

EROSION AND SEDIMENT CONTROL

SEQUENCE OF CONSTRUCTION

INTRODUCTION

This narrative describes the erosion and sediment controls proposed for this project, discusses the construction sequence and states the requirements for inspection and maintenance of the erosion and sediment controls. The plan has been designed in accordance with the State of New York "Standards and Specifications for Erosion and Sediment Control."

The sequences provided include anticipated start dates, which are predicated on municipal and state agency approvals.

GENERAL SPECIFICATIONS

1. Prior to construction, all existing utility line locations must be verified in field (Call Before You Dig) 1-800-962-7962 or 811
2. Surveyor to stake out the location of proposed structures prior to start of construction.
3. A pre-construction conference is to be held on the site with the design engineer, the owner, the construction contractor, the zoning enforcement officer, the town engineer, and the NYSDEC to review the Erosion and Sediment Control Plan.
4. During construction, if storm event over a 1" storm takes place: contractor personnel must be on site with machinery and additional materials to address any erosion issues. The Engineer of Record (EOR) must be contacted of any such event.
5. Erosion and sediment control measures are the responsibility of the developer of record. The responsibility includes installation and maintenance of all control measures, informing all parties involved in site construction of the plans objectives and requirements, notification of the Town of Yorktown of any transfer of this responsibility, and transferring a copy of the certified erosion and sediment control plan, should the title of all or part of the land be transferred, to respective parties.
6. NYSDEC shall be notified of construction through filing of NOI with inspections under NYSDEC regulations. Individual lot NOI shall be coordinated with the Building Inspector.

NYSDEC Inspections

All erosion control measures are to be inspected and maintained on a regular basis throughout the construction period and until all disturbed land has been stabilized by vegetation.

In compliance with the NOI, twice per week inspection report and inspection before and after any storm events greater than 1" in depth are required by NYS Certified Erosion Control Inspectors or a Licensed Professional Engineer. Results of said inspection on NYSDEC Inspection forms shall be maintained within a Large Mail Box posted at the entrance to the site by the Contractor, available for inspection by NYSDEC personnel.

Refer to specific structures for required inspection schedules

For all items noted in the sequence refer to drawings SY2, and details provided on SY3.

SCOPE OF WORK

The project consists of Phase II of the overall dam rehabilitation. The general steps are as follows.

The overall project includes excavation of a dam diversion channel, movement of excavated material to the Phase I disposal area as a temporary holding location until the dam is constructed and the diversion channel is backfilled. Downstream of the diversion channel, an existing channel must be cleaned to accept the brook flow.

Minor dredging of the pond in the wet is required to set the Portadam on suitable sub-base, with moving of this dredged material to the disposal area, and excavating the material beneath the new dam in the dry and again moving the excavated material to the disposal area.

With the completion of the project, the channel areas are restored with a grass finish, and any material not used remains in the Disposal area with a grass finish. The paved driveway is replaced across the dam and the remainder of the driveway cleaned with a road sweeper of any material residue. The access lane to the disposal area is marked on the site plan with arrows indicating truck traffic, with the trucks returning to the site in the opposite direction. The concrete trucks service the mass pour from the south driveway entering from Saw Mill River Road with concrete wash-out pits indicated on the site plan. Upon completion of the dam, the wash out areas are backfilled.

The overall disturbance for the project is under 1.0 acres as noted on drawing SY1.

The Brook Diversion procedure is as follows:

Step 1: Dredge along area of Portadam structure to remove sediments above the hard bottom level, an additional excavation of 3.0 feet.

Step 2: Install a drain down pipe and valve. Drain down pond.

Step 3: Excavate a diversion channel from the down stream end up to the existing earthen dam and maintain watertight integrity of the dam.

Step 4: Install the Portadam from the west side to the east side past the diversion channel.

Step 5: Break through the dam with the diversion channel behind the Portadam structure.

Step 6: The Portadam company will line the channel with a rubber membrane and mold it to the Portadam liner from the back side to create one integral liner.

Step 7: Open up the Portadam section above the channel, and the flow is now diverted around the dam work area.

Step 8: The new dam foundation is excavated to rock elevation: 403 to 408 per boring data.

Step 9: The dam is poured, cured and completed in the dry up stream of the existing dam, effectively trapping any concrete which could discharge from the forms.

Step 10: After the new dam is cured; 28 days, the channel is again closed off with the Portadam cofferdam and the channel is backfilled for incorporation into the earthen portion of the dam. A concrete wall extends across the diversion channel for additional protection of the installed material.

Step 11: The water level is controlled by the valve which is incorporated into the dam to ensure the cofferdam is not overtopped. Once the channel is filled and stabilized, water is permitted to drain across the dam crest and the final portion of the Portadam is removed.

Each step includes an erosion control sequence to ensure no sediment leaves the site. The following sequence of construction is proposed to ensure this site integrity.

