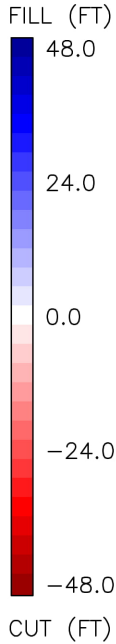

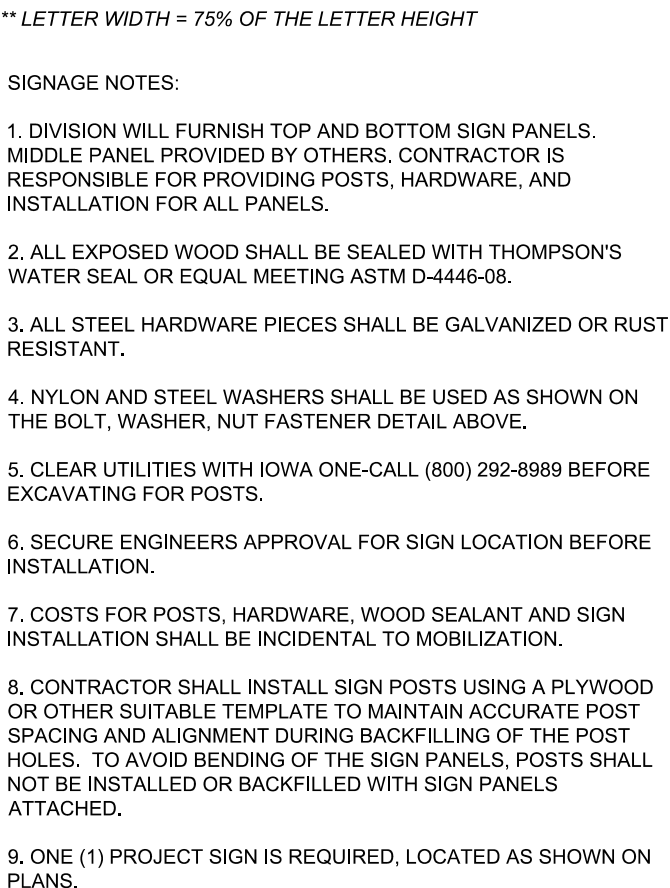


TABLE 2. CUT/FILL QUANTITIES BY SITE

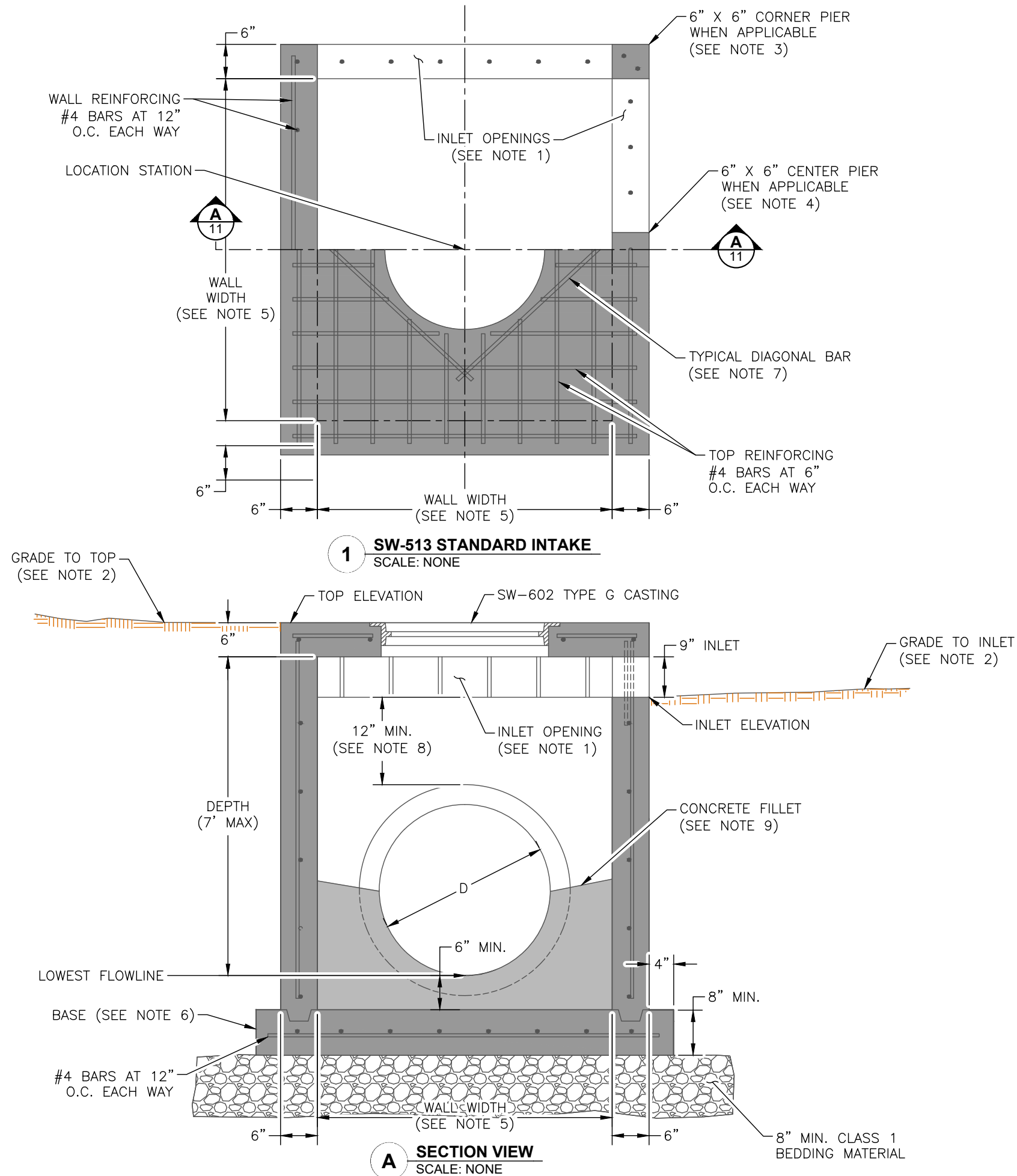
SITE	CUT (CY)	FILL (CY)	SHRINKAGE
KLOOTWYK	850,495	767,719	10%



DESIGN BY: KCW	DRAWN BY: PC	CHKD. BY: KCW	ISSUED: 08/2025	REVISED:	FILE: 9 GRADING PLAN CUT-FILL ISOMAP
KLOOTWYK (IA-031) AML RECLAMATION PROJECT			IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP DIVISION OF SOIL CONSERVATION AND WATER QUALITY HOOVER BUILDING 1305 E WALNUT ST. DES MOINES, IA 50319 (515)281-4246		
GRADING PLAN CUT-FILL ISOMAP			 Trihydro CORPORATION TRIHYDRO CORPORATION 1252 COMMERCE DRIVE LARAMIE, WYOMING 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729		
SHEET 9 OF 22					



C:\USERS\KILLISON\DC\ACCDOS\TRHYDRO CORPORATION\KLOOTWYK\PROJECTS\21A-012_KLOOTWYK\CADD\PLANS\11-IA DOT SW-513 STANDARD INTAKE STRUCTURE



THIS DRAWING SHOWS STRUCTURE AS CAST IN PLACE. STRUCTURE MAY BE PRECAST. A PRECAST INSTALLATION IS PREFERABLE.

STRUCTURE SHALL BE BUILT WITH THE NUMBER OF OPENINGS AND WALL WIDTHS AS SHOWN ON THE PLANS.

ADJACENT WALLS MAY HAVE DIFFERENT WIDTHS BASED UPON PIPE CONFIGURATION, BUT STRUCTURE MUST BE RECTANGULAR.

SEE PLAN OR ACCOMPANYING NOTES ON DETAIL SHEET FOR INSTALLED DIMENSIONS, ELEVATIONS, AND PIPE SIZES.

1. CONSTRUCT INLET OPENINGS WITH 15-INCH #4 EPOXY-COATED BARS AT 8 INCHES ON CENTER. EMBED BARS A MINIMUM OF 3 INCHES INTO WALLS AND TOP AT ALL OPENINGS.
2. GRADE DRAINAGE WAY TO FORM GRADE (F.G.) ELEVATION ON OPEN SIDES. 4:1 MAX. GRADE TO TOP ELEVATION ON CLOSED SIDES. FOR WETLAND APPLICATIONS, GRADE POND BOTTOM UP TO WITHIN 6 INCHES BELOW F.G. ELEVATION.
3. CORNER PIER REQUIRED BETWEEN OPENINGS OF TWO ADJACENT WALLS. EXTEND WALL REINFORCING VERTICALLY THROUGH PIER. INSTALL ONE ADDITIONAL 15-INCH #4 BAR IN PIER.
4. CENTER PIER REQUIRED AT CENTER OF ANY INLET OPENING WITH LENGTH OF 5 FEET OR GREATER. EXTEND WALL REINFORCING VERTICALLY THROUGH PIER. INSTALL ONE ADDITIONAL 15-INCH #4 BAR IN PIER.
5. WALL WIDTHS VARY WITH PIPE DIAMETER. PROVIDE 6 INCHES OF WALL WIDTH (MINIMUM) EACH SIDE OF PIPE OPENING. MINIMUM WALL WIDTH IS 36 INCHES. MAXIMUM WALL WIDTH IS 72 INCHES.
6. CAST-IN-PLACE BASE SHOWN. IF BASE IS PRECAST INTEGRAL WITH WALLS, THE FOOTPRINT OF BASE IS NOT REQUIRED TO EXTEND BEYOND THE OUTER EDGE OF THE WALLS.
7. INSTALL FOUR #4 DIAGONAL BARS AT ALL PIPE OPENINGS.
8. 12" MINIMUM WALL HEIGHT ABOVE ALL PIPES.
9. IF CASTING FILLET IN PLACE, PREVENT CONCRETE FROM TOUCHING PIPE OR THE FLEXIBLE SEAL.
10. SLEEVES OR ADAPTERS ARE REQUIRED FOR PIPE WITH EXTERIOR CORRUGATIONS. ALL CONNECTIONS SHALL BE WATER TIGHT.

ISSUE FOR BID

FILE: 11 IA DOT SW-513 STANDARD INTAKE STRUCTURE

REVISED:

08/2025

ISSUED:

CHKD. BY: KCW

DRAWN BY: PC

DESIGN BY: KCW

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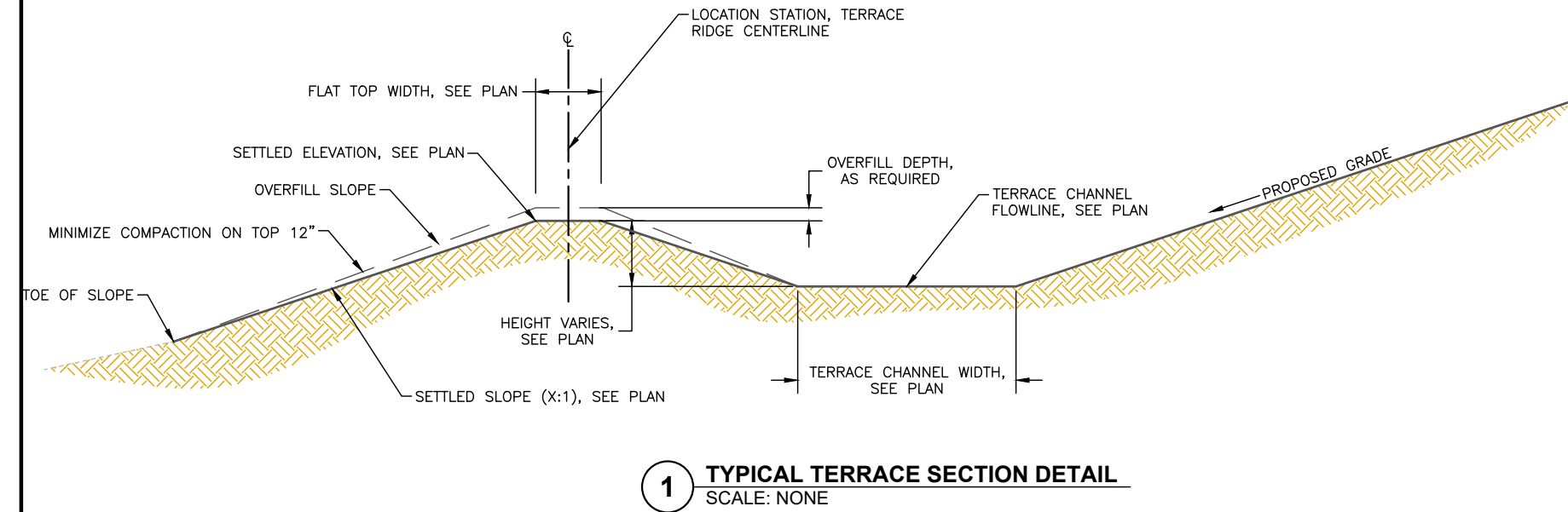


KLOOTWYK (IA-031)

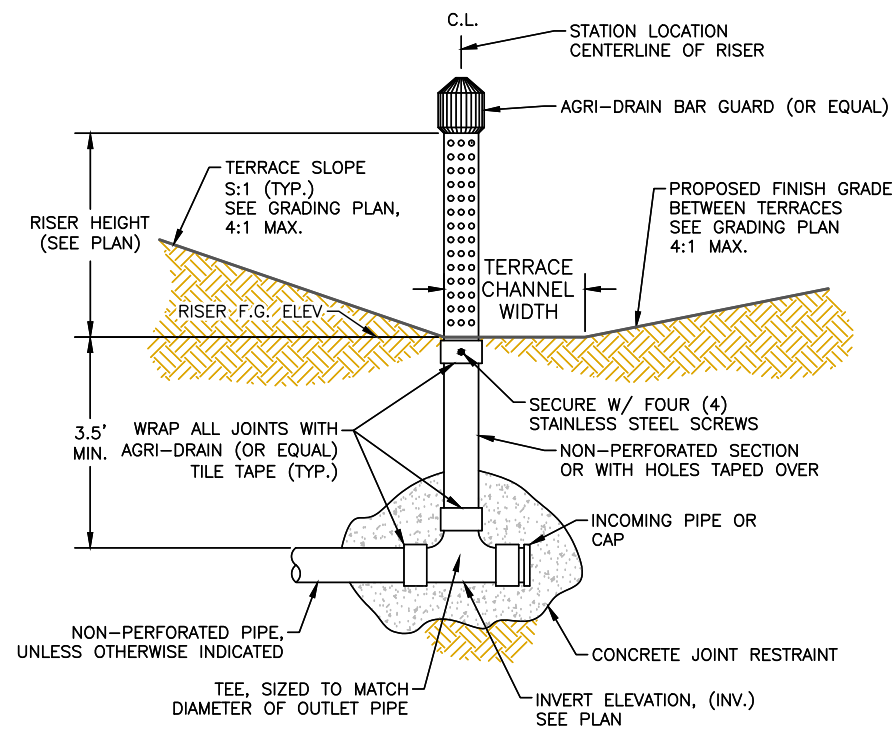
AML RECLAMATION PROJECT

IA DOT SW-513 STANDARD INTAKE
STRUCTURE

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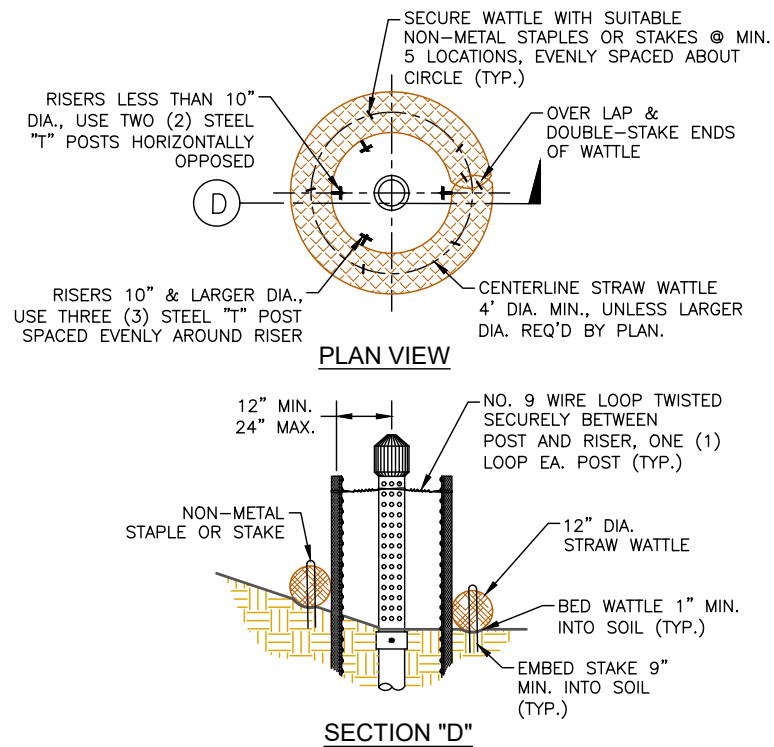


1 TYPICAL TERRACE SECTION DETAIL
SCALE: NONE



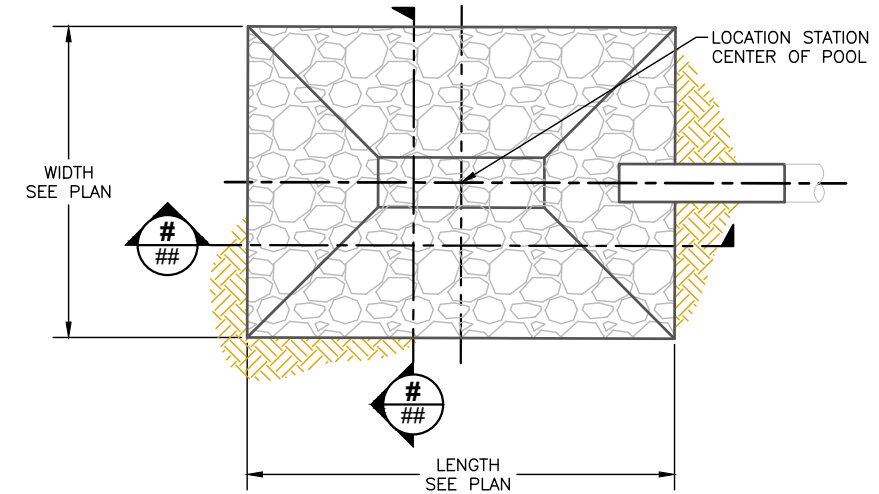
NOTE:
1. IF APPROVED BY THE ENGINEER, AGRI-DRAIN (OR EQUAL) PIPE STRAPS MAY BE USED IN LIEU OF CONCRETE TO RESTRAIN ALL CONNECTIONS OF THE RISER AND TEE ASSEMBLY. AND IF USED, ALL METAL COMPONENTS OF PIPE STRAPS SHALL BE COVERED BY AT LEAST 2 WRAPS OF TILING TAPE.

2 TYPICAL RISER INSTALL DETAIL
SCALE: NONE

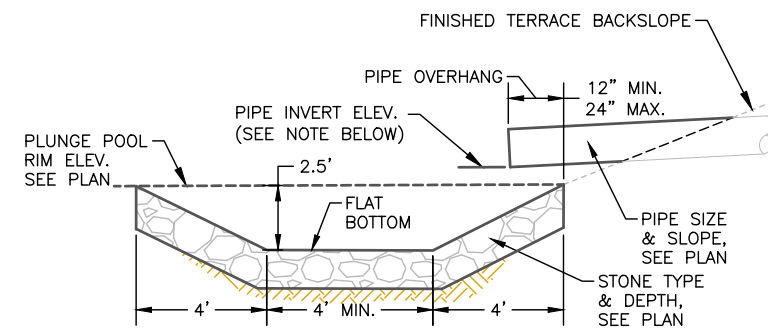


NOTES:
1. FILTER SOCK MAY BE USED IN LIEU OF STRAW WATTLE. IF USED, SECURE FILTER SOCK IN PLACE PER MANUFACTURER'S RECOMMENDATION.
2. COST OF STEEL "T" POSTS ARE INCIDENTAL TO THE COST OF RISER INSTALLATION.

3 TYPICAL RISER PROTECTION DETAIL
SCALE: NONE



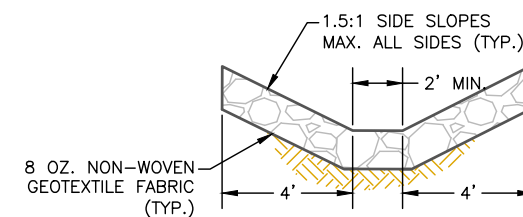
4 TYPICAL TILE OUTLET PROTECTION
SCALE: NONE



A TYPICAL TILE OUTLET PROTECTION - CROSS SECTION A
SCALE: NONE

NOTES:

1. ALL PIPES SHOULD OUTLET APPROXIMATELY 1' ABOVE RIM.
2. ALL PIPES DRAINING INTO WETLAND POOLS MUST OUTLET AT LEAST 1' ABOVE NORMAL POOL LEVEL.



B TYPICAL TILE OUTLET PROTECTION - CROSS SECTION B
SCALE: NONE

FILE: 12 TYPICAL TERRACE DETAILS

CHKD. BY: KCW
ISSUED: 08/2025
REVISED: #

DESIGN BY: KCW
DRAWN BY: PC

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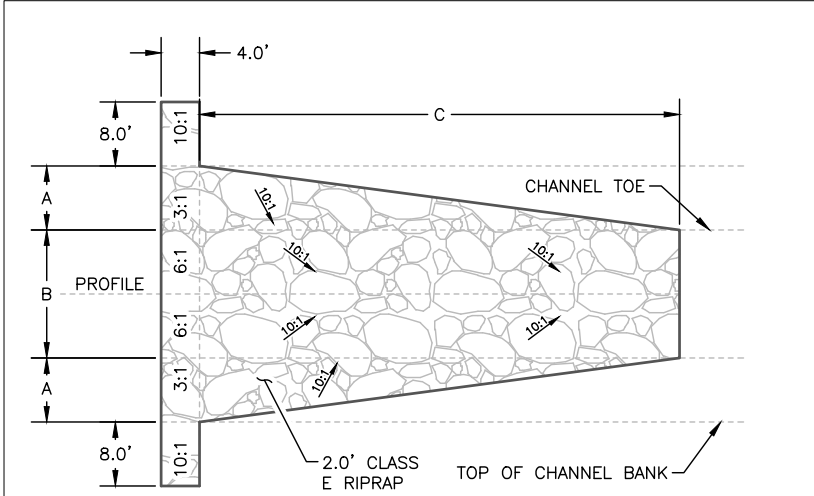


KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

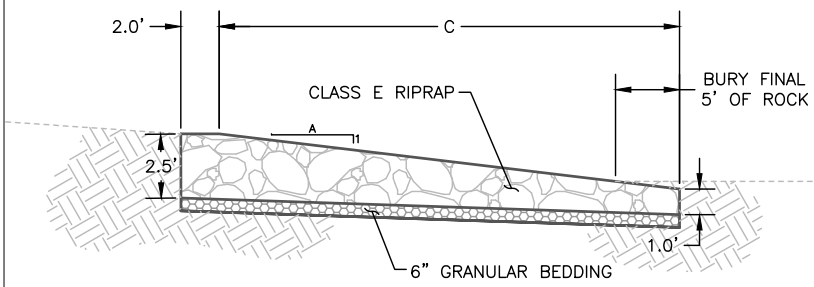
TYPICAL TERRACE DETAILS



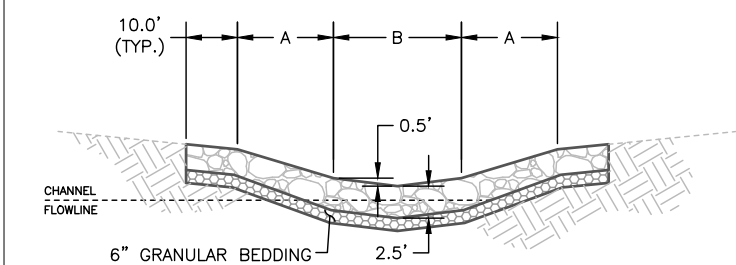
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1 ROCK LETDOWN PLAN VIEW
SCALE: NONE

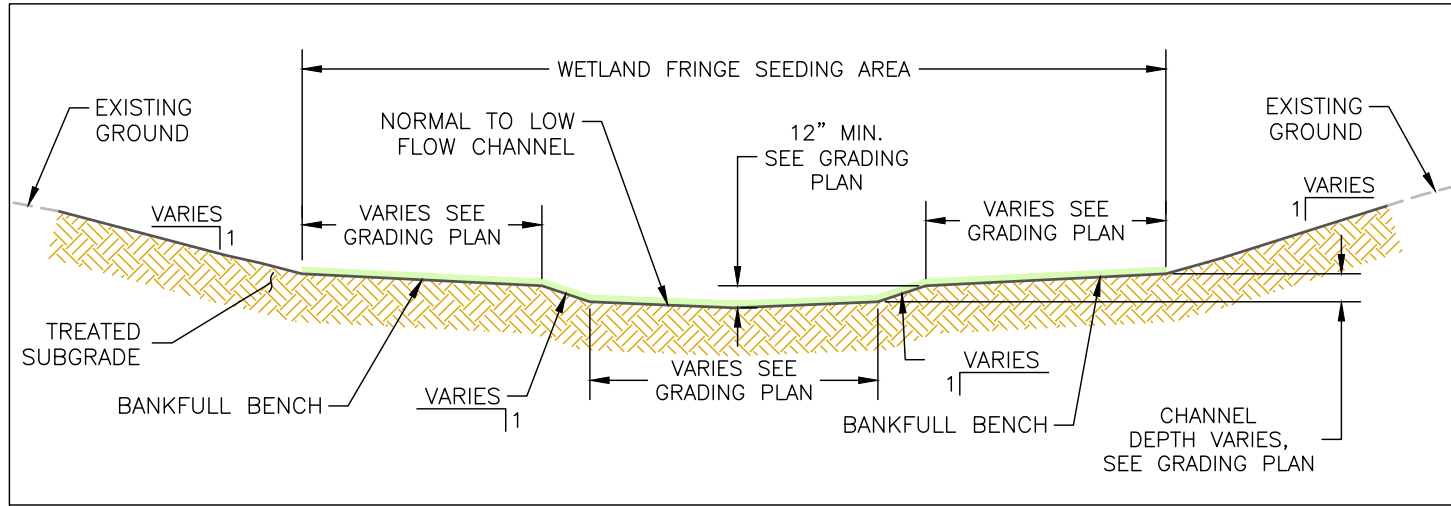


A ROCK LETDOWN PROFILE VIEW
SCALE: NONE

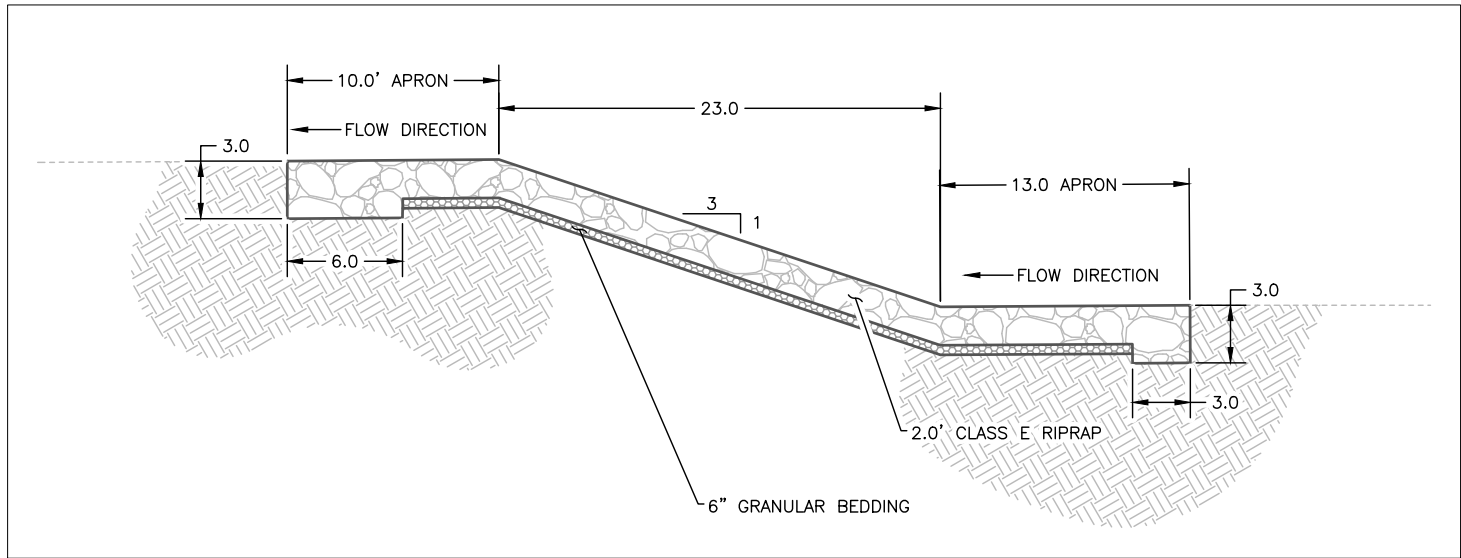


B ROCK LETDOWN CROSS SECTION
SCALE: NONE

ROCK LETDOWN MATERIAL SUMMARY							
CHANNEL	STRUCTURE	# OF STRUCTURES	[A] SLOPE (FT)	[B] WIDTH (FT)	[C] LENGTH (FT)	CLASS E RIPRAP (TONS)	STONE FILTER (TONS)
MAIN CHANNEL C1	TYPICAL	4	15	30	40	582	144
MAIN CHANNEL C1	RL4	1	15	30	45	152	40
MAIN CHANNEL E1	TYPICAL	2	13	16	55	265	67
TOTAL						999	251



2 TYPICAL CHANNEL CROSS SECTION
SCALE: NONE



3 WETLAND 2 OUTLET STRUCTURE
SCALE: NONE

WETLAND OUTLET MATERIAL SUMMARY			
WETLAND	STRUCTURE	CLASS E RIPRAP (TONS)	STONE FILTER (TONS)
WETLAND 2	OUTLET	209	39
TOTAL		209	39

DESIGN BY: KOW
CHKD. BY: KOW
DRAWN BY: PC
ISSUED: 08/2025
REVISED: #
FILE: 13 ROCK LETDOWN, CHANNEL & WETLAND 2 OUTLET DETAILS

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CORPORATION

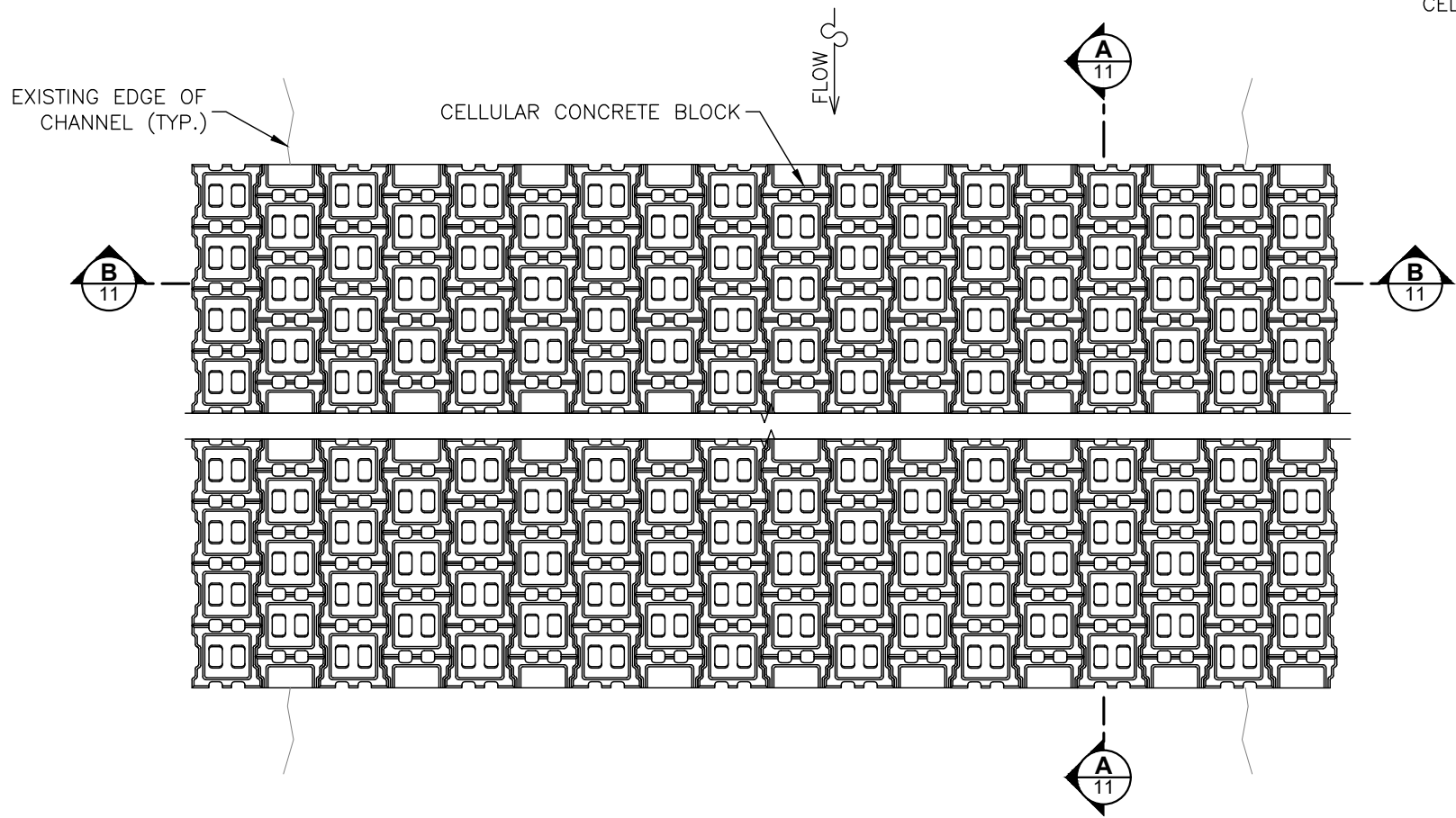
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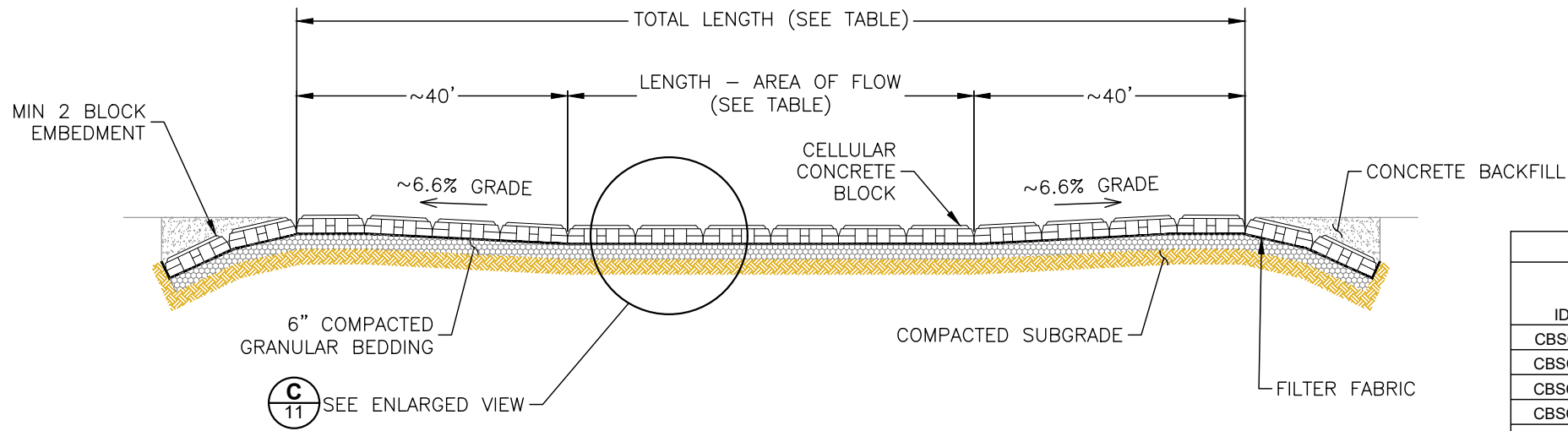
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

ROCK LETDOWN, CHANNEL & WETLAND 2
OUTLET DETAILS

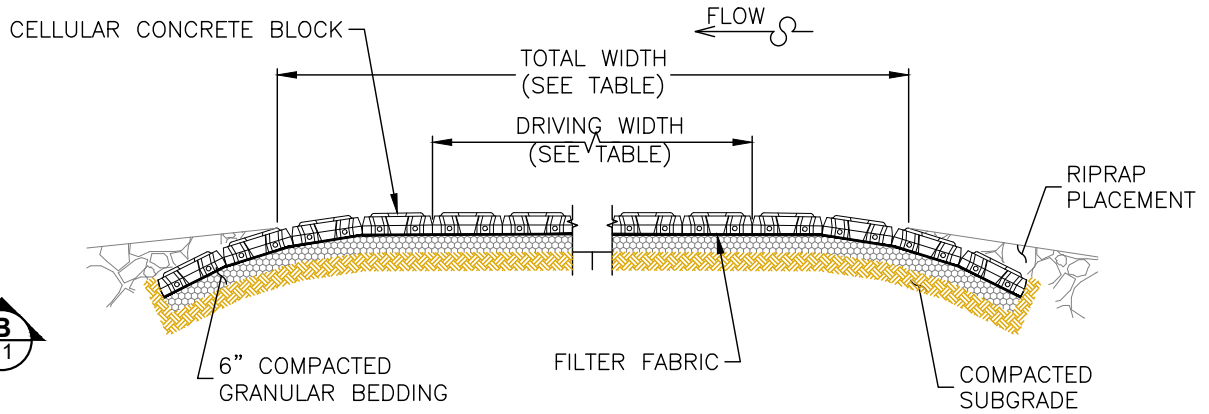
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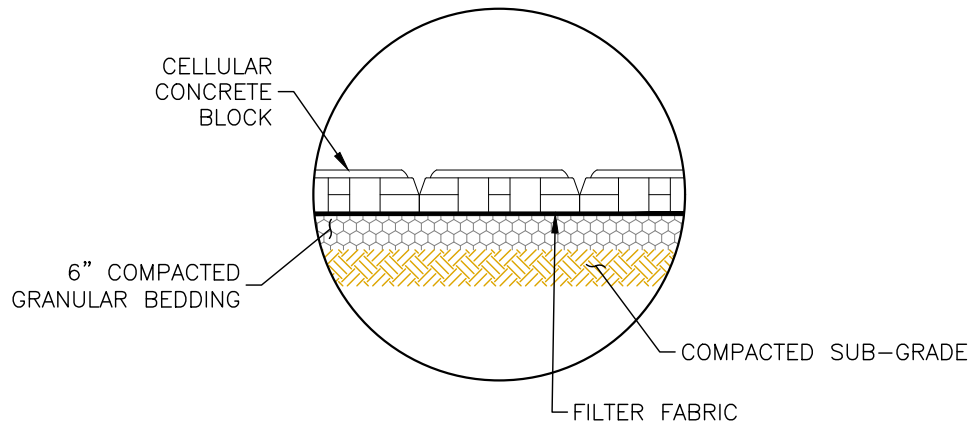
1 CELLULAR CONCRETE BLOCK LOW WATER CROSSING PLAN
SCALE: NONE



B CROSS SECTION B
SCALE: NONE



A CROSS SECTION A
SCALE: NONE



C ENLARGED VIEW
SCALE: NONE

CROSSING MATERIALS SUMMARY							
ID	DRIVING WIDTH [FT]	TOTAL WIDTH [FT]	LENGTH [FT]	TOTAL LENGTH [FT]	TIED BLOCK MAT [SF]	FILTER FABRIC [SY]	GRANULAR BEDDING [TONS]
CBSC-1	25	45	35	65	2,925	325	98
CBSC-2	14	34	15	45	1,530	170	51
CBSC-3	25	45	35	65	2,925	325	98
CBSC-4	14	34	15	45	1,530	170	51
CBSC-5	25	45	35	65	2,925	325	98
TOTAL					11,835	1,315	396



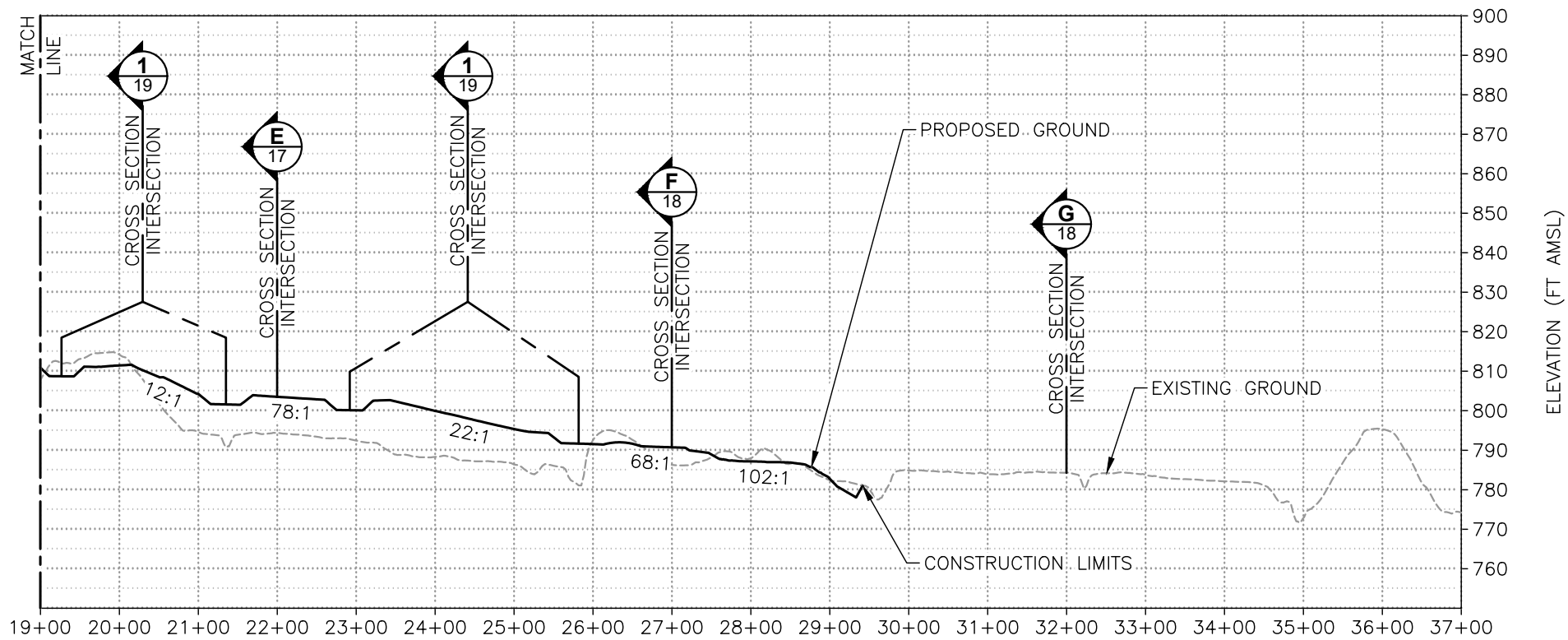
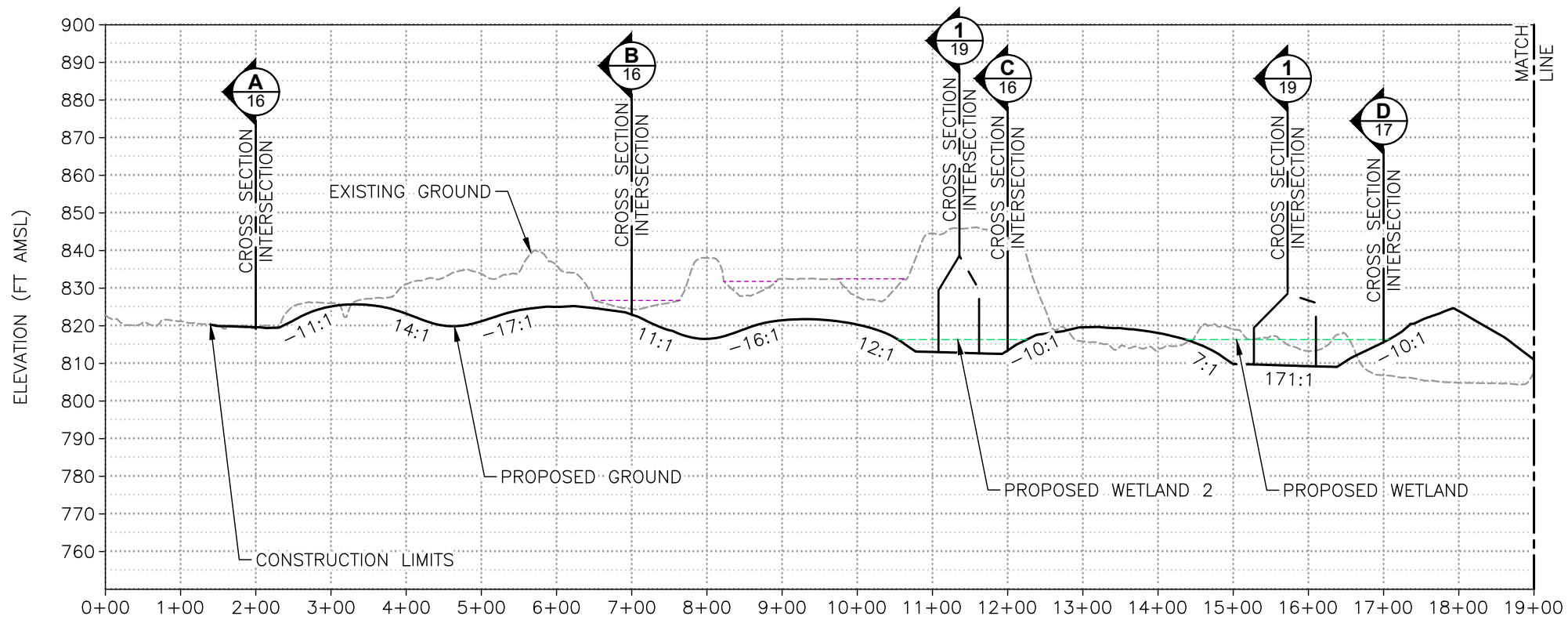
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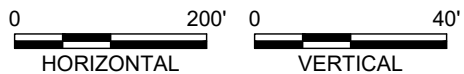
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT
CONCRETE BLOCK STREAM CROSSING
DETAIL

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1 EARTHWORK PROFILE STA. 0+00 TO 37+00
SCALE H: 1" = 200' V: 1" = 40'

ISSUE FOR BID



FILE: 18 EARTHWORK CROSS SECTION (3 OF 3)

REVISED: #

ISSUED: 08/2025

CHKD. BY: KCW

DRAWN BY: PC

DESIGN BY: KCW

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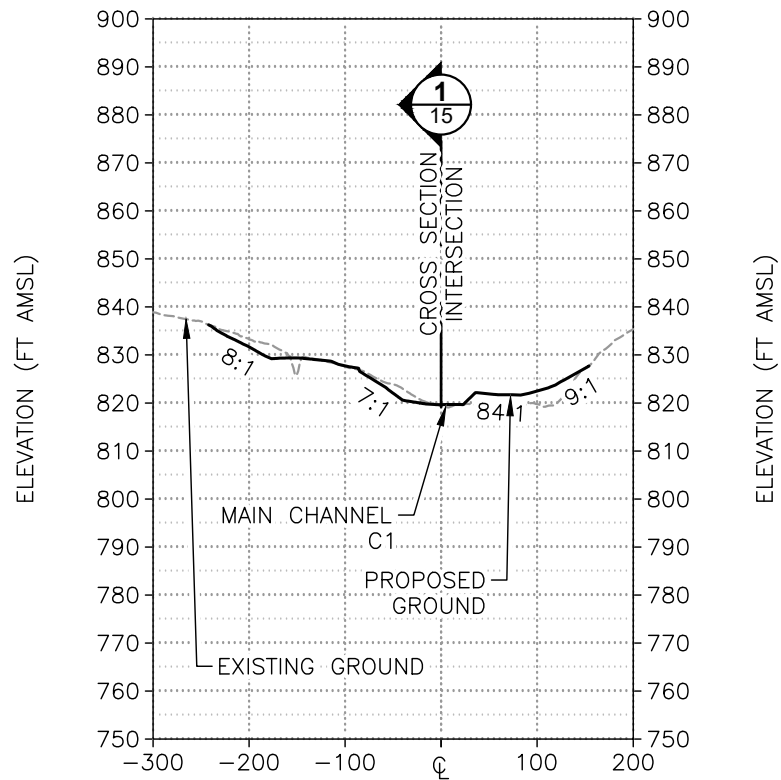
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

EARTHWORK PROFILE

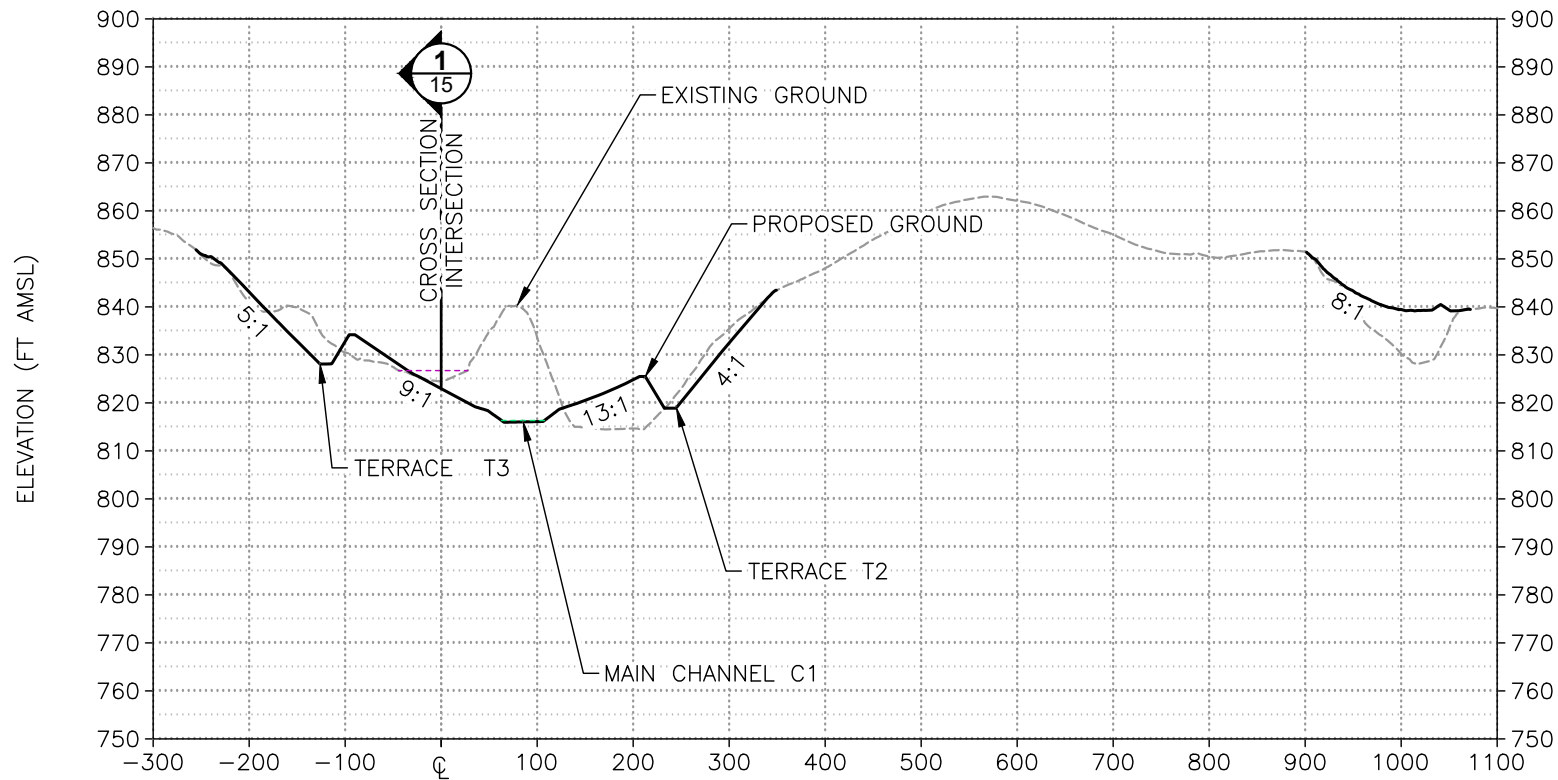
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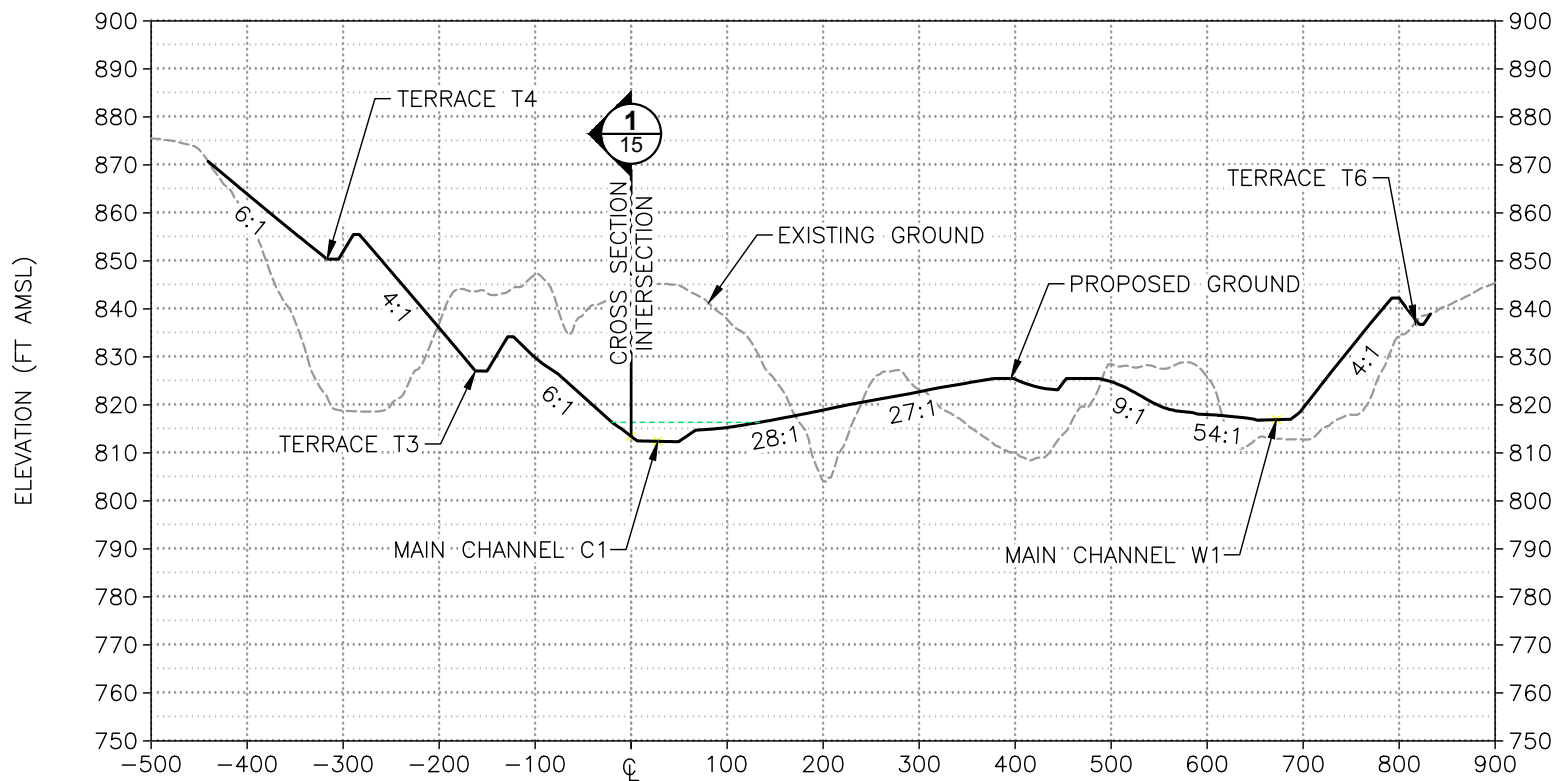
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A EARTHWORK XS STA. 2+00
SCALE H: 1" = 200' V: 1" = 40'

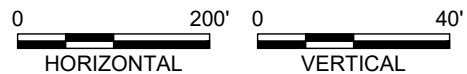


B EARTHWORK XS STA. 7+00
SCALE H: 1" = 200' V: 1" = 40'



C EARTHWORK XS STA. 12+00
SCALE H: 1" = 200' V: 1" = 40'

ELEVATION (FT AMSL)



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ELEVATION (FT AMSL)

FILE: 18 EARTHWORK CROSS SECTION (3 OF 3)

REVISED: #

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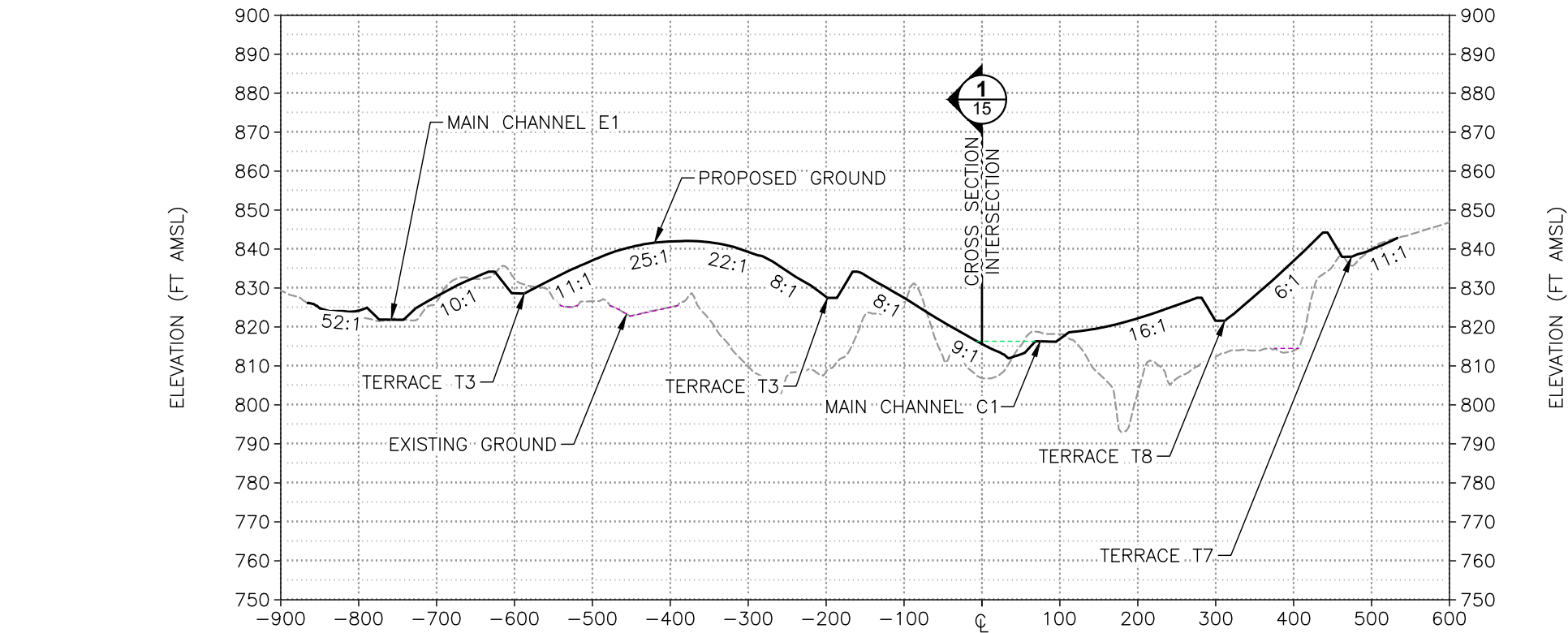
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

EARTHWORK CROSS SECTION (1 OF 3)

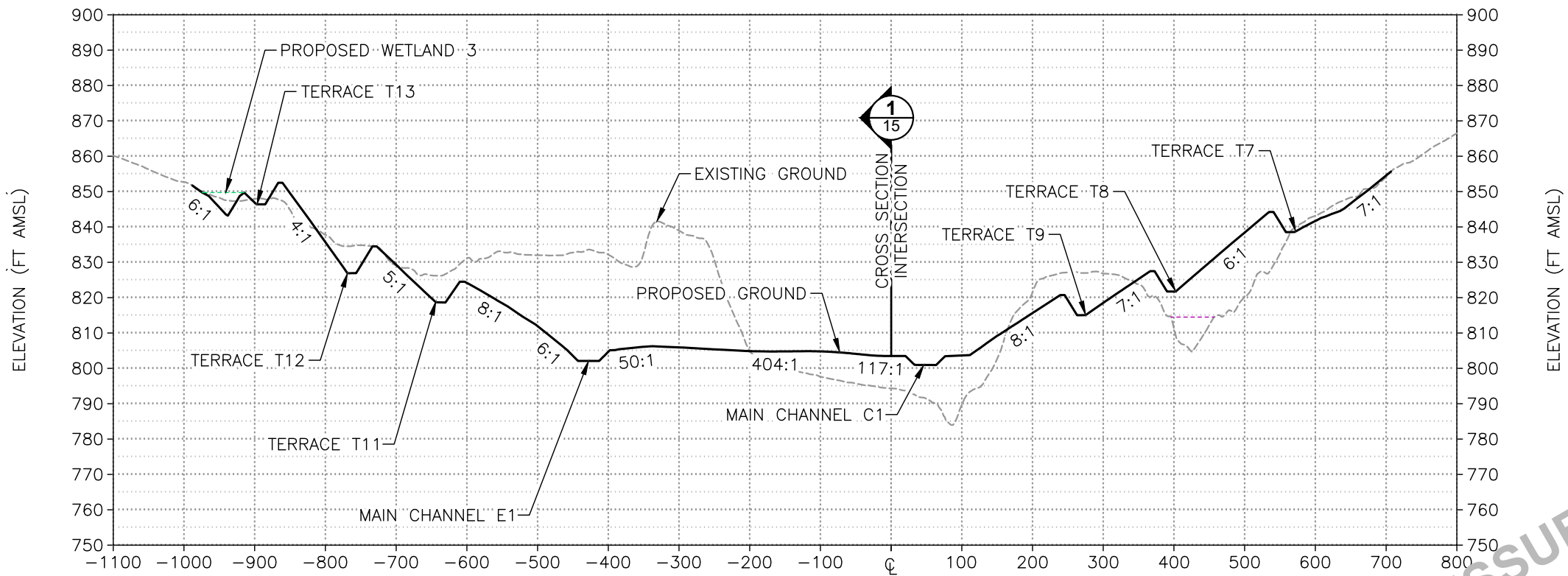


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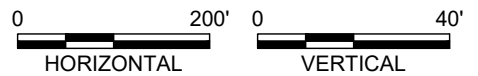
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D EARTHWORK XS STA. 17+00
SCALE H: 1" = 200' V: 1" = 40'



E EARTHWORK XS STA. 22+00
SCALE H: 1" = 200' V: 1" = 40'



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FILE: 18 EARTHWORK CROSS SECTION (3 OF 3)

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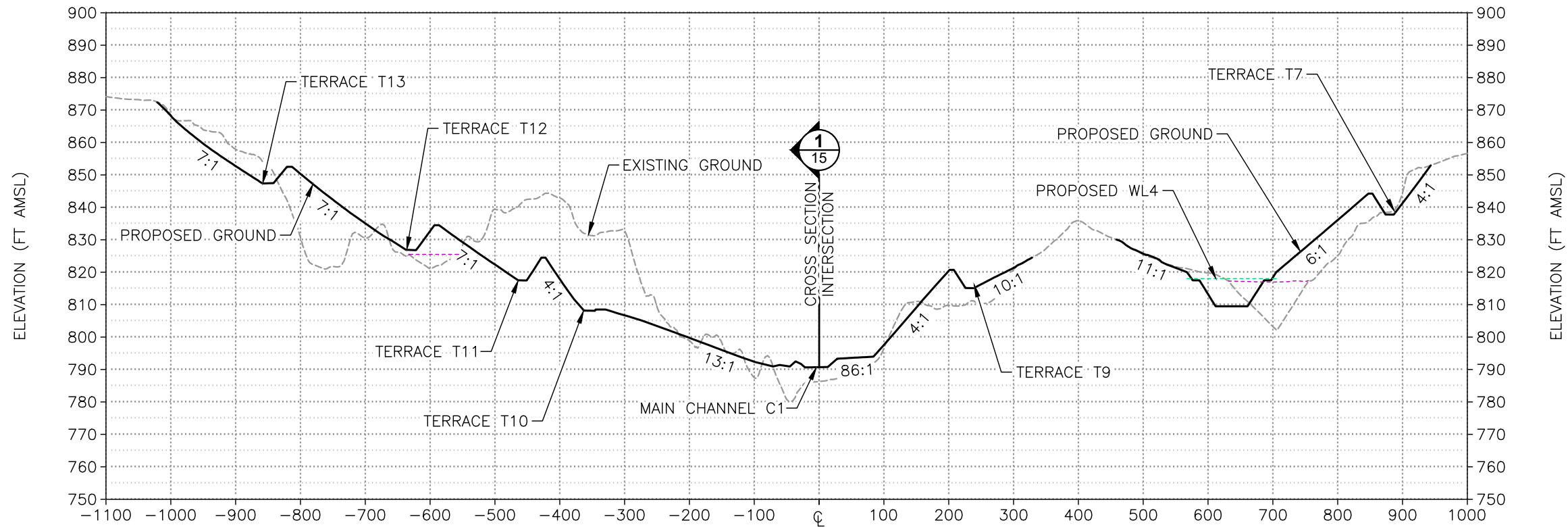
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

EARTHWORK CROSS SECTION (2 OF 3)

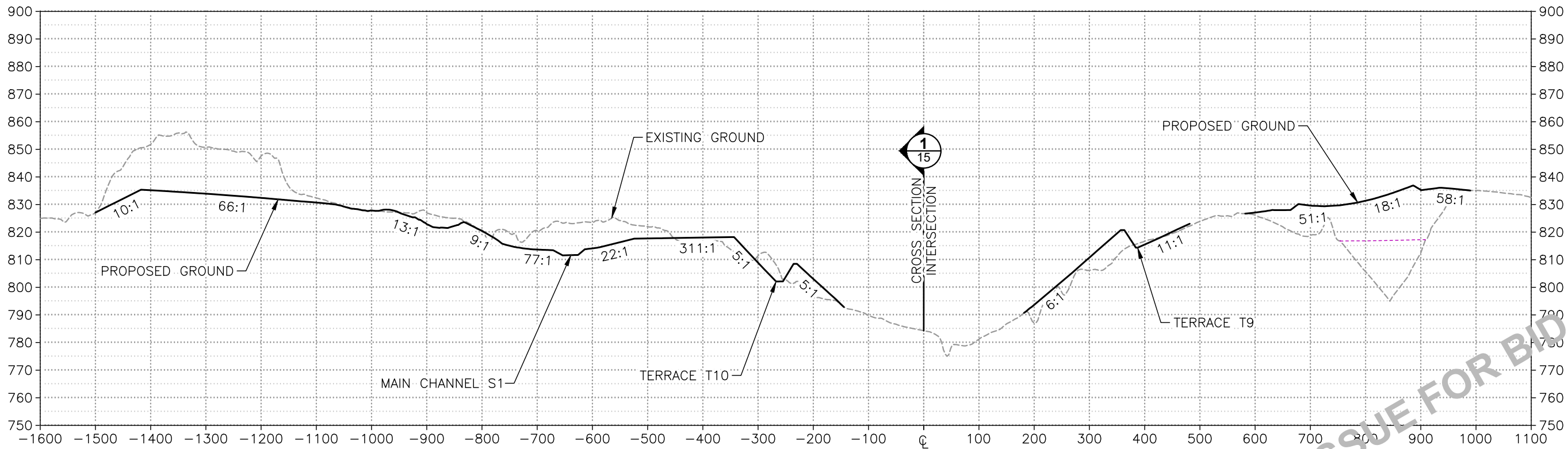
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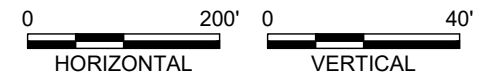
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F EARTHWORK XS STA. 27+00
SCALE H: 1" = 200' V: 1" = 40'



G EARTHWORK XS STA. 32+00
SCALE H: 1" = 200' V: 1" = 40'



FILE: 18 EARTHWORK CROSS SECTION (3 OF 3)

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ISSUED: 08/2025

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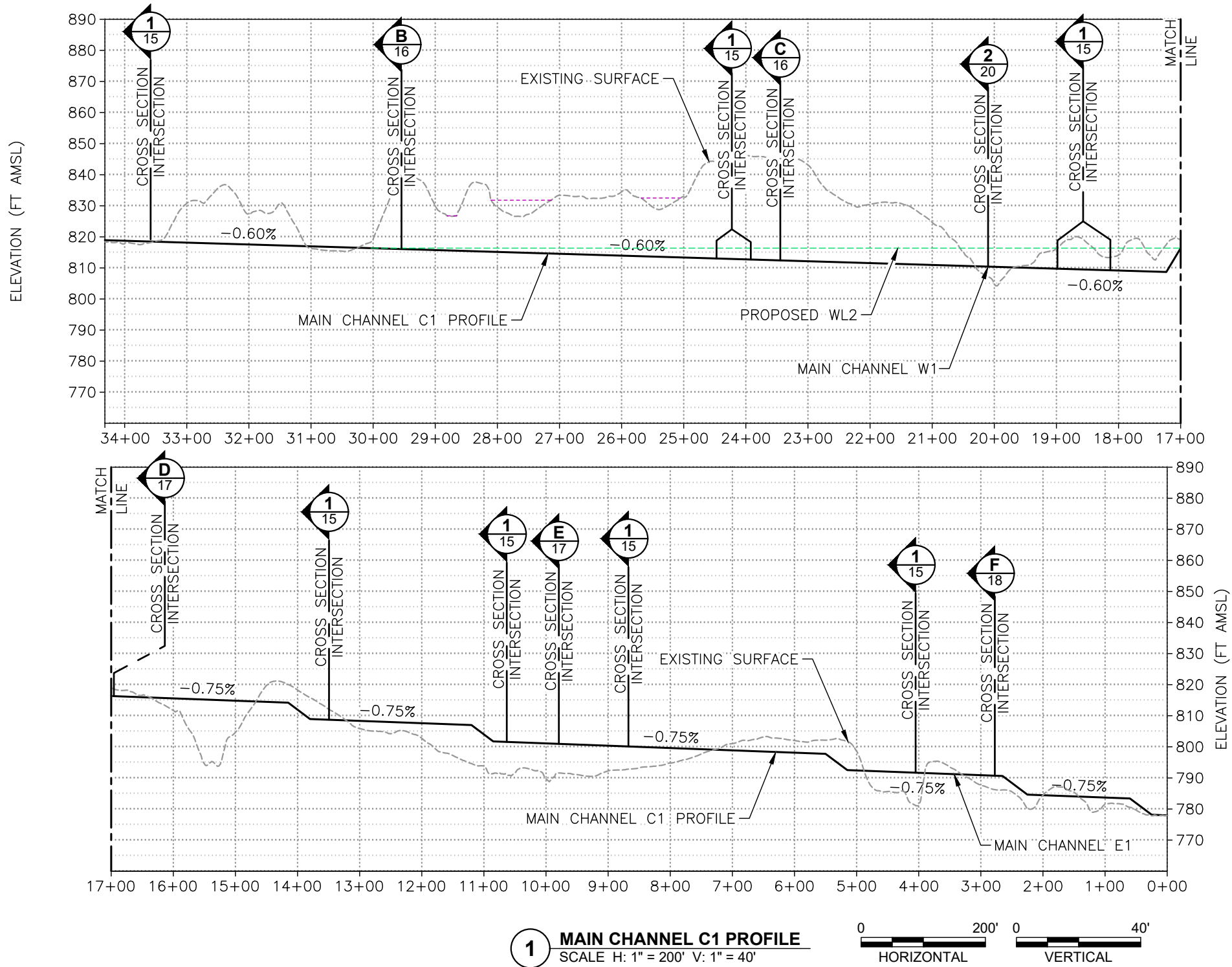
KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

EARTHWORK CROSS SECTION (3 OF 3)



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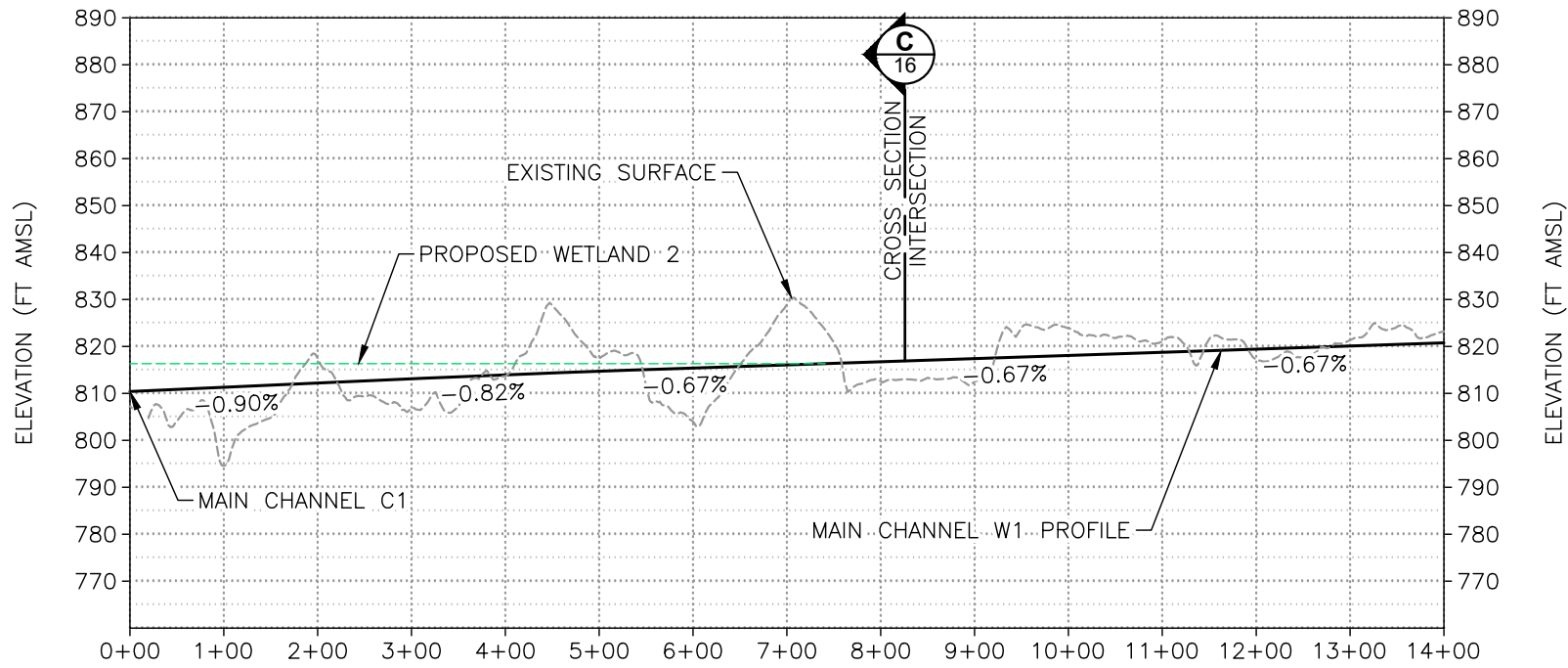
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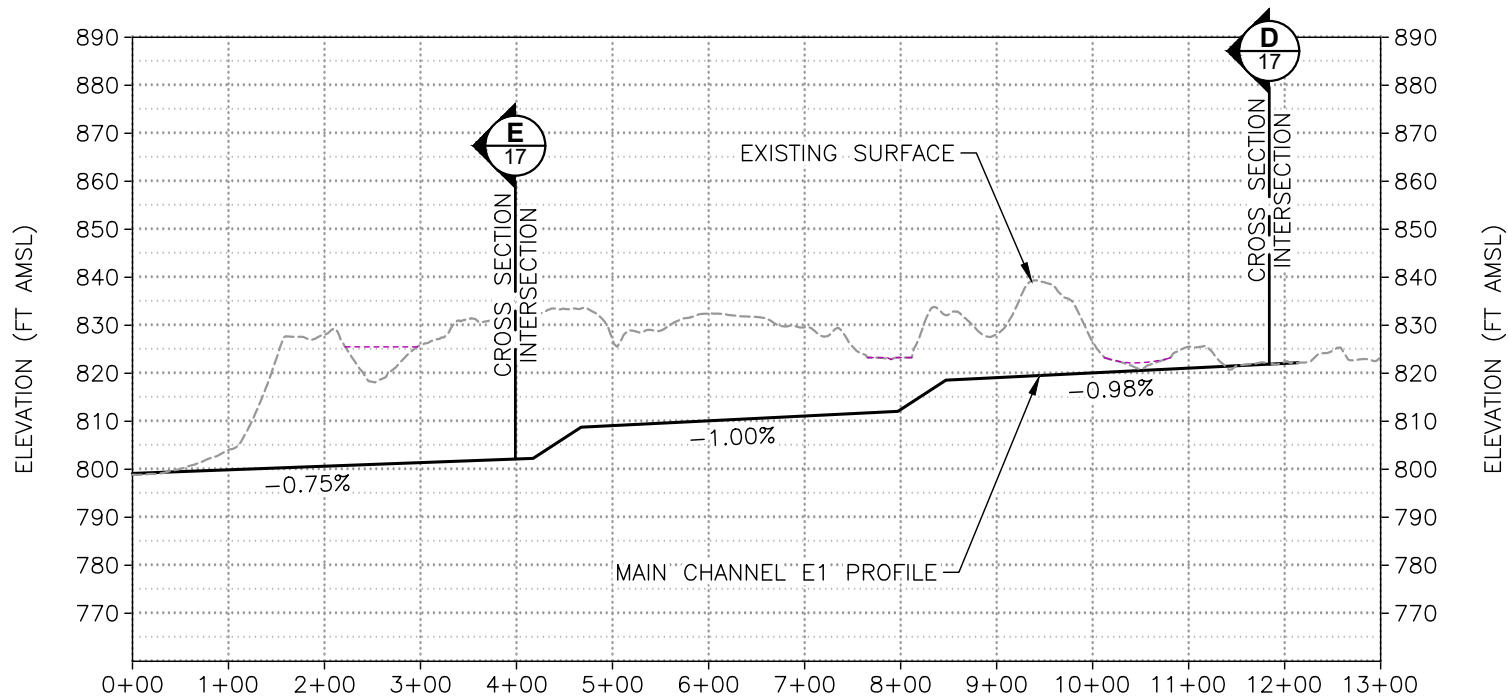
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DESIGN BY: KCW		DRAWN BY: PC	CHKD. BY: KCW	ISSUED: 08/2025	REVISED: #	FILE: 20 MAIN CHANNEL PROFILES (2 OF 2)	<div> Trihydro CORPORATION</div> <div>TRIHYDRO CORPORATION 1252 COMMERCE DRIVE LARAMIE, WYOMING 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729</div>
<div>KLOOTWYK (IA-031) AML RECLAMATION PROJECT</div> <div>MAIN CHANNEL PROFILES (1 OF 2)</div>			IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP DIVISION OF SOIL CONSERVATION AND WATER QUALITY HOOVER BUILDING 1305 E WALNUT ST. DES MOINES, IA 50319 (515)281-4246			<div></div>	
SHEET 19 OF 22							

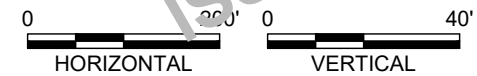
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2 MAIN CHANNEL W1 PROFILE
SCALE H: 1" = 200' V: 1" = 40'



3 MAIN CHANNEL E1 PROFILE
SCALE H: 1" = 200' V: 1" = 40'



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MAIN CHANNEL PROFILES (2 OF 2)			TRIHYDRO CORPORATION 1252 COMMERCE DRIVE LARAMIE, WYOMING 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729		
SHEET 20 OF 22			Trihydro CORPORATION		

C:\USERS\WILLIAMSON\DC\ACCDGCS\TRIHYRO CORPORATION\IOWA AML\PROJECT FILES\PROJECTS\21A-012-KLOOTWYK CADD\PLANS\SET3-2-FINAL\DESIGN\21 SWPPP BMP PLAN

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUMMARY

1. SITE DESCRIPTION

A. DESCRIBE NATURE OF CONSTRUCTION ACTIVITY:

- THE PROJECT CONSISTS OF RECLAIMING THE AML SITES DISTURBED BY PAST COAL MINING ACTIVITIES. THE MAIN OBJECTIVE OF THE AML RECLAMATION IS TO MITIGATE PRIORITY FEATURES THAT PRESENT A DANGER TO THE HEALTH AND SAFETY OF THE GENERAL PUBLIC.
- THE MAJOR PHASES OF THE PROJECT ARE TEMPORARY EROSION CONTROL; ROUGH GRADING; LIME TREATMENT OF SURFACE SOILS, FERTILIZING, MULCHING, PERMANENT SEEDING INCLUDING INSTALLATION OF PERMANENT EROSION CONTROL PRACTICES LIKE NATURAL REGRADE, TERRACE AND DOWN DRAINS, AND ROCK ARMORING.
- END USE OF SITE IS: PASTURE LAND AND GRAZING
- THE ESTIMATED PROJECT TIMELINE IS: 18 MONTHS
- SITE IS LOCATED IN SECTION 32 AND 39, TOWNSHIP 76N, RANGE 20W, MARION COUNTY, IOWA.

B. ESTIMATE THE TOTAL AREA OF THE SITE AND THE AREA EXPECTED TO BE DISTURBED BY EXCAVATION, GRADING OR OTHER ACTIVITIES:

- 108.7 ACRES OF STRIP MINED LAND DISTURBED BY MASS GRADING.

C. ESTIMATE THE SOIL RUNOFF COEFFICIENT OF THE SITE AFTER CONSTRUCTION IS COMPLETED, AND DESCRIBE THE WATER QUALITY OF ANY EXISTING DISCHARGE FROM THE SITE.

- THE RATIONAL RUNOFF COEFFICIENT FOLLOWING THE ESTABLISHMENT OF FINAL VEGETATION IS ESTIMATED TO BE ABOUT 0.20. THIS IS ROUGHLY EQUIVALENT TO AN SCS CURVE NUMBER OF 78 WHICH IS TYPICAL FOR WOODS-GRASS AND MEADOW VEGETATION.
- THE WATER QUALITY BEING DISCHARGED FROM THE SITE, AT PRESENT, IS IMPAIRED WITH ACIDIC PH AND HIGH DISSOLVED IRON CONCENTRATIONS WHICH ARE DERIVED FROM THE WATER'S CONTACT WITH BARE MINE SPOIL MATERIAL ON THE SITE. THIS POOR WATER QUALITY IS OFTEN INDICATED BY RUST-COLORED PRECIPITANT IN THE RECEIVING WATERS.

2. CONTROLS

A.(1)-STABILIZATION PRACTICES:

DESCRIBE TEMPORARY & PERMANENT STABILIZATION PRACTICES WITH SEQUENCE FOR IMPLEMENTATION.

- UNLESS PRECLUDED BY SNOW COVER OR FROZEN SITE CONDITIONS, AREAS TO BE GRADED AND LEFT UNDISTURBED FOR 14 OR MORE CALENDAR DAYS WILL BE ROUGH DISKED ON THE CONTOUR TO INCREASE SURFACE ROUGHNESS. ROUGH DISKING WILL BE USED EXCLUSIVELY PRIOR TO SEEDING THE FINAL VEGETATION. ROUGH DISKING IS USUALLY CONCURRENT WITH INCORPORATION OF AG LIME AND MULCH FOR THE WORK OF SUBGRADE PREPARATION.
- ONCE ALL GRADING IS COMPLETE, AND THE SOIL PH ADJUSTMENT IS ACCOMPLISHED, A PERMANENT SEEDING MIX CONSISTING OF WARM AND COOL SEASON GRASSES WILL BE PLANTED WITH AN APPROPRIATE COVER CROP OF OATS, WINTER WHEAT.
- APPROXIMATELY 2 TONS OF STRAW MULCH PER ACRE WILL BE SPREAD ACROSS THE SEEDED SOIL AND TUCKED IN WITH A TUCKING MACHINE TO PROVIDE PROTECTION FROM RAIN DROPLET IMPACT WHILE THE SEEDING BECOMES ESTABLISHED.
- THE SEEDING TYPICALLY GERMINATES WITHIN 14 DAYS & LATER PROVIDES AT LEAST 70% VEGETATIVE COVER.

A.(2)-STRUCTURAL PRACTICES

DESCRIBE EROSION AND SEDIMENT CONTROL PRACTICES THAT WILL USED ON THE SITE:

EROSION CONTROL PRACTICES

- THIS PROJECT WILL BE COVERED BY NPDES GENERAL PERMIT NO. 2 WHICH REGULATES STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
- THIS SHEET IS INCLUDED IN THE PLANS TO SUMMARIZE THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). PARTICULAR INFORMATION CAN BE FOUND IN THE SWPPP DOCUMENTATION, WHICH SHALL INCLUDE:
 - THE SWPPP NARRATIVE DEVELOPED BY THE ENGINEER EXPLAINING HOW GENERAL PERMIT No. 2 REQUIREMENTS WILL BE MET
 - A COPY OF THE PERMIT AUTHORIZATION
 - CONTRACTOR AND SUB-CONTRACTOR CERTIFICATION STATEMENTS
 - ANTICIPATED SEQUENCE OF CONSTRUCTION EVENTS
 - DRAWINGS SHOWING LOCATIONS OF EROSION AND SEDIMENT CONTROL PRACTICES
 - COMPLETED INSPECTION REPORTS
 - MODIFICATIONS AND REPAIR DOCUMENTATION
- THE SWPPP DOCUMENTATION SHALL BE KEPT AND MAINTAINED BY THE DIVISION IN AN ELECTRONIC FORM ACCESSIBLE TO DIVISION PERSONNEL, ENGINEER, AND CONTRACTOR AT ALL TIMES. THE ELECTRONIC SWPPP DOCUMENTATION MUST BE MADE AVAILABLE WITHIN THREE (3) HOURS OF A REQUEST FROM REGULATORY PERSONNEL.
- THE PRIME CONTRACTOR AND ALL ITS SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER WHICH MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE CONSTRUCTION SITE. THE PRIME CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION AND COMPLIANCE OF THE SWPPP FOR THE ENTIRE CONTRACT. THIS REPONSIBILITY SHALL BE FURTHER SHARED WITH ALL OF ITS SUB-CONTRACTORS.
- THE WORK SHALL BE DONE IN ACCORDANCE WITH THE SWPPP, THE CONTRACT DRAWINGS, AND SECTION 02120 OF THE PROJECT SPECIFICATIONS. IN THE EVENT OF CONFLICT BETWEEN THESE REQUIREMENTS AND WATER POLLUTION CONTROL LAWS, RULES OR REGULATIONS OF OTHER FEDERAL, STATE OR LOCAL AGENCIES, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.
- CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR THE INSTALLATION OF ALL BMPs IDENTIFIED IN THE SWPPP.

A.(2)-STRUCTURAL PRACTICES CONT'D:

DESCRIBE EROSION AND SEDIMENT CONTROL PRACTICES THAT WILL USED ON THE SITE:

SEDIMENT CONTROL PRACTICES:

- GRANULAR SURFACING SHALL BE INSTALLED AND MAINTAINED AT THE ENTRANCE INTO THE SITE AND ANY IDENTIFIED PARKING AREAS TO CONTROL MUD FROM BEING TRACKED FROM THE SITE. TRACKING OF SEDIMENTS OFF-SITE WILL BE REDUCED BY AVOIDING VEHICLE TRAFFIC ACROSS WET SURFACE SOILS. IF GRANULAR SURFACING AT THE SITE ENTRANCE DOES NOT EFFECTIVELY PREVENT TRACKING OF MUD FROM THE SITE, THEN VEHICLE TIRES SHALL BE MANUALLY CLEANED TO THE EXTENT PRACTICABLE. CONTRACTOR SHALL REMOVE TRACKED MUD AND SOIL FROM ADJOINING ROADWAYS.
- EXISTING VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED.
- WHERE INDICATED ON DRAWINGS, SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AT OR ALONG THE PERIMETER OF THE CONSTRUCTION AREA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY.
- RISERS, INLETS, INTAKES, AND OTHER SUCH WATER-CONVEYING STRUCTURES SHALL BE PROTECTED WITH SILT FENCES, STRAW WATTLES, OR FILTER SOCK AT THE TIME OF THEIR INITIAL INSTALLATION.
- IN AREAS WHERE THE PRESENCE OF SILT FENCE, FILTER SOCK OR STRAW WATTLE WILL INTERFERE WITH CONSTRUCTION ACTIVITIES, DIVERSION DITCHES AND TEMPORARY SEDIMENT TRAPS SHALL BE UTILIZED UNTIL THE SILT FENCE OR OTHER PRACTICES CAN BE INSTALLED.
- LOCATIONS AND QUANTITIES OF BMPs SHOWN ON THE DRAWINGS ARE APPROXIMATE. ACTUAL LOCATIONS OR QUANTITIES ARE TO BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE DIVISION OR THE PROJECT ENGINEER.
- AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL MEASURES DEEMED NECESSARY, AS DETERMINED BY THE DIVISION OR ENGINEER AFTER INVESTIGATION, SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY THE CONTRACTOR.

A.(2)(a). DESCRIBE PRACTICES WHICH PROVIDE AT LEAST 3600 CUBIC FEET OF STORAGE PER [DISTURBED] ACRE FOR COMMON DRAINAGE LOCATIONS SERVING MORE THAN TEN (10) ACRES OF DISTURBED AREA:

- TEMPORARY SEDIMENT BASINS (AT LEAST 3 ACRES) WILL BE CONSTRUCTED ONSITE, SEE SHEET 22 FOR LOCATIONS AND SPECIFICATIONS.

A.(2)(b). DESCRIBE PRACTICES WHICH ARE USED TO RETAIN SEDIMENT ON SITE FOR COMMON DRAINAGE LOCATIONS SERVING TEN (10) OR FEWER ACRES OF DISTURBED AREA:

- DISTURBED AREA TOTALS MORE THAN 10 ACRES.

A.(2)(c). SURFACE WATER WITHDRAWAL, SURFACE WATER BUFFERS, STORM WATER DISCHARGE INTO VEGETATED AREAS, & TOPSOIL PRESERVATION:

- STORMWATER WILL BE COLLECTED ALONG TERRACES AND MOVED THROUGH PIPES TO TEMPORARY SEDIMENT BASINS AS SHOWN ON SHEET 22. THE INLETS OF EACH PIPE WILL HAVE STRAW WATTLE PROTECTION FOR SEDIMENT CAPTURE.

i. DESCRIBE OUTLETS THAT WITHDRAW WATER FROM SURFACE OF BASINS:

- OUTLET PROTECTION (ROCK ARMORING) WILL BE CONSTRUCTED AT THE ENDS OF ALL PIPES. SEE SHEET 22 FOR LOCATION AND DETAILS A, B & 3 ON SHEET 12 FOR SPECIFICATIONS.

ii. DESCRIBE NATURAL BUFFERS AROUND SURFACE WATERS:

- AN EARTHEN BERM WILL BE CONSTRUCTED ALONG THE NORTH END OF THE PROJECT SITE. SEE SHEET 22 FOR LOCATION.

iii. REDIRECTION OF STORM WATER DISCHARGES TO AND THROUGH VEGETATED AREAS FOR INCREASED SEDIMENT REMOVAL AND OPPORTUNITY FOR INFILTRATION TO THE SOIL.

iv. TOPSOIL PRESERVATION:

- THE SITE IS AN ABANDONED COAL MINE RECLAMATION PROJECT; NO TOPSOIL EXISTS PRIOR TO RECLAMATION-RELATED CONSTRUCTION ACTIVITIES. THEREFORE, THE TOPSOIL PRESERVATION REQUIREMENT WILL NOT BE MET.
- THE SITE CONSISTS OF MINE SPOIL MATERIAL CLASSIFIED AS MINE PITS AND DUMPS - SOIL TYPE 502 ON USDA SOIL SURVEY MAPS. AFTER FINAL GRADE IS ACHIEVED, AGRICULTURAL LIME WILL BE APPLIED AT A RATE TO BE DETERMINED BY SOIL TESTS. THE AGRICULTURAL LIME, ALONG WITH 5 TONS OF MULCH WILL BE INCORPORATED INTO THE UPPER ONE (1) FOOT OF THE MINE SPOIL TO PRODUCE A GROWING MEDIUM AS OUTLINED IN PROJECT SPECIFICATION 02400.
- AFTER A PERIOD OF TIME TO ALLOW FOR NEUTRALIZATION AND MULCH DECOMPOSITION, THE SITE WILL BE PREPARED FOR SEEDING. AGRICULTURAL LIME, FERTILIZER, SEED AND CRIMPED MULCH WILL BE APPLIED AS OUTLINED IN PROJECT SPECIFICATION 02700.

B.(1). DESCRIBE POST-CONSTRUCTION PRACTICES THAT WILL ATTENUATE PEAK RUNOFF FLOWS AND REDUCE SUSPENED SOLIDS IN WATER FLOWS:

- IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST TWENTY-ONE (21) DAYS, THE AREA SHALL BE STABILIZED AS SOON AS PRACTICABLE AND WITHIN FOURTEEN (14) DAYS FOLLOWING THE LAST DISTURBANCE (UNLESS THE GROUND IS FROZEN OR SNOW COVERED) BY SURFACE ROUGHENING, TEMPORARY SEEDING, OR OTHER APPROVED METHOD.
- EROSION CONTROL PRACTICES BY THE CONTRACTOR SHALL CONTINUE UNTIL VEGETATIVE GROUND COVER IS ESTABLISHED. AND ACCEPTED BY THE DIVISION.
- ALL AREAS DISTURBED BEYOND CONSTRUCTION LIMITS SHOWN ON THIS PLAN MUST BE SEEDDED AND STABILIZED. THE SEED MIXTURE USED SHOULD INCLUDE SPECIES SIMILAR TO AND COMPATIBLE WITH THE SURROUNDING VEGETATION.

B.(2). DESCRIBE TYPE AND LOCATION OF VELOCITY DISSIPATION DEVICES:

- SEE SHEET 22 FOR OUTLET PROTECTION (ROCK ARMORING) LOCATIONS AND SHEET 12 FOR DETAILS.

C.(1). WASTE DISPOSAL -- DESCRIBE HOW BUILDING MATERIALS WASTE WILL BE ADDRESSED ON THE SITE:

- THIS PROJECT IS PRIMARILY A GRADING AND DRAINAGE PROJECT. BUILDING MATERIALS WASTES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, CARDBOARD PACKAGING, PIECES OF WOOD, PLASTIC SHRINK WRAP, STEEL BANDS USED FOR PACKAGING, PIECES OF UNUSED PLASTIC PIPE OR FITTINGS, AND PORTLAND CEMENT CONCRETE WASHOUT RESIDUE. AREAS WHERE CONCRETE WASHOUT OCCURS SHALL BE FILLED AND STABILIZED.

- ALL CONSTRUCTION WASTES WILL BE DISPOSED OFFSITE.
- THE CONTRACTOR SHALL MAINTAIN THE CONSTRUCTION SITE FREE OF ALL WASTES INCLUDING LITTER, USED PARTS, USED OIL AND CONTAINERS, TIRES, AND ANY OTHER WASTES GENERATED BY CONSTRUCTION ACTIVITIES. CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND WASTES SHALL ALSO COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

C.(2). TRACKING OF SEDIMENTS -- DESCRIBE HOW VEHICLE TRACKING OF SEDIMENTS TO OFFSITE AREAS WILL BE MINIMIZED:

- TRACKING OF SEDIMENTS OFFSITE WILL BE REDUCED BY AVOIDING VEHICLE TRAVEL ACROSS THE SITE SURFACE SOILS WHEN THEY ARE WET.
- A GRAVELED ENTRANCE WILL BE INSTALLED USING 3" NOMINAL MACADAM STONE. THE INSTALLATION WILL FUNCTION TO AID IN CLEANING OFF THE TIRES OF VEHICLES LEAVING THE SITE.
- IF "a" CANNOT BE ACCOMPLISHED, AND "b" PROVES INEFFECTIVE, THEN MUD FROM VEHICLE TIRES WILL BE MANUALLY CLEANED OFF, TO THE EXTENT PRACTICABLE, BEFORE THE VEHICLE LEAVES THE SITE.

3. MAINTENANCE -- DESCRIBE MAINTENANCE AND PROTECTIVE MEASURES TO KEEP CONTROLS AND PRACTICES IN WORKING ORDER:

- TO THE EXTENT PRACTICABLE, THE EFFORTS WILL BE MADE TO AVOID TRAFFIC OVER OR DAMAGE TO INSTALLED PRACTICES AND CONTROLS. IF DAMAGED, REPAIRS OR REPLACEMENTS TO BMP'S WILL BE MADE AS SOON AS POSSIBLE OR WITHIN SEVEN (7) DAYS FOLLOWING INSPECTION.
- THE CONTRACTOR SHALL MAINTAIN ALL EROSION AND SEDIMENT CONTROL PRACTICES IN PROPER WORKING ORDER FOR THE DURATION OF THE CONTRACT. IF A PRACTICE IS NO LONGER NEEDED AS DETERMINED BY THE DIVISION OR ENGINEER, IT SHALL BE REMOVED.
- MAINTENANCE INCLUDES CLEANING, REPAIRING, OR REPLACING AS REQUIRED. IN GENERAL, MAINTENANCE SHALL BE PERFORMED PRIOR TO THE NEXT ANTICIPATED STORM EVENT.
- REMOVE SEDIMENT FROM ALL BMPS WHEN THEIR INSTALLED CAPACITY IS REDUCED BY FIFTY (50) PERCENT OR MORE.

4. INSPECTIONS, REVISIONS & REPAIRS -- NOTE SPECIAL CONSIDERATIONS OR PROCEDURES, IF ANY, FOR ROUTINE WEEKLY INSPECTIONS:

- PER CONTRACT DOCUMENTS, IDALS-DSCWQ IN PARTNERSHIP WITH PATHFINDERS RC&D WILL PERFORM AND DOCUMENT ALL WEEKLY INSPECTIONS FOR THIS SWPPP IN ACCORDANCE WITH PART IV.D.4.C. ELECTRONIC COPIES OF WEEKLY INSPECTIONS REPORTS WILL BE AVAILABLE UPON REQUEST.
- REQUIRED REVISIONS OR REPAIRS WILL BE MADE WITHIN SEVEN (7) DAYS FOLLOWING INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS.
- SITE INSPECTION IS THE RESPONSIBILITY OF THE DIVISION WITH ASSISTANCE FROM CONTRACTOR WHEN REQUESTED; SITE INSPECTIONS SHALL BE PERFORMED BY QUALIFIED PERSONNEL. INSPECTIONS SHALL BE PERFORMED ONCE EVERY SEVEN (7) DAYS.
- ALL INSTALLED BMPs SHALL BE INSPECTED FOR CONDITION AND EFFECTIVENESS.
- SITE INSPECTION REPORTS SHALL BE PROPERLY SIGNED BY THE PERSON CONDUCTING THE INSPECTION. THE REPORT SHALL INCLUDE:
 - A) DATE, NAME AND TITLE/POSITION OF THE INSPECTOR;
 - B) WEATHER INFORMATION;
 - C) LOCATION OF SEDIMENT/POLLUTANT DISCHARGE(S);
 - D) BMPs THAT ARE NEEDED, REQUIRE MAINTENANCE, OR HAVE FAILED,
 - E) CORRECTIVE ACTIONS REQUIRED;
 - F) CHANGES/UPDATES TO THE SWPPP.

- THE FINDINGS OF EACH INSPECTION SHALL BE RECORDED AND KEPT IN AN ELECTRONIC FORMAT WITH THE ELECTRONIC SWPPP.
- COPIES OF INSPECTION REPORTS WILL BE RETAINED WITH THE SWPPP FOR THREE (3) YEARS FROM THE DATE THE PERMIT COVERAGE TERMINATES

5. NON-STORMWATER DISCHARGES -- DESCRIBE PRACTICES TO PREVENT NON-STORMWATER POLLUTION:

- LESS THAN 1000 GALLONS OF DIESEL FUEL AND/OR LUBRICATING OILS ARE EXPECTED TO BE ON SITE AT ANY ONE TIME. THEREFORE, RISK OF GROSS POLLUTION TO RECEIVING WATERS IS MINIMAL. IF FUEL OR OIL SPILLS OCCUR, LIQUID POLLUTANTS WILL BE CONTAINED USING SMALL BERMS MADE FROM SITE SOILS TO PREVENT TRAVEL OF POLLUTANTS TO RECEIVING WATERS. SUFFICIENT TIME WILL BE GIVEN FOR THE POLLUTANTS IN IT TO VOLATILIZE IN THE CONTAMINATED SOIL AND/OR CONTAMINATED SOIL WILL BE DISPOSED OFF-SITE.

6. ADDITIONAL REQUIREMENTS FOR STORM WATER DISCHARGE FROM INDUSTRIAL ACTIVITIES OTHER THAN CONSTRUCTION:

- THERE ARE NO ADDITIONAL REQUIREMENTS BECAUSE THIS SWPPP IS FOR A "CONSTRUCTION ONLY" SITE WHERE THERE IS NO INDUSTRIAL SOURCE, OTHER THAN CONSTRUCTION, THAT IS GENERATING THE DISCHARGE.

7. IMPLEMENTATION OF CONTROLS:

- THE GENERAL CONTRACTOR IDENTIFIED ON THE CONTRACT, WILL BE ULTIMATELY RESPONSIBLE FOR ALL ASPECTS OF THE PROJECT. THESE INCLUDE GRADING, PIPE INSTALLATION, AND INSTALLATION OF BMPS. AN EROSION CONTROL OR SEEDING SUBCONTRACTOR MAY BE RESPONSIBLE IN SOME SITUATIONS.

FILE: 21 SWPPP BMP PLAN

#

REVISED:

08/2025

ISSUED:

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CHKD. BY:

DRAWN BY:

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21

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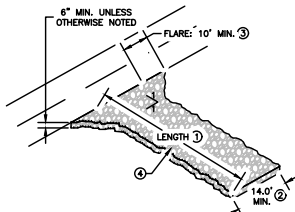


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KLOOTWYK (IA-031)
AML RECLAMATION PROJECT

SWPPP BMP PLAN



NOTES - CONSTRUCTION ENTRANCE:

1. ENTRANCE LENGTH: 50 FOOT MINIMUM OR AS SPECIFIED IN THE CONTRACT DOCUMENTS. LENGTH OF ENTRANCE MAY BE INCREASED IF SEDIMENT TRACK-OUT OCCURS.
2. ENTRANCE WIDTH: 14' MINIMUM, FOR RURAL PROJECTS OR AS SPECIFIED IN CONTRACT DOCUMENTS. A 20' WIDTH MAY BE REQUIRED WHERE TWO-WAY TRAFFIC IS FREQUENT. SEE PLAN.
3. FLARE: CONFORM TO EX. ENTRANCE AT PUBLIC ROADWAY, IF APPLICABLE.
4. MATERIAL: MACADAM STONE BASE PER IOWA D.O.T. SECTION 4122.

ADAPTED FROM SUDAS -- FIGURE 9040.120

1 STABILIZED CONSTRUCTION ENTRANCE
SCALE: NONE

SEEDING SUMMARY	
SEED MIX	AREA [ACRES]
PASTURE SEED MIX	71.3
PASTURE MIX - RED CLOVER SUBSTITUTION	25.4
POLLINATOR SEED MIX	0.9
WETLAND FRINGE SEED MIX WETLANDS	7.2
WETLAND FRINGE SEED MIX CHANNELS	2.4
TOTAL	107.2

TILE OUTLET SUMMARY					
ID	# OF	CLASS E	GRANULAR	CLASS E	GRANULAR
POOLS	STRUCTURES	RIPRAP	BEDDING	RIPRAP	BEDDING
	20	DEPTH (FT)	DEPTH (FT)	(TON)	(TON)
		2	0.5	458	209
MIX GRANULAR BEDDING INTO RIPRAP					

