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MEMORANDUM

To: Frank Dellaripa, P.E.
Nick Casparino

Date: April 29, 2020

From: Guy Hesketh, P.E.

Subject: **St. Francis – Water Quality Basin Remediation**
GHFC Application Review
Our File: **05173**

Frank and Nick, please see below written responses to the review comments per Nick's 03-11-2020 email to Thomas Swale. Nick's comments in normal font, our responses in **bold font**.

The following comments from the Flood Director's Office are provided for the above referenced site based on the GHFC Rules and Regulations amended August 10, 2011.

1. Provide three copies of the permit application and supporting documentation. One application with an original signature is required.

   One copy of the original and three copies of the application and supporting documentation area attached.

2. Provide copies of all required Federal, State and Local regulatory permits for required for the work. The level of effort within the banks of the Park River as well as any impacted Federal Wetlands needs to documented.

   A permit from the City of Hartford Inlands Wetlands Agency is attached. Application has been made to the City of Hartford Planning & Zoning Commission for a Modification to an approved Site Plan. We anticipate an administrative approval shortly, and upon which a copy of the approval will be forwarded to you. Inquiry has been made to the ACOE for conducting the

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work. The ACOE responded via a letter dated March 24, 2020 that a permit from the Corps is not required. A copy of the letter is attached.

3. Applicant must notify all property owners within a 100-foot radius of the property. Provide copies of the certified Post Office receipts prior to the meeting date.

   A list of abutters is attached. Each will be notification of the pending application before the GHFC. Copies of certificates of mailing will be forwarded to the GHFC after notifications are made.

4. The identification and notification of the properties located within 100 feet of the property is to be based on the project limits and not limited to one of the parcels of the development. All of the abutting property owners including properties owned by N/F Saint Francis are to be identified by address and / or lot & block number.

   Acknowledged. See response to comment #4 above.

5. Note #15 provides data on FEMA flood zones. Add a note concerning the Park River Flood Storage Area.

   A note concerning the Park River Flood Storage Area/Limits has been added to the Sheet 2 of the Property Survey. In addition, the limits of the Park River Flood Storage Area have ben indicated on Sheet 1 of the Property Survey.

6. Add show and label the Park River Required Flood Storage Area (elevation = 51.15' NAVD 1988 & 51.92' - NGVD 1929) on the appropriate plan sheets.

   Sheets GR-1 and PP-1 have been revised to address.

7. Final plans are to be stamped & signed by the appropriate design professionals.

   Design professional signatures and stamps have been added to the Plan.

8. The Park River floodway data and limits are to be shown on the plans. Information on impacts and work located within the floodway is to be identified.

   Park River Floodway data and limits have been added to the Plan. All work proposed in the floodway is identified on the Plan.

9. A bench mark is required per the GHFC regulations. Identify a bench mark that was not disturbed during the development of the site and / or the failure of the bank.

   Benchmarks (Control Points) are provided on Sheet GR-1. These control points show elevations (NGVD 1929 Datum) and have not been disturbed by the bank failure.

10. Standard GHFC notes identified in the regulations which are applicable to the work are to be added to the plans.

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The Standard GHFC notes applicable to the project have been added to the Plan.

11. As-built plans per the GHFC regulations are required to be submitted within 60 days of completion of the proposed construction.

    Acknowledged. The applicant will submit an as-built plan within 60 days following completion of construction.

12. A scientist and / or professional engineer with experience with riverine bank stabilization/restoration is to be engaged to develop an engineered plan to restore the Park River and the associated floodway to the conditions and grades which existed prior to the bank failure at the site. The work must include the re-creation of a stable naturally shaped river channel which does not alter or reduce the carrying capacity of the river from the conditions which existed prior to the bank failure.

    a. All related debris is to be removed.

    b. Provide a calculation documenting the amount of material which compromised the embankment failure. The pre-development grades as well as the approved design grades are to be utilized to document the amount of material which needs to be removed from the Park River.

    c. Provide means and methods to for work and restoration efforts located within the banks of the Park River. (i.e. control of water, use of temporary division barrier controls, floating silt curtains / turbidity curtain for depths greater than 2', etc.).

