

Appendix 5:
Wetland
Detention
Permitting
Memorandum &
Email

Meeting Summary

Project Title: Rensselaer Plateau Alliance – Posten Kill Watershed Green Design Flood Mgt.
Chazen Project Number: 41822.00

Meeting Date, Time: Friday February 1, 2019 at 1-2:30PM

Meeting Location: NYSDEC Region 4 Offices, with HREP staff participating by phone

Summary Writer: Barbara Beall

Issue Date: February 14, 2019

Attending:

Attendee:	Representing:
Jeff Briggs	Rensselaer Plateau Alliance (RPA)
Russell Urban-Mead	The Chazen Companies
Barbara Beall	The Chazen Companies
Andy Dangler	US Army Corps of Engineers Upstate Field Office
Kate Kornak	NYSDEC Region 4 Deputy Regional Permit Admin.
Derek Thorsland	NYSDEC Region 4 Water Quality/Stream Engineer
Tom Blanchard	NYSDEC Region 4 Floodplain Mgt. Dam Safety
Georgette Walters	NYSDEC Region 4 Wetland Permits
Trevor Brady	NYSDEC Region 4 Stream Permits
Scott Cuppett	HREP
Megan Lung	HREP/NEIWPCC

Summary:

Discussion

- **Project Overview:** Russell Urban-Mead began with a discussion of the project. Project is to explore options to manage the next big flood in the Posten Kill Watershed. Hurricane Irene beat the watershed up. Have a grant to study how landscape features might be used to management flood. There may be a dam/relocation function of the floodplain. The Rensselaer Plateau has a unique geography with 2,000 acres of wetlands at higher elevations in the floodplain. They are wetland areas generally constrained by an outlet that links by small streams in a forested landscape. Goal is to work with nature to provide greater detention and drain out time in order to desynchronize flooding. There is not a single wetland that can solve this problem. When the flow comes down the watershed, it becomes a much larger problem in Troy and downstream in the watershed when the Posten Kill jumps its banks and floods.
- **Jeff Briggs and Rensselaer Plateau Alliance:** Jeff lives in the watershed. He is a retired wetland professional. He is looking at a way to detain water in a wetland with sidewall control device. While retaining water in one wetland may not make a large difference, retaining water in a series

of wetlands will likely make a large difference. Retaining water over 25 acres for a 25-year storm event made a 40% reduction in flows.

- Modeling to Date: One model was run using a wingwall constrained to a 25-year flood flow resulting in 3 to 4 days of inundation by a couple of feet. It is hoped that there can be a series of these projects in the floodplain. This is a blue-sky discussion of whether this represents a possible solution to downstream flooding. Doing this on 12 wetlands would make a meaningful impact based on modeling. It could then become a repeatable cost-effective action that everyone understands from a permitting perspective. Model used Dyken Pond and NYSDEC Wetland T-16 as an example. Would use wingwalls at the downstream outlet of the wetland to narrow the outlet. There are existing steep sidewalls in this area. Would have the wingwall marry into the landscape. NYSDEC asked what about downstream flow over the temporary spillway. What does this mean to the stream downstream of the spillway. Jeff explained that at the Heckleman Site, the project is a sill on bedrock, and throughout most of the Bonesteel Creek, the wetlands outlet on a bedrock sill – most outlets of wetlands above 1,000 feet appear to be bedrock control features at stream outlet. Newfoundland Creek is a bit broader and flatter but may have a rocky bottom in the stream. NYSDEC concerned about anything that concentrates flow and causes downcutting in the channel. Explained that the outlet would be somewhere in the 2-foot tall detention wall, so there is not significant erosive threat. It was noted that at least around NYSDEC Wetland T-16, the land rises quickly from the wetland, so increased area of flooded land may not be that large.
- Non-Regulation by Dam Safety and Corps of Engineers: It is a shallow structure. It is not tall enough to be a “dam” under NYSDEC Dam Safety Regulations (dams are at 6 foot). Corps stated that if the structure is in uplands outside of any wetland area or any Ordinary High Water Mark (OHWM) of a stream, the activity is not regulated by the US Army Corps of Engineers. The OHWM typically/often forms around the 2-year flow line.
- Owner Permission: The RPA will need to have property owner’s permission for this work. Discussed the need to research the flooding limits under different scenarios to ensure that individuals upstream of the structure know that there may be a larger area of their property flooded at a lower storm interval to obtain permission for this work. There may be additional floodplain areas upstream of the weirs. FEMA or other agencies may need to evaluate downstream flood zones. Group recommended use of beaver pipes to keep beaver from enhancing dam aspect of weir following construction.
- NYSDEC Permits: Kate mentioned that there will be a need for Article 15 and Article 24 permits for this work (protected streams and Freshwater Wetlands). Landowner sign-off on permit applications. Need to ensure that there are no homes that would be impacted by inundation.
- Donation of Lands to NYS: Some of these lands may become the NYSDEC ownership as a result of conservation deeds to the State. There needs to be a discussion of maintenance requirements if the weirs and lands will ultimately be owned by the NYSDEC.

