

PLANS

GOVERNING SPECIFICATIONS

THE SPECIFICATIONS AS PREPARED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP AND BOLTON & MENK, INC. SHALL BE CONSIDERED AS PART OF THIS DOCUMENT. NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS SHALL APPLY.

THE CURRENT EDITION OF THE "IOWA STATEWIDE URBAN STANDARD SPECIFICATIONS FOR PUBLIC IMPROVEMENTS" SHALL GOVERN.

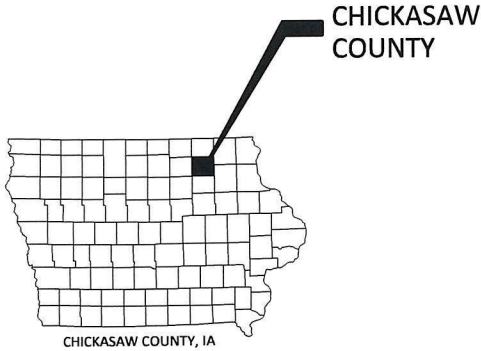
IOWA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION", SERIES 2023 AND ALL CURRENT GENERAL SUPPLEMENTAL SPECIFICATIONS AND MATERIALS INSTRUCTIONAL MEMORANDUM SHALL GOVERN AS REFERENCED.

ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.



THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING IOWA ONE CALL BY PHONE AT 811, OR ON THE WEB AT [HTTP://WWW.IOWAONECALL.COM/](http://www.iowaonecall.com/). TICKET# _____ . TICKET NUMBER MUST BE PROVIDED TO THE NRCS PRIOR TO COMMENCEMENT OF WORK.



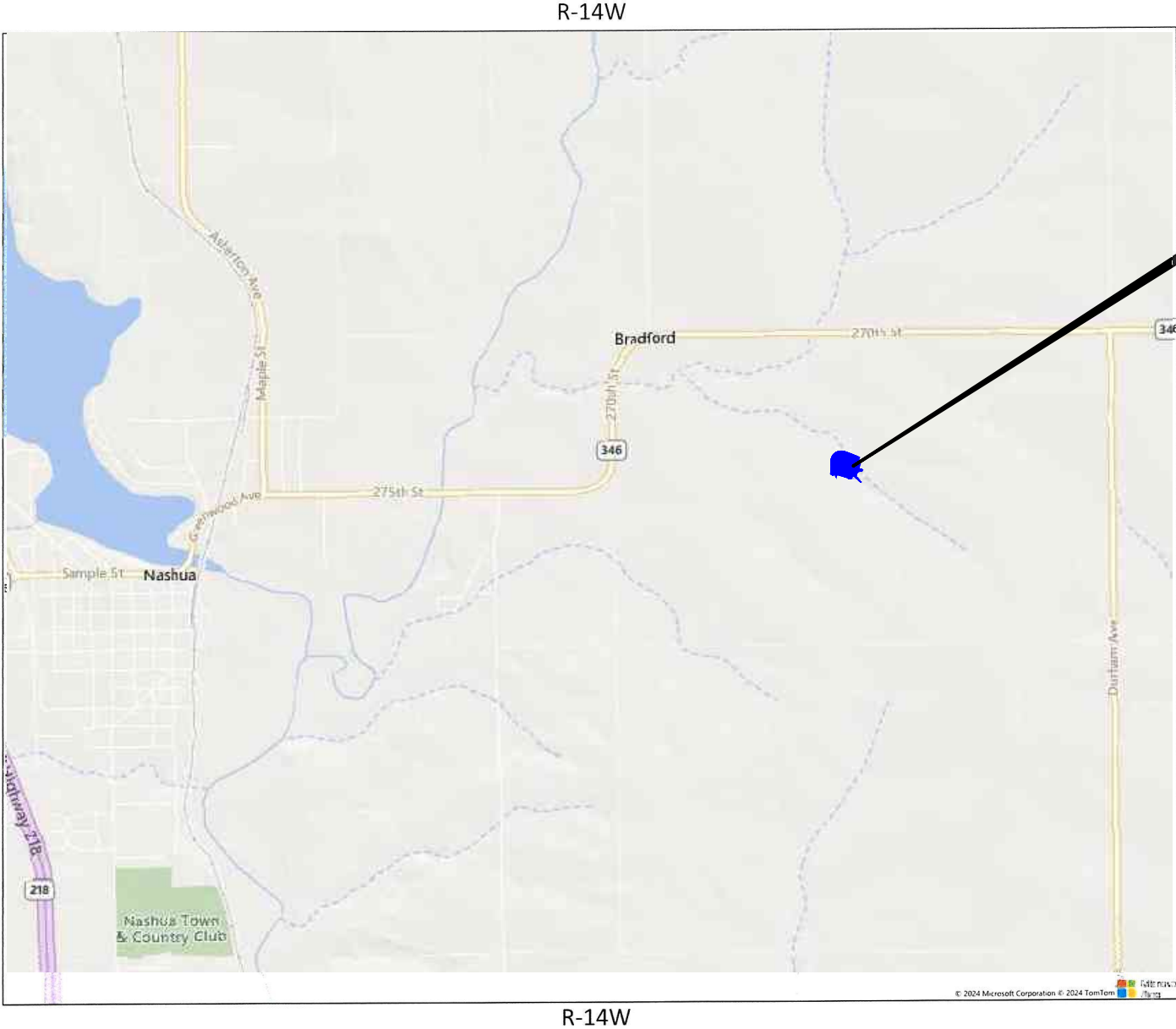
NOTES

- IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP WORK IMMEDIATELY AND NOTIFY THE LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE.
- THERE IS NO GUARANTEE THAT THE WETLAND WILL FILL OR REMAIN FILLED WITH WATER.



IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

CONSTRUCTION PLANS FOR
IDALS NO. CHI941415B
NUTRIENT REDUCTION WETLAND
CHICKASAW COUNTY, IOWA
APRIL 2025



PROJECT LOCATION

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SHEET NUMBER	SHEET TITLE
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C.01	ESTIMATE QUANTITIES
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E.04	PLAN & PROFILE - DIVERSION BERM
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U.03	EXCAVATION & FOREBAY DETAILS
U.04	WATER CONTROL STRUCTURE DETAIL

THESE PLANS PREPARED IN ACCORDANCE WITH NRCS ENGINEERING JOB CLASS III. THE FOLLOWING CONSERVATION PRACTICE STANDARDS WERE USED:

656 - CONSTRUCTED WETLAND
378 - POND

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THESE PLANS MEET APPLICABLE NRCS STANDARDS AND APPLICABLE LAWS AND REGULATIONS.

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.

Jonathan P. Rosengren
JONATHAN P. ROSENGREN, P.E.

LICENSE NUMBER: 21661 DATE: April 22, 2025

MY LICENSE RENEWAL DATE IS 12/31/2026

PAGES OR SHEETS COVERED BY THIS SEAL:

ALL SHEETS

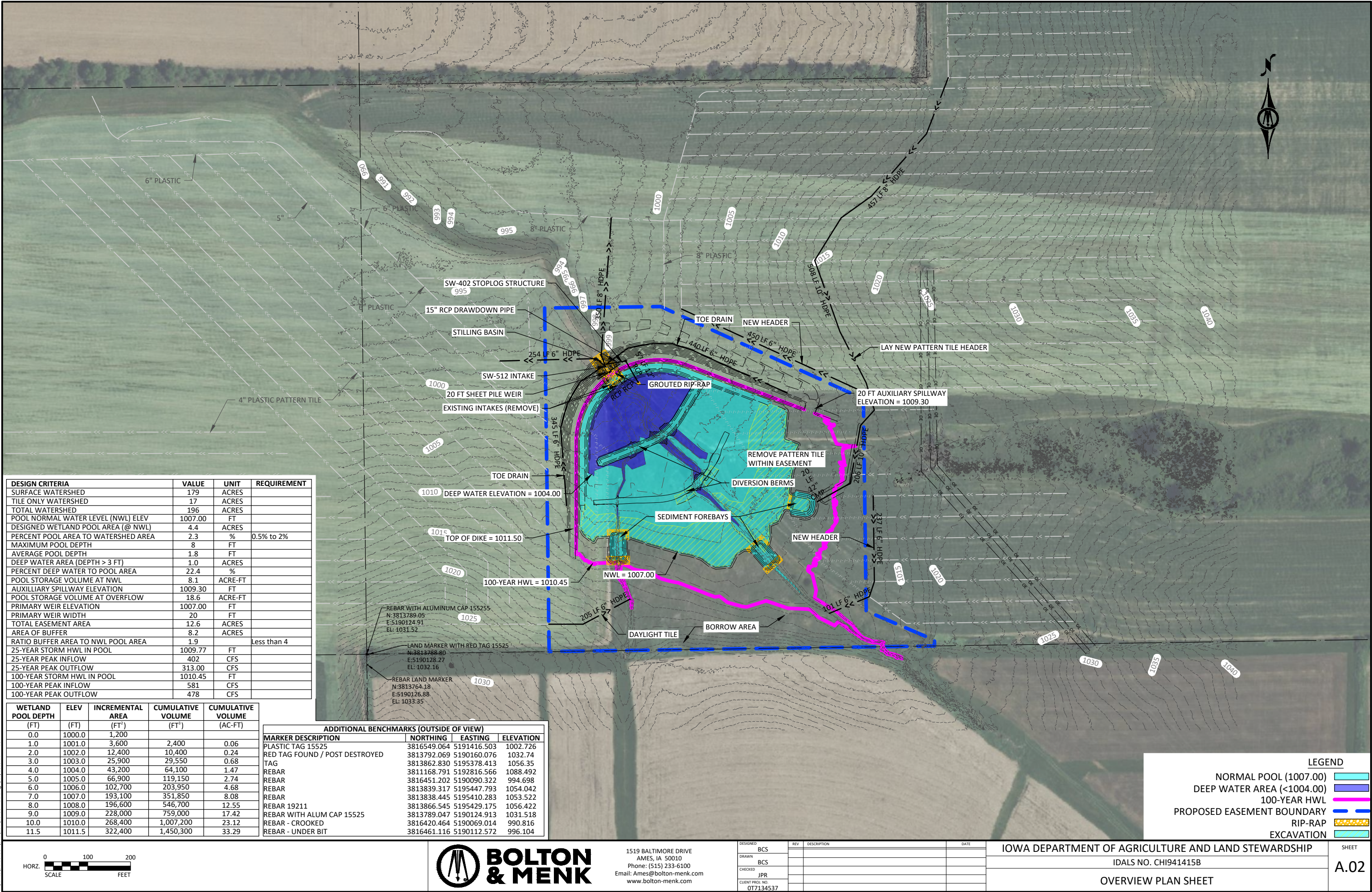
PROJECT DATUM: STATE PLANE
HORIZONTAL: IOWA NORTH
VERTICAL: NAVD 1988



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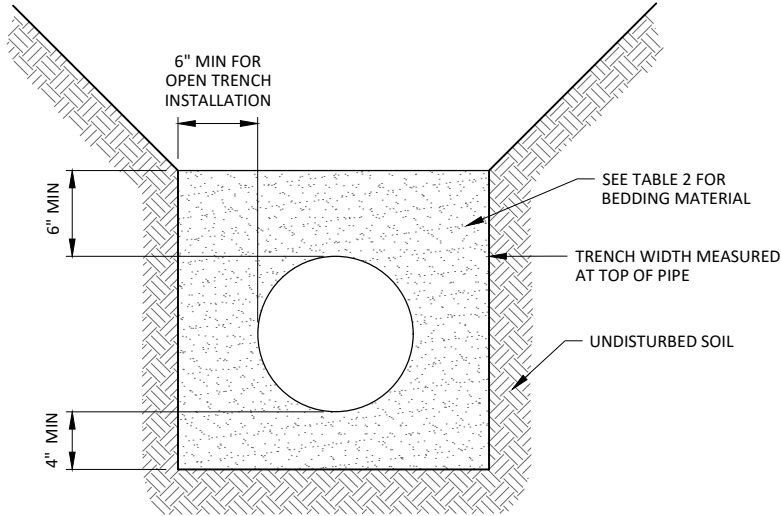
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IDALS NO. CHI941415B		A.01
TITLE SHEET		



CORRUGATED POLYETHYLENE DRAINAGE TUBING
MATERIAL & INSTALLATION NOTES

- ALL CPDT AND CONNECTORS FURNISHED SHALL BE IN COMPLIANCE WITH MATERIAL STANDARDS ASTM F405 AND F667, AS APPLICABLE, AND SHALL BE CLASSIFIED AS HEAVY-DUTY UNDER THOSE STANDARDS.
- EXCEPT MODIFIED HEREIN OR OTHERWISE APPROVED BY ENGINEER, ALL CPDT SHALL BE INSTALLED IN COMPLIANCE WITH THE ASTM 449 STANDARD PRACTICE.
- FOR PIPES 6" DIAMETER AND SMALLER A 90° V GROOVE BOTTOM MAY BE USED, FOR ALL LARGER PIPE A TRAPEZOIDAL BOTTOM OR A CIRCULAR BOTTOM CONFORMING TO THE OUTSIDE DIAMETER OF THE PIPE SHALL BE USED. PRIOR TO THE INSTALLATION OF CPDT, CONTRACTOR MUST PROVE TO ENGINEER THAT THE INSTALLATION REQUIREMENTS, INCLUDING THE SHAPE OF THE TRENCH BOTTOM, WILL BE ACCOMPLISHED.
