

Lewis Passive Treatment System Upgrade

Cherry Township, Sullivan County

Project Narrative

Project Overview

This project will rehabilitate and upgrade an existing passive treatment system in Cherry Township, Sullivan County. The principle tasks are: installation of a new constructed wetland; rehabilitation of an existing vertical flow pond by removing and replacing the organic substrate; installation of new pipeline connecting the vertical flow pond to the constructed wetlands; and general repairs to the existing system.

Project Management

The treatment system and project are on property owned by Dwight G Lewis Trust. The treatment system is operated by the PA Department of Environmental Protection Moshannon District Mining Office. Funding for the project has been provided to the Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR) through a grant from the Pennsylvania Growing Greener Program. EPCAMR is administering the grant and managing the project. The Project Engineer is Hedin Environmental (HE) who has developed the construction plans. Construction oversight will be conducted by EPCAMR and HE.

Project Website

The construction documents and information regarding the project and bidding process are available at <http://www.hedinenv.com/biddocs.html> or go to the Hedin Environmental website and click on Bidders Documents.

Wages

This project is funded by the PA Department of Environmental Protection and is subject to the Commonwealth's Prevailing Wage requirements.

Payment Procedures

The Contractor will prepare monthly invoices that show charges against project tasks shown in the bid document. The invoice will show for each bid item: 1) the total value contained in the bid; 2) the amount previously invoiced to this task; 3) the current charge to this task; 4) the remaining funds for the task, and 5) percent completion of the task. Any approved modifications to the project will be added to the budget document as a new payment item. A copy of each invoice will be submitted to HE for review and approval. Upon HE's approval, the invoice will be forwarded to EPCAMR for submittal to PADEP.

The project is funded by a PADEP Growing Greener grant. PADEP has provided working capital that is replaced through a reimbursement process. The reimbursement process generally takes 6-10 weeks. The Contractor should consider this delay in invoice payment when developing his bid.

Project Closure

PADEP withholds the final 10% of project funds until an authorized DEP employee has inspected the project and approved its completion. SCWA will withhold the Contractor's last 10% of payment until this approval is received from PADEP and reimbursement is received from PADEP. It is anticipated that when the Contractor, DEP, EPCAMR and HE are all satisfied with the project's completion, a meeting will occur with the PADEP to request closure of the construction portion of the project. This meeting will not occur until the system has operated for at least one month. It is likely that 10% holdback will not be paid for 3-4 months after completion of construction activities. The Contractor should consider this delay when developing his bid.

Project Schedule

The Project may be started as soon as contracts are signed. The Project must be completed by November 30, 2015.

Construction Plans and E&S Control Plan

The construction plans and E&S Control Plans are shown on sheets 1 and 2. The plans can be downloaded from the project website. The plans were developed using AutoCAD and a DWG file can be provided to the contractor upon request.

Road Bonding

The delivery of materials to the project site will take place over state and local roads. Any road bonding that is required and is the responsibility of the Contractor.

Construction Narrative

The construction Narrative is attached. The construction narrative is broken down into work items that mirror the bidding document and the materials list.

Construction Narrative

Task A: Mobilization and Demobilization

The contractor will be paid 80% of Item A upon substantial mobilization into the project and 20% upon complete demobilization.

Task B: Erosion and Sediment Controls

The Erosion and Sediment Control plan is shown on sheet titled "E&S Control Plan," The Plan must be implemented as shown before earth disturbance activities begin. The E&S controls should be inspected weekly and after each rainfall event to insure that they are functioning as intended. Repairs and/or replacements will be made as necessary. The contractor will be paid 80% for installation of E&S control measures and 20% for their satisfactory removal.

Task C: Clearing and Grubbing

The wetland site is wooded with mature timber that must be cleared. Marketable timber shall be stacked on site for removal by the landowner. Tops and stumps are to be windrowed along the western end of the wetland site.

Task D: Access Road Construction

Access to the project will be off SR 1006. The existing treatment system is accessed from an existing gravel road. The constructed wetland will be installed along SR 1006. New access will be developed off of SR 1006 to the wetland construction area. A Highway Occupancy Permit has been received and is available on the project website. A rock construction entrance will be installed as shown on the E&S Control Plan.

