2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 PROPOSED FACILITIES

KMLP proposes to construct and operate a natural gas pipeline system (the "Project") to interconnect the Sabine Pass LNG Terminal (Docket No. CP04-47-000), currently under construction with intrastate and interstate pipeline infrastructure in southwest Louisiana. The Project would consist of three segments of pipelines (totaling 135.7 miles), associated pipeline-support facilities (such as pig[1] launchers, pig receivers, and MLVs), and 14 interconnects (including regulation and metering equipment) with existing intrastate and interstate pipelines. Figure 2.1-1 shows the Project vicinity and appendix B provides detailed maps.

This section describes the three pipeline segments (known as Leg 1, Leg 2, and the FGT Lateral), their support facilities, workspaces extra to the pipelines' rights-of-way, interconnect sites, access roads, and yards for pipe storage and contractor use during the construction phase. Table 2.1-1 summarizes the pipelines proposed.

TABLE 2.1-1

Proposed KMLP Pipelines

Parish	MP Begin	MP End	Length (miles)
Leg 1, 42-inch-diameter			
Cameron	0.0	24.6	24.6
Calcasieu	24.6	74.9	50.3
Jefferson Davis	74.9	99.4	24.5
Acadia	99.4	112.5	13.1
Evangeline	112.5	132.2	19.7
Leg 2, 36-inch-diameter			
Cameron	0.0	1.2	1.2
FGT Lateral, 24-inch-diameter			
Acadia	110.6[a]	2.3	2.3
Project Total			**135.7**

[a] The FGT Lateral would start at MP 110.6 on Leg 1 and go for 2.3 miles.

KMLP proposes to commence construction on Leg 1 and Leg 2 in November 2007 and on the FGT Lateral in October 2008. Leg 2 and interconnects would be completed by April 2008 and brought into service by October 1, 2008. Leg 1, the FGT Lateral, and their respective interconnects would be completed by November 2008 and brought into service by April 1, 2009.

[1] A pig is a mechanical device that passes through the interior of a pipeline to clean or to inspect it.

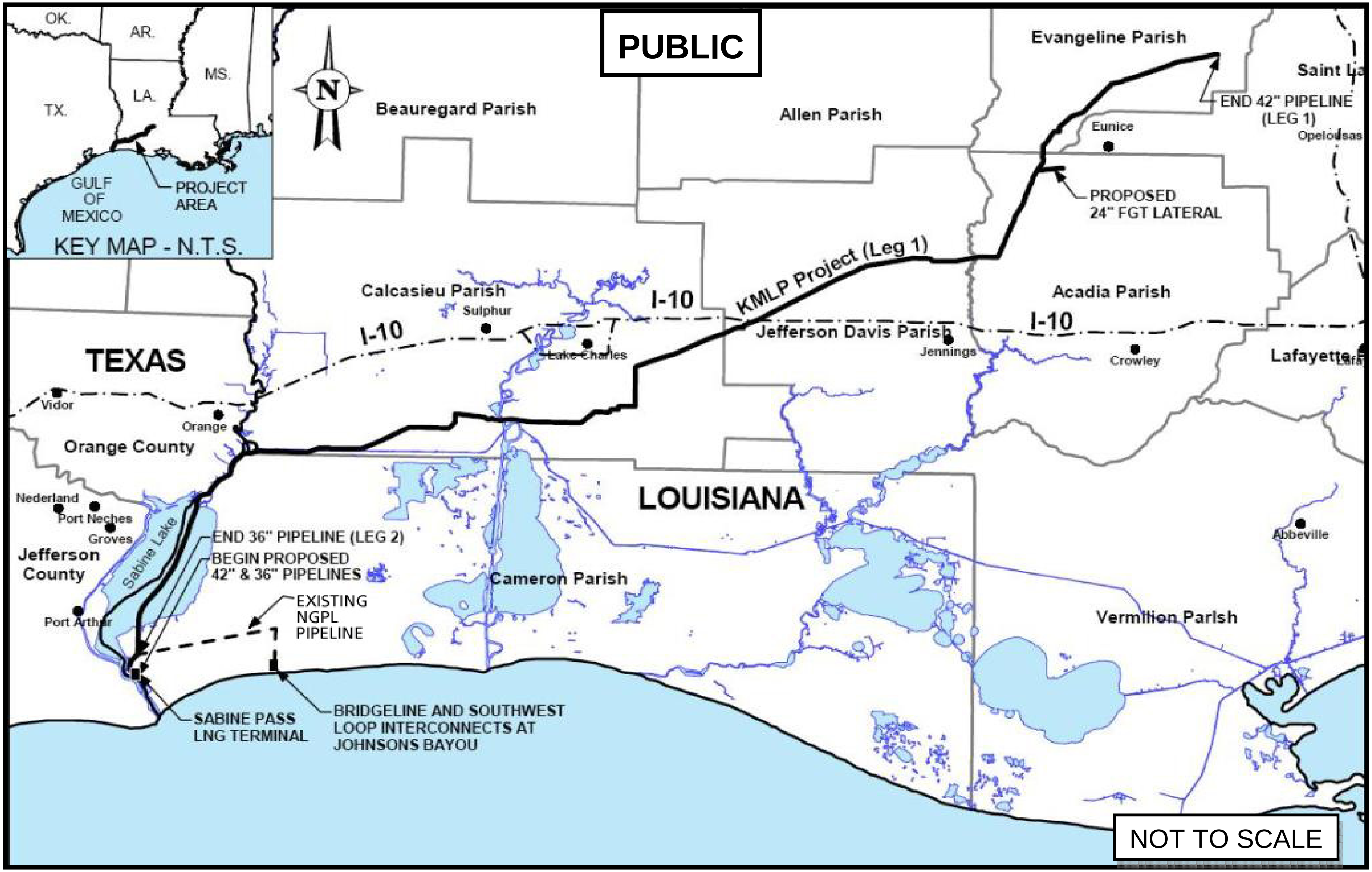


FIGURE 2.1-1
General Location Map of KMLP Project

2.1.1 Pipelines

The KMLP Project would include the construction and operation of Leg 1, Leg 2, and the FGT Lateral. These three pipelines would be built from carbon-steel pipe manufactured in accordance with API 5L – the American Petroleum Institute's specifications for seamless and welded steel line pipe for conveying gas in the natural gas industries.

Leg 1

Leg 1 would consist of 132.2 miles of 42-inch-diameter pipeline. It would receive gas from the Sabine Pass LNG Terminal at up to 1,440 pounds per square inch pressure gauge (psig) and would have a firm, peak day capacity of at least 2,130,000 decatherms (Dth).

The route followed by Leg 1 would originate at the Sabine Pass LNG Terminal (currently under construction) located on the east bank of the Sabine Pass waterway and the south side of SH 82 in Cameron Parish. From the Terminal it would proceed northwards, crossing SH 82, and enter Sabine Lake, which it would traverse in a north-northeasterly direction without entering the Texas portion of Sabine Lake at any point. Leg 1 would exit Sabine Lake at Shell Island near the mouth of the Sabine River and then proceed eastwards along the southern banks of the Sabine River and then, entering Calcasieu Parish, along the southern banks of the Gulf Intracoastal Waterway (GIWW). After crossing the GIWW in a northeasterly direction, Leg 1 would proceed eastwards again, cross Bayou Choupique, cross the Calcasieu River and Devil's Elbow just north of Choupique Island – thus avoiding Lake Charles to the north – and then turn northwards to a point south of Iowa, Louisiana before turning in an east-northeasterly direction and leaving Calcasieu Parish.

Leg 1 would continue in an east-northeasterly direction, crossing Interstate Highway 10, to a point adjacent to Gum Gully, then turn eastwards, crossing Bayou Nezpique and entering Acadia Parish. After crossing Bayou Nezpique, Leg 1 would proceed in a north-northeasterly direction and cross SH 190 into Evangeline Parish. Once in Evangeline Parish, the route would proceed in a generally northeasterly direction and terminate at an interconnect site with the CGT pipeline system.

Leg 2

Leg 2 would consist of 1.2 miles of 36-inch-diameter pipeline. It would receive gas from the Sabine Pass LNG Terminal at up to 1,100 psig, and would have a firm, peak day capacity of at least 1,265,000 Dth. Leg 2 would commence at a receipt point within the Sabine Pass LNG Terminal and continue to a point of interconnection with the existing NGPL pipeline just south of SH 82 in Cameron Parish, Louisiana. Leg 2 would include 200,000 Dth per day of leased transportation capacity on the existing portion of the NGPL pipeline and the UTOS lateral extending to the Johnsons Bayou Southwest Loop area, also in Cameron Parish.

Leg 1 and Leg 2 would be interconnected within the Sabine Pass LNG Terminal to allow bi-directional metering and provide flow capacity of not less than 1,065,000 Dth per day.

FGT Lateral

The FGT Lateral would consist of 2.3 miles of 24-inch-diameter pipeline. It would receive gas at up to 1,440 psig from Leg 1 and would have a potential capacity of up to 319,500 Dth per day. The lateral would originate on Leg 1 at MP 110.6, in Acadia Parish, run eastwards across Bayou des Cannes, and terminate at FGT compressor station #7, also in Acadia Parish.

Pig Launchers/Receivers and Mainline Block Valves

Pig launchers/receivers and MLVs are necessary for proper maintenance and operation of a pipeline. The proposed milepost locations of these facilities are provided in table 2.1.1-1.

TABLE 2.1.1-1

Pig Launchers/Receivers and Mainline Block Valves

Facility	MP	Parish
Leg 1		
MLV #1	0.0	Cameron
Pig Launcher	0.0	Cameron
MLV #2	20.1	Cameron
MLV #3	39.1	Calcasieu
MLV #4	47.7	Calcasieu
MLV #5	54.5	Calcasieu
MLV #6	73.8	Calcasieu
MLV #7	93.1	Jefferson Davis
MLV #8	110.0	Acadia
MLV #9	116.8	Evangeline
Pig Receiver	132.2	Evangeline
MLV #10	132.2	Evangeline
Leg 2		
MLV #1	0.0	Cameron
Pig Launcher	0.0	Cameron
Pig Receiver	1.2	Cameron
MLV #2	1.2	Cameron
FGT Lateral		
MLV #1	0.0	Acadia
Pig Launcher	0.0	Acadia
Pig Receiver	2.3	Acadia
MLV #2	2.3	Acadia

In order to undertake periodic cleaning and inspections by means of intelligent pigging, an appropriately sized pig launcher would be temporarily installed at the origin of each of the three pipelines along with a pig receiver of the same size at the endpoint. Although the installation of these launchers and receivers would be temporary and periodic, the piping and valves for each of the three pipelines would have to be configured to accommodate them.

MLVs would be installed to enable the isolation of individual pipeline segments in order to contain unplanned pipeline-system upsets and permit controlled venting as part of a planned blowdown of the Project. Each pipeline would have a MLV at its origin and endpoint. Leg 1 would have eight additional MLVs installed at locations specified by the U.S. Department of Transportation (DOT) safety regulations in order to minimize the social impacts of blowdown noise and the likelihood of vandalism. All MLVs would be installed within the permanent right-of-way and, to the extent practicable, located near existing roads so as to minimize the construction of access roads. Each MLV would be fenced, gated, and locked; the valve itself would be buried but valve operators and controls would be located above ground. Each MLV would be capable of being remotely operated and controlled by a Supervisory Control and Data Acquisition (SCADA) system that would monitor operating parameters (e.g., valve position, gas pressure, and flow rate) and detect any leaks. The SCADA control room would be located in Houston, Texas.

Jurisdictional Interconnects

Interconnecting pipelines from the Project to interstate (but not intrastate) pipelines are subject to FERC jurisdiction, as is the Sabine Pass LNG Terminal. These interconnecting pipelines are described in section 2.1.2 below along with the 14 interconnect sites at which they would connect with the Project.

2.1.2 Aboveground Facilities

The Project would deliver gas to 10 existing interstate pipelines and one existing intrastate pipeline via 14 interconnect installations. These installations would regulate and meter the flow of gas from the pipelines of the Project to the recipient pipeline system. Each interconnect site would comprise one or more meter runs consisting of:

- Custody-transfer flow meter;
- Pressure regulator;
- Isolation block valves;
- Flow control and high-pressure override valves; and
- Associated instrumentation and controls.

The sites would be fenced and gated and include a communications building that would contain a satellite link to the SCADA system and a telephone service for SCADA back-up as well as vocal communications. Electrical power would be provided for cooling, lighting, and ventilation as well as for the monitoring and control equipment.

Interconnects would be located as close as practicable to the intersections of the Project and each individual customer pipeline system in order for the connecting pipelines to be as short as possible. Approximate locations and lengths of the interconnects are listed in table 2.1.2-1.

The connecting pipelines would be built, owned, and operated by their respective customer pipeline companies[2]. Because each of those companies (with the exception of Bridgeline Holdings, whose lateral would be intrastate) would be required to obtain authorization from the FERC to construct them, these connecting pipelines are not included in the environmental analysis presented in this EIS.

[2] It is assumed that the connecting pipelines would be constructed and ready for service when the KMLP Project becomes operational.

TABLE 2.1.2-1

Interconnect Locations and Connecting Pipelines

Interconnect Name	MP	Parish	Lateral Owner/Operator	Length[a] (feet)
Leg 1				
Southwest Loop Delivery Point	28.2	Calcasieu	Transcontinental Gas Pipeline Corporation	0
			Tennessee Gas Transmission	0
			Florida Gas Transmission	0
Sabine Interconnect	61.4	Calcasieu	Sabine Pipeline, LLC	0
TGTPL Interconnect	87.5	Jefferson Davis	Tennessee Gas Pipeline Company	0
TLG Interconnect	91.5	Jefferson Davis	Trunkline Gas Company, LLC	0
TGT Interconnect	110.0	Acadia	Texas Gas Transmission	300
ANR #2 Interconnect	111.3	Acadia	ANR Pipeline Company	0
ANR #1 Interconnect	112.0	Acadia	ANR Pipeline Company	0
TET Interconnect	117.0	Evangeline	Texas Eastern Transmission, LLC	0
Transco Interconnect	122.1	Evangeline	Transcontinental Gas Pipeline Corporation	200
CGT Interconnect	132.2	Evangeline	Columbia Gulf Transmission	100
Leg 2				
NGPL Interconnect	1.2[b]	Cameron	Natural Gas Pipeline Company of America	0
Bridgeline Interconnect	N/A[c]	Cameron	Bridgeline Holdings, L.P.	100
Southwest Loop, Johnsons Bayou Delivery Point	N/A[c]	Cameron	Transcontinental Gas Pipeline Corporation	100
			Tennessee Gas Transmission	100
			Florida Gas Transmission	100
FGT Lateral				
FGT Interconnect	2.3	Acadia	Florida Gas Transmission	0

[a] A value of 0 feet indicates the lateral is expected to be located completely within the interconnect facility.
[b] Located at the end of Leg 2 within Sabine Pass LNG Terminal property.
[c] Located in Johnsons Bayou near the end of the existing UTOS system.

2.1.3 Ancillary Areas

Ancillary areas would include temporary workspaces outside of the construction right-of-way, access roads to the pipeline right-of-way, and pipe storage and contractor yards (see table 2.1.3-1).

Extra Workspaces

KMLP has requested permission for 864 extra workspaces totaling 291.5 acres. These workspaces would be needed in areas where special construction techniques are required, such as road, railroad, wetland, and waterbody crossings, as described fully in section 2.3. The size, shape, and configuration of each proposed extra workspace are unique due to the particular conditions at its proposed location, although they are typically 0.2 acre or less. These are shown in the facility maps in appendix B and are listed in appendix C.

TABLE 2.1.3-1 Number of Ancillary Areas by Parish/County			
Parish/County	**Extra Workspaces**	**Access Roads**	**Pipe Storage and Contractor Yards**
Orange County, TX	3	0	0
Cameron Parish, LA	86	5	0
Calcasieu Parish, LA	354	43	5
Jefferson Davis Parish, LA	213	13	4
Acadia Parish, LA	81	9	0
Evangeline Parish, LA	127	5	3
Total	**864**	**75**	**12**

Access Roads

To the extent possible, KMLP would access the right-of-way and facilities from existing access roads and from roads crossed by the right-of-way. These include private roads, drives, lanes, and other roads that may require some modifications or improvements in order to support the expected loads and size of construction equipment and materials safely.

Construction of and/or modifications to these access roads would include grading plus maintaining to prevent rutting, and, in some instances, placing of additional gravel onto the existing surface. New temporary access roads would be constructed with an engineering fabric underlayment covered by gravel/crushed rock. Board mats would be used to construct new temporary access roads where it is necessary to prevent permanent impacts, such as in wetlands where rutting is occurring or where gravel/crushed rock cannot be readily removed from soft soils upon completion of construction. New permanent access roads would be constructed of gravel/crushed rock.

Appendix C, table C-2 lists access roads, including their locations and dimensions; the type of construction, including modifications or improvements proposed; and the amount of surface area that would be affected by them.

Pipe Storage and Contractor Yards

KMLP proposes to use 12 temporary yards for pipe storage and contractor staging during construction of the Project facilities. See table C-3, appendix C for the location of the pipe storage and contractor yards.

2.2 LAND REQUIREMENTS

Table 2.2-1 summarizes the land requirements for the Project. As shown, construction of the Project would disturb 3,030.7 acres in total. Of this amount, 2,189.8 acres would be restored to pre-construction land use. Operation of the Project would affect 840.9 acres of land, of which 821.7 acres would be permanent right-of-way and 19.2 acres would be permanently occupied by aboveground facilities and permanent access roads.

TABLE 2.2-1

Land Requirements for the Project

Facility	Land Affected during Construction (acres)	Land Affected during Operation (acres)
Leg 1 Pipeline	2,239.2	806.3
Leg 2 Pipeline	7.0	1.5
FGT Lateral	27.9	13.9
Extra Workspaces	291.5	0.0
Aboveground Facilities	12.3	12.3
Pipe Storage and Contractor Yards	378.7	0.0
Access Roads	74.2	6.9
Total	3,030.7	840.9

Note: Due to rounding, total for construction does not add up.

2.2.1 Pipeline Rights-of-Way and Extra Workspaces

KMLP proposes to use a variety of construction right-of-way widths that would differ not only according to the diameter of the pipeline being installed but also by land cover and whether topsoil would be segregated. Approximately 2,565.5 acres would be disturbed in the rights-of-way and extra workspaces needed to construct Leg 1, Leg 2, and the FGT Lateral. KMLP's proposed construction rights-of-way widths include the following configurations based on its proposed construction methods. The construction methods are described in more detail in section 2.3.1.

