

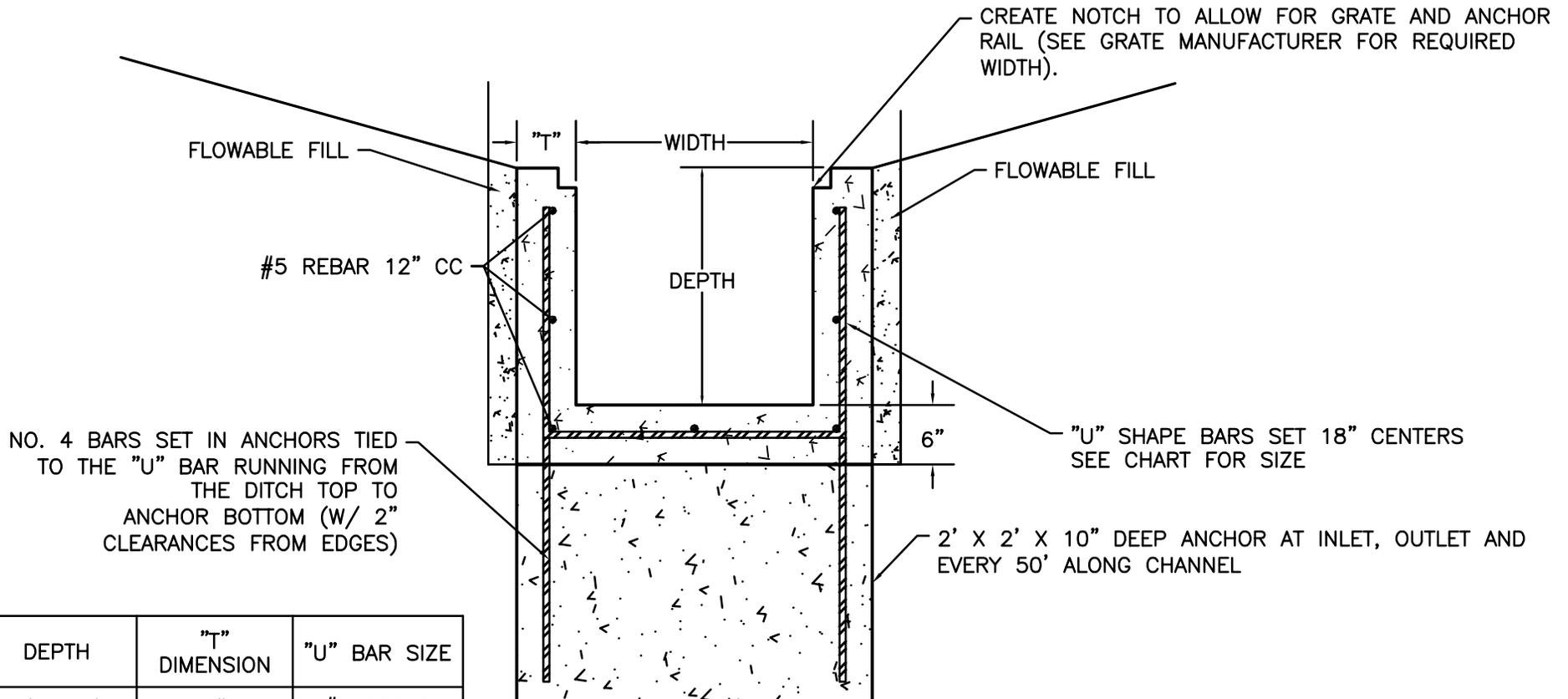
CONSTRUCTION JOINT

SEE AML 30-60-3 FOR ADDITIONAL DETAILS

CONSTRUCTION JOINTS SHALL BE PLACED A MINIMUM OF 10' & A MAXIMUM OF 20'. SEE "STEEL" SECTION OF AML TECHNICAL SPECIFICATION FOR BAR SPLICES & EMBEDMENT INFORMATION.

ALL STEEL REINFORCEMENT SHALL BE 60 KSI. ALL CONCRETE IS 4,000 PSI WITH FIBER REINFORCEMENT.

STANDARD GRATE IS EQUIVALENT OF HOE OF KY TYPE A W/ EMBEDDED FRAME RAIL FOR ANCHOR TO ATTACH GRATE TO DITCH USING BOLTS INTO THE PLATE. GRATE, RAIL, BOLTS, FRAME, ETC ARE INCIDENTAL.



