

From: mcypes@hinesburg.org
Sent: Friday, June 24, 2022 11:43 AM
To: 'Benjamin Avery'
Cc: 'David Marshall'; 'Michael J. Buscher'; 'Bryan Carrier'; aweinhagen@hinesburg.org; 'Andres Torizzo'
Subject: RE: Two-year-old stormwater question on Haystack

Sounds good to me.

From: Benjamin Avery <ben@blackrockus.com>
Sent: Friday, June 24, 2022 11:34 AM
To: mcypes@hinesburg.org
Cc: David Marshall <dmarshall@cea-vt.com>; Michael J. Buscher <mike@tjboyle.com>; Bryan Carrier <bcarrier@olearyburke.com>; aweinhagen@hinesburg.org; Andres Torizzo <andres@watershedca.com>
Subject: Re: Two-year-old stormwater question on Haystack

Mitch,

Thank you for your response and for working with us through this. One clarification, any certification of this design would be from CEA. They are the engineer of record and Bryan has graciously acted as an intermediary, but to be clear, it is not his design.

Dave give a ring to discuss if need be.

Thanks gentlemen.

Best Regards,

Benjamin Avery
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On Jun 24, 2022, at 11:14, mcypes@hinesburg.org wrote:

Responses below.

Mitchel Cypes, P.E.
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From: David Marshall <dmarshall@cea-vt.com>
Sent: Friday, June 24, 2022 6:47 AM
To: mcypes@hinesburg.org; 'Benjamin Avery' <ben@blackrockus.com>; 'Michael J. Buscher' <mike@tjboyle.com>; 'Bryan Carrier' <bcarrier@olearyburke.com>

Cc: aweinhagen@hinesburg.org; Andres Torizzo <andres@watershedca.com>

Subject: RE: Two-year-old stormwater question on Haystack

Hi Mitch-

A couple of things to keep in mind. **Let's keep in mind that we are down to ONE overall question, which I have been asking for over two years: Where does the discharge that is above the obverts of the pipes, shown when the peak discharge is above the obvert of the pipe, discharge? And would this discharge cause harm?**

The Plans depicting the overflow paths reflect where the water is proposed to be directed in extreme storm events. The HydroCAD modeling only addresses the Q100 storm event. The modeling shows that many of these areas have the capacity to convey the Q100 design flows, which is impressive in its own right, and some don't (more on that later). **I will ignore the condescending and incendiary nature of this statement by simply stating that I have NEVER requested ANYTHING to be provided that is greater than the Q100 storm event.**

The originally developed overflow paths were created specifically to address the Town's concerns of where flows were to be directed in support of the determination that the constructed buildings would not experience flooding. This is paramount for all extreme storm events. The other issue is compliance with the Q100 peak pre and post development flow requirements. **Andres decided to answer the above question by creating this overflow plan. I quickly pointed out how the direction of discharge in the overflow plan contradicted the direction of discharge shown in the plan that showed the subcatchment areas. I do not understand why that plan is attached to this response. David: I even reminded you of this when we met on Tuesday. It is good that you provided revised plans.**

In addressing your observations from the email below we offer the following:

When a catch basin is modeled as a pond, it allows for a dynamic review of the performance of the pipe conveyance out of the catch basin under "inlet flow conditions". **As I remember, a reach or using the catch basins and possibly the road as ponds with the pipes being for conveyance does the same thing. Overall irrelevant.**

"Inlet control" presumes that the water entering the catch basin and its associated momentum is totally stopped and it is only through the water "piling" up at the face of the outlet pipe, will cause the stormwater to move through the outlet pipe. The deeper the water is at the inlet end of the pipe, the more water can enter the pipe. We discussed earlier that it is common practice in some parts of the country to create a large diameter "gobbler" inlet and then to reduce the diameter a pipe length later since the inlet controlled flows revert to the occupancy of a smaller portion of the diameter of the inlet pipe. **This is not in question nor commented on.**

The reason that there is no storage assigned for this “piling up” of the water inside the catch basin is that the volume is considered to be de minimis in comparison to what is flowing through the system. e.g. there is no storage that will alter the rate of inflow vs. outflow. **Perhaps this is the biggest misunderstanding. What level of storage is ‘de minimis’? Something that can flood a house? David, I recognize in your revised plans you are attempting to show the limits of where the water is going.**

The way the modeling has been created, the locations where the pipe and catch basin capacity has been exceeded is readily identified. Without trying to model the standing water ponding capacity at a low point of a roadway where the water starts flowing out of the top of the catch basin, the model identifies the rate of flow leaving the piped network and flowing overland. Without the above ground ponding included, this represents a conservative flow that then needs to be accommodated in the overland routing. **OK, are you certifying this?**

