

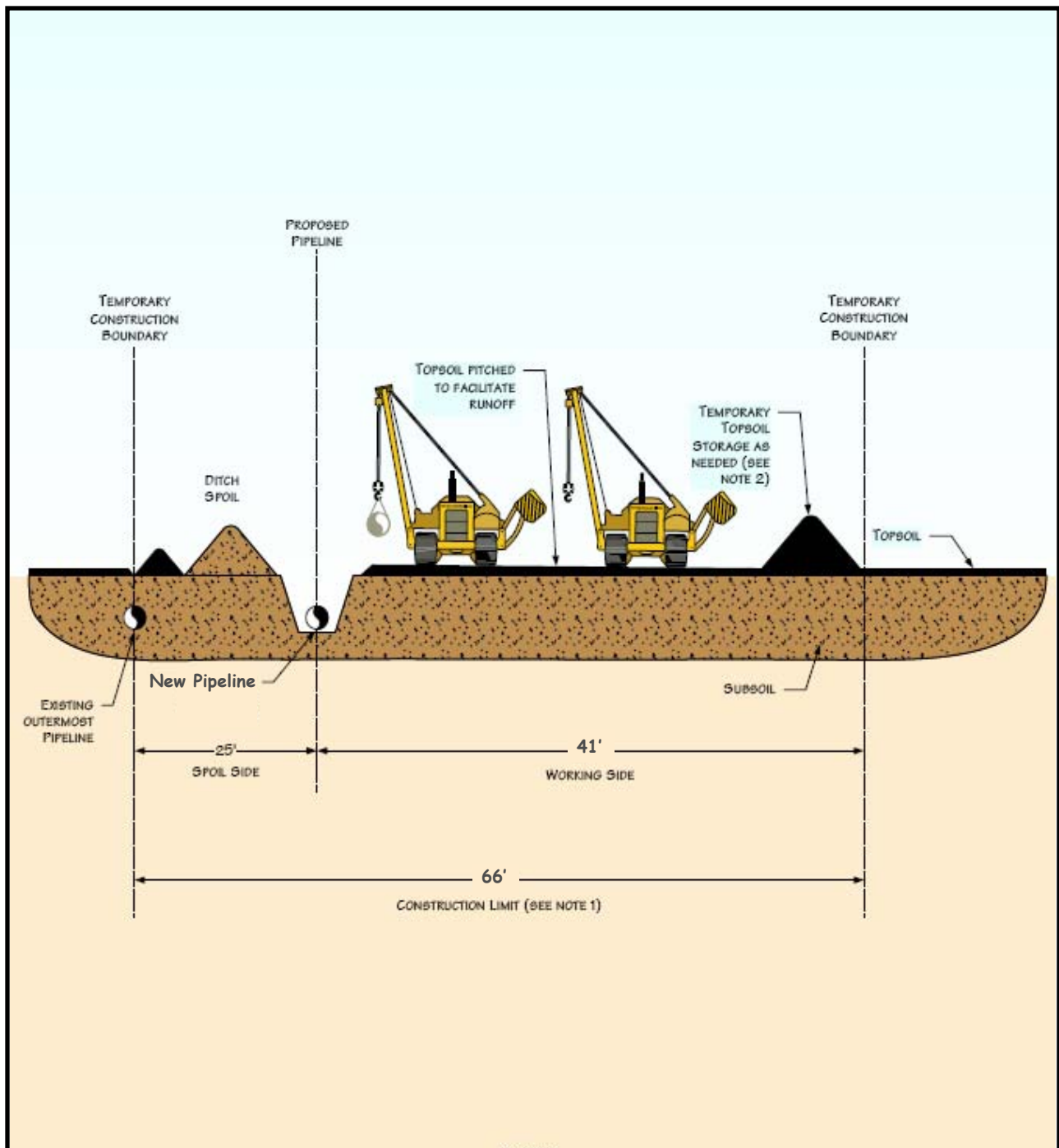
PROFILE

NOTES:

1. CONSTRUCTION LIMITS WILL TYPICALLY BE 66' WIDE. SPOIL SIDE WILL BE APPROXIMATELY 25' WIDE.
2. THIS DRAWING REFLECTS "DITCH PLUS SPOIL" SIDE TOPSOIL STRIPPING PROCEDURE. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL SHOWN OR IN OTHER CONFIGURATION APPROVED BY COMPANY.
3. THE OFFSET FROM OUTERMOST EXISTING PIPELINE WILL BE 25' FOR MOST LOCATIONS BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.

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Figure 6.1.1 – Typical Construction Layout
 8-inch Crude Oil Loop Pipeline
 September 2007



PROFILE

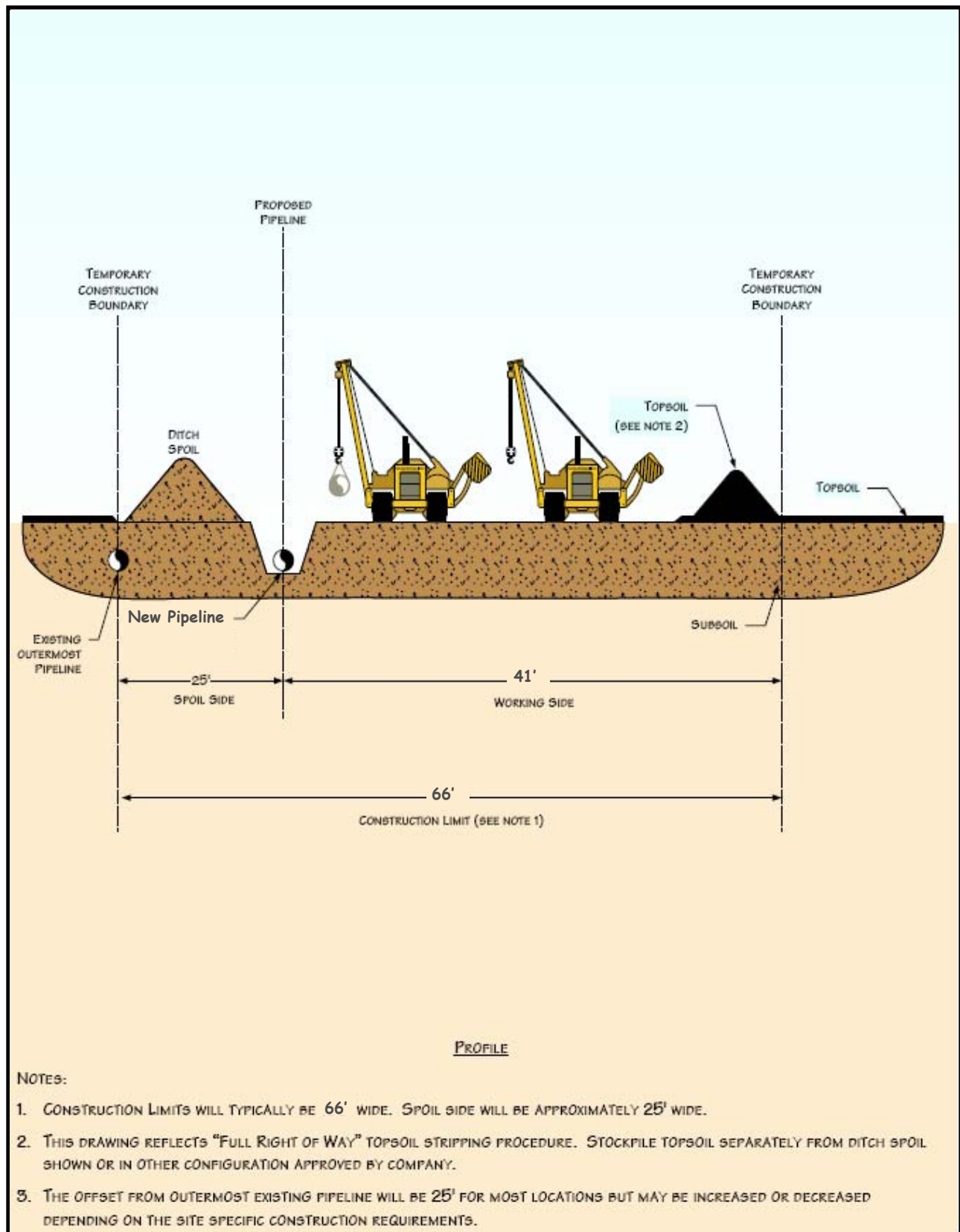
NOTES:

