Groth, Brian

From: Frank Gurrisi <fgurrisi52@gmail.com>
Sent: Monday, November 16, 2020 2:19 PM
To: Planning
Subject: Hudson logistics Center

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Heard that the end of the hearings for this proposal is fast approaching. I am hoping that for the future of this town this proposal is excepted and welcomed with open arms. The job opportunities for a young will be felt for generations. Also the idea that Amazon is coming into town is great news. Amazon has been declared an essential worker during this time providing goods to millions of Americans. Also the fact that Amazon has made clear they are behind Green energy most of their buildings will be off the grid

Sent from my iPad

Groth, Brian

From: Scott Wade <sjwade7422@gmail.com>
Sent: Monday, November 16, 2020 9:35 PM
To: Groth, Brian
Cc: Planning
Subject: Question about Fiscal Impact of HLC

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Brian and Planning Board Members,

Tonight during the Conservation Committee meeting, it was stated that Hillwood is going to turn over 120 acres to the town for conservation. That would remove that land from being taxed. How much does that lower the tax revenue from their last projection?

Also, in light of this revelation, have there been any other moves by Hillwood to lower their tax burden to either the town or the state?

Thanks,
Scott

1 Fairway Drive

Groth, Brian

From: Tim Wyatt <timwhudsonnh@gmail.com>
Sent: Wednesday, November 18, 2020 11:26 PM
To: Planning
Subject: Hillwood Proposal Traffic Concern

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Hello Hudson Planning Board,

Awesome job everyone, amazing effort, more power to you. My question, which will end up being an opinion is what happens when an accident or other event closes Sagamore Bridge, Route 3 North and or South? Are we getting a commitment from the tennant to halt trucks going in that direction or are we letting them take other routes until the problem is resolved? So in my opinion, just like fire code where there must be at least two exits from a room to reach safety in case of a fire, Green Meadow is not an ideal location for a distribution center having only one access to the highway.

Thank you for your service that is above and beyond,

Tim Wyatt
139 Barretts Hill Road
886-5227

Groth, Brian

From: Scott Wade <sjwade7422@gmail.com>
Sent: Thursday, November 19, 2020 11:26 AM
To: Groth, Brian
Cc: Planning; Dubowik, Brooke
Subject: Questions about traffic for the Hudson Logistics Center

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EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Good morning,

After watching the planning board meeting on November 18, 2020, I have several questions.

1. When the Langan rep was talking about the seasonal effect, was he saying that would last 14 days or 40 days? It was hard to discern for me.
2. With the seasonal effect (holiday shopping), did Langan take into account the increased traffic that would be going to Walmart or Sam's Club in their projections?
3. If Walmart Blvd is going to be an entrance/exit to the development, I'm curious but not that worried, how would that affect traffic trying to leave McDonald's and Sam's Club? It's quite adventurous at times trying to leave McDonald's with cars coming from Lowell Road heading towards Sam's Club and those leaving Sam's. Will there be a line of trucks waiting to turn left onto Lowell Road so customers leaving McDonald's can't go left themselves onto Walmart Blvd?
4. When traveling over the Sagamore Bridge to head south on Lowell Road, there is only one right turn lane. Does that need to be addressed given the amount of additional traffic that would be heading towards the logistics center?
5. The Sagamore can get backed up. Especially if there is an accident. How would that be dealt with if trucks are coming to make their deliveries but can't get there because of the traffic situation? There have been a couple of occasions the traffic is at a standstill because of a serious accident.
6. Langan showed very little traffic coming from Dracut Road. Yet, in the afternoon the traffic is so bad heading to it they want to try to fix it. At one point, they said that traffic coming from Dracut Road to Lowell Road would be employees. Are they saying the only traffic they were measuring is for employee traffic on Dracut Road? I'm sure they are not so I'm not understanding that comment.
7. This is more of a statement than a question but the Langan rep commented on the size of this project using a comparison that has been used (2x of the Pheasant Lane Mall). He said it's not nearly as big but he was talking about traffic. The 2x comparison is about the physical size of the development, not traffic.
8. Would Hillwood/Amazon be willing to enter discussions with the state to build and pay for a ramp directly into the property off of the Sagamore bridge road?
9. Since it was brought up but not an HLC project, when will the extra lane be built in front of the new strip mall (Jersey Mike's, etc.)?
10. For all of the traffic mitigations Hillwood is proposing, how long would all of that take to be built? Will that be done before the logistics center goes live?
11. Could the third building become a last-mile delivery facility? If so, would any of these proposed mitigations work?

12. Did any of the traffic projections include something for the third building?
13. What happens if the traffic to and from the facility is greater than what they are projecting? Would there be any conditions to limit the amount of traffic to what they are saying? There are places around the country that were told the traffic would be one thing but it is far greater and now those towns are in gridlock with Amazon vehicles and some are suing Amazon. Hudson should avoid both situations (excessive traffic over and above what has been repeatedly told the town and lawsuits if they don't). It's also hard to believe that for 15 years the traffic from the HLC will never increase or increase in a meaningful way.

Thank you,
Scott

--
Scott J. Wade
1 Fairway Drive

Groth, Brian

From: WILLIAM KALLGREN <kallgren@comcast.net>
Sent: Wednesday, November 18, 2020 11:47 PM
To: Planning; Coutu, Roger; Martin, Normand; McGrath, Marilyn; Morin, Dave; Roy, Kara; Groth, Brian; Dubowik, Brooke; Ed Vanderveen
Subject: Regarding Traffic Study Planning Meeting Nov 18th - Comments for public record

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Dear Planning Board,

Thank you for the opportunity to participate in this evenings planning board meeting. As time ran out for public comment, I wish to submit to the public record the following questions that I had as a direct result of the discussions this evening.

#1 Regarding Comments from Mr. Green at Amazon regarding trailer unload times. We have heard commentary that these trailers are frequently on-site for appreciably long periods where they may not be fully unloaded. Comments of 1.5 days is what I noted, and perhaps longer. This trailer storage would represent additional warehousing capacity at the facility. To Mr. Van der Veen's question regarding inventory turns, this additional storage capacity would need to be takin into consideration as part of that calculation for inventory turns.

My questions,

How much additional storage capacity does this represent?
What percentage of trucks arrive or depart at less than full load?

#2 Regarding Traffic Study discussions at the intersection of Lowell, Dracut and River Roads. The developer's representative during reviewing their analysis of this intersection (and I paraphrase) allowed for "future development of additional sites" in this area. Interpreting this that they see development potential I bring two questions.

Is the developer in active discussions with property owners to further expand the logistics complex? Was this factored into the traffic study?

#3 From my limited understanding of traffic analysis, the general guidebook used by the NHDOT for traffic study is referred to the Green Book and is available freely on-line. While many hundreds of pages in length, it does provide guidance in many instances when performing the long term analysis, a 20 year period is recommended.

Why did the developer deviate from a 20 year analysis and instead perform this on a ten year period.

#4 Regarding Comments from the representatives of Mercury Systems: They mentioned a temporary road being built through the Sam's Club access point. I can't recall seeing this in any of the packages provided and may have overlooked it.

Temporary development certainly should be part of the conversation.

Does this planned temporary road traverse any wetlands? Shouldn't it, as well as the proposed round about in the document package (which does impact wetlands) been brought up at the Conservation Committee meeting earlier this week?

They were not mentioned in that meeting and I understand that the round about is not the best solution and maybe taken off the table.

Respectfully submitted,

Bill Kallgren

11 Winslow Farm Rd,

Hudson NH

Groth, Brian

From: Jerome Bento <jeromejbento@gmail.com>
Sent: Thursday, November 19, 2020 8:56 AM
To: Planning
Subject: Public Input

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

I respectfully request that the Public Input session related to traffic impact of the Hillwood Logistics Center be continued at the 16 December Planning Board meeting prior to any presentations on new topics.

I also request an electronic copy of the presentation hand delivered to the Planning Board and staff prior to the 18 November meeting if different from what was posted on the meeting announcement.