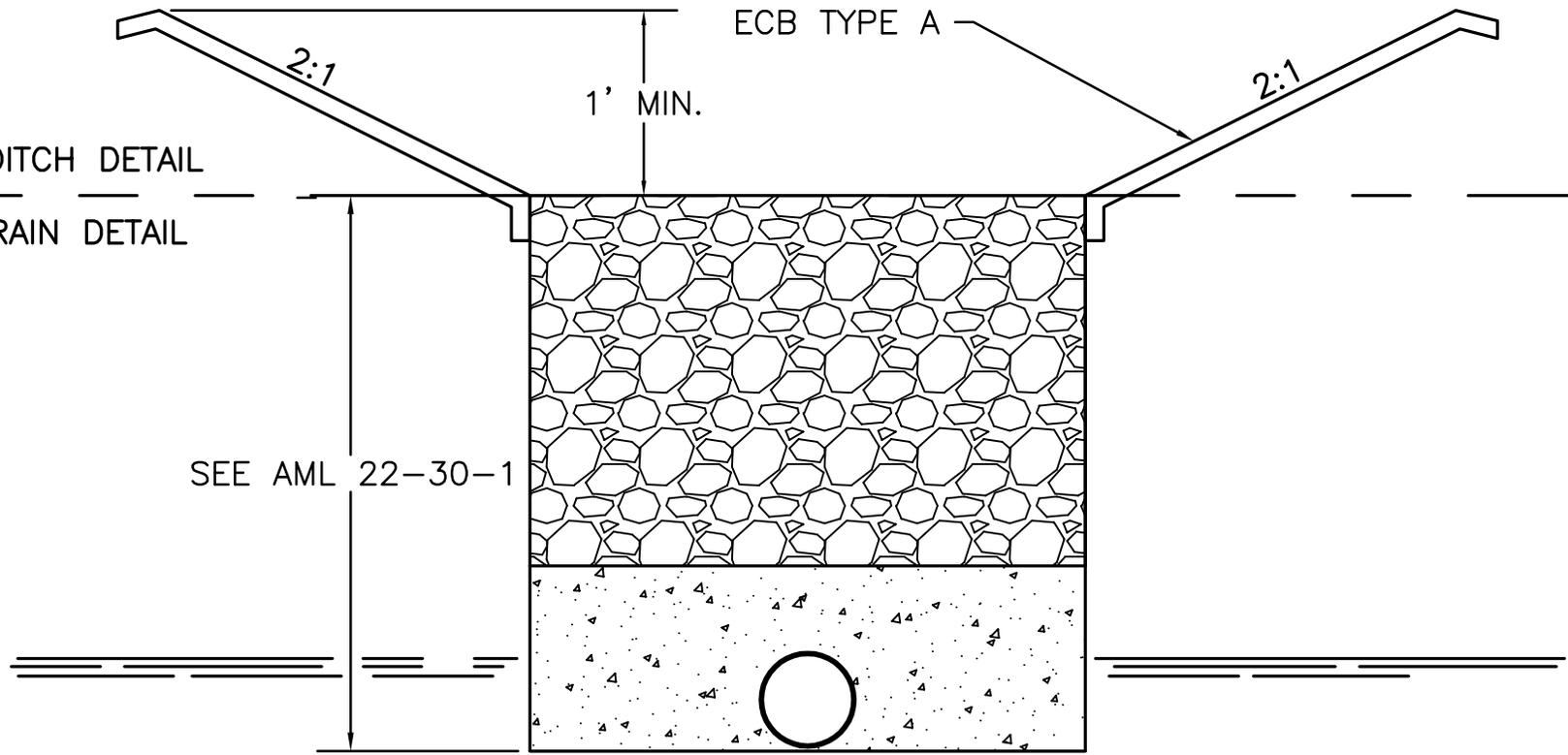
NO. 4 BARS SET IN ANCHORS TIED TO THE "U" BAR RUNNING FROM THE DITCH TOP TO ANCHOR BOTTOM (W/ 2" CLEARANCES FROM EDGES)

DEPTH	"T" DIMENSION	"U" BAR SIZE
0' - 3'	6"	#4 REBAR
3.1' - 6'	10"	#5 REBAR

ALL REBAR SHALL HAVE 2" MIN CLEARANCE. INSTALL SIDEWALLS COMPLETELY BELOW GROUNDLINE. UNITS MAY BE PRE-CAST WITH ENGINEER'S PRIOR APPROVAL.

