

NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A  
JEO PROJECT 210779.09



NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A

COVER SHEET

ENGINEER:

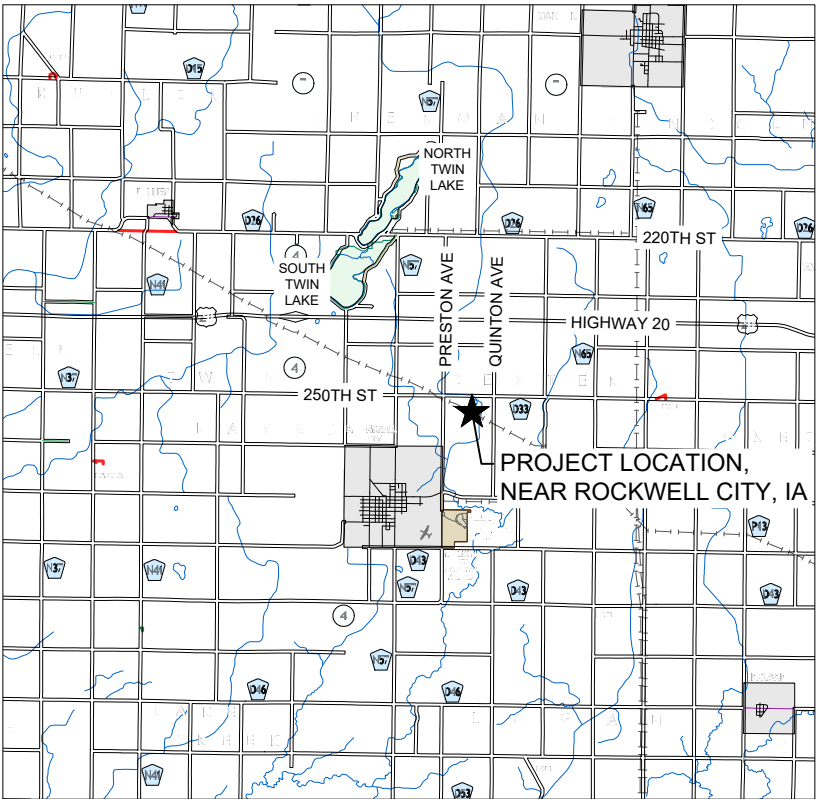
COORDINATING  
PROFESSIONAL

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LOCATION MAP  
SCALE: 1" = 10,000'

THE CURRENT NRCS STANDARD SPECIFICATIONS SHALL  
APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

ENGINEER JOB CLASS V

	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.
	08/06/2025 (date)
	(signature)
	Printed or typed name: Juan Alejandro Arellanes Gallarzo Jr.
	License Number: 28990
My license renewal date is December 31, 2025.	
Pages or sheets covered by this seal: ALL SHEETS IN THIS SET NAMED IN THE SHEET INDEX	

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGMENT, AND BELIEF,  
THE DESIGN MEETS NRCS STANDARDS AND SPECIFICATIONS AND COMPLIES  
WITH ALL APPLICABLE LAWS AND REGULATIONS.

ENGINEER'S SIGNATURE: 08/06/2025  
NAME DATE

I HAVE REVIEWED AND AGREE WITH THE CONTENT OF THE PLAN AND  
SPECIFICATIONS AS PREPARED.

LANDOWNER'S SIGNATURE: NAME DATE

CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL.  
ONE CALL TICKET NO.: \_\_\_\_\_

PROJECT SPONSOR:



CULTURAL RESOURCES NOTE:

IF CULTURAL RESOURCES ARE IDENTIFIED DURING  
CONSTRUCTION, WORK WILL STOP IMMEDIATELY AND  
THE NRCS ARCHAEOLOGIST WILL BE NOTIFIED.

**NOTE:**  
NEITHER THE OWNER (CLIENT) NOR JEO CONSULTING GROUP, INC. ASSUMES ANY RESPONSIBILITY FOR UTILITY LOCATIONS BEING ACCURATELY SHOWN OR NOT SHOWN ON THE PLANS. A REQUEST FOR UTILITY LOCATES WAS MADE FOR THIS LOCATION AS PER THE ONE-CALL NOTIFICATION SYSTEM ACT.  
(DATE: 09/19/2022, TICKET NO.: 552206079.)

UTILITIES SHOWN ARE FROM FIELD MARKINGS PROVIDED IN THE FIELD BY THE UTILITY PROVIDERS.

THE EXACT LOCATION AND/OR SIZE OF UNDERGROUND FEATURES MAY NOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. FIELD VERIFICATION OF UTILITIES MAY BE REQUIRED. CONTRACTOR(S) SHALL NOTIFY THE RESPECTIVE UTILITY COMPANIES BEFORE COMMENCING ANY WORK.



CONTRACTOR IS RESPONSIBLE  
FOR CALLING IOWA ONE CALL  
1-800-292-8989 AT LEAST 48  
HOURS PRIOR TO BEGINNING  
ANY EXCAVATION OR WORK.

ALL SITE PLAN INFORMATION  
IS BASED UPON  
US SURVEY FEET (sFT)

PROJECT NO.	210779.09
DATE	7/15/2025
DRAWN BY	JAA
FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
SURVEY FILE NO.	SV- 210779.09 TOPO.DWG
PLAN IN HAND	MLB
DATE	05/11/2023
CHECKED BY	CDR
APPROVED BY	JGP
REVISIONS	2/27/2025

LINESTYLES

ITEM	SYMBOL
BREAK LINE	
CABLE TELEVISION	— UTV — — UTV — —
CABLE TV (NS)	— <UTV> — — — <UTV> — — —
CENTERLINE OF ROAD	
CONTOUR MINOR (EX)	— — — 1202 — — —
CONTOUR MAJOR (EX)	— — — 1200 — — —
CONTOUR MINOR (EX,SCREENED)	— — — 1202 — — —
CONTOUR MAJOR (EX,SCREENED)	— — — 1200 — — —
CONTOUR MINOR (PR)	— — — 1202 — — —
CONTOUR MAJOR (PR)	— — — 1200 — — —
LIMITS OF CONSTRUCTION	— LOC — — — LOC — — —
CULVERT	
ELECTRIC (OVHD)	— OHE — — — OHE — — —
ELECTRIC (OVHD, NS)	— <OHE> — — — <OHE> — — —
ELECTRIC (UGND)	— UGE — — — UGE — — —
ELECTRIC (UGND, NS)	— <UGE> — — — <UGE> — — —
FENCE (WOODEN)	— □ — □ — □ — □ — □ —
FENCE (WIRE OR UNKNOWN)	— x — x — x — x — x —
FENCE (CHAINLINK)	— ○ — ○ — ○ — ○ —
FENCE (SECURITY)	— △ — △ — △ — △ —
FIBER OPTIC LINE	— FO — — — FO — — —
FIBER OPTIC LINE (NS)	— <FO> — — — <FO> — — —
FLOWLINE (BREAKLINE)	— · · · · · — — — — —
GAS LINE	— G — — — G — — —
GAS LINE (NS)	— <G> — — — <G> — — —
GUARDRAIL	
PROPERTY BOUNDARY	=====
PROPERTY LOT LINES (PR)	=====
PROPERTY LINES (EX,NS)	— · · · · · — — — — —
RIGHT-OF-WAY LINE	— ROW — — — ROW — — —
RAILROAD RIGHT-OF-WAY	— RR ROW — — —
RAILROAD TRACKS	— + + + + + — — — — —
RETAINING WALL	
SANITARY SEWER (EX)	— — — 8" SAN — — —
SANITARY SEWER (NS)	— — <SAN> — — — — <SAN> — — —
SANITARY SEWER (PR)	— — — 8" SAN — — —
SAN SEWER FORCE MAIN (EX)	— — — 8" FM — — — 8" FM — — —
SAN SEWER FORCE MAIN (PR)	— — 6" FM — — — 6" FM — — —
STORM SEWER (EX)	— — ST — — — 12" ST — — — (OFFSET TO PIPE SIZE)
STORM SEWER (NS)	— — <ST> — — — — <ST> — — —
STORM SEWER (PR)	— — — 12" ST — — — (OFFSET TO PIPE SIZE)
TELEPHONE LINE (UGND)	— UGT — — — UGT — — —
TELEPHONE LINE (UGND,NS)	— <UGT> — — — — <UGT> — — —
TELEPHONE LINE (OVHD)	— OHT — — — OHT — — —
TELEPHONE LINE (OVHD,NS)	— OHT — — — OHT — — —
TERRACE	— ∇ — ∇ — ∇ — ∇ — ∇ —
CROPLINE	— ∇ — ∇ — ∇ — ∇ — ∇ —
TRAVELED WAY	— — — — —
WATER (EX)	— 6" W — — — 6" W — — —
WATER (NS)	— — <W> — — — — <W> — — —
WATER (PR)	— — — 6" W — — — 6" W — — —
FIRE SERVICE	— 6" F — — — 6" F — — —
EXISTING	EX
EXISTING, NOT-SURVEYED	NS
PROPOSED	PR
OVERHEAD	OVHD
UNDERGROUND	UGND

COMMON HATCHING

ITEM	HATCH
ASPHALT PAVEMENT (EX.)	
CONCRETE PAVEMENT (EX.)	
GRAVEL (EX.)	
BRICK PAVEMENT (EX.)	
ASPHALT PAVEMENT (PR.)	
CONCRETE PAVEMENT (PR.)	
CONCRETE SIDEWALK (PR)	
GRAVEL (PR.)	
BRICK PAVEMENT (PR.)	
RIP RAP	
SEEDING	
MATTING	
UNDISTURBED EARTH	
EARTH	
GRANULAR FILL	
SAND MORTAR, PLASTER	
CONCRETE	
BRICK	
CONCRETE BLOCK	
METAL	
WOOD FRAMING	
WOOD FRAMING INTERRUPTED MEMBER	
BATT INSULATION	
RIGID INSULATION	

UTILITIES

ITEM	SYMBOL
STORM SEWER	
CURB INLET	
GRATE INLET	
CATCH BASIN	
STORM SEWER MANHOLE	
SANITARY	
CLEANOUT	
SEPTIC TANK	
SANITARY MANHOLE	
POWER, ELECTRICAL, LIGHT, AND TRAFFIC	
AIR CONDITIONING UNIT	
ANTENNA	
ANCHOR POLE/POST	
GUY POLE	
GUY WIRE ANCHOR	
ELECTRICAL HIGHLINE TOWER (METAL OR CONCRETE)	
POWER POLE (EXISTING)	
POWER POLE (PROPOSED)	
POWER (ELEC) PEDESTAL	
POWER (ELEC) PULL BOX OR MANHOLE	
POWER (ELEC) METER	
LIGHT POLE	
TRAFFIC SIGNAL	
TRAFFIC SIGNAL BOX	
TELEVISION PEDESTAL	
TELEVISION MANHOLE	
WATER	
WATER MANHOLE	
WATER VALVE	
WATER SHUT OFF OR CURB STOP	
WELL	
WATER METER	
WATER METER PIT	
YARD HYDRANT	
WATER ELEVATION	
WATER TOWER	
FIRE HYDRANT (EXISTING)	
FIRE HYDRANT (PROPOSED)	
FIRE HYDRANT IN PROFILE	
WATER FITTINGS	
11- 1/4"	
22- 1/2"	
45°	
90°	
CROSS	
PLUG	
REDUCER	
TEE	
GAS	
GAS METER	
GAS MANHOLE	
GAS FILL PIPE	
GAS PUMP	
GAS VALVE	
GAS VENT	
TELEPHONE	
FIBER OPTICS PULL BOX	
TELEPHONE POLE	
TELEPHONE PULL BOX OR MANHOLE	
TELEPHONE PEDESTAL	
MANHOLE (NON-SPECIFIC)	
UNDERGRND STORAGE TANK	
VALVE (NON-SPECIFIC)	