- WHERE TRENCH BOTTOM IS IN FIRM UNDISTURBED SOIL, SHAPE TRENCH BASE GROOVE. WHERE EXCESS CUT OCCURS, OVEREXCAVATE AND PLACE MINIMUM THREE (3) INCH THICK, GRAVELLY SAND BEDDING TO RESTORE GRADE. THIS BEDDING SHALL MEET THAT REQUIRED FOR TRENCH INSTALLATION TYPE 3 ON PLAN SHEET C.02. IF DUE TO CONTRACTOR ERROR THIS MATERIAL AND WORK IS SUBSIDIARY TO THE INSTALLATION OF THE PIPE. CONTRACTOR MAY SUBSTITUTE PIPE BEDDING ROCK AS THE BEDDING MATERIAL.
- NATIVE SOILS MAY BE USED AS BACKFILL MATERIAL UNLESS UNSTABLE TRENCH CONDITIONS PREVENT THE TRENCH BOTTOM HOLDING THE SHAPED GROOVE. IF TRENCH BOTTOM WILL NOT HOLD GROOVE SHAPE CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY. A FLAT BOTTOM TRENCH INSTALLATION WILL THEN BE ASSUMED. THE REQUIRED BEDDING MATERIAL WILL BE PAID UNDER THE TILE TRENCH STABILIZATION AND CRADLING ROCK BID ITEM.
- MINIMUM TRENCH WIDTH IS PIPE OUTSIDE DIAMETER PLUS FOUR (4) INCHES FOR PLOWED INSTALLATION AND PIPE OUTSIDE DIAMETER PLUS TWELVE (12) INCHES FOR OPEN TRENCH INSTALLATION.
- ALL LATERAL CONNECTIONS, ELBOWS, TEES, ALIGNMENT CURVES, START HOLES AND ALL PORTIONS OF THE TRENCH NOT MEETING THE GROOVED TRENCH INSTALLATION REQUIREMENTS SHALL BE FILLED TO A MINIMUM OF SIX (6) INCH COVER OVER THE PIPE WITH GRADED CRUSHED STONE OR GRAVEL AS SHOWN ON TABLE 2 OF THIS SHEET. UNLESS DUE TO CONTRACTOR ERROR THIS BEDDING MATERIAL WILL BE PAID UNDER THE TILE TRENCH STABILIZATION AND CRADLING ROCK BID ITEM.
- MANUFACTURER'S ENDCAPS SHALL BE INSTALLED AT THE TERMINATION OF EACH LINE UNLESS A CONNECTION TO AN EXISTING DRAIN IS MADE.
- WITH THE INSTALLATION OF THE FIRST REACH OF CPDT ON THE PROJECT, CONTRACTOR IS REQUIRED TO WORK WITH THE ENGINEER TO CHECK AND CONFIRM THAT THE PIPE STRETCH, IF ANY, DOES NOT EXCEED 5%.
- ALIGNMENT TURNS MAYBE MADE USING EITHER A MANUFACTURED FITTING OR CURVING THE LINE WITH A 25' MINIMUM RADIUS.