    The failure of the basin resulted in the partial collapse of the containment retaining wall that ringed the water quality basin atop the escarpment adjacent to the river. As a result of the wall failure, stormwater entering the basin short circuited to the northwest corner of the basin, flowed under the wall and eroded underlying soils, causing further collapse of the wall and adjacent soils and washout of the soils and wall backfill materials down the bank and into the Park River. As adjacent soils collapsed, trees in the bank also collapsed and have fallen. The result is a well-defined eroded channel from the northwest corner of the basin extending down the slope and into the Park River.

    By inspection, it is quite obvious through field identification, what materials have eroded from the wall and eroded channel and been deposited in the river and along its banks. The materials are a mixture of fill soils and native lacustrine soils mixed with processed crushed stone, wall materials and debris from previous construction practices on the slope (from prior site

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development). The deposition of the materials in the river can be seen in the attached photograph.

Photograph of materials deposited in the Park River as a result of the wall failure and washout, as viewed south along north limits of material deposition.

The existing conditions topography depicted on the Plan include survey shots collected from the developed areas of the site, along the slope from the basin to the river, and up to and including the water's edge (elevation 32.0±). There were no topographic shots collected in the river itself, but sufficient shots were taken along the water's edge to define the western bank of the river (at the water line) prior to the wall failure. During the restoration work, the river's

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edge will be restored to the pre-collapse (2017) condition. Soils, sediments and debris deposited in the river will be removed to restore the pre-collapse condition of the river channel. It is estimated that approximately 75 cubic yards of materials will be removed from the river channel and along its bank to restore the channel and its banks up to elevation 52± to its 2017 condition. The area of deposition in the river and along its banks is estimated to be approximately 30 feet long, 12 feet wide and up to about three feet deep.

Erosion control measures to be implemented during removal of materials in the Park River and its embankment include:

- **Work scheduled during low flow conditions (no rainfall forecast for 48 to 72 hours)**
- **Installation of turbidity curtain in river to isolate work area.**
- **Removal of sediments and temporary deposition outside of river flood plain to allow dewatering**
- **Upon dewatering, removal of dredged materials from project site.**
- **Immediate restoration of finish grade, topsoiling, seeding and installation of erosion control blankets along disturbed areas not to receive further work.**
- **Immediate installation of drainage improvements, stormwater outfalls, rip rap outlet controls and rip rap stabilizations from river's edge to area outside of flood plain.**

Details of turbidity curtains are included on Sheet SD-1 of the revised Plan Set (attached). Installation of the curtains will be field evaluated by the Project Wetlands Consultant to ensure proper installation and to not impede flow in the river.

13. Provide adequate energy dissipation / scour protection at the 24" storm outlet. Provide pipe sizing calculations and scour protection calculations.

Scour protection calculations are attached. A copy of the pipe-top-pipe stormwater calculations from the original site development plan are attached. These calculations present the design flow into the former water quality basin, which is the same flow proposed at the new outfall. Intermediate rip rap is proposed, which meets the minimum sizing (d_{50}) requirement of CT DEEP guidelines.

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14. Provide geotechnical report and recommendations.

    A copy of the geotechnical report documenting slope and subsurface conditions in the Work area is attached.

15. Clarify that the existing grades utilized in the cut & fill calculations are based on the existing grades as of 11/7/2019. Verify if this date is before or after the embankment failure.

    Existing topography depicted on the Plan is from field surveys conducted in 2017 and represent the existing grades prior to the failure of the wall and deposition of materials into the river and along its banks.

16. The flood storage calculations are not a true representation of the impacts to the flood storage capacity of the Park River if the calculations are based on the conditions that existed after the embankment failure.

    Acknowledged. The topography depicted represent the topography at least two years prior to the slope failure and are representative of the recent, historical flood storage capacity (2017) of the Park River.

17. Any and all approvals granted herein are subject to and contingent upon the Applicant also obtaining the approvals relative to the project/work described herein that are required by any and all State, Federal and Municipal regulatory / governmental entities including, but not limited to, those that are required by the State of Connecticut Department of Energy and Environmental Protection, the United States Army Corps of Engineers, and/or those required approvals that pertain to planning, zoning and/or inland wetlands.

    Acknowledged.

If you have any questions, please do not hesitate to contact me at 860-653-8000.

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