ORIGINAL

Dominion

FEDERAL ENERGY REGULATORY COMMISSION
ENVIRONMENTAL REPORT

EXHIBIT F-1

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
DOCKET NO. CP05-131-000
JUNIATA, MIFFLIN, HUNTINGDON, CENTRE, CLINTON, GREENE, AND POTTER COUNTIES, PENNSYLVANIA AND WETZEL COUNTY, WEST VIRGINIA

Submitted By: Dominion Transmission, Inc.
445 West Main Street
Clarksburg, West Virginia 26301

Prepared By: GAI Consultants, Inc.
Pittsburgh Office
385 East Waterfront Drive
Homestead, Pennsylvania 15120-5005

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LIST OF APPENDICES

ACRONYMS AND ABBREVATIONS

AMD	Abandoned Mine Drainage
ANS	Alternative Not Selected
APE	Area of Potential Effect
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Index System
CFR	Code of Federal Regulations
Commission	Federal Energy Regulatory Commission
CO	Carbon Monoxide
CWF	Cold Water Fishery
DCP	Dominion Cove Point LNG, LP
DOT	Department of Transportation
DTI	Dominion Transmission, Inc.
E&SCP	Erosion and Sedimentation Control Plan
EIS	Environmental Impact Statement
EV	Exceptional Value
EWS	Extra Work Space
GIS	Geographic Information System
HDD	Horizontal Directional Drill
HP	Horsepower
HQ-CWF	High-Quality Cold Water Fishery
LNG	Liquefied Natural Gas
MAOP	Maximum Allowable Operating Pressure
MD	Maryland
MMDth	Million Dekatherms
MMscfd	Million Standard Cubic Feet per Day
MP	Milepost
NAAQS	National Ambient Air Quality Standards
NMFS	National Marine Fisheries Service
NOx	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NSI	National Sediment Inventory
NY	New York
NWI	National Wetlands Inventory
NYSDEC	New York State Department of Environmental Conservation
OEP	Office of Energy Projects

OSHA	Occupational Safety and Health Administration
PA	Pennsylvania
PADCNR	Pennsylvania Department of Conservation and Natural Resources
PaDEP	Pennsylvania Department of Environmental Protection
PCBs	Polychlorinated Biphenyls
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PHMC-BHP	Pennsylvania Historic and Museum Commission, Bureau of Historic Preservation
Plan	Commission's 2003 Upland Erosion Control, Revegetation, and Maintenance Plan
PM_{10}	Particulate Matter
Procedures	Commission's 2003 Wetland and Waterbody Construction and Mitigation Procedures
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SNI	Seneca Nation of Indians
SPCC Plan	Spill Prevention, Containment and Control Plan
STPs	Shovel Test Pits
TPHO	Tribal Historic Preservation Office
TSF	Trout-Stocked Fishery
TSS	Total Suspended Solids
TWS	Temporary Work Space
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VA	Virginia
VOCs	Volatile Organic Compounds
WRAS	Watershed Restoration Action Strategies
WV	West Virginia
WVDEP	West Virginia Department of Environmental Protection
WVGES	West Virginia Geological and Economic Survey
WWF	Warm Water Fishery

RESOURCE REPORT 1 - GENERAL PROJECT DESCRIPTION

1.0 INTRODUCTION

Dominion Transmission, Inc. (DTI) is proposing to design, construct, operate and maintain certain pipeline, storage and related facilities in order to provide incremental firm transportation and storage service on the DTI system. These pipeline and storage facilities are part of the Cove Point Expansion Project.

The Cove Point Expansion Project includes an expansion of Dominion Cove Point LNG, LP's existing Cove Point LNG Terminal, the Cove Point Pipeline and facilities to expand and upgrade DTI's existing pipeline and storage system. The LNG Import Terminal expansion will increase the send-out capability by 800 million standard cubic feet per day (MMscf/d) and increase storage capacity by approximately 6.8 million dekatherms (MMDth). For a more detailed description of the Cove Point Expansion Project, see Resource Report 1, Environmental Report, of the Dominion Cove Point LNG Terminal Expansion Application.

DTI proposes to build a 24-inch pipeline (PL-1 EXT2) and two compressor stations in central Pennsylvania (PA) to move natural gas from its proposed Perulack Station in Juniata County to the Dominion South Point Market Center, other interstate pipelines, DTI's existing pipeline system, and the Leidy Hub in Clinton County, PA. This project includes installing an 81-mile pipeline between the end of DTI's existing PL-1 pipeline system near Perulack, PA, and its mainline system at Leidy, PA. Over 93 percent of this line will parallel an existing Texas Eastern pipeline through Juniata, Mifflin, Huntingdon, Centre, and Clinton Counties, PA. Site acquisition for both compressor stations is underway.

DTI also plans to construct three pipelines in PA and WV that will support the storing of natural gas during the injection season as well as delivering gas to the market during the withdraw season. The first of these is TL-492 Extension 3. It is an 11-mile, 24-inch diameter pipeline loop parallel to DTI's existing TL-342 pipeline in Wetzel County, West Virginia (WV) and Greene County, PA. The second project includes installing a 12-mile, 24-inch diameter pipeline between DTI's Harrison and Ellisburg Storage complexes in Potter County, PA. The third pipeline includes a 10-mile, 20-inch diameter pipeline between DTI's Sharon Storage Pool and State Line compressor station in Potter County, PA. It will parallel DTI's existing LN-257-S pipeline.

DTI will provide 6 MMDth of annual firm storage service through the utilization of a combination of new facilities and unsubscribed/turn-back existing storage capacity. DTI has proposed to construct and operate the Wolf Run station and to install two (2) 1,775 HP gas-fired, reciprocating engine/compressor units, for a total of 3,550 HP as part of the Northeast Storage Project, pending in Docket No. CP04-365. As part of this Cove Point Expansion Project, DTI proposes to add 3,550 of compression at the Wolf Run Compressor Station in Lewis County, West Virginia. If the authorization for the Wolf Run Station is granted as requested in the Northeast Storage Project proceeding and in

this Application, the Wolf Run Station will have a total capacity of 7,100 HP. DTI also proposes to install additional dry bed dehydration equipment to the Quinlan Compressor Station in Cattaraugus County, New York. DTI sought authorization to construct and operate the Quinlin Compressor Station as part of the proposed Northeast Storage Project, pending in Docket No. 04-365.

DTI also proposes to construct two new compressor stations, the Centre Relay Compressor Station and the Perulack Compressor Station, which are explained in a separate set of Resource Reports in this Application. The Centre Relay Compressor Station will be built in Centre County, PA and have a total of 12,500 HP. The Perulack Compressor Station will be built in Juniata County, PA and have a total of 4,735 HP.

There will be miscellaneous piping changes and other minor facility modifications at several existing compressor and meter stations, along with some pipeline upgrades. These include additional measurement at DTI's Leidy Compressor Station hub complex to measure the increased gas flow.

The project also includes pipeline upgrades. DTI's existing PL-1 pipeline crosses Franklin County, PA. At two locations, the maximum allowable operating pressure (MAOP) of PL-1 has been reduced. Since the pipeline was installed, the population density increased to the point that action was required per the Department of Transportation (DOT) regulations. DTI chose to reduce the maximum operating pressure (MOP) in this pipeline segment. This Project requires these pipe sections to operate at pressures above the reduced MOP. One of the sections requires replacing, and the second section requires retesting.

Currently, DTI's Leesburg and Chambersburg Compressor Stations are designed to pump gas from north to south in the PL-1 pipeline. This Project requires these stations to be capable of pumping gas from south to north. This can be accomplished with piping changes at each station. Leesburg Station is in Loudoun County, VA, and Chambersburg Station is in Franklin County, PA.

The DTI pipeline facilities, locations, and other information are provided in the following table:

Facility	Miles/HP	Diameter (inches)	County and State	MAOP (psig)	Crossings		
					Major River	Railroad	Major Road
PL-1 EXT2	81	24	Juniata, Mifflin, Huntingdon, Centre, and Clinton, PA	1,250/1,480	2	4	3
PL-5	0.25	16	Juniata	1,050	0	0	0
TL-492 EXT3	11	24	Wetzel, WV and Greene, PA	960	0	1	0
TL-453 EXT1	12	24	Potter, PA	1,250	0	0	0
TL-536	10	20	Potter, PA	1,250	0	0	0
Leidy Meters			Clinton, PA	1,480	0	0	0
PL-1 Pipe Replace/Retest	0.38/0.64	30/30	Franklin, PA	1,250/1,250	0	0	0
Chambersburg HP Piping Change			Franklin, PA	1,250	0	0	0

Facility	Miles/HP	Diameter (inches)	County and State	MAOP (psig)	Crossings		
					Major River	Railroad	Major Road
Wolf Run Compressor Station Expansion	3,550		Lewis County, WV				
Mockingbird Hill Compressor Station Upgrade	2,800		Wetzel County, WV				
Quinlan Compressor Station Upgrade			Cattaraugus County, NY				
Centre Relay Compressor Station	12,500		Centre County, PA				
Perulack Compressor Station	4,735		Juniata County, PA				

The proposed DTI pipeline projects are explained throughout this Environmental Report. Compressor stations, metering and regulating stations, block valves, pig launchers, and receivers are explained in detail in separate Environmental Reports. All facilities will be designed, constructed, operated and maintained pursuant to the following:

- The Federal Energy Regulatory Commission's (Commission's) rules and regulations including "Upland Erosion Control, Revegetation, and Maintenance Plan" (Appendix 1-A), and "Wetland and Waterbody Construction and Mitigation Procedures" (Appendix 1-B) (the Commission's Plan and Procedures, latest versions); and

- DOT's rules and regulations for natural gas pipelines, including the relevant sections of 49 Code of Federal Regulations (CFR) 190 through 199.

These pipeline and storage projects are a key to transporting additional supplies of re-gasified LNG to markets throughout the Northern and Eastern U.S

1.1 PURPOSE AND NEED

Natural gas continues to be the fuel of choice for residential, industrial and electric power generation because it is efficient, clean and reliable. The Energy Information Administration (EIA) expects the growth of natural gas use in the United States to continue. However, natural gas production has not kept pace with demand, and gas prices reflect the imbalance between supply and demand. The proposed DTI pipeline, storage and related facilities are part of the Cove Point Expansion Project. The purpose of the Cove Point Expansion Project is to provide infrastructure necessary to meet the growing demand for natural gas in the U.S. by: (1) providing greater access for supplies of imported LNG; and (2) facilitating the deliverability of the re-gasified LNG to markets through the expansion and upgrading of downstream pipeline delivery systems, and (3) providing enhanced natural gas storage service. For a more detailed explanation of the Purpose and Need for the Cove Point Expansion Project, see Resource Report 1, Environmental Report, of the Dominion Cove Point LNG Terminal Expansion Application.

The transportation and storage service has been fully subscribed by Statoil Natural Gas, LLC. The services are to be provided for terms of twenty years commencing upon placement of the expanded Cove Point LNG Import Terminal facilities in service.

1.2 PROJECT DESCRIPTION

Provide a detailed description and location map of the Project facilities (380.12(c)(1)).

1.2.1 PL-1 EXT2 Pipeline Facilities

The PL-1 EXT2 pipeline will include construction of approximately 81 miles of pipeline. No existing facilities will be abandoned as a result of this project, with the exception of small segments for tie-ins at the Leidy Station and existing PL-1 piping. Route preference, associated construction areas (i.e., proposed pipeyards and contractor yards), access roads, pipeline right-of-way (ROW) cross-sectional drawings, aerial photography and nearby towns are shown on the maps submitted concurrently with this application in Appendix 1-C, Construction Alignment Sheets. The PL-1 EXT2 pipeline location maps are provided on Figures 1.2-1 through 1.2-28. Land requirements associated with the PL-1 EXT2 pipeline are provided in Table 1.2-1. This section describes the PL-1 EXT2 pipeline, including the pipeline, access roads and non-linear associated facilities.

The PL-1 EXT2 pipeline will consist of 81 miles of 24-inch pipe, starting at the existing PL-1 pipeline near the Perulack Facility. Approximately the first 0.25-mile of PL-1 EXT2 will be 30-inch pipe. The 30-inch pipe will terminate at the new launcher/receiver site located adjacent to the fire gates for the proposed Perulack Compressor Station. The PL-1 EXT2 pipeline will terminate with a tie-in to existing piping at Leidy Station. Of these 81 miles, approximately 75.41 miles will parallel Texas Eastern's pipeline. Where the PL-1 EXT2 pipeline parallels the Texas Eastern pipeline, DTI proposes to install the PL-1 EXT2 pipeline approximately 30 feet from the Texas Eastern pipeline. This will result in the PL-1 EXT2 pipeline sharing 20 feet of permanent ROW with the Texas Eastern pipeline. PL-5 will be a new 0.25-mile of 16-inch pipe, a suction line from Texas Eastern to the proposed Perulack Compressor Station. PL-5 will share a common ROW with the 30-inch PL-1 EXT2.

Initial pipeline survey permission was granted by approximately 100 percent of the property owners located in the PL-1 EXT2 pipeline. The court system was not utilized to acquire any survey permission for PL-1 EXT2 pipeline. As a result, 100 percent access was achieved and all of the PL-1 EXT2 pipeline was surveyed. The survey consisted of an initial walk over and route flagging; a DTI construction supervisor and a surveyor team were involved in the flagging operation. Once the route flagging was completed, a centerline instrument survey and chain measurement was completed in conjunction with an environmental and cultural review of the study corridor. Where the

PL-1 EXT2 pipeline parallels the Texas Eastern pipeline, DTI studied a 130-foot wide corridor bounded to the Texas Eastern pipeline, and extending 130 feet toward the side to be used for the PL-1 EXT2 pipeline installation. In the area where the PL-1 EXT2 pipeline is proposed to be located in new land, DTI studied a 200-foot wide corridor, centered on the proposed location of the PL-1 EXT2 pipeline. After the proposed route was finalized, a soil resistivity survey was taken along the proposed ROW to determine the cathodic protection current requirements necessary to meet DOT regulation 49 CFR 192.463. The PL-1 EXT2 pipeline crosses through primarily forested lands and agricultural fields. Refer to Table 8.1-5 for land use crossed by proposed pipeline PL-1 EXT2. The proposed route was selected for many reasons. The proposed route parallels an existing gas pipeline corridor for the majority of the project. It minimizes impact on both environmental and cultural resources and complies with governmental and state agency requests and recommendations. A detailed explanation on alternatives is provided in Resource Report 10.

The PL-1 EXT2 pipeline is proposed to be built using two construction phases. Three Horizontal Directional Drills (HDDs) are proposed for the PL-1 EXT2 pipeline and are shown on Figures 1.2-29, 1.2-30, and 1.2-31. The HDD construction schedule is planned for 2006 to allow for contingency conventional lay options in 2007, if any of the HDDs cannot be performed.

The HDD schedule is as follows:

- begin construction - June 2006;
- HDD installation complete - September 2006; and
- complete cleanup - October 2006.

The primary construction phase will consist of two typical pipeline construction spreads working sequentially across the ROW with construction crews performing the normal functions of clearing, grading, ditching, stringing, welding, coating, lowering in, back filling, and clean up. It is anticipated the primary construction spreads will work according to the following schedule.

- Primary Construction Phase:
  - begin construction - April 2008;
  - pipeline operational - August 2008;
  - complete final cleanup - Fall 2008; and
  - complete remedial cleanup - spring/summer 2009.

It is estimated that the primary construction phase will require approximately 26 weeks to complete the installation of the PL-1 EXT2 pipeline. Approximately 280 workers are expected to be involved in the construction of the PL-1 EXT2 pipeline. It is anticipated that during the first four weeks of construction less than 85 personnel will be on site with the majority being involved in clearing and grading operations; some ditching will also begin late in this period of construction. During the next four weeks, the number of personnel will increase to approximately 225 with the addition of stringing and pipe crews as well as specialty crews boring road crossings. Additional personnel are expected to continue joining the project for another four to six weeks, including crews involved in coating, lowering in, backfill, tie in, and clean up operations. The workforce should peak at approximately 280 and remain at that level for about four to six weeks before beginning to decline for the remainder of the project. The PL-1 EXT2 pipeline will be operated by current DTI employees so no additional positions will be created.

Refer to Table 8.1-1 for ROW parallels and intersections within the proposed PL-1 EXT2 pipeline. The PL-1 EXT2 pipeline will result in a new permanent ROW that is 50 feet wide. Temporary work space (TWS) will be 25 feet on the "working" side of the new permanent ROW, except in areas where more is needed (refer to Table 8.1-13 in Resource Report 8 for details). These areas include streams, roads, etc., and are shown on the Construction Alignment Sheets. Thus, in areas without extra work space (EWS), the construction ROW will be 75 feet wide, which is the minimum ROW that DTI believes will be workable in the PL-1 EXT2 pipeline due to the difficult terrain. The contractor will clear only the minimum necessary to safely construct the pipeline, but these areas are what DTI believes to be necessary.

Pipeline markers will be installed at line of sight intervals in addition to being located at road, railroad, non-navigable stream crossings, and at any significant changes in pipeline direction, per DOT regulation 49 CFR 192.707.

Cathodic protection test stations will be installed at all foreign, metal line crossings. These stations are a four inch diameter PVC pipe protruding approximately four feet vertically above the ground surface. The pipe has a plastic cap that covers the connections inside the pipe that are used to test the cathodic protection system. These test stations are located at a minimum of one-mile apart and are considered at road, railroad and stream crossings in compliance with DOT regulation 49 CFR 192.467 and 491.

DTI proposes to HDD the pipeline at the Juniata River, Bald Eagle Creek, and Route 26/I-99 Interchange. All crossings will be completed in compliance with the Commission's approved Plan and Procedures or appropriate Pennsylvania Department of Environmental Protection (PaDEP) stream crossing permits.

There is one new access road planned for the PL-1 EXT2 pipeline. All other access roads for the PL-1 EXT2 pipeline are existing roads. The condition of most roads will be improved for use during construction with the installation of drain pipes, gravel, and grading activities. All roads will remain after construction to provide access to the

pipeline for maintenance activities. Refer to Table 8.2-3-1 for detailed information regarding access roads in the PL-1 EXT2 pipeline.

The PL-1 EXT2 pipeline crosses Juniata, Mifflin, Huntingdon, Centre, and Clinton Counties in PA. Table 1.2-2 presents the length and mileposts (MPs) by county for the PL-1 EXT2 pipeline.

1.2.2 TL-492 EXT3 Pipeline Facilities

The TL-492 EXT3 pipeline will include construction of approximately 10.7 miles of pipeline. No existing facilities will be abandoned as a result of this project, with the exception of small segments for tie-ins at the existing TL-342 and TL-492 pipelines. Route preference, associated construction areas (i.e., proposed pipeyards and contractor yards), access roads, pipeline ROW cross-sectional drawings, aerial photography and nearby towns are shown on the maps submitted concurrently with this application in Appendix 1-C, Construction Alignment Sheets. The TL-492 EXT3 pipeline location maps are provided on Figures 1.2-32 through 1.2-36 (Drawing Nos. 2004-177-40-A053 through 2004-177-40-A056 and 2004-177-40-ACSL-3). Aboveground facilities and tie-ins are shown on Figure 1.2-37. Land requirements associated with the TL-492 EXT3 pipeline are provided in Table 1.2-3.

The TL-492 EXT3 pipeline will consist of 10.7 miles of 24-inch pipe, starting at the existing pipeline near Lambert Junction, Wetzel County, WV. The TL-492 EXT3 pipeline will terminate at a tie-in to existing pipeline at Bluff Gate, Greene County, PA. The entire 10.7 miles will parallel existing pipeline. DTI proposes to install the TL-492 EXT3 pipeline approximately 25 feet from the existing pipeline. This will result in the TL-492 EXT3 pipeline sharing 25 feet of permanent ROW with the existing pipeline.

TL-492 EXT3 will be connected to an existing pipeline at the south end, MP0.0. At the north end, DTI is proposing the installation of a pig receiver, a gate valve, and a crossover to tie back into the existing TL-342 pipeline. Ground disturbance for TL-492 EXT3 can be found in Table 1.2-3.

Initial pipeline survey permission was granted by 100 percent of the property owners located along the TL-492 EXT3 pipeline. As a result, all of the TL-492 EXT3 pipeline was surveyed. The survey consisted of an initial walk over and route flagging; a DTI construction supervisor and a surveyor team were involved in the flagging operation. Once the route flagging was completed, a centerline instrument survey and chain measurement was completed in conjunction with an environmental and cultural review of the study corridor. Where the TL-492 EXT3 pipeline parallels the existing pipeline, DTI studied a 150-foot wide corridor, 50 feet on the dirt side of the ditch and 100 feet on the working side of the ditch. After the route was finalized, a soil resistivity survey was taken along the proposed ROW to determine the cathodic protection current requirements necessary to meet DOT regulation 49 CFR 192.463. The TL-492 EXT3 pipeline crosses through primarily forested lands and open lands. Refer to Table 8.1-6 for land use crossed by proposed pipeline TL-492 EXT3. The proposed route parallels

an existing gas pipeline corridor for the entire length of the project. It minimizes impact on both environmental and cultural resources and complies with governmental and state agency requests and recommendations.

The TL-492 EXT3 pipeline is proposed to be built using one phase. No HDDs are proposed for the TL-492 EXT3 pipeline.

The primary construction phase will consist of a typical pipeline construction spread working sequentially across the ROW with construction crews performing the normal functions of clearing, grading, ditching, stringing, welding, coating, lowering in, back filling, and clean up. It is anticipated the primary construction spreads will work according to the following schedule:

- Primary Construction Phase:
  - begin construction - April 2008;
  - pipeline operational – August 2008;
  - complete final cleanup - November 2008; and
  - complete remedial cleanup - spring/summer 2009.

It is estimated the primary construction phase will require approximately 10 weeks to complete the installation of the TL-492 EXT3 pipeline. Approximately 140 workers are expected to be involved in the construction of the TL-492 EXT3 pipeline. It is anticipated that during the first two weeks of construction, less than 45 personnel will be on-site with the majority being involved in clearing and grading operations; some ditching will also begin late in this period of construction. During the next two weeks, the number of personnel will increase to approximately 115 with the addition of stringing and pipe crews as well as specialty crews boring road crossings. Additional personnel are expected to continue joining the project for another two to three weeks, including crews involved in coating, lowering in, backfill, tie in, and clean up operations. The workforce should peak at approximately 140 and remain at that level for about three to four weeks before beginning to decline for the remainder of the project. The TL-492 EXT3 pipeline will be operated by current DTI employees so no additional positions will be created.

Refer to Table 8.1-2 for ROW parallels and intersections within the proposed TL-492 EXT3 pipeline. The TL-492 EXT3 pipeline will result in a new permanent ROW that is 50 feet wide. TWS will be 25 feet on the "working" side of the new permanent ROW, except in areas where more is needed (refer to Table 8.1-14 in Resource Report 8 for details). These areas include streams, roads, etc., and are shown on the Construction Alignment Sheets. Thus, in areas without EWS, the construction ROW will be 75 feet wide, which is the minimum ROW that DTI believes will be workable in the TL-492 EXT3

pipeline due to the terrain. The contractor will clear only the minimum necessary to safely construct the pipeline, but these areas are what DTI believes to be necessary.

Pipeline markers will be installed at line of sight intervals in addition to being located at road, railroad, non-navigable stream crossings, and at any significant changes in pipeline direction, per DOT regulation 49 CFR 192.707.

Cathodic protection test stations will be installed at all foreign, metal line crossings. These stations are a four-inch diameter PVC pipe protruding approximately four feet vertically above the ground surface. The pipe has a plastic cap that covers the connections inside the pipe that are used to test the cathodic protection system. These test stations are located at a minimum of one-mile apart and are considered at road, railroad and stream crossings in compliance with DOT regulation 49 CFR 192.467 and 491.

No HDDs are planned for the TL-492 EXT3 pipeline. All crossings will be completed in compliance with the Commission's approved Plan and Procedures or appropriate PaDEP stream crossing permits.

There is one new access road planned for the TL-492 EXT3 pipeline. All other access roads for the TL-492 EXT3 pipeline are existing roads. The condition of most roads will be improved for use during construction with the installation of drain pipes, gravel, and grading activities. All roads will remain after construction to provide access to the pipeline for maintenance activities. Refer to Table 8.2.3-2 for detailed information regarding access roads in the TL-492 EXT3 pipeline.

The TL-492 EXT3 pipeline crosses Greene County in PA and Wetzel County in WV. Table 1.2-4 presents the length and MPs by county for the TL-492 EXT3 pipeline.

1.2.3 TL-536 Pipeline Facilities

The TL-536 pipeline will include construction of approximately 9.5 miles of pipeline. No existing facilities will be abandoned as a result of this project. Route preference, associated construction areas (i.e., proposed pipeyards and contractor yards), access roads, pipeline ROW cross-sectional drawings, aerial photography and nearby towns are shown on the maps submitted concurrently with this application in Appendix 1-C, Construction Alignment Sheets. The TL-536 pipeline location maps are provided on Figures 1.2-38 through 1.2-42 (Drawing Nos. 2004-177-40-A057 through 2004-177-40-A060 and 2004-177-40-ACSL-4). The State Line Station tie-in drawing is provided as Figure 1.2-43. The TL-536 tie-in drawing is provided as Figure 1.2-44. Land requirements associated with the TL-536 pipeline are provided in Table 1.2-5.

The TL-536 pipeline will consist of 9.5 miles of 20-inch pipe, starting at State Line Station, Genesee Township, Potter County. The TL-536 pipeline will terminate at a gate lot in Sharon Township, Potter County. TL-536 will parallel DTI's existing 12-inch L-257-S pipeline for its entire length, approximately 9.5 miles. Where the TL-536

pipeline parallels the existing pipeline, DTI proposes to install the TL-536 pipeline approximately 25 feet from the existing pipeline. At State Line Station, TL-536 will tie into existing station piping and pipelines. These tie-ins and additional piping are necessary to move gas from TL-536 into DTI's transmission pipeline system. In addition, regulation is required at State Line Station to provide overpressure protection from the mismatching MAOP of TL-536. Ground disturbance for TL-536 is summarized in Table 1.2-5.

Initial pipeline survey permission was granted by 100 percent of the property owners located in the TL-536 pipeline. The court system was not utilized to acquire any survey permission for TL-536 pipeline. As a result, all of the TL-536 pipeline was surveyed. The survey consisted of an initial walk over and route flagging; a DTI construction supervisor and a surveyor team were involved in the flagging operation. Once the route flagging was completed, a centerline instrument survey and chain measurement was completed in conjunction with an environmental and cultural review of the study corridor. Where the TL-536 pipeline parallels the existing pipeline, DTI studied a 130-foot wide corridor bounded to the existing pipeline, and extending 130 feet toward the side to be used for the TL-536 pipeline installation. In the area where the TL-536 pipeline is proposed to be located in new land, DTI studied a 200-foot wide corridor, centered on the proposed location of the TL-536 pipeline. After the route is finalized, a soil resistivity survey will be taken along the proposed ROW to determine the cathodic protection current requirements necessary to meet DOT regulation 49 CFR 192.463. The TL-536 pipeline crosses through primarily forested lands and agricultural fields. Refer to Table 8.1-7 for land use crossed by proposed pipeline TL-536. The proposed route was selected for many reasons. The proposed route parallels an existing gas pipeline corridor for the majority of the project. It minimizes impact on both environmental and cultural resources and complies with governmental and state agency requests and recommendations. A detailed explanation of alternatives is provided in Resource Report 10.

The TL-536 pipeline is proposed to be built using one construction phase. No HDDs are proposed for the TL-536 pipeline.

The primary construction phase will consist of one typical pipeline construction spread working sequentially across the ROW with construction crews performing the normal functions of clearing, grading, ditching, stringing, welding, coating, lowering in, back filling, and clean up. It is anticipated the primary construction spreads will work according to the following schedule.

- Primary Construction Phase:
  - begin construction - April 2008;
  - pipeline operational - August 2008;
  - complete final cleanup - November 2008; and

- complete remedial cleanup - spring/summer 2009.

It is estimated the primary construction phase will require approximately 12 weeks to complete the installation of the TL-536 pipeline. Approximately 200 workers are expected to be involved in the construction of the TL-536 pipeline. It is anticipated that during the first two weeks of construction less than 50 personnel will be on site with the majority being involved in clearing and grading operations; some ditching will also begin late in this period of construction. During the next two weeks, the number of personnel will increase to approximately 100 with the addition of stringing and pipe crews as well as specialty crews boring road crossings. Additional personnel are expected to continue joining the project for another one to two weeks, including crews involved in coating, lowering in, backfill, tie in, and clean up operations. The workforce should peak at approximately 200 and remain at that level for about three to four weeks before beginning to decline for the remainder of the project. The TL-536 pipeline will be operated by current DTI employees so no additional positions will be created.

Refer to Table 8.1-3 for ROW parallels and intersections within the proposed TL-536 pipeline. The TL-536 pipeline will result in a new permanent ROW that is 50 feet wide. TWS will be 25 feet on the "working" side of the new permanent ROW, except in areas where more is needed (refer to Table 8.1-15 in Resource Report 8 for details). These areas include streams, roads, etc., and are shown on the Construction Alignment Sheets. Thus, in areas without EWS, the construction ROW will be 75 feet wide, which is the minimum ROW that DTI believes will be workable in the TL-536 pipeline due to the terrain. The contractor will clear only the minimum necessary to safely construct the pipeline, but these areas are what DTI believes to be necessary.

Pipeline markers will be installed at line of sight intervals in addition to being located at road, railroad, non-navigable stream crossings, and at any significant changes in pipeline direction, per DOT regulation 49 CFR 192.707.

Cathodic protection test stations will be installed at all foreign, metal line crossings. These stations are a four inch diameter PVC pipe protruding approximately four feet vertically above the ground surface. The pipe has a plastic cap that covers the connections inside the pipe that are used to test the cathodic protection system. These test stations are located at a minimum of one-mile apart and are considered at road, railroad and stream crossings in compliance with DOT regulation 49 CFR 192.467 and 491.

No HDDs are proposed for the TL-536 pipeline. All crossings will be completed in compliance with the Commission's approved Plan and Procedures or appropriate PaDEP stream crossing permits.

There are no new access roads planned for the TL-536 pipeline. All access roads for the TL-536 pipeline are existing roads. The condition of most roads will be improved for use during construction with the installation of drain pipes, gravel, and grading activities.

All roads will remain after construction to provide access to the pipeline for maintenance activities. Refer to Table 8.2.3-3 for detailed information regarding access roads in the TL-536 pipeline.

The TL-536 pipeline crosses Potter County. Table 1.2-6 presents the length and MPs by township for the TL-536 pipeline.

1.2.4 TL-453 EXT1 Pipeline Facilities

The TL-453 EXT1 pipeline will include construction of approximately 11.55 miles of pipeline. No existing facilities will be abandoned as a result of this project. Route preference, associated construction areas (i.e., proposed pipeyards and contractor yards), access roads, pipeline ROW cross-sectional drawings, aerial photography and nearby towns are shown on the maps submitted concurrently with this application in Appendix 1-C, Construction Alignment Sheets. The TL-453 EXT1 pipeline location maps are provided on Figures 1.2-45 through 1.2-51 (Drawing Nos. 2004-177-40-A061 through 2004-177-40-A065, 2004-177-40-A145, and 2004-177-40-ACSL-53). The Ellisburg plot plan is provided as Figure 1.2-52. The Harrison plot plan is provided as Figure 1.2-53. The Woodhull plot plan is provided as Figure 1.2-54. Land requirements associated with the TL-453 EXT1 pipeline are provided in Table 1.2-7.

The TL-453 EXT1 pipeline will consist of 11.55 miles of 24-inch pipe, starting at the existing pipeline near the Ellisburg Station. The TL-453 EXT1 pipeline will terminate at Harrison Station. Of these 11.55 miles, approximately 8.5 miles will parallel existing pipeline. Where the TL-453 EXT1 pipeline parallels the existing pipeline, DTI proposes to install the TL-453 EXT1 pipeline approximately 25 feet from the existing pipeline.

At Ellisburg Station, TL-453 EXT1 will tie into existing station piping. Also, additional station piping will be required to be able to get the gas into DTI's pipeline system. Overpressure protection due to mismatching MAOPs will also be installed. In addition, the existing launcher at Harrison Station will be relocated to the beginning of TL-453 EXT1 at Ellisburg Station.

At Harrison Station, overpressure protection will be installed on TL-453 EXT1 to protect TL-453, which has a lower MOAP. Also, the existing launcher on TL-453 at Harrison Station will be relocated to the beginning of TL-453 EXT1 at Ellisburg Station.

At Woodhull Station, overpressure protection will be installed at the end of TL-453 to protect other pipelines from mismatching MAOPs. With the completion of TL-453 EXT1, higher gas pressure will be able to flow into TL-453 than currently exists. Ground disturbance for TL-453 EXT1 is summarized in Table 1.2-7.

Initial pipeline survey permission was granted by 100 percent of the property owners located in the TL-453 EXT1 pipeline. The court system was not utilized to acquire any survey permission for TL-453 EXT1 pipeline. As a result, 100 percent access was achieved and all of the TL-453 EXT1 pipeline was surveyed. TL-453 EXT1 was

proposed to be constructed as part of another gas project in 1986. At that time, all ROW was secured except for one landowner. DTI is now negotiating with the landowner. The survey consisted of an initial walk over and route flagging; a DTI construction supervisor and a surveyor team were involved in the flagging operation. Once the route flagging was completed, a centerline instrument survey and chain measurement was completed in conjunction with an environmental and cultural review of the study corridor. Where the TL-453 EXT1 pipeline parallels the existing pipeline, DTI studied a 130-foot wide corridor bounded to the existing pipeline, and extending 130 feet toward the side to be used for the TL-453 EXT1 pipeline installation. In the area where the TL-453 EXT1 pipeline is proposed to be located in new land, DTI studied a 200-foot wide corridor, centered on the proposed location of the TL-453 EXT1 pipeline. After the route is finalized, a soil resistivity survey will be taken along the proposed ROW to determine the cathodic protection current requirements necessary to meet DOT regulation 49 CFR 192.463. The TL-453 EXT1 pipeline crosses through primarily forested lands and agricultural fields. Refer to Table 8.1-8 for land use crossed by proposed pipeline TL-453 EXT1. The proposed route parallels an existing gas pipeline corridor for the majority of the project. It minimizes impact on both environmental and cultural resources and complies with governmental and state agency requests and recommendations.

The TL-453 EXT1 pipeline is proposed to be built in one construction phase. At the request of the Pennsylvania Fish and Boat Commission (PFBC), DTI evaluated HDDs of the Middle Branch Genesee River, West Branch Genesee River (TL-453 EXT1 actually crosses an unnamed tributary of West Branch Genesee River, not the West Branch itself), and Main Branch Genesee River. See Section 3.5 for a discussion regarding correspondence with the PFBC. The HDDs were determined to be not feasible or not practical. Due to the small width of the streams, a conventional crossing of each stream can be completed sooner than HDDs. Also, due to the existing terrain, it would be difficult to complete an HDD.

A preliminary HDD crossing design for the Genesee River was produced in order to determine the required length of an HDD crossing in this location. The preliminary HDD crossing design has a horizontal length of 1,867 feet and a true (three-dimensional) length of 1,920 feet. The entry point is approximately 1,318 feet west of the river's mid-point, while the exit point is approximately 548 feet east of the river's mid-point. The elevation differential between the entry and exit points is approximately 263 feet.

Due to the elevation differential, inadvertent drilling fluid returns would be likely to occur, and it is anticipated that such a crossing would take from one-month to three months to complete, depending on subsurface conditions. Therefore, the potential impact to the river due to inadvertent returns over the course of HDD operations would be significant. An efficiently executed open-cut crossing would involve substantially less potential impact to the river. Consequently, the primary construction phase will consist of one typical pipeline construction spread working sequentially across the ROW with construction crews performing the normal functions of clearing, grading, ditching,

stringing, welding, coating, lowering in, back filling, and clean up. It is anticipated the primary construction spread will work according to the following schedule:

- Primary Construction Phase:
  - begin construction - April 2008;
  - pipeline operational - August 2008;
  - complete final cleanup - August 2008; and
  - complete remedial cleanup – Spring/Summer 2009.

It is estimated the primary construction phase will require approximately 12 weeks to complete the installation of the TL-453 EXT1 pipeline. Approximately 240 workers are expected to be involved in the construction of the TL-453 EXT1 pipeline. It is anticipated that during the first two weeks of construction, less than 50 personnel will be on site with the majority being involved in clearing and grading operations; some ditching will also begin late in this period of construction. During the next two weeks, the number of personnel will increase to approximately 100 with the addition of stringing and pipe crews as well as specialty crews boring road crossings. Additional personnel are expected to continue joining the project for another one week including crews involved in coating, lowering in, backfill, tie in, and clean up operations. The workforce should peak at approximately 240 and remain at that level for about six to seven weeks before beginning to decline for the remainder of the project. The TL-453 EXT1 pipeline will be operated by current DTI employees so no additional positions will be created.

Refer to Table 8.1-4 for ROW parallels and intersections within the proposed TL-453 EXT1 pipeline. The TL-453 EXT1 pipeline will result in a new permanent ROW that is 50 feet wide. TWS will be 25 feet on the "working" side of the new permanent ROW, except in areas where more is needed (refer to Table 8.1-16 in Resource Report 8 for details). These areas include streams, roads, etc., and are shown on the Construction Alignment Sheets. Thus, in areas without EWS, the construction ROW will be 75 feet wide, which is the minimum ROW that DTI believes will be workable in the TL-453 EXT1 pipeline due to the terrain. The contractor will clear only the minimum necessary to safely construct the pipeline, but these areas are what DTI believes to be necessary.

Pipeline markers will be installed at line of sight intervals in addition to being located at road, railroad, non-navigable stream crossings, and at any significant changes in pipeline direction, per DOT regulation 49 CFR 192.707.

Cathodic protection test stations will be installed at all foreign, metal line crossings. These stations are a four inch diameter PVC pipe protruding approximately four feet vertically above the ground surface. The pipe has a plastic cap that covers the connections inside the pipe that are used to test the cathodic protection system. These test stations are located at a minimum of one-mile apart and are considered at road,

railroad and stream crossings in compliance with DOT regulation 49 CFR 192.467 and 491.

There is one new access road planned for the TL-453 EXT1 pipeline. All other access roads for the TL-453 EXT1 pipeline are existing roads. The condition of most roads will be improved for use during construction with the installation of drain pipes, gravel, and grading activities. All roads will remain after construction to provide access to the pipeline for maintenance activities. Refer to Table 8.2.3-4 for detailed information regarding access roads in the TL-453 EXT1 pipeline.

The TL-453 EXT1 pipeline crosses Potter County. Table 1.2-8 presents the length and MPs by township for the TL-453 EXT1 pipeline.

1.3 COMPRESSOR STATION

DTI is proposing two new compressor stations in order to provide incremental storage service. Those compression facilities are identified and analyzed in separate resource reports addressing those facilities.

1.3.1 PL-1 EXT2

No compressor stations are included in this environmental report.

1.3.2 TL-492 EXT3

There are no compressor stations for TL-492 EXT3.

1.3.3 TL-536

A launcher/receiver will be installed on TL-536 at DTI's existing State Line Compressor Station.

1.3.4 TL-453 EXT1

No compressor stations are part of TL-453 EXT1.

1.4 REGULATOR FACILITIES AND TAP VALVES

1.4.1 PL-1 EXT2

DTI proposes to construct two new regulator facilities within the existing Leidy Compressor Station Complex. One new regulator facility will control the flow of gas being delivered into existing DTI piping. The other regulator will control the flow of gas delivered into Transco through a DTI pipeline currently delivering gas to Transco. There will also be a receiver barrel outside of the new measurement and regulation facility. Detailed information will be provided in the Miscellaneous Facilities Modification Environmental Report.

1.4.2 TL-492 EXT3

TL-492 EXT3 will not require the installation of regulator facilities or tap valves.

1.4.3 TL-536

Regulation will be installed at DTI's existing State Line Compressor Station.

1.4.4 TL-453 EXT1

There will be regulation facilities added at Ellisburg, Harrison, and Woodhull Stations. There will be no tap valves, but one gate valve site will be required to meet DOT requirements.

1.5 METER STATION FACILITIES

1.5.1 PL-1 EXT2

DTI proposes to construct two new measurement facilities within the existing Leidy Compressor Station Complex. One new measurement facility will measure the flow of gas being delivered between the proposed PL-1 EXT2 pipeline and DTI's existing mainline system. The other measurement facility will measure the flow of gas delivered from DTI into Transco. This measurement will deliver gas to Transco through a DTI pipeline currently delivering gas to Transco. There will also be a receiver barrel outside of the new measurement and regulation facility. Detailed information will be provided in the Miscellaneous Facilities Modification Environmental Report.

1.5.2 TL-492 EXT3

TL-492 EXT3 will not require the installation of new meter stations.

1.5.3 TL-536

TL-536 will not require the installation of new meter stations.

1.5.4 TL-453 EXT1

TL-453 EXT1 will not require the installation of new meter stations.

1.6 NON-LINEAR PROJECT ASSOCIATED CONSTRUCTION FACILITIES

1.6.1 PL-1 EXT2

DTI has identified several non-linear project related facilities (i.e., pipeyards, contractor yards) for the PL-1 EXT2 pipeline. There are four pipe yards anticipated for the PL-1 EXT2 pipeline. The contractor warehouse will be located within the pipeyards identified. All sites will be leased prior to construction from willing owners. These proposed facilities are described in Table 8.1-17, and their locations are provided on the corresponding United States Geological Survey (USGS) 7.5-minute series maps. Pipeyard locations are provided in Appendix 8-B.

1.6.2 TL-492 EXT3

DTI has identified several non-linear project related facilities (i.e., pipeyards, contractor yards) for the TL-492 EXT3 pipeline. There are two pipeyards anticipated for the TL-492 EXT3 pipeline. The contractor warehouse will be located within the pipeyards identified. All sites will be leased prior to construction from willing owners. The other related items include a 100-foot by 100-foot gate valve and pig receiver site at MP10.7 near Bluff Gate (Figure 1.2-36). These proposed facilities are described in Table 8.1-18, and their locations are provided on the USGS 7.5-minute series maps. Pipeyard locations are provided in Appendix 8-B.

1.6.3 TL-536

DTI has identified several non-linear project related facilities (i.e., pipeyards, contractor yards) for the TL-536 pipeline. There is one pipeyard anticipated for the TL-536 pipeline. The contractor warehouse will be located within the pipeyard. All sites will be leased prior to construction from willing owners. These proposed facilities are described in Table 8.1-19, and their locations are provided on the corresponding USGS 7.5-minute series maps. Pipeyard locations are provided in Appendix 1-C, Construction Alignment Sheets.

1.6.4 TL-453 EXT1

DTI has identified several non-linear project related facilities (i.e., pipeyards, contractor yards) for the TL-453 EXT1 pipeline. There is one pipeyard anticipated for the TL-453 EXT1 pipeline. The contractor warehouse will be located within the pipeyard. All sites will be leased prior to construction from willing owners. These proposed facilities are described in Table 8.1-20, and their locations are provided on the USGS 7.5-minute

series maps. Pipeyard locations are provided in Appendix 1-C, Construction Alignment Sheets.

1.7 NON-JURISDICTIONAL FACILITIES

Describe any non-jurisdictional facilities that would be built in association with the project (380.12(c)(2)).

There are no non-jurisdictional facilities in the PL-1 EXT2, TL-492 EXT3, TL-536, or TL-453 EXT1 pipelines except for facilities of the type listed under Section 2.55(a) of the Commission regulations.

1.8 MAPS AND PHOTOGRAPHS

Provide current original U.S. Geological Survey 7.5-minute series topographic maps with mileposts showing the Project facilities (380.12(c)(3)).

Provide aerial images or photographs or alignment sheets based on these sources with mileposts showing the Project facilities (380.12(c)(3)).

Provide plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas (NSA) within 1 mile (380.12(c)(3 and 4).

1.8.1 PL-1 EXT2

DTI has prepared the required maps, photographs and plot plans describing this project. These materials are provided in Figures 1.2-1 through 1.2-28 and in Appendix 1-C. Additional copies of these materials have been prepared and will be submitted as required under ((380.12(c)(3)(iii)).

Plot/site plans of compressor stations showing the location of the nearest noise-sensitive areas within one-mile are included in the Compressor Stations Supplement Environmental Report.

1.8.2 TL-492 EXT3

DTI has prepared the required maps, photographs and plot plans describing this project. These materials are provided on Figures 1.2-32 through 1.2-36 (Drawing Nos. 2004-177-40-A053 through 2004-177-40-A056), Figure 1.2-37, and in Appendix 1-C. Additional copies of these materials have been prepared and will be submitted as required under ((380.12(c)(3)(iii)).

1.8.3 TL-536

DTI has prepared the required maps, photographs and plot plans describing this project. These materials are provided on Figures 1.2-38 through 1.2-42 (Drawing Nos.

2004-177-40-A057 through 2004-177-40-A060 and 2004-177-40-ACSL-4), Figure 1.2-43 (plot plan for the State Line Station, Figure 1.2-44 (plot plan for the Sharon M&R tie-in), and in Appendix 1-C. Additional copies of these materials have been prepared and will be submitted as required under ((380.12(c)(3)(iii)).

1.8.4 TL-453 EXT1

DTI has prepared the required maps, photographs and plot plans describing this project. These materials are provided on Figures 1.2-45 through 1.2-51 (Drawing Nos. 2004-177- 40-A061 through 2004-177-40-A065, 2004-177-40-A145, and 2004-177-40-ACSL-6), Figures 1.2-52 through 1.2-54 (plot plans for Ellisburg, Harrison, and Woodhull, respectively), and in Appendix 1-C. Additional copies of these materials have been prepared and will be submitted as required under ((380.12(c)(3)(iii)).

1.9 CONSTRUCTION AND RESTORATION METHODS

Provide construction and restoration methods (380.12(c)(6)).

1.9.1 General Description

All permits will be acquired from the necessary regulatory agencies. A list of those regulatory agencies is located in Table 1.10-1 for the PL-1 EXT2 pipeline, Table 1.10-2 for the TL-492 EXT3 pipeline, Table 1.10-3 for the TL-536 pipeline, and Table 1.10-4 for the TL-453 EXT1 pipeline. Once authorization is received for the pipeline project, DTI will prepare a contract bid package including all regulatory requirements. These documents will define a portion of the required work being bid by contractors. All contractors will be required to have a full time environmental crew assigned to the project on 24 hours per day seven days per week basis, to address any environmental situation that may occur. A set of each of the pipeline alignment drawings sheets will be altered to indicate the location of erosion and sedimentation control devices, based on the slope of the terrain, to meet the minimum environmental construction standards per the Commission's Plan and Procedures. Additional devices can and will be placed on the ROW at the discretion of the third party environmental inspectors or construction supervisor. All contractor crew leaders, DTI inspection personnel, and third party environmental inspectors will attend training and receive manuals addressing the environmental requirements of the project prior to the start of any physical construction. All DTI inspection personnel will have "stop work" authority regarding violations of any environmental requirements of the project; as a result all inspectors will be responsible for environmental compliance, with the final responsibility belonging to the environmental inspector and the construction supervisor. Any intentional acts of non-compliance will result in stoppage of work until the situation is corrected and individuals found to be responsible for intentional acts will be removed from the project.

A cathodic protection system will be installed on the project once the initial construction is completed. Surveys have been completed to determine the level of equipment required to meet DOT regulations based on soil resistivity in the areas of construction.

Based on the surveys, it is estimated that a ground bed will be required every five to seven miles along the pipelines.

During construction, temporary sanitary facilities will be utilized at locations and in adequate numbers to meet the needs of personnel in the area of the ROW. Facilities will also be located at the various pipeyards and warehouse sites.

The following sections provide a sequential description of the pipeline construction and restoration methods that will be used.

1.9.2 Clearing

After the ROW has been surveyed and easements have been secured, the permanent and temporary construction ROW, and any existing ROW if necessary, will be cleared of obstructions (i.e., trees and stumps, brush, logs, and large rocks). The ROW will be cleared to the width required for construction, but not more than specified on the pipeline alignment maps. These ROW widths indicate the minimum width necessary for construction, operation, and maintenance of the pipeline. At no time will DTI or its contractor clear or alter any areas outside of the boundaries of the pipeline corridor area shown on the pipeline alignment maps.

Before any construction procedures commence along the corridor, valuable or locally unique tree specimens, as identified in ROW agreements, permits or the Commission certification, will be identified. These trees will be protected from potential construction damage, and/or avoided depending on the tree's position relative to pipeline alignment. The clearing crew will then remove large obstacles such as large rocks, logs, and trees situated on the ROW.

Tree stumps will be cut or removed to facilitate grading and ditching activities and to provide safe access for crew members operating construction, maintenance, and operation equipment. The pulling of tree stumps will be limited only to directly over the trench line in wetland areas. Stumps or root systems will not be removed from the remainder of the ROW in wetland areas, unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require removal of tree stumps from under the work pad per the Commission's Plan and Procedures.

To protect properties located adjacent to the proposed corridor, brush and trees will be felled parallel to and within the ROW. Marketable timber cut from clearing of the ROW will be cut to standard lengths and stacked at the edge of the ROW or removed. Generally, cleared wood debris will be chipped and left in place or otherwise disposed of according to applicable regulations, permits, and ROW agreements. Large material that cannot be chipped or otherwise disposed of will be removed off-site and disposed of at an approved or otherwise authorized facility.

1.9.3 Fence Crossings

If fences (barbed wire, chain link, or other) are encountered along the construction ROW, then a fence crew will install temporary gates. The Contractor's fence crew will install new posts to brace the areas on either side of the proposed cut to ensure that no damage occurs to other portions of the fence or wall. Temporary gates will be installed, if necessary, to contain livestock or to prohibit or otherwise control public access across the ROW. These temporary fences and/or gates will remain closed at all times except as required for construction purposes.

1.9.4 Erosion and Sedimentation Control

Erosion and sedimentation controls will be installed along the pipeline corridor to minimize the occurrence of erosion of native soils. DTI will adhere to the requirements set forth in the Commission's Plan and Procedures. The first plan establishes procedures and requirements for the installation of temporary and permanent erosion control structures, revegetation, seed and mulch specifications, and periodic maintenance activities for the pipeline corridor. The second plan outlines construction procedures specific to wetlands and waterbodies. Additionally, DTI will prepare a Stormwater Pollution Control Plan to ensure compliance with the terms and conditions of a National Pollutant Discharge Elimination System (NPDES) Water Pollution Control Permit for Storm Water Discharges Associated with Construction Activity.

Erosion control devices that will be used along the pipeline corridor include hay or straw bales, trench breakers, netting, and dewater traps. Temporary sediment barriers that will be used include silt fences and hay bales. All erosion and sedimentation control devices that are used during construction of the pipeline will be inspected weekly and after each significant rainfall event so that they are maintained in good working order throughout construction. In addition to the Commission's Plan and Procedures, site-specific erosion and sedimentation control measures will be taken along the pipeline corridor adjacent to wetlands and waterbodies.

Significant deviations from the Commission's Plan and Procedures basic practices are not anticipated. It is expected that controls will be required at a much higher frequency than "normal" on steep terrain. All standard procedures such as trench breakers, diversion ditches, silt fence, and sedimentation control devices will be used in these areas as well.

1.9.5 Trenching

Prior to commencing any trenching activities along the proposed corridor, buried utility lines will be identified and flagged. Trench excavation will be performed with a large excavator in unconsolidated deposits, so that the ditch is approximately three feet wide, one-foot wider than the diameter of the pipe and approximately six and one-half feet deep, providing at least three feet of cover above the pipe. In areas where bedrock cannot be ripped with a backhoe, drilling and controlled blasting (explosives will be used

in compliance with all applicable permits and authorizations) will be required and a backhoe will remove rock and soil from the trench. For bedrock excavations, the minimum depth of cover is approximately three feet. Existing land will be returned as near as practical to it's original contours including the use of the pre-existing rock, located on the ROW, as a portion of the water diversion structures for erosion control.

To mitigate the loss of soil productivity, topsoil and subsoil will be segregated in agricultural, wetland, and residential areas along the route. Topsoil located in all actively cultivated lands will be segregated from the trench material for replacement during final cleanup. All erosion and sedimentation control structures will be in place before topsoil is stockpiled and set aside.

In areas of shallow bedrock, a rock bucket on a backhoe will be used to excavate the trench. As an alternative measure, a hydraulic hammer will be used to excavate the rock. Once both these measures have been attempted, it may be necessary to use low charge explosives to excavate the trench. If controlled blasting does occur during construction, then matting, where appropriate, will be used to contain fly-rock. Safety precautions will be taken to prevent injury to workers, livestock, and property. Controlled blasting, if required, will take place during the day, and minimum charges will be utilized to control vibrations. A seismograph will be used, where necessary, to monitor the strength of the explosion.

DTI's preliminary review has determined that controlled blasting may be necessary on shallow bedrock areas as identified in Resource Report 6, Section 6.4. All areas will be evaluated in the field during construction to assess the need for additional controlled blasting. Table 6.4-1 of Resource Report 6 summarizes the soils information that could include shallow bedrock and may require blasting for the PL-1 EXT2 pipeline, Table 6.4-2 for the TL-492 EXT3 pipeline, Table 6.4-3 for the TL-536 pipeline, and Table 6.4-4 for the TL-453 EXT1 pipeline.

1.9.6 Stringing, Installation, and Backfilling

Stringing the pipe involves hauling pipe single joints (averaging 35 feet long, with individual joints between 14 and 45 feet long) from the storage yard and stringing the pipe along the working side of the ROW parallel to the trench line. The pipe will be bent to conform to the trench land surface contour, aligned, welded, and placed on temporary supports located alongside the trench. Welds will be visually and radiographically inspected and repaired as necessary. The weld area will then be coated, and the pipe's mill-applied coating checked for damage and repairs made. The pipe then will be lowered into the trench by side-boom tractors and placed on padding material laid on the trench bottom to protect the pipe coating. As much as is practical, pipeline padding materials will come from the ROW. If adequate supplies are not available, other commercial sources will also be considered. Padding may consist of sand, selected rock-free materials from the trench excavation, sand bags, or polyethylene foam pillows. Both rock shield materials and Powercrete® or equivalent

coating will be utilized, in selected areas, to protect the Fusion Bonded Epoxy coating from rock damage.

The trench will be backfilled with suitable material that was excavated. The backfill material will be slightly crowned in upland areas to allow for settlement that may occur. This procedure, however, will not be employed in wetland areas so as not to impede drainage flows. If additional fill is needed in upland areas, new material will be obtained from previously reviewed borrow areas or obtained from commercial sources.

1.9.7 Hydrostatic Testing

1.9.7.1 PL-1 EXT2

Prior to placing the pipeline into service, the new pipeline segment will be hydrostatically tested. The new pipeline first will be cleaned using a cleaning pig propelled by compressed air. The pipeline then will be filled with water, without the use of additives, obtained from a surface water source or a potable water supply and hydrostatically tested in a manner that meets or exceeds the Minimum Federal Safety Standards. DTI's intent is to test the pipeline using water from one or more of the following creeks or rivers which are located along the pipeline route:

- Juniata River — PL-1 EXT2 S1MP12.307
- Kishacoquillas Creek — PL-1 EXT2 S1MP19.434
- Bald Eagle Creek — PL-1 EXT2 S2MP14.368
- West Branch Susquehanna River — PL-1 EXT2 S3MP19.053

The location, size, and state water quality class of these streams can be found in Resource Report 2, Table 2.2.1-1. Although municipal water supplies may be utilized as sources for test water of some prefabricated assemblies, such as valve settings or pig launcher or receiver barrels, it is not anticipated that they would be utilized as sources of test water for any mainline testing.

Hydrostatic testing will follow the Commission's Plans and Procedures. A screened intake hose in the upper water column will be employed to draw water from the creek or river. The hydrostatic test water will be discharged onto a well-vegetated upland area, so that it may flow over land into areas adjacent to surface water bodies, as per the required permits. It is not anticipated that water will be discharged directly into any stream or waterbody; the discharge may or may not be within the same drainage basin from which the test water was taken initially. It is anticipated that the PL-1 EXT2 pipeline will be tested in 21 separate test segments; some of the water used for testing will be transferred from one segment to another. Refer to Table 2.2.5-1 for hydrostatic test locations and quantities. The hydrostatic test water is not anticipated to be contaminated as only new natural gas pipeline will be tested; however, during discharge

procedures, the water will be periodically sampled and tested for dissolved oxygen, pH, total dissolved solids, oil and grease, and any other parameters required in the applicable permits. Information pertaining to consultations with the state and Federal agencies regarding use of any sensitive waterbodies for hydrostatic testing is located in Section 3.5.

Withdrawal and discharge rates will be in accordance with state and local regulations. Additionally, the necessary permits for hydrostatic testing will be acquired prior to construction. Refer to Table 1.10-1 for permit information on the PL-1 EXT2 pipeline. All testing will be performed in compliance with the Commission's Plan and Procedures. DTI will comply with National Marine Fisheries Service (NMFS) recommendations (Appendix 3-A) on hydrostatic withdrawal on the Juniata River. All testing will be performed in compliance with the Commission's Plan and Procedures.

1.9.7.2 TL-492 EXT3

Prior to placing the pipeline into service, the new pipeline segment will be hydrostatically tested. The new pipeline first will be cleaned using a cleaning pig propelled by compressed air. The pipeline then will be filled with water, without the use of additives, obtained from a surface water source or a potable water supply and hydrostatically tested in a manner that meets or exceeds the Minimum Federal Safety Standards. DTI's intent is to test the pipeline using water from The West Fork of Fish Creek located in the Town of Hundred. The water will be hauled to Lambert Junction at MP 0.0 where it will be utilized for the hydrostatic test. If The West Fork of Fish Creek does not have sufficient flow, the water will then need to be withdrawn from a municipal water supply.

The location, size, and state water quality class of this stream can be found in Resource Report 2, Table 2.2.1-2. Municipal water supplies may be utilized as sources for test water of some prefabricated assemblies, such as valve settings or pig launcher or receiver barrels, and may be utilized as sources of test water for mainline testing.

A screened intake hose in the upper water column will be employed to draw water from the creek or river. The hydrostatic test water will be discharged through a dewatering structure onto a well-vegetated upland area, so that it may flow over land into areas adjacent to surface water bodies, as per the required permits. It is not anticipated that water will be discharged directly into any stream or waterbody; the discharge may or may not be within the same drainage basin from which the test water was taken initially. It is anticipated that the TL-492 EXT3 pipeline will be tested in two separate test segments; some of the water used for testing will be transferred from one segment to another. Refer to Table 2.2.5-2 for hydrostatic test locations and quantities. The hydrostatic test water is not anticipated to be contaminated as only new natural gas pipeline will be tested; however, during discharge procedures, the water will be periodically sampled and tested for dissolved oxygen, pH, total dissolved solids, oil and grease, and any other parameters required in the applicable permits.

Withdrawal and discharge rates will be in accordance with state and local regulations. Additionally, the necessary permits for hydrostatic testing will be acquired prior to construction. Refer to Table 1.10-2 for permit information on the TL-492 EXT3 pipeline. All testing will be performed in compliance with the Commission's Plan and Procedures.

1.9.7.3 TL-536

Prior to placing the pipeline into service, the new pipeline segment will be hydrostatically tested. The new pipeline first will be cleaned using a cleaning pig propelled by compressed air. The pipeline then will be filled with water, without the use of additives, obtained from a surface water source or a potable water supply and hydrostatically tested in a manner that meets or exceeds the Minimum Federal Safety Standards. DTI's intent is to test the pipeline using water from the Genesee River near Genesee, PA, which will be hauled to the pipeline testing location.

The location, size, and state water quality class of these streams can be found in Resource Report 2, Table 2.2.1-3. Although municipal water supplies may be utilized as sources for test water of some prefabricated assemblies, such as valve settings or pig launcher or receiver barrels, it is not anticipated that they would be utilized as sources of test water for any mainline testing.

A screened intake hose in the upper water column will be employed to draw water from the creek or river. The hydrostatic test water will be discharged through a dewatering structure onto a well-vegetated upland area, so that it may flow over land into areas adjacent to surface waterbodies, as per the required permits. It is not anticipated that water will be discharged directly into any stream or waterbody; the discharge may or may not be within the same drainage basin from which the test water was taken initially. It is anticipated that the TL-536 pipeline will be tested in one test segment. Refer to Table 2.2.5-3 for the hydrostatic test location and quantity. The hydrostatic test water is not anticipated to be contaminated as only new natural gas pipeline will be tested; however, during discharge procedures, the water will be periodically sampled and tested for dissolved oxygen, pH, total dissolved solids, oil and grease, and any other parameters required in the applicable permits.

Withdrawal and discharge rates will be in accordance with state and local regulations. Additionally, the necessary permits for hydrostatic testing will be acquired prior to construction. Refer to Table 1.10-3 for permit information on the TL-536 pipeline. All testing will be performed in compliance with the Commission's Plan and Procedures.

1.9.7.4 TL-453 EXT1

Prior to placing the pipeline into service, the new pipeline segment will be hydrostatically tested. The new pipeline first will be cleaned using a cleaning pig propelled by compressed air. The pipeline then will be filled with water, without the use of additives, obtained from a surface water source or a potable water supply and hydrostatically tested in a manner that meets or exceeds the Minimum Federal Safety Standards.

DTI's intent is to test the pipeline using water from one or more of the following creeks or rivers which are located along the pipeline route:

- Genesee River: TL-453 EXT1 MP4.29; and
- Middle Branch Genesee River: TL-453 EXT1 MP2.26.

The location, size, and state water quality class of these streams can be found in Resource Report 2, Table 2.2.1-4. The Commission's Procedures will be followed prior to the use of these waterbodies for hydrostatic test water source. DTI is also in consultation with the PFBC to obtain specific recommendations to follow regarding use of the Middle Branch Genesee River. The PFBC requested more detailed information regarding locations and methods for both water withdrawal and discharge so that potential impacts can be assessed. Correspondence to date is discussed in Resource Report 3. DTI will supply additional correspondence to the Commission as it becomes available. Although municipal water supplies may be utilized as sources for test water of some prefabricated assemblies, such as valve settings or pig launcher or receiver barrels, it is not anticipated that they would be utilized as sources of test water for any mainline testing.

A screened intake hose in the upper water column will be employed to draw water from the creek or river. The hydrostatic test water will be discharged through a dewatering structure onto a well-vegetated upland area, so that it may flow over land into areas adjacent to surface water bodies, as per the required permits. It is not anticipated that water will be discharged directly into any stream or waterbody; the discharge may or may not be within the same drainage basin from which the test water was taken initially. It is anticipated that the TL-453 EXT1 pipeline will be tested in five separate test segments; some of the water used for testing will be transferred from one segment to another. The water will be withdrawn from the Middle Branch Genesee River at MP2.26 and the Genesee River at MP4.29. The water will then be trucked to the five test segments. Refer to Table 2.2.5-4 for hydrostatic test locations and quantities. The hydrostatic test water is not anticipated to be contaminated as only new natural gas pipeline will be tested; however, during discharge procedures, the water will be periodically sampled and tested for dissolved oxygen, pH, total dissolved solids, oil and grease, and any other parameters required in the applicable permits.

Withdrawal and discharge rates will be in accordance with state and local regulations. Additionally, the necessary permits for hydrostatic testing will be acquired prior to construction. Refer to Table 1.10-4 for permit information on the TL-453 EXT1 pipeline. DTI will comply with PFBC recommendations on hydrostatic withdrawal on the Genesee River and Middle Branch Genesee River (Appendix 3-A). All testing will be performed in compliance with the Commission's Plan and Procedures.

1.9.8 Restoration and Cleanup

All debris and equipment remaining from construction activities will be removed from the ROW and adjacent areas. Debris will be sent to an approved landfill. After the construction and installation of the pipeline is complete, the ROW will be graded to conform to original, pre-construction contours. In areas where original fill in the trench and major depressions have settled below ground level, clean fill will be added and graded to the original contour. All disturbed pavement will be restored to at least its original condition. All disturbed area will be restored as near as practical to the original contours, with exception of "knife ridges". Due to the very narrow nature of these areas the restored ROW will remain wider than the original ridge top after reclamation is completed.

The topsoil previously segregated from the trench material in all agricultural and residential areas will be spread on the ROW during final cleanup. Topsoil and subsoil in agricultural and residential areas will be tested for compaction along the disturbed pipeline corridor. The entire uplands area disturbed by construction will be fertilized, limed, and then seeded with an appropriate grass seed mixture to rapidly stabilize and provide permanent erosion control along the ROW. Wetlands areas will not be fertilized, limed, or mulched unless directed to do so by local regulatory agencies. DTI will consult with the local County Conservation Districts to determine the appropriate seed mixtures for the area and soil conditions or in compliance with the Commission's Plan and Procedures.

Upon completion of the natural gas pipeline construction, DTI will commence a long-term, periodic monitoring program for the pipeline. This monitoring program will consist of checking the integrity of the natural gas pipeline (i.e., leak surveys); monitoring the success of ROW revegetation; continuous telemetering of gas pressure to DTI's Gas Control Department located in Clarksburg, WV; monthly aerial surveillance of the pipeline; and a physical walkover inspection of the entire pipeline route every three years. All monitoring procedures will be conducted in conformance with DOT regulation 49 CFR 192.705 and 706. Inspection with leakage instruments will also be required in some class III or IV areas at a higher frequency level should they exist.

1.9.9 Wetland Crossings

Disturbance of wetlands will be limited to the minimum necessary to construct the pipeline. Special construction and mitigation procedures will be followed when construction takes place in a wetland area. DTI plans to file joint PaDEP/United States Army Corps of Engineers (USACE) permits for jurisdictional determination. The USACE will determine specific wetland mitigation requirements. The Commission's approved Procedures will be followed. Site-specific mitigation practices will also be adhered to during construction and installation of the pipeline. If possible, wetlands crossing work will be scheduled to take place during the dry period of summer and early fall, avoiding construction in the wetter spring months. The location of wetlands is indicated on the Construction Alignment Sheets (refer to Appendix 1-C), and a summary of wetlands

crossed by the pipelines can be found in Resource Report 2, Table 2.3-1 for PL-1 EXT2, Table 2.3-2 for TL-492 EXT3, Table 2.3-3 for TL-536, and Table 2.3-4 for TL-453 EXT1.

The working side of the pipeline trench will be stabilized with prefabricated mats or timber riprap to provide a firm surface for construction equipment. Following trench excavations by a backhoe or a clamshell, the pipeline will be carried by sidebooms across the wetland area, submerged into the trench and then backfilled. Sediment filter devices will be installed to prevent the flow of trench spoil off-site. All exposed soil in wetland areas will be restored per local, state, or USACE permit requirements.

1.9.10 Road and Railroad Crossings

The roads and railroads crossed by the pipelines by MP are listed in Table 1.9-1 for PL-1 EXT2, Table 1.9-2 for TL-492 EXT3, Table 1.9-3 for TL-536, and Table 1.9-4 for TL-453 EXT1.

Dirt roads encountered along the corridor will be open cut. Proper safety precautions per the appropriate DOT requirements for flagging, barricades and other safety procedures will be in place at all roads that are traversed. Open cut crossings will be made using large excavators to dig through gravel and dirt surfaces resulting in some minor traffic delays. Individual lane excavation and the use of steel decking or temporary road detours will be employed to limit public inconveniences. Roads will be restored and graveled to their previous or better condition upon completion of the crossing.

The traditional "slick" boring technique will be employed to install the pipeline under hard surfaced roads, unless DOT specifies the use of cased crossings. Since all work activities are outside of the roads traveled surfaces, no significant disruptions of roadway traffic are anticipated. All DOT safety precautions will be utilized to protect both the public and construction personnel. Bore and receiving pits will be excavated to a depth adequate to allow a minimum of three feet of clearance between the top of the bore pipe and the bottom of road ditch lines. A road-boring machine that is equipped with an auger-type bit will be used to tunnel beneath paved roads creating an aperture . A steel casing will be placed in the hole as it is being bored to prevent settlement or damage to either the hole or the roadway foundation. After boring is complete, the carrier pipe with factory-applied Powercrete® or equivalent coating is inserted into the steel casing and then the casing is removed. The annulus between the carrier pipe with Powercrete® or equivalent coating and the borehole will be sealed with concrete. This boring technique minimizes traffic disruption. Additional temporary ROW (EWS - refer to Table 8.1-13 of Resource Report 8) may be required on each side of the crossing to accommodate additional excavation for the boring equipment, spoil storage, and pipeline fabrication. If a cased crossing is specified by DOT, the bore pipe will remain in place once the boring operation is complete. The carrier pipe is then inserted, with support cradles and seals, into the casing. Vent pipes will be added to the casing pipe to allow monitoring of the annular space between the casing and carrier pipe per

DOT requirements. DTI plans to HDD the I-99/S.R. 0026 interchange roadway at MP S2MP13.5. Figure 1.2-30 shows the detailed plans. I-80 will be HDD as part of the Bald Eagle Creek HDD detailed in Figure 1.2-31.

It is anticipated that all railroad crossings will be completed using the cased crossing method as described above, except the railroad crossings at the Juniata River, and Bald Eagle Creek. These crossings will be uncased and installed as part of the HDDs. Refer to Table 1.9-1 for a listing of railroad crossings in the PL-1 EXT2 pipeline by MP.

1.9.11 Other Utility Line Crossings

When other utility lines such as electric, telephone, sewer, water, natural gas, and oil are crossed, DTI and/or its contractor will contact the appropriate utility representatives directly when possible, in addition to using the PA "one-call" system. DTI will employ extreme care to prevent damage to utilities. In general, the new pipeline will be installed to allow at least 12 inches of vertical clearance between the pipeline and the existing utility. When this clearance is not possible, additional precautions will be taken to protect the existing utility and the new pipeline by installing additional coating material or casings. For the location of utility crossings by MP, refer to Resource Report 8, Table 8.2.1-1 for the PL-1 EXT2 pipeline, Table 8.2.1-2 for the TL-492 EXT3 pipeline, Table 8.2.1-3 for the TL-536 pipeline, and Table 8.2.1-4 for the TL-453 EXT1 pipeline.

1.9.12 Agricultural Areas

Agricultural areas on the pipeline include pasture areas used for livestock grazing, hayfields, fallow fields, and croplands, such as corn and wheat fields. Additional information on the location of these areas is provided in Resource Report 8 (Land Use). Resource Report 8 and Resource Report 7 (Soils) include information on special procedures to be utilized in agricultural areas. Measures include the segregation of the top 12 inches of topsoil within the ROW, and de-compaction of the soil, as needed, once construction is completed. Topsoil will be segregated from the subsoil/trench excavation during the grading phase of construction and stockpiled on the working side of the ROW until installation of the pipeline is complete. The topsoil will be returned to the ROW in the final restoration and cleanup phase of pipeline construction. If either subsoil or topsoil is severely compacted a paraplow or other deep tillage device will be utilized to break up the soils. DTI construction personnel will work with property owners to identify locations of drain tiles prior to construction to avoid damage to those structures. Should damage occur anyway, DTI will repair these drainage systems with the input of the property owners. DTI will coordinate with the landowners prior to construction and provide compensation for crop damages.

1.9.13 Stream Crossings

DTI will use different stream crossing techniques depending on the type of waterbody to be traversed (refer to Section 2.2.7 of Resource Report 2 for additional information). Special care will be taken to minimize effects of construction on waterbodies.

Specialized procedures that will be followed at stream crossing locations include the following: locating staging areas 50 feet away from the stream; storing chemicals, washing or refueling equipment in designated areas that are more than 100 feet away from the work area; and mixing concrete greater than 100 feet from a river, stream bank, or any area where contamination from concrete may reach a water course or wetland. Spoil pile placement and erosion control devices will be monitored at all times during stream crossing procedures. All stream crossings will be buried to a minimum depth of five feet below the stream bottom. Stream crossing techniques that may be utilized include: temporary bridges, dry flume, dam and pump, cofferdam, and wet trench. For locations by MP, refer to Resource Report 2, Table 2.2.1-1 for the PL-1 EXT2 pipeline, Table 2.2.1-2 for the TL-492 EXT3 pipeline, Table 2.2.1-3 for the TL-536 pipeline, and Table 2.2.1-4 for the TL-453 EXT1 pipeline. DTI will work with applicable agencies on stream crossing methods specific to each stream.

Below is a brief description of the various types of stream crossing techniques typically used in pipeline construction.

- **Dry Flume.** The dry flume method is typically employed to traverse minor streams. This procedure entails constructing two bulkheads (sand bags or plastic dams) to direct the stream flow through a flume pipe placed over the trench. The flume would not be removed during trenching, pipe laying, or backfilling.

- **Dam and Pump Method.** The dam and pump method of crossing streams involves using a pump and hoses to convey water around the trench area. This method is typically employed when stream flow is no more than one cubic foot per second at the time of construction. Headwalls are placed upstream and downstream of the crossing location and pumps are placed on the upstream side. To minimize scouring effects downstream, energy dissipation devices are used.

- **Wet Trench Method.** The wet trench method of crossing waterbodies can be used to cross intermediate streams and major rivers. Trenching is conducted within the stream or river from the banks. Excavated material is stored on the banks and used for backfill. If the dimensions of the stream prohibit this type of construction, the trench is excavated and backfilled by the use of equipment operated on barges or floating equipment pads.

- **Cofferdam Method.** The cofferdam method of crossing streams may be used for wider channel crossings, and will be designed so as not to prevent the flow of the stream. A cofferdam will be constructed within the construction ROW from non-erodible materials (riprap, sand bags, jersey barriers, commercial cofferdam products, etc.) enclosing approximately half the streambed in a semi-circle. The cofferdam should seal tightly to the streambed to minimize water from entering the area. Pumps will be needed to keep water out of excavations. All earth disturbances will occur in the dry behind the cofferdam. The pipe will be installed

and the disturbed areas backfilled and stabilized, and sediment barriers at the waterline in good working order before the cofferdam is removed. Stabilization will be with either riprap or vegetation. The cofferdam is then set up from the opposite bank and extends far enough to include the tie-in point in mid stream. The remainder of the pipe is installed and the tie-in weld is made. Clean up follows the same procedures as just described.

