

Appendix Z

Preliminary Sediment Management Plan

Preliminary Sediment Management Plan

**Hempstead Lake State Park, NY
Northeast and Northwest Pond Restoration**

DRAFT

Prepared for: NYS Office of Parks, Recreation and Historic Preservation
PO Box 247
Babylon, NY 11702

Prepared by: Cashin Associates P.C.
1200 Veterans Memorial Highway
Hauppauge, NY 11788

Bay Environmental Consulting LLC
123 Bay Avenue
Bayport, NY 11705

March 2019

Introduction

This preliminary Sediment Management Plan has been prepared to provide an overview of measures to be taken to ensure proper management of impacted soils during construction. This document details the best management practices for the management of soils based on the current site characterization. This planning document is preliminary, and a more detailed plan will be prepared to incorporate permit conditions developed through the regulatory process. Additional details regarding sediment quantities, locations and depths will be provided in a final sediment management plan.

Project Background

NYS Office of Parks, Recreation and Historic Preservation (OPRHP) is in the design phase of the restoration of the Northwest Pond and Northeast Pond areas in Hempstead Lake State Park. This restoration is part of the comprehensive Living with the Bay project which will increase community resiliency while incorporating environmental co-benefits. The two ponds lie in the northern part of the park, on the north side of Southern State Parkway. They are part of the waterway system that collects runoff and drainage from the upper watershed area north of the park. This system discharges downstream to Hempstead Lake and the Mill River System and ultimately into the bay along the south shore of Long Island. Over time these stormwater inputs including sediment, contaminants and debris have degraded the ponds. The accumulation of debris and contaminated sediment poses ecological and environmental health risks. In addition, the debris is unsightly and degrades the aesthetics of the ponds.

The objective of the North Ponds project is to provide an overall more resilient natural environment that will benefit the flora and fauna, as well as the local and downstream communities. As a result of project actions, it is anticipated that resiliency will increase by: improving water quality in the ponds through physical removal of floatables and

sediment; the filtering of pollutants through constructed and existing wetlands; and the restoration of the pond shoreline, wetland habitats and upland areas with native vegetation to enhance the native species diversity in the park.

This project will require limited dredging (in open water) and excavation (in upland & marsh) for the constructed wetlands, wetland basins and debris removal components. Dredging will occur in the Northeast Pond adjacent to the wetland basin and Wetland “B”. Excavation will be performed for the access roads and wetland basin in the Northeast Pond and the wetland basin and channel in the Northwest Pond. See the attached map for details (Overall Site Location Map 1).

Sediment Quality Overview

Sediment sampling was conducted in accordance with a New York State Department of Environmental Conservation (NYSDEC) approved sediment sampling plan (see attached). Contamination was detected in limited areas of the pond sediments with some areas exhibiting high “Class C” contamination. The contamination is localized to the upper layers which are comprised of fine-grained material and high organic content. In the Northwest Pond, the upper layer provides the substrate for the wetland vegetation and is on average approximately 6 inches deep. In the Northeast Pond, the upper layer is highly decomposed muck and is on average approximately 18 inches deep. The Class C contaminants found in the upper layers of the ponds were primarily heavy metals as described in the Sediment Sampling Findings Report (see attached). Below these upper layers is hard bottom which is characterized as coarse-grained sediment with low organic content which is exempt from chemical analysis per NYSDEC’ TOGS 5.1.9.

Based on these results, and in consultation with the NYSDEC, dredging has been minimized compared to the initial design. All material that will be dredged or excavated from the ponds will be stockpiled, sampled and analyzed in accordance with applicable

regulations. The dredged/excavated material from the upper layers of the pond and any others areas with suspected contamination will be stockpiled separately from hard bottom material. All dredged/excavated material will be tested in accordance with NYCRR Part 360.13 (Beneficial Use of Fill Material) for reuse on-site and/or in accordance with the receiving facility's testing requirements for off-island disposal. All material will be handled to minimize environmental impacts associated with dredging and material management.

