

NEWINGTON CONSERVATION COMMISSION

January 24, 2013

Special Meeting

I. CALL TO ORDER

Chairman Block called the Special Meeting of the Newington Conservation Commission meeting to order at 7:00 p.m.

II. ROLL CALL

In attendance:

Philip Block, Chairman
John Igielski, Secretary
Jeffrey Zelek, Vice-Chairman
Andreas Sadil, Member
Kathleen Clark, Member
Alan Paskevich, Alternate sitting for the vacant position

Absent:

Philip Shapiro, Member

Peter Arbur, Chris Greenlaw, Town Engineer, Peter Boorman, Town Attorney and Norine Addis, Temporary Recording Secretary also present.

III. ACCEPTANCE OF MINUTES

Chairman Block: At this point we have minutes pending for January 8, 2013 and January 17, 2013. I ask the Commission if anybody has reviewed them and are prepared to vote on accepting them.

Commissioner Sadil: I thought we did the 8th minutes last, on Tuesday. We did vote.

Chairman Block: So what is your pleasure on the 17th.

Commissioner Igielski: I would be ready to vote on it, and the only comments I have is that on pages 16,19,23 and 35 my name is spelled wrong, but it is still recognizable.

Chairman Block: Anyone else, corrections or revisions?

Commissioner Sadil moved to accept the minutes as amended, seconded by Commissioner Igielski: The vote was unanimously in favor of the motion, with six voting YES.

IV. PUBLIC HEARING

Chairman Block: With that we proceed with the continuing public hearing on Application 2012-22, Russell Road north of Old Highway.

Commissioner Igielski: Mr. Chairman, before you get too far in, I would just like to state on the record that today I received an e-mail from someone and I read the introduction of the e-mail that talked about something else that followed on this matter, so I just ignored it and forwarded it back

to the sender, with a comment to contact Mr. Chris Greenlaw in the Town Engineering Department. I do not know what the context of her further, because she continued rather than having an attachment, narrative.

Commissioner Block: Chris do we have that e-mail.

Chris Greenlaw: Yes we do Mr. Chair, I thought it would be more appropriate during the public hearing, public participation portion of the hearing to give you said e-mail for you to read into the record.

Chairman Block: The communication that John is referring to I also received and I told her to present it to Mr. Greenlaw for inclusion in the record as she felt it appropriate, apparently she has, so we will review that later on and all will share in considering it. With that, I believe the applicant is up.

Attorney Regan: Thank you Mr. Chairman, for the record, Tom Regan, of the firm Brown, Rudnick, LLP, City Place One, Hartford, Connecticut, representing the applicant, Toll Brothers. I think at this point we have four or five follow-up issues, either from the engineering of the new design that we talked about the other night, or follow-up questions that we got from Mr. Logan, so I'm going to turn it over to Mr. Gradwell and let him run through those issues.

Ray Gradwell: For the record, my name is Ray Gradwell, project manager and professional engineer with BL Companies at 355 Research Parkwell, Meriden, Connecticut. On behalf of Toll Brothers we're here in continuance of the public hearing and to address some of the questions and comments from the consultant, REMA Ecological Services....

Commissioner Igielski: Mr. Chairman, I'm having a little difficulty hearing, so I don't know if everyone in the back of the room.....

Audience: The mike isn't on.

Ray Gradwell: The mike is on, on behalf of Toll Brothers we are here as a part of the continuance of the public hearing to address and answer some of the questions of the Commission that we heard on Tuesday night, respond to some of the comments from REMA Ecological Services, and respond to some of the staff comments and questions. Those will include the water budget for water basins number two and three, some bio-swale and bio-retention basins details and calculations, a planting palette in detail in respect to plantings on the site, within the yards and within the buffers, a phasing plan, a phasing plan that shows the flipping of a couple of phases and then some responses to Mr. Greenlaw's questions with respect to drainage and hydrology of the project site.

I like to just take a moment to thank the Commission, Mr. Chairman on behalf of Toll Brothers for working so long and hard with us, Mr. Greenlaw bent over backwards for us also, Mr. Logan and Sij for reviewing our plans with such diligence and CERT, they aren't here right now, just like to thank them too for their very courteous and professional review.

Ray Gradwell: I'll cover the first topic which was the water budget. The Commission had asked us to look at the pre development, post development conditions for wetland number three. Very similar to what we did with wetland number two, wetland number two is located in the center of the site, wetland number three is the small isolated wetland just west of Russell Road. The existing drainage basin area to that wetland is approximately 2.2 acres, the proposed drainage area to that wetland number three is approximately 1.29 or 1.92 acres, roughly the same kind of concentration for both those areas, between 20 and 29 minutes. The water budget for wetland number three worked out very similar to wetland number two. Wetland number two shown here,

pretty much a mirror image between pre and post development conditions. Pre is shown here in a red dash, post development conditions shown here in blue solid. The water budget for wetland number three very, very similar, pre development shown here in red, dashed, post development shown in blue, solid. More or less a mirror image, very slight differences in the early months of the year, very slight on the later months of the year. How we got there, very similar to what we did on wetland number two. We separated the drainage systems from roofs and pavement areas, roofs and pavements will go in different directions. Pavements will go down and will be treated by hydrodynamic separator, and discharged to the storm water pond, where the roofs will drain and discharge to this level spreader located just to the west of wetland number three. The added areas to that wetland hydrologic budget was this dark area, just as we delineated on wetland number two, we added the dark areas and eliminated the lighter area, so the light green will go down be collected by a drainage system, along our street and be treated by a hydrodynamic separator located in that area and then attenuated with a storm water management feature there, whereas the other areas, the lawn areas and roof areas will be collected with a drainage system, a separate drainage system and discharged to a location right there. So that answers that question Mr. Chairman.

Commissioner Sadil: So half of the water is going to go out to the east, and then the last portion will go towards the center where that black.....

Ray Gradwell: Yes, this dark area will drain to that location right there.

Commissioner Sadil: What is that exactly?

Ray Gradwell: It's roofs,

Commissioner Sadil: No, where does it drain to, is that a bio-swale...

Ray Gradwell: It's a collection system, an inlet collection system just like we had up here, so it's a series of yard drains, yard drain, yard drain, pipe, pipe, and then a level spreader located right there. Very similar to what we did on the lots up here, we separated the drainage systems, a drainage system A, for roads, and a drainage system B for lots.

Commissioner Sadil: And the darker green and the lighter green represent, the different types of water that you are treating?

Ray Gradwell: Yes, the darker green is area that we will be including into the drainage basin, just like we did here, this is area that we included going into this direction, this is not included today, this is the drainage basin that exists today, this red line, this area does not go in that direction right now. With our inlets and yard drains, we'll be collecting this area, and directing it to this location. We're doing that because we are diverting this lighter green area away from it, that's the water that is associated with roads and sidewalks that has the heavy suspended solids associated with it. That water will run down the road and be treated by a storm water treatment unit and then further polished in a storm water detention pond.

Chairman Block: The high point for this area, is over here somewhere isn't it?

Ray Gradwell: Correct, Mr. Chair. The high point in the road is located right there, and there is another one located right there.

Chairman Block: So, this is, the road drainage is going to be coming around this way, but this is going to be what, underneath it?

Ray Gradwell: Correct. This system of yard drains will drain back, the pipe right there, and another pipe and it runs there, there's another inlet right there, another pipe, another inlet right there, another inlet right there, crosses the road, and goes into that level spreader located right there.

Chairman Block: Any idea of deep those cuts are going to be now for those trenches?

Ray Gradwell: Drainage will be shallow. Drainage will be shallow, within six feet.

Chairman Block: For both systems?

Ray Gradwell: Yeah, for both the storm drainage that will run down the road and tie into this location there. Drainage is typically run as shallow as possible, minimum cover.

Chairman Block: Right, but this, the road drain, the storm drain in the road, that's going to be underneath the clean water drain.

Ray Gradwell: Correct.

Chairman Block: Do you have any idea of the separation between the two?

Ray Gradwell: We would like to separate them by about a foot. We want to make sure that you don't have pipes laying on top of pipes, creating point loads. We're likely going to look for a foot of separation between a storm water pipe that drains a road versus a storm water pipe that drains the yard.

Chairman Block: I would suggest the detail as to an impervious membrane between the two, like you did between the sanitary sewers.

Ray Gradwell: Any other questions regarding the water budget for wetland number three?

Commissioner Zelek: I just want to know, and maybe REMA can respond to this, the water budget for wetland number three looked like it was less than what it receives today in the springtime, and I think the spring is the most important time of year for that if it is a vernal pool and I think there is activity in that pool in the spring? So, post construction, it looks like the water budget is a bit less in the spring time so....

Ray Gradwell: It's almost incalculable less, the margin of error less. It's .5 acre feet and .5 per two acre feet, it is less, I'm not going to argue about that, but is very little less.

Commissioner Zelek: I just want to hear from REMA what they think the impact will be. Another question that I had was so we're going to have a discharge and it looks like it is somewhere between basin two and basin three. Can you give us an approximation of how many feet from each basin it is?

Ray Gradwell: This basin right here is located right there, this is the fifty foot buffer, this is the hundred foot buffer, so it is right on the hundred foot line, maybe about 105 feet away from the wetland number three. From wetland number two, you have a fifty foot, 100 foot, 150, we're talking about 300 feet to the east from wetland number two.

Commissioner Zelek: Okay. In the homeowners association or in the project, are you going to allow for pools to be built on this property?

Ray Gradwell: That's a question for Toll Brothers and.....

Attorney Regan: For the record, we will restrict pools in the home owners association.

Ray Gradwell: Some of the yards are pretty small.

Attorney Regan: And as I was going to say, after the last hearing, looking at the revised site plan and the practical matters of putting pools in there, Ray is correct, we are not talking about large yards here, so it would be pretty hard to fit a pool in there anyway, but we will restrict it.

Chris Greenlaw: Mr. Chair, point of clarification on the level spreader, that collects the yard drains, the dark area in green outlets, please explain where the water will go, will it just stay in one watershed?

Ray Gradwell: Good question Chris. That water is just to the east of the ridge line. The water on the ridge line there will drain west, to wetland number two, the water to the east of that ridge line will drain east to wetland number three. We are anticipating locating this outfall so it drains east to wetland number three. Good question, that's the reason that we located it there, we didn't want to put it here, then the water budget doesn't really make any sense doing it that location, if you put it west of that line.

Chairman Block: So that's really a drawing aberration.

Ray Gradwell: Yes.

Commissioner Igielski: Mr. Chair, if I may ask Mr. Regan, you mentioned the pools will be restricted. Can you be more, or stronger to say that they will be prohibited? Because restricted, I get the sense that they will be allowed, but maybe the size will be kept to a small level.

Attorney Regan: Prohibited is fine.

Commissioner Igielski: Prohibited.

Attorney Regan: Yeah, restricted and prohibited were the same in my mind, we don't intend, we will make the home owners documents declare that there are no pools.

Commissioner Paskevich: So that includes above ground, below ground, and these small pools that people just buy at the local Home Depot, they are not permitted, they're inflatable.

Attorney Regan: I mean, pools are pretty clear, in ground or above ground pools. A hot tub on a deck is pretty hard, I'm not sure it is the same issue.

Commissioner Igielski: I think the intent perhaps is that any pool, whether it is above ground, in-ground, that might require chemicals to maintain it, as opposed to the kiddie pool....

Attorney Regan: The kiddie pool that you fill up with water out of your hose for your kids, I think that is not the problem. We understand that above ground pools and in-ground pools would have chemicals in them we can restrict and prohibit and we will.

Ray Gradwell: The second question that was asked was to provide a little bit further detail with respect to the bio-swale and the bio-retention details, as Mr. Logan and REMA had asked us to look at, so we detailed each one, bio-swale one through six and bio-retention areas located down in there. We created a table with the required water quality volume and actual water quality

volume, actually drawn on the plan as proposed and then we have a typical section for a bio-retention basin, a bio-retention basin in a cut area, and a bio-swale section. Those are drawn with a sandy, fine loam, planted and under drain system that would drain out of the basin and keep the thing dry. We also revised and added another water stop detail at the request of REMA Ecological Services, another additional water stop detail on the top of the trench that will prevent water from flowing down through the soils and into the gravel that is associated with pipe vetting and then linear along that pipe length to the horizontal water stop, so this is a vertical water stop, stopping water from going vertically. It's located right there at the top of the trench, or right at the interface between the soil and the rock excavation associated with a utility line.

Chairman Block: Ray, that number there, is that an absolute number or does that just represent from a distance above the crushed rock to the top of ledge?

Ray Gradwell: That number right there is an absolute number, it's twelve inches.

Chairman Block: Okay, then the question is, is the porous material going to extend up to twelve inches of the top of ledge, and then the water stop or is it going to be say inches of rock above pipe and then impervious material to the top of the ledge?

Ray Gradwell: The water stop is going to be installed at, so if this pipe was down here, the water stop is going to be installed right at the interface of the rock and soil so we are preventing the water from running through the subsoils or the over burden on the rock and into the pipe trench bedding.

Chairman Block: So what is that number?

Ray Gradwell: Twelve inches, and how that is going to be built, the pipe is going to be bedded in excavation, bedded in typical bedding materials, be a filter fabric placed on top of the bedding, twelve inches of a clay betonite material placed will be placed on that filter fabric. The filter fabric will act as a separation fabric, it will keep the betonite from intermingling with the gravel bedding associated with the construction, and then that filter fabric will be wrapped over, and then further soil can be placed on top of the trench. That will act as a stop, a vertical stop for water mingling vertically within that trench.

Commissioner Paskevich: Mr. Gradwell, I can't really read this, and that's okay, but I'm looking at something that I can't see here, closer to me. What is the depth of the soil media that is going to be placed there.

Ray Gradwell: This part, is that what you are talking about?

Commissioner Paskevich: The total depth of the soil media that is going to.....

Ray Gradwell: The soil media could vary depending on the depth of the utility construction so depending on the depth, where this utility is constructed, the soil media above this water stop could vary and it's based on the test pits that we have done on the site, and it will be based on where that pipe, be it a conduit for sewer or a conduit for drainage is located vertically, and then it will be cross checked where that rock interface is with that soil media.

Commissioner Paskevich: The reason I'm leading to that question of depth is based upon total suspended solids and the removal of them and based on this study by TDP Mass Specs in Vermont, they call for thirty inches of soil media to reduce the amount of suspended solids that are left, leaving, which would give us a ninety percent, and what does your calculation produce?

Ray Gradwell: I think you are referring to the bio-swales, in the bio-retention areas in respect to filtering out that.....

Commissioner Paskevich: This is not that?

Ray Gradwell: No, I'm describing the water stop in the trench itself, and you are describing the filtering method that the bio-retention would provide, or the bio-swale.

Commissioner Paskevich: Are you going to be going to that point?

Ray Gradwell: I hit that already, but I can describe it a little further. Your question is regarding how many inches of soil and filter material we would be providing. We have a twenty-four inch depth of a fine sandy loam, and then another twelve inches of material, so it is a thirty-six inch section that that water will filter through vertically before it ends in daylight.

Commissioner Paskevich: All right. Thank you.

Commissioner Clark: I have two questions. So if the water, if it's not going vertically, where is, is that so it goes horizontally?

Ray Gradwell: The water in the trench?

Commissioner Clark: Yes.

Ray Gradwell: The water in the trench, we want it to flow in its natural conditions so we're going to prevent it from going vertically in the trench because if it goes in the trench, it's likely going to follow, the pipe is bedded in a usually very, very granular material, very open and water flows through it very, very easily. So if it gets to a piped trench, it will flow along the conduit and the conduit, it's set on the slope of the road, and it will flow along the conduit and will leave the site ultimately. So what we are providing is preventative measures to prevent that from happening so water in the subsoils will hit the water stop when it gets to it when it is above a trench or if it's not it will just filter through naturally. If it filters through, and then it will run back, above the bedrock and filter into the bedrock where it could, very, very slowly of course because bedrock is very, very tight, this type of bedrock is very, very tight, but we are allowing it to flow more naturally around, over the site and back into the bedrock where it can get back into the bedrock.

Commissioner Clark: I have one more question and that's what is the life span of the filter fabric?

Ray Gradwell: The filter fabric life span, I would think you would easily, easily get fifty, sixty years. In that area, and once again that pipe, every pipe will be bedded, inspected, I think that Mr. Greenlaw has asked for us to put some notes on the plans that the water stop is actually being inspected as each water stop is being constructed, so we have those notes on those details. So as each water stop is being constructed, whether it is a horizontal or a vertical water stop an inspector will be out there visiting the site, making sure it's placed per the construction detail.

Chairman Block: Ray, on the water stop, I haven't had much experience with them, I'd like to hear from you where you have had experience with them, I'm particularly concerned because in field practice, field of septic, a twelve inch layer often varies between eight and fourteen or sixteen, and in this area it is relatively critical that it match up with the top of ledge. Quite frankly, is twelve inches enough?

Ray Gradwell: I believe twelve inches is enough, and we have used this type of installation in (inaudible). Installation where you have hazardous contaminated ground water, and you want to prevent that from co-mingling somewhere else. Benite clay, or a clay is nearly impermeable. It takes days, months, years, for water to actually penetrate a benite clay layer, and a twelve inch layer is almost nearly impermeable. So, and that is where it is used, it's used to control water, it's used as a cutoff, it's used in a trench if you want to try to de-water an area behind it, it's used quite regularly in the environmental industry.

Chairman Block: So given the plus and minus, twelve is enough?

Ray Gradwell: Yeah, twelve inches is enough for this type of installation.
Any further questions on the bio-retention or bio-swale or water stop detail?

Chris Greenlaw: Would you also explain, for the benefit of the Commissioners, now you have explained that you don't want the water to follow the trench, and you are putting the benite layer there because there was a question of the ground water such that when these trenches run perpendicular or they exit a watershed, do you want to explain why you're putting that layer in there? So now the water won't follow the pipe, what is the benefit? Why are we doing that?

Ray Gradwell: I described that a little bit Mr. Greenlaw, but I can describe, what we want to do is we want to keep the water that is flowing vertically through the soil that's on top of the rock, on top of the basalt, the columnar basalt, we want to keep it flowing in its natural condition, so as it flows through the ground, it's going to flow vertically and as it hits a restrictive layer, such as bedrock, it will flow on the bedrock to a vertical crack or joint in the bedrock, so that's, we're mimicking that, rather than if that bednite layer water stop wasn't there, it would flow across the bedrock, flow down through the soil, hit the bedrock, flow across the slope of the bedrock and drop into the trench. Then you would lose it completely, it would flow along the pipe of the trench and then it would pop out somewhere. So what we are doing, we have a water stop vertically along the pipe and a water stop horizontally along the pipe to make the water mimic the existing conditions as it hits that water stop and keep it flowing on the bedrock and allow it to flow into the vertical joints in the bedrock.

Commissioner Sadii: To eliminate the flashing that Mr. Logan was referring to in a previous meeting.