SITE & SIGNAGE

ITEM	SYMBOL
SIGN	
BARRICADE	
ROAD SIGNS	
COUNTY ROAD	
INTERSTATE HIGHWAY	
STATE HIGHWAY	
U.S. HIGHWAY	
MILE MARKER POST	
RIGHT OF WAY MARKER	
RAILROAD CROSSING SIGNAL	
RAILROAD SWITCH	
FLAG POLE	
MAILBOX	
PROPANE TANK	
SATELLITE TV DISH	
WINDMILL	

CONTROL & ELEVATION

ITEM	SYMBOL
BENCHMARK	
CONTROL POINT (NON-PROPERTY)	
MONUMENT FOUND (PROPERTY)	
MONUMENT SET	
TEMPORARY POINT	
TEST BORING	
POINT ELEVATION (EXISTING)	
POINT ELEVATION (PROPOSED)	
TOP OF PAVEMENT	TP
TOP OF CURB	TC
GROUND	GR
TOP OF WALL	TW
BOTTOM OF WALL	BW
FLOWLINE	FL
GRID TICK	+

MISC FEATURES

ITEM	SYMBOL
CENTER PIVOT	
CEMETERY	
GRAVE	
CHURCH	
CAVE	
CISTERN	
LATRINE	
OIL WELL	
GUARD POST	

PAVING FEATURES

ITEM	SYMBOL
EXISTING PAVEMENT JOINT	
TRANSVERSE JOINT	
LONGITUDINAL JOINT	
EXPANSION/KEYED JOINT	
PAVEMENT MARKING	
PAVEMENT REBAR	
HANDICAP SYMBOL	

VEGETATION

ITEM	SYMBOL
BUSH	
CONIFEROUS TREE	
DECIDUOUS TREE	
MARSH/WETLAND	
TREE MASS LINE	
TREE STUMP	

SWPPP

ITEM	SYMBOL
SILT FENCE	
INLET PROTECTION	
STRAW WATTLE CHECK	
STRAW BALE CHECK	
FLOW ARROW (PLAN)	
AREA INLET	
FILTER PROTECTION	

GENERAL

ITEM	SYMBOL
PLAN REVISION	
NORTH ARROW	
GRAPHIC SCALE PLAN	
GRAPHIC SCALE PROFILE/ CROSS SECTION	
KEYNOTE OR TABULAR NOTE	
REFERENCED NOTE	
ELEVATION	
SECTION	
ENLARGED DETAIL	



NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A

SYMBOLS SHEET

PROJECT NO. 210779.09  
DATE 7/15/2025  
DRAWN BY JAA  
FILE NAME S-210779.09-Hinton.dwg  
FIELD BOOK BK MISC 30  
FIELD CREW DHM  
SURVEY FILE NO. SV- 210779.09 TOPO.DWG  
PLAN IN HAND INTIALS MLB  
DATE 05/11/2023  
CHECKED BY INTIALS CDR  
APPROVED BY INTIALS JGP  
REVISIONS 2/27/2025

<b>GENERAL</b>
1. THE MOST RECENT EDITIONS OF THE IOWA NRCS CONSTRUCTION SPECIFICATIONS SHALL APPLY TO ALL WORK PERFORMED ON THIS PROJECT UNLESS OTHERWISE NOTED.
2. WHEN REFERENCED, REFER TO THE MOST RECENT EDITION OF SUDAS STANDARD SPECIFICATIONS AND IOWA DOT MATERIALS I.M.'S. FOR SUPPLEMENTAL DETAILS AND STANDARDS.
3. ACCESS AND STAGING AREAS SHALL BE COORDINATED WITH THE LANDOWNER PRIOR TO MOBILIZATION.
4. WORK LIMITS SHALL BE CONFINED TO THE AREAS NOTED ON THE PLANS.
5. DEWATERING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR FOR MAINTAINING REASONABLY DRY WORKING CONDITIONS. ANY PUMPING SHALL BE CONSIDERED INCIDENTAL TO THE WORK.
6. TRAFFIC CONTROL SIGNAGE SHALL BE IN CONFORMANCE WITH IDOT SDR TC-252 IF UTILIZED BY CONTRACTOR.
7. AREAS SUBJECT TO EXCAVATION SHALL BE STRIPPED OF 9" OF TOPSOIL OR AS OTHERWISE DIRECTED BY THE ENGINEER. TOPSOIL SHALL BE STOCKPILED AND RE-SPREAD AT MINIMUM DEPTH OF 6". TOPSOIL STRIPPING AND RE-SPREADING OF DISTURBED AREAS IS CONSIDERED INCIDENTAL TO OTHER ITEMS OF WORK AND NO SEPARATE MEASUREMENT OF PAYMENT WILL BE MADE.
8. AREAS OF OPEN TRENCH PIPE INSTALLATION SHALL BE STRIPPED OF 6" TOPSOIL AND STOCKPILED SEGREGATED FROM OTHER SOILS.
9. COMPACTION IS TO BE PERFORMED IN CONFORMANCE WITH NRCS SPECIFICATION IA-23. ALL AREAS SHALL BE COMPACTED PER METHOD 1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING WATER TO ENSURE PROPER MOISTURE CONDITIONING.
10. FILL SHALL BE PLACED IN LOOSE LIFTS NOT TO EXCEED 9". ENGINEERING MAY DIRECT THINNER LIFTS BASED ON AVAILABLE COMPACTION EQUIPMENT.
11. DISCOVERED TILE SHALL BE LEFT UNCOVERED AND REPORTED TO THE ENGINEER FOR REVIEW.
12. ALL ITEMS INCLUDING FITTINGS, VALVES, HARDWARE, COUPLINGS, REINFORCEMENT, WIRING, MOUNTING BRACKETS, LIDS, LOCKS, BEDDING, AND ANY OTHER APPURTENANCES RELATED TO SPECIFIED BID ITEMS SHALL BE CONSIDERED INCIDENTAL TO THE LISTED BID ITEM. THESE APPURTENANCES INCLUDE THOSE SHOWN IN THE PLANS, LISTED IN THE SPECIFICATIONS, AND OTHERS AS REQUIRED BY SUPPLIERS FOR PROPER INSTALLATION AND OPERATION.
13. THERE ARE DESIGNATED WETLANDS WITHIN AND SURROUNDING THE PROJECT SITE. CONTRACTOR SHALL LIMIT CONSTRUCTION IMPACTS AS MUCH AS POSSIBLE INCLUDING LIMITING DISTURBED GROUND BY CONSTRUCTION ACTIVITIES AND LIMITING SEDIMENT RELEASE INTO THE WETLAND AND ADJACENT CHANNEL.
<b>STRUCTURAL</b>
1. 28 DAY CONCRETE STRENGTH = 3500 PSI.
2. REINFORCING BARS = ASTM A615 GRADE 60.
3. THE MINIMUM COVERING FROM REINFORCEMENT TO SURFACE OF CONCRETE SHALL BE 3" MINIMUM FOR THE UNDERSIDE OF FOOTINGS AND 2" FROM ANY FORMED OR FINISHED FACE.
4. ALL CONCRETE TO HAVE 5%-7% AIR ENTRAINMENT.
5. EXPOSED CONCRETE EDGE TO RECEIVE ½" BEVEL.
6. DO NOT PLACE CONCRETE ON FROZEN GROUND.
7. LATEST ADDITION OF ACI-31B, ACI-117, & ACI-347 REQUIREMENTS FOR REINFORCED CONCRETE CONSTRUCTION & FORMWORK TO BE FOLLOWED
8. IF SHEETPIILING IS UTILIZED ALL SHEET PILE SHALL BE INTERLOCKING. STEEL SHEET PILE SHALL HAVE A 7 GAUGE THICKNESS MINIMUM.
9. ALL METAL COMPONENTS FOR THIS PROJECT SHALL BE CONSTRUCTED OF CORROSION RESISTANT MATERIALS AS SPECIFIED. ANY COMPONENTS NOT SPECIFIED SHALL BE 304 STAINLESS STEEL OR APPROVED EQUAL MATERIAL.
10. BOLTS MAY BE CASE IN PLACE OR EXPOXIED. THREADS SHALL BE CUT OFF FLUSH WITH THE ANCHOR NUT.
<b>SOLAR AG. LIFT STATION</b>
1. LIFT STATION SYSTEM SHALL BE PACKAGE # DPC3500-30C FROM SOLAR LIFT STATION WATER PUMPING SOLUTIONS. TO INCLUDE; HIGH OUTPUT 144 CELL BI-FACIAL SOLAR PANELS, PRE-WIRED SOLAR DRAINAGE PUMP CONTROLLER WITH HOUR METER, 230V AC 3-PHASE AXIAL FLOW PUMP WITH STAINLESS REMOVAL CABLE, TWO FLOAT SWITCHES WITH 50' CORDS, UNISTRUT CLAMPS FOR CONTROLLER MOUNTING, SUN RAC TOP OF POLE MOUNTING KIT FOR 4" SCHEDULE 40 STEEL POST, AND OTHER FURNISHINGS AS REQUIRED BY THE MANUFACTURER FOR OPERATION. SEE SPECIFICATIONS FOR FULL REQUIREMENTS.
2. CONTRACTOR SHALL FURNISH A MINIMUM OF FOUR (4) COPIES OF COMPLETE MANUFACTURER'S OPERATION, MAINTENANCE, AND PARTS DATA FOR ALL EQUIPMENT TO BE INSTALLED IN THE PROJECT (NONE OF WHICH WILL BE RETURNED). ALL EQUIPMENT THAT MAY REQUIRE SPARE PARTS SHALL BE DOCUMENTED AND DATA FURNISHED AS TO SOURCE OF SPARE PARTS. THE FOLLOWING MATERIAL SHALL BE SUBMITTED: A. MANUFACTURER'S OPERATION & MAINTENANCE MANUAL. B. MANUFACTURER'S PARTS MANUAL AND SPECIFICATIONS. C. MANUFACTURER'S SERVICE & REPAIR MANUAL. D. REPAIR PARTS SOURCE. E. DETAILED DRAWINGS OF EQUIPMENT. F. DETAILED ELECTRICAL SCHEMATIC DRAWINGS, IF APPLICABLE.
3. ELECTRICAL CONNECTIONS SHALL BE MADE BY A QUALIFIED LICENSED ELECTRICIAN. AS-BUILT DRAWINGS OF THE ELECTRICAL LAYOUT SHALL BE PROVIDED BY THE CONTRACTOR TO THE ENGINEER.
<b>OTHER</b>
1. UNLESS NOTED OTHERWISE ALL RIPRAP AND AGGREGATE PLACED SHALL HAVE A GEOTEXTILE FABRIC UNDERLAYMENT.
2. GRAVEL SURFACING SHALL BE AN IOWA DOT CLASS C GRAVEL OR CRUSHED STONE.
3. EARTHWORK IS DESIGNED TO BE A NET ZERO QUANTITY. BORROW AND SPOIL LOCATIONS TO BALANCE SO NO ADDITIONAL MATERIAL NEEDS TO BE BROUGHT ON SITE OR HAULED OFF SITE. NO ADDITIONAL MEASUREMENT OR PAYMENT SHALL BE MADE FOR EARTHWORK BEYOND WHAT IS SPECIFIED IN THESE PLANS.
4. CONTRACTOR TO SUBMIT OPTIONS FOR DEBRIS GUARD SUITED FOR INSTALLATION ON END OF INLET PIPE. MAY BE PREFBRICATED OR CUSTOM BUILT. SHOP DRAWING TO BE APPROVED BY ENGINEER PRIOR TO PROCUREMENT. STYLE SIMILAR TO IDOT 4020.3 FLARED END SECTION APRON GUARD.
5. REMOVAL AND DISPOSAL OF ANY EXISTING RIPRAP IS INCIDENTAL. SHALL NOT BE REMOVED WITHOUT PRIOR AUTHORIZATION OF REMOVAL EXTENTS BY ENGINEER.