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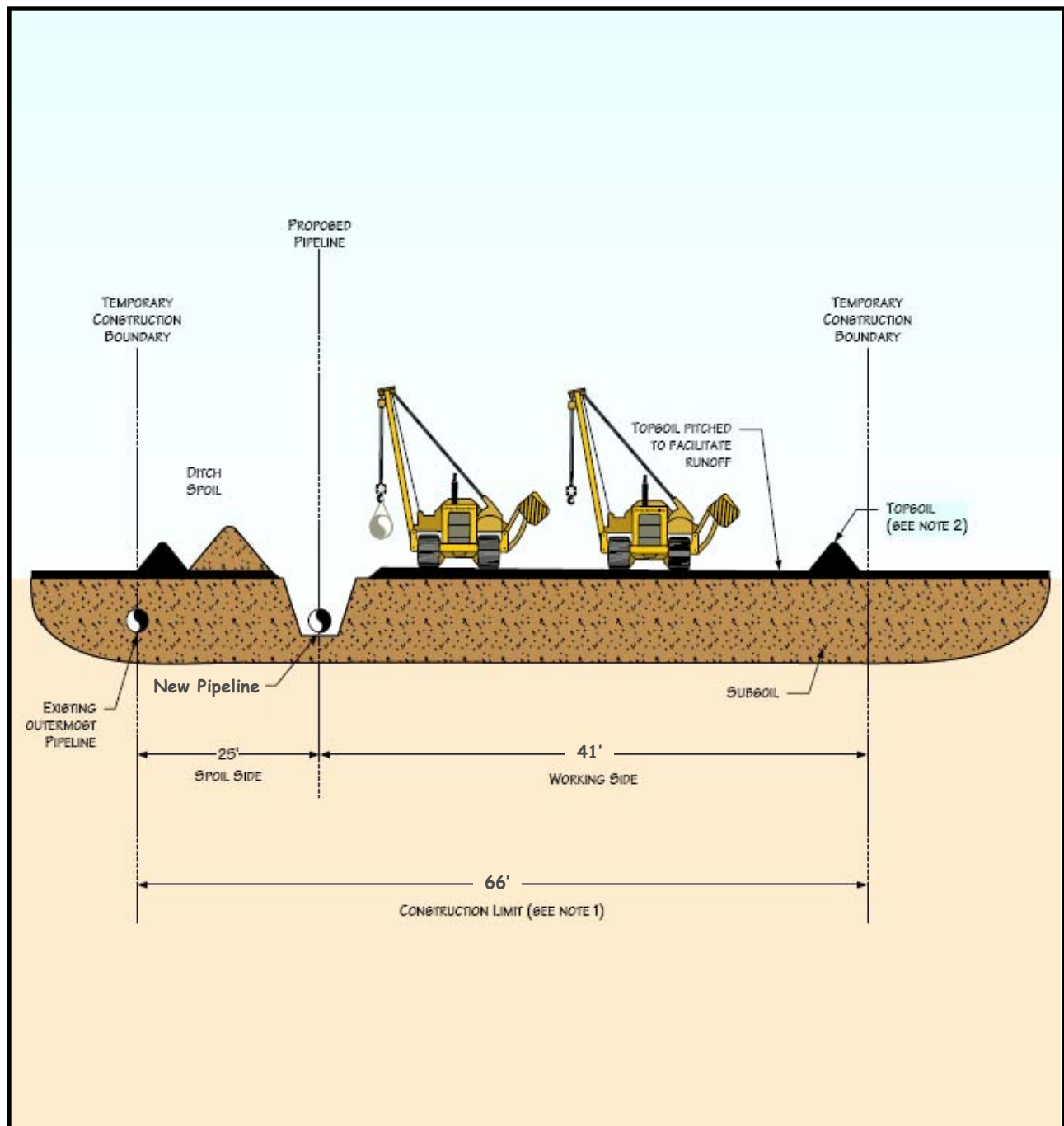
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Figure 6.1.2 – Typical Topsoil Segregation
 Ditch Plus Spoil Side
 8-inch Crude Oil Loop Pipeline
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Figure 6.1.3 – Typical Topsoil Segregation
 Full Right-of-Way
 8-inch Crude Oil Loop Pipeline
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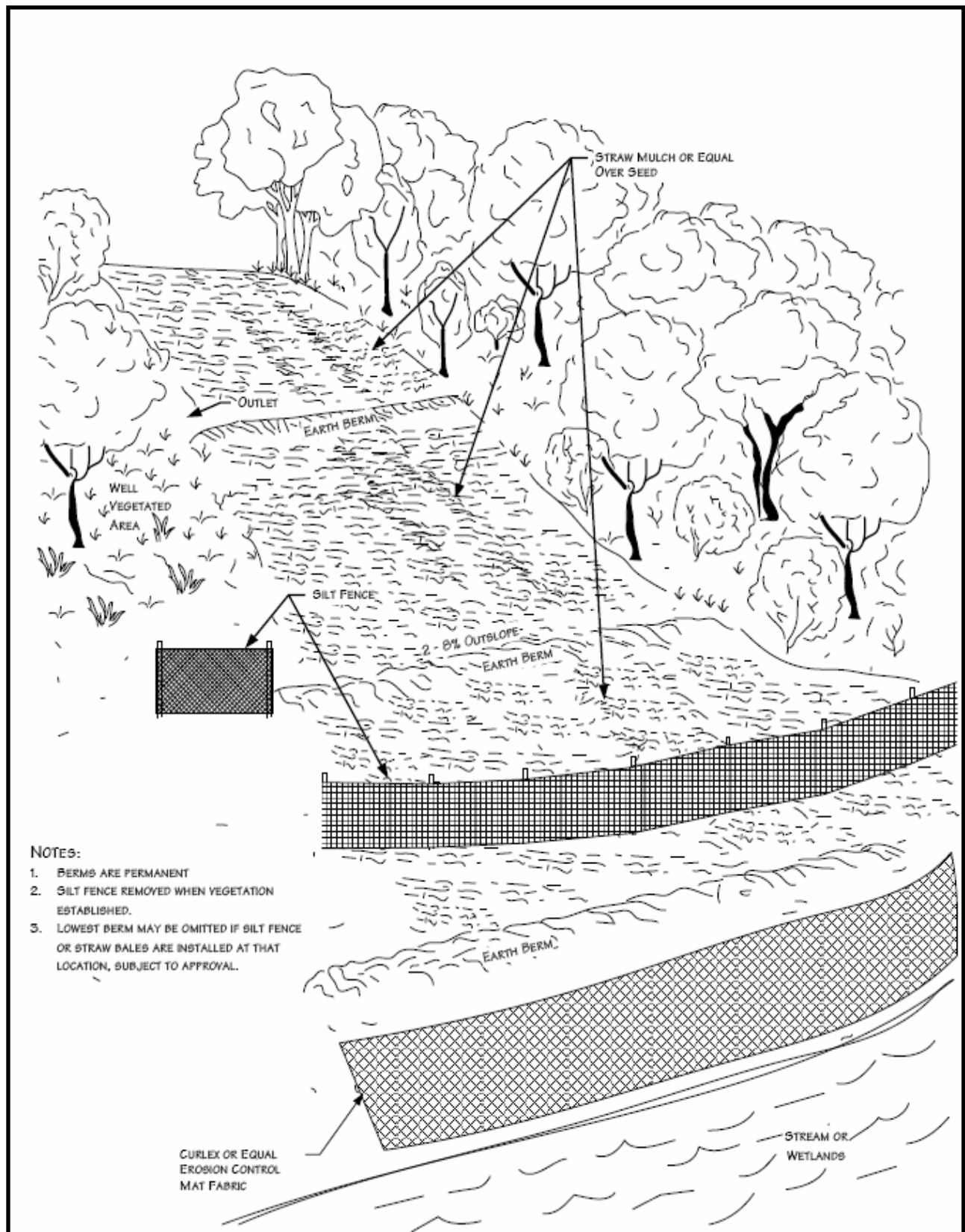
PROFILE

NOTES:

1. CONSTRUCTION LIMITS WILL TYPICALLY BE 66' WIDE. SPOIL SIDE WILL BE APPROXIMATELY 25' WIDE.
2. THIS DRAWING REFLECTS "TRENCH LINE ONLY" TOPSOIL STRIPPING PROCEDURE. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL SHOWN OR IN OTHER CONFIGURATION APPROVED BY COMPANY.
3. THE OFFSET FROM OUTERMOST EXISTING PIPELINE WILL BE 25' FOR MOST LOCATIONS BUT MAY BE INCREASED OR DECREASED DEPENDING ON THE SITE SPECIFIC CONSTRUCTION REQUIREMENTS.

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Figure 6.1.4 – Typical Topsoil Segregation
 Trench Line Only
 8-inch Crude Oil Loop Pipeline
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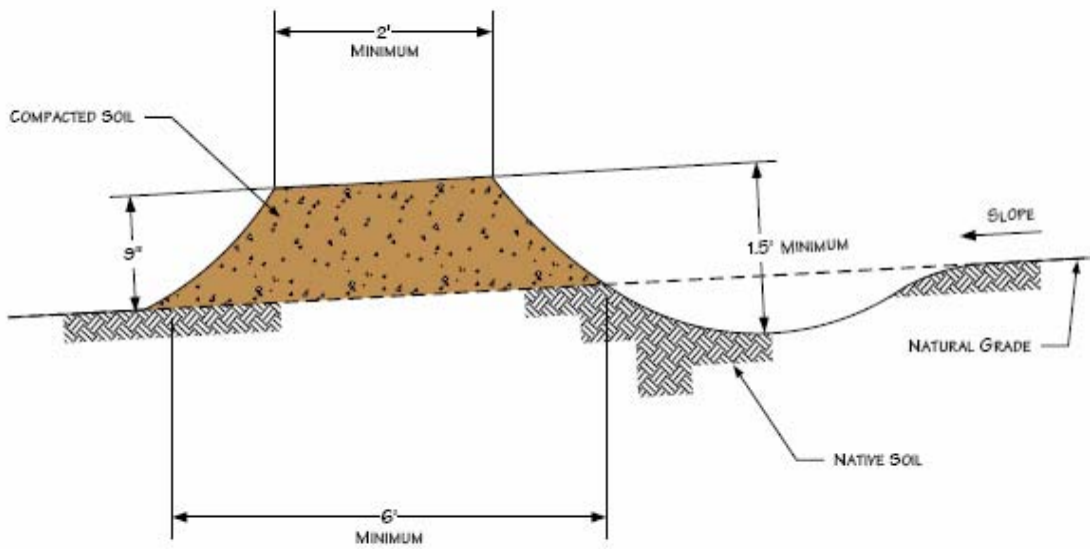
NOTES:

1. BERMS ARE PERMANENT
2. SILT FENCE REMOVED WHEN VEGETATION ESTABLISHED.
3. LOWEST BERM MAY BE OMITTED IF SILT FENCE OR STRAW BALES ARE INSTALLED AT THAT LOCATION, SUBJECT TO APPROVAL.



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Figure 6.1.5 – Typical Temporary or Permanent Berms-Perspective View
 8-inch Crude Oil Loop Pipeline
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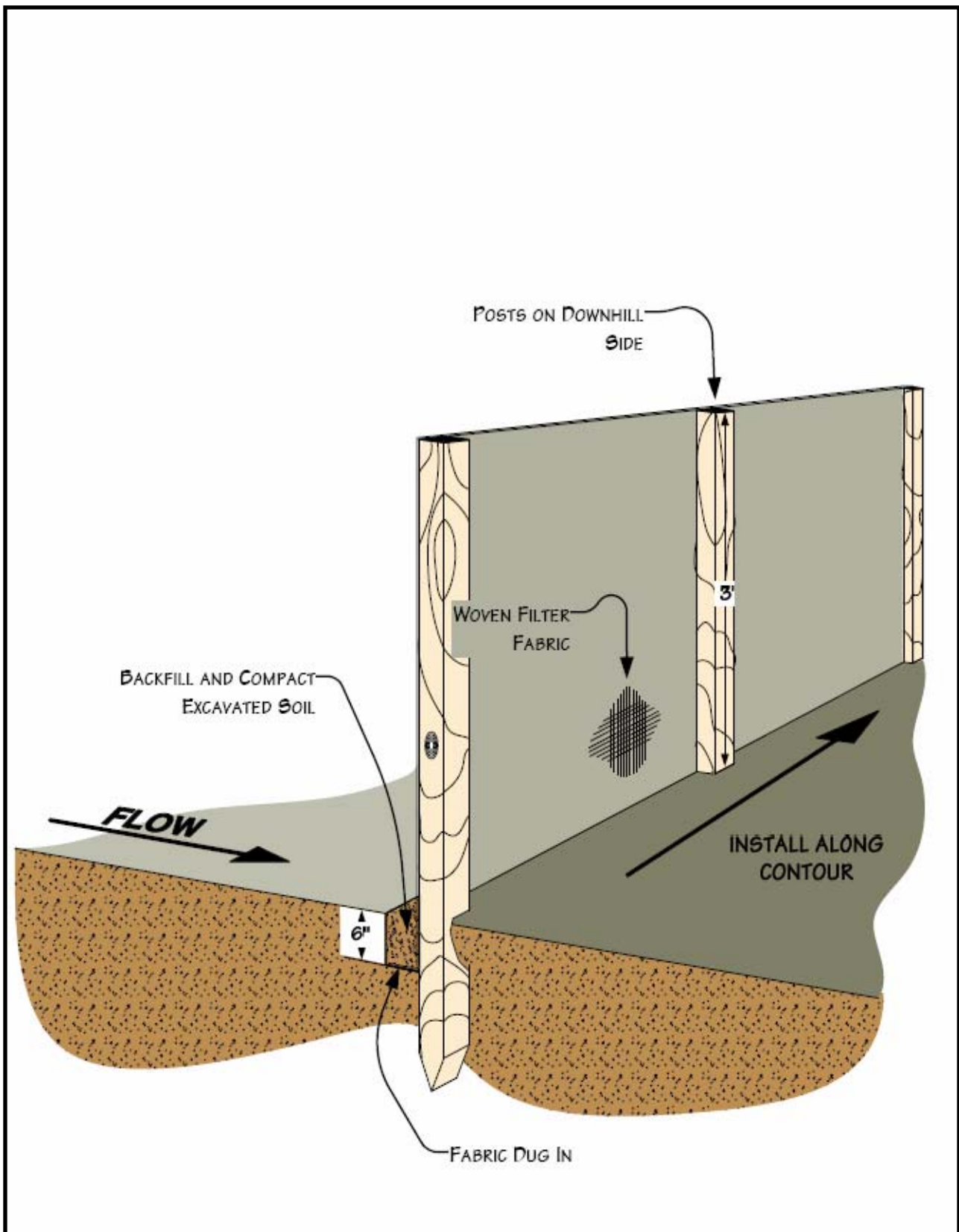
NOTES

1. BERMS SHALL BE CONSTRUCTED WITH 2 TO 5 PERCENT OUTSLOPE.
2. BERMS SHALL BE OUTLETED TO WELL VEGETATED STABLE AREAS, SILT FENCES, STRAW/HAY BALES OR ROCK APRONS.
3. BERMS SHALL BE SPACED AS DESCRIBED IN CONSTRUCTION SPECIFICATIONS.
4. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.



