HPLC Paraquat Diquat	Analytical Method: EPA 549.2 Preparation Method: EPA 549.2								
Diquat	**<0.15**	ug/L	0.40	0.15	1	05/24/13 14:45	05/30/13 13:03	85-00-7	
525.2 Base Neutral Extractable	Analytical Method: EPA 525.2 Preparation Method: EPA 525.2								
Aldrin	**<0.035**	ug/L	0.096	0.035	1	06/03/13 08:00	06/04/13 14:05	309-00-2	
Benzo(a)pyrene	**<0.018**	ug/L	0.096	0.018	1	06/03/13 08:00	06/04/13 14:05	50-32-8	L3
bis(2-Ethylhexyl)adipate	**<0.37**	ug/L	1.5	0.37	1	06/03/13 08:00	06/04/13 14:05	103-23-1	
bis(2-Ethylhexyl)phthalate	**<0.48**	ug/L	1.9	0.48	1	06/03/13 08:00	06/04/13 14:05	117-81-7	
Surrogates									
1,3-Dimethyl-2-nitrobenzene(S)	85	%	70-130		1	06/03/13 08:00	06/04/13 14:05	81209	
Perylene-d12 (S)	99	%	70-130		1	06/03/13 08:00	06/04/13 14:05	1520963	
Triphenylphosphate (S)	98	%	70-130		1	06/03/13 08:00	06/04/13 14:05	115-86-6	
548.1 GCS Endothall	Analytical Method: EPA 548.1 Preparation Method: EPA 548.1								
Endothall	**<2.7**	ug/L	9.0	2.7	1	05/28/13 13:00	05/30/13 10:50		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 3 **Lab ID: 3594230003** Collected: 05/22/13 12:20 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
1,2-Dibromo-3-chloropropane	**<0.0052**	ug/L	0.021	0.0052	1	05/29/13 14:27	05/29/13 19:30	96-12-8	
1,2-Dibromoethane (EDB)	**<0.0066**	ug/L	0.011	0.0066	1	05/29/13 14:27	05/29/13 19:30	106-93-4	
508.1 GCS Pesticides	Analytical Method: EPA 508.1 Preparation Method: EPA 508.1								
Alachlor	**<0.033**	ug/L	0.19	0.033	1	06/03/13 08:00	06/04/13 12:51	15972-60-8	L3
Atrazine	**<0.020**	ug/L	0.096	0.020	1	06/03/13 08:00	06/04/13 12:51	1912-24-9	
gamma-BHC (Lindane)	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:51	58-89-9	
Butachlor	**<0.014**	ug/L	0.096	0.014	1	06/03/13 08:00	06/04/13 12:51	23184-66-9	
Chlordane (Technical)	**<0.045**	ug/L	0.19	0.045	1	06/03/13 08:00	06/04/13 12:51	57-74-9	
Dieldrin	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 12:51	60-57-1	
Endrin	**<0.0019**	ug/L	0.0096	0.0019	1	06/03/13 08:00	06/04/13 12:51	72-20-8	
Heptachlor	**<0.0058**	ug/L	0.038	0.0058	1	06/03/13 08:00	06/04/13 12:51	76-44-8	
Heptachlor epoxide	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 12:51	1024-57-3	
Hexachlorobenzene	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 12:51	118-74-1	
Hexachlorocyclopentadiene	**<0.012**	ug/L	0.096	0.012	1	06/03/13 08:00	06/04/13 12:51	77-47-4	
Methoxychlor	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 12:51	72-43-5	
Metolachlor	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 12:51	51218-45-2	
Metribuzin	**<0.034**	ug/L	0.096	0.034	1	06/03/13 08:00	06/04/13 12:51	21087-64-9	L3
PCB, Total	**<0.077**	ug/L	0.096	0.077	1	06/03/13 08:00	06/04/13 12:51	1336-36-3	
Propachlor	**<0.0096**	ug/L	0.096	0.0096	1	06/03/13 08:00	06/04/13 12:51	1918-16-7	
Simazine	**<0.042**	ug/L	0.067	0.042	1	06/03/13 08:00	06/04/13 12:51	122-34-9	L3
Toxaphene	**<0.59**	ug/L	0.96	0.59	1	06/03/13 08:00	06/04/13 12:51	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	131	%	70-130		1	06/03/13 08:00	06/04/13 12:51	2051-24-3	S3
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
2,4-D	**<0.081**	ug/L	0.10	0.081	1	06/05/13 09:00	06/07/13 05:41	94-75-7	
Dalapon	**<0.89**	ug/L	1.0	0.89	1	06/05/13 09:00	06/07/13 05:41	75-99-0	
Dicamba	**<0.067**	ug/L	0.10	0.067	1	06/05/13 09:00	06/07/13 05:41	1918-00-9	
Dinoseb	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 05:41	88-85-7	
Pentachlorophenol	**<0.030**	ug/L	0.040	0.030	1	06/05/13 09:00	06/07/13 05:41	87-86-5	
Picloram	**0.22**	ug/L	0.10	0.094	1	06/05/13 09:00	06/07/13 05:41	1918-02-1	C0
2,4,5-TP (Silvex)	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 05:41	93-72-1	
Surrogates									
2,4-DCAA (S)	70	%	70-130		1	06/05/13 09:00	06/07/13 05:41	19719-28-9	
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Aldicarb	**<0.64**	ug/L	2.0	0.64	1		06/04/13 15:33	116-06-3	L3
Aldicarb sulfone	**<0.35**	ug/L	2.0	0.35	1		06/04/13 15:33	1646-88-4	L3
Aldicarb sulfoxide	**<0.30**	ug/L	2.0	0.30	1		06/04/13 15:33	1646-87-3	
Carbofuran	**<0.32**	ug/L	2.0	0.32	1		06/04/13 15:33	1563-66-2	
3-Hydroxycarbofuran	**<0.26**	ug/L	2.0	0.26	1		06/04/13 15:33	16655-82-6	
Methomyl	**<0.57**	ug/L	2.0	0.57	1		06/04/13 15:33	16752-77-5	
Oxamyl	**<0.41**	ug/L	2.0	0.41	1		06/04/13 15:33	23135-22-0	
Carbaryl	**<0.20**	ug/L	2.0	0.20	1		06/04/13 15:33	63-25-2	L3

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 3 | **Lab ID: 3594230003** | Collected: 05/22/13 12:20 | Received: 05/23/13 12:00 | Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Surrogates									
Propoxur (S)	119	%	80-120		1		06/04/13 15:33	114-26-1	
547 HPLC Glyphosate	Analytical Method: EPA 547								
Glyphosate	**<2.1**	ug/L	6.0	2.1	1		05/28/13 15:38		
549.2 HPLC Paraquat Diquat	Analytical Method: EPA 549.2 Preparation Method: EPA 549.2								
Diquat	**<0.15**	ug/L	0.40	0.15	1	05/24/13 14:45	05/30/13 13:12	85-00-7	
525.2 Base Neutral Extractable	Analytical Method: EPA 525.2 Preparation Method: EPA 525.2								
Aldrin	**<0.035**	ug/L	0.096	0.035	1	06/03/13 08:00	06/04/13 14:25	309-00-2	
Benzo(a)pyrene	**<0.018**	ug/L	0.096	0.018	1	06/03/13 08:00	06/04/13 14:25	50-32-8	L3
bis(2-Ethylhexyl)adipate	**<0.37**	ug/L	1.5	0.37	1	06/03/13 08:00	06/04/13 14:25	103-23-1	
bis(2-Ethylhexyl)phthalate	**<0.48**	ug/L	1.9	0.48	1	06/03/13 08:00	06/04/13 14:25	117-81-7	
Surrogates									
1,3-Dimethyl-2-nitrobenzene(S)	88	%	70-130		1	06/03/13 08:00	06/04/13 14:25	81209	
Perylene-d12 (S)	102	%	70-130		1	06/03/13 08:00	06/04/13 14:25	1520963	
Triphenylphosphate (S)	100	%	70-130		1	06/03/13 08:00	06/04/13 14:25	115-86-6	
548.1 GCS Endothall	Analytical Method: EPA 548.1 Preparation Method: EPA 548.1								
Endothall	**<2.7**	ug/L	9.0	2.7	1	05/28/13 13:00	05/30/13 11:05		

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 5 **Lab ID: 3594230004** Collected: 05/22/13 11:00 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
1,2-Dibromo-3-chloropropane	**<0.0051**	ug/L	0.021	0.0051	1	05/29/13 14:27	05/29/13 19:45	96-12-8	
1,2-Dibromoethane (EDB)	**<0.0065**	ug/L	0.010	0.0065	1	05/29/13 14:27	05/29/13 19:45	106-93-4	
508.1 GCS Pesticides	Analytical Method: EPA 508.1 Preparation Method: EPA 508.1								
Alachlor	**<0.033**	ug/L	0.19	0.033	1	06/03/13 08:00	06/04/13 13:11	15972-60-8	L3
Atrazine	**<0.020**	ug/L	0.096	0.020	1	06/03/13 08:00	06/04/13 13:11	1912-24-9	
gamma-BHC (Lindane)	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 13:11	58-89-9	
Butachlor	**<0.014**	ug/L	0.096	0.014	1	06/03/13 08:00	06/04/13 13:11	23184-66-9	
Chlordane (Technical)	**<0.045**	ug/L	0.19	0.045	1	06/03/13 08:00	06/04/13 13:11	57-74-9	
Dieldrin	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 13:11	60-57-1	
Endrin	**<0.0019**	ug/L	0.0096	0.0019	1	06/03/13 08:00	06/04/13 13:11	72-20-8	
Heptachlor	**<0.0058**	ug/L	0.038	0.0058	1	06/03/13 08:00	06/04/13 13:11	76-44-8	
Heptachlor epoxide	**<0.0029**	ug/L	0.019	0.0029	1	06/03/13 08:00	06/04/13 13:11	1024-57-3	
Hexachlorobenzene	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 13:11	118-74-1	
Hexachlorocyclopentadiene	**<0.012**	ug/L	0.096	0.012	1	06/03/13 08:00	06/04/13 13:11	77-47-4	
Methoxychlor	**<0.013**	ug/L	0.096	0.013	1	06/03/13 08:00	06/04/13 13:11	72-43-5	
Metolachlor	**<0.011**	ug/L	0.096	0.011	1	06/03/13 08:00	06/04/13 13:11	51218-45-2	
Metribuzin	**<0.034**	ug/L	0.096	0.034	1	06/03/13 08:00	06/04/13 13:11	21087-64-9	L3
PCB, Total	**<0.077**	ug/L	0.096	0.077	1	06/03/13 08:00	06/04/13 13:11	1336-36-3	
Propachlor	**<0.0096**	ug/L	0.096	0.0096	1	06/03/13 08:00	06/04/13 13:11	1918-16-7	
Simazine	**<0.042**	ug/L	0.067	0.042	1	06/03/13 08:00	06/04/13 13:11	122-34-9	L3
Toxaphene	**<0.58**	ug/L	0.96	0.58	1	06/03/13 08:00	06/04/13 13:11	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	126	%	70-130		1	06/03/13 08:00	06/04/13 13:11	2051-24-3	
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
2,4-D	**<0.081**	ug/L	0.10	0.081	1	06/05/13 09:00	06/07/13 06:13	94-75-7	
Dalapon	**<0.89**	ug/L	1.0	0.89	1	06/05/13 09:00	06/07/13 06:13	75-99-0	
Dicamba	**<0.067**	ug/L	0.10	0.067	1	06/05/13 09:00	06/07/13 06:13	1918-00-9	
Dinoseb	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 06:13	88-85-7	
Pentachlorophenol	**<0.030**	ug/L	0.040	0.030	1	06/05/13 09:00	06/07/13 06:13	87-86-5	
Picloram	**0.49**	ug/L	0.10	0.094	1	06/05/13 09:00	06/07/13 06:13	1918-02-1	C0
2,4,5-TP (Silvex)	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/07/13 06:13	93-72-1	
Surrogates									
2,4-DCAA (S)	76	%	70-130		1	06/05/13 09:00	06/07/13 06:13	19719-28-9	
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Aldicarb	**<0.64**	ug/L	2.0	0.64	1		06/04/13 16:18	116-06-3	L3
Aldicarb sulfone	**<0.35**	ug/L	2.0	0.35	1		06/04/13 16:18	1646-88-4	L3
Aldicarb sulfoxide	**<0.30**	ug/L	2.0	0.30	1		06/04/13 16:18	1646-87-3	
Carbofuran	**<0.32**	ug/L	2.0	0.32	1		06/04/13 16:18	1563-66-2	
3-Hydroxycarbofuran	**<0.26**	ug/L	2.0	0.26	1		06/04/13 16:18	16655-82-6	
Methomyl	**<0.57**	ug/L	2.0	0.57	1		06/04/13 16:18	16752-77-5	
Oxamyl	**<0.41**	ug/L	2.0	0.41	1		06/04/13 16:18	23135-22-0	
Carbaryl	**<0.20**	ug/L	2.0	0.20	1		06/04/13 16:18	63-25-2	L3

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ANALYTICAL RESULTS

Project: LBG, Inc.
Pace Project No.: 3594230

Sample: PW Well 5 **Lab ID: 3594230004** Collected: 05/22/13 11:00 Received: 05/23/13 12:00 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Surrogates									
Propoxur (S)	112	%	80-120		1		06/04/13 16:18	114-26-1	
547 HPLC Glyphosate	Analytical Method: EPA 547								
Glyphosate	**<2.1**	ug/L	6.0	2.1	1		05/28/13 15:52		
549.2 HPLC Paraquat Diquat	Analytical Method: EPA 549.2 Preparation Method: EPA 549.2								
Diquat	**<0.15**	ug/L	0.40	0.15	1	05/24/13 14:45	05/30/13 13:22	85-00-7	
525.2 Base Neutral Extractable	Analytical Method: EPA 525.2 Preparation Method: EPA 525.2								
Aldrin	**<0.035**	ug/L	0.096	0.035	1	06/03/13 08:00	06/04/13 14:44	309-00-2	
Benzo(a)pyrene	**<0.018**	ug/L	0.096	0.018	1	06/03/13 08:00	06/04/13 14:44	50-32-8	L3
bis(2-Ethylhexyl)adipate	**<0.37**	ug/L	1.5	0.37	1	06/03/13 08:00	06/04/13 14:44	103-23-1	
bis(2-Ethylhexyl)phthalate	**<0.48**	ug/L	1.9	0.48	1	06/03/13 08:00	06/04/13 14:44	117-81-7	
Surrogates									
1,3-Dimethyl-2-nitrobenzene(S)	84	%	70-130		1	06/03/13 08:00	06/04/13 14:44	81209	
Perylene-d12 (S)	104	%	70-130		1	06/03/13 08:00	06/04/13 14:44	1520963	
Triphenylphosphate (S)	99	%	70-130		1	06/03/13 08:00	06/04/13 14:44	115-86-6	
548.1 GCS Endothall	Analytical Method: EPA 548.1 Preparation Method: EPA 548.1								
Endothall	**<2.7**	ug/L	9.0	2.7	1	05/28/13 13:00	05/30/13 11:19		

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: GCSV/8686 Analysis Method: EPA 531.1
QC Batch Method: EPA 531.1 Analysis Description: 531.1 HPLC Carbamate
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 639026 Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
3-Hydroxycarbofuran	ug/L	<0.26	2.0	06/03/13 12:36	
Aldicarb	ug/L	<0.64	2.0	06/03/13 12:36	
Aldicarb sulfone	ug/L	<0.35	2.0	06/03/13 12:36	
Aldicarb sulfoxide	ug/L	<0.30	2.0	06/03/13 12:36	
Carbaryl	ug/L	<0.20	2.0	06/03/13 12:36	
Carbofuran	ug/L	<0.32	2.0	06/03/13 12:36	
Methomyl	ug/L	<0.57	2.0	06/03/13 12:36	
Oxamyl	ug/L	<0.41	2.0	06/03/13 12:36	
Propoxur (S)	%	125	80-120	06/03/13 12:36	S3

LABORATORY CONTROL SAMPLE: 639027

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
3-Hydroxycarbofuran	ug/L	10	10.7	107	80-120	
Aldicarb	ug/L	10	12.5	125	80-120	L0
Aldicarb sulfone	ug/L	10	12.5	125	80-120	L0
Aldicarb sulfoxide	ug/L	10	10.4	104	80-120	
Carbaryl	ug/L	10	12.3	123	80-120	L0
Carbofuran	ug/L	10	10.6	106	80-120	
Methomyl	ug/L	10	12.0	120	80-120	
Oxamyl	ug/L	10	11.7	117	80-120	
Propoxur (S)	%			115	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 639028 639029

Parameter	Units	3594272006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
3-Hydroxycarbofuran	ug/L	0.26U	10	10	11.5	10.2	115	102	80-120	11	20	
Aldicarb	ug/L	0.64U	10	10	9.8	8.1	98	81	80-120	19	20	
Aldicarb sulfone	ug/L	0.35U	10	10	13.3	11.2	133	112	80-120	17	20	M0
Aldicarb sulfoxide	ug/L	0.30U	10	10	10.1	9.0	101	90	80-120	11	20	
Carbaryl	ug/L	0.20U	10	10	13.1	13.7	131	137	80-120	5	20	M0
Carbofuran	ug/L	0.32U	10	10	11.9	9.8	119	98	80-120	19	20	
Methomyl	ug/L	0.57U	10	10	12.8	11.5	128	115	80-120	11	20	M1
Oxamyl	ug/L	0.41U	10	10	12.9	11.4	129	114	80-120	12	20	M1
Propoxur (S)	%						123	108	80-120			S0

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: GCSV/8659 — Analysis Method: EPA 547
QC Batch Method: EPA 547 — Analysis Description: 547 HPLC Glyphosate
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 636462 — Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Glyphosate	ug/L	<2.1	6.0	05/28/13 13:45	

LABORATORY CONTROL SAMPLE: 636463

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Glyphosate	ug/L	50	56.3	113	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 636464 636465

Parameter	Units	3594230001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Glyphosate	ug/L	<2.1	50	50	54.5	56.7	109	113	70-130	4	30	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 636466 636467

Parameter	Units	3594056001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Glyphosate	ug/L	ND	50	50	70.2	52.6	140	105	70-130	29	30	M1

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12933 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: 504 EDB DBCP
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 638817 Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	<0.0049	0.020	05/29/13 18:15	
1,2-Dibromoethane (EDB)	ug/L	<0.0062	0.010	05/29/13 18:15	

LABORATORY CONTROL SAMPLE & LCSD: 638818 638819

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	.25	0.22	0.23	89	94	70-130	5	40	
1,2-Dibromoethane (EDB)	ug/L	.25	0.26	0.28	104	110	70-130	6	40	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 639110 639111

Parameter	Units	3594388001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromo-3-chloropropane	ug/L	ND	.44	.44	0.41	0.43	93	99	65-135	7	40	
1,2-Dibromoethane (EDB)	ug/L	ND	.44	.44	0.53	0.55	121	125	65-135	3	40	

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12968 — Analysis Method: EPA 508.1
QC Batch Method: EPA 508.1 — Analysis Description: 508 GCS Pesticide
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 640796 — Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alachlor	ug/L	<0.034	0.20	06/04/13 08:50	
Atrazine	ug/L	<0.021	0.10	06/04/13 08:50	
Butachlor	ug/L	<0.015	0.10	06/04/13 08:50	
Chlordane (Technical)	ug/L	<0.047	0.20	06/04/13 08:50	
Dieldrin	ug/L	<0.014	0.10	06/04/13 08:50	
Endrin	ug/L	<0.0020	0.010	06/04/13 08:50	
gamma-BHC (Lindane)	ug/L	<0.0030	0.020	06/04/13 08:50	
Heptachlor	ug/L	<0.0060	0.040	06/04/13 08:50	
Heptachlor epoxide	ug/L	<0.0030	0.020	06/04/13 08:50	
Hexachlorobenzene	ug/L	<0.011	0.10	06/04/13 08:50	
Hexachlorocyclopentadiene	ug/L	<0.012	0.10	06/04/13 08:50	
Methoxychlor	ug/L	<0.014	0.10	06/04/13 08:50	
Metolachlor	ug/L	<0.011	0.10	06/04/13 08:50	
Metribuzin	ug/L	<0.035	0.10	06/04/13 08:50	
PCB, Total	ug/L	<0.080	0.10	06/04/13 08:50	
Propachlor	ug/L	<0.010	0.10	06/04/13 08:50	
Simazine	ug/L	<0.044	0.070	06/04/13 08:50	
Toxaphene	ug/L	<0.61	1.0	06/04/13 08:50	
Decachlorobiphenyl (S)	%	137	70-130	06/04/13 08:50	S3

LABORATORY CONTROL SAMPLE: 640797

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alachlor	ug/L	1	1.4	140	70-130	L0
Atrazine	ug/L	1.2	1.5	117	70-130	
Butachlor	ug/L	.5	0.56	112	70-130	
Dieldrin	ug/L	.5	0.57	114	70-130	
Endrin	ug/L	.05	0.059	117	70-130	
gamma-BHC (Lindane)	ug/L	.1	0.12	115	70-130	
Heptachlor	ug/L	.2	0.21	106	70-130	
Heptachlor epoxide	ug/L	.1	0.11	107	70-130	
Hexachlorobenzene	ug/L	.5	0.43	85	70-130	
Hexachlorocyclopentadiene	ug/L	.5	0.46	92	70-130	
Methoxychlor	ug/L	.5	0.52	104	70-130	
Metolachlor	ug/L	.5	0.61	122	70-130	
Metribuzin	ug/L	.5	0.80	160	70-130	L0
Propachlor	ug/L	.5	0.57	114	70-130	
Simazine	ug/L	.88	2.2	250	70-130	L0
Decachlorobiphenyl (S)	%			106	70-130	

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641049 641050

Parameter	Units	3593804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alachlor	ug/L	0.033U	2	2	2.2	2.2	110	108	70-130	2	40	
Atrazine	ug/L	0.020U	2.5	2.5	3.0	2.8	120	111	70-130	7	40	
Butachlor	ug/L	0.014U	1	1	1.1	1.1	109	112	70-130	3	40	
Dieldrin	ug/L	0.013U	1	1	1.1	1.1	113	109	70-130	3	40	
Endrin	ug/L	0.0019 U	.1	.1	0.11	0.11	115	106	70-130	7	40	
gamma-BHC (Lindane)	ug/L	0.0029 U	.2	.2	0.22	0.23	112	114	70-130	2	40	
Heptachlor	ug/L	0.0058 U	.4	.4	0.45	0.43	113	107	70-130	5	40	
Heptachlor epoxide	ug/L	0.0029 U	.2	.2	0.19	0.19	95	95	70-130	.5	40	
Hexachlorobenzene	ug/L	0.011U	1	1	0.90	0.89	90	89	70-130	1	40	
Hexachlorocyclopentadiene	ug/L	0.012U	1	1	0.63	0.63	63	63	70-130	1	40	M1
Methoxychlor	ug/L	0.013U	1	1	1.1	1.1	114	107	70-130	6	40	
Metolachlor	ug/L	0.011U	1	1	0.92	1.0	92	100	70-130	8	40	
Metribuzin	ug/L	0.034U	1	1	1.5	1.6	153	157	70-130	2	40	M0
Propachlor	ug/L	0.0096 U	1	1	0.98	1.0	98	103	70-130	5	40	
Simazine	ug/L	0.042U	1.8	1.8	2.5	2.9	143	167	70-130	15	40	M0
Decachlorobiphenyl (S)	%						128	114	70-130		40	

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12955 | Analysis Method: EPA 515.3
QC Batch Method: EPA 515.3 | Analysis Description: 5153 GCS Herbicides
Associated Lab Samples: 3594230001

METHOD BLANK: 640209 | Matrix: Water
Associated Lab Samples: 3594230001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-TP (Silvex)	ug/L	<0.16	0.20	06/02/13 00:41	
2,4-D	ug/L	<0.081	0.10	06/02/13 00:41	
Dalapon	ug/L	<0.89	1.0	06/02/13 00:41	
Dicamba	ug/L	<0.067	0.10	06/02/13 00:41	
Dinoseb	ug/L	<0.16	0.20	06/02/13 00:41	
Pentachlorophenol	ug/L	<0.030	0.040	06/02/13 00:41	
Picloram	ug/L	<0.094	0.10	06/02/13 00:41	
2,4-DCAA (S)	%	99	70-130	06/02/13 00:41	

LABORATORY CONTROL SAMPLE: 640210

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	ug/L	1	0.89	89	70-130	
2,4-D	ug/L	.5	0.48	96	70-130	
Dalapon	ug/L	5	4.6	91	70-130	
Dicamba	ug/L	.5	0.54	109	70-130	
Dinoseb	ug/L	1	0.90	90	70-130	
Pentachlorophenol	ug/L	.2	0.18	90	70-130	
Picloram	ug/L	.5	0.51	101	70-130	
2,4-DCAA (S)	%			93	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 640211 640212

Parameter	Units	3594054001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	ND	1	1	0.88	0.90	88	90	70-130	2	40	
2,4-D	ug/L	ND	.5	.5	0.47	0.48	93	96	70-130	3	40	
Dalapon	ug/L	ND	5	5	4.3	4.5	86	89	70-130	4	40	
Dicamba	ug/L	ND	.5	.5	0.47	0.46	95	91	70-130	4	40	
Dinoseb	ug/L	ND	1	1	0.93	0.89	93	89	70-130	5	40	
Pentachlorophenol	ug/L	ND	.2	.2	0.17	0.18	84	90	70-130	7	40	
Picloram	ug/L	ND	.5	.5	0.40	0.42	81	83	70-130	3	40	
2,4-DCAA (S)	%						89	92	70-130			

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 640213 640214

Parameter	Units	4078240001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	<0.16	1	1	0.33	0.32	33	32	70-130	5	40	
2,4-D	ug/L	<0.081	.5	.5	<0.081	<0.081	14	14	70-130		40	M1
Dalapon	ug/L	<0.89	5	5	2.5	2.5	50	49	70-130	2	40	M1
Dicamba	ug/L	<0.067	.5	.5	0.25	0.13	50	26	70-130	65	40	M1
Dinoseb	ug/L	<0.16	1	1	<0.16	<0.16	2	2	70-130		40	M1
Pentachlorophenol	ug/L	<0.030	.2	.2	0.050	0.048	25	24	70-130	6	40	
Picloram	ug/L	<0.094	.5	.5	<0.094	0.097J	18	19	70-130		40	M1
2,4-DCAA (S)	%						6	6	70-130			S0

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/13013 Analysis Method: EPA 515.3
QC Batch Method: EPA 515.3 Analysis Description: 5153 GCS Herbicides
Associated Lab Samples: 3594230002, 3594230003, 3594230004

METHOD BLANK: 642864 Matrix: Water
Associated Lab Samples: 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-TP (Silvex)	ug/L	<0.16	0.20	06/07/13 04:06	
2,4-D	ug/L	<0.081	0.10	06/07/13 04:06	
Dalapon	ug/L	<0.89	1.0	06/07/13 04:06	
Dicamba	ug/L	<0.067	0.10	06/07/13 04:06	
Dinoseb	ug/L	<0.16	0.20	06/07/13 04:06	
Pentachlorophenol	ug/L	<0.030	0.040	06/07/13 04:06	
Picloram	ug/L	<0.094	0.10	06/07/13 04:06	
2,4-DCAA (S)	%	85	70-130	06/07/13 04:06	

LABORATORY CONTROL SAMPLE: 642865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	ug/L	1	0.89	89	70-130	
2,4-D	ug/L	.5	0.41	83	70-130	
Dalapon	ug/L	5	4.4	87	70-130	
Dicamba	ug/L	.5	0.52	103	70-130	
Dinoseb	ug/L	1	0.85	85	70-130	
Pentachlorophenol	ug/L	.2	0.17	87	70-130	
Picloram	ug/L	.5	0.36	72	70-130	
2,4-DCAA (S)	%			84	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 642866 642867

Parameter	Units	3594698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	ND	1	1	1.0	1.0	104	103	70-130	.4	40	
2,4-D	ug/L	ND	.5	.5	0.57	0.57	115	114	70-130	.5	40	
Dalapon	ug/L	ND	5	5	5.4	5.5	109	110	70-130	1	40	
Dicamba	ug/L	ND	.5	.5	0.57	0.55	113	111	70-130	2	40	
Dinoseb	ug/L	ND	1	1	1.1	1.1	106	105	70-130	1	40	
Pentachlorophenol	ug/L	ND	.2	.2	0.20	0.20	99	100	70-130	2	40	
Picloram	ug/L	ND	.5	.5	0.48	0.54	97	107	70-130	10	40	
2,4-DCAA (S)	%						97	99	70-130			

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 643340 643341

Parameter	Units	3595368001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	0.16U	1	1	0.89	0.91	89	91	70-130	3	40	
2,4-D	ug/L	0.081U	.5	.5	0.59	0.55	118	109	70-130	8	40	
Dalapon	ug/L	0.89U	5	5	7.5	7.4	151	148	70-130	2	40	M1
Dicamba	ug/L	0.067U	.5	.5	0.56	0.49	112	97	70-130	14	40	
Dinoseb	ug/L	0.16U	1	1	0.82	0.89	82	89	70-130	8	40	
Pentachlorophenol	ug/L	0.030U	.2	.2	0.15	0.11	76	54	70-130	34	40	M1
Picloram	ug/L	0.094U	.5	.5	0.61	0.57	121	114	70-130	6	40	
2,4-DCAA (S)	%						103	102	70-130			

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12969 — Analysis Method: EPA 525.2
QC Batch Method: EPA 525.2 — Analysis Description: 525.2 Base Neutral Extractables
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 640808 — Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aldrin	ug/L	<0.036	0.10	06/04/13 11:30	
Benzo(a)pyrene	ug/L	<0.019	0.10	06/04/13 11:30	
bis(2-Ethylhexyl)adipate	ug/L	<0.38	1.6	06/04/13 11:30	
bis(2-Ethylhexyl)phthalate	ug/L	<0.50	2.0	06/04/13 11:30	
1,3-Dimethyl-2-nitrobenzene(S)	%	87	70-130	06/04/13 11:30	
Perylene-d12 (S)	%	106	70-130	06/04/13 11:30	
Triphenylphosphate (S)	%	100	70-130	06/04/13 11:30	

LABORATORY CONTROL SAMPLE: 640809

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aldrin	ug/L	.4	0.44	109	70-130	
Benzo(a)pyrene	ug/L	.4	0.53	132	70-130	L0
bis(2-Ethylhexyl)adipate	ug/L	6.4	7.2	112	70-130	
bis(2-Ethylhexyl)phthalate	ug/L	8	9.8	123	70-130	
1,3-Dimethyl-2-nitrobenzene(S)	%			83	70-130	
Perylene-d12 (S)	%			107	70-130	
Triphenylphosphate (S)	%			101	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641065 — 641066

Parameter	Units	3593804001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aldrin	ug/L	0.035U	.8	.8	0.94	1.0	117	125	70-130	6	40	
Benzo(a)pyrene	ug/L	0.018U	.8	.8	0.57	0.62	71	77	70-130	8	40	
bis(2-Ethylhexyl)adipate	ug/L	0.37U	12.8	12.8	14.2	14.3	111	111	70-130	.3	40	
bis(2-Ethylhexyl)phthalate	ug/L	0.48U	16	16	19.5	19.0	122	119	70-130	3	40	
1,3-Dimethyl-2-nitrobenzene(S)	%						83	85	70-130			
Perylene-d12 (S)	%						98	102	70-130			
Triphenylphosphate (S)	%						100	101	70-130			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12914 Analysis Method: EPA 548.1
QC Batch Method: EPA 548.1 Analysis Description: 548 GCS Endothall
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 637959 Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Endothall	ug/L	<2.7	9.0	05/30/13 09:08	

LABORATORY CONTROL SAMPLE: 637960

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endothall	ug/L	50	41.6	83	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 637961 637962

Parameter	Units	4078240001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Endothall	ug/L	<2.7	50	50	9.9	9.8	20	20	80-120	.6	40	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 637963 637964

Parameter	Units	3594173001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Endothall	ug/L	ND	50	50	40.4	52.3	81	105	80-120	26	40	

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QUALITY CONTROL DATA

Project: LBG, Inc.
Pace Project No.: 3594230

QC Batch: OEXT/12887 Analysis Method: EPA 549.2
QC Batch Method: EPA 549.2 Analysis Description: 549 HPLC Paraquat Diquat
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

METHOD BLANK: 636245 Matrix: Water
Associated Lab Samples: 3594230001, 3594230002, 3594230003, 3594230004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diquat	ug/L	<0.15	0.40	05/30/13 10:06	

LABORATORY CONTROL SAMPLE: 636246

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diquat	ug/L	2	2.0	98	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 636247 636248

Parameter	Units	3593720001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diquat	ug/L	ND	2	2	1.8	1.8	91	88	70-130	4	40	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 636249 636250

Parameter	Units	3594056001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diquat	ug/L	ND	2	2	1.8	1.8	90	90	70-130	0	40	

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QUALIFIERS

Project: LBG, Inc.
Pace Project No.: 3594230

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

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TNI - The NELAC Institute.

LABORATORIES

PASI-O	Pace Analytical Services - Ormond Beach

ANALYTE QUALIFIERS

C0	Result confirmed by second analysis.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
S0	Surrogate recovery outside laboratory control limits.
S3	Surrogate recovery exceeded laboratory control limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: LBG, Inc.
Pace Project No.: 3594230

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3594230001	**PW Well 1**	EPA 504.1	OEXT/12933	EPA 504.1	GCSV/8692
3594230002	**PW Well 2B**	EPA 504.1	OEXT/12933	EPA 504.1	GCSV/8692
3594230003	**PW Well 3**	EPA 504.1	OEXT/12933	EPA 504.1	GCSV/8692
3594230004	**PW Well 5**	EPA 504.1	OEXT/12933	EPA 504.1	GCSV/8692
3594230001	**PW Well 1**	EPA 508.1	OEXT/12968	EPA 508.1	GCSV/8723
3594230002	**PW Well 2B**	EPA 508.1	OEXT/12968	EPA 508.1	GCSV/8723
3594230003	**PW Well 3**	EPA 508.1	OEXT/12968	EPA 508.1	GCSV/8723
3594230004	**PW Well 5**	EPA 508.1	OEXT/12968	EPA 508.1	GCSV/8723
3594230001	**PW Well 1**	EPA 515.3	OEXT/12955	EPA 515.3	GCSV/8714
3594230002	**PW Well 2B**	EPA 515.3	OEXT/13013	EPA 515.3	GCSV/8744
3594230003	**PW Well 3**	EPA 515.3	OEXT/13013	EPA 515.3	GCSV/8744
3594230004	**PW Well 5**	EPA 515.3	OEXT/13013	EPA 515.3	GCSV/8744
3594230001	**PW Well 1**	EPA 531.1	GCSV/8686		
3594230002	**PW Well 2B**	EPA 531.1	GCSV/8686		
3594230003	**PW Well 3**	EPA 531.1	GCSV/8686		
3594230004	**PW Well 5**	EPA 531.1	GCSV/8686		
3594230001	**PW Well 1**	EPA 547	GCSV/8659		
3594230002	**PW Well 2B**	EPA 547	GCSV/8659		
3594230003	**PW Well 3**	EPA 547	GCSV/8659		
3594230004	**PW Well 5**	EPA 547	GCSV/8659		
3594230001	**PW Well 1**	EPA 549.2	OEXT/12887	EPA 549.2	GCSV/8706
3594230002	**PW Well 2B**	EPA 549.2	OEXT/12887	EPA 549.2	GCSV/8706
3594230003	**PW Well 3**	EPA 549.2	OEXT/12887	EPA 549.2	GCSV/8706
3594230004	**PW Well 5**	EPA 549.2	OEXT/12887	EPA 549.2	GCSV/8706
3594230001	**PW Well 1**	EPA 525.2	OEXT/12969	EPA 525.2	MSSV/4814
3594230002	**PW Well 2B**	EPA 525.2	OEXT/12969	EPA 525.2	MSSV/4814
3594230003	**PW Well 3**	EPA 525.2	OEXT/12969	EPA 525.2	MSSV/4814
3594230004	**PW Well 5**	EPA 525.2	OEXT/12969	EPA 525.2	MSSV/4814
3594230001	**PW Well 1**	EPA 548.1	OEXT/12914	EPA 548.1	MSSV/4793
3594230002	**PW Well 2B**	EPA 548.1	OEXT/12914	EPA 548.1	MSSV/4793
3594230003	**PW Well 3**	EPA 548.1	OEXT/12914	EPA 548.1	MSSV/4793
3594230004	**PW Well 5**	EPA 548.1	OEXT/12914	EPA 548.1	MSSV/4793

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

Chain of Custody Record

EnviroTest Laboratories Inc.

Client Information (Sub Contract Lab)

Client Contact:	Shipping/Receiving
Company:	Pace Analytical Ormond Beach
Address:	8 East Tower Circle, ,
City:	Ormond Beach
State, Zip:	FL, 32174
Phone:	111-222-3333(Tel)
Email:	
Project Name:	LBG, Inc.
Site:	
Sampler:	
Phone:	
Due Date Requested:	6/3/2013
TAT Requested (days):	
PO #:	
WO #:	
Project #:	42001269
SSOW#:	
Lab PM:	Bayer, Debra
E-Mail:	dbayer@envirotestlaboratories.com
Carrier Tracking No(s):	
COC No:	420-6466.1
Page:	Page 1 of 1
STL Job #:	420-66305-1

Analysis Requested

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ 515 Chlorinated Acids	SUBCONTRACT/ 504 EPA 504.1 EDB/DBCP	SUBCONTRACT/ 531.1 Carbamate Pesticides in DW	SUBCONTRACT/ 525.2 Semivolatile Organics	SUBCONTRACT/ 508	SUBCONTRACT/ 547	SUBCONTRACT/ 548	SUBCONTRACT/ 549	SUBCONTRACT/ Dioxin	Total Number of containers	Special Instructions/Note:
			Preservation Code:														
PW Well 1 (420-66305-1)	5/22/13	12:50		Water			X	X	X	X	X	X	X	X	X	14	
PW Well 2B (420-66305-2)	5/22/13	11:45		Water			X	X	X	X	X	X	X	X	X	14	
PW Well 3 (420-66305-3)	5/22/13	12:20		Water			X	X	X	X	X	X	X	X	X	14	
PW Well 5 (420-66305-4)	5/22/13	11:00		Water			X	X	X	X	X	X	X	X	X	14	

WO# 3594230
3594230

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☐ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For ______ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 5/22/13 1630	Company: ETL	Received by: [signature]	Date/Time: 5-23-13 1200	Company
Relinquished by:	Date/Time:	Company	Received by: 2.6 TIB	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: September 23, 2011
	Document No.: F-FL-C-007 rev. 04	Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number: ______

Client Name: Enviro Project # 3594230

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other ______

Tracking # 7998 2670 1002 Mstr#

Custody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other ______

Thermometer Used T1(2 Type of Ice: Wet Blue None

Cooler Temperature °C 3.1 (Visual) -0.5 (Correction Factor) 2.6 (Actual)

Date and Initials of person examining contents: 5/23/13 cb

(Temp should be above freezing to 6°C). If Below 0°C, then was sample frozen? ☐ Yes ☐ No

Receipt of samples satisfactory: ☐ Yes ☒ No

Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ #4 recd 4x531 vials, no 504 vials No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: ______ Date/Time: ______

Comments/ Resolution (use back for additional comments): poured from 548 bottle

Project Manager Review: ______ Date: ______

Finished Product Information Only

F.P. Sample ID: ______

Production Code: ______

Date/Time Opened: ______

Number of Unopened Bottles Remaining: ______

Extra Sample in Shed: Yes No

Size & Qty of Bottles Received

______ x 5 Gal
______ x 2.5 Gal
______ x 1 Gal
______ x 1 Liter
______ x 500 mL
______ x 250 mL
______ x Other: ______

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

PWS ID#	Well ID#	Utility Name	EAL Sample ID:
	PW Well 1 (420-66305-1)	EnviroTest Laboratories Inc.	42192

Date: 5/22/2013

EPA Relative Surface Water Risk Factors

Primary Particulates	#/100 gallon	Relative Frequency	Relative Risk Factor	Comments
Coccidia (confirmed)	0	NF	0	
Diatoms	0	NF	0	
Other Algae	0	NF	0	
Insects/larvae	0	NF	0	
Rotifers	0	NF	0	
Plant Debris (with chloro.)	0	NF	0	
		EPA Relative Risk = 0	Low Risk	

Secondary Particulates			
Nematodes	0	NF	
Crustaceans	0	NF	
Amoeba	0	NF	
Non-photo. flag. & ciliates	0	NF	
Photosynthetic flagellates	0	NF	
Other:	0	NF	

COMMENTS: No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan T. Boutros **DATE:** May 24, 2013
Dr. Susan Boutros President & Lab Director

Environmental Associates, Ltd.

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

PWS ID#	Well ID#	Utility Name	EAL Sample ID:
	PW Well 2B (420-66305-2)	EnviroTest Laboratories Inc.	42194

Date: 5/22/2013

EPA Relative Surface Water Risk Factors

Primary Particulates	#/100 gallon	Relative Frequency	Relative Risk Factor	Comments
Coccidia (confirmed)	0	NF	0	
Diatoms	0	NF	0	
Other Algae	0	NF	0	
Insects/larvae	0	NF	0	
Rotifers	0	NF	0	
Plant Debris (with chloro.)	0	NF	0	
		EPA Relative Risk = 0	Low Risk	

Secondary Particulates			
Nematodes	0	NF	
Crustaceans	0	NF	
Amoeba	0	NF	
Non-photo. flag. & ciliates	0	NF	
Photosynthetic flagellates	0	NF	
Other:	0	NF	

COMMENTS: No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan N. Boutros **DATE:** May 24, 2013
Dr. Susan Boutros President & Lab Director

Environmental Associates, Ltd.

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

PWS ID#	Well ID#	Utility Name	EAL Sample ID:
	PW Well 3 (420-66305-3)	EnviroTest Laboratories Inc.	42196

Date: 5/22/2013

EPA Relative Surface Water Risk Factors

Primary Particulates	#/100 gallon	Relative Frequency	Relative Risk Factor	Comments
Coccidia (confirmed)	0	NF	0	
Diatoms	0	NF	0	
Other Algae	0	NF	0	
Insects/larvae	0	NF	0	
Rotifers	0	NF	0	
Plant Debris (with chloro.)	0	NF	0	
		EPA Relative Risk = 0	Low Risk	

Secondary Particulates			
Nematodes	0	NF	
Crustaceans	0	NF	
Amoeba	0	NF	
Non-photo. flag. & ciliates	0	NF	
Photosynthetic flagellates	0	NF	
Other:	0	NF	

COMMENTS: No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan N. Boutros **DATE:** May 24, 2013
Dr. Susan Boutros President & Lab Director

Environmental Associates, Ltd.

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

PWS ID#	Well ID#	Utility Name	EAL Sample ID:
	PW Well 5 (420-66305-4)	EnviroTest Laboratories Inc.	42198

Date: 5/22/2013

EPA Relative Surface Water Risk Factors

Primary Particulates	#/100 gallon	Relative Frequency	Relative Risk Factor	Comments
Coccidia (confirmed)	0	NF	0	
Diatoms	0	NF	0	
Other Algae	0	NF	0	
Insects/larvae	0	NF	0	
Rotifers	0	NF	0	
Plant Debris (with chloro.)	0	NF	0	
		EPA Relative Risk = 0	Low Risk	

Secondary Particulates			
Nematodes	0	NF	
Crustaceans	0	NF	
Amoeba	0	NF	
Non-photo. flag. & ciliates	0	NF	
Photosynthetic flagellates	0	NF	
Other:	0	NF	

COMMENTS: No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan N. Boutros **DATE:** May 24, 2013
Dr. Susan Boutros President & Lab Director

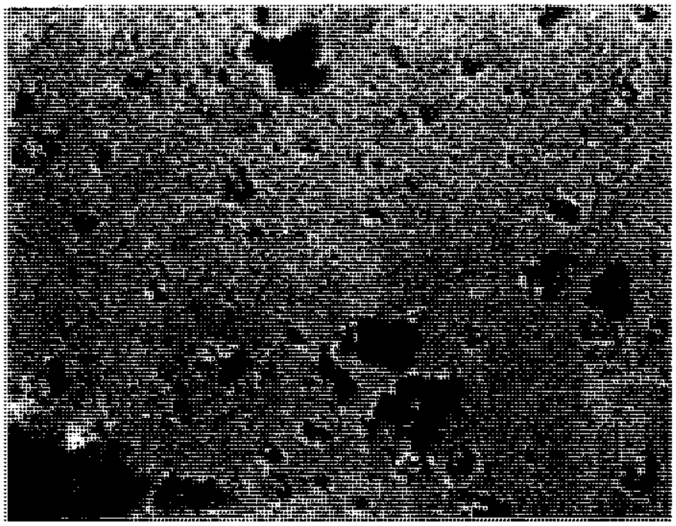
Environmental Associates, Ltd.

42192 EnviroTest Laboratories Inc. | PW Well 1 (420-66305-1)

CLIENT | SAMPLE SITE | May 30, 2013 13:07:28

42192A Typical Sediment 400x

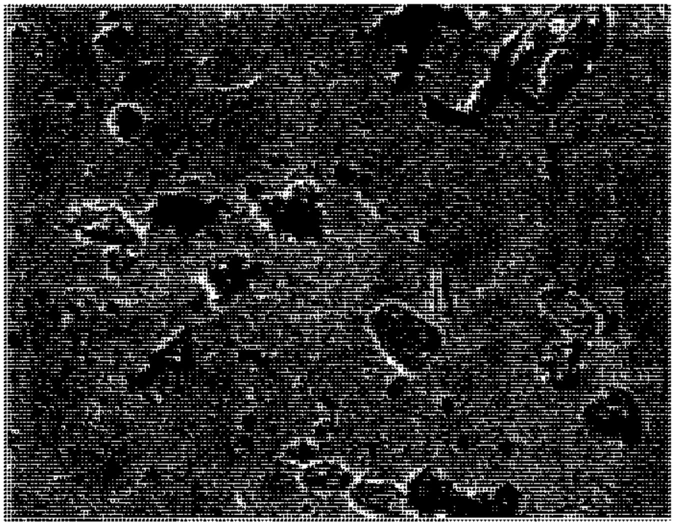
42194 EnviroTest Laboratories Inc. — CLIENT | PW Well 2B (420-66305-2) — SAMPLE SITE | May 30, 2013 13:07:28



42194A Typical Sediment 400x

42196 EnviroTest Laboratories Inc. PW Well 3 (420-66305-3)

CLIENT SAMPLE SITE May 30, 2013 13:07:28



42196A Typical Sediment 400x

42198 EnviroTest Laboratories Inc. PW Well 5 (420-66305-4)

CLIENT SAMPLE SITE May 30, 2013 13:07:44

42198A Typical Sediment 400x

Environmental Associates Ltd
24 Oak Brook Drive • Ithaca • NY • 14850-8717 • Phone (607) 272-8902 • Fax (607) 256-7092

Laboratory Results
for *Giardia* & *Cryptosporidium* Analysis

ACCREDITED IN ACCORDANCE WITH NELAC
EPA# NY01507
FL -E87851
PA-68-04514

Account No. AD-12730
EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

CONTACT
Ms. Debbie Bayer
1 (845) 562-0890 Fax

P.O. No.

Sample No. 42191	Sample Site	PW Well 1 (420-66305-1)	Client Identification	

SAMPLE DATA — **GRAB SAMPLE**

Water Type:	Ground Water	Sample Collector:	
Date Collected date/time:	May 22, 2013 12:50 pm	Amount Collected:	2.91 gal (11 L)
Date Received:	May 23, 2013	Turbidity:	data not submitted
Receipt Temperature:	2.5°C	pH:	data not submitted
Elution start date/time:	May 23, 2013 11:55 am	Filter Color:	N/A
Total volume of sediment:	<0.1 ml		
Sediment per unit volume:	<0.9 ml/100L		

Sample Notes
Sample condition was acceptable.

Method Method 1623 Envirochek HV filter

ANALYSIS TYPE **ENVIROCHEK HV G&C**

Method Remarks
Method 1623 employs a concentration step (centrifugation, Envirochek filter or Filta-Max filter), followed by immunomagnetic separation (IMS) and an immunofluorescent stain for Giardia and Cryptosporidium.
Positive and Negative Controls were stained and examined concurrently.

RESULTS
Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

	Analyte	Cysts Observed	Result per 100L
Giardia	Empty *Giardia* Cysts Detected	0	ND
	Giardia Cysts with Amorphous Structure	0	ND
	Giardia Cysts with One Internal Structure	0	ND
	Giardia Cysts with More than One Internal Structure	0	ND
	Total IFA *Giardia* Count per 100L	**0**	**ND**
	Analyte	**Oocysts Observed**	**Result per 100L**
Cryptosporidium	Empty *Cryptosporidium* Oocysts Detected	0	ND
	Cryptosporidium Oocysts with Amorphous Structure	0	ND
	Cryptosporidium Oocysts with Internal Structure	0	ND
	Total IFA *Cryptosporidium* Count per 100L	**0**	**ND**

Equivalent Volume Examined:	11 L	Detection Limit per 100L:	<9.09

Comments
All limitations of analytical methods, laboratory dilutions, and instruments apply.
If there are any questions about this report please contact the person certifying the report at the lab number.

Technician Jeff Runyan, Senior Analyst
Date Completed May 29, 2013

Analysis Certified By Jeff Runyan — Technical Director & QA Officer
Date Certified May 30, 2013

Report Reviewed By Suzie Runyan — Office Manager & Customer Relations
Reviewed By Date May 30, 2013

Environmental Associates Ltd
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Laboratory Results

for *Giardia & Cryptosporidium* Analysis

EPA# NY01507
FL -E87851
PA-68-04514

Account No. AD-12730

EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

CONTACT
Ms. Debbie Bayer
1 (845) 562-0890 Fax

P.O. No.

Sample No. 42193	Sample Site	PW Well 2B (420-66305-2)	Client Identification	

SAMPLE DATA

GRAB SAMPLE

Water Type:	Ground Water	Sample Collector:	
Date Collected date/time:	May 22, 2013 11:45 am	Amount Collected:	2.91 gal (11 L)
Date Received:	May 23, 2013	Turbidity:	data not submitted
Receipt Temperature:	2.5°C	pH:	data not submitted
Elution start date/time:	May 23, 2013 11:55 am	Filter Color:	N/A
Total volume of sediment:	<0.1 ml		
Sediment per unit volume:	<0.9 ml/100L		

Sample Notes

Sample condition was acceptable.

Method Method 1623 Envirochek HV filter

ANALYSIS TYPE **ENVIROCHEK HV G&C**

Method Remarks
Method 1623 employs a concentration step (centrifugation, Envirochek filter or Filta-Max filter), followed by immunomagnetic separation (IMS) and an immunofluorescent stain for Giardia and Cryptosporidium. Positive and Negative Controls were stained and examined concurrently.

RESULTS

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

	Analyte	Cysts Observed	Result per 100L
Giardia	Empty *Giardia* Cysts Detected	0	ND
	Giardia Cysts with Amorphous Structure	0	ND
	Giardia Cysts with One Internal Structure	0	ND
	Giardia Cysts with More than One Internal Structure	0	ND
	Total IFA *Giardia* Count per 100L	**0**	**ND**
	Analyte	**Oocysts Observed**	**Result per 100L**
Cryptosporidium	Empty *Cryptosporidium* Oocysts Detected	0	ND
	Cryptosporidium Oocysts with Amorphous Structure	0	ND
	Cryptosporidium Oocysts with Internal Structure	0	ND
	Total IFA *Cryptosporidium* Count per 100L	**0**	**ND**

Equivalent Volume Examined:	11 L	Detection Limit per 100L:	<9.09

Comments

All limitations of analytical methods, laboratory dilutions, and instruments apply.
If there are any questions about this report please contact the person certifying the report at the lab number.

Technician Jeff Runyan, Senior Analyst

Date Completed May 29, 2013

Analysis Certified By Jeff Runyan — Technical Director & QA Officer

Date Certified May 30, 2013

Report Reviewed By Suzie Runyan — Office Manager & Customer Relations

Reviewed By Date May 30, 2013

Environmental Associates Ltd

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Laboratory Results

for *Giardia & Cryptosporidium* Analysis

EPA# NY01507
FL -E87851
PA-68-04514

Account No. AD-12730

EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

CONTACT
Ms. Debbie Bayer
1 (845) 562-0890 Fax

P.O. No.

Sample No. 42195	Sample Site	PW Well 3 (420-66305-3)	Client Identification	

SAMPLE DATA

GRAB SAMPLE

Water Type:	Ground Water	Sample Collector:	
Date Collected date/time:	May 22, 2013 12:20 pm	Amount Collected:	2.64 gal (10 L)
Date Received:	May 23, 2013	Turbidity:	data not submitted
Receipt Temperature:	2.5°C	pH:	data not submitted
Elution start date/time:	May 23, 2013 11:55 am	Filter Color:	N/A
Total volume of sediment:	<0.1 ml		
Sediment per unit volume:	<1 ml/100L		

Sample Notes

Sample condition was acceptable.

Method Method 1623 Envirochek HV filter

ANALYSIS TYPE

ENVIROCHEK HV G&C

Method Remarks
Method 1623 employs a concentration step (centrifugation, Envirochek filter or Filta-Max filter), followed by immunomagnetic separation (IMS) and an immunofluorescent stain for Giardia and Cryptosporidium.
Positive and Negative Controls were stained and examined concurrently.

RESULTS

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

	Analyte	Cysts Observed	Result per 100L
Giardia	Empty *Giardia* Cysts Detected	0	ND
	Giardia Cysts with Amorphous Structure	0	ND
	Giardia Cysts with One Internal Structure	0	ND
	Giardia Cysts with More than One Internal Structure	0	ND
	Total IFA *Giardia* Count per 100L	**0**	**ND**
	Analyte	**Oocysts Observed**	**Result per 100L**
Cryptosporidium	Empty *Cryptosporidium* Oocysts Detected	0	ND
	Cryptosporidium Oocysts with Amorphous Structure	0	ND
	Cryptosporidium Oocysts with Internal Structure	0	ND
	Total IFA *Cryptosporidium* Count per 100L	**0**	**ND**

Equivalent Volume Examined:	10 L	Detection Limit per 100L:	<10.00

Comments

All limitations of analytical methods, laboratory dilutions, and instruments apply.
If there are any questions about this report please contact the person certifying the report at the lab number.

Technician Jeff Runyan, Senior Analyst

Date Completed May 29, 2013

Analysis Certified By Jeff Runyan — Technical Director & QA Officer

Date Certified May 30, 2013

Report Reviewed By Suzie Runyan — Office Manager & Customer Relations

Reviewed By Date May 30, 2013

EA Environmental Associates Ltd

24 Oak Brook Drive • Ithaca • NY • 14850-8717 • Phone (607) 272-8902 • Fax (607) 256-7092

Laboratory Results

for *Giardia* & *Cryptosporidium* Analysis

ACCREDITED IN ACCORDANCE WITH nelac

EPA# NY01507
FL -E87851
PA-68-04514

ACCOUNT NO. AD-12730

EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

CONTACT
Ms. Debbie Bayer
1 (845) 562-0890 FAX

P.O. No.

SAMPLE NO. 42197	SAMPLE SITE	PW WELL 5 (420-66305-4)	CLIENT IDENTIFICATION	

SAMPLE DATA

GRAB SAMPLE

WATER TYPE:	Ground Water	SAMPLE COLLECTOR:	
DATE COLLECTED DATE/TIME:	May 22, 2013 11:00 am	AMOUNT COLLECTED:	2.77 gal (10.5 L)
DATE RECEIVED:	May 23, 2013	TURBIDITY:	data not submitted
RECEIPT TEMPERATURE:	2.5°C	pH:	data not submitted
ELUTION START DATE/TIME:	May 23, 2013 11:55 am	FILTER COLOR:	N/A
TOTAL VOLUME OF SEDIMENT:	<0.1 ml		
SEDIMENT PER UNIT VOLUME:	<1 ml/100L		

SAMPLE NOTES

Sample condition was acceptable.

METHOD Method 1623 Envirochek HV filter

ANALYSIS TYPE **ENVIROCHEK HV G&C**

Method Remarks

Method 1623 employs a concentration step (centrifugation, Envirochek filter or Filta-Max filter), followed by immunomagnetic separation (IMS) and an immunofluorescent stain for Giardia and Cryptosporidium. Positive and Negative Controls were stained and examined concurrently.

RESULTS

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

	ANALYTE	Cysts Observed	Result per 100L
Giardia	Empty *Giardia* Cysts Detected	0	ND
	Giardia Cysts with Amorphous Structure	0	ND
	Giardia Cysts with One Internal Structure	0	ND
	Giardia Cysts with More than One Internal Structure	0	ND
	Total IFA *Giardia* Count per 100L	**0**	**ND**
	ANALYTE	**Oocysts Observed**	**Result per 100L**
Cryptosporidium	Empty *Cryptosporidium* Oocysts Detected	0	ND
	Cryptosporidium Oocysts with Amorphous Structure	0	ND
	Cryptosporidium Oocysts with Internal Structure	0	ND
	Total IFA *Cryptosporidium* Count per 100L	**0**	**ND**

EQUIVALENT VOLUME EXAMINED:	10.5 L	DETECTION LIMIT PER 100L:	<9.52

COMMENTS

All limitations of analytical methods, laboratory dilutions, and instruments apply.
If there are any questions about this report please contact the person certifying the report at the lab number.

TECHNICIAN Jeff Runyan, Senior Analyst

DATE COMPLETED May 29, 2013

ANALYSIS CERTIFIED BY Jeff Runyan — Technical Director & QA Officer

DATE CERTIFIED May 30, 2013

REPORT REVIEWED BY Suzie Runyan — Office Manager & Customer Relations

REVIEWED BY DATE May 30, 2013

Quality Control data for May 17, 2013

Method 1623
Cryptosporidium and *Giardia* in Water by Filtration/IMS/FA (EPA-815-R-05-002)

Materials

Waterborne™, Inc. - AccuSpike-IR Lot# 74 Expiration: 7/1/2013
Dynal Dynabeads GC-Combo Lot No. 1156400 Expiration: 2014-02
AquaGlo GC Direct Lot: 742581 Expiration: 11/30/2013

Positive QC Sample

% Sample Examined	Crypto. Spike	Crypto. Count	DAPI+	Crypto. % Recovery		% Sample Examined	Giardia Spike	Giardia Count	DAPI+	Giardia % Recovery
100	100	64	100%	64.0		100	100	52	100%	52.0

Negative QC Sample

% Sample Examined	Crypto. Spike	Crypto. Count	DAPI+	Crypto. % Recovery		% Sample Examined	Giardia Spike	Giardia Count	DAPI+	Giardia % Recovery
100	0	0	0	-----		100	0	0	0	-----

Note:
Method 1623 includes staining with DAPI (4,6-Diamidino-2-Phenylindole). DAPI stains nuclear material and assists in the identification of (oo)cysts. It is no longer considered an indicator of viability.

ENVIRONMENTAL ASSOCIATES LTD.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

Filter ID: 42192

Client: Debbie Bayer, EnviroTest Laboratories Inc., 315 Fullerton Ave., Newburgh NY 12550

Station/Body of water: PW Well 1 (420-66305-1)

RECEIPT OF FILTER:

Date Received: 5/23/2013 | # of filters: NA | Type: NA | Carrier: Federal Express

COLLECTION:

Collector:		Date & Time collected:	5/22/2013 12:50 pm
Temperature:	°F	Turbidity:	-----
Water Type:	Ground Water	Date & Time Processed:	5/23/2013 10:25 AM
		Date Analyzed:	5/23/2013

FILTER PROCESSING

Susan A. Boutros Dr. Susan Boutros President & Lab Director

Color of water around filter:	N/A	Total volume of sediment:	≤0.02 ml
Filter color:	N/A	Volume of sediment/100 gallons:	≤0.7 ml/100gal.
Color of sediment:	tan	IFA equivalent liter volume examined:	
# gallons filtered:	2.91	Phase equivalent gallon volume examined:	2.91

ANALYSIS OF PARTICULATES:

key = (EH) - extremely heavy [>20/field @ 100X] (H) - heavy [10-20/field @ 100X] (M) -moderate [4-9/field @ 100X] (R) - rare [<1-3/field @ 100X] (NF) - none found

PARTICULATE DEBRIS	Quantity	Description
Large part. 5 μm & larger	EH	fine silt & sand
Small part. up to 5 μm	EH	fine amorphous debris
Plant debris	NF	

PROTOZOANS	Quantity	Description
Other Coccidia	NF	
Other protozoans	NF	

OTHER ORGANISMS	Quantity	Description
Nematodes	NF	
Nematode eggs	NF	
Rotifers	NF	
Crustaceans	NF	
Crustacean eggs	NF	
Insects	NF	
Other	NF	

ALGAE	Quantity	Description
Green Algae	NF	
Diatoms	NF	
Blue-Green Algae	NF	
Flagellated Algae	NF	

COMMENTS:

No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan A. Boutros **DATE:** May 24, 2013

Dr. Susan Boutros President & Lab Director

ENVIRONMENTAL ASSOCIATES LTD.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

Filter ID: 42194

Client: Debbie Bayer
EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

Station/Body of water: PW Well 2B (420-66305-2)

RECEIPT OF FILTER:

Date Received: 5/23/2013 # of filters: NA Type: NA Carrier: Federal Express

COLLECTION:

Collector:		Date & Time collected:	5/22/2013 11:45 am
Temperature:	°F	Turbidity:	-----
Water Type:	Ground Water	Date & Time Processed:	5/23/2013 1:15 PM
		Date Analyzed:	5/23/2013

FILTER PROCESSING

Susan H. Boutros Dr. Susan Boutros President & Lab Director

Color of water around filter:	N/A	Total volume of sediment:	≤0.02 ml
Filter color:	N/A	Volume of sediment/100 gallons:	≤0.7 ml/100gal.
Color of sediment:	tan	IFA equivalent liter volume examined:	
# gallons filtered:	2.84	Phase equivalent gallon volume examined:	2.84

ANALYSIS OF PARTICULATES:

key = (EH) - extremely heavy [>20/field @ 100X] (H) - heavy [10-20/field @ 100X]
(M) -moderate [4-9/field @ 100X] (R) - rare [<1-3/field @ 100X] (NF) - none found

PARTICULATE DEBRIS	Quantity	Description
Large part. 5 μm & larger	EH	fine silt & sand
Small part. up to 5 μm	EH	fine amorphous debris
Plant debris	NF	

PROTOZOANS	Quantity	Description
Other Coccidia	NF	
Other protozoans	NF	

OTHER ORGANISMS		
Nematodes	NF	
Nematode eggs	NF	
Rotifers	NF	
Crustaceans	NF	
Crustacean eggs	NF	
Insects	NF	
Other	NF	

ALGAE		
Green Algae	NF	
Diatoms	NF	
Blue-Green Algae	NF	
Flagellated Algae	NF	

COMMENTS:

No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan H. Boutros **DATE:** May 24, 2013

Dr. Susan Boutros President & Lab Director

ENVIRONMENTAL ASSOCIATES LTD.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

Filter ID: 42196

Client: Debbie Bayer
EnviroTest Laboratories Inc.
315 Fullerton Ave.
Newburgh NY 12550

Station/Body of water: PW Well 3 (420-66305-3)

RECEIPT OF FILTER:

Date Received: 5/23/2013 # of filters: NA Type: NA Carrier: Federal Express

COLLECTION:

Collector:
Temperature: °F
Water Type: Ground Water

Date & Time collected: 5/22/2013 12:20 pm
Turbidity: -----
Date & Time Processed: 5/23/2013 1:50 PM
Date Analyzed: 5/23/2013

Susan T. Boutros Dr. Susan Boutros President & Lab Director

FILTER PROCESSING

Color of water around filter: N/A
Filter color: N/A
Color of sediment: tan
gallons filtered: 2.84

Total volume of sediment: ≤0.02 ml
Volume of sediment/100 gallons: ≤0.7 ml/100gal.
IFA equivalent liter volume examined:
Phase equivalent gallon volume examined: 2.84

ANALYSIS OF PARTICULATES:

key = (EH) - extremely heavy [>20/field @ 100X] (H) - heavy [10-20/field @ 100X] (M) -moderate [4-9/field @ 100X] (R) - rare [<1-3/field @ 100X] (NF) - none found

PARTICULATE DEBRIS	Quantity	Description
Large part. 5 μm & larger	EH	fine silt & sand
Small part. up to 5 μm	EH	fine amorphous debris
Plant debris	NF	

OTHER ORGANISMS	Quantity	Description
Nematodes	NF	
Nematode eggs	NF	
Rotifers	NF	
Crustaceans	NF	
Crustacean eggs	NF	
Insects	NF	
Other	NF	

PROTOZOANS	Quantity	Description
Other Coccidia	NF	
Other protozoans	NF	

ALGAE	Quantity	Description
Green Algae	NF	
Diatoms	NF	
Blue-Green Algae	NF	
Flagellated Algae	NF	

COMMENTS:

No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan T. Boutros **DATE:** May 24, 2013

Dr. Susan Boutros President & Lab Director

ENVIRONMENTAL ASSOCIATES LTD.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

Filter ID: 42198

Client: Debbie Bayer, EnviroTest Laboratories Inc., 315 Fullerton Ave., Newburgh NY 12550

Station/Body of water: PW Well 5 (420-66305-4)

RECEIPT OF FILTER:

Date Received: 5/23/2013 # of filters: NA Type: NA Carrier: Federal Express

COLLECTION:

Collector:
Temperature: °F
Water Type: Ground Water

Date & Time collected: 5/22/2013 11:00 am
Turbidity: ----
Date & Time Processed: 5/23/2013 2:10 PM
Date Analyzed: 5/23/2013

FILTER PROCESSING

Dr. Susan Boutros President & Lab Director

Color of water around filter: N/A
Filter color: N/A
Color of sediment: tan
gallons filtered: 2.91

Total volume of sediment: ≤0.02 ml
Volume of sediment/100 gallons: ≤0.7 ml/100gal.
IFA equivalent liter volume examined:
Phase equivalent gallon volume examined: 2.91

ANALYSIS OF PARTICULATES:

key = (EH) - extremely heavy [>20/field @ 100X] (H) - heavy [10-20/field @ 100X] (M) -moderate [4-9/field @ 100X] (R) - rare [<1-3/field @ 100X] (NF) - none found

PARTICULATE DEBRIS	Quantity	Description
Large part. 5 μm & larger	EH	fine silt & sand
Small part. up to 5 μm	EH	fine amorphous debris
Plant debris	NF	

OTHER ORGANISMS	Quantity	Description
Nematodes	NF	
Nematode eggs	NF	
Rotifers	NF	
Crustaceans	NF	
Crustacean eggs	NF	
Insects	NF	
Other	NF	

PROTOZOANS	Quantity	Description
Other Coccidia	NF	
Other protozoans	NF	

ALGAE	Quantity	Description
Green Algae	NF	
Diatoms	NF	
Blue-Green Algae	NF	
Flagellated Algae	NF	

COMMENTS:

No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan Boutros **DATE:** May 24, 2013

Dr. Susan Boutros President & Lab Director

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	May 29, 2013
HRI PROJECT	009-587
HRI SERIES NO	E397/13
DATE REC'D.	5/23/2013
CUST. P.O.#	420-66305-1

EnviroTest Laboratories, Inc. - Newburgh
Debra Bayer
315 Fullerton Avenue
Newburgh, NY 12550

REPORT OF ANALYSIS

SAMPLE NO. E397/13-1

SAMPLE IDENTIFICATION: 420-66305-1 - PW Well 1 - Project #42001269, LBG, Inc.
Sampled on 05/22/2013 @ 1250

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radon (+-Precision*), pCi/l (T)	530(+-30)	13	SM 7500-Rn B	5/23/2013 @ 1037	AN

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

By:
Robert Rostad
Director, Analytical Services

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	May 29, 2013
HRI PROJECT	009-587
HRI SERIES NO	E397/13
DATE REC'D.	5/23/2013
CUST. P.O.#	420-66305-1

EnviroTest Laboratories, Inc. - Newburgh
Debra Bayer
315 Fullerton Avenue
Newburgh, NY 12550

REPORT OF ANALYSIS

SAMPLE NO. E397/13-2

SAMPLE IDENTIFICATION: 420-66305-2 - PW Well 2B - Project #42001269, LBG, Inc.
Sampled on 05/22/2013 @ 1145

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radon (+-Precision*), pCi/l (T)	1050(+-40)	13	SM 7500-Rn B	5/23/2013 @ 1039	AN

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

By: [signature]
Robert Rostad
Director, Analytical Services

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

HAZEN

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	May 29, 2013
HRI PROJECT	009-587
HRI SERIES NO	E397/13
DATE REC'D.	5/23/2013
CUST. P.O.#	420-66305-1

EnviroTest Laboratories, Inc. - Newburgh
Debra Bayer
315 Fullerton Avenue
Newburgh, NY 12550

REPORT OF ANALYSIS

SAMPLE NO. E397/13-3

SAMPLE IDENTIFICATION: 420-66305-3 - PW Well 3 - Project #42001269, LBG, Inc.
Sampled on 05/22/2013 @ 1220

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radon (+-Precision*), pCi/l (T)	810(+-30)	13	SM 7500-Rn B	5/23/2013 @ 1041	AN

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

By:
Robert Rostad
Director, Analytical Services

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	May 29, 2013
HRI PROJECT	009-587
HRI SERIES NO	E397/13
DATE REC'D.	5/23/2013
CUST. P.O.#	420-66305-1

EnviroTest Laboratories, Inc. - Newburgh
Debra Bayer
315 Fullerton Avenue
Newburgh, NY 12550

REPORT OF ANALYSIS

SAMPLE NO. E397/13-4

SAMPLE IDENTIFICATION: 420-66305-4 - PW Well 5 - Project #42001269, LBG, Inc.
Sampled on 05/22/2013 @ 1100

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radon (+-Precision*), pCi/l (T)	910(+-30)	13	SM 7500-Rn B	5/23/2013 @ 1043	AN

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

By:
Robert Rostad
Director, Analytical Services

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

HAZEN RESEARCH, INC.
RADIOCHEMISTRY LABORATORY

Date: 5/23/13

Batch QC Evaluation Form

Analyte: Rn-222

Control Standard: ID: NBL 6A pCi/L: 2,000 (use ___ ml diluted)

Spike Solution: ID: ___ pCi/ml: ___ (use ___ ml)

Spike Recovery Calculation: Sample: ___

Calculation: ___ X 100 = ___ %

Batch QC Evaluation:

Parameter	Criteria	Pass	Fail	N/A
Control Std.	+/- 20 %	✓		
Spike Recovery	80 - 120 %	~~✓~~		✓
Blank	< or = 2 x MDL	✓		
Duplicate 1	95% confidence interval overlap	✓		
Duplicate 2 *	95% confidence interval overlap	✓		

* Required for batch size greater than 10 samples.

Conclusions:

✓ Batch Passes
___ Batch Fails
___ Batch Passes, with exceptions:

Reruns Required: ___

Narrative: ___

Batch Listing by Lab Control Number:

E397/13
E400/13
E408/13
E412/13

Evaluator: [signature]

05/28/2013
Date

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

Chain of Custody Record

EnviroTest Laboratories Inc.

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bayer, Debra	Carrier Tracking No(s):	COC No: 420-6467.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: dbayer@envirotestlaboratories.com		Page: Page 1 of 1
Company: Hazen Research Inc				STL Job #: 420-66305-1
Address: 4601 Indiana Street,	Due Date Requested: 6/5/2013			
City: Golden	TAT Requested (days):			
State, Zip: CO, 80403				
Phone:	PO #:			
Email:	WO #:			
Project Name: LBG, Inc.	Project #: 42001269			
Site:	SSOW#:			

Analysis Requested

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ Radon to Hazen	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PW Well 1 (420-66305-1)	5/22/13	12:50		Water			X	2	
PW Well 2B (420-66305-2)	5/22/13	11:45		Water			X	2	
PW Well 3 (420-66305-3)	5/22/13	12:20		Water			X	2	
PW Well 5 (420-66305-4)	5/22/13	11:00		Water			X	2	

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 5/22/13 1630	Company ETC	Received by: Diane Tipton	Date/Time: 5-23-13 0930	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Pace Analytical™

www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Bo Garcia
PASI Florida
8 East Tower Circle
Ormond Beach FL 32174

REPORT OF LABORATORY ANALYSIS FOR 2,3,7,8-TCDD

Report Summary:

This report contains results of four drinking water samples analyzed to determine 2,3,7,8-TCDD content. These samples were analyzed according to Method 1613 by High Resolution Gas Chromatography/High Resolution Mass Spectrometry.

Report Prepared Date:

June 7, 2013

Report Information:

Pace Project #: 10229935
Sample Receipt Date: 05/24/2013
Client Project #: 3594230 EnviroTest Lab
Client Sub PO #: N/A
State Cert #: E87605

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 Drinking Water Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Emily Hazelroth, your Pace Project Manager.

This report has been reviewed by:

June 07, 2013

Emily Hazelroth, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
emily.hazelroth@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Mississippi	MN00064
Alaska	MN00064	Montana	92
Arizona	AZ0014	Nebraska	
Arkansas	88-0680	Nevada	MN_00064_200
California	01155CA	New Jersey (NE	MN002
Colorado	MN00064	New Mexico	MN00064
Connecticut	PH-0256	New York (NEL	11647
EPA Region 5	WD-15J	North Carolina	27700
EPA Region 8	8TMS-Q	North Dakota	R-036
Florida (NELAP	E87605	Ohio	4150
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennesee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	03086	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q

REPORT OF LABORATORY ANALYSIS

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interference present

J = Estimated value

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = See Discussion

1128

10229935

Chain of Custody

Pace Analytical® www.pacelabs.com

Workorder: 3594230 **Workorder Name:** LBG, Inc. **Owner Received Date:** 5/23/2013 **Results Requested By:** 6/7/2013

Report To	Subcontract To
Bo Garcia Pace Analytical Services, Inc. 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668 Fax (386)672-5668	Pace Analytical Minnesota 1700 Elm Street SE Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Requested Analysis: 2,3,7,8 Dioxin by 1613

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers: Unpreserved	2,3,7,8 Dioxin by 1613	LAB USE ONLY
1	PW Well 1	PS	5/22/2013 12:50	3594230001	Drinking	2	X	001
2	PW Well 2B	PS	5/22/2013 11:45	3594230002	Drinking	2	X	002
3	PW Well 3	PS	5/22/2013 12:20	3594230003	Drinking	2	X	003
4	PW Well 5	PS	5/22/2013 11:00	3594230004	Drinking	2	X	004
5								

Transfers	Released By	Date/Time	Received By	Date/Time	Comments
1	Platt	5/23/13 15:30	[illegible] / PACE	5/24/13 0925	
2					
3					

Cooler Temperature on Receipt 0.4 °C **Custody Seal** Y or N **Received on Ice** Y or N **Samples Intact** Y or N

Please email all results in a NELAC-compliant Florida MDL PDF format to the PM listed above soon as possible.

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: **F-MN-L-213-rev.06**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace FL

Project #: **WO#: 10229935** 10229935

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 5419 9252 4239

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:

Temp Blank? ☑ Yes ☐ No

Thermom. Used: ☑ B88A912167504 ☐ 80512447 ☐ 72337080 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.5 **Cooler Temp Corrected (°C):** 0.4 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** -0.1 **Date and Initials of Person Examining Contents:** 5/24/13 LC

	Yes	No	N/A	Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☐ Yes	☑ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☑ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: KH **Date:** 29 May 2013

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical™

Pace AnalyticalServices, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Drinking Water Analysis Results
2,3,7,8-TCDD -- USEPA Method 1613B

Sample ID...........PW Well 1
Client.................. PASI Florida
Lab Sample ID..... 3594230001

Date Collected.....05/22/2013
Date Received......05/24/2013
Date Extracted.....06/03/2013

	Sample PW Well 1	Method Blank	Lab Spike	Lab Spike Dup
[2,3,7,8-TCDD]	**ND**	ND	--	--
RL	5.0 pg/L	5.0 pg/L	--	--
2,3,7,8-TCDD Recovery	--	--	115%	104%
Spike Recovery Limit	--	--	73-146%	73-146%
RPD			10.0%	
IS Recovery	**51%**	83%	92%	86%
IS Recovery Limits	31-137%	31-137%	25-141%	25-141%
CS Recovery	**89%**	93%	104%	89%
CS Recovery Limits	42-164%	42-164%	37-158%	37-158%
Filename	R130605A_18	R130606A_18	R130605A_12	R130605A_13
Analysis Date	06/05/2013	06/06/2013	06/05/2013	06/05/2013
Analysis Time	20:08	08:48	16:43	17:17
Analyst	ACE	ACE	ACE	ACE
Volume	1.019L	1.029L	0.993L	1.022L
Dilution	NA	NA	NA	NA
ICAL Date	04/23/2013	04/23/2013	04/23/2013	04/23/2013
CCAL Filename	R130605A_03	R130606A_01	R130605A_03	R130605A_03

! = Outside the Control Limits
ND = Not Detected
RL = Reporting Limit
Limits = Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD = Relative Percent Difference of Lab Spike Recoveries
IS = Internal Standard [2,3,7,8-TCDD-$^{13}C_{12}$]
CS = Cleanup Standard [2,3,7,8-TCDD-$^{37}Cl_4$]

Analyst: [signature]

Project No.............10229935

Pace Analytical™

Pace AnalyticalServices, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Drinking Water Analysis Results
2,3,7,8-TCDD -- USEPA Method 1613B

Sample ID...........PW Well 2B
Client................... PASI Florida
Lab Sample ID..... 3594230002

Date Collected.....05/22/2013
Date Received......05/24/2013
Date Extracted.....06/03/2013

	Sample PW Well 2B	**Method Blank**	**Lab Spike**	**Lab Spike Dup**
[2,3,7,8-TCDD]	**ND**	ND	--	--
RL	5.0 pg/L	5.0 pg/L	--	--
2,3,7,8-TCDD Recovery	--	--	115%	104%
Spike Recovery Limit	--	--	73-146%	73-146%
RPD			10.0%	
IS Recovery	**78%**	83%	92%	86%
IS Recovery Limits	31-137%	31-137%	25-141%	25-141%
CS Recovery	**82%**	93%	104%	89%
CS Recovery Limits	42-164%	42-164%	37-158%	37-158%
Filename	R130605A_19	R130606A_18	R130605A_12	R130605A_13
Analysis Date	06/05/2013	06/06/2013	06/05/2013	06/05/2013
Analysis Time	20:42	08:48	16:43	17:17
Analyst	ACE	ACE	ACE	ACE
Volume	1.035L	1.029L	0.993L	1.022L
Dilution	NA	NA	NA	NA
ICAL Date	04/23/2013	04/23/2013	04/23/2013	04/23/2013
CCAL Filename	R130605A_03	R130606A_01	R130605A_03	R130605A_03

! = Outside the Control Limits
ND = Not Detected
RL = Reporting Limit
Limits = Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD = Relative Percent Difference of Lab Spike Recoveries
IS = Internal Standard [2,3,7,8-TCDD-$^{13}C_{12}$]
CS = Cleanup Standard [2,3,7,8-TCDD-$^{37}Cl_4$]

Analyst: Amand Ellf

Project No.............10229935

Pace Analytical™

Pace AnalyticalServices, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Drinking Water Analysis Results
2,3,7,8-TCDD -- USEPA Method 1613B

Sample ID...........PW Well 3
Client.................. PASI Florida
Lab Sample ID..... 3594230003

Date Collected.....05/22/2013
Date Received......05/24/2013
Date Extracted.....06/03/2013

	Sample PW Well 3	**Method Blank**	**Lab Spike**	**Lab Spike Dup**
[2,3,7,8-TCDD]	**ND**	ND	--	--
RL	5.0 pg/L	5.0 pg/L	--	--
2,3,7,8-TCDD Recovery	--	--	115%	104%
Spike Recovery Limit	--	--	73-146%	73-146%
RPD			10.0%	
IS Recovery	**84%**	83%	92%	86%
IS Recovery Limits	31-137%	31-137%	25-141%	25-141%
CS Recovery	**90%**	93%	104%	89%
CS Recovery Limits	42-164%	42-164%	37-158%	37-158%
Filename	R130605A_20	R130606A_18	R130605A_12	R130605A_13
Analysis Date	06/05/2013	06/06/2013	06/05/2013	06/05/2013
Analysis Time	21:16	08:48	16:43	17:17
Analyst	ACE	ACE	ACE	ACE
Volume	1.019L	1.029L	0.993L	1.022L
Dilution	NA	NA	NA	NA
ICAL Date	04/23/2013	04/23/2013	04/23/2013	04/23/2013
CCAL Filename	R130605A_03	R130606A_01	R130605A_03	R130605A_03

! = Outside the Control Limits
ND = Not Detected
RL = Reporting Limit
Limits = Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD = Relative Percent Difference of Lab Spike Recoveries
IS = Internal Standard [2,3,7,8-TCDD-$^{13}C_{12}$]
CS = Cleanup Standard [2,3,7,8-TCDD-$^{37}Cl_4$]

Analyst: Amanda Ellefson

Project No.............10229935

Pace Analytical™

Pace AnalyticalServices, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Drinking Water Analysis Results
2,3,7,8-TCDD -- USEPA Method 1613B

Sample ID..........PW Well 5
Client.................. PASI Florida
Lab Sample ID..... 3594230004

Date Collected.....05/22/2013
Date Received......05/24/2013
Date Extracted.....06/03/2013

	Sample PW Well 5	Method Blank	Lab Spike	Lab Spike Dup
[2,3,7,8-TCDD]	**ND**	ND	--	--
RL	5.0 pg/L	5.0 pg/L	--	--
2,3,7,8-TCDD Recovery	--	--	115%	104%
Spike Recovery Limit	--	--	73-146%	73-146%
RPD			10.0%	
IS Recovery	**80%**	83%	92%	86%
IS Recovery Limits	31-137%	31-137%	25-141%	25-141%
CS Recovery	**91%**	93%	104%	89%
CS Recovery Limits	42-164%	42-164%	37-158%	37-158%
Filename	R130606A_05	R130606A_18	R130605A_12	R130605A_13
Analysis Date	06/06/2013	06/06/2013	06/05/2013	06/05/2013
Analysis Time	00:07	08:48	16:43	17:17
Analyst	ACE	ACE	ACE	ACE
Volume	1.005L	1.029L	0.993L	1.022L
Dilution	NA	NA	NA	NA
ICAL Date	04/23/2013	04/23/2013	04/23/2013	04/23/2013
CCAL Filename	R130606A_01	R130606A_01	R130605A_03	R130605A_03

! = Outside the Control Limits
ND = Not Detected
RL = Reporting Limit
Limits = Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD = Relative Percent Difference of Lab Spike Recoveries
IS = Internal Standard [2,3,7,8-TCDD-$^{13}C_{12}$]
CS = Cleanup Standard [2,3,7,8-TCDD-$^{37}Cl_4$]

Analyst: Amand Ellf

Project No.............10229935

EnviroTest
Laboratories Inc.

ANALYTICAL REPORT

Job Number: 420-66537-1

SDG Number: Brynwood

Job Description: LBG, Inc.

For:
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
06/28/2013

EnviroTest Laboratories, Inc. Certifications and Approvals: NELAP Accredited, NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554, EPA NY00049.

Job Narrative
420-J66537-1

Comments
No additional comments.

Receipt
All samples were received in good condition within temperature requirements.

GC/MS VOA
No analytical or quality issues were noted.

Metals
No analytical or quality issues were noted.

General Chemistry
Method SM 4500 H+ B: The holding time for pH is 15 minutes, the samples were received outside of the holding time.

No other analytical or quality issues were noted.

Biology
No analytical or quality issues were noted.

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66537

PAGE 1 of 1

PROJECT REFERENCE	PROJECT NO.	PROJECT LOCATION
Brynwood		
ENVIROTEST PROJECT MANAGER	**P.O NUMBER**	**TOWN**
Debra Bayer		
CLIENT (SITE) PM	**CLIENT PHONE**	**CLIENT FAX**
LBG, Inc.	203-929-8555	
CLIENT NAME		
Stacey Stieber		

CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484

COMPANY CONTRACTING THIS WORK (if applicable): 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

Matrix type: COMPOSITE (C) OR GRAB (G) *Indicate*; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) *Indicate*; SOLID OR SEMISOLID; OTHER *Specify*

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres	REMARKS
5-30-13	1242	Well 6A	2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
															Metals II (Sb,Be,Ni,Tl)
															Cn, F, Sulfate, 524.2 (POC,MTBE,
															Vinyl Chloride)
				2-40ml Amber Thio											SOCs (504,608,515,525,531,
				1-Liter Amber Plastic Sodium Thio/Sulfuric											547, 548, 549), Dioxin
				1-500 Amber Sodium Thio											Radon, Gross Alpha/Beta,
				2-Amber Liter Unpres.											Radium 226/228, Total Uranium
				Total Containers: 30											Additional Tests: Total coli
															thru Zinc
															MPA including Giardia & Crypto

	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
RELINQUISHED BY: (SIGNATURE)	LBG, Inc	5/30/13	1500				
SAMPLED BY: (SIGNATURE)	LBG, Inc.	5/30/13	1500				
RELINQUISHED BY: (SIGNATURE)							

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES / NO	Cooler Temp.:	LABORATORY REMARKS:
	5/30	1500		6.6	ICE ✓ pH____ CL2____ Reviewed by________

Environmental
ASSOCIATES LTD

ENVIRONMENTAL CONSULTANTS, ANALYSIS & RESEARCH

Quality Control data for May 24, 2013

Method 1623
Cryptosporidium and *Giardia* in Water by Filtration/IMS/FA (EPA-815-R-05-002)

Materials

Waterborne™, Inc. - AccuSpike-IR Lot# 74 Expiration: 7/1/2013
Dynal Dynabeads GC-Combo Lot No. 1156400 Expiration: 2014-02
AquaGlo GC Direct Lot: 742581 Expiration: 11/30/2013

Positive QC Sample

% Sample Examined	Crypto. Spike	Crypto. Count	DAPI+	Crypto. % Recovery		% Sample Examined	Giardia Spike	Giardia Count	DAPI+	Giardia % Recovery
100	100	71	100%	71.0		100	100	44	100%	44.0

Negative QC Sample

% Sample Examined	Crypto. Spike	Crypto. Count	DAPI+	Crypto. % Recovery		% Sample Examined	Giardia Spike	Giardia Count	DAPI+	Giardia % Recovery
100	0	0	0	-----		100	0	0	0	-----

Note:
Method 1623 includes staining with DAPI (4,6-Diamidino-2-Phenylindole). DAPI stains nuclear material and assists in the identification of (oo)cysts. It is no longer considered an indicator of viability.

Environmental Associates Ltd
24 Oak Brook Drive • Ithaca • NY • 14850-8717 • Phone (607) 272-8902 • Fax (607) 256-7092

Laboratory Results
for *Giardia* & *Cryptosporidium* Analysis

EPA# NY01507
FL -E87851
PA-68-04514

Account No.	**EnviroTest Laboratories Inc.**	**CONTACT**	
AD-12730	315 Fullerton Ave.	Ms. Debbie	Bayer
	Newburgh NY 12550	1 (845) 562-0890	Fax

P.O. No.

Sample No. 42207	Sample Site	Well 6A (420-66537-1)	Client Identification	

SAMPLE DATA — **GRAB SAMPLE**

Water Type:	Groundwater	**Sample Collector:**	
Date Collected date/time:	May 30, 2013 12:42 pm	**Amount Collected:**	2.64 gal (10 L)
Date Received:	May 31, 2013	**Turbidity:**	data not submitted
Receipt Temperature:	6.0°C	**pH:**	data not submitted
Elution start date/time:	May 31, 2013 11:12 am	**Filter Color:**	N/A .
Total volume of sediment:	<0.1 ml		
Sediment per unit volume:	<1 ml/100L		

Sample Notes

Sample condition was acceptable.

ANALYSIS TYPE **ENVIROCHEK HV G&C**

Method Method 1623 Envirochek HV filter

Method Remarks

RESULTS

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

	Analyte	Cysts Observed	Result per 100L
Giardia	Empty *Giardia* Cysts Detected	0	ND
	Giardia Cysts with Amorphous Structure	0	ND
	Giardia Cysts with One Internal Structure	0	ND
	Giardia Cysts with More than One Internal Structure	0	ND
	Total IFA *Giardia* Count per 100L	0	ND

	Analyte	Oocysts Observed	Result per 100L
Cryptosporidium	Empty *Cryptosporidium* Oocysts Detected	0	ND
	Cryptosporidium Oocysts with Amorphous Structure	0	ND
	Cryptosporidium Oocysts with Internal Structure	0	ND
	Total IFA *Cryptosporidium* Count per 100L	0	ND

Equivalent Volume Examined: 10 L **Detection Limit per 100L:** <10.00

Comments

All limitations of analytical methods, laboratory dilutions, and instruments apply.
If there are any questions about this report please contact the person certifying the report at the lab number.

Technician Jeff Runyan, Senior Analyst

Date Completed May 31, 2013

Analysis Certified By Jeff Runyan — Technical Director & QA Officer

Date Certified May 31, 2013

Report Reviewed By Suzie Runyan Suzie Runyan Office Manager & Customer Relations **Reviewed By Date** June 3, 2013

ENVIRONMENTAL ASSOCIATES LTD.
24 Oak Brook Drive, Ithaca, NY 14850
(607) 272-8902 Fax (607) 256-7092

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

Filter ID: 42208

Client: Debbie Bayer, EnviroTest Laboratories Inc., 315 Fullerton Ave., Newburgh NY 12550

Station/Body of water: Well 6A (420-66537-1)

RECEIPT OF FILTER:

Date Received: 5/31/2013 # of filters: NA Type: NA Carrier: Fed Ex Priority

COLLECTION:

Collector:
Temperature: °F
Water Type: Ground water

Date & Time collected: 5/30/2013 12:42 pm
Turbidity: ----
Date & Time Processed: 5/31/2013 12:40 PM
Date Analyzed: 6/12/2013
Susan N. Boutros Dr. Susan Boutros President & Lab Director

FILTER PROCESSING

Color of water around filter: N/A
Filter color: N/A
Color of sediment: tan
gallons filtered: 2.91

Total volume of sediment: ≤0.02 ml
Volume of sediment/100 gallons: ≤0.7 ml/100gal.
IFA equivalent liter volume examined: ------
Phase equivalent gallon volume examined: 2.91

ANALYSIS OF PARTICULATES:

key = (EH) - extremely heavy [>20/field @ 100X] (H) - heavy [10-20/field @ 100X] (M) -moderate [4-9/field @ 100X] (R) - rare [<1-3/field @ 100X] (NF) - none found

PARTICULATE DEBRIS	Quantity	Description
Large part. 5 μm & larger	R	fine silt & sand
Small part. up to 5 μm	R	fine amorphous debris
Plant debris	NF	

PROTOZOANS	Quantity	Description
Other Coccidia	NF	
Other protozoans	NF	

OTHER ORGANISMS	Quantity	Description
Nematodes	NF	
Nematode eggs	NF	
Rotifers	NF	
Crustaceans	NF	
Crustacean eggs	NF	
Insects	NF	
Other	NF	

ALGAE	Quantity	Description
Green Algae	NF	
Diatoms	NF	
Blue-Green Algae	NF	
Flagellated Algae	NF	

COMMENTS:

No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan N. Boutros **DATE:** June 12, 2013

REPORT: MICROSCOPIC PARTICULATE ANALYSIS
NYSDOH Modified Method

PWS ID#	Well ID#	Utility Name	EAL Sample ID:
	Well 6A (420-66537-1)	EnviroTest Laboratories Inc.	42208

Date: 5/30/2013

EPA Relative Surface Water Risk Factors

Primary Particulates	#/100 gallon	Relative Frequency	Relative Risk Factor	Comments
Coccidia (confirmed)	0	NF	0	
Diatoms	0	NF	0	
Other Algae	0	NF	0	
Insects/larvae	0	NF	0	
Rotifers	0	NF	0	
Plant Debris (with chloro.)	0	NF	0	
		EPA Relative Risk = 0	Low Risk	

Secondary Particulates			
Nematodes	0	NF	
Crustaceans	0	NF	
Amoeba	0	NF	
Non-photo. flag. & ciliates	0	NF	
Photosynthetic flagellates	0	NF	
Other:	0	NF	

COMMENTS: No biological materials were observed. Based upon microscopic particulate analysis and the proposed EPA risk factors associated with bio-indicators there is a low risk of surface contamination (EPA risk factors= 0 low risk). Sample was collected and processed using the NYSDOH Modified Microscopic Particulate Analysis method. Any questions regarding this report, please contact the laboratory at the above listed number.

Environmental Associates Ltd. certifies that all quality control elements associated with the above data have been met except as may be noted in the comments section. Results relate only to the sample.

REPORT REVIEWED BY: Susan h. Boutros **DATE:** June 12, 2013
Dr. Susan Boutros President & Lab Director

Environmental Associates, Ltd.

42208 EnviroTest Laboratories Inc. — CLIENT

Well 6A (420-66537-1) — SAMPLE SITE

Jun 13, 2013 13:21:19

42208A Typical Sediment 400x

METHOD SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Description	Lab Location	Method	Preparation Method
Matrix: Water			
ICP Metals by 200.7	EnvTest	EPA 200.7 Rev 4.4	
200 Series Drinking Water Prep Determination Step	EnvTest		EPA 200
ICPMS Metals by 200.8	EnvTest	EPA 200.8	
200 Series Drinking Water Prep Determination Step	EnvTest		EPA 200
Apparent Color	EnvTest	SM21 2120B	
Mercury in Water by CVAA	EnvTest	EPA 245.1	
Digestion for CVAA Mercury in Waters	EnvTest		EPA 245.1
Anions by Ion Chromatography	EnvTest	MCAWW 300.0	
Anions by Ion Chromatography	EnvTest	MCAWW 300.0	
EPA 504.1 EDB		EPA 504.1	
EPA 505 Pesticide/PCB		EPA 505	
EPA 515 Chlorinated Acids		EPA 515	
Purgeable Organic Compounds in Water by GC/MS	EnvTest	EPA-DW 524.2	
EPA 525.2 Semivolatile Organics		EPA 525.2	
EPA 531.1 Carbamate Pesticides in Drinki		EPA 531.1	
EPA 900 Series GA/GB/RA226/RA228/Gamma		EPA 900	
Uranium		STL-STL EPA	
Heterotropic Plate Count	EnvTest	IDEXX SIMPLATE	
Turbidity	EnvTest	SM20 SM 2130B	
Odor, Threshold Test	EnvTest	SM20 SM 2150B	
Alkalinity, Titration Method	EnvTest	SM18 SM 2320B	
Corrosivity LSI Calculation	EnvTest	SM20 SM 2330B	
Hardness by Calculation	EnvTest	SM20 SM 2340B	
Total Dissolved Solids (Dried at 180 °C)	EnvTest	SM18 SM 2540C	
Cyanide, Total: Colorimetric Method	EnvTest	SM18 SM 4500 CN E	
Cyanide: Distillation	EnvTest		SM18 SM 4500 CN C
pH	EnvTest	SM19 SM 4500 H+ B	
Nitrite by Colormetric	EnvTest	SM20 SM 4500B	
Total Coliform and Escherichia coli by Colilert - Presence/Absence	EnvTest	SMWW SM 9223	
General Sub Contract Method		Subcontract	
General Sub Contract Method	Env.Assoc.	Subcontract	

METHOD SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Description	Lab Location	Method	Preparation Method

Lab References:

=

Env.Assoc. = Environmental Associates

EnvTest = EnviroTest

Method References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

IDEXX =

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

SM19 = "Standard Methods For The Examination Of Water And Wastewater", 19Th Edition, 1995."

SM20 = "Standard Methods For The Examination Of Water And Wastewater", 20th Edition."

SM21 = "Standard Methods For The Examination Of Water And Wastewater", 21st Edition

SMWW = "Standard Methods for the Examination of Water and Wastewater"

STL-STL = Severn Trent Laboratories, St. Louis, Facility Standard Operating Procedure.

METHOD / ANALYST SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Method	Analyst	Analyst ID
EPA-DW 524.2	Andersen, Eric C	ECA
EPA 200.7 Rev 4.4	Palentino, Gus J	GJP
EPA 200.8	Palentino, Gus J	GJP
EPA 245.1	McPhillips, Julie	JM
SM20 SM 2340B	Pistole, Maria	MP
SM21 2120B	Harmon, Kelly	KH
MCAWW 300.0	Sutcliffe, Bethany L	BLS
IDEXX SIMPLATE	Harmon, Kelly	KH
SM20 SM 2130B	Harmon, Kelly	KH
SM20 SM 2150B	Harmon, Kelly	KH
SM18 SM 2320B	Sutcliffe, Bethany L	BLS
SM20 SM 2330B	Pistole, Maria	MP
SM18 SM 2540C	Harmon, Kelly	KH
SM18 SM 4500 CN E	Sutcliffe, Bethany L	BLS
SM19 SM 4500 H+ B	Harmon, Kelly	KH
SM20 SM 4500B	Sutcliffe, Bethany L	BLS
SMWW SM 9223	Harmon, Kelly	KH

SAMPLE SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
420-66537-1	Well 6A	Water	05/30/2013 1242	05/30/2013 1513

Analytical Data

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Client Sample ID: **Well 6A**

Lab Sample ID:	420-66537-1	Date Sampled:	05/30/2013 1242
Client Matrix:	Water	Date Received:	05/30/2013 1513

524.2 Purgeable Organic Compounds in Water by GC/MS

Method:	524.2	Analysis Batch: 420-66312	Instrument ID:	Agilent 7890A/5975C
Preparation:	N/A		Lab File ID:	X060415.D
Dilution:	1.0		Initial Weight/Volume:	5 mL
Date Analyzed:	06/03/2013 1726		Final Weight/Volume:	5 mL
Date Prepared:	N/A			

Analyte	Result (ug/L)	Qualifier	RL
1,1,1,2-Tetrachloroethane	<0.500		0.500
1,1,1-Trichloroethane	<0.500		0.500
1,1,2,2-Tetrachloroethane	<0.500		0.500
1,1,2-Trichloroethane	<0.500		0.500
1,1-Dichloroethane	<0.500		0.500
1,1-Dichloroethene	<0.500		0.500
1,1-Dichloropropene	<0.500		0.500
1,2,3-Trichlorobenzene	<0.500		0.500
1,2,3-Trichloropropane	<0.500		0.500
1,2,4-Trichlorobenzene	<0.500		0.500
1,2,4-Trimethylbenzene	<0.500		0.500
1,2-Dichloroethane	<0.500		0.500
1,2-Dichlorobenzene	<0.500		0.500
1,2-Dichloropropane	<0.500		0.500
1,3-Dichloropropane	<0.500		0.500
1,4-Dichlorobenzene	<0.500		0.500
2,2-Dichloropropane	<0.500		0.500
Benzene	<0.500		0.500
Bromobenzene	<0.500		0.500
Bromochloromethane	<0.500		0.500
Bromomethane	<0.500		0.500
n-Butylbenzene	<0.500		0.500
cis-1,2-Dichloroethene	<0.500		0.500
cis-1,3-Dichloropropene	<0.500		0.500
Carbon tetrachloride	<0.500		0.500
Chlorobenzene	<0.500		0.500
Chloroethane	<0.500		0.500
Chloromethane	<0.500		0.500
Dibromomethane	<0.500		0.500
Ethylbenzene	<0.500		0.500
Dichlorodifluoromethane	<0.500		0.500
Hexachlorobutadiene	<0.500		0.500
Isopropylbenzene	<0.500		0.500
p-Isopropyltoluene	<0.500		0.500
Methylene Chloride	<0.500		0.500
m-Xylene & p-Xylene	<0.500		0.500
Methyl tert-butyl ether	<0.500		0.500
o-Xylene	<0.500		0.500
Tetrachloroethene	<0.500		0.500
Toluene	<0.500		0.500
trans-1,2-Dichloroethene	<0.500		0.500
trans-1,3-Dichloropropene	<0.500		0.500
Trichloroethene	<0.500		0.500
tert-Butylbenzene	<0.500		0.500

Analytical Data

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Client Sample ID: **Well 6A**

Lab Sample ID: 420-66537-1
Client Matrix: Water

Date Sampled: 05/30/2013 1242
Date Received: 05/30/2013 1513

524.2 Purgeable Organic Compounds in Water by GC/MS

Method:	524.2	Analysis Batch: 420-66312	Instrument ID:	Agilent 7890A/5975C
Preparation:	N/A		Lab File ID:	X060415.D
Dilution:	1.0		Initial Weight/Volume:	5 mL
Date Analyzed:	06/03/2013 1726		Final Weight/Volume:	5 mL
Date Prepared:	N/A			

Analyte	Result (ug/L)	Qualifier	RL
Trichlorofluoromethane	<0.500		0.500
Vinyl chloride	<0.500		0.500
Xylenes, Total	<0.500		0.500
Styrene	<0.500		0.500
sec-Butylbenzene	<0.500		0.500
1,3,5-Trimethylbenzene	<0.500		0.500
N-Propylbenzene	<0.500		0.500
1,3-Dichlorobenzene	<0.500		0.500
2-Chlorotoluene	<0.500		0.500
4-Chlorotoluene	<0.500		0.500

Surrogate	%Rec	Acceptance Limits
4-Bromofluorobenzene	104	71 - 112
Toluene-d8 (Surr)	99	79 - 121
1,2-Dichloroethane-d4 (Surr)	88	70 - 128

Analytical Data

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Client Sample ID: **Well 6A**

Lab Sample ID:	420-66537-1	Date Sampled:	05/30/2013 1242
Client Matrix:	Water	Date Received:	05/30/2013 1513

200.7 Rev 4.4 ICP Metals by 200.7

Method:	200.7 Rev 4.4	Analysis Batch: 420-66262	Instrument ID:	Thermo ICP
Preparation:	200	Prep Batch: 420-66239	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	05/31/2013 1555		Final Weight/Volume:	50 mL
Date Prepared:	05/31/2013 1030			

Analyte	Result (ug/L)	Qualifier	RL
Iron	<60.0		60.0
Manganese	27.9		10.0
Sodium	27000		200
Zinc	<20.0		20.0

200.8 ICPMS Metals by 200.8

Method:	200.8	Analysis Batch: 420-66257	Instrument ID:	Perkin Elmer ELAN
Preparation:	200	Prep Batch: 420-66239	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	05/31/2013 1333		Final Weight/Volume:	50 mL
Date Prepared:	05/31/2013 1030			

Analyte	Result (ug/L)	Qualifier	RL
Pb	<1.00		1.00
Arsenic	<1.40		1.40
Beryllium	<0.300		0.300
Cadmium	<1.00		1.00
Chromium	<7.00		7.00
Nickel	1.10		0.500
Thallium	<0.300		0.300
Barium	6.84		2.00
Selenium	2.96		2.00

Method:	200.8	Analysis Batch: 420-66392	Instrument ID:	Perkin Elmer ELAN
Preparation:	200	Prep Batch: 420-66239	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	50 mL
Date Analyzed:	06/06/2013 1421		Final Weight/Volume:	50 mL
Date Prepared:	05/31/2013 1030			

Analyte	Result (ug/L)	Qualifier	RL
Antimony	0.417		0.400

Analytical Data

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Client Sample ID: **Well 6A**

Lab Sample ID:	420-66537-1	Date Sampled:	05/30/2013 1242
Client Matrix:	Water	Date Received:	05/30/2013 1513

245.1 Mercury in Water by CVAA

Method:	245.1	Analysis Batch: 420-66328	Instrument ID:	Perkin Elmer FIMS
Preparation:	245.1	Prep Batch: 420-66321	Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	25 mL
Date Analyzed:	06/04/2013 1626		Final Weight/Volume:	25 mL
Date Prepared:	06/04/2013 1255			

Analyte	Result (ug/L)	Qualifier	RL
Mercury	<0.200		0.200

SM 2340B Hardness by Calculation

Method:	SM 2340B	Analysis Batch: 420-66263	Instrument ID:	None
Preparation:	N/A		Lab File ID:	N/A
Dilution:	1.0		Initial Weight/Volume:	
Date Analyzed:	05/31/2013 1522		Final Weight/Volume:	
Date Prepared:	N/A			

Analyte	Result (mg/L)	Qualifier	RL
Calcium hardness as calcium carbonate	93.3		1.25

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Biology

Client Sample ID: **Well 6A**

Lab Sample ID:	420-66537-1	Date Sampled:	05/30/2013 1242
Client Matrix:	Water	Date Received:	05/30/2013 1513

Analyte	Result	Qual	Units	Dil	Method
Coliform, Total	Absent		CFU/100mL	1.0	SM 9223
	Anly Batch: 420-66222	Date Analyzed	05/30/2013 1705		
Escherichia coli	Absent		CFU/100mL	1.0	SM 9223
	Anly Batch: 420-66222	Date Analyzed	05/30/2013 1705		

Analyte	Result	Qual	Units	RL	Dil	Method
Heterotrophic Plate Count	6.00		CFU/mL	2.00	1.0	SIMPLATE
	Anly Batch: 420-66234	Date Analyzed	05/30/2013 1653			

General Chemistry

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

General Chemistry

Client Sample ID: **Well 6A**

Lab Sample ID:	420-66537-1	Date Sampled:	05/30/2013 1242
Client Matrix:	Water	Date Received:	05/30/2013 1513

Analyte	Result	Qual	Units	RL	Dil	Method
Nitrate as N	0.500		mg/L	0.250	1.0	300.0
	Anly Batch: 420-66227	Date Analyzed	05/30/2013 1717			
Nitrite as N	<0.250		mg/L	0.250	1.0	300.0
	Anly Batch: 420-66227	Date Analyzed	05/30/2013 1717			

Analyte	Result	Qual	Units	Dil	Method
Apparent Color	2.50		Color Units	1.0	2120B
	Anly Batch: 420-66277	Date Analyzed	05/31/2013 1555		
Langelier Index	-0.600		NONE	1.0	SM 2330B
	Anly Batch: 420-66702	Date Analyzed	06/18/2013 0912		

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

General Chemistry

Client Sample ID: **Well 6A**

Lab Sample ID: 420-66537-1
Client Matrix: Water

Date Sampled: 05/30/2013 1242
Date Received: 05/30/2013 1513

Analyte		Result	Qual	Units		RL	Dil	Method
Alkalinity		126		mg/L		5.00	1.0	SM 2320B
	Anly Batch: 420-66551		Date Analyzed		06/12/2013 0934			
Total Dissolved Solids		144		mg/L		5.00	1.0	SM 2540C
	Anly Batch: 420-66350		Date Analyzed		06/05/2013 1630			
Sulfate		30.9		mg/L		5.00	1.0	300.0
	Anly Batch: 420-66227		Date Analyzed		05/30/2013 1717			
Fluoride		<0.500		mg/L		0.500	1.0	300.0
	Anly Batch: 420-66227		Date Analyzed		05/30/2013 1717			
Chloride		9.07		mg/L		3.00	2.0	300.0
	Anly Batch: 420-66265		Date Analyzed		05/31/2013 1644			
Cyanide, Total		<0.00500		mg/L		0.00500	1.0	SM 4500 CN E
	Anly Batch: 420-66353		Date Analyzed		06/05/2013 0950			
	Prep Batch: 420-66334		Date Prepared:		06/04/2013 1000			
Turbidity		0.166		NTU		0.100	1.0	SM 2130B
	Anly Batch: 420-66236		Date Analyzed		05/30/2013 1616			
Odor		1.00		T.O.N.		1.00	1.0	SM 2150B
	Anly Batch: 420-66276		Date Analyzed		05/31/2013 1625			
Temp @ Odor Measurement		58.7		Degrees C		5.00	1.0	SM 2150B
	Anly Batch: 420-66276		Date Analyzed		05/31/2013 1625			
pH		7.37	H	SU		0.200	1.0	SM 4500 H+ B
	Anly Batch: 420-66235		Date Analyzed		05/30/2013 1608			
Temp @ pH Measurement		19.0		Degrees C		5.00	1.0	SM 4500 H+ B
	Anly Batch: 420-66235		Date Analyzed		05/30/2013 1608			
Nitrite as N		0.0130		mg/L		0.0100	1.0	SM 4500B
	Anly Batch: 420-66249		Date Analyzed		05/30/2013 1634			

DATA REPORTING QUALIFIERS

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
Sdg Number: Brynwood

Lab Section	Qualifier	Description
General Chemistry		
	H	Sample was prepped or analyzed beyond the specified holding time

Definitions and Glossary

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1

Sdg Number: Brynwood

Abbreviation	These commonly used abbreviations may or may not be present in this report.
%R	Percent Recovery
DL, RA, RE	Indicates a Dilution, Reanalysis or Reextraction.
EPA	United States Environmental Protection Agency
MDL	Method Detection Limit - an estimate of the minimum amount of a substance that an analytical process can reliably detect. A MDL is analyte- and matrix-specific and may be laboratory-dependent.
ND	Not detected at the reporting limit (or MDL if shown).
QC	Quality Control
RL	Reporting Limit - the minimum levels, concentrations, or quantities of a target variable (e.g., target analyte) that can be reported with a specified degree of confidence.
RPD	Relative Percent Difference - a measure of the relative difference between two points.

EnviroTest Laboratories, Inc.

CHAIN OF CUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 66537

PROJECT REFERENCE: Brynwood	PROJECT NO.	PROJECT LOCATION
ENVIROTEST PROJECT MANAGER: Debra Bayer	P.O NUMBER	TOWN
CLIENT (SITE) PM: LBG, Inc.	CLIENT PHONE: 203-929-8555	CLIENT FAX
CLIENT NAME: Stacey Stieber		
CLIENT ADDRESS: 4 Research Drive, Suite 301, Shelton, CT 06484		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL ____ QUICK ____ VERBAL ____

#OF COOLERS

MATRIX TYPE: COMPOSITE (C) OR GRAB (G) INDICATE; AQUEOUS (WATER); D (Drinking Water) or W (Waste Water) Indicate; SOLID OR SEMISOLID; OTHER Specify

REQUIRED ANALYSES — NUMBER OF CONTAINERS SUBMITTED

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	Composite/Grab	Aqueous	D/W	Solid	Other	Bladder	40ml Vials HCL	40ml Sodium Thio.	250ml Amber Sodium Thio.	Liter Amber HCl/Na2SO3	250ml Plastic Nitric Acid	40ml Mon/Sod.Thio(liquid)	Liter Plastic	250ml Plastic Sodium Hyd.	125ml Plastic Sterile	Gallon Plastic Nitric	40ml vials Unpres	REMARKS
5-30-13	1242	Well 6A						2	3		1	3	1	4	4	1	2	1	2	Metals I (As,Ba,Cd,Cr,Hg,Se)
																				Metals II (Sb,Be,Ni,Tl)
																				Cn, F, Sulfate, 524.2 (POC,MTBE,
																				Vinyl Chloride)
									2-40ml Amber Thio											SOCs (504,508,515,525,531,
									1-Liter Amber Plastic Sodium Thio/Sulfuric											547, 548, 549), Dioxin
									1-500 Amber Sodium Thio											Radon, Gross Alpha/Beta,
									2-Amber Liter Unpres.											Radium 226/228, Total Uranium
									Total Containers: 30											Additional Tests: Total coli
																				thru Zinc
																				MPA including Giardia & Crypto

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
[signature]	LBG, Inc	5/30/13	1500				
SAMPLED BY: (SIGNATURE) [signature]	LBG, Inc.	5/30/13	1500				
RELINQUISHED BY: (SIGNATURE)							

SHORT HOLDING TIME PARAMETERS INCLUDED/SOC subcontract to Pace; Radio & Dioxin to Pace; MPA to Env. Assoc; Radon to Hazen/Bill to Brynwood

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES NO	Cooler Temp:	LABORATORY REMARKS:
[signature]	5/30	1500		6.6	ICE ✓ pH____ CL2____ Reveiwed by________

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-66537-1
SDG Number: Brynwood

Login Number: 66537

Question	T/F/NA	Comment
Samples were collected by ETL employee as per SOP-SAM-1	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is recorded.	True	
Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C	True	6.6C
If false, was sample received on ice within 6 hours of collection.	True	
Based on above criteria cooler temperature is acceptable.	NA	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	True	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Hazen Research, Inc.
4601 Indiana Street
Golden, CO 80403 USA
Tel: (303) 279-4501
Fax: (303) 278-1528

DATE	June 5, 2013
HRI PROJECT	009-587
HRI SERIES NO	E481/13
DATE REC'D.	5/31/2013
CUST. P.O.#	420-66537-1

EnviroTest Laboratories, Inc. - Newburgh
Debra Bayer
315 Fullerton Avenue
Newburgh, NY 12550

REPORT OF ANALYSIS

SAMPLE NO. E481/13-1

SAMPLE IDENTIFICATION: 420-66537-1 - Well 6A - Project #42001269, LBG, Inc.
Sampled on 05/30/2013 @ 1242

PARAMETER	RESULT	DETECTION LIMIT	METHOD	ANALYSIS DATE	ANALYST
Radon (+-Precision*), pCi/l (T)	1160(+-50)	22	SM 7500-Rn B	5/31/2013 @ 1306	AN

*Variability of the radioactive decay process (counting error) at the 95% confidence level, 1.96 sigma.
Certification ID's: CO/EPA CO00008; CT PH-0152; KS E-10265; NYELAP 11417;
PADEP 68-00551; RI LAO00284; TX T104704256-11-2; WI 998376610

Results reported herein relate only to discrete samples submitted by the client. Hazen Research, Inc. does not warrant that the results are representative of anything other than the samples that were received in the laboratory.

By:
Robert Rostad
Director, Analytical Services

CODES: (T) = Total (D) = Dissolved (S) = Suspended (R) = Total Recoverable
(PD) = Potentially Dissolved < = Less Than

Pace Analytical™

www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street
Minneapolis, MN 55414
Phone: 612.607.1700
Fax: 612.607.6444

Report Prepared for:

Bo Garcia
PASI Florida
8 East Tower Circle
Ormond Beach FL 32174

REPORT OF LABORATORY ANALYSIS FOR 2,3,7,8-TCDD

Report Summary:

This report contains results of one drinking water sample analyzed to determine 2,3,7,8-TCDD content. This sample was analyzed according to Method 1613 by High Resolution Gas Chromatography/High Resolution Mass Spectrometry.

Report Prepared Date:

June 25, 2013

Report Information:

Pace Project #: 10230719
Sample Receipt Date: 06/04/2013
Client Project #: 3595043 Enviro Test La
Client Sub PO #: N/A
State Cert #: E87605

Invoicing & Reporting Options:

The report provided has been invoiced as a Level 2 Drinking Water Report. If an upgrade of this report package is requested, an additional charge may be applied.

Please review the attached invoice for accuracy and forward any questions to Emily Hazelroth, your Pace Project Manager.

This report has been reviewed by:

June 25, 2013
Emily Hazelroth, Project Manager
(612) 607-6407
(612) 607-6444 (fax)
emily.hazelroth@pacelabs.com

ACCREDITED IN ACCORDANCE WITH nelac

Report of Laboratory Analysis

The results relate only to the samples included in this report.

Pace Analytical™
Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
Tel: 612-607-1700
Fax: 612- 607-6444

Minnesota Laboratory Certifications

Authority	Certificate #	Authority	Certificate #
Alabama	40770	Mississippi	MN00064
Alaska	MN00064	Montana	92
Arizona	AZ0014	Nebraska	
Arkansas	88-0680	Nevada	MN_00064_200
California	01155CA	New Jersey (NE	MN002
Colorado	MN00064	New Mexico	MN00064
Connecticut	PH-0256	New York (NEL	11647
EPA Region 5	WD-15J	North Carolina	27700
EPA Region 8	8TMS-Q	North Dakota	R-036
Florida (NELAP	E87605	Ohio	4150
Georgia (DNR)	959	Oklahoma	D9922
Guam	959	Oregon (ELAP)	MN200001-005
Hawaii	SLD	Oregon (OREL	MN300001-001
Idaho	MN00064	Pennsylvania	68-00563
Illinois	200012	Saipan	MP0003
Indiana	C-MN-01	South Carolina	74003001
Indiana	C-MN-01	Tennesee	2818
Iowa	368	Tennessee	02818
Kansas	E-10167	Texas	T104704192-08
Kentucky	90062	Utah (NELAP)	PAM
Louisiana	03086	Virginia	00251
Maine	2007029	Washington	C755
Maryland	322	West Virginia	9952C
Michigan	9909	Wisconsin	999407970
Minnesota	027-053-137	Wyoming	8TMS-Q

REPORT OF LABORATORY ANALYSIS

Pace Analytical™

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612- 607-6444

Reporting Flags

A = Reporting Limit based on signal to noise

B = Less than 10x higher than method blank level

C = Result obtained from confirmation analysis

D = Result obtained from analysis of diluted sample

E = Exceeds calibration range

I = Interference present

J = Estimated value

Nn = Value obtained from additional analysis

P = PCDE Interference

R = Recovery outside target range

S = Peak saturated

U = Analyte not detected

V = Result verified by confirmation analysis

X = %D Exceeds limits

Y = Calculated using average of daily RFs

* = See Discussion

10230719

Chain of Custody

1654

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Workorder: 3595043 **Workorder Name:** 42001269 **Owner Received Date:** 5/31/2013 **Results Requested By:** 6/14/2013

Report To	Subcontract To
Bo Garcia Pace Analytical Services, Inc. 8 East Tower Circle Ormond Beach, FL 32174 Phone (386)672-5668 Fax (386)672-5668	Pace Analytical Minnesota 1700 Elm Street SE Suite 200 Minneapolis, MN 55414 Phone (612)607-1700

Preserved Containers / Requested Analysis

Item	SampleID	Sample Type	Collect Date/Time	LabID	Matrix	Unpreserved	2,3,7,8 Dioxin by 1613	LAB USE ONLY
1	Well 6A (420-66537-1)	PS	5/30/2013 12:42	3595043001	Drinking	2	X	
2								
3								
4								
5								

Transfers	Released By	Date/Time	Received By	Date/Time
1	DSd	6/3/13 1600	[signature]	6/4/13 0901
2				
3				

Comments

Cooler Temperature on Receipt 0.6 °C | Custody Seal Y or N | Received on Ice Y or N | Samples Intact Y or N

Please email all results in a NELAC-compliant Florida MDL PDF format to the PM listed above soon as possible.

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: **F-MN-L-213-rev.06**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Pace FL

Project #: WO#:10230719

10230719

Courier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 5419 9252 4662

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No **Seals Intact?** ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☒ Yes ☐ No

Thermom. Used: ☐ B88A912167504 ☐ 80512447 ☒ 72337080 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.4 **Cooler Temp Corrected (°C):** 0.6 **Biological Tissue Frozen?** ☐ Yes ☐ No

Temp should be above freezing to 6°C **Correction Factor:** +.2 **Date and Initials of Person Examining Contents:** 6/4/13

	Yes	No	N/A	Comments:
Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☐ Yes	☒ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☒ Yes	☒ No	☐ N/A	6. headspace 6/4/13
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	7.
Sufficient Volume?	☒ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11.
Sample Labels Match COC?	☒ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes	☐ No	☒ N/A	13. ☐ HNO3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH>12)	☐ Yes	☐ No	☒ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes	☒ No		Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☒ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☒ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: GKH **Date:** 04 June 2013

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

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Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Drinking Water Analysis Results
2,3,7,8-TCDD -- USEPA Method 1613B

Sample ID...........Wekk 6A (420-66537-1)
Client.................. PASI Florida
Lab Sample ID..... 3595043001

Date Collected.....05/30/2013
Date Received......06/04/2013
Date Extracted.....06/10/2013

	Sample Wekk 6A (420-665	Method Blank	Lab Spike	Lab Spike Dup
[2,3,7,8-TCDD]	**ND**	ND	--	--
RL	5.0 pg/L	5.0 pg/L	--	--
2,3,7,8-TCDD Recovery	--	--	123%	119%
Spike Recovery Limit	--	--	73-146%	73-146%
RPD			3.3%	
IS Recovery	**74%**	83%	80%	46%
IS Recovery Limits	31-137%	31-137%	25-141%	25-141%
CS Recovery	**94%**	102%	106%	85%
CS Recovery Limits	42-164%	42-164%	37-158%	37-158%
Filename	R130613A_05	R130612B_07	R130612B_20	R130612B_21
Analysis Date	06/13/2013	06/13/2013	06/13/2013	06/13/2013
Analysis Time	13:08	02:18	09:43	10:17
Analyst	ACE	BAL	BAL	BAL
Volume	1.022L	0.923L	0.914L	0.927L
Dilution	NA	NA	NA	NA
ICAL Date	04/23/2013	04/23/2013	04/23/2013	04/23/2013
CCAL Filename	R130613A_01	R130612B_01	R130612B_01	R130612B_01

! = Outside the Control Limits
ND = Not Detected
RL = Reporting Limit
Limits = Control Limits from Method 1613 (10/94 Revision), Tables 6A and 7A
RPD = Relative Percent Difference of Lab Spike Recoveries
IS = Internal Standard [2,3,7,8-TCDD-$^{13}C_{12}$]
CS = Cleanup Standard [2,3,7,8-TCDD-$^{37}Cl_4$]

Analyst: Amanda Ellf

Project No.............10230719

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Ormond Beach, FL 32174
(386)672-5668

June 25, 2013

Ron Bayer
EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: 42001269
Pace Project No.: 3595043

Dear Ron Bayer:

Enclosed are the analytical results for sample(s) received by the laboratory on May 31, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bo Garcia

bo.garcia@pacelabs.com
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories Inc.
Renee Cusack, EnviroTest Laboratories Inc.
Joyce Esposito, EnviroTest Laboratories Inc.
Janine Rader, EnviroTest Laboratories Inc.
Meredith Ruthven, EnviroTest Laboratories Inc.