The material obtained from the upland excavation will be reused on-site to construct the wetland basins and constructed wetlands. Core samples were collected from multiple upland sites where excavation is proposed to take place. Detailed results of this core sampling are described in the Hempstead Lake State Park Upland Soils Screening Levels-Assessment Results (see attached). The results indicated that the material has low to no contamination with a few minor exceedances of the unrestricted Soil Cleanup Objectives (SCO). No contamination exceeded residential SCOs.

Dioxin, which has no SCO, was detected in one upland sample at Class B levels per NYSDEC TOGS 5.1.9. Since TOGS 5.1.9 is not applicable to upland excavation and there is no SCO for Dioxin, any restrictions on the reuse and management of this material will be determined through the permitting process.

Dredging Sediment Management Plan

Based on the sediment sampling results from the ponds and wetlands, the sediment was found to have varying contamination including Class B and Class C exceedances. All dredge material that has been determined to be Class B or greater will be disposed of off-island. This material will be stockpiled, and additional testing will be required for disposal purposes. This additional testing will be conducted in accordance with the requirements of the receiving facility. Other dredged/excavated material that is likely to

be non-contaminated such as the course-grained hard bottom sediment will be stockpiled separately and analyzed in accordance with NYCRR Part 360.13 (Beneficial Use of Fill Material).

The material will be stockpiled within the work zone and/or the staging areas identified on the attached map (Overall Site Location Map 1). Staging areas and other work areas that are used to stockpile dredge/excavation material will be contained. The stockpile areas will be sloped towards the ponds to allow the dewatering of the material and prevent the ponding of water. The water will be contained for enough time to allow sediment to settle out of the water to reduce turbidity and total suspended solids from entering the surface waters. The water will be conveyed to the ponds via a contained channel that prevents scour and erosion of the shoreline.

In accordance with the NYSDEC TOGS 5.1.9, dredging will be conducted in a manner that:

- Minimizes the resuspension of silt, oil and grease and other fine particles
- Minimizes the amount of material disturbed or returned to the body of water
- Avoids damage to nearby wetlands and habitats
- Avoids exposing benthic organisms to more contaminated material

These environmental objectives will be achieved by following best management practices for the dredging and excavation of contaminated material. In addition, all construction, including sediment removal and placement will be performed under the observation of an Environmental Monitor to ensure all management controls are carefully adhered to. The site-specific characteristics of the two primary sediment removal areas are different and will require different dredging/excavation plans. Below is a description of the two sites and the best management practices that will be used to achieve the environmental objectives.

Northeast Pond

Dredging in the Northeast Pond is limited to one area in open water adjacent to the proposed construction “Wetland B” and the wetland basin. Approximately 6,964 cubic yards of material will be dredged from this area. Other areas within the adjacent wetlands of the Northeast Pond will require excavation for the wetland basin, wetland channel and constructed wetlands. Approximately 20,342 cubic yards of material will be excavated from these areas. See the Overall Site Location Map 1 for the dredging location.

The sediment sampling results for the dredging area indicate that the upper layer of sediment (muck) is contaminated and will require off-island disposal. Additional testing from the stockpile will be required for disposal purposes and will be conducted in accordance with the requirements of the receiving facility. The stockpiled material must be contained so as not to be exposed to the environment. Hard bottom dredge material and excavated material that is not suspected of being contaminated will be stockpiled separately and tested in accordance with NYCRR Part 360.13 (Beneficial Use of Fill Material).