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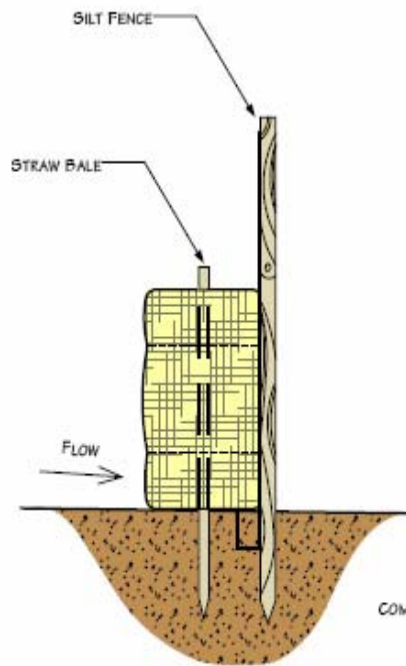
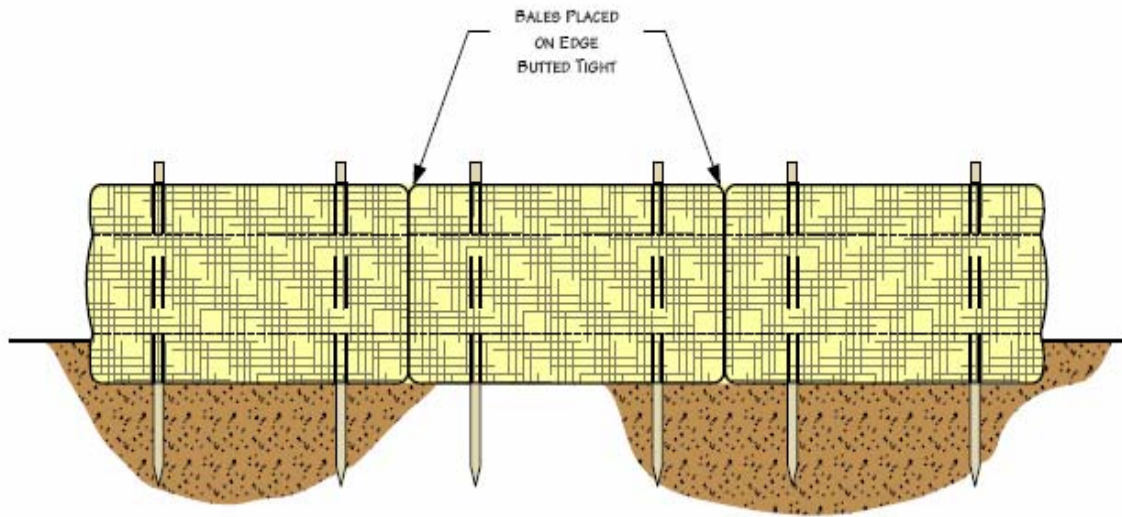
Figure 6.1.6 – Typical Temporary or Permanent Berm-Elevation View
 8-inch Crude Oil Loop Pipeline
 September 2007



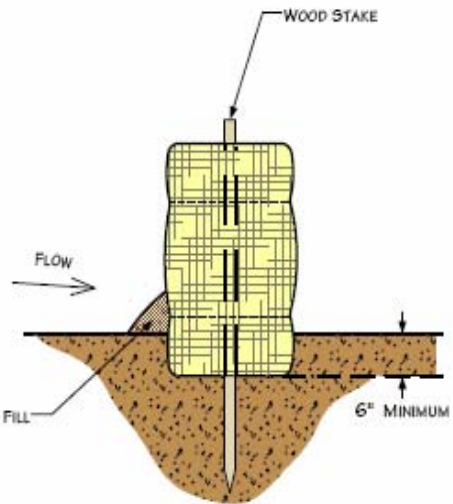
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Figure 6.1.7 – Typical Silt Fence Installation

8-inch Crude Oil Loop Pipeline
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STRAW/HAY BALES & SILT FENCE



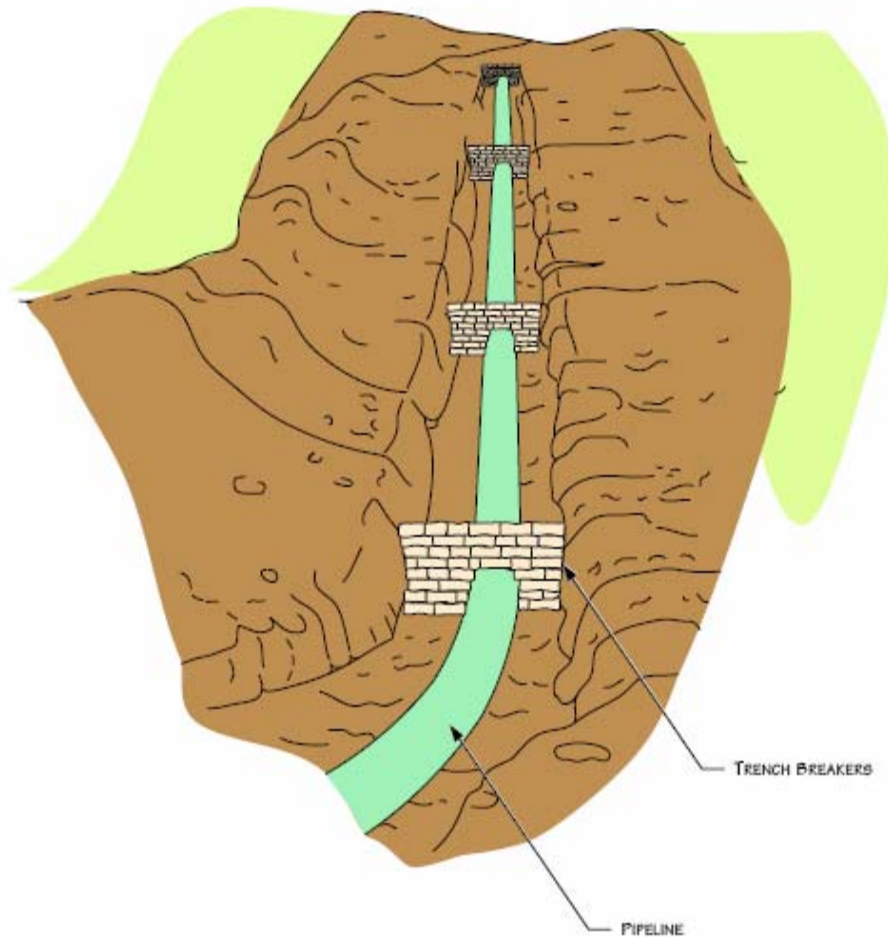
STRAW/HAY BALES ONLY



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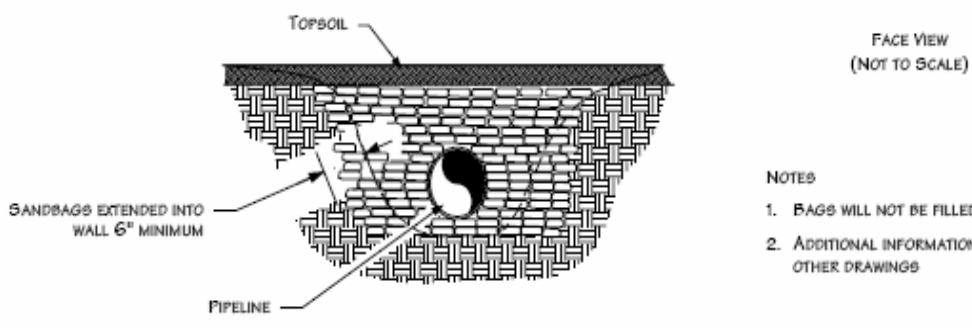
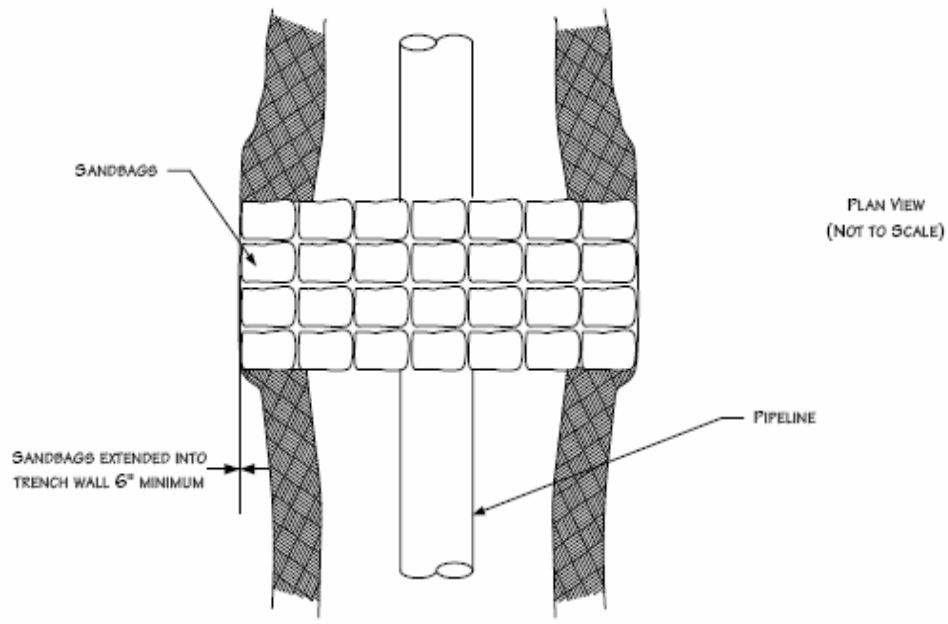
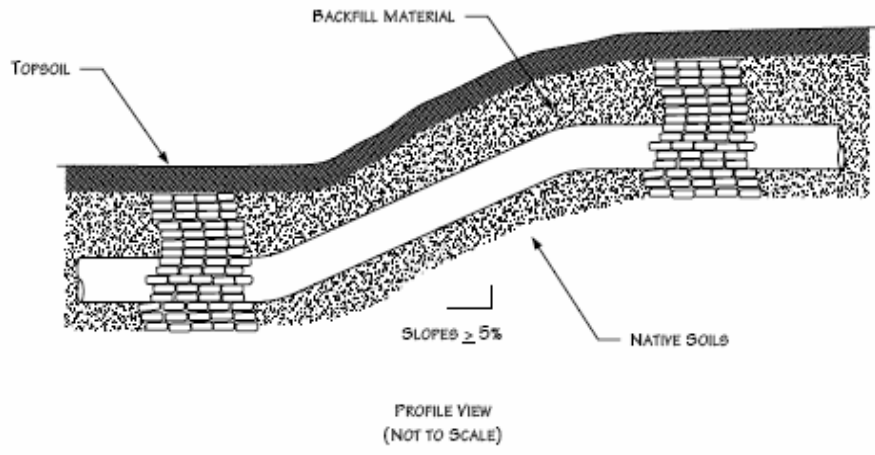
Figure 6.1.8– Typical Straw Bale Installation