Site mobilization and Erosion Control installation

Duration - Approximately 0.5 Months (Jan 15 to Feb 1, 2019)

Area of Disturbance – Access Area; Accessway and Material Storage	0.60 Acres
Total:	0.60 Acres

Construction Activity – Install of erosion control devices, preparation for material movement to the disposal area.

Installation of Erosion Control Structures

1. All existing utility line locations to be verified in field prior to start of construction. (Call Before You Dig) 1-800-962-7962 OR 811
2. Contractor to photograph the entire area of disturbance to establish a base line for lawn remediation once the project is complete.
3. Install limit of disturbance construction fence around the area of work at the channel excavation. (ref 4/SY3) Ensure south entry is closed to traffic.
4. Install silt fence along the limit of disturbance per the approved plans for the access drive to the disposal area(ref 2/SY3)
5. Install tree protection fencing around the access road trees, if required. (ref 6/SY4)
6. Install construction entrance off the driveway as shown. (ref 1/SY3)
7. Install the temporary accessway with Typar 3400 Base with 3” of wood chips and proceed to the terminus point on the plan. (ref 3/SY3)
8. Install turbidity curtain 10.0 feet from existing dam and extend to pond bottom. Allow gap on west side to permit flow across undisturbed pond bottom to spillway. (ref 5/SY3).
9. Install silt fence with hay bale backing along the pond side of the Material Depository Area. (ref 2/SY3).
10. The Town Engineer must inspect the erosion control devices prior to any pond hydraulic harvesting.
11. Any area disturbed for a period of over 14 days shall be seeded and mulched for stability.

Step 1: Site Plan construction includes: dredging of pond sediments.

Duration - Approximately 0.5 Months (Feb 1 to Feb 15, 2019)

Area of Disturbance – Access Area; Accessway and Material Storage	0.60 Acres
Pond Dredging(not considered NYSDEC disturbance)	<u>0.20 Acres</u>
Total:	0.80 Acres

Construction Activity –Dredging of the pond base for the Cofferdam (Portadam).

Dredging of Pond

The contractor shall coordinate with the E.O.R. on start date. If inclement weather is anticipated, the contractor shall delay work accordingly to minimize the potential of pond bottom sediment migration over the existing spillway. The pond is to be monitored for turbidity during each day of the dredging operation. If the pond turbidity allows material to exit the spillway, all work must cease for that day to allow settlement of the bottom. All wood and debris recovered from the pond shall be deposited within the silt fence area for removal off site on a weekly basis.

Carefully suction dredge within the area located on the site plan. The procedure is place a small Geotube within a truck, suction the material into the geo-tube and then drop the Geotube at the disposal area for dewatering. The dredging continues only if adequate capacity is present within the geo-tubes on the site. Add additional Geo-tubes as necessary.

The contractor shall ensure that adequate pond base is reached for Porto-dam to locate their equipment. Portadam must send in a diver to verify the subsoil integrity to achieve closure of this step. Excessive dredging is the responsibility of the contractor and cannot be construed as an extra to the client. A daily chart must be maintained to document the dredging zone (40'x40') grid, completed each day and the depths achieved when work is stopped for the day. The contractor shall monitor any migration of silt/muck between suction zones.

Dewatering of Material

The contractor shall monitor the stability of the Geo-tubes as the work continues. During long periods of inclement weather, the contractor can cover the material with tarps to, with the best effort, maintain the moisture content. Prior to the opening of any Geotubes and depositing of material on-site, the E.O.R. shall inspect the material for proper consistency and authorization to spread on the site.

Step 2-4: Excavation of the Diversion Channel and transport to disposal area.

Duration - Approximately 0.50 Month (Feb 15-March 1, 2019 or after adequate dewatering)

Area of Disturbance – Cleaning of Downstream Channel	0.23Acres
Excavation of Channel	0.25Acres
Installation of drain down valve and piping	incl. above

Transportation to Disposal Area	0.25 Acres
Total:	0.73 Acres

Excavation of material cannot take place during a rain or snow event to limit runoff. The material must be removed promptly since there is no room for stockpiling at the site. The truck travel path has to be swept once per week of any sediment. Any open excavation must be covered with tarps if inclement weather is predicted. Once the channel has been excavated, the Portadam must be installed promptly, so the contractor must coordinate the ordering of the liner.

Step 8-9: Concrete pour of the new Dam.

Duration - Approximately 1.00 Month (March 1, to April 1, 2019)

Area of Disturbance – Dam base excavation 0.08 Acres

The site is excavated with soil moved to the Disposal Area. The Dam has to be placed on ledge rock for proper anchoring and support. Slope stabilization of the excavation may require steel boxes or structural cribbing which shall be designed and installed by the contractor or a third party contractor hired by the contractor. The office of P.W. Scott Engineering and Architecture P.C. is not responsible for the design and implementation of the excavation stability cribbing.