In order to achieve the environmental objectives listed above, hydraulic dredging and barge overflow will not be allowed for the open water dredging. Clamshell dredging or a similar method will be required for this area. The clamshell’s size should be maximized to reduce the number of grabs required to excavate the area. In addition, disturbance to the pond bottom from supporting equipment and vessels should be minimized to the maximum extent feasible. Turbidity curtains, silt fencing, and other means for in-water containment must also be installed and maintained throughout dredging. A second option would be to dewater the area prior to dredging. Construction of a berm surrounding the dredge area for dewatering purposes may be feasible due to the amount of earth moving already taking place within the area. If dewatering is pursued, the environmental objectives listed above must still be achieved. The dredge area is located immediately

adjacent to an ephemeral stream that conveys stormwater to the pond. During heavy rainfall events, the volume and velocity of the stormwater input to this area is considerably high. Therefore, the stream flow should be redirected away from dredging activities or turbidity curtains. Silt fencing and/or earthen berms must be designed to withstand the streamflow.

Northwest Pond

Dredging in the Northwest Pond will be required for the wetland basin and overflow channel. See the Overall Site Location Map 1 for areas of dredging area and the location of the overflow channel. Approximately 200 cubic yards of material will be excavated from the wetlands for the wetland basin. Approximately 640 cubic yards will be dredged/excavated for the overflow channel.

Sediment sampling results indicate that there is moderate contamination limited to the top organic layer. Therefore, this material will be disposed of off-island. Additional testing from the stockpile will be required for disposal purposes and will be conducted in accordance with the requirements of the receiving facility. The stockpiled material must be contained so as not to be exposed to the environment. Hard bottom dredge material and excavated material that is not suspected of being contaminated will be stockpiled separately and tested in accordance with NYCRR Part 360.13 (Beneficial Use of Fill Material).

For wetland areas that are not submerged, the material can be excavated using methods like that used in upland excavation. As the entire project will be subject to a Stormwater Pollution Prevention Plan, sediment and erosion control measures will be required to prevent the loss of sediment into adjacent surface waters (NYCRR Part 750). In addition, once excavated, the area may have standing water and in-water containment controls such as turbidity curtains must be used. For dredging within the channel, turbidity curtains or similar in-water containment measures should be used.

Debris Removal

An additional component of the project involves the removal of debris that has accumulated for decades, as reported in the Northwest and Northeast Ponds Floatables and Debris Investigation Report (see attached). The debris primarily consists of plastics and is found throughout the project site, but in the highest concentrations along the shorelines and within wetland areas. The debris severely degrades these sensitive areas. The process of removing this debris from the shorelines and wetlands may result in temporary sediment disturbance and the resuspension of sediment in the water column. Therefore, turbidity curtains, silt screens, or other means to contain suspended solids will be installed for all debris removal activities along shorelines or in inundated wetlands. Additional measures may include: the removal of debris by hand, restricting the use of heavy machinery where needed, and the upland containment of this debris prior to disposal.

Summary

The goal of this project is to restore wetland and aquatic habitat, enhance the natural filtering process of these wetlands, and improve their long-term resiliency. Due to the moderate to high levels of contamination found in sampling the pond sediments, dredging has been limited to two critical areas. Chemical analysis indicates that Class B and C contamination is found in pond sediments. Therefore, this material is to be disposed of off-island.

Four primary environmental objectives were discussed: minimization of sediment resuspension, minimization of material disturbance or return of material to the water, avoidance of damage to wetlands and other habitats, and avoidance of exposing benthic organisms to more contaminated material. In order to achieve these objectives, restriction

on the dredging methodology will be required, including the use of closed bucket dredging for in-water excavation, the use of turbidity curtains, silt fencing and other in-water containment methods. All contaminated dredged material will be stockpiled for additional testing for disposal purposes. These stockpiles will be contained so they are not exposed to the environment.

The dredging at both locations will require dredging to hard bottom. In the Northeast Pond the depth to hard bottom is on average approximately 18 inches below the top of muck. In the Northwest Pond the depth to hard bottom is on average approximately 6 inches below the top of vegetation. This will result in the removal of the most contaminated material while exposing a cleaner coarser grained sediment layer more suitable for aquatic habitat.

As this planning document is preliminary, a more detailed plan will be prepared to incorporate all permit conditions developed through the regulatory process.