Site

Notes:

Topographic features, including contours, were digitized from a Plan Map of the Abandoned Mine Reclamation Project at Conifer, dated February 5, 1990, and provided by Commonwealth of Pennsylvania, Department of Environmental Protection, Contract No. OSM 33 (1308) 101.1.

Basis of coordinates is N 9,975.68 – E 9,784.82 for I.P. #1 according to DEP mapping.

Basis of elevations is 1316.72' for I.P. #1 according to DEP mapping. (Note: According to this basis, the elevation at the USGS BM on bridge is 1318.97'.)

Contours within certain areas (e.g. within the areas at the culvert outlets along SR 3007), have been revised acc. to surveys by Daniel E. Moore Surveying & Consulting.

Property lines and ownership data is approximate and according to the DEP mapping.

approximate

CALL BEFORE YOU DIG!
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE—STOP CALL
Pennsylvania One Call System, Inc.
1-800-242-1776

Emergency Spillway Design

Area – 18.0 acres CN = 80
Jefferson County 8% watershed slope
100 year 24 hour storm event = 78.5 cfs

Grass Lined Emergency Spillway (n = 0.040 ; 3:1 side slope)
From Engineering Field Manual Exhibit 11–3.1
Emergency Spillway Depth = 1.0'
Emergency Spillway Bottom Width = 18'
Emergency Spillway Capacity = 43 cfs
(two emergency spillways will be utilized for a total capacity of 86 cfs)

Conifer East Site
Sheet No. 1 of 3

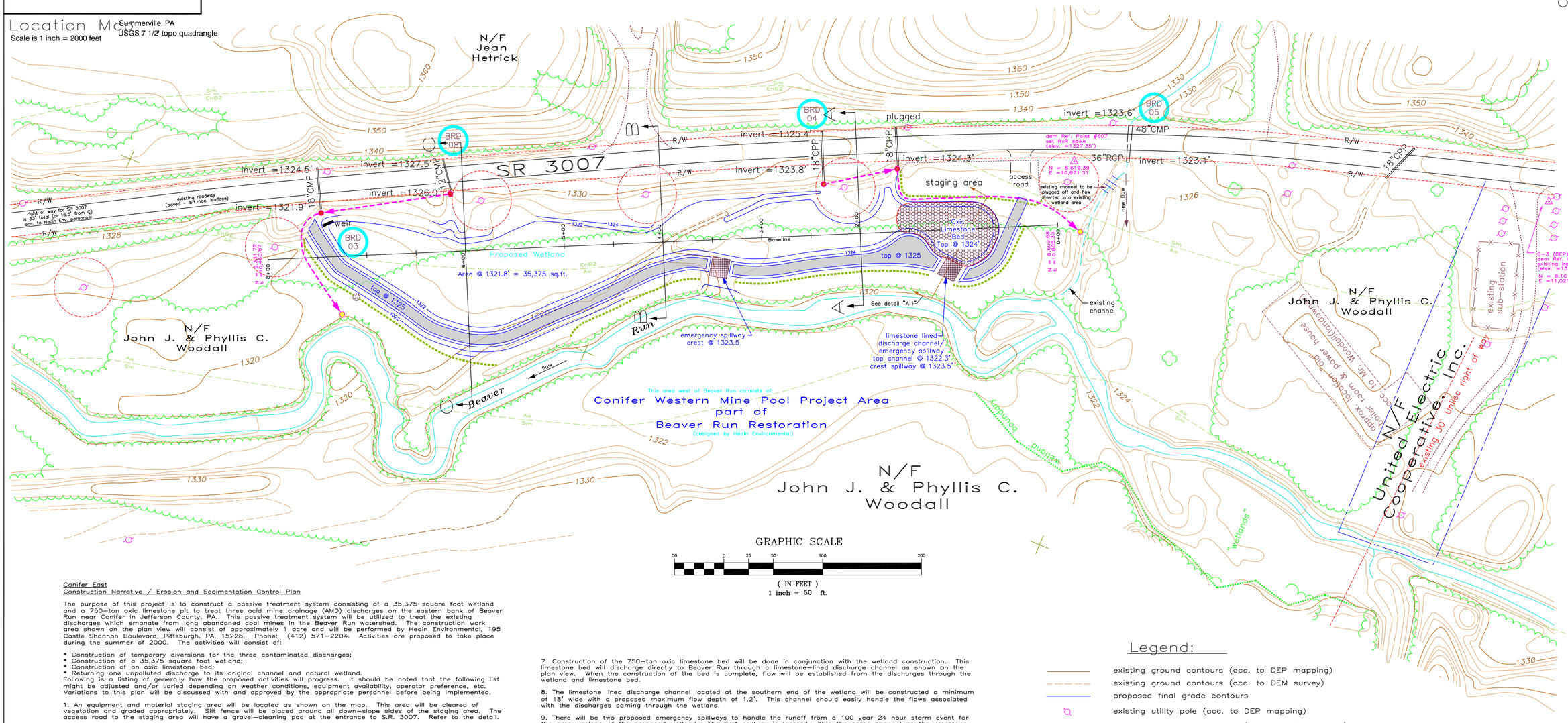
Title: Erosion & Sedimentation Control Plan for Hedin Environmental
195 Castle Shannon Blvd. Pittsburgh, PA 15228

