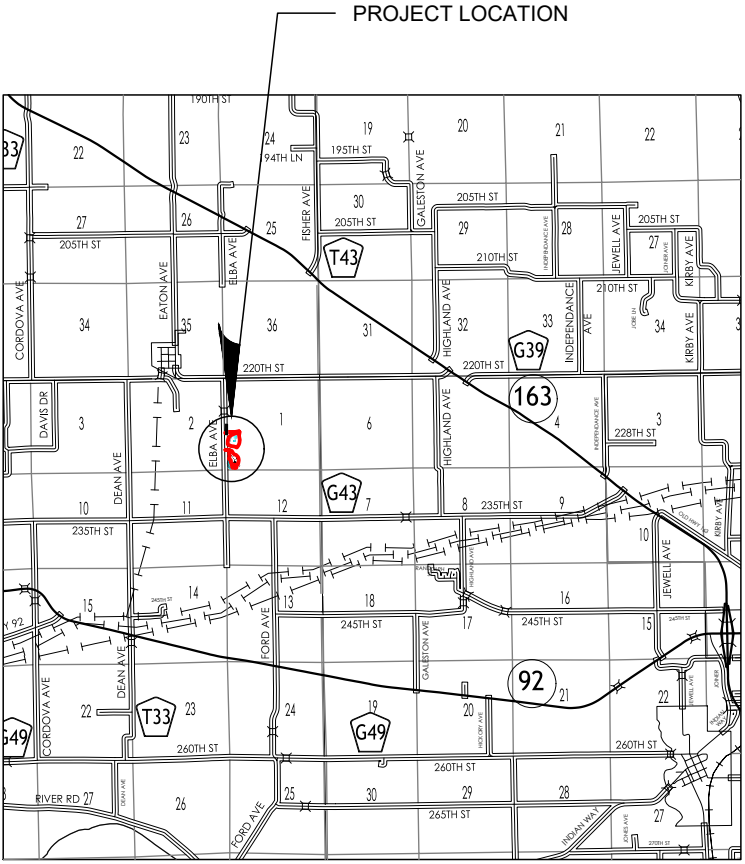
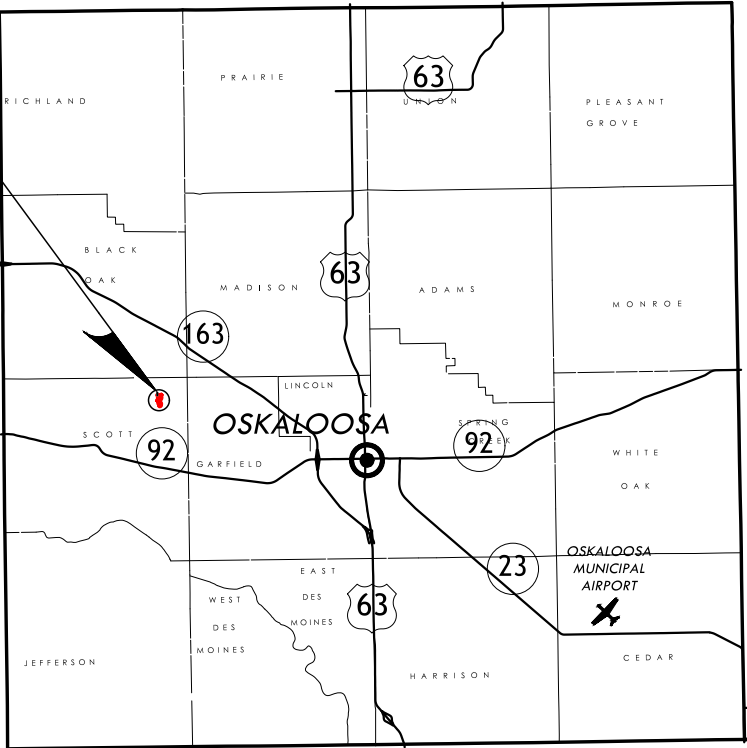
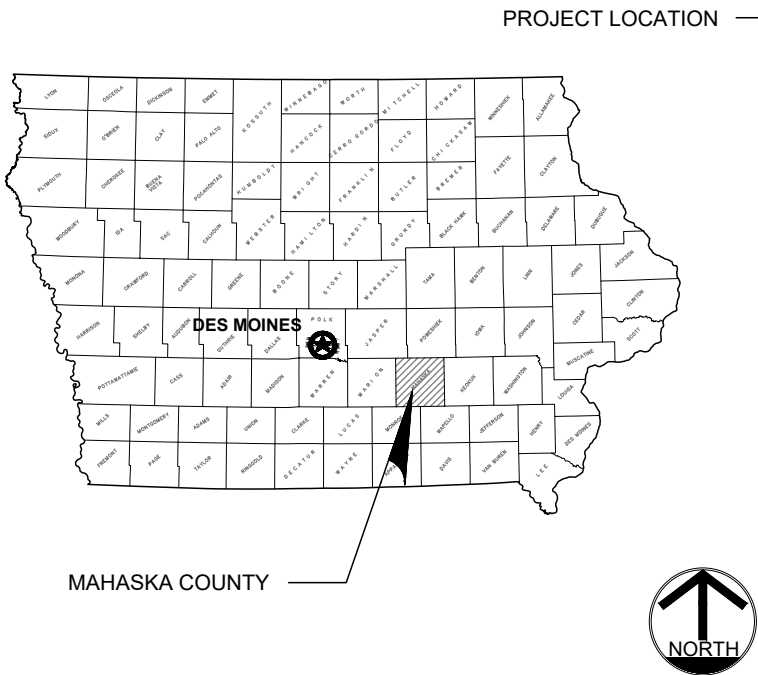


MEMMELAAR WEST (IA-362)
AML RECLAMATION PROJECT

SW¼ SECTION 1, T75N-R17W, MAHASKA COUNTY

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION AND WATER QUALITY

FUNDED BY:
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF SURFACE MINING RECLAMATION AND ENFORCEMENT
GRANT NO: S26AF00065

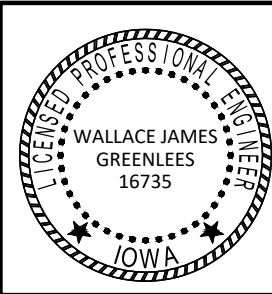


- INDEX OF SHEETS:
- 1 COVER SHEET
 - 2 PROJECT NOTES AND QUANTITIES
 - 3 SITUATION PLAN & SURVEY CONTROL
 - 4 NORTH SITE PREPARATION PLAN
 - 5 SOUTH SITE PREPARATION PLAN
 - 6 NORTH GRADING PLAN
 - 7 SOUTH GRADING PLAN
 - 8 NORTH CUT-FILL PLAN
 - 9 SOUTH CUT-FILL PLAN
 - 10 NORTH DRAINAGE PLAN
 - 11 PIPELINE BETWEEN SITES PLAN & PROFILE
 - 12 SOUTH DRAINAGE PLAN
 - 13 PROJECT SIGN DETAIL
 - 14-17 TYPICAL DETAILS
 - 18 CROSS-SECTION BASELINE
 - 19 NORTH CROSS-SECTIONS
 - 20 SOUTH CROSS-SECTIONS
 - 21 SWPPP SUMMARY
 - 22 NORTH SWPPP BMP PLAN
 - 23 SOUTH SWPPP BMP PLAN

PREPARED FOR:
IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP
DIVISION OF SOIL CONSERVATION & WATER QUALITY
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET
DES MOINES, IOWA 50319
(515) 281-4246

ENGINEER:
WALLACE J. GREENLEES, P.E.
MINES & MINERALS BUREAU
TEL: (515)-669-9177
E-MAIL: wallace.greenlees@iowaagriculture.gov

LOCAL VICINITY
SCALE: 1" = 2 MILES



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa

Signature: *Wallace J. Greenlees* Date: 7-13-2026

Name (printed or typed): WALLACE JAMES GREENLEES

License Number: 16735

My license renewal date is: December 31, 2026

Pages or sheets covered by this seal: SEE NOTE DIRECTLY BELOW

THIS SEAL COVERS THE ENTIRE DOCUMENT EXCEPT THE LAYOUT AND ALIGNMENT OF THE PROJECT BOUNDARIES SHOWN IN RED.

DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	REVISION:	DATE:	DESCRIPTION:
						1		
						2		
						3		
						4		
DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321								
MEMMELAAR WEST AML RECLAMATION PROJECT								
COVER SHEET								
SHEET 1 OF 23								

GENERAL NOTES

TABLE: BID QUANTITIES

	ITEM	SPEC. SECTION	UNIT	NORTH SITE QTY	SOUTH SITE QTY	TOTAL QTY
1	MOBILIZATION	02100	LS	0.6	0.4	1
2	CLEARING & SITE PREPARATION	02100	AC	9.2	7.5	16.7
3	OFFSITE WASTE DISPOSAL	02100	TON	40	10	50
4	IMPOUNDMENT DISCHARGE	02110	LS	0.6	0.4	1
5	FILTER SOCK, 8" DIA.	02120	LF	60	235	295
6	WOOD FIBER, RECP TYPE 2D	02120	SY	660	1726	2386
7	TIED CONCRETE BLOCK MAT	02120	SF	2400	480	2880
8	MACADAM STONE	02120	TON	15	30	45
9	EROSION STONE	02120	TON	16	45	61
10	RIP RAP, CLASS E	02120	TON	40	60	100
11	EXCAVATION	02200	CY	45200	42200	87400
12	EXCAVATION, MUCK	02200	CY	8300	3700	12000
13	CONTROLLED GENERAL FILL	02220	CY	8300	3700	12000
14	TERRACES	02300	LF	2035	1720	3755
15	RISER, HICKENBOTTOM, 6"	02300	EA	4	2	6
16	RISER, HICKENBOTTOM, 10"	02300	EA	1	0	1
17	RISER, HICKENBOTTOM, 12"	02300	EA	1	2	3
18	RISER, IA-DOT SW-513, MOD. 4'X4'	02300	EA	1	0	1
19	DWPE, DUAL WALL PIPE, 6"	02300	LF	353	182	535
20	DWPE, DUAL WALL PIPE, 8"	02300	LF	98	474	572
21	DWPE, DUAL WALL PIPE, 10"	02300	LF	317	185	502
22	DWPE, DUAL WALL PIPE, 12"	02300	LF	0	80	80
23	DWPE, DUAL WALL PIPE, 15"	02300	LF	395	71	466
24	PPHP, DUAL WALL PIPE, 18"	02300	LF	220	0	220
25	OUTLET, SCH 40 PVC, 6"	02300	EA	2	1	3
26	OUTLET, SCH 40 PVC, 8"	02300	EA	0	1	1
27	OUTLET, SCH 40 PVC, 10"	02300	EA	1	0	1
28	OUTLET, PPHP, 15"	02300	EA	1	0	1
29	SUBGRADE PREPARATION	02400	ACRE	8.3	7.3	15.6
30	AGRICULTURAL LIME	02400	TON ECCE	300	230	530
31	WETLAND UNDERCUT & REPLACEMENT	02400	ACRE	0.9	0.2	1.1
32	WETLAND MULCH, SUBGRADE	02400	ACRE	0.9	0.2	1.1
33	MULCH, SUBGRADE	02400	ACRE	8.9	7.3	16.2
34	FENCE, 5-STRAND BARBED WIRE	02500	LF	1544	0	1544
35	FERMENTED BIOTIC SOIL ADDITIVE	02700	LB	200	200	400
36	SEEDBED PREPARATION	02700	ACRE	8.3	7.3	15.6
37	NITROGEN, N	02700	LB	400	330	730
38	PHOSPHOROUS, P	02700	LB	1250	1100	2350
39	POTASSIUM, K	02700	LB	2500	2200	4700
40	SEEDING, UPLAND PASTURE MIX	02700	ACRE	8.4	7.3	15.7
41	SEEDING, WETLAND FRINGE	02700	ACRE	0.2	0.1	0.3
42	MULCH, SEEDING	02700	ACRE	8.4	7.5	15.9

BID QUANTITY NOTES:

1. **IMPORTANT!** BID ITEM #41 IS LESS THAN 1. ON IMPACS BIDDING SYSTEM, ENTER ONE LUMP SUM PRICE TO PERFORM THE PLAN QUANTITY REQUIRED.
2. **IMPORTANT!** A TOTAL 720 LF OF 15" DWPE IS REQ'D. 254 LF OF IT LIES BETWEEN PROJECT BOUNDARIES. THAT QUANTITY OF PIPE BETWEEN BOUNDARIES IS **NOT** INCLUDED IN THE TABLE ABOVE. SEE SHEET 11.
3. COST OF CLEARING AND MAINTAINING THE ACCESS ROUTE IS INCIDENTAL TO MOBILIZATION.
4. 5% SHRINKAGE WAS USED FOR EARTHWORK VOLUME BALANCE CALCULATIONS
5. QUANTITY OF AG LIME IS ESTIMATED TO BE 30 TON ECCE/ACRE TOTAL SUBGRADE & SEEDING.
6. QUANTITY OF FERTILIZER (N-P-K) IS ESTIMATED TO BE (ACTIVE INGREDIENT) 45-150-300 LB /ACRE.
7. WETLAND FERTILIZER IS INCLUDED IN THE ESTIMATED QUANTITY FOR NITROGEN (N).
8. WETLAND SUBGRADE MULCH: 10 TON/ACRE; SUBGRADE MULCH: 5 TON/ACRE; SEEDING MULCH: 2 TON/ACRE.
9. MANHOLE PIPE ADAPTER SLEEVES ARE INCIDENTAL TO THE UNIT PRICE FOR PIPE.
10. PIPE STRAPS ARE REQUIRED AT EACH PIPE JOINT AND ARE INCIDENTAL TO THE UNIT PRICE FOR PIPE.
11. GRANULAR BACKFILL, WHERE SPECIFIED, IS INCIDENTAL TO THE UNIT PRICE FOR THE PIPE.
12. GRANULAR BACKFILL USED AS LEVELING COURSE FOR STRUCTURES IS INCIDENTAL TO THE STRUCTURE.
13. COST OF CONNECTING NEW PIPE TO EXISTING PIPE IS INCIDENTAL TO THE PROJECT.

LEGEND

- PROJECT BOUNDARY
- E — E — E —

ELECTRIC LINE
- T — T — T —

TELEPHONE
- ST — ST — ST —

DRAINAGE CONDUIT
- . . . — . . . —

EXISTING DRAINAGE DITCH OR WATER WAY
- . . — . . — . . — . . —

EXISTING STREAM
- - - - -

SECTION LINE
- - - - -

LANDOWNER PROPERTY LINE
- x — x — x —

EXISTING FENCE LINE
- o — o — o —

PROPOSED FENCE CONSTRUCTION
- | — | — | —

WATERS EDGE, EX. POND
- > — > —

CHANNEL CENTERLINE & FLOW DIRECTION
- ◇ — ◇ — ◇ —

TERRACE RIDGE CENTER LINE
- NO — BURN —

¼ MILE BURN RADIUS LIMIT
- — — — —

FILTER SOCK
- — — — —

TEMPORARY EARTH DIVERSION
- EX. TREE TO PROTECT
- EX. PIT POND
- EX. WETLAND
- SURVEY CONTROL POINT
- SECTION CORNER FOUND
- POWER POLE
- TERRACE CHANNEL HIGH POINT
- PLASTIC TERRACE RISER
- SEEP OR ARTESION
- STONE ARMOR-RIPRAP OR EROSION STONE
- TIED CONCRETE BLOCK MAT
- ROLLED EROSION CONTROL PRODUCT (RECP)
- PROPOSED WETLAND POOL
- COMPACTED GRANULAR TRENCH BACKFILL

GLOSSARY OF COMMON ABBREVIATIONS:

1. FG = FORM GRADE ELEVATION; THE LOWEST INLET OPENING ELEVATION FOR A RISER OR STRUCTURE TO RECEIVE WATER FROM A POND OR CHANNEL
2. INV = INVERT; THE LOWEST FLOWLINE ELEVATION OF A CONDUIT, RISER TEE, OR STRUCTURE
3. SWPE = SINGLE-WALL CORRUGATED HIGH DENSITY POLYETHYLENE CONDUIT
4. DWPE = DUAL-WALL HIGH DENSITY POLYETHYLENE CORRUGATED CONDUIT MEETING ASTM 2648-07
5. PPHP = POLYPROPYLENE HIGH PERFORMANCE CORRUGATED DUAL-WALL PIPE MEETING ASTM 2736-10 FOR 12-30" DIA. (i.e. ADS N-12HP OR APPROVED EQUAL)
6. RCP = REINFORCED CONCRETE PIPE
7. CMP = CORRUGATED METAL PIPE
8. VCP = VITRIFIED CLAY PIPE
9. FES = FLARED END STRUCTURE OR PIPE APRON
10. RIM = ELEVATION OF A STRUCTURE LID OR HIGHEST EDGE OF A PLUNGE POOL
11. LF = LINEAL FEET
12. NP = NORMAL POOL ELEVATION FOR WATER FEATURES
13. HP = HIGH POINT ELEVATION, TYPICALLY IN A TERRACE FLOWLINE
14. CL = CENTERLINE
15. PC = POINT OF CURVATURE, TRANSITION FROM A STRAIGHT LINE TO A CURVE
16. PT = POINT OF TANGENCY, TRANSITION FROM A CURVE TO A STRAIGHT LINE
17. PI = POINT OF INTERSECTION OR BEND POINT ON A LINE
18. SHT. OR SHTS. = PLAN SET SHEET OR SHEETS
19. EX. = "EXISTING" i.e. "EXISTING CMP CULVERT"
20. PPL = "PLUNGE POOL" EROSION CONTROL PRACTICE AT PIPE OUTLETS

NOTE: THE LEGEND OF SYMBOLS, LINETYPES, AND LIST OF ABBREVIATIONS SHOWN ABOVE ARE GENERIC. NOT ALL SYMBOLS, LINETYPES, OR ABBREVIATIONS LISTED APPEAR ON THE ACCOMPANYING DRAWINGS FOR THIS PROJECT. SYMBOLS, LINETYPES, OR ABBREVIATIONS NOT LISTED HERE ARE SPECIFICALLY CALLED OUT WHERE NECESSARY.

GENERAL NOTES:

1. REFERENCES TO "DIVISION" SHALL MEAN "DIVISION OF SOIL CONSERVATION & WATER QUALITY"
2. ALL IMPROVEMENTS SHOWN ON THESE PLANS SHALL COMPLY WITH THE GENERAL CONDITIONS, STANDARDS, AND SPECIFICATIONS SET FORTH IN PROJECT DOCUMENTS. SPECIFICATIONS OR STANDARDS INCORPORATED BY REFERENCE SHALL ALSO BE FOLLOWED.
3. OWNERSHIP: THIS DOCUMENT, AND THE IDEAS AND DESIGN CONTAINED IN THIS DOCUMENT, ARE AN INSTRUMENT OF PROFESSIONAL SERVICE, AND MAY NOT BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE DIVISION.
4. REFERENCES TO PARTICULAR PRODUCTS, TRADENAMES, OR MANUFACTURERS ARE INTENDED FOR CLARITY ONLY AND DO NOT REPRESENT EXCLUSION OR ENDORSEMENT BY THE DIVISION OR THE STATE OF IOWA. EQUIVALENT PRODUCTS OR MATERIALS MAY BE SUITABLE, SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. CONTRACTOR SHALL PROVIDE AT LEAST 48 HOURS NOTICE TO THE ENGINEER AND/OR DIVISION PRIOR TO COMMENCING CONSTRUCTION.

UTILITY NOTES:

1. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING PUBLIC AND/OR PRIVATE UTILITIES AND PUBLIC ROADWAYS, INCLUDING ANY NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER IF ANY CONFLICTS WITH THE DRAWINGS OCCUR. ANY DAMAGE TO EXISTING UTILITIES AND/OR PUBLIC ROADWAYS CAUSED BY CONTRACTOR TRENCHING SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. UNDERGROUND FACILITIES STRUCTURES AND UTILITIES ARE PLOTTED FROM AVAILABLE SURVEYS, PUBLIC RECORDS, AND FIELD INVESTIGATION WHEN AVAILABLE. THEIR LOCATIONS SHALL BE CONSIDERED TO BE APPROXIMATE ONLY.

CONSTRUCTION SURVEYING NOTES:

1. THIS DRAWING IS SET TO THE NAD 1983 IOWA STATE PLANE, SOUTH ZONE COORDINATE SYSTEM. ELEVATION INFORMATION IS BASED UPON THE NAVD 1988.
2. EXISTING TOPOGRAPHY SHOWN ON THIS DRAWING WAS DEVELOPED FROM LIDAR INFORMATION THAT WAS COLLECTED IN THE SPRING OF 2008 AND PUBLISHED MARCH, 2010. LIDAR DATA IS PUBLICLY AVAILABLE FROM IOWA GEODATA, <https://geodata.iowa.gov/> WHICH IS MADE AVAILABLE BY THE IOWA DEPARTMENT OF NATURAL RESOURCES.
3. DURABLE CONTROL POINTS WERE ESTABLISHED FOR THIS PROJECT. CONTRACTOR SHALL FIELD VERIFY THEIR LOCATIONS AND ELEVATIONS. IF ANY ADDITIONAL CONTROL POINTS ARE REQUIRED, SUCH WORK BECOMES THE RESPONSIBILITY OF THE CONTRACTOR.
4. IF SIGNIFICANT DIFFERENCES EXIST BETWEEN THE LIDAR ELEVATIONS SHOWN AND THOSE REPORTED BY SURVEYING EQUIPMENT, THE CONTRACTOR SHALL CALIBRATE THE SURVEYING INSTRUMENTS TO THE LIDAR INFORMATION IN CONSULTATION WITH THE DIVISION.

REQUIRED CONSTRUCTION STAKING:

1. PROJECT BOUNDARY, GRADING LIMITS, AND ACCESS ROUTE
2. LOCATIONS OF PIPE OUTLETS, RISERS, AND INTAKE STRUCTURES
3. WETLAND POOL
4. ALL CHANNELS
5. MAIN RIDGES

IF GPS GUIDED MACHINE CONTROL IS USED, ITEMS 2, 3, 4, & 5 MAY BE WAIVED

FILE: MEMLAR-W_AML.DWG

REVISION: 1 2 3 4

DATE:

DESCRIPTION:

ISSUED: 00-00-00

REVISED: 07-13-2026

CHKD. BY: MLB

DRAWN BY: WJG

DESIGN BY: WJG

DIVISION OF SOIL CONSERVATION AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

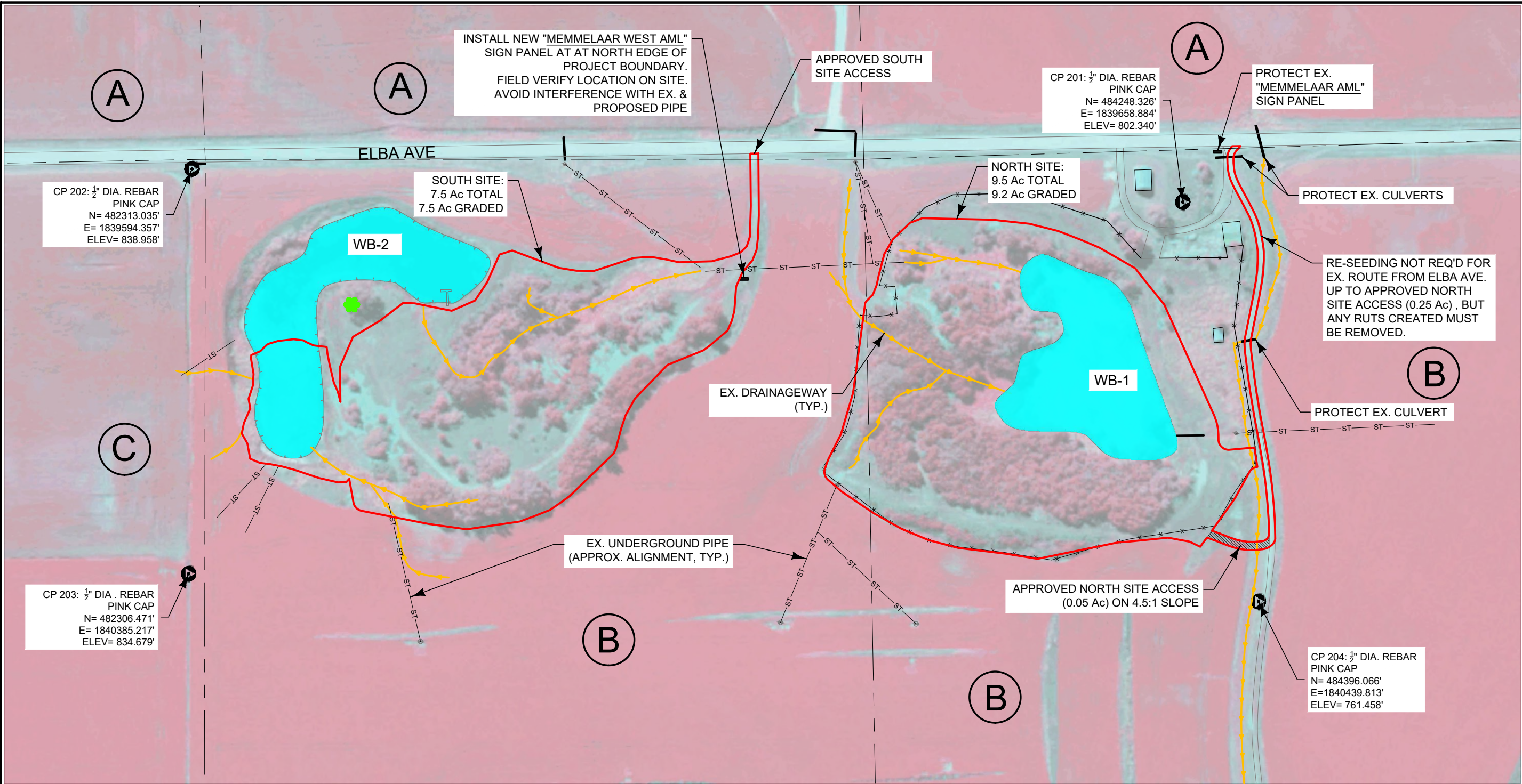


MEMMELAAR WEST
AML RECLAMATION PROJECT

PROJECT NOTES AND QUANTITIES

SHEET

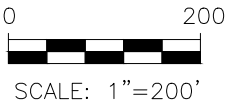
2 OF 23



DELINEATION & MITIGATION INFORMATION		
IDENTIFIER	DELINEATED VALUE	MITIGATION REQUIRED
DEEP WATER HABITAT	2.5 Ac (WB-2)	NONE
JURISDICTIONAL WETLANDS	0 Ac	NONE
JURISDICTIONAL STREAMS	0 LF	NONE

EXISTING WATER BODY (WB) OR WETLAND (WL) INFORMATION								
IDENTIFIER	pH	IRON (mg/L)	WATER SURF. ELEV (ft)	WATER SURFACE AREA (Ac)	EST. MAX. WATER DEPTH (ft)	EST. MUCK DEPTH (ft)	EST. WATER VOLUME (cubic ft)	DEWATER & BACKFILL
WB-1	7.2	< 0.5	770.2	1.9	4.2	5	173,700	YES
WB-2	7.8	< 0.5	814	2.5	18	5	646,500	PARTIAL

WATER QUALITY DATA FROM FEBRUARY 2023. WATER QUALITY OF BOTH PONDS MUST BE VERIFIED PRIOR TO DISCHARGE. MUCK DEPTH WAS ESTIMATED ONLY, IT WAS NOT VERIFIED BY DIRECT MEASUREMENT.

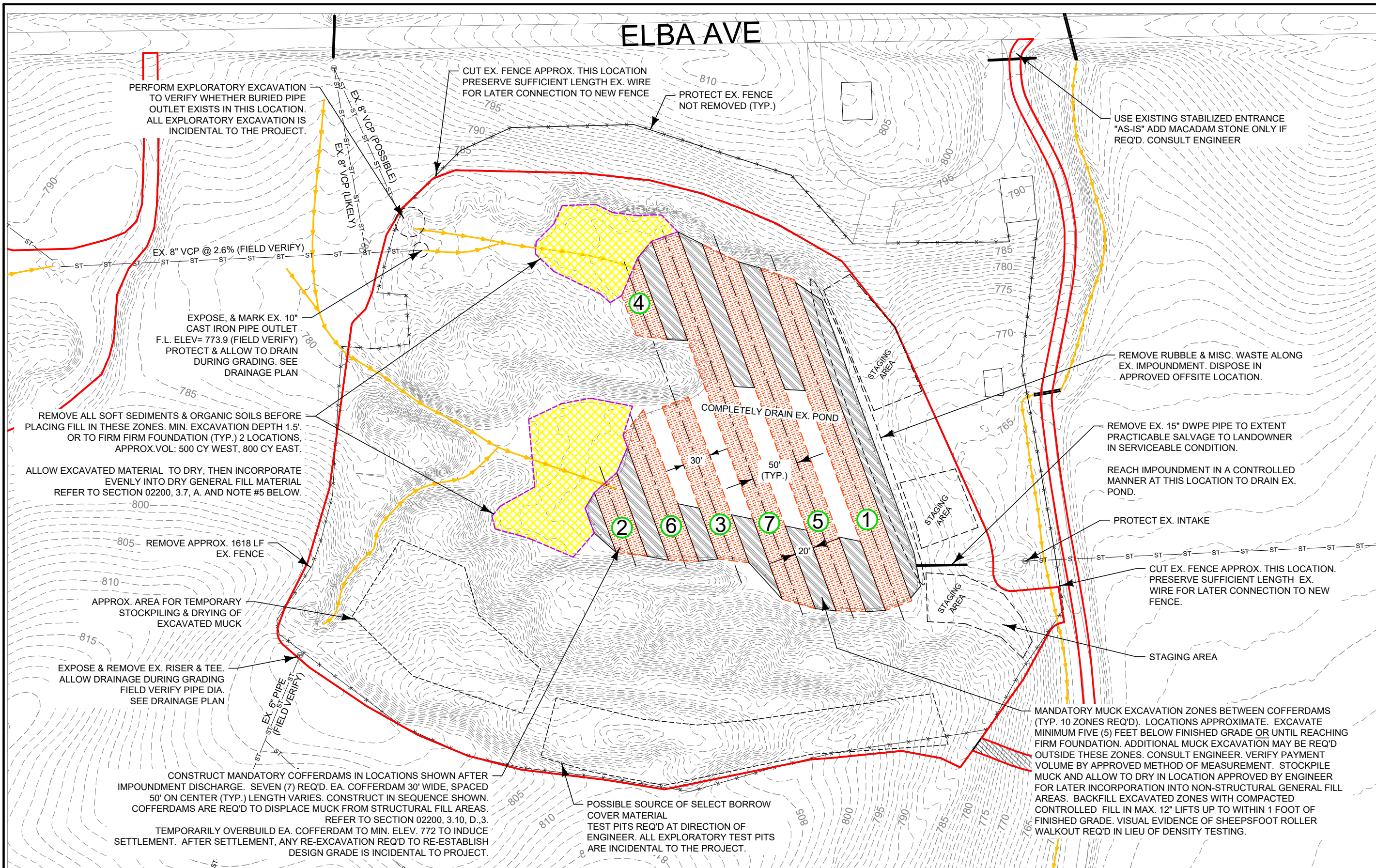


NOTES THIS SHEET:

- ALL CONTROL POINTS ARE 0.5-INCH STEEL RODS WITH PINK PLASTIC CAPS. FIELD VERIFY LOCATIONS AND ELEVATIONS.
- PROPERTY LINES SHOWN ARE APPROXIMATE & BASED UPON MAHASKA COUNTY ASSESSOR INFORMATION.
- FIELD ENTRANCE AND ACCESS ROUTE MUST REMAIN OPEN TO LANDOWNER.
- FIELD ENTRANCE AND ACCESS ROUTE SHALL BE RESTORED AT NO ADDITIONAL COST TO DIVISION.
- CONTRACTOR IS RESPONSIBLE FOR ANY CROP DAMAGE CAUSED WHILE ACCESSING THE SITE.
- COMMUNICATE WITH ADJACENT LANDOWNERS PRIOR TO ANY BURNING
- AREAS REPORTED ARE ROUNDED TO NEAREST 0.1 ACRE
- AERIAL IMAGERY: 2021 COLOR INFRA-RED COURTESY OF IOWA GEOGRAPHIC MAP SERVER <http://ortho.gis.iastate.edu/>
- ROUTES OF ACCESS ARE NOT INCLUDED WITH QUANTITIES FOR SEEDING UNLESS NOTED OTHERWISE.

- LANDOWNER INFORMATION:
- A. TOP PORK BUILDING, LC
 - B. VANDEVOORT, RICHARD
 - C. E/F FARMS, INC. C/O BUTLER, JOHN E.

DESIGN BY: WJG		DRAWN BY: WJG	MEMMELAAR WEST AML RECLAMATION PROJECT SITUATION PLAN & SURVEY CONTROL	 DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG
REVISION:		DATE:			DESCRIPTION:			
1								
2								
3								
4								
SHEET 3 OF 23								



NOTES THIS SHEET:

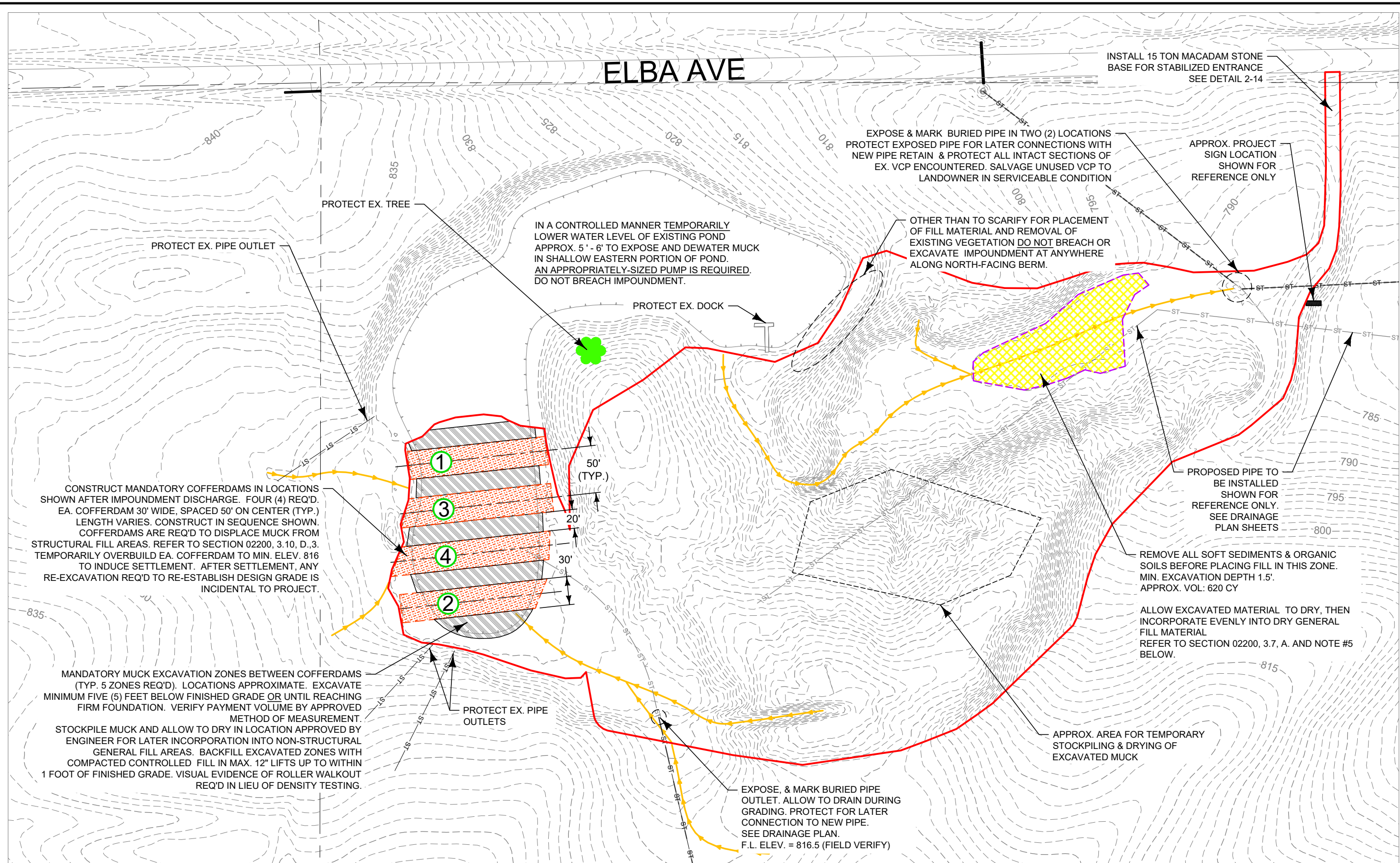
1. FIELD ENTRANCE AND ACCESS ROUTE MUST REMAIN OPEN TO LANDOWNER.
2. FIELD ENTRANCE AND ACCESS ROUTE SHALL BE RESTORED AT NO ADDITIONAL COST TO DIVISION.
3. CONTRACTOR IS RESPONSIBLE FOR ANY CROP DAMAGE CAUSED ALONG EDGE OF THE SITE.
4. MUCK EXCAVATION IN ADDITION TO THAT SPECIFIED ABOVE MAY BE APPROVED AND PAID ON AN AS-NEEDED BASIS AS DETERMINED BY ENGINEER.
5. REMOVAL OF SOFT SEDIMENTS OUTSIDE THE POND IS INCIDENTAL TO THE PROJECT AND IS NOT INCLUDED IN THE MUCK EXCAVATION VOLUME.
6. COMMUNICATE WITH ADJACENT LANDOWNERS PRIOR TO ANY BURNING

0 150

SCALE: 1"=150'

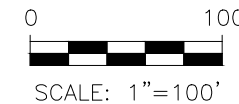
NORTH

DESIGN BY: WJG		DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG		
MEMMELAAR WEST AML RECLAMATION PROJECT			 DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321				REVISION:	DATE:
							1	
							2	
							3	
							4	
NORTH SITE PREPARATION PLAN								
SHEET								
4 OF 23								



NOTES THIS SHEET:

1. FIELD ENTRANCE AND ACCESS ROUTE MUST REMAIN OPEN TO LANDOWNER.
2. FIELD ENTRANCE AND ACCESS ROUTE SHALL BE RESTORED AT NO ADDITIONAL COST TO DIVISION.
3. CONTRACTOR IS RESPONSIBLE FOR ANY CROP DAMAGE CAUSED ALONG EDGE OF THE SITE.
4. MUCK EXCAVATION IN ADDITION TO THAT SPECIFIED ABOVE MAY BE APPROVED AND PAID ON AN AS-NEEDED BASIS AS DETERMINED BY ENGINEER.
5. REMOVAL OF SOFT SEDIMENTS OUTSIDE THE POND IS INCIDENTAL TO THE PROJECT AND IS NOT INCLUDED IN THE MUCK EXCAVATION VOLUME.
6. COMMUNICATE WITH ADJACENT LANDOWNERS PRIOR TO ANY BURNING



FILE: MEMLAR-W_AML.DWG

REVISED: 00-00-00

ISSUED: 07-13-2026

CHKD BY: MLB

DRAWN BY: WJG

DESIGN BY: WJG

DESCRIPTION:

DATE:

1

2

3

4

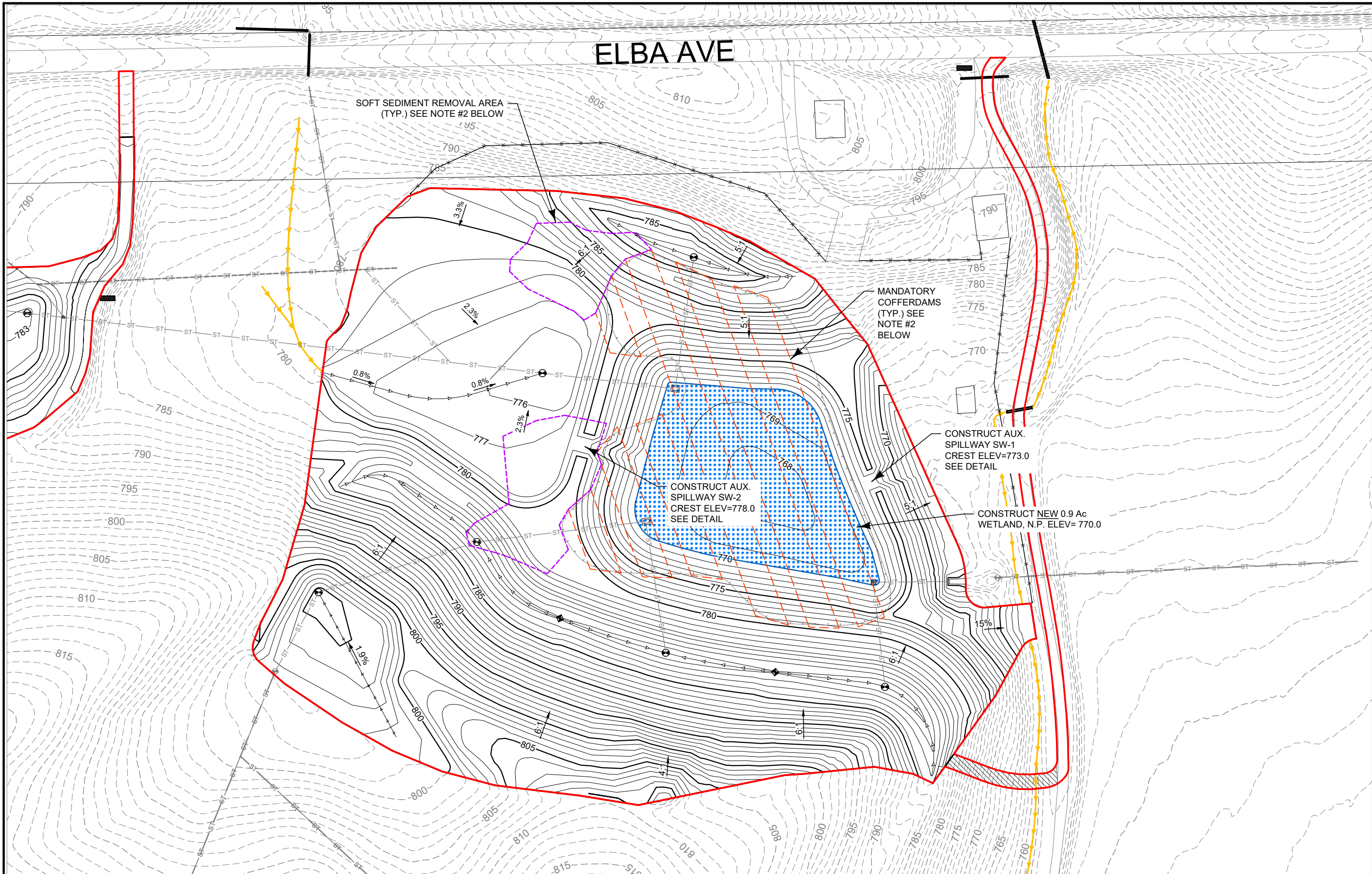
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321



MEMELAAR WEST
AML RECLAMATION PROJECT

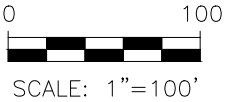
SOUTH SITE PREPARATION PLAN

SHEET
5 OF 23



NOTES THIS SHEET:

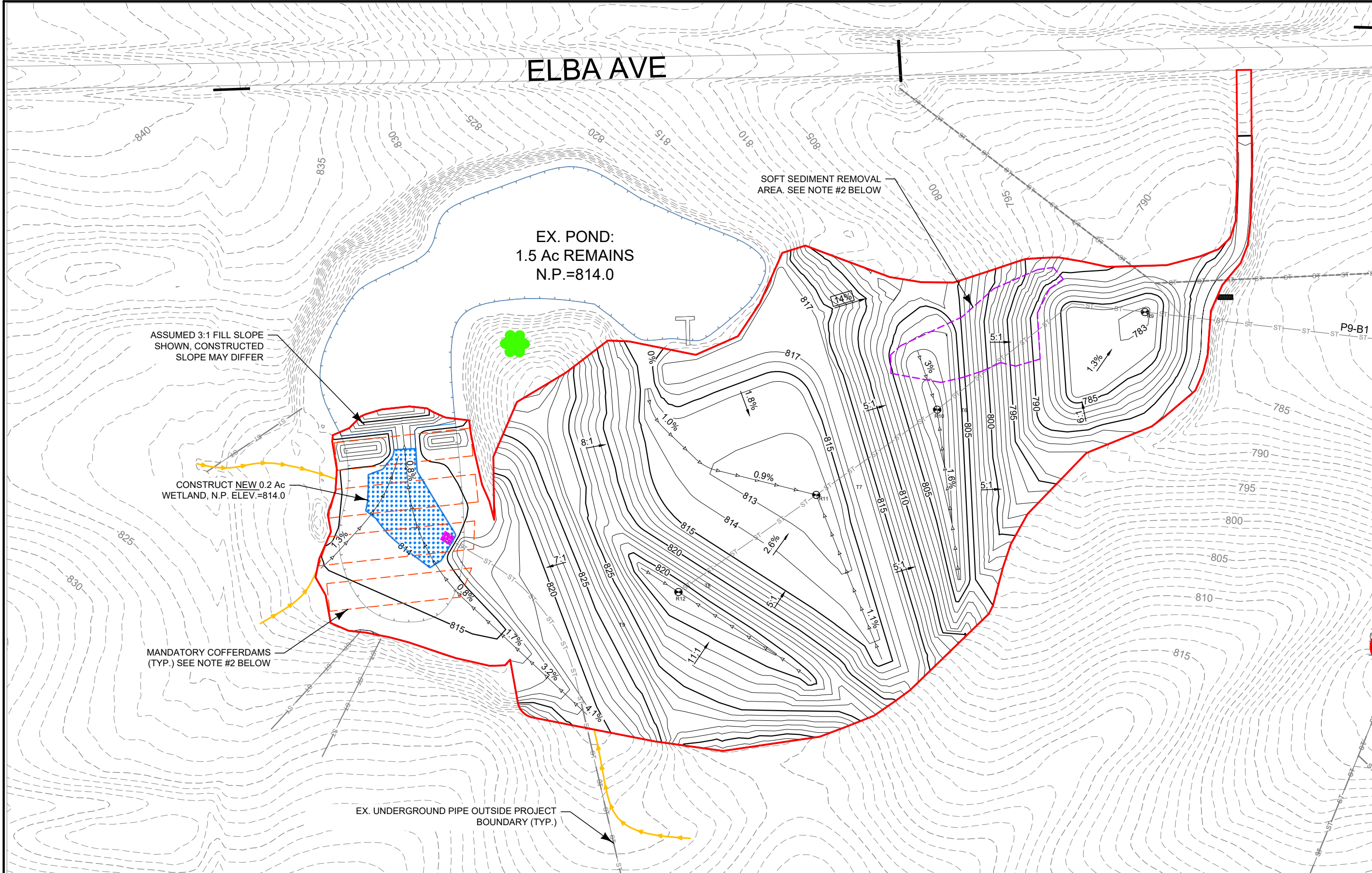
1. PRIOR TO PLACING FILL, REMOVE ALL SOFT SEDIMENTS AND ORGANIC MATTER FROM THE BASE OF THE PROPOSED FILL. SEE GENERAL SPECIFICATION SECTION 02200, 3.7, A.
2. OUTLINES FOR EX. POND, MANDATORY COFFERDAMS, AND SOFT SEDIMENT REMOVAL AREAS SHOWN FOR REFERENCE ONLY.
3. SHRINKAGE RATE AND APPROXIMATE EARTHWORK BALANCE VOLUMES DISCUSSED ON CUT-FILL PLAN.



DESIGN BY: WJG		DRAWN BY: WJG	MEMMELAAR WEST AML RECLAMATION PROJECT NORTH GRADING PLAN	 DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG		
REVISION:					DATE:	DESCRIPTION:				
1										
2										
3										
4										

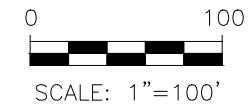
SHEET

6 OF 23

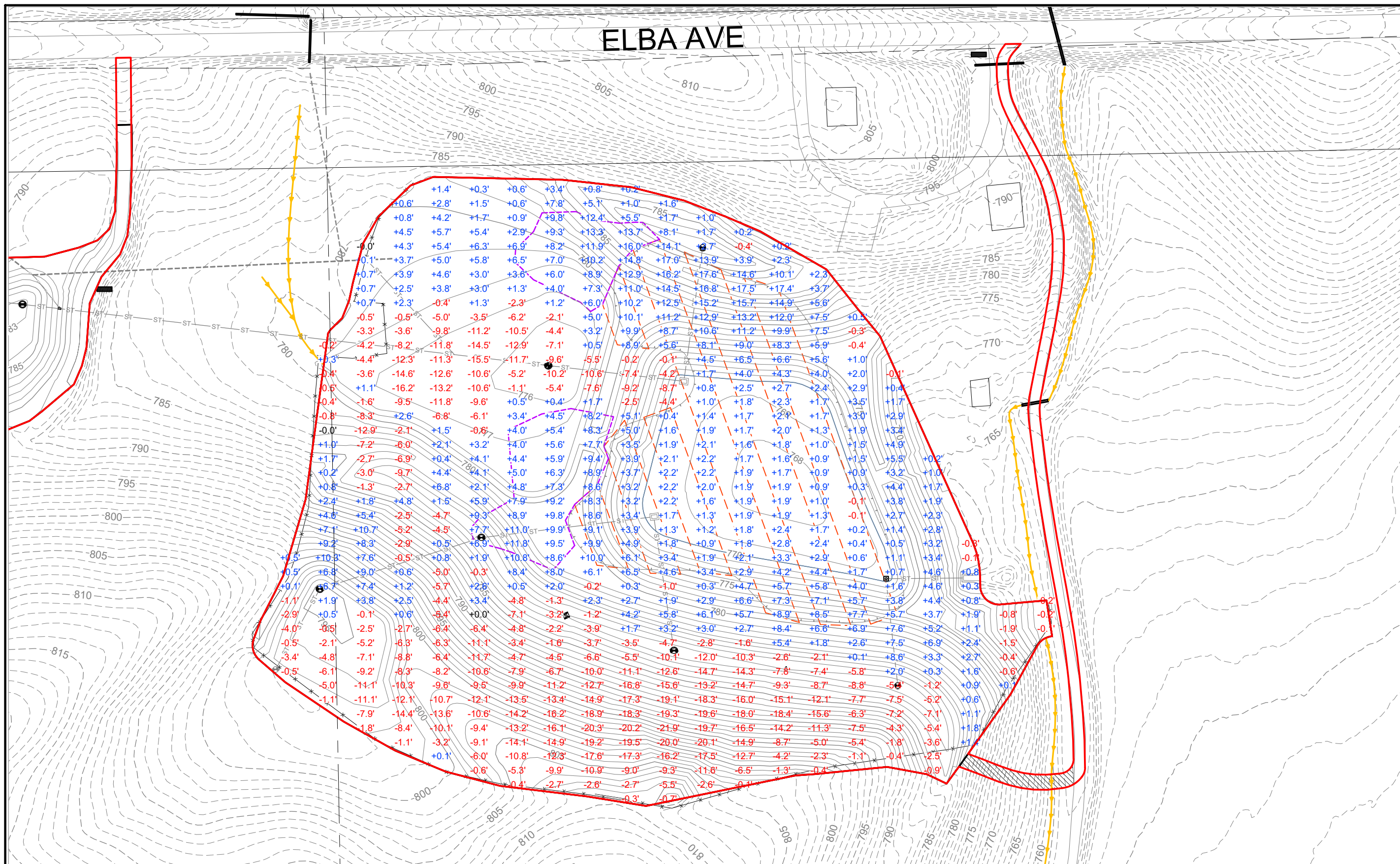


NOTES THIS SHEET:

1. PRIOR TO PLACING FILL, REMOVE ALL SOFT SEDIMENTS AND ORGANIC MATTER FROM THE BASE OF THE PROPOSED FILL. SEE GENERAL SPECIFICATION SECTION 2200, 3.7, A.
2. OUTLINES FOR EX. POND, MANDATORY COFFERDAMS, AND SOFT SEDIMENT REMOVAL AREA SHOWN FOR REFERENCE ONLY.
3. SHRINKAGE RATE AND APPROXIMATE EARTHWORK BALANCE VOLUMES DISCUSSED ON CUT-FILL PLAN.



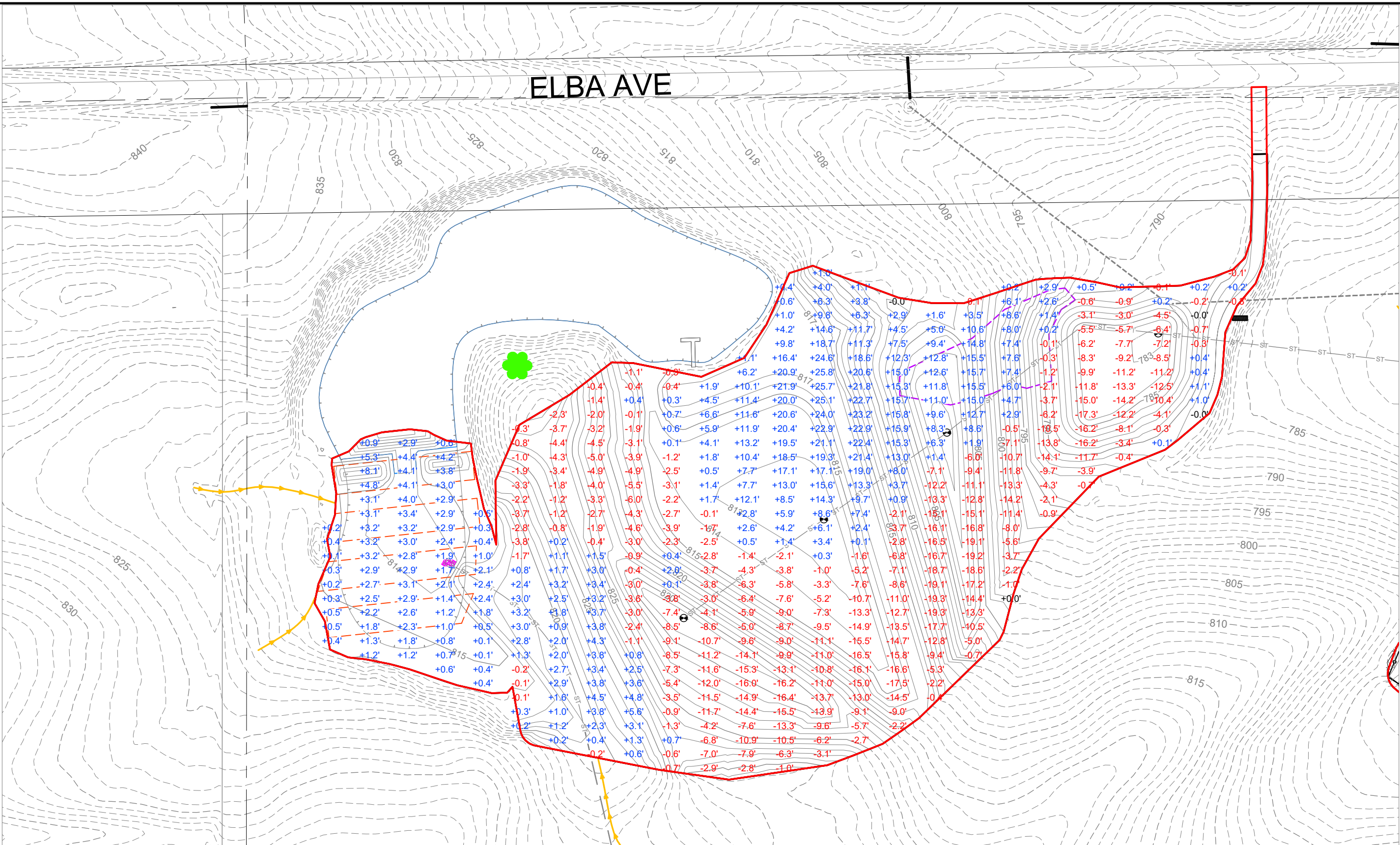
DESIGN BY: WJG		DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG			
MEMMELAAR WEST AML RECLAMATION PROJECT SOUTH GRADING PLAN				DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321			REVISION:	DATE:	DESCRIPTION:
							1		
							2		
							3		
							4		
SHEET									
7			OF			23			



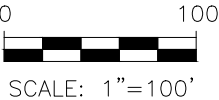
DESIGN BY: WJG		DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	
MEMMELAAR WEST AML RECLAMATION PROJECT NORTH CUT-FILL PLAN				DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321	REVISION:	DATE:	DESCRIPTION:
					1		
					2		
					3		
					4		

SHEET
8 OF 23

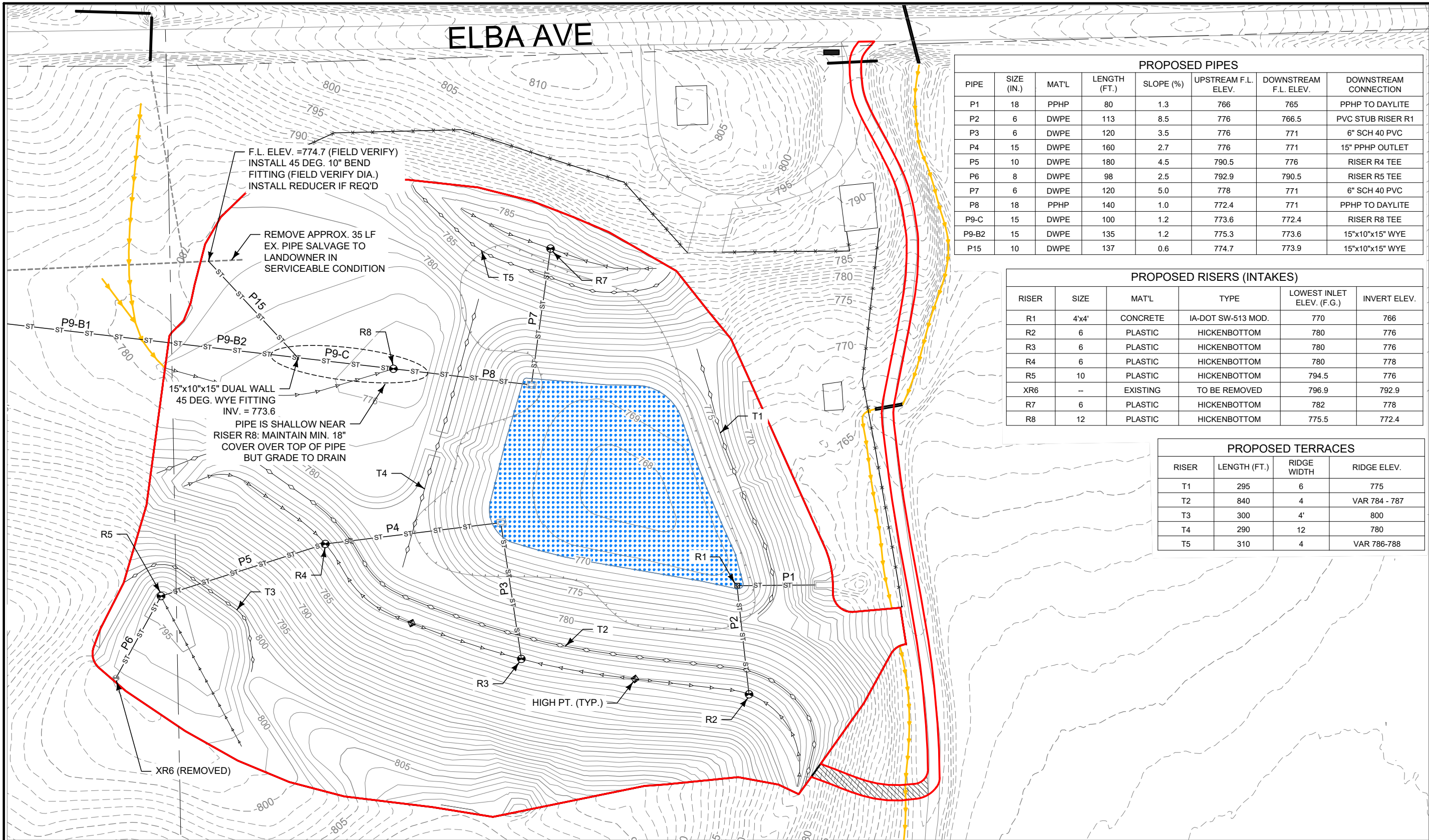
ELBA AVE



- NOTES THIS SHEET:
- 1. RATE OF SHRINKAGE FOR GENERAL FILL IS ASSUMED TO BE 5%.
 - 2. ESTIMATED VOLUMES @ 5% SHRINKAGE: EXCAVATION = 42,200 CY; FILL = 37,500 CY; EXCESS = 4700 CY; OVERBUILD TO BALANCE ~ 0.4'
 - 3. COMPLETE ALL APPROVED MUCK EXCAVATION AND CONTROLLED GENERAL FILL BEFORE ADJUSTING ELEVATIONS FOR EARTHWORK BALANCE. CONSULT ENGINEER
 - 4. OUTLINES OF EX. PONDS SHOWN AND MANDATORY COFFERDAMS ARE SHOWN FOR REFERENCE ONLY.
 - 5. CUT & FILL DEPTHS SHOWN DO NOT ACCOUNT FOR OVERBUILDING OF COFFERDAMS TO INDUCE SETTLEMENT.



DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	REVISION:				DESCRIPTION:
						DATE:				
						1				
						2				
						3				
MEMELAAR WEST AML RECLAMATION PROJECT SOUTH CUT-FILL PLAN						DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321				
SHEET						9 OF 23				



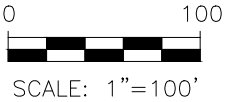
PROPOSED PIPES							
PIPE	SIZE (IN.)	MAT'L	LENGTH (FT.)	SLOPE (%)	UPSTREAM F.L. ELEV.	DOWNSTREAM F.L. ELEV.	DOWNSTREAM CONNECTION
P1	18	PPHP	80	1.3	766	765	PPHP TO DAYLITE
P2	6	DWPE	113	8.5	776	766.5	PVC STUB RISER R1
P3	6	DWPE	120	3.5	776	771	6" SCH 40 PVC
P4	15	DWPE	160	2.7	776	771	15" PPHP OUTLET
P5	10	DWPE	180	4.5	790.5	776	RISER R4 TEE
P6	8	DWPE	98	2.5	792.9	790.5	RISER R5 TEE
P7	6	DWPE	120	5.0	778	771	6" SCH 40 PVC
P8	18	PPHP	140	1.0	772.4	771	PPHP TO DAYLITE
P9-C	15	DWPE	100	1.2	773.6	772.4	RISER R8 TEE
P9-B2	15	DWPE	135	1.2	775.3	773.6	15"x10"x15" WYE
P15	10	DWPE	137	0.6	774.7	773.9	15"x10"x15" WYE

PROPOSED RISERS (INTAKES)					
RISER	SIZE	MAT'L	TYPE	LOWEST INLET ELEV. (F.G.)	INVERT ELEV.
R1	4'x4'	CONCRETE	IA-DOT SW-513 MOD.	770	766
R2	6	PLASTIC	HICKENBOTTOM	780	776
R3	6	PLASTIC	HICKENBOTTOM	780	776
R4	6	PLASTIC	HICKENBOTTOM	780	778
R5	10	PLASTIC	HICKENBOTTOM	794.5	776
XR6	-	EXISTING	TO BE REMOVED	796.9	792.9
R7	6	PLASTIC	HICKENBOTTOM	782	778
R8	12	PLASTIC	HICKENBOTTOM	775.5	772.4

PROPOSED TERRACES			
RISER	LENGTH (FT.)	RIDGE WIDTH	RIDGE ELEV.
T1	295	6	775
T2	840	4	VAR 784 - 787
T3	300	4'	800
T4	290	12	780
T5	310	4	VAR 786-788

NOTES THIS SHEET:

- P9-B2 (135 LF) LIES WITHIN NORTH SITE BOUNDARY. P9-B1 (254 LF) LIES OUTSIDE OF PROJECT BOUNDARIES SEE SHEET 11.
- WHERE A PVC OR PPHP PIPE OUTLET IS REQUIRED TO CONNECT TO DWPE, THE DWPE PIPE LENGTH DOES NOT INCLUDE THE LENGTH OF THE OUTLET.
- WHERE OUTLETS ARE SPECIFIED, THE DOWNSTREAM ELEVATION IS THE DAYLIGHT FLOWLINE ELEVATION.
- ALL PIPE & FITTING CONNECTIONS SHALL RESTRAINED WITH AGRI-DRAIN PIPE STRAPS (OR APPROVED EQUAL) UNLESS OTHERWISE NOTED.
- PER REQUEST OF LANDOWNER, TERRACE RISERS SHOULD BE CONNECTED DIRECTLY INTO MAINLINE PIPE WITHOUT OFFSET WYES.
- USE MAR-MAC OR APPROVED EQUAL FLEXIBLE COUPLER WHEN CONNECTING DISSIMILAR PIPE.
- OUTLINE OF EX. POND PROVIDED FOR REFERENCE ONLY.
- GRANULAR BACKFILL AROUND THE PIPE IS REQ'D WHERE TOP OF THE PIPE IS 10 OR MORE FEET IN DEPTH. SEE DETAIL 3-17.



DESIGN BY: WJG

DRAWN BY: WJG

CHKD. BY: MLB

ISSUED: 07-13-2026

REVISED: 00-00-00

FILE: MEMLAR-W_AML.DWG

REVISION:

DATE:	DESCRIPTION:
1	
2	
3	
4	

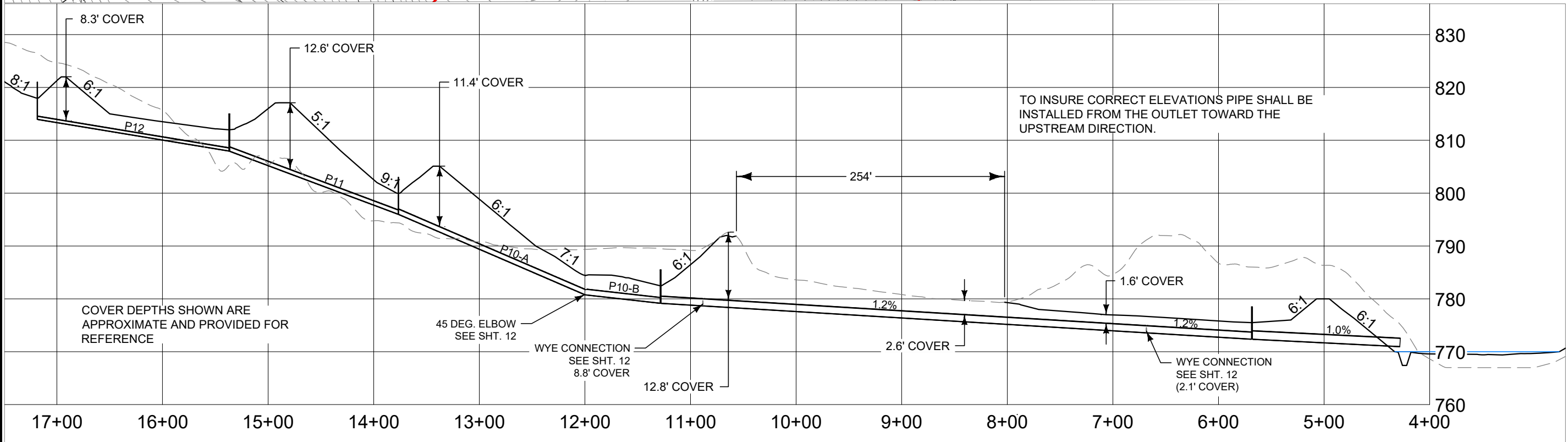
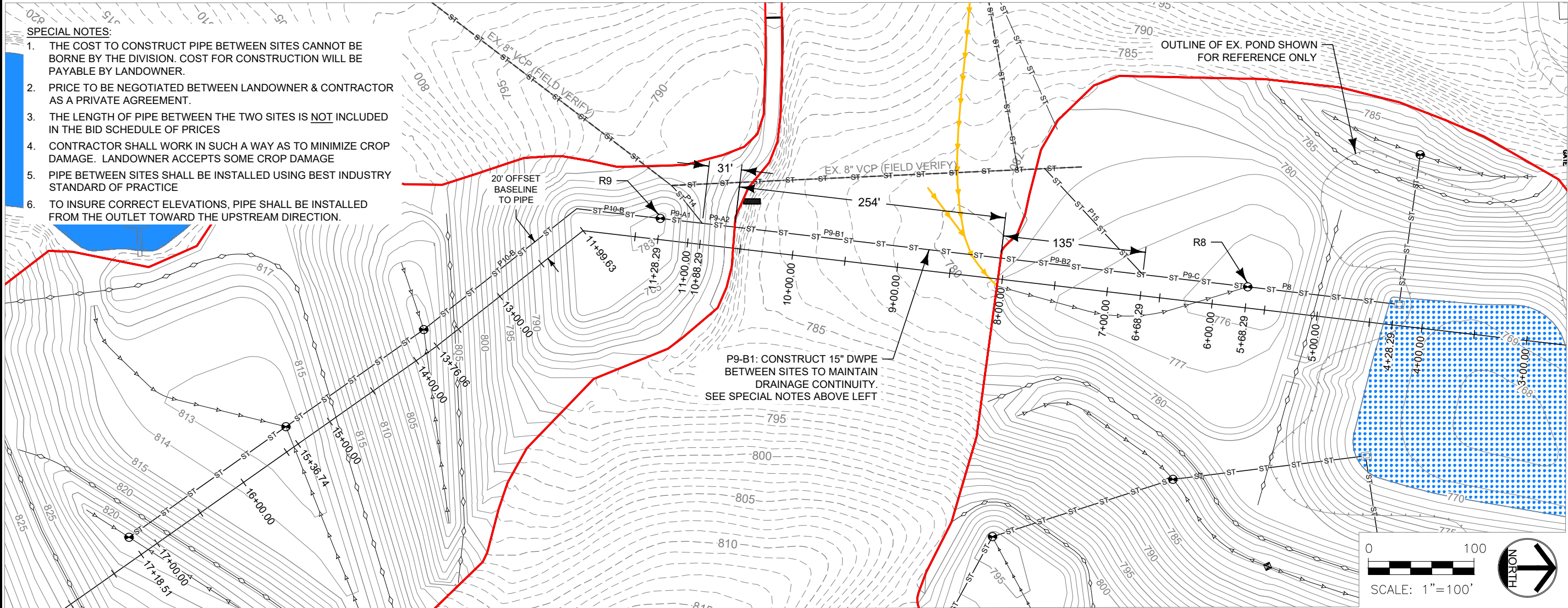
MEMELAAR WEST
AML RECLAMATION PROJECT

NORTH DRAINAGE PLAN



DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

SHEET
10 OF 23



FILE: MEMLAR-W_AML.DWG		REVISION:		DATE:	DESCRIPTION:
1					
2					
3					
4					

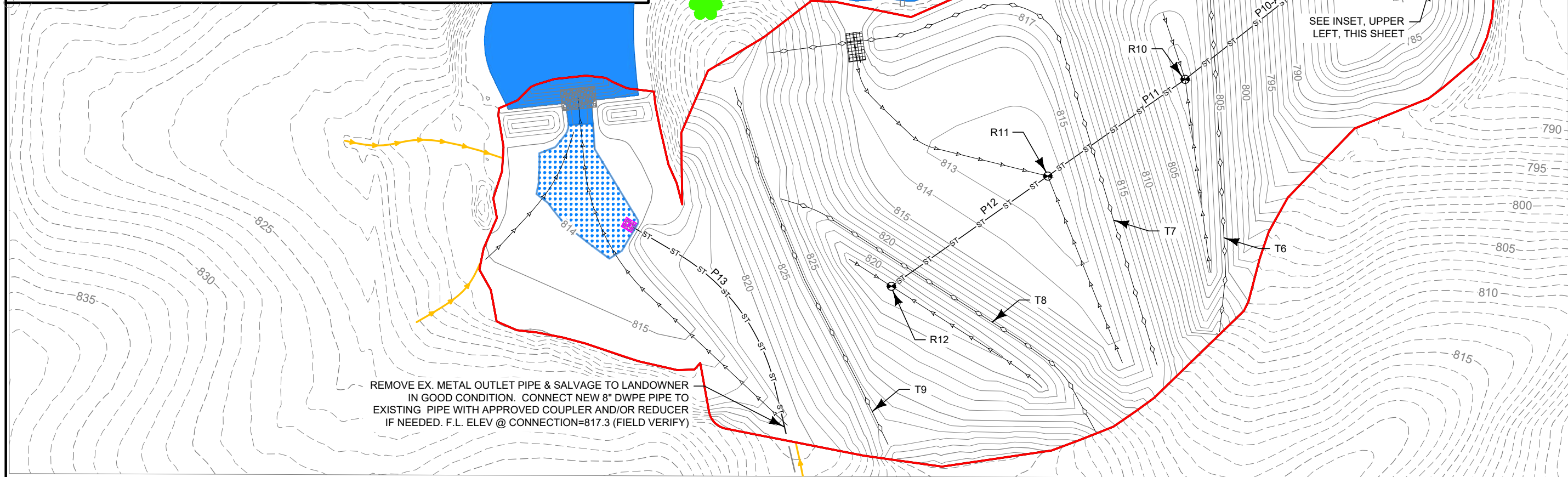
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00
----------------	---------------	---------------	--------------------	-------------------

MEMELAAR WEST
AML RECLAMATION PROJECT

PIPE LINE BETWEEN SITES
PLAN & PROFILE

SHEET
11 OF 23



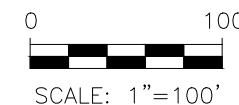
PROPOSED TERRACES			
RISER	LENGTH (FT.)	RIDGE WIDTH	RIDGE ELEV.
T6	350	6'	VAR 805 - 810
T7	620	14'	817
T8	380	4'	VAR 822 - 826
T9	370	4'	827

1 INSET PLAN VIEW: INTAKE R9
11 SCALE: 1" = 20'

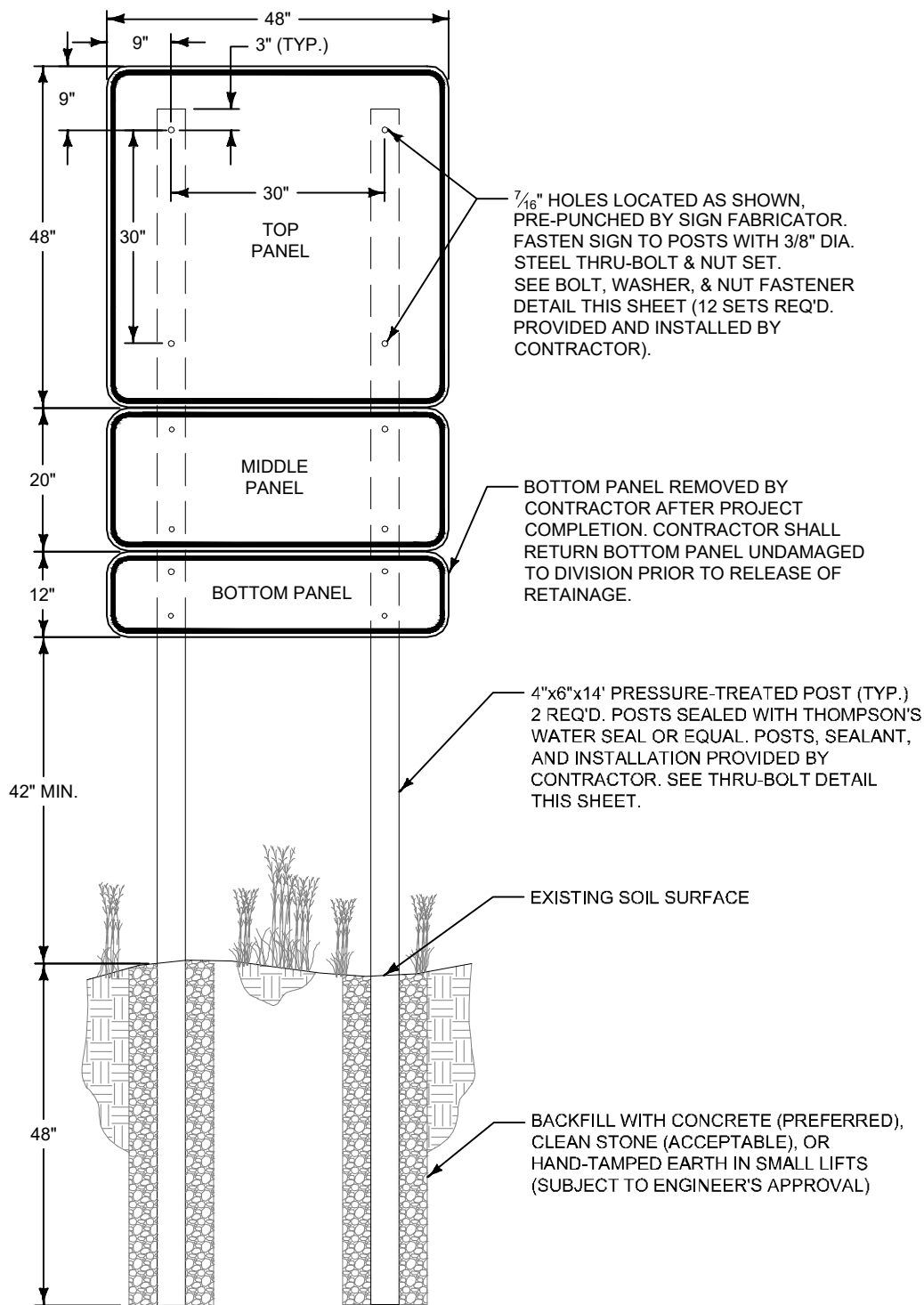
INSTALL 45 DEG.
12" DUAL-WALL (PVC)
BEND FITTING
WITH 10"x12" REDUCER

SEE INSET, UPPER
LEFT. THIS SHEET

- NOTES THIS SHEET:
1. WHERE A PVC OR PPHP OUTLET IS REQUIRED, THE PIPE LENGTH DOES NOT INCLUDE THE LENGTH OF THE OUTLET.
 2. WHERE OUTLETS ARE SPECIFIED, THE DOWNSTREAM ELEVATION IS THE DAYLIGHT FLOWLINE ELEVATION.
 3. ALL PIPE JOINTS & FITTING CONNECTIONS SHALL RESTRAINED WITH AGRI-DRAIN PIPE STRAPS (OR APPROVED EQUAL) UNLESS OTHERWISE NOTED.
 4. PER REQUEST OF LANDOWNER, TERRACE RISERS SHOULD BE CONNECTED DIRECTLY INTO MAINLINE PIPE WITHOUT OFFSET WYES.
 5. USE MAR-MAC OR APPROVED EQUAL FLEXIBLE COUPLER WHEN CONNECTING DISSIMILAR PIPE.
 8. GRANULAR BACKFILL AROUND THE PIPE IS REQ'D WHERE TOP OF THE PIPE IS 10 OR MORE FEET IN DEPTH. SEE DETAIL 3-17.



SHEET
12 OF 23



VERSION DATE: 03-27-2025

TOP PANEL (4' x 4') 0.080" ALUMINUM SUBSTRATE



MIDDLE PANEL (1'-8" x 4') 0.080" ALUMINUM SUBSTRATE



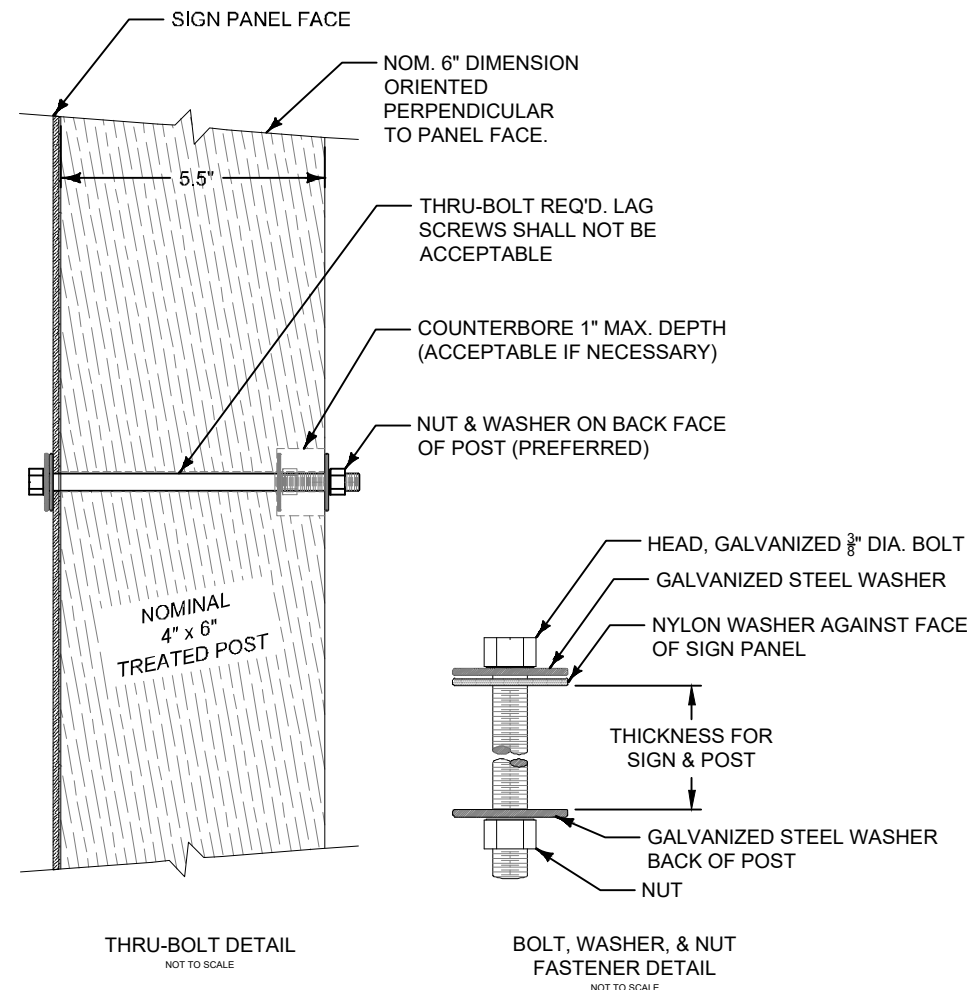
BOTTOM PANEL (1' x 4') 0.080" ALUMINUM SUBSTRATE



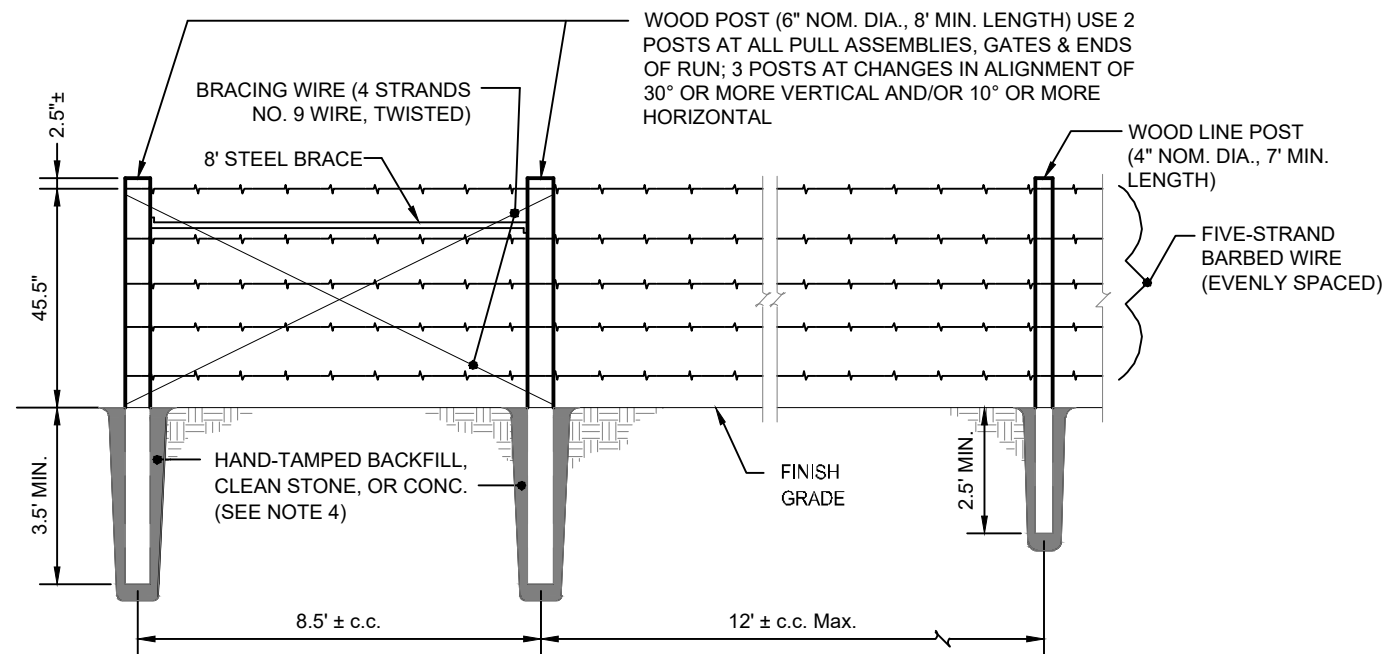
** LETTER WIDTH = 75% OF THE LETTER HEIGHT

SIGNAGE NOTES:

1. DIVISION WILL FURNISH TOP AND BOTTOM SIGN PANELS. MIDDLE PANEL PROVIDED BY OTHERS. CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSTS, HARDWARE, AND INSTALLATION FOR ALL PANELS.
2. ALL EXPOSED WOOD SHALL BE SEALED WITH THOMPSON'S WATER SEAL OR EQUAL MEETING ASTM D-4446-08.
3. ALL STEEL HARDWARE PIECES SHALL BE GALVANIZED.
4. NYLON AND STEEL WASHERS SHALL BE USED AS SHOWN ON THE BOLT, WASHER, NUT FASTENER DETAIL ABOVE.
5. CLEAR UTILITIES WITH IOWA ONE-CALL (800) 292-8989 BEFORE EXCAVATING FOR POSTS.
6. SECURE APPROVAL OF DIVISION AND ENGINEER FOR SIGN LOCATION BEFORE INSTALLATION.
7. COSTS FOR POSTS, HARDWARE, WOOD SEALANT AND SIGN INSTALLATION SHALL BE INCIDENTAL TO MOBILIZATION.
8. CONTRACTOR SHALL INSTALL SIGN POSTS USING A PLYWOOD OR OTHER SUITABLE TEMPLATE TO MAINTAIN ACCURATE POST SPACING AND ALIGNMENT DURING BACKFILLING OF THE POST HOLES. TO AVOID BENDING OF THE SIGN PANELS, POSTS SHALL NOT BE INSTALLED OR BACKFILLED WITH SIGN PANELS ATTACHED.
9. ONE (1) PROJECT SIGN IS REQUIRED, LOCATED AS SHOWN ON PLANS.



DESIGN BY: WJG		DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	
MEMMELAAR WEST AML RECLAMATION PROJECT PROJECT SIGN DETAIL				DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321		REVISION:	DATE:
						1	
						2	
						3	
						4	
SHEET							
13 OF 23							



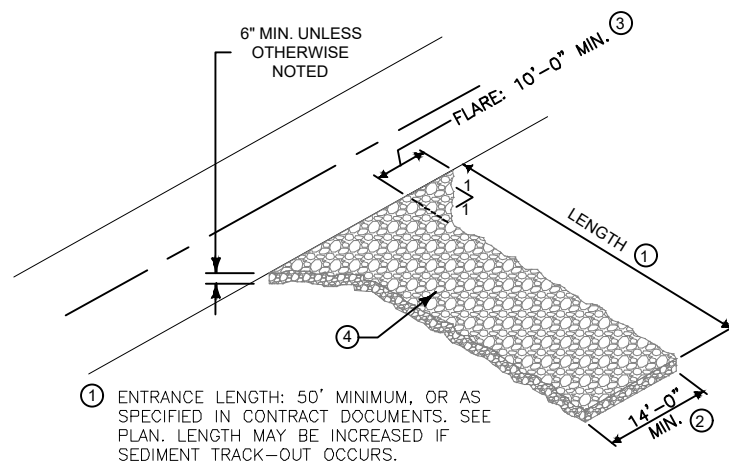
1
14

BARBED WIRE FENCE DETAIL

SCALE: NONE

5-STRAND BARBED-WIRE FENCE DETAIL NOTES:

1. FENCING DETAIL IS DERIVED FROM BEST STANDARD OF PRACTICE
2. ALL FENCING WIRE SHALL BE APPROVED BY DIVISION AND ENGINEER.
3. ALL POSTS SHALL BE PRESSURE TREATED WOOD FOR GROUND CONTACT; CREOSOTE TREATED POSTS ARE ACCEPTABLE.
4. POSTS MAY BE SET BY DRIVING IN LIEU OF DRILLING POST HOLES.
5. LINE POST SPACING IS 12' MAXIMUM.
6. BRACE END POST TO FIRST INTERIOR POST WITH STEEL BRACE AND BRACING WIRE. SIMILAR DETAIL AT ALL CORNER POST, ANGLE POST AND PULL POST ASSEMBLIES.
7. CLEAR UTILITIES PRIOR TO INSTALLING FENCE POSTS.
8. PAY LENGTH FOR FENCE EXCLUDES GATES. FOR PURPOSE OF BIDDING, PAY LENGTH IS PLAN LENGTH MEASURED FROM POINT TO POINT. ACTUAL PAY LENGTH WILL BE MEASURED IN THE FIELD ALONG THE SLOPE. LENGTH OF BRACE PANELS ARE INCLUDED WITH PAYMENT LENGTH FOR FENCE. COST OF BRACES AND BRACE WIRES ARE INCIDENTAL TO FENCING.



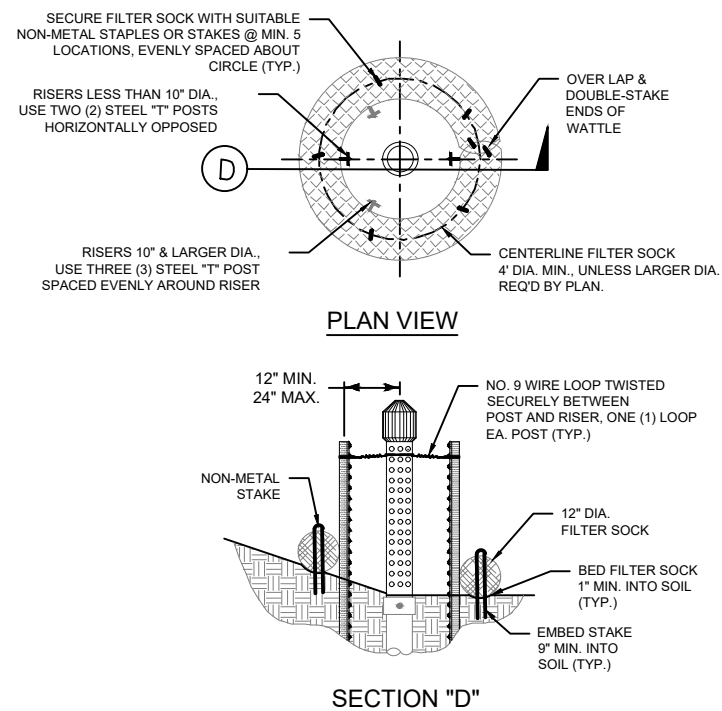
- ① ENTRANCE LENGTH: 50' MINIMUM, OR AS SPECIFIED IN CONTRACT DOCUMENTS. SEE PLAN. LENGTH MAY BE INCREASED IF SEDIMENT TRACK-OUT OCCURS.
- ② ENTRANCE WIDTH: 14' MINIMUM, FOR RURAL PROJECTS OR AS SPECIFIED IN CONTRACT DOCUMENTS. A 20' WIDTH MAY BE REQUIRED WHERE TWO-WAY TRAFFIC IS FREQUENT. SEE PLAN
- 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

2
14

STABILIZED ENTRANCE DETAIL

SCALE: NONE

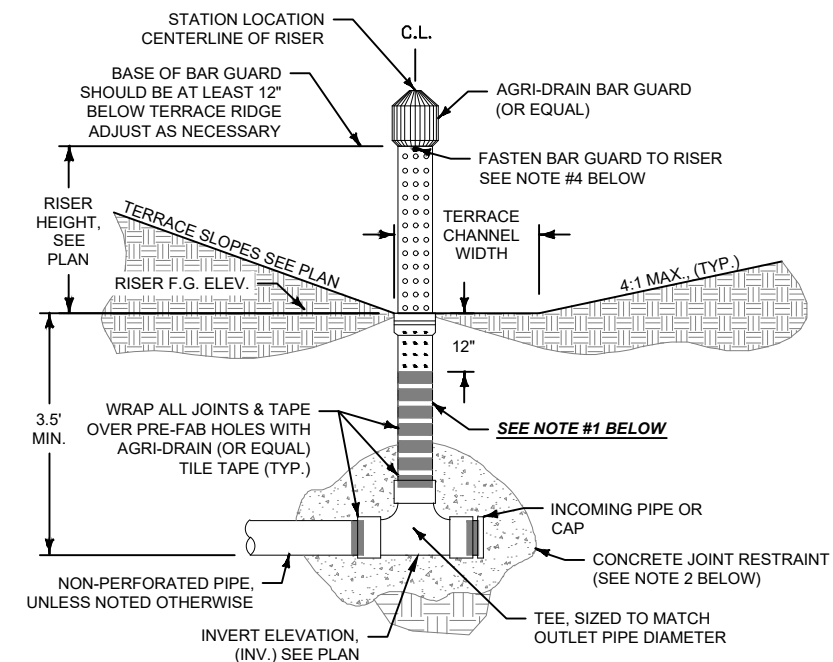


- NOTE:
1. COST OF STEEL "T" POSTS ARE INCIDENTAL TO THE COST OF RISER INSTALLATION.

3
14

RISER PROTECTION DETAIL

SCALE: NONE



- NOTE:
1. PERFORATED MID-SECTION BELOW GROUND IS RECOMMENDED. TAPE OVER ALL PRE-FABRICATED HOLES WITH TILE TAPE EXCEPT TOP 12" IMMEDIATELY BELOW GRADE. IF A NON-PERFORATED SECTION WAS PROCURED, FIELD DRILL 16 EQUALLY SPACED, 5/16" DIA. HOLES, IN FOUR (4) ROWS WITH FOUR (4) HOLES PER ROW IN THE TOP 12" BELOW FINISHED GRADE.
 2. 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.
 3. IF PIPE STRAPS ARE USED ALL METAL "D" RINGS SHALL BE COVERED WITH TILING TAPE.
 4. FASTEN BAR GUARD TO RISER WITH THREE (3) SELF-TAPPING SCREWS OR THREE (3) STAINLESS STEEL ZIP TIES EQUALLY SPACED ABOUT RISER.

4
14

RISER INSTALLATION DETAIL

SCALE: NONE

REVISION:	DATE:	DESCRIPTION:
1		
2		
3		
4		

FILE: MEMLAR-W_AML.DWG

REVISED: 00-00-00

ISSUED: 07-13-2026

CHKD. BY: MLB

DRAWN BY: WJG

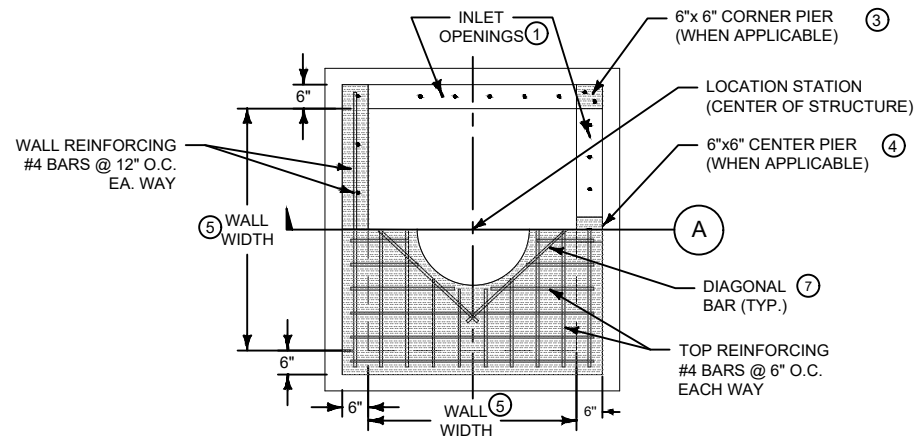
DESIGN BY: WJG

DIVISION OF SOIL CONSERVATION AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

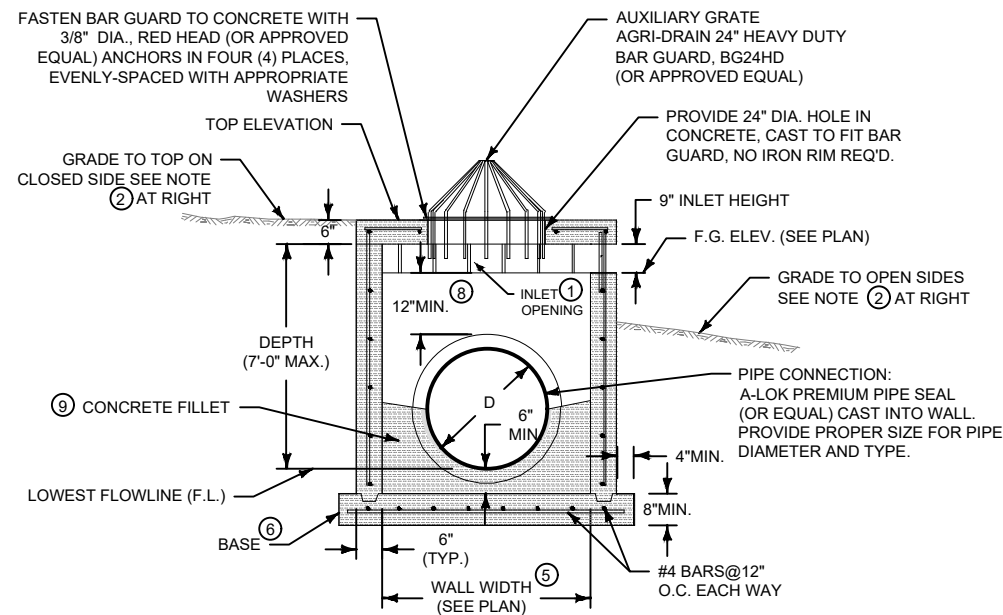


MEMMELAAR WEST
AML RECLAMATION PROJECT

TYPICAL DETAILS



PLAN



CROSS-SECTION "A"

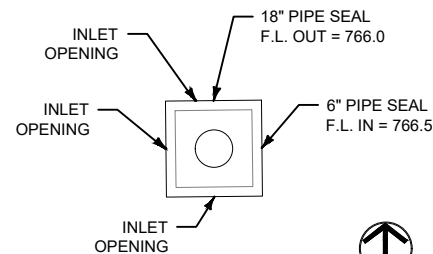
RISER DETAIL

IA. DOT SW-513 (MODIFIED) WITH AUXILIARY GRATE

1
15

SCALE: NONE
SEE DETAILS BELOW FOR OPENING AND PIPE SEAL LOCATIONS
SEE PIPE CONNECTION DETAIL THIS SHEET
SEE DRAINAGE PLAN FOR PIPE DIAMETER AND TYPE

RISER R1: INLET OPENINGS ON 3 SIDES
A-LOK (OR EQUAL) PIPE SEAL ON NORTH WALL FOR 18" PPHP.
A-LOK (OR EQUAL) PIPE SEAL ON EAST WALL FOR 6" SCH 40 PVC STUB
WALL WIDTH = 4'x4',
F.G. ELEV.=770.0 LOWEST F.L. OUT (NORTH) =766.0 LOWEST F.L. IN (EAST) = 766.5



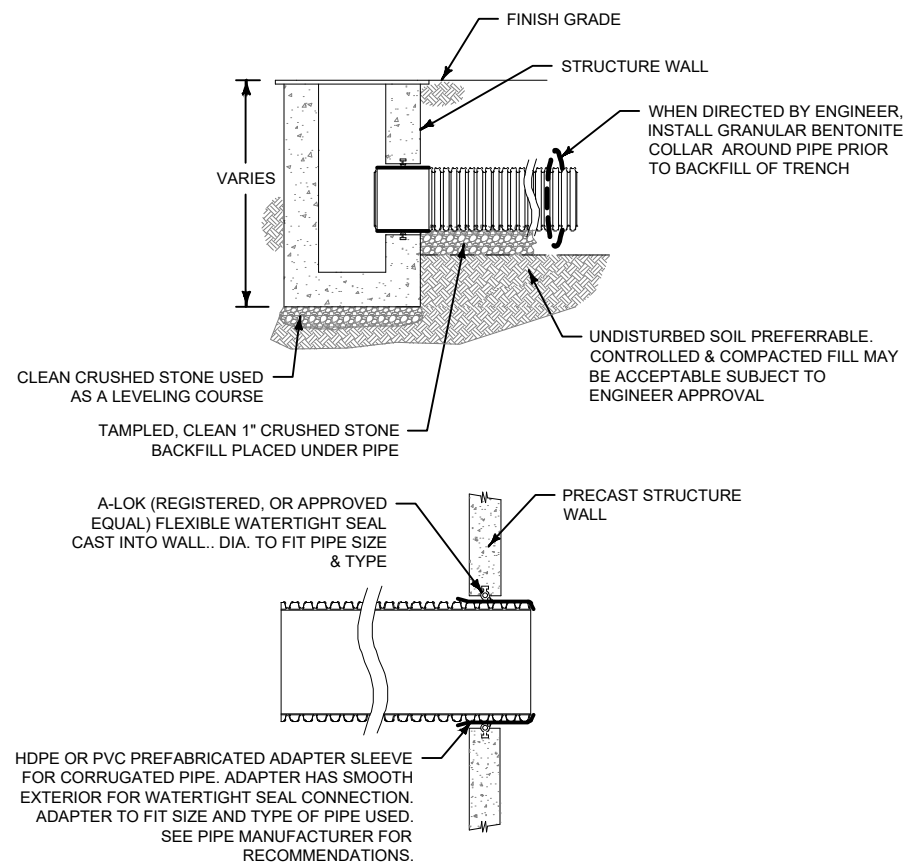
THIS DRAWING SHOWS STRUCTURE AS CAST IN PLACE. STRUCTURE MAY BE PRECAST. A PRECAST INSTALLATION IS PREFERABLE.

STRUCTURE MAY BE BUILT WITH OPENINGS ON ANY OR ALL SIDES. PROVIDE OPENINGS AND ORIENTATION AS SPECIFIED IN 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 DITCH 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 PRECAST FILLETS ARE PREFERABLE. IF CASTING FILLET IN PLACE, PREVENT CONCRETE FROM TOUCHING THE PIPE OR THE FLEXIBLE SEAL.



CLOSE-UP SECTION SHOWING A-LOK GASKET WITH PREFABRICATED ADAPTER SLEEVE

NOTES:

1. BELL ENDS OF ALL PIPE CONNECTIONS SHALL LIE POINTED TOWARD THE UPSTREAM DIRECTION.
2. SEE MANUFACTURER'S LITERATURE FOR INSTALLATION RECOMMENDATIONS OF HDPE & PPHP CONNECTIONS TO MANHOLES AND STRUCTURES .
3. CONTRACTOR MUST VERIFY THAT A-LOK (OR APPROVED EQUAL) SEAL IS UNIFORMLY SEATED AROUND ADAPTER SLEEVE. EXTRA PRECAUTIONS MUST BE TAKEN TO PREVENT DIFFERENTIAL SETTLEMENT BETWEEN THE PIPE AND STRUCTURE.
4. A-LOK IS A REGISTERED TRADEMARK OF A-LOK PRODUCTS, INC. (www.a-lok.com)
5. OTHER TYPES OF FLEXIBLE SEALS, PROPERLY INSTALLED, MAY BE ACCEPTABLE WITH ENGINEER'S APPROVAL.
6. COST OF CLEAN STONE LEVELING COURSE IS INCIDENTAL TO COST OF THE STRUCTURE.
7. GRANULAR BENTONITE (WHEN USED) IS INCIDENTAL TO COST OF STRUCTURE UNLESS OTHERWISE NOTED.

PIPE CONNECTION DETAIL FOR STRUCTURES WITH FLEXIBLE PIPE SEALS

2
15

SCALE: NONE

FILE: MEMLAR-W_AML.DWG

REVISED: 00-00-00

ISSUED: 07-13-2026

CHKD. BY: MLB

DRAWN BY: WJG

DESIGN BY: WJG

DESCRIPTION:

DATE:

REVISION:

1

2

3

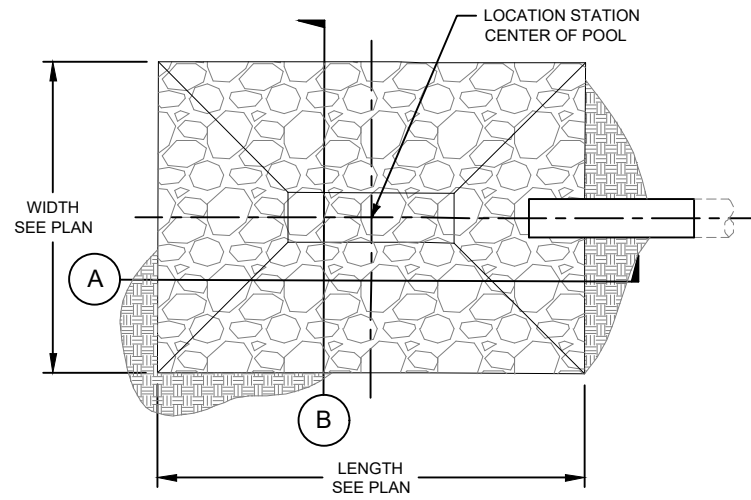
4

DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

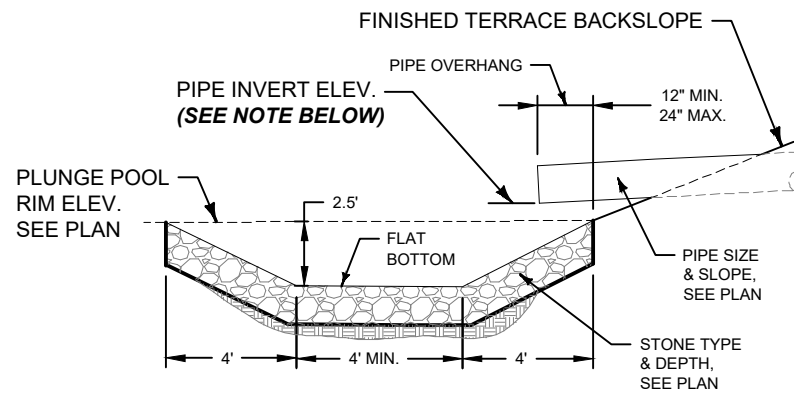


MEMMELAAR WEST
AML RECLAMATION PROJECT

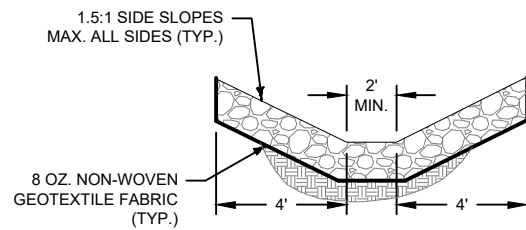
TYPICAL DETAILS



PLAN VIEW



SECTION "A"



SECTION "B"

NOTE:

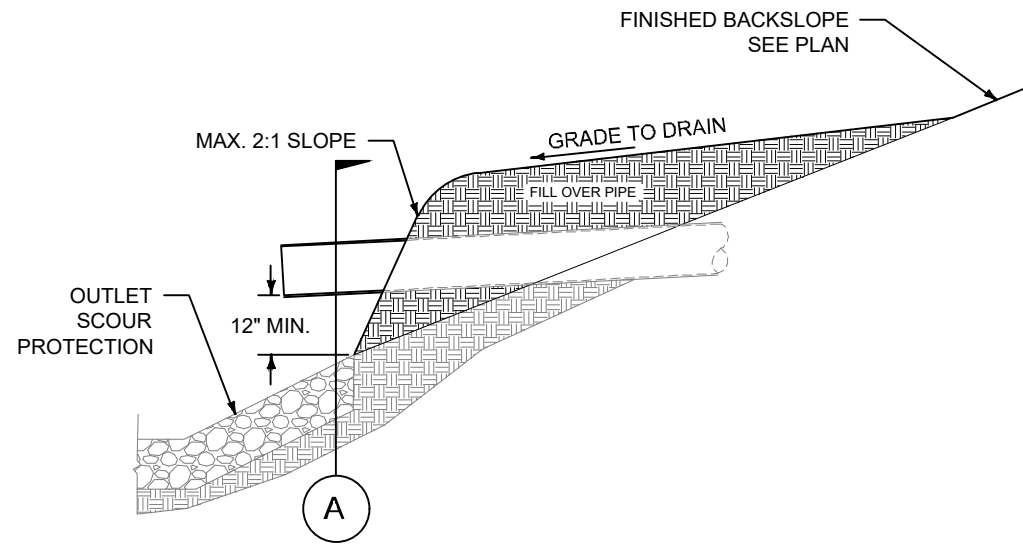
1. ALL PIPES SHOULD OUTLET APPROX. 1' ABOVE RIM OF PLUNGE POOL.
2. ALL PIPES DRAINING INTO WETLAND POOLS MUST OUTLET AT LEAST 1.0' ABOVE NORMAL POOL LEVEL.

1
16

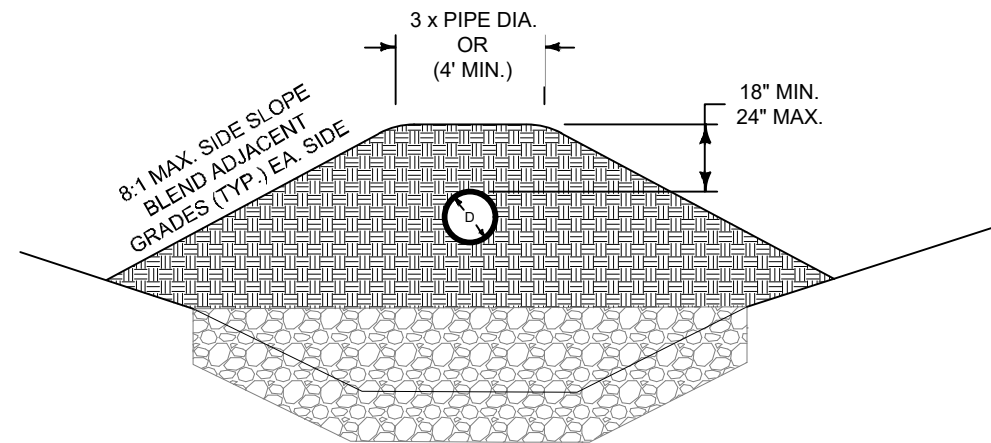
PLUNGE POOL DETAIL

SCALE: NONE

PLUNGE POOL DIMENSIONS ARE PROVIDED WITH THE PLUNGE POOL INFORMATION TABLE ON THE SWPPP PLAN



PROFILE VIEW



SECTION "A"

2
16

COVER OVER PIPES
PROJECTING FROM FILL

SCALE: NONE

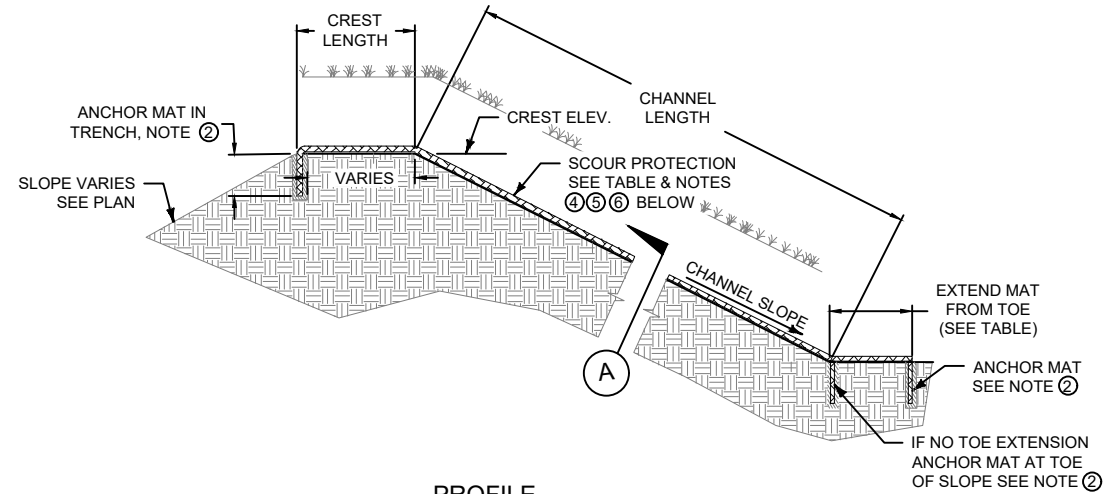
REVISION:	DATE:	DESCRIPTION:
1		
2		
3		
4		

FILE: MEMLAR-W_AML.DWG
REVISED: 00-00-00
ISSUED: 07-13-2026
CHKD. BY: MLB
DRAWN BY: WJG
DESIGN BY: WJG

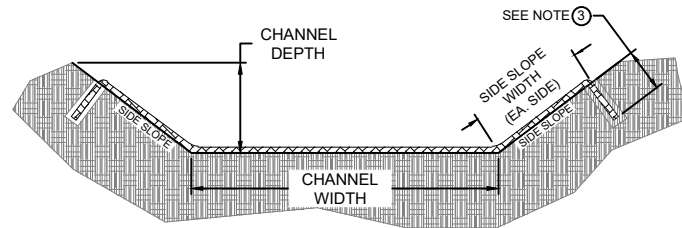


MEMMELAAR WEST
AML RECLAMATION PROJECT

TYPICAL DETAILS



PROFILE



CROSS-SECTION "A"

AUXILIARY SPILLWAY CHANNEL DIMENSIONS							
SPILLWAY No.	CREST ELEV.	CREST LENGTH	SIDE SLOPE	CHANNEL WIDTH	CHANNEL DEPTH	CHANNEL LENGTH	CHANNEL SLOPE
SW-1	773.0	20'	5:1	6'	2.0'	52'	15.7%
SW-2	778.0	20'	5:1	6'	2.0'	62'	14.3%

NOTES:
a. CREST WIDTH = CHANNEL WIDTH
b. GRADE CRESTS FLAT (0% SLOPE)

AUXILIARY SPILLWAY SCOUR PROTECTION							
SPILLWAY No.	SCOUR PROTECTION	MAT LENGTH	WIDTH EA. SIDE	MAT WIDTH	TOE ANCHOR TRENCH	EXTEND FROM TOE	BURIED CHECK DAM(S)
SW-1	TCBM	60'	4'	16'	YES	NONE	NONE
SW-2	TCBM	90'	4'	16'	YES	10'	NONE

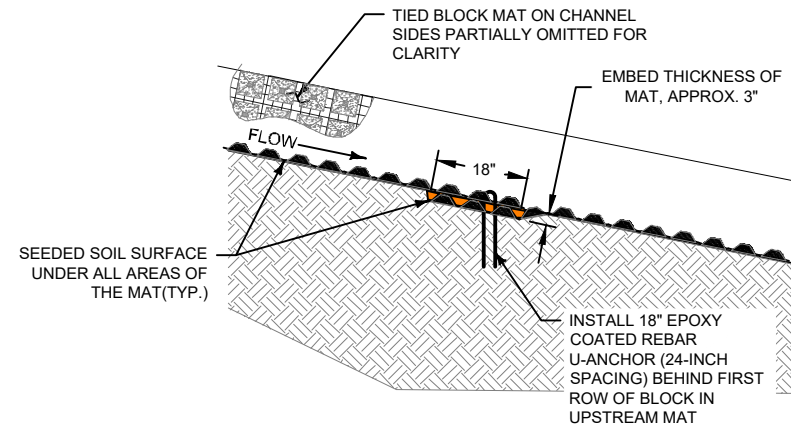
- SCOUR PROTECTION NOTES:
- TCBM = TIED CONCRETE BLOCK MAT; HTIA = HYBRID TURF INSTANT ARMOR MAT; TRM = TURF REINFORCING MAT; RECP = ROLLED EROSION CONTROL PRODUCT
 - 18" MIN. FOR TIED CONCRETE BLOCK & HYBRID TURF INSTANT ARMOR MATS, 6" MIN. FOR TRM & RECP
 - 12" FOR TIED CONCRETE BLOCK & HYBRID TURF INSTANT ARMOR MATS, 6" MIN. FOR TRM & RECP (TYP. EA. SIDE)
 - SECURE MATS TIGHTLY TO SOIL SURFACE WITH ENGINEER-APPROVED ANCHORS OR STAKES FOLLOWING MANUFACTURER'S SPACING REQUIREMENTS. UPON VISUAL INSPECTION, ENGINEER MAY REQUIRE ADDITIONAL STAKES OR PINS.
 - USE EPOXY COATED U-ANCHORS OR CORROSION RESISTANT PERCUSSION ANCHORS FOR TCBM & HTIA; SEE PLAN FOR ANCHOR LENGTH
 - USE MIN. 6" LONG NON-METALLIC STAKES FOR TRM AND RECP
 - TCBM & HTIA DIMENSIONS INCLUDE MATERIAL PLACED IN ANCHOR TRENCHES & LAP SPLICES WHERE APPLICABLE
 - TRM & RECP DIMENSIONS DO NOT INCLUDE MATERIAL PLACED IN ANCHOR TRENCHES & LAPS
 - TCBM SPLICES PERPENDICULAR TO FLOW SHALL BE PVERLAPPED 18" PER MANUFACTURER RECOMMENDATION. SEE DETAIL 2-17.
 - TCBM SPLICES PARALLEL TO THE FLOW SHALL BE BUTTED TIGHTLY & FASTENED WITH ST. STEEL ZIP TIES PER MANUFACTURER RECOMMENDATION

1
17

AUXILIARY SPILLWAY DETAIL

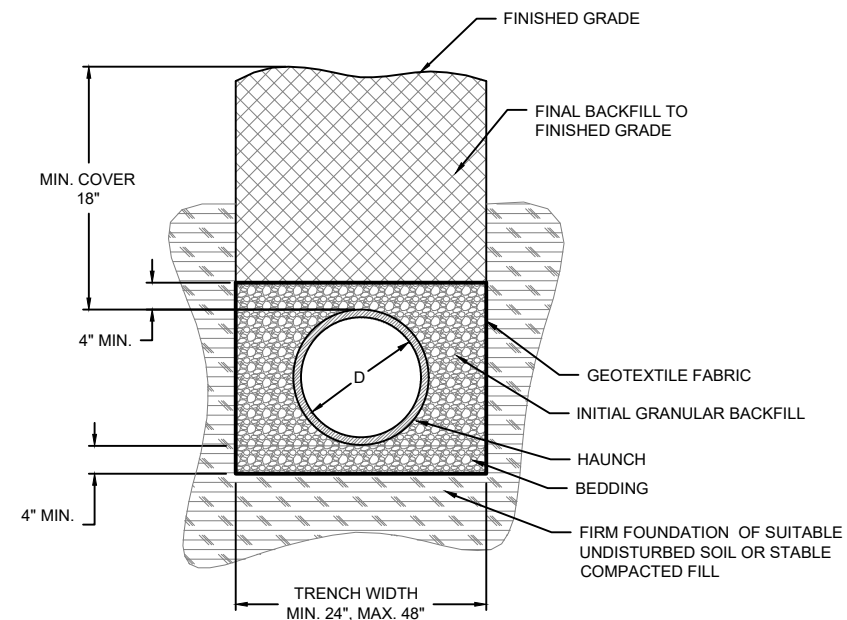
SCALE: NONE

PLUNGE POOL DIMENSIONS ARE PROVIDED WITH THE PLUNGE POOL INFORMATION ON THE SWPPP PLAN



TIED CONCRETE BLOCK MAT TRANSVERSE LAP SPLICE DETAIL

SCALE: NONE



GRANULAR BACKFILL DETAIL

SCALE: NONE

GRANULAR BACKFILL AROUND PIPE IS REQ'D WHEN THE DEPTH TO TOP OF PIPE IS TEN FEET (10') OR MORE

DESIGN BY: WJG

DRAWN BY: WJG

CHKD. BY: MLB

ISSUED: 07-13-2026

REVISED: 00-00-00

FILE: MEMLAR-W_AML.DWG

REVISION:

REVISION	DATE	DESCRIPTION
1		
2		
3		
4		

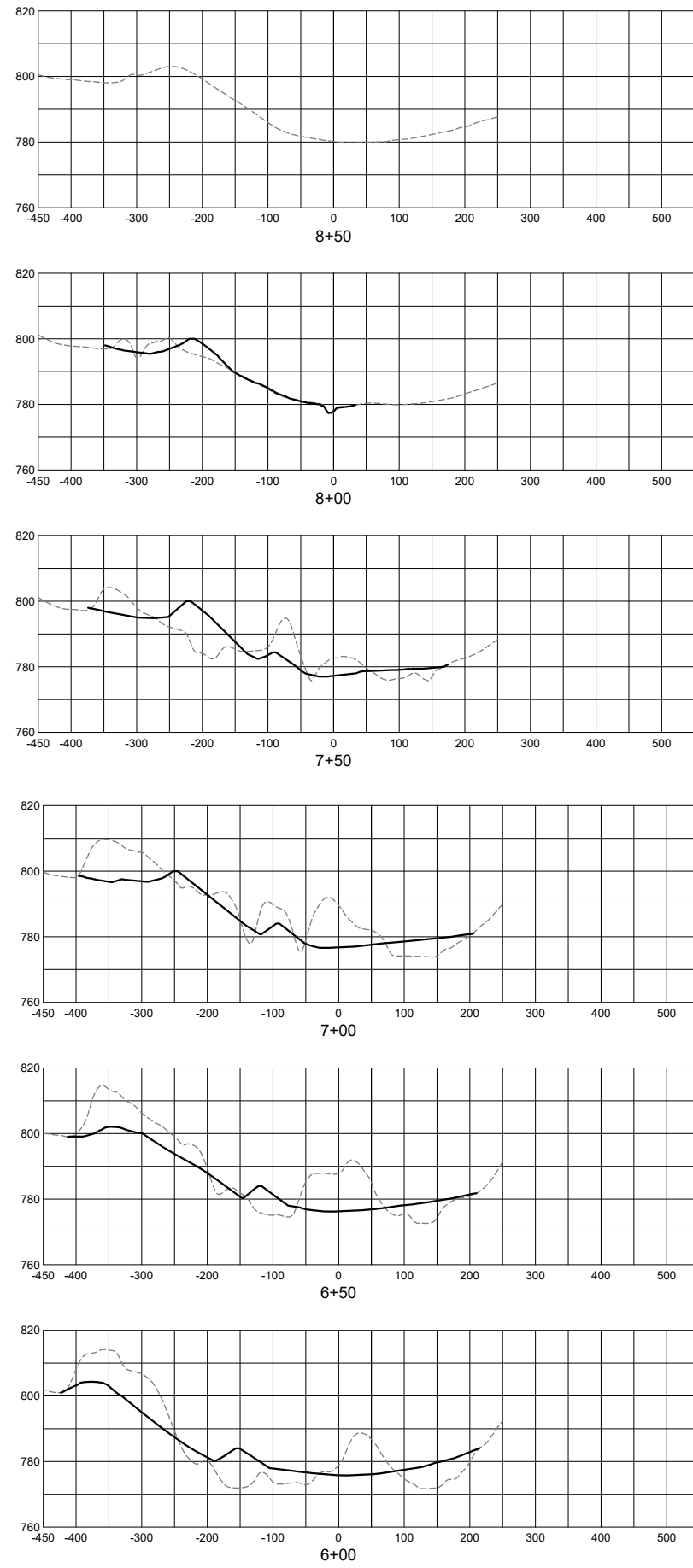
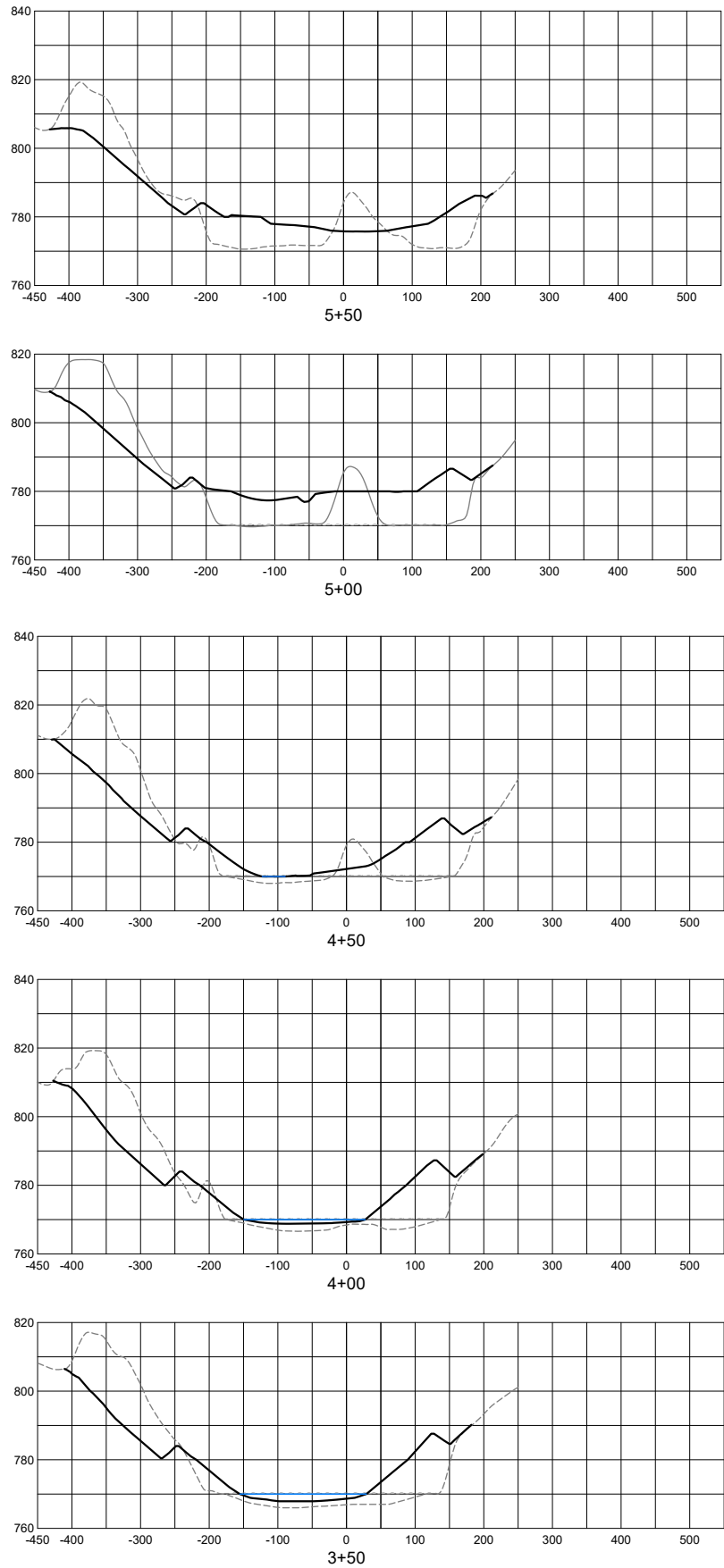
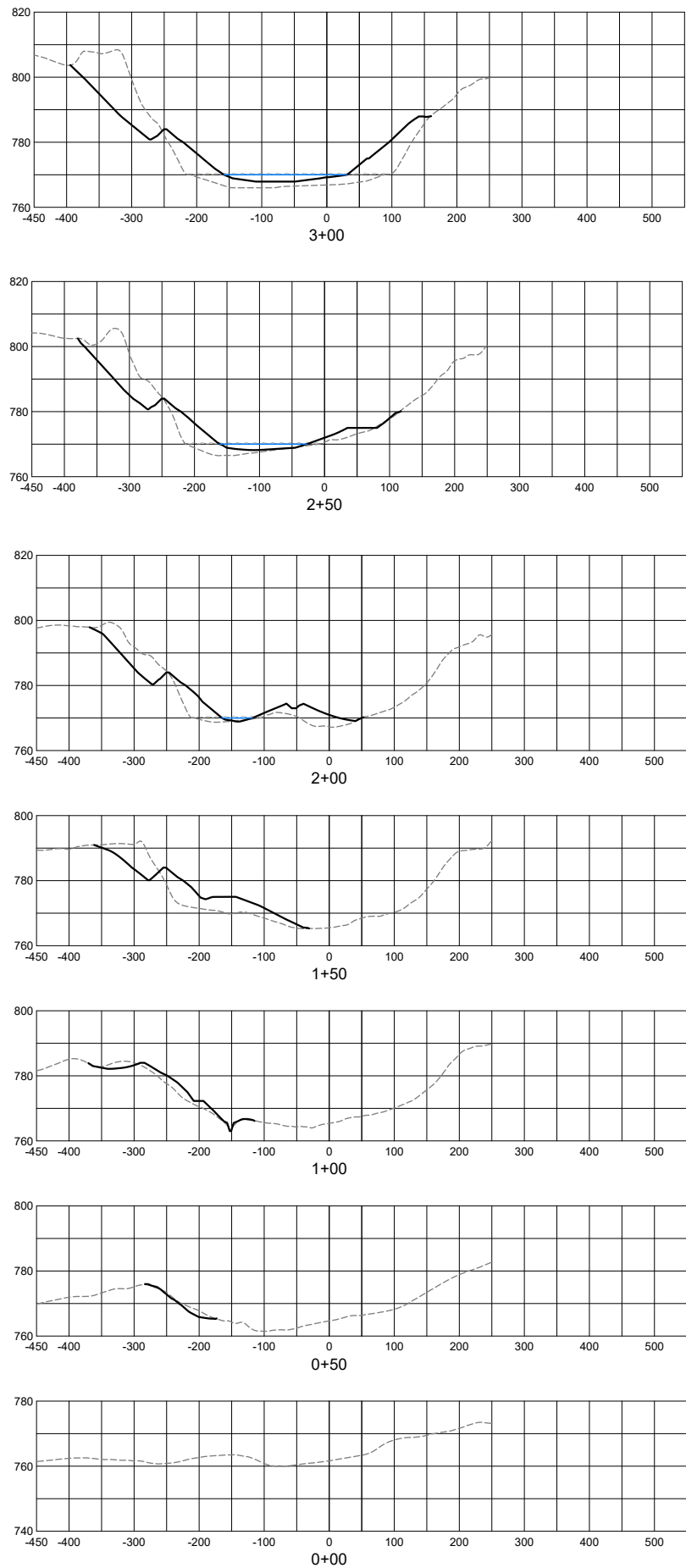
DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

**MEMMELAAR WEST
AML RECLAMATION PROJECT**

TYPICAL DETAILS

SHEET

17 OF **23**



1
19 CROSS-SECTIONS: NORTH SITE
SCALE: 1" = 250' HORIZ.
1" = 50' VERT.

FILE: MEMLAR-W_AML.DWG

REVISED: 00-00-00

ISSUED: 07-13-2026

CHKD. BY: MLB

DRAWN BY: WJG

DESIGN BY: WJG

DESCRIPTION:

DATE:

1

2

3

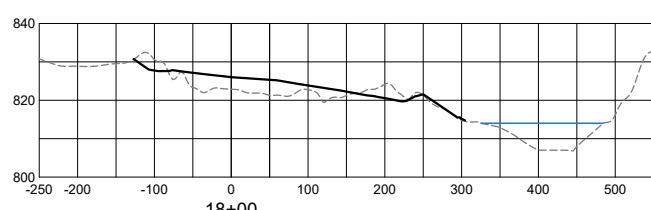
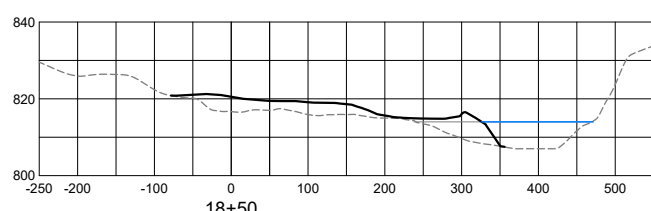
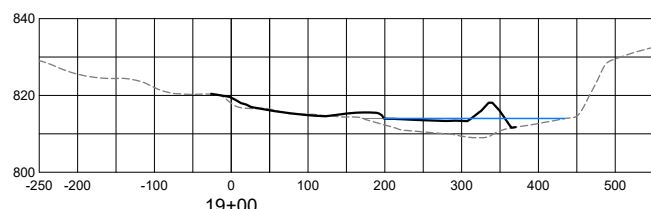
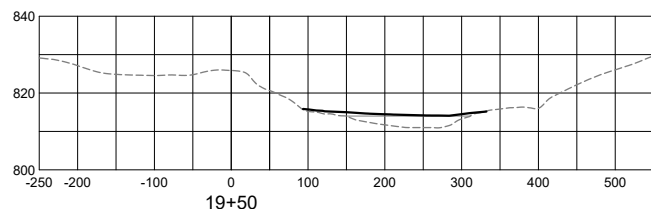
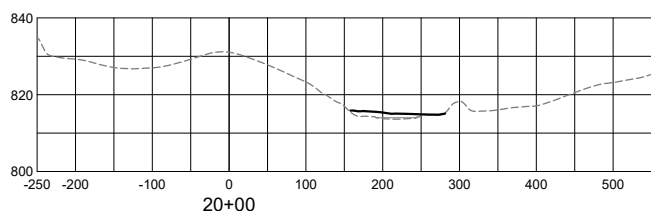
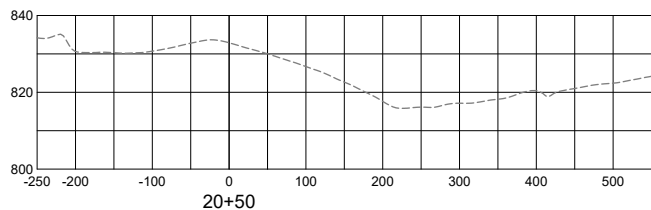
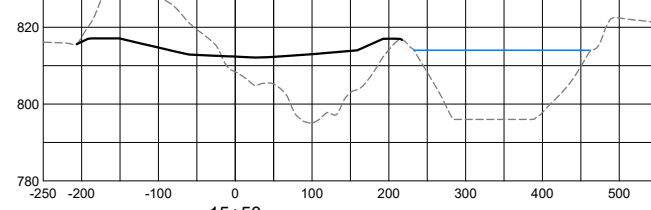
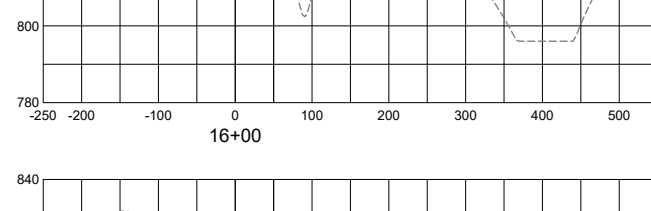
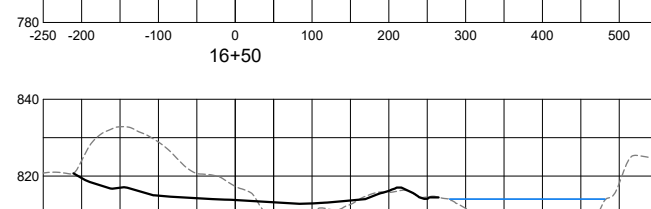
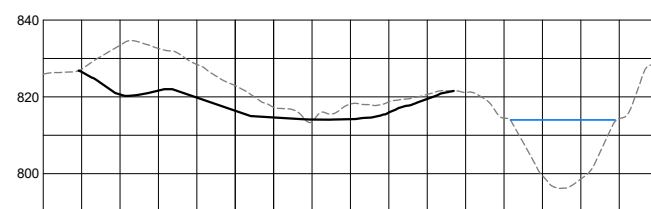
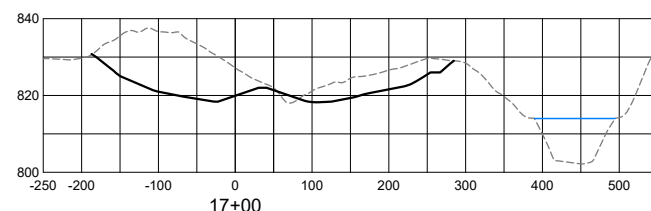
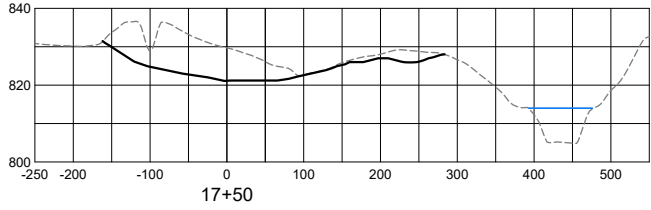
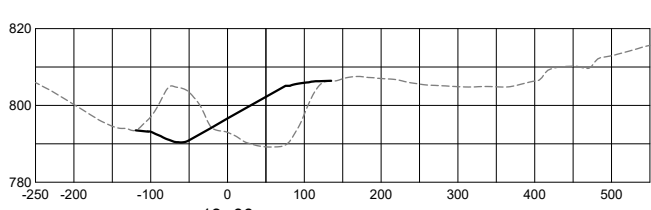
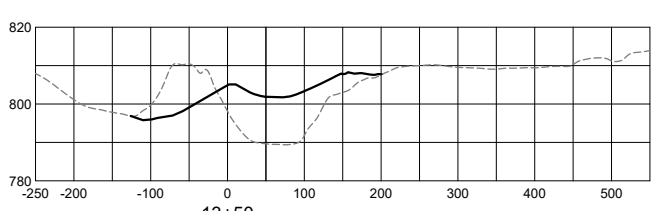
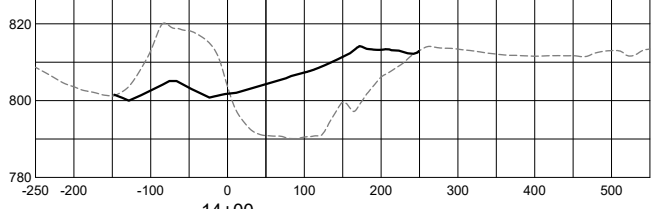
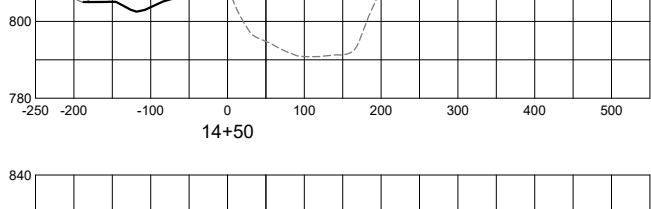
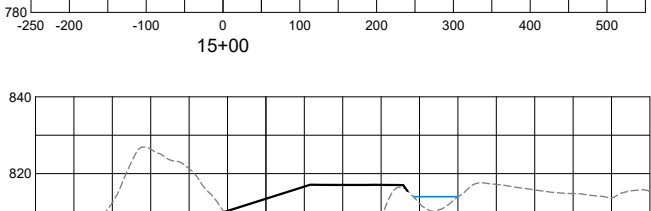
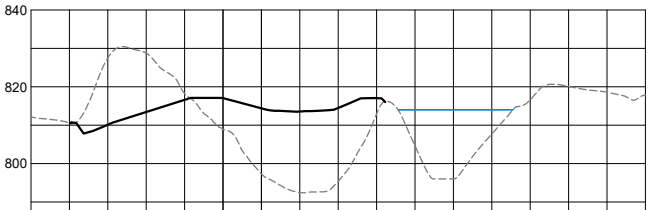
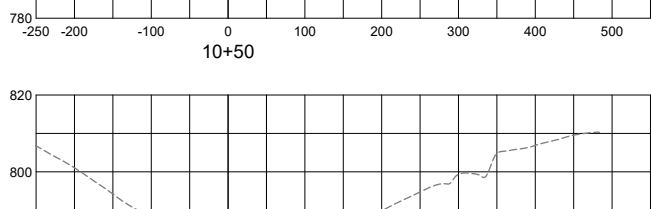
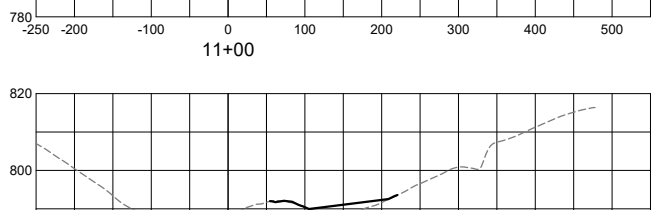
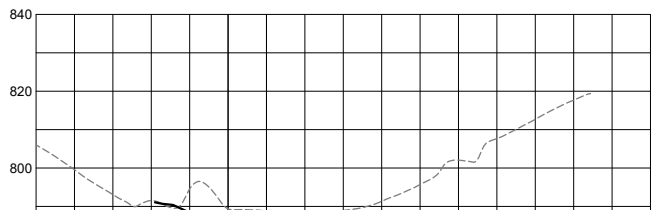
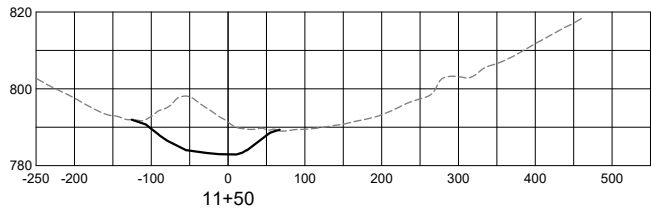
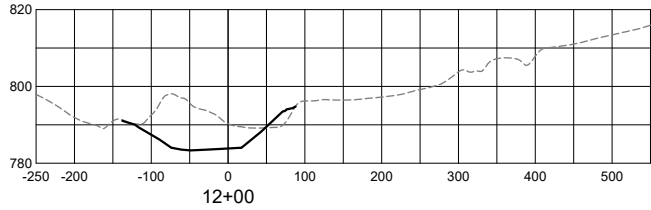
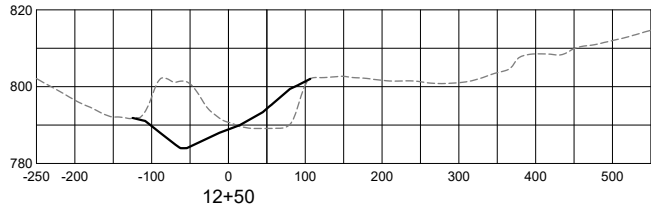
4

DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321



MEMELAAR WEST
AML RECLAMATION PROJECT

NORTH CROSS SECTIONS



1
20 CROSS-SECTIONS: SOUTH SITE

SCALE: 1" = 250' HORIZ.
1" = 50' VERT.

DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	REVISION:	DATE:	DESCRIPTION:
						1		
						2		
						3		
						4		

MEMMELAAR WEST
AML RECLAMATION PROJECT

SOUTH CROSS-SECTIONS

DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321



SHEET
20 OF 23

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

REFER TO: CONTENTS OF THE POLLUTION PREVENTION PLAN IN PART IV. D. OF IOWA NPDES GENERAL PERMIT NO. 2 -- EFFECTIVE MARCH 1, 2023 THROUGH FEBRUARY 29, 2028.

VERSION: 01-23-2025

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 TERRACING AND RIPRAP.
- END USE OF SITE: LIVESTOCK PASTURE , WILDLIFE HABITAT AND/OR RECREATIONAL USE.
- THE ESTIMATED PROJECT TIMELINE: OCTOBER 1, 2026 TO DECEMBER 31, 2027

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

- 16.7 ACRES 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 0.4 TO 0.5. THIS IS ROUGHLY EQUIVALENT TO AN SCS CURVE NUMBER OF 70 WHICH IS TYPICAL FOR PASTURE-GRASS 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.

D. PROVIDE A SITE MAP SATISFYING REQUIREMENTS DESCRIBED IN PART IV. D.1.A.D.:

- SEE BMP PLAN (SHEET 22) FOR CONTROLS PERTAINING TO NORTHERN PORTION OF PROJECT.
- SEE BMP PLAN (SHEET 23) FOR CONTROLS PERTAINING TO SOUTHER PORTION OF PROJECT.

E. PROVIDE NAME OF THE RECEIVING WATER(S) AND THE ULTIMATE RECEIVING WATERS(S).

- THE RECEIVING WATER IS AN UNNAMED TRIBUTARY TO THE MUCHAKINOCK CREEK TO THE DES MOINES RIVER.

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:

- ROUGH DISKING AS DESCRIBED IN "STABILIZING PRACTICES" ABOVE WILL BE USED AS NECESSARY TO REDUCE SURFACE RUNOFF VELOCITIES AND INCREASE INFILTRATION.
- TERRACES WILL BE USED TO REDUCE SLOPE LENGTHS AND DETAIN/RETAIN STORM WATER RUNOFF. TERRACES WILL BE DRAINED WITH PERFORATED PLASTIC RISERS AND CONCRETE OPEN-SIDED INTAKES.
- RIP RAP PLUNGE POOLS (STILLING BASINS) WILL BE USED AT DRAINAGE OUTLETS TO ABSORB ENERGY OF FLOWING STORM DRAINAGE.

A.(2) STRUCTURAL PRACTICES CONT'D:

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

SEDIMENT CONTROL PRACTICES:

- STRAW WATTLES OR FILTER SOCK OR SHALLOW DITCHES ACTING AS SEDIMENT TRAPS WILL BE USED ALONG THE PERIMETERS OF THE SITE AS NECESSARY TO PREVENT MIGRATION OF SEDIMENT INTO THOSE WATERS OUTSIDE THE PROJECT BOUNDARY. PROPOSED WATERBODIES WITHIN THE PROJECT BOUNDARY MAY INCLUDE STORAGE VOLUME BELOW THE NORMAL POOL ELEVATION FOR SOME ACCUMULATED SEDIMENT.
- FILTER SOCKS OR SHALLOW TRENCHES WILL BE INSTALLED IN A DRAINAGE WAYS AS NECESSARY TO TRAP SEDIMENT TRANSPORTED FROM SLOPES DURING CONSTRUCTION. IN CONCENTRATED DRAINAGES RIPRAP WILL BE INCLUDED TO SLOW FLOW VELOCITIES AND TRAP TRANSPORTED SEDIMENTS.
- ONE WETLAND BASIN WILL BE CONSTRUCTED ON THE NORTH SITE AS SHOWN ON THE PLANS. AS THESE PROPOSED WATER BODIES ARE CONSTRUCTED THEY WILL BEGIN TO RETAIN SEDIMENT ERODED FROM THE UPLAND SLOPES. THE WETLAND BASINS WILL BE CLEANED OUT JUST PRIOR TO PROJECT COMPLETION AND IT WILL BE CONVERTED INTO A PERMANENT WETLAND. SEDIMENT CLEANED OUT WILL BE RE-SPREAD ONTO THE LANDSCAPE. PRIOR TO CONSTRUCTION OF THE WETLANDS, TEMPORARY PRACTICES INDICATED IN ITEM 2 ABOVE WILL BE INSTALLED.
- ALL PROPOSED PERMANENT WETLANDS HAVE OUTLETS PROTECTED FROM EROSION WITH EITHER TIED CONCRETE BLOCK MAT FOR SURFACE FLOWS OR PRECAST CONCRETE RISERS CONNECTED TO PIPES THAT OUTLET INTO A RIPRAP PLUNGE POOL OR OTHER STABLE LOCATION.

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:

THE GRADING LIMITS FOR THE SITE CONTAINS 16.7 AC OF DISTURBED AREA IN WHOLE. NO COMMON DRAINAGE SERVES 10 OR MORE ACRES DISTURBED BY THIS CONSTRUCTION PROJECT.

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:

DRAINAGE LOCATIONS SERVING 10 OR FEWER ACRES WILL BE PROTECTED FROM SEDIMENTATION BY FILTER SOCKS OR STRAW WATTLES, FABRIC CHECKS, RIPRAP CHECKS OR SMALL SEDIMENT CATCHMENTS TO ARREST OR SEDIMENT MOVEMENT BEFORE SEDIMENT LEAVE THE SITE.

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

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

PERFORATED PLASTIC HICKENBOTTOM (OR EQUAL) INTAKES ARE USED TO DRAIN DRY DETENTION BASINS AND TERRACES. CONCRETE BOX STRUCTURES WITH OPEN SIDE INLETS ARE USED TO WITHDRAW WATER FROM CONSTRUCTED WETLANDS.

ii. DESCRIBE NATURAL BUFFERS AROUND SURFACE WATERS:

TO THE EXTENT PRACTICABLE A BUFFER OF VARYING WIDTH CONSISTING OF TREES AND UNDERSTORY VEGETATION WAS LEFT UNDISTURBED BETWEEN THE PROJECT BOUNDARY AND THE NEAREST STREAM CHANNEL.

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

WHERE PRACTICABLE OFFSITE AND ONSITE RUNOFF FLOWS ARE DIRECTED INTO TERRACES, DETENTION BASINS OR CONSTRUCTED WETLANDS.

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 SUSPENDED SOLIDS IN WATER FLOWS:

PROPOSED WETLAND WATER BODIES ARE ANTICIPATED TO ATTENUATE PEAK RUNOFF FLOWS AND PROVIDE OPPORTUNITY FOR SETTLEMENT OF SUSPENDED SOLID PRIOR TO RUNOFF EXITING THE PROJECT BOUNDARIES. SEE PLAN SHEETS.

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

RIPRAP PLUNGE POOLS ARE DESIGNED TO BE PLACED AT THE OUTLET OF THE TERRACE DRAIN PIPES TO ABSORB ENERGY AND REDUCE THE VELOCITY OF FLOW EXITING BURIED PIPE CONDUITS.

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. ALL CONSTRUCTION WASTES WILL BE DISPOSED OFFSITE AT A PERMITTED LANDFILL FACILITY.

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.

C.(3). COMPLIANCE WITH STATE OR LOCAL SANITARY WASTE DISPOSAL REGULATIONS:

POLLUTION FROM HUMAN SANITARY WASTE WILL BE PREVENTED WITH THE USE OF A PORTABLE TOILET INSTALLED ON THE SITE. THE PORTABLE TOILET WILL BE SUPPLIED AND MAINTAINED BY THE CONTRACTOR. ON TIMELY INTERVALS, HUMAN SANITARY WASTE FROM THE PORTABLE TOILET WILL BE COLLECTED AND DISPOSED OFFSITE BY A QUALIFIED PROFESSIONAL SERVICES COMPANY RETAINED BY THE CONTRACTOR. PORTABLE TOILET FACILITIES MUST BE ANCHORED TO THE SOIL SURFACE TO RESIST OVERTURNING BY WIND OR VANDALISM.

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.

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.

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.

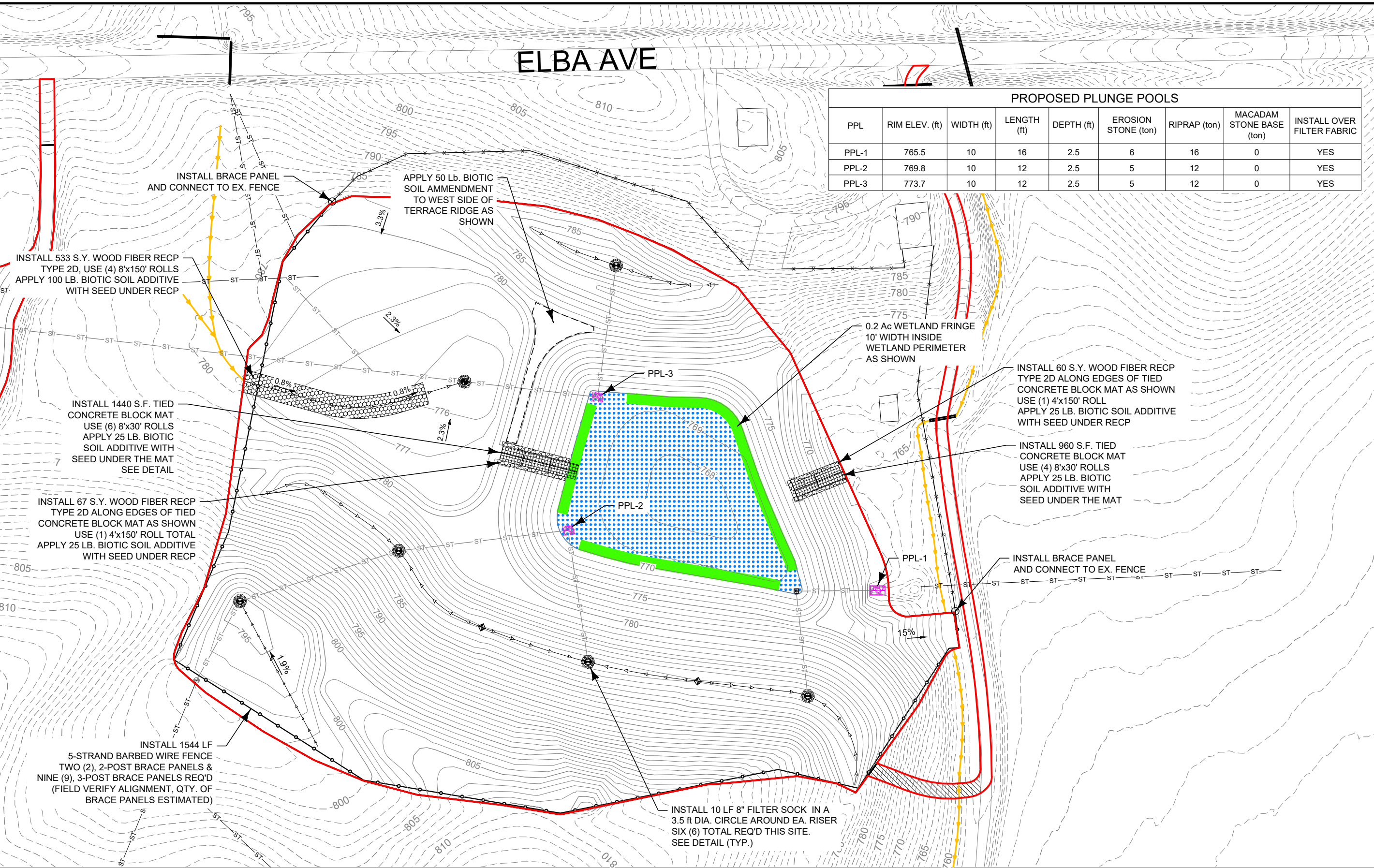
6. ADDITIONAL REQUIREMENTS FOR STORM WATER DISCHARGE FROM INDUSTRIAL ACTIVITIES OTHER THAN CONSTRUCTION:

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:

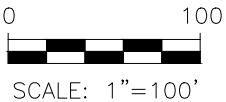
THE GENERAL CONTRACTOR IDENTIFIED ON THE CONTRACT, WILL BE ULTIMATELY RESPONSIBLE FOR ALL ASPECTS OF THE PROJECT. THESE INCLUDE GRADING, PIPE INSTALLATION, AND INSTALLATION OF BMPS. AN EROSION CONTROL OR SEEDING SUBCONTRACTOR MAY BE RESPONSIBLE IN SOME SITUATIONS.

DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	REVISION:	DATE:	DESCRIPTION:
						1		
						2		
						3		
						4		
 DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321								
MEMMELAAR WEST AML RECLAMATION PROJECT						SWPPP SUMMARY		
SHEET 21 OF 23								



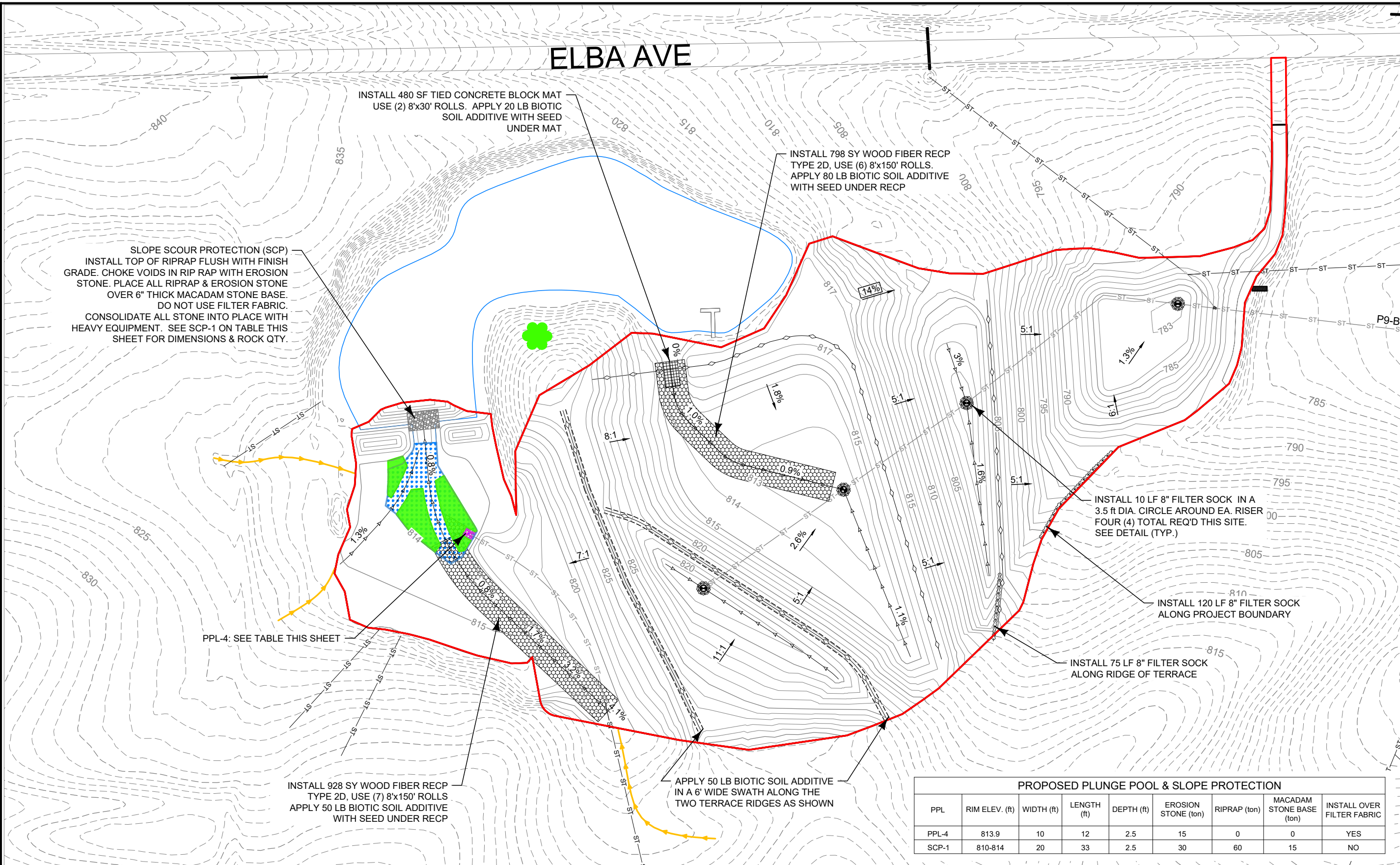
PROPOSED PLUNGE POOLS								
PPL	RIM ELEV. (ft)	WIDTH (ft)	LENGTH (ft)	DEPTH (ft)	EROSION STONE (ton)	RIPRAP (ton)	MACADAM STONE BASE (ton)	INSTALL OVER FILTER FABRIC
PPL-1	765.5	10	16	2.5	6	16	0	YES
PPL-2	769.8	10	12	2.5	5	12	0	YES
PPL-3	773.7	10	12	2.5	5	12	0	YES

- NOTES THIS SHEET:
1. OUTLINE OF PONDS SHOWN ON THIS SHEET IS FOR REFERENCE ONLY.
 2. RECP 2D SHALL BE CURLEX-2 WOOD FIBER BLANKET OR APPROVED EQUAL
 3. PAYMENT QUANTITY FOR TIED CONCRETE BLOCK MAT INCLUDES LAPS AND ANCHOR TRENCHES.
 4. PAYMENT QUANTITY FOR RECP DOES NOT INCLUDE LAPS OR ANCHOR TRENCHES
 5. REFER TO APPENDIX IN SPECIFICATION BOOKLET FOR ADDITIONAL INFO REGARDING INSTALLATION OF RECP AND TIED CONCRETE BLOCK MAT.

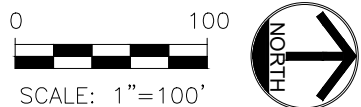


DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG
MEMMELAAR WEST AML RECLAMATION PROJECT			DIVISION OF SOIL CONSERVATION AND WATER QUALITY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP HOOVER STATE OFFICE BUILDING 1305 E. WALNUT STREET, DES MOINES, IOWA 50319 (515) 281-5321		
NORTH SWPPP BMP PLAN			SHEET 22 OF 23		

ELBA AVE



- NOTES THIS SHEET:
1. OUTLINE OF PONDS SHOWN ON THIS SHEET IS FOR REFERENCE ONLY.
 2. RECP 2D SHALL BE CURLEX-2 WOOD FIBER BLANKET OR APPROVED EQUAL
 3. PAYMENT QUANTITY FOR TIED CONCRETE BLOCK MAT INCLUDES LAPS AND ANCHOR TRENCHES.
 4. PAYMENT QUANTITY FOR RECP DOES NOT INCLUDE LAPS OR ANCHOR TRENCHES
 5. REFER TO APPENDIX IN SPECIFICATION BOOKLET FOR ADDITIONAL INFO REGARDING INSTALLATION OF RECP AND TIED CONCRETE BLOCK MAT.



DESIGN BY: WJG	DRAWN BY: WJG	CHKD. BY: MLB	ISSUED: 07-13-2026	REVISED: 00-00-00	FILE: MEMLAR-W_AML.DWG	DESCRIPTION:			
						DATE:			
						REVISION:	1	2	3
						4			

DIVISION OF SOIL CONSERVATION
AND WATER QUALITY
IOWA DEPARTMENT OF AGRICULTURE
AND LAND STEWARDSHIP
HOOVER STATE OFFICE BUILDING
1305 E. WALNUT STREET, DES MOINES, IOWA 50319
(515) 281-5321

MEMMELAAR WEST
AML RECLAMATION PROJECT

SOUTH SWPPP BMP PLAN

SHEET
23 OF 23