Uplands:

- A 125-foot-wide construction right-of-way for the 42-inch-diameter Leg 1 with no soil segregation;
- A 155-foot-wide construction right-of-way for the 42-inch-diameter Leg 1 with ditch-plus-spoil-side segregation and where the 42-inch-diameter Leg 1 and the 36-inch-diameter Leg 2 parallel each other and are 50 feet apart;
- A 165-foot-wide construction right-of-way for the 42-inch-diameter Leg 1with full-width topsoil segregation;
- A 100-foot-wide construction right-of-way for the 36-inch-diameter Leg 2 when not parallel to Leg 1 and for the 24-inch-diameter FGT Lateral with no soil segregation;
- A 120-foot-wide construction right-of-way for the 24-inch-diameter FGT Lateral with ditch-plus-spoil-side segregation; and
- A 130-foot-wide construction right-of-way for the 24-inch-diameter FGT Lateral with full-width topsoil segregation.

Unsaturated Wetlands:

- A 100-foot-wide construction right-of-way for the 42-inch-diameter Leg 1 and the 24-inch-diameter FGT Lateral in wetland crossings of less than 100 feet (see section 4.4 for further discussion);

- A 125-foot-wide construction right-of-way for the 42-inch-diameter Leg 1 and the 24-inch-diameter FGT Lateral in wetland crossings of greater than 100 feet (see section 4.4 for further discussion); and

- A 155-foot-wide construction right-of-way where the 42-inch-diameter Leg 1 and the 36-inch-diameter Leg 2 are parallel and 50 feet apart.

Saturated Wetlands (Marsh):

- A 100-foot-wide construction right-of-way for the 42-inch-diameter Leg 1, 36-inch-diameter Leg 2 when not parallel to Leg 1, and the 24-inch-diameter FGT Lateral in wetland crossings of less than 100 feet (see section 4.4 for further discussion); and

- A 125-foot-wide construction right-of-way for the 42-inch-diameter Leg 1 and the 36-inch-diameter Leg 2 when not parallel to Leg 1 in wetland crossings of greater than 100 feet (see section 4.4 for further discussion).

Open Water (Sabine Lake):

- A 300-foot-wide construction right-of-way for Leg 1 in water less than 8 feet deep; and

- A 200-foot-wide construction right-of-way for Leg 1 in water greater than 8 feet deep.

KMLP requested construction rights-of-way widths greater than 120 feet in upland areas along Leg 1 with no topsoil segregation and with ditch-plus-spoil-side or full-width topsoil segregation; along the FGT Lateral with full-width topsoil segregation; and along the segment where Leg 1 and Leg 2 are parallel and 50 feet apart. We believe KMLP's request for a 155-foot-wide construction right-of-way where Leg 1 and Leg 2 are parallel and 50 feet apart is justifiable because it lies within the previously disturbed industrial area of the Sabine Pass LNG facility where it would be adjacent to other foreign pipelines. We also believe the request for up to 120-foot-wide construction rights-of-way for Leg 1 in upland areas is reasonable due to the large diameter of the pipe and local soil conditions and to accommodate topsoil segregation. However, we do not believe that the other requests for widths greater than 120 feet are justified by KMLP and we do not believe that KMLP has justified the request for a construction right-of-way width of more than 100 feet along the FGT Lateral or along Leg 2 where it is not parallel to Leg 1 (see table 2.3-1 in the following section). Therefore, **we recommend that:**

- **KMLP limit the construction right-of-way width in upland areas to 120 feet for Leg 1, 100 feet for the FGT Lateral, and 100 feet for Leg 2 when not parallel to Leg 1. If additional right-of-way width in uplands is necessary, KMLP should file with the Secretary a site-specific construction plan and written justification for any additional right-of-way width for review and written approval by the Director of OEP prior to construction.**

In wetlands, we believe KMLP's request for a 155-foot wide construction right-of-way where Leg 1 and Leg 2 are parallel and 50 feet apart within the Sabine Pass LNG Terminal property is reasonable for the reasons given in the preceding paragraph. In other locations, KMLP requested a 125-foot-wide construction right-of-way for wetland crossings of greater than 100 feet and a 100-foot-wide construction right-of-way for wetland crossings of less than 100 feet. For comparison, our Procedures limit the construction right-of-way width in wetlands to 75 feet. KMLP justified the expanded rights-of-way in wetlands based on the large diameter of the pipeline, the unstable soil conditions, and the non-cohesive and soupy nature of the soil types in saturated wetlands. KMLP further believes that their request for a 100-foot-wide and 125-foot-wide right-of-way width is reasonable to maintain a safe working environment, provide for effective and efficient operation of equipment, and contain the excavated material within the right-of-way limits. We agree that the large diameter of Legs 1 and 2, unstable soil conditions, and safety concerns justify the use of a construction right-of-way wider than 75 feet as limited by our Procedures. However, KMLP's request for different right-of-way widths based on the length of the wetland to be crossed, as reported in appendix D of this EIS, is not acceptable. We believe a 100-foot-wide construction right-of-way is adequate in wetlands where the push-pull method would be used and a 120-foot-wide construction right-of-way is adequate in wetlands where conventional construction methods would be used. We also believe a 75-foot-wide construction right-of-way is reasonable for installing the FGT Lateral in wetlands. Therefore, **we recommend that:**

- **KMLP file with the Secretary revised construction drawings and alignment sheets that identify a:**

  a. 100-foot-wide construction right-of-way for Leg 1 and Leg 2 (where not parallel) in wetlands that would be crossed by the push-pull method;

  b. 120-foot-wide construction right-of-way for Leg 1 and Leg 2 (where not parallel) in wetlands that would be crossed by conventional open-cut methods; and

  c. 75-foot-wide construction right-of-way for the FGT Lateral in wetlands.

  For wetlands where these right-of-way widths are not feasible, KMLP should file site-specific justifications for wider construction rights-of-way for review and written approval by the Director of OEP prior to construction.

Following construction, KMLP would maintain a 50-foot-wide permanent right-of-way for operation of the pipeline(s). Approximately 806.3 acres would be retained for the permanent right-of-way for Leg 1, 1.5 acres for Leg 2, and 13.9 acres for the FGT Lateral. After construction, all temporary extra workspaces would be restored and returned to pre-construction conditions.

2.2.2 Aboveground Facilities

The 14 proposed interconnect sites would be located on a total of 12.3 acres. In general, sites would be 200 feet by 200 feet; and the largest would be 202 feet by 225 feet. Land within the fenced perimeter would be occupied by a communications building, piping, and other equipment. Portions of these sites may be paved, covered with gravel, or landscaped, depending on facility operations and maintenance requirements.

2.2.3 Ancillary Areas

A total of 74.2 acres would be required for access roads during the construction phase, about 7 acres of which would be retained during the operations phase. All temporary access roads would be restored to the pre-construction condition and uses. The dimensions, location, and type of each access road are given in appendix C.

The 12 temporary yards for pipe storage and contractor staging would range in size from approximately 20 acres to 60 acres and in total would require approximately 379 acres of land. The proposed locations of these yards are identified in appendix C. All yards would be returned to the pre-construction condition and former usage.

2.3 CONSTRUCTION AND RESTORATION PROCEDURES

This section describes the general construction procedures proposed by KMLP. Section 4.0 contains more detailed descriptions of proposed construction, mitigation, and restoration procedures as well as additional measures to mitigate environmental impacts.

The Project would be designed, constructed, operated, and maintained in accordance with the DOT regulations 49 CFR Part 192, "Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards"; 18 CFR 380.15, "Guidelines to be Followed by Natural Gas Pipeline Companies in the Planning, Clearing, and Maintenance of Rights of Way and the Construction of Aboveground Facilities"; and other applicable federal and state regulations.

KMLP would construct the Project facilities in accordance with its specifications (including a Construction Drawing Package of approved pipeline, facility, and equipment drawings) as well as with the FERC's *Upland Erosion Control, Revegetation and Maintenance Plan* (our Plan) and *Wetland and Waterbody Construction and Mitigation Procedures* (our Procedures). KMLP has requested certain alternative measures to our Plan and Procedures, which are addressed in table 2.3-1 and discussed further in section 4.0.

KMLP would prepare a Stormwater Pollution Prevention Plan (SWPPP), which would include an Erosion & Sediment Control (E&SC) Plan and a Spill Prevention and Response Plan (SPRP), for the proposed pipeline system. These plans would address potential spills of fuels, lubricants, and other hazardous materials and describe spill-prevention practices, spill-handling and emergency procedures, and training requirements. The SWPPP would incorporate state, county, and parish requirements and provisions of our Plan and Procedures (in particular, section IV.A of the latter) with any FERC-accepted alternative measures. These plans would be in force during the construction and operation phase of the Project. To ensure that these plans are developed, **we recommend that:**

- **KMLP file its project-specific SWPPP, including an E&SC Plan and SPRP, with the Secretary for review and written approval by the Director of OEP prior to construction.**

2.3.1 Pipelines

Construction of the Project would involve a range of construction methods that fall into a number of categories shown in table 2.3.1-1. Appendix E shows the pipeline construction methods proposed by milepost (other than for crossings of waterbodies, roads and railroads, and foreign pipelines).

2.3.1.1 Conventional Upland Construction Methods

In upland terrain of the Project, KMLP would use conventional overland construction techniques for large-diameter pipelines. Construction would follow a set of sequential operations as shown in figure 2.3.1.1-1 and as further described below. In the typical pipeline construction scenario, the construction

TABLE 2.3-1

Acceptance or Denial of Requested Alternative Measures

Applicable Item	Requested Variance	Justification for Variance Request	Accepted/ Denied	Basis for Acceptance/Denial
Upland Erosion Control, Revegetation, and Maintenance Plan				
IV.A.2	A typical temporary construction right-of-way width of 125 feet in uplands (see specific MP locations in appendix D)	To provide a safe work site and space for spoil storage	Accepted only along Leg 1	Accepted only for specific sites along Leg 1 listed in appendix D (not project wide) based on large pipe and local soil conditions and to accommodate topsoil segregation (see section 2.2.1)
V.A.5	Land surfaces restored to pre-construction contours, unless such contours threaten the integrity of the pipeline	To arrest erosion if the existing land surface within the right-of-way is rapidly eroding before construction and to prevent ponding of water	Denied	Denied project wide, but the FERC will consider based on site-specific information to be submitted by KMLP prior to construction (see section 4.1)
VII.A.5	Annual vegetation maintenance (mowing) on a 50-foot corridor	Excessively long growing period in southwest Louisiana	Denied	Denied because annual mowing over entire 50-foot right-of-way would continually disrupt vegetation (see section 4.5.2)
Wetland and Waterbody Construction and Mitigation Procedures				
IV.A.1.d & e	Refueling activities in waterbodies	Vessels and waterborne equipment have to be used in Sabine Lake and Sabine River	Accepted	Accepted only for Sabine Lake and Sabine River (see section 4.4.2)
VI.A.3	A typical temporary construction right-of-way width of 125 feet in wetlands where the crossing length exceeds 100 feet and a right-of-way width of 100 feet in wetlands where the crossing length is less than 100 feet (see specific MP locations in appendix D)	Larger equipment and soil limitations require a larger right-of-way to assure a safe work site and space for spoil storage	Accepted conditionally for Leg 1 and Leg 2 only	Accepted up to 100-feet wide in wetlands crossed by push-pull and up to 120-feet wide in wetlands crossed by conventional methods; where these right-of-way widths are not feasible, require site-specific justification for review and approval prior to construction (see section 2.2.1)
VI.A.6	Two aboveground facilities located within jurisdictional wetlands (see specific MP locations in appendix D)	Locations of interconnects dictated by intersection of the proposed pipeline and existing pipelines and by the location of the Sabine Pass LNG Terminal	Accepted	Accepted only for specific MP locations identified in appendix D (not project wide) based on the lack of practicable upland locations (see section 4.4)
VI.B.1.e	A portion of access roads 2 and 3 constructed in wetlands	Access is required from the GIWW to reach the HDD workspace needed to minimize impacts to wetlands	Accepted	Accepted only for specific portions of access roads 2 and 3 because these roads would permit the use of HDD, which avoids about 25 acres of wetland impacts (see section 4.4)
VI.B.1.a	Some extra workspaces located within 50 feet of wetland boundaries (see specific MP locations in appendix D)	Justification is site specific (see appendix D)	Accepted	Accepted only for specific sites listed in appendix D (not project wide) based on lack of practicable locations with 50-foot setbacks; also some sites are to facilitate HDD or other methods designed to reduce impacts (see appendix D)
V.B.2.a	Some extra workspaces located within 50 feet of water's edge (see specific MP locations in appendix D)	Justification is site specific (see appendix D)	Accepted	Accepted only for specific sites listed in appendix D (not project wide) based on lack of practicable locations with 50-foot setbacks; also some sites are to facilitate HDD or other methods designed to reduce impacts (see appendix D)

TABLE 2.3.1-1

Construction Methods by Category

Category	Construction Methods
Upland Conventional (described in section 2.3.1.1 of this EIS)	• Upland Construction without topsoil segregation (figure 2.3.1.1-2) • Upland Construction without topsoil segregation, KMLP 42" pipeline adjacent to foreign pipeline (figure 2.3.1.1-3) • Upland Construction with full-width topsoil segregation, KMLP 42" pipeline (figure 2.3.1.1-4) • Upland Construction, KMLP 42" pipeline adjacent to foreign pipe with ditch plus spoil side topsoil segregation (figure 2.3.1.1-5) • KMLP 36" and 42" pipelines within LNG Terminal, no topsoil segregation (figure 2.3.1.1-6) • KMLP 36" pipeline within LNG Terminal, no topsoil segregation (figure 2.3.1.1-7) • Upland Construction without topsoil segregation, KMLP 24" pipeline adjacent to foreign pipeline (figure 2.3.1.1-8)
Wetland (described in section 2.3.1.2 of this EIS)	• Unsaturated Wetland with topsoil segregation (figures 2.3.1.2-1 and 2.3.1.2-2) • Saturated Wetland without topsoil segregation (figures 2.3.1.2-3 and 2.3.1.2-4) • Submerged Wetland without topsoil segregation ("Push-Pull Construction") (figure 2.3.1.2-5)
Sabine Lake (described in section 2.3.1.3 of this EIS)	• HDD at southern and northern shorelines • Inland Open Water at open-water depth of less than 8 feet (figures 2.3.1.3-3 and 2.3.1.3-4) • Inland Open Water at open-water depth of 8 feet and more (figure 2.3.1.3-5)
Special (described in section 2.3.1.3 of this EIS)	• HDD (figure 2.3.1.3-1) • Water-body crossings (other than Sabine Lake) (figure 2.3.1.3-2) • Road and railroad crossings • Foreign pipeline crossings (figure 2.3.1.3-6) • Techniques for construction in rice fields and crawfish ponds • Techniques for construction in cropland and pasture • Techniques for residential areas • Techniques for commercial and industrial areas

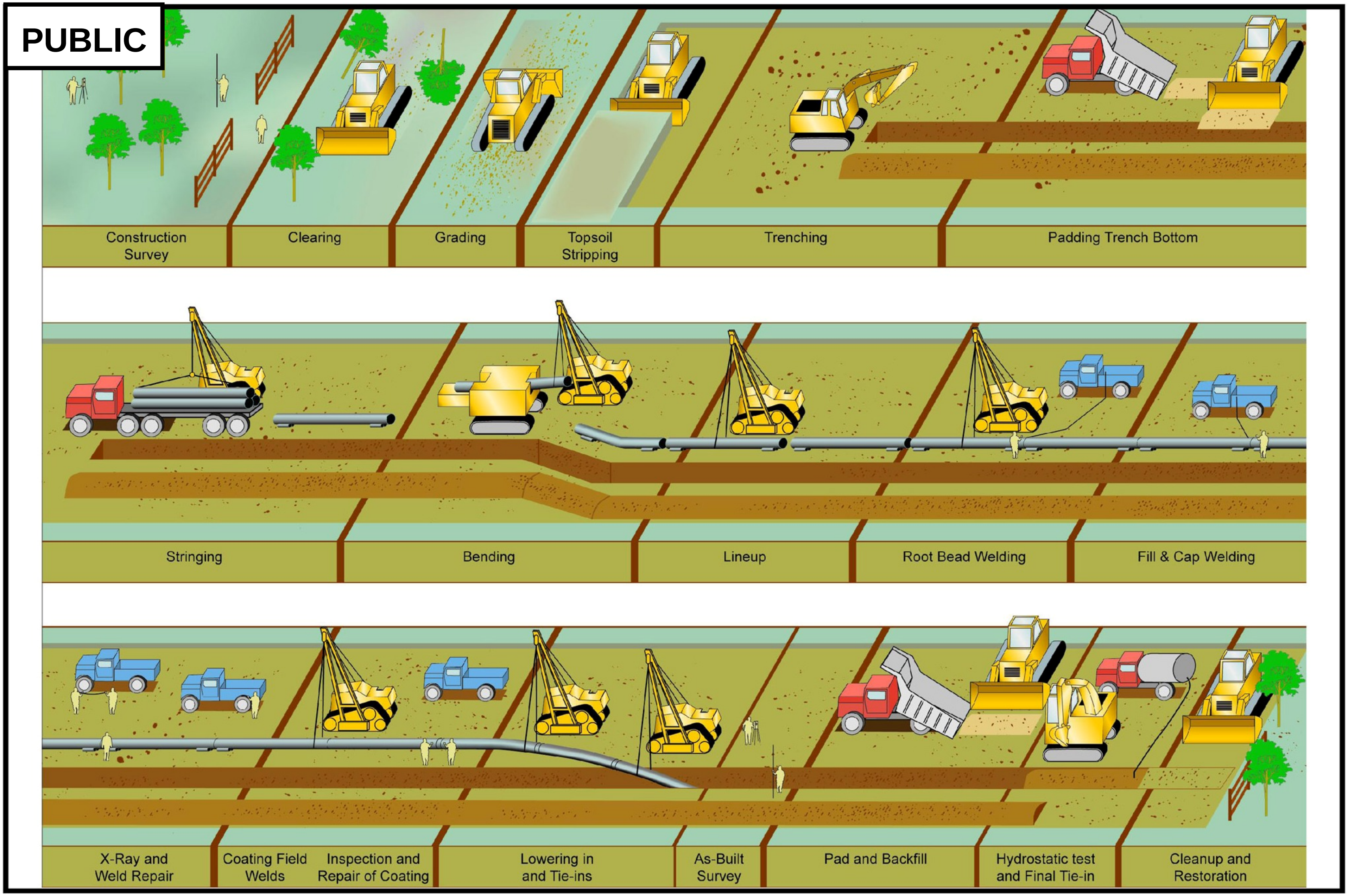


FIGURE 2.3.1.1-1
Upland Pipeline Construction Sequence

spread (crew) would proceed along the pipeline right-of-way in one continuous operation. As the spread moves along, construction at any single point along the pipeline, from initial surveying and clearing to backfilling and finish grading, would last approximately six to ten weeks. The number of construction spreads would be determined upon selection of a construction contractor. The entire process would be coordinated in such a manner as to minimize the total time an individual tract of land is disturbed and, therefore, exposed to erosion and temporarily precluded from its normal use.