Install the concrete wash out pits along the concrete truck access lane per detail:8/SY3.

Step 10: Backfilling of the dam

Duration - Approximately 0.2 Month (April 1, to April 15, 2019)

Area of Disturbance – Dam base excavation 0.08 Acres

All material backfilling must be completed in lifts with the material of sufficient moisture content to ensure 95% proctor levels. The EOR must inspect the material and if necessary, a moisture analysis may be required by a testing laboratory.

The gap between the existing dam and the new dam is closed with a concrete slurry and a poured in place concrete spillway shelf extending from the new dam across the existing dam. The flow will extend across the spillway and fall to the channel as takes place on the site.

The dam includes an earthen dam component which is installed per the sectionals provided. The surface includes a grass surface outlined as follows:

1. All material shall be deposited in 12” lifts and compacted to ensure stability.
2. All exposed areas shall be seeded and mulched within 7 days. All embankments are to be graded and seeded immediately upon being laid back and stabilized as follows:

Graded to finished slopes

- A. Scarified with debris clean-ups
- B. Top soiled with not less than four (4) inches of suitable topsoil material

C. Temporarily seeded with the following mixture:

<u>Mix</u>	<u>Lbs./Acre</u>
Rye Grass	30
Winter Condition: Cert (Aroostok Winter Rye, Coral Rye)	100

D. Mulched with not less than one (1) inch and not more than three (3) inches of straw or hay [two (2) tons/acre].

3. The pond shall require topsoil on the sides to ensure adequate vegetation cover in areas of disturbance which shall be installed at this time.
4. The pond shall be inspected by Town of Yorktown personnel and EOR for construction compliance.
5. Only after the areas permanent seeding has achieved a complete vegetation cover shall the erosion control fencing and hay bales be removed and deposited off site.

This completes the common element of the construction.

PORTADAM SEQUENCE OF CONSTRUCTION

The following is the specific installation criteria for the Portadam Cofferdam

PHASE I

Refer to Portadam Schematic.

5. Install drain down valve box
6. Install drain down pipe – 36” SCH 80 PVC
7. Install leading edge pipe
Approximately 30’ long steel or PVC: Ensure solid supports under pipe at joints since extends across clay & pond muck.
4. Excavate approximately 5’ prior to installation of pond silt in area of Portadam Phase I.
5. Portadam installs Phase I frames and sealing membrane (20 oz / sy) and Portadam structure.
6. With stream sealed and lowered with drain down pipe complete test boring with excavator at 30’ increments to verify rock depth.
Excavate channel from lower section extending to opening elevation at max. 3% grade.
7. Complete the channel excavation. Soil material can be moved to Brennan rear yard since exiting culvert bridge crossing is not required.
The soil must be placed in 15’ wide rows perpendicular to grade for dewatering.
8. Once the channel is excavated the Contractor shall roll out the channel liner along the bottom, unfold the liner up along the side slopes. Liner is 40 oz / sy as specified by Portadam.
9. Install precast concrete liner anchors at entrance and discharge end-anchor through pre-cast holes with rebar and welded caps as noted.
10. As noted on Phase II diagram, place additional membrane on east side of the bank connected to the channel liner to cover concrete entrance pad and overlap main sealing membrane.

Phase II

1. Remove Phase I Portadam and initiate relocation to the west side. The channel is now flowing.
2. Excavate 5' check into the west bank for the membrane seal.
3. Remove 5' + sediments along Phase II Portadam orientation.
4. Install Portadam frames and install sealing membrane. Note: Portadam membrane section through which the drain down pipe extends does not move.
5. At the corner of the channel add clay material as a berm and seal at the channel membrane and Portadam intersection.
6. Extend Portadam to the western shore.
7. Once base seal is verified along membrane and pond bottom interface, concrete dam excavation can commence.
8. Contractor to ensure dam excavation does not impact integrity of the Portadam upstream by either undermining or contact with the membrane with construction equipment.

Phase III

1. Once dam is inspected and cured the channel can be removed.
2. Note: Top of Portadam is relocated again across leading edge of the channel to elevation 411.5 minimum. Discharge across the dam established at 414.0 at the spillway so time is of the essence to complete channel closure with suitable fill to prevent Portadam overtopping.
3. Remove channel liner at entrance to channel.
4. Install earth across an 85' wide section from elevation 404 to 416.5 which with 3 to 1 slope equals a bottom width of $(3) (12.5) (2) + 10'$ min. top width equal to 85 feet along the channel. Note: Lifts are 12" thick and require 95% proctor level compaction. Testing lab can establish the moisture content to achieve this level of compaction.
5. Once the earth berm is in place – remove the remainder of the channel liner and backfill.
6. Item #4 is placed for the driveway. The soils may dictate TYPAR 3400 Geotech Fabric for stability.
7. Remove Phase III Portadam to clear the pond site.