Thank you for your assistance
Jerome J Bento
7 Muldoon Dr
Hudson, NH

Groth, Brian

From: JAMES CROWLEY <jkcrowleynh@comcast.net>
Sent: Saturday, November 21, 2020 8:37 PM
To: Planning
Subject: Traffic Impact Study - Design versus Observable Operational Traffic Impact Volumes

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

November 21, 2020

To:
Planning Board
Town Planner

RE: Traffic Impact Study - Design versus Observable Operational Traffic Impact Volumes

Please place this letter in the 12/16/2020 Planning Board packet.

In the Traffic Impact Study (TIS) the applicant maintains estimated traffic volume and distribution is accurate and supported by reliance on Land Use Code 155 High Cube Fulfillment Warehouse, Non Sort classification in the Institute of Traffic Engineers Trip Generation Manual. Generally peer reviews accept this land use designation but note the exceedingly high amount of non-corresponding loading docks. Reading the numerous comments submitted by the public it is quite evident there is much skepticism that design traffic volume will accurately reflect observable operational traffic volumes and resulting impacts. To add to this anxiety the applicant is in the process of changing this project from a 3 lot Industrial Subdivision to a 1 lot parcel with 3 proposed industrial condominium units. Condominiums legally exist in Hudson per RSA 456-B Condominium Act.

My First question concerning Traffic is: Will the estimated traffic volumes be altered in anyway due to the new condominium designations? As mentioned before the public is concerned with proposed design traffic volumes versus observable operating traffic conditions. Problems in Milford, MA have been sited. The applicant's general reply is the HLC facility does not have the same type of operation and they are a specific ITE land Use Code 155 High Cube Fulfillment Warehouse, Non Sort classification. Will the condominium status alter this ITE Land Use Code?

My Second question concerning Traffic is: Can a Design versus Observed Operational Traffic Impact assessment be requested by the Planning Board? To put this in context on Monday 11/16/2020 I attended the Conservation Commission (CC) meeting for this project. The public reminded the CC that specific examples and references to similar projects that had been requested in writing by the CC before had never been received. Until then the applicant has only replied that they have significant experience in developing these types of projects. The CC pressed them for actual examples instead of unsubstantiated assurances. Hillwood promised to supply this material to them 2 weeks prior to the next CC meeting and the results will then be posted on the Town website. So why not apply the same logic to help address a major issue concerning traffic volume and distribution between design values versus observed operational ones?

Hillwood and their future condominium tenant Amazon should easily be able to supply a list of approved and operational ITE Land Use Code 155 High Cube Fulfillment Warehouse, Non Sort classification projects and their warehouse floor space areas. Then a comparing of apples to apples with no results like Milford, MA operations not being comparable would happen. I am sure members of the public if the information is posted 2 weeks prior to the next Planning Board meeting will happily do internet searches with the list in hand. Then report by the 1 week written public input cutoff date the result of any observed notable problems with operational traffic. The source of information, surrounding community location, etc. could be provided for Planning Board scrutiny. If the provided list is long and extensive surely there are many potential volunteers in the public to complete all the review necessary if given adequate time. The Planning Board would also get important input on one major contested issue of Traffic from both parties in a relatively short period of time. The proposed study would be superior to using composite ITE data values and facilities for Land Use Code 155 because it would be based on only comparable operating Amazon facilities.

Due to the magnitude of the Hudson Logistics Center impact on Hudson and the surrounding communities, would the Planning Board respectfully request: A thorough study of equal Land Use Code 155 design traffic versus comparison of observed operating facility traffic impacts?

James Crowley
4 Fairway Drive

Groth, Brian

From: JAMES CROWLEY <jkcrowleynh@comcast.net>
Sent: Saturday, November 21, 2020 8:33 PM
To: Planning
Subject: Reduction in proposed Design Traffic Volume required per current application criteria

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

November 21, 2020

To:
Planning Board
Town Planner

RE: Reduction in proposed Design Traffic Volume required per current application criteria

Please place this letter in the 12/16/2020 Planning Board packet.

At the 11/18/2020 Planning Board meeting the Hudson Logistics Center project was presented as a single lot with 3 condominium buildings and a private driveway. The original application was for a 3 lot subdivision with one building per lot and a new subdivision road.

To put this in a Traffic issue context for the 12/16/2020 Planning Board meeting, the ITE land Use Code 155 High Cube Fulfillment Warehouse, Non Sort design traffic volume should be reduced by approximately 67 percent. Simply put the Applicant is limited to one building per lot unless the application is revised to request otherwise.

Therefore, unless the current Land Use application is revised to request a development that allows multiple buildings on a single parcel the applicant should only be allowed to present a one building per lot project plans.

I know a 67 percent reduction may be considered an extreme petition but hopefully I got your attention to resolve this issue before it clouds the validity of the project as it is currently being presented. If Subdivision regulations are not being used to create allowance for 3 buildings on this parcel what Hudson regulation(s) is the Applicant using to justify what they are presenting to the Planning Board and the public?

Your attention to this Traffic and Land Use matter would be appreciated.

James Crowley
4 Fairway Drive

Groth, Brian

From: Tim Wyatt <timwhudsonnh@gmail.com>
Sent: Sunday, November 22, 2020 8:06 AM
To: Planning
Subject: Amazon Logistics Center Traffic Mitigation

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Hello Hudson Planning Board,

Please provide plans by Hillwood for their proposal to mitigate increased traffic at the Memorial/Taylor Falls Bridge in anticipation of traffic seeking an alternate route to cross the river in order to avoid traffic congestion at the Sagamore Bridge caused by the Amazon Logistics Center. Plans for similar traffic mitigation should also be provided for the river crossing in Tyngsboro.

Thank you,
Tim Wyatt
139 Barretts Hill Road
Hudson, NH

Groth, Brian

From: Hudson New Hampshire via Hudson New Hampshire <noreply@hudsonnh.gov>
Sent: Friday, November 27, 2020 12:21 PM
To: Groth, Brian
Subject: Form submission from: Contact a Board or Committee

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Submitted on: Friday, November 27, 2020 - 12:21pm

Submitted by:

James Crowley

603-886-3441

jkcrowleynh@comcast.net

Question/Comments Submitted:

To:
Planning Board

RE: Roundabout location and 334-36(C) (2)

Please include this in the 12/16/2020 Planning Board placket for Site Plan issues to be presented by applicant after public input on Traffic.

The location of the access way roundabout in wetlands is still an unresolved issue. Please keep this in mind during the 12/16/2020 meeting when the Applicant presents project plans to the Planning Board.

It doesn't comply with the 334-36(C) (2) access roadway regulation for the following reasons:
• The ordinance specifically states an access way is to minimize impact on wetlands. A roundabout compared to straight alignment does not satisfy the minimize requirement.
• The last sentence of the 334-36(C) (2) says, "Such construction may be permitted within the District only when no viable alternative is available." The applicant wants us to limit interpretation of it to be they selected the best route for the access way through the wetlands. How does a roundabout located in wetlands with approximately 200 acres of up lands nearby full satisfy the no viable alternative is available requirement? By moving the roundabout westward to up lands there is a viable alternative to what is currently being proposed. Hudson regulations do not limit the length of private driveways so that cannot be a problem.
• The Hudson regulations give equal protective status to all District wetlands except man made ones. The subjective wetland function and value of a particular wetland or the area surrounding its location is not a factor to be considered in Hudson regulatory protection. The wetlands in the roundabout foot print are not man made so are fully protected by the 334-36(C) (2) access roadway regulation

Therefore, the Conservation Commission and Planning Board should NOT approve the Conditional Use permit with the issue of meeting 334-36(C) (2) requirements still unresolved on project plans.

Respectfully submitted
Jim Crowley
4 Fairway Drive

Groth, Brian

From: WILLIAM KALLGREN <kallgren@comcast.net>
Sent: Tuesday, December 1, 2020 9:28 PM
To: Groth, Brian; Planning
Subject: For public record - input on Hillwood traffic study

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Dec 1, 2020

Dear Mr. Groth, please forward as necessary to appropriate committees and commissions as pertinent. Thank you in advance.