- Watersheds of Quacken Kill and Posten Kill Stem: Those have different watersheds, but during Hurricane Irene they peaked at the same time, with two flooding streams coming together creating a downstream super flood. This project may desynchronize the release of these two streams, reducing downstream damage. A lot of rain in one part of the overall Posten Kill Watershed versus in another part of the watershed has much different results on downstream flooding. The way they come together varies. In Hurricane Irene there was a “perfect storm” where everything broke loose.

- Unintended Consequences – Aquatic Fauna Movement: Scott Cuppett asked if this would result in unintended consequences or be detrimental to rock stabilization. Will the project funnel water into a narrow channel? Will the project create unintended barriers between different wetlands? There is the potential for the weir to serve as a deterrent to aquatic life movement. Identified Georgette Walters in Region 4 as someone to speak to. Chris Edmare also would be involved in reviewing potential impacts to Dyken Pond, the outlet trout stream and regulated wetland.

- Factors to be Reviewed in Permitting: Trevor is an Article 15 specialist. The following factors were identified for review in permitting a small model project:
 - Models – understand the flows upstream and downstream of the location.
 - Individual Group of Projects versus Whole Watershed - 95 square miles, 45 square miles 5% impoundment. There is a cumulative beneficial impact downstream from a group of projects. Any one project is insufficient to make a difference. Should there be a concentrated effort on 6 to 12 projects or
 - Local public interest benefit that outweighs detriment to wetland - If there is no great retention for flood abatement overall in the floodplain, what is the abatement. Should the project review more micro-scale benefits such as the downstream road which was blown out in Hurricane Irene during the flood event.
 - Blockage of Aquatic Organisms - Will the weir act as a debris trap? Will they encourage beaver to create a blockage to aquatic organism passage? Is there a way to raise the elevation to not block movement?
 - Custody - Who will evaluate, maintain, watch for barrier issues over the long-term.
 - Adjacent wetlands – In the surrounding upland woods, are there depression wetlands that serve as vernal pools. Will those areas now be open for flooding and fish predation. Will some wetlands like that be stranded?
 - Grade Control/Scour protection/Changes in Wetland and Stream Function - Will there be a change in flow dynamics that could increase erosive factors at the weir. Would there be a head cut at the wetland? Need to identify if there will be changes in wetland functions

from an increased frequency/duration of flooding? Is the substrate bedrock or soil? Is there a need for erosion control?