Ray Gradwell: I believe, there was a question from one of the Commission's members, I think it was Alan, he had asked about the rock processing equipment and where we could place them?

Commissioner Paskevich: Yes, thank you.

Ray Gradwell: So what we did, we went back to the office, located plans, grabbed them and kind of walked around the site and kind of located the processing equipment located here Alan. Phase one, we located that processing equipment to the north of our storm water pond, and as far east from wetland number two as possible. It's right adjacent to Russell Road, so that is where we are going to place that processing equipment. I put on in each phase, because as you open up and start constructing each phase that equipment is likely going to move to the next phase. So the next phase is phase two, and we flipped those phases on Mr. Logan's and REMA's recommendation. Our proposal before was phase one, phase two, phase three, phase four, we flipped those phases per REMA's recommendation, we have phase one, phase two, phase three and phase four. So the location for the rock processing equipment for phase two will be placed as far north as we possibly can.

Commissioner Paskevich: Can you point, you know, just....

Ray Gradwell: The little circle with the little square. The square would be the processor, the little circle would be the pile associated with the processor.

Commissioner Paskevich: And phase one again is located where?

Ray Gradwell: Phase one right there.

Commissioner Paskevich: And phase three?

Ray Gradwell: Phase two, phase three located right there.

Commissioner Paskevich: What is the approximate distance from that location to the wetland.

Ray Gradwell: Well, the 150 foot buffer is right there, another 150 feet, you're talking 350 feet to the southeast.

Commissioner Paskevich: Thanks for the consideration.

Ray Gradwell: It was a good question, and we have located on the fourth phase as far north and west as we possibly could, to get that equipment as far away from the resources as possible.

Chairman Block: I know it's none of our concern, but is this is phase one, you are going to be selling those houses while phase two is being built, that's fine, but then you come down here to phase three, and they're going to be four or five hundred feet from the rock crusher. With those new occupants, are you going to be able to hold having it here in the face of your customers?

Ray Gradwell: That's what we are proposing in the plans, that's what we are going to do.

Commissioner Sadil: And I believe phase three is where most of the blasting is going to occur, right, I remember a previous chart shows the rock.....

Ray Gradwell: Phase three is pretty much, these are fill yards, and some rock excavation for the pond itself just on the back side, and there is some light rock excavation on the east end. There's the rock excavation, we placed it in a field so that we can move it readily to the next phase when we get there.

So we talked about flipping the phases and the processing of the rock material on the site and the last thing, I do want to touch on two things, the question arose from REMA Ecological Service in respect to planting on the site, how we are going to plant in the storm water management areas, how we are going to plant in the bio-retention, bio-swale areas, how we are going to plant yards that abut yards, how we are going to plant yards that abut rear yards and how we are going to plant yards that abut the forest. So we went back to the office the landscape architect and myself talked about creating five typical palates to do these planting installations. We have a planting installation for a storm water pond, with a key and a legend for the typical plants that you would plant there, we have plants typical for a bio-retention area, located here and shown there, we have plants associated with a bio-swale area and shown there in plan view, we have plants associated with a yard that abuts the open space area there, so we have some trees and some shrubs associated with that, and lastly, or second to last, we have a yard abutting a yard, a linear area so we have a kind of a screen planting between 42 and 41 and then there was some discussion about trying to get some re-forestation on the site, so this was a pretty open area, between the back yard to back yard so we are proposing a stand of trees back there, and that planting palate is located back there. We have six planting palates that will associated with the project site as the project site is developed. Then we have a planting detail for how planting

trees, shrubs, be planted when you have rock and shallow soils. That is the detail located right there.

Chairman Block: Ray, I notice that I don't see any dimensions in here and obviously I can't read the species that you are proposing, but I am concerned that given the blasting that is going to occur primarily over this area that I, I'd like some assurances from the arborist that that is going to be enough usable soil for the tree to utilize.

Ray Gradwell: I knew that question was going to be asked Mr. Chair so I brought my, I always said I've got a landscape architect, I have a landscape architect, so I brought him here today, so he does exist. He's there with the white shirt, Jim, do you mind coming up here for a second.

Jim Fielding, BL Companies: We've had experience in these conditions before with some of the ledge excavation, there is some soil that is going to have to be put over this area, and in the areas where we are going to be installing plant material we're going to have to do some excavation of rock to make sure that we get a good two feet in depth. Basically the plant material that we are going to be installing, the root balls will be about two feet, even in depth, and some times more shallow if we are just installing shrubbery but typical deciduous tree planting, evergreen plantings are going to have a two foot deep root ball.

Chairman Block: What species are you talking about, let's say for this area and what adult size are we talking about.

Jim Fielding: Those are all native plantings in those zones, we've got a black birch, we've got a pin oak going in there, sugar maple is one of them.....

Commissioner Paskevich: I have the list here in front of me, your landscape plant schedule, you're probably looking at the same thing. I have the same question.

Chairman Block: Some of the species that you are talking about, and by the way, I applaud the fact that these details have been added and those species, but they are still talking about 30, 40 foot trees when they mature, correct?

Jim Fielding: Yeah, they'll vary depending on the species, but yeah.

Chairman Block: And they will have a canopy, the maple is going to be what, twenty, thirty feet.

Jim Fielding: Correct.

Chairman Block: Now my college botany says that the extent of the root feeders is normally approximately the same as the canopy.

Jim Fielding: They can extend a little beyond that.

Chairman Block: So, if you are talking about, and you're even showing something to that extent here, but I didn't hear that in the dimensions that you just mentioned. Where we are talking about contouring this property, would it be most advantageous to the trees if this was sort of a trench, say twenty, thirty feet wide, and the length of the property so that would be shattered if you will, and refilled with soil materials so they would have large area so they could reach for the forest.

Jim Fielding: I think that is a pretty good idea in that zone where we are doing heavy re-forestation, it's probably good yes, to make sure that there is a decent width of depth in that zone.

Chairman Block: So when you finish up, if you could revise the details....

Jim Fielding: Sure.

Chairman Block: It would make it an optimal environment.

Jim Fielding: We can add some specific notes to that.

Commissioner Paskevich: I have a question as to the list. I have a publication, Urban Tree Selection Manual that was put together by UConn and some other individuals of authority and one of the trees, the sugar maple, arrowhead, you are planning on planting nineteen of them according to the list. That is what is states here on your landscape list.

Jim Fielding: Okay, is it the original?

Commissioner Paskevich: Let me finish.

Commissioner Clark: I just want to know, do we have this list? So we can refer to it as well.

Commissioner Paskevich: It's in the plans.

Commissioner Clark: It's in the plans, okay, great.

Commissioner Paskevich: Where are these going to be planted, the nineteen sugar maples?

Chairman Block: Excuse me but....

Commissioner Paskevich: I'm leading to something....

Chairman Block: I know you are and I appreciate it, but just a clarification say, I believe the schedule that you are referring to is attached to the prior version and I'll let Chris, correct me if I'm wrong, but I don't think we have the background information for the new version which shows this planting detail.

Commissioner Paskevich: I'm going to refer to the tree itself, the sugar maple. In this publication, trees omitted from the manual, sugar maple. Problem: Although a wonderful addition to community plantings it is too sensitive to road salts, heat, drought and soil compaction to be located close to roadways. That was my point. So one location is detrimental to the tree.

Jim Fielding: I think we had some sugar maples that were originally proposed along the roadway, street trees, so we could evaluate that and come up with an alternate for those locations, but we are proposing sugar maples within these zones, either at the rear property lines, side property lines, and in some of the bio-retention, bio-swale areas.

Chris Greenlaw: So this list of species, was that run by REMA, I think at the last meeting they had about a dozen species that they felt would be appropriate for the site if you were going to try to naturalize it.

Attorney Regan: We have provided a list to REMA and I think George or Sigrun are going to comment on that, but we did run a list by them that I believe they will comment on.

Ray Gradwell: We did have the opportunity to review REMA's comments with respect to our planting palette and got all those changes into the plan that I am going to distribute to staff tonight. We worked on this all day, and got those comments into the plan tonight.

Jim Fielding: Along with the seed mixes.

Ray Gradwell: Along with the seed mixes.

Commissioner Paskevich: I do have to expand on it, and you did take into consideration the tolerance of difficult situations, one being salt tolerance, wet soils and partial shade for the other species, so I recognize the knowledge for taking those into consideration for this site.

Jim Fielding: We can review the Connecticut Street Tree listings to make sure what we are planting there meets that list and we'll look at some other sources too because they may not have the most accurate information sometimes.

Commissioner Paskevich: Thank you.

Commissioner Clark: How big are these trees that you are putting in?

Jim Fielding: At the center planting?

Commissioner Clark: Correct.

Jim Fielding: We are proposing to do a plant basically four, four and a half inch calipers, at breast height, and that is for the yard abutting the yard, the re-forestation section over on the right hand side. There are some other trees that are smaller in nature where we have a smaller size, two inches to two and a half inches in caliper and that is just because it's hard to find a plant availability in a much larger size for some of the native plantings and smaller plantings.

Commissioner Clark: For example a pin oak, can you give us an idea of a pin oak of a four inch caliper, how tall is that.

Jim Fielding: Sometimes they are pretty tall, they would come in a good fifteen feet in height, sometimes a little higher, eighteen feet.

Commissioner Zelek: Probably a question for Attorney Regan, who would be responsible for the maintenance of these trees, is it the homeowners or is there going to be a landscape, who would be responsible for trimming them, maintaining them? My concern is, once planted the homeowners decided that they are a threat or what and they want to cut them down.

Attorney Regan: Two answers to that, one as I said the last time, the homeowners association for all landscaping, that will include the trees and as part of our prior discussions with Wethersfield, one of the prohibitions included a declaration to resolve some of the Wethersfield issues since there is a fairly substantial prohibition and punitive fines should a home owner cut down a tree. So the homeowners are prohibited from cutting down a tree. In fact, there is actually fairly significant consequences if they do cut down a tree.

Commissioner Zelek: Okay, so I understood that that agreement was for the buffer area along the main road, I just want to make sure that agreement also carries over to the rest of the property?

Attorney Regan: We can do that. I hadn't looked at that, I think the cutting down of the tree prohibition is across the property so we can definitely accommodate that.

Commissioner Zelek: I think a prohibition like that would be very pleasing to this Commission.

Attorney Regan: That's not a problem.

Commissioner Clark: Attorney Regan, could you walk me through, a home owner cuts a tree down, what happens, who is responsible?

Attorney Regan: In the event that a home owner violates, the home owners association will have the ability to take action against the home owner, if the home owner does not comply, the home owners association would have the ability to lien that lot. So any damages that were calculated if the home owner did not comply with the terms of the declaration and pay the penalty, or put back the tree, there is a significant prohibition if you cut down a tree you have to replace it with a like kind of tree as you can find. If they didn't do that, the home owners association would do it and they were merely fine the property owner, if the property owner didn't pay it, they would then lien the lot, so there is absolute ability to hold the homeowners responsible.

Commissioner Clark: Who pays for the, what kind of dues so to speak are levied on the homeowners continuing to pay for attorneys that are necessary to make sure all this took place, I assume that would be needed.

Attorney Regan: That is typical in a homeowners association budget. You do a budget each year and it would generally be calculated in that to determine the fees. This will be a fairly active home owners association because it will be taking care of landscaping across the property. It also will be taking care of, as I said the last time, plowing all of the driveways, so this will be a fairly active home owners association with budgeting powers and the like.

Commissioner Clark: And is that area in the middle those trees are on specific lots, there is no common area down the middle?

Attorney Regan: No, that's correct, they are on specific lots and that's why in this instance we are going to provide the landscaping for the entire project.

Chairman Block: Attorney Regan, in the same vein, I think that, I don't know if I asked this question the last time, but now that a large part of the center of the subdivision is going to be open space deeded to the town, have you given any thought as to the interaction of the maintenance balance between the association and the town lands as far as whatever might be needed there over the years.

Attorney Regan: I haven't given, since I have only seen this changed plan since Monday, no, I haven't given any thought to that, but obviously as part of the process that we will go through dedicating the open space to the town, and we'll talk about that later, we would have to negotiate all that out with the town, so with regard to the dedication and turning over that property to the town, and conservation easement and the like, I'm sure that can be accomplished.

Chairman Block: Please, balance it out at that point.

Attorney Regan: We are going to be, at this point, in the event that the project goes forward, we are going to be dedicating over 45 acres of open space to the town in perpetuity. That in and of itself is not an insignificant transaction, and it is going to take us, we'll have to work with the town to do that dedication, make sure everything is in place for that.

Chairman Block: I deeply appreciate the commitment.

Commissioner Paskevich: I have another question. Going back to your tree list, you have deciduous listed and have evergreens listed and one of the evergreens of fifteen in quantity is a white pine. Where are we going to plant those white pines?

Jim Fielding: Well, they are kind of sprinkled throughout some of the areas.

Commissioner Paskevich: Well, let me be specific. Are they going to be on the properties of the homes?

Jim Fielding: I believe that just about all of them will be on individual properties probably with the exception of some of the storm basins. Those areas are outside of the actual individual....

Commissioner Paskevich: The reason I ask where on the property because white pine is, under the risk assessment list for evaluation for breaking in storms, wind, water and ice. It's one of the trees that is higher on the list for damage to properties and we have to look at targets, where we place them, I'm sure you considered that. I just want to make sure that whoever is putting them in pays attention to that.

Jim Fielding: They are basically located away from the residential homes, we're not placing them near the streets, they're being used as the restoration forest line as shown over on the right hand side, and then we are also using them to act as some screening so I think they are on the outskirts of the individual property. I do agree with you there, it's a soft wood so you do have some limb damage, but it is one of the few native evergreen trees that is available, and it's a faster grower.

Commissioner Paskevich: Yes, I agree.

Chris Clark: Mr. Chair, if I will, the question I have is, I know years ago they used to, at UConn they had something called Dr. Waxman's wishbrooms and they had the white pine as a genius species that grew very fast, very tall, and there are various (inaudible) that perhaps you could look into and give the Commissioners some comments and credence and look at those that don't grow as high that have that more compact branching habit that are stronger, that would still thrive in that soil type perhaps.

Chairman Block: Thank you very much.

Ray Gradwell: Moving on, we've covered the water budget, we covered the bio-swale and the bio-swale details and calculations that were provided to REMA and Mr. Greenlaw, and we have also looked at the planting palates and details that Jim had just mentioned, and the phasing and the rock processing for the locations, and then flipping of phases as discussed and requested by Mr. Logan.

I would like to bring Jim up one more time to talk about what we did around this wetland basin number three. We visited the site yesterday, a very, very frigid day to visit a site, and walk around the woods, but Jim and staff visited the site yesterday to look at this area, this was a concern of Mr. Chairman for us to look at and we went out there, visited the site, took inventory of what is out there, took a bunch of pictures, and Jim, if you want to describe it?

Jim Fielding: We took a site walk yesterday just to document some of the existing trees surrounding the wetland, and basically took some snapshots from the two storm basins and just looking up in the upper left here, we noticed an American Elm which was probably the largest, most significant tree out there. Seemed to be about thirty inches in diameter, but beyond that, there were mainly a lot of young trees surrounding the area, a couple damaged trees out there such as a red oak on the left hand side there and another American beech that was damaged

top, it looked like it was from the most recent storm that we had, but those were, the red oak, beech, and the elm, those were pretty much the three that were significant size trees out there. The rest were fairly young, saplings and over on the right hand side is just an image, the top right is just an image of the forest character that is out there. The middle photo is a shot from Russell Road and a lower photo is of a Black Beech and Red Oak. There are a lot of Black Birch that are growing in the area. So basically that is kind of the make-up of the vegetation right around there and after our site visit we wanted to kind of add to that you know, forest with some additional deciduous trees along the border of the basin areas just to reinforce the forest edge, and we have included the landscape schedule above the graphic so we're planning on installing Sugar Maples, another American Beech, Black Gum, Pin Oak, Red Oak, and some American Elm.

Commissioner Paskevich: I read that the American Elm that you are possibly planting is a Japanese variety?

Jim Fielding: No, there is a Delaware Valley variety that is disease resistant and that is probably the most common readily available.

Commissioner Clark: I notice that you are planting Calorie Pear and I've read recently about Calorie Pear that they are, that they are not recommended any longer, they are overdone and they are becoming invasive.

Jim Fielding: I don't know if they are becoming invasive, they are certainly very common and used a lot, we did swap out our few, basically we reviewed the pears and a few other varieties that are, the peer review recommended, so we have removed those.

Chairman Block: Thank you.

Ray Gradwell: Thanks, Jim. Further, moving on very briefly, I'll hit upon a couple of other things we did with respect to the application and the recent revisions to the application. Mr. Greenlaw had asked us to look at storm drainage and insuring we were keeping track as we were making these changes, keeping track of the accounting with respect to the hydraulics and the hydrology of each watershed and each detention pond. We were able to do that, I had one person just dedicated to keeping track of all the changes we made, as a change would be made to the watershed, they would update the hydraulic model and then we spit out those results and submitted it to Mr. Greenlaw for his review. We were able to do that, and we were able to match pre and post development or do better pre and post development, what discharges are leaving the site and all the points of studies in all the storms. We were able to keep the accounting updated as we were moving these changes along through the change process.

Chris Greenlaw: On that note, maybe you want to high light, although the report was roughly 191 pages, I think the important page that we want to convey to the public and the Commission is perhaps the, we're talking about the storm water volumes, pre and post and maybe you can go over that for the Commission.

Ray Gradwell: The peak discharges Mr. Greenlaw?

Chris Greenlaw: Yes.

Ray Gradwell: At each point of study, we had six points of study and at each point of study, I'm just going to hit upon a couple, existing versus proposed. I'm going to start at one, the peak discharge for the two year storm was about 3.9 c.f.s., the post development discharge was 3.76 c.f.s., so it's a minus discharge, so that is what we were shooting for, make sure that our discharge is leaving the site, and the tributary off site, tributary to Russell Road or tributary to the

west, and we were able to do that, all our points of study, point of interest number five, for the hundred year storm we have 1.76 pre-development and 1.59 post development so once again, it's a net reduction in peak discharge leaving the site and tributary off site, so all storms and all points of study were done that way and our engineer who was working on that, keeping track diligently of changes other engineers were making, with respect to plan and drainage basins, and watersheds did a pretty good job of doing that.

The last thing, the limited disturbance plan still hasn't changed. We're still noting based on the other document that was submitted about a month or so ago, this plan is a net increase in open space of about 1.72 acres for a total of about 47 acres net increase in open space and this plan is also in a net reduction of disturbance on the site, all the red area is a net reduction in disturbance on the site, and the red with the yellow hatch is a net reduction of disturbance on the site within 150 foot setback on the site so obviously it's a net reduction and a net reduction within a 150 foot setback on the project site.

Commissioner Clark: Mr. Gradwell, a path has appeared in the new plan. Could you describe the path and what you envision it to be like?