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CERTIFICATIONS

Project:	42001269
Pace Project No.:	3595043

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana/TNI Certification #: LA080002
Louisiana/TNI Certification #: 4086
Maine Certification #: PA0091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #. PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia Certification #: 143
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: 42001269
Pace Project No.: 3595043

Lab ID	Sample ID	Matrix	Date Collected	Date Received
3595043001	**Well 6A (420-66537-1)**	Drinking Water	05/30/13 12:42	05/31/13 11:40

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SAMPLE ANALYTE COUNT

Project: 42001269
Pace Project No.: 3595043

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
3595043001	**Well 6A (420-66537-1)**	EPA 504.1	JLR	2	PASI-O
		EPA 508.1	JTT	19	PASI-O
		EPA 515.3	LJM	8	PASI-O
		EPA 531.1	WFH	9	PASI-O
		EPA 547	WFH	1	PASI-O
		EPA 549.2	WFH	1	PASI-O
		EPA 525.2	WFH	7	PASI-O
		EPA 548.1	EAO	1	PASI-O
		EPA 900.0	JMR	2	PASI-PA
		EPA 903.1	SLA	1	PASI-PA
		EPA 904.0	MAW	1	PASI-PA
		EPA 908.0	LAL	1	PASI-PA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 42001269
Pace Project No.: 3595043

Sample: Well 6A (420-66537-1) **Lab ID: 3595043001** Collected: 05/30/13 12:42 Received: 05/31/13 11:40 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
504.1 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1								
1,2-Dibromo-3-chloropropane	**<0.0051**	ug/L	0.021	0.0051	1	06/05/13 13:00	06/06/13 05:57	96-12-8	
1,2-Dibromoethane (EDB)	**<0.0064**	ug/L	0.010	0.0064	1	06/05/13 13:00	06/06/13 05:57	106-93-4	
508.1 GCS Pesticides	Analytical Method: EPA 508.1 Preparation Method: EPA 508.1								
Alachlor	**<0.032**	ug/L	0.19	0.032	1	06/06/13 10:00	06/10/13 22:19	15972-60-8	
Atrazine	**<0.020**	ug/L	0.095	0.020	1	06/06/13 10:00	06/10/13 22:19	1912-24-9	
gamma-BHC (Lindane)	**<0.0029**	ug/L	0.019	0.0029	1	06/06/13 10:00	06/10/13 22:19	58-89-9	
Butachlor	**<0.014**	ug/L	0.095	0.014	1	06/06/13 10:00	06/10/13 22:19	23184-66-9	
Chlordane (Technical)	**<0.045**	ug/L	0.19	0.045	1	06/06/13 10:00	06/10/13 22:19	57-74-9	
Dieldrin	**<0.013**	ug/L	0.095	0.013	1	06/06/13 10:00	06/10/13 22:19	60-57-1	
Endrin	**<0.0019**	ug/L	0.0095	0.0019	1	06/06/13 10:00	06/10/13 22:19	72-20-8	
Heptachlor	**<0.0057**	ug/L	0.038	0.0057	1	06/06/13 10:00	06/10/13 22:19	76-44-8	
Heptachlor epoxide	**<0.0029**	ug/L	0.019	0.0029	1	06/06/13 10:00	06/10/13 22:19	1024-57-3	
Hexachlorobenzene	**<0.010**	ug/L	0.095	0.010	1	06/06/13 10:00	06/10/13 22:19	118-74-1	
Hexachlorocyclopentadiene	**<0.011**	ug/L	0.095	0.011	1	06/06/13 10:00	06/10/13 22:19	77-47-4	
Methoxychlor	**<0.013**	ug/L	0.095	0.013	1	06/06/13 10:00	06/10/13 22:19	72-43-5	L3
Metolachlor	**<0.010**	ug/L	0.095	0.010	1	06/06/13 10:00	06/10/13 22:19	51218-45-2	L3
Metribuzin	**<0.033**	ug/L	0.095	0.033	1	06/06/13 10:00	06/10/13 22:19	21087-64-9	L3
PCB, Total	**<0.076**	ug/L	0.095	0.076	1	06/06/13 10:00	06/10/13 22:19	1336-36-3	
Propachlor	**<0.0095**	ug/L	0.095	0.0095	1	06/06/13 10:00	06/10/13 22:19	1918-16-7	
Simazine	**<0.042**	ug/L	0.067	0.042	1	06/06/13 10:00	06/10/13 22:19	122-34-9	
Toxaphene	**<0.58**	ug/L	0.95	0.58	1	06/06/13 10:00	06/10/13 22:19	8001-35-2	
Surrogates									
Decachlorobiphenyl (S)	109	%	70-130		1	06/06/13 10:00	06/10/13 22:19	2051-24-3	
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
2,4-D	**<0.081**	ug/L	0.10	0.081	1	06/05/13 09:00	06/11/13 04:45	94-75-7	
Dalapon	**<0.89**	ug/L	1.0	0.89	1	06/05/13 09:00	06/11/13 04:45	75-99-0	
Dicamba	**<0.067**	ug/L	0.10	0.067	1	06/05/13 09:00	06/11/13 04:45	1918-00-9	
Dinoseb	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/11/13 04:45	88-85-7	
Pentachlorophenol	**<0.030**	ug/L	0.040	0.030	1	06/05/13 09:00	06/11/13 04:45	87-86-5	
Picloram	**<0.094**	ug/L	0.10	0.094	1	06/05/13 09:00	06/11/13 04:45	1918-02-1	
2,4,5-TP (Silvex)	**<0.16**	ug/L	0.20	0.16	1	06/05/13 09:00	06/11/13 04:45	93-72-1	
Surrogates									
2,4-DCAA (S)	85	%	70-130		1	06/05/13 09:00	06/11/13 04:45	19719-28-9	
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Aldicarb	**<0.64**	ug/L	2.0	0.64	1		06/05/13 21:08	116-06-3	L3
Aldicarb sulfone	**<0.35**	ug/L	2.0	0.35	1		06/05/13 21:08	1646-88-4	
Aldicarb sulfoxide	**<0.30**	ug/L	2.0	0.30	1		06/05/13 21:08	1646-87-3	
Carbofuran	**<0.32**	ug/L	2.0	0.32	1		06/05/13 21:08	1563-66-2	
3-Hydroxycarbofuran	**<0.26**	ug/L	2.0	0.26	1		06/05/13 21:08	16655-82-6	
Methomyl	**<0.57**	ug/L	2.0	0.57	1		06/05/13 21:08	16752-77-5	
Oxamyl	**<0.41**	ug/L	2.0	0.41	1		06/05/13 21:08	23135-22-0	
Carbaryl	**<0.20**	ug/L	2.0	0.20	1		06/05/13 21:08	63-25-2	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 42001269
Pace Project No.: 3595043

Sample: Well 6A (420-66537-1) **Lab ID: 3595043001** Collected: 05/30/13 12:42 Received: 05/31/13 11:40 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
531.1 HPLC Carbamates	Analytical Method: EPA 531.1								
Surrogates									
Propoxur (S)	99	%	80-120		1		06/05/13 21:08	114-26-1	
547 HPLC Glyphosate	Analytical Method: EPA 547								
Glyphosate	**<2.1**	ug/L	6.0	2.1	1		06/07/13 19:10		
549.2 HPLC Paraquat Diquat	Analytical Method: EPA 549.2 Preparation Method: EPA 549.2								
Diquat	**<0.15**	ug/L	0.40	0.15	1	06/03/13 13:00	06/08/13 03:52	85-00-7	
525.2 Base Neutral Extractable	Analytical Method: EPA 525.2 Preparation Method: EPA 525.2								
Aldrin	**<0.034**	ug/L	0.095	0.034	1	06/06/13 10:00	06/07/13 17:42	309-00-2	L3
Benzo(a)pyrene	**<0.018**	ug/L	0.095	0.018	1	06/06/13 10:00	06/07/13 17:42	50-32-8	L3
bis(2-Ethylhexyl)adipate	**<0.37**	ug/L	1.5	0.37	1	06/06/13 10:00	06/07/13 17:42	103-23-1	
bis(2-Ethylhexyl)phthalate	**<0.48**	ug/L	1.9	0.48	1	06/06/13 10:00	06/07/13 17:42	117-81-7	
Surrogates									
1,3-Dimethyl-2-nitrobenzene(S)	94	%	70-130		1	06/06/13 10:00	06/07/13 17:42	81209	
Perylene-d12 (S)	122	%	70-130		1	06/06/13 10:00	06/07/13 17:42	1520963	
Triphenylphosphate (S)	96	%	70-130		1	06/06/13 10:00	06/07/13 17:42	115-86-6	
548.1 GCS Endothall	Analytical Method: EPA 548.1 Preparation Method: EPA 548.1								
Endothall	**<2.7**	ug/L	9.0	2.7	1	06/03/13 08:30	06/04/13 15:46		

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: GCSV/8735 | Analysis Method: EPA 531.1
QC Batch Method: EPA 531.1 | Analysis Description: 531.1 HPLC Carbamate
Associated Lab Samples: 3595043001

METHOD BLANK: 643535 | Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
3-Hydroxycarbofuran	ug/L	<0.26	2.0	06/05/13 12:16	
Aldicarb	ug/L	<0.64	2.0	06/05/13 12:16	
Aldicarb sulfone	ug/L	<0.35	2.0	06/05/13 12:16	
Aldicarb sulfoxide	ug/L	<0.30	2.0	06/05/13 12:16	
Carbaryl	ug/L	<0.20	2.0	06/05/13 12:16	
Carbofuran	ug/L	<0.32	2.0	06/05/13 12:16	
Methomyl	ug/L	<0.57	2.0	06/05/13 12:16	
Oxamyl	ug/L	<0.41	2.0	06/05/13 12:16	
Propoxur (S)	%	51	80-120	06/05/13 12:16	S0

LABORATORY CONTROL SAMPLE: 643536

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
3-Hydroxycarbofuran	ug/L	10	9.4	94	80-120	
Aldicarb	ug/L	10	12.5	125	80-120	L0
Aldicarb sulfone	ug/L	10	11.3	113	80-120	
Aldicarb sulfoxide	ug/L	10	8.8	88	80-120	
Carbaryl	ug/L	10	9.7	97	80-120	
Carbofuran	ug/L	10	8.7	87	80-120	
Methomyl	ug/L	10	10.4	104	80-120	
Oxamyl	ug/L	10	9.5	95	80-120	
Propoxur (S)	%			93	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 643537 | 643538

Parameter	Units	92159813001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
3-Hydroxycarbofuran	ug/L	ND	10	10	7.5	6.9	75	69	80-120	9	20	M1
Aldicarb	ug/L	ND	10	10	10.5	9.5	105	95	80-120	9	20	
Aldicarb sulfone	ug/L	ND	10	10	8.7	8.8	87	88	80-120	1	20	
Aldicarb sulfoxide	ug/L	ND	10	10	7.5	7.0	75	70	80-120	6	20	M1
Carbaryl	ug/L	ND	10	10	8.3	7.0	83	70	80-120	17	20	M1
Carbofuran	ug/L	ND	10	10	5.8	7.0	58	70	80-120	19	20	M1
Methomyl	ug/L	ND	10	10	8.6	8.4	86	84	80-120	3	20	
Oxamyl	ug/L	ND	10	10	7.8	7.5	78	75	80-120	4	20	M1
Propoxur (S)	%						62	74	80-120			S0

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: GCSV/8750 — Analysis Method: EPA 547
QC Batch Method: EPA 547 — Analysis Description: 547 HPLC Glyphosate
Associated Lab Samples: 3595043001

METHOD BLANK: 645032 — Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Glyphosate	ug/L	<2.1	6.0	06/07/13 14:58	

LABORATORY CONTROL SAMPLE: 645033

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Glyphosate	ug/L	50	56.1	112	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 645034 645035

Parameter	Units	3595368001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Glyphosate	ug/L	2.1U	50	50	57.5	56.0	115	112	70-130	3	30	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 645036 645037

Parameter	Units	3595035001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Glyphosate	ug/L	2.1U	50	50	54.3	54.3	109	109	70-130	.09	30	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/13026 Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 Analysis Description: 504 EDB DBCP
Associated Lab Samples: 3595043001

METHOD BLANK: 644076 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	<0.0049	0.020	06/06/13 00:43	
1,2-Dibromoethane (EDB)	ug/L	<0.0062	0.010	06/06/13 00:43	

LABORATORY CONTROL SAMPLE & LCSD: 644077 644078

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromo-3-chloropropane	ug/L	.25	0.22	0.22	90	90	70-130	.4	40	
1,2-Dibromoethane (EDB)	ug/L	.25	0.24	0.25	97	99	70-130	2	40	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 644079 644080

Parameter	Units	3594839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,2-Dibromo-3-chloropropane	ug/L	ND	.44	.44	0.41	0.40	93	91	65-135	3	40	
1,2-Dibromoethane (EDB)	ug/L	ND	.44	.44	0.44	0.43	101	99	65-135	2	40	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/13008 | Analysis Method: EPA 508.1
QC Batch Method: EPA 508.1 | Analysis Description: 508 GCS Pesticide
Associated Lab Samples: 3595043001

METHOD BLANK: 642762 | Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alachlor	ug/L	<0.034	0.20	06/10/13 17:37	
Atrazine	ug/L	<0.021	0.10	06/10/13 17:37	
Butachlor	ug/L	<0.015	0.10	06/10/13 17:37	
Chlordane (Technical)	ug/L	<0.047	0.20	06/10/13 17:37	
Dieldrin	ug/L	<0.014	0.10	06/10/13 17:37	
Endrin	ug/L	<0.0020	0.010	06/10/13 17:37	
gamma-BHC (Lindane)	ug/L	<0.0030	0.020	06/10/13 17:37	
Heptachlor	ug/L	<0.0060	0.040	06/10/13 17:37	
Heptachlor epoxide	ug/L	<0.0030	0.020	06/10/13 17:37	
Hexachlorobenzene	ug/L	<0.011	0.10	06/10/13 17:37	
Hexachlorocyclopentadiene	ug/L	<0.012	0.10	06/10/13 17:37	
Methoxychlor	ug/L	<0.014	0.10	06/10/13 17:37	
Metolachlor	ug/L	<0.011	0.10	06/10/13 17:37	
Metribuzin	ug/L	<0.035	0.10	06/10/13 17:37	
PCB, Total	ug/L	<0.080	0.10	06/10/13 17:37	
Propachlor	ug/L	<0.010	0.10	06/10/13 17:37	
Simazine	ug/L	<0.044	0.070	06/10/13 17:37	
Toxaphene	ug/L	<0.61	1.0	06/10/13 17:37	
Decachlorobiphenyl (S)	%	99	70-130	06/10/13 17:37	

LABORATORY CONTROL SAMPLE: 642763

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alachlor	ug/L	1	1.1	110	70-130	
Atrazine	ug/L	1.2	1.6	126	70-130	
Butachlor	ug/L	.5	0.63	126	70-130	
Dieldrin	ug/L	.5	0.54	108	70-130	
Endrin	ug/L	.05	0.054	108	70-130	
gamma-BHC (Lindane)	ug/L	.1	0.11	109	70-130	
Heptachlor	ug/L	.2	0.22	108	70-130	
Heptachlor epoxide	ug/L	.1	0.11	108	70-130	
Hexachlorobenzene	ug/L	.5	0.45	90	70-130	
Hexachlorocyclopentadiene	ug/L	.5	0.55	110	70-130	
Methoxychlor	ug/L	.5	0.78	157	70-130	L0
Metolachlor	ug/L	.5	0.71	141	70-130	L0
Metribuzin	ug/L	.5	0.88	176	70-130	L0
Propachlor	ug/L	.5	0.52	104	70-130	
Simazine	ug/L	.88	1.1	127	70-130	
Decachlorobiphenyl (S)	%			97	70-130	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 644880 644881

Parameter	Units	3595038001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alachlor	ug/L	0.033U	.97	.97	1.3	1.2	130	122	70-130	6	40	
Atrazine	ug/L	0.020U	1.2	1.2	1.9	1.8	159	149	70-130	6	40	M1
Butachlor	ug/L	0.014U	.48	.48	0.73	0.66	152	137	70-130	10	40	M1
Dieldrin	ug/L	0.013U	.48	.48	0.63	0.57	129	118	70-130	9	40	
Endrin	ug/L	0.0019 U	.048	.048	0.065	0.058	135	119	70-130	12	40	M1
gamma-BHC (Lindane)	ug/L	0.0029 U	.097	.097	0.13	0.12	131	126	70-130	3	40	M1
Heptachlor	ug/L	0.0057 U	.19	.19	0.27	0.25	138	130	70-130	6	40	M1
Heptachlor epoxide	ug/L	0.0029 U	.097	.097	0.13	0.12	130	124	70-130	5	40	
Hexachlorobenzene	ug/L	0.011U	.48	.48	0.51	0.49	106	102	70-130	3	40	
Hexachlorocyclopentadiene	ug/L	0.011U	.48	.48	0.59	0.58	123	119	70-130	3	40	
Methoxychlor	ug/L	0.013U	.48	.48	0.97	0.82	200	171	70-130	16	40	M0
Metolachlor	ug/L	0.011U	.48	.48	0.76	0.73	158	151	70-130	4	40	M0
Metribuzin	ug/L	0.034U	.48	.48	1.1	1.0	232	214	70-130	8	40	M0
Propachlor	ug/L	0.0096 U	.48	.48	0.55	0.53	113	110	70-130	3	40	
Simazine	ug/L	0.042U	.85	.85	1.5	1.6	174	185	70-130	6	40	M1
Decachlorobiphenyl (S)	%						116	107	70-130		40	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/13013 Analysis Method: EPA 515.3
QC Batch Method: EPA 515.3 Analysis Description: 5153 GCS Herbicides
Associated Lab Samples: 3595043001

METHOD BLANK: 642864 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
2,4,5-TP (Silvex)	ug/L	<0.16	0.20	06/07/13 04:06	
2,4-D	ug/L	<0.081	0.10	06/07/13 04:06	
Dalapon	ug/L	<0.89	1.0	06/07/13 04:06	
Dicamba	ug/L	<0.067	0.10	06/07/13 04:06	
Dinoseb	ug/L	<0.16	0.20	06/07/13 04:06	
Pentachlorophenol	ug/L	<0.030	0.040	06/07/13 04:06	
Picloram	ug/L	<0.094	0.10	06/07/13 04:06	
2,4-DCAA (S)	%	85	70-130	06/07/13 04:06	

LABORATORY CONTROL SAMPLE: 642865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4,5-TP (Silvex)	ug/L	1	0.89	89	70-130	
2,4-D	ug/L	.5	0.41	83	70-130	
Dalapon	ug/L	5	4.4	87	70-130	
Dicamba	ug/L	.5	0.52	103	70-130	
Dinoseb	ug/L	1	0.85	85	70-130	
Pentachlorophenol	ug/L	.2	0.17	87	70-130	
Picloram	ug/L	.5	0.36	72	70-130	
2,4-DCAA (S)	%			84	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 642866 642867

Parameter	Units	3594698001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	ND	1	1	1.0	1.0	104	103	70-130	.4	40	
2,4-D	ug/L	ND	.5	.5	0.57	0.57	115	114	70-130	.5	40	
Dalapon	ug/L	ND	5	5	5.4	5.5	109	110	70-130	1	40	
Dicamba	ug/L	ND	.5	.5	0.57	0.55	113	111	70-130	2	40	
Dinoseb	ug/L	ND	1	1	1.1	1.1	106	105	70-130	1	40	
Pentachlorophenol	ug/L	ND	.2	.2	0.20	0.20	99	100	70-130	2	40	
Picloram	ug/L	ND	.5	.5	0.48	0.54	97	107	70-130	10	40	
2,4-DCAA (S)	%						97	99	70-130			

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 643340 643341

Parameter	Units	3595368001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
2,4,5-TP (Silvex)	ug/L	0.16U	1	1	0.89	0.91	89	91	70-130	3	40	
2,4-D	ug/L	0.081U	.5	.5	0.59	0.55	118	109	70-130	8	40	
Dalapon	ug/L	0.89U	5	5	7.5	7.4	151	148	70-130	2	40	M1
Dicamba	ug/L	0.067U	.5	.5	0.56	0.49	112	97	70-130	14	40	
Dinoseb	ug/L	0.16U	1	1	0.82	0.89	82	89	70-130	8	40	
Pentachlorophenol	ug/L	0.030U	.2	.2	0.15	0.11	76	54	70-130	34	40	M1
Picloram	ug/L	0.094U	.5	.5	0.61	0.57	121	114	70-130	6	40	
2,4-DCAA (S)	%						103	102	70-130			

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/13009 Analysis Method: EPA 525.2
QC Batch Method: EPA 525.2 Analysis Description: 525.2 Base Neutral Extractables
Associated Lab Samples: 3595043001

METHOD BLANK: 642764 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aldrin	ug/L	<0.036	0.10	06/07/13 12:28	
Benzo(a)pyrene	ug/L	<0.019	0.10	06/07/13 12:28	
bis(2-Ethylhexyl)adipate	ug/L	<0.38	1.6	06/07/13 12:28	
bis(2-Ethylhexyl)phthalate	ug/L	<0.50	2.0	06/07/13 12:28	
1,3-Dimethyl-2-nitrobenzene(S)	%	90	70-130	06/07/13 12:28	
Perylene-d12 (S)	%	106	70-130	06/07/13 12:28	
Triphenylphosphate (S)	%	96	70-130	06/07/13 12:28	

LABORATORY CONTROL SAMPLE: 642765

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aldrin	ug/L	.4	0.53	131	70-130	L0
Benzo(a)pyrene	ug/L	.4	0.61	152	70-130	L0
bis(2-Ethylhexyl)adipate	ug/L	6.4	7.2	112	70-130	
bis(2-Ethylhexyl)phthalate	ug/L	8	9.6	120	70-130	
1,3-Dimethyl-2-nitrobenzene(S)	%			86	70-130	
Perylene-d12 (S)	%			106	70-130	
Triphenylphosphate (S)	%			103	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 644882 644883

Parameter	Units	3595035001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Aldrin	ug/L	0.035U	.39	.39	0.53	0.48	136	122	70-130	10	40	M0
Benzo(a)pyrene	ug/L	0.018U	.39	.39	0.55	0.29	142	74	70-130	63	40	M0,R1
bis(2-Ethylhexyl)adipate	ug/L	0.37U	6.2	6.2	7.4	6.9	119	111	70-130	7	40	
bis(2-Ethylhexyl)phthalate	ug/L	0.48U	7.8	7.8	10.1	10.2	131	130	70-130	.1	40	M1
1,3-Dimethyl-2-nitrobenzene(S)	%						80	87	70-130			
Perylene-d12 (S)	%						103	96	70-130			
Triphenylphosphate (S)	%						104	99	70-130			

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/12982 — Analysis Method: EPA 548.1
QC Batch Method: EPA 548.1 — Analysis Description: 548 GCS Endothall
Associated Lab Samples: 3595043001

METHOD BLANK: 641886 — Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Endothall	ug/L	<2.7	9.0	06/04/13 12:50	

LABORATORY CONTROL SAMPLE: 641887

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Endothall	ug/L	50	45.3	91	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641888 641889

Parameter	Units	3594822001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Endothall	ug/L	2.7U	50	50	43.6	44.6	87	89	80-120	2	40	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641890 641891

Parameter	Units	3594839001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Endothall	ug/L	ND	50	50	40.2	39.9	80	80	80-120	.6	40	IR

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: OEXT/12983 Analysis Method: EPA 549.2
QC Batch Method: EPA 549.2 Analysis Description: 549 HPLC Paraquat Diquat
Associated Lab Samples: 3595043001

METHOD BLANK: 641892 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diquat	ug/L	<0.15	0.40	06/08/13 02:38	

LABORATORY CONTROL SAMPLE: 641893

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Diquat	ug/L	2	2.4	119	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 641894 641895

Parameter	Units	201093169 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Diquat	ug/L	<0.15	2	2	1.8	2.8	91	142	70-130	44	40	M1,R1

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ANALYTICAL RESULTS

Project: 42001269
Pace Project No.: 3595043

Sample: Well 6A (420-66537-1) **Lab ID: 3595043001** Collected: 05/30/13 12:42 Received: 05/31/13 11:40 Matrix: Drinking Water
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Gross Alpha	EPA 900.0	**2.93U ± 1.55 (2.93)**	pCi/L	06/10/13 09:39	12587-46-1	
Gross Beta	EPA 900.0	**1.87U ± 0.871 (1.87)**	pCi/L	06/10/13 09:39	12587-47-2	
Radium-226	EPA 903.1	**0.902U ± 0.367 (0.902)**	pCi/L	06/10/13 14:47	13982-63-3	
Radium-228	EPA 904.0	**0.757U ± 0.334 (0.757)**	pCi/L	06/10/13 14:27	15262-20-1	
Total Uranium	EPA 908.0	**0.996 ± 0.218 (0.241)**	pCi/L	06/09/13 12:21	7440-61-1	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: RADC/16054 | Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0 | Analysis Description: 904.0 Radium 228
Associated Lab Samples: 3595043001

METHOD BLANK: 590850 | Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-228	-0.0973 ± 0.249 (0.608)	pCi/L	06/10/13 11:47	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: RADC/16053 Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226
Associated Lab Samples: 3595043001

METHOD BLANK: 590849 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	0.388 ± 0.458 (0.720)	pCi/L	06/10/13 14:25	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: RADC/16056 Analysis Method: EPA 900.0
QC Batch Method: EPA 900.0 Analysis Description: 900.0 Gross Alpha/Beta
Associated Lab Samples: 3595043001

METHOD BLANK: 590852 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Gross Alpha	0.171 ± 0.802 (2.01)	pCi/L	06/10/13 09:38	
Gross Beta	-0.803 ± 0.637 (1.86)	pCi/L	06/10/13 09:38	

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QUALITY CONTROL DATA

Project: 42001269
Pace Project No.: 3595043

QC Batch: RADC/16042 Analysis Method: EPA 908.0
QC Batch Method: EPA 908.0 Analysis Description: 908.0 Total Uranium
Associated Lab Samples: 3595043001

METHOD BLANK: 590838 Matrix: Water
Associated Lab Samples: 3595043001

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Total Uranium	0.0135 ± 0.120 (0.218)	pCi/L	06/07/13 17:52	

REPORT OF LABORATORY ANALYSIS

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www.pacelabs.com

Pace Analytical Services, Inc.
8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

QUALIFIERS

Project: 42001269
Pace Project No.: 3595043

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty

(MDC) - Minimum Detectable Concentration

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O	Pace Analytical Services - Ormond Beach
PASI-PA	Pace Analytical Services - Greensburg

ANALYTE QUALIFIERS

IR	The internal standard recovery associated with this result exceeds the upper control limit. The reported result should be considered an estimated value.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L3	Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
M0	Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 42001269
Pace Project No.: 3595043

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
3595043001	**Well 6A (420-66537-1)**	EPA 504.1	OEXT/13026	EPA 504.1	GCSV/8746
3595043001	**Well 6A (420-66537-1)**	EPA 508.1	OEXT/13008	EPA 508.1	GCSV/8777
3595043001	**Well 6A (420-66537-1)**	EPA 515.3	OEXT/13013	EPA 515.3	GCSV/8744
3595043001	**Well 6A (420-66537-1)**	EPA 531.1	GCSV/8735		
3595043001	**Well 6A (420-66537-1)**	EPA 547	GCSV/8750		
3595043001	**Well 6A (420-66537-1)**	EPA 549.2	OEXT/12983	EPA 549.2	GCSV/8774
3595043001	**Well 6A (420-66537-1)**	EPA 525.2	OEXT/13009	EPA 525.2	MSSV/4832
3595043001	**Well 6A (420-66537-1)**	EPA 548.1	OEXT/12982	EPA 548.1	MSSV/4813
3595043001	**Well 6A (420-66537-1)**	EPA 900.0	RADC/16056		
3595043001	**Well 6A (420-66537-1)**	EPA 903.1	RADC/16053		
3595043001	**Well 6A (420-66537-1)**	EPA 904.0	RADC/16054		
3595043001	**Well 6A (420-66537-1)**	EPA 908.0	RADC/16042		

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

WO# : 3595043

PM: VEG   Due Date: 06/14/13
CLIENT: EVNTES

EnviroTest Laboratories Inc.

Client Information (Sub Contract Lab)	Sampler:	COC No: 420-6479.1
Client Contact: Shipping/Receiving	Phone:	dbayer@envirotestlaboratories.com	Page: Page 1 of 1
Company: Pace Analytical Ormond Beach		STL Job #: 420-66537-1
Address: 8 East Tower Circle,	Due Date Requested: 6/11/2013	
City: Ormond Beach	TAT Requested (days):	
State, Zip: FL, 32174		
Phone: 111-222-3333(Tel)	PO #:	
Email:	WO #:	
Project Name: LBG, Inc.	Project #: 42001269	
Site:	SSOW#:	

Analysis Requested

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ 515 Chlorinated Acids	SUBCONTRACT/ 504 EPA 504.1 EDB/DBCP	SUBCONTRACT/ 531.1 Carbamate Pesticides in DW	SUBCONTRACT/ 525.2 Semivolatile Organics	SUBCONTRACT/ 900 GA/GB/RA 226/RA 228	SUBCONTRACT/ Total Uranium	SUBCONTRACT/ 605	SUBCONTRACT/ 547	SUBCONTRACT/ 548	SUBCONTRACT/ 549	SUBCONTRACT/ Dioxin			Total Number of containers	Special Instructions/Note:
				Preservation Code:																	
Well 6A (420-66537-1)	5/30/13	12:42		Water			X	X	X	X	X	X	X	X	X	X	X			15	

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:		Time:		Method of Shipment:	
Relinquished by: [signature]	Date/Time: 5/31/13 1600	Company: Env.	Received by: J Platt		Date/Time: 5/31/13 11:40	Company
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

Pace Analytical	Document Name: Sample Condition Upon Receipt Form Document No.: F-FL-C-007 rev. 04	Document Revised: September 23, 2011 Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number:

Client Name: ENVIRTEST Project # 3595043

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking # 7998 8436 4627

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals Intact: ☑ yes ☑ no

Date and Initials of person examining contents: JP 5/31/13

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☑ Other

Thermometer Used T-1105 Type of Ice: (Wet) Blue None

Cooler Temperature°C 3.9 (Visual) 0.0 (Correction Factor) 3.9 (Actual)

(Temp should be above freezing to 6°C). If Below 0°C, then was sample frozen? ☐Yes ☐No

Receipt of samples satisfactory: ☐Yes ☐No

Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☐
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: Date/Time:

Comments/ Resolution (use back for additional comments):

Project Manager Review: [signature] Date: 5 31 13

Finished Product Information Only

F.P. Sample ID:

Production Code:

Date/Time Opened:

Number of Unopened Bottles Remaining:

Extra Sample in Shed: Yes No

Size & Qty of Bottles Received

x 5 Gal

x 2.5 Gal

x 1 Gal

x 1 Liter

x 500 mL

x 250 mL

x Other:

APPENDIX II

EnviroTest
Laboratories Inc.

ANALYTICAL REPORT

Job Number: 420-68307-1

SDG Number: Brynwood

Job Description: LBG, Inc.

For:
Leggette, Brashears & Graham, Inc.
4 Research Drive
Shelton, CT 06464

Attention: Stacy Stieber

Debra Bayer
Customer Service Manager
dbayer@envirotestlaboratories.com
08/15/2013

EnviroTest Laboratories, Inc. Certifications and Approvals: NELAP Accredited, NYSDOH 10142, NJDEP NY015, CTDOPH PH-0554, EPA NY00049

Envirotest Laboratories, Inc.
315 Fullerton Avenue, Newburgh, NY 12550
Tel (845) 562-0890 Fax (845) 562-0841 www.envirotestlaboratories.com

08/15/2013

METHOD SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-68307-1
SDG Number: Brynwood

Description	Lab Location	Method	Preparation Method
Matrix: Water			
EPA 515 Chlorinated Acids		EPA 515	

Lab References:

=

Method References:

EPA = US Environmental Protection Agency

SAMPLE SUMMARY

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-68307-1
SDG Number: Brynwood

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
420-68307-1	Brynwood Well 3	Water	07/23/2013 0912	07/23/2013 1245
420-68307-2	Brynwood Well 2B	Water	07/23/2013 0950	07/23/2013 1245
420-68307-3	Brynwood Well 5	Water	07/23/2013 0945	07/23/2013 1245

EnviroTest Laboratories, Inc.

CHAIN OF COUSTODY

Lab Name: EnviroTest Laboratories
Address & Phone: 315 Fullerton Avenue, Newburgh, New York 12550 845-562-0890

REPORT# (Lab Use Only): 68307

PROJECT REFERENCE: Brynwood	PO #: Brynwd	PROJECT LOCATION: NY
ENVIROTEST PROJECT MANAGER: Debra Bayer	CLIENT CELL:	TOWN: Armonk
CLIENT (SITE) PM: Stacey Stieber	CLIENT PHONE: 203-929-8555	CLIENT FAX:
CLIENT NAME: LGB, Inc.		
CLIENT ADDRESS: Route 6/202, Cortlandt Manor, NY 10567		
COMPANY CONTRACTING THIS WORK (if applicable):		

PAGE 1 of 1

TURNAROUND TIME: NORMAL X; QUICK ____; VERBAL ____

#OF COOLERS: 1

SAMPLE DATE	SAMPLE TIME	SAMPLE IDENTIFICATION	COMPOSITE (C) OR GRAB (G) INDICATE	AQUEOUS (WATER)	D (Drinking Water) or W (Waste Water) Indicate	SOLID OR SEMISOLID	OTHER Specify	Total # of Containers	40ml Vials Sodium Thio.	250ml Sodium Thio.	250ml Amber Am.Chloride	Liter Amber	250ml Plastic Nitric Acid	250ml Plastic Sulfuric Acid	250ml Amber	250ml Plastic Sodium Hyd.	40ml with sulfuric	250ml Amm. Chloride	REMARKS
7/23/13	912	Brynwood Well 3			X			1		1									SOC (515) picloram only
7/23/13	930	Brynwood Well 2B			X			1		1									SOC (515) picloram only
7/23/13	945	Brynwood Well 5			X			1		1									SOC (515) picloram only

RELINQUISHED BY: (SIGNATURE)	COMPANY	DATE	TIME	RECEIVED BY: (SIGNATURE)	COMPANY	DATE	TIME
[signature]	LBG	7/23/13	1245				
SAMPLED BY: (SIGNATURE) [signature]	LBG	7/23/13	945				
RELINQUISHED BY: (SIGNATURE)							

SHORT HOLDING TIME ---- SOCs subcontract to PACE

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT YES NO	Cooler Temp.:	LABORATORY REMARKS:
[signature]	7/23/13	1245		8.4	ICE ✓ pH___ CL2___ Reveiwed by___

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Leggette, Brashears & Graham, Inc.

Job Number: 420-68307-1
SDG Number: Brynwood

Login Number: 68307

Question	T/F/NA	Comment
Samples were collected by ETL employee as per SOP-SAM-1	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is recorded.	True	8.4 C
Cooler Temp. is within method specified range.(0-6 C PW, 0-8 C NPW, or BAC <10 C	True	
If false, was sample received on ice within 6 hours of collection.	NA	
Based on above criteria cooler temperature is acceptable.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

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8 East Tower Circle
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August 13, 2013

Ron Bayer
EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550

RE: Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Dear Ron Bayer:

Enclosed are the analytical results for sample(s) received by the laboratory on July 24, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Bo Garcia

bo.garcia@pacelabs.com
Project Manager

Enclosures

cc: Debra Bayer, EnviroTest Laboratories Inc.
Renee Cusack, EnviroTest Laboratories Inc.
Joyce Esposito, EnviroTest Laboratories Inc.
Janine Rader, EnviroTest Laboratories Inc.
Meredith Ruthven, EnviroTest Laboratories Inc.

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(386)672-5668

CERTIFICATIONS

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Ormond Beach Certification IDs
8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Arizona Certification #: AZ0735
Colorado Certification: FL NELAC Reciprocity
Connecticut Certification #: PH-0216
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Kentucky Certification #: 90050
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maine Certification #: FL01264
Massachusetts Certification #: M-FL1264
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nevada Certification: FL NELAC Reciprocity
New Hampshire Certification #: 2958
New Jersey Certification #: FL765
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Washington Certification #: C955
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

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SAMPLE SUMMARY

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Lab ID	Sample ID	Matrix	Date Collected	Date Received
35101632001	**Brynwood Well 3**	Drinking Water	07/23/13 09:12	07/24/13 11:45
35101632002	**Brynwood Well 2B**	Drinking Water	07/23/13 09:50	07/24/13 11:45
35101632003	**Brynwood Well 5**	Drinking Water	07/23/13 09:45	07/24/13 11:45

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SAMPLE ANALYTE COUNT

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
35101632001	**Brynwood Well 3**	EPA 515.3	LJM	2	PASI-O
35101632002	**Brynwood Well 2B**	EPA 515.3	LJM	2	PASI-O
35101632003	**Brynwood Well 5**	EPA 515.3	LJM	2	PASI-O

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ANALYTICAL RESULTS

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Sample: Brynwood Well 3 **Lab ID: 35101632001** Collected: 07/23/13 09:12 Received: 07/24/13 11:45 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
Picloram	**0.56**	ug/L	0.10	0.094	1	07/29/13 09:00	07/31/13 05:39	1918-02-1	
Surrogates									
2,4-DCAA (S)	84	%	70-130		1	07/29/13 09:00	07/31/13 05:39	19719-28-9	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Sample: Brynwood Well 2B **Lab ID: 35101632002** Collected: 07/23/13 09:50 Received: 07/24/13 11:45 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
Picloram	**0.80**	ug/L	0.20	0.19	2	07/29/13 09:00	07/31/13 23:56	1918-02-1	
Surrogates									
2,4-DCAA (S)	94	%	70-130		1	07/29/13 09:00	07/31/13 06:10	19719-28-9	

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ANALYTICAL RESULTS

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Sample: Brynwood Well 5 **Lab ID: 35101632003** Collected: 07/23/13 09:45 Received: 07/24/13 11:45 Matrix: Drinking Water

Parameters	Results	Units	PQL	MDL	DF	Prepared	Analyzed	CAS No.	Qual
515.3 Chlorinated Herbicides	Analytical Method: EPA 515.3 Preparation Method: EPA 515.3								
Picloram	**1.1**	ug/L	0.20	0.19	2	07/29/13 09:00	08/01/13 00:27	1918-02-1	
Surrogates									
2,4-DCAA (S)	89	%	70-130		1	07/29/13 09:00	07/31/13 06:41	19719-28-9	

REPORT OF LABORATORY ANALYSIS

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Ormond Beach, FL 32174
(386)672-5668

QUALIFIERS

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-O Pace Analytical Services - Ormond Beach

WORKORDER QUALIFIERS

WO: 35101632

[1] Samples requiring thermal preservation were received outside of recommended temperature limits of 0-6 degrees Celsius (12.7 C). The lab continued with the analyses per client request.

REPORT OF LABORATORY ANALYSIS

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8 East Tower Circle
Ormond Beach, FL 32174
(386)672-5668

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 42001269 LBG, Inc.
Pace Project No.: 35101632

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
35101632001	**Brynwood Well 3**	EPA 515.3	OEXT/13641	EPA 515.3	GCSV/9121
35101632002	**Brynwood Well 2B**	EPA 515.3	OEXT/13641	EPA 515.3	GCSV/9121
35101632003	**Brynwood Well 5**	EPA 515.3	OEXT/13641	EPA 515.3	GCSV/9121

EnviroTest Laboratories, Inc.
315 Fullerton Avenue
Newburgh, NY 12550
Phone (845) 562-0890 Fax (845) 562-0841

Chain of Custody Record

EnviroTest Laboratories Inc.

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bayer, Debra	Carrier Tracking No(s):	COC No: 420-6549.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: dbayer@envirotestlaboratories.com		Page: Page 1 of 1
Company: Pace Analytical Ormond Beach				STL Job #: 420-68307-1
Address: 8 East Tower Circle,	Due Date Requested: 8/6/2013			
City: Ormond Beach	TAT Requested (days):			
State, Zip: FL, 32174				
Phone: 111-222-3333(Tel)	PO #:			
Email:	WO #:			
Project Name: LBG, Inc.	Project #: 42001269			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2SO3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - ph 4-5, Z - other (specify)
Other:

Sample Identification Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUBCONTRACT/ 515 Chlorinated Acids	Total Number of containers	Special Instructions/Note:
				Preservation Code:					
Brynwood Well 3 (420-68307-1)	7/23/13	9:12		Water			X	1	*Note
Brynwood Well 2B (420-68307-2)	7/23/13	9:50		Water			X	1	Picloram Only
Brynwood Well 5 (420-68307-3)	7/23/13	9:45		Water			X	1	

WO#: 35101632
35101632

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by: [signature]	Date/Time: 7/23 1630	Company: ETL	Received by: DS [signature]	Date/Time: 7/24/13 1145	Company: PACE	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: September 23, 2011
	Document No.: F-FL-C-007 rev. 04	Issuing Authorities: Pace Florida Quality Office

Sample Condition Upon Receipt Form (SCUR)

Table Number:

Client Name: Envirotest Project # 3510632

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other

Tracking # 796295760153

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals Intact: ☐ yes ☑ no

Date and Initials of person examining contents: 7/24/13

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

Thermometer Used T168 Type of Ice: Wet Blue None

Cooler Temperature°C 12.7 (Visual) 0 (Correction Factor) 12.7 (Actual)

(Temp should be above freezing to 6°C). If below 0°C, then was sample frozen? ☐ Yes ☐ No

Receipt of samples satisfactory: ☐ Yes ☑ No

Rush TAT requested on COC:

If yes, then all conditions below were met:	If no, then mark box & describe issue (use comments area if necessary):
Chain of Custody Present	☐
Chain of Custody Filled Out	☐
Relinquished Signature & Sampler Name COC	☐
Samples Arrived within Hold Time	☐
Sufficient Volume	☐
Correct Containers Used	☐
Containers Intact	☑ out of temp
Sample Labels match COC (sample IDs & date/time of collection)	☐ No Labels: ☐ No Time/Date on Labels: ☐
All containers needing preservation are found to be in compliance with EPA recommendation.	☐
No Headspace in VOA Vials (>6mm):	☐

Client Notification/ Resolution:

Person Contacted: Joe. Date/Time: 7/24/13 3:30

Comments/ Resolution (use back for additional comments): Run project / client

Project Manager Review: [signature] Date: 7 25 13

Finished Product Information Only

F.P. Sample ID:

Production Code:

Date/Time Opened:

Number of Unopened Bottles Remaining:

Extra Sample in Shed: Yes No

Size & Qty of Bottles Received

x 5 Gal
x 2.5 Gal
x 1 Gal
x 1 Liter
x 500 mL
x 250 mL
x Other:

APPENDIX G

BRYNWOOD GOLF & COUNTRY CLUB
IRRIGATION WATER USAGE
ARMONK, NEW YORK

Prepared For:

Brynwood Partners, LLC

September 2013

Prepared By:

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BRYNWOOD GOLF & COUNTRY CLUB
IRRIGIATION WATER USAGE
ARMONK, NEW YORK

1.0 INTRODUCTION

Leggette, Brashears & Graham, Inc. (LBG) has conducted an evaluation of the available pond storage and irrigation water usage at the Brynwood Golf & Country Club (Brynwood), located on Route 22 in Armonk, New York (figure 1). The evaluation was completed to assess the existing storage capacity of the onsite ponds and quantify the volume of water (groundwater and surface water) used to irrigate the golf course. As part of this evaluation, LBG used published data for the region, as well as data collected from a site-specific monitoring program, and water budgets for the onsite ponds were calculated.

As part of the site-specific monitoring program, LBG installed staff gages in the onsite ponds to correlate pond volumes to changes in water level and precipitation, and conducted stream gaging between April 2013 and August 2013 at several locations on the golf course to establish stream flow volumes and site recharge. The locations of the staff gages and stream gaging are presented on Plate 1. In order to determine the storage capacity of each pond, a bathometric survey was also conducted by LBG in November 2012 as part of this study.

2.0 GEOLOGIC SETTING

Brynwood is located on a 156-acre parcel in the Village of Armonk, Town of North Castle, New York between Bedford Road (Route 22) and I-684 (figure 1). The site lies in the Byram River drainage basin, which discharges into the Long Island Sound. Topography at the site has a moderate to steep slope (east to west) with elevations ranging from approximately 675 feet on the northeastern property boundary, along Bedford Road, to 400 feet on the southwestern property boundary.

2.1 Surficial Geology

Overburden deposits on the site are comprised entirely of glacial till (New York State Geological Survey, 1997). Till consists of non-sorted, non-stratified sediments deposited by glacial activity. The sediment contains varying proportions of clay, silt, sand, gravel and boulders. The published surficial geology maps of the area show no sand and gravel aquifers on the site and no sand and gravel aquifer material was encountered during the bedrock test well drilling program conducted on the site in 2013. Based on the well logs from the 2013 bedrock test well drilling program, the depth to bedrock (till thickness) ranged from 4 feet below grade (ft bg) to 37 ft bg across the study property.

2.3 Bedrock Geology

The bedrock beneath the study property is comprised of Fordham Gneiss (New York State Geological Survey, 1999). Fordham Gneiss is a metamorphic bedrock unit typically described as hard, light to dark banded, occasionally foliated, coarse-grained gneiss and amphibolite. The dense fabric of gneiss bedrock units is resistant to weathering. In general, this bedrock unit exhibits very low primary permeability based on the porosity of the rock, and secondary permeability caused by the presence of interconnected fractures is low to moderate.

Six bedrock wells were drilled on the Brynwood site in 2013 as part of the groundwater exploration program conducted on the property. All of the bedrock wells drilled had water levels above the top of casing upon completion which demonstrates an upward gradient in the bedrock groundwater underlying the property.

2.4 Surface Water

There are six surface-water bodies located on the study parcel (Plate 1). Ponds 1, 2, 3 and 3A are interconnected ponds which flow from south to north through the southern portion of the golf course. The irrigation pump house which supplies water to the golf course's irrigation system is located on the downstream side of Pond 2. Ponds 4 and 5 are interconnected ponds (separate from Ponds 1, 2, 3 and 3A) located on the central portion of the golf course.

The overflow from Ponds 1, 2, 3 and 3A and from Ponds 4 and 5 is directed to a stream channel that is centrally located on the golf course. This unnamed stream will be referred to as the "central stream" in this report. The central stream, which also received discharge water from the onsite wastewater treatment plant (WWTP), flows from east to west off the property.

Two other intermittent stream channels are mapped on the property. One intermittent stream channel is located along the southern property boundary and the other near the northern property boundary. Flow in these intermittent stream channels was only observed during the data collection period immediately following large storm events and the intermittent stream channels do not discharge into the onsite pond system.

Town regulated wetlands are also present on the site. Wetlands have been mapped around the onsite ponds and central stream channel, as well as along the two intermittent streams on the property.

The upper watershed boundary for the Brynwood site is shown on figure 1. The contributing watershed areas for each of the onsite ponds has been mapped by John Meyer Consulting, PC (JMC) for both existing conditions and proposed conditions following the completion of site modifications. The drawings showing the existing and proposed watershed areas are included in Appendix I. A network of storm-water catch basins is located on the property. Storm-water runoff collected in the catch basins within each pond's watershed is directed through culvert pipes into the onsite ponds which are also shown on the JMC drawings in Appendix I.

3.0 MONITORING PROGRAM

3.1 Stream Flow

As part of the field monitoring program, stream gage locations were positioned at ten sites throughout the golf course. The stream gage locations are shown on Plate 1. Stream gage SG-1 was located at the outflow of Pond 1, which is a culvert pipe that connects Ponds 1 and 2. Stream gage SG-2 is located at the outflow of Pond 2. This gaging location is a culvert pipe downstream of the pump house where irrigation water is withdrawn from the pond. Stream gaging locations SG-8 and SG-9 are culvert pipes which discharge storm-water runoff in the onsite catch basins into Pond 2.

Stream gage location SG-7 is located in the channel connecting Ponds 3 and 3A and SG-3 is located in the outflow channel from Pond 3A at the mouth of a culvert pipe which carries water under the fairway of Hole 16 and into the central stream.

Stream gage location SG-4 is a weir located at the outflow of Pond 4 and SG-5 is a weir at the outflow of Pond 5. Gaging location SG-10 is at the outflow end of the culvert pipe which carries the outflow from Pond 5 and discharges into the central stream.

Stream gage location SG-6 is located in the central stream at a culvert pipe which carries the stream flow under the cart path connecting Holes 15 and 16. This location receives the outflow from Pond 3A (which includes the overflow from Ponds 1, 2 and 3 also) and the discharge water from the onsite WWTP.

Table 1 below shows the stream flow measurements collected from the stream gage locations during the data collection period and the total calculated stream flow leaving the site in the central stream at the western property boundary. Flow charts showing the change in stream flow volume across the project site for the January, April and August 2013 site-wide stream gaging events are included in Appendix II.

Table 1: Stream Flow Measurements Collected from Onsite Stream Gaging Locations (cubic feet per second)

Date	SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10	Calculated Discharge
10/18/12	0.000	0.016	0.030	0.000	0.000	NM	NM	NM	NM	NM	--
10/26/12	0.000	0.140	0.159	0.002	0.014	0.164	0.164	0.250	0.000	NM	0.178
11/19/12	0.011	0.089	0.135	0.010	0.036	0.044	0.102	0.046	0.000	NM	0.080
1/31/13	0.222	1.33	1.15	0.006	0.025	2.09	1.36	0.525	0.060	0.222	2.31
4/19/13	0.063	0.005	0.049	0.055	0.012	0.057	0.002	0.116	0.000	0.047	0.104
5/20/13	0.000	0.000	0.000	NM	NM	0.014	NM	NM	NM	NM	--
8/9/13	0.001	0.000	0.029	0.035	0.009	0.061	0.022	0.069	0.000	0.014	0.075

NM not measured

3.2 Pond Stage

In addition to monitoring stream flow, the field program also included the collection of surface-water height measurements from five staff gages located in the onsite ponds. The pond staff gage locations are shown on plate 1. Staff gage SG-A is located on Pond 1, SG-B is located in Pond 2, SG-C is located in the outlet channel downstream of Pond 3A, SG-D is located in Pond 4 and SG-E is located in Pond 5 (plate 1). Staff gages SG-A, SG-B, SG-C, SG-D and SG-E are permanent, pre-marked gages that are 3.3 feet in height. The heights on the gages are read based on zero (0) feet being near the pond bottom. These staff gages were monitored by Brynwood personnel from late October through December 2012 and again starting in April 2013 through August 2013. Data collection from the staff gages was very limited from January 2013 through March 2013 because the golf course was frequently snow covered and the ponds were frozen.

The data from the staff gage monitoring were used to aid in the flow budget evaluation. The change in pond surface-water levels from staff gages SG-A, B, C, D and E compared to precipitation events are presented in the hydrographs included in Appendix III.

Two additional staff gages, SG-F and SG-G, were installed in Ponds 3A and 3, respectively, as part of the bathometric survey conducted (plate 1). Periodic measurements were collected by LBG during the stream gaging events conducted during the data collection period.

Elevation data from these gages were used to calculate pond volumes, but these gages were not read daily by the golf course staff. These gages are constructed from wooden stakes driven into the pond bottom (Pond 3). The gages are not pre-marked and surface-water height is measured from the top of stake down to the top of the surface water.

3.3 Wastewater Treatment Plant Discharge

The WWTP receives wastewater from the existing onsite facilities. The treated wastewater from the WWTP is discharged into the central stream on the project site. Operation reports with daily discharges from the WWTP for 2013 are located in Appendix IV. The table below contains a summary of the total monthly and average daily discharge from the WWTP:

Table 2: Total Monthly Onsite Wastewater Treatment Plant for 2013

Date	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total Monthly Discharge (mgd)	0.146	0.182	0.240	0.188	0.278	0.331	.347	NA	NA	NA	NA	NA
Total Monthly Discharge (cfs)	0.226	0.282	0.372	0.291	0.431	0.513	0.538	NA	NA	NA	NA	NA
Average Daily Discharge (mgd)	0.0047	0.0065	0.0077	0.0063	0.0090	0.0110	0.0112	NA	NA	NA	NA	NA
Average Daily Discharge (cfs)	0.007	0.010	0.012	0.010	0.014	0.017	0.017	NA	NA	NA	NA	NA

mgd million gallons per day
cfs cubic feet per second
NA not available

3.4 Irrigation Water Usage

Totalizing meters were installed in January 2013 on the discharge lines inside the irrigation pump house which withdraws water from Pond 2. Data from the totalizing meters was recorded daily to document the volume of water withdrawn from Pond 2 for use in irrigating the golf course. A graph of the daily irrigation water usage is included in Appendix V. The total monthly irrigation water usage, average daily withdrawal, and peak day usage for each month are provided in the table below:

Table 3: Metered Irrigation Water Usage in 2013

Month	Total Monthly Withdrawal from Pond 2 (gallons)	Average Daily Withdrawal (gallons per day)	Peak Day Withdrawal (gallons per day)
January	0	0	0
February	0	0	0
March	0	0	0
April	1,074,000	35,800	134,000
May	1,037,100	33,500	144,900
June	569,600	19,000	304,100
July	2,070,800	66,800	260,000
August	934,000	30,129	200,000
September	NA	NA	NA
October	NA	NA	NA
November	NA	NA	NA
December	NA	NA	NA

NA not available

3.5 Groundwater

Two bedrock irrigation wells (Irrigation Wells 4 and 5, also known as the North and South Wells, respectively) are pumped into Pond 2 during the golf season to supplement the surface water used to irrigate the golf course. Irrigation Wells 4 and 5 were included in a 72-hour pumping test conducted in May 2013 along with four proposed bedrock potable water-supply wells drilled on the site. The six wells (two irrigation wells and four proposed supply wells) were pumped concurrently at a total combined rate of 185.5 gpm. Irrigation Wells 4 and 5 were pumped at individual rates of 32 gpm and 40 gpm, respectively, during the test period. The existing pumps and appurtenance for the irrigation wells were used for the 72-hour pumping test and 32 gpm and 40 gpm are the rates that Irrigation Wells 4 and 5 are pumped at when they are in use during the year.

Totalizing meters were installed on the discharge lines of Irrigation Wells 4 and 5 in January 2013 to measure the volume of water pumped from each well on a daily basis. A graph of the daily water withdrawal from Irrigation Wells 4 and 5 for 2013 is included in Appendix V. Below is a table summarizing total monthly irrigation well withdrawal, average day withdrawal and peak day withdrawal from the irrigation wells for each month.

Table 4: Metered Irrigation Well Usage in 2013

Month	Total Monthly Withdrawal from Irrigation Wells 4 and 5 (gallons)	Average Day Withdrawal (gallons per day)	Peak Day Withdrawal[2/] (gallons per day)
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May[1/]	1,882,600	60,700	103,680[2/]
June	0	0	0
July	1,066,800	34,400	103,680[2/]
August	0	0	0
September	NA	NA	NA
October	NA	NA	NA
November	NA	NA	NA
December	NA	NA	NA

1/ The 72-hour pumping test which included the continuous pumping of Irrigation Wells 4 and 5 was conducted in May 2013. The volume pumped from the wells during the test period is included in these monthly values.
2/ Peak day is based on maximum combined pumping rate of Irrigation Wells 4 and 5 pumping for a period of 24 hours
NA not available

4.0 POND WATER BUDGET ANALYSIS

The water storage volumes for the onsite ponds were calculated based on the bathometric survey (pond bottom) conducted by LBG in November 2012. Elevations for both the "soft" bottom and "hard" bottom were measured during the survey (figure 2 through 6). Graphs of potential pond storage versus the change in pond stage for all of the onsite ponds are included in Appendix VI. The watershed area, potential storage volume for each pond and volume of soft sediment at the bottom of each pond are summarized on the table below.

Table 5: Pond Storage

Pond	Water Elevation (feet above mean sea level) (full but not overflowing)	Pond Watershed Area (acres)	Pond Storage to Soft Bottom (gallons)	Pond Storage to Hard Bottom (gallons)	Sediment Volume (Hard Bottom –Soft Bottom) (cubic yards)
Pond 1	484.5	9.66	901,300	1,058,200	770
Pond 2	484.2	53.26	3,721,200	4,779,500	5,150
Pond 3	476.6	6.54	294,400	454,000	684
Pond 3A	473.5	7.41	109,700	245,400	786
Pond 4	477.4	5.67	164,100	239,800	376
Pond 5	470.8	8.99	132,200	245,800	564

Because of the location of the irrigation pump house on the downstream side of Pond 2 and the limited flow measured between Ponds 1 and 2 during periods of low precipitation which can be seen in the stream gaging and staff gage measurements, Pond 2 is currently the only onsite pond that contributes significantly to the onsite irrigation water supply.

4.1 Annual Water Budgets

The water budget evaluation was completed utilizing the methodology outlined in the "Water Resources Handbook" (Mays, 1996). As with any water budget evaluation, a number of surface hydrologic processes were considered in the analysis. These processes included direct precipitation and evaporation at the pond surface, groundwater flux into and out of the pond, stream outflow and over-land flow. Published data for the region, in conjunction with LBG field data, were used to determine the annual hydrologic budget of the ponds. The water budget components are described below.

4.1.1 Precipitation

Precipitation to the ponds was based on data recorded at the National Oceanic and Atmospheric Administration's (NOAA) rain gage located at Westchester County Airport in White Plains, New York. Data from 1971 to 2000 indicate that the average annual precipitation in the White Plains area is 50.45 inches per year. The annual precipitation to the ponds is presented below.

Table 6: Annual Direct Precipitation to Onsite Ponds

Pond	Pond Surface Area (acres)	Precipitation (inches per year)	Precipitation to Pond (cubic feet per year)	Precipitation to Pond (gallons per year)
Pond 1	0.60	50.45	109,900	822,000
Pond 2	2.0	50.45	366,300	2,739,900
Pond 3	0.34	50.45	62,300	465,800
Pond 3A	0.26	50.45	47,600	356,200
Pond 4	0.18	50.45	33,000	246,600
Pond 5	0.29	50.45	53,100	397,300

4.1.2 Evaporation

There is limited published evaporation data available for local weather station near Westchester County. Therefore, evaporation from the pond surfaces have been calculated based on evapotranspiration values published for White Plains, NY. Data from 1997 to 2006 report the average annual evapotranspiration in the White Plains area is 25.03 inches per year. This value is slightly higher than other annual evaporation values published for the northeast region of the country. However, to be conservative, the 25.03 inches per year will be used in this report. The annual evaporation from the pond surfaces is presented below.

Table 7: Annual Direct Evaporation from Onsite Ponds

Pond	Total Watershed Area (acres)	Evaporation (inches per year)	Evaporation from Pond (cubic feet per year)	Evaporation from Pond (gallons per year)
Pond 1	0.60	25.03	54,500	407,800
Pond 2	2.0	25.03	181,700	1,359,300
Pond 3	0.34	25.03	30,900	231,100
Pond 3A	0.26	25.03	23,600	176,700
Pond 4	0.18	25.03	16,400	122,300
Pond 5	0.29	25.03	26,300	197,100

4.1.3 Groundwater Recharge

The groundwater flux into the ponds was calculated based on a recharge rate to till of 7-inches annually or about 520.7 gpd/acre (gallons per day per acre) (Cervione, et al, 1979). This groundwater recharge rate is comparable to calculated groundwater recharge rates for the site based on stream gaging data collected during LBGs field investigation.

For the calculation below, the groundwater divides to the ponds were assumed coincidental with surface-water drainage divides. The annual recharge from groundwater to the ponds is presented below.

Table 8: Annual Groundwater Recharge within Pond Watershed Areas

Pond	Basin Area Minus Surface-Water Area (acres)	Groundwater Recharge (inches per year)	Groundwater (cubic feet per year)	Groundwater (gallons per year)
Pond 1	9.06	7.00	230,200	1,722,100
Pond 2	51.26	7.00	1,302,500	9,743,500
Pond 3	6.20	7.00	157,500	1,178,500
Pond 3A	7.15	7.00	181,700	1,359,100
Pond 4	5.49	7.00	139,500	1,043,500
Pond 5	8.70	7.00	221,100	1,653,700

4.1.4 Overland Flow

The overland flow component of the pond water budgets include the direct surface-water runoff into the ponds and the runoff in the watershed that is collected in the catch basins located on the golf course that discharge to the onsite ponds. The overland flow value for the ponds were calculated based on annual precipitation, minus evapotranspiration and groundwater recharge and is consistent with typically annual runoff values for the region. Note that the overland flow calculated was limited to portions of the watershed not overlain by surface water. The annual overland flow to the ponds is presented below.

Table 9: Annual Overland Flow within Pond Watershed Areas

Pond	Basin Area Minus Surface-Water Area (acres)	Overland Flow (inches per year)	Overland Flow to Pond (cubic feet per year)	Overland Flow to Pond (gallons per year)
Pond 1	9.06	18.42	605,800	4,531,600
Pond 2	51.26	18.42	3,427,500	25,639,300
Pond 3	6.20	18.42	414,600	3,101,100
Pond 3A	7.15	18.42	478,100	3,576,300
Pond 4	5.49	18.42	367,100	2,746,000
Pond 5	8.70	18.42	581,700	4,351,600

4.2 Annual Water Budget Summary – Average Precipitation Conditions

A summary of the annual recharge to the ponds based on the components described above (precipitation to ponds, overland flow, groundwater recharge, minus evaporation from ponds and watershed) under normal precipitation conditions is presented below.

Table 10: Annual Pond Recharge-Average Precipitation

Pond	Annual Average Pond Recharge (cubic feet per year)	Annual Average Pond Recharge (gallons per year)	Annual Average Pond Recharge (gallons per day)
Pond 1	891,400	6,667,900	18,200
Pond 2	4,914,500	36,763,300	100,600
Pond 3	603,500	4,514,300	12,400
Pond 3A	683,800	5,114,800	14,000
Pond 4	523,200	3,913,800	10,700
Pond 5	829,500	6,205,400	17,000

4.3 Annual Water Budget Summary – Drought Precipitation Conditions

Recharge to the onsite ponds was also assessed based on drought precipitation conditions. A precipitation probability graph for the Westchester County Airport Climate Station was created using published data from the period 1971-2000 to determine the potential reduction in precipitation during drought conditions. Based on the graph (Appendix VII), during a 1-year-in-30 drought (3.33% chance of recurrence), the annual precipitation total would decline 28.6 percent to 36.0 inches per year which would cause a subsequent decrease in groundwater recharge and overland flow.

Using the same method to calculated pond recharge as was used above for normal precipitation conditions, annual recharge to the onsite ponds was been calculated for a 1-year-in-

30 drought event. A summary of the annual recharge to the ponds based on the drought conditions is presented below.

Table 11: Annual Pond Recharge-Drought Precipitation

Pond	Drought Pond Recharge (cubic feet per year)	Drought Pond Recharge (gallons per year)	Drought Pond Recharge (gallons per day)
Pond 1	384,700	2,877,400	7,900
Pond 2	2,120,700	15,863,600	43,400
Pond 3	260,400	1,948,000	5,300
Pond 3A	295,000	2,207,100	6,000
Pond 4	225,800	1,688,800	4,600
Pond 5	358,000	2,677,700	7,300

5.0 POND 2 RECHARGE VERSUS IRRIGATION WATER USAGE – EXISTING CONDITIONS

5.1 Average Precipitation Conditions – April through November

In addition to annual pond recharge, the recharge to the main irrigation pond, Pond 2, has been reviewed for the period when irrigation water is used on the golf course (April through November). The 30-year average monthly precipitation (1971-2000) from the Westchester County Airport Weather Station and the monthly evapotranspiration values from White Plains have been used to complete the analysis. The table below summarizes the monthly recharge to Pond 2 based on normal precipitation conditions.

Table 12: Monthly Recharge to Pond 2-Average Precipitation

Month	30-Year Monthly Average Precipitation 1971-2000 (inches)	Evapo-transpiration (inches/month)	Direct Precipitation to Pond (gallons per month)	Evaporation from Pond (gallons per month)	Overland Flow to Pond (gallons per month)	Groundwater Recharge (gallons per month)	Net Monthly Pond Recharge (gallons per month)	Average Daily Recharge to Pond (gallons per day)
April	4.44	2.33	241,100	126,500	1,812,000	1,125,000	3,051,600	101,700
May	4.58	3.39	248,700	184,100	822,800	833,600	1,721,000	55,500
June	3.77	3.79	204,700	205,800	0	638,700	637,600	21,300
July	3.72	4.23	202,000	229,700	0	334,700	307,000	9,900
August	4.00	3.57	217,200	193,900	505,500	93,000	621,900	20,100
September	4.70	2.54	255,300	137,900	2,727,300	279,300	3,123,900	104,100
October	4.17	1.52	226,500	82,500	3,156,300	532,300	3,832,500	123,600
November	4.47	0.75	242,800	40,700	4,221,000	957,000	5,380,000	179,300

A comparison of the irrigation water usage during the golf season from 2013 versus the available pond recharge rate under existing site conditions with average precipitation is provided in the tables below:

Table 13: Irrigation Water Usage Versus Monthly Average Recharge to Pond 2 – Existing Conditions

	2013 Metered Irrigation Water Usage (gallons per month)	Net Monthly Pond Recharge (gallons per month)	Average Daily Recharge to Pond (gallons per day)
April	1,074,000	3,051,600	101,700
May	1,037,100	1,721,000	55,500
June	569,600	637,600	21,300
July	2,070,800	307,000	9,900
August	934,000	621,900	20,100
September	NA	3,123,900	104,100
October	NA	3,832,500	123,600
November	NA	5,380,000	179,300

NA not available

As shown on the table above, the recharge to the surface water in Pond 2 during the months of April and May was sufficient to meet the irrigation water demand requirements of the golf course. In addition, although water usage data for September, October and November 2013 are not yet available, based on the peak irrigation water use reported for prior months, it is likely that recharge to Pond 2 will be sufficient to meet the irrigation water demands during these months as well.

The irrigation water demand reported for June 2013 was also lower than the calculated pond recharge for that month. However, the June 2013 irrigation water demand was abnormally lower because of significantly above average precipitation received during the month. Typical June irrigation water demands would likely be higher and supplemental water from the irrigation wells during this month would be needed.

During periods when recharge to Pond 2 is reduced because of lower precipitation and higher evapotranspiration conditions, such as during the months of June, July and August, the volume of surface water in Pond 2 is supplemented with water from Irrigation Wells 4 and 5. Irrigation Wells 4 and 5 have the capacity to pump a combined 72 gpm, which is equal to 103,680 gpd or about 3,162,200 gallons per month. The water pumped from the wells is discharged directly into Pond 2 where it is stored until needed for irrigation. The calculated storage volume for Pond 2 is between 3,721,200 gallons (soft bottom) to 4,779,500 gallons (hard bottom) and is more than sufficient to match the withdrawal from the wells when needed.

5.2 Drought Precipitation Conditions – April through November

An assessment of monthly recharge from April through November for Pond 2 has also been conducted for drought conditions. As discussed above, a 1-year-in-30 drought event results in a 28.6 percent reduction in the total annual precipitation to 36.0 inches annually in this portion of Westchester County. Applying this same percent reduction to the monthly average precipitation (1971-2000) values, the monthly recharge to Pond 2 under drought conditions was calculated.

A comparison of the irrigation water usage during the golf season from 2013 versus the available pond recharge rate under existing site conditions with drought precipitation is provided in the tables below:

Table 14: Irrigation Water Usage Versus Monthly Drought Recharge to Pond 2 – Existing Conditions

	2013 Metered Irrigation Water Usage (gallons per month)	Drought Monthly Pond Recharge (gallons per month)	Drought Average Daily Recharge to Pond (gallons per day)
April	1,074,000	1,215,100	40,500
May	1,037,100	588,900	19,000
June	569,600	396,600	13,200
July	2,070,800	153,600	5,000
August	934,000	27,600	900
September	NA	1,179,800	39,300
October	NA	2,107,700	68,000
November	NA	3,531,100	117,700

NA not available

Based on calculations in the tables above, the recharge to the surface water in Pond 2 during the month of April would likely be sufficient to meet the irrigation water demand requirements of the golf course during drought conditions assuming the golf course has implemented standard drought water conservation measures such as the elimination of watering in rough areas on the course. In addition, although water usage data from October and November 2013 are not yet available, it is likely that recharge to Pond 2 would be sufficient to meet the irrigation water demands during these months as well.

During the months of May, June, July, August, and also possibly September, the volume of surface water in Pond 2 would need to be supplemented with water from Irrigation Wells 4 and 5.

Irrigation Wells 4 and 5 have the capacity to pump a combined 72 gpm or about 3,162,200 gallons per month under normal precipitation conditions. To be conservative, for this assessment it is assumed that pumping in the irrigations wells would be intentionally reduced by approximately 30 percent as a water conservation measured which would reduce the yield from Irrigation Wells 4 and 5 to 2,213,500 gallons per month. Based on this calculation, theoretically groundwater would remain a viable supplemental source of irrigation water during all months.

6.0 POND 2 RECHARGE VERSUS IRRIGATION WATER USAGE – PROPOSED CONDITIONS

As part of the proposed redevelopment of the site, slight modifications to the pond watershed areas will be completed. The table below summarizes the change in watershed area for each of the onsite ponds:

Table 15: Change in Pond Watershed Area Based on Proposed Site Changes

Pond	Existing Watershed Area (acres)	Proposed Watershed Area (acres)
Pond 1	9.66	9.56
Pond 2	53.26	60.71
Pond 3	6.54	6.53
Pond 3a	7.41	8.08
Pond 4	5.67	4.00
Pond 5	8.99	10.47

Under the proposed conditions, the irrigation pump house will remain in the downstream side of Pond 2. The watershed area for Pond 2 increases slightly from 53.26 acres to 60.71 acres and the pond is proposed to be expanded an additional 0.62 acres along the southern side. The increase in watershed area will result in a corresponding increase in surface-water and groundwater recharge to the pond under proposed conditions.

6.1 Average Precipitation Conditions – April through November

In the table below, the net monthly recharge to Pond 2 under normal precipitation conditions with the modified watershed areas which are proposed have been calculated:

Table 16: Monthly Recharge to Pond 2 – Proposed Conditions

Month	30-Year Monthly Average Precipitation 1971-2000 (inches)	Evapo-transpiration (inches/month)	Direct Precipitation to Pond (gallons per month)	Evaporation from Pond (gallons per month)	Overland Flow to Pond (gallons per month)	Groundwater Recharge (gallons per month)	Net Monthly Pond Recharge (gallons per month)	Average Daily Recharge to Pond (gallons per day)
April	4.44	2.33	315,900	165,800	2,053,400	1,274,900	3,478,400	115,900
May	4.58	3.39	325,800	241,200	932,400	944,600	1,961,800	63,300
June	3.77	3.79	268,200	269,600	0	723,800	722,400	24,100
July	3.72	4.23	264,700	301,000	0	379,300	343,100	11,100
August	4.00	3.57	284,600	254,000	572,900	105,400	708,900	22,900
September	4.70	2.54	334,400	180,700	3,090,600	316,500	3,560,800	118,700
October	4.17	1.52	296,700	108,100	3,576,900	603,200	4,368,600	140,900
November	4.47	0.75	318,000	53,400	4,783,400	1,084,500	6,132,500	204,400

A comparison of the irrigation water usage during the golf season from 2013 versus the available pond recharge rate under proposed site conditions and average precipitation is provided in the tables below:

Table 17: Irrigation Water Usage Versus Average Recharge to Pond 2 - Proposed Conditions

	2013 Metered Irrigation Water Usage (gallons per month)	Net Monthly Pond Recharge (gallons per month)	Average Daily Pond Recharge (gallons per day)
April	1,074,000	3,478,400	115,900
May	1,037,100	1,961,800	63,300
June	569,600	722,400	24,100
July	2,070,800	343,100	11,100
August	934,000	708,900	22,900
September	NA	3,560,800	118,700
October	NA	4,368,600	140,900
November	NA	6,132,500	204,400

NA not available

Based on calculations in the tables above, the recharge to the surface water in Pond 2 during the months of April and May will be sufficient to meet the irrigation water demand requirements of the golf course. In addition, although water usage data for September, October and November 2013 are not yet available, based on the peak irrigation water use reported for prior months, it is likely that recharge to Pond 2 would be sufficient to meet the irrigation water demands during these months as well.

During periods when recharge to Pond 2 is reduced because of lower precipitation and higher evapotranspiration conditions, such as during June, July and August, the volume of surface water in Pond 2 will be to be supplemented with water from Irrigation Wells 4 and 5.

Similar to existing conditions, the volume of water available from the irrigation wells will be sufficient to meet the deficiency in the available surface-water resources during those periods.

6.2 Drought Precipitation Conditions – April through November

The monthly recharge under drought conditions from April through November have been calculated for Pond 2 based on the changes to the watershed area under the proposed site conditions. In the table below, the net monthly recharge to Pond 2 under 1-year-in-30 drought precipitation conditions has been calculated:

Table 18: Irrigation Water Usage Versus Monthly Drought Recharge to Pond 2 – Proposed Conditions

	2013 Metered Irrigation Water Usage (gallons per month)	**Monthly Pond Recharge (gallons per month)**	**Monthly Pond Recharge (gallons per day)**
April	1,074,000	1,385,000	46,200
May	1,037,100	666,200	21,500
June	569,600	438,900	14,600
July	2,070,800	159,000	5,100
August	934,000	24,500	800
September	NA	1,344,900	44,800
October	NA	2,402,500	77,500
November	NA	4,025,000	134,200

NA not available

Based on calculations in the tables above, the recharge to the surface water in Pond 2 during the month of April would likely be sufficient to meet the irrigation water demand requirements of the golf course during drought conditions assuming the golf course has implemented standard water conservation measures. In addition, although water usage data October and November 2013 are not yet available for comparison, it is likely that recharge to Pond 2 would be sufficient to meet the irrigation water demands during these months as well.

During the months of May, June, July, August and also possibly September, the volume of surface water in Pond 2 would need to be supplemented with water from Irrigation Wells 4 and 5. Similar to existing conditions with drought precipitation, theoretically the available groundwater from Irrigation Wells 4 and 5 would remain a viable supplemental source of irrigation water during all months.

7.0 CONCLUSIONS

1. A bathometric survey of the onsite Ponds at Brynwood was conducted in November 2012. The storage volumes for the onsite ponds at full capacity based on the soft

bottom sediment elevation were: Pond 1-901,300 gallons; Pond 2-3,721,200 gallons; Pond 3-294,400 gallons; Pond 3A-109,700 gallons; Pond 4-164,100 gallons; and Pond 5-132,200 gallons.

2. Annual water budgets were calculated for the onsite ponds based on mean precipitation, runoff, evapotranspiration, and groundwater recharge variables and the size of the contributing watershed area for each pond. The annual pond surface-water recharge based on this evaluation under existing site conditions are: Pond 1-6,667,900 gallons; Pond 2-36,763,300 gallons; Pond 3-4,514,300 gallons; Pond 3A-5,114,800 gallons; Pond 4-3,913,800 gallons; and Pond 5-6,205,400 gallons.

3. Onsite Pond 2 is the main source of surface water for the golf course irrigation system under existing site conditions. An analysis of the pond recharge for the months from April through November using average monthly values of precipitation, evapotranspiration, runoff and groundwater recharge was conducted and compared to the 2013 metered irrigation water usage at the course. The analysis showed that pond recharge in the months of April and May was sufficient to meet irrigation water demands and that pond recharge in the months July and August would need to be supplemented with water from Irrigation Wells 4 and 5. The irrigation water demand for June 2013 was less that the calculated pond recharge for that month, However, typical June irrigation water usage would likely be higher and supplemental water from the irrigation wells during this month would also be needed. Although water usage data for September, October and November 2013 are not yet available, based on the peak irrigation water use reported for prior months, it is likely that recharge to Pond 2 would be sufficient to meet the irrigation water demands during these months as well.

4. During months when the recharge to the surface water in Pond 2 is less than the irrigation water withdrawal, the pumping of water from bedrock Irrigation Wells 4 and 5 (72 gpm) into Pond 2 is more than sufficient to supplement the deficiency in the available surface water.

5. As part of the proposed redevelopment of the golf course, slight modifications to the pond watershed areas will be completed. An analysis of the recharge to Pond 2 under the

proposed site conditions was also conducted for the months from April through November using average monthly values of precipitation, evapotranspiration, runoff and groundwater recharge and compared to the 2013 metered irrigation water usage at the course. The analysis showed similar results to existing conditions at the site with pond recharge being sufficient to meet irrigation water demand in the months of April and May pond recharge needed supplemental water from Irrigation Wells 4 and 5 in the months June, July and August. In addition, although water usage data for September, October and November 2013 are not yet available, based on the peak irrigation water use reported for prior months, it is likely that recharge to Pond 2 would be sufficient to meet the irrigation water demands during these months as well. The volume of water available from the irrigation wells will be sufficient to meet the deficiency in the available surface-water resources in months where needed.

6. Under both existing and proposed site conditions, during a 1-year-in-30 drought occurrence, during the months of April, October and November surface water resources would likely be sufficient to meet the irrigation water demand requirements of the golf course assuming standard water conservation measures are implemented. During the months of May, June, July, August and also possible September, the volume of surface water in Pond 2 would need to be supplemented with water from Irrigation Wells 4 and 5. Theoretically groundwater from the existing irrigation wells would remain a viable supplemental source of irrigation water during all months and would be able to meet the irrigation water usage requirements.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Stacy Stieber
Senior Hydrogeologist

Reviewed by:

Thomas P. Cusack, CPG
Principal

etn
September 9, 2013
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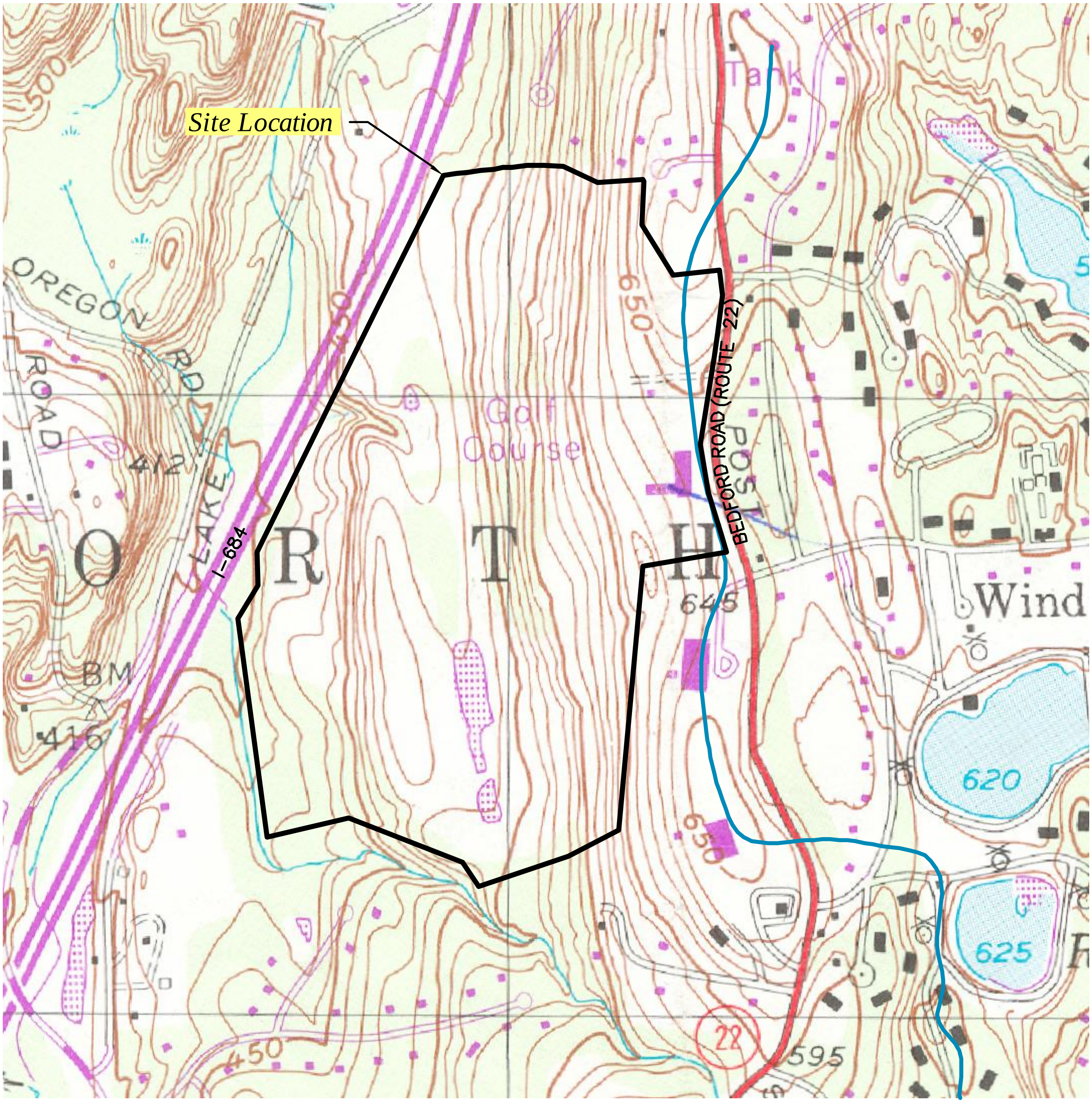
FIGURES



SOURCE: USGS TOPOGRAPHIC QUADRANGLE MOUNT KISCO, NEW YORK-CONNECTICUT (1998)

LEGEND

PROPERTY BOUNDARY

WATERSHED BOUNDARY

NEW YORK

QUADRANGLE LOCATION

0 800

SCALE IN FEET

N

BRYNWOOD GOLF & COUNTRY CLUB
ROUTE 22
ARMONK, NEW YORK

SITE LOCATION MAP

DATE	REVISED

PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive
Suite 301
Shelton, Connecticut 06484
(203) 929-8555

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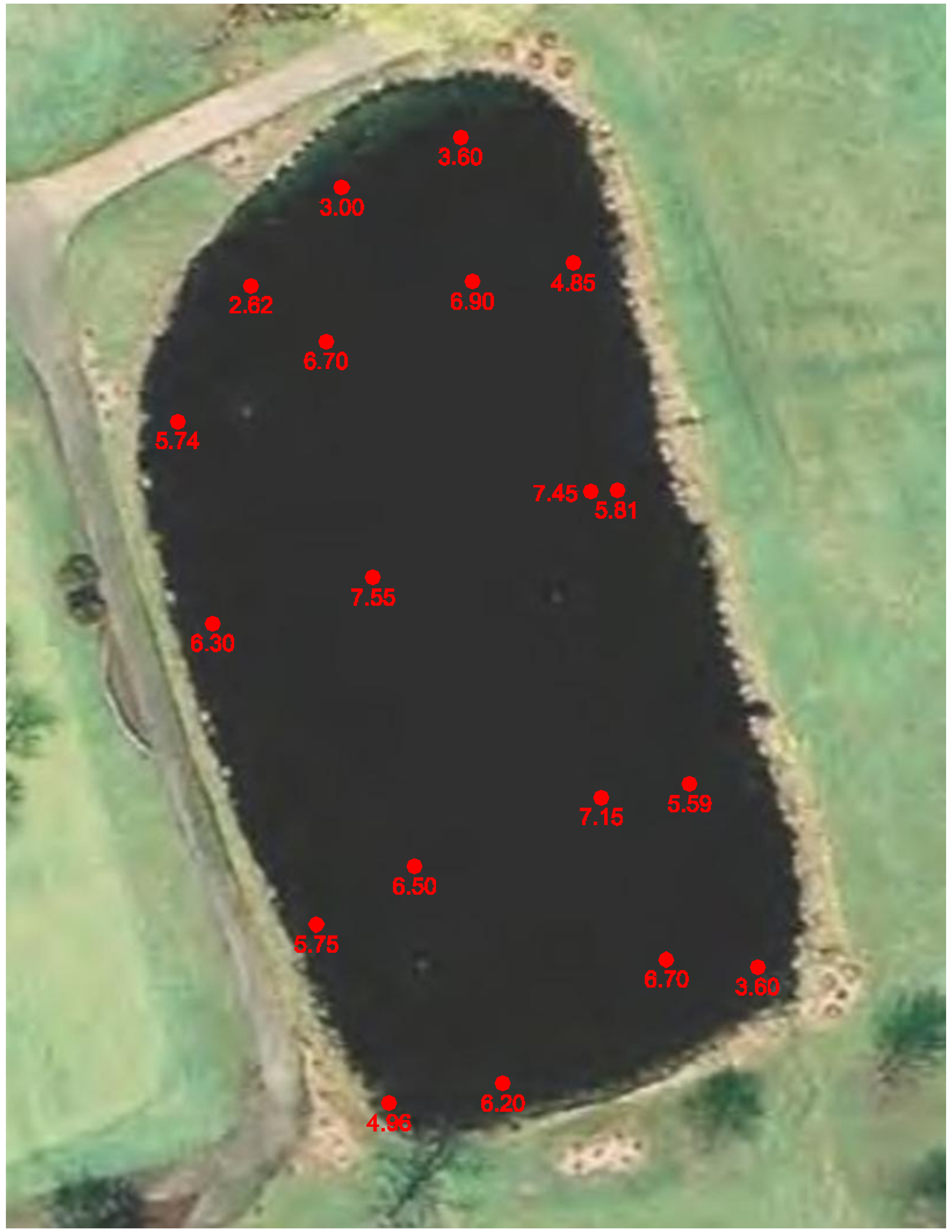
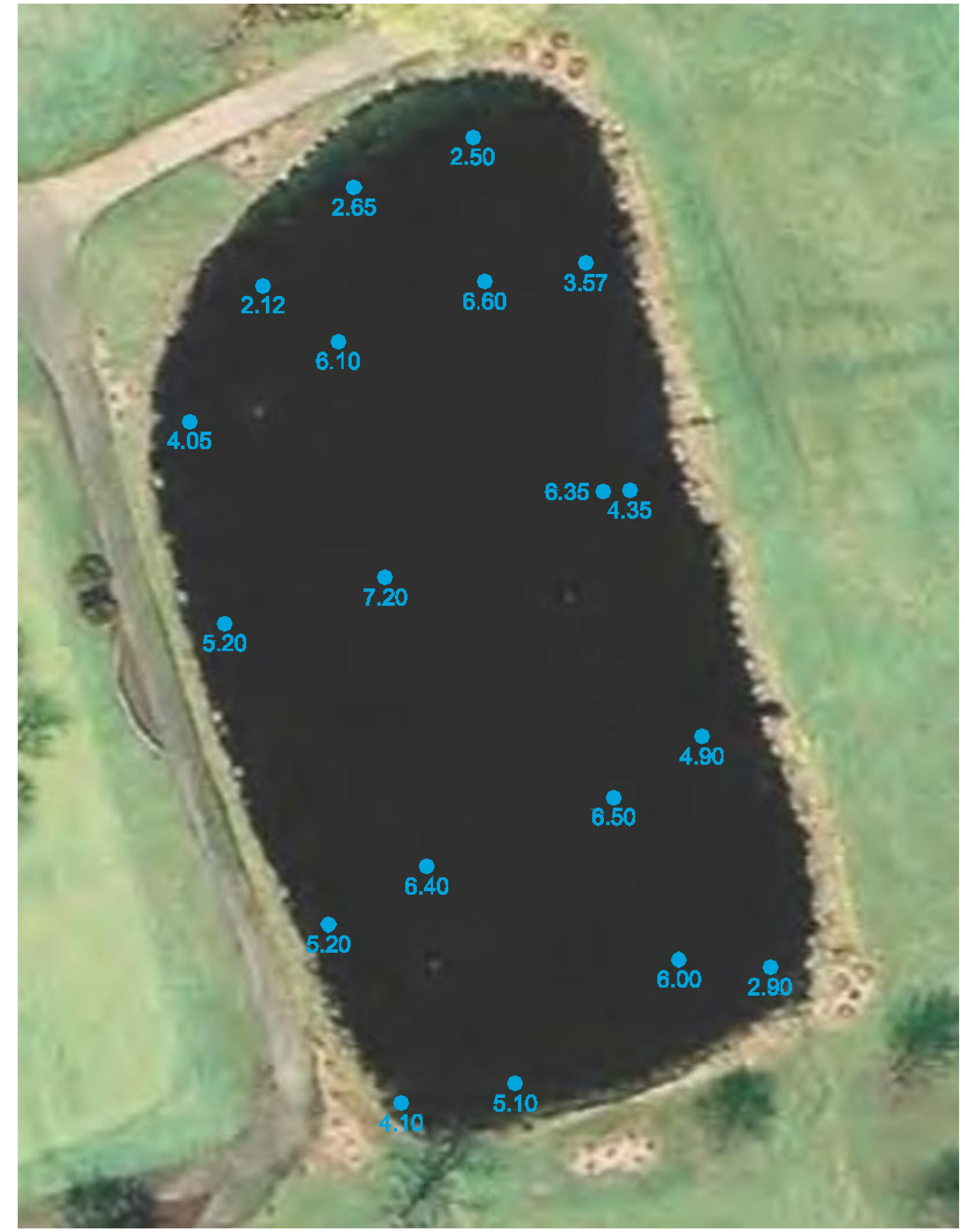


HARD BOTTOM



SOFT BOTTOM

LEGEND

6.20	HARD BOTTOM DEPTH
5.10	SOFT BOTTOM DEPTH

0 40
SCALE IN FEET

BRYNWOOD GOLF & COUNTRY CLUB
ROUTE 22
ARMONK, NEW YORK

POND 1 - BATH0METRIC SURVEY

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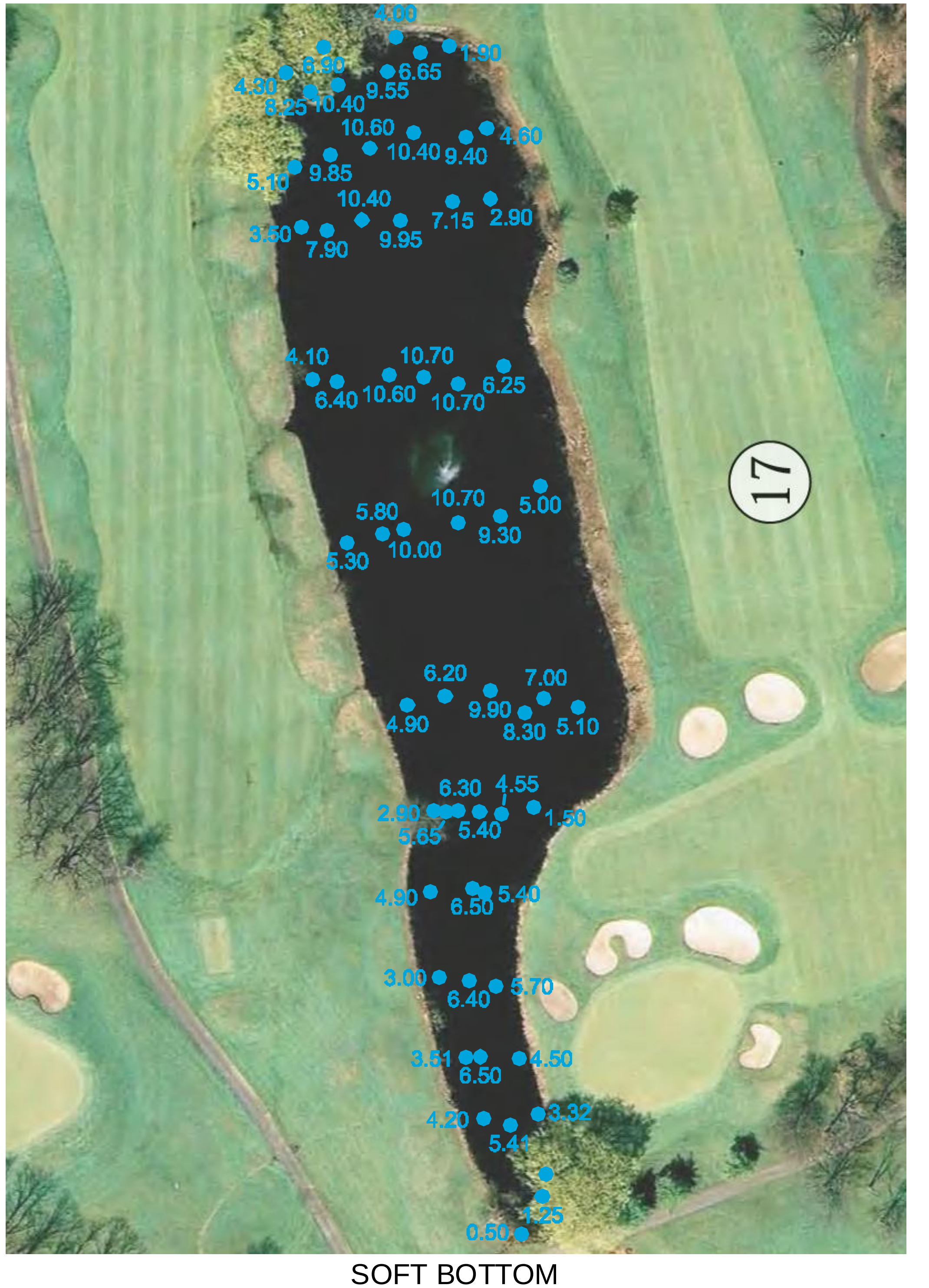
HARD BOTTOM



SOFT BOTTOM

LEGEND

5.90 HARD BOTTOM DEPTH

3.32 SOFT BOTTOM DEPTH

0 100

SCALE IN FEET

BRYNWOOD GOLF & COUNTRY CLUB
ROUTE 22
ARMONK, NEW YORK

POND 2 - BATH0METRIC SURVEY

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HARD BOTTOM

SOFT BOTTOM

LEGEND

9.34	HARD BOTTOM DEPTH
2.80	SOFT BOTTOM DEPTH

0 100
SCALE IN FEET

BRYNWOOD GOLF & COUNTRY CLUB
ROUTE 22
ARMONK, NEW YORK

POND 3 & 3A - BATH0METRIC SURVEY

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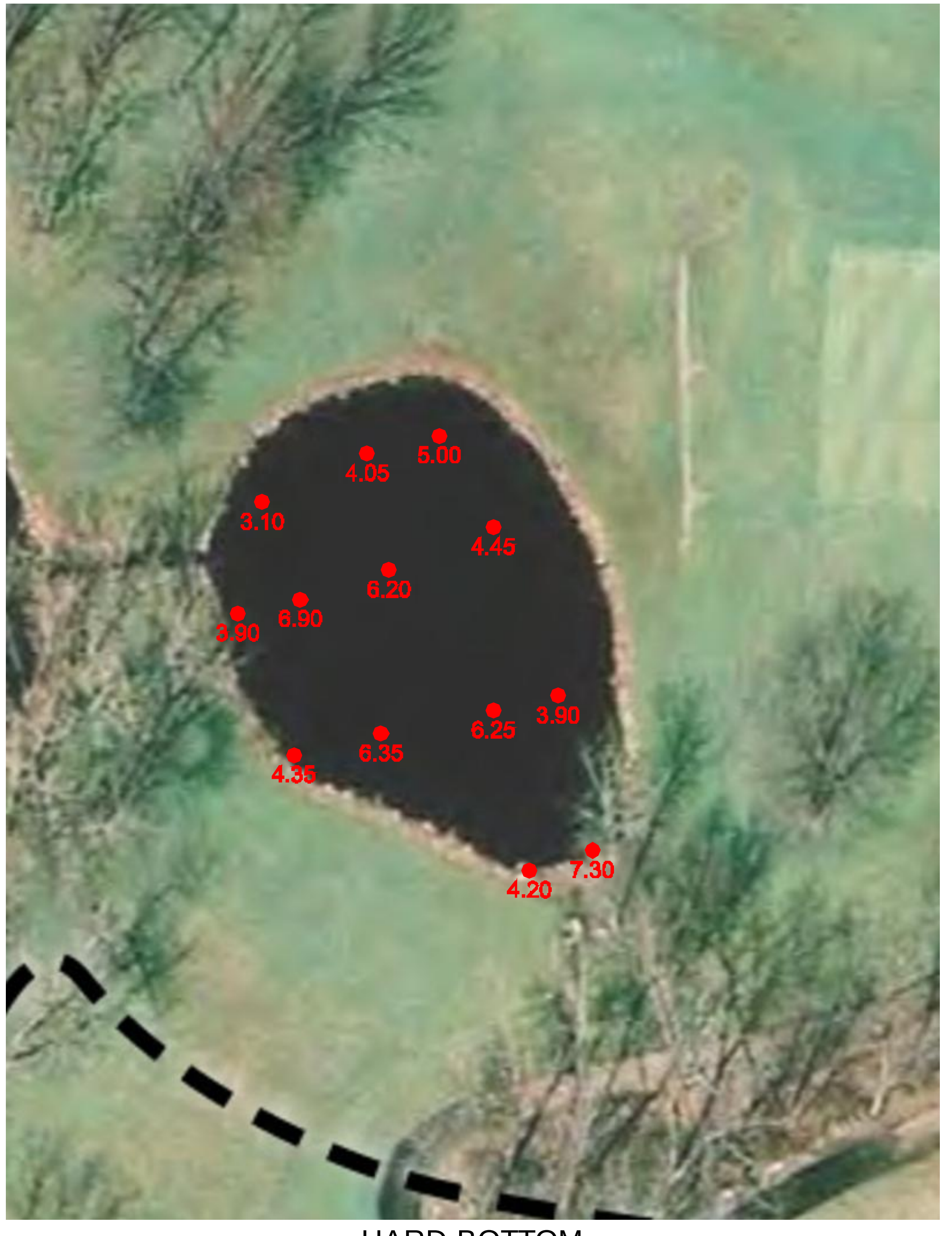
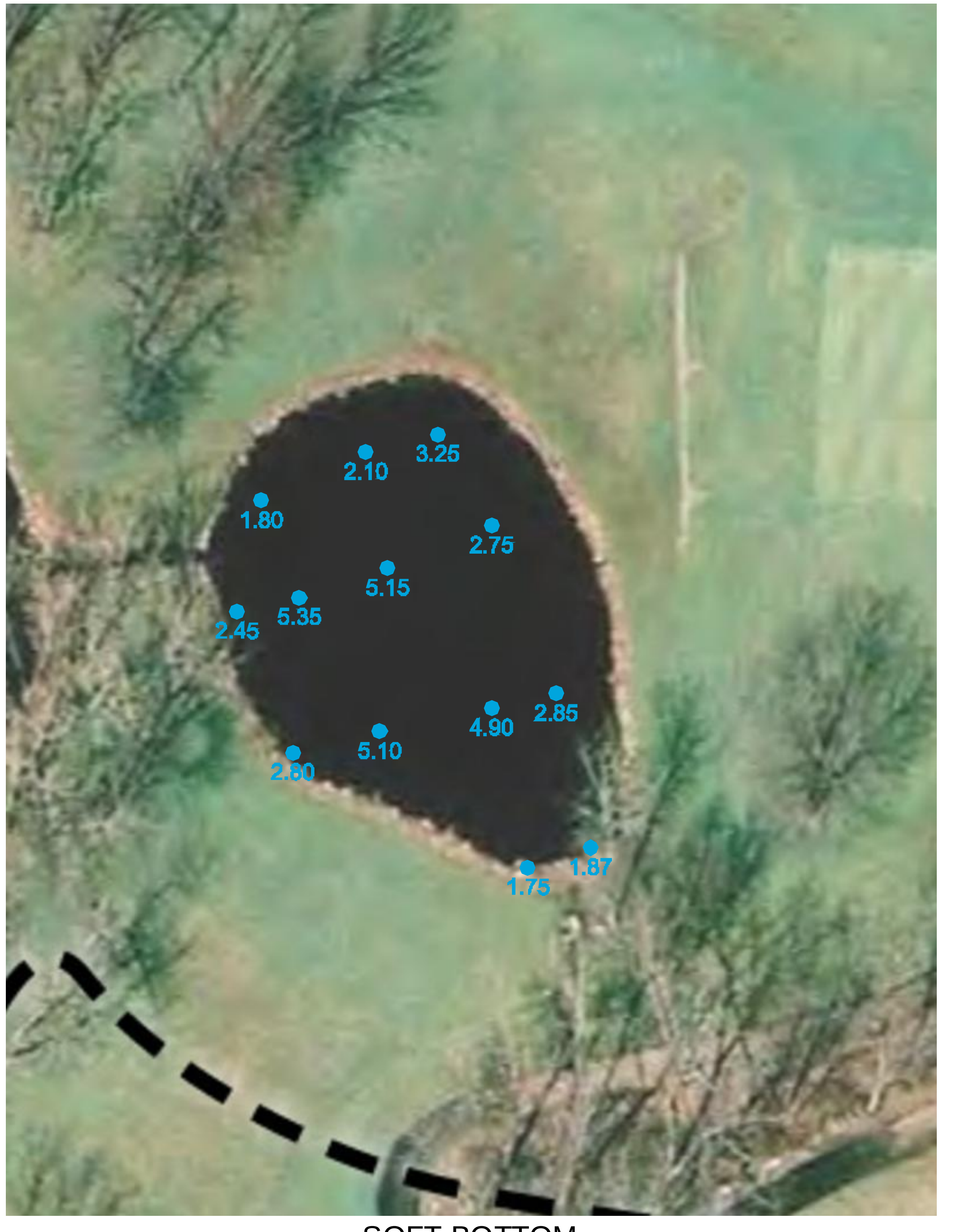


HARD BOTTOM



SOFT BOTTOM

LEGEND

4.20 HARD BOTTOM DEPTH

1.75 SOFT BOTTOM DEPTH

0 40

SCALE IN FEET

BRYNWOOD GOLF & COUNTRY CLUB
ROUTE 22
ARMONK, NEW YORK

POND 4 - BATHOMETRIC SURVEY

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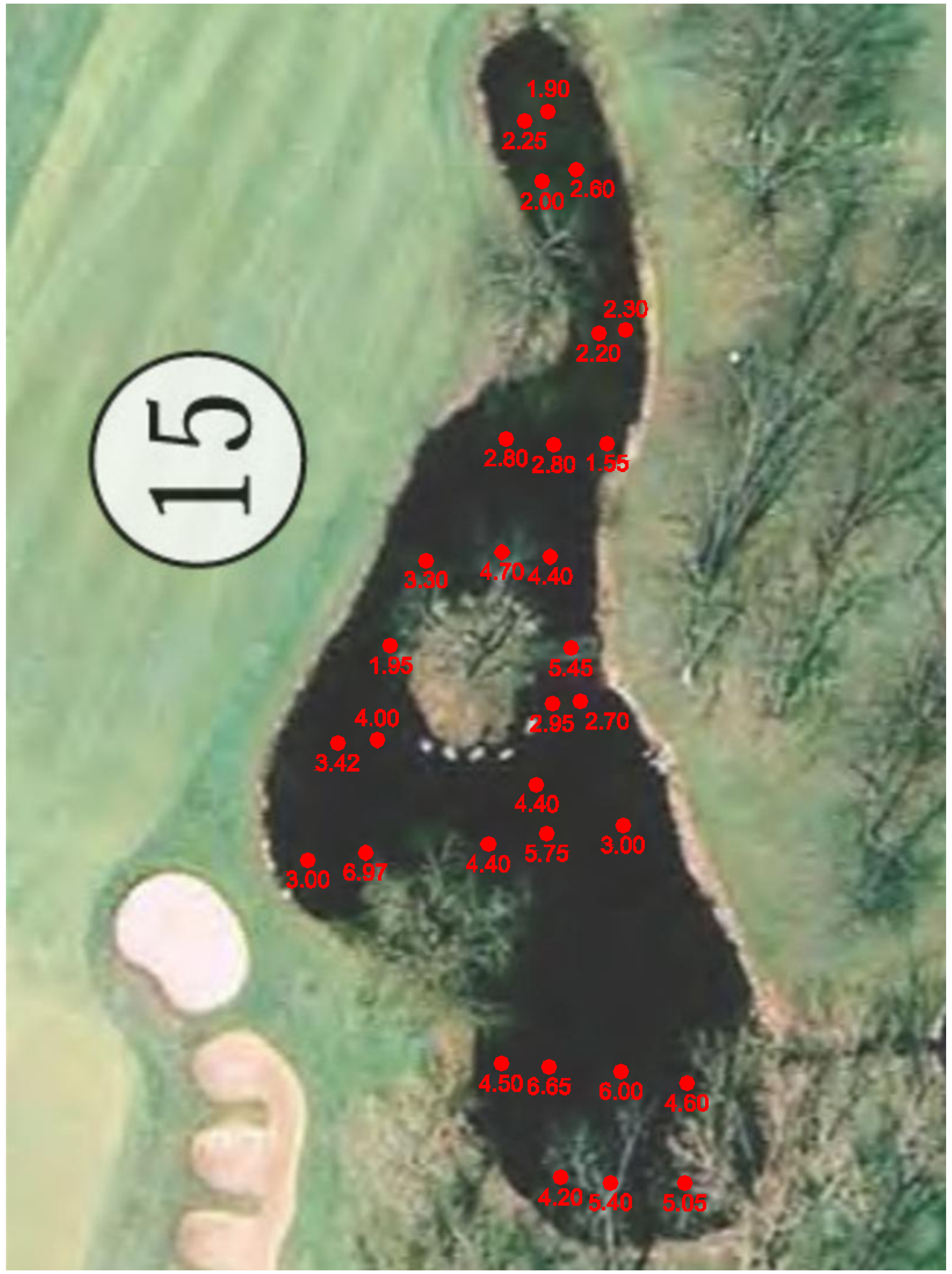
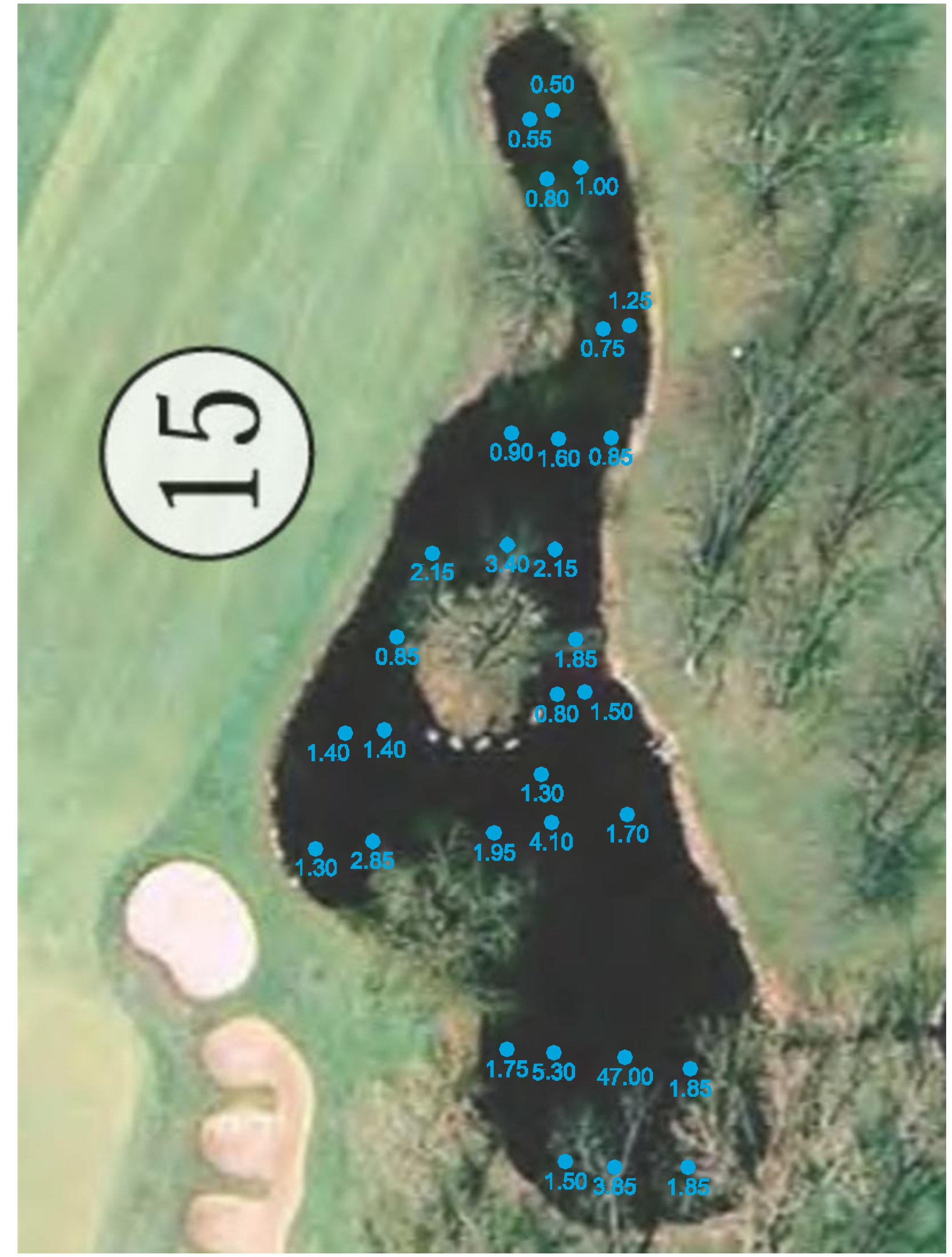


HARD BOTTOM



SOFT BOTTOM

LEGEND

4.20 HARD BOTTOM DEPTH

1.50 SOFT BOTTOM DEPTH

0 40

SCALE IN FEET

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ARMONK, NEW YORK

POND 5 - BATH0METRIC SURVEY

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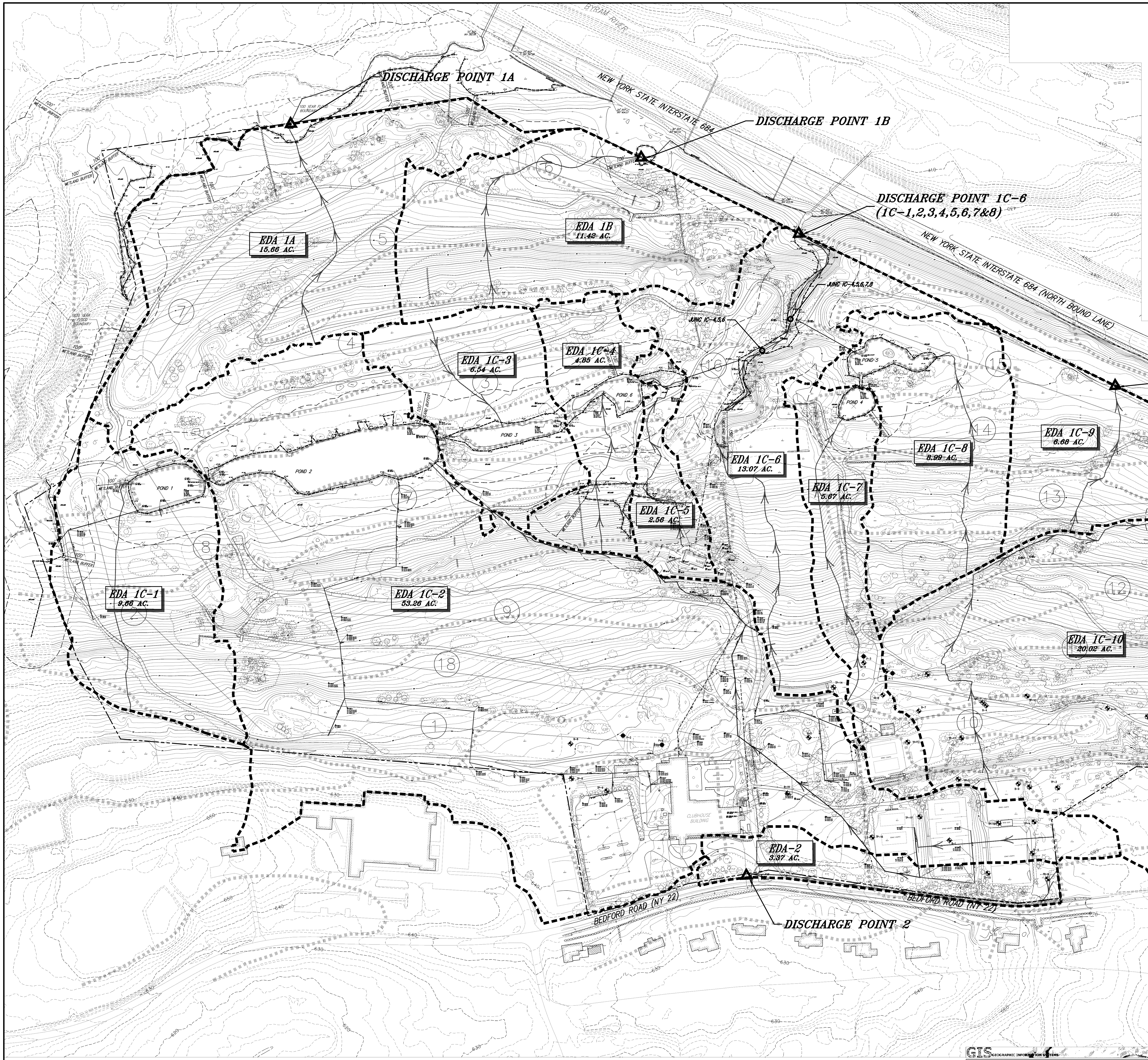
APPENDIX I



EXISTING DRAINAGE LEGEND

- GIS CONTOUR
- GIS INDEX CONTOUR
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- FLAGGED WETLANDS WITH FLAG NUMBERS
- EXISTING STONE WALL
- WATERSHED BOUNDARY LINE
- BOUNDARY OF COVER TYPE LINE
- LIMIT OF SOIL GROUPS LINE
- FLOW PATH LINE
- NwC — SOIL DESIGNATION AND HYDROLOGIC
- DISCHARGE POINT
- B-3 — BORING LOCATION AND DESIGNATION
- TP-10 — TEST PIT LOCATION AND DESIGNATION

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY ENTITLED, "TOPOGRAPHIC MAP," PREPARED BY JOHN MEYER CONSULTING, PC, LAST REVISED 11/30/2012. PORTIONS OF EXISTING TOPOGRAPHY HAVE BEEN PROVIDED BY WESTCHESTER COUNTY GIS DATA.

2. GEOTECHINAL BORING/TEST PIT LOCATIONS DEPICTED ON THIS PLAN WERE TAKEN FROM THE GEOTECHNICAL REPORT ENTITLED, "REPORT ON PRELIMINARY SUBSURFACE SOIL AND FOUNDATION INVESTIGATION", DATED 02/13/2013, PREPARED BY CARLIN SIMPSON & ASSOCIATES.

3. THE SOIL TYPES, HYDROLOGIC SOIL GROUPS AND BOUNDARY INFORMATION SHOWN ON THIS PLAN WERE TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) WEB SOIL SURVEY.

4. THE TOPOGRAPHIC CONTOURS DEPICTED ON THIS PLAN HAVE BEEN SUPPLEMENTED BY THE WESTCHESTER COUNTY GIS BASE MAP. THE WESTCHESTER COUNTY GIS DATASET CONTAINS CONTOUR LINES MODELED AT A TWO FOOT INTERVAL. THE SOURCE INFORMATION USED IN THE COLLECTION OF THE DATASET WAS PART OF THE NEW YORK STATE DIGITAL ORTHOIMAGERY PROGRAM; PHOTOS TAKEN IN APRIL 2004. THE VERTICAL DATUM IS NAVD88.

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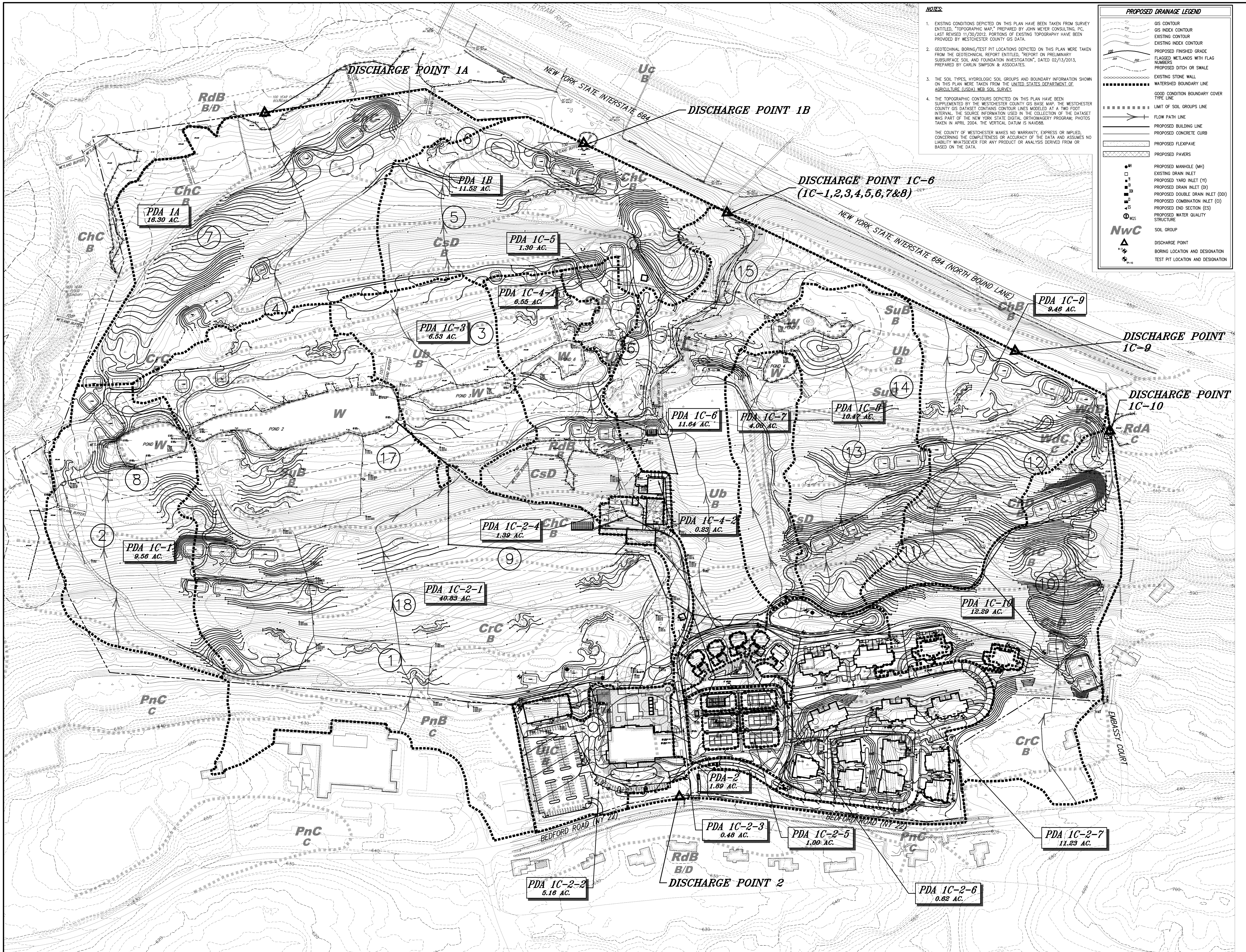
voice 914.273.5225 · fax 914.273.2102
www.johnmeyerconsulting.com

PROGRESS PLOTTING
Drawing: DRAINAGE AREA MAP
Date: 05/16/2013
Time:

EXISTING DRAINAGE AREA MAP

BRYNWOOD CLUB
BEDFORD ROAD (NY 22)
TOWN OF NORTH CASTLE, NEW YORK

DRAWN: ND APPROVED: DL
SCALE: 1" = 100'
DATE: XX/XX/2013
PROJECT NO.: 10126
DRAWING NO.: DA-1



NOTES:

1. EXISTING CONDITIONS DEPICTED ON THIS PLAN HAVE BEEN TAKEN FROM SURVEY ENTITLED, "TOPOGRAPHIC MAP," PREPARED BY JOHN MEYER CONSULTING, PC, LAST REVISED 11/30/2012. PORTIONS OF EXISTING TOPOGRAPHY HAVE BEEN PROVIDED BY WESTCHESTER COUNTY GIS DATA.
2. GEOTECHINAL BORING/TEST PIT LOCATIONS DEPICTED ON THIS PLAN WERE TAKEN FROM THE GEOTECHNICAL REPORT ENTITLED, "REPORT ON PRELIMINARY SUBSURFACE SOIL AND FOUNDATION INVESTIGATION", DATED 02/13/2013, PREPARED BY CARLIN SIMPSON & ASSOCIATES.
3. THE SOIL TYPES, HYDROLOGIC SOIL GROUPS AND BOUNDARY INFORMATION SHOWN ON THIS PLAN WERE TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE (USDA) WEB SOIL SURVEY.
4. THE TOPOGRAPHIC CONTOURS DEPICTED ON THIS PLAN HAVE BEEN SUPPLEMENTED BY THE WESTCHESTER COUNTY GIS BASE MAP. THE WESTCHESTER COUNTY GIS DATASET CONTAINS CONTOUR LINES MODELED AT A TWO FOOT INTERVAL. THE SOURCE INFORMATION USED IN THE COLLECTION OF THE DATASET WAS PART OF THE NEW YORK STATE DIGITAL ORTHOIMAGERY PROGRAM; PHOTOS TAKEN IN APRIL 2004. THE VERTICAL DATUM IS NAVD88.

   THE COUNTY OF WESTCHESTER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE COMPLETENESS OR ACCURACY OF THE DATA AND ASSUMES NO LIABILITY WHATSOEVER FOR ANY PRODUCT OR ANALYSIS DERIVED FROM OR BASED ON THE DATA.

PROPOSED DRAINAGE LEGEND

- GIS CONTOUR
- GIS INDEX CONTOUR
- EXISTING CONTOUR
- EXISTING INDEX CONTOUR
- PROPOSED FINISHED GRADE
- FLAGGED WETLANDS WITH FLAG NUMBERS
- PROPOSED DITCH OR SWALE
- EXISTING STONE WALL
- WATERSHED BOUNDARY LINE
- GOOD CONDITION BOUNDARY COVER TYPE LINE
- LIMIT OF SOIL GROUPS LINE
- FLOW PATH LINE
- PROPOSED BUILDING LINE
- PROPOSED CONCRETE CURB
- PROPOSED FLEXIPAVE
- PROPOSED PAVERS
- MH PROPOSED MANHOLE (MH)
- EXISTING DRAIN INLET
- YI PROPOSED YARD INLET (YI)
- DI PROPOSED DRAIN INLET (DI)
- DDI PROPOSED DOUBLE DRAIN INLET (DDI)
- CI PROPOSED COMBINATION INLET (CI)
- ES PROPOSED END SECTION (ES)
- WQS PROPOSED WATER QUALITY STRUCTURE
- NwC SOIL GROUP
- DISCHARGE POINT
- B-3 BORING LOCATION AND DESIGNATION
- TP-10 TEST PIT LOCATION AND DESIGNATION

GIS GEOGRAPHIC INFORMATION SYSTEMS

THE 2-FOOT CONTOURS DEPICTED ON THIS PLAN ARE INTENDED TO BE USED FOR PLANNING & PRELIMINARY ENGINEERING APPLICATIONS. THEY ARE NOT INTENDED TO BE USED IN ENGINEERING DESIGN AND DO NOT NEGATE THE NEED FOR A FIELD SURVEY. THE WESTCHESTER COUNTY GIS DATASET CONTAINS CONTOUR LINES MODELED AT A TWO FOOT INTERVAL. THE SOURCE INFORMATION USED IN THE COLLECTION OF THE DATASET WAS PART OF THE NEW YORK STATE DIGITAL ORTHOIMAGERY PROGRAM; PHOTOS TAKEN IN APRIL 2004. VERTICAL DATUM IS NAVD88.
THE COUNTY OF WESTCHESTER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE COMPLETENESS OR ACCURACY OF THE DATA AND ASSUMES NO LIABILITY WHATSOEVER FOR ANY PRODUCT OR ANALYSIS DERIVED FROM OR BASED ON THE DATA.

ANY ALTERATION OF PLANS, SPECIFICATIONS, PLATS AND REPORTS BEARING THE SEAL OF A LICENSED PROFESSIONAL ENGINEER OR LICENSED LAND SURVEYOR IS A VIOLATION OF SECTION 7209 OF THE NEW YORK STATE EDUCATION LAW, EXCEPT AS PROVIDED FOR BY SECTION 7209, SUBSECTION 2.

