5.0 RIGHT-OF-WAY PREPARATION AND CONSTRUCTION SEQUENCE

Enbridge is committed to safety in our processes, our people, and our technologies to ensure proper preparation of the right-of-way, construction techniques, restoration, and continuing operation of our pipelines and associated facilities. The following sections provide an overview of the typical processes and procedures that will be implemented for this Project. Associated facilities will be constructed concurrently with the pipeline.

5.1 Environmental Controls

Enbridge plans to implement the following environmental controls prior to the commencement of any construction work activities involving ground disturbance.

5.1.1 Environmental Inspectors

Enbridge will assign Environmental Inspectors (EIs) to the Project. Environmental inspections will be conducted during construction and restoration activities. The EIs act as a resource for construction personnel and as a liaison among the contractor, Enbridge's Project Management, and agency officials. The EIs are responsible for assisting with pre-construction field tasks such as marking wetland and waterbody boundaries, clarifying environmental requirements, identifying possible issues and challenges ahead of construction, conducting environmental training of construction staff, offering advice and consultation to Enbridge's contractors, and conducting inspections/monitoring in accordance with applicable laws, permits, and Project plans.

Enbridge's EIs are required to document environmental compliance throughout the duration of the Project.

Additionally, Enbridge commits to work diligently with its participating agencies to establish a third-party monitoring program. Further discussion of Enbridge's commitment to establish third party monitors is discussed in Section 7 of the Application.

5.1.2 Erosion and Sediment Controls

Enbridge has developed standardized erosion control and restoration measures to minimize potentially adverse environmental effects associated with pipeline construction. These measures are described in more detail in Section 7 of Enbridge's EPP (Appendix E), and in Section 7 of this Application.

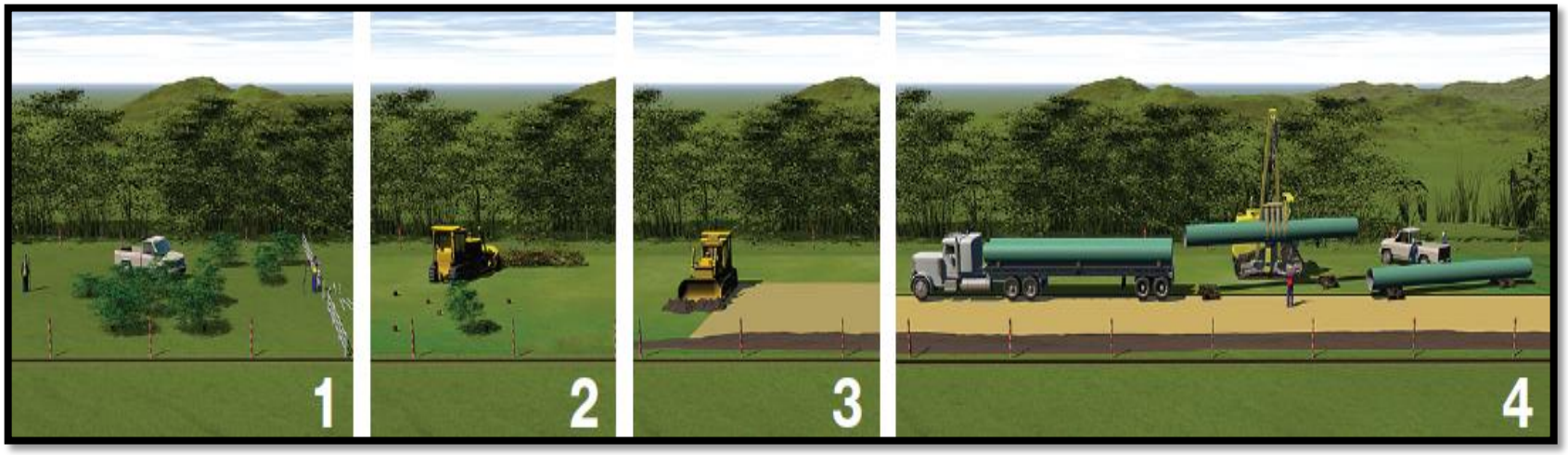
5.1.3 Construction Timing

Certain parts of construction are best performed at set times of the year, and while construction timing is largely contingent on timely receipt of specific applicable permits, Enbridge strives to schedule construction to avoid and minimize impacts to the environment and to meet its shippers transportation requirements. Depending on when Enbridge receives required permits, it may be able to start construction activities in 3rd Quarter of 2016. A 2016 start of construction would also allow for winter clearing of environmentally sensitive areas, which is optimal since impacts to topsoil and wildlife habitat are minimized. Enbridge will also be accommodating restricted construction seasons for sensitive resources, such as construction in trout streams which must occur between July 1 and September 15.

5.2 Preparing the Right-of-Way and Construction Sequence

Figure 5.2-1, illustrates the typical steps in pipeline construction. Pipeline construction includes survey and staking of the right-of-way; clearing and grading; topsoil stripping and soil segregation; pipe stringing; bending; welding/coating; inspection; trenching; lowering-in; backfilling; hydrostatic testing; cleanup; restoration and revegetation, as explained in the following sections. More detailed information regarding the construction-related environmental policies, procedures, and protection measures that Enbridge plans to implement in the preparation of the right-of-way and construction of this Project is discussed in the EPP (Appendix E).

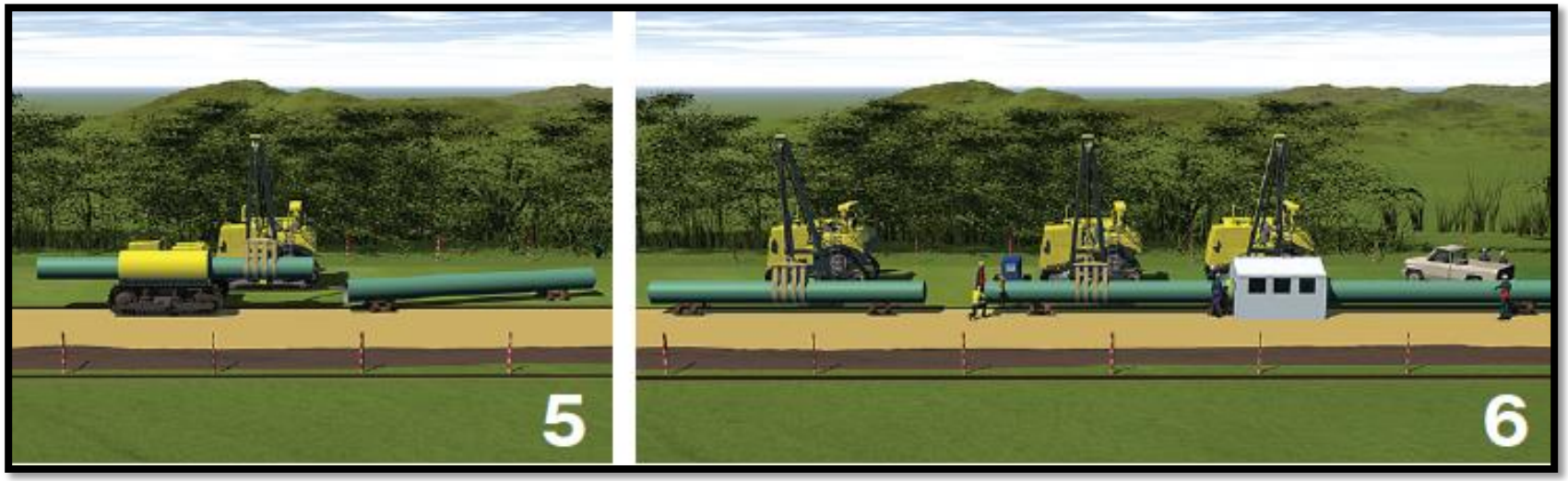
Figure 5.2-1: Typical Project Construction Footprint in Upland and Wetland Areas



Note: These illustrations are conceptual and general in nature, specific construction and restoration techniques could vary depending on circumstances.