Ray Gradwell: The path was on the plan that we presented Tuesday. That path is a natural path that connects this section of road with this section of road. That path is also going to be a sewer easement located here, you can see that as a walking trail. We need to drain sewer through that area, obviously it's a circuitous path, it's not a straight line from point A to point B, but it will be a walking, it will be a natural path that will be maintained for sewer, but it will be maintained for walking and pedestrians to use the site and to kind of, it's a site that is used by a lot of people, and we want to kind of invite people to use it a little bit more appropriately with an actual physical path rather than just a dirt road.

Chairman Block: Ray, I hesitate to bring it up because it is rather small, but the path seems to dead end right here. Is it possible that you could scrounge enough land to put an access through to the sidewalk area?

Ray Gradwell: Mr. Chair, I believe we could do that, we would be able to split that lot and that lot and provide enough room for that easement to cross that area and get to Trap Rock. We would be able to do that, to connect that, because it is connected to the road right there, as you probably noted and we can connect it to the road system on Trap Rock right there.

Chairman Block: Wonderful.

Commissioner Clark: So, Mr. Gradwell, when you dig, so that's the sewer, when you dig that it is shallow enough so that it doesn't affect any of the water flow, so the path is right on top of the sewer line.

Ray Gradwell: Correct, the path will be on top of the sewer line and the sewer line will be, it will be installed with the water stops, vertical water stop and horizontal water stop, just as we described prior, and tonight a little bit further.

So that in summary is the change, oh, one more. So that is a wrap up of the changes we made in response to REMA Ecology Services from Tuesday night, Mr. Greenlaw's comments and questions from the other night, we provided, I have a copy of all the information that was flying around by e-mail this afternoon and this morning, I have a hard physical copy for the record that I can leave with Mr. Greenlaw and Mr. Chairman. Changes were made based on our initial submission, REMA Ecological had comments on our planting species, and we revised our planting palette based on their comments, so our initial submission that went to the town, we've since revised based on some comments that we were getting in the middle of the day from REMA Ecological Services, so it's kind of a work in progress, so I have, at four o'clock I told everybody

basically, stop what you are doing, this is the plan we are going to submit to the town tonight, so we basically wrapped up around four, four-thirty, printed out the plans based on REMA's comments, all the plans we submitted tonight and I have a hard copy for the town tonight. Tom, would you like to summary?

Attorney Regan: Not really to summarize but one other, Dr. Abrams has provided to REMA and I assume that George will comment on a revised pollution load and that was provided today to REMA, re-running the pollution issues for the new plan and the increase in the open space was also provided today to REMA as well.

Commissioner Paskevich: Just to expand on that, the rear yards that are closer to abutting wetlands, the bio-swale is going to be the back rear parameters of those yards?

Ray Gradwell: There are bio-swales on these lots, showing here in the blue in like this circuitous path, those are actually the bio-swales, this is a bio-retention basin, we were asked to re-visit that and make sure that the water was leaving these three lots and front yards of these three lots and pass through a treatment system, so we revised that system, to a bio-retention system. We had it as a bio-swale, Mr. Logan had commented, asked us to revisit that, and look at it again, and provide some treatment measures for that, so we were able to re-design that one, so it's a bio-retention basin so it's collecting water from these lots and the draining it to the south. So all those bio-swales and bio-retention basins are noted here with these light blue lines. All these rear yards have bio-swales and bio-retentions, there is another bio-retention basin located right there.

Commissioner Paskevich: Do they both work in the same manner as to help assist moving the pesticides, herbicides, towards the wetland area?

Ray Gradwell: They are designed to remove pollutants from storm water. It's a vegetative mass, let's say soil media and designed to remove pollutants from storm water.

Commissioner Paskevich: Does one of the other remove more or less?

Ray Gradwell: We designed this, both these systems are nearly identically detailed, bio-swale and a bio-retention basin. It's just the volume of water is just a little bit different on a bio-retention basin. Those volumes are a little bigger, they collect a little more, this bio-retention basin, it collects more than just one yard, it collects a series of yards, whereas this bio-swale that just collects that one yard so we can make it much, much smaller so it's an identical cross section. Soil media is identical, depth is identical but the size itself is a little bit different based on whether it's a bio-retention basin or a bio-swale.

Commissioner Paskevich: Based on movement of water?

Ray Gradwell: Based on movement of water and how much water is getting there?

Commissioner Paskevich: Okay, thank you.

Chairman Block: Ray, if you would, when the bio-swale or detention basin is mature, what is the appearance going to be for the homeowner? What's he going to see there?

Ray Gradwell: They will see a vegetative mass. There will be, let me flip back to the planting plan for it, the bio-retention areas and the bio-swales, the bio-swale planting, it has trees around it and it has shrubs around it.

Chairman Block: But in.....

Ray Gradwell: It will be a lawn, not a lawn mix, a specific mix associated for a bio-swale.

Chairman Block: Almost a wet meadow look?

Ray Gradwell: It will be a mix that will like wet feet and a wet environment and a dry environment, because of the soil, the underlying soil is sandy loam, it's got to be able to take some dry feet too, because sand obviously drains quickly, but it's also got to take wet feet too because it needs to drain water in that direction.

Chairman Block: So it will be just all grass then.

Commissioner Clark: So in the winter season when the, it will still be a dry grass and existing root system that remains intact and it's a perennial?

Ray Gradwell: Correct, correct. The root system will remain intact through out the life span of the bio-swale. The shrubs and planting will help filtering also along the back side of the bio-swale, but the shrubs and plantings on this spot right here, will, you have the bio-swale itself and on the back side of the bio-swale you have shrubs and plantings to act as another filter and we have some trees to act as a filter also.

Commissioner Clark: This may not be your area of expertise, but if, over time, again we have a special interest on this Commission of invasive plants over time do you know what needs to be done to try to protect that planting mixture from invasive species and what's likely to happen with this home owners association to try to make sure that happens.

Ray Gradwell: On the detail project plans that we submitted, it's in a big book, there is a list of what you do and when you do it, and invasives is one of those things that we would ask the homeowners association to do, look on the site, if there is an invasive there, what you do with it, and when you do it.

Attorney Regan: And to further elaborate on that, and I think Mr. Logan is going to talk about this more, we have discussed reprinting this for the entire (inaudible) and that would also include that kind of thing and what would and would not go in those areas.

Ray Gradwell: So as a measure, a best management practice measure is listed, storm water conveyance system, this is what you do, and this is when you do it. Yard drains, this is what you do, this is when you do it. So all these things are listed and bio-filters and bio-swales are listed, this is what you do, and this is when you do it, so all that is listed on the project plans and invasives are one of these things.

Commissioner Clark: Another question, unrelated, when you talked about, when we just touched on pollutants and, I don't know if we have gone further with that, but when you are using all these, the bio-swales, retention systems, you start with one hundred percent of pollutants at the beginning, what do you end up coming out at the end, in percentage?

Ray Gradwell: I'll let Ron speak a little to that, he did the pollutant loading. George. George would you like to take a stab?

George Logan: I'll speak to that when I.....

Attorney Regan: Ron has done the pollutant calculations, George has them and I think he's going to comment on them, so REMA can comment on that.

Attorney Regan: That concludes our new information for now, I'm sure we will have more to say before the night is over.

Chairman Block: Thank you.

Attorney Regan: Thank you.

George Logan: For the record, George Logan, REMA Ecological Services here also with me, Sigrun Gadwa, my associate. As you could imagine, we have been very busy in the past 36 hours or so, the first thing that happened after our meeting here is that we had a conference call with the applicant in the morning just to make sure that there was complete understanding as to where we were. Make sure we were on the same page as far as the items that we were expecting to get information for, today, and which items were critical and which items were maybe not as critical, those are items that we understood that they couldn't possibly generate, but which there was an explicit agreement that these are items that could be worked with the applicant if there was a potential approval as a condition of approval. We did receive, after that time, what I did is I provided an e-mail, a memo and an e-mail yesterday, which I will just pass out. The Commission might or might not have this, I'm not sure. This memo is a list of items for review with alternative plan, and it has sections what is plan related, what's other submissions, and I'm fairly detailed in what I was expecting to see from the applicant today, as being critical items, for instance, the number one there on page one, the sizing and details for the bio-retention basin for lots 27 and 28, and bio-swales, I call them linear rain gardens for lots 30-38, particularly 32-36, REMA will provide some guidance for these, this is a critical item. Indeed today they provided that information. But then there were other things that were not as critical, and one of those for instance would have been under number three, see there improvements in design of all storm water quality basins for water quality renovation to more completely comply with the Connecticut Storm Water Quality Manual guidelines. Most of these adjustments would take place in the normal pool of each basin, i.e. below the lowest outlet invert and would not affect flood storm calculations. REMA can review applicant's plan as a condition of approval. So those are the two differences and of course we talked about the Turf and Integrated Best Management Plan or Program, but that is something that they couldn't possibly produce in its entirety before the close of Public Hearing tonight.

So what we did on those three or four items that we thought could not be possibly be detailed fully by tonight is to provide some guidance to them today, and that is the guidance in another memo. There is one figure that goes with it, figure number one, and I'll explain, but this memo of guidance that was from today, I'll read its title, Guidance and Landscaping Turf Management IPM Program Invasive Species Plant Monitor Control and Pre and Post Biological Water Quality Monitoring. So those are three major categories, and this is a ten page memo and the attachment that basically gives the applicant some guidance in, and including within that guidance what we would consider the core objectives in each of those areas, ones that we need to stand firm on and so had to be an explicit agreement on the core principles of those areas, and then we provided additional detail which the subject of which could be the discussion at a later time, which are not critical, so the details and the agreement of for instance where we would put some of the storm water quality monitoring stations or not, those are things that can come at a later time, and what type of parameters we might want to look at during, possibly how many times a year and how many years extended, those are things that we can discuss, but the core principle would be that we need to do some monitoring.

What I will do is, I will go through in a moment more of the monitoring program, I'll have Sigrun later on when I'm done, and before I come back to wrap up talk briefly about the landscaping plan, Turf Management Program and also the invasive species control plan.

Commissioner Sadil: These are not changes to the plan that we have right now, these are just monitoring advice?

George Logan: Right, these are additional measures, post construction or construction measures that would ensure that what is on the plan would actually work, so we would be able to monitor and if there is something that goes on, would be able to catch it, with invasive species control that is something obviously where we're concerned about because we are opening the forest edge a lot closer to the regular resources and the open space areas. So there is both the wetland issues and the ecological issues that are talked about the last time. Obviously this Commission is a lot more interested in the wetland related issues, a little less interested in the ecological issues because of their regulatory purview, but we thought they were important, and if they are not important here, I'm sure they are going to become important with the Planning and Zoning Commission.

Commissioner Sadil: So this is something that you are going to monitor, who's doing this?

George Logan: I will explain, I will explain as I go through what each of these areas, Sigrun will talk about two, I'll talk about the other. I just want to, before I get into that, talk about some other things, that happened today. As you heard earlier, sometime, I can't remember if it was late morning, probably late morning, we started getting information from the applicant. All kinds of information. We looked at the drainage reports which we kind of glanced through and glossed over and figured Chris would be looking more at that, we just looked at the summary. We had the computations and the sizing of all the Best Management Practice that was important, we had the hydro budgets, we looked at those, I'll have some comments on those in a moment, the landscaping plans, the palates, I would say we had four or five different palates that we looked at and I saw an additional two that we haven't looked at, but I'm sure that they borrowed from our comments from the first ones and incorporated them in the second one, but we probably will have an opportunity depending where the Commission goes with this, to look at some of those. Sigrun did most of that, lifting, heavy lifting, and being her expertise in plant ecology, we gave back some annotated drawings and some lists of various types and I understand that most of that has been incorporated into the plan. For instance here is one of the things that we gave the applicant, I'm not sure this is in the plan, Ray, or would it be an item.....

Ray Gradwell: It's in the plan.

George Logan: It's in the plan. This is based on our experience of doing detention basins. I think this particular one was massaged from an application that I did in Cromwell for Lowe's, so if it works for Lowe's, it certainly will work here. It has the bio-detention basin media notes as you can see, it gives specifications on the medium, on the media, sorry, planting notes and maintenance notes. It is important to make sure that this bio-retentions work. We started with one bio-retention basin, which is the one in the lower portion of the site, and then we had another one in Lot 36 I believe which is basically a glorified rain garden, but it is a bio-retention area, it's almost synonymous, so here's the one that we started with, this is the larger one because it does have almost three acres of shed to it, this one is smaller, but it's again the same cross section, the same principles, specifications for that, which is Lot 36 and then today, what I noticed when I was looking through the plans, we did include that additional little triangle of what is going off the site, it's now included in the total calculations, that's why that number went from 12.95 to 13.01. We made a clarification to this area, which I wasn't sure was in it, or not, it is in it. There's a bio-swale and it has a level spreader right here so the treatment happens in the bio-swale, that's just the way of getting the water away down (inaudible). But I did notice that lots a portion of lot 42, all of lot 43, a portion of lot 44, yard drains are shunted across the road underneath the road with a pipe. Any time I'm wrong at this, just jump up, and it was being put, I thought what I saw directly to this level spreader and the concern that I had there was there was not any primary treatment, so what we ended up suggesting was that that little area be turned into it's own bio-retention area. Is that kind of where we left.....

Ray Gradwell: We re-designed that bio-swale, that linear within the lot, that's a bio-retention basin now. It's actually 33, 34 and 35.

George Logan: So the pipe goes to that, and

Ray Gradwell: And then it overflows.

George Logan: I like that even better. So that was another item that we gave, now, going to a side item because I'm looking at it right in front of me here, and I'll come back to some of the most important items, this is an e-mail, I've already given this to the applicant, so there are no surprises here, and Chris has it, and what Sigrun did, and if you have specifically, you can ask her later, we had a back and forth discussion with Mr. DeBarros. Nelson DeBarros is the Connecticut DEP plant ecologist who had some things to say about how to protect the cottonwood population in wetland two. He did provide, I think you will recall a letter, I think it was dated 1-7-13 as far as the ERT process that was submitted into the record and so what Sigrun did, after having a discussion, she put together in a memo what the discussion was, and then sent the discussion, the memo, over to Mr. DeBarros and asked them to include it in his e-mail back to us indicating as to whether or not that was accurate as far as what the discussion was. This is what this is. In essence, what it does it shows the continual concern of this DEP plant ecologist regarding the cottonwood population in wetland two, and that's all it does.

Commissioner Paskevich: Could you give us a synopsis of all this?

George Logan: Yes, what I'll do, I'm just handing things out, I'll have Sigrun deal with that when she comes up and does her presentation.

What I would like to do, if I can, is press the escape button, and then open this up. This is something that I just passed out. I'll do it this way, what this does, it's the Recommended Water Quality Sampling Stations for Baseline and post construction monitoring. It doesn't show the biological aspects of it, but that's incorporated in a memo that I passed on. The idea here is that it is critical to have a robust baseline post construction water quality and wetland monitoring. I've had explained what this is. It does not mean that we are tremendously concerned that the mitigation and the Best Management Practice that are being proposed under this plan will not work and therefore we need to have some kind of a situation where we want to make sure that things don't go wrong. What we're more concerned is that if something is not constructed as designed, or something happens during the maturing of the systems, that we need to be able to have some way to catch it before it becomes a problem. In order for us to go back and look at the particular construction or whatever the thing that happened might have made it to Best Management Practice a little more effective than it should be, but also looking at long term, what the potential impacts would be here for the overall development and make sure there is a mechanism by which we don't just ignore everything that happens once the thing is constructed, but there is an ability to go back and visit certain things and make amendments as necessary. Our improvements and technologies that are always available, at cost, to do certain things better, that is not working properly. So the major things that you see here on the right corner, is shallow ground water sampling station, surface flow sampling station, and the storm water sampling stations. The easy one is, and I'm not going to go into the details how long these would happen, but generally speaking the storm water management, the SW 1, 2, and 3, as you can see are the outlets in basins. So the idea there is to have these three stations and to monitor, once they are stabilized so that wouldn't happen immediately, so every basin is stabilized per phase, the sampling would happen after this basin, say SW2 in phase one, reaches the point where we can say the stabilization should be working to its fullest capacity. We sample it for two years, three storms, two storms in the first year, and we give specific times as to when those are going to happen and one storm the following year for storms that are basically discharging from the basin which would probably be something that is more than a half inch of rainfall. If it looks like we

would expect coming out of those basins, pans out, then the monitoring stops, and then it would just a matter of maintaining the basin so that we could receive the benefits of the storm water renovation, and I'm sure the Town of Wethersfield is very interested in that.

Commissioner Sadil: Just to be clear Mr. Logan, this would be set up prior to a shovel going into the ground or is this after the fact?

George Logan: This particular component of the monitoring program for each of these stations would happen at the time that the storm water management basins are completed, constructed, fully planted, stabilized, and they are, if you will, in the post construction phase. So now they should be working at their fullest capability.

Commissioner Sadil: When you say stabilized, how long does that take?

George Logan: It could take a season. It might take a season, it depends on when the phase, the stabilization is complete. It could be any time of the year during the growing season. So for instance, if it wasn't stabilized until the end of the summer, I probably would wait until the next year to recommend that they start, and again, some of these details we are going to be working out with the applicant. They only had like an hour to review this before they got here, so they are aware of it, they knew about it, we will provide some guidance, but now we have some specifics.

Chairman Block: George, what are the components of the monitoring. Are you talking about the condition of the structure, the vegetation load or the soil characteristics, or what?

George Loan: Surface discharge, the actual water quality that is leaving the basins, so, for instance there would be certain parameters that would be measured, and if any of those look like they are spiking for some reason, the next thing that would happen is that someone would have to visit that basin, (tape change) above the expected concentrations and there are tables out there that are provided by federal and state agencies that show what the expected concentrations for the well established working basin would be.

Chairman Block: Is there a variation on those norms due to the baseline from pre construction?

George Logan: No, because these are new. These are completely new, so, that would be something different. So those are just for storm water and the reason for that is to make sure that these basins are working to their fullest capability and within certain parameters, certain known concentrations getting out of the basins. If we see a concentration on something that is out of norm for the usual ranges then that would be an indicator that something is going wrong, and someone would have to visit this, provide some, discuss with Chris, if there is a consultant involved, some reporting, and then go in there and say, okay this is what happened, and we're correcting that. If that is the case, then there would be another barrage of testing after that to make sure that that particular remediation worked. Say there was a clogged stone filter....

Chairman Block: And again, just to ask the obvious, if such a discovery is made, do the notes and conditions to the attached to the development place the obligation to make those repairs on the home owners association?

George Logan: Specifically it doesn't say that, this is just a document to show the elements, but they need to be fleshed out, and that is what we said.

Chairman Block: So that stuff needs to be added.

George Logan: Those are the kinds of things that would have to be added, that kind of language. What we're doing, we're saying here are the major things that would be a component of this particular monitoring program, for this, storm water event, the same thing goes for these other....

Commissioner Clark: Excuse me, I have a question, it goes to the question by the Chairman and I'm just thinking of, all the monitoring equipment is in what property that has been deeded to the Town.