All stream crossings will be completed in compliance with the Commission-approved Plan and Procedures or state requirements whichever is more stringent.
Blasting will only occur in minor and intermediate size streams when trenching performed as part of construction is not possible. Due to the nature of the major stream crossings in the PL-1 EXT2 pipeline, some trench excavation may be required to determine the extent of blasting needed to complete the final trench.

Reference drawings for stream crossing methods are located in Appendix 1-E.

1.9.14 Specialized Construction

1.9.14.1 PL-1 EXT2

At certain locations, the proposed pipeline traverses rugged terrain with slopes greater than 50 percent and bedrock at fairly shallow depths or steep sidehill area. Locations of rugged terrain for the PL-1 EXT2 pipeline include the following:

Section 3:

- PL-1 EXT2 S3MP2.06 to S3MP2.26: side hill area;
- PL-1 EXT2 S3MP6.84 to S3MP7.09: side hill area;
- PL-1 EXT2 S3MP7.22 to S3MP7.31: side hill area;
- PL-1 EXT2 S3MP7.50 to S3MP7.53: side hill area; and
- PL-1 EXT2 S3MP23.69 to S3MP23.77: side hill area.

Construction on steep slopes involves employing winch tractors (possibly more than one) to hold each piece of equipment while working on these slopes. Also, 'dead man' cables will be used to hold the pipe in place until the complete string of pipe has been welded.

The areas identified as difficult terrain are scheduled for the 2007 construction season. DTI has made every effort to avoid side-hill areas during route selection of the PL-1 EXT2 pipeline, however, in some areas that was not possible. In those areas of side-hill construction, the ROW may be "two-toned" to provide two levels of work area. It is anticipated that two benches will be cut into the hillside to provide one for spoil storage

and trench area and another at a higher elevation (working side) to provide work area for equipment operation, pipe welding and coating crews. Once the individual joints of pipe are welded, x-rayed, coated and ready to be placed in the trench, side-booms will pick up the pipe and lower it from the upper bench into the trench on the lower bench. Backfill operations and the other phases of construction will proceed as usual. The side-hill areas are then restored to the pre-existing contours during the restoration operations.

Dead-man cables will be utilized to hold the pipe in place in steep areas until the complete string of pipe has been welded. This technique consists of burying a structure, (timber, short pipe segment, beam) with a cable attached. The cable is brought out of the ground and used to tie off the piping to prevent it from moving down the steep grade.

Refer to Table 8.3.1-1 for a list of residences located within 50 feet to the project ROW.

1.9.14.2 TL-492 EXT3

The proposed pipeline does not traverse any rugged terrain with slopes greater than 50 percent and bedrock at fairly shallow depths or steep sidehill area. No specialized construction areas have been identified.

Refer to Table 8.3.1-2 for a list of structures located within 50 feet to the project ROW. No residences were identified within 50 feet of the project ROW.

1.9.14.3 TL-536 and TL-453 EXT1

At certain locations within TL-536 and TL-453 EXT1, the proposed pipeline traverses rugged terrain with steep slopes and bedrock at fairly shallow depths or steep sidehill area.

Construction on steep slopes involves employing winch tractors (possibly more than one) to hold each piece of equipment while working on these slopes. Also, 'dead man' cables will be used to hold the pipe in place until the complete string of pipe has been welded.

DTI has made every effort to avoid side-hill areas during route selection of the TL-536 and TL-453 EXT1 pipelines, however, in some areas that was not possible. In those areas of side-hill construction, the ROW may be "two-toned" to provide two levels of work area. It is anticipated that two benches will be cut into the hillside to provide one for spoil storage and trench area and another at a higher elevation (working side) to provide work area for equipment operation, pipe welding and coating crews. Once the individual joints of pipe are welded, x-rayed, coated and ready to be placed in the trench, side-booms will pick up the pipe and lower it from the upper bench into the trench on the lower bench. Backfill operations and the other phases of construction will

proceed as usual. The side-hill areas are then restored to the pre-existing contours during the restoration operations.

Dead-man cables will be utilized to hold the pipe in place in steep areas until the complete string of pipe has been welded. This technique consists of burying a structure, (timber, short pipe segment, beam) with a cable attached. The cable is brought out of the ground and used to tie off the piping to prevent it from moving down the steep grade.

Refer to Tables 8.2.1-3 and 8.2.1-4 for a list of residences located within 50 feet to the project ROW for TL-536 and TL-453 EXT1, respectively.

1.10 PERMITS AND APPROVALS

Identify the permits required for construction across surface waters (380.12(c)(9)).

DTI has identified a list of environmental and archaeological permits and clearances that may be required for the approval of the proposed project. DTI will continue to investigate additional permitting requirements at all levels of government and will secure any necessary permits or clearances as required.

Permit applications will be submitted in a timely manner, so as to provide sufficient review and processing times for their respective jurisdictional agencies. With the exception of this application, DTI intends to initiate the permit application process by submitting the USACE Section 404/105 and other permits as indicated in Table 1.10-1 for the PL-1 EXT2 pipeline, Table 1.10-2 for the TL-492 EXT3 pipeline, Table 1.10-3 for the TL-536 pipeline, and Table 1.10-4 for the TL-453 EXT1 pipeline. Other permit applications will be submitted thereafter.

1.11 AFFECTED LANDOWNERS

Provide the names and mailing addresses of all affected landowners and certify that all affected landowners will be notified as required in 157.6(d). (380.12(c)(10)).

DTI has identified affected landowners as specified in §157.6(d). A list of these landowners will be filed under separate cover as "Privileged Information" from this Environmental Report. Refer to Table 1.11-1 for the PL-1 EXT2 pipeline, Table 1.11-2 for the TL-492 EXT3 pipeline, Table 1.11-3 for the TL-536 pipeline, and Table 1.11-4 for the TL-453 EXT1 pipeline.

To date, DTI has communicated directly with the property owners regarding proposed route, archaeological and environmental surveys of their property with a letter and a phone call. Four open houses, one each in Juniata, Mifflin, Centre, and Clinton Counties, were held in the spring of 2004. One open house was held in Greene County and one open house was held in Potter County in the summer of 2004.

1.12 EXPANSION PLANS

Describe reasonable foreseeable plans for future expansion of facilities, including additional land requirements and the compatibility of those plans with the current proposal (380.12(c)(8)).

At this time, DTI does not have reasonably foreseeable plans for future expansion of facilities.

1.13 REFERENCES

Federal Energy Regulatory Commission. 2003. *Upland Erosion Control, Revegetation, and Maintenance Plan*. January 17, 2003.

Federal Energy Regulatory Commission. 2003. *Wetland and Waterbody Construction and Mitigation Procedures*. January 17, 2003.

Federal Energy Regulatory Commission, *Certificate of Public Convenience and Necessity*. http://www.the Commission.fed.us/gas/regs/157.html.

Pennsylvania Department of Transportation. Sections of 49 Code of Federal Regulations 190 through 199 (Sections192.463, 192.707, 192.467, 192.491, 192.705, and 192.706).

Table 1.1-1

COVE POINT PIPELINE CUSTOMER INFORMATION

Firm Service Quantities			
Service	**Service Quantity**	**Receipt Point**	**Delivery Point**
Dominion Transmission FT Service	700,000 Dt per Day	Loudoun, VA	200 MDt per Day - Chambersburg, PA 400 MDt per Day - Leidy, PA 100 MDt per Day - Dominion South Point
Dominion Transmission Storage Service	6 MMDt Capacity, 100 MDt Demand	Dominion Transmission "ST Point"	Dominion Transmission "ST Point"

Table 1.2-1

LAND REQUIREMENTS FOR THE PL-1 EXT2 PIPELINE FACILITIES

Total Length (miles)	Land Affected During Construction (acres)[1]	Land Affected During Operation (acres)[2]
80.66	878.12	488.88

Notes:

1 Construction ROWs use a 75-foot width and include EWS and pipeyards.

2 Permanent ROWs use a 50-foot width, included within the construction ROW.

Table 1.2-2

LOCATION AND DESCRIPTION OF THE PL-1 EXT2 PIPELINE FACILITIES

County	Milepost[1]	Pipeline Diameter (inches)	Pipeline Type	Length (miles)[2]
Juniata[3]	S1MP0.0 through S1MP0.25	30	New	0.25
Juniata	S1MP0.25 through S1MP8.06	24	New	7.81
Mifflin	S1MP8.06 through S1MP23.80	24	New	15.40
Huntingdon	S1MP23.80 through S2MP1.53	24	New	4.51
Centre	S2MP1.53 through S3MP6.88	24	New	33.97
Clinton	S3MP6.88 through S3MP25.50	24	New	18.73

Notes:

1 Milepost measurement taken from Construction Alignment Sheets.

2 Length measurement taken from the construction alignment foot stationing and converted to miles.

3 PL-5, a 16-inch pipeline, will lay parallel to PL-1 EXT2 for the first 0.25-mile within the same PL-1 EXT2 ROW.

Table 1.2-3

LAND REQUIREMENTS FOR THE TL-492 EXT3 PIPELINE FACILITIES

Total Length (miles)	Land Affected During Construction (acres)[1]	Land Affected During Operation (acres)[2]
10.7	116.11	65.36

Notes:

1 Construction ROWs use a 75-foot width and include EWS, new access roads, and pipeyard facilities.

2 Permanent ROWs use a 50-foot width, included within the construction ROW. The total includes new access roads.

Table 1.2-4

LOCATION AND DESCRIPTION OF THE TL-492 EXT3 PIPELINE FACILITIES

County and State	Milepost[1]	Pipeline Diameter (inches)	Pipeline Type	Length[2]
Wetzel, WV	0.00 to 0.35	24	New	0.35 Miles
Greene, PA	0.35 to 10.7	24	New	10.35 Miles
Greene, PA	10.7	Gate Valve	Existing	100 Feet by 100 Feet
Greene, PA	10.7	Pig Receiver Site	Existing	

Notes:

1 Milepost measurement taken from Construction Alignment Sheets.

2 Length measurement taken from the construction alignment foot stationing and converted to miles.

Table 1.2-5

LAND REQUIREMENTS FOR THE TL-536 PIPELINE FACILITIES

Total Length (miles)	Land Affected During Construction (acres)[1]	Land Affected During Operation (acres)[2]
9.49	102.67	70.56

Notes:

1 Construction ROWs use a 75-foot width and include EWS.

2 Permanent ROWs use a 50-foot width, included within the construction ROW.

Table 1.2-6

LOCATION AND DESCRIPTION OF THE TL-536 PIPELINE FACILITIES

Township	Milepost[1]	Pipeline Diameter (inches)	Pipeline Type	Length (miles)[2]
Genesee	0.0 through 1.81	20	New	1.81
Oswayo	1.81 through 8.71	20	New	6.90
Sharon	8.71 through 9.49	20	New	0.78

Notes:

1 Milepost measurement taken from Construction Alignment Sheets.

2 Length measurement taken from the construction alignment foot stationing and converted to miles.

Table 1.2-7

LAND REQUIREMENTS FOR THE TL-453 EXT1 PIPELINE FACILITIES

Total Length (miles)	Land Affected During Construction (acres)[1]	Land Affected During Operation (acres)[2]
11.55	135.53	70.01

Notes:

1 Construction ROWs use a 75-foot width and include EWS, pipeyards, and associated facilities

2 Permanent ROWs use a 50-foot width, included within the construction ROW.

Table 1.2-8

LOCATION AND DESCRIPTION OF THE TL-453 EXT1 PIPELINE FACILITIES

Township	Milepost[1]	Pipeline Diameter (Inches)	Pipeline Type	Length (miles)[2]
Genesee	0.0 through 2.61	24	New	2.61
Bingham	2.61 through 9.34	24	New	6.73
Harrison	9.34 through 11.55	24	New	2.21

Notes:

1 Milepost measurement taken from Construction Alignment Sheets.

2 Length measurement taken from the construction alignment foot stationing and converted to miles.

Table 1.9-1

ROADS AND RAILROADS CROSSED BY THE PL-1 EXT2 PIPELINE

Abbreviation/Name	Milepost
Section 1	
S.R. 3023/Lick Run Road	0.50
T-387/Willow Run Road	3.55
T-314/Turkey Ridge Road	4.17
S.R. 0035	4.53
S.R. 4006/Beggars Row Road	4.69
S.R. 4005/Blacklogg Road	6.31
Pine Ridge Road	7.75
East Licking Creek Road	9.62
T-344	11.95
S.R. 103	11.95
Norfolk and Southern Railroad	12.24
Norfolk and Southern Railroad	12.25
T-307	12.73
T-710	13.48
U.S. Route 22	14.89
S.R. 4013	16.04
T-397	16.60
T-362	19.20
S.R. 655	19.98
T-364/Dry House Road	20.66
S.R. 4005	21.33
S.R. 4005	21.43
T-370	22.46
S.R. 4006	22.72
Barrville Road	23.19
Rag Hollow Road	24.17
Broad Mountain Road	24.71
Section 2	
T-603/Treaster Kettle Road	4.09
T-600	6.43
Route 322	6.56
S.R. 0045	8.46

Table 1.9-1 (Continued)

Abbreviation/Name	Milepost
Section 2 (Continued)	
Pennsylvania Railroad	9.12
S.R. 2006/Upper Brush Valley Road	9.89
S.R. 0144	10.41
T-420/Green Valley Road	11.20
S.R. 0064	13.19
T-432/Witherite Road	13.37
Nittany Bald Eagle Railroad	13.50
S.R. 0026	13.93
T-425/Weaver Hill Road	14.66
T-436/Airport Road	15.18
T-425/Lutz Lane	15.28
S.R. 550	15.79
I-99/U.S. Route 220/Bellefonte Bypass	16.46
T-147/Jacksonville Road	17.04
S.R. 1006	18.83
Interstate 80 Eastbound	19.21
Interstate 80 Westbound	19.26
Pennsylvania Railroad	19.35
U.S. Route 220/Route 150	19.37
T-398	21.83
S.R. 1002	23.35
Kato Road	28.60
Section 3	
New York Central Railroad	2.31
DeHass Road	5.32
S.R. 144	9.03
Jews Run Road	9.64
Jews Run Road	10.25
Jews Run Road	10.39
ConRail Railroad	14.51
S.R. 120/Renovo Road	14.54
T-468/Bitumen Road	16.42
S.R. 4001/Kettle Creek Road	17.49
Two Mile Road	17.66

Table 1.9-1 (Continued)

Abbreviation/Name	Milepost
Section 3 (Continued)	
Huling Branch Road	17.71
Two Mile Road	18.46
Robbins Hollow Road	19.11
Shintown Run Road	20.92
Big Basin Road	21.42
Red Hill Road	24.94
S.R. 0144/Tamarack Road	25.32

Table 1.9-2

ROADS AND RAILROADS CROSSED BY THE TL-492 EXT3 PIPELINE

County and State	Abbreviation/Name	Milepost
Wetzel, WV	S.R. 69	0.09
Greene, PA	T-305	1.04
	T-321	1.99
	T-321	2.36
	T-337	2.39
	T-364	2.62
	T-349	3.15
	S.R. 3008	4.39
	T-406	4.72
	T-369	5.61
	S.R. 3007	6.47
	T-428	6.64
	Railroad Tracks	7.78
	S.R. 3009	7.88
	T-432	8.67
	T-724	9.64

Table 1.9-3

ROADS CROSSED BY THE TL-536 PIPELINE IN POTTER COUNTY

Abbreviation/Name	Milepost	Township
S.R. 4018	0.03	Genesee
T-533	0.40	Genesee
T-520	0.69	Genesee
T-386	1.55	Genesee
T-384	2.08	Oswayo
Farm Road	3.07	Oswayo
Farm Road	3.09	Oswayo
S.R. 4023	3.11	Oswayo
Farm Road	3.36	Oswayo
T-382	3.81	Oswayo
T-379	4.89	Oswayo
T-375	7.14	Oswayo
T-371	8.61	Oswayo
Road	8.95	Sharon
Road	9.08	Sharon

Table 1.9-4

ROADS CROSSED BY THE TL-453 EXT1 PIPELINE IN POTTER COUNTY

Abbreviation/Name	Milepost	Township
T-459	0.19	Genesee
T-558	1.27	Genesee
S.R. 0449	2.21	Genesee
Well Road	3.79	Bingham
S.R. 1011	4.34	Bingham
T-409	6.01	Bingham
T-409	6.52	Bingham
S.R. 1015	6.73	Bingham
T-408	6.88	Bingham
Woods Road	7.86	Bingham
S.R. 1010	9.65	Harrison
T-408	10.24	Harrison
T-482	10.88	Harrison
T-457	11.01	Harrison

Table 1.10-1

OTHER PERMITS AND APPROVALS APPLICABLE TO THE PL-1 EXT2 PIPELINE

Permit/Approval	Administering Agency	Status
Federal		
Certificate of Public Convenience and Necessity	Commission	
Clean Water Act, Section 404	USACE	Submitted December 2004.
Section 7 Consultation Approval under the Endangered Species Act	United States Fish and Wildlife Service (USFWS)	Ongoing (Indiana bat, bald eagle, Northeastern bulrush).
Essential Fish Habitat, Section 7 ESA Consultation	NMFS	Ongoing.
State		
Clean Water Act, Section 401	PaDEP	
Permit for Construction Activity Stormwater Discharge/Erosion and Sediment Control (PAG-2)	25 PA. Code 92 and102; Delegated to County Conservation Districts and Permit issued by PaDEP Regional Offices	
Hydrostatic Testing Permit (PAG-10)	PaDEP Bureau of Water Quality Protection	PA Statewide Permit issued November 24, 2004; effective until November 22, 2009. High-Quality Addendum may be required.
Chapters 105 and 106 Joint Federal/ State Application in Pennsylvania Water Obstruction and Encroachment Permit/Submerged Lands License Agreement	PaDEP for Juniata, Mifflin, Huntingdon, Centre, and Clinton Counties 105 Authority Delegated to County Conservation Districts	
Section 401 WQC/NPDES	PaDEP	
Consultation and Approval, Threatened and Endangered Species	PFBC	Completed June 7, 2004.
Consultation and Approval, Threatened and Endangered Species	PA Game Commission (PGC)	Completed July 1, 2004.
Consultation and Approval, Threatened and Endangered Species	Pennsylvania Department of Conservation and Natural Resources (PADCNR)	Completed June 29, 2004.
Consultation and Approval, National Historic Preservation Act of 1966	PA Historic and Museum Commission, Bureau of Historic Preservation (PHMC-BHP)	Ongoing.

Table 1.10-1 (Continued)

Permit/Approval	Administering Agency	Status
County		
Juniata County NPDES/Erosion and Sedimentation Control	Juniata County Conservation District	
Mifflin County NPDES/Erosion and Sedimentation Control	Mifflin County Conservation District	
Huntingdon County NPDES/Erosion and Sedimentation Control/ Chapter 105 Review	Huntingdon County Conservation District	
Centre County NPDES/Erosion and Sedimentation Control/Chapter 105 Review	Centre County Conservation District	
Clinton County NPDES/Erosion and Sedimentation Control/Chapter 105 Review	Clinton County Conservation District	

Table 1.10-2

OTHER PERMITS AND APPROVALS APPLICABLE TO THE TL-492 EXT3 PIPELINE

Permit/Approval	Administering Agency	Status
Federal		
Certificate of Public Convenience and Necessity	Commission	
Clean Water Act, Section 404	USACE	Application being prepared.
Section 7 Consultation Approval under the Endangered Species Act	USFWS	Complete.
Pennsylvania - State		
Clean Water Act, Section 401	PaDEP	
Permit for Construction Activity Stormwater Discharge/Erosion and Sediment Control (PAG-2)	25 PA. Code 92 and102; Delegated to County Conservation Districts and Permit issued by PaDEP Regional Offices	
Hydrostatic Testing Permit (PAG-10)	PaDEP Bureau of Water Quality Protection	PA Statewide Permit issued November 24, 2004; effective until November 22, 2009.
Chapters 105 and 106 Joint Federal/ State Application in Pennsylvania Water Obstruction and Encroachment Permit/Submerged Lands License Agreement	PaDEP	
Section 401 WQC/NPDES	PaDEP	
Consultation and Approval, Threatened and Endangered Species	PFBC	Complete.
Consultation and Approval, Threatened and Endangered Species	PGC	Complete.
Consultation and Approval, Threatened and Endangered Species	PADCNR	Complete.
Consultation and Approval, National Historic Preservation Act of 1966	PHMC-BHP	Completed February 11, 2005.
West Virginia - State		
Clean Water Act, Section 401 [WV Department of Environmental Protection (WVDEP) has issued 401 water quality certification pending compliance with certain conditions and/or limitations for NWP 12]	WVDEP	In preparation with USACE NWP application.

Table 1.10-2 (Continued)

Permit/Approval	Administering Agency	Status
West Virginia - State (continued)		
WV/NPDES Permit No. WV0331069 General Permit for Hydrostatic Testing Water (new pipeline and compressor station pipelines)	WVDEP	Application in preparation.
NPDES General Permit for Stormwater Discharges from Construction Activities and ESCP	WVDEP	Application in preparation.
Cultural Resources Consultation	SHPO	Completed February 2, 2005.
County		
Greene County NPDES/Erosion and Sedimentation Control	Greene County Conservation District	

Table 1.10-3

OTHER PERMITS AND APPROVALS APPLICABLE TO THE TL-536 PIPELINE

Permit/Approval	Administering Agency	Status
Federal		
Certificate of Public Convenience and Necessity	Commission	
Clean Water Act, Section 404	USACE	Application being prepared.
Section 7 Consultation Approval under the Endangered Species Act	USFWS	Complete.
State		
Clean Water Act, Section 401	PaDEP	
Permit for Construction Activity Stormwater Discharge/Erosion and Sediment Control (PAG-2)	25 PA. Code 92 and102; Delegated to County Conservation Districts and Permit issued by PaDEP Regional Offices	
Hydrostatic Testing Permit (PAG-10)	PaDEP Bureau of Water Quality Protection	PA Statewide Permit issued November 24, 2004; effective until November 22, 2009. High-Quality Addendum may be required.
Chapters 105 and 106 Joint Federal/ State Application in Pennsylvania Water Obstruction and Encroachment Permit/Submerged Lands License Agreement	PaDEP	
Section 401 WQC/NPDES	PaDEP	
Consultation and Approval, Threatened and Endangered Species	PFBC	Completed June 2004.
Consultation and Approval, Threatened and Endangered Species	PGC	Completed June 2004.
Consultation and Approval, Threatened and Endangered Species	PADCNR	Completed June 2004.
Consultation and Approval, National Historic Preservation Act of 1966	PHMC-BHP	Completed January 26, 2005.
County		
Potter County NPDES/Erosion and Sedimentation Control	Potter County Conservation District	

Table 1.10-4

OTHER PERMITS AND APPROVALS APPLICABLE TO THE TL-453 EXT1 PIPELINE

Permit/Approval	Administering Agency	Status
Federal		
Certificate of Public Convenience and Necessity	Commission	
Clean Water Act, Section 404	USACE	Application being prepared.
Section 7 Consultation Approval under the Endangered Species Act	USFWS	
Essential Fish Habitat, Section 7 ESA Consultation	NMFS	Ongoing.
State		
Clean Water Act, Section 401	PaDEP	
Permit for Construction Activity Stormwater Discharge/Erosion and Sediment Control (PAG-2)	25 PA. Code 92 and102; Delegated to County Conservation Districts and Permit issued by PaDEP Regional Offices	
Hydrostatic Testing Permit (PAG-10)	PaDEP Bureau of Water Quality Protection	PA Statewide Permit issued November 24, 2004; effective until November 22, 2009. High-Quality Addendum may be required.
Chapters 105 and 106 Joint Federal/ State Application in Pennsylvania Water Obstruction and Encroachment Permit/Submerged Lands License Agreement	PaDEP	
Section 401 WQC/NPDES	PaDEP	
Consultation and Approval, Threatened and Endangered Species	PFBC	Ongoing (Middle Branch Genesee River - American brook lamprey).
Consultation and Approval, Threatened and Endangered Species	PGC	Completed September 2004.
Consultation and Approval, Threatened and Endangered Species	PADCNR	Completed September 2004.
Consultation and Approval, National Historic Preservation Act of 1966	PHMC-BHP	Completed February 14, 2005.
County		
Potter County NPDES/Erosion and Sedimentation Control	Potter County Conservation District	

PRIVILEGED INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

TABLE 1.11-1

LANDOWNERS AFFECTED BY THE PL-1 EXT2 PIPELINE

(UNDER SEPARATE COVER)

PRIVILEGED INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

TABLE 1.11-2

LANDOWNERS AFFECTED BY THE TL-492 EXT3 PIPELINE

(UNDER SEPARATE COVER)

PRIVILEGED INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

TABLE 1.11-3

LANDOWNERS AFFECTED BY THE TL-536 PIPELINE

(UNDER SEPARATE COVER)

PRIVILEGED INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

TABLE 1.11-4

LANDOWNERS AFFECTED BY THE TL-453 EXT1 PIPELINE

(UNDER SEPARATE COVER)

NON-INTERNET PUBLIC INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

FIGURE 1.0-1

PROJECT FACILITIES MAP

(UNDER SEPARATE COVER)

NON-INTERNET PUBLIC INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

FIGURES 1.2-1 THROUGH 1.2-28 FOR PL-1 EXT2

FIGURES 1.2-32 THROUGH 1.2-36 FOR TL-492 EXT3

FIGURES 1.2-38 THROUGH 1.2-42 FOR TL-536

FIGURES 1.2-45 THROUGH 1.2-51 FOR TL-453 EXT1

SITE LOCATION MAPS

(UNDER SEPARATE COVER)

CRITICAL ENERGY INFRASTRUCTURE INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

FIGURE 1.2-29: HDD PLAN FOR PL-1 EXT2 - JUNIATA RIVER

FIGURE 1.2-30: HDD PLAN FOR PL-1 EXT2 - I-99/S.R. 0026

FIGURE 1.2-31: HDD PLAN FOR PL-1 EXT2 - BALD EAGLE CREEK

FIGURE 1.2-37: CONCEPT DRAWING FOR TL-492 EXT3

FIGURE 1.2-43: STATE LINE STATION PLOT PLAN

FIGURE 1.2-44: SHARON M&R STATION PLOT PLAN

FIGURE 1.2-52: ELLISBURG STATION PLOT PLAN

FIGURE 1.2-53: HARRISON STATION PLOT PLAN

FIGURE 1.2-54: WOODHULL STATION PLOT PLAN

(UNDER SEPARATE COVER)

APPENDIX 1-A

FEDERAL ENERGY REGULATORY COMMISSION'S 2003 UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN

TABLE OF CONTENTS

UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN (PLAN)

I. APPLICABILITY

A. The intent of this Plan is to assist applicants by identifying baseline mitigation measures for minimizing erosion and enhancing revegetation. The project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in this Plan they consider unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is certificated, further changes can be approved. Any such changes from the measures in this Plan (or the applicant's approved plan) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of this Plan is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in this Plan to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on wetland and waterbody systems are addressed in the staff's Wetland and Waterbody Construction and Mitigation Procedures (Procedures).

II. SUPERVISION AND INSPECTION

A. ENVIRONMENTAL INSPECTION

1. At least one Environmental Inspector is required for each construction spread during construction and restoration (as defined by section V). The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

2. Environmental Inspectors shall have peer status with all other activity inspectors.

3. Environmental Inspectors shall have the authority to stop activities that violate the environmental conditions of the Certificate, state and Federal environmental permit conditions, or landowner requirements; and to order appropriate corrective action.

B. RESPONSIBILITIES OF ENVIRONMENTAL INSPECTORS

At a minimum, the Environmental Inspector(s) shall be responsible for:

1. Ensuring compliance with the requirements of this Plan, the Procedures, the environmental conditions of the Certificate authorization, the mitigation measures proposed by the applicant (as approved and/or modified by the Certificate), other environmental permits and approvals, and environmental requirements in landowner easement agreements.

2. Identifying, documenting, and overseeing corrective actions, as necessary to bring an activity back into compliance;

3. Verifying that the limits of authorized construction work areas and locations of access roads are properly marked before clearing;

4. Verifying the location of signs and highly visible flagging marking the boundaries of sensitive resource areas, waterbodies, wetlands, or areas with special requirements along the construction work area;

5. Identifying erosion/sediment control and soil stabilization needs in all areas;

6. Ensuring that the location of dewatering structures and slope breakers will not direct water into known cultural resources sites or locations of sensitive species;

7. Verifying that trench dewatering activities do not result in the deposition of sand, silt, and/or sediment near the point of discharge into a wetland or waterbody. If such deposition is occurring, the dewatering activity shall be stopped and the design of the discharge shall be changed to prevent reoccurrence;

8. Ensuring that subsoil and topsoil are tested in agricultural and residential areas to measure compaction and determine the need for corrective action;

9. Advising the Chief Construction Inspector when conditions (such as wet weather) make it advisable to restrict construction activities to avoid excessive rutting;

10. Ensuring restoration of contours and topsoil;

11. Verifying that the soils imported for agricultural or residential use have been certified as free of noxious weeds and soil pests, unless otherwise approved by the landowner;

12. Determining the need for and ensuring that erosion controls are properly installed, as necessary to prevent sediment flow into wetlands, waterbodies, sensitive areas, and onto roads;

13. Inspecting and ensuring the maintenance of temporary erosion control measures at least:

    a. on a daily basis in areas of active construction or equipment operation;

    b. on a weekly basis in areas with no construction or equipment operation; and

    c. within 24 hours of each 0.5 inch of rainfall;

14. Ensuring the repair of all ineffective temporary erosion control measures within 24 hours of identification;

15. Keeping records of compliance with the environmental conditions of the FERC certificate, and the mitigation measures proposed by the project sponsor in the application submitted to the FERC, and other Federal or state environmental permits during active construction and restoration; and

16. Identifying areas that should be given special attention to ensure stabilization and restoration after the construction phase.

III. PRECONSTRUCTION PLANNING

The project sponsor shall do the following before construction:

A. CONSTRUCTION WORK AREAS

1. Identify all construction work areas (e.g., construction right-of-way, extra work space areas, pipe storage and contractor yards, borrow and disposal areas, access roads, etc.) that would be needed for safe construction. The project sponsor must ensure that appropriate cultural resources and biological surveys have been conducted.

2. Project sponsors are encouraged to consider expanding any required cultural resources and endangered species surveys in anticipation of the need for activities outside of certificated work areas.

B. DRAIN TILE AND IRRIGATION SYSTEMS

1. Attempt to locate existing drain tiles and irrigation systems.

2. Contact landowners and local soil conservation authorities to determine the locations of future drain tiles that are likely to be installed within 3 years of the authorized construction.

3. Develop procedures for constructing through drain-tiled areas, maintaining irrigation systems during construction, and repairing drain tiles and irrigation systems after construction.

4. Engage qualified drain tile specialists, as needed to conduct or monitor repairs to drain tile systems affected by construction. Use drain tile specialists from the project area, if available.

C. GRAZING DEFERMENT

Develop grazing deferment plans with willing landowners, grazing permittees, and land management agencies to minimize grazing disturbance of revegetation efforts.

D. ROAD CROSSINGS AND ACCESS POINTS

Plan for safe and accessible conditions at all roadway crossings and access points during construction and restoration.

E. DISPOSAL PLANNING

Determine methods and locations for the disposal of construction debris (e.g., timber, slash, mats, garbage, drilling fluids, excess rock, etc). Off-site disposal in other than commercially operated disposal locations is subject to compliance with all applicable survey, landowner permission, and mitigation requirements.

F. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and Federal agencies as outlined in this Plan and in the Certificate.

1. Obtain written recommendations from the local soil conservation authorities or land management agencies regarding permanent erosion control and revegetation specifications.

2. Develop specific procedures in coordination with the appropriate agency to prevent the introduction or spread of noxious weeds and soil pests resulting from construction and restoration activities.

G. STORMWATER POLLUTION PREVENTION PLAN

Make available on each construction spread the Stormwater Pollution Prevention Plan prepared for compliance with the U.S. Environmental Protection Agency's National Stormwater Program General Permit requirements.

IV. INSTALLATION

A. APPROVED AREAS OF DISTURBANCE

1. Project-related ground disturbance shall be limited to the construction right-of-way, extra work space areas, pipe storage yards, borrow and disposal areas, access roads, and other areas approved in the Certificate. Any project-related ground disturbing activities outside these Certificated areas, except those needed to comply with the Plan and Procedures (e.g., slope breakers, energy-dissipating devices, dewatering structures, drain tile system repairs) will require prior Director approval. All construction or restoration activities outside of the Certificated areas are subject to all applicable survey and mitigation requirements.

2. The construction right-of-way width for a project shall not exceed 75 feet or that described in the FERC application unless otherwise modified by a Certificate condition. However, in limited, non-wetland areas, this construction right-of-way width may be expanded by up to 25 feet without Director approval to accommodate full construction right-of-way topsoil segregation and to ensure safe construction where topographic conditions (such as side-slopes) or soil limitations require it. Twenty-five feet of extra construction right-of-way width may also be used in limited, non-wetland or non-forested areas for truck turn-arounds where no reasonable alternative access exists.

   Project use of these additional limited areas is subject to landowner approval and compliance with all applicable survey and mitigation requirements. When such additional areas are used, each one should be identified and the need explained in the weekly or biweekly construction reports to the FERC, if required. The following material should be included in the reports:

   a. the location of each additional area by station number and reference to a previously filed alignment sheet, or updated alignment sheets showing the additional areas;

   b. identification of where the Commission's records contain evidence that the additional areas were previously surveyed; and

c. a statement that landowner approval has been obtained and is available in project files.

Prior written approval of the Director is required when the Certificated construction right-of-way width would be expanded by more than 25 feet.

B. TOPSOIL SEGREGATION

1. Unless the landowner or land management agency specifically approves otherwise, prevent the mixing of topsoil with subsoil by stripping topsoil from either the full work area or from the trench and subsoil storage area (ditch plus spoil side method) in:

   a. actively cultivated or rotated croplands and pastures ;

   b. residential areas;

   c. hayfields; and

   d. other areas at the landowner's or land managing agency's request.

2. In residential areas importation of topsoil is an acceptable alternative to topsoil segregation.

3. In deep soils (more than 12 inches of topsoil), segregate at least 12 inches of topsoil. In soils with less than 12 inches of topsoil make every effort to segregate the entire topsoil layer.

4. Where topsoil segregation is required, maintain separation of salvaged topsoil and subsoil throughout all construction activities.

5. Segregated topsoil may not be used for padding the pipe.

C. DRAIN TILES

1. Mark locations of drain tiles damaged during construction.

2. Probe all drainage tile systems within the area of disturbance to check for damage.

3. Repair damaged drain tiles to their original or better condition. Do not use filter-covered drain tiles unless the local soil conservation authorities and the landowner agree. Use qualified specialists for testing and repairs.

4. For new pipelines in areas where drain tiles exist or are planned, ensure that the depth of cover over the pipeline is sufficient to avoid interference with drain tile systems. For adjacent pipeline loops in agricultural areas, install the new pipeline with at least the same depth of cover as the existing pipeline(s).

D. IRRIGATION

Maintain water flow in crop irrigation systems, unless shutoff is coordinated with affected parties.

E. ROAD CROSSINGS AND ACCESS POINTS

1. Maintain safe and accessible conditions at all road crossings and access points during construction.

2. If crushed stone access pads are used in residential or active agricultural areas, place the stone on synthetic fabric to facilitate removal.

F. TEMPORARY EROSION CONTROL

Install temporary erosion controls immediately after initial disturbance of the soil. Temporary erosion controls must be properly maintained throughout construction (on a daily basis) and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration is complete.

1. Temporary Slope Breakers

a. Temporary slope breakers are intended to reduce runoff velocity and divert water off the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, or sand bags.

b. Install temporary slope breakers on all disturbed areas, as necessary to avoid excessive erosion. Temporary slope breakers must be installed on slopes greater than 5 percent where the base of the slope is less than 50 feet from waterbody, wetland, and road crossings at the following spacing (closer spacing should be used if necessary):

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Direct the outfall of each temporary slope breaker to a stable, well vegetated area or construct an energy-dissipating device at the end of the slope breaker and off the construction right-of-way.

d. Position the outfall of each temporary slope breaker to prevent sediment discharge into wetlands, waterbodies, or other sensitive resources.

2. Sediment Barriers

a. Sediment barriers are intended to stop the flow of sediments and to prevent the deposition of sediments into sensitive resources. They may be constructed of materials such as silt fence, staked hay or straw bales, compacted earth (e.g., driveable berms across travelways), sand bags, or other appropriate materials.

b. At a minimum, install and maintain temporary sediment barriers across the entire construction right-of-way at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody, wetland, or road crossing until revegetation is successful as defined in this Plan. Leave adequate room between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

c. Where wetlands or waterbodies are adjacent to and downslope of construction work areas, install sediment barriers along the edge of these areas, as necessary to prevent sediment flow into the wetland or waterbody.

3. Mulch

a. Apply mulch on all slopes (except in actively cultivated cropland) concurrent with or immediately after seeding, where necessary to stabilize the soil surface and to reduce wind and water erosion. Spread mulch uniformly over the area to cover at least 75 percent of the ground surface at a rate of 2 tons/acre of straw or its equivalent, unless the local soil conservation authority, landowner, or land managing agency approves otherwise in writing.

b. Mulch can consist of weed-free straw or hay, wood fiber hydromulch, erosion control fabric, or some functional equivalent.

c. Mulch <u>before</u> seeding if:

(1) final grading and installation of permanent erosion control measures, will not be completed in an area within 20 days after the trench in that area is backfilled (10 days in residential areas), as required in section V.A.1; or

(2) construction or restoration activity is interrupted for extended periods, such as when seeding cannot be completed due to seeding period restrictions.

d. If mulching <u>before</u> seeding, increase mulch application on all slopes within 100 feet of waterbodies and wetlands to a rate of 3 tons/acre of straw or equivalent.

e. If wood chips are used as mulch, do not use more than 1 ton/acre and add the equivalent of 11 lbs/acre available nitrogen (at least 50 percent of which is slow release).

f. Ensure that mulch is adequately anchored to minimize loss due to wind and water.

g. When anchoring with liquid mulch binders, use rates recommended by the manufacturer. Do not use liquid mulch binders within 100 feet of wetlands or waterbodies.

h. Install erosion control fabric on waterbody banks at the time of final bank recontouring. Anchor the erosion control fabric with staples or other appropriate devices.

V. RESTORATION

A. CLEANUP

1. Commence cleanup operations immediately following backfill operations. Complete final grading, topsoil replacement, and installation of permanent erosion control structures within 20 days after backfilling the trench (10 days in residential areas). If seasonal or other weather conditions prevent compliance with these time frames, maintain temporary erosion controls (temporary slope breakers and sediment barriers) until conditions allow completion of cleanup.

   The project sponsor should file with the Secretary for the review and written approval of the Director, a winterization plan if construction will continue into the winter season when conditions could delay successful decompaction, topsoil replacement, or seeding until the following spring.

2. A travel lane may be left open temporarily to allow access by construction traffic if the temporary erosion control structures are installed as specified in section IV.F. and inspected and maintained as specified in sections II.B.12 through 14. When access is no longer required the travel lane must be removed and the right-of-way restored.

3. Rock excavated from the trench may be used to backfill the trench only to the top of the existing bedrock profile. Rock that is not returned to the trench should be considered construction debris, unless approved for use as mulch or for some other use on the construction work areas by the landowner or land managing agency.

4. Remove excess rock from at least the top 12 inches of soil in all actively cultivated or rotated cropland and pastures, hayfields, and residential areas, as well as other areas at the landowner's request. The size, density, and distribution of rock on the construction work area should be similar to adjacent areas not disturbed by construction. The landowner may approve other provisions in writing.

5. Grade the construction right-of-way to restore pre-construction contours and leave the soil in the proper condition for planting.

6. Remove construction debris from all construction work areas unless the landowner or land managing agency approves otherwise.

7. Remove temporary sediment barriers when replaced by permanent erosion control measures or when revegetation is successful.

B. PERMANENT EROSION CONTROL DEVICES

1. Trench Breakers

   a. Trench breakers are intended to slow the flow of subsurface water along the trench. Trench breakers may be constructed of materials such as sand bags or polyurethane foam. Do not use topsoil in trench breakers.

   b. An engineer or similarly qualified professional shall determine the need for and spacing of trench breakers. Otherwise, trench breakers shall be installed at the same spacing as and upslope of permanent slope breakers.

   c. In agricultural fields and residential areas where slope breakers are not typically required, install trench breakers at the same spacing as if permanent slope breakers were required.

   d. At a minimum, install a trench breaker at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from a waterbody or wetland and where needed to avoid draining a waterbody or wetland.

2. Permanent Slope Breakers

a. Permanent slope breakers are intended to reduce runoff velocity, divert water off the construction right-of-way, and prevent sediment deposition into sensitive resources. Permanent slope breakers may be constructed of materials such as soil, sand bags, or some functional equivalent.

b. Construct and maintain permanent slope breakers in all areas, except cultivated areas and lawns, using spacing recommendations obtained from the local soil conservation authority or land managing agency.

In the absence of written recommendations, use the following spacing unless closer spacing is necessary to avoid excessive erosion on the construction right-of-way:

Slope (%)	Spacing (feet)
5 - 15	300
>15 - 30	200
>30	100

c. Construct slope breakers to divert surface flow to a stable area without causing water to pool or erode behind the breaker. In the absence of a stable area, construct appropriate energy-dissipating devices at the end of the breaker.

d. Slope breakers may extend slightly (about 4 feet) beyond the edge of the construction right-of-way to effectively drain water off the disturbed area. Where slope breakers extend beyond the edge of the construction right-of-way, they are subject to compliance with all applicable survey requirements.

C. SOIL COMPACTION MITIGATION

1. Test topsoil and subsoil for compaction at regular intervals in agricultural and residential areas disturbed by construction activities. Conduct tests on the same soil type under similar moisture conditions in undisturbed areas to approximate preconstruction conditions. Use penetrometers or other appropriate devices to conduct tests.

2. Plow severely compacted agricultural areas with a paraplow or other deep tillage implement. In areas where topsoil has been segregated, plow the subsoil before replacing the segregated topsoil.

   Alternatively, make arrangements with the landowner to plant and plow under a "green manure" crop, such as alfalfa, to decrease soil bulk density and improve soil structure. If subsequent construction and cleanup activities result in further compaction, conduct additional tilling.

3. Perform appropriate soil compaction mitigation in severely compacted residential areas.

D. REVEGETATION

1. General

   a. The project sponsor is responsible for ensuring successful revegetation of soils disturbed by project-related activities, except as noted in section V.D.1.b.

   b. Restore all turf, ornamental shrubs, and specialized landscaping in accordance with the landowner's request, or compensate the landowner. Restoration work must be performed by personnel familiar with local horticultural and turf establishment practices.

2. Soil Additives

   Fertilize and add soil pH modifiers in accordance with written recommendations obtained from the local soil conservation authority, land management agencies, or landowner. Incorporate recommended soil pH modifier and fertilizer into the top 2 inches of soil as soon as possible after application.

3. Seeding Requirements

   a. Prepare a seedbed in disturbed areas to a depth of 3 to 4 inches using appropriate equipment to provide a firm seedbed. When hydroseeding, scarify the seedbed to facilitate lodging and germination of seed.

b. Seed disturbed areas in accordance with written recommendations for seed mixes, rates, and dates obtained from the local soil conservation authority or the request of the landowner or land management agency. Seeding is not required in actively cultivated croplands unless requested by the landowner.

c. Perform seeding of permanent vegetation within the recommended seeding dates. If seeding cannot be done within those dates, use appropriate temporary erosion control measures discussed in section IV.F. and perform seeding of permanent vegetation at the beginning of the next recommended seeding season. Lawns may be seeded on a schedule established with the landowner.

d. In the absence of written recommendations from the local soil conservation authorities, seed all disturbed soils within 6 working days of final grading, weather and soil conditions permitting, subject to the specifications in section V.D.3.a-c.

e. Base seeding rates on Pure Live Seed. Use seed within 12 months of seed testing.

f. Treat legume seed with an inoculant specific to the species using the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydro).

g. In the absence of written recommendations from the local soil conservation authorities, landowner, or land managing agency to the contrary, a seed drill equipped with a cultipacker is preferred for seed application.

Broadcast or hydroseeding can be used in lieu of drilling at double the recommended seeding rates. Where seed is broadcast, firm the seedbed with a cultipacker or roller after seeding. In rocky soils or where site conditions may limit the effectiveness of this equipment, other alternatives may be appropriate (e.g., use of a chain drag) to lightly cover seed after application, as approved by the Environmental Inspector.

VI. OFF-ROAD VEHICLE CONTROL

To each owner or manager of forested lands offer to install and maintain measures to control unauthorized vehicle access to the right-of-way. These measures may include:

A. Signs;

B. Fences with locking gates;

C. Slash and timber barriers, pipe barriers, or a line of boulders across the right-of-way; and

D. Conifers or other appropriate trees or shrubs across the right-of-way.

VII. POST-CONSTRUCTION ACTIVITIES

A. MONITORING AND MAINTENANCE

1. Conduct follow-up inspections of all disturbed areas after the first and second growing seasons to determine the success of revegetation.

2. Revegetation in non-agricultural areas shall be considered successful if upon visual survey the density and cover of non-nuisance vegetation are similar in density and cover to adjacent undisturbed lands. In agricultural areas, revegetation shall be considered successful if crop yields are similar to adjacent undisturbed portions of the same field.

   Continue revegetation efforts until revegetation is successful.

3. Monitor and correct problems with drainage and irrigation systems resulting from pipeline construction in active agricultural areas until restoration is successful.

4. Restoration shall be considered successful if the right-of-way surface condition is similar to adjacent undisturbed lands, construction debris is removed (unless requested otherwise by the land owner or land managing agency), revegetation is successful, and proper drainage has been restored.

5. Routine vegetation maintenance clearing shall not be done more frequently than every 3 years. However, to facilitate periodic corrosion and leak surveys, a corridor not exceeding 10 feet in width centered on the pipeline may be maintained annually in a herbaceous state. In no case shall routine vegetation maintenance clearing occur between April 15 and August 1 of any year.

6. Efforts to control unauthorized off-road vehicle use, in cooperation with the landowner, shall continue throughout the life of the project. Maintain signs, gates, and vehicle trails as necessary.

B. REPORTING

1. The project sponsor shall maintain records that identify by milepost:

   a. method of application, application rate, and type of fertilizer, pH modifying agent, seed, and mulch used;

   b. acreage treated;

   c. dates of backfilling and seeding;

   d. names of landowners requesting special seeding treatment and a description of the follow-up actions; and

   e. any problem areas and how they were addressed.

2. The project sponsor shall file with the Secretary quarterly activity reports documenting problems, including those identified by the landowner, and corrective actions taken for at least 2 years following construction.

APPENDIX 1-B

FEDERAL ENERGY REGULATORY COMMISSION'S 2003 WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

01/17/2003 VERSION

WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES

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WETLAND AND WATERBODY CONSTRUCTION AND MITIGATION PROCEDURES (PROCEDURES)

I. APPLICABILITY

A. The intent of these Procedures is to assist applicants by identifying baseline mitigation measures for minimizing the extent and duration of project-related disturbance on wetlands and waterbodies. The project sponsors should specify in their applications for a FERC Certificate (Certificate) any individual measures in these Procedures they consider unnecessary, technically infeasible, or unsuitable due to local conditions and to fully describe any alternative measures they would use. Applicants should also explain how those alternative measures would achieve a comparable level of mitigation.

Once a project is certificated, further changes can be approved. Any such changes from the measures in these Procedures (or the applicant's approved procedures) will be approved by the Director of the Office of Energy Projects (Director), upon the applicant's written request, if the Director agrees that an alternative measure:

1. provides equal or better environmental protection;

2. is necessary because a portion of these Procedures is infeasible or unworkable based on project-specific conditions; or

3. is specifically required in writing by another Federal, state, or Native American land management agency for the portion of the project on its land or under its jurisdiction.

Any requirements in these Procedures to file material with the Secretary of the FERC (Secretary) do not apply to projects undertaken under the provisions of the blanket certificate program. This exemption does not apply to a request for alternative measures.

Project-related impacts on non-wetland areas are addressed in the staff's Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

B. DEFINITIONS

1. "Waterbody" includes any natural or artificial stream, river, or drainage with perceptible flow at the time of crossing, and other permanent waterbodies such as ponds and lakes:

   a. "minor waterbody" includes all waterbodies less than or equal to 10 feet wide at the water's edge at the time of construction;

   b. "intermediate waterbody" includes all waterbodies greater than 10 feet wide but less than or equal to 100 feet wide at the water's edge at the time of construction; and

   c. "major waterbody" includes all waterbodies greater than 100 feet wide at the water's edge at the time of construction.

2. "Wetland" includes any area that is not in actively cultivated or rotated cropland and that satisfies the requirements of the current Federal methodology for identifying and delineating wetlands.

II. PRECONSTRUCTION FILING

A. The following information shall be filed with the Secretary prior to the beginning of construction:

1. the hydrostatic testing information specified in section VII.B.3. and a wetland delineation report as described in section VI.A.1., if applicable; and

2. a schedule identifying when trenching or blasting would occur within each waterbody greater than 10 feet wide, or within any designated coldwater fishery. The project sponsor shall revise the schedule as necessary to provide FERC staff at least 14 days advance notice. Changes within this last 14-day period must provide for at least 48 hours advance notice.

B. The following site-specific construction plans required by these Procedures must be filed with the Secretary for the review and written approval by the Director:

1. plans for extra work areas that would be closer than 50 feet from a waterbody or wetland;

2. plans for major waterbody crossings;

3. plans for the use of a construction right-of-way greater than 75 feet wide in wetlands; and

4. plans for horizontal directional drill (HDD) "crossings" of wetlands or waterbodies.

III. ENVIRONMENTAL INSPECTORS

A. At least one Environmental Inspector having knowledge of the wetland and waterbody conditions in the project area is required for each construction spread. The number and experience of Environmental Inspectors assigned to each construction spread should be appropriate for the length of the construction spread and the number/significance of resources affected.

B. The Environmental Inspector's responsibilities are outlined in the Upland Erosion Control, Revegetation, and Maintenance Plan (Plan).

IV. PRECONSTRUCTION PLANNING

A. A copy of the Stormwater Pollution Prevention Plan (SWPPP) prepared for compliance with the U.S. Environmental Protection Agency's (EPA) National Stormwater Program General Permit requirements must be available in the field on each construction spread. The SWPPP shall contain Spill Prevention and Response Procedures that meet the requirements of state and Federal agencies.

1. It shall be the responsibility of the project sponsor and its contractors to structure their operations in a manner that reduces the risk of spills or the accidental exposure of fuels or hazardous materials to waterbodies or wetlands. The project sponsor and its contractors must, at a minimum, ensure that:

a. all employees handling fuels and other hazardous materials are properly trained;

b. all equipment is in good operating order and inspected on a regular basis;

c. fuel trucks transporting fuel to on-site equipment travel only on approved access roads;

d. all equipment is parked overnight and/or fueled at least 100 feet from a waterbody or in an upland area at least 100 feet from a wetland boundary. These activities can occur closer only if the Environmental Inspector finds, in advance, no reasonable alternative and the project sponsor and its contractors have taken appropriate steps (including secondary containment structures) to prevent spills and provide for prompt cleanup in the event of a spill;

e. hazardous materials, including chemicals, fuels, and lubricating oils, are not stored within 100 feet of a wetland, waterbody, or designated municipal watershed area, unless the location is designated for such use by an appropriate governmental authority. This applies to storage of these materials and does not apply to normal operation or use of equipment in these areas; and

f. concrete coating activities are not performed within 100 feet of a wetland or waterbody boundary, unless the location is an existing industrial site designated for such use.

2. The project sponsor and its contractors must structure their operations in a manner that provides for the prompt and effective cleanup of spills of fuel and other hazardous materials. At a minimum, the project sponsor and its contractors must:

a. ensure that each construction crew (including cleanup crews) has on hand sufficient supplies of absorbent and barrier materials to allow the rapid containment and recovery of spilled materials and knows the procedure for reporting spills;

b. ensure that each construction crew has on hand sufficient tools and material to stop leaks;

c. know the contact names and telephone numbers for all local, state, and Federal agencies (including, if necessary, the U. S. Coast Guard and the National Response Center) that must be notified of a spill; and

d. follow the requirements of those agencies in cleaning up the spill, in excavating and disposing of soils or other materials contaminated by a spill, and in collecting and disposing of waste generated during spill cleanup.

B. AGENCY COORDINATION

The project sponsor must coordinate with the appropriate local, state, and Federal agencies as outlined in these Procedures and in the Certificate.

V. WATERBODY CROSSINGS

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply to the U.S. Army Corps of Engineers (COE), or its delegated agency, for the appropriate wetland and waterbody crossing permits.

2. Provide written notification to authorities responsible for potable surface water supply intakes located within 3 miles downstream of the crossing at least 1 week before beginning work in the waterbody, or as otherwise specified by that authority.

3. Apply for state-issued waterbody crossing permits and obtain individual or generic section 401 water quality certification or waiver.

4. Notify appropriate state authorities at least 48 hours before beginning trenching or blasting within the waterbody, or as specified in state permits.

B. INSTALLATION

1. Time Window for Construction

Unless expressly permitted or further restricted by the appropriate state agency in writing on a site-specific basis, instream work, except that required to install or remove equipment bridges, must occur during the following time windows:

a. coldwater fisheries - June 1 through September 30; and

b. coolwater and warmwater fisheries - June 1 through November 30.

2. Extra Work Areas

a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from water's edge, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

b. The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from the water's edge, (except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

c. Limit clearing of vegetation between extra work areas and the edge of the waterbody to the certificated construction right-of-way.

d. Limit the size of extra work areas to the minimum needed to construct the waterbody crossing.

3. General Crossing Procedures

a. Comply with the COE, or its delegated agency, permit terms and conditions.

b. Construct crossings as close to perpendicular to the axis of the waterbody channel as engineering and routing conditions permit.

c. If the pipeline parallels a waterbody, attempt to maintain at least 15 feet of undisturbed vegetation between the waterbody (and any adjacent wetland) and the construction right-of-way.

d. Where waterbodies meander or have multiple channels, route the pipeline to minimize the number of waterbody crossings.

e. Maintain adequate flow rates to protect aquatic life, and prevent the interruption of existing downstream uses.

f. Waterbody buffers (extra work area setbacks, refueling restrictions, etc.) must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

4. Spoil Pile Placement and Control

a. All spoil from minor and intermediate waterbody crossings, and upland spoil from major waterbody crossings, must be placed in the construction right-of-way at least 10 feet from the water's edge or in additional extra work areas as described in section V.B.2.

b. Use sediment barriers to prevent the flow of spoil or heavily silt-laden water into any waterbody.

5. Equipment Bridges

a. Only clearing equipment and equipment necessary for installation of equipment bridges may cross waterbodies prior to bridge installation. Limit the number of such crossings of each waterbody to one per piece of clearing equipment.

b. Construct equipment bridges to maintain unrestricted flow and to prevent soil from entering the waterbody. Examples of such bridges include:

(1) equipment pads and culvert(s);
(2) equipment pads or railroad car bridges without culverts;
(3) clean rock fill and culvert(s); and
(4) flexi-float or portable bridges.

Additional options for equipment bridges may be utilized that achieve the performance objectives noted above. Do not use soil to construct or stabilize equipment bridges.

c. Design and maintain each equipment bridge to withstand and pass the highest flow expected to occur while the bridge is in place. Align culverts to prevent bank erosion or streambed scour. If necessary, install energy dissipating devices downstream of the culverts.

d. Design and maintain equipment bridges to prevent soil from entering the waterbody.

e. Remove equipment bridges as soon as possible after permanent seeding unless the COE, or its delegated agency, authorizes it as a permanent bridge.

f. If there will be more than 1 month between final cleanup and the beginning of permanent seeding and reasonable alternative access to the right-of-way is available, remove equipment bridges as soon as possible after final cleanup.

6. Dry-Ditch Crossing Methods

a. Unless approved otherwise by the appropriate state agency, install the pipeline using one of the dry-ditch methods outlined below for crossings of waterbodies up to 30 feet wide (at the water's edge at the time of construction) that are state-designated as either coldwater or significant coolwater or warmwater fisheries.

b. Dam and Pump

(1) The dam-and-pump method may be used without prior approval for crossings of waterbodies where pumps can adequately transfer streamflow volumes around the work area, and there are no concerns about sensitive species passage.

(2) Implementation of the dam-and-pump crossing method must meet the following performance criteria:

(I) use sufficient pumps, including on-site backup pumps, to maintain downstream flows;
(ii) construct dams with materials that prevent sediment and other pollutants from entering the waterbody (e.g., sandbags or clean gravel with plastic liner);
(iii) screen pump intakes;
(iv) prevent streambed scour at pump discharge; and
(v) monitor the dam and pumps to ensure proper operation throughout the waterbody crossing.

c. Flume Crossing

The flume crossing method requires implementation of the following steps:

(1) install flume pipe after blasting (if necessary), but before any trenching;

(2) use sand bag or sand bag and plastic sheeting diversion structure or equivalent to develop an effective seal and to divert stream flow through the flume pipe (some modifications to the stream bottom may be required in to achieve an effective seal);

(3) properly align flume pipe(s) to prevent bank erosion and streambed scour;

(4) do not remove flume pipe during trenching, pipelaying, or backfilling activities, or initial streambed restoration efforts; and

(5) remove all flume pipes and dams that are not also part of the equipment bridge as soon as final cleanup of the stream bed and bank is complete.

d. Horizontal Directional Drill (HDD)

To the extent they were not provided as part of the pre-certification process, for each waterbody or wetland that would be crossed using the HDD method, provide a plan that includes:

(1) site-specific construction diagrams that show the location of mud pits, pipe assembly areas, and all areas to be disturbed or cleared for construction;

(2) a description of how an inadvertent release of drilling mud would be contained and cleaned up; and

(3) a contingency plan for crossing the waterbody or wetland in the event the directional drill is unsuccessful and how the abandoned drill hole would be sealed, if necessary.

7. Crossings of Minor Waterbodies

Where a dry-ditch crossing is not required, minor waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. except for blasting and other rock breaking measures, complete instream construction activities (including trenching,pipe installation, backfill, and restoration of the streambed contours) within 24 hours. Streambanks and unconsolidated streambeds may require additional restoration after this period;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. equipment bridges are not required at minor waterbodies that do not have a state-designated fishery classification (e.g., agricultural or intermittent drainage ditches). However, if an equipment bridge is used it must be constructed as described in section V.B.5.

8. Crossings of Intermediate Waterbodies

Where a dry-ditch crossing is not required, intermediate waterbodies may be crossed using the open-cut crossing method, with the following restrictions:

a. complete instream construction activities (not including blasting and other rock breaking measures) within 48 hours, unless site-specific conditions make completion within 48 hours infeasible;

b. limit use of equipment operating in the waterbody to that needed to construct the crossing; and

c. all other construction equipment must cross on an equipment bridge as specified in section V.B.5.

9. Crossings of Major Waterbodies

Before construction, the project sponsor shall file with the Secretary for the review and written approval by the Director a detailed, site-specific construction plan and scaled drawings identifying all areas to be disturbed by construction for each major waterbody crossing (the scaled drawings are not required for any offshore portions of pipeline projects). This plan should be developed in consultation with the appropriate state and Federal agencies and should include extra work areas, spoil storage areas, sediment control structures, etc., as well as mitigation for navigational issues.

The Environmental Inspector may adjust the final placement of the erosion and sediment control structures in the field to maximize effectiveness.

10. Temporary Erosion and Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the waterbody or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench) until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan; however, the following specific measures must be implemented at stream crossings:

a. install sediment barriers across the entire construction right-of-way at all waterbody crossings, where necessary to prevent the flow of sediments into the waterbody. Removable sediment barriers (or driveable berms) must be installed across the travel lane. These removable sediment barriers can be removed during the construction day, but must be re-installed after construction has stopped for the day and/or when heavy precipitation is imminent;

b. where waterbodies are adjacent to the construction right-of-way, install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way; and

c. use trench plugs at all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep any accumulated trench water out of the waterbody.

11. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any waterbody. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Use clean gravel or native cobbles for the upper 1 foot of trench backfill in all waterbodies that contain coldwater fisheries.

2. For open-cut crossings, stabilize waterbody banks and install temporary sediment barriers within 24 hours of completing instream construction activities. For dry-ditch crossings, complete streambed and bank stabilization before returning flow to the waterbody channel.

3. Return all waterbody banks to preconstruction contours or to a stable angle of repose as approved by the Environmental Inspector.

4. Application of riprap for bank stabilization must comply with COE, or its delegated agency, permit terms and conditions.

5. Unless otherwise specified by state permit, limit the use of riprap to areas where flow conditions preclude effective vegetative stabilization techniques such as seeding and erosion control fabric.

6. Revegetate disturbed riparian areas with conservation grasses and legumes or native plant species, preferably woody species.

7. Install a permanent slope breaker across the construction right-of-way at the base of slopes greater than 5 percent that are less than 50 feet from the waterbody, or as needed to prevent sediment transport into the waterbody. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the waterbody.

8. Sections V.C.3. through V.C.6. above also apply to those perennial or intermittent streams not flowing at the time of construction.

D. POST-CONSTRUCTION MAINTENANCE

1. Limit vegetation maintenance adjacent to waterbodies to allow a riparian strip at least 25 feet wide, as measured from the waterbody's mean high water mark, to permanently revegetate with native plant species across the entire construction right-of-way. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees that are located within 15 feet of the pipeline that are greater than 15 feet in height may be cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a waterbody except as allowed by the appropriate land management or state agency.

VI. WETLAND CROSSINGS

A. GENERAL

1. The project sponsor shall conduct a wetland delineation using the current Federal methodology and file a wetland delineation report with the Secretary before construction. This report shall identify:

   a. by milepost all wetlands that would be affected;

   b. the National Wetlands Inventory (NWI) classification for each wetland;

   c. the crossing length of each wetland in feet; and

   d. the area of permanent and temporary disturbance that would occur in each wetland by NWI classification type.

   The requirements outlined in this section do not apply to wetlands in actively cultivated or rotated cropland. Standard upland protective measures, including workspace and topsoiling requirements, apply to these agricultural wetlands.

2. Route the pipeline to avoid wetland areas to the maximum extent possible. If a wetland cannot be avoided or crossed by following an existing right-of-way, route the new pipeline in a manner that minimizes disturbance to wetlands. Where looping an existing pipeline, overlap the existing pipeline right-of-way with the new construction right-of-way. In addition, locate the loop line no more than 25 feet away from the existing pipeline unless site-specific constraints would adversely affect the stability of the existing pipeline.

3. Limit the width of the construction right-of-way to 75 feet or less. Prior written approval of the Director is required where topographic conditions or soil limitations require that the construction right-of-way width within the boundaries of a federally delineated wetland be expanded beyond 75 feet. Early in the planning process the project sponsor is encouraged to identify site-specific areas where existing soils lack adequate unconfined compressive strength that would result in excessively wide ditches and/or difficult to contain spoil piles.

4. Wetland boundaries and buffers must be clearly marked in the field with signs and/or highly visible flagging until construction-related ground disturbing activities are complete.

5. Implement the measures of sections V. and VI. in the event a waterbody crossing is located within or adjacent to a wetland crossing. If all measures of sections V. and VI. cannot be met, the project sponsor must file with the Secretary a site-specific crossing plan for review and written approval by the Director before construction. This crossing plan shall address at a minimum:

   a. spoil control;

   b. equipment bridges;

   c. restoration of waterbody banks and wetland hydrology;

   d. timing of the waterbody crossing;

e. method of crossing; and

f. size and location of all extra work areas.

6. Do not locate aboveground facilities in any wetland, except where the location of such facilities outside of wetlands would prohibit compliance with U.S. Department of Transportation regulations.

B. INSTALLATION

1. Extra Work Areas and Access Roads

a. Locate all extra work areas (such as staging areas and additional spoil storage areas) at least 50 feet away from wetland boundaries, except where the adjacent upland consists of actively cultivated or rotated cropland or other disturbed land.

b. The project sponsor shall file with the Secretary for review and written approval by the Director, a site-specific construction plan for each extra work area with a less than 50-foot setback from wetland boundaries (except where adjacent upland consists of actively cultivated or rotated cropland or other disturbed land) and a site-specific explanation of the conditions that will not permit a 50-foot setback.

c. Limit clearing of vegetation between extra work areas and the edge of the wetland to the certificated construction right-of-way.

d. The construction right-of-way may be used for access when the wetland soil is firm enough to avoid rutting or the construction right-of-way has been appropriately stabilized to avoid rutting (e.g., with timber riprap, prefabricated equipment mats, or terra mats).

In wetlands that cannot be appropriately stabilized, all construction equipment other than that needed to install the wetland crossing shall use access roads located in upland areas. Where access roads in upland areas do not provide reasonable access, limit all other construction equipment to one pass through the wetland using the construction right-of-way.

e. The only access roads, other than the construction right-of-way, that can be used in wetlands without Director approval, are those existing roads that can be used with no modification and no impact on the wetland.

2. Crossing Procedures

a. Comply with COE, or its delegated agency, permit terms and conditions

b. Assemble the pipeline in an upland area unless the wetland is dry enough to adequately support skids and pipe.

c. Use "push-pull" or "float" techniques to place the pipe in the trench where water and other site conditions allow.

d. Minimize the length of time that topsoil is segregated and the trench is open.

e. Limit construction equipment operating in wetland areas to that needed to clear the construction right-of-way, dig the trench, fabricate and install the pipeline, backfill the trench, and restore the construction right-of-way.

f. Cut vegetation just aboveground level, leaving existing root systems in place, and remove it from the wetland for disposal.

g. Limit pulling of tree stumps and grading activities to directly over the trenchline. Do not grade or remove stumps or root systems from the rest of the construction right-of-way in wetlands unless the Chief Inspector and Environmental Inspector determine that safety-related construction constraints require grading or the removal of tree stumps from under the working side of the construction right-of-way.

h. Segregate the top 1 foot of topsoil from the area disturbed by trenching, except in areas where standing water is present or soils are saturated or frozen. Immediately after backfilling is complete, restore the segregated topsoil to its original location.

i. Do not use rock, soil imported from outside the wetland, tree stumps, or brush riprap to support equipment on the construction right-of-way.

j. If standing water or saturated soils are present, or if construction equipment causes ruts or mixing of the topsoil and subsoil in wetlands, use low-ground-weight construction equipment, or operate normal equipment on timber riprap, prefabricated equipment mats, or terra mats.

k. Do not cut trees outside of the approved construction work area to obtain timber for riprap or equipment mats.

l. Attempt to use no more than two layers of timber riprap to support equipment on the construction right-of-way.

m. Remove all project-related material used to support equipment on the construction right-of-way upon completion of construction.

3. Temporary Sediment Control

Install sediment barriers (as defined in section IV.F.2.a. of the Plan) immediately after initial disturbance of the wetland or adjacent upland. Sediment barriers must be properly maintained throughout construction and reinstalled as necessary (such as after backfilling of the trench). Except as noted below in section VI.B.3.c., maintain sediment barriers until replaced by permanent erosion controls or restoration of adjacent upland areas is complete. Temporary erosion and sediment control measures are addressed in more detail in the Plan.

a. Install sediment barriers across the entire construction right-of-way immediately upslope of the wetland boundary at all wetland crossings where necessary to prevent sediment flow into the wetland.

b. Where wetlands are adjacent to the construction right-of-way and the right-of-way slopes toward the wetland, install sediment barriers along the edge of the construction right-of-way as necessary to prevent sediment flow into the wetland.

c. Install sediment barriers along the edge of the construction right-of-way as necessary to contain spoil and sediment within the construction right-of-way through wetlands. Remove these sediment barriers during right-of-way cleanup.

4. Trench Dewatering

Dewater the trench (either on or off the construction right-of-way) in a manner that does not cause erosion and does not result in heavily silt-laden water flowing into any wetland. Remove the dewatering structures as soon as possible after the completion of dewatering activities.

C. RESTORATION

1. Where the pipeline trench may drain a wetland, construct trench breakers and/or seal the trench bottom as necessary to maintain the original wetland hydrology.

2. For each wetland crossed, install a trench breaker at the base of slopes near the boundary between the wetland and adjacent upland areas. Install a permanent slope breaker across the construction right-of-way at the base of a slopes greater than 5 percent where the base of the slope is less than 50 feet from the wetland, or as needed to prevent sediment transport into the wetland. In addition, install sediment barriers as outlined in the Plan. In some areas, with the approval of the Environmental Inspector, an earthen berm may be suitable as a sediment barrier adjacent to the wetland.

3. Do not use fertilizer, lime, or mulch unless required in writing by the appropriate land management or state agency.

4. Consult with the appropriate land management or state agency to develop a project-specific wetland restoration plan. The restoration plan should include measures for re-establishing herbaceous and/or woody species, controlling the invasion and spread of undesirable exotic species (e.g., purple loosestrife and phragmites), and monitoring the success of the revegetation and weed control efforts. Provide this plan to the FERC staff upon request.

5. Until a project-specific wetland restoration plan is developed and/or implemented, temporarily revegetate the construction right-of-way with annual ryegrass at a rate of 40 pounds/acre (unless standing water is present).

6. Ensure that all disturbed areas successfully revegetate with wetland herbaceous and/or woody plant species.

7. Remove temporary sediment barriers located at the boundary between wetland and adjacent upland areas after upland revegetation and stabilization of adjacent upland areas are judged to be successful as specified in section VII.A.5. of the Plan.

D. POST-CONSTRUCTION MAINTENANCE

1. Do not conduct vegetation maintenance over the full width of the permanent right-of-way in wetlands. However, to facilitate periodic pipeline corrosion/leak surveys, a corridor centered on the pipeline and up to 10 feet wide may be maintained in a herbaceous state. In addition, trees within 15 feet of the pipeline that are greater than 15 feet in height may be selectively cut and removed from the permanent right-of-way.

2. Do not use herbicides or pesticides in or within 100 feet of a wetland, except as allowed by the appropriate land management agency or state agency.

3. Monitor and record the success of wetland revegetation annually for the first 3 years after construction or until wetland revegetation is successful. At the end of 3 years after construction, file a report with the Secretary identifying the status of the wetland revegetation efforts. Include the percent cover achieved and problem areas (weed invasion issues, poor revegetation, etc.). Continue to file a report annually until wetland revegetation is successful.

4. Wetland revegetation shall be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. If revegetation is not successful at the end of 3 years, develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan to actively revegetate the wetland. Continue revegetation efforts until wetland revegetation is successful.

VII. HYDROSTATIC TESTING

A. NOTIFICATION PROCEDURES AND PERMITS

1. Apply for state-issued water withdrawal permits, as required.

2. Apply for National Pollutant Discharge Elimination System (NPDES) or state-issued discharge permits, as required.

3. Notify appropriate state agencies of intent to use specific sources at least 48 hours before testing activities unless they waive this requirement in writing.

B. GENERAL

1. Perform 100 percent radiographic inspection of all pipeline section welds or hydrotest the pipeline sections, before installation under waterbodies or wetlands.

2. If pumps used for hydrostatic testing are within 100 feet of any waterbody or wetland, address the operation and refueling of these pumps in the project's Spill Prevention and Response Procedures.

3. The project sponsor shall file with the Secretary before construction a list identifying the location of all waterbodies proposed for use as a hydrostatic test water source or discharge location.

C. INTAKE SOURCE AND RATE

1. Screen the intake hose to prevent entrainment of fish.

2. Do not use state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and/or local permitting agencies grant written permission.

3. Maintain adequate flow rates to protect aquatic life, provide for all waterbody uses, and provide for downstream withdrawals of water by existing users.

4. Locate hydrostatic test manifolds outside wetlands and riparian areas to the maximum extent practicable.

D. DISCHARGE LOCATION, METHOD, AND RATE

1. Regulate discharge rate, use energy dissipation device(s), and install sediment barriers, as necessary, to prevent erosion, streambed scour, suspension of sediments, or excessive streamflow.

2. Do not discharge into state-designated exceptional value waters, waterbodies which provide habitat for federally listed threatened or endangered species, or waterbodies designated as public water supplies, unless appropriate Federal, state, and local permitting agencies grant written permission.