(1) Based on the information gathered during surveying, a final route is developed, and the route is then marked with stakes.	(2) Crews begin to prepare for construction by grading the right-of-way, removing trees and preparing the working space.	(3) In cultivated areas, the topsoil along the right-of-way is stripped and stored in piles for careful replacement following the installation of the pipeline.	(4) Crews then re-stake the center of the trench area, lay-out, or "string," sections of the pipe along the right-of-way.

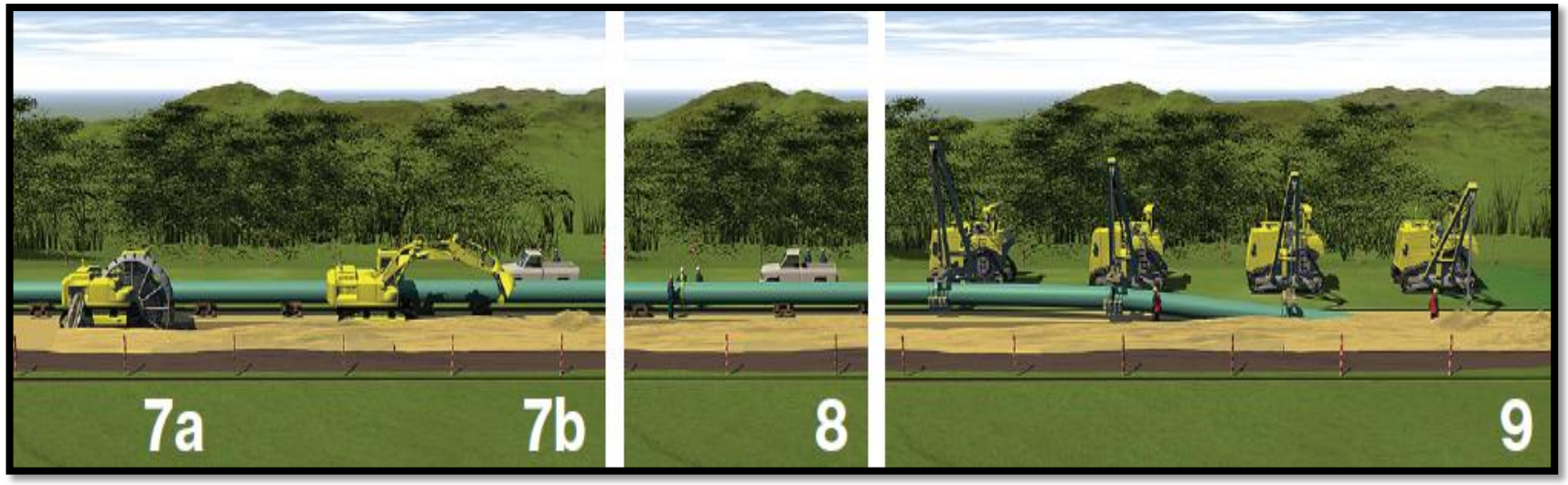
Figure 5.2-1: Typical Project Construction Footprint in Upland and Wetland Areas (cont'd)



Note: These illustrations are conceptual and general in nature, specific construction and restoration techniques could vary depending on circumstances.

(5) Crews bend and weld the sections of pipe into a longer piece that follows the contours of the land.	**(6) Individual sections are already coated to prevent corrosion. Each weld is inspected by X-ray and then coated.**

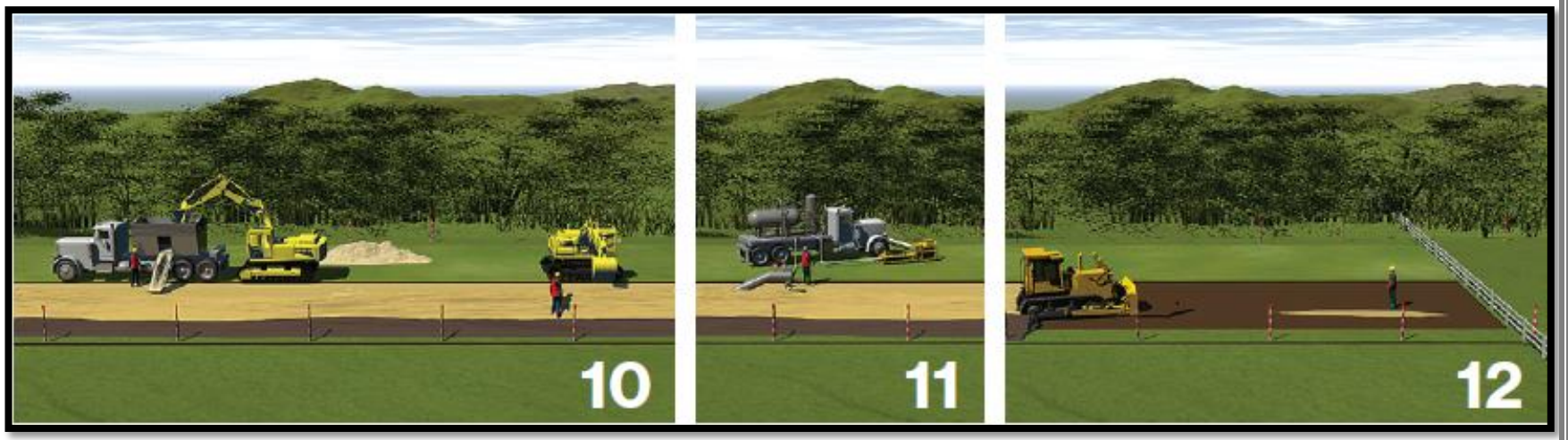
Figure 5.2-1: Typical Project Construction Footprint in Upland and Wetland Areas (cont'd)



Note: These illustrations are conceptual and general in nature, specific construction and restoration techniques could vary depending on circumstances.

(7a) Once this process is complete, a trench is dug to accept the pipe. **(7b) In agricultural areas, careful attention is paid to properly separate and store the topsoil and subsoil so they do not mix.**	**(8) The pipe coating is inspected one more time before the pipe is lowered into the trench.**	**(9) The pipe is lowered into the trench and laid within the prepared trench bottom.**

Figure 5.2-1: Typical Project Construction Footprint in Upland and Wetland Areas (cont'd)



Note: These illustrations are conceptual and general in nature, specific construction and restoration techniques could vary depending on circumstances.

(10) The trench is then carefully backfilled with subsoil and topsoil.	**(11) Before operation, pressurized water is used to test the pipeline and verify the structural integrity of the pipe and welds.**	**(12) The right-of-way and workspace is regraded and vegetated according to agency requirements and landowner agreements.** **Throughout the many phases of preplanning and construction, Enbridge representatives work closely with communities and individuals along the route to provide information, seek input and answer questions.**

5.2.1 Survey and Staking

Before construction begins, Enbridge crews will survey and stake the centerline and exterior boundaries of the construction right-of-way. Exterior boundary stakes will mark the limit of approved disturbance areas and will be maintained throughout the construction period. Enbridge will contact the Gopher One-Call System to identify and mark the locations of underground utilities. During survey and staking, equipment involved in construction will be moved onto the right-of-way using existing roads for access wherever practicable. Figure 5.2.1-1 shows an example of the staked construction right-of-way and the area approved for ground disturbance.

Figure 5.2.1-1: Right-of-Way Staking

Wooden stakes will be installed to mark the centerline and workspace limits.