ITEMS OF WORK						
No.	DESCRIPTION	UNIT	QUANTITY	SPECIFICATION	SHOP DRAWING	AS-BUILT QTY.
1	SITE STRIPPING & PREPARATION	LS	1	IA CS-001		
2	BUFFER SEEDING*	ACRE	1.2	IA CS-006	X	
3	STRUCTURAL SEEDING	ACRE	0.1	IA CS-006	X	
4	MOBILIZATION & DEMOBILIZATION**	LS	1	IA CS-008		
5	EXCAVATION (GENERAL)	CY	1775	IA CS-021		
6	EARTHFILL (GENERAL)***	CY	1775	IA CS-023		
7	MODIFIED SW-513 STRUCTURE W/ GRATE & WEIR PLATE	EA	1	IA CS-031	X	
8	LIFT STATION STRUCTURE - SW-401 60" DIA.	EA	1	IA CS-031	X	
9	CONCRETE PILE SUPPORT	EA	4	IA CS-031		
10	TIED CONCRETE BLOCK MAT	SF	2200	IA CS-031	X	
11	PVC PIPE, 6" DIA. (LIFT STATION DISCHARGE)	LF	44	IA CS-045	X	
12	CMP PIPE, 24" DIA. (WETLAND OUTLET)	LF	41	IA CS-051	X	
13	CMP PIPE, 18" DIA. (LIFT STATION INLET)	LF	87	IA CS-051	X	
14	REVETMENT, IDOT CLASS E	TON	218	IA CS-061	X	
15	AGGREGATE SURFACING, IDOT CLASS A STONE	TON	44	IA CS-061	X	
16	OUTLET STRUCTURE DEBRIS GUARD	EA	1	IA CS-081	X	
17	INLET TRASH GUARD	EA	1	IA CS-081	X	
18	SOLAR LIFT STATION SYSTEM	LS	1	IA CS-081	X	

QUANTITY NOTES:

- \* QUANTIFIED AREAS ARE APPROXIMATE AND SHALL BE DETERMINED BY CONTRACTOR, ENGINEER, AND OWNER.
- \*\* INCLUDES SHAPING AND MAINTENANCE ON THE INGRESS/EGRESS.
- \*\*\* EARTH FILL (EMBANKMENT) ASSUMES NO COMPACTION FACTOR.



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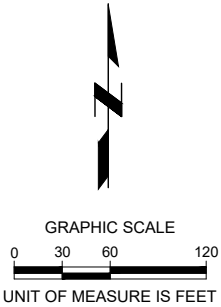
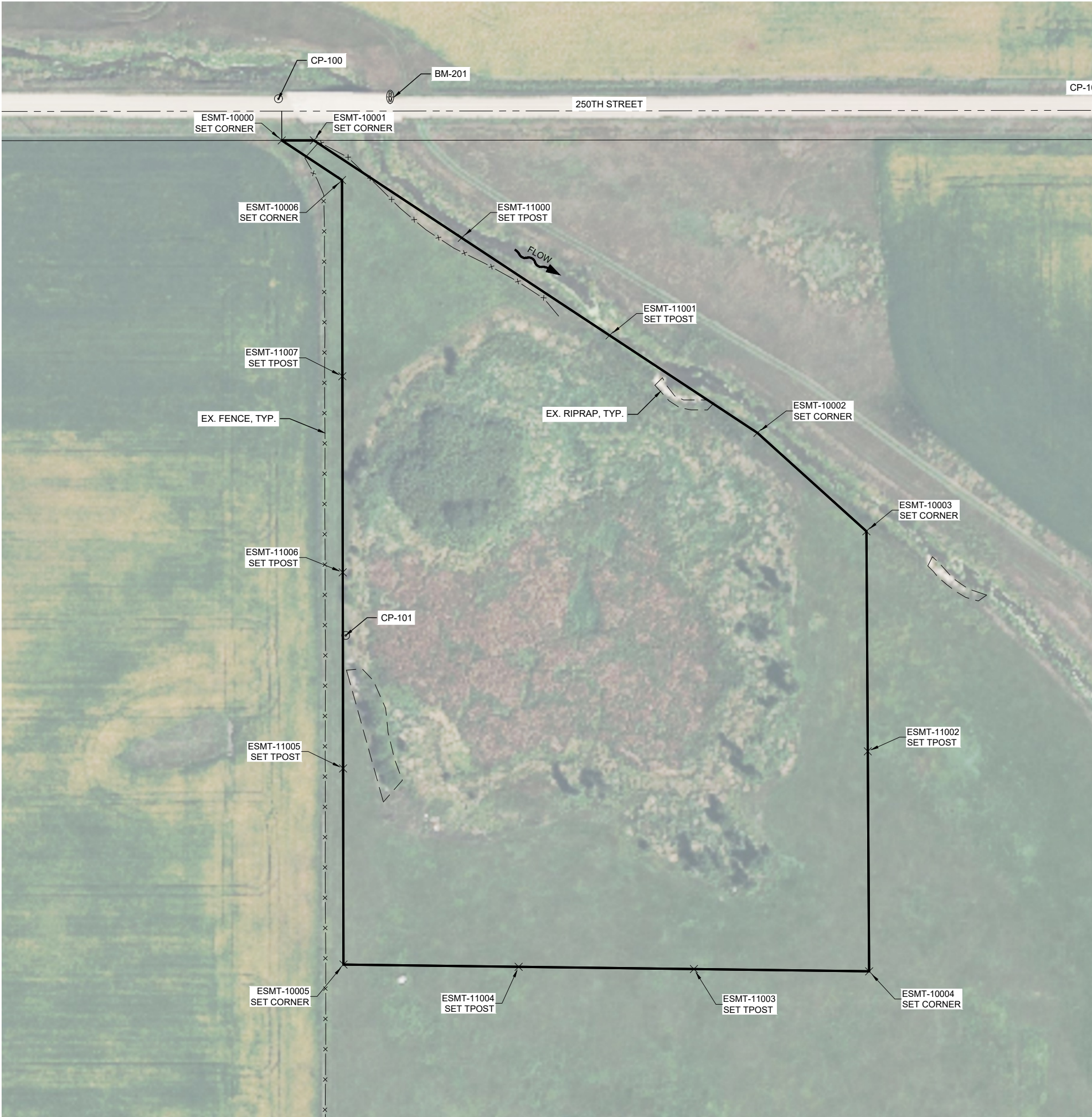
NOTES & TABULATIONS

WETLAND DATA SHEET		
PROJECT ID	CAL883220A	
DESIGN STAGE	FINAL	
DRAINAGE AREA (DITCH)	36600	ACRES
DRAINAGE AREA (LOCAL)	70.1	ACRES
WETLAND POOL AREA	5.1	ACRES
DEEP WATER AREA (>3 FT DEEP)	0	ACRES
NORMAL POOL ELEVATION	1186.25	
AVERAGE POOL DEPTH	2.2	FEET
MAXIMUM POOL DEPTH	3.0	FEET
POOL STORAGE	11.1	AC-FT
TIME OF CONCENTRATION	45	MIN
WEIGHTED RCN (WETLAND)	77	
25YR STORM DESIGN OUTFLOW	39.16	CFS
100YR STORM DESIGN OUTFLOW	83.42	CFS
100YR FLOOD SURFACE ELEVATION	1188.69	FEET
ESTIMATE SEDIMENT STORAGE	50	YEARS
TOTAL EASEMENT AREA	10.56	ACRES

PROJECT NO.	210779.09
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FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
SURVEY FILE NO.	SV- 210779.09 TOPO.DWG
PLAN IN HAND	MLB
INITIALS	05/11/2023
CHECKED BY	CDR
INITIALS	
APPROVED BY	JGP
INITIALS	2/27/2025
REVISIONS	



J:\Projects\210779.09 - IDALS Calhoun County 7th Zone and Pumped Wetland Restoration Wetlands-CAL883220A.dwg  
Drawing Sheet 210779.09-Hinton.dwg 05/11/2023 2:52 PM



**NOTE:**  
LIMITS OF CONSTRUCTION ARE APPROXIMATE.  
CONTRACTORS SHALL MAKE EVERY EFFORT TO  
MINIMIZE OVERALL DISTURBANCE AREA. CONTRACTOR  
SHALL NOTIFY THE ENGINEER AND OWNER OF ANY  
WORK OUTSIDE OF THE ANTICIPATED LIMITS OF  
CONSTRUCTION, PRIOR TO PERFORMING THE WORK.