8-inch Crude Oil Loop Pipeline
September 2007



NOTES

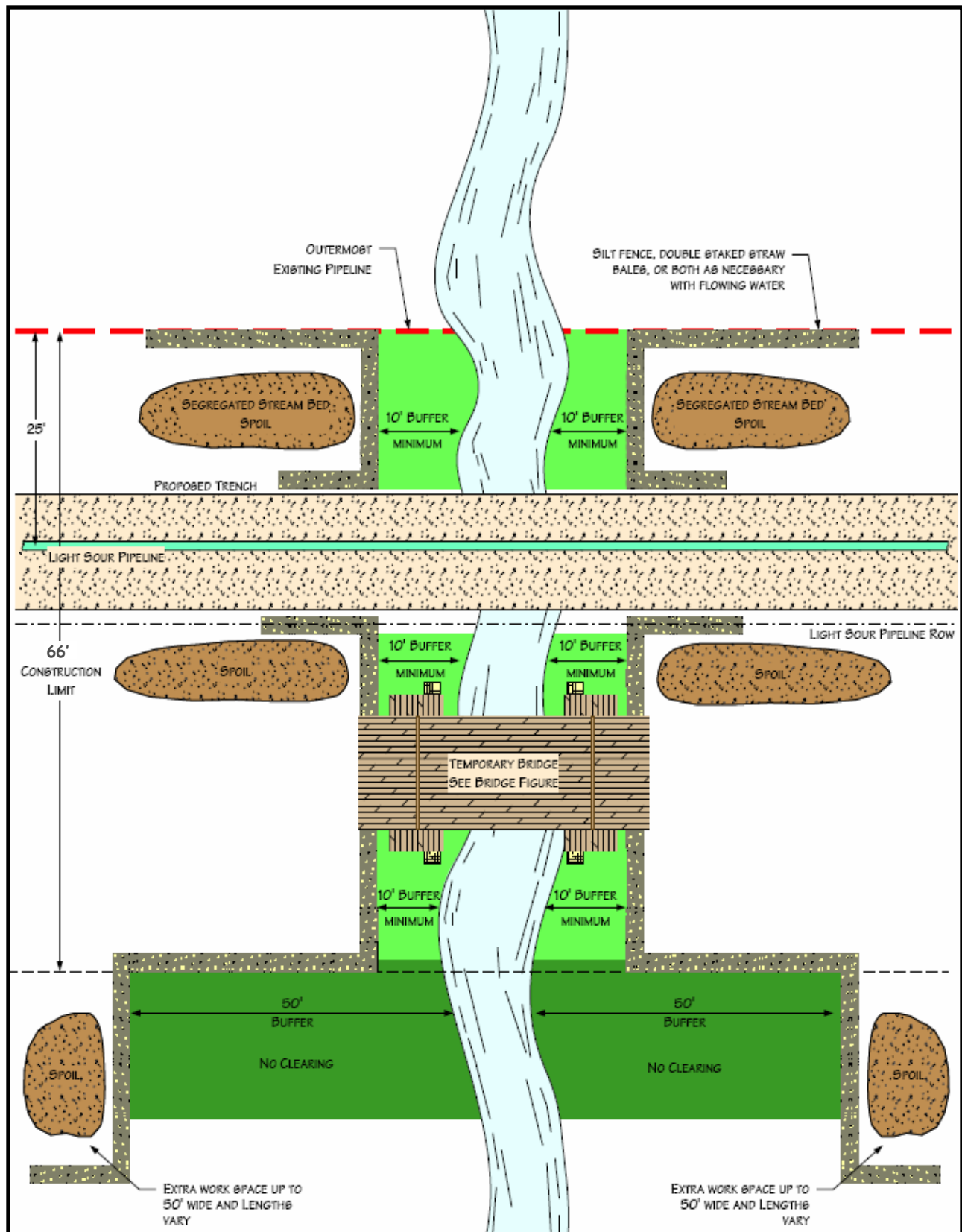
1. BAGS WILL NOT BE FILLED WITH TOPSOIL.
2. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.