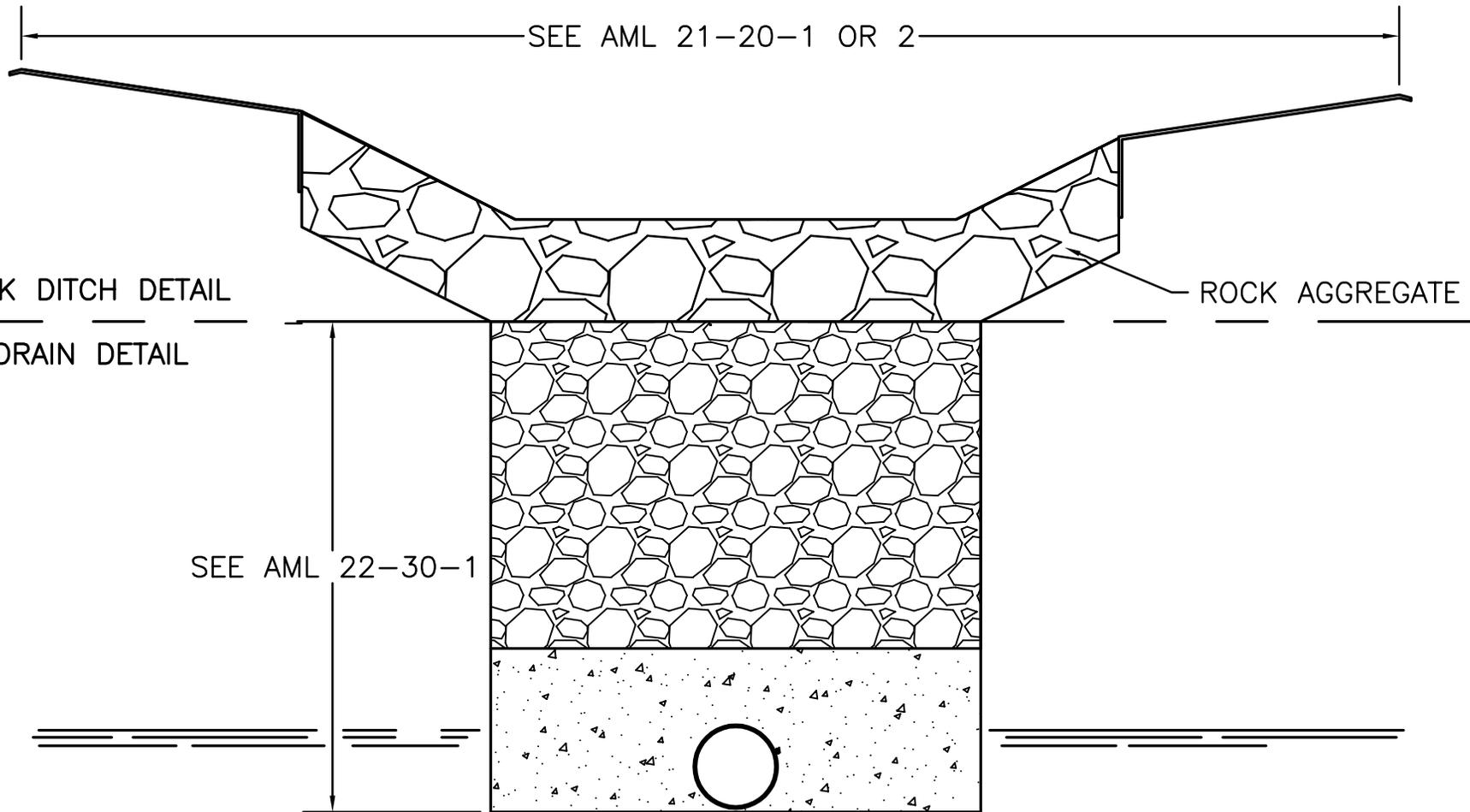
FOR GRATES USE WITH AML 24-50-1

CONCRETE DITCH- RECTANGULAR (AML 21-50-3)



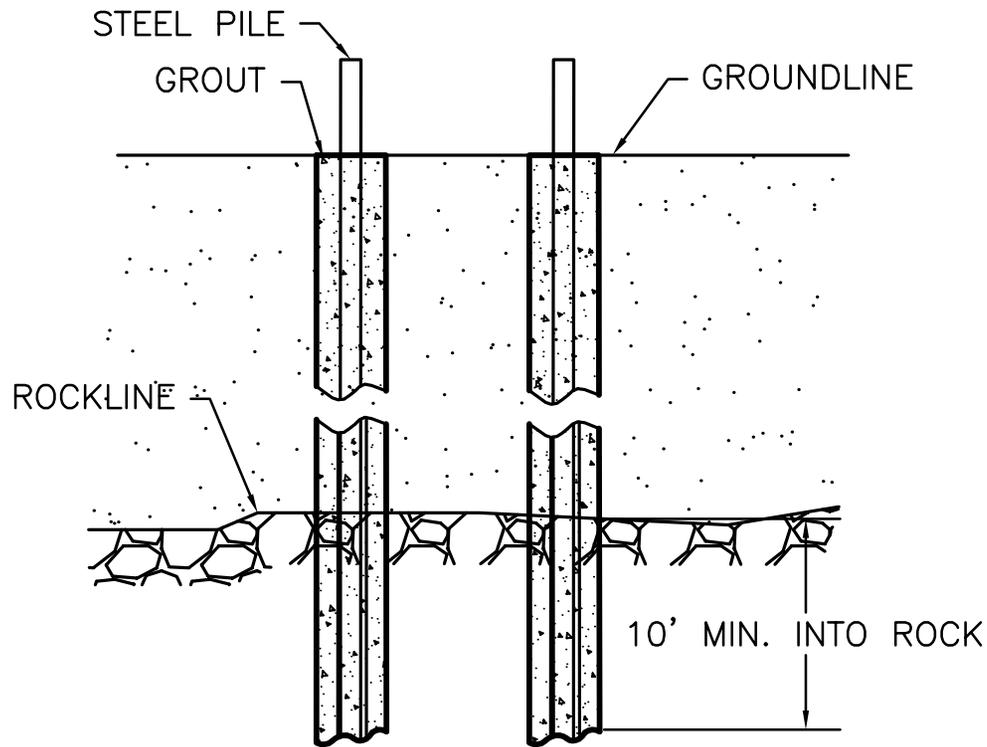
SEE THE DITCH AND SUBDRAIN DETAILS FOR SPECIFIC INFORMATION. SEPARATE BID ITEMS.

COMBINATION ECB DITCH-DRAIN (AML 22-30-3)



SEE THE DITCH OR SUBDRAIN DETAIL FOR SPECIFIC INFORMATION. SEPARATE BID ITEMS.

COMBINATION ROCK DITCH-DRAIN (AML 22-30-4)



DESIGN CHART	
DEPTH OF ROCK	CTR-CTR SPACING OF RAILS AND NO. OF ROWS
5'-9'	USE 48" SPACING- 1 ROW
10'-14'	USE 36" SPACING- 1 ROW
15'-19'	USE 24"- 1 ROW <u>OR</u> USE 48"- 2 ROWS
20'-24'	USE 24"- 2 ROWS <u>OR</u> USE 36"- 3 ROWS
25'+	USE 24" SPACING- 3 ROWS

- IF SOIL DEPTH EXCEEDS 5 FEET, THEN A 2' THICK CONCRETE CAP SHOULD BE USED TO TIE THE STEEL PILES TOGETHER UNLESS DIRECTED OTHERWISE ON THE DRAWINGS OR BY THE ENGINEER IN WRITING.
- MINIMUM PILE SIZE IS W8 X 40
- ENGINEER MAY SUBSTITUE STEEL PILES FOR 130 LBS/YD RAIL STEEL (SEE NOTE 5).

NOTES:

1. IF DEPTHS TO ROCK EXCEED 20' THE ENGINEER MAY REQUIRE ADDITIONAL EXCAVATION.
2. BEAMS SHALL BE ORIENTED WITH FLANGES PERPENDICULAR TO POSSIBLE SLIDE MOVEMENT.
3. BEAMS SHALL BE ENCASED WITH GROUT FOR THE ENTIRE DEPTH OF THE HOLE.
4. BEAMS SHALL BE STRAIGHT AND STRUCTURALLY SOUND. NO SPLICING SHALL BE ALLOWED.
5. THE ENGINEER MAY SPECIFY THE SIZE OR TYPE OF STEEL, INCLUDING USE OF RAILROAD STEEL RAILS, ON DRAWINGS, IN THE SPECIAL CONDITIONS, OR IN WRITING DURING CONSTRUCTION.