ALL SITE PLAN INFORMATION  
IS BASED UPON  
**US SURVEY FEET (sFT)**

**LEGEND**

SYMBOL	DESCRIPTION
● ○ ◎	PROJECT CONTROL POINTS

EASEMENT			
POINT #	NORTHING	EASTING	DESCRIPTION
ESMT-10000	8561634.84	14562777.95	SET CORNER
ESMT-10001	8561634.87	14562814.21	SET CORNER
ESMT-10002	8561304.56	14563314.79	SET CORNER
ESMT-10003	8561193.46	14563437.77	SET CORNER
ESMT-10004	8560696.60	14563440.84	SET CORNER
ESMT-10005	8560704.28	14562847.59	SET CORNER
ESMT-10006	8561589.96	14562845.96	SET CORNER
ESMT-11000	8561524.77	14562981.07	SET TPOST
ESMT-11001	8561414.66	14563147.93	SET TPOST
ESMT-11002	8560945.03	14563439.30	SET TPOST
ESMT-11003	8560699.16	14563243.10	SET TPOST
ESMT-11004	8560701.72	14563045.34	SET TPOST
ESMT-11005	8560925.70	14562847.18	SET TPOST
ESMT-11006	8561147.12	14562846.77	SET TPOST
ESMT-11007	8561368.54	14562846.36	SET TPOST

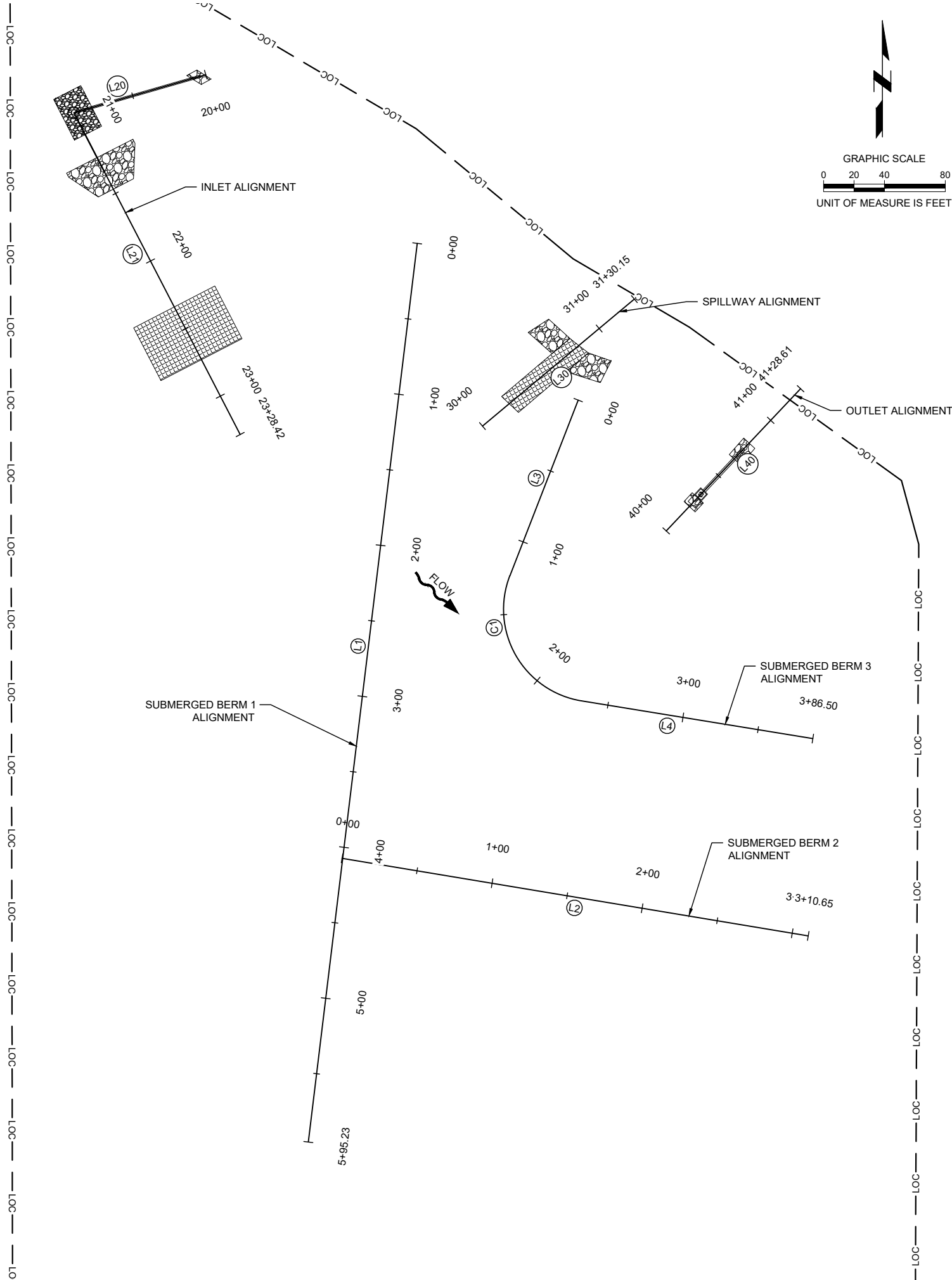
BENCHMARKS - NAVD 88				
POINT NAME	NORTHING	EASTING	ELEVATION	DESCRIPTION
BM-201	8561638	14562900	1196.80	CUT "X" ON WING WALL

HORIZONTAL SURVEY CONTROL - 1A RCS ZONE 4			
POINT NAME	NORTHING	EASTING	DESCRIPTION
CP-100	8561682.89	14562774.29	5/8" REBAR
CP-101	8561654.37	14563735.52	5/8" REBAR

NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A

SURVEY CONTROL

PROJECT NO. 210779.09  
DATE 7/15/2025  
DRAWN BY JAA  
FILE NAME S-210779.09-Hinton.dwg  
FIELD BOOK BK MISC 30  
FIELD CREW DHM  
SURVEY FILE NO. SV- 210779.09 TOPO.DWG  
PLAN IN HAND INITIALS DATE 05/11/2023  
CHECKED BY INITIALS CDR  
APPROVED BY INITIALS JGP 2/27/2025  
REVISIONS



INLET ALIGNMENT				
NUMBER	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E
L20	90.25	S73°54'06"W	20+00.00, 8561538.85, 14562974.53	20+90.25, 8561513.82, 14562887.81
L21	238.17	S27°19'32"E	20+90.25, 8561513.82, 14562887.81	23+28.42, 8561302.23, 14562997.14

SUBMERGED BERM 1 ALIGNMENT				
NUMBER	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E
L1	595.23	S06°54'27"W	0+00.00, 8561427.91, 14563113.51	5+95.23, 8560837.00, 14563041.92

SUBMERGED BERM 2 ALIGNMENT				
NUMBER	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E
L2	310.65	S80°32'24"E	0+00.00, 8561023.59, 14563064.07	3+10.65, 8560972.53, 14563370.50

SPILLWAY ALIGNMENT				
NUMBER	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E
L30	130.15	N50°06'02"E	30+00.00, 8561307.79, 14563156.38	31+30.15, 8561391.27, 14563256.23

OUTLET ALIGNMENT				
NUMBER	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E
L40	128.61	N43°22'37"E	40+00.00, 8561238.86, 14563277.17	41+28.61, 8561332.34, 14563365.50

SUBMERGED BERM 3 ALIGNMENT							
NUMBER	R	DELTA	LENGTH	LINE/CHORD DIR	START STATION, N, E	END STATION N, E	PI N, E
L3			123.86	S21°13'23"W	0+00.00, 8561324.85, 14563219.28	1+23.86, 8561209.39, 14563174.44	
C1	61.02	101°58'08"	108.60	S29°45'41"E	1+23.86, 8561209.39, 14563174.44	2+32.47, 8561127.07, 14563221.52	8561139.18, 14563147.18
L4			154.03	S80°44'45"E	2+32.47, 8561127.07, 14563221.52	3+86.50, 8561102.30, 14563373.54	

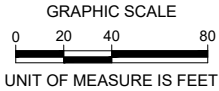
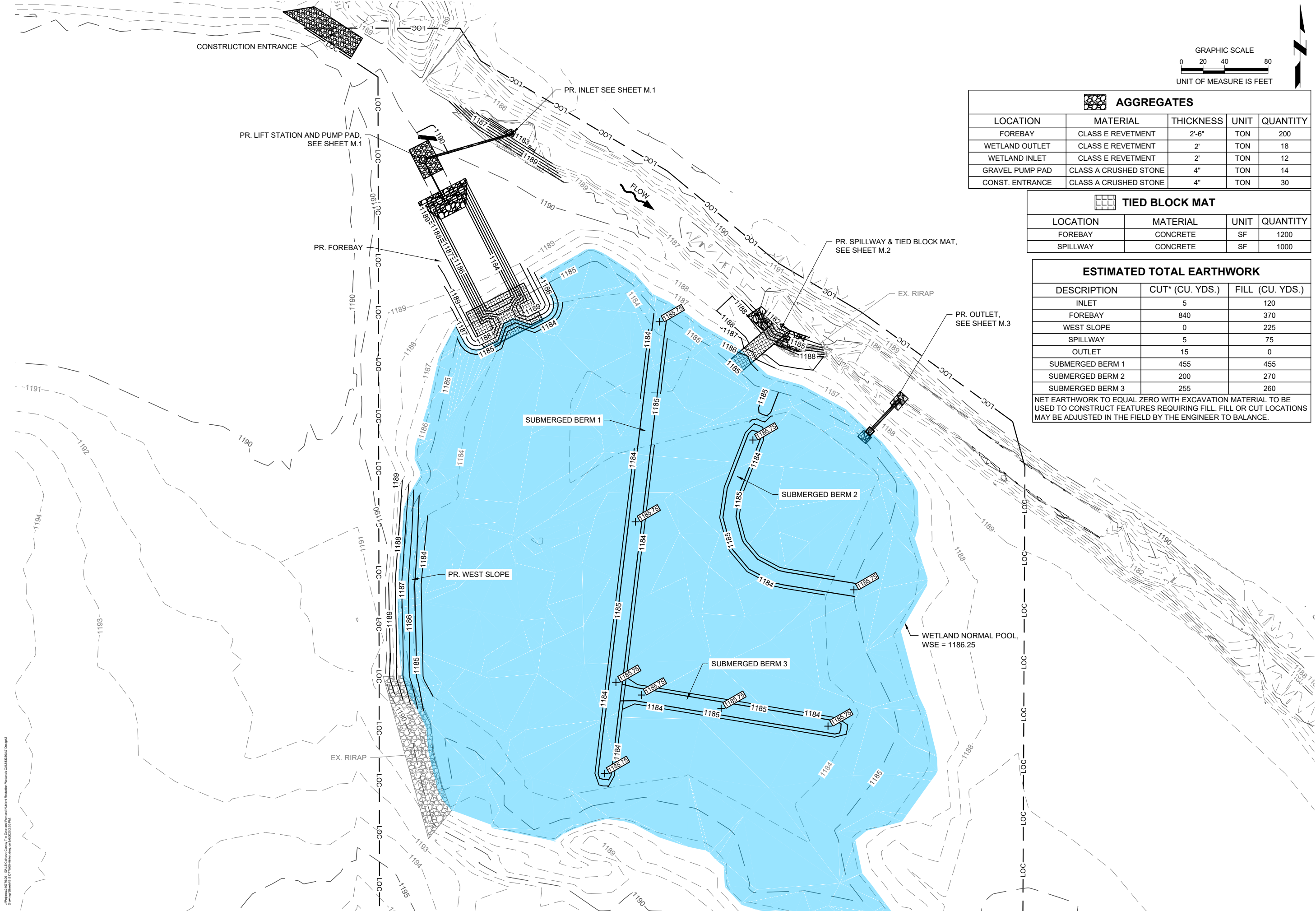
**NOTE:**  
SEE SHEET CG.1 FOR LIMITS OF  
CONSTRUCTION (LOC) CONTROL  
POINT COORDINATES.