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

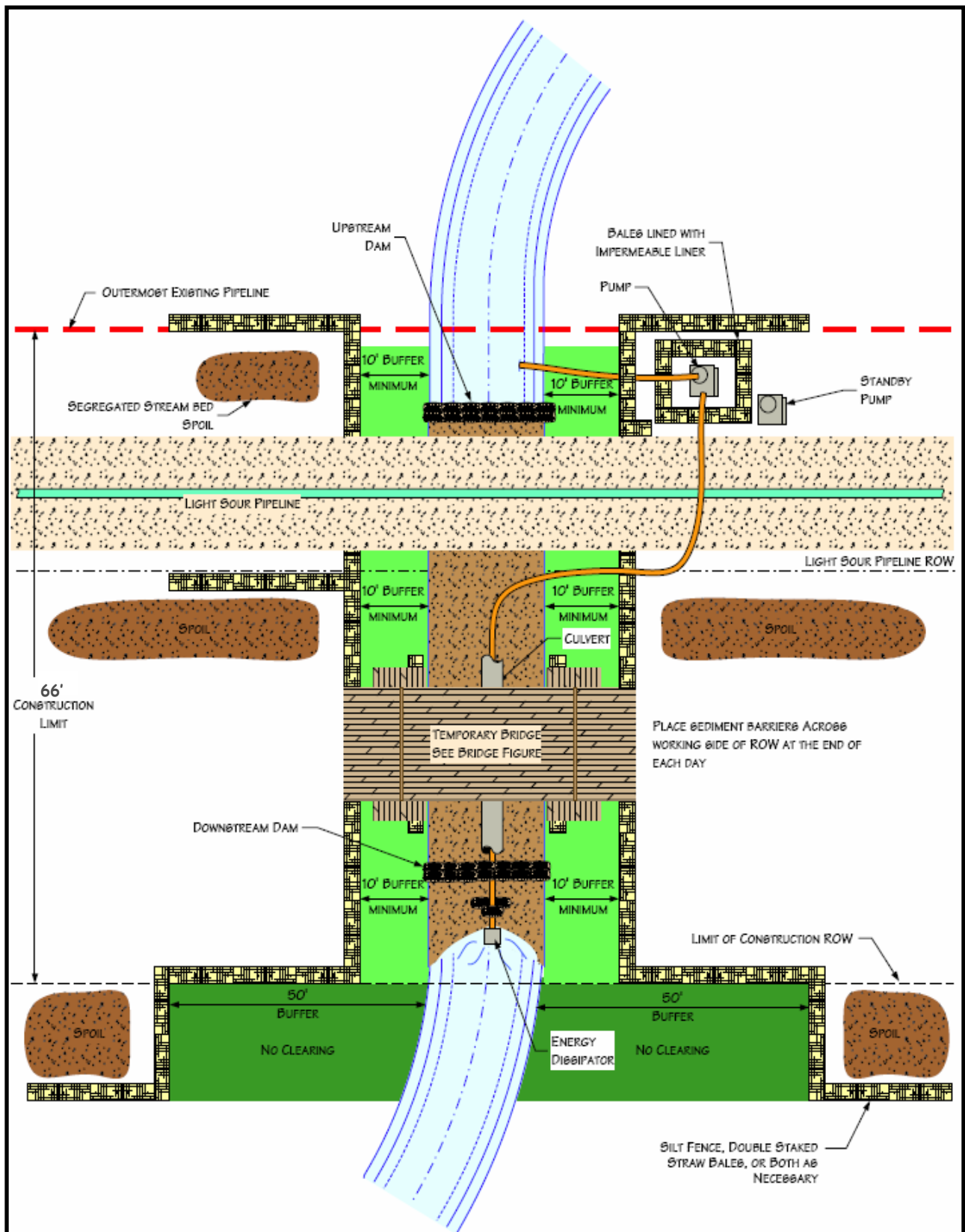
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Figure 6.1.10 – Typical Trench Breaker
 Plan and Profile View
 8-inch Crude Oil Loop Pipeline
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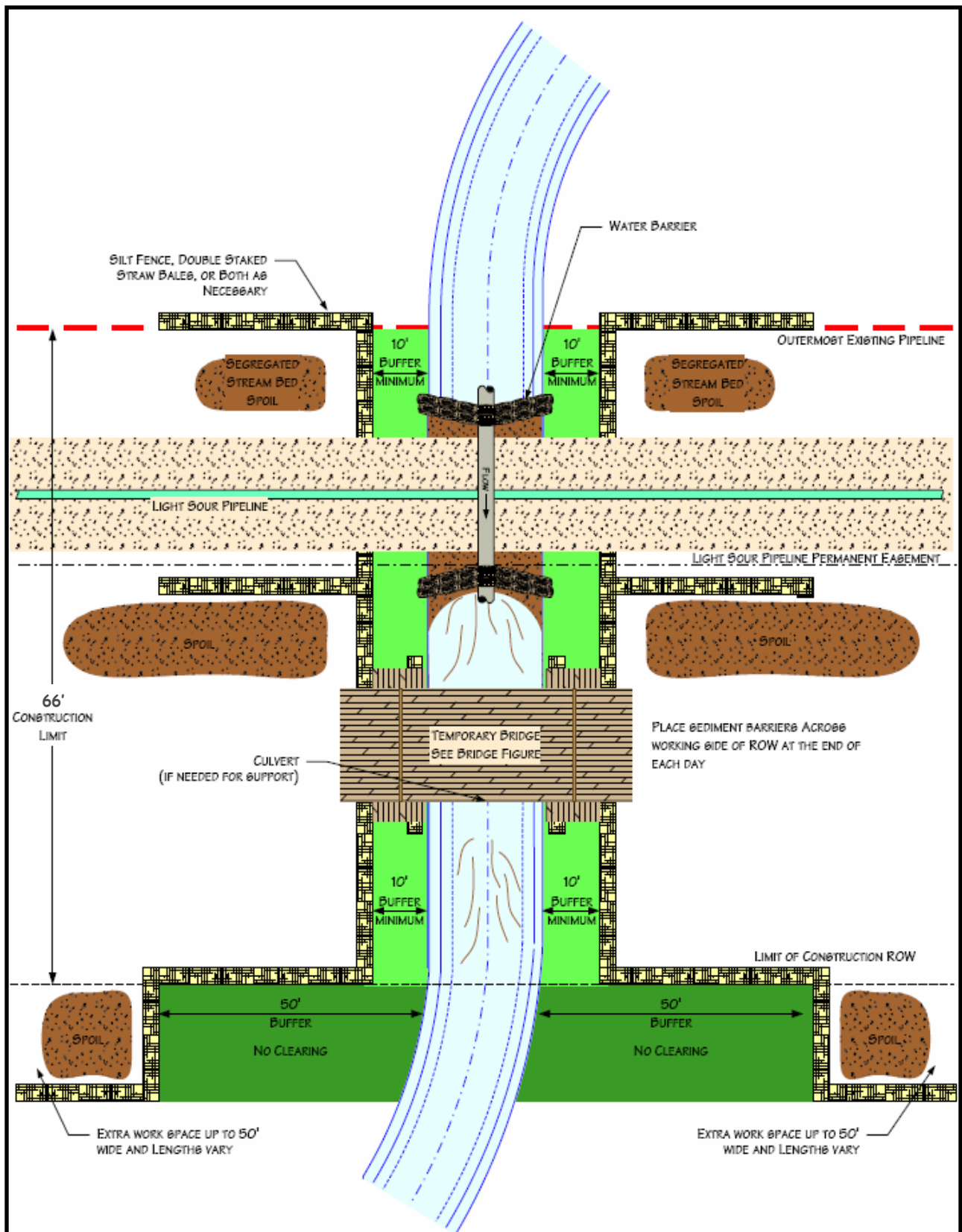
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Figure 6.2.1 – Typical Waterbody Crossing
 Wet Trench Method
 8-inch Crude Oil Loop Pipeline
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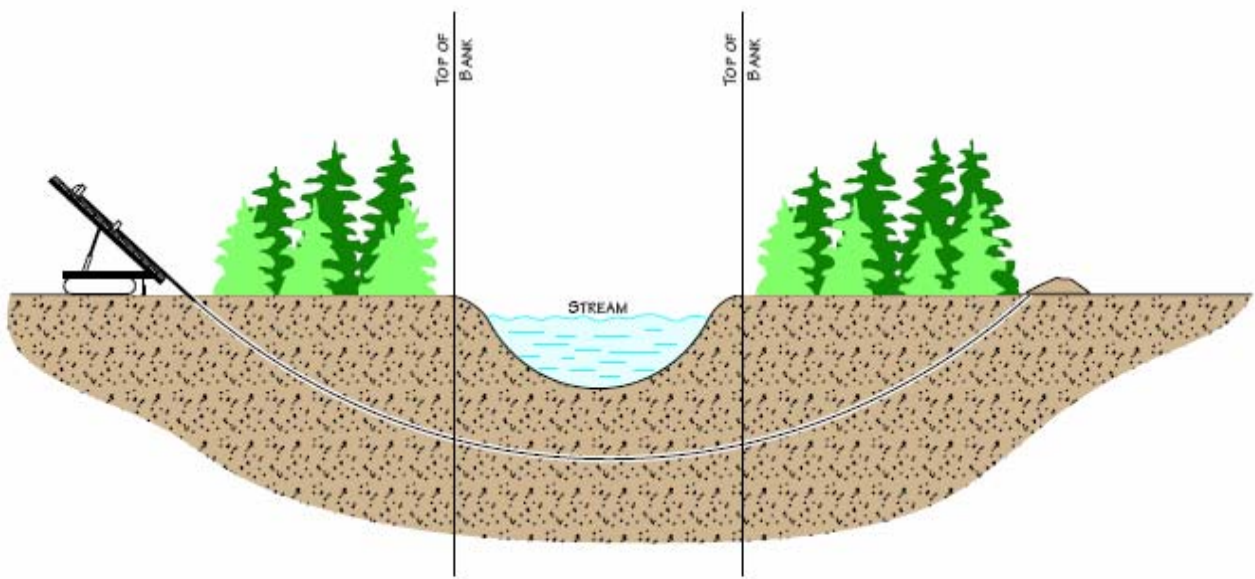
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Figure 6.2.2 – Typical Waterbody Crossing
 Dam and Pump Method
 8-inch Crude Oil Loop Pipeline
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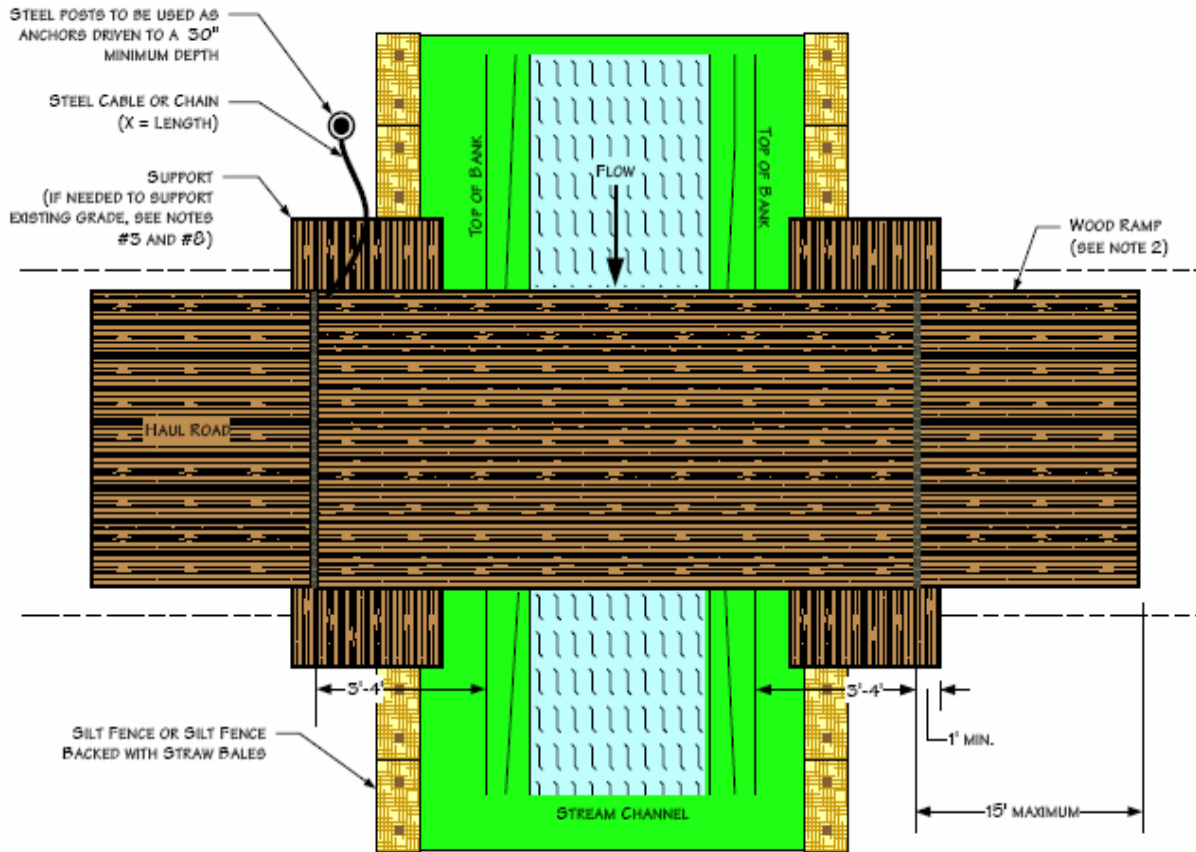


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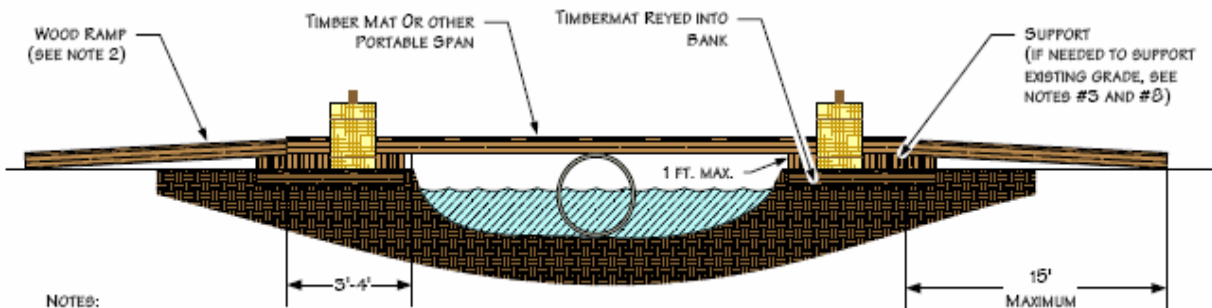
Figure 6.2.3 – Typical Waterbody Crossing
 Flume Method
 8-inch Crude Oil Loop Pipeline
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Plan View