Municipality: Beaver Township
Date: December 1999
Drawing No.: conifeast2.dwg
Scale: As Shown
Drawn By: dem
County: Jefferson County

(SEAL)
Daniel E. Moore, PLS (PLS No. SU—039402–E)
Date

Location Map

Summerville, PA
USGS 7 1/2' topo quadrangle
Scale is 1 inch = 2000 feet



GRAPHIC SCALE

50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

Conifer East
Construction Narrative / Erosion and Sedimentation Control Plan

The purpose of this project is to construct a passive treatment system consisting of a 35,375 square foot wetland and a 750–ton oxic limestone pit to treat three acid mine drainage (AMD) discharges on the eastern bank of Beaver Run near Conifer in Jefferson County, PA. This passive treatment system will be utilized to treat the existing discharges which emanate from long abandoned coal mines in the Beaver Run watershed. The construction work area shown on the plan view will consist of approximately 1 acre and will be performed by Hedin Environmental, 195 Castle Shannon Boulevard, Pittsburgh, PA, 15228. Phone: (412) 571–2204. Activities are proposed to take place during the summer of 2000. The activities will consist of:

* Construction of temporary diversions for the three contaminated discharges;
* Construction of a 35,375 square foot wetland;
* Construction of an oxic limestone bed;
* Returning one unpolluted discharge to its original channel and natural wetland.

Following is a listing of generally how the proposed activities will progress. It should be noted that the following list might be adjusted and/or varied depending on weather conditions, equipment availability, operator preference, etc. Variations to this plan will be discussed with and approved by the appropriate personnel before being implemented.

1. An equipment and material staging area will be located as shown on the map. This area will be cleared of vegetation and graded appropriately. Silt fence will be placed around all down–slope sides of the staging area. The access road to the staging area will have a gravel–cleaning pad at the entrance to S.R. 3007. Refer to the detail.

2. Temporary diversions for the three discharges will be constructed next. Check dams will be constructed at the culvert outlet of discharges BRD–03 and BRD–08. A 6" flexible plastic pipe will be placed as shown on the plan view to direct the flow from BRD–08 towards BRD–03 and around the proposed embankment of the wetland. Check dams will also be constructed at the culvert outlet of discharge BRD–04 and the 18" culvert located just south of this discharge. 6" flexible plastic pipe will be placed as shown on the plan view to direct flow from BRD–04 south towards the existing channel through which unpolluted discharge BRD–05 flows. Outlet dissipators will be placed at the outlet of both diversion pipes.

3. Prior to clearing and grubbing of the wetland construction area, 18" filter fabric fence will be placed downslope of the construction area as shown on the plan view. Refer to the construction detail for the filter fabric fence.

4. An embankment will be constructed within the existing channel where unpolluted discharge BRD–05 flows south of S.R. 3007. This embankment will divert the flow from BRD–05 back into the existing wetland area south of the existing channel. The remainder of this channel will remain intact and will not be affected by the proposed wetland construction.