The basic steps of upland construction are described below. This description focuses on upland construction without topsoil segregation, but variations involving topsoil segregation and routing alongside foreign pipelines are also noted. KMLP would use Special Construction Techniques such as HDD in sensitive locations. These techniques are described in section 2.3.1.3 and listed in table 2.3.1-1.

Surveying and Staking

After notification of and coordination with affected landowners, a KMLP crew would conduct a civil survey and stake the outside limits of the right-of-way, the centerline of the pipeline, drainage centerlines and elevations, highway and railroad crossings, and any temporary extra workspace, such as lay down areas or staging areas for stream crossings. The Louisiana One Call system would be contacted and underground utilities (e.g., cables, conduits, and pipelines) would be located and flagged.

Clearing and Grading

Following surveying, KMLP would clear the right-of-way of obstacles. Large obstacles such as trees, rocks, brush, and logs would be removed. Timber would only be removed when absolutely necessary for construction purposes. Timber and other vegetation debris would be chipped for use as erosion control mulch or otherwise disposed of in accordance with applicable state and local regulations and landowner crossing agreements. Where necessary, fences would be cut and braced along the right-of-way, and temporary gates would be installed to control livestock and limit public access. The right-of-way would then be graded where necessary to create a reasonably level working surface to allow safe passage of construction equipment and materials. Where applicable – such as in residential and certain agricultural areas, as outlined in section 2.3.1.3 – conserved topsoil would be stockpiled separately from excavated subsoil. Temporary erosion control measures, such as silt fencing and interceptor dikes, would be installed immediately after initial disturbance of the soil.

Trenching

A rotary trenching machine, a track-mounted backhoe, or similar equipment would be used to excavate to a sufficient depth to allow a minimum of three feet of soil cover between the top of the pipe and the final land surface after backfilling. Due to the absence of consolidated bedrock near the surface, no blasting is anticipated.

The trench would be excavated at least 12 inches wider than the diameter of the pipe, or a minimum of 54 inches for the 42-inch-diameter Leg 1, 48 inches for the 36-inch-diameter Leg 2, and 36 inches for the 24-inch-diameter FGT Lateral. The sides of the trench would be sloped (for safety) with the top of the trench up to 30 feet across, or more, depending upon the stability of the native soils.

Excavated soils would typically be stockpiled along the right-of-way on the side of the trench (the spoil side) away from the construction traffic and pipe assembly area (the working side). On actively cultivated agricultural tracts (except in most rice fields) and in residential areas, subsoil would be stockpiled separately from topsoil (see section 2.3.1.3). Where the route is collocated adjacent to an existing pipeline, the spoil would be placed on the same side of the trench as, but not directly over, the existing pipeline to keep working equipment off the operating pipeline.

Stringing

Steel pipe for the pipeline would be procured in nominal 40-foot lengths called “joints” that would be protected with an epoxy coating that would have been applied at an external coating yard and shipped to strategically located materials storage areas known as pipe yards. (The beveled ends would have been left uncoated for the welding step.)

The individual joints would be transported to the right-of-way by truck and placed by crane in a single continuous line (i.e., strung) along the excavated trench. This would leave the strung pipe easily accessible to the construction personnel on the working side of the trench and allow the subsequent lineup and welding operations to proceed efficiently. See section 2.3.1.3 for a variation at waterbody crossings.

Pipe Bending

Since the joints of pipe delivered to the job site would be straight, bending of the joints would be required to allow the pipeline to follow natural grade changes and turns in the right-of-way. Prior to welding, selected joints would be bent to the desired angle in the field by track-mounted hydraulic bending machines.

Pipe Assembly and Welding

After stringing and bending are complete, the joints of pipe would be placed on temporary supports adjacent to the trench. The ends would be carefully aligned and welded together. Multiple passes would be made to achieve a full penetration weld. Only qualified welders would be allowed to perform the welding. Welders and welding procedures would be qualified according to applicable American Petroleum Institute (API) standards.

Non-Destructive Examination and Weld Repair

To ensure that the assembled pipe meets or exceeds the design strength requirements, the welds would be inspected visually and tested for integrity by means of non-destructive examination methods such as radiography (X-ray), or ultrasound, in accordance with American Society of Mechanical Engineers (ASME) standards. Welds displaying unacceptable slag inclusions, void spaces, or other defects would be repaired or cut out and re-welded.

Coating Field Welds, Inspection, and Repair

Following welding, the previously uncoated ends of the pipe at the joints would be epoxy coated. The coating on the completed pipe section would be inspected and any damaged areas would be repaired.

Pipe Lowering

The completed portion of pipe would be lifted off the temporary supports and lowered into the trench by side-boom tractors or equivalent equipment. Prior to lowering the pipe, the trench would be inspected to ensure that it is free of rocks and other debris that could damage the pipe or the coating. De-watering would also be undertaken if there were any stormwater in the trench. Before the pipe is lowered into the trench, the pipe and trench would be inspected to ensure that the pipe and trench configurations are compatible.

Figures 2.3.1.1-2 through 2.3.1.1-8 show typical cross-sections (at the stage of pipe lowering) for construction spreads for different variations of upland construction methods.

Padding and Backfilling

After the pipe is lowered into the trench, the trench would be backfilled. Previously excavated materials would be pushed back into the trench using bladed equipment or backhoes. Wherever the previously excavated material is found to contain large rocks or other materials that could damage the pipe or coating, clean fill or protective coating would be placed instead around the pipe prior to backfilling. Following backfilling, a small crown of material might be left to account for any future soil settling that might occur. Excess soil would be distributed evenly on the right-of-way, only in upland areas, while maintaining existing contours. Wherever topsoil segregation is performed, segregated topsoil would be placed in the trench after backfilling with subsoil is complete.

Hydrostatic Test and Final Tie-In

Following backfilling of the trench, the pipeline would be hydrostatically tested in accordance with DOT regulations to ensure that it is capable of safely operating at the design pressure. The testing process involves filling a segment of the pipeline with water and maintaining a prescribed pressure for a prescribed duration. The exact steps of that process would be as follows:

1. Surface water used for testing is drawn through a screened intake;
2. Test segments of the pipeline are capped and filled with water; and
3. The water in the pipe is pressurized and held for a minimum of 8 hours.

Any loss of pressure that cannot be attributed to other factors, such as temperature changes, would be investigated. If a leak or break in the line were to occur during testing, it would be repaired and the segment of pipe retested until DOT specifications were met.

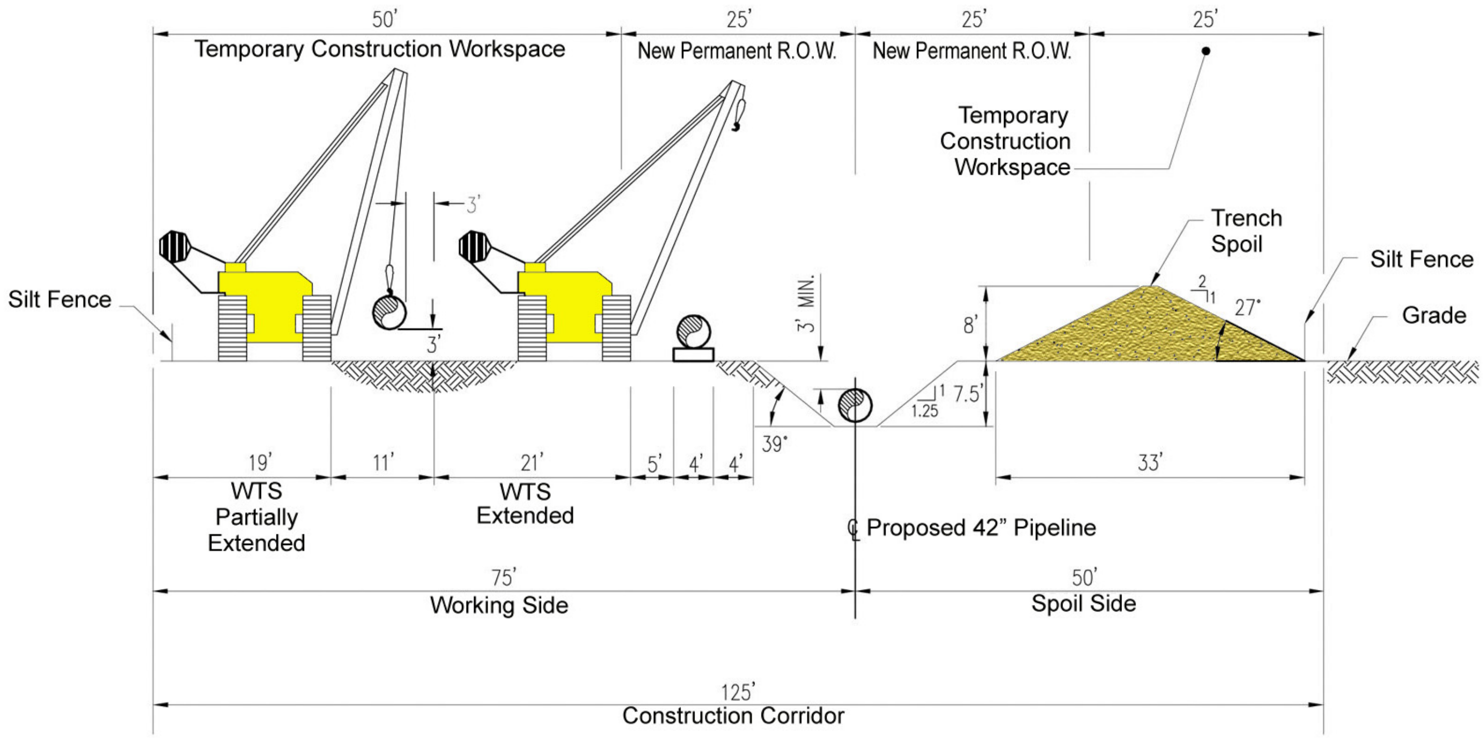
Upon completion of the test, the water would either be pumped to the next segment for testing or discharged. The test water would be discharged through an energy-dissipating device in compliance with National Pollutant Discharge Elimination System (NPDES) permit conditions. Topography and the availability of test water would determine the length of each test segment. Anticipated hydrostatic test water withdrawal and discharge locations are discussed further in section 4.3.2.2. Test water would contact only new pipe, and no chemicals would be added.

Upon the successful testing and drying of a segment of pipe, the test cap and manifold would be removed, and the pipe would be connected to the remainder of the pipeline. No desiccant or chemical additives would be used to dry the pipe. See section 2.3.1.3 for a variation for pipeline segments installed through HDD.

Cleanup and Restoration

Post-construction restoration activities would be in accordance with our Plan and Procedures as applicable, and the FERC's acceptance of the alternative measures requested by KMLP. After the segment of pipe has been installed, backfilled, and successfully tested, the right-of-way, temporary extra workspaces, and other disturbed areas would be finish-graded, and the construction debris would be disposed of properly. After construction, all disturbed areas would be restored to original contours, except at those locations where permanent changes in drainage would be required to prevent erosion, scour, and possible exposure of the pipeline (subject to the FERC's acceptance of a site-specific request

PUBLIC



PROFILE

Notes:

A. Trench and spoil pile, as shown assume side slopes of 1:1.25 (Rise:Run) and 1:2, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-2
Typical Cross-Section for Upland Construction of 42" Pipe without Topsoil Segregation

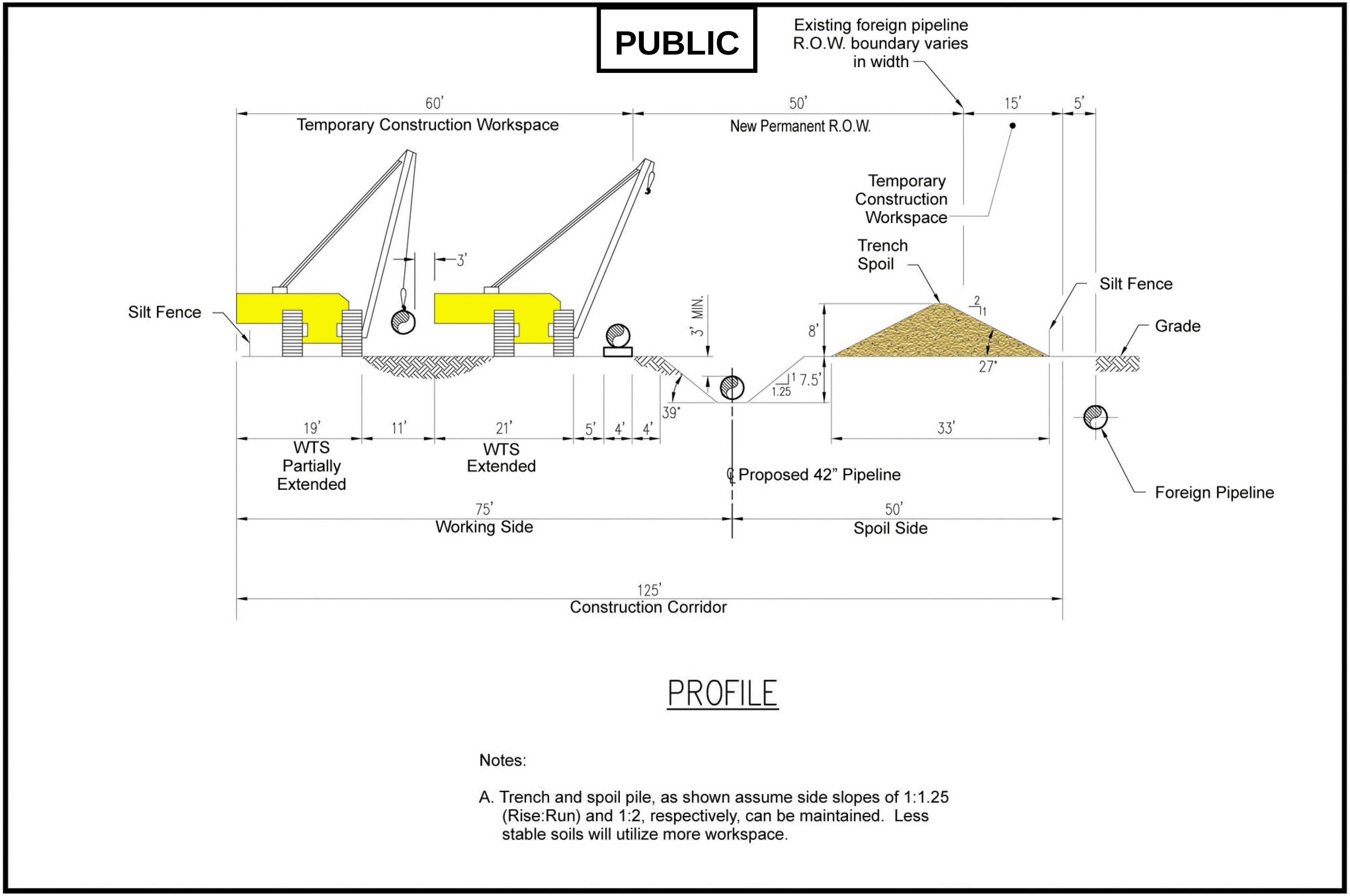
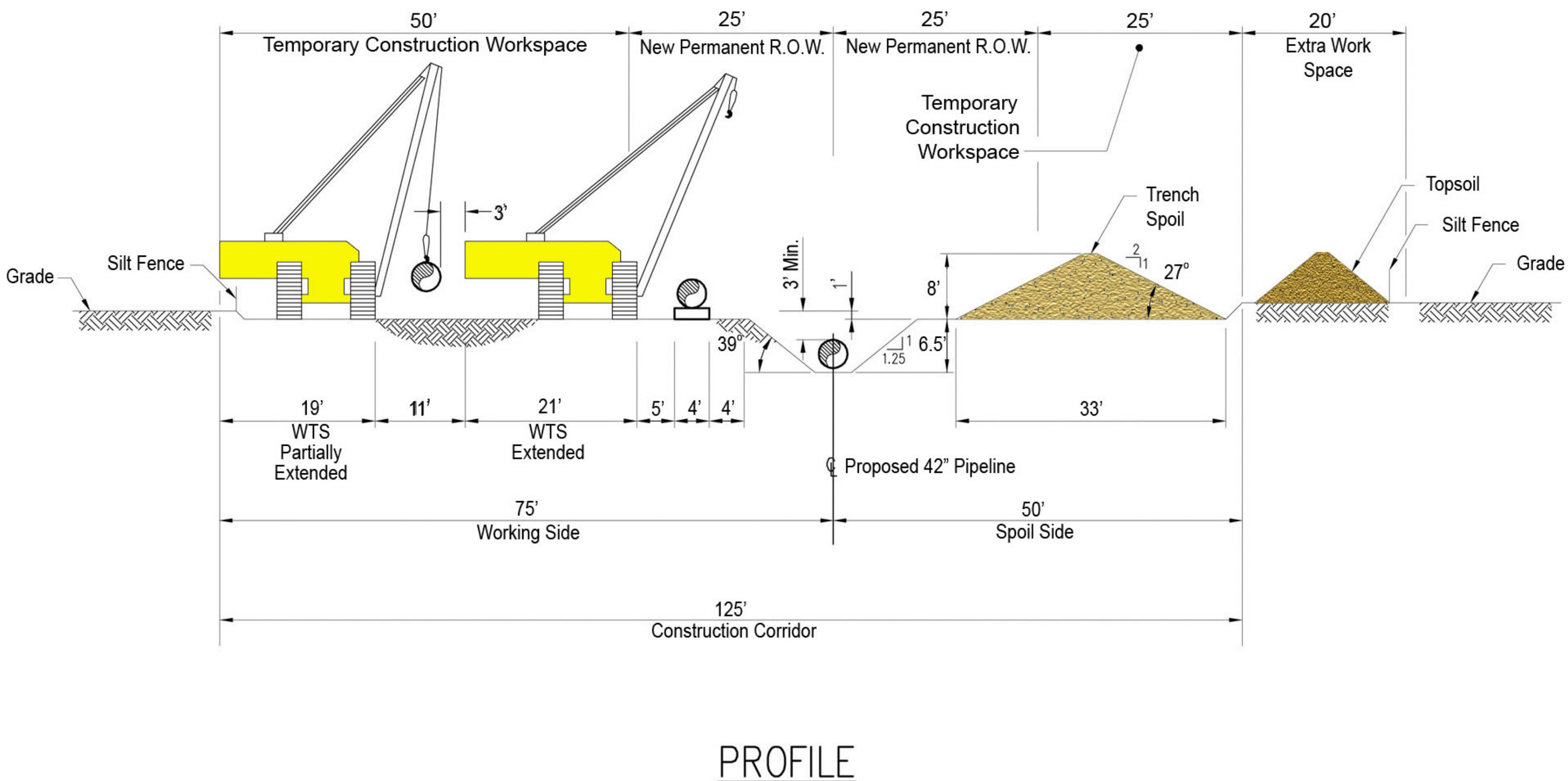