NOT FOR CONSTRUCTION

NO.	REVISION	DATE	BY

APPLICANT/OWNER: BRYNWOOD PARTNERS, LLC
505 FIFTH AVENUE
NEW YORK, NY 10017

ARCHITECT: HART HOWERTON
10 EAST 40TH STREET
NEW YORK, 10016, NY

JMC
JOHN MEYER CONSULTING, PC
120 Bedford Road
Armonk, NY 10504
voice 914.273.5225 • fax 914.273.2102
www.johnmeyerconsulting.com

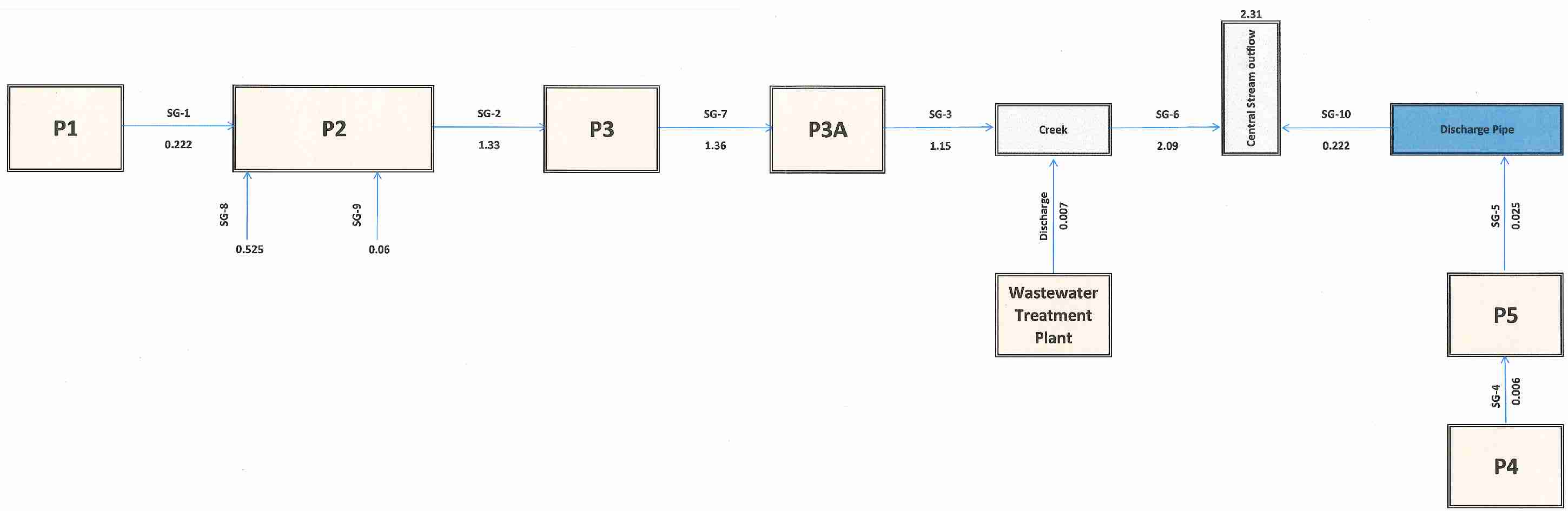
PROGRESS PLOTTING
Drawing: DRAINAGE AREA MAP
Date: 05/16/2013
Time:

PROPOSED DRAINAGE AREA MAP

BRYNWOOD CLUB
BEDFORD ROAD (NY2 22)
TOWN OF NORTH CASTLE, NEW YORK

DRAWN: ND		APPROVED: DL	
SCALE: 1" = 100'			
DATE: XX/XX/2013			
PROJECT No: 10126			
DWG: 10126-DRAINAGE(ENTIRE-PROP)	TAB: PDA	LS: PDA	
DRAWING No: DA-2			

APPENDIX II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SG-1
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P2
SG-8
0.525
SG-9
0.06
SG-2
1.33
P3
SG-7
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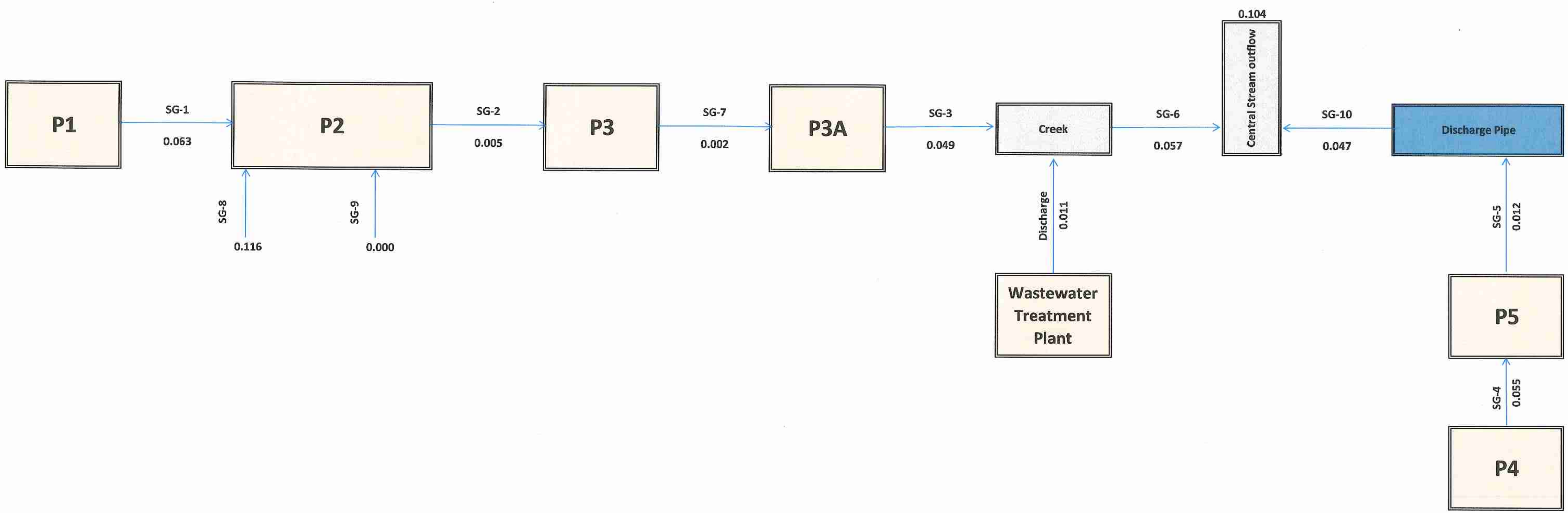
P3A
SG-3
1.15
Creek
Discharge
0.007
Wastewater Treatment Plant
SG-6
2.09
2.31
Central Stream outflow
SG-10
0.222
Discharge Pipe
SG-5
0.025
P5
SG-4
0.006
P4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P2
SG-8
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SG-9
0.000
SG-2
0.005
P3
SG-7
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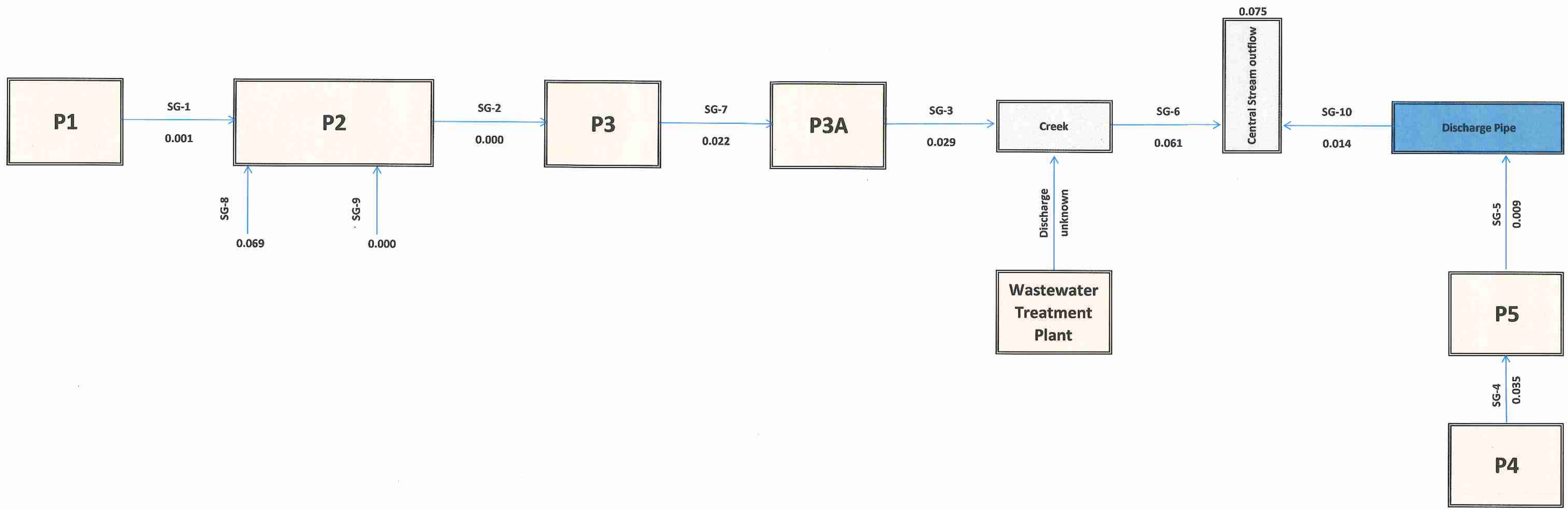
P3A
SG-3
0.049
Creek
Discharge
0.011
Wastewater Treatment Plant
SG-6
0.057
0.104
Central Stream outflow
SG-10
0.047
Discharge Pipe
SG-5
0.012
P5
SG-4
0.055
P4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SG-1
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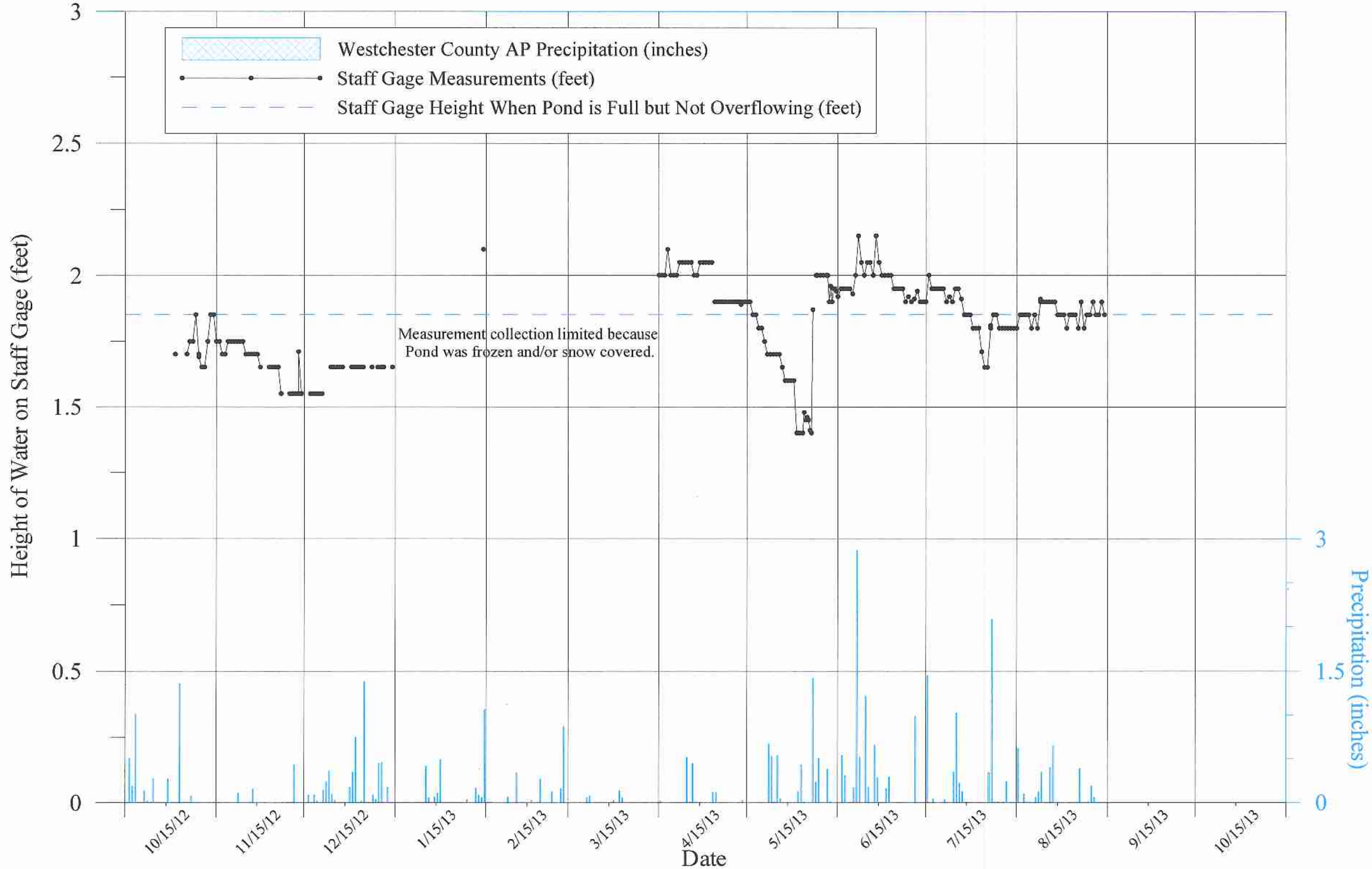
P2
SG-8
0.069
SG-9
0.000
SG-2
0.000
P3
SG-7
0.022
P3A
SG-3
0.029
Creek
Discharge
unknown
Wastewater Treatment Plant
SG-6
0.061
0.075
Central Stream outflow
SG-10
0.014
Discharge Pipe
SG-5
0.009
P5
SG-4
0.035
P4

APPENDIX III

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Surface Water-Level Height Measurements Collected from Staff Gage SG-A, Pond 1

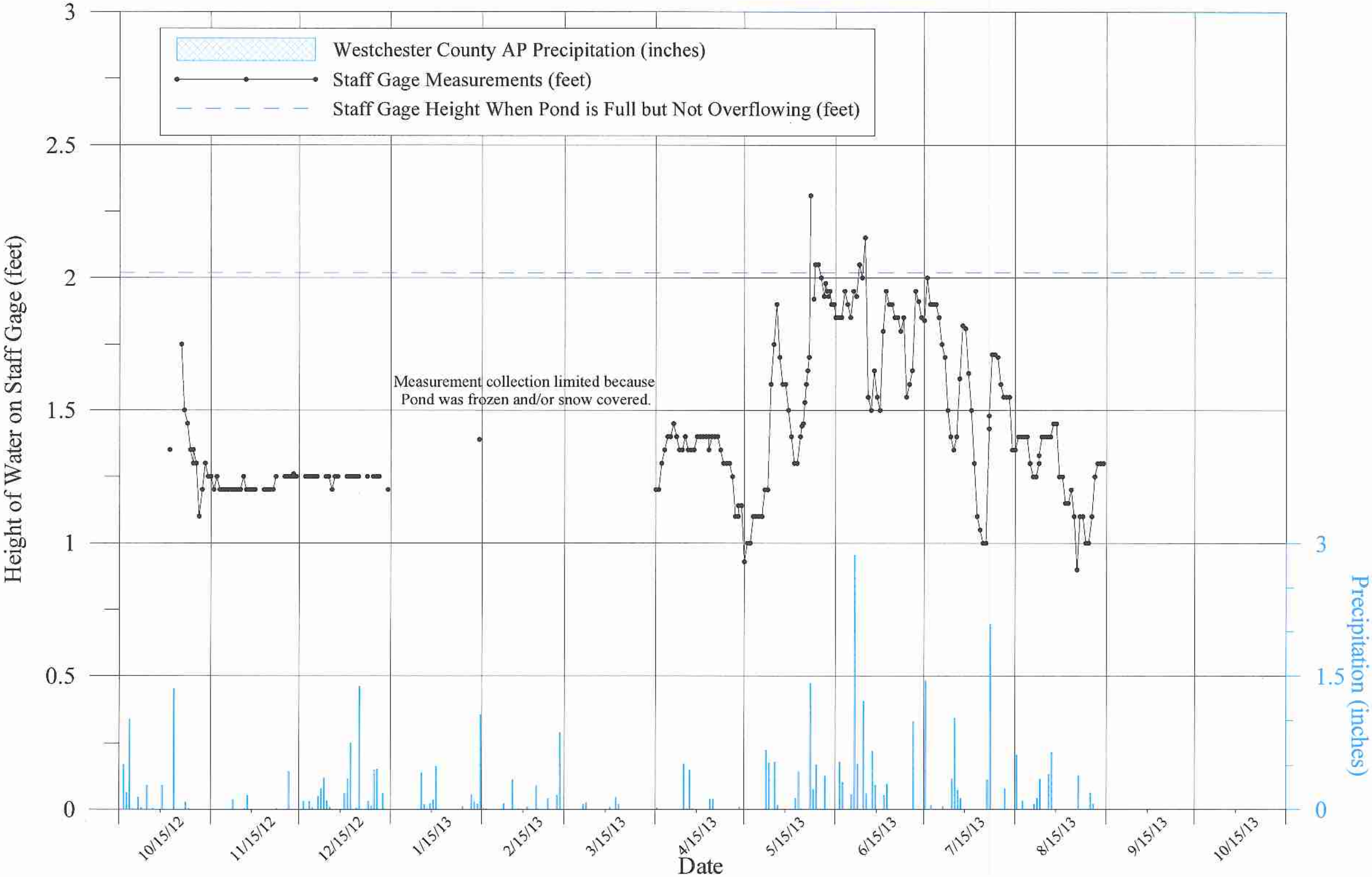


K:\Jobs\Brynwood\2012\Irrigation Study\Staff Gages\Staff Gage A.grf

LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Surface Water-Level Height Measurements Collected from Staff Gage SG-B, Pond 2



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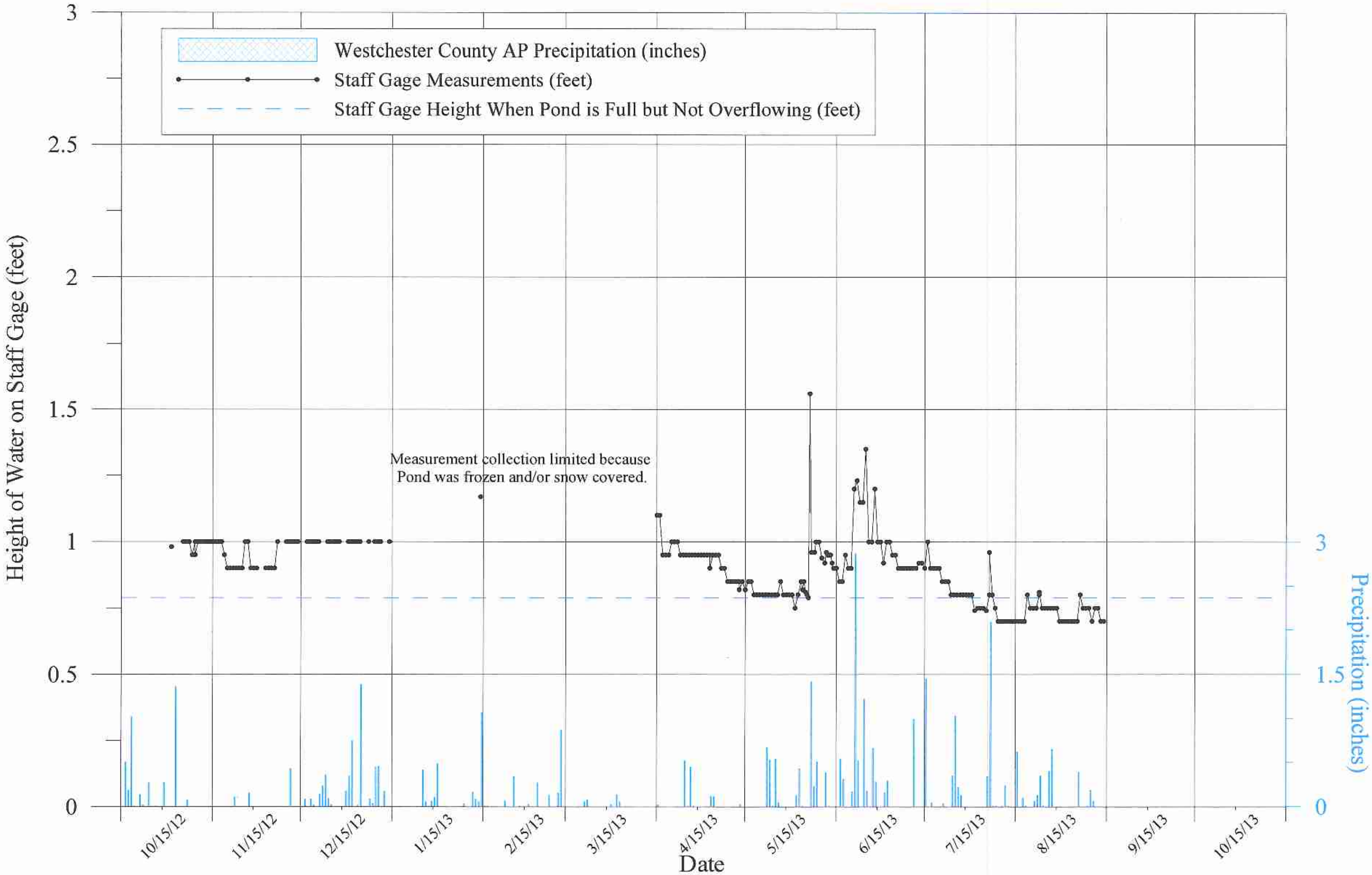
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Surface Water-Level Height Measurements Collected from Staff Gage SG-C, Pond 3A Outflow Channel



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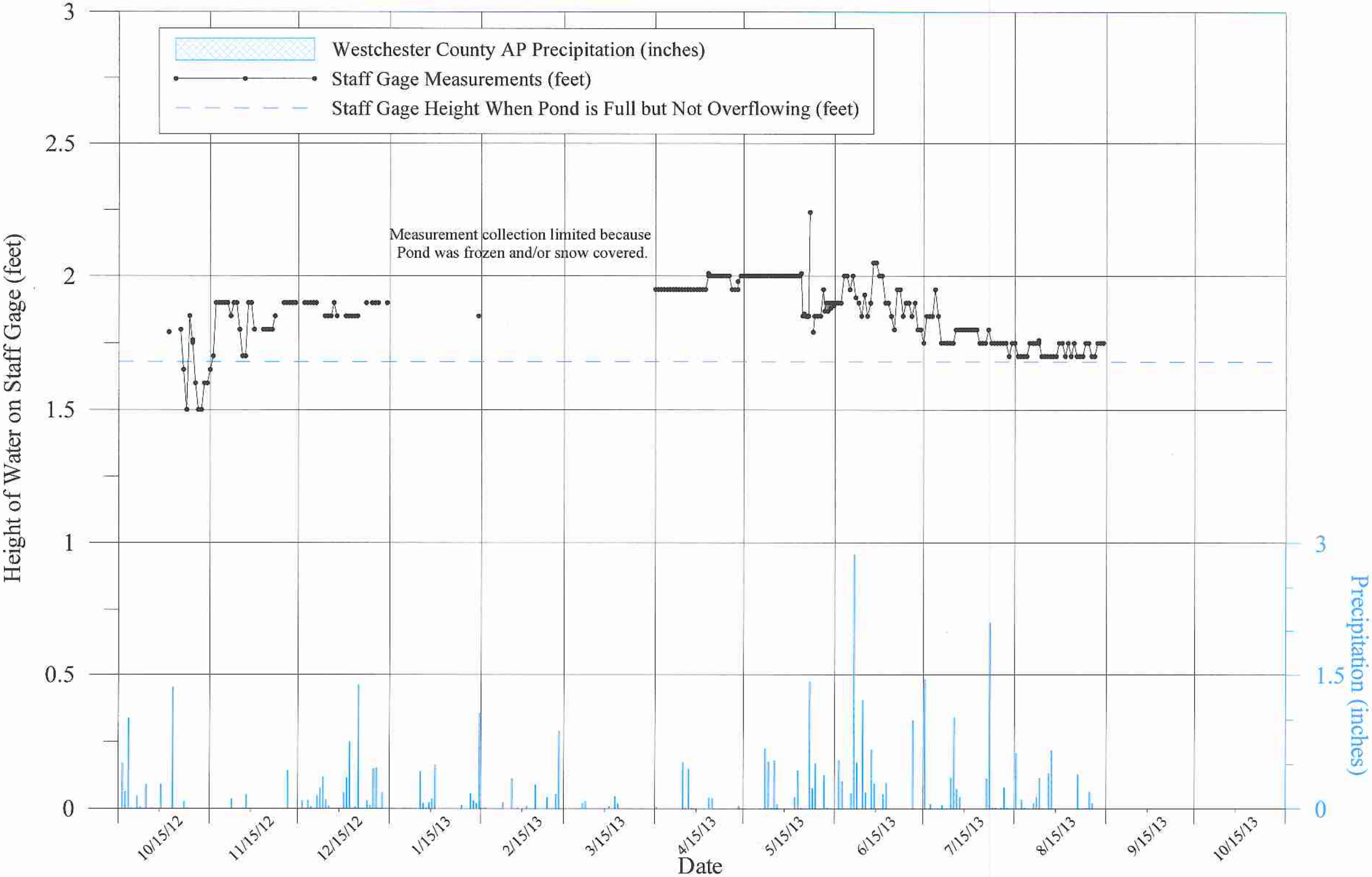
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Surface Water-Level Height Measurements Collected from Staff Gage SG-D, Pond 4



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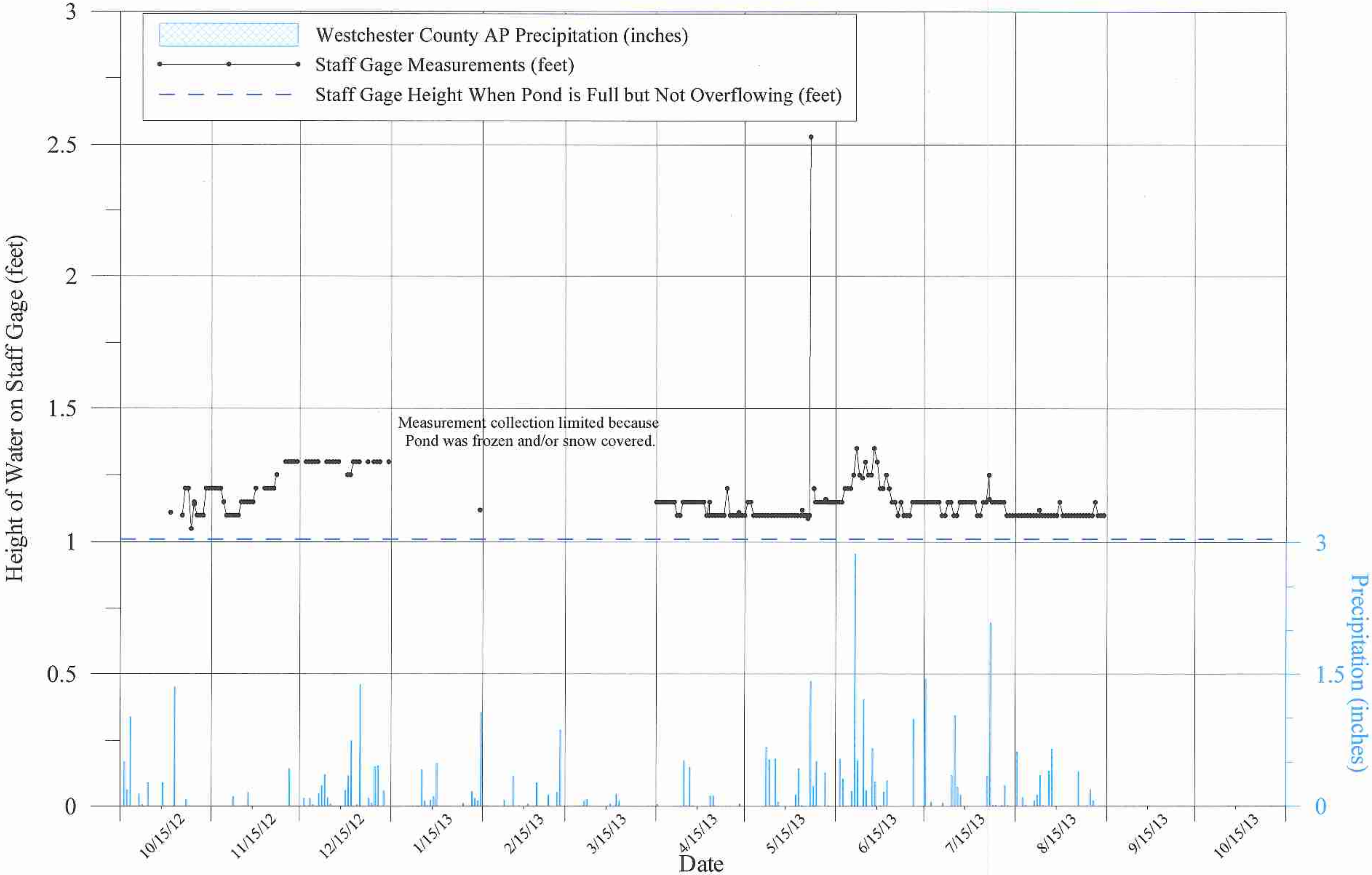
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Surface Water-Level Height Measurements Collected from Staff Gage SG-E, Pond 5



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LEGGETTE, BRASHEARS & GRAHAM, INC.

APPENDIX IV

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF JAN, 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF + COUNTRY CLUB
FACILITY OWNER: BRYNWOOD, INC
FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

Day	Date	Daily Precip in/day	Volume of Sewage Treated: Inst. Max. MGD	Volume of Sewage Treated: Daily Average MGD	Volume of Sewage Treated: Inst. Min. MGD	Temperature (°C./°F.): Influent (2)	Temperature (°C./°F.): Effluent (2)	pH (S.U.): Influent Minimum	pH (S.U.): Influent Maximum	pH (S.U.): Effluent Minimum	pH (S.U.): Effluent Maximum	Settleable Solids (ml/l): Influent Maximum	Settleable Solids (ml/l): Effluent Maximum	B.O.D.$_5$ (mg/l): Influent Type	B.O.D.$_5$ (mg/l): Effluent Type	Suspended Solids (mg/l): Influent Type	Suspended Solids (mg/l): Effluent Type
	1			.0064		14	15		6.9	7.3		2	<0.1				
	2			.0046		14	14		7.1	7.2		2	<0.1				
	3			.0042		15	15		7.2	7.5		20	<0.1				
	4			.0036		15	15		7.0	7.3		15	<0.1				
	5			.0042		14	13		8.6	7.3		17	<0.1				
	6			.0056		15	14		7.6	6.7		25	<0.1				
	7			.004		15	14		7.7	6.8		20	<0.1				
	8			.0038		15	14		7.5	7.1		19	<0.1				
	9			.0032		13	13		6.2	7.2		20	<0.1				
	10			.0046		14	14		6.0	7.3		30	<0.1				
	11			.0044		14	14		6.7	7.1		21	<0.1				
	12			.004		15	15		6.9	7.5		17	<0.1				
	13			.0052		15	14		6.1	7.1		15	<0.1				
	14			.0046		15	14		6.3	7.9		21	<0.1				
	15			.0036		15	14		6.9	7.5		16	<0.1				
	16			.0044		14	14		6.2	7.3		18	<0.1				
	17			.0054		15	14		6.4	7.1		15	<0.1				
	18			.0048		15	14		7.1	7.0		11	<0.1				
	19			.0056		14	14		6.8	7.2		13	<0.1				
	20			.005		15	14		7.0	7.3		10	<0.1				
	21			.0044		14	14		6.9	7.3		15	<0.1				
	22			.004		12	12		6.1	7.8		10	<0.1				
	23			.0052		12	10		6.4	7.3		20	<0.1				
	24			.0056		13	10		7.0	7.0		18	<0.1				
	25			.0062		13	10		7.5	7.4		21	<0.1				
	26			.0048		14	11		7.2	7.3		19	<0.1				
	27			.0046		14	12		7.5	7.1		20	<0.1				
	28			.0036		14	12		7.0	7.0		17	<0.1				
	29			.006		14	14		7.5	7.8		18	<0.1				
	30			.006		14	14		7.1	7.4		16	<0.1				
	31			.0047		14	14		7.0	7.2		9	<0.1				

Total Precip.	Monthly Average (MGD)	Monthly Average Temp. Influent	Monthly Average Temp. Effluent	pH Monthly Minimum	pH Monthly Maximum	pH Monthly Minimum	pH Monthly Maximum	Settleable Solids Monthly Maximum	Settleable Solids Monthly Maximum	B.O.D.$_5$ 30 day arithmetic mean (1) Inf (mg/l)	Eff (mg/l)	%Rem.	Suspended Solids 30 day arithmetic mean (1) Inf.(mg/l)	Eff.(mg/l)	%Rem.
	.004719	14°	13°	6.0	7.7	6.7	7.9	30	<0.1						

30 Day Average Quantity Loading (1): B.O.D.$_5$ ___ lbs/day; Suspended Solids ___ lbs/day

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day

... pH and settleable solids is grab

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF FEB, 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF & COUNTRY CLUB | FACILITY OWNER: BRYNWOOD, INC. | FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

Day	Date	Daily Precip in/day	Volume of Sewage Treated: Inst. Max. MGD	Daily Average MGD	Inst. Min. MGD	Temperature (°C./°F.): Influent (2)	Effluent (2)	pH (S.U.): Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Settleable Solids (ml/l): Influent Maximum	Effluent Maximum	B.O.D.₅ (mg/l): Influent Type	Effluent Type	Suspended Solids (mg/l): Influent Type	Effluent Type
	1			.0058		14	14		7.3	7.1		14	<0.1				
	2			.0052		14	14		7.4	7.3		15	<0.1				
	3			.0078		14	14		7.1	7.5		13	<0.1				
	4			.007		14	14		7.4	7.9		20	<0.1				
	5			.0056		15	15		7.8	7.1		19	<0.1				
	6			.0062		15	15		7.6	7.9		15	<0.1				
	7			.0066		15	15		8.0	7.1		17	<0.1				
	8			.0065		15	15		7.9	7.2		16	<0.1				
	9			.0068		15	15		7.8	7.1		20	<0.1				
	10			.0067		15	15		8.0	7.3		17	<0.1				
	11			.0067		15	15		7.6	7.1		16	<0.1				
	12			.0078		15	14		7.5	7.4		20	<0.1				
	13			.005		15	13		7.1	7.0		19	<0.1				
	14			.0072		13	13		7.9	7.6		15	<0.1				
	15			.006		14	12		7.5	7.1		17	<0.1				
	16			.009		14	14		8.0	7.8		9	<0.1				
	17			.006		13	12		7.9	7.5		11	<0.1				
	18			.0064		13	13		7.6	7.1		8	<0.1				
	19			.0046		15	14		8.1	7.6		15	<0.1				
	20			.0066		14	14		8.4	7.9		9	<0.1				
	21			.0058		15	14		8.9	7.1		10	<0.1				
	22			.0054		14	14		8.1	8.0		12	<0.1				
	23			.0062		15	14		7.9	8.2		20	<0.1				
	24			.0066		15	14		7.8	8.3		17	<0.1				
	25			.0066		15	15		7.4	7.9		18	<0.1				
	26			.0062		14	14		7.0	8.1		17	<0.1				
	27			.007		15	15		7.8	7.9		15	<0.1				
	28			.0082		15	14		7.7	7.8		9	<0.1				
	29																
	30																
	31																

Total Precip.	Monthly Average (MGD)	Temperature Monthly Average Influent	Temperature Monthly Average Effluent	pH Monthly Minimum	pH Monthly Maximum	pH Monthly Minimum	pH Monthly Maximum	Settleable Solids Monthly Maximum	Settleable Solids Monthly Maximum	B.O.D.₅ 30 day arithmetic mean (1) Inf (mg/l)	Eff (mg/l)	%Rem.	Suspended Solids 30 day arithmetic mean (1) Inf (mg/l)	Eff (mg/l)	%Rem.
	.006482	14°	14°	7.0	8.9	7.0	8.3	20	<0.1						

30 Day Average Quantity Loading (1): B.O.D.₅ ______ lbs/day; Suspended Solids ______ lbs/day

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day.

(3) ... Sample type for temperature, pH and settleable solids is grab.

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF MARCH, 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF & COUNTRY CLUB

FACILITY OWNER: BRYNWOOD, INC.

FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C./°F.)		pH (S.U.)				SETTLEABLE SOLIDS (ml/l)		CBOD₅ (mg/l)		SUSPENDED SOLIDS (mg/l)	
Day	Date	Daily Precip in/day	Inst Max. MGD	Daily Average MGD	Inst. Min. MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
	1			.0077		10	11		7.1	7.1		6	<0.1				
	2			.00773		11	12		6.9	7.6		7	<0.1				
	3			.00772		11	12		6.8	7.0		8	<0.1				
	4			.012		11	12		6.5	6.7		2	<0.1				
	5			.0102		11	10		7.1	6.1		10	<0.1				
	6			.0102		11	11		6.9	6.3		7	<0.1				
	7			.0074		10	12		7.0	7.0		4	<0.1				
	8			.0082		11	12		7.2	7.1		6	<0.1				
	9			.0098		12	14		6.7	6.7		2	<0.1				
	10			.0088		13	15		6.0	6.7		2	<0.1				
	11			.0088		12	15		6.5	6.5		4	<0.1				
	12			.0088		12	14		6.7	6.8		2	<0.1				
	13			.0088		13	14		7.1	7.1		5	<0.1				
	14			.0066		11	14		6.0	6.7		2	<0.1				
	15			.0094		11	14		6.5	6.1		7	<0.1				
	16			.0074		11	11		7.3	6.2		30	<0.1				
	17			.0066		12	14		6.7	6.7		2	<0.1				
	18			.0058		12	14		6.8	6.3		3	<0.1				
	19			.0062		12	15		6.7	6.5		2	<0.1				
	20			.0048		11	14		6.9	6.4		10	<0.1	12.6	<2	8.0	<2
	21			.0074		12	14		6.7	6.9		2	<0.1				
	22			.0074		11	13		7.0	6.5		2	<0.1				
	23			.00556		11	12		7.4	6.9		5	<0.1				
	24			.00944		11	13		7.0	7.0		2	<0.1				
	25			.0068		12	12		7.2	7.5		2	<0.1				
	26			.0044		12	12		7.4	7.7		2	<0.1				
	27			.00932		12	12		7.9	7.5		2	<0.1				
	28			.0076		12	15		6.5	6.8		2	<0.1				
	29			.006		12	15		6.6	6.7		2	<0.1				
	30			.00624		13	14		6.9	7.0		2	<0.1				
	31			.00636		12	15		7.0	7.2		2	<0.1				

Total Precip.	Monthly Average (MGD)	Monthly Average Temp. Influent	Monthly Average Temp. Effluent	pH Monthly Minimum	pH Monthly Maximum	pH Monthly Minimum	pH Monthly Maximum	Settleable Solids Monthly Maximum	Settleable Solids Monthly Maximum
	.007725	11.5°	13°	6.0	7.9	6.1	7.7	30	<0.1

	CBOD₅ Inf (mg/l)	CBOD₅ Eff (mg/l)	CBOD₅ %Rem	Suspended Solids Inf (mg/l)	Suspended Solids Eff. (mg/l)	Suspended Solids %Rem.
30 day arithmetic mean (1)	12.6	<2	84	8.0	<2	75
30 Day Average Quantity Loading (1)	<0.13 lbs/day			<0.13 lbs/day		

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF APRIL , 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF & COUNTRY CLUB

FACILITY OWNER: BRYNWOOD, INC

FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C./°F.)		pH (S.U.)				SETTLEABLE SOLIDS (ml/l)		B.O.D.5 (mg/l)		SUSPENDED SOLIDS (mg/l)	
Day	Date	Daily Precip in/day	Inst.Max. MGD	Daily Average MGD	Inst. Min. MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
	1			.00636		12	12		7.4	7.4		2	<0.1				
	2			.0166		13	12		7.9	7.8		2	<0.1				
	3			.004		13	13		8.1	7.3		5	<0.1				
	4			.0074		13	14		6.4	6.6		2	<0.1				
	5			.00476		13	16		6.8	6.7		2	<0.1				
	6			.0062		14	15		6.3	6.8		2	<0.1				
	7			.00464		14	15		6.4	7.1		2	<0.1				
	8			.0046		13	15		6.9	7.8		2	<0.1				
	9			.0176		15	16		7.3	7.3		2	<0.1				
	10			.0038		15	16		7.8	7.7		2	<0.1				
	11			.005		15	15		7.5	7.3		2	<0.1				
	12			.0056		13	14		6.6	7.5		2	<0.1				
	13			.00564		15	16		6.5	7.3		2	<0.1				
	14			.00796		15	16		6.7	7.4		2	<0.1				
	15			.005		15	15		6.8	7.3		2	<0.1				
	16			.0058		16	17		6.5	7.4		2	<0.1				
	17			.0038		16	15		6.8	7.7		2	<0.1				
	18			.005		18	15		6.9	7.7		2	<0.1				
	19			.0072		17	16		7.0	7.5		2	<0.1				
	20			.00704		17	16		6.6	7.5		2	<0.1				
	21			.00616		16	14		7.1	7.5		4	<0.1				
	22			.0064		16	16		7.3	7.4		6	<0.1				
	23			.003		13	15		6.5	7.3		2	<0.1				
	24			.0046		16	16		6.9	7.9		6	<0.1				
	25			.00348		15	16		7.3	7.6		2	<0.1				
	26			.0048		17	18		6.7	6.8		2	<0.1				
	27			.0084		17	17		8.6	7.4		2	<0.1				
	28			.0074		17	17		7.0	7.1		2	<0.1				
	29			.00348		16	17		6.8	7.1		2	<0.1				
	30			.0042		16	17		7.2	7.5		2	<0.1				
	31																
		Total Precip.		Monthly Average .006264		Monthly Average Influent 15°	Monthly Average Effluent 15°	Monthly Minimum 6.3	Monthly Maximum 8.1	Monthly Minimum 6.6	Monthly Maximum 7.9	Monthly Maximum 6	Monthly Maximum <0.1	30 day arithmetic mean (1) Inf (mg/l) Eff (mg/l) %Rem.		30 day arithmetic mean (1) Inf.(mg/l) Eff.(mg/l) %Rem.	
												30 Day Average Quantity Loading (1)		lbs/day		lbs/day	

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc

(2) If temperature is measured more than once a day, report the average for the day

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF MAY, 2013

SPDES PERMIT NO. NY— 0069299
FACILITY NAME: BRYNWOOD GOLF & COUNTRY CLUB
FACILITY OWNER: BRYNWOOD, INC
FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

Day	Date	Daily Precip in/day	Volume of Sewage Treated Inst. Max. MGD	Daily Average MGD	Inst. Min. MGD	Temperature (°C/°F) Influent (2)	Effluent (2)	pH (S.U.) Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Settleable Solids (ml/l) Influent Maximum	Effluent Maximum	B.O.D.₅ (mg/l) Influent Type	Effluent Type	Suspended Solids (mg/l) Influent Type	Effluent Type
	1			.0042		15	16		7.3	7.2		2	<0.1				
	2			.0044		15	16		7.7	7.3		2	<0.1				
	3			.0054		15	16		7.9	7.8		2	<0.1				
	4			.0072		15	16		7.1	8.1		2	<0.1				
	5			.00716		18	17		6.4	7.5		2	<0.1				
	6			.01352		17	17		7.1	7.5		2	<0.1				
	7			.00612		16	16		7.4	7.3		2	<0.1				
	8			.005		16	16		7.8	7.5		2	<0.1				
	9			.0078		17	18		6.7	7.4		2	<0.1				
	10			.00972		19	19		7.3	7.4		4	<0.1				
	11			.00668		18	18		6.9	7.6		2	<0.1				
	12			.0114		19	19		6.8	7.5		3	<0.1				
	13			.0054		17	17		6.6	7.7		2	<0.1				
	14			.0046		18	17		7.3	7.8		2	<0.1				
	15			.0046		17	17		7.1	7.8		2	<0.1				
	16			.01		18	18		7.2	7.5		2	<0.1				
	17			.01276		17	18		7.4	7.2		2	<0.1				
	18			.01284		17	18		6.8	7.1		2	<0.1				
	19			.012		17	17		7.0	7.5		2	<0.1				
	20			.0098		18	19		7.0	7.2		2	<0.1				
	21			.008		20	20		7.5	7.3		2	<0.1				
	22			.006		19	20		7.3	7.4		2	<0.1				
	23			.03524		19	18		6.5	7.2		2	<0.1				
	24			.00972		17	18		7.2	7.0		2	<0.1				
	25			.0092		17	17		8.1	6.9		2	<0.1				
	26			.00884		18	17		7.8	7.1		2	<0.1				
	27			.0098		20	19		8.2	7.7		2	<0.1				
	28			.0104		18	18		7.1	7.2		2	<0.1				
	29			.0072		17	18		7.5	7.4		2	<0.1				
	30			.00604		20	20		7.2	7.2		2	<0.1				
	31			.00676		20	22		7.1	7.2		2	<0.1				
		Total Precip.		Monthly Average		Monthly Average Influent	Monthly Average Effluent	Monthly Minimum	Monthly Maximum	Monthly Minimum	Monthly Maximum	Monthly Maximum	Monthly Maximum	30 day arithmetic mean (1) Inf (mg/l) Eff (mg/l) %Rem.		30 day arithmetic mean (1) Inf (mg/l) Eff (mg/l) %Rem.	
				.00896		17.5°	18°	6.4	8.2	6.9	8.1	4	<0.1				
												30 Day Average Quantity Loading (1)		lbs/day		lbs/day	

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day.

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF JUNE, 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF + COUNTRY CLUB

FACILITY OWNER: BRYNWOOD, INC

FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

Day	Date	Daily Precip in/day	Volume of Sewage Treated: Inst. Max. MGD	Daily Average MGD	Inst. Min. MGD	Temperature (°C./°F.): Influent (2)	Effluent (2)	pH (S.U.): Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Settleable Solids (ml/l): Influent Maximum	Effluent Maximum	B.O.D.5 (mg/l): Influent Type	Effluent Type	Suspended Solids (mg/l): Influent Type	Effluent Type
	1			.01092		21	22		7.4	7.2		2	<0.1				
	2			.01232		21	22		7.9	7.0		2	<0.1				
	3			.01152		21	21		9.2	7.3		2	<0.1				
	4			.00728		20	20		7.1	7.1		2	<0.1				
	5			.011		20	20		7.2	7.1		4	<0.1				
	6			.01098		20	20		7.2	7.2		80	<0.1				
	7			.0078		19	19		6.7	7.0		2	<0.1				
	8			.014		19	20		8.6	7.2		2	<0.1				
	9			.01132		20	20		7.3	7.1		2	<0.1				
	10			.011501		19	20		7.5	7.1		2	<0.1				
	11			.01244		20	20		7.8	7.0		2	<0.1				
	12			.0094		19	20		7.1	7.2		2	<0.1				
	13			.0094		19	18		7.5	7.7		2	<0.1				
	14			.0122		19	19		7.2	7.3		2	<0.1				
	15			.01224		19	20		7.3	7.0		2	<0.1				
	16			.02124		20	20		7.0	7.1		2	<0.1				
	17			.01312		20	21		7.1	7.2		2	<0.1				
	18			.00784		20	21		6.8	7.1		2	<0.1				
	19			.0128		20	20		6.7	7.0		2	<0.1				
	20			.01268		20	21		6.1	7.2		2	<0.1				
	21			.01168		20	20		7.7	7.2		2	<0.1				
	22			.0104		20	20		7.4	7.3		2	<0.1				
	23			.01412		22	22		9.5	7.0		2	<0.1				
	24			.01008		22	24		7.2	7.5		2	<0.1				
	25			.0074		23	23		6.9	7.4		2	<0.1				
	26			.0072		22	23		7.0	7.5		2	<0.1				
	27			.0118		23	23		6.9	7.7		2	<0.1	390	<2.0	180	5.2
	28			.01004		22	22		7.2	7.6		20	<0.1				
	29			.01		23	23		8.3	7.6		3	<0.1				
	30			.00608		23	24		7.7	7.7		6	<0.1				
	31																

Total Precip.	Monthly Average (MGD)	Monthly Average Temperature: Influent	Effluent	pH Monthly: Minimum	Maximum	Minimum	Maximum	Settleable Solids: Monthly Maximum	Monthly Maximum	B.O.D.5 30 day arithmetic mean (1): Inf (mg/l)	Eff (mg/l)	%Rem.	Suspended Solids 30 day arithmetic mean (1): Inf.(mg/l)	Eff.(mg/l)	%Rem.
	.011027	20.5	21	6.1	9.5	7.0		80	<0.1	390	<2	99	180	5.2	97

30 Day Average Quantity Loading (1): B.O.D.5 <0.2 lbs/day; Suspended Solids 0.5 lbs/day

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day

92-15-7 (11/95)—27c

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER

WASTEWATER FACILITY OPERATION REPORT FOR THE MONTH OF July, 2013

SPDES PERMIT NO. NY— 0069299

FACILITY NAME: BRYNWOOD GOLF + COUNTRY CLUB

FACILITY OWNER: BRYNWOOD, INC

FACILITY LOCATION: RT 22 ARMONK, N.Y. 10504

			VOLUME OF SEWAGE TREATED			TEMPERATURE (°C./°F.)		pH (S.U.)				SETTLEABLE SOLIDS (ml/l)		B.O.D.₅ (mg/l)		SUSPENDED SOLIDS (mg/l)	
Day	Date	Daily Precip in/day	Inst.Max. MGD	Daily Average MGD	Inst. Min. MGD	Influent (2)	Effluent (2)	Influent Minimum	Influent Maximum	Effluent Minimum	Effluent Maximum	Influent Maximum	Effluent Maximum	Influent Type	Effluent Type	Influent Type	Effluent Type
	1			.00956		23	23		10.0	7.7		4	<0.1				
	2			.00792		23	24		6.9	7.6		2	<0.1				
	3			.01052		23	23		7.0	7.4		2	<0.1				
	4			.01676		24	24		6.4	7.7		2	<0.1				
	5			.0124		24	25		7.1	7.8		2	<0.1				
	6			.0136		24	25		6.7	7.8		2	<0.1				
	7			.01116		24	25		7.2	7.6		2	<0.1				
	8			.00864		25	25		7.4	7.8		2	<0.1				
	9			.00908		24	25		7.3	8.0		2	<0.1				
	10			.00792		24	25		6.8	7.8		2	<0.1				
	11			.00916		23	23		7.3	7.8		2	<0.1				
	12			.01119		24	24		7.2	7.9		2	<0.1				
	13			.01164		23	23		7.0	7.7		20	<0.1				
	14			.0104		25	25		7.5	7.6		2	<0.1				
	15			.0146		25	25		7.0	7.8		2	<0.1				
	16			.00972		25	26		7.2	7.6		2	<0.1				
	17			.0094		24	25		7.1	7.5		2	<0.1				
	18			.01112		25	26		7.6	7.8		2	<0.1				
	19			.01228		26	27		7.4	7.6		2	<0.1				
	20			.01008		26	27		7.4	7.6		2	<0.1				
	21			.01224		26	26		7.7	7.6		2	<0.1				
	22			.01328		25	25		6.9	7.7		2	<0.1				
	23			.01166		25	26		11.0	7.5		2	<0.1				
	24			.01244		25	25		7.1	7.7		2	<0.1				
	25			.0092		23	23		7.6	7.7		2	<0.1				
	26			.01092		24	24		7.2	7.6		2	<0.1				
	27			.01528		25	24		8.6	7.7		2	<0.1				
	28			.0082		24	24		7.3	7.5		2	<0.1				
	29			.01036		24	24		7.6	7.8		2	<0.1				
	30			.01204		23	23		7.5	7.6		2	<0.1				
	31			.0128		23	23		7.6	7.9		2	<0.1				
		Total Precip.		Monthly Average		Monthly Average Influent	Monthly Average Effluent	Monthly Minimum	Monthly Maximum	Monthly Minimum	Monthly Maximum	Monthly Maximum	Monthly Maximum	30 day arithmetic mean (1) Inf (mg/l) Eff (mg/l) %Rem.		30 day arithmetic mean (1) Inf (mg/l) Eff (mg/l) %Rem.	
				.01119		24°	25°	6.4	11.0	7.4	8.0	20	<0.1				
												30 Day Average Quantity Loading (1)		lbs/day		lbs/day	

(1) Refer to January 1994 edition of *DMR Manual for Completing the Discharge Monitoring Report for the National Pollutant Discharge Elimination System (NPDES)* for procedures to calculate loadings, arithmetic mean, geometric mean, maximum, minimum, percent removal, etc.

(2) If temperature is measured more than once a day, report the average for the day

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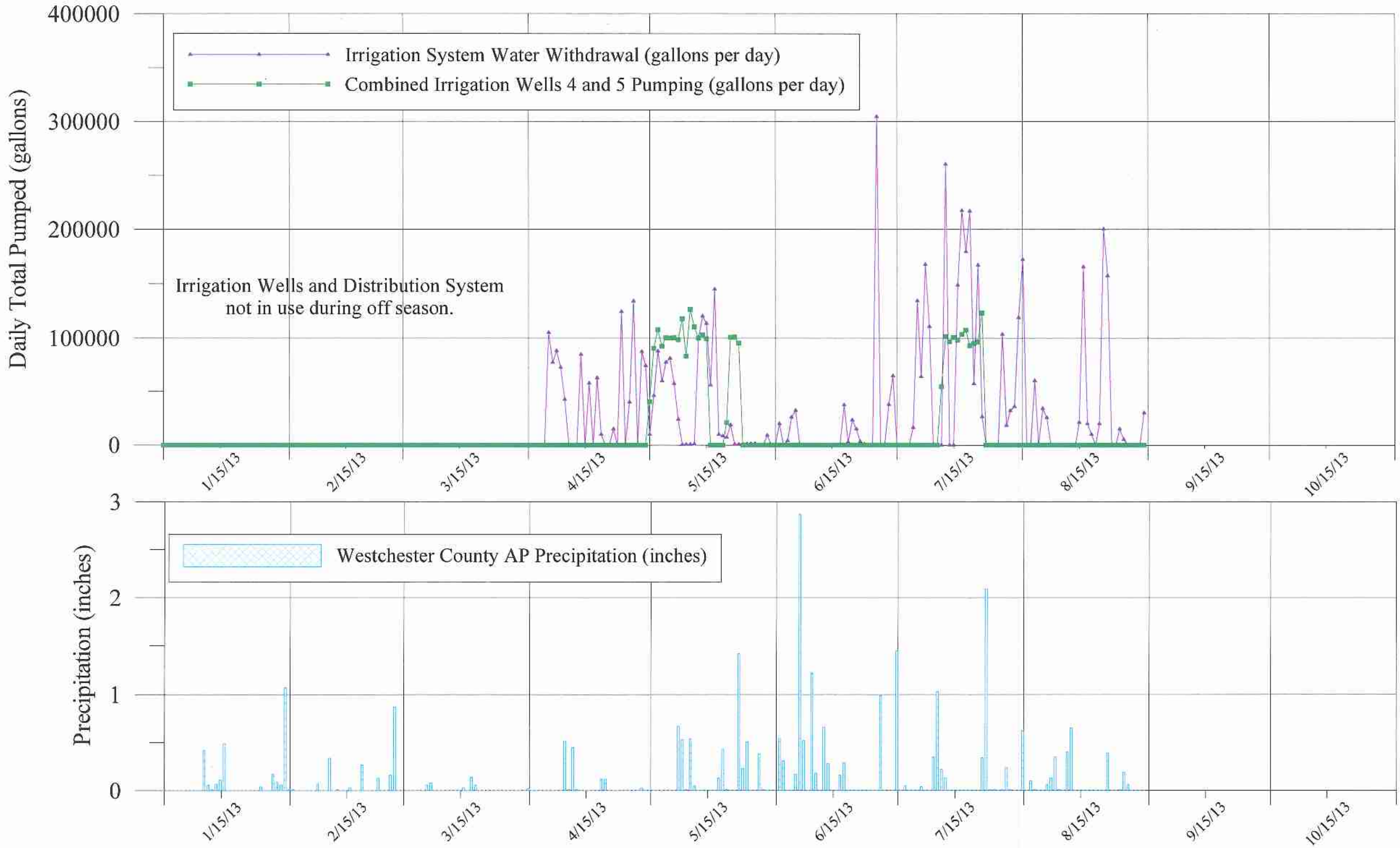
APPENDIX V

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Totalizing Meter Water Usage Data from Irrigation Pump House and Irrigation Wells 4 and 5



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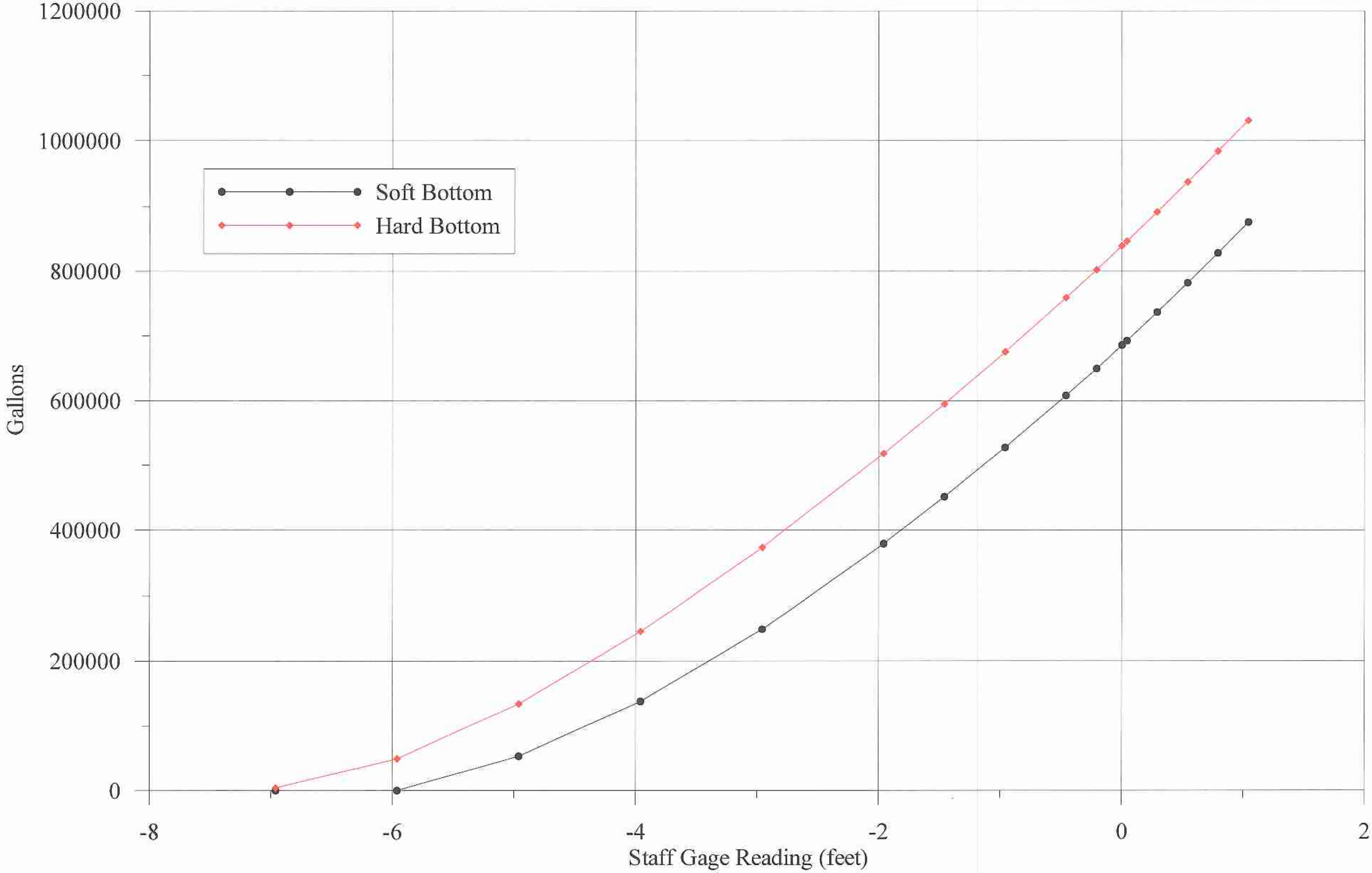
LEGGETTE, BRASHEARS & GRAHAM, INC.

APPENDIX VI

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Storage Volume in Pond 1 Based on Bathometric Survey Conducted in November 2012



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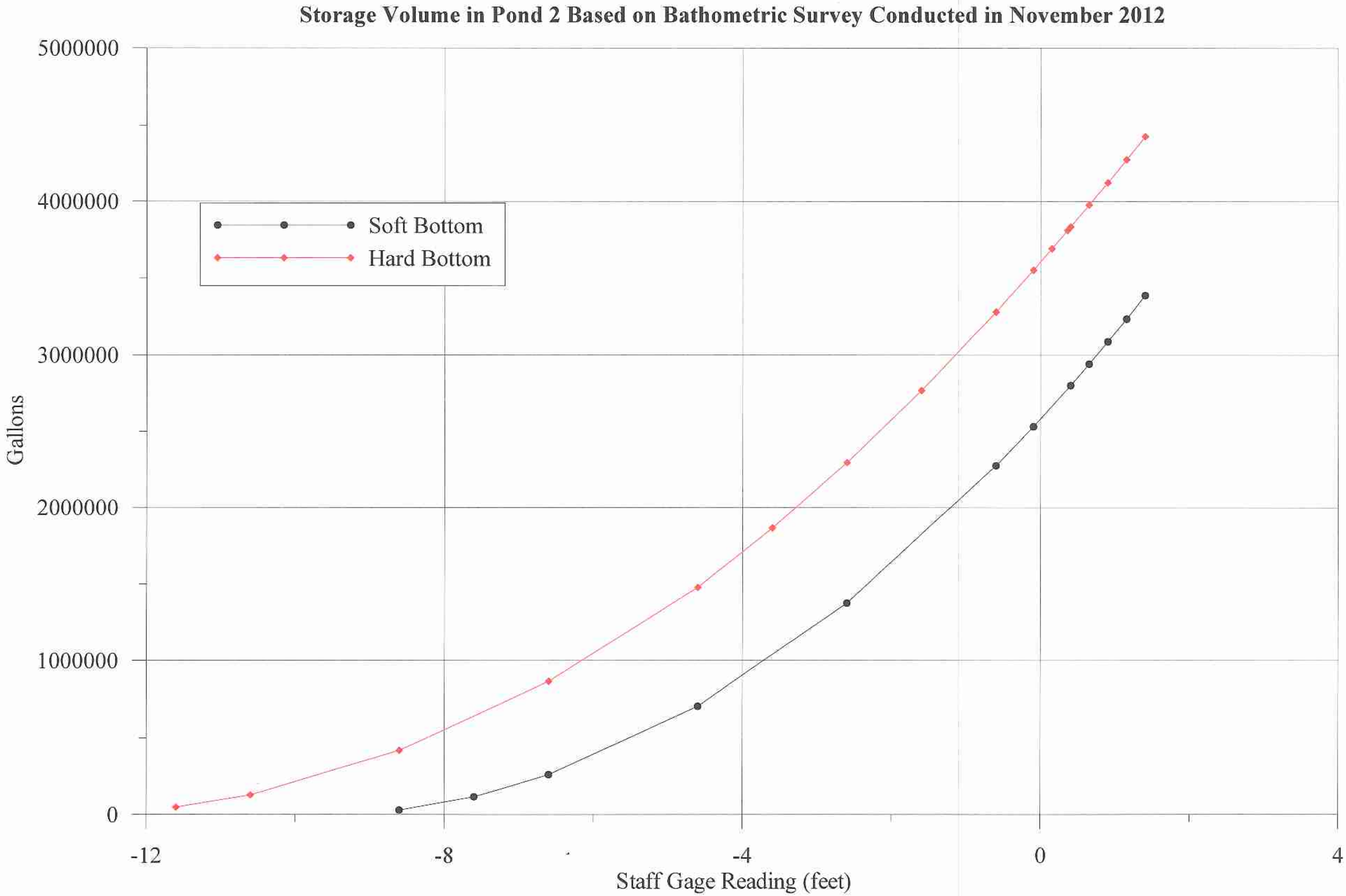
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK



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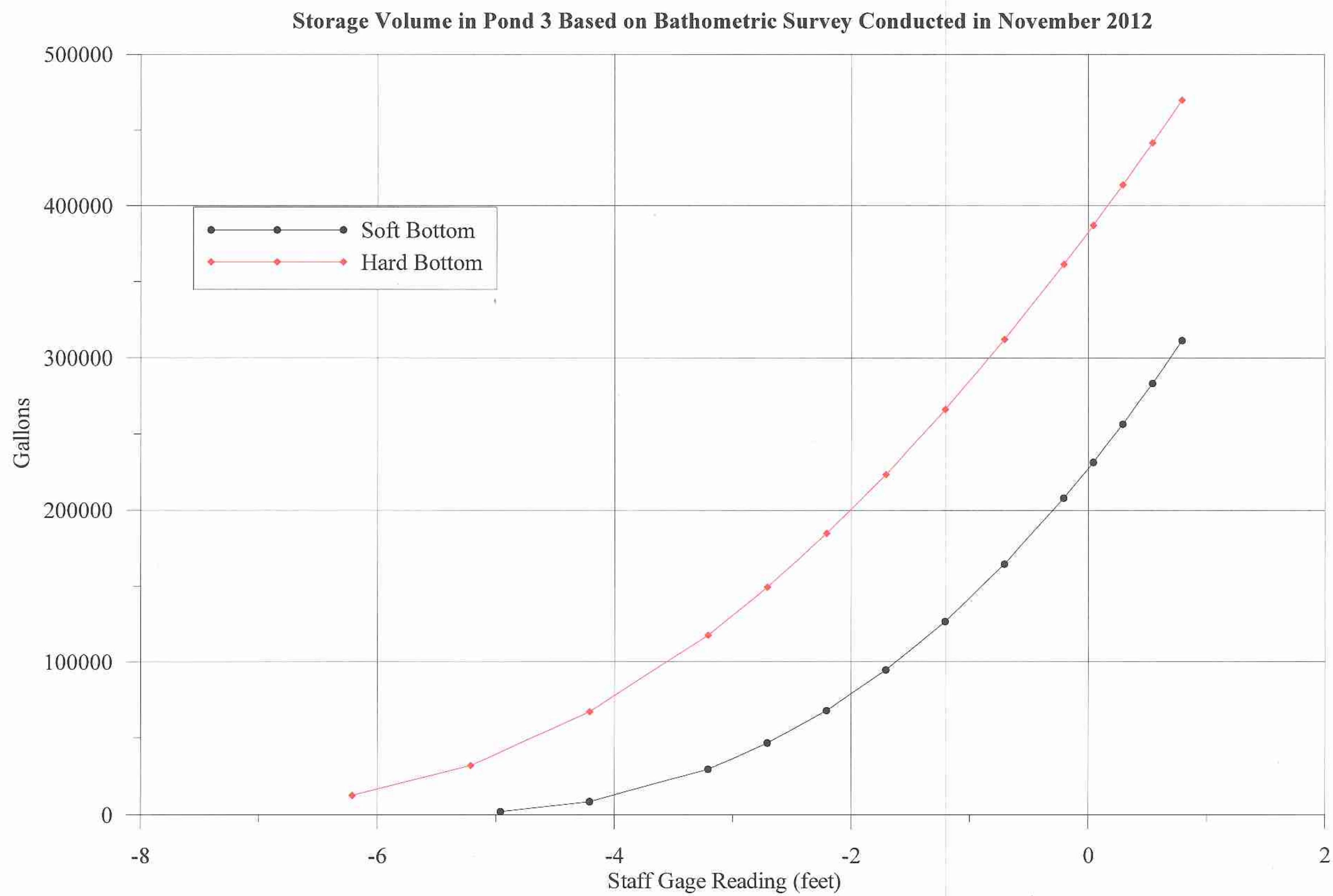
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK



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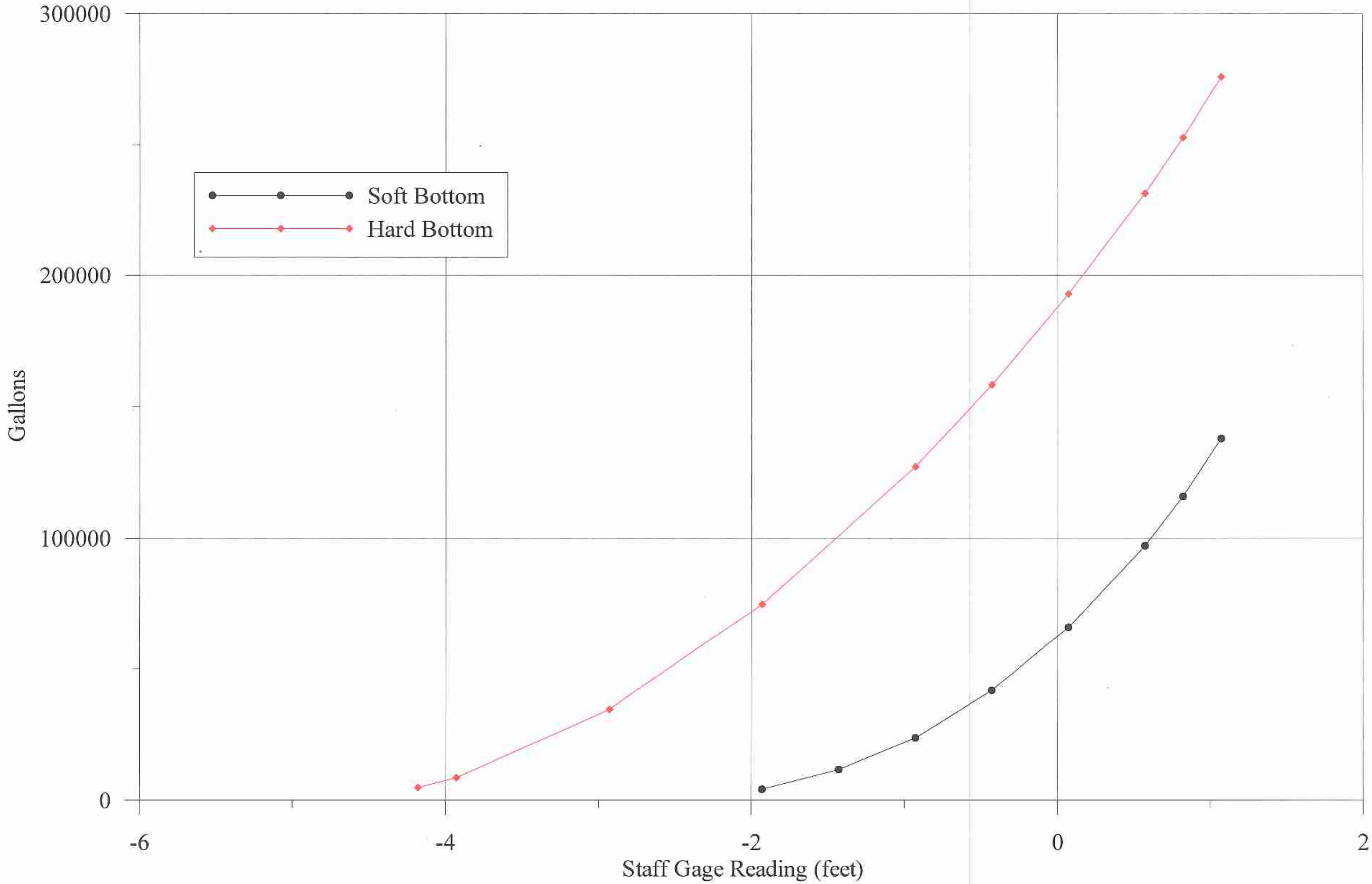
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Storage Volume in Pond 3A Based on Bathometric Survey Conducted in November 2012



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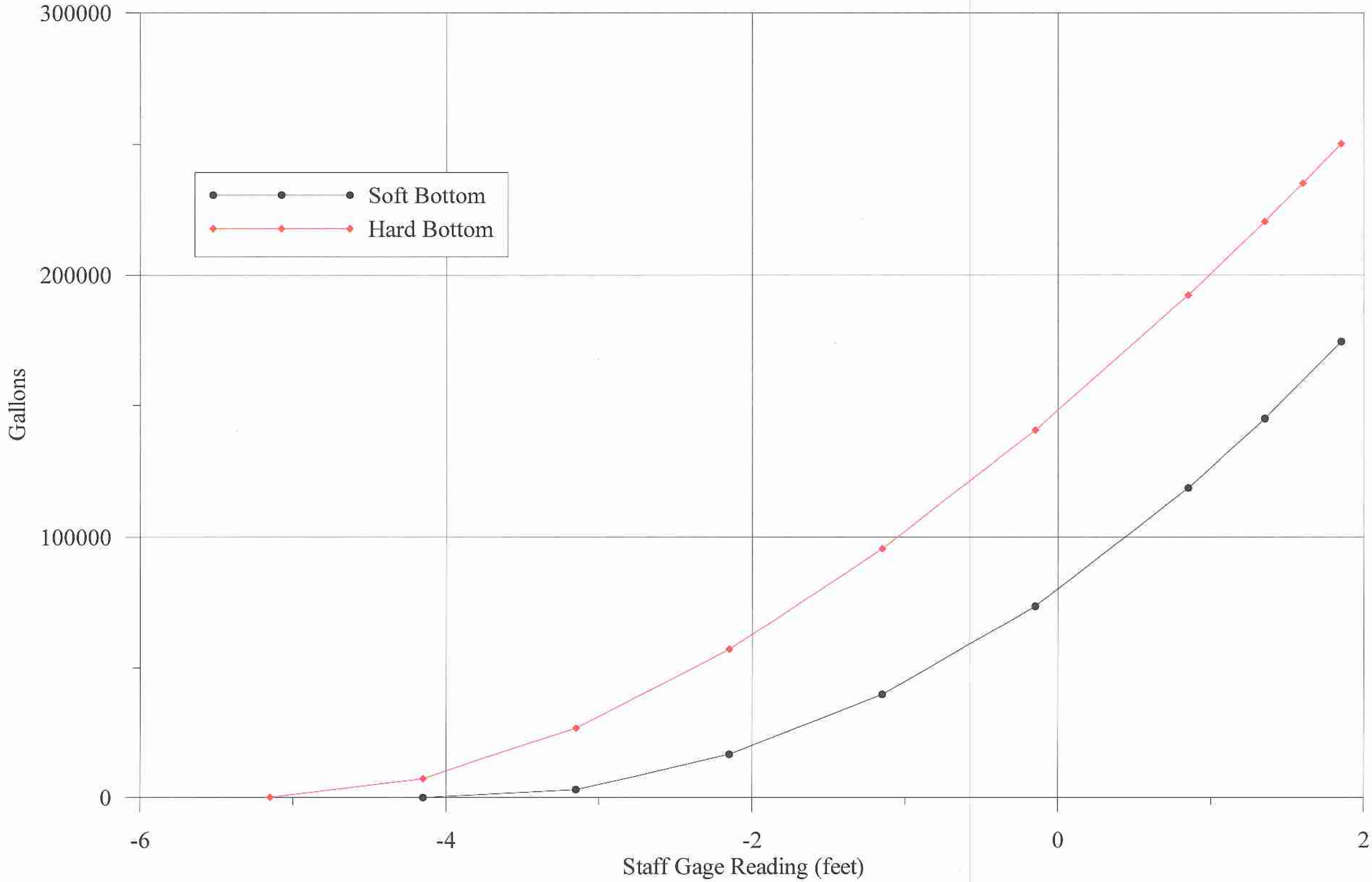
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Storage Volume in Pond 4 Based on Bathometric Survey Conducted in November 2012



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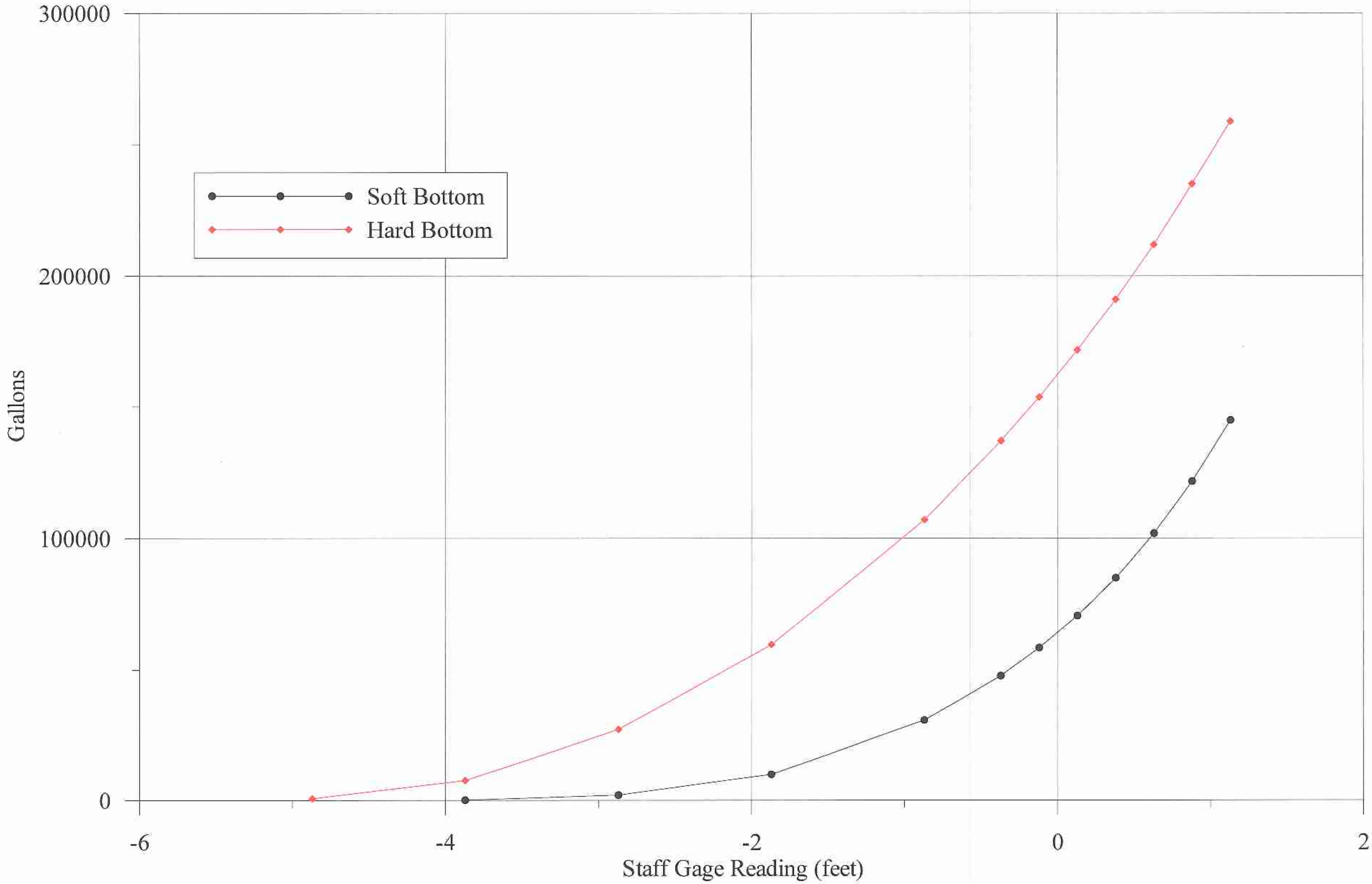
LEGGETTE, BRASHEARS & GRAHAM, INC.

BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

Storage Volume in Pond 5 Based on Bathometric Survey Conducted in November 2012



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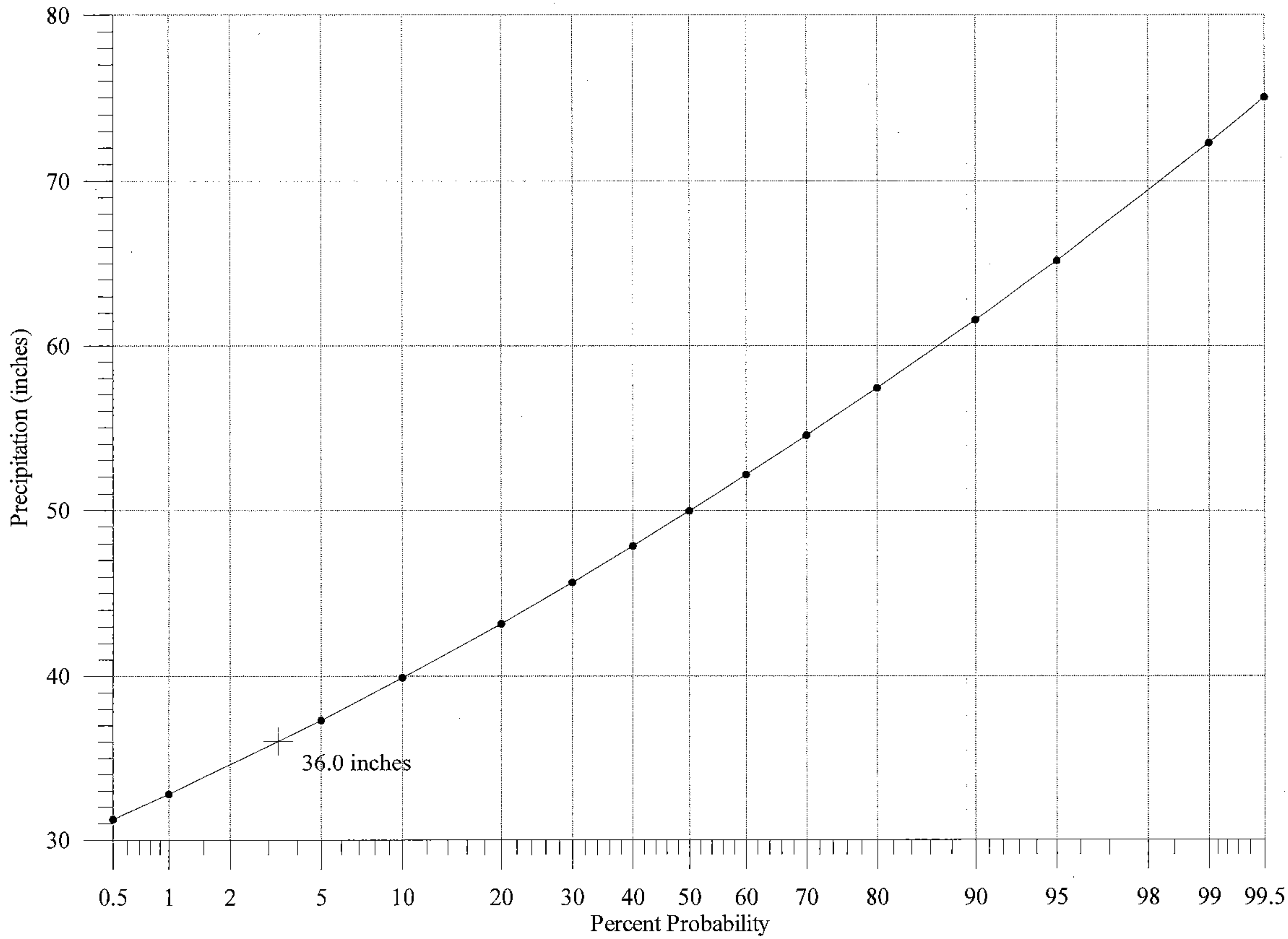
LEGGETTE, BRASHEARS & GRAHAM, INC.

APPENDIX VII

TOWN OF NORTH CASTLE
WATER DISTRICT No. 2 WELL FIELD PARCEL
(T) NORTH CASTLE, NEW YORK

Precipitation Probability Graph for Westchester County AP Using 30-Year Month Averages 1971-2000



BRYNWOOD GOLF & COUNTRY CLUB
ARMONK, NEW YORK

IRRIGATION STUDY MONITORING LOCATIONS

DATE	REVISED

PREPARED BY:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive
Suite 301
Shelton, Connecticut 06484
(203) 929-8555

DRAWN: RAC	CHECKED: SS	DATE: 09/05/13	PLATE: 1

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DRAFT

SURFACE-WATER AND
GROUNDWATER SAMPLING PROGRAM
BRYNWOOD GOLF & COUNTRY CLUB
NORTH CASTLE, NEW YORK

Prepared For:

Brynwood Golf & Country Club

March 2015

Prepared By:

LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive, Suite 204
Shelton, CT 06484

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TABLE
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Table

1 Pesticides Proposed for use on Golf Course

FIGURE
(at end of report)

Figure

1 Site Location Map

APPENDIX
(at end of report)

Appendix

I Integrated Turfgrass and Pest Management Plan

PLATE
(in pocket at end of report)

Plate

1 Proposed Sampling Locations

SURFACE-WATER AND
GROUNDWATER SAMPLING PROGRAM
BRYNWOOD GOLF & COUNTRY CLUB
NORTH CASTLE, NEW YORK

1.0 INTRODUCTION

The following is a proposed Surface-Water and Groundwater Sampling Program for the Brynwood Golf & Country Club (Brynwood) located on Route 22 in the Town of North Castle, New York (figure 1). The golf course on the property has been in operation since the 1960s. As part of proposed renovation/modification activities on the golf course, the Town of North Castle has requested that Brynwood implement a surface-water and groundwater sampling program to monitor for potential impacts to surface-water runoff and groundwater from fertilizers and pesticides applied to the golf course. This proposed sampling program will encompass the construction/grow-in phase of the golf course renovations as well as a post-construction period to monitor for potential environmental impacts.

2.0 INTEGRATED TURFGRASS AND PEST MANAGEMENT PLAN (ITPMP)

The Integrated Turfgrass and Pest Management Plan (ITPMP) for the golf course is attached in Appendix I. The ITPMP contains a detailed discussion of the program of fertilizer application, pest control options and other maintenance practices which will be used on the golf course. A combination of pest treatment methods will be utilized including biological, cultural, physical, mechanical and chemical controls. All of these pest control options will be integrated and implemented, with chemical pesticide application being used as a last resort when other pest control methods have failed and significant pest damage to the golf course is likely.

The ITPMP includes an environmental fate assessment (risk to surface and groundwater) of pesticides considered for use on the Brynwood golf course. The risk assessment rates the risk to humans and aquatic life from chemical application to greens/tees and fairways/roughs and assigns a rate from very low risk to high risk.

A list of the pesticides proposed for use in 2015 on the golf course is included on table 1 along with the risk assessment rating from the ITPMP.

3.0 SURFACE-WATER SAMPLING PROGRAM

The surface-water sampling program will be conducted in three phases: background (pre-construction) monitoring; construction and two-year grow-in period monitoring; and post-construction monitoring. The background monitoring will be conducted for a minimum of one year prior to the start of renovation on the golf course. The construction monitoring will encompass the entire period of renovation of the golf course plus a two-year grow-in period following the end of construction activities. The post-construction period will include five years of sampling, plus an additional two-year of sampling on a reduced schedule.

3.1 Surface-Water Sampling Locations

During the background monitoring period, surface-water samples will be collected from two locations, SW-1 and SW-2, shown on Plate 1. The sampling location SW-1 is downstream of the confluence of all of the onsite ponds and the wastewater treatment plant discharge in the unnamed stream centrally located on the golf course which exits the site along the western property boundary.

The second sample location, SW-2, is located near the northern property boundary. The location of SW-2 is a drainage channel which receives storm-water runoff from the northeastern portion of the golf course. Water flows through this channel intermittently following rain events.

As part of the golf course redesign, a storm-water management area will be implemented on the southwestern portion of the golf course. After the construction of the storm-water management area is completed, a third surface-water sampling location, SW-3, will be added to the sampling program. Therefore, during the construction and post-construction monitoring periods, surface-water samples will be collected from three locations, SW-1, SW-2 and SW-3.

3.2 Surface-Water Sampling Frequency

During the background monitoring period, surface-water samples will be collected three times per year during the spring (April/May), summer (June/July/August) and fall (September/October) for one year or until the start of construction on the golf course, whichever occurs first. The surface-water samples for each sampling event will be collected within a 24-hour period following a rain event of 0.1 inch or more on the golf course.

Seasonal (three times per year) surface-water sampling will continue in the spring, summer and fall during the construction and two-year grow-in period, and for five years after the end of the grow-in period in the same manner as described above. If after five years, if no significant water-quality detections have been reported, the sampling frequency will be reduced to twice per year, once during the spring and once during the fall, for two years. At the end of this two-year period, if no significant water-quality detections have been reported, the surface-water sampling program will be discontinued. This schedule assumes the program of fertilizer and pesticide application provided in the ITPMP remains unchanged. If significant changes occur in the application program, the monitoring period may be revisited.

3.3 Sampling Analytes

Each surface-water sampling event will include the measurement of physical parameters pH, temperature and conductivity at each sampling point using a hand-held water-quality meter. To assess the potential impact from fertilizer application to the golf course, samples will be collected for laboratory analysis for nitrate, nitrite, and total phosphorous. Samples will also be collected for pesticide parameter analyses included in Eurofins Eaton Analytical, Inc. analytical Methods S150 and L302. Analytical Methods S150 and L302 include all of the pesticide constituents proposed for use on the golf course that were determined to have a potentially high risk assessment rating for human health and/or aquatic life in the ITPMP.

3.4 Modification to Sampling and/or Chemical Application Based on Laboratory Results

3.4.1 Non-Pesticide Analytes

If concentrations of non-pesticide analytes exceed applicable state water-quality criteria, the surface water will be resampled and a review of management practices, site conditions and weather conditions will be implemented to determine reasons for the increased concentrations. The immediate action will also include a reduction in the fertilizer use and/or an increase in the proportion of slow-release fertilizers utilized.

3.4.2 Pesticide Concentrations Below a Toxicologically Significant Level

If a pesticide is detected in a sample at a concentration below a toxicologically significant level (table 1), the following responses will be implemented:

- The sample location where the detection occurred will be resampled immediately upon receipt of the data from the laboratory and reanalyzed for the pesticide detected.
- If the results of the resampling indicate a detection of the pesticide or if surface water is not present at the location in order to complete an immediate resampling event, a review of application procedure, weather conditions after its application, and possible alternative control measures will be conducted and adjustments to the application protocol will be made based on the results of the review. If the results of the resampling indicate no detection of the pesticide, no further management response will be implemented.

3.4.3 Pesticide Concentrations Above a Toxicologically Significant Level

If a pesticide is detected in a sample at a concentration above a toxicologically significant level (or in the case of lambda-cylahalothrin and bifenthrin above the method reporting limit), the following responses will result:

- The pesticide use at the golf course will be temporarily suspended.
- The sample location where the detection occurred will be resampled twice (one immediately upon receipt of the results and once approximately 10 days later) and reanalyzed for the detected pesticide.
- If the results of the resampling indicate a detection of the pesticide at a concentration below the toxicologically significant level or if surface water is not present at the location in order to complete an immediate resampling event, a review of application procedure, weather conditions after its application, and possible alternative control measures will be conducted and adjustments to the application protocol will be made based on the results of the review. The use of the pesticide can be reinstated with the adjustment to the application procedure. If the results of the resampling report no detection of the pesticide, use of the pesticide at the golf course may be reinstated and no further management response will be implemented.
- If the results of the resampling or any future sampling event report a detection of the pesticide at a concentration above the toxicologically significant level, use of the pesticide on the golf course will be terminated permanently.

3.5 Surface-Water Sampling Methods

Samples collected from stream channels (SW-1 and SW-2) will be collected from the center of stream channel at mid-depth. The sample bottle will be held upside down, lowered to the correct depth, and inverted to fill until all the air in the bottle is displaced. Water will be collected in sample bottles while facing upstream, and the sample water will be transferred to sample containers that contain the proper preservatives and labels. The sample containers will be immediately placed in a cooler with ice for transport to the laboratory.

Samples collected from an onsite stormwater basin or pond will be sampled at a depth of 6 inches below the surface. The sample bottle will be held upside down, lowered to the correct depth, and inverted to fill until all the air in the bottle is displaced. The water collected from the pond will be transferred to sample containers that contain the proper preservatives and labels. The sample containers will be immediately placed in a cooler with ice for transport to the laboratory.

4.0 GROUNDWATER SAMPLING PROGRAM

The groundwater sampling program will be conducted in three phases: background (pre-construction) monitoring; construction and two-year grow-in period monitoring; and post-construction monitoring. The background monitoring will be conducted for a minimum of one year prior to the start of renovation on the golf course. The construction monitoring will encompass the entire period of renovation of the golf course plus a two-year grow-in period following the end of construction activities. The post-construction period will include five years of sampling, plus an additional two-year of sampling on a reduced schedule.

4.1 Groundwater Sampling Locations

Three bedrock groundwater sampling locations are proposed, Well 1, Irrigation Well 4, and Well 5 (Plate 1). Wells 1 and 5 are existing onsite wells that are located closest to the southern and northern property boundaries, respectively. Irrigation Well 4 is an existing irrigation well that is used on the golf course. All three wells, Well 1, Irrigation Well 4 and Well 5, will be sampled during the background monitoring; construction and two-year grow-in period monitoring; and post-construction monitoring periods.

4.2 Groundwater Sampling Frequency

During the background monitoring period, groundwater samples will be collected twice per year, once in June and once in October, for one year or until the start of construction until golf course, whichever occurs first.

Twice per year groundwater sampling will continue in June and October during the construction and two-year grow-in period, and for five years after the end of the grow-in period. If after five years, no significant water-quality detections have been reported, the sampling frequency will be reduced to twice per year once during the spring and once during the fall, for two years. At the end of this two-year period, if no significant water-quality detections have been reported, the groundwater sampling program will be discontinued. This schedule assumes the program of fertilizer and pesticide application provided in the ITPMP remains unchanged. If significant changes occur in the application program, the monitoring period may be revisited.

4.3 Sampling Analytes

Physical parameter measurements of pH, temperature and conductivity will be collected from each well using hand-held water-quality meter as part of each sampling event. To assess the potential impact from fertilizer application to the golf course, samples will be collected for laboratory analysis for nitrate, nitrite, and total phosphorous. Samples will also be collected for pesticide parameter analyses included in Eurofins Eaton Analytical, Inc. analytical Methods S150 and L302. Analytical Methods S150 and L302 include all of the pesticide constituents proposed for use on the golf course that were determined to have a potentially high risk assessment rating for human health and/or aquatic life.

4.4 Modification to Sampling Based on Laboratory Results

4.4.1 Non-Pesticide Analytes

If concentrations of non-pesticide analytes exceed applicable state water-quality criteria, the media will be resamples and a review of management practices, site conditions and weather conditions will be implemented to determine reasons for the increased concentrations. The immediate action will also include a reduction in the fertilizer use and/or an increase in the proportion of slow-release fertilizers utilized.

4.4.2 Pesticide Concentrations Below a Toxicologically Significant Level

If a pesticide is detected in a sample at a concentration below a toxicologically significant level (table 1), the following responses will be implemented:

- The sample location where the detection occurred will be resampled immediately upon receipt of the data from the laboratory and reanalyzed for the pesticide detected.
- If the results of the resampling indicate a detection of the pesticide, a review of application procedure, weather conditions after its application, and possible alternative control measures will be conducted and adjustments to the application protocol will be made based on the results of the review. If the results of the resampling indicate no detection of the pesticide, no further management response will be implemented.

4.4.3 Pesticide Concentrations Above a Toxicologically Significant Level

If a pesticide is detected in a sample at a concentration above a toxicologically significant level (or in the case of lambda-cylahalothrin and bifenthrin above the method reporting limit), the following responses will result:

- The pesticide use at the golf course will be temporarily suspended.
- The sample location where the detection occurred will be resampled twice (one immediately upon receipt of the results and once approximately 10 days later) and reanalyzed for the detected pesticide.
- If the results of the resampling indicate a detection of the pesticide at a concentration below the toxicologically significant level, a review of application procedure, weather conditions after its application, and possible alternative control measures will be conducted and adjustments to the application protocol will be made based on the results of the review. The use of the pesticide can be reinstated with the adjustment to the application procedure. If the results of the resampling report no detection of the pesticide, use of the pesticide at the golf course may be reinstated and no further management response will be implemented.
- If the results of the resampling or any future sampling event report a detection of the pesticide at a concentration above the toxicologically significant level, use of the pesticide on the golf course will be terminated permanently.

4.5 Groundwater Sampling Methods

Water samples will be collected from Well 1, Irrigation Well 4 and Well 5 after a minimum of one volume of water has been removed from the well. The approximate well volumes are calculated in the table below based on the well diameter and total depth of the well.

Well ID	Total Depth (feet)	Static Water Level (feet below top of casing)	Water Column Height (feet)	Well Diameter (inches)	One Well Volume (gallons)
Well 1	575	0	575	6	860
Irrigation Well 4	398	0	398	6	600
Well 5	540	0	540	6	810

Wells 1 and 5 are artesian wells (i.e., if left open they flow continuous from natural upward pressure in the bedrock aquifer). Spigots will be installed on the well caps for these wells. At the time of sample collection, the spigots will be opened and the wells allowed to flow until a minimum of one well volume has been discharged before the sample is collected. Should artesian conditions not be present at the time of sample collection from Wells 1 and 5, a temporary submersible pump will be installed in the well(s). The well(s) will be pumped to waste until a minimum of one well volume of water has discharged before the sample is collected.

Irrigation Well 4 has a permanent pump installed in the well. To collect a sample, the well pump will be turned on and the well allowed to pump to waste until a minimum of one well volume of water has discharged before the sample is collected.

LEGGETTE, BRASHEARS & GRAHAM, INC.

Stacy Stieber, CPG
Associate/Hydrogeologist

Reviewed by:

Thomas P. Cusack, CPG
Senior Vice President

cmm
March 31, 2015
H:\Brynwood\2015\Draft Environ Monitoring Program.doc

TABLE

TABLE 1

BRYNWOOD GOLF & COUNTRY CLUB
NORTH CASTLE, NEW YORK

Pesticides Proposed for Use on Golf Course

Chemical Name	Active Ingredient (A.I. %)	EPA Registration Number	Potential Risk Humers*		Potential Risk Aquatic Life*		Long Term Human Toxicity (ug/L)*	Maximum Acceptable Toxicant Level Fish (ug/L)*	Analytical Method Available	Method Reporting Limit (ug/L)
			Groundwater	Surface Water	Groundwater	Surface Water				
Acelepryn	Chlorantraniliprole (18.4%)	352-731	NL	NL	NL	NL	ND	ND	NL	NL
Banol	Propamocarb (66.5%)	432-942	very low	very low	very low to low	very low	700	37,500	L301	0.5
Barricade	Prodiamine (40.7%)	100-1139	very low	low	very low to low	low	35	17	L302	0.5
Bayleton FLO	Triademefon (43%)	432-1445	very low to low	low to intermediate	very low to low	low	28	169	L302	0.5
Chipco Signature	Aluminum-Tris (80%) (aka o-ethyl phosphonate, fosetyl-al)	432-890	very low	very low	very low	very low	21,000	14,711	L303	1.0
Clearys 3336	Thiophanate-methyl (41.25%)	1001-63	very low	low	low	intermediate	140	2.1	L301	0.5
Concert II	Propiconazole (2.9%)	100-1347	low to intermediate	intermediate to high	very low to low	low	9.1	134	S150	0.1
	Chlorothalonil (38.5%)		very low	low	low	intermediate	15	4.4	S150	0.1
Conserve	Spinosad (11.6%) (aka spinosyn)	62719-291	very low	very low	very low	very low	188	692	NL	NL
Curalan	Viclozolin (50%)	7969-224	low to intermediate	intermediate	very low to low	low	8.4	120	S150	0.1
Daconil Action	Chlorothalonil (53.94%)	100-1364	very low	low	low	intermediate	15	4.4	S150	0.1
	Acibenzolar-S-methyl (.11%)		NL	NL	NL	NL	ND	ND	NL	NL
Daconil Weatherstick	Chlorothalonil (54%)	50534-211-100	very low	low	low	intermediate	15	4.4	S150	0.1
Dimension	Dithiopyr (24%)	62719-542	very low to intermediate	low to intermediate	very low to intermediate	low to intermediate	25	28	S150	0.1
Eagle	Myclobutanil (19.7%)	62719-463	very low	very low	very low to low	low	175	330	S150	0.1
Emerald	Boscalid (70%)	7969-196	very low	very low	very low to low	low	153	167	L302	0.5
Headway	Azoxystrobin (5.73%)	100-1216	very low	very low to low	very low	very low to low	1,260	168	L302	0.5
	Propiconazole (9.54%)		low to intermediate	intermediate to high	very low to low	low	9.1	134	S150	0.1
Insignia Intrinsic	Pyraclostrobin (23.1%)	7969-290	very low	very low	low	intermediate to high	210	3.9	L302	0.5
Instrata	Chlorothalonil (29.9%)	100-1231	very low	low	low	intermediate	15	4.4	S150	0.1
	Propiconazole (4.7%)		low to intermediate	intermediate to high	very low to low	low	9.1	134	S150	0.1
	Fludioxinil (1.2%)		very low	very low	very low	low to intermediate	210	33	L302	0.5
Medallion	Fludioxinil (11.8%)	100-1448	very low	very low	very low	low to intermediate	210	33	L302	0.5
Primo MAXX	Trinexepac-ethyl (11.37%)	100-937	very low	very low	very low	very low	221	573	S150	1.0
Proxy	ethephon (21.77%)	432-1230	very low	very low	very low	very low	126	2,662	L303	1.0
Provaunt	Indoxacarb (30%)	352-716	very low	very low	low	intermediate	140	2.1	S150	0.5
Renown	Chlorothalonil (45%)	100-1315	very low	low	low	intermediate	15	4.4	S150	0.1
	Azoxystrobin (3%)		very low	very low to low	very low	very low to low	1,260	168	L302	0.5
Scimitar	Lambda-cylahalothrin (9.7%)	28499	low	intermediate	intermediate	high	7	0.04	S150	0.1
Segway	Cyazofamid (34.5%)	71512-13-279	very low	very low	very low	very low to low	6,650	127	L302	0.5
Talstar Select	Bifenthrin (7.9%)	279-3206	very low to intermediate	low to high	very low to intermediate	low to high	10	0.06	S150	2.0
Tartan	Triofloxystrobin (4.17%)	432-1446	very low	very low	low	intermediate	350	5.8	L302	0.5
	Triademefon (20.86%)		very low to low	low to intermediate	very low to low	low	28	169	L302	0.5
Torque	Tebuconazole (38.7%)	69631-27-1001	very low to low	low to intermediate	very low to low	low to intermediate	21	17	S150	0.5

NL Not listed
ND Not determined
ug/L micrograms per liter

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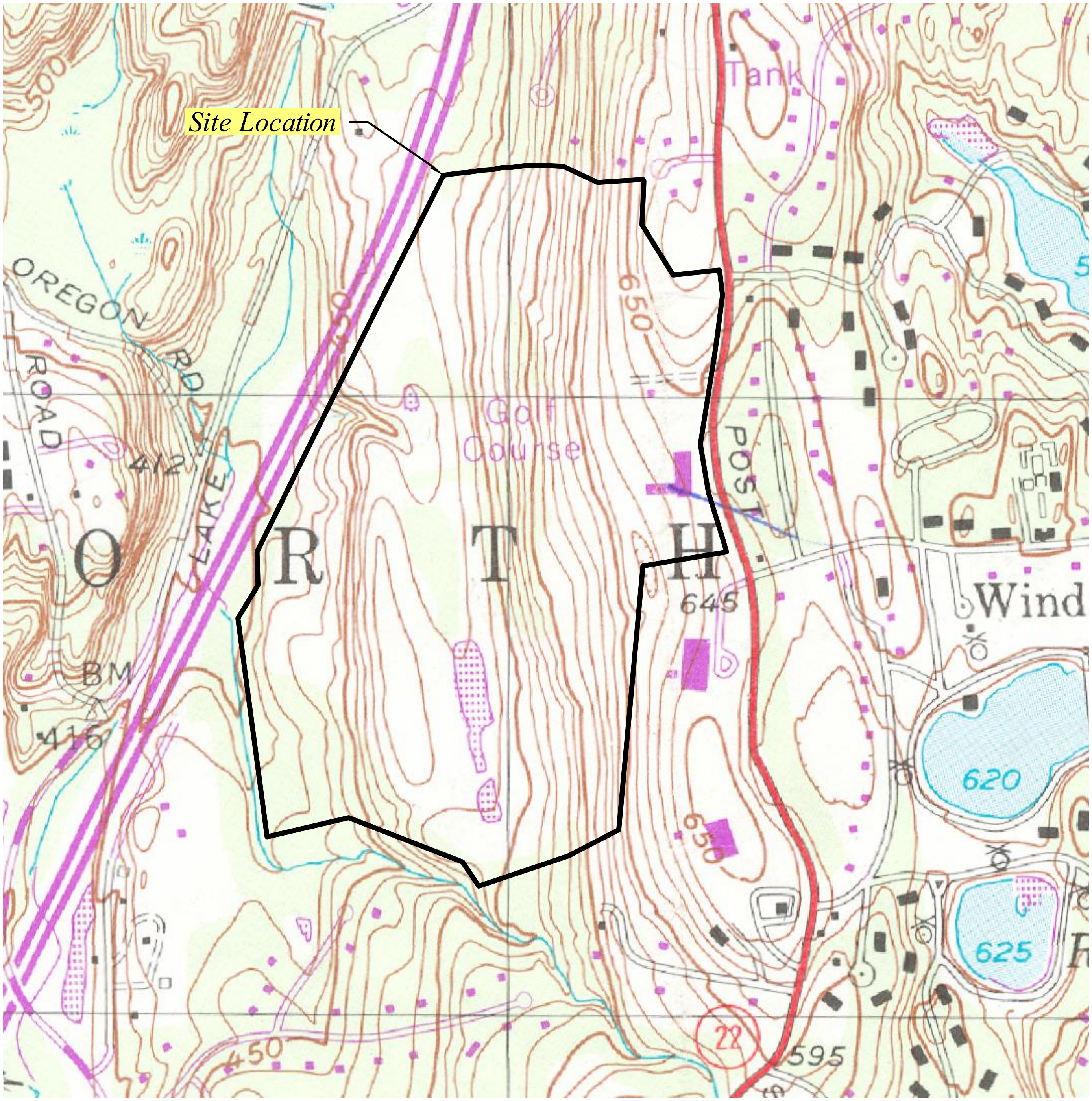
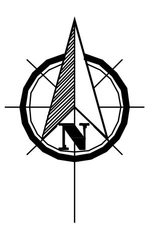
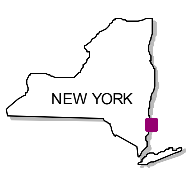
FIGURE



SOURCE: USGS TOPOGRAPHIC QUADRANGLE MOUNT KISCO, NEW YORK-CONNECTICUT (1998)





QUADRANGLE LOCATION

0 800
SCALE IN FEET

BRYNWOOD GOLF & COUNTRY CLUB
NORTH CASTLE, NEW YORK

SITE LOCATION MAP

DATE	REVISED	PREPARED BY: LEGGETTE, BRASHEARS & GRAHAM, INC. Professional Groundwater and Environmental Engineering Services 4 Research Drive Suite 204 Shelton, Connecticut 06484 (203) 929-8555

DRAWN:	MRV	CHECKED:	SS	DATE:	03/05/15	FIGURE:	1

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APPENDIX I

Integrated Turfgrass and Pest Management Plan

Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment for the Brynwood Golf and Country Club, North Castle, NY

Prepared By

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March 11, 2013
Revised October 28, 2013

INTRODUCTION

A properly maintained golf course with established turfgrass cover and mature tree stands provides much-needed green space relief from urban development. The filtering ability of dense, healthy turf and its thatch layer can be utilized to ensure pollutants do not reach groundwater or enter rivers and streams. A golf course can be an attractive and effective transition between agricultural and urban landscapes and provides for the preservation or creation of areas useful to wildlife. When managed in an environmentally conscious manner, golf courses can enhance the quality of life within a neighborhood.

This report is the Integrated Turfgrass Management-Environmental Risk Assessment Plan (ITPMP) for the Brynwood Golf and Country Club. The ITPMP contains a program of fertilizer, pest control options and other maintenance practices to be used on this golf course. This program was designed to serve as the maintenance blueprint for Brynwood Golf and Country Club. The ITPMP relies heavily on environmental friendly practices including the use of: natural organic fertilizers that suppress diseases, pest resistant grasses, biological control material as the first line of defense against pests and careful use of fertilizers and water for irrigation.

In general, golf course superintendents, as a group of professionals, are committed to the preservation of the ecology and the wildlife and share the concern for the preservation of the golf course site's environmental quality. The golf course superintendent, with the use of the Troon Golf Standards and Procedures Manual, will be responsible for implementing this ITPMP program.

As with any new or existing golf course, a fertilizer and pest control program must show flexibility to deal with two very important variables: weather and nature. The initial year(s) or grow-in period that often lasts up to 2 seasons will require higher than normal annual inputs of fertilizers and limited use of pest control materials in order to promote rapid establishment of cover, which reduces soil erosion and minimizes the likelihood of weed infestation.

The basic philosophy of this ITPMP is to produce a healthy pest-resistant golf-playing surface that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pest control materials will be based on producing a healthy plant while not contaminating either surface water (via runoff) or groundwater (via leaching). There is little or no evidence that golf courses have or will contaminate surface or ground water (Baris et al., 2010, Cohen et al., 1990, 1999; Cohen and Durborow, 1994; Petrovic, 1994; Shirk, 1996). There are over 40 golf courses in the NY, NJ and CT region that are using an ITPMP developed by Petrovic, many with surface and ground water quality monitoring. It has been found following these site-specific ITPMP has resulted in protection of surface and ground water quality for contamination from either nutrients or pesticides.

The golf course superintendent of the Brynwood Golf Course will utilize every available method to minimize the risk of contaminating any surface water or ground water. Thus, the purpose of this report is to present a site specific analysis that meets the goals of having a healthy pest-resistant golf playing surface that poses little or no threat to the environment on or surrounding this site. The ITPMP conforms to the principles of sustainable resource management developed by Audubon International for golf courses.

The property is currently working towards becoming a Certified Audubon Cooperative Sanctuary. Audubon provides the tools to thoroughly perform a site assessment of our property and form an environmental plan of action which we can implement to help effect our wildlife habitat and wetland management, reduce our chemical use and create and safer protocol for needed use, become more efficient with our water use, manage the quality of not only our water systems on property but surrounding water systems as well as groundwater, and finally will help us to reach out to our surrounding community to educate and communicate what Brynwood is doing to positively impact the local community. Implementation of new environmental programs and initiatives will help improve our environmental performance and community relations, reduce our environmental and legal liability, have a significant impact on our financial bottom line, and overall will enhance our contribution to the conservation of environmental resources.

The ITPMP also conforms to the best management practices for golf course turf management being developed by Cornell University (Petrovic a co-author).

The report presented here was compiled from the following information: review of IPM plan from Troon Golf, site specific soil properties from VHB and corresponding soil data provided by the USDA- National Resource Conservation Service for these soils, the hydrogeology, groundwater and water supply information from VHB, environmental fate assessment (risk to surface and ground water) of the currently registered pesticides in the state of New York for golf course use by model simulation (WIN PST, pesticide risk assessment models developed by USDA-NRCS), worst case scenario estimates of pesticide concentration in surface and ground water and extensive literature search on the environment fate of fertilizers and pesticides, integrated pest management programs and fertility requirements for golf course turf. This report provides an environmentally sound fertilizer and pest management program to be followed by the golf course management personnel. Any chemical (fertilizer or pesticide) found by this environmental risk assessment to pose a high risk to humans or aquatic wildlife in either surface or groundwater will not be recommended to be used on this golf course. A few pesticides with an intermediate risk to humans or aquatic wildlife may be used on a very small area (greens) under very controlled conditions as a last resort when other control measures are lacking.

For the pests that are likely to invade Brynwood Golf Course, there are several pesticides registered for their control. Taking this into consideration as well as the need to protect surface and groundwater from contamination and to reduce the exposure of humans and wildlife to highly toxic pesticides, pesticides were selected that have a low potential for either leaching or runoff from the soils on this site. The evaluation included determining the potential of each registered pesticide for contamination of water on a soil-by-soil basis based on soil properties of this site.

In order to preserve and enhance the natural resources, this design and management plan has adopted the principles in the following report.

I. Planning and Policies

The project team is committed to the enhancement of the Brynwood Golf Course by incorporating environmentally responsible golf principles in all aspects of planning and development of this site. The environmentally responsible golf principles include: designing the golf course with care to protect environmentally sensitive areas and to minimize the micro-climatic conditions that favor pests and discourage healthy turf; use low maintenance-pest resistant grasses; follow sound integrated pest management (IPM) practices that use pesticides as a last resort and only pesticides with a low risk to humans and wildlife; careful and precise use of water and fertilizers to provide for healthy-pest resistant turf while minimizing the impact on environment.

II. Alternative Pest Controls

The Brynwood Golf Course will employ IPM techniques to minimize pest problems. This includes:

a) Reliable and accurate pest identification
b) Monitoring pest populations and related damage to ensure treatments will only be applied where and when necessary and when they will be most effective.
c) Establishment of injury levels that can be tolerated before control measures are implemented.
d) Use of combinations of the following treatment methods to control pests in a manner that achieves a high level of effectiveness while minimizing environmental impact.

i) Biological Controls - release of predatory/parasitic insects, conservation of natural enemies.
ii) Cultural Controls - use of resistant cultivars, encouragement of diverse plant communities, optimal management of irrigation, aeration and other management techniques to maximize plant vigor and reduce susceptibility to pests.
iii) Physical Controls – after construction sanitation, pruning, protective weed barriers, etc. will be used to reduce weed problems.
iv) Mechanical Controls - roto-tilling areas repeatedly to kill perennial weeds during renovations, etc.
v) Chemical Controls - use of products that are target specific, have short residual lives and have low environmental impacts.

For each pest anticipated on this golf course, the following is a detailed IPM plan. The basic premise underlying this integrated pest management (IPM) plan is that a healthy plant will be most resistant to pest attacks and will recover much faster than less healthy turf. Therefore, the golf course superintendent will follow the standard accepted maintenance practices like proper mowing (height and frequency); topdressing and cultivation for thatch management and compaction alleviation as examples. What follows is a discussion of practices that more directly affect pest problems and are part of the IPM program.

Each golf course is managed differently based on numerous factors. The following is the recommended management routine that is typical of similar golf courses in the area.

Mowing: Greens and tees will be mowed 6 to 7 times per week during the major growing portion of the year (April-November). Fairways will be mowed 3 to 5 times per week with clippings left in place whenever possible. Roughs will be mowed one to three times per week and clippings left in place.

Clipping Management: Clippings collected from greens, and tees will either be spread in rough areas or be part on the on-site compost-recycling program. Clippings from all other areas will be left in place whenever feasible. If cutworms become a major problem on greens/tees, clippings from greens/tees in June and July will not be place within 100 feet of any green to reduce the population of cutworms.

Cultivation: Several times each year, the greens, tees, fairways and trafficked sections of the roughs will be cultivated to alleviate soil compaction caused from foot traffic from golfers and vehicular traffic. The cultivation methods used will include shallow core cultivation, deep drill and water injection on greens/tees during the summer months if necessary. A soil penetrometer will be used to judge the need for cultivation. Compacted soils are much more prone to runoff and therefore, cultivation is necessary to protect surface water quality.

Topdressing: Topdressing is a practice of adding a small amount of soil (sand) to the surface of the turf so as to reduce the development of thatch while smoothing and firming the putting surface. Greens and tees will be topdressed with the same material used to construct the root zone typically on a bi-weekly interval during most of the active part of the growing season or as needed based on the turfgrass growth rate.

Pest Management Goals and Philosophy

The basic goal and philosophy of this Integrated Pest Management (IPM) program is to produce a healthy, pest resistant golf-playing surface that will have little or no impact on the surrounding environment. Every available pest management practice will be utilized with the goal of using pesticides as a last resort after all other control options have been followed. The sections of the golf course to be renovated provides the opportunity to construct a system that is less prone to stress, which is often the main cause of pest damage or invasion of weedy species. This can be accomplished by: 1) establishing grasses that are best adapted for the golf courses and are pest resistant, 2) by providing a soil system to minimize the stress caused by the golfer and is well drained and 3) reducing moisture plant stress by having an irrigation system that can provide the necessary amount of water needed by the plant (thus reducing over irrigation which can lead to the potential for ground/surface water contamination or more pest problems). Thus, the purpose of this IPM Program is to summarize the approach that meets the goals of developing a healthy pest resistant golf-playing surface that poses little or no threat to the environment on or surrounding this site. This IPM plan is to be used as a decision making tool by the golf course superintendent.

The components of this IPM plan are: proper grass selection, mapping of the property, developing the site specific pest knowledge base, yearly IPM plan development, using action thresholds, soil, plant tissue and water testing, weather record collection, pest management options (cultural, biological and pesticidal) and yearly evaluation on the effectiveness of program and modification of plan.

Turfgrass Selection: Performance and Pest Resistance Criteria

Even though there are over 7,500 species in the grass family, only a handful of species is used on golf courses. The main reason for such a few species being used is the relatively short cutting height demands of golf course playing conditions. For greens in New York, only two species could be used, creeping bentgrass (*Agrostis palustris*) and velvet bentgrass (*Agrostis canina*). Velvet bentgrass is currently being evaluated and in the future may be a grass to use, but has been experiencing problems of withstanding and recovering from traffic. There are several varieties of creeping bentgrass available. The one best suited for the climate and with good resistance to the major disease problems anticipated at this golf course (Anthracnose, Brown patch and Dollar spot) and reduces annual bluegrass invasion should be used at Brynwood. Varieties of creeping bentgrass to be used on greens will be selected by the Troon Golf Sr. Vice President of Science and Agronomy, the golf course architect and golf course superintendent based on varieties suited best for New York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Options for grasses on tees and fairways/approaches are somewhat broader. Tees can use creeping bentgrass and in a few cases a slightly higher turf like Kentucky bluegrass (*Poa pratenses*). On the golf course at Brynwood, fairways could be either be a mixture of Kentucky bluegrass with perennial ryegrass (*Lolium perenne*) or creeping/colonial bentgrasses with fine fescues. The advantage of perennial ryegrass is that it requires less water, has somewhat less disease problems, is resistant to surface feeding insects (if endophytic varieties are used, which is highly recommended) and does not produce much thatch that can be harmful to turf. Perennial ryegrass, however, is a short lived perennial requiring at least bi-annual over-seeding, is subject to winter kill during prolonged periods of ice cover or hard winters, and has been heavily damaged by a new disease called gray leaf spot. Due to gray leaf spot problems on perennial ryegrass, fairways will be established with blend of several low maintenance bentgrass cultivars with other grasses. Tees will be established with creeping bentgrass. The varieties to be used will be suited best for New

York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Roughs are often established with very low maintenance grasses that are mowed higher than fairways/approaches, are to be irrigated less and require minimal fertilization. This golf course will establish the primary roughs with this in mind using a mixture of fine fescues (red, chewing or hard fescue, all *Festuca*) and low maintenance Kentucky bluegrass. At least two varieties of each species should be used to seed roughs to increase the genetic diversity so as to be ecologically competitive under the ever-changing climatic conditions. The final selection of cultivars will be made at the time of seeding using NTEP data and recommendations from Cornell University Turfgrass Program. Native areas that receive limited mowing and play will be established with fine fescues.

Establishment Methods and Seeding Rates

All fairways and roughs will be seeded and mulched used to enhance germination and reduce the potential for erosion. The elevated areas around the greens and tees maybe stabilized with a lightweight non-woven erosion control blanket or sodded. The playing surface of the greens and tees will be seeded with drop or cyclone-type seeder. Seeding rates are as follows: greens and tees will be seeded with creeping bentgrass at a rate of 1.5 lb. of pure live seed/1000 sq. ft. Fairways and tees will be seeded at a rate of 65 lbs./acre and the rough at a rate of 174 lbs. seed/acre.

A starter fertilizer will be applied just prior to sodding or seeded after final grading is complete (construction). For greens and tees, 1 to 2 lbs. of nitrogen/1000 sq. ft. will be applied prior to seeding and then the first year fertilization program will be followed as found in Tables 5 & 6. On fairways and roughs, a starter fertilizer will be used to supply about 0.5 lbs. of N/1000 sq. ft. and then followed by the nitrogen fertilization program shown in Table 6. The amount of other nutrients (phosphorus, potassium, calcium and magnesium) will be applied prior to seeding or sodding on greens, tees, fairways and roughs based on soil test recommendations so as to provide for rapid establishment, less erosion potential and less chance of phosphorus runoff. Based on the New York State Law and Westchester County Law, phosphorus can be applied to sites being established or renovated.

Based on the pest occurrences of golf courses in New York, Table 1 contains the anticipated pests for Brynwood Golf Course.

Table 1. Anticipated pests on Brynwood Golf and Country based on current pest occurrences.

Occurrence	Greens	Tees	Fairways	Roughs
Frequent	Dollar Spot, Anthracnose Hyperodes,	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes, Crabgrass, Goosegrass, Broadleafs
Occasionally	Brown Patch, Summer patch, Yellow Patch, Pink Snow Mold, Moss/Algae Cutworms, Annual bluegrass	Summer Patch, Brown Patch, Anthracnose Pink Snow Mold, Cutworms, White Grubs, Annual bluegrass	Summer Patch, Anthracnose, Brown Patch, Pink Snow Mold, Cutworms, White Grubs Annual bluegrass	Red Thread, White Grubs, Chinch bugs
Seldom	Pythium, Gray Snow Mold, Leaf Spots, Necrotic Ring Spot, Red Thread, White grubs,	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring,

It is anticipated that these pests will occur during the periods shown in Table 2.

Table 2. Occurrence of anticipated pest on Brynwood Golf Course.

Pest	Month(s) of Pest Occurrence
Diseases	
dollar spot	May-September
brown Patch	July-August
pink snow mold	November-April
red thread	May-October
summer patch	June-August
Insects	
white grubs	July-May
cutworms	May-September
chinch bug	June-September
Hyperodes	April-August
Weeds	
broad leafs	all year
crabgrass	May-October
annual Bluegrass	all year
moss	all year

The scientific names and biological information for each pest are contained in the following section. This list will be updated as site-specific pest knowledge is obtained.

IPM Plan

The IPM plan for Brynwood golf course is broken down by pest management group and contains pest biology information for New York State (Rossi et al., 2013), actions thresholds, cultural control, biological control and pesticide control options to be followed by the golf course staff. All control options will be integrated and implemented with pesticides only being applied as a last resort when other methods have failed and significant pest damage is likely. All pesticide for use on Brynwood golf course have a low potential for both surface and ground water contamination (based on the risk assessment found later in this report) except where noted for reasons of the lack of control with other options.

DISEASE PESTS

Two out of the six pests that are anticipated to occur most often on this golf course are diseases. Fungi cause most diseases that attack turfgrass. The following are descriptions of each of the most prevalent diseases (frequently and occasionally, Table 1) and the "state of the art" IPM practices that will be followed on this golf course:

Dollar Spot (Sclerotinia homoeocarpa)

Dollar Spot is a foliar disease that is favored by temperatures between 61-81° and too low a level of a nitrogen level in the plant tissue. It will likely be the most prevalent disease on this golf course and would occur on this site from June to September. Dollar spot is easily recognizable, slow to develop and to cause damage. Bentgrass used on greens will be the most susceptible of the grasses used. The use of bentgrasses on greens that have a low amount of dollar spot is necessary. Daily scouting should be used to determine the extent of occurrence and range of this disease on the golf course. Natural organic disease suppressive fertilizers like Ringer Compost Plus and Greens Restore have been shown to reduce the incidence of Dollar spot by 45% (Nelson, 1990) and will be used as part of the fertilization program. Tissue testing may be used to help maintain the nitrogen level (>4.5%) in the plant at a level to suppress disease development.

Biofungicides that can be used are (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide) and *Pseudomonas aureofaciens* strain TX-1 (Spot-Less Biofungicide).A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce dollar spot problems, especially in combination with the fungicide boscalid (low risk pesticide on this site). Damage from this disease even with these cultural and biofungicides controls may exceed the acceptable level on this golf course; thus, fungicide applications are very likely to be needed. Fungicides should be used only when 1) an outbreak in indicator sites has been observed in excess of the threshold (5 spots/sq.yd. for greens/tees and 10 spots/sq.yd. for fairways) and when weather conditions still favor disease development (temperatures 70 to 85 F and humid. The Dollar spot predictor (http://www.nrcc.cornell.edu/grass/) will also be used to determine the risk of a dollar spot outbreak. Fungicides to be used first must be registered for dollar spot control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Anthracnose (Colletotrichum graminicola)

Symptoms of this disease can be seen in cool, wet weather but the most likely period of turfgrass damage can be seen in warm weather (71-82° F) under drought conditions. Anthracnose is most damaging to annual bluegrass and creeping bentgrass during drought conditions and when the plants are deficient in nitrogen. It is likely that this stress-induced disease may only be a minor pest problem on golf courses, especially if annual bluegrass encroachment is discouraged and stress levels reduced through proper management (i.e. fertilization, irrigation, and the use of compaction resistant/well drained soils on greens/tees).

This disease is most likely to occur during warm summer months of mid-June through August. Scouting should be done if this disease becomes a recurring problem. A threshold has not been established for anthracnose. Biofungicide that can be used is (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide). A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce anthracnose problems. Fungicides to be used first must be registered for anthracnose control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Brown Patch (Rhizoctonia solani and zeae)

This disease occurs under conditions of warm (>85 F) and very humid weather as well as in cool wet weather. It is expected that the warm weather Brown patch will occur in July to September during most years and the cool weather version in April/May and September/October. Conditions that can reduce the severity of this disease are to avoid excessive nitrogen fertilization, to water minimally and provide for good air movement and water drainage. All three of these practices can be followed where possible. The fertilization program will provide optimum level of nutrients for plant growth based on soil tests, grass nutritional requirements. Nitrogen fertilization should be suspended prior to favorable Brown Patch conditions. Part of the fertilization program will also contain disease suppressive, highly composted natural organic fertilizers (i.e. Sustain and Ringer) that have been shown to reduce the incidence of Brown patch by 75% (Nelson, 1990), thus reducing the need for fungicides. Irrigation will be provided to supply only the amount needed to replace the amount used by the plant.

The presence of Brown patch will be confirmed by daily scouting during periods of warm to hot weather is highly recommended and treatments made if the threshold is exceeded (one spot/yd. on greens/tees and two spot/yd. on fairways) and 24-48 hr. weather forecast indicates conditions are favorable for disease development. The pesticide selection is based on the risk assessment where only fungicides with a low potential for both surface and ground water contamination will be used (Table 7). The selection procedure will also involve following a program to reduce the chance of developing a strain of fungi resistant to a specific fungicide or class of fungicide. If more than one fungicide is needed to control Brown patch in the same year, then a different type/class of fungicide would be used next. Classes of fungicides would also be rotated. For every other systemic fungicide application a benzimidazole class fungicide would be used, then followed by one of the dicarboximides fungicides or sterol inhibitors. This rotating of classes/types of fungicides will be followed for all diseases.

Pink Snow Mold (Microdochium nivale)

Pink snow mold is a fungal disease that is favored by temperatures in the range of 32 to 40 F and wet conditions with or without snow cover. It is likely to occur on this site from November to April the following year. Avoiding heavy late fall water- soluble nitrogen application can reduce the severity (no late nitrogen applications will be made). However, fungicides are the only control method available at this time although there is some disease suppression with the natural organic fertilizers to be used on this golf course. Scouting is not practical for this disease with snow cover. During other cool-wet periods without snow cover, scouting should be followed before a treatment is made. If the threshold of one spot/sq.yd. on greens/tees and two spots/sq.yd. on fairways is exceeded and short term weather forecasts are calling for cool-wet weather (32-40 F), then a fungicide application will be made. Fungicides to be used first must be registered for pink snowmold control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Summer Patch (Magneporthe spp)

These diseases will most likely be found on this site from June to August. Over fertilization with nitrogen and extremes in water will increase the likelihood of the disease. The damage to the turfgrass plant occurs in April-May, well in advance of the symptoms. Thus, a preventative fungicide program is necessary on sites that have had a history of Summer Patch (azoxystrobin, fenarimol, myclobutanil or triadimefon) and Take-all patch (azoxystrobin or fenarimol) problems. A fungicide application needs to be made in the spring before June. Fungicides to be used first must be registered for Summer patch control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Table 3. Bio-fungicides.

Common Name	Sample Trade Name(s)[1]	Formulation[2]	Rate Range (per 1,000 sq. ft.)	FRAC Code	EPA Reg. No.
Bacillus licheniformis strain SB 3086	EcoGuard Biofungicide	0.14EC	20 fl. oz.	NC	70127-2
Bacillus subtillis, strain GB 03	Companion Liquid Biological Fungicide		4-6 fl. oz.	F6	71065-3
Bacillus subtilis, strain QST 713	Serenade Garden Lawn Disease Control	1.34 F	5.0 fl. oz.	F6	69592-12
	Rhapsody	1.34F	2.0-10.0 fl. oz.	F6	69592-19
Pseudomonas aureofaciens strain TX-1	Spot-Less Biofungicide	1L	0.73-1.47 fl. oz.	–	75801-1
Polyoxin D Zinc salt	Endorse	2.5W	4 oz.	19	66330-41
Mono and di-potassium salts of phosphorus acid	Vital	54.5EC	3.0-6.0 fl. oz.	33	42519-24
	Magellan	52.6L	4.1-8.2 fl. oz.	33	228-387

[1] Trade names shown are examples of products available and are not meant to be an exhaustive list.
[2] EC = emulsifiable concentrate; F = flowable; L = liquid; W = wettable powder. Rossi et al., 2013)

WEEDS

It is anticipated that, after the first year of establishment of this golf course, weed problems will tend to be minimal. This is a result of sound golf course cultural/pest control practices that will produce a dense-competitive environment against weed encroachment. Thus, the anticipated weeds on this golf course will be limited to annual bluegrass (potentially on all sites of the golf course), moss on greens and broad leaf weeds (limited mostly to fairways and roughs).

Annual Bluegrass

Annual bluegrass (Poa annua spp. Reptans/annua) is a very common weed that invades golf courses. It is well adapted to short mowing, heavily trafficked sites, soils high in pH and phosphorus, and wet soil/poorly drained conditions. Thus, the management program of this golf course is designed to reduce annual bluegrass competitiveness by: 1) keeping soil pH at 6.5 or below, 2) providing for good drainage, 3) irrigating to a minimum, 4) using compaction resistant soils (like the sand used on greens), 5) following a disease/insect management program to maintain a dense turfgrass stand and 6) following a fertilization program that is optimal for the growth of the turfgrasses used here but not too high in phosphorus, which favors annual bluegrass.

Even with all of these measures, annual bluegrass can still invade this golf course. Thus, it is anticipated that some other control measures will be necessary. There are experimental biological control agents for annual bluegrass that may someday be commercially available. Chemical control is limited and generally involves the use of either plant growth suppressants or a traditional herbicide.

Each spring and late August the amount of annual bluegrass for all greens and fairways will be mapped. When the late August mapping indicates more than 1% of the area contains annual bluegrass plants some form of treatment will be necessary to further reduce its spread. The Type II Plant Growth Regulators' (paclobutrazol and flurprimidol, each has a low or very low risk of surface or groundwater contaminations, Table 7).) have been shown to be the most effective in reducing annual bluegrass populations over a period of time. Higher cut creeping bentgrass turf on fairways tends to be a more conducive environment for reducing annual bluegrass compared to putting greens and tees with more chronic and focused surface disruption.

The most effective programs include multiple applications throughout the season that provide a cumulative reduction. Type II Plant Growth Regulators' programs have been shown to reduce fairway populations as much as 70 percent in two years. This type of success is usually achieved when a comprehensive cultural management program of reduced fertility and irrigation plus over seeding programs to favor the more hardy and desirable creeping bentgrass turf are used.

Broadleaf Weeds

Broad leaf weeds (BLW) commonly occur on established golf course fairways and roughs and thus are considered a major pest problem on these sites. Clover is a commonly occurring BLW that is favored by soil pH around 7 and by dry soils. Thus, on this golf course it would be anticipated that clover would be found on the unirrigated areas (roughs) and maybe on fairways. One of the best ways to reduce broadleaf weed problems on golf courses is to produce a dense-competitive turfgrass stand by following the overall turfgrass management program to be used on this golf course: proper fertilization/irrigation practices and reducing pest damage that opens the turf to invasion by weeds. However, broad leaf weeds may likely still invade this golf course. Weed population and locations will be scouted and mapped at least twice a year (early June and mid-September). Since broadleaf weeds may be confined to a small area, pesticide applications will only be made on areas with weeds present in excess of the threshold; two weed plants per sq.yd. on fairways and five per sq.yd. on roughs, thus reducing the amount of pesticide applied and limiting the treated area. Herbicides to be used first must be registered for broadleaf weed control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Crabgrass

Crabgrass is an annual grassy weed that invades thin turf. Thus, all the cultural practices to be used on Brynwood golf course will encourage a dense stand of turf and reduce the incidence of crabgrass. Practices such as the fertilizing, irrigation and disease/insect control programs to be used on this golf course will produce a dense turf that restricts light from reaching the soil surface. Crabgrass seeds require light for germination or open soil patches at least 2 inches in diameter. These management practices help significantly; however, when a golfer takes a divot the soil is exposed to light and crabgrass seeds can germinate and invade the turf. Some fine fescue varieties have been shown to resist a crabgrass invasion and will be used in roughs to reduce crabgrass.

There are two herbicidal control programs, preemergence and postemergence. These terms refer to herbicide applications made before or after the crabgrass seeds germinate, respectively. The preemergent herbicides must be applied in advance of the period of germination of crabgrass, usually starting in April. A problem with this approach is that you are not sure whether crabgrass will be present or not. If it is not present, then the application has been wasted.

Postemergent herbicides are few and require careful timing for good control. Mapping the amount and location of young crabgrass plants in early summer will be used to determine if small areas will need treatment. All of the management practices listed in this report (fertilization, irrigation, pest control, mowing, etc.) are designed to product a dense turf that reduces the chances of crabgrass invasion. The fairways and roughs will be scouted at weekly intervals starting in early May and continue until mid-August. Sections of fairways with one or more crabgrass plants per sq. yd. and more the 3 for roughs will be considered for a herbicide treatment. Herbicides to be used first must be registered for crabgrass control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Moss

Bryum argenteum, silvery thread moss, is a significant pest problem on golf courses throughout the US. Superintendent surveys conducted by Cornell University researchers indicate that close mowing and surface organic matter accumulation are highly correlated with increased moss invasion. This is partially done to close mowing of older greens with less dense grasses than the latest bentgrass cultivars. Controlling moss is favored by acid soil/water conditions. The sand used on greens will be of an acidic nature (if available) and irrigation water pH will be carefully monitored. Copper hydroxide and a dish detergent (Ultra Dawn), applied at two-week intervals in both spring and fall, have shown to reduce moss levels to an acceptable level. Copper has an intermediate risk on greens and tees, thus if copper is to be used it must be applied very carefully to only a small areas at a time when the weather forecast does not predict heavy rainfall within 48 hours of the anticipated application (to reduce risk to aquatic wildlife). Recently, carfentrazone (a low risk herbicide) has been labeled for selective moss control in bentgrass golf course putting greens. Carfentrazone is a contact herbicide with little or no residual activity that provides selective postemergence control of broadleaf weeds and silvery thread moss (*Bryum argenteum*) in turfgrass.

Renovation

It may be necessary at times to renovate small section of the golf course. Renovation often includes using a non-selective herbicide to remove the existing weed and turf vegetation. The non-selective herbicides glufosinate or glyphosate will be used or the purpose since they had a low risk to both humans and aquatic wildlife on this site.

INSECT PESTS

Insect problems anticipated on this golf course are restricted to just a few insects mostly Hyperodes on greens, tees and fairways, white grubs in tees and fairways and cutworms on greens. There are grasses that contain endophytic fungi that are resistant to certain surface feeding insects like cutworm, sod webworm and chinchbug. The grasses that will be used in the roughs are endophytic, thus are resistant to the surface feeding insects. Creeping bentgrasses (used on greens/tees and fairways) at this time do not contain endophytes and therefore are not resistant to surface feeding insects. Currently there are no turfgrasses resistant to root feeding insects like grubs.

Biological control options are available for most of the insect pests anticipated on this golf course and will be the first line of control. Only after biological control options have been shown to be ineffective will a synthetic insecticide be used.

One of the best practices to follow in an insect control program is to have a systematic sampling/monitoring scheme. It has been found that insect pests of turf like cutworms and white grubs do not uniformly cover the entire golf course. In fact it has been shown that grubs are confined to certain parts of the golf course and even small sections of fairways or roughs. Therefore, it is highly recommended that prior to any insecticide application a sampling protocol be followed and treatment be confined to only the areas where the insects are found.

Hyperodes

The annual bluegrass weevil (ABW) is a burgeoning pest of turfgrass in the northeastern United States. This native beetle is most prevalent and injurious in low-cut, high maintenance turf such as golf course greens, tees and fairways. The insect was first reported damaging turfgrass in Connecticut as early as 1931. Until the last 20 years or so, damage had been concentrated in the metropolitan New York area. ABW larvae and adults feed primarily on annual bluegrass (Poa annua L.), a major component of many golf course playing surfaces. Annual bluegrass is often considered a weed by golf course superintendents since it is an aggressive invader of newly seeded stands of creeping bentgrass. When annual bluegrass becomes the dominant grass species in fairways and putting greens, however, superintendents resort to managing it, rather than eliminating it. ABW has also been reported to feed on creeping bentgrass and perennial ryegrass. In areas where annual bluegrass is prevalent, high populations of weevils will cause substantial areas of dead turf that affect both the visual and functional quality of golf course turf.

ABW can be challenging to monitor due to its small size. In the spring, mower baskets can be monitored for adults because they are picked up along with clippings. This can be a useful way to stay abreast of when adults are appearing in spring, and, with more careful monitoring, on which areas of the course they are most prevalent. Some areas of the course may always harbor ABW so it is a good idea to monitor consistently those historically affected areas from year to year. Adult ABW reinvade short-mown turf soon after snow melt and soil thaw, from late March to April.

A more site-specific approach to monitor adults is to pour a soapy disclosing solution on the turf. The standard method is to mix 1 fluid ounce lemon-scented dish detergent in 2 gallons water and apply it over to 2-3 square feet of turf. The soap acts as an irritant, forcing adults to emerge from the thatch and ascend to the surface where they can be counted. Shallow soil core sampling or simply digging around at the soil surface/thatch interface will reveal older larvae and pupae. Older larvae look like grains of rice with brown heads; pupae resemble adults but are creamy white until their color darkens before adult emergence. If more detailed information is desired, larvae of all sizes (even stem boring stages) will float to the surface when an infested core is submerged and agitated in a saturated salt solution. This is a good way to confirm that your adult controls were adequate; if too many larvae are found, the application may have been poorly timed to suppress adults and another application against adults of the developing population may be necessary.