APPENDIX 1-C

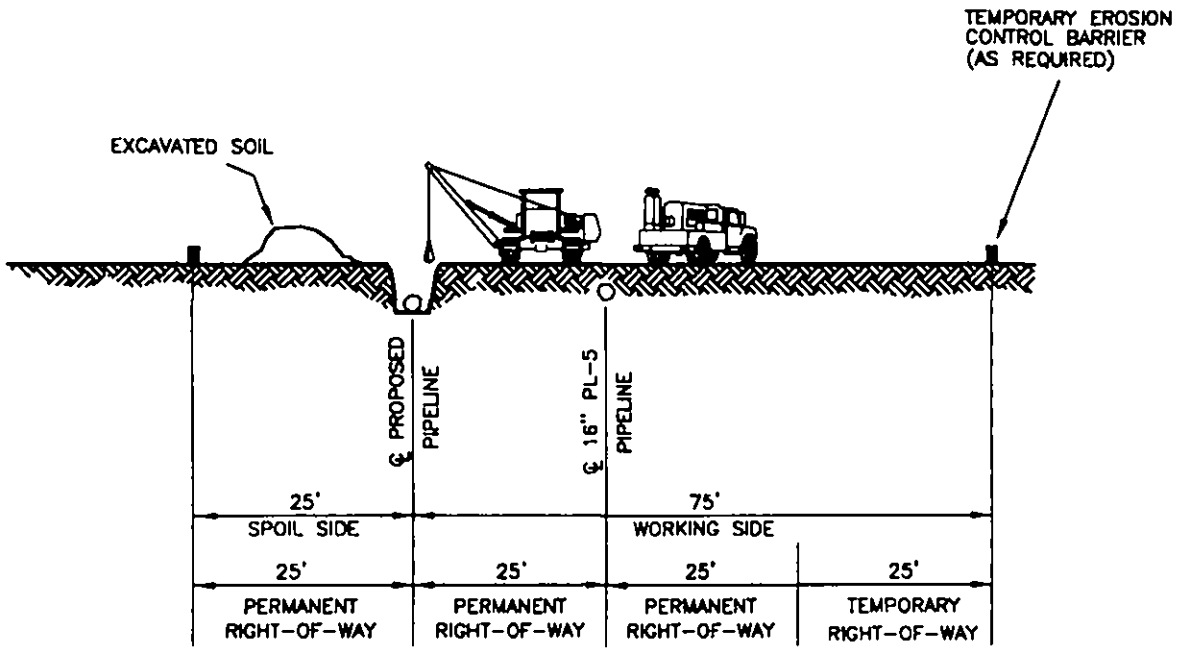
CONSTRUCTION ALIGNMENT SHEETS FOR THE PL-1 EXT2 PIPELINE, TL-492 EXT3 PIPELINE, TL-536 PIPELINE, AND TL-453-EXT1 PIPELINE

(PROVIDED UNDER SEPARATE COVER)

APPENDIX 1-D

TYPICAL CONSTRUCTION TECHNIQUES FOR THE PL-1 EXT2 PIPELINE

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION MP-0.00 TO MP-0.24
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED 24" PL-1 EXT. 2 SECTION 1 & 16" PL-5 TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	1 of 12

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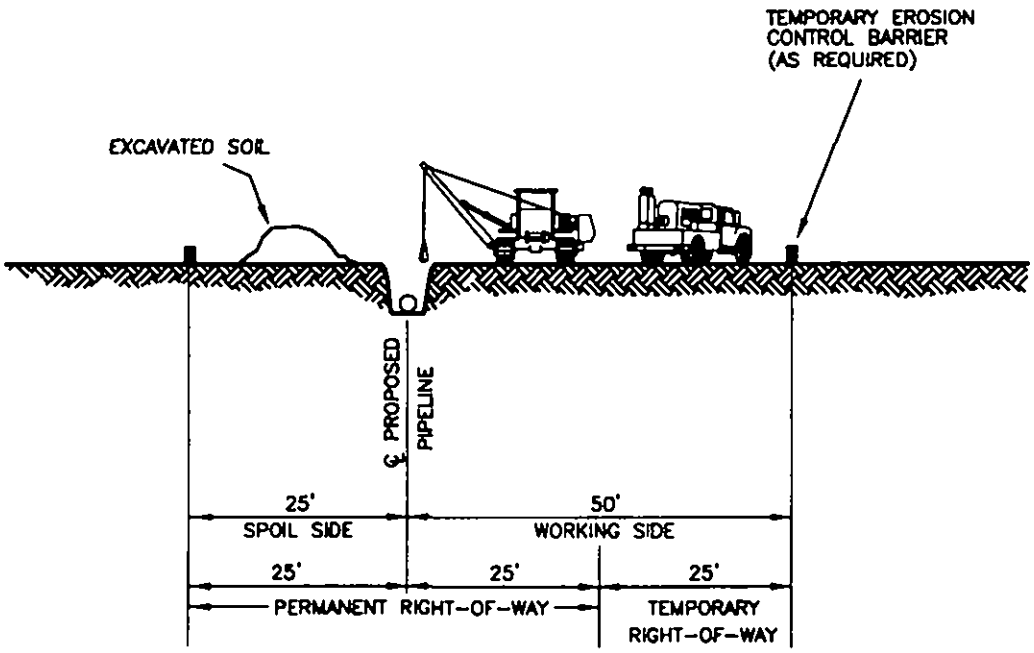


NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-0.24 TO MP-0.85
   MP-11.14 TO MP-12.13
   MP-12.26 TO MP-12.39

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

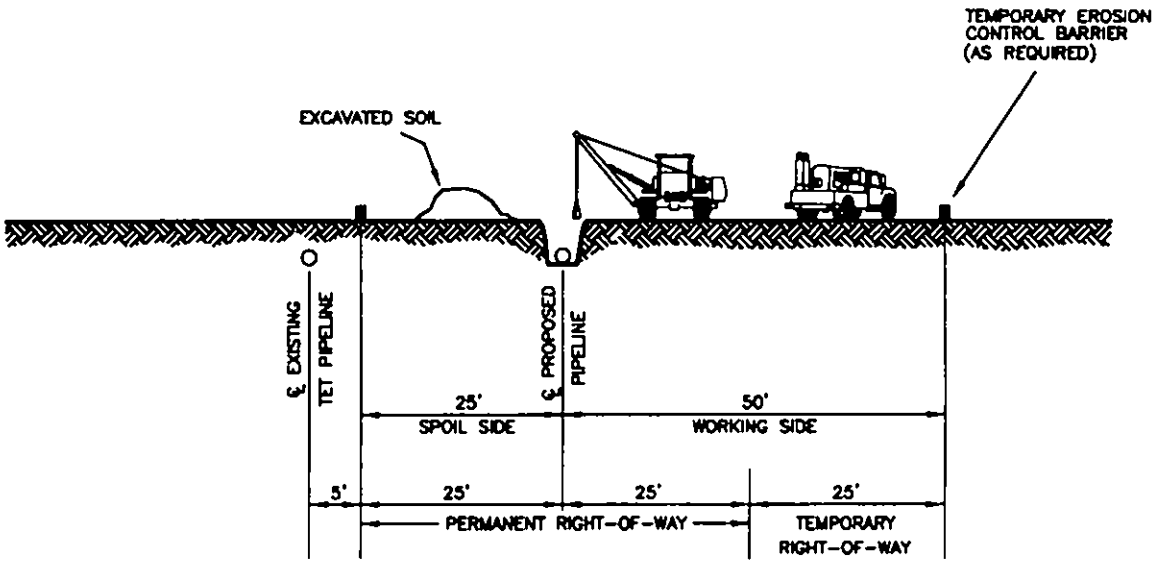
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	2 of 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-0.85 TO MP-4.30
   MP-5.29 TO MP-11.14
   MP-13.80 TO MP-14.21
   MP-14.31 TO MP-14.39
   MP-14.56 TO MP-14.67
   MP-14.72 TO MP-15.82
   MP-15.87 TO MP-15.93
   MP-16.55 TO MP-18.68
   MP-19.91 TO MP-20.02
   MP-22.73 TO MP-25.38
   MP-26.06 TO MP-26.84

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

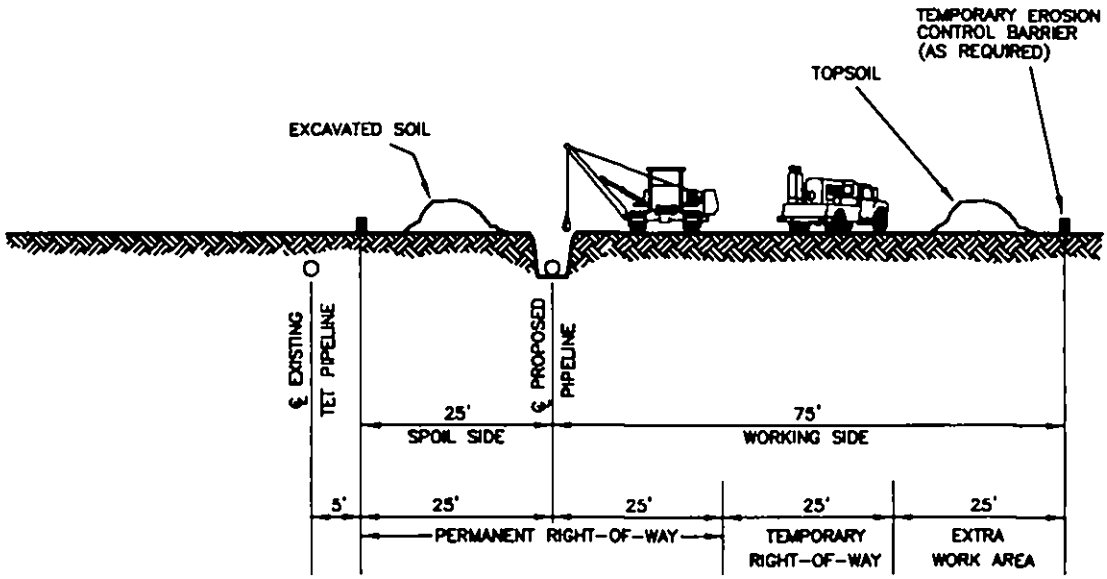
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	3 of 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION

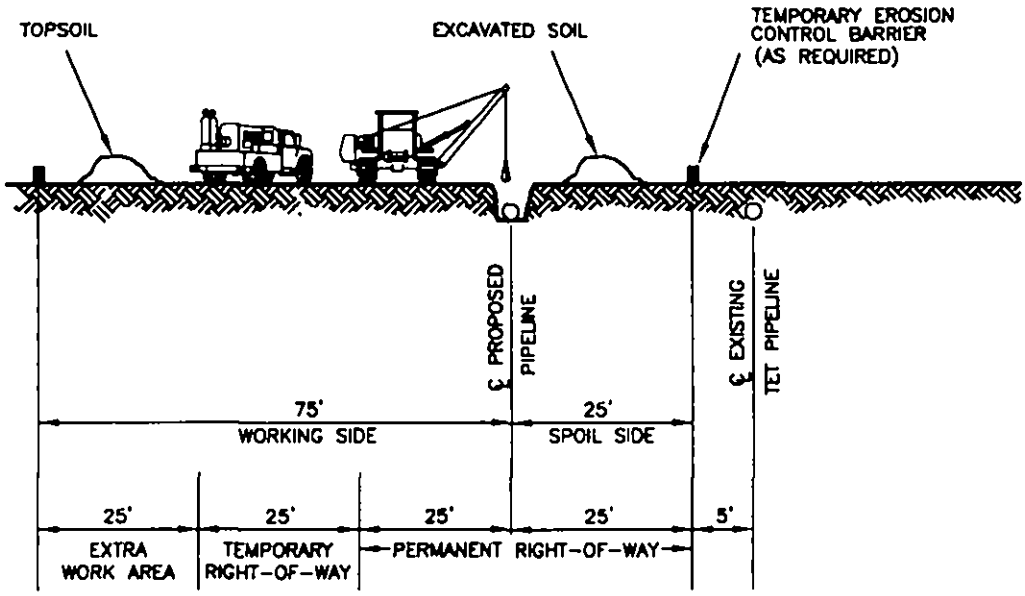
   MP-4.30 TO MP-4.90
   MP-14.21 TO MP-14.31
   MP-14.39 TO MP-14.56
   MP-14.67 TO MP-14.72
   MP-15.82 TO MP-15.87
   MP-15.93 TO MP-16.55
   MP-18.68 TO MP-19.65
   MP-20.05 TO MP-22.73

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" PL-1 EXT. 2 SECTION 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
02/01/05	PL-1 EXT. 2	NOT TO SCALE	4 of 12
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-4.90 TO MP-5.29
   MP-12.83 TO MP-13.20
   MP-13.26 TO MP-13.54

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	5 of 12

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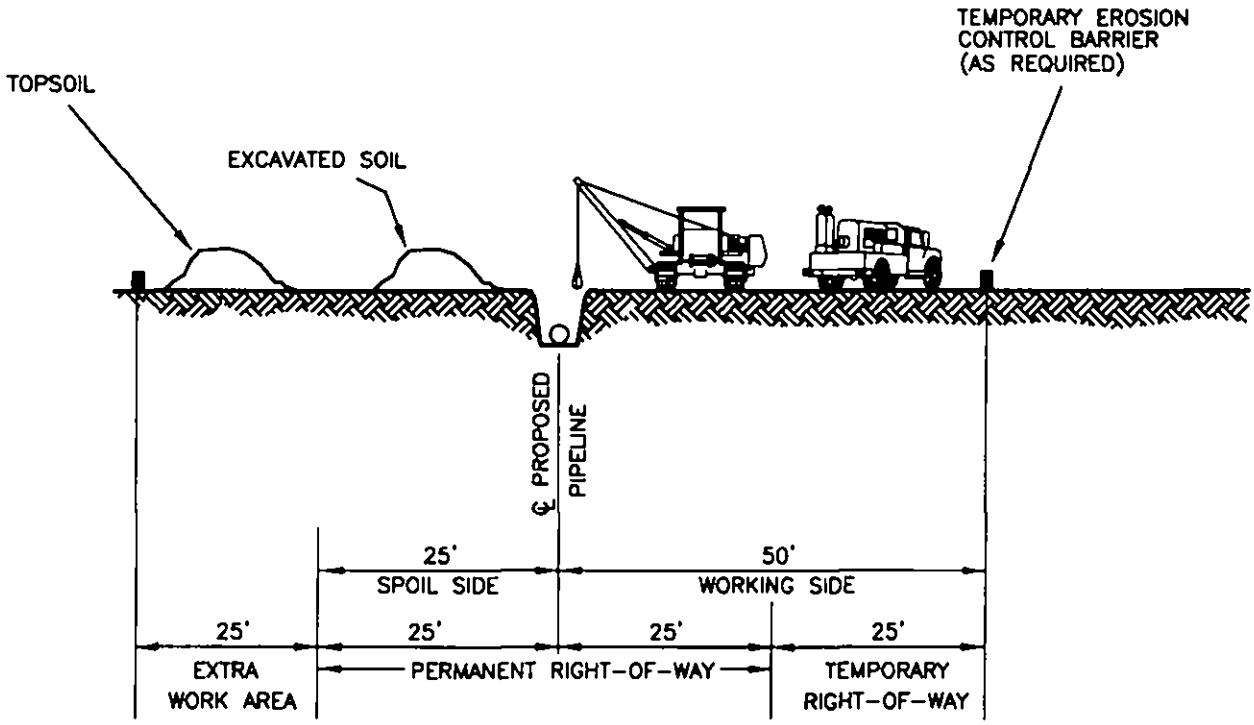

NOTE:

1. TYPICAL LOCATION FROM STATION MP-12.13 TO MP-12.20
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	6 of 12

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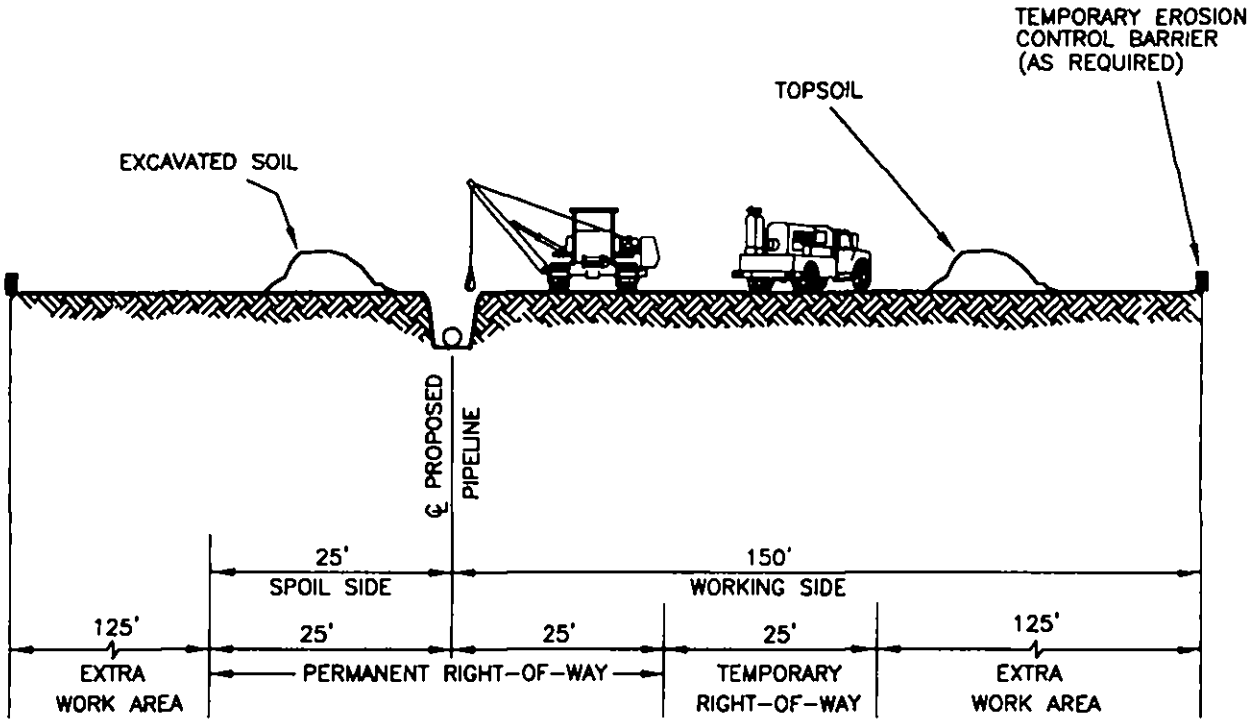


NOTE:

1. TYPICAL LOCATION FROM STATION MP-12.20 TO MP-12.26
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

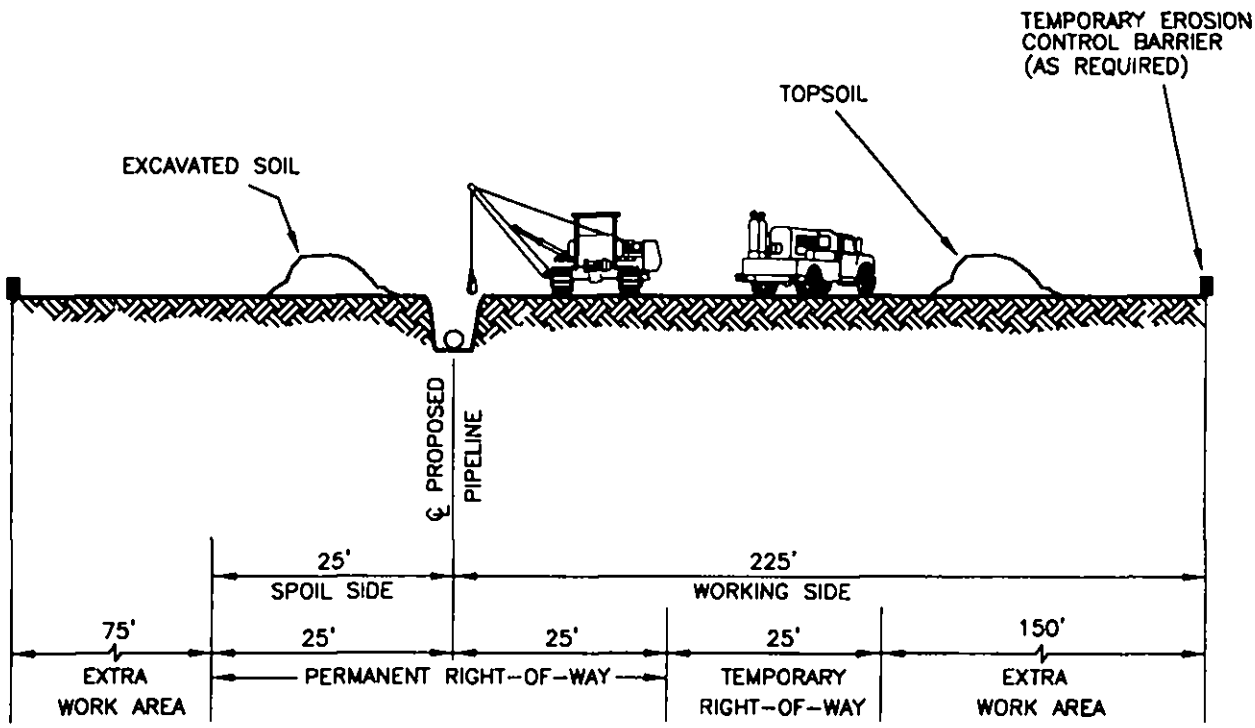
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	7 of 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION MP-12.39 TO MP-12.80
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

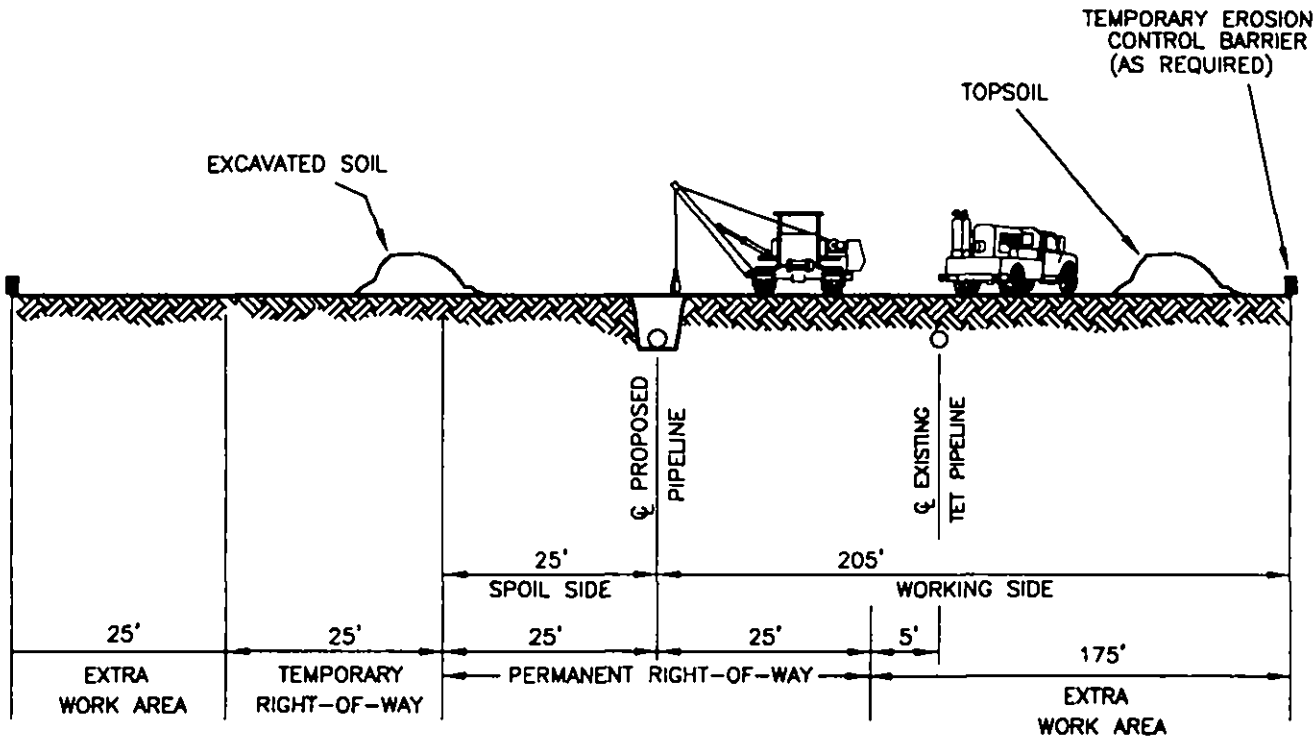
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	8 of 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec1-WorkDetails / CD1692



NOTE:

1. TYPICAL LOCATION FROM STATION MP-12.80 TO MP-12.82
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED 24" PL-1 EXT. 2 SECTION 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	9 of 12

Prepared by MSES consultants, inc.

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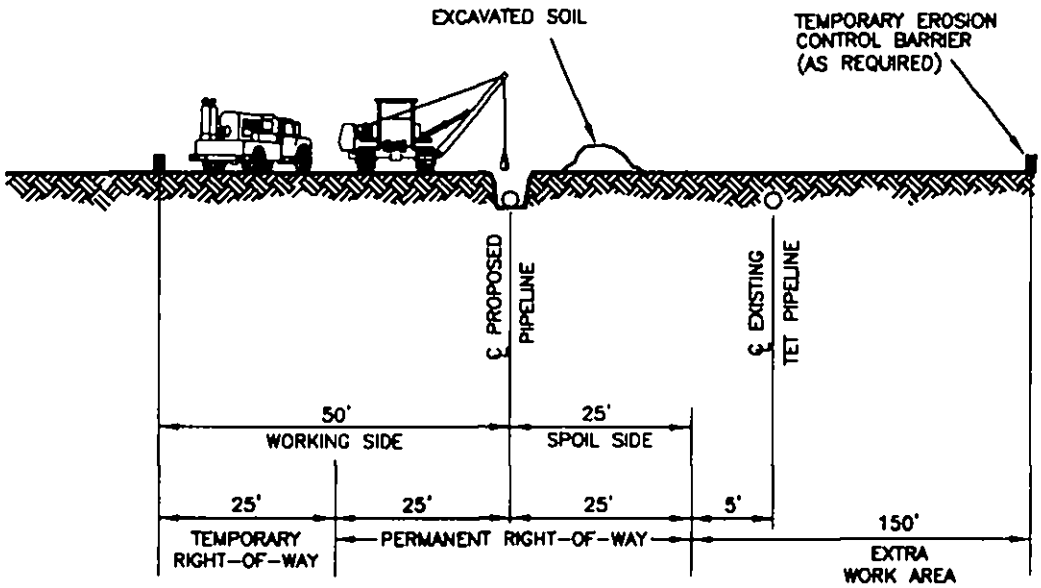

NOTE:

1. TYPICAL LOCATION FROM STATION MP-12.82 TO MP-12.83
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED 24" PL-1 EXT. 2 SECTION 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	10 of 12

Prepared by MSES consultants, inc.

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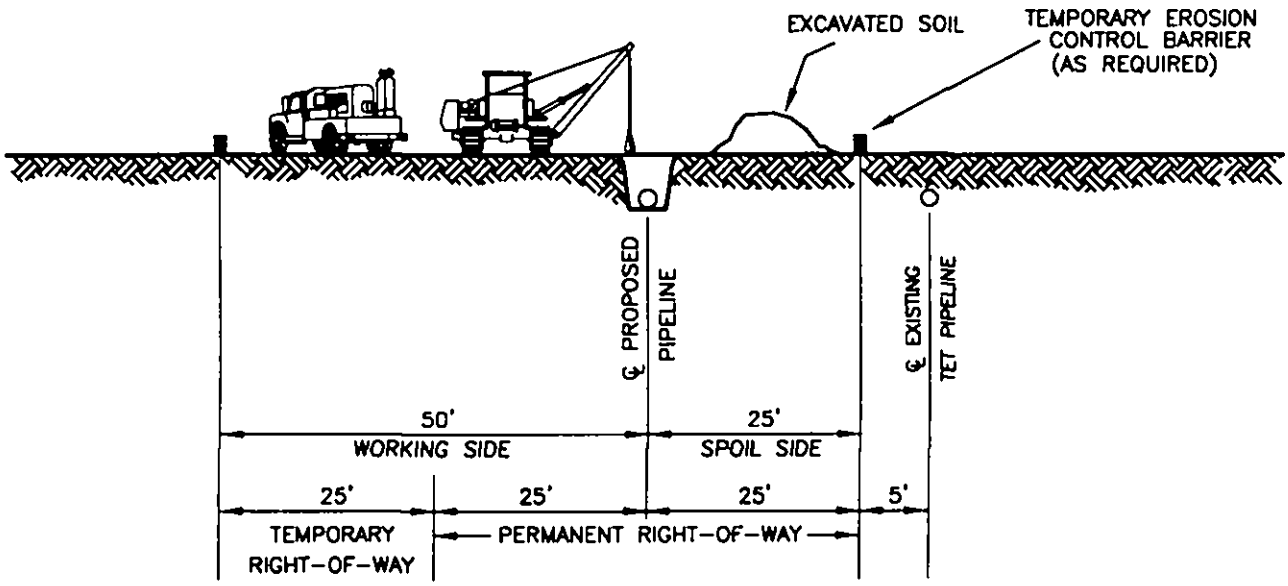

NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-13.20 TO MP-13.26
   MP-13.54 TO MP-13.80
   MP-25.38 TO MP-26.06
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	11 of 12

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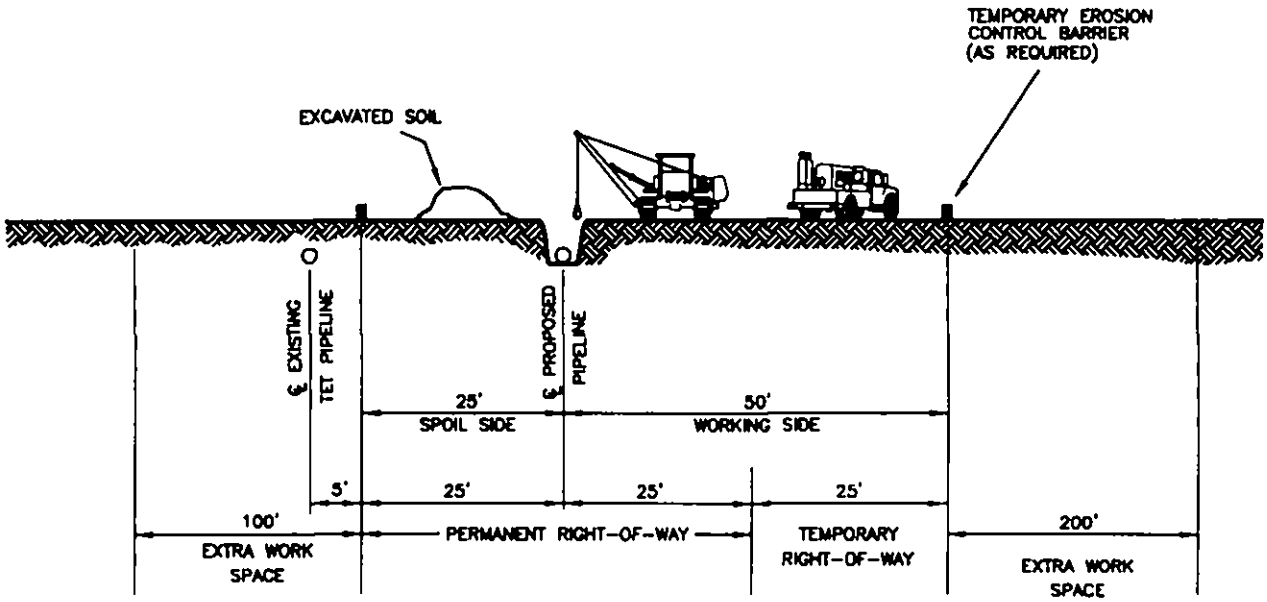

NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-19.65 TO MP-19.91
   MP-20.02 TO MP-20.05
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

02/01/05	PL-1 EXT. 2	NOT TO SCALE	12 of 12

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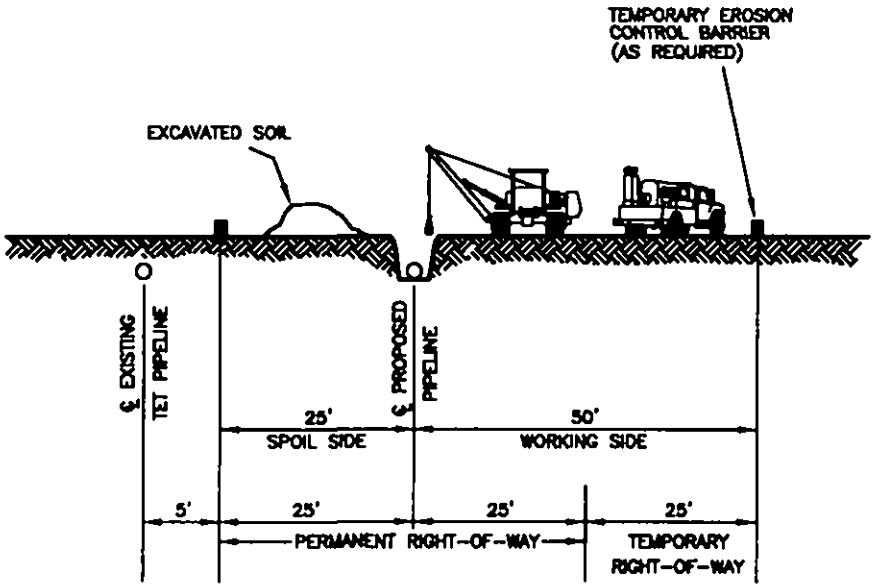


NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-0.00 TO MP-6.23
   MP-6.32 TO MP-6.44
   MP-6.71 TO MP-6.73
   MP-7.90 TO MP-7.94
   MP-8.06 TO MP-8.20
   MP-9.52 TO MP-9.60
   MP-9.70 TO MP-9.75
   MP-10.04 TO MP-11.01
   MP-11.32 TO MP-12.70
   MP-14.44 TO MP-14.49
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

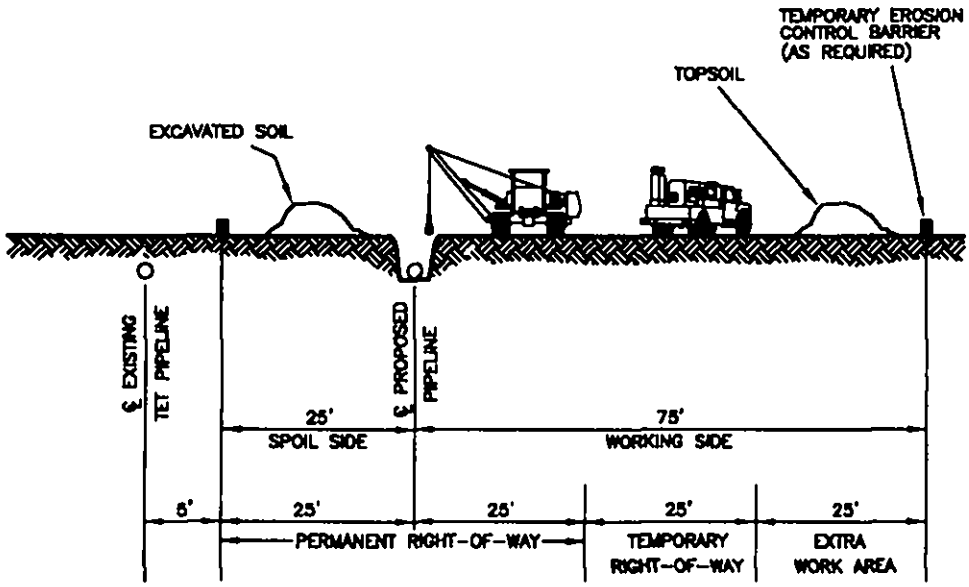
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	1 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-6.23 TO MP-6.32
   MP-6.44 TO MP-6.71
   MP-6.73 TO MP-7.90
   MP-7.94 TO MP-8.06
   MP-8.20 TO MP-9.52
   MP-9.60 TO MP-9.70
   MP-9.75 TO MP-10.04
   MP-11.01 TO MP-11.32
   MP-14.36 TO MP-14.44
   MP-14.49 TO MP-14.60

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

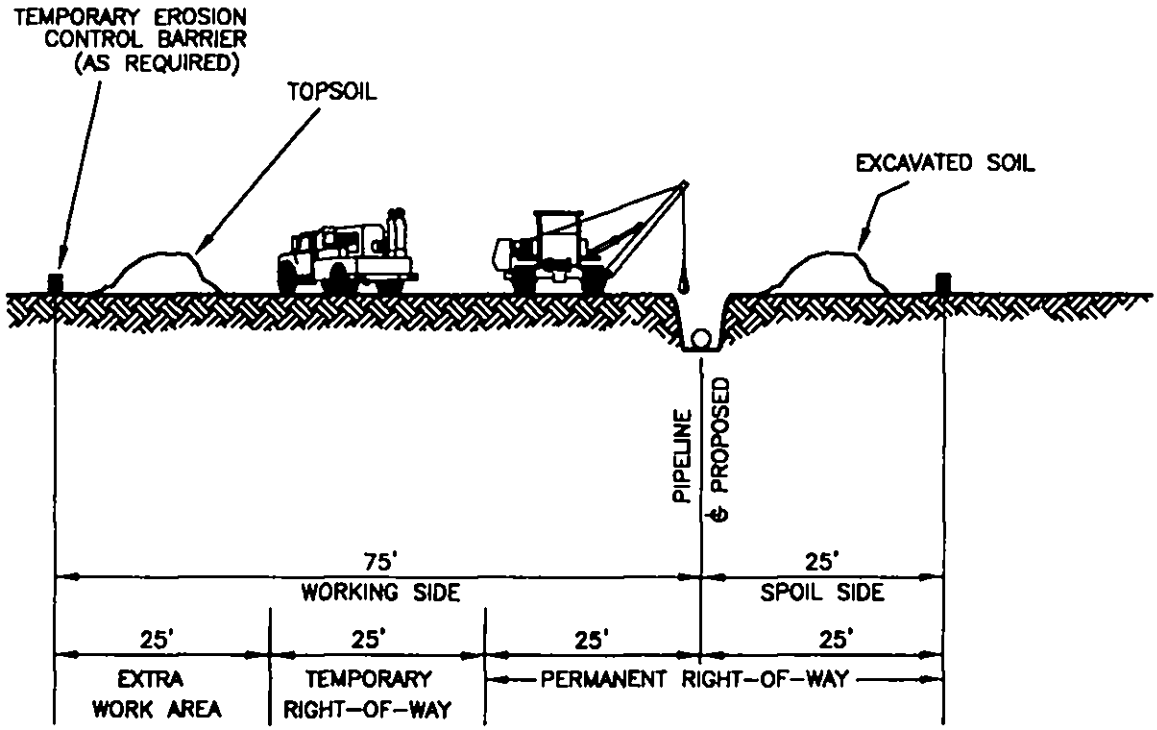
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	2 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-12.70 TO MP-12.84
   MP-13.14 TO MP-13.59
   MP-13.82 TO MP-14.36
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	3 of 9

Prepared by MSES consultants, inc.

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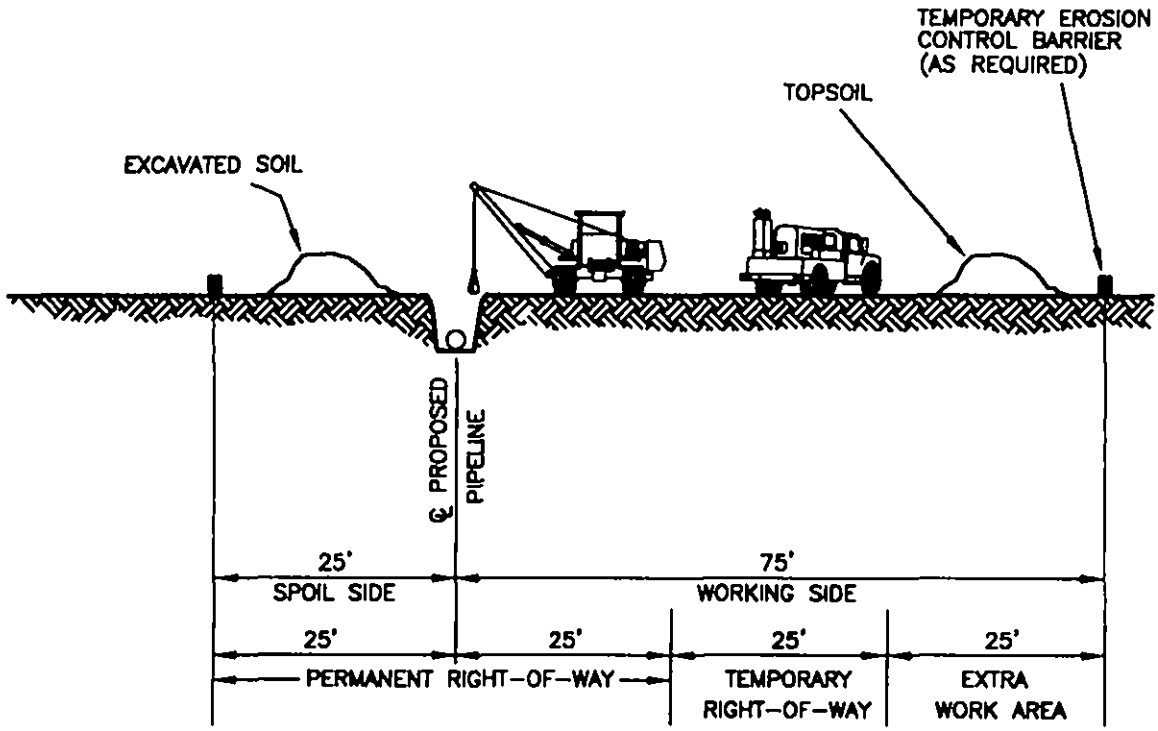


NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-12.84 TO MP-13.14
   MP-17.00 TO MP-17.15
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

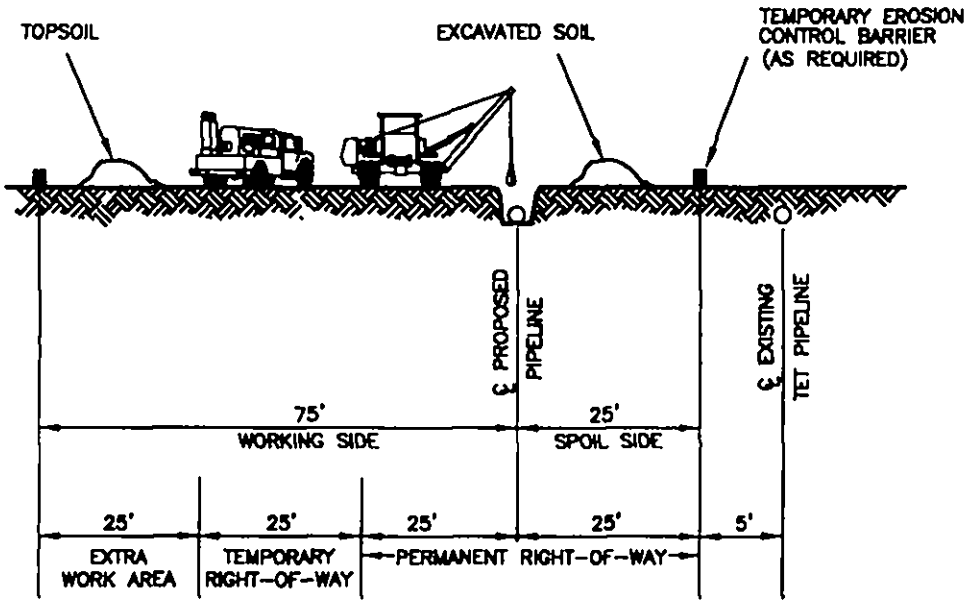
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	4 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-13.59 TO MP-13.82
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

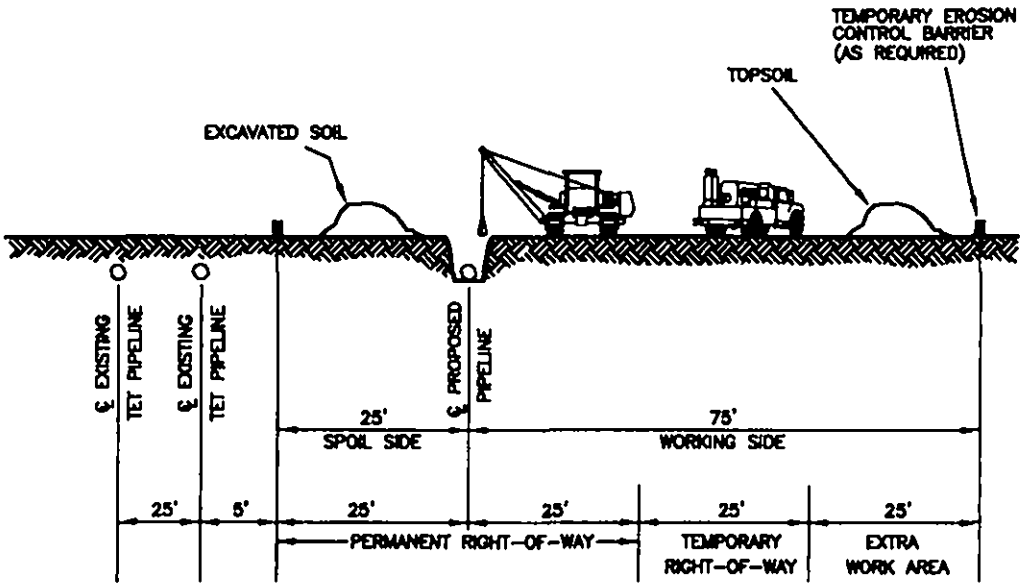
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	5 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-14.64 TO MP-15.08
   MP-15.12 TO MP-15.72
   MP-15.86 TO MP-15.99
   MP-16.03 TO MP-16.06
   MP-16.12 TO MP-17.00
   MP-18.69 TO MP-19.04
   MP-23.26 TO MP-23.40
   MP-23.61 TO MP-23.64

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

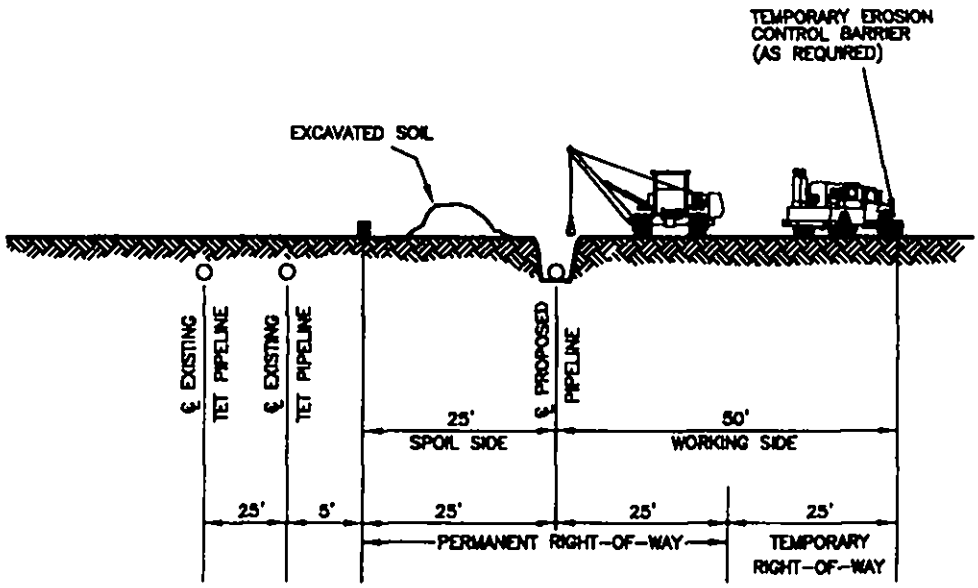
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	6 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-14.60 TO MP-14.64
   MP-15.08 TO MP-15.12
   MP-15.72 TO MP-15.86
   MP-15.99 TO MP-16.03
   MP-16.06 TO MP-16.12
   MP-17.15 TO MP-18.69
   MP-19.04 TO MP-19.85
   MP-23.40 TO MP-23.61
   MP-23.64 TO MP-23.85
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

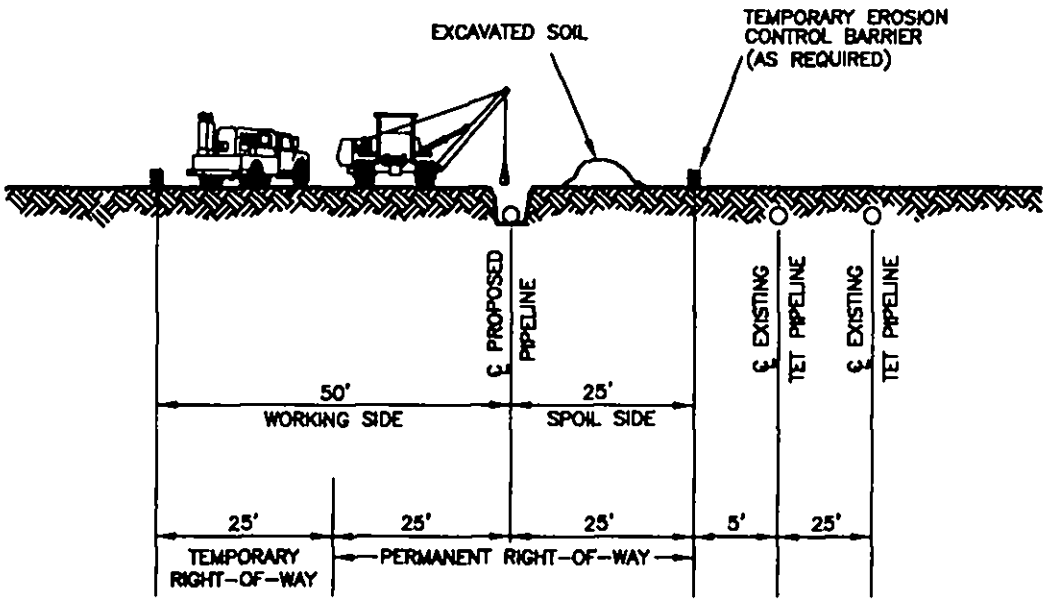
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	7 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

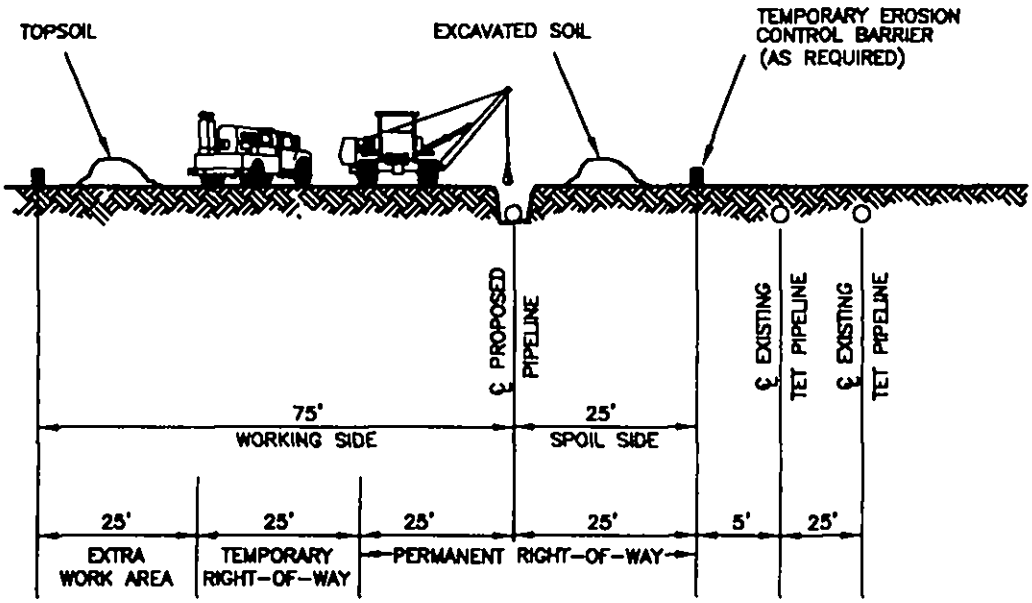
   MP-19.85 TO MP-19.89
   MP-20.01 TO MP-21.65
   MP-21.96 TO MP-22.05
   MP-22.09 TO MP-22.21
   MP-22.28 TO MP-23.26
   MP-23.85 TO MP-28.62

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" PL-1 EXT. 2 SECTION 2 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/7/04	PL-1 EXT. 2	NOT TO SCALE	8 of 9
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434-Sec2-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-19.89 TO MP-20.01
   MP-21.65 TO MP-21.96
   MP-22.05 TO MP-22.09
   MP-22.21 TO MP-22.28
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

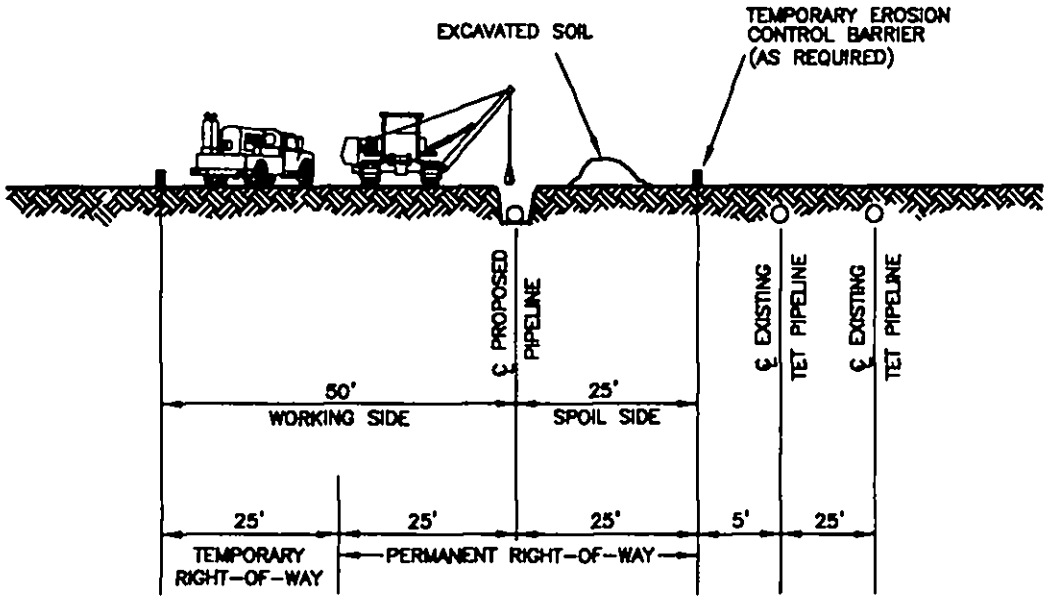
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 2
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	9 of 9

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

MP-0.00	TO	MP-1.17
MP-1.40	TO	MP-2.02
MP-2.41	TO	MP-4.94
MP-5.12	TO	MP-6.85
MP-7.01	TO	MP-7.13
MP-7.23	TO	MP-7.50
MP-7.53	TO	MP-14.15
MP-14.62	TO	MP-16.52
MP-16.98	TO	MP-17.20
MP-17.68	TO	MP-17.84
MP-18.36	TO	MP-20.64
MP-20.74	TO	MP-23.60
MP-24.03	TO	MP-24.69

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

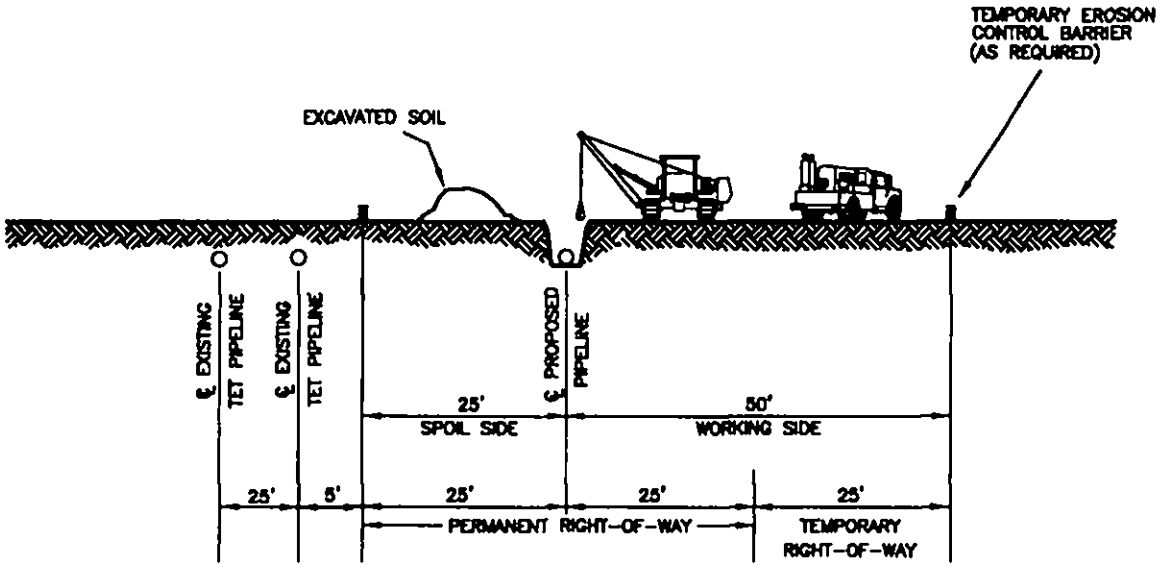
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	1 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

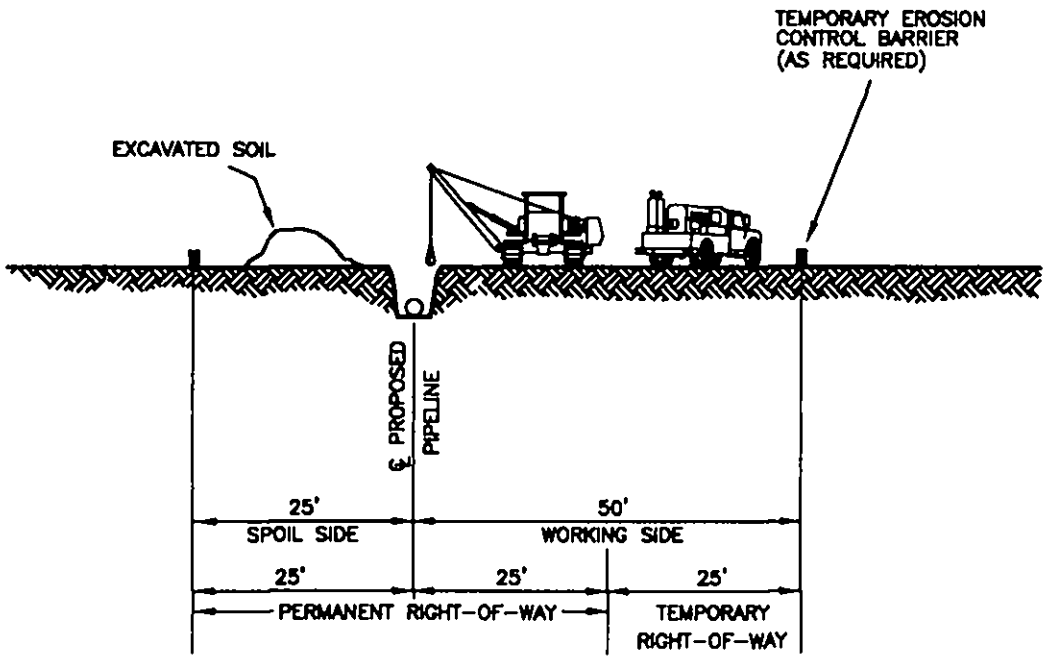
   MP-1.17 TO MP-1.40
   MP-2.02 TO MP-2.07
   MP-2.32 TO MP-2.41
   MP-23.60 TO MP-23.70

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" PL-1 EXT. 2 SECTION 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/7/04	PL-1 EXT. 2	NOT TO SCALE	2 OF 12
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

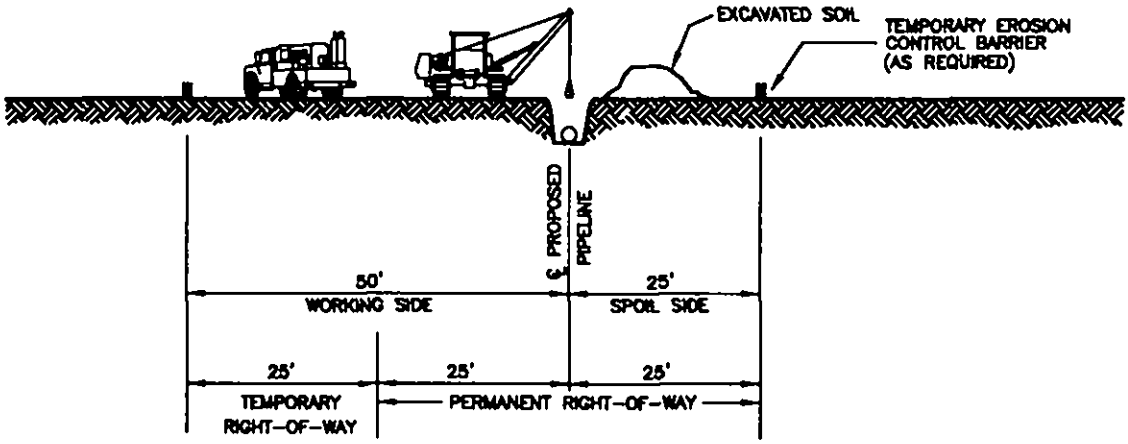
   MP-2.28 TO MP-2.32
   MP-14.48 TO MP-14.52
   MP-17.20 TO MP-17.68
   MP-17.84 TO MP-18.36
   MP-24.69 TO MP-24.98
   MP-25.28 TO MP-25.36
   MP-25.36 TO MP-25.45

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" PL-1 EXT. 2 SECTION 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/7/04	PL-1 EXT. 2	NOT TO SCALE	3 OF 12
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-4.94 TO MP-5.12
   MP-16.52 TO MP-16.98
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

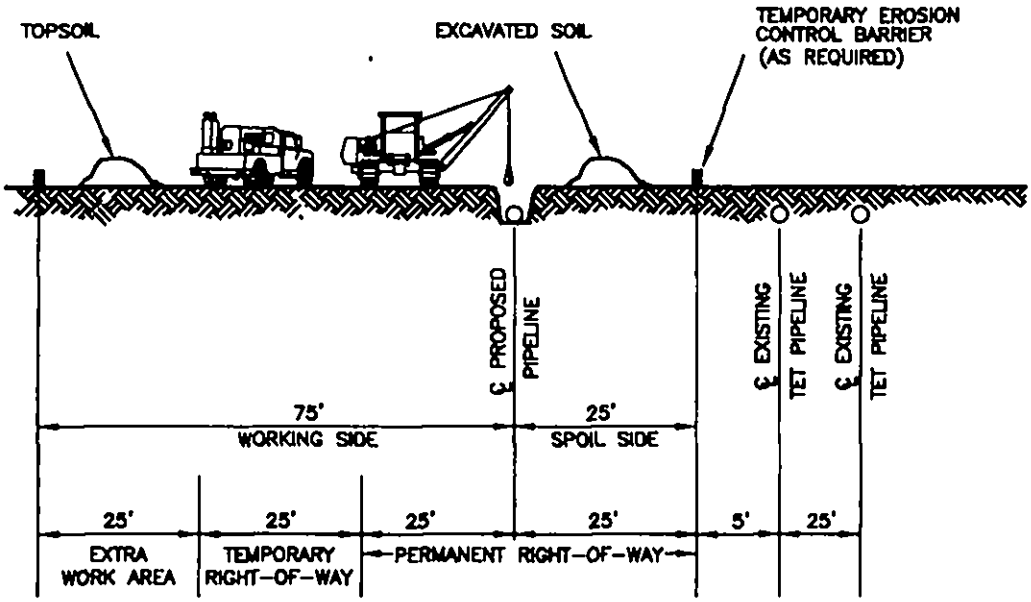
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	4 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION

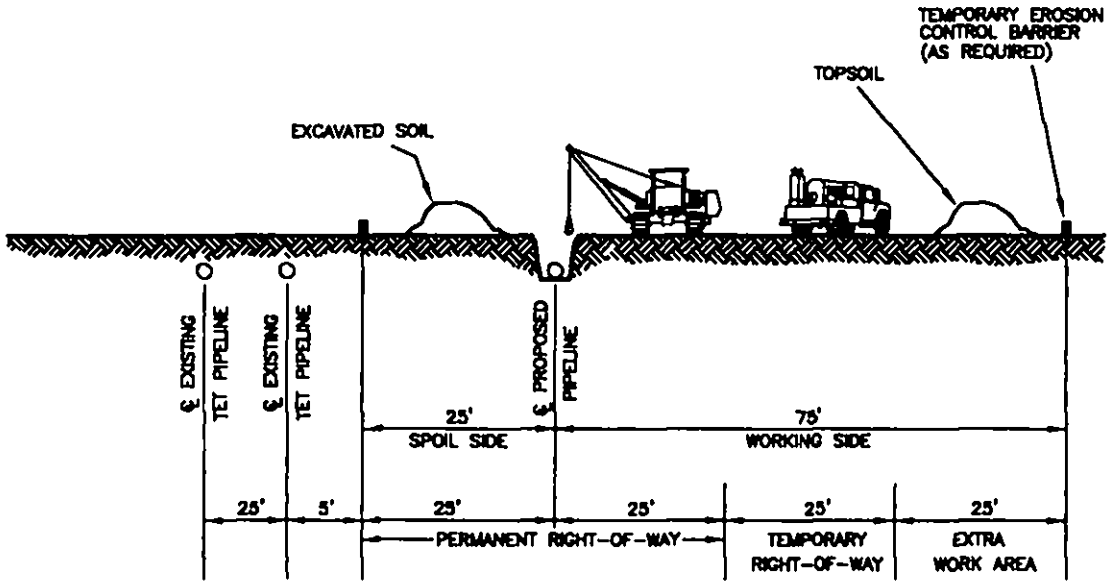
   MP-6.85 TO MP-7.01
   MP-7.13 TO MP-7.23
   MP-7.50 TO MP-7.53
   MP-20.64 TO MP-20.74

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" PL-1 EXT. 2 SECTION 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/7/04	PL-1 EXT. 2	NOT TO SCALE	5 OF 12
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-23.70 TO MP-23.78
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

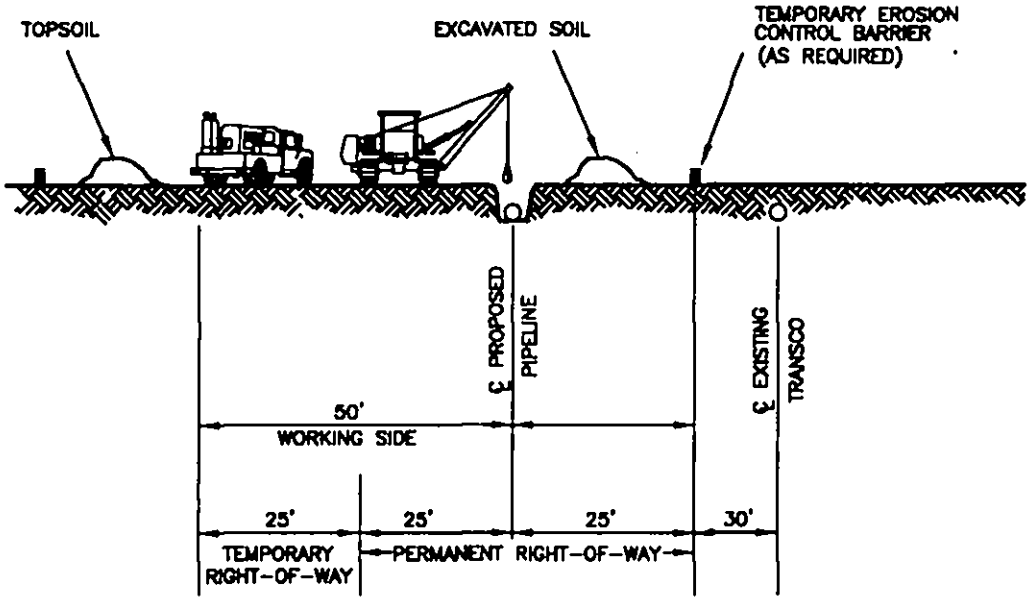
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	6 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-24.69 TO MP-25.28
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

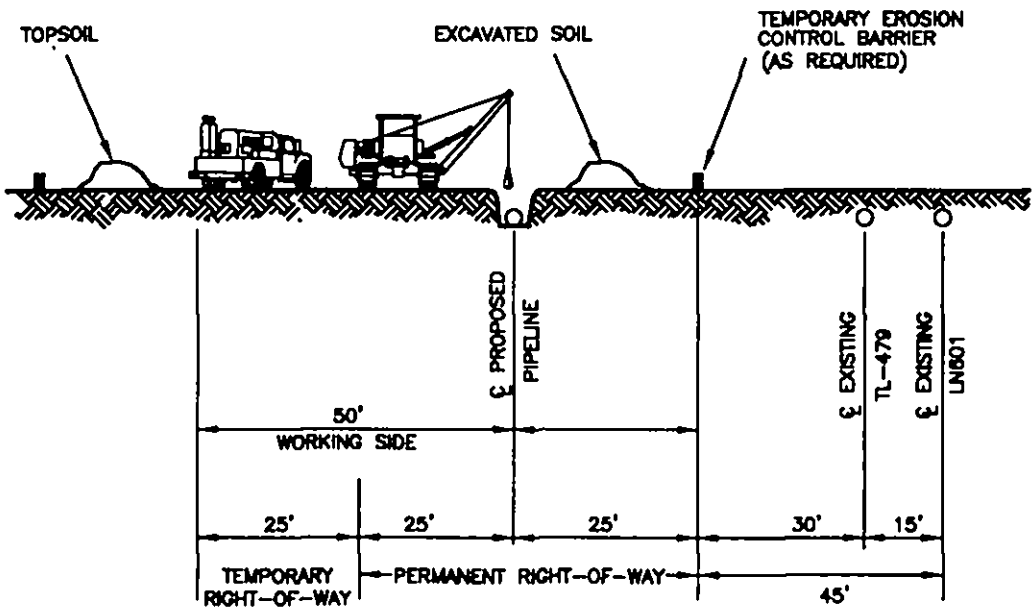
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	7 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-25.38 TO MP-25.56
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

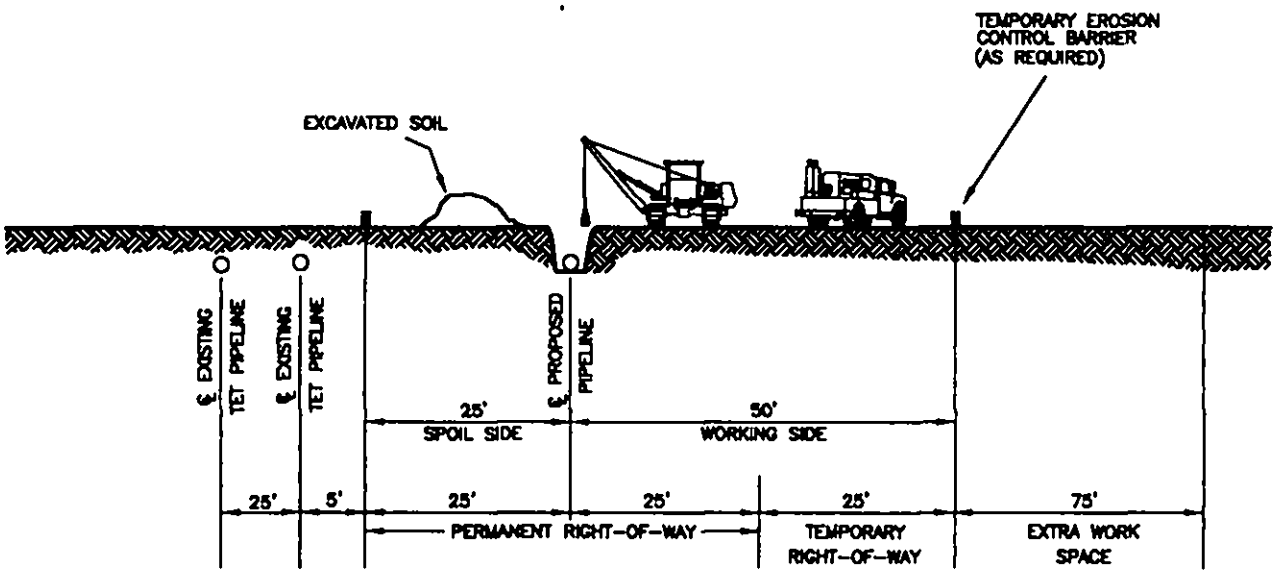
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	8 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-2.07 TO MP-2.28
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

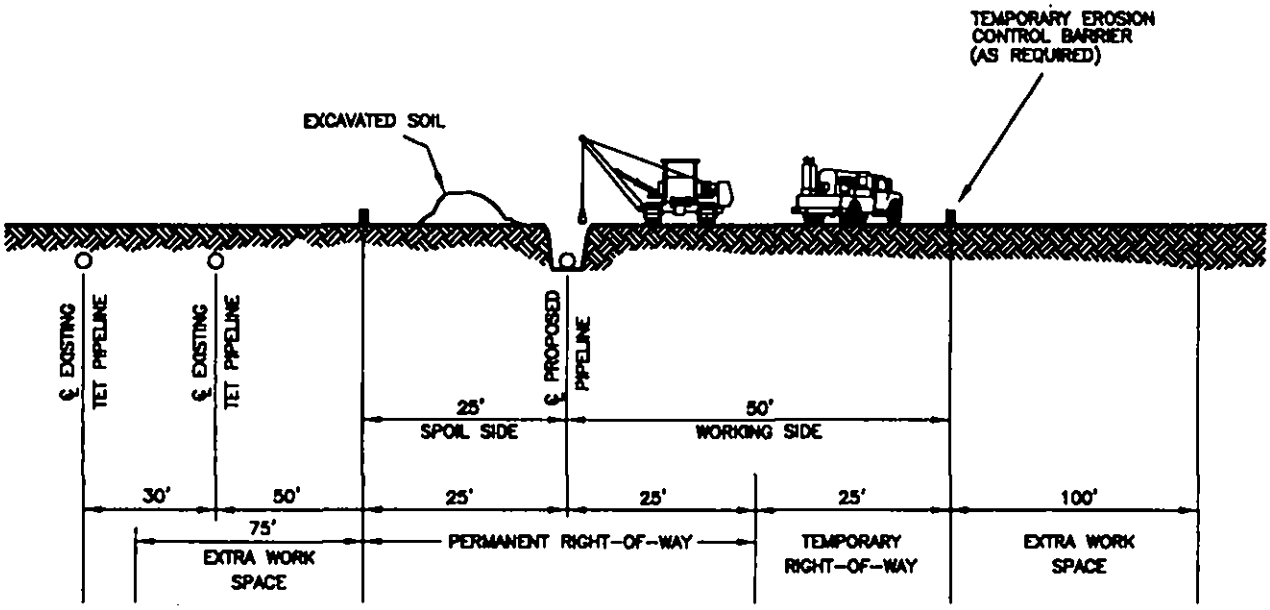
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	9 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-14.15 TO MP-14.48
   MP-14.52 TO MP-14.62
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

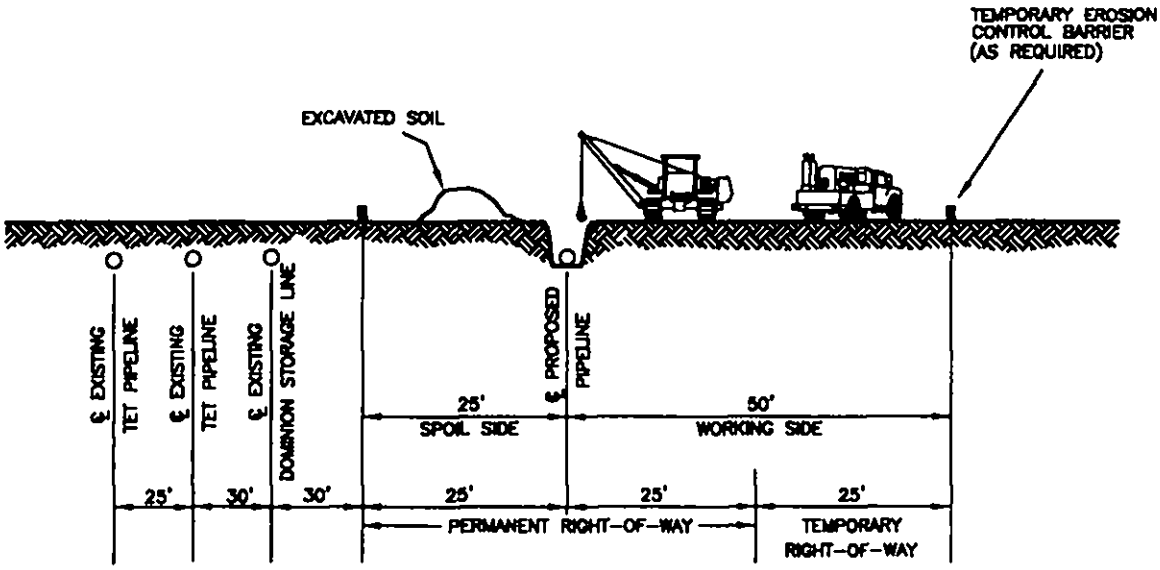
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	10 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-23.78 TO MP-24.03
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

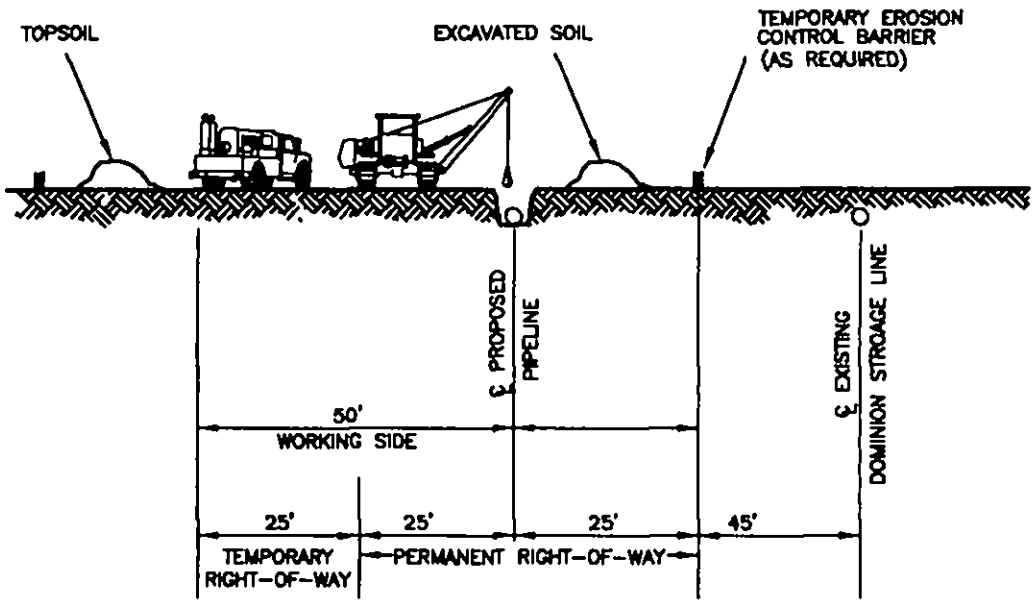
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	11 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434-Sec3-WorkDetails / CD1792



NOTE:

1. TYPICAL LOCATION FROM STATION MP-25.28 TO MP-25.38
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

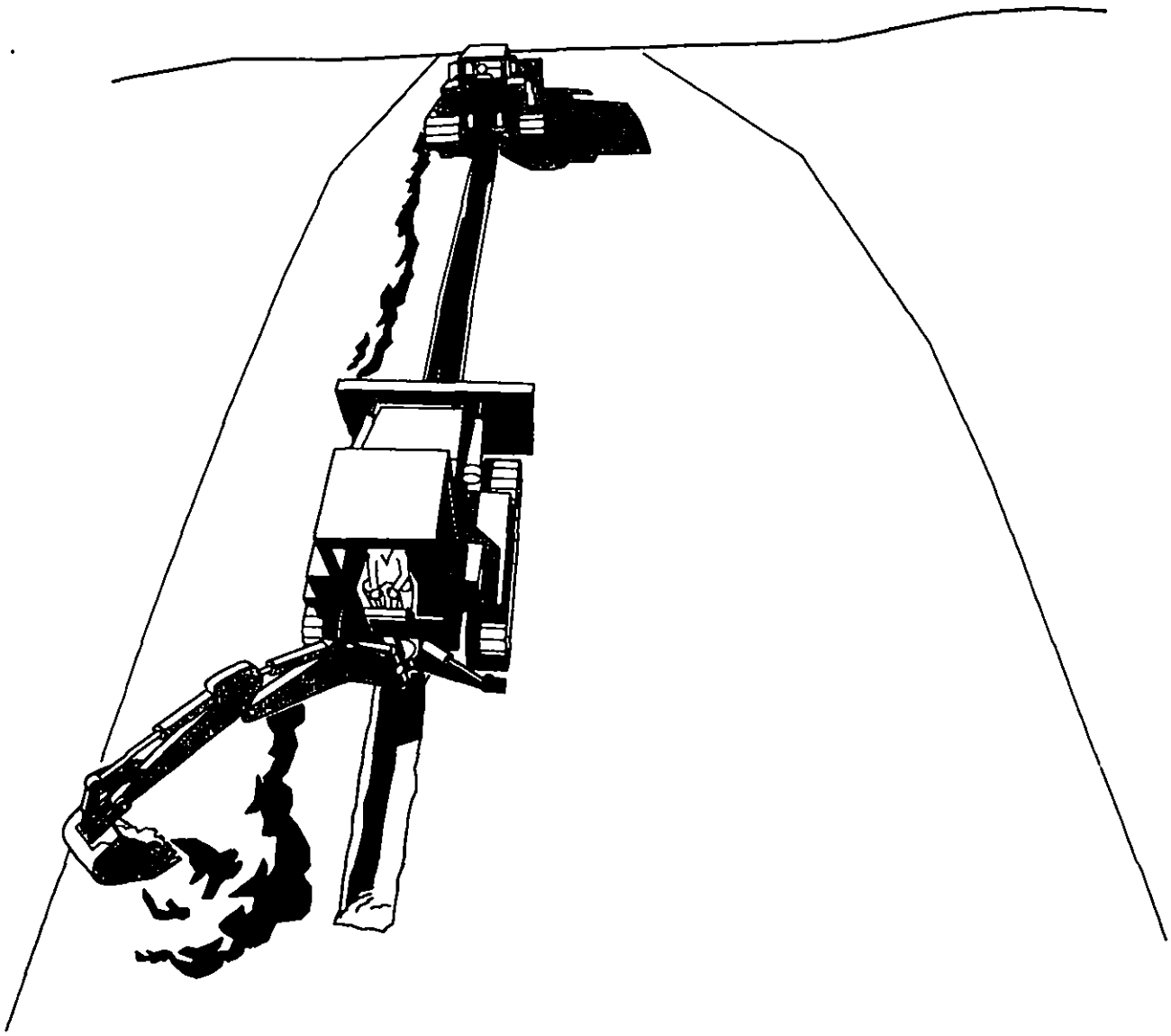
DOMINION TRANSMISSION, INC.