5.2.2 Clearing and Grading

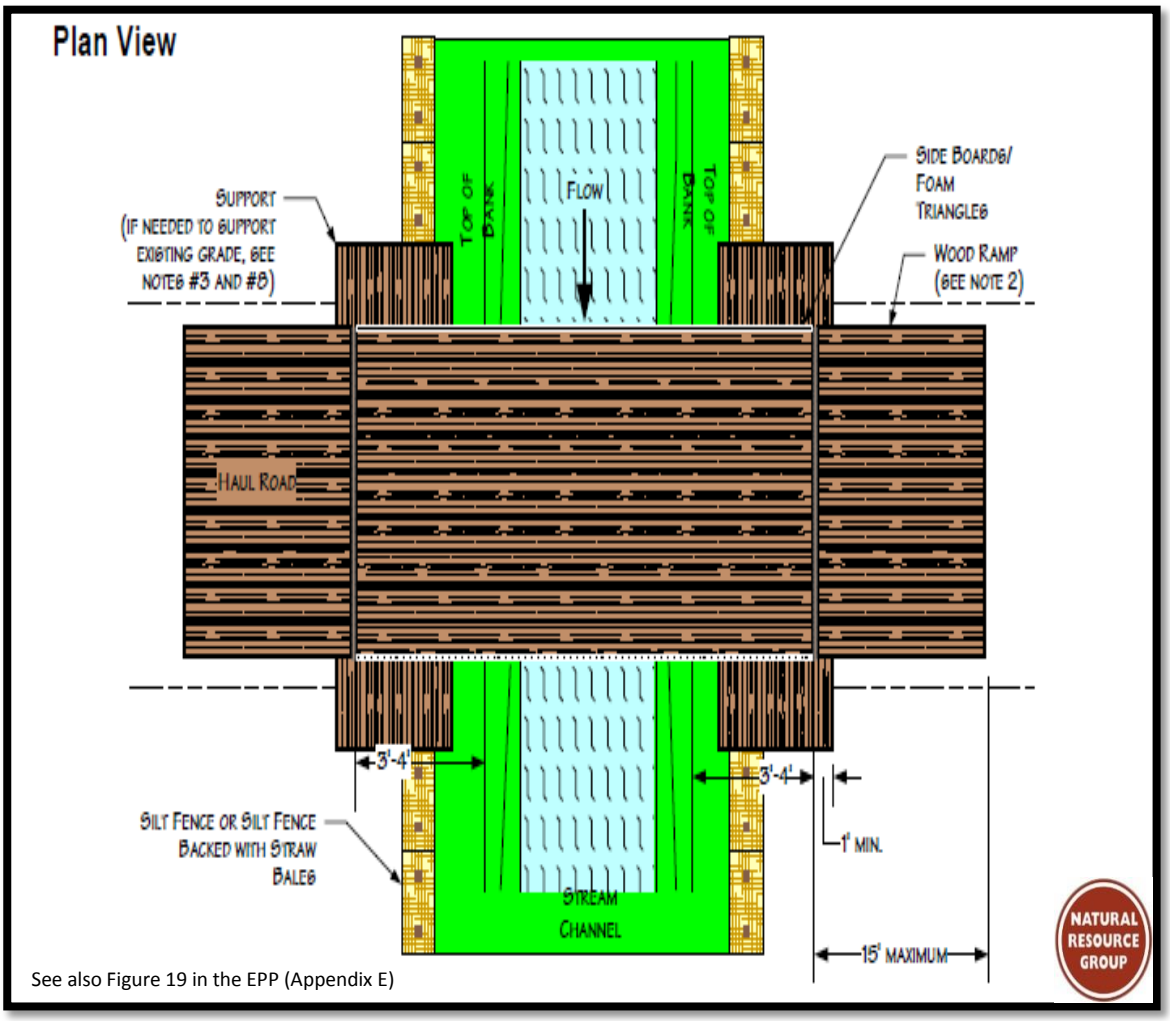
Once the right-of-way is properly staked, clearing equipment is brought in to remove the existing vegetation. This specialized equipment is designed to remove vegetation quickly and efficiently. Absent agency regulations or landowner preference, Enbridge will remove or otherwise dispose of cut trees from the right-of-way prior to any soil disturbance activities to prevent soil mixing with cut timber. Landowners will be given the option to take custody of cut timber, in which case the trees will be stockpiled off the right-of-way for the landowner. Otherwise, equipment similar to that shown in Figure 5.2.2-1 will be used to efficiently mulch trees and shrubs without damaging the top soil.

Figure 5.2.2-1: Hydro-Axe

A hydro-axe will be used to efficiently mulch trees and shrubs without damaging top soil.

After clearing, temporary erosion control measures will be installed in accordance with Enbridge's EPP (Appendix E), as shown in Figure 5.2.2-2.

Figure 5.2.2-2: Typical Span Type Bridge With or Without Instream Support



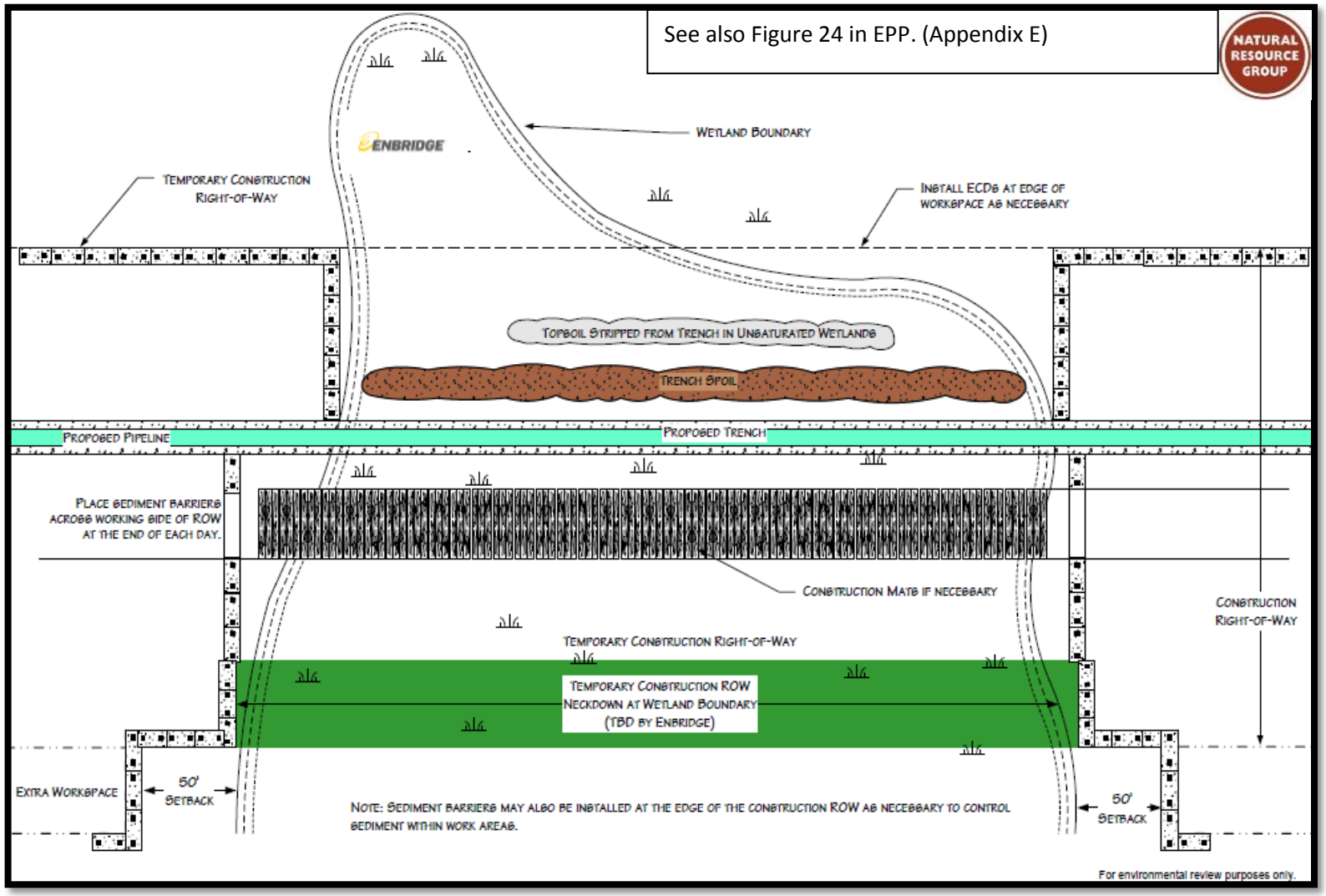
Enbridge may require ATWS in locations where side sloping terrain requires additional soil management. This additional area will be needed to build a flat working area for construction equipment and working personnel to travel safely within the Project's construction site and to also allow for environmental monitoring and mitigation to be conducted as required. Also, the flat working area provides continuous ingress/egress for emergency equipment in the event of an accident during construction.