ALL SITE PLAN INFORMATION  
IS BASED UPON  
**US SURVEY FEET (sFT)**

LEGEND	
SYMBOL	DESCRIPTION
	BASLINE ALIGNMENT (DESIGN)
	BASLINE ALIGNMENT CURVE TAG LABEL
	BASLINE ALIGNMENT LINE TAG LABEL
	BASLINE ALIGNMENT PI POINT
	PROJECT CONTROL POINTS



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Drawing Sheet 210779.09-Hinton.dwg 05/11/2023 2:53 PM



AGGREGATES				
LOCATION	MATERIAL	THICKNESS	UNIT	QUANTITY
FOREBAY	CLASS E REVETMENT	2'-6"	TON	200
WETLAND OUTLET	CLASS E REVETMENT	2'	TON	18
WETLAND INLET	CLASS E REVETMENT	2'	TON	12
GRAVEL PUMP PAD	CLASS A CRUSHED STONE	4"	TON	14
CONST. ENTRANCE	CLASS A CRUSHED STONE	4"	TON	30

TIED BLOCK MAT			
LOCATION	MATERIAL	UNIT	QUANTITY
FOREBAY	CONCRETE	SF	1200
SPILLWAY	CONCRETE	SF	1000

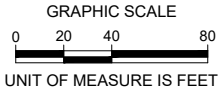
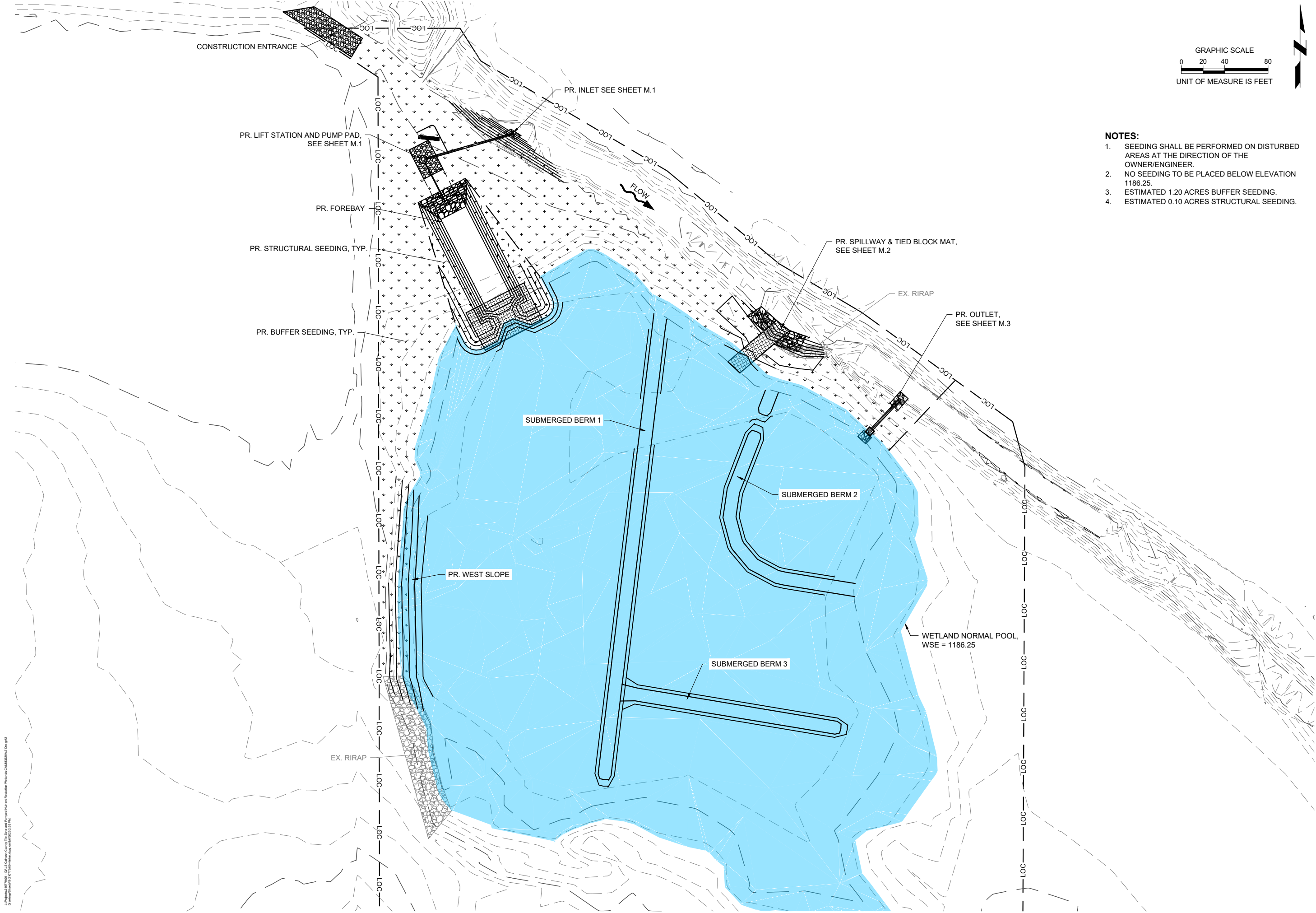
ESTIMATED TOTAL EARTHWORK		
DESCRIPTION	CUT* (CU. YDS.)	FILL (CU. YDS.)
INLET	5	120
FOREBAY	840	370
WEST SLOPE	0	225
SPILLWAY	5	75
OUTLET	15	0
SUBMERGED BERM 1	455	455
SUBMERGED BERM 2	200	270
SUBMERGED BERM 3	255	260
NET EARTHWORK TO EQUAL ZERO WITH EXCAVATION MATERIAL TO BE USED TO CONSTRUCT FEATURES REQUIRING FILL. FILL OR CUT LOCATIONS MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER TO BALANCE.		

NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A

PROPOSED SITE & GRADING PLAN

PROJECT NO. 210779.09  
DATE 7/15/2025  
DRAWN BY JAA  
FILE NAME S-210779.09-Hinton.dwg  
FIELD BOOK BK MISC 30  
FIELD CREW DHM  
SURVEY FILE NO. SV- 210779.09 TOPO.DWG  
PLAN IN HAND  
DATE 05/11/2023  
CHECKED BY JGP  
INITIALS CDR  
APPROVED BY JGP  
INITIALS  
REVISIONS 2/27/2025

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Drawing Sheet 210779.09-110 Zone.dwg 05/11/2023 2:53 PM



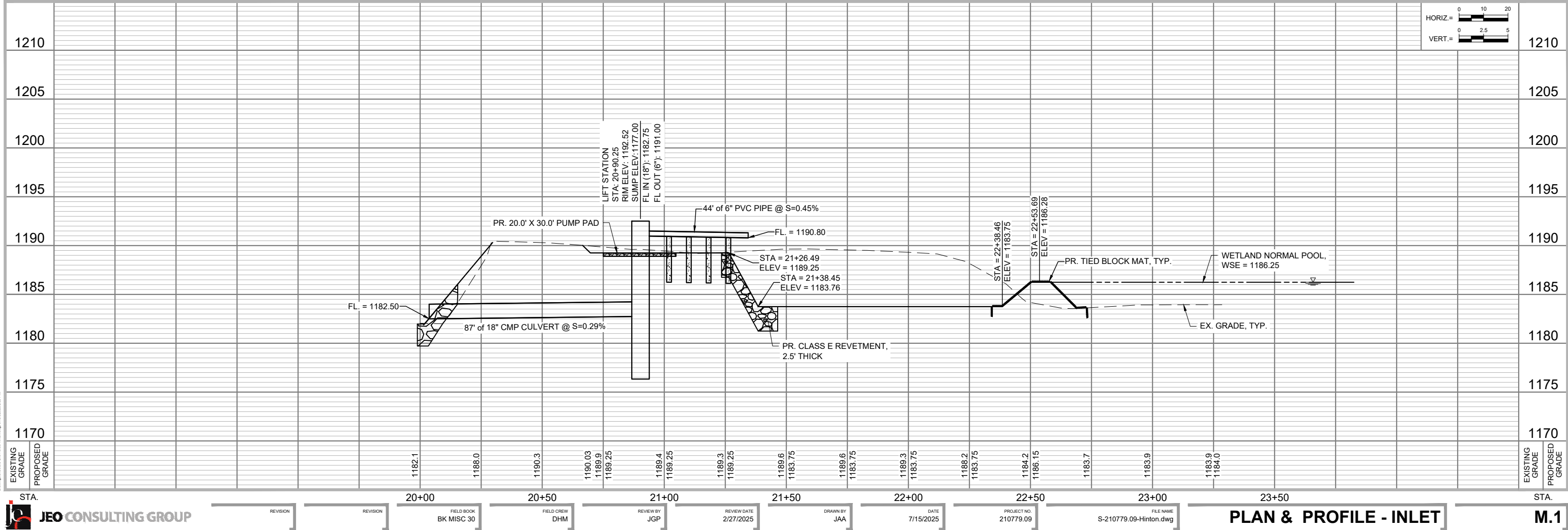
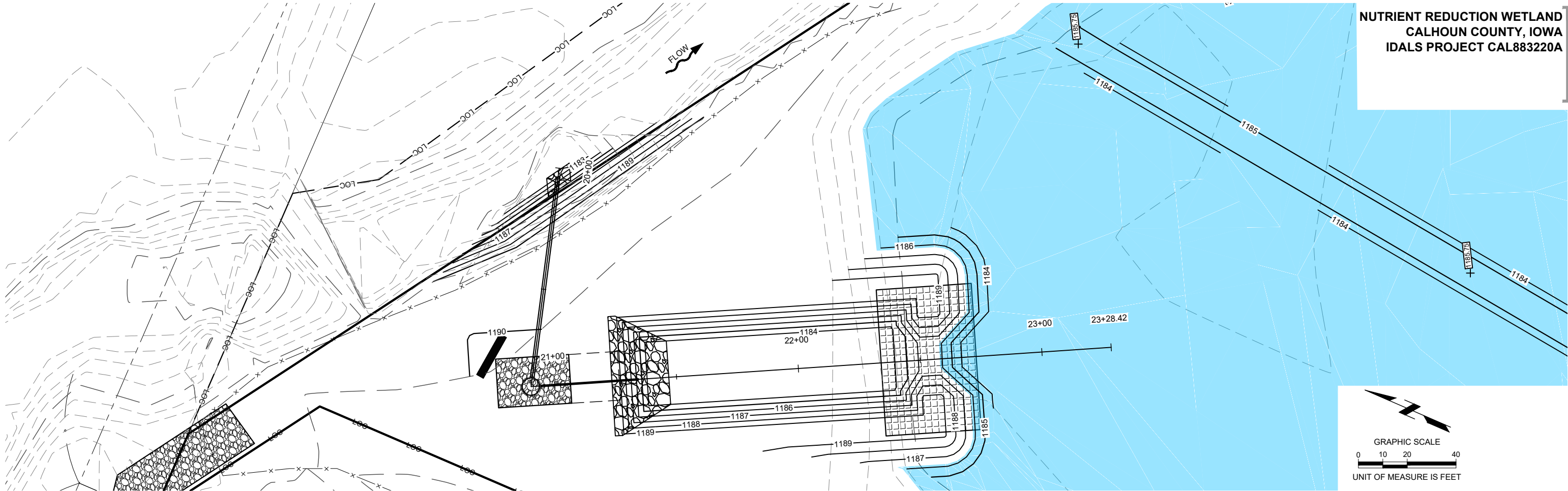
- NOTES:**
1. SEEDING SHALL BE PERFORMED ON DISTURBED AREAS AT THE DIRECTION OF THE OWNER/ENGINEER.
  2. NO SEEDING TO BE PLACED BELOW ELEVATION 1186.25.
  3. ESTIMATED 1.20 ACRES BUFFER SEEDING.
  4. ESTIMATED 0.10 ACRES STRUCTURAL SEEDING.

NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL83220A

PROPOSED EROSION CONTROL PLAN

PROJECT NO.	210779.09
DATE	7/15/2025
DRAWN BY	JAA
FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
SURVEY FILE NO.	SV- 210779.09 TOPO.DWG
PLAN IN HAND	MLB
DATE	05/11/2023
CHECKED BY	CDR
APPROVED BY	JGP
REVISIONS	2/27/2025



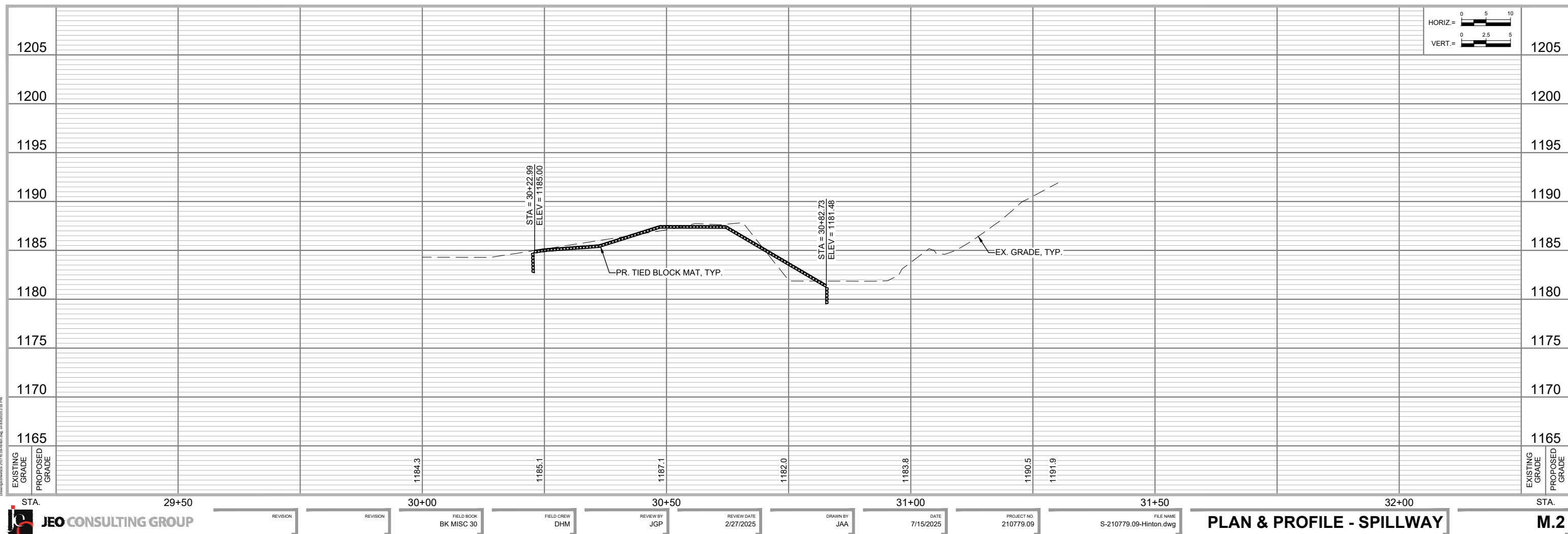
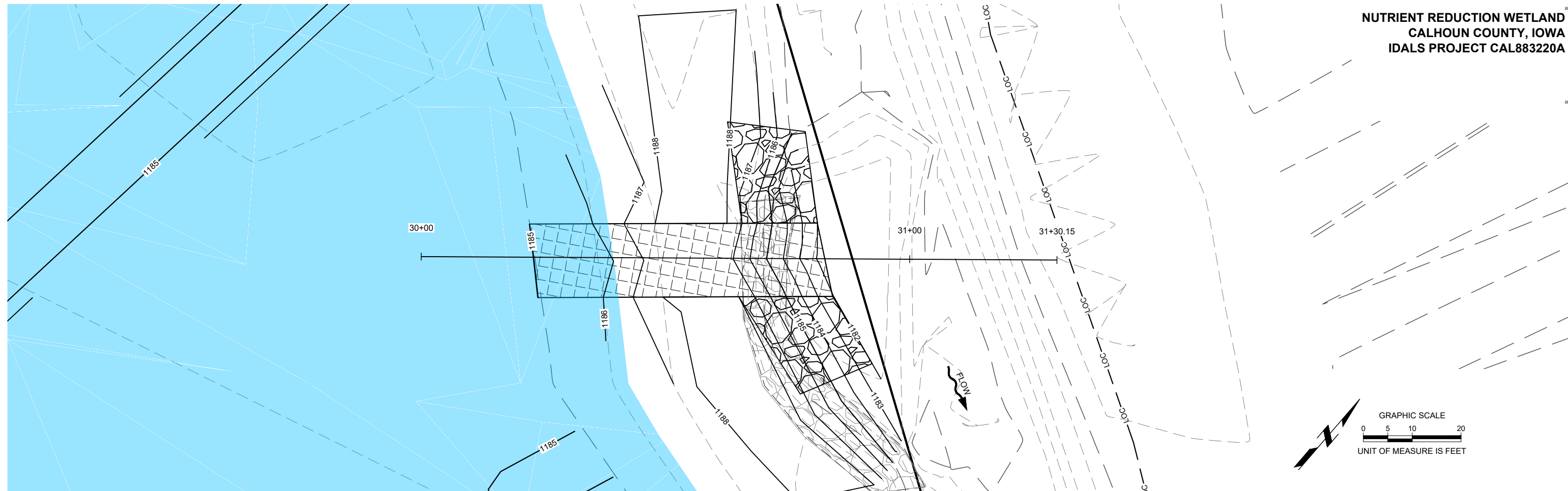


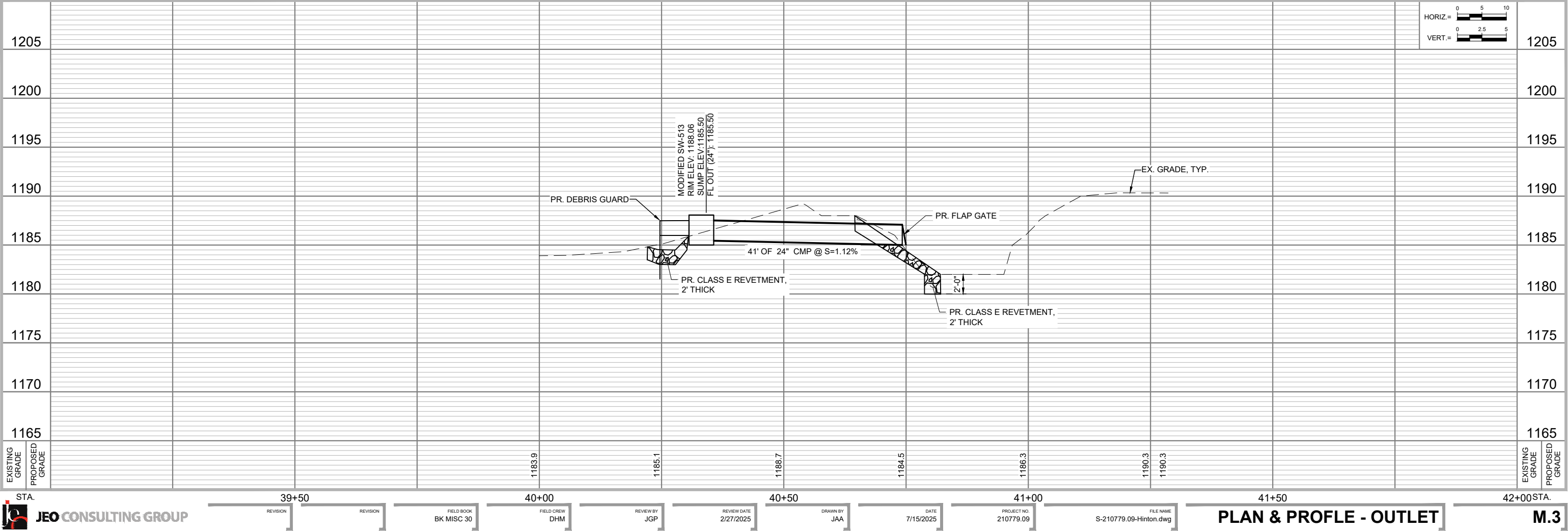
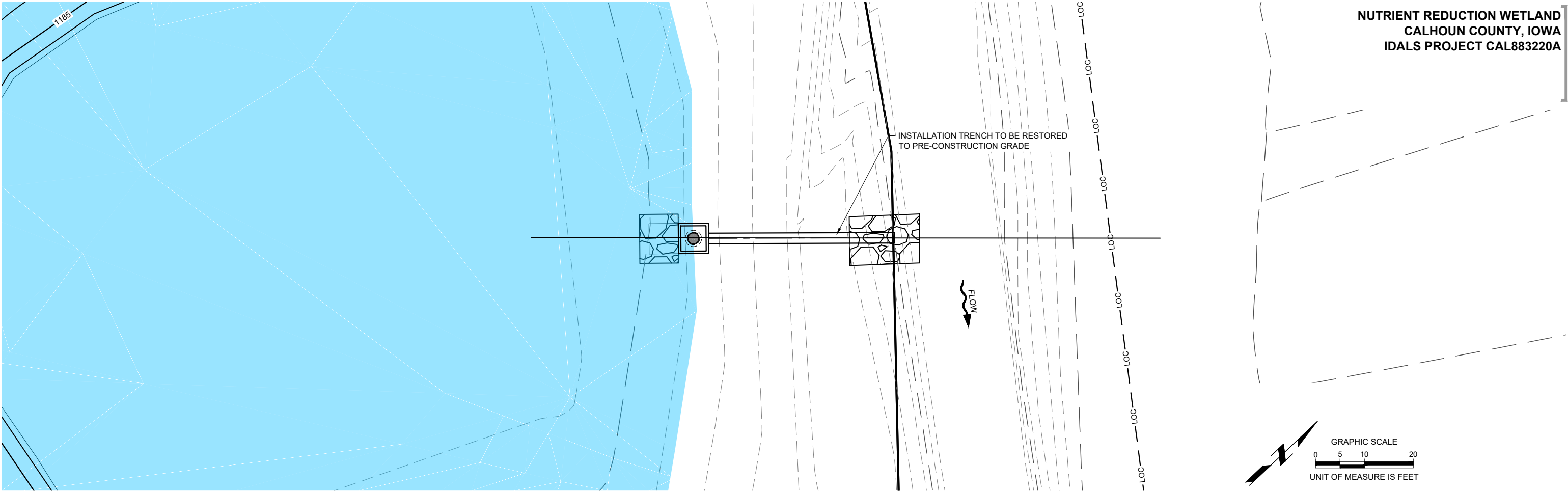