Dear Mr. Coutu and Hudson Planning Board,

As a follow up to Mr. Coutu's questioning regarding the proposed Hillwood development from the mid November Planning Board meeting, vis-a-via your questions regarding requirement for two driveways and Hillwood's comments on utilization into the facility, I would respectfully opine further.

Please note, I am not an abutter to this development.

#1 Traffic volume to be supported by two driveways: The developer has indicated ~40% utilization of the facility. If that is the case, in layman's terms, the developer will need only a single access road into and out of the facility. They are asking for two roads. For the public record, I have already questioned the assumptions made in the traffic study. I believe they are significantly misrepresented. Needing two driveways only re-enforces that the traffic study is understated.

#2 Utilization- I have been working in the sales of capital equipment into general industry for the past 20 years. Unless an extremely high value project (such as defense related), planned utilization is typically extremely high. For the developer to suggest ~40% efficiency for this development is ridiculous. >97% efficiency with high levels of automation would be expected for many projects I am involved in. I believe you formally owned Roger's State Line Store; that you would ever plan only 40% efficiency of your operation is inconceivable.

Mr. Coutu, by the way, as a local resident to your former store, I appreciated the care that you attended to your customers and residents as a whole. I recall succinctly purchase of a case of stale beer. You were prompt to make things right and promptly replaced the stale product. That built confidence that you were a town representative to believe and trust in.

While you evaluate Hillwoood's proposals, I implore that you consider what they are saying and, most importantly, what they are not saying. They are misrepresenting the scope of this development. Please do not underestimate the negative impact on quality of life for the residents of the town of Hudson NH, should this proposal be approved.

If you have any questions or would like to discuss my thoughts further, do not hesitate to contact me via email at Kallgren@comcast.net or via phone at 603-930-2172.

Respectfully,

Bill Kallgren

11 Winslow Farm Rd.

Hudson NH.

Groth, Brian

From: WILLIAM KALLGREN <kallgren@comcast.net>
Sent: Tuesday, December 1, 2020 7:21 PM
To: Planning; Coutu, Roger; Martin, Normand; McGrath, Marilyn; Morin, Dave; Roy, Kara; Groth, Brian; Dubowik, Brooke; Ed Vanderveen
Subject: Re: Regarding Traffic Study Planning Meeting Nov 18th - Comments for public record

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Dec 1 2020

Re: Hudson Logistics Center Traffic Study

Dear Planning Board,

As a follow up from the recent Planning Board Meeting regarding the Hudson Logistics Center Traffic Study, I believe that the developer and review of the traffic study overlooked a critical aspect of the trip generation reported, specifically Gross Floor Area calculation for trip generation calculations.

While at a cost of approximately $1000, I do not own a copy of the referenced Institute of Transportation Engineers (ITE) Trip Generation Manual, I have been able to perform a reasonably quick search of the literature to gain a more thorough understanding of the process.

My understanding – Trip Generation is based on a calculation of data for different land use codes (LUC) for different types of developments, called the "generator". The LUC code allows for a calculation based on number of employees or Gross Floor Area (GFA). The calculation appears relatively straight forward, to the first order. The calculation allows for either a basis of number of employees, or a basis of gross floor area (i.e. rate per 1,000 square feet of GFA versus rate per employee). That rate that results in the highest number of trips must be used.

Definitions:

- Trip – A single or one-direction vehicle movement with the origin or destination inside a project area.
- Trip Ends – One trip end is equal to one trip. Total trip ends are the total off all trips entering plus all trips exiting a project area during a given period of time.
- Gross Floor Area – the sum (in square feet) of the area of each floor level, including cellars, basements, mezzanines, penthouses, corridors, restrooms, lobbies, stores and offices that are included WITHIN the principle outside faces of the exterior walls.

In the calculations provided by Langwood, the Foot Print of the buildings, not Gross Floor Area have been used as the basis for the trip generation figures presented. This appears inconsistent with the ITE guidelines.

I ask several questions:

What is the Gross Floor Area for these buildings? A quick tour of Amazon promotional materials (youtube) show facilities with three to five floors being fit into these facilities. This includes a five story facility in North Haven CT and a five story facility to be built in Andover MA. The trip generation would subsequently be (to the first order) three to five times higher.

What is the land use code for Building C?. It continues to be labeled as Cross Dock facility, while referred to as a warehouse. Cross dock facility would have higher trip generation compared to warehouse.

While it doesn't seem that that ITE manual addresses the additional storage capacity of partially filled trailers on site, or the effective gross floor area of automated conveyance systems within the facility, to a reasonable mind, these should also be included.

The developer again is misleading in confusing foot print of the building with gross floor area which will be significantly higher. Subsequently the traffic study reports significantly lower traffic volume than the ITE guidelines would suggest. At a layman's understanding Hillwood / Langwood are understating trip generation between 3 x 5 times. This is significant.

Please do not hesitate to contact me with any follow up questions.

Respectfully Submitted

Bill Kallgren

11 Winslow Farm Rd.

Hudson NH.

Date: December 2, 2020

To:

Planning Board

Re: Site Plan Comments for 12/16/2020 Planning Board meeting

Please include this in the 12/16/2020 Planning Board packet for Site Plan issues which are expected to be presented by applicant after public input on Traffic.

I feel this information is necessary to inform the Planning Board concerning noticeable Site Plan and Stormwater Management problems with the Hudson Logistics Center design. The Applicant should be able to address these concerns in their Site Plan presentation(s). A possible 12/30/2020 Planning Board meeting on this project, the holidays and one week prior cutoff date for written comments for it requires me to publish my concerns in advance.

Site Plan Issues

1. **Regulatory field work incomplete:** HR 290-5 A (4) requires "All groundwater recharge systems shall require on-site test pit and percolation test data to be submitted as part of the review." Most notable the Applicant is not in compliance with NHDES AoT regulation Env-Wq 1504.13 (c) concerning necessary required field information for designing Infiltration BMPs. The regulation requires a minimum number of test pits or borings be dug or drilled in the LOCATION of the system, depending on the size of the proposed system. Six of the ten Infiltration Basins being proposed do not meet this requirement for number of tests to be conducted in each Infiltration basin footprint. Currently the 09/14/2020 Stormwater Management Report section on Infiltration Feasibility states "To be completed during construction". Many of the Infiltration BMP's are in an area of minor grading or an earthwork cut area. The required testing should be completed before any project related design approvals are made. The currently existing use of the parcel is a golf course operation. This operation is seasonal and will cease to operate as winter approaches to mid-March. The Applicant would have full unencumbered access to do all the required testing in all but the BMP earthwork fill areas. The proposed project is most likely the single-largest land use development ever sought in New Hampshire. The Applicant has the assets, adequate time and access to provide the necessary testing in the proposed Infiltration basin footprints. The previous large volume of field testing 273 borings and 115 test pits were completed within about one month. The Applicant knows and has documented what the indispensable missing field data is needed so minimal time would be required to obtain it. Stormwater design is one of the most important considerations in any land use development and requires applicable field testing and data to be done correctly and to acceptable engineering standards. Is it unreasonable for a project of this magnitude to provide all regulatory specified field data and testing for peer review prior to a Site Plan approval? At a minimum the Applicant should explain why the remaining information cannot be provided before the Planning Board completes hearing on the project plans and documents. The Applicant has been aware of missing regulatory required field information since publishing their 09/14/2020 plans and reports. Why have they not taken additional actions to correct this?
2. **Allowed Building Height:** Per § 334-14 Height is measured from the average elevation of the finished grade within five feet of the structure to the highest point of the roof, excluding

accessory, unoccupied protuberances such as antennas, flagpoles and the like. Per § 334-14A the height of any proposed buildings at the Hudson Logistics Center site is allowed to be a total of 50 feet. The Applicant has still not supplied the necessary calculations to prove Zoning Ordinance requirements have been met. Peer review by Fuss & O'Neill has also noted this lack of information.