Timber mats will be installed in wetlands where soil conditions cannot support construction equipment without causing rutting or significant soil disturbance. Construction workspace will be reduced at wetland crossings to minimize impacts as shown below in Figure 5.2.2-3.

Figure 5.2.2-3: Timber Mats

Timber mats will be installed in wetlands.

Figure 5.2.2-4: Typical Wetland Crossing Method



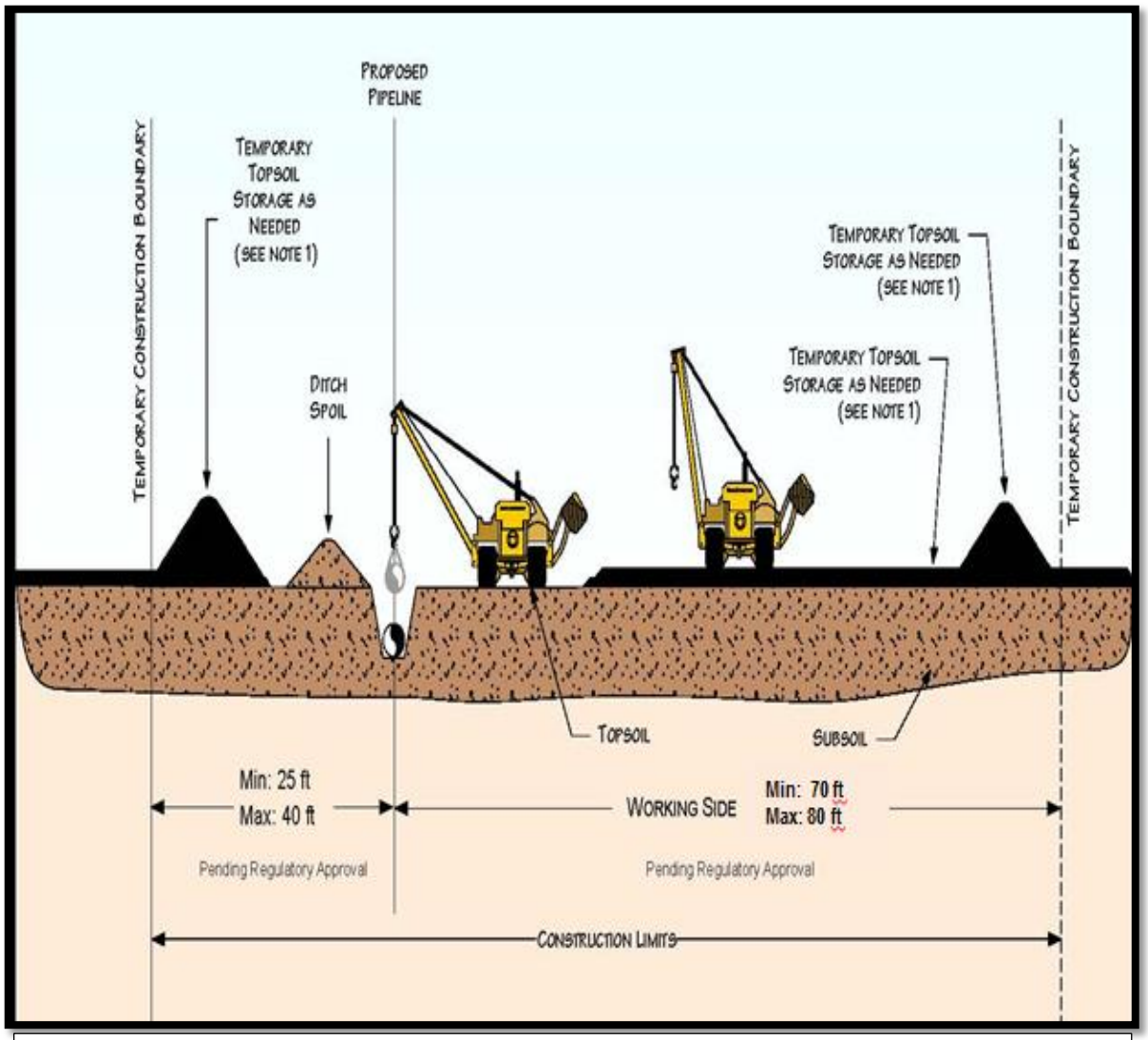
5.2.3 Soil Separation

Topsoil will be stripped and segregated during construction in agricultural lands, residential areas, and other areas as requested by the Landowner or as specified in the Project plans, commitments, and/or permits. Topsoil segregation methods include the "modified ditch-plus-spoil side," "full construction ROW," and "trench-line-only" methods. The "modified ditch-plus-spoil side" method is shown in Figure 5.2.3-2. For a complete description of topsoil segregation methods and applications, see Sections 1.10 (uplands) and 3.6.1 (wetlands) of the EPP (Appendix E) and Section 5 of the APP (Appendix H).

Figure 5.2.3-1: Topsoil Segregation

Topsoil will be segregated using one of the three methods mentioned above.

Figure 5.2.3-2: Typical Topsoil Segregation – Modified Ditch Plus Spoil Side



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See also Figure 1 in the EPP (Appendix E)

5.2.4 Stringing Pipe

Pipe, specifically fabricated for the Project, is loaded from the pipe yard onto specialized "stringing trucks" and transported to the construction right-of-way as shown in Figure 5.2.4-1.

Figure 5.2.4-1: Pipe Loading

Crews will load pipe on trucks to be transported to the construction right-of-way.

Before excavating the pipeline trench, Enbridge will string individual joints of pipe along the construction right-of-way and arrange the pipe to be accessible to construction personnel as shown in Figure 5.2.4-2. Small portable cranes and/or side-boom tractors are used to unload the stringing trucks and place the pipe along the right-of-way.

Figure 5.2.4-2: Pipe Stringing

Crews will string pipe into place along the construction right-of-way.

5.2.5 Bending and Welding/Coating and Inspection

A mechanical pipe-bending machine bends individual joints of pipe to the angle needed to accommodate changes in the natural ground contour or pipeline alignment as shown in Figure 5.2.5-1. In certain areas where field bending is not practicable, prefabricated fittings will be used.

Figure 5.2.5-1: Field Bending

Where practicable, pipe bending will occur on site.

After pipes are strung and bent, the pipe sections will be welded together and placed on temporary supports next to the trench. Figure 5.2.5-2 below shows a “welding shack” being lowered onto the pipe. These shacks contain automated welding machinery, which performs the welds.