Damage thresholds are 30-80 larvae/sq. ft. for the spring generation. Given summer heat stress, thresholds drop to 10-40 larvae/sq. ft. for the summer generation. Nevertheless, field experience indicates that action may have to be taken at thresholds as low as 5-10 larvae/sq. ft. in order to avoid injury and minimize the threat of the subsequent generation.

Traditionally, golf course superintendents have targeted early spring adult populations that represent overwintering insects returning to the short mowed turf. A preventive insecticide application is then made to suppress adult populations before the insects begin to lay eggs. The timing of spring applications can be based on a plant phonological indicator. The most widely used is the period that occurs between Forsythia V. full bloom, and dogwood (Cornus florida L.), full bract. It is better to make the spring application a little late than a little early so aim for the time when Forsythia is in full bloom and has already acquired many new leaves (i.e. "half gold/half green"). Insecticides to be used first must be registered for ABW control and also have a low or very low risk of surface or groundwater contaminations (Table 7). In an additional risk assessment there were two cases where the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two insecticides, bifenthrin and lambda-cyhalothrin, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

Cutworms

Black cutworms are anticipated to be an infrequent insect problem on this golf course. This insect does not usually overwinter in New York. Adults each spring fly in from the southeastern U.S., usually arriving in late spring-early summer (May-June). The adults lay eggs that hatch in two to three weeks as small larvae, the destructive phase of this insect. A second generation can hatch later in the summer. Cutworm larvae spend three days in the soil, often in old aerifier holes. At dusk they emerge and feed on the foliage of the grass and the damage is confined to a small zone surrounding their daytime home.

It is unlikely that the entire golf course at any one time will contain cutworms in excess of the action threshold. Action thresholds will be discussed in a later section. Therefore, monitoring and sampling of the population is necessary to substantially reduce the amount of the golf course that will need to be treated. Scouting for this insect will involve a two-step process. In May each year, 10 to 20 black light and/or pheromone trays will be placed out on the golf course to attract/collect adult cutworms as they arrive at this golf course. Every other day the number of adult black cutworm adults in each trap will be counted. Two weeks after the adults begin showing up in the traps, the second phase of scouting will commence. This involves placing an irritant solution (soap or pyrethrum) on sections of each green, tee and fairway at bi-weekly intervals through June, July and August. If the number of cutworm larvae exceed one/sq.yd. on greens/tees and five/sq.yd. on fairways, then a control regime will be followed. The smaller the larvae the easier they are to control, so the initial scouting is very important. Also, biocontrols are most effective on small larvae. Another cultural control method is to place greens clippings no closer than 100 feet of any green since mowing collects eggs. Several nights mowing (before 3 am) during the first appearance of cutworm has been shown to reduce the amount of cutworm on greens.

The control for cutworms will first rely on a biocontrol method and if this does not give acceptable control (threshold still above limit after one week), then an insecticide will be used. The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT). It takes

2 to 7 seven days to kill the cutworm larvae; thus, one week after the application the areas will be sampled with the irritant solution to determine the effectiveness of the biocontrol. Another biological control option is entomopathogenic nematodes which have been shown to have a good chance of success in managing cutworms. Use the nematode species *Steinernema carpocapsae*. If populations of cutworm larvae are still in excess of the threshold, a second application of the two bio-control materials will be made and effectiveness determined one week later. If after two applications of the biocontrol materials the population of cutworm larvae is still above the threshold limit, then a traditional insecticide (registered for cutworm control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied. As with the biocontrols, the effectiveness of the traditional insecticides will be evaluated one week after application before any additional treatment will be made.

White Grubs

There are several species of insects that have a destructive larval stage known as white grubs. These include Japanese beetle, Oriental Beetle, Asiatic Garden Beetle and European Chafer. The most destructive stages of these insects are their grub or larval stage in which the third and largest instar occurs later in the fall.

The population of grubs will be determined as follows before any insecticidal treatment will be made. Each golf hole will be mapped once in late July or early August each year for the extent, location and species of grub using the maps found in the appendix. Sampling consists of a crew of individuals with cup cutters. On fairways and roughs, taking a sample at 20 yd. spacing will follow a grid sampling technique. Greens and tees will be sampled at 20 ft. intervals. The sample involves extracting the turf and top 2-3" of soil and observing the number and species of grubs in each sample. When the threshold is exceeded, then a treatment will be made. Thresholds are: 18 to 36 May beetle grubs/ sq. yd., 21 to 72 European chafer grubs/sq. yd., 96 to 180 Asiatic garden and masked chafer grubs/sq. yd. and 54 to 180 Oriental and Japanese beetle grubs/sq. yd. Treatments are most effective in early August when the grubs are very small. Spot treatments will be made.

The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT) will be used first to control white grubs when found on sites exceeding the threshold. The effectiveness will be determined by repeated sampling the treated sites one week after application. An application will only be made if the grubs are near the soil surface and the soils are moist. If the biocontrol applications have failed to lower the white grub population below the threshold level, then an insecticide (registered for white grub control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied to the sites still having populations above the threshold level.

As with the biocontrol nematodes, one week after the traditional insecticide application the grub population will again be sampled on the treated sites and only if threshold levels are still exceeded would an additional insecticide application be made.

Other Insect Pests

There is some likelihood that other insects will attack the grasses found on this golf course. These could include Hyperodes weevil, sod webworm and Ataenius beetle grub. There are biocontrol products (BT bacteria) available for sod webworm and Ataenius control and will be used as the first line of defense. If control is unsuccessful and these insects are still causing damage, then an insecticide will be used.

Pest Scouting, Monitoring and Action Thresholds

Scouting is one of the most common disease management practices followed by golf course superintendents. The extent and form of the scouting program varies widely between superintendents. Many superintendents rely on indicator sites or "hot spots" as areas where diseases (or other pests) first occur and use these sites as early warning signs. Many golf courses are now having pest populations mapped during a scouting visit. In this way a more permanent record of pest pressure is recorded and the effectiveness of control options evaluated. The Brynwood Golf Course will follow an aggressive scouting program as outlined in the discussion section for each pest. The scouting forms found at the end of this section will be used by this golf course to monitor pest populations.

Monitoring for pests involves determining the location and number of pests or area affected by pests. Thresholds for pest occurrence have been developed for many golf course pests and will be used to determine if a pesticides application is warranted. Table 4 contains action threshold values for most of the pests that are anticipated to occur on this golf course.

Table 4. Pest action thresholds for the Brynwood Golf Course.

Pest	Greens/tees	Fairways	Roughs
	-------------------------	#/sq.yd	-------------------------
Diseases			
Dollar spot	5*	10	-
Brown Patch	1	2	-
Pink Snow mold	1	2	-
Anthracnose	------- not determine -------		
Summer patch	UD**	UD	-
Insects			
May beetle grubs	27-36	27-36	27-36
European chafer grubs	21-72	21-72	21-72
Asiatic garden & Mask chafer grubs	96-180	96-180	96-180
Oriental & Japanese beetle grubs	54-180	54-180	54-180
cutworm	1	5	-
Ataenius	270-450	270-450	180
Hyperodes	36	54	72

Weeds

broadleaf's	1	2	5
crabgrass	1	1	3
ann. bluegrass	1	9	-

* #/sq.yd. depending on pest. For diseases of Dollar spot and Brown Patch these are the numbers of spots/patches per sq.yd. For insects and weeds it is the number of each organism per sq. yd. ****** UD=upon detection, in conjunction with weather conditions.

If environmental conditions favor continued pest pressure, the action threshold has been exceeded and other non-pesticidal options have been tried, then a pesticide will be applied. The threshold values may be changed as pest history on this golf course warrants modification (i.e. too much or too little pest damage at a given threshold).

Application Procedures

To protect the adjoining properties from drift of the pesticide spray, all areas to be treated with pesticides, a shrouded sprayer will be used whenever possible to apply pesticides. The shrouded sprayer applies the pesticide spray directly on the turf reducing drift to near zero at wind speeds less than 15 mph. Granular applications will also be used to reduce the potential for any off-site movement of pesticides and fertilizers via spray drift. No applications of pesticides or fertilizer will be made within 48 hours of a predicted heavy rainfall event (except for imminent threat of rapidly developing diseases like Pythium blight and Brown Patch). Only after all other pest management options have been tried will pesticides be applied to areas that exceed thresholds and that the climatic conditions indicated above still favor pest damage so as to minimize the amount of pesticides to be used. Spot treatments will be the rule not the exception.

Anticipated Frequency

Pesticides: It is nearly impossible to develop a pesticide application schedule in advance of the building of a golf course if the principles of IPM are to be followed. The major premise of an IPM program is to use all options in controlling a pest and when it is necessary to apply a pesticide it must be applied at the proper time for optimal control. Only a preventative program could be developed in advance of operating a golf course. Preventative programs are only necessary for a few turfgrass diseases. It would be very likely that an all preventative program would lead to applying fungicides when it was not necessary, increasing the risk of environmental damage and greater likelihood of developing fungi resistant to fungicides. A preventative pesticide program is found at the end of the report.

e. Evaluation of turf management and pest treatment effectiveness to document program successes and determine if changes are necessary.

The as built golf plans will be used to develop a hole by hole GPS map of the golf course to be used to record the location of all pests during scouting and monitoring. As part of a permanent record, the golf course will maintain the pest occurrence maps to be used to develop the site-specific pest knowledge base. This will also be used to evaluate the effectiveness of the current IPM plan and used to modify the plan if necessary.

III. Fertilizer and Pesticide Use and Pesticide Selection based on Risk Assessment

The Brynwood Golf Course will apply fertilizers and pesticides in a very careful manner. The following outlines the practices to be followed:

3.1 Will use only products registered for use in the United States and New York for only their specified and approved function.

3.2 Will store all fertilizer and pesticides in an area conforming to all state and local regulations that include but are not necessarily limited to:

- **a)** a locked area clearly marked to indicate chemical storage;
- **b)** an operating ventilation fan discharging exhaust to the outside clear of windows of other buildings or public areas;
- **c)** a solid floor impermeable to liquid and surrounded by curbing to contain any spilled or leaked material.

Chemical storage facility: Chemical storage facility will be a standalone, pre-fabricated building with air ventilation and circulation systems capable of preventing hazardous gaseous buildup. Building will be climate controlled for both heating and cooling temperature controls. The chemical storage building will also be secured by lock and will be under 24 hour surveillance from closed circuit security system.
Our chemical storage facility will follow all NYSDEC requirements for construction materials to include an impermeable bottom and false bottom containment to hold a minimum 25% volume of stored materials. All electrical systems within storage facility will follow strict coding requirements to include non-sparking procedures for all electrical wiring and components.

Hazardous Material to be generated or stored: - A comprehensive list of fertilizers and pesticides are contained in this report.
- Current gasoline, diesel and heating oil tanks:
    1. 1500 Gallons – Agronomy Gasoline
    2. 500 Gallons – Agronomy Diesel
    3. 500 Gallons – Golf Operations Gasoline
    4. 275 Gallons – Waste Treatment Plant Diesel (generator)
    5. 2000 Gallons – Heating oil Tank at Clubhouse.
    6. 1500 Gallons – Clubhouse Generator Diesel (generator)

7. 1000 Gallons – Irrigation Pump house generator (generator)

- The bulk storage capacities should be maintained at current operable levels throughout the entire project. These will not be available for use for outside contractors, they will be responsible for their own supplies. Bulk petroleum storage tanks are up to code and secured. Going forward it will remain standard operating procedure to perform routine maintenance to insure that these existing, as well as the future, bulk petroleum storage facilities remain up to code.

- All contractors and subcontractors involved in work at the facility will provide their own source of any material labeled or deemed hazardous.

- All chemicals will be stored with the ability to collect any spills. See previous chemical storage facility discussion. All fill stations for chemicals and gasoline will be bermed and with self-contained collection pit to prevent contamination.

- As the project moves forward, any areas of the property that are found to be contaminated will be properly remediated, in line with NYS DEC requirements. Any materials from demolition of old building facilities found to contain hazardous materials will be disposed of by licensed disposal contractor and site will be remediated.

3.3 All mixing and loading of pesticides will be performed in accordance with all state regulations.

3.4 Will dispose of all pesticide containers and pesticide wastes in accordance with provincial regulations.

3.5 All handling and spraying of pesticides to be performed under the strict supervision of trained and licensed pesticide applicators. The golf course superintendent will ensure compliance.

3.6 Pesticides will be applied only when wind conditions ensure a minimum of drift and when there are as few golfers and general public present as possible.

3.7 Protect water quality by maintaining a buffer zone between all water bodies and areas of fertilizer and pesticide application. When pesticides are applied near water, use low-pressure spray nozzles will be used to further reduce chance of drift.

3.8 The golf course will communicate with members of the golfing and non-golfing community the nature of the application. This will be done with posting signs at the clubhouse and the entrance to the golf course indicating the date of the application, the product to be used and a contact person and phone number. This will be done for applications that are schedule in advance. For emergency application, the areas treated will be flagged. Posting at the clubhouse will also be done for the fertilizer application outlined in Tables 4 and 5.

3.9 Apply only the amount necessary to control the target pest and only apply when pest population warrants treatment, as determined by pest monitoring, and only apply to affected areas. The details are contained in the IPM section above.

3.10 Apply fertilizer only in quantities and types that can be utilized by the plant to minimize leaching and runoff potential. Fertilizer laws for NYS and Westchester County will be followed.

Unlike for pesticide programs, it is possible to develop in advance a comprehensive nitrogen fertilization schedule. For other nutrients like phosphorus, potassium, calcium and magnesium, soil test result information will be used to develop the fertilization program. Factors important in the development of such a program include the site specific soil properties, clipping management, nutrient requirements of grass species/cultivar, irrigation plan, desired level of quality, interaction with pest populations and environmental considerations.

Conditions set for in the NYS and Westchester County Fertilizer Restriction Law are as follows:

1. Prohibits the use of phosphorus-containing lawn (any turf) fertilizer <u>unless:</u>

    (a) establishing a new lawn during the first growing season <u>or</u>

    (b) a soil test shows that the lawn does not have enough phosphorus.

2. Prohibit the application of lawn fertilizer on impervious surfaces (sidewalk, drive way or road) and require pick up of fertilizer applied or spilled onto impervious surfaces.
3. Prohibit the application of lawn fertilizers within 20 feet of any surface water except:

    (a) where there is a continuous vegetative buffer of at least 10 feet; <u>or</u>

    (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

4. Prohibit the application of lawn fertilizer between December 1st and April 1st

5. Prohibit the application of lawn fertilizers within 20 feet of any surface water[1] except:

   (a) where there is a continuous vegetative buffer of at least 10 feet; <u>or</u>

   (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

   this does not apply to sites being established

   this is for all fertilizers not just ones that contain phosphorus

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[1] This applies to all fertilizers and not just those containing phosphorus, but does not apply to turf establishment.

To comply with the Westchester County and New York State laws, soil samples will be taken as necessary and tested for plant available nutrients. Such soil test results will be used to determine the amounts of nutrients like phosphorus, calcium, magnesium and potassium that are needed on this site. Soil samples will be sent to Agro-One (see website for details on sampling and sample submission), Ithaca, New York or of an authority of similar expertise which uses recommendations developed at Cornell University or of an authority of similar expertise.

Clippings will be removed from the greens and tees, while clipping will be returned in the fairways and roughs. Clipping management was used in developing the nitrogen application rates shown below. The basic fertilization program is shown in Tables 5 and 6.

<u>Determining Fertilization Applications:</u> Soil testing and visual inspections will be used to determine the need for a fertilization application. A soil testing is used to determine the amount of available nutrients currently found in the soil and the amount of nutrients needed to be applied to provide for healthy plant growth. Soil testing will be used to determine the basic quarterly application rates for phosphorus, potassium, calcium and magnesium. Soil samples will be collected in December on all greens, tees and fairways/approaches until it has been determined that certain sections are similar and fewer samples will be necessary. Soil pH modification will be done to maintain a pH in the range of 5.5 to 6.0, based on the soil testing results. Limestone will be used to raise pH if soil test results indicate the needed and the amount will be based on the soil test recommendation. Limestone applied to turf has been shown to only change pH in the surface few inches of the soil.

Table 5. Recommended fertilization program for the greens/tees at the Brynwood Golf Course.

April	May	June	July	Aug.	Sept.	Oct.-Nov	Total/ Yr. Tot.
First year							
-- lbs/1000 sq.ft.--							
Fert*	Fert	----Disease suppressive fert-----			Fert	Fert	
0.5	0.25	0.5	0.5	0.5	0.5	1.0	3.75 N
	------------------------ If Fertigation is used ----------------------						
	0.25	0.5	0.5	0.5	0.5		2.25 N
						Total N	**6.0 (8.0^)**
Future years							
Fert*	Fert	------Disease suppressive fert-----			Fert	Fert	
0.5		0.4	0.4	0.4		0.5	2.2 N
	-------------------- If Fertigation is used ---------------------						
	0.25	0.25	0.25	0.25	0.25		1.25
							Total N 3.45

***** Fert= soluble and other slow release nitrogen sources urea, ammonium sulfate, IBDU, methylene urea (Nutralene, Scotts), coated urea (sulfur, resin or polymer coated) and natural organic (Milorganite, Nature Safe, etc). ^ At establishment 2 lbs of N/1,000 sq-ft will be applied as a starter fertilizer. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.4 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012)

Table 6. Recommended fertilization program for fairways and roughs for the Brynwood Golf Course.

Apr.	May	June	July	Aug.	Sept.	Oct./Nov.	Yearly Total
---------------------------------- lbs of Nitrogen/1000 sq.ft.--							
			Fairways, during establishment				
0.75	0.75	0.75	0.75	0.75	1.0	0.75	5.5 Nitrogen
			Fairways, following establishment				
	0.5	0.5	0.5		0.5	0.5	2.5 Nitrogen
			Roughs, during establishment				
0.5	0.5	0.5		0.5	0.5		2.5 Nitrogen
			Roughs, following establishment*				
	0.5				0.5		1.0 Nitrogen

* Roughs will only be fertilized when density drops by 25 %.

The nitrogen application for roughs following establishment consists of clippings being returned to roughs during mowing and from fairways. Sources to be used include any of the following: urea, ammonium sulfate and slow release materials: IBDU, methylene urea (Nutralene, Scotts), natural organic (Sustane, Ringers, Milorganite, Nature Safe) and coated urea's (sulfur, resin and polymer). Fertigation is expected to be about half of the nitrogen applied to fairways. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.7 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012). In no case will the phosphorus application, associated with the use of natural organic fertilizers, exceed the soil testing recommendation level. Tissue testing will be used on fairways to adjust applications.

<u>Fertigation Program:</u> Apply a small amount of water soluble fertilizer via the irrigation system will be practiced as irrigation water needs to be applied. The irrigation season usually runs from May through October. Tissue testing will be used to determine application amount so as to maintain 3-6 % N in the clippings) in mid-April and ending in late September. Backflow prevention will be used on the irrigation system if fertigation injectors are to be used.

The amounts of nitrogen fertilizer to be applied will likely be reduced by 50 % within the first 10 to 25 years due to the fact that a lesser amount of the fertilizer nitrogen will be retained by soil as soil organic matter. Tissue testing may be used to help judge the need for fertilization and will be used to reduce the amounts of nitrogen fertilizer applied over time.

This fertilization programs incorporate a balanced approach to fertilization. The amount of each nutrient applied will provide for adequate plant growth, will not over or under stimulate growth at the expense of disease resistance or weed encroachment, will act in a disease suppressive manner by the use of natural organic fertilizer (Sustane or Ringer) and will not lead to either a significant amount of runoff or leaching because there will not be a large pool of water soluble nutrients available at one time. This program will avoid several of the major factors that encourage nitrate leaching. There is no late fall fertilization, use of low rates of highly water soluble sources, careful irrigation and low total amounts of nitrogen applied (Petrovic and Barlow, 2012; Petrovic, 1990; Morton et al., 1988) and the rates of application are low, thus resulting in little soluble nitrogen available for offsite transport. Small amounts of soluble nitrogen fertilizer (0.10 lbs. nitrogen/1000 sq.ft.) may be applied if the turf is off color between scheduled applications. No fertilizers will be applied in advance of inclement weather predictions (48 hr.) to further reduce the likelihood of leaching or runoff.

The fertilizer nutrients of concern from an environmental perspective are nitrogen (as nitrate) and phosphorus (phosphates). Nitrate can cause a reduction in the quality of water in a drinking water source or cause eutrophication of streams, ponds or lakes. Phosphorus is needed in small amounts by turfgrass and is mostly of concern for surface water eutrophication. This fertilization program addresses the need to protect water quality from fertilizers contaminating surface and ground water.

Phosphorus can be a problem in runoff, but in well managed turfgrass situations as described here, phosphorus runoff from turf seldom occurs due to the high amount of water infiltration into the soil and proper management (Easton and Petrovic, 2008; Soldat and Petrovic, 2008). Phosphorus runoff has been a problem in traditional agricultural production when erosion has occurred or the application of phosphorus was in excess of the amount need for plant growth (based on soil tests). Upon established turf erosion is eliminated. On the Brynwood Golf Course, phosphorus (potassium, pH modification and other nutrients other than nitrogen) applications will be based on soil test results to insure that the proper amounts be applied to provide for acceptable plant health and avoiding excesses that can lead to contamination of surface water. Soil testing will be done just prior to establishment to determine the amount of phosphorus to apply at seeding/sodding and once per year thereafter for maintenance applications. All greens, tees, fairways and roughs will be sampled. The natural organic fertilizers that will be used for much of the fertilization program and will supply most of the phosphorus needs. Soil testing done just prior to seeding will give actual amounts needed on each green, tee, fairway and rough.

3.11 The environmental risk assessment is composed of two parts. First, the surface and ground water contamination (runoff and leaching) potential of all pesticides registered for use on golf courses in New York for the soils of this site was evaluated. Second, the pesticides identified to have a high potential risk to humans or aquatic wildlife will not be used on this golf course. Pesticide that had an intermediate risk to humans or aquatic wildlife may be used only if there no other control options available and only on very limited bases applied under a very strict set of conditions. Pesticides with a low potential for both humans and aquatic wildlife will be used only after all other pest control measures have failed. Pesticides that are safest to humans and wildlife will be used first.

The following is a list of pesticides registered for use in New York and was evaluated for risk to surface and ground water contamination by WINPST.

Fungicides and fungicide combinations: azoxystrobin (USEPA reduced risk pesticide, RR), azoxystrobin + propiconazole, azoxystrobin + difenoconizole, boscalid (RR), chloroneb chlorothalonil, chlorothalonil + propiconazole, chlorothalonil + thiophanate-methyl, chlorothalonil +ASM, copper hydroxide + mancozeb, cyazofamid, etridiazole, fenarimol, fludioxonil, fludioxonil + chlorothalonil + propiconazole, fluopicolide + propamocarb hydrochloride, flutolanil, fosetyl-al, iprodione, mancozeb, metalaxyl (mefenoxam), metconazole, mineral oil, myclobutanil, polyoxin D zinc salt, propamocarb, propiconazole, pyraclostrobin, pyraclostrobin + boscalid, tebuconazole, thiophanate-methyl, thiophanate-methyl + iprodione, triadimefon, trifloxystrobin, trifloxystrobin + triadimefon, vinclozalin.

Biofungicides: *Bacillus licheniformis* strain SB 3086, *Bacillus subtillis*, strain GB 03, *Bacillus subtilis*, strain QST 713, *Pseudomonas aureofaciens* strain TX-1, Polyoxin D Zinc salt, Mono and di-potassium salts of phosphorus acid.

Insecticides: Abamectin, acephate, azadirachtin, *Bacillus thuringiensis*, subsp. *Kurstaki*, *Beauveria bassiana*, bifenthrin, boric acid, carbaryl , chlorantraniliprole, chlorpyrifos, cyfluthrin, lambda-cyhalothrin, deltamethrin, bifenthrin + carbaryl, bifenthrin + imidacloprid, cyfluthrin + imidacloprid, hydramethylnon, imidacloprid, indoxacarb, *Paenibacillus popilliae*, permethrin, spinosad, trichlorfon.

Plant Growth Regulators: Paclobutrizol, ethephon, mefluidide, trinexapac-ethyl, trinexapac-ethyl plus paclobutrazol.

Herbicides: 2,4-D, 2,4-DP + MCPP + dicamba, 2,4-D + 2,4-DP + dicamba, 2,4-D + clopyralid + dicamba, 2,4-D + triclopyr + fluroxypyr, 2,4-D +dicamba + fluroxypyr, 2,4-D + 2,4-DP + fluroxypyr, 2,4-D + sulfentrazone + dicamba +MCPP, 2,4-D + dicamba + penoxsulam, acetic acid, benefin, benefin + trifluralin, benefin + oryzalin, bensulide, bentazon, bispyribac sodium, bromoxynil, carfentrazone-ethyl, carfentrazone +2,4-D + MCPP +dicamba, carfentrazone + MCPA + MCPP + dicamba, clopyralid, clopyralid + 2,4-D +triclopyr, dithiopyr, ethofumesate, fenoxaprop, fluroxypyr + triclopyr, fluazifop-p-butyl, glufosinate, glyphosate, halosulfuron, indaziflam + diquat + glyphosate, iron HEDTA, MCPA + clopyralid + dicamba, MCPA + triclopyr + dicamba, metsulfuron-methyl, mesotrione, oxadiazon, pelargonic acid, pendimethalin, penoxsulam, penoxsulam + dicamba, primisulfuron-methyl, prodiamine, quinclorac-carfentrazone, siduron, triclopyr, triclopyr + 2,4-D, triclopyr + clopyralid, trifluralin.

The assessment of the potential risk to humans (as a drinking water source) and aquatic wildlife (fish) of each registered pesticide on each soil (see appendix) found on the site was performed by using the Windows Pesticide Screening Tool (WIN PST). WIN PST is a computerized information delivery system developed by the US Department of Agriculture and the National Resource Conservation Service based on the GLEAMS model (Leonard et al. 1987). Refer to the appendix for an explanation of WIN PST and other information related to the pesticides that were evaluated.

A summary of the pesticide fate as determined by the WIN PST analysis for the soils on greens, tees, fairways and roughs is contained in the appendix of this report.

The greens and tees will be built as a sand-based system to provide a compaction resistant/well drained system and create a healthy pest- resistant playing surface. Based on the WIN PST analysis, greens/tees will be built with about 1 % organic matter, by weight. In the appendix the greens/tees soil will be referred to as Windsor soil having the above characteristics. Greens/tees will also have a sub-drainage system in which the drainage water will be diverted to water quality swales and not directly discharged into surface water. Soils on fairways and roughs (Woodbridge, Paxton, Ridgebury, Charlton and Chatfield which are also equivalent to Leichester, Riverhead and Sutton loams) are the existing soils referred to in the appendix of WIN PST results.

The results of the environmental risk assessment of the pesticides by WIN PST screened on the soils of this site, as seen in Table 7. Pesticides with either a high risk to humans or wildlife will not be used on this golf course. Pesticides with an intermediate risk to either humans or wildlife will be only used to spot treat areas only if all other control measures fail of if applied at very low rates including when they are part of a combination product with other pesticides.

Table 7. The potential risk to humans and aquatic wildlife (fish) in surface water (S. water) and groundwater (G. water) from pesticides considered for use on Brynwood Golf Course site, based on WINPST analysis.

	Humans				Aquatic wildlife			
	Greens, tees		Fairways and roughs*		Greens, tees		Fairways, roughs *	
Pesticides	**G. water**	**S. water**	**G. water**	**S. water**	**G. water**	**S. water**	**G. water**	**S. water**
2,4-D	low	low	low	low	very low	v. low	v. low	v. low
AMS	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Abamectin	low	**interm**	low	**interm.**	**Interm.**	**high**	**Interm.**	**High**
Acephate	low	**interm.**	v. low	v. low	low	**interm**	v. low	v. low
Acetic acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Azadirachtin	v. low	v. low	v. low	v. low	**Interm.**	Low	**Interm.**	low
azoxystrobin	v. low	v. low	v. low	low	v. low	v. low	v. low	low
Bacillus licheni-formis SB3086	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bacillus subtilis GB03	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. subtilis QST 713	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. thuringiensis – kurstaki	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
benefin	low	low	v. low	**interm.**	low	low	v. low	**interm.**
Bensulide	low	low	v. low	**interm.**	low	low	v. low	**interm.**
bifenthrin	v. low	low	**interm.**	**high**	v. low	low	**interm.**	**High**
Bispyribac-sodium	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Boric acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bosocalid	v. low	v. low	v. low	v. low	low	low	v. low	low
Bromoxynil	v. low	low	v. low	low	v. low	low	v. low	low
carbaryl	v. low	low	v. low	low	v. low	low	v. low	low
cartfentrazone	v. low	v. low	v. low	v. low	v. low	low	v. low	low
Chloroneb	v. low	low	v. low	v. low	v. low	low	v. low	v. low
chlorothalonil	v. low	low	v.low	low	low	**interm.**	low	**interm.**

Chlorpyrifos	**interm.**	Low	**interm.**	Low	**interm.**	**high**	**interm.**	**high**
Clopyralid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Copper hydroxide	v. low	v. low	v. low	v. low	low	**interm.**	low	**high**
Cyazofamid	v. low	v. low	v. low	v. low	v. low	low	v. low	v. low
Cyfluthrin	v. low	v. low	v. low	v. low	**interm.**	**high**	**interm.**	**high**
deltamethrin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**high**
dicloprop (2,4-DP)	low	low	low	low	v. low	v. low	v. low	v. low
dicamba	v. low	v. low	v. low	v. low	low	low	low	low
Difenoconazole	low	**interm.**	**interm.**	**High**	**interm.**	**high**	**interm.**	**X. high**
Diquat dibromide	v. low	low	v. low	v. low	v. low	low	v. low	v. low
dithiopyr	**interm.**	low	v. low	**Interm.**	**Interm.**	low	v. low	**Interm.**
Ethephon	v. low	low	v. low	v. low	v. low	v. low	v. low	v. low
ethofumesate	v. low	v. low	v. low	low	low	low	v. low	**interm.**
etridiazole	v. low	low	v. low	low	v. low	low	v. low	low
fenarimol	v. low	v. low	v. low	v. low	v. low	low	v. low	low
fenoxaprop-et	v. low	low	v. low	low	v. low	low	v. low	low
Fluazifop-butyl	v. low	low	v. low	low	v. low	low	v. low	low
Fludioxonil	v. low	v. low	v. low	v. low	v. low	low	v. low	**Interm.**
Fluopicolide	v. low	v. low	v. low	v. low	low	low	v. low	low
Fluroxypyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
flutolanil	v. low	v. low	v. low	v. low	low	low	v. low	low
fosetyl-al	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glufosinate	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glyphosate	v. low	v. low	v. low	low	v. low	v. low	v. low	low
halosulfuron	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Hydramethylnon	**interm.**	**high**	**interm.**	**high**	low	**interm.**	v. low	**interm.**
imadicloprid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Indoxacarb	v. low	v. low	v. low	v. low	low	**interm.**	low	**interm.**
iprodione	low	**interm.**	low	**high**	v. low	low	v. low	low
lambda-cyhalothrin	low	**interm.**	low	**interm.**	**interm.**	**High**	**interm.**	**High**
MCPA	low	low	v. low	low	low	low	v. low	low
MCPP (mecoprop)	**interm.**	**high**	low	**interm.**	v. low	v. low	v. low	v. low
mancozeb	low	**interm.**	**interm.**	**high**	low	**interm.**	low	**high**
metalaxyl	v. low	v. low	v. low	low	v. low	low	low	v. low
Mefluidide	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Mesotrione	v. low	low	v. low	low	v. low	v. low	v. low	v. low
Metconazole	v. low	v. low	v. low	v. low	low	low	v. low	low
Metsulfuron-methy	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
phosphorous acid	v. low	v. low	v. low	v. low	**interm.**	low	v. low	low
MSMA	low	low	low	low	v. low	v. low	v. low	low
Myclobutanil	v. low	v. low	v. low	v. low	low	low	v. low	low
oxadiazon	**interm.**	low	**interm.**	low	low	**interm.**	l ow	**interm.**
paclobutrazol	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
pendimethalin	v. low	low	v. low	low	low	**interm.**	Low	**interm.**
Penoxsulam	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Permethrin	v. low	low	v. low	low	**interm.**	**High**	**interm.**	**High**
Primisulfuron-methyl	**interm.**	low	v. low	**Interm.**	v. low	v. low	v. low	v. low
prodiamine	v. low	low	v. low	low	v. low	low	v. low	low
propamocarb	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
propiconazole	**interm.**	**interm.**	Low	**high**	low	low	v. low	low
Pyraclostrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**high**
Quinclorac	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Siduron	v. low	v. low	v. low	v. low	low	low	v. low	**interm.**
spinosyn A & D	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Sulfentrazone	low	low	v. low	low	v. low	v. low	v. low	v. low
Tebuconazole	low	low	v. low	**interm.**	low	low	v. low	**interm.**
thiophanate-methyl	v. low	low	v. low	low	low	**interm.**	low	**interm.**
triadimefon	low	low	v. low	**interm.**	low	low	v. low	low
triadimenol	low	low	v. low	**interm.**	V. low	v. low	v. low	v. low
trichlorfon	**high**	**interm.**	Low	**interm.**	**interm.**	low	v. low	low
triclopyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
trifloxystrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**interm.**
trifluralin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**High**
Trinexapac-ethyl	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
vinclozalin	**interm.**	**interm.**	Low	**interm.**	low	low	v. low	low

* Includes the worst risk assessment ranking from any of the soils found on this site.

Estimated Concentration of Pesticide in Surface and Ground Water

Brynwood will only be using pesticides with a low to intermediate potential for both surface and ground water contamination and it is highly unlikely that any pesticides would be found in surface or ground water on or off this site. The whole objective and idea surrounding the use of this ITPMP is to prevent problems such as the contamination of groundwater and storm water. All of ITPMP practices, agronomic and environmental, are and will be geared toward making it unlikely that anything will reach ground and surface water. The results from surface and ground water monitoring studies of over 80 golf courses in the U.S. support this conclusion (Baris et al., 2010). However, in some cases small amounts of pesticides were and could be detected. The concentration of pesticides in surface and ground water was estimated assuming that a moderate amount (0.1 % based on pesticide fate studies) of the pesticide applied would enter surface and ground water. Using the application rates of pesticides found in Table 8, along with the estimated values of runoff and ground water recharge, the concentrations were estimated.

Table 9 contains a worst case estimate of pesticide concentration in surface water at the 5 design points that have golf course features of greens, tees or fairways. The assumptions in these estimates are that the greatest amount of contaminate loss occurs in the first ½ inch of runoff (equivalent to a 2 year return frequency event) from an individual pesticide application and standard label rate of pesticides were applied. As expected the estimated concentrations of pesticides in surface water was low and in line with the maximum values observed from actual golf courses (Baris et al., 2010). In two cases the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two pesticides, the insecticides bifenthrin and lambda-cyhalothrin shown in the WIN PST analysis to have a high risk to fish on this site, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

The estimated concentration of pesticides in groundwater in shown in Table 10. These values use the pesticide application rates shown in Table 8 for a yearly total for a given pesticide and the volumes of average ground water recharge equal to 116,702,293 liters (162.45 acres and 7 inches of recharge/yr.) or for a 1 in 30 year drought of 83,358,780 liters (162.45 acres and 5 inches of recharge/yr.). As expected none of the estimated pesticide concentration in groundwater exceeded the water quality standards.

4. Wildlife and Wildlife Habitats

4.1 Native vegetation will be used to provide habitat for indigenous species whenever possible.

4.2 On the long term, native groundcover or shrubs that may be removed during any construction or renovation projects involving non-golf areas will be replaced with indigenous plant species.

5. Water Use

5.1 The Brynwood Golf Course will irrigate only the areas requiring water and limit the amount applied to the amount actually required by the plant.

The modern computer-controlled irrigation system used on today's golf courses like the proposed Brynwood Golf Course is very flexible to be able to irrigate to the amount needed for adequate plant growth while not over irrigating. Over-irrigation can make many disease problems more severe, can lead to a significantly greater likelihood for either pesticide or nitrate leaching into groundwater and runoff into surface waters (Petrovic, 1990 and 1994) and can waste upwards of 50 % more water than is actually needed.

This golf course will apply water based on an estimate of the amount of water used by the turfgrass plant. This irrigation system will either have a weather station linked to the controller that estimates plant water use and will irrigate accordingly or use evapotranspiration rate data provided by the North East Climate Center, Ithaca, NY. This proper amount of irrigation will be applied to minimize any environmental impact, reduce the potential for pest problems, reduce the waste of water from excess irrigation and produce a healthy pest-resistant grass. Greens, tees and fairways will be irrigated. Water from the on-site pond may be used for irrigation.

ITPMP Use and Reporting Requirements

The golf course superintendent will have the responsibility of implementing the ITPMP and reporting on all phases of the project, from construction to yearly maintenance. Implementation will involve developing an operational manual that utilizes the information found in this report. This will be one of the first tasks of the new superintendent once the person is hired and will be completed in advance of the opening of the golf course and will be reported to the Town. At the point of hiring the golf course superintendent he/she will be responsible for implementation of the ITPMP. Following construction of the golf course, the operational ITPMP will be provided to the Town each year showing how the plan was followed. Town approval will be required prior to any proposed changes.

By February of each year the applicant will provide the Town with report of the previous year's activities that will include the following information:

1. The materials used at establishment (construction); actual grasses (species and variety) used by location and seeding rate (or sod used) and establishment date, fertilizer materials used (rates and dates of application by location including soil

test results), amount of mulch used and location applied, amount of lime if applied to which areas on what date(s). The superintendent will provide the Town this information so as to determine compliance with the ITPMP. After the first year this section will contain information on any over seeding or sodding that was done the previous year.

2. Irrigation Protocol: how amount of irrigation was determined, monthly summary of irrigation amount by location.

3. IPM Program: results from pest scouting showing location and amounts of pests by date, table containing all pest control applications (including cultural, biological and chemical control used) listing date, location, rate of application and material used.

4. Suggested changes to the ITPMP: the applicant may upon review of the history of the site suggest changes to the ITPMP, which may include adoption of new technologies, materials and deletions of materials to be used. Any new pesticide to be considered for use will go through a risk assessment using the currently acceptable method. Within a reasonable time frame of three month, the Town must notify the applicant of their decision on approving modifications to the ITPMP.

EQUIPMENT WASHING

All equipment wash bays will have a trench drain with a sedimentation area to drop out any grass clippings or other debris, as well as a sand/oil separator. All bays will flow through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake. Grading will be done to insure all drainage of the entire maintenance yard footprint will be collected and discharged through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake as well.

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WIN PST Soil/Pesticide Information and Risk Assessment Results

Brynwood Scouting Forms

Turf IPM Field Infestation Report

Hole __________ Scout __________ Date __________

Site (turf species)	Mowing Height	Soil Moisture	Weeds		Diseases		Remarks	Nematodes	
			Species	No. or %	Species	No. or %		Species	No. or %
Green									
Tee									
Fairway									
Rough									
Notes:			1. Goosegrass 2. Crabgrass 3. Broadleaves 4. Nutsedge, Yellow 5. Nutsedge, Purple 6. *Poa annua* 7. Other		1. Dollar spot 2. Leaf spot 3. *Pythium* blight 4. *Pythium* root rot 5. Fairy ring 6. Brown patch *(R. solani)* 7. Rhizoctonia leaf and sheath blight *(R. zeae)* 8. Algae/moss 9. Other			1. Sting 2. Lance 3. Stubby-root 4. Root-knot 5. Cyst 6. Ring 7. Spiral 8. Sheath 9. Other	

Turf IPM Field History Report Form

Hole ______________ Scout ______________ Date ______________

Site	Turf Species	Mowing Schedule	Soil Analysis			Soil Drainage	Fertilization (N/1000 sq ft)				Irrigation Schedule
			pH	P	K		Spring	Summer	Fall	Winter	
Green											
Tee											
Fairway											
Rough											
Driving range											
Nursery green											
Practice green											

Comments on specific topics such as shade, overseeding blend, nitrogen carrier, topdressing mix, weather, irrigation salinity levels, etc.

Table 8. Preventative pesticide application schedule for Brynwood Golf Club.

<u>Greens</u>

Date	Fungicide	Rate	Insecticide	Rate	Herbicide/PGR	Rate
4/1	Headway	2 oz/m	Talstar	15 oz/A	Primo	7 oz/A
4/15	Tartan	2 oz/m			Primo	6 oz/A
	Daconil Action	2.4 oz/m			Proxy	5 oz/A
5/1	Signature	4 oz/m	Scimitar	12 oz/A	Primo	6 oz/A
	Daconil WeatherStick	3.6 oz/m				
5/15	Instrata	7 oz/m			Primo	7 oz/A
					Proxy	5 oz/A
5/16			Acelepryn	12 oz/A		
6/1	Insignia Intrinsic	.72 oz/m	Conserve	52 oz/A		
	Segway	.9 oz/m				
6/11	Affirm	2.4 lbs/A			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
6/21	Clearys 3336	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Signature	4 oz/m				
7/1	Insignia Intrinsic	.72 oz/m	Provaunt	12 oz/A		
	Banol	2 oz.m				
7/11	Signature	4 oz/m			Primo	7 oz/A
	Headway	3 oz/m				
	Daconil WeatherStick	3.6 oz/m				
7/21	Signature	4 oz/m	Scimitar	12 oz/A	Primo	7 oz/A
	Medallion	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/1	Segway	.9 oz/m	Conserve	52oz/A		
8/3	Signature	4 oz/m			Primo	7 oz/A
	Headway	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/11	Tartan	2 oz/m			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
8/21	Instrata	7 oz/m			Primo	7 oz/A
9/3	Signature	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Daconil WeatherStick	3.6 oz/m				
9/24	Concert II	5 oz/m	.		Primo	7 oz/A

10/15	Tartan	2 oz/m			Primo	7 oz/A
Snow Mold	Instrata	11 oz/m			Primo	7 oz/A

Tees

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/15	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/2	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Dimension	32 oz/A
5/30	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
6/1	Segway	.9 oz/m	Conserve	52 oz/A		
6/13	Instrata	7 oz/m	Talstar	20 oz/A	Primo	12 oz/A
7/1	Banol	2 oz.m	Provaunt	12 oz/A		
7/4	Signature	4 oz/m			Primo	12 oz/A
	Tartan	2 oz/m				
	Daconil Weatherstic	3.6 oz/m				
7/17	Renown	4.5 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
8/1	Segway	.9 oz/m	Conserve	52 oz/A		
7/29	Instrata	7 oz/m			Primo	12 oz/A
8/12	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/2	Eagle	1.2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
10/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Fairways

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A

5/1	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end May-early June			Provaunt	12 oz/A		
end May-early June	Rough Application for season long grub control		Acelepryn	8 oz/A		
6/11	Renown	3.5 oz/m			Primo	12 oz/A
6/12	Renown	3.5 oz/m			Primo	12 oz/A
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/15	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
7/16	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
mid July			Provaunt	12 oz/A		
7/30	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
8/13	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
8/14	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/3	Eagle	1.2 oz/m			Primo	12 oz/A
	Curalan	2 oz/m				
10/1	Renown	3 oz/m			Primo	12 oz/A
10/2	Renown	3 oz/m			Primo	12 oz/A
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Intermediate (added to fairways in risk analysis)

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate

4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
end may-early june			Provaunt	12 oz/A		
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end may-early june			Provaunt	12 oz/A		
7/30	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
10/1	Renown	4 oz/m			Primo	12 oz/A
10/2	Renown	4 oz/m			Primo	12 oz/A
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Table 9. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the storm water at the drainage design points.

Pesticide	Design Point	Greens	Tees	Fairways	Runoff volume – first 0.5 " (liters)	Amt. of Pesticide (ug)	Est. Conc. Of Pesticide in runoff (ug/l)	Long Term Human Toxicity (ug/L)	Maximum Acceptable Toxicant Concentration-fish (ug/l)	Highest conc. from golf course monitoring Studies & (ug/l)
		Acres treated on same day								
Trifloxystrobin	DP-1A	0.31			836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A		0.31		836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A			1.13	836,410	115,020	0.14	350	5.8	
Trifloxystrobin	DP-1B	0.26			591,131	26,582	0.04	350	5.8	
Trifloxystrobin	DP-1B		0.22		591,131	22,492	0.04	350	5.8	
Trifloxystrobin	DP-1B			0.91	591,131	93,550	0.16	350	5.8	
Trifloxystrobin	DP-1C-6	1.74			5,695,285	177,898	0.03	350	5.8	
Trifloxystrobin	DP-1C-6		1.41		5,695,285	169,538	0.03	350	5.8	
Trifloxystrobin	DP-1C-6			10.46	5,695,285	1,068,919	0.19	350	5.8	
Trifloxystrobin	DP-1C-9	0.27			485,426	27,605	0.06	350	5.8	
Trifloxystrobin	DP-1C-9		0.11		485,426	11,246	0.02	350	5.8	

Trifloxystrobin	DP-1C-9			1.22	485,426	124,222	0.26	350	5.8	
Trifloxystrobin	DP-1C-10	0.23			630,643	23,515	0.04	350	5.8	
Trifloxystrobin	DP-1C-10		0.25		630,643	25,560	0.04	350	5.8	
Trifloxystrobin	DP-1C-10			0.07	630,643	6,646	0.01	350	5.8	
Chlorothalonil@	DP-1A	0.31			836,410	739,536	0.88	15	4.4	6.5
Chlorothalonil	DP-1A		0.31		836,410	871,596	1.04	15	4.4	
Chlorothalonil	DP-1A			1.13	836,410	2,824,096	3.38	15	4.4	
Chlorothalonil	DP-1B	0.26			591,131	620,256	1.05	15	4.4	
Chlorothalonil	DP-1B		0.22		591,131	618,552	1.05	15	4.4	
Chlorothalonil	DP-1B			0.92	591,131	2,299,264	3.89	15	4.4	
Chlorothalonil	DP-1C-6	1.74			5,695,285	4,150,944	0.73	15	4.4	
Chlorothalonil	DP-1C-6		1.41		5,695,285	3,964,356	0.70	15	4.4	
Chlorothalonil	DP-1C-6			10.46	5,695,285	19,309,160	3.39	15	4.4	
Chlorothalonil	DP-1C-9	0.27			485,426	644,112	1.33	15	4.4	
Chlorothalonil	DP-1C-9		0.11		485,426	309,276	0.64	15	4.4	
Chlorothalonil	DP-1C-9			1.12	485,426	2,067,520	4.26	15	4.4	
Chlorothalonil	DP-1C-10	0.23			630,643	548,688	0.87	15	4.4	

Chlorothalonil	DP-1C-10		0.25		630,643	702,900	1.11	15	4.4	
Chlorothalonil	DP-1C-10			0.07	630,643	174,944	0.28	15	4.4	
Chlorothalonil#	DP-1A	0.31			836,410	1,258,972	1.51	15	4.4	
Chlorothalonil#	DP-1B	0.26			591,131	1,055,588	1.79	15	4.4	
Chlorothalonil#	DP-1C-6	1.74			5,695,285	7,066,290	1.24	15	4.4	
Chlorothalonil#	DP-1C-9	0.27			485,426	1,096,493	2.26	15	4.4	
Chlorothalonil#	DP-1C-10	0.23			630,643	93,404	0.15	15	4.4	
Fosetyl-al	DP-1A	0.31			836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1A		0.31		836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1B	0.26			591,131	1,033,760	1.75	21,000	14,711	
Fosetyl-al	DP-1B		0.22		591,131	874,721	1.48	21,000	14,711	
Fosetyl-al	DP-1C-6	1.74			5,695,285	6,918,240	1.21	21,000	14,711	
Fosetyl-al	DP-1C-6		1.41		5,695,285	5,606,160	0.98	21,000	14,711	
Fosetyl-al	DP-1C-9	0.27			485,426	1,073,520	2.21	21,000	14,711	
Fosetyl-al	DP-1C-9		0.11		485,426	437,360	0.90	21,000	14,711	
Fosetyl-al	DP-1C-10	0.23			630,643	914,480	1.45	21,000	14,711	
Fosetyl-al	DP-1C-10		0.25		630,643	994,000	1.58	21,000	14,711	

Fludioxinil	DP-1A	0.31			836,410	96,844	0.12	210	33	
Fludioxinil	DP-1B	0.26			591,131	81,224	0.14	210	33	
Fludioxinil	DP-1C-6	1.74			5,695,285	543,576	0.10	210	33	
Fludioxinil	DP-1C-9	0.27			485,426	84,348	0.17	210	33	
Fludioxinil	DP-1C-10	0.23			630,643	71,852	0.11	210	33	
Fludioxinil	DP-1A		0.31		836,410	50,183	0.06	210	33	
Fludioxinil	DP-1B		0.22		591,131	35,614	0.06	210	33	
Fludioxinil	DP-1C-6		1.41		5,695,285	228,251	0.04	210	33	
Fludioxinil	DP-1C-9		0.11		485,426	17,807	0.04	210	33	
Fludioxinil	DP-1C-10		0.25		630,643	40,470	0.06	210	33	
pyraclostrobin	DP-1A	0.31			836,410	63,389	0.08	210	3.9	
pyraclostrobin	DP-1B	0.26			591,131	53,165	0.09	210	3.9	
pyraclostrobin	DP-1C-6	1.74			5,695,285	355,795	0.06	210	3.9	
pyraclostrobin	DP-1C-9	0.27			485,426	55,210	0.11	210	3.9	
pyraclostrobin	DP-1C-10	0.23			630,643	47,030	0.07	210	3.9	
tebuconazole+	DP-1A			1.13	836,410	3,209,200	3.84	21	17	
tebuconazole	DP-1A		0.31		836,410	88,040	0.11	21	17	

tebuconazole	DP-1A			1.13	836,410	320,920	0.38	21	17	
tebuconazole+	DP-1B			0.92	591,131	2,612,800	4.42	21	17	
tebuconazole	DP-1B		0.22		591,131	62,480	0.11	21	17	
tebuconazole	DP-1B			0.92	591,131	261,280	0.44	21	17	
tebuconazole+	DP-1C-6			10.46	5,695,285	29,706,400	5.22	21	17	
tebuconazole	DP-1C-6		1.41		5,695,285	400,440	0.07	21	17	
tebuconazole	DP-1C-6			10.46	5,695,285	2,970,640	0.52	21	17	
tebuconazole+	DP-1C-9			1.22	485,426	3,464,800	7.14	21	17	
tebuconazole	DP-1C-9		0.11		485,426	31,240	0.06	21	17	
tebuconazole	DP-1C-9			1.22	485,426	346,480	0.71	21	17	
tebuconazole+	DP-1C-10			0.07	630,643	198,800	0.32	21	17	
tebuconazole	DP-1C-10		0.25		630,643	71,000	0.11	21	17	
tebuconazole	DP-1C-10			0.07	630,643	19,880	0.03	21	17	
azoxystrobin	DP-1A	0.31			836,410	66,029	0.08	1260	168	5.8
azoxystrobin	DP-1A		0.31		836,410	68,671	0.08			
azoxystrobin	DP-1A			1.13	836,410	221,435	0.26	1260	168	
azoxystrobin	DP-1B	0.26			591,131	55,380	0.09	1260	168	

azoxystrobin	DP-1B		0.22		591,131	48,734	0.08	1260	168	
azoxystrobin	DP-1B			0.92	591,131	180,283	0.30			
azoxystrobin	DP-1C-6	1.74			5,695,285	370,620	0.07	1260	168	
azoxystrobin	DP-1C-6		1.41		5,695,285	312,343	0.05	1260	168	
azoxystrobin	DP-1C-6			10.46	5,695,285	2,049,742	0.36	1260	168	
azoxystrobin	DP-1C-9	0.27			485,426	57,510	0.12	1260	168	
azoxystrobin	DP-1C-9		0.11		485,426	24,367	0.05	1260	168	
azoxystrobin	DP-1C-9			1.22	485,426	239,071	0.49	1260	168	
azoxystrobin	DP-1C-10	0.23			630,643	48,990	0.08	1260	168	
azoxystrobin	DP-1C-10		0.25		630,643	55,380	0.09	1260	168	
azoxystrobin	DP-1C-10			0.07	630,643	13,717	0.02	1260	168	
triadimefon	DP-1A	0.31			836,410	158,474	0.19	28	169	4.7
Triadimefon	DP-1A		0.31		836,410	158,474	0.19	28	169	
Triadimefon	DP-1A			1.13	836,410	577,665	0.69	28	169	
Triadimefon	DP-1B	0.26			591,131	132,914	0.22	28	169	
triadimefon	DP-1B		0.22		591,131	112,466	0.19	28	169	
Triadimefon	DP-1B			0.91	591,131	465,199	0.79	28	169	

Triadimefon	DP-1C-6	1.74			5,695,285	889,502	0.16	28	169	
Triadimefon	DP-1C-6		1.41		5,695,285	720,803	0.13	28	169	
triadimefon	DP-1C-6			10.46	5,695,285	5,347,236	0.94	28	169	
Triadimefon	DP-1C-9	0.27			485,426	138,026	0.28	28	169	
Triadimefon	DP-1C-9		0.11		485,426	56,233	0.12	28	169	
Triadimefon	DP-1C-9			1.22	485,426	623,674	1.28	28	169	
triadimefon	DP-1C-10	0.23			630,643	117,578	0.19	28	169	
Triadimefon	DP-1C-10		0.25		630,643	127,802	0.20	28	169	
Triadimefon	DP-1C-10			0.07	630,643	35,785	0.06	28	169	
Thiophanate-me	DP-1A	0.31			836,410	633,884	0.76	30	2.7	
Thiophanate-me	DP-1B	0.26			591,131	531,644	0.90	30	2.7	
Thiophanate-me	DP-1C-6	1.74			5,695,285	3,557,956	0.62	30	2.7	
Thiophanate-me	DP-1C-9	0.27			485,426	552,092	1.14	30	2.7	
Thiophanate-me	DP-1C-10	0.23			630,643	470,964	0.75	30	2.7	
Indoxacarb	DP-1A	0.31			836,410	31694.4	0.04	140	2.1	
Indoxacarb	DP-1A		0.31		836,410	31,694	0.04	140	2.1	
Indoxacarb	DP-1A			2.21	836,410	225,950	0.27	140	2.1	

Indoxacarb	DP-1B	0.26			591,131	26,582	0.04	140	2.1	
Indoxacarb	DP-1B		0.22		591,131	22,493	0.04	140	2.1	
Indoxacarb	DP-1B			1.81	591,131	185,054	0.31	140	2.1	
Indoxacarb	DP-1C-6	1.74			5,695,285	177,898	0.03	140	2.1	
Indoxacarb	DP-1C-6		1.41		5,695,285	1,441,584	0.25	140	2.1	
Indoxacarb	DP-1C-6			20.91	5,695,285	2,137,838	0.38	140	2.1	
Indoxacarb	DP-1C-9	0.27			485,426	27,605	0.06	140	2.1	
Indoxacarb	DP-1C-9		0.11		485,426	11,246	0.02	140	2.1	
Indoxacarb	DP-1C-9			2.43	485,426	248,443	0.51	140	2.1	
Indoxacarb	DP-1C-10	0.23			630,643	23,507	0.04	140	2.1	
Indoxacarb	DP-1C-10		0.25		630,643	25,560	0.04	140	2.1	
Indoxacarb	DP-1C-10			0.13	630,643	13,291	0.02	140	2.1	
lambda-cyhalothrin^	DP-1A	0.31			836,410	1021264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A		0.31		836,410	1,021,264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A			1.13	836,410	3,722,672	4.45	7	0.04	

lambda-cyhalothrin	DP-1B	0.26			591,131	856,544	1.45	7	0.04	
lambda-cyhalothrin	DP-1B		0.22		591,131	724,768	1.23	7	0.04	
lambda-cyhalothrin	DP-1B			0.92	591,131	3,030,848	5.13	7	0.04	
lambda-cyhalothrin	DP-1C-6	1.74			5,695,285	5,732,256	1.01	7	0.04	
lambda-cyhalothrin	DP-1C-6		1.41		5,695,285	4,645,104	0.82	7	0.04	
lambda-cyhalothrin	DP-1C-6			10.46	5,695,285	34,459,424	6.05	7	0.04	
lambda-cyhalothrin	DP-1C-9	0.27			485,426	889,488	1.83	7	0.04	
lambda-cyhalothrin	DP-1C-9		0.11		485,426	362,384	0.75	7	0.04	
lambda-cyhalothrin	DP-1C-9			1.22	485,426	4,019,168	8.28	7	0.04	
lambda-cyhalothrin	DP-1C-10	0.23			630,643	757,712	1.20	7	0.04	
lambda-cyhalothrin	DP-1C-10		0.25		630,643	823,600	1.31	7	0.04	

lambda-cyhalothrin	DP-1C-10			0.07	630,643	230,608	0.37	7	0.04	
Bifenthrin^	DP-1A	0.31			836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1A		0.31		836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1B	0.26			591,131	118,144	0.20	10	0.06	
bifenthrin	DP-1B		0.22		591,131	99,968	0.17	10	0.06	
bifenthrin	DP-1C-6	1.74			5,695,285	790,656	0.14	10	0.06	
bifenthrin	DP-1C-6		1.41		5,695,285	640,704	0.11	10	0.06	
bifenthrin	DP-1C-9	0.27			485,426	122,688	0.25	10	0.06	
bifenthrin	DP-1C-9		0.11		485,426	49,984	0.10	10	0.06	
bifenthrin	DP-1C-10	0.23			630,643	104,512	0.17	10	0.06	
bifenthrin	DP-1C-10		0.25		630,643	113,600	0.18	10	0.06	
vinclozalin	DP-1A		0.31		836,410	193,688	0.23	8.4	120	0.5
vinclozalin	DP-1A			1.13	836,410	706,024	0.84	8.4	120	
vinclozalin	DP-1B		0.22		591,131	137,456	0.23	8.4	120	
vinclozalin	DP-1B			0.92	591,131	574,816	0.97	8.4	120	
vinclozalin	DP-1C-6		1.41		5,695,285	880,968	0.15	8.4	120	
vinclozalin	DP-1C-6			10.46	5,695,285	6,535,408	1.15	8.4	120	

vinclozalin	DP-1C-9		0.11		485,426	68,728	0.14	8.4	120	
vinclozalin	DP-1C-9			1.22	485,426	762,256	1.57	8.4	120	
vinclozalin	DP-1C-10		0.25		630,643	156,200	0.25	8.4	120	
vinclozalin	DP-1C-10			0.07	630,643	43,736	0.07	8.4	120	
Trinexipac-eth	DP-1A	0.31			836,410	7,043	0.01	221	573	
Trinexipac-eth	DP-1A		0.31		836,410	12,486	0.01	221	573	
Trinexipac-eth	DP-1A			2.25	836,410	90,621	0.11	221	573	
Trinexipac-eth	DP-1B	0.26			591,131	5,907	0.01	221	573	
Trinexipac-eth	DP-1B		0.22		591,131	8,861	0.01	221	573	
Trinexipac-eth	DP-1B			1.83	591,131	73,705	0.12	221	573	
Trinexipac-eth	DP-1C-6	1.74			5,695,285	39,533	0.01	221	573	
Trinexipac-eth	DP-1C-6		1.41		5,695,285	56,789	0.01	221	573	
Trinexipac-eth	DP-1C-6			20.91	5,695,285	842,171	0.15	221	573	
Trinexipac-eth	DP-1C-9	0.27			485,426	6,134	0.01	221	573	
Trinexipac-eth	DP-1C-9		0.11		485,426	4,430	0.01	221	573	
Trinexipac-eth	DP-1C-9			2.43	485,426	97,871	0.20	221	573	
Trinexipac-eth	DP-1C-10	0.23			630,643	5,226	0.01	221	573	

Trinexipac-eth	DP-1C-10		0.25		630,643	10,069	0.02	221	573	
Trinexipac-eth	DP-1C-10			0.13	630,643	5,236	0.01	221	573	
ethephon	DP-1A	0.31			836,410	7,312	0.01	126	2662	
ethephon	DP-1B	0.26			591,131	7,247	0.01	126	2662	
ethephon	DP-1C-6	1.74			5,695,285	48,504	0.01	126	2662	
ethephon	DP-1C-9	0.27			485,426	7,527	0.02	126	2662	
ethephon	DP-1C-10	0.23			630,643	6,411	0.01	126	2662	
prodiamine	DP-1A			2.25	836,410	830,700	0.99	35	17	
prodiamine	DP-1B			1.83	591,131	675,636	1.14	35	17	
prodiamine	DP-1C-6			20.91	5,695,285	7,353,010	1.29	35	17	
prodiamine	DP-1C-9			2.43	485,426	897,156	1.85	35	17	
prodiamine	DP-1C-10			0.13	630,643	47,996	0.08	35	17	
myclobutanil	DP-1A		0.31		836,410	88,040	0.11	175	330	1.6
myclobutanil	DP-1A			1.13	836,410	320,920	0.38	175	330	
myclobutanil	DP-1B		0.22		591,131	62,480	0.11	175	330	
myclobutanil	DP-1B			0.92	591,131	261,280	0.44	175	330	
myclobutanil	DP-1C-6		1.41		5,695,285	400,440	0.07	175	330	

myclobutanil	DP-1C-6			10.46	5,695,285	2,970,640	0.52	175	330	
myclobutanil	DP-1C-9		0.11		485,426	31,240	0.06	175	330	
myclobutanil	DP-1C-9			1.22	485,426	346,480	0.71	175	330	
myclobutanil	DP-1C-10		0.25		630,643	71,000	0.11	175	330	
myclobutanil	DP-1C-10			0.07	630,643	19,880	0.03	175	330	
Propiconazole^	DP-1A	0.31			836,410	1,232,560	1.47	9.1	134	1.1
propiconazole	DP-1A		0.31		836,410	3,976,000	4.75	9.1	134	
propiconazole	DP-1B	0.26			591,131	1,033,760	1.75	9.1	134	
propiconazole	DP-1B		0.22		591,131	874,720	1.48	9.1	134	
propiconazole	DP-1C-6	1.74			5,695,285	6,918,240	1.21	9.1	134	
propiconazole	DP-1C-6		1.41		5,695,285	5,606,160	0.98	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,073,520	2.21	9.1	134	
propiconazole	DP-1C-9		0.11		485,426	437,360	0.90	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	914,480	1.45	9.1	134	
propiconazole	DP-1C-10		0.25		630,643	994,000	1.58	9.1	134	
Propiconazole^+	DP-1A	0.31			836,410	1,936,880	2.32	9.1	134	1.1
propiconazole	DP-1B	0.26			591,131	1,624,480	2.75	9.1	134	

propiconazole	DP-1C-6	1.74			5,695,285	10,871,520	1.91	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,686,960	3.48	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	1,437,040	2.28	9.1	134	
cyazofamid	DP-1A	0.31			836,410	140,864	0.17	6650	127	
cyazofamid	DP-1A		0.31		836,410	140,864	0.17	6650	127	
cyazofamid	DP-1B	0.26			591,131	118,144	0.20	6650	127	
cyazofamid	DP-1B		0.22		591,131	99,968	0.17	6650	127	
cyazofamid	DP-1C-6	1.74			5,695,285	790,656	0.14	6650	127	
cyazofamid	DP-1C-6		1.41		5,695,285	640,704	0.11	6650	127	
cyazofamid	DP-1C-9	0.27			485,426	122,688	0.25	6650	127	
cyazofamid	DP-1C-9		0.11		485,426	49,984	0.10	6650	127	
cyazofamid	DP-1C-10	0.23			630,643	104,512	0.17	6650	127	
cyazofamid	DP-1C-10		0.25		630,643	113,600	0.18	6650	127	
propamocarb	DP-1A	0.31			836,410	575,253	0.69	700	37500	
propamocarb	DP-1A		0.31		836,410	575,253	0.69	700	37500	
propamocarb	DP-1B	0.26			591,131	482,471	0.82	700	37500	
propamocarb	DP-1B		0.22		591,131	408,244	0.69	700	37500	

propamocarb	DP-1C-6	1.74			5,695,285	3,228,841	0.57	700	37500	
propamocarb	DP-1C-6		1.41		5,695,285	2,616,475	0.46	700	37500	
propamocarb	DP-1C-9	0.27			485,426	501,027	1.03	700	37500	
propamocarb	DP-1C-9		0.11		485,426	204,122	0.42	700	37500	
propamocarb	DP-1C-10	0.23			630,643	426,801	0.68	700	37500	
propamocarb	DP-1C-10		0.25		630,643	463,914	0.74	700	37500	
boscalid	DP-1A		0.31		836,410	48,422	0.06	153	167	
boscalid	DP-1A			2.25	836,410	351,450	0.42	153	167	
boscalid	DP-1B		0.22		591,131	34,364	0.06	153	167	
boscalid	DP-1B			1.81	591,131	282,722	0.48	153	167	
boscalid	DP-1C-6		1.41		5,695,285	220,242	0.04	153	167	
boscalid	DP-1C-6			20.91	5,695,285	3,266,142	0.57	153	167	
boscalid	DP-1C-9		0.11		485,426	17,182	0.04	153	167	
boscalid	DP-1C-9			2.43	485,426	379,566	0.78	153	167	
boscalid	DP-1C-10		0.25		630,643	39,050	0.06	153	167	
boscalid	DP-1C-10			0.13	630,643	20,306	0.03	153	167	
chlorantraniliprole	DP-1A	0.31			836,410	19,369	0.02			

chlorantraniliprole	DP-1A		0.31		836,410	19,369	0.02			
chlorantraniliprole	DP-1A			2.25	836,410	140,580	0.17			
chlorantraniliprole	DP-1B	0.26			591,131	16,245	0.03			
chlorantraniliprole	DP-1B		0.22		591,131	13,746	0.02			
chlorantraniliprole	DP-1B			1.81	591,131	113,089	0.19			
chlorantraniliprole	DP-1C-6	1.74			5,695,285	108,715	0.02			
chlorantraniliprole	DP-1C-6		1.41		5,695,285	88,097	0.02			
chlorantraniliprole	DP-1C-6			20.91	5,695,285	1,306,457	0.23			
chlorantraniliprole	DP-1C-9	0.27			485,426	16,870	0.03			
chlorantraniliprole	DP-1C-9		0.11		485,426	6,873	0.01			
chlorantraniliprole	DP-1C-9			2.43	485,426	151,826	0.31			
chlorantraniliprole	DP-1C-10	0.23			630,643	14,370	0.02			
chlorantraniliprole	DP-1C-10		0.25		630,643	15,620	0.02			
chlorantraniliprole	DP-1C-10			0.13	630,643	8,122	0.01			
spinosad	DP-1A	0.31			836,410	57,226	0.07	188	692	
spinosad	DP-1A		0.31		836,410	57,226	0.07	188	692	
spinosad	DP-1B	0.26			591,131	47,996	0.08	188	692	

spinosad	DP-1B		0.22		591,131	40,612	0.07	188	692	
spinosad	DP-1C-6	1.74			5,695,285	321,204	0.06	188	692	
spinosad	DP-1C-6		1.41		5,695,285	260,286	0.05	188	692	
spinosad	DP-1C-9	0.27			485,426	49,842	0.10	188	692	
spinosad	DP-1C-9		0.11		485,426	20,306	0.04	188	692	
spinosad	DP-1C-10	0.23			630,643	42,458	0.07	188	692	
spinosad	DP-1C-10		0.25		630,643	46,150	0.07	188	692	
dithiopyr	DP-1A		0.31		836,410	70,432	0.08	25	28	0.1
dithiopyr	DP-1B		0.22		591,131	49,984	0.08	25	28	
dithiopyr	DP-1C-6		1.41		5,695,285	320,352	0.06	25	28	
dithiopyr	DP-1C-9		0.11		485,426	24,992	0.05	25	28	
dithiopyr	DP-1C-10		0.25		630,643	56,800	0.09	25	28	
polyoxin D zinc	DP-1A	0.31			836,410	38,202	0.05			
polyoxin D zinc	DP-1B	0.26			591,131	32,041	0.05			
polyoxin D zinc	DP-1C-6	1.74			5,695,285	214,425	0.04			
polyoxin D zinc	DP-1C-9	0.27			485,426	33,273	0.07			
polyoxin D zinc	DP-1C-10	0.23			630,643	28,344	0.04			

@ chlorothalonil applied at a rate 56 oz A.I./a. #chlorothalonil applied at a rate of 143 oz A.I./a on greens only for snow mold control.^ high risk pesticides from WIN PST analysis. + Propiconazole applied at a high rate for snow mold control on greens only. & From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236

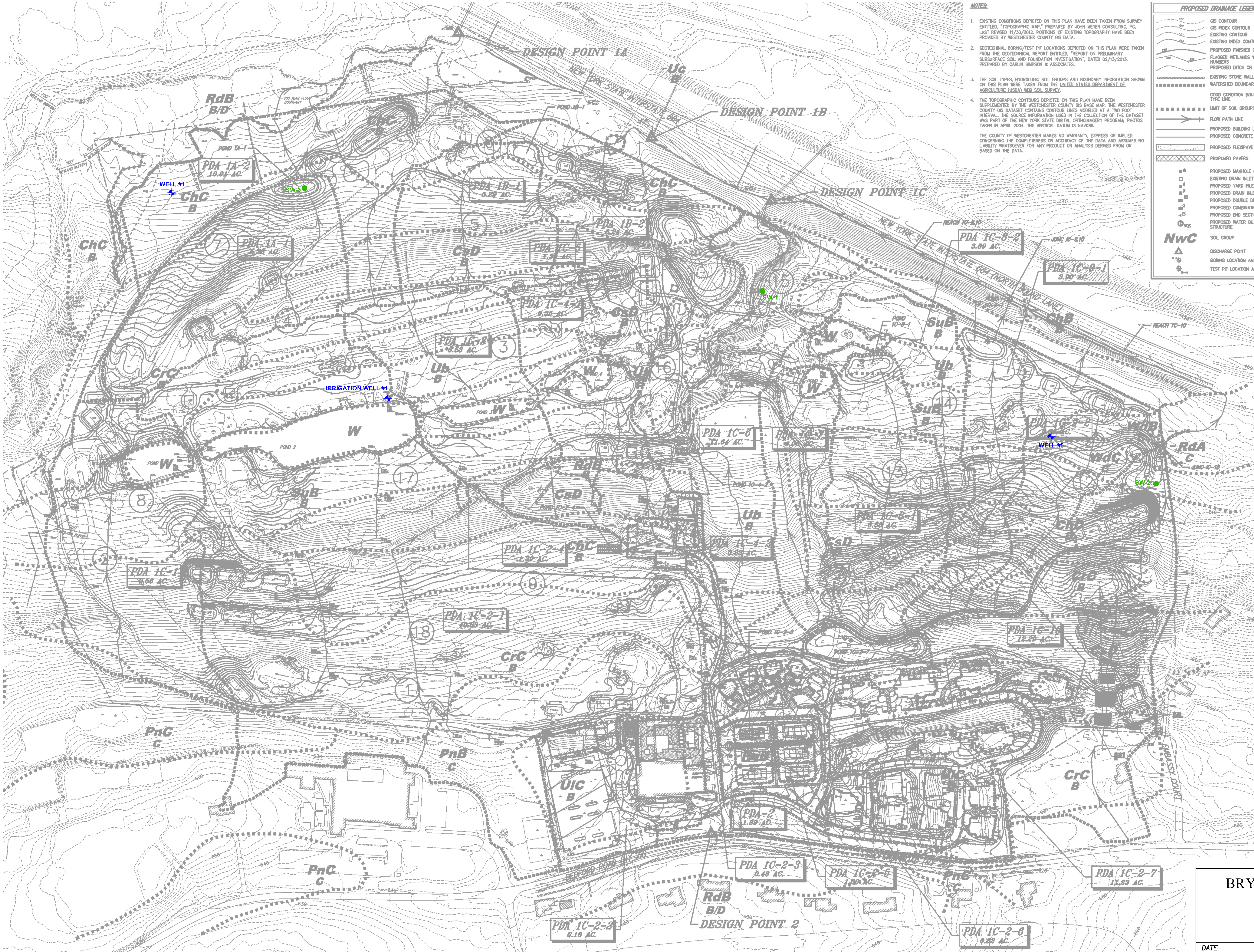
Table 10. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the ground water at the average annual recharge rate and from a 1 in 30 year drought.

Pesticide	**Annual amount of pesticide applied annually that leached (ug)@**	**Ground water recharge, normal rainfall (L)**	**Ground water recharge, drought rainfall (L)**	**Est. yearly aver. conc. of pesticide in ground water (ug/l)**	**Long Term Human Toxicity (ug/L)**	**Highest conc. from golf course monitoring Studies # (ug/l)**
Trifloxystrobin	6,529,046	116,705,700		0.06	350	
Trifloxystrobin	6,529,046		83,361,214	0.08	350	
Chlorothalonil	422,000,000	116,705,700		3.6	15	3.1
Chlorothalonil	422,000,000		83,361,214	5.1	15	
Fosetyl-al	75,663,280	116,705,700		0.65	21,000	
Fosetyl-al	75,663,280		83,361,214	0.91	21,000	
Fludioxinil	2,385,089	116,705,700		0.02	210	
Fludioxinil	2,385,089		83,361,214	0.03	210	
pyraclostrobin	1,145,088	116,705,700		0.01	210	
pyraclostrobin	1,145,088		83,361,214	0.01	210	
tebuconazole	88,803,960	116,705,700		0.76	21	
tebuconazole	88,803,960		83,361,214	1.07	21	
azoxystrobin	16,876,530	116,705,700		0.14	1260	5
azoxystrobin	16,876,530		83,361,214	0.20	1260	
triadimefon	47,608,340	116,705,700		0.41	28	8.4
Triadimefon	47,608,340		83,361,214	0.57	28	
Thiophanate-me	5,725,440	116,705,700		0.05	30	
Thiophanate-me	5,725,440		83,361,214	0.07	30	
Indoxacarb	5,728,507	116,705,700		0.05	140	
Indoxacarb	5,728,507		83,361,214	0.07	140	

lambda-cyhalothrin^	29,250,978	116,705,700		0.25	7	
lambda-cyhalothrin^	29,250,978		83,361,214	0.35	7	
Bifenthrin^	4,512,192	116,705,700		0.04	10	
Bifenthrin^	4,512,192		83,361,214	0.05	10	
vinclozalin	17,325,704	116,705,700		0.15	8.4	
vinclozalin	17,325,704		83,361,214	0.21	8.4	
chlorantraniliprole	3,407,034	116,705,700		0.03	Ns	
chlorantraniliprole	3,407,034		83,361,214	0.04	Ns	
Trinexipac-eth	13,066,329	116,705,700		0.11	221	
Trinexipac-eth	13,066,329		83,361,214	0.16	221	
ethephon	174,944	116,705,700		0.002	126	
ethephon	174,944		83,361,214	0.002	126	
prodiamine	5,725,440	116,705,700		0.05	35	
prodiamine	5,725,440		83,361,214	0.07	35	
myclobutanil	7,875,320	116,705,700		0.07	175	0.9
myclobutanil	7,875,320		83,361,214	0.09	175	
boscalid	4,331,426	116,705,700		0.04	153	
boscalid	4,331,426		83,361,214	0.05	153	
dithiopyr	50,666	116,705,700		<0.01	25	0.1
dithiopyr	50,666		83,361,214	<0.01	25	
propiconazole	87,949,120	116,705,700		0.75	9.1	1.1
propiconazole	87,949,120		83,361,214	1.06	9.1	
spinosyn	1,857,076	116,705,700		0.02	Ns	
spinosyn	1,857,076		83,361,214	0.02	Ns	
cyazofamid	4571264	116,705,700		0.04	6650	
cyazofamid	4571264		83,361,214	0.05	6650	
polyoxin D	341936	116,705,700		<0.01		
polyoxin D	341936		83,361,214	<0.01		

@ Total amount applied per year with 0.1% leaching from low to intermediate risk pesticide to 1% of high risk pesticides. ^ high risk pesticides from WIN PST analysis. * The values in parentheses are the amount of area that can be treated per year to lower the risk of water contamination to the toxicological limit. # From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236. Ns, there is no water quality standard s do to their very low risk to humans and wildlife.

PLATE



LEGEND

PROPOSED GROUNDWATER SAMPLING LOCATION (WELL #5)

PROPOSED SURFACE-WATER SAMPLING LOCATION (SW-1)

0 150 SCALE IN FEET

SOURCE: BASE MAP PREPARED BY JOHN MEYER CONSULTING, P.C. "PROPOSED DRAINAGE AREA MAP, BRYNWOOD CLUB".

BRYNWOOD GOLF AND COUNTRY CLUB
NORTH CASTLE, NEW YORK

PROPOSED SAMPLING LOCATIONS

DATE	REVISED

PREPARED BY:
LEGGETTE, BRASHEARS & GRAHAM, INC.
Professional Groundwater and Environmental Engineering Services
4 Research Drive
Suite 204
Shelton, Connecticut 06484
(203) 929-8555

DRAWN:	MRV	CHECKED:	SS	DATE:	01/27/09	PLATE:	1

APPENDIX I

Did you know: Everything we do on land eventually affects our water resources?

Planning **Initiatives** **Environment** **Land Use & Development** **Census & Statistics**

You are here : Planning

Drought Emergency Plan

Last Updated on Friday, 15 February 2013 16:46

Westchester County has experienced several major droughts which have significantly affected its residents and businesses. Even with major improvements to our water supply systems, the possibility of shortfalls and water emergencies always exists. Therefore the county has developed a drought emergency contingency plan using information, data and experience compiled from past events.

Local Law 9 – 1996, titled Chapter 693 - Water Conservation is the latest version of mandated water use restrictions during drought emergency conditions, including required conservation measures and penalties for violations. The law also created a Drought Emergency Task Force to establish administrative procedures and to monitor compliance with the county's Water Conservation Program. The drought emergency contingency plan includes these drought condition phases:

Drought Watch	The initial step, a "Drought Watch", may be announced by the County Executive when the depletion of reservoir storage, current meteorological condition and long range forecasts suggest that normal consumption rates will result in a more serious shortage. The object of the "Drought Watch" announcement is to reduce consumption by encouraging voluntary conservation and to create public awareness of depleted storage levels and anticipated adverse developments. At this point it is important to raise the consciousness level of the area's water users.
Drought Warning	If storage levels continue to decrease and conditions deteriorate, yet the capacity of the reservoirs to recover within a short period of time exists, a "Drought Warning" may be announced. During this stage, voluntary conservation efforts are encouraged, public awareness programs are intensified, the County takes a lead role in encouraging conservation, and planning activities commence in the event that a Drought Emergency is declared. During the "Drought Warning", the County Executive would initiate an outreach program to the public for voluntary water conservation.
Drought Emergency	If the drought continues and/or voluntary conservation measures are ineffective, the County Executive may assume emergency powers by declaring a "Drought Emergency" under Local Law 9-1996. Normally, the County Executive declares the existence of a drought in Westchester County following the receipt of a report or recommendation from the Westchester County Water Agency. Local Law 9-1996 empowers the County Executive to restrict the wasteful, inefficient or non-essential use of water, establish penalties for violations, and provide for the enforcement of water conservation measures.

The current water supply status, actual precipitation levels, success of conservation measures and long and short range meteorological forecasts allow the County Executive to declare a drought emergency in three distinct phases which require progressively more stringent restrictions and regulations.

Phase I is the Declaration of a Drought

Phase II is the Declaration of a Severe Drought

Phase III is the Declaration of an Extreme Drought

See a map of Major Water Suppliers and Districts in Westchester County
For copies of Local Law 9-1996 and further information, contact Gina D'Agrosa, AICP, Watermaster/Director, by phone at (914) 813-5469 of by e-mail at gtd2@westchestergov.com . The Water Conservation Hotline is (914) 813-5436.

Westchester County, NY
Tuesday, August 27, 2013

Chapter 693. WATER CONSERVATION

[Editor's Note: Former Ch. 693, Water Conservation, adopted by §§ 1 through 8 of L.L. No. 2-1985, as amended by L.L. No. 5-1985, was superseded by L.L. No. 9-1996.]

Sec. 693.01. Legislative intent.

[Added by L.L. No. 9-1996]The intent of this chapter is to restrict the wasteful, inefficient or nonessential use of water during periods of drought, to provide measures for increasing public awareness of the need to conserve water not only during droughts but at all times through xeriscape landscaping or other water conservation measures, to establish penalties for violations and to provide for enforcement water conservation measures in Westchester County for the protection of the health, safety and welfare of the people of the County.

Sec. 693.05. Definitions.

[Added by L.L. No. 9-1996]

1. *Potable water* means any water that meets New York State Department of Health Part 5 Sanitary Code standards for drinking water.
2. *Residential swimming pool* means any constructed pool, permanent or nonportable, that is intended for noncommercial use as a swimming pool by not more than three (3) owner families and their guests and that is over twenty-four (24) inches in depth and has a surface area exceeding two hundred fifty (250) square feet and/or a volume over three thousand two hundred fifty (3,250) gallons and has a recirculating system.
3. *Commercial/public pool* means any swimming pool other than a residential swimming pool which is intended to be used for swimming or bathing and is operated by an owner, lessee, operator, licensee or concessionaire regardless of whether or not a fee is charged for use.
4. *Children's wading pool* means a portable pool that has a shallow depth and is used primarily by small children for wading.
5. *Automatic car wash* means a facility for washing automotive vehicles in which the vehicles are mechanically moved through the washing process and where the amount of water used for washing purposes is controlled by the owner and not by the customer.

6. *"Do it yourself" car wash* means a facility for the washing of automotive vehicles in which the customers use the facility's hoses or other devices for washing their own vehicles and have only limited control of the amount of water used for washing purposes.

7. *Newly sodded seeded areas* are turf areas being established on bare ground. The definition does not include the overseeding of established turf nor the minor repair of small bare spots of less than twenty-five (25) square feet area in established turf.

8. *Commercial and industrial businesses* means, for the purpose of this chapter, those public or private nonresidential establishments, businesses or facilities that use more than one thousand (1,000) gallons (or equivalent volume) of potable water per day on a monthly basis.

9. *Garden or gardens* shall include trees, shrubs, perennials, annuals, vegetables and fruits.

10. *Xeriscape landscaping* means the use of drought resistant grasses and plants that are compatible with the area and that require the minimal use of water for their survival.

Sec. 693.11. Restrictions on water consumption.

[Added by L.L. No. 9-1996]

1. *Scope of restrictions.* The restrictions imposed under subsections **2.**, 3. and 4. of this section shall not apply to the use of water imported into Westchester County that is derived from a source outside of Westchester County other than the New York City water system, and shall not apply to precipitation collected by the user or to on-site use of surface or ground water supplies by the property owner unless the County Executive by regulation shall otherwise restrict the use of such water. Owners or operators of properties where there will be conspicuous on-site use of such surface or ground water supplies are encouraged to pre-register such usage with Westchester County in the same manner as is prescribed for water conservation plans in section 693.11 2.c.

2. *Declaration of a "drought" emergency.* Upon receipt of a report or recommendation from the Westchester County Department of Environmental Facilities, based upon factors including but not limited to the levels of the County's water supply sources, precipitation levels in the County and in the watershed area serving Westchester County, and the time of year, the County Executive may declare the existence of a "drought" emergency in Westchester County and, upon providing notice thereof by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area, the following restrictions on water consumption shall apply 24 hours thereafter:

   a. The use of fire hydrants for any purpose other than fire protection, public health requirements or other emergency or other authorized use is prohibited.

   b. The serving of water to patrons in restaurants, clubs or eating places unless specifically requested by the customer is prohibited.

c. All industrial and commercial businesses must immediately formulate and implement a water conservation plan which reduces consumption by 15 percent. This plan shall be in writing in a form and format established by the County Water Agency and shall be kept on the premises and available for inspection by any peace officer or appropriate County or local municipal officers, employees or agents. For purposes of this subsection, the average water meter readings for the last five calendar years will be the minimum basis for the determination by each business or facility of its reduction in its water conservation plan.

Any commercial or business establishment that believes it has already imposed water conservation measures that meet the intent of this subsection may take the following measures to be exempted from the requirements of the first paragraph of this subsection. In consultation with the County Water Agency, the business owner shall prepare and keep current a water conservation plan in a format and content prescribed by said agency, which shall detail the steps already taken to reduce water consumption, and the consumption records documenting such achievement. Such plan shall be filed with said agency for approval, and a copy shall also be kept on the premises and available for inspection by any peace officer or appropriate County or local municipal officers, employees or agents. A list of all such plans shall be kept on file at the County Water Agency.

d. The operation of commercial automatic and "do it yourself" car washes is permitted if the car wash meets either of the following exemption criteria and has filed a water conservation plan in accordance with the requirements of this subsection. The use of recirculating systems is encouraged.

i. Water is obtained from a source on site or from a system totally independent of the New York City water supply system.

ii. The car wash establishment can demonstrate that it uses no more than a maximum total of 45 gallons of potable water, including make-up and rinse water, per unit washed.

e. The ornamental or display use of water, including such artificial displays as fountains, waterfalls, reflecting pools, lakes and ponds, is prohibited, whether or not such water is recirculated.

f. The use of hoses for street, driveway, sidewalk and/or automobile washing is prohibited. Automobile washing with a bucket is permitted.

g. Restrictions on watering of lawns and gardens:

i. Watering of lawns will be prohibited if there has been 0.1 inches or more of precipitation within the previous 24 hours. Watering of lawns at other times will be restricted to a total maximum of four hours per day between the hours of 5:00 a.m. and 9:00 a.m. and 7:00 p.m. and 9:00 p.m. only. Persons or businesses located at even-numbered addresses may water lawns on even-numbered days only.

Persons or businesses located at odd-numbered addresses may water lawns on odd-numbered days only. Persons or businesses located at addresses that are neither oddnor even-numbered may water lawns on odd-numbered days only. Newly sodded or seeded lawn areas may be watered daily within such time periods for the first six weeks following installation. Seeded areas must be mulched. Thereafter, the same rules apply as established above for lawn watering.

ii. Water may be used, without restriction or maximum hours of use per day and at any time, to irrigate gardens, provided that one of the following methods is used: a hand-held container; a drip irrigation system (including soaker hose "leaky pipe" and emitter-type systems); or a hand-held hose with an automatic shut-off device.

iii. Each plant nursery and other commercial user engaged in the business of growing, distributing or the selling of plants shall prepare and implement a water conservation plan described in section 693.11 2.c. above. Under the terms of such a plan, such nursery and commercial user may, without restriction on maximum hours of use per day and at any time, use water on their business premises for watering trees, shrubs, perennials, annuals, fruits and vegetables, sod and other plants grown, offered or held for sale.

h. Watering of golf course roughs is prohibited. Watering of fairways, tees and greens will be subject to the water conservation plan requirements specified in section 693.11 2.c. above.

i. The use of water in the power washing of the exterior of buildings is prohibited, unless a variance has been granted under the procedures of section 693.41 2. of this chapter.

j. Leaks in house water connections shall be repaired within 48 hours of detection.

k. Water meters shall be installed on all air-conditioning cooling towers within 30 days of the effective date hereof. Air-conditioning units over two tons are required to have recirculatory equipment.

l. Residential and commercial/public swimming pools shall not be filled more than once per year; however, spillage may be replenished. All swimming pools must be equipped with a filtered recirculating system. The use of children's wading pools is not restricted.

At any time during the existence of a "drought" emergency hereunder, the County Executive may, on the basis of a report or recommendations from the County's Department of Environmental Facilities, in order to effectuate the purpose of this legislation, promulgate regulations affecting water consumption in addition to the restrictions set forth in this subsection, which regulations shall become effective 24 hours after they are filed with the Westchester County Clerk, the Clerk of the Westchester County Board of Legislators and the Secretary of State; and notice thereof has been provided by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area.

3. *Declaration of a "severe drought" emergency.* If, at any time during the existence of a "drought" emergency hereunder, the County Executive determines, on the basis of a report or recommendation from the County's Department of Environmental Facilities, that the restrictions set forth in subsection **1**. of this section have not resulted in a sufficient level of conservation in light of existing water supply conditions, the County Executive may declare a "severe drought" emergency, and upon providing notice thereof by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area, the following restrictions on consumption of water shall apply 24 hours thereafter, in addition to those imposed under subsection **2**. of this section:

a. Residential swimming pools shall not be filled, nor shall spillage be replenished, unless one of the following exemption criteria is met:

i. Water used to fill or replenish spillage is obtained from an acceptable source independent of the New York City Water Supply system; or

ii. Use of the pool is necessitated by a documented medical or health related reason, in which case the limitations of section 693.11 2.k. shall apply.

b. Commercial and public swimming pools may be filled once per season, and spillage may be replenished in accordance with section 693.11 2.k. above.

c. The use of children's wading pools is not restricted.

d. Further restrictions on watering of lawns and gardens:

i. Watering of lawns will be prohibited if there has been 0.1 inches or more of precipitation within the previous 24 hours. Watering of lawns at other times will be restricted to a total maximum of four hours per day on each of two days per week between the hours of 5:00 a.m. and 9:00 a.m., and 7:00 p.m. and 9:00 p.m. (Odd-numbered addresses, and addresses that are neither odd- nor even-numbered, on Tuesdays and Saturdays, and even-numbered addresses on Wednesdays and Sundays.)

ii. Newly sodded or seeded lawn areas may be watered daily for the first six weeks of installation. Seeded areas must be mulched. After this period, the restrictions for lawn watering in subparagraph i. above shall apply. Golf courses may water fairways, tees and greens only in accordance with a water conservation plan as provided in subsection e. below.

iii. Gardens may be watered during the time periods set forth in subparagraph i. above and at other times, provided that one of the following methods is used: a hand-held container; a drip irrigation system (including soaker hose, "leaky-pipe", and emitter-type systems); or hand-held hose with an automatic shut-off device.

e. All water users required under subsection **2**. of this section to formulate and implement water conservation plans shall formulate and implement such further water conservation plans to enable them to reduce water consumption by an additional five percent or a total of 20 percent reduction in water use.

Any commercial or business establishment that believes it has already imposed water conservation measures that meet the intent of this subsection may take the following measures to be exempted from the requirements of the first paragraph of this subsection. In consultation with the County Water Agency, the business owner shall prepare and keep current a water conservation plan in a format and content prescribed by said agency, which shall detail the steps already taken to reduce water consumption, and the consumption records documenting such achievement. Such plan shall be filed with the said agency for approval, and a copy shall also be kept on the premises and available for inspection by any peace officer or appropriate County or local municipal officers, employees or agents.

At any time during the existence of a "severe drought" emergency hereunder, the County Executive may, on the basis of a report or recommendation from the County's Department of Environmental Facilities, in order to effectuate the purpose of this legislation, promulgate regulations affecting water consumption in addition to the restrictions set forth in this subsection, which regulations shall become effective 24 hours after they are filed with the Westchester County Clerk, the Clerk of the Westchester County Board of Legislators and the Secretary of State; and notice thereof has been provided by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area.

4. *Declaration of an "extreme drought" emergency.* If, at any time during the existence of a "severe drought" emergency hereunder, the County Executive determines, on the basis of a report or recommendation from the County's Department of Environmental Facilities that water consumption must be further reduced to accomplish the purposes of this legislation, the County Executive may declare an "extreme drought" emergency and upon providing notice thereof by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area, the following restrictions on consumption of water shall apply 24 hours thereafter, in addition to those imposed under subsections **2**. and 3. of this section:

   a. All water users, both residential and nonresidential, shall install water flow restricting devices in all shower heads or install low-flow shower heads conforming to New York State Department of Environmental Conservation standards.

   b. No air-conditioning system using water shall be operated during the hours of 7:00 a.m. to 11:00 a.m. daily, except in health care facilities or other installations where temperature and humidity controls are an essential standard operating procedure.

   c. All water users required under subsections **2**. and 3. of this section to formulate and implement water conservation plans shall formulate and implement such further water conservation plans to enable them to reduce water consumption by an additional five percent or a total of 25 percent reduction in water use.

Any commercial or business establishment that believes it has already imposed water conservation measures that meet the intent of this subsection may take the following measures to be exempted from the requirements of the first paragraph of this subsection. In consultation with the County Water Agency, the business owner shall prepare and keep current a water conservation plan in a format and content prescribed by said agency, which shall detail the steps already taken to reduce water consumption, and the consumption records documenting such achievement. Such plan shall be filed with said agency for approval, and a copy shall also be kept on the premises and available for inspection by any peace officer or appropriate County or local municipal officers, employees or agents.

d. Further restrictions on watering of lawns and plants:

i. The watering of all established lawns is prohibited, except for golf course fairways, tees and greens watered only in accordance with a water conservation plan as provided in subsection c. above. The installation of new sod or seeded areas should be avoided or postponed, but if such installation is essential, the watering of such new sod or seeded installations in an extreme drought emergency shall be only through the exemption and/or variance procedures of this chapter. All newly seeded areas shall be mulched.

ii. Gardens may be watered during the time periods set forth in subparagraph i. above and at other times, provided that one of the following methods is used: a hand-held container; a drip irrigation system (including soaker hose, "leaky pipe" and emitter-type systems); or hand-held hose with an automatic shut-off device.

At any time during the existence of an "extreme drought" emergency hereunder, the County Executive may, on the basis of a report or recommendation from the County's Department of Environmental Facilities, in order to effectuate the purpose of this legislation, promulgate regulations affecting water consumption in addition to the restrictions set forth in this subsection, which regulations shall become effective 24 hours after they are filed with the Westchester County Clerk, the Clerk of the Westchester County Board of Legislators and the Secretary of State; and notice thereof has been provided by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area.

5. *Termination of any drought emergency.* If, at any time during the existence of a drought condition set forth in subsection **2.**, 3. or 4. of this section, the County Executive, on the basis of a report or recommendation from the County's Department of Environmental Facilities, determines that the restrictions imposed have resulted in a sufficient level of conservation in light of existing water supply conditions, the County Executive may reduce or terminate the restrictions then in effect, by declaration, upon providing notice thereof by publication in a newspaper(s) of general circulation in the County and by transmittal to the radio and television media in the area.

6. *Point of delivery.* All plans required to be submitted pursuant to the provisions of subsections **2.**, 3. and 4. of this section shall be submitted to the County Water Agency, in care of the Office of the Commissioner, Westchester County Department of Environmental Facilities, 270 North Avenue, New Rochelle, New York 10801.

Sec. 693.21. Penalties for violation.

[Added by L.L. No. 9-1996]

1. Any violation of the restrictions in section 693.11 of this chapter shall be an offense punishable by a fine not to exceed $100.00 for the first offense, not to exceed $500.00 for the second offense and not to exceed $1,000.00 for the third and every subsequent offense or alternatively, by a maximum of 15 days' imprisonment for each offense after the second offense, except that any person violating any restrictions imposed under subsection 4. of section 693.11 of this chapter and who has been convicted of at least two other offenses under said section 693.11, shall be subject to a fine not to exceed $1,500.00. Each day that any violation under section 693.11 of this chapter continues shall constitute a separate offense for which a fine or imprisonment may be imposed.

2. In addition to any other penalties prescribed by law, any violation of any provision of this chapter shall be punishable by a civil penalty of not more than $100.00 for the first violation and not less than $100.00 nor more than $1,000.00 for the second and every subsequent violation. Each day that a violation continues shall constitute a separate violation for which such civil penalty may be imposed.

Sec. 693.31. Enforcement.

[Added by L.L. No. 9-1996]

1. This chapter shall be enforced by any peace officer or appropriate County or local municipal officers, employees or agents.

2. All civil penalties imposed and collected by reason of enforcement of this chapter by the County of Westchester shall be credited to the County's general fund.

3. All criminal penalties collected by reason of enforcement of this chapter by a city, town or village shall be paid to each such city, town or village and credited to its general fund.

Sec. 693.41. Drought Emergency Task Force.

[Added by L.L. No. 9-1996]

1. The Drought Emergency Task Force created by the County Executive shall be empowered to establish administrative procedures to enable it to monitor, effectively, compliance with the County's water conservation program. Such administrative procedures shall include, but not be limited to, procedures for the review and determination of applications for exemptions and/or variances from County-imposed restrictions on water consumption, as provided in subsection **2.** of this section. The Drought Emergency Task Force shall also be empowered to investigate long-term strategies of water conservation and to recommend

the enactment of legislation to address, inter alia, the problem of future water requirements, needs, supplies and sources for Westchester County.

2. Upon written application of any person or entity, the Drought Emergency Task Force may in its discretion grant an exemption and/or variance relieving such person or entity from compliance with any of the requirements of this chapter, on the basis of factors, including but not limited to the following:

   a. That undue hardship would otherwise result;

   b. That there are no possible alternatives;

   c. That the applicant has taken and will take all possible measures to conserve water, with a complete description of such measures and the water savings to be effected;

   d. That such exemption and/or variance is not inconsistent with the purposes of this legislation; and

   e. The source and nature of the applicant's water supply.

   In connection with any exemption and/or variance which may be granted, the Drought Emergency Task Force shall impose such terms and conditions as it deems appropriate. Any variance and/or exemption granted shall be fashioned to comport as strictly as possible with the intent of this legislation.

Sec. 693.51. Severability.

[Added by L.L. No. 9-1996]If any provision, section, clause, phrase or word of this chapter shall be held by any federal or state court to be invalid in whole or in part or inapplicable to any person or situation, all other provisions, sections, clauses, phrase or words shall remain fully effective, and the application of any such provisions, sections, phrases or words to other persons not similarly situated or other situations shall not be affected thereby.

Sec. 693.61. When effective.

[Added by L.L. No. 9-1996]This chapter shall take effect immediately and its provisions shall be enforced at all times during the existence of a drought, severe drought or extreme drought in Westchester County, as declared by the County Executive.

APPENDIX J

OFFSITE WELL MONITORING PROGRAM
AND MITIGATION PLAN
BRYNWOOD GOLF & COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

The Applicant will respond promptly to any complaints from owners of offsite wells located within 1,500 feet of the Brynwood water-supply wells who allege impact to their well caused by the operations of the Brynwood water-supply wells. Depending on the nature of the complaint, the complaint will be directed to either Leggette, Brashears & Graham, Inc. or the operator of the water-supply system, or both, for investigation and remediation, if required. The operating premise of the response to offsite well problems is that impact to a neighboring offsite well, whether related to the ability of the well to produce the same supply of water that was produced before the Brynwood wells were placed in service or water-quality degradation, can only result if significant drawdown of the static water level in the subject well occurs as a result of the operation of the Brynwood water-supply wells.

A network of up to four offsite site monitoring wells is proposed for long-term water-level monitoring. The owners of the properties that experienced the greatest water-level drawdown during the recent yield tests conducted in May 2013 (26 Blair Road, 30 Blair Road, 34 Blair Road and 8 Embassy Court) will be asked for permission to include their wells in the long-term monitoring program. Assuming permission from the property owners is granted, water-level data will be collected using dedicated pressure transducers to collect background water-level information. The transducers will remain in the offsite wells for a period of up two years following build-out of the project. At the end of two years, if no significant adverse impact to the offsite wells has been documented, the transducers will be removed and the monitoring program ended.

During the offsite well monitoring program period, summary reports containing copies of the water-level data collected and an assessment of any observed adverse impacts to offsite wells will be provided to the Town annually. In addition, annual letters will be sent to the property owners who participate in the monitoring program with copies of the data from their individual well.

The monitoring of offsite monitoring wells will provide the basis for determination of the validity of claims of offsite well impacts. If any complaint is found to be valid, i.e., a well problem caused by drawdown resulting from operation of the Brynwood water-supply wells, the problem will be remediated at the cost of the Applicant. If the problem is unrelated to the operations of the Brynwood water-supply wells, i.e., caused by normal wear and tear or naturally-occurring conditions, the well owner will be referred to a competent well or pump contractor for remediation at his cost. A written report regarding each such complaint will be provided to the Applicant, the Town of North Castle and to the complainant within seven business days of the completion of any complaint investigation.

For any well problem that is found to have been caused by drawdown resulting from operation of the Brynwood water-supply wells, a remedy or remedies would be offered to the well owner, to be selected and paid for by the Applicant. Such remedies might include lowering a well pump, replacing a well pump, deepening a well, redeveloping a well, drilling a new well or connecting the residence to the Brynwood public water-supply system. In any such remediation, the Applicant would be responsible for restoration of disturbed land or plantings. The Applicant would select the most efficacious and cost-effective remediation that is warranted under the specific circumstances presented. If connection to the onsite public water-supply system is selected, the well owner would be given one year of free water service and would thereafter pay for metered water use.

H:\Brynwood\2013\DEIS\Proposed Offsite Monitoring Plan, revised.docx

APPENDIX K

LEGGETTE, BRASHEARS & GRAHAM, INC.

PROFESSIONAL GROUNDWATER AND
ENVIRONMENTAL ENGINEERING SERVICES

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4 RESEARCH DRIVE, SUITE 301
SHELTON, CT 06484
(203) 929-8555
FAX (203) 926-9140
www.lbgweb.com

July 29, 2013

Mr. David Freund
8 Embassy Court
Armonk, NY 10504

RE: Complaint Response

Dear Mr. Freund:

Leggette, Brashears & Graham, Inc. (LBG) completed a site visit to your residence at 8 Embassy Court to follow up on the complaint received by the Brynwood Golf & Country Club (Brynwood) reporting "no water" and sediment discharge from the bedrock supply well on your property and flooding in your basement as a result of clogged French drains. Following the site visit, with your authorization LBG also had conversations with your contractor John Hobby Jr. Plumbing, your water softener technician from Rain Soft (Ed) and Wragg Well Drilling, who conducted a yield test at your request on the bedrock supply well on your property on June 14, following the completion of the pumping tests on the Brynwood Property in May 2013.

LBG's site visit to 8 Embassy Court was completed on July 23, 2013. LBG collected several water-level measurements from the supply well during the visit and reviewed the existing water storage and treatment system used to supply water to your residence. The water level in the well during the site visit ranged from 52.47 ft btoc (feet below top of casing) to 52.22 ft btoc between 10:37 a.m. and 11:02 a.m.

The water storage and treatment system for your residence consists of a water distribution line from the supply well to the water storage tank in the basement, with no outside faucet or bypass. Water from the tank is then fed through a sediment filter system which houses a micron filter. There is no bypass of the sediment filter system along the water line. After the sediment filtration system, the water then passes through a water softener and pH balance system.

Based on conversations with you, and the plumbing, water softener and drilling contractors, and LBG records of work conducted on the Brynwood property, below is a timeline of the completion of work at Brynwood and the occurrence of problems in the supply well at 8 Embassy Court.

Date	Description
January 30, 2013	Brynwood Well 3 was drilled
February 1-6, 2013	Brynwood Wells 4 and 5 were drilled
April 23-25, 2013	Brynwood Wells 1 and 2B were drilled
May 13, 2013	Brynwood Well 6A was drilled
May 16, 2013	Background water-level monitoring was started for Brynwood 72-hour pumping tests
May 20-31, 2013	Brynwood 72-hour pumping tests were conducted
June 3, 2013	Removal of water-level monitoring equipment following completion of 72-hour pumping tests and recovery period
June 10, 2013	Hobby Plumbing completed service call at 8 Embassy Court they describe as routine to service leaking toilet, kitchen sink and replace whole house sediment filter
June 14, 2013	Wragg Well Drilling conducts well yield test on residential supply well at 8 Embassy Court by lifting pump from pitless adaptor and discharging well to waste
June 17, 2013	Hobby Plumbing responds to service call of “no water” at residence (8 Embassy Court). Replaces clogged sediment filter
June 18, 2013	Hobby Plumbing conducts follow up service call at 8 Embassy Court to replace components on water storage tank compromised by sediment build-up
After June 18	Sediment filter replaced every 2 to 3 days to prevent “no water” conditions resulting from clogged filter

Based on LBG’s conversation with Hobby Plumbing, the service visit conducted on June 10, 2013 was in response to a complaint of a leaking toilet and kitchen faucet, and the changing of the whole house filter was completed as routine maintenance. The service visit conducted on June 17 by Hobby Plumbing was in response to a complaint of “no water” from the residence and the June 18 visit was follow-up to that same complaint.

The problem of “no water” was attributed to excessive sediment build up and clogging of the sediment filter along the water distribution line. Once replaced, water flowed freely to the house, indicating that well yield (lack of water in the well) was not the problem. Subsequent to Hobby’s service visit on June 17, the water filter has reportedly required changing every two to three days.

Wragg Well Drilling conducted a yield test on the supply well at 8 Embassy Court on June 14, 2013. The test process was started by Wragg lifting the well pump and column pipe off of the pitless adaptor, to bring the column pipe above the top of casing. The pump was lifted to allow the well to be pumped to waste during the yield test. The yield test was conducted by pumping the well at its maximum capacity and drawing the water level in the well down to the pump intake. After the test was completed, Wragg lowered the pump and column pipe to reseat them on the pitless adaptor and reconnected the well to the house’s water system.

Based on the yield test, Wragg Drilling estimated the pump depth to be approximately 80 feet and the yield for the well during the test was 18 gpm, which is more than sufficient to supply a residence (5 gpm is standard for one-family residential homes). These data are comparable to the information from the well log for 8 Embassy Court on file with the Westchester County Department of Health which reports the depth of the supply well at 105 feet and the stabilized yield at 9 gpm.

Based on the description of the test conducted by Wragg Drilling and the timing of the first reported occurrence of “no water” and a clogged sediment filter three days after the well test, it is LBG’s opinion that the excessive sediment which clogged the filter causing reduced flow through the house’s water system was caused by the yield test conducted by Wragg Drilling. The lifting and reseating of the well pump and column pipe conducted as part of the test are sufficient to disturb sediment in a well. The additional stress caused by pumping the well hard (drawing the water level down the pump intake rapidly) likely also contributed by pulling sediment from the bottom of the well and from the bedrock fractures as they were dewatered.

As noted above, the water level measured during the visit conducted by LBG on July 23 was about 52 ft btoc. The water level in the 8 Embassy Court well in May (during the Brynwood well testing period) ranged from 17 ft tboc to 39 ft btoc. This water level data from the May test period was previously provided to you in a letter from LBG dated June 20, 2013. The water level measured by Wragg Drilling on June 14 was reported to be about 32 ft btoc. The decline in water-level from June 14 to July 23 (32 ft btoc to 52 f tboc) appears to be solely the result of low precipitation received during this period and is not related to any activities on the Brynwood property. Note that after the test on the Brynwood property was completed at the end of May 2013, the test wells were capped and no additional pumping of the proposed production wells has occurred.

Based on the water-level data collected by LBG over the 4 week testing period in May 2013, the pumping cycle in your supply well ranged from about 1 foot to 7 feet, depending on the length of time the well pump was running. Even with a water level of 52 ft btoc, there is still sufficient water above the pump to accommodate the pumping cycle in your well without the well running dry.

The continuing clogging of your sediment filter is likely the result of residual sediment discharge caused by disturbance of the well by Wragg Drilling on June 14. Typically, disturbed sediment will settle out over time (if a well is not used), or the well can be cleared by continuous pumping until the well clears. In addition, it is likely that as a result of the June 14 test, sediment has built up in the bottom of your storage tank and is now slowly and continuously releasing into the water distribution system. This can be resolved by flushing the tank.

In regard to the basement flooding caused by clogged drains, LBG does not attribute the drain clogging to any work conducted on the Brynwood property related to well drilling and testing. The Brynwood well located closest to you property (Well 5, located approximately 900 feet away) was drilled in February 2013, long before the flooding problem occurred. In addition, yield testing conducted for Brynwood was completed in the bedrock aquifer, and the drains which clogged causing flooding are located in the overburden soil. Bedrock aquifer tests would not affect sedimentation in overburden foundation drains. LBG could find no correlation other than that the clogged drains occurred near the time of the well sediment issue.

Copies of this letter will be provided to the Town of North Castle and the Town's Hydrogeologic Consultant for their review. Should you have any questions, please contact LBG (203) 929-8555.

Very truly yours,

LEGGETTE, BRASHEARS & GRAHAM, INC.

Stacy Stieber
Senior Hydrogeologist

Reviewed by:

Thomas P. Cusack, CPG
Principal

SS:etn
cc: Adam Kaufman – Town of North Castle
William Canavan - HES
H:\Brynwood\2013\DEIS\8 Embassy Ct complaint response.docx

APPENDIX L

MEMORANDUM

TO: Megan Maciejowski

FROM: John Saccardi, Bonnie Von Ohlsen

DATE: June 5, 2012, Revised July 9, 2013

RE: Byram Hills Student Generation Rates

1. Introduction

The purpose of this memorandum is to clarify some confusion regarding the school generation rates in North Castle (Byram Hills), including the general validity of the Rutgers University Center for Urban Policy Research (CUPR) factors.

As you know, our presentations for the proposed development at Brynwood referred to the Rutgers CUPR multipliers as the benchmark for estimates of school children generation for environmental impact statements in New York State. Although often criticized by community residents as under estimating the projected number of students, we have found this source is reasonably reliable in most instances. However, the data needs to be verified in response to local conditions and to a uniquely designed project, like Brynwood, that addresses an atypical market.

The basic ratios cited in our presentations have been:

Unit Type	Public School Student Generation Rate per Unit*
2 bedroom condominium flat	0.05
3 bedroom condominium duplex	0.28
5 bedroom single family home alternative	1.03

*Source: Rutgers CUPR. See Table 2 for details.

In the presentations, we noted that the Brynwood condominiums would have even fewer school age children than the Rutgers multipliers would indicate, based on the buyer profiles for this unique product, which are significantly different from a typical condominium developments covered by Rutgers. The total costs for the unit (purchase price, condo fees, taxes and required club membership) and the

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lack of amenities for families with children, would make these condominiums primarily an empty nester product and they would be marketed as such. Hence, a lower generation factor would be realistic and will be used along with the Rutgers CUPR generation factors in the DEIS.

The Rutgers ratios for condominiums were criticized at community meetings citing that they are significantly different from what has been realized locally. Reference was made to the actual number of school children that live at the Whippoorwill Ridge and Whippoorwill Hills developments, particularly in comparison to the estimates reportedly made at the time when these projects were originally proposed. It was stated that the applicants' documents projected very few students, in contrast to the numbers actually realized. In effect, this implied that DEIS numbers and multipliers cannot be trusted.

As a result, we did some independent research based on data obtained from the Town Planning Department and the School District.

2. Comparable Multifamily Condominiums in Armonk

There is nothing in Armonk that is comparable to what is being proposed at Brynwood, certainly not as a golf course condominium, not even a more typical condominium. Whippoorwill Hills, Whippoorwill Ridge and the Cider Mill are three HOA communities at the edge of the downtown area with large single family homes, duplex townhomes and just a few condominium units in multifamily buildings. The predominant type of home (e.g., single family) and the number of bedrooms (e.g., three, four and more) are key factors in the student generation ratios. With these characteristics, the projects would be expected to generate a sizable school age population.

Residents and local officials reported during our discussions that the number of students from these projects far exceeded the DEIS documents that were prepared in the mid-1980's. We FOILed the documents from the Planning Department archives. There were DEISs for Whippoorwill Ridge and Whippoorwill Hills; both had school children estimates. There was no DEIS for the Cider Mill in the file, presumably given the more modest size of the project. Therefore following data comparison focuses on Whippoorwill Ridge and Whippoorwill Hills.

At the time of the applications, both Whippoorwill projects called for townhouse developments. The following school children projections, based on Westchester County data and North Castle Town consultant data, were cited in the documents:

Whippoorwill Ridge: 96 units, 21 school children

Whippoorwill Hills: 323 units, 89 school children

Total both projects: 419 units, 110 students

At some point prior to construction, it appears that the projects were significantly changed to a mix of single family homes, duplexes and condominiums, with a combined total of approximately of 205 units; roughly half of the proposal from the 1980s. Specifically, Whippoorwill Hills went from 323 units to 150 units. Whippoorwill Ridge went from 96 to 55 units.

In order to obtain the actual number of students, we went to the School District, and received data on the number of students signed up for bus transportation. We also reviewed the PTSA student directory, which provides Byram Hills students by street address. Based on this data, the number of school age children actually realized in Whippoorwill Hills and Whippoorwill Ridge is 119 (excluding 19 students at the Cider Mill development for which there was no DEIS in the Town's archives). See Table 3 below.

Although it is interesting that the DEIS projections and the actual number of students are similar (119 realized in 2012 vs. 110 projected 30 years earlier), this does not help in the analysis of the generation ratios, since the projects were so dramatically changed from the initial planning to the actual construction. It does, however, explain what likely occurred in the past nearly three decades from when the projects were originally proposed.

In order to further consider the generation factors, we took a closer look at the number of units actually built at these projects, applied the Rutgers generation ratios, and then compared the results to the actual school district numbers provided by the district. This would be a better test of the general validity of the Rutgers ratios. For this comparison, we were also able to include the Cider Mill.

Based on field work, aerial photographs and sample unit information from Houlihan Lawrence, we assigned bedroom sizes to the estimated 115 single family homes, the 93 townhouses and the 24 condominium units. As indicated on the following tables, the Rutgers student generation ratios result in an estimate of 153 students for this housing mix, compared to the school district number of 136* students signed up for bus transportation. The estimated 153 students actually represent a 0.66 ratio compared to a ratio of 0.59 actually realized.

Table 1: Total Units/Estimated Distribution - 3 Projects

	Single Family Detached	**Attached Townhomes**	**Condo/Apts** (in two bldgs/8 units per bldg)	**Total**
Whippoorwill Hills	62	64	24	150
Whippoorwill Ridge	37	18	0	55
Cider Mill	16	11	0	27
totals	115	93	24	232

Source: Estimated based upon aerial photograph and field review

Table 2: Estimate of School-Age Children in Public Schools (Combined 3 Projects)

	Number of Units	CUPR Multiplier	Number of School-age Children in Public School
Single family detached/ 4 BR	115	0.87[1]	100
Townhomes/attached/3 BR Townhomes/attached/4 BR	61 32	0.28[2] 0.92[3]	17 30
Condos/Apt Bldg 1 BR 2 BR 3 BR	 6 15 3	 0.15[4] 0.15[5] 0.49[6]	 1 3 2
Total	**232 units**		**153 school-age children** *(136 signed up by BHSD)*

[1]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units for Single Family Detached, costing more than $329,500 (4 bedrooms)
[2]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units for Single-Family Attached housing, costing more than $269,500 (3 bedrooms)
[3]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units for Single-Family Attached housing, costing more than $224,500 to $329,500 (4 bedrooms)
[4]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units in buildings with 5+ units, all values (1 bedroom)
[5]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units for Single-Family Attached housing, in buildings with 5+ units, costing between $135,00 to $329,500 (2 bedrooms)
[6]**Rutgers University Residential Demographic Multipliers** (June 2006): New York, School age children in public schools, ownership units in buildings with 5+ units, all values (3 bedrooms)

Thus, it appears that the Rutgers CUPR numbers are reasonably accurate in this case, as we expected from years of experience with this source.

3. Single Family Homes in the Byram Hills

The Rutgers CUPR student generation factors were also criticized for single family homes.

Given the quality and reputation of the Byram Hills schools, many residents indicated that the Rutgers ratios for the single family home alternative were low and that at least 2.0 students per housing unit could be expected. Although many households have pre-schoolers, recent high school graduates and private school students, 2.0 was repeatedly cited as a more realistic ratio. However, a 2.0 ratio does not necessarily coincide with overall demographic data from the school district and the US Census.

~~According to the Westchester-Putnam School Boards Association report, entitled "Facts and Figures, 2010", there were 2,810 students in the BHSD in 2009-2010, with a total district population of 12,800 persons. Based on the Census, the 2010 population of the Town includes 2.86 persons per home. Applying that factor, the 12,800 persons, at 2.86 persons per home (Source: Town website, Town Life –~~

~~Demographics), would yield about 4,476 housing units in the school district, with a resulting ratio of 0.63 students per dwelling unit (2,810 divided by 4,476).~~

According to the 2010 US Census, there were 2,714 students in the BHSD in 2010-2011[1], with a total district population of 11,422 persons[2]. The average household size in the BHSD was 3.10 and there were 3,679 occupied housing units[3]. This results in a ratio of 0.73 students per dwelling unit (2,714 divided by 3,679).

We recognize that these gross numbers are not sufficiently accurate for DEIS purposes. As previously noted, in April we met with the school district officials (former Superintendent and new Superintendent) who supplied more detailed data. This included information from the transportation office on students signed up for bus transportation on seven projects in the Town, including four single family subdivisions; some of fairly recent construction. The student directory from the Byram Hills PTSA provided the number of students by street address. Although there are some unexplained differences in the pupil counts, the overall numbers provide very useful information on school children generation

Table 3 lists the approximate number of students and the estimated number of dwelling units, based on available data, aerial photographs, etc.

Table 3: Project-Specific Data

Development	Homes	Public School Age Pupils*	Ratio
Whippoorwill Ridge	150	82-103	0.68
Whippoorwill Hills	55	15-16	0.29
Cider Mill	27	11-17	1.36
Thomas Wright and Sands Mill	88	115-120	1.36
Leisure Farms	31	36-43	1.39
Windmill Farms	377	277-285	0.76

* Directory and bus transportation figures—higher number used for the ratio.

The total number of units in the seven developments is 728. The highest number of total students from school district sources is 579; this results in an overall ratio of 0.795 students per dwelling unit. This includes a variety of housing types which is similar to the gross factor for the census and BOCES. Again, more detailed information is needed for the DEIS.

[1] Source: National Center for Education Statistics (compiled from 2010 US Census).
[2] Source: Small Area Income and Poverty Estimates (compiled from 2010 US Census).
[3] Source: National Center for Education Statistics (compiled from 2010 US Census).

With regard to all the locally derived data, the School District officials acknowledged the differences in the total number of students from the two sources, and concluded that the higher numbers should be used for conservative analyses. The district also cautioned that the directory could have missed a few students since it only includes PTSA member families. In response we counted the total number of students in the directory and compared it with the total for the school district, noting a discrepancy of 3%. As a result, if we increased the totals for the seven projects by 1.03, the result would be 596 students with an overall student generation ratio of 0.82.

For the four single family home developments in the table above, the ratio is 0.93 students per home (461 students in 496 homes). Excluding Windmill Farms, an older development, the ratio is 1.41 students per home (168 divided by 119).

4. Conclusions

Although the Rutgers CUPR school children generation factors are reasonably accurate for condominiums in North Castle, they do not reflect the golf course condominium units as proposed at Brynwood. To be conservative, the DEIS will run the school children generation analyses with both the Rutgers derived numbers and with a lower ratio that better reflects the nature of this housing product.

For the single family homes alternative, two sets of numbers will also be utilized; the Rutgers CJUPR student generation ratios, and the Byram Hills School District factors given to us by the district, for the newer subdivisions.

APPENDIX M

Integrated Turfgrass and Pest Management Plan (ITPMP) with Environmental Risk Assessment for the Brynwood Golf and Country Club, North Castle, NY

Prepared By

A. Martin Petrovic, Ph.D.
62 East Seneca Road
Trumansburg, New York 14886

And

Andrew S. Thompson
Golf Course Superintendent
Brynwood Golf & Country Club
Troon Golf, Inc.

March 11, 2013
Revised October 28, 2013

INTRODUCTION

A properly maintained golf course with established turfgrass cover and mature tree stands provides much-needed green space relief from urban development. The filtering ability of dense, healthy turf and its thatch layer can be utilized to ensure pollutants do not reach groundwater or enter rivers and streams. A golf course can be an attractive and effective transition between agricultural and urban landscapes and provides for the preservation or creation of areas useful to wildlife. When managed in an environmentally conscious manner, golf courses can enhance the quality of life within a neighborhood.

This report is the Integrated Turfgrass Management-Environmental Risk Assessment Plan (ITPMP) for the Brynwood Golf and Country Club. The ITPMP contains a program of fertilizer, pest control options and other maintenance practices to be used on this golf course. This program was designed to serve as the maintenance blueprint for Brynwood Golf and Country Club. The ITPMP relies heavily on environmental friendly practices including the use of: natural organic fertilizers that suppress diseases, pest resistant grasses, biological control material as the first line of defense against pests and careful use of fertilizers and water for irrigation.

In general, golf course superintendents, as a group of professionals, are committed to the preservation of the ecology and the wildlife and share the concern for the preservation of the golf course site's environmental quality. The golf course superintendent, with the use of the Troon Golf Standards and Procedures Manual, will be responsible for implementing this ITPMP program.

As with any new or existing golf course, a fertilizer and pest control program must show flexibility to deal with two very important variables: weather and nature. The initial year(s) or grow-in period that often lasts up to 2 seasons will require higher than normal annual inputs of fertilizers and limited use of pest control materials in order to promote rapid establishment of cover, which reduces soil erosion and minimizes the likelihood of weed infestation.

The basic philosophy of this ITPMP is to produce a healthy pest-resistant golf-playing surface that will have little or no impact on the surrounding environment. Selection and use of fertilizers and pest control materials will be based on producing a healthy plant while not contaminating either surface water (via runoff) or groundwater (via leaching). There is little or no evidence that golf courses have or will contaminate surface or ground water (Baris et al., 2010, Cohen et al., 1990, 1999; Cohen and Durborow, 1994; Petrovic, 1994; Shirk, 1996). There are over 40 golf courses in the NY, NJ and CT region that are using an ITPMP developed by Petrovic, many with surface and ground water quality monitoring. It has been found following these site-specific ITPMP has resulted in protection of surface and ground water quality for contamination from either nutrients or pesticides.

The golf course superintendent of the Brynwood Golf Course will utilize every available method to minimize the risk of contaminating any surface water or ground water. Thus, the purpose of this report is to present a site specific analysis that meets the goals of having a healthy pest-resistant golf playing surface that poses little or no threat to the environment on or surrounding this site. The ITPMP conforms to the principles of sustainable resource management developed by Audubon International for golf courses.

The property is currently working towards becoming a Certified Audubon Cooperative Sanctuary. Audubon provides the tools to thoroughly perform a site assessment of our property and form an environmental plan of action which we can implement to help effect our wildlife habitat and wetland management, reduce our chemical use and create and safer protocol for needed use, become more efficient with our water use, manage the quality of not only our water systems on property but surrounding water systems as well as groundwater, and finally will help us to reach out to our surrounding community to educate and communicate what Brynwood is doing to positively impact the local community. Implementation of new environmental programs and initiatives will help improve our environmental performance and community relations, reduce our environmental and legal liability, have a significant impact on our financial bottom line, and overall will enhance our contribution to the conservation of environmental resources.

The ITPMP also conforms to the best management practices for golf course turf management being developed by Cornell University (Petrovic a co-author).

The report presented here was compiled from the following information: review of IPM plan from Troon Golf, site specific soil properties from VHB and corresponding soil data provided by the USDA- National Resource Conservation Service for these soils, the hydrogeology, groundwater and water supply information from VHB, environmental fate assessment (risk to surface and ground water) of the currently registered pesticides in the state of New York for golf course use by model simulation (WIN PST, pesticide risk assessment models developed by USDA-NRCS), worst case scenario estimates of pesticide concentration in surface and ground water and extensive literature search on the environment fate of fertilizers and pesticides, integrated pest management programs and fertility requirements for golf course turf. This report provides an environmentally sound fertilizer and pest management program to be followed by the golf course management personnel. Any chemical (fertilizer or pesticide) found by this environmental risk assessment to pose a high risk to humans or aquatic wildlife in either surface or groundwater will not be recommended to be used on this golf course. A few pesticides with an intermediate risk to humans or aquatic wildlife may be used on a very small area (greens) under very controlled conditions as a last resort when other control measures are lacking.

For the pests that are likely to invade Brynwood Golf Course, there are several pesticides registered for their control. Taking this into consideration as well as the need to protect surface and groundwater from contamination and to reduce the exposure of humans and wildlife to highly toxic pesticides, pesticides were selected that have a low potential for either leaching or runoff from the soils on this site. The evaluation included determining the potential of each registered pesticide for contamination of water on a soil-by-soil basis based on soil properties of this site.

In order to preserve and enhance the natural resources, this design and management plan has adopted the principles in the following report.

I. Planning and Policies

The project team is committed to the enhancement of the Brynwood Golf Course by incorporating environmentally responsible golf principles in all aspects of planning and development of this site. The environmentally responsible golf principles include: designing the golf course with care to protect environmentally sensitive areas and to minimize the micro-climatic conditions that favor pests and discourage healthy turf; use low maintenance-pest resistant grasses; follow sound integrated pest management (IPM) practices that use pesticides as a last resort and only pesticides with a low risk to humans and wildlife; careful and precise use of water and fertilizers to provide for healthy-pest resistant turf while minimizing the impact on environment.

II. Alternative Pest Controls

The Brynwood Golf Course will employ IPM techniques to minimize pest problems. This includes:

a) Reliable and accurate pest identification
b) Monitoring pest populations and related damage to ensure treatments will only be applied where and when necessary and when they will be most effective.
c) Establishment of injury levels that can be tolerated before control measures are implemented.
d) Use of combinations of the following treatment methods to control pests in a manner that achieves a high level of effectiveness while minimizing environmental impact.

i) Biological Controls - release of predatory/parasitic insects, conservation of natural enemies.
ii) Cultural Controls - use of resistant cultivars, encouragement of diverse plant communities, optimal management of irrigation, aeration and other management techniques to maximize plant vigor and reduce susceptibility to pests.
iii) Physical Controls – after construction sanitation, pruning, protective weed barriers, etc. will be used to reduce weed problems.
iv) Mechanical Controls - roto-tilling areas repeatedly to kill perennial weeds during renovations, etc.
v) Chemical Controls - use of products that are target specific, have short residual lives and have low environmental impacts.

For each pest anticipated on this golf course, the following is a detailed IPM plan. The basic premise underlying this integrated pest management (IPM) plan is that a healthy plant will be most resistant to pest attacks and will recover much faster than less healthy turf. Therefore, the golf course superintendent will follow the standard accepted maintenance practices like proper mowing (height and frequency); topdressing and cultivation for thatch management and compaction alleviation as examples. What follows is a discussion of practices that more directly affect pest problems and are part of the IPM program.

Each golf course is managed differently based on numerous factors. The following is the recommended management routine that is typical of similar golf courses in the area.

<u>Mowing</u>: Greens and tees will be mowed 6 to 7 times per week during the major growing portion of the year (April-November). Fairways will be mowed 3 to 5 times per week with clippings left in place whenever possible. Roughs will be mowed one to three times per week and clippings left in place.

<u>Clipping Management</u>: Clippings collected from greens, and tees will either be spread in rough areas or be part on the on-site compost-recycling program. Clippings from all other areas will be left in place whenever feasible. If cutworms become a major problem on greens/tees, clippings from greens/tees in June and July will not be place within 100 feet of any green to reduce the population of cutworms.

<u>Cultivation:</u> Several times each year, the greens, tees, fairways and trafficked sections of the roughs will be cultivated to alleviate soil compaction caused from foot traffic from golfers and vehicular traffic. The cultivation methods used will include shallow core cultivation, deep drill and water injection on greens/tees during the summer months if necessary. A soil penetrometer will be used to judge the need for cultivation. Compacted soils are much more prone to runoff and therefore, cultivation is necessary to protect surface water quality.

<u>Topdressing:</u> Topdressing is a practice of adding a small amount of soil (sand) to the surface of the turf so as to reduce the development of thatch while smoothing and firming the putting surface. Greens and tees will be topdressed with the same material used to construct the root zone typically on a bi-weekly interval during most of the active part of the growing season or as needed based on the turfgrass growth rate.

<u>Pest Management Goals and Philosophy</u>

The basic goal and philosophy of this Integrated Pest Management (IPM) program is to produce a healthy, pest resistant golf-playing surface that will have little or no impact on the surrounding environment. Every available pest management practice will be utilized with the goal of using pesticides as a last resort after all other control options have been followed. The sections of the golf course to be renovated provides the opportunity to construct a system that is less prone to stress, which is often the main cause of pest damage or invasion of weedy species. This can be accomplished by: 1) establishing grasses that are best adapted for the golf courses and are pest resistant, 2) by providing a soil system to minimize the stress caused by the golfer and is well drained and 3) reducing moisture plant stress by having an irrigation system that can provide the necessary amount of water needed by the plant (thus reducing over irrigation which can lead to the potential for ground/surface water contamination or more pest problems). Thus, the purpose of this IPM Program is to summarize the approach that meets the goals of developing a healthy pest resistant golf-playing surface that poses little or no threat to the environment on or surrounding this site. This IPM plan is to be used as a decision making tool by the golf course superintendent.