SEE AML 30-30-2 FOR CAP DETAILS

STEEL PILES FOUNDATION (AML 30-30-1)

1. BURY ONLY 1/2 BASKET FOR WALLS SHORTER THAN 9 FT.
2. GABION WALLS MUST BE CONSTRUCTED IN A STAGGER PATTERN AS SHOWN. THIS MUST BE DONE FOR BOTH DIRECTIONS OF THE WALL.

SLOPE 1.5:1 MAX

CHAIN-LINK FENCE REQUIRED FOR WALLS 9' OR HIGHER

Height	Pattern	Backfill CYD/LF Average
9	3-2-1	8.3
12	3-3-2-1	10.8
15	4-4-3-2-1	18.3
18	4-4-4-3-2-1	24.3

3' X 3' GABION BASKETS

CLASS II BACKFILL

USE MEDIUM WEIGHT NON-WOVEN FILTER FABRIC OVER SOIL, NOT OVER BEDROCK

CONSTRUCTION SLOPE

DEPENDING ON ROCK LINES ENCOUNTERED, THE SHADED BASKETS MAY BE OMITTED BY ENGINEER

NO. 2 STONE SURROUNDED BY LIGHT WEIGHT NON-WOVEN FILTER FABRIC (1' OVERLAP)

8" HDPE DUAL WALL PERFORATED SOCK PIPE WRAPPED IN LIGHT WEIGHT FILTER FABRIC OR SOCK PIPE

CLASS II LEVELING PAD AS NEEDED

BI OR TRI AXIAL GEO-GRID

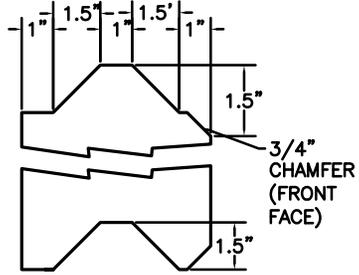
STEEL PILES FOUNDATION (IF REQUIRED USE AML 30-30-1)

THE DRAWINGS MAY REQUIRE GABIONS WITH TAILS (NOT SHOWN). TAILS EXTEND HORIZONTALLY INTO THE BACKFILL AT LENGTH SPECIFIED ON DRAWINGS.

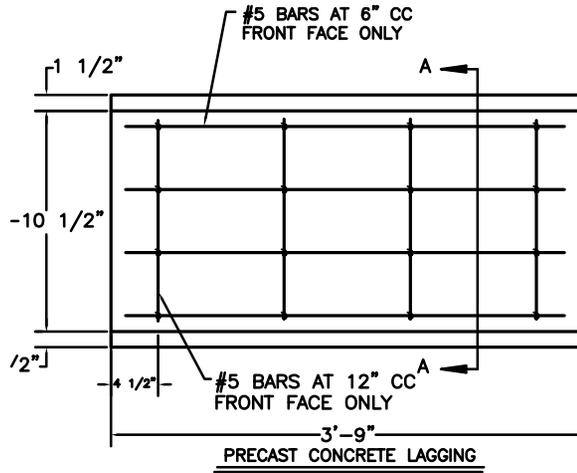
USE WITH AML 70-30-1

GABION RETAINING WALL (AML 30-40-1)