PROPOSED
24" PL-1 EXT. 2 SECTION 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/7/04	PL-1 EXT. 2	NOT TO SCALE	12 OF 12

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434 / DRAFTING/ 03-434 CONSTRUCTION EXHIBITS



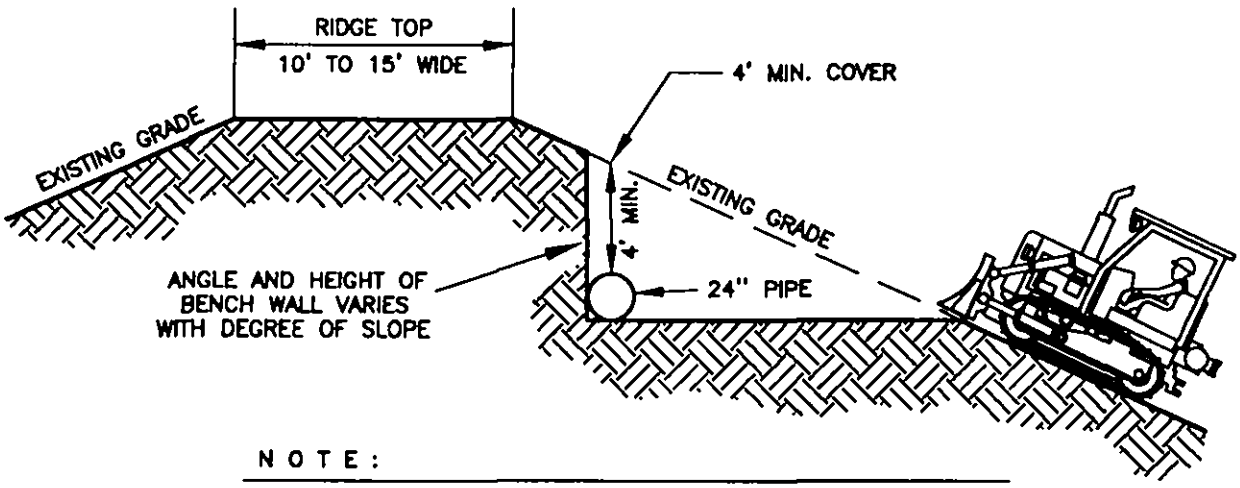
COVE POINT EXPANSION PROJECT

PROPOSED 24" PL-1 EXT 2 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR EXTREME INCLINES

DATE 8/04	PL-1 EXT 2	NOT TO SCALE	1 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434 / DRAFTING/ 03-434 CONSTRUCTION EXHIBITS



N O T E :

WHEN PIPELINE RUNS PARALLEL TO THE TOP OF A SMALL RIDGE AND TRENCHING MACHINE CANNOT BE EMPLOYED, CUT A SMALL BENCH AND BURY 24" PIPE, WITH A MINIMUM OF 4' COVER, AT THE BASE OF THE BENCH AS SHOWN ABOVE.

N O T E :

EXTRA WORK SPACE REQUIRED ON THE DOWN SLOPE SIDE DEPENDS UPON EXISTING SLOPE.

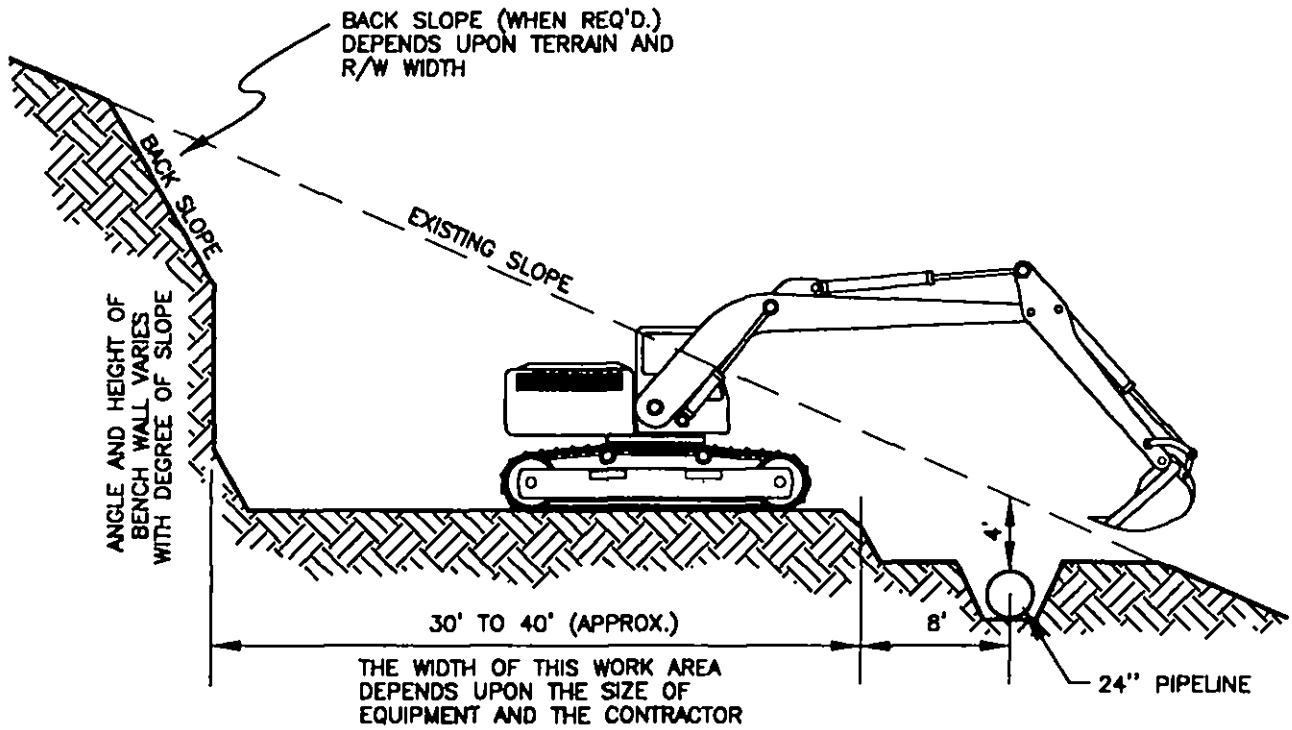
COVE POINT EXPANSION PROJECT

PROPOSED 24" PL-1 EXT. 2 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR SMALL RIDGELINE

DATE 8/04	PL-1 EXT 2	NOT TO SCALE	2 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 03-434 / DRAFTING/ 03-434 CONSTRUCTION EXHIBITS

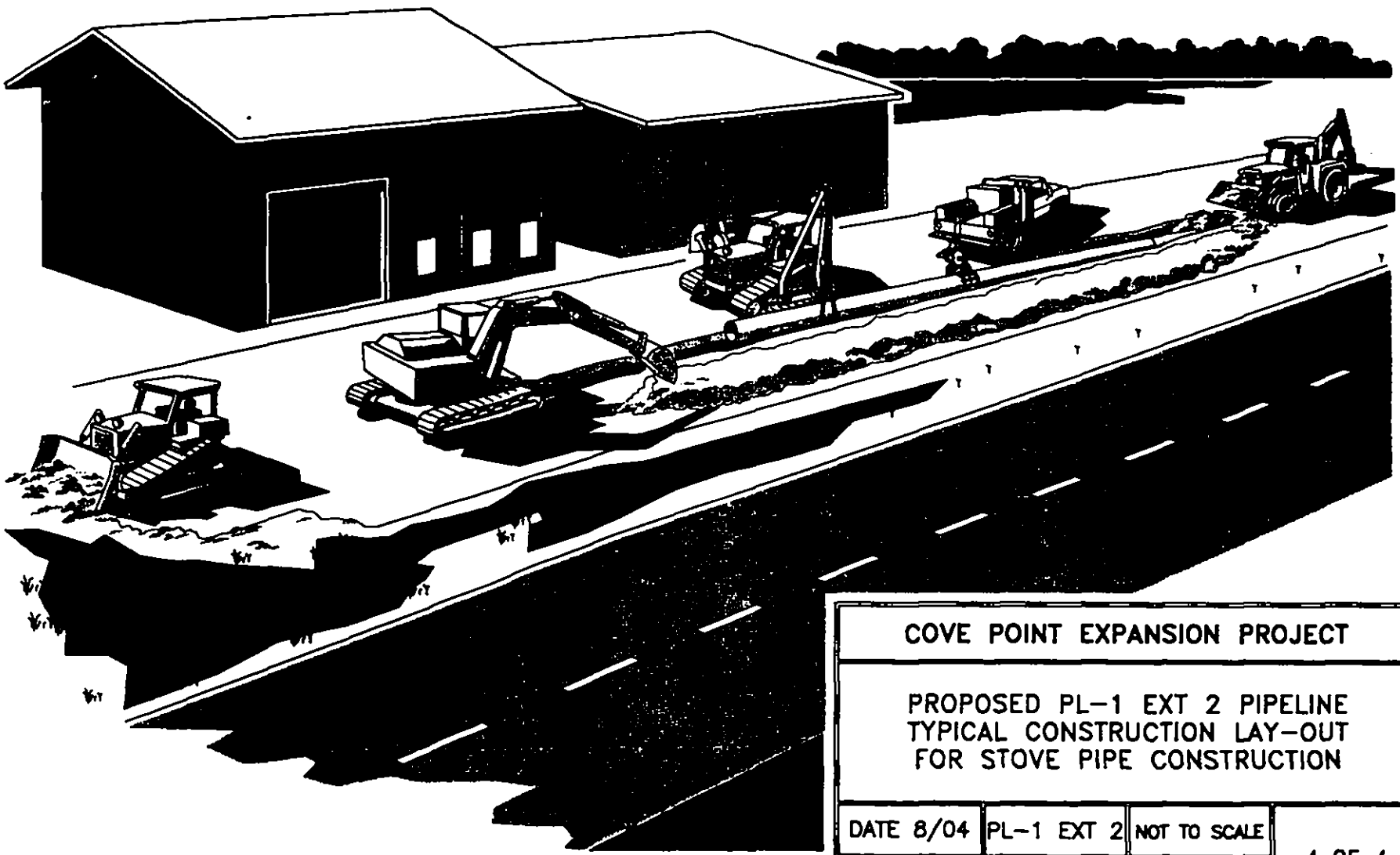


N O T E :

EXTRA WORK SPACE REQUIRED
ON THE DOWN SLOPE SIDE
DEPENDS UPON EXISTING SLOPE.

COVE POINT EXPANSION PROJECT			
PROPOSED 24" DG-1 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR TWO-TONE SLOPE			
DATE 8/04	PL-1 EXT 2	NOT TO SCALE	3 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-434 / DRAFTING/ 03-434 CONSTRUCTION EXHIBITS



COVE POINT EXPANSION PROJECT

PROPOSED PL-1 EXT 2 PIPELINE
TYPICAL CONSTRUCTION LAY-OUT
FOR STOVE PIPE CONSTRUCTION

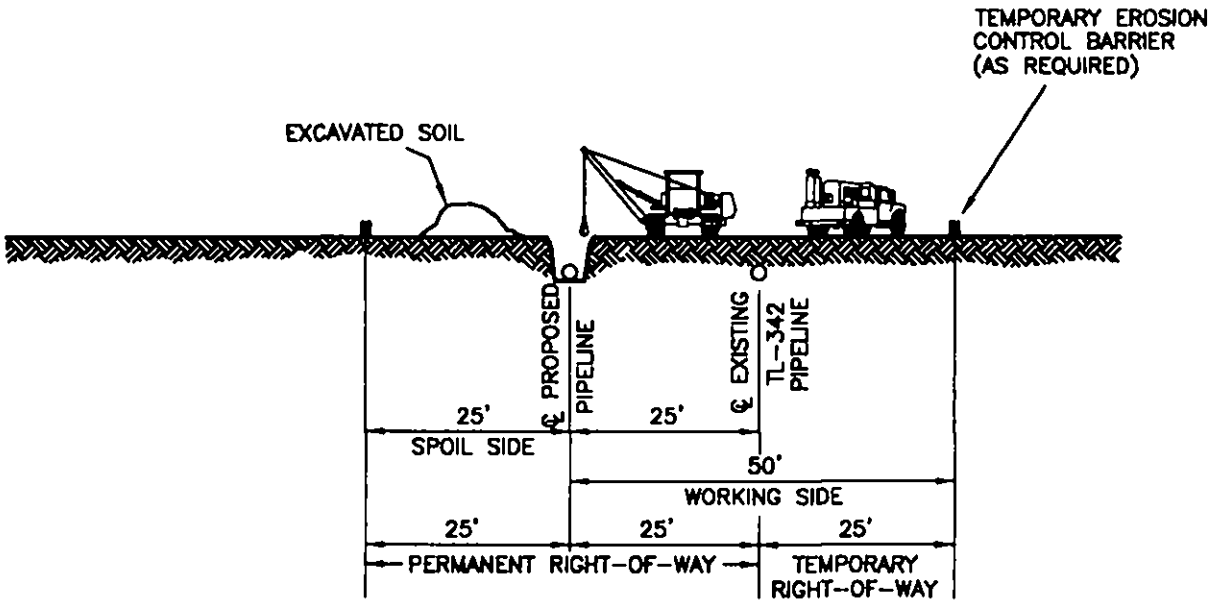
DATE 8/04	PL-1 EXT 2	NOT TO SCALE	4 OF 4

Prepared by MSES consultants, inc.

APPENDIX 1-D

TYPICAL CONSTRUCTION TECHNIQUES FOR THE TL-492 EXT3 PIPELINE

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION MP-0.00 TO MP-0.02
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

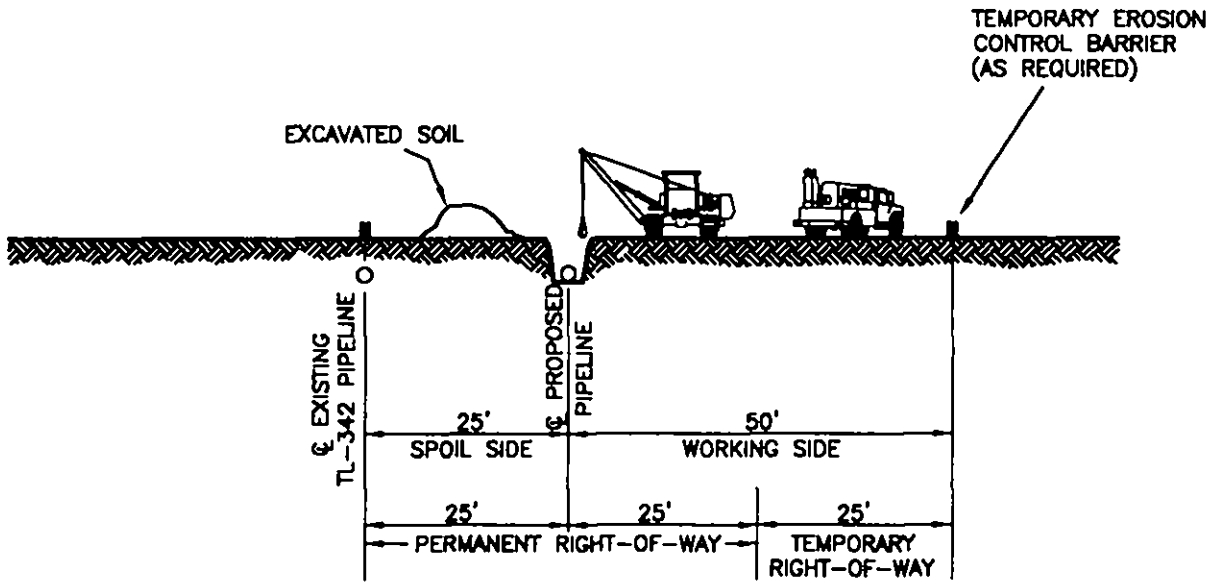
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-492 EXT. 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	1 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION

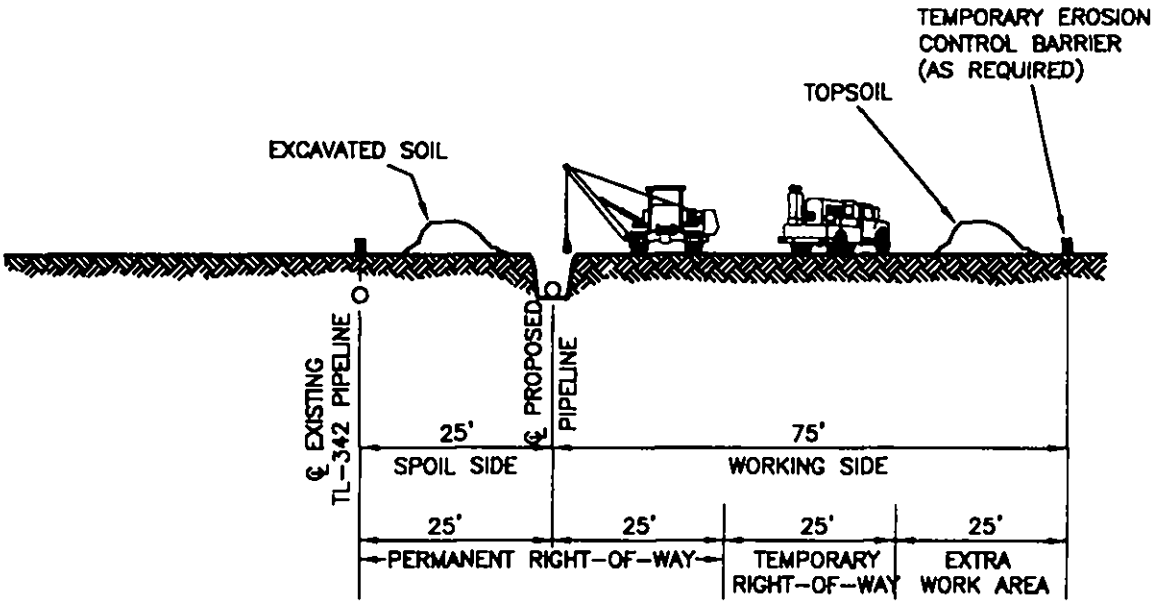
   MP-0.02 TO MP-0.06
   MP-0.11 TO MP-0.26
   MP-0.37 TO MP-0.50
   MP-0.67 TO MP-0.69
   MP-2.08 TO MP-2.19
   MP-2.28 TO MP-2.34
   MP-2.40 TO MP-2.50
   MP-4.88 TO MP-5.04
   MP-5.35 TO MP-5.59
   MP-5.62 TO MP-5.87
   MP-7.05 TO MP-7.51
   MP-9.60 TO MP-9.62
   MP-9.66 TO MP-9.85
   MP-10.10 TO MP-10.20

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-492 EXT. 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
10/7/04	TL-492 EXT. 3	NOT TO SCALE	2 of 8
Prepared by MSES consultants, inc.			

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-0.06 TO MP-0.11
   MP-0.26 TO MP-0.37
   MP-0.50 TO MP-0.67
   MP-0.69 TO MP-0.87
   MP-2.19 TO MP-2.28
   MP-2.34 TO MP-2.40
   MP-5.59 TO MP-5.62
   MP-7.02 TO MP-7.05
   MP-9.62 TO MP-9.66
   MP-10.20 TO MP-10.37

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

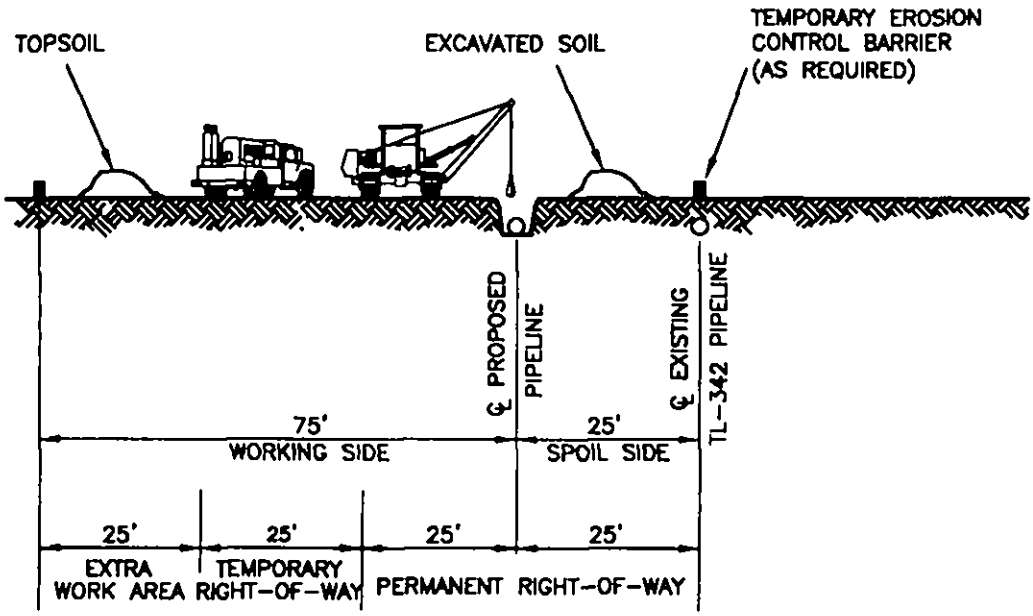
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-492 EXT. 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	3 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION

MP-0.87	TO MP-1.05
MP-1.70	TO MP-1.87
MP-1.97	TO MP-2.01
MP-2.50	TO MP-2.72
MP-3.00	TO MP-3.10
MP-3.13	TO MP-3.17
MP-3.26	TO MP-3.33
MP-4.37	TO MP-4.40
MP-4.69	TO MP-4.73
MP-6.33	TO MP-6.85
MP-8.45	TO MP-8.50
MP-8.65	TO MP-8.69
MP-8.75	TO MP-8.84
MP-8.96	TO MP-9.03
MP-10.55	TO MP-10.69

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

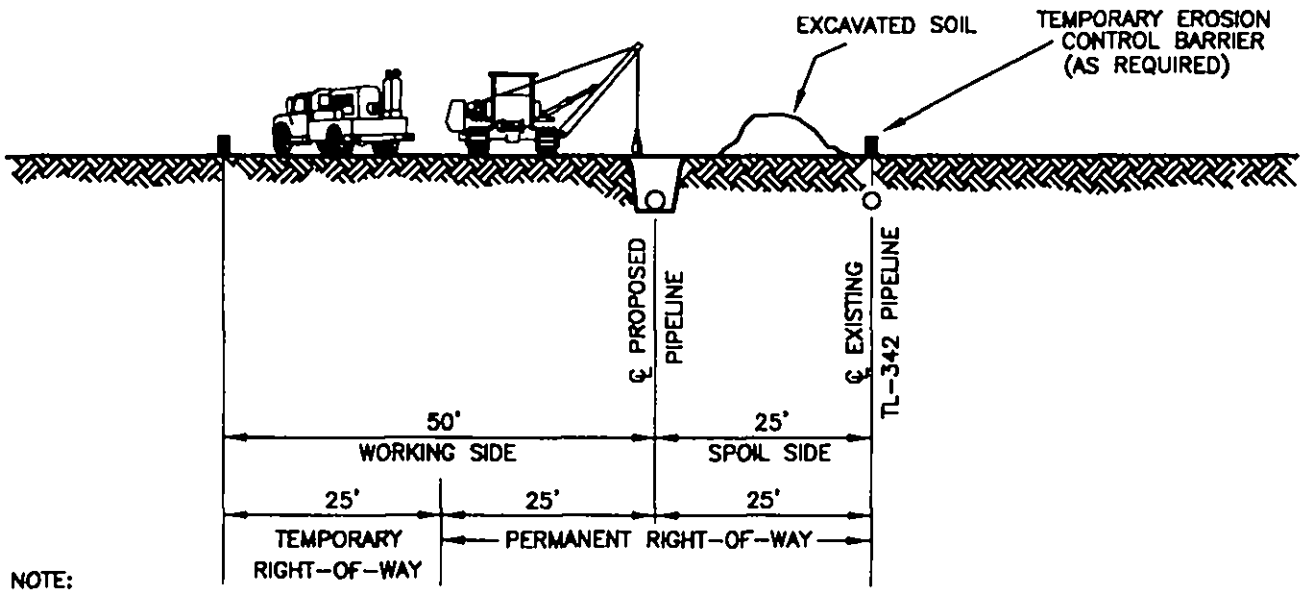
DOMINION TRANSMISSION, INC.

PROPOSED 24" TL-492 EXT. 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	4 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-1.05 TO MP-1.70
   MP-1.87 TO MP-1.97
   MP-2.01 TO MP-2.08
   MP-2.72 TO MP-3.00
   MP-3.10 TO MP-3.13
   MP-3.17 TO MP-3.26
   MP-3.33 TO MP-4.37
   MP-4.40 TO MP-4.69
   MP-4.73 TO MP-4.88
   MP-5.04 TO MP-5.35
   MP-5.87 TO MP-6.33
   MP-6.85 TO MP-7.02
   MP-7.51 TO MP-7.76
   MP-7.89 TO MP-8.45
   MP-8.50 TO MP-8.65
   MP-8.69 TO MP-8.75
   MP-8.84 TO MP-8.96
   MP-9.03 TO MP-9.60
   MP-10.47 TO MP-10.55

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

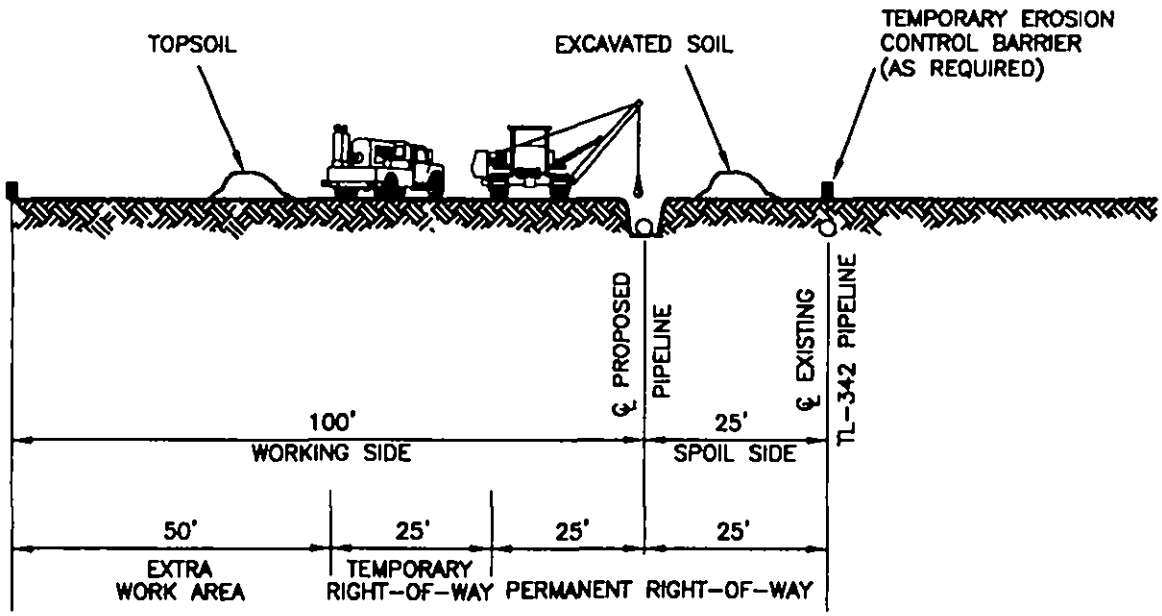
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-492 EXT. 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	5 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-7.76 TO MP-7.89
   MP-10.69 TO MP-10.71
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

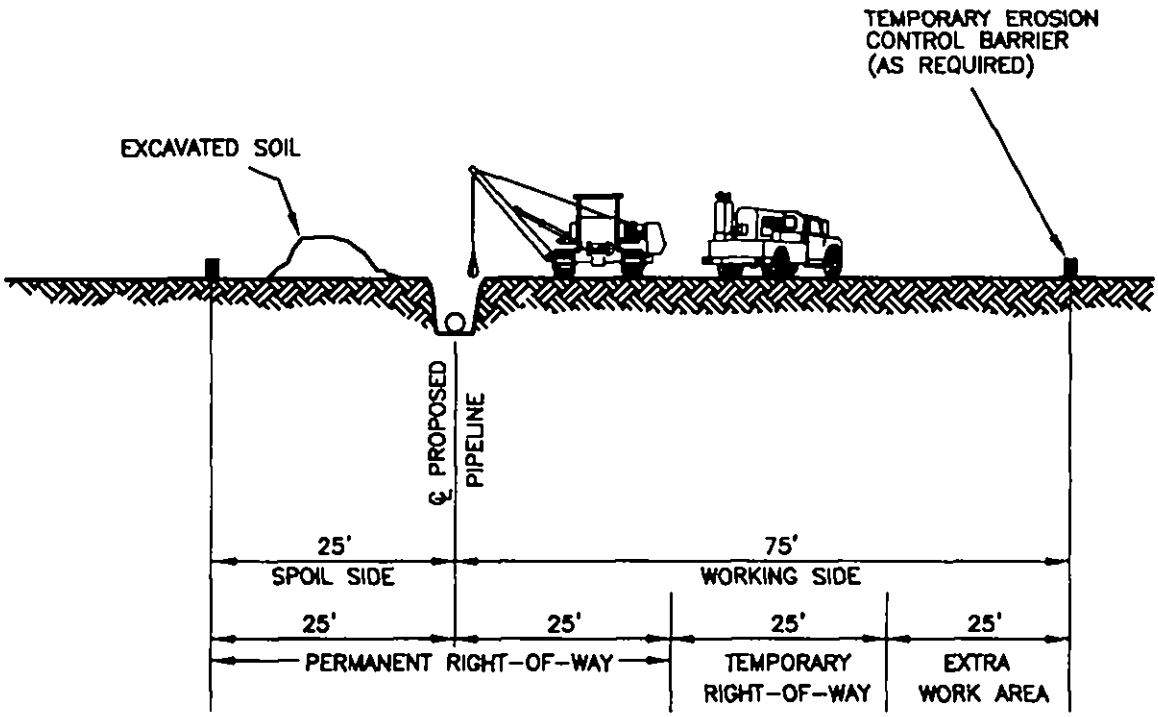
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-492 EXT. 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	6 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION MP-9.85 TO MP-10.01
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

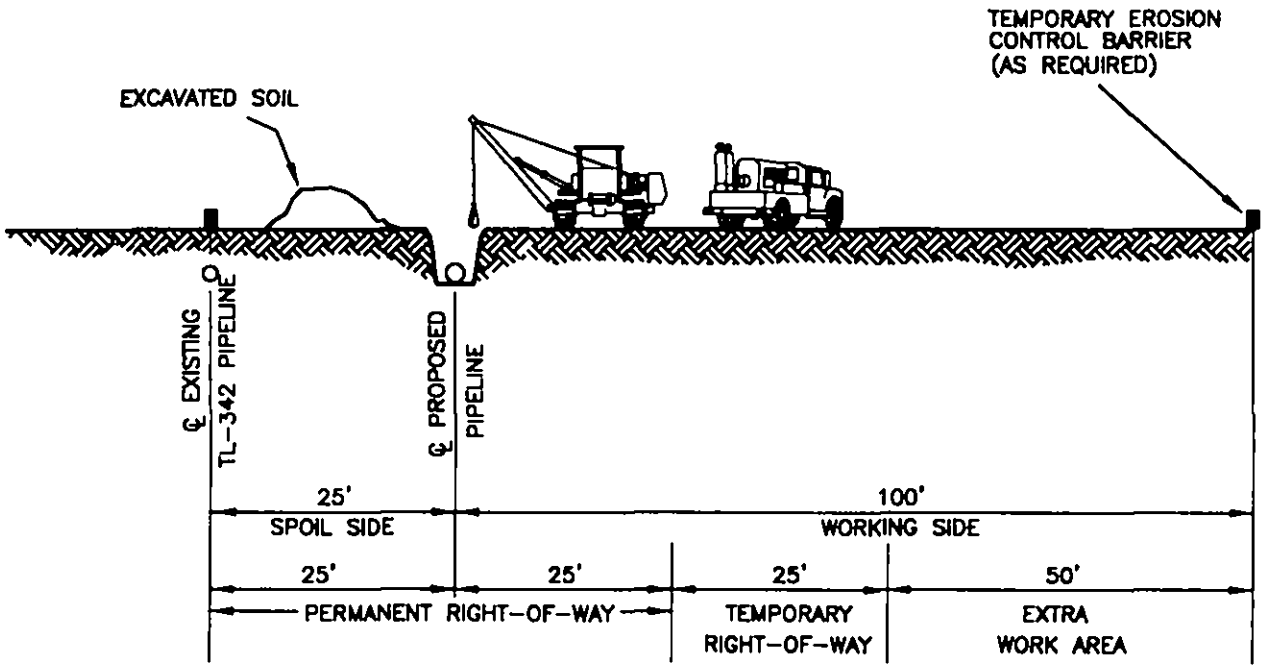
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-492 EXT. 3
TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	7 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-WorkDetails



NOTE:

1. TYPICAL LOCATION FROM STATION MP-10.37 TO MP-10.47
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

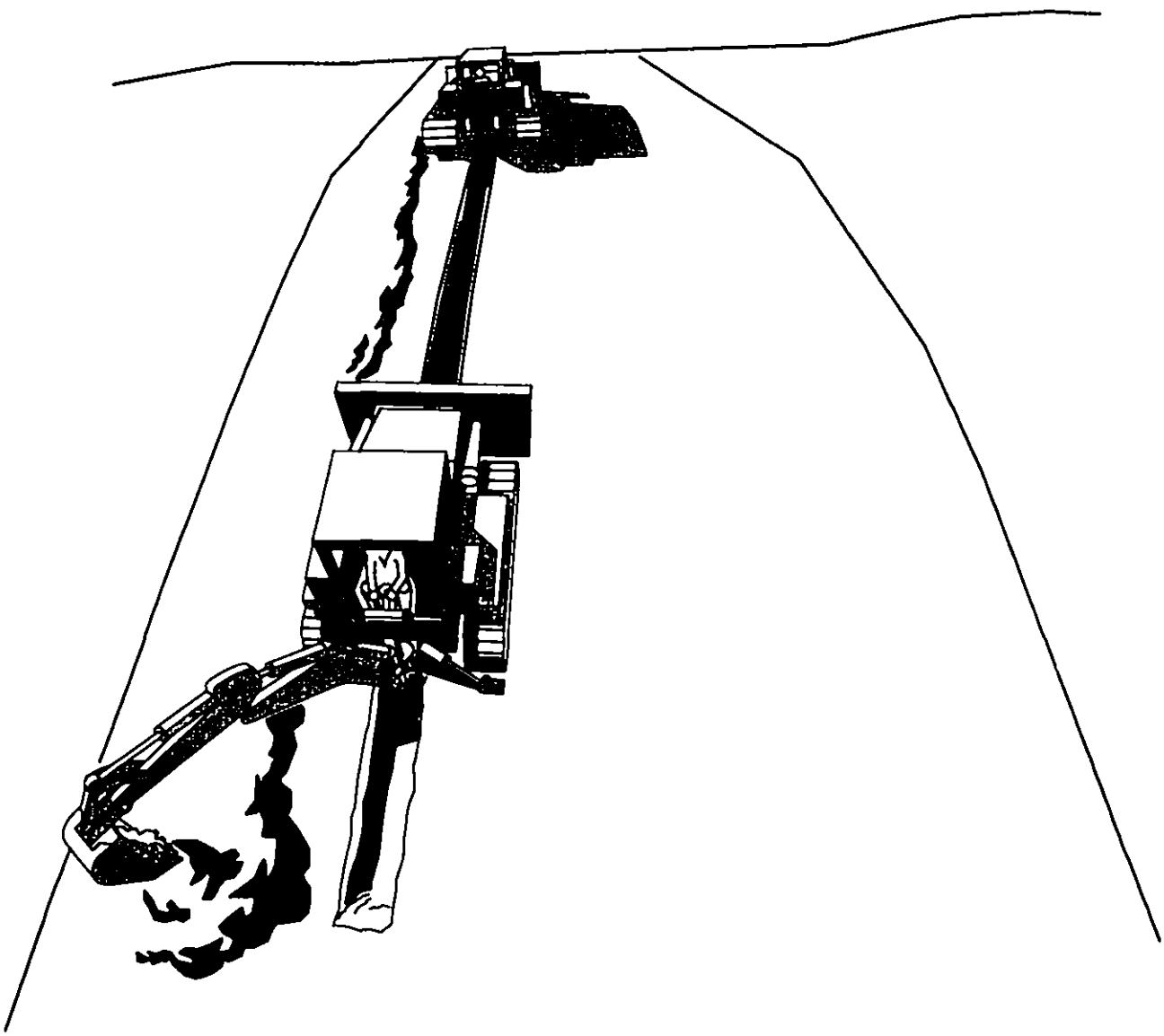
DOMINION TRANSMISSION, INC.

PROPOSED 24" TL-492 EXT. 3 TYPICAL CONSTRUCTION RIGHT-OF-WAY

10/7/04	TL-492 EXT. 3	NOT TO SCALE	8 of 8

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-ConstructionMethods / CD1831



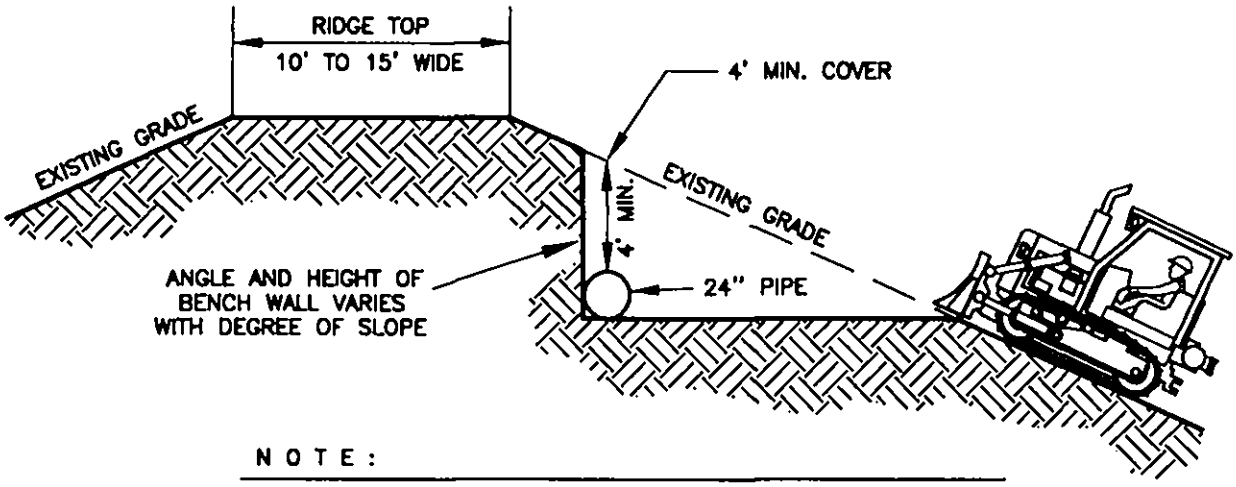
COVE POINT EXPANSION PROJECT

PROPOSED 24" TL-492 EXT 3 PIPELINE
TYPICAL CONSTRUCTION RIGHT-OF-WAY
FOR EXTREME INCLINES

NOV. 2004	TL-492 EXT 3	NOT TO SCALE	1 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-ConstructionExhibits / CD1831



N O T E :

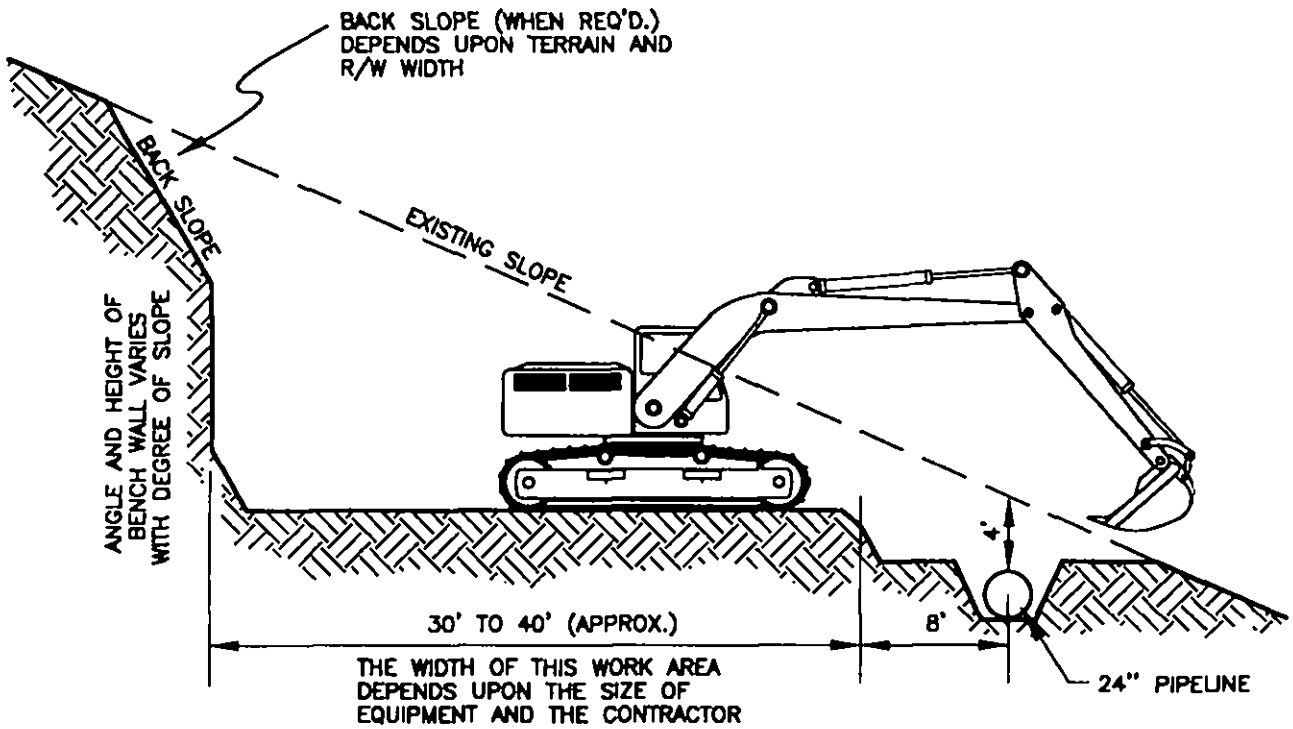
WHEN PIPELINE RUNS PARALLEL TO THE TOP OF A SMALL RIDGE AND TRENCHING MACHINE CANNOT BE EMPLOYED, CUT A SMALL BENCH AND BURY 24" PIPE, WITH A MINIMUM OF 4' COVER, AT THE BASE OF THE BENCH AS SHOWN ABOVE.

N O T E :

EXTRA WORK SPACE REQUIRED ON THE DOWN SLOPE SIDE DEPENDS UPON EXISTING SLOPE.

COVE POINT EXPANSION PROJECT			
PROPOSED 24" TL-492 EXT 3 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR SMALL RIDGELINE			
NOV. 2004	TL-492 EXT 3	NOT TO SCALE	2 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 04-242-ConstructionExhibits / CD1831



N O T E :

EXTRA WORK SPACE REQUIRED
ON THE DOWN SLOPE SIDE
DEPENDS UPON EXISTING SLOPE.

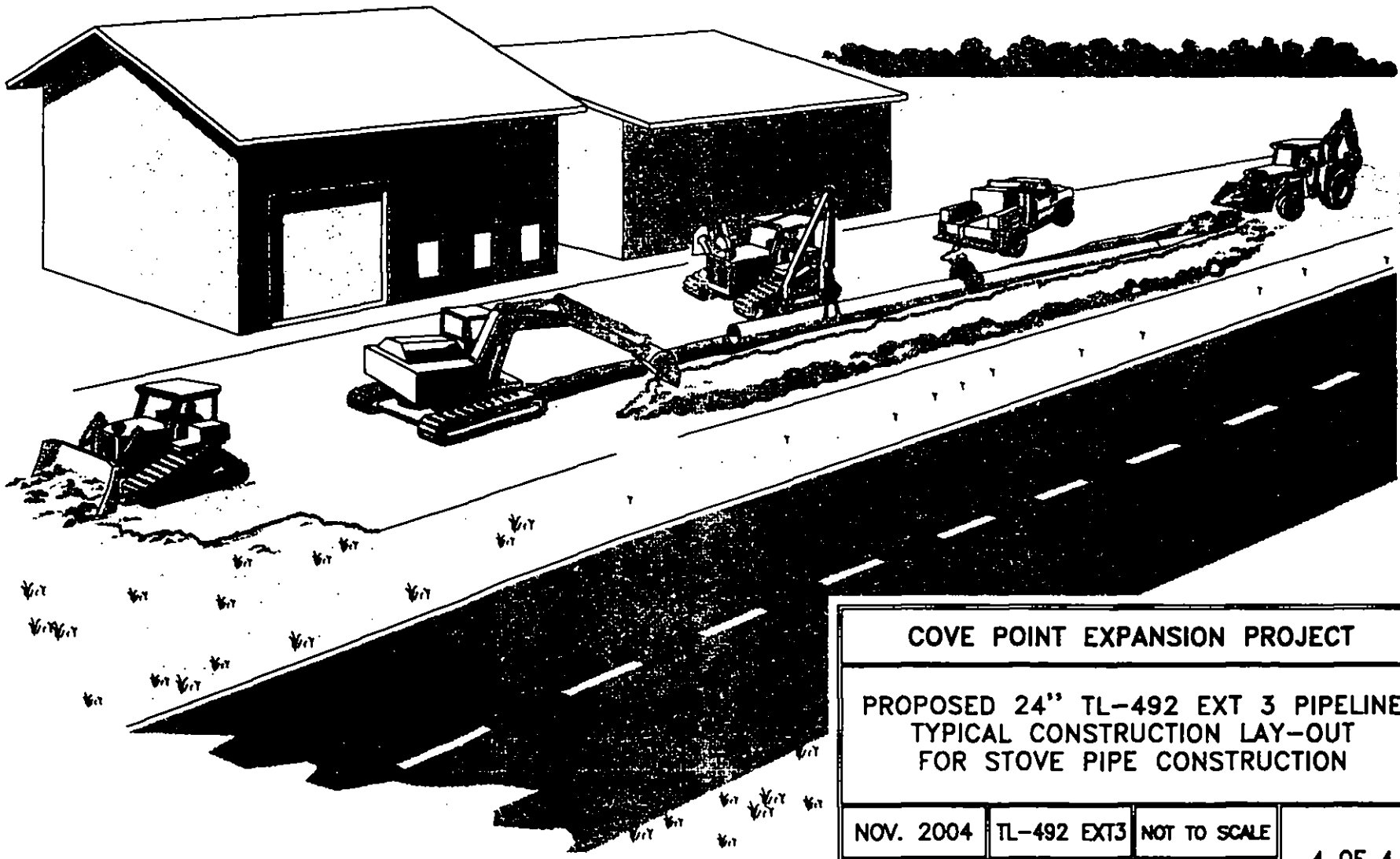
COVE POINT EXPANSION PROJECT

PROPOSED 24" TL-492 EXT 3 PIPELINE
TYPICAL CONSTRUCTION RIGHT-OF-WAY
FOR TWO-TONE SLOPE

NOV. 2004	TL-492 EXT 3	NOT TO SCALE	3 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 04-242-ConstructionExhibits / CDR831



COVE POINT EXPANSION PROJECT

PROPOSED 24" TL-492 EXT 3 PIPELINE TYPICAL CONSTRUCTION LAY-OUT FOR STOVE PIPE CONSTRUCTION

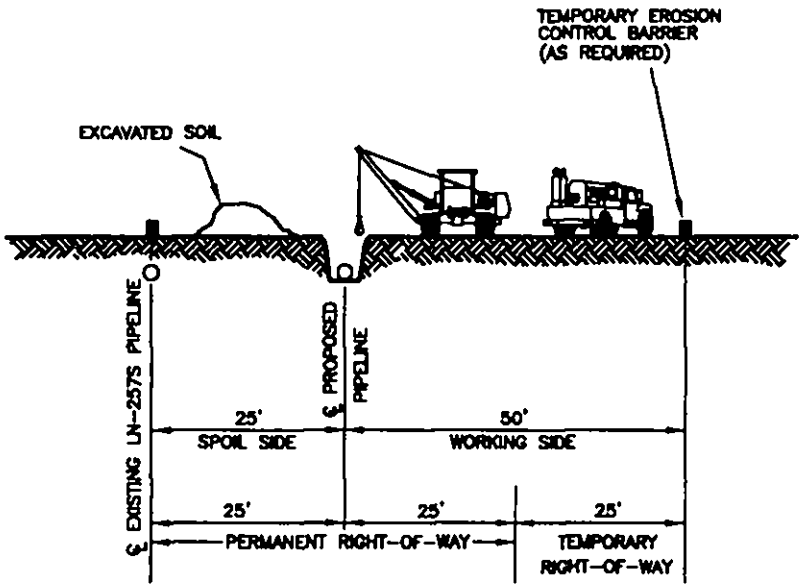
NOV. 2004	TL-492 EXT3	NOT TO SCALE	4 OF 4

Prepared by MSES consultants, inc.

APPENDIX 1-D

TYPICAL CONSTRUCTION TECHNIQUES FOR THE TL-536 PIPELINE

CAD FILE NO. 03-474-WorkDetails / CD 1831



NOTE:

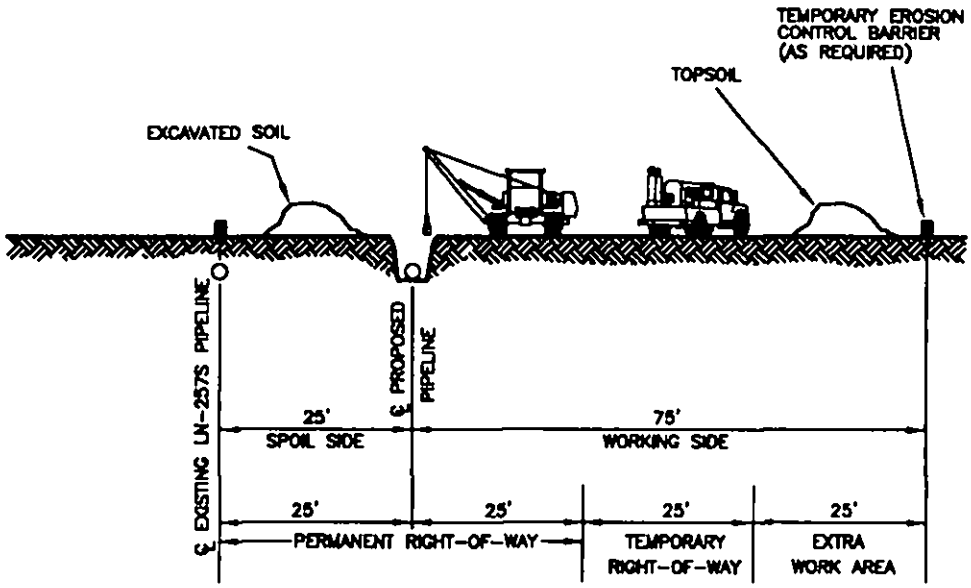
1. TYPICAL LOCATION FROM STATION
   MP-0.00 TO MP-0.03
   MP-0.40 TO MP-0.97
   MP-1.30 TO MP-2.67
   MP-2.96 TO MP-3.34
   MP-3.50 TO MP-3.81
   MP-3.86 TO MP-8.53

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 20" TL-536 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/13/04		NOT TO SCALE	1 of 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-474-WorkDetails / CD 1831



NOTE:

1. TYPICAL LOCATION FROM STATION

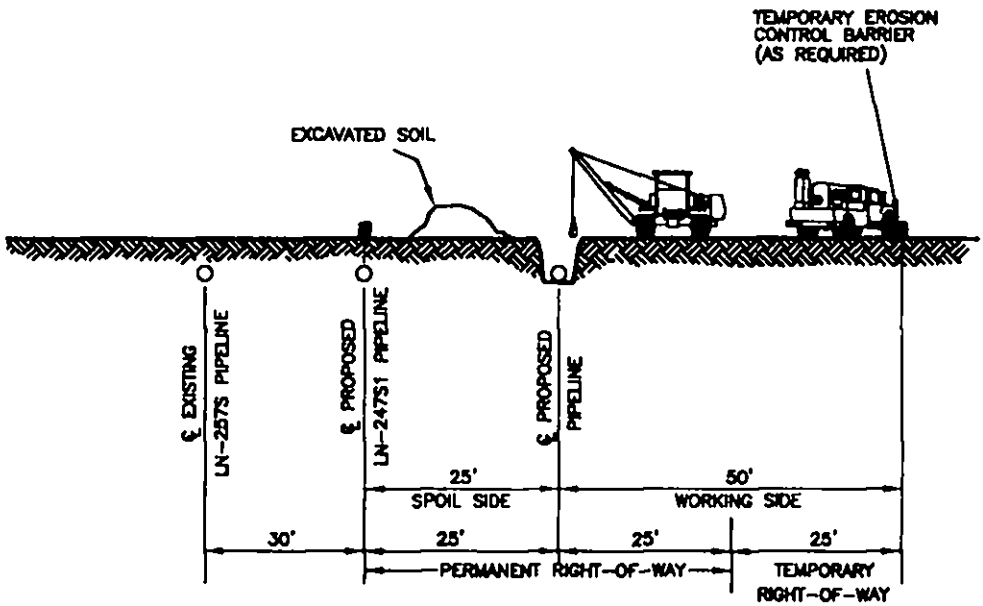
   MP-0.03 TO MP-0.40
   MP-0.97 TO MP-1.30
   MP-2.67 TO MP-2.96
   MP-3.34 TO MP-3.50
   MP-3.81 TO MP-3.86

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 20" TL-536 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/13/04		NOT TO SCALE	2 of 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-474-WorkDetails / CD 1831

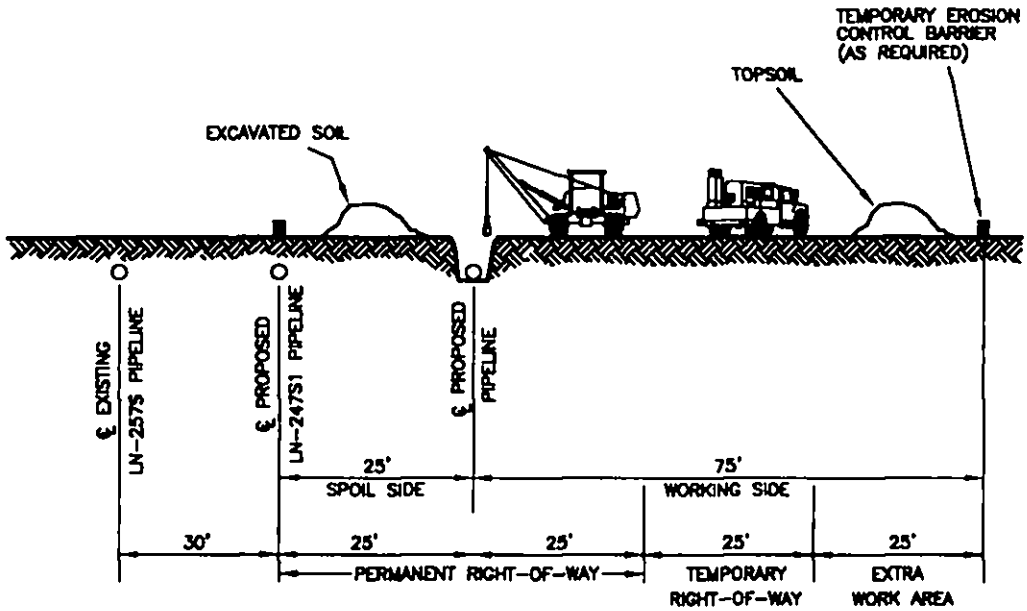


NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-8.53 TO MP-8.61
   MP-8.63 TO MP-9.50
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 20" TL-536 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
9/13/04		NOT TO SCALE	3 of 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-474-WorkDetails / CD 1831



NOTE:

1. TYPICAL LOCATION FROM STATION MP-8.61 TO MP-8.63
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

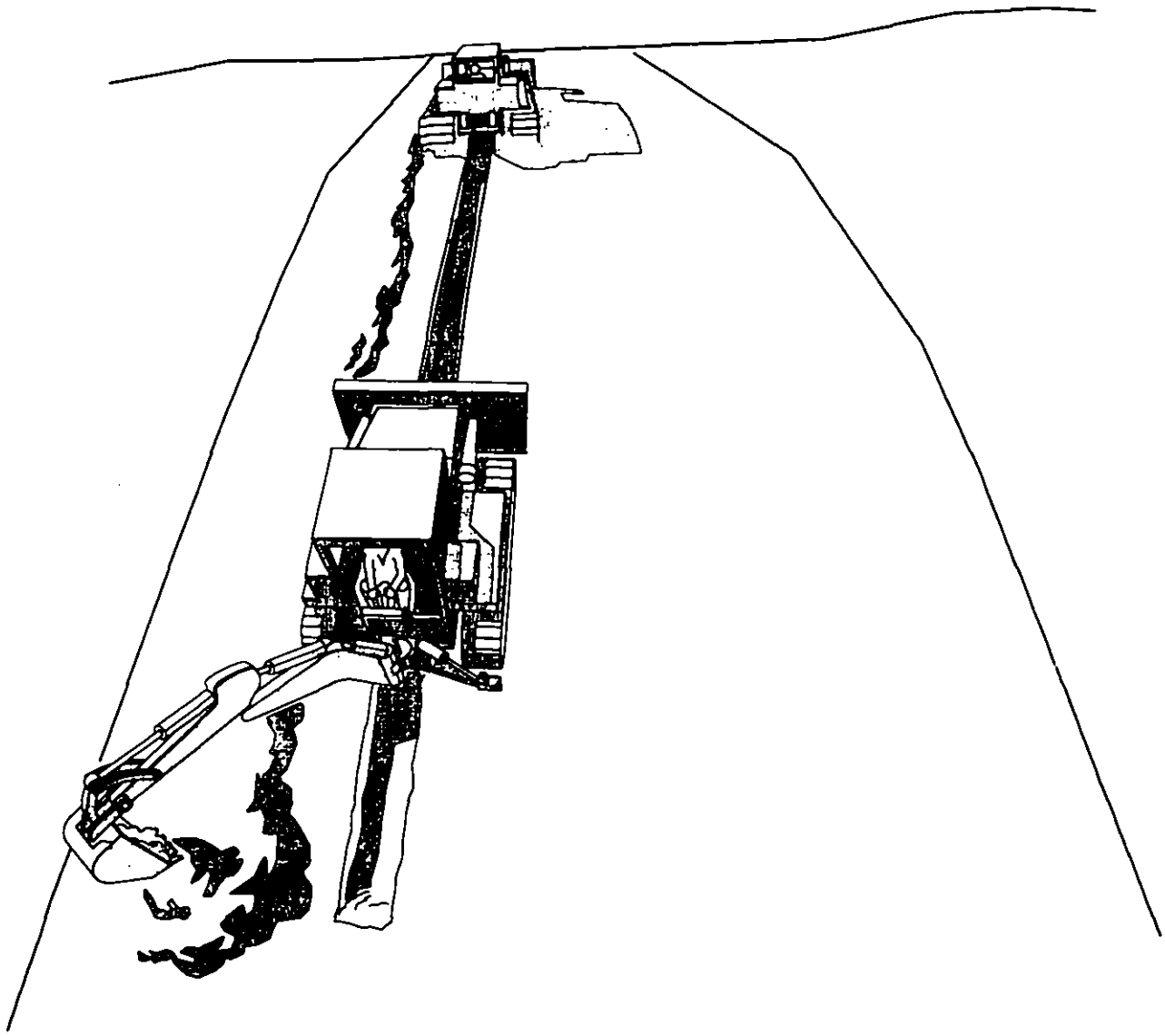
DOMINION TRANSMISSION, INC.

PROPOSED 20" TL-536 TYPICAL CONSTRUCTION RIGHT-OF-WAY

9/13/04		NOT TO SCALE	4 of 4

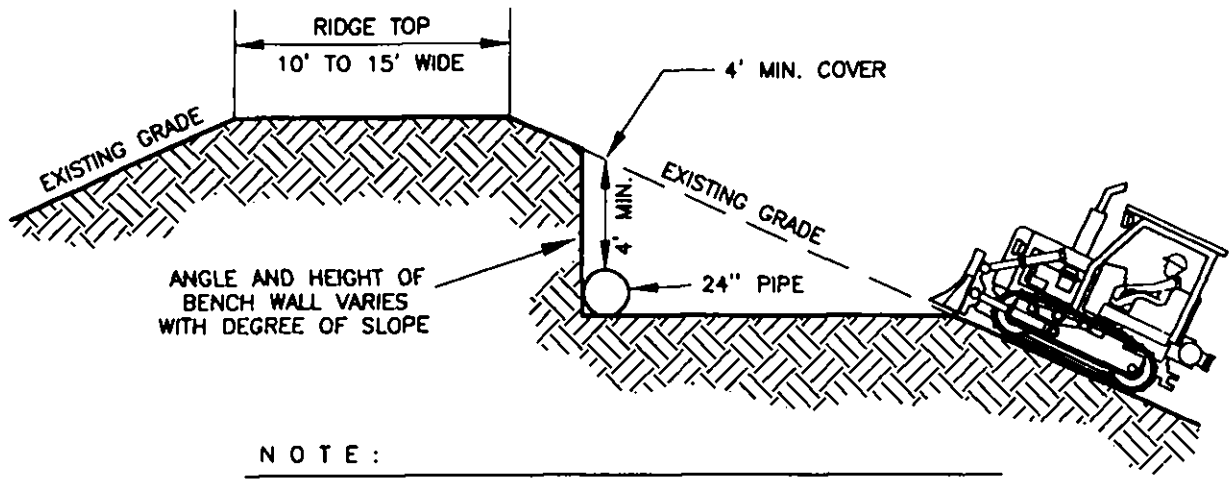
Prepared by MSES consultants, inc.

CAD FILE NO. 03-474-ConstructionMethods / CD1831



COVE POINT EXPANSION PROJECT			
PROPOSED 20" TL-536 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR EXTREME INCLINES			
DEC. 2004	TL-536	NOT TO SCALE	1 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-474-ConstructionExhibits / CD1831



N O T E :

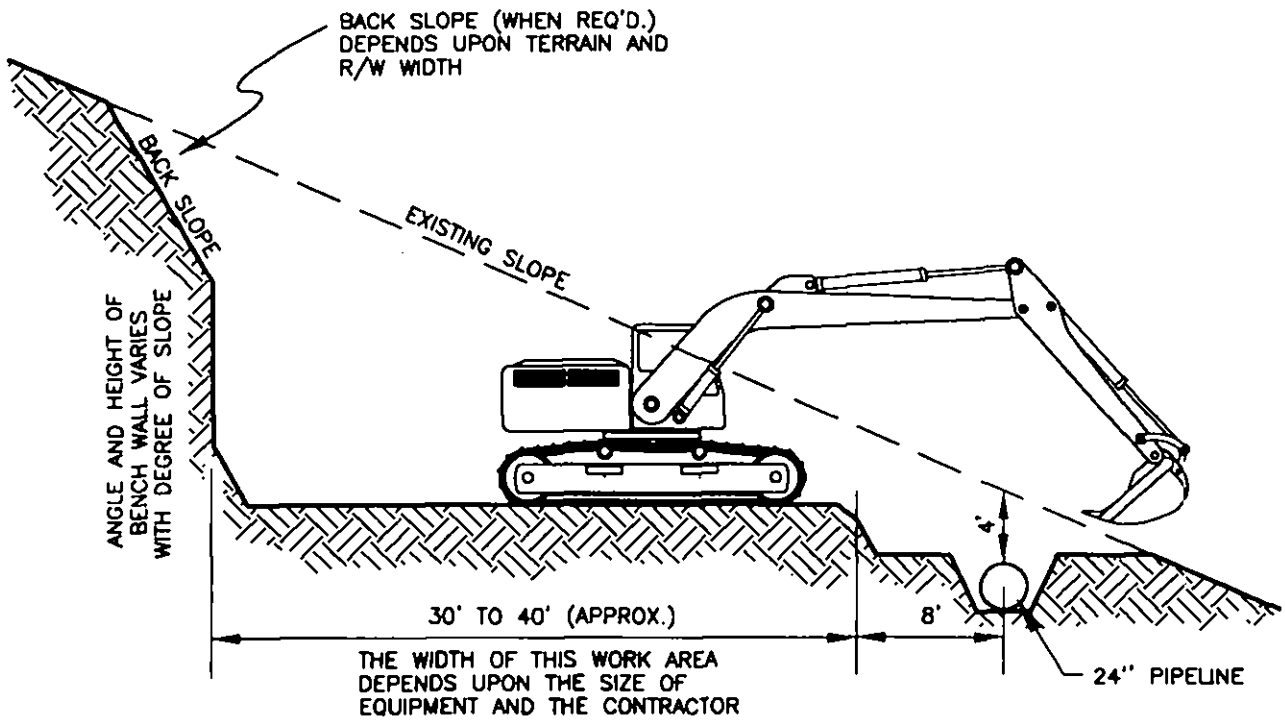
WHEN PIPELINE RUNS PARALLEL TO THE TOP OF A SMALL RIDGE AND TRENCHING MACHINE CANNOT BE EMPLOYED, CUT A SMALL BENCH AND BURY 24" PIPE, WITH A MINIMUM OF 4' COVER, AT THE BASE OF THE BENCH AS SHOWN ABOVE.

N O T E :

EXTRA WORK SPACE REQUIRED ON THE DOWN SLOPE SIDE DEPENDS UPON EXISTING SLOPE.

COVE POINT EXPANSION PROJECT			
PROPOSED 20" TL-536 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR SMALL RIDGELINE			
DEC. 2004	TL-536	NOT TO SCALE	2 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-374-ConstructionExhibits / CD1831



NOTE:

EXTRA WORK SPACE REQUIRED
ON THE DOWN SLOPE SIDE
DEPENDS UPON EXISTING SLOPE.