Figure 5.2.5-2: Welding Shacks

Welding shacks will be lowered onto the pipe, where automated welding will be performed.

Although federal regulations require only 10 percent of the welds to be inspected, Enbridge will field-inspect 100 percent of the welds and will apply coating at welded joints as shown in Figure 5.2.5-3. For more details on field inspections, see the EPP enclosed herewith as Appendix E.

Figure 5.2.5-3: Field Inspection

Enbridge will field-inspect all welded joints along the pipeline.

5.2.6 Trenching and Lowering of the Pipeline

Construction personnel will use backhoes and/or ditching machines to excavate a trench that is approximately 6 feet deep. To the extent practicable, trench walls will be vertical. The trench will typically be 7 feet wide at the top. In unstable and saturated soils, the trench could be wider. The pipe will then be lowered into the trench using side-boom tractors as shown in Figure 5.2.6-1.

Figure 5.2.6-1: Lowering of the Pipeline

The pipe will be lowered into the open trench by multiple side-boom tractors.

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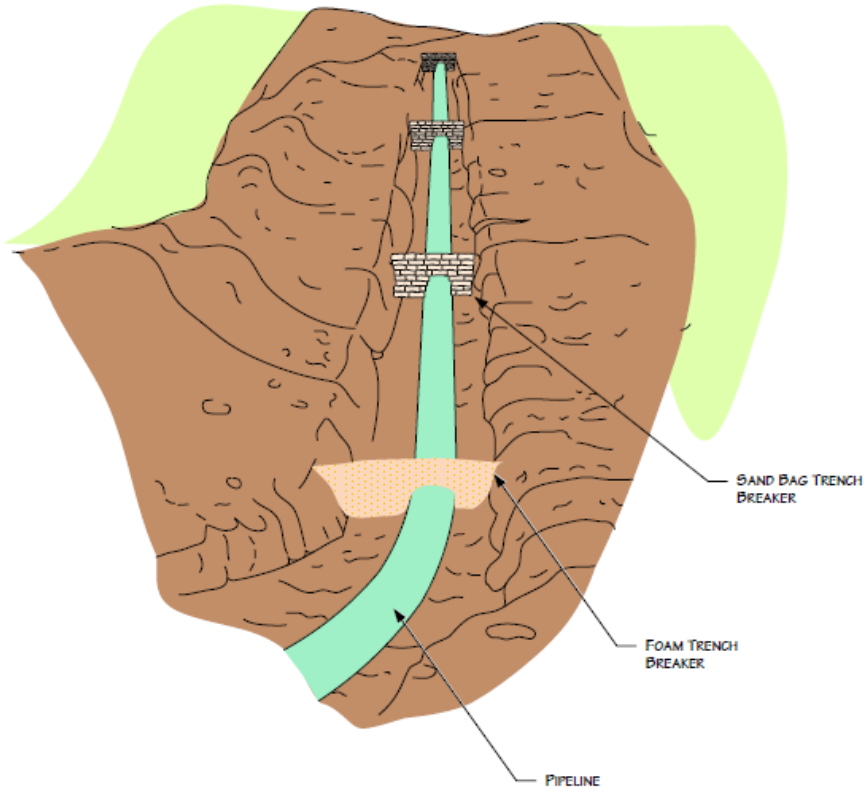
Figure 5.2.6-2: Typical Trench Breakers – Perspective View



NOTES

1. BAGS WILL NOT BE FILLED WITH TOPSOIL.
2. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.

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See also Figures 12 and 13 in EPP. (Appendix E)

For environmental review purposes only.

In steep terrain, trench breakers will be installed to minimize erosion within the trench (Figure 5.2.6-2). To the extent that there is water in the trench, trench dewatering may include use of a dewatering structure in accordance with Section 5.1 of Enbridge's EPP (Appendix E) and applicable permits. If water is discharged to a well-vegetated upland area, dewatering filter bags and controlled discharge rates will be used to minimize the potential for erosion and subsequent release of sediment into nearby surface water and wetlands (see Figure 5.2.6-3 and Figure 5.2.6-4.)