3. **Snow Storage & Infiltration Basins:** Infiltration Basins require pre-treatment practices up-gradient of them to achieve required design removal efficiencies of contaminates. Snow storage areas were added to plans per peer review request. However, the Plowed snow can contain pollutants such as salt, sand, oil, grease, captured air pollution particulates and trash, which can accumulate in the area where the snow is stored and can be released when the snow melts. Multiple snow storage areas do not supply pre-treatment of the snow melt prior to entering an infiltration basin. The design pollutant removal efficiency of all Infiltration Basin's without pre-treatment will be reduced as a result. Therefore, the Planning Board should require all snow melt runoff prior to entering an Infiltration Basin be filtered through a pre-treatment process.
4. **Access way** impacts per § 334-36(C) (2) of Article IX of the Zoning Ordinance which regulates the Wetlands Conservation Overlay District is still an unresolved issue for the private drive roundabout location. Please refer to letters dated November 27, 2020 to Conservation Commission and Planning Board from James Crowley of 4 Fairway Drive, Hudson. The Hudson regulations give equal protective status to all District wetlands except man made ones. The subjective wetland function and value of a particular wetland or the area surrounding its location is not a factor to be considered in Hudson regulatory protection. Wetlands especially in access roadway are accorded additional protection with minimization of impact criteria. Roundabout foot prints compared to straight alignment in the same wetland location do not comply with minimize requirements. Also, a compensatory mitigation option does not apply per Town code.
5. **Drastic earthwork required:** Geotechnical Engineering Study Lot C on page 5 of 27 the Building C Finished Floor elevation (149.0) will require a 19 foot cut below existing grade. Add 5 feet of depth for a loading dock plus 4 feet of foundation wall for building code frost protection plus foundation footing equals 19 + 5 + 4 + ?, or approximately 28 feet of cut. That is deeper than the full height of a two story house including chimney. No cut and fill calculations have been provided by the Applicant to determine where all this cut material will be used. Per Geotechnical Reports significant volumes of this cut material do not meet structural fill requirements for use under the 2.5 million square feet (57+ acres) of proposed building floor space.
6. **Rock removal:** On page 2 of 27 in the Geotechnical Engineering Study Lot C, "rock removal will be required for site areas to the west." On page 12 of 27 in Table 10 Summary Bedrock Information: In the proposed Building C footprint Inferred depth to bedrock is 15 to 36 feet or elevation +108 to +140 (Bedrock was found up to elevation +151 in one test pit: C-B-TP-10). The proposed Finished Floor Elevation of Building C is elevation 149 and bottom of foundation footings would be approximately elevation 140. Blasting will be required, the Planning Board and public should be made aware of this. The Applicant already has developed a bedrock surface model. Estimated volume calculations should be supplied for approximate order of magnitude knowledge of blasting required for site construction. At a minimum the Planning Board should insist on notes concerning blasting, allowed hours and notification of abutting residents prior to each blasting event. These notes should to be added to the project plans. Since this project is located adjacent to Residential neighborhoods preferably the proposed buildings, travel ways,

parking areas would be designed where no blasting is required. Per expert testimony the Residential neighborhoods will not suffer dominion of value. Does that apply to blasting during construction also?

7. **Emergency Spillway Design**: Per 09/14/2020 project plans NOT ALL infiltration basins have an emergency spillway which is basic engineering practice in Infiltration Basin design. Examples are Infiltration Basins A1-3, A1-4, and A1-5. Infiltration Basins B6-3 and B6-4 have emergency spillways that discharge to Dry Extended Detention Basin which does not comply with Env-Wt 525.04(b) for that use. See project drawings CG-116, 117, 118, 120, 122 and 127.

Stormwater Management

1. **Spill Protection requires Upgrading:** The high volume of truck traffic can and most likely will carry numerous water soluble chemicals in packages during the 24/7 365 day operations. The named tenant of two buildings, Amazon, has not supplied any statistical data of what volume may fall into this category or even data on possibly handling of hazardous materials. Recent news information mentions indications of spills at Amazon facilities. The wetlands and groundwater are not fully guarded from chemical concentrations of water soluble chemical spills occurring in driveway or more likely the multiple loading dock locations protected by only Oil/Water separator BMPs. Accidental spills from any water soluble chemical products large or small in volume will NOT be stopped or inhibited by an oil/water separator Best Management Practice (BMP) before being flushed into a wetland or infiltrated into the groundwater. The proposed separators rely on the pollutant being a suspended solid or separable by its non-water soluble characteristic to function correctly and are not sufficient to provide the protection needed.
2. **Transfer of watershed area outlets:** The existing surface stormwater runoff flows primarily in two directions. Direction A westward towards the Merrimack River. Direction B eastward towards Limit Brook and wetlands on the east side of the parcel. Per Stormwater Management Report existing Direction B watershed area is reduced by approximately 43 acres.
3. **Disruption of existing groundwater flow:** The Stormwater Management Report dated September 14, 2020 on page 34 of 38 Section 3.8 Geotechnical Considerations states:" Due to the large, flat footprint required by the specific use, the central and central southern portions of the site are located in a large cut area. This cut will impact and expose the existing groundwater surface." Please read Section 3.8 in its entirety. Per the Applicants submitted engineering documents there will be a disruption of underground flow. In the Geotechnical Engineering Study Lot C page 12 of 27 Table 11. Summary Groundwater Information the proposed Building C footprint area water table elevations range from 126 to 149. The Loading Dock is elevation 144. A geotechnical assessment of these groundwater impacts on the aquifer has not been provided by the Applicant and should be. The modeling program used to supply calculations in the 09/14/2020 Stormwater Management Report is for surface stormwater runoff calculation modeling. How can it correctly model groundwater flows. For example several arbitrary 100 acre watersheds and Diversion watersheds "Removed from Model "are used to balance stormwater runoff volumes for 24 hour storm events. Also, dimensionless watersheds (no Time of Concentration, no Curve Number justification and no acreage) are inserted into the modeling program to provide an undocumented constant groundwater flow rate. No supporting geotechnical documentation is supplied to verify how the constant groundwater flow rates were determined. This geotechnical supporting information should be submitted for peer review.

4. **Redirection of existing groundwater flow:** The existing parcel surface stormwater runoff flows primarily in two directions as mentioned before and due to existing topography groundwater flow directions would approximately mirror it. Proposed Building C is in the existing Direction B groundwater flow area towards Limit Brook and eastern wetlands. Per Geotechnical Engineering Study Lot C, Revised 31 August 2020 page 2 of 27 states: "Groundwater was encountered within 4 feet and above proposed select paved areas. Permanent dewatering (underdrains) will be required at the western side of the lot (Building C) for up to 250,000 square feet of paved area." and also "Groundwater was encountered one foot below the proposed slab elevation for the building. Permanent dewatering (sub-slab underdrains) will be required for up to 10,000 square feet of the building area." This is approximately 6 acres of groundwater area of constant flow will be redirected to Infiltration Basin A1-4. The majority of that constant flow that will then either eventually directly discharged to the Merrimack River or end up in the river's groundwater recharge. As a result this flow and volume of groundwater recharge will be directed away from its former destination of Limit Brook and eastern wetlands. A geotechnical assessment of these groundwater impacts on the wetlands and aquifer has not been provided by the Applicant and should be. Also, as stated earlier no supporting geotechnical documentation has been supplied to verify how the constant groundwater flow rates were determined. This geotechnical supporting information should be submitted for peer review.
5. **Balancing of Pre and Post Stormwater Impacts:** Site design has not completely avoided impacts to the southernmost pond. In the Stormwater Management Report dated September 14, 2020 the existing watershed which is the sole source of stormwater recharge to the pond is 10.50 acres in size. The proposed watershed which will be the sole source of stormwater recharge to the pond is 2.86 acres. This is approximately a 73 percent reduction in surface stormwater recharge between existing and proposed conditions. Impact to this pond has not been completely avoided.
6. **Stormwater management Design impact on adjacent wetland resources:** The pollutant load on the parcel will increase from a golf course to industrial operation. It is questionable that Best Management Practices pollutant removal efficiencies will prevent a net-increase in the overall pollutant impact load on adjacent wetlands. This is typical of any development no matter how well designed and maintained the stormwater management system is. Even with state of the art stormwater management a typical highway project would simply spread this unavoidable net-increase in pollutant load over a significantly long length of roadway. However, the Conditional Use Permit for the Hudson Logistics Center will release this net-increase in pollutant load by comparison in a concentrated release location. The magnitude of the project and its full impact on the surrounding wetlands and Merrimack River should be a significant consideration parameter in the Planning Board review.

