Part 4 of 4

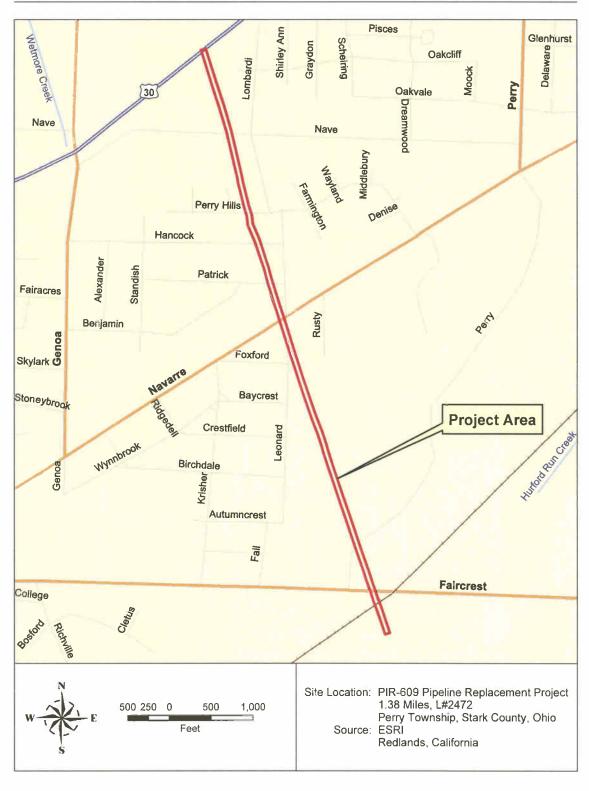
## APPENDIX A

## Project/Segment-Specific Maps & Tables

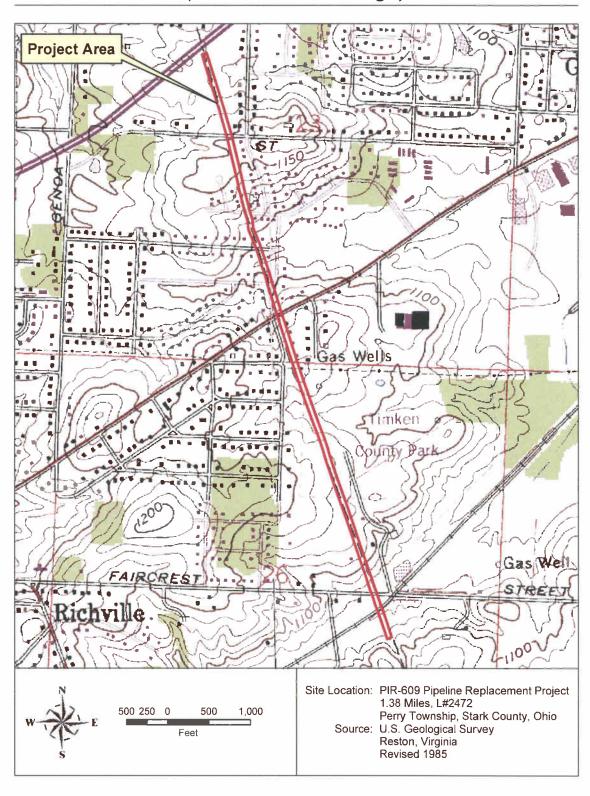
- A-1: Site Location Maps
- A-2: Soils Map
- A-3: Waterbody Crossing Table
- A-4: Wetland Crossing Table
- A-5: Wetland & Waterbody Study Area Map
- A-6: HDD Frac-Out Contingency Plan

# **A-1: Site Location Maps**

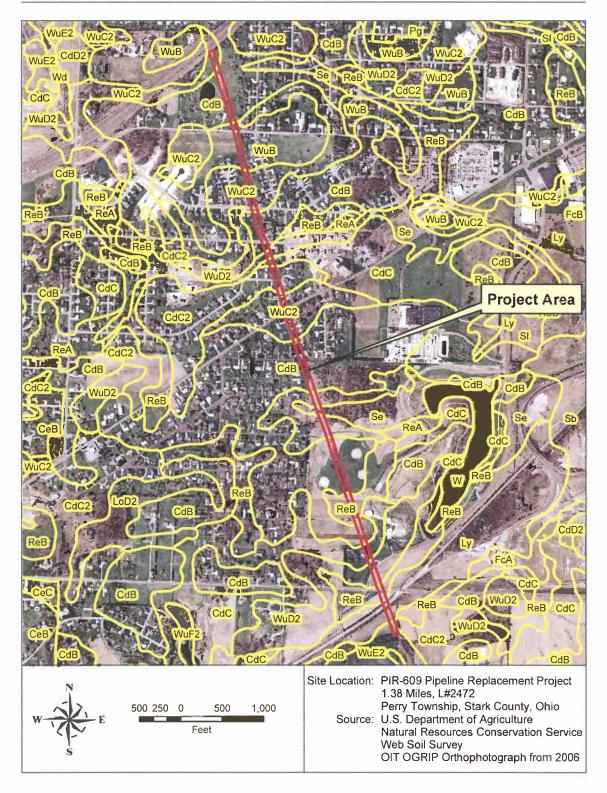
## Location of Project Area on Highway Map



## Location of Project Area on USGS 7.5-Minute Topographic Map (Canton West Quadrangle)



## Soils Information for Project Area



# **A-3: Waterbody Crossing Table**

Table 1. Summary of Waterbodies for the PIR 609 Project

<b>Stream</b> ID	Stream Length (within 60' ROW)	Flow Regime	Substrate Type(s)	Bankfull Width	HHEI	Class	Crossing Method <sup>1</sup>	Impact Area <sup>2</sup>
1	64 If	Intermittent	Sand, gravel	6.0 ft	62	Modified II	Trench cut	6 ft <sup>2</sup>
2	62 lf	Intermittent	Muck	3.9 ft	40	Modified II	Trench cut	4 ft <sup>2</sup>
Total	126 LF					51		10 ft <sup>2</sup>

<sup>&</sup>lt;sup>1</sup> Project managers must approve changes to crossing methods

<sup>&</sup>lt;sup>2</sup> Impact area based on trench width

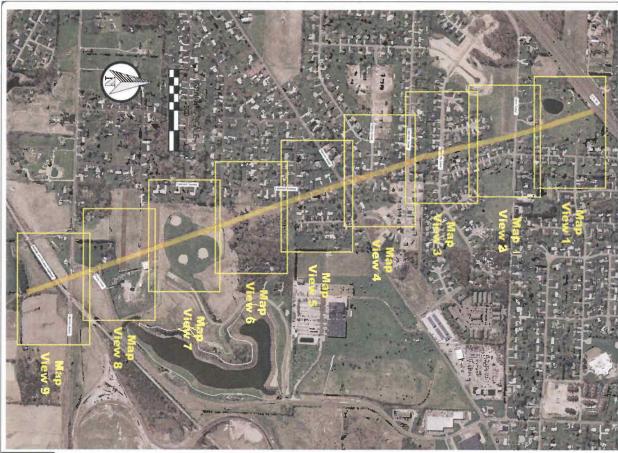
# A-4: Wetland Crossing Table

Table 2. Summary of Wetlands for the PIR 609 Project

Wetlands ID	Vegetation Cover Type	Area within ROW (Acres)	ORAM Score	ORAM Category	Connectivity to Water of U.S.	Crossing Method <sup>1</sup>	Impact Area
А	Wet Meadow	0.155	38.5	Modified 2	Non-Isolated	Trench cut	566 ft <sup>2</sup>

<sup>&</sup>lt;sup>1</sup> Project managers must approve changes to crossing methods

# A-5: Wetland and Waterbody Location Maps



Map View Location Map

Stark County, Ohio

I





Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio





Map View 1 of 9

= Filter socks/check dams = Silt fence

/ = Trench plugs

Areas of wetlands delineated within study area (0.155 acre)

= Non-jurisdictional ditch = Intermittent stream = Direction of flow

= Approximate study area

DAVEY

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement Project 1.38 Miles, L#2472 Perry Township Stark County, Ohio

Map View 2 of 9

= Silt fence

/ = Trench plugs = Filter socks/check dams

Areas of wetlands delineated within study area
 (0.155 acre)