GRAPHIC SCALE

0 5 10 20

UNIT OF MEASURE IS FEET





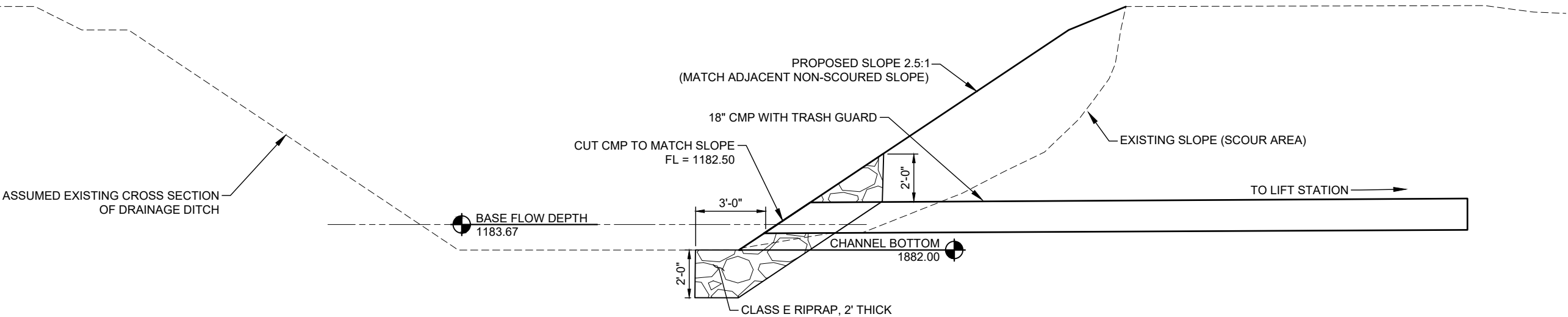




## PUMP LIFT STATION DETAILS

PROJECT NO. 210779.09  
DATE 7/15/2025  
DRAWN BY JAA  
FILE NAME S-210779.09-Hinton.dwg  
FIELD BOOK BK MISC 30  
FIELD CREW DHM  
SURVEY FILE NO. SV-210779.09 TOPO.DWG  
PLAN IN HAND M.L.B.  
INITIALS DATE 05/11/2023  
CHECKED BY INITIALS CDR  
APPROVED BY INITIALS JGP  
REVISIONS 2/27/2025



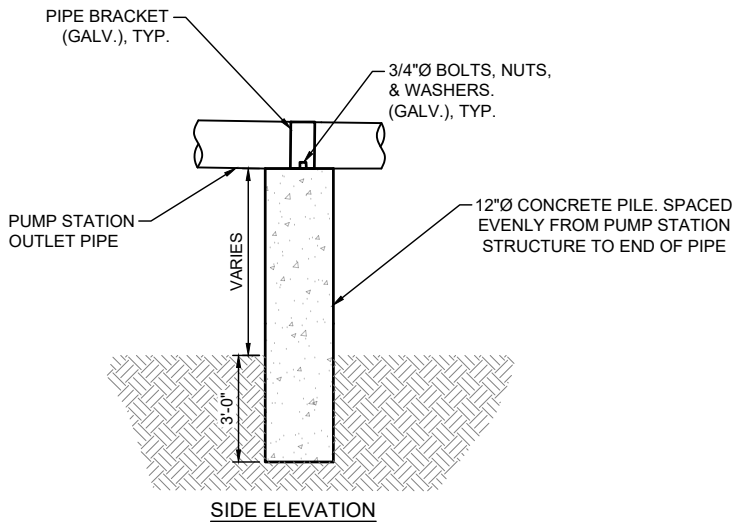


**1 CROSS SECTION AT INLET**  
SCALE: N.T.S.

PROJECT NO.	210779.09
DATE	7/15/2025
DRAWN BY	JAA
FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
SURVEY FILE NO.	SV- 210779.09 TOPO.DWG
PLAN IN HAND	MLB
INITIALS	05/11/2023
CHECKED BY	CDR
INITIALS	
APPROVED BY	JGP
INITIALS	2/27/2025
REVISIONS	

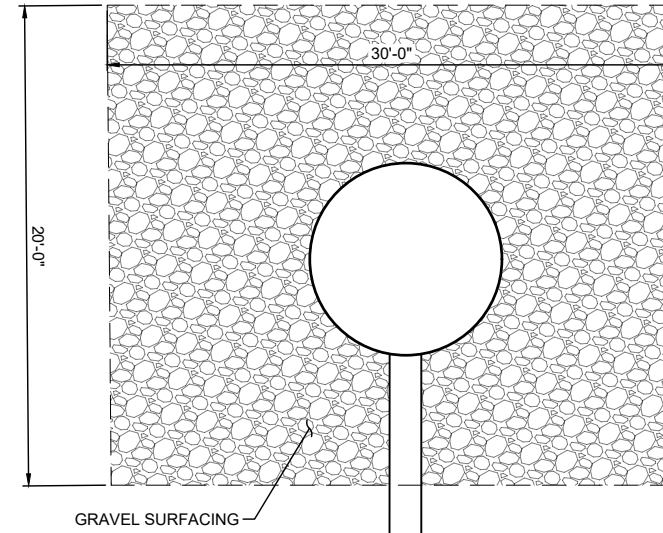


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Drawing Sheet 3 of 7 10/05/2025 2:55PM

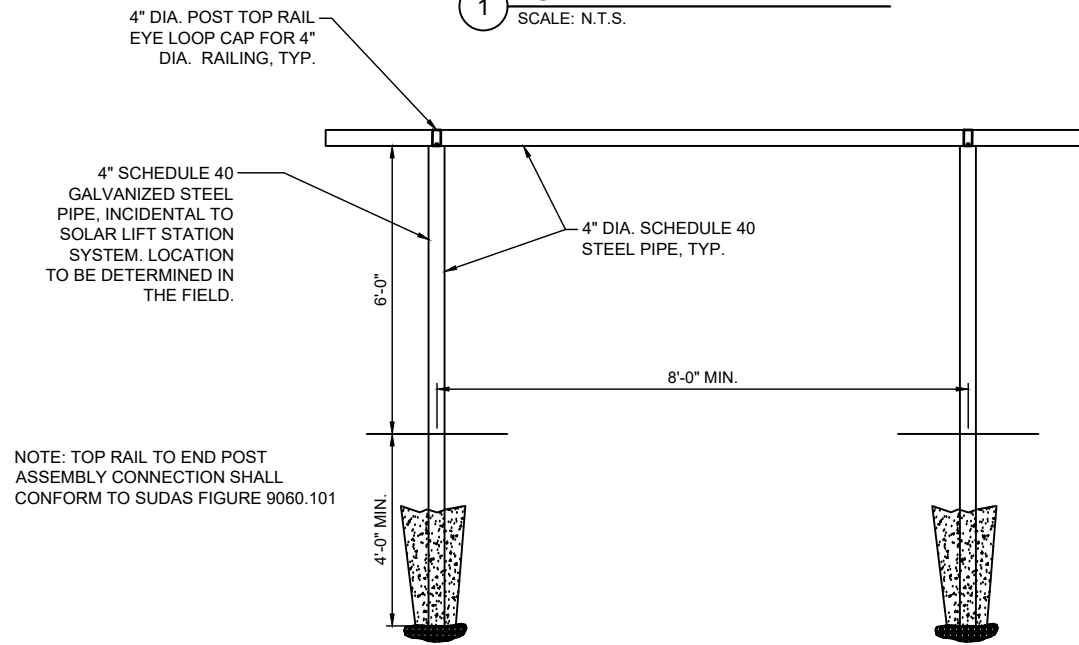


**3 CONCRETE PILE PIPE SUPPORT**  
SCALE: N.T.S.

APPROXIMATE SOLAR PANEL LOCATION,  
FINAL LOCATION TO BE DETERMINED BY  
ENGINEER IN THE FIELD

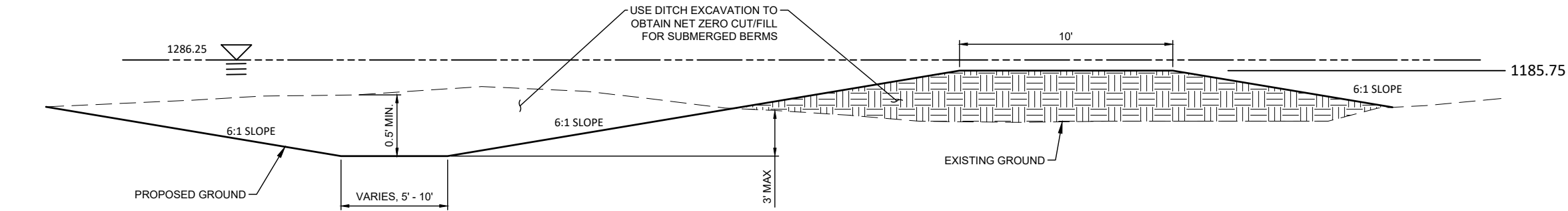


**1 PUMP PAD - PLAN VIEW**  
SCALE: N.T.S.

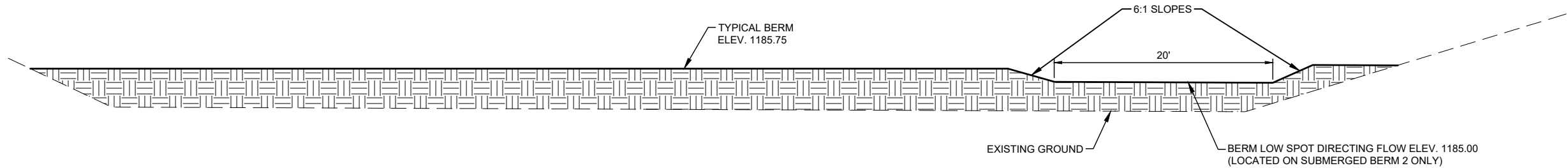


**2 SOLAR MOUNT RAILING**  
SCALE: N.T.S.

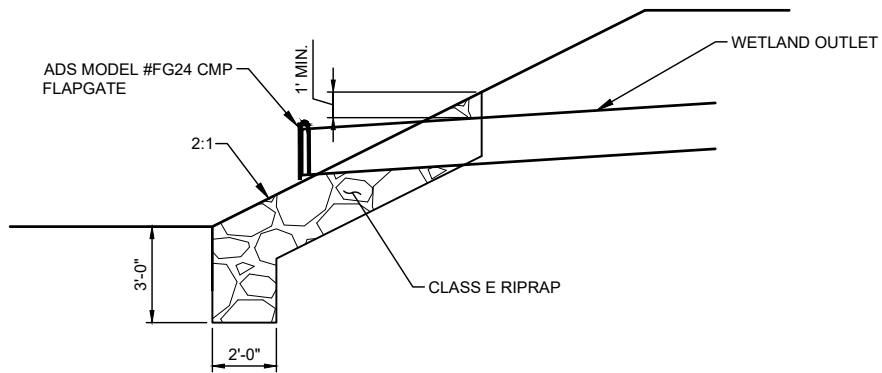
PROJECT NO.	210779.09
DATE	7/15/2025
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FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
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REVISIONS	2/27/2025



**1 SUBMERGED BERM TYPICAL SECTION**  
SCALE: N.T.S.



**2 SUBMERGED BERM TYPICAL PROFILE**  
SCALE: N.T.S.



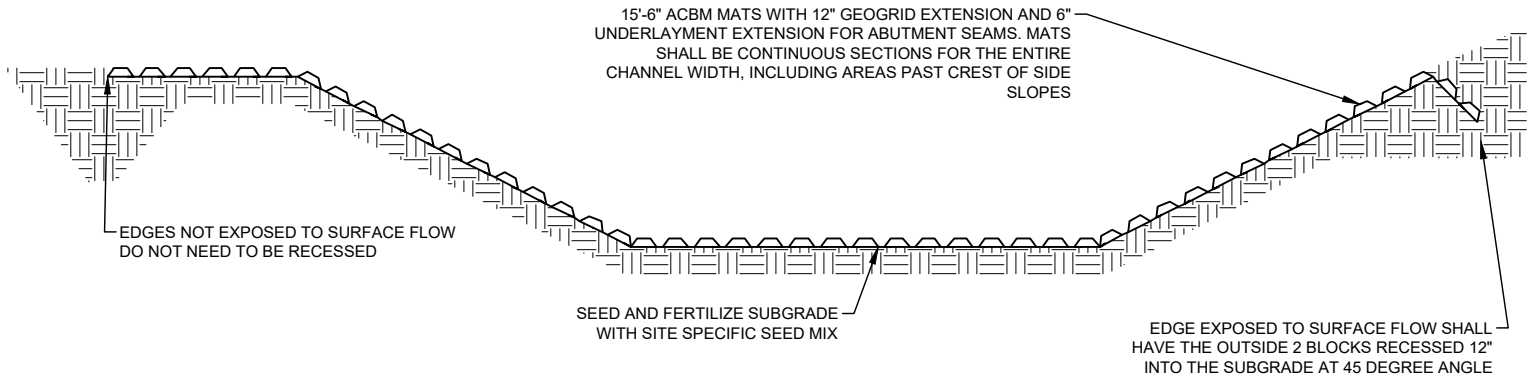
**3 TOE PROTECTION AT WETLAND OUTLET**  
SCALE: N.T.S.