5. After the work area has been allowed to drain, construction of the main wetland will begin. The top 6 inches of topsoil will be removed and stockpiled so that it can be mixed with limestone aggregate. An additional 4 inches of excavated material will be used to construct the wetland embankment as shown on the plan view. The wetland will be excavated to a bottom elevation of 1321.0' with the top of the embankment at 1325.0'. The ability of the wetland to hold water will be tested at this stage by allowing the polluted discharges to flow through the excavated area. If necessary, the wetland will be lined with bentonite to prevent leakage.

6. After the wetland has been excavated and graded to the appropriate depth, the 6 inches of stockpiled topsoil will be mixed with 740 tons of limestone aggregate. This mixture will be placed on the bottom of the excavated wetland at a depth of approximately 10 inches to a uniform elevation of 1321.8'. The wetland will then be vegetated using cattails and other aquatic vegetation as appropriate.

7. Construction of the 750–ton oxic limestone bed will be done in conjunction with the wetland construction. This limestone bed will discharge directly to Beaver Run through a limestone–lined discharge channel as shown on the plan view. When the construction of the bed is complete, flow will be established from the discharges through the wetland and limestone bed.

8. The limestone lined discharge channel located at the southern end of the wetland will be constructed a minimum of 18' wide with a proposed maximum flow depth of 1.2'. This channel should easily handle the flows associated with the discharges coming through the wetland.

9. There will be two proposed emergency spillways to handle the runoff from a 100 year 24 hour storm event for the area upslope of the proposed wetland. The first spillway is located within the same channel as the limestone lined discharge channel, and will utilize the 1.0' of available flow depth above that proposed for the discharge channel. The crest of this emergency spillway will be at 1323.5' and will have 0.5' of freeboard. The other emergency spillway will be constructed towards the center of the wetland where a low spot currently exists. This emergency spillway will also be 18' wide, have a flow depth of 1.0', freeboard of 0.5', and a crest elevation of 1323.5'. These two spillways combined will handle the required runoff from the upslope watershed area. (Refer to Design Data on this sheet.)

10. After vegetation has been sufficiently established on all disturbed areas, all filter fabric fence will be removed.

The erosion and sedimentation control facilities discussed above will be inspected weekly and after each rainfall event to insure that they area functioning as intended. Repairs and/or replacements will be made as necessary.

As soon as possible, and as weather conditions permit following each individual activity, revegetation outside of the wetland will take place according to the following permanent vegetation rates:

Hay Mulch	2 1/2 tons/acre
Fertilizer (10–20–20)	1/2 ton/acre
Johnstone Fescue	30 pounds/acre
Birdsfoot Trefoil	6 pounds/acre
Red Top	3 pounds/acre

Legend:

- existing ground contours (acc. to DEP mapping)
- existing ground contours (acc. to DEM survey)
- proposed final grade contours
- existing utility pole (acc. to DEP mapping)
- approximate edge of woods (acc. to DEP mapping)
- BR 08 — background sampling point (acc. to Hedin Environmental & DEP personnel)
- wetland boundary acc. to delineation by DEP personnel
- proposed wetland embankment
- proposed 18" filter fabric fence
- proposed flexible plastic diversion pipe
- proposed check dam
- proposed outlet energy dissipator
- proposed rock filter outlet
- soil types acc. to Soil Survey of Jeff. Co. (USDA – SCS)

Sm – Strip Mines
EnB2 – Ernest Silt Loam, 3 to 8% slopes, moderately eroded
Aw – Atkins Silt Loam

No.	Date	Description	By
2	04-11-00	added site cross sections	dem
1	01-18-00	prop. final elev. revisions per H.E.	dem

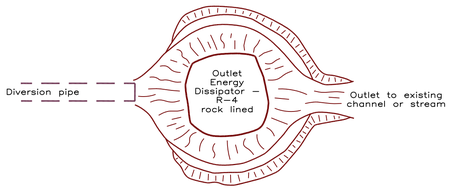
Notes:

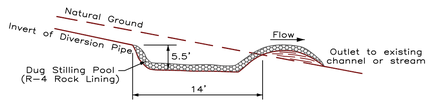
Design Criteria Developed by
HEDIN ENVIRONMENTAL
Water and Land Restoration
195 Castle Shannon Blvd.
Pittsburgh, PA 15228