= Non-jurisdictional ditch = Direction of flow = Intermittent stream = Approximate study area

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio



Map View 3 of 9

= Silt fence

/ = Trench plugs = Filter socks/check dams

= Direction of flow Non-jurisdictional ditch = Intermittent stream = Approximate study area

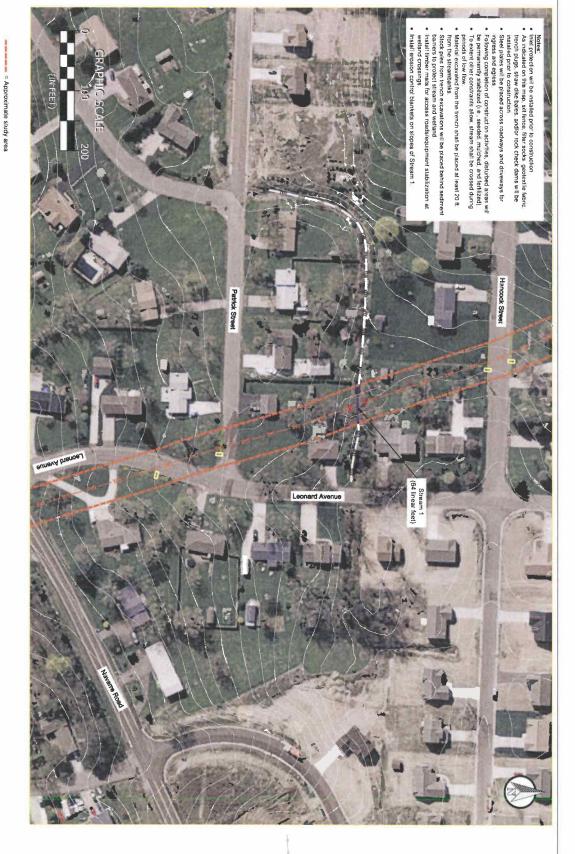
Areas of wetlands delineated within study area
 (0.155 acre)

PIR-609 Pipeline Replacement
Project
1.38 Villes, L#2472
Perry Township
Stark County, Ohio

Dominion Resources Services, Inc. Dominion East Ohio

Data used to produce this map were collected on May 5, 2011

Sheet 4



Map View 4 of 9

= Sitt fence

= Trench plugs = Filter socks/check dams

= Direction of flow = Intermittent stream = Non-jurisdictional ditch

Areas of wetlands delineated within study area (0.155 acre)

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio

Dominion Resources Services, Inc. Dominion East Ohio

Data used to produce this map were collected on May 5, 2011

Sheet 5



Areas of wetlands delineated within study area (0.155 acre)

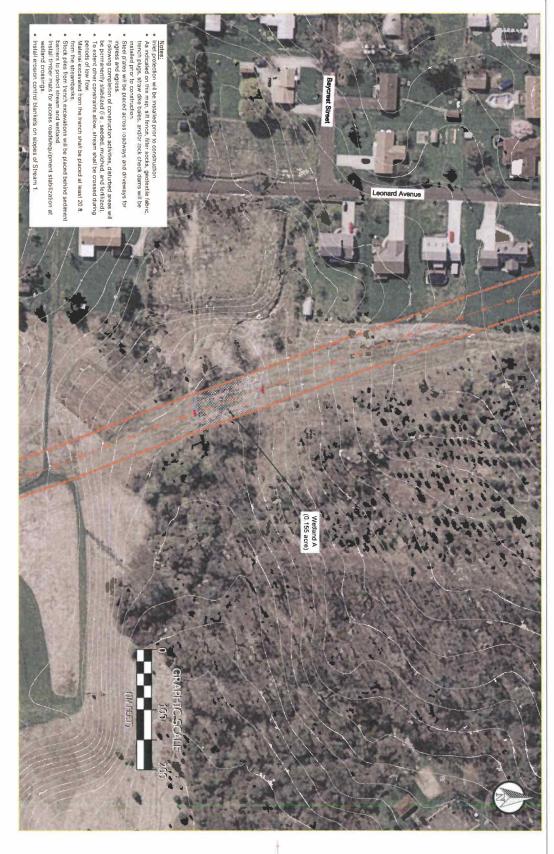
Non-jurisdictional ditch = Intermittent stream = Approximate study area

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio

Data used to produce this map were collected on May 5, 2011

Sheat 6



= Filter socks/check dame = Silt fence

/ = Trench plugs

= Areas of wetlands delineated within study area (0.155 acre)

= Non-jurisdictional ditch = Direction of flow = Intermittent stream = Approximate study area

Dominion Resources
Services, Inc.
Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio



Map View 7 of 9

/ = Trench plugs = Filter socks/check dams = Silt fence

= Intermittent stream = Direction of flow = Non-jurisdictional ditch — = Approximate study area

Areas of wetlands de neated within study area
 (0.155 acre)

DAVEY

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio



Map View 8 of 9

= Silt fence

/ = Trench plugs = Filter socks/check dams

Areas of wetlands delineated within study area
 (0.155 acre)

= Intermittent stream = Direction of flow = Non-jurisdictional ditch = Approximate study area

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio

Data used to produce this map were collected on May 5, 2011

Sheet 9

Map View 9 of 9

/ = Trench plugs = Filter socks/check dams = Silt fence

Areas of wetlands delineated within study area
 (0.155 acre)

= Intermittent stream = Direction of flow = Non-jurisdictional ditch = Approximate study area

Dominion Resources Services, Inc. Dominion East Ohio

PIR-609 Pipeline Replacement
Project
1.38 Miles, L#2472
Perry Township
Stark County, Ohio



# A-6: HDD Frac-Out Contingency Plan

## HDD Frac-out Contingency Plan – Dominion East Ohio Gas

Last updated: May 25, 2010

Preface: This document is the result of coordination between Dominion's East Ohio Gas Company (EOG) and the three U.S Army Corps of Engineers (USACE) Districts which have regulatory jurisdiction in the state of Ohio (Buffalo, Huntington, Pittsburgh). It is in response to EOG's initial inquiry regarding steps they should take in regards to coordinating with the USACE when encountering a frac-out in an area regulated by the USACE. EOG provided a "draft" frac-out contingency plan which serves as the foundation of this document. After review by the involved USACE Districts, modifications were incorporated into the submitted plan and Addendum A was added which includes identification of specific steps to be taken by EOG when encountering a frac-out in an area regulated by the USACE. The plan includes notification procedures and actions to be taken by EOG in the event of a frac-out.

#### Introduction

EOG utilizes horizontal directional drilling (HDD) to install pipeline crossings on construction projects, depending on site specific conditions. HDD is a widely used trenchless construction method which accomplishes the installation of pipelines and buried utilities with minimal disturbance to the surface or streams and wetlands. However, HDD is not totally without impact. The primary environmental impact associated with HDD revolves around the use of drilling fluids. The purpose of this document is to present EOG's plan for minimizing environmental impact associated with drilling fluids that inadvertently escape to the ground surface (known as a frac out). This document may require additional site specific information depending on the sensitivity of the project and requests from the permitting agencies.

If a site specific contingency plan is developed for a particular bore the plan should be submitted to the appropriate USACE District as described in Addendum A of this document.

#### Background

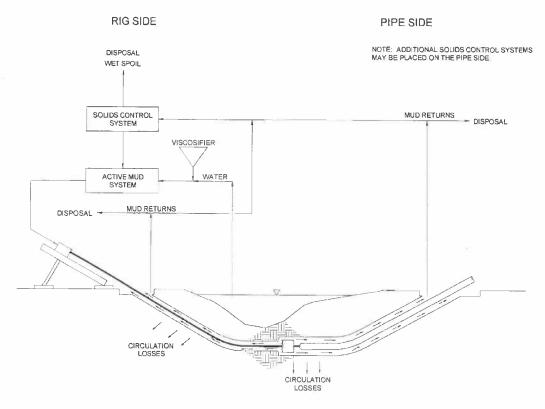
An awareness of the function and composition of HDD drilling fluids (also referred to drilling mud) is imperative in producing a permittable and constructable HDD crossing design. The principal functions of drilling fluid in HDD pipeline installation are listed below.