FIGURE 2.3.1.1-3
Typical Cross-Section for Upland Construction of 42" Pipe Adjacent to Foreign Pipe without Topsoil Segregation

PUBLIC

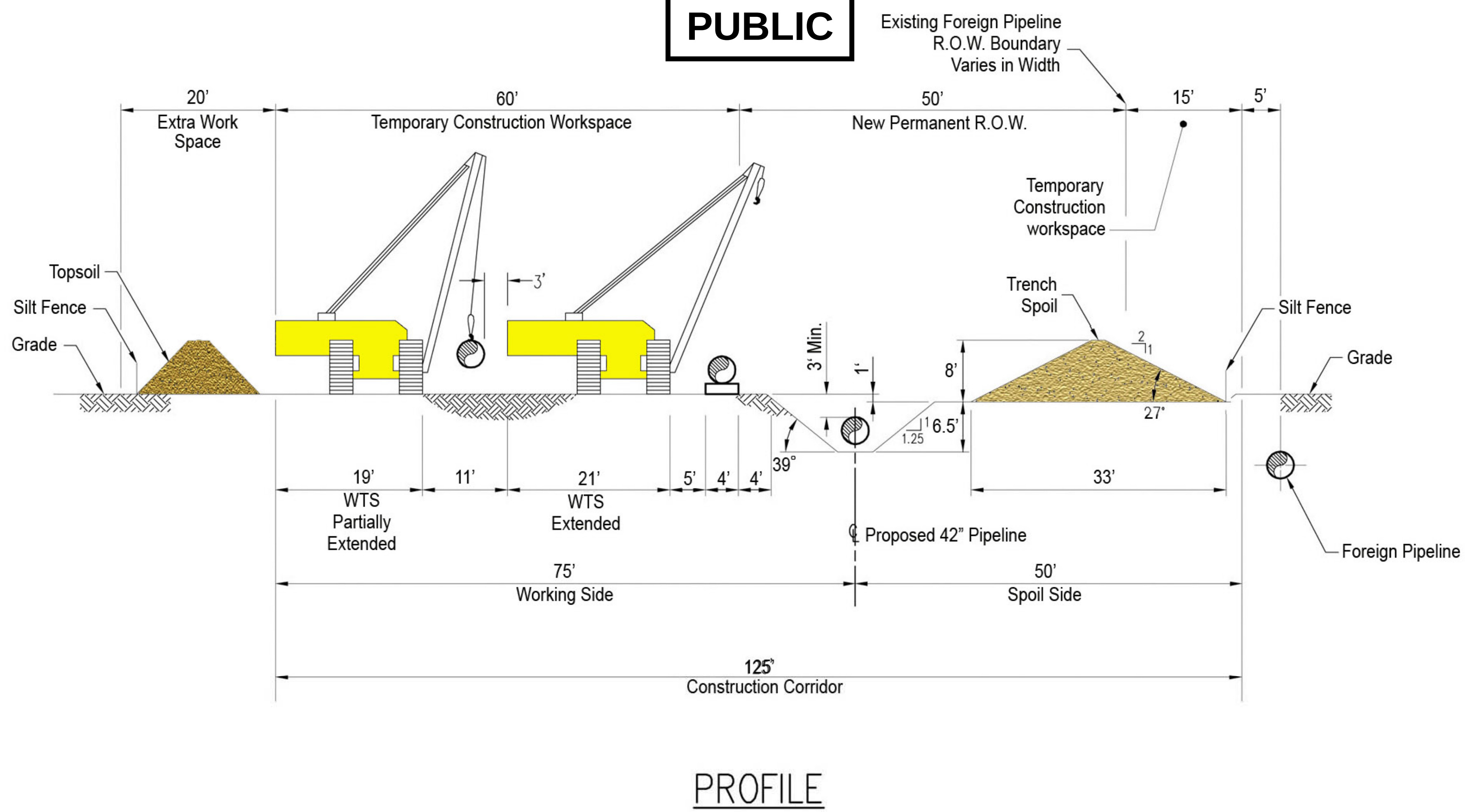


Notes:

A. Trench and spoil side. as shown, assume side slopes of 1:1.25 (Rise : Run) and 1:2, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-4
Typical Cross-Section for Upland Construction of 42" Pipe with Full-Width Topsoil Segregation

PUBLIC

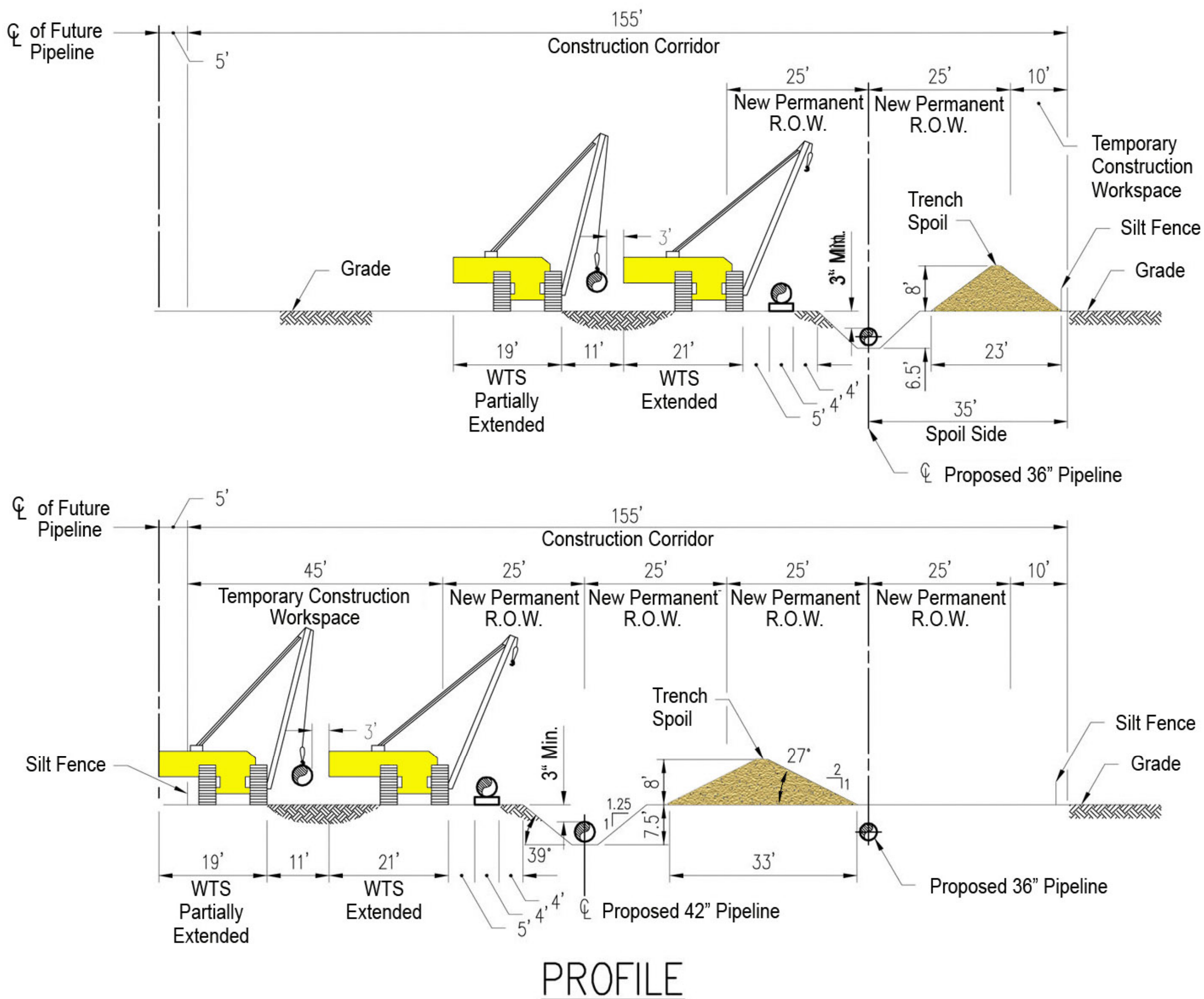


Notes:

A. Trench and spoil side. as shown, assume side slopes of 1:1.25 (Rise : Run) and 1:2, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-5
Typical Cross-Section for Upland Construction of 42" Pipe Adjacent to Foreign Pipe with Ditch Plus-Spoil-Side Topsoil Segregation

PUBLIC

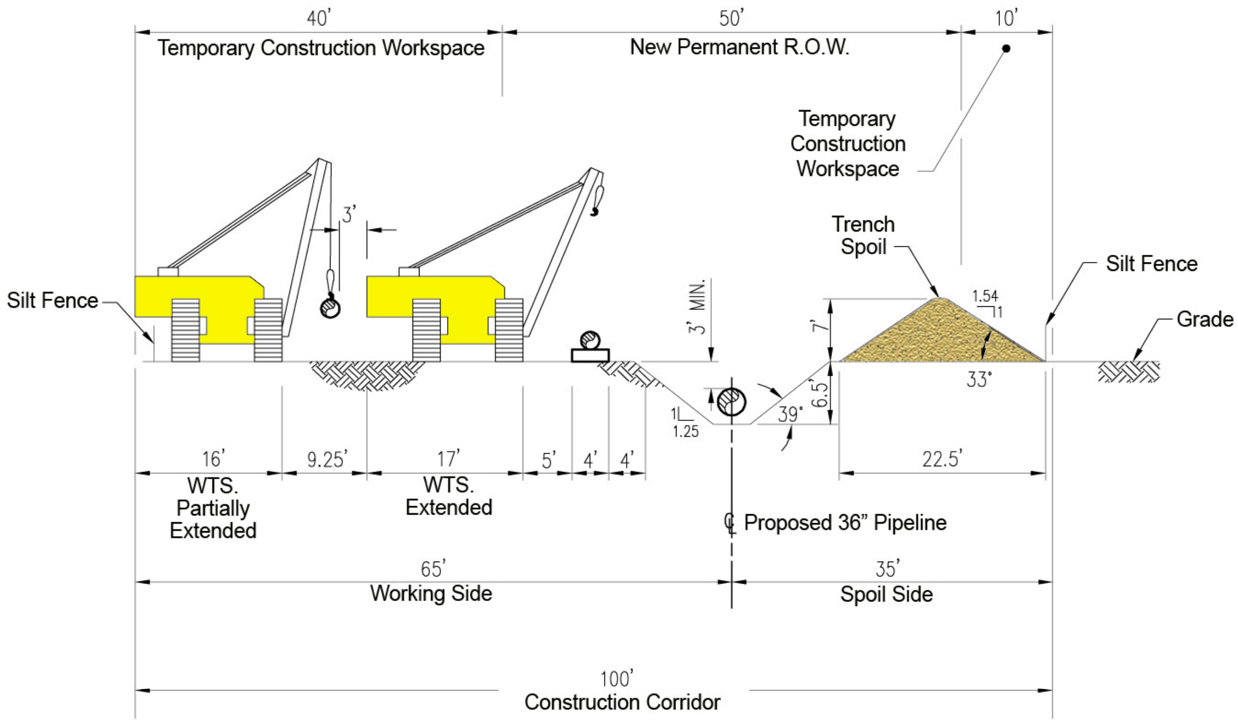


Notes:

A. Trench and spoil side. as shown, assume side slopes of 1:1.25 (Rise : Run) and 1:2, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-6
Typical Cross-Section for Upland Construction of 42" and 36" Parallel Pipes within the Sabine Pass LNG Terminal without Topsoil Segregation

PUBLIC



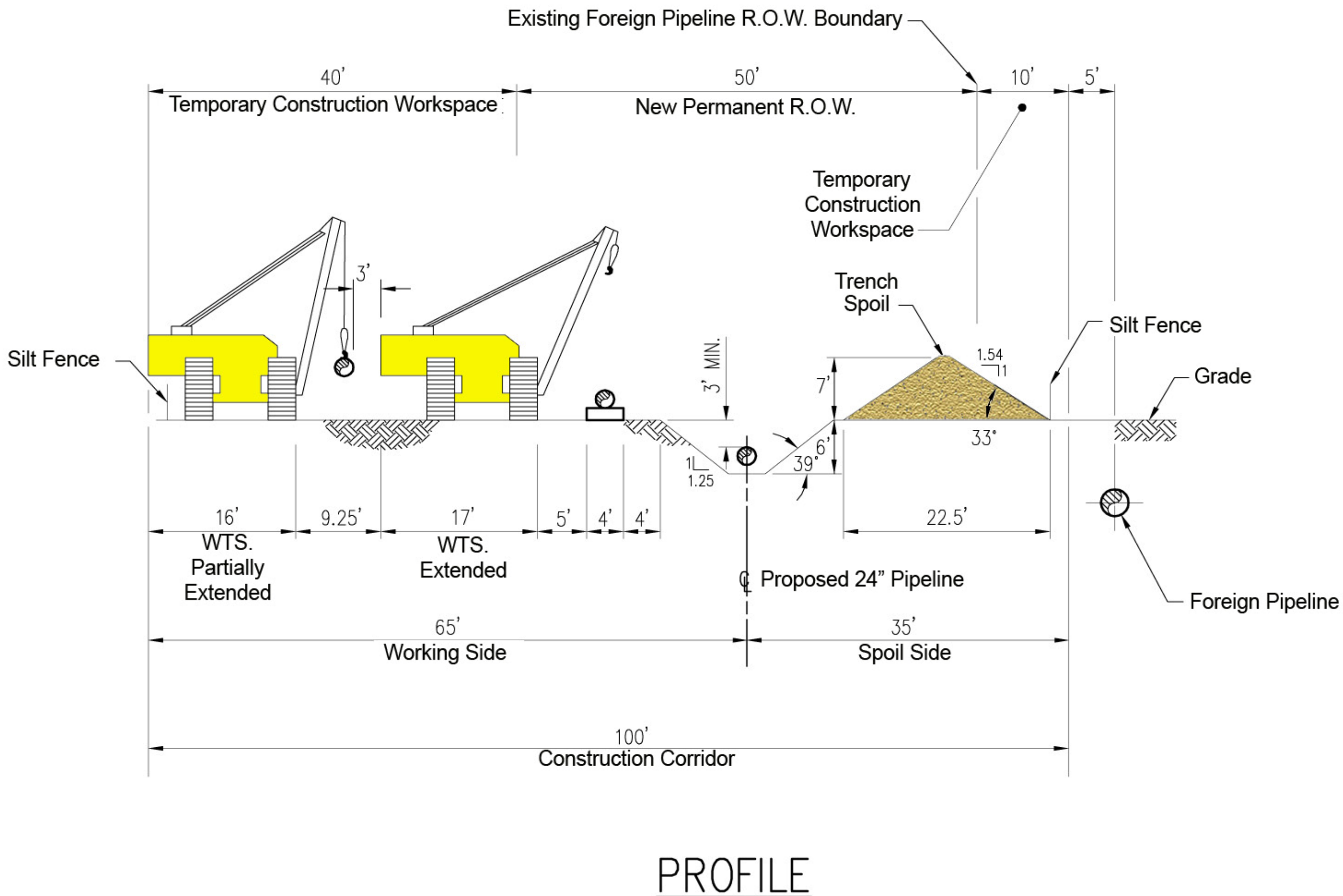
PROFILE

Notes:

A. Trench and spoil pile, as shown, assume side slopes of 1:1.25 (Rise:Run) and 1:1.54, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-7
Typical Cross-Section for Upland Construction of 36" Pipe within the Sabine Pass LNG Terminal without Topsoil Segregation

PUBLIC



Notes:

A. Trench and spoil pile, as shown, assume side slopes of 1:1.25 (Rise:Run) and 1:1.54, respectively, can be maintained. Less stable soils will utilize more workspace.

FIGURE 2.3.1.1-8
Typical Cross-Section for Upland Construction of 24" Pipe Adjacent to Foreign Pipe without Topsoil Segregation

by KMLP prior to construction, as noted in table 2.3-1 and discussed further in section 4.1). See section 2.3.1.3 for a description of measures to return segregated topsoil in areas of cropland and pasture and in rice fields and crawfish ponds.

Temporary and permanent erosion and sediment control measures, including silt fencing, diversion terraces, and vegetation, would also be installed per our Plan and Procedures. In most upland locations, an herbaceous vegetative cover would be re-established by spreading a grass seed and hydro-mulch mixture over the disturbed surface. See section 2.3.1.3 for a variation involving revegetation in areas of cropland and pasture.

The type of seed would be selected to match adjacent cover, or as otherwise requested by the landowner or land management agency, or as recommended by the county extension agent. Depending upon the time of year, a seasonal variety, such as ryegrass, might be spread until a more permanent cover could be established. Steep slopes (e.g., stream banks) might require erosion control mats, revetments, or sod. Reseeding, fertilizing, and other measures would be employed until a cover equivalent to approximately 80 percent of similar, adjacent areas was achieved. Forested areas would be allowed to recover, except that no trees would be allowed to grow within the pipeline operational right-of-way so as to facilitate pipeline inspections. See section 2.3.1.3 for re-seeding of cropland, pasture areas, residential areas, and commercial areas.

The success of revegetation would be monitored by KMLP (see section 2.5). Temporary and interim erosion control measures would be removed from areas where permanent measures are successfully in place. Private and public property, such as fences, gates, driveways, and roads that are disturbed by the pipeline construction would be restored to original or better condition.

2.3.1.2 Wetland Construction Techniques

Construction across delineated wetlands would occur in accordance with our Procedures, except where requested alternative measures are implemented. The construction technique used would be determined by the wetland conditions. In an unsaturated wetland, soil conditions would allow for topsoil segregation. In saturated wetlands, it would not be practicable to segregate topsoil. If there is enough standing water, floating construction techniques would be used, such as the push-pull method from a marsh buggy. In sensitive wetland areas or adjacent to large waterbodies, KMLP would use HDD to avoid impacts, as is described in section 2.3.1.3.