George Logan: The monitoring is happening both within areas that are in the development such as these detention basins, for their outlets and as we go on you will see that there are other stations that are being set up that are within the open space and they are associated with the wetlands themselves.

Commissioner Clark: So my question is how would jurisdiction be spread out? I can.....

Chairman Block: If you recall, I asked Attorney Regan exactly that, as to, and he answered us that the deed documentation that is going to be created between the homeowners association and the two towns is going to address those issues, am I correct?

Attorney Regan: Yeah, there are two different functions. Wethersfield actually will have a function as part of the actual deeding of the property from the open space, that will go to the Town of Newington, but as part of the, as an example and this is something when we get down the line, we will deed the open space to the Town of Newington and it will go in by deed that we may have to reserve certain easement rights, one of them might be for the monitoring wells. That's a pretty common feature in deeding. George and I have actually done a lot of monitoring wells on a bunch of other projects before so whatever rights we would need to maintain in order to do the monitoring, we would maintain, and maintain those rights as part of the deed from the property from us to the town.

Chairman Block: As the issue to make necessary repairs?

Attorney Regan: Correct, and there's actually language that you use for monitoring and for maintenance.

Commissioner Clark: But the cost would be borne going forward, by the homeowners association?

Attorney Regan: Correct, the cost of the monitoring, correct.

Commissioner Clark: And does that typically, I know nothing about home owners associations, does that typically go as a yearly assessment for each property, how does that get paid for?

Attorney Regan: Depends on how they are set up, sometimes a yearly assessment, sometimes a monthly fee, depends on the home owners association, the frequency of how they do it, but it is an assessment for some period. George, correct me if I'm wrong here, but most of the monitoring that you are talking about here would go on, at or about construction correct?

George Logan: There are different periods, there's a bunch that goes during construction, and then there's a period of time, after construction, not indefinite.

Attorney Regan: Right.

George Logan: But depending on when you are looking at it, it could be between five and nine years but it's not every year, so if you look through this document, you'll see that certain things would be every other year, or three times.....

Attorney Regan: The heaviest part of the monitoring establishing the wells would be at the beginning of the project when Toll of course, would still either own the property or be in control of the home owners association, and would be the home owners association because the home owners association remains the developer for a long period of time, until the property is mature and it's turned over to the home owners, so the likelihood that the majority of this monitoring and the majority of the cost of the monitoring would be up front with Toll's responsibility anyway because they would still be in control of the home owners association at that point. As we get into the longer monitoring, longer program monitoring, there would be some responsibilities for the home owners association but those costs would be substantially less because the system would be set up at that point, correct George?

George Logan: Correct and what I have envisioned, because these things will eventually cease, whether, I think the furthest one that we have away is nine years, after the final construction phase is built out, so, and these are limited things, so we could envision that there could be an escrow account that is established in the beginning that looks out to the ninth year for that particular thing and that's where those funds are taken out of. We can discuss what something like that might cost and.....

Chairman Block: But again, what's your post construction? You are talking about one or two visits by a team during the course of a year to take their samples and.....

George Logan: Correct.

Chairman Block: So it's really not a large expense at that point.

Attorney Regan: No, and that was my point Mr. Chairman. The majority of the cost of setting up the monitoring system is going to be borne at the beginning of the project when Toll is still in control and doing the construction so the majority of the cost of this will be funded by Toll long before the home owners association takes control of the whole area.

Commissioner Sadil: I have a question, what would be, you have the monitoring, what's the worst case scenario here. Something you are leeching, finding more levels of phosphorus or copper, or some other harmful element. What happens then?

George Logan: Well, then again, we're expecting that we will see some things, the question is whether these things are in the normal expected ranges and whether we are seeing some response from the natural systems that you folks regulate that would give us a concern. It's more of a, if you will, a monitor chrome is like an oversight. It takes the beginning and runs it to the end to make sure that the process has worked and that the wetlands end up being protected, but it also gives you the ability along the line, if you do see something, whether it's copper.....

Commissioner Sadil: I just threw that out there.

George Logan: No, no, that's fine because someone could have done something unworthy in the subdivision, so you'll be able to trace it back for instance you know which detention basin or which bio-filter was the closest and that will limit it down to one of these five lots, and then you can trace it back to them, and then the home owners association moves in, so there are some investigative type tools that, forensic, if you will, that can trace back to a particular source and

suddenly you realize that the gentleman on Lot 43 did something that shouldn't have been done, thankfully we caught it ahead of time, and now we've addressed it, and that's what happens.

Chairman Block: For the benefit of the Commission, I once had the experience where somebody in a similar system was a photographer, doing home development and he dumped his chemicals out the back and he was caught and as George said, it was traced back through several lots to him and he was held responsible for the cost of cleaning it up and repairing it. So that is kind of a worst case scenario.

Commissioner Clark: So does monitoring, when you said the biological system, so you are measuring chemicals but are you doing amphibian counts, etc.?

George Logan: Yes, that's part of it, I'm going to get to that in a moment, but I want to keep with the water quality stuff and then talk about the biological monitoring. So we talked about what happens with monitoring the storm water outlets for those basins to make sure those basins are properly working. Another tier of monitoring would be taking place at these little blue squares that are SS1, there's one up here that you can't see yet, that's SS1, SS2 are already stations that we did samples, we provided base line, we did it in November. Dr. Abrams was right, he said that was a snapshot, yes, it was a snapshot so we would recommend that there be some additional baseline just prior to construction which would be necessary because construction cannot start in a particular year until after the breeding season of the salamanders, so it would have to be some time in late April. So some baseline water quality monitoring can happen just before that and just as things start getting going before there is any discharge towards a system, for instance, phase one, if it starts say, the middle of spring with the amphibian migration, that doesn't mean we still can't, the consultant, whoever is hired, cannot be monitoring SS3 and SS2, and SS1. Maybe he (inaudible), but nothing is draining towards it, so get some additional baseline and then, what we are doing here is we're collecting, we, whoever the we is, they collecting storm water samples of these three locations during construction, and then for five years following construction. It's done in April, in June and then for years one, three and five following construction in November, so we have a full corollary for what we got in SS2 and SS1 this past November. What that does for us, again, because these are the potential recipients of TSS and other things, much less the case now. I'll explain that, but that gives us some tools to figure out if something is changing, if there is a trend that we don't like, that allows us again to go back and find out what might be happening, and then correct it and what remedial activities would need to take place. So, those are the SS1's and then when following blast monitoring, shallow ground water stations, and these are the little blue circles here, SG1 for shallow ground water, to SG6 which is down here, which is more for reference than anything else, and as you can see, what we have done here is we have put a shallow piezometer that goes into the seasonal ground water table or the top of bedrock as it may be, there is a specific protocol involved when those are done, they don't stick out like sore thumbs, they are basically two inch in diameter and they are almost flush to the ground, capped, screened and perforated. As you can see we have used the wetland and here is one of our potential discharge areas so this is the pathway by which the water, well we will figure that out in the field adjustments, exactly where the water would go and putting a (inaudible) right between the wetland and this discharge here, and also there, and one in the upper portion of the wetland here and the edge of the wetland there which would be receiving potential treated runoff and (inaudible) from the retention basin two. Again, what we are looking there is not the full slew of parameters, not looking for metals and phosphorus and nitrogen and things of that order, but the electronic leaders and also just doing a nitrate nitro test to see what is developing in the ground water. It might give us an idea as to whether we should be concerned about something. The conductivity here at the pH temperature soliditates those kinds of things that are very easily done with electronic meters, quickly and you can monitor basically solvents and again, if we see that one of these parameters is starting to spike, then you can go back and test for the kinds of things that we think could be coming through here. Again, this doesn't mean that it is going to happen,

it's just a way to ensure that over a period of time, construction plus five years, that you have a mechanism that you can figure out if things are working as they were designed and as they were intended.

Then the biological one, we have the amphibian monitoring, and also the cottonwood monitoring. That's in this report, amphibian counts in April and larval counts in early June will take place annually throughout the construction period and thereafter three times within the next five years. So, not every year. And then you are looking for mollusk density another key indicator of whether things are going right or wrong and we discussed what the applicant what those things were. We know we have fingernail clams and snails in vernal pool two and also in the depression in three. That's the monitoring. Sigrun will talk about invasive plants. I'll go to a couple of other things. I did look through the pollutant loading analysis, it's detailed and complete. They looked at every single one of the proposed drainage areas, they have a nice little table that spells everything out. There was one little change that they probably didn't catch because there were a lot of moving parts in that is that ADA 3A which was 1.05 acres is now 1.97 or so acres and that is for the addition of some of this water coming through to make sure that we have the balanced water budget for wetland number three. The only comment that I have is, and it's completely understandable that with the activity of all running our heads off and trying to reach other stuff and get things out, is that there is another little mistake and it was caught, and it's actually everywhere, but it was just a few decimal points difference, so I was able to move the decimal point and get to where I needed, but there were some concentrations that ended up being one thousand times less than they actually were, but that's fine, I was able to figure that out, so I wanted to give you an example. PDA6A is, well we don't have it in this one, but it's the (inaudible) that goes to vernal pool number two under proposed conditions and it is 12.95 acres here, I think it's 13.01 now, again, that shows that things were in flux when these things were being produced. So if you look at the generation of total suspended solids, which is one of the key things that we are looking at, and you go through what you know, having produced in the watershed on an annual basis is 553 pounds of it, and remember TSS is not just the core sediment but it's the finer stuff, whatever is one hundred microns or less. So if each of your best management practices are doing the maximum they could possibly be based on scientific empirical data, which is 95 percent, that's the, can't really do better than that, that means that on an annual basis you will have 27.6 pounds exported past your best management practices discharges so where ever that might be, past these bio-swales, past the bio-retention basin, that's what the generation is, so what we are doing, we are relying for the rest of this 27.6 pounds to be incorporated into, within the flow path of this buffer which is now obviously a lot barer than it was before. If you looked at total nitrogen, you generate 16.9 pounds per year, if your systems are doing fifty percent, renovation efficiency which is about normal, can't do better than that, then you have 18.4 pounds of total nitrogen exported from the existing wetland two.

Chairman Block: I want to make sure I get this straight in my mind. You're saying that the systems that they have designed are going to catch 95 percent of the.....

George Logan: Of the TSS I believe they are going to be in the nineties, so let's say 95 percent.

Chairman Block: Okay, that's the most, what's the least that they could catch.

George Logan: Well, actually I should stand corrected, based on the data, I hold in my hands the University of New Hampshire Storm Water Center 2012 Bi-annual Report. This is kind of what, in New England, this is New England data but we rely on what these things do, and it gives us a lot of guidance and to what works, what doesn't work, and in here, and this was I think the table that has the whole thing that is included in our report, so when you go to bio-retention areas, it gives you some numbers as to what they expect and these are the averages, which means they can do better or worse, but the averages for a bio-retention area and they have looked at four different

ones, they've looked at different media, specifications, etc., but I'll just give you one in particular that I think is the closest one to what we are doing here.

Chairman Block: You are relating it to the design that is being proposed?

George Logan: Correct, exactly. They are going to have 91 percent TSS removal, 64 percent removal of total petroleum hydrocarbons which is not an issue here obviously, because we don't have a road system, you dissolve inorganic nitrogen which is 44 percent removal, zinc is 75 percent removal for instance and depending on what you take a look at, they could go up and down, so that is the average, the average that they could possibly be here according to this, is 91 percent and I gave it to 95 which is most that they can possibly do based on the literature.

Chairman Block: Okay, so either on the short term basis let's say a decade, or long term basis, let's say a century, ten percent of what is coming down the pike is going to get into the wetlands.

George Logan: Yeah, but you have got to remember that even under existing conditions there is TSS going into the wetlands. So the question comes to is the twenty seven, and what did I say, six pounds that is going to be added towards this system, it does not necessarily mean that it is going to get to a wetland, but it's going to be in the buffer and it's going to be incorporated with the natural environment. Now, if it all, if you took the 27.6 out of the bio-retention discharge point and deposited it at the edge of the wetland, that's a different situation because that is additive and putting sediment into the wetlands is not good. That's why we have some out there because it has a much longer flow path.

Chairman Block: And bottom line, there is no better technology to be utilized.

George Logan: There is no better technology. Bio-retention to be used as submerged ground might give you three or four percent better on some things, but bio-retention area, basins are much better maintained.

So basically other than that little small glitch, the applicant did provide the pollutant loading and I was able to understand it and come to my own conclusions and I was able to give you this analysis.

Another thing I would like to put into the record before Sigrun comes up, is, has to do with the third area that we were concerned with. If you remember my presentation from last Tuesday I said we had issues, we were trying to figure out from the physical perspective of potential impacts to the wetland. We looked at the hydraulics of the water budget, we looked at water quality and we also discussed regarding critters. Now what you have in front of you, kind of a small, I kind of ran out of time, so this is not annotated as some of the other things that I have produced, but the olive green color might look familiar as you look at it, what you see is the areas that have now been added to the habitat for the salamanders and the wood frogs within that 750 foot critical habitat area that we talked about last time. Now, I needed to, what you might see there is that I also included in that hatched, in that green area, the intermediate plan that the applicant provided which was in response to the DEEP saying we'd like to see you 150 feet away from wetland number two, but since my previous plan didn't include that, I had to be, and also to include that so the numbers came out right, and so you see in green what is being added is habitat and in orange/peach is what is taken out. So you remember we had 40., what's been added, the net gain over my previous calculations was 40.5 percent of the 750 upland, sorry critical upland area that was being taken out, they gained 4.8 acres so the number, remember I didn't know what the number was, it's not 32 percent, so they went from 40.5 to 32 percent. Effectively though, the difference is doubled, if you think about it compared to the rest of the property. The good news is that this additional 12.8 acres are most proximity to the vernal pool itself instead of being in some far edge of the 750 upland review area.



Commissioner Zelek: What was that 32 percent again?

George Logan: Thirty-two percent is, with all phases developed, so phase one through four, all developed out, it's the amount of critical upland habitat that is going to chew up out of the 54 or so acres that were, there's about, I don't remember the exact, about 54 acres that surrounds this particular vernal pool from the edge of flooding as determined by Dr. Abrams, the maximum flood.

Commissioner Zelek: Then if I put it into my own words, thirty-two percent of that surrounding area will be developed and there is a number for best practices which is.....

George Logan: The practices is 25. So they are above the 25, they're 32, they're down from 40.5 which is an improvement and the good thing about the line that they have added is that it's closest to the actual wetland which means it's most likely to be inhabited by the species that we are interested in, than further away. However, again this is a management tool that we have been using, it has been tested somewhat in the field and Sigrun will talk about some of the studies that have been done post Calhoun and Clemens best development practices that actually verify the reality of using a 750 foot circumference or radius from the edge of the vernal pool as being critical habitat.

Commissioner Sadil: I'm still confused by the criteria. How come this Lot 41 is good and 42, 43 is not, in this area here, the green.

George Logan: All of the white, if you will that you see is not suitable habitat post development. The area that is in the olive green is good habitat post development that they have now given back. The peach area is the difference between the previous plan and this one where they are now going further to the north with their development and their cuts in order to develop those lots. That was what happened when they tried to move the lots, 37, 38, 35 and 34 and 33 which were closer to the wetland before and those were moved back. That's what happened, they've lost some area back there.

Commissioner Zelek: So in your discussions with Toll, I'm sure you probably looked at that 32 percent versus the 25 percent. Was there any discussion as to what could be done to achieve the 25 percent.

George Logan: I think what I can tell you, I mean, we did have some discussions, and we even, what I saw at their office on Monday, we had some comments, for instance, they were retaining a lot here, and we weren't too thrilled about that lot, and we were pleasantly surprised to see it removed and I think some of these other lots became smaller in order to fit it, and still comply with zoning. Then we discussed what happens in phasing, because with phasing, this being phase one here, and phase two being here now, even with phase one completely developed, phase two completed developed, they are under the 25 percent. So while that is going on, they are still in the positive, in the green if you will. When this gets developed, now they have gone into the orange if you will, and then we have this last phase here. So my hope is that the recovery of the salamanders and the wood frogs will be on-going with the staggering with the fact that you have less than 25 percent when you combine phase one and phase two and so when you go to phase three, which is this one down here, now you are over the 25, in that moment of time, when the 25 percent is a new 25 percent, it's been recovery for probably two years. By the time they do their one year, two years, now they are into their third year if that's what ends up happening.

Commissioner Zelek: Is there anything that can be done in phase three that can prevent them going over the 25 percent?

George Logan: Well, with the exception of removing lots, I don't think so.

Commissioner Zelek: If that was an option, what lots would you recommend be removed?

George Logan: That would be the lots closest to the vernal pool.

Commissioner Zelek: Thank you.

George Logan: But, the other thing that we've had them do, we haven't seen the specific language but that's something we can work out if the Commission deemed this an appropriate application to permit, is the portion of the population that we were able to rescue by doing the best management practice of putting up, letting the critters go to the pool, putting up the silt fence so they can't come back into harm's way and also doing a periodic monitoring for a period of time to be determined at this time, making sure that any stragglers are also removed and put to the other side.

Chairman Block: I'm getting a little confused, this 25 percent. I thought that was really just a area percentage of the actual land. Now you are talking about biotic population. So the question then comes, is the seven percent difference between the 32 that they are going to provide for and the 25 percent that is the goal in terms of the long term population. Is this a meaningful difference?

George Logan: I believe it's a meaningful difference if you combine that with the phasing that we talked about, it gives this population the ability to bounce back so that's it's not, it doesn't plummet to levels as we said, could have a physical or chemical change in the vernal pool.

Chairman Block: So then the seven percent difference really isn't significant in the overall vitality of the wetlands.

George Logan: It's hard to tell. You're going from something that is a general management to, has sets and parameters that are kind of based on science but someone had to come up and say, 750 feet, why not 650, why not 850 and come up with 25 percent, why not 22, why not 32? That was based on some judgments that were made by Calhoun and Clemons and put into this work that they put together which I believe still stands. So if you are going from something that is a general management to something that is specific to the population, this population, it's very difficult to, it's almost impossible, so all we have left to do is, since we can't possibly, reasonably require the applicant to do extensive studies that will show us exactly what is going on here as far as where the critters are going, where they are coming from, etc., we have to use something as Calhoun and Clemon's model and use some of, some additional layers of mitigation such as the phasing, such as taking out, excluding the salamanders from developed areas.

Commissioner Zelek: And that 25 percent, that's a maximum tolerable level?

George Logan: Again, that's a management tool. That's what Calhoun and Clemons determined in their judgment based on what they knew, at the time this is what they thought. Now there are probably people on both sides of that particular marker that would disagree. I know of studies that show that 25 percent is probably not good enough, and then I have seen other things that might indicate that 25 percent is too much.

Commissioner Zelek: So we have to pick one.