Table 1 Maximum Allowable Buried Depth to Flowline of CPDT					
Nominal Pipe Diameter (IN)	Pipe Quality (ASTM)	Trench Width at Top of the Pipe (FT)			
		12"	18"	24"	30" or Greater
4	Standard	13	7	5.5	5
	Heavy-duty	Any	10	7	6
6	Standard	10	7	5.5	5
	Heavy-duty	Any	9.5	6.5	6
8	Standard	10	7	5.5	5
	Heavy-duty	Any	10	7	6
10	Heavy-duty	...	9	7	6
12	Heavy-duty	...	9	7	6
15	Heavy-duty	...	...	7	6
Table 2 Acceptable Bedding Material and Compaction Requirements					
Description	Percentage Passing Sieve Sizes			Minimum Standard Density (%)	Maximum Compaction Layer Height (IN.)
	1"	3/4"	No. 4		
Crushed Stone Crushed Gravel*	100%	> 95%	< 5%	Dumped	18
* Class 1 Bedding Material Per SUDAS 3010.202A is an Allowable Substitute					

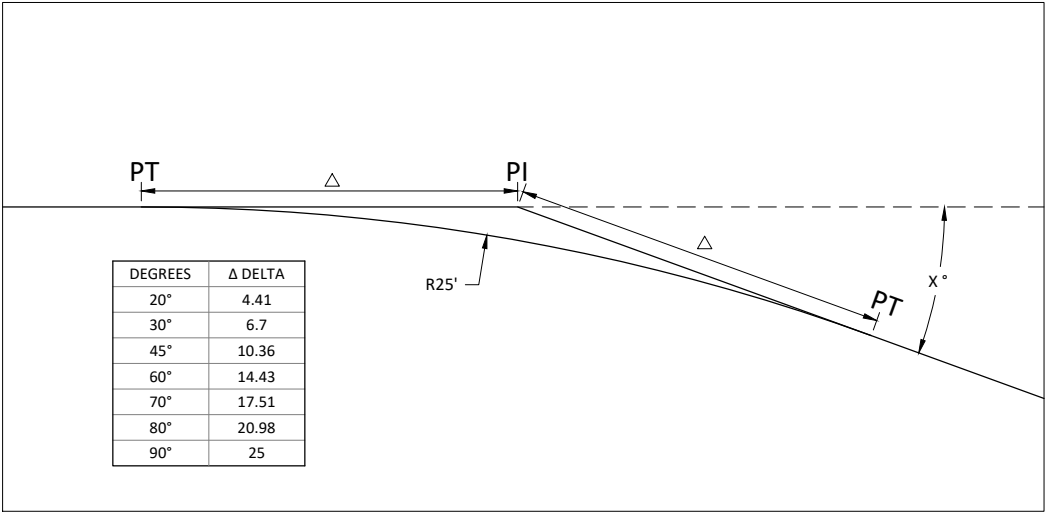


FILL TRENCH TO 6" ABOVE TOP OF PIPE WITH CRUSHED STONE OR GRAVEL MEETING THE REQUIREMENTS IN TABLE 2. BEDDING MATERIAL SHALL BE INCIDENTAL TO THE PIPE INSTALLATION.