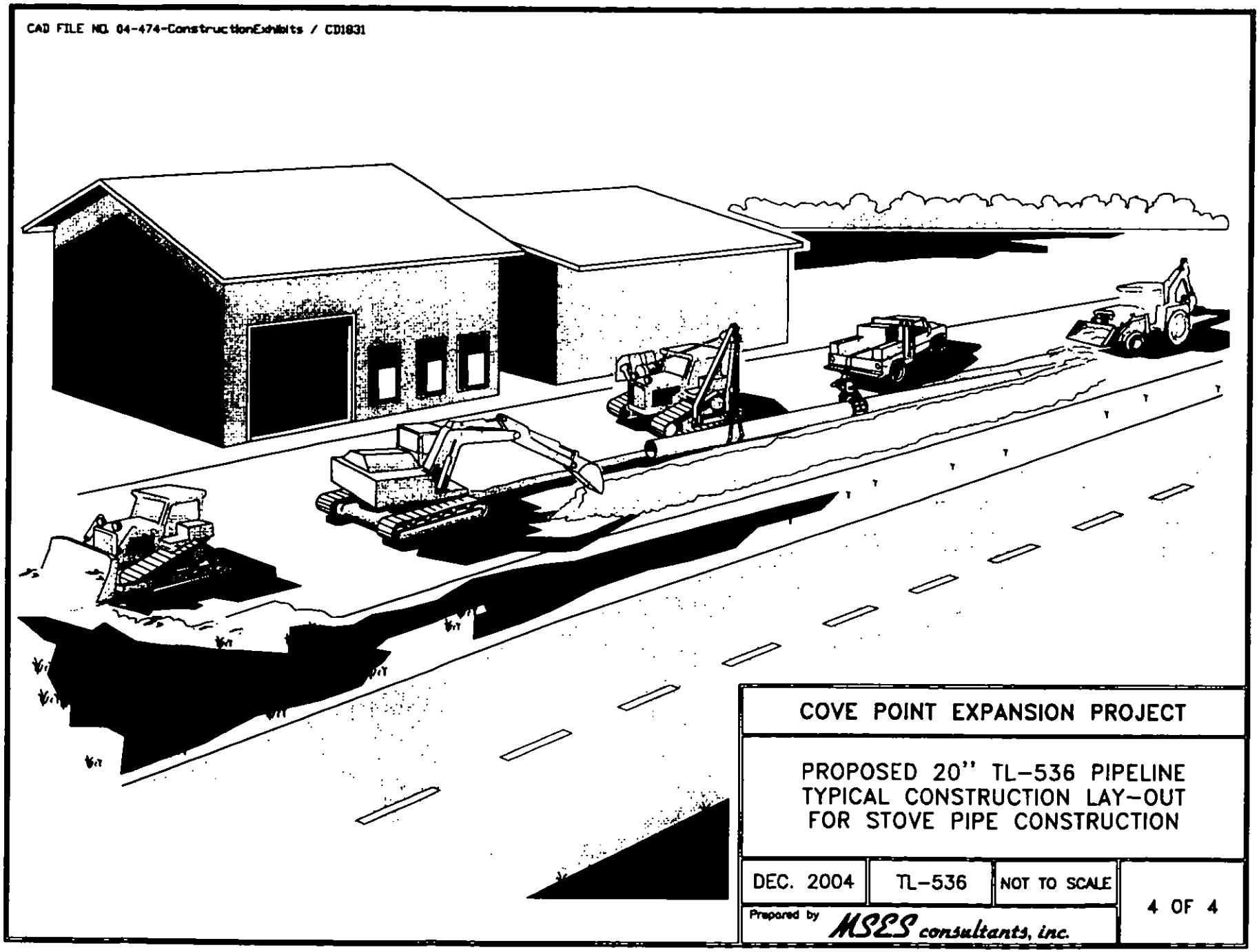
COVE POINT EXPANSION PROJECT

PROPOSED 20" TL-536 PIPELINE
TYPICAL CONSTRUCTION RIGHT-OF-WAY
FOR TWO-TONE SLOPE

DEC. 2004	TL-536	NOT TO SCALE	3 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 04-474-ConstructionExhibits / CD1831



COVE POINT EXPANSION PROJECT

PROPOSED 20" TL-536 PIPELINE
TYPICAL CONSTRUCTION LAY-OUT
FOR STOVE PIPE CONSTRUCTION

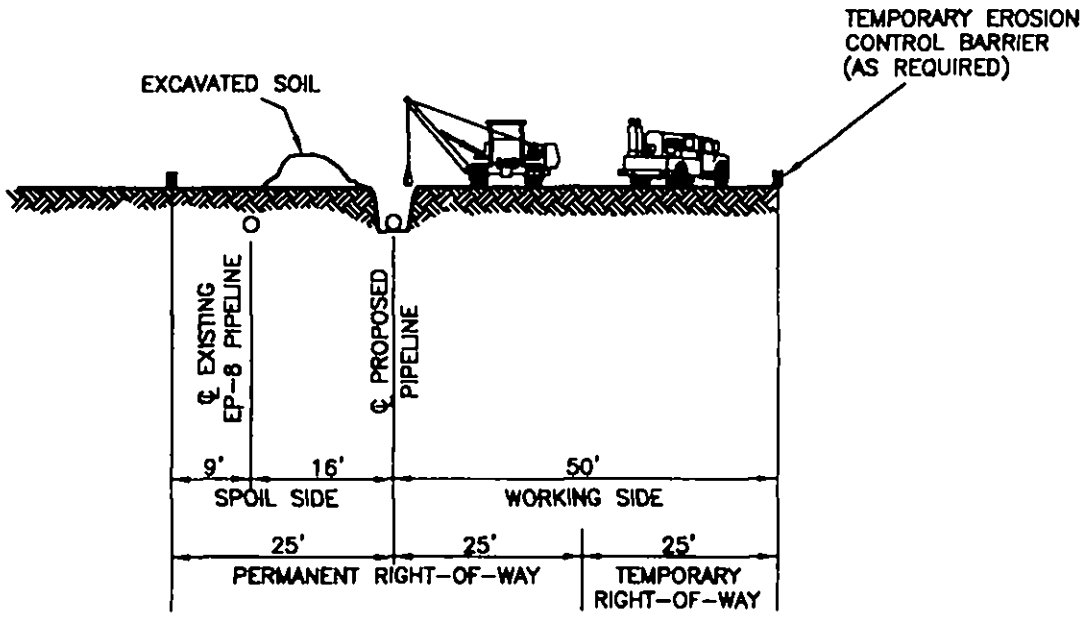
DEC. 2004	TL-536	NOT TO SCALE	4 OF 4

Prepared by MSES consultants, inc.

APPENDIX 1-D

TYPICAL CONSTRUCTION TECHNIQUES FOR THE TL-453 EXT1 PIPELINE

CAD FILE NO. 03-475-WORK DETAILS / CD 1855



NOTE:

1. TYPICAL LOCATION FROM STATION

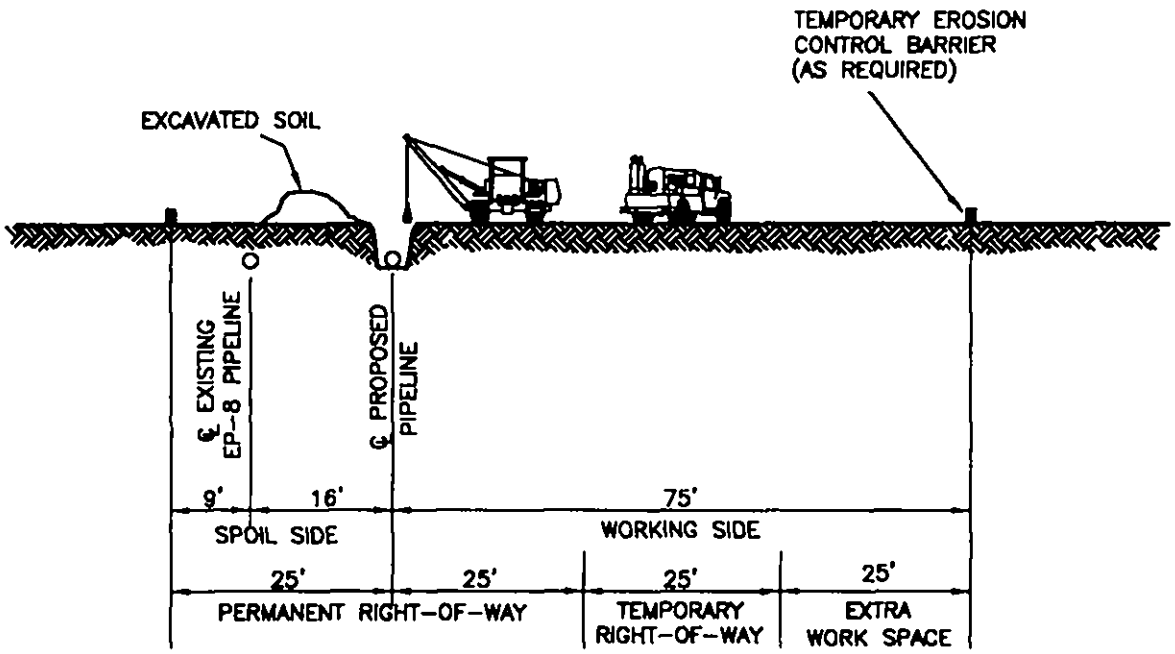
   MP-0.27 TO MP-0.36
   MP-0.51 TO MP-1.00
   MP-1.77 TO MP-2.18
   MP-2.24 TO MP-2.31
   MP-2.40 TO MP-2.61

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-453 EXT. 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
12/04	TL-453 EXT. 1	NOT TO SCALE	1 of 7
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-WORK DETAILS / CD 1855

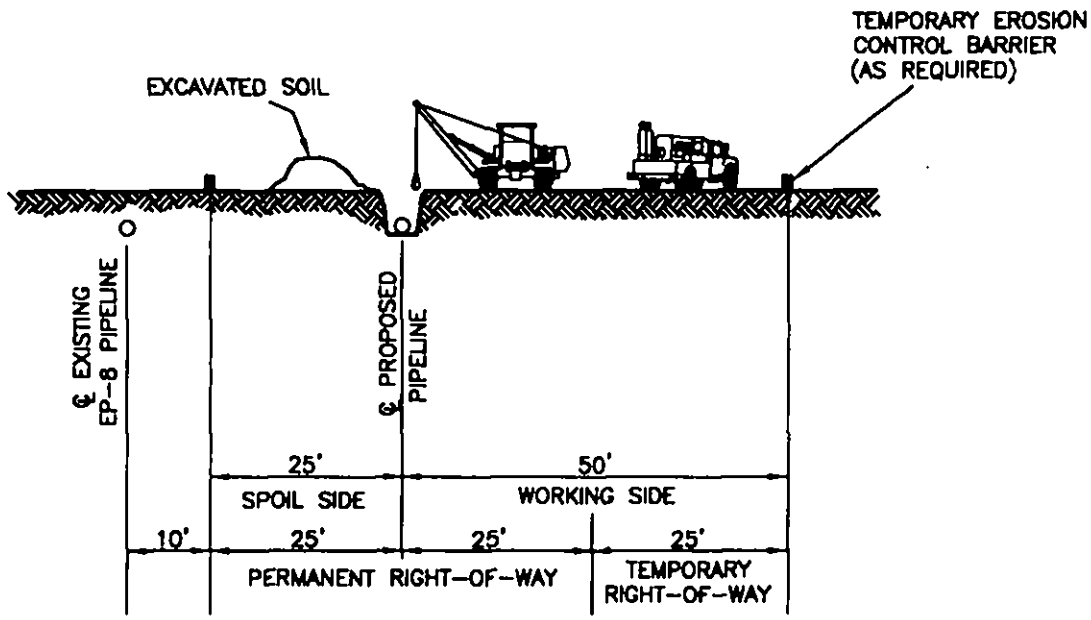


NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-0.00 TO MP-0.27
   MP-0.36 TO MP-0.51
   MP-1.00 TO MP-1.77
   MP-2.18 TO MP-2.24
   MP-2.31 TO MP-2.40
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-453 EXT. 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
12/04	TL-453 EXT. 1	NOT TO SCALE	2 of 7
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-WORK DETAILS / CD 1855



NOTE:

1. TYPICAL LOCATION FROM STATION MP-2.61 TO MP-3.20
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

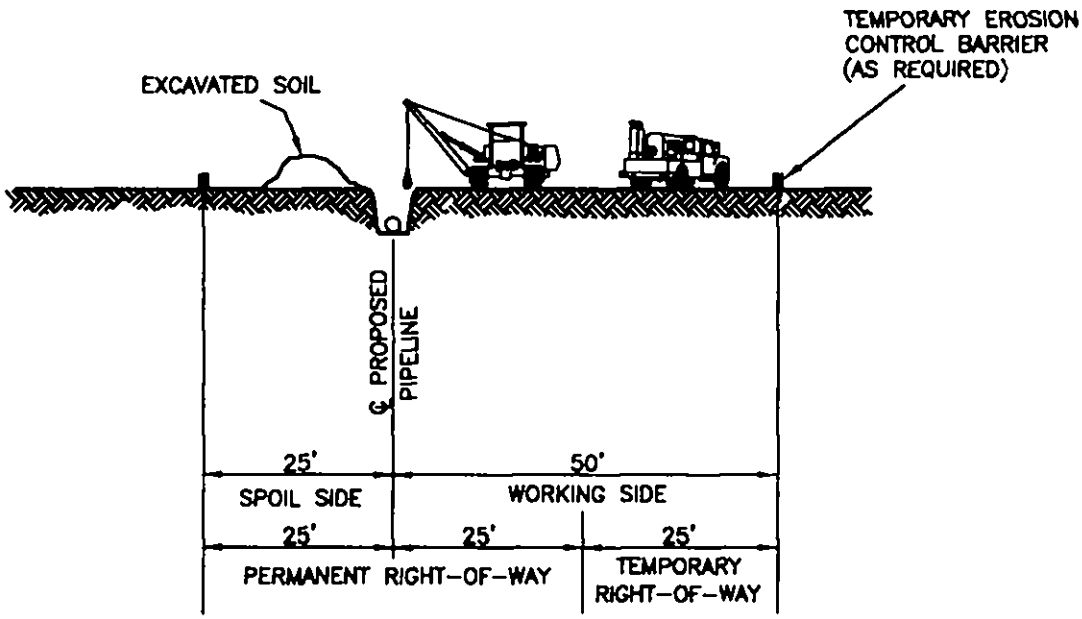
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-453 EXT. 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

12/04	TL-453 EXT. 1	NOT TO SCALE	3 of 7

Prepared by MSES consultants, inc.

CAD FILE NO. 03-475-WORK DETAILS / CD 1855

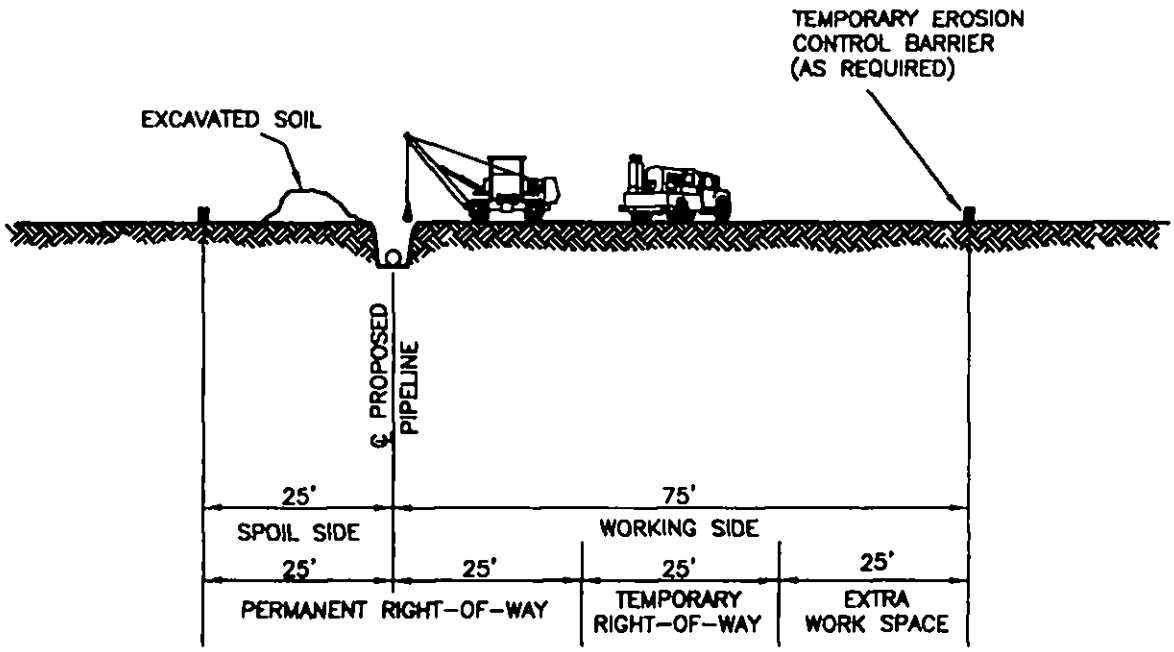


NOTE:

1. TYPICAL LOCATION FROM STATION
   MP-3.20 TO MP-3.38
   MP-3.40 TO MP-3.43
   MP-3.45 TO MP-4.29
   MP-4.33 TO MP-5.68
   MP-5.76 TO MP-5.79
   MP-5.93 TO MP-5.97
   MP-6.06 TO MP-6.13
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-453 EXT. 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
12/04	TL-453 EXT. 1	NOT TO SCALE	4 of 7
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-WORK DETAILS / CD 1855

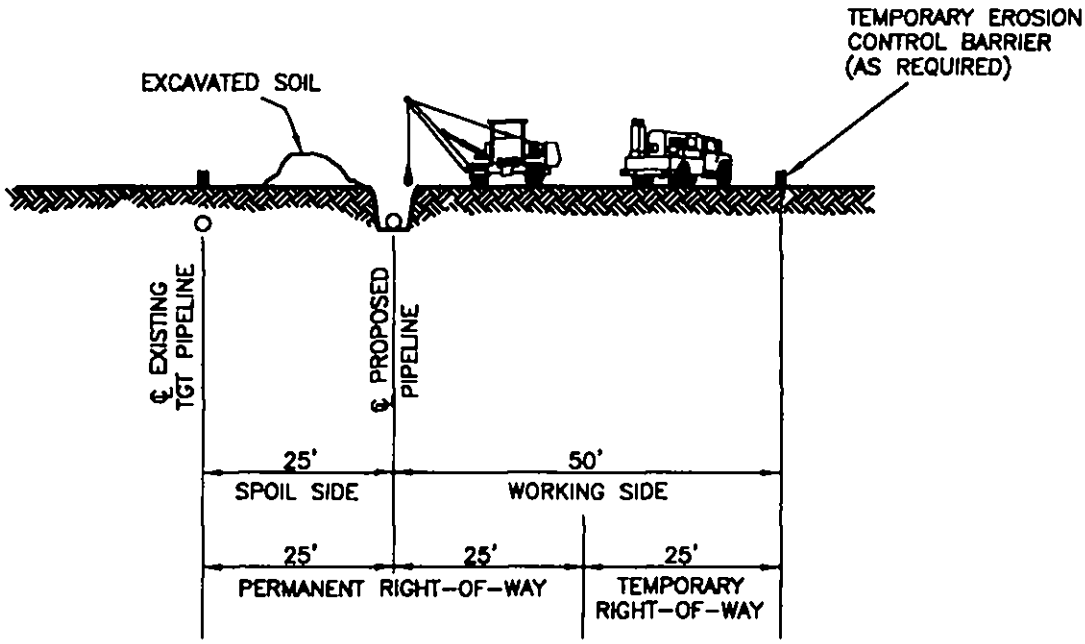


NOTE:

1. TYPICAL LOCATION FROM STATION
   - MP-3.38 TO MP-3.40
   - MP-3.43 TO MP-3.45
   - MP-4.29 TO MP-4.33
   - MP-5.68 TO MP-5.76
   - MP-5.79 TO MP-5.93
   - MP-5.97 TO MP-6.06
   - MP-6.13 TO MP-6.37
2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.
3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-453 EXT. 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
12/04	TL-453 EXT. 1	NOT TO SCALE	5 of 7
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-WORK DETAILS / CD 1855



NOTE:

1. TYPICAL LOCATION FROM STATION

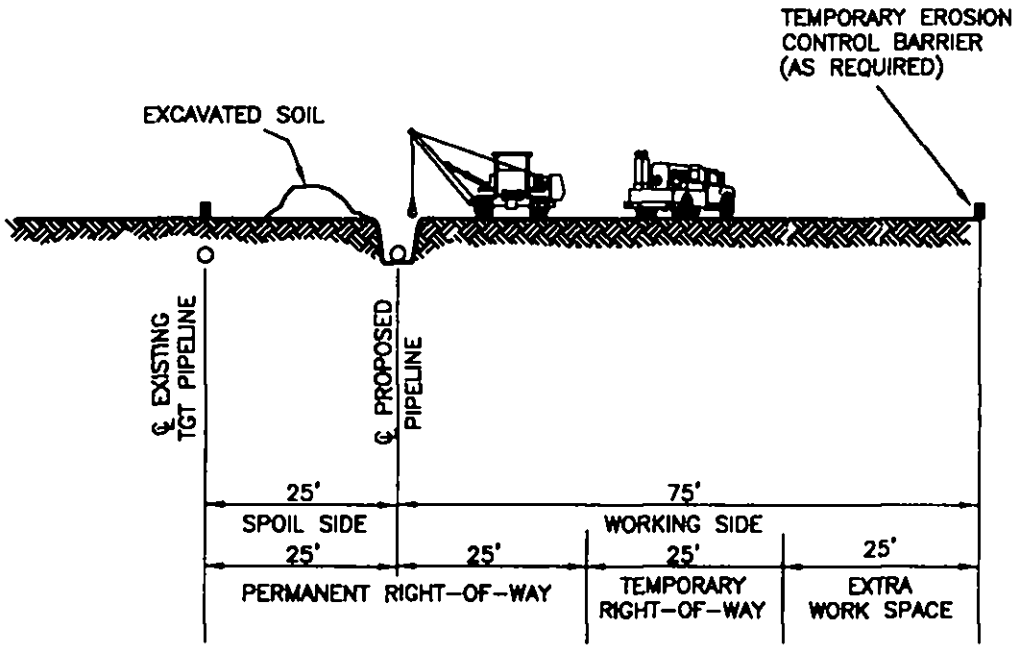
   MP-6.37 TO MP-6.49
   MP-6.54 TO MP-6.68
   MP-6.74 TO MP-6.80
   MP-6.84 TO MP-6.87
   MP-6.92 TO MP-7.40
   MP-7.61 TO MP-7.96
   MP-8.46 TO MP-8.96
   MP-9.01 TO MP-9.21
   MP-9.33 TO MP-9.54
   MP-9.64 TO MP-9.67
   MP-9.69 TO MP-9.76
   MP-10.03 TO MP-10.20
   MP-10.30 TO MP-10.65
   MP-10.97 TO MP-10.99
   MP-11.03 TO MP-11.15
   MP-11.28 TO MP-11.45

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

DOMINION TRANSMISSION, INC.			
PROPOSED 24" TL-453 EXT. 1 TYPICAL CONSTRUCTION RIGHT-OF-WAY			
12/04	TL-453 EXT. 1	NOT TO SCALE	6 of 7
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-WORK DETAILS / CD 1855



NOTE:

1. TYPICAL LOCATION FROM STATION

   MP-6.49 TO MP-6.54
   MP-6.68 TO MP-6.74
   MP-6.80 TO MP-6.84
   MP-6.87 TO MP-6.92
   MP-7.40 TO MP-7.61
   MP-7.96 TO MP-8.46
   MP-8.96 TO MP-9.01
   MP-9.21 TO MP-9.33
   MP-9.54 TO MP-9.64
   MP-9.67 TO MP-9.69
   MP-9.76 TO MP-10.03
   MP-10.20 TO MP-10.30
   MP-10.65 TO MP-10.97
   MP-10.99 TO MP-11.03
   MP-11.15 TO MP-11.28
   MP-11.45 TO MP-11.55

2. CONFIGURATION DOES NOT INCLUDE ADDITIONAL TEMPORARY WORKSPACE AT CROSSINGS.

3. PROPOSED PIPELINE TO MAINTAIN ONE FOOT MINIMUM ON ALL SUBSURFACE UTILITY CROSSINGS.

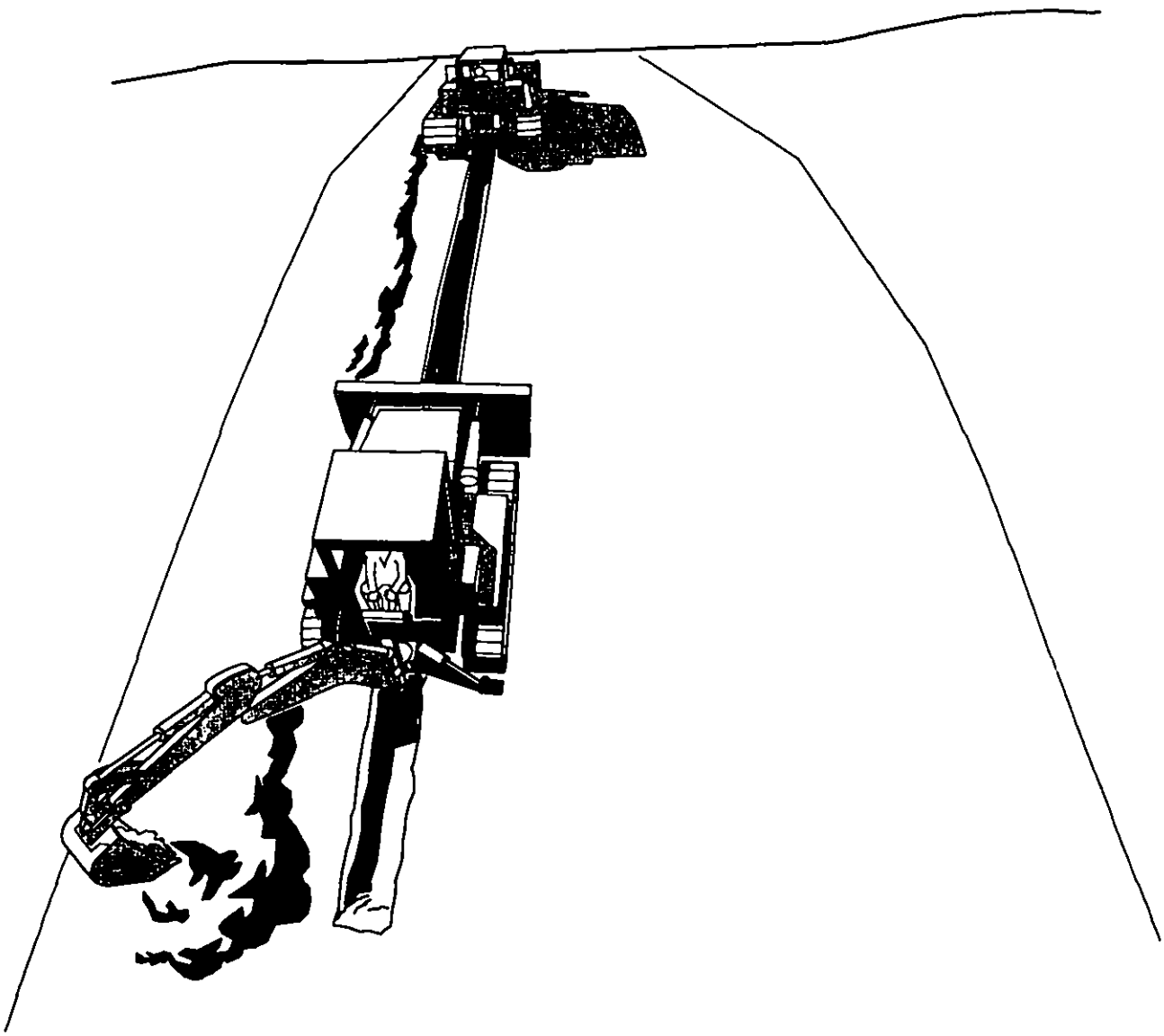
DOMINION TRANSMISSION, INC.

PROPOSED
24" TL-453 EXT. 1
TYPICAL CONSTRUCTION RIGHT-OF-WAY

12/04	TL-453 EXT. 1	NOT TO SCALE	7 of 7

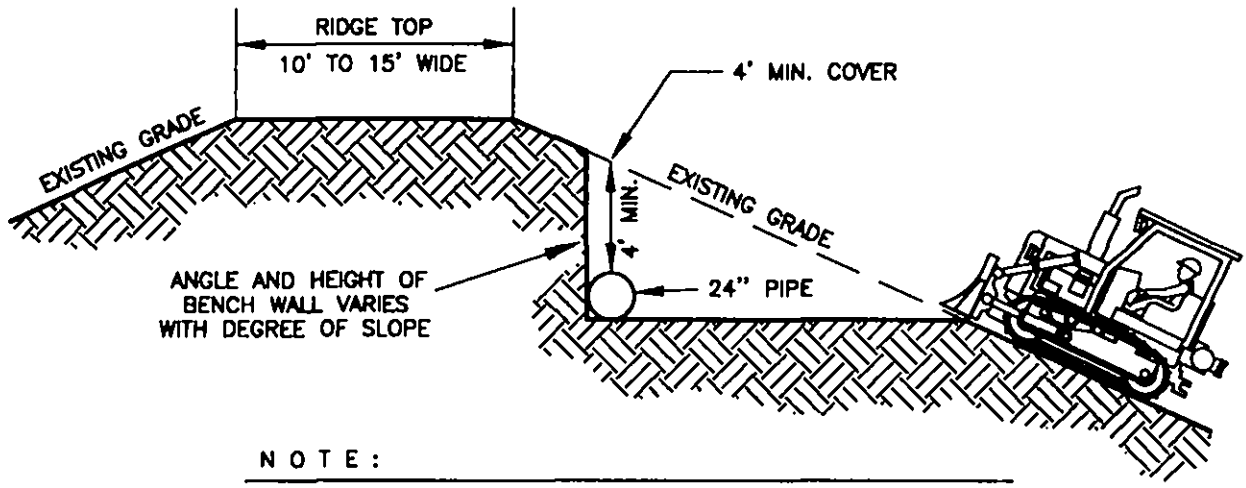
Prepared by MSES consultants, inc.

CAD FILE NO. 03-475-ConstructionMethods / CD1855



COVE POINT EXPANSION PROJECT			
PROPOSED 24" TL-453 EXT 1 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR EXTREME INCLINES			
DEC. 2004	TL-453 EXT 1	NOT TO SCALE	1 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-ConstructionExhibits / CD1853



N O T E :

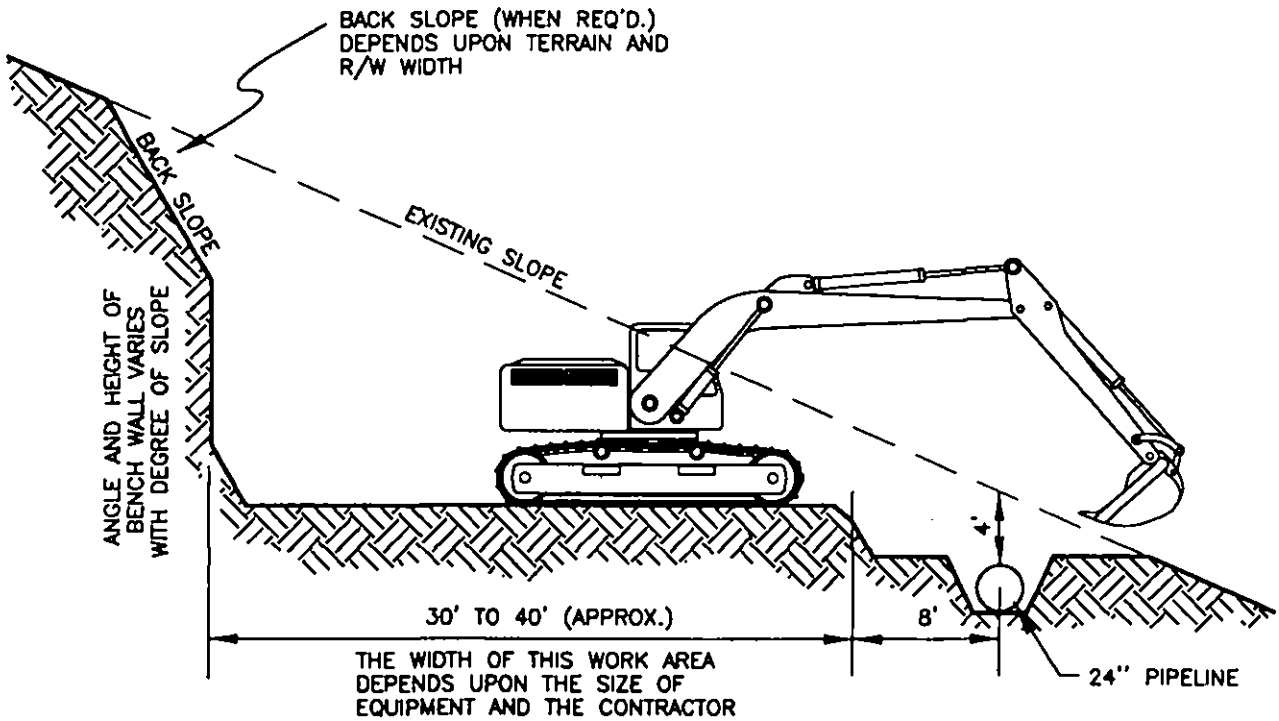
WHEN PIPELINE RUNS PARALLEL TO THE TOP OF A SMALL RIDGE AND TRENCHING MACHINE CANNOT BE EMPLOYED, CUT A SMALL BENCH AND BURY 24" PIPE, WITH A MINIMUM OF 4' COVER, AT THE BASE OF THE BENCH AS SHOWN ABOVE.

N O T E :

EXTRA WORK SPACE REQUIRED ON THE DOWN SLOPE SIDE DEPENDS UPON EXISTING SLOPE.

COVE POINT EXPANSION PROJECT			
PROPOSED 24" TL-453 EXT 1 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR SMALL RIDGELINE			
DEC. 2004	TL-453 EXT 1	NOT TO SCALE	2 OF 4
Prepared by MSES consultants, inc.			

CAD FILE NO. 03-475-ConstructionExhibits / CD1855



NOTE:

EXTRA WORK SPACE REQUIRED
ON THE DOWN SLOPE SIDE
DEPENDS UPON EXISTING SLOPE.

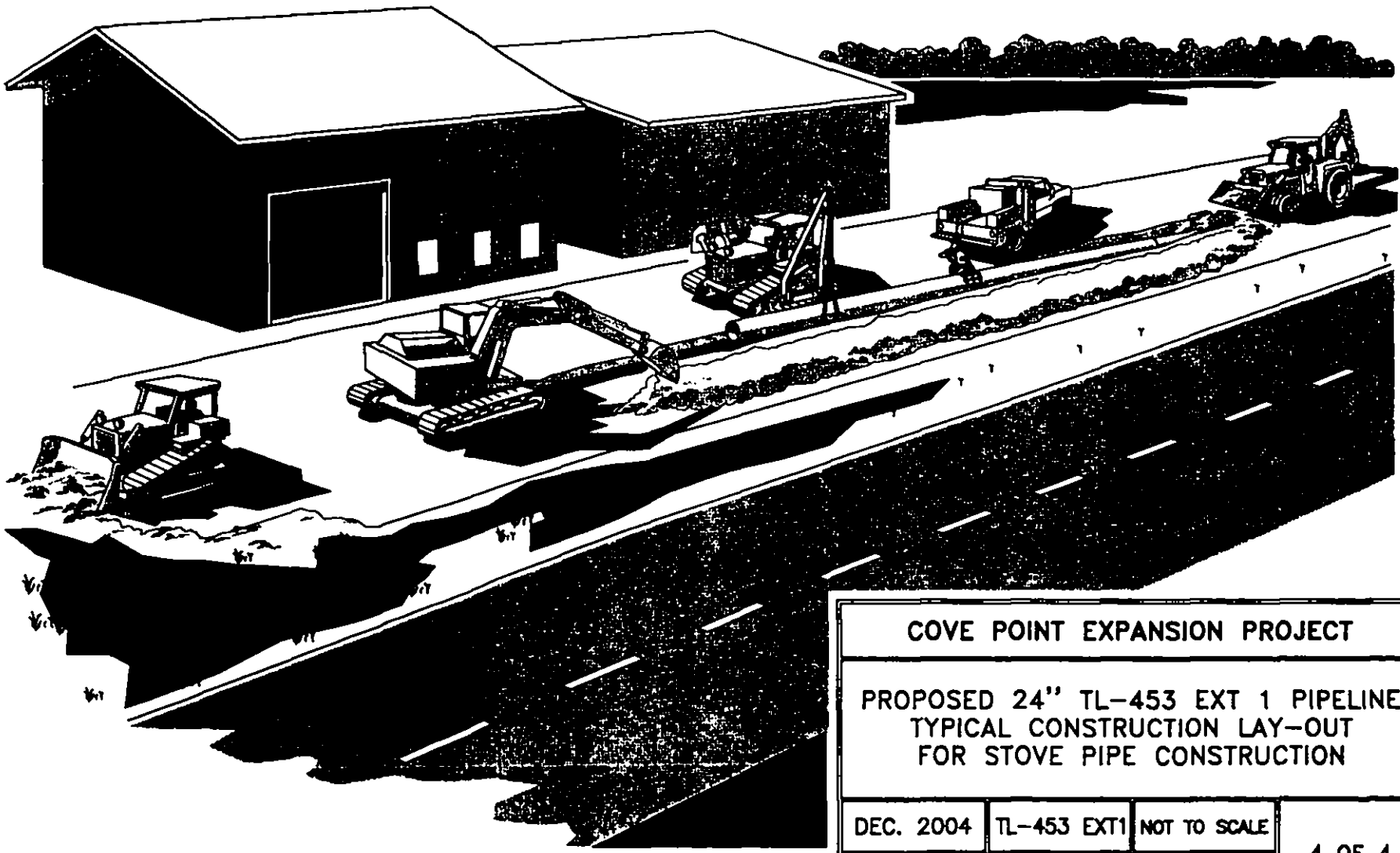
COVE POINT EXPANSION PROJECT

PROPOSED 24" TL-453 EXT 1 PIPELINE TYPICAL CONSTRUCTION RIGHT-OF-WAY FOR TWO-TONE SLOPE

DEC. 2004	TL-453 EXT 1	NOT TO SCALE	3 OF 4

Prepared by MSES consultants, inc.

CAD FILE NO. 03-475-ConstructionExhibits / CD1855



COVE POINT EXPANSION PROJECT

PROPOSED 24" TL-453 EXT 1 PIPELINE TYPICAL CONSTRUCTION LAY-OUT FOR STOVE PIPE CONSTRUCTION

DEC. 2004	TL-453 EXT1	NOT TO SCALE	4 OF 4

Prepared by MSES consultants, inc.

APPENDIX 1-E

TYPICAL WATERBODY CROSSING METHODS FOR THE PL-1 EXT2 PIPELINE

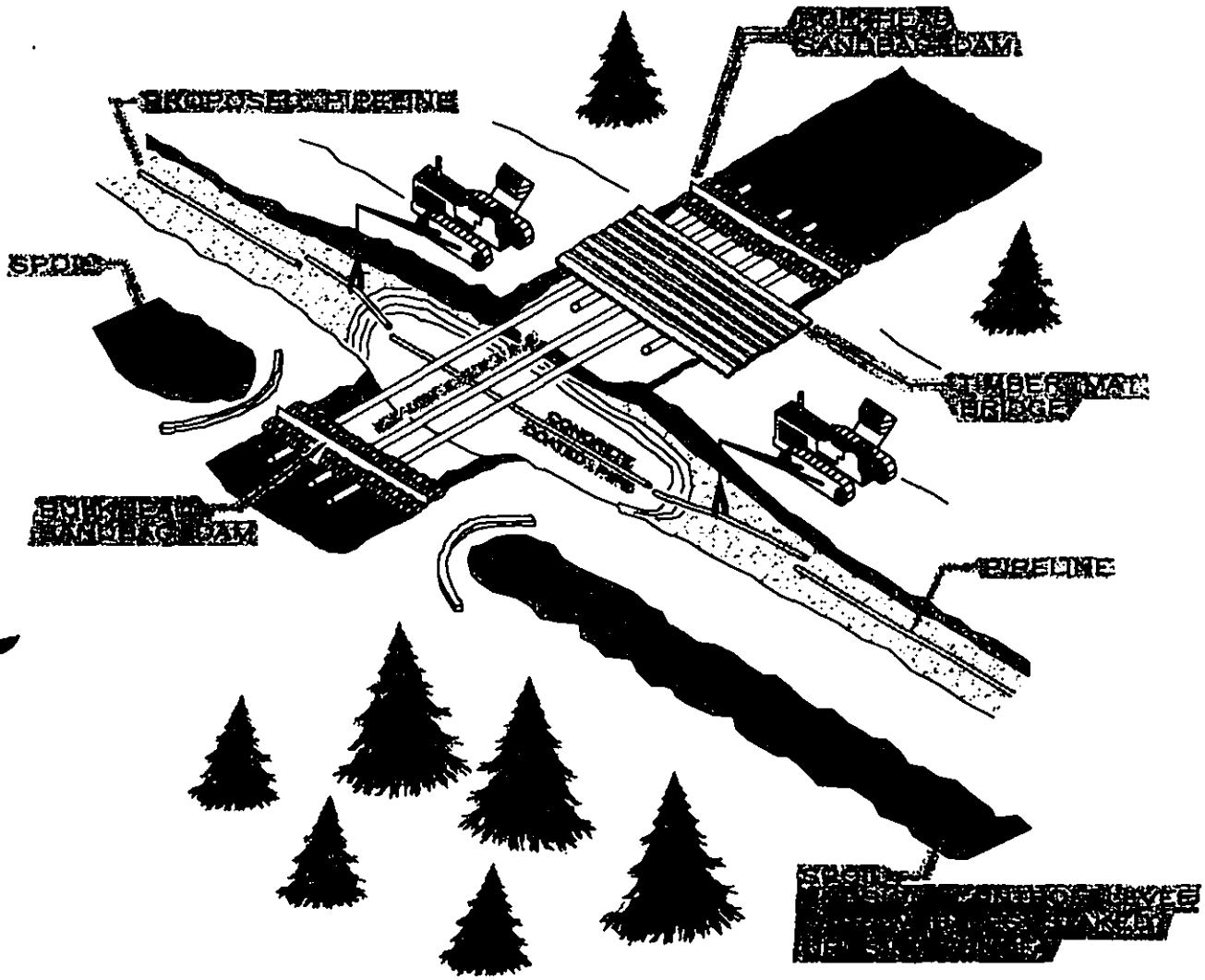
CAD FILE NO. 03-434 \ DRAFTING \ CREEKXINGMETHODS / CD1702

NOTES

1. CONCRETE COATED PIPE SECTION FOR STREAM CROSSING IS LOWERED INTO TRENCH BY SIDE BOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" PL-1 EXT 2 PIPELINE PUMP-AROUND METHOD
MSES consultants, inc.	Drawing No. 1 OF 4

CAD FILE NO. 03-434 \ DRAFTING \ CREEKXINGMETHODS / CD1702

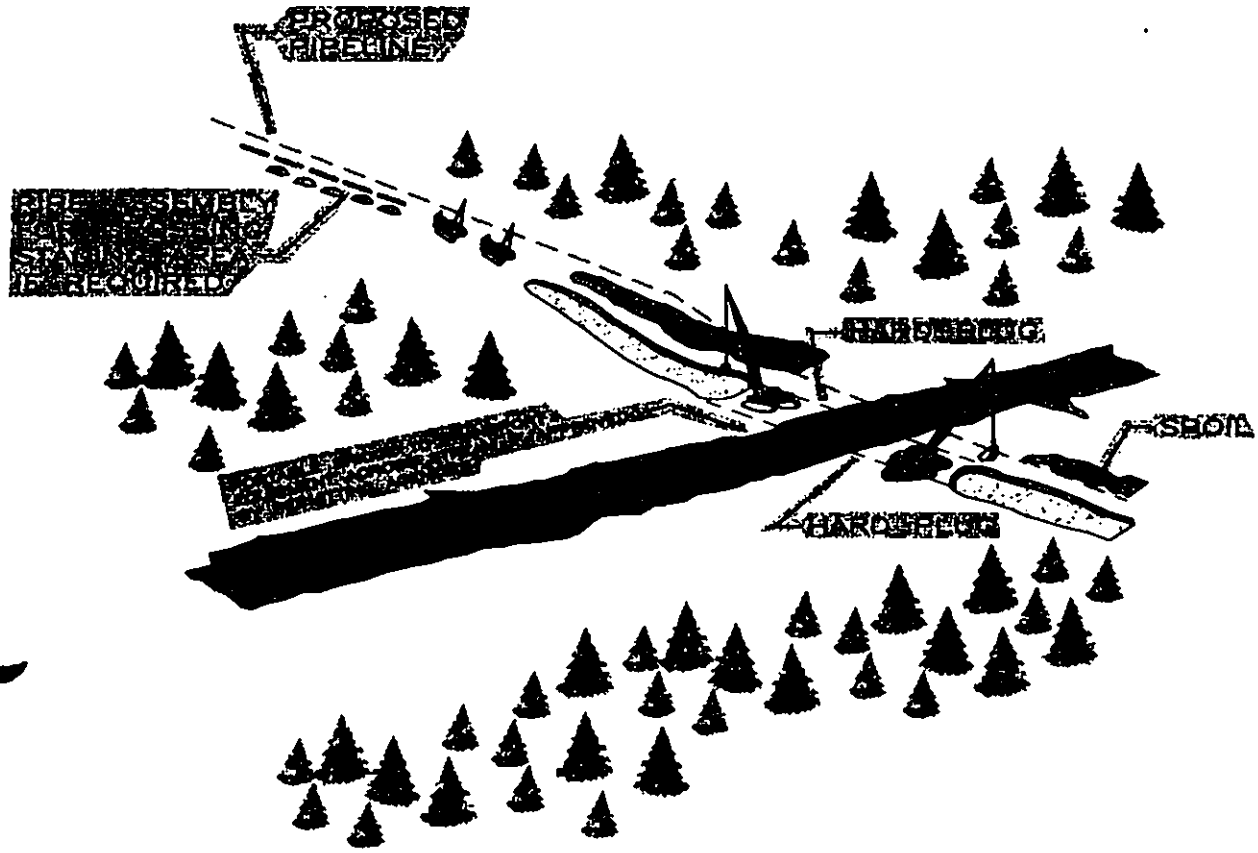


NOTES

1. PIPE TO BE INSTALLED IN TRENCH WITH SIDEBOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" PL-1 EXT 2 PIPELINE FLUME CROSSING METHOD
MSES consultants, inc.	Drawing No. 2 OF 4

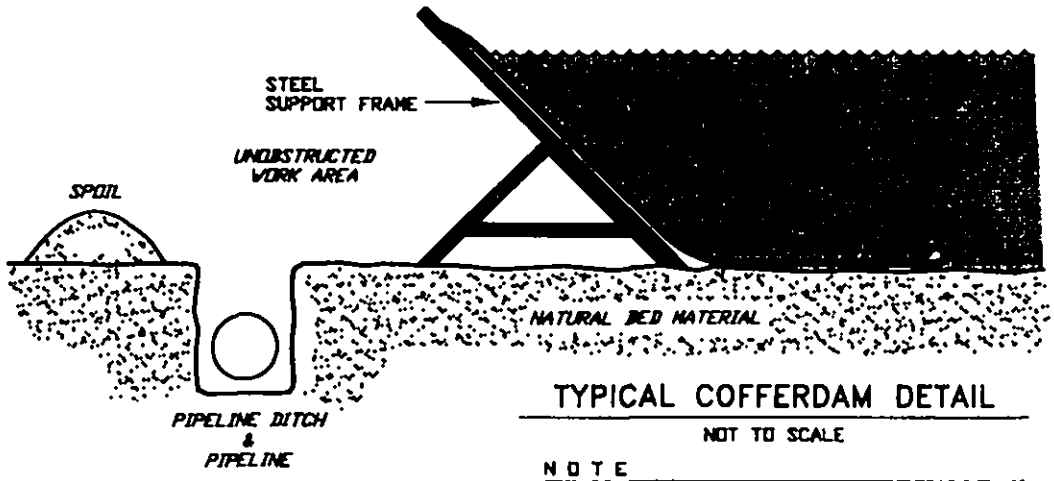
CAD FILE NO. 03-434 \ DRAFTING \ CREEKXINGMETHODS / CD1702



NOTES

1. PORTABLE BRIDGE INSTALLED ACROSS STREAM OR RIVER.
2. HARD PLUG LEFT ON EACH BANK TO PREVENT STREAMFLOW INTO TRENCH.
3. PIPE FOR CROSSING ASSEMBLED AWAY FROM STREAM.
4. DITCH PLUG CONSTRUCTED BEHIND HARD PLUG.

COVE POINT EXPANSION PROJECT	PROPOSED 24" PL-1 EXT 2 PIPELINE WET TRENCH METHOD
MSES consultants, inc.	Drawing No. 3 OF 4

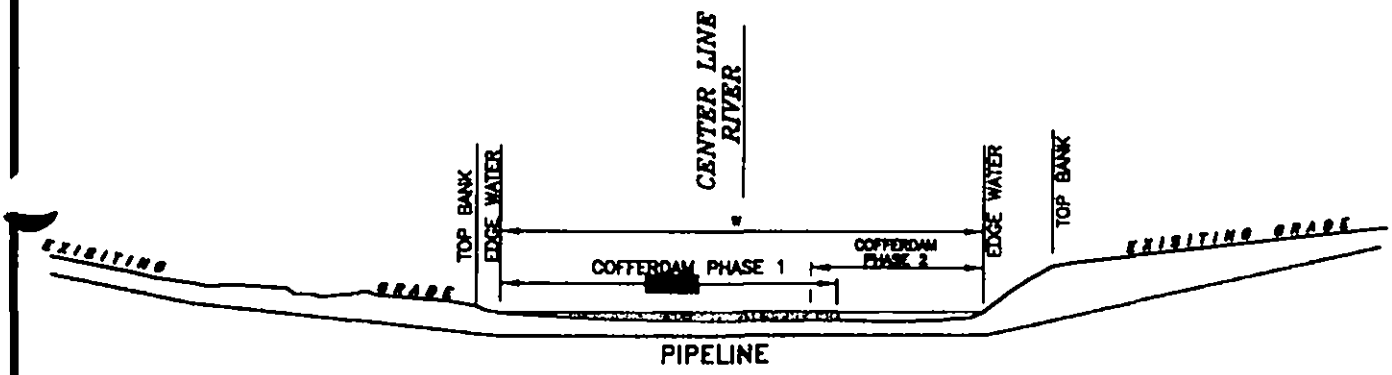


TYPICAL COFFERDAM DETAIL

NOT TO SCALE

NOTE

1. COFFERDAM TO EXTEND COMPLETELY AROUND CONSTRUCTION AREA.
2. OTHER TYPE OF COFFERDAM STRUCTURES MAY BE USED.



SECTION VIEW

NOT TO SCALE

COFFERDAM PROCEDURE

THE COFFERDAM WILL BE CONSTRUCTED WITHIN THE CONSTRUCTION RIGHT-OF-WAY FROM NON-ERODIBLE MATERIALS, COMMERCIAL COFFERDAM PRODUCTS, RIP-RAP, SAND BAGS OR JERSEY BARRIERS ENCLOSING APPROXIMATELY HALF THE STREAM BED IN A SEMI-CIRCLE. THE COFFERDAM SHOULD SEAL TIGHTLY TO THE STREAM BED TO MINIMIZED WATER FROM ENTERING THE AREA. PUMPS WILL BE USED TO KEEP WATER OUT OF THE EXCAVATIONS. ALL EARTH DISTURBANCE WILL OCCUR IN THE DRY BEHIND THE COFFERDAM. THE PIPE WILL BE INSTALLED AND THE DISTURBED AREAS BACKFILLED AND STABILIZED, AND SEDIMENT BARRIERS AT THE WATERLINE WILL BE INSPECTED TO BE IN GOOD WORKING ORDER BEFORE THE COFFERDAM IS REMOVED. STABILIZATION WILL BE WITH EITHER RIP-RAP OR VEGETATION. THE COFFERDAM IS THEN SETUP FROM THE OPPOSITE BANK AND EXTENDS FAR ENOUGH TO INCLUDE THE TIE-IN POINT IN MID-STREAM. THE REMAINDER OF THE PIPE IS INSTALLED AND THE TIE-IN WELD IS MADE. CLEANUP FOLLOWS THE SAME PROCEDURES AS PREVIOUSLY DESCRIBED.

COVE POINT EXPANSION PROJECT	PROPOSED 24" PL-1 EXT 2 PIPELINE COFFERDAM METHOD
MSES consultants, inc.	Drawing No. 4 OF 4

APPENDIX 1-E

TYPICAL WATERBODY CROSSING METHODS FOR THE TL-492 EXT3 PIPELINE

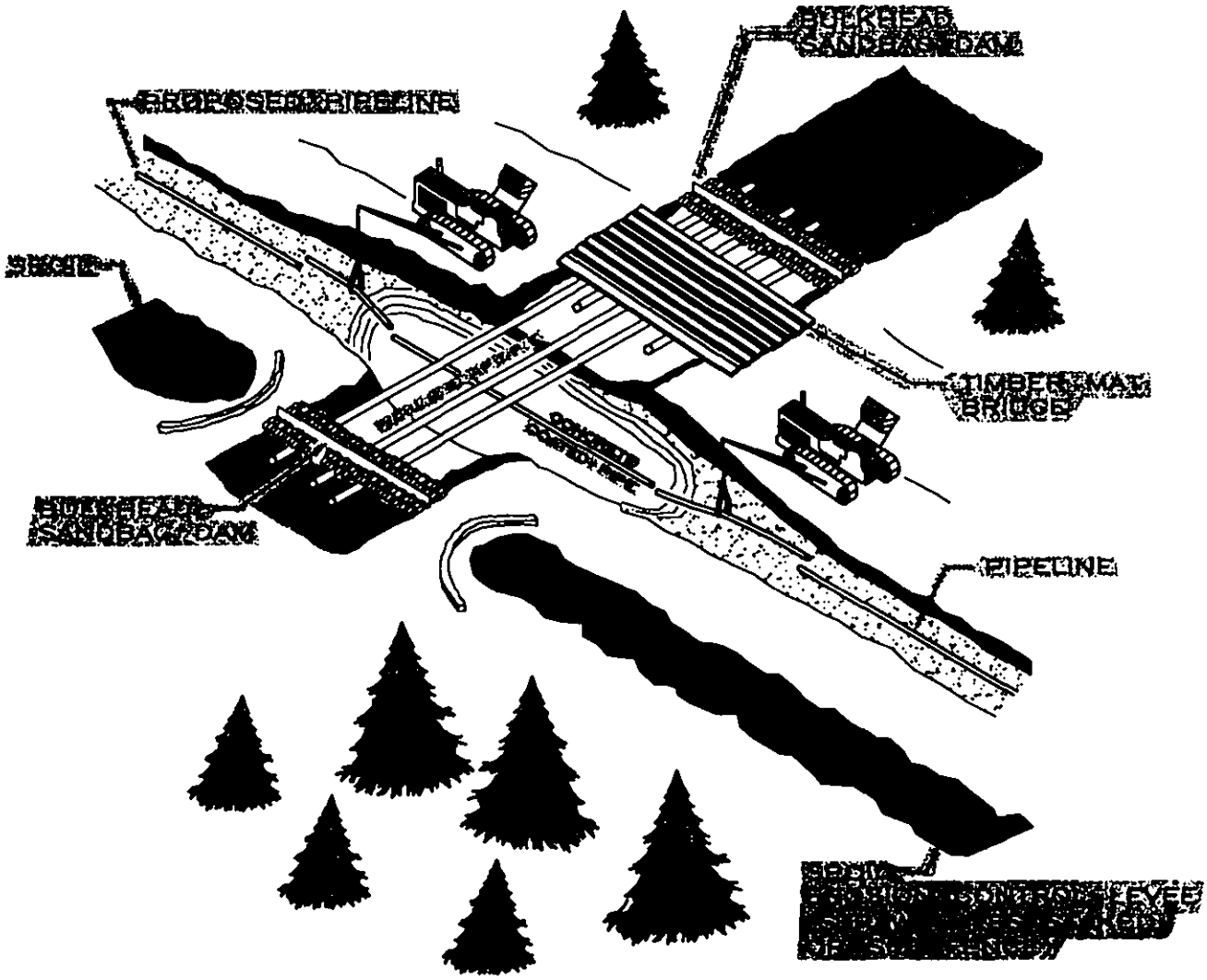
CAD FILE NO. 04-242 \ DRAFTING \ CREEKXINGMETHODS / CD1831

N O T E S

1. CONCRETE COATED PIPE SECTION FOR STREAM CROSSING IS LOWERED INTO TRENCH BY SIDE BOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-492 EXT 3 PIPELINE PUMP-AROUND METHOD
MSES consultants, inc.	Drawing No. 1 OF 4

CAD FILE NO. 04-242 \ DRAFTING \ CREEKXINGMETHODS / CD1831

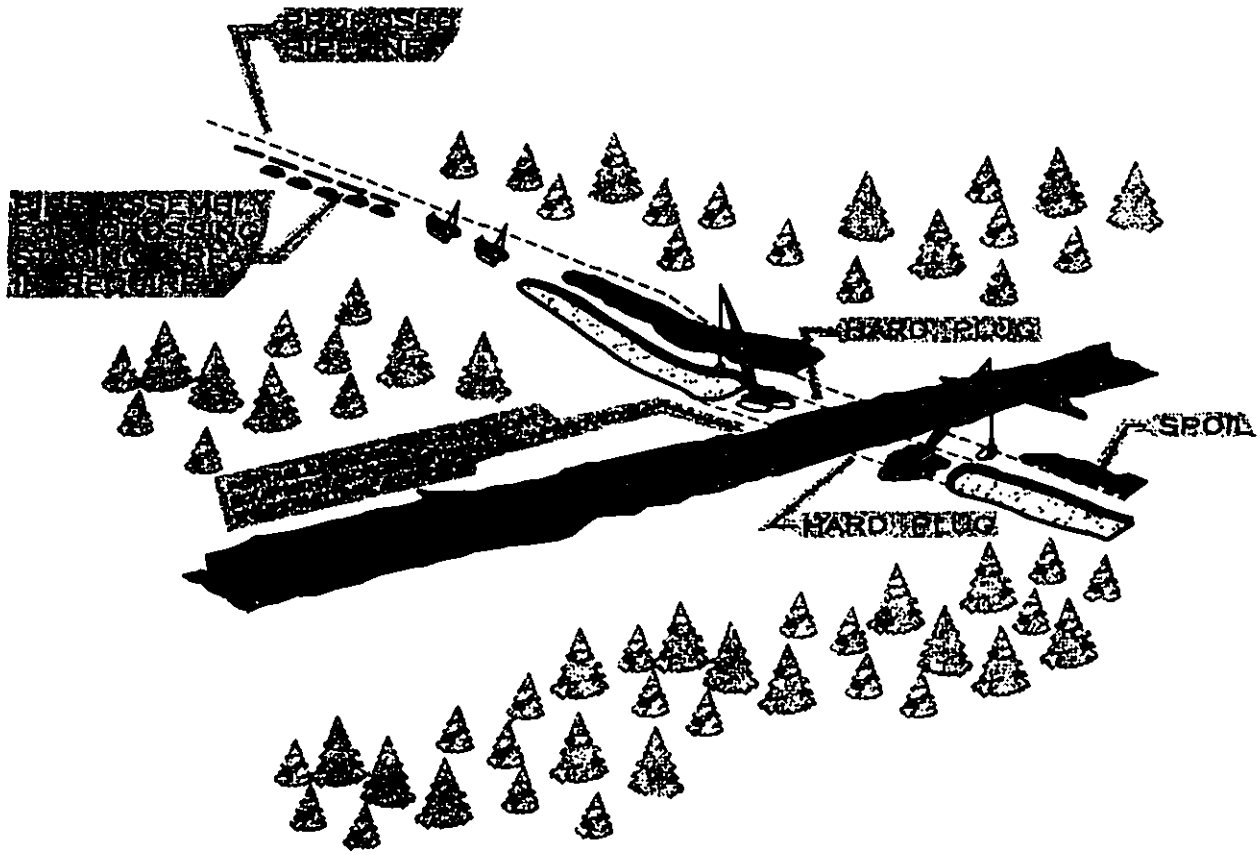


N O T E S

1. PIPE TO BE INSTALLED IN TRENCH WITH SIDEBOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-492 EXT 3 PIPELINE FLUME CROSSING METHOD
MSES consultants, inc.	Drawing No. 2 OF 4

CAD FILE NO. 04-242 \ DRAFTING \ CREEKXINGMETHODS / CD1831

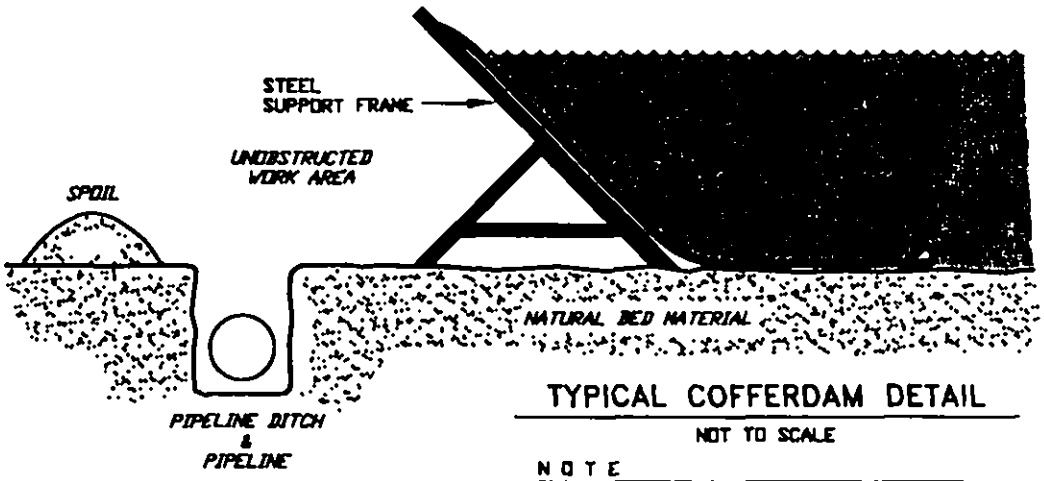


NOTES

1. PORTABLE BRIDGE INSTALLED ACROSS STREAM OR RIVER.
2. HARD PLUG LEFT ON EACH BANK TO PREVENT STREAMFLOW INTO TRENCH.
3. PIPE FOR CROSSING ASSEMBLED AWAY FROM STREAM.
4. DITCH PLUG CONSTRUCTED BEHIND HARD PLUG.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-492 EXT 3 PIPELINE WET TRENCH METHOD
MSES consultants, inc.	Drawing No. 3 OF 4

CAD FILE NO. 04-242 \ DRAFTING \ CREEKXINGMETHODS / CD1831

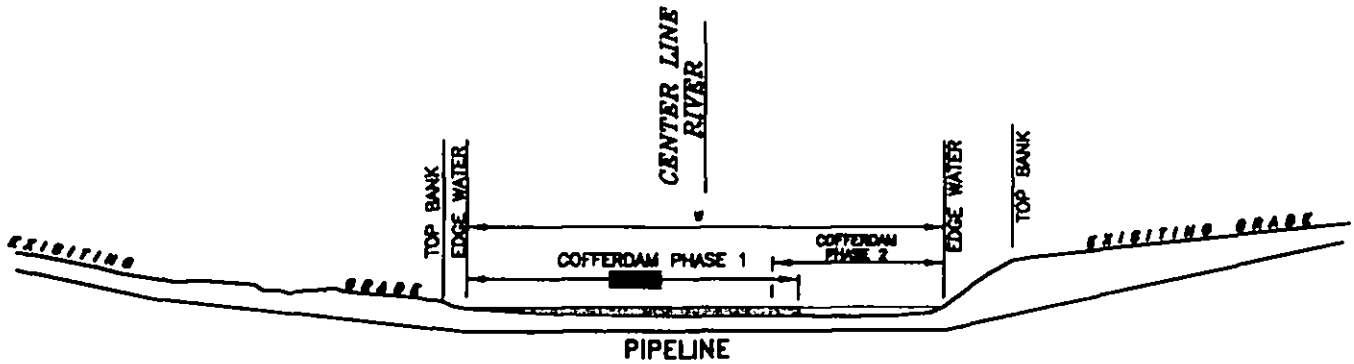


TYPICAL COFFERDAM DETAIL

NOT TO SCALE

NOTE

1. COFFERDAM TO EXTEND COMPLETELY AROUND CONSTRUCTION AREA.
2. OTHER TYPE OF COFFERDAM STRUCTURES MAY BE USED.



SECTION VIEW

NOT TO SCALE

COFFERDAM PROCEDURE

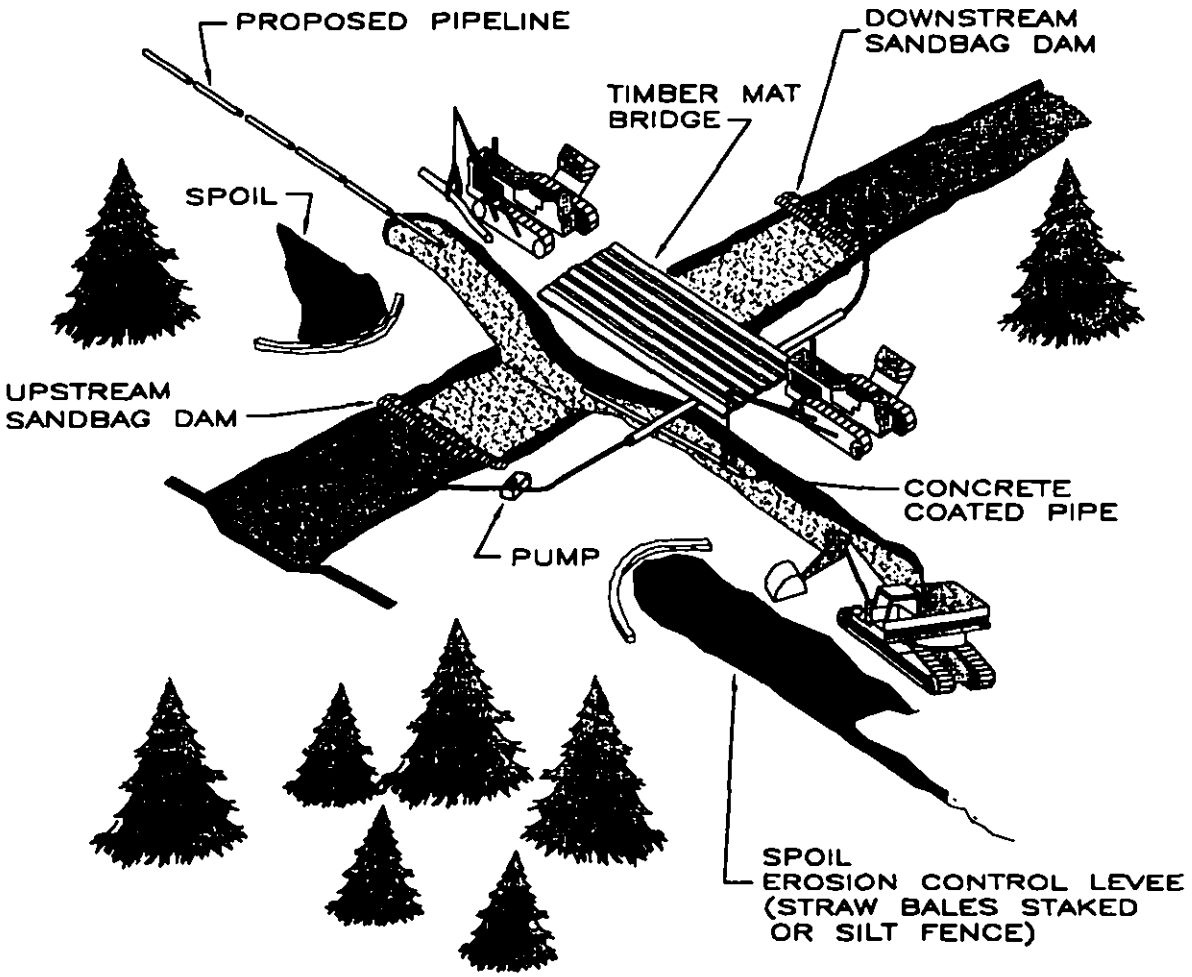
THE COFFERDAM WILL BE CONSTRUCTED WITHIN THE CONSTRUCTION RIGHT-OF-WAY FROM NON-ERODIBLE MATERIALS, COMMERCIAL COFFERDAM PRODUCTS, RIP-RAP, SAND BAGS OR JERSEY BARRIERS ENCLOSING APPROXIMATELY HALF THE STREAM BED IN A SEMI-CIRCLE. THE COFFERDAM SHOULD SEAL TIGHTLY TO THE STREAM BED TO MINIMIZED WATER FROM ENTERING THE AREA. PUMPS WILL BE USED TO KEEP WATER OUT OF THE EXCAVATIONS. ALL EARTH DISTURBANCE WILL OCCUR IN THE DRY BEHIND THE COFFERDAM. THE PIPE WILL BE INSTALLED AND THE DISTURBED AREAS BACKFILLED AND STABILIZED, AND SEDIMENT BARRIERS AT THE WATERLINE WILL BE INSPECTED TO BE IN GOOD WORKING ORDER BEFORE THE COFFERDAM IS REMOVED. STABILIZATION WILL BE WITH EITHER RIP-RAP OR VEGETATION. THE COFFERDAM IS THEN SETUP FROM THE OPPOSITE BANK AND EXTENDS FAR ENOUGH TO INCLUDE THE TIE-IN POINT IN MID-STREAM. THE REMAINDER OF THE PIPE IS INSTALLED AND THE TIE-IN WELD IS MADE. CLEANUP FOLLOWS THE SAME PROCEDURES AS PREVIOUSLY DESCRIBED.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-492 EXT 3 PIPELINE COFFERDAM METHOD
MSES consultants, inc.	Drawing No. 4 OF 4

APPENDIX 1-E

TYPICAL WATERBODY CROSSING METHODS FOR THE TL-536 PIPELINE

CAD FILE NO. 03-374 \ DRAFTING \ CREEKXINGMETHODS / CD1831

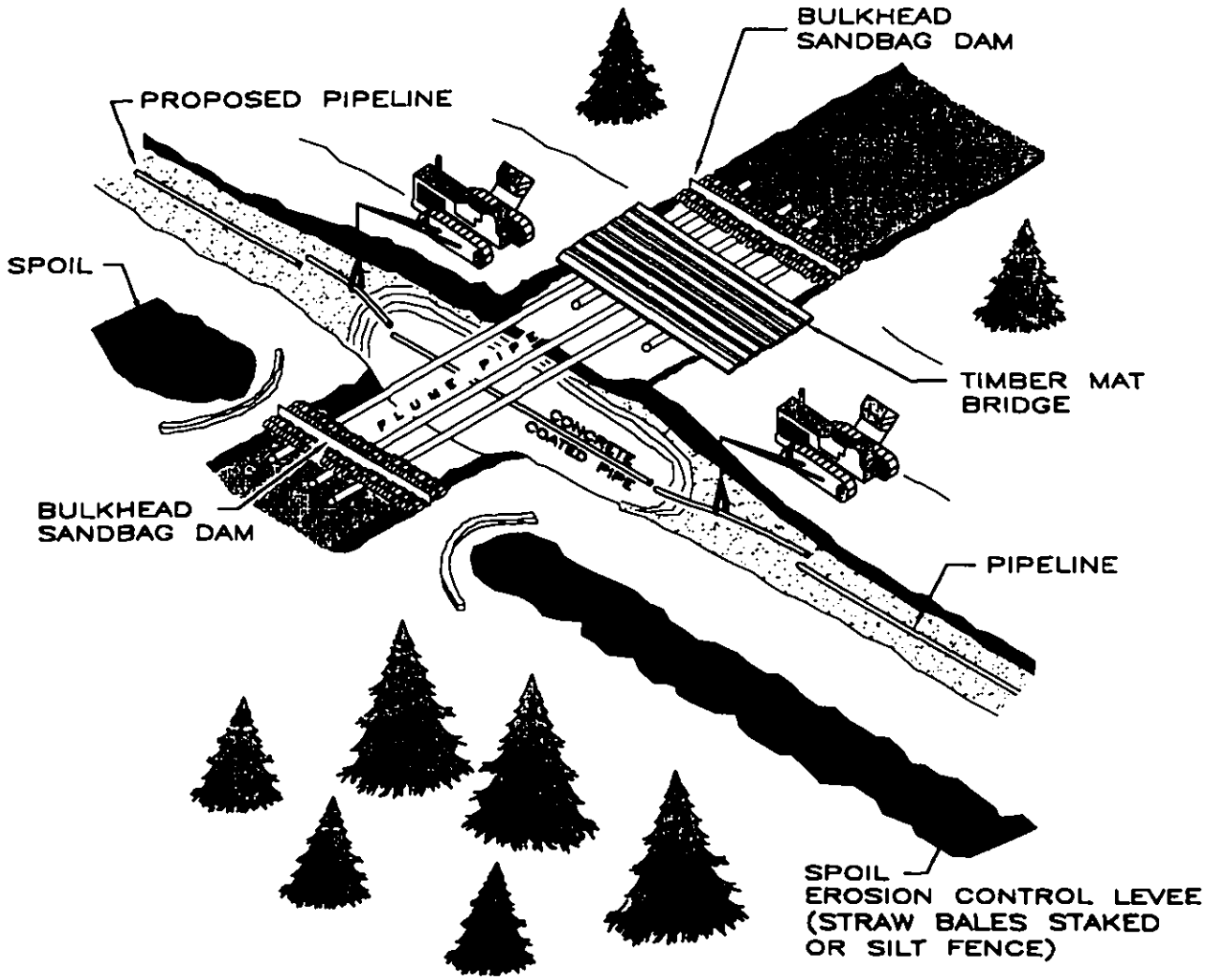


NOTES

1. CONCRETE COATED PIPE SECTION FOR STREAM CROSSING IS LOWERED INTO TRENCH BY SIDE BOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 20" TL-536 PIPELINE PUMP-AROUND METHOD
MSES consultants, inc.	Drawing No. 1 OF 4

CAD FILE NO. 03-374 \ DRAFTING \ CREEKXINGMETHODS / CD1831

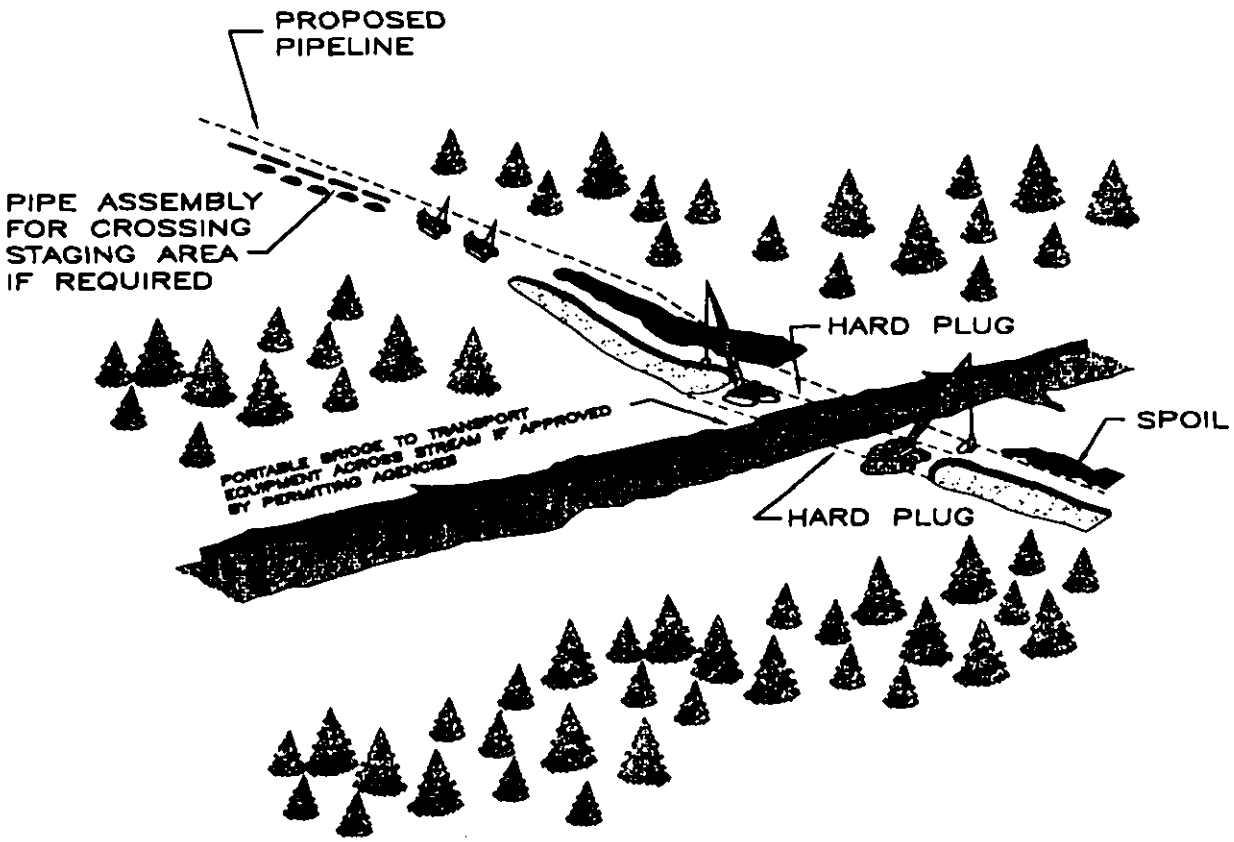


NOTES

1. PIPE TO BE INSTALLED IN TRENCH WITH SIDEBOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 20" TL-536 PIPELINE FLUME CROSSING METHOD
MSES consultants, inc.	Drawing No. 2 OF 4

CAD FILE NO. 03-374 \ DRAFTING \ CREEKXINGMETHODS / CD1831

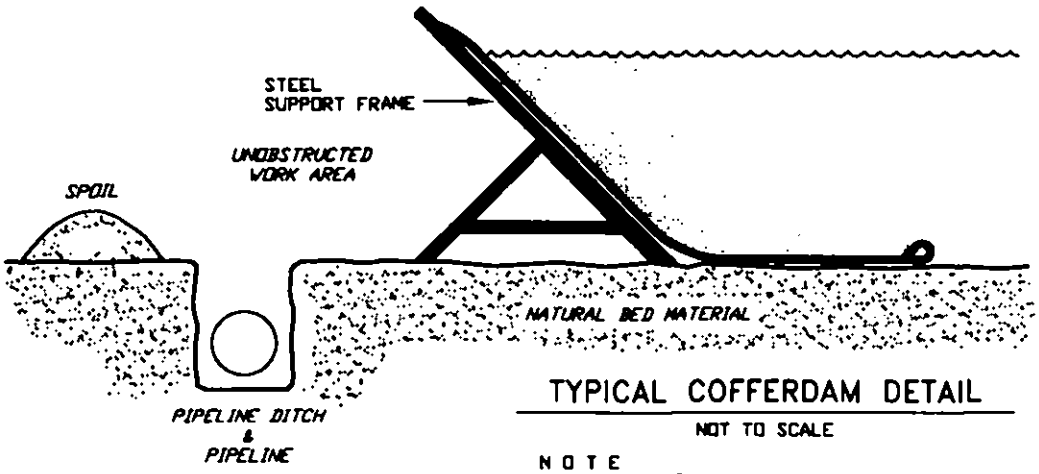


N O T E S

1. PORTABLE BRIDGE INSTALLED ACROSS STREAM OR RIVER.
2. HARD PLUG LEFT ON EACH BANK TO PREVENT STREAMFLOW INTO TRENCH.
3. PIPE FOR CROSSING ASSEMBLED AWAY FROM STREAM.
4. DITCH PLUG CONSTRUCTED BEHIND HARD PLUG.