Daniel E. Moore
Surveying & Consulting
320A West Main Street Brookville, PA 15825

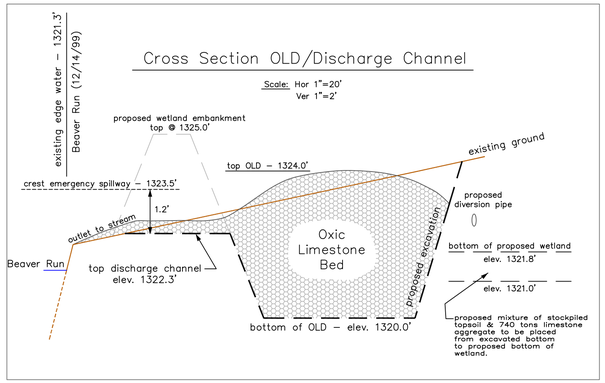
Outlet Energy Dissipator & Plunge Pool

sketch not to scale



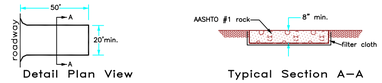


Detail "A.1"



Proposed Access Road

sketch not to scale

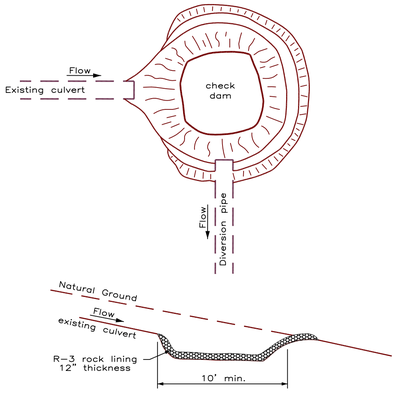


Maintenance: The structure's thickness will be constantly maintained to the specified dimensions by adding rock. A stockpile of rock material will be maintained on the site for this purpose. At the end of each construction day, all sediment deposited on public roadways will be removed and returned to the construction site.

Pursuant to Section 420 of the Act of June 1, 1945 (P.L. 1242, No. 428), known as the "State Highway Law", a Highway Occupancy Permit is required before a driveway access to a State highway is permitted.

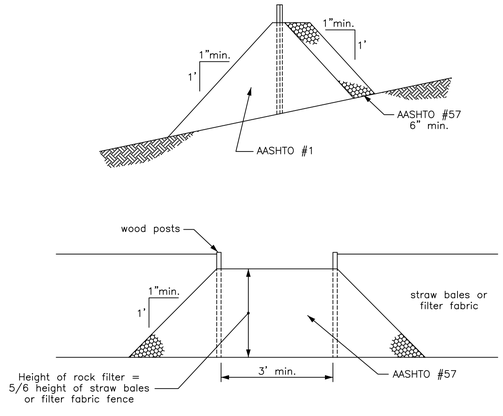
Typical Check Dam

sketch not to scale



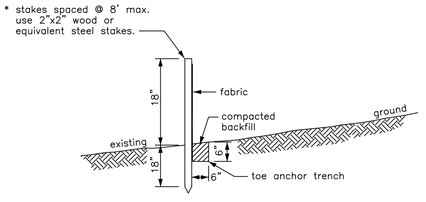
Rock Filter Outlet Construction Detail

sketch not to scale



Standard Filter Fabric Fence Construction Detail

sketch not to scale



Notes: Filter fabric fence must be installed at level grade. Both ends of each fence section must be extended at least 8 feet upslope at 45 degrees to the main fence alignment.

Sediment must be removed where accumulations reach 1/2 the above ground height of the fence.

Any fence section which has been undermined or topped must be immediately replaced with a rock filter outlet. See Rock Filter Outlet Detail.

Conifer East Site
Sheet No. 2 of 3

Title: E & S Control Plan Details for Hedin Environmental
195 Castle Shannon Blvd. Pittsburgh, PA 15228

Municipality: Beaver Township
Date: December 1999
Drawing No.: confeast2.dwg
County: Jefferson County
Drawn By: dem
Scale: As Shown

No.	Date	Description	By
2	04-11-00	added site cross sections	dem
1	01-18-00	prop. final elev. revisions per H.E.	dem

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