The components of this IPM plan are: proper grass selection, mapping of the property, developing the site specific pest knowledge base, yearly IPM plan development, using action thresholds, soil, plant tissue and water testing, weather record collection, pest management options (cultural, biological and pesticidal) and yearly evaluation on the effectiveness of program and modification of plan.

Turfgrass Selection: Performance and Pest Resistance Criteria

Even though there are over 7,500 species in the grass family, only a handful of species is used on golf courses. The main reason for such a few species being used is the relatively short cutting height demands of golf course playing conditions. For greens in New York, only two species could be used, creeping bentgrass (*Agrostis palustris*) and velvet bentgrass (*Agrostis canina*). Velvet bentgrass is currently being evaluated and in the future may be a grass to use, but has been experiencing problems of withstanding and recovering from traffic. There are several varieties of creeping bentgrass available. The one best suited for the climate and with good resistance to the major disease problems anticipated at this golf course (Anthracnose, Brown patch and Dollar spot) and reduces annual bluegrass invasion should be used at Brynwood. Varieties of creeping bentgrass to be used on greens will be selected by the Troon Golf Sr. Vice President of Science and Agronomy, the golf course architect and golf course superintendent based on varieties suited best for New York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Options for grasses on tees and fairways/approaches are somewhat broader. Tees can use creeping bentgrass and in a few cases a slightly higher turf like Kentucky bluegrass (*Poa pratenses*). On the golf course at Brynwood, fairways could be either be a mixture of Kentucky bluegrass with perennial ryegrass (*Lolium perenne*) or creeping/colonial bentgrasses with fine fescues. The advantage of perennial ryegrass is that it requires less water, has somewhat less disease problems, is resistant to surface feeding insects (if endophytic varieties are used, which is highly recommended) and does not produce much thatch that can be harmful to turf. Perennial ryegrass, however, is a short lived perennial requiring at least bi-annual over-seeding, is subject to winter kill during prolonged periods of ice cover or hard winters, and has been heavily damaged by a new disease called gray leaf spot. Due to gray leaf spot problems on perennial ryegrass, fairways will be established with blend of several low maintenance bentgrass cultivars with other grasses. Tees will be established with creeping bentgrass. The varieties to be used will be suited best for New

York based on Nation Turfgrass Evaluation Program (NTEP) USDA data and from the Cornell University Turfgrass Program.

Roughs are often established with very low maintenance grasses that are mowed higher than fairways/approaches, are to be irrigated less and require minimal fertilization. This golf course will establish the primary roughs with this in mind using a mixture of fine fescues (red, chewing or hard fescue, all *Festuca*) and low maintenance Kentucky bluegrass. At least two varieties of each species should be used to seed roughs to increase the genetic diversity so as to be ecologically competitive under the ever-changing climatic conditions. The final selection of cultivars will be made at the time of seeding using NTEP data and recommendations from Cornell University Turfgrass Program. Native areas that receive limited mowing and play will be established with fine fescues.

Establishment Methods and Seeding Rates

All fairways and roughs will be seeded and mulched used to enhance germination and reduce the potential for erosion. The elevated areas around the greens and tees maybe stabilized with a lightweight non-woven erosion control blanket or sodded. The playing surface of the greens and tees will be seeded with drop or cyclone-type seeder. Seeding rates are as follows: greens and tees will be seeded with creeping bentgrass at a rate of 1.5 lb. of pure live seed/1000 sq. ft. Fairways and tees will be seeded at a rate of 65 lbs./acre and the rough at a rate of 174 lbs. seed/acre.

A starter fertilizer will be applied just prior to sodding or seeded after final grading is complete (construction). For greens and tees, 1 to 2 lbs. of nitrogen/1000 sq. ft. will be applied prior to seeding and then the first year fertilization program will be followed as found in Tables 5 & 6. On fairways and roughs, a starter fertilizer will be used to supply about 0.5 lbs. of N/1000 sq. ft. and then followed by the nitrogen fertilization program shown in Table 6. The amount of other nutrients (phosphorus, potassium, calcium and magnesium) will be applied prior to seeding or sodding on greens, tees, fairways and roughs based on soil test recommendations so as to provide for rapid establishment, less erosion potential and less chance of phosphorus runoff. Based on the New York State Law and Westchester County Law, phosphorus can be applied to sites being established or renovated.

Based on the pest occurrences of golf courses in New York, Table 1 contains the anticipated pests for Brynwood Golf Course.

Table 1. Anticipated pests on Brynwood Golf and Country based on current pest occurrences.

Occurrence	Greens	Tees	Fairways	Roughs
Frequent	Dollar Spot, Anthracnose Hyperodes,	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes	Dollar Spot, Hyperodes, Crabgrass, Goosegrass, Broadleafs
Occasionally	Brown Patch, Summer patch, Yellow Patch, Pink Snow Mold, Moss/Algae Cutworms, Annual bluegrass	Summer Patch, Brown Patch, Anthracnose Pink Snow Mold, Cutworms, White Grubs, Annual bluegrass	Summer Patch, Anthracnose, Brown Patch, Pink Snow Mold, Cutworms, White Grubs Annual bluegrass	Red Thread, White Grubs, Chinch bugs
Seldom	Pythium, Gray Snow Mold, Leaf Spots, Necrotic Ring Spot, Red Thread, White grubs,	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring, Red Thread, Crabgrass, Goosegrass, Broadleafs	Pythium, Grey Snow Mold, Leaf Spots, Necrotic Ring Spot, Fairy Ring,

It is anticipated that these pests will occur during the periods shown in Table 2.

Table 2. Occurrence of anticipated pest on Brynwood Golf Course.

Pest	Month(s) of Pest Occurrence
Diseases	
dollar spot	May-September
brown Patch	July-August
pink snow mold	November-April
red thread	May-October
summer patch	June-August
Insects	
white grubs	July-May
cutworms	May-September
chinch bug	June-September
Hyperodes	April-August
Weeds	
broad leafs	all year
crabgrass	May-October
annual Bluegrass	all year
moss	all year

The scientific names and biological information for each pest are contained in the following section. This list will be updated as site-specific pest knowledge is obtained.

IPM Plan

The IPM plan for Brynwood golf course is broken down by pest management group and contains pest biology information for New York State (Rossi et al., 2013), actions thresholds, cultural control, biological control and pesticide control options to be followed by the golf course staff. All control options will be integrated and implemented with pesticides only being applied as a last resort when other methods have failed and significant pest damage is likely. All pesticide for use on Brynwood golf course have a low potential for both surface and ground water contamination (based on the risk assessment found later in this report) except where noted for reasons of the lack of control with other options.

DISEASE PESTS

Two out of the six pests that are anticipated to occur most often on this golf course are diseases. Fungi cause most diseases that attack turfgrass. The following are descriptions of each of the most prevalent diseases (frequently and occasionally, Table 1) and the "state of the art" IPM practices that will be followed on this golf course:

Dollar Spot (Sclerotinia homoeocarpa)

Dollar Spot is a foliar disease that is favored by temperatures between 61-81° and too low a level of a nitrogen level in the plant tissue. It will likely be the most prevalent disease on this golf course and would occur on this site from June to September. Dollar spot is easily recognizable, slow to develop and to cause damage. Bentgrass used on greens will be the most susceptible of the grasses used. The use of bentgrasses on greens that have a low amount of dollar spot is necessary. Daily scouting should be used to determine the extent of occurrence and range of this disease on the golf course. Natural organic disease suppressive fertilizers like Ringer Compost Plus and Greens Restore have been shown to reduce the incidence of Dollar spot by 45% (Nelson, 1990) and will be used as part of the fertilization program. Tissue testing may be used to help maintain the nitrogen level (>4.5%) in the plant at a level to suppress disease development.

Biofungicides that can be used are (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide) and *Pseudomonas aureofaciens* strain TX-1 (Spot-Less Biofungicide).A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce dollar spot problems, especially in combination with the fungicide boscalid (low risk pesticide on this site). Damage from this disease even with these cultural and biofungicides controls may exceed the acceptable level on this golf course; thus, fungicide applications are very likely to be needed. Fungicides should be used only when 1) an outbreak in indicator sites has been observed in excess of the threshold (5 spots/sq.yd. for greens/tees and 10 spots/sq.yd. for fairways) and when weather conditions still favor disease development (temperatures 70 to 85 F and humid. The Dollar spot predictor (http://www.nrcc.cornell.edu/grass/) will also be used to determine the risk of a dollar spot outbreak. Fungicides to be used first must be registered for dollar spot control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Anthracnose (Colletotrichum graminicola)

Symptoms of this disease can be seen in cool, wet weather but the most likely period of turfgrass damage can be seen in warm weather (71-82° F) under drought conditions. Anthracnose is most damaging to annual bluegrass and creeping bentgrass during drought conditions and when the plants are deficient in nitrogen. It is likely that this stress-induced disease may only be a minor pest problem on golf courses, especially if annual bluegrass encroachment is discouraged and stress levels reduced through proper management (i.e. fertilization, irrigation, and the use of compaction resistant/well drained soils on greens/tees).

This disease is most likely to occur during warm summer months of mid-June through August. Scouting should be done if this disease becomes a recurring problem. A threshold has not been established for anthracnose. Biofungicide that can be used is (see Table 3 for more details) are *Bacillus licheniformis* strain SB 3086 (EcoGuard Biofungicide). A mineral oil made from isoparafin (Civitas with Harmonizer) has been shown to reduce anthracnose problems. Fungicides to be used first must be registered for anthracnose control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Brown Patch (Rhizoctonia solani and zeae)

This disease occurs under conditions of warm (>85 F) and very humid weather as well as in cool wet weather. It is expected that the warm weather Brown patch will occur in July to September during most years and the cool weather version in April/May and September/October. Conditions that can reduce the severity of this disease are to avoid excessive nitrogen fertilization, to water minimally and provide for good air movement and water drainage. All three of these practices can be followed where possible. The fertilization program will provide optimum level of nutrients for plant growth based on soil tests, grass nutritional requirements. Nitrogen fertilization should be suspended prior to favorable Brown Patch conditions. Part of the fertilization program will also contain disease suppressive, highly composted natural organic fertilizers (i.e. Sustain and Ringer) that have been shown to reduce the incidence of Brown patch by 75% (Nelson, 1990), thus reducing the need for fungicides. Irrigation will be provided to supply only the amount needed to replace the amount used by the plant.

The presence of Brown patch will be confirmed by daily scouting during periods of warm to hot weather is highly recommended and treatments made if the threshold is exceeded (one spot/yd. on greens/tees and two spot/yd. on fairways) and 24-48 hr. weather forecast indicates conditions are favorable for disease development. The pesticide selection is based on the risk assessment where only fungicides with a low potential for both surface and ground water contamination will be used (Table 7). The selection procedure will also involve following a program to reduce the chance of developing a strain of fungi resistant to a specific fungicide or class of fungicide. If more than one fungicide is needed to control Brown patch in the same year, then a different type/class of fungicide would be used next. Classes of fungicides would also be rotated. For every other systemic fungicide application a benzimidazole class fungicide would be used, then followed by one of the dicarboximides fungicides or sterol inhibitors. This rotating of classes/types of fungicides will be followed for all diseases.

Pink Snow Mold (Microdochium nivale)

Pink snow mold is a fungal disease that is favored by temperatures in the range of 32 to 40 F and wet conditions with or without snow cover. It is likely to occur on this site from November to April the following year. Avoiding heavy late fall water- soluble nitrogen application can reduce the severity (no late nitrogen applications will be made). However, fungicides are the only control method available at this time although there is some disease suppression with the natural organic fertilizers to be used on this golf course. Scouting is not practical for this disease with snow cover. During other cool-wet periods without snow cover, scouting should be followed before a treatment is made. If the threshold of one spot/sq.yd. on greens/tees and two spots/sq.yd. on fairways is exceeded and short term weather forecasts are calling for cool-wet weather (32-40 F), then a fungicide application will be made. Fungicides to be used first must be registered for pink snowmold control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Summer Patch (Magneporthe spp)

These diseases will most likely be found on this site from June to August. Over fertilization with nitrogen and extremes in water will increase the likelihood of the disease. The damage to the turfgrass plant occurs in April-May, well in advance of the symptoms. Thus, a preventative fungicide program is necessary on sites that have had a history of Summer Patch (azoxystrobin, fenarimol, myclobutanil or triadimefon) and Take-all patch (azoxystrobin or fenarimol) problems. A fungicide application needs to be made in the spring before June. Fungicides to be used first must be registered for Summer patch control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Table 3. Bio-fungicides.

Common Name	Sample Trade Name(s)[1]	Formulation[2]	Rate Range (per 1,000 sq. ft.)	FRAC Code	EPA Reg. No.
Bacillus licheniformis strain SB 3086	EcoGuard Biofungicide	0.14EC	20 fl. oz.	NC	70127-2
Bacillus subtillis, strain GB 03	Companion Liquid Biological Fungicide		4-6 fl. oz.	F6	71065-3
Bacillus subtilis, strain QST 713	Serenade Garden Lawn Disease Control	1.34 F	5.0 fl. oz.	F6	69592-12
	Rhapsody	1.34F	2.0-10.0 fl. oz.	F6	69592-19
Pseudomonas aureofaciens strain TX-1	Spot-Less Biofungicide	1L	0.73-1.47 fl. oz.	–	75801-1
Polyoxin D Zinc salt	Endorse	2.5W	4 oz.	19	66330-41
Mono and di-potassium salts of phosphorus acid	Vital	54.5EC	3.0-6.0 fl. oz.	33	42519-24
	Magellan	52.6L	4.1-8.2 fl. oz.	33	228-387

[1] Trade names shown are examples of products available and are not meant to be an exhaustive list.
[2] EC = emulsifiable concentrate; F = flowable; L = liquid; W = wettable powder. Rossi et al., 2013)

WEEDS

It is anticipated that, after the first year of establishment of this golf course, weed problems will tend to be minimal. This is a result of sound golf course cultural/pest control practices that will produce a dense-competitive environment against weed encroachment. Thus, the anticipated weeds on this golf course will be limited to annual bluegrass (potentially on all sites of the golf course), moss on greens and broad leaf weeds (limited mostly to fairways and roughs).

Annual Bluegrass

Annual bluegrass (Poa annua spp. Reptans/annua) is a very common weed that invades golf courses. It is well adapted to short mowing, heavily trafficked sites, soils high in pH and phosphorus, and wet soil/poorly drained conditions. Thus, the management program of this golf course is designed to reduce annual bluegrass competitiveness by: 1) keeping soil pH at 6.5 or below, 2) providing for good drainage, 3) irrigating to a minimum, 4) using compaction resistant soils (like the sand used on greens), 5) following a disease/insect management program to maintain a dense turfgrass stand and 6) following a fertilization program that is optimal for the growth of the turfgrasses used here but not too high in phosphorus, which favors annual bluegrass.

Even with all of these measures, annual bluegrass can still invade this golf course. Thus, it is anticipated that some other control measures will be necessary. There are experimental biological control agents for annual bluegrass that may someday be commercially available. Chemical control is limited and generally involves the use of either plant growth suppressants or a traditional herbicide.

Each spring and late August the amount of annual bluegrass for all greens and fairways will be mapped. When the late August mapping indicates more than 1% of the area contains annual bluegrass plants some form of treatment will be necessary to further reduce its spread. The Type II Plant Growth Regulators' (paclobutrazol and flurprimidol, each has a low or very low risk of surface or groundwater contaminations, Table 7).) have been shown to be the most effective in reducing annual bluegrass populations over a period of time. Higher cut creeping bentgrass turf on fairways tends to be a more conducive environment for reducing annual bluegrass compared to putting greens and tees with more chronic and focused surface disruption.

The most effective programs include multiple applications throughout the season that provide a cumulative reduction. Type II Plant Growth Regulators' programs have been shown to reduce fairway populations as much as 70 percent in two years. This type of success is usually achieved when a comprehensive cultural management program of reduced fertility and irrigation plus over seeding programs to favor the more hardy and desirable creeping bentgrass turf are used.

Broadleaf Weeds

Broad leaf weeds (BLW) commonly occur on established golf course fairways and roughs and thus are considered a major pest problem on these sites. Clover is a commonly occurring BLW that is favored by soil pH around 7 and by dry soils. Thus, on this golf course it would be anticipated that clover would be found on the unirrigated areas (roughs) and maybe on fairways. One of the best ways to reduce broadleaf weed problems on golf courses is to produce a dense-competitive turfgrass stand by following the overall turfgrass management program to be used on this golf course: proper fertilization/irrigation practices and reducing pest damage that opens the turf to invasion by weeds. However, broad leaf weeds may likely still invade this golf course. Weed population and locations will be scouted and mapped at least twice a year (early June and mid-September). Since broadleaf weeds may be confined to a small area, pesticide applications will only be made on areas with weeds present in excess of the threshold; two weed plants per sq.yd. on fairways and five per sq.yd. on roughs, thus reducing the amount of pesticide applied and limiting the treated area. Herbicides to be used first must be registered for broadleaf weed control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Crabgrass

Crabgrass is an annual grassy weed that invades thin turf. Thus, all the cultural practices to be used on Brynwood golf course will encourage a dense stand of turf and reduce the incidence of crabgrass. Practices such as the fertilizing, irrigation and disease/insect control programs to be used on this golf course will produce a dense turf that restricts light from reaching the soil surface. Crabgrass seeds require light for germination or open soil patches at least 2 inches in diameter. These management practices help significantly; however, when a golfer takes a divot the soil is exposed to light and crabgrass seeds can germinate and invade the turf. Some fine fescue varieties have been shown to resist a crabgrass invasion and will be used in roughs to reduce crabgrass.

There are two herbicidal control programs, preemergence and postemergence. These terms refer to herbicide applications made before or after the crabgrass seeds germinate, respectively. The preemergent herbicides must be applied in advance of the period of germination of crabgrass, usually starting in April. A problem with this approach is that you are not sure whether crabgrass will be present or not. If it is not present, then the application has been wasted.

Postemergent herbicides are few and require careful timing for good control. Mapping the amount and location of young crabgrass plants in early summer will be used to determine if small areas will need treatment. All of the management practices listed in this report (fertilization, irrigation, pest control, mowing, etc.) are designed to product a dense turf that reduces the chances of crabgrass invasion. The fairways and roughs will be scouted at weekly intervals starting in early May and continue until mid-August. Sections of fairways with one or more crabgrass plants per sq. yd. and more the 3 for roughs will be considered for a herbicide treatment. Herbicides to be used first must be registered for crabgrass control and also have a low or very low risk of surface or groundwater contaminations (Table 7).

Moss

Bryum argenteum, silvery thread moss, is a significant pest problem on golf courses throughout the US. Superintendent surveys conducted by Cornell University researchers indicate that close mowing and surface organic matter accumulation are highly correlated with increased moss invasion. This is partially done to close mowing of older greens with less dense grasses than the latest bentgrass cultivars. Controlling moss is favored by acid soil/water conditions. The sand used on greens will be of an acidic nature (if available) and irrigation water pH will be carefully monitored. Copper hydroxide and a dish detergent (Ultra Dawn), applied at two-week intervals in both spring and fall, have shown to reduce moss levels to an acceptable level. Copper has an intermediate risk on greens and tees, thus if copper is to be used it must be applied very carefully to only a small areas at a time when the weather forecast does not predict heavy rainfall within 48 hours of the anticipated application (to reduce risk to aquatic wildlife). Recently, carfentrazone (a low risk herbicide) has been labeled for selective moss control in bentgrass golf course putting greens. Carfentrazone is a contact herbicide with little or no residual activity that provides selective postemergence control of broadleaf weeds and silvery thread moss (*Bryum argenteum*) in turfgrass.

Renovation

It may be necessary at times to renovate small section of the golf course. Renovation often includes using a non-selective herbicide to remove the existing weed and turf vegetation. The non-selective herbicides glufosinate or glyphosate will be used or the purpose since they had a low risk to both humans and aquatic wildlife on this site.

INSECT PESTS

Insect problems anticipated on this golf course are restricted to just a few insects mostly Hyperodes on greens, tees and fairways, white grubs in tees and fairways and cutworms on greens. There are grasses that contain endophytic fungi that are resistant to certain surface feeding insects like cutworm, sod webworm and chinchbug. The grasses that will be used in the roughs are endophytic, thus are resistant to the surface feeding insects. Creeping bentgrasses (used on greens/tees and fairways) at this time do not contain endophytes and therefore are not resistant to surface feeding insects. Currently there are no turfgrasses resistant to root feeding insects like grubs.

Biological control options are available for most of the insect pests anticipated on this golf course and will be the first line of control. Only after biological control options have been shown to be ineffective will a synthetic insecticide be used.

One of the best practices to follow in an insect control program is to have a systematic sampling/monitoring scheme. It has been found that insect pests of turf like cutworms and white grubs do not uniformly cover the entire golf course. In fact it has been shown that grubs are confined to certain parts of the golf course and even small sections of fairways or roughs. Therefore, it is highly recommended that prior to any insecticide application a sampling protocol be followed and treatment be confined to only the areas where the insects are found.

Hyperodes

The annual bluegrass weevil (ABW) is a burgeoning pest of turfgrass in the northeastern United States. This native beetle is most prevalent and injurious in low-cut, high maintenance turf such as golf course greens, tees and fairways. The insect was first reported damaging turfgrass in Connecticut as early as 1931. Until the last 20 years or so, damage had been concentrated in the metropolitan New York area. ABW larvae and adults feed primarily on annual bluegrass (Poa annua L.), a major component of many golf course playing surfaces. Annual bluegrass is often considered a weed by golf course superintendents since it is an aggressive invader of newly seeded stands of creeping bentgrass. When annual bluegrass becomes the dominant grass species in fairways and putting greens, however, superintendents resort to managing it, rather than eliminating it. ABW has also been reported to feed on creeping bentgrass and perennial ryegrass. In areas where annual bluegrass is prevalent, high populations of weevils will cause substantial areas of dead turf that affect both the visual and functional quality of golf course turf.

ABW can be challenging to monitor due to its small size. In the spring, mower baskets can be monitored for adults because they are picked up along with clippings. This can be a useful way to stay abreast of when adults are appearing in spring, and, with more careful monitoring, on which areas of the course they are most prevalent. Some areas of the course may always harbor ABW so it is a good idea to monitor consistently those historically affected areas from year to year. Adult ABW reinvade short-mown turf soon after snow melt and soil thaw, from late March to April.

A more site-specific approach to monitor adults is to pour a soapy disclosing solution on the turf. The standard method is to mix 1 fluid ounce lemon-scented dish detergent in 2 gallons water and apply it over to 2-3 square feet of turf. The soap acts as an irritant, forcing adults to emerge from the thatch and ascend to the surface where they can be counted. Shallow soil core sampling or simply digging around at the soil surface/thatch interface will reveal older larvae and pupae. Older larvae look like grains of rice with brown heads; pupae resemble adults but are creamy white until their color darkens before adult emergence. If more detailed information is desired, larvae of all sizes (even stem boring stages) will float to the surface when an infested core is submerged and agitated in a saturated salt solution. This is a good way to confirm that your adult controls were adequate; if too many larvae are found, the application may have been poorly timed to suppress adults and another application against adults of the developing population may be necessary.

Damage thresholds are 30-80 larvae/sq. ft. for the spring generation. Given summer heat stress, thresholds drop to 10-40 larvae/sq. ft. for the summer generation. Nevertheless, field experience indicates that action may have to be taken at thresholds as low as 5-10 larvae/sq. ft. in order to avoid injury and minimize the threat of the subsequent generation.

Traditionally, golf course superintendents have targeted early spring adult populations that represent overwintering insects returning to the short mowed turf. A preventive insecticide application is then made to suppress adult populations before the insects begin to lay eggs. The timing of spring applications can be based on a plant phonological indicator. The most widely used is the period that occurs between Forsythia V. full bloom, and dogwood (Cornus florida L.), full bract. It is better to make the spring application a little late than a little early so aim for the time when Forsythia is in full bloom and has already acquired many new leaves (i.e. "half gold/half green"). Insecticides to be used first must be registered for ABW control and also have a low or very low risk of surface or groundwater contaminations (Table 7). In an additional risk assessment there were two cases where the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two insecticides, bifenthrin and lambda-cyhalothrin, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

Cutworms

Black cutworms are anticipated to be an infrequent insect problem on this golf course. This insect does not usually overwinter in New York. Adults each spring fly in from the southeastern U.S., usually arriving in late spring-early summer (May-June). The adults lay eggs that hatch in two to three weeks as small larvae, the destructive phase of this insect. A second generation can hatch later in the summer. Cutworm larvae spend three days in the soil, often in old aerifier holes. At dusk they emerge and feed on the foliage of the grass and the damage is confined to a small zone surrounding their daytime home.

It is unlikely that the entire golf course at any one time will contain cutworms in excess of the action threshold. Action thresholds will be discussed in a later section. Therefore, monitoring and sampling of the population is necessary to substantially reduce the amount of the golf course that will need to be treated. Scouting for this insect will involve a two-step process. In May each year, 10 to 20 black light and/or pheromone trays will be placed out on the golf course to attract/collect adult cutworms as they arrive at this golf course. Every other day the number of adult black cutworm adults in each trap will be counted. Two weeks after the adults begin showing up in the traps, the second phase of scouting will commence. This involves placing an irritant solution (soap or pyrethrum) on sections of each green, tee and fairway at bi-weekly intervals through June, July and August. If the number of cutworm larvae exceed one/sq.yd. on greens/tees and five/sq.yd. on fairways, then a control regime will be followed. The smaller the larvae the easier they are to control, so the initial scouting is very important. Also, biocontrols are most effective on small larvae. Another cultural control method is to place greens clippings no closer than 100 feet of any green since mowing collects eggs. Several nights mowing (before 3 am) during the first appearance of cutworm has been shown to reduce the amount of cutworm on greens.

The control for cutworms will first rely on a biocontrol method and if this does not give acceptable control (threshold still above limit after one week), then an insecticide will be used. The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT). It takes

2 to 7 seven days to kill the cutworm larvae; thus, one week after the application the areas will be sampled with the irritant solution to determine the effectiveness of the biocontrol. Another biological control option is entomopathogenic nematodes which have been shown to have a good chance of success in managing cutworms. Use the nematode species *Steinernema carpocapsae*. If populations of cutworm larvae are still in excess of the threshold, a second application of the two bio-control materials will be made and effectiveness determined one week later. If after two applications of the biocontrol materials the population of cutworm larvae is still above the threshold limit, then a traditional insecticide (registered for cutworm control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied. As with the biocontrols, the effectiveness of the traditional insecticides will be evaluated one week after application before any additional treatment will be made.

White Grubs

There are several species of insects that have a destructive larval stage known as white grubs. These include Japanese beetle, Oriental Beetle, Asiatic Garden Beetle and European Chafer. The most destructive stages of these insects are their grub or larval stage in which the third and largest instar occurs later in the fall.

The population of grubs will be determined as follows before any insecticidal treatment will be made. Each golf hole will be mapped once in late July or early August each year for the extent, location and species of grub using the maps found in the appendix. Sampling consists of a crew of individuals with cup cutters. On fairways and roughs, taking a sample at 20 yd. spacing will follow a grid sampling technique. Greens and tees will be sampled at 20 ft. intervals. The sample involves extracting the turf and top 2-3" of soil and observing the number and species of grubs in each sample. When the threshold is exceeded, then a treatment will be made. Thresholds are: 18 to 36 May beetle grubs/ sq. yd., 21 to 72 European chafer grubs/sq. yd., 96 to 180 Asiatic garden and masked chafer grubs/sq. yd. and 54 to 180 Oriental and Japanese beetle grubs/sq. yd. Treatments are most effective in early August when the grubs are very small. Spot treatments will be made.

The bacteria biocontrol available is Bacillus thurgingiensis var. kurstaki (BT) will be used first to control white grubs when found on sites exceeding the threshold. The effectiveness will be determined by repeated sampling the treated sites one week after application. An application will only be made if the grubs are near the soil surface and the soils are moist. If the biocontrol applications have failed to lower the white grub population below the threshold level, then an insecticide (registered for white grub control and also have a low or very low risk of surface or groundwater contaminations, Table 7) will be applied to the sites still having populations above the threshold level.

As with the biocontrol nematodes, one week after the traditional insecticide application the grub population will again be sampled on the treated sites and only if threshold levels are still exceeded would an additional insecticide application be made.

Other Insect Pests

There is some likelihood that other insects will attack the grasses found on this golf course. These could include Hyperodes weevil, sod webworm and Ataenius beetle grub. There are biocontrol products (BT bacteria) available for sod webworm and Ataenius control and will be used as the first line of defense. If control is unsuccessful and these insects are still causing damage, then an insecticide will be used.

Pest Scouting, Monitoring and Action Thresholds

Scouting is one of the most common disease management practices followed by golf course superintendents. The extent and form of the scouting program varies widely between superintendents. Many superintendents rely on indicator sites or "hot spots" as areas where diseases (or other pests) first occur and use these sites as early warning signs. Many golf courses are now having pest populations mapped during a scouting visit. In this way a more permanent record of pest pressure is recorded and the effectiveness of control options evaluated. The Brynwood Golf Course will follow an aggressive scouting program as outlined in the discussion section for each pest. The scouting forms found at the end of this section will be used by this golf course to monitor pest populations.

Monitoring for pests involves determining the location and number of pests or area affected by pests. Thresholds for pest occurrence have been developed for many golf course pests and will be used to determine if a pesticides application is warranted. Table 4 contains action threshold values for most of the pests that are anticipated to occur on this golf course.

Table 4. Pest action thresholds for the Brynwood Golf Course.

Pest	Greens/tees	Fairways	Roughs
	--------------------------	#/sq.yd	--------------------------
Diseases			
Dollar spot	5*	10	-
Brown Patch	1	2	-
Pink Snow mold	1	2	-
Anthracnose	------- not determine -------		
Summer patch	UD**	UD	-
Insects			
May beetle grubs	27-36	27-36	27-36
European chafer grubs	21-72	21-72	21-72
Asiatic garden & Mask chafer grubs	96-180	96-180	96-180
Oriental & Japanese beetle grubs	54-180	54-180	54-180
cutworm	1	5	-
Ataenius	270-450	270-450	180
Hyperodes	36	54	72

Weeds

broadleaf's	1	2	5
crabgrass	1	1	3
ann. bluegrass	1	9	-

* #/sq.yd. depending on pest. For diseases of Dollar spot and Brown Patch these are the numbers of spots/patches per sq.yd. For insects and weeds it is the number of each organism per sq. yd. ****** UD=upon detection, in conjunction with weather conditions.

If environmental conditions favor continued pest pressure, the action threshold has been exceeded and other non-pesticidal options have been tried, then a pesticide will be applied. The threshold values may be changed as pest history on this golf course warrants modification (i.e. too much or too little pest damage at a given threshold).

Application Procedures

To protect the adjoining properties from drift of the pesticide spray, all areas to be treated with pesticides, a shrouded sprayer will be used whenever possible to apply pesticides. The shrouded sprayer applies the pesticide spray directly on the turf reducing drift to near zero at wind speeds less than 15 mph. Granular applications will also be used to reduce the potential for any off-site movement of pesticides and fertilizers via spray drift. No applications of pesticides or fertilizer will be made within 48 hours of a predicted heavy rainfall event (except for imminent threat of rapidly developing diseases like Pythium blight and Brown Patch). Only after all other pest management options have been tried will pesticides be applied to areas that exceed thresholds and that the climatic conditions indicated above still favor pest damage so as to minimize the amount of pesticides to be used. Spot treatments will be the rule not the exception.

Anticipated Frequency

Pesticides: It is nearly impossible to develop a pesticide application schedule in advance of the building of a golf course if the principles of IPM are to be followed. The major premise of an IPM program is to use all options in controlling a pest and when it is necessary to apply a pesticide it must be applied at the proper time for optimal control. Only a preventative program could be developed in advance of operating a golf course. Preventative programs are only necessary for a few turfgrass diseases. It would be very likely that an all preventative program would lead to applying fungicides when it was not necessary, increasing the risk of environmental damage and greater likelihood of developing fungi resistant to fungicides. A preventative pesticide program is found at the end of the report.

e. Evaluation of turf management and pest treatment effectiveness to document program successes and determine if changes are necessary.

The as built golf plans will be used to develop a hole by hole GPS map of the golf course to be used to record the location of all pests during scouting and monitoring. As part of a permanent record, the golf course will maintain the pest occurrence maps to be used to develop the site-specific pest knowledge base. This will also be used to evaluate the effectiveness of the current IPM plan and used to modify the plan if necessary.

III. Fertilizer and Pesticide Use and Pesticide Selection based on Risk Assessment

The Brynwood Golf Course will apply fertilizers and pesticides in a very careful manner. The following outlines the practices to be followed:

3.1 Will use only products registered for use in the United States and New York for only their specified and approved function.

3.2 Will store all fertilizer and pesticides in an area conforming to all state and local regulations that include but are not necessarily limited to:

- **a)** a locked area clearly marked to indicate chemical storage;
- **b)** an operating ventilation fan discharging exhaust to the outside clear of windows of other buildings or public areas;
- **c)** a solid floor impermeable to liquid and surrounded by curbing to contain any spilled or leaked material.

Chemical storage facility: Chemical storage facility will be a standalone, pre-fabricated building with air ventilation and circulation systems capable of preventing hazardous gaseous buildup. Building will be climate controlled for both heating and cooling temperature controls. The chemical storage building will also be secured by lock and will be under 24 hour surveillance from closed circuit security system.
Our chemical storage facility will follow all NYSDEC requirements for construction materials to include an impermeable bottom and false bottom containment to hold a minimum 25% volume of stored materials. All electrical systems within storage facility will follow strict coding requirements to include non-sparking procedures for all electrical wiring and components.

Hazardous Material to be generated or stored: - A comprehensive list of fertilizers and pesticides are contained in this report.
- Current gasoline, diesel and heating oil tanks:
  1. 1500 Gallons – Agronomy Gasoline
  2. 500 Gallons – Agronomy Diesel
  3. 500 Gallons – Golf Operations Gasoline
  4. 275 Gallons – Waste Treatment Plant Diesel (generator)
  5. 2000 Gallons – Heating oil Tank at Clubhouse.
  6. 1500 Gallons – Clubhouse Generator Diesel (generator)

7. 1000 Gallons – Irrigation Pump house generator (generator)

- The bulk storage capacities should be maintained at current operable levels throughout the entire project. These will not be available for use for outside contractors, they will be responsible for their own supplies. Bulk petroleum storage tanks are up to code and secured. Going forward it will remain standard operating procedure to perform routine maintenance to insure that these existing, as well as the future, bulk petroleum storage facilities remain up to code.

- All contractors and subcontractors involved in work at the facility will provide their own source of any material labeled or deemed hazardous.

- All chemicals will be stored with the ability to collect any spills. See previous chemical storage facility discussion. All fill stations for chemicals and gasoline will be bermed and with self-contained collection pit to prevent contamination.

- As the project moves forward, any areas of the property that are found to be contaminated will be properly remediated, in line with NYS DEC requirements. Any materials from demolition of old building facilities found to contain hazardous materials will be disposed of by licensed disposal contractor and site will be remediated.

3.3 All mixing and loading of pesticides will be performed in accordance with all state regulations.

3.4 Will dispose of all pesticide containers and pesticide wastes in accordance with provincial regulations.

3.5 All handling and spraying of pesticides to be performed under the strict supervision of trained and licensed pesticide applicators. The golf course superintendent will ensure compliance.

3.6 Pesticides will be applied only when wind conditions ensure a minimum of drift and when there are as few golfers and general public present as possible.

3.7 Protect water quality by maintaining a buffer zone between all water bodies and areas of fertilizer and pesticide application. When pesticides are applied near water, use low-pressure spray nozzles will be used to further reduce chance of drift.

3.8 The golf course will communicate with members of the golfing and non-golfing community the nature of the application. This will be done with posting signs at the clubhouse and the entrance to the golf course indicating the date of the application, the product to be used and a contact person and phone number. This will be done for applications that are schedule in advance. For emergency application, the areas treated will be flagged. Posting at the clubhouse will also be done for the fertilizer application outlined in Tables 4 and 5.

3.9 Apply only the amount necessary to control the target pest and only apply when pest population warrants treatment, as determined by pest monitoring, and only apply to affected areas. The details are contained in the IPM section above.

3.10 Apply fertilizer only in quantities and types that can be utilized by the plant to minimize leaching and runoff potential. Fertilizer laws for NYS and Westchester County will be followed.

Unlike for pesticide programs, it is possible to develop in advance a comprehensive nitrogen fertilization schedule. For other nutrients like phosphorus, potassium, calcium and magnesium, soil test result information will be used to develop the fertilization program. Factors important in the development of such a program include the site specific soil properties, clipping management, nutrient requirements of grass species/cultivar, irrigation plan, desired level of quality, interaction with pest populations and environmental considerations.

Conditions set for in the NYS and Westchester County Fertilizer Restriction Law are as follows:

1. Prohibits the use of phosphorus-containing lawn (any turf) fertilizer <u>unless:</u>

    (a) establishing a new lawn during the first growing season <u>or</u>

    (b) a soil test shows that the lawn does not have enough phosphorus.

2. Prohibit the application of lawn fertilizer on impervious surfaces (sidewalk, drive way or road) and require pick up of fertilizer applied or spilled onto impervious surfaces.
3. Prohibit the application of lawn fertilizers within 20 feet of any surface water except:

    (a) where there is a continuous vegetative buffer of at least 10 feet; <u>or</u>

    (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

4. Prohibit the application of lawn fertilizer between December 1st and April 1st

5. Prohibit the application of lawn fertilizers within 20 feet of any surface water[1] except:

   (a) where there is a continuous vegetative buffer of at least 10 feet; <u>or</u>

   (b) where the fertilizer is applied by a device with a spreader guard, deflector shield or drop spreader at least three feet from surface water

   this does not apply to sites being established

   this is for all fertilizers not just ones that contain phosphorus

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[1] This applies to all fertilizers and not just those containing phosphorus, but does not apply to turf establishment.

To comply with the Westchester County and New York State laws, soil samples will be taken as necessary and tested for plant available nutrients. Such soil test results will be used to determine the amounts of nutrients like phosphorus, calcium, magnesium and potassium that are needed on this site. Soil samples will be sent to Agro-One (see website for details on sampling and sample submission), Ithaca, New York or of an authority of similar expertise which uses recommendations developed at Cornell University or of an authority of similar expertise.

Clippings will be removed from the greens and tees, while clipping will be returned in the fairways and roughs. Clipping management was used in developing the nitrogen application rates shown below. The basic fertilization program is shown in Tables 5 and 6.

<u>Determining Fertilization Applications:</u> Soil testing and visual inspections will be used to determine the need for a fertilization application. A soil testing is used to determine the amount of available nutrients currently found in the soil and the amount of nutrients needed to be applied to provide for healthy plant growth. Soil testing will be used to determine the basic quarterly application rates for phosphorus, potassium, calcium and magnesium. Soil samples will be collected in December on all greens, tees and fairways/approaches until it has been determined that certain sections are similar and fewer samples will be necessary. Soil pH modification will be done to maintain a pH in the range of 5.5 to 6.0, based on the soil testing results. Limestone will be used to raise pH if soil test results indicate the needed and the amount will be based on the soil test recommendation. Limestone applied to turf has been shown to only change pH in the surface few inches of the soil.

Table 5. Recommended fertilization program for the greens/tees at the Brynwood Golf Course.

April	May	June	July	Aug.	Sept.	Oct.-Nov	Total/ Yr. Tot.
First year							
			lbs/1000 sq.ft.				
Fert*	Fert	----Disease suppressive fert-----			Fert	Fert	
0.5	0.25	0.5	0.5	0.5	0.5	1.0	3.75 N
	If Fertigation is used						
	0.25	0.5	0.5	0.5	0.5		2.25 N
						Total N	**6.0 (8.0^)**
Future years							
Fert*	Fert	------Disease suppressive fert-----			Fert	Fert	
0.5		0.4	0.4	0.4		0.5	2.2 N
	If Fertigation is used						
	0.25	0.25	0.25	0.25	0.25		1.25
							Total N 3.45

***** Fert= soluble and other slow release nitrogen sources urea, ammonium sulfate, IBDU, methylene urea (Nutralene, Scotts), coated urea (sulfur, resin or polymer coated) and natural organic (Milorganite, Nature Safe, etc). ^ At establishment 2 lbs of N/1,000 sq-ft will be applied as a starter fertilizer. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.4 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012)

Table 6. Recommended fertilization program for fairways and roughs for the Brynwood Golf Course.

Apr.	May	June	July	Aug.	Sept.	Oct./Nov.	Yearly Total
---------- lbs of Nitrogen/1000 sq.ft.----------							
Fairways, during establishment							
0.75	0.75	0.75	0.75	0.75	1.0	0.75	5.5 Nitrogen
Fairways, following establishment							
	0.5	0.5	0.5		0.5	0.5	2.5 Nitrogen
Roughs, during establishment							
0.5	0.5	0.5		0.5	0.5		2.5 Nitrogen
Roughs, following establishment*							
	0.5				0.5		1.0 Nitrogen

* Roughs will only be fertilized when density drops by 25 %.

The nitrogen application for roughs following establishment consists of clippings being returned to roughs during mowing and from fairways. Sources to be used include any of the following: urea, ammonium sulfate and slow release materials: IBDU, methylene urea (Nutralene, Scotts), natural organic (Sustane, Ringers, Milorganite, Nature Safe) and coated urea's (sulfur, resin and polymer). Fertigation is expected to be about half of the nitrogen applied to fairways. Maximum soluble nitrogen rate for urea and ammonium sulfate is 0.7 lbs N/1000 sq.ft per application to reduce nitrate leaching (Petrovic and Barlow, 2012). In no case will the phosphorus application, associated with the use of natural organic fertilizers, exceed the soil testing recommendation level. Tissue testing will be used on fairways to adjust applications.

Fertigation Program: Apply a small amount of water soluble fertilizer via the irrigation system will be practiced as irrigation water needs to be applied. The irrigation season usually runs from May through October. Tissue testing will be used to determine application amount so as to maintain 3-6 % N in the clippings) in mid-April and ending in late September. Backflow prevention will be used on the irrigation system if fertigation injectors are to be used.

The amounts of nitrogen fertilizer to be applied will likely be reduced by 50 % within the first 10 to 25 years due to the fact that a lesser amount of the fertilizer nitrogen will be retained by soil as soil organic matter. Tissue testing may be used to help judge the need for fertilization and will be used to reduce the amounts of nitrogen fertilizer applied over time.

This fertilization programs incorporate a balanced approach to fertilization. The amount of each nutrient applied will provide for adequate plant growth, will not over or under stimulate growth at the expense of disease resistance or weed encroachment, will act in a disease suppressive manner by the use of natural organic fertilizer (Sustane or Ringer) and will not lead to either a significant amount of runoff or leaching because there will not be a large pool of water soluble nutrients available at one time. This program will avoid several of the major factors that encourage nitrate leaching. There is no late fall fertilization, use of low rates of highly water soluble sources, careful irrigation and low total amounts of nitrogen applied (Petrovic and Barlow, 2012; Petrovic, 1990; Morton et al., 1988) and the rates of application are low, thus resulting in little soluble nitrogen available for offsite transport. Small amounts of soluble nitrogen fertilizer (0.10 lbs. nitrogen/1000 sq.ft.) may be applied if the turf is off color between scheduled applications. No fertilizers will be applied in advance of inclement weather predictions (48 hr.) to further reduce the likelihood of leaching or runoff.

The fertilizer nutrients of concern from an environmental perspective are nitrogen (as nitrate) and phosphorus (phosphates). Nitrate can cause a reduction in the quality of water in a drinking water source or cause eutrophication of streams, ponds or lakes. Phosphorus is needed in small amounts by turfgrass and is mostly of concern for surface water eutrophication. This fertilization program addresses the need to protect water quality from fertilizers contaminating surface and ground water.

Phosphorus can be a problem in runoff, but in well managed turfgrass situations as described here, phosphorus runoff from turf seldom occurs due to the high amount of water infiltration into the soil and proper management (Easton and Petrovic, 2008; Soldat and Petrovic, 2008). Phosphorus runoff has been a problem in traditional agricultural production when erosion has occurred or the application of phosphorus was in excess of the amount need for plant growth (based on soil tests). Upon established turf erosion is eliminated. On the Brynwood Golf Course, phosphorus (potassium, pH modification and other nutrients other than nitrogen) applications will be based on soil test results to insure that the proper amounts be applied to provide for acceptable plant health and avoiding excesses that can lead to contamination of surface water. Soil testing will be done just prior to establishment to determine the amount of phosphorus to apply at seeding/sodding and once per year thereafter for maintenance applications. All greens, tees, fairways and roughs will be sampled. The natural organic fertilizers that will be used for much of the fertilization program and will supply most of the phosphorus needs. Soil testing done just prior to seeding will give actual amounts needed on each green, tee, fairway and rough.

3.11 The environmental risk assessment is composed of two parts. First, the surface and ground water contamination (runoff and leaching) potential of all pesticides registered for use on golf courses in New York for the soils of this site was evaluated. Second, the pesticides identified to have a high potential risk to humans or aquatic wildlife will not be used on this golf course. Pesticide that had an intermediate risk to humans or aquatic wildlife may be used only if there no other control options available and only on very limited bases applied under a very strict set of conditions. Pesticides with a low potential for both humans and aquatic wildlife will be used only after all other pest control measures have failed. Pesticides that are safest to humans and wildlife will be used first.

The following is a list of pesticides registered for use in New York and was evaluated for risk to surface and ground water contamination by WINPST.

Fungicides and fungicide combinations: azoxystrobin (USEPA reduced risk pesticide, RR), azoxystrobin + propiconazole, azoxystrobin + difenoconizole, boscalid (RR), chloroneb chlorothalonil, chlorothalonil + propiconazole, chlorothalonil + thiophanate-methyl, chlorothalonil +ASM, copper hydroxide + mancozeb, cyazofamid, etridiazole, fenarimol, fludioxonil, fludioxonil + chlorothalonil + propiconazole, fluopicolide + propamocarb hydrochloride, flutolanil, fosetyl-al, iprodione, mancozeb, metalaxyl (mefenoxam), metconazole, mineral oil, myclobutanil, polyoxin D zinc salt, propamocarb, propiconazole, pyraclostrobin, pyraclostrobin + boscalid, tebuconazole, thiophanate-methyl, thiophanate-methyl + iprodione, triadimefon, trifloxystrobin, trifloxystrobin + triadimefon, vinclozalin.

Biofungicides: *Bacillus licheniformis* strain SB 3086, *Bacillus subtillis,* strain GB 03, *Bacillus subtilis*, strain QST 713, *Pseudomonas aureofaciens* strain TX-1, Polyoxin D Zinc salt, Mono and di-potassium salts of phosphorus acid.

Insecticides: Abamectin, acephate, azadirachtin, *Bacillus thuringiensis*, subsp. *Kurstaki*, *Beauveria bassiana*, bifenthrin, boric acid, carbaryl , chlorantraniliprole, chlorpyrifos, cyfluthrin, lambda-cyhalothrin, deltamethrin, bifenthrin + carbaryl, bifenthrin + imidacloprid, cyfluthrin + imidacloprid, hydramethylnon, imidacloprid, indoxacarb, *Paenibacillus popilliae*, permethrin, spinosad, trichlorfon.

Plant Growth Regulators: Paclobutrizol, ethephon, mefluidide, trinexapac-ethyl, trinexapac-ethyl plus paclobutrazol.

Herbicides: 2,4-D, 2,4-DP + MCPP + dicamba, 2,4-D + 2,4-DP + dicamba, 2,4-D + clopyralid + dicamba, 2,4-D + triclopyr + fluroxypyr, 2,4-D +dicamba + fluroxypyr, 2,4-D + 2,4-DP + fluroxypyr, 2,4-D + sulfentrazone + dicamba +MCPP, 2,4-D + dicamba + penoxsulam, acetic acid, benefin, benefin + trifluralin, benefin + oryzalin, bensulide, bentazon, bispyribac sodium, bromoxynil, carfentrazone-ethyl, carfentrazone +2,4-D + MCPP +dicamba, carfentrazone + MCPA + MCPP + dicamba, clopyralid, clopyralid + 2,4-D +triclopyr, dithiopyr, ethofumesate, fenoxaprop, fluroxypyr + triclopyr, fluazifop-p-butyl, glufosinate, glyphosate, halosulfuron, indaziflam + diquat + glyphosate, iron HEDTA, MCPA + clopyralid + dicamba, MCPA + triclopyr + dicamba, metsulfuron-methyl, mesotrione, oxadiazon, pelargonic acid, pendimethalin, penoxsulam, penoxsulam + dicamba, primisulfuron-methyl, prodiamine, quinclorac-carfentrazone, siduron, triclopyr, triclopyr + 2,4-D, triclopyr + clopyralid, trifluralin.

The assessment of the potential risk to humans (as a drinking water source) and aquatic wildlife (fish) of each registered pesticide on each soil (see appendix) found on the site was performed by using the Windows Pesticide Screening Tool (WIN PST). WIN PST is a computerized information delivery system developed by the US Department of Agriculture and the National Resource Conservation Service based on the GLEAMS model (Leonard et al. 1987). Refer to the appendix for an explanation of WIN PST and other information related to the pesticides that were evaluated.

A summary of the pesticide fate as determined by the WIN PST analysis for the soils on greens, tees, fairways and roughs is contained in the appendix of this report.

The greens and tees will be built as a sand-based system to provide a compaction resistant/well drained system and create a healthy pest- resistant playing surface. Based on the WIN PST analysis, greens/tees will be built with about 1 % organic matter, by weight. In the appendix the greens/tees soil will be referred to as Windsor soil having the above characteristics. Greens/tees will also have a sub-drainage system in which the drainage water will be diverted to water quality swales and not directly discharged into surface water. Soils on fairways and roughs (Woodbridge, Paxton, Ridgebury, Charlton and Chatfield which are also equivalent to Leichester, Riverhead and Sutton loams) are the existing soils referred to in the appendix of WIN PST results.

The results of the environmental risk assessment of the pesticides by WIN PST screened on the soils of this site, as seen in Table 7. Pesticides with either a high risk to humans or wildlife will not be used on this golf course. Pesticides with an intermediate risk to either humans or wildlife will be only used to spot treat areas only if all other control measures fail of if applied at very low rates including when they are part of a combination product with other pesticides.

Table 7. The potential risk to humans and aquatic wildlife (fish) in surface water (S. water) and groundwater (G. water) from pesticides considered for use on Brynwood Golf Course site, based on WINPST analysis.

	Humans				Aquatic wildlife			
	Greens, tees		Fairways and roughs*		Greens, tees		Fairways, roughs *	
Pesticides	G. water	S. water	G. water	S. water	G. water	S. water	G. water	S. water
2,4-D	low	low	low	low	very low	v. low	v. low	v. low
AMS	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Abamectin	low	**interm**	low	**interm.**	**Interm.**	**high**	**Interm.**	**High**
Acephate	low	**interm.**	v. low	v. low	low	**interm**	v. low	v. low
Acetic acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Azadirachtin	v. low	v. low	v. low	v. low	**Interm.**	Low	**Interm.**	low
azoxystrobin	v. low	v. low	v. low	low	v. low	v. low	v. low	low
Bacillus licheni-formis SB3086	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bacillus subtilis GB03	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. subtilis QST 713	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
B. thuringiensis – kurstaki	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
benefin	low	low	v. low	**interm.**	low	low	v. low	**interm.**
Bensulide	low	low	v. low	**interm.**	low	low	v. low	**interm.**
bifenthrin	v. low	low	**interm.**	**high**	v. low	low	**interm.**	**High**
Bispyribac-sodium	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Boric acid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Bosocalid	v. low	v. low	v. low	v. low	low	low	v. low	low
Bromoxynil	v. low	low	v. low	low	v. low	low	v. low	low
carbaryl	v. low	low	v. low	low	v. low	low	v. low	low
cartfentrazone	v. low	v. low	v. low	v. low	v. low	low	v. low	low
Chloroneb	v. low	low	v. low	v. low	v. low	low	v. low	v. low
chlorothalonil	v. low	low	v.low	low	low	**interm.**	low	**interm.**

Chlorpyrifos	**interm.**	Low	**interm.**	Low	**interm.**	**high**	**interm.**	**high**
Clopyralid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Copper hydroxide	v. low	v. low	v. low	v. low	low	**interm.**	low	**high**
Cyazofamid	v. low	v. low	v. low	v. low	v. low	low	v. low	v. low
Cyfluthrin	v. low	v. low	v. low	v. low	**interm.**	**high**	**interm.**	**high**
deltamethrin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**high**
dicloprop (2,4-DP)	low	low	low	low	v. low	v. low	v. low	v. low
dicamba	v. low	v. low	v. low	v. low	low	low	low	low
Difenoconazole	low	**interm.**	**interm.**	**High**	**interm.**	**high**	**interm.**	**X. high**
Diquat dibromide	v. low	low	v. low	v. low	v. low	low	v. low	v. low
dithiopyr	**interm.**	low	v. low	**Interm.**	**Interm.**	low	v. low	**Interm.**
Ethephon	v. low	low	v. low	v. low	v. low	v. low	v. low	v. low
ethofumesate	v. low	v. low	v. low	low	low	low	v. low	**interm.**
etridiazole	v. low	low	v. low	low	v. low	low	v. low	low
fenarimol	v. low	v. low	v. low	v. low	v. low	low	v. low	low
fenoxaprop-et	v. low	low	v. low	low	v. low	low	v. low	low
Fluazifop-butyl	v. low	low	v. low	low	v. low	low	v. low	low
Fludioxonil	v. low	v. low	v. low	v. low	v. low	low	v. low	**Interm.**
Fluopicolide	v. low	v. low	v. low	v. low	low	low	v. low	low
Fluroxypyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
flutolanil	v. low	v. low	v. low	v. low	low	low	v. low	low
fosetyl-al	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glufosinate	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
glyphosate	v. low	v. low	v. low	low	v. low	v. low	v. low	low
halosulfuron	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Hydramethylnon	**interm.**	**high**	**interm.**	**high**	low	**interm.**	v. low	**interm.**
imadicloprid	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Indoxacarb	v. low	v. low	v. low	v. low	low	**interm.**	low	**interm.**
iprodione	low	**interm.**	low	**high**	v. low	low	v. low	low
lambda-cyhalothrin	low	**interm.**	low	**interm.**	**interm.**	**High**	**interm.**	**High**
MCPA	low	low	v. low	low	low	low	v. low	low
MCPP (mecoprop)	**interm.**	**high**	low	**interm.**	v. low	v. low	v. low	v. low
mancozeb	low	**interm.**	**interm.**	**high**	low	**interm.**	low	**high**
metalaxyl	v. low	v. low	v. low	low	v. low	low	low	v. low
Mefluidide	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Mesotrione	v. low	low	v. low	low	v. low	v. low	v. low	v. low
Metconazole	v. low	v. low	v. low	v. low	low	low	v. low	low
Metsulfuron-methy	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
phosphorous acid	v. low	v. low	v. low	v. low	**interm.**	low	v. low	low
MSMA	low	low	low	low	v. low	v. low	v. low	low
Myclobutanil	v. low	v. low	v. low	v. low	low	low	v. low	low
oxadiazon	**interm.**	low	**interm.**	low	low	**interm.**	l ow	**interm.**
paclobutrazol	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
pendimethalin	v. low	low	v. low	low	low	**interm.**	Low	**interm.**
Penoxsulam	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Permethrin	v. low	low	v. low	low	**interm.**	**High**	**interm.**	**High**
Primisulfuron-methyl	**interm.**	low	v. low	**Interm.**	v. low	v. low	v. low	v. low
prodiamine	v. low	low	v. low	low	v. low	low	v. low	low
propamocarb	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
propiconazole	**interm.**	**interm.**	Low	**high**	low	low	v. low	low
Pyraclostrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**high**
Quinclorac	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Siduron	v. low	v. low	v. low	v. low	low	low	v. low	**interm.**
spinosyn A & D	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
Sulfentrazone	low	low	v. low	low	v. low	v. low	v. low	v. low
Tebuconazole	low	low	v. low	**interm.**	low	low	v. low	**interm.**
thiophanate-methyl	v. low	low	v. low	low	low	**interm.**	low	**interm.**
triadimefon	low	low	v. low	**interm.**	low	low	v. low	low
triadimenol	low	low	v. low	**interm.**	V. low	v. low	v. low	v. low
trichlorfon	**high**	**interm.**	Low	**interm.**	**interm.**	low	v. low	low
triclopyr	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
trifloxystrobin	v. low	v. low	v. low	v. low	low	**interm.**	Low	**interm.**
trifluralin	v. low	low	v. low	low	**interm.**	**high**	**interm.**	**High**
Trinexapac-ethyl	v. low	v. low	v. low	v. low	v. low	v. low	v. low	v. low
vinclozalin	**interm.**	**interm.**	Low	**interm.**	low	low	v. low	low

* Includes the worst risk assessment ranking from any of the soils found on this site.

Estimated Concentration of Pesticide in Surface and Ground Water

Brynwood will only be using pesticides with a low to intermediate potential for both surface and ground water contamination and it is highly unlikely that any pesticides would be found in surface or ground water on or off this site. The whole objective and idea surrounding the use of this ITPMP is to prevent problems such as the contamination of groundwater and storm water. All of ITPMP practices, agronomic and environmental, are and will be geared toward making it unlikely that anything will reach ground and surface water. The results from surface and ground water monitoring studies of over 80 golf courses in the U.S. support this conclusion (Baris et al., 2010). However, in some cases small amounts of pesticides were and could be detected. The concentration of pesticides in surface and ground water was estimated assuming that a moderate amount (0.1 % based on pesticide fate studies) of the pesticide applied would enter surface and ground water. Using the application rates of pesticides found in Table 8, along with the estimated values of runoff and ground water recharge, the concentrations were estimated.

Table 9 contains a worst case estimate of pesticide concentration in surface water at the 5 design points that have golf course features of greens, tees or fairways. The assumptions in these estimates are that the greatest amount of contaminate loss occurs in the first ½ inch of runoff (equivalent to a 2 year return frequency event) from an individual pesticide application and standard label rate of pesticides were applied. As expected the estimated concentrations of pesticides in surface water was low and in line with the maximum values observed from actual golf courses (Baris et al., 2010). In two cases the maximum acceptable toxicant concentration for fish was slightly exceeded. However, it is unlikely that fish will come in direct contact with the untreated storm water from this site. The two pesticides, the insecticides bifenthrin and lambda-cyhalothrin shown in the WIN PST analysis to have a high risk to fish on this site, are critical to control one of the most destructive insects, annual bluegrass weevil. It is proposed to allow the Brynwood Country Club to apply under emergency conditions. It has been observed that the rapid death of turfgrass will lead to excessive leaching and runoff of nitrogen and phosphorus, thus the need to prevent damage from annual bluegrass. Bifenthrin and lambda-cyhalothrin will only be applied after all other control options have failed and the population threshold has been exceeded following scouting. The Town of North Castle will be notified when an application is to be made under these set of emergency conditions.

The estimated concentration of pesticides in groundwater in shown in Table 10. These values use the pesticide application rates shown in Table 8 for a yearly total for a given pesticide and the volumes of average ground water recharge equal to 116,702,293 liters (162.45 acres and 7 inches of recharge/yr.) or for a 1 in 30 year drought of 83,358,780 liters (162.45 acres and 5 inches of recharge/yr.). As expected none of the estimated pesticide concentration in groundwater exceeded the water quality standards.

4. Wildlife and Wildlife Habitats

4.1 Native vegetation will be used to provide habitat for indigenous species whenever possible.

4.2 On the long term, native groundcover or shrubs that may be removed during any construction or renovation projects involving non-golf areas will be replaced with indigenous plant species.

5. Water Use

5.1 The Brynwood Golf Course will irrigate only the areas requiring water and limit the amount applied to the amount actually required by the plant.

The modern computer-controlled irrigation system used on today's golf courses like the proposed Brynwood Golf Course is very flexible to be able to irrigate to the amount needed for adequate plant growth while not over irrigating. Over-irrigation can make many disease problems more severe, can lead to a significantly greater likelihood for either pesticide or nitrate leaching into groundwater and runoff into surface waters (Petrovic, 1990 and 1994) and can waste upwards of 50 % more water than is actually needed.

This golf course will apply water based on an estimate of the amount of water used by the turfgrass plant. This irrigation system will either have a weather station linked to the controller that estimates plant water use and will irrigate accordingly or use evapotranspiration rate data provided by the North East Climate Center, Ithaca, NY. This proper amount of irrigation will be applied to minimize any environmental impact, reduce the potential for pest problems, reduce the waste of water from excess irrigation and produce a healthy pest-resistant grass. Greens, tees and fairways will be irrigated. Water from the on-site pond may be used for irrigation.

ITPMP Use and Reporting Requirements

The golf course superintendent will have the responsibility of implementing the ITPMP and reporting on all phases of the project, from construction to yearly maintenance. Implementation will involve developing an operational manual that utilizes the information found in this report. This will be one of the first tasks of the new superintendent once the person is hired and will be completed in advance of the opening of the golf course and will be reported to the Town. At the point of hiring the golf course superintendent he/she will be responsible for implementation of the ITPMP. Following construction of the golf course, the operational ITPMP will be provided to the Town each year showing how the plan was followed. Town approval will be required prior to any proposed changes.

By February of each year the applicant will provide the Town with report of the previous year's activities that will include the following information:

1. The materials used at establishment (construction); actual grasses (species and variety) used by location and seeding rate (or sod used) and establishment date, fertilizer materials used (rates and dates of application by location including soil

test results), amount of mulch used and location applied, amount of lime if applied to which areas on what date(s). The superintendent will provide the Town this information so as to determine compliance with the ITPMP. After the first year this section will contain information on any over seeding or sodding that was done the previous year.

2. Irrigation Protocol: how amount of irrigation was determined, monthly summary of irrigation amount by location.

3. IPM Program: results from pest scouting showing location and amounts of pests by date, table containing all pest control applications (including cultural, biological and chemical control used) listing date, location, rate of application and material used.

4. Suggested changes to the ITPMP: the applicant may upon review of the history of the site suggest changes to the ITPMP, which may include adoption of new technologies, materials and deletions of materials to be used. Any new pesticide to be considered for use will go through a risk assessment using the currently acceptable method. Within a reasonable time frame of three month, the Town must notify the applicant of their decision on approving modifications to the ITPMP.

EQUIPMENT WASHING

All equipment wash bays will have a trench drain with a sedimentation area to drop out any grass clippings or other debris, as well as a sand/oil separator. All bays will flow through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake. Grading will be done to insure all drainage of the entire maintenance yard footprint will be collected and discharged through a naturalized grass and vegetative filtration ditch and be discharged into the golf course irrigation lake as well.

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WIN PST Soil/Pesticide Information and Risk Assessment Results

Brynwood Scouting Forms

Turf IPM Field Infestation Report

Hole ____________ Scout ____________ Date ____________

Site (turf species)	Mowing Height	Soil Moisture	Weeds Species	Weeds No. or %	Diseases Species	Diseases No. or %	Remarks	Nematodes Species	Nematodes No. or %
Green									
Tee									
Fairway									
Rough									
Notes:			1. Goosegrass 2. Crabgrass 3. Broadleaves 4. Nutsedge, Yellow 5. Nutsedge, Purple 6. *Poa annua* 7. Other		1. Dollar spot 2. Leaf spot 3. *Pythium* blight 4. *Pythium* root rot 5. Fairy ring 6. Brown patch *(R. solani)* 7. Rhizoctonia leaf and sheath blight *(R. zeae)* 8. Algae/moss 9. Other			1. Sting 2. Lance 3. Stubby-root 4. Root-knot 5. Cyst 6. Ring 7. Spiral 8. Sheath 9. Other	

Turf IPM Field History Report Form

Hole ____________ Scout ____________ Date ____________

Site	Turf Species	Mowing Schedule	Soil Analysis			Soil Drainage	Fertilization (N/1000 sq ft)				Irrigation Schedule
			pH	P	K		Spring	Summer	Fall	Winter	
Green											
Tee											
Fairway											
Rough											
Driving range											
Nursery green											
Practice green											

Comments on specific topics such as shade, overseeding blend, nitrogen carrier, topdressing mix, weather, irrigation salinity levels, etc.

Table 8. Preventative pesticide application schedule for Brynwood Golf Club.

<u>Greens</u>

Date	Fungicide	Rate	Insecticide	Rate	Herbicide/PGR	Rate
4/1	Headway	2 oz/m	Talstar	15 oz/A	Primo	7 oz/A
4/15	Tartan	2 oz/m			Primo	6 oz/A
	Daconil Action	2.4 oz/m			Proxy	5 oz/A
5/1	Signature	4 oz/m	Scimitar	12 oz/A	Primo	6 oz/A
	Daconil WeatherStick	3.6 oz/m				
5/15	Instrata	7 oz/m			Primo	7 oz/A
					Proxy	5 oz/A
5/16			Acelepryn	12 oz/A		
6/1	Insignia Intrinsic	.72 oz/m	Conserve	52 oz/A		
	Segway	.9 oz/m				
6/11	Affirm	2.4 lbs/A			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
6/21	Clearys 3336	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Signature	4 oz/m				
7/1	Insignia Intrinsic	.72 oz/m	Provaunt	12 oz/A		
	Banol	2 oz.m				
7/11	Signature	4 oz/m			Primo	7 oz/A
	Headway	3 oz/m				
	Daconil WeatherStick	3.6 oz/m				
7/21	Signature	4 oz/m	Scimitar	12 oz/A	Primo	7 oz/A
	Medallion	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/1	Segway	.9 oz/m	Conserve	52oz/A		
8/3	Signature	4 oz/m			Primo	7 oz/A
	Headway	2 oz/m				
	Daconil WeatherStick	3.6 oz/m				
8/11	Tartan	2 oz/m			Primo	7 oz/A
	Daconil Action	2.4 oz/m				
8/21	Instrata	7 oz/m			Primo	7 oz/A
9/3	Signature	4 oz/m	Talstar	20 oz/A	Primo	7 oz/A
	Daconil WeatherStick	3.6 oz/m				
9/24	Concert II	5 oz/m	.		Primo	7 oz/A

10/15	Tartan	2 oz/m		Primo	7 oz/A
Snow Mold	Instrata	11 oz/m		Primo	7 oz/A

Tees

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/15	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/2	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Dimension	32 oz/A
5/30	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
6/1	Segway	.9 oz/m	Conserve	52 oz/A		
6/13	Instrata	7 oz/m	Talstar	20 oz/A	Primo	12 oz/A
7/1	Banol	2 oz.m	Provaunt	12 oz/A		
7/4	Signature	4 oz/m			Primo	12 oz/A
	Tartan	2 oz/m				
	Daconil Weatherstic	3.6 oz/m				
7/17	Renown	4.5 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
8/1	Segway	.9 oz/m	Conserve	52 oz/A		
7/29	Instrata	7 oz/m			Primo	12 oz/A
8/12	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/2	Eagle	1.2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
10/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Fairways

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate
4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A

5/1	Emerald	.18 oz/m			Primo	12 oz/A
	Bayleton FLO	1 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end May-early June			Provaunt	12 oz/A		
end May-early June	Rough Application for season long grub control		Acelepryn	8 oz/A		
6/11	Renown	3.5 oz/m			Primo	12 oz/A
6/12	Renown	3.5 oz/m			Primo	12 oz/A
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/15	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
7/16	Renown	3 oz/m			Primo	12 oz/A
	Medallion	2 oz/m				
mid July			Provaunt	12 oz/A		
7/30	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
8/13	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
8/14	Tartan	2 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
9/3	Eagle	1.2 oz/m			Primo	12 oz/A
	Curalan	2 oz/m				
10/1	Renown	3 oz/m			Primo	12 oz/A
10/2	Renown	3 oz/m			Primo	12 oz/A
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	0.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Intermediate (added to fairways in risk analysis)

Date	Fungicide	Rate	Insecticide	Rate	Herb/PGR	Rate

4/14	Curalan	1 oz/m	Scimitar	12 oz/A	Primo	12 oz/A
5/28	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
5/29	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
mid-late May			Acelepryn	12 oz/A	Barricade	32 oz/A
end may-early june			Provaunt	12 oz/A		
7/2	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
7/3	Tartan	2 oz/m			Primo	12 oz/A
	Daconil Action	2 oz/m				
end may-early june			Provaunt	12 oz/A		
7/30	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
7/31	Torque	.6 oz/m	Scimitar	12 oz/m	Primo	12 oz/A
	Daconil Action	2 oz/m				
10/1	Renown	4 oz/m			Primo	12 oz/A
10/2	Renown	4 oz/m			Primo	12 oz/A
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				
Snow Mold	Torque	.6 oz/m			Primo	12 oz/A
	Daconil Action	2.4 oz/m				

Table 9. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the storm water at the drainage design points.

Acres treated on same day

Pesticide	Design Point	Greens	Tees	Fairways	Runoff volume – first 0.5 " (liters)	Amt. of Pesticide (ug)	Est. Conc. Of Pesticide in runoff (ug/l)	Long Term Human Toxicity (ug/L)	Maximum Acceptable Toxicant Concentration-fish (ug/l)	Highest conc. from golf course monitoring Studies & (ug/l)
Trifloxystrobin	DP-1A	0.31			836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A		0.31		836,410	31,694	0.04	350	5.8	
Trifloxystrobin	DP-1A			1.13	836,410	115,020	0.14	350	5.8	
Trifloxystrobin	DP-1B	0.26			591,131	26,582	0.04	350	5.8	
Trifloxystrobin	DP-1B		0.22		591,131	22,492	0.04	350	5.8	
Trifloxystrobin	DP-1B			0.91	591,131	93,550	0.16	350	5.8	
Trifloxystrobin	DP-1C-6	1.74			5,695,285	177,898	0.03	350	5.8	
Trifloxystrobin	DP-1C-6		1.41		5,695,285	169,538	0.03	350	5.8	
Trifloxystrobin	DP-1C-6			10.46	5,695,285	1,068,919	0.19	350	5.8	
Trifloxystrobin	DP-1C-9	0.27			485,426	27,605	0.06	350	5.8	
Trifloxystrobin	DP-1C-9		0.11		485,426	11,246	0.02	350	5.8	

Trifloxystrobin	DP-1C-9			1.22	485,426	124,222	0.26	350	5.8	
Trifloxystrobin	DP-1C-10	0.23			630,643	23,515	0.04	350	5.8	
Trifloxystrobin	DP-1C-10		0.25		630,643	25,560	0.04	350	5.8	
Trifloxystrobin	DP-1C-10			0.07	630,643	6,646	0.01	350	5.8	
Chlorothalonil@	DP-1A	0.31			836,410	739,536	0.88	15	4.4	6.5
Chlorothalonil	DP-1A		0.31		836,410	871,596	1.04	15	4.4	
Chlorothalonil	DP-1A			1.13	836,410	2,824,096	3.38	15	4.4	
Chlorothalonil	DP-1B	0.26			591,131	620,256	1.05	15	4.4	
Chlorothalonil	DP-1B		0.22		591,131	618,552	1.05	15	4.4	
Chlorothalonil	DP-1B			0.92	591,131	2,299,264	3.89	15	4.4	
Chlorothalonil	DP-1C-6	1.74			5,695,285	4,150,944	0.73	15	4.4	
Chlorothalonil	DP-1C-6		1.41		5,695,285	3,964,356	0.70	15	4.4	
Chlorothalonil	DP-1C-6			10.46	5,695,285	19,309,160	3.39	15	4.4	
Chlorothalonil	DP-1C-9	0.27			485,426	644,112	1.33	15	4.4	
Chlorothalonil	DP-1C-9		0.11		485,426	309,276	0.64	15	4.4	
Chlorothalonil	DP-1C-9			1.12	485,426	2,067,520	4.26	15	4.4	
Chlorothalonil	DP-1C-10	0.23			630,643	548,688	0.87	15	4.4	

Chlorothalonil	DP-1C-10		0.25		630,643	702,900	1.11	15	4.4	
Chlorothalonil	DP-1C-10			0.07	630,643	174,944	0.28	15	4.4	
Chlorothalonil#	DP-1A	0.31			836,410	1,258,972	1.51	15	4.4	
Chlorothalonil#	DP-1B	0.26			591,131	1,055,588	1.79	15	4.4	
Chlorothalonil#	DP-1C-6	1.74			5,695,285	7,066,290	1.24	15	4.4	
Chlorothalonil#	DP-1C-9	0.27			485,426	1,096,493	2.26	15	4.4	
Chlorothalonil#	DP-1C-10	0.23			630,643	93,404	0.15	15	4.4	
Fosetyl-al	DP-1A	0.31			836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1A		0.31		836,410	1,232,560	1.47	21,000	14,711	
Fosetyl-al	DP-1B	0.26			591,131	1,033,760	1.75	21,000	14,711	
Fosetyl-al	DP-1B		0.22		591,131	874,721	1.48	21,000	14,711	
Fosetyl-al	DP-1C-6	1.74			5,695,285	6,918,240	1.21	21,000	14,711	
Fosetyl-al	DP-1C-6		1.41		5,695,285	5,606,160	0.98	21,000	14,711	
Fosetyl-al	DP-1C-9	0.27			485,426	1,073,520	2.21	21,000	14,711	
Fosetyl-al	DP-1C-9		0.11		485,426	437,360	0.90	21,000	14,711	
Fosetyl-al	DP-1C-10	0.23			630,643	914,480	1.45	21,000	14,711	
Fosetyl-al	DP-1C-10		0.25		630,643	994,000	1.58	21,000	14,711	

Fludioxinil	DP-1A	0.31			836,410	96,844	0.12	210	33	
Fludioxinil	DP-1B	0.26			591,131	81,224	0.14	210	33	
Fludioxinil	DP-1C-6	1.74			5,695,285	543,576	0.10	210	33	
Fludioxinil	DP-1C-9	0.27			485,426	84,348	0.17	210	33	
Fludioxinil	DP-1C-10	0.23			630,643	71,852	0.11	210	33	
Fludioxinil	DP-1A		0.31		836,410	50,183	0.06	210	33	
Fludioxinil	DP-1B		0.22		591,131	35,614	0.06	210	33	
Fludioxinil	DP-1C-6		1.41		5,695,285	228,251	0.04	210	33	
Fludioxinil	DP-1C-9		0.11		485,426	17,807	0.04	210	33	
Fludioxinil	DP-1C-10		0.25		630,643	40,470	0.06	210	33	
pyraclostrobin	DP-1A	0.31			836,410	63,389	0.08	210	3.9	
pyraclostrobin	DP-1B	0.26			591,131	53,165	0.09	210	3.9	
pyraclostrobin	DP-1C-6	1.74			5,695,285	355,795	0.06	210	3.9	
pyraclostrobin	DP-1C-9	0.27			485,426	55,210	0.11	210	3.9	
pyraclostrobin	DP-1C-10	0.23			630,643	47,030	0.07	210	3.9	
tebuconazole+	DP-1A			1.13	836,410	3,209,200	3.84	21	17	
tebuconazole	DP-1A		0.31		836,410	88,040	0.11	21	17	

tebuconazole	DP-1A			1.13	836,410	320,920	0.38	21	17	
tebuconazole+	DP-1B			0.92	591,131	2,612,800	4.42	21	17	
tebuconazole	DP-1B		0.22		591,131	62,480	0.11	21	17	
tebuconazole	DP-1B			0.92	591,131	261,280	0.44	21	17	
tebuconazole+	DP-1C-6			10.46	5,695,285	29,706,400	5.22	21	17	
tebuconazole	DP-1C-6		1.41		5,695,285	400,440	0.07	21	17	
tebuconazole	DP-1C-6			10.46	5,695,285	2,970,640	0.52	21	17	
tebuconazole+	DP-1C-9			1.22	485,426	3,464,800	7.14	21	17	
tebuconazole	DP-1C-9		0.11		485,426	31,240	0.06	21	17	
tebuconazole	DP-1C-9			1.22	485,426	346,480	0.71	21	17	
tebuconazole+	DP-1C-10			0.07	630,643	198,800	0.32	21	17	
tebuconazole	DP-1C-10		0.25		630,643	71,000	0.11	21	17	
tebuconazole	DP-1C-10			0.07	630,643	19,880	0.03	21	17	
azoxystrobin	DP-1A	0.31			836,410	66,029	0.08	1260	168	5.8
azoxystrobin	DP-1A		0.31		836,410	68,671	0.08			
azoxystrobin	DP-1A			1.13	836,410	221,435	0.26	1260	168	
azoxystrobin	DP-1B	0.26			591,131	55,380	0.09	1260	168	

azoxystrobin	DP-1B		0.22		591,131	48,734	0.08	1260	168	
azoxystrobin	DP-1B			0.92	591,131	180,283	0.30			
azoxystrobin	DP-1C-6	1.74			5,695,285	370,620	0.07	1260	168	
azoxystrobin	DP-1C-6		1.41		5,695,285	312,343	0.05	1260	168	
azoxystrobin	DP-1C-6			10.46	5,695,285	2,049,742	0.36	1260	168	
azoxystrobin	DP-1C-9	0.27			485,426	57,510	0.12	1260	168	
azoxystrobin	DP-1C-9		0.11		485,426	24,367	0.05	1260	168	
azoxystrobin	DP-1C-9			1.22	485,426	239,071	0.49	1260	168	
azoxystrobin	DP-1C-10	0.23			630,643	48,990	0.08	1260	168	
azoxystrobin	DP-1C-10		0.25		630,643	55,380	0.09	1260	168	
azoxystrobin	DP-1C-10			0.07	630,643	13,717	0.02	1260	168	
triadimefon	DP-1A	0.31			836,410	158,474	0.19	28	169	4.7
Triadimefon	DP-1A		0.31		836,410	158,474	0.19	28	169	
Triadimefon	DP-1A			1.13	836,410	577,665	0.69	28	169	
Triadimefon	DP-1B	0.26			591,131	132,914	0.22	28	169	
triadimefon	DP-1B		0.22		591,131	112,466	0.19	28	169	
Triadimefon	DP-1B			0.91	591,131	465,199	0.79	28	169	

Triadimefon	DP-1C-6	1.74			5,695,285	889,502	0.16	28	169	
Triadimefon	DP-1C-6		1.41		5,695,285	720,803	0.13	28	169	
triadimefon	DP-1C-6			10.46	5,695,285	5,347,236	0.94	28	169	
Triadimefon	DP-1C-9	0.27			485,426	138,026	0.28	28	169	
Triadimefon	DP-1C-9		0.11		485,426	56,233	0.12	28	169	
Triadimefon	DP-1C-9			1.22	485,426	623,674	1.28	28	169	
triadimefon	DP-1C-10	0.23			630,643	117,578	0.19	28	169	
Triadimefon	DP-1C-10		0.25		630,643	127,802	0.20	28	169	
Triadimefon	DP-1C-10			0.07	630,643	35,785	0.06	28	169	
Thiophanate-me	DP-1A	0.31			836,410	633,884	0.76	30	2.7	
Thiophanate-me	DP-1B	0.26			591,131	531,644	0.90	30	2.7	
Thiophanate-me	DP-1C-6	1.74			5,695,285	3,557,956	0.62	30	2.7	
Thiophanate-me	DP-1C-9	0.27			485,426	552,092	1.14	30	2.7	
Thiophanate-me	DP-1C-10	0.23			630,643	470,964	0.75	30	2.7	
Indoxacarb	DP-1A	0.31			836,410	31694.4	0.04	140	2.1	
Indoxacarb	DP-1A		0.31		836,410	31,694	0.04	140	2.1	
Indoxacarb	DP-1A			2.21	836,410	225,950	0.27	140	2.1	

Indoxacarb	DP-1B	0.26			591,131	26,582	0.04	140	2.1	
Indoxacarb	DP-1B		0.22		591,131	22,493	0.04	140	2.1	
Indoxacarb	DP-1B			1.81	591,131	185,054	0.31	140	2.1	
Indoxacarb	DP-1C-6	1.74			5,695,285	177,898	0.03	140	2.1	
Indoxacarb	DP-1C-6		1.41		5,695,285	1,441,584	0.25	140	2.1	
Indoxacarb	DP-1C-6			20.91	5,695,285	2,137,838	0.38	140	2.1	
Indoxacarb	DP-1C-9	0.27			485,426	27,605	0.06	140	2.1	
Indoxacarb	DP-1C-9		0.11		485,426	11,246	0.02	140	2.1	
Indoxacarb	DP-1C-9			2.43	485,426	248,443	0.51	140	2.1	
Indoxacarb	DP-1C-10	0.23			630,643	23,507	0.04	140	2.1	
Indoxacarb	DP-1C-10		0.25		630,643	25,560	0.04	140	2.1	
Indoxacarb	DP-1C-10			0.13	630,643	13,291	0.02	140	2.1	
lambda-cyhalothrin^	DP-1A	0.31			836,410	1021264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A		0.31		836,410	1,021,264	1.22	7	0.04	
lambda-cyhalothrin	DP-1A			1.13	836,410	3,722,672	4.45	7	0.04	

lambda-cyhalothrin	DP-1B	0.26			591,131	856,544	1.45	7	0.04	
lambda-cyhalothrin	DP-1B		0.22		591,131	724,768	1.23	7	0.04	
lambda-cyhalothrin	DP-1B			0.92	591,131	3,030,848	5.13	7	0.04	
lambda-cyhalothrin	DP-1C-6	1.74			5,695,285	5,732,256	1.01	7	0.04	
lambda-cyhalothrin	DP-1C-6		1.41		5,695,285	4,645,104	0.82	7	0.04	
lambda-cyhalothrin	DP-1C-6			10.46	5,695,285	34,459,424	6.05	7	0.04	
lambda-cyhalothrin	DP-1C-9	0.27			485,426	889,488	1.83	7	0.04	
lambda-cyhalothrin	DP-1C-9		0.11		485,426	362,384	0.75	7	0.04	
lambda-cyhalothrin	DP-1C-9			1.22	485,426	4,019,168	8.28	7	0.04	
lambda-cyhalothrin	DP-1C-10	0.23			630,643	757,712	1.20	7	0.04	
lambda-cyhalothrin	DP-1C-10		0.25		630,643	823,600	1.31	7	0.04	

lambda-cyhalothrin	DP-1C-10			0.07	630,643	230,608	0.37	7	0.04	
Bifenthrin^	DP-1A	0.31			836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1A		0.31		836,410	140,864	0.17	10	0.06	
bifenthrin	DP-1B	0.26			591,131	118,144	0.20	10	0.06	
bifenthrin	DP-1B		0.22		591,131	99,968	0.17	10	0.06	
bifenthrin	DP-1C-6	1.74			5,695,285	790,656	0.14	10	0.06	
bifenthrin	DP-1C-6		1.41		5,695,285	640,704	0.11	10	0.06	
bifenthrin	DP-1C-9	0.27			485,426	122,688	0.25	10	0.06	
bifenthrin	DP-1C-9		0.11		485,426	49,984	0.10	10	0.06	
bifenthrin	DP-1C-10	0.23			630,643	104,512	0.17	10	0.06	
bifenthrin	DP-1C-10		0.25		630,643	113,600	0.18	10	0.06	
vinclozalin	DP-1A		0.31		836,410	193,688	0.23	8.4	120	0.5
vinclozalin	DP-1A			1.13	836,410	706,024	0.84	8.4	120	
vinclozalin	DP-1B		0.22		591,131	137,456	0.23	8.4	120	
vinclozalin	DP-1B			0.92	591,131	574,816	0.97	8.4	120	
vinclozalin	DP-1C-6		1.41		5,695,285	880,968	0.15	8.4	120	
vinclozalin	DP-1C-6			10.46	5,695,285	6,535,408	1.15	8.4	120	

vinclozalin	DP-1C-9		0.11		485,426	68,728	0.14	8.4	120	
vinclozalin	DP-1C-9			1.22	485,426	762,256	1.57	8.4	120	
vinclozalin	DP-1C-10		0.25		630,643	156,200	0.25	8.4	120	
vinclozalin	DP-1C-10			0.07	630,643	43,736	0.07	8.4	120	
Trinexipac-eth	DP-1A	0.31			836,410	7,043	0.01	221	573	
Trinexipac-eth	DP-1A		0.31		836,410	12,486	0.01	221	573	
Trinexipac-eth	DP-1A			2.25	836,410	90,621	0.11	221	573	
Trinexipac-eth	DP-1B	0.26			591,131	5,907	0.01	221	573	
Trinexipac-eth	DP-1B		0.22		591,131	8,861	0.01	221	573	
Trinexipac-eth	DP-1B			1.83	591,131	73,705	0.12	221	573	
Trinexipac-eth	DP-1C-6	1.74			5,695,285	39,533	0.01	221	573	
Trinexipac-eth	DP-1C-6		1.41		5,695,285	56,789	0.01	221	573	
Trinexipac-eth	DP-1C-6			20.91	5,695,285	842,171	0.15	221	573	
Trinexipac-eth	DP-1C-9	0.27			485,426	6,134	0.01	221	573	
Trinexipac-eth	DP-1C-9		0.11		485,426	4,430	0.01	221	573	
Trinexipac-eth	DP-1C-9			2.43	485,426	97,871	0.20	221	573	
Trinexipac-eth	DP-1C-10	0.23			630,643	5,226	0.01	221	573	

Trinexipac-eth	DP-1C-10		0.25		630,643	10,069	0.02	221	573	
Trinexipac-eth	DP-1C-10			0.13	630,643	5,236	0.01	221	573	
ethephon	DP-1A	0.31			836,410	7,312	0.01	126	2662	
ethephon	DP-1B	0.26			591,131	7,247	0.01	126	2662	
ethephon	DP-1C-6	1.74			5,695,285	48,504	0.01	126	2662	
ethephon	DP-1C-9	0.27			485,426	7,527	0.02	126	2662	
ethephon	DP-1C-10	0.23			630,643	6,411	0.01	126	2662	
prodiamine	DP-1A			2.25	836,410	830,700	0.99	35	17	
prodiamine	DP-1B			1.83	591,131	675,636	1.14	35	17	
prodiamine	DP-1C-6			20.91	5,695,285	7,353,010	1.29	35	17	
prodiamine	DP-1C-9			2.43	485,426	897,156	1.85	35	17	
prodiamine	DP-1C-10			0.13	630,643	47,996	0.08	35	17	
myclobutanil	DP-1A		0.31		836,410	88,040	0.11	175	330	1.6
myclobutanil	DP-1A			1.13	836,410	320,920	0.38	175	330	
myclobutanil	DP-1B		0.22		591,131	62,480	0.11	175	330	
myclobutanil	DP-1B			0.92	591,131	261,280	0.44	175	330	
myclobutanil	DP-1C-6		1.41		5,695,285	400,440	0.07	175	330	

myclobutanil	DP-1C-6			10.46	5,695,285	2,970,640	0.52	175	330	
myclobutanil	DP-1C-9		0.11		485,426	31,240	0.06	175	330	
myclobutanil	DP-1C-9			1.22	485,426	346,480	0.71	175	330	
myclobutanil	DP-1C-10		0.25		630,643	71,000	0.11	175	330	
myclobutanil	DP-1C-10			0.07	630,643	19,880	0.03	175	330	
Propiconazole^	DP-1A	0.31			836,410	1,232,560	1.47	9.1	134	1.1
propiconazole	DP-1A		0.31		836,410	3,976,000	4.75	9.1	134	
propiconazole	DP-1B	0.26			591,131	1,033,760	1.75	9.1	134	
propiconazole	DP-1B		0.22		591,131	874,720	1.48	9.1	134	
propiconazole	DP-1C-6	1.74			5,695,285	6,918,240	1.21	9.1	134	
propiconazole	DP-1C-6		1.41		5,695,285	5,606,160	0.98	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,073,520	2.21	9.1	134	
propiconazole	DP-1C-9		0.11		485,426	437,360	0.90	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	914,480	1.45	9.1	134	
propiconazole	DP-1C-10		0.25		630,643	994,000	1.58	9.1	134	
Propiconazole^+	DP-1A	0.31			836,410	1,936,880	2.32	9.1	134	1.1
propiconazole	DP-1B	0.26			591,131	1,624,480	2.75	9.1	134	

propiconazole	DP-1C-6	1.74			5,695,285	10,871,520	1.91	9.1	134	
propiconazole	DP-1C-9	0.27			485,426	1,686,960	3.48	9.1	134	
propiconazole	DP-1C-10	0.23			630,643	1,437,040	2.28	9.1	134	
cyazofamid	DP-1A	0.31			836,410	140,864	0.17	6650	127	
cyazofamid	DP-1A		0.31		836,410	140,864	0.17	6650	127	
cyazofamid	DP-1B	0.26			591,131	118,144	0.20	6650	127	
cyazofamid	DP-1B		0.22		591,131	99,968	0.17	6650	127	
cyazofamid	DP-1C-6	1.74			5,695,285	790,656	0.14	6650	127	
cyazofamid	DP-1C-6		1.41		5,695,285	640,704	0.11	6650	127	
cyazofamid	DP-1C-9	0.27			485,426	122,688	0.25	6650	127	
cyazofamid	DP-1C-9		0.11		485,426	49,984	0.10	6650	127	
cyazofamid	DP-1C-10	0.23			630,643	104,512	0.17	6650	127	
cyazofamid	DP-1C-10		0.25		630,643	113,600	0.18	6650	127	
propamocarb	DP-1A	0.31			836,410	575,253	0.69	700	37500	
propamocarb	DP-1A		0.31		836,410	575,253	0.69	700	37500	
propamocarb	DP-1B	0.26			591,131	482,471	0.82	700	37500	
propamocarb	DP-1B		0.22		591,131	408,244	0.69	700	37500	

propamocarb	DP-1C-6	1.74			5,695,285	3,228,841	0.57	700	37500	
propamocarb	DP-1C-6		1.41		5,695,285	2,616,475	0.46	700	37500	
propamocarb	DP-1C-9	0.27			485,426	501,027	1.03	700	37500	
propamocarb	DP-1C-9		0.11		485,426	204,122	0.42	700	37500	
propamocarb	DP-1C-10	0.23			630,643	426,801	0.68	700	37500	
propamocarb	DP-1C-10		0.25		630,643	463,914	0.74	700	37500	
boscalid	DP-1A		0.31		836,410	48,422	0.06	153	167	
boscalid	DP-1A			2.25	836,410	351,450	0.42	153	167	
boscalid	DP-1B		0.22		591,131	34,364	0.06	153	167	
boscalid	DP-1B			1.81	591,131	282,722	0.48	153	167	
boscalid	DP-1C-6		1.41		5,695,285	220,242	0.04	153	167	
boscalid	DP-1C-6			20.91	5,695,285	3,266,142	0.57	153	167	
boscalid	DP-1C-9		0.11		485,426	17,182	0.04	153	167	
boscalid	DP-1C-9			2.43	485,426	379,566	0.78	153	167	
boscalid	DP-1C-10		0.25		630,643	39,050	0.06	153	167	
boscalid	DP-1C-10			0.13	630,643	20,306	0.03	153	167	
chlorantraniliprole	DP-1A	0.31			836,410	19,369	0.02			

chlorantraniliprole	DP-1A		0.31		836,410	19,369	0.02			
chlorantraniliprole	DP-1A			2.25	836,410	140,580	0.17			
chlorantraniliprole	DP-1B	0.26			591,131	16,245	0.03			
chlorantraniliprole	DP-1B		0.22		591,131	13,746	0.02			
chlorantraniliprole	DP-1B			1.81	591,131	113,089	0.19			
chlorantraniliprole	DP-1C-6	1.74			5,695,285	108,715	0.02			
chlorantraniliprole	DP-1C-6		1.41		5,695,285	88,097	0.02			
chlorantraniliprole	DP-1C-6			20.91	5,695,285	1,306,457	0.23			
chlorantraniliprole	DP-1C-9	0.27			485,426	16,870	0.03			
chlorantraniliprole	DP-1C-9		0.11		485,426	6,873	0.01			
chlorantraniliprole	DP-1C-9			2.43	485,426	151,826	0.31			
chlorantraniliprole	DP-1C-10	0.23			630,643	14,370	0.02			
chlorantraniliprole	DP-1C-10		0.25		630,643	15,620	0.02			
chlorantraniliprole	DP-1C-10			0.13	630,643	8,122	0.01			
spinosad	DP-1A	0.31			836,410	57,226	0.07	188	692	
spinosad	DP-1A		0.31		836,410	57,226	0.07	188	692	
spinosad	DP-1B	0.26			591,131	47,996	0.08	188	692	

spinosad	DP-1B		0.22		591,131	40,612	0.07	188	692	
spinosad	DP-1C-6	1.74			5,695,285	321,204	0.06	188	692	
spinosad	DP-1C-6		1.41		5,695,285	260,286	0.05	188	692	
spinosad	DP-1C-9	0.27			485,426	49,842	0.10	188	692	
spinosad	DP-1C-9		0.11		485,426	20,306	0.04	188	692	
spinosad	DP-1C-10	0.23			630,643	42,458	0.07	188	692	
spinosad	DP-1C-10		0.25		630,643	46,150	0.07	188	692	
dithiopyr	DP-1A		0.31		836,410	70,432	0.08	25	28	0.1
dithiopyr	DP-1B		0.22		591,131	49,984	0.08	25	28	
dithiopyr	DP-1C-6		1.41		5,695,285	320,352	0.06	25	28	
dithiopyr	DP-1C-9		0.11		485,426	24,992	0.05	25	28	
dithiopyr	DP-1C-10		0.25		630,643	56,800	0.09	25	28	
polyoxin D zinc	DP-1A	0.31			836,410	38,202	0.05			
polyoxin D zinc	DP-1B	0.26			591,131	32,041	0.05			
polyoxin D zinc	DP-1C-6	1.74			5,695,285	214,425	0.04			
polyoxin D zinc	DP-1C-9	0.27			485,426	33,273	0.07			
polyoxin D zinc	DP-1C-10	0.23			630,643	28,344	0.04			

@ chlorothalonil applied at a rate 56 oz A.I./a. #chlorothalonil applied at a rate of 143 oz A.I./a on greens only for snow mold control.^ high risk pesticides from WIN PST analysis. + Propiconazole applied at a high rate for snow mold control on greens only. & From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236

Table 10. Estimated concentration of the preventative pesticide applications to the Brynwood CC in the ground water at the average annual recharge rate and from a 1 in 30 year drought.

Pesticide	**Annual amount of pesticide applied annually that leached (ug)@**	**Ground water recharge, normal rainfall (L)**	**Ground water recharge, drought rainfall (L)**	**Est. yearly aver. conc. of pesticide in ground water (ug/l)**	**Long Term Human Toxicity (ug/L)**	**Highest conc. from golf course monitoring Studies # (ug/l)**
Trifloxystrobin	6,529,046	116,705,700		0.06	350	
Trifloxystrobin	6,529,046		83,361,214	0.08	350	
Chlorothalonil	422,000,000	116,705,700		3.6	15	3.1
Chlorothalonil	422,000,000		83,361,214	5.1	15	
Fosetyl-al	75,663,280	116,705,700		0.65	21,000	
Fosetyl-al	75,663,280		83,361,214	0.91	21,000	
Fludioxinil	2,385,089	116,705,700		0.02	210	
Fludioxinil	2,385,089		83,361,214	0.03	210	
pyraclostrobin	1,145,088	116,705,700		0.01	210	
pyraclostrobin	1,145,088		83,361,214	0.01	210	
tebuconazole	88,803,960	116,705,700		0.76	21	
tebuconazole	88,803,960		83,361,214	1.07	21	
azoxystrobin	16,876,530	116,705,700		0.14	1260	5
azoxystrobin	16,876,530		83,361,214	0.20	1260	
triadimefon	47,608,340	116,705,700		0.41	28	8.4
Triadimefon	47,608,340		83,361,214	0.57	28	
Thiophanate-me	5,725,440	116,705,700		0.05	30	
Thiophanate-me	5,725,440		83,361,214	0.07	30	
Indoxacarb	5,728,507	116,705,700		0.05	140	
Indoxacarb	5,728,507		83,361,214	0.07	140	

lambda-cyhalothrin^	29,250,978	116,705,700		0.25	7	
lambda-cyhalothrin^	29,250,978		83,361,214	0.35	7	
Bifenthrin^	4,512,192	116,705,700		0.04	10	
Bifenthrin^	4,512,192		83,361,214	0.05	10	
vinclozalin	17,325,704	116,705,700		0.15	8.4	
vinclozalin	17,325,704		83,361,214	0.21	8.4	
chlorantraniliprole	3,407,034	116,705,700		0.03	Ns	
chlorantraniliprole	3,407,034		83,361,214	0.04	Ns	
Trinexipac-eth	13,066,329	116,705,700		0.11	221	
Trinexipac-eth	13,066,329		83,361,214	0.16	221	
ethephon	174,944	116,705,700		0.002	126	
ethephon	174,944		83,361,214	0.002	126	
prodiamine	5,725,440	116,705,700		0.05	35	
prodiamine	5,725,440		83,361,214	0.07	35	
myclobutanil	7,875,320	116,705,700		0.07	175	0.9
myclobutanil	7,875,320		83,361,214	0.09	175	
boscalid	4,331,426	116,705,700		0.04	153	
boscalid	4,331,426		83,361,214	0.05	153	
dithiopyr	50,666	116,705,700		<0.01	25	0.1
dithiopyr	50,666		83,361,214	<0.01	25	
propiconazole	87,949,120	116,705,700		0.75	9.1	1.1
propiconazole	87,949,120		83,361,214	1.06	9.1	
spinosyn	1,857,076	116,705,700		0.02	Ns	
spinosyn	1,857,076		83,361,214	0.02	Ns	
cyazofamid	4571264	116,705,700		0.04	6650	
cyazofamid	4571264		83,361,214	0.05	6650	
polyoxin D	341936	116,705,700		<0.01		
polyoxin D	341936		83,361,214	<0.01		

@ Total amount applied per year with 0.1% leaching from low to intermediate risk pesticide to 1% of high risk pesticides. ^ high risk pesticides from WIN PST analysis. * The values in parentheses are the amount of area that can be treated per year to lower the risk of water contamination to the toxicological limit. # From Baris, R.D., Cohen , S, N. LaJan Barnes, J. Lam and Q. Ma. 2010. Quantitative analysis of over 20 years of golf course monitoring studies. Environ. Tox. And Chem. 29(6):1224-1236. Ns, there is no water quality standard s do to their very low risk to humans and wildlife.

APPENDIX N

Chad Anderson
Golf Course Superintendent
NYS Commercial Pesticide Applicator ID: C0828631

The Canyon Club
568 Bedford Road
Armonk, NY 10504

Area Greens
Page # 1

Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Proxy	432-1230	Seedhead	5 gal 84oz	syst.	5 oz/M	1	Multipro	Greens	4/7	Bridges
Primo	100-937	seedhead	20oz	syst.	0.125oz/M	↓	↓	↓	↓	↓
Daconil	50434-209-100	Anthracnose	5 Gal	cont.	4 oz/M	↓	↓	↓	↓	↓
Scimitar	100-1088	ABW	36 oz	cont.	10 oz/A	1	Multipro	Greens	4/19	Bridges
Instrata	100-1231	Dollar Spot	5 gal.	cont.	4oz/m	1	Multipro	Greens	4/22	Anderson
10-4-6	—	fert	7.5 gal.	syst.	6 oz/M	↓	↓	↓	↓	↓
Adam's Earth	—	Fert.	2.5 gal.	syst.	2 oz/m	↓	↓	↓	↓	↓
26019	432-888	Dollar Spot	5 gal.	cont.	4 oz/M	1	Multipro	Greens	5/7	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	5 gal.	syst.	4 oz/m	↓	↓	↓	↓	↓
4-00	—	Fert.	5 gal.	syst.	4 oz/M	↓	↓	↓	↓	↓
Provaunt	352-716	ABW	44oz	syst.	12 oz/A	1	Multipro	Greens	5/20	Bridges
18-3-6	—	Fert.	10 gal.	syst.	8 oz/m	1	Multipro	Greens	5/21	Anderson
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	4 oz/m	1	Multipro	Greens	5/26	Bridges
Bayleton	432-1445	Leaf Spot	90 oz.	syst.	0.56oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	20oz.	syst.	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	7.5 gal.	syst.	6 oz/m	↓	↓	↓	↓	↓
4-0-0	—	Fert.	2.5 gal.	syst.	2oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Anthracnose	2.5 gal	cont.	2 oz/m	1	Multipro	Greens	6/8	Anderson
Primo	100-937	PGR	20oz.	syst.	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	8 Gal	syst.	6.4 oz/m	↓	↓	↓	↓	↓
4-0-0	—	Fert	5 Gal	syst.	4 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	2.5 gal	cont.	2 oz/m	1	Multipro	Greens	6/14	Anderson
Primo	100-937	PGR	20oz	syst.	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	9 gal	syst.	7.2oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Anthracnose	2.5 gal	syst.	2 oz/m	1	Multipro	Greens	6/21	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert	9 gal	syst.	7.2oz/m	↓	↓	↓	↓	↓
Tittle Phyte	—	Fert	5 gal	syst.	4 oz/m	↓	↓	↓	↓	↓
Banol	432-942	Pythium	1 gal	syst.	0.8oz/m	1	Multipro	Greens	6/28	Anderson
Primo	100-937	PGR	20oz	syst	0.125oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	9 gal	syst	7.2oz/m	↓	↓	↓	↓	↓
4-0-0	—	fert	5 gal	syst	4 oz/m	↓	↓	↓	↓	↓
18-3-6	—	fert.	2.25 gal	syst.	7.2oz/m	1	Multipro	Greens 2,3,7,15,16	6/29	Anderson
Scimitar	100-1088	ABW	40 oz	syst.	10.39 oz/A	1	Multipro	Greens	6/30	Bridges
Signature	432-890	Pythium	4 lbs	syst.	4.4oz/m	1	Multipro	Greens	7/8	Bridges
Daconil	50534-209-100	Dollar Spot	5 Gal	cont.	4 oz/m	1	Multipro	Greens	7/15	Bridges
Primo	100-937	PGR	20oz	syst.	0.125 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	80 oz	syst.	0.5 oz/M	↓	↓	↓	↓	↓
18-3-6	—	Fert.	7.5 gal	syst.	6 oz/m	↓	↓	↓	↓	↓
4-0-0	—	Fert.	5 gal.	syst.	4oz/m	↓	↓	↓	↓	↓

Chad Anderson
Golf Course Superintendent
NYS Commercial Pesticide Applicator ID: C0828631

Brynwood Golf Country Club
568 Bedford Road
Armonk, NY 10504

Area Greens 2010

Page # 2

Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Chloropyriphos 4	66222-19-73220	ABW	24 oz	cont.	1.5 oz/m	1	Multipro	Greens	7/21	Bridges
26019	432-888	Dollar Spot	5 gal.	cont.	4oz/m	1	Multipro	Greens	7/22	Bridges
Primo	100-937	PGR	20oz	syst.	0.125oz/m					
18-3-6	—	Fert.	7.5 gal	syst.	6 oz/m					
4-0-0	—	Fert.	5 gal.	syst.	4 oz/m					
Title Phyte	—	Fert.	5 gal.	syst.	4 oz/m					
Signature	432-890	Pythium	44 lbs	syst	4.4 oz/m	1	Multipro	Greens	7/23	Bridges
Daconil	50534-209-100	Dollar Spot	2.5 gal	cont.	2 oz/m	1	Multipro	Greens	7/27	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m					
18-3-6	—	18-3-6	7.5 gal	syst.	6 oz/m					
4-0-0	—	4-0-0	5 gal	syst.	4oz/M					
Tittlephyte	—	Titlephyte	5gal.	syst.	4oz/M					
Curalan	7969-224	Dollar Spot	11 lbs	cont.	1.1 oz/m	1	Multipro	Greens	8/2	Bridges
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m					
18-3-6	—	Fert.	8.5 gal	syst.	6.8 oz/m					
4-0-0	—	Fert	5 gal	syst.	4 oz/M					
Title Phyte	—	Fert.	5 gal.	syst.	4 oz/m					
Tartan	432-1446	Anthracnose	2.5 gal	syst.	2 oz/M	1	Multipro	Greens	8/9	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m					
18-36	—	Fert.	8 gal.	syst.	6.4 oz/M					
4-0-0	–	Fert.	5 gal.	syst.	4 oz/m					
26019	432-888	Dollar Spot	5 gal.	cont.	4 oz/m	1	Multipro	Greens	8/26	Bridges
Daconil	50534-209-100	Anthracnose	2.5 gal	cont.	2 oz/m					
Primo	100-937	PGR	20 oz	syst.	.125 oz/m					
18-3-6	—	Fert.	5 gal.	syst.	4 oz/m					
4-0-0	—	Fert.	5 gal.	syst.	4oz/m					
Tartan	432-1446	Dollar Spot	1.75 gal	syst.	1.4 oz/m	1	Multipro	Greens	9/2	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125oz/m					
18-3-6	-	Fert	5 gal.	syst.	4 oz/m					
4-0-0	-	Fert	5 gal.	syst.	4 oz/m					
Interface		Dollar Spot	5 gal.	cont.	4 oz/M	1	Multipro	Greens	9/15	Bridges
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m					
18-3-6	-	Fert.	5 gal.	syst	4 oz/m					
4-0-6	-	Fert.	5 gal.	syst.	4 oz/M					
N30	—	Fert.	5 gal	syst.	4 oz/m	1	Multipro	Greens	9/16	Bridges
3-30-3	-	Fert	5 gal	syst.	4oz/m					
Daconil	50534-209-100	Anthracnose	2.5 gal	cont.	2 oz/m	1	Multipro	Greens	9/23	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125oz/m					
18-3-6	—	Fert.	7.5 gal	syst.	6 oz/m					
Title Phyte	—	Fert.	4 gal	syst.	3.2 oz/m					
4-0-0	—	Fert.	5 gal.	syst.	4 oz/m					

Chad Anderson
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Brynwood Golf Country Club
568 Bedford Road
Armonk, NY 10504

Area Greens 2010

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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Fleet	—	Wetting Agent	10 gal	cont.	8 oz/m	1	Multipro	Greens	9/28	Bridges
Tartan	432-1446	Dollar Spot	2.5 gal	syst.	2 oz/m	1	Multipro	Greens	9/29	Bridges
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	7.5 gal.	syst.	6 oz/m					
4-0-0	—	Fert.	5 gal	syst.	4 oz/m					
Curalan	7969-224	Leaf Spot	11 lbs	cont.	1.1 oz/m	1	Multipro	Greens	10/13	Anderson
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m	↓	↓	↓	↓	↓
18-3-6	—	Fert.	8 gal.	syst.	6.4 oz/m					
Fleet	—	Wetting Agent	10 gal	cont	8 oz/m	1	Multipro	Greens	10/14	Bridges
Primo	100-937	PGR	20 oz	syst.	0.125 oz/m	1	Multipro	Greens	10/20	Anderson
18-3-6	—	Fert.	2 gal	syst.	1.6 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	5.5 gal	syst.	4.4 oz/m					
Headway	100-1216	Dollar Spot	2 gal.	syst.	1.6 oz/m	1	Multipro	Greens	10/28	Anderson
12-0-0	—	Fert	2.5 gal.	syst.	2 oz/m	↓	↓	↓	↓	↓

Chad Anderson
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The Canyon Club
568 Bedford Road
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Area Fwys

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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Daconil	50534-209-100	Dollar Spot ~~Leaf Spot~~	5 gal	cont.	2.75 oz/m	1	Workman	Fwys	4/8	Anderson
Bayleton	432-1445	Leafspot	116 oz	syst.	0.5 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	58 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.75 oz/m	1	Workman	Fwys	4/8	Anderson
Bayleton	432-1445	Leaf Spot	116 oz	syst.	0.5 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	58 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.75 oz/m	1	Workman	Fwys	4/8	Anderson
Bayleton	432-1445	Leaf Spot	116 oz	syst.	0.5 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	58 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.75 oz/m	1	Workman	Fwys	4/8	Anderson
Bayleton	432-1445	Leaf Spot	116 oz	syst.	0.5 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	58 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Acelepryn	352-731	ABW	83 oz	syst.	12 oz/m	1	5700	Fwys	4/24	Bridges
Acelepryn	352-731	ABW	83 oz	syst.	12 oz/m	1	5700	Fwys	4/24	Bridges
Acelepryn	352-731	ABW	83 oz	syst.	12 oz/m	1	5700	Fwys	4/24	Bridges
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.1 oz/m	1	5700	Fwys	5/4	Bridges
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.1 oz/m	1	5700	Fwys	5/4	Bridges
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	2.1 oz/m	1	5700	Fwys	5/4	Bridges
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Dimension	62719-542	Crabgrass	111 oz	syst.	0.37 oz/m	1	5700	Fwys	5/6	Bridges
Dimension	62719-542	Crabgrass	111 oz	syst.	0.37 oz/m	1	5700	Fwys	5/6	Bridges
Dimension	62719-542	Crabgrass	111 oz	syst.	0.37 oz/m	1	5700	Fwys	5/6	Bridges
Provaunt	352-731	ABW	82.7 oz	syst.	12 oz/A	1	5700	Fwys	5/20	Anderson
Provaunt	352-731	ABW	82.7 oz	syst.	12 oz/A	1	5700	Fwys	5/20	Anderson
Provaunt	352-731	ABW	82.7 oz	syst.	12 oz/A	1	5700	Fwys	5/20	Anderson
Banner	~~[illegible]~~	Summer Patch	300 oz	syst.	1 oz/M	1	5700	Fwys	5/27	Anderson
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Banner		Summer Patch	300 oz	syst.	1 oz/M	1	5700	Fwys	5/27	Anderson
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Banner		Summer Patch	300 oz	syst.	1 oz/m	1	5700	Fwys	5/27	Anderson
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m				↓	↓

Chad Anderson
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The Canyon Club
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Area Fwys 2010
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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Daconil	50534-209-100	Dollar Spot	5 Gal.	cont.	2.13 oz/m	1	5700	Fwys	6/10	Anderson
26019	432-888	Brown Path	7.5 gal.	cont.	4.8 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal.	Cont.	2.13 oz/m	1	5700	Fwys	6/10	Anderson
26019	432-888	Brown Patch	7.5 gal	Cont.	4.8 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	2.13 oz/m	1	5700	Fwys	6/10	Anderson
26019	~~100-937~~ 432-888	Brown Patch	7.5 gal	Cont.	4.8 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	75 oz	syst.	0.25 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	3.33 gal.	syst.	1.4 oz/m	1	5700	Fwys	6/22	Anderson
Primo	100-937	PGR	83 oz	syst.	0.27 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Title phyte	—	Fert.	7.5 gal.	syst.	3.2 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	3.33 gal.	syst.	1.4 oz/m	1	5700	Fwys	6/22	Anderson
Primo	100-937	PGR	83 oz	syst.	0.27 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Title Phyte	—	Fert.	7.5 gal.	syst.	3.2 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	3.33 gal.	syst.	1.4 oz/m	1	5700	Fwys	6/22	Anderson
Primo	100-937	PGR	83 oz	syst.	0.27 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.26 oz/m	↓	↓	↓	↓	↓
Titly Phyte	—	Fert.	7.5 gal.	syst.	3.2 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	1.5 gal	syst.	0.64 oz/m	1	5700	Fwys	6/30	Anderson
Scimitar	100-1088	ABW	75 oz	cont.	10.9 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	1.5 gal.	syst.	0.64 oz/m	1	5700	Fwys	6/30	Anderson
Scimitar	100-1088	ABW	75 oz	cont.	10.9 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	1.5 gal	syst.	0.64 oz/m	1	5700	Fwys	6/30	Anderson
Scimitar	100-1088	ABW	75 oz	cont.	10.9 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	600 oz	syst.	2 oz/m	1	5700	Fwys	7/7	Anderson
Banol	432-942	Pythium	4 Gal	syst.	1.7 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	83 oz	syst.	0.28 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.27 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	600 oz	syst.	2 oz/m	1	5700	Fwys	7/7	Anderson
Banol	432-942	Pythium	4 gal.	syst.	1.7 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	83 oz.	syst.	0.28 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.27 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	600 oz	syst.	2 oz/m	1	5700	Fwys	7/7	Anderson
Banol	432-942	Pythium	4 gal.	syst.	1.7 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	83 oz	syst.	0.28 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	10 gal.	syst.	4.27 oz/m	↓	↓	↓	↓	↓

Chad Anderson
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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Provaunt	352-716	ABW	83 oz	syst.	12oz/A	1	5700	FWYS	7/15	Anderson
Provaunt	352-716	ABW	83 oz	syst.	12oz/A	1	5700	FWYS	7/15	Anderson
Provaunt	352-716	ABW	83 oz	syst.	12oz/A	1	5700	FWYS	7/15	Anderson
Chloropyriphos	622219-73220	ABW	450 oz	cont.	1.5oz/m	1	5700	FWYS	7/20	Anderson
Chloropyriphos	622219-73220	ABW	450 oz	cont.	1.5 oz/m	1	5700	FWYS	7/20	Anderson
Chloropyriphos	622219-73220	ABW	450 oz	cont.	1.5 oz/m	1	5700	FWYS	7/20	Anderson
Fleet	–	Wetting Agent	5.86 gal.	cont.	2.5 oz/m	1	5700	FWYS	7/22	Anderson
Fleet	–	Wetting Agent	5.86 gal.	cont.	2.5 oz/m	1	5700	FWYS	7/22	Anderson
Fleet	–	Wetting Agent	5.86 gal.	cont.	2.5 oz/m	1	5700	FWYS	7/22	Anderson
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	1	5700	FWYS	7/27	Anderson
Daconil	50534-209-100	Dollar Spot	7.5 gal	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	1	5700	FWYS	7/27	Anderson
Daconil	50534-209-100	Dollar Spot	7.5 gal	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
26019	432-888	Brown Patch	7.5 gal	cont.	3.2 oz/m	1	5700	FWYS	7/27	Anderson
Daconil	50534-209-100	Dollar Spot	7.5 gal	cont.	3.2 oz/m		↓			
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	150 oz	syst.	0.5 oz/m	1	5700	FWYS	8/3	Anderson
Subdue	100-796	Pythium	150 oz	syst.	0.5 oz/m	1	5700	FWYS	8/3	Anderson
Subdue	100-796	Pythium	150 oz	syst.	0.5 oz/m	1	5700	FWYS	8/3	Anderson
Tartan	432-1446	Summer Patch	600 oz	syst.	2 oz/m	1	5700	FWYS	8/10	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
30-0-0	–	Fert.	9 Gal.	syst.	3.84 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Summer Patch	600 oz	syst.	2 oz/m	1	5700	FWYS	8/10	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
30-0-0	–	Fert.	9 Gal.	syst.	3.84 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Summer Patch	600 oz	syst.	2 oz/m	1	5700	FWYS	8/10	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
30-0-0	–	Fert.	9 Gal.	syst.	3.84 oz/m	↓	↓	↓	↓	↓
Honor	7969-255	Dollar Spot	18 lbs	cont.	0.96 oz/m	1	5700	FWYS	8/26	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Honor	7969-255	Dollar Spot	18 lbs	cont.	0.96 oz/m	1	5700	FWYS	8/26	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Honor	7969-255	Dollar Spot	18 lbs	cont.	0.96 oz/m	1	5700	FWYS	8/26	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Interface	432-1505	Dollar Spot	10 gal	syst.	4.26 oz/m	1	5700	FWYS	9/14	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Interface	432-1505	Dollar Spot	10 gal	syst.	4.26 oz/m	1	5700	FWYS	9/14	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓
Interface	432-1505	Dollar Spot	10 gal	syst.	4.26 oz/m	1	5700	FWYS	9/14	Anderson
Primo	100-937	PGR	80 oz	syst.	0.26 oz/m	↓	↓	↓	↓	↓

Chad Anderson
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Brynwood Golf Country Club
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Area Fwys 2010

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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Tarton	432-1446	Dollar Spot	426 oz	syst.	1.42 oz/m	1	5700	Fwys	9/29	Anderson
Primo	100-937	Primo	85 oz	syst.	0.28 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	426 oz	Syst.	1.42 oz/m	1	5700	Fwys	9/29	Anderson
Primo	100-937	Primo	85 oz	syst.	0.28 oz/m	↓	↓	↓	↓	↓
Tarton	432-1446	Dollar Spot	426 oz	syst.	1.42 oz/m	1	5700	Fwys	9/29	Anderson
Primo	100-937	Primo	85 oz	syst.	0.28 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	2.13 oz/m	1	5700	Fwys	10/26	Anderson
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	2.13 oz/m	1	5700	Fwys	10/26	Anderson
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	2.13 oz/m	1	5700	Fwys	10/26	Anderson

Chad Anderson
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The Canyon Club
568 Bedford Road
Armonk, NY 10504

Area Rough

Page # 1

Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
C Lesco 3-Way	10404-43	Dandylions	2 gal	Syst.	1.28 oz/m	1	Workman	Rough	4/22	Anderson
C 3-Way	10404-43	Dandylions	2 gal	Syst.	1.28 oz/m	1	Workman	Rough	4/24	Anderson
C Contrel	62719-305	Clover	32 oz	Syst.	0.16 oz/m	1	Workman	Rough	6/10	Anderson
C Contrel	62719-305	Clover	32 oz	Syst.	0.16 oz/m	1	Workman	Rough	6/10	Anderson
C Contrel	62719-305	Clover	32 oz	Syst.	0.16 oz/m	1	Workman	Rough	6/10	Anderson
C Acclaim	432-950	Crabgrass	92 oz	Syst.	0.46 oz/m	1	Workman	Rough	7/26	Bridges
C Acclaim	432-950	Crabgrass	92 oz	Syst.	0.46 oz/m	1	Workman	Rough	7/26	Bridges
C Acclaim	432-950	Crabgrass	92 oz	Syst.	0.46 oz/m	1	Workman	Rough	7/26	Bridges
C Acclaim	432-950	Crabgrass	92 oz	Syst.	0.46 oz/m	1	Workman	Rough	8/5	Bridges
C Acclaim	432-950	Crabgrass	92 oz	Syst.	0.46 oz/m	1	Workman	Rough	8/5	Bridges

Chad Anderson
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The Canyon Club
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Area Tees

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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Daconil	50534-209-100	Leaf Spot	5 gal	cont.	3.2 oz/m	1	Workman	T/C/A	4/8	Anderson
Bayleton	432-1445	Dollar Spot	100 oz	syst.	0.5 oz/M	↓	↓	↓	↓	↓
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓
Scimitar	100-1088	ABW	46 oz	cont.	10 oz/A	1	Workman	T/C/A	4/19	Anderson
Acelepryn	352-731	ABW	56 oz	syst.	12 oz/A	1	Workman	T/C/A	4/23	Anderson
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	3.2 oz/m	1	Workman	T/C/A	5/4	Anderson
26019	432-888	Leaf Spot	5 gal	cont.	3.2 oz/M	↓	↓	↓	↓	↓
Primo	100-937	PGR	40 oz	syst.	0.2 oz/M	↓	↓	↓	↓	↓
N30	—	Fert.	7.5 gal	syst.	4.8 oz/m	↓	↓	↓	↓	↓
Dimension 2EW	62719-542	Crabgrass	74 oz	syst.	0.37 oz/m	1	Workman	T/C/A	5/6	Anderson
Provaunt	352-716	ABW	55.2 oz	syst.	12 oz/A	1	Workman	T/C/A	5/20	Anderson
Banner	100-741	Dollar Spot	200 oz	syst.	1 oz/m	1	Workman	T/C/A	5/27	Anderson
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	6.25 gal.	syst.	4 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal.	cont.	3.2 oz/m	1	Workman	T/C/A	6/10	Anderson
26019	432-888	Anthracnose	5 gal.	cont.	3.2 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	40 oz	syst.	0.20 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	6.25 gal	syst.	4 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	2.5 gal	syst.	1.6 oz/m	1	Workman	T/C/A	6/23	Anderson
Primo	100-937	PGR	40 oz	syst.	0.20 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	7.5 gal	syst.	4.8 oz/m	↓	↓	↓	↓	↓
TitlePhyte	—	Fert.	5 gal	syst	3.2 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	100 oz	syst.	0.5 oz/m	1	Workman	T/C/A	7/1	Anderson
Scimitar	100-1088	ABW	50 oz	cont	10.87 oz/A	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	3.2 oz/m	1	Workman	T/C/A	7/8	Workman
Headway	100-1216	Summer Patch	4.68 gal	syst.	3 oz/m	↓	↓	↓	↓	↓
N30	—	Fert.	7.5 gal	syst	4.8 oz/m	↓	↓	↓	↓	↓
Daconil	50534-209-100	Dollar Spot	5 gal	cont.	3.2 oz/m	1	Workman	T/C/A	7/15	Bridges
26019	432-888	Brown Patch	7.5 gal	cont.	4.8 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	200 oz	syst.	1 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	40 oz	syst	0.2 oz/m	↓	↓	↓	↓	↓
Chlorpyriphos	62249-7220	ABW	300 oz	cont.	1.5 oz/m	1	Workman	T/C/A	7/20	Anderson
Instrata	100-1231	Dollar Spot	5 Gal	cont.	3.2 oz/m	1	Workman	T/C/A	7/29	Anderson
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓
Title Phyte	—	Fert.	5 Gal	syst.	3.2 oz/m	↓	↓	↓	↓	↓
Subdue	100-796	Pythium	100 oz	syst.	0.5 oz/m	1	Workman	T/C/A	8/3	~~Anderson~~ Bridges
30-0-0	—	Fert.	2.5 Gal	syst.	1.6 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	400 oz	syst.	2 oz/M	1	Workman	T/C/A	8/10	Anderson
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓
N30	—	Fert	10 gal	syst.	6.4 oz/m	↓	↓	↓	↓	↓
TitlePhyte	—	Fert.	5 gal.	syst	3.2 oz/m	↓	↓	↓	↓	↓

Chad Anderson
Golf Course Superintendent
NYS Commercial Pesticide Applicator ID: C0828631

Brynwood Golf Country Club
568 Bedford Road
Armonk, NY 10504

Area Tees 2010

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Pesticide	EPA Number	Target	Quantity	Use	Rate	Loads	Method	Place Treated	Date	Applicator
Daconil	50534-209-100	Anthracnose	5 gal.	cont.	3.2 oz/m	1	Workman	T/C/A	8/24	Bridges
Bayleton Flo	432-1445	Dollar Spot	1 gal.	syst.	0.64 oz/m	↓	↓	↓	↓	↓
Primo	100-937	PGR	40 oz	syst.	0.20 oz/m	↓	↓	↓	↓	↓
Banner	100-741	Summer Patch	2 gal	syst.	1.28 oz/m	1	Workman	T/C/A	9/16	Anderson
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓
W22	—	Fert	10 gal.	syst.	6.4 oz/m	↓	↓	↓	↓	↓
Tartan	432-1446	Dollar Spot	2.5 gal.	syst.	1.6 oz/m	1	Workman	T/C/A	10/8	Bridges
Primo	100-937	PGR	40 oz	syst.	0.2 oz/m	↓	↓	↓	↓	↓

2011 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Fairways

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
4/11/2011	Scimitar	Lambda-cyhalothrin	Andrew Thompson	10 oz/A	60 oz/ Tank
5/15/2011	Acelepryn	Chlorantraniliprole	Ray	12 oz/A	72 oz/ Tank
	Dimension	Dithiopyr		2 pts/ A (.73 oz/m)	192 oz/ Tank
5/25/2011	Chipco 26GT	Ipridione	Ray	4 oz/m	8 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
6/1/2011	Acelepryn	Chlorantraniliprole	Ray	12 oz/A	72 oz/ Tank
	Dimension	Dithiopyr		2 pts/ A (.73 oz/m)	192 oz/ Tank
6/7/2011	Provaunt	Indoxacarb	Ray	10 oz/A	60 oz/ Tank
	Primo	Trinexepec-ethyl		9 oz/A	54 oz/Tank
6/11/2011	XCU	22-0-11	Andrew Thompson	1# N/m (1)	114 bags
6/16/2011	Tartan	Trifloxystrobin	Ray	1 oz/m	2 gal/ Tank
		Triademefon			
	Daconil	Chlorothalonil		3 oz/m	6 gal 32 oz/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
6/30/2011	Scimitar	Lamba-cyhalothrin	Ray	10 oz/A	60 oz/ Tank
7/5/2011	Headway	Propiconazole	Ray	1.5 oz/m	3 gal/ Tank
		Azoxystrobin			
	Daconil	Chlorothalonil		2.4 oz/m	5 gal/ tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ tank
7/15/2010	Rewet		Andrew and Ray	8 oz/m	16.5 gal/Tank
7/21/2011	Interface	Ipridione	Ray	4 oz/m	8 gal 21oz/ tank
		Trifloxystrobin			
	Provaunt	Indoxacarb		12 oz/A	72 oz/ Tank
	Title Phyte			3 oz/m	6 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
8/15/2011	Banner Maxx II	Propiconazole	Ray	1.5 oz/m	3 gal/ Tank
	Daconil	Chlorothalonil		2.4 oz/m	5 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
9/16/2011	Tartan	Trifloxystrobin	Ray		
		Triademefon		1.5 oz/m	3 gal/ Tank
	Daconil	Chlorothalonil		2.4 oz/m	5 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
9/19/2011	22-0-11	XCU	Rick Kadlec	.75 # N/m (1.75)	75 bags
11/17/2011	Chipco 26GT	Ipridione	Andrew Thompson	5 oz/m	8.5 gal/ Tank
	Daconil	Chlorothalonil		2.4	2.5 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/m	66 oz/ Tank

2011 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Greens and Approach

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
3/30/2011	Daconil	Chlorothalonil	Andrew Thompson	4 oz/m	5 gal
	Calcium Nitrate			.1 #N/m (.1)	15 gal
4/15/2011	Primo	Trinexepac-ethyl	Andrew Thompson	6 oz/A	24 oz
	Proxy	Ethephon		5 oz/m	7 gal
	Fleet			4 oz/A	5 gal
5/6/2011	Daconil	Chlorothalonil	Ray	3.6 oz/m	5 gal
	Scimitar	Lambda-cyhalothirin		10 oz/A	41 oz
	Primo	Trinexepac-ethyl		6 oz/A	25 oz
	30-0-0			.2 #N/m (.3)	12 gal
5/10/2011	Primo	Trinexepac-ethyl	Ray	6 oz/A	25 oz
	Proxy	Ethephon		5 oz/m	7 gal
	30-0-0			.2 #N/m (.5)	12 gal
5/12/2011	Merit	Imadacloprid	Andrew Thompson	1.6 oz/11,000 sq. ft	16 packets
	Fleet			4 oz/m	5 gal
	MN 5%			4 oz/m	5 gal
5/24/2011	Instrata	Chlorothalonil	Andrew Thompson	6 oz/m	8 gal 50 oz
		Propiconazole			
		Fludioxinil			
	Primo	Trinexepac-ethyl		6 oz/A	25 oz
	30-0-0			.166 #N/m (.66)	10 gal
5/28/2011	Provaunt	Indoxacarb	Andrew Thompson	12 oz/A	50 oz
	30-0-0			.125 #N/m (.78)	7 gal
6/7/2011	Insignia	Pyraclostrobin	Andrew Thompson	.9 oz/m	9.6 lbs
	Fleet			4 oz/m	5 gal
	30-0-0			.125 #N/m (.91)	7 gal
6/8/2011	Chipco Signature	Aluminum tris	Andrew Thompson	4 oz/m	44 lbs
	Daconil	Chlorothalonil		3.6 oz/m	5 gal
	Primo	Trinexepac-ethyl		7 oz/A	29 oz
6/13/2011 (collars 1.5A)	Instrata	Chlorothalonil	Andrew Thompson	5 oz/m	2.5 gal
		Propiconazole			
		Fludioxinil			
	Provaunt	Indoxacarb		10 oz/A	15 oz
	Primo	Trinexepac-ethyl		8 oz/A	12 oz
	30-0-0			.125 #N/m	2.5 gal
6/27/2011	Tartan	Trifloxystrobin	Andrew Thompson	1.8 oz/m	1 gal 32 oz/ Tank
		Triademefon			
	Daconil	Chlorothalonil		2.4 oz/m	1 gal 103 oz/ Tank
	Scimitar	Lambda-cyhalothirin		10 oz/A	21 oz/Tank
	Title Phyte			3.5 oz/m	2.5 gal/ Tank
	Primo	Trinexepac-ethyl		6 oz/A	13 oz/ Tank
7/4/2011	Fleet		Andrew Thompson	8 oz/m	10 gal
	30-0-0			.1 #N/m (1.01)	5 gal
7/6/2011	Headway	Azoxystrobin	Ray	2 oz/m	1.5 gal/ Tank
		Propiconazole			
	Chipco Signature	Aluminum tris		4 oz/m	22 lb/ Tank
	Daconil	Chlorothalonil		2.4 oz/m	1 gal 103 oz/ Tank
	Primo	Trinexepac-ethyl		6 oz/A	13 oz/ Tank
	30-0-0			.1 #N/m (1.11)	3 gal/ Tank