FLAT BOTTOM TRENCH INSTALLATION

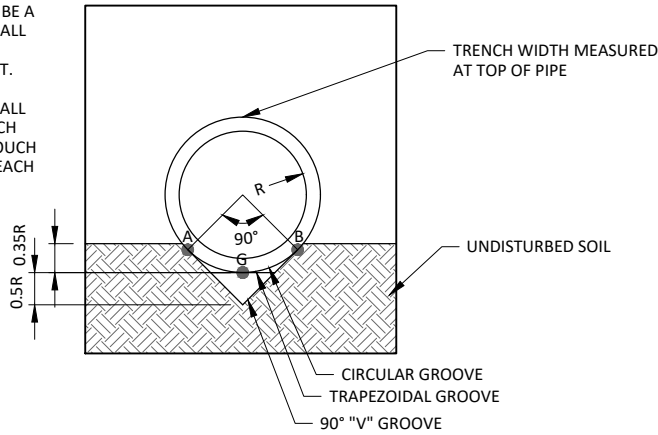
NOT TO SCALE
SOURCE: ASTM F449

NOTE: THIS IS AN ALLOWED ALTERNATIVE INSTALLATION FOR CPDT



THE CIRCULAR GROOVE SHALL BE A MINIMUM 0.35R DEEP AND SHALL MATCH THE OUTSIDE CURVE SHAPE OF THE DEFLECTED CPDT.

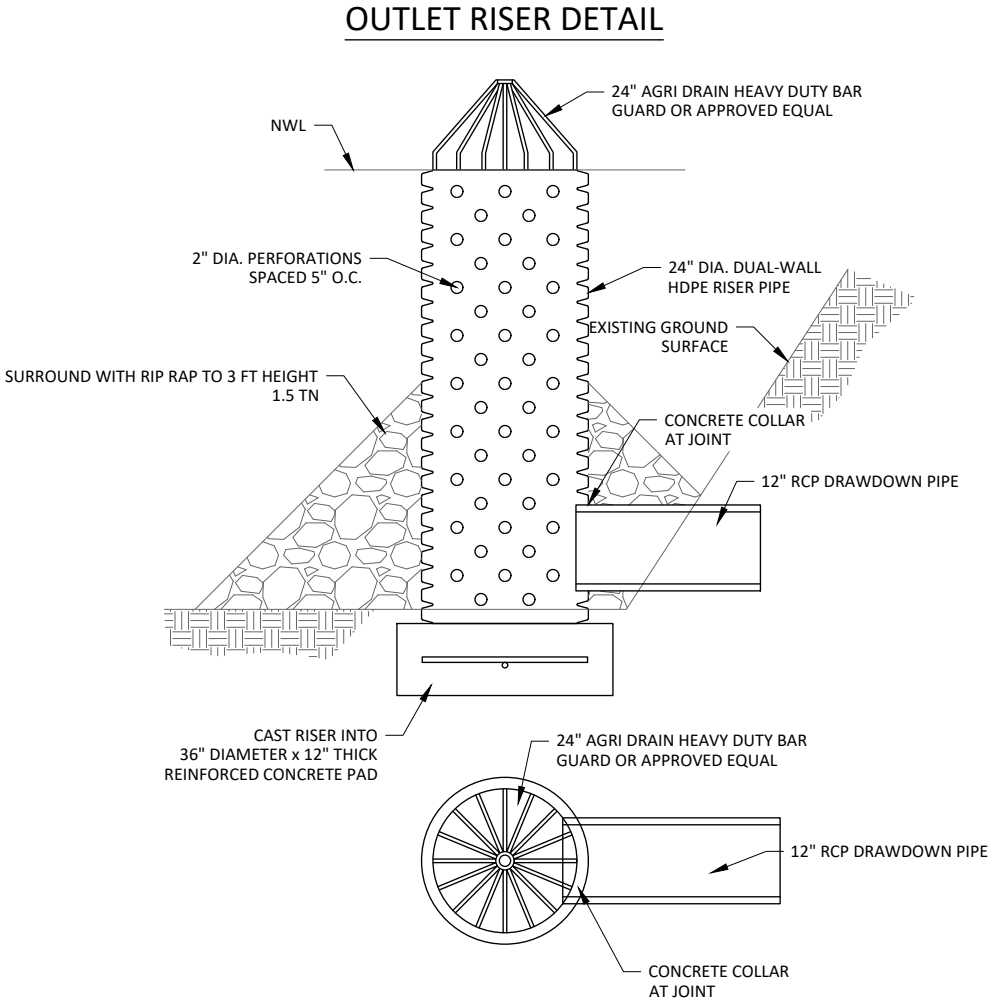
THE TRAPEZOIDAL GROOVE SHALL BE SHAPED AND ADJUSTED SUCH THAT POINTS A, B, & C WILL TOUCH THE UNDEFLECTED CPDT FOR EACH SIZE INSTALLED.