- Transportation of Spoil. Drilled spoil, consisting of excavated soil or rock cuttings, is suspended in the fluid and carried to the surface by the fluid stream flowing in the annulus between the bore hole and the pipe.
- Cooling and Cleaning of Cutters. Drilled spoils build-up on bit or reamer cutters is removed by high velocity fluid streams directed at the cutters. Cutters are also cooled by the fluid.
- Reduction of Friction. Friction between the pipe and the hole wall is reduced by the lubricating properties of the drilling fluid.

- **Hole Stabilization.** Stabilization of the drilled hole is accomplished by the drilling fluid building up a "wall cake" which seals pores and holds soil particles in place. This is critical in HDD pipeline installation as holes are often in soft soil formations and are uncased.
- Transmission of Hydraulic Power. Power required to turn a bit and mechanically drill a hole is transmitted to a downhole motor by the drilling fluid.
- **Hydraulic Excavation.** Soil is excavated by erosion from high velocity fluid streams directed from jet nozzles on bits or reaming tools.
- Soil Modification. Mixing of the drilling fluid with the soil along the drilled path facilitates installation of a pipeline by reducing the shear strength of the soil to a near fluid condition. The resulting soil mixture can then be displaced as a pipeline is pulled into it.

The major component of drilling fluid used in HDD pipeline installation is fresh water, typically obtained at the crossing location. In order for water to be fully functional, it is generally necessary to modify its properties by adding a viscosifier. The viscosifier used almost exclusively in HDD drilling fluids is naturally occurring bentonite clay, which is principally sodium montmorillonite. It is not listed as a hazardous material/substance as defined by the U.S. Environmental Protection Agency's EPCRA or CERCLA regulatory criteria. If the product becomes a waste, it does not meet the criteria of a hazardous waste, as defined by USEPA (see attached MSDS).

All stages of HDD involve circulating drilling fluid from equipment on the surface, through a drill pipe, and back to the surface through a drilled annulus. Drilling fluid returns collected at the entry and exit points are stored in a steel tank and processed through a solids control system which removes spoil from the drilling fluid allowing the fluid to be reused. The cleaned fluid is trucked back to the entrance point for reuse. The basic method used by the solids control system is mechanical separation using shakers, desanders, and desilters. The excess spoil and drilling fluid are transported to, and disposed of, at an approved permitted solid waste landfill. A typical HDD drilling fluid flow circuit is illustrated schematically below.



Drilling fluid expended downhole will flow in the path of least resistance. In the drilled annulus, the path of least resistance may be an existing fracture or fissure in the soil or rock substrate. When this happens, circulation can be lost or reduced. This is a common occurrence in the HDD process, but does not prevent completion. However, the environment may be impacted if the fluid inadvertently returns to the surface at a location on a waterway's banks or within a waterway or wetland.

#### Frac out Minimization

The risk of a frac out can be mitigated through profile design and implementation of specific measures throughout the installation process.

The HDD profile is designed to minimize the potential for the release of drilling fluid in sensitive areas. Cohesive soils, such as clays, dense sands, and competent rock are considered ideal materials for containment of drilling fluids. Case by case analysis of the overburden will be conducted to determine the depth of the bore to provide a margin of safety against frac outs in a sensitive area. In non cohesive soils, such as gravel, a greater depth of cover will be used.

During the design phase, substrate test bores if required, should be a minimum of 20' from the HDD centerline where practical. The bore holes should be filled with concrete prior to the HDD process.

Key preventative measures implemented during installation are geared toward keeping the drill fluid contained in the borehole and preventing its escape to the surface. This is accomplished through monitoring and management of drill fluid pressures and drill fluid volumes. A key to containing and controlling an inadvertent return is early detection and quick response by the HDD crew.

#### Minimization of Environmental Impact

• The most effective way to minimize environmental impact associated with HDD drilling fluids is to maintain fluid circulation to the extent practical. Maintenance of fluid circulation is the responsibility of EOG's HDD contractor. EOG's construction specifications defining this responsibility is presented below.

CONTRACTOR shall employ his best efforts to maintain full annular circulation of drilling fluids. Drilling fluid returns at locations other than the entry and exit points shall be minimized. In the event that annular circulation is lost, CONTRACTOR shall take steps to restore circulation.

However, it should be recognized that restoration of circulation may not be practical or possible, and that environmental impact will be minimized by completing construction as soon as possible. Therefore, absent a threat to public health and safety, drilling operations will continue in the event of lost circulation if deemed to reduce the duration of construction operations.

Drilling fluid is easily contained by standard erosion and sedimentation control measures within upland areas. Within the boundaries of the worksite drilling fluid is controlled through the use of pits at the crossing entry and exit points and typical fluid handling equipment such as trash pumps.

The environmental impact of a release of drilling fluid into a water body is a temporary increase in local turbidity until the drilling fluid dissipates with the current and settles to the bottom. In the immediate vicinity of a release, benthic organisms may be smothered if sufficient quantities of bentonite settles upon them.

#### Response to Frac out

Refer to Addendum A of this document for notification procedures to the USACE if a fracout occurs in a water of the U.S (i.e. regulated wetland, stream, river, etc.).

The HDD contractor shall immediately notify the lead Construction Inspector (CI) and Environmental Inspector (EI) of any sudden losses in returns or any inadvertent return to the surface. If a frac out is observed, the HDD contractor will take certain reasonable measures to eliminate, reduce, or control the release. The actions to be taken will depend on the location and time of release, site specifc geologic conditions, and the volume of the release.

If a release occurs in an upland area, the HDD contractor will take appropriate reasonable actions to reduce, eliminate, or control the release. The actions shall include:

- constructing a small pit or sandbag coffer around the release point, installing a section of
  silt fence and/or straw bales to trap as much sediment as possible, and placing a pump
  hose in the pit to pump the drilling fluid back to the bore site
- reducing drilling fluid pressures
- · thickening drilling fluid mixture

• adding pre-approved loss circulation materials to the fluid mixture, such as wood fibers or shredded paper.

The HDD contractor in consultation with the CI and EI, will determine which methods are the most appropriate to eliminate, reduce or control the release. Prior to the end of the shift, the EI or CI will notify the local Dominion Environmental Department concerning the frac out event. Drilling fluid that is recovered will be recycled and reused to the extent that is practical. Waste drilling fluid will be disposed of in a permitted solid waste landfill.

If inadvertent surface returns occur on a stream's bank or within a stream or wetland, it will be the responsibility of the HDD contractor to contain and collect drilling fluid, and ultimately restore the disturbed area, as practical. Drilling operations will be temporarily suspended to allow contractor to set up a containment and collection system. EOG's construction specifications defining this responsibility is presented below.

If inadvertent surface returns of drilling fluids occur, they shall be immediately contained with hand placed barriers (i.e. straw bales, sand bags, silt fences, etc.) and collected using pumps as practical. If the amount of the surface return is not great enough to allow practical collection, the affected area shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the surface return exceeds that which can be contained with hand placed barriers, small collection sumps may be used. If the amount of the surface return exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until surface return volumes can be brought under control.

If the release occurs in a wetland, or in close proximity to a stream, where there is imminent danger of the drilling fluid flowing into the body of water, then drilling operations will cease until the HDD personnel, CI and EI have had an opportunity to examine the site and evaluate the threat to the waterbody. If a release occurs in an area regulated by the USACE, within 24 hours of the release the USACE shall be notified as described in Addendum A of this document. Based on review of the information submitted, the action taken by EOG, and the aquatic resource impacted, the responsible USACE District will determine what the appropriate USACE response/action will be on a case by case basis. In addition, Dominion's local Environmental Department needs contacted immediately, or as soon as practical. A plan for avoiding additional impacts, which may include some or all of the action items listed above will be implemented. Efforts will be made to minimize ground disturbance in wetlands while accessing the frac out area by utilizing swamp mats and lightweight equipment, such as bobcats and pick-up trucks, and minimizing the travel into and out of the wetland. The cutting of shrubs and trees will be minimized, as much as practical, in order to reach the frac out area. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing additional impact to wetlands and streams. The release site(s) will be closely monitored for any additional frac out activity until the HDD work in the area is completed. For longer stretches of ROW that are not within site of the HDD personnel, the pipeline right-of-way will be walked at least on an hourly basis.