- Article 15 (Stream Disturbance) Permitting Standards: Reasonable and necessary. Will the project meet the standard if there is a subset of mitigation areas versus all the mitigation areas?
- Article 24 (Freshwater Wetland) Permitting Standards: Under the Uniform Procedures Act, this would be a major project. Would need to review and issue permits in 60 days or so. Look at the entire project in global scope or pieces at a time. Will the permits be issued for a long-enough time frame to allow them to be constructed? Need to look at Posten Kill benefits versus Troy benefits. Georgette on Article 24"
 - Not a typical project.
 - Open-minded with all questions.
 - Trevor agreed. Modeling to understand S&E issues
 - Regulatory standpoint – Will this increase effluent in wetlands. Will the flood retention modify the Dissolved Oxygen in streams? Is there a difference between a natural and an enhanced function? Is there aquatic organism impediment issues? Provide enough information to analyze.
 - Trevor stated that frequency of storm events helpful to have so one can make a reasonable prediction of how often the weir structure will be activated. Will it be every 25 years or 4x/year? Historical data for frequency of storms.
 - Russell asked if the concept for a 100 year to a 25-year storm flows – if we modify 25-year flows, don't see impacts, increase to 50- or 100-year events. It is still a huge benefit. Model to find out storm events and what happens. Use in a pragmatic way. Make sure you are evaluating the migratory corridors not just in the stream but in the areas of the weir.
 - Megan Lung stated not opposed to effluent into wetland due to dissipation factors up to a 50-year storm. Look at the benefit of a multi-factor hydraulic model, and seek to avoid disconnecting or degrading habitats. Be aware of maintenance costs.
- Discuss maybe modeling one system, where there is a good handle on existing conditions, look at storm events, sediment load on wetlands, cuts in stream channel, vegetation dying back? Model and implement one system and watch what happens. Have the first project be a demonstration project.

Meeting adjourned (2:15 PM)

From: Brady, Trevor M (DEC) [mailto:trevor.brady@dec.ny.gov]
Sent: Monday, May 06, 2019 8:16 AM
To: Jim Bonesteel <jim@rensselaerplateau.org>
Cc: Jacobson, Roy (DEC) <roy.jacobson@dec.ny.gov>
Subject: Rensselaer Plateau Alliance Meeting

Hi Jim,

Thank you for providing me with the opportunity to attend the April 24, 2019 meeting of the Poesten Kill Watershed Flood Mitigation Committee. To recap, the purpose of the meeting was to discuss the Poesten Kill Watershed Flood Mitigation projects currently under evaluation by Chazen Companies and the Rensselaer Plateau Alliance. As I stated during the meeting the Region 4 Bureau of Ecosystem Health's (R4 BEH) role in this process will be to provide regulatory review if, and when the projects reach the application for permit stage. Currently, Chazen Companies has identified 15 unique potential locations for the proposed "dry dam" flood retention devices. The identified locations are situated within multiple New York State Department of Environmental Conservation protected resources including 13 Fresh Water Wetlands and multiple Protected Streams. The R4 BEH has not to date received any official application materials or preliminary plans for review. As such, The R4 BEH has not developed any opinion on the potential benefit or impacts of the proposed devices.

During the meeting I also reiterated (originally detailed during the February 1, 2019 pre-application meeting) some of the elements that the R4 BEH would be looking for in any eventual application packet for one of these projects. These include:

What alternatives to the proposed project were evaluated, and the outcome.

A description of the anticipated benefit of each of these structures.

Hydraulic/Sediment Modeling that demonstrates and predicts the before and after conditions of the stream (upstream and downstream) and wetland in relation to the addition of the flood retention devices.

Flood frequency data and the anticipated frequency and duration of artificial retention of flood waters.

Predictive Inundation Mapping which demonstrates what level of flood abatement will be achieved through the addition of the devices.

Evaluate and describe the need for grade control near the proposed "dry dams".

"Dry Dam" inspection and maintenance methods and schedules.

Please understand that this list is by no means exhaustive and the review process may likely identify the need for more details. Thank you again for the opportunity to discuss these details in person. Please don't hesitate to contact the Region 4 Bureau of Ecosystem Health with any questions or concerns that you may have.

Trevor Brady

Biologist 1 (Ecology)

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