Please take the comments presented in this letter into consideration while listening to the Applicants 12/16/2020 Site Plan presentation(s) and authorize additional peer reviews of Site Plan design and Stormwater Management system technical issues presented in this letter.

Respectfully submitted
James Crowley
4 Fairway Drive

Groth, Brian

From: Scott Wade <sjwade7422@gmail.com>
Sent: Saturday, December 5, 2020 9:38 AM
To: Groth, Brian
Cc: Planning
Subject: Question about HLC

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Good morning,

In the recent document upload, I see that someone asked Hillwood a question about where is the closest comparable Amazon facility to us. They didn't answer the question.

1. The developer stated these facilities are somewhat of a new concept for Amazon. Where is the closest comparable property for them?
Response: These facilities are not new types of facilities for their role in the supply chain. What is new about these facilities is the configuration of the building operations. As Amazon has stated, these facilities continually evolve their operations to meet the needs of their customers and improve operations and safety. These facilities will operate similarly to other similar facilities filling their specific roles.

I know this question, in various forms, has been asked but never answered publicly. I know I asked as far back as the first public hearing in May. Have they provided this information to the town but nothing to the public? I'm just trying to understand how such a basic question hasn't been answered.

I think we all want to know, where else in the USA has a development of this type (size and purpose) been built by Hillwood **and** is as close to a residential neighborhood as this one being proposed for Hudson.

We deserve and are owed an answer.

Thank you,
Scott
--
Scott J. Wade
1 Fairway Drive

Groth, Brian

From: Donna Russo <dgrusso1@myfairpoint.net>
Sent: Sunday, December 6, 2020 3:55 PM
To: Coutu, Roger; Planning
Cc: DGRUSSO1@myfairpoint.net
Subject: RE: Hudson NH Logistics Center - Traffic Plan

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Dear Planning Board,

In recent weeks there have been several news articles concerning Amazon Logistic Centers which I want to bring to the Boards attention. All of the articles on the below sites can be easily accessed.

Trammell Crow Co. is building a $350 million distribution center on 111 acres of land formerly occupied by the Liverpool Public Golf and Country Club on Morgan Road in Clay NY. The distribution center will be used by Amazon to pick, pack and ship small items like books, electronics and toys. There is also a similar site in Syracuse NY in process of being built.

In the local news this week.....the developer Hillwood Investment Properties is under contract to purchase Osgood Landing at the site of the former Lucent Technologies. They plan to demolish most of the site and develop a 3.6 million square foot facility for a undisclosed tenant. Hillwood would not specify the tenant due to non-disclosure agreements, but it is widely known that the developer has built almost 30 similar fulfillment and distribution centers across the country for Amazon. Amazon is also listed on their web site as a customer.

According to Amazons website the recent development is required to ensure they can deliver on their promise of one day delivery for their prime customers.

It should be noted that although some have welcomed the prospect of Amazon bringing tax incentives to their towns (proposed sites are mostly located in industrial areas), there have been more that are resisting the e-commerce giant for all of the same concerns that have been raised in Hudson. There are many similarities for these locations compared to Hudson (IE: many are former golf courses in residential areas near easy access to highways). All are in various states of building or approval.
I strongly urge the Hudson Planning Board to research the issues (and mitigation results) other towns have encountered as part of the ongoing vetting and approval process.

Thank you,

Regards.

Donna and John Russo
15 Ridgecrest Drive

On Tue, 13 Oct 2020 16:27:08 -0400, rogerec <rogerec@comcast.net> wrote:

Thank you for your comments Donna and John. I am forwarding this email to the Planning Board.

Selectman Roger Coutu

Sent from Samsung Galaxy smartphone.

-------- Original message --------
From: Donna Russo <dgrusso1@myfairpoint.net>
Date: 10/13/20 3:47 PM (GMT-05:00)
To: rcoutu@hudsonnh.gov
Cc: DGRUSSO1@myfairpoint.net
Subject: Hudson NH Logistics Center - Traffic Plan

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Dear Mr Coutu and Planning Board,

Although we have not been physically attending the meetings we have both been remotely watching as well as keeping informed of any new public information as it has become available. Although we understand the right of the owners of Green Meadow to sell their property as they wish we are very concerned about the development of such a large scale project in our small town of Hudson which will forever change the quality of life we currently enjoy.

We bought our property at 15 Ridgecrest Dr (adjacent to Rena Ave, across from Mercury) fourteen years ago and have enjoyed the quiet country like setting of our neighborhood. Where concerned the impact of additional traffic, noise levels and impact on the environment will ruin our neighborhood.

I was astonished (although not surprised) that Hillwood is proposing such large and invasive changes for traffic control. It appears that their statements to the planning board and residents of Hudson about minimal traffic impacts are not accurate. The proposed plan would require massive changes to the current roads and result in many properties being taken by eminent domain. The entire scope of Lowell road will change. Our quiet neighborhood will now be bordering a large roadway frequently traveled by many large trucks 24 hours of the day 365 days of the year in addition to the current traffic. Has any thought been given to providing an entrance/exit right off the highway to lessen the impact to local roads in Hudson? That might be a better way to mitigate the traffic.

I could go on about other concerns but anyway you look at it this development will seriously impact the quality of life for the town of Hudson as well as bordering towns. We urge the planning board to not approve this project.

Sincerely,

Donna and John Russo
15 Ridgecrest Dr
Hudson, NH

Date: December 6, 2020

To: Planning Board

Re: Revised December 2020, Stormwater Management Report - Proposed Curve Number values

Please include this letter in the 12/16/2020 Planning Board packet for Site Plan issues which are expected to be presented by applicant after public input on Traffic.

I feel this information is necessary to inform the Planning Board concerning noticeable Stormwater Management problems with the Hudson Logistics Center design. The Applicant should be able to address these concerns in their Site Plan presentation(s). A possible 12/30/2020 Planning Board meeting on this project, the holidays and one week prior cutoff date for written comments for it requires me to publish my concerns in advance.

I have previously notified the Town Planner Brian Groth on Friday December 04, 2020 that the Revised September 2020 Stormwater Management Report, Appendix B - Proposed Stormwater Discharge Calculations for Curve Number (CN) data sheets were for a North Andover, Massachusetts project. Mr. Groth immediately notified the Town peer review engineering firm Fuss and O'Neill who quickly verified that the "runoff curve number summary sheets" were for a project in North Andover. It was concluded it was more of a printing / compiling error in the September report that did not carry through to actual hydrograph calculations. Fuss and O'Neill had just received the new Revised December 2020 Report and would make a comparison of CN and ground cover calculations and then report their findings on its correctness.

After reviewing the December report runoff Curve Number summary sheets for "Proposed" condition CN values I believe there are some serious concerns in that report also. The Town should authorize the peer review firm to look into the following results of my analysis.

When comparing the original May Stormwater Management Report proposed condition Curve Numbers to the new December proposed condition Curve Numbers many questions arise. No comparisons could be made to the erroneous September report. Below is a table comparing the two "Good" reports.