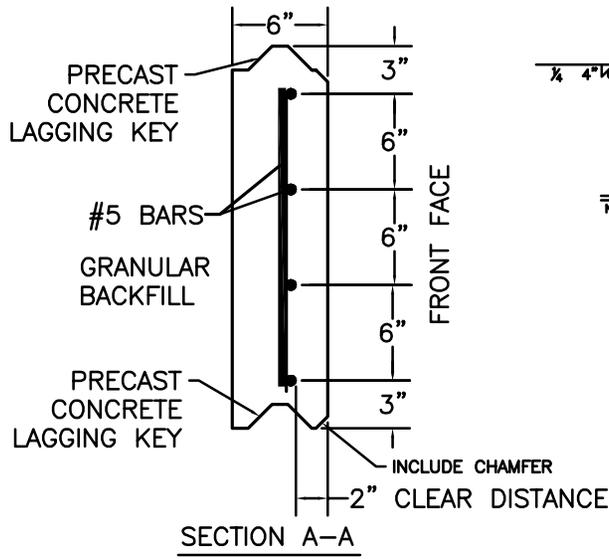
NOTE: ALL CONCRETE 4,000 PSI



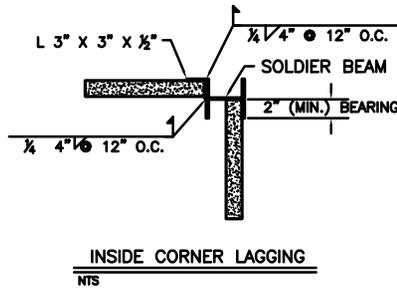
PRECAST CONCRETE LAGGING KEY



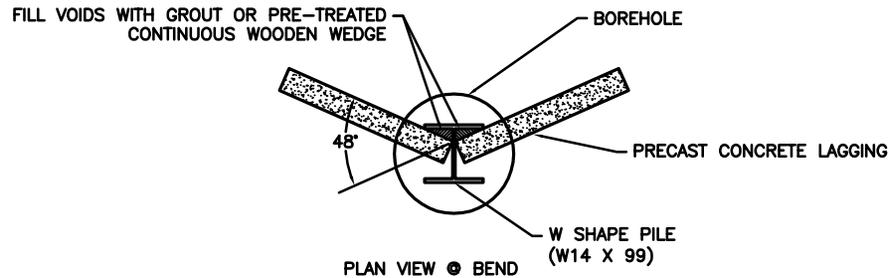
PRECAST CONCRETE LAGGING



SECTION A-A



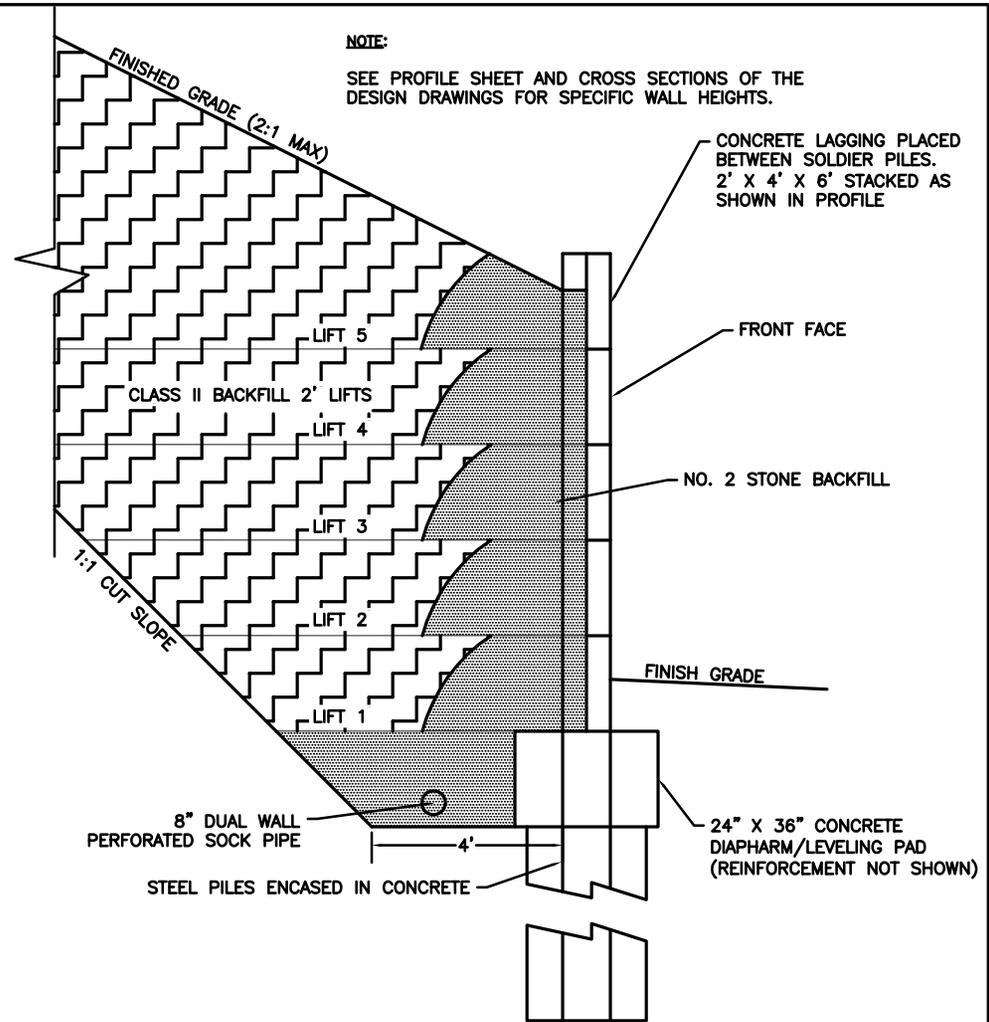
INSIDE CORNER LAGGING  
NTS



FLANGE PRESSURE DISTRIBUTION DETAIL  
NTS

NOTE:

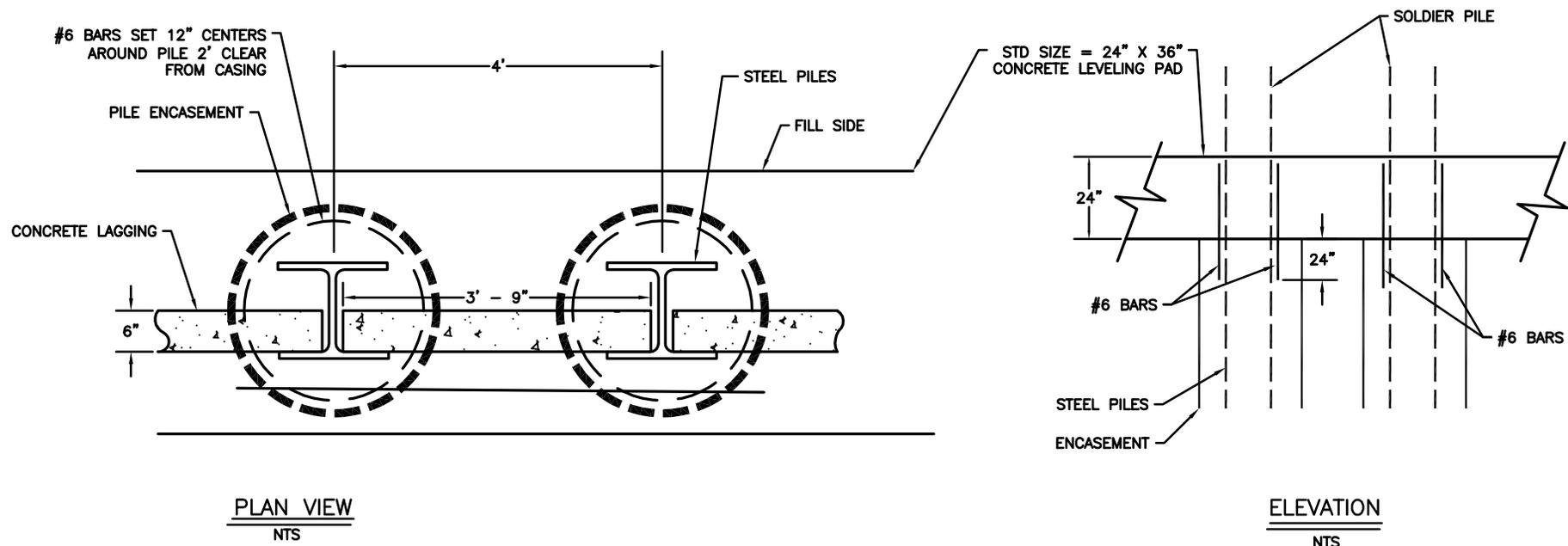
SEE PROFILE SHEET AND CROSS SECTIONS OF THE DESIGN DRAWINGS FOR SPECIFIC WALL HEIGHTS.