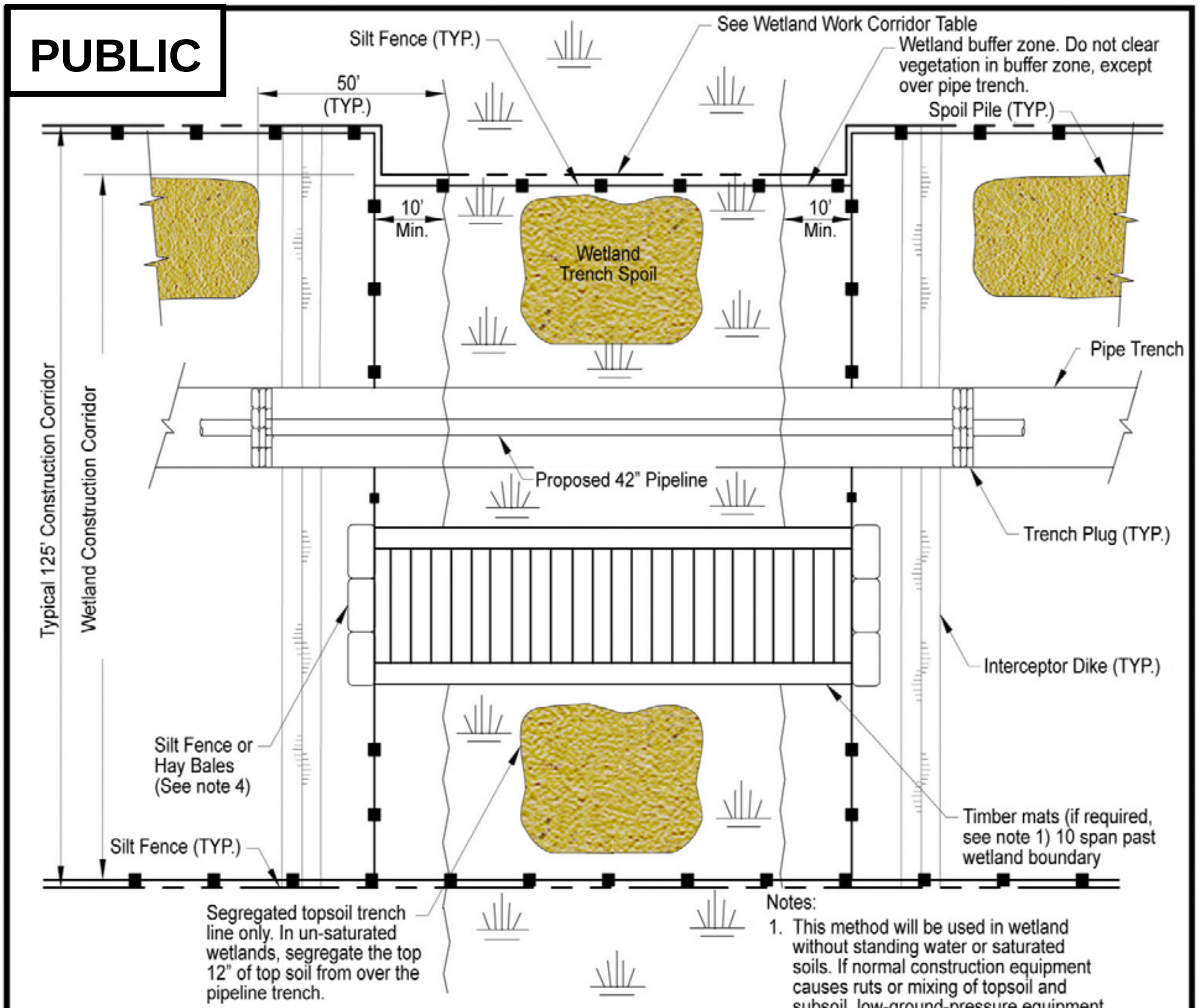
Prior to commencement of construction in wetlands, KMLP would work with the COE, FWS, NOAA Fisheries Service, LDWF, other state and local agencies, and landowners to develop an acceptable site-specific revegetation plan.

Construction in Unsaturated Wetland

The construction method employed in these areas would be similar to conventional upland techniques described in section 2.3.1.1, with some exceptions. Figures 2.3.1.2-1 and 2.3.1.2-2 show a typical cross-section for a construction spread in unsaturated wetlands.

If normal construction equipment were to cause rutting or mixing of topsoil and subsoil, either low-ground-pressure equipment would be substituted for it, or a temporary board road would be installed. The choice of which of these two alternatives to use would be up to the construction contractor; both would allow passage of equipment with minimal disturbance to the surface and vegetation.

PUBLIC



WETLAND WORK CORRIDOR TABLE			
WETLAND LENGTH	CONSTRUCTION CORRIDOR	WORKING SIDE	SPOIL SIDE
LESS THAN 100' LONG	100'	65'	35'
GREATER THAN 100' LONG	125'	90'	35'

UNSATURATED WETLAND CROSSING WITH TOPSOIL SEGREGATION

Notes:

1. This method will be used in wetland without standing water or saturated soils. If normal construction equipment causes ruts or mixing of topsoil and subsoil, low-ground-pressure equipment will be used, or normal equipment will be operated on timber mats.
2. Install permanent intercepors dikes at the base of all slopes adjacent to the wetland.
3. Contractor shall postpone grading of right-of-way adjacent to wetland until staging area is prepared and work in the wetland is ready to commence.
4. Silt fence or hay bales shall be placed in the gap at the timber mats by the end of each day or prior to approaching rain to prevent sediment flow into wetland.
5. Use additional timber mat layers to raise crossing above grade where poor soil conditions exist.
6. Silt fence and interceptor dike to be removed across pipe trench and during construction of pipeline. Silt fence and interceptor dike to be replaced after backfill of trench.

FIGURE 2.3.1.2-1
Unsaturated Wetland Crossing with Topsoil Segregation

PUBLIC

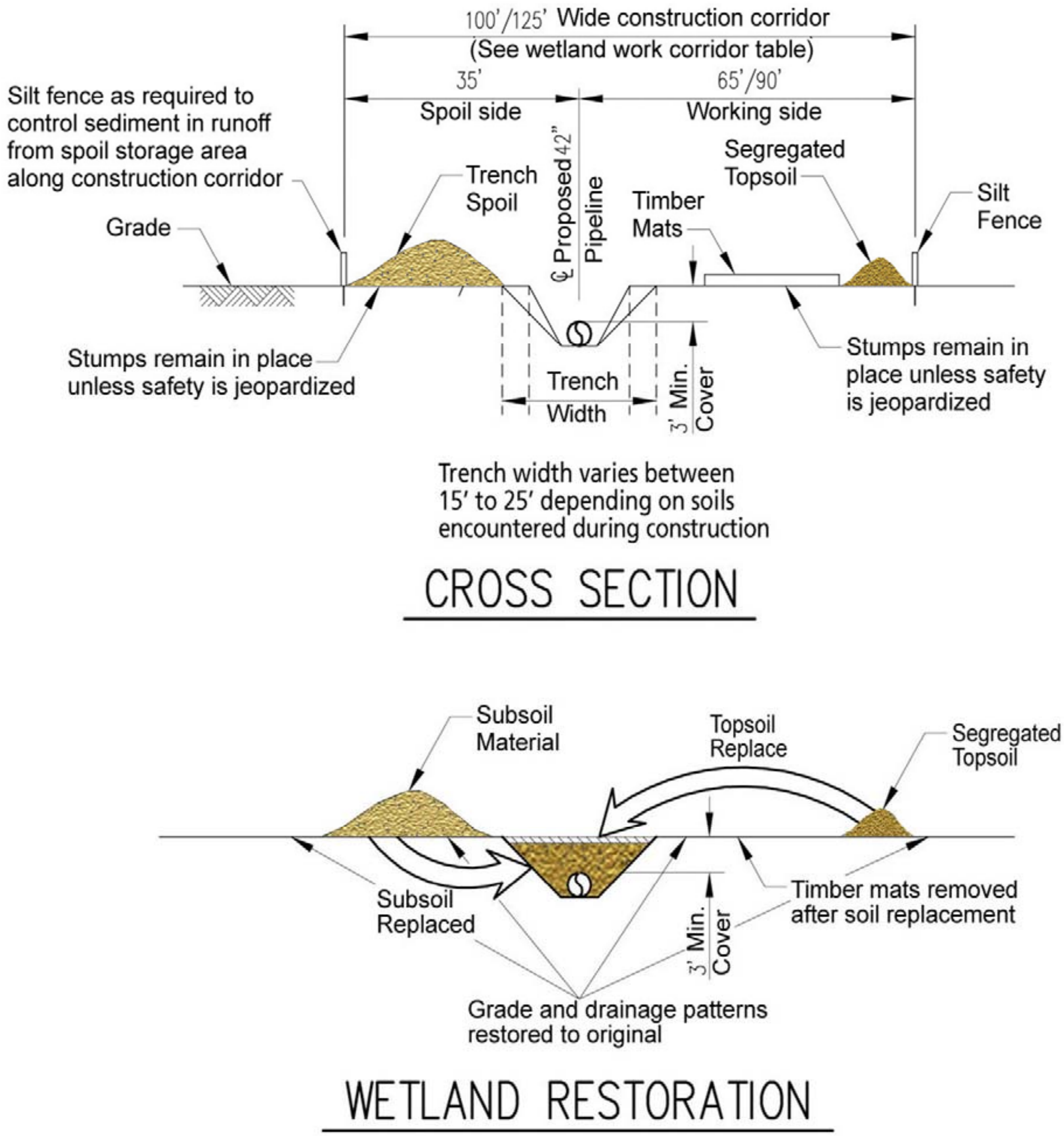


FIGURE 2.3.1.2-2
Unsaturated Wetland Crossing with Topsoil Segregation

Trees would be cut to grade but only the stumps within 15 feet of the edge of the pipe trench would be removed unless safety concerns were to dictate otherwise. Topsoil over the pipe trench would be segregated from subsoils. A vegetated buffer zone would be left between the wetland and the upland construction areas, except in the pipe trench and travel lane. Erosion-control measures such as silt fences, interceptor dikes, and hay-bale structures would be installed and maintained to minimize sedimentation within the wetland. Trench plugs would be installed where necessary to prevent the unintentional draining of water from the wetland.

Upon completion of construction, the right-of-way would be restored. Original surface hydrology would be re-established by backfilling the pipe trench and grading the surface either with backhoes or draglines operating from the board road or with low-ground-pressure tracked vehicles working in the spoil pile, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. Segregated topsoil would be replaced in unsaturated wetlands.

Marsh and wetlands along the Project range from saline to fresh, with varying degrees of saturation and water elevation, requiring a variety of plant species to be re-established. Unsaturated wetlands would be seeded. Areas where roots and stumps were removed in the pipe trench would allow existing vegetation to recover more rapidly in the remainder of the right-of-way once the board roads and spoil piles have been removed. In forested wetlands, trees greater than 15 feet in height would not be allowed to grow within 15 feet of the pipeline. Otherwise, unsaturated wetlands would be restored to their original state.

Construction in Saturated Wetland

The construction method employed in saturated wetlands would be similar to that described above for construction in unsaturated wetlands (see figure 2.3.1.2-3 and 2.3.1.2-4), except that topsoil would not be segregated. Additionally, a concrete-coated pipe may be required to maintain negative buoyancy.

Board mats and timbers would be used to facilitate the movement of equipment through and work within the wetlands. Equipment not associated with construction of the Project would be allowed to pass through the wetland in accordance with our Procedures.

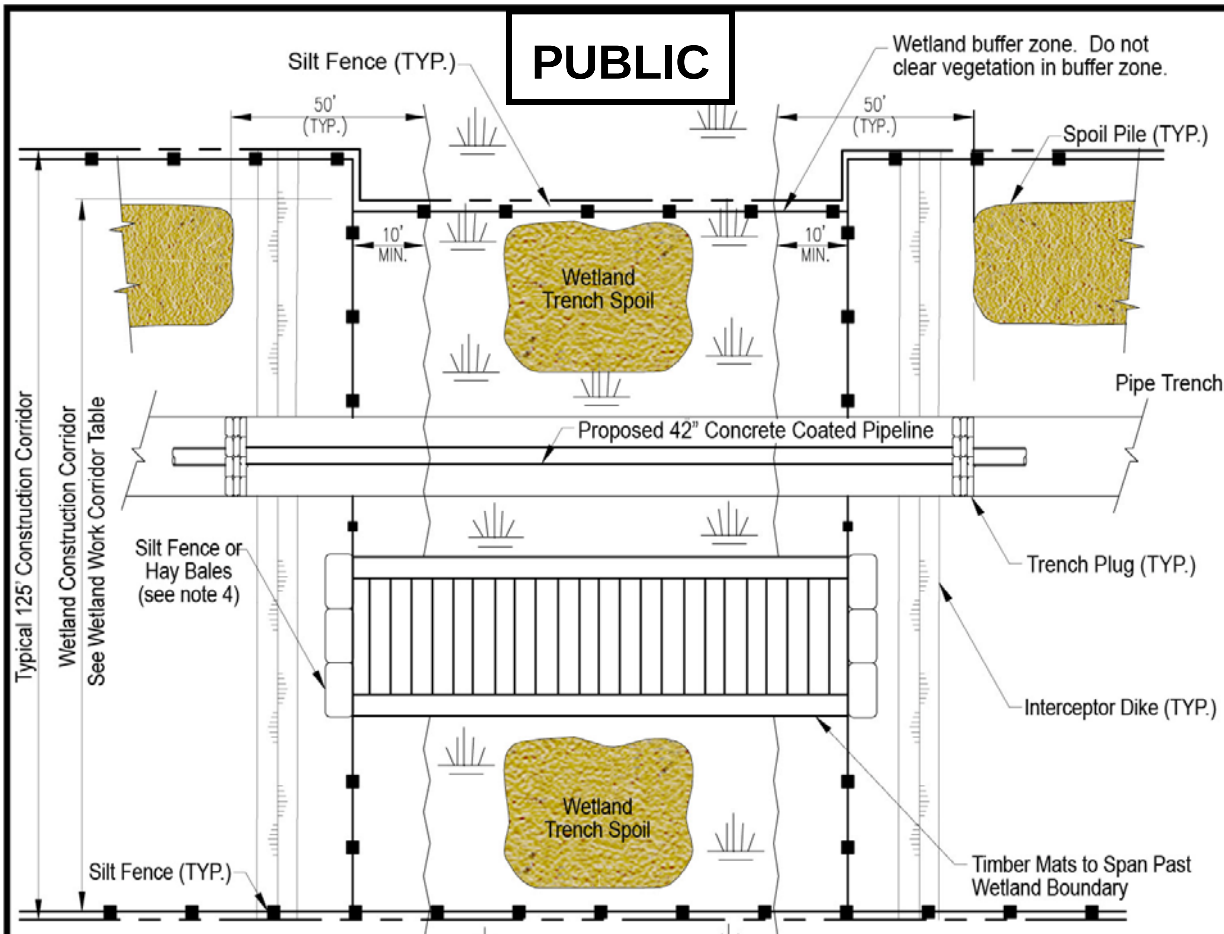
Upon completion of construction, the right-of-way would be restored. Original surface hydrology would be re-established by backfilling the pipe trench and grading the surface either with backhoes or draglines operating from the board road or with low-ground-pressure tracked vehicles working in the spoil pile, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils. If topsoil is segregated, it would be replaced. Vegetation would be restored in accordance with our Procedures.

Construction in Coastal (and other Submerged) Wetland

Tidal marsh located between SH 82 and the southern shore of Sabine Lake between MP 1.5 and MP 3.92 and submerged freshwater marsh between MP 32.3 and MP 35.2 would be crossed using the push-pull method where conditions are compatible.

A crane mounted on specially designed pontoons equipped with tracks, known as a marsh buggy, would be used to excavate a pipe trench (see figure 2.3.1.2-5). By backing the marsh buggy along the

PUBLIC



Notes:

1. Topsoil segregation will not be performed if standing water or saturated soils are present.
2. Install permanent interceptor dikes at the base of all slopes adjacent to the wetland.
3. Contractor shall postpone grading of right-of-way adjacent to wetland until staging area is prepared and work in the wetland is ready to commence.
4. Silt fence or hay bales shall be placed in the gap at the timber mats by the end of each day or prior to approaching rain to prevent sediment flow into wetland.
5. Use additional timber mat layers to raise crossing above grade where poor soil conditions exist.
6. Silt fence and interceptor dike to be removed across pipe trench and during construction of pipeline. Silt fence and interceptor dike to be replaced after backfill of trench.

WETLAND WORK CORRIDOR TABLE

WETLAND LENGTH	CONSTRUCTION CORRIDOR	WORKING SIDE	SPOIL SIDE
LESS THAN 100' LONG	100'	65'	35'
GREATER THAN 100' LONG	125'	90'	35'