COVE POINT EXPANSION PROJECT	PROPOSED 20" TL-536 PIPELINE WET TRENCH METHOD
MSES consultants, inc.	Drawing No. 3 OF 4

CAD FILE NO. 03-374 \ DRAFTING \ CREEKXINGMETHODS /CD 1831

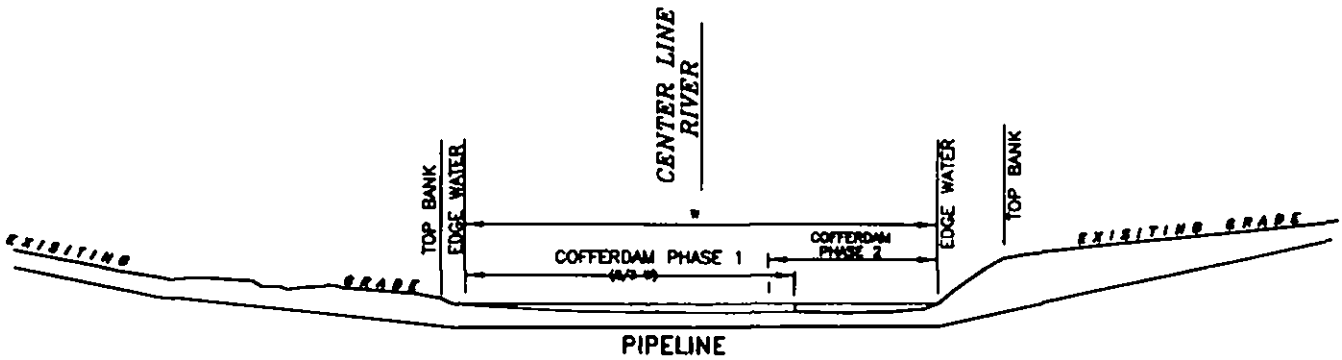


TYPICAL COFFERDAM DETAIL

NOT TO SCALE

N O T E

1. COFFERDAM TO EXTEND COMPLETELY AROUND CONSTRUCTION AREA.
2. OTHER TYPE OF COFFERDAM STRUCTURES MAY BE USED.



SECTION VIEW

NOT TO SCALE

C O F F E R D A M P R O C E D U R E

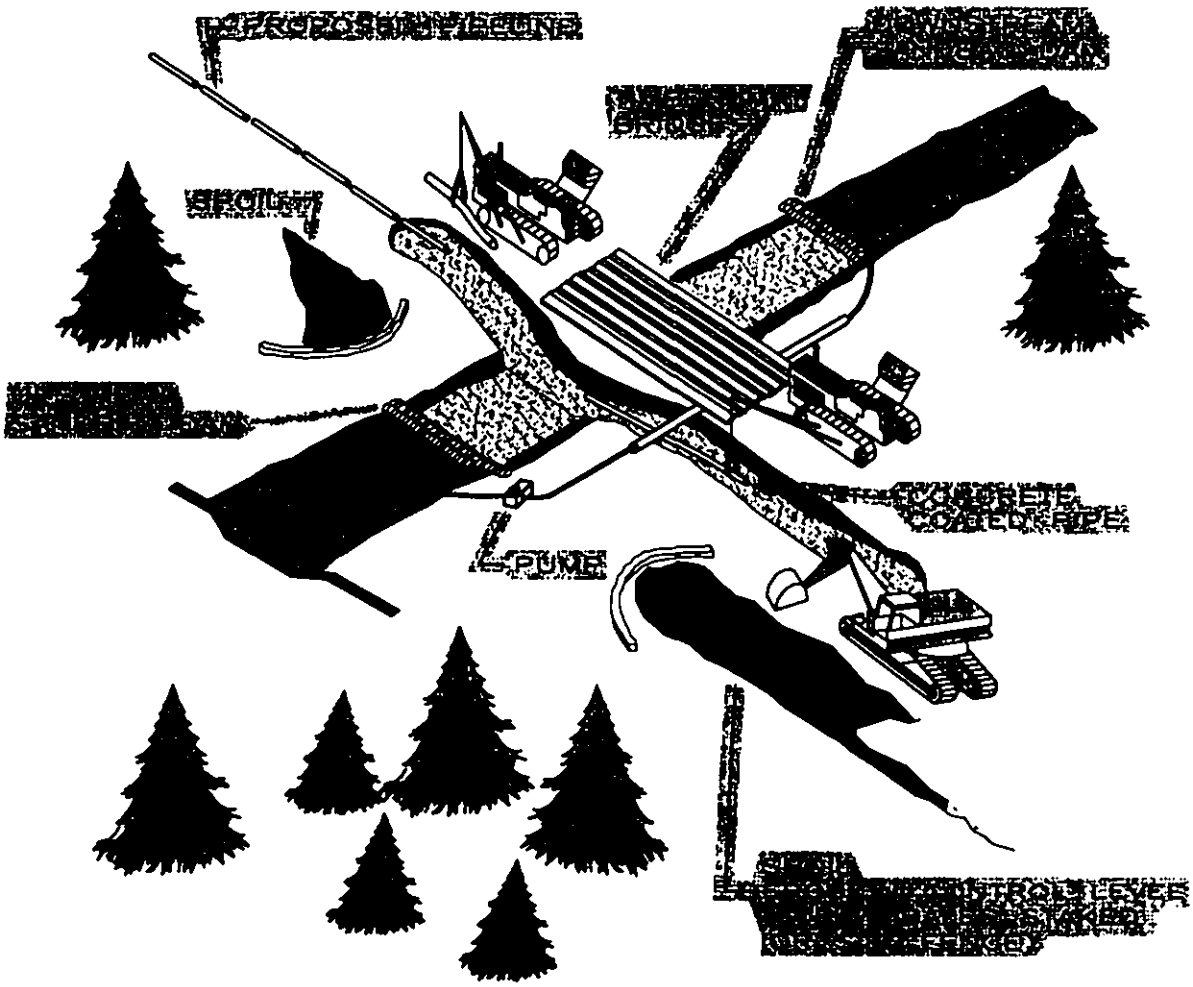
THE COFFERDAM WILL BE CONSTRUCTED WITHIN THE CONSTRUCTION RIGHT-OF-WAY FROM NON-ERODIBLE MATERIALS, COMMERCIAL COFFERDAM PRODUCTS, RIP-RAP, SAND BAGS OR JERSEY BARRIERS ENCLOSING APPROXIMATELY HALF THE STREAM BED IN A SEMI-CIRCLE. THE COFFERDAM SHOULD SEAL TIGHTLY TO THE STREAM BED TO MINIMIZED WATER FROM ENTERING THE AREA. PUMPS WILL BE USED TO KEEP WATER OUT OF THE EXCAVATIONS. ALL EARTH DISTURBANCE WILL OCCUR IN THE DRY BEHIND THE COFFERDAM. THE PIPE WILL BE INSTALLED AND THE DISTURBED AREAS BACKFILLED AND STABILIZED, AND SEDIMENT BARRIERS AT THE WATERLINE WILL BE INSPECTED TO BE IN GOOD WORKING ORDER BEFORE THE COFFERDAM IS REMOVED. STABILIZATION WILL BE WITH EITHER RIP-RAP OR VEGETATION. THE COFFERDAM IS THEN SETUP FROM THE OPPOSITE BANK AND EXTENDS FAR ENOUGH TO INCLUDE THE TIE-IN POINT IN MID-STREAM. THE REMAINDER OF THE PIPE IS INSTALLED AND THE TIE-IN WELD IS MADE. CLEANUP FOLLOWS THE SAME PROCEDURES AS PREVIOUSLY DESCRIBED.

COVE POINT EXPANSION PROJECT	PROPOSED 20" TL-536 PIPELINE COFFERDAM METHOD
MSES consultants, inc.	Drawing No. 4 OF 4

APPENDIX 1-E

TYPICAL WATERBODY CROSSING METHODS FOR THE TL-453 EXT1 PIPELINE

CAD FILE NO. 03-375 \ DRAFTING \ CREEKXINGMETHODS / CD1855

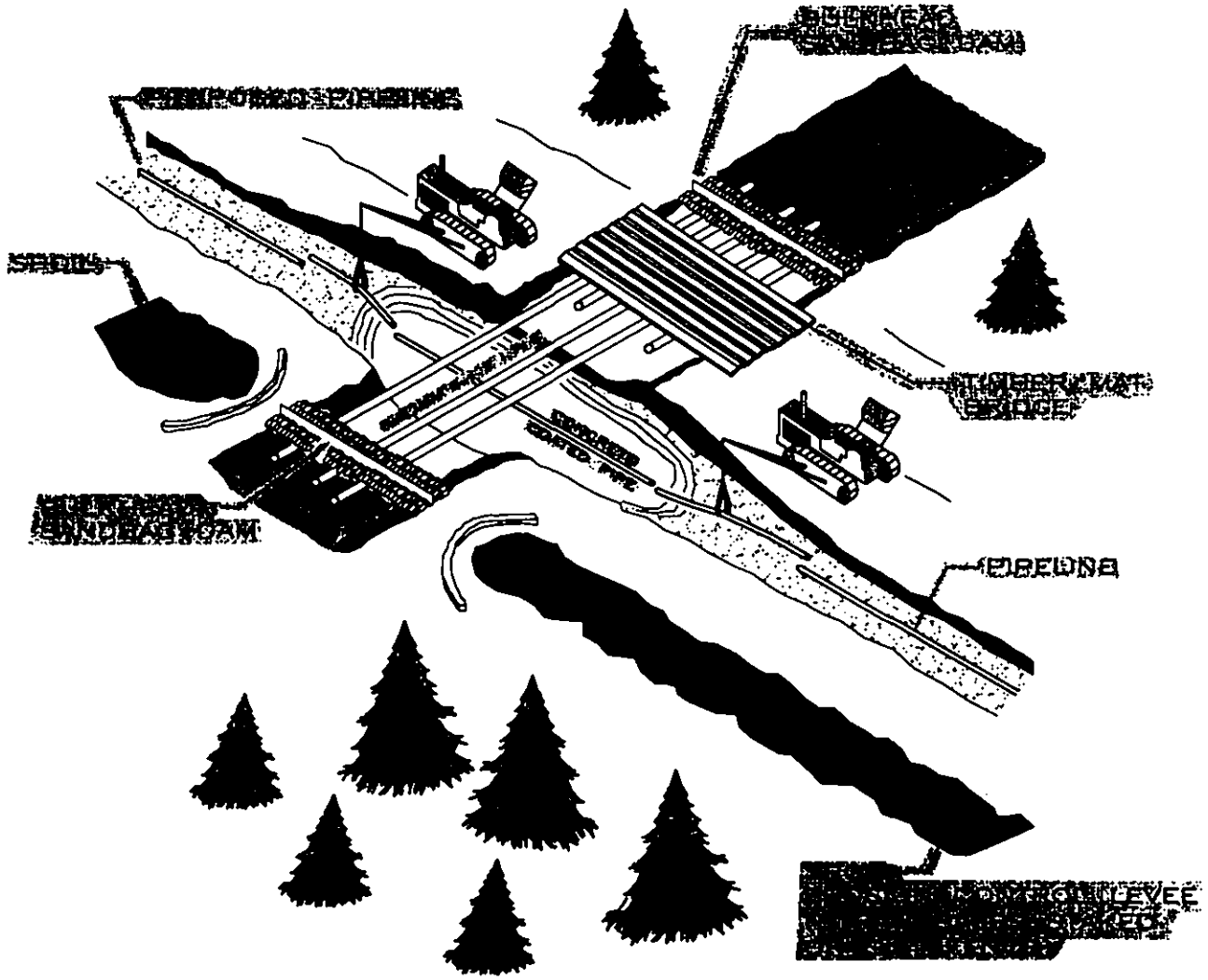


N O T E S

1. CONCRETE COATED PIPE SECTION FOR STREAM CROSSING IS LOWERED INTO TRENCH BY SIDE BOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-453 EXT 1 PIPELINE PUMP-AROUND METHOD
MSES consultants, inc.	Drawing No. 1 OF 4

CAD FILE NO. 03-375 \ DRAFTING \ CREEKXINGMETHODS / CD1855

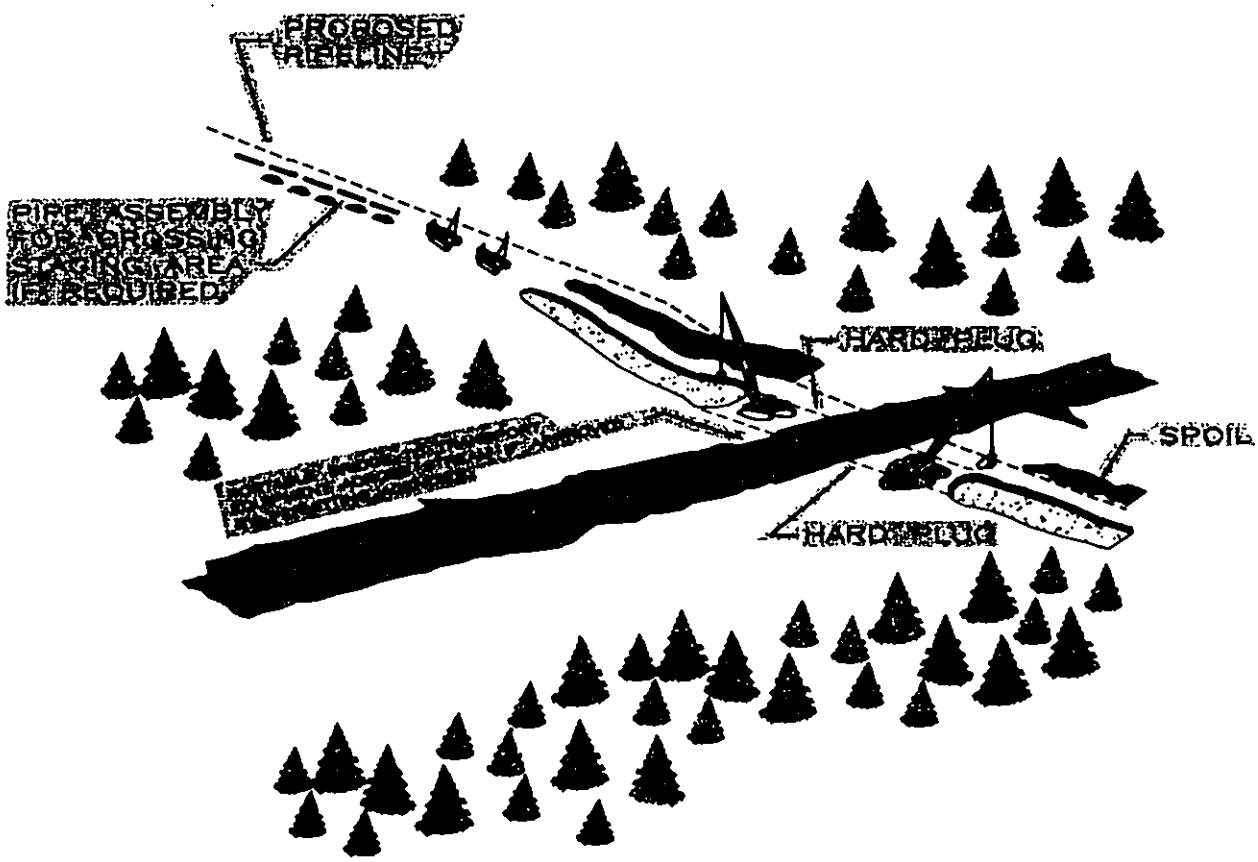


NOTES

1. PIPE TO BE INSTALLED IN TRENCH WITH SIDEBOOM TRACTORS AND/OR CRANES AS REQUIRED BY DEPTH, LENGTH AND SIZE OF CROSSING.
2. PIPE TO BE TIED INTO PIPELINE.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-453 EXT 1 PIPELINE FLUME CROSSING METHOD
MSES consultants, inc.	Drawing No. 2 OF 4

CAD FILE NO. 03-375 \ DRAFTING \ CREEKXINGMETHODS / CD1855

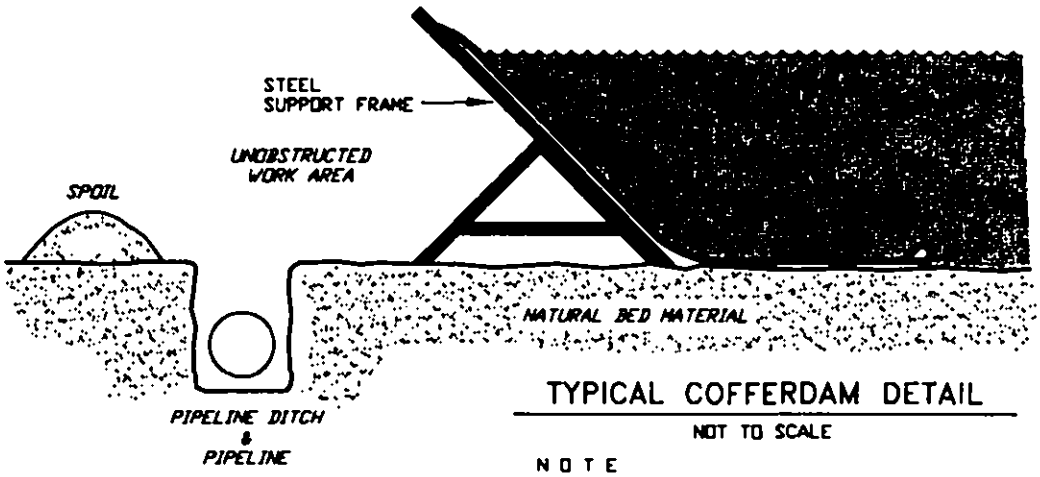


N O T E S

1. PORTABLE BRIDGE INSTALLED ACROSS STREAM OR RIVER.
2. HARD PLUG LEFT ON EACH BANK TO PREVENT STREAMFLOW INTO TRENCH.
3. PIPE FOR CROSSING ASSEMBLED AWAY FROM STREAM.
4. DITCH PLUG CONSTRUCTED BEHIND HARD PLUG.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-453 EXT 1 PIPELINE WET TRENCH METHOD
MSES consultants, inc.	Drawing No. 3 OF 4

CAD FILE NO. 03-375 \ DRAFTING \ CREEKXINGMETHODS /CD 1855

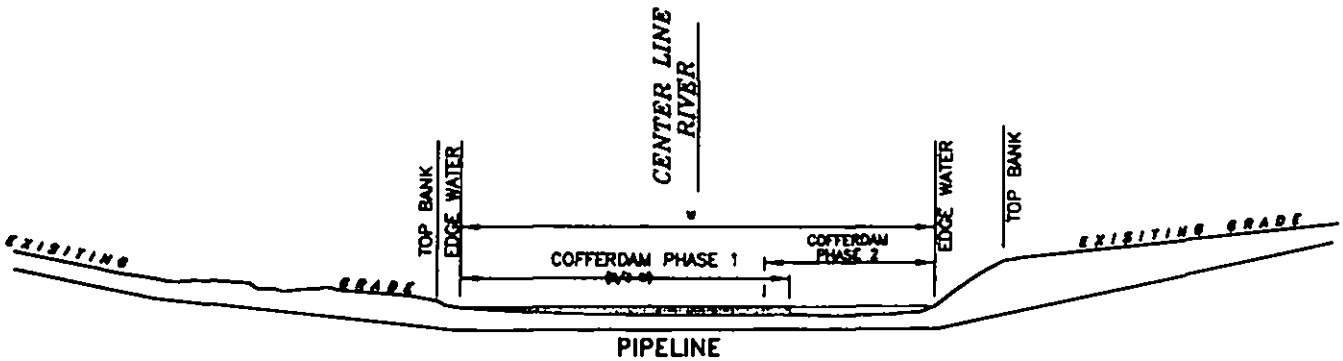


TYPICAL COFFERDAM DETAIL

NOT TO SCALE

NOTE

1. COFFERDAM TO EXTEND COMPLETELY AROUND CONSTRUCTION AREA.
2. OTHER TYPE OF COFFERDAM STRUCTURES MAY BE USED.



SECTION VIEW

NOT TO SCALE

COFFERDAM PROCEDURE

THE COFFERDAM WILL BE CONSTRUCTED WITHIN THE CONSTRUCTION RIGHT-OF-WAY FROM NON-ERODIBLE MATERIALS, COMMERCIAL COFFERDAM PRODUCTS, RIP-RAP, SAND BAGS OR JERSEY BARRIERS ENCLOSING APPROXIMATELY HALF THE STREAM BED IN A SEMI-CIRCLE. THE COFFERDAM SHOULD SEAL TIGHTLY TO THE STREAM BED TO MINIMIZED WATER FROM ENTERING THE AREA. PUMPS WILL BE USED TO KEEP WATER OUT OF THE EXCAVATIONS. ALL EARTH DISTURBANCE WILL OCCUR IN THE DRY BEHIND THE COFFERDAM. THE PIPE WILL BE INSTALLED AND THE DISTURBED AREAS BACKFILLED AND STABILIZED, AND SEDIMENT BARRIERS AT THE WATERLINE WILL BE INSPECTED TO BE IN GOOD WORKING ORDER BEFORE THE COFFERDAM IS REMOVED. STABILIZATION WILL BE WITH EITHER RIP-RAP OR VEGETATION. THE COFFERDAM IS THEN SETUP FROM THE OPPOSITE BANK AND EXTENDS FAR ENOUGH TO INCLUDE THE TIE-IN POINT IN MID-STREAM. THE REMAINDER OF THE PIPE IS INSTALLED AND THE TIE-IN WELD IS MADE. CLEANUP FOLLOWS THE SAME PROCEDURES AS PREVIOUSLY DESCRIBED.

COVE POINT EXPANSION PROJECT	PROPOSED 24" TL-453 EXT 1 PIPELINE COFFERDAM METHOD
MSES consultants, inc.	Drawing No. 4 OF 4

RESOURCE REPORT 2 - WATER USE AND QUALITY

2.0 INTRODUCTION

This report describes the current baseline conditions of surface and groundwater resources in the PL-1 EXT2, TL-492 EXT3, TL-536, and TL-453 EXT1 pipeline areas. Existing water use and water quality is assessed, protected and/or sensitive watersheds and waterbodies are identified, and adjacent well locations are identified. Potential impacts from pipeline construction and operation are described and protective/mitigation measures are provided to minimize impacts to the environment. Refer to Resource Report 1 for permitting requirements.

Section 2.1 presents the existing groundwater resources, existing public and private wells, methods for minimizing groundwater impacts, and potential contamination sites, based on data obtained from the USGS, PaDEP, and United States Environmental Protection Agency (USEPA), as well as information provided by individual property owners.

Section 2.2 presents waterbodies crossed by the pipeline, as determined from field surveys conducted between May 2004 and July 2004 for PL-1 EXT2, and between August 2004 and October 2004 for TL-492 EXT3, TL-536, and TL-453 EXT1. Evaluation includes MP location, waterbody width and type, state water quality classification and fishery type. Proposed crossing methods are discussed and mitigation/restoration plans provided. Contaminated stream sediments, protected public watershed areas, and sensitive surface waters are identified along the pipeline route from regulatory database searches and state/county staff interviews.

Section 2.3 presents wetlands crossed by the pipeline, as determined from field delineations conducted between May 2004 and July 2004 for PL-1 EXT2, and between August 2004 and October 2004 for TL-492 EXT3, TL-536, and TL-453 EXT1.

2.1 GROUNDWATER RESOURCES

Identify all U.S. Environmental Protection Agency (EPA)- or state-designated aquifers crossed. (380.12(e)(2)).

2.1.1 Groundwater Resources of the Project Area

2.1.1.1 PL-1 EXT2

The principal water-yielding geologic units for this project are the carbonates and sandstones of the Silurian-aged Mifflintown Formation, the Devonian-aged Onondaga Formation, the Mississippian-aged Pocono Group, and the Pennsylvanian-aged Pottsville Group. The reported typical yields of the wells completed range from 20 to 120 gallons per minute for the Mifflintown through the Onondaga Formations; 30 to

300 gallons per minute for the Pocono Group; and 50 to 100 gallons per minute for the Pottsville Group.

All of Section 1 and Section 2, from S1MP0.0 to S2MP25.1, of the pipeline lie within the Ridge and Valley Physiographic Region, while Section 2, from S2MP25.1 to S2MP28.6, and Section 3 lie within the Appalachian Plateau Physiographic Province. Aquifers of the Ridge and Valley Province consist of permeable rocks within folded and faulted sedimentary formations. The principal aquifers are carbonate rocks that are located in the valleys. The water-yielding characteristic of the carbonate rocks depends on the degree of fracturing and the development of cavities. Sandstone formations also yield large quantities in areas of high fracturing. Limestones in this region are predominately of late-Silurian and early Devonian-age, whereas the sandstones are predominately of Ordovician-age and Devonian-age. The drainage patterns directly reflect the alternating resistant and easily eroded rocks of the folded strata in this region. Most major streams and tributaries form trellis drainage patterns, which are expressed by the patterns of resistant and weak rocks.

Most of the Appalachian Plateau aquifers are Permian-aged and Pennsylvanian-aged rocks. Rocks capable of producing usable quantities of water are present along the pipeline route and typically consist of local recharge and discharge systems. The water table in this region generally follows topography. The depth to groundwater can be as great as several hundred feet along ridge tops and can be very near ground surface along stream and river banks. Confining units overlying aquifers can result in artesian wells in low-lying areas.

Aquifer recharge occurs in most areas with the greatest recharge occurring in flat-lying areas where well-developed soils or deposits of sediment are present and water residence time at the surface is great enough to allow percolation. Most precipitation that falls on hill slopes is quickly shed to streams and rivers via runoff. The groundwater flow path is often affected by secondary flow controls such as fracture, joint and bedding planes (USGS, 1997).

There are no USEPA-designated Sole Source aquifers in the project area.

2.1.1.2 TL-492 EXT3

The Appalachian Plateaus Physiographic Province extends over most of WV, more than one-half of PA, and small parts of westernmost VA and MD.

Aquifers in consolidated sedimentary rocks in the Appalachian Plateaus Province are divided into the following categories: Mississippian aquifers and Permian and Pennsylvanian aquifers. Most of the water-yielding rocks are sandstones, but carbonate rocks of Mississippian-age locally yield water in parts of VA and WV. Coal beds and seams yield water because they commonly are fractured along joint systems (cleat) that store and transmit water.

The consolidated rocks of the Appalachian Plateaus Province are almost flat-lying to gently folded; the regional dip of the beds rarely exceeds 25 feet per mile. Elongated, gentle folds form alternating anticlines and synclines in PA and WV. These gentle warps are surface expressions of small displacements along deep-seated faults in many cases. Deformation of strata in the Appalachian Plateaus is extremely subtle compared to the folding in the Valley and Ridge Province.

In southwestern PA, the consolidated rocks nearest the surface are mostly Pennsylvanian in age. Pennsylvanian rocks are the principal coal-bearing formations and consist of cyclic sequences of sandstone, shale, conglomerate, clay, coal, and minor limestone. The sandstones are the most productive aquifers, although coal beds and limestones also yield water; the limestones, however, are thin compared to those of the Valley and Ridge Province. Rocks of Permian-age cover most of Greene and Washington Counties in the southwestern corner of the state. Permian rocks are similar in lithology and water-yielding characteristics to the Pennsylvanian rocks, but were not deposited in cycles; they contain only thin coal beds and consist of more shale and less sandstone and conglomerate than the Pennsylvanian strata. Mississippian rocks consist mostly of shale, sandstone, and siltstone with minor conglomerate and limestone and are exposed north and east of the Pennsylvanian rocks where the beds of Pennsylvanian-age have been removed by erosion. The principal water-yielding geologic units are sandstones of the Permian and Pennsylvanian Dunkard Group through the Mississippian and Devonian Pocono Formation. Reported typical yields of wells completed in all these units range from 30 to 300 gallons per minute, but some wells yield as much as 600 gallons per minute.

Bedrock aquifers in the unglaciated part of the Appalachian Plateaus Province accept less recharge than those in the Valley and Ridge Province. This is because the unglaciated part of the Appalachian Plateaus is highly dissected; much of the area is sloping, and the slopes are covered with only thin accumulations of regolith. Accordingly, most of the precipitation that falls on the area runs rapidly off the slopes. However, a small part of the precipitation infiltrates the Earth's surface and moves downward through the unsaturated zone to infiltrate weathered bedrock and shallow fractures in unweathered bedrock. The general movement of the water is from areas of high head, usually at high altitude, toward areas of low head, usually in low-lying areas. The water generally moves vertically downward in areas of recharge, then horizontally in the aquifers, and finally upward in discharge areas as it follows paths of least resistance. The movement of the water is step-like because it moves vertically through fractures, then horizontally through sandstone or coal beds, and vertically again when it encounters other fractures. The water will follow permeable beds or a zone of fractures laterally for considerable distances. Saline water or brine is near the surface in much of the area because circulation of fresh ground water generally extends no more than a few hundred feet below the land surface. Most of the ground water moves through local or intermediate-scale flow systems; no regional flow occurs. Water moves down tributary valleys toward major rivers, partly as surface water through gaining streams and partly as ground water in alluvial or bedrock aquifers. Saline water or brine at shallow depths is virtually stagnant.

Springs commonly mark the intersection of the water table with a valley wall. Low-permeability rocks (such as shale or siltstone) or ironstone layers retard the vertical movement of water. The water moves laterally in permeable strata atop the low-permeability rocks until it discharges as spring flow. Most of the water that discharges from springs, and much that discharges to surface streams, is in the aquifers under unconfined conditions.

Water that leaks downward across shale or other low-permeability confining units is present under confined conditions. Water in wells that penetrate an artesian aquifer rises above the top of the aquifer and can flow at the land surface. Confined conditions frequently occur in the troughs of the gently warped synclines that characterize parts of the Appalachian Plateaus.

Fresh ground water generally circulates only to shallow depths in the Appalachian Plateaus Province. In much of the area, saline water or brine is not far below the land surface with only a thin transition zone between the freshwater and saltwater.

Underground mining of coal disturbs the natural ground-water flow system when the mines are active because artificial drains are constructed to dispose of unwanted water, and mining activities can create new fractures, and thus, increase permeability. The regional water table can be lowered when the drains are effective, and ground-water flow directions can be changed in some cases until flow moves across former ground-water divides into adjoining basins. Ground water tends to flow toward mines, which are usually dewatered by pumping. Adverse effects of mine drainage on well yields are greatest where the mines are not much deeper than the bottoms of the wells and where vertical fractures connect the aquifers and the mines. Abandoned mines can collapse, which causes fracturing of the rocks that overlie the mine, and might be accompanied by an appreciable depression on the land surface. These conditions are likely to enhance recharge to the ground-water system and to reduce surface runoff and evapotranspiration.

Although bedrock formations in the Appalachian Plateaus Province can be traced over many miles, the distribution of local aquifers within these formations depends, in most cases, on the distribution of fracture permeability. Erosion is one factor that controls the distribution of fractures. Local aquifers, in some cases, are in valleys. Near-vertical tensile fractures and horizontal fractures are associated with slumping that takes place along valley walls, and recharge tends to be concentrated by the fractures. Under the valley floors, the most significant fractures are parallel to bedding, or nearly horizontal. Relief of compressional stress results when the weight of the rock that overlies a valley is reduced, because part of the rock is removed by erosion. This causes the remaining rock to separate along bedding planes and also results in the formation of vertical fractures. Fractures that underlie the valley are interconnected with those along the valley walls, and the interconnected fracture set enhances the permeability of the rock. Away from the valley walls, fractures are scarce and less likely to be interconnected; accordingly, wells in these areas will tend to have lower yields than those in the valleys.

Furthermore, water in the shallow fractures on hilltops tends to drain in dry seasons, and yields of some wells might accordingly decline. In general, well yields are directly proportional to the number of interconnected fractures.

Total freshwater withdrawals from consolidated sedimentary-rock aquifers in the Appalachian Plateaus and the Central Lowland Provinces were estimated to be 282 million gallons per day during 1985. Approximately 47 percent of this amount, or about 133 million gallons per day, was withdrawn for domestic and commercial supplies. Approximately 116 million gallons per day, or about 41 percent of the total withdrawals, was pumped for industrial, mining, and thermoelectric power purposes. Most of this water was used in coal mining operations.

There are no USEPA-designated sole source aquifers in the project area.

2.1.1.3 TL-536 and TL-453 EXT1

The TL-536 and TL-453 EXT1 pipelines are both located in Potter County, PA. The principal water yielding geologic units for this project are sandstones of the Devonian Formation. The reported typical yields of the wells completed range from 30 to 300 gallons per minute, but some yield as much as 600 gallons per minute.

Most of the productive aquifers consist of sandstone or conglomerate. Devonian siltstone, shale, and thin-bedded sandstone locally yield sufficient water for domestic and commercial supplies but are not considered to be principal aquifers.

The pipeline lies within the Appalachian Plateau Physiographic Providence. The consolidated rocks of the Appalachian Plateau Providence are almost flat-lying to gently folded; the regional dip of the beds rarely exceeds five feet per mile. Elongated, gentle folds form alternating anticlines and synclines in PA. Deformation of strata in the Appalachian Plateaus is extremely subtle.

Bedrock aquifers in the unglaciated part of the Appalachian Plateaus Providence accept less recharge than those in the Valley and Ridge Providences. This is because the unglaciated part of the Appalachian Plateaus is highly dissected, much of the area is sloping, and the slopes are covered with only thin accumulations of regolith. Accordingly, most of the precipitation infiltrates the Earth's surface and moves downward through the unsaturated zone to infiltrate weathered bedrock and shallow fractures in unweathered bedrock. The general movement of the water is from areas of high head, usually at high altitude, toward low areas of recharge, then horizontally in the aquifers, and finally upward in discharge areas as it follows the path of least resistance. The movement of water is step-like because it moves vertically through fractures, then horizontally through sandstone or coal beds, and vertically again when it encounters other fractures. The water will follow permeable beds or a zone of factures laterally for considerable distances. Saline water or brine is near the surface in much of the area because circulation of fresh groundwater moves through local or intermediate-scale flow

systems; no regional flow occurs. The fractures also decrease in number with depth, and the circulation of water likewise decreases with depth.

Total freshwater withdrawals from consolidated sedimentary-rock aquifers in the Appalachian Plateaus were estimated to be about 282 million gallons per day during 1985. About 47 percent of this amount, or about 133 million gallons per day, was withdrawn for domestic and commercial supplies. About 116 million gallons per day, or about 41 percent of the total withdraws, was pumped for industrial, mining, and thermoelectric power purposes; most of this water was used in coal mining operations.

There are no USEPA-designated Sole Source Aquifers within the project areas.

2.1.2 Public and Private Water Supply Wells

2.1.2.1 PL-1 EXT2

The PaDEP was contacted to identify public supply wells and springs crossed by the PL-1 EXT2 pipeline. Private water supply wells were identified during the survey, noted on the Construction Alignment Sheets, and by using the ROW agent permission to conduct survey form.

According to the PaDEP data (Appendix 2-A), 23 public water supply wells and one spring exist within a one-mile radius of any area disturbed by construction. Four private water supply wells exist within a 150-foot radius of any area disturbed by construction. Table 2.1.2-1 summarizes all public and private wells. No wellhead or similarly protected areas were identified during a file review with the PaDEP in February 2005.

2.1.2.2 TL-492 EXT3

The PaDEP and WVDEP were contacted to identify public supply wells and springs crossed by the TL-492 EXT3 pipeline. Private water supply wells were identified during the survey, noted on the Construction Alignment Sheets, and by using the ROW agent permission to conduct survey form.

According to the PaDEP data (Appendix 2-A), no public water supply wells exist within a one-mile radius of any area disturbed by construction. No private water supply wells exist within a 150-foot radius of any area disturbed by construction. No springs were identified during field work or by the PaDEP. Two water wells were identified during field investigations within the environmental study areas. Table 2.1.2-2 summarizes all public and private wells. According to the WVDEP, no municipal water authorities are located within a one-mile radius of any area disturbed by construction; however, three groundwater facilities are located within three miles downstream. No springs were identified during field work or by the WVDEP. No wellhead or similarly protected areas were identified through correspondence with the WVDEP (Appendix 2-A).

2.1.2.3 TL-536

The PaDEP was contacted to identify public supply wells and springs crossed by the TL-536 pipeline. Private water supply wells were identified during the survey, noted on the Construction Alignment Sheets, and by using the ROW agent permission to conduct survey form.

According to the PaDEP data (Appendix 2-A), no public water supply wells and no springs exist within a one-mile radius of any area disturbed by construction. Two private water supply wells exist within a 150-foot radius of any area disturbed by construction. Table 2.1.2-3 summarizes all public and private wells.

Wellhead protection areas are designed to protect and prevent contamination of wellheads and well fields used by the public water supplies so that contaminants do not reach a level that adversely affects the health of the consumers. The PaDEP promotes the establishment and delineation of a wellhead protection area to protect public water supplies from contamination. There are no established wellhead protection areas crossed by the pipeline.

2.1.2.4 TL-453 EXT1

The PaDEP was contacted to identify public supply wells and springs crossed by the TL-453 EXT1 pipeline. Private water supply wells were identified during the survey, noted on the Construction Alignment Sheets, and by using the ROW agent permission to conduct survey form.

According to the PaDEP data (Appendix 2-A), no public water supply wells and no springs exist within a one-mile radius of any area disturbed by construction. No private water supply wells exist within a 150-foot radius of any area disturbed by construction.

Wellhead protection areas will not be affected by the pipeline since there are no known public or private water supply wells within the project vicinity.

2.1.3 Contaminated Sites

The presence of sites of known or suspected contamination occurring in any area disturbed by the pipeline construction was determined by querying the Federal and State databases for contamination sites that cover the counties crossed by the PL-1 EXT2 pipeline. There are three sites on the Comprehensive Environmental Response, Compensation, and Liability Index System (CERCLIS) located five miles outside construction areas for PL-1 EXT2. Refer to Table 2.1.3-1 for distances. Standard procedure includes using a rock bucket on a backhoe, then a hydraulic hammer will be utilized before blasting is used. Shallow blasting is undertaken with only low charge explosives to break rock for excavation. No impacts are anticipated due to blasting because all of the CERCLIS sites are five or more miles from the construction area.

Because shallow blasting will be undertaken only with a low charge explosive, impacts to a distance of five miles from the construction will not occur.

There are no sites on CERCLIS within five miles of construction for the TL-492 EXT3 pipeline, the TL-536 pipeline, or the TL-453 EXT1 pipeline.

2.1.4 Groundwater Impacts and Mitigation

Construction of the pipeline will generally require a trench of eight feet or less in depth to be excavated. No adverse impacts to the groundwater or water wells are anticipated as a result of the excavation for the pipeline trench. Water collected in trench excavations will be removed as necessary during construction activities. Water will be discharged as outlined in the project Erosion and Sedimentation Control Plan (E&SCP) to be completed at a later date.

In some areas, blasting may be utilized to excavate the trench. No known or suspected areas of groundwater contamination have been identified in the project area. Therefore, no special construction measures or mitigation are proposed.

Blasting, where necessary for excavation of the pipeline trench, may open up additional near-surface bedrock fractures and locally increase recharge to the immediately underlying aquifer. The charge used during blasting will be just large enough to break rock for the excavation. Deep fractures and shallow fractures generally are not inter-connected and any change in the shallow aquifer as a result of pipeline construction activities is not likely to affect deeper aquifers. The impact to streams, wells and springs are dependant on a variety of factors and can include no effect, an increase or decrease in productivity and a decline in water quality. Because the pipeline area is small compared to the extent of the recharge and discharge systems and the blasting is undertaken with low charge explosives, any effects are likely to be small. A general discussion of blasting and blasting locations is discussed further in Resource Report 6, Section 6.4.

Water quality and yield of wells and springs used along the pipeline will be tested prior to and after installation of the pipeline to identify any negative impacts. Wells installed following current water supply well regulations are not expected to be affected by pipeline construction activities. Wells that do not meet current standards and wells that have other defects have a higher potential to be impacted. Prior to construction, DTI will file with the Commission's Secretary the location by MP of all wells within 150 feet of the pipeline construction activities. With the well owner's permission, DTI will conduct well yield and water quality testing for these wells. Regulatory officials will be contacted to determine what parameters will be required for analyses of the well water. The parameter list will vary based on the use of the well water. Within 30 days of placing the facilities in service, DTI will file a report with the Commission's Secretary discussing whether any complaints were received concerning well yield or water quality and how each was resolved. In addition, DTI shall replace any potable water supply system that it damages during construction and cannot repair to its former capacity and quality. DTI

will identify in its report to the Commission's Secretary all potable water supply systems damaged by construction and how they were repaired.

DTI's Spill Prevention, Containment and Control (SPCC) Plan will be included in the plans for all construction items and is provided in Appendix 2-B. If it is not feasible to comply with these requirements, DTI will file with the Commission's Secretary, a list of the site-specific locations where it is not feasible and provide a justification of why it is not feasible for review and written approval of the Director of the Office of Energy Projects (OEP) prior to construction. The Commission's Plan and Procedures (Appendices 1-A and 1-B) and the SPCC Plan (Appendix 2-B) will be followed to protect the potable water sources discussed in this report.

2.2 SURFACE WATER RESOURCES

Identify all perennial surface waterbodies crossed by the proposed project and their water quality classification. (380.12(d)(1)).

Surface waterbodies crossed by the pipelines were identified using field surveys, aerial photographs, and USGS topographic maps. Waterbody crossing widths were obtained during the field surveys. Additional information on fishery resources is discussed in Resource Report 3.

Different stream crossing techniques will be utilized depending on the type of waterbody traversed and are discussed in Section 2.2.7. The Commission's Plan and Procedures will be followed and is found in Appendices 1-A and 1-B.

2.2.1 Existing Surface Water Resources

2.2.1.1 PL-1 EXT2 Pipeline and Access Roads

The proposed PL-1 EXT2 pipeline will cross waterbodies located in the Kettle-McElhattan Creek, Bald Eagle Creek, Crooked-Standing Stone Creek, Penns-Middle Creek, Kishacoquillas-Jacks Creek, and Tuscarora-Buffalo Creek watersheds. The waterbodies crossed by the proposed pipeline are summarized in Table 2.2.1-1. This table also includes springs and ponds identified during field reconnaissance. The waterbodies crossed by access roads for the proposed pipeline facilities are summarized in Table 2.2.1-1. Refer to Appendix 2-C for access road mapping.

2.2.1.2 TL-492 EXT3 Pipeline and Access Roads

The proposed TL-492 EXT3 pipeline will cross waterbodies located in the PA Fork of Dunkard Creek, Garrison Fork of Dunkard Creek, Cappo Run, Hamilton Run, Bloody Run, Roberts Run, Blockhouse Run, Taylor Run, Hoover Run, Tustin Run, Toms Run, Upper WV Fork of Fish Creek, and the PA Fork of Fish Creek watersheds. The waterbodies crossed by the proposed pipeline are summarized in Table 2.2.1-2. This

table also includes springs and ponds identified during field reconnaissance. The waterbodies crossed by access roads for the proposed pipeline facilities are summarized in Table 2.2.1-2. Refer to Appendix 2-C for access road mapping. A legend has been developed for Appendix 2-C.

2.2.1.3 TL-536 Pipeline and Access Roads

The proposed TL-536 pipeline will cross waterbodies located in the Genesee River, Orebed Creek, Redwater Creek, Honeoye Creek, Plank Creek, and Butter Creek watersheds. The waterbodies crossed by the proposed pipeline are summarized in Table 2.2.1-3. This table also includes springs and ponds identified during field reconnaissance. The waterbodies crossed by access roads for the proposed pipeline facilities are summarized in Table 2.2.1-3. Refer to Appendix 2-C for access road mapping. A legend has been developed for Appendix 2-C.

2.2.1.4 TL-453 EXT1 Pipeline and Access Roads

The proposed TL-453 EXT1 pipeline will cross waterbodies located in the West Branch Genesee River, Middle Branch Genesee River, Genesee River, Marsh Creek, Turner Creek, North Branch Cowanesque River, and Ludington Run watersheds. The waterbodies crossed by the proposed pipeline are summarized in Table 2.2.1-4. This table also includes springs and ponds identified during field reconnaissance. The waterbodies crossed by access roads for the proposed pipeline facilities are summarized in Table 2.2.1-4. Refer to the Construction Alignment Sheets for access road mapping.

2.2.2 Contaminated Sediments

Identify all waterbody crossings that may have contaminated waters or sediments. (380.12(d)(1)).

Locations of contamination were researched with the National Sediment Inventory (NSI) data sites closest to the pipeline crossings (USEPA, 1998) for PL-1 EXT2, TL-492 EXT3, TL-536, and TL-453 EXT1. According to the data, no known sources of sediment contamination were identified within 150 feet of any area disturbed by construction. If any contaminated sediments should be identified, the Commission's Plan and Procedures (Appendices 1-A and 1-B) will be followed to ensure minimal impacts to waterbodies with contaminated sediments. DTI will follow all federal, state, and Commission guidelines when working in and around all waters, including the 303(d)-listed waters. Following these guidelines will result in minimal impacts. Crossings will be conducted at times of low flow with stream by-pass systems in-place, which are designed to minimize impacts to the stream channel by re-routing stream flow around the work area; therefore, keeping the disturbance confined within the work area via barriers. All excavated material attributed to the pipeline installation process will be replaced within the pipeline trench, and subsequently stabilized with a permanent seed mix, soil supplements, and mulch. For water body crossings, the excavated material will

be replaced within the pipeline trench and be stabilized in accordance with the Commission procedures and federal and state permit requirements.

2.2.3 Public Watershed Areas

Identify municipal water supplies, watershed areas, designated surface water protection areas, and sensitive waterbodies crossed by the project. (380.12(d)(1)).

2.2.3.1 PL-1 EXT2

Watershed areas were determined from USEPA (2004) and PaDEP (2004) data. Based on this data, the PL-1 EXT2 pipeline is located within six watershed areas: Penns-Middle Creek, Kettle-McElhattan Creek, Bald Eagle Creek, Crooked-Standing Stone Creek, Kishacoquillas-Jacks Creek, and Tuscarora-Buffalo Creek. Of the 16 municipalities crossed by the proposed pipeline, eight have municipal water authorities. They are located in the Bald Eagle Creek, Kishacoquillas-Jacks Creek, and Penns-Middle Creek watersheds. Three of the eight municipal water authorities have public water supply wells within a one-mile radius of any area disturbed by construction (Table 2.1.2-1).

Degraded waters were also identified using Section 303(d) of the Clean Water Act. This list identified five waterbodies crossed by the PL-1 EXT2 pipeline as being impaired by abandoned mine drainage (AMD) and pesticides. These waterbodies are Bald Eagle Creek, Beech Creek, Twomile Run, Kettle Creek, and West Branch Susquehanna River. The impacted waterbodies are summarized in Table 2.2.3-1.

Water quality impairment in Bald Eagle Creek includes pesticides and fish consumption advisories due to the pesticide Mirex or polychlorinated biphenyls (PCBs) in the Spring Creek Watershed. The pesticides Kepone and Mirex, which were produced at a chemical plant near Spring Creek, contaminated the ground water due to inadequate treatment facilities. The contaminants entered the groundwater to Spring Creek and tributaries then into sediments. Spring Creek then flows into Bald Eagle Creek. The chemical plant along Spring Creek is now an EPA Superfund Site listed under CERCLIS. A PaDEP Watershed Restoration Action Strategy (WRAS) has been developed for the Bald Eagle Creek Watershed. DTI proposes to HDD Bald Eagle Creek, and therefore, no impacts are expected to result from the stream crossing.

According to the PaDEP, five surface water users and one public surface water user are within three miles downstream of the proposed pipeline. A landowner has notified DTI that a reservoir located east of the proposed pipeline is their private water supply source. Table 2.2.3-2 summarizes the surface water users. DTI will notify downstream water supply intake owners one week prior to instream construction.

The Bald Eagle Creek watershed is on the WRAS due to water quality impairments that affect, or could affect, the three natural/recreation areas, 14 Class A trout waters,

11 high quality streams, and 11 exceptional value (EV) streams within its boundary. Several categories of 303(d) list impairments are listed as follows:

- metals and low pH from AMD in Beech Creek watershed;
- siltation from agriculture in Fishing Creek watershed;
- industrial discharges:
  - pesticides in Bald Eagle Creek;
  - fish consumption advisories due to PCBs in Spring Creek watershed;
  - pesticides degrading groundwater and springs that feed Slab Cabin Run; and
  - pesticides degrading two famous Class A trout streams, Logan Branch and Spring Creek.

Pipeline construction and operation are not expected to impact potable surface water supplies because of DTI's adherence to the Commission's Plan and Procedures (Appendices 1-A and 1-B).

2.2.3.2 TL-492 EXT3

Watershed areas were determined from USEPA (2004), NRCS (2004), and PaDEP (2004) data. Based on this data, the TL-492 EXT3 pipeline is located within 12 PA watershed areas (PA Fork of Dunkard Creek, Garrison Fork of Dunkard Creek, Cappo Run, Hamilton Run, Bloody Run, Roberts Run, Blockhouse Run, Taylor Run, Hoover Run, Tustin Run, Toms Run, and the PA Fork of Fish Creek), and one WV watershed area (Upper WV Fork of Fish Creek). Of the five municipalities crossed by the proposed pipeline, none have municipal water authorities.

According to the PaDEP, no surface water users and no public surface water users are within three miles downstream of the proposed pipeline. Additionally, the WVDEP did not indicate that there were any known surface water users or public surface water users (Appendix 2-A).

The PaDEP WRAS has listed the Upper Monongahela River watershed, Subbasin 19G, which includes Dunkard Creek, as being degraded. WRAS are developed in cooperation with federal, state, and local agencies, watershed-based organizations, and the public for those watersheds most in need of restoration.

The Dunkard Creek watershed is on the WRAS due to water quality impairments. According to the WRAS State Water Plan 19G, the subbasin is part of HUC Area 5020005, Lower Monongahela River, which is a Category I, FY99/2000 priority

watershed under the Unified Watershed Assessment developed by the PaDEP in 1998. Several categories of 303(d) list impairments are listed as follows:

- 10 NPDES source discharges, all from sewage treatment plants;
- AMD; and
- erosion and sedimentation.

A Rivers Conservation Plan has been completed for Dunkard Creek, which outlines five categories of management options for the watershed.

Degraded waters were also identified using Section 303(d) of the Clean Water Act. The impacted waterbodies are summarized in Table 2.2.3-3.

Pipeline construction and operation are not expected to impact potable surface water supplies because of DTI's adherence to the Commission's Plan and Procedures (Appendices 1-A and 1-B).

2.2.3.3 TL-536

Watershed areas were determined from USEPA (2004) and PaDEP (2004) data. Based on this data, the project area falls within the upper Allegheny Watershed. Within the Upper Allegheny Watershed, the TL-536 pipeline is located within six sub-watershed areas: Genesee River, Orebed Creek, Redwater Creek, Honeoye Creek, Plank Creek, and Butter Creek.

According to the PaDEP, no private surface water users and no public surface water intakes are within three miles downstream of the proposed pipeline.

Additionally, none of the watersheds crossed by the TL-536 pipeline are listed under the PaDEP's WRAS.

Pipeline construction and operation are not expected to impact potable surface water supplies because of DTI's adherence to the Commission's Plan and Procedures (Appendices 1-A and 1-B).

2.2.3.4 TL-453 EXT1

Watershed areas were determined from USEPA (2004) and PaDEP (2004) data. Based on this data, the TL-453 EXT1 pipeline is located within seven watershed areas: West Branch Genesee River, Middle Branch Genesee River, Genesee River, Marsh Creek, Turner Creek, North Branch Cowanesque River, and Ludington Run. Of the three municipalities crossed by the proposed pipeline, none have municipal water authorities.

According to the PaDEP, no surface water users and no public surface water users are within three miles downstream of the proposed pipeline.

Additionally, none of the watersheds crossed by the TL-453 EXT1 pipeline are listed under the PaDEP WRAS. Degraded waters were also identified using Section 303(d) of the Clean Water Act. The impacted waterbodies are summarized in Table 2.2.3-4.

Pipeline construction and operation are not expected to impact potable surface water supplies because of DTI's adherence to the Commission's Plan and Procedures (Appendices 1-A and 1-B).

2.2.4 Sensitive Surface Waters

Identify municipal water supplies, watershed areas, designated surface water protection areas, and sensitive waterbodies crossed by the project. (380.12(d)(1)).

Sensitive surface waters may include waters that do not meet water quality standards associated with their designated beneficial use, waters that have been designated for intensified water quality management, waterbodies that contain threatened or endangered species or critical habitat, waters less than three miles upstream of potable water intake structures, outstanding quality waterbodies, waters of particular ecological and recreational importance, waterbodies located in sensitive and protected watershed areas, or physically unstable waterbodies. The waterbodies crossed by the pipeline facilities that meet the requirements of sensitive waterbodies are listed in Table 2.2.4-1 for PL-1 EXT2, Table 2.2.4-2 for TL-492 EXT3, Table 2.2.4-3 for TL-536, and Table 2.2.4-4 for TL-453 EXT1.

2.2.5 Hydrostatic Test Water

Prior to placing the pipeline into service, the new pipeline segment will be hydrostatically tested to check its structural integrity. The new pipeline first will be cleaned using a cleaning pig propelled by compressed air. The pipeline then will be filled with water, without the use of additives, obtained from a surface water source or a potable water supply and hydrostatically tested in a manner that meets or exceeds the Minimum Federal Safety Standards. Hydrostatic test water volume and discharge locations are summarized in Table 2.2.5-1 for PL-1 EXT2, Table 2.2.5-2 for TL-492 EXT3, Table 2.2.5-3 for TL-536, and Table 2.2.5-4 for TL-453 EXT1. Consultations with NMFS for using the test waters are outlined in Section 3.5.

2.2.6 Construction and Operation Impacts to Surface Water

2.2.6.1 PL-1 EXT2, TL-492 EXT3, TL-536, and TL-453 EXT1 Pipelines

Pipeline construction and hydrostatic testing for PL-1 EXT2, TL-492 EXT3, TL-536, and TL-453 EXT1 could affect surface waters, on a temporary basis, in a variety of ways.

DTI will utilize the Commission's Plan and Procedures (Appendices 1-A and 1-B) to limit the effects of clearing and grading of stream banks, blasting, in-stream trenching, trench dewatering, and backfilling operations on aquatic habitat. Some potential for increased sedimentation, turbidity, decreased dissolved oxygen concentration and increased water temperature do still remain, however. Releases of chemical and nutrient pollutants from excavated sediments are also a possibility. Implementation of DTI's SPCC Plan (Appendix 2-B) will significantly reduce the potential for introduction of chemical contamination, such as fuel and lubricants into the streams.

DTI will verify pipeline integrity by conducting a series of hydrostatic tests. These tests consist of pressurizing the pipeline with water and checking for pressure losses due to pipeline leakage. The hydrostatic test water is typically recovered from nearby waterbodies and could temporarily affect downstream users and aquatic organisms (primarily fish) if the diversion constituted a large percentage of the source's total flow or volume. To limit the impact of hydrostatic test water withdrawal, intake volumes will be limited to no more than 25 percent of the stream's flow rate at the time of withdrawal.

Potential impacts include temporary disruption of surface water supplies, temporary loss of habitat for aquatic species, increased water temperatures, depletion of dissolved oxygen levels, and temporary interruption of spawning, depending on the time of withdrawal and current downstream users. These impacts will be minimized by obtaining hydrostatic test water from bodies of water with sufficient flow or volume to supply required test volumes without significantly affecting downstream flow. Impacts to spawning would further be avoided by performing hydrostatic testing during non-spawning periods. The PFBC and NMFS were consulted regarding spawning and/or rearing areas for waterbodies crossed by the PL-1 EXT2 and TL-453 EXT1 projects (Appendix 3-A). The PFBC was consulted regarding spawning and/or rearing areas for waterbodies crossed by the TL-492 EXT3 and TL-536 projects. In regard to the PL-1 EXT2 pipeline, the Juniata River serves as a significant spawning or rearing area for commercially or recreationally important fish species, specifically the American shad, according to NMFS. Refer to Section 3.5 for NMFS consultations. The Middle Branch Genesee River serves as a significant spawning or rearing area for the American brook lamprey, according to the PFBC. Refer to Section 3.5 for PFBC consultations.

Potential impacts resulting from the discharge of hydrostatic test waters into streams and upland vegetation areas would be limited to erosion of soils and some subsequent degradation of water quality from increased turbidity and sedimentation. High velocity flows could cause erosion of the stream banks and stream bottom, resulting in temporary release of sediment. Erosion caused by the discharge of hydrostatic test water will be minimized by controlling the discharge rate using energy dissipation devices (e.g., holding tanks, filter bags, straw bale structures and splash plates). Erosion and sedimentation controls will be installed along the pipeline corridor to ensure, to the maximum extent practicable, that no significant erosion of native soils or sedimentation occurs. Refer to Resource Report 1 for additional information on hydrostatic testing and erosion and sedimentation control.

2.2.7 Waterbody Construction and Mitigation Procedures for PL-1 EXT2, TL-492 EXT3, TL-536, and TL-453 EXT1

DTI will use the Commission's Procedures for crossing waterbodies. For PL-1 EXT2, the Juniata River and the Bald Eagle Creek are proposed to be constructed by HDD. Site-specific plans for these crossings are provided as Figures 1.2-29 and 1.2-31.

For PL-1 EXT2, the West Branch Susquehanna River crossing exceeds 100 feet in width. Due to the terrain in the area, the crossing is not suitable for HDD. DTI will coordinate with the responsible agencies to construct this crossing using a cofferdam method.

Construction across cold water fishery (CWF) streams will occur during the low-flow period between June 1 and September 30, unless the timeframe for construction is extended by agreement with the responsible agencies. CWF include those waters with a water classification of CWF or high-quality (HQ)-CWF, as identified in Table 2.2.1-1 for PL-1 EXT2, Table 2.2.1-3 for TL-536, and Table 2.2.1-4 for TL-453 EXT1.

The PaDEP sets construction restrictions of no construction between March 1 through June 15 for stocked streams, and October 1 through December 31 for wild trout streams.

PL-1 EXT2, TL-536, and TL-453 EXT1 will have CWF time restrictions for construction, and TL-1 EXT2 and TL-453 EXT1 will have stocking and wild trout time restrictions.

A HDD Contingency Plan will be prepared and submitted to the Commission for all locations where HDD is proposed. The plan will address handling and releases of drilling mud, sealing of abandoned drill holes, and cleanup of inadvertent releases.

For TL-453 EXT1, at the request of the PFBC, the Middle Branch Genesee River, the Main Branch Genesee River, and the West Branch Genesee River (TL-453 EXT1 crosses an unnamed tributary of West Branch Genesee River, not the West Branch itself) were evaluated by DTI to be constructed by HDD. Based on the evaluation, DTI proposed to cross these streams according to the Commission's Procedures, as per coordination with the PFBC regarding the American brook lamprey, which is further discussed in Section 3.5.

The following crossing techniques will be utilized throughout the remainder of the project area.

2.2.7.1 Dry Ditch Method

All waterbody crossings, up to 30 feet wide at the water's edge at the time of construction, would be dry crossings using one of the following dry ditch crossing

techniques, depending upon the amount of water in the stream at the time of construction:

Flume Pipe Method

Most stream crossings encountered during pipeline construction are small enough to apply the flume pipe method. The flume pipe method is typically used in combination with an equipment crossing and starts with the initial installation of a flume in the stream at a location over the proposed ditch line. Flume pipe should be installed after any necessary blasting has been conducted. (No material will be removed from the stream until the flume is in place.) The flume is sandbagged at each end to direct the stream flow through the flume, and the outlet is protected with riprap to minimize scour. The pipeline trench can then be excavated (while dry), the pipe installed and backfilling completed with the flume pipe in place. Spoil piles will be kept a minimum of 10 feet from the water's edge and will be contained by sediment barriers. Trenching and backfilling must be completed within 72 hours, and the disturbed stream banks must be stabilized with riprap or vegetation before the flumes for the pipeline and equipment crossings are removed. (Refer to Appendix 1-E for typical waterbody crossing methods.)

Cofferdam Method

This method may be used for wider channel crossings, and will be designed so as not to prevent the flow of the stream. A cofferdam will be constructed within the construction ROW from non-erodible materials (riprap, sand bags, jersey barriers, commercial cofferdam products, etc.) enclosing approximately half the streambed in a semi-circle. The cofferdam should seal tightly to the streambed to minimize water from entering the area. Pumps will be needed to keep water out of excavations. All earth disturbances will occur in the dry behind the cofferdam. The pipe will be installed and the disturbed areas backfilled and stabilized, and sediment barriers at the waterline in good working order before the cofferdam is removed. Stabilization will be with either riprap or vegetation. The cofferdam is then set up from the opposite bank and extends far enough to include the tie-in point in mid stream. The remainder of the pipe is installed and the tie-in weld is made. Clean up follows the same procedures as just described.

Pump Around (Dam and Pump) Method

The pump-around method is a construction technique utilizing a pump and hoses to convey water around and past the trench area (refer to Appendix 1-E for typical waterbody crossing methods). This method is typically used for streams whose configuration does not allow a flume to be installed. The following restrictions apply when using the pump around method:

- sandbag bulkheads or dams shall be constructed above and below the trench area;

- stand-by pump(s) and hose(s) must be on-site during the crossing;
- downstream flow must be maintained throughout trenching, pipe laying and backfilling operations; and
- filter bags can be used to maintain clean water.

a. The dam and pump method may be used without prior approval for crossing minor water bodies where fluming is not required by these Procedures.

b. Prior written approval from the Director of OEP is required to dam and pump where:

i. fluming is required by the Commission's Procedures; or

ii. the water body is greater than 10 feet wide.

c. To request approval to use the dam-and-pump method, the project sponsor shall file with the Commission's Secretary a project-specific plan for review and written approval by the Director of OEP before construction. This plan must list all water bodies where the dam-and-pump method would be used and describe all measures that would be used to maintain downstream flows, including:

i. number and capacity of active pumps;

ii. number and capacity of backup pumps;

iii. the types of dam to be used upstream and downstream of the crossing;

iv. how streambed scour would be prevented at the pump discharge; and

v. how the operation would be monitored if the crossing is prolonged beyond one normal construction day.

In some instances, the flow in the channel to be crossed can be diverted into an existing side channel braid using the diversion channel method. Occasionally, it may be cost-effective to build a temporary channel for diverting flow around the work area. As noted above, all extraordinary work areas required to implement the diversion channel method are subject to the same review, landowner contact, and permitting as other work areas.

2.2.7.2 Wet Trench Method

On occasion, it will not be practicable to construct a stream in the dry or by trenchless construction, particularly stream channels located within wetlands with standing water or saturated soil. These streams will have to be crossed using the wet-ditch or "wet trench" crossing method in which the minimum equipment necessary to install the crossing will operate in the stream flow.

The wet trench stream and river crossing technique is typically used to cross intermediate streams and major rivers. The trench is excavated by construction equipment operating from stream banks or barges. The excavated material is stored on the banks inside straw bale and/or silt fence barriers. The following stipulations apply to wet trench construction:

- all appropriate erosion and sediment controls (as directed by steam crossing permits) must be in place prior to in-stream construction; and
- where conditions require construction equipment refueling within 100 feet of streams, the contractor must follow the procedures described in DTI's SPCC Plan.

Sediment barriers will be in place at the water's edge and around spoil storage areas prior to the start of trenching. Spoil storage areas will be located at least 10 feet from the water's edge. Trenching and backfilling (not including blasting) must be completed within 48 hours, unless site-specific conditions make completion within 48 hours impractical. (Refer to Appendix 1-E for typical waterbody crossing methods.)

The SPCC Plan to be used for this project is included in Appendix 2-B. If additional spill prevention measures are needed for the crossings, they will be included on the appropriate site-specific plans.

2.2.7.3 Temporary Bridges

Temporary bridges will be installed to cross the intermittent and perennial streams. These temporary structures provide an in-stream work surface and vehicle access throughout the construction period without interrupting the stream flow. The trench will be excavated either with a conventional backhoe or with crane equipment and clamshell bucket. At small stream crossings, the pipe segment will be assembled at the bankside work area for the full crossing distance, moved into position with side boom tractors, and lowered into the trench. After installation of the pipe, the trench will be backfilled with the excavated, native soil. Appropriate erosion and sedimentation control measures will be installed at drainage run areas if perceptible water flow is observed in these areas during construction. The need for permanent access road use will be necessary for maintenance. All appropriate permits for permanent pipeline stream crossings will be acquired.

2.3 WETLANDS

Project construction will result in temporary and permanent impacts to several types of wetland systems. Field surveys were conducted in order to identify the total number of wetlands crossed by the project and the overall wetland impacts associated with the project. The classification, milepost, linear traverse, and acreage of impact of total wetlands crossed by the project are shown in Table 2.3-1 for PL-1 EXT2, Table 2.3-2 for TL-492 EXT3, Table 2.3-3 for TL-536, and Table 2.3-4 for TL-453 EXT1. Table 2.3-5 presents the total acreage and acreage of each wetland type that would be affected by construction for PL-1 EXT2, Table 2.3-6 for TL-492 EXT3, Table 2.3-7 for TL-536, and Table 2.3-8 for TL-453 EXT1. Wetland delineations were completed between May 2004 and August 2004. Additionally, information on wetland habitats was obtained from the National Wetlands Inventory (NWI). NWI utilizes the wetland classification system described in the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979). DTI anticipates filing Section 404 permit applications with the Baltimore District of the USACE. Because of new regulations, isolated wetlands are now considered waterways of the state, and thus require a permit through state agencies. The PaDEP has not reviewed or granted any isolated permit requests since the new regulations became effective; however, the PaDEP anticipates that the applicable permit will be some type of "State Water Quality Discharge Permit." As this state permitting process is currently under legislative review, PaDEP advises to consult the PaDEP and PA State websites for current rulings before submitting the application. A list of federal and state permits currently applicable to this project is presented in Resource Report 1. Copies of the Wetland Delineation Reports are provided in Appendix 3-B. NWI maps are shown on Figures 1.2-1 through 1.2-28 for PL-1 EXT2, Figures 1.2-32 through 1.2-36 for TL-492 EXT3, Figures 1.2-38 through 1.2-42 for TL-536, and Figures 1.2-45 through 1.2-51 for TL-453 EXT1.

The wetland classification method used by NWI includes four hierarchical levels: system, subsystem, class and subclass. All wetland system types crossed by the pipelines are palustrine. The palustrine system has no subsystems; the classes within the palustrine system include emergent, scrub-shrub, and forested areas. Additionally, non-vegetated open water areas will be crossed.

2.3.1 Wetland Resources in the Project Area

2.3.1.1 General

The proposed pipeline facilities include the centerline (including both permanent and construction ROW), access roads, and pipeyards. All wetlands crossed by the pipelines are palustrine and include the following subtypes: emergent, scrub-shrub, forested, and open water.

Emergent Wetlands

The emergent wetland cover type is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens (Cowardin, et al., 1979). Freshwater emergent wetlands are often associated with abandoned agricultural areas and fringes of waterbodies, beaver ponds, and other wetland systems. The vegetation in this wetland type consists of a variety of emergent and other rooted herbaceous species, as well as submergent species such as pondweeds.

Within the project area, the plant species that are representative of this wetland type include various communities of broad-leaved cattail (*Typha latifolia*), deer-tongue grass (*Dichanthelium clandestinum*), spotted Joe pye-weed (*Eupatoriadelphus maculatus*), spotted jewelweed (*Impatiens capensis*), New York aster (*Aster novi-belgii*), wool grass (*Scirpus cyperinus*), sedges (*Carex* spp.), soft rush (*Juncus effusus*), and smartweed species (*Polygonum* spp.).

Scrub-Shrub Wetlands

The scrub-shrub wetland cover type includes all wetlands dominated by woody vegetation less than six-meters tall (Cowardin, et al., 1979). Shrubs and small trees typically dominate these wetland areas.

Species composition of scrub-shrub species in these wetlands was limited to monotypic stands of black willow (*Salix nigra*). Herbaceous species associated with this wetland community and crossed by the proposed pipeline facilities include wool grass (*Scirpus cyperinus*), reed canary grass (*Phalaris arundinacea*), broad-leaved cattail (*Typha latifolia*), soft rush (*Juncus effusus*), slender rush (*Juncus tenuis*), sedges (*Carex* spp.), and spotted Joe pye-weed (*Eupatoriadelphus maculatus*).