SECTION - PILE AND LAGGING WALL

USE WITH  
AML 30-70-2

PILE AND LAGGING WALL- SHEET 1 (AML 30-70-1)



**NOTE:**

THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO FORMING AND/OR POURING ANY PANELS SUCH THAT THE ENGINEER MAY HAVE A REPRESENTATIVE ON SITE PRIOR TO AND DURING THE POURING PROCESS.

ALL STEEL REINFORCEMENT SHALL BE ACCURATELY PLACED IN THE FORMS VERTICALLY AND HORIZONTALLY OF THE THE POSITIONS SHOWN. THE REINFORCEMENT CAGE (REAR) SHALL BE HELD FIRMLY IN PLACE BY THE USE OF CHAIRS AND WIRE TIES DURING THE VIBRATION, AGITATION, AND CURING CYCLES OF THE CONCRETE TO PREVENT MOVEMENT. WIRE TIES SHALL BE USED IN THE FABRICATION OF THE REINFORCEMENT CAGE (REBAR). ALL STEEL REINFORCEMENT SHALL BE 60 KSI. WELDING SHALL NOT BE PERMITTED.

FOR SPLICES SEE AML 30-70-3 AND "STEEL" SECTION OF TECHNICAL SPECIFICATIONS.

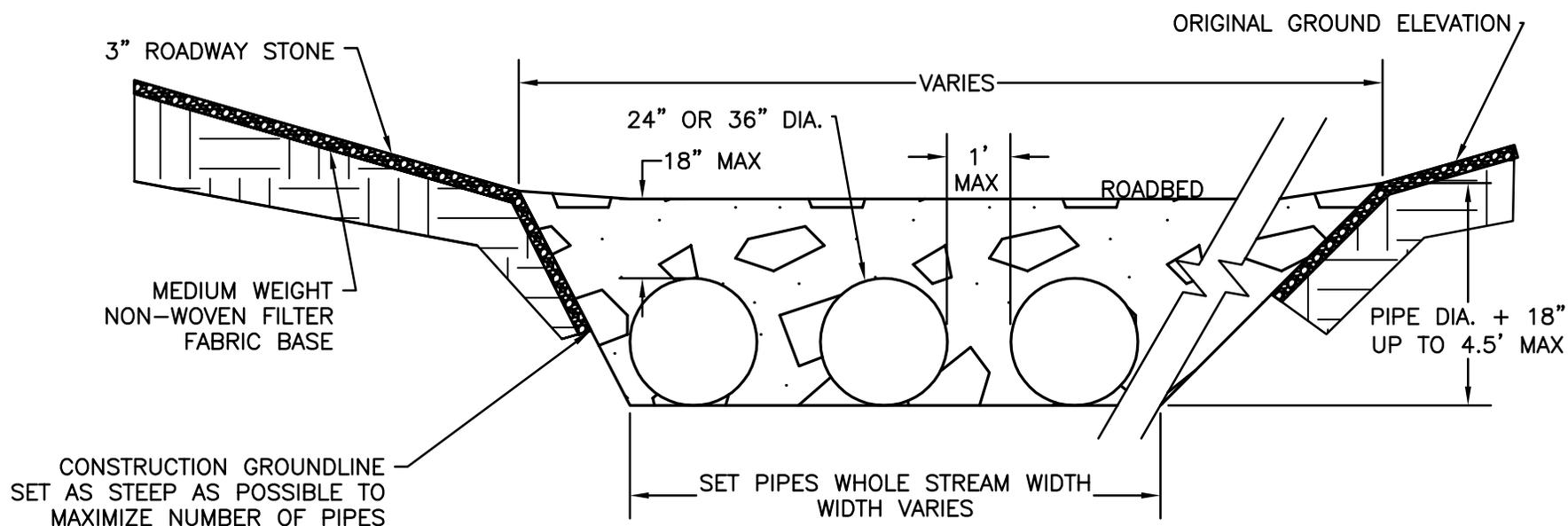
SEE AML 30-30-2 FOR CONCRETE CAP REINFORCEMENT DETAILS. STANDARD SIZE IS 2' H X 3' W.