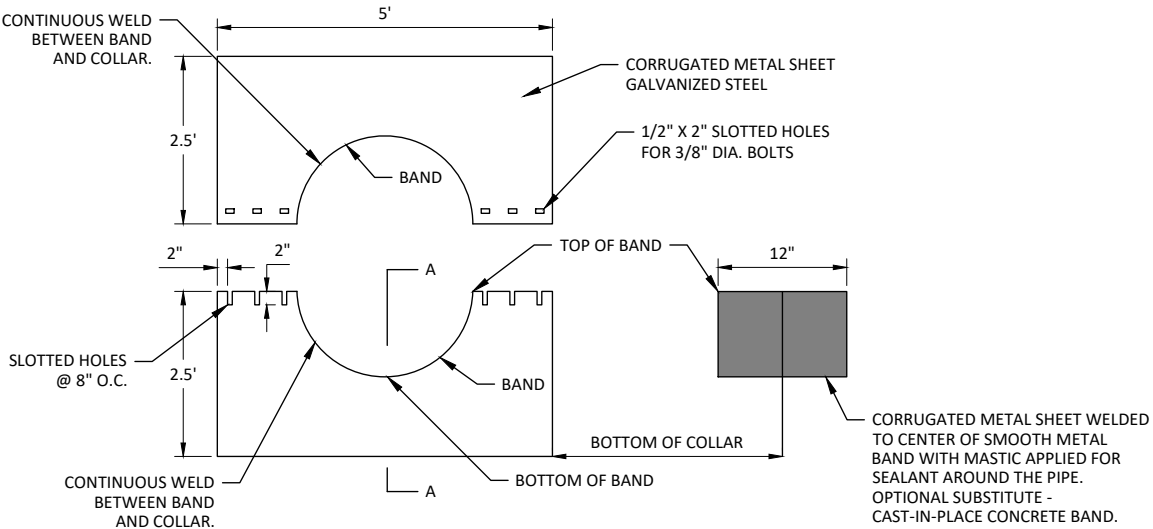
PREFERRED TRENCH INSTALLATION BOTTOM

TRAPEZOIDAL GROOVE, "V" GROOVE, & CIRCULAR GROOVE
NOT TO SCALE
SOURCE: ASTM F449

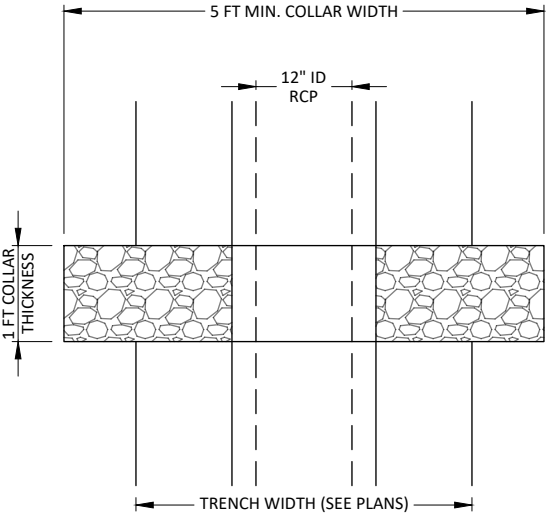
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ANTI-SEEP COLLAR DETAILS



ALTERNATIVE 1: METAL ANTI-SEEP COLLAR
NOT TO SCALE



- NOTES:
1. COMPOSITE BENTONITE AGGREGATE (CBA) SHALL BE AQUABLOK OR APPROVED EQUAL.
 2. COLLAR SHALL EXTEND 1.75 FT BELOW BOTTOM OF PIPE AND 1.75 FT ABOVE TOP OF PIPE
 3. COLLAR SHALL BE A MINIMUM OF 5 FT WIDE AND EXTEND A MINIMUM OF 6" BEYOND EDGE OF TRENCH
 4. NO COMPACTION OF CBA IS REQUIRED.
 5. EXCAVATE AND BACKFILL THE REMAINDER OF THE TRENCH AS NOTED IN THE PLANS.

ALTERNATIVE 2: COMPOSITE BENTONITE AGGREGATE COLLAR
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP

IDALS NO. CHI941415B

OUTLET RISER & ANTI-SEEP COLLAR DETAILS

SHEET

B.02

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Bid Item	Sub-Item	Description	Specs	Plan No.	Estimated Quantities	
			No.		Quantity	Unit
1	-	Site Stripping & Preparation	IA CS-001	A.02	1	LS
2	-	Crop Damage	IA CS-001		0	AC
3	-	Structure & Channel Seeding	IA CS-006	K.01	1.9	AC
4	-	Buffer Seeding	IA CS-006	K.01	3.5	AC
5	-	Mobilization and Demobilization	IA CS-008	A.02	1	LS
6	-	Drain Tile Investigation and Removal	IA CS-009	M.01	48	HR
7	-	Steel Sheet Piling	IA CS-013	U.01	1285	SF
8	-	Excavation (General)	IA CS-021	A.02	2751	CY
9	-	Earthfill (General)	IA CS-023	E.01-E.03	769	CY
10	-	Earthfill (General Dam)	IA CS-023	E.01-E.03	8160	CY
11	-	Earthfill (Dam Core)	IA CS-023	E.01-E.03	3591	CY
12	-	Drainfill, Fine	IA CS-024	E.01-E.02	70	CY
13	-	Topsoil Strip, Salvage, Respread	IA CS-026	A.02	2615	CY
14	-	HDPE Pipe (Perforated):				
	A.	6" Diameter	IA CS-046	E.01-E.02, M.01	1472	LF
	B.	8" Diameter	IA CS-046	M.02	457	LF
	C.	10" Diameter	IA CS-046	M.02	508	LF
15	-	HDPE Pipe (Non-Perforated):				
	A.	6" Diameter	IA CS-046	M.01	306	LF
	C.	10" Diameter	IA CS-046	M.02	206	LF
16	-	Dual-Wall HDPE Pipe				
	A.	6" Dia	IA CS-046	M.03	254	LF
	B.	8" Dia.	IA CS-046	M.03	350	LF
17	-	Reinforced Concrete Pipe				
		12" Dia.	IA CS-031	M.03	89	LF
18	-	Stoplog Storage Structure	IA CS-046	U.03	1	LS
19	-	Modified SW-402 Water Control Structure	IA CS-031	M.03, U.03	1	EA
20	-	SW-512 Circular Area Intake	IA CS-031	M.03	1	EA
21	-	Flared End Section - 12" Diameter	IA CS-031	M.03	1	EA
22	-	Outlet Riser Structure	IA CS-031	M.03	1	EA
23	-	CMP Tile Outlets				
	A.	8" Diameter	IA CS-051	M.01	2	EA
	B.	12" Diameter	IA CS-051	M.02	1	EA
24	-	Tile Connection - 10" Diameter or Smaller	IA CS-046	M.01, M.02	32	EA
25	-	Riprap	IA CS-061	M.01, U.02	511.6	TN
26	-	Grout	IA CS-062	U.02	79	CY