Profile View



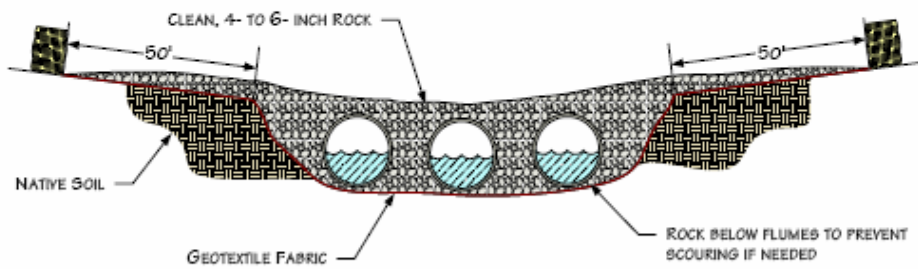
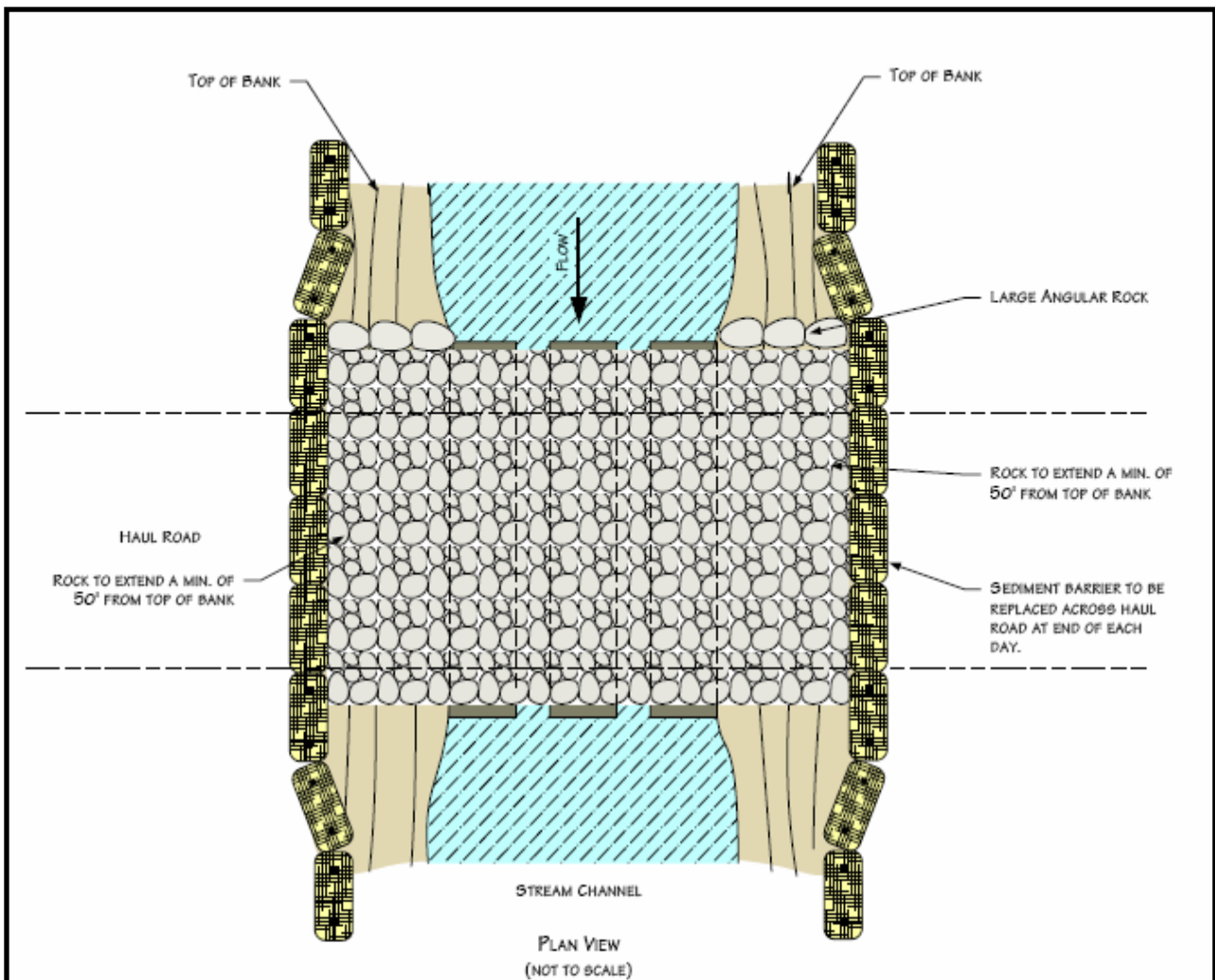
NOTES:

1. INSPECT BRIDGE OPENING PERIODICALLY AND FOLLOWING RAINFALLS OF OVER 1/2". REMOVE ANY DEBRIS RESTRICTING FLOW AND DEPOSIT IT AT AN UPLAND SITE OUTSIDE OF FLOODPLAIN.
2. IF PHYSICAL CIRCUMSTANCES PROHIBIT WOOD OR METAL RAMPS, EARTHEN RAMPS MAY BE USED AS APPROVED.
3. INSPECT BRIDGE ELEVATION SO BRIDGE REMAINS SUPPORTED ABOVE HIGH BANK AND DOES NOT SINK INTO BANK.
4. THE CULVERT SUPPORT MUST BE ANCHORED TO THE STREAM BOTTOM AND MAY NOT BE SUPPORTED WITH FILL.
5. EARTHEN RAMP CANNOT BE TALLER THAN 1' AND CANNOT EXTEND FOR MORE THAN 15' ON EITHER SIDE OF THE CROSSING.
6. THE BRIDGE MUST SPAN FROM TOP OF BANK TO TOP OF BANK.
7. THE BRIDGE MUST BE FIRMLY ANCHORED TO PREVENT IT FROM BEING TRANSPORTED DOWNSTREAM DURING HIGH FLOW.
8. ADDITIONAL SUPPORT MUST BE ADDED ON TOP OF BANK AND UNDER SPAN IF INITIAL SUPPORT STARTS TO SETTLE.
9. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE COMPANY'S ENVIRONMENTAL MITIGATION PLAN



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Figure 6.2.5 – Typical Span Type Bridge
With or Without Instream Support
8-inch Crude Oil Loop Pipeline
September 2007



NOTES:

1. STEEL FLUME PIPE(S) SIZED TO ALLOW FOR STREAM FLOW AND EQUIPMENT LOAD.
2. STRAW BALES SHALL BE PLACED ACROSS BRIDGE ENTRANCE EVERY NIGHT.
3. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.



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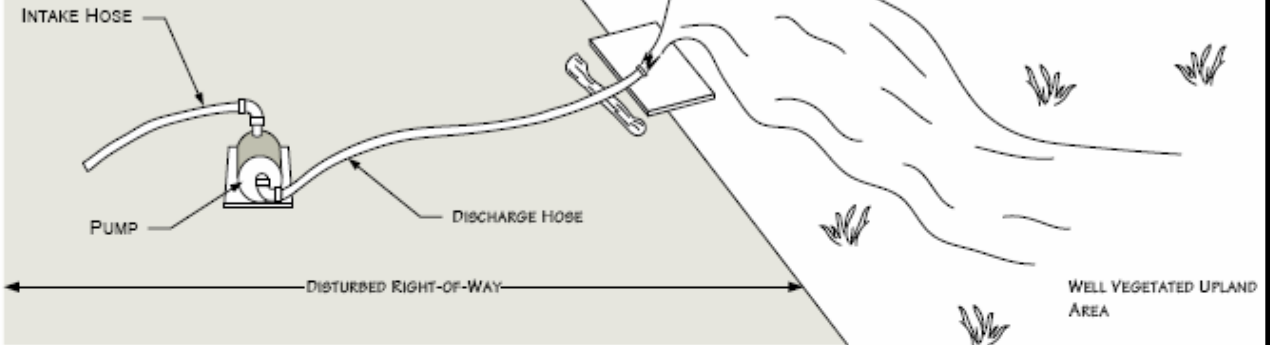
Figure 6.2.6 –Typical Rock Flume Bridge

8-inch Crude Oil Loop Pipeline
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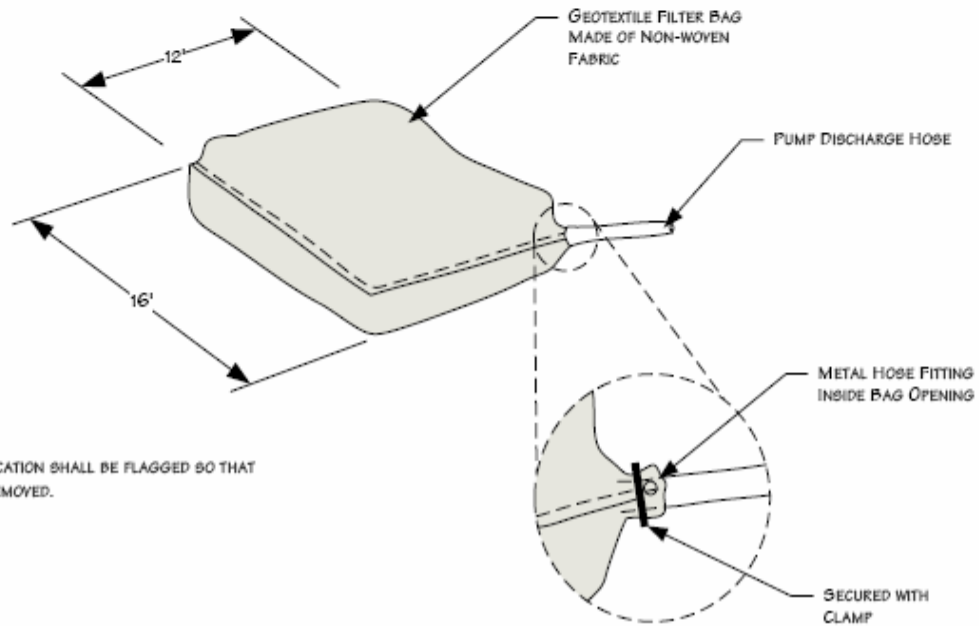
DEWATERING DISCHARGE IN WELL VEGETATED UPLANDS

NOTES:

1. PUMP INTAKE HOSE MUST BE SECURED AT LEAST ONE FOOT ABOVE THE TRENCH BOTTOM.
2. IF VEGETATION IS SPARSE, DEWATER INTO GEOTEXTILE FILTER BAG OR STRAW BALE DEWATERING STRUCTURE.



GEOTEXTILE FILTER BAG



NOTE:

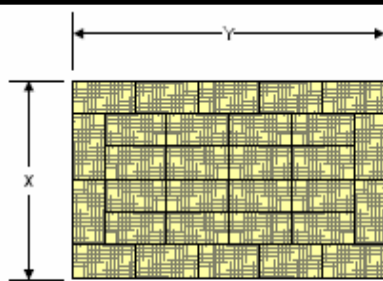
1. FILTER BAG LOCATION SHALL BE FLAGGED SO THAT BAG CAN BE REMOVED.



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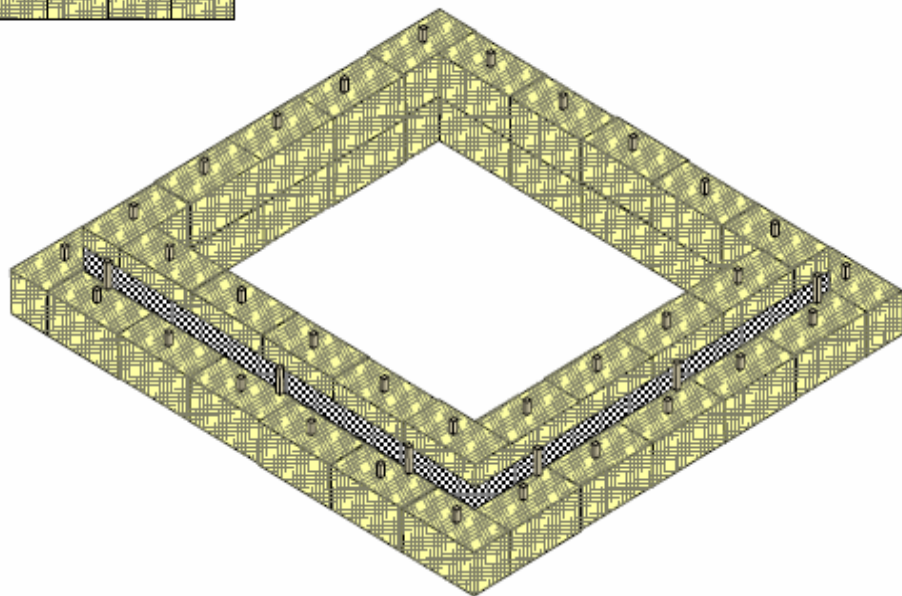
Figure 6.2.7– Typical Dewatering Measures

8-inch Crude Oil Loop Pipeline
September 2007

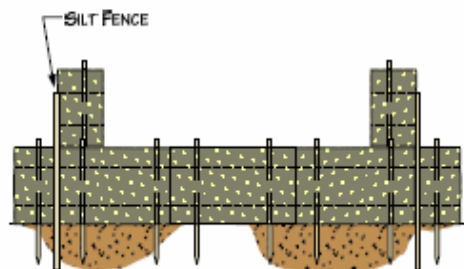


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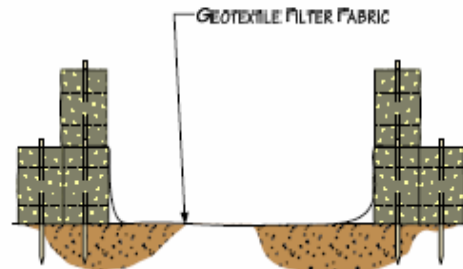
1. ARRANGE THE STRAW BALES TO THE X AND Y DIMENSIONS AS SPECIFIED BELOW.
2. IF BOTTOM OF STRUCTURE IS NOT LINED WITH STRAW BALES (OPTION 1), LINE ENTIRE STRUCTURE WITH GEOTEXTILE FILTER FABRIC.