Figure 5.2.6-3: Straw Bale Dewatering Structure

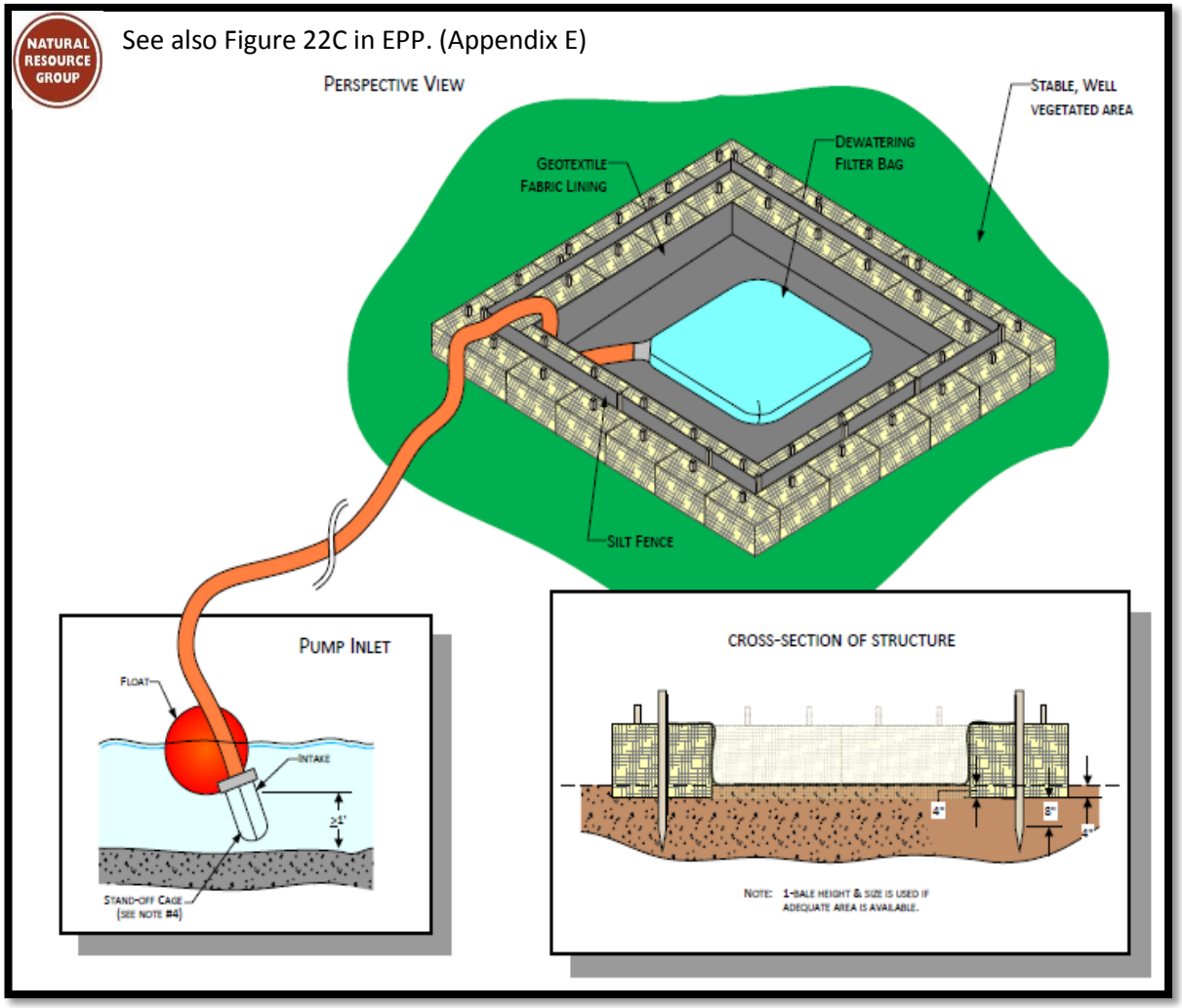
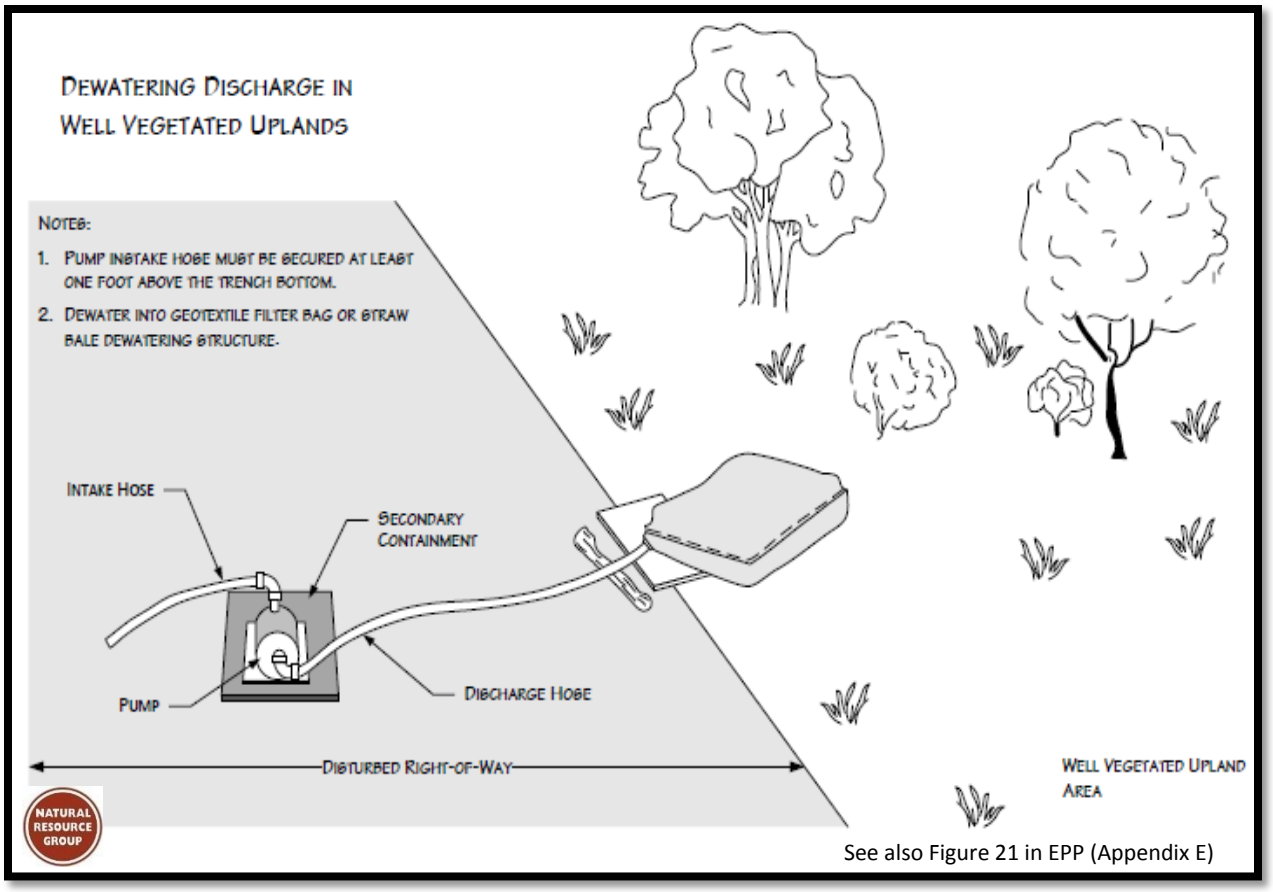


Figure 5.2.6-4: Typical Dewatering Measures



See also Figure 21 in EPP (Appendix E)

At waterbody crossings, crews will utilize one of the construction methods listed for installing pipe: open cut, horizontal directional drilling (Figure 5.2.6-5), flume (Figure 5.2.6-6), or dam-and-pump. The method selected for a specific crossing will include erosion control, bank stabilization, and bank revegetation, and will minimize construction impacts on the waterbodies.