Forested Wetlands

The forested wetlands are dominated by woody vegetation that is at least six-meters tall (Cowardin, et al., 1979). Forested wetlands found along the proposed pipeline facilities are limited and consist predominantly of broad-leaved deciduous vegetation.

Species composition of overstory trees in the project study area typically includes monotypic stands of sycamore (*Plantanus occidentalis*) and green ash (*Fraxinus pennsylvanica*). The understory trees typically consist of monotypic stands of red maple (*Acer rubrum*). Herbs typically include New York aster (*Aster novi-belgii*), Christmas fern (*Polystichum acrostichoides*), soft rush (*Juncus effusus*), sedge species (*Carex* spp.), and Pennsylvania smartweed (*Polygonum pensylvanicum*).

Open Water Wetlands

Open water habitats are those where the water depth is permanently over 6.6 feet deep, or if under 6.6 feet deep, they do not support emergent vegetation.

These habitats do not support emergent or woody vegetation, but may be surrounded by vegetated wetland (Environmental Laboratory, 1987).

2.3.1.2 Surveyed Wetland Resources

The classification, MP, linear traverse and acreage of impact of forested wetlands and total wetlands crossed by the project are shown in Table 2.3-1 for PL-1 EXT2, Table 2.3-2 for TL-492 EXT3, Table 2.3-3 for TL-536, and Table 2.3-4 for TL-453 EXT1. Table 2.3-5 presents the total acreage and acreage of each wetland type that would be affected by construction for PL-1 EXT2, Table 2.3-6 for TL-492 EXT3, Table 2.3-7 for TL-536, and Table 2.3-8 for TL-453 EXT1. Copies of the NWI wetlands are presented on Figures 1.2-1 through 1.2-28 for PL-1 EXT2, Figures 1.2-32 through 1.2-36 for TL-492 EXT3, Figures 1.2-38 through 1.2-42 for TL-536, and Figures 1.2-45 through 1.2-51 for TL-453 EXT1. ROW widths are provided in Resource Report 1.

2.3.2 Construction and Operation Impacts

The primary impact of pipeline construction and ROW maintenance activities on wetlands would be temporary and permanent alteration of wetland vegetation. These effects would be greatest during and immediately following construction. In emergent wetlands, the impact of construction on vegetation is anticipated to be relatively brief, since the herbaceous vegetation is expected to regenerate quickly. In forested and scrub-shrub wetlands, the impact on vegetation would be extended due to the longer regeneration period of the vegetative types and the maintenance or clearing limits allowed by the Commission's Procedures (Appendix 1-B).

All pipeline crossings that impact wetlands will be installed using open-cut trenching methods: a trench will be excavated, pipeline segments will be installed, and the trench will be backfilled. Trenches will be excavated to a depth sufficient to provide at least three feet of cover once pipeline segments have been installed. Excavated material will be staged in temporary ROW along the pipeline corridor. Once construction has been completed, these temporary ROWs will be restored to pre-existing grade and allowed to naturally revegetate.

Drainage impacts, backfill materials and any construction actions taken to minimize impacts to wetlands will be addressed during the permitting process.

2.3.3 Wetland Mitigation Procedures

Mitigation procedures will follow principles set forth in the Commission's Plan and Procedures (Appendices 1-A and 1-B) and according to the appropriate federal and state permits provided in Resource Report 1.

2.3.4 Site-Specific Wetland Impacts

The total wetlands crossed by the project's access roads and centerline are listed in Table 2.3-1 for PL-1 EXT2, Table 2.3-2 for TL-492 EXT3, Table 2.3-3 for TL-536, and Table 2.3-4 for TL-453 EXT1 by section, MP, NWI classification, crossing length in feet, and temporary and permanent impacts in acres for total wetlands. The same data are summarized by NWI classification in Table 2.3-5 for PL-1 EXT2, Table 2.3-6 for TL-492 EXT3, Table 2.3-7 for TL-536, and Table 2.3-8 for TL-453 EXT1. The wetlands are shown on the Construction Alignment Sheets (Appendix 1-C). No wetlands have been identified in areas that involve steep terrain or sidehill construction on TL-536 and TL-453 EXT1.

2.3.4.1 PL-1 EXT2 Pipeyards

There are no wetlands affected by the four proposed pipeyards.

2.3.4.2 TL-492 EXT3 Pipeyards

There is one wetland located in the proposed pipeyards. No impacts to this wetland are anticipated. DTI plans to install silt fence and avoid the wetland areas. The wetland is listed in Table 2.3-2 and is part of the summary in Table 2.3-6.

2.3.4.3 TL-536 Pipeyards

No wetlands will be impacted by the proposed pipeyard. For the wetland located in the proposed pipeyard, DTI will install silt fence on both sides of the wetland to protect it from construction activities within the pipeyard. The wetlands are listed in Table 2.3-3 and are part of the summary in Table 2.3-7.

2.3.4.4 TL-453 EXT1 Pipeyards

There are no wetlands affected by the proposed pipeyard.

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Table 2.1.2-1

PUBLIC AND PRIVATE WATER SUPPLY WELLS FOR THE PL-1 EXT2 PIPELINE

System Name[1]	Source Name	System Type[2]	Population	Distance from Pipeline (feet)[3]	Milepost
Public Water Supply Wells					
Christian Retreat Center	Well 2	N	100	6,288.71	S1MP0.00
Black Hawk Mobile Home Park	Well #2	C	250	2,889.03	S2MP9.35
Black Hawk Mobile Home Park	Drilled Well #1	C	250	3,148.50	S2MP9.37
Empire Mobile Home Park	Well #1	C	75	481.85	S2MP10.59
Empire Mobile Home Park	Well #2	C	75	411.82	S2MP10.57
Boggs Township Water Authority[4]	Well #1	C	300	1,603.50	S2MP18.86
Boggs Township Water Authority[4]	Well #2	C	300	1,794.52	S2MP18.86
Spring Township Water Authority[4]	Well #1	C	2,500	3,409.92	S2MP11.00
Meadows Psychiatric Center	Well	P	268	2,990.67	S2MP8.05
Whispering Pines Personal Care	Well #3	C	35	956.60	S2MP22.76
Sunset West Restaurant	Drilled Well	N	500	1,932.09	S2MP13.00
Graymont PA Inc.	Well	P	150	6,267.42	S2MP14.00
Dominion Transmission Leidy Station	Well 1	P	18	890.71	S3MP25.5
Dominion Transmission Leidy Station	Well 2	P	18	2,428.35	S3MP25.5
Bucktail Lodge on Kettle Creek	Well #1	N	50	5,490.60	S1MP0.00
Bucktail Lodge on Kettle Creek	Well - Motel	N	50	5,368.12	S3MP16.20
Christian Retreat Center	Well #1	N	100	6,380.19	S1MP1.34
Lewistown Borough Municipal Authority[4]	Belleville Well #6	C	26,765	1,139.81	S1MP15.84
Lewistown Borough Municipal Authority	Belleville Well #7	C	26,765	590.54	S1MP15.71
Pleasant View School	Spring	P	38	4,204.67	S1MP18.98
Mifflin County School District	Well	P	975	2,784.19	S1MP14.43
West Granville Fire Company	Well	N	25	4,730.33	S1MP15.00
Private Water Supply Wells					
Wise, William K and Barbara K.	Not Applicable	D	Not Applicable	112.00[5]	S1MP7.80
Reynolds, Robert D. and Sara A.	Not Applicable	D	Not Applicable	125.00[5]	S1MP10.67
Reynolds, Richard and Sandra	Not Applicable	D	Not Applicable	125.00[5]	S1MP10.78
Hill, Gastiger C.	Not Applicable	D	Not Applicable	150.00[5]	S2MP10.16

Notes:

1. From personal correspondence with the PaDEP (Appendix 2-A).
2. "N" denotes transient non-community; "C" denotes community"; "P" denotes non-transient non-community; and "D" denotes domestic.
3. Calculated with coordinates provided by the PaDEP Northcentral Office (Williamsport) and the PaDEP Southcentral Office (Harrisburg).
4. Municipal water authorities with wells within a one-mile radius of construction.
5. From Construction Alignment Sheets.

Table 2.1.2-2

PUBLIC AND PRIVATE WATER SUPPLY WELLS FOR THE TL-492 EXT3 PIPELINE

System Name[1]	Source Name	System Type	Milepost	Distance from Pipeline (feet)
Public Water Supply Wells				
WV3305201	Community of Hundred	Community - Closed[2]	Not Available	Not Available
WV9952020	The Spot	Transient Non-Community - Closed[2]	Not Available	Not Available
Private Water Supply Wells				
WV0105341	Hundred-Littleton PSD	Community - Sewage Treatment Facility[2]	0.00	13,140
Private Well[3]	Unknown	Water Well	2.67	165 Feet to the Right
Private Well	Unknown	Water Well	2.73	105 Feet to the Right

Notes:

1 From personal correspondence with the PaDEP and WVDEP (Appendix 2-A).

2 USEPA (2005).

3 Identified during field investigations.

Table 2.1.2-3

PUBLIC AND PRIVATE WATER SUPPLY WELLS FOR THE TL-536 PIPELINE

Milepost	Location[1]
Public Water Supply Wells	
None	Not Applicable
Private Water Supply Wells	
2.67	25 Feet to the Right
3.10	59 Feet to the Right

Note:

[1] Distance measured from the centerline of TL-536 using the Construction Alignment Sheets.

Table 2.1.3-1

CERCLIS SITES FOR THE PL-1 EXT2 PIPELINE

Site	Facility I.D.	Distance from Pipeline (miles)	Milepost
Drake Chemical	PAD003058047	19.25	S3MP7.95
Kline's Dump	PAD987266616	5.07	S2MP9.58
Centre Co. Kepone	PAD000436261	5.09	S2MP9.32

Table 2.2.1-1

PERENNIAL, INTERMITTENT, AND EPHEMERAL WATERBODIES CROSSED BY THE PL-1 EXT2 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings					
SPA-LF-009	S1 MP0.17	Unnamed Tributary to Lick Run	Perennial	1	CWF
SPA-NAY-053	S1MP0.26	Unnamed Tributary to Lick Run	Ephemeral	4.5	CWF
SPA-LF-007	S1 MP 0.24	Unnamed Tributary to Lick Run	Perennial	½ to 2	CWF
SPA-LF-006	S1MP 0.27	Unnamed Tributary to Lick Run	Ephemeral	<1	CWF
SPA-LF-004	S1 MP0.39	Unnamed Tributary to Lick Run	Perennial	½ to 2	CWF
SPA-NAY-054	S1MP0.54	Unnamed Tributary to Lick Run	Perennial	30	CWF
SPA-NAY-122	S1MP2.23	Unnamed Tributary to Lick Run	Perennial	2	CWF
SPA-NAY-123	S1MP2.26	Unnamed Tributary to Lick Run	Perennial	10	CWF
SPA-NAY-125	S1MP3.57	Unnamed Tributary to Willow Run	Ephemeral	3	HQ-CWF
SPA-NAY-124	S1MP3.57	Willow Run	Perennial	10	HQ-CWF
SPA-NAY-126	S1MP3.59	Willow Run	Perennial	20	HQ-CWF
SPA-NAY-127	S1MP3.72	Unnamed Tributary to Willow Run	Ephemeral	4	HQ-CWF
SPA-NAY-002	S1MP4.22	Unnamed Tributary to Dougherty Run	Intermittent	Not Crossed[3]	HQ-CWF
SPA-NAY-001	S1MP4.23	Unnamed Tributary to Dougherty Run	Perennial	5	HQ-CWF
SPA-NAY-003	S1MP4.72	Unnamed Tributary to Dougherty Run	Intermittent	1.5	HQ-CWF
SPA-NAY-004	S1MP4.74	Dougherty Run	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-005	S1MP5.21	Unnamed Tributary to Dougherty Run	Perennial	1.5	HQ-CWF
SPA-NAY-006	S1MP5.21	Unnamed Tributary to Dougherty Run	Perennial	1.5	HQ-CWF
SPA-NAY-007	S1MP5.23	Unnamed Tributary to Dougherty Run	Intermittent	1	HQ-CWF
SPA-NAY-008	S1MP5.25	Unnamed Tributary to Dougherty Run	Intermittent	1.5	HQ-CWF
SPA-NAY-009	S1MP5.27	Unnamed Tributary to Dougherty Run	Perennial	< 1	HQ-CWF
SPA-NAY-010	S1MP5.27	Unnamed Tributary to Dougherty Run	Perennial	6	HQ-CWF
SPA-NAY-011	S1MP5.34	Unnamed Tributary to Dougherty Run	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-012	S1MP5.36	Unnamed Tributary to Dougherty Run	Perennial	1.5	HQ-CWF
SPA-NAY-013	S1MP5.36	Unnamed Tributary to Dougherty Run	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-014	S1MP5.41	Unnamed Tributary to Dougherty Run	Perennial	Not Crossed	HQ-CWF
SPA-NAY-015	S1MP5.45	Unnamed Tributary to Dougherty Run	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-016	S1MP5.51	Unnamed Tributary to Dougherty Run	Perennial	1.5	HQ-CWF
SPA-NAY-017	S1MP5.59	Unnamed Tributary to Dougherty Run	Intermittent	0.5	HQ-CWF
SPA-NAY-018	S1MP5.60	Unnamed Tributary to Dougherty Run	Intermittent	1	HQ-CWF
SPA-NAY-019	S1MP5.65	Unnamed Tributary to Dougherty Run	Perennial	1	HQ-CWF
SPA-NAY-020	S1MP6.31/S1AR4	Unnamed Tributary to Barn Run	Ephemeral	3	HQ-CWF
SPA-NAY-021	S1MP6.66	Unnamed Tributary to Blacklog Creek	Perennial	1.5	HQ-CWF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings (continued)					
SPA-NAY-022	S1MP6.93	Blacklog Creek	Perennial	5	HQ-CWF
SPA-NAY-023	S1MP8.63	Unnamed Tributary to East Licking Creek	Perennial	1	HQ-CWF
SPA-NAY-024	S1MP8.99	Unnamed Tributary to East Licking Creek	Perennial	1	HQ-CWF
SPA-NAY-025	S1MP9.00	Unnamed Tributary to East Licking Creek	Perennial	1	HQ-CWF
SPA-NAY-027	S1MP9.10	Unnamed Tributary to East Licking Creek	Perennial	1.5	HQ-CWF
SPA-NAY-026	S1MP9.08	Unnamed Tributary to East Licking Creek	Perennial	1.5	HQ-CWF
SPA-NAY-028	S1MP9.23	Unnamed Tributary to East Licking Creek	Perennial	4	HQ-CWF
SPA-NAY-029	S1MP9.49	East Licking Creek	Perennial	18	HQ-CWF
SPA-NAY-030	S1MP9.56	Unnamed Tributary to East Licking Creek	Perennial	1	HQ-CWF
SPA-NAY-031	S1MP9.81	Spring	-[4]	Not Crossed	-[4]
SPA-NAY-032	S1MP10.62	Minehart Run	Ephemeral	1	HQ-CWF
SPA-NAY-033	S1MP11.52	Unnamed Tributary to Carlisle Run	Ephemeral	1.5	WWF
SPA-NAY-037	S1MP11.55[5]	Unnamed Tributary to Carlisle Run	Perennial	4	WWF
SPA-NAY-036	S1MP11.86	Unnamed Tributary to Carlisle Run	Ephemeral	2.5	WWF
SPA-DLC-001	S1MP12.17	Unnamed Tributary to Carlisle Run	Perennial	5	WWF
SPA-DLC-002	S1MP12.27	Juniata River	Perennial	300	WWF
SPA-NAY-045	S1MP14.24[5]	Unnamed Tributary to Strodes Run	Perennial	1.5	HQ-CWF
SPA-NAY-046	S1MP14.24	Spring Unnamed Tributary to Strodes Run	Perennial	1	HQ-CWF
SPA-NAY-047	S1MP14.42	Unnamed Tributary to Strodes Run	Perennial	1	HQ-CWF
SPA-NAY-048	S1MP14.43	Unnamed Tributary to Strodes Run	Perennial	1	HQ-CWF
SPA-NAY-044	S1MP15.31	Unnamed Tributary to Strodes Run	Intermittent	1.5	HQ-CWF
SPA-NAY-120	S1MP16.11	Unnamed Tributary to Strodes Run	Perennial	4	HQ-CWF
SPA-NAY-121	S1MP16.41	Unnamed Tributary to Strodes Run	Perennial	5	HQ-CWF
SPA-VRS-011	S1MP17.00	Unnamed Tributary to Strodes Run	Ephemeral	20	HQ-CWF
SPA-VRS-012	S1MP17.09	Unnamed Tributary to Strodes Run	Intermittent	1	HQ-CWF
SPA-VRS-013	S1MP17.22[5]	Unnamed Tributary to Strodes Run	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-067	S1MP19.43	Kishacoquillas Creek	Perennial	20	CWF
SPA-NAY-034	S1MP22.52	Unnamed Tributary to Kishacoquillas Creek	Intermittent	Not Crossed	CWF
SPA-NAY-035	S1MP23.72	East Branch of Standing Stone Creek	Perennial	6	HQ-CWF
SPA-NAY-038	S1MP24.74[5]	Unnamed Tributary to Standing Stone Creek	Perennial	1.5	HQ-CWF
SPA-NAY-039	S1MP24.78[5]	Unnamed Tributary to Standing Stone Creek	Perennial	Not Crossed	HQ-CWF
SPA-NAY-040	S1MP24.83	Unnamed Tributary to Standing Stone Creek	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-041	S1MP24.91	Unnamed Tributary to Standing Stone Creek	Intermittent	Not Crossed	HQ-CWF
SPA-NAY-042	S1MP25.00	Unnamed Tributary to Standing Stone Creek	Intermittent	1.5	HQ-CWF
SPA-NAY-049	S1MP25.01	Spring Unnamed Tributary to Standing Stone Creek	Perennial	Not Crossed	HQ-CWF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings (continued)					
SPA-NAY-043	S1MP25.01	Unnamed Tributary to Standing Stone Creek	Perennial	2.5	HQ-CWF
SPA-NAY-050	S1MP25.91	Unnamed Tributary to Standing Stone Creek	Perennial	4	HQ-CWF
SPA-NAY-051	S1MP26.25	Unnamed Tributary to Standing Stone Creek	Perennial	1.5	HQ-CWF
SPA-NAY-052	S1MP26.31	Standing Stone Creek	Perennial	15	HQ-CWF
SPA-KLF-016	S2MP0.03	Unnamed Tributary Standing Stone Creek	Perennial	3	HQ-CWF
SPA-KLF-017	S2MP1.72	Detweiler Run	Perennial	12	HQ-CWF
SPA-KLF-018	S2MP2.99	Sinking Creek	Perennial	12	CWF
SPA-KLF-019	S2MP3.54	Unnamed Tributary to Sinking Creek	Intermittent	2	CWF
SPA-KLF-020	S2MP3.88	Sinking Creek	Perennial	9	CWF
SPA-KLF-021	S2MP3.88	Unnamed Tributary to Sinking Creek	Ephemeral	2.5	CWF
SPA-KLF-022	S2MP3.88[5]	Sinking Creek	Perennial	12	CWF
SPA-GTR-001	S2MP5.08	Unnamed Tributary to Galbraith Gap Run	Perennial	2	HQ-CWF, WTA
SPA-GTR-002	S2MP6.08	Unnamed Tributary to Sinking Creek	Perennial	3	CWF
SPA-GTR-003	S2MP6.09	Unnamed Tributary to Sinking Creek	Perennial	1	CWF
SPA-GTR-009	S2MP6.21	Unnamed Tributary to Sinking Creek	Perennial	4	CWF
SPA-VRS-009	S2MP17.84	Unnamed Tributary to Bald Eagle	Ephemeral	2	CWF
SPA-VRS-010	S2MP18.42	Unnamed Tributary to Bald Eagle	Perennial	10	CWF
SPA-NAY-055	S2MP19.05	Bald Eagle	Perennial	100	TSF
SPA-NAY-060	S2MP19.28	Unnamed Tributary to Bald Eagle	Perennial	2	CWF
SPA-NAY-056	S2MP19.39	Unnamed Tributary to Bald Eagle	Intermittent	Not Crossed	CWF
SPA-NAY-059	S2MP19.65	Unnamed Tributary to Bald Eagle	Perennial	3	CWF
SPA-NAY-058	S2MP19.80	Unnamed Tributary to Bald Eagle	Intermittent	1	CWF
SPA-NAY-057	S2MP19.81	Spring Unnamed Tributary to Bald Eagle	Perennial	< 1	CWF
SPA-NAY-061	S2MP20.16	Unnamed Tributary to Bald Eagle	Intermittent	1.5	CWF
SPA-NAY-062	S2MP20.26/S2AR11	Unnamed Tributary to Bald Eagle	Intermittent	Not Crossed	CWF
SPA-NAY-063	S2MP20.30	Spring Unnamed Tributary to Bald Eagle	Perennial	Not Crossed	CWF
SPA-NAY-064	S2MP20.67	Unnamed Tributary to Bald Eagle	Intermittent	3	CWF
SPA-NAY-065	S2MP21.35	Unnamed Tributary to Bald Eagle	Intermittent	Not Crossed	CWF
SPA-NAY-066	S2MP21.40	Unnamed Tributary to Bald Eagle	Intermittent	3	CWF
SPA-AES-001	S2MP22.11	Antis Creek	Intermittent	4	CWF
SPA-AES-002	S2MP23.24	Little Marsh Creek	Perennial	15	CWF
SPA-KDR-001	S2MP26.01	Laurel Run	Intermittent	Not Crossed	CWF
SPA-KDR-002	S2MP26.02	Marsh Creek	Perennial	7	CWF
SPA-KDR-003	S2MP26.03	Marsh Creek	Perennial	8	CWF
SPA-AES-003	S2MP26.08	Unnamed Tributary to Marsh Creek	Perennial	10	CWF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings (continued)					
SPA-GTR-007	S2MP27.54	Unnamed Tributary to Council Run	Ephemeral	Not Crossed	CWF
SPA-GTR-005	S2MP27.65	Unnamed Tributary to Council Run	Perennial	1	CWF
SPA-GTR-004	S2MP28.10	Unnamed Tributary to Council Run	Ephemeral	Not Crossed	CWF
SPA-GTR-006	S2MP28.15	Unnamed Tributary to Council Run	Perennial	4	CWF
SPA-VRS-001	S3MP0.30	Unnamed Tributary to Council Run	Perennial	2	CWF
SPA-VRS-002	S3MP0.91[5]	Spring/Sink Unnamed Tributary to Council Run	Perennial	1	CWF
SPA-VRS-003	S3MP1.13	Council Run	Perennial	1	CWF
SPA-VRS-004	S3MP1.21	Beech Creek	Perennial	30	CWF
SPA-VRS-006	S3MP1.21	Backwater - Beech Creek	Perennial	20	CWF
SPA-KLF-001	S3MP1.56	Beech Creek	Perennial	60	CWF
SPA-KLF-002	S3MP2.28	Beech Creek	Perennial	50	CWF
SPA-KLF-003	S3MP2.34	Eddy Lick Run	Perennial	10	CWF
SPPA-KLF-001	S3MP2.43	Spring	-[4]	Not Crossed	-[4]
SPA-KLF-004	S3MP3.13	Unnamed Tributary to Eddy Lick Run	Intermittent	1	CWF
SPA-KLF-005	S3MP4.66	Unnamed Tributary to Two Rock Run	Perennial	< 1	EV
SPA-KLF-006	S3MP5.03	Unnamed Tributary to Two Rock Run	Perennial	< 1	EV
SPA-KLF-007	S3MP5.98	Seep/Sink Unnamed Tributary to West Branch Big Run	Ephemeral	< 1	EV
SPA-KLF-008	S3MP6.25	Unnamed Tributary to West Branch Big Run	Ephemeral	6	EV
SPA-KLF-009	S3MP7.07	West Branch Big Run	Perennial	5	EV
SPA-KLF-010	S3MP10.31/S3AR12	Drainage Unnamed Tributary to Burns Run	Ephemeral	1.5	EV
SPA-KLF-011	S3MP10.35/S3AR12	Drainage Unnamed Tributary to Burns Run	Ephemeral	1	EV
SPA-KLF-012	S3MP10.47/S3AR12	Drainage Unnamed Tributary to Burns Run	Ephemeral	< 1	EV
SPDPA-KLF-001	S3MP12.28	Pond	-[4]	Not Crossed	-[4]
SPA-KLF-013	S3MP12.29/S3AR12	Unnamed Tributary to Smith Run	Intermittent	< 1	HQ-CWF
SPA-KLF-014	S3MP12.52/S3AR12	Unnamed Tributary to Smith Run	Intermittent	< 1	HQ-CWF
SPA-KLF-015	S3MP14.48	West Branch Susquehanna River	Perennial	579	WWF
SPA-RDW-001	S3MP15.99/S3AR14	Unnamed Tributary to Kettle Creek	Intermittent	6	TSF, CWF
SPA-RDW-002	S3MP16.03	Unnamed Tributary to Kettle Creek	Intermittent	2	TSF, CWF
SPA-RDW-003	S3MP16.44/ S3AR14/S3AR15	Unnamed Tributary to Kettle Creek	Perennial	10	TSF, CWF
SPA-RDW-004	S3MP16.46/ S3AR14/S3AR15	Tributary to Kettle Creek	Perennial	6	TSF, CWF
SPA-RDW-005	S3MP16.47/S3AR15	Unnamed Tributary to Kettle Creek	Perennial	7	TSF, CWF
SPDPA-RDW-001	S3MP16.49	Pond	-[4]	Not Crossed	-[4]
SPA-RDW-006	S3MP17.40	Kettle Creek	Perennial	58	TSF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings (continued)					
SPA-RDW-006	S3MP17.42	Overflow Channel - SPA-RDW-007	Intermittent	10	TSF
SPA-RDW-009	S3MP17.42	Backwater - SPA-RDW-006	Ephemeral	5	TSF
SPPA-RDW-001	S3MP17.56	Spring	-[4]	Not Crossed	-[4]
SPA-RDW-007	S3MP17.59	Twomile Run	Perennial	18	TSF
SPA-RDW-010	S3MP17.61	Overflow Channel - SPA-RDW-007	Intermittent	2	TSF
SSPPA-RDW-002	S3MP17.64	Seep	-[4]	Not Crossed	-[4]
SSPPA-RDW-003	S3MP17.69	Spring	-[4]	Not Crossed	-[4]
SPA-RDW-011	S3MP17.71/S3AR16	Huling Branch	Perennial	20	TSF
SPA-RDW-012	S3MP18.48	Twomile Run	Perennial	12	TSF
SSPPA-RDW-005	S3MP18.48	Spring	-[4]	Not Crossed	-[4]
SSPPA-RDW-004	S3MP18.49	Seep	-[4]	Not Crossed	-[4]
SSPPA-RDW-006	S3MP19.02[5]	Spring	-[4]	Not Crossed	-[4]
SPA-RDW-013	S3MP19.05[5]	Unnamed Tributary to Twomile Run	Intermittent	Not Crossed	TSF
SPA-RDW-016	S3MP19.05	Overflow channel - SPA-RDW-015	Ephemeral	1	TSF
SSPPA-RDW-007	S3MP19.08[5]	Spring	-[4]	Not Crossed	-[4]
SPA-RDW-014	S3MP19.09	Unnamed Tributary to Twomile Run	Perennial	1	TSF
SPA-RDW-015	S3MP19.10	Unnamed Tributary to Twomile Run	Perennial	4	TSF
SPA-RDW-017	S3MP19.13	Unnamed Tributary to Twomile Run	Intermittent	2	TSF
SSPPA-RDW-008	S3MP19.17	Seep	-[4]	Not Crossed	-[4]
SPA-RDW-018	S3MP19.50	Unnamed Tributary to Twomile Run	Perennial	2.5	TSF
SPA-RDW-019	S3MP19.97	Unnamed Tributary to Twomile Run	Perennial	4	TSF
SPA-RDW-020	S3MP20.96	Shintown Run	Perennial	6	HQ-CWF
SPA-RDW-021	S3MP20.96[5]	Unnamed Tributary to Shintown Run	Perennial	Not Crossed	HQ-CWF
SSPPA-RDW-009	S3MP20.98	Spring	-[4]	Not Crossed	-[4]
SPA-VRS-007	S3MP21.45	Unnamed Tributary to Shintown Run	Perennial	4	HQ-CWF
SPA-VRS-008	S3MP21.46	Unnamed Tributary to Shintown Run	Intermittent	1	HQ-CWF
Access Roads					
SPA-AES-023	S1AR1	Unnamed Tributary to Lick Run	Intermittent	5	CWF
SPA-AES-024	S1AR1	Unnamed Tributary to Lick Run	Intermittent	5	CWF
SPA-NAY-125	S1AR2	Unnamed Tributary to Willow Run			HQ-CWF
SPA-NAY-068	S1AR4	Unnamed Tributary to Barn Run	Perennial	4	HQ-CWF
SPA-NAY-069	S1AR4	Unnamed Tributary to Barn Run	Perennial	3	HQ-CWF
SPA-NAY-070	S1AR4	Unnamed Tributary to Blacklog Creek	Intermittent	2	HQ-CWF
SPA-NAY-071	S1AR4	Blacklog Creek	Perennial	12	HQ-CWF
SPA-NAY-072	S1AR4	Unnamed Tributary to Blacklog Creek	Intermittent	3	HQ-CWF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
Access Roads (continued)					
SPA-NAY-073	S1AR4	Unnamed Tributary to Blacklog Creek	Intermittent	4	HQ-CWF
SPA-NAY-074	S1AR4	Unnamed Tributary to Blacklog Creek	Intermittent	1.5	HQ-CWF
SPA-NAY-075	S1AR4	Unnamed Tributary to Blacklog Creek	Intermittent	3	HQ-CWF
SPA-NAY-077	S1AR4	Unnamed Tributary to East Licking Creek	Perennial	4	HQ-CWF
SPA-NAY-078	S1AR4	Pool	-[4]	4	-[4]
SPA-NAY-079	S1AR4	Unnamed Tributary to East Licking Creek	Perennial	8	HQ-CWF
SPA-NAY-076	S1AR6	Unnamed Tributary to Blacklog Creek	Intermittent	2	HQ-CWF
SPA-NAY-080	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	2.5	HQ-CWF
SPA-NAY-081	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	0.5	HQ-CWF
SPA-NAY-082	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	1.5	HQ-CWF
SPA-NAY-083	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	1.5	HQ-CWF
SPA-NAY-084	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	2	HQ-CWF
SPA-NAY-085	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	1	HQ-CWF
SPA-NAY-086	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	1	HQ-CWF
SPA-NAY-087	S1AR7A	Unnamed Tributary to East Licking Creek	Intermittent	2	HQ-CWF
SPA-NAY-119	S1AR11	Unnamed Tributary to Strodes Run	Perennial	4	CWF
SPA-NAY-106	S1AR14	Unnamed Tributary to Standing Stone Creek	Ephemeral	1	HQ-CWF
SPA-NAY-107	S1AR14	Unnamed Tributary to Standing Stone Creek	Intermittent	2.5	HQ-CWF
SPA-NAY-108	S1AR14	Unnamed Tributary to Standing Stone Creek	Intermittent	3	HQ-CWF
SPA-NAY-109	S1AR14	Unnamed Tributary to Standing Stone Creek	Intermittent	2.5	HQ-CWF
SPA-NAY-110	S1AR14/S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	1	HQ-CWF
SPA-NAY-111	S1AR16	Unnamed Tributary to Standing Stone Creek	Ephemeral	3	HQ-CWF
SPA-NAY-112	S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	1	HQ-CWF
SPA-NAY-113	S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	1	HQ-CWF
SPA-NAY-114	S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	2	HQ-CWF
SPA-NAY-115	S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	2	HQ-CWF
SPA-NAY-116	S1AR16	Unnamed Tributary to Standing Stone Creek	Intermittent	1	HQ-CWF
SPA-NAY-117	S1AR16	Unnamed Tributary to Standing Stone Creek	Perennial	15	HQ-CWF
SPA-AES-018	S1AR17	Standing Stone Creek	Perennial	1	HQ-CWF
SPA-AES-019	S1AR17	Unnamed Tributary to Standing Stone Creek	Perennial	10	HQ-CWF
SPA-AES-020	S1AR17	Unnamed Tributary to Standing Stone Creek	Intermittent	5	HQ-CWF
SPA-AES-021	S1AR17	Unnamed Tributary to Honey Creek	Perennial	6	HQ-CWF
SPA-AES-022	S1AR17	Unnamed Tributary to Honey Creek	Intermittent	4	HQ-CWF
SPA-NAY-118	S1AR17	Unnamed Tributary to Honey Creek	Perennial	20	HQ-CWF
SPA-AES-003	S1AR18	Unnamed Tributary to Honey Creek	Perennial	10	HQ-CWF

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
Access Roads (continued)					
SPA-AES-004	S1AR18	Unnamed Tributary to Honey Creek	Perennial	5	HQ-CWF
SPA-AES-005	S1AR18	Unnamed Tributary to Honey Creek	Perennial	7	HQ-CWF
SPA-AES-006	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	6	HQ-CWF
SPA-AES-007	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	5	HQ-CWF
SPA-AES-008	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	5	HQ-CWF
SPA-AES-009	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	6	HQ-CWF
SPA-AES-010	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	3	HQ-CWF
SPA-AES-011	S1AR18	Unnamed Tributary to Standing Stone Creek	Intermittent	4	HQ-CWF
SPA-AES-012	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	6	HQ-CWF
SPA-AES-013	S1AR18	Unnamed Tributary to Standing Stone Creek	Intermittent	5	HQ-CWF
SPA-AES-014	S1AR18	Unnamed Tributary to Standing Stone Creek	Perennial	4	HQ-CWF
SPA-AES-015	S1AR18	Unnamed Tributary to Standing Stone Creek	Intermittent	4	HQ-CWF
SPA-AES-016	S1AR18	Unnamed Tributary to Standing Stone Creek	Intermittent	4	HQ-CWF
SPA-AES-017	S1AR18	Standing Stone Creek	Perennial	20	HQ-CWF
SPA-NAY-101	S1AR18/S2AR1	Unnamed Tributary to Standing Stone Creek	Perennial	6	HQ-CWF
SPA-NAY-102	S2AR1	Unnamed Tributary to Standing Stone Creek	Perennial	20	HQ-CWF
SPA-NAY-103	S2AR1	Unnamed Tributary to Penns Creek	Perennial	25	CWF
SPA-NAY-104	S2AR3	Spring/Pool	-[4]	Not Crossed	-[4]
SPA-NAY-099	S2AR10	Unnamed Tributary to Bald Eagle Creek	Intermittent	3	CWF
SPA-NAY-100	S2AR11	Unnamed Tributary to Bald Eagle Creek	Intermittent	3	CWF
SPA-NAY-095	S2AR13	Unnamed Tributary to Little Marsh Creek	Intermittent	4	CWF
SPA-NAY-096	S2AR14	Unnamed Tributary to Marsh Creek	Intermittent	3	CWF
SPA-NAY-097	S2AR14	Pond	-[4]	Not Crossed	-[4]
SPA-NAY-098	S2AR14	Unnamed Tributary to Marsh Creek	Perennial	3	CWF
SPA-NAY-088	S2AR15	Unnamed Tributary to Council Run	Intermittent	3	CWF
SPA-NAY-089	S2AR15	Unnamed Tributary to Council Run	Intermittent	4	CWF
SPA-NAY-090	S2AR17	Pool	-[4]	4	-[4]
SPA-NAY-091	S2AR17	Unnamed Tributary to Council Run	Perennial	4	CWF
SPA-NAY-092	S2AR17	Council Run	Perennial	10	CWF
SPA-NAY-093	S2AR17	Unnamed Tributary to Two Rock Run	Perennial	4	EV
SPA-NAY-094	S2AR17	Unnamed Tributary to Beech Creek	Ephemeral	1.5	CWF
SPA-VRS-014	S3AR2	Council Run	Perennial	15	CWF
SPA-VRS-015	S3AR2	Council Run	Perennial	10	CWF
SPA-VRS-016	S3AR3	Two Rock Run	Perennial	20	EV
SPA-VRS-017	S3AR3	Unnamed Tributary to Two Rock Run	Perennial	6	EV

Table 2.2.1-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PsDEP Chapter 93 Classification[2]
Access Roads (continued)					
SPA-VRS-018	S3AR5	Unnamed Tributary to Beech Creek	Intermittent	1	CWF
SPA-VRS-019	S3AR7	Unnamed Tributary to Two Rock Run	Perennial	10	EV
SPA-VRS-020	S3AR14	Unnamed Tributary to Kettle Creek	Intermittent	1	TSF
SPA-VRS-021	S3AR14	Unnamed Tributary to Kettle Creek	Intermittent	1	TSF
SPA-VRS-022	S3AR14	Unnamed Tributary to Kettle Creek	Perennial	10	TSF
SPA-VRS-028	S3AR16	Twomile Run	Perennial	3	TSF
SPA-VRS-029	S3AR16	Twomile Run	Perennial	3	TSF
SPA-VRS-030	S3AR16	Tributary to Twomile Run	Ephemeral	3	TSF
SPA-VRS-031	S3AR16	Twomile Run	Perennial	3	TSF
SPA-VRS-034	S3AR16	Tributary to Twomile Run	Intermittent	3	TSF
SPA-VRS-035	S3AR16	Twomile Run	Perennial	3	TSF
SPA-VRS-036	S3AR16	Twomile Run	Perennial	3	HQ-CWF
SPA-VRS-037	S3AR16	Unnamed Tributary to Twomile Run	Ephemeral	3	HQ-CWF
SPA-VRS-038	S3AR16	Twomile Run	Perennial	3	HQ-CWF
SPA-VRS-039	S3AR16	Twomile Run	Perennial	3	HQ-CWF
SPA-VRS-027	S3AR16/S3AR17	Middle Branch	Perennial	20	TSF
SPA-VRS-032	S3AR16/S3AR17	Twomile Run	Perennial	3	TSF
SPA-VRS-033	S3AR16/S3AR17	Twomile Run	Perennial	3	TSF
SPA-VRS-026	S3AR16/S3AR18	Twomile Run	Perennial	3	HQ-CWF, TSF
SPA-VRS-023	S3AR17	Middle Branch	Perennial	15	TSF
SPA-VRS-024	S3AR18	Unnamed Tributary to Twomile Run	Intermittent	3	TSF
SPA-VRS-025	S3AR18	Unnamed Tributary to Twomile Run	Perennial	4	TSF
SPA-VRS-040	S3AR19	Shintown Run	Perennial	10	HQ-CWF
SPA-VRS-105	S3AR20	Tributary to Shintown Run	Perennial	18	HQ-CWF

Notes:

1 GAI Designation.

2 State Water Quality Classifications: PaDEP Chapter 93 Protected Uses: CWF = Cold Water Fishery; EV = Exceptional Value; and HQ = High Quality; TSF = Trout Stocking Fishery.

3 Adjacent stream; not crossed by the pipeline in the 150-foot study area.

4 Springs and pools without classifications or flows.

5 The milepost is based on the southernmost stream crossing.

Table 2.2.1-2

PERENNIAL, INTERMITTENT, AND EPHEMERAL WATERBODIES CROSSED BY THE TL-492 EXT3 PIPELINE

Map Designation[1]	State	County	Waterbody	Milepost	Waterbody Type	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings							
SWV-KLF-001	WV	Wetzel	Tributary to Cappo Run	0.00	Ephemeral	2	WWF
SWV-NAY-001	WV	Wetzel	Tributary to Cappo Run	0.05	Perennial	3	WWF
SWV-NAY-002	WV	Wetzel	Tributary to Cappo Run	0.01, 0.01, 0.06	Perennial	N/A	WWF
SPA-NAY-150	PA	Greene	Tributary to Hamilton Run	1.19	Ephemeral	N/A	WWF
SPA-NAY-151	PA	Greene	Tributary to Pennsylvania Fork of Dunkard Creek	1.19	Ephemeral	3	WWF
SPA-NAY-152	PA	Greene	Tributary to Pennsylvania Fork of Dunkard Creek	1.19	Ephemeral	2	WWF
SPA-NAY-153	PA	Greene	Tributary to Pennsylvania Fork of Dunkard Creek	1.25	Intermittent	2	WWF
SPA-NAY-154	PA	Greene	Tributary to Pennsylvania Fork of Dunkard Creek	1.54	Intermittent	1.5	WWF
SPA-NAY-155	PA	Greene	Tributary to Pennsylvania Fork of Dunkard Creek	1.88	Intermittent	1	WWF
SPA-NAY-156	PA	Greene	Tributary to Hamilton Run	1.98	Ephemeral	5	WWF
SPA-NAY-157	PA	Greene	Tributary to Hamilton Run	2.28	Intermittent	2	WWF
SPA-NAY-158	PA	Greene	Tributary to Hamilton Run	2.30	Intermittent	2	WWF
SPA-NAY-159	PA	Greene	Tributary to Hamilton Run	2.30	Intermittent	3	WWF
SPA-NAY-160	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	2.89	Ephemeral	1	WWF
SPA-NAY-161	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	2.95	Intermittent	-[3]	WWF
SPA-NAY-162	PA	Greene	Garrison Fork of Dunkard Creek	3.12	Perennial	5	WWF
SPA-NAY-163	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	3.16	Ephemeral	N/A	WWF
SPA-NAY-164	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	3.24	Ephemeral	3	WWF
SPA-NAY-165	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	3.27	Ephemeral	2.5	WWF
SPA-NAY-166	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	3.52	Perennial	2	WWF
SPA-NAY-167	PA	Greene	Tributary to Garrison Fork of Dunkard Creek	3.52	Intermittent	N/A	WWF
SPA-NAY-168	PA	Greene	Tributary to Bloody Run	3.86	Ephemeral	N/A	WWF
SPA-NAY-169	PA	Greene	Bloody Run	3.94	Perennial	2	WWF
SPA-NAY-170	PA	Greene	Tributary to Bloody Run	4.00	Intermittent	N/A	WWF
SPA-NAY-171	PA	Greene	Tributary to Bloody Run	4.04	Intermittent	1.5	WWF
SPA-NAY-172	PA	Greene	Bloody Run	4.35	Perennial	1	WWF
SPA-NAY-173	PA	Greene	Tributary to Bloody Run	4.77	Perennial	10	WWF
SPA-NAY-174	PA	Greene	Roberts Run	5.56	Perennial	1.5	WWF
SPA-NAY-175	PA	Greene	Blockhouse Run	6.39	Perennial	12	WWF
SPA-NAY-176	PA	Greene	Tributary to Blockhouse Run	6.59	Perennial	2	WWF

Table 2.2.1-2 (Continued)

Map Designation[1]	State	County	Waterbody	Milepost	Waterbody Type	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings (continued)							
SPA-NAY-177	PA	Greene	Tributary to Blockhouse Run	7.00	Intermittent	1.5	WWF
SPA-NAY-178	PA	Greene	Tributary to Tom Run	7.07	Ephemeral	-[3]	WWF
SPA-NAY-179	PA	Greene	Tributary to Tom Run	7.50	Perennial	2	WWF
SPA-NAY-180	PA	Greene	Tom Run	7.84	Perennial	8	WWF
SPA-NAY-181	PA	Greene	Tributary to Tom Run	8.33	Perennial	1	WWF
SPA-NAY-182	PA	Greene	Tributary to Tom Run	8.61	Perennial	6	WWF
SPA-NAY-183	PA	Greene	Tributary to Tom Run	8.63	Ephemeral	N/A	WWF
SPA-NAY-184	PA	Greene	Tributary to Hoover Run	9.23	Perennial	2	WWF
SPA-NAY-185	PA	Greene	Tributary to Hoover Run	9.24	Ephemeral	2	WWF
SPA-NAY-186	PA	Greene	Tributary to Hoover Run	9.26	Ephemeral	N/A	WWF
SPA-NAY-187	PA	Greene	Tributary to Hoover Run	9.26	Intermittent	1	WWF
SPA-NAY-188	PA	Greene	Hoover Run	9.60	Perennial	2	WWF
GWPA-LAF-001	PA	Greene	Spring	10.55	N/A[4]	1.5	Not Classified[4]
Access Roads							
SPA-NAY-189	PA	Greene	Hoover Run	AR-17	Perennial	3	WWF
SPA-NAY-190	PA	Greene	Tributary to Hoover Run	AR-17	Intermittent	1.5	WWF
SPA-NAY-191	PA	Greene	Tributary to Bloody Run	AR-7	Intermittent	1.5	WWF
SPA-NAY-170	PA	Greene	Tributary to Bloody Run	AR-6	Perennial	1.5[5]	WWF
SPA-NAY-169	PA	Greene	Bloody Run	AR-6	Perennial	1.5[5]	WWF
SPA-SRC-001	PA	Greene	Tributary to Bloody Run	AR-6	Perennial	1.5[5]	WWF
SPA-SRC-002	PA	Greene	Tributary to Bloody Run	AR-6	Perennial	1.5[5]	WWF
SPA-SRC-003	PA	Greene	Tributary to Bloody Run	AR-6	Perennial	1.5[5]	WWF
Pipeyard							
SPA-KF-001	PA	Greene	PA Fork of Fish Creek	Pipeyard	Perennial	5	WWF
SPA-KF-002	PA	Greene	PA Fork of Fish Creek	Pipeyard	Perennial	10	WWF

Notes:

1. GAI designation.
2. PaDEP Chapter 93 Classification: WWF - Warm Water Fishery.
3. At the pipeline crossing, the stream develops into a wetland, and therefore, has no stream crossing width.
4. Not classified - seeps and springs.
5. Crosses via an existing culvert.

Table 2.2.1-3

PERENNIAL, INTERMITTENT, AND EPHEMERAL WATERBODIES CROSSED BY THE TL-536 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
ROW Crossings					
SPA-KDR-004	0.71	Orebed Creek	Perennial	12	CWF
GWPA-KDR-001	2.00	Seep	Intermittent	4	Not Classified[3]
SPA-KDR-005	2.13	Redwater Creek	Perennial	2	CWF
SPA-KDR-006	4.76	Unnamed Tributary to Dutton Hollow Creek	Intermittent	Not Crossed[4]	CWF
GWPA-KDR-002	4.80	Seep	Intermittent	10	Not Classified
SPA-KDR-007	4.85	Dutton Hollow Creek	Perennial	3	CWF
SPA-KDR-008	4.90	Unnamed Tributary to Dutton Hollow Creek	Intermittent	2	CWF
GWPA-KDR-003	5.53	Spring	Intermittent	4	Not Classified
GWPA-KDR-004	5.60	Spring	Intermittent	4	Not Classified
SPA-KDR-009	5.64	Unnamed Tributary to Dutton Hollow Creek	Perennial	Crosses ROW[5]	CWF
SPA-KDR-010	5.64	Unnamed Tributary to Dutton Hollow Creek	Perennial	10	CWF
SPA-KDR-011	5.68	Unnamed Tributary to Dutton Hollow Creek	Ephemeral	Crosses ROW	CWF
GWPA-KDR-005	6.47	Spring	Intermittent	1	Not Classified
SPA-KDR-015	7.63	Unnamed Tributary to Butter Creek	Ephemeral	3	HQ-CWF
SPA-KDR-019	8.56	Unnamed Tributary to Butter Creek	Intermittent	Crosses ROW	HQ-CWF
SPA-KDR-019	8.59	Unnamed Tributary to Butter Creek	Intermittent	Crosses ROW	HQ-CWF
SPA-KDR-020	8.63	Butter Creek	Perennial	20	HQ-CWF
SPA-KDR-021	8.71	Unnamed Tributary to Butter Creek	Ephemeral	Crosses ROW	HQ-CWF
SPA-KDR-022	8.95	Unnamed Tributary to Butter Creek	Intermittent	3	HQ-CWF
SPA-KDR-016	AR-2	Unnamed Tributary to Butter Creek	Ephemeral	Not Crossed	HQ-CWF
SPA-KDR-017	AR-2	Unnamed Tributary to Butter Creek	Ephemeral	Not Crossed	HQ-CWF
SPA-KDR-018	AR-2	Butter Creek	Perennial	Not Crossed	HQ-CWF

Notes:

1. GAI designation.
2. PaDEP Chapter 93 Classifications: CWF = Cold Water Fishery and HQ = High Quality.
3. Seeps and springs are not classified by PaDEP Chapter 93.
4. Not crossed by the proposed pipeline or ROW, but exists within the project environmental study area.
5. Not crossed by the proposed pipeline, but crosses ROW.

Table 2.2.1-4

PERENNIAL, INTERMITTENT, AND EPHEMERAL WATERBODIES CROSSED BY THE TL-453 EXT1 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	Flow	Crossing Width (feet)	PaDEP Chapter 93 Classification[2]
SPA-KDR-023	Not Crossed[3]	Unnamed Tributary to West Branch Genesee River	Intermittent/Ephemeral	Not Crossed	HQ-CWF
SPA-KDR-024	0.30	Unnamed Tributary to West Branch Genesee River	Perennial	15	HQ-CWF
SPA-KDR-025	Crosses AR-1	Unnamed Tributary to West Branch Genesee River	Ephemeral	Not Crossed	HQ-CWF
SPA-KDR-026	2.26	Middle Branch Genesee River	Perennial	20	HQ-CWF
SPA-SRC-001	3.42	Unnamed Tributary to Genesee River	Perennial	2	CWF
PPA-SRC-002	Crosses AR-4	Pool	Pool	Not Crossed	Not Applicable[4]
SPA-SRC-012	4.29	Genesee River	Perennial	30	CWF
PPA-SRC-001	Not Crossed	Pond	Non-Ornamental	Not Crossed	Not Applicable
SPA-SRC-011	6.48	Unnamed Tributary to Turner Creek	Ephemeral	2	CWF
SPA-SRC-010	6.60	Unnamed Tributary to Turner Creek	Perennial	20	CWF
SPA-SRC-009	6.76	Unnamed Tributary to Turner Creek	Perennial	4	CWF
SPA-SRC-008	6.84	Unnamed Tributary to Turner Creek	Perennial	6	CWF
SPA-SRC-007	8.62	Unnamed Tributary to Turner Creek	Ephemeral	2	CWF
SPA-SRC-006	8.64	Unnamed Tributary to Turner Creek	Ephemeral	1	CWF
SPA-SRC-005A	Not Crossed	Unnamed Tributary to Marsh Creek	Perennial	Not Crossed	CWF
SPA-SRC-005B	9.68	Unnamed Tributary to Marsh Creek	Perennial	5	CWF
SPA-SRC-013	9.73	Marsh Creek	Perennial	10	CWF
SPA-SRC-004	Not Crossed	Unnamed Tributary to Marsh Creek	Perennial	Not Crossed	CWF
SPA-SRC-003	Not Crossed	Unnamed Tributary to Marsh Creek	Perennial	Crosses ROW[5]	CWF
GWPA-SRC-001	Not Crossed	Spring	Spring	Not Crossed	Not Applicable
SPA-SRC-002	Crosses AR-8	Unnamed Tributary to North Branch Cowanesque River	Perennial	Not Crossed	CWF

Notes:

1 GAI designation.

2 PaDEP Chapter 93 Classifications: CWF = Cold Water Fishery and HQ = High Quality.

3 No milepost or crossing widths are provided because the stream does not cross the pipeline, but exists within the environmental study area.

4 Pools, ponds, and springs are not classified by PaDEP Chapter 93.

5 Not crossed by proposed pipeline, but crosses ROW.

Table 2.2.3-1

DEGRADED WATERBODIES WITHIN THE PL-1 EXT2 PIPELINE AREA

Waterbody[1]	Milepost	Impairment	Cause
Beech Creek	S3MP1.21	Metals	AMD
Twomile Run	S3MP17.59	Metals	AMD
Kettle Creek	S3MP17.40	Metals	AMD
West Branch Susquehanna River	S3MP14.48	Metals	AMD
Bald Eagle Creek	S2MP19.05	PCBs	Industrial Point Source

Note:

[1] PaDEP (1998).

Table 2.2.3-2

SURFACE WATER SUPPLY WATERSHED AREAS CROSSED BY THE PL-1 EXT2 PIPELINE

County	Municipality	System Name	Use Type	Stream Name	Milepost	Distance Upstream of Surface Water Intake (feet)
Surface Water Users						
Mifflin	Union	Chemgro Inc., Union Mill Division	Industrial	Kishacoquilas	S1MP19.43	Downstream[1]
	Union	Ford New Holland Inc.	Industrial	Kishacoquilas	S1MP19.43	Downstream[1]
	Oliver	Strodes Mill Pits and Plant	Mining	Strodes Run	Not Crossed[2]	Not Crossed[2]
				Unnamed Tributary to Strodes Run	S1MP16.11	2,313[3]
				Unnamed Tributary to Strodes Run	S1MP16.41	3,750[3]
				Unnamed Tributary to Strodes Run	S1MP17.00	7,152[3]
	Union	James Hauthwost[4]	Irrigation	Kishacoquilas	S1MP19.43	Downstream[1]
				Unnamed Tributary to Frog Hollow	S1MP21.90	11,180[3]
Centre	Harris	Tussy Mountain Ski Area[4]	Commercial	Galbraith Pond	Not Crossed[2]	Not Crossed[2]
Public Water Supply Surface Water Users						
Centre	Benner	Rockview State Correctional Facility[4]	Public	Spring Creek	Not Crossed[2]	Not Crossed[2]
Private Water Supply Surface Water Users						
Centre	Boggs	Merrill Fisher	Water Supply	Milesburg Reservoir	Not Crossed[2]	Not Crossed[2]

Notes:

1. Surface water intake is located upstream of PL-1 EXT2 pipeline crossing.
2. Surface water intake is located within a three-mile radius of PL-1 EXT2 pipeline, but is not crossed.
3. Straight line distance from stream crossing to surface water intake.
4. From telephone communication with the PaDEP (Appendix 2-A).

Table 2.2.3-3

DEGRADED WATERBODIES WITHIN THE TL-492 EXT3 PIPELINE AREA

Waterbody[1]	Milepost	Impairment	Cause
Bloody Run	3.94	Siltation	Urban Runoff and Storm Sewers

Note:

1 PaDEP (http://www.dep.state.pa.us/deputate/watermgt/wqp/wqstandards/303d-04_l5s. pdf).

Table 2.2.3-4

DEGRADED WATERBODIES WITHIN THE TL-453 EXT1 PIPELINE AREA

Waterbody[1]	Milepost[2]	Impairment(s)	Cause(s)
Marsh Creek	9.68, 9.73, and Not Crossed[3]	Organic Enrichment, Low Dissolved Oxygen, Urban Runoff, and Siltation	Agriculture and Storm Sewers
North Branch Cowanesque River	Not Crossed[3]	Siltation and Nutrients	Agriculture
West Branch Genesee River	0.30, AR-1, and Not Crossed[3]	Organic Enrichment and Low Dissolved Oxygen	Agriculture
Genesee River	4.29	Siltation, Organic Enrichment and Low Dissolved Oxygen, and Point Source Organic Enrichment and Low Dissolved Oxygen	Agriculture and Municipal

Notes:

1 PaDEP 303(d) list (2004).

2 Milepost at which a stream within the contaminated watershed is crossed by the proposed pipeline.

3 Not crossed by the proposed pipeline, but exists within the environmental study area.

Table 2.2.4-1

SENSITIVE SURFACE WATERBODIES CROSSED BY THE PL-1 EXT2 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings				
SPA-NAY-125	S1MP3.57	Unnamed Tributary to Willow Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-124	S1MP3.57	Willow Run	HQ-CWF, WTA	Outstanding or exceptional quality; waters of particular ecological and recreational importance.
SPA-NAY-126	S1MP3.59	Willow Run	HQ-CWF, WTA	Outstanding or exceptional quality; waters of particular ecological and recreational importance.
SPA-NAY-127	S1MP3.72	Unnamed Tributary to Willow Run	HQ-CWF, WTA	Outstanding or exceptional quality; waters of particular ecological and recreational importance.
SPA-NAY-002	S1MP4.22	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-001	S1MP4.23	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-003	S1MP4.72	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-004	S1MP4.74	Dougherty Run	HQ-CWF	Outstanding or exceptional quality; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-NAY-005	S1MP5.21	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-006	S1MP5.21	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-007	S1MP5.23	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-008	S1MP5.25	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-009	S1MP5.27	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-010	S1MP5.27	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-011	S1MP5.34	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-012	S1MP5.36	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-013	S1MP5.36	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-014	S1MP5.41	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-015	S1MP5.45	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-016	S1MP5.51	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-017	S1MP5.59	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-018	S1MP5.60	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-019	S1MP5.65	Unnamed Tributary to Dougherty Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-020	S1MP6.31/ S1AR4	Unnamed Tributary to Barn Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-021	S1MP6.88	Unnamed Tributary to Barn Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-022	S1MP6.93	Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.

Table 2.2.4-1 (Continued)

Stream I.D[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings (Continued)				
SPA-NAY-023	S1MP8.63	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-024	S1MP8.99	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-025	S1MP9.00	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-027	S1MP9.10	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-026	S1MP9.08	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-028	S1MP9.23	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-029	S1MP9.49	East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-030	S1MP9.56	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-032	S1MP10.62	Minehart Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-033	S1MP11.52	Unnamed Tributary to Carlisle Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-037	S1MP11.55	Unnamed Tributary to Carlisle Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-036	S1MP11.86	Unnamed Tributary to Carlisle Run	HQ-CWF	Outstanding or exceptional quality.
SPA-DLC-001	S1MP12.17	Unnamed Tributary to Carlisle Run	HQ-CWF	Outstanding or exceptional quality.
SPA-DLC-002	S1MP12.27	Juniata River	WWF	Contain threatened or endangered species or critical habitat.
SPA-NAY-045	S1MP14.24	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-046	S1MP14.24	Spring Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-047	S1MP14.42	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-048	S1MP14.43	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-044	S1MP15.31	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-120	S1MP16.11	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-121	S1MP16.41	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-VRS-011	S1MP17.00	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-VRS-012	S1MP17.09	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-VRS-013	S1MP17.22	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-067	S1MP19.43	Kishacoquillas Creek	CWF, WTA	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing]; and crossed less than three miles upstream of potable water intake structures; waters of particular ecological and recreational importance.
SPA-NAY-035	S1MP23.72	East Branch of Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-038	S1MP24.74	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-039	S1MP24.78	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-040	S1MP24.83	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-041	S1MP24.91	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-042	S1MP25.00	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-049	S1MP25.01	Spring Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-043	S1MP25.01	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.

Table 2.2.4-1 (Continued)

Stream ID[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings (Continued)				
SPA-NAY-050	S1MP25.91	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-051	S1MP26.25	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-052	S1MP26.31	Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality; crossed less than three miles upstream of portable water intake structure.
SPA-KLF-016	S2MP0.03	Unnamed Tributary Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-KLF-017	S2MP1.72	Detweiler Run	HQ-CWF	Outstanding or exceptional quality.
SPA-KLF-018	S2MP2.99	Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-KLF-019	S2MP3.54	Unnamed Tributary to Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-KLF-020	S2MP3.88	Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-KLF-021	S2MP3.88	Unnamed Tributary to Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-KLF-022	S2MP3.88	Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-GTR-001	S2MP5.08	Unnamed Tributary to Galbraith Gap Run	HQ-CWF, WTA	Outstanding or exceptional quality.
SPA-GTR-002	S2MP6.08	Unnamed Tributary to Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-GTR-003	S2MP6.09	Unnamed Tributary to Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-GTR-009	S2MP6.21	Unnamed Tributary to Sinking Creek	CWF	Outstanding or exceptional quality.
SPA-VRS-009	S2MP17.84	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-VRS-010	S2MP18.42	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-055	S2MP19.05	Bald Eagle	TSF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing]; and located in sensitive and protected watershed areas.
SPA-NAY-060	S2MP19.28	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-056	S2MP19.39	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-059	S2MP19.65	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-058	S2MP19.80	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-057	S2MP19.81	Spring Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-061	S2MP20.16	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-062	S2MP20.26 /S2AR11	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-063	S2MP20.30	Spring Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-064	S2MP20.67	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-065	S2MP21.35	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-066	S2MP21.40	Unnamed Tributary to Bald Eagle	CWF	Located in sensitive and protected watershed areas.
SPA-AES-002	S2MP23.24	Little Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-KDR-001	S2MP26.01	Laurel Run	HQ-CWF	Outstanding or exceptional quality.
SPA-KDR-002	S2MP26.02	Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].

Table 2.2.4-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings (Continued)				
SPA-KDR-003	S2MP26.03	Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-VRS-003	S3MP1.13	Council Run	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-VRS-004	S3MP1.21	Beech Creek	CWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; located in sensitive and protected watershed areas; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-VRS-006	S3MP1.21	Backwater - Beech Creek	CWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; located in sensitive and protected watershed areas; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-KLF-001	S3MP1.56	Beech Creek	CWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; located in sensitive and protected watershed areas; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-KLF-002	S3MP2.28	Beech Creek	CWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; located in sensitive and protected watershed areas; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-KLF-005	S3MP4.66	Unnamed Tributary to Two Rock Run	EV	Outstanding or exceptional quality.
SPA-KLF-006	S3MP5.03	Unnamed Tributary to Two Rock Run	EV	Outstanding or exceptional quality.
SPA-KLF-007	S3MP5.98	Seep/Sink Unnamed Tributary to West Branch Big Run	EV	Outstanding or exceptional quality.
SPA-KLF-008	S3MP6.25	Unnamed Tributary to West Branch Big Run	EV	Outstanding or exceptional quality.
SPA-KLF-009	S3MP7.07	West Branch Big Run	EV	Outstanding or exceptional quality.
SPA-KLF-010	S3MP10.31 /S3AR12	Drainage Unnamed Tributary to Burns Run	EV, WTA	Outstanding or exceptional quality; waters of particular ecological and recreational importance.
SPA-KLF-011	S3MP10.35 /S3AR12	Drainage Unnamed Tributary to Burns Run	EV	Outstanding or exceptional quality.
SPA-KLF-012	S3MP10.47 /S3AR12	Drainage Unnamed Tributary to Burns Run	EV	Outstanding or exceptional quality.
SPA-KLF-013	S3MP12.29 /S3AR12	Unnamed Tributary to Smith Run	HQ-CWF	Outstanding or exceptional quality.
SPA-KLF-014	S3MP12.52 /S3AR12	Unnamed Tributary to Smith Run	HQ-CWF	Outstanding or exceptional quality.

Table 2.2.4-1 (Continued)

Stream I.D[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings (Continued)				
SPA-KLF-015	S3MP14.48	West Branch Susquehanna River	WWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; and outstanding or exceptional quality; waters that do not meet the water quality standards with the waters designated beneficial use [303(d)/305(d) listing].
SPA-RDW-006	S3MP17.40	Kettle Creek	TSF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing]; and surface waters that have been designated for intensified water quality management and improvement.
SPA-RDW-007	S3MP17.59	Twomile Run	TSF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-RDW-011	S3MP17.71 /S3AR16	Huling Branch	TSF	Waters that do not meet the water quality [303 (d)/505(b) listing].
SPA-RDW-012	S3MP18.48	Twomile Run	TSF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-RDW-020	S3MP20.96	Shintown Run	HQ-CWF	Outstanding or exceptional quality.
SPA-RDW-021	S3MP20.96	Unnamed Tributary to Shintown Run	HQ-CWF	Outstanding or exceptional quality.
SPA-VRS-007	S3MP21.45	Unnamed Tributary to Shintown Run	HQ-CWF	Outstanding or exceptional quality.
SPA-VRS-008	S3MP21.46	Unnamed Tributary to Shintown Run	HQ-CWF	Outstanding or exceptional quality.
Access Roads				
SPA-NAY-125	S1AR2	Unnamed Tributary to Willow Run	HQ-CWF, WTA	Outstanding or exceptional quality; waters of particular ecological and recreational importance..
SPA-NAY-068	S1AR4	Unnamed Tributary to Barn Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-069	S1AR4	Unnamed Tributary to Barn Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-070	S1AR4	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-071	S1AR4	Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-072	S1AR4	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-073	S1AR4	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-074	S1AR4	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-075	S1AR4	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-077	S1AR4	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-079	S1AR4	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-076	S1AR6	Unnamed Tributary to Blacklog Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-080	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-081	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-082	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-083	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.

Table 2.2.4-1 (Continued)

Stream I.D[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
Access Roads (Continued)				
SPA-NAY-084	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-085	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-086	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-087	S1AR7A	Unnamed Tributary to East Licking Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-119	S1AR11	Unnamed Tributary to Strodes Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-106	S1AR14	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-107	S1AR14	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-108	S1AR14	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-110	S1AR14/ S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-111	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-112	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-113	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-114	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-115	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-116	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-117	S1AR16	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-018	S1AR17	Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-019	S1AR17	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-020	S1AR17	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-021	S1AR17	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-AES-022	S1AR17	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-NAY-118	S1AR17	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-AES-003	S1AR18	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-AES-004	S1AR18	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-AES-005	S1AR18	Unnamed Tributary to Honey Creek	HQ-CWF, MF	Outstanding or exceptional quality.
SPA-AES-006	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-007	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-008	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-009	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-010	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-011	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-012	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-013	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-014	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-015	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-AES-016	S1AR18	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.

Table 2.2.4-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
Access Roads (Continued)				
SPA-AES-017	S1AR18	Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-101	S1AR18/ S2AR1	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-102	S2AR1	Unnamed Tributary to Standing Stone Creek	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-099	S2AR10	Unnamed Tributary to Bald Eagle Creek	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-100	S2AR11	Unnamed Tributary to Bald Eagle Creek	CWF	Located in sensitive and protected watershed areas.
SPA-NAY-092	S2AR17	Council Run	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-NAY-093	S2AR17	Unnamed Tributary to Rock Run	EV	Outstanding or exceptional quality.
SPA-NAY-094	S2AR17	Unnamed Tributary to Beech Creek	CWF	Rivers on or designated to be added to the Nationwide Rivers Inventory or a state river inventory; located in sensitive and protected watershed areas; and waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-VRS-014	S3AR2	Council Run	CWF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-015	S3AR2	Council Run	CWF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-016	S3AR3	Two Rock Run	EV	Outstanding or exceptional quality.
SPA-VRS-017	S3AR3	Unnamed Tributary to Two Rock Run	EV	Outstanding or exceptional quality.
SPA-VRS-019	S3AR7	Unnamed Tributary to Two Rock Run	EV	Outstanding or exceptional quality.
SPA-VRS-036	S3AR16	Twomile Run	HQ-CWF	Outstanding or exceptional quality; waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing]..
SPA-VRS-037	S3AR16	Unnamed Tributary to Twomile Run	HQ-CWF	Outstanding or exceptional quality; waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-038	S3AR16	Twomile Run	HQ-CWF	Outstanding or exceptional quality; waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-039	S3AR16	Twomile Run	HQ-CWF	Outstanding or exceptional quality; waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-032	S3AR16/ S3AR17	Twomile Run	TSF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-033	S3AR16/ S3AR17	Twomile Run	TSF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].

Table 2.2.4-1 (Continued)

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
Access Roads (Continued)				
SPA-VRS-026	S3AR16/S3 AR18	Twomile Run	HQ-CWF, TSF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-024	S3AR18	Unnamed Tributary to Twomile Run	TSF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-025	S3AR18	Unnamed Tributary to Twomile Run	TSF	Waters that do not meet the water quality standards associated with the water's designated beneficial use [303(d)/305(b) listing].
SPA-VRS-040	S3AR19	Shintown Run	HQ-CWF	Outstanding or exceptional quality.
SPA-NAY-105	S3AR20	Tributary to Shintown Run	HQ-CWF	Outstanding or exceptional quality.

Notes:

[1] GAI Designation:

[2] State Water Quality Classifications

PaDEP Chapter 93 Protected Uses:
- CWF = Cold Water Fishery
- HQ = High Quality
- EV = Exceptional Value
- TSF = Trout Stocking Fishery
- WWF = Warm Water Fishery
- MF = Migratory Fishery

PFBC :
- WTA = Wild Trout Class A Stream

Table 2.2.4-2

SENSITIVE SURFACE WATERBODIES CROSSED BY THE TL-492 EXT3 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings				
SPA-NAY-151	1.19	Unnamed Tributary to PA Fork of Dunkard Creek	WWF	WRAS plan.[3]
SPA-NAY-152	1.19	Unnamed Tributary to PA Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-153	1.25	Unnamed Tributary to PA Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-154	1.54	Unnamed Tributary to PA Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-155	1.88	Unnamed Tributary to PA Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-163	3.16	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-164	3.24	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-165	3.27	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-166	3.52	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-167	3.52	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-168	3.86	Unnamed Tributary to Garrison Fork of Dunkard Creek	WWF	WRAS plan.
SPA-NAY-169	3.94	Bloody Run	WWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-001	AR-6	Unnamed Tributary to Bloody Run	WWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-002	AR-6	Unnamed Tributary to Bloody Run	WWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-003	AR-6	Unnamed Tributary to Bloody Run	WWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].

Notes:

1 GAI Designation:
2 State Water Quality Classification - PaDEP Chapter 93 Protected Use: WWF = Warm Water Fishery.
3 WRAS - Watershed Restoration Action Strategies (PaDEP).

Table 2.2.4-3

SENSITIVE SURFACE WATERBODIES CROSSED BY THE TL-536 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings				
SPA-KDR-015	7.63	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-019	8.56	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-020	8.63	Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-021	8.71	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-022	8.95	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
Access Roads				
SPA-KDR-016	AR-2	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-017	AR-2	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality
SPA-KDR-018	AR-2	Unnamed Tributary to Butter Creek	HQ-CWF	Outstanding or Exceptional Quality

Notes:

1 GAI designation.

2 State Water Quality Classifications: PaDEP Chapter 93 Protected Uses: HQ-CWF = High Quality-Cold Water Fishery.

Table 2.2.4-4

SENSITIVE SURFACE WATERBODIES CROSSED BY THE TL-453 EXT1 PIPELINE

Stream I.D.[1]	Milepost	Waterbody	State Water Quality Classification[2]	Sensitive Waterbody Criteria
ROW Crossings				
SPA-KDR-026	2.26	Middle Branch Genesee River	HQ-CWF, TSF	Protected fish species (American brook lamprey) and outstanding or exceptional quality.
SPA-SRC-002	Not Crossed	Unnamed Tributary to North Branch Cowanesque River	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-KDR-023	Not Crossed	Unnamed Tributary to West Branch Genesee River	HQ-CWF, TSF, WTA	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing], and outstanding or exceptional quality.
SPA-KDR-024	0.30	Unnamed Tributary to West Branch Genesee River	HQ-CWF, TSF, WTA	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing], and outstanding or exceptional quality.
SPA-KDR-025	AR-1	Unnamed Tributary to West Branch Genesee River	HQ-CWF, TSF, WTA	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing], and outstanding or exceptional quality.
SPA-SRC-005A	Not Crossed	Unnamed Tributary to Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-005B	9.68	Unnamed Tributary to Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-013	9.73	Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-004	Not Crossed	Unnamed Tributary to Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-003	Not Crossed	Unnamed Tributary to Marsh Creek	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].
SPA-SRC-012	4.29	Genesee River	CWF	Waters that do not meet the water quality standards associated with the waters' designated beneficial use [303(d)/305(b) listing].

Notes:

1 GAI designation.

2 State Water Quality Classifications: PaDEP Chapter 93 Protected Uses: CWF = Cold Water Fishery; and HQ = High Quality.
PFBC: TSF = Trout Stocked Fishery; and WTA = Class A Wild Trout.

3 Not crossed by proposed pipeline, but exists within the environmental study area.

Table 2.2.5-1

HYDROSTATIC TEST INFORMATION FOR THE PL-1 EXT2 PIPELINE

Pipeline Project	Segment	Pipe Size	Water Source	Test Site (milepost)	Initial Fill (approx. gallons)
Section 1	1	24-Inch Mainline PL-1 EXT2	Test Segment 1	Fill 5.62 (Section 1) Empty 0.0 (Section 1)	667,960
	2		Juniata River	Fill 12.24(Section 1) Empty 5.62 (Section 1)	789,535
	3		Juniata River	Fill 12.24 (Section 1) Empty 15.31 (Section 1)	365,592
	4		Test Segment 3	Fill 15.31 (Section 1) Empty 17.44 (Section 1)	253,180
	5		Kishacoquillas Creek or Test Segment 4	Fill 17.44 (Section 1) Empty 17.44 (Section 1)	235,636
	6		Kishacoquillas Creek or Test Segments 1, 2, 3, and 4 from Section 2	Fill 26.87 (Section 2) Empty 26.87 (Section 2)	1,201,441
Section 2	1		Bald Eagle Creek and Test Segments 2 and 3	Fill 6.82 (Section 2) Empty 26.87 (Section 2)	495,493
	2		Test Segments 3 and 4	Fill 9.77 (Section 2) Empty 6.82 (Section 2)	350,620
	3		Test Segment 4	Fill 12.23 (Section 2) Empty 9.77 (Section 2)	293,168
	4		Bald Eagle Creek and Test Segments 5 and 6	Fill 15.68 (Section 2) Empty 12.23 (Section 2)	410,840
	5		Test Segment 6	Fill 15.82 (Section 2) Empty 16.68 (Section 2)	16,695
	6		Bald Eagle Creek	Fill 19.05 (Section 2) Empty 15.82 (Section 2)	384,266
	7		Bald Eagle Creek	Fill 19.05 (Section 2) Empty 19.65 (Section 2)	71,550
	8		Bald Eagle Creek and Test Segment 7	Fill 19.65 (Section 2) Empty 24.26 (Section 2)	549,202
	9		Test Segment 8	Fill 24.26 (Section 2) Empty 27.26	358,218
Section 3	1		Test Segment 2 and 3	Fill 5.95 (Section 3) Empty 27.26	869,860
	2		West Branch Susquehanna River and Test Segment 3	Fill 12.02 (Section 3) Empty 5.95 (Section 3)	721,608
	3		West Branch Susquehanna River	Fill 14.55 (Section 3) Empty 12.02 (Section 3)	287,824
	4		West Branch Susquehanna River	Fill 14.55 (Section 3) Empty 20.33 (Section 3)	687,841
	5		Test Segment 4	Fill 20.33 (Section 3) Empty 22.51 (Section 3)	259,285
	6		Test Segment 5	Fill 22.51 (Section 3) Empty 25.62 (Section 3)	370,030

Table 2.2.5-2

HYDROSTATIC TEST INFORMATION FOR THE TL-492 EXT3 PIPELINE

Segment	Pipe Size	Water Source	Test Site (milepost)	Initial Fill (approx. gallons)
1	24-Inch Mainline TL-492 EXT3	West Fork of Fish Creek	Fill 0.00 Empty 5.65 (push ahead)	662,186
2		Test Segment 1 (push ahead)	Fill 5.65 Empty 10.77	595,101

Table 2.2.5-3

HYDROSTATIC TEST INFORMATION FOR THE TL-536 PIPELINE

Pipe Size	Water Source	Test Site (milepost)	Initial Fill (approx. gallons)
20-Inch Mainline TL-536	Genesee River	Fill 0.00 Empty 9.49	792,000

Table 2.2.5-4

HYDROSTATIC TEST INFORMATION FOR THE TL-453 EXT1 PIPELINE

Segment	Pipe Size (inches)	Test Site (milepost)	Initial Fill (approx. gallons)
1	24	MP0.0 to MP0.7	8,800
2	24	MP6.0 to MP6.1	5,500
3	24	MP6.6 to MP6.67	10,600
4	24	MP11.5 to MP11.6	3,500
5	24	MP0.0 to MP11.5	1,365,000

Note: Water sources will be the Middle Branch Genesee River at MP2.26 and the Genesee River at MP4.29. The water will be withdrawn and trucked to the five test segment sites listed above.