George Logan: Probably, until there is more science that comes in and Sigrun will talk a little bit about the things that have happened since 2002. This is probably the best that we can do, and again, you've got to take it one step further and if you were doing the ecological, if you were the ecological commission, then these numbers might be a lot more important, but because you are the Wetlands Commission you have to also translate an impact to a physical, an impact on a

population of amphibians to a physical impact within the wetland itself. Very difficult to do, so we are kind of left with moving as close to the goal post and hopefully we are close enough so that's...

Commissioner Zelek: That's what I kind of alluded to last week, BL and Toll, I think they are on the one yard line here, and that if they can achieve that 25 percent they might score a touchdown. Now we talked about phase three and we're probably going to go above twenty-five percent, what happens when they go to phase four?

George Logan: Well, we're over 25 when we hit phase three, phase four is just part of the 32 percent.

Chairman Block: Let me ask the question a different way, following up on Jeff's point and I, this is pure pie in the sky at this point, but if you were to try to gain back some additional land, to make the 25 percent, what would be the most optimal area to expand it to?

George Logan: Again, we don't know what the optimal area is, so again we just have to look at it in a landscape context taking the 750 foot radius as sort of gospel under our particular analysis. But, it would make sense that whatever is closest to the vernal pool has a better chance of being utilized the amphibians, all other things being equal.

Chairman Block: Well, are you talking about 8 and 9, or 16 and 17.....

George Logan: Again, we haven't done specific studies here to tell us if there are better conditions in the cluster of amphibians that utilize this area more than this area, we don't know that, maybe it's this area. What I'm saying is, what is closest to that vernal pool if we take the distance, well, we'll hit the road, but as far as lots are concerned, it looks like 27 and 28 are the closest lots on that side and then of course on the other side is a cluster of lots there.

Chairman Block: So you wouldn't know which way to go if you wanted to go.

George Logan: If one asked me, and said, these are the reasons that 25 percent is our golden standard, we've got to get there, and we are at 32 percent now, we gained eight percentage points, eight and a half by 4.8 acres, so we would probably have to find another 3. something or 4 acres of lots.

Chairman Block: Is that five or six lots?

George Logan: That's five or six lots.

Attorney Boorman: Let me just ask you a couple of questions. This 750 under Calhoun's study, you reference that as the golden standard, is this the golden standard? Isn't there a debate.....

George Logan: There is a debate, as I mentioned earlier, there are people on both sides of that number that.....

Attorney Boorman: These theorists that are out there on both sides of the number, and this particular study doesn't necessarily mean that it is the done and finished kind of accepted in your area of expertise?

George Logan: No, and I don't think there will ever be one because the problem is, you're going from a landscape level study which is a big circle into a site specific.

Attorney Boorman: And you are talking about the impact on the wetland in terms of all of these numbers that we are talking about, and if I heard you correctly, you said that you couldn't really say there would be an impact on the wetland because there is no way to determine that.

George Logan: Right. The only thing I can say is the more we move towards a bigger number of habitat taken, the higher the changes there would be physical, biochemical impact on the vernal pool, by just the sheer fact that we are removing all of these critters who do certain things within the wetland and are part of the biochemical balance if you will.

Commissioner Zelek: I think just the fact that you are putting that monitoring station for water and for critters show that, proves that you are introducing a risk to this environment.

Attorney Boorman: Well, that would be up to the expert, you can ask him that question, George can answer that.

George Logan: Yeah, I think it's a reasonable thing to do because there are some uncertainties, and I will be the first one to admit, we have a lot more certainties when it comes to physical, calculable things, we talked about the water quality, we've talked about the water budget, but when it comes to the critters, and how many critters of a particular population need to be taken out before I can see a physical change within the wetland itself? I don't know that anyone out there can answer that question. So, we're left to making some highly educated guesses, based on what we have before us which is a recognized model that the Connecticut DEP recognizes and other governmental entities recognize, Army Corps of Engineers, that say that based on where we are today, with the nature of the science and the fact that we are never going to get to site specific data unless someone is willing to do a dissertation out there, that's the best thing that we can do, so by putting the biological monitoring, it does, you're right, it does point to the fact that there are some uncertainties. It also points up to the fact that we want to know a few things and maybe we will know something from this particular project and other projects where similar things are going on, that in the next ten years tells us a different story. It could go one way or the other. As you are probably familiar I belong to the Connecticut Association of Wetland Scientists, I'm a past president, founding member, all that kind of good stuff, we have a program that is administered by one of our colleagues, Edward Pawluck, you might have seen him before this Commission, and that is what we have been doing. We have been going around Connecticut and independently gathering data on pools that are being developed, meaning that something is going on within the 750 feet and there's and we are populating with more and more data and it's probably going to take another five or ten years before there is something publishable and we want to answer that exact question.

Commissioner Zelek: So are you using this as part of that study or are you putting this here because you think that there is a possible threat?

George Logan: It's an extra level of confidence if you will, an extra level of assurance for this Commission and for these resources to be able to catch things as they happen.

Commissioner Zelek: Because when I looked at this at first, it didn't register, I just saw blue dots and blue squares, but as you started to talk, and I thought about this, wait a minute, we've got, and I think you described this as one of the most valuable wetlands in Newington, and then when I see that we have to now monitor it, quite frankly that saddens me and it scares the hell out of me.

George Logan: Well, it might, but here's another, we can learn something from this, hopefully what we will learn is what the applicant is proposing, if the Commission were to approve it, is that it actually works, or we might learn that it doesn't work and then that would be valuable

information for some one else. We have that option, or we have the option of not allowing any development here and completely saying 750 feet, and not knowing anything, so I'm not saying this is a grand experiment, I'm not looking at it this way, what I'm looking at is we need to put some measures in there that allow us to monitor what is going on, and based on what we see, we might, if things go really bad, I don't expect it, but let's say they do, it's a possibility, a statistical possibility, we might say to the applicant, phases one and two are good for now, until the critters do a lot better, you can't go to phase three or phase four. I'm sure the applicant doesn't want to hear that, but there's a possibility, but it's really an outside possibility based on what I'm, my experience.

Commissioner Paskevich: Mr. Logan, I'm just trying to get a feel for the history of this monitoring practice and how long has it been in affect and being done in developments like this in Connecticut.

George Logan: That's a good question. I'll go back one step further than that, so you can see the context. In the practice of wetland science in Connecticut where projects were coming before Commissions, the vernal pools were not even on the table until the early 1990's, 1991 in my experience. They became quite an issue until about 1998 or so, and then we had the Avalon Bay stuff, with that court case, but the monitoring of this type has been happening since probably the mid nineties, associated with development in Connecticut so it has been going on for some time, and we've now monitored, over the past fifteen years or so that we have been doing this kind of thing with vernal pools, maybe close to 110 vernal pools and that's just us, there are many others who have been doing the same thing out there, so it's well established. The protocol is very basic.

Commissioner Paskevich: Out of the 110 what percentage did you find test results that were significantly detrimental?

George Logan: That's what we are still, when I say 110, we did the initial baseline for the 110 pools, then some of the developments weren't built obviously, some were built and those that were actually built, that monitoring then got, we've given it over to the Connecticut Association of Wetland Scientists that has the on-going program that has been in affect for probably seven or eight years, something like that, so I can't tell you what the data is because they're not published. They specifically won't be published, they are going to have a white paper at some point when there is enough data. But we see impacts for some vernal pools.....

Commissioner Paskevich: Detrimental impacts?

George Logan: Yes.

Commissioner Paskevich: In Connecticut?

George Loan: Yes.

Attorney Boorman: I want to go back to this project, I need to really focus in on this project and talk about what you are saying that you found for this project. For this project you talked about the phasing and seemed to indicate that it had some effect on this number, so I'm having difficulty kind of being a consistent theme as to what the phasing really means.

George Logan: The phasing means that, you have a population of amphibians throughout this property, you don't know exactly where the hot spots are, so we are making the assumption that they are equally distant, distributed, except they are probably a few more closer to the pool, and

then there are less and less as you go out. So based on that we said, okay, we're not going to hit the twenty-five percent, until after phases one and two combined.

Attorney Boorman: So what does that mean then?

George Logan: That means.....

Attorney Boorman: In your expert opinion, what does that mean to this project?

George Logan: That means that it will conserve the amphibian population of the pool, so phases one and two get built, there shouldn't be any issue at all in the vernal pool population plummeting to some number that is not good. When phase number three gets built, then we are going over the twenty-five percent and then it's reasonable based on the model that there will be some impacts to the numbers of the populations. What we are hoping is that the additional number, going from say, 18 per cent to 28 percent, 29 percent in phase three, I'm just making up some numbers, that's not going to be in itself a detrimental impact on the overall population of amphibians because of the last two years, possibly three years, there has been some recovery where the new of the year have been able to repopulate and go into other places that are within the 750 feet, hopefully they are not all going to phase three, or phase four. But again, distributed through, so that when the next phase gets built, which is number four, again it doesn't have a detrimental impact because it hasn't caught up. It's a lot different to go in and say, okay forty percent of the population, thirty percent of the population is now done versus being able to repopulate some of these areas that right now don't have a capacity that is exceeding, so there might be a little more density, they might be closer to each other, so that is the hope.

Attorney Boorman: So the actual affect on our project then, in your opinion then, is it likely to have an affect on the salamanders?

George Logan: Again, I'm taking it.....

Attorney Boorman: Or do you just not know?

George Logan: Is it likely to have an affect on the population of salamanders and amphibians, yes. Is it likely to have.....

Attorney Boorman: Is it likely to have an affect on the wetlands?

George Logan: No. It's the difference between the wetlands and the ecology.

Attorney Boorman: Thank you.

Chairman Block: Attorney Regan, before we take a break.....

Attorney Regan: I just want to ask George if he could clarify one question, with regard to the current 750 foot Calhoun and Clemen's recommended practice, that is not now all undisturbed property, correct? For instance the bottom part of the wetland, wetland two, if you measure 750 feet you're in the middle of Russell Road.

George Logan: No, the 750 feet is completely on the property. That was based on one of the other figures that I gave.....

Chairman Block: Wait, that is wetlands two, Attorney Regan is talking about wetland three.

George Logan: Oh, you are talking about wetland three?

Attorney Regan: No, I'm talking about two, based on our calculations, the bottom of wetland two, if you go 750 feet up from the bottom of wetland two, you are in the middle of Russell Road, so we don't believe that that's all, I think George has answered the questions sufficiently, I just wanted to make that point, that it may not be all currently undisturbed.

George Logan: I think what you need to do is to look at the exhibit I produced which went from the edge of the flooded portion of the vernal pool as shown by Dr.....

Attorney Regan: As opposed to the wetlands limit.

Chairman Block: I appreciate your concern, but again, I think that the answer to Attorney Boorman's question is more pertinent, that there, fortunately or unfortunately there is a substantial difference between a substantial impact on the ecology and the substantial impact on the wetland, which is within our jurisdiction.

George Logan: I believe so.

Chairman Block: And that, while we want to protect everything out there that we can, it's a cold wet night out there and I would really like to stay on the core subject that we can act upon.

George Logan: Right, so if I put on my pure ecologist hat on, I would not be happy with what I see, but on the, if I put my wetlands consultant hat, realizing the regulatory climate we're under I would say not a problem.

Commissioner Zelek: Let me just ask one last question. Didn't you also kind of put the two together, some kind of symbiosis where the ecology will support the wetlands and visa-versa.

George Logan: Sure, yes.

Commissioner Zelek: So something that is detrimental to the ecology, could be detrimental to the wetlands.

George Logan: At a certain point, and again, what I tried to explain the last time, and again, this is a terrible thing for an ecologist to be doing, but unfortunately we are under a particular regulatory climate, the courts have told us certain things, this is my interpretation, someone else's interpretation might be different, but I've been living and breathing this thing now since the Avalon Bay thing, unfortunately, and a few other cases where we have been involved, what it says is that there is a place that if you dip under, you have a physical impact by losing a large proportion of your population, above that, the answer is no. It's really a professional judgment at this point. If you ask me to prove it with numbers, I'd say time out. This is a qualitative judgment based on all of the data that we can possibly have at this point including Calhoun/Clemens model, including my own experience, I believe with these mitigative practices with the fact that they have given additional land, that the physical impact to the wetlands will not happen because the population will not dip to the point where that would happen.

Recess: 9:33 p.m.

Resume: 9:50 p.m.

George Logan: I have another four or five quick items and then I'll call Sigrun to come up. These are items that kind of fell through the cracks, they are not significant, but I want to be sure to mention, and these are things that the applicant could work out because they are already working it out. You'll see what I mean in a second. For instance, we talked about the water budget for wetland three and in our memo what we had recommended yesterday is that they try to increase

the water in the order of ten or fifteen percent across the board. It didn't happen. I think they are a little shy in the spring, a little more later in the spring and early summer, again, that could be within the margin of error of the calculations but I'm sure that, and that would be my recommendation that they try to maybe grab some more water, maybe some of Lot 8 could get in there, maybe they can pick one of these other lots also and head it that way. I think all it would take would be about another half acre of so.

Attorney Boorman: What percentage do you have them having now?

George Logan: I'm not sure, I didn't calculate the percentage but looking at the graphs, the balance, they're equal but a little higher in the spring and a little, or the other way around, a little lower in the spring, higher in the summer. I think a little more water there might not be a bad idea. So, the outfall to wetland three again, that's probably a field adjustment because right now it almost looks like it is falling on the divide, and the divide is, you can't see it in this photo, so that would be an adjustment. Here's another one, which is kind of an interesting one. We would like all crushed stone utilized on this site, including the pea gravel and the rip rap to be made out of trap rock. So it matches the chemistry of the existing soils there, it's wouldn't bring something that is more acidic, say, but it would match. It also has some other potential good qualities in releasing minerals and if you know, you have probably heard this before, trap rock has an affinity for hydrocarbons. So if there were some minor oils that occasionally escaped, they do attach very well to trap rock surfaces.

Chairman Block: Well, with blasting and having the rock crusher on site, is there any economic need for them to bring in anything from off site?

George Logan: I wouldn't think so, but I just want to make sure that they know that and of course it makes complete sense, if they have the crusher, they can crush whatever they need right there, and while we're at the crusher, the locale for the crusher and pile in phase two could be moved a little closer to Russell Road. Right now I think they have it somewhere here, they could move up a little bit. I'm sure that there might be some wetland that would appreciate that. The icing salts, we haven't really discussed that in any great length, the applicant probably recognizes that there are a lot of different products that are out there. Some are cheaper, some are more environmentally friendly, and we would like the opportunity to discuss that with them and come up with a de-icing agent that would be the one to be used on this site which is more environmentally friendly, whether that's calcium magnesium acetate or some of the other combinations that are out there.

Attorney Boorman: For that one, is that something you talk to them about this evening before you leave?

George Logan: I just did.

Chairman Block: Well, again though, wouldn't it be better to have that as a function of the homeowners association as an ongoing basis as products change?

George Logan: Yes, and it would be similar to what Sigrun is going to talk about a little bit, which is the Turf Management and IPM plan which is also dynamic and fluid and able to be amended from time to time.

Another issue that, well, I won't call it an issue, it's a little detail which could make a big difference for some of the amphibians on the site. Now, we discussed what is happening once this, for instance, this area get stabilized in here and we have the forest strip that goes between these lots and all these other landscaping plans I would say at great expense to the applicant to forest these, figure there would be about \$50,000.00 worth of effort just for the planting materials and

plants, that the, this environment will be utilized by amphibians. They will come in, the gray tree frogs will be coming in, toads will be coming in, whatever else and probably some of the salamanders and probably some of the wood frogs. The problem is the curbs. Now we haven't discussed, and I think there was a recommendation somewhere in the ERT that they use Cape Cod curbs. That would be the, obviously their recommendation. There is another option and that is the park curbing. Park curbing is sort of thirty percent and it's extruded by that machine that they do the regular curbs, if they wanted something a little more fancy in the subdivision obviously they would have to go to Cape Cod curbs. The park curb has the thirty percent slant to it....

Chairman Block: So it's not a right angle to the pavement?

George Logan: It's not a right angle to the pavement.

Commissioner Sidal: This is asphalt, right?

George Logan: It's asphalt, it's extruded by that machine, it's not as nice as having granite curbing, but granite curbing is not conducive, unless you find one that is thirty percent slanted, so that would be their recommendation so these critters don't get sequestered within the drainage system and be unable to move back and forth.

I think those are the miscellaneous, and I'd like to call Sigrun forward to talk about the three issues here, and I'll stand by.

Sigrun Gadwa: Review reasons under the literature pertaining to the (inaudible) of vernal pools, we went through a bibliography put together an annotated bibliography put together by Calhoun of Calhoun and Clemens, in support of their efforts to get the vernal pool regulations in Maine strengthened and there have been half a dozen really strong large scale studies on supporting the very wide terrestrial envelope and the validity of the Calhoun and Clemens recommendations. One study by Regosian, Windmiller and Homanac found that forty percent of wood frogs and sixty percent of spotted salamanders are further than 330 feet from vernal pools. So that is a real substantial percent of the population are beyond 330 feet and also, there is no strong bimodal distribution except to some extent in winter for wood frogs. They are found throughout the distance, and then the next study, number two, Rittenhouse and Semlitch, determined that 803 feet was the threshold below which you would find 95 percent of spotted salamanders. That's even wider than the Calhoun and Clemens, 803 for 95 percent. The approach that is taken by Windmiller was to look at, can't remember if it was 80 or 120, a really large number of Massachusetts vernal pools, and then map out the amount of forest within 1000 meters for each one of them, and then look to see if they were healthy, robust, or if they had no or very few creatures in them. His finding with this huge study was that if the amount of forest within 1000 meters drops below 44-51 percent, you have a very sharp decline, and we haven't figured that out for Cedar Mountain, I wish again we had time to calculate to determine how much is within this 1000 meter radius.

Commissioner Clark: Excuse me Sigrun, how much what is within the 1000 meter radius?

Sigrun Gadwa: If you look at the 1000 meter radius, if there is less than forty percent of forest cover within the 1000 meters, then you are going to have a sharp threshold of impaired ground pools.

Commissioner Clark: And is there a particular time frame they are talking about in this study, in other words, we are starting with 100 percent amphibians.....

Sigrun Gadwa: I don't think this was a time, a long time, he was just looking at a very many vernal pools and basically whether they were in the suburban matrix or mostly forested matrix and health and large and robust they were, and they found that was the threshold.

Commissioner Clark: So a total population number rather than starting with a population that then dropped.

Sigrun Gadwa: Yes, they just looked at the total, and then finally and this one, this was a much smaller study, it was 26, found that 574 life zone would encompass 95 percent of a mixed group of spotted salamanders and Jefferson salamanders. The median distance from the pool was 364 feet. So, I only had about an hour to review, by the way, there are two documents, there's a huge document, Science and Conservation of Vernal Pools for Northeastern North America with full articles in it, we bought that on line, and then there is an annotated bibliography which is just being circulated informally and Roy Zartarian already introduced that into the record, so you have each of these, these four items, you can read the full abstract already in your record. Moving on to, does anybody have any questions?

Commissioner Clark: I'm going to ask again, your comment in an earlier evening, about the change in the physical characteristics of the wetland based on loss of herpetofauna, can you explain that to us again?