Figure 5.2.6-5: Horizontal Directional Drilling Method

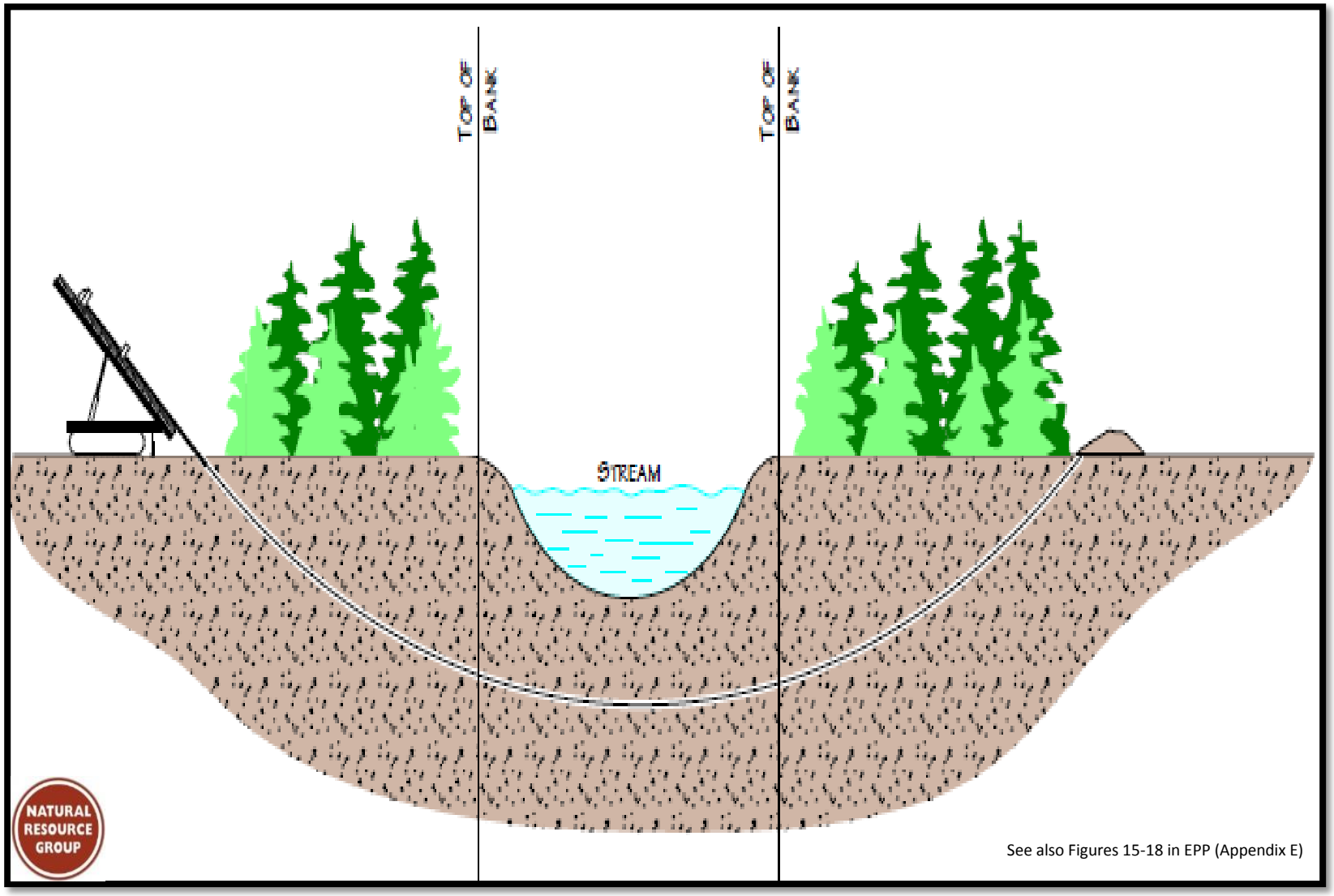
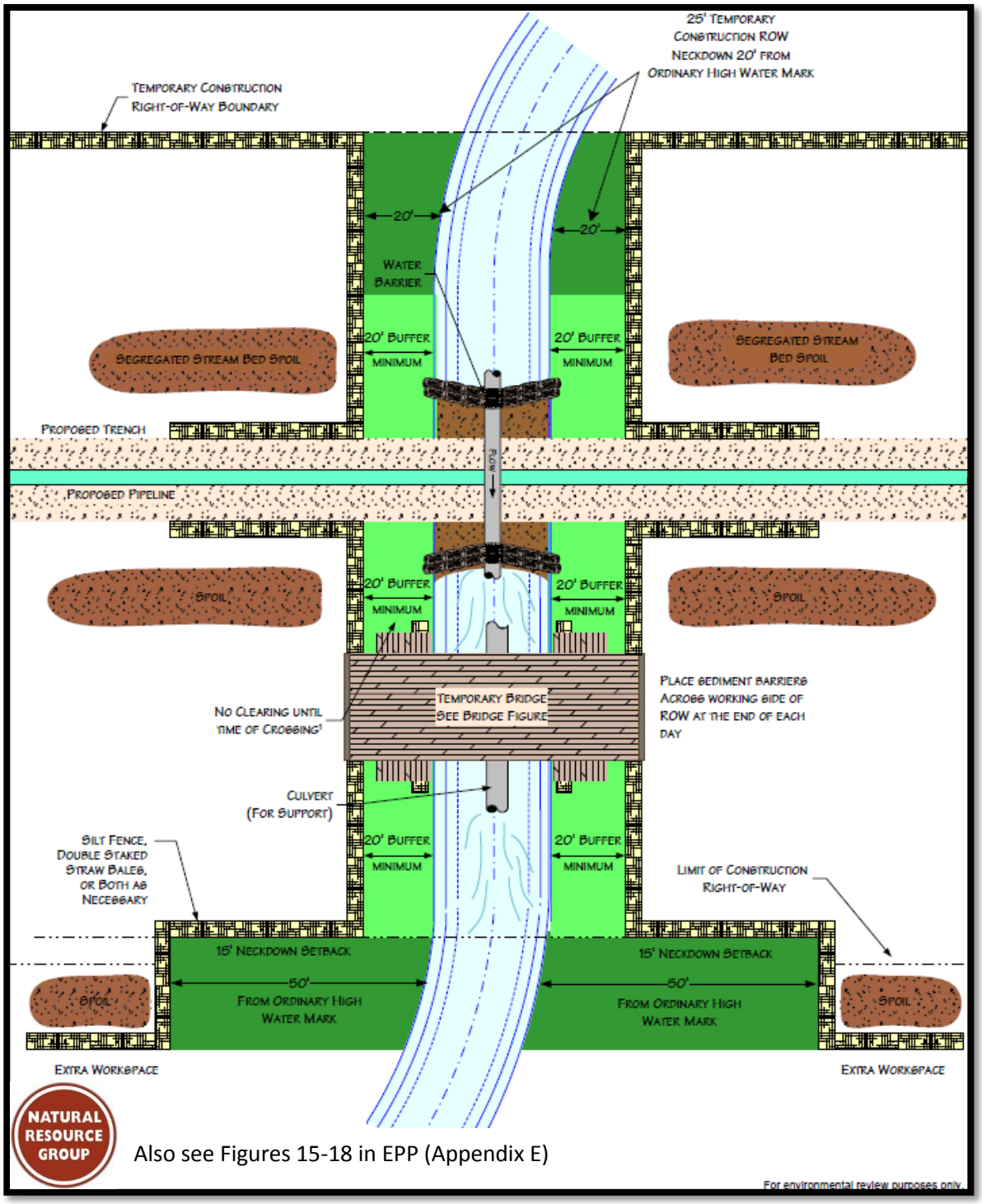


Figure 5.2.6-6: Flume Method



Also see Figures 15-18 in EPP (Appendix E)

5.2.7 Backfilling the Trench

The trench will then be backfilled to the approximate ground surface elevation as shown on Figure 5.2.7-1. Construction debris will not be permitted in the backfill. If excessive amounts of rocks are included in the backfill, the pipeline will be protected with rock shield or similar protective coating and/or backfilled with clean padding before backfilling with rocky material.

Figure 5.2.7-1: Backfilling

The trench will be backfilled to the approximate ground surface elevation.

Where the construction right-of-way intersects public roads, traffic control measures are implemented to ensure both construction worker and public safety as shown in Figure 5.2.7-2.

Figure 5.2.7-2: Traffic Control

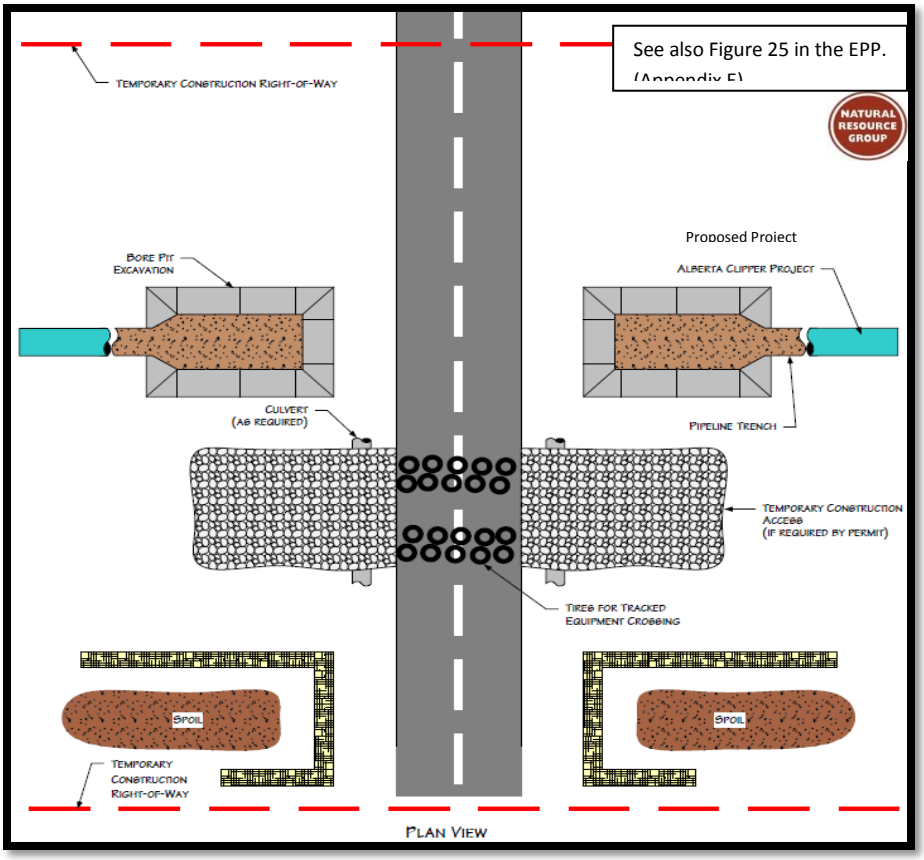
Traffic control measures will be implemented, where the construction right-of-way converges with public roads.