PERSPECTIVE VIEW



OPTION 1



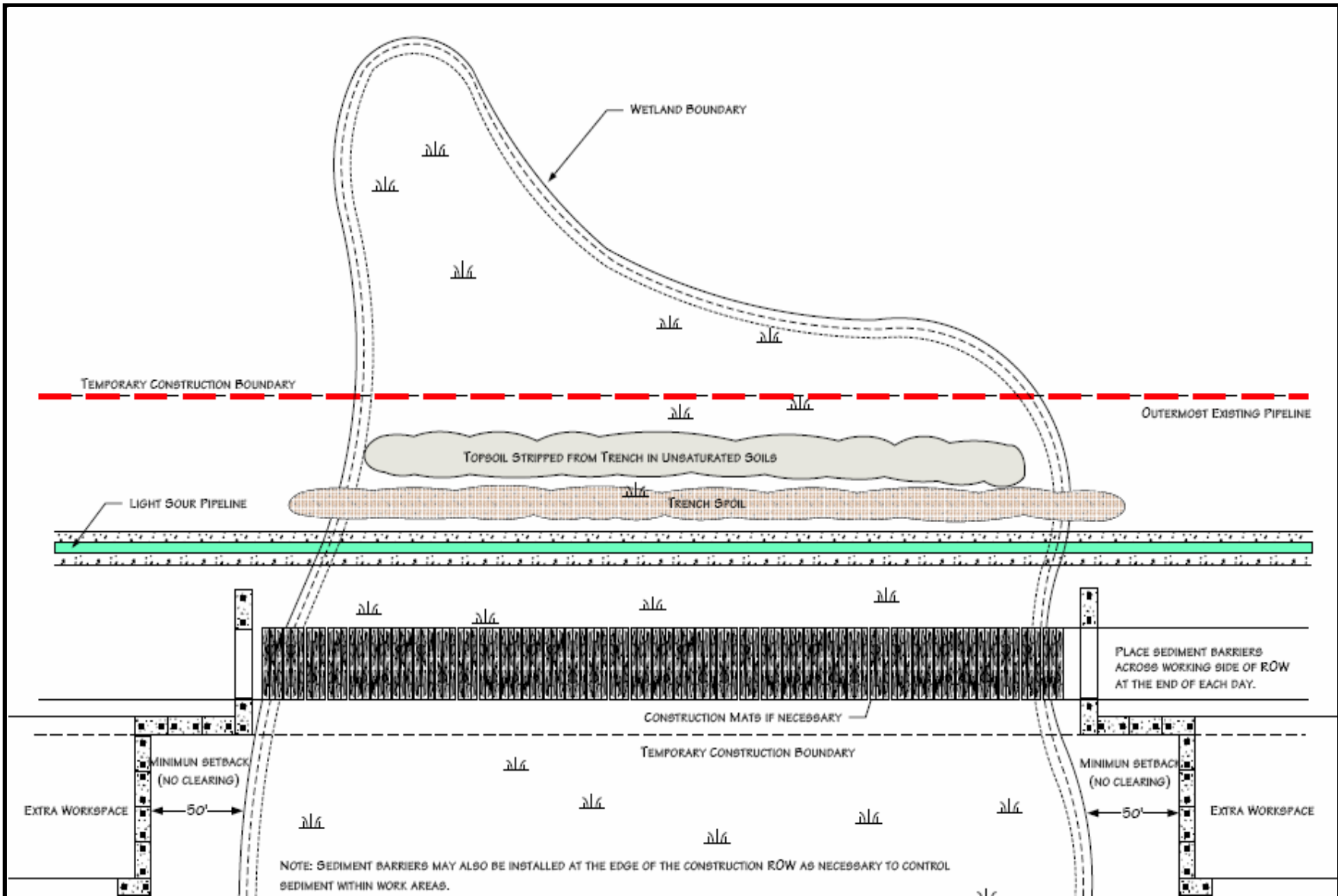
OPTION 2

MINIMUM SUMP DIMENSIONS (FEET)		MAXIMUM PUMPING RATE GALLONS PER MINUTE
X	Y	
10	20	300
15	20	350
20	20	400
20	25	450
25	25	500
25	30	550
30	30	660



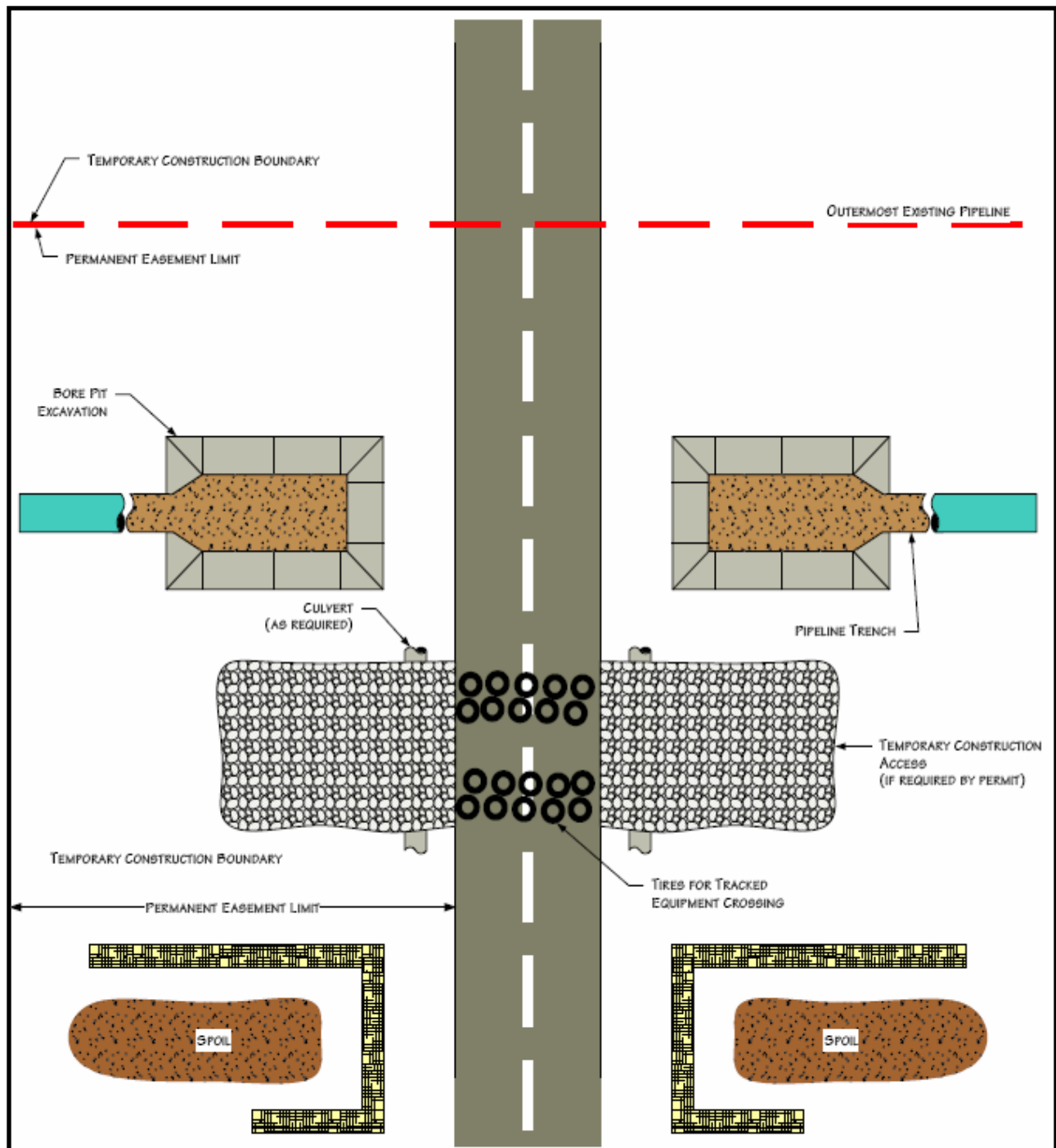
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Figure 6.2.8 –Typical Straw-Bale Dewatering Structure
 8-inch Crude Oil Loop Pipeline
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Figure 6.3.1 – Typical Wetland Crossing Method
 8-inch Crude Oil Loop Pipeline
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PLAN VIEW