SATURATED WETLAND CROSSING WITHOUT TOPSOIL SEGREGATION

FIGURE 2.3.1.2-3
Saturated Wetland Crossing without Topsoil Segregation

PUBLIC

PUBLIC

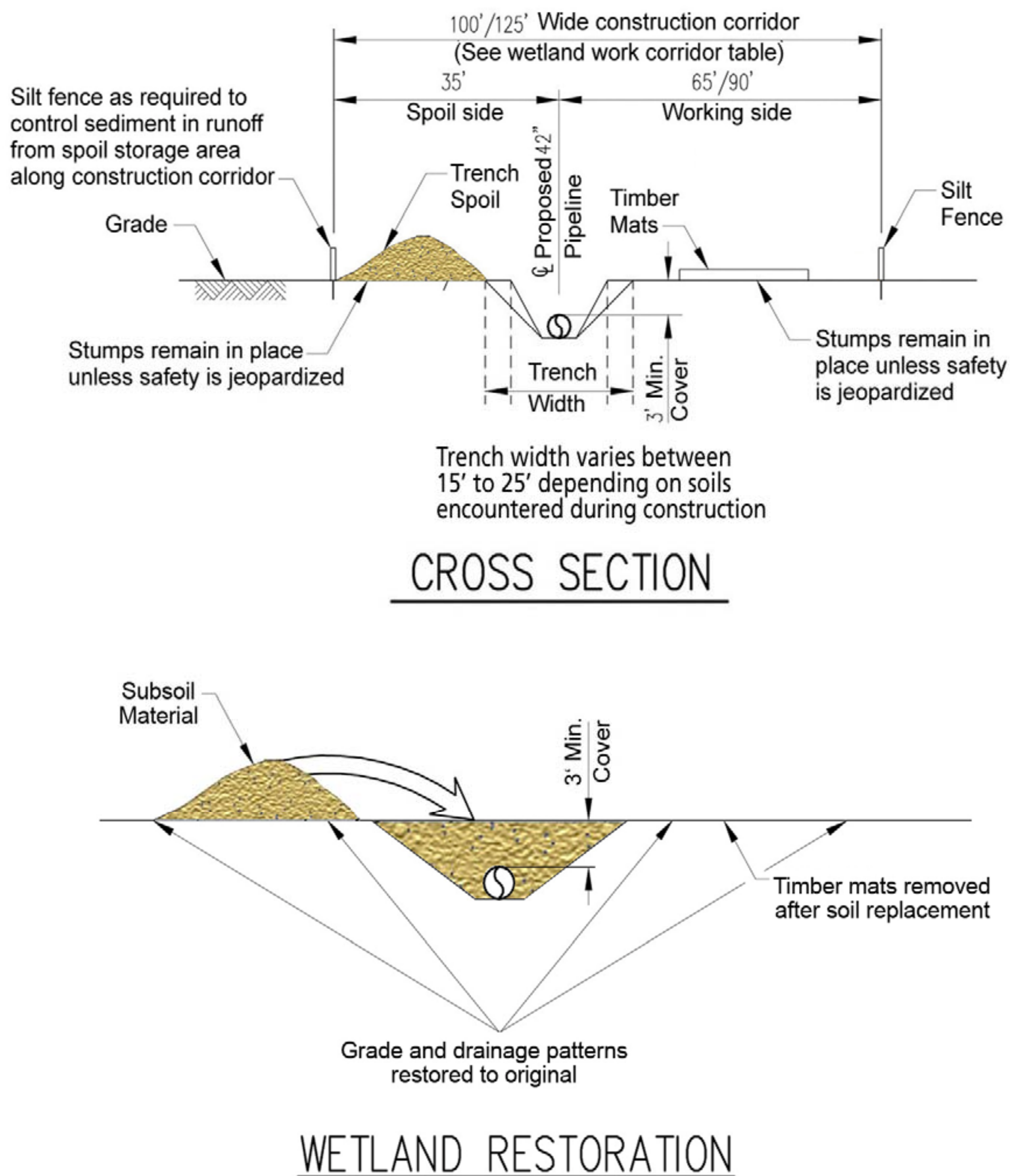


FIGURE 2.3.1.2-4
Saturated Wetland Crossing without Topsoil Segregation

PUBLIC

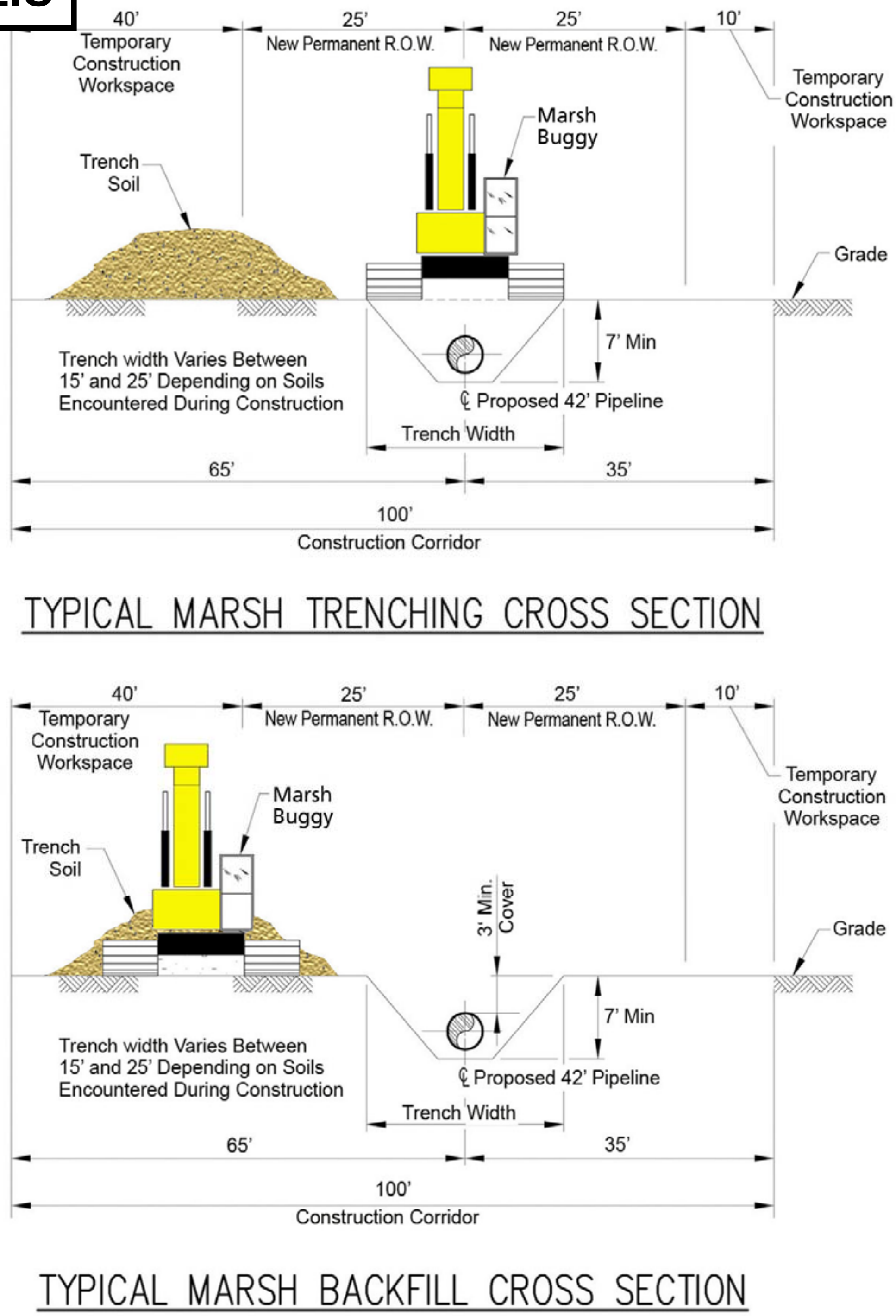


FIGURE 2.3.1.2-5
Typical Submerged Marsh Crossing (Push-Pull)

pipe trench centerline, and backfilling by tracking along the remains of the spoil pile after pipe installation, the construction right-of-way would be kept to the minimum width necessary for the pipe trench and the spoil pile, with no separate equipment space or passing lane. However, because of the saturated condition of the soils, the slopes of both the pipe trench and the spoil pile would be very shallow, requiring a proportionately wider construction space for the trench and spoil pile (estimated to be 100 feet). By keeping the stringing and welding of the pipe out of the submerged wetlands between staging areas, the area affected by construction would be kept to a minimum. Topsoil segregation would not be practical because the soil horizon would not be visible under water and the water would cause mixing of the topsoil and the subsoil. The pipe trench would remain flooded with water at all times, allowing flotation of the pipe.

Temporary staging areas would be established at locations along the right-of-way that are accessible for construction equipment, personnel, and the delivery of materials via existing roads or waterways. Some staging areas might be set up on spud barges temporarily anchored in navigable waterways. Push-pull sections would be fabricated within these staging areas using a process similar to that described below for construction on barges in open inland waters. However, rather than moving the barge forward upon completion of each joint, the pipe would be pushed into the pipe trench. Floats would be strapped onto the pipe to keep it afloat to minimize drag on the bottom of the trench. A cable would be strung from the leading end of the push-pull section to the next staging area and placed in tension to guide the pipe along the trench. Because of the large bending radius of the 42-inch-diameter concrete-coated pipe, the trenches between staging areas would have to be nearly straight. The distances between staging areas would be limited by the weight of the pipe section and the pushing-pulling capacity of the construction equipment.

Once the section of pipe has been floated into place, the floats would be cut and the pipe would be allowed to sink to the bottom of the trench. The marsh buggy would then backfill the trench and the disturbed area would be restored. Original surface hydrology would be re-established by backfilling the pipe trench (and flotation channel, where applicable) and grading the surface either with backhoes or draglines operating from low-ground-pressure tracked vehicles working in the spoil pile, depending upon the ambient water level, degree of soil saturation, and the bearing capacity of the soils.

Submerged wetlands would typically be revegetated by transplanting mature herbaceous specimens at pre-established spacing. Some of these plants might be ones that were on the right-of-way before construction and were stored in temporary nurseries until restoration. Because the coastal marsh in the project area suffered considerable damage from Hurricane Rita in 2005, the FWS and COE expressed concerns in their comments on the draft EIS that the already stressed coastal marsh would not be a suitable source of plants for revegetating the pipeline right-of-way after construction due to the additional impacts that would occur from acquiring those specimens. Therefore, **we recommend that:**

- **KMLP revegetate the construction right-of-way in coastal (and other submerged) wetlands using appropriate plant species from local commercial nurseries or vegetation that came from the right-of-way before construction. KMLP should not use plants from adjacent wetlands to restore the right-of-way.**

2.3.1.3 Special Pipeline Construction Techniques

HDD Crossing Technique

Major and other select waterbodies (not including open water construction across Sabine Lake), select highways, particularly congested pipeline corridors, and some wetland areas would be crossed by means of HDD. HDD would also be used to enter and exit Sabine Lake. KMLP is proposing a total of

21 HDDs for the Project. A typical HDD installation for a waterbody crossing is shown in figure 2.3.1.3-1 and proposed HDD locations are listed by milepost in table 4.3.2.1-3 and appendix E. A complete description of the HDD process, including contingency plan, is provided in appendix I.

HDD involves drilling a pilot hole under the waterbody, foreign pipeline, road, railroad, or wetland. The hole would be enlarged through successive reamings until the hole is large enough to accommodate the pipe. Throughout the process of drilling and enlarging the hole, a slurry called "drilling mud," consisting of naturally occurring non-toxic materials such as bentonite clay and water, would be circulated through the drilling tools to lubricate the drill bit, remove drill cuttings, and hold the hole open. The mud is held in pits at the drill entry and exit points. In water-to-water HDDs, these mud pits are underwater at the bottom of the affected waterbody(ies). In these situations, drilling fluids released to a surface waterbody would either settle out in the mud pits, or be rapidly dissipated by natural currents. The drilling fluid is heavier than water, facilitating its settlement in the pit. Pipe sections long enough to span the entire crossing would be staged and welded along the construction work area on the opposite side of the waterbody (or other area being crossed) and then pulled through the drilled hole.

The length of pipeline that can be installed by HDD depends upon soil conditions and pipe diameters, and is limited by available technology and equipment sizes. The main advantage of HDD is that the planned disturbance of the surface between the entry and exit points of the HDD is minimal, i.e., limited to the temporary deployment of telemetry cable, provided there is reasonable access to the entry and exit points for the drilling rig and fluids handling equipment. Also, it requires prefabrication of a section of pipe aboveground that is equal to the length of the HDD portion, and then pulling that string back into the hole. When the HDD is directly in line with the adjacent section of conventionally installed pipe, the section of pipe to be pulled into the HDD borehole is prefabricated in that adjacent right-of-way, requiring no additional workspace. If the HDD is not aligned with the adjacent segment, the pull section is prefabricated in an extra workspace commonly referred to as a "false right-of-way." No excavation occurs in this extra workspace, but the surface in the workspace is disturbed by the prefabrication activities (e.g., by the passage of trucks and equipment, the fabrication of pipe on cribbing or rollers) and by pulling the prefabricated pipe into the borehole.

Waterbodies crossed by HDD are discussed in section 4.3.2.1. Table 4.3.2.1-3 lists the approximate entry and exit locations, drill length, and features crossed by each proposed HDD.

Open-Cut Waterbody Crossing Technique

The open-cut crossing method is proposed for most minor waterbody crossings. This technique is similar to conventional upland construction methods. It would involve excavation of the pipeline trench across the waterbody, installation of a prefabricated segment of pipeline, and backfilling of the trench with native material. No effort would be made to isolate the stream flow from the construction activities. Backhoes and other excavation equipment would typically operate from one or both banks of the waterbody but could operate within the waterbody to achieve the necessary reach. Equipment in the waterbody would be limited to that needed to complete the crossing. All other construction equipment would cross the waterbody over equipment bridges, unless otherwise allowed by our Procedures for minor waterbodies.

KMLP would minimize impacts to aquatic environments by implementing our Procedures. Construction activities would be scheduled so that the trench would be excavated immediately prior to pipe-laying activities. The duration of construction within each waterbody would be limited to 24 hours for minor waterbodies (10 feet wide or less) and 48 hours for intermediate waterbodies (greater than 10 feet wide but less than or equal to 100 feet in width). In accordance with our Procedures, excavated

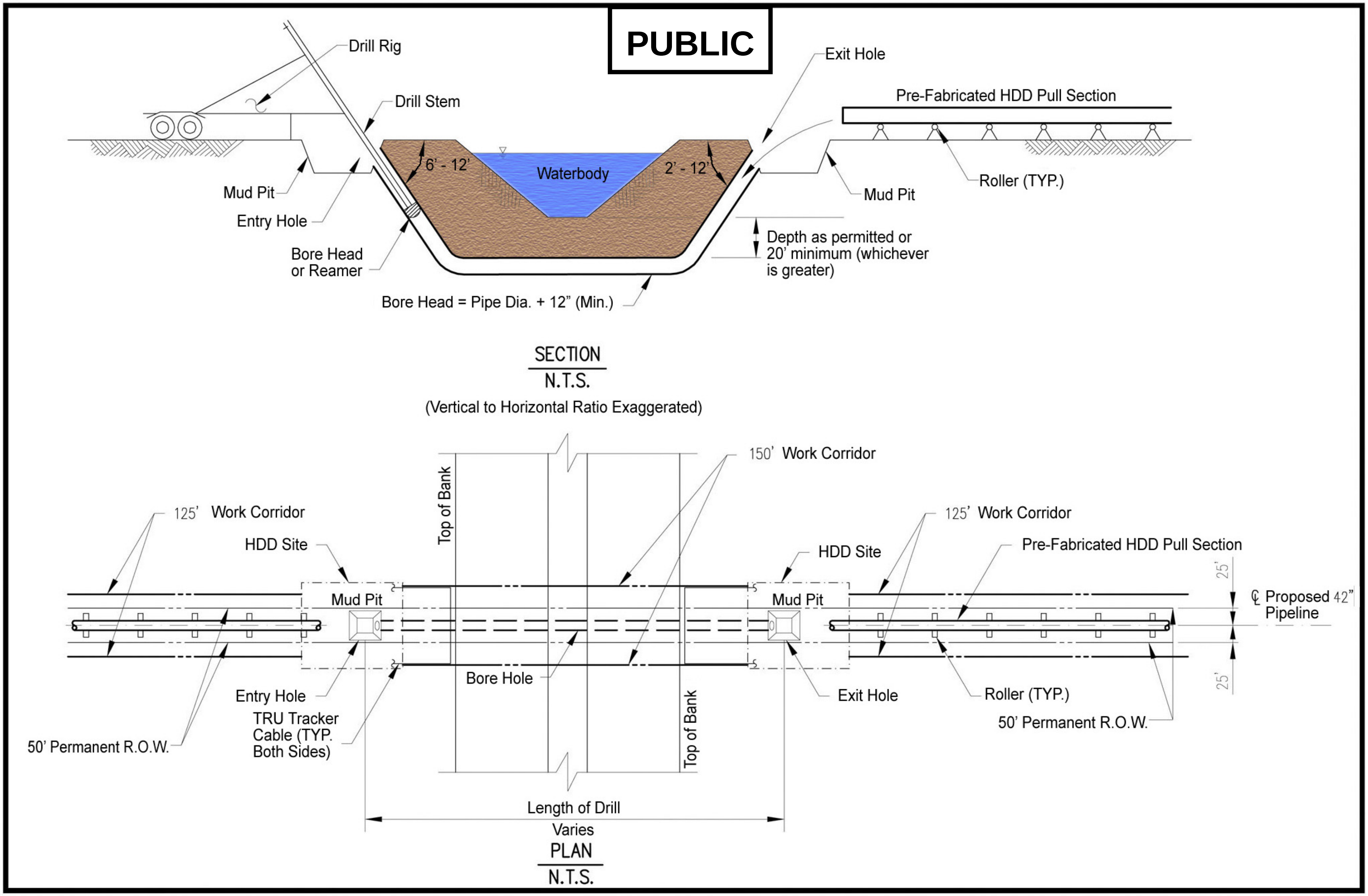


FIGURE 2.3.1.3-1
Typical HDD Waterbody Crossing

spoil would be stockpiled in the construction right-of-way at least 10 feet from the stream bank or in approved additional work areas, and would be surrounded by sediment-control devices. The waterbody banks would be restored to as near to pre-construction conditions as possible within 24 hours of completion of each open-cut crossing.

Dry Waterbody Crossing Techniques

Crossings of small perennial and intermediate streams would be accomplished in accordance with our Procedures. Our Procedures require a pipeline to be installed by means of a dry-ditch method for crossings of waterbodies up to 30-feet wide that are state-designated significant fisheries. This applies to East Bayou Lacassine at MP 84.9, which KMLP would cross by flume. KMLP also proposes crossing other small waterbodies by horizontal bore, another dry-ditch method. Appendix G lists all waterbodies crossed and the crossing method.

The dry flume crossing method would involve installation of a temporary dam and a flume pipe to divert the entire stream flow over the construction area and allow for trenching of the crossing in dry or nearly dry conditions (see figure 2.3.1.3-2). A 10-foot vegetated buffer zone would be left between the edge of the waterbody (or any associated wetlands) and the upland construction area. Dams would be constructed of sand bags, sand bags and plastic sheeting, or inflatable bladders to direct the flow into the flume pipe. Spoil removed during the trenching would be stored at least 10 feet away from the water's edge (topographic conditions permitting). A section of pipe long enough to span the entire crossing would be fabricated on one bank and slipped under the flume pipe to the opposite bank. The trench would be backfilled and the bottom of the watercourse and banks restored and stabilized before the flume pipe and dams are removed. Sediment barriers, such as silt fencing, staked straw bales and trench plugs, would be installed to prevent spoil and sediment-laden water from entering the waterbody.