Road crossings may be completed by several different methods, including using the road bore technique depicted in Figure 5.2.7-3. Using this technique, the road crossing is undetectable to the public and does not interfere with traffic. Figure 5.2.7-4 shows a typical road crossing technique.

Figure 5.2.7-3: Road Boring

Road boring is one of several techniques used to cross roads that intersect with the construction right-of-way.

Figure 5.2.7-4: Typical Improved Road Crossing



5.2.8 Hydrostatic Testing

After backfilling, Enbridge will hydrostatically test the pipeline in accordance with PHMSA regulations. Hydrostatic testing ensures that the pipeline system is capable of operating at the design pressure. Hydrostatic testing involves filling a segment of the pipeline with water and maintaining a prescribed pressure for a specified amount of time. The length of test segments will be determined by topography and water availability. Hydrostatic test water use and discharge will be consistent with Section 5.2 of Enbridge's EPP (Appendix E) and applicable permits.

5.2.9 Restoration and Revegetation

After backfilling is complete, Enbridge will regrade and restore work areas to preconstruction conditions to the extent practicable as shown in Figure 5.2.9-1.

Figure 5.2.9-1: Regrading

Regrading will occur after backfilling of the trench is completed.

Topsoil will be respread over areas from which it was removed. Permanent soil stabilization efforts will primarily include revegetation of the right-of-way. Fences that were removed during construction will be reconstructed across the right-of-way. Figure 5.2.9-2 shows the preparation of the right-of-way for the installation of erosion control devices which are used during restoration activities.

Figure 5.2.9-2: Erosion Control

Temporary erosion control measures will be removed, while permanent erosion control measures will be implemented.

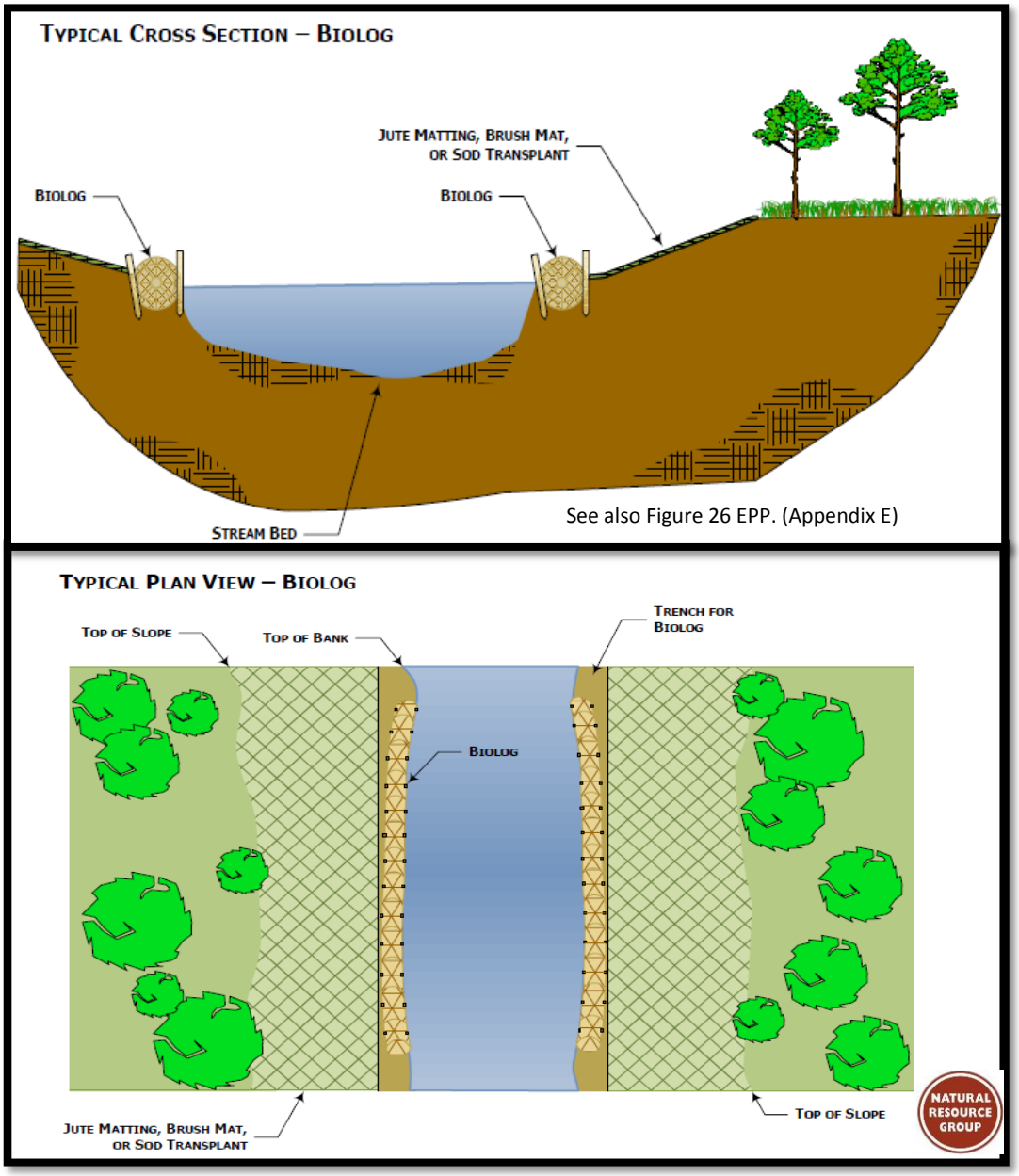
Figure 5.2.9-3: Rock Removal

Excess rocks will be removed from the right-of-way.

Disposal of timber, slash, and rock will be in accordance with landowner preferences, applicable regulations, and the EPP (Appendix E). Slash will be stockpiled on the edge of the right-of-way, chipped and spread across the right-of-way in upland areas, hauled offsite, or burned onsite in accordance with applicable regulations. Excess rock will be stockpiled onsite if requested by the landowner, or disposed of in an alternative, landowner-approved upland area or permitted landfill.

Typically, at waterbody crossings, banks will be restored as near as practicable to preconstruction conditions after backfilling is complete and will be seeded with an appropriate seed mix and covered with an erosion control blanket. (*see* Figure 5.2.9-4) Erosion controls, (e.g. straw bales, biologs, silt fences, etc.) will be installed as necessary based on site-specific conditions as detailed in the EPP (Appendix E). Bridges will be removed during final cleanup, or if access is needed, after final cleanup and permanent seeding.

Figure 5.2.9-4 – Typical Stream Bank Stabilization - Biolog



Enbridge will restore original land grade and contours to the extent practicable and will install permanent erosion controls devices to ensure restoration takes place. All disturbed areas will be revegetated in accordance with Enbridge's EPP (Appendix E), permit requirements, and site-specific landowner requests. Enbridge also complies with other federal, state, and local rules and regulations as applicable.

After restoration is complete, Enbridge contacts its affected landowners and/or tenants to discuss any outstanding issues related to the completion of the Project on their respective property. Enbridge will continue to work with each affected party to ensure cleanup and restoration conforms to the easement agreement.

Figure 5.2.9-5: Restored pipeline

5.3 Operation and Maintenance

As a crude oil pipeline, the Project's design, construction, maintenance, and operation functions are regulated by PHMSA under 49 C.F.R. Part 195, which governs transportation of hazardous liquids by pipeline. Enbridge abides by all PHMSA regulations and also works directly with various regional, state, and local agencies, landowners, and other stakeholders to ensure that its programs meet the needs of the community in which it operates. For more information about how the Project will be operated and maintained safely and in accordance with all applicable rules and regulations, see the Safety Report, which is included as Appendix D.

Figure 5.3-1: Restored pipeline right-of-way