The previously prepared overland flow routing plan and its associated grading and finish floor assignments, by inspection, had plenty of capacity to pass the identified secondary flows. **OK, are you certifying this?**

We had previously developed a mark-up of Sheet C2.0 to depict the low points in the system and where overflows from those low points would be directed (Attached). These are shown in orange. Keep in mind that some of the street names have changed on this plan since its creation. We have modified this plan to include the locations of the eight (8) study points provided by the Town. Half of these have do not have overflow issues for the Q100 design flows directed to the supporting conveyance pipes [inlet control water height is above the pipe obvert but below the CB Rim, so no overflow] (shown in green) while the remaining 4 have some amount of bypass flows that exceed the pipe carrying capacity and outflows through the top of the structure (shown in red). From this, and using the C2.0 mark-up as a starting point, we noted that:

1. Pond 11P overflow needs to be Routed to Pond 33P to determine if the currently acceptable pipe carrying capacity at that point can handle the additional flows from 33P.
2. Of the study points reported by Staff, the eastern portions Shubael Street has capacity issues which causes the secondary overflows to be directed to Patrick Brook instead of the Main Gravel Wetland. Currently the model redirects the overflows from Pond 13P to Patrick Brook. The model needs to be revised further to direct the overflows from 14P and 17P to Patrick Brook to see if the Q100 post development peak remains within acceptable levels or the conveyance piping needs to be increased in size to convey these flows to the Main Gravel Wetland. On the attached C2.0 overall sheet and the supporting grading sheets we have identified the Q100 secondary flow rates at each overflow location to the previously created Q100 overland flow paths to see where there may be issues at the low point of the property. **Also the discharge from Building H has to go to the gravel wetland associated with it. The discharges shown in the modeling will need to be confirmed in the site plan application for Building H.**

Regarding the Towns inquiry on the ability of proposed open space Lot 20 to be further developed, this area had been utilized in the State Stormwater submittal as a disconnection area and conveyance path for those proposed homes on the west side of Jenna Drive. If the Town could identify what it would like to develop in this area, we can further review what the elimination of the disconnection areas will mean as it relates to compliance with the State reviewed system. **Yes we can provide guidance.**

David – It seems that your new plans are showing either predicted paths for the overflows that go to stormwater systems that you are inferring can accommodate the additional discharge, or will pond in areas shown before being conveyed through the stormwater systems. If you are willing as a licensed professional to certify in your best judgement that the overflows will generally go in the direction shown on your new plans, if constructed correctly, and will not over inundate any of the proposed stormwater infrastructure, then I will suggest to Alex to advertise the hearing. Also, I reserve the right to further comment in full review. Hopefully, there will not be much to comment on.

Alex: A certification from Bryan would be sufficient. It is my understanding that Andres is not a licensed professional.

Best Regards

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From: mcypes@hinesburg.org [<mailto:mcypes@hinesburg.org>]
Sent: Thursday, June 23, 2022 11:16 AM
To: 'Benjamin Avery'; 'David Marshall'; 'Michael J. Buscher'; 'Bryan Carrier'
Cc: aweinhagen@hinesburg.org
Subject: Two-year-old stormwater question on Haystack

Hi Ben, David, Mike & Bryan,

I realized yesterday that I will be out of the office on Friday. I will need a sufficient response to the question I asked over two years ago by 9:00AM Friday, in order to schedule an opening discussion for Haystack Crossing on July 19th. Keep in mind that August 2nd, which is the next meeting is only 2-weeks after the 19th.

The attached uses the latest PDF of the HydroCAD, which I have available to me.

The more than two-year old question is where is the stormwater discharge that is above the obvert elevation of the pipe going to be conveyed, and is this discharge going to flood proposed residences or other structures, or overwhelm one of the smaller gravel wetlands?

Attached are marked up sheets from that HydroCAD. In the past I was told that the stormwater is stored in catchbasins and/or on the roadways. The HydroCAD does not show any volume area for catchbasins and/or the roadways. If these are the answers to the question, then you need to show that in the modeling.

Usually, the stormwater discharge pipes are not shown as storage areas, but rather as the outflow to a catchbasin.

The other answer I was provided was a plan with overflow paths, some of which show stormwater discharging in a direction that is opposite the discharge flow shown in the subcatchment area plans. For now I am ignoring the overflow paths plan assuming it is inaccurate. If I were to consider that plan valid, then much of the modeling would be invalid.

I hope this is helpful. I really would like this concern satisfied. At the meeting on Tuesday, I did say I would accept a certification from an appropriately licensed engineer for the July 19th scheduling. Such a certification would have to be clear in how it answers this question. I would also be willing to schedule the application to start on July 19th with a partial update that clearly demonstrates how you fully plan to resolve this concern.

Mitch

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