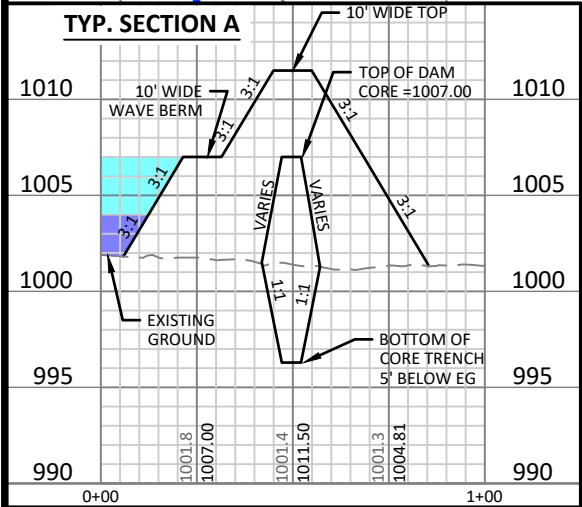
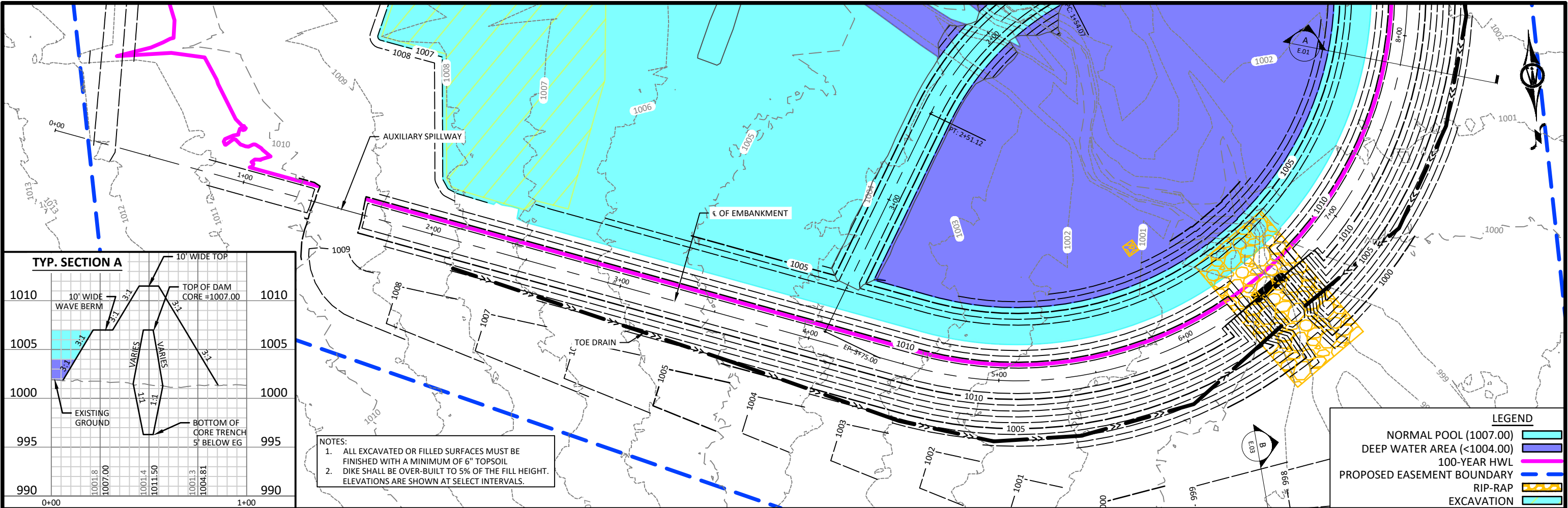
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ESTIMATE QUANTITIES