Sigrun Gadwa: I'll try. The, there is a complex food chain operating in the vernal pools eating both algae and decomposed leaf litter, there's a lot of invertebrate and coccid pods and the wood frogs themselves directly eat algae and leaf litter, the salamanders are predators and they affect the balance of invertebrates. When you lose the wood frog and the salamanders you lose the top predators and whole composition changes and there's typically an excess of leaves, of leaf litter, a shortage of oxygen, too much organic matter and also rotting algae from algae that hasn't been eaten up, so you end up having, you know, your typical loads of stresses, oxygen, maybe lower pH, more torpidity, less clarity for things to be able to see when they are under water, the higher biological oxygen (inaudible), so all of those factors are changes in the physical characteristics of the water. The plants are also part of this physical aspects of the wetland. That's been proved, established in court, and when you have that dramatic change in torpidity and water quality, you also have changes in the vegetation. So it's a cascading effect.

Commissioner Paskevich: You mentioned I believe that the salamanders and the wood frogs and the loss of them hinges on some type of predators?

Sigrun Gadwa: The salamanders are predators. They are actual predators of mosquito larvae, but they also eat a lot of other small invertebrate and when you don't have, just like when you don't have your hawks in your Fairfield neighborhood, you have too many deer mice, it's in a way a similar, an eco system needs their predators.

Commissioner Paskevich: As far as the shortage of oxygen, thinking about eutrophication and the depth of water, I'm not sure how that relates to this vernal pool.

Sigrun Gadwa: Well, a healthy vernal pool has typically has moderate oxygen levels, it doesn't have free flow, but this vernal pool had moderate oxygen levels when we measured it, if there is too much plant debris, leaves, dying algae to be decomposed by bacteria and taking up oxygen, the oxygen levels drop.

Commissioner Paskevich: Thank you.

Chairman Block: You are giving us a good bit to think about, now these studies that you mentioned, I assume these distances are the averages around some indifinitive shape and not clear circles I would presume, an irregular shape.

Sigrun Gadwa: Well what they, the method of studying is to put radio tracking, to put trackers on hundreds and hundreds and hundreds of salamanders and wood frogs and track where they go and frequently not check where they are, electronically, out in all directions, so they were circles.

Chairman Block: Yeah, but I and again, I hate to be technical, but sometimes to take a general statement to a specific, sometimes requires it. Are these distances from a central point in the center of the wetlands, or from the margins of the wetlands and therefore it's a geometrical circle or is it an irregular shape proportionate to the boundaries of the wetlands.

Sigrun Gadwa: I think the way they do it is an irregular shape and it's based on the limit of flooding, not the wetlands.

Chairman Block: Okay, now in this particular.....

Sigrun Gadwa: And many times it's round, but the majority of vernal pools actually are round.

Chairman Block: So the distance that they are calling for linearly, is really sort of an average, depending upon the shape of the basic structure.

Sigrun Gadwa: No, it's the same distance out. In all directions.

Chairman Block: From the margin.

Sigrun Gadwa: From the pool (inaudible)

Chairman Block: In this case, with wetlands two and three, approximately fifty percent of that circumference is far more than the distances in these studies, so if you are talking about having a clear and decisive impact on the wetlands itself, not the ecology, but the wetlands, how can you interpret a linear distance in half the case as being unacceptable, because I think that is what the study is saying, and the other half is accessible.

Sigrun Gadwa: That's a good question. When you have, we do have 750 or so to the east, and we have a very steep mountain to the west, the, I mean, if this was a totally far scenario, if there were no Russell Road, they would go even further and if you built Russell Road at that time, you would take out twenty percent of whatever the population. The, that's why the Clemens Manual don't say, they completely have (inaudible) of the 750, they say, no more than twenty-five percent development within it, and it's just a matter of, how large an area is needed to support a robust population. But it's a gray, it's a continuance, there are exemplary, truly health vernal pools and there are totally decrepit ones and there many that are in between and that have some degree of impairment, and I guess I would differ a little bit from my colleague, George Logan, and I would say that I would anticipate some physical impairment, and your question is, some changes in the water chemistry that were adverse, and reductions in diversity of invertebrates or whatever, but your decision is, would it be significant? Significant and adverse? Would it be adverse. There will be physical changes, I would say adverse physical changes but would they be significantly adverse?

Chairman Block: Are you saying that that's undeterminable at this point?

Sigrun Gadwa: That that's undeterminable? Well, let me go on to I was sort of racking my brain as to how we might tip the balance a little bit and make it less likely that there was a significant adverse impact, and I through we might make some headway in terms of the Turf Management Plan, so I'm going to switch to that.

Commissioner Sadil: Just one thing I want to ask you, on monitoring, we've covered the water sampling very well, is there any recommendation about the monitoring?

Sigrun Gadwa: I think we would do very much the same things that Ron Abrams did, egg mass counts, and then June larvo counts, so that's, if there are plenty of egg masses, the population is pretty robust.

The Turf Management Plan has, I'm going to start with the question, what kinds of materials are going to be used for the lawn care and we decided that for a product to be used on lawns the active ingredient and the surfactant should be documented to have toxicity in the low or very low category, to all potential, non-target fauna groups and also minimal effects on soil biota and structure, and all this information can easily be looked up on the internet for any active ingredient, and any organic treatments like corn gluten herbicides are strongly recommended. None of the chemical grub control insecticides are acceptable, milky spore disease is recommended.

Chairman Block: Sigrun, excuse me. The proposal that you put together with all the particulars I'm sure is fine, the question that has been raised in discussion and comes to my mind, is, five, seven, ten years down the road, presuming that we created conditions that said to the home owners association, these are the products you can and can't use, who's going to monitor, who's going to deal with it if they don't and how is there any way for us to have anything better than trust in the best intentions of those people?

Sigrun Gadwa: Well, what I came up with, there would be a web site, or the products that are allowed to be used are posted and that we would basically stay completely away from any toxic pesticides.

Chairman Block: Who would maintain that web site?

Sigrun Gadwa: I think it would be a very, very simple web site, and the home owners association would be acceptable to the public.

George Logan: And would be reporting to the town also.

Sigrun Gadwa: And also reporting to the town. I mean, basically what we are saying is, stay away from the toxic stuff, there may be a few well known things, products that we know are not a problem, that are staples that can be used but also don't use, and the reason for this is, soils, I mean even if we have the bio-retention basins and bio-swales out of the watershed of wetland two, the, there still are many products that are soluble and there is ten percent of the TSS that gets through the bio-retention basins that can absorb toxic chemicals, that's one reason for it, and also there are plenty of creatures that move back and forth, birds, insects, amphibians, are hazardous to those creatures in the developed areas and then they move back and forth to the wetlands, so, that's a consideration and the, keeping it, while they have twenty products with long complicated names and complex potential impacts, obviously the home owners association or the general public won't be able to understand. By keeping it simple, and by using Turf grasses with resistance to drought, resistance, low fertilizer needs, and disease can do a lot by choosing the right grasses so there will be less demand for these things and by having more shrubs and trees there's also less lawn area and we also want to incorporate the phosphorus into the top soil during construction initially while the homes are developed so you don't have a, there are plenty

of no phosphorus fertilizers out and available now, so unless there's a soil test so they're not used.

George Logan: In the interest of time, I'm going to ask Sigrun to go to the next, which is the invasive control, but I think that the take home message on what she has just been talking is that we recognize that the applicant can't possibly put together the Turf Management IPM program before the close of the hearing, so what we did with this document is we gave them whole bunch of sort of our priorities. So they would know, when it comes time to put this thing together, their consultant who looks at this and says, okay, well we better incorporate this and so on, and it starts a discussion, and I think, and we may hear this a little later from Toll Brothers that they are explicitly agreeing that the core principles of what we are trying to do here, accept both of them and that the details be worked out later.

The other issue that we discussed the last time had to do with invasive controls, and again, it's one of those things where it could have a physical impact if there is a reign of invasive species that suddenly lands on the edge of the wetland, and the wetland, it could change the habitat and therefore have a physical impact. It would probably take a long time for that to happen, so what we want to do with this program, is to minimize that potential. Again, what we've done, recognizing that this is something that going to happen potentially in conservation with the applicant, we wanted again to put our, here's our, some of the principal things that we would be looking at, for instance what we discussed we've gone certain distances and certain methodologies to take place and so maybe Sigrun what you can do, in three or four minutes, is give some of the major things that we have put in there for the applicant to consider going forward.

Sigrun Gadwa: I do think it's important that we, the Commission have assurance from Toll Brothers that they are willing to accept a Turf Management Plan that does not have toxic chemicals in it, to me that should be a condition of, a permanent condition. For the invasives, the goals are to, in the initial phase of the project, when infestations happen along new forest edges to take all measures to prevent that from happening. Pulling seedlings within fifty feet of the forest edge, and then also to plant screening vegetation, not just high trees, but shrubs and taller herbs to minimize the light levels that get into forest edges because it is that light that triggers germination and makes the seedling grow fast. So all that detail is in here and the other thing is the two seedling, garlic mustard and there is a terrible biennial crest which has gotten into some forests, I don't think it's here yet, it's in Rocky Hill, which are easy to pull in May when they are blooming, and so that can be done, and only painting the cut stems with herbicide be done, not any spraying for the larger ones that can't be pulled, and finally we are recommending within, in the upland forest between the subdivision and wetland two, and also adjacent to wetland one, three, no one, one as well, because the wetlands are particularly vulnerable because they don't have a solid (inaudible) and some shade, so bittersweet and other things are apt to come in, in the patches and gaps and ridges. There should be scouting, just a pair of people just systematically walk through and weed out any seedling that they see. The first time that is done, should be one of the missed steps in there, which was a copper (inaudible), very interesting botany in the trap rock area, so to kill two birds with one stone, and catch the scattered early, early detection of the invasives and I think that is all there is for them, and the homeowners association would be responsible for this. Oh, I did want to say, another measure that can reduce, significantly reduce the mortality for the forest insects which unfortunately are attracted to light and usually suffer a huge mortality in adjacent subdivisions, but by following the Dark Sky guidelines, having cut outs and lights that automatically turn off at night when people are no longer needing them, those kinds of things, the proper type of street lights, that can reduce the insect mortality thereby helping maintain the prey for both amphibians and birds. That's it I think.

George Logan: I think we are pretty much done with our presentation, I guess the final goal I would have to say, this new plan that landed on us, we asked the applicant that we needed to

absolutely do certain critical items, all those were provided, there was not one that was missing, then they agreed that the other items were things that we would give them some guidance on, and then they would at least agree to the core of what these things would be, such as what we just discussed, and so we are satisfied, they will probably have a few things to say in closing, so I think we are satisfied as the best we could that the process has worked, that was laid out. The question came up as far as monitoring, you know, are we doing monitoring because we are over the 25 percent, therefore we almost kind of showing passively or not that we were concerned. But, here's the case, even if we were at 25 percent, or slightly less than 25 percent we still be recommending monitoring.

Commissioner Zelek: Couple of questions, first of all Sigrun, I think you have a lot of courage and I applaud you for disagreeing with your colleague.

George Logan: She does it all the time.

Commissioner Zelek: I just wanted to hear from you one more time. Your opinion is that the impacts on the salamanders would have eventually an impact on the wetlands, the characteristics.

Sigrun Gadwa: Yes.

Commissioner Zelek: So we do seem to have a slight disagreement.

Sigrun Gadwa: But the issue is the significance.

Commissioner Zelek: So have we settled on how significant? No, okay. So we haven't settled on how significant, now how long has this wetland existed?

Sigrun Gadwa: I think it's since the last glacialation.

Commissioner Zelek: I think we keep thinking in terms of ten or fifteen years out, I think we need to be a little more farsighted than the impact, so let's think about this in terms of 100 years, 200 years, seriously, you are talking about something that has been here long before we had any record of it. The other thing I have is you gave us this e-mail, a copy of it, on the biodiversity and Cedar Mountain's swamp cottonwood, and in here you are having a conversation with Nelson DeBarros from DEEP. There is a paragraph here that goes on about some legal mumbo-jumbo which I don't fully understand but an attorney might, so could you just kind of explain what that whole paragraph is about.

Attorney Boorman: The only thing I would say is that she can't really speak to a legal mumbo-jumbo as you put it because she is not qualified to speak to that. You are asking questions that don't have to do with legal conclusions she can, if she has an expertise she can address those.

Commissioner Zelek: Could she explain what the intent of this paragraph is?

Sigrun Gadwa: The paragraph is actually a response to a request from the Chairman to get a little more explicit information on the responsibilities of the Commission in regard to the threatened swamp cottonwoods.

Attorney Boorman: Okay, right there, you don't have the expertise to talk about that and if you talk to Mr. Ziska as I know he did, that would be heresy anyway. So the point being, you are here to provide expertise as to what your specialty is, not to legal questions as Mr. Ziska has told you. So in terms of that, I don't want to put her in a bad place, I really respect her and don't want

to put her in a situation that is going to make her uncomfortable in talking about something that she is not qualified to talk about. For our purposes, we will have plenty of time to talk about those kind of questions when you do your determination as to what is going to happen.

Commissioner Clark: Can I just ask a general question. I know you are an ecologist, a soil scientist. Have there been any studies that have integrated I guess I'll call it social science and ecology in a development something like this to assess the impact of humans, and I don't just mean their runoff and things like that, but their behavior and how human behavior would affect the quality of the wetlands. Two hundred people and their pets living within 350 feet of the wetlands. Are there any studies like that?

Sigrun Gadwa: I would say there have been good studies, with regard to impacts on, as far as birds, there has been a comparison of equal (inaudible), equal vegetation, every thing. One is surrounded by agriculture, the other is surrounded by residential land uses. There is much more of an adverse affect on the ones surrounded by residential, so that one is actually quoted in the report I think. So, but as far as wetlands go, I think it's all the human disturbance is again documented to have an affect on wetland wildlife, which, shy wetland wildlife especially, and the various birds for which there are, what ever, the green heron is a wonderful wetland vernal pool or upland wetlands predator and it doesn't like to nest when there are nearby people.

George Logan: Well, I can maybe help with this question and say there are studies out there. I don't have them at my fingertips right now, but I know there's a problem and well behaved people have less impacts upon wetlands than badly behaved people. I mean that goes without question but I think a lot of it comes to the point that people are not educated to appreciate what they are dealing with, so one of the things that I recommended in my, which I did not talk about, is that a part of the HOA, that there is a document that every new home owner receives, that talks about what is being protected and what the sensitivities are and what they can do as home owners to be aware. This is a perfect place for it to happen. If you have individual home owners who don't have a home owners association there's no vehicle where they can all be educated, some of them will and some of them won't, but this almost forces some better behavior. I'm not saying everyone is going to behave, but I think education, knowing what is out there and what they can and cannot do, and that something that Sigrun and I have done in some of these other projects, we've been involved where there are home owners associations, for instance, if there are box turtles running around, we put something together that is given to every home owner association, it's actually a legal vehicle by which these things are not forced on them, but they served, every new home owner gets their little packet and part of the little packet is this fact sheet about you know, what is happening in this area with box turtles, vernal pools, critters, etc., so that is something that we recognize will be a useful tool that might be an additional benefit of having a home owners association which could then result in some good fruit, if you will, and protection.

Chairman Block: I'd like to put in two cents on total extraneous but relevant, recently on public television there was a program on the affects of a subdivision development with a major highway through the middle on Koalas in Australia. And they did radio transmitted tracking and it was just awesome how this very shy little critter that lives in the treetops was adapting to traversing suburban backyards, with dogs and everything else. So amazing and as we were told tonight, they have done tracking of salamanders with little itty-bitty transmitters and it's really amazing how well life adapts, at the same token, we want to preserve their original habitats. So, with that, the applicants have any response?

Attorney Regan: Thank you George, that you Sigrun. We actually have a fair amount of experience in what George talked about in educating home owners only Mr. Rossi had a last problem with rattle snakes in a whole different part of Connecticut. We did have the chance to

review their memo today about the critical issues and the recommended issues. There is nothing on there that we saw that we had an issue with, or could not comply with. I'm going to ask Dr. Abrams to come up and just briefly talk about the Turf Management Plan and if you will remember back in this hearing process as one of the seven hearings and I don't know how many hours at this point, it's long, but I think Dr. Abrams was the first to raise the issue of doing a Turf Management Plan, having Dr. Petrovic of Cornell do a Turf Management Plan for this project. It is something that we suggested and intended all along so with that, I'm going to ask Ron to come up. With regard to the monitoring, as George has correctly pointed out, that has become almost a standard in Connecticut for any development that goes on around the wetlands so we're perfectly comfortable with monitoring, we do it all the time, and as George said, it's become pretty much a standard because you do do it and you do aggregate from hundreds of sites to see what things work and what impact they have so we have no issue with the monitoring plan and that is something that we are very comfortable with and very usual with, and as I said, the majority of the monitoring would be established prior to the time that the home owners association was turned over so most of the cost of setting it up would be on Toll's dime, the final cost would not all on the home owner association. Ron, do you want to talk about Turf Management?

Dr. Abrams: Yes. Ron Abrams, for the applicant. In 1988 I first met Professor Petrovic from Cornell at a time when he and his department were actually pioneering the concepts of integrated turf management, and since those years I have worked with him on quite a number of projects. We'll be please to get you his credentials. We see him as the father of the discipline and in fact some of these practioneers in the northeast studied under Professor Petrovic at Cornell before launching their own careers. The way that he does this is extremely sophisticated. He gets soil samples from the key locations on the site so we need to have a pretty close idea of what the site plan is going to look like. His department is the Department of Agronomy, Soil Science and Horticulture at Cornell and he has the full resources of that department. They test the soils, they determine from EPA registered products what will and will not work and what will and won't move through the environment, either through ground water or through soil transport as absorbed particles to sediment, and they have done, I don't know, hundreds of these, or thousands of them in that department so they have seen all the different conditions and circumstances and they produce a sophisticated document based on the science, that provides the land owner with choices. Now the application of these compounds, any kind of treatment that is going to happen in this subdivision would be by a licensed applicator. The licensed applicator, according to provisions of the final permits for such a project would be required to follow the ITMP and enforcement officers thereby have a document, a scientific document and the licensed applicator has to comply with it, so you can inspect what that firm is using and how they are apply it so the enforcement isn't at the home owner level, it's at the, and it's really not even at the association level. The Town Engineer will have a recipe from Cornell University and the licensed applicator will have to report, comply, etc., according to his state license. It's a fairly well regulated discipline. I think that you can rely on it and like I said, and Tom has made clear, none of the things that we saw in the memo that we received at the end of the day are things are things that I think Professor Petrovic would disagree with. How he is going to actually achieve the product needed is very sophisticated. After twenty some years I been working with him, this is bio-chemistry and soil chemistry and toxicology at a level that is well beyond the average consultant. That is why Petrovic's department has developed its reputation and technology. They responded to a demand across the country.

Commissioner Sadil: Let's just back up. What you are saying is there are some scientific options for the treatment.