May and December Stormwater Management Reports
Proposed Summary runoff Curve Number data
Comparison of Watershed Areas for Impervious cover and groundcover by HSG soil designation

Stormwater Report date	Impervious Acreage	HSG A Acreage	HSG B Acreage	HSG C Acreage	HSG D Acreage	TOTAL Project Watershed Acreage
May 2020	152.69	5.37	185.20	0.00	44.38	387.64
December 2020	152.67	8.57	190.27	0.00	36.14	387.65
Net change in acreage from May to December	-0.02	+3.20	+5.07	0.00	-8.24	+0.01

Note: HSG = Hydrologic Soil Group

Based on the above comparison table of the two Stormwater Reports many questions arise.

QUESTIONS concerning comparison table:

1. **IMPERVIOUS Acreage:** Since the May report the project has under gone several land development changes that would have affected the impervious acreage coverage values. These changes should have resulted in more than a 0.02 acreage decrease between the May and December reports. Does this insignificant change in impervious acreage make sense when the many land development adjustments were made?
2. **Buildings B & C relocated:** Both of these buildings were shifted northward. This should have reduced the access roadway asphalt impervious coverage. Why is there no real change in total impervious acreage?
3. **Cul-de-sac to Roundabout:** In May the project plans proposed a Green Meadow Drive right-of-way with a significantly large Cul-de-sac footprint of impervious coverage. In the December report this is changed to a private drive with a smaller footprint of impervious coverage. Why is there no real change in total impervious acreage?
4. **Parking Space Reduction:** The May project plans had 1,845 parking spaces this was reduced to 1,806 parking spaces in December. Each proposed parking space is 9 feet by 18 feet. So the 39 parking space reduction would be 6,318 square feet (0.15 acres). This by itself is greater than the total reported 0.02 acreage reduction in impervious area. Again how can the total calculated acreage be correct for impervious coverage?
5. **HSG A & B acreages:** How can you increase the acreage of these two Hydrologic Soil Groups when you do not reduce the amount of the total volume of impervious coverage on the site by the same acreage amount? Remember you have to balance all ground cover acreage to 387.65 acres.
6. **HSG D acreages:** This is a Poorly Drained Hydrologic Soil Group designation. In other words these are wetland soils. I have been to all the Conservation Commission public hearing meetings for this project. During those meetings the Applicants team of presenters have shown all the reductions in wetlands impacts they have made to improve the project design since May. Per my notes the May Wetlands Impact Plan FG01 had a permanent wetland impact area of 114,179 square feet (2.62 acres). The December 2, 2020 Wetland Impact Plan FG01 has a permanent impact area of 69,447 square feet (1.59 acres). Based on simple math it means that 1.03 acres were saved from being filled in by changes to the project design. If this is the case the new December 2020 Stormwater Management Report for proposed Curve Number values for HSG D "wetland soils" acreage should have increased by 1.03 acres from the May report. However, in the December report compared to the May report the HSG D acreage was reduced by 8.24 acres. That meanings the Applicant calculates in the December Stormwater Management Report they filled in 8.24 acres (358,934 square feet) of wetlands!!! If this is so the Applicant should report the 358,934 square feet of permanent wetlands impact to the Conservation Commission and the NHDES Wetlands Bureau.

If questions 1 thru 5 do not make one wonder about the validity of proposed runoff Curve Number data in the new December Stormwater Management Report, question 7 should. Erroneous Curve Numbers for individual watersheds will cause a ripple effect throughout all the stormwater modeling calculations and system design.

Please take the comments presented in this letter into consideration while listening to the Applicants 12/16/2020 Site Plan presentation(s) and authorize additional peer review of Stormwater Management system technical issues presented in this letter.

Respectfully submitted
James Crowley
4 Fairway Drive

Groth, Brian

From: Tim Monk <tamonk@ucdavis.edu>
Sent: Monday, December 7, 2020 9:31 AM
To: Planning
Subject: HLC: Traffic Questions

EXTERNAL: Do not open attachments or click links unless you recognize and trust the sender.

Dear Planning Board Members,

After attending the last Planning Board meeting and reading Langan's memo responding to questions dated Nov. 30, I have the following questions regarding the traffic aspects of the Hudson Logistics Center proposal.

1) Since the applicant is confident in their traffic study, would they accept a condition that they may only operate as long as the actual traffic counts stay within the number provided in their study? While "Hillwood has agreed to conduct a post opening trip generation study to confirm the volumes from the development", that would not provide much surety that traffic will not increase beyond their prediction after 2, 5, or 10 years.

2) I previously wrote with my concerns that the proposed road improvements are not safe for bicycles and thus will not be able to be constructed as presently envisioned. At what stage in the process will these concerned be addressed?

3) While Langan wrote a memo on the expected increase in trip generation due to seasonality, it is not addressed in the Traffic Impact Study. What is the impact on traffic in the area with the expected 60% seasonal increase in employees?

4) During the last meeting, there was some question whether the roughly 80 new apartments being built as Friars Court is included in the traffic study. These apartments are not included in the list of projects on page 11 of the Traffic Impact Study. What impact does its inclusion have?

Regards,
Tim Monk
13 Fairway Dr.

Date: December 7, 2020

To: Planning Board

Copies: GeoInsight, Inc.
Marc E. Jacobs, CSS, CWS, PWS, CPES
BCM Environmental & Land Law, PLLC

Re: Geotechnical Review of the Hudson Logistics Center project, Item 9

Please include this letter in the 12/16/2020 Planning Board packet for Site Plan issues which are expected to be presented by applicant after public input on Traffic.

On November 13, 2020 GeoInsight, Inc. published an expedited initial overview letter of peer review geotechnical recommendations for additional evaluations of the Hudson Logistic Center project. Due to the volume of material reviewed and other time constraints an in depth review was not submitted.

The GeoInsight, Inc. 11/13/2020 Overview letter provides many project review comments that the Town of Hudson should authorize their engineering consultant Fuss & O'Neill to investigate in more depth.

I feel this following information is necessary to inform the Planning Board concerning noticeable Site Plan and Stormwater Management problems with the Hudson Logistics Center design. The Applicant should be able to address these concerns in their Site Plan presentation(s). A possible 12/30/2020 Planning Board meeting on this project, the holidays and one week prior cutoff date for written comments for it requires me to publish my concerns in advance.

At a minimum I believe Stormwater Management Item 9 in the 11/13/2020 letter high lights the need for an in-depth professional peer review evaluation of the present Site Specific Soils Mapping (SSSM) delineation and its impact on stormwater management design for the follow reasons:

CONCLUSIONS

1. The Planning Board relies on peer reviews of Site Plans, Subdivision Plans, Traffic, Noise, Air, Stormwater, etc. Inaccurate Site Specific Soils Map delineation has been found on Hudson Logistic Center plans per Test Pit logs and a peer review should be authorized.
2. The approximately 300 acre shift in Hydrologic Soil Group (HSG) delineation from HSG A to HSG B requires a peer review of the Site Specific Soils Mapping (SSSM) by a qualified professional. See Table 1.
3. Inaccurate SSSM Hydrologic Soil Group designations can drastically understate the necessary Stormwater Management System computer modeling program calculated runoff Volumes and Peak Runoff Rates by as much as 156 % to 183 %. See Table 4.
4. Due to the size and complexity of the proposed project an intensive Geotechnical engineer peer review is also needed for even issues beyond concerns for stormwater such as: groundwater and aquifer impacts, earthwork stabilization, bedrock blasting, to name a few.

INDEX to Additional Detail Commentary on Item 9 in 11/13/2020 GeoInsight Letter

PART I - GEOINSIGHT LETTER ITEM 9 STATEMENT

The following is Stormwater Management Item 9 in the 11/13/2020 letter.

9. Initial review of the soil data as presented in the proponent's submittals show discrepancies between USDA NRCS soil survey data and the Site Specific Soils Mapping (SSSM). Specifically, NRCS soils that are shown to be identified as Hydrologic Soil Group (HSG) 'A' are in conflict with SSSM areas shown as HSG 'B' which covers a fairly large area of the site. This discrepancy could be significant with respect to stormwater runoff calculations; peak flows and volumes that need to be managed; and to a lesser degree, infiltration, and groundwater recharge rates.