If a release occurs in a stream or river, then drilling operations will cease until the HDD personnel, CI and EI have had an opportunity to examine the site and evaluate the threat to the waterbody. Within 24 hours of the release the USACE shall be notified as described in Addendum A of this document. Based on review of the information submitted, the action taken by EOG, and the aquatic resource impacted, the responsible USACE District will determine what the appropriate USACE response/action will be on a case by case basis. In addition, Dominion's local Environmental Department needs contacted immediately, or as soon

as practical. A plan for avoiding additional impacts, which may include a pump or flume bypass with secondary secondary containment, in addition to all of the action items listed above will be implemented. The HDD activity may be resumed only after it has been determined with reasonable certainty that any additional release of drilling fluid will be minimal and can be adequately contained without posing further impacts to wetlands and streams. The release site(s) should continue to be closely monitored for any additional further frac out activity until the HDD work in the area is completed. For frac-out situations in stream and wetlands only, the Environmetal Inspector may conduct stream monitoring/sampling such as pH and turbidity, comparing upstream conditions with downstream conditions. Also, the stream will be walked to verify the extent of drilling fluid sediment dispersal and settling.

One **exception to ceasing drilling operations** until containment is developed would be a release of drilling fluids during the pipe pullback process. Ceasing operations would pose significant risk of causing the pull to be stuck and not able to resume.

#### Containment & Clean-up Material and Equipment

The HDD contractor will be required to have the necessary containment and clean-up equipment onsite and readily available to use. At a minimum, the following material and equipment should be on site and in ample supply depending on the extent of sensitive areas:

- Spill sorbent pads and booms
- Straw bales (certified weed-free)
- Wood stakes
- Sand bags
- Silt fence
- Plastic sheeting
- Corrugated plastic pipe
- Shovels
- Push brooms
- Centrifugal, trash and sump pumps
- Vacuum trucks
- · Rubber tired or wide track back hoe
- Bobcat (if needed)
- Storage tanks (if needed)
- Floating turbidity curtain (may be considered for use on large streams)

If necessary, a 24 hour outside emergency response company may be called in for assistance. Enviroserve – 1-800-642-1311

#### **Agency Notifications**

Typically, the local Dominion Environmental Department personnel supporting EOG will make the necessary calls to any regulatory agency.

- Ohio EPA spill hotline 1-800-282-9378 (not considered a spill, but unpermitted discharge)
- USACE Refer to Addendum A of this document. (phone number will be provided per project location)

• Other agencies that may have to be notified dependent upon permit approvals and site conditions may include Ohio PSB, Ohio DNR and the USF&W Service.

#### Frac out site restoration

All areas impacted will be restored to pre-existing condition and contour. Impacted upland areas will be restored through normal right-of-way practices of seeding and mulching.

Restoration of wetlands will vary depending on the extent of disturbance to the upper soil layer and vegetation during the initial frac out response. Residual frac mud will be washed off the vegetation as much as practical. Upon review of the submitted information as identified in Addendum A of this document, the respective USACE District will review the restoration activities performed in any regulated wetland and determine if further action is warranted.

All perennial, intermittent and ephemeral streams will have as much residual frac out mud pumped out as is practical, so as not to disturb the original streambed. This may include a light wash of the streambed utilizing upstream water and collecting the wash water immediately downstream. Similar to frac outs occurring in wetlands, upon review of the submitted information as identified in Addendum A of this document, the respective USACE District will review the restoration activities performed in any regulated streams and determine if further action is warranted.

## Addendum A

Coordination Procedures between the U.S Army Corps of Engineers (USACE) and Dominion East Ohio Gas (EOG) for Frac-Outs:

If specific frac-out contingency/corrective action plans have been developed for particular Horizontal Directional Drills (HDD), these should be provided to the appropriate USACE District prior to initiation of the HDD. Of particular importance is for EOG to identify any potential corrective actions that may require USACE authorizations to implement the corrective actions (i.e. temporary access roads to facilitate containment/clean-up in areas regulated by the USACE).

#### **FRAC-OUT OCCURS:**

The procedures outlined below shall be implemented when a frac-out occurs in an area regulated the USACE in the state of Ohio:

- 1. Identify the responsible USACE District (Buffalo, Huntington, Pittsburgh) based on the geographical location of the frac-out.
- 2. Within 24 hours of the frac-out occurrence, notify the point of contact at the responsible USACE District.
  - -Harold Keppner (Buffalo): 716-879-4120, harold.t.keppner@usace.army.mil
  - -Mark Taylor (Huntington): 304-399-6903, mark.a.taylor@usace.army.mil
  - -Nancy Mullen (Pittsburgh): 412-395-7170, nancy.j.mullen@usace.army.mil
- \*Notification shall occur via e-mail with potential phone contact as the situation warrants.
- 3. The notification shall include the following information:
  - USGS location map depicting the frac-out location.
  - -Identify the regulated water of the U.S. and provide a brief description of that resource (i.e. stream/river name, forested wetland, etc).
  - -Characterize the scope of the frac-out. Identify the approximate quantity of material discharged and area impacted by that discharge.
  - -Provide the date the frac-out occurred and status of the situation (i.e. stopped, on-going).
  - -State corrective actions and restoration measures taken or to be taken by EOG to address the situation. This should include but is not limited to any "washing", earthwork and/or seeding/plantings performed to restore the area to pre-existing condition and contour.
  - -Representative photos of the area impacted by the frac-out and representative photos of the area after corrective/restoration efforts.
  - -Identify the potential for any additional USACE authorizations required to perform corrective actions (i.e. temporary access road in areas regulated by the USACE).

Based on review of the information submitted, the action taken by EOG, and the aquatic resource impacted, the responsible USACE District will determine what the appropriate USACE response/action will be on a case by case basis. Action taken by the USACE District may

include, but is not limited to issuance of a "cease and desist" order and/or permit suspension/modification/revocation.

NOTE: The USACE may update this guidance at any time based on an assessment of the situations which are encountered and how they are handled by EOG.

## **EOG FRAC-OUT NOTIFICATION FORM:**

Project:									
Date of Release:									
Current Status:									
Location of Release (City, County, State – Attach USGS Topographic Map) and Corps District:									
Estimated Quantity of Release:									
Scope of frac-out. Describe General Area Impacted by Release:									
Identify and describe wetland(s) and/or stream(s) impacted by release: (Attach Delineation Map and photographs)									
Corrective actions taken or to be taken (Attach photographs of area after corrective actions):									
Will additional authorization by the Corps be required to perform corrective actions?									
Project Contact for the Corps (Dominion Environmental will call only if necessary):									
Buffalo District: Mr. Harold Keppner <u>Harold,t,keppner@usace.army.mil</u> 1-716-879-4120									
Huntington District: Mr. Mark Taylor <u>mark.a.taylor@usacc.army.mil</u> 1-304-399-6903									
Pittsburgh District: Ms. Nancy Mullen <u>nancy.j.mullen@usace.army.mil</u> 1-412-395-7170									
Ohio EPA Spill Hotline:									

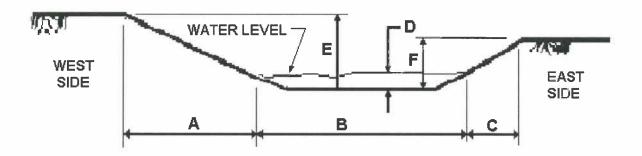
# APPENDIX B

## APPENDIX B

# **Surface Water Crossing Detail Drawings**

### **DETAIL B-1**

### SURFACE WATER DIMENSION DETAILS



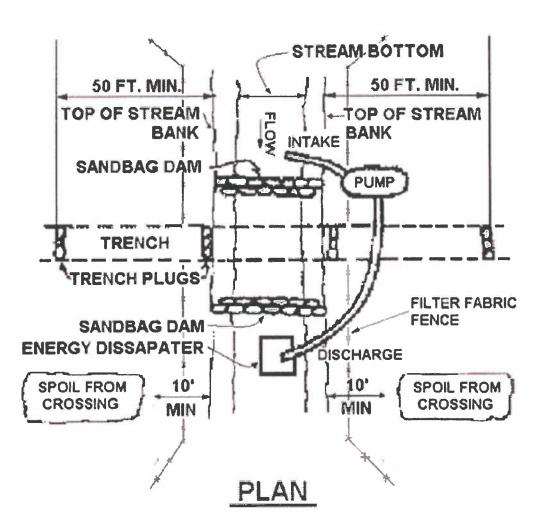
The following table is to be completed with information collected during civil surveys, if available:

### **CHANNEL CROSS-SECTION**

Crossing Number	Name	A	В	С	D	E	F
Number	Name	A	D	-	D	E	F
				-			

#### **DETAIL B-2**

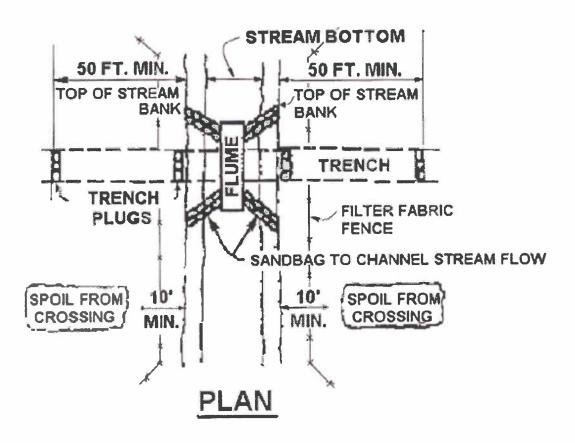
#### TYPICAL STREAM CROSSING WITH PUMPED BYPASS



Note: A secondary dam may be needed to completely dry the streambed. A sump pump pumping behind the primary dam can usually handle this task.

#### **DETAIL B-3**

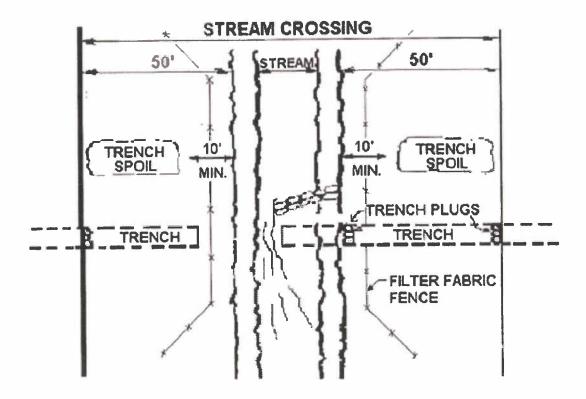
#### TYPICAL FLUMED STREAM CROSSING



Note: Scour prevention at the downstream end of the flume pipe should be considered.

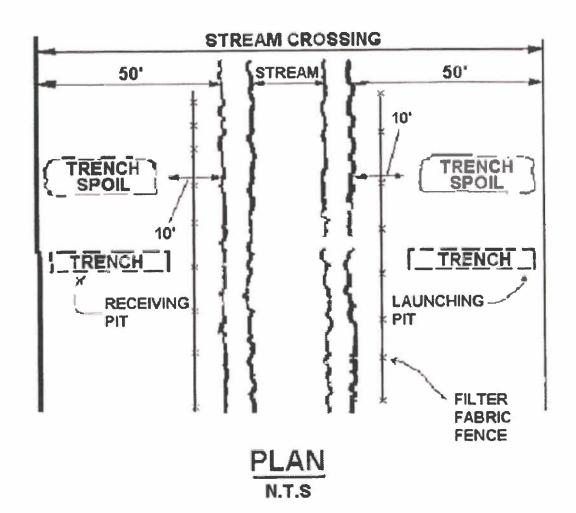
**DETAIL B-4** 

# TYPICAL DIVERSION BARRIER STREAM CROSSING

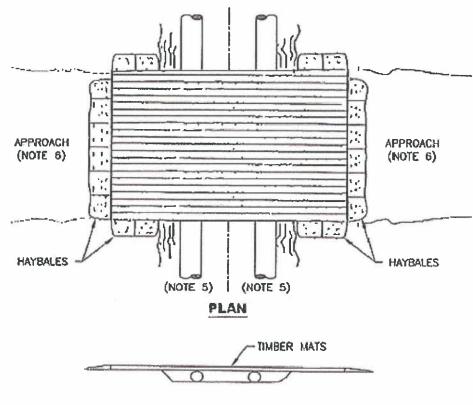


PLAN N.T.S

### TYPICAL BORED STREAM CROSSING



### TYPICAL TIMBER MAT BRIDGE FOR STREAM CROSSINGS

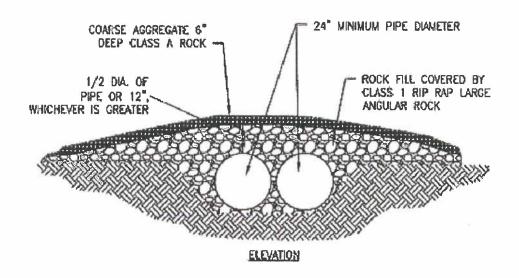


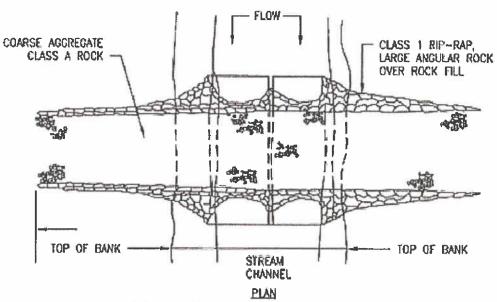
### **ELEVATION**

#### NOTES:

- 1. THIS TYPE OF BRIDGE IS GENERALLY USED FOR SMALL STREAM CROSSINGS LESS THAN 20 FEET IN WIDTH IN COMBINATION WITH A PROPER STREAM BANK CONFIGURATION.
- 2. BRIDGE WILL BE TEMPORARILY REMOVED IF HIGH WATER RENDERS IT UNSAFE FOR CROSSING.
- 3. BRIDGE TO REMAIN IN PLACE UNTIL THE COMPLETION OF FINAL RESTORATION.
- 4. FILTER SOCKS ARE RECOMMENDED IN LIEU OF STRAW BALES, SAND BAGS, AND SILT FENCE. REMOVE DURING USE; REPLACE AT NIGHT AND WHEN CROSSING IS NOT BEING USED.
- 5. CULVERT PIPES MAY BE UTILIZED IF ADDITIONAL SUPPORT IS REQUIRED.
- 6. RAMP APPROACHES CAN BE EITHER GRADED OR DUG INTO GROUND IF NECESSARY, STONE MAY BE USED ON APPROACHES.
- 7. MAINTAIN PADS TO PREVENT SOIL FROM ENTERING STREAM.

# TYPICAL FLUMED EQUIPMENT CROSSING



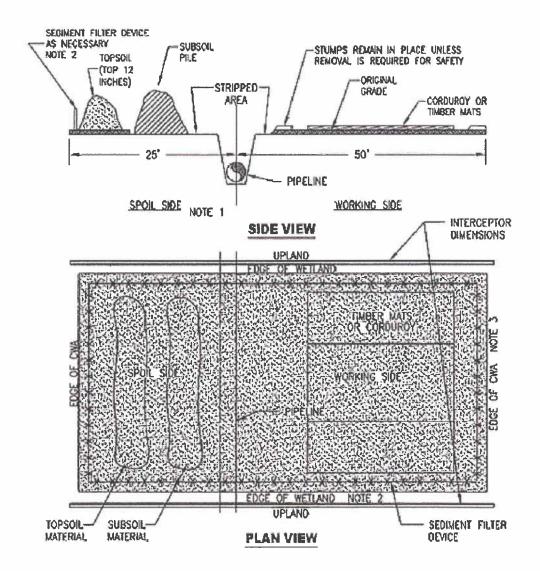


### **GENERAL NOTES:**

- 1. NOT TO SCALE
- THIS TYPE OF CROSSING CAN BE INSTALLED IN BOTH WET OR DRY WEATHER STREAM CONDITIONS WHERE THE DRAINAGE AREA EXCEEDS 10 ACRES.
- A CULVERTED CROSSING MAY NOT BE APPROVED IN HIGH FISHERY VALUE STREAMS.