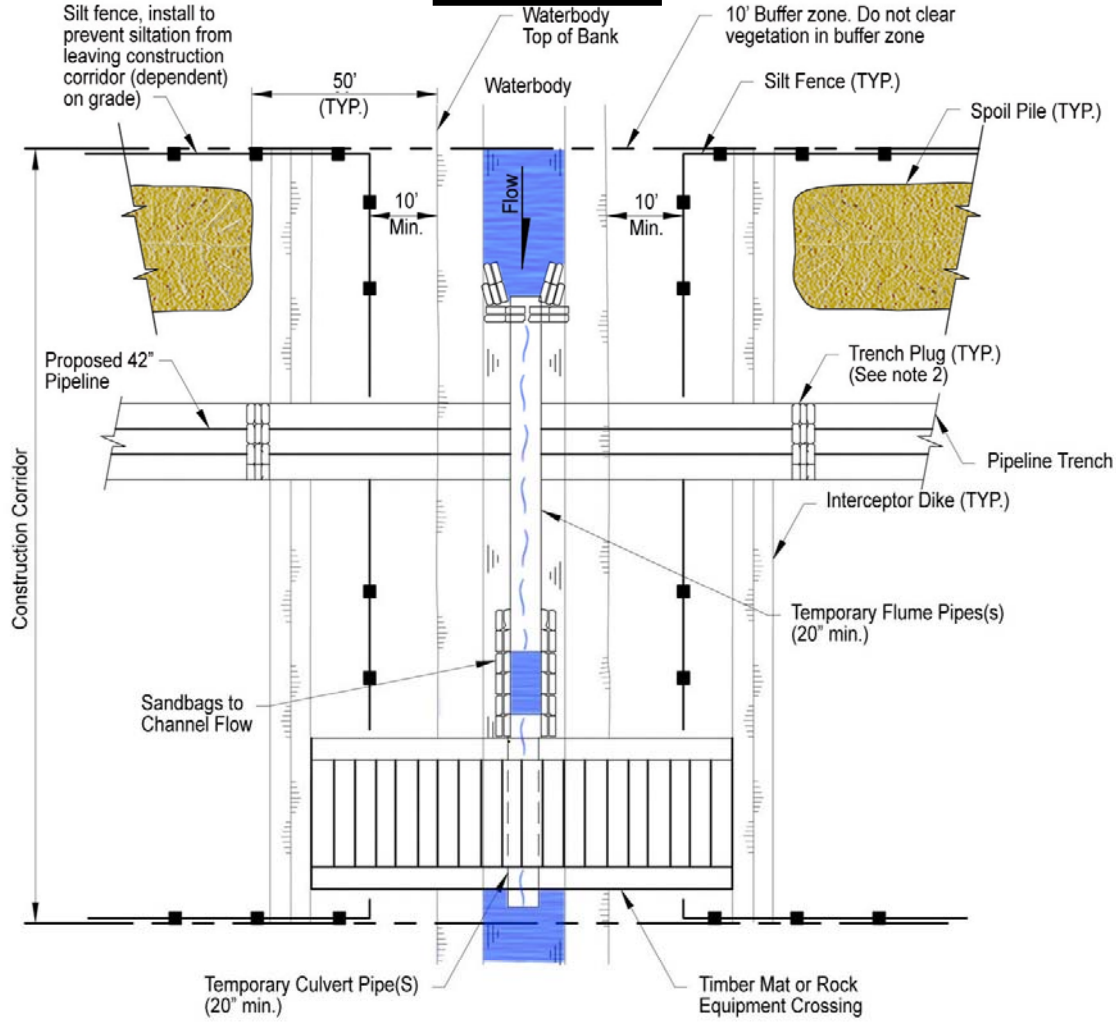
Horizontal boring is a method that would involve pushing the pipe through a hole below minor waterbodies. Often, these waterbodies are drainage ditches along the side of a road in which case both the waterbody and road would be bored. First, a bore pit would be dug on one side of the crossing and a receiving pit on the other. The bore pit would be graded such that the bore would be at the proper elevation for installation of the pipe. A boring machine would then be lowered to the bottom of the bore pit and placed on supports. The boring machine would cut a shaft under the waterbody by means of a cutting head mounted on an auger. The pipe would then be pushed through behind the auger. This method would also be used for most major road or railroad crossings, as described below.

Sabine Lake Crossing

Leg 1 of the pipeline would enter and exit Sabine Lake by HDD. The construction methods in these areas would be as described above for HDDs, except that the pre-fabricated HDD pull sections at both the southern and northern end of the lake would be dewatered, floats would be strapped to the pipeline to provide positive buoyancy, and the pipeline would be floated across the water using tugboats (rather than allowed to drag across the lake bottom). KMLP anticipates that the installation of the pull section into the borehole can be completed in less than 24 hours.

The pipeline route would not cross over the Sabine River, but rather turn east at the mouth of the river around MP 18.6 and proceed along its southern banks through a series of HDDs and open cuts. However, the proposed HDD at the mouth of the Sabine River would have a temporary extra workspace that would protrude into the river and a pull section that would be floated across the river using tugboats. Other HDDs along the southern banks of the Sabine River would also have floating pull sections extending into the river, which would be held in place by timber piles. KMLP anticipates that the pull sections would lie across the water for less than 24 hours.

PUBLIC



1. Silt fence and interceptor dife to be remoced across pipeline trench during construction of pipeline. Silt fence and interceptor dikes to be replaced after backfill of trench.
2. Use hard or soft plugs prior to pipe installation. Install permanent trench plugs after pipe installation and prior to backfilling pipeline trench.

FIGURE 2.3.1.3-2
Flume Crossing Method

For construction in the open waters of Sabine Lake (from approximately MP 4.8 to MP 18.0), Leg 1 of the Project would be installed using shallow draft spud barges. The use of spud barges in areas of the lake that are less than 8 feet deep would require the excavation of a flotation channel within a construction right-of-way up to 300 feet wide. Using barges with anchor spuds would eliminate the need for an anchor spread and anchor-handling boats, minimizing the area affected by construction operations. Based on pre-construction surveys, KMLP proposes the following construction steps in the open water areas of Sabine Lake.

Pre-Construction Survey

KMLP has conducted a shallow-hazards survey within a 3,000-foot-wide corridor in Sabine Lake to identify existing foreign (i.e., third-party) pipelines, obstructions that may adversely affect construction, and potentially significant submerged cultural resources. Where water depths are sufficiently shallow, the pre-construction survey was accomplished by means of small, shallow draft boats equipped with remote-sensing instrumentation, including a magnetometer/gradiometer, side-scan sonar, sub-bottom profiler, bathometer, and Global Positioning System (GPS) navigation. Adjustments to the proposed centerline were made, where feasible, to avoid magnetic anomalies that might indicate obstructions or significant cultural resources. Where avoidance was not feasible, anomalies would be further investigated by probing, sampling, or diving, and either removed or recovered, as appropriate and as approved by local agencies. KMLP plans to conduct a second shallow-hazards survey within the construction right-of-way immediately prior to construction to verify that conditions have not changed since the original survey and to locate foreign pipelines. The right-of-way centerline and boundaries would then be staked with bamboo poles or floating buoys for excavation.

Excavation

The trench for the Project would be excavated by means of a barge-mounted clam-bucket (or equivalent) dredge. With a draft of up to seven feet, it would be necessary for the dredge barge to excavate a flotation channel to provide access for itself from existing navigation channels to the right-of-way (see figure 2.3.1.3-3), and along the right-of-way, in water depths of less than 8 feet (see figure 2.3.1.3-4). In water depths greater than 8 feet, a flotation channel would not be required (see figure 2.3.1.3-5). The dredge barge would cast pipe-trench and flotation-channel spoil to either side of the right-of-way centerline, keeping the spoil below the water surface, where feasible, to minimize wave-generated turbidity.

In waters that support powered marine vessel traffic, the spoil would be placed parallel to the trench in 500-foot-long piles, with 50-foot-wide openings to allow the passage of local watercraft. To ensure the safety of the boating public, the spoil piles and openings would be marked with timber piles, warning signs, and navigation lights. Surveyors would ensure the dredge remains on the approved centerline, verify that the spoil remains within the 300-foot construction right-of-way, and confirm that the bottom of the pipe trench was at the designed depth.

Pipe Fabrication and Lowering

The pipeline would be fabricated aboard a string of shallow-draft spud barges, lashed together in a line to form the lay barge. The concrete-coated pipe would first be offloaded from tugboat-towed supply barges by means of a crane mounted on the lead barge. Each pipe joint would then be aligned end-to-end with the previous joint on a set of rollers that would extend the length of the lay barge. The pipe joints would be assembled into one continuous pipeline by passing them through multiple welding, inspection, repair, and coating stations. Only qualified welders would be allowed to perform the welding. Welders and the welding procedure would be qualified according to applicable API standards. To ensure

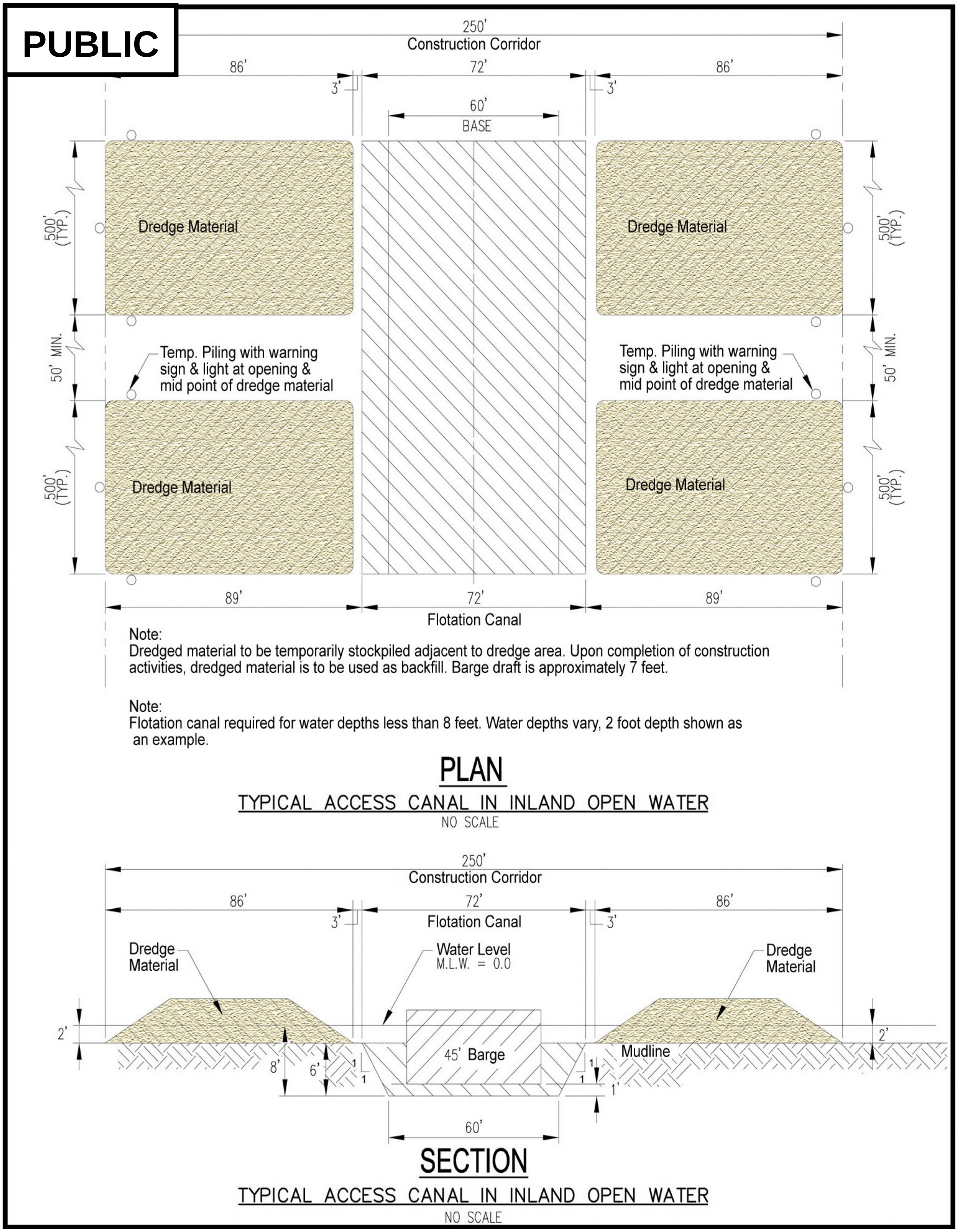


FIGURE 2.3.1.3-3
Typical Access Canal in Open Water

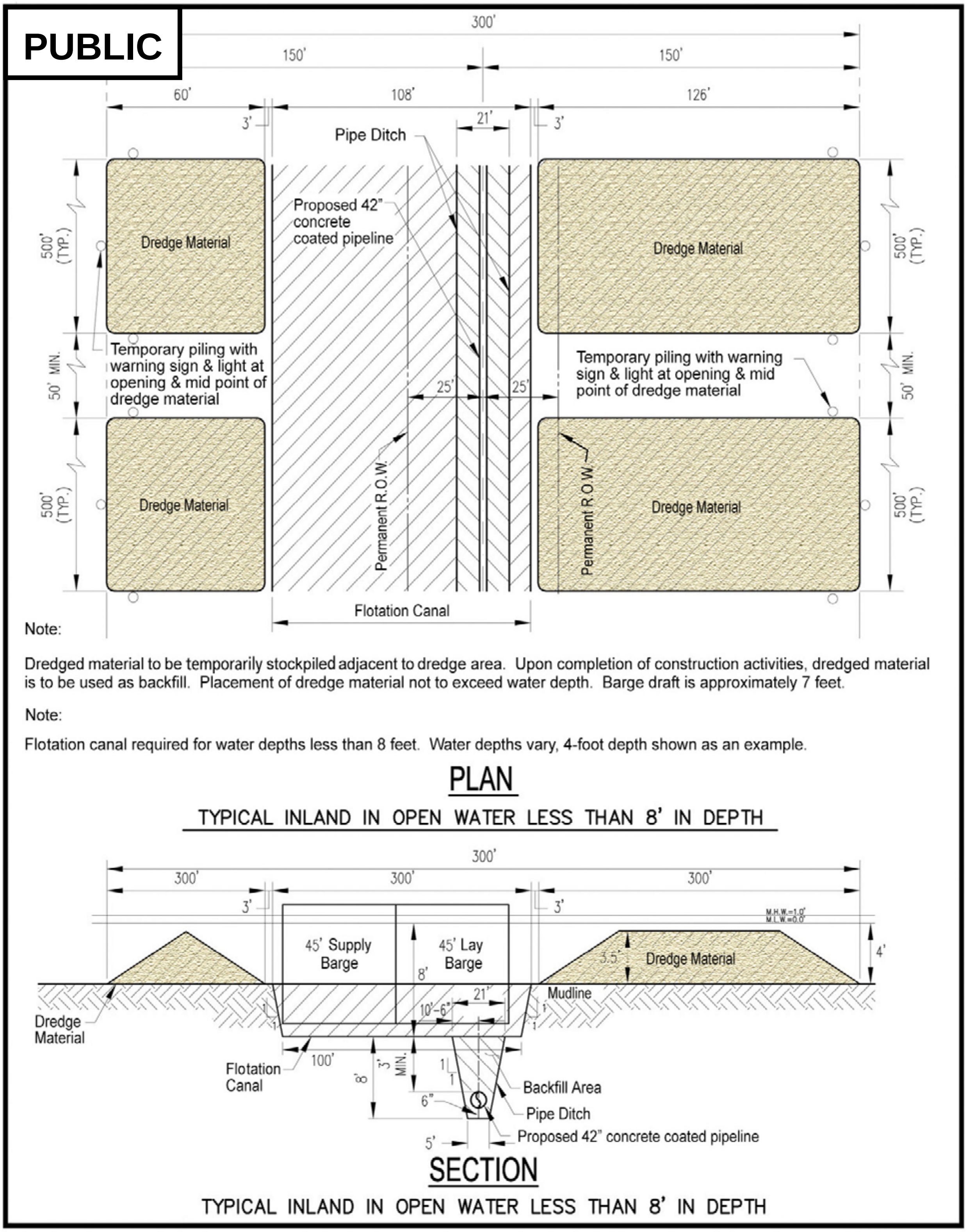


FIGURE 2.3.1.3-4
Typical Inland Open Water Construction, <8 Feet Depth of Water

PUBLIC

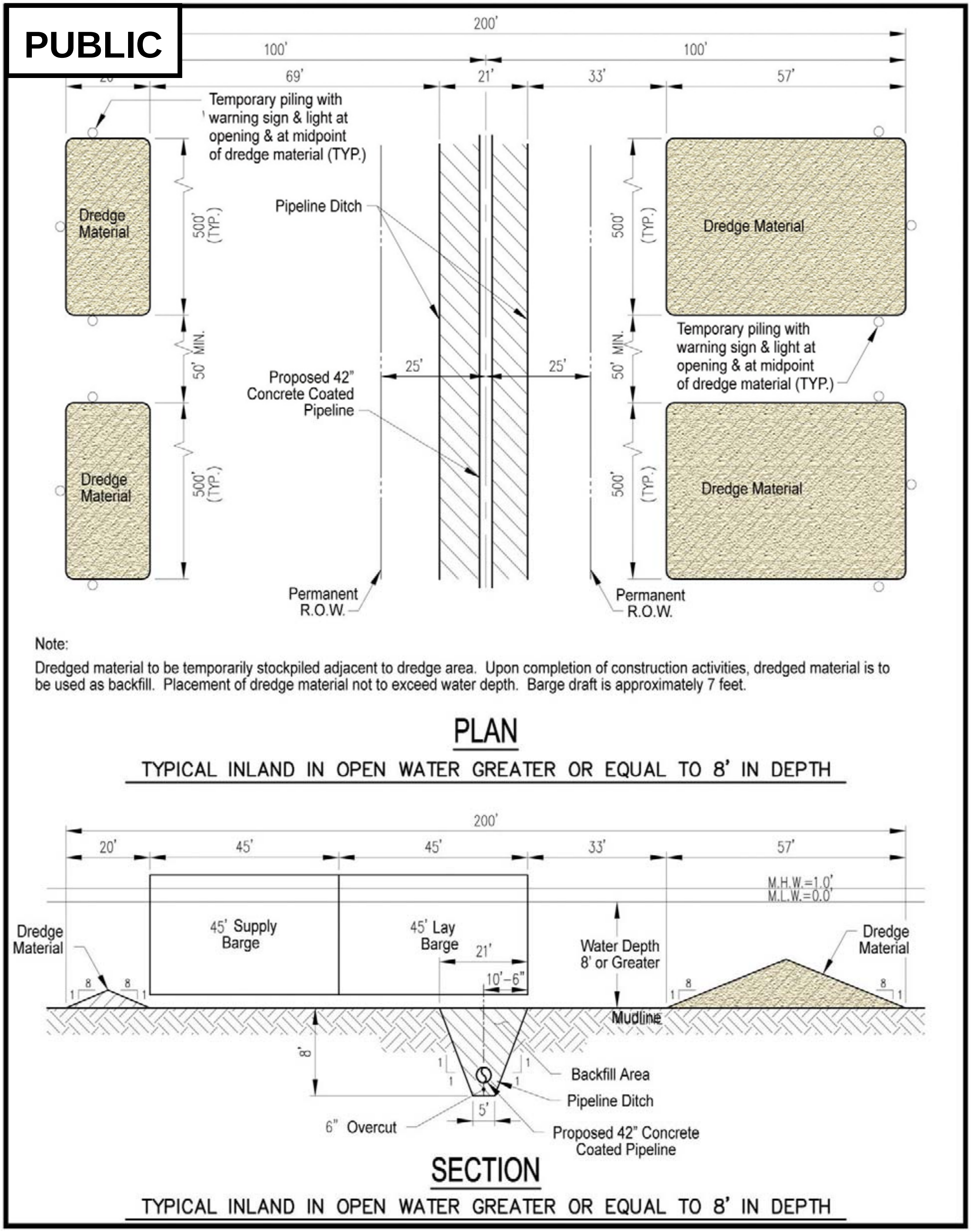


FIGURE 2.3.1.3-5
Typical Inland Open Water Construction, >8 Feet Depth of Water

that the assembled pipe met or exceeded the design strength requirements, the welds would be visually inspected and examined by means of X-ray, ultrasound, or other approved methods, in accordance with ASME standards. Welds displaying unacceptable slag inclusions, void spaces, or other defects would be repaired or cut out and re-welded. Once each weld had passed inspection and received its final coating, the pipe would be lowered off the back end of the lay barge into the pipe trench by lifting the anchor spuds of the lay barge and moving the lay barge forward the length of one pipe joint. The next pipe joint would be rolled into position for welding and the process would be repeated.