   We recommend an independent and thorough review and verification of the SSSM be completed. Additionally, the proponent should provide a full explanation of the differences between the two data sets.

PART II - HYDROLOGIC SOIL GROUP DELINEATION ACCURACY

PART II SECTION A - Variance between USDA NRCS and SSSM soil survey data

Below is **Table 1** which is a Comparison of USDA NRCS versus SSSM for watershed areas modeled in the Stormwater Management Report for Hudson Logistics Center Revised December, 2020. The SSSM data is obtained from Appendix A – Existing Stormwater Discharge Calculations in the December 2020 Stormwater Management Report. The USDA NRCS data can be obtained directly by selecting the same watershed perimeter of 387 acres on the USDA NRCS website mapping tool.

TABLE 1
NRCS mapped soils versus SSSM soils for the HLC project by Hydrologic Soil Group

HSG designation	USDA NRCS +/- acreage	SSSM acreage per HLC documents	Change in Ac of HSG soil quantity from NRCS to SSSM acreage
IMPERVIOUS	N/A	18.42	+18.42
A	312	3.48	-308.52
B	49	328.55	+279.55
C	0	0	0
D	26	37.19	+11.19
TOTAL	387	387.64	+0.64

The Table 1 demonstrates the drastic change from USDA NRCS designated HSG A acreage of 312 acres to the SSSM designated HSG B acreage of 328.55 out of a total watershed modeled area of 387.64 acres.

This is a drastic change in Hydrologic Soil Group (HGS) designation between the two soil delineation studies and deserves closer examination. Why is there such a drastic difference and is it logical?

PART II SECTION B - Identifying features of Windsor, Agawam, Ninigret and Deerfield series soils

USDA NRCS Soils identified in mapping method by Hydrologic Soil Group HSG and soil series

HSG A

- Most of the 312 acres of USDA NRCS HSG A soil is **Windsor Series** – Drainage Class is Excessively drained, which means it's Drainage and Saturated Hydraulic Conductivity is high or very high. The Runoff class is Low in which surface runoff is removed very rapidly. The occurrence of internal free water commonly is very rare or very deep. In other words field observed moisture levels in Test Pits and Soil Borings would be relatively low to dry. The Depth to Seasonal High Water Table: (SHWT) would be more than 80 inches so groundwater elevations are deep.

HSG B

- Approximately 11 acres of NRCS HSG B soil is **Deerfield Series**: Drainage Class is Moderately well drained; Runoff class is Very low and Depth to Seasonal High Water Table is approximately 18 to 36 inches.
- Approximately 38 acres of NRCS HSG B soil is **Agawam Series**: Drainage Class is Well drained; Runoff class is Very low and Depth to Seasonal High Water Table is More than 72 inches

SSSM Soils identified in mapping method by Hydrologic Soil Group HSG and soil series

HSG A

- The 3.48 acres of SSSM HSG A soil is comprised of **Udorthents** Series composition and character varies.

HSG B

- The 328.55 acres of SSSM HSG B soil is comprised of Agawam Series and Ninigret Series.
    - **Agawam**: Drainage Class is Well drained; Runoff class is Very low and Depth to Seasonal High Water Table is More than 72 inches.
    - **Ninigret**: Drainage Class is Moderately well drained; Runoff class is Very low and Depth to Seasonal High Water Table is approximately 20 to 36 inches.

IMPERVIOUS

- The 18.42 acres of SSSM Impervious is area covered with existing golf course buildings, asphalt from roadways, parking areas and cart paths.

Predominate and easily observable characteristic of both Ninigret and Deerfield soil series is the SHWT feature. If SSSM and USDA NRCS soil mapping is done correctly any Ninigret or Deerfield soil would have a noticeable SHWT elevation or mottling notation in the Test Pit logs. Any Soil Boring logs would note groundwater at a shallow depth or wet soil horizons near the existing ground elevation. I will limit this analysis to field observed Test Pit logs. As a side note I do not understand why the Hudson Logistics Center Test Pit logs do not have Munsell color notations for each soil horizon. This is a standard practice and noted to be a requirement in New Hampshire regulations concerning test pit logs. I can supply information on the regulatory requirement if requested.

PART II SECTION C – Test Pits in SSSM Ninigret and USDA NRCS Deerfield soil delineations for project

> In this section we will examine how many Test Pits are located in the SSSM Ninigret designated soil areas and USDA NRCS Deerfield designated areas. Do field observations note any SHWT in these Test Pits near existing surface elevation, wet soil or groundwater? What is the percentage of the total number of Test Pits in SSSM Ninigret or USDA NRCS Deerfield soil mapped areas that note the Seasonal High Water Table SHWT distinguishing feature? Does field test results verify SSSM mapping is representative of predominately HSG B soil?

Of the total amount of 115 Test Pits excavated and logged approximately 50 were in SSSM Ninigret designated soils. Of the 50 Test Pit logs only 10 recorded "mottling" (A-S-TP-11, A-S-TP-19, A-S-TP-23, C-R-TP-02, C-R-TP-03, C-S-TP-01, C-S-TP-02, C-S-TP-15, C-S-TP-16 & C-S-TP-17) which is a Seasonal High Water Table indicator. The remaining 40 Test Pit logs recorded "No Redox" which means no redoximorphic features or simply it states there was no Seasonal High Water Table characteristics noted by the observer. Of the 50 Ninigret Test Pits logged only one (C-R-TP-02) noted "FILL" material had been added to the existing surface other than minimal top soil grading for lawn and landscaping purposes. The reach of the excavators used to perform Test Pit observations can easily obtain a depth of approximately 8 feet unless limited by bedrock or groundwater intrusion. All 50 Test Pits of the SSSM Ninigret HSG B soil delineations should have had an observable SHWT elevation if excavated to a 7 to 8 foot depth when no fill material is noted in the upper soil horizons.

The USDA NRCS HSG B total is 49 acres, where approximately 11 acres is Deerfield Series and the remainder is Agawam. As noted earlier a Deerfield Series has a notable and easily observable SHWT. Of the total amount of 115 Test Pits excavated and logged approximately 12 were in the USDA NRCS delineation of Deerfield Series. Of the 12 Test Pits 8 had observable and recorded "mottling" or SHWT. Of the remaining 4 with "NO Redox", 3 of them were near the edge of the Deerfield boundary meaning they could have been another soils series. The final Test Pit with "No Redox" C-R-TP-01 was excavated 6.5 feet to an elevation of 122.5. However, an adjacent Test Pit C-S-TP-01 was excavated to 7.3 feet to elevation 120.7 and found "mottling between elevations 121.5 and 123. It is possible the first TP (C-R-TP -01) was not excavated deep enough.

PART II SECTION D - Discernable accuracy of the SSSM and USDA NRCS soil delineation for project

The accuracy of the SSSM delineation of HSG B Ninigret appears to have an approximate **20 percent confidence level** when matched to actual field data (10/50). The accuracy of the USDA NRCS delineation of HSG B Deerfield appears to have a **67 to 75 percent confidence level** when matched to actual field data. **SSSM delineation accuracy of HSG B Ninigret is questionable so the drastic change in acreage from HSG A to B is also suspect.**

Comparison of USDA NRCS HSG A Windham Series (312 acres) absorbed into SSSM HSG B Agawam and Ninigret series (328.55 acres) can only be done with field investigation by a Certified Soil Scientist (CSS). Base on the accuracy of delineation per existing Test Pit logging a CSS peer review of such a drastic change in HSG from A to B is necessary. The main and most important reason why this peer review is necessary is explained in the following Part III of this letter. The geotechnical engineer's overview letter correctly identified that the HSG alpha designation can have a major effect on Stormwater modeling calculations.

PART III - HYDROLOGIC SOIL GROUP IMPACT ON STORMWATER MODELING PROGRAM

Computer modeling programs to calculate surface stormwater runoff Volume and Rate of flow relies on quantifying and qualifying parameters. These are: Area of watershed (acres), Time of Concentration (Tc), 24-hour storm event period and runoff Curve Number (CN). See Technical Release 55 (TR-55), Tc and CN detail explanations in PART III SECTION D.