Table 2.3-1

SUMMARY OF WETLANDS CROSSED BY THE PL-1 EXT2 PIPELINE

Map Designation	Milepost	NWI Classification[1]	Length of Crossing (feet)[2]	Area Affected During Construction (acre)	Area Affected During Operation (acres)[3]
Part A. Wetlands Crossed by the Pipeline with HDD at Juniata River, Bald Eagle Creek, and I-99/S.R. 0026					
WPA-LF-007	S1MP0.23	PEM	0[4]	0.14	0.00[5]
WPA-LF-006	S1MP0.25	PFO	15	0.02	0.01
WPA-LF-005	S1MP0.40	PEM	114	0.30	0.02
WPA-LF-004	S1MP0.47	PFO	0[4]	< 0.01	0.00[5]
WPA-NAY-025	S1MP1.14	PEM	0[4]	0.03	< 0.01[5]
WPA-AES-005	S1MP2.20	PEM	36	0.02	0.01
WPA-AES-006	S1MP2.23	PEM	36	0.01	0.01
WPA-NAY-047	S1MP2.28	PEM	0[4]	0.06	< 0.01[5]
WPA-NAY-048	S1MP3.56	PEM	414	0.39	0.09
WPA-NAY-001	S1MP4.23	Riverine/PEM/PFO	182	0.31	0.04
WPA-NAY-004	S1MP5.21	Slope/PEM	97	0.10	0.02
WPA-NAY-005	S1MP5.27	Slope/PEM	7	0.02	< 0.01
WPA-NAY-006	S1MP5.33	Depressional/PEM	108	0.11	0.02
WPA-NAY-008	S1MP5.50	Slope/PEM/PFO	38	0.18	0.01
WPA-NAY-009	S1MP5.58	Slope/PEM/PFO	52	0.05	0.01
WPA-NAY-010	S1MP5.64	Slope/PEM	0[4]	0.02	< 0.01[5]
WPA-NAY-011	S1MP6.71	Depressional/PEM	0[4]	0.06	0.01
WPA-NAY-012	S1MP6.83	Depressional/PEM	167	0.09	0.02
WPA-NAY-013	S1MP6.86	Depressional/PEM	400	0.66	0.09
WPA-NAY-015	S1MP8.62	Slope/PEM	169	0.25	0.05
WPA-NAY-016	S1MP8.84	Slope/PEM	3663	3.74	0.82
WPA-NAY-017	S1MP9.80	Depressional/PEM/PFO	0[4]	0.03	< 0.01[5]
WPA-NAY-020	S1MP11.57	Depressional/PEM	0[4]	0.02	< 0.01[5]
WPA-NAY-019	S1MP11.63	Depressional/PEM/PFO	25	0.02	0.01
WPA-NAY-021	S1MP14.28	Depressional/PEM	33	0.03	0.01
WPA-NAY-022	S1MP14.41	Depressional/PEM	36	0.16	0.02
WPA-VRS-003	S1MP16.99	PEM	0[4]	0.28	0.02
WPA-VRS-004	S1MP17.29	PEM	157	0.19	0.04
WPA-NAY-018	S1MP22.51	Depressional/PEM	0[4]	< 0.01	< 0.01[5]
WPA-NAY-023	S1MP25.86	PEM	550	0.37	0.11
WPA-NAY-024	S1MP26.06	PEM	908	1.16	0.20
WPA-KLF-024	S2MP0.03	PEM/PFO	13	0.08	< 0.01
WPA-KLF-025	S2MP2.97	PEM/Fringe	0[4]	0.01	< 0.01[5]
WPA-KLF-026	S2MP2.99	PEM/Fringe	0[4]	0.01	< 0.01
WPA-KLF-027	S2MP3.48	PEM/PFO	1,191	1.52	0.27
WPA-KLF-028	S2MP3.88	PEM	0[4]	0.02	< 0.01
WPA-KLF-029	S2MP3.97	PEM/PFO	259	0.28	0.06
WPA-KLF-030	S2MP4.03	PEM	63	0.07	0.01
WPA-GTR-001	S2MP5.06	PEM	470	0.80	0.11
WPA-GTR-003	S2MP6.09	PEM	77	0.14	0.02
WPA-GTR-005	S2MP6.13	PEM	627	0.64	0.09
WPA-GTR-006	S2MP6.32	PEM	422	0.65	0.10
WPA-WJW-001	S2MP12.54	PEM	0[4]	0.04	< 0.01
WPA-WJW-002	S2MP12.59	PEM	274	0.22	0.06
WPA-NAY-029[7]	S2MP19.14	PEM/POW/PFO	243	0.06	0.06
WPA-NAY-030[7]	S2MP19.24	PEM	0[4]	0.00[4]	0.00[5]

Table 2.3-1 (Continued)

Map Designation	Milepost	NWI Classification[1]	Length of Crossing (feet)[2]	Area Affected During Construction (acre)	Area Affected During Operation (acres)[3]
Part A. Wetlands Crossed by the Pipeline with HDD at Juniata River, Bald Eagle Creek, and I-99/S.R. 0026 (continued)					
WPA-NAY-026[7]	S2MP19.28	PEM	168	0.04	0.04
WPA-NAY-027	S2MP19.40	PEM	0[4]	< 0.01	0.00[5]
WPA-NAY-028	S2MP19.64	PEM	0[4]	< 0.01	0.00[5]
WPA-NAY-031	S2MP20.15	PEM	33	0.07	0.01
WPA-NAY-032	S2MP21.37	PEM	156	0.22	0.04
WPA-AES-002	S2MP26.01	PEM/PFO	46	0.07	0.01
WPA-AES-003	S2MP26.07	PEM	0[4]	< 0.01	0.00[5]
WPA-GTR-004	S2MP28.06	PEM/PFO	627	1.07	0.09
WPA-KLF-001	S3MP1.22	PEM/Fringe	50	0.07	0.01
WPA-KLF-002	S3MP1.58	PEM	29	0.07	0.01
WPA-KLF-003	S3MP1.60	PEM/PSS	0[4]	0.02	0.00[5]
WPA-KLF-005	S3MP2.32	PSS/PEM	12	0.11	0.01
WPA-KLF-006	S3MP2.37	PEM	10	0.01	< 0.01
WPA-KLF-007	S3MP2.38	PSS	0[4]	0.01	0.00[5]
WPA-KLF-008	S3MP3.13	Fringe/PEM	8	0.01	< 0.01
WPA-KLF-009	S3MP3.22	PEM	0[4]	< 0.01	0.00[5]
WPA-KLF-010	S3MP3.24	PEM/PFO	36	0.14	0.01
WPA-KLF-011	S3MP3.28	PEM/PFO	42	0.07	0.01
WPA-KLF-012	S3MP4.58	PEM	415	0.50	0.10
WPA-KLF-013	S3MP4.70	PEM	0[4]	0.02	< 0.01
WPA-KLF-014	S3MP4.99	PEM	36	0.06	0.01
WPA-KLF-015	S3MP5.18	PEM	3	< 0.01	< 0.01
WPA-KLF-016	S3MP5.19	PEM	0[4]	0.03	0.00[5]
WPA-VRS-001	S3MP7.89	PEM	0[4]	0.02	0.00[5]
WPA-KLF-017	S3MP8.59	PEM/Slope	0[4]	0.01	0.00[5]
WPA-KLF-018	S3MP8.76	PEM/Slope	118	0.15	0.03
WPA-KLF-019	S3MP10.47	PEM	68	0.05	0.02
WPA-KLF-020	S3MP10.56	PEM	1	0.04	< 0.01
WPA-KLF-021	S3MP12.29	Depressional/Fringe/PEM	0[4]	< 0.01	0.00[5]
WPA-KLF-022	S3MP14.23	Depressional/PEM	0[4]	< 0.01	0.00[5]
WPA-KLF-023	S3MP14.27	Slope/PEM	8	0.01	< 0.01
WPA-RDW-001	S3MP14.48	Riverine/PFO	29	< 0.03	< 0.01
WPA-RDW-002	S3MP14.54	PEM	29	0.03	< 0.01
WPA-RDW-003	S3MP15.20	PEM	0[4]	< 0.01	0.00[5]
WPA-RDW-004	S3MP15.45	PEM	47	0.03	0.01
WPA-RDW-005	S3MP15.56	PEM	58	0.04	0.01
WPA-RDW-006	S3MP15.58	PEM	0[4]	< 0.01	< 0.01
WPA-RDW-007	S3MP15.60	PEM	0[4]	0.01	0.00[5]
WPA-RDW-008	S3MP15.97	PEM	269	0.42	0.06
WPA-RDW-009	S3MP16.03	PEM/Linear	9	0.02	< 0.01
WPA-RDW-010	S3MP16.31	PEM	67	0.03	0.01
WPA-RDW-011	S3MP16.39	PEM	0[4]	< 0.01	< 0.01
WPA-RDW-012	S3MP17.61	PEM	0[4]	< 0.01	< 0.01
WPA-RDW-014	S3MP17.69	PEM	0[4]	0.02	< 0.01
WPA-RDW-015	S3MP18.00	PEM	23	0.03	0.01
WPA-RDW-016	S3MP18.46	PEM	29	0.01	< 0.01
WPA-RDW-017	S3MP19.07	PEM	272	0.29	0.07
WPA-RDW-018	S3MP19.13	PFO/PEM	23	0.04	0.01
WPA-RDW-019	S3MP19.16	PEM/PFO	61	0.05	0.01

Table 2.3-1 (Continued)

Map Designation	Milepost	NWI Classification[1]	Length of Crossing (feet)[2]	Area Affected During Construction (acre)	Area Affected During Operation (acres)[3]
Part A. Wetland Crossed by the Pipeline with HDD at Juniata River, Bald Eagle Creek, and I-99/S.R. 0026 (continued)					
WPA-RDW-020	S3MP19.49	PEM	99	0.16	0.03
WPA-RDW-022	S3MP19.96	PEM	64	0.10	0.01
WPA-RDW-023	S3MP20.95	PEM/PFO	103	0.15	0.02
WPA-VRS-002	S3MP21.46	PEM	86	0.09	0.02
Access Roads					
WPA-NAY-036	AR4 (S1)	PEM	0[4]	0.01	0.01
WPA-NAY-035	AR4 (S1)	PEM	0[4]	0.05	0.05
WPA-NAY-034	AR4 (S1)	PEM	160	0.13	0.13
WPA-NAY-033	AR4 (S1)	PEM	0[4]	0.05	0.05
WPA-NAY-045	AR16 (S1)	PEM	12	0.01	0.01
WPA-NAY-046	AR16 (S1)	PEM	0[4]	0.02	0.02
WPA-AES-004	AR17 (S1)	PEM	88	0.10	0.10
WPA-NAY-041	AR3 (S2)	PFO	0[4]	0.02	0.02
WPA-NAY-040	AR11 (S2)	PEM	0[4]	0.01	0.01
WPA-NAY-039	AR13 (S2)	PEM/POW	12	0.01	0.01
WPA-NAY-037	AR17 (S2)	PEM	0[4]	0.01	0.01
WPA-NAY-038	AR17 (S2)	PEM	0[4]	0.02	0.02
WPA-VRS-005	AR1 (S3)	PEM	0[4]	< 0.01	< 0.01
WPA-VRS-006	AR2 (S3)	PFO/PEM	13	0.01	0.01
WPA-VRS-007	AR2 (S3)	PFO/PEM	0[4]	0.01	0.01
WPA-VRS-028	AR3 (S3)	PEM	29	0.02	0.02
WPA-VRS-027	AR3 (S3)	PEM/POW	7	0.01	0.01
WPA-VRS-026	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-025	AR3 (S3)	PEM	27	0.02	0.02
WPA-VRS-024	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-023	AR3 (S3)	PEM/POW	23	0.05	0.05
WPA-VRS-022	AR3 (S3)	PEM/POW	0[4]	0.01	0.01
WPA-VRS-021	AR3 (S3)	PEM/POW	29	0.02	0.02
WPA-VRS-020	AR3 (S3)	PEM	0[4]	0.03	0.03
WPA-VRS-019	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-018	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-017	AR3 (S3)	PEM	0[4]	< 0.01	< 0.01
WPA-VRS-016	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-015	AR3 (S3)	PEM	0[4]	< 0.01	< 0.01
WPA-VRS-014	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-013	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-012	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-011	AR3 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-010	AR3 (S3)	PEM	31	0.02	0.02
WPA-VRS-009	AR4 (S3)	PEM	0[4]	0.01	0.01
WPA-VRS-008	AR4 (S3)	PEM	47	0.02	0.02
WPA-VRS-029	AR7 (S3)	PEM	152	0.12	0.12
WPA-VRS-030	AR12 (S3)	PEM	2	< 0.01	< 0.01
WPA-VRS-031	AR14 (S3)	PEM	355	0.56	0.56
WPA-RDW-008	AR14 (S3)	PEM	117	0.98	0.98
WPA-RDW-009	AR14 (S3)	PEM/Linear	8	0.03	0.03
WPA-RDW-011	AR14 (S3)	PEM	0[4]	< 0.01	< 0.01
WPA-VRS-032	AR17 (S3)	PEM	1	< 0.01	< 0.01
WPA-VRS-033	AR17 (S3)	PEM	8	0.03	0.03

Table 2.3-1 (Continued)

Map Designation	Milepost	NWI Classification[1]	Length of Crossing (feet)[2]	Area Affected During Construction (acre)	Area Affected During Operation (acres)[3]
Access Roads (Continued)					
WPA-VRS-034	AR18 (S3)	PEM	59	0.02	0.02
WPA-VRS-035	AR18 (S3)	PEM	0[4]	0.01	0.01
WPA-NAY-042	AR21 (S3)	PEM	0[4]	> 0.01	> 0.01
WPA-NAY-043	AR21 (S3)	PEM	0[4]	> 0.01	> 0.01
		Part A Totals	15,031	20.45	5.94
Part B.	**Change in Wetlands Crossed by Conventional Lay at Juniata River and HDD at Bald Eagle Creek and I-99/S.R. 0026**			0.00[8]	0.00[8]
Part C.	**Change in Wetlands Crossed by Conventional Lay at Bald Eagle Creek and HDD at Juniata River and I-99/S.R. 0026**			0.49	0.00
Part D.	**Change in Wetlands Crossed by Conventional Lay at I-99/S.R. 0026 and HDD at Juniata River and Bald Eagle Creek**			0.00	0.00

Notes:

1. PEM - Palustrine Emergent Wetland; PSS - Palustrine Scrub-Shrub Wetland; PFO - Palustrine Forested Wetland; and POW - Palustrine Open Water Wetland.
2. "Length of Crossing" is the length measured along the centerline in plan view on the Construction Alignment Sheets.
3. A 10-foot width of wetlands along the centerline of the permanent ROW above HDD and conventional lay paths will be affected by construction and maintenance during operation of the pipeline for periodic corrosion/leak surveys; a 50-foot width of wetlands along the centerline of the permanent access roads was used to calculate area affected during operation
4. The wetland is in the construction/operation ROW but is not crossed by the proposed centerline.
5. Affected areas of less than 0.01-acre were counted as 0.01-acre in the totals.
6. The wetland is not in the 10-foot operation maintenance width along the proposed centerline.
7. The HDD path for Bald Eagle Creek will pass under this wetland.
8. There are no wetlands in the HDD/conventional lay proposed construction/operation ROW.

Table 2.3-2

SUMMARY OF WETLANDS CROSSED BY THE TL-492 EXT3 PIPELINE

Map Designation[1]	State	County	Impacted	Milepost	NWI Classification[2]	Length of Crossing (feet)[3]	Area Affected During Construction (acres)[4]	Area Affected During Operation (acres)[5]
Row Crossings								
WWV-NAY-002	WV	Greene	Yes	0.00	PEM	Not Crossed[6]	0.02	0.00[7]
WWV-NAY-001	WV	Greene	Yes	0.06	PEM	Not Crossed[6]	0.00	0.00
WPA-NAY-049	PA	Greene	Yes	0.45	PEM	Not Crossed[6]	0.03	0.01
WPA-NAY-050	PA	Greene	Yes	1.07	PEM	Not Crossed[6]	0.01	0.00[7]
WPA-NAY-051	PA	Greene	Yes	1.19	PEM	Not Crossed[6]	< 0.01[9]	< 0.01[9]
WPA-NAY-052	PA	Greene	Yes	1.25	PEM/PFO	37	0.07	0.01
WPA-NAY-054	PA	Greene	No	1.46	PEM/PFO	Not Crossed[6]	0.01	0.00[7]
WPA-NAY-053	PA	Greene	Yes	1.87	PEM	31	0.03	0.01
WPA-NAY-055	PA	Greene	Yes	2.24	PEM	280	0.16	0.07
WPA-NAY-056	PA	Greene	Yes	2.94	PEM	96	0.12	0.04
WPA-NAY-057	PA	Greene	Yes	3.06	PEM	4	0.02	0.01
WPA-NAY-058	PA	Greene	Yes	3.93	PEM	86	0.17	0.04
WPA-NAY-059	PA	Greene	Yes	3.99	PEM	Not Crossed[6]	0.01	0.00[7]
WPA-NAY-060	PA	Greene	Yes	4.35	PEM	134	0.23	0.06
WPA-NAY-061	PA	Greene	Yes	4.74	PEM	154	0.26	0.07
WPA-NAY 062	PA	Greene	Yes	4.96	PEM	47	0.03	0.02
WPA-NAY-063	PA	Greene	Yes	5.14	PEM	Not Crossed[6]	0.04	0.00[7]
WPA-NAY-064	PA	Greene	Yes	5.55	PEM	224	0.36	0.10
WPA-NAY-065	PA	Greene	Yes	6.99	PEM	170	0.24	0.09
WPA-NAY-066	PA	Greene	Yes	7.07	PEM	41	0.03	0.01
WPA-NAY-067	PA	Greene	Yes	7.10	PEM	70	0.04	0.02
WPA-NAY-068	PA	Greene	Yes	7.82	PEM	46	0.07	0.02
WPA-NAY-069	PA	Greene	Yes	8.33	PEM	51	0.08	0.02
WPA-NAY-070	PA	Greene	Yes	9.23	PEM	86	0.08	0.04

Table 2.3-2 (Continued)

Map Designation[1]	State	County	Impacted	Milepost	NWI Classification[2]	Length of Crossing (feet)[3]	Area Affected During Construction (acres)[4]	Area Affected During Operation (acres)[5]
Row Crossings (continued)								
WPA-LAF-001	PA	Greene	Yes	10.55	PEM	Not Crossed[6]	< 0.01[9]	0.00[7]
WPA-NAY-071	PA	Greene	Yes	AR-17	PEM	Not Crossed[8]	0.16	0.16
WPA-NAY-072	PA	Greene	Yes	AR-6	PEM	Not Crossed[8]	0.14	0.14
WPA-NAY-060	PA	Greene	Yes	AR-7	PEM	Not Crossed[10]	0.06	0.06
Pipeyard								
WPA-KF-001	PA	Greene	Yes	Pipeyard	PEM	Not Crossed[8]	0.00[11]	0.00
					Totals	**1,557**	**2.49**	**1.01**

Notes:

1. GAI designation.
2. PEM - Palustrine Emergent Wetland; and PFO - Palustrine Forested Wetland.
3. "Length of Crossing" is the length measured along the centerline in plan view on the Construction Alignment Sheets.
4. The proposed construction ROW width is 75 feet. The affected wetland area calculations are based on a polygonal shape, not linear. The crossing width at the pipeline is the actual width of the delineated polygonal shape in the ROW. If the polygon wetland area encompasses the entire 75-foot construction ROW, then the area of the polygon within this 75-foot construction ROW is used to calculate temporary wetland impacts.
5. A 10-foot width of wetlands along the centerline of the permanent ROW conventional lay paths will be affected by construction and maintenance during operation of the pipeline for periodic corrosion/leak surveys; a 50-foot width of wetlands along the centerline of the permanent access roads was used to calculate area affected during operation.
6. The wetland is in the construction/operation ROW, but is not crossed by the proposed centerline.
7. The wetland is not in the 10-foot operation maintenance width along the proposed centerline.
8. The wetland is not crossed by the pipeline or ROW, but exists within the environmental study area.
9. Affected areas of less than 0.01-acre were counted as 0.01-acre in the totals.
10. Wetland WPA-NAY-060 also crosses the ROW. Impacts for the pipeline crossing are included in the ROW crossing section of this table.
11. No impacts are expected as DTI proposes to protect the wetland from impacts with silt fence.

Table 2.3-3

SUMMARY OF WETLANDS CROSSED BY THE TL-536 PIPELINE

Map Designation[1]	Milepost	NWI Classification[2]	Length of Crossing (feet)[3]	Area Affected During Construction (acre)[4]	Area Affected During Operation (acres)[5]
WPA-KDR-024	0.01	PEM/PFO	Not Crossed[6]	0.05	0.00[7]
WPA-KDR-001	0.61	PEM	210	0.17	0.14
WPA-KDR-002	0.91	PEM	320	0.50	0.14
WPA-KDR-003	1.41	PEM	135	0.18	0.03
WPA-KDR-004	2.12	PEM	34	0.03	0.01
WPA-KDR-005	2.41	PEM/PFO/POW	1,030	1.67	0.24
WPA-KDR-006	2.96	PEM	778	1.30	0.18
WPA-KDR-007	3.12	PEM/POW	1,079	2.08	0.28
WPA-KDR-008	3.46	PEM	42	0.06	0.01
WPA-KDR-009	3.72	PEM	150	0.13	0.03
WPA-KDR-010	3.96	PEM	390	0.35	0.09
WPA-KDR-011	4.13	PEM	128	0.11	0.03
WPA-KDR-012	4.77	PEM/PFO	Not Crossed[6]	0.05	0.00[7]
WPA-KDR-013	5.68	PEM	17	0.01	< 0.01[8]
WPA-KDR-014	6.44	PEM/PFO	230	0.37	0.05
WPA-KDR-015	6.63	PEM	1,071	1.11	0.24
WPA-KDR-016	6.98	PEM	239	0.35	0.05
WPA-KDR-017	7.19	PEM	795	0.62	0.17
WPA-KDR-018	7.95	PEM	276	0.29	0.06
WPA-KDR-019	8.61	PEM	214	0.70	0.06
WPA-KDR-022	8.69	PEM	176	0.68	0.04
WPA-KDR-023	8.84	PEM/POW	101	0.29	0.02
WPA-KDR-020	Pipeyard	PEM	Not Crossed	0.00	0.00
WPA-KDR-021	Pipeyard	PEM	Not Crossed	0.00[9]	0.00
WSL-AES-002	State Line Station	PEM	Not Crossed	0.00[9]	0.00
			Totals	**11.10**	**1.88**

Notes:

1. GAI designation.
2. PEM - Palustrine Emergent Wetland; PFO - Palustrine Forested Wetland; and POW - Palustrine Open Water Wetland.
3. "Length of Crossing" is the length measured along the centerline in plan view on the Construction Alignment Sheets.
4. The proposed construction ROW width is 75 feet. The affected wetland area calculations are based on a polygonal shape, not linear. The crossing width at the pipeline is the actual width of the delineated polygonal shape in the ROW. If the polygon wetland area encompasses the entire 75-foot construction ROW, then the area of the polygon within this 75-foot construction ROW is used to calculate temporary wetland impacts.
5. A 10-foot width of wetlands along the centerline of the permanent ROW above HDD and conventional lay paths will be affected by construction and maintenance during operation of the pipeline for periodic corrosion/leak surveys; a 50-foot width of wetlands along the centerline of the permanent access roads was used to calculate area affected during operation
6. The wetland is in the construction/operation ROW, but is not crossed by the proposed centerline.
7. The wetland is not in the 10-foot operation maintenance width along the proposed centerline.
8. Affected areas of less than 0.01-acre were counted as 0.01-acre in the totals.
9. No impacts are expected as DTI proposes to protect the wetland from impacts with silt fence.

Table 2.3-4

SUMMARY OF WETLANDS CROSSED BY THE TL-453 EXT1 PIPELINE

Map Designation[1]	Milepost	Impacted	NWI Classification[2]	Length of Crossing (feet)[3]	Area Affected During Construction (acres)[4]	Area Affected During Operation (acres)[5]
WPA-KDR-025	2.25	Yes	PEM/PFO/POW	270	0.47	0.12
WPA-SRC-001	4.26	Yes	PEM	82	0.13	0.03
WPA-SRC-032	4.29	Yes	PSS	53	0.12	0.03
WPA-SRC-040	4.42	Yes	PEM	43	0.08	0.02
WPA-SRC-039	4.59	No	PEM	Not Crossed[6]	0.00	0.00
WPA-SRC-031	6.06	Yes	PEM	Not Crossed[7]	0.01	0.00[8]
WPA-SRC-030	6.60	Yes	PEM	27	0.03	0.01
WPA-SRC-029	6.62	Yes	PEM	288	0.42	0.12
WPA-SRC-028	6.75	Yes	PEM	194	0.29	0.09
WPA-SRC-027	6.83	Yes	PEM	92	0.14	0.04
WPA-SRC-026	6.97	Yes	PEM	43	0.04	0.02
WPA-SRC-025	7.45	Yes	PEM	Not Crossed[7]	0.02	0.00[8]
WPA-SRC-024	7.46	Yes	PEM	Not Crossed[7]	0.01	< 0.01[9]
WPA-SRC-023	7.48	Yes	PEM	Not Crossed[7]	0.01	< 0.01[9]
WPA-SRC-022	7.66	Yes	PEM	148	0.25	0.07
WPA-SRC-021	7.72	Yes	PEM	35	0.06	0.02
WPA-SRC-020	7.74	Yes	PEM	17	0.03	0.01
WPA-SRC-019	7.86	Yes	PEM	Not Crossed[7]	< 0.01[9]	0.00[8]
WPA-SRC-018	8.59	Yes	PEM	Not Crossed[7]	0.14	0.00[8]
WPA-SRC-017	9.61	Yes	PEM	21	0.03	0.01
WPA-SRC-016	No Milepost Listed	No	PEM	Not Crossed[6]	0.00	0.00
WPA-SRC-035	9.68	Yes	PSS/PEM	301	0.50	0.14
WPA-SRC-034	9.81	No	PEM	Not Crossed[6]	0.00	0.00[8]
WPA-SRC-033	9.85	Yes	PEM	20	0.02	0.01
WPA-SRC-015	9.86	Yes	PEM	Not Crossed[7]	0.01	< 0.01[9]
WPA-SRC-013	10.24	Yes	PEM/PSS	155	0.29	0.07
WPA-SRC-012	10.31	Yes	PEM	37	0.05	0.02
WPA-SRC-011	10.33	Yes	PEM	Not Crossed[7]	< 0.01[9]	0.00[8]
WPA-SRC-010	10.35	Yes	PEM/PFO	330	0.41	0.15

Table 2.3-4 (Continued)

Map Designation[1]	Milepost	Impacted	NWI Classification[2]	Length of Crossing (feet)[3]	Area Affected During Construction (acres)[4]	Area Affected During Operation (acres)[5]
WPA-SRC-009	10.49	Yes	PEM/PFO	24	0.05	0.01
WPA-SRC-008	10.53	Yes	PFO/PEM	19	0.08	0.01
WPA-SRC-002	11.00	Yes	PEM	11	0.01	< 0.01[9]
WPA-SRC-003	11.07	Yes	PEM	243	0.39	0.11
WPA-SRC-004	11.42	Yes	PEM	111	0.15	0.05
WPA-SRC-005	11.47	Yes	PEM	Not Crossed[7]	0.01	< 0.01[9]
WPA-SRC-006	11.50	Yes	PEM	Not Crossed[7]	< 0.01[9]	0.00[9]
WPA-SRC-007	11.52	Yes	PEM	Not Crossed[7]	0.03	0.01
WPA-KDR-024	Access Road 1	Yes	PEM	Not Crossed[7]	0.03	0.03
WPA-SRC-036	Access Road 4	Yes	PEM/PSS	Not Crossed[7]	0.19	0.19
WPA-SRC-037	Access Road 4	Yes	PEM	Not Crossed[7]	0.12	0.12
WPA-SRC-038	Access Road 4	Yes	PEM/PSS	Not Crossed[7]	0.06	0.06
WPA-SRC-014	Access Road 6	Yes	PEM	Not Crossed[7]	0.06	0.06
WPA-SRC-041[5]	Proposed Access Road	No	PEM	Not Crossed[7]	0.00	0.00
WHS-AES-001	Harrison Station	No	PEM	Not Crossed[7]	0.00	0.00
				Totals	4.76	1.62

Notes:

1. GAI designation.
2. PEM - Palustrine Emergent Wetland; PFO - Palustrine Forested Wetland; and POW - Palustrine Open Water Wetland.
3. "Length of Crossing" is the length measured along the centerline in plan view on the Construction Alignment Sheets.
4. The proposed construction ROW width is 75 feet. The affected wetland area calculations are based on a polygonal shape, not linear. The crossing width at the pipeline is the actual width of the delineated polygonal shape in the ROW. If the polygon wetland area encompasses the entire 75-foot construction ROW, then the area of the polygon within this 75-foot construction ROW is used to calculate temporary wetland impacts.
5. A 10-foot width of wetlands along the centerline of the permanent ROW above HDD and conventional lay paths will be affected by construction and maintenance during operation of the pipeline for periodic corrosion/leak surveys; a 50-foot width of wetlands along the centerline of the permanent access roads was used to calculate area affected during operation
6. The wetland is not crossed by the pipeline or ROW, but exists within the environmental study limit.
7. The wetland is in the construction/operation ROW, but is not crossed by the proposed centerline.
8. The wetland is not in the 10-foot operation maintenance width along the proposed centerline.
9. Affected areas of less than 0.01-acre were counted as 0.01-acre in the totals.

Table 2.3-5

SUMMARY OF WETLANDS AFFECTED BY CONSTRUCTION AND OPERATION OF THE PL-1 EXT2 PIPELINE

Part A. HDD at Juniata River, Bald Eagle Creek, and I-99/S.R. 0026

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	11,965	15.99	5.13
PEM/PFO	2,675	4.02	0.57
PEM/POW/PFO	243	0.06	0.06
PEM/PSS	0	0.02	0.00
PSS/PEM	12	0.11	0.01
PSS	0	0.01	0.00
PFO	29	0.08	0.04
PFO/PEM	36	0.06	0.03
PEM/POW	71	0.10	0.03
Part A Totals	**15,031**	**20.45**	**5.94**

Part B. Change in Wetlands Crossed by Conventional Lay at Juniata River and HDD at Bald Eagle Creek and I-99/S.R. 0026

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	0	0	0
PEM/PFO	0	0	0
PEM/POW/PFO	0	0	0
PEM/PSS	0	0	0
PSS/PEM	0	0	0
PSS	0	0	0
PFO	0	0	0
PFO/PEM	0	0	0
PEM/POW	0	0	0
Part B Totals	**0**	**0**	**0**

Table 2.3-5 (Continued)

Part C. Change in Wetlands Crossed by Conventional Lay at Bald Eagle Creek and HDD at Juniata River and I-99/S.R. 0026

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	0	+ 0.12	0
PEM/PFO	0	0	0
PEM/POW/PFO	0	+ 0.35	0
PEM/PSS	0	0	0
PSS/PEM	0	0	0
PSS	0	0	0
PFO	0	0	0
PFO/PEM	0	0	0
PEM/POW	0	0	0
Part C Totals	**0**	**+ 0.47**	**0**

Part D. Change in Wetlands Crossed by Conventional Lay at I-99/S.R. 0026 and HDD at Juniata River and Bald Eagle Creek

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	0	0	0
PEM/PFO	0	0	0
PEM/POW/PFO	0	0	0
PEM/PSS	0	0	0
PSS/PEM	0	0	0
PSS	0	0	0
PFO	0	0	0
PFO/PEM	0	0	0
PEM/POW	0	0	0
Part D Totals	**0**	**0**	**0**

Note:

[1] PEM - Palustrine Emergent Wetland;
PSS - Palustrine Scrub-Shrub Wetland;
PFO - Palustrine Forested Wetland; and
POW - Palustrine Open Water Wetland.

Table 2.3-6

SUMMARY OF WETLANDS AFFECTED BY CONSTRUCTION AND OPERATION OF THE TL-492 EXT3 PIPELINE

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	1,520	2.41	1.00
PEM/PFO	37	0.08	0.01
Totals	**1,557**	**2.49**	**1.01**

Note:

[1] PEM - Palustrine Emergent Wetland; and

PFO - Palustrine Forested Wetland.

Table 2.3-7

SUMMARY OF WETLANDS AFFECTED BY CONSTRUCTION AND OPERATION OF THE TL-536 PIPELINE

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	4,975	6.59	1.29
PEM/PFO	230	0.47	0.05
PEM/PFO/POW	1,030	1.67	0.24
PEM/POW	1,180	2.37	0.30
Part A Totals	**7,415**	**11.10**	**1.88**

Note:

[1] PEM - Palustrine Emergent Wetland;

PFO - Palustrine Forested Wetland; and

POW - Palustrine Open Water Wetland.

Table 2.3-8

SUMMARY OF WETLANDS AFFECTED BY CONSTRUCTION AND OPERATION OF THE TL-453 EXT1 PIPELINE FOR CONVENTIONAL LAY

NWI Classification[1]	Length of Crossing (feet)	Area Affected During Construction (acre)	Area Affected During Operation (acre)
PEM	1,413	4.22	2.44
PEM/PFO	354	0.46	0.16
PEM/PFO/POW	270	0.47	0.12
PEM/PSS	155	2.35	2.13
PSS/PEM	301	0.50	0.14
PSS	53	0.12	0.03
PFO/PEM	19	0.08	0.01
Part A Totals	**2,565**	**8.20**	**5.03**

Note:

[1] PEM - Palustrine Emergent Wetland;

PSS - Palustrine Scrub-Shrub Wetland;

PFO - Palustrine Forested Wetland; and

POW - Palustrine Open Water Wetland.

APPENDIX 2-A

CORRESPONDENCE FOR THE PL-1 EXT2 PIPELINE

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8555
Harrisburg, PA 17105-8555
August 11, 2004

Bureau of Watershed Management 717-787-5259

GAI Consultants, Inc.
Attn: Precha Yodnane
570 Beatty Road
Monroeville, PA 15146-1300

Re: Location of Downstream Surface Water Users
Joint Permit Application for Dominion Transmission Inc.
Juniata, Huntingdon, Mifflin, Centre, and Clinton Counties, Pennsylvania

Dear Mr. Yodnane:

The Bureau of Watershed Management has completed your request for information regarding the location of public water supply sources and surface water users that are one-mile downstream on water bodies that cross the proposed natural gas pipeline. The analysis included surface water intakes downstream of your project area as identified on the Blairs Mills, McVeytown, Belleville, Barrville, Centre Hall, Mingoville, Bellefonte, Snow Shoes NE, Renovo West, and Tamarack Pa 7.5-minute quadrangles. Based upon our GIS database, there are no (0) public water supply surface water users but there are three (3) surface water users for industrial and mining purposes located within one-mile downstream of the natural gas pipeline. Located within a one-mile radius of the natural gas pipeline are twenty-four (24) public water supply groundwater wells. Please see the attached tables for information regarding these wells.

The Department is currently evaluating the accuracy of our existing GIS database regarding PWS source locations. This location request should be verified with the appropriate regional or district office.

The Department promotes the establishment and delineation of a wellhead protection area to protect public water supplies from contamination. For your information, current regulations define wellhead protection areas as follows:

> Zone I - The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100 - 400 foot radius depending on site-specific source and aquifer characteristics.
>
> Zone II - The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a one-half mile radius around the source unless a more detailed delineation is approved.

Zone III - The zone beyond Zone II that contributes surface water and groundwater to Zone I and Zone II.

In light of recent events, the Department of Environmental Protection has temporarily suspended access to precise locations of any public water supply sources including intakes, wellheads, etc. as a precautionary action. Due to this restriction, the Bureau of Watershed Management is not permitted to release any maps showing the location (including latitude and longitude) of PWS wells or surface water intakes to the public. As stated above, our GIS database indicates that there are three (3) surface water intakes located within one-mile downstream of the pipeline that are used for industrial and mining purposes and there are twenty-four (24) public water supply groundwater wells within a one-mile radius of the pipeline.

For information regarding the location of any private water supply wells within your project area, contact the Water Well Records Section of the Bureau of Topographic and Geologic Survey at 717-702-2017 or visit their website to access the *PA Groundwater Information System (PaGWIS, online water well database)* at http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMain.asp.

If you have any questions concerning the location request or require additional information, please contact me at 717-772-4050.

Sincerely,

Arianne M Proctor

Arianne M. Proctor
Geologic Specialist
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management

Enclosure

cc: PADEP/NCRO/Water Supply Management
PADEP/SWRO/Water Supply Management

Public Water Supply Sources
Dominion Transmission Inc.
Juniata, Huntingdon, Mifflin, Centre, and Clinton Counties, Pennsylvania

Table 1: Public Water Supply Groundwater wells located within a 1-mile radius of the natural gas pipeline

4340821	002	Well 2	Christian Retreat Center	N	100	E	(717 734-3627
4140046	001	Well #2	Black Hawk Mobile Home Park	C	250	P	(814)364-2130
4140046	002	Drilled Well #1	Black Hawk Mobile Home Park	C	250	P	(814)364-2130
4140092	001	Well #1	Empire Mobile Home Park	C	75	P	(814)364-1582
4140092	002	Well #2	Empire Mobile Home Park	C	75	P	(814)364-1582
4140101	001	Well #1	Boggs Twp Water Authority	C	300	P	(814)355-3301
4140101	002	Well #2	Boggs Twp Water Authority	C	300	E	(814)355-3301
4140118	007	Well #1	Spring Twp Water Authority	C	2500	R	(814)355-7543
4140118	007	Well #1	Spring Twp Water Authority	C	2500	R	(814)355-7543
4140118	007	Well #1	Spring Twp Water Authority	C	2500	R	(814)355-7543
4140122	001	Well	Meadows Psychiatric Center	P	268	P	(814)364-2151
4140128	003	Well #3	Whispering Pines Personal Care	C	35	P	(814)355-5675
4140840	001	Drilled Well	Sunset West Restaurant	N	500	P	(814)359-2783
4140892	001	Well	Graymont PA Inc.	P	150	P	(814)355-4761
4180031	001	Well 1	Dominion Trans Leidy Station	P	18	P	(570)923-0800
4180031	002	Well 2	Dominion Trans Leidy Station	P	18	R	(570)923-0800
4180840	001	Well #1	Bucktail Lodge on Kettle Creek	N	50	P	(570)923-2472
4180840	002	Well - Motel	Bucktail Lodge on Kettle Creek	N	50	P	(570)923-2472
4340821	001	Well #1	Christian Retreat Center	N	100	P	(717)734-3627
4440010	006	Belleville Well #6	Lewistown Boro Muni Auth	C	26765	R	(717)248-0167
4440010	007	Belleville Well #7	Lewistown Boro Muni Auth	C	26765	R	(717)248-0167
4440310	001	Spring	Pleasant View School	P	38	P	(717)667-6331
4440317	001	Well	Mifflin County School District	P	975	P	(717)242-0262
4440346	001	Well	West Granville Fire Co	N	25	P	NA

Table 2: Surface Water Users for industrial and mining purposes located within 1-mile downstream of the natural gas pipeline

Chemgro Inc. Union Mill Div.	Mifflin	Union	Industrial	Kishacoquillas	NA	NA
Ford New Holland Inc.	Mifflin	Union	Industrial	Kishacoquillas	NA	NA
Strodes Mill Pits & Plant	Mifflin	Oliver	Mining	Strodes Run	NA	NA

System Type: "N" denotes Transient Noncommunity, "C" denotes Community, "P" denotes Nontransient Noncommunity
Source Availability: "P" denotes Permanent Source, "R" denotes Reserve Source, "E" denotes Emergency Source

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GAI Consultants, Inc.
570 Beatty Road Monroeville, PA 15146
Tel 412.856.6400 Fax 412.856.4970
www.gaiconsultants.com

Telephone Log

Date: August 17, 2004

Project/Admin. No.: C040177.40

Call From:	Mandy Gaydash	Tel No.:	412.856.6400
Company:	GAI Consultants, Inc.		
Call To:	Arianne M. Proctor	Tel No.:	717.772.4050
Company:	PA DEP – Bureau of Watershed Management		
Subject:	Surface Water Intakes 3 miles downstream of PL-1 Ext. 2 Pipeline		
cc:	JEG, KCC, ALB, KF, MLG, File		

Summary of Discussion, Decisions, and Commitments:

Called Arianne Proctor at 10 AM on August 17, 2004 regarding any surface water intakes 3 miles downstream of the proposed PL-1 Ext 2 pipeline.

Arianne called back at 1:10 PM on the same day. The following is the summary of her findings:

- (2) Surface water intakes, both used for irrigation
  - Tussy Mountain Ski Resort, Centre Co., Harris Twp.
  - Hauthwout, James, Mifflin Co., Union Twp.

- (1) Public surface water supply used for community purposes
  - Rockview State Correctional Facility, PWSID 4140098, Source ID 001, population 2700

CENTRAL FILES

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August 5, 2004

Project C040177.40

Project No. C040177.40
AMD
DWO
LRD
PY
TNK
HAT
SEG 8/5/04
RJH
KLC 8/5/04
DMG 8/5/04
KF 8/5/04
AJB 8/5/04
SEC 8/5/04
Fin. File
Acct.
Ret. to. Central Files
letter only

Ms. Arianne M. Proctor
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management
Rachael Carson State Office Building
P.O. Box 8555
Harrisburg, Pennsylvania 17105

Dominion Transmission, Inc.
Proposed PL-1 Extension Pipeline
Location of Downstream Surface Water Users
Juniata, Huntingdon, Mifflin, Centre, and Clinton Counties, Pennsylvania

Dear Ms. Proctor:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission for a Dominion Transmission Inc. (DTI) natural gas pipeline project that passes through Juniata, Huntingdon, Mifflin, Centre, and Clinton Counties. All surface water intakes that are downstream of waterbody crossings need to be included. Therefore, we are requesting information regarding the location of public water supply sources and surface water users that are one-mile downstream on waterbodies that cross the proposed PL-1 extension pipeline.

The quad sheets that cover the project area are Blairs Mills, McVeytown, Belleville, Barrville, Centre Hall, Mingoville, Bellefonte, Snow Shoes SE, Snow Shoes NE, Renovo West, and Tamarack. Drawings (2004-177-40-A001 through A026) are attached showing the exact proposed location of the pipeline for your use. Also attached are the stream tables.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at 412-856-6400. Your timely response to this request would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:MLG/jlm
0417740-ltr-kf/jco22

Attachments

1 Beatty Road Monroeville, PA 15146 Tel 412.856-6400 Fax 412.856.4970 www.gaiconsultants.com

Mandy Gaydash - RE: Water Supply Request (resend)

From: "Proctor, Arianne" <arproctor@state.pa.us>
To: "Mandy Gaydash" <m.gaydash@gaiconsultants.com>
Date: 9/22/2004 1:49 PM
Subject: RE: Water Supply Request (resend)

Mandy,

This is to inform you that there are no new surface water users or groundwater wells serving public water supplies found within a one mile radius or three miles downstream of the indicated pipe yards. For information regarding the location of any private water supply wells within your project area, contact the Water Well Records Section of the Bureau of Topographic and Geologic Survey at 717-702-2017 or visit their website at http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMain.asp to access the *PA Groundwater Information System (online water well database)*.
Please contact me if you have any questions or require additional information.

Thank you,
Arianne

Arianne M. Proctor
Source Protection
Bureau of Watershed Management
PA Dept. of Environmental Protection
phone: (717) 772-4050
fax: (717) 787-9549

-----Original Message-----
From: Mandy Gaydash [mailto:m.gaydash@gaiconsultants.com]
Sent: Wednesday, September 22, 2004 10:15 AM
To: arproctor@state.pa.us
Cc: Kent Cockley; Kristy Flavin; Lisa Keck
Subject: Water Supply Request (resend)

Dear Ms. Proctor,

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission (FERC) for a Dominion Transmission Inc. (DTI) natural gas pipeline project that passes through Juniata, Mifflin, Huntingdon, Centre and Clinton Counties. FERC requires a list of all surface water intakes and surface water users that are 3 miles downstream of water body crossings. FERC also requires a list of all public and private water supplies within 1 mile of the proposed pipeline. As discussed, GAI has attached the shapefiles for this project to aid you in suppling the above referenced resources (file name PL-1_pipeyards.txt). The shapefiles attached show the location of the proposed pipeyard facilities for the project and are not for public viewing.

The Quad sheets that cover this project area are Belleville, Mingoville, and Renovo West.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at (412) 476-2000. Your timely response to this request would be greatly appreciated.

Sincerely,
Mandy Gaydash Searle

APPENDIX 2-A

CORRESPONDENCE FOR THE TL-492 EXT3 PIPELINE

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8555
Harrisburg, PA 17105-8555
October 26, 2004

Bureau of Watershed Management 717-787-5259

GAI Consultants, Inc.
Attn: Precha Yodnane
385 East Waterfront Drive
Homestead, PA 15120-5005

Re: Location of Public Water Supply Sources and Surface Water Users
Dominion Transmission Inc. – Proposed TL-492 Extension Pipeline
Green County, Pennsylvania

Dear Mr. Yodnane:

The Bureau of Watershed Management has completed your request for information regarding the location of public water supply (PWS) groundwater wells within a one-mile radius of the pipeline and PWS surface water intakes and private surface water users within three miles downstream on water bodies that cross the proposed TL-492 extension pipeline. The analysis included PWS sources within the vicinity of the proposed extension as identified on the Hundred, Holbrook, New Freeport, and Wadestown, Pa 7.5-minute quadrangles. Based upon our GIS database, there are no (0) PWS groundwater wells located within a one-mile radius of the proposed TL-492 extension pipeline and no (0) PWS surface water intakes or private surface water users located within three miles downstream of the pipeline.

The Department is currently evaluating the accuracy of our existing GIS database regarding PWS source locations. This location request should be verified with the appropriate regional or district office.

The Department promotes the establishment and delineation of a wellhead protection area to protect public water supplies from contamination. For your information, current regulations define wellhead protection areas as follows:

> Zone I - The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100 - 400 foot radius depending on site-specific source and aquifer characteristics.
>
> Zone II - The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a one-half mile radius around the source unless a more detailed delineation is approved.

Zone III - The zone beyond Zone II that contributes surface water and groundwater to Zone I and Zone II.

In light of recent events, the Department of Environmental Protection has temporarily suspended access to precise locations of any public water supply sources including intakes, wellheads, etc. as a precautionary action. Due to this restriction, the Bureau of Watershed Management is not permitted to release any maps showing the location (including latitude and longitude) of PWS wells or surface water intakes to the public. As stated above, our GIS database indicates that there are no (0) public water supply groundwater wells within a one-mile radius of the pipeline and no (0) surface water intakes located within three miles downstream of the pipeline.

For information regarding the location of any private water supply wells within your project area, contact the Water Well Records Section of the Bureau of Topographic and Geologic Survey at 717-702-2017 or visit their website to access the *PA Groundwater Information System (PaGWIS, online water well database)* at http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMain.asp.

If you have any questions concerning the location request or require additional information, please contact me at 717-772-4050.

Sincerely,

Arianne M Proctor

Arianne M. Proctor
Geologic Specialist
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management

Enclosure

cc: PADEP/SWRO/Water Supply Management

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October 15, 2004

Project C040177.40

Ms. Arianne M. Proctor
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management
Rachael Carson State Office Building
P.O. Box 8555
Harrisburg, Pennsylvania 17105

Dominion Transmission, Inc.
Proposed TL 492 Extension Pipeline
Location of Downstream Surface Water Users
Greene, Pennsylvania

Dear Ms. Proctor:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission for a Dominion Transmission Inc. (DTI) natural gas pipeline project that passes through Greene County. All surface water intakes that are downstream of waterbody crossings need to be included. Therefore, we are requesting information regarding the location of public water supply sources and surface water users that are less than three miles downstream on waterbodies that cross the proposed TL-492 extension pipeline. Also, we are requesting information on municipal water authorities that have public water supply wells within a one-mile radius of the pipeline.

The quad sheets that cover the project area are Hundred, PA; Holbrook, PA; New Freeport, PA; and Wadestown, PA. Drawings (2004-177-40-A053 through A056) are attached showing the exact proposed location of the pipeline for your use.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at 412-476-2000. Your timely response to this request would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:MLG/cwi
0417740-492-ltr-ktl/jcc22

Attachments

From: MAVIS LUCAS
To: ANNE HOWELL
Date: 11/1/04 11:47AM
Subject: Dominion Request

3 facilities located within 3 mile downstream - Hundred - Littleton PSD - WV0105341 sewage treatment facility; Community of Hundred WV3305201 and The Spot WV9952020 are groundwater facilities. There is no municipal water authority within a 1 mile radius of pipeline in WEST VIRGINIA. They'll have to check with the State of Pennsylvania for any facilities they may have.

Mavis L. Lucas
Environmental Resource Specialist II
WV Division of Water and Waste Management
601 57th Street SE
Charleston, WV 25304-2345
Phone: (304) 926-0499 Ext. 1026
Fax: (304) 926-0496
mlucas@wvdep.org

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October 28, 2004

Project C040177.40

Ms. Jessica Greathouse
Public Information Office
West Virginia Department of Environmental Protection
601 57th Street S.E.
Charleston, West Virginia 25304

Dominion Transmission, Inc.
Proposed TL-492 Extension Pipeline
Location of Downstream Surface Water Users
Wetzel County, West Virginia

Dear Ms. Greathouse:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission (FERC) for a Dominion Transmission Inc. (DTI) natural gas pipeline project that crosses a portion of Wetzel County. All surface water intakes that are downstream of waterbody crossings are a requirement to be included in the FERC report. Therefore, we are requesting information regarding the location of public water supply sources and surface water users that are less than three miles downstream on waterbodies that cross the proposed TL-492 extension pipeline. Also, we are requesting information on municipal water authorities that have public water supply wells within a one-mile radius of the pipeline.

The quad sheet that covers the project area within West Virginia is Hundred, PA;
Drawing (2004-177-40-A053) is attached showing the exact proposed location of the pipeline for your use.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at 412-476-2000. Your timely response to this request would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:MLS/mlm
0417740-492-jglfr-ld/mlm3

Attachments

11-1 J. Morris

Received 11-1-04 10 am

STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES

Joe Manchin III
Governor

January 25, 2005

GAI Consultants, Inc.
% Dr. Precha Yodnane, P.E.
385 East Waterfront Drive
Homestead, PA 15120-5005

RE: Information Requests Concerning Public Surface Water intakes for Dominion Transmission, Inc. TL-492 EXT3 Natural Gas Pipeline Project in Wetzel County, WEST VIRGINIA

Dear Dr. Yodnane:

In response to your informational requests dated January 14, 2005, based on current information, there is no public Surface Water Intake within one mile of the proposed natural gas pipeline in Wetzel County.

I hope the information provided helps you with the completion of this project. If you have any questions, please do not hesitate to contact Dr. Jonathan Feng, GIS Administrator, at (304) 558-6764.

Sincerely,

William J. Toomey, C.P.G., Manager
Source Water Assessment and Protection

Enclosure

WJT/jf

BUREAU FOR PUBLIC HEALTH
OFFICE OF ENVIRONMENTAL HEALTH SERVICES
Capitol and Washington Streets
1 Davis Square, Suite 200
Charleston, West Virginia 25301-1798
Telephone: (304) 558-2981 FAX: (304) 558-1291

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January 14, 2005

Project C040177.40

Mr. William Toomey
Wellhead Protection Program
Environmental Engineering Division
815 Quarrier Street, Suite 418
Charleston, West Virginia 25301

Dominion Transmission, Inc.
Proposed TL-492 EXT3 Pipeline
Wellhead Protection Areas
Wetzel County, West Virginia

Dear Mr. Toomey:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission for a Dominion Transmission, Inc. (DTI) natural gas pipeline project that passes through Wetzel County. We are requesting information regarding the location of all Wellhead Protection areas that are within one-mile or crosses the proposed TL-492 EXT3.

The proposed pipeline crosses onto the Hundred Quadrangle. Drawing (2000-177-40-A053) is attached to show the exact proposed location of the pipeline for your use.

If you have any questions concerning the location request or require additional information, please contact Mr. Kent Cockley or myself at (412) 476-2000. Your timely response to this would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:KF:MLS/jco
0417740-ltr-mls/jco41

Attachments

From: "J Feng" <jfeng@wvdhhr.org>
To: <m.gaydash@gaiconsultants.com>
Date: 01/12/2005 4:02:59 PM
Subject: Re: Wetzel County Wellhead Protection

There is no public water system near your project area. The closest one is the Hundred Littleton PSD, which is about 4 miles south-west to the end of the pipeline in Wetzel county. I will send you a letter after I receive your request.

Jonathan Feng, Ph.D.
GIS Administrator - Source Water Assessment Program

West Virginia Department of Health and Human Resources
Bureau for Public Health
Office of Environmental Health Services
Environmental Engineering Division

Capitol and Washington Streets
1 Davis Square, Suite 200
Charleston, West Virginia 25301-1798
Charleston, WV 25301
jfeng@wvdhhr.org
(304) 558-6764

>>> "Mandy Gaydash" <m.gaydash@gaiconsultants.com> 1/12/2005 3:45:31 PM >>>
Dear Mr. Feng,

As per our conversation on Tuesday, January 11, I have attached a shapefile depicting the proposed TL-492 Ext 3 pipeline that runs from Greene County, Pennsylvania into Wetzel County, WV. I have sent Mr. William Tommey an official letter that will be arriving at your old address. Please use this shapefile to complete our request.

The shapefile is in the UTM, NAD 1983, Zone 17, Foot_US coordinate system.

Thanks for your time,

Mandy

P.S. I will be out of the office for the next two weeks. Please send all e-mail responses regarding this request to Kristy Flavin (k.flavin@gaiconsultants.com).

Mandy Gaydash Searle
Senior Environmental Specialist
Pittsburgh Office
385 East Waterfront Drive
Homestead, PA 15120-5005

m.gaydash@gaiconsultants.com

Phone: 412.476.2000
Main Fax: 412.476.2020

Steven Crescenzo - Wetzel County Wellhead Protection

From: Mandy Gaydash
To: jfeng@wvdhhr.org
Date: 01/12/2005 3:45 PM
Subject: Wetzel County Wellhead Protection
CC: Cockley, Kent; Crescenzo, Steven; Flavin, Kristy

Dear Mr. Feng,

As per our conversation on Tuesday, January 11, I have attached a shapefile depicting the proposed TL-492 Ext 3 pipeline that runs from Greene County, Pennsylvania into Wetzel County, WV. I have sent Mr. William Tommey an official letter that will be arriving at your old address. Please use this shapefile to complete our request.

The shapefile is in the UTM, NAD 1983, Zone 17, Foot_US coordinate system.

Thanks for your time,

Mandy

P.S. I will be out of the office for the next two weeks. Please send all e-mail responses regarding this request to Kristy Flavin (k.flavin@gaiconsultants.com).

Mandy Gaydash Searle
Senior Environmental Specialist
Pittsburgh Office
385 East Waterfront Drive
Homestead, PA 15120-5005
m.gaydash@gaiconsultants.com

Phone: 412.476.2000
Main Fax: 412.476.2020

APPENDIX 2-A

CORRESPONDENCE FOR THE TL-536 PIPELINE

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8555
Harrisburg, PA 17105-8555
October 26, 2004

Bureau of Watershed Management 717-787-5259

GAI Consultants, Inc.
Attn: Precha Yodnane
385 East Waterfront Drive
Homestead, PA 15120-5005

Re: Location of Public Water Supply Sources and Surface Water Users
Dominion Transmission Inc. – Proposed TL-536 Extension 1 Pipeline
Potter County, Pennsylvania

Dear Mr. Yodnane:

The Bureau of Watershed Management has completed your request for information regarding the location of public water supply (PWS) groundwater wells within a one-mile radius of the pipeline and PWS surface water intakes and private surface water users within three miles downstream on water bodies that cross the proposed TL-536 extension pipeline. The analysis included PWS sources within the vicinity of the proposed extension as identified on the Oswayo and Ellisburg, Pa 7.5-minute quadrangles. Based upon our GIS database, there are no (0) PWS groundwater wells located within a one-mile radius of the proposed TL-536 extension pipeline and no (0) PWS surface water intakes or private surface water users located within three miles downstream of the pipeline.

The Department is currently evaluating the accuracy of our existing GIS database regarding PWS source locations. This location request should be verified with the appropriate regional or district office.

The Department promotes the establishment and delineation of a wellhead protection area to protect public water supplies from contamination. For your information, current regulations define wellhead protection areas as follows:

Zone I - The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100 - 400 foot radius depending on site-specific source and aquifer characteristics.

Zone II - The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a one-half mile radius around the source unless a more detailed delineation is approved.

Zone III - The zone beyond Zone II that contributes surface water and groundwater to Zone I and Zone II.

In light of recent events, the Department of Environmental Protection has temporarily suspended access to precise locations of any public water supply sources including intakes, wellheads, etc. as a precautionary action. Due to this restriction, the Bureau of Watershed Management is not permitted to release any maps showing the location (including latitude and longitude) of PWS wells or surface water intakes to the public. As stated above, our GIS database indicates that there are no (0) public water supply groundwater wells within a one-mile radius of the pipeline and no (0) surface water intakes located within three miles downstream of the pipeline.

For information regarding the location of any private water supply wells within your project area, contact the Water Well Records Section of the Bureau of Topographic and Geologic Survey at 717-702-2017 or visit their website to access the *PA Groundwater Information System (PaGWIS, online water well database)* at http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMain.asp.

If you have any questions concerning the location request or require additional information, please contact me at 717-772-4050.

Sincerely,

Arianne M Proctor

Arianne M. Proctor
Geologic Specialist
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management

Enclosure

cc: PADEP/NCRO/Water Supply Management

gai consultants
transforming ideas into reality

October 15, 2004

Project C040177.40

Ms. Arianne M. Proctor
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management
Rachael Carson State Office Building
P.O. Box 8555
Harrisburg, Pennsylvania 17105

Dominion Transmission, Inc.
Proposed TL 536 Extension 1 Pipeline
Location of Downstream Surface Water Users
Potter, Pennsylvania

Dear Ms. Proctor:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission for a Dominion Transmission Inc. (DTI) natural gas pipeline project that passes through Potter County. All surface water intakes that are downstream of waterbody crossings need to be included. Therefore, we are requesting information regarding the location of public water supply sources and surface water users that are less than three miles downstream on waterbodies that cross the proposed TL-536 extension pipeline. Also, we are requesting information on municipal water authorities that have public water supply wells within a one-mile radius of the pipeline.

The quad sheets that cover the project area are Wellsville, NY; Oswayo, PA; Ellisburg, PA; and Allentown, NY. Drawings (2004-177-40-A057 through A060) are attached showing the exact proposed location of the pipeline for your use.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at 412-476-2000. Your timely response to this request would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:MLG/cwl
0417740-536-ltr-kf/co22

Attachments

APPENDIX 2-A

CORRESPONDENCE FOR THE TL-453 EXT1 PIPELINE

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
P.O. Box 8555
Harrisburg, PA 17105-8555
October 26, 2004

Bureau of Watershed Management 717-787-5259

GAI Consultants, Inc.
Attn: Precha Yodnane
385 East Waterfront Drive
Homestead, PA 15120-5005

Re: Location of Public Water Supply Sources and Surface Water Users
Dominion Transmission Inc. – Proposed TL-453 Extension 1 Pipeline
Potter County, Pennsylvania

Dear Mr. Yodnane:

The Bureau of Watershed Management has completed your request for information regarding the location of public water supply (PWS) groundwater wells within a one-mile radius of the pipeline and PWS surface water intakes and private surface water users within three miles downstream on water bodies that cross the proposed TL-453 extension pipeline. The analysis included PWS sources within the vicinity of the proposed extension as identified on the Ellisburg, Ulysses, and Harrison Valley, Pa 7.5-minute quadrangles. Based upon our GIS database, there are no (0) PWS groundwater wells located within a one-mile radius of the proposed TL-453 extension pipeline and no (0) PWS surface water intakes or private surface water users located within three miles downstream of the pipeline.

The Department is currently evaluating the accuracy of our existing GIS database regarding PWS source locations. This location request should be verified with the appropriate regional or district office.

The Department promotes the establishment and delineation of a wellhead protection area to protect public water supplies from contamination. For your information, current regulations define wellhead protection areas as follows:

> Zone I - The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100 - 400 foot radius depending on site-specific source and aquifer characteristics.
>
> Zone II - The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a one-half mile radius around the source unless a more detailed delineation is approved.

Zone III - The zone beyond Zone II that contributes surface water and groundwater to Zone I and Zone II.

In light of recent events, the Department of Environmental Protection has temporarily suspended access to precise locations of any public water supply sources including intakes, wellheads, etc. as a precautionary action. Due to this restriction, the Bureau of Watershed Management is not permitted to release any maps showing the location (including latitude and longitude) of PWS wells or surface water intakes to the public. As stated above, our GIS database indicates that there are no (0) public water supply groundwater wells within a one-mile radius of the pipeline and no (0) surface water intakes located within three miles downstream of the pipeline.

For information regarding the location of any **private** water supply wells within your project area, contact the Water Well Records Section of the Bureau of Topographic and Geologic Survey at 717-702-2017 or visit their website to access the *PA Groundwater Information System (PaGWIS, online water well database)* at http://www.dcnr.state.pa.us/topogeo/groundwater/PaGWIS/PaGWISMain.asp.

If you have any questions concerning the location request or require additional information, please contact me at 717-772-4050.

Sincerely,

Arianne M Proctor

Arianne M. Proctor
Geologic Specialist
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management

Enclosure

cc: PADEP/NCRO/Water Supply Management

gai consultants
transforming ideas into reality

October 15, 2004

Project C040177.40

Ms. Arianne M. Proctor
Source Protection Section
Division of Watershed Protection
Bureau of Watershed Management
Rachael Carson State Office Building
P.O. Box 8555
Harrisburg, Pennsylvania 17105

Dominion Transmission, Inc.
Proposed TL-453 Extension 1 Pipeline
Location of Downstream Surface Water Users
Potter County, Pennsylvania

Dear Ms. Proctor:

GAI Consultants, Inc. (GAI) is preparing an application for the Federal Energy Regulatory Commission for a Dominion Transmission Inc. (DTI) natural gas pipeline project that passes through Potter County. All surface water intakes that are downstream of waterbody crossings need to be included. Therefore, we are requesting information regarding the location of public water supply sources and surface water users that are less than three miles downstream on waterbodies that cross the proposed TL-453 extension pipeline. Also, we are requesting information on municipal water authorities that have public water supply wells within a one-mile radius of the pipeline.

The quad sheets that cover the project area are Ellisburg, PA; Ulysses, PA; and Harrison Valley, PA. Drawings (2004-177-40-A061 through A065) are attached showing the exact proposed location of the pipeline for your use.

If you have any questions concerning the location request or require additional information, please contact Lisa Keck or myself at 412-476-2000. Your timely response to this request would be greatly appreciated.

Sincerely,
GAI Consultants, Inc.

Precha Yodnane

Precha Yodnane, Ph.D., P.E.
Project Manager

PY:MLG/mlm
0417740-453-ltr-kf/jcc22

Attachments

APPENDIX 2-B

SPILL PREVENTION, CONTAINMENT AND CONTROL PLAN

APPENDIX 2-B

SPILL PREVENTION, CONTAINMENT AND CONTROL PLAN

2-B.1 SPILL PREVENTION METHODS

Construction activities related to natural gas pipelines and aboveground facilities sometimes require storage of hazardous and non-hazardous products and wastes. All efforts will be made to prevent spills of any amount of these products. The scope of this plan is intended to cover activities related to construction of aboveground facilities, associated pipelines and appurtenances. The following items will be followed to help avoid spills and minimize the impact of spills that accidentally occur:

- Bulk quantities of both diesel fuel and gasoline may be stored at the work area in aboveground tanks, which will be diked, or smaller containers. Secondary containment will also be provided for loading/unloading areas. No underground tanks will be used. A Material Safety Data Sheet (MSDS) for each hazardous material will be on site.

- Fuel will be stored at the equipment staging area and as much equipment as practical will be refueled there. Any equipment that must be refueled in the field will be fueled from tanks carried to the work area.

- Lesser quantities of fuel and solvents and lubricants (i.e., motor oils, hydraulic fluid) may be stored at the work area as necessary to service equipment provided that this storage does not conflict with other parts of this plan.

- All fuel storage areas will be located at least 200 feet from active private water wells, and at least 400 feet from municipal water wells. Equipment servicing, lubricating, and refueling will also be in accordance with these requirements whenever possible.

- Use of hazardous materials for vehicle maintenance will follow the same requirements mentioned above for equipment refueling. Impervious or sorbent materials will be placed under the work area before the work begins. Additional sorbent materials will also be readily available. Waste materials created during maintenance (i.e., used oil) will be collected for proper disposal. The work site and the vehicle will be inspected after the maintenance work is complete to ensure that all hazardous materials are properly contained. All waste material, including partially used or empty containers, discarded parts, dirty rags, and used sorbent material, as well as discarded hazardous materials containers (i.e., oil cans, grease tubes) will be collected and placed in open-top drums for proper disposal.

- All motor fuel, lube oil, chemicals, and other polluting substances will be tightly sealed and clearly labeled during transportation and storage.

- Fuel trucks, pumps, mechanics' vehicles, and contractor personnel vehicles will be equipped with spill kits containing absorbent materials approved for petroleum products.

- Runoff resulting from construction equipment washing operations will not be permitted to directly enter any waterbody or wetland area.

- Construction equipment, vehicles, materials, hazardous materials, chemicals, fuels, lubricating oils, and petroleum products will not be parked, stored, or serviced within 100 feet of all water bodies and wetlands.

- All equipment will be inspected daily for leaks prior to beginning work in water bodies or in wetlands. Steps will be taken to repair leaks or remove the equipment from service, if necessary.

2-B.2 MITIGATION AND CLEANUP METHODS

In the event of a spill into or in the vicinity of water bodies or wetlands, the following will occur:

- the source will be immediately stopped;

- the spill will be contained by placing sorbent booms or constructing dikes;

- the spill will be collected with sorbent materials, skimmed off water surfaces with booms, and/or the contaminated soil will be excavated; and

- the waste materials will be properly disposed in accordance with DTI's policy.

The affected areas will be restored as closely as possible to their previous condition. Spills of oil or petroleum products should be reported immediately to the Environmental Services Department at DTI at 304-627-3000 (available 24 hours). Environmental Services will contact the State and Federal environmental agencies for notification requirements. If personnel in the Environmental Services section cannot be contacted, then the Project Supervisor should make the necessary notifications.

A reportable release is a quantity or an unknown quantity of regulated substance released to or posing an immediate threat to surface water, groundwater, bedrock, soil or sediment. The term does not include the following, provided the owner or operator has control over the release, the release is completely contained, and within 24 hours of the release, the total volume of the release is recovered or removed in the corrective action:

- a release to the interstitial space of a double-walled above ground or underground storage tank;

- a release of less than 25 gallons to a containment area, structure or facility around an above ground storage tank;

- a release of less than five gallons to a synthetic surface, such as asphalt or concrete, which prevents migration of the regulated substance to surface water, groundwater, bedrock, soil or sediment; and

- a release of less than one-gallon to surface soils.

All reportable releases defined above must be reported to the appropriate state and federal agencies as soon as practicable, but no later than two hours after the confirmation of a reportable release. Telephone numbers for appropriate state and federal agencies are listed below in Section 2-B.3.

Owners and operators must provide written notification to the appropriate regional office and to the county emergency management agency within 15 days of the reportable release. An Environmental Incident Report form is included, and should be submitted in accordance with the above listed requirements. For spills not deemed reportable, it is strongly recommended that the facts concerning the incident be documented and a record maintained for one year. If a spill should occur, immediate action will be taken to ensure that the impact of the spill is minimized, and to see that appropriate cleanup action is immediately undertaken.

2-B.3 STATE AND FEDERAL AGENCY CONTACT INFORMATION

2-B.3.1 PL-1 EXT2 Pipeline

Pennsylvania

PaDEP Central Office (Harrisburg):	800-541-2050 (available 24 hours/day, 7 days/week)
PaDEP Southcentral Regional Office:	717-705-4700
PaDEP Northcentral Regional Office:	570-327-3636
Emergency Management Directors:	
Juniata County:	717-436-2181
Mifflin County:	717-248-9645 717-248-9607

Emergency Management Directors (continued):

Huntingdon County:	814-643-6613 814-643-6617
Centre County:	814-355-6745
Clinton County:	570-893-4090

Federal

National Response Center:	800-424-8802

2-B.3.2 TL-492 EXT3 Pipeline

Pennsylvania

PaDEP Central Office (Harrisburg):	800-541-2050 (available 24 hours/day, 7 days/week)
PaDEP Southcentral Regional Office:	717-705-4700

Emergency Management Director:

Greene County:	417-869-6040

West Virginia

Office of Emergency Services:	304-558-5380
Wetzel County:	304-455-8224
Department of Environmental Protection:	304-558-5929

Federal

National Response Center:	800-424-8802

2-B.3.3 TL-536 Pipeline

Pennsylvania

PaDEP Central Office (Harrisburg):	800-541-2050 (available 24 hours/day, 7 days/week)
PaDEP Northcentral Regional Office:	570-327-3636

Emergency Management Directors:	
Potter County:	814-274-8900

Federal

National Response Center:	800-424-8802

2-B.3.4 TL-453 EXT1 Pipeline

Pennsylvania

PaDEP Central Office (Harrisburg):	800-541-2050 (available 24 hours/day, 7 days/week)
PaDEP Northcentral Regional Office:	570-327-3636
Emergency Management Directors:	
Potter County:	814-274-8900

Federal

National Response Center:	800-424-8802

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☐ PNG ☐ CNGT ☐ EOG ☐ HGI ☐ VNG

Environmental Spill Report

CALL YOUR SUPERVISOR FOR ALL SPILLS. IF NO ANSWER, CALL ENVIRONMENTAL. IF ENVIRONMENTAL IS NOT AVAILABLE, CALL CENTRAL DISPATCHER TO REPORT THE SPILL.

Division _____ Date of Spill _____

District _____ Time and Duration of Spill _____

Location _____ County _____ State _____

Material(s) Spilled (Attach MSDS) _____ Date of Report _____

Person Discovering Spill _____ Phone No. of Person Discovering Spill _____

Quantity(ies) Spilled _____

Did Spill Reach a Stream or Lake or other sensitive environments? _____ Quantity _____

Effect on Fish and Wildlife _____

Existing Possible Hazards or Injuries to People _____

Cause of Spill _____

Actions Taken to Control Spill _____

Action to Prevent Future Spills _____

Remarks: _____

FOR ENVIRONMENTAL REPRESENTATIVES USE ONLY: ENVIRONMENTAL REPRESENTATIVE WILL NOTIFY REGULATORY AGENCIES

REPORTABLE SPILL _____ YES _____ NO REPORTABLE QUANTITY _____

If Reportable:

Date/Time Reported to _____ Control Number _____

National Response Center: (1-800-424-8802 or 1-202-426-2675) Fax (1-202-267-2165)

Date/Time Reported to _____ Name of Official _____

State Emergency Response Commission: (See Facility Environmental Emergency Plan for Phone Number)

Date/Time Reported to _____ Name of Official _____

Local Emergency Response Center: (See Facility Environmental Emergency Plan for Phone Number)

Date/Time Reported to _____ Name of Official _____

REPORTED BY _____ Phone Number of Person Reporting Spill _____

Routing Instructions: Retain Original at Originating Location; Fax a Copy to Environmental

(REPRODUCE THIS FORM AS REQUIRED)

NON-INTERNET PUBLIC INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

APPENDIX 2-C FOR PL-1 EXT2

ACCESS ROAD MAPPING

(UNDER SEPARATE COVER)

NON-INTERNET PUBLIC INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

APPENDIX 2-C FOR TL-492 EXT3

ACCESS ROAD MAPPING

(UNDER SEPARATE COVER)

NON-INTERNET PUBLIC INFORMATION

COVE POINT EXPANSION PROJECT
DOMINION TRANSMISSION, INC. PIPELINES
EXHIBIT F-1
ENVIRONMENTAL REPORT
DOCKET NO. CP05-____-000

APPENDIX 2-C FOR TL-536

ACCESS ROAD MAPPING

(UNDER SEPARATE COVER)