7/12/2011	Scimitar	Lambda-cyhalothirin	Ray	10 oz/A	22 oz/ Tank
	4-0-0			3 oz/m	2.5 gal/ tank
	0-0-50			.1 #K/m	25 lbs/Tank
7/20/2011	Insignia	Pyraclostrobin	Ray	.9 oz/m	4.8 lbs/ Tank
	Chipco 26GT	Ipridione		4 oz/m	3 gal/ Tank
	Title Phyte			4 oz/m	3 gal/ Tank
	Scimitar	Lambda-cyhalothirin		12 oz/A	25 oz/ Tank
	Primo	Trinexepac-ethyl		6 oz/A	13 oz/ Tank
	30-0-0			.125 #N/m (1.24)	3.5 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank
8/2/2011	Chipco Signature	Aluminum tris	Ray	4 oz/m	22 lb/Tank
	Torque	Tebuconazole		.6 oz/m	64 oz/ Tank
	Daconil	Chlorothalonil		2.4 oz/m	220 oz/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	Provaunt	Indoxacarb		12 oz/ A	26 oz/ Tank
	30-0-0			.125 #N/m (1.37)	4 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank
8/12/2010	Fleet		Andrew Thompson	8 oz/m	5 gal/ Tank
	30-0-0			.1 #N/m (1.47)	2.5 gal/Tank
8/17/2011	Chipco Signature	Aluminum tris	Andrew Thompson	4 oz/m	22 lbs/ Tank
	Bayleton FLO	Triademefon		1 oz/m	92 oz/ Tank
	Daconil	Chlorothalonil		2.4 oz/m	220 oz/ Tank
	Scimitar	Lambda-cyhalothirin		12 oz/A	25 oz
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.125 #N/m (1.6)	4 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank
9/1/2011	Clearys 3336	Thiophanate-methyl	Andrew Thompson	4 oz/m	3 gal/ Tank
	Chipco 26GT	Ipridione		4 oz/m	3 gal/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	Scimitar	Lambda-cyhalothirin		12 oz/A	25 oz/ Tank
	30-0-0			.166 #N/m (1.76)	5 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ tank
9/29/2011	Fleet		Andrew Thompson	8 oz/m	
	30-0-0			.166 #N/m (1.93)	5 gal/ Tank
	4-0-0			7 oz/m	5 gal/ Tank
10/7/2011	Headway	Azoxystrobin Propiconazole	Ray	3 oz/m	2 gal 20 oz/ Tank
	Daconil			3.6 oz/m	2.5 gal/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.166 #N/m (2.1)	5 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/Tank
11/28/2011	Instrata	Chlorothalonil Propiconazole Fludioxinil	Andrew Thompson	10 oz/m	7.5 gal/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	PAR			16 oz/A	34 oz/ Tank
	30-0-0			.166 #N/m (2.27)	5 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank

2011 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Tees and D.R. Tee

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
4/11/2011	Scimitar	Lambda-cyhalothrin	Andrew Thompson	10 oz/A	25 oz
5/14/2011	22-0-11	XCU	Andrew Thompson	1# N/m (1)	12 bags
5/16/2011	Acelepryn	Chlorantraniliprole	Ray	12 oz/A	30 oz
	Dimension	Dithiopyr		2 pts/ A (.73 oz/m)	80 oz
5/24/2011	Chipco 26GT	Ipridione	Ray	4 oz/m	3.5 gal
	Primo	Trinexepac-ethyl		11 oz/A	28 oz
5/28/2011	Provaunt	Indoxacarb	Ray	12 oz/A	30 oz
	30-0-0			.16 #N/m (1.166)	5 gal
6/10/2011	22-0-11	XCU	Rick and Andrew	1# N/m (2.16)	11 bags
6/15/2011	Tartan	Trifloxystrobin	Ray	1.75 oz/m	1.5 gal
		Triademefon			
	Daconil	Chlorothalonil		3 oz/m	2.5 gal
	Primo	Trinexepac-ethyl		11 oz/A	25 oz
	30-0-0			0.1 #N/m (2.26)	3.5 gal
6/20/2011	Scimitar	Lamba-cyhalothrin	Ray	10 oz/A	30 oz
	30-0-0			.125 #N/m (2.29)	4.5 gal
7/18/2011	Subdue Maxx	Mefanoxam	Ray	1 oz/m	1 gal
	Rewet			8 oz/m	7 gal
7/19/2011	Headway	Propiconazole	Ray	1.5 oz/m	1.5 gal
		Azoxystrobin			
	Daconil	Chlorothalonil		2.4 oz/m	2.5 gal
	Primo	Trinexepac-ethyl		11 oz/A	28 oz
	Provaunt	Indoxacarb		12 oz/A	30 oz
	30-0-0			.125 #N/m (2.42)	4.5 gal
8/16/2011	Signature	Aluminjum Tris	Ray	4 oz/m	28 lbs
	Interface	Ipridione		4 oz/m	3.5 gal
		Trifloxystrobin			
	Scimitar	Lambda-cyhalothrin		12 oz/A	30 oz
	Primo	Trinexepac-ethyl		11 oz/A	28 oz
	30-0-0			.166 #N/m (2.58)	6 gal
9/17/2011	Tartan	Trifloxystrobin	Ray	2 oz/m	1 gal 91oz
		Triademefon			
	Daconil	Chlorothalonil		2.4 oz/m	2.5 gal
	Primo	Trinexepac-ethyl		11 oz/A	28 oz
9/20/2011	22-0-11	XCU	Rick Kadlec	1 # N/m (3.58)	12 bags
11/17/2011	Chipco 26GT	Ipridione	Andrew Thompson	5 oz/m	4 gal
	Daconil	Chlorothalonil		3.6 oz/m	2.5 gal
	Primo	Trinexepac-ethyl		11 oz/m	23 oz
	30-0-0			.166 #N/m (3.75)	5 gal

2012 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Greens and Approach

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
3/17/2012	Curalan	Vinclozolin	Andrew Thompson	2.7 lbs/A	3 packets/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/A	26 oz/ Tank
	Primo	Trinexepac-ethyl		6 oz/A	12.6 oz/ Tank
	Proxy	Ethephon		5 oz/m	3 gal 96 oz/ Tank
	30-0-0			.166 #N/M (.166)	5 gal/ Tank
4/10/2012	20-0-20	w/micro package	Andrew Thompson	.75 #N/m (.917)	12 bags
4/11/2012	Fleet		Andrew Thompson	8 oz/m	6 gal/ Tank
4/13/2012	Tartan	Trifloxystrobin Triademefon	Ray	1.5 oz/m	2 gal
	Daconil Weatherstick	Chlorothalonil		2.4 oz/m	3.5 gal
	Scimitar	Lambda-cylahalothrin		12 oz/A	48 oz
	Primo	Trinexepac-ethyl		6 oz/A	24 oz
	Proxy	Ethephon		5 oz/m	7 gal
	30-0-0			.166 #N/M (1.08)	10 gal
5/7/2012	Signature	Aluminum-Tris	Andrew Thompson	4 oz/m	22 lbs/ Tank
	Daconil Weatherstick	Chlorothalonil		2.4 oz/m	2 gal/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.166 #N/m (1.25)	5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
	4-0-0			7 oz/m	5 gal/ Tank
5/14/2012	Acelepryn	Chlorantraniliprole	Ray	12 oz/A	25 oz/ Tank
	Fleet			8 oz/m	6 gal/ Tank
5/23/2012	Instrata	Chlorothalonil Propiconazole Fludioxinil	Andrew Thompson	7 oz/m	5 gal/ Tank
	Talstar	Bifenthrin		15 oz/A	32 oz/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.166 #N/m (1.42)	5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal. Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank
6/5/2012	Instrata	Chlorothalonil Propiconazole Fludioxinil	Ray (Collars only)	5 oz/m	2.5 gal
	Chipco 26GT	Ipridione		5 oz/m	2.5 gal
	Talstar	Bifenthrin		15 oz/A	22 oz
	Primo	Trinexepac-ethyl		5 oz/A	7 oz
	30-0-0			.166 #N/m	3.5 gal
	0-0-25			5 oz/m	2.5 gal
6/11/2012	Insignia Intrinsic	Pyraclostrobin	Andrew Thompson	.72 oz/m	66 oz/ Tank
	Torque	Tebuconazole		.6 oz/m	55 oz/ Tank
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		2 oz/m	1.5 gal/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	17 oz/ Tank
	30-0-0			.166 #N/m (1.59)	5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
	4-0-0			3.5 oz/m	2.5 gal/ Tank
6/12/2012	Fleet		Ray	8 oz/m	6 gal/ Tank
	Headway	Azoxystrobin Propiconazole		3 oz/m	2 gal/ Tank

6/26/2012	Signature	Aluminum-Tris	Andrew Thompson	4 oz/m	22 lbs/ Tank
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		2 oz/m	1.5 gal/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/A	26 oz/ Tank
	Primo	Trinexepac-ethyl		6 oz/A	13 oz/ Tank
	30-0-0			.166 #N/m (1.76)	5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
7/10/2012	Insignia Intrinsic	Pyraclostrobin	Ray	.72 oz/m	66 oz/ Tank
	Chipco 26GT	Ipridione		4 oz/m	3 gal/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/m	26 oz/ Tank
	Primo	Trinexepac-ethyl		6 oz/ A	12 oz/ Tank
	30-0-0			.125 #N/m (1.89)	3.5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
	NSM Minors			2 oz/m	1.5 gal/ Tank
7/12/2012	Fleet		Ray	8 oz/m	6 gal/ Tank
7/25/2012	Signature	Aluminum-Tris	Andrew Thompson	4 oz/m	22 lbs/ Tank
	Bayleton FLO	Triademefon		1 oz/m	92 oz/ Tank
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		2.4 oz/m	3.5 gal/ Tank
	Talstar	Bifenthrin		15 oz/A	32 oz
	Primo	Trinexepac-ethyl		6 oz/ A	12 oz/ Tank
	30-0-0			.125 #N/m (2.02)	3.5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
8/9/2012	Fleet		Ray	8 oz/m	6 gal/ Tank
	Title Phyte			4 oz/m	3 gal/ Tank
	30-0-0			.1 #N/m (2.12)	3 gal/ Tank
8/16/2012	Clearys 3336	Thiophanate-methyl	Andrew Thompson	4 oz/m	3 gal/ Tank
	Chipco 26GT	Ipridione		4 oz/m	3 gal/ Tank
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		1.6 oz/m	1 gal 18 oz/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/A	25 oz/ Tank
	Primo	Trinexepac-ethyl		7 oz/A	14 oz/ Tank
	30-0-0			.125 #N/m (2.25)	3.5 gal/ Tank
	0-0-25			5 oz/m	3.5 gal/ Tank
	NSM Minors			3.5 oz/m	2.5 gal/ Tank
8/28/2012	17-0-19	Greens fert	Andrew and Rick	.75 #N/m (3)	
9/5/2012	Fleet		Andrew Thompson	8 oz/m	6 gal/ Tank
9/6/2012	Headway	Azoxystrobin Propiconazole	Andrew Thompson	3 oz/m	2 gal 12 oz/ Tank
	Torque	Tebuconazole		.6 oz/m	55 oz/ Tank
	Daconil Action	Acibenzolar-S-methyl Chlorothalonil		2.4 oz/m	2 gal/ Tank
	Primo Maxx	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/ A	26 oz/ Tank
	NSM Minors			2 oz/m	1.5 gal/ Tank
9/20/2012	Concert II	Propiconazole Chlorothalonil	Andrew Thompson	7 oz/m	5 gal/ Tank
	Scimitar	Lambda-cylahalothrin		12 oz/ A	26 oz/ Tank
	Primo Maxx	Trinexepac-ethyl		6 oz/A	12 oz/ Tank
	30-0-0			.166 #N/m (3.17)	5 gal/ Tank
	NSM Minors			3.5 oz/m	2.5 gal/ Tank
	Title Phyte			4 oz/m	3 gal/ Tank
10/17/2012	Tartan	Triademefon Trifloxystrobin	Andrew Thompson	2 oz/m	1.5 gal/ Tank
	Daconil Action	Acibenzolar-S-methyl Chlorothalonil		2.4 oz/m	2 gal/ Tank
	Primo Maxx	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.166 #N/m (3.34)	5 gal/ Tank

	0-0-25			5 oz/m	3.5 gal/ Tank
	NSM Minors			3.5 oz/m	2.5 gal/ Tank
10/18/2012	Fleet		Andrew Thompson	8 oz/m	6 gal/ Tank
12/3/2012	Instrata	Chlorothalonil	Andrew Thompson	11 oz/m	8 gal/ Tank
		Propiconazole			
		Fludioxinil			
	Primo Maxx	Trinexepac-ethyl		7 oz/A	15 oz/ Tank
	30-0-0			.2 #N/m (3.54)	6 gal/ Tank
	0-0-25			7 oz/m	5 gal/ Tank
	PAR			16 oz/A	34 oz/ Tank

2012 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Fairways

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
4/20/2011	22-0-11	Fairways - XCU	Andrew Thompson	1# N/m (1)	96 Bags
4/26/2011	22-0-11	Rough w/.38% Barricade	Andrew Thompson	1 # N/m (1)	200 Bags
5/8/2011	Barricade	Prodiamine	Ray	32 oz/A	192 oz/ Tank
	Acelepryn	Chlorantraniliprole		12 oz/ A	72 oz/ Tank
5/11/2012	Emerald	Boscalid	Ray	8 oz/A	6 packets/ Tank
	Chipco 26GT	Ipridione		3.5 oz/m	7.5 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
5/31/2012	Torque	Tebuconazole	Ray	.6 oz/m	1 gal 32 oz/ Tank
	Daconil Weatherstick	Chlorothalonil		2.4 oz/m	5 gal/ Tank
	Daconil Action	Chlorothalonil		1.2 oz/m	2.5 gal/ Tank
		Acibenzolar-S-methyl			
	Provaunt	Indoxacarb		12 oz/ A	72 oz/ Tank
	Primo	Trinexepac-ethyl		11 oz/ A	66 oz/ Tank
6/12/2012	Re-Wet		Ray	8 oz/m	16.5 gal/ Tank
6/14/2012	Interface	Trifloxystrobin	Ray	5 oz/m	10 gal/ Tank
		Ipridione			
	Talstar	Bifenthrin		15 oz/A	90 oz/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
	Title Phyte			3.5 oz/m	7.5 gal/ Tank
7/5/2012	Headway	Azoxystrobin	Ray	2 oz/m	4 gal 12 oz/ Tank
		Propiconazole			
	Daconil Action	Chlorothalonil		2.4 oz/m	5 gal/ Tank
		Acibenzolar-S-methyl			
	Provaunt	Indoxacarb		12 oz/A	72 oz/ Tank
	Primo	Trinexepac-ethyl		11 oz/A	66 oz/ Tnak
7/13/2012	Re-Wet		Ray	8 oz/m	16.5 gal/ Tank
7/30/2012	Tartan	Trifloxystrobin	Ray	1.5 oz/m	3 gal/ Tank
		Triademefon			
	Chipco 26GT	Ipridione		4 oz/m	8 gal/ Tank
	Title Phyte			4 oz/m	8 gal/ Tank
	Primo	Trinexepac-ethyl		11 oz/m	66 oz/ Tank
8/23/2012	Eagle	Myclobutanil	Ray	1.2 oz/m	2.5 gal/ Tank
	Daconil Action	Chlorothalonil		2.4 oz/m	5 gal/ Tank
		Acibenzolar-S-methyl			
	Scimitar	Lambda-cylhalothrin		12 oz/A	72 oz/ Tank
	Primo Maxx	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
9/24/2012	Banner Maxx II	Propiconazole	Ray	2 oz/m	4 gal/ Tank
	Daconil Action	Chlorothalonil		2.4 oz/m	5 gal/ Tank
		Acibenzolar-S-methyl			
	Talstar	Bifenthrin		15 oz/A	90 oz/ Tank
	Primo Maxx	Trinexepac-ethyl		11 oz/A	66 oz/Tank
10/18/2012	Tartan	Triademefon	Ray	1.25 oz/m	2.5 gal/ Tank
		Trifloxystrobin			
	Primo Maxx	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
11/21/2012	Chipco 26GT	Ipridione	Andrew Thompson	6 oz/m	12.5 gal/ Tank
	Daconil Action	Chlorothalonil		2.4 oz/m	5 gal/ Tank
		Acibenzolar-S-methyl			
	Primo Maxx	Trinexepac-ethyl		11 oz/A	66 oz/ Tank

2012 Brynwood C.C. Pesticide Application Record

Records kept by Certified Commercial Applicator Andrew Thompson

Brynwood Country Club Tees and D.R. Tee

Date	Chemical Name	Active Ingredient	Applicator	Rate	Amount Used
4/4/2012	Curalan	Vinclozolin	Andrew Thompson	2.7 lbs/A	3 bags
	Scimitar	Lambda-cylahalothrin		12 oz/A	24 oz
	Primo Maxx	Trinexepac-ethyl		11 oz/A	22 oz
	4-0-0			3.5 oz/m	2.5 gal
4/20/2012	22-0-11	XCU	Rick Kadlec	1# N/m (1)	12 bags
5/9/2012	Barricade	Prodiamine	Ray	32 oz/A	80 oz
	Acelepryn	Chlorantraniliprole		12 oz/A	30 oz
	Re-Wet			8 oz/m	7 gal
5/20/2012	Chipco 26GT	Ipridione	Ray	4 oz/m	3.5 gal
	Daconil Weatherstic	Chlorothalonil		3 oz/m	2.5 gal
	Talstar	Bifenthrin		15 oz/A	37 oz
	Primo Maxx	Trinexepac-ethyl		11 oz/A	28 oz
	30-0-0			.166# N/m (1.167)	6 gal
	0-0-25			5 oz/m	4 gal
6/1/2012	Torque	Tebuconazole	Ray	.6 oz/m	66 oz
	Daconil Action	Chlorothalonil Acibenzolar		3 oz/m	2.5 gal
	Provaunt	Indoxacarb		12 oz/ A	32 oz
	Primo	Trinexepac-ethyl		11 oz/A	28 oz
	30-0-0			.166# N/m (1.333)	6 gal
	0-0-25			5 oz/m	4 gal
6/9/2012	Re-Wet		Ray	8 oz/m	7 gal
6/21/2012	Interface	Ipridione Trifloxystrobin	Ray	6 oz/m	5 gal
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		3 oz/m	2.5 gal
	Scimitar	Lambda-cylahalothrin		12 oz/A	30 oz
	Title Phyte			4 oz/m	3.5 gal
	Primo Maxx	Trinexepac-ethyl		8 oz/m	20 oz
7/6/2012	Headway	Azoxstrobin Propiconazole	Ray	3 oz/m	2.5 gal
	Signature	Aluminum-tris		4 oz/m	27.5 lbs
	Daconil Action	Chlorothalonil Acibenzolar		3 oz/m	2.5 gal
	Talstar	Bifenthrin		12 oz/m	30 oz
	Primo	Trinexepac-ethyl		9 oz/A	23 oz
	30-0-0			.166# N/m (1.5)	6 gal
	0-0-25			5 oz/m	4.5 gal
7/14/2012	Re-Wet		Ray	8 oz/m	7 gal
	Title Phyte			3 oz/m	2.5 gal
	30-0-0			.125#N/m (1.63)	4 gal
8/3/2012	Tartan	Trifloxystrobin Triademefon	Ray	2 oz/m	1 gal 90 oz
	Chipco 26GT	Ipridione		4 oz/m	3.5 gal
	Scimitar	Lambda-cylahalothrin		12 oz/A	30 oz
	Primo Maxx	Trinexepac-ethyl		8 oz/m	20 oz
	30-0-0			.125#N/m (1.76)	4.5 gal
8/15/2012	Re-Wet		Ray	8 oz/m	7 gal
	Title Phyte			4 oz/m	3.5 gal
	30-0-0			.125#N/m (1.63)	4 gal
	Eagle	Myclobutanil		1.2 oz/m	1 gal
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		3 oz/m	2.5 gal

8/21/2012	Scimitar	Lambda-cylhalothrin	Ray	12 oz/A	30
	Primo Maxx	Trinexepac-ethyl		11 oz/A	66 oz/ Tank
	30-0-0			.166# N/m (1.93)	6 gal
	0-0-25			5 oz/m	4.5 gal
9/17/2012	Re-Wet		Ray	8 oz/m	7 gal
8/28/2012	22-0-11	XCU	Rick Kadlec	1# N/m (2.93)	12 bags
9/20/2012	Banner Maxx II	Propiconazole	Ray	2 oz/m	1 gal 90 oz
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		2.4 oz/m	2 gal
	Talstar	Bifenthrin		15 oz/A	30 oz
	Primo Maxx	Trinexepac-ethyl		8 oz/A	20 oz
	30-0-0			.166# N/m (3.1)	6 gal
	0-0-25			5 oz/m	4.5 gal
10/17/2012	Tartan	Trifloxystrobin Triademefon	Ray	2 oz/m	3 gal
	Daconil Action	Chlorothalonil Acibenzolar-S-methyl		2.4 oz/m	2 gal
	Primo Maxx	Trinexepac-ethyl		8 oz/A	20 oz
	30-0-0			.166# N/m (3.27)	6 gal
	0-0-25			5 oz/m	4.5 gal
12/4/2012	Chipco 26GT	Ipridione	Ray	6oz/m	4.5 gal
	Daconil Action	Chlorothalonil Acibenzolar		2.4 oz/m	1.8 gal
	Primo Maxx	Trinexepac-ethyl		11 oz/A	28 oz
	30-0-0			.166# N/m (1.333)	6 gal
	PAR			16 oz/A	34 oz

APPENDIX O

NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
www.nysparks.com

August 2, 2013

Mr. Adam R. Kaufman
Town of North Castle
17 Bedford Rd
Armonk, New York 10504

Re: NYSDOT, NYSDEC, SEQRA
Phase I Archaeological and Historic Resources Investigation and Phase IB and Phase II Archaeological Field Investigation: Brynwood Gold and Country Club, 568 Bedford Road (NYS Route 22), Armonk, Town of North Castle, Westchester County, New York
12PR04337

Dear Mr. Kaufman:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the submitted report *Phase I Archaeological and Historic Resources Investigation and Phase IB and Phase II Archaeological Field Investigation: Brynwood Gold and Country Club, 568 Bedford Road (NYS Route 22), Armonk, Town of North Castle, Westchester County, New York* received by our office July 3, 2013. We have reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966, *as amended,* it's implementing regulations 36 CFR Part 800 – Protection of Historic Properties, and the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law).

Phase IA Archaeological and Historic Resources
Results of the Phase IA Report identify the heightened precontact and historic period archaeological sensitivity at two discrete locations within the project area. Recommendations of the Phase IA included the need for a Phase IB archaeological testing program in the areas identified above prior to project construction of new development or improvements to the golf course including new well construction.

Furthermore, it was recommended that all stone walls within the project site should be preserved to the extent possible. To help accomplish this, walls should be incorporated into new design and be subject to stabilization if determined to be deteriorating, such as the stone walls located along the east side of the project site along the Route 22 shoulder. The Old Post Road historic milestone marker located just north of the entrance to the Brynwood property, on the west shoulder of Route 22 should be preserved. A construction management plan to protect this marker should be implemented prior to the initiation of site activities to protect against accidental damage during construction.

There are several architectural resources that are visible from the project site on the east side of Route 22, which while presently not officially documented at the Town, State, or National level, nonetheless have historic value and should be considered as part of the impacts analyses. It is recommended that the proposed development along the Route 22 portion of the project site be appropriately set back and screened from view, so that there are no impact concerns for these resources. It is recommended that the historic Route 22 corridor in this area should remain as unchanged as possible.

Phase IB Archaeological Field Investigation
A total of 73 Shovel Tests (STs) were excavated during the course of the field project. Only a limited number of test units contained artifacts. The majority of the artifacts recovered dated to the twentieth century demolition and filling episodes on the site.

Area A is the location was the 19th century site of the Tripp family farmhouse. Portions of this location appeared to have been altered by grading and filling during the twentieth century when this area was used as part of an earlier golf course. Only a small number of the STs excavated contained a handful of 19^{th} century artifacts. Two features and one potential feature were identified including an intact buried ceramic drain and the partial remains of a field stone foundation that was observed on the surface. Additional Phase II testing was recommended around the foundation to help determine the integrity of the remains and to locate any associated features still present in this location.

Area B was a wooded area running along the southeast edge of the existing golf course that was considered sensitive for precontact cultural resources. Only a few small artifacts were identified during the excavation within this location. No features or precontact artifacts were recovered during the Phase IB testing program

Phase II Field Investigations
The investigation included the excavation of additional STs, two one-meter excavation units, and one backhoe trench around the remnants of the house foundation. The entire profile exposed disturbed fill, likely caused by the introduction of the large storm drain and its predecessors. The foundation had been dismantled and the western portion of the south wall had been completely destroyed in this location.

Conclusions indicate that the examination revealed that only a portion of this structure remained *in situ*. The excavation found that the degree of land manipulation during the early 20th century completely diminished the integrity of the domestic site and severely restricted the *in situ* remains to a very small locus. The features recovered are therefore not considered significant and/or eligible for inclusion on the National Register. No further consideration for historical cultural resources is recommended.

Based upon the provided information, it is the recommendation of our office that there will be *No Historic Properties Affected* [as per 36 CFR § 800.4(d)(1)] as a result of the proposed undertaking.

Should you have any questions, please feel free to contact me directly at (518) 237-8643, Extension 3288 or via electronic mail at Brian.Yates@oprhp.state.ny.us. If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Wm. B. Yates

Wm. Brian Yates
Historic Preservation Specialist

cc: Julie Abell Horn, Historical Perspectives, Inc.
Bonnie Von Ohlsen, VHB Engineering, Surveying and Landscape Architecture, P.C.

APPENDIX P

THE RESIDENCES AT THE RITZ CARLTON

SALES

Building I

Address	City	Bd	Bth	SqFt	Year	Date	$/SqFt	DOM	Orig Price	List Price	Sale Price	SP % LP
1 Renaissance Sq #31	White Pla	2	3 (2 1)	1445	2007	11/30/2007	$865.05	448	$1,250,000	$1,250,000	$1,250,000	100
1 Renaissance Sq #11B	White Pla	1	2 (1 1)	1027	2007	12/17/2007	$699.12	465	$718,000	$718,000	$718,000	100
1 Renaissance Sq #11C	White Pla	1	2 (1 1)	1067	2007	12/19/2007	$699.16	467	$746,000	$746,000	$746,000	100
1 Renaissance Sq #25F	White Pla	2	3 (2 1)	1445	2007	12/19/2007	$792.39	467	$1,145,000	$1,145,000	$1,145,000	100
1 Renaissance Sq #12C	White Pla	1	2 (1 1)	1067	2007	12/20/2007	$712.28	468	$760,000	$760,000	$760,000	100
1 Renaissance Sq #15B	White Pla	1	2 (1 1)	1028	2007	12/20/2007	$738.33	468	$759,000	$759,000	$759,000	100
1 Renaissance Sq #33B	White Pla	2	3 (2 1)	1480	2007	12/26/2007	$889.19	474	$1,316,000	$1,316,000	$1,316,000	100
1 Renaissance Sq #26	White Pla	3	4 (3 1)	1976	2007	12/28/2007	$810.73	476	$1,602,000	$1,602,000	$1,602,000	100
1 Renaissance Sq #V1F	White Pla	2	3 (2 1)	1445	2007	2/27/2008	$847.75	75	$1,350,000	$1,350,000	$1,225,000	90.74
1 Renaissance Sq #PH3	White Pla	2	3 (2 1)	2532	2007	4/24/2008	$960.51	422	$3,038,000	$2,532,000	$2,432,000	96.05
1 Renaissance Sq #24E	White Pla	2	3 (2 1)	1658	2007	5/16/2008	$922.61	352	$1,577,000	$1,577,000	$1,529,690	97
1 Renaissance Sq #17	White Pla	1	2 (1 1)	1028	2007	5/28/2008	$734.44	145	$799,000	$799,000	$755,000	94.49
1 Renaissance Sq #36P	White Pla	3	4 (3 1)	1917	2007	7/18/2008	$938.97	184	$2,300,000	$1,900,000	$1,800,000	94.74
1 Renaissance Sq #16B	White Pla	1	2 (1 1)	1028	2007	3/11/2009	$763.62	147	$798,000	$798,000	$785,000	98.37
1 Renaissance Sq #14B	White Pla	1	2 (1 1)	1028	2007	8/11/2009	$578.79	124	$749,000	$625,000	$595,000	95.2
1 Renaissance Sq #26F	White Pla	2	3 (2 1)	1445	2007	8/17/2009	$657.44	38	$999,000	$999,000	$950,000	95.1
1 Renaissance Sq #30E	White Pla	2	3 (2 1)	1658	2007	5/21/2010	$600.72	155	$1,295,000	$1,295,000	$996,000	76.91
1 Renaissance Sq #16g	White Pla	3	4 (3 1)	1976	2007	7/28/2010	$480.77	79	$1,199,000	$1,199,000	$950,000	79.23
1 Renaissance Sq #32G	White Pla	2	3 (2 1)	1976	2010	5/17/2011	$480.77	81	$1,050,000	$1,050,000	$950,000	90.48
1 Renaissance Sq #V7B	White Pla	2	3 (2 1)	1480	2007	6/29/2011	$500.00	169	$869,000	$825,000	$740,000	89.7
1 Renaissance Sq #19B	White Pla	3	4 (3 1)	3808	2007	9/28/2011	$593.49	239	$2,490,000	$2,490,000	$2,260,000	90.76

1 Renaissance Sq #20C	White Pla	3 3 (3 0)	2328	2007	10/6/2011	$687.29	153	$1,795,000	$1,795,000	$1,600,000	89.14
1 Renaissance Sq #29F	White Pla	2 3 (2 1)	1445	2007	10/18/2011	$515.57	178	$799,000	$799,000	$745,000	93.24
1 Renaissance Sq #28B	White Pla	3 4 (3 1)	3167	2007	11/29/2011	$702.56	95	$2,300,000	$2,300,000	$2,225,000	96.74
1 Renaissance Sq #PH2	White Pla	2 3 (2 1)	5079	2007	12/13/2011	$679.27	626	$6,795,000	$3,900,000	$3,450,000	88.46
1 Renaissance Sq #15b	White Pla	1 2 (1 1)	1028	2007	2/17/2012	$505.84	256	$659,000	$569,000	$520,000	91.39
1 Renaissance Sq #31A	White Pla	2 3 (2 1)	1453	2007	3/26/2012	$557.47	95	$845,000	$829,000	$810,000	97.71
1 Renaissance Sq #27F	White Pla	2 3 (2 1)	1467	2007	4/9/2012	$518.06	53	$799,000	$799,000	$760,000	95.12
1 Renaissance Sq #16C	White Pla	1 2 (1 1)	1076	2007	5/17/2012	$494.89	99	$549,900	$549,900	$532,500	96.84
1 Renaissance Sq #14G	White Pla	3 4 (3 1)	1977	2007	6/8/2012	$404.65	401	$1,012,900	$1,012,900	$800,000	78.98
1 Renaissance Sq #PH1	White Pla	3 3 (3 0)	1917	2007	6/12/2012	$508.61	179	$1,200,000	$1,149,000	$975,000	84.86
1 Renaissance Sq #PH2	White Pla	2 3 (2 1)	1453	2008	10/17/2012	$529.94	321	$899,000	$819,000	$770,000	94.02
1 Renaissance Sq #PH1	White Pla	3 4 (3 1)	3136	2005	11/16/2012	$446.43	21	$1,500,000	$1,500,000	$1,400,000	93.33
1 Renaissance Sq #PH3	White Pla	2 3 (2 1)	2581	2005	11/26/2012	$484.31	31	$1,300,000	$1,300,000	$1,250,000	96.15
1 Renaissance Sq #30A	White Pla	2 3 (2 1)	1459	2008	1/8/2013	$496.92	96	$799,000	$789,000	$725,000	91.89
1 Renaissance Sq #16B	White Pla	1 2 (1 1)	1028	2007	1/11/2013	$549.61	274	$625,000	$569,000	$565,000	99.3
1 Renaissance Sq #12D	White Pla	2 3 (2 1)	1707	2007	1/18/2013	$445.23	281	$825,000	$779,000	$760,000	97.56
1 Renaissance Sq #40	White Pla	3 4 (3 1)	5030	2005	4/11/2013	$288.27	119	$1,795,000	$1,795,000	$1,450,000	80.78
1 Renaissance Sq #40A	White Pla	3 4 (3 1)	5243	2005	4/11/2013	$276.56	119	$3,995,000	$1,795,000	$1,450,000	80.78
1 Renaissance Sq #38ef	White Pla	2 3 (2 1)	5100	2005	4/16/2013	$310.78	125	$1,750,000	$1,750,000	$1,585,000	90.57
1 Renaissance Sq #30F	White Pla	2 3 (2 1)	1445	2007	4/19/2013	$525.95	86	$795,000	$795,000	$760,000	95.6
1 Renaissance Sq #35F	White Pla	2 3 (2 1)	1445	2007	4/29/2013	$560.55	54	$799,900	$799,900	$810,000	101.26
1 Renaissance Sq #V8-	White Pla	3 3 (3 0)	2300	2007	5/31/2013	$565.22	93	$1,350,000	$1,350,000	$1,300,000	96.3
1 Renaissance Sq #PH4	White Pla	3 3 (2 1)	5030	2007	8/17/2013	$165.41	94	$995,000	$995,000	$832,000	83.62
44						**$601.94**	**223**	**$1,386,175**	**$1,238,039**	**$1,144,050**	**93.2**

Building II

Address	City	Bd	Bth	SqFt	Year	Date	$/SqFt	DOM	Orig Price	List Price	Sale Price	SP % LP
5 Renaissance Sq #9C	White Pla	1	2 (1 1)	1086	2007	3/12/2009	$704.19	192	$805,000	$805,000	$764,750	95
5 Renaissance Sq #12C	White Pla	1	2 (1 1)	1086	2008	5/23/2009	$686.00	128	$763,000	$763,000	$745,000	97.64
5 Renaissance Sq #16F	White Pla	2	3 (2 1)	1534	2007	12/4/2009	$639.90	5	$981,600	$981,600	$981,600	100
5 Renaissance Sq #19E	White Pla	2	3 (2 1)	1734	2008	12/4/2009	$576.12	183	$1,195,200	$1,045,800	$999,000	95.52
5 Renaissance Sq #31C	White Pla	2	3 (2 1)	2304	2008	1/19/2010	$529.51	12	$1,220,000	$1,220,000	$1,220,000	100
5 Renaissance #18C	White Pla	1	2 (1 1)	1086	2008	2/12/2010	$529.47	9	$575,000	$575,000	$575,000	100
5 Renaissance Sq #11F	White Pla	2	3 (2 1)	1534	2008	3/17/2010	$459.58	40	$780,000	$780,000	$705,000	90.38
5 Renaissance Sq #15E	White Pla	2	3 (2 1)	1734	2008	3/24/2010	$507.50	38	$880,000	$880,000	$880,000	100
5 Renaissance Sq #10B	White Pla	1	2 (1 1)	1079	2008	5/3/2010	$500.46	334	$644,800	$540,000	$540,000	100
5 Renaissance Sq #15C	White Pla	1	2 (1 1)	1086	2008	5/24/2010	$501.84	19	$545,000	$545,000	$545,000	100
5 Renaissance Sq #26G	White Pla	3	4 (3 1)	2139	2008	6/11/2010	$575.04	127	$1,230,000	$1,230,000	$1,230,000	100
5 Renaissance Sq #14B	White Pla	1	2 (1 1)	1079	2007	8/13/2010	$505.10	91	$545,000	$545,000	$545,000	100
5 Renaissance Sq #14F	White Pla	2	3 (2 1)	1534	New	9/28/2010	$508.47	137	$856,000	$797,150	$780,000	97.85
5 Renaissance Sq #18E	White Pla	2	3 (2 1)	1734	New	11/18/2010	$576.70	85	$1,000,000	$1,000,000	$1,000,000	100
5 Renaissance Sq #29G	White Pla	3	4 (3 1)	2139	New	11/23/2010	$525.95	39	$1,040,040	$1,135,000	$1,125,000	99.12
5 Renaissance Sq #27C	White Pla	2	3 (2 1)	2304	2008	2/25/2011	$577.26	79	$1,330,000	$1,350,000	$1,330,000	98.52
5 Renaissance Sq #32E	White Pla	2	3 (2 1)	2498	2008	3/15/2011	$680.54	117	$1,700,000	$1,700,000	$1,700,000	100
5 Renaissance Sq #10A	White Pla	2	3 (2 1)	1489	2008	4/19/2011	$454.67	134	$677,000	$677,000	$677,000	100
5 Renaissance Sq #31G	White Pla	3	4 (3 1)	2139	2008	6/2/2011	$631.14	17	$1,350,000	$1,350,000	$1,350,000	100
5 Renaissance Sq #12A	White Pla	2	3 (2 1)	1489	2008	6/24/2011	$460.04	200	$685,000	$685,000	$685,000	100
5 Renaissance Sq #30G	White Pla	3	4 (3 1)	2139	2008	7/11/2011	$607.76	31	$1,300,000	$1,300,000	$1,300,000	100
5 Renaissance Sq #18B	White Pla	1	2 (1 1)	1079	New	7/15/2011	$574.61	427	$625,900	$625,900	$620,000	99.06
5 Renaissance Sq #ph1	White Pla	2	3 (2 1)	2304	2008	7/19/2011	$781.25	39	$1,800,000	$1,800,000	$1,800,000	100
5 Renaissance Sq #16D	White Pla	2	3 (2 1)	1757	2008	8/9/2011	$532.16	11	$909,000	$935,000	$935,000	100
5 Renaissance Sq #9A	White Pla	2	3 (2 1)	1489	2008	8/17/2011	$449.97	254	$670,000	$670,000	$670,000	100
5 Renaissance Sq #26C	White Pla	2	3 (2 1)	2304	2008	10/20/2011	$578.99	359	$1,334,000	$1,334,000	$1,334,000	100
5 Renaissance Sq #15A	White Pla	2	3 (2 1)	1489	2008	12/21/2011	$511.65	586	$891,310	$761,840	$761,840	100
5 Renaissance Sq #ph2	White Pla	2	3 (2 1)	2304	2008	12/21/2011	$802.95	141	$1,800,500	$1,850,000	$1,850,000	100

5 Renaissance Sq #19G	White Pla	3 4 (3 1)	2139	2008	1/5/2012	$572.70	100	$1,225,000	$1,225,000	$1,225,000	100
5 Renaissance Sq #11A	White Pla	2 3 (2 1)	1489	2008	4/23/2012	$473.47	81	$705,000	$705,000	$705,000	100
5 Renaissance Sq #30C	White Pla	2 3 (2 1)	2304	2007	5/7/2012	$631.90	147	$1,455,900	$1,455,900	$1,455,900	100
5 Renaissance Sq #30E	White Pla	2 3 (2 1)	1734	2008	5/10/2012	$686.27	79	$1,190,000	$1,190,000	$1,190,000	100
5 Renaissance Sq #17E	White Pla	2 3 (2 1)	1734	2008	8/22/2012	$570.93	36	$899,000	$990,000	$990,000	100
5 Renaissance Sq #21F	White Pla	2 3 (2 1)	1534	2008	8/28/2012	$586.05	42	$899,000	$899,000	$899,000	100
5 Renaissance Sq #16A	White Pla	2 3 (2 1)	1489	2008	11/5/2012	$517.13	49	$770,000	$770,000	$770,000	100
5 Renaissance Sq #21B	White Pla	2 3 (2 1)	1555	2008	2/4/2013	$513.83	89	$799,000	$799,000	$799,000	100
5 Renaissance Sq #26F	White Pla	2 3 (2 1)	1534	2008	2/28/2013	$645.37	92	$990,000	$990,000	$990,000	100
5 Renaissance Sq #18F	White Pla	2 3 (2 1)	1534	2008	4/2/2013	$599.74	12	$920,000	$920,000	$920,000	100
5 Renaissance Sq #17G	White Pla	3 4 (3 1)	2139	2008	4/10/2013	$551.66	154	$1,180,000	$1,180,000	$1,180,000	100
5 Renaissance Sq #22A	White Pla	2 3 (2 1)	1489	2008	5/2/2013	$536.60	176	$799,000	$799,000	$799,000	100
5 Renaissance Sq #22G	White Pla	3 4 (3 1)	2139	2008	5/2/2013	$556.33	176	$1,190,000	$1,190,000	$1,190,000	100
5 Renaissance Sq #15F	White Pla	2 3 (2 1)	1534	2008	5/21/2013	$531.29	561	$815,000	$815,000	$815,000	100
5 Renaissance Sq #26A	White Pla	2 3 (2 1)	1489	2008	5/21/2013	$604.43	794	$912,000	$900,000	$900,000	100
5 Renaissance Sq #28C	White Pla	2 3 (2 1)	2304	2008	6/7/2013	$622.83	386	$1,435,000	$1,435,000	$1,435,000	100
5 Renaissance Sq #23A	White Pla	2 3 (2 1)	1489	2008	8/19/2013	$603.76	6	$899,000	$899,000	$899,000	100
45						**$572.74**	**151**	**$1,004,806**	**$1,000,960**	**$995,780**	**99.4**

APPENDIX Q

BRYNWOOD GOLF AND COUNTRY CLUB

ATTACHMENT A

NYS ROUTE 22 & COX AVENUE

NYS ROUTE 22 & CREEMER ROAD

NYS ROUTE 22 & STERLING ROAD

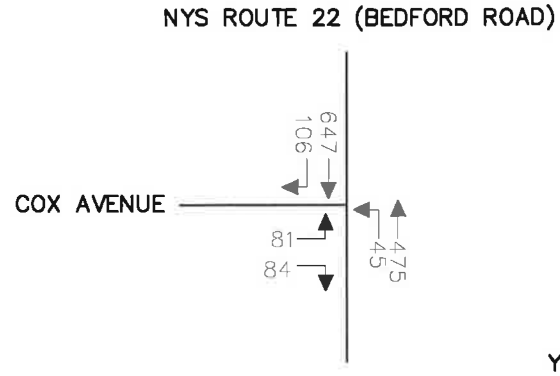
NYS ROUTE 22 & COX AVENUE

TABLE NO. 1

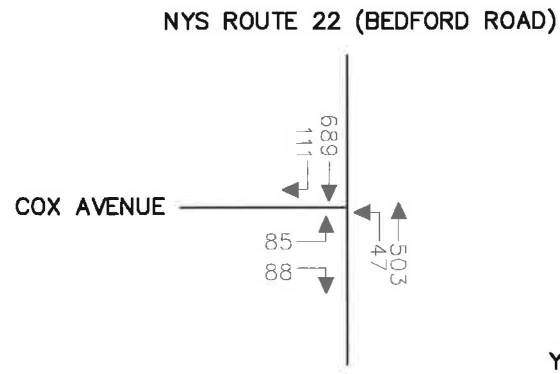
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2013 EXISTING CONDITIONS			YEAR 2018 NO-BUILD CONDITIONS			YEAR 2018 BUILD CONDITIONS		
		AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00
10	NYS ROUTE 22 & COX AVENUE									
	UNSIGNALIZED									
	MAJOR MOVEMENTS NORTHBOUND LEFT / THROUGH	A (2.2)	A (1.6)	A (1.8)	A (2.4)	A (1.7)	A (2.0)	A (2.5)	A (1.7)	A (2.0)
	MINOR MOVEMENTS EASTBOUND LEFT / RIGHT	F (241.6)	E (47.3)	D (33.4)	F (354.3)	F (65.2)	E (43.3)	F (404.5)	F (75.9)	E (48.3)

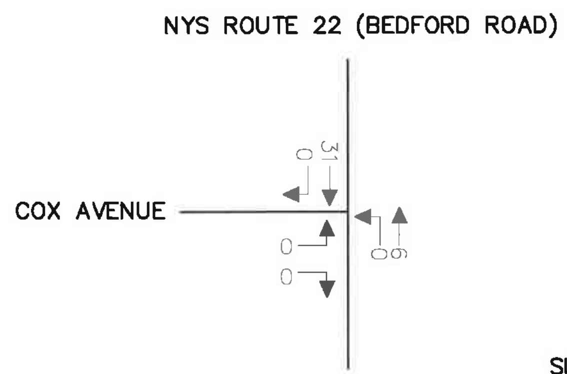
THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B (10.9) FOR THE UNSIGNALIZED INTERSECTIONS



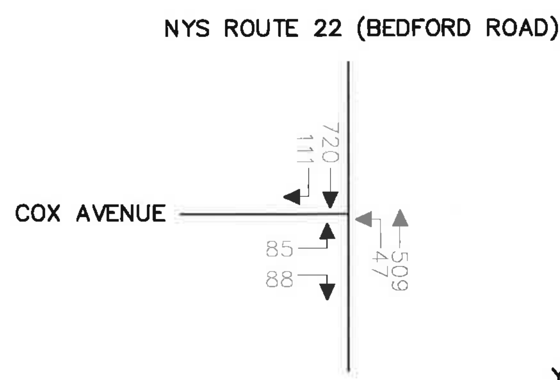
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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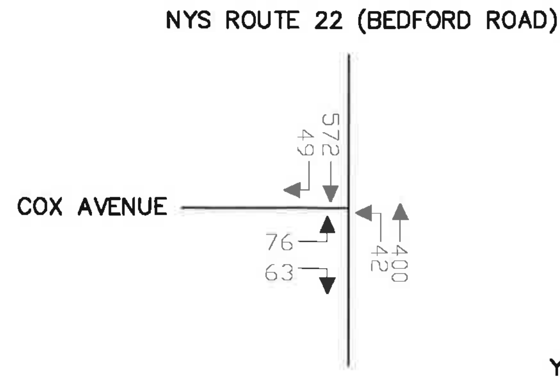
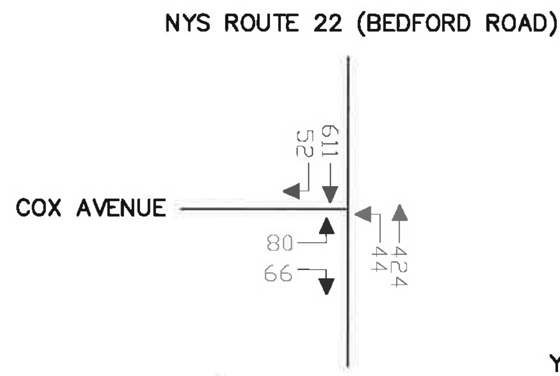
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(7:00 AM - 8:00 AM)

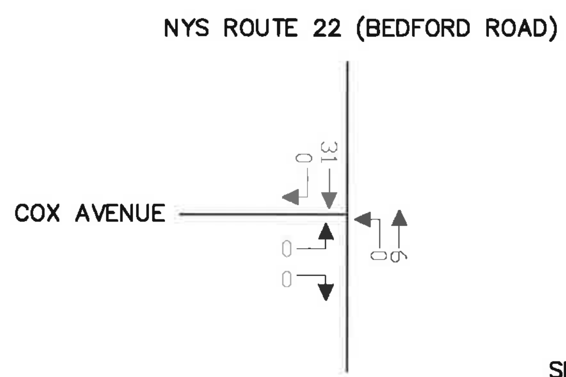
JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
1	



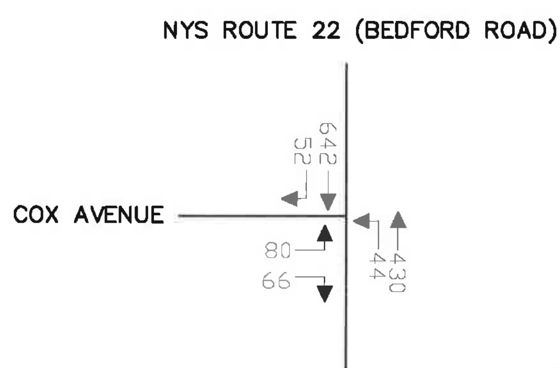
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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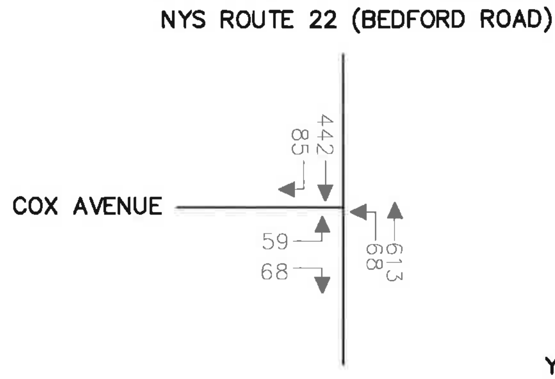
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(8:15 AM - 9:15 AM)

JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
2	



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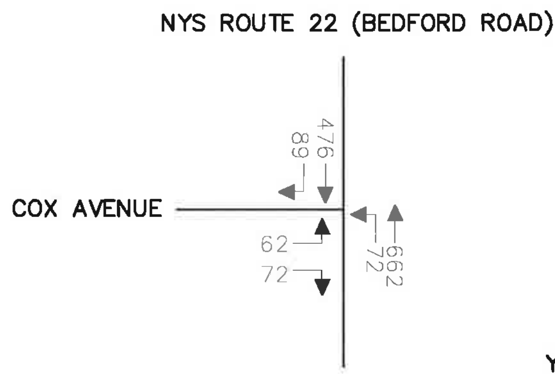
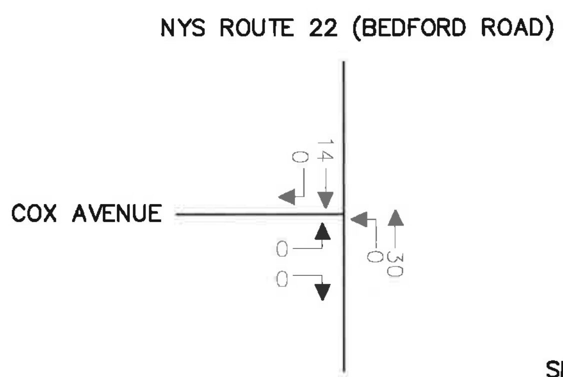
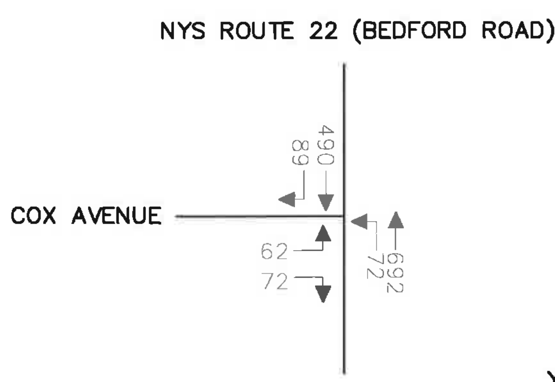


YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK PM HIGHWAY HOUR

JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
3	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.981		0.931	
Flt Protected		0.996			0.976	
Satd. Flow (prot)	0	1720	1694	0	1465	0
Flt Permitted		0.996			0.976	
Satd. Flow (perm)	0	1720	1694	0	1465	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	45	475	647	106	81	84
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	56	594	809	133	101	105
Lane Group Flow (vph)	0	650	941	0	206	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	45	475	647	106	81	84
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	56	594	809	132	101	105
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	951				1601	895
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	951				1601	895
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	92				0	68
cM capacity (veh/h)	686				101	323

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	650	941	206
Volume Left	56	0	101
Volume Right	0	132	105
cSH	686	1700	155
Volume to Capacity	0.08	0.55	1.33
Queue Length 95th (ft)	7	0	314
Control Delay (s)	2.2	0.0	241.6
Lane LOS	A		F
Approach Delay (s)	2.2	0.0	241.6
Approach LOS			F

Intersection Summary			
Average Delay	28.5		
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.989		0.938	
Flt Protected		0.995			0.974	
Satd. Flow (prot)	0	1719	1708	0	1473	0
Flt Permitted		0.995			0.974	
Satd. Flow (perm)	0	1719	1708	0	1473	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	42	400	572	49	76	63
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	48	455	650	56	86	72
Lane Group Flow (vph)	0	503	706	0	158	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 72.6% ICU Level of Service C
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	42	400	572	49	76	63
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	48	455	650	56	86	72
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	716				1248	698
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	716				1248	698
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	94				50	83
cM capacity (veh/h)	843				171	421

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	502	706	158
Volume Left	48	0	86
Volume Right	0	56	72
cSH	843	1700	234
Volume to Capacity	0.06	0.42	0.67
Queue Length 95th (ft)	4	0	107
Control Delay (s)	1.6	0.0	47.3
Lane LOS	A		E
Approach Delay (s)	1.6	0.0	47.3
Approach LOS			E

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.978		0.928	
Flt Protected		0.995			0.977	
Satd. Flow (prot)	0	1719	1689	0	1462	0
Flt Permitted		0.995			0.977	
Satd. Flow (perm)	0	1719	1689	0	1462	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	68	613	442	85	59	68
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	70	632	456	88	61	70
Lane Group Flow (vph)	0	702	544	0	131	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 84.1% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	68	613	442	85	59	68
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	70	632	456	88	61	70
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	553				1292	519
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	553				1292	519
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	93				62	87
cM capacity (veh/h)	971				158	533

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	702	543	131
Volume Left	70	0	61
Volume Right	0	88	70
cSH	971	1700	254
Volume to Capacity	0.07	0.32	0.52
Queue Length 95th (ft)	6	0	68
Control Delay (s)	1.8	0.0	33.4
Lane LOS	A		D
Approach Delay (s)	1.8	0.0	33.4
Approach LOS			D

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.981		0.931	
Flt Protected		0.996			0.976	
Satd. Flow (prot)	0	1720	1694	0	1465	0
Flt Permitted		0.996			0.976	
Satd. Flow (perm)	0	1720	1694	0	1465	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	47	503	689	111	85	88
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	59	629	861	139	106	110
Lane Group Flow (vph)	0	688	1000	0	216	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	47	503	689	111	85	88
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	59	629	861	139	106	110
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1010				1697	951
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1010				1697	951
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	91				0	63
cM capacity (veh/h)	651				87	300

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	688	1000	216
Volume Left	59	0	106
Volume Right	0	139	110
cSH	651	1700	136
Volume to Capacity	0.09	0.59	1.59
Queue Length 95th (ft)	7	0	383
Control Delay (s)	2.4	0.0	354.3
Lane LOS	A		F
Approach Delay (s)	2.4	0.0	354.3
Approach LOS			F

Intersection Summary			
Average Delay	41.1		
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.989		0.939	
Flt Protected		0.995			0.973	
Satd. Flow (prot)	0	1719	1708	0	1473	0
Flt Permitted		0.995			0.973	
Satd. Flow (perm)	0	1719	1708	0	1473	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	44	424	611	52	80	66
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	50	482	694	59	91	75
Lane Group Flow (vph)	0	532	753	0	166	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	44	424	611	52	80	66
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	50	482	694	59	91	75
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	763				1326	744
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	763				1326	744
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	94				40	81
cM capacity (veh/h)	809				152	396

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	532	753	166
Volume Left	50	0	91
Volume Right	0	59	75
cSH	809	1700	211
Volume to Capacity	0.06	0.44	0.79
Queue Length 95th (ft)	5	0	139
Control Delay (s)	1.7	0.0	65.2
Lane LOS	A		F
Approach Delay (s)	1.7	0.0	65.2
Approach LOS			F

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.979		0.928	
Flt Protected		0.995			0.977	
Satd. Flow (prot)	0	1719	1691	0	1462	0
Flt Permitted		0.995			0.977	
Satd. Flow (perm)	0	1719	1691	0	1462	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	72	662	476	89	62	72
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	74	682	491	92	64	74
Lane Group Flow (vph)	0	756	583	0	138	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 89.2% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	72	662	476	89	62	72
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	74	682	491	92	64	74
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	592				1388	557
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	592				1388	557
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	92				53	85
cM capacity (veh/h)	939				137	507

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	757	582	138
Volume Left	74	0	64
Volume Right	0	92	74
cSH	939	1700	226
Volume to Capacity	0.08	0.34	0.61
Queue Length 95th (ft)	6	0	89
Control Delay (s)	2.0	0.0	43.3
Lane LOS	A		E
Approach Delay (s)	2.0	0.0	43.3
Approach LOS			E

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.982		0.931	
Flt Protected		0.996			0.976	
Satd. Flow (prot)	0	1720	1696	0	1465	0
Flt Permitted		0.996			0.976	
Satd. Flow (perm)	0	1720	1696	0	1465	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	47	509	720	111	85	88
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	59	636	900	139	106	110
Lane Group Flow (vph)	0	695	1039	0	216	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 83.8% ICU Level of Service E
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	47	509	720	111	85	88
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Hourly flow rate (vph)	59	636	900	139	106	110
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1049				1743	989
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1049				1743	989
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	91				0	61
cM capacity (veh/h)	629				81	285

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	695	1039	216
Volume Left	59	0	106
Volume Right	0	139	110
cSH	629	1700	128
Volume to Capacity	0.09	0.61	1.70
Queue Length 95th (ft)	8	0	403
Control Delay (s)	2.5	0.0	404.5
Lane LOS	A		F
Approach Delay (s)	2.5	0.0	404.5
Approach LOS			F

Intersection Summary			
Average Delay	45.7		
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.990		0.939	
Flt Protected		0.995			0.973	
Satd. Flow (prot)	0	1719	1710	0	1473	0
Flt Permitted		0.995			0.973	
Satd. Flow (perm)	0	1719	1710	0	1473	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	44	430	642	52	80	66
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	50	489	730	59	91	75
Lane Group Flow (vph)	0	539	789	0	166	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 76.1% ICU Level of Service D

Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	44	430	642	52	80	66
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	50	489	730	59	91	75
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	799				1368	779
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	799				1368	779
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	94				37	80
cM capacity (veh/h)	784				143	378

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	539	789	166
Volume Left	50	0	91
Volume Right	0	59	75
cSH	784	1700	199
Volume to Capacity	0.06	0.46	0.83
Queue Length 95th (ft)	5	0	152
Control Delay (s)	1.7	0.0	75.9
Lane LOS	A		F
Approach Delay (s)	1.7	0.0	75.9
Approach LOS			F

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	10	10
Storage Length (ft)	0			0	50	0
Storage Lanes	0			0	1	0
Turning Speed (mph)	15			9	15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt			0.979		0.928	
Flt Protected		0.995			0.977	
Satd. Flow (prot)	0	1719	1691	0	1462	0
Flt Permitted		0.995			0.977	
Satd. Flow (perm)	0	1719	1691	0	1462	0
Headway Factor	1.00	1.00	1.00	1.00	1.09	1.09
Link Speed (mph)		40	40		30	
Link Distance (ft)		458	512		871	
Travel Time (s)		7.8	8.7		19.8	
Volume (vph)	72	692	490	89	62	72
Confl. Peds. (#/hr)	10			10	10	10
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	74	713	505	92	64	74
Lane Group Flow (vph)	0	787	597	0	138	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 91.6% ICU Level of Service F
Analysis Period (min) 15

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	72	692	490	89	62	72
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	74	713	505	92	64	74
Pedestrians		10	10		10	
Lane Width (ft)		12.0	12.0		10.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	607				1433	571
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	607				1433	571
tC, single (s)	4.2				6.5	6.3
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	92				50	85
cM capacity (veh/h)	927				128	498

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	788	597	138
Volume Left	74	0	64
Volume Right	0	92	74
cSH	927	1700	214
Volume to Capacity	0.08	0.35	0.65
Queue Length 95th (ft)	7	0	97
Control Delay (s)	2.0	0.0	48.3
Lane LOS	A		E
Approach Delay (s)	2.0	0.0	48.3
Approach LOS			E

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	91.6%	ICU Level of Service	F
Analysis Period (min)	15		

106	647	0	^	6	0
12	11	10	<	5	0
<	v	>	v	4	0
81	1	^	<	^	>
0	2	>	7	8	9
84	3	v	45	475	0

LOCATION: NYS ROUTE 22 & COX AVENUE PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/12/13 DAY: THURSDAY JCE JOB #: 12100120A START TIME : 07:00 **AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

AM PEAK HOUR		EASTBOUND 1	2	3	WESTBOUND 4	5	6	NORTHBOUND 7	8	9	SOUTHBOUND 10	11	12	total		
07:00 AM	07:15 AM	19		9				10	114			152	10	314	X	
07:15 AM	07:30 AM	38		22				5	181			179	25	450	X	
07:30 AM	07:45 AM	15		25				10	93			190	44	377	X	
07:45 AM	08:00 AM	9		28				20	87			126	27	297	X	1438
08:00 AM	08:15 AM	14		11				12	88			117	26	268	A	1392
08:15 AM	08:30 AM	21		11				11	110			130	10	293	A	1235
08:30 AM	08:45 AM	11		7				4	98			135	11	266	A	1124
08:45 AM	09:00 AM	20		26				18	103			163	11	341	A	1168
09:00 AM	09:15 AM	24		19				9	89			144	17	302	A	1202
09:15 AM	09:30 AM	14		9				11	83			114	13	244	A	1153
09:30 AM	09:45 AM													0	A	887
09:45 AM	10:00 AM													0	A	546
10:00 AM	10:15 AM													0	A	244
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
07:00 AM	07:15 AM	19	0	9	0	0	0	10	114	0	0	152	10	314
07:15 AM	07:30 AM	38	0	22	0	0	0	5	181	0	0	179	25	450
07:30 AM	07:45 AM	15	0	25	0	0	0	10	93	0	0	190	44	377
07:45 AM	08:00 AM	9	0	28	0	0	0	20	87	0	0	126	27	297
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
07:00 AM	08:00 AM	81	0	84	0	0	0	45	475	0	0	647	106	1438	0.80

LOCATION:	NYS ROUTE 22 & COX AVENUE	PROJECT:	BRYNWOOD GOLF AND COUNTRY CLUB	
DATE OF COUNT:	09/12/13	DAY: THURSDAY	JCE JOB #: 12100120A	START TIME : 07:00 **AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM	19		9				10	114			152	10	314	A	
07:15 AM	07:30 AM	38		22				5	181			179	25	450	A	
07:30 AM	07:45 AM	15		25				10	93			190	44	377	A	
07:45 AM	08:00 AM	9		28				20	87			126	27	297	A	1438
08:00 AM	08:15 AM	14		11				12	88			117	26	268	A	1392
08:15 AM	08:30 AM	21		11				11	110			130	10	293	X	1235
08:30 AM	08:45 AM	11		7				4	98			135	11	266	X	1124
08:45 AM	09:00 AM	20		26				18	103			163	11	341	X	1168
09:00 AM	09:15 AM	24		19				9	89			144	17	302	X	1202
09:15 AM	09:30 AM	14		9				11	83			114	13	244	A	1153
09:30 AM	09:45 AM													0	A	887
09:45 AM	10:00 AM													0	A	546
10:00 AM	10:15 AM													0	A	244
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
07:00 AM	07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	21	0	11	0	0	0	11	110	0	0	130	10	293
08:30 AM	08:45 AM	11	0	7	0	0	0	4	98	0	0	135	11	266
08:45 AM	09:00 AM	20	0	26	0	0	0	18	103	0	0	163	11	341
09:00 AM	09:15 AM	24	0	19	0	0	0	9	89	0	0	144	17	302
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
08:15 AM	09:15 AM	76	0	63	0	0	0	42	400	0	0	572	49	1202	0.88

49	572	0	^	6	0
12	11	10	<	5	0
<	v	>	v	4	0
76	1	^	<	^	>
0	2	>	7	8	9
63	3	v	42	400	0

85	442	0	^	6	0
12	11	10	<	5	0
<	v	>	v	4	0
59	1	^	<	^	>
0	2	>	7	8	9
68	3	v	68	613	0

LOCATION: NYS ROUTE 22 & COX AVENUE PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/10/13 DAY: TUESDAY JCE JOB #: 12100120A START TIME : 16:00 **PM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

PM PEAK HOUR		EASTBOUND 1	2	3	WESTBOUND 4	5	6	NORTHBOUND 7	8	9	SOUTHBOUND 10	11	12	total		
04:00 PM	04:15 PM	21		19				14	146			113	21	334	A	
04:15 PM	04:30 PM	30		13				19	134			96	20	312	A	
04:30 PM	04:45 PM	13		9				14	113			95	24	268	A	
04:45 PM	05:00 PM	20		13				17	126			110	24	310	A	1224
05:00 PM	05:15 PM	16		11				16	154			106	20	323	X	1213
05:15 PM	05:30 PM	10		20				19	147			126	22	344	X	1245
05:30 PM	05:45 PM	20		17				20	152			112	20	341	X	1318
05:45 PM	06:00 PM	13		20				13	160			98	23	327	X	1335
06:00 PM	06:15 PM													0	A	1012
06:15 PM	06:30 PM													0	A	668
06:30 PM	06:45 PM													0	A	327
06:45 PM	07:00 PM													0	A	0
07:00 PM	07:15 PM													0	A	0
07:15 PM	07:30 PM													0	A	0
07:30 PM	07:45 PM													0	A	0
07:45 PM	08:00 PM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	05:15 PM	16	0	11	0	0	0	16	154	0	0	106	20	323
05:15 PM	05:30 PM	10	0	20	0	0	0	19	147	0	0	126	22	344
05:30 PM	05:45 PM	20	0	17	0	0	0	20	152	0	0	112	20	341
05:45 PM	06:00 PM	13	0	20	0	0	0	13	160	0	0	98	23	327
06:00 PM	06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
05:00 PM	06:00 PM	59	0	68	0	0	0	68	613	0	0	442	85	1335	0.97

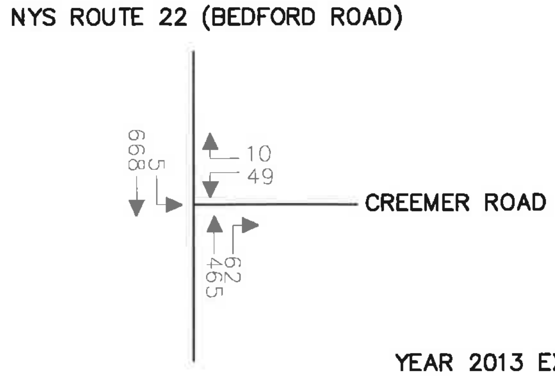
NYS ROUTE 22 & CREEMER ROAD

TABLE NO. 1

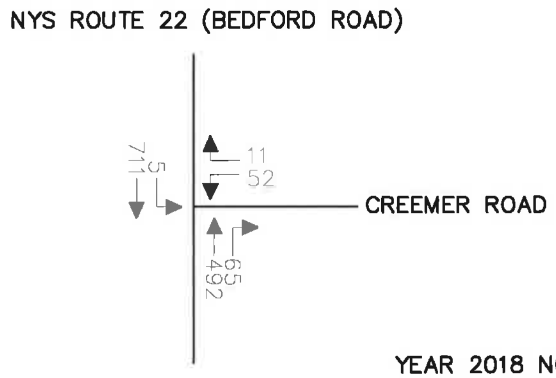
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2013 EXISTING CONDITIONS			YEAR 2018 NO-BUILD CONDITIONS			YEAR 2018 BUILD CONDITIONS		
		AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00
11	NYS ROUTE 22 & CREEMER ROAD									
	UNSIGNALIZED									
	MAJOR MOVEMENTS SOUTHBOUND LEFT / THROUGH	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)	A (0.2)	A (0.3)	A (0.2)
	MINOR MOVEMENTS WESTBOUND LEFT / RIGHT	F (70.9)	D (31.4)	D (33.5)	F (99.5)	E (37.4)	E (41.1)	F (115.4)	E (40.9)	E (45.6)

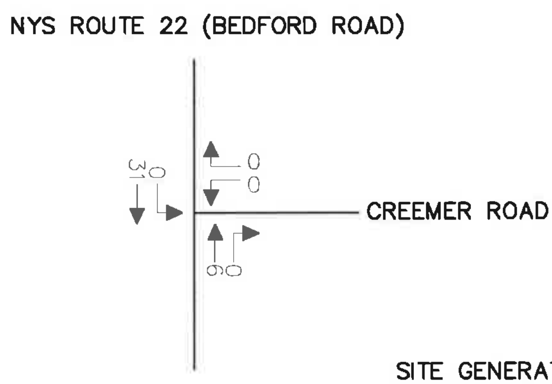
THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B (10.9) FOR THE UNSIGNALIZED INTERSECTIONS



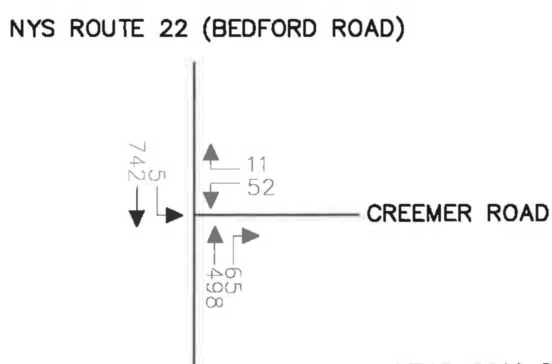
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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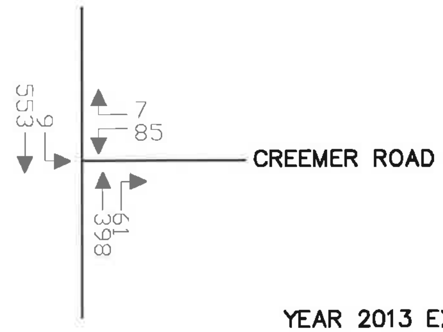
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(7:00 AM - 8:00 AM)

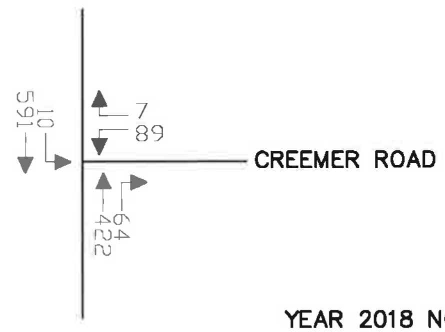
JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
1	

NYS ROUTE 22 (BEDFORD ROAD)



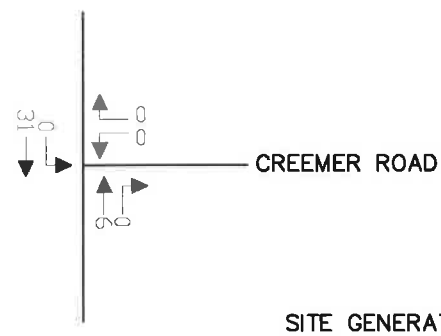
YEAR 2013 EXISTING TRAFFIC VOLUMES

NYS ROUTE 22 (BEDFORD ROAD)



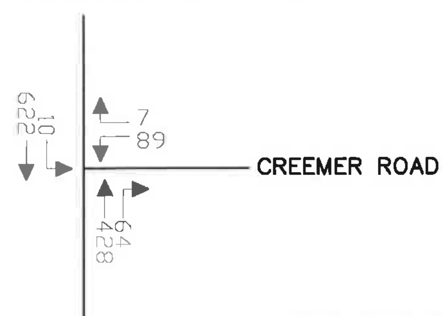
YEAR 2018 NO-BUILD TRAFFIC VOLUMES

NYS ROUTE 22 (BEDFORD ROAD)



SITE GENERATED TRAFFIC VOLUMES

NYS ROUTE 22 (BEDFORD ROAD)



YEAR 2018 BUILD TRAFFIC VOLUMES

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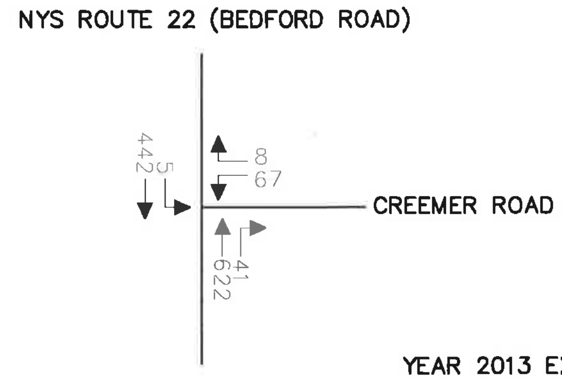
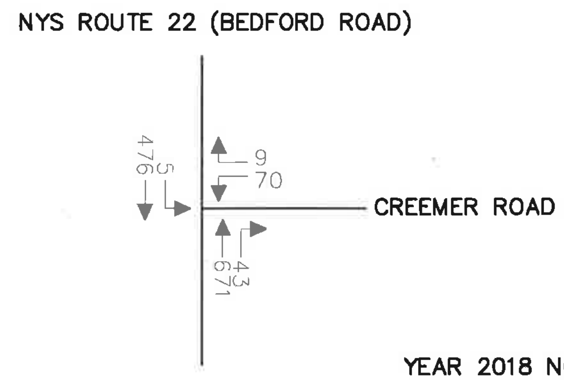
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(8:15 AM - 9:15 AM)

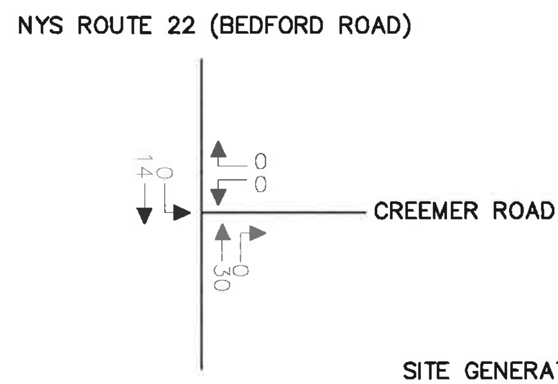
JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
2	



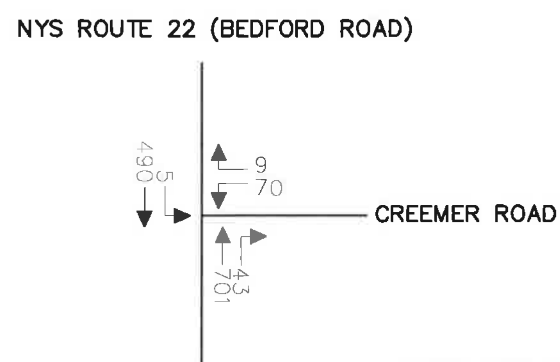
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK PM HIGHWAY HOUR

JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
3	

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984				0.978	
Flt Protected					0.960	
Satd. Flow (prot)	1700	0	0	1727	1622	0
Flt Permitted					0.960	
Satd. Flow (perm)	1700	0	0	1727	1622	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	465	62	5	668	49	10
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	620	83	7	891	65	13
Lane Group Flow (vph)	703	0	0	898	78	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.1% ICU Level of Service A
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	465	62	5	668	49	10
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	620	83	7	891	65	13
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			713		1585	681
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			713		1585	681
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		41	97
cM capacity (veh/h)			844		111	429

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	703	897	79
Volume Left	0	7	65
Volume Right	83	0	13
cSH	1700	844	127
Volume to Capacity	0.41	0.01	0.62
Queue Length 95th (ft)	0	1	80
Control Delay (s)	0.0	0.2	70.9
Lane LOS		A	F
Approach Delay (s)	0.0	0.2	70.9
Approach LOS			F

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.982				0.989	
Flt Protected				0.999	0.956	
Satd. Flow (prot)	1696	0	0	1726	1633	0
Flt Permitted				0.999	0.956	
Satd. Flow (perm)	1696	0	0	1726	1633	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	398	61	9	553	85	7
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	428	66	10	595	91	8
Lane Group Flow (vph)	494	0	0	605	99	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	398	61	9	553	85	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	428	66	10	595	91	8
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			504		1095	481
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			504		1095	481
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		59	99
cM capacity (veh/h)			1013		222	560

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	494	604	99
Volume Left	0	10	91
Volume Right	66	0	8
cSH	1700	1013	233
Volume to Capacity	0.29	0.01	0.42
Queue Length 95th (ft)	0	1	49
Control Delay (s)	0.0	0.3	31.4
Lane LOS		A	D
Approach Delay (s)	0.0	0.3	31.4
Approach LOS			D

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.985	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1713	0	0	1726	1628	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1713	0	0	1726	1628	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	622	41	5	442	67	8
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	669	44	5	475	72	9
Lane Group Flow (vph)	713	0	0	480	81	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.8% ICU Level of Service A
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	622	41	5	442	67	8
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	669	44	5	475	72	9
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			723		1197	711
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			723		1197	711
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		63	98
cM capacity (veh/h)			837		193	413

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	713	481	81
Volume Left	0	5	72
Volume Right	44	0	9
cSH	1700	837	205
Volume to Capacity	0.42	0.01	0.39
Queue Length 95th (ft)	0	0	44
Control Delay (s)	0.0	0.2	33.5
Lane LOS		A	D
Approach Delay (s)	0.0	0.2	33.5
Approach LOS			D

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984				0.976	
Flt Protected					0.961	
Satd. Flow (prot)	1700	0	0	1727	1620	0
Flt Permitted					0.961	
Satd. Flow (perm)	1700	0	0	1727	1620	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	492	65	5	711	52	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	656	87	7	948	69	15
Lane Group Flow (vph)	743	0	0	955	84	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 54.5%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	492	65	5	711	52	11
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	656	87	7	948	69	15
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			753		1681	719
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			753		1681	719
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		29	96
cM capacity (veh/h)			815		97	408

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	743	955	84
Volume Left	0	7	69
Volume Right	87	0	15
cSH	1700	815	112
Volume to Capacity	0.44	0.01	0.75
Queue Length 95th (ft)	0	1	103
Control Delay (s)	0.0	0.2	99.5
Lane LOS		A	F
Approach Delay (s)	0.0	0.2	99.5
Approach LOS			F

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.982				0.990	
Flt Protected				0.999	0.956	
Satd. Flow (prot)	1696	0	0	1726	1635	0
Flt Permitted				0.999	0.956	
Satd. Flow (perm)	1696	0	0	1726	1635	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	422	64	10	591	89	7
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	454	69	11	635	96	8
Lane Group Flow (vph)	523	0	0	646	104	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 53.4% ICU Level of Service A
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	422	64	10	591	89	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	454	69	11	635	96	8
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			533		1165	508
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			533		1165	508
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		52	99
cM capacity (veh/h)			987		201	540

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	523	646	103
Volume Left	0	11	96
Volume Right	69	0	8
cSH	1700	987	211
Volume to Capacity	0.31	0.01	0.49
Queue Length 95th (ft)	0	1	61
Control Delay (s)	0.0	0.3	37.4
Lane LOS		A	E
Approach Delay (s)	0.0	0.3	37.4
Approach LOS			E

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.984	
Flt Protected					0.958	
Satd. Flow (prot)	1713	0	0	1727	1628	0
Flt Permitted					0.958	
Satd. Flow (perm)	1713	0	0	1727	1628	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	671	43	5	476	70	9
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	722	46	5	512	75	10
Lane Group Flow (vph)	768	0	0	517	85	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.7% ICU Level of Service A
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	671	43	5	476	70	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	722	46	5	512	75	10
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			778		1287	765
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			778		1287	765
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		56	97
cM capacity (veh/h)			798		170	384

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	768	517	85
Volume Left	0	5	75
Volume Right	46	0	10
cSH	1700	798	182
Volume to Capacity	0.45	0.01	0.47
Queue Length 95th (ft)	0	1	56
Control Delay (s)	0.0	0.2	41.1
Lane LOS		A	E
Approach Delay (s)	0.0	0.2	41.1
Approach LOS			E

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	51.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.984				0.976	
Flt Protected					0.961	
Satd. Flow (prot)	1700	0	0	1727	1620	0
Flt Permitted					0.961	
Satd. Flow (perm)	1700	0	0	1727	1620	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	498	65	5	742	52	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	664	87	7	989	69	15
Lane Group Flow (vph)	751	0	0	996	84	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.2% ICU Level of Service B
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	498	65	5	742	52	11
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Hourly flow rate (vph)	664	87	7	989	69	15
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			761		1730	727
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			761		1730	727
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		23	96
cM capacity (veh/h)			810		90	404

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	751	996	84
Volume Left	0	7	69
Volume Right	87	0	15
cSH	1700	810	104
Volume to Capacity	0.44	0.01	0.80
Queue Length 95th (ft)	0	1	112
Control Delay (s)	0.0	0.2	115.4
Lane LOS		A	F
Approach Delay (s)	0.0	0.2	115.4
Approach LOS			F

Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.982				0.990	
Flt Protected				0.999	0.956	
Satd. Flow (prot)	1696	0	0	1726	1635	0
Flt Permitted				0.999	0.956	
Satd. Flow (perm)	1696	0	0	1726	1635	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	428	64	10	622	89	7
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	460	69	11	669	96	8
Lane Group Flow (vph)	529	0	0	680	104	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 55.1% ICU Level of Service B
Analysis Period (min) 15

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	428	64	10	622	89	7
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	460	69	11	669	96	8
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			539		1205	515
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			539		1205	515
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		50	99
cM capacity (veh/h)			982		190	535

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	529	680	103
Volume Left	0	11	96
Volume Right	69	0	8
cSH	1700	982	200
Volume to Capacity	0.31	0.01	0.52
Queue Length 95th (ft)	0	1	66
Control Delay (s)	0.0	0.3	40.9
Lane LOS		A	E
Approach Delay (s)	0.0	0.3	40.9
Approach LOS			E

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.984	
Flt Protected					0.958	
Satd. Flow (prot)	1713	0	0	1727	1628	0
Flt Permitted					0.958	
Satd. Flow (perm)	1713	0	0	1727	1628	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30			30	40	
Link Distance (ft)	915			685	947	
Travel Time (s)	20.8			15.6	16.1	
Volume (vph)	701	43	5	490	70	9
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	754	46	5	527	75	10
Lane Group Flow (vph)	800	0	0	532	85	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type: Other	
Control Type: Unsignalized	
Intersection Capacity Utilization 53.3%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	701	43	5	490	70	9
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	754	46	5	527	75	10
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			810		1335	797
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			810		1335	797
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		53	97
cM capacity (veh/h)			775		159	358

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	800	532	85
Volume Left	0	5	75
Volume Right	46	0	10
cSH	1700	775	170
Volume to Capacity	0.47	0.01	0.50
Queue Length 95th (ft)	0	1	61
Control Delay (s)	0.0	0.2	45.6
Lane LOS		A	E
Approach Delay (s)	0.0	0.2	45.6
Approach LOS			E

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

LOCATION: NYS ROUTE 22 & CREEMER ROAD PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/12/13 DAY: THURSDAY JCE JOB #: 12100120A START TIME : 07:00 **AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

AM PEAK HOUR		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM				15		1		91	8	3	143		261	X	
07:15 AM	07:30 AM				15		5		205	9	1	184		419	X	
07:30 AM	07:45 AM				10		3		91	23	1	205		333	X	
07:45 AM	08:00 AM				9		1		78	22	0	136		246	X	1259
08:00 AM	08:15 AM				17		0		86	11	1	133		248	A	1246
08:15 AM	08:30 AM				33		1		113	16	1	135		299	A	1126
08:30 AM	08:45 AM				14		1		96	13	5	124		253	A	1046
08:45 AM	09:00 AM				21		4		95	15	1	156		292	A	1092
09:00 AM	09:15 AM				17		1		94	17	2	138		269	A	1113
09:15 AM	09:30 AM				6		0		78	6	2	106		198	A	1012
09:30 AM	09:45 AM													0	A	759
09:45 AM	10:00 AM													0	A	467
10:00 AM	10:15 AM													0	A	198
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
07:00 AM	07:15 AM	0	0	0	15	0	1	0	91	8	3	143	0	261
07:15 AM	07:30 AM	0	0	0	15	0	5	0	205	9	1	184	0	419
07:30 AM	07:45 AM	0	0	0	10	0	3	0	91	23	1	205	0	333
07:45 AM	08:00 AM	0	0	0	9	0	1	0	78	22	0	136	0	246
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
07:00 AM	08:00 AM	0	0	0	49	0	10	0	465	62	5	668	0	1259	0.75

0	668	5	^	6	10
12	11	10	<	5	0
<	v	>	v	4	49
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	465	62

0	553	9	^	6	7
12	11	10	<	5	0
<	v	>	v	4	85
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	398	61

LOCATION: NYS ROUTE 22 & CREEMER ROAD   PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/12/13   DAY: THURSDAY   JCE JOB #: 12100120A   START TIME : 07:00   **AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

AM PEAK HOUR		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM				15		1		91	8	3	143		261	A	
07:15 AM	07:30 AM				15		5		205	9	1	184		419	A	
07:30 AM	07:45 AM				10		3		91	23	1	205		333	A	
07:45 AM	08:00 AM				9		1		78	22	0	136		246	A	1259
08:00 AM	08:15 AM				17		0		86	11	1	133		248	A	1246
08:15 AM	08:30 AM				33		1		113	16	1	135		299	X	1126
08:30 AM	08:45 AM				14		1		96	13	5	124		253	X	1046
08:45 AM	09:00 AM				21		4		95	15	1	156		292	X	1092
09:00 AM	09:15 AM				17		1		94	17	2	138		269	X	1113
09:15 AM	09:30 AM				6		0		78	6	2	106		198	A	1012
09:30 AM	09:45 AM													0	A	759
09:45 AM	10:00 AM													0	A	467
10:00 AM	10:15 AM													0	A	198
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

07:00 AM	07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	33	0	1	0	113	16	1	135	0	299
08:30 AM	08:45 AM	0	0	0	14	0	1	0	96	13	5	124	0	253
08:45 AM	09:00 AM	0	0	0	21	0	4	0	95	15	1	156	0	292
09:00 AM	09:15 AM	0	0	0	17	0	1	0	94	17	2	138	0	269
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
08:15 AM	09:15 AM	0	0	0	85	0	7	0	398	61	9	553	0	1113	0.93

LOCATION:	NYS ROUTE 22 & CREEMER ROAD	PROJECT:	BRYNWOOD GOLF AND COUNTRY CLUB
DATE OF COUNT:	09/10/13	DAY: TUESDAY	JCE JOB #: 12100120A

START TIME : 16:00 **PM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

PM PEAK HOUR		EASTBOUND 1	2	3	WESTBOUND 4	5	6	NORTHBOUND 7	8	9	SOUTHBOUND 10	11	12	total		
04:00 PM	04:15 PM				7		1		134	7	0	115		264	A	
04:15 PM	04:30 PM				13		4		181	9	3	92		302	A	
04:30 PM	04:45 PM				15		2		144	4	2	106		273	A	
04:45 PM	05:00 PM				23		1		134	10	1	103		272	A	1111
05:00 PM	05:15 PM				14		2		146	7	0	101		270	X	1117
05:15 PM	05:30 PM				16		1		158	8	2	132		317	X	1132
05:30 PM	05:45 PM				17		2		164	10	3	113		309	X	1168
05:45 PM	06:00 PM				20		3		154	16	0	96		289	X	1185
06:00 PM	06:15 PM													0	A	915
06:15 PM	06:30 PM													0	A	598
06:30 PM	06:45 PM													0	A	289
06:45 PM	07:00 PM													0	A	0
07:00 PM	07:15 PM													0	A	0
07:15 PM	07:30 PM													0	A	0
07:30 PM	07:45 PM													0	A	0
07:45 PM	08:00 PM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	05:15 PM	0	0	0	14	0	2	0	146	7	0	101	0	270
05:15 PM	05:30 PM	0	0	0	16	0	1	0	158	8	2	132	0	317
05:30 PM	05:45 PM	0	0	0	17	0	2	0	164	10	3	113	0	309
05:45 PM	06:00 PM	0	0	0	20	0	3	0	154	16	0	96	0	289
06:00 PM	06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
05:00 PM	06:00 PM	0	0	0	67	0	8	0	622	41	5	442	0	1185	0.93

0	442	5	^	6	8
12	11	10	<	5	0
<	v	>	v	4	67
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	622	41

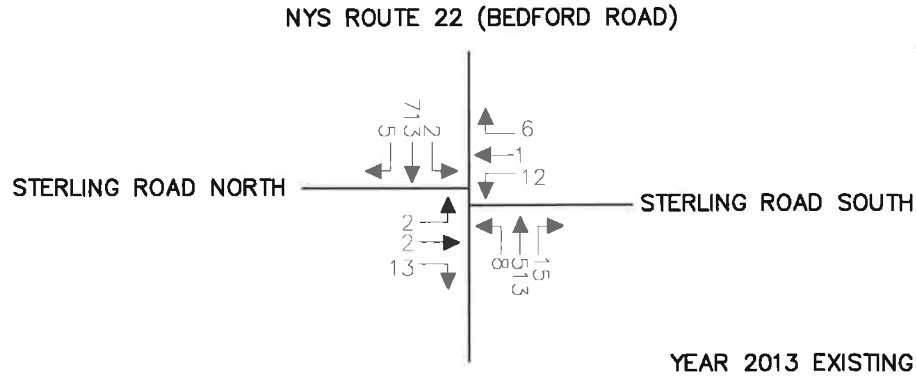
NYS ROUTE 22 & STERLING ROAD

TABLE NO. 1

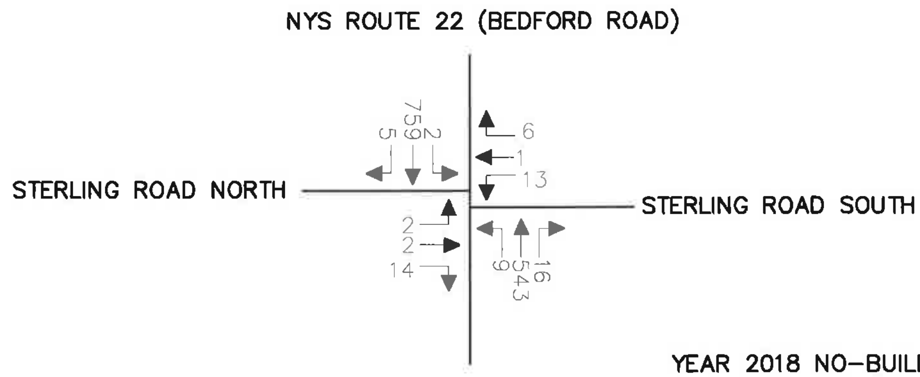
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2013 EXISTING CONDITIONS			YEAR 2018 NO-BUILD CONDITIONS			YEAR 2018 BUILD CONDITIONS		
		AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00
12	NYS ROUTE 22 & STERLING ROAD									
	UNSIGNALIZED									
	MAJOR MOVEMENTS									
	NORTHBOUND LEFT / THROUGH / RIGHT	A (0.4)	A (0.4)	A (0.3)	A (0.5)	A (0.4)	A (0.4)	A (0.5)	A (0.4)	A (0.4)
	SOUTHBOUND LEFT / THROUGH / RIGHT	A (0.1)	A (0.2)	A (0.1)	A (0.1)	A (0.2)	A (0.1)	A (0.1)	A (0.2)	A (0.1)
	MINOR MOVEMENTS									
	WESTBOUND LEFT / THROUGH / RIGHT	F (56.7)	D (28.4)	C (23.5)	F (73.5)	D (32.4)	D (26.5)	F (81.8)	D (34.4)	D (28.2)
	EASTBOUND LEFT / THROUGH / RIGHT	D (27.1)	C (18.8)	C (18.5)	D (30.0)	C (20.1)	C (19.7)	D (32.0)	C (21.0)	C (20.6)

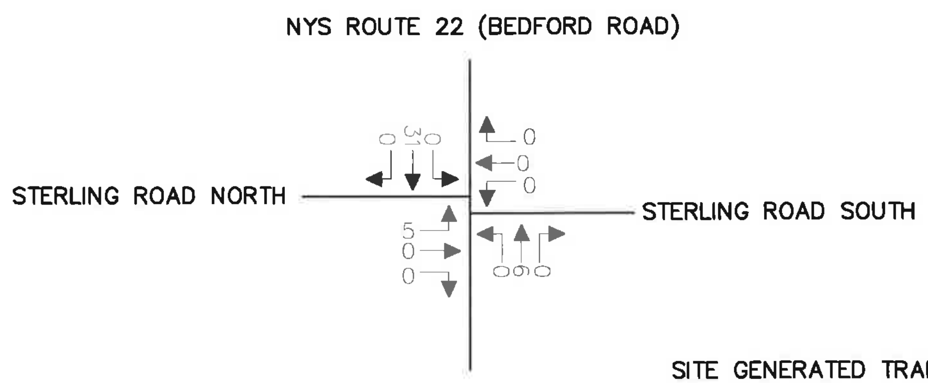
THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B (10.9) FOR THE UNSIGNALIZED INTERSECTIONS



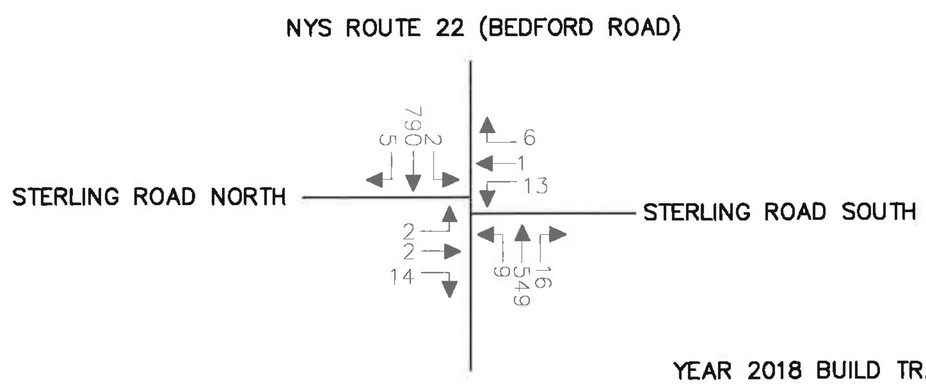
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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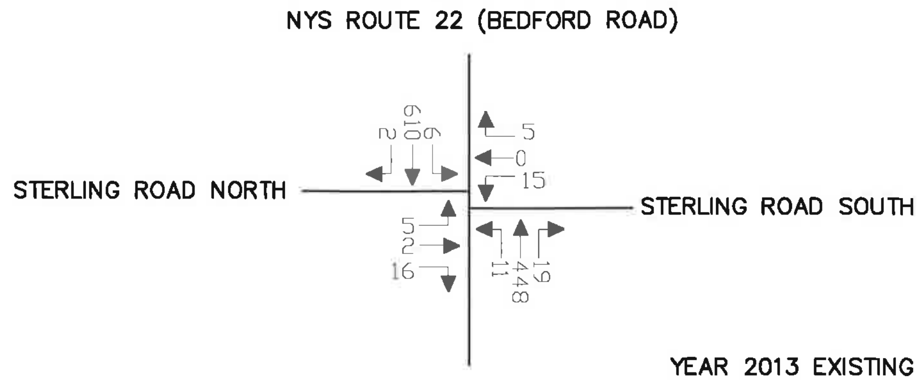
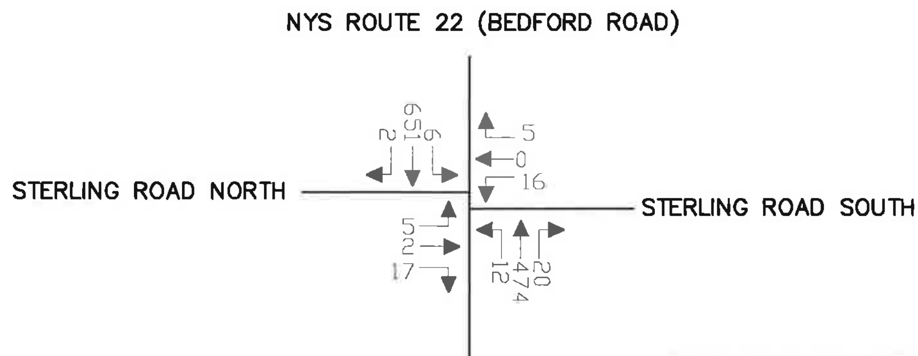
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(7:00 AM - 8:00 AM)

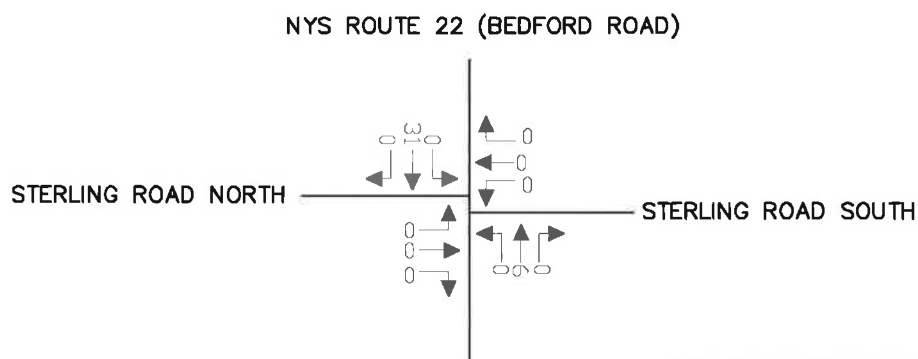
JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
1	



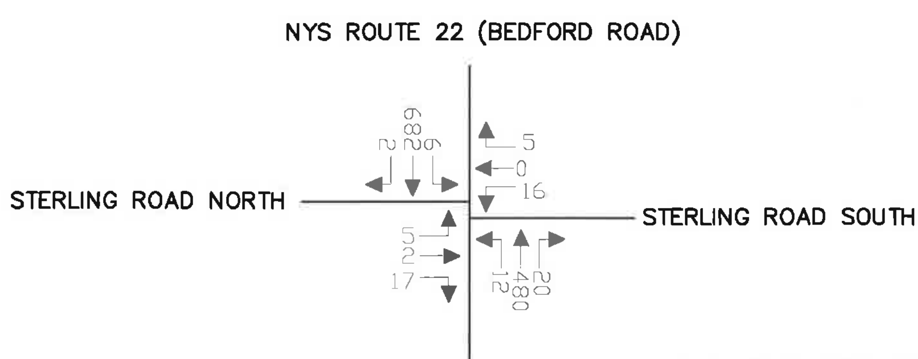
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO–BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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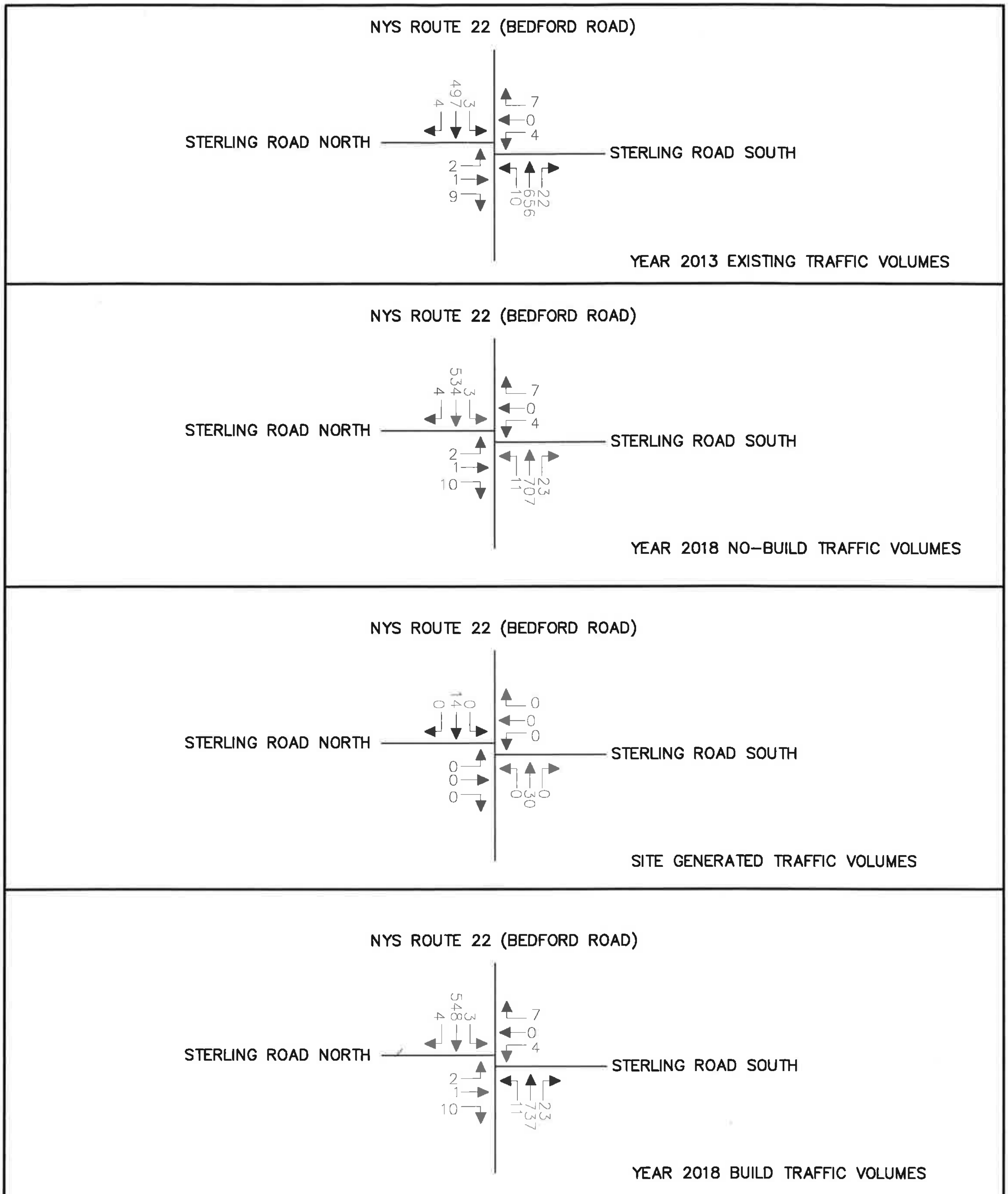
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(8:15 AM - 9:15 AM)

JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
2	



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BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK PM HIGHWAY HOUR

JOB NUMBER:	DATE:
12100120A	09/12/2013
FIGURE NUMBER:	
3	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.955			0.900	
Flt Protected		0.999						0.970			0.994	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1600	0	0	1545	0
Flt Permitted		0.999						0.970			0.994	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1600	0	0	1545	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	8	513	15	2	713	5	12	1	6	2	2	13
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	10	658	19	3	914	6	15	1	8	3	3	17
Lane Group Flow (vph)	0	687	0	0	923	0	0	24	0	0	23	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 52.4% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	8	513	15	2	713	5	12	1	6	2	2	13
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	10	658	19	3	914	6	15	1	8	3	3	17
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	931			687			1648	1633	687	1639	1640	937
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	931			687			1648	1633	687	1639	1640	937
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			77	99	98	96	97	95
cM capacity (veh/h)	698			863			67	94	426	72	93	305

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	687	923	24	22
Volume Left	10	3	15	3
Volume Right	19	6	8	17
cSH	698	863	93	184
Volume to Capacity	0.01	0.00	0.26	0.12
Queue Length 95th (ft)	1	0	24	10
Control Delay (s)	0.4	0.1	56.7	27.1
Lane LOS	A	A	F	D
Approach Delay (s)	0.4	0.1	56.7	27.1
Approach LOS			F	D

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.968			0.904	
Flt Protected		0.999						0.963			0.990	
Satd. Flow (prot)	0	1717	0	0	1727	0	0	1610	0	0	1546	0
Flt Permitted		0.999						0.963			0.990	
Satd. Flow (perm)	0	1717	0	0	1727	0	0	1610	0	0	1546	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	11	448	19	6	610	2	15	0	5	5	2	16
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	12	472	20	6	642	2	16	0	5	5	2	17
Lane Group Flow (vph)	0	504	0	0	650	0	0	21	0	0	24	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 48.0% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	448	19	6	610	2	15	0	5	5	2	16
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	12	472	20	6	642	2	16	0	5	5	2	17
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	654			502			1198	1182	502	1186	1191	663
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	654			502			1198	1182	502	1186	1191	663
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			89	100	99	97	99	96
cM capacity (veh/h)	888			1014			143	177	545	151	175	440

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	503	651	21	24
Volume Left	12	6	16	5
Volume Right	20	2	5	17
cSH	888	1014	175	284
Volume to Capacity	0.01	0.01	0.12	0.09
Queue Length 95th (ft)	1	0	10	7
Control Delay (s)	0.4	0.2	28.4	18.8
Lane LOS	A	A	D	C
Approach Delay (s)	0.4	0.2	28.4	18.8
Approach LOS			D	C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.910			0.896	
Flt Protected		0.999						0.984			0.992	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1547	0	0	1535	0
Flt Permitted		0.999						0.984			0.992	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1547	0	0	1535	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	10	656	22	3	497	4	4	0	7	2	1	9
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	11	729	24	3	552	4	4	0	8	2	1	10
Lane Group Flow (vph)	0	764	0	0	559	0	0	12	0	0	13	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 55.6% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	10	656	22	3	497	4	4	0	7	2	1	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	729	24	3	552	4	4	0	8	2	1	10
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	567			763			1355	1347	761	1352	1357	574
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	567			763			1355	1347	761	1352	1357	574
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			96	100	98	98	99	98
cM capacity (veh/h)	959			808			114	141	386	115	139	495

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	764	560	12	13
Volume Left	11	3	4	2
Volume Right	24	4	8	10
cSH	959	808	206	280
Volume to Capacity	0.01	0.00	0.06	0.05
Queue Length 95th (ft)	1	0	5	4
Control Delay (s)	0.3	0.1	23.5	18.5
Lane LOS	A	A	C	C
Approach Delay (s)	0.3	0.1	23.5	18.5
Approach LOS			C	C

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.958			0.899	
Flt Protected		0.999						0.968			0.994	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1602	0	0	1544	0
Flt Permitted		0.999						0.968			0.994	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1602	0	0	1544	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	9	543	16	2	759	5	13	1	6	2	2	14
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	12	696	21	3	973	6	17	1	8	3	3	18
Lane Group Flow (vph)	0	729	0	0	982	0	0	26	0	0	24	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 55.1% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	9	543	16	2	759	5	13	1	6	2	2	14
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	12	696	21	3	973	6	17	1	8	3	3	18
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	989			727			1750	1734	726	1739	1741	996
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	989			727			1750	1734	726	1739	1741	996
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	98			100			70	98	98	96	97	94
cM capacity (veh/h)	662			834			56	81	404	60	80	282

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	728	982	26	23
Volume Left	12	3	17	3
Volume Right	21	6	8	18
cSH	662	834	77	167
Volume to Capacity	0.02	0.00	0.33	0.14
Queue Length 95th (ft)	1	0	31	12
Control Delay (s)	0.5	0.1	73.5	30.0
Lane LOS	A	A	F	D
Approach Delay (s)	0.5	0.1	73.5	30.0
Approach LOS			F	D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.969			0.903	
Flt Protected		0.999						0.963			0.990	
Satd. Flow (prot)	0	1717	0	0	1727	0	0	1612	0	0	1544	0
Flt Permitted		0.999						0.963			0.990	
Satd. Flow (perm)	0	1717	0	0	1727	0	0	1612	0	0	1544	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	12	474	20	6	651	2	16	0	5	5	2	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	13	499	21	6	685	2	17	0	5	5	2	18
Lane Group Flow (vph)	0	533	0	0	693	0	0	22	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 50.3% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	12	474	20	6	651	2	16	0	5	5	2	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	499	21	6	685	2	17	0	5	5	2	18
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	697			530			1273	1255	529	1259	1264	706
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	697			530			1273	1255	529	1259	1264	706
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			99			87	100	99	96	99	96
cM capacity (veh/h)	856			990			126	159	525	134	157	415

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	533	694	22	25
Volume Left	13	6	17	5
Volume Right	21	2	5	18
cSH	856	990	153	264
Volume to Capacity	0.01	0.01	0.14	0.10
Queue Length 95th (ft)	1	0	12	8
Control Delay (s)	0.4	0.2	32.4	20.1
Lane LOS	A	A	D	C
Approach Delay (s)	0.4	0.2	32.4	20.1
Approach LOS			D	C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

	↗	→	↘	↙	←	↖	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.910			0.894	
Flt Protected		0.999						0.984			0.993	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1547	0	0	1533	0
Flt Permitted		0.999						0.984			0.993	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1547	0	0	1533	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	11	707	23	3	534	4	4	0	7	2	1	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	12	786	26	3	593	4	4	0	8	2	1	11
Lane Group Flow (vph)	0	824	0	0	600	0	0	12	0	0	14	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 59.1%	ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	707	23	3	534	4	4	0	7	2	1	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	786	26	3	593	4	4	0	8	2	1	11
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	608			821			1457	1447	818	1453	1458	616
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	608			821			1457	1447	818	1453	1458	616
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			95	100	98	98	99	98
cM capacity (veh/h)	925			768			96	122	358	97	120	469

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	823	601	12	14
Volume Left	12	3	4	2
Volume Right	26	4	8	11
cSH	925	768	179	259
Volume to Capacity	0.01	0.00	0.07	0.06
Queue Length 95th (ft)	1	0	5	4
Control Delay (s)	0.4	0.1	26.5	19.7
Lane LOS	A	A	D	C
Approach Delay (s)	0.4	0.1	26.5	19.7
Approach LOS			D	C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	59.1%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.958			0.899	
Flt Protected		0.999						0.968			0.994	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1602	0	0	1544	0
Flt Permitted		0.999						0.968			0.994	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1602	0	0	1544	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	9	549	16	2	790	5	13	1	6	2	2	14
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	12	704	21	3	1013	6	17	1	8	3	3	18
Lane Group Flow (vph)	0	737	0	0	1022	0	0	26	0	0	24	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 56.8% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	9	549	16	2	790	5	13	1	6	2	2	14
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Hourly flow rate (vph)	12	704	21	3	1013	6	17	1	8	3	3	18
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1029			734			1798	1782	734	1787	1789	1036
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1029			734			1798	1782	734	1787	1789	1036
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	98			100			68	98	98	95	97	93
cM capacity (veh/h)	639			828			51	75	400	56	75	267

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	736	1022	26	23
Volume Left	12	3	17	3
Volume Right	21	6	8	18
cSH	639	828	71	156
Volume to Capacity	0.02	0.00	0.36	0.15
Queue Length 95th (ft)	1	0	34	13
Control Delay (s)	0.5	0.1	81.8	32.0
Lane LOS	A	A	F	D
Approach Delay (s)	0.5	0.1	81.8	32.0
Approach LOS			F	D

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.995						0.969			0.903	
Flt Protected		0.999						0.963			0.990	
Satd. Flow (prot)	0	1717	0	0	1727	0	0	1612	0	0	1544	0
Flt Permitted		0.999						0.963			0.990	
Satd. Flow (perm)	0	1717	0	0	1727	0	0	1612	0	0	1544	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	12	480	20	6	682	2	16	0	5	5	2	17
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	13	505	21	6	718	2	17	0	5	5	2	18
Lane Group Flow (vph)	0	539	0	0	726	0	0	22	0	0	25	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.9% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	12	480	20	6	682	2	16	0	5	5	2	17
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	505	21	6	718	2	17	0	5	5	2	18
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	730			536			1312	1294	536	1298	1303	739
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	730			536			1312	1294	536	1298	1303	739
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	98			99			86	100	99	96	99	96
cM capacity (veh/h)	832			984			118	151	521	126	149	398

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	539	726	22	25
Volume Left	13	6	17	5
Volume Right	21	2	5	18
cSH	832	984	144	250
Volume to Capacity	0.02	0.01	0.15	0.10
Queue Length 95th (ft)	1	0	13	8
Control Delay (s)	0.4	0.2	34.4	21.0
Lane LOS	A	A	D	C
Approach Delay (s)	0.4	0.2	34.4	21.0
Approach LOS			D	C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt		0.996			0.999			0.910			0.894	
Flt Protected		0.999						0.984			0.993	
Satd. Flow (prot)	0	1719	0	0	1726	0	0	1547	0	0	1533	0
Flt Permitted		0.999						0.984			0.993	
Satd. Flow (perm)	0	1719	0	0	1726	0	0	1547	0	0	1533	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		747			915			1010			1168	
Travel Time (s)		17.0			20.8			23.0			26.5	
Volume (vph)	11	737	23	3	548	4	4	0	7	2	1	10
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	12	819	26	3	609	4	4	0	8	2	1	11
Lane Group Flow (vph)	0	857	0	0	616	0	0	12	0	0	14	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 60.7% ICU Level of Service B
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✥			✥			✥			✥	
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	737	23	3	548	4	4	0	7	2	1	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	12	819	26	3	609	4	4	0	8	2	1	11
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	623			854			1506	1496	852	1502	1507	631
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	623			854			1506	1496	852	1502	1507	631
tC, single (s)	4.2			4.2			7.2	6.6	6.3	7.2	6.6	6.3
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.6	4.1	3.4	3.6	4.1	3.4
p0 queue free %	99			100			95	100	98	98	99	98
cM capacity (veh/h)	913			746			88	114	342	90	112	459

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	857	617	12	14
Volume Left	12	3	4	2
Volume Right	26	4	8	11
cSH	913	746	167	245
Volume to Capacity	0.01	0.00	0.07	0.06
Queue Length 95th (ft)	1	0	6	5
Control Delay (s)	0.4	0.1	28.2	20.6
Lane LOS	A	A	D	C
Approach Delay (s)	0.4	0.1	28.2	20.6
Approach LOS			D	C

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

LOCATION: NYS ROUTE 22 & STERLING ROAD — PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/12/13 — DAY: THURSDAY — JCE JOB #: 12100120A — START TIME : 07:00 — **AM**

5	713	2	^	6	6
12	11	10	<	5	1
<	v	>	v	4	12
2	1	^	<	^	>
2	2	>	7	8	9
13	3	v	8	513	15

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

AM PEAK HOUR		EASTBOUND 1	EASTBOUND 2	EASTBOUND 3	WESTBOUND 4	WESTBOUND 5	WESTBOUND 6	NORTHBOUND 7	NORTHBOUND 8	NORTHBOUND 9	SOUTHBOUND 10	SOUTHBOUND 11	SOUTHBOUND 12	total		
07:00 AM	07:15 AM	1	0	3	3	0	1	1	99	1	0	154	1	264	X	
07:15 AM	07:30 AM	1	1	4	3	1	4	3	201	5	0	186	3	412	X	
07:30 AM	07:45 AM	0	1	3	5	0	1	3	110	6	1	217	1	348	X	
07:45 AM	08:00 AM	0	0	3	1	0	0	1	103	3	1	156	0	268	X	1292
08:00 AM	08:15 AM	0	0	3	3	0	0	3	103	5	0	145	1	263	A	1291
08:15 AM	08:30 AM	0	1	3	2	0	0	2	130	6	2	143	0	289	A	1168
08:30 AM	08:45 AM	0	0	3	4	0	2	3	109	2	1	140	1	265	A	1085
08:45 AM	09:00 AM	2	0	3	3	0	1	3	105	4	1	176	1	299	A	1116
09:00 AM	09:15 AM	3	1	7	6	0	2	3	104	7	2	151	0	286	A	1139
09:15 AM	09:30 AM	1	0	1	4	0	1	0	85	6	0	107	0	205	A	1055
09:30 AM	09:45 AM													0	A	790
09:45 AM	10:00 AM													0	A	491
10:00 AM	10:15 AM													0	A	205
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

07:00 AM	07:15 AM	1	0	3	3	0	1	1	99	1	0	154	1	264
07:15 AM	07:30 AM	1	1	4	3	1	4	3	201	5	0	186	3	412
07:30 AM	07:45 AM	0	1	3	5	0	1	3	110	6	1	217	1	348
07:45 AM	08:00 AM	0	0	3	1	0	0	1	103	3	1	156	0	268
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
07:00 AM	08:00 AM	2	2	13	12	1	6	8	513	15	2	713	5	1292	0.78

LOCATION:	NYS ROUTE 22 & STERLING ROAD	PROJECT:	BRYNWOOD GOLF AND COUNTRY CLUB
DATE OF COUNT:	09/12/13	DAY: THURSDAY	JCE JOB #: 12100120A
START TIME :	07:00	AM	

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

AM PEAK HOUR		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM	1	0	3	3	0	1	1	99	1	0	154	1	264	A	
07:15 AM	07:30 AM	1	1	4	3	1	4	3	201	5	0	186	3	412	A	
07:30 AM	07:45 AM	0	1	3	5	0	1	3	110	6	1	217	1	348	A	
07:45 AM	08:00 AM	0	0	3	1	0	0	1	103	3	1	156	0	268	A	1292
08:00 AM	08:15 AM	0	0	3	3	0	0	3	103	5	0	145	1	263	A	1291
08:15 AM	08:30 AM	0	1	3	2	0	0	2	130	6	2	143	0	289	X	1168
08:30 AM	08:45 AM	0	0	3	4	0	2	3	109	2	1	140	1	265	X	1085
08:45 AM	09:00 AM	2	0	3	3	0	1	3	105	4	1	176	1	299	X	1116
09:00 AM	09:15 AM	3	1	7	6	0	2	3	104	7	2	151	0	286	X	1139
09:15 AM	09:30 AM	1	0	1	4	0	1	0	85	6	0	107	0	205	A	1055
09:30 AM	09:45 AM													0	A	790
09:45 AM	10:00 AM													0	A	491
10:00 AM	10:15 AM													0	A	205
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

07:00 AM	07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	1	3	2	0	0	2	130	6	2	143	0	289
08:30 AM	08:45 AM	0	0	3	4	0	2	3	109	2	1	140	1	265
08:45 AM	09:00 AM	2	0	3	3	0	1	3	105	4	1	176	1	299
09:00 AM	09:15 AM	3	1	7	6	0	2	3	104	7	2	151	0	286
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
08:15 AM	09:15 AM	5	2	16	15	0	5	11	448	19	6	610	2	1139	0.95

2	610	6	^	6	5
12	11	10	<	5	0
<	v	>	v	4	15
5	1	^	<	^	>
2	2	>	7	8	9
16	3	v	11	448	19

LOCATION: NYS ROUTE 22 & STERLING ROAD | PROJECT: BRYNWOOD GOLF AND COUNTRY CLUB

DATE OF COUNT: 09/10/13 | DAY: TUESDAY | JCE JOB #: 12100120A | START TIME : 16:00 | **PM**

	4	497	3	^	6	7										
	12	11	10	<	5	0										
	<	v	>	v	4	4										
	2	1	^	<	^	>										
	1	2	>	7	8	9										
	9	3	v	10	656	22										

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
04:00 PM	04:15 PM	1	2	5	2	0	1	5	146	2	1	134	1	300	A	
04:15 PM	04:30 PM	1	0	0	4	0	1	5	190	5	0	106	1	313	A	
04:30 PM	04:45 PM	1	0	4	7	0	2	7	143	1	1	126	0	292	A	
04:45 PM	05:00 PM	0	0	3	3	0	1	3	144	0	0	131	0	285	A	1190
05:00 PM	05:15 PM	1	1	2	1	0	1	3	157	3	0	114	1	284	X	1174
05:15 PM	05:30 PM	1	0	2	1	0	3	3	172	7	2	145	1	337	X	1198
05:30 PM	05:45 PM	0	0	2	1	0	1	4	166	7	0	126	2	309	X	1215
05:45 PM	06:00 PM	0	0	3	1	0	2	0	161	5	1	112	0	285	X	1215
06:00 PM	06:15 PM													0	A	931
06:15 PM	06:30 PM													0	A	594
06:30 PM	06:45 PM													0	A	285
06:45 PM	07:00 PM													0	A	0
07:00 PM	07:15 PM													0	A	0
07:15 PM	07:30 PM													0	A	0
07:30 PM	07:45 PM													0	A	0
07:45 PM	08:00 PM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	05:15 PM	1	1	2	1	0	1	3	157	3	0	114	1	284
05:15 PM	05:30 PM	1	0	2	1	0	3	3	172	7	2	145	1	337
05:30 PM	05:45 PM	0	0	2	1	0	1	4	166	7	0	126	2	309
05:45 PM	06:00 PM	0	0	3	1	0	2	0	161	5	1	112	0	285
06:00 PM	06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
05:00 PM	06:00 PM	2	1	9	4	0	7	10	656	22	3	497	4	1215	0.90

BRYNWOOD GOLF AND COUNTRY CLUB

ATTACHMENT B

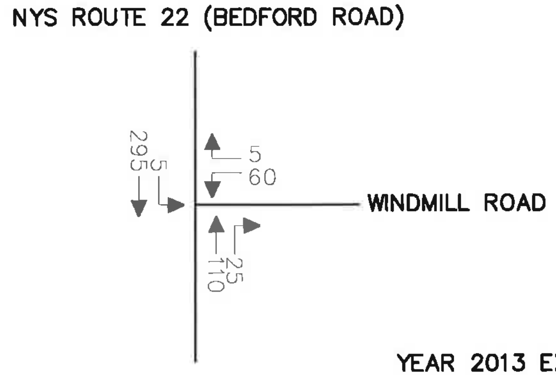
NYS ROUTE 22 & WINDMILL ROAD

TABLE NO. 1

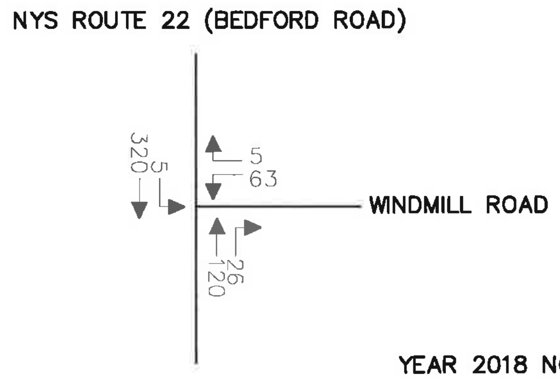
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2013 EXISTING CONDITIONS			YEAR 2018 NO-BUILD CONDITIONS			YEAR 2018 BUILD CONDITIONS		
		AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00
13	NYS ROUTE 22 & WINDMILL ROAD									
	UNSIGNALIZED									
	<u>MAJOR MOVEMENTS</u> SOUTHBOUND LEFT / THROUGH	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.4)	A (0.2)
	<u>MINOR MOVEMENTS</u> WESTBOUND LEFT / RIGHT	B (13.4)	C (15.3)	B (12.9)	B (14.0)	C (16.2)	B (13.7)	B (14.7)	C (16.9)	B (14.3)

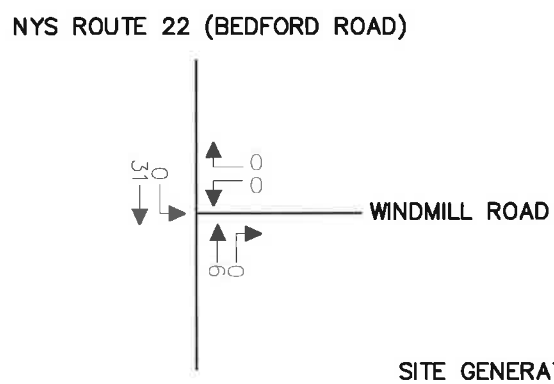
THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B (10.9) FOR THE UNSIGNALIZED INTERSECTIONS



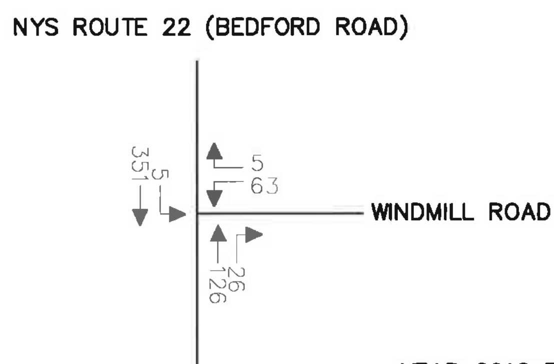
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO–BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

MASER CONSULTING P.A.
Consulting, Municipal & Environmental Engineers
Planners ▪ Surveyors ▪ Landscape Architects
State of N.Y. Certificate of Authorization: 0000172
New Jersey New York Pennsylvania Virginia
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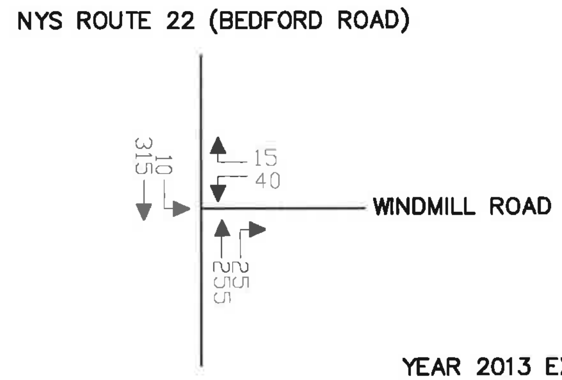
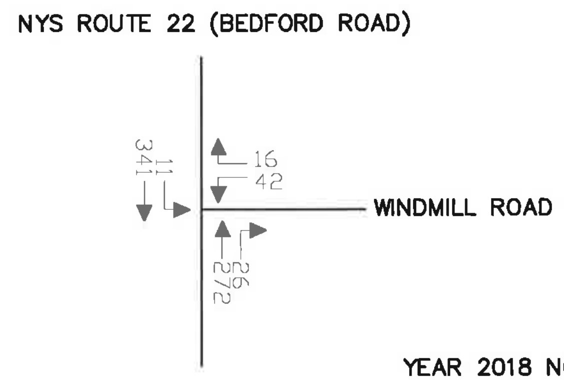
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(7:00 AM - 8:00 AM)

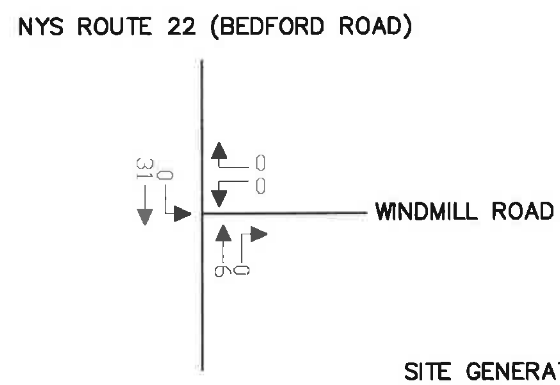
JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
1	



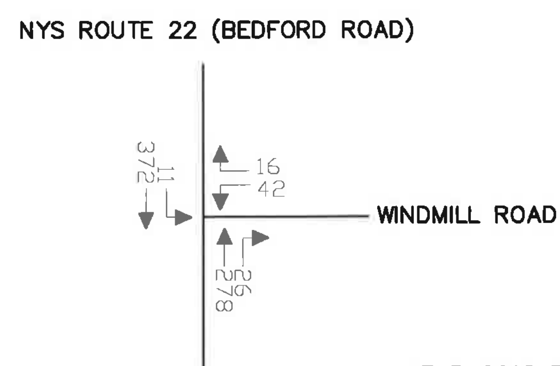
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO–BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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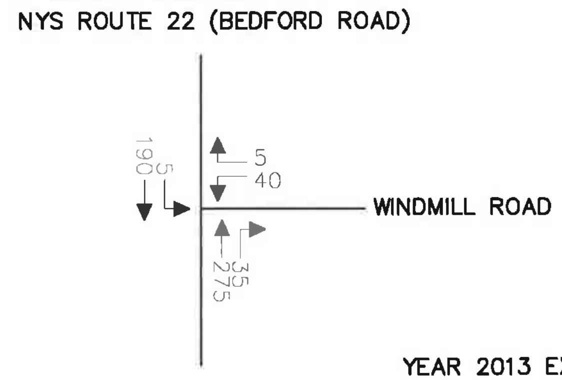
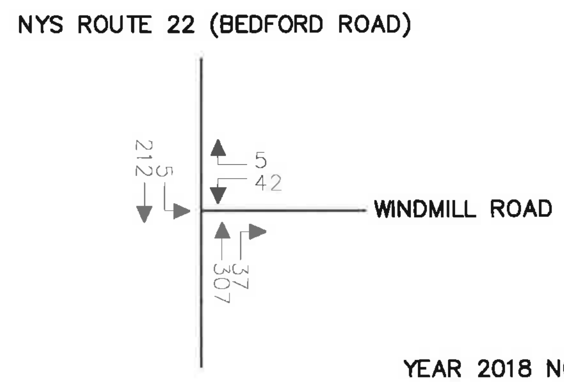
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(8:15 AM - 9:15 AM)