Dr, Abrams: Dr. Petrovic's plan will be comprehensive. It will show you what compounds are available and what they will accomplish, and then he will discuss this specific types of grasses

that may or may not be advisable, and the specific targets, he even has provisions that are specifically like what was written in this memo, that there are cases where you don't broadcast spray, you go around and you find the spots and you treat the spots. The full range of activities he considers.

Commissioner Sadil: He is going to give this to the licensed applicator?

Dr. Abrams: Well, he is going to provide it to the town, or to the home owners association so that the licensed, the firm that is engaged to maintain the property, it's not going to be each home owner doing the lawns, it's going to be a landscape or contract firm and they have to be licensed so their license will be held up against this document, and enforcement, I presume at the town level but I suppose that the State has enforcement procedures because the State does the licensing for the applicators.

Attorney Regan: Ron, if you could, just, as I understand the Turf Management Plan, it goes farther than talking about the actual treatment of the turf. In fact, doesn't it decide what types of turf

Dr. Abrams: Yeah, yeah, oh yeah

Attorney Regan: It decides what types of turf are going in what areas and then decides how they will be treated and maintained long term.

Dr. Abrams: And then again, choices. He doesn't write a document that says this is the only way to do it. There are choices and he evaluates the toxicity and the potential for that toxicity to move in the environment and the different types of methods, like I said.....

Chairman Block: I really appreciate the sophisticate of the tool that the developer is planning to give to the home owner's association so they can manage their landscape. The only difference between the process that you are describing as other examples and being site specific to us, is that to a very great extent this soil base, rather than being, rather the plan being adapted to an existing soil situation, in this case the development is going to need the creation of the soils if applied on top of this recontoured.....

Dr. Abrams: And Dr. Petrovic will provide recommendations and analysis of that.

Chairman Block: To the developer who will use that in recovering the bare rock and soils and then the home owners association will have this further document as to how to cultivate the plant cover in this area.

Dr. Abrams: That's exactly, what you said is exactly what happens.

Attorney Regan: To take that further, we would anticipate that in the event that the project were to go forward, we would anticipate that whatever Dr. Petrovic came up with would be reviewed by the town's consultant to make sure that they were in agreement with the soil types, plant types and with the treatments for those, for that landscaping later on. Not only our plan we would suggest that we have a plan and that the Town have it independently reviewed and agreed to before we go forward.

Chairman Block: That's fine, I have to tell you, my minor in undergraduate was in agronomy, and that's a substantial task.

Dr. Abrams: That's why the whole ITMP discipline grew out of Cornell to have all the resources and his department has people who deal with the grasses, the plants, the soil, the chemistry, the toxicity, it's not the kind of discipline that is going to come from just anywhere. It has to be that specialized and that is why Cornell and of course once they got going they got more grants, more interest in it, more students in it, it's what they do.

Commissioner Sadil: Related to that, is the invasive management in the exposed areas while construction is going on, do you ever come back to what Sigrun was testifying, or what is your recommendation?

Dr. Abrams: I have been involved in invasive management, extensively. Much of what I read in that memo makes good sense. We as a team have talked about how to memorialize all of this, the ITMP will be one part, a storm water pollution prevention plan will be another part, and in each of these we will explore the detail and the choices that face land management, and yeah, there can be some labor intensive work on invasives management, particularly edge, control of forest edge. Again, we didn't find anything in what we read today that can't be worked out, to detail, and both of these documents, the ITMP and the SW3P become recipes, living documents that the management and the enforcement authorities have to refer to and act as standards.

Commissioner Clark: Have you been involved in a situation where the home owners association is held to such a high standard in perpetuity to be maintaining their properties under such strict guidelines.

Dr. Abrams: Yes, I have been involved in several projects, I will say, where we are headed with this project ranks very highly in strictness, but I have been involved in some, I've been involved in some projects in the New York City Watershed where the New York City reservoir is right next store and you can imagine the intensity of review and the mitigation and monitoring requirements were like what we are hearing now.

Commissioner Clark: So is the plan here that the home owners never really touch their own grass, somebody is mowing it, somebody is treating it, forever?

Dr. Abrams: I believe it is a contract arrangement.

Attorney Regan: Yes. It would be a contract arrangement that the home owners would, the landscaping would be provided for as part of the home owners association, so rather than each home owner contracting with their own landscaper or doing it themselves, they would have it done for them. This is pretty common in planned development communities. It's done that way all the time. Remember, not all common interest communities are condominiums, many of them have land around them, so in that regard, it's a pretty standard concept and we, Toll has had it in several planned development communities that are land locked, that are land units as opposed to building units, so it's not unusual, and there's probably a lot of people who like the idea of not having to deal with their own landscaping.

Commissioner Zelek: What is the average life span of a home owners association?

Attorney Regan: The average life span? It goes on for as long as the neighborhood is there. I mean, they are not terminal. They run with the land, so they would have to be terminated, they would some how have to be terminated by, once it is recorded on the land records, it runs with the land, as with any perpetual easement, conservation easement, or anything else in that regard.

Commissioner Clark: And so you have 48 lots with four people per house, how many people are on, is the home owners association formed solely of home owners and they volunteer to be on there, are they paid, how is it set up?

Attorney Regan: Usually it is a volunteer board.

Attorney Boorman: Well, it's a volunteer board that usually hires a profession company that manages the whole thing.

Attorney Regan: Imagineers being one of the large ones in the Hartford area.

Commissioner Clark: I'm sorry?

Attorney Regan: Imagineers being a larg one. So they usually manage it accordingly. So to answer your question, these are perpetual documents, no different than an easement or a conservation easement. They are recorded with the land, they run with the land and for as long as the land is part of that development, they run with it.

Commissioner Zelek: But I think you mentioned it could be terminated?

Attorney Boorman: We'll talk about the legal consequences, unless you think you need something from him. He's already given you his opinion, I'll be happy to talk about all that stuff when we do our evaluation.

Commissioner Zelek: That's fine, I'm just trying to get a sense of, my concern here in long term. You heard that this thing has been here since the last glacial period, and I want to compare the life of that to a home owners association.

Attorney Boorman: There was a comment made by George about the water budget for number three and fifteen percent. Can you folks comment on that before you finish up?

Attorney Regan; I don't, Ron do you want to....

Dr. Abrams: Well, what we heard from George was just do a little more grading arrangement and drainage arrangement to get a little more space from, well it's not by lot, it's by square footage and so Ray's group will take a look at how much more square footage.....

Attorney Boorman: You are talking about number three?

Dr. Abrams: Yeah, for right now for number three, to add extra water to number three, they are taking some of this drainage back towards three, so George's suggestion was to pick up maybe a little bit more square footage here, that seems, I think that is something that Ray's group would have no trouble with.

Attorney Regan: We had talked about that the last time. The Chairman had mentioned it and we'll probably set water budgets to try match pre/post conditions as much as possible but in this instance the Chairman had mentioned it and I think rightly so, it might be useful to supply a little more water post development to that wetlands than it is getting now. We can certainly alter the drainage to do that.

Attorney Boorman: George used the percentage of fifteen percent.

Attorney Regan: I don't think that is a problem, right?

Chairman Block: Okay, thank you. Since it is eleven o'clock I think, we will proceed straight to the citizens, and again, this is the eleventh hour of the eleventh hour of the hearing process and I really would request that any citizen that is going to speak, please be succinct and on point and brief.

Chris Greenlaw: Mr. Chair, I want to remind you that I received this e-mail and I would like to enter this into the record.

Holly Harlow, 11 Edmond St: Thanks again for all of your hard work and all the hours that you are putting into this. Can I just clarify something the way that I see it? I'm looking at the wetland regulation in 10.6 speaks to likely impact or affect the physical characteristic of such wetlands or watercourses. It does not stipulate significance or level of significance. It simply states likely impact. In my 56 years I've pretty much figured out that what can go wrong with something will go wrong eventually. It really concerns me to hear all these details and intricate if, ands, buts, plans, features, monitors, to make sure that everything that shouldn't go wrong doesn't go wrong, and it will eventually. And what will we say when we lose the swamp cottonwoods? Well, gee, we only developed twenty-five percent of the critical upland habitat, sorry, we really didn't think it was going to go anywhere cause we stuck to the rules, and, speaking of the critters, the Commission has the I believe, I'm sure you do somewhere in your multitude of documents, an e-mail of questions and answers with Elizabeth Harper. Those, somewhere in those questions have to do with upland habitat and how it is tricky to find out exactly what part of the habitat the salamanders are using for instance, so if you are destroying part of the upland that they are using, then you are losing part of that population. I think that is not a disputed element, what is, is we're a little bit above twenty five percent. Well, are you developing the right twenty-five percent or are you developing some place where there are critters and if there is consequences based on how many of the wetland critters are lost, that are likely going to impact the physical characteristics of the wetland, than that is significant. There's also a question and answer regarding, the answer has to do with keeping the adult population healthy because that obviously is how you re-produce. It concerns me to hear of the monitoring once apparently the amphibians leave the upland to go to the vernal pool to breed, that they should be prevented from going back into the developed areas. Well, and there is going to be monitoring apparently, but if I hate to keep saying if, but if the animals don't survive, if we expect them to and they don't, because they hit a siit fence and they are not wanting to go some where else, then you are losing population, that's not a dispute, population loss I think is accepted, but that means we have to count on monitoring being correct and accurate, and then the animals kind of cooperating, I think. You know, I don't mean to sound like the experts, with all the experts in the room, I know what I heard and what the Commission has documented from an expert in the field, so that is why I say this. The wood frogs apparently are more vulnerable than the salamanders because of how often they breed and the ages that they breed and if the wood frogs are important to the wetlands and they're populations are lost, and that is likely an impact on the physical characteristics of the wetland. I also was kind of trying to picture who would do the sweeps every day to make sure those valuable populations are maintained and sustained. I want to tell you a very short personal story. When I was in high school I took a music theory class because I like music and I thought it would be kind of fun and interesting to know how to write music, but I didn't play an instrument. Nobody told me that it would be a good idea if I had played an instrument. Because I followed all of the rules of how to create a scale and cords and progressions and all that, and I wrote them on my little graph paper but in no way was that music. You could bang it out on a piano, but in no way was that music and what I see here is just a collection of high maintenance principles, and storm water management features and monitoring plans, detention basins, and in no way does that resemble a functioning beautiful pristine wetland, surrounded by houses. The stuff I wrote in music theory was no way music, and a collection of laws and regulations and should be and should work, don't create and don't sustain a functional wetland habitat in my view.

Gail Bedrako, 21 Isabelle Terrace: The value of public hearing is not only to hear the voice of the opinions of the public but to provide members of the Commission with new information and to raise questions or concerns that are feasible and relevant to the mandate of this Commission. The public is not experts, nor do we as individuals have the resources or the sanction to pursue the experts and request testimony at these hearings. However, if public testimony introduces issues or raises any questions in the minds of any of the Commission members then it's prudent for the Commission to pursue the answers, either by seeking expert opinion or at a minimum addressing the topic fully in discussions prior to making a decision. It's clear that this development will directly, or indirectly impact the wetlands through more pollutants and different pollutants in runoff, changes to storm water flows and content, impact to buffer vegetation, interference with natural drainage, home owner generated litter blowing into the wetlands and home owner waste and yard debris dumped into the buffers, disturbance of wild life dependant on the wetlands for eating, breeding and resting, possible introduction of non-native or invasive plant species by individual home owners in their back yards in their private little gardens. Toll Brothers and their consultants had more than two years to survey and study this land. During that time they either didn't have the expertise or perhaps the will to design the site from the very beginning to minimize the impact to the wetlands. It took a prolonged and persistent effort by the public to raise issues sufficient enough that this Commission sought the opinion of independent outside experts. In two short months the independent experts discovered enough problems with the plans that the Tolls had to make substantial and significant last minute revisions. This to me raises a few questions. First, the sincerity of Toll Brothers concerns with impact to wetlands, second, the reliability of their experts, and third, what else is out there, waiting to be discovered, if only REMA had more time to do a thorough study. With every meeting we learned more about the complexities of the watershed and wetlands of Cedar Mountain. It's apparent that the onus of any mitigation plan is going to lie one hundred percent with the home owners association. Does anyone here honestly think this is realistic, effective and enforceable? Are you willing to put the future of the wetlands in the hands of a home owners association? At this point in time you are faced with a deadline. If there are some serious concerns, where there is not enough information to make a decision with conviction, please consider what you know, and most importantly what you don't know when you are making your decision. Thank you.

Allison Clark, 25 Wilbur Drive: Pleased to see admittedly a lot of changes that are in this plan. It took REMA's considerations and CERT's considerations and a lot of people seriously. I was pleased that Ray Gradwell stayed up until two in the morning after hearing REMA's presentation creating this new plan, but let's call a spade a spade. After the last presentation, after REMA's presentation, they had to come up with a new plan, after REMA said the prior plan would have had detrimental affects on the wetlands. As I mentioned before, I have been in real estate my whole life, I too have worked on both sides, for developers and more recently for preservation of open space. I worked on some of downtown Hartford's greatest commercial office buildings, I've worked with some great developers and some not so great developers. I don't know if you remember Colonial Realty, that was one mistake I made. I do not oppose development, Toll Brothers, or housing construction. I do oppose construction of homes on Cedar Mountain. I believe in smart growth. Toll Brothers should build their homes some where else, anywhere else in Newington. Give them an incentive to encourage them to go elsewhere. I'd love to see nice retail and residential mixed use in the downtown center, maybe on the Waldbaum's site. There is so many more places they could be, just not on Cedar Mountain. Cedar Mountain is the last, the one and only piece of property in my opinion, that really, really needs preservation in this town. You know I don't, I won't repeat every single reason, you've heard them all by now. Everybody says Cedar Mountain groupies all live at the base of the mountain, or they are the ones to hike it. I do not live at the base of Cedar Mountain, nor have I ever hiked Cedar Mountain. In all honesty, I did get a ride up on the Old Highway one day last spring in recognition of Earth Day when all the residents went to clean the mountain. That day strengthened my resolve to preserve it in it's natural state. Last week Attorney Brase said that Connecticut General Statutes were amended a

couple of years ago, and there are serious penalties, as much as twenty thousand dollars for cutting down a tree in a conservation area. Doesn't that make you wonder what seventy swamp cottonwood trees are worth? Attorney Brase also said that Toll Brothers and the Town of Wethersfield were very close to finalizing the HOA declaration pertaining to long term maintenance of the detention basin, whereby the association and individual lot owners would be liable parties. Newington or Wethersfield would have the right to place a lien on the property. I feel that this will not only be Newington's right but it will be their responsibility. Years from now when the drainage systems malfunction, or function less effectively, the residents won't take kindly to paying for the maintenance and repair, I wouldn't blame them on bit. I wouldn't want to pay for drainage systems to protect land that I didn't own, or to protect town owned land. So, what lots would have a liening post? All of them? It seems to me that placing liens on adjacent lots isn't fair just because they happen to be the unlucky abutters, so in all fairness the town should put liens on 48 lots. Seems like a royal pain in the you know what, doesn't it? If I was still a realtor, I would be obligated to warn my prospective buyers about the inherent risk of placing a lien, a lien being placed on their home. Of having to pay, or repair drainage systems that, on land that they didn't own, I wouldn't blame them at all for not wanting to buy a home there, not to want to pay that. Giving the HOA a drainage management plan and making them liable is not the answer. That will not protect the wetland. It will become incumbent upon the Town to monitor and enforcement the HOA compliance. To place liens on homeowners and become debt collectors, who is going to do that? At the last Toll Brothers meeting they said that the HOA is also going to be responsible for landscaping and snow removal. We've heard about that tonight. Seems to me that there answer to every problem is, make the HOA do it. Will the HOA preclude home owners from having swimming pools, I guess so. Will they be able to wash their cars in their driveways? Do you honestly believe that Mr. and Mrs. Greenjeans won't put fertilizers or pesticides on their pride and joy flower and vegetable gardens? Would you rather fight this in court now with Toll Brothers or become property mangers, fixing drainage systems, and chasing after a HOA and placing liens on 48 home owners later. One of Toll Brothers experts, by his own admission, with 35 years of experience had no answer to the question about excessive blasting on the wetlands. He was so excited to blast, he said that they could be in publication five years from now. What if their experiments and hypotheses are wrong? Cedar Mountain will surely make history. The herpetology expert performed his research on Cedar Mountain for two years. He either did not discover or did not disclose the presence of seventy threatened swamp cottonwood trees. According to the herp assessment and mitigation report, he was trapping on Cedar Mountain. Trapping is regulated by DEEP to ensure that (inaudible) are used, to identify scientific, practical and humane methods of trapping. Dru Associates was trapping without a permit. He described an artisan well as a broken pipe coming out of the ground. On Tuesday Mr. Slayback said we do not know the limits of the subsurface watershed as to whether or not these twelve acres identified in the circle of this plan included subsurface ground water runoff in the watershed. This uncertainty regarding the subsurface ground water, this uncertainty regarding the effects of blasting, should be reason enough to deny this application. On January 17th Attorney Brase stated, we recognize it's hard for BL Companies to do a detailed maintenance plan when the detention pond they are moving, even this week, he did see a possible alternative design that severs the connection between the two road system. This tells me that the plan presented Tuesday night in response to REMA, the plan that severed the road connection, or the connection between the two road systems, was not painstakingly created after REMA's presentation. I don't see the heat, stayed up until 2:00 a.m. that night. This plan or something similar was already reviewed by at least a few people, why didn't they present this plan before so that REMA or other people could have reviewed it? Why didn't they just say, we've been working on this plan for a couple of weeks, we think we finally have a plan that incorporates both CERT and REMA considerations. These half truths lessen their credibility. This new plan was not in response to REMA. They had this plan, at least drafted, some time before. In closing, I feel your pain with the mammoth amount of reports that you now need to go through, the piles of data that they had to present to prove their case, but at the end of the day, all this data cannot guarantee

that the wetlands and this critical habitat will be protected. The HOA is not the end all answer to all our problems and will not be answering all the drainage and landscaping issues. Monitoring is yet another thing that I didn't put in here, but I'm adding to it. If you doubt any of the testimony tonight, please vote no. Thank you Commissioners for listening and working late into the night to protect our wetlands and watercourses.