PART III SECTION A - Runoff Curve Number (CN) for HSG A and HSG B delineations

The Time of Concentration parameter calculated value is approximately the same for watersheds of equal size (acreage), topography, geology and land use, no matter whether a soil is designated as a HSG A or HSG B. The 24-hour storm event period used for calculations would also be equal in each case. However, the runoff Curve Number (CN) can change significantly for a particular ground cover when the underlying soil is designated as HSG B instead of HSG A. Table 2 are the CN values used in the Hudson Logistics Center Stormwater December 2020 Management Report for various Ground Cover Descriptions.

Table 2
CN values used in Hudson Logistics Center
Stormwater Management Report

Ground Cover Description	HSG A numeric value	HSG B numeric value
Impervious	98	98
Open Space, Good Condition	39	61
Woods, Good Condition	30	55

What would be the difference if two watersheds were inputted into the computer modeling program that was used for the Hudson Logistics Center project to calculate stormwater surface runoff if they had equal areas, times of concentration, 24-hour storm event periods, but different CN values? The computer modeling program to calculate stormwater surface runoff would generate a higher stormwater volume and runoff rate for the watershed with the highest CN numeric value.

PART III SECTION B – Impervious Coverage Impact on CN parameter for HSG A and HSG B delineations

The Hudson Logistics Center project proposes to add approximately 130 acres of IMPERIVOUS surface to the existing site. This is based on Appendix A "Existing Stormwater Discharge Calculations" and Appendix B "Proposed Stormwater Discharge Calculations" data in the December 2020 Stormwater Management Report.

So what happens if a HSG A or HSG B soil is covered by an impervious surface such as a building, roadway or parking lot? See Table 3 for what would happen to a change from a HSG A or HSG B Ground Cover condition to an impervious condition.

Table 3
Percent increase in CN value when ground Cover is changed to
Impervious CN=98

Ground Cover Description Before covered with Impervious Surface	HSG A Percent increase in CN	HSG B Percent increase in CN
Open Space, Good Condition	251 %	161 %
Woods, Good Condition	326 %	178 %

So the computer modeling program to calculate stormwater surface runoff would generate an increase in stormwater volume and runoff rate by 251 to 326 percent for HSG A soils if they were covered with an impervious surface.

Also the computer modeling program to calculate stormwater surface runoff would generate an increase in stormwater volume and runoff rate by 161 to 178 percent for HSG B soils if they were covered with an impervious surface. Remember in each case the original CN values are what were used in the December 2020 Stormwater Management Report.

Stormwater Management Regulations require that the volume of stormwater runoff exiting a developed site cannot increase over the existing condition. The stormwater management system design engineer would insure this would be the case with engineering accepted practices of modeling watersheds and calculating values for stormwater runoff volume and peak runoff rates. The Hudson Logistics Center project stormwater design uses 11 Infitration Basins to manage the increase in stormwater volume when the existing site is covered with additional impervious surface. The extra volume has to be captured and then infiltrated or discharged in a controlled release by these same Infiltration Basins. The calculated increase in this volume for HSG A and HSG B soils areas covered with imperious surface is shown in Table 3. As the more area covered with imperious surface increases the total volume of stormwater to be infiltrated also increases. The 130 acres of additional impervious surface generates an enormous amount of additional stormwater volume that has to be contained and infiltrated. When this extra stormwater volume increases the size of each receiving Infiltration Basin has to also be increased.

PART III SECTION C - Impervious Coverage Impact on Stormwater calculations for HSG A & B

So now we finally get to the reason why correct designation of a soil as HSG A or HSG B is so important in stormwater management system design for the Hudson Logistics Center project. Per SSSM mapping the majority of the soil delineation is HSG B (328.55 acres). If per USDA NRCS the soils are really HSG A (312 acres) what happens to the current sizing of all the Infiltration Basins. See Table 4.

Table 4
Stormwater Volume INCREASE or DECREASE for soils covered with an impervious surface when delineation is changed between HSG A and HSG B

Ground Cover Description	HSG A Impervious increase in CN % See Table 3	HSG B Impervious increase in CN % See Table 3	INCREASE in Stormwater volume when soil delineation is changed from HGS B to HSG A	DECREASE in Stormwater volume when soil delineation is changed from HGS A to HSG B
Open Space, Good Condition	251%	161 %	Approx. 156% INCREASE (251/161)x100	Approx. 64% DECREASE (161/251)x100
Woods, Good Condition	326%	178%	Approx. 183% INCREASE (326/178)x100	Approx. 55% DECREASE (178/326)x100

The above Table 4 demonstrates the a drastic shift of approximately 300 + acres of HSG A soil delineated in USDA NRCS to HSG B soil delineated in SSSM has on the stormwater modeling program. The computer modeling program calculations for stormwater Runoff Volume and Peak Runoff Rates values are DECREASED or would be UNDERSTATED by as much as 55 % to 64 %.

Since earlier it was shown that delineation of a significant amount of Ninigret HSG B soil on SSSM plans is not supported by actual field data from Test Pit Logs (only 20 % accuracy). Peer review of all the SSSM designated HSG B soil delineation needs to be done to determine if the Stormwater computer calculations are more seriously flawed then they are now.

Table 4 also demonstrates how a drastic shift of approximately 300 + acres of HSG B soil delineated in SSSM back to HSG A soil delineated in USDA NRCS impacts stormwater modeling. The computer modeling program calculations for individual watersheds for stormwater Runoff Volume and Peak Runoff Rates values could be INCREASED by as much as 156 % to 183 %.

This means the current design of the Stormwater conveyance piping and proposed Infiltration Basin capacities and necessary treatment volumes could be seriously under designed if a peer review of the Site Specific Soil Mapping is not authorized to verify accuracy.

Any adjustment of the CN numeric number has a significant ripple effect throughout the stormwater calculations. Compliance with Town of Hudson and NHDES regulations for **calculations of Water Quality Volumes, Groundwater Recharge Volumes, TOTAL & individual watershed Runoff Volume(s) and individual watershed Runoff Rate(s) could be altered. It is imperative to verify that the critically important soil delineation required for Stormwater modeling calculations be verified by a professional peer review.**

PART III SECTION D: Definitions of Stormwater modeling programs and parameters

Technical Release 55 (TR-55) presents simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs. These procedures are applicable in small watersheds, especially urbanizing watersheds, in the United States. First issued by the Soil Conservation Service (SCS) in January 1975, TR-55 incorporates current SCS procedures. This is basically the method and / or guideline for how Hudson Logistic Center Stormwater calculations are done. It is an engineering standard practice that defines how to obtain and develop **CN** and **Tc** numeric values and the equations to determine stormwater runoff values and hydrographs.

The **runoff curve number** (also called a **curve number** or simply **CN**) is an empirical parameter used in hydrology for predicting direct runoff or infiltration from rainfall excess. The curve number method was developed by the USDA Natural Resources Conservation Service, which was formerly called the *Soil Conservation Service* or *SCS* — the number is still popularly known as a "SCS runoff curve number" in the literature. The runoff curve number was developed from an empirical analysis of runoff from small catchments and hillslope plots monitored by the USDA. It is widely used and is an efficient method for determining the approximate amount of direct runoff from a rainfall event in a particular area.

Time of concentration is a concept used in hydrology to measure the response of a watershed to a rain event. It is defined as the time needed for water to flow from the most remote point in a watershed to the watershed outlet. It is a function of the topography, geology, and land use within the watershed. Time of concentration is useful in predicting flow rates that would result from hypothetical storms, which are based on statistically derived return periods through IDF curves. For many (often economic) reasons, **it is important for engineers and hydrologists to be able to accurately predict the response of a watershed** to a given rain event. This can be important for infrastructure design of the stormwater management system.

Respectfully Submitted
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