SHEET

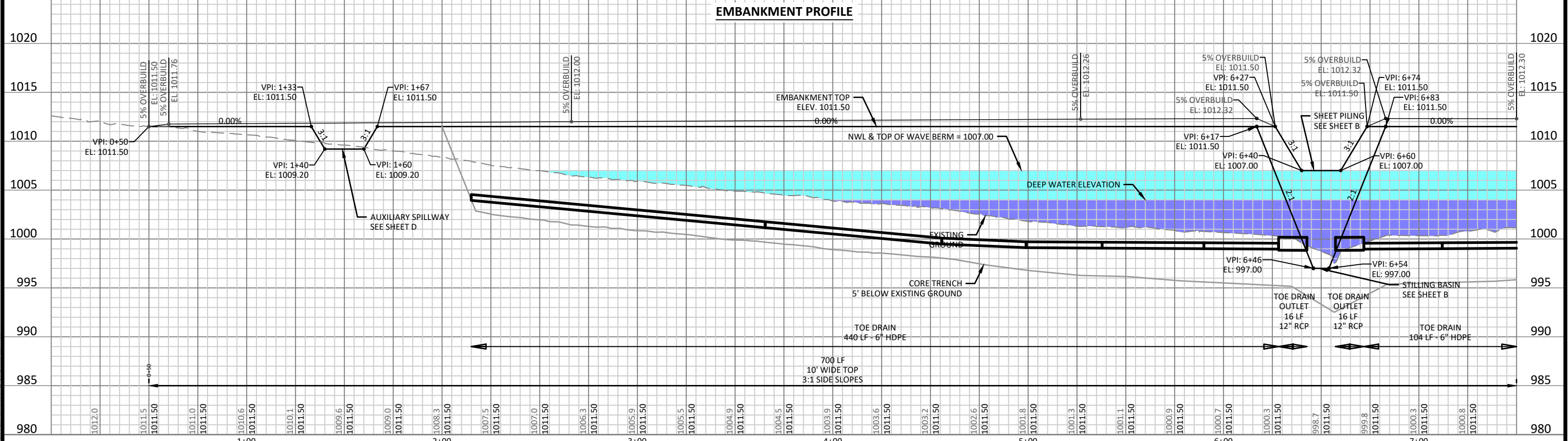
C.01



- NOTES:**
1. ALL EXCAVATED OR FILLED SURFACES MUST BE FINISHED WITH A MINIMUM OF 6" TOPSOIL.
 2. DIKE SHALL BE OVER-BUILT TO 5% OF THE FILL HEIGHT. ELEVATIONS ARE SHOWN AT SELECT INTERVALS.

LEGEND

- NORMAL POOL (1007.00)
- DEEP WATER AREA (<1004.00)
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- RIP-RAP
- EXCAVATION



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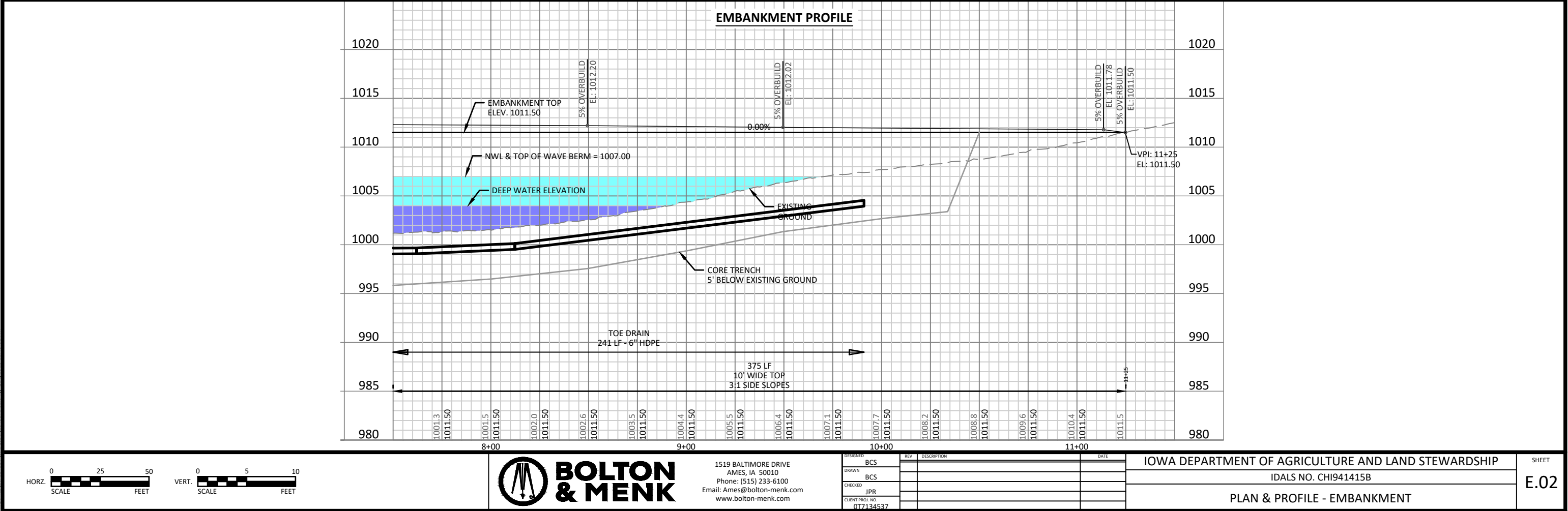