### FLUMED EQUIPMENT CROSSING

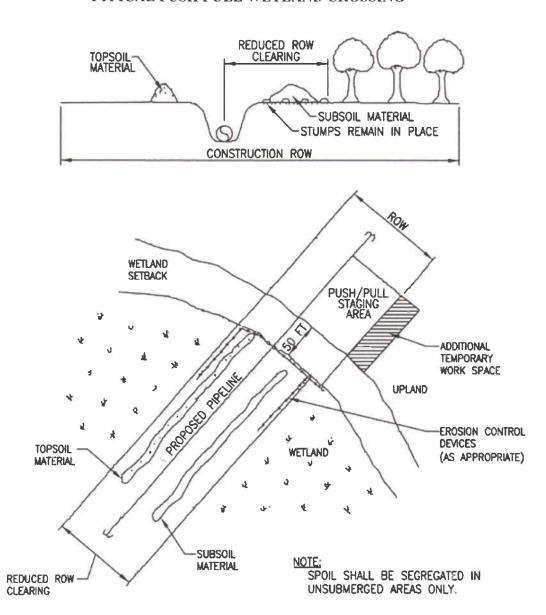
# TYPICAL CONVENTIONAL WETLAND CROSSING



### NOTES:

- 1: IN WETLAND AREAS WHICH CONTAIN NO STANDING WATER OR SATURATED SOILS, TOPSOIL (TOP 12 INCHES) AND SUBSOIL SHOULD BE STOCKPILED SEPARATELY WITHIN THE WETLAND CWA. TOPSOIL SHOULD BE DISTINGUISHED FROM SUBSOIL BY A COMMUNICATING DEVICE (FLAGGING, RIBBON, OR OTHER EFFECTIVE DEVICE).
- 2: A SEDIMENT FILTER DEVICE WILL BE PLACED ACROSS THE CWA AT THE WETLAND'S EDGE.
  3: A SEDIMENT FILTER DEVICE WILL BE PLACED AT THE EDGE OF THE CWA AND AROUND TOPSOIL AND SUBSOIL PILES AS NECESSARY.

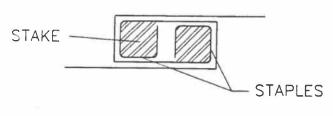
### TYPICAL PUSH PULL WETLAND CROSSING



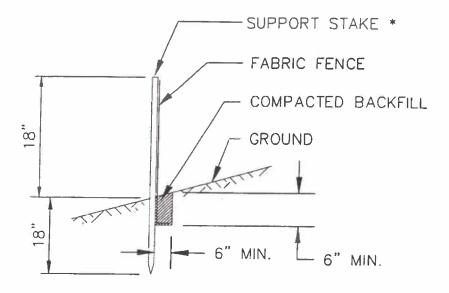
# APPENDIX C

# **Sediment Control Detail Drawings**

### FILTER FABRIC FENCE DETAIL



# JOINING FENCE SECTIONS



<sup>\*</sup>Stakes spaced @ 8' maximum. Use 2"x 2" wood or equivalent steel stakes.

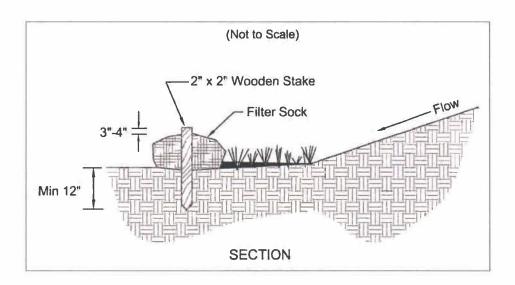
Filter Fabric Fence must be placed at level existing grade. Both ends of the barrier must be extended at least 8 feet up slope at 45 degrees to the main barrier alignment.

Trench shall be backfilled and compacted to prevent runoff from cutting underneath the fence.

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

Any section of Filter fabric fence that has been undermined or topped should be immediately replaced.

### FILTER SOCK DETAIL



- Materials Compost used for filter socks shall be weed, pathogen and insect free and free of any refuse, contaminants or other materials toxic to plant growth. They shall be derived from a well-decomposed source of organic matter and consist of a particles ranging from 3/8" to 2".
- Filter Socks shall be 3 or 5 mil continuous, tubular, HDPE 3/8" knitted mesh netting material, filled with compost passing the above specifications for compost products.

### INSTALLATION:

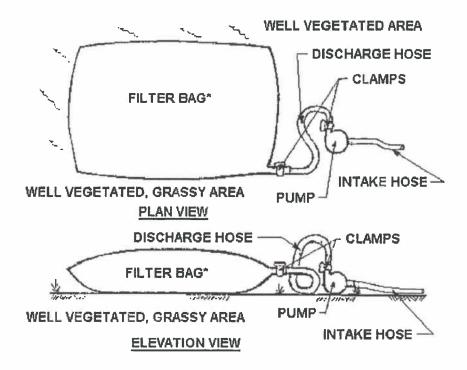
- Filter socks will be placed on a level line across slopes, generally parallel to the base of the slope or other affected area. On slopes approaching 2:1, additional socks shall be provided at the top and as needed midslope.
- Filter socks intended to be left as a permanent filter or part of the natural landscape, shall be seeded at the time of installation for establishment of permanent vegetation.

Filter Socks are not to be used in concentrated flow situations or in runoff channels.

### MAINTENANCE:

- Routinely inspect filter socks after each significant rain, maintaining filter socks in a functional condition at all times.
- Remove sediments collected at the base of the filter socks when they reach 1/3 of the exposed height of the practice.
- Where the filter sock deteriorates or fails, it will be repaired or replaced with a more effective alternative.
- Removal Filter socks will be dispersed on site when no longer required in such as way as to facilitate and not obstruct seedings.

# PUMPED WATER FILTER BAG DETAIL



Filter bags shall be made from non-woven geotextile material sewn with high strength, double stiched "J" type seams. They shall be capable of trapping particles larger than 150 microns.

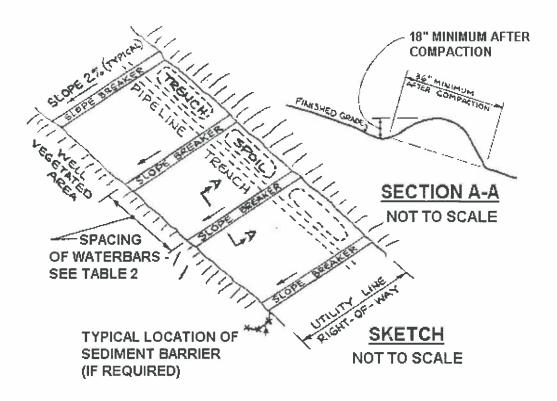
A suitable means of accessing the bag with machinery required for disposal purposes must be provided. Filter bags shall be replaced when they become 1/2 full. Spare bags shall be kept available for replacement of those that have failed or are filled.

Bags shall be located in a well-vegetated (grassy) area, and discharge onto stable, erosion resistant areas. Where this is not possible, a geotextile flow path shall be provided. Bags should not be placed on slopes greater than 5%.

For hydrostatic discharge, the pumping rate is 350-500 gallons per minute (gpm). For trench dewatering, the pumping rate shall be no more than 750 gpm. Floating pump intakes should be considered to allow sediment-free water to be discharged during dewatering.

Filter bags shall be inspected daily. If any problem is detected, pumping shall cease immediately and not resume until the problem is corrected.

### WATERBAR INSTALLATION

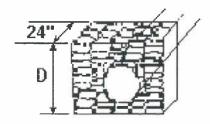


Required Spacing for Temporary and Permanent Waterbars		
Percent Slope	Spacing (FT)	
1	400	
2	250	
5	135	
10	80	
15	60	
20	45	

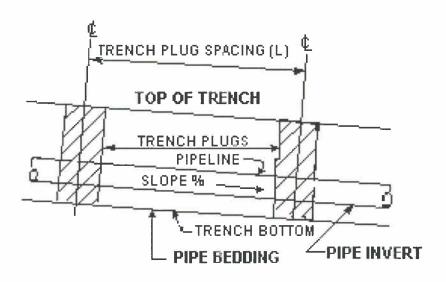
Waterbars should be constructed at a slope of 1% and discharge to a well-vegetated area. Waterbars should not discharge into an open trench. Waterbars should be oriented so that the discharge does not flow back onto the ROW. Obstructions, (e.g. silt fence, rock filters, etc.) should not be placed in any waterbars. Where needed, they should be located below the discharge end of the waterbar.