USE WITH AML 30-70-1

**PILE AND LAGGING WALL- SHEET 2 (AML 30-70-2)**

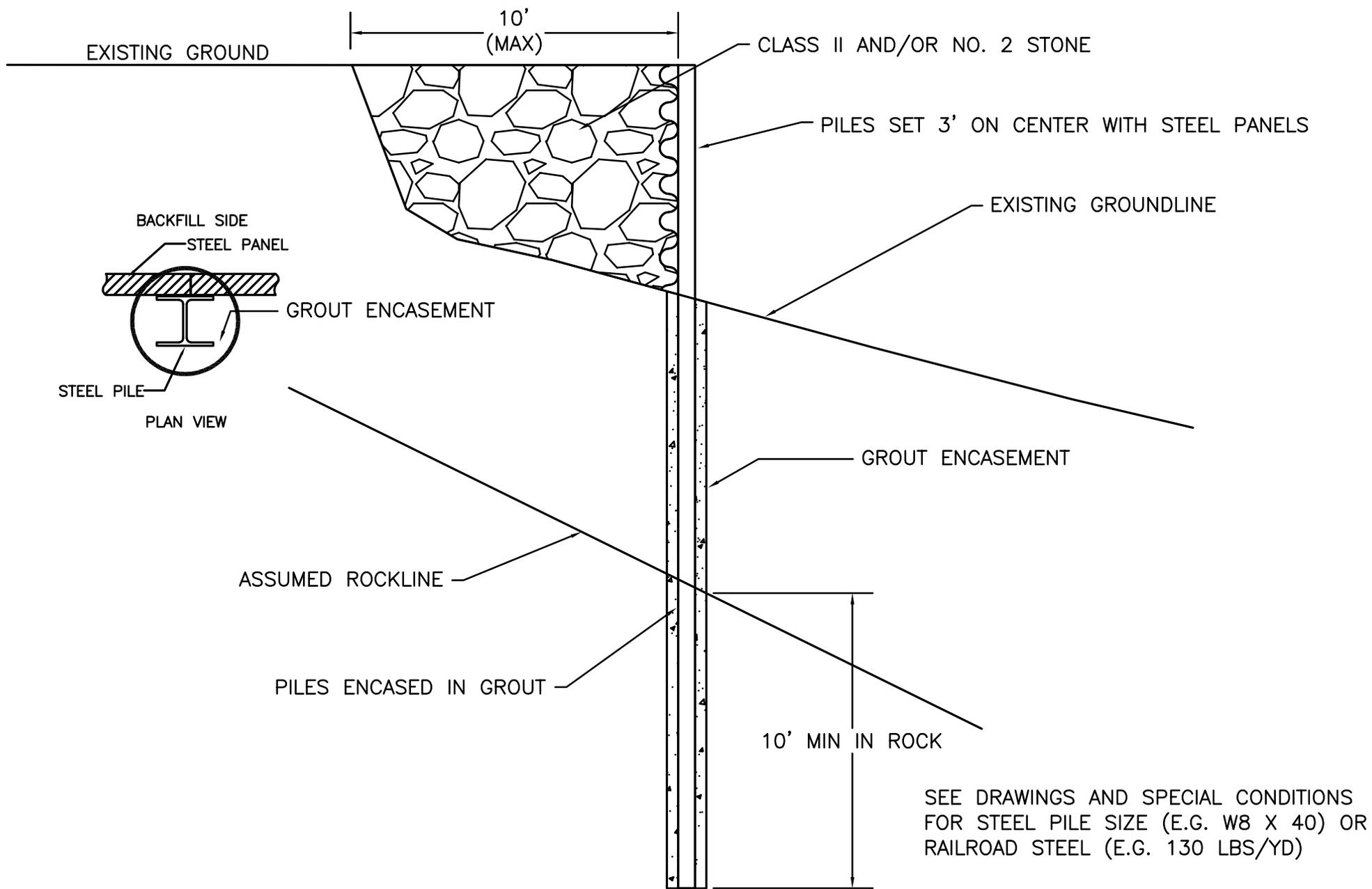
NOTE: THIS DETAIL IS BASED UPON THE KY DIVISION OF WATER (DOW) AND MUST BE INSTALLED AS SHOWN WITH NO ALTERATIONS UNLESS APPROVED IN THE FLOODPLAIN PERMIT CONDITIONS. FOR STREAMS NOT REQUIRING A FLOODPLAIN PERMIT AN ENGINEER MUST APPROVE ALTERATION IN WRITING (OR STATE IN PROJECT SPECIAL CONDITIONS).

1. USE THE MAXIMUM NUMBER OF 24" OR 36" PIPES THAT FIT INTO THE STREAM. NO MORE THAN 18" OF FILL OVER PIPES. PIPES AND BACKFILL MUST BE CONTAINED WITHIN STREAM CHANNEL AS SHOWN. NO MORE THAN ONE FOOT (1') SPACING BETWEEN PIPES WITH A MAXIMUM FILL HEIGHT OF (PIPE DIA. + 18") UP TO 4.5 FT.
2. DURING CONSTRUCTION OF APPROACHES AND ACCESS ROADWAY, UNSTABLE AND UNCONSOLIDATED MATERIALS UNSUITABLE FOR ROADWAYS MAY BE EXCAVATED AND REPLACED WITH RIP-RAP, CRUSHED STONE, OR OTHER STABLE ROAD CONSTRUCTION MATERIALS PROVIDED:
  - A) THE DISPOSAL OF EXCESS, UNCONSOLIDATED MATERIALS EXCAVATED MUST BE OUTSIDE OF THE FLOODPLAIN
  - B) THE FINISHED SURFACE OF THE COMPLETED ROAD MAY BE NO MORE THAN THREE INCHES (3") ABOVE THE PRE-CONSTRUCTION SURFACE OF THE FLOODPLAIN AT ANY POINT BEYOND THE TOP OF BANKS.
3. LOW-WATER CROSSING SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION DURATION. ALL PIPES SHALL BE INSPECTED AND CLEANED AS NEEDED TO ENSURE MAXIMUM HYDRAULIC CAPACITY.
4. INSTALL ON STRAIGHT SECTIONS OF STREAM IF AT ALL POSSIBLE!
5. APPROACHES ARE TO BE EXCAVATED AND REPLACED WITH NON-WOVEN FILTER FABRIC AND 3" ROADWAY STONE (SEE NOTE 3B FOR HEIGHT RESTRICTIONS).



