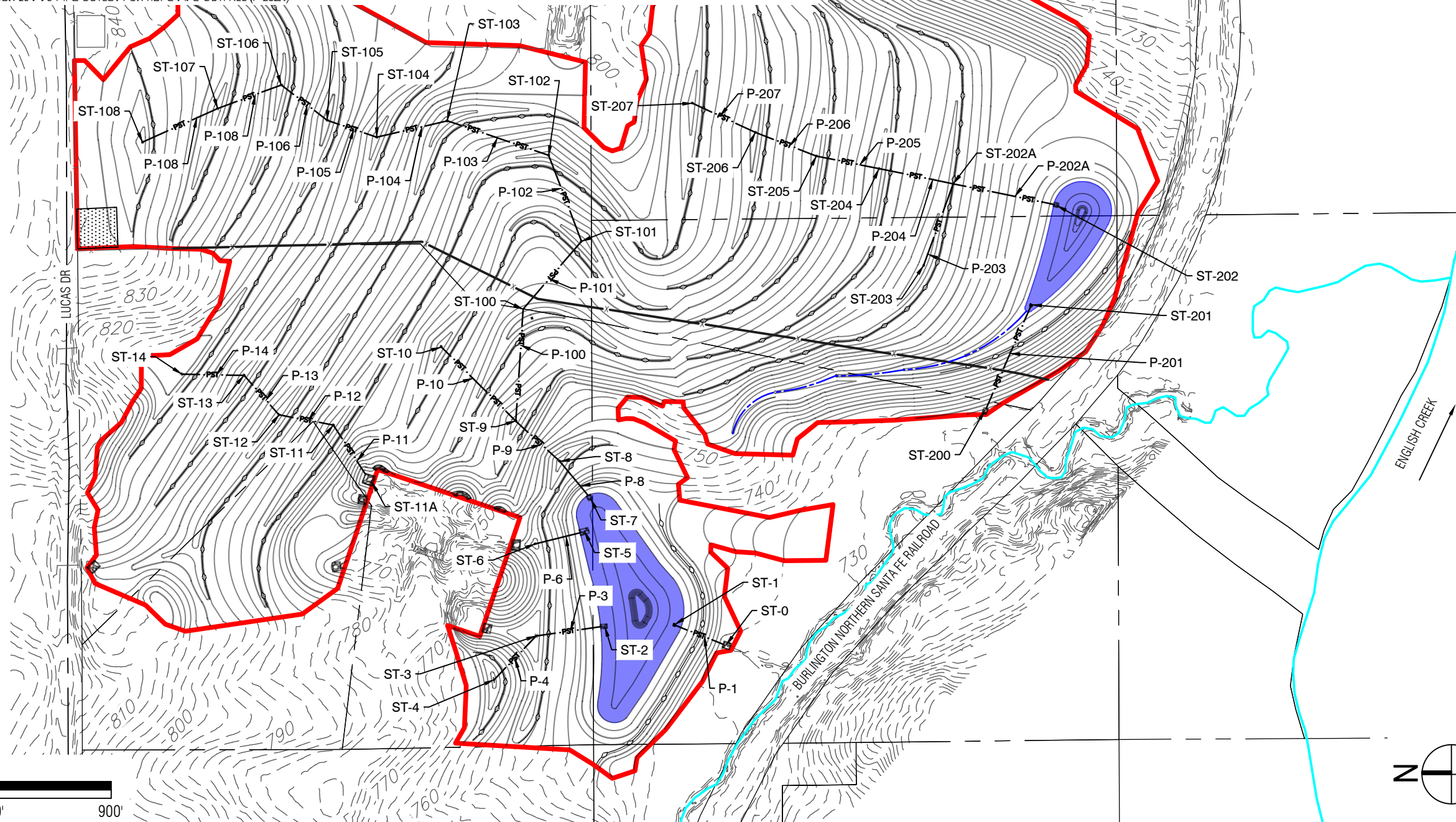


TABLE: TERRACE PIPE DATA

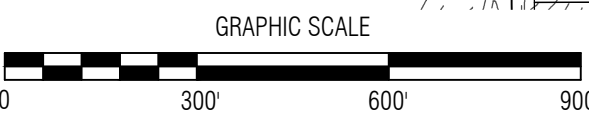
| ID | Material | Pipe Segment | U/S Structure | D/S Structure | Pipe Diameter (inches) | Pipe Length (feet) | Finish Grade U/S | Invert U/S | Invert D/S | Slope |
|--------|----------------|---|----------------------------------|----------------------------------|------------------------|--------------------|------------------|------------|------------|--------|
| P-1 | PPHP | ST-1 - 4' x 4' Open-Sided Area Intake | ST-0 - Outfall | ST-0 - Outfall | 36 | 131 | 735.50 | 731.50 | 731.00 | 0.38% |
| P-3 | PPHP | ST-3 - 24" Terrace Riser Intake | ST-2 - Outfall | ST-2 - Outfall | 24 | 165 | 743.00 | 739.50 | 737.00 | 1.52% |
| P-4 | PPHP | ST-4 - 24" Terrace Riser Intake | ST-3 - 24" Terrace Riser Intake | ST-3 - 24" Terrace Riser Intake | 18 | 153 | 753.00 | 749.50 | 739.50 | 6.54% |
| P-6 | PPHP | ST-6 - 30" Nyloplast Basin | ST-5 - Outfall | ST-5 - Outfall | 24 | 118 | 743.00 | 739.50 | 737.00 | 2.12% |
| P-8 | PPHP | ST-8 - 12" Terrace Riser Intake | ST-7 - Outfall | ST-7 - Outfall | 18 | 112 | 743.00 | 739.50 | 737.00 | 2.23% |
| P-9 | PPHP | ST-9 - 24" Nyloplast Basin | ST-8 - 12" Terrace Riser Intake | ST-8 - 12" Terrace Riser Intake | 12 | 150 | 761.00 | 757.50 | 739.50 | 12.00% |
| P-10 | Dual Wall HDPE | ST-10 - 6" Terrace Riser Intake | ST-9 - 24" Nyloplast Basin | ST-9 - 24" Nyloplast Basin | 6 | 285 | 777.00 | 773.50 | 757.50 | 6.04% |
| P-11 | PPHP | ST-11 - 12" Terrace Riser Intake | ST-11A - Outfall | ST-11A - Outfall | 24 | 149 | 785.00 | 781.50 | 767.00 | 9.73% |
| P-12 | PPHP | ST-12 - 30" Nyloplast Basin | ST-11 - 12" Terrace Riser Intake | ST-11 - 12" Terrace Riser Intake | 24 | 139 | 793.00 | 789.50 | 781.50 | 5.76% |
| P-13 | PPHP | ST-13 - 6" Terrace Riser Intake | ST-12 - 30" Nyloplast Basin | ST-12 - 30" Nyloplast Basin | 12 | 132 | 801.00 | 797.50 | 789.50 | 6.06% |
| P-14 | PPHP | ST-14 - 12" Terrace Riser Intake | ST-13 - 6" Terrace Riser Intake | ST-13 - 6" Terrace Riser Intake | 12 | 156 | 808.00 | 804.50 | 797.50 | 4.49% |
| P-100 | Dual Wall HDPE | ST-100 - 6" Terrace Riser Intake | ST-9 - 24" Nyloplast Basin | ST-9 - 24" Nyloplast Basin | 6 | 282 | 769.00 | 765.50 | 757.50 | 2.84% |
| P-101 | Dual Wall HDPE | ST-101 - 6" Terrace Riser Intake | ST-100 - 6" Terrace Riser Intake | ST-100 - 6" Terrace Riser Intake | 6 | 224 | 777.00 | 773.50 | 765.50 | 3.57% |
| P-102 | Dual Wall HDPE | ST-102 - 6" Terrace Riser Intake | ST-101 - 6" Terrace Riser Intake | ST-101 - 6" Terrace Riser Intake | 6 | 231 | 785.00 | 781.50 | 773.50 | 3.46% |
| P-103 | Dual Wall HDPE | ST-103 - 6" Terrace Riser Intake | ST-102 - 6" Terrace Riser Intake | ST-102 - 6" Terrace Riser Intake | 6 | 269 | 793.00 | 789.50 | 781.50 | 2.97% |
| P-104 | Dual Wall HDPE | ST-104 - 6" Terrace Riser Intake | ST-103 - 6" Terrace Riser Intake | ST-103 - 6" Terrace Riser Intake | 6 | 182 | 801.00 | 797.50 | 789.50 | 4.40% |
| P-105 | Dual Wall HDPE | ST-105 - 6" Terrace Riser Intake | ST-104 - 6" Terrace Riser Intake | ST-104 - 6" Terrace Riser Intake | 6 | 132 | 809.00 | 805.50 | 797.50 | 6.06% |
| P-106 | Dual Wall HDPE | ST-106 - 6" Terrace Riser Intake | ST-105 - 6" Terrace Riser Intake | ST-105 - 6" Terrace Riser Intake | 6 | 145 | 817.00 | 813.50 | 805.50 | 5.52% |
| P-107 | Dual Wall HDPE | ST-107 - 6" Terrace Riser Intake | ST-106 - 6" Terrace Riser Intake | ST-106 - 6" Terrace Riser Intake | 6 | 171 | 825.00 | 821.50 | 813.50 | 4.68% |
| P-108 | Dual Wall HDPE | ST-108 - 6" Terrace Riser Intake | ST-107 - 6" Terrace Riser Intake | ST-107 - 6" Terrace Riser Intake | 6 | 207 | 833.00 | 829.50 | 821.50 | 3.86% |
| P-201 | PPHP | ST-201 - 30" 4' x 4' Open-Sided Area Intake | ST-200 - Outfall | ST-200 - Outfall | 24 | 281 | 744.75 | 740.50 | 731.00 | 3.38% |
| P-202A | Dual Wall HDPE | ST-202A - 24" Nyloplast Basin | ST-202 - Outfall, SDR 26 PVC | ST-202 - Outfall, SDR 26 PVC | 6 | 258 | 766.00 | 755.23 | 746.00 | 3.58% |
| P-203 | Dual Wall HDPE | ST-203 - 6" Terrace Riser Intake | ST-202A - 24" Nyloplast Basin | ST-202A - 24" Nyloplast Basin | 6 | 217 | 761.00 | 757.50 | 755.33 | 1.00% |
| P-204 | Dual Wall HDPE | ST-204 - 6" Terrace Riser Intake | ST-202A - 24" Nyloplast Basin | ST-202A - 24" Nyloplast Basin | 6 | 189 | 767.00 | 763.50 | 755.33 | 4.32% |
| P-205 | Dual Wall HDPE | ST-205 - 6" Terrace Riser Intake | ST-204 - 6" Terrace Riser Intake | ST-204 - 6" Terrace Riser Intake | 6 | 181 | 773.00 | 769.50 | 763.50 | 3.73% |
| P-206 | Dual Wall HDPE | ST-206 - 6" Terrace Riser Intake | ST-205 - 6" Terrace Riser Intake | ST-205 - 6" Terrace Riser Intake | 6 | 164 | 779.00 | 775.50 | 769.50 | 3.66% |
| P-207 | Dual Wall HDPE | ST-207 - 6" Terrace Riser Intake | ST-206 - 6" Terrace Riser Intake | ST-206 - 6" Terrace Riser Intake | 6 | 175 | 785.00 | 781.50 | 775.50 | 3.43% |

NOTE:
SEE DETAIL 1 ON SHEET 11 FOR TERRACE RISER INFO

*PIPE LENGTH (FEET) AND D/S INVERT INCLUDES 20' SDR 26 PVC PIPE OUTLET FOR HDPE PIPE OUTFALL (P-202A)



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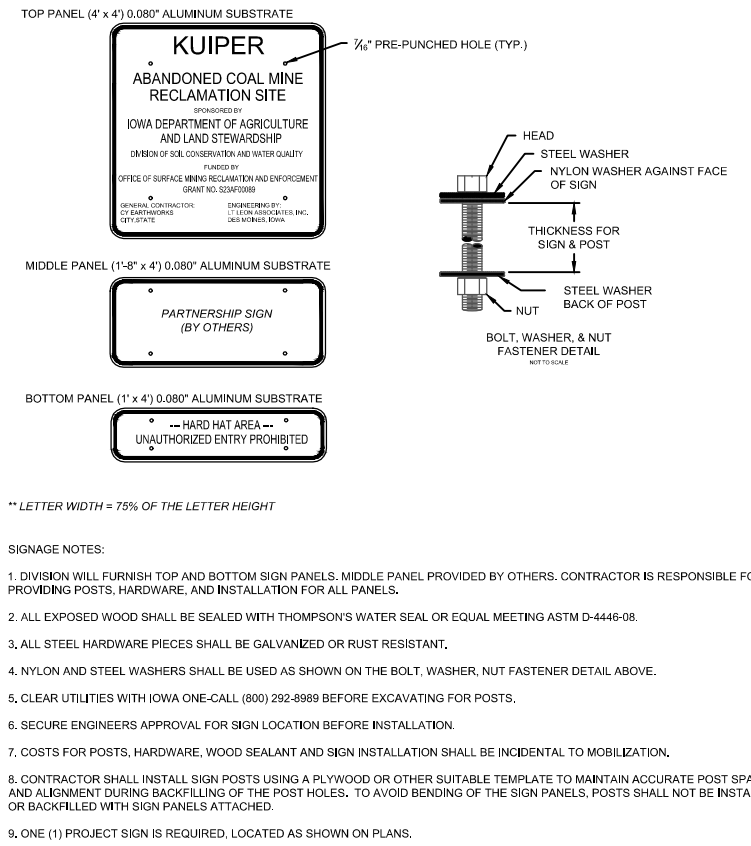
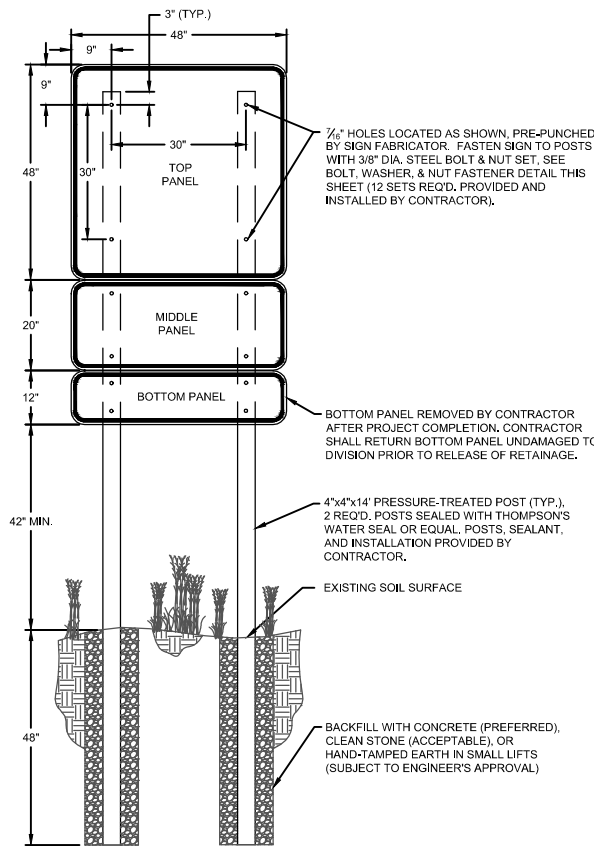
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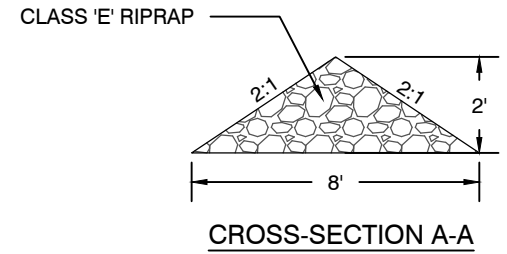
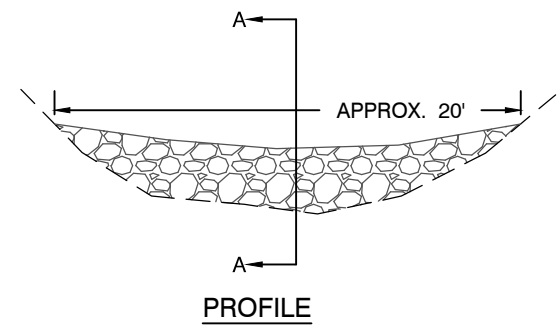
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DRAINAGE PLAN

SHEET
8 OF **20**

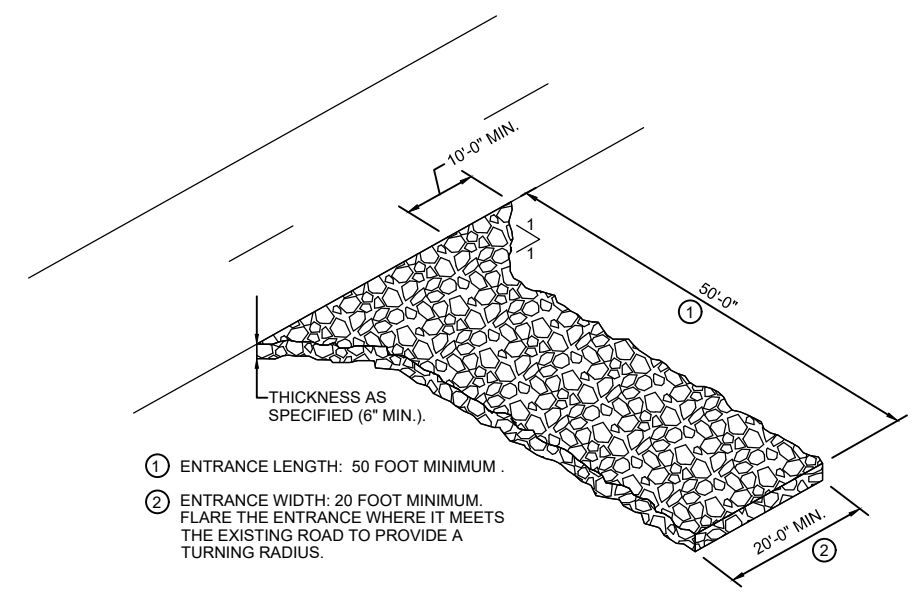
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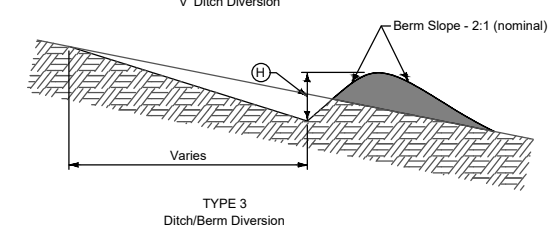
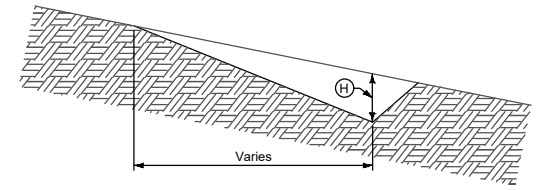
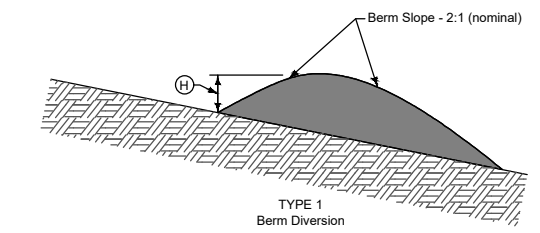
1 AML SIGN DETAIL
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3 TEMPORARY ROCK CHECK DAM
NOT TO SCALE



2 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



Diversion Types 1, 2, and 3 may be used interchangeably unless otherwise specified in the contract documents.
Alternate configurations may be used upon approval from the Engineer.
H Total height of diversion (swale and berm); 18 inch minimum or as specified.

4 TEMPORARY EARTH DIVERSION STRUCTURE DETAIL
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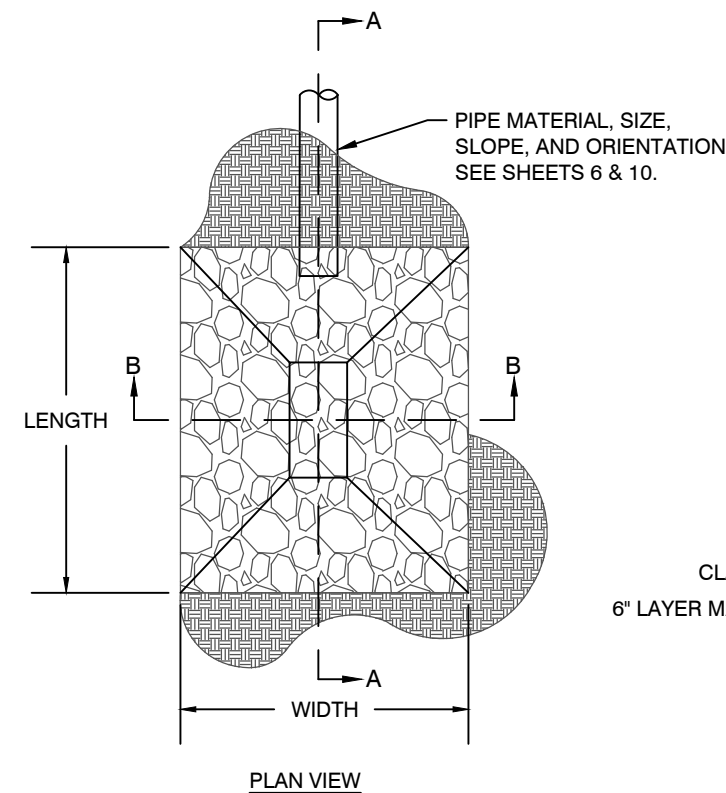
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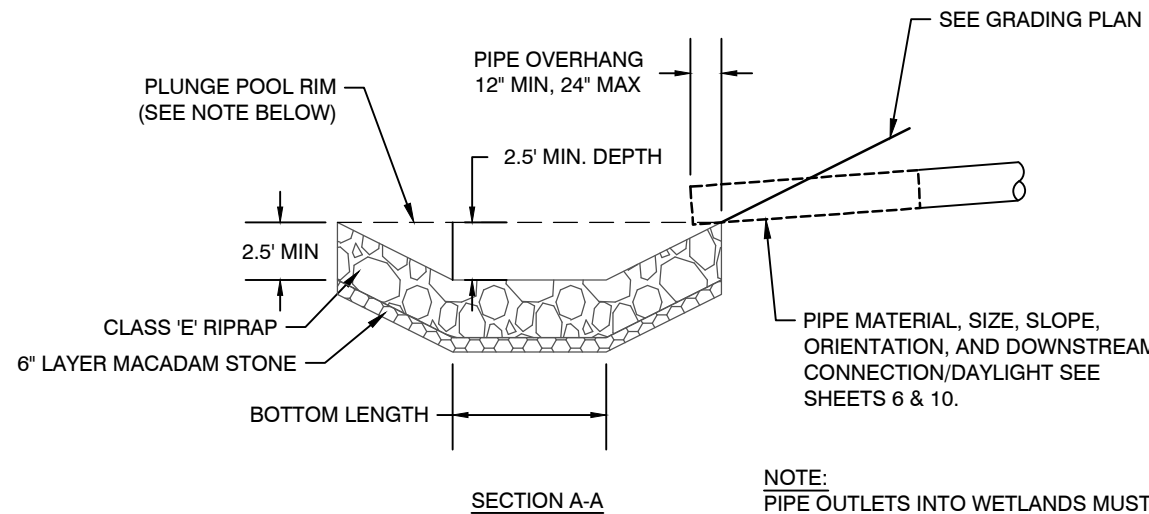


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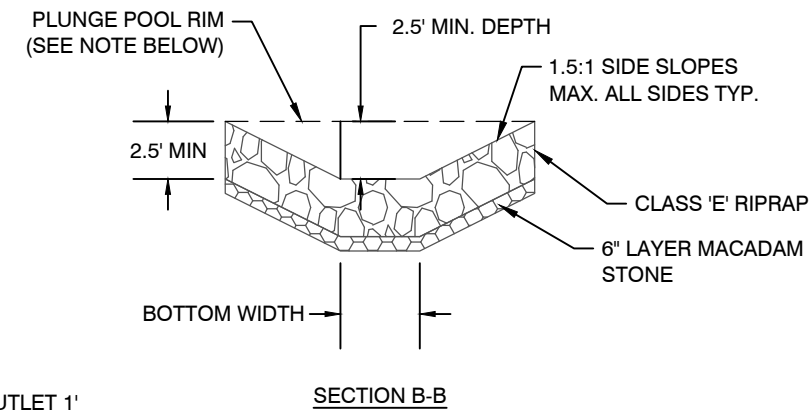
TYPICAL DETAILS



PLAN VIEW



SECTION A-A



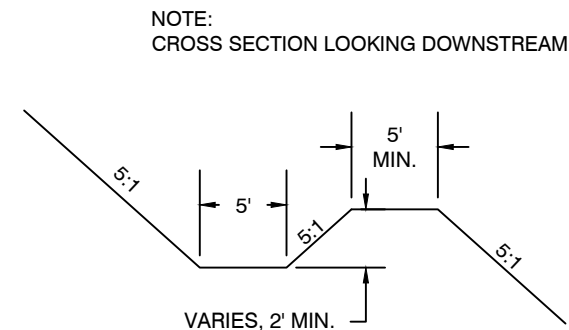
SECTION B-B

NOTE:
PIPE OUTLETS INTO WETLANDS MUST OUTLET 1' ABOVE NORMAL POOL AND PLUNGE POOL RIM = NORMAL POOL. SEE DRAINAGE PLAN FOR OTHER PIPE INVERTS.

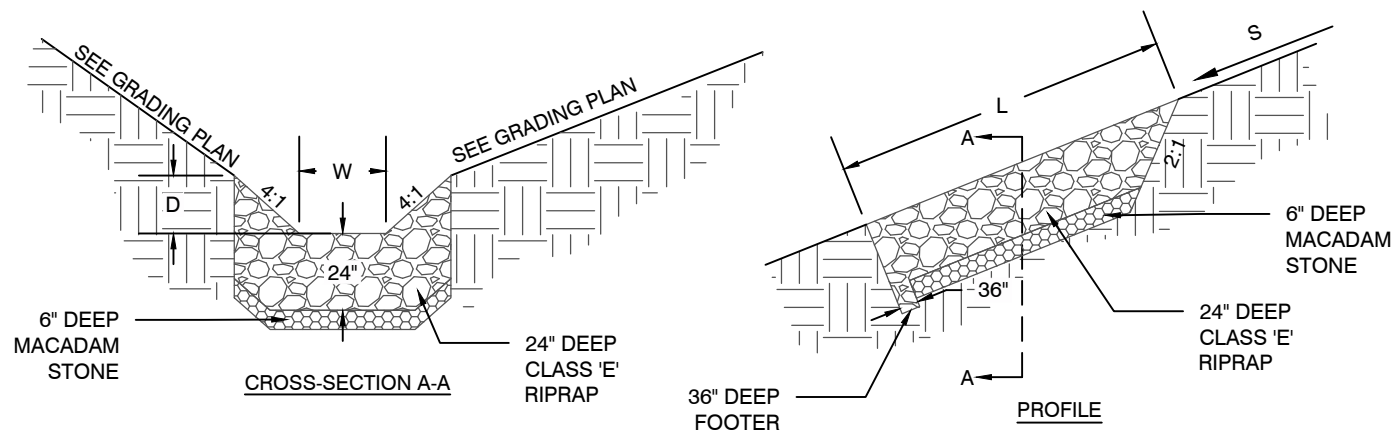
| PPL ID | WIDTH (FT) | LENGTH (FT) | BOTTOM WIDTH (FT) | BOTTOM LENGTH (FT) | DEPTH (FT) | RIM ELEV. (FT) | RIPRAP (TON) | MACADAM (TON) |
|--------|------------|-------------|-------------------|--------------------|------------|----------------|--------------|---------------|
| PPL-1 | 16 | 18 | 3.25 | 5.25 | 4.25 | 731.00 | 45 | 11 |
| PPL-2 | 10 | 16 | 2.50 | 8.50 | 2.50 | 737.00 | 27 | 7 |
| PPL-3 | 14 | 20 | 2.75 | 8.75 | 3.75 | 737.00 | 48 | 12 |
| PPL-4 | 10 | 14 | 2.50 | 6.50 | 2.50 | 737.00 | 22 | 6 |
| PPL-5 | 24 | 26 | 6.00 | 8.00 | 6.00 | 767.00 | 98 | 24 |
| PPL-6 | 10 | 14 | 2.50 | 6.50 | 2.50 | 731.00 | 22 | 6 |
| PPL-7 | 10 | 12 | 2.50 | 4.50 | 2.50 | 746.00 | 19 | 5 |

1 PLUNGE POOL DETAIL
NOT TO SCALE

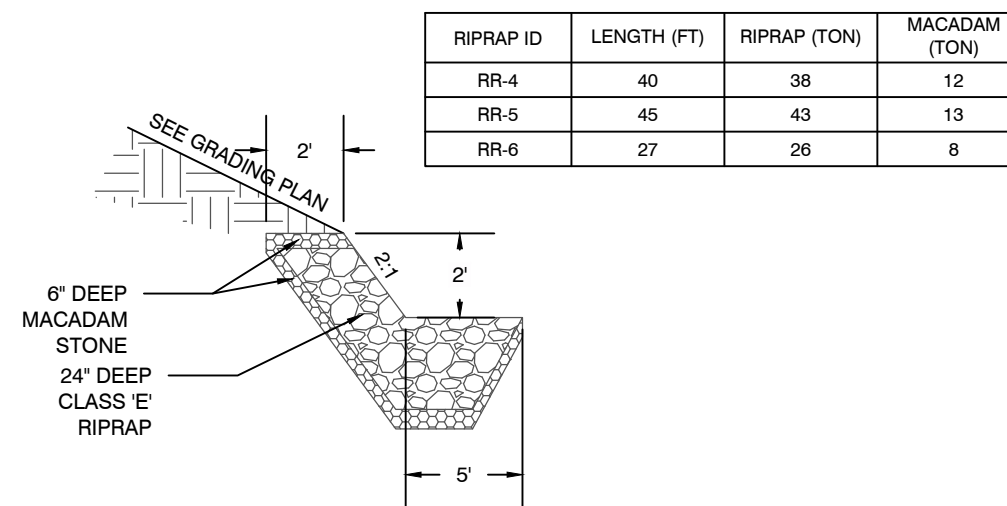
| RIPRAP ID | LENGTH, L (FT) | SLOPE, S (%) | WIDTH, W (FT) | DEPTH, D (FT) | RIPRAP (TON) | MACADAM (TON) |
|-----------|----------------|--------------|---------------|---------------|--------------|---------------|
| RR-1 | 20 | 7.20% | 10 | 2.0 | 55 | 17 |
| RR-2 | 20 | 10.00% | 10 | 1.5 | 46 | 15 |
| RR-3 | 20 | 10.00% | 10 | 1.5 | 46 | 15 |
| RR-7 | 20 | 10.00% | 10 | 2.0 | 55 | 17 |
| RR-8 | 20 | 3.80% | 10 | 1.5 | 46 | 15 |



3 DRAINAGE CHANNEL DETAIL
NOT TO SCALE



2 ROCK RIFFLE GRADE CONTROL DETAIL
NOT TO SCALE



4 ROCK TOE PROTECTION DETAIL
NOT TO SCALE

| RIPRAP ID | LENGTH (FT) | RIPRAP (TON) | MACADAM (TON) |
|-----------|-------------|--------------|---------------|
| RR-4 | 40 | 38 | 12 |
| RR-5 | 45 | 43 | 13 |
| RR-6 | 27 | 26 | 8 |

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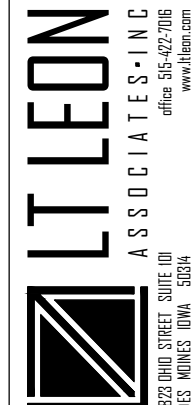
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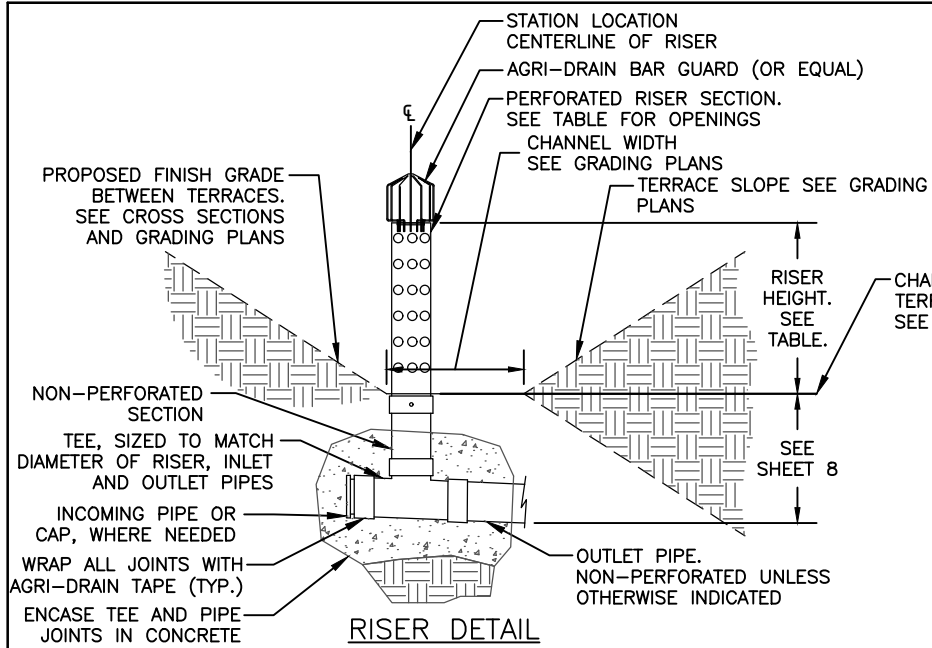


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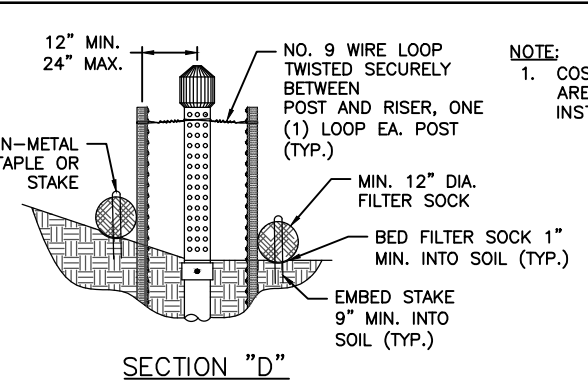
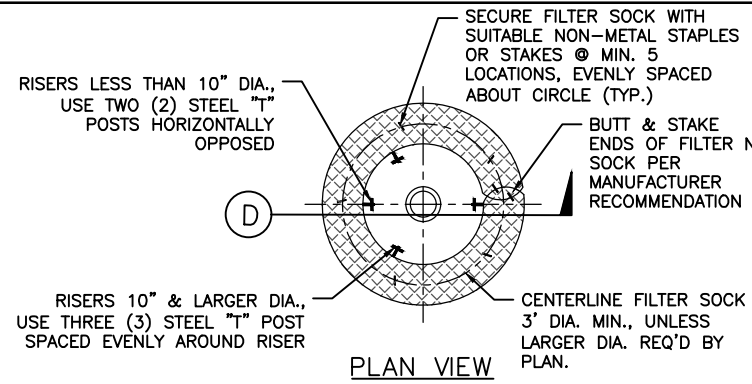


KUIPER (IA-024)
AML RECLAMATION PROJECT

TYPICAL DETAILS



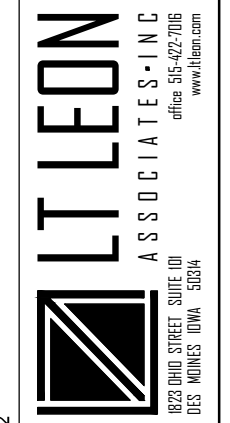
- NOTES:**
- UNLESS OTHERWISE NOTES, TWO (2) STEEL FENCE POSTS SHALL BE INSTALLED ADJACENT TO AND ON OPPOSITE SIDES OF EACH TERRACE INTAKE RISER TO REINFORCE AGAINST OVERTURNING. FENCE POSTS SHALL BE WIRED TO THE INTAKE RISER.
 - COST OF FENCE POSTS SHALL BE CONSIDERED INCIDENTAL TO COST OF INSTALLING INTAKE RISER.
 - INSTALL PRESCRIBED LENGTH OF 12" DIA. FILTER SOCK AROUND EACH INTAKE IN THE FORM OF A 3' DIA. CIRCLE. 3' DIA. CIRCLE WILL CONTAIN APPROXIMATELY 10 LF OF FILTER SOCK. FILTER SOCK SHALL BE STAKED IN PLACE.
 - LAST 20 LF OF ALL PLASTIC PIPE OR TILING TO DAYLIGHT SHALL BE SCH. 40 PVC, SDR 26, OR PPHP. PROPER ADAPTORS FROM PLASTIC TO PVC SHALL BE USED.
 - ALL STORM SEWER SHALL MEET SUDAS STANDARD SPECIFICATIONS. HDPE, PPHP, OR PVC MAY BE USED.



NOTE:
1. COST OF STEEL "T" POSTS & NO. 9 WIRE ARE INCIDENTAL TO THE COST OF RISER INSTALLATION.

| LOCATION I.D. | DWG. SHEET | INTAKE RISER | | | | | | | | TERRACE PIPE/TILE | | | OUTLET/END TREATMENT | | |
|---------------|------------|--------------|-----------------|---------|-----------------|--------------------------|-------------------|-----------------|-----------------------|-------------------|----------------|----------------|----------------------|------------------|-----------------------|
| | | DIA. (IN.) | INTAKE MATERIAL | HOLES | HOLE SIZE (IN.) | CHANNEL LOW PT. ELEV(FT) | RISER HEIGHT (FT) | BAR GUARD (Y/N) | 12" FILTER SOCK, L.F. | PIPE DIA. (IN.) | MIN. SLOPE (%) | PIPE MATERIAL | RODENT GUARD (Y/N) | OUTLET TEE (Y/N) | DISCHARGE INTO |
| ST-3 | 8 | 24 | PLASTIC | 60/FT | 1.25 | 743.00 | 4.0 | Y | 10 | 24 | 1.52 | PPHP | Y | N | ST-2 - OUTFALL |
| ST-4 | 8 | 24 | PLASTIC | 60/FT | 1.25 | 753.00 | 4.0 | Y | 10 | 18 | 6.54 | PPHP | N | Y | ST-3 - RISER INTAKE |
| ST-6 | 8 | 30 | PLASTIC | **84/FT | 1.25 | 743.00 | 2.0 | Y | 10 | 24 | 2.12 | PPHP | Y | N | ST-5 - OUTFALL |
| ST-8 | 8 | 12 | PLASTIC | 72/FT | 1.25 | 743.00 | 4.0 | Y | 10 | 18 | 2.23 | PPHP | Y | N | ST-7 - OUTFALL |
| ST-9 | 8 | 24 | PLASTIC | **60/FT | 1.25 | 761.00 | 4.0 | Y | 10 | 12 | 12.00 | PPHP | N | Y | ST-8 - RISER INTAKE |
| ST-10 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 777.00 | 4.0 | Y | 10 | 6 | 6.04 | DUAL WALL HDPE | N | N | ST-9 - NYLOPLAST |
| ST-11 | 8 | 12 | PLASTIC | 72/FT | 1.25 | 785.00 | 4.0 | Y | 10 | 24 | 9.73 | PPHP | Y | N | ST-11A - OUTFALL |
| ST-12 | 8 | 30 | PLASTIC | **84/FT | 1.25 | 793.00 | 2.0 | Y | 10 | 24 | 5.76 | PPHP | N | Y | ST-11 - RISER INTAKE |
| ST-13 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 801.00 | 4.0 | Y | 10 | 12 | 6.06 | PPHP | N | N | ST-12 - NYLOPLAST |
| ST-14 | 8 | 12 | PLASTIC | 72/FT | 1.25 | 808.00 | 4.0 | Y | 10 | 12 | 4.49 | PPHP | N | Y | ST-13 - RISER INTAKE |
| ST-100 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 769.00 | 4.0 | Y | 10 | 6 | 2.84 | DUAL WALL HDPE | N | N | ST-9 - NYLOPLAST |
| ST-101 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 777.00 | 4.0 | Y | 10 | 6 | 3.57 | DUAL WALL HDPE | N | Y | ST-100 - RISER INTAKE |
| ST-102 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 785.00 | 4.0 | Y | 10 | 6 | 3.46 | DUAL WALL HDPE | N | Y | ST-101 - RISER INTAKE |
| ST-103 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 793.00 | 4.0 | Y | 10 | 6 | 2.97 | DUAL WALL HDPE | N | Y | ST-102 - RISER INTAKE |
| ST-104 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 801.00 | 4.0 | Y | 10 | 6 | 4.40 | DUAL WALL HDPE | N | Y | ST-103 - RISER INTAKE |
| ST-105 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 809.00 | 4.0 | Y | 10 | 6 | 6.06 | DUAL WALL HDPE | N | Y | ST-104 - RISER INTAKE |
| ST-106 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 817.00 | 4.0 | Y | 10 | 6 | 5.52 | DUAL WALL HDPE | N | Y | ST-105 - RISER INTAKE |
| ST-107 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 825.00 | 4.0 | Y | 10 | 6 | 4.68 | DUAL WALL HDPE | N | Y | ST-106 - RISER INTAKE |
| ST-108 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 833.00 | 4.0 | Y | 10 | 6 | 3.86 | DUAL WALL HDPE | N | Y | ST-107 - RISER INTAKE |
| ST-203 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 761.00 | 4.0 | Y | 10 | 6 | 1.00 | DUAL WALL HDPE | N | N | ST-202A - NYLOPLAST |
| ST-204 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 767.00 | 4.0 | Y | 10 | 6 | 4.32 | DUAL WALL HDPE | N | N | ST-202A - NYLOPLAST |
| ST-205 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 773.00 | 4.0 | Y | 10 | 6 | 3.73 | DUAL WALL HDPE | N | Y | ST-204 - RISER INTAKE |
| ST-206 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 779.00 | 4.0 | Y | 10 | 6 | 3.66 | DUAL WALL HDPE | N | Y | ST-205 - RISER INTAKE |
| ST-207 | 8 | 6 | PLASTIC | 40/FT | 1.00 | 785.00 | 4.0 | Y | 10 | 6 | 3.43 | DUAL WALL HDPE | N | Y | ST-206 - RISER INTAKE |

**ST-6: ACHIEVED WITH 6 ROWS AND 28 COLUMNS. 2.75 IN. SPACING ON CENTER HORIZONTALLY AND 3.38 IN. SPACING ON CENTER VERTICALLY.
ST-9: ACHIEVED WITH 15 ROWS AND 16 COLUMNS. 4.09 IN. SPACING ON CENTER HORIZONTALLY AND 2.58 IN. SPACING ON CENTER VERTICALLY.
ST-12: ACHIEVED WITH 6 ROWS AND 28 COLUMNS. 2.75 IN. SPACING ON CENTER HORIZONTALLY AND 3.38 IN. SPACING ON CENTER VERTICALLY.

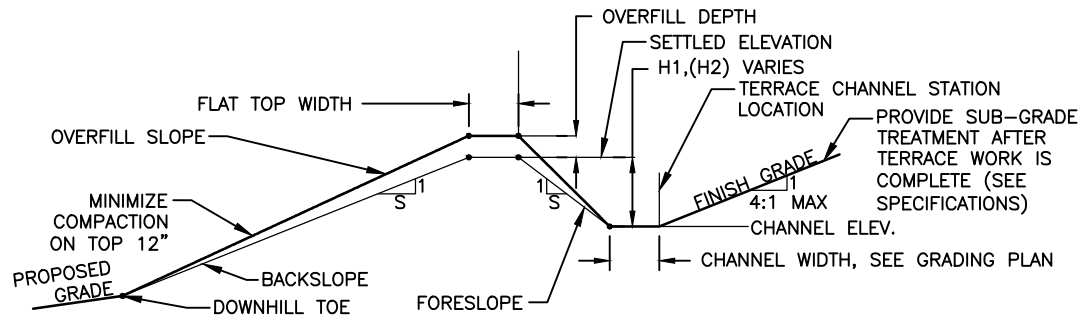


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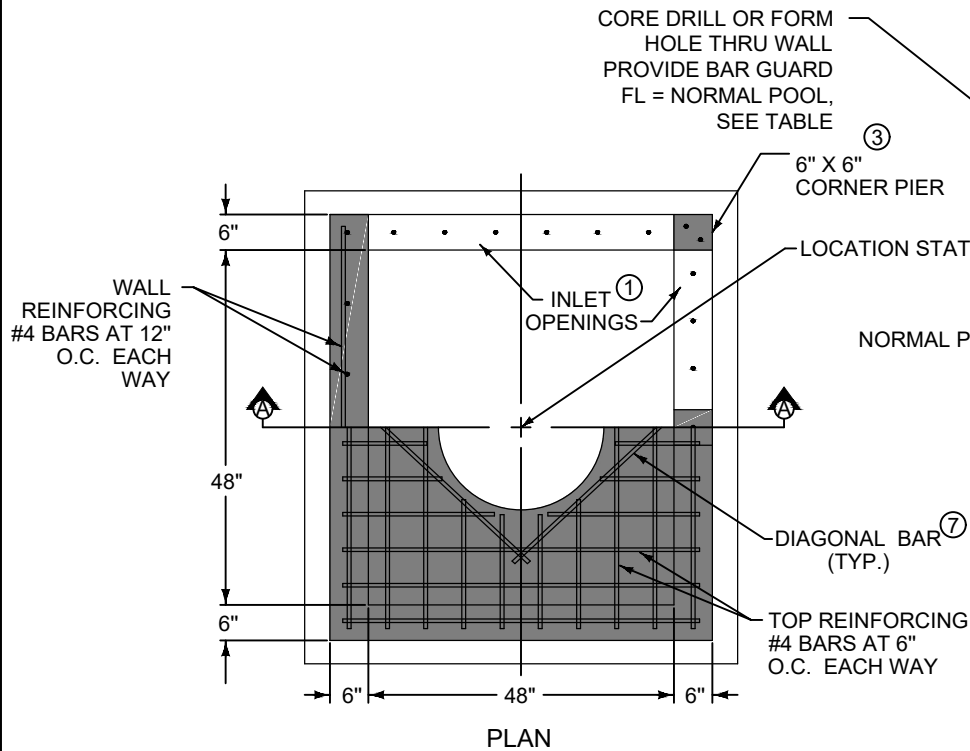
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DRAWN BY: SMH
CHKD. BY: LTL
ISSUED: 06-24-2024
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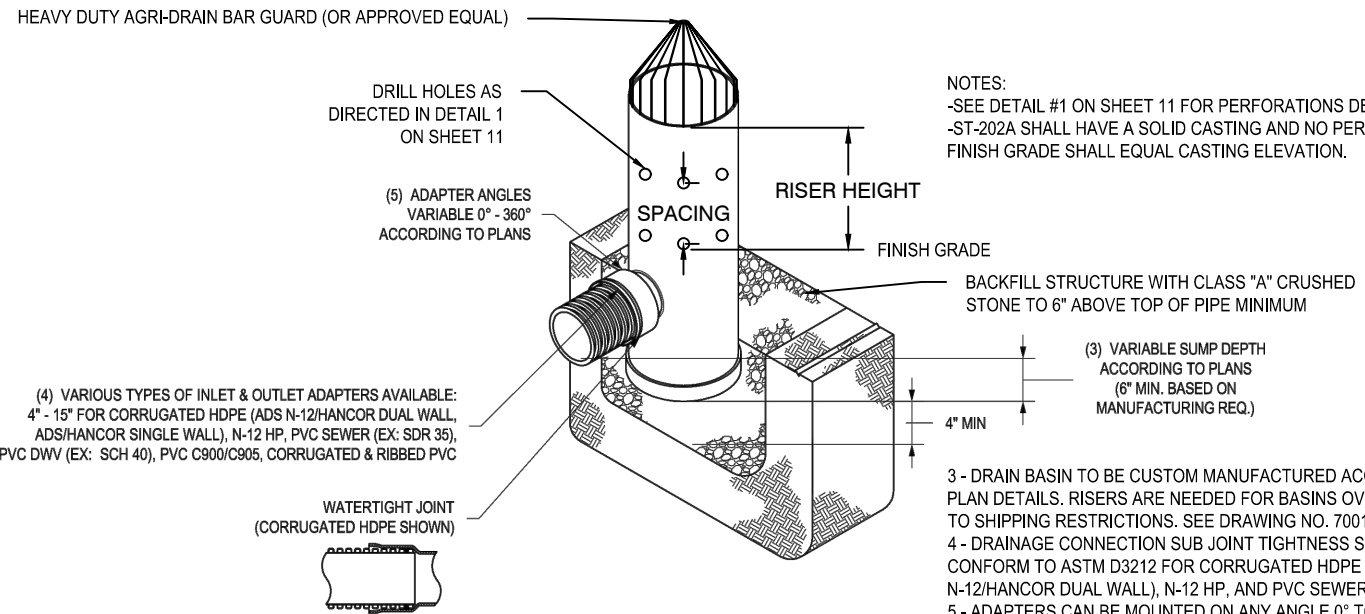
- NOTES:**
1. CHANNEL AND RIDGE ELEVATIONS ARE SHOWN RELATIVE TO THE LOW POINT ELEVATION OF THE TERRACE CHANNEL AT THE INTAKE RISER.
 2. H1=HEIGHT FROM LOW POINT IN THE TERRACE CHANNEL AT THE INTAKE TO TOP OF THE SETTLED RIDGE.
 3. H2=HEIGHT FROM HIGH POINT IN THE TERRACE CHANNEL AT THE ENDS TO TOP OF THE SETTLED RIDGE.
 4. TERRACE RIDGES ARE UNIFORM (LEVEL) THROUGHOUT THE ENTIRE LENGTH.
 5. RIDGE LENGTHS ARE MEASURED ALONG THE CENTERLINE OF THE RIDGE.
 6. OVERFILL DEPTH IS 6 INCHES.
 7. CHANNEL LENGTHS ARE MEASURED FROM THE HIGH POINT TO THE LOW POINT LOCATION ALONG THE CENTERLINE OF THE CHANNEL BOTTOM.
 8. ** VOLUME FOR TERRACE CONSTRUCTION IS INCLUDED IN THE OVERALL EARTHWORK QUANTITY. THE OVERALL EARTHWORK QUANTITY DOES NOT INCLUDE OVERFILL DEPTH.

1 FILL TERRACE DETAIL
NOT TO SCALE

| ST ID | FINISH GRADE | NORMAL POOL | INLET ELEV | TOP ELEV | HOLE DIA. (IN) | PIPE DIA. (IN) | LOWEST FLOWLINE |
|--------|--------------|-------------|------------|----------|----------------|----------------|-----------------|
| ST-1 | 735.50 | 736.00 | 737.00 | 738.25 | 6.7 | 36 | 731.50 |
| ST-201 | 744.75 | 745.00 | 746.00 | 747.25 | 3.1 | 24 | 740.50 |



3 SW-513 OPEN-SIDED AREA INTAKE DETAIL, 4'x4'
NOT TO SCALE



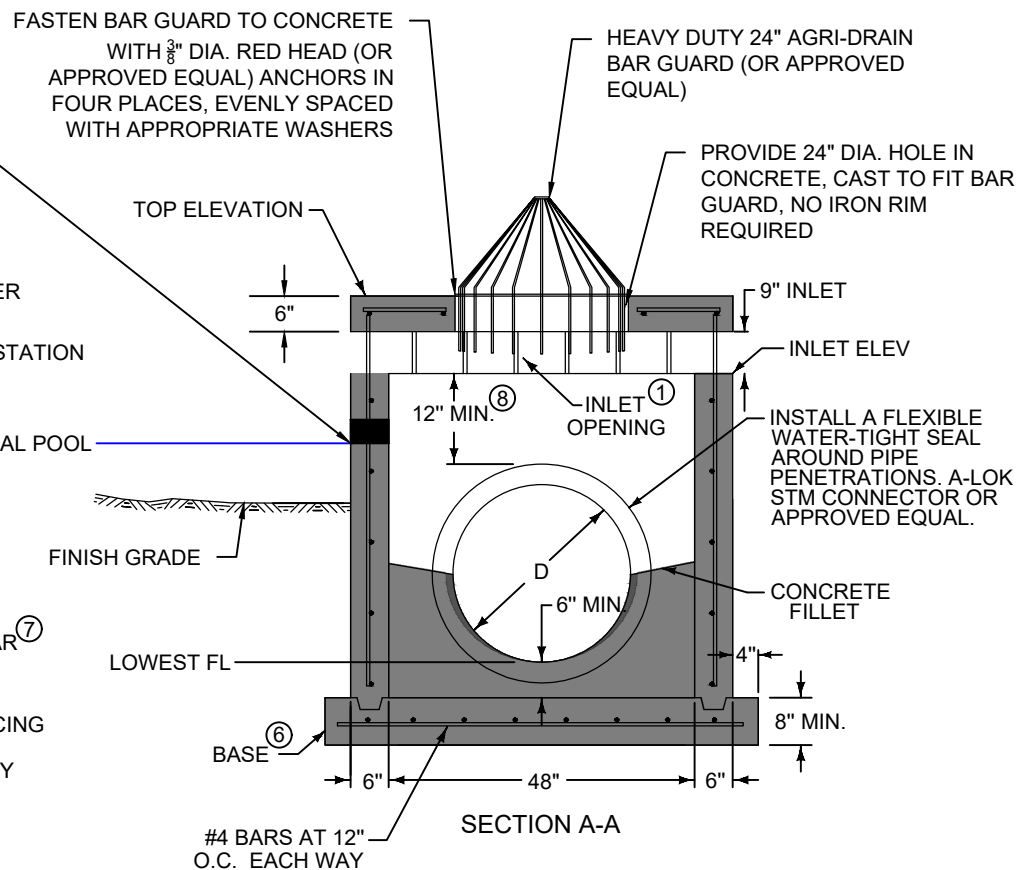
- NOTES:**
- SEE DETAIL #1 ON SHEET 11 FOR PERFORATIONS DETAILS
 - ST-202A SHALL HAVE A SOLID CASTING AND NO PERFORATIONS. FINISH GRADE SHALL EQUAL CASTING ELEVATION.

- (4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE:
4" - 15" FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL, ADS/HANCOR SINGLE WALL), N-12 HP, PVC SEWER (EX: SDR 35), PVC DWV (EX: SCH 40), PVC C900/C905, CORRUGATED & RIBBED PVC

- (3) VARIABLE SUMP DEPTH ACCORDING TO PLANS (6" MIN. BASED ON MANUFACTURING REQ.)

- 3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065
4 - DRAINAGE CONNECTION SUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE 9ADS N-12/HANCOR DUAL WALL), N-12 HP, AND PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

2 NYLOPLAST BASIN DETAIL
NOT TO SCALE



- 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 STRUCTURE TO BE OPEN ON ALL 4 SIDES (N, S, E, AND W)
- 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.
- 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.

FILE: 049.012

REVISED:

06-24-2024

ISSUED:

LTL

CHKD. BY:

SMH

DRAWN BY:

SMH

DESIGN BY:

SHEET

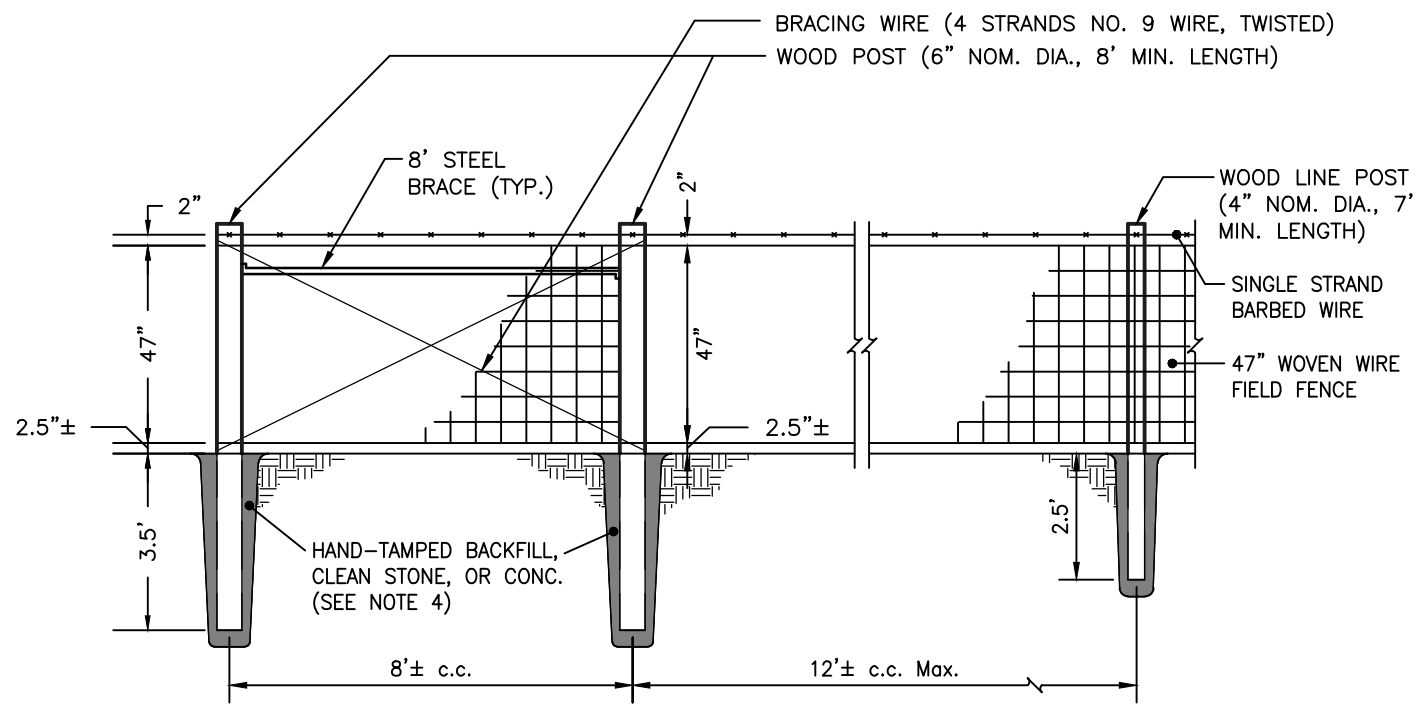
12 OF 20

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(515)281-4246



KUIPER (IA-024)
AML RECLAMATION PROJECT
TYPICAL DETAILS

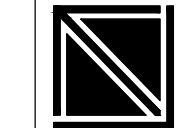
LITTLETON ASSOCIATES INC
office 515-422-7016
www.littleton.com
1823 DRUM STREET, SUITE 101
DES MOINES, IOWA 50314



FENCE DETAIL NOTES:

1. ALL FENCING TO BE WOVEN WIRE UNLESS OTHERWISE NOTED.
2. FENCING DETAIL IS SIMILAR TO IOWA DOT STANDARD ROAD PLAN MI-103 EXCEPT ALL POSTS MUST BE WOOD AND NO BARBED WIRE REQUIRED AS THE BOTTOM STRAND BELOW THE WOVEN FENCING.
3. PROVIDE BRACE ASSEMBLIES CONSISTING OF STEEL BRACES AND DIAGONAL BRACING WIRES TO BRACE THE WOOD POSTS AT ALL THE FOLLOWING LOCATIONS:
 - 3.1. POINTS OF CONNECTION TO EXISTING FENCE
 - 3.2. END POSTS
 - 3.3. POINTS OF HORIZONTAL DEFLECTION >10 DEGREES
 - 3.4. POINTS OF VERTICAL DEFLECTION >30 DEGREES
 - 3.5. ON IN-LINE SECTION EXCEEDING 500- FEET, EVENLY SPACES SO AS NOT TO EXCEED 500- FEET
4. IN LIEU OF EXCAVATING, POSTS MAY BE SET BY DRIVING. IN EITHER EVENT, CLEAR UTILITIES PRIOR TO INSTALLING FENCE POSTS.

1 FENCE DETAIL
NOT TO SCALE



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1873 OHIO STREET, SUITE 101
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502 E. 9th STREET, DES MOINES, IOWA 50319
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DESIGN BY: SMH

DRAWN BY: SMH

CHKD. BY: LTL

ISSUED: 06-24-2024

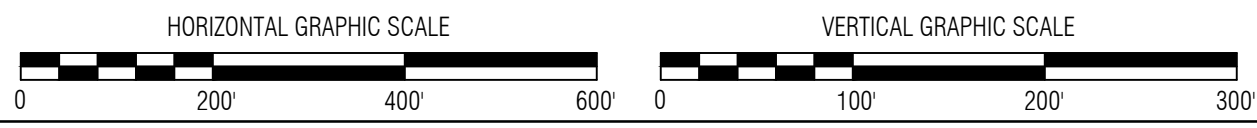
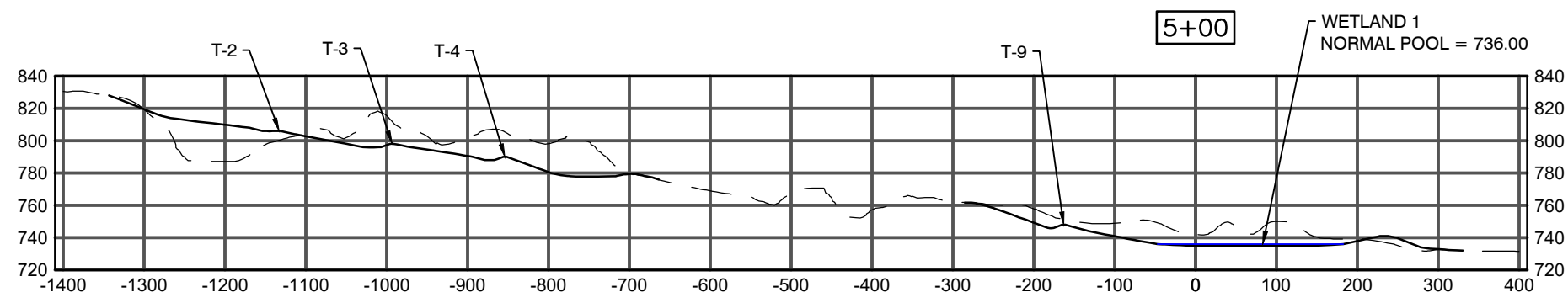
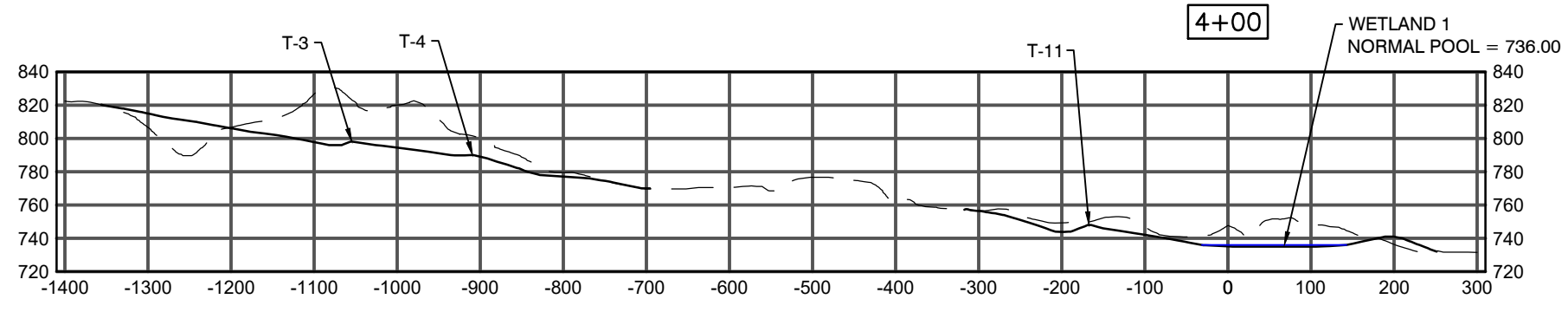
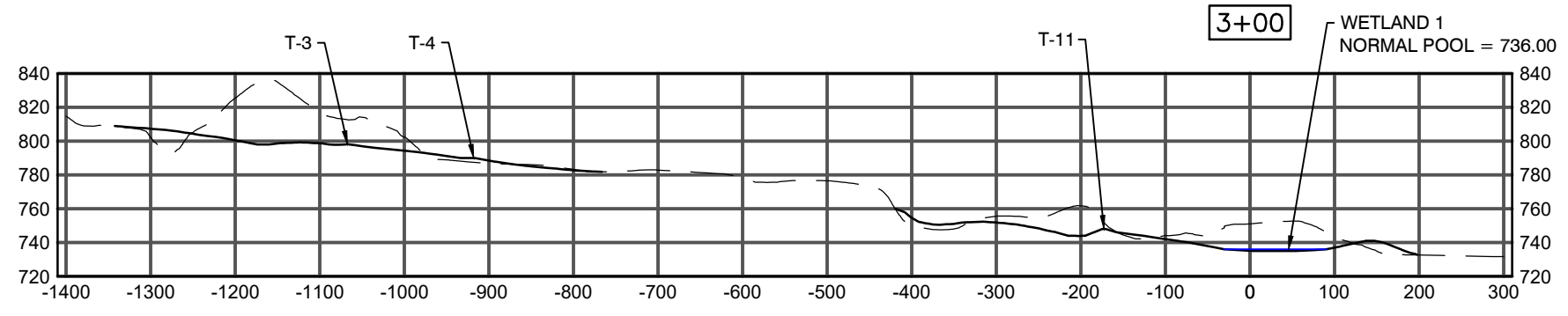
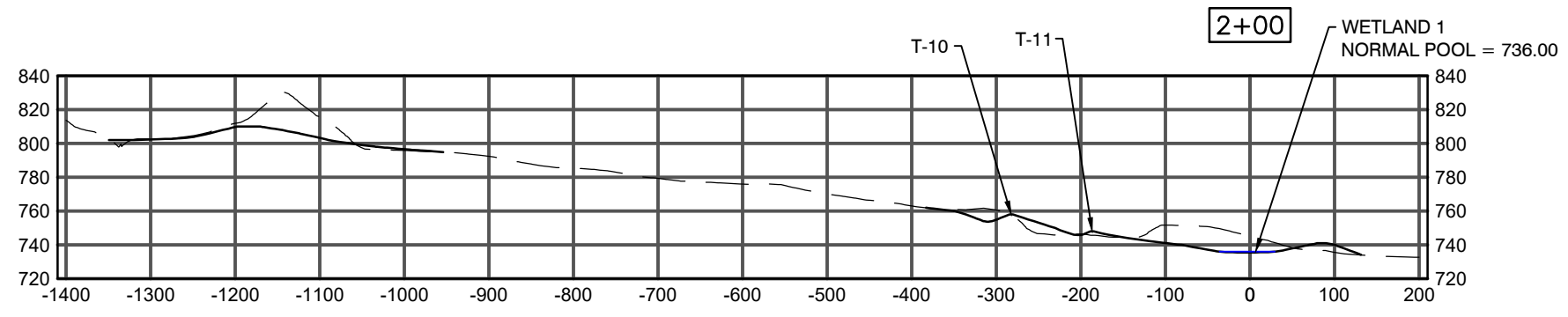
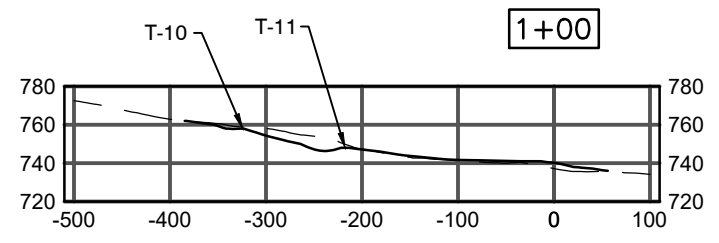
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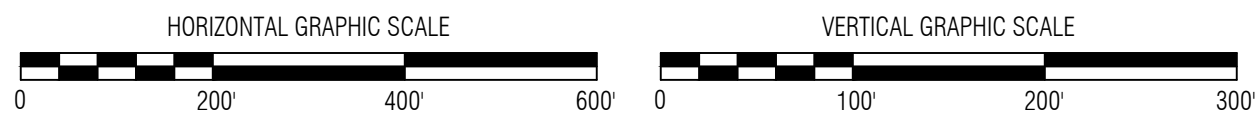
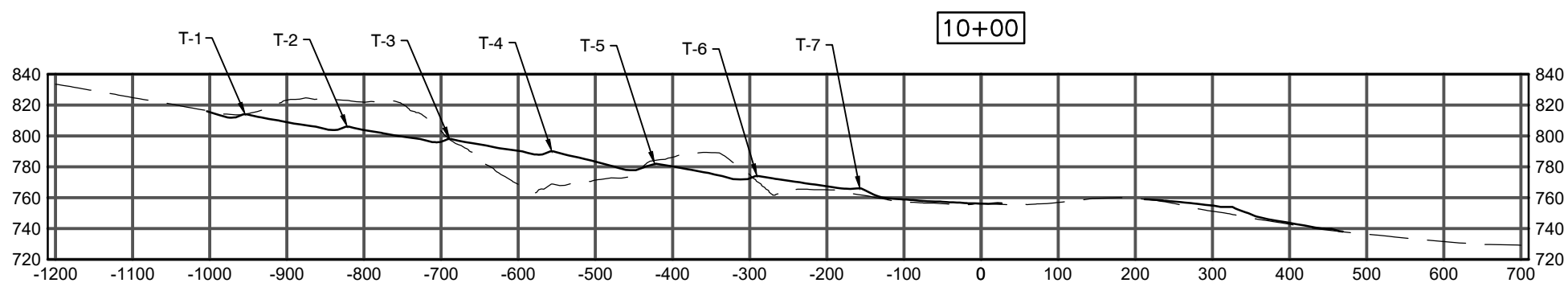
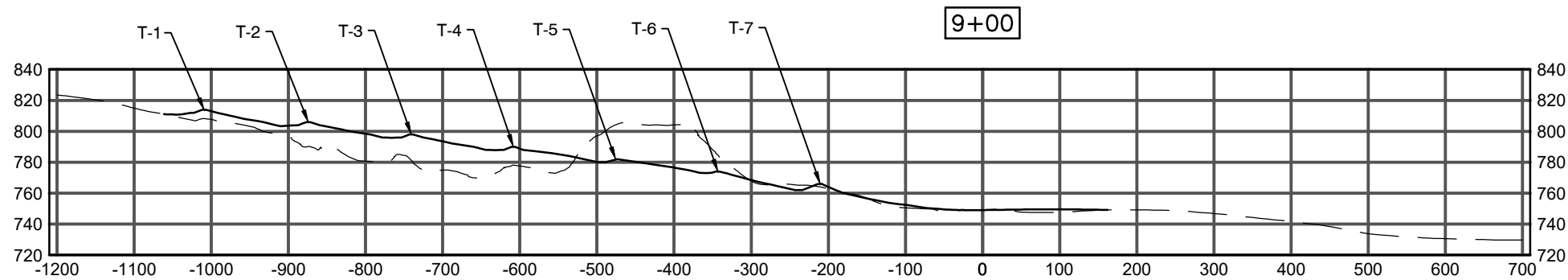
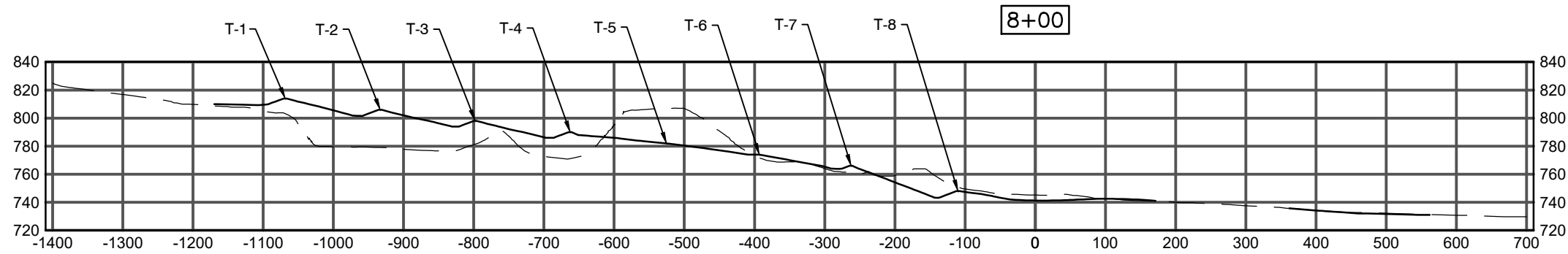
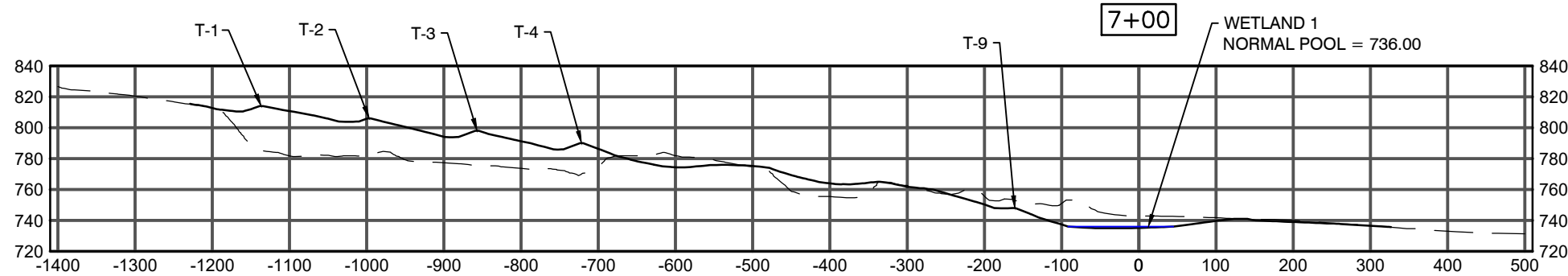
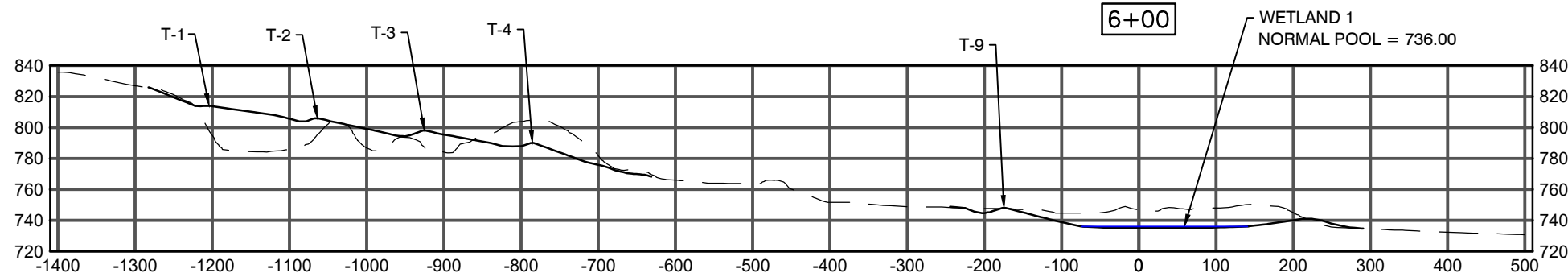
TYPICAL DETAILS



DESIGN BY: SMH DRAWN BY: SMH CHKD. BY: LTL ISSUED: 06-24-2024 REVISED: FILE: 049.012



NOTE:
 1. STATION 0 REPRESENTS MATCHLINE.
 2. CROSS SECTIONS FACING SOUTHEAST ROTATED 15° CLOCKWISE FROM MATCHLINE.



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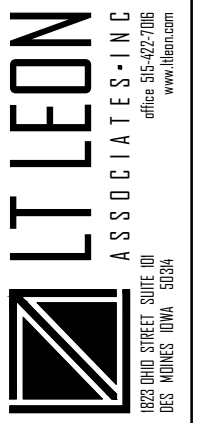
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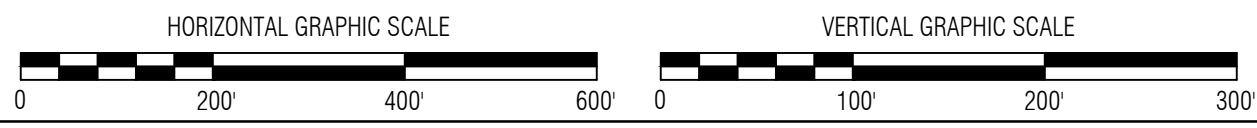
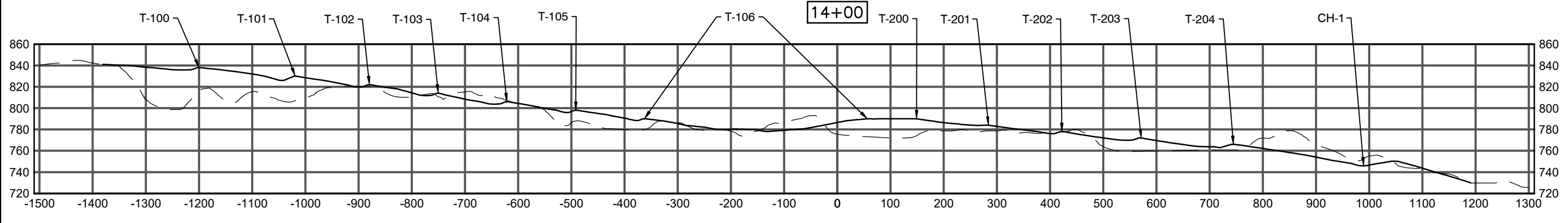
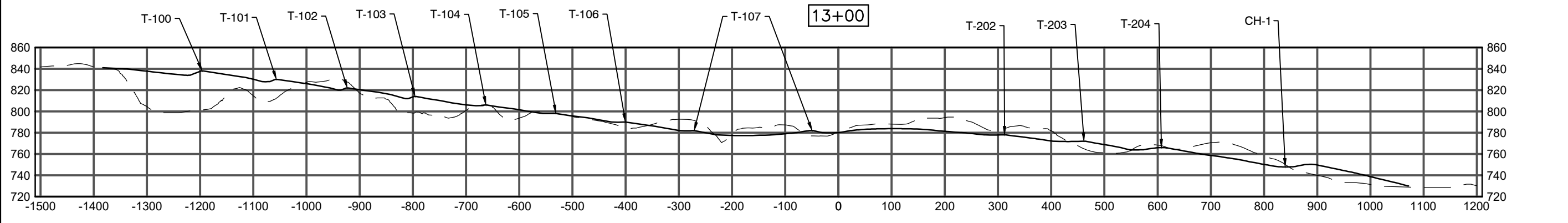
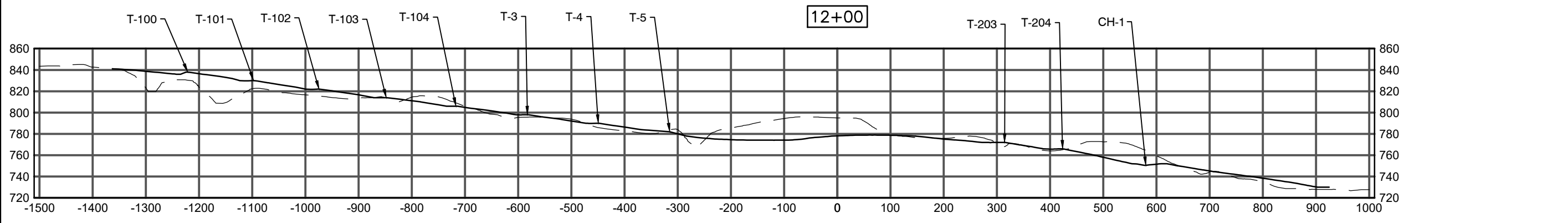
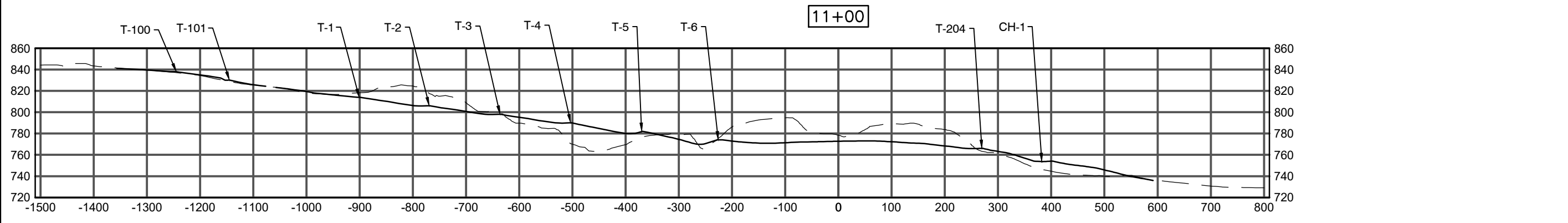
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CROSS SECTIONS





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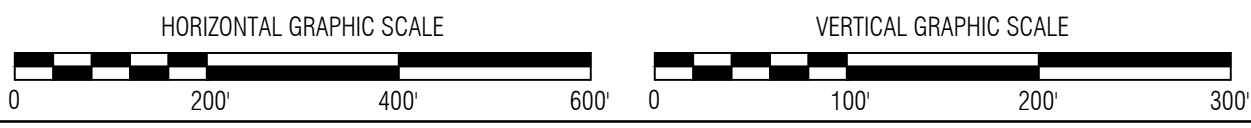
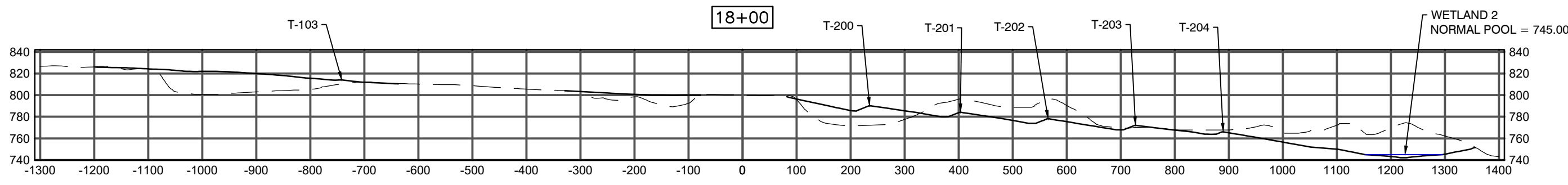
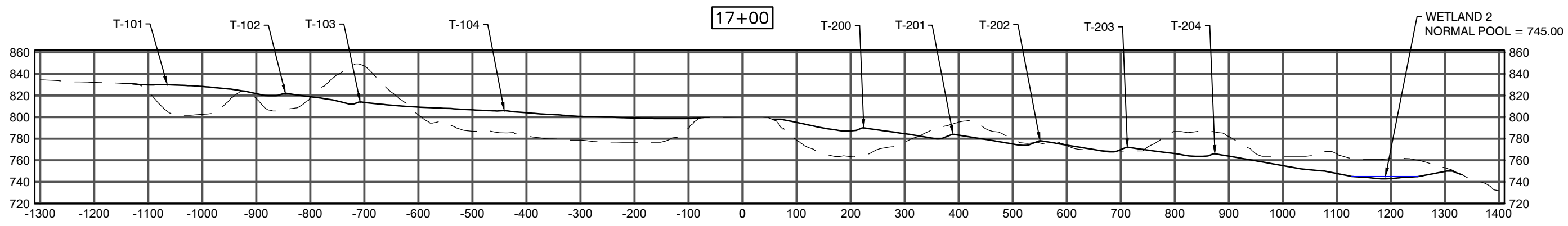
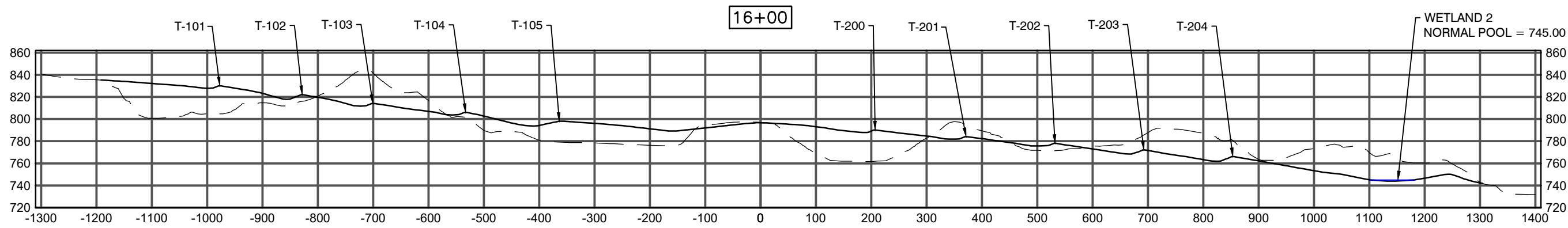
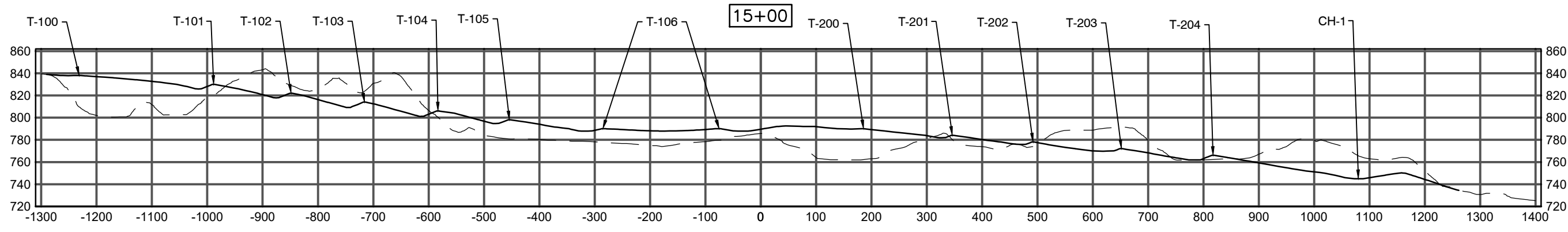
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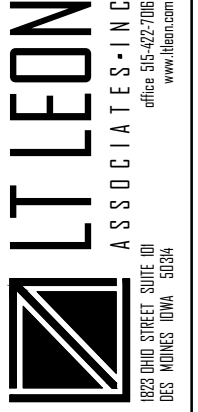
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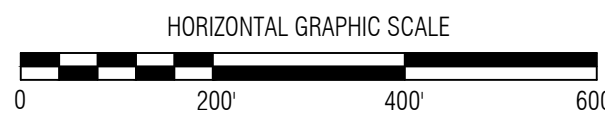
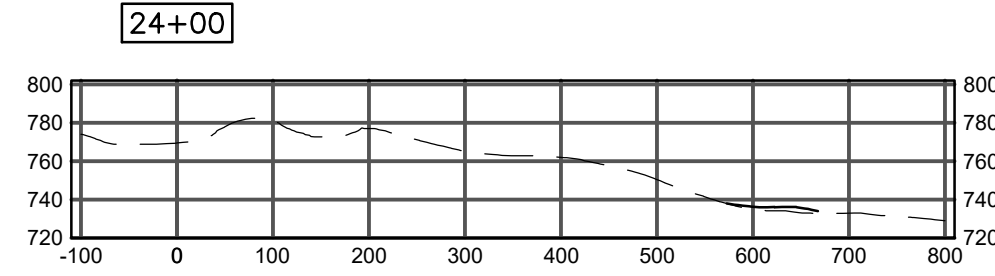
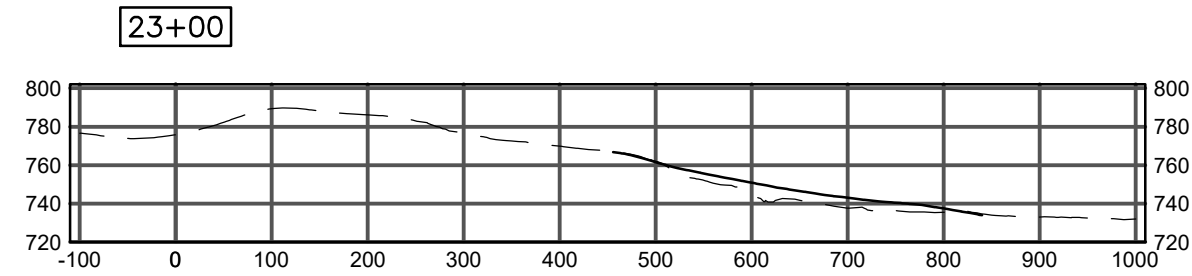
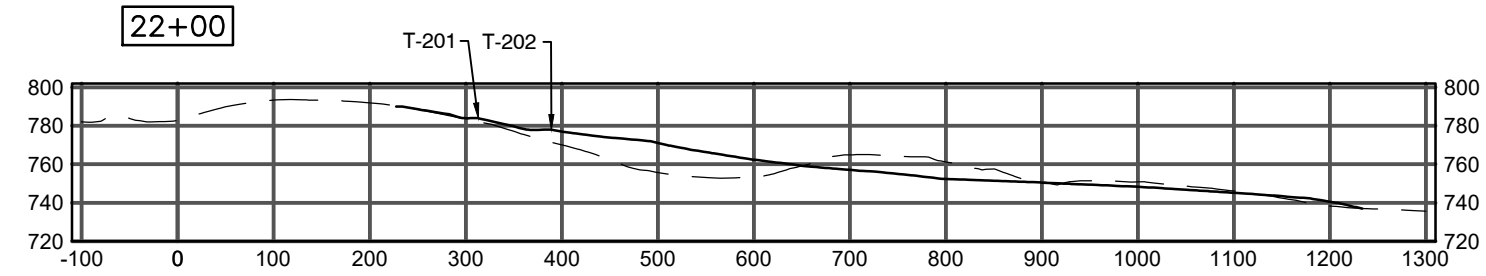
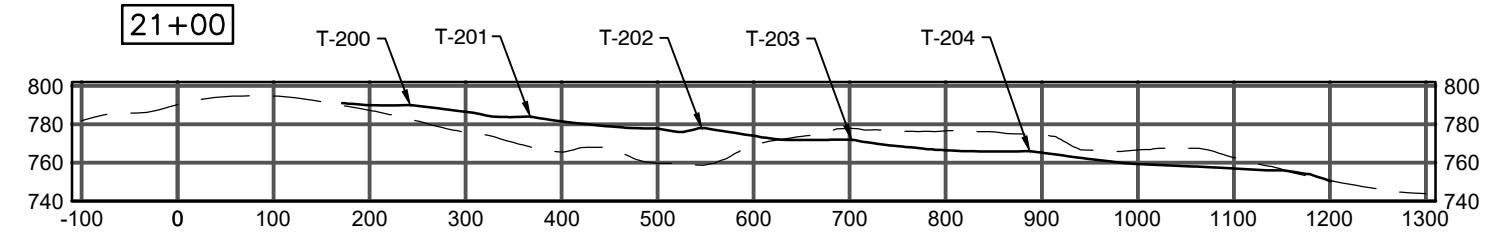
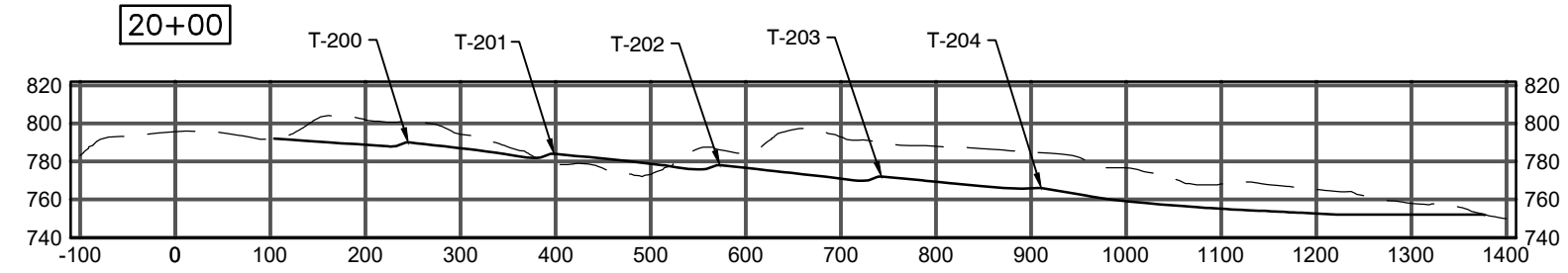
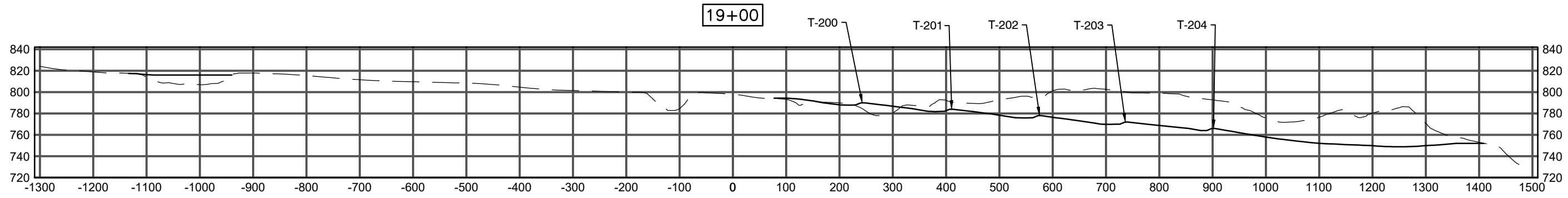
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CROSS SECTIONS



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 (515)281-4246





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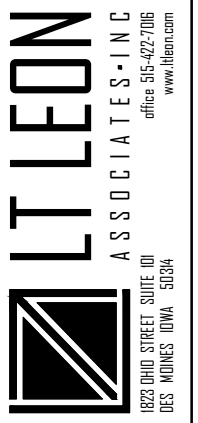
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CROSS SECTIONS



STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SUMMARY

SITE INFORMATION:

1. SITE IS LOCATED IN THE SOUTHEAST ¼ OF SECTION 2, TOWNSHIP 75N, RANGE 19W, MARION COUNTY, IOWA
2. THIS SWPPP COVERS THE RECLAMATION OF APPROXIMATELY 80.6 ACRES OF STRIP MINED LAND.
3. THE PREDOMINATE SOIL TYPES ARE: DUMPS, STRIP MINES (5020) SURROUNDED BY ANTHROPORTIC UDORTHENTS, COLO SILTY CLAY LOAM, MUNTERVILLE SILT LOAM, AND LADOGA SILT LOAM.
4. RUNOFF FROM THE CONSTRUCTION AREA WILL FLOW INTO AN UNNAMED TRIBUTARY TO THE ENGLISH CREEK.
5. THE AVERAGE NRCS RUNOFF CURVE NUMBER FOR THIS LAND AFTER PERMANENT VEGETATION IS ESTABLISHED IS ESTIMATED TO BE 79. SOILS ON THIS SITE ARE EXPECTED TO BE IN THE "C" HYDROLOGIC SOIL GROUP.

GENERAL:

1. THIS PROJECT WILL BE COVERED BY NPDES GENERAL PERMIT NO. 2 WHICH REGULATES POLLUTION IN STORMWATER DISCHARGE ASSOCIATED WITH INDUSTRIAL ACTIVITY FOR CONSTRUCTION ACTIVITIES.
2. THIS SHEET IS INCLUDED IN THE PLANS TO SUMMARIZE THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). PARTICULAR SWPPP INFORMATION CAN BE FOUND IN THE SWPPP DOCUMENTATION, WHICH SHALL INCLUDE:
 - A) THE SWPPP NARRATIVE DEVELOPED BY THE ENGINEER EXPLAINING HOW GENERAL PERMIT NO. 2 REQUIREMENTS WILL BE MET
 - B) A COPY OF THE PERMIT AUTHORIZATION
 - C) CONTRACTOR AND SUB-CONTRACTOR CERTIFICATION STATEMENTS
 - D) ANTICIPATED SEQUENCE OF CONSTRUCTION EVENTS
 - E) DRAWINGS SHOWING LOCATIONS OF EROSION AND SEDIMENT CONTROL PRACTICES
 - F) COMPLETED INSPECTION REPORTS
 - G) MODIFICATIONS AND REPAIR DOCUMENTATION
3. 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.
4. 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 RESPONSIBILITY SHALL BE FURTHER SHARED WITH ALL OF ITS SUB-CONTRACTORS.
5. 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.
6. CONTRACTOR SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR THE INSTALLATION OF ALL BMPs IDENTIFIED IN THE SWPPP.

RECORD OF CHANGES:

- | | |
|----------|--------------|
| 1. DATE: | DESCRIPTION: |
| 2. DATE: | DESCRIPTION: |
| 3. DATE: | DESCRIPTION: |
| 4. DATE: | DESCRIPTION: |
| 5. DATE: | DESCRIPTION: |

EROSION AND SEDIMENT CONTROLS (GENERAL):

1. GRANULAR SURFACING SHALL BE INSTALLED AND MAINTAINED AT THE ENTRANCE INTO THE SITE AND ANY IDENTIFIED PARKING AREAS TO CONTROL MUD FROM BEING TRACKED OFF 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.
2. WATER SHALL BE APPLIED TO HAUL ROADS AND OTHER DISTURBED EARTHEN SURFACES AS NECESSARY TO CONTROL DUST THROUGHOUT THE CONTRACT PERIOD.
3. WATER PUMPED DURING CONSTRUCTION OPERATIONS SHALL BE HANDLED IN A PROPER MANNER. EROSION AND SCOUR SHALL BE PREVENTED AT POINTS WHERE THE PUMP(S) DISCHARGE. LEVEL SPREADERS, RIP-RAP, AND/OR OTHER ENERGY ABSORBING DEVICES OR APPROPRIATE BMPs SHALL BE USED.
4. EXISTING VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED.
5. WHERE INDICATED ON DRAWINGS, SEDIMENT CONTROL PRACTICES SHALL BE INSTALLED AT OR ALONG THE DOWNSTREAM PERIMETER OF THE CONSTRUCTION AREA PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITY.
6. 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.
7. IN AREAS WHERE 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.
8. LOCATIONS AND QUANTITIES OF BMPs SHOWN ON THE PLAN ARE APPROXIMATE. ACTUAL LOCATIONS OR QUANTITIES ARE TO BE DETERMINED IN THE FIELD WITH THE APPROVAL OF THE DIVISION OR THE PROJECT ENGINEER.
9. 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.

OTHER POLLUTION CONTROLS:

1. 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. SANITARY WASTE GENERATED ON SITE SHALL BE TREATED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS. CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND WASTES SHALL ALSO COMPLY WITH FEDERAL, STATE AND LOCAL REGULATIONS.
2. CONCRETE WASHOUT RESIDUE SHOULD BE CONTAINED AND HAULED OFF SITE ONCE IT HARDENS. AREAS WHERE CONCRETE WASHOUT OCCURS SHALL BE FILLED AND STABILIZED.

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.

INSPECTIONS:

1. 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.
2. ALL INSTALLED BMPs SHALL BE INSPECTED FOR CONDITION AND EFFECTIVENESS.
3. 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.
4. THE FINDINGS OF EACH INSPECTION SHALL BE RECORDED AND KEPT IN AN ELECTRONIC FORMAT WITH THE ELECTRONIC SWPPP.
5. IF INSPECTIONS FIND DEFICIENCIES, THE CONTRACTOR SHALL BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES AS SOON AS PRACTICABLE.
6. THE SWPPP MAY BE REVISED BASED ON FINDINGS OF THE INSPECTIONS. SUCH REVISIONS SHALL BE MADE WITHIN SEVEN (7) DAYS OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS.
7. COPIES OF INSPECTION REPORTS WILL BE RETAINED WITH THE SWPPP FOR THREE (3) YEARS FROM THE DATE THE PERMIT COVERAGE TERMINATES.

MAINTENANCE:

1. THE CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL MEASURES 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.
2. MAINTENANCE INCLUDES CLEANING, REPAIRING, OR REPLACES AS REQUIRED. IN GENERAL, MAINTENANCE SHALL BE PERFORMED PRIOR TO THE NEXT ANTICIPATED STORM EVENT.
3. REMOVE SEDIMENT FROM SEDIMENT TRAPS, DITCHES, AND SILT FENCE WHEN THEIR INSTALLED CAPACITY IS REDUCED BY FIFTY (50) PERCENT OR MORE.

SITE SPECIFIC EROSION AND SEDIMENT CONTROLS:

1. SEE RESTORATION & SWPPP BMP PLAN, SHEET 20

FILE: 049.012

REVISED:

06-24-2024

ISSUED:

LTL

CHKD. BY:

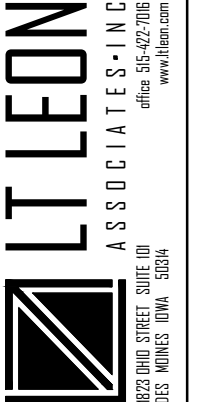
DRAWN BY: SMH

DESIGN BY: SMH

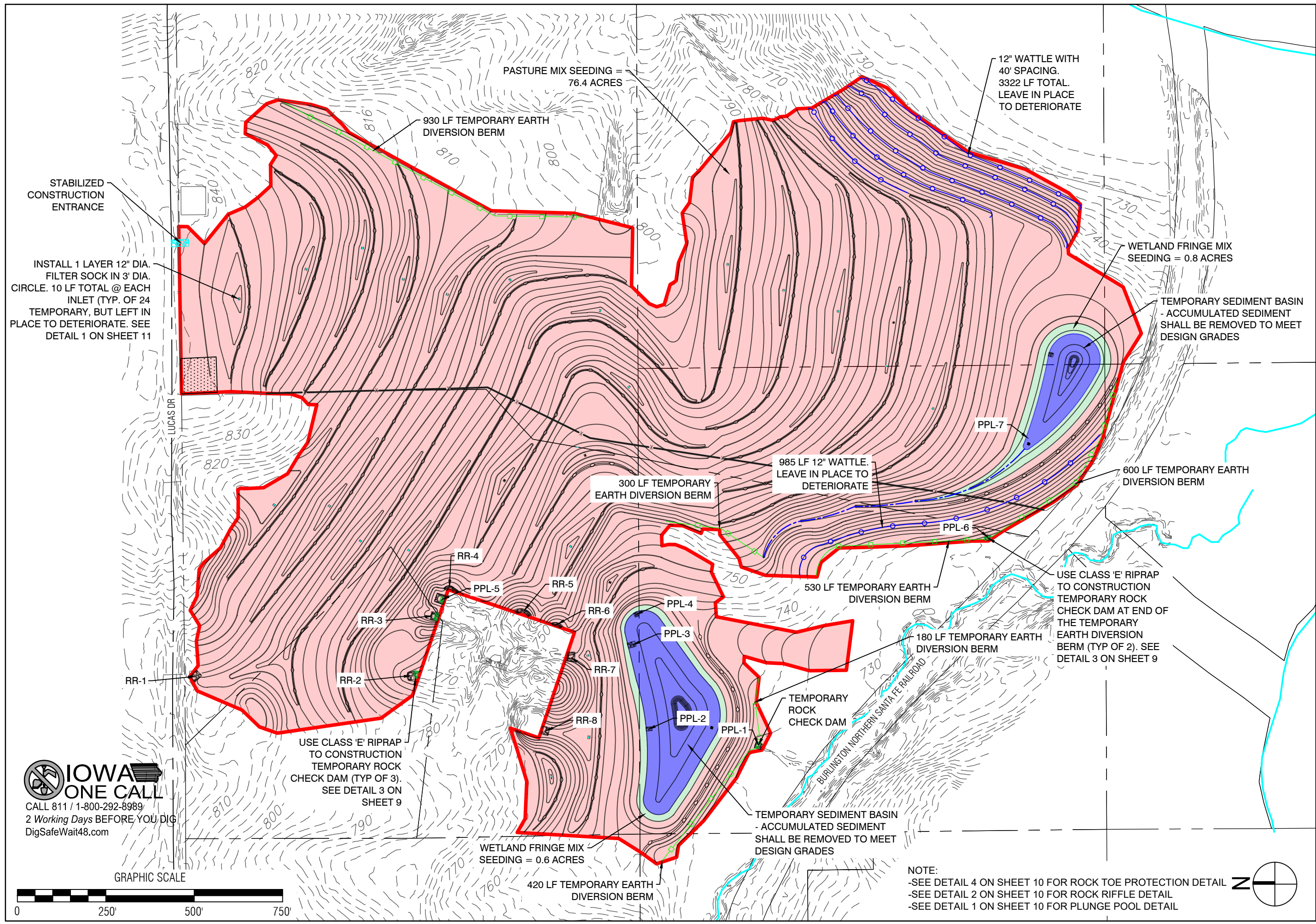
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
HENRY A. WALLACE BUILDING
502 E. 9th STREET, DES MOINES, IOWA 50319
(515)281-4246



KUIPER (IA-024)
AML RECLAMATION PROJECT
SWPPP DESCRIPTION



1823 9th STREET, SUITE 101
DES MOINES, IOWA 50314
www.littleon.com



STABILIZED CONSTRUCTION ENTRANCE

INSTALL 1 LAYER 12" DIA. FILTER SOCK IN 3' DIA. INLET (TYP. OF 24) TEMPORARY, BUT LEFT IN PLACE TO DETERIORATE. SEE DETAIL 1 ON SHEET 11

PASTURE MIX SEEDING = 76.4 ACRES

12" WATTLE WITH 40' SPACING. 3322 LF TOTAL. LEAVE IN PLACE TO DETERIORATE

WETLAND FRINGE MIX SEEDING = 0.8 ACRES

TEMPORARY SEDIMENT BASIN - ACCUMULATED SEDIMENT SHALL BE REMOVED TO MEET DESIGN GRADES

300 LF TEMPORARY EARTH DIVERSION BERM

985 LF 12" WATTLE. LEAVE IN PLACE TO DETERIORATE

600 LF TEMPORARY EARTH DIVERSION BERM

USE CLASS 'E' RIPRAP TO CONSTRUCTION TEMPORARY ROCK CHECK DAM AT END OF THE TEMPORARY EARTH DIVERSION BERM (TYP OF 2). SEE DETAIL 3 ON SHEET 9

180 LF TEMPORARY EARTH DIVERSION BERM

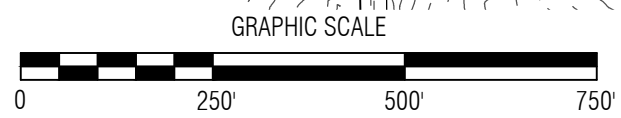
TEMPORARY ROCK CHECK DAM

TEMPORARY SEDIMENT BASIN - ACCUMULATED SEDIMENT SHALL BE REMOVED TO MEET DESIGN GRADES

WETLAND FRINGE MIX SEEDING = 0.6 ACRES

420 LF TEMPORARY EARTH DIVERSION BERM

IOWA ONE CALL
CALL 811 / 1-800-292-8989
2 Working Days BEFORE YOU DIG
DigSafeWait48.com



| | | | | | |
|--|---------------|---------------|--------------------|----------|---------------------------------|
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| | | | | | |
| KUIPER (IA-024) AML RECLAMATION PROJECT RESTORATION AND SWPPP BMP PLAN | | | | | |
| 1823 OHIO STREET, SUITE 101 DES MOINES, IOWA 50319 office 515-472-7005 www.littleon.com | | | | | SHEET 20 OF 20 |