Roy Zartarian, 25 Stuart St.: Let me begin by expressing my appreciation to the Commission for the consideration that you have extended to the members of the public as we come up, even at this late hour. First of all for a change, I'm going to lay off Ron Abrams, I'm not going to talk about him, you've heard it all before. I'm going to follow Gail Bedrako's comments by saying that you, the Commission have recognized the importance of independent information in this decision process by retaining REMA, by requesting CERT's services, now please don't overlook what the public has been contributing in terms of oral and written testimony, and additional and relevant documentation from scientific journals and other sources. Some of us are citizen scientists, all of us that have been up here I think have been asking questions, we've been the Sherlock Holmes that the Town Attorney once told you that you couldn't be, and especially in the materials entered into the record by John Bachand. He offered what I think is additional technical expertise and perceptions, observations on the mountains hydrology. Two days ago the applicant sprung on all of us yet another plan, one they said was the result of almost round the clock work over the preceding few days, and they spoke of how the home owners association would oversee such matters as lawn maintenance, driveway plowing and housecat wrangling that could potentially affect the wetlands. Like others, both from the public, and I've heard the same at this table, I have to express my own skepticism about the feasibility of the scheme. Who's going to monitor the HOA, who's going to pay for the monitoring, who is going to be sure that the HOA maintains a sufficient reserve fund to pay for remediation if there is damage to the wetlands? Along those lines too, I would ask you to recall the testimony on January 8th of Mary Pelletier, the Park River Watershed Association, on her observations of residential dumping behind back yards and the ultimate consequences on the watershed. On January 17th, we learned that trapping done in the research of the 2011 herp assessment that was presented to the Commission was done without proper licensing. I began to wonder whether, because the trapping was done, strictly speaking illegally, the applicant's herp assessment should be declared inadmissible by this body. I'm thinking of parallels in the criminal justice environment where evidence is excluded because a judge determined that it was obtained illegally. I think that is called the fruit of the poisonous tree. Speaking of trees, the latest plan still calls for significant clear cutting. The experts on all sides can only hypothesize what the effect will be on the pools and the pool's inhabitants. The applicant tonight showed us a plan for what they called reforestation. It's not reforestation, it's planting some trees. This reforestation scheme will not reproduce the water filtering root system that would be lost, nor does it reproduce the extensive canopy, the leaf litter, or the coarse woody debris on the forest floor that serve a vital function in the ecosystem, in particular food and shelter to the various forms of wildlife. And, if these newly trees were treated with pesticides then those trees could not function as a food source for birds as natural in a forest normally do. By now we are all aware that amphibians do migrate, from pools into wetlands, into woodlands, but amphibians are not the only ones with dependence on the forest. Once again I will state, as I have at previous meetings, that the continued loss of nesting and migratory resting habitat from forest fragmentation is taking a toll on bird populations. Keep in mind that your action on this application, whether commendable decision to deny, (tape change.)

Myra Cohen, 42 Jeffrey Lane: Member of the Town Council but speaking for myself. Toll Brothers could not have honestly expected to build this project on this site with plans as originally presented without creating a chain of events that would eventually destroy an area that is not only unique to Newington, but unique to our state. Regardless of what they agreed to, in order to get this Commission's approval they cannot be depended on now, they cannot be depended on during construction, and no legal agreement or proposed penalty with home owners association

can be relied upon to prevent damage. Our town cannot now, or in the future monitor this private property 24/7 to control home owners. We are being asked to accept Toll Brothers reliability and home owners reliability at their undesirable construction and post construction results due to the plans that require corrections and possibly cannot be corrected. You are being asked to protect an open space our open space, our wetland, our special trees, critters, birds, etc., they work together and protect each other. Your decision should not require adding future obligations by the town of monitoring and resolving if possible problems that might be indicated. Toll Brothers is here to make money in any way they can and then leave.

John Bachand, 56 Maple Hill Avenue: I've got some things to hand out, and one of the items was ten pages long so I didn't copy, I didn't make copies for everyone, but I think you said that someone could make a copy and hand it to the rest of the Commissioners? Is that true Chris?

Attorney Boorman: Do you have copies?

John Bachand: I have copies of my core issue, but this is a supportive document that I only have one copy, it's ten pages long. This is the one that I have copies for everyone. I would like REMA to get a copy of that, I don't know if they normally do get a copy. I have a question for Chris but I'll wait until he sits back down again. I'll go through a few bullet points first. Again, I think I said my name and address, I'm a local contractor, I have been for 30 years. I tried to stick to looking at this, I said from the very beginning, just going to look at the water, I haven't even made a recommendation on how you should vote, I haven't even considered much about the animal and plant life there, I've strictly tried to look at the water. I think that affects that physical characteristic more than anything, affects on the water and the wetlands, the physical characteristics of the wetland. I'm just going to go, first I'm just going to go through a couple of bullet things that I heard tonight. First of all, the trenching, we heard about the stops, the horizontal and vertical stops in the trenching. If you could just only imagine the variations in that topography there, the quality control to really do that, you would need an engineer and a hydrologist every foot of the way. A laborer isn't going to do that to the specifications that they are telling you that it needs to be done. That main sewer we talked about that, there's an open space through the middle now where the road used to be. The main sewer is one of the deepest trenches, it does go right through part of the watershed. These are just the bullets I'm going to go through quick. All right, this is the part that I had for Chris, Mr. Greenlaw, the engineer. I've asked a few times, at least a few times for the PDF files on these plans, so I want to know now if there is a policy that cannot share the PDF files after they become public information, you know, after the plan has been submitted and it is now part of the public, I would like to know if I can get a copy of that in PDF? Can anyone answer that?

Attorney Boorman: You need to give your comments and then we can talk back to you later, but we're here to listen to you now, not have a dialogue.

John Bachand: So I can't ask a question?

Attorney Boorman: Just proceed with your comments.

John Bachand: Well then, I wish you would discuss it among yourself after if that is possible. I had two PhD's in touch with by e-mail and you are going to learn about that in that letter I just handed out, two professors from Eastern Connecticut State University, they asked to see the plans. I had nothing to provide to them, they were very interested, they volunteered their time. They're professionals. They teach this stuff, they teach the future engineers and the future hydrologists. I think it would have been very beneficial, so if we get an answer to that it would be great. I think I could just keep going on about that, it would take less time, an attachment to an e-mail, I clicked on a button, it takes less time than taking someone, I know that they are

overwhelmed in the building department now with this project, it would take less time to do that than to have a guy go up and fire up that giant machine that has to print a big giant piece of paper plus it costs more money, if you want to, I don't see how it's any different, unless there is some specific reason why you can't. I'd like to hear that.

About the home owners associations, this is really big because everything keeps coming back to the home owners association, and I think the women spoke well about it and everyone raised the questions. This is going to be a self governing body, this is all legal stuff, so I don't really know the exact legal stuff, but they're going to police the home owners, the home owners association is going to police the home owners, who polices the home owners association? Does the town have any control over the home owners association? Far as I can tell, no. It's written in their deed, it's written in their perpetual, paper work for their homes, but it is basically a self governing body. Let's just say they, for some reason the home owners association goes into default. The town has to go in and do remedial repair, expensive repair. Who do we go after then, so I think you have to, in that home owners association, it's going to be a huge cumbersome thing to do, but it has to be written into their deeds that they could be liened if the home owners association fails and there is serious work that has to be done that will cost the Town of Newington money, simply make it something that they can be liened on and that will at least try to have them do as good a job as possible.

Biop-swales, bio-swales, highly prone to leveling out over time. Probably not very long, they are a little hump in the ground, made of (inaudible) material, on a slope. Kids are going to play over there, they are going to get knocked down, they're not going to last. At best, this stuff is designed to work when it's brand new. We talked about the life expectancy and I can't see them lasting very long, so.....

American Elm, it's interesting that we find out that there is another endangered tree there. I grew up in Elm Hill in Newington, it's a section of town, it was also a school, but it was a whole section of town. I grew up in the sixties, I never saw an elm. I just heard the old timers talking about it. How did that one tree, what were the odds of that tree surviving? I think they said it was a thirty inch or something like that, that's a fully mature elm that has been around for a long, long time. Very interesting, something unique about that spot, how that tree survived.

People keep talking about that Clemens, I don't know if you are aware of it, but if you go on his site, he has a thirty page resume, pretty impressive. I actually spoke with him personally, Chris you might remember, I actually recommended him to you when it was discussed that the town needs to hire a consulting ecologist. I'm really happy that you chose REMA because I really like them, I like the way they work, I like the way, the methodology and the way that they present it. I don't completely agree on a couple things with them and I'm going to get to that in a second. And I don't even think it's not that we don't agree, I think it's just that they haven't had time to consider it. So, I would like you to ask them, one of the Commissioners asked how did the 110 pools that have been tested, how many, or what was the odds of them doing good or having problems. I'd just be curious, out of those 110 pools, I wish someone would ask them, how many are similar to this in their make-up and their characteristics. How many are sitting on a little mountain top like this, a little mountain top? And then one thing, Sigrun mentioned, or it was asked of her how the loss of amphibians could lead to a physical harm to the wetland itself. An actual physical impact and so I just figured it out, she said there is going to be leaf build up, leaf litter build up, that leads to lower capacity of water. Lower capacity of the wetland leads to higher and greater incidences of overflows which leads to more erosion which leads to diminishing of the size of the wetlands. Real simple, there's your physical impact, keep looking for it. Someone mentioned that it doesn't have to be significant, that would be significant.

Another one just came to mind, it's funny, because I was thinking to myself, I've got to go skating up there. I know I'm not going to damage the little saplings and trees that grow through the ice, you are going to have 48 families of kids, they're going to want to go skating there, it's beautiful, skating time right now. Well, skating, you are going to damage the small bushes all around, you're going to break bushes, there's enough room to skate in there, but you're going to keep making it bigger, you're going to keep damaging things along the way, playing hockey, something

that I just thought about today because I see they are cleaning the pond at Mill Pond and I took a picture of the wetland basin number two last week and it had a pretty good body of water on it, frozen, and I thought, Oh, it would be nice to skate on it, but it probably isn't very good for the wetland if someone that didn't care about it was doing that.

Someone mentioned Imagineers being a management company. I actually work for them, and I do drainage work for them, I can tell you right now, every one of their accounts is suffering cash flow problems, they can't afford to do the drainage and waterproofing work that they need to do. So they keep telling me, we have to hold off on this, we have to hold off on that. That's how management companies work.

Last of those bullets, I just want to say how great it is that we have Mrs Cohen to speak for us, and I don't know much about her, but I can imagine that in her politics she must be really good top.

Now I want to get to the core issue which is this letter here. In it, last week I was accused of heresy, and I understand what it means, I wasn't going to draw again, but I'm going to, last time. This whole issue about ground water basin versus watershed basin, you may not appreciate it or you may not understand it, so you are going to have to get input from the engineer to try to simplify it. I'm going to try to simplify it. It's actually a critical thing. You need to read this stuff in here, especially on that last page, these are studies that were done in Connecticut too, this is not far off stuff, well one of them was done in New England, characteristics of ground water basin in New England. It talks about the ground water basin being 150 percent of the actual drainage basin so what is the drainage basin. I don't know if everyone completely understands, you've got a wetland, where ever the surface water flows into it, let's say the surface water flows into it from an area like this, this water right here is the drainage basin, so let's say, this is obviously uphill, everything is draining into it on grade, in a continuous grade, down to this, this is the drainage basin. Now you have the potential area of the ground water basin, typically the ground water basin went by the same contour lines, as the drainage basin, but there is another body of science, and it is science, it's not voodoo, it's nothing else, we discussed, like I said, professors and, it's not new, but it's just being better understood because of the data gathering that is available. So, ground water basin is bigger, could be bigger, could be smaller than the drainage basin. I guess it could be smaller than the drainage basin too, that's true. A lot of this stuff is unknown. The ground water basin could be out here because let's say this land is higher in elevation, just like I did that thing like this, wetland basin, eastern plateau, that's what we have here. We have a plateau. So, even though this watershed basin, this drainage basin could be outside of this plateau, like right here, you could see this would be drainage here, this wouldn't be. This is going this way, so you wouldn't normally not get water from here on the surface flow, but, remember we talked about this fractured basalt, all this series of fractures, it's called, it's referred to as highly fractured, this water soaks into the ground, like this, and this is the big question, this is what no one could determine for sure, which way does it go. This water is dumb right now when it's in the ground. It doesn't care what the topography is right here, doesn't care what engineers drew on maps, once it's below the bedrock, remember the bedrock is right under the surface, once it's in here, it has the potential to go anywhere. It could go this way, it could go this way. So, how do you determine how much of that water is contributing to the wetland? It's called a flow path. You can read about it in there, you can find out more about it. It's a little bit complicated, but it's what they do to figure out how that water, how much of that water from the potential ground water basin is going into that wetland, so I think at the bare minimum, and again, it's an unknown, and even if you read this stuff, the professors say that it's not known. It could help them, it could hurt them, but it needs to be determined. To not determine that or to not know that number, or that value you're not getting the whole picture. So, from the very beginning, the fatal flaw or the major flaw of this whole project was that this unique topography and unique geology and unique spot, or site was never fully appreciated, was never respected. It was treated like a run of the mill project anywhere. The only thing that was a challenge to them was the blasting and things like that. The hydrology is so unique and so different here that I'm just curious how much experience they have with that kind of work, how much REMA has worked in those

kind of environments, they probably have, they've been around quite a bit, but it was never appreciated, what the potential for that, for the geology, for this site, for this, you had the applicant's hydro geologist refer to deep ground water aquifers. That are two hundred feet down or whatever. That has nothing to do with this site. This site is all localized unique characteristics and if you don't appreciate that, then that is not a good way to engineer something, first of all, but it could lead to problems, so.....let's see if I have anything else. I usually leave here and say, oh I wanted to say this or that. I guess that's it, if you could get that answer for me about the PDF files, it would be a big help. Everything else is on line, the minutes are all on line, everything is on line, it's all public information. I'm not saying that you have to put that on line, but actually, that would be pretty easy too but at least if someone could call and request it, they can get it. As I said, I had two, and both names are in there, Dr. Carlson and Dr. Metcalf, one's a hydro geologist and the other a GIS with a PhD in geographical services, that's how they chart this stuff, that's how that are learning to chart this stuff.

Chairman Block: Thank you John, we'll read it carefully.

John Bachand: And like I said, if you guys can discuss that and get an answer to that tonight, I'd really appreciate it. And like I'm saying, these two professors....

Attorney Boorman: Thank you.

John Bachand: Like I'm saying, these two professors are willing to help, so if they are willing to help me, I'm sure they are willing to help you.

Chairman Block: Thank you.

John Bachand: So even though this will be closed to the public, you can easily request their help.

Chairman Block: Thank you John.

Gary Bolles, 28 Burdon Lane: I do want to thank the Commission for all of the time that you have put in on this, and putting up with the developers, citizens, I give you all the credit in the world. The risks of development far outweigh the benefits to the Town of Newington and its citizens. Now approximately, I think it was about thirty years ago in Rocky Hill there was a developer who wanted to put up an office park, and one of the workers discovered dinosaur prints, and he was very honest about it. He enunciated that, and the whole development was stopped. What makes us think that there may not be, or may be dinosaur prints up on Cedar Mountain. I would hope that if they are discovered that the developer, or whoever, if this thing is approved, would be honest about it, and forthright in coming so we might have some revenue come into town for our dinosaur park. That's all I've got to say. Thank you.

Wayne Alexander, 28 Burdon Lane: Good evening. I want to thank this Commission, you guys really put up with a lot, look at the time, unbelievable. I just want to make this note, maybe you have already noticed it, but you know, you heard a lot about plans, you've got a long time to consider so much and yet, you know, I was thinking about what I heard Tuesday, and I was, it just bugged me, and it probably bugged you too, I don't know, but one of the things, Tuesday night, the applicant, he says, you know, it's Toll Brothers and given their history, they backed up and they bent over backwards to make concessions. They wanted to expand, do all this stuff and I'm sitting there thinking to myself, you know, that wasn't the first plan. The first plan was okay, and then I said to myself, then it hit me, maybe it occurred to you some where along the line, how desperate is Toll Brothers to get this Newington Walk approved. And then you have to ask yourself why? I agree with Council member Myra Cohen, because I conclude that they will do or say anything to get this project off the ground and when I think about it, if I was in your position, a

complete review of the Toll Brothers, as a developer would enter my mind, always in the decision calculus, and it should weigh heavily on your mind that you are deciding whether to permit the devil you know to do their business in your town. I'm just, just occurred to me, and I think you guys know this at the base level and I'm not going to get into a lot more stuff about Toll Brothers because I mean, it's a matter of record. Just think it your head, hey, how much uncertainty do we have as a Commission. Thank you.

Chairman Block: Anyone else? I'm sorry Holly, you have already spoken.

Holly Harlow: Oh, come on, it's the last night.

Attorney Boorman: If we opened it up for you, we would have to open it for everyone.

Chairman Block: I'd like to just paraphrase this e-mail from Marge Banach who contacted several of the Commissioners including myself and Chris and she is raising an issue, and you will be able to read it, and it's relating the issue as asthma as a chronic disease to the development and asserting that the additional development on Cedar Mountain is going to increase the risk of asthma to the community and therefore she does not appreciate the project.

Attorney Regan: If I could, I just want to make a couple of comments. Nothing long, because I realize we have to close the hearing tonight, and we are close to midnight, but on behalf of the applicant and our team, I want to thank the Commission for being patient with this process. I also wanted to thank Mr. Logan and Miss Gadwa and Mr. Hosley and Mr. Boorman and Mr. Greenlaw, the Town of Wethersfield. I've always viewed land regulation in Connecticut as an interactive process and that's what it is, and that's what this process has been. We started out with an application, I don't even know how long ago now, I've started to forget dates, that was 70 homes and 37 acres of open space being dedicated to the town. The current revised plan, after going through many iterations and responding to questions, comments and suggestions from the Commission, the public and the experts is now 48 homes and a little over 48 acres of open space for 48 homes. That is the way land use is supposed to work and the process is supposed to be iterative. I do also want to highlight one thing that I heard Councilwoman Cohen say, which is, this is private property. In the, lost in the shuffle of all this sometimes is the fact that, Cedar Mountain is clearly a different property but it is private property, residentially zoned for the use for which this application occurs. Connecticut General Statutes requires enacting legislation for water courses and wetlands, talks about the wetland's law of the state being a balancing between the state economic needs, land use and the protection of its natural resources. In this instance, one of the considerations and the balancing has to be the fact that this project will contribute 48 acres of open space to the Town of Newington permanently, and it will make the trap rock ridge and all the environmentally sensitive parts of this property a permanent open space in Newington which it is not now. Combined with the Marcap property next door, that would give you 78 acres of Cedar Mountain permanently as open space, dedicated to the Town, connected to greenways. So, in considering this application, please keep that in mind, that is one of the balances that goes into the requirements, the statutes, I think that is a very important one here. On behalf of the applicant and our team, thank you for your time and patience and consideration, we really appreciate it. Thank you.

Chairman Block: At this time I think.....

Commissioner Sadii: Is there a motion to close the public hearing?

Commissioner Block: Yes please.

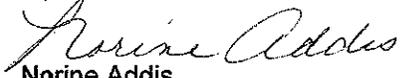
Commissioner Sadil move to close the public hearing. The motion was seconded by Commissioner Paskevich. The vote was unanimously in favor of the motion with six voting YES.

John Bachand: What about the PDF issue? Will you discuss it tonight?

Attorney Boorman: Excuse me, you are out of order.

The meeting was adjourned at 11: 40 p.m.

Respectfully submitted,


Norine Addis,
Temporary Recording Secretary