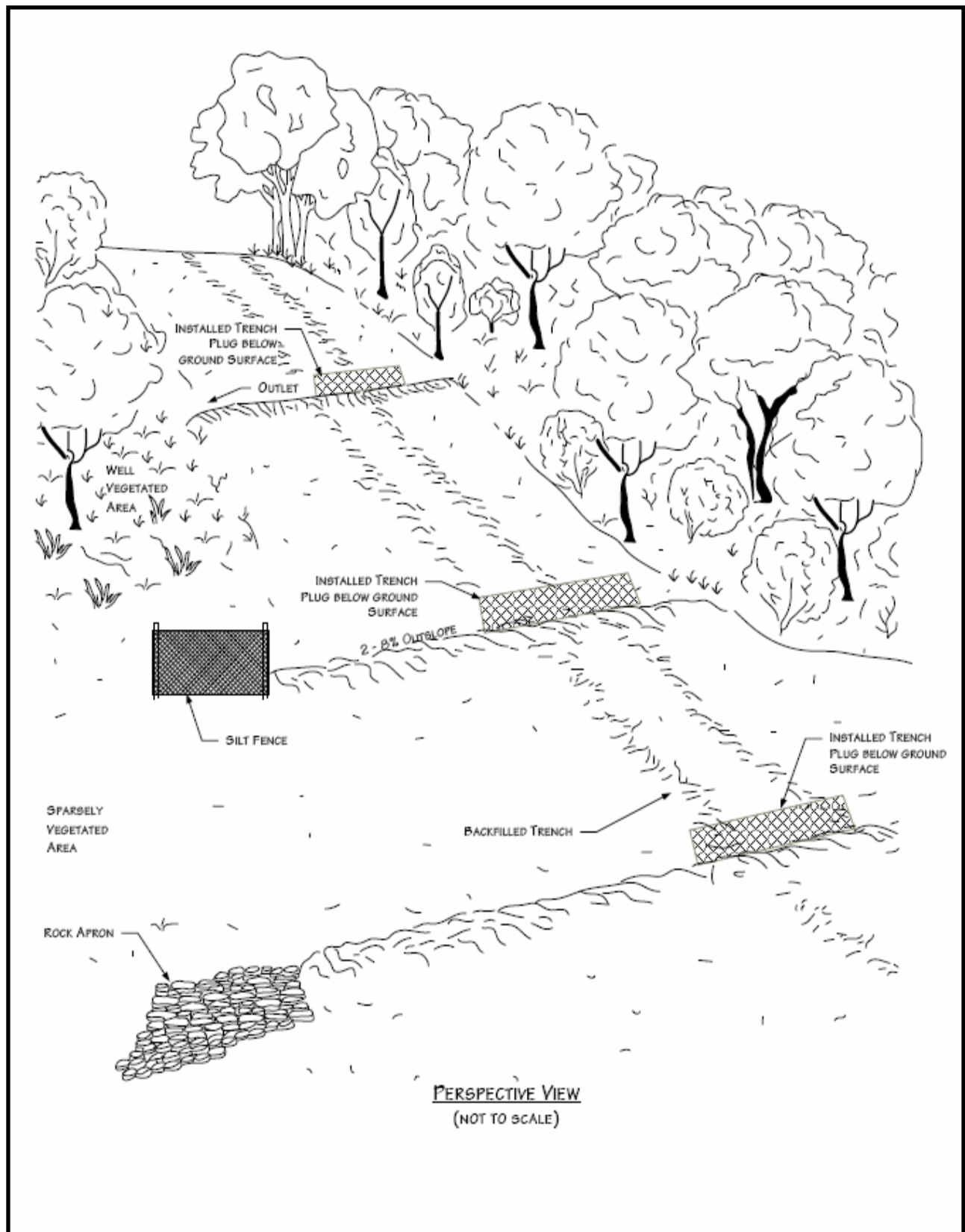
NOTES

1. PROCEDURES SHOWN IN THIS DRAWING APPLY TO IMPROVED ROADS.
2. ROADS MUST BE CLEANED AFTER EQUIPMENT CROSSES AND DIRT PLACED IN SPOIL CONTAINMENT AREAS.
3. TEMPORARY ACCESS MATERIALS MUST BE REMOVED UPON PROJECT COMPLETION.
4. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS OR PERMITS.
5. CONSTRUCTION AREAS LOCATED OUTSIDE ROAD ROW.



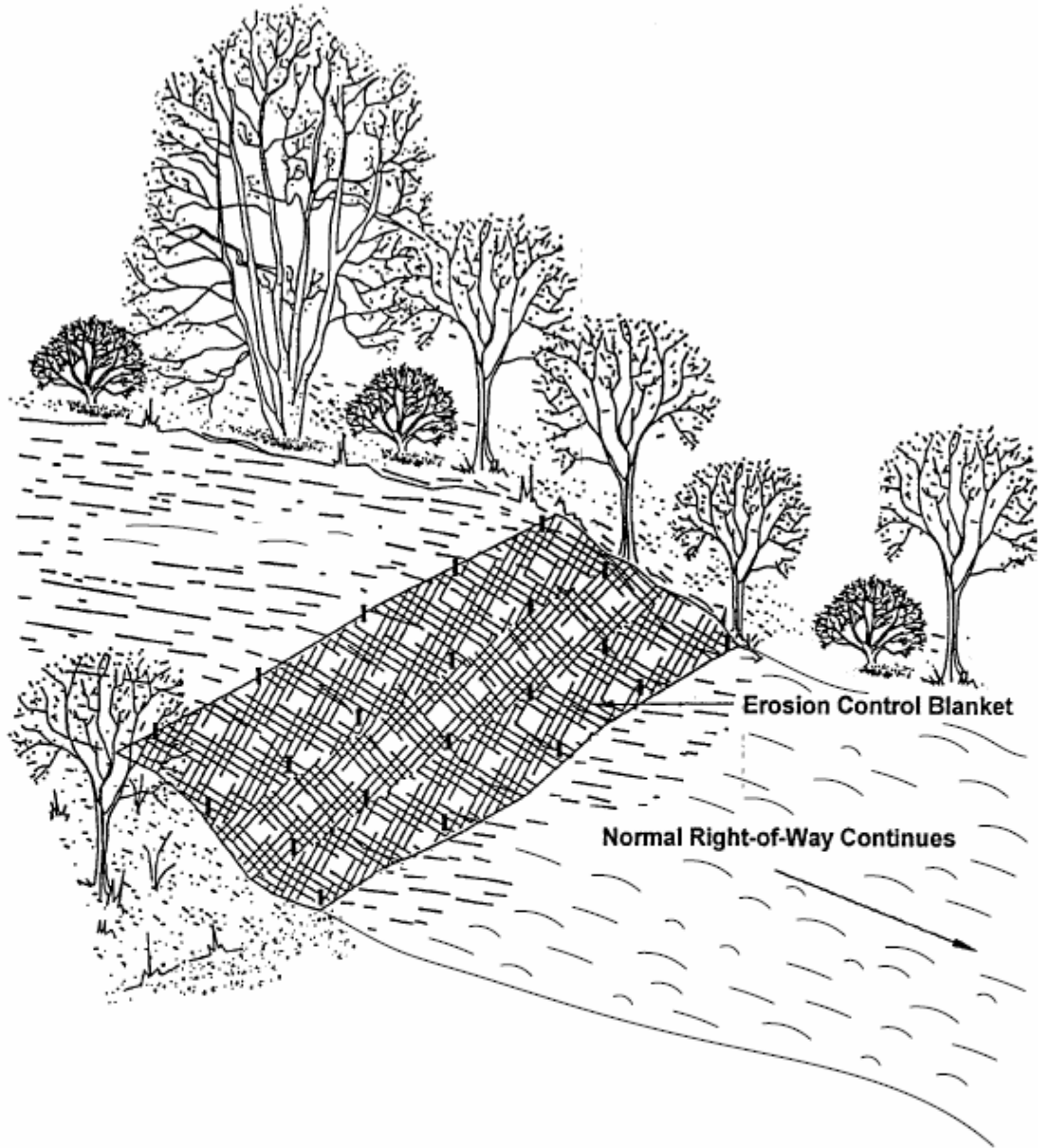
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Figure 6.4.1—Typical Improved Road Crossing-Directional Bore Method
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Figure 6.7.1 – Permanent Slope Breakers
 Perspective View
 8-inch Crude Oil Loop Pipeline
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NOTES

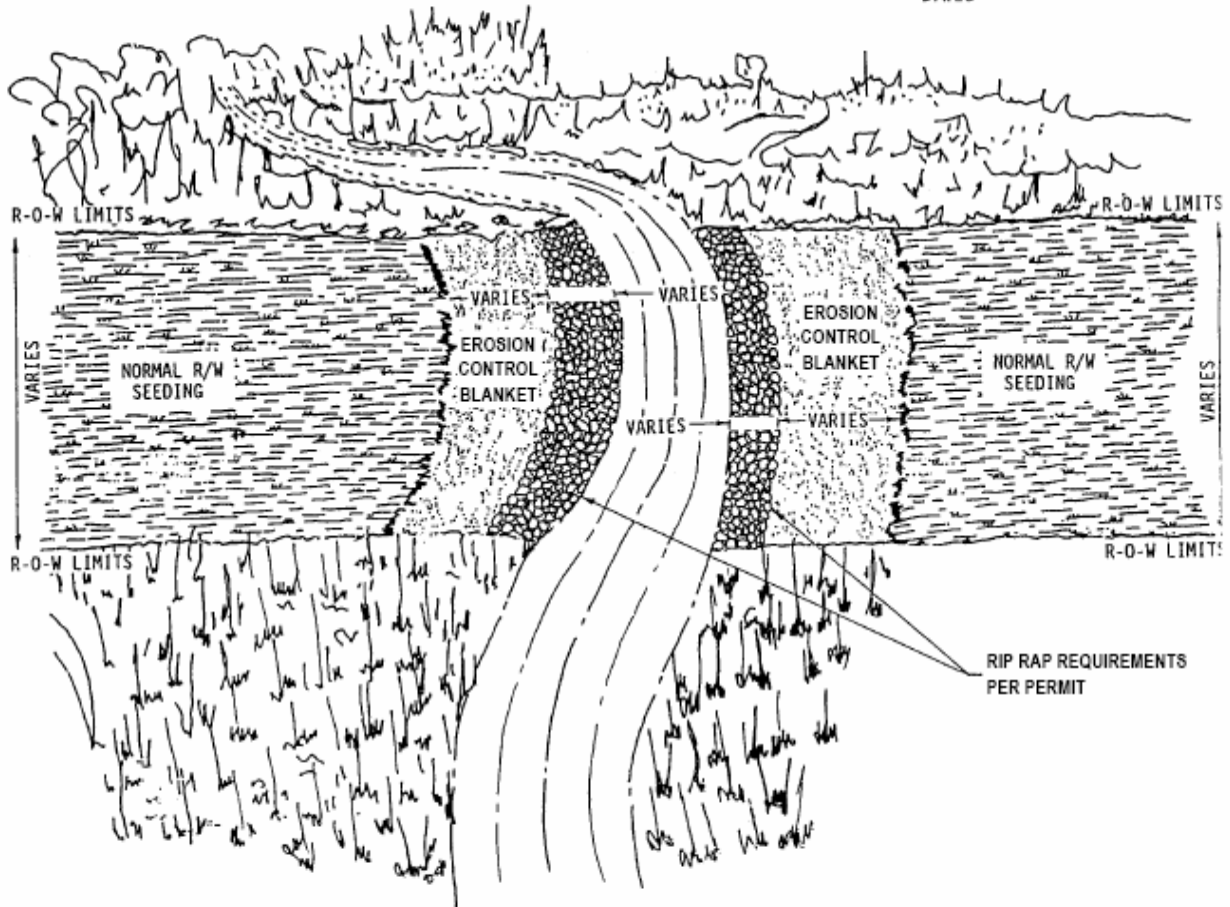
1. INSTALL EROSION CONTROL BLANKET AS PER MANUFACTURER'S SPECIFICATIONS.
2. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.



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Figure 6.7.2 – Erosion Control Blanket Steep Slopes (>30%)
8-inch Crude Oil Loop Pipeline
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NOTE: PLACE JUTE BLANKET A MINIMUM OF ONE (1) FOOT UNDER RIP RAP. EXTEND JUTE BLANKET FROM MEAN HIGH WATER LEVEL TO SEVERAL FEET BEHIND HIGH BANK.



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Figure 6.7.3 – Typical Final Stream Bank Stabilization-Rip Rap & Erosion Control 8-inch Crude Oil Loop Pipeline September 2007