Task E. Pipeline

The effluent from the existing vertical flow pond will be transferred to the constructed wetland in a 370 ft long 12 in diameter SDR35 PVC pipe. The pipe will be buried with a minimum cover of 2 ft and installed according to manufacturer's specifications.

Task F. Wetland Installation

The wetland dimensions are shown on Sheet 1. The wetland will serve as a disposal site for organic substrate removed from the VFP and has been sized to accept the anticipated 375 CY of material. Organic substrate density is highly variable so placement of material should begin at the western end of the wetland and proceed to the east at the specified thickness. The resulting organic substrate will have an elevation of 1811.5 ft. Shortage of material is acceptable but an excess of organic substrate will be dealt with through on-site disposal. The wetland discharge channel will be placed at 1812.0 ft so that the water depth is 0.5 ft. The wetland will discharge down a channel lined with R-4 rip-rap and blend into the existing drainage channel.

The wetland berm must be keyed in to existing subsoil and constructed in one foot compacted lifts using a sheepsfoot roller. The inside surface must be rolled using a smooth drum vibratory roller.

Task G: Replacement of Organic Substrate in VFP and Berm Repairs

The water level in the VFP should be lowered several inches below the top of the limestone underdrain. After allowing the substrate to drain and dry, the substrate will be removed and relocated to the constructed wetland (Task E). New organic substrate will be placed in the VFP. The substrate will be 450 CY of spent mushroom compost that is amended 15% by volume with high CaCO₃ limestone fines. The organic substrate will be placed in the VFP with an excavator. No heavy equipment will travel on top of the substrate after it is placed.

The VFP berm was damaged during a storm. The damaged portion (Sheet 1) will be repaired using approved soil obtained on-site.

Task H: VFP Bypass

A channel will be constructed from the existing forebay to allow bypass of high flows. The existing primary flow channel from the forebay to the VFP contains a flume that shall be removed and replaced with a weir. This weir regulate flow to the VFP by causing the water level in the forebay to rise to the level of a second weir installed at the entrance to the bypass channel. The dimensions and locations of the weirs are shown on the project plans.

Task I: Seeding and Mulching

All disturbed areas should be graded to a condition suitable for public use, seeded and mulched per the following rates.

Straw/Hay Mulch	2.5 tons/acre or 100 bales/acre. Must use chain flail mulching machine or mulched by hand if using square bales. Mulching machines with knives are not to be used.
Fertilizer (10-20-20)	400 lbs/acre
Perennial Rye Grass	10 lbs/acre
Red Fescue Grass	10 lbs/acre
White Dutch Clover	5 lbs/acre
Crimson Clover	5 lbs/acre
Birdsfoot Trefoil	3 lbs/acre
Rye or Wheat Grain	2 bushel/acre
Lime	6 tons/acre

Materials List

The following materials quantities have been estimated by HE and are provided as a convenience for Bidders. The list and quantities are not guaranteed to be complete and correct. The Bidder/Contractor is responsible for developing a final materials list and quantities calculation.

Lewis Project Materials List. <i>Estimated Quantities</i>			
Task	Item	Quantity	Units
B	12 inch compost filter sock	325	Feet
B	Erosion control blanket	534	Sq. Yd.
C	Clear and grub site	0.9	Acres
D	Access road construction entrance aggregate	50	Tons
D	Access road construction entrance fabric	120	Sq. Yd.
E	12 inch SDR 35 PVC pipe	370	Feet
E	Rock outlet protection	1	Each
F	Old organic substrate to be moved to wetland	400	C.Y.
F	Discharge channel R-4 aggregate	105	Tons
F	Discharge channel fabric	175	Sq. Yd.
G	Spent mushroom compost	450	C.Y.
G	Limestone fines	90	Ton
G	Repair VFP berm	30	C.Y.
H	Weirs	2	Each
H	Bypass channel aggregate, R-4	120	Tons
I	Seed and mulch	0.5	Acre