### TRENCH PLUG INSTALLATION DETAIL

# D - DEPTH TO BOTTOM OF TRENCH



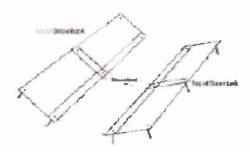
# SECTION VIEW NOT TO SCALE





### STREAM BANK RESTORATION DETAIL

### Erosion Control Mat Details



Refer to matting manufacturer's installation detail for overlap, embedment, staple patterns, and vegetative stabilization specifications

# Stream Rip-Rap Details

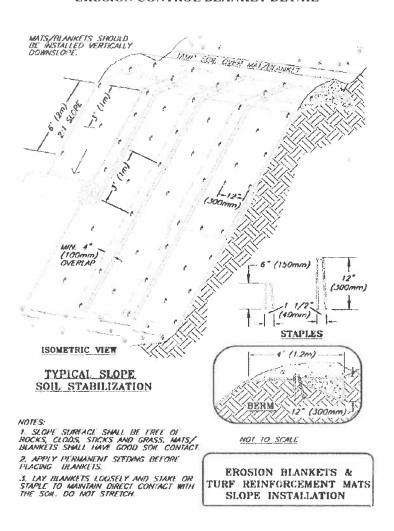


# The following guidelines will be used to select riprap size and thickness:

- For channels with water depth > 3 feet, use R-5 at 6" thick.
- For channels with water depth between 2 and 3 feet, use R-4 at 4" thick
- For channels with water depth between 1 and 2 feet, use R-3 at 3" thick
- For channels with water depth < 1 feet, use R-2 at 3" thick</li>

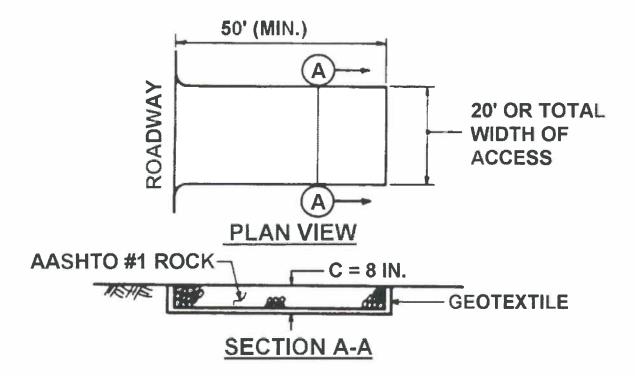
### **EROSION CONTROL MATTING DETAIL**

### EROSION CONTROL BLANKET DETAIL



Refer to manufacturer's lining installation detail for overlap, embedment, staple patterns, and vegetative stabilization specifications

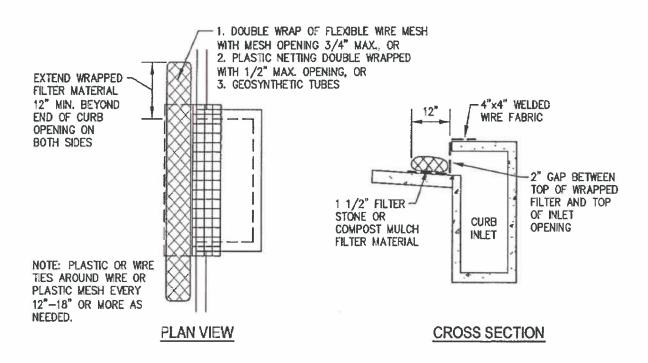
### ROCK CONSTRUCTION ENTRANCE DETAIL

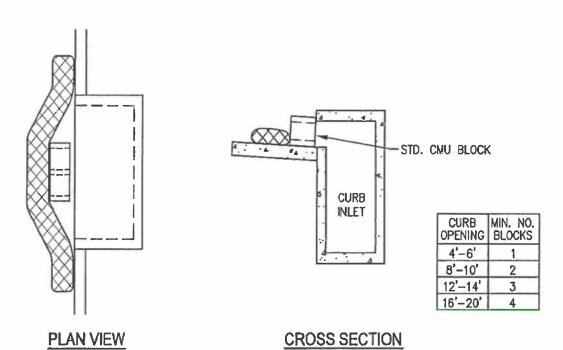


MAINTENANCE: Rock Construction Entrance thickness shall be constantly maintained to the specified dimensions by adding rock. A stockpile shall be maintained on site for this purpose. At the end of each construction day, all sediment deposited on paved roadways shall be removed and returned to the construction site. Steel plates, timber mats, and tires are also acceptable materials for short-term construction entrances.

# **DETAIL C-9A**

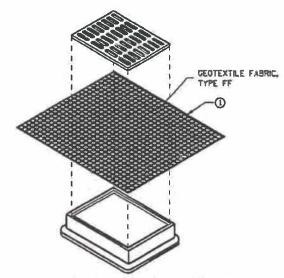
### **CURB INLET PROTECTION**





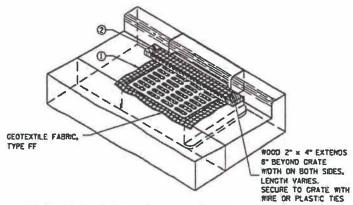
# **DETAIL C-9B**

### **CURB INLET PROTECTION**



# (WITHOUT CURB BOX)

ICAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOXI



INLET PROTECTION, TYPE C (WITH CURB BOX)

### INSTALLATION NOTES

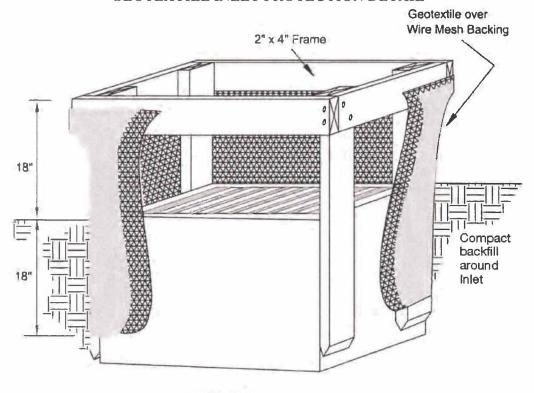
TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

# **DETAIL C-9C**

### GEOTEXTILE INLET PROTECTION DETAIL

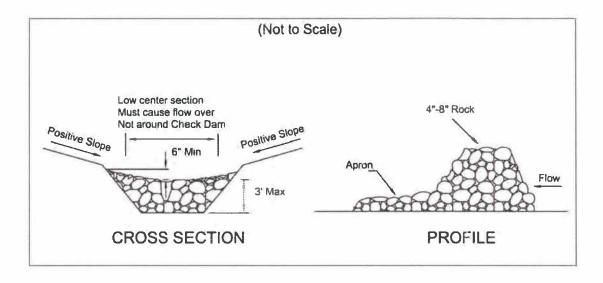


### SECTION

- 1. Inlet protection shall be constructed either before upslope land disturbance begins or before the inlet becomes functional.
- 2. The earth around the inlet shall be excavated completely to a depth at least 18 inches.
- 3. The wooden frame shall be constructed of 2-inch by 4-inch construction grade lumber. The 2-inch by 4-inch posts shall be driven one (1) ft. into the ground at four corners of the inlet and the top portion of 2-inch by 4-inch frame assembled using the overlap joint shown. The top of the frame shall be at least 6 inches below adjacent roads if ponded water will pose a safety hazard to traffic.
- 4. Wire mesh shall be of sufficient strength to support fabric with water fully impounded against it. It shall be stretched tightly around the frame and fastened securely to the frame.
- 5. Geotextile material shall have an equivalent opening size of 20-40 sieve and be resistant to sunlight. It shall be stretched tightly around the frame and fastened securely. It shall extend from the top of the frame to 18 inches below the inlet notch elevation. The geotextile shall overlap across one side of the inlet so the ends of the cloth are not fastened to the same post.

- 6. Backfill shall be placed around the inlet in compacted 6inch layers until the earth is even with notch elevation on ends and top elevation on sides.
- 7. A compacted earth dike or check dam shall be constructed in the ditch line below the inlet if the inlet is not in a depression. The top of the dike shall be at least 6 inches higher than the top of the frame.
- 8. Filter fabric and filter so cks can also be used as inlet protection.