ALL PIPE LEVEL WITH LOW POINT OF ORIGINAL STREAMBED/CHANNEL

## TEMPORARY LOW WATER CROSSING (AML 50-10-7)



GUARDRAIL PANEL WALL- STEEL PILES (AML 50-20-3)

## **SECTION 23- CULVERTS & HEADWALLS**

AML 23-10-1	Concrete Headwalls- 12"-27" Circular Standard & "Ell"
AML 23-10-2	Concrete Headwalls- 12"-27" Elliptical Standard & "Ell"
AML 23-10-3	Concrete Headwalls- 12"-27" Dimensions And Quantities
AML 23-10-4	Concrete Headwalls- U-Type
AML 23-10-5	Concrete Headwalls- 12"-21" Sloped & Parallel
AML 23-10-6	Concrete Headwalls- 12"-27" Sloped & Flared
AML 23-10-7	Concrete Headwalls- $\geq 30$ " Pipe
AML 23-10-8	Concrete Headwalls- $\geq 30$ " Pipe Dimensions
AML 23-10-9	Concrete Headwalls- $\geq 30$ " Pipe Reinforcement
AML 23-10-10	Concrete Headwall- Dissipaters
AML 23-10-11	Discharge Area Erosion Control
AML 23-20-1	Concrete Headwall- 18"-24" Multiple Barrel
AML 23-20-2	Concrete Headwall- 30" - 48" Double Barrel
AML 23-20-3	Concrete Headwall- 30" - 48" Triple Barrel
AML 23-20-4	Concrete Headwall- Multiple Pipe Dimensions
AML 23-20-5	Concrete Headwall- Multiple Pipe Reinforcement
AML 23-30-1	Gabion Headwall
AML 23-40-1	CMP Joints
AML 23-40-2	Intermediate And End Culvert Anchor
AML 23-50-1	Slotted Pipe Bedding
AML 23-50-2	Pipe Bedding- Non-Trenching Conditions
AML 23-50-3	Pipe Bedding- Trenching Conditions
AML 23-50-4	Pipes Cover Depths Chart Key & Notes
AML 23-50-5	Circular Pipe Cover Depths
AML 23-50-6	Non-Circular Pipe Cover Depths & Equivalent Circular Pipe Diameters
AML 23-60-1	Culvert Debris Barrier
AML 23-60-2	In-Stream Culvert Debris Barrier

## **SECTIONS 50- ACCESS REPAIR & SAFETY**

AML 50-10-1	Stabilized Construction Entrance
AML 50-10-2	Curb Barriers
AML 50-10-3	Bituminous Pavement Restoration
AML 50-10-4	Bituminous Pavement Restoration W/ Pipe
AML 50-10-5	Access Gate - 16' Steel Tube
AML 50-10-6	Concrete Block- Interlocking Mat
AML 50-10-7	Temporary Low Water Crossing
AML 50-10-8	Temporary Access Bridge
AML 50-10-9	Mountable Berm
AML 50-20-1	Debris Barrier Wall- Bale & Plywood
AML 50-20-2	Debris Barrier Wall- Permanent
AML 50-20-3	Guardrail Panel Wall- Steel Piles
AML 50-20-4	Guardrail Panel Wall- Pipe Support
AML 50-20-5	Chain-Link Fence
AML 50-20-6	Woven-Wire Fence
AML50-20-7	Concrete Jersey Barrier
AML 50-20-8A	Steel Beam Guardrail
AML 50-20-8B	Guardrail Components
AML 50-20-8C	Guardrail Post- Steel
AML 50-20-8D	Guardrail Post- Timber

# WETLAND COMPOST

## **1. SCOPE**

This work shall consist of furnishing, mixing, and placing a wetland compost mixture for bedding within wetland cells.

## **2. MATERIALS**

**2.1. Hardwood Bark Mulch:** Shall conform to the “Revegetation” technical specification.

**2.2. Limestone Sand:** Shall conform to the “Revegetation” technical specification.

**2.3. Straw and Hay Mulch:** Shall be a 1:1 mixture with no more than 60% of either material and all material conforming to the “Revegetation” technical specification.

**2.4. Compost/Manure:** Shall consist of three parts by volume carbon based material such as straw, hay, corn stalks, leaves and/or wood chips and one part by volume of nitrogen based materials such as grass clippings, green silage, green haylage, or other similar materials approved by the ENGINEER. The temperature during composting shall remain between 105 °F and 145 °F. The compost shall result in a dark brown or black, humic material in which the initial constituents are no longer recognizable and further degradation is not noticeable. Heavy metal, organic chemical and pathogen concentrations of the compost shall be within the limits established by federal and state environmental regulations. A representative sample shall be tested for the above to ensure compliance. Material shall not contain more than 40% moisture by weight. The product may be damp but should not drip when squeezed. Compost shall have an earthy smell when wetted and placed in a sealed plastic bag after 72 hours. The finished compost shall not heat when stacked in a pile.

## **3. CONSTRUCTION**

The aforementioned material will be combined to create an organic substrate. The homogeneous mixture will be made from the approximate percentages:

Component	Volume (CYD)	Weight (TON)
Hardwood Bark Mulch	30%	13%
Limestone Sand	10%	59%
Straw and/or Hay (1:1 mixture)	50%	20%
Compost/Manure	10%	8%

Blend the above ingredients into a uniform consistency. Wet the materials before blending lime and compost into the mixture. Place the mixture with truck end dump or excavator. Minimize compaction including minimizing foot traffic across placed substrate.