To ensure boating safety, barges and tugboat traffic associated with construction of the pipeline would comply with all U.S. Coast Guard requirements. KMLP would also provide information to allow the Coast Guard to issue a Notice to Mariners.

Jetting

Following lowering in, surveyors would confirm that the pipe is at sufficient depth to provide a minimum of four feet of soil cover, as required by the COE. Should the minimum cover not have been achieved, the pipe would be lowered farther using a barge-mounted hydraulic jetting system.

Foreign Pipeline Crossings in Open Water

The crossing of foreign pipelines in open water would require a specialty crew and equipment to pass the proposed pipeline under the existing pipeline, raise the proposed pipeline to the surface to make the tie-in, and to place concrete mats between the pipelines to ensure minimum separation distance is maintained.

Backfilling and Final Grading

Once sufficient depth of the pipe has been achieved to provide the minimum soil cover, the dredge barge would return to backfill the pipe trench and flotation channel, using the available spoil adjacent to the excavation. The bottom would be restored to within 1 foot of the original contour using the clam bucket. Surveyors would confirm that final grade and tolerance have been achieved. Where the 1-foot-grade tolerance was not achieved, a joint of pipe or similar device would be mounted on the dredge line and dragged across the bottom to remove high spots, until the contours had been restored to within the allowable tolerance. Where insufficient spoil remained to completely backfill the trench and channel to within 1 foot of original contours due to erosion of the spoil piles and suspension of solids in the water column during handling, the trench and channel would be allowed to naturally fill with sediments over time.

Calcasieu River Crossing

The Calcasieu River and the major tributary that serves as a ship channel to the Trunkline LNG Terminal (from MP 49.6 to MP 51.1) would be crossed just north of Choupique Island by means of two back-to-back HDD crossings separated by an approximately half-mile stretch of conventional upland construction across the intervening peninsula. The entry hole for the first HDD and the exit hole for the second would have to be located in a COE dredge spoil disposal area on that peninsula. KMLP would design the pipeline through this area with consideration for the potential placement of additional overburden and the consolidation and settlement of dredge spoil materials.

Foreign Pipeline Crossings

The Project would cross numerous foreign pipelines. KMLP pipelines would be excavated under most foreign pipelines, as shown in figure 2.3.1.3-6. In areas where pipelines are highly congested and are near major waterbodies or wetlands, HDD would be used (see table 4.3.2.1-3). KMLP proposed to use two consecutive HDDs to cross a high concentration of pipelines from MP 25.3 to MP 26.8. Because the HDD plans in KMLP's application were incomplete, **we recommend that:**

- **KMLP file with the Secretary a site-specific construction plan for the crossing of foreign pipeline corridors between MP 25.3 and MP 26.8. These site-specific plans should include scaled drawings identifying all areas that would be disturbed by construction. KMLP should file these plans for review and written approval by the Director of the OEP prior to construction.**

Road and Railroad Crossings

A total of 104 major paved highways and railroads, along which traffic could not be interrupted, would be crossed by horizontal boring or by HDD under the roadbed. Most of the smaller unpaved roads would be crossed by open trenching, and then restored to pre-construction conditions or better. If an open-cut road were to require extensive construction time, provisions would be made for temporary detours or other measures to allow safe traffic flow during construction.

The pipeline would be buried to a depth of at least 5 feet below the road surface, and 10 feet below the rail of the railroad, and would be designed to withstand anticipated external loadings. At points of access to the right-of-way from hard-surfaced roads, a stone pad would be installed as a construction entrance to control mud and dirt from tracking onto the highway. Casings would be installed only where specifically required by railroad or road authorities.

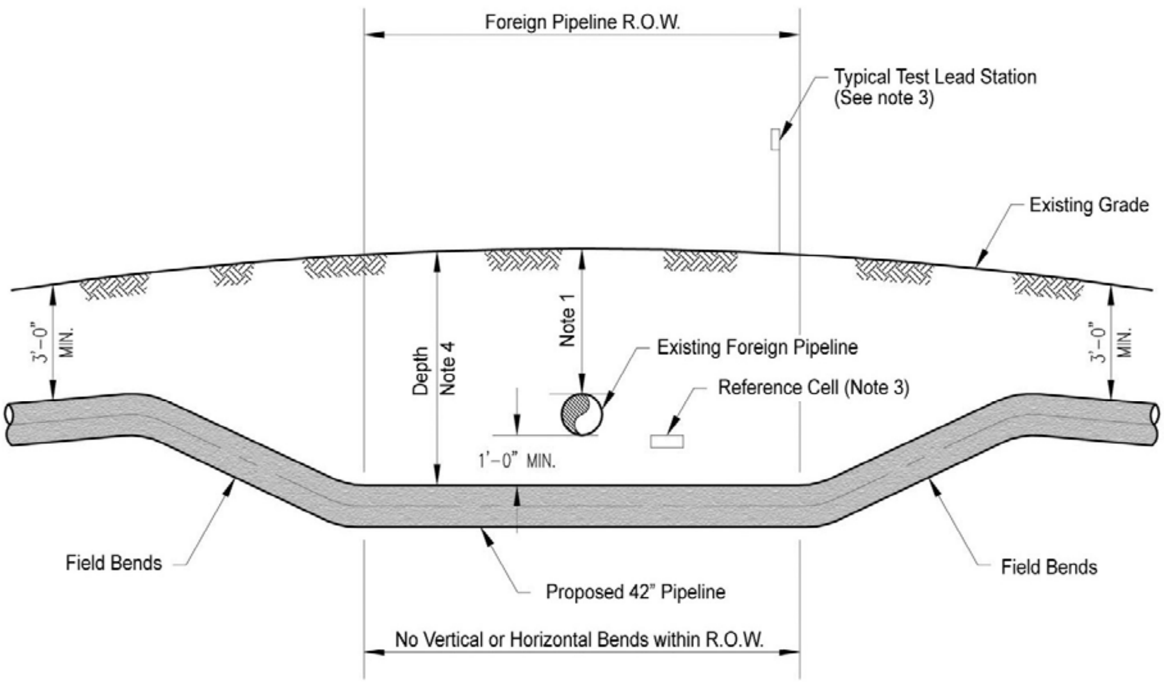
Extra workspaces for the Project as a whole, including those associated with road and railroad crossings, are shown in appendix C.

Crop and Pasture Crossings

KMLP would segregate topsoil in actively cultivated and rotated cropland and improved pastureland. A maximum of 12 inches of topsoil would be segregated in accordance with our Plan and Procedures in these areas, and in other areas at the specific request of the landowner or land management agency, if applicable (e.g., Louisiana State Lands, FWS). The topsoil and subsoil would be temporarily stockpiled in separate windrows on the construction right-of-way and would not be allowed to mix. Where topsoil is less than 12 inches deep, the actual depth of the topsoil would be removed and segregated. The depth of the ditch would be sufficient to allow for at least three feet of cover on top of the pipe.

After construction, compacted subsoil would be disked, and the segregated topsoil would be returned to its original horizon, unless otherwise requested by the landowner. Actively cultivated cropland would be left unseeded at the request of the landowner if preparation of the ground for planting is due to occur right after the completion of construction. Pasture would be reseeded with species similar to pre-construction and nearby vegetation.

PUBLIC



TYPICAL FOREIGN PIPELINE CROSSING DETAIL

Notes:

1. Foreign pipeline locations & depth to be determined by electronic means in advance of pipeline construction and confirmed by carefully exposing by hand digging.
2. Owner of foreign pipeline(s) shall be notifed 48 hours in advance of excavation of crossing.
3. Test lead station to be install where practical at the nearest fence, hedge row or field edge, and where readily accessible. Install company-supplied permanent reference cell and extend cell lead to test lead station.
4. Depth of pipeline including 1' - 0" min. clearance shall be maintained for all full angular width of foreign pipeline R.O.W.
5. Proposed pipeline may only cross above the foreign pipeline(s) where requested by or approved by foreign owner in writing.

FIGURE 2.3.1.3-6
Typical Foreign Pipeline Crossing

Rice Field and Crawfish Pond Crossings

Rice fields and crawfish ponds (or isolatable sections thereof) would be drained before commencement of construction of the Project. KMLP would attempt to schedule construction during times when the fields and ponds are not normally flooded. If necessary, KMLP would also negotiate with the landowners a deferral of flooding or planting for the season or year in which construction were due to take place. This would improve the chances of the soil being dry and thus reduce the chance of soft spots in the soil remaining over the pipeline after construction. Typically, the conventional upland construction methods (described in section 2.3.1.1) would be appropriate. Should soil saturation be too great at the commencement of construction, temporary timber mats would be used resulting in a construction method more similar to unsaturated-wetland construction methods. If soil saturation were even greater, a saturated-wetland construction method would be used.

Topsoil would be segregated unless the water level and degree of soil saturation were too high at the time of construction or if there was no obvious horizon between the topsoil and subsoils. Compacted subsoil would be disked, and the segregated topsoil would be returned to its original horizon, unless otherwise requested by the landowner.

Residential Area Crossings

There are no residences (i.e., homes) within 50 feet of the edge of the proposed construction right-of-way. However, the pipeline would cross several residential areas between MP 38 and MP 124, and some barns and sheds would be within 50 feet of the edge of the construction right-of-way. A total of five structures (two sheds, a cattle loading pen, a goat shelter, and a dog kennel) would fall within the proposed workspace and would be directly affected by the pipeline construction.

If construction were to require the removal of private property features, such as gates or fences, the landowner or tenant would be notified and consulted prior to the action. KMLP would relocate the four structures within the construction right-of-way or compensate the landowners for their loss. Following completion of major construction, the property would be restored as requested by the landowner, insofar as the landowner's requirements are compatible with KMLP’s standards regarding restoration and maintenance of the right-of-way, and applicable regulations, except that permanent structures would not be allowed within the 50-foot operating right-of-way. Property restoration would be in accordance with any agreements between KMLP and the landowner. The FERC's residential construction procedures would be followed.

Residential lawns would be re-seeded or sodded according to the variety of the original grass. Wherever practical, shrubs and small trees would be temporarily transplanted and replaced unless they were too close to the right-of-way to begin with.

Commercial and Industrial Area Crossings

Impacts to commercial and industrial areas would be limited to the construction and post-construction restoration periods when construction activities could inconvenience business owners, employees, and customers. KMLP would maintain close coordination with business owners to maintain access, decrease construction duration, and generally minimize impacts. Specifically, impacts to commercial facilities located on the east side of the Calcasieu River would be avoided by HDD.

Commercial lawns would be re-seeded or sodded according to the variety of the original grass. Wherever practical, shrubs and small trees would be temporarily transplanted and replaced unless they were too close to the right-of-way to begin with.

2.3.2 Aboveground Facilities

Construction of the meter station and interconnection facilities would involve typical industrial facility construction procedures. Construction activities and storage of construction materials and equipment would be confined to the facility footprint. Following the initial earth work, excavation would be completed as needed for the concrete foundations for the metering equipment and any buildings. Subsurface friction piles may be required to support foundations, depending upon the bearing capacity of the existing soils and the equipment loads. Forms would be set, rebar installed, and the concrete poured and cured in accordance with applicable industry standards. Backfill would be compacted in place, and excess soil would be used elsewhere or distributed around the site to improve grade. Construction debris and wastes would be disposed of appropriately.

The metering equipment and other materials would be delivered to the site by truck, off-loaded using cranes or front-end loaders (or both), positioned on the foundations, leveled, grouted where necessary, and secured with anchor bolts. All components in high-pressure natural gas service would be hydrostatically tested, and all controls and safety equipment and systems, including emergency shutdown, relief valves, and gas and fire detection equipment would be checked and tested before being placed in service. Following completion of construction, each site would be fenced and most areas in and around the meters and associated piping and equipment would be covered with crushed rock (or equivalent). Roads and parking areas may be crushed rock, concrete, or asphalt. Other ground surfaces, including adjacent areas outside the fence, would be restored, seeded, and revegetated.

Pig launchers and receivers would be installed completely within the boundaries of the associated meter station/interconnect sites. MLVs would be installed within the pipeline right-of-way.

2.3.3 Ancillary Areas

Each extra workspace would be surveyed and staked, cleared, and graded. After construction, each extra workspace would be restored in a manner appropriate to the original land use.

Previously existing access roads that were modified and used during construction would be returned to original or better condition upon completion of the pipeline facilities installation. New access roads constructed specifically for the Project would be removed, the surface graded to original contours, and the land restored to its original use, unless otherwise requested by the landowner, or unless the roads would be required for ongoing access to the right-of-way during pipeline operations, and in accordance with any permit requirements. Temporary erosion control measures would be removed upon final stabilization and installation of permanent erosion control measures.

As discussed in section 2.1.3, KMLP proposes to use 12 pipe storage and contractor staging areas during construction of the Project (see appendix C). The modifications that KMLP proposes to make to these areas during construction consist of:

- Grading;
- Adding road base (i.e., geotech lining and gravel); and
- Constructing pipe supports (i.e., dirt berms).

Upon completion of the construction phase, all temporary facilities (e.g., trailers, sheds, latrines, pipe supports, fencing, and gates) would be removed from the pipe storage and contractor yards. Unless otherwise requested by the landowner, each site would be graded to original contours and the land restored to its original use. The site would be revegetated, any permanent erosion control measures would be installed, and temporary erosion control measures would be removed.

2.4 OPERATION AND MAINTENANCE PROCEDURES

KMLP would operate and maintain the proposed pipeline and aboveground facilities in compliance with 49 CFR 192, the FERC's regulations at 18 CFR 380.15, and our Plan and Procedures.

KMLP would employ four locally based, full-time personnel for operations. Their duties would typically include monitoring the operating parameters of the pipeline, inspection of the condition of the right-of-way, routine preventative maintenance, and testing of the safety and cathodic protection systems. Periodic aerial and ground inspections would be performed to identify soil erosion that may expose the pipeline; dead vegetation, which may indicate a leak in the pipeline; unauthorized encroachment on the right-of-way (e.g., by buildings); and other conditions that could constitute a safety hazard or require preventative maintenance or repairs. The pipeline impressed-current cathodic protection system would also be monitored and inspected periodically to ensure proper and adequate corrosion protection. All MLV sites would be regularly inspected and maintained.

In addition, many maintenance tasks, such as intelligent pig inspections, right-of-way mowing, tree removal, grading to repair ground surface erosion, etc. would be performed, likely by contractors. KMLP would maintain vegetation on the permanent right-of-way in upland areas by mowing, cutting, and trimming. Large brush and trees would be removed periodically from within the operational right-of-way. Trees greater than 15 feet in height, or deep-rooted shrubs that could damage the pipeline's protective coating, obscure periodic surveillance, or interfere with potential repairs, would not be allowed to grow within 15 feet of the pipeline in wetlands or within 25 feet of the pipeline in uplands. The frequency of vegetation maintenance would depend upon the growth rates, but would not be more frequent than dictated by our Plan and Procedures. Vegetation maintenance would not normally be required in agricultural or grazing areas. Other than preventing tree growth as described above, vegetation maintenance would not normally be required in wetlands.

Pipeline facilities would be clearly marked at line-of-sight intervals and at crossings of roads, railroads, waterbodies, and at other key points in accordance with DOT regulations. Markers would clearly indicate the presence of the pipeline and provide a telephone number and address where a company representative could be reached in the event of an emergency or prior to any excavation in the area of the pipeline by a third party.

2.5 ENVIRONMENTAL COMPLIANCE, INSPECTION, AND MITIGATION MONITORING

KMLP would employ a tracking system to ensure that relevant pre-construction surveys, clearances, permits, and plans were completed prior to releasing the construction contractors to begin construction activities.

For purposes of quality assurance and compliance with mitigation measures, other applicable regulatory requirements, and project specifications, KMLP would be represented on each pipeline spread by a Chief Inspector, one or more Craft Inspectors, and at least one Environmental Inspector (EI). The EI position would be a full-time position. EIs would have authority to stop work and require corrective actions to achieve environmental compliance. Their duties would be consistent with those contained within Paragraph II.B (Responsibilities of Environmental Inspectors) of the FERC's Plan and would include ensuring compliance with any environmental conditions attached to the FERC Authorization, any other permits or authorizations, and environmental designs and specifications.

KMLP also would develop a project-specific environmental training program that would be designed to ensure that:

- Qualified environmental training personnel provide thorough and well-focused training sessions regarding the environmental requirements applicable to the trainees' activities;
- All individuals receive environmental training before they begin work;
- Adequate training records are kept; and
- Refresher training is provided as needed to maintain high awareness of environmental requirements.

KMLP would file with the Commission any updates to its proposed environmental inspection program. KMLP proposes to use our Third-Party Compliance Monitoring and Variance Request Program during pipeline construction and restoration. In addition to KMLP's program, we would conduct periodic inspections to monitor the project for compliance with the Commission's environmental conditions.

2.6 SAFETY CONTROLS

DOT regulations in 49 CFR Part 192 require that KMLP prepare an Integrity Management Plan, to prevent system losses and failures, and an Emergency Response Plan, to protect the public, workers, and the environment in the event of loss or failure.

Engineering features and maintenance aspects have been incorporated by KMLP in its Project design to prevent system losses and failures. Engineering features include:

- Corrosion protection system;
- Overpressure protection system;
- SCADA and leak-detection system;
- MLVs; and
- Hydrostatic testing as part of commissioning.

Maintenance aspects include:

- Preventative maintenance program;
- Aerial surveillance flights;
- On-ground leak-detection surveys; and
- Intelligent pigging.

Protection against corrosion would be provided by an external fusion-bonded epoxy coating together with an impressed-current cathodic-protection system. Cathodic-protection protection units would be monitored regularly to maintain the requisite pipe-to-soil potential in accordance with the specifications of the relevant DOT regulations.

In accordance with DOT regulations, KMLP would devise and implement an Emergency Response Plan to be followed in the event of an emergency such as a gas leak, fire, explosion, or other damage to the pipeline system. Procedures would include:

- Training of employees on emergency procedures;
- Establishing liaisons with appropriate fire, police, and other community officials; and
- Informing the public on how to identify and report an emergency condition.

2.7 FUTURE PLANS AND ABANDONMENT

At this time, KMLP has no plans for future expansion of any facilities associated with the Project. If ever an expansion is envisioned (for example, additional interconnects to deliver gas to other pipelines, compression facilities to increase system capacity, or new access roads to gain access to these or other new facilities), it would require FERC authorization, following appropriate analysis, and be subject to applicable federal, state, and local regulations in force at that time.

KMLP envisions a 25-year life for the Project. However, the facilities themselves would, with proper maintenance, be capable of being operated for 50 years or more, according to KMLP. Regardless of the duration of utilization of the proposed pipeline system, abandonment of any facilities would require FERC authorization, following appropriate analysis, and be subject to applicable federal, state, and local regulations in force at that time.