### ROCK CHECK DAM DETAIL



- The check dam shall be constructed of 4-8 inch diameter stone, placed so that it completely covers the width of the channel. ODOT Type D stone is acceptable, but should be underlain with a gravel filter consisting of ODOT No. 3 or 4 or suitable filter fabric.
- 2. Maximum height of check dam shall not exceed 3.0 feet.
- The midpoint of the rock check dam shall be a minimum of 6 inches lower than the sides in order to direct across the center and away from the channel sides.
- The base of the check dam shall be entrenched approximately 6 inches.
- Spacing of check dams shall be in a manner such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.
- 6. A Splash Apron shall be constructed where check dams are expected to be in use for an extended period of time, a stone apron shall be constructed immediately downstream of the check dam to prevent flows from undercutting the structure. The apron should be 6 in. thick and its length two times the height of the dam.
- Stone placement shall be performed either by hand or mechanically as long as the center of check dam is lower than the sides and extends across entire channel.
- 8. Side slopes shall be a minimum of 2:1.

# SWPPP INSPECTION CHECKLIST

Detail C-11 begins on the following page and is provided as a sample SWPPP Inspection Form. The forms will be completed weekly and kept onsite as a log throughout construction.





# **SWPPP INSPECTION FORM**

Site:		Date: Signature:			
Inspector:					
Routine Inspection	n	Precipitation Eve			
Has it rained sinc	e last inspect	ion? (circle one)			
Yes: Date(s) & A	pprox. Amou	ınt			No
Current Conditio	ns:	_			
Soil Conditions:	Dry	Wet (circle applicable	Satur conditions)	rated	Frozen
Feature ID	BMP, ECD,	SCD Applied	Recommend	ations	

Date	Site					
	S	tormwater Pollutio	n Prevention Plan Ins	pection Form		
Inspecto	r(s) On Site:					
Unresolv	ed issues fro	m previous inspec	ctions:			
Are the S	WPPP, NOI an	d General Permit L	_etter on-site?	Yes	No	
List newl	y disturbed ar	eas likely to lie dor	mant for more than 2°	l days:		
						_
Have soil	stockpiles be	en placed at least !	50 ft from drainagewa	ys?		
List cons	truction entra	nces and SCDs use	ed to prevent tracking	into roadway:		_
Are E/SC	Ds of appropri	ate design for area	a they are controlling?			ii -
1 5/00						
Are E/SC	Ds properly in	stalled?				
Are E/SC	Ds being main	tained?				
List any a	reas at final g	rade:				-
						_
Is the inle	t protection o	f appropriate desig	gn?			
Note per	son(s) notifie	d of noncomplian	nce and expected dat	e of correction:		-
Notes:						

# APPENDIX D

**Site Drawing Checklist** 

### **D-1 SITE DRAWING CHECKLIST \*\***

•	Location	of solid	waste	dumpsters
---	----------	----------	-------	-----------

- Location designated for waste drums of oil soaked absorbent pads/rags; solids, sludge, or oil collected from pipeline
- Locations of sanitary facilities such as Port-a-Jons (update these locations on drawings as project progresses)
- Locations of diesel and gasoline storage tanks (secondary containment provided)
- Locations of pipe and equipment storage yards
- Locations of cement truck washout

<sup>\*\*</sup> These locations can be hand drawn on the site drawings.

# Attachment 5

Authorization from U.S. Army Corps of Engineers



DEPARTMENT OF THE ARMY

HUNTINGTON DISTRICT, CORPS OF ENGINEERS 502 EIGHTH STREET HUNTINGTON, WEST VIRGINIA 25701-2070

REPLY TO ATTENTION OF JAN 3 (1 2012

Operations and Readiness Division
Regulatory Branch
LRH-2012-00016-TUS-UnTrib Nimishillen Creek



Mr. Greg Eastridge East Ohio Gas Company 320 Springside Drive, Suite 320 Akron, Ohio 44333

Dear Mr. Eastridge:

I refer to the information you submitted regarding your proposal to replace approximately 7,298 linear feet of natural gas pipeline in Perry Township, Stark County, Ohio. This proposal is referred to as PIR609-L#2472. The proposed project would include the replacement of the existing bare steel line. Implementation of the proposal would impact 0.013 acres of one wetland and 10 linear feet of two streams. You have indicated the proposed impacts would be temporary and the affected wetland and streams would be restored to pre-construction conditions upon completion of construction.

The Corps of Engineers authority to regulate waters of the United States is based, in part, on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act requires that a Department of the Army permit be obtained prior to the discharge of dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 requires that a Department of the Army permit be obtained for any work in, on, over or under a navigable water.

You have requested we provide a preliminary jurisdictional determination (PJD) for the aquatic resources that would be impacted by this project. Our December 2, 2008 headquarters guidance entitled "Revised Guidance on Clean Water Act Jurisdiction Following the U.S. Supreme Court Decision in Rapanos v. United States and Carabell v. United States" was followed in the final verification of Clean Water Act jurisdiction.

Based on a review of the information provided and other information available to us, this office has determined the identified streams and wetland may be jurisdictional waters of the United States. This determination has been made in accordance with the Regulatory Guidance Letter for Jurisdictional Determinations issued by the U.S. Army Corps of Engineers on June 26, 2008 (RGL No. 08-02). As indicated in the guidance, this PJD is non-binding and cannot be

appealed (33 C.F.R. 331.2) and only provides a written indication that waters of the U.S, including wetlands, may be present on-site.

You have declined to exercise the option to obtain an approved JD in this instance and at this time. For the purposes of the determination of impacts, compensatory mitigation, and other resource protection measures for activities that require authorization from this office, the stream and wetlands described in the attached PJD will be evaluated as if they are waters of the United States.

Attached please find two copies of the PJD. If you agree with the findings of this PJD and understand your options regarding the same, please sign and date one copy of the form and return it to this office within 30 days of receipt of this letter. You should submit the signed copy to the following address:

Ms. Susan Fields (LRH-2012-00016-TUS-UnTrib Nimishillen Creek) U.S. Army Corps of Engineers, Huntington District 502 8th Street Huntington, West Virginia 25701

I also refer to the pre-construction notification you have submitted for the proposed project. You have requested authorization from the Department of the Army to discharge fill material into approximately 0.013 acres of one emergent wetland, Wetland A, 6 linear feet of Stream 1 and 4 linear feet of Stream 2. Based on the submitted information, it has been determined the proposed stream and wetland impacts associated with the proposed pipeline maintenance project meet the criteria for Nationwide Permit Number (NWP) #12 (attached) under the March 12, 2007 Federal Register, Notice of Reissuance of Nationwide Permits (72 FR 11092) provided you comply with all terms and conditions of the enclosed material. A copy of this NWP can be found on our website at <a href="http://www.lrh.usace.army.mil/permits/">http://www.lrh.usace.army.mil/permits/</a>.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2012. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this nationwide permit

Please be aware this nationwide permit authorization does not obviate the requirement to obtain other Federal, state or local authorizations required by law. A copy of this NWP and verification letter must be supplied to your project engineer responsible for construction activities. A copy of the verification letter must be kept at the site during construction. Upon completion of the work, the attached certification must be signed and returned to this office.

If you have any questions concerning the above, please contact Ms. Susan A. Fields at (304) 399-5610 or by email at Susan, A. Fields @usace, army.mil.

Sincerely,

Richard Berkes

Regulatory Project Manager Energy Resource Section

Enclosures

CF: (w/out encls)
Ms. Judith Mitchell
Davey Resource Group
1500 North Mantua Street
P.O. Box 5193
Kent, OH 44240

5015418038061 SAM MATHEW 1001 DOMINION CHECK CARD SUITE 320 320 SPRINGSIDE DRIVE AKRON, OH 44333-4542 April 2 2012 PAYTO THE CASER OF Stack Soil + Water Conservation District & 350,00 Three Hundred Fifty + 1/100 NOT VALID FOR OVER \$5,000.00 JPMorganChase O San yother PIR 609 Co SWPPPFEE
1:0710000131: 9026851# 0492

This foregoing document was electronically filed with the Public Utilities

**Commission of Ohio Docketing Information System on** 

4/4/2012 4:40:03 PM

in

Case No(s). 12-1146-GA-BLN

Summary: Letter of Notification for Dominion East Ohio's PIR-609 (L#2472) Part 4 electronically filed by Teresa Orahood on behalf of Dominion East Ohio Gas