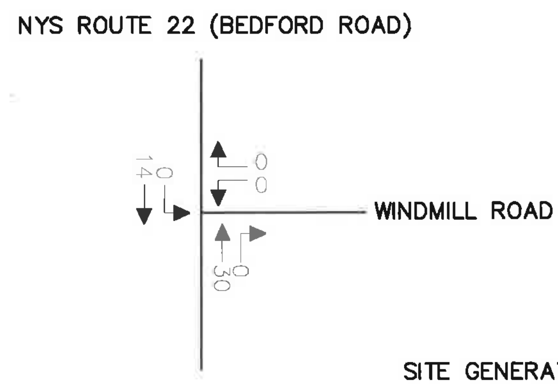
JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
2	



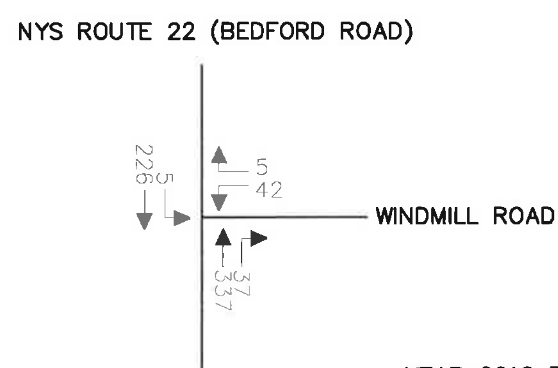
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK PM HIGHWAY HOUR

JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
3	

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.989		0.975			
Flt Protected	0.956					0.999
Satd. Flow (prot)	1633	0	1684	0	0	1726
Flt Permitted	0.956					0.999
Satd. Flow (perm)	1633	0	1684	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	60	5	110	25	5	295
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	71	6	129	29	6	347
Lane Group Flow (vph)	77	0	158	0	0	353
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 32.6%	ICU Level of Service A
Analysis Period (min) 15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	60	5	110	25	5	295
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	71	6	129	29	6	347
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	523	164			169	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	523	164			169	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	86	99			100	
cM capacity (veh/h)	490	846			1350	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	76	159	353
Volume Left	71	0	6
Volume Right	6	29	0
cSH	507	1700	1350
Volume to Capacity	0.15	0.09	0.00
Queue Length 95th (ft)	13	0	0
Control Delay (s)	13.4	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.4	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	32.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.963		0.988			
Flt Protected	0.965					0.998
Satd. Flow (prot)	1605	0	1707	0	0	1724
Flt Permitted	0.965					0.998
Satd. Flow (perm)	1605	0	1707	0	0	1724
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	40	15	255	25	10	315
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	48	18	304	30	12	375
Lane Group Flow (vph)	66	0	334	0	0	387
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 37.5% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	40	15	255	25	10	315
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	48	18	304	30	12	375
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	737	338			343	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	737	338			343	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	87	97			99	
cM capacity (veh/h)	364	674			1163	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	65	333	387
Volume Left	48	0	12
Volume Right	18	30	0
cSH	416	1700	1163
Volume to Capacity	0.16	0.20	0.01
Queue Length 95th (ft)	14	0	1
Control Delay (s)	15.3	0.0	0.4
Lane LOS	C		A
Approach Delay (s)	15.3	0.0	0.4
Approach LOS	C		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986		0.985			
Flt Protected	0.957					0.999
Satd. Flow (prot)	1630	0	1701	0	0	1726
Flt Permitted	0.957					0.999
Satd. Flow (perm)	1630	0	1701	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	40	5	275	35	5	190
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	42	5	286	36	5	198
Lane Group Flow (vph)	47	0	322	0	0	203
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 29.5% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	40	5	275	35	5	190
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	42	5	286	36	5	198
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	533	325			333	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	533	325			333	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	91	99			100	
cM capacity (veh/h)	483	687			1173	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	47	323	203
Volume Left	42	0	5
Volume Right	5	36	0
cSH	500	1700	1173
Volume to Capacity	0.09	0.19	0.00
Queue Length 95th (ft)	8	0	0
Control Delay (s)	12.9	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	12.9	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	29.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990		0.976			
Flt Protected	0.956					0.999
Satd. Flow (prot)	1635	0	1686	0	0	1726
Flt Permitted	0.956					0.999
Satd. Flow (perm)	1635	0	1686	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	63	5	120	26	5	320
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	74	6	141	31	6	376
Lane Group Flow (vph)	80	0	172	0	0	382
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 34.1% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	63	5	120	26	5	320
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	74	6	141	31	6	376
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	565	176			182	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	565	176			182	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	99			100	
cM capacity (veh/h)	463	832			1335	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	80	172	382
Volume Left	74	0	6
Volume Right	6	31	0
cSH	479	1700	1335
Volume to Capacity	0.17	0.10	0.00
Queue Length 95th (ft)	15	0	0
Control Delay (s)	14.0	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.0	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	34.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.963		0.988			
Flt Protected	0.965					0.998
Satd. Flow (prot)	1605	0	1707	0	0	1724
Flt Permitted	0.965					0.998
Satd. Flow (perm)	1605	0	1707	0	0	1724
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	42	16	272	26	11	341
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	50	19	324	31	13	406
Lane Group Flow (vph)	69	0	355	0	0	419
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 39.8% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	42	16	272	26	11	341
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	50	19	324	31	13	406
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	791	359			365	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	791	359			365	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	85	97			99	
cM capacity (veh/h)	338	656			1141	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	355	419
Volume Left	50	0	13
Volume Right	19	31	0
cSH	390	1700	1141
Volume to Capacity	0.18	0.21	0.01
Queue Length 95th (ft)	16	0	1
Control Delay (s)	16.2	0.0	0.4
Lane LOS	C		A
Approach Delay (s)	16.2	0.0	0.4
Approach LOS	C		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986		0.985			
Flt Protected	0.957					0.999
Satd. Flow (prot)	1630	0	1701	0	0	1726
Flt Permitted	0.957					0.999
Satd. Flow (perm)	1630	0	1701	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	42	5	307	37	5	212
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	44	5	320	39	5	221
Lane Group Flow (vph)	49	0	359	0	0	226
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 31.3% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	42	5	307	37	5	212
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	44	5	320	39	5	221
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	590	359			368	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	590	359			368	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	90	99			100	
cM capacity (veh/h)	447	657			1138	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	49	358	226
Volume Left	44	0	5
Volume Right	5	39	0
cSH	463	1700	1138
Volume to Capacity	0.11	0.21	0.00
Queue Length 95th (ft)	9	0	0
Control Delay (s)	13.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.7	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	31.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.990		0.977			
Flt Protected	0.956					0.999
Satd. Flow (prot)	1635	0	1688	0	0	1726
Flt Permitted	0.956					0.999
Satd. Flow (perm)	1635	0	1688	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	63	5	126	26	5	351
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	74	6	148	31	6	413
Lane Group Flow (vph)	80	0	179	0	0	419
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 35.7% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	63	5	126	26	5	351
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	74	6	148	31	6	413
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	608	184			189	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	608	184			189	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	83	99			100	
cM capacity (veh/h)	437	825			1327	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	80	179	419
Volume Left	74	0	6
Volume Right	6	31	0
cSH	452	1700	1327
Volume to Capacity	0.18	0.11	0.00
Queue Length 95th (ft)	16	0	0
Control Delay (s)	14.7	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.7	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.963		0.988			
Flt Protected	0.965					0.999
Satd. Flow (prot)	1605	0	1707	0	0	1726
Flt Permitted	0.965					0.999
Satd. Flow (perm)	1605	0	1707	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	42	16	278	26	11	372
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	50	19	331	31	13	443
Lane Group Flow (vph)	69	0	362	0	0	456
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 41.5% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	42	16	278	26	11	372
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	50	19	331	31	13	443
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	835	366			372	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	835	366			372	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	84	97			99	
cM capacity (veh/h)	318	650			1134	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	362	456
Volume Left	50	0	13
Volume Right	19	31	0
cSH	370	1700	1134
Volume to Capacity	0.19	0.21	0.01
Queue Length 95th (ft)	17	0	1
Control Delay (s)	16.9	0.0	0.4
Lane LOS	C		A
Approach Delay (s)	16.9	0.0	0.4
Approach LOS	C		

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	41.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)	15	9		9	15	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986		0.986			
Flt Protected	0.957					0.999
Satd. Flow (prot)	1630	0	1703	0	0	1726
Flt Permitted	0.957					0.999
Satd. Flow (perm)	1630	0	1703	0	0	1726
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	30		40			40
Link Distance (ft)	854		886			800
Travel Time (s)	19.4		15.1			13.6
Volume (vph)	42	5	337	37	5	226
Confl. Peds. (#/hr)	10	10		10	10	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	44	5	351	39	5	235
Lane Group Flow (vph)	49	0	390	0	0	240
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 32.9% ICU Level of Service A
Analysis Period (min) 15

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	42	5	337	37	5	226
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	44	5	351	39	5	235
Pedestrians	10		10			10
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	1		1			1
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	636	390			400	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	636	390			400	
tC, single (s)	6.5	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.6	3.4			2.3	
p0 queue free %	90	99			100	
cM capacity (veh/h)	420	630			1108	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	49	390	241
Volume Left	44	0	5
Volume Right	5	39	0
cSH	436	1700	1108
Volume to Capacity	0.11	0.23	0.00
Queue Length 95th (ft)	9	0	0
Control Delay (s)	14.3	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	14.3	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	32.9%	ICU Level of Service	A
Analysis Period (min)	15		

LOCATION:	NYS ROUTE 22 & WINDMILL ROAD	PROJECT:	BRYNWOOD		
DATE OF COUNT:	04/27/11	DAY: WEDNESDAY	JCE JOB #: 1721	START TIME : 07:00	**AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
AM PEAK HOUR		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**total**		
07:00 AM	07:15 AM	0		0	14	0	0	0	15	1	0	50	0	80	X	
07:15 AM	07:30 AM	0		0	21	0	0	0	23	2	0	61	0	107	X	
07:30 AM	07:45 AM	0		0	17	0	0	0	37	7	0	63	0	124	X	
07:45 AM	08:00 AM	0		0	10	0	1	0	37	15	1	66	0	130	X	441
08:00 AM	08:15 AM	0		0	9	0	1	0	36	9	0	73	0	128	A	489
08:15 AM	08:30 AM	0		0	11	0	1	0	65	5	0	70	0	152	A	534
08:30 AM	08:45 AM	0		0	9	0	1	0	54	3	0	48	0	115	A	525
08:45 AM	09:00 AM	0		0	10	0	4	0	78	11	8	83	0	194	A	589
09:00 AM	09:15 AM	0		0	11	0	6	0	57	6	0	113	0	193	A	654
09:15 AM	09:30 AM	0		0	11	0	1	0	37	4	0	65	0	118	A	620
09:30 AM	09:45 AM													0	A	505
09:45 AM	10:00 AM													0	A	311
10:00 AM	10:15 AM													0	A	118
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
07:00 AM	07:15 AM	0	0	0	14	0	0	0	15	1	0	50	0	80
07:15 AM	07:30 AM	0	0	0	21	0	0	0	23	2	0	61	0	107
07:30 AM	07:45 AM	0	0	0	17	0	0	0	37	7	0	63	0	124
07:45 AM	08:00 AM	0	0	0	10	0	1	0	37	15	1	66	0	130
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**total**	**PHF**
07:00 AM	08:00 AM	0	0	0	62	0	1	0	112	25	1	240	0	441	0.85

0	240	1	^	6	1
12	11	10	<	5	0
<	v	>	v	4	62
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	112	25

LOCATION: NYS ROUTE 22 & WINDMILL ROAD　　PROJECT: BRYNWOOD

DATE OF COUNT: 04/27/11　　DAY: WEDNESDAY　　JCE JOB #: 1721　　START TIME : 07:00　　**AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND				
AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM	0		0	14	0	0	0	15	1	0	50	0	80	A	
07:15 AM	07:30 AM	0		0	21	0	0	0	23	2	0	61	0	107	A	
07:30 AM	07:45 AM	0		0	17	0	0	0	37	7	0	63	0	124	A	
07:45 AM	08:00 AM	0		0	10	0	1	0	37	15	1	66	0	130	A	441
08:00 AM	08:15 AM	0		0	9	0	1	0	36	9	0	73	0	128	A	489
08:15 AM	08:30 AM	0		0	11	0	1	0	65	5	0	70	0	152	X	534
08:30 AM	08:45 AM	0		0	9	0	1	0	54	3	0	48	0	115	X	525
08:45 AM	09:00 AM	0		0	10	0	4	0	78	11	8	83	0	194	X	589
09:00 AM	09:15 AM	0		0	11	0	6	0	57	6	0	113	0	193	X	654
09:15 AM	09:30 AM	0		0	11	0	1	0	37	4	0	65	0	118	A	620
09:30 AM	09:45 AM													0	A	505
09:45 AM	10:00 AM													0	A	311
10:00 AM	10:15 AM													0	A	118
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

07:00 AM	07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	11	0	1	0	65	5	0	70	0	152
08:30 AM	08:45 AM	0	0	0	9	0	1	0	54	3	0	48	0	115
08:45 AM	09:00 AM	0	0	0	10	0	4	0	78	11	8	83	0	194
09:00 AM	09:15 AM	0	0	0	11	0	6	0	57	6	0	113	0	193
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
08:15 AM	09:15 AM	0	0	0	41	0	12	0	254	25	8	314	0	654	0.84

0	314	8	^	6	12
12	11	10	<	5	0
<	v	>	v	4	41
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	254	25

LOCATION: NYS ROUTE 22 & WINDMILL ROAD — PROJECT: BRYNWOOD

DATE OF COUNT: 04/26/11 — DAY: TUESDAY — JCE JOB #: 1721 — START TIME : 16:00 — **PM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	A	
04:15 PM	04:30 PM	0	0	0	7	0	3	0	73	13	2	40	0	138	X	
04:30 PM	04:45 PM	0	0	0	12	0	1	0	70	8	1	50	0	142	X	
04:45 PM	05:00 PM	0	0	0	11	0	0	0	72	4	0	46	0	133	X	413
05:00 PM	05:15 PM	0	0	0	8	0	0	0	61	8	0	57	0	134	X	547
05:15 PM	05:30 PM	0	0	0	9	0	1	0	62	14	0	62	0	148	A	557
05:30 PM	05:45 PM	0	0	0	10	0	0	0	66	14	0	47	0	137	A	552
05:45 PM	06:00 PM	0	0	0	8	0	1	0	58	15	1	53	0	136	A	555
06:00 PM	06:15 PM	0	0	0	9	0	1	0	55	11	1	60	0	137	A	558
06:15 PM	06:30 PM	0	0	0	5	0	0	0	64	7	0	50	0	126	A	536
06:30 PM	06:45 PM													0	A	399
06:45 PM	07:00 PM													0	A	263
07:00 PM	07:15 PM													0	A	126
07:15 PM	07:30 PM													0	A	0
07:30 PM	07:45 PM													0	A	0
07:45 PM	08:00 PM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	04:30 PM	0	0	0	7	0	3	0	73	13	2	40	0	138
04:30 PM	04:45 PM	0	0	0	12	0	1	0	70	8	1	50	0	142
04:45 PM	05:00 PM	0	0	0	11	0	0	0	72	4	0	46	0	133
05:00 PM	05:15 PM	0	0	0	8	0	0	0	61	8	0	57	0	134
05:15 PM	05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
04:15 PM	05:15 PM	0	0	0	38	0	4	0	276	33	3	193	0	547	0.96

0	193	3	^	6	4
12	11	10	<	5	0
<	v	>	v	4	38
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	276	33

BRYNWOOD GOLF AND COUNTRY CLUB

ATTACHMENT C

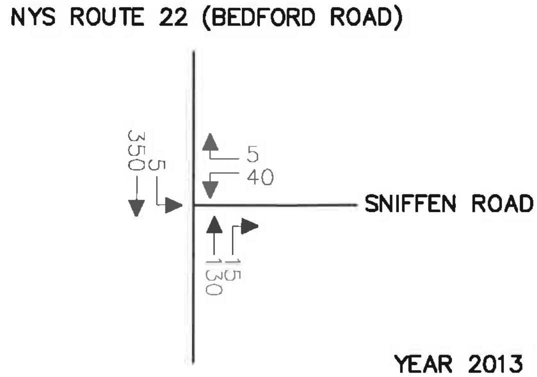
NYS ROUTE 22 & SNIFFEN ROAD

TABLE NO. 1

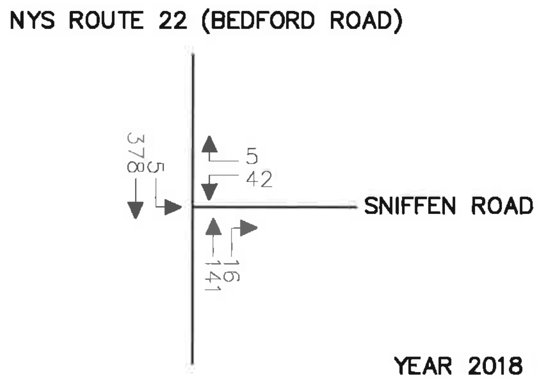
LEVEL OF SERVICE SUMMARY TABLE

	LOCATION	YEAR 2013 EXISTING CONDITIONS			YEAR 2018 NO-BUILD CONDITIONS			YEAR 2018 BUILD CONDITIONS		
		AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00	AM 7:00 - 8:00	AM 8:15 - 9:15	PM 5:00 - 6:00
14	NYS ROUTE 22 & SNIFFEN ROAD									
	UNSIGNALIZED									
	MAJOR MOVEMENTS SOUTHBOUND LEFT / THROUGH	A (0.2)	A (0.2)	A (0.4)	A (0.2)	A (0.2)	A (0.5)	A (0.2)	A (0.2)	A (0.5)
	MINOR MOVEMENTS WESTBOUND LEFT / RIGHT	B (13.9)	B (13.1)	B (12.8)	B (14.6)	B (13.7)	B (13.5)	C (15.3)	B (14.1)	B (14.0)

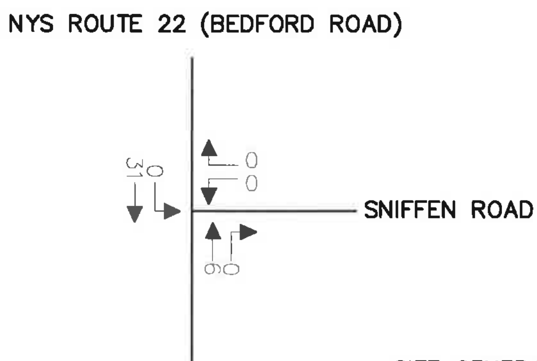
THE ABOVE REPRESENTS THE LEVELS OF SERVICE AND AVERAGE TOTAL DELAY IN SECONDS, B (10.9) FOR THE UNSIGNALIZED INTERSECTIONS



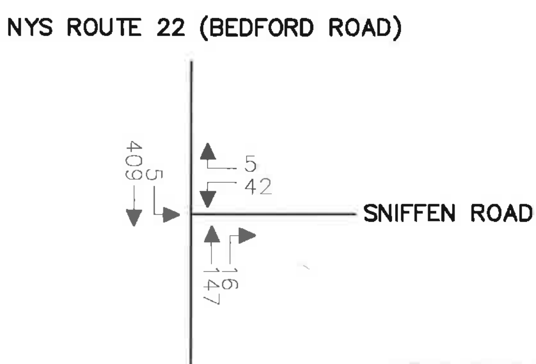
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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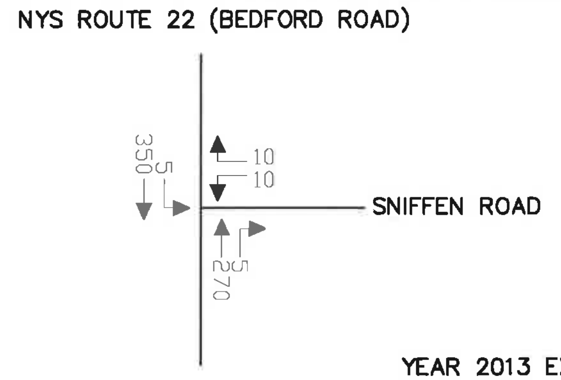
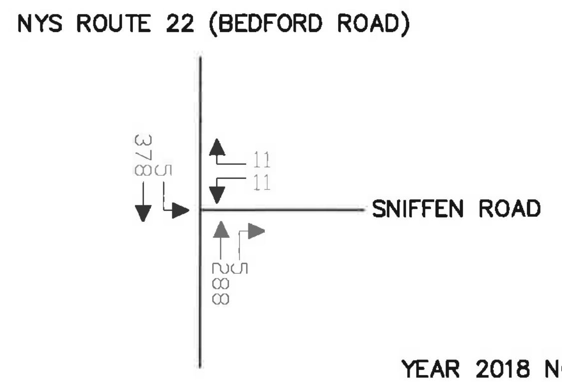
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(7:00 AM - 8:00 AM)

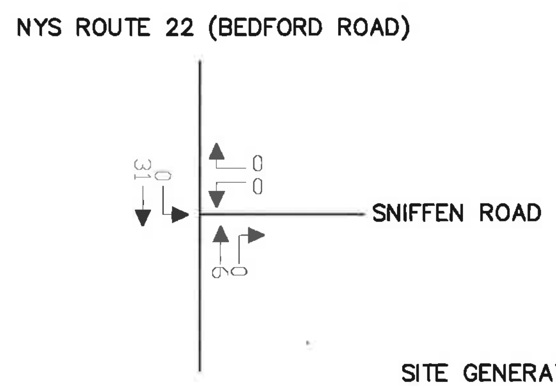
JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
1	



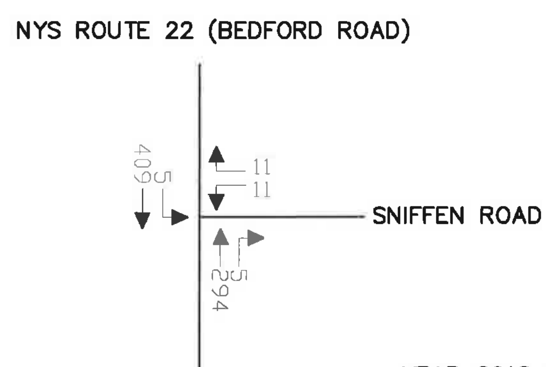
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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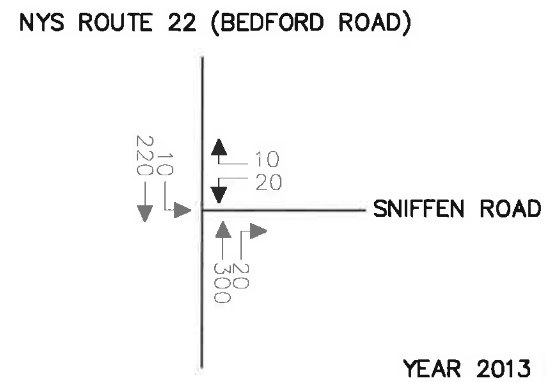
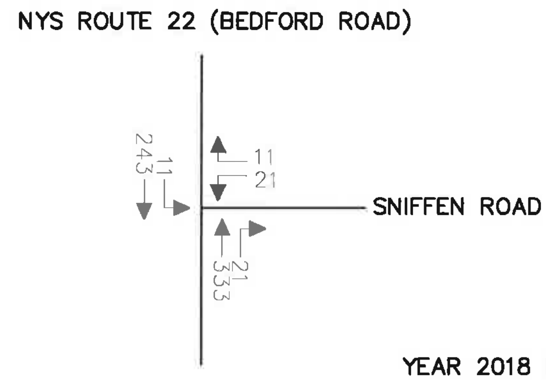
BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK AM HOUR
(8:15 AM - 9:15 AM)

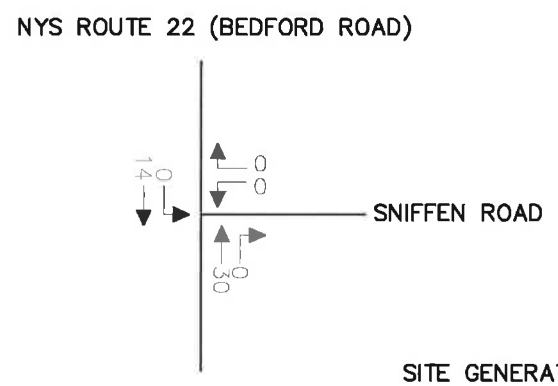
JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
2	



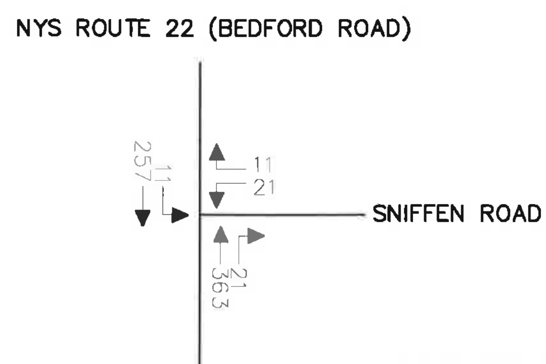
YEAR 2013 EXISTING TRAFFIC VOLUMES



YEAR 2018 NO-BUILD TRAFFIC VOLUMES



SITE GENERATED TRAFFIC VOLUMES



YEAR 2018 BUILD TRAFFIC VOLUMES

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BRYNWOOD GOLF AND COUNTRY CLUB
TOWN OF NORTH CASTLE, NEW YORK

WEEKDAY PEAK PM HIGHWAY HOUR

JOB NUMBER:	DATE:
12100120A	09/05/2013
FIGURE NUMBER:	
3	

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.985	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1703	0	0	1726	1628	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1703	0	0	1726	1628	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	130	15	5	350	40	5
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	155	18	6	417	48	6
Lane Group Flow (vph)	173	0	0	423	54	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 35.3% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	130	15	5	350	40	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	155	18	6	417	48	6
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			183		612	184
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			183		612	184
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			100		89	99
cM capacity (veh/h)			1334		434	825

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	173	423	54
Volume Left	0	6	48
Volume Right	18	0	6
cSH	1700	1334	458
Volume to Capacity	0.10	0.00	0.12
Queue Length 95th (ft)	0	0	10
Control Delay (s)	0.0	0.2	13.9
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	13.9
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.997				0.932	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1722	0	0	1726	1571	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1722	0	0	1726	1571	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	270	5	5	350	10	10
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	314	6	6	407	12	12
Lane Group Flow (vph)	320	0	0	413	24	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 35.3% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	270	5	5	350	10	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	314	6	6	407	12	12
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			330		755	337
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			330		755	337
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			100		97	98
cM capacity (veh/h)			1176		357	676

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	320	413	23
Volume Left	0	6	12
Volume Right	6	0	12
cSH	1700	1176	467
Volume to Capacity	0.19	0.00	0.05
Queue Length 95th (ft)	0	0	4
Control Delay (s)	0.0	0.2	13.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	13.1
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.954	
Flt Protected				0.998	0.968	
Satd. Flow (prot)	1713	0	0	1724	1595	0
Flt Permitted				0.998	0.968	
Satd. Flow (perm)	1713	0	0	1724	1595	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	300	20	10	220	20	10
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	319	21	11	234	21	11
Lane Group Flow (vph)	340	0	0	245	32	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 32.5% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	300	20	10	220	20	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	319	21	11	234	21	11
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			350		605	350
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			350		605	350
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		95	98
cM capacity (veh/h)			1156		436	665

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	340	245	32
Volume Left	0	11	21
Volume Right	21	0	11
cSH	1700	1156	493
Volume to Capacity	0.20	0.01	0.06
Queue Length 95th (ft)	0	1	5
Control Delay (s)	0.0	0.4	12.8
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	12.8
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.986				0.986	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1703	0	0	1726	1630	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1703	0	0	1726	1630	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	141	16	5	378	42	5
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	168	19	6	450	50	6
Lane Group Flow (vph)	187	0	0	456	56	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 36.7% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	141	16	5	378	42	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	168	19	6	450	50	6
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			197		659	197
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			197		659	197
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			100		88	99
cM capacity (veh/h)			1318		407	810

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	187	456	56
Volume Left	0	6	50
Volume Right	19	0	6
cSH	1700	1318	430
Volume to Capacity	0.11	0.00	0.13
Queue Length 95th (ft)	0	0	11
Control Delay (s)	0.0	0.1	14.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.1	14.6
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.998				0.932	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1724	0	0	1726	1571	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1724	0	0	1726	1571	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	288	5	5	378	11	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	335	6	6	440	13	13
Lane Group Flow (vph)	341	0	0	446	26	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 36.7% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	288	5	5	378	11	11
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	335	6	6	440	13	13
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			351		809	358
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			351		809	358
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		96	98
cM capacity (veh/h)			1155		332	658

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	341	445	26
Volume Left	0	6	13
Volume Right	6	0	13
cSH	1700	1155	441
Volume to Capacity	0.20	0.01	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.2	13.7
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	13.7
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.992				0.952	
Flt Protected				0.998	0.969	
Satd. Flow (prot)	1713	0	0	1724	1593	0
Flt Permitted				0.998	0.969	
Satd. Flow (perm)	1713	0	0	1724	1593	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	333	21	11	243	21	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	354	22	12	259	22	12
Lane Group Flow (vph)	376	0	0	271	34	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 34.6% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	333	21	11	243	21	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	354	22	12	259	22	12
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			387		667	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			387		667	385
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		94	98
cM capacity (veh/h)			1120		401	634

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	377	270	34
Volume Left	0	12	22
Volume Right	22	0	12
cSH	1700	1120	459
Volume to Capacity	0.22	0.01	0.07
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.5	13.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.5	13.5
Approach LOS			B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.987				0.986	
Flt Protected				0.999	0.957	
Satd. Flow (prot)	1705	0	0	1726	1630	0
Flt Permitted				0.999	0.957	
Satd. Flow (perm)	1705	0	0	1726	1630	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	147	16	5	409	42	5
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	175	19	6	487	50	6
Lane Group Flow (vph)	194	0	0	493	56	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	147	16	5	409	42	5
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	175	19	6	487	50	6
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			204		703	205
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			204		703	205
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			100		87	99
cM capacity (veh/h)			1310		384	803

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	194	493	56
Volume Left	0	6	50
Volume Right	19	0	6
cSH	1700	1310	406
Volume to Capacity	0.11	0.00	0.14
Queue Length 95th (ft)	0	0	12
Control Delay (s)	0.0	0.1	15.3
Lane LOS		A	C
Approach Delay (s)	0.0	0.1	15.3
Approach LOS			C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.998				0.932	
Flt Protected				0.999	0.976	
Satd. Flow (prot)	1724	0	0	1726	1571	0
Flt Permitted				0.999	0.976	
Satd. Flow (perm)	1724	0	0	1726	1571	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	294	5	5	409	11	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	342	6	6	476	13	13
Lane Group Flow (vph)	348	0	0	482	26	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 38.4% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	294	5	5	409	11	11
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Hourly flow rate (vph)	342	6	6	476	13	13
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			358		852	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			358		852	365
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		96	98
cM capacity (veh/h)			1148		313	652

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	348	481	26
Volume Left	0	6	13
Volume Right	6	0	13
cSH	1700	1148	423
Volume to Capacity	0.20	0.01	0.06
Queue Length 95th (ft)	0	0	5
Control Delay (s)	0.0	0.2	14.1
Lane LOS		A	B
Approach Delay (s)	0.0	0.2	14.1
Approach LOS			B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.993				0.952	
Flt Protected				0.998	0.969	
Satd. Flow (prot)	1715	0	0	1724	1593	0
Flt Permitted				0.998	0.969	
Satd. Flow (perm)	1715	0	0	1724	1593	0
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)	40			40	30	
Link Distance (ft)	823			886	771	
Travel Time (s)	14.0			15.1	17.5	
Volume (vph)	363	21	11	257	21	11
Confl. Peds. (#/hr)		10	10		10	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%
Adj. Flow (vph)	386	22	12	273	22	12
Lane Group Flow (vph)	408	0	0	285	34	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 35.3% ICU Level of Service A
Analysis Period (min) 15

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	363	21	11	257	21	11
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	386	22	12	273	22	12
Pedestrians	10			10	10	
Lane Width (ft)	12.0			12.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	1			1	1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			419		714	417
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			419		714	417
tC, single (s)			4.2		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.3		3.6	3.4
p0 queue free %			99		94	98
cM capacity (veh/h)			1090		376	608

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	409	285	34
Volume Left	0	12	22
Volume Right	22	0	12
cSH	1700	1090	433
Volume to Capacity	0.24	0.01	0.08
Queue Length 95th (ft)	0	1	6
Control Delay (s)	0.0	0.4	14.0
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	14.0
Approach LOS			B

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

LOCATION:	NYS ROUTE 22 & SNIFFEN ROAD	PROJECT:	BRYNWOOD		
DATE OF COUNT:	04/27/11	DAY: WEDNESDAY	JCE JOB #: 1721	START TIME : 07:00	AM

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM	0		0	3	0	0	0	21	1	0	86	0	111	X	
07:15 AM	07:30 AM	0		0	18	0	1	0	26	4	1	92	0	142	X	
07:30 AM	07:45 AM	0		0	20	0	1	0	41	7	1	97	0	167	X	
07:45 AM	08:00 AM	0		0	0	0	1	0	51	3	0	84	0	139	X	559
08:00 AM	08:15 AM	0		0	4	0	0	0	44	0	0	85	0	133	A	581
08:15 AM	08:30 AM	0		0	5	0	0	0	57	2	1	59	0	124	A	563
08:30 AM	08:45 AM	0		0	2	0	1	0	65	1	1	75	0	145	A	541
08:45 AM	09:00 AM	0		0	1	0	6	0	77	1	0	92	0	177	A	579
09:00 AM	09:15 AM	0		0	0	0	4	0	61	0	1	117	0	183	A	629
09:15 AM	09:30 AM	0		0	3	0	2	0	35	1	2	66	0	109	A	614
09:30 AM	09:45 AM													0	A	469
09:45 AM	10:00 AM													0	A	292
10:00 AM	10:15 AM													0	A	109
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

07:00 AM	07:15 AM	0	0	0	3	0	0	0	21	1	0	86	0	111
07:15 AM	07:30 AM	0	0	0	18	0	1	0	26	4	1	92	0	142
07:30 AM	07:45 AM	0	0	0	20	0	1	0	41	7	1	97	0	167
07:45 AM	08:00 AM	0	0	0	0	0	1	0	51	3	0	84	0	139
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
07:00 AM	08:00 AM	0	0	0	41	0	3	0	139	15	2	359	0	559	0.84

0	359	2	^	6	3
12	11	10	<	5	0
<	v	>	v	4	41
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	139	15

LOCATION: NYS ROUTE 22 & SNIFFEN ROAD PROJECT: BRYNWOOD

DATE OF COUNT: 04/27/11 DAY: WEDNESDAY JCE JOB #: 1721 START TIME : 07:00 **AM**

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total		
07:00 AM	07:15 AM	0		0	3	0	0	0	21	1	0	86	0	111	A	
07:15 AM	07:30 AM	0		0	18	0	1	0	26	4	1	92	0	142	A	
07:30 AM	07:45 AM	0		0	20	0	1	0	41	7	1	97	0	167	A	
07:45 AM	08:00 AM	0		0	0	0	1	0	51	3	0	84	0	139	A	559
08:00 AM	08:15 AM	0		0	4	0	0	0	44	0	0	85	0	133	A	581
08:15 AM	08:30 AM	0		0	5	0	0	0	57	2	1	59	0	124	X	563
08:30 AM	08:45 AM	0		0	2	0	1	0	65	1	1	75	0	145	X	541
08:45 AM	09:00 AM	0		0	1	0	6	0	77	1	0	92	0	177	X	579
09:00 AM	09:15 AM	0		0	0	0	4	0	61	0	1	117	0	183	X	629
09:15 AM	09:30 AM	0		0	3	0	2	0	35	1	2	66	0	109	A	614
09:30 AM	09:45 AM													0	A	469
09:45 AM	10:00 AM													0	A	292
10:00 AM	10:15 AM													0	A	109
10:15 AM	10:30 AM													0	A	0
10:30 AM	10:45 AM													0	A	0
10:45 AM	11:00 AM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

		1	2	3	4	5	6	7	8	9	10	11	12	total
07:00 AM	07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	08:30 AM	0	0	0	5	0	0	0	57	2	1	59	0	124
08:30 AM	08:45 AM	0	0	0	2	0	1	0	65	1	1	75	0	145
08:45 AM	09:00 AM	0	0	0	1	0	6	0	77	1	0	92	0	177
09:00 AM	09:15 AM	0	0	0	0	0	4	0	61	0	1	117	0	183
09:15 AM	09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	09:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 AM	10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 AM	10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15 AM	10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:30 AM	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
10:45 AM	11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

AM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
08:15 AM	09:15 AM	0	0	0	8	0	11	0	260	4	3	343	0	629	0.86

0	343	3	^	6	11
12	11	10	<	5	0
<	v	>	v	4	8
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	260	4

LOCATION:	NYS ROUTE 22 & SNIFFEN ROAD	PROJECT:	BRYNWOOD
DATE OF COUNT:	04/26/11	DAY: TUESDAY	JCE JOB #: 1721
		START TIME :	16:00

PM

ENTER 15-MINUTE COUNT VOLUMES BY MOVEMENT

PM PEAK HOUR		EASTBOUND			WESTBOUND			NORTHBOUND			SOUTHBOUND					
		1	2	3	4	5	6	7	8	9	10	11	12	total		
04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	A	
04:15 PM	04:30 PM	0	0	0	1	0	1	0	79	2	2	51	0	136	X	
04:30 PM	04:45 PM	0	0	0	6	0	1	0	69	5	3	61	0	145	X	
04:45 PM	05:00 PM	0	0	0	2	0	1	0	65	2	4	61	0	135	X	416
05:00 PM	05:15 PM	0	0	0	4	0	0	0	67	1	2	55	0	129	X	545
05:15 PM	05:30 PM	0	0	0	7	0	4	0	68	8	1	75	0	163	A	572
05:30 PM	05:45 PM	0	0	0	3	0	2	0	72	4	1	52	0	134	A	561
05:45 PM	06:00 PM	0	0	0	6	0	2	0	68	8	2	62	0	148	A	574
06:00 PM	06:15 PM	0	0	0	5	0	1	0	64	1	0	65	0	136	A	581
06:15 PM	06:30 PM	0	0	0	5	0	1	0	66	5	1	55	0	133	A	551
06:30 PM	06:45 PM													0	A	417
06:45 PM	07:00 PM													0	A	269
07:00 PM	07:15 PM													0	A	133
07:15 PM	07:30 PM													0	A	0
07:30 PM	07:45 PM													0	A	0
07:45 PM	08:00 PM													0	A	0

CALCULATED PEAK 15-MINUTE VOLUMES

04:00 PM	04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	04:30 PM	0	0	0	1	0	1	0	79	2	2	51	0	136
04:30 PM	04:45 PM	0	0	0	6	0	1	0	69	5	3	61	0	145
04:45 PM	05:00 PM	0	0	0	2	0	1	0	65	2	4	61	0	135
05:00 PM	05:15 PM	0	0	0	4	0	0	0	67	1	2	55	0	129
05:15 PM	05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	07:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 PM	07:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 PM	07:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 PM	07:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 PM	08:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0

CALCULATED PEAK HOUR VOLUMES

PM PEAK HOUR		1	2	3	4	5	6	7	8	9	10	11	12	total	PHF
04:15 PM	05:15 PM	0	0	0	13	0	3	0	280	10	11	228	0	545	0.94

0	228	11	^	6	3
12	11	10	<	5	0
<	v	>	v	4	13
0	1	^	<	^	>
0	2	>	7	8	9
0	3	v	0	280	10

TOWN OF NORTH CASTLE

LOCAL LAW NO. __ FOR THE YEAR 2015
ADOPTED _________, 2015

A local law amending Chapter 213, Zoning, of the Code of the Town of North Castle, New York.

BE IT ENACTED by the Town Board of the Town of North Castle as follows:

Section 1. Amend §213-3 of the Town Code to delete the definition of CLUB, MEMBERSHIP and replace it with the following definition, in proper alphabetical order:

CLUB, MEMBERSHIP - Land, buildings and facilities operated for the use and benefit of members and their guests primarily for recreational purposes, including golf clubs, country clubs, tennis and swimming clubs and similar facilities. A "membership club" shall not regularly render services to the general public. However, club facilities including golf courses and other recreational facilities, restaurants and food service facilities, and lodging facilities may be reserved and used by the general public on a fee basis for outings and special events.

Section 2. Amend §213-3 of the Town Code to add the following definition of GOLF COURSE COMMUNITY, in proper alphabetical order:

GOLF COURSE COMMUNITY - A residential community which can be comprised of detached, semi-detached, attached and multifamily dwelling units, all designed for active adults, in which the central focus of the community is an affiliated membership club having an 18 hole golf course and other recreational facilities adjoining the golf course community. The owners of all residences in a golf course community shall be required to be members of the affiliated club. A golf course community is permitted only in the Golf Course Community Floating Overlay District.

Section 3. Amend §213-3 of the Town Code to add the following as the last enumerated district:

GCCFO Golf Course Community Floating Overlay District

Section 4. Amend Article VI of Chapter 213 of the Town Code to add new §213-25A, as follows:

§213-25A Golf Course Community Floating Overlay District.

(A) Purpose and intent. It is the purpose and intent of this section to establish the Golf Course Community Floating Overlay (GCCFO) District, and provide for the development of a residential community designed for active adults in which the central focus of the community is an affiliated membership club having an 18 hole golf course and other recreational facilities. It is the further purpose and intent of this section to encourage the preservation of golf courses, thereby providing for the recreational needs of the Town and the maintenance of significant open space.

(B) Eligibility, procedure and boundaries. The owner of one or more lots and/or parcels of land in the R-2A District having an aggregate minimum area of 150 acres and at least 1,000 feet of frontage on, and direct access from, a State highway, and on which an 18 hole golf course exists on the date of adoption of this section (the “Eligible Land”), may petition the Town Board to map the GCCFO District, but only on the portion of the Eligible Land located more than 100 feet from the perimeter property boundaries of the Eligible Land, it being the intent of the Town Board that the portion of the Eligible Land not mapped as GCCFO District shall be a buffer area and shall be used only for uses permitted in the R-2A District. The boundaries of a GCCFO District shall be fixed by amendment to the Town Zoning Map in accordance with the procedure set forth in §213-68 of this chapter.

(C) Uses. All uses permitted in the R-2A District shall continue to be permitted in accordance with the requirements of the R-2A District. In addition to uses permitted in the R-2A District, a golf course community is a permitted principal use in the GCCFO District, subject to the requirements of this section. All accessory uses in Column 3 of the Schedule of Residence District Regulations (§213-19 of this chapter) shall be permitted accessory uses to a golf course community.

(D) Lot, dimensional and parking requirements for a golf course community. The lot, dimensional, and parking requirements for a golf course community in this section shall supersede the Schedule of Residence District Regulations (§213-19 of this chapter) and the Schedule of Off-Street Parking Requirements (§213-45 of this chapter). The lots and/or parcels that together comprise a golf course community site are not required to be contiguous, provided that each such lot and/or parcel adjoins the affiliated membership club. All lot, dimensional, and parking requirements in this section, including but not limited to maximum density, maximum building coverage, minimum yards and required off-street parking, shall apply to the land area in the GCCFO District as a whole, notwithstanding that the golf course community site may be comprised of more than one lot and/or parcel, or that the site may from time to time be subdivided, resubdivided, or converted to condominium, cooperative and/or homeowners’ association ownership, and all determinations and calculations relating to such requirements shall be made with reference to the boundaries of the entire land area in the GCCFO District and as though such area is a single “lot” (as defined in § 213-3 of this chapter), even though it is or will be comprised of more than one lot and/or parcel.

(1) Density. The maximum permitted density shall not exceed one density unit, as defined in § 213-3 of this chapter, per 110,000 square feet of the

aggregate total “lot area” (as defined in §213-3 of this chapter) in the GCCFO District.

(2) Building coverage. The maximum building coverage shall be 35%.

(3) Maximum building height. The maximum building height shall be 3 stories and 39½ feet to the mean level of the primary roof, measured from the level of the finished grade at the main entry to the building.

(4) Minimum floor area. Minimum gross floor area per dwelling unit shall not be less than the following:
(a) efficiency: 450 square feet;
(b) one-bedroom: 700 square feet;
(c) two-bedrooms: 900 square feet; and
(d) three-bedrooms: 1,100 square feet.

For purposes of this subsection, the Planning Board may allow balconies or paved terraces to be counted toward the minimum gross floor area requirement in an amount not to exceed 5% of that requirement.

(5) Off-street parking.

(a) The minimum required parking for all dwelling units shall be 2 spaces per dwelling unit. An amount equal to at least 10% of the total number of required spaces shall not be reserved for specific dwelling units and shall be available for the use of visitors and guests.

(b) Each parking space shall be at least 8½ feet wide and 18 feet long if unenclosed and at least 9 feet wide if bordered by walls or columns on two or more sides. Backup and maneuvering aisles between rows of parking spaces shall be at least 24 feet wide.

(c) Up to 33% of parking spaces may, with Planning Board approval, be designed and reserved for compact cars. Such compact car spaces shall be at least 7½ feet wide and 15 feet long, shall be in locations approved by the Planning Board and shall be clearly marked as being reserved for compact cars only.

(d) Up to 25% of enclosed spaces may, with Planning Board approval, be tandem spaces.

(E) Privacy considerations.

(1) Visual privacy shall be preserved for residents through the proper design of rear yards and/or patio spaces. Proper screening through the use of vegetation, fencing and partially or fully enclosed patios shall be provided.

(2) Audio privacy shall be maintained by requiring proper standards for solid party walls that will satisfactorily limit sound transmission between adjoining dwelling units.

(F) Water and sewerage facilities. All dwelling units shall be served by either public or central water and sewage treatment facilities, including facilities owned by town improvement districts and duly formed water works and sewage works corporations, and no certificate of occupancy shall be issued for a dwelling unit until it is connected to approved and functioning water and sewage treatment facilities. Water and sewerage facilities shall be designed in accordance with the standards and subject to approval of the Westchester County Department of Health and the New York State Department of Environmental Conservation, as applicable.

(G) Affiliation with membership club.

(1) A golf course community must be affiliated with an adjoining membership club. Such affiliation shall be established by the requirement that except for the initial developer/sponsor of the golf course community and successor sponsors/owners of units which have not yet been sold for owner occupancy, the owner of a dwelling unit of the golf course community must for the duration of ownership be a member (whether individually or as a family) of the membership club. The terms and conditions of membership shall be determined by the membership club.

(2) The golf course of the affiliated membership club functions as the open space for the golf course community, and preservation of that open space is a basis for the permitted density of a golf course community. Accordingly, as a condition of site development plan approval of a golf course community, the affiliated membership club shall record in the Westchester County Clerk's office a permanent conservation easement pursuant to which the membership club agrees that the property on which the golf course is located shall be used solely as a golf course or as open space. The conservation easement shall be in form and substance reasonably acceptable to the Town Attorney.

Section 5. Amend and restate §213-33.I of the Town Code in its entirety, to read as follows:

(1) Purpose. It is the purpose and intent of this section to encourage the use of land in residence districts for recreational facilities, such as golf courses, tennis and swimming clubs and similar facilities, to provide for the recreational needs of the

Town. It is the further purpose and intent of permitting such uses to encourage the maintenance of significant tracts of land as open space to protect and enhance the environmental and visual quality of the Town. Finally, it is the purpose and intent of this section to assure that such diverse types of recreational uses are developed and managed so as to protect the quality of the environment and the property values of adjacent and nearby residential areas.

(2) Location and use.

(a) Where clubs do not front on or have direct access to a major or a collector road as shown on the Town Development Plan Map, the intensity of use shall be limited by the Town Board to the extent necessary to assure that the expected average traffic generation of such use will not exceed that which would be expected if the premises were developed for permitted residential purposes.

(b) Uses and facilities customarily part of a club shall be permitted, including but not limited to golf driving ranges, golf practice greens, golf and tennis pro shops, swimming pools, tennis courts and other recreational facilities, health, fitness and spa facilities, facilities for the operation and maintenance of the club including employee and management housing and buildings for the storage and repair of golf carts, and subject to applicable federal, State and Westchester County laws and regulations, fueling and fuel storage facilities, facilities for the storage and mixing of fertilizers and pesticides, water supply wells and facilities, golf course irrigation facilities and on-site sanitary sewage treatment facilities. A club may have one or more restaurants, cafés and other food service facilities which primarily serve club members and their guests but which may also serve the general public at outings and catered events.

(c) Lodging rooms/suites for use by club members and their guests, guests attending catered special events, and club management and employees, but not the general public, shall be permitted. Lodging rooms/suites shall not have kitchens or food preparation facilities.

(3) Buffer area. A landscaped buffer area of at least 25 feet in width shall be required along all lot lines adjoining or across the street from properties in residence districts, except a lot line adjoining a golf course community.

(4) Special setback requirements. All active recreational facilities, such as tennis courts and swimming pools, shall be located out of doors. However, where the scale of buildings and setbacks are such that placing such uses indoors would relate harmoniously to the existing residential character of the district in which the membership club is located, they may be placed within permanent or temporary structures. Except with respect to an adjoining golf course community, such

facilities shall be set back from adjacent residential property boundaries at least twice the minimum distance required for residential buildings in said district, except that the Town Board may permit a reduction of this additional setback requirement where, because of topography or the installation of additional buffer landscaping and/or fencing, the Town Board determines that any potential adverse external effect of such facility can be effectively reduced.

(5) Management. The use and management of any facility under the terms of any special permit approval shall be the responsibility of the membership club. Suitable evidence, such as organizational documents, shall be provided as a part of the special permit application to describe the organizational structure and operating rules of the club.

(6) Parking. Each parking space shall be at least 8½ feet wide and 18 feet long if unenclosed and at least 9 feet wide if bordered by walls or columns on two or more sides. Up to 33% of parking spaces may, with Planning Board approval, be designed and reserved for compact cars. Compact car spaces shall be at least 7½ feet wide and 15 feet long, shall be in locations approved by the Planning Board and shall be clearly marked as being reserved for compact cars only. Backup and maneuvering aisles between rows of parking spaces shall be a minimum of 24 feet wide.

(7) Other requirements. In addition to the special standards described above, any club shall comply with any other requirements deemed appropriate by the Town Board in accordance with the requirements of Article VIII herein.

Section 6. Where the requirements of this local law impose a different restriction or requirement than imposed by other sections of the Code of the Town of North Castle, the Town Law of the State of New York, or of other applicable rules or regulations, the requirements of this local law shall prevail.

Section 7. The invalidity of any word, section, clause, paragraph, sentence, part or provision of this local law shall not affect the validity of any other part of this local law that can be given effect without such invalid part or parts.

Section 8. This local law shall take effect immediately upon its adoption and filing with the Secretary of State.

CONSERVATION EASEMENT

THIS CONSERVATION EASEMENT ("Conservation Easement") is entered into this **___** day of **_________**, 2015, between Brynwood Partners LLC (f/k/a Canyon Club Partners II, LLC), a Delaware limited liability company having an office at 505 Fifth Avenue, New York, New York 10017 ("Grantor"), and the Town of North Castle, a New York municipal corporation with offices at 15 Bedford Road, Armonk, New York 10504 ("Grantee").

WHEREAS Grantor is owner in fee of real property located in the Town of North Castle, New York (the "Town"), known and designated on the tax map of the Town as Section 2, Block 8, Lot 7.C1A, comprised of approximately 156 acres, and more particularly described in Exhibit A attached hereto (the "Property"); and

WHEREAS, the approximately **___** acre portion of the Property consisting of an existing eighteen (18) hole golf course with fairways, greens, other areas of play, cart paths, and other related ancillary improvements and facilities including, but not limited to, a golf driving range, practice greens, pavilions, and comfort stations (collectively, the "Golf Course"), and described in Exhibit B attached hereto (the "CEA"), is subject to this Conservation Easement. The CEA is more particularly depicted on a map entitled "**_______________________**" dated **________**, 2015, prepared by VHB Engineering, Surveying and Landscape Architecture, P.C., (the "Map"), a copy of which is attached hereto as Exhibit C; and

WHEREAS Grantee is a New York municipal corporation, and is thereby qualified to be the grantee of a conservation easement; and

WHEREAS, the CEA consists of land areas in their natural state and, and possesses ecological, groundwater recharge, natural, scenic, educational, recreational, and open space values (collectively, "Conservation Values") of importance to Grantor, and the people of the Town, Westchester County, and State of New York, and is worthy of preservation and conservation subject to the terms of this Conservation Easement, and conservation of the CEA subject to the terms of this Conservation Easement will yield significant benefits to the public; and

WHEREAS, the purpose of the Conservation Easement is to preserve and protect the Conservation Values of the CEA; to permanently conserve the ecological and natural character of the CEA, including land and water resources; to protect rare plants and animals and plant communities on the CEA or affected by its use, operation, and management; and to prevent any use of the CEA that will significantly impair or interfere with the Conservation Values of the CEA; and

WHEREAS, the Conservation Values of the CEA are documented in a Baseline Data Report dated **________**, 2015 (sometimes referred to herein as the "Baseline Documentation") which is on file in the office of Grantee, and is incorporated herein by reference, and which includes an inventory of the relevant Conservation Values, maps, photographs, reports and other documents that the parties agree accurately represent the CEA at the time of the execution of this Conservation Easement, and which is intended to provide objective baseline information for purposes of future monitoring and enforcement; and

WHEREAS, Grantee acknowledges that the Golf Course is an integral part of the membership club known as "Brynwood Golf & Country Club" (the "Club"); and

WHEREAS, on ___________, 2015, the Planning Board of the Town of North Castle (the "Planning Board") granted site plan approval (the "Site Plan Approval") to Grantor for, among other things, improvements to the Golf Course and other Club facilities on the Property, including the clubhouse and related amenities, and for the construction on the Property of a residential "golf course community" known as the "Residences at Brynwood" (the "Residences"); and

WHEREAS, improvement, and continued use and operation, of the Golf Course is not contrary to any of the purposes of this Conservation Easement or Conservation Values set forth herein; and

WHEREAS, certain grading, utility and other construction activities will take place within the CEA, and certain temporary access routes through the CEA will be necessary, during the construction of the improvements to the Golf Course and Club facilities, and construction of the Residences, in accordance with the Site Plan Approval; and

WHEREAS, Grantor and Grantee have the common purpose of conserving the Conservation Values of the CEA in perpetuity; and

WHEREAS, this grant of Conservation Easement is made pursuant to New York Environmental Conservation Law, Title 3, Article 49, and is intended to comply with said statute; and

WHEREAS, Grantor, reserves for itself and its successors and assigns, all rights with respect to the Property and CEA and any part thereof, including without limitation the right to sell, transfer, lease, mortgage, or otherwise encumber the Property or CEA or any part thereof, as owner, subject to this Conservation Easement. Nothing herein shall: (i) be construed as a grant to the general public of any right to enter upon any part of the Property; (ii) limit, restrict or in any way affect the current and future use of the clubhouse or any Club facility, amenity, or component other the Golf Course; and/or (iii) restrict an owner of the Property or part thereof in imposing further restrictions upon conveyance or otherwise.

NOW THEREFORE, in consideration of the foregoing and the mutual covenants terms, conditions, and restrictions contained herein, Grantor hereby voluntarily grants and conveys to Grantee a conservation easement in perpetuity over the CEA of the nature and character and to the extent set forth herein.

1. **PURPOSE**

The purpose of the Conservation Easement is to preserve and protect the Conservation Values of the CEA; to permanently conserve the ecological and natural character of the CEA, including land and water resources; to protect rare plants and animals and plant communities on the CEA or affected by its use, operation, and management; and to prevent any use of the CEA that will significantly impair or interfere with the Conservation Values of the CEA, except the continued use, operation, management, improvement, maintenance, modification, repair, renovation, and/or restoration of the Golf Course shall be permitted in accordance with the terms of this Conservation Easement.

2. **PROHIBITED USES AND RESTRICTIONS**

Any activity on or use of the CEA that is materially inconsistent with the purpose of this Conservation Easement is prohibited; provided, however, that use, operation, management, improvement, maintenance, modification, repair, renovation, and/or restoration of the CEA in accordance with the Site Plan Approval, as may be amended from time to time, and any other site plan or other approval(s) for the use, operation, management, improvement, maintenance, modification, repair, renovation, and/or restoration of the Golf Course and/or Club granted from time to time by the Planning Board and/or any other board, commission, agency, or department of the Town (collectively with the Site Plan Approval, the "Approvals"), and in accordance with all applicable federal, state and local laws, regulations, and requirements ("Applicable Laws"), is expressly permitted. Without limiting the generality of the foregoing, the following activities and uses on the CEA are expressly prohibited, unless in accordance with the Approvals and Applicable Laws, or otherwise deemed appropriate by Grantee and consistent with its obligations under this Conservation Easement to protect the Conservation Values:

(a) **Disturbance of Natural Features**. Any change, disturbance, alteration or impairment of the natural, scenic, and aesthetic features of the CEA is prohibited. Notwithstanding the foregoing or any provision of this Conservation Easement, it is agreed that stone walls may be constructed, demolished, maintained, repaired and/or restored, subject to Applicable Laws.

(b) **Residential, Industrial, Institutional, and Commercial Use**. Residential, industrial, institutional and commercial activities are prohibited; provided, however, that nothing in this Conservation Easement shall prohibit: (i) the continued use, operation, management, improvement, maintenance, modification, repair, renovation, and/or restoration of the Golf Course; (ii) the construction, use, operation, management, improvement, maintenance modification, repair, renovation, and/or restoration of: (A) a wastewater treatment plant (the "WWTP") serving the Club, Golf Course, and the Residences, and any appurtenances and related facilities and infrastructure, including sewer mains and other conveyance pipes (collectively with the WWTP, the "Sewer System"), (B) a maintenance building(s) and related facilities serving the Golf Course and the Club (collectively, the "Maintenance Facility"), (C) on-site or off-site wells and related facilities and infrastructure, including water mains and other conveyance pipes, for the production and distribution of water for on-site consumption and irrigation (collectively, the "Water System"), and (D) storm water management basins/ponds and any appurtenances and related drainage facilities and infrastructure, including conveyance pipes and outfalls, serving the

Golf Course, the Club, and the Residences (collectively, the “Stormwater Management System”); and (iii) other current and future uses and activities by the Club owner and/or operator, or an educational organization (e.g., a school, college, university), within the CEA that are permitted by Grantee in its reasonable discretion, provided such use or activity is consistent with the purpose of this Conservation Easement.

(c) **Tree and Vegetation Removal**. The pruning, cutting or removal of trees and/or woodland under-story vegetation shall be prohibited except under the following conditions:

(i) Non-native invasive species, trees, and under story-vegetation which are dead or diseased, or pose a danger to public health, safety and welfare, including but not limited to users of the Golf Course, may be cut and/or removed;

(ii) Trees and under-story vegetation may be selectively cut and/or removed to maintain view sheds and maintain or improve the playability or attractiveness of the Golf Course, and to maintain Golf Course play areas including fairways, greens, tee boxes, area in the rough, and other areas which are an integral part of the Golf Course; and

(iii) Fallen trees, and dead trees and dead under-story vegetation within the Golf Course area of play and within one hundred feet (100’) from the maintained edge of play may be cut and/or removed.

(d) **Plant and Animal Populations**. There shall be no disturbance within the CEA of plant and animal populations and/or their habitat, nor any introduction of non-native species, except as approved in advance by Grantee in its reasonable discretion, in writing, except non-native species and disturbance shall be permitted within the Golf Course area of play, and as otherwise permitted under this Conservation Easement and the Approvals.

(e) **Vehicles**. No motorized (gas, battery or otherwise) vehicles shall be permitted within any portion of the CEA except on cart paths, fairways, greens, and internal roads and driveways, and as needed in emergencies, and for security, operation, management, improvement, maintenance, modification, repair, renovation, and/or restoration of the Golf Course.

(f) **Subdivision**. The CEA may be subdivided into one or more separate lots, provided that each such lot is subject to this Conservation Easement.

(g) **Excavation, Dredging**. There shall be no filling, excavation, dredging, removal of topsoil, sand, gravel, rock, peat, minerals or other materials, and no change in the topography of the land, except in accordance with the Approvals.

(h) **Signage**. Display of billboards, signs or advertisements is prohibited, except for: street signs, traffic control signs, way finding signs, entrance signs, Golf Course signs, no trespassing signs, no hunting signs, and signs identifying: (i) lands subject to this Conservation

Easement; (ii) the Conservation Values of the CEA and/or the terms of this Conservation Easement; (iii) use regulations on the CEA; and/or (iv) signs approved in advance by Grantee, in its reasonable discretion in writing.

(i) **Dumping**. Processing, storage, dumping or disposal of soil, trash, ashes, sewage, garbage, waste, refuse, debris, abandoned vehicles, appliances, machinery, or any Hazardous Materials (as hereinafter defined) is prohibited, except: (i) one or more communal compost areas and a golf course maintenance landscape debris/mulch area(s) are permitted; and (ii) Hazardous Materials may be used and stored in accordance with all Applicable Laws.

(j) **Water Quality and Storm Water Management**. There shall be no pollution, alteration, manipulation, depletion, sedimentation or extraction of surface water, natural water courses, wetlands, marshes or any other water bodies except in accordance with the Approvals and Applicable Laws. Grantee acknowledges and agrees that: (i) water may be extracted for on-site consumption, and to irrigate the Golf Course and other areas of the Property; and (ii) the treated effluent from the WWTP will discharge into [identify locations once Site Plan Approval is granted]. During construction of improvements to the Golf Course, Club, and/or Residences, Grantor will adhere to New York State Department of Environmental Conservation requirements regarding sedimentation and erosion control and to an approved Storm Water Pollution Prevention Plan. Any buffers required by the Approvals, and by Applicable Laws, shall be maintained for all waters and/or wetlands located within the CEA.

(k) **Lighting**. No exterior lights or lighting may be installed except in accordance with the Approvals.

3. **<u>PERMITTED USES</u>**

Grantor reserves for itself, and its successors and assigns, all rights accruing from ownership of the CEA, including, without limitation, the rights to sell, give, lease, or otherwise convey the CEA, or mortgage or encumber the CEA, subject to the terms of this Conservation Easement; and the right to engage in, or permit others to engage in, all uses of the CEA that are not expressly prohibited herein and are not inconsistent with the purposes of this Conservation Easement.

Notwithstanding any provision of this Conservation Easement, the CEA may be included as part of the gross area of other property not subject to this Conservation Easement for the purposes of determining density, lot and bulk requirements, or open space requirements under the Town of North Castle Zoning Ordinance and any other Applicable Laws controlling zoning and land use.

Notwithstanding any provision of this Conservation Easement, Grantor specifically reserves for itself, and its successors and assigns, and Grantee hereby grants to Grantor, and its successors and assigns, the following rights with respect to the CEA, in perpetuity:

(a) Except as limited by this Conservation Easement, Grantor reserves all rights as fee owner of the CEA, including the right to use the CEA for all purposes permitted and/or required by the Approvals.

(b) The right to in accordance with the Approvals and Applicable Laws construct, install, use, operate, manage, improve, maintain, modify, repair, renovate, and/or restore the Golf Course, including but not limited to golf fairways, greens, other areas of play, cart paths, and other related ancillary improvements and facilities including, but not limited to, a golf driving range, practice greens, pavilions, and comfort stations. (c) The right to in accordance with the Approvals and Applicable Laws construct, install, use, operate, manage, improve, maintain, modify, repair, renovate, and/or restore golf cart paths and internal roads and driveways.

(d) The right to remove non-native trees and vegetation in the CEA, and to remove native trees and vegetation in order to preserve the Conservation Values of the CEA, as set forth in Section 2(c) above, and in accordance with all Applicable Laws.

(e) The right to control vehicular, pedestrian and other public and private access to the CEA, Golf Course, and Club, except such access as is specifically granted to Grantee by this Conservation Easement for purposes of monitoring compliance with this Conservation Easement, and no right of access to the general public to any portion of the Property, CEA, Golf Course, or Club, of any kind or nature, is conveyed or granted or required by this Conservation Easement.

(f) The right to in accordance with the Approvals and Applicable Laws construct, install, use, operate, manage, improve, maintain, modify, repair, renovate, and/or restore: (i) the WWTP; (ii) the Maintenance Facility; (iii) the Water System; and (iv) the Stormwater Management System.

(g) The right to in accordance with the Approvals and Applicable Laws use, operate, manage, improve, maintain, modify, repair, renovate, and/or restore any Club facility, amenity, or component other the Golf Course, even if the Golf Course is discontinued or abandoned.

4. <u>RIGHTS OF GRANTEE</u>

To accomplish the purpose of the Conservation Easement, the following rights are conveyed to Grantee:

(a) The right to preserve and protect the Conservation Values of the CEA subject to the terms of this Conservation Easement.

(b) The right to enter the Property at reasonable times, in a reasonable manner, and when practicable, after giving notice to Grantor, for the purposes of: (i) inspecting the CEA to determine if the Grantor is complying with the covenants and purposes of this Conservation Easement; (ii) enforcing the terms of this Conservation Easement; (iii) taking any and all actions with respect to the CEA as may be necessary or appropriate, with or without order of court, to remedy or abate violations hereof, (iv) making scientific and educational observations and studies and taking samples in such a manner as will not disturb the quiet enjoyment of the

Property by the Grantor and its members, guests, and successors in interest; and (v) monitoring and management of the Property as described below.

(c) The right to prevent any activity on or use of the CEA that is inconsistent with this Conservation Easement and to require the restoration of such areas or features of the CEA that may be damaged by any inconsistent activity or use.

5. ENFORCEMENT

(a) **Notice**. If Grantee determines that Grantor is in violation of the terms of this Conservation Easement or that a violation is threatened, Grantee shall give written notice to Grantor of the violation and demand corrective action sufficient to cure the violation. Where the violation involves injury to the CEA resulting from any use or activity inconsistent with the purpose of this Conservation Easement, Grantee may demand that Grantor restore the CEA to its prior condition.

(b) **Injunctive Relief**. If Grantor fails to cure the violation within thirty (30) days after receipt of notice from Grantee, or if the violation cannot reasonably be cured within a thirty (30) days, Grantor fails to begin curing the violation within thirty (30) days, or fails to thereafter diligently pursue the cure of the violation, Grantee may bring an action at law or in equity in a court of competent jurisdiction to enforce the terms of this Conservation Easement, to enjoin the violation, by temporary or permanent injunction, and to require the restoration of the CEA to the condition that existed prior to any such injury.

(c) **Costs of Enforcement**. All reasonable costs of enforcing the terms of this Conservation Easement against Grantor, including but not limited to the costs and expenses of legal action, reasonable attorneys' fees, and any costs involved in the restoration of the CEA resulting from Grantor's violation of the terms of this Conservation Easement, shall be borne by Grantor unless Grantor ultimately prevails in any action or proceeding for judicial enforcement, in which case each party shall bear its own costs. Notwithstanding the above, Grantee shall not be entitled to recover costs or expenses associated with the inspection, monitoring, management or testing of the CEA by Grantee.

(d) **Forbearance**. Forbearance or delay by Grantee in the exercise of any of its rights to enforce this Conservation Easement or to exercise any right granted to it under this Conservation Easement shall not be deemed a waiver of such rights or of any of the terms of the Conservation Easement.

(e) **Acts Beyond Grantor's Control**. Grantee shall have no cause of action under this Conservation Easement against Grantor, and nothing in this Conservation Easement shall be construed to entitle the Grantee to institute any enforcement proceedings against the Grantor, for injury or damage to the CEA which is beyond Grantor's control, such as changes caused acts of force majeure, including, without limitation, flood, fire, wind, storms, or earth movement, or from any prudent action taken by Grantor, under emergency conditions, to prevent, abate, or mitigate significant injury to the CEA or adjacent properties from such causes, or caused by the unauthorized wrongful acts of third persons. In the event of violations of this Conservation Easement caused by unauthorized wrongful acts of third persons, Grantor shall at Grantee's option, assign its right of action to Grantee, join in any judicial proceeding commenced by Grantee, and/or appoint Grantee its attorney-in-fact for the purposes of pursuing enforcement action against such third persons.

6. NOTICE OF CERTAIN PERMITTED ACTIONS; GRANTEE APPROVAL

Grantor agrees to give Grantee thirty (30) days' advance written notice before exercising any reserved right not expressly permitted in Section 2 or Section 3, the exercise of which may have a material adverse impact on the Conservation Values conserved by this Conservation Easement. The purpose of requiring Grantor to notify Grantee is to afford Grantee an opportunity to determine, in Grantee's reasonable discretion, whether the action can be carried out in a manner consistent with the purpose of this Conservation Easement. The notice shall describe the nature, scope, design, location, timetable, and any other material aspect of the proposed action in sufficient detail to permit Grantee to make an informed judgment as to its consistency with the purpose of this Conservation Easement.

Notwithstanding any provision of this Conservation Easement, in all instances where Grantee's prior approval is required: (i) Grantee shall grant or withhold its approval in writing within thirty (30) days of receipt of Grantor's written request therefor; and (ii) Grantee's approval may be withheld only upon a reasonable determination by Grantee that the action as proposed would be inconsistent with the purpose of this Conservation Easement as set forth in Section 1 hereof. If Grantee fails to respond within thirty (30) days of receipt of Grantor's written request, Grantor shall be entitled to give Grantee a second, written notice (the "Second Notice") stating in **bold font** that Grantee's failure to respond to the prior request within thirty (30) days after receipt of the Second Notice shall be deemed approval by Grantee of the proposed action, and if Grantee fails to respond to the Second Notice, the proposed action shall be deemed approved.

7. COSTS AND LIABILITIES

Grantor retains all responsibilities and shall bear all costs and liabilities of any kind related to the ownership, operation, and maintenance of the CEA. Grantee shall have no obligation for the maintenance of the CEA.

8. TAXES

Grantor shall pay all taxes, assessments, fees, and charges of whatever description levied on or assessed against the CEA (collectively "taxes"), including any taxes imposed upon, or incurred as a result of this Conservation Easement, and shall furnish Grantee with satisfactory evidence of payment upon reasonable request. Grantor also reserves the right to contest any taxes, fees and charges levied against the CEA.

9. BINDING EFFECT

The provisions of this Conservation Easement shall run with the CEA in perpetuity and shall bind and be enforceable against the Grantor and all future owners and any party entitled to possession or use of the CEA or any portion thereof while such party is the owner or entitled to possession or use thereof. As used in this Conservation Easement, the term "owner" includes the owner of any beneficial equitable interest in the CEA or any portion thereof; the term "Grantor" includes the original Grantor, its successors and assigns, all future owners of all or any portion of the CEA, and any party entitled to possession or use thereof; and the term "Grantee" includes the original Grantee and its successors and assigns. Notwithstanding the foregoing, upon any transfer of title, the transferor shall cease being a Grantor or owner for purposes of this Conservation Easement and shall have no further responsibility or liability hereunder for acts done or conditions arising thereafter, but the transferor shall remain liable for earlier acts and conditions.

10. **ASSIGNMENT**

Grantee's rights and obligations under this Conservation Easement may be assigned only to an organization that is a qualified organization under Section 170(h) of the Internal Revenue Code (or any successor provision then applicable) and is a governmental unit or not-for-profit conservation corporation or other entity authorized to take title to a conservation easement under New York Environmental Conservation Law, Article 49, Title 3, and which agrees to continue to carry out the conservation purposes of this Conservation Easement. Any assignee other than a governmental unit must be an entity able to enforce this Conservation Easement. Grantee agrees to provide Grantor notice of any assignment twenty (20) days prior to assignment.

11. **SUBSEQUENT TRANSFERS**

Any subsequent conveyance of any interest in the CEA, including, without limitation, transfer, lease or mortgage, shall be subject to this Conservation Easement, and any deed, lease, mortgage or other instrument evidencing or effecting such conveyance shall contain language substantially as follows: "This [conveyance, lease, mortgage, easement, etc.] is subject to a Conservation Easement which runs with the land and is binding on Grantor's heirs, successors and assigns, and which was granted to the ______________________, by instrument dated ___________, and recorded in the office of the Clerk of Westchester County at Control No.__________." The failure to include such language in any deed or instrument shall not affect the validity or enforceability of this Conservation Easement. Grantor further agrees to give written notice to Grantee of the conveyance of any interest in the CEA at least sixty (60) days prior to the anticipated date of such conveyance. Grantor's rights and obligations under this Conservation Easement shall terminate upon Grantor's transfer of ownership of the CEA, except that liability for acts or omissions occurring prior to the transfer shall survive such transfer. Nothing in this Conservation Easement shall prohibit or preclude the conveyance of the CEA to a governmental unit and dedication to public use.

12. **ESTOPPEL CERTIFICATES**

Upon request by Grantor and at Grantor's sole expense, Grantee shall within fifteen (15) days execute and deliver to Grantor any document, including an estoppel certificate, which certifies

Grantor's compliance with any obligation of Grantor contained in this Conservation Easement and otherwise evidences the status of this Conservation Easement as may be reasonably requested by Grantor, provided, however, Grantor shall reimburse Grantee for all costs, including Grantee's reasonable attorneys' fees and any update to the Baseline Documentation, associated with Grantor's request.

13. **MEDIATION**

If a dispute arises between the parties concerning the consistency of any proposed use or activity with the purpose of this Conservation Easement, and Grantor agrees not to proceed with the use or activity pending resolution of the dispute**,** either party may refer the dispute to mediation by making a request in writing. Within ten (10) days of the receipt of the request, the parties shall select a single trained and impartial mediator. If the parties are unable to agree on the selection of a single mediator, then the parties shall, within fifteen (15) days of receipt of the initial request, jointly apply to a proper court for the appointment of a trained and impartial mediator. Mediation shall then proceed in accordance with the following guidelines:

(a) **Purpose**. The purpose of the mediation is to: (i) promote discussion between the parties; (ii) assist the parties to develop and exchange pertinent information concerning the issues in dispute; and (iii) assist the parties to develop proposals which will enable them to arrive at a mutually acceptable resolution of the controversy. The mediation is not intended to result in any express or *de facto* modification or amendment of the terms, conditions, or restrictions of this Conservation Easement.

(b) **Participation**. The mediator may meet with the parties and their counsel jointly or ex parte. The parties agree that they will participate in the mediation process in good faith and expeditiously, attending all sessions scheduled by the mediator. Representatives of the parties with settlement authority will attend mediation sessions as requested by the mediator.

(c) **Confidentiality**. Mediation is intended to be private and confidential. All information presented to the mediator shall be deemed confidential and shall be disclosed by the mediator only with the consent of the parties or their respective counsel. The mediator shall not be subject to subpoena by any party. The parties and the mediator agree that to the extent during the course of the mediation (or during preparations for the mediation) they disclose, transmit, introduce, or otherwise use any matter, fact, statement, document, attendance or any other thing not otherwise discoverable, including but not limited to, opinions, suggestions, proposals, offers, or admissions obtained or disclosed during the mediation, any such information shall be confidential and treated as a compromise or offer to compromise pursuant to New York Civil Practice Law and Rules Section 4547, and such information shall not be disclosed unless authorized by law.

(d) **Time Period**. Neither party shall be obligated to continue the mediation process beyond a period of ninety (90) days from the date of receipt of the initial request or if the mediator concludes that there is no reasonable likelihood that continuing mediation will result in a mutually agreeable resolution of the dispute.

(e) **Costs**. The costs of the mediator as well as any and all costs incurred by either party in connection with the dispute which is the subject of such mediation shall be borne equally by the parties.

(f) **Venue**. The venue for the mediation shall be in Westchester County, New York or such other location mutually agreeable to Grantor and Grantee.

14. **REPRESENTATIONS AND WARRANTIES; ENVIRONMENTAL COMPLIANCE; INDEMIFICATION**

(a) **Representations and Warranties of Grantor**. Grantor hereby makes the following representations and warranties to Grantee, each of which is true and correct as of the date of this Conservation Easement:

(i) Grantor has good and marketable title, in fee simple, to the CEA.

(ii) To Grantor's knowledge, no substance defined, listed, or otherwise classified pursuant to any federal, state, or local law, regulation, or requirement as hazardous, toxic, polluting, or otherwise contaminating to the air, water, or soil, or in any way harmful or threatening to human health or the environment exists or has been released, generated, treated, stored, used, disposed of deposited, abandoned, or transported in, on, from, or across the CEA, except in accordance with all applicable federal, state and local laws, regulations and requirements.

(iii) No civil or criminal proceedings, suits, actions or investigations regarding the CEA are ongoing, or are now pending, and no written notices, claims, demands, or orders have been received, arising out of any material violation or alleged material violation of, or material failure to comply with, any federal, state, or local law, regulation, or requirement applicable to the CEA or its use, nor is Grantor aware of any facts or circumstances that Grantor might reasonably expect to form the basis for any such proceedings, investigations, notices, claims, demands, or orders.

(iv) Grantor is a limited liability company duly organized, validly existing and in good standing under the laws of the State of Delaware. Grantor has full power and authority to execute, deliver and perform this Conservation Easement and the transactions contemplated by this Conservation Easement.

(v) This Conservation Easement and all other agreements, instruments and documents to be executed and delivered by or on behalf of Grantor, when executed and delivered, shall have been duly and validly executed and delivered by Grantor and constitute the valid and binding obligations of Grantor, enforceable in accordance with their terms, and no further action of any type is necessary on the part of Grantor to make this Conservation Easement valid, binding and enforceable against it.

(vi) The execution or performance of any covenant, agreement or obligation of Grantor under this Conservation Easement does not constitute a breach or default or violation of any other agreement, instrument or obligation to which Grantor is a party and no consents from any other party are required.

(b) **Representations and Warranties of Grantee.** Grantee hereby makes the following representations and warranties to Grantor, each of which is true and correct as of the date of this Conservation Easement:

(i) Grantee is a municipal corporation duly organized and validly existing under the laws of the State of New York.

(ii) Grantee is duly authorized and empowered to execute, deliver and perform its obligations under this Conservation Easement, and any transactions contemplated by this Conservation Easement.

(iii) This Conservation Easement and all other agreements, instruments and documents to be executed and delivered by or on behalf of Grantee, when executed and delivered, shall have been duly and validly executed and delivered by Grantee and constitute the valid and binding obligations of Grantee, enforceable in accordance with their terms, and no further action of any type is necessary on the part of Grantee to make this Conservation Easement valid, binding and enforceable against it.

(iv) The execution or performance of any covenant, agreement or obligation of Grantee under this Conservation Easement does not constitute a breach or default or violation of any other agreement, instrument or obligation to which Grantee is a party, and no consents from any other party are required.

All warranties, representation, covenants, and agreements of the parties under this Section 14 shall survive for a period of twelve (12) months from the date of execution of this Conservation Easement.

(b) **Environmental Compliance**. If, at any time, there occurs, or has occurred, a release in, on, or about the Property of any substance now or hereafter defined, listed, or otherwise classified pursuant to any federal, state, or local law, regulation, or requirement as hazardous, toxic, polluting, or otherwise contaminating to the air, water, or soil, or in any way harmful or threatening to human health or the environment ("Hazardous Materials"), except in accordance with Applicable Laws, then Grantor agrees to promptly in compliance with Applicable Laws take all steps necessary to assure containment and remediation of such Hazardous Materials, including any cleanup that may be required, unless the release was caused by Grantee, in which case Grantee shall be responsible therefor. Nothing in this Conservation

Easement shall be construed as giving rise, in the absence of a judicial decree, to any right or ability in Grantee to exercise physical or managerial control over the day-to-day operations of the CEA, or any of Grantor's activities on the Property, or otherwise to become an owner or operator with respect to the CEA within the meaning of The Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, and New York State hazardous waste statutes.

(c) **Hold Harmless**. Grantor hereby indemnifies, releases and shall hold harmless, indemnify, and defend, at Grantor's sole expense, Grantee and its members, directors, officers, employees, agents, and contractors and the heirs, personal representatives, successors, and assigns of each of them (each an "Indemnified Party," and collectively "Indemnified Parties") from and against any and all liabilities, penalties, fines, charges, costs, losses, damages, expenses, causes of action, claims, demands, orders, judgments, or administrative actions, including, without limitation, reasonable attorneys' fees and expenses, arising from or in any way connected with: (i) the violation or alleged violation of, or other failure to comply with, any Applicable Laws, including, without limitation, CERCLA and state hazardous waste statutes, by any person other than any of the Indemnified Parties, in any way affecting, involving, or relating to the Property; (ii) the presence or release in, on, from, or about the Property, at any time, of any Hazardous Materials listed or otherwise classified pursuant to any federal, state, or local law, regulation, or requirement as hazardous, toxic pollution or otherwise contaminating to the air, water, or soil, or in any way harmful or threatening to human health or the environment unless caused by any of the Indemnified Parties; (iii) failure to repair or remedy any known or unknown defect on the Property, which may or does result in the personal injury of any licensee, invitee or known trespasser on the Property, and results in any type of legal action or claim; (iv) the ownership and/or operation of the Property prior to and including the date of this Conservation Easement; (v) any misrepresentation contained in any statement or certificate furnished by Grantor to Grantee pursuant to this Conservation Easement; and (vi) the breach or inaccuracy of any of the obligations, covenants, agreements, representations, and warranties of Grantor contained in this Conservation Easement. Notwithstanding the foregoing, Grantor shall not indemnify any Indemnified Party for any losses to the extent that any such losses arise from any act of negligence, fraud or misconduct of such Indemnified Party.

15. **NOTICE**

Any notice, demand, request, consent, approval, or communication given shall be in writing, signed by the party giving the same, and shall be deemed properly given and received (i) when actually delivered and received, if personally delivered; or (ii) three (3) business days after being mailed, if sent by certified mail, postage prepaid receipt request; or (iii) one (1) business day after being sent by overnight delivery service, all to the following addresses:

To Grantor: Brynwood Partners LLC
505 Fifth Avenue
New York, New York 10017
Attention: Edward Baquero and Spencer Romoff

With a copy to:

Peter J. Wise
Delbello Donnellan Weingarten Wise & Wiederkehr, LLP
One North Lexington Avenue
White Plains, New York 10601

To Grantee: Office of the Supervisor
Town of North Castle
15 Bedford Road
Armonk, New York 10504

With a copy to:

Office of the Town Attorney
Town of North Castle
15 Bedford Road
Armonk, New York 10504

or to such other address designated by either party by written notice.

16. **CONSERVATION PURPOSE**

Grantor and Grantee, for itself, and its successors and assigns, agrees that this Conservation Easement shall be held exclusively for the conservation purposes set forth by the this Conservation Easement and as specified in Section 170(h)(4)(A) of the Internal Revenue Code. This Conservation Easement shall be construed to promote the purposes of New York Environmental Conservation Law, Title 3, Article 49, which authorizes the creation of conservation agreements for purposes including those set forth in the Recitals herein, and the conservation purposes of this Conservation Easement, including such purposes as are defined in Section 170(h)(4)(A) of the Internal Revenue Code.

17. **RECORDATION**

Grantee shall record this instrument in timely fashion in the in the office of the Clerk of Westchester County, and may re-record it at any time as may be required to preserve its rights.

18. **GENERAL PROVISIONS**

(a) **Applicability of Environmental Conservation Law**. The parties hereto understand and agree that all the terms and provisions of New York Environmental Conservation Law, Title 3, Article 49, entitled "Conservation Easements," as the same may be hereafter amended, shall apply to this Conservation Easement.

(b) **Interpretation**. Regardless of any contrary rule of construction, no provision or alleged ambiguity of this Conservation Easement shall be construed in favor of one of the parties because it was drafted by the other party's attorney. If any provision of this Conservation Easement is ambiguous or shall be subject to two or more interpretations, one of which would render that provision invalid, then that provision shall be given such interpretation as would render it valid and consistent with the purpose of this Conservation Easement as intended by Grantor. This Conservation Easement shall be interpreted broadly to effect the purpose of this Conservation Easement as intended by Grantor.

(c) **Modification**. This Conservation Easement can be amended, supplemented, or otherwise modified only by a written agreement executed by Grantor and Grantee, or their successors or assigns. Grantor and Grantee recognize that circumstances could arise which would justify the modification of certain restrictions contained herein. To this end, Grantee and Grantor shall mutually have the right, in their sole discretion, to agree to amendments to this Conservation Easement which are not inconsistent with the purpose of this Conservation Easement. However, Grantee shall have no right or power to agree to any amendments hereto that would result in this Conservation Easement failing to qualify as a valid conservation easement under New York Environmental Conservation Law, Title 3, Article 49, as the same may be hereafter amended.

(d) **Force Majeure**. It is understood and agreed by the parties that the Grantor, their successors, heirs and assigns, shall not be liable for any changes to the CEA caused by any natural disaster or event of *force majeure*.

(e) **Severability**. In the event a court of competent jurisdiction shall determine any provision of this Conservation Easement, or the application thereof to any person or circumstance, to be inconsistent with any laws, rules or regulations of any applicable governing body or otherwise invalid, unenforceable or void to any extent from any reason, such determination shall not affect the remaining provisions of this Conservation Easement, which shall continue in full force and effect, and the parties agree to use commercially reasonable efforts to modify such provision so that it is no longer inconsistent with such laws and is acceptable to both parties. Except as set forth herein, the provisions of this Conservation Easement shall be severable and the unenforceability of any provision of this Conservation Easement shall not affect the validity of the remaining provisions.

(f) **Entire Agreement**. This Conservation Easement sets forth the entire agreement of Grantor and Grantee with respect to the conservation easement granted by Grantor to Grantee and supersedes all prior discussions, negotiations, understandings, or agreements, whether written or oral, relating to the conservation easement, all of which are merged herein.

(g) **No Forfeiture**. Nothing contained in this Conservation Easement will or can result in a forfeiture or reversion of Grantor's title to the CEA and/or Property.

(h) **Successors**. The covenants, terms, conditions, and restrictions of this Conservation Easement shall be binding upon, and inure to the benefit of, the parties hereto and their respective successors and assigns, and shall continue as a servitude running in perpetuity with the CEA.

(i) **Captions**. The captions in this instrument have been inserted solely for convenience of reference and are not a part of this instrument and shall have no effect upon construction or interpretation.

(j) **Legal Counsel**. Each party represents to the other that each has independent legal advice, by counsel of its own selection, in the negotiation of this Conservation Easement. Each party understands the facts, and has been fully informed in regard to its legal rights and obligations, and each has signed this Conservation Easement freely and voluntarily, intending to be bound by it.

(k) **Baseline Documentation**. Grantee acknowledges, by its acceptance of the Conservation Easement, that Grantor's present uses of the CEA, and all future uses in accordance with the Site Plan Approval, are compatible with the purposes of this Conservation Easement. To establish the present condition of the Conservation Values so as to be able to properly monitor future uses of the CEA and assure compliance with the terms hereof, Grantee has prepared or caused to be prepared the Baseline Documentation. Grantor and Grantee acknowledge and agree that, in the event that a controversy arises with respect to the nature and extent of Grantor's present use or the physical condition of the CEA subject to this Conservation Easement as of the date hereof, the parties may look beyond the Baseline Documentation, if necessary, to other relevant or material documents, surveys, reports and other evidence showing conditions at the time of execution of this Conservation Easement to assist in the resolution of the controversy. Grantor and Grantee acknowledge that the Baseline Documentation is an accurate representation of the CEA at the time of this grant.

(l) **Further Assurances**. The parties hereby covenants and agrees to execute and deliver to the other party from time to time, promptly after any reasonable request therefor, any and all instruments, agreements and documents which either party may reasonably require, and to perform such other acts as may be reasonably necessary or desirable, to carry out the purpose of this Conservation Easement.

(m) **Miscellaneous.** The failure of either party to enforce promptly a right under this Conservation Easement shall not constitute a waiver of such right or constitute a waiver with respect to subsequent breaches. No waiver of any provision of this Conservation Easement shall be valid or enforceable unless such waiver is in writing and signed by the party to be charged. This Conservation Easement has been executed and delivered and shall be interpreted, construed and enforced pursuant to and in accordance with the laws of the State of New York and the parties agree that any action or proceeding seeking to enforce any provisions of, or based upon any rights arising out of this Conservation Easement must be brought against any of the parties in the Supreme Court of the State of New York, County of Westchester.

TO HAVE AND TO HOLD this Conservation Easement unto Grantee and its successors and assigns, forever.

IN WITNESS WHEREOF, Grantor and Grantee have executed and delivered this Conservation Easement as of the day and year first above written.

GRANTOR:
Brynwood Partners LLC

By: ___________________________________
Name:
Title: ________________________________

GRANTEE
Town of North Castle

By: ___________________________________
Name:
Title:

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0156340-001
4-10-15

EXHIBIT A
(The Property)

EXHIBIT B
(The CEA)

EXHIBIT C
(The Map)

APPENDIX T

CARLIN • SIMPSON & ASSOCIATES
Consulting Geotechnical and Environmental Engineers

61 Main Street, Sayreville, New Jersey 08872
Tel. (732) 432-5757
Fax. (732) 432-5717

Principal:
Robert B. Simpson, P.E.

Associates:
Robert H. Barnes, P.E.
Meredith R. Anke, P.E.
Kurt W. Anke
Eric J. Shaw

13 February 2013
Revised 16 October 2013

Brynwood Partners, LLC
c/o Corigin Holdings
505 Fifth Avenue, 22nd Floor
New York, NY 10017

Attn: Ms. Megan Maciejowski

Re: Report on Subsurface Soil and Foundation Investigation
Brynwood Club Development
Bedford Road
Town of North Castle, NY (12-175)

Dear Ms. Maciejowski:

In accordance with our proposals dated 20 November 2012 and 9 September 2013 and your subsequent authorization, we have completed a Subsurface Soil and Foundation Investigation for the referenced site. The purpose of this study is to preliminarily determine the nature and engineering properties of the subsurface soil and bedrock as well as the groundwater conditions for the planned development, to recommend a practical foundation scheme, to determine the allowable bearing capacity of the site soils, and to determine the subsurface soil and groundwater conditions and soil permeability in the new stormwater management areas.

We understand that the planned construction will consist of 21 new structures, roadways, parking areas, retaining walls, tennis courts, underground utilities, and a stormwater management system. To guide us in our study, you have provided us with a site plan that indicates the existing site conditions and the location of the planned new development.

Our scope of work for this project included the following:

1. Reviewed the proposed layout, the existing site conditions, the expected soil conditions, and planned this study.

2. Retained General Borings, Inc. to advance 11 test borings at the subject site.

3. Retained Traficante Contracting Inc. to excavate 18 test pits at the subject site.

4. Inspected ten (10) supplemental test pits that were excavated at the site by Brynwood Club personnel.

5. Laid out the boring and test pit locations in the field, provided full time inspection of the explorations, obtained soil samples, and prepared detailed logs and a Boring and Test Pit Location Plan.

6. Performed three (3) field percolation tests and one (1) borehole permeability test.

7. Performed soil identification tests on selected soil samples in our laboratory.

8. Analyzed the field and laboratory test data and prepared this report containing the results of this study.

SITE DESCRIPTION

The project site is located on the Brynwood Club property on Bedford Road in North Castle, Westchester County, New York. The subject property is currently occupied by a golf club with a clubhouse building, tennis courts, and a few smaller out-structures. The proposed development area is also occupied by an asphalt paved parking lot and driveways as well as grass lawn areas and wooded areas. There are numerous existing underground utilities located throughout the property.

Within the proposed development area, the existing site grades vary from approximately elevation +610.0 at the southwest corner of the subject site and the westernmost portion of the site, to elevation +640.0 on the east side of the existing clubhouse building, to elevation +674.5 in the existing tennis court area in the northeastern portion of the property.

SUBSURFACE CONDITIONS

To determine the subsurface soil, bedrock, and groundwater conditions, we advanced 11 test borings and 28 test pits at the site. The borings and test pits were performed at the locations shown on the enclosed Boring and Test Pit Location Plan. Detailed logs have been prepared and are included in this report. Our field engineer visually identified all soil samples and selected soil samples were tested in our laboratory. The results of these tests are also included in this report.

Soil

The soil descriptions shown on the boring and test pit logs are based on the Burmister Classification System. In this system, the soil is divided into three components: Sand (S), Silt ($) and Gravel (G). The major component is indicated in all capital letters, the lesser in lower case letters. The following modifiers indicate the quantity of each lesser component:

Modifier	Quantity
trace (t)	0 -10%
little (l)	10% - 20%
some (s)	20% - 35%
and (a)	35% - 50%

The subsurface soil conditions observed in the borings and test pits can be summarized as follows:

Stratum 1
Topsoil

The surface layer at most of the boring and test pit locations consists of brown topsoil that typically ranges from about 0'3" to 1'6" in thickness.

Stratum 2
Existing Fill

Beneath the topsoil and at the surface in three (3) of the borings (B-6, B-8, and B-9) and ten (10) of the test pits (TP-2, TP-9, TP-10, TP-12, TP-14, TP-16, TP-19, TP-21, TP-26, and TP-28) is existing fill that consists of loose to medium dense brown coarse to fine SAND, little (to and) Silt, trace (to some) coarse to fine Gravel. Cobbles, boulders, topsoil, roots, and debris were also present within the fill at some of the test locations. The existing fill was encountered to depths ranging from 1'0" to more than 9'0" beneath the existing ground surface. Test pits TP-9 and TP-28 were terminated in the fill at final depths of 6'9" and 9'0" beneath the ground surface, respectively.

Stratum 3
Sandy Silt or Silty Sand

Underlying the topsoil and existing fill is virgin soil that is comprised of medium dense to dense brown, light brown, or gray brown SILT some (to and), coarse to fine Sand, trace (to little) coarse to fine Gravel or coarse to fine SAND, little (to and) Silt, trace (to and) coarse to fine Gravel, with occasional cobbles and boulders. The Sandy Silt or Silty Sand stratum continued to depths ranging from 2'0" to 12'0" below the existing ground surface. Boring B-8 and test pits TP-8, TP-10, TP-12, TP-19, TP-20, TP-22, and TP-26 were terminated in this stratum at final depths ranging from 5'0" to 12'0" beneath the ground surface.

Stratum 4
Sand or Sandy Gravel

Below the Sandy Silt or Silty Sand at several test locations is completely weathered Gneiss bedrock that generally consists of dense to very dense brown or gray brown coarse to fine SAND, little (to some) Silt, trace (to some) coarse to fine Gravel or coarse to fine GRAVEL and, coarse to fine Sand, trace Silt. Where encountered in the borings and test pits, the completely weathered bedrock was present at depths ranging from 2'0" to 7'0" beneath the ground surface and continued to depths ranging from 4'7" to 15'2" below the existing ground surface.

Stratum 5 Gneiss Bedrock	Gneiss bedrock was encountered at 27 of the 39 test locations. Where encountered in the borings and test pits, gneiss bedrock was observed at depths ranging from 1'8" to 15'2" beneath the existing ground surface. In general, the quality of the bedrock will improve with depth. At boring B-10, the bedrock was cored between the depths of 2'0" and 7'0". The core recovery was 86% and the Rock Quality Designation (RQD) of the recovered core was 53%. This indicates that the quality of the upper five (5) feet of the Gneiss bedrock is fair. The Gneiss bedrock is moderately weathered and in a blocky and seamy condition.

Groundwater

Observations for groundwater were made during sampling and upon completion of the drilling operations at each boring location. In auger drilling operations, water is not introduced into the boreholes, and the groundwater position can often be determined by observing water flowing into or out of the boreholes. Furthermore, visual observation of the soil samples retrieved during the auger drilling and in the test pits can often be used in evaluating the groundwater conditions.

Groundwater was encountered in test pit TP-8 at a depth of 4'1" (+609.9), in test pit TP-13 at a depth of 4'10" (+631.2), in boring B-8 at a depth of 3'3" (+608.3), in test pit TP-22 at a depth of 4'6" (+470.5), and in test pit TP-28 at a depth of 8'0" (+491.0) beneath the ground surface. Groundwater was not encountered in any of the other borings or test pits that were performed at the subject site during this investigation.

Variations in the location of the long-term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, and other factors not immediately apparent at the time of this exploration. Based on the site conditions, trapped groundwater may be encountered in the silty site soils and/or along the soil/rock interface during wet periods. Proper groundwater control measures will be required in the event that trapped water is encountered in the site excavations.

Bedrock

Bedrock was encountered in 27 of the 39 explorations that were performed at the site during this investigation. Completely weathered bedrock was encountered at ten (10) test locations at depths ranging from 2'0" to 7'0" below the existing ground surface. Harder bedrock was encountered in the remaining locations and below the completely weathered rock at depths ranging from 1'8" to 15'2" beneath the ground surface. These depths correspond to bedrock elevations ranging between approximately elevation +471.0 and elevation +669.8.

Based on the boring and test pit data and the site plans provided to this office, bedrock was encountered above the planned finished floor elevation in portions of the site. The observed depth to bedrock at each boring and test pit location is summarized in Table 1 in the following section of this report.

The bedrock encountered at the site consists of weathered Gneiss. Based on our experience, the in-situ bedrock will range from highly weathered, fractured rock to massive, intact rock. Penetration into the bedrock with excavation equipment will depend of the degree of weathering and fracturing in the rock. We anticipate that the ”rippability” of the bedrock will be variable and very limited. Based on our observations, harder rock will be encountered and blasting and/or the use of hydraulic hammers will be required to excavate the harder, intact bedrock. Rock removal is discussed further in a separate section of this report.

EVALUATION

At the time of this report, the proposed layout, the proposed finished floor elevations, and the site grading were preliminary. Therefore, the following evaluation is preliminary in nature and has been generalized for the expected development. The recommendations below are intended for planning purposes only and are not intended for final design and construction. Additional subsurface investigation will be required for the proposed buildings and retaining walls. Preliminarily, we estimate that an additional 12 to 15 explorations will be required for this project. Once the site plans have been further developed, a copy shall be forwarded to our office so that we can review it along with the recommendations in this report. At that time, we will provide specific recommendations for additional subsurface investigation. After the supplemental investigation has been completed, additional geotechnical recommendations will be provided for the project site. As a result, the recommendations within this report are subject to change.

Based on the preliminary site plans, we understand that the planned construction will consist of 21 new structures that will include seven (7) golf residences, seven (7) club villas, five (5) golf cottages, one (1) fairway residences building, and one (1) clubhouse building. The proposed construction will also include new asphalt paved roadways and parking areas, retaining walls, tennis courts, underground utilities, and a stormwater management system.

The grading plan provided to this office indicates that the proposed finished floor elevations vary across the site. In addition, the fairway residences, golf cottages, and golf residences will have basements. Based on the existing and proposed grades, cuts ranging up to approximately 14’0” and fills ranging up to approximately 10’0” are expected to achieve the proposed floor slab subgrade elevations. In the proposed pavement areas, cuts ranging up to approximately 6’0” and fills ranging up to approximately 8’0” are expected to achieve the proposed pavement subgrade elevations.

The boring and test pit data indicates that there is existing fill (Stratum 2) present in portions of the site to depths ranging from 1’0” to more than 9’0” below the existing ground surface. The existing fill generally consists of loose to medium dense Sand with varying amounts of Silt and Gravel and occasional cobbles, boulders, topsoil, roots, and debris. Underlying the existing fill is medium dense to dense Sandy Silt or Silty Sand (Stratum 3). The Sandy Silt or Silty Sand is underlain by dense to very dense completely weathered Gneiss bedrock (Stratum 4) in areas followed by more competent Gneiss bedrock (Stratum 5), which was encountered at depths ranging from 2’0” to 15’2” beneath the existing ground surface. The existing fill and bedrock observations are summarized in Table 1 below.

Table 1 - Summary of Boring and Test Pit Data

Boring or Test Pit No.	Approximate Ground Surface Elevation	Depth to Bottom of Existing Fill (Elevation)	Depth to Weathered Bedrock (Elevation)	Depth to Bedrock or Auger Refusal (Elevation)
B-1	+661.0	NE	5’0” (+656.0)	8’0” (+653.0)
B-2	+628.0	NE	NE	7’0” (+621.0)
B-3	+620.0	NE	2’0” (+618.0)	4’9” (+615.3)
B-4	+628.0	NE	2’0” (+626.0)	10’6” (+617.5)
B-5	+623.0	NE	2’0” (+621.0)	8’6” (+614.5)
B-6	+617.0	1’0” (+616.0)	NE	5’6” (+611.5)
B-7	+628.0	NE	5’0” (+623.0)	15’2” (+612.8)
B-8	+609.0	5’6” (+603.5)	NE	NE to 12’0”
B-9	+674.0	7’0” (+667.0)	7’0” (+667.0)	7’6” (+666.5)
B-10	+638.8	NE	NE	2’0” (+636.8)
B-11	+640.0	NE	4’0” (+636.0)	5’6” (+634.5)
TP-1	+662.0	NE	NE	2’0” (+660.0)
TP-2	+672.0	1’10” (+670.2)	NE	4’4” (+667.7)
TP-3	+672.0	NE	NE	2’2” (+669.8)
TP-4	+672.0	NE	NE	3’6” (+668.5)
TP-5	+670.0	NE	3’8” (+666.3)	4’9” (+665.3)
TP-6	+672.0	NE	2’10” (+669.2)	4’7” (+667.4)
TP-7	+620.0	NE	NE	2’8” (+617.3)
TP-8	+614.0	NE	NE	NE to 5’0”
TP-9	+628.0	>6’9” (<+621.3)	NE	NE to 6’9”
TP-10	+625.0	3’0” (+622.0)	NE	NE to 8’0”
TP-11	+642.0	NE	3’9” (+638.3)	6’0” (+636.0)
TP-12	+635.0	5’0” (+630.0)	NE	NE to 6’6”
TP-13	+636.0	NE	NE	7’5” (+628.6)
TP-14	+625.0	5’0” (+620.0)	NE	5’0” (+620.0)
TP-15	+668.0	NE	NE	1’8” (+666.3)
TP-16	+651.0	1’10” (+649.2)	NE	4’10” (+646.2)
TP-17	+655.0	NE	NE	NE to 1’0”
TP-18	+670.0	NE	NE	NE to 7’0”
TP-19	+427.0	2’5” (+424.6)	NE	NE to 7’0”
TP-20	+415.0	NE	NE	NE to 8’0”
TP-21	+478.0	1’4” (+476.7)	NE	7’0” (+471.0)
TP-22	+475.0	NE	NE	NE to 7’6”
TP-23	+496.0	NE	NE	3’10” (+492.2)
TP-24	+564.0	NE	NE	6’8” (+557.3)
TP-25	+633.0	NE	NE	3’4” (+629.7)
TP-26	+669.0	5’6” (+663.5)	NE	NE to 8’0”

Boring or Test Pit No.	Approximate Ground Surface Elevation	Depth to Bottom of Existing Fill (Elevation)	Depth to Weathered Bedrock (Elevation)	Depth to Bedrock or Auger Refusal (Elevation)
TP-27	+561.0	NE	NE	4'4" (+556.7)
TP-28	+499.0	>9'0" (<+490.0)	NE	NE to 9'0"

Notes: NE – Not Encountered
B-8: Groundwater at +608.3
TP-8: Groundwater at +609.9
TP-9: Terminated in the Existing Fill
TP-13: Groundwater at +631.2
TP-22: Groundwater at +470.5
TP-28: Groundwater at +491.0
TP-28: Terminated in the Existing Fill

Removal of Existing Structures from New Building and Pavement Areas

Building Areas

The site plan indicates that existing structures are present in some of the proposed building areas. The existing structures will be removed as part of the proposed development. All debris resulting from the demolition of these items must be completely removed from the new building areas, extending at least ten (10) feet beyond the new building limits, where practical. This shall include the complete removal of all foundations, walls, slabs, utilities, sidewalks, pavement, and miscellaneous debris. Where the removal of existing items or associated materials extends below the planned building, the resulting excavations shall be backfilled with new compacted fill as described below.

Existing utilities, where they are encountered within the planned building areas, should be either abandoned or rerouted around the new structures. Once the utility has been rerouted or abandoned, the section of pipe and any associated structure within the building areas should be completely removed. The removal of the pipe and structure must also include any loose fill around the pipe or structure. After the pipe, associated structure, and associated loose backfill have been removed, the resulting excavation shall be backfilled with new controlled fill as described below.

New compacted fill shall consist of either suitable on-site soil or imported sand and gravel. Imported sand and gravel fill shall contain less than 20% by weight passing a No. 200 sieve. The fill shall be placed in layers not exceeding one (1) foot in loose thickness. In the proposed building area, new fill shall be compacted to at least 95% of its Maximum Modified Dry Density (ASTM D1557). Each layer shall be compacted, tested, and approved prior to placing subsequent layers.

Pavement Areas

In the proposed pavement areas, any existing structures and debris resulting from the demolition of the structures must be completely removed from the new pavement areas, extending at least five (5) feet beyond the new paving limits, where practical. The excavations resulting from the removal of existing items shall be backfilled using controlled compacted fill. New fill shall consist of either suitable on-site soil or imported sand and gravel placed in one (1) foot loose layers and compacted to at least 92% of its Maximum Modified Dry Density (ASTM D1557).

Implications of Existing Fill

The boring and test pit data indicates that existing fill is present in portions of the site. Where encountered in the borings and test pits, the fill extended to depths ranging from 1’0” to more than 9’0” beneath the existing ground surface. These depths correspond to elevations ranging from approximately +424.6 to elevation +670.2. The depth of the existing fill is expected to be variable and may be deeper in unexplored areas of the site and around the existing site buildings.

The existing fill is not an acceptable bearing material for the new building foundations or floor slabs. The consistency and density of the fill material are not predictable. Certain areas may contain clean dense soils while other areas may contain loose material, topsoil, and/or debris. The existing fill creates the possibility of intolerable differential settlements under loading.

To eliminate the potential for damaging differential settlements, we recommend that the existing fill be completely removed from the new building areas. Based on the existing grades and the proposed finished floor elevations, we expect that some of the existing fill will be removed during the planned building excavations. However, existing fill is expected to be encountered below the planned subgrade elevation in portions of the site. Undercutting of the subgrade will be required in these areas to remove the existing fill or otherwise unsuitable materials from the building areas. The over-excavated areas shall then be replaced with new structural fill, as necessary, to achieve the planned subgrade elevations.

To further evaluate the existing fill conditions in and around the planned building areas, we recommend that a series of supplemental test pits be performed at the time of construction. The test pits should be conducted under the full time observation of a Carlin-Simpson & Associates representative. These test pits will allow us to confirm the consistency, thickness, and horizontal limits of the existing fill material.

Provided that the existing fill and any other unsuitable materials encountered during construction are removed, it is our opinion that the new structural fill and virgin soils can adequately support the new building foundations and floor slabs.

Rock Removal - Blasting Issues

As discussed above, bedrock was encountered at 27 of the 39 test locations during this study. The bedrock was encountered at depths ranging from 1’8” to 15’2” beneath the ground surface. These depths correspond to bedrock elevations ranging between approximately elevation +611.5 and elevation +669.8. Based on the site plans provided to this office, bedrock was encountered above the planned finished floor elevation in portions of the site. Bedrock may also be encountered at higher elevations in the unexplored areas of the site.

The bedrock encountered in the borings and test pits consists of weathered Gneiss. Based on our experience, the in-situ bedrock will range from highly weathered, fractured rock to massive, intact rock. To excavate the rock, the upper 1'0" to 5'0" of rock may be "rippable" by using large construction equipment. The use of hydraulic hammers and/or blasting will be required in order to achieve deeper excavations. Zones of weathered rock may exist deeper than 5'0" but conditions are expected to be highly variable. Hard rock will be encountered during construction.

In order to develop the site, rock removal will be required in areas to achieve the proposed grades. Rock removal may also be required for the new pavement and utilities in portions of the site. Rock blasting will likely be required to achieve the proposed grades in areas. Nearby buildings and existing underground utilities could be affected by the blasting.

The Blasting Contractor should avoid over-blasting the rock. Over-blasting will disturb the deeper intact rock that will be used as bearing material for the proposed foundations and floor slab.

The blasting operation will be monitored by a seismologist using a seismograph. The Peak Particle Velocity emanating from any blast will be restricted to 2.0 in/sec. Each blast will be monitored to insure that this criteria is not exceeded.

The U.S. Bureau of Mines [Nicholas et al (1971)] has established that a threshold of 4.0 in/sec will likely crack plaster and thus they recommend that the safe vibrational criterion be 2.0 in/sec. This criterion has been used successfully in the industry. Each blast will be monitored independently to insure that this criterion is not exceeded. The monitoring results shall be provided to the Blasting Contractor as soon as possible so that the blasting program can be modified if necessary.

We recommend that a minimum of four (4) monitoring points be established, to the north, east, south and west of the planned blast area. The seismograph sensors should be placed near the closest structure and at any structures identified during the pre-blast survey that are considered to be susceptible to vibration damage.

Prior to the start of any construction, a Blasting Management Plan shall be prepared by the Blasting Contractor for this project. This plan shall be in accordance with State regulations and the Explosive Materials Code, NFPA No. 495, National Fire Prevention Association. Additionally, all blasting should adhere to the provisions of 29 CFR Ch. XVII Section 1910.109 for explosives and blasting agents and to all local requirements.

Prior to any blasting work being done, a licensed professional engineer shall be retained to perform a detailed pre-blast survey of existing structures located within 500 feet of the planned blast area. The pre-blast survey shall be conducted in accordance with the requirements of local authorities. A copy of all reports prepared by the licensed engineer shall be submitted to the Town Engineer and the Owner's representative in a timely manner.

Prior to the beginning of blasting, a notice will be sent to all residential and commercial property owners within a 500 foot radius of the blast area. This notification will be given at least 48 hours before blasting takes place. A contact person will be established and named in this notice to respond to all concerns raised by nearby residents during the blasting phase of the project. The contact person will respond to any inquiries within 24 hours.

Preparation of New Building Areas and Removal of Existing Fill

In order to prepare the building areas for construction, all surface materials such as topsoil, asphalt, and surface vegetation shall be removed from the planned building areas, extending at least ten (10) feet beyond the new construction limits, where feasible.

The boring data indicates that existing fill is present within portions the proposed building areas. Fill material may also be present in other unexplored portions of the site. Where encountered in the test borings, the existing fill extended to depths ranging from about 1’0” to 7’0” below the existing ground surface. As shown in Table 1 above, the approximate bottom of the fill material ranges from elevation +603.5 to elevation +670.2. The existing fill is expected to vary in thickness across the site and may extend deeper in the unexplored areas and around the existing site structures.

After the surface materials are removed, the existing fill shall be excavated from the new building areas. The removal of the existing fill from the new building areas shall extend through the existing fill, down to the virgin soil or weathered bedrock. At the bottom of the excavation, the removal of the unsuitable material shall extend horizontally beyond the building lines a minimum distance of three (3) feet plus a distance equal to the depth of the excavation below the planned finished floor elevation. For example, if the removal of the existing fill extends vertically five (5) feet below the planned finished floor elevation, the excavation must extend horizontally a minimum of eight (8) feet (3 feet plus 5 feet) beyond the new building line at that location.

The removal of the existing fill from the planned building areas shall be performed under the full time observation of Carlin-Simpson & Associates. The on-site representative from Carlin-Simpson & Associates shall direct the Contractor during this operation to ensure that all of the unsuitable material has been removed from the proposed building areas.

During the removal of the unsuitable material from the building areas, the Contractor should segregate the potentially re-usable existing fill material from the non-reusable fill (i.e. debris and topsoil). The on-site representative from Carlin-Simpson & Associate shall evaluate the suitability of the excavated materials for use as structural fill during the excavation and prior to its re-use. Potentially usable fill should be stockpiled and covered with tarps or plastic sheeting for protection from excess moisture. Any fill material that is wet must be dried prior to its re-use.

After the surface materials and existing fill have been removed and prior to the placement of new structural fill, the exposed subgrade must be graded level and proofrolled by several passes of a vibratory drum roller. The proofrolling operation is necessary to densify the underlying soils. Carlin-Simpson & Associates shall be retained to observe the proofrolling of the subgrade. If any soft or otherwise unsuitable soils are noted, the unsuitable material shall be removed and replaced with new structural fill. Carlin-Simpson & Associates shall be responsible for determining what material, if any, is to be removed and will direct the contractor during this operation.

New structural fill required to achieve final grades shall consist of either suitable on-site soil or imported sand and gravel. Imported fill shall contain less than 20% by weight passing a No. 200 sieve. The structural fill shall be placed in layers not exceeding one (1) foot in loose thickness and each layer shall be compacted to at least 95% of its Maximum Modified Dry Density (ASTM D1557). Each layer must be compacted, tested, and approved prior to placing subsequent layers. The suitability of the excavated soil for reuse as structural fill is discussed in a following section of this report.

After the installation of structural fill has been completed to the required subgrade elevations, the virgin soil and new structural fill may be used to support the proposed building foundations and floor slabs.

New Building Foundations

According to the boring data, the foundation bearing materials will consist of medium dense to dense virgin soil, weathered bedrock, and new structural fill. Foundations for the proposed structures may be designed as a shallow spread footing bearing on the virgin soil, weathered bedrock, or new structural fill utilizing a net allowable bearing pressure of 4,000 psf (2.0 TSF).

Exterior footings shall bear at a depth of at least 42 inches below finished outside grade for protection from frost. Interior column footings may bear on the virgin soil, weathered bedrock, or new structural fill just below the floor slab provided the building is heated during winter. Column footings shall have a minimum dimension of 30 inches. The wall footings shall have a minimum width of 18 inches.

Prior to the placement of formwork, reinforcement steel, and concrete, the bearing subgrade soil shall be cleaned of all loose soil and compacted with several passes of a small vibratory drum trench compactor (i.e. Wacker Model RT560), a heavy vibratory plate tamper (i.e. Wacker BPU 3545A or equivalent), or “jumping jack” style tamper (i.e. Wacker Model BS 600). This must be performed under the inspection of a representative from Carlin-Simpson & Associates. If instability is observed during the compaction of the bearing subgrade, the soft soil shall be removed and replaced with new compacted fill.

Where rock is encountered in the foundation excavations, “Special Construction Procedures” must be employed. When continuous wall footings or closely spaced column footings (20 feet or less) bear on dissimilar material (i.e. rock and soil) the potential for differential movement exists. A footing bearing in rock will not move, whereas a footing bearing on soil will settle slightly due to the compressive nature of all soils when subjected to new loads. The area between movement and non-movement will develop a (shear) stress point. Cracks in foundations and walls will be the result from such movement. Therefore, continuous wall footings must bear either entirely on rock or entirely on soil for any individual building. Alternatively, for larger structures, transition zones can be constructed to create a gradual transition from a soil to a rock bearing subgrade.

Adjacent column footings greater than 20 feet apart may bear on dissimilar material (i.e. soil and rock). Any individual column footing must bear entirely on the same type bearing material (i.e. all soil or all rock).

Where rock and soil both exist at the bearing elevation within a foundation excavation, the footings must either be lowered to bear entirely on rock, or a minimum of 18 inches of rock must be removed from below planned footing bottom. The over-excavated 18 inches must then be filled with a granular material having a maximum particle size of ½-inch and containing at least 15% but not more than 30% material by weight passing a No. 200 sieve. The fill shall be placed in six (6) inch layers and each layer shall be compacted to at least 95% of its Maximum Modified Dry Density (ASTM D1557). This procedure will create a "cushion" atop the rock and reduce the potential for differential movement. For soft, rippable rock, this procedure will not be required.

If during the excavation for continuous foundations, the transition from soil to rock is gradual (i.e. from medium dense soil to dense weathered rock to very dense rock) over a distance of 20 feet or more, the "Special Construction Procedures" may not be required. This would have to be evaluated in the field on a case-by-case basis by the representative from Carlin-Simpson & Associates at the time of construction.

Where the transition from rock to soil is abrupt within the excavation for continuous wall foundations, transition zones can be constructed by over-excavating the rock in steps and increasing the "soil cushion" thickness over a distance of 24 feet or more. To construct the transition zone, the bedrock is over-excavated in a series of steps, each step being six (6) inches in depth and at least eight (8) feet in length. The first step is six (6) inches deep, the second step is 12 inches deep, and the final step is 18 inches deep. The over-excavation is then backfilled with the soil cushion material described above.

Floor Slab

After the footings and foundation walls are installed, fill will be required to backfill the excavations and to raise grades in the building areas to the slab subgrade elevations. New fill for the floor slab shall consist of either suitable on-site soil or imported sand and gravel containing less than 20% material by weight passing a No. 200 sieve. The fill shall be placed in layers not exceeding one (1) foot in loose thickness and each layer shall be compacted to at least 92% of its Maximum Modified Dry Density (ASTM D1557). Fill layers shall be compacted, tested, and approved before placing subsequent layers.

The floor may be designed as a slab on grade, bearing on virgin soil, weathered bedrock, bedrock, or new structural fill. We recommend a Modulus of Subgrade Reaction (k) of 200 pounds per cubic inch (pci) be used for design. A six (6) inch layer of 3/4-inch crushed stone is recommended beneath the concrete slab for additional support and drainage. In the event that the floor slab is constructed directly on Gneiss bedrock, a minimum of 12 inches of crushed stone or DGA should be provided beneath the floor slab for drainage and to act as a cushion on the rock. Sump pits and pumps are recommended where basements are planned.

Settlement

Settlement of individual footings, designed in accordance with recommendations presented in this report, is expected to be within tolerable limits for the proposed structure. For footings placed on natural soils or new compacted fill approved by Carlin-Simpson & Associates and constructed in accordance with the requirements outlined in this report, maximum total settlement is expected to be on the order of 1/2-inch or less. Maximum differential settlement between adjacent columns or load bearing walls is expected to be half the total settlement.

The above settlement values are based on our engineering experience with similar soil conditions and the anticipated structural loading, and are to guide the Structural Engineer with his design. To minimize difficulties during the foundation installation phase, it is critical that Carlin-Simpson & Associates be retained to observe the foundation bearing surfaces and to confirm the recommended bearing pressures and that the existing fill and unsuitable materials have been removed from beneath the new foundations.

Foundation Walls

In the event that foundation walls are required, the soil adjacent to the building walls will exert a horizontal pressure against the walls. This pressure is based on the soil density and Coefficient of Earth Pressure at Rest (k_o), which is applicable to non-yielding building walls. We estimate that the backfill material will have an in-place (moist) density of about 130 pcf and a k_o of 0.5. Based on these properties, the soil will produce an Equivalent Fluid Pressure of 65 pcf against the building walls.

For sliding, the coefficient of friction between concrete and the virgin site soils or new structural fill is 0.45. For clean sound rock, a friction coefficient of 0.55 can be used. Where passive lateral earth pressure is to be included in the design of the wall, a design value of 195 psf/ft may be used. This is based on a Coefficient of Passive Earth Pressure (k_p) of 3.0, an in-place soil backfill density of 130 pcf, and a factor of safety of 2.0.

Where foundation walls are required, we recommend that a footing drain be placed around the exterior of the new structure to prevent water from accumulating against the foundation wall. This drain may consist of a minimum four (4) inch diameter, rigid wall perforated PVC pipe surrounded by at least 12 inches of 3/4-inch clean crushed stone. The stone shall be wrapped in a geotextile fabric, Mirafi 140N or equivalent. The foundation drainpipe should be extended to daylight or to the stormwater collection system. The outside face of the foundation wall, where it extends below grade, must be damp proofed or waterproofed.

The foundation walls should be backfilled with suitable structural fill placed in layers up to one (1) foot in loose thickness. The new fill should be compacted with a vibratory drum trench compactor (i.e. Wacker Model RT560), a heavy vibratory plate tamper (i.e. Wacker BPU 3545A or equivalent) or “jumping jack” style tamper (i.e. Wacker Model BS 600) to at least 92% of its Maximum Modified Dry Density (ASTM D1557). Heavy equipment should not be operated near the wall as damage to the wall could occur.

Outside the structure, the backfill placed adjacent to the foundation walls and above the footing drain shall consist of either clean crushed stone or an imported sand and gravel mixture containing less than 10% by weight passing a No. 200 sieve and placed in layers not exceeding one (1) foot in thickness. This clean sand and gravel or crushed stone backfill shall extend a minimum of one (1) foot horizontally from the back face of the foundation walls, and shall extend vertically up the wall face to two (2) feet below the finished ground surface elevation.

Beyond this point, the foundation walls should be backfilled with suitable soil placed in layers up to one (1) foot in thickness. The new fill should be compacted with a vibratory drum trench compactor (i.e. Wacker Model RT560), a heavy vibratory plate tamper (i.e. Wacker BPU 3545A or equivalent), or "jumping jack" style tamper (i.e. Wacker Model BS 600) to at least 92% of its Maximum Modified Dry Density (ASTM D1557). Heavy equipment should not be operated near the walls as damage to the walls could occur. Material excavated from the cut areas on site will be suitable for reuse as compacted fill, provided that it remains relatively dry enough to be adequately compacted to the required density and does not contain any debris or organic material (i.e. topsoil and roots).

Seismic Design Considerations

From site-specific test boring data, the Site Class was determined from Table 1615.1.1 of the New York State Building Code. The site-specific data used to determine the Site Class typically includes soil test borings to determine Standard Penetration resistances (N-values). Based on the average N-values in the upper 100 feet of soil profile, the site can be classified as Site Class C – Very Dense Soil and Soft Rock Profile.

New structures should be designed to resist stress produced by lateral forces computed in accordance with Section 1615 of the New York State Building Code. The values in Table 2 shall be used for this project. Based on the information obtained from the borings, it is our opinion that the potential for liquefaction of the native soils at the site due to earthquake activity is relatively low.

Table 2 – Seismic Design Parameter Values

Mapped Spectral Response Acceleration for Short Periods, [Fig 1615 (1)]	S_S=0.347g
Mapped Spectral Response Acceleration at 1-Second Period, [Fig 1615 (2)]	S_{S1}=0.070g
Site Coefficient [Table 1615.1.2 (1)]	F_a=1.20
Site Coefficient [Table 1615.1.2 (2)]	F_v=1.70
Max Considered Earthquake Spectral Response for Short Periods [Eq 16-16]	S_{MS}=0.416g
Max Considered Earthquake Spectral Respond at 1-Second Period [Eq 16-17]	S_{M1}=0.119g
Design Spectral Response Acceleration for Short Periods [Eq 16-18]	S_{DS}=0.278g
Design Spectral Response Acceleration for 1-Second Period [Eq 16-19]	S_{D1}=0.079g

Site Retaining Walls

In order to develop the site, retaining walls will be required in areas. The site retaining walls may be designed as either cast-in-place steel reinforced concrete walls or geogrid reinforced modular block (MSE) walls. The preliminary site plans show five (5) retaining walls. The maximum exposed height of these walls ranges from approximately seven (7) feet to 12 feet but the top and bottom wall elevations were not finalized at the time of this report.

The following recommendations are preliminary in nature based on the boring and test pit data from other areas of the project site during this investigation. The recommendations below are intended for planning purposes only and are not intended for final design and construction. A supplemental subsurface investigation is required for the proposed retaining walls so that additional design recommendations can be provided.

In the event that existing fill materials are present within the proposed wall areas, these materials must be completely removed from the limits of new wall construction. The removal of the topsoil or other unsuitable fill materials shall extend horizontally a minimum distance of five (5) feet beyond the front face of the new wall or extend horizontally a minimum distance equivalent to the vertical depth of the required excavation below the proposed wall base or foundation bearing elevation, whichever is greater. This is required to ensure that all unsuitable material has been removed from beneath the wall base or foundation zone of influence, which shall be defined by an imaginary plane projecting downward and away from the front edge of the wall base or foundation on a one horizontal to one vertical (1H:1V) projection.

The foundations for the new retaining wall may be placed on the virgin soil, weathered bedrock, or on new compacted fill approved by Carlin-Simpson & Associates. New compacted fill shall consist of either suitable on-site soil or imported sand and gravel. Imported fill shall contain less than 20% by weight passing the No. 200 sieve. The fill shall be placed in one (1) foot thick loose layers and compacted to at least 95% of its Maximum Modified Dry Density. Preliminarily, the footings or base of the wall can be designed using a net design bearing pressure of 4,000 psf (2.0 TSF).

For MSE walls, the wall base or foundation must be adequately embedded for internal and global stability. The embedment depth will be determined by the Wall Design Engineer. For reinforced concrete walls, the footing or base of the wall shall bear at least 42 inches below finished grade of the outside face of the wall for protection from frost. The wall foundation or base may bear at shallower depths when installed directly on the bedrock since rock is not susceptible to frost. Where both soil and rock are encountered within the wall foundation or base excavation, the "Special Construction Procedures" discussed above for the building foundations must be utilized.

Drains must be provided behind the retaining walls to prevent the buildup of hydrostatic pressure against the walls. The drain should consist of a 4-inch diameter perforated PVC pipe, surrounded with 3/4-inch clean crushed stone and wrapped in a geotextile fabric, Mirafi 140N or equivalent. The drain should be installed behind the base or foundation of the retaining wall to collect the water behind the wall and be connected into the site stormwater collection system or extended to daylight beyond the wall area.

Backfill placed directly behind the retaining walls shall consist of either suitable on-site soil or imported sand and gravel containing less than 20% by weight passing a No. 200 sieve. Each layer shall be compacted using a hand guided mechanical tamper to 92% of its

Maximum Modified Dry Density (ASTM D1557). Excessive compaction adjacent to the retaining walls must be avoided. Layers shall be tested and approved before placing subsequent layers. Large compaction equipment must not be used within ten (10) feet of the new walls to prevent potential damage to the walls.

The soil adjacent to the site retaining walls will exert a horizontal pressure against the walls. This pressure is based on the soil density and the Coefficient of Active Earth Pressure (k_a). We estimate that the backfill material will have an in-place (moist) density of about 130 pcf and an angle of internal friction (ϕ) of 30^o. For design, soil cohesion is assumed to be zero for the foundation soil, retained soil, and reinforced backfill. The active earth pressure coefficient (k_a) is 0.33 provided the grade behind the wall is level. Based on these properties, the retained soil will produce an Equivalent Fluid Pressure of 42.9 pcf against the retaining walls. If a sloping grade exists behind the new walls, the k_a and the Equivalent Fluid Pressure must be adjusted accordingly. In addition, any surcharge loads from structures, vehicles, or other retaining walls (i.e. tiered walls) must be considered in the wall design.

For sliding, the friction coefficient between mass concrete and the virgin site soils or new compacted fill is 0.45. For clean sound rock, a friction coefficient of 0.55 can be used. Where passive lateral earth pressure is to be included in the design of the wall, a maximum design value of 195 psf/ft may be used. This is based on a Coefficient of Passive Earth Pressure (k_p) of 3.0, an in-place soil backfill density of 130 pcf, and a factor of safety of 2.0.

The Wall Design Engineer shall prepare a complete wall design (i.e. drawings, specifications, and calculations), which shall be designed and sealed by a Professional Engineer registered in the State of New York and submitted to Carlin-Simpson & Associates for review and approval. MSE retaining walls shall be designed in accordance with the recommendations of the NCMA Design Manual for Segmental Retaining Walls (Current Edition).

The MSE wall design shall consider the internal stability of the reinforced soil mass and shall be in completed accordance with acceptable engineering practice. In addition, external stability, including sliding, overturning, and bearing, as well as global slope stability shall be evaluated in accordance with acceptable engineering practice.

The MSE Wall Designer Engineer shall be responsible for determining the required geogrid reinforcement lengths and elevations based on his stability analysis (including global stability) and the properties of the geogrid reinforcement used in the design. We anticipate that in the critical areas of the wall, global stability will be the controlling design criteria for the design of the geogrid reinforcement.

Stormwater Management Areas

We understand that the planned development will include one or more stormwater management areas. The preliminary grading plan shows a proposed infiltration basin with a forebay in the western portion of the project site. The plan also indicates that the basin will have a bottom elevation at +610.0. We also understand that there is an alternate stormwater management area in the southwestern portion of the site, near the proposed fairway residences building. In addition, stormwater management areas will likely be required throughout the golf course property. However, at the time this report was prepared, the proposed stormwater management system had not been designed and the location, grades, and invert elevations of the system had not been finalized.

During this study, four (4) borings, one (1) test pit, one (1) borehole permeability test, and four (4) percolation tests were performed within or near the planned stormwater management areas. An addition ten (10) test pits (TP-19 through TP-28) were excavated at potential stormwater management areas throughout the golf course property. The tests were performed at the locations shown on the attached Boring and Test Pit Location Plan. The proposed test depths were provided by the project Site Engineer. The test depths were modified, however, based on the depth to bedrock encountered at the test locations.

The soil conditions encountered within the proposed infiltration basin area consist of a surface layer of topsoil (Stratum 1), approximately 0’6” to 0’9” in thickness, followed by existing fill (Stratum 2) in boring B-6. Below the topsoil and fill is virgin soil that consists of layers of Sandy Silt, Silty Sand, Sandy Gravel, Gravelly Sand, or Silty Gravelly Sand (Strata 3 and 4) followed by Gneiss bedrock (Stratum 5). Bedrock was encountered in the proposed infiltration basin area at depths ranging from 2’8” to 8’6” beneath the ground surface. These depths correspond to bedrock elevations ranging between elevation +611.5 and elevation +617.3, which is above the proposed bottom elevation of the infiltration basin.

In the alternate stormwater management area, the topsoil was underlain by approximately 5’6” of existing fill (Stratum 2) followed by layers of Sandy Silt and Silty Sand (Stratum 3). Groundwater was encountered in this portion of the site at depths ranging from 0’6” to 3’3” below the ground surface, which corresponds to groundwater levels ranging from approximately elevation +608.3 to elevation +613.2.

The subsurface soil and groundwater conditions encountered in the potential stormwater management areas throughout the golf course property vary across the site. The boring and test pit observations are summarized in Table 1 above.

In December 2012 and January 2013, permeability tests were performed within the proposed stormwater management areas. One (1) borehole permeability test (BP-4) and four (4) percolation tests (P-1 through P-4) were performed. The infiltration rates at the test locations are summarized in Table 3 below.

Table 3 – Field Permeability Test Results

Permeability Test No.	Permeability Test Depth (Elevation)	Permeability Rate	Soil Description
BP-4	7’0” (+621.0)	2.4 in/hour	Brown coarse to fine SAND, little Silt, some (+) coarse to fine Gravel
P-1	3’6” (+616.5)	>20 in/hour	Brown coarse to fine GRAVEL and, coarse to fine Sand, trace Silt
P-2	1’8” (+610.3)	NR	*Groundwater encountered 0’6” below the ground surface*

Permeability Test No.	Permeability Test Depth (Elevation)	Permeability Rate	Soil Description
P-3	2'8" (+613.3)	>20 in/hour	Brown coarse to fine SAND, some Silt, and (-) coarse to fine Gravel
P-4	2'0" (+613.0)	NR	*Groundwater encountered 1'10" below the ground surface*

NR – Not Recorded

Based on the field tests, the virgin soil in the areas of tests P-1 and P-3 has a permeability rate that exceeds 20 inches per hour. However, these tests were performed at elevations of +616.5 and +613.3, which are approximately 6'6" and 3'3" higher than the planned bottom of the proposed infiltration basin. Bedrock was encountered at depths of 4'9" (+615.3) and 5'6" (+611.5) below the surface at these test locations. In the event the virgin soil in the areas of tests P-1 and P-3 can be utilized for the stormwater management system, a permeability rate of 10 inches per hour should be used for preliminary design. This design permeability rate includes a factor of safety of 2.0.

Field permeability tests could not be performed at test locations P-2 and P-4 during this study since groundwater was encountered at depths of 0'6" (+611.5) and 1'10" (+613.2) below the ground surface, respectively. Should stormwater management areas be planned in other portions of the site, they must be evaluated on a case-by-case basis.

The stormwater management system should be designed in accordance with the applicable New York State Department of Conservation (NYSDEC) regulations and the New York State Stormwater Management Design Manual (August 2010). The testing requirements are outlined in Appendix D of the manual. The testing that was performed during this preliminary study was for initial feasibility testing for the stormwater management areas. Therefore, additional testing within the proposed subsurface system areas will be required to confirm the soil conditions and infiltration rates at the bottom of the system and to finalize the design of the system.

Pavement

We understand that the proposed construction will also include new asphalt paved driveways and parking areas. Based on the preliminary grading plan provided to this office, cuts ranging up to approximately 6'0" and fills ranging up to approximately 8'0" are anticipated to achieve the proposed pavement subgrade elevations. To prepare the new pavement areas, the existing surface materials (i.e. topsoil, vegetation, asphalt, etc.) must be removed from the planned pavement areas.

After all surface materials have been removed; the exposed subgrade that is either at or below the planned subgrade elevation shall be proofrolled with a large vibratory drum roller (i.e. Dynapac 250 or equivalent) to densify the underlying soils. The on-site representative from Carlin-Simpson & Associates shall witness the proofrolling operation. If any excessive movement is noted during the proofrolling, the soft or unsuitable soil shall be removed and replaced with new compacted fill.

Areas where existing fill is encountered shall be compacted in place. Carlin-Simpson & Associates must evaluate these areas for the presence of soft or unsuitable material within the existing fill matrix. Portions of this fill may have to be removed and replaced with new compacted fill. Carlin-Simpson & Associates will determine this during construction.

Where new fill is required to achieve final grades, it shall consist of either suitable on-site soil or imported sand and gravel. Imported sand and gravel shall contain less than 20% by weight passing a No. 200 sieve. New fill shall be placed in layers not exceeding one (1) foot in loose thickness and each layer shall be compacted to at least 92% of its Maximum Modified Dry Density (ASTM D1557). After the planned subgrade has been proofrolled and new compacted fill has been placed as required, the new pavement subbase may be placed on the existing site soils and new compacted fill.

When new fill is placed on a sloped subgrade, the fill layers must be benched a minimum of three (3) feet into the existing embankment. Fill layers shall be placed in horizontal layers, beginning at the base of the slope. End dumping over the top of a slope is not permitted.

The new pavement subbase may be placed on engineer-approved densified existing fill, virgin soil, or new compacted fill. A minimum of six (6) inches of dense graded aggregate (DGA) is recommended for the subbase layer for drainage and additional pavement support. We recommend that the following pavement sections be used for the parking lots and driveways. These pavement sections are subject to local government approval.

<u>Parking Lots (Light Duty)</u>

1 ½"	Asphalt Wearing Surface Course	NYSDOT, Type 6F
2"	Asphalt Base Course	NYSDOT, Type 1
6"	Stone Subbase (DGA)	NYSDOT, Type 4
	Approved Compacted Subgrade (Minimum CBR = 10)	

<u>Driveways (Medium Duty)</u>

1 ½"	Asphalt Wearing Surface Course	NYSDOT, Type 6F
2 ½"	Asphalt Base Course	NYSDOT, Type 1
8"	Stone Subbase (DGA)	NYSDOT, Type 4
	Approved Compacted Subgrade (Minimum CBR = 10)	

Based on the boring and test pit data, we anticipate that the existing site soils and new compacted fill will provide a CBR value that is equal to or greater than 10, which can adequately support the above pavement sections.

<u>Utilities</u>

New utilities may bear in the virgin soil, existing fill, new compacted fill, weathered rock, or rock. The bottom of all trenches should be excavated clean so a hard bottom is provided for pipe support. If any soft areas or unsuitable existing fill conditions are encountered during the construction operation, these materials must be removed and replaced with new compacted fill.

In the event that the trench bottom becomes soft due to the inflow of surface or trapped water, the soft soil shall be removed and the excavation filled with a minimum of six (6) inches of 3/4-inch clean crushed stone to provide a firm base for support of the pipe. Sump pits and pumps should be adequate to keep the excavations dry.

After the utility is installed, the trench must be backfilled with compacted fill. The fill shall consist of suitable on-site soil or imported sand and gravel containing less than 20% by weight passing a No. 200 sieve. Large rock fragments must not be placed directly against the pipe. Controlled compacted fill shall be placed in one (1) foot loose layers and each layer shall be compacted to at least 92% of its Maximum Modified Dry Density (ASTM D1557). The backfill must be free of topsoil, debris and large boulders or rock fragments.

Temporary Construction Excavations

Temporary construction excavations shall be conducted in accordance with the most recent OSHA guidelines or applicable federal, state, or local codes. Based on the results of the borings and test pits, we believe the site soils and rock would have the following classifications as defined by OSHA guidelines.

Soil/Rock Type	**Possible Classification**
On Site Fill	Type "C"
Virgin Sandy Soils	Type "B" or "C"
Weathered or Intact Bedrock	Type "A" or Stable Rock

Further evaluation of the site soil deposits will be required in the field by a qualified person at the time of the excavation to determine the proper OSHA classification and allowable slope configuration. Temporary support (i.e. sheeting and shoring) should be used for any excavation that cannot be sloped or benched in accordance with the applicable regulations.

Suitability of the In-Situ Soils for Use as Compacted Fill

The suitability of each soil stratum for use as compacted fill is discussed below.

Stratum 1 Topsoil — Topsoil is not suitable for use as compacted fill. During construction, it may be stockpiled on site for later use in the landscaped areas or removed from the site.

Stratum 2 Existing Fill — The existing fill that was encountered at the site generally consists of brown coarse to fine Sand, little (to and) Silt, trace (to some) coarse to fine Gravel with occasional cobbles, boulders, topsoil, roots, and debris. Some of the existing fill may be suitable for use as compacted fill at the site provided that it remains relatively dry for optimum compaction and that any debris (i.e. concrete, wood, etc.) and organic material (i.e. topsoil, roots, etc.) have been removed prior to its reuse.

Strata 3 & 4
Sandy Silt, Silty Sand, Sand, or Sandy Gravel

The virgin site soils that may be excavated during construction consist of layers of Sandy Silt, Silty Sand, Sand or Sandy Gravel with occasional cobbles and boulders. This material is generally suitable for use as compacted fill, provided that it remains relatively dry for optimum compaction. Large cobbles and boulders shall not be used as new structural fill in the proposed building areas or in utility trenches.

Stratum 5
Gneiss Bedrock

Excavated rock may also be used as fill material for the building and paved areas provided that the material conforms to the required gradation, is well-graded, and has been approved prior to use by Carlin-Simpson & Associates. All rock fill must be well blended with smaller rock fragments and/or soil. Open voids within the rock fill matrix must be avoided. Small boulders up to 24 inches in diameter may be placed in parking lot fills deeper than ten (10) feet below the finished pavement. Boulders must not be clustered and must be sufficiently surrounded with soil fill. We recommend that the boulders and excavated rock be processed by a crusher to provide suitable fill material for the building and pavement areas.

Rock fill shall be placed in 12-inch loose layers and compacted with multiple passes of a large vibratory roller to a firm and non-yielding state as determined by the on-site representative from Carlin-Simpson & Associates. Rock fill should not be used where it will interfere with the installation of foundations or utilities. Also, it shall not be used as backfill directly against concrete walls or utilities. Use of rock fill within the planned building and pavement areas shall be limited to the gradations limitations provided in Table 4 below.

Table 4 - Gradation Limitations for Rock Fill

Area	Location	Maximum Particle Size
Building Area	Within 4 feet of Finished Floor	3 inches
	More than 4 feet below Finished Floor	12 inches
Pavement Area	Within 4 feet of Finished Grade	6 inches
	More than 4 feet below Finished Grade	18 inches
	More than 10 feet below Finished Grade	24 inches

Proper moisture conditioning of the soil will be required. In the event that the on-site material is too wet at the time of placement and cannot be adequately compacted, the soil should be aerated and allowed to dry or the material removed and a drier cleaner fill material used. In the event that the on-site material is too dry at the time of placement and cannot be adequately compacted, water may be needed to increase the soil moisture content for proper compaction.

The in-situ soils which exist throughout the site may become soft and weave if exposed to excessive moisture and construction traffic. The instability will occur quickly when exposed to these elements and it will be difficult to stabilize the subgrade. We recommend that adequate site drainage be implemented early in the construction schedule and if the subgrade becomes wet, the Contractor should limit construction activity until the soil has dried.

GENERAL

The findings, conclusions and recommendations presented in this report represent our professional opinions concerning subsurface conditions at the site. The opinions presented are relative to the dates of our site work and should not be relied on to represent conditions at later dates or at locations not explored. The opinions included herein are based on information provided to us, the data obtained at specific locations during the study and our past experience. If additional information becomes available that might impact our geotechnical opinions, it will be necessary for Carlin-Simpson & Associates to review the information, reassess the potential concerns, and re-evaluate our conclusions and recommendations. Additional subsurface exploration may be required.

Regardless of the thoroughness of a geotechnical exploration, there is the possibility that conditions between borings and test pits will differ from those encountered at specific boring or test pit locations, that conditions are not as anticipated by the designers and/or the contractors, or that either natural events or the construction process have altered the subsurface conditions. These variations are an inherent risk associated with subsurface conditions in this region and the approximate methods used to obtain the data. These variations may not be apparent until construction.

The professional opinions presented in this geotechnical report are not final. Field observations and foundation installation monitoring by the geotechnical engineer, as well as soil density testing and other quality assurance functions associated with site earthwork and foundation construction, are an extension of this report. Therefore, Carlin-Simpson & Associates should be retained by the Owner to observe all earthwork and foundation construction, to document that the conditions anticipated in this study actually exist, and to finalize or amend our conclusions and recommendations Carlin-Simpson & Associates is not responsible or liable for the conclusions and recommendations presented in this report if Carlin-Simpson & Associates does not perform these observation and testing services.

Therefore, in order to preserve continuity in this project, the Owner must retain the services of Carlin-Simpson & Associates to provide full time geotechnical related monitoring and testing during construction. At a minimum, this shall include the observation and testing of the following: 1) the removal of existing fill and unsuitable soil, where required; 2) the proofrolling of the subgrade soil prior to the placement of new compacted fill; 3) the placement and compaction of controlled fill; 4) the excavation for the building foundations; 5) the preparation of the subgrade for the floor slabs and pavement areas; and 6) the construction of the proposed retaining walls.

This report has been prepared in accordance with generally accepted geotechnical engineering practice. No other warranty is expressed or implied. The evaluations and recommendations presented in this report are based on the available project information, as well as on the results of the exploration. Carlin-Simpson & Associates should be given the opportunity to review the final drawings and site plans for this project to determine if changes to the recommendations outlined in this report are needed. Should the nature of the project change, these recommendations should be re-evaluated.

This report is provided for the exclusive use of Brynwood Partners, LLC and the project specific design team and may not be used or relied upon in connection with other projects or by other third parties. Carlin-Simpson & Associates disclaims liability for any such third party use or reliance without express written permission. Use of this report or the findings, conclusions or recommendations by others will be at the sole risk of the user. Carlin-Simpson & Associates is not responsible or liable for the interpretation by others of the data in this report, nor their conclusions, recommendations or opinions.

If the conditions encountered during construction vary significantly from those stated in this report, this office should be notified immediately so that additional recommendations can be made.

Thank you for allowing us to assist you with this project. Should you have any questions or comments, please contact this office.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

M. Anke

MEREDITH R. ANKE, P.E.
Project Engineer

Robert Simpson

ROBERT B. SIMPSON, P.E.

File No. 12-175

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-1

Project:	**Proposed Renovations, Byrnwood Club Development, North Castle, NY**	**SHEET NO.:**	1 of 1
Client:	**JBM Realty**	**JOB NUMBER:**	12-175
Drilling Contractor:	**General Borings, Inc.**	**ELEVATION:**	+661.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	18 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	18 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			7		**Clay Tennis Court** 0'6"	
1		S-1	9		Br $ a (+), cf S, l (-) mf G	Rec = 17" moist
			12			
2			14			
			19		same	
3		S-2	23		**Brown SILT and (+), coarse to fine**	Rec = 15"
			50/3"		**Sand, little (-) medium to fine Gravel**	moist
4						possible weathered rock in tip
5					5'0"	
			29		Br cf S, l (+) $ (completely weathered gneiss)	
6		S-3	75/4"			Rec = 6"
					Brown coarse to fine SAND, little (+)	moist
7					**Silt (completely weathered Gneiss)**	
		S-4	70/3"			Rec = 3"
8					8'0"	moist
					End of Boring @ 8'0"	Auger refusal @ 8'0"
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-2

Project:	Proposed Renovations, Byrnwood Club Development, North Castle, NY	SHEET NO.:	1 of 1
Client:	JBM Realty	JOB NUMBER:	12-175
Drilling Contractor:	General Borings, Inc.	ELEVATION:	+628.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	18 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	18 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil** 0'6"	
1		**S-1**	3		Br $ a (+), cf S, t mf G	Rec = 15"
			2			moist
2			2			
			3		same	
3		**S-2**	9			Rec = 16"
			11		**Brown SILT and (+), coarse to fine**	moist
4			15		**Sand, trace medium to fine Gravel**	
5						
			10		same	
6		**S-3**	12			Rec = 17"
			16			moist
7			50/3"		7'0"	weathered rock in tip
					End of Boring @ 7'0"	Auger refusal @ 7'0"
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-3

Project: Proposed Renovations, Byrnwood Club Development, North Castle, NY	**SHEET NO.:** 1 of 1
Client: JBM Realty	**JOB NUMBER:** 12-175
Drilling Contractor: General Borings, Inc.	**ELEVATION:** +620.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	HSA	SS			**DATUM:**
No water encountered				**DIA.**	3 1/4"	1 3/8"			**START DATE:** 18 Dec 12
				WGHT		140#			**FINISH DATE:** 18 Dec 12
				FALL		30"			**DRILLER:** T. McGovern
									INSPECTOR: JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			3		**Topsoil** 0'6"	
1		**S-1**	6		Br $ a (-), cf S, t mf G	Rec = 17"
			6		**Brown SILT and (-), coarse to fine**	moist
2			14		**Sand, trace medium to fine Gravel** 2'0"	
		S-2	25/5"		Lt br cf G a, cf S, t $ (completely weathered gneiss)	Rec = 5"
3					**Light brown coarse to fine GRAVEL**	moist
					and, coarse to fine Sand, trace	
4					**Silt (completely weathered Gneiss)**	
			23		Br cf G s, cf S, t $ (completely weathered gneiss)	
5		**S-3**	75/3"		4'9"	Rec = 6"
					End of Boring @ 4'9"	moist
6						Auger refusal @ 4'9"
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-4

Project:	Proposed Renovations, Byrnwood Club Development, North Castle, NY	SHEET NO.:	1 of 1
Client:	JBM Realty	JOB NUMBER:	12-175
Drilling Contractor:	General Borings, Inc.	ELEVATION:	+628.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	18 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	18 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil** 0'6"	
1		S-1	1		Br cf S, a $, t f G	Rec = 14"
			2		**Brown coarse to fine SAND, and**	moist
2			2		**Silt, trace fine Gravel** 2'0"	
			10		Gr cf S t $, a cf G (completely weathered gneiss)	
3		S-2	20			Rec = 13"
			45			moist
4			35			weathered rock 3'-4'
5						
			9		Br cf S, l $, s (+) cf G (completely weathered gneiss)	
6		S-3	11			Rec = 17"
			13		**Brown coarse to fine SAND, little**	moist
7			10		**Silt, some (+) coarse to fine Gravel**	
			18		same **(completely weathered Gneiss)**	
8		S-4	26			Rec = 14"
			30			moist
9			43			
10						
		S-5	75/6"		same 10'6"	Refusal on spoon @ 10'6"
11					**End of Boring @ 10'6"**	
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-5

Project:	**Proposed Renovations, Byrnwood Club Development, North Castle, NY**	**SHEET NO.:**	1 of 1
Client:	**JBM Realty**	**JOB NUMBER:**	12-175
Drilling Contractor:	**General Borings, Inc.**	**ELEVATION:**	+623.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	18 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	18 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		Br cf S, s (+) $, t f G	
1		S-1	2		**Brown coarse to fine SAND,**	Rec = 17"
			3		**some (+) Silt, trace fine Gravel**	moist
2			13		2'0"	
			22		Br cf S, l $, s cf G	
3		S-2	10			Rec = 17"
			16		**Brown coarse to fine SAND, little**	moist
4			26		**Silt, some coarse to fine Gravel**	weathered rock in tip
					(completely weathered Gneiss)	
5						
			23		same, weathered gneiss	
6		S-3	62			Rec = 18"
			55			moist
7			81			weathered rock
8						
					8'6"	Auger refusal @ 8'6"
9					**End of Boring @ 8'6"**	
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-6

Project:	**Proposed Renovations, Byrnwood Club Development, North Castle, NY**	**SHEET NO.:**	1 of 1
Client:	**JBM Realty**	**JOB NUMBER:**	12-175
Drilling Contractor:	**General Borings, Inc.**	**ELEVATION:**	+617.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	19 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	19 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	KWA

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil** 0'6"	
1		**S-1**	6		FILL (Br cf S, l $) 1'0"	Rec = 10"
			5		**FILL (Brown coarse to fine SAND,**	moist
2			10		**little Silt)**	
			12		Br cf S, s $, a (-) cf G	
3		**S-2**	11			Rec = 11"
			11		same	moist
4			52		**Brown coarse to fine SAND, some**	
					Silt, and (-) coarse to fine Gravel	
5						
		S-3	75/2"		5'6"	No recovery
6					**End of Boring @ 5'6"**	Auger refusal @ 5'6"
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-7

Project:	Proposed Renovations, Byrnwood Club Development, North Castle, NY	**SHEET NO.:**	1 of 1
Client:	JBM Realty	**JOB NUMBER:**	12-175
Drilling Contractor:	General Borings, Inc.	**ELEVATION:**	+628.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:	
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE:	19 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE:	19 Dec 12
				WGHT		140#			DRILLER:	T. McGovern
				FALL		30"			INSPECTOR:	KWA

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil** 0'6"	
1		S-1	4		Br cf S, l $,l f G	Rec = 18"
			4			moist
2			5			
			13		same	
3		S-2	28		**Brown coarse to fine SAND,**	Rec = 17"
			21		**little Silt, little fine Gravel**	moist
4			22			
5					5'0"	
			12		Br cf S, l $, t f G (completely weathered gniess)	
6		S-3	14			Rec = 15"
			19			moist
7			28		**Brown coarse to fine SAND, little**	very dense augering 7'-10'
					Silt, trace fine Gravel (completely	
8					**weathered Geniss)**	
9						
10						
			75		same	
11		S-4	50/3"			Rec = 6"
						moist
12						very dense augering 10'-15'
13						
14						
15						
		S-4	50/2"		same 15'2"	No recovery
16					**End of Boring @ 15'2"**	Spoon bouncing @ 15'2"
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-8
Project: Proposed Renovations, Byrnwood Club Development, North Castle, NY		**SHEET NO.:** 1 of 1
Client: JBM Realty		**JOB NUMBER:** 12-175
Drilling Contractor: General Borings, Inc.		**ELEVATION:** +609.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE		
									DATUM:	
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	HSA	SS			**START DATE:**	19 Dec 12
19 Dec 12	1130	3'3"	None	**DIA.**	3 1/4"	1 3/8"			**FINISH DATE:**	19 Dec 12
				WGHT		140#			**DRILLER:**	T. McGovern
				FALL		30"			**INSPECTOR:**	KWA

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION		REMARKS
			2		**Brown Topsoil**	0'6"	
1		**S-1**	4		FILL (Br cf S, a $, t cf G)		Rec = 4"
			8				moist
2			7				
			10		FILL (same)		
3		**S-2**	11				No recovery
			11		**FILL (Brown coarse to fine SAND,**		moist
4			13		**and Silt, trace coarse to fine Gravel)**		
5							
			13		FILL (same)	5'6"	
6		**S-3**	8		Mtld gr, or br Cy $ s, cf S, w/t roots		Rec = 18"
			7		**Mottled gray, orange brown Clayey**		moist
7			8		**SILT some, coarse to fine Sand, with**	7'0"	
			8		**roots**		
8		**S-4**	8		Gr br cf S, s (+) $, l cf G		Rec = 15"
			7				wet
9			8		**Gray brown coarse to fine SAND,**		
					some (+) Silt, little coarse to fine		
10					**Gravel**		
			15		same, l cf G		
11		**S-5**	25				Rec = 16"
			26				wet
12			35			12'0"	
					End of Boring @ 12'0"		
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-9
Project: Proposed Renovations, Byrnwood Club Development, North Castle, NY		**SHEET NO.:** 1 of 1
Client: JBM Realty		**JOB NUMBER:** 12-175
Drilling Contractor: General Borings, Inc.		**ELEVATION:** +674.0

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	DATUM:
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			START DATE: 19 Dec 12
No water encountered				DIA.	3 1/4"	1 3/8"			FINISH DATE: 19 Dec 12
				WGHT		140#			DRILLER: T. McGovern
				FALL		30"			INSPECTOR: KWA

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	IDENTIFICATION	REMARKS
			8	**Clay Tennis Court** 0'6"	
1		S-1	8	FILL (Br cf S, s $, s (+) cf G)	Rec = 17"
			8		moist
2			17		
			17	FILL (same)	
3		S-2	12		Rec = 15"
			7	**FILL (Brown coarse to fine Sand,**	moist
4			13	**some Silt, some (+) coarse to fine**	
				Gravel)	
5					
			10	FILL (Br cf S, s $, l cf G)	
6		S-3	4		Rec = 15"
			5		moist
7			11	7'0"	
		S-4	50/3"	**Highly to moderately weathered** 7'6"	Rec = 3"
8				**Gneiss**	moist
				Eknd of Boring @ 7'6"	Auger refusal @ 7'0"
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-10
Project: Proposed Renovations, Byrnwood Club Development, North Castle, NY		**SHEET NO.:** 1 of 1
Client: JBM Realty		**JOB NUMBER:** 12-175
Drilling Contractor: General Borings, Inc.		**ELEVATION:** +638.8

GROUNDWATER					CASING	SAMPLE	CORE	TUBE	
									DATUM:
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	HSA	SS			**START DATE:** 19 Dec 12
No water encountered				**DIA.**	3 1/4"	1 3/8"			**FINISH DATE:** 19 Dec 12
				WGHT		140#			**DRILLER:** T. McGovern
				FALL		30"			**INSPECTOR:** JB

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil** 0'1"	
1		S-1	3		Br cf $ s, cf S, l cf G	Rec = 15"
			6		**Brown coarse to fine SILT some, coarse to**	moist
2			50/3"		**fine Sand, little coarse to fine Gravel** 2'0"	Auger refusal @ 2'0"
3						
		Run #1			**Gray, white Gneiss**	Run #1
4						2'0"-7'0"
						Run = 60"
5					5'0"	Rec = 52" = 86%
					Soil seam	RQD = 53%
6					5'8"	
					Gray, white Gneiss	
7					7'0"	
					End of Boring @ 7'0"	
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

CARLIN - SIMPSON & ASSOCIATES Sayreville, NJ	TEST BORING LOG	BORING NUMBER B-11

Project:	**Proposed Renovations, Byrnwood Club Development, North Castle, NY**	**SHEET NO.:**	1 of 1
Client:	**JBM Realty**	**JOB NUMBER:**	12-175
Drilling Contractor:	**General Borings, Inc.**	**ELEVATION:**	+640.0

GROUNDWATER					**CASING**	**SAMPLE**	**CORE**	**TUBE**	**DATUM:**	
DATE	**TIME**	**DEPTH**	**CASING**	**TYPE**	**HSA**	**SS**			**START DATE:**	19 Dec 12
No water encountered				**DIA.**	**3 1/4"**	**1 3/8"**			**FINISH DATE:**	19 Dec 12
				WGHT		**140#**			**DRILLER:**	T. McGovern
				FALL		**30"**			**INSPECTOR:**	KWA

Depth (ft.)	Casing Blows per Foot	Sample No.	Blows on Sample Spoon per 6"	Sym	IDENTIFICATION	REMARKS
			2		**Topsoil**	
1		**S-1**	3		0'9"	Rec = 20"
			3		Br cf S, l (+) $	moist
2			7			
			5		same, dk br	
3		**S-2**	6		**Brown coarse to fine SAND,**	Rec = 17"
			8		**little (+) Silt**	moist
4			23		4'0"	
5					**Completely to highly weathered**	
					Gneiss	
6					5'6"	Auger refusal @ 5'6"
					End of Boring @ 5'6"	
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

Byrnwood Club Development
Bedford Road
Town of New Castle, NY
(12-175)

3 January 2013

TEST PIT LOGS

TP-1	Elevation +662		
0-0'9"	Brown Topsoil		
0'9"-2'0"	Brown coarse to fine SAND, and Silt, trace (+) medium to fine Gravel	medium dense	moist
2'0"	Gneiss bedrock No water encountered		

TP-2	Elevation +672		
0-1'10"	FILL (Brown coarse to fine SAND, some silt, little (-) coarse to fine Gravel, with topsoil)	medium dense	moist
1'10"-4'4"	Light brown coarse to fine SAND, some (+) Silt	medium dense	moist
4'4"	Gneiss bedrock No water encountered		

TP-3	Elevation +672		
0-0'9"	Dark brown Topsoil with surface debris		
0'9"-2'2"	Brown coarse to fine SAND, some Silt	medium dense	moist
2'2"	Gneiss bedrock No water encountered		

Byrnwood Club Development
Bedford Road
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TEST PIT LOGS

TP-4	Elevation +672		
0-0'6"	Brown Topsoil		
0'6"-3'6"	Brown coarse to fine SAND, and (-) Silt, some coarse to fine Gravel	medium dense	moist
3'6"	Gneiss bedrock No water encountered		

TP-5	Elevation +670		
0-0'7"	Brown Topsoil		
0'7"-3'8"	Light brown coarse to fine SAND, some (+) Silt	medium dense	moist
3'8"-4'9"	Brown coarse to fine SAND, some Silt (completely weathered gneiss)	dense	moist
4'9"	Gneiss bedrock No water encountered		

Byrnwood Club Development
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TEST PIT LOGS

TP-6	Elevation +672		
0-0'10"	Brown Topsoil		
0'10"-2'10"	Light brown coarse to fine SAND, some (-) Silt, little coarse to fine Gravel	medium dense	moist
2'10"-4'7"	Brown coarse to fine SAND, some Silt, little coarse to fine Gravel (completely weathered gneiss)	dense	moist
4'7"	Gneiss bedrock No water encountered		

TP-7	Elevation +620		
0-0'9"	Brown Topsoil		
0'9"-2'8"	Brown coarse to fine SAND, some Silt, trace coarse to fine Gravel	medium dense	moist
2'8"	Probable Gneiss bedrock		
	Test pit abandoned No water encountered		

TP-8	Elevation +614		
0-0'8"	Dark brown Topsoil		
0'8"-5'0"	Mottled orange brown, gray coarse to fine SAND, and (-) Silt	medium dense	moist
	Groundwater encountered @ 4'1"	slow inflow	

Byrnwood Club Development
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TEST PIT LOGS

TP-9	Elevation +628		
0-0’4”	Topsoil		
0’4”-6’9”	FILL (Brown coarse to fine SAND, some (+) Silt, some (+) coarse to fine Gravel, with cobbles and boulders)	medium dense	moist
6’9”	FILL (Gray coarse to fine SAND, trace (+) Silt)	medium dense	moist
	Possible cover over for utility Test pit was abandoned		
	No water encountered		

TP-10	Elevation +625		
0-0’4”	Topsoil		
0’4”-3’0”	FILL (Boulders with topsoil)	loose	moist
3’0”-8’0”	Brown coarse to fine SAND, some (+) Silt	medium dense	moist
	No water encountered		

Byrnwood Club Development
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TEST PIT LOGS

TP-11	Elevation +642		
0-0’6”	Brown Topsoil		
0’6”-3’9”	Brown coarse to fine SAND, some Silt, little coarse to fine Gravel, with occasional cobbles and boulders	medium dense	moist
3’9”-6’0”	Brown coarse to fine SAND, little (+) Silt, some coarse to fine Gravel (completely weathered gneiss)	dense	moist
6’0”	Weathered Gneiss bedrock No water encountered		

TP-12	Elevation +635		
0-0’6”	Brown Topsoil		
0’6”-5’0”	FILL (Brown coarse to fine SAND, some (+) Silt, little (-) coarse to fine Gravel, with trace of debris)	loose	moist
5’0”-6’6”	Orange brown, gray coarse to fine SAND and Silt	dense	moist
	Refusal on boulder No water encountered		

Byrnwood Club Development
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(12-175)

4 January 2013

TEST PIT LOGS

TP-13	Elevation +636		
0-0’9”	Brown Topsoil with roots		
0’9”-6’3”	Brown coarse to fine SAND, and Silt, little coarse to fine Gravel	medium dense	moist
6’3”-7’5”	Brown coarse to fine SAND, some (+) Silt, little (-) coarse to fine Gravel	dense	moist
7’5”	Gneiss bedrock		
	Groundwater encountered @ 4’10”	slow inflow	

TP-14	Elevation +625		
0-0’3”	Brown Topsoil		
0’3”-3’4”	FILL (Gray brown coarse to fine SAND, some Silt, little coarse to fine Gravel, with cobbles and boulders)	loose	moist
3’4”-5’0”	FILL (Brown coarse to fine SAND, little Silt)	medium dense	moist
5’0”	Gneiss bedrock No water encountered		

Byrnwood Club Development
Bedford Road
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(12-175)

4 January 2013

TEST PIT LOGS

TP-15	Elevation +668		
0-0'3"	Brown Topsoil		
0'3"-1'8"	Brown coarse to fine SAND, some (+) Silt, some (-) coarse to fine Gravel, with occasional cobbles and boulders	medium dense	moist
1'8"	Gneiss bedrock No water encountered		

TP-16	Elevation +651		
0-0'8"	Dark brown Topsoil		
0'8"-1'10"	FILL (Brown coarse to fine SAND, some (+) Silt, trace medium to fine Gravel, with cobbles)	medium dense	moist
1'10"-4'10"	Brown coarse to fine SAND, some (+) Silt, trace medium to fine Gravel	medium dense	moist
4'10"	Gneiss bedrock No water encountered		

Byrnwood Club Development
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4 January 2013

TEST PIT LOGS

TP-17	Elevation +655		
0-0'3"	Topsoil		
0'3"-1'0"	Brown coarse to fine SAND, some (+) Silt, little coarse to fine Gravel	medium dense	moist
	Encountered irrigation pipes Test pit abandoned No water encountered		

TP-18	Elevation +670		
0-0'10"	Brown Topsoil		
0'10"-7'0"	Brown SILT and, coarse to fine Sand, little (-) medium to fine Gravel	medium dense	moist
	No water encountered		

Brynwood Club Development
Bedford Road
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13 September 2013

TEST PIT LOGS

TP-19

0-2’5”	FILL (Brown coarse to fine SAND, some Silt, some coarse to fine Gravel, with topsoil, cobbles, boulders)	loose	moist
2’5”-7’0”	Brown coarse to fine SAND, some Silt, little coarse to fine Gravel	medium dense	moist
	No water encountered		

TP-20

0-0’6”	Brown Topsoil		
0’6”-4’3”	Brown, orange brown coarse to fine SAND, some Silt, little coarse to fine Gravel	medium dense	moist
4’3”-8’0”	Orange brown coarse to fine SAND, little (-) Silt, some coarse to fine Gravel, with occasional cobbles	medium dense	moist
	No water encountered		

Brynwood Club Development
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TEST PIT LOGS

TP-21

0-0’6”	Dark brown Topsoil		
0’6”-1’4”	FILL (Brown coarse to fine SAND, some (-) Silt, trace medium to fine Gravel, with few roots)	medium dense	moist
1’4”-7’0”	Brown coarse to fine SAND, little Silt, trace (+) coarse to fine Gravel, with occasional cobbles	medium dense	moist
7’0”	Possible weathered bedrock		
	No water encountered		

TP-22

0-1’6”	Dark brown Topsoil, with roots		
1’6”-2’8”	Mottled gray brown, orange brown Clayey SILT, little medium to fine Sand	medium dense	moist
2’8”-3’6”	Brown coarse to fine SAND, some (+) Silt, little medium to fine Gravel	medium dense	moist
3’6”-6’0”	Brown coarse to fine SAND, little (+) Silt, come coarse to fine Gravel	medium dense	wet
6’0”-7’6”	Gray brown SILT little, coarse to fine Sand, trace medium to fine Gravel	medium dense	wet
	Groundwater encountered @ 4’6”	slow inflow	

Brynwood Club Development
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TEST PIT LOGS

TP-23

0-0’7”	Brown Topsoil		
0’7”-3’10”	Brown coarse to fine SAND, and (-) Silt, little (-) coarse to fine Gravel	dense	moist
3’10”	Weathered bedrock		
	No water encountered		

TP-24

0-0’8”	Brown Topsoil		
0’8”-6’8”	Brown coarse to fine SAND, some (+) Silt, little (-) coarse to fine Gravel, with occasional cobbles	medium dense	moist
6’8”	Possible weathered bedrock or boulder		
	No water encountered		

TP-25

0-0’4”	Brown Topsoil		
0’4”-3’4”	Brown coarse to fine SAND, and Silt, trace medium to fine Gravel	medium dense	moist
3’4”	Possible bedrock or boulder		
	No water encountered		

Brynwood Club Development
Bedford Road
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TEST PIT LOGS

TP-26

0-0’6”	Brown Topsoil		
0’6”-2’8”	FILL (Brown coarse to fine SAND, some (-) Silt, little coarse to fine Gravel, with cobbles and boulders)	medium dense	moist
2’8”-4’0”	FILL (Brown Topsoil, with trace roots)		
4’0”-5’6”	FILL (Dark gray brown Clayey SILT, and, coarse to fine Sand, with trace roots, trace debris)	medium stiff	moist
5’6”-8’0”	Brown coarse to fine SAND, and (-) Silt, trace coarse to fine Gravel	medium dense	moist
	No water encountered		

TP-27

0-0’9”	Brown Topsoil, with roots		
0’9”-4’4”	Light brown coarse to fine SAND, little Silt, trace coarse to fine Gravel	medium dense	dry
4’4”	Probable weathered bedrock		
	No water encountered		

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TEST PIT LOGS

TP-28

0-0’4”	Brown Topsoil		
0’4”-8‘6”	FILL (Brown coarse to fine SAND, little Silt, little coarse to fine Gravel, with organics, debris)	loose	moist
8’6”-9’0”	FILL (Gray coarse to fine SAND, some Silt, little coarse to fine Gravel, with organics)	medium dense	wet
	Groundwater encountered @ 8’0”		

Byrnwood Club Development
Bedford Road
Town of New Castle, NY
(12-175)

18 -19 December 2012

Borehole Permeability Test (B-4)

Ground Surface Elevation: +628.0
Top of Casing Elevation: +631.5
Bottom of Test Hole Elevation: +621.0
Test Hole Depth from Ground Surface Elevation: 7'0" (84")

Pre-Soak:

Start Date: 18 Dec 2012 Time: 1545 Water Level*: 4'4"
End Date: 19 Dec 2012 Time: 0900 Water Level*: 7'1"

33" drop H_2O in 1035 minutes (17 hr. 15 min.) = 0.03 inches per minute

Test:

Start Date: 19 Dec 2012 Time: 1000 Water Level*: 4'3"
End Date: 19 Dec 2012 Time: 1515 Water Level*: 5'3.5"

12.5" drop H_2O in 315 minutes (5 hr. 15 min.) = 0.04 inches per minute

Time	Water Level*	Interval Water Level Drop (Inches)	Cumulative Water Level Drop (Inches)
1000	4'3"	0	0
1100	4'6"	3	3
1200	4'8"	2	5
1300	4'10"	2	7
1400	5'1"	3	10
1515	5'3.5"	2.5	12.5

Water Level* - Depth below top of casing (elevation +631.5)

Byrnwood Club Development
Bedford Road
Town of New Castle, NY
(12-175)

3 January 2013

<u>Percolation Test P-1</u>
(Elevation +620)

Test hole depth 42” from ground surface elevation

<u>Pre-Soak</u>

0-10 min, 22” drop of H2O (pipe drained)
22” drop H2O in 10 minutes = 2.20 inches per minute

<u>Test Run #1</u>

5 min, 15” drop H2O (re-filled pipe)

<u>Test Run #2</u>

5 min, 14” drop H2O (re-filled pipe)

<u>Test Run #3</u>

5 min, 12” drop H2O (re-filled pipe)

<u>Final Test Reading</u>

Start @ 1245, 14” from top of pipe
Finish @ 1300, 36” drop from top of pipe (pipe drained)
22” drop H2O in 15 minutes = 1.46 inches per minute

<u>Percolation Hole P-2</u>
(Elevation + 612)

Test hole depth 20” from ground elevation
Groundwater @ 0’6” below surface
Percolation test unable to be performed

Byrnwood Club Development
Bedford Road
Town of New Castle, NY
(12-175)

3 January 2013

<u>Percolation Test P-3</u>
(Elevation + 616)

Test hole depth 32” from ground surface elevation

<u>Pre-Soak</u>

0-24 min, 17” drop of H_2O (pipe drained)
17” drop H_2O in 24 minutes = 0.71 inches per minute

<u>Test Run #1</u>

5 min, 5” drop H_2O (re-filled pipe)

<u>Test Run #2</u>

5 min, 5” drop H_2O (re-filled pipe)

<u>Test Run #3</u>

5 min, 4” drop H_2O (re-filled pipe)

<u>Final Test Reading</u>

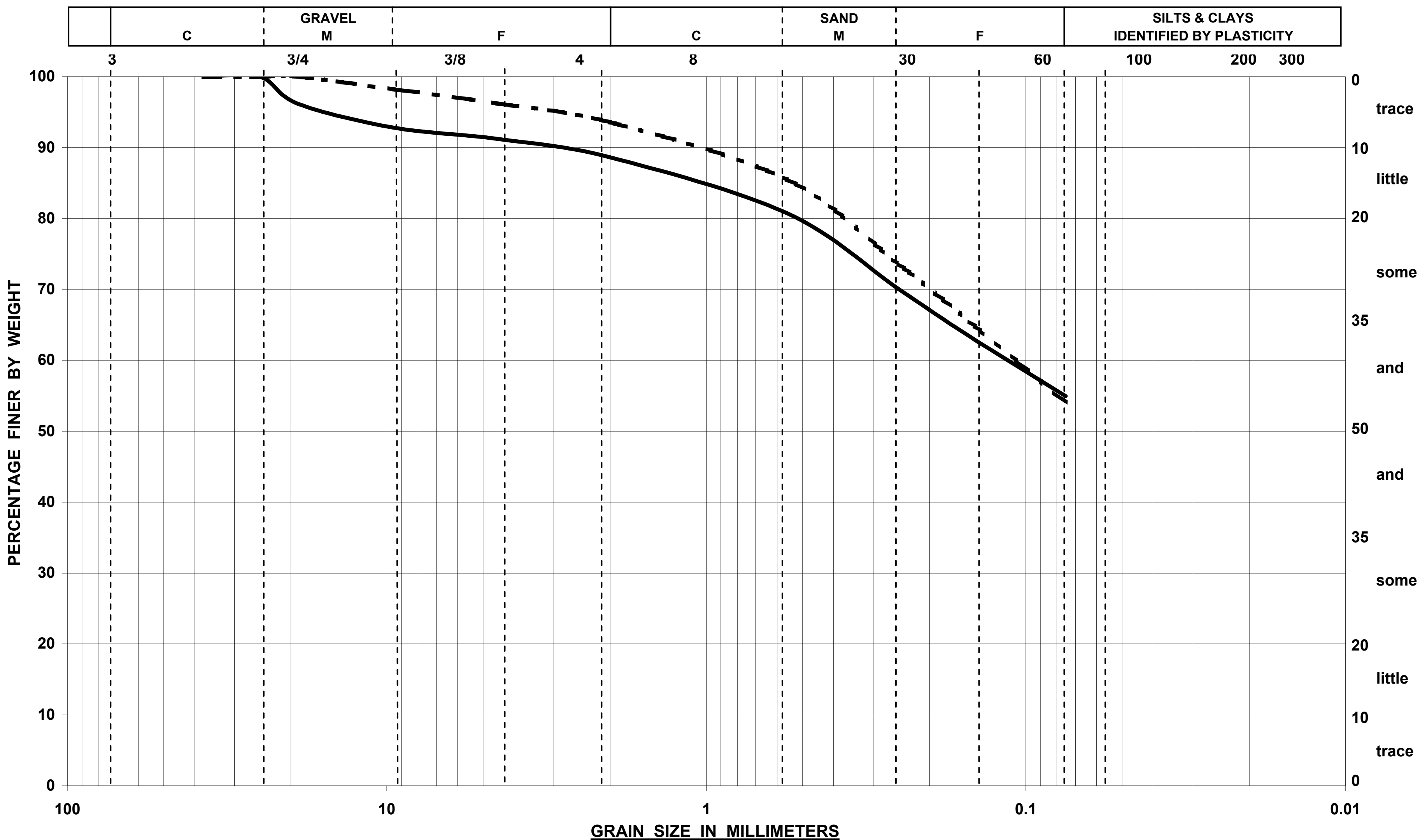
Start @ 1535, 15” from top of pipe
Finish @ 1605, 28” drop from top of pipe
13” drop H_2O in 30 minutes = 0.43 inches per minute

<u>Percolation Hole P-4</u>
(Elevation + 615)

Test hole depth 24” from ground elevation
Groundwater @ 1’10” below surface
Percolation test unable to be performed

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS

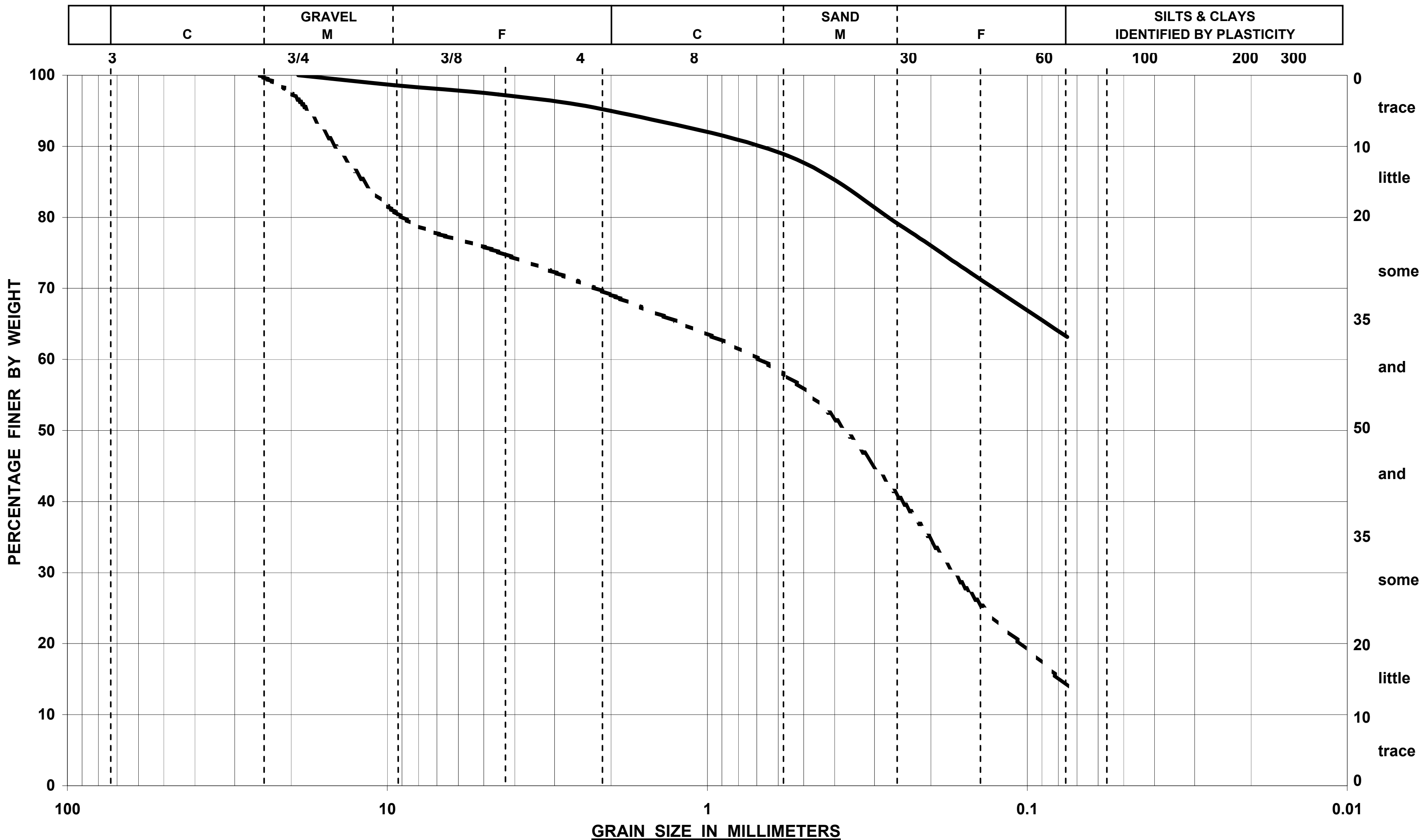


SYMBOL	BORING	SAMPLE	DEPTH	DESCRIPTION	NAT MC
———	B-1	S-1	0' 0" - 2' 0"	Brown SILT and (+), coarse to fine Sand, little (-) medium to fine Gravel	14.0%
— -	B-2	S-2	2' 0" - 4' 0"	Brown SILT and (+), coarse to fine Sand, trace medium to fine Gravel	14.2%

PROJECT Brynwood Club, Bedford Road, North Castle, NY **BY** MW **DATE** 7-Jan-13 **JOB NO** 12-175

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS

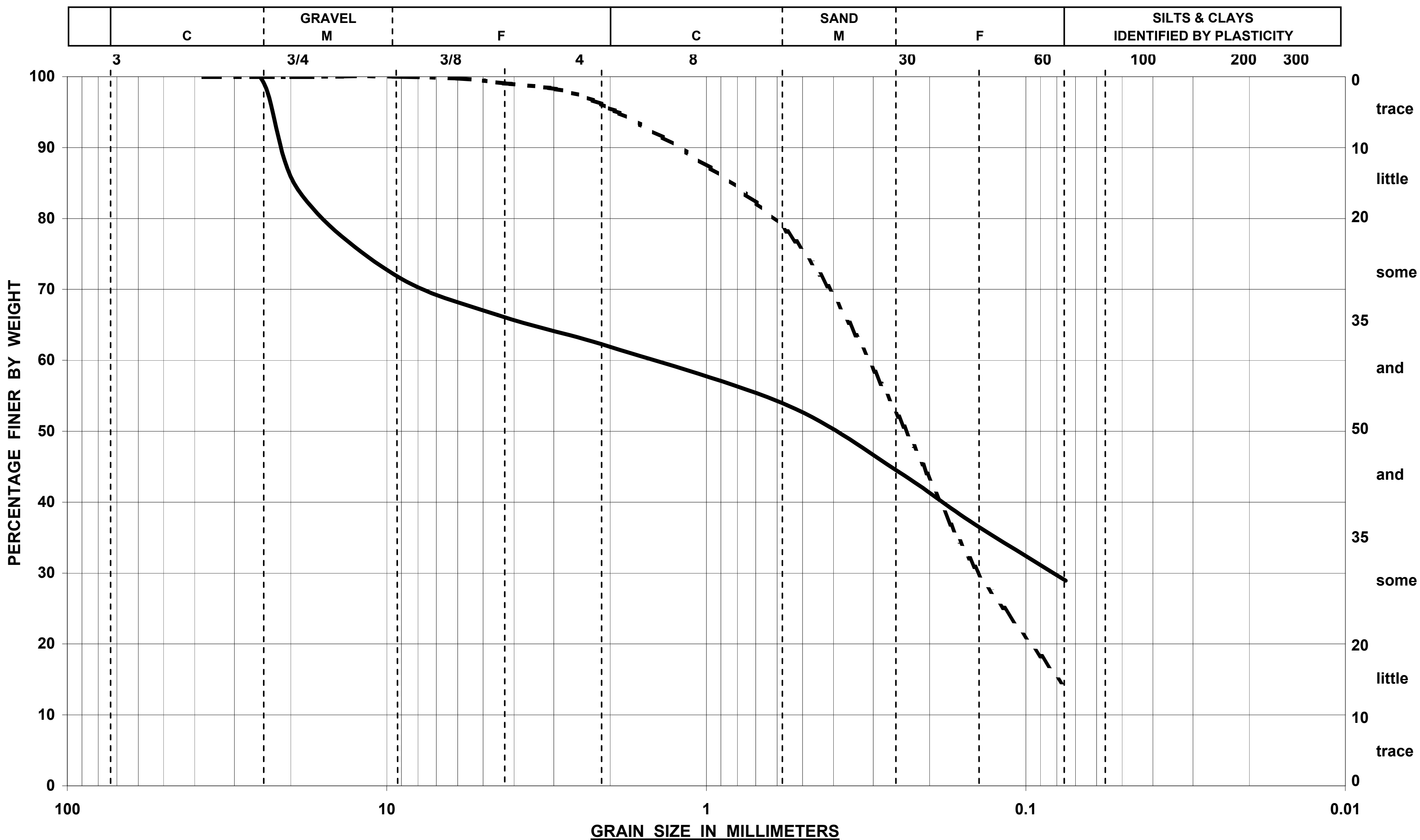


SYMBOL	BORING	SAMPLE	DEPTH	DESCRIPTION	NAT MC
———	B-3	S-1	0' 0" - 2' 0"	Brown SILT and (-), coarse to fine Sand, trace medium to fine Gravel	24.2%
— -	B-4	S-3	5' 0" - 7' 0"	Brown coarse to fine SAND, little Silt, some (+) medium to fine Gravel	12.1%

PROJECT Brynwood Club, Bedford Road, North Castle, NY **BY** MW **DATE** 7-Jan-13 **JOB NO** 12-175

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS

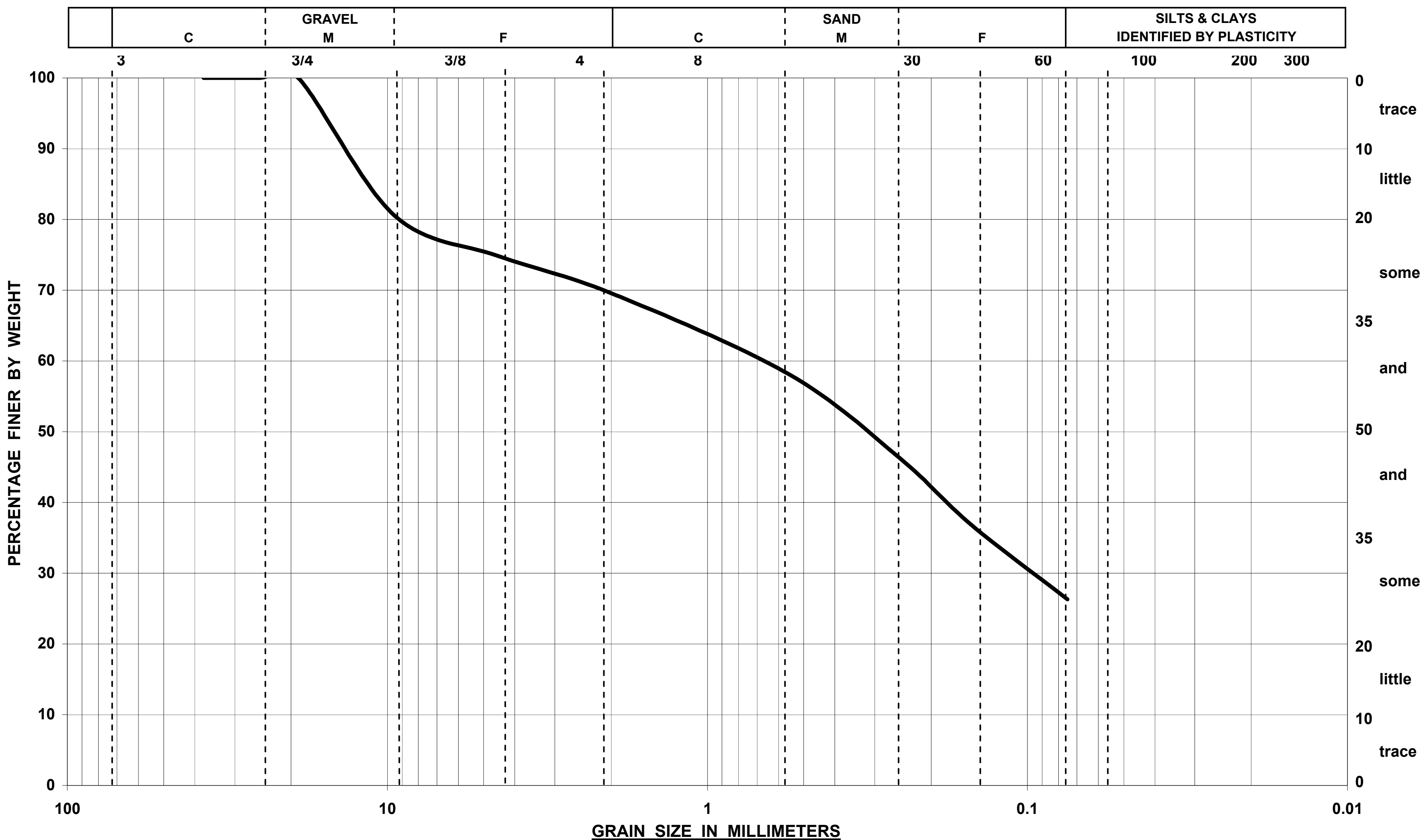


SYMBOL	BORING	SAMPLE	DEPTH	DESCRIPTION	NAT MC
———	B-6	S-2	2' 0" - 4' 0"	Brown coarse to fine Sand, some Silt, and (-) coarse to fine Gravel	9.9%
— -	B-7	S-3	5' 0" - 7' 0"	Brown coarse to fine SAND, little Silt, trace fine Gravel	8.7%

PROJECT Brynwood Club, Bedford Road, North Castle, NY **BY** MW **DATE** 10-Jan-13 **JOB NO** 12-175

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS

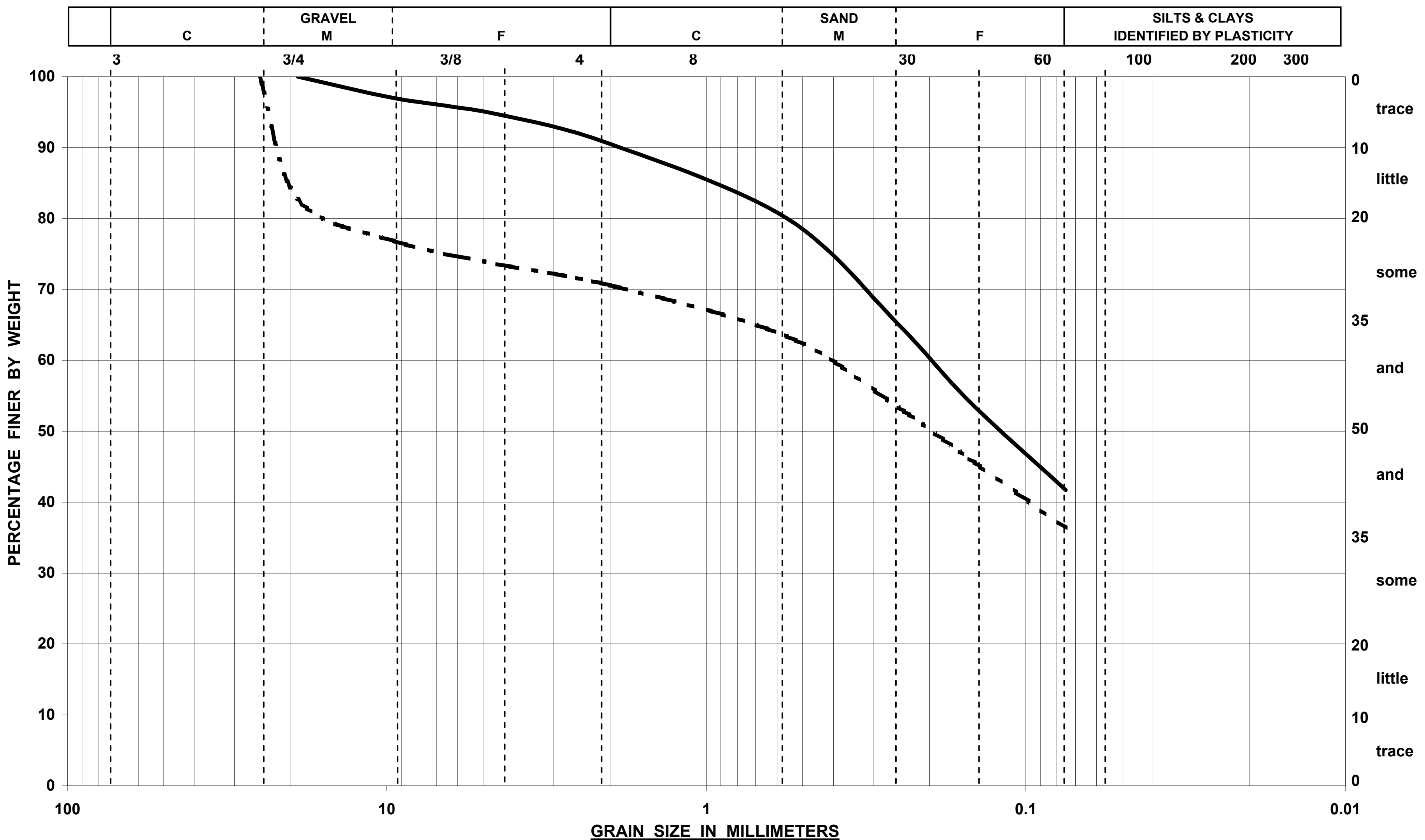


SYMBOL	BORING	SAMPLE	DEPTH	DESCRIPTION	NAT MC
——	B-9	S-2	2' 0" - 4' 0"	FILL (brown coarse to fine Sand, some Silt, some (+) medium to fine Gravel	15.0%

PROJECT Brynwood Club, Bedford Road, North Castle, NY BY MW DATE 7-Jan-13 JOB NO 12-175

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS

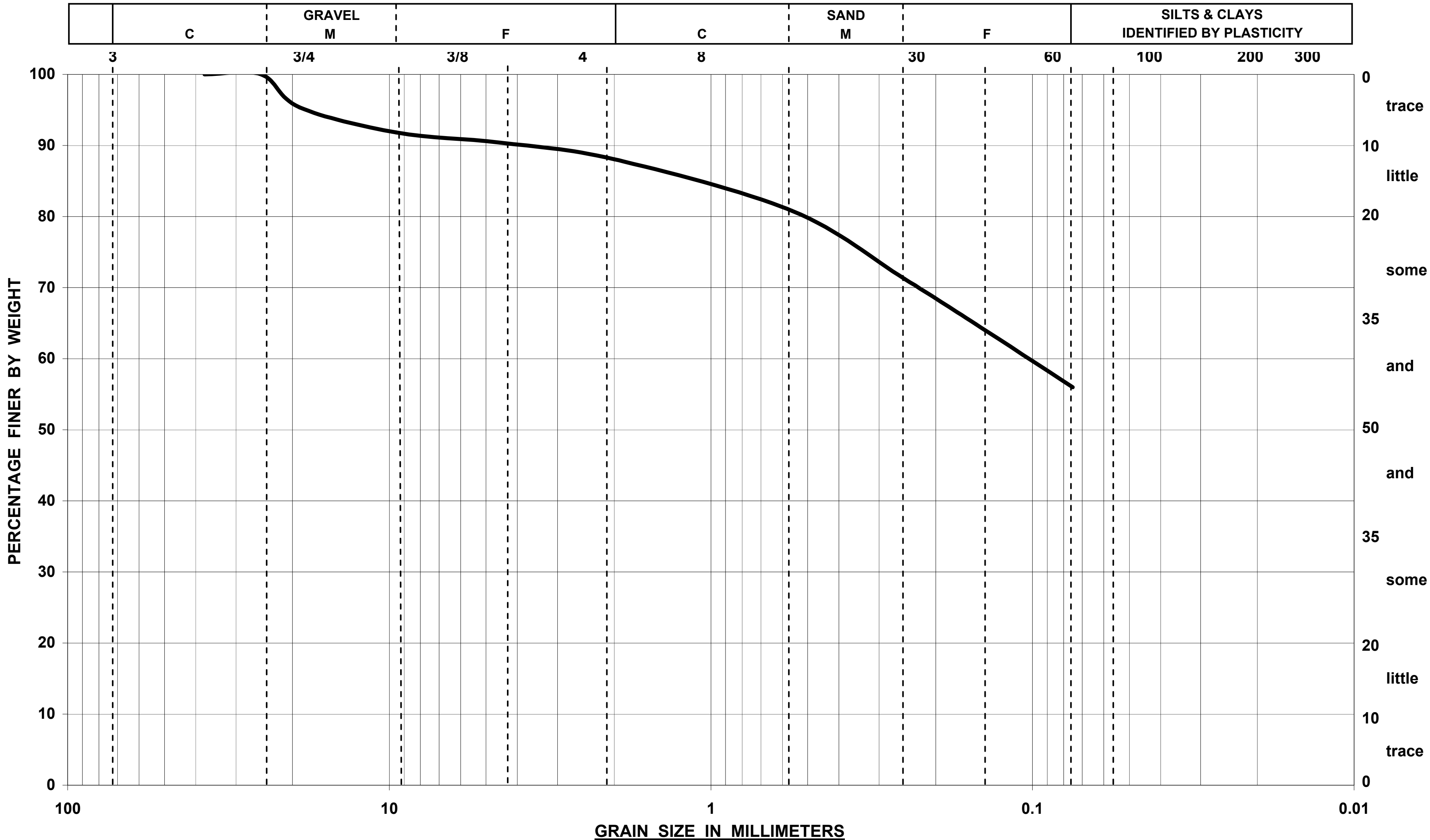


SYMBOL	Test Pit	SAMPLE	DEPTH	DESCRIPTION	NAT MC
	TP-1	S-1		Brown coarse to fine SAND, and Silt, trace (+) medium to fine Gravel	18.2%
	TP-4	S-1		Brown coarse to fine Sand, and (-) Silt, some coarse to fine Gravel	14.0%

PROJECT Brynwood Club, Bedford Road, North Castle, NY **BY** MW **DATE** 7-Jan-13 **JOB NO** 12-175

CARLIN-SIMPSON & ASSOCIATES
SAYREVILLE, NJ 08872

SIEVE ANALYSIS



SYMBOL	Test Pit	SAMPLE	DEPTH	DESCRIPTION	NAT MC
——	TP-18	S-1	0' 10" - 7' 0"	Brown SILT and, coarse to fine Sand, little (-) medium to fine Gravel	18.0%

PROJECT Brynwood Club, Bedford Road, North Castle, NY **BY** MW **DATE** 7-Jan-13 **JOB NO** 12-175

GENERAL NOTES:

1. GENERAL LAYOUT WAS OBTAINED FROM A DRAWING PREPARED BY JOHN MEYER CONSULTING, PC ENTITLED "TEST PIT PLAN, BRYNWOOD CLUB, BEDFORD ROAD (NY 22), TOWN OF NORTH CASTLE NEW YORK," DRAWING TP-1, DATED DECEMBER 17, 2012.
2. BORING, TEST PIT, PERMEABILITY TEST, AND PERCOLATION TEST LOCATIONS WERE LAID OUT IN THE FIELD BY CARLIN-SIMPSON & ASSOCIATES (CSA).
3. BORINGS (B-1 THROUGH B-11) WERE PERFORMED BY GENERAL BORINGS INC. ON 18 & 19 DECEMBER 2012 UNDER THE FULL TIME INSPECTION OF CSA.
4. THE BOREHOLE PERMEABILITY TEST (BP-4) WAS PERFORMED BY CSA ON 18 & 19 DECEMBER 2012.
5. PERCOLATION TESTS (P-1, P-2, AND P-3) WERE PERFORMED BY CSA ON 3 JANUARY 2013.
6. TEST PITS (TP-1 THROUGH TP-18) WERE PERFORMED BY TRAFICANTE CONTRACTING, INC ON 3 & 4 JANUARY 2013 UNDER THE FULL TIME INSPECTION OF CSA.
7. TEST PITS (TP-19 THROUGH TP-28) WERE PERFORMED BY BRYNWOOD CLUB PERSONNEL IN SEPTEMBER 2013 UNDER THE FULL TIME INSPECTION OF CSA.
8. LOCATIONS ARE APPROXIMATE.

LEGEND:

- BORING LOCATION (DEC. 2012)
- TEST PIT LOCATION (JAN. 2013)
- TEST PIT LOCATION (SEPT. 2013)
- PERCOLATION TEST LOCATION (JAN. 2013)
- BOREHOLE PERMEABILITY TEST LOCATION (DEC. 2012)

ROBERT B. SIMPSON, P.E.
PROFESSIONAL ENGINEER

LICENSE NO. SIGNATURE

BORING & TEST PIT LOCATION PLAN

BRYNWOOD CLUB DEVELOPMENT
NORTH CASTLE, NEW YORK

DRAWN MRA	SCALE 1" = 120'
CHECKED RBS	DATE 16 OCT 13
PROJECT NO. 12-175	DWG NO. FIG -1
APPROVED	

CARLIN-SIMPSON AND ASSOCIATES
61 Main Street
Sayreville, NJ 08872

Consulting Geotechnical and Environmental Engineers

APPENDIX U

CARLIN • SIMPSON & ASSOCIATES

Consulting Geotechnical and Environmental Engineers

61 Main Street, Sayreville, New Jersey 08872
Tel. (732) 432-5757
Fax. (732) 432-5717

Principal:
Robert B. Simpson, P.E.

Associates:
Robert H. Barnes, P.E.
Meredith R. Anke, P.E.
Kurt W. Anke
Eric J. Shaw

7 October 2013

Brynwood Partners, LLC
c/o Corigin Holdings
505 Fifth Avenue, 22nd Floor
New York, NY 10017

Attn: Ms. Megan Maciejowski

Re: Report on Environmental Soil Sampling Services
Brynwood Club Development
Bedford Road
Town of North Castle, NY (12-175)

Dear Ms. Maciejowski:

In accordance with our proposal dated 9 September 2013 and your subsequent authorization, we have completed a supplemental subsurface investigation for the referenced site. As part of this study, soil samples were collected from the landscape debris area to preliminarily determine if the material is contaminated with pesticides.

On 13 September 2013, Carlin-Simpson & Associates collected six (6) shallow soil samples (P-1 through P-6) from random locations within the landscape debris area. The samples were collected at depths ranging from 0'6" to 2'0" below the existing ground surface.

The soil samples were placed into laboratory prepared sample jars. The jars were then delivered to Test America Inc. in Edison, New Jersey under proper chain-of-custody procedures to be analyzed for pesticides, arsenic, and lead. A copy of the laboratory analytical results is attached. The analytical results were then compared to the New York State Department of Environmental Conservation (NYSDEC) Soil Cleanup Objectives for Unrestricted Use (UU-SCO).

The laboratory analytical results indicate that pesticides were not detected in any of the six (6) soil samples. Arsenic and lead were detected in each of the six (6) samples but all of the detected concentrations were well below the NYSDEC UU-SCO. Based on the analytical results, the shallow site soils do not appear to have been impacted with pesticides or metals as a result of the existing landscape debris material. Many heavy metals, including arsenic and lead, occur naturally in soils. The very low concentrations of arsenic and lead are well below the UU-SCO and are likely the naturally occurring background concentrations at this site.

We understand that the landscape debris material will be removed from its current location on the subject property as part of the proposed construction. We recommend monitoring of the material as it is excavated to visually inspect for evidence of contamination (i.e. odors, staining, etc.) and for dissimilar fill materials (i.e. construction debris, ash, etc.). Suspicious material should be segregated for disposal. We also recommend that additional soil samples be collected at deeper intervals as the debris material is removed to verify that the underlying soils have not be impacted as a result of the landscape debris material.

Thank you for allowing us to assist you with this project. Should you have any questions or require additional information, please contact this office.

Very truly yours,

CARLIN-SIMPSON & ASSOCIATES

M. Anke

MEREDITH R. ANKE, P.E.
Project Engineer

Robert Simpson

ROBERT B. SIMPSON, P.E.

File No. 12-175

APPENDIX V

CONSULTING ENGINEERS

Principals
Patrick F. Lynch, P.E.
Steven Abbattista, P.E.
James F. Dolan, P.E.
John Torre, P.E.
Jill Walsh, P.E.

MEMORANDUM

To:	Ms. Megan Maciejowski
From:	Steven Abbattista, P.E., LEED AP
Date:	September 20, 2013
Project:	Brynwood Golf and Country Club
Project No.:	NBRP0001
Subject:	Estimated Fire Flow Requirements

In accordance with our professional service agreement we have reviewed the site plans and preliminary building drawings to evaluate the estimated fire flow requirements of the site. This evaluation was based on the National Fire Protection Association (NFPA) requirements as well as the Insurance Services Office's (ISO) Guide for Determination of Needed Fire Flow.

The first two structures analyzed were the clubhouse and fairway residence buildings respectively. Based on New York State Code, these buildings will require a sprinkler system; therefore, calculations for required fire flow were performed in accordance with NFPA-13 Standard for the Installation of Sprinkler Systems 2007 edition. Water supply calculations were based on the values in Table 11.2.2.1 (Water supply requirements for pipe schedule sprinkler systems). This table may be utilized for determining minimum acceptable water supply requirements for sprinkled buildings prior to a hydraulically calculated system design being performed. We have assumed the lower duration values found in this table in accordance with Section 11.2.2.7 by assuming the sprinkler systems waterflow alarm devices and supervisory devices are electrically supervised and such supervision is monitored at an approved, constantly attended location in accordance with the Fire Code of New York State.

The clubhouse is the largest structure planned for the site and encompasses approximately 67,000 square foot of predominantly light hazard areas as defined by NFPA-13. Water supply requirements for light hazard systems require 750 gallons per minute flow (including hose stream allowances) for a duration of 30 minutes. The resulting minimum required fire flow storage capacity as dictated by NFPA-13 would be 22,500 gallons.

The fairway residence building is the second largest structure and consists of approximately 27,000 square foot of light hazard occupancy with a parking garage located below. The parking garage is considered ordinary hazard occupancy and as such will be the hydraulically most demanding portion of this structure. Water supply requirements in accordance with NFPA-13 will require 1500 gallons per minute of fire flow for a duration of 60 minutes. The resulting required fire flow storage capacity is approximately 90,000 gallons. The above structures represent the largest predicted sprinkler demands based on the site plan and building usage and were modeled in accordance with NFPA requirements.

The club villas were assumed to be non-sprinkled structures and as such, the fire flow requirements for these buildings are different and are based on ISO guidelines. These guidelines aid in estimating the amount of water that should be available for municipal fire protection for non-sprinkled buildings.

50 Broadway
Hawthorne
New York
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Utilizing these ISO requirements, and modeling the villas as one and two family dwellings not exceeding two (2) stories in height, with an estimated minimum separation distance between structures ranging from 11'-0" to 30'-0", the needed fire flow is 1,000 gallons per minute for municipal fire protection. Due to the presence of wood-shingle roof coverings which can contribute to spreading fires, ISO requires an additional 500 gallons per minute of fire flow be added to the demand. This increases the total flow requirement to 1,500 gallons per minute. Unlike the requirements of NFPA-13, the ISO minimum municipal fire flow duration is 2 hours for flows up to 2,500gpm. Therefore the required fire storage capacity is 180,000 gallons for the villas.

Based on the above analysis, the overall peak fire flow for the Brynwood Golf and Country Club Site will be 1,500 gallons per minute. The maximum required fire storage capacity shall be 180,000 gallons. It would possible to reduce the fire storage capacity to 120,000 gallons by eliminating the combustible wood-shingle roof coverings for the structures, however, we recommend sizing the piping infrastructure to handle the peak flow rate of 1,500 gallons per minute based on the NFPA requirements.

Cc:

N. Emmons, AIA - Hart Howerton Architects

B. Roth, P.E. - John Meyer Consulting

I:\Projects\BRP\NBRP0001.00\Docs\water-supply-memo.docx

Memorandum

January 14, 2014

To	John Meyer Consulting, PC		
From	Joseph Awald, P.E.	Tel	315.679.5800
Subject	Hydraulic Analysis	Job No.	8616141

1. Purpose and Scope of Study

In July 2012, GHD developed and calibrated a hydraulic model for the Town of North Castle Water District No. 2 water distribution system in order to examine causes of pipe failures, evaluate system capacity, and develop recommendations for system improvements. GHD recommended that approximately 8 miles of water distribution system piping should be replaced to upgrade aging mains and improve fire flow and pressure throughout the system. Design of the improved system is currently in progress.

The Brynwood Golf and Country Club, located on the west side of New York State (NYS) Route 22, is currently served as an out-of-District customer. A proposed development of approximately 88 residential units, a clubhouse with restaurant area, and a banquet hall is planned for the Brynwood property. This development will increase the water demand for Water District No. 2.

The purpose of this study is to provide a hydraulic analysis of the existing and improved Town of North Castle Water District No. 2 (Windmill Farm) water distribution system with the addition of the projected demands from the proposed Brynwood development. The analysis includes simulations at projected peak demands plus fire flow in order to estimate available pressure at the first connection point on the west side of NYS Route 22. The adequacy of existing water storage volume for various fire flows based on ISO recommended fire event durations was also evaluated.

The scope of this study includes the following model simulations for the existing water distribution system and the improved system:

1. Conduct average daily, maximum day, and peak hour flow simulations utilizing the existing calibrated system model previously developed by GHD for the Town of North Castle based on existing flow data for the Water District plus the projected demands for the proposed Brynwood development. The demand values for the proposed development were provided by John Meyer Consulting, PC (JMC).
2. Conduct simulations at projected peak demand conditions plus fire flow for fire flow values of 500, 750, 1,000, 1,250, 1,500, 1,750, and 2,000 gpm. These flow values were selected by JMC.
3. Identify the available pressure at the first connection on the west side of Route 22 for each simulation.

2. Existing System

The existing Town of North Castle Water District No. 2 distribution system consists of about 8 miles of water main constructed predominantly with four types of pipe: cast iron, ductile iron, asbestos cement (AC), and copper. The majority of the existing pipe network is constructed of AC pipe and is predominantly 6 inches in diameter. The system also includes a booster pump station with a maximum operating discharge of 320 gpm and a 600,000-gallon concrete water storage standpipe.

GHD Consulting Engineers, LLC One Remington Park Drive Cazenovia NY 13035 USA
T 1 315 679 5800 **F** 1 315 679 5801 **E** cazmail@ghd.com **W** www.ghd.com

Existing District Demand Plus Projected Demand for the Brynwood Development

The system was evaluated based on four demand conditions: average daily demand (100 gpm); maximum day demand (260 gpm); peak hour demand (764 gpm), plus the estimated demands and fire flow for the Brynwood development, as provided by JMC. The proposed Brynwood development consists of residential housing and a clubhouse and banquet facility in addition to the existing golf course. The projected water demand for this development was estimated by JMC as follows:

- average daily demand of 22 gpm
- maximum day demand of 44 gpm
- peak hour of maximum day demand (two times maximum day) of 88 gpm

Based on data provided by JMC, projected demand for the Water District plus the proposed Brynwood development would be 122 gpm for average daily demand, 304 gpm for a maximum day demand, and 852 gpm for a peak hour demand. The model can estimate the available fire flow at each system hydrant. A minimum residual pressure of 20 psi throughout the system was specified as a constraint. The model estimates the maximum flow that can be provided at each hydrant without system pressure dropping below 20 psi at any location in the system. Based on the average daily, maximum day, and peak hour demand model simulations, the pressure available at the first junction on the west side of NYS Route 22 and the available fire flow at the hydrant near the Brynwood Golf Course were estimated and are summarized in Table 1.

Table 1 Existing System Junction and Hydrant Results

System Demand	Pressure at Junction on West Side of NYS Route 22	Fire Flow Available at Hydrant Near Brynwood Golf Course
Average daily	47 psi	740 gpm @ 22 psi
Maximum day	46 psi	640 gpm @ 21 psi
Peak hour	29 psi	80 gpm @ 20 psi

Fire flow demands of 500, 1,000, 1,250, 1,500, 1,750, and 2,000 gpm were added to peak hour of maximum day demands at the hydrant near the Brynwood Golf Course. The model identified a negative pressure at multiple locations within the system at these demands. Thus, these fire flow demands cannot be attained under the peak hour condition.

3. Improved System

The improved system is based on replacement of the existing water distribution system and consists of approximately 7.5 miles of 8-inch, Class 52 ductile iron pipe and approximately 1/2 mile of 12-inch, Class 52 ductile iron pipe. This project is currently in the design phase. At the request of JMC, the model of the improved system included improvements to the NYS Route 22 crossing to increase the available fire flow to the west side of Route 22. These improvements consist of replacing the existing 8-inch ACP watermain with a 12-inch DIP watermain.

Improvements to the existing water supply well were also modeled. At the request of JMC, the model input for the existing pumping station capacity was increased by 75 gpm to 395 gpm. The model of the improved system does not include changes to the water storage tank.

Projected Demand and the Improved System

The projected average daily, maximum day, and peak hour demand conditions were modeled on the improved water distribution system. The results of these simulations at the first available junction on the west side of NYS Route 22 and the estimated available fire flow at the hydrant near the Brynwood Golf Course are listed in Table 2.

Table 2 Improved System Junction and Hydrant Results

System Demand	Pressure at Junction on West Side of NYS Route 22	Fire Flow Available at Hydrant Near Brynwood Golf Course
Average daily	47 psi	1500 gpm @ 40 psi
Maximum day	47 psi	1500 gpm @ 32 psi
Peak hour	45 psi	1500 gpm @ 25 psi

Fire flow demands of 500, 1,000, 1,250, 1,500, 1,750, and 2,000 gpm were added to projected peak hour of maximum day demands at the hydrant near the Brynwood Golf Course. The pressure at the junction on the west side of NYS Route 22 was reviewed for each simulation and the results are shown in Table 3.

Table 3 Fire Flow Demands and the Improved System

Fire Flow Demand at Hydrant Near Brynwood Golf Course	Pressure at Junction on West Side of NYS Route 22
500 gpm	41 psi
1000 gpm	35 psi
1250 gpm	31 psi
1500 gpm	25 psi
1750 gpm	21 psi
2000 gpm	16 psi

At fire flow demand above 1750 gpm, the estimated pressure began to drop below the required minimum 20 psi at multiple locations within the system.

4. Water Storage Volume During Fire Flows

Water storage volume should support the peak hour demand by augmenting the pumping capacity and maintaining system pressure during the fire flow demand for a 2-hour duration. The system's existing peak hour demand is 980 gpm. The total volume required for the 2-hour duration would be the peak hour demand plus fire flow demand less pumping. The Water District must also maintain a minimum static pressure of 20 psi throughout the system. The water level in the storage tank must remain a minimum of 42 feet above the base of the tank to maintain static pressure above the required minimum at the highest elevation in the system. The results of this evaluation are shown in Table 4.

Table 4 Available Water Storage During Fire Flow

Fire Flow Demand (gpm)	Total Volume Required for 2-Hour Duration (gallons)(1)	Total Volume (gallons) Minus Pump Output for 2-Hour Duration (gallons) (1)(2)	Usable Storage Volume (gallons) With Greater Than 20 psi(1)
500	160,000	76,000	200,000
1000	220,000	140,000	200,000
1250	250,000	170,000	200,000
1500	280,000	200,000	200,000
1750	310,000	230,000	200,000
2000	340,000	260,000	200,000

(1) Values rounded.
(2) Values with added 75 gpm pumping addition

Based on the usable water storage volume, during peak hour demand, the system supply is limited to 1500 gpm for a 2-hour duration while maintaining a minimum of 20 psi within the system.

5. Impacts of the Projected Flows on the Water Distribution System

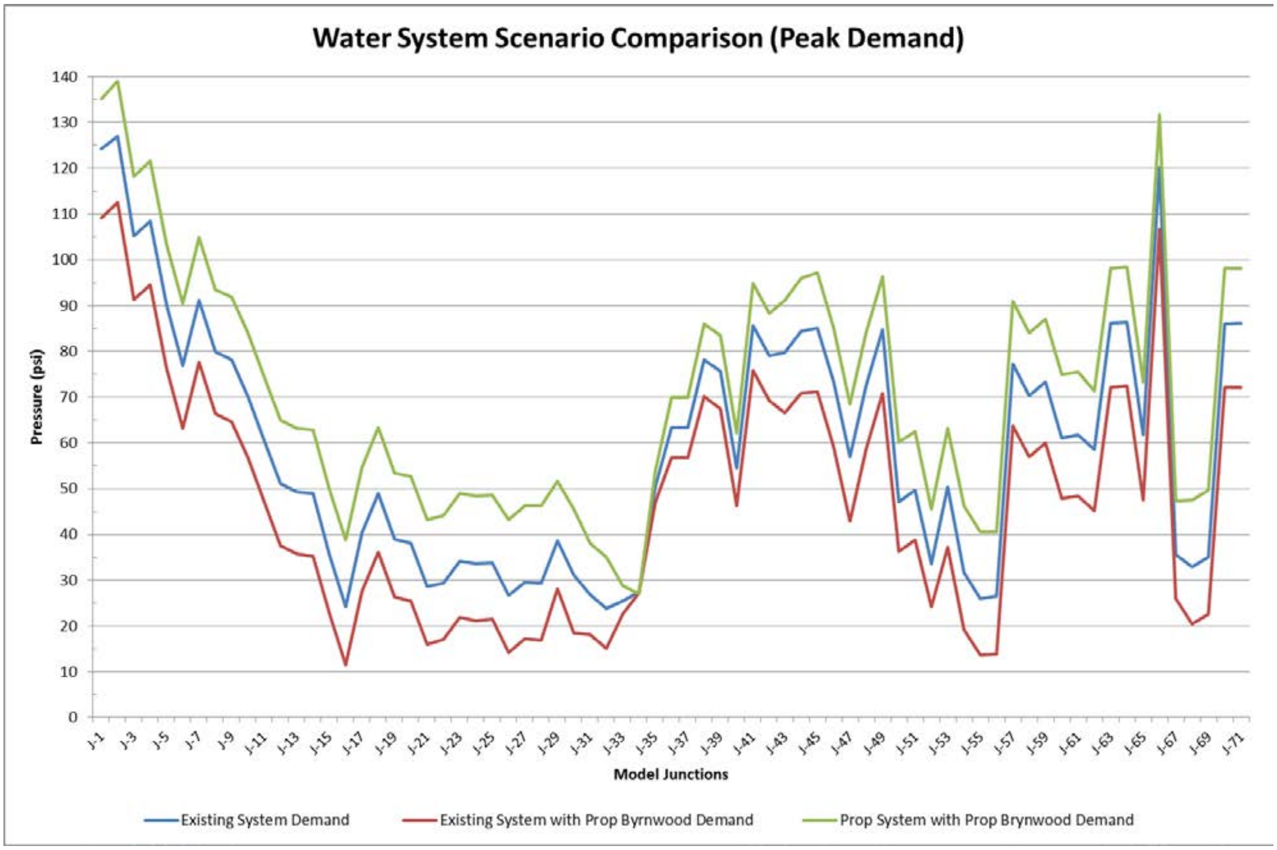
The projected demand for the proposed development was evaluated to review the impact on the entire water distribution system, existing and improved. The model calculates the static pressure which would be observed at the junctions along the system during a given demand condition. *Recommended Standards for Water Works* (Great Lakes – Upper Mississippi River Board of State and Provincial Public Health) requires not less than 35 psi for distribution system piping.

The system was modeled for three demand conditions: the existing and projected peak hour demand on the existing system, and the projected peak hour demand on the improved system. Based on these three conditions, the following observations were made:

1. The static pressure dropped below 35 psi at numerous locations throughout the existing system.
2. With the additional projected demand on the existing system, the static pressure dropped well below the recommended minimum of 35 psi in approximately 1/4 of the system.
3. With the improved system and the additional demand, a limited area near the water storage tank dropped below the recommended 35 psi. The remainder of the system maintained 35 psi or greater.

Graphical results are presented in Figure 1.

Figure 1 System Impacts



6. Conclusions/Recommendations

Based on the existing water distribution system piping with the projected additional demand from the proposed Brynwood development, the pressure at the first junction west of NYS Route 22 could be adequate during average daily and maximum day demand conditions. The pressure during peak hour demand is estimated to be less than the recommended minimum of 35 psi. The available fire flow at the hydrant near the Brynwood Golf Course ranges from 80 to 725 gpm based on these demand conditions.

The model of the improved water distribution system demonstrated the capacity to provide adequate pressure during the average daily, maximum day, and peak hour demand conditions. The modeled system includes the replacement of the existing 8-inch ACP pipe with a 12-inch DIP pipe crossing NYS Route 22 and additional supply and pumping capacity (75 gpm) at the existing pumping station. This upgrade is not within the existing scope of the current design effort and was included at the request of JMC. The available fire flow at the hydrant location near the Brynwood Golf Course was calculated as being capable of providing 1500 gpm based on these demand conditions.

For the improved system, the water storage tank was estimated to have the capacity to support a fire flow demand of 1500 gpm for a 2-hour duration while a minimum of 20 psi is maintained throughout the system (based on the water pumping station maintaining an output of 395 gpm).

JBA/mrv

APPENDIX W

lb/A

55177-2

BROOKSIDE LABORATORIES, INC.

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City ______ State ______

Independent Consultant Troon Golf Date 2/8/2013

Sample Location GREENS			1	2	5	6	8
Sample Identification							
Lab Number			0025-1	0026-1	0027-1	0028-1	0029-1
Total Exchange Capacity (ME/100 g)			5.65	5.55	4.99	4.87	4.46
pH (H_2O 1:1)			7.3	7.1	7.1	6.8	7.1
Organic Matter (humus) %			2.15	2.62	2.20	2.99	2.35
Estimated Nitrogen Release		lb/A	63	72	64	80	67
ANIONS	SOLUBLE SULFUR*	ppm	31	15	15	14	12
ANIONS – PHOSPHORUS	MEHLICH III	lb/A P as P_2O_5	449	495	568	573	357
		ppm of P	98	108	124	125	78
	BRAY II	lb/A P as P_2O_5	568	605	687	733	385
		ppm of P	124	132	150	160	84
	OLSEN	lb/A P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1532	1488	1340	1336	1180
		ppm	766	744	670	668	590
	MAGNESIUM*	lb/A	280	302	256	200	236
		ppm	140	151	128	100	118
	POTASSIUM*	lb/A	222	194	208	182	192
		ppm	111	97	104	91	96
	SODIUM*	lb/A	62	38	44	44	40
		ppm	31	19	22	22	20
BASE SATURATION PERCENT							
Calcium		%	67.79	67.03	67.13	68.58	66.14
Magnesium		%	20.65	22.67	21.38	17.11	22.05
Potassium		%	5.04	4.48	5.34	4.79	5.52
Sodium		%	2.39	1.49	1.92	1.96	1.95
Other Bases		%	4.10	4.30	4.30	4.60	4.30
Hydrogen		%	0.00	0.00	0.00	3.00	0.00
EXTRACTABLE MINORS							
Boron* (ppm)			0.52	0.49	0.40	0.33	0.37
Iron* (ppm)			190	211	151	147	151
Manganese* (ppm)			32	36	23	24	23
Copper* (ppm)			10.39	8.27	8.52	8.32	8.11
Zinc* (ppm)			8.51	7.29	8.67	8.15	6.20
Aluminum* (ppm)			566	524	747	788	475
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	NO_3-N (ppm)		5.8	7.7	8.7	7.3	7.4
	NH_4-N (ppm)		7.5	6.7	6.6	6.3	5.9

* Mehlich III Extractable

lb/A

55177-2

BROOKSIDE LABORATORIES, INC.

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City ________ State ________

Independent Consultant Troon Golf Date 2/8/2013

Sample Location GREENS			10	12	14	18	
Sample Identification							
Lab Number			0030-1	0031-1	0032-1	0033-1	
Total Exchange Capacity (ME/100 g)			4.75	5.27	5.20	5.50	
pH (H_2O 1:1)			6.8	6.8	6.7	6.9	
Organic Matter (humus) %			2.40	2.58	2.46	2.63	
Estimated Nitrogen Release		lb/A	68	72	69	73	
ANIONS	SOLUBLE SULFUR*	ppm	12	11	12	19	
ANIONS – PHOSPHORUS	MEHLICH III	lb/A P as P_2O_5	449	513	554	536	
		ppm of P	98	112	121	117	
	BRAY II	lb/A P as P_2O_5	467	591	614	568	
		ppm of P	102	129	134	124	
	OLSEN	lb/A P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1286	1418	1422	1512	
		ppm	643	709	711	756	
	MAGNESIUM*	lb/A	204	234	190	230	
		ppm	102	117	95	115	
	POTASSIUM*	lb/A	180	206	218	258	
		ppm	90	103	109	129	
	SODIUM*	lb/A	44	38	42	46	
		ppm	22	19	21	23	
BASE SATURATION PERCENT							
Calcium	%		67.68	67.27	68.37	68.73	
Magnesium	%		17.89	18.50	15.22	17.42	
Potassium	%		4.86	5.01	5.37	6.01	
Sodium	%		2.01	1.57	1.76	1.82	
Other Bases	%		4.60	4.60	4.70	4.50	
Hydrogen	%		3.00	3.00	4.50	1.50	
EXTRACTABLE MINORS							
Boron* (ppm)			0.31	0.40	0.33	0.40	
Iron* (ppm)			134	165	151	164	
Manganese* (ppm)			26	25	26	27	
Copper* (ppm)			10.11	10.63	10.41	9.56	
Zinc* (ppm)			9.79	8.99	9.85	7.66	
Aluminum* (ppm)			601	672	809	1045	
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	NO_3-N (ppm)		10.2	6.7	6.6	6.8	
	NH_4-N (ppm)		7.7	6.9	7.8	8.3	

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

55177-2

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City State

Independent Consultant Troon Golf Date 2/8/2013

Sample Location TEES	1	2	5	6	8
Sample Identification					
Lab Number	0034-1	0035-1	0036-1	0037-1	0038-1
Total Exchange Capacity (ME/100 g)	7.64	4.92	10.59	11.08	7.22
pH (H_2O 1:1)	6.8	6.4	6.8	6.5	6.7
Organic Matter (humus) %	4.14	3.59	5.29	5.12	4.67
Estimated Nitrogen Release lb/A	91	86	101	101	97
ANIONS — SOLUBLE SULFUR* ppm	20	21	24	30	15
PHOSPHORUS — MEHLICH III lb/A P as P_2O_5	458	513	1017	1195	408
PHOSPHORUS — MEHLICH III ppm of P	100	112	222	261	89
PHOSPHORUS — BRAY II lb/A P as P_2O_5	605	545	1324	1333	485
PHOSPHORUS — BRAY II ppm of P	132	119	289	291	106
PHOSPHORUS — OLSEN lb/A P as P_2O_5					
PHOSPHORUS — OLSEN ppm of P					
EXCHANGEABLE CATIONS — CALCIUM* lb/A	2052	1238	3358	3202	1924
CALCIUM* ppm	1026	619	1679	1601	962
MAGNESIUM* lb/A	326	170	254	306	334
MAGNESIUM* ppm	163	85	127	153	167
POTASSIUM* lb/A	358	256	192	264	218
POTASSIUM* ppm	179	128	96	132	109
SODIUM* lb/A	50	44	40	42	36
SODIUM* ppm	25	22	20	21	18
BASE SATURATION PERCENT					
Calcium %	67.15	62.91	79.27	72.25	66.62
Magnesium %	17.78	14.40	9.99	11.51	19.28
Potassium %	6.01	6.67	2.32	3.05	3.87
Sodium %	1.42	1.94	0.82	0.82	1.08
Other Bases %	4.60	5.00	4.60	4.90	4.70
Hydrogen %	3.00	9.00	3.00	7.50	4.50
EXTRACTABLE MINORS					
Boron* (ppm)	0.44	0.35	0.44	0.41	0.42
Iron* (ppm)	222	256	225	221	167
Manganese* (ppm)	30	31	22	18	27
Copper* (ppm)	3.44	3.08	3.10	3.21	2.59
Zinc* (ppm)	3.58	4.24	7.53	8.97	4.20
Aluminum* (ppm)	1086	1054	962	1122	998
OTHER TESTS — Soluble Salts (mmhos/cm)					
Chlorides (ppm)					
NO_3-N (ppm)	8.9	5.7	13.3	12.5	8.8
NH_4-N (ppm)	9.0	6.5	6.1	8.3	6.7

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

55177-2

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City State

Independent Consultant Troon Golf Date 2/8/2013

Sample Location TEES		10	12	14	18	
Sample Identification						
Lab Number		0039-1	0040-1	0041-1	0042-1	
Total Exchange Capacity (ME/100 g)		5.73	5.18	4.71	12.78	
pH (H_2O 1:1)		5.9	6.3	6.3	7.1	
Organic Matter (humus) %		4.02	4.54	2.54	5.22	
Estimated Nitrogen Release	lb/A	90	95	71	101	
ANIONS — SOLUBLE SULFUR*	ppm	18	25	11	22	
PHOSPHORUS — MEHLICH III	lb/A P as P_2O_5	563	820	563	1241	
	ppm of P	123	179	123	271	
PHOSPHORUS — BRAY II	lb/A P as P_2O_5	641	2006	756	1676	
	ppm of P	140	438	165	366	
PHOSPHORUS — OLSEN	lb/A P as P_2O_5					
	ppm of P					
EXCHANGEABLE CATIONS — CALCIUM*	lb/A	1258	1300	1274	4304	
	ppm	629	650	637	2152	
MAGNESIUM*	lb/A	192	166	132	282	
	ppm	96	83	66	141	
POTASSIUM*	lb/A	268	260	126	166	
	ppm	134	130	63	83	
SODIUM*	lb/A	40	46	36	38	
	ppm	20	23	18	19	
BASE SATURATION PERCENT						
Calcium	%	54.89	62.74	67.62	84.19	
Magnesium	%	13.96	13.35	11.68	9.19	
Potassium	%	6.00	6.44	3.43	1.67	
Sodium	%	1.52	1.93	1.66	0.65	
Other Bases	%	5.60	5.10	5.10	4.30	
Hydrogen	%	18.00	10.50	10.50	0.00	
EXTRACTABLE MINORS						
Boron* (ppm)		0.29	0.38	0.65	0.64	
Iron* (ppm)		177	212	330	280	
Manganese* (ppm)		19	17	16	20	
Copper* (ppm)		1.87	2.37	2.58	3.97	
Zinc* (ppm)		2.60	3.50	5.83	11.21	
Aluminum* (ppm)		1130	1285	543	618	
OTHER TESTS — Soluble Salts (mmhos/cm)						
Chlorides (ppm)						
NO_3-N (ppm)		9.8	6.1	3.5	7.5	
NH_4-N (ppm)		7.0	5.0	4.5	5.0	

* Mehlich III Extractable

lb/A

55177-2

BROOKSIDE LABORATORIES, INC.

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City ______ State ______

Independent Consultant Troon Golf Date 2/8/2013

Sample Location FAIRWAYS			1	3	4	11	14
Sample Identification							
Lab Number			0043-1	0044-1	0045-1	0046-1	0047-1
Total Exchange Capacity (ME/100 g)			8.23	6.20	5.91	6.21	5.19
pH (H_2O 1:1)			6.0	6.4	6.2	6.4	5.8
Organic Matter (humus) %			4.12	4.34	4.64	4.15	4.46
Estimated Nitrogen Release		lb/A	91	93	96	92	95
ANIONS	SOLUBLE SULFUR*	ppm	19	25	17	18	23
PHOSPHORUS	MEHLICH III lb/A	P as P_2O_5	234	142	206	426	238
		ppm of P	51	31	45	93	52
	BRAY II lb/A	P as P_2O_5	256	202	266	499	298
		ppm of P	56	44	58	109	65
	OLSEN lb/A	P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1818	1534	1386	1488	1062
		ppm	909	767	693	744	531
	MAGNESIUM*	lb/A	358	256	250	270	168
		ppm	179	128	125	135	84
	POTASSIUM*	lb/A	320	262	230	306	264
		ppm	160	131	115	153	132
	SODIUM*	lb/A	48	44	44	48	48
		ppm	24	22	22	24	24
BASE SATURATION PERCENT							
	Calcium	%	55.22	61.85	58.63	59.90	51.16
	Magnesium	%	18.12	17.20	17.63	18.12	13.49
	Potassium	%	4.98	5.42	4.99	6.32	6.52
	Sodium	%	1.27	1.54	1.62	1.68	2.01
	Other Bases	%	5.40	5.00	5.20	5.00	5.80
	Hydrogen	%	15.00	9.00	12.00	9.00	21.00
EXTRACTABLE MINORS							
	Boron* (ppm)		0.67	0.54	0.44	0.44	0.40
	Iron* (ppm)		184	161	130	143	153
	Manganese* (ppm)		46	33	14	21	21
	Copper* (ppm)		2.19	2.60	1.96	1.87	1.75
	Zinc* (ppm)		2.81	2.39	2.56	2.42	1.45
	Aluminum* (ppm)		942	1122	1102	1203	1289
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	NO_3-N (ppm)		28.0	10.4	9.1	18.6	14.3
	NH_4-N (ppm)		11.7	7.1	5.7	8.0	11.8

* Mehlich III Extractable

lb/A

BROOKSIDE LABORATORIES, INC.

55177-2

SOIL AUDIT AND INVENTORY REPORT

Name Brynwood - Troon Golf City State

Independent Consultant Troon Golf Date 2/8/2013

Sample Location		FAIRWAYS	15				
Sample Identification							
Lab Number			0048-1				
Total Exchange Capacity (ME/100 g)			5.46				
pH (H_2O 1:1)			6.3				
Organic Matter (humus) %			4.50				
Estimated Nitrogen Release		lb/A	95				
ANIONS	SOLUBLE SULFUR*	ppm	25				
ANIONS	PHOSPHORUS MEHLICH III	lb/A P as P_2O_5	243				
		ppm of P	53				
	PHOSPHORUS BRAY II	lb/A P as P_2O_5	325				
		ppm of P	71				
	PHOSPHORUS OLSEN	lb/A P as P_2O_5					
		ppm of P					
EXCHANGEABLE CATIONS	CALCIUM*	lb/A	1252				
		ppm	626				
	MAGNESIUM*	lb/A	248				
		ppm	124				
	POTASSIUM*	lb/A	266				
		ppm	133				
	SODIUM*	lb/A	46				
		ppm	23				
BASE SATURATION PERCENT							
	Calcium	%	57.33				
	Magnesium	%	18.93				
	Potassium	%	6.25				
	Sodium	%	1.83				
	Other Bases	%	5.10				
	Hydrogen	%	10.50				
EXTRACTABLE MINORS							
	Boron* (ppm)		0.31				
	Iron* (ppm)		140				
	Manganese* (ppm)		27				
	Copper* (ppm)		2.22				
	Zinc* (ppm)		2.00				
	Aluminum* (ppm)		1320				
OTHER TESTS	Soluble Salts (mmhos/cm)						
	Chlorides (ppm)						
	NO_3-N (ppm)		20.0				
	NH_4-N (ppm)		10.0				

* Mehlich III Extractable

APPENDIX X

U.S. ENVIRONMENTAL PROTECTION AGENCY
TIER I QUALIFIED FACILITY SPCC PLAN

Tier I Qualified Facility SPCC Plan for Brynwood Golf and Country Club

Title 40, Part 112 of the Code of Federal Regulations (40 CFR § 112) requires the preparation and implementation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan for any non-transportation related on-shore or off-shore facility engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products tha t meets the following criteria:

(1) Oil storage capacity of the facility is greater than:

· 1,320 gallons in total aboveground storage (only containers of oil with a capacity of 55 gallons or greater are counted, including equipment containing oil for ancillary purposes such as transformers); and/or

· 42,000 gallons in total completely buried storage (not including completely buried containers and connected underground piping, underground ancillary equipment, and containment systems that are currently subject to all of the technical requirements of 40 CFR § 280 or all of the technical requirements of a State program approved under 40 CFR § 281).

(2) As described in 40 CFR § 112.1(b), Brynwood Golf and Country Club, which due to its location, could reasonably be expected to discharge oil in quantities that may be harmful into or upon navigable waters or shorelines, or into or upon the waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or the Deepwater Port Act of 1974, or that may affect natural resources belonging to, appertaining to, or under the exclusive management authority of the United States. As defined in 40 CFR § 110.3, discharges of oil in quantities that may be harmful to the public health, public welfare, or the environment of the United States include discharges of oil that:

· Violate applicable water quality standards; or
· Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines.

Considering aboveground oil containers with a storage capacity of 55 gallons or greater, the total volume of aboveground oil storage capacity located at Brynwood Golf and Country Club is approximately 7,275 gallons as of June 1, 2013.

The purpose of this SPCC Plan for Brynwood Golf and Country Club is to address all relevant spill prevention, control, and countermeasures necessary to prevent oil discharges to navigable waters and to provide guidance in response to a discharge.

Facility Description

Facility Name	Brynwood Golf and Country Club				
Facility Address	568 Bedford Road				
City	Armonk	State	New York	ZIP	10504
County	Wetchester	Tel. Number	(914) 273 - 9300		
Owner or Operator Name	Corigin Real Estate Group				
Owner or Operator Address	505 5th Ave				
City	New York	State	New York	ZIP	10017
County	New York	Tel. Number	(212) 775 - 1111		

I. Self-Certification Statement (§112.6(a)(1))

The owner or operator of a facility certifies that each of the following is true in order to utilize this template to comply with the SPCC requirements:

I Andrew Thompson certify that the following is accurate:

1. I am familiar with the applicable requirements of 40 CFR part 112;
2. I have visited and examined the facility;
3. This Brynwood SPCC plan was prepared in accordance with accepted and sound industry practices and standards;
4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
5. I will fully implement the Plan;
6. Brynwood meets the following qualification criteria (under §112.3(g)(1)):
   a. The aggregate aboveground oil storage capacity of the facility is 10,000 U.S. gallons or less; and
   b. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 U.S. gallons and no two discharges as described in §112.1(b) each exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism); and
   c. There is no individual oil storage container at the facility with an aboveground capacity greater than 5,000 U.S. gallons.
7. This Plan does not deviate from any requirement of 40 CFR part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping;
8. This Plan and individual(s) responsible for implementing this Plan have the full approval of management and I have committed the necessary resources to fully implement this Plan.

I also understand my other obligations relating to the storage of oil at this facility, including, among others:

1. To report any oil discharge to navigable waters or adjoining shorelines to the appropriate authorities. Notification information is included in this Plan.
2. To review and amend this Plan whenever there is a material change at the facility that affects the potential for an oil discharge, and at least once every five years. Reviews and amendments are recorded in an attached log [See Five Year Review Log and Technical Amendment Log in Attachments 1.1 and 1.2.]
3. Optional use of a contingency plan. A contingency plan:
   a. May be used in lieu of secondary containment for qualified oil-filled operational equipment, in accordance with the requirements under §112.7(k), and;
   b. Must be prepared for flowlines and/or intra-facility gathering lines which do not have secondary containment at an oil production facility, and;
   c. Must include an established and documented inspection or monitoring program; must follow the provisions of 40 CFR part 109; and must include a written commitment of manpower, equipment and materials to expeditiously remove any quantity of oil discharged that may be harmful. If applicable, a copy of the contingency plan and any additional documentation will be attached to this Plan as Attachment 2.

I certify that I have satisfied the requirement to prepare and implement a Plan under §112.3 and all of the requirements under §112.6(a). I certify that the information contained in this Plan is true.

Signature ______________________ Title: Golf Course Superintendent

Name Andrew S. Thompson Date: 6 / 3 / 2013

II. Record of Plan Review and Amendments

Five Year Review (§112.5(b)):

Complete a review and evaluation of this SPCC Plan at least once every five years. As a result of the review, amend this Plan within six months to include more effective prevention and control measures for the facility**,** if applicable. Implement any SPCC Plan amendment as soon as possible**,** but no later than six months following Plan amendment. Document completion of the review and evaluation, and complete the Five Year Review Log in Attachment 1.1. If the facility no longer meets Tier I qualified facility eligibility, the owner or operator must revise the Plan to meet Tier II qualified facility requirements, or complete a full PE certified Plan.

Table G-1 Technical Amendments (§§112.5(a), (c) and 112.6(a)(2))	
This SPCC Plan will be amended when there is a change in the facility design, construction, operation, or maintenance that materially affects the potential for a discharge to navigable waters or adjoining shorelines. Examples include adding or removing containers, reconstruction, replacement, or installation of piping systems, changes to secondary containment systems, changes in product stored at this facility, or revisions to standard operating procedures.	☐
Any technical amendments to this Plan will be re-certified in accordance with Section I of this Plan template. *[§112.6(a)(2)]*	☐

III. Plan Requirements

1. Oil Storage Containers (§112.7(a)(3)(i)):

As described in 40 CFR § 112.2, the definition of "oil" includes oil of any kind or in any form, including, but not limited to: fats, oils, or greases of animal, fish, or marine mammal origin; vegetable oils, including oils from seeds, nuts, fruits, or kernels; and other oils and greases, including petroleum, fuel oil, sludge, synthetic oils (including heat transfer fluids, engine fluids, hydraulic and transmission fluids, metal working fluids, dielectric fluids, compressor lubricants, and turbi ne lubricants), mineral oils, oil refuse, or oil mixed with wastes other than dredged spoil.

Table G-2 Oil Storage Containers and Capacities		
This table includes a complete list of all oil storage containers (aboveground containers[a] and completely buried tanks[b]) with capacity of 55 U.S. gallons or more, unless otherwise exempt from the rule. For mobile/portable containers, an estimated number of containers, types of oil, and anticipated capacities are provided.		☐
Oil Storage Container *(indicate whether aboveground (A) or completely buried (B))*	**Type of Oil**	**Shell Capacity (gallons)**
Aboveground (Agronomy Gas)	Petroleum (Gasoline)	1500
Aboveground (Agronomy Diesel)	Petroleum (Diesel)	500
Aboveground (Golf Ops Gas)	Petroleum (Gasoline)	500
Aboveground (Clubhouse Heating Oil)	Heating oil	2000
Aboveground (clubhouse generator)	Petroleum (Diesel)	1500
Aboveground (WTP generator)	Petroleum (Diesel)	275
Aboveground (Irrigation generator)	Petroleum (Diesel)	1000

Total Aboveground Storage Capacity [c] 7275 gallons
Total Completely Buried Storage Capacity 0 gallons
Facility Total Oil Storage Capacity 7275 gallons

[a] Aboveground storage containers that must be included when calculating total facility oil storage capacity include: tanks and mobile or portable containers; oil-filled operational equipment (e.g. transformers); other oil-filled equipment**,** such as flow-through process equipment. Exempt containers that are not included in the capacity calculation include: any container with a storage capacity of less than 55 gallons of oil; containers used exclusively for wastewater treatment; permanently closed containers; motive power containers; hot-mix asphalt containers; heating oil containers used solely at a single-family residence; and pesticide application equipment or related mix containers.

[b] Although the criteria to determine eligibility for qualified facilities focuses on the aboveground oil storage containers at the facility, the completely buried tanks at a qualified facility are still subject to the rule requirements and must be addressed in the template; however, they are not counted toward the qualified facility applicability threshold.

[c] Counts toward qualified facility applicability threshold.

2. Secondary Containment and Oil Spill Control (§§112.6(a)(3)(i) and (ii), 112.7(c) and 112.9(c)(2)):

Table G-3 Secondary Containment and Oil Spill Control	
Appropriate secondary containment and/or diversionary structures or equipment[a] is provided for all oil handling containers, equipment, and transfer areas to prevent a discharge to navigable waters or adjoining shorelines. The entire secondary containment system, including walls and floor, is capable of containing oil and is constructed so that any discharge from a primary containment system, such as a tank or pipe, will not escape the containment system before cleanup occurs.	☐

As per Westchester County Coding requirement the following options are available to utilized for secondary containment. Due to the size and capacity of our above ground storage tanks Brynwood Golf and Country Club utilizes Option #2.

OPTION 1: Diking

Required for tanks with a capacity greater than 10,000 gallons
Acceptable for smaller tanks

• Dike, liner, pad, pond, impoundment, curb, ditch, sump, receiving tank, vault, basement or room, or a combination.
• Diking must be impervious to product stored. Poured concrete; metal; petroleum compatible plastic or epoxy coating, or any material meeting the standards of NYSDEC guidance document TECH #3. Bare brick or cinder block is unacceptable.
• Diking cannot have cracks, holes or conduits.
• The diking must be capable of containing 110% of the capacity of the largest tank within the diking.
• Diking must be equipped with storm water control. Acceptable devices are a control valve (kept locked in the closed position), manual siphoning or a roofed containment area.
• Rain shields are not permitted for tanks with a capacity greater than 10,000 gallons.

OPTION 2: Alternative to Diking

Acceptable for tanks with a capacity of 10,000 gallons or less

• A fill port spill catch basin is required even if exempted under 873.2515.2.
• An automatic shutoff device must be used for overfill prevention.
• All valves, pumps and other connections must be located on the tank top. Valves must be kept locked in the closed position.
• If the tank is located in a traffic area, it must be protected from vehicles; e.g., traffic bollards, 6-inch concrete vault.
• Tanks installed after 6/23/98 with a capacity greater than 1,100 gallons but less than 10,000 gallons must be double-walled.
• If the tank is located in an area subject to flooding, it must be encased in concrete.
• Rain shields may remain if the secondary containment otherwise meets the above requirements.

NOTES

Wrapped tanks: Weep holes are required around base. The tank must be inspected monthly for leakage and a written log documenting the inspection must be maintained. Additional containment is required if any leakage from the weep holes could impact soil or water.

Vaulted tanks (without access): For tanks installed before 12/27/86 equipped with a vault that cannot be inspected for leakage, an annual tightness test is required. For tanks installed after 12/27/86, the vault must be provided with a means of monitoring for leakage.

Inspections, Testing, Recordkeeping and Personnel Training (§§112.7(e) and (f), 112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)):

Table G-5 Inspections, Testing, Recordkeeping and Personnel Training	
An inspection and/or testing program is implemented for all aboveground bulk storage containers and piping at this . *[§§112.8(c)(6) and (d)(4), 112.9(c)(3), 112.12(c)(6) and (d)(4)]*	☐
As described in 40 CFR § 112.8(c)(6), Brynwood shall test each aboveground container for integrity on a regular schedule and when material repairs are performed. Brynwood shall inspect the outside of the containers for signs of deterioration, discharges, or accumulation of oil inside diked areas. In addition, container supports and foundations shall also be inspected. Brynwood shall combine visual inspection with an integrity testing technique such as hydrostatic testing, radiographic testing, ultrasonic testing, acoustic emissions testing, or another system of non-destructive shell testing. The frequency and type of integrity testing shall take into account the container size and design. Comparison records of integrity testing shall be maintained at the facility for the life of each storage tank. Weekly inspections shall consist of: Check for locks on fill ports and interstitial monitoring ports (as applicable). Check liquid level gauge for proper operation. Inspect tank for corrosion, cracks, damage, and deterioration; and inspect tank area for leaks. Inspect all piping and joints from tank to generator for leaks, excessive corrosion, damage, and other deterioration. Inspect all piping supports from tank to generator for excessive corrosion, damage, and other deterioration. Inspect area near aboveground storage tank for evidence of leaks. Check for spill cleanup materials Verify drain valves for tank are securely closed (as applicable). Check high level and leak detection alarms (as applicable). Inspect containment area for leaks, cracks, and oil stains. Verify drain valves for the containment area are securely closed (as applicable). Semiannual: Verify tank vents are clear of obstructions.	
Inspections, tests, and records are conducted in accordance with written procedures developed for the facility. Records of inspections and tests kept under usual and customary business practices will suffice for purposes of this paragraph. *[§112.7(e)]*	☐
A record of the inspections and tests are kept at the facility or with the SPCC Plan for a period of three years. *[§112.7(e)]*	☐
Inspections and tests are signed by the appropriate supervisor or inspector. *[§112.7(e)]*	☐
Oil-handling personnel are trained in the operation and maintenance of equipment to prevent discharges; discharge procedure protocols; applicable pollution control laws, rules, and regulations; general facility operations; and, the contents of the facility SPCC Plan. *[§112.7(f)]*	☐
A person who reports to facility management is designated and accountable for discharge prevention. *[§112.7(f)]* Name/Title: Andrew S. Thompson, Chris Burnell, Scott Moran	☐
Discharge prevention briefings are conducted for oil-handling personnel annually to assure adequate understanding of the SPCC Plan for that facility. Such briefings highlight and describe past reportable discharges or failures, malfunctioning components, and any recently developed precautionary measures. *[§112.7(f)]*	☐

4. Security (excluding oil production facilities) §112.7(g):

Table G-6 Implementation and Description of Security Measures	
Security measures are implemented at this facility to prevent unauthorized access to oil handling, processing, and storage area.	☐

As described in 40 CFR § 112.7(g)(1), a facility that handles, processes, or stores oil shall be fully fenced and entrance gates shall be locked and/or guarded when the facility is not in production or unattended. SPCC-regulated storage tanks, piping, and fuel dispensers located at Brynwood that are fully fenced with locked entrance gates or doors are located at the Agronomy Department.

For the SPCC-regulated storage tanks and fuel dispensers that are not fully fenced with locked entrance gates or doors, Brynwood provides environmental protection that is equivalent to the protective measures of 40 CFR § 112.7(g)(1) through the use of a 24-hour closed circuit camera system, adequate facility lighting, security locks for the majority of fill ports, and security locks or other security measures for the fuel dispenser pump starter controls. Furthermore, the starter controls are only accessible to authorized personnel. The starter controls for the fuel pumps located on each emergency generator at Brynwood are contained within locked access panels or located within locked rooms.

The starter controls for the fuel dispensing pumps located at Agronomy and Golf Operations' facilities are shifted to the "off" position and locked after each shift at the end of regular business hours. Keys to the locks are provided for authorized personnel only. All fuel dispenser handles are equipped with a lock that prevents unauthorized use of the dispenser, and the key to the lock is maintained inside the Agronomy building and the clubhouse building respectively.

As an added protective measure, emergency push-button shutoff switches are located adjacent to the fuel dispensers at Electric Distribution Operation s Center and General Storeroom. The entrance gates to Agronomy, and the clubhouse building are locked after regular business hours and the facilities are accessible to authorized personnel only.

The facility lighting located at Brynwood is sufficient to assist in the discovery of discharges occurring during hours of darkness and to prevent discharges from occurring through acts of vandalism.

5. Emergency Procedures and Notifications (§112.7(a)(3)(iv) and 112.7(a)(5)):

Table G-7 Description of Emergency Procedures and Notifications
The following is a description of the immediate actions to be taken by facility personnel in the event of a discharge to navigable waters or adjoining shorelines *[§112.7(a)(3)(iv) and 112.7(a)(5)]*:

As described in 40 CFR § 112.8(c)(10), a facility is required to promptly correct visible discharges which result in a loss of oil from the container including, but not limited to, seams, gaskets, piping, pumps, valves, rivets, and bolts. Furthermore, a facility is required to promptly remove any accumulations of oil in diked areas.

Upon discovery of a visible discharge from an oil storage container or piping, Brynwood personnel promptly correct the cause of the discharge, provide documentation on the inspection form, and report the corrective action the Westchester County officials as well as NYSDEC. If accumulation of oil is observed in the secondary containment protocols, the personnel notify the NYSDEC to arrange for a licensed waste transport and disposal contractor to remove the accumulated oil for proper disposal.

6. Contact List (§112.7(a)(3)(vi)):

Table G-8 Contact List	
Contact Organization / Person	**Telephone Number**
National Response Center (NRC)	1-800-424-8802
Cleanup Contractor: National Environmental Specialists	(914) 741-5472
Key Facility Personnel	
Designated Person Accountable for Discharge Prevention: Andrew Thompson and Scott Moran	Office: 914-273-9300
	Emergency: 315-706-1482
Andrew Thompson	Office: 914-273-9300 ext 343
	Emergency: 315-706-1482
Scott Moran	Office: 914-273-9300 ext 341
	Emergency: 914-703-1814
Josh Lowney	Office: 914-273-9300 ext 331
	Emergency: 858-210-0182
State Oil Pollution Control Agencies NYSDEC Hazardous Waste	518-402-8792
Local Fire Department: Armonk Fire Department	(914) 273-3292
Local Police Department: North Castle Police Department	(914) 273-9500
Hospital: Greenwich Hospital	(203) 863-3000

7. NRC Notification Procedure (§112.7(a)(4) and (a)(5)):

Table G-9 NRC Notification Procedure	
In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information identified in Attachment 4 will be provided to the National Response Center immediately following identification of a discharge to navigable waters or adjoining shorelines: *[§112.7(a)(4)]*	☐
• The exact address or location and phone number of the facility; • Date and time of the discharge; • Type of material discharged; • Estimate of the total quantity discharged; • Estimate of the quantity discharged to navigable waters; • Source of the discharge;	• Description of all affected media; • Cause of the discharge; • Any damages or injuries caused by the discharge; • Actions being used to stop, remove, and mitigate the effects of the discharge; • Whether an evacuation may be needed; and • Names of individuals and/or organizations who have also been contacted.

8. SPCC Spill Reporting Requirements (Report within 60 days) (§112.4):

Submit information to the EPA Regional Administrator (RA) and the appropriate agency or agencies in charge of oil pollution control activities in the State in which the facility is located within 60 days from one of the following discharge events:

A single discharge of more than 1,000 U.S. gallons of oil to navigable waters or adjoining shorelines or
Two discharges to navigable waters or adjoining shorelines each more than 42 U.S. gallons of oil occurring within any twelve month period

<u>The following information from Brynwood will be submitted to the RA as well as the NYSDEC:</u>

(1) Name of the facility – Brynwood Golf and Country Club
(2) Andrew S. Thompson – Manager on duty or responsible person
(3) Location of the facility – Armonk,NY
(4) Maximum storage or handling capacity of the facility and normal daily throughout – 7275 U.S. Gallons.
(5) Based on material involved on spill, corrective action and countermeasures you have taken, including a description of equipment repairs and replacements.
(6) An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary – Kept at Superintendents office as well as Facilities managers office.
(7) The cause of the reportable discharge, including a failure analysis of the system or subsystem in which the failure occurred.
(8) Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence.
(9) Such other information as the Regional Administrator may reasonably require pertinent to the plan or discharge.

* * * * *

The owner or operator must meet the general rule requirements as well as requirements under this section. Note that not all provisions may be applicable to all owners/operators.

Table G-10 General Rule Requirements for Onshore Facilities		N/A
Drainage from diked storage areas is restrained by valves to prevent a discharge into the drainage system or facility effluent treatment system, except where facility systems are designed to control such discharge. Diked areas may be emptied by pumps or ejectors that must be manually activated after inspecting the condition of the accumulation to ensure no oil will be discharged. *[§§112.8(b)(1) and 112.12(b)(1)]*	☐	☐
Valves of manual, open-and-closed design are used for the drainage of diked areas. *[§§112.8(b)(2) and 112.12(b)(2)]*	☐	☐
The containers at the facility are compatible with materials stored and conditions of storage such as pressure and temperature. *[§§112.8(c)(1) and 112.12(c)(1)]*	☐	☐
Secondary containment for the bulk storage containers (including mobile/portable oil storage containers) holds the capacity of the largest container plus additional capacity to contain precipitation. Mobile or portable oil storage containers are positioned to prevent a discharge as described in §112.1(b). *[§112.6(a)(3)(ii)]*	☐	☐
If uncontaminated rainwater from diked areas drains into a storm drain or open watercourse the following procedures will be implemented at the facility: *[§§112.8(c)(3) and 112.12(c)(3)]*		
• Bypass valve is normally sealed closed	☐	☐
• Retained rainwater is inspected to ensure that its presence will not cause a discharge to navigable waters or adjoining shorelines	☐	☐
• Bypass valve is opened and resealed under responsible supervision	☐	☐
• Adequate records of drainage are kept	☐	☐
For completely buried metallic tanks installed on or after January 10, 1974 at this facility *[§§112.8(c)(4) and 112.12(c)(4)]*:		
• Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	☐	☐
• Regular leak testing is conducted.	☐	☐
For partially buried or bunkered metallic tanks *[§112.8(c)(5) and §112.12(c)(5)]*:		
• Tanks have corrosion protection with coatings or cathodic protection compatible with local soil conditions.	☐	☐
Each aboveground bulk container is tested or inspected for integrity on a regular schedule and whenever material repairs are made. Scope and frequency of the inspections and inspector qualifications are in accordance with industry standards. Container supports and foundations are regularly inspected. *[§112.8(c)(6) and §112.12(c)(6)(i)]*	☐	☐
Outsides of bulk storage containers are frequently inspected for signs of deterioration, discharges, or accumulation of oil inside diked areas. *[§§112.8(c)(6) and 112.12(c)(6)]*	☐	☐
For bulk storage containers that are subject to 21 CFR part 110 which are shop-fabricated, constructed of austenitic stainless steel, elevated and have no external insulation, formal visual inspection is conducted on a regular schedule. Appropriate qualifications for personnel performing tests and inspections are documented. *[§112.12(c)(6)(ii)]*	☐	☐
Each container is provided with a system or documented procedure to prevent overfills for the container. Describe:	☐	☐
Liquid level sensing devices are regularly tested to ensure proper *[§112.6(a)(3)(iii)]*	☐	☐
Visible discharges which result in a loss of oil from the container, including but not limited to seams, gaskets, piping, pumps, valves, rivets, and bolts are promptly corrected and oil in diked areas is promptly removed. *[§§112.8(c)(10) and 112.12(c)(10)]*	☐	☐
Aboveground valves, piping, and appurtenances such as flange joints, expansion joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces are inspected regularly. *[§§112.8(d)(4) and 112.12(d)(4)]*	☐	☐
Integrity and leak testing are conducted on buried piping at the time of installation, modification, construction, relocation, or replacement. *[§§112.8(d)(4) and 112.12(d)(4)]*	☐	☐

To comply with integrity inspection requirement for bulk storage containers, inspect/test each shop-built aboveground bulk storage container on a regular schedule in accordance with a recognized container inspection standard based on the minimum requirements in the following table.

Table G-17 Bulk Storage Container Inspection Schedule	
Container Size and Design Specification	**Inspection requirement**
Portable containers (including drums, totes, and intermodal bulk containers (IBC))	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas
55 to 1,100 gallons with sized secondary containment	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas plus any annual inspection elements per industry inspection standards
1,101 to 5,000 gallons with sized secondary containment and a means of leak detection[a]	
1,101 to 5,000 gallons with sized secondary containment and no method of leak detection[a]	Visually inspect monthly for signs of deterioration, discharges or accumulation of oil inside diked areas, plus any annual inspection elements and other specific integrity tests that may be required per industry inspection standards

[a] Examples of leak detection include, but are not limited to, double-walled tanks and elevated containers where a leak can be visually identified.

The following table contains our Bulk Storage Containers along with their contents and capacity. Our inspection schedule follows the above schedule.

Oil Storage Container *(indicate whether aboveground (A) or completely buried (B))*	**Type of Oil**	**Shell Capacity (gallons)**
Aboveground (Agronomy Gas)	Petroleum (Gasoline)	1500
Aboveground (Agronomy Diesel)	Petroleum (Diesel)	500
Aboveground (Golf Ops Gas)	Petroleum (Gasoline)	500
Aboveground (Clubhouse Heating Oil)	Heating oil	2000
Aboveground (clubhouse generator)	Petroleum (Diesel)	1500
Aboveground (WTP generator)	Petroleum (Diesel)	275
Aboveground (Irrigation generator)	Petroleum (Diesel)	1000

ATTACHMENT 4 – Discharge Notification Form

In the event of a discharge of oil to navigable waters or adjoining shorelines, the following information will be provided to the National Response Center **[also see the notification information provided in Section 7 of the Plan]**:

Table G-20 Information provided to the National Response Center in the Event of a Discharge			
Discharge/Discovery Date		Time	
Facility Name			
Facility Location (Address/Lat-Long/Section Township Range)			
Name of reporting individual		Telephone #	
Type of material discharged		Estimated total quantity discharged	Gallons/Barrels
Source of the discharge		Media affected	☐ Soil ☐ Water (specify) ☐ Other (specify)
Actions taken			
Damage or injuries	☐ No ☐ Yes (specify)	Evacuation needed?	☐ No ☐ Yes (specify)
Organizations and individuals contacted	☐ National Response Center 800-424-8802 Time ☐ Cleanup contractor (Specify) Time ☐ Facility personnel (Specify) Time ☐ State Agency (Specify) Time ☐ Other (Specify) Time		