NUTRIENT REDUCTION WETLAND  
CALHOUN COUNTY, IOWA  
IDALS PROJECT CAL883220A

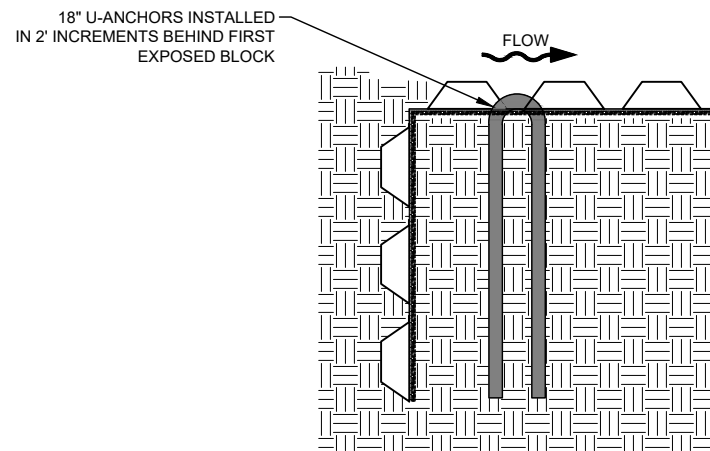
TYPICAL CROSS SECTION DETAILS - BERMS  
AND WETLAND OUTLET PROTECTION

PROJECT NO.	210779.09
DATE	7/15/2025
DRAWN BY	JAA
FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
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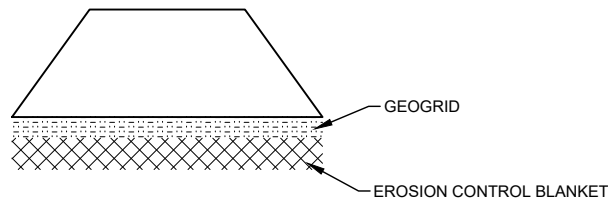




### METHOD FOR TREATING EDGES EXPOSED TO SURFACE SHEET FLOW

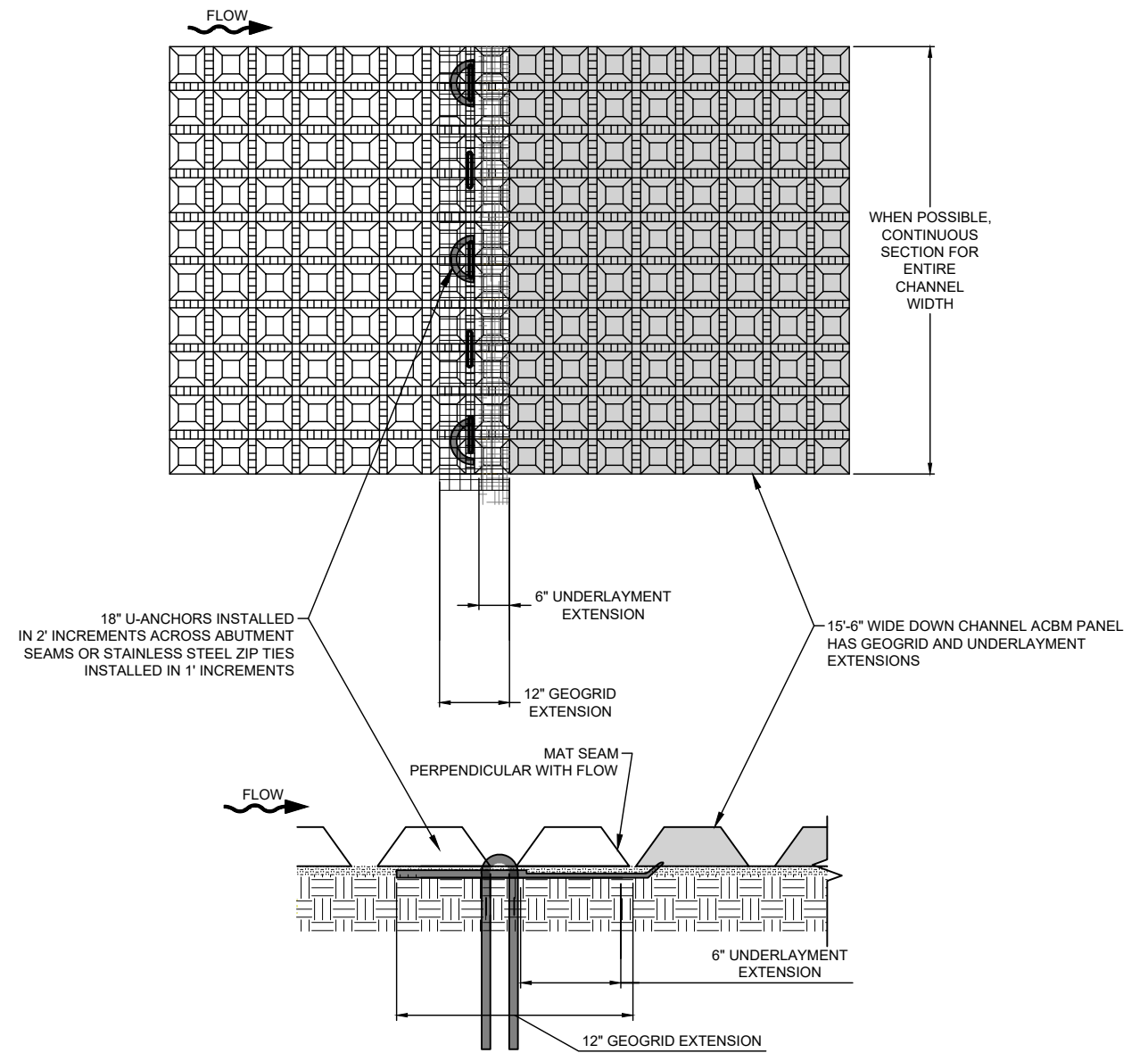


### LEADING AND ENDING ANCHOR TRENCH



### ACBM UNDERLAYMENT

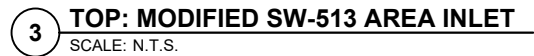
### 1 CONCRETE BLOCK MAT SCALE: N.T.S.



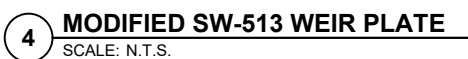
### ABUTMENT METHOD FOR SEAMS PERPENDICULAR WITH FLOW

### CONSTRUCTION NOTES:

1. AN AUTHORIZED MANUFACTURERS REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.
2. GRADE CHANNEL SO THAT WATER WILL FLOW DOWN CENTER OF THE CHANNEL AND BE CONTAINED TO THE CHANNEL. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND.
3. PRIOR TO ACBM INSTALLATION, SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS.
4. INSTALL ACBM ROLLS THAT ARE 15'-6" WIDE WITH A 12" GEOGRID EXTENSION AND 6" STANDARD UNDERLAYMENT EXTENSION.
  - 4.1. INSTALL MATS SO THAT THE MATTING EXTEND PAST THE CREST OF EITHER SIDE SLOPE FOR SLOPES STEEPER THAN 2:1, EMBED EDGE IN A 12" VERTICAL ANCHOR TRENCH. MATS SHALL BE CONTINUOUS SECTIONS ACROSS THE CHANNEL, INCLUDING AREAS PAST CREST OF SIDE SLOPES.
  - 4.2. FOR SLOPES LESS THAN 2:1, OUTSIDE LONGITUDINAL EDGES SHALL BE EMBEDDED IN A 12" 45 DEGREE ANCHOR TRENCH, ONLY IF EXPOSED TO SURFACE FLOW.
  - 4.3. INSTALLATION STARTS AT THE DOWNSTREAM END AND MOVES UPSTREAM, TOWARDS THE UPSTREAM END OR OUTLET STRUCTURE. INSTALL UP CHANNEL MATS OVER THE GEOGRID AND UNDERLAYMENT EXTENSIONS OF DOWNSTREAM MATS. ENSURE EXTENSIONS ARE LAYING FLAT ON SUBGRADE AND UNDER ADJACENT MAT.
5. INSTALL 18" U-ANCHORS IN 2' INCREMENTS BEHIND ANCHOR TRENCH AND ACROSS MAT ABUTMENT SEAMS. INSTALL U ANCHORS PERPENDICULAR TO FLOW DIRECTLY BEHIND FIRST BLOCK OF THE UP-CHANNEL MAT. AN ALTERNATIVE TO THE 18" U-ANCHORS IS TO INSTALL 20" STAINLESS STEEL ZIP TIES IN 1' INCREMENTS ACROSS MAT ABUTMENT SEAM. ZIP TIE SHALL BE INSTALLED PERPENDICULAR TO FLOW AND ENCOMPASS A MINIMUM OF THREE CORDS OF GRID OF EITHER MAT AT ABUTMENT SEAMS.
6. AT THE INITIAL LEADING EDGE OF THE ARMORED CHANNEL, EMBED MAT 18" IN A VERTICAL ANCHOR TRENCH. FILL AND COMPACT ANCHOR TRENCH WITH SUITABLE FILL AT ENDING EDGE OF PROTECTION, EMBED THE MAT 18" IN A TERMINATION TRENCH. THE TRENCH SHALL BE FILLED AND COMPACTED WITH SUITABLE FILL OR OTHER, AS DETERMINED BY THE ENGINEER OF RECORD.



EXPANSION ANCHORS  
EMBEDDED 4" INTO CONCRETE  
STRUCTURE WALL





## SEDIMENT FOREBAY



PROJECT NO.	210779.09
DATE	7/15/2025
DRAWN BY	JAA
FILE NAME	S-210779.09-Hinton.dwg
FIELD BOOK	BK MISC 30
FIELD CREW	DHM
SURVEY FILE NO.	SV- 210779.09 TOPO.DWG
PLAN IN HAND	MLB
INITIALS DATE	05/11/2023
CHECKED BY INITIALS	CDR
APPROVED BY INITIALS	JGP 2/27/2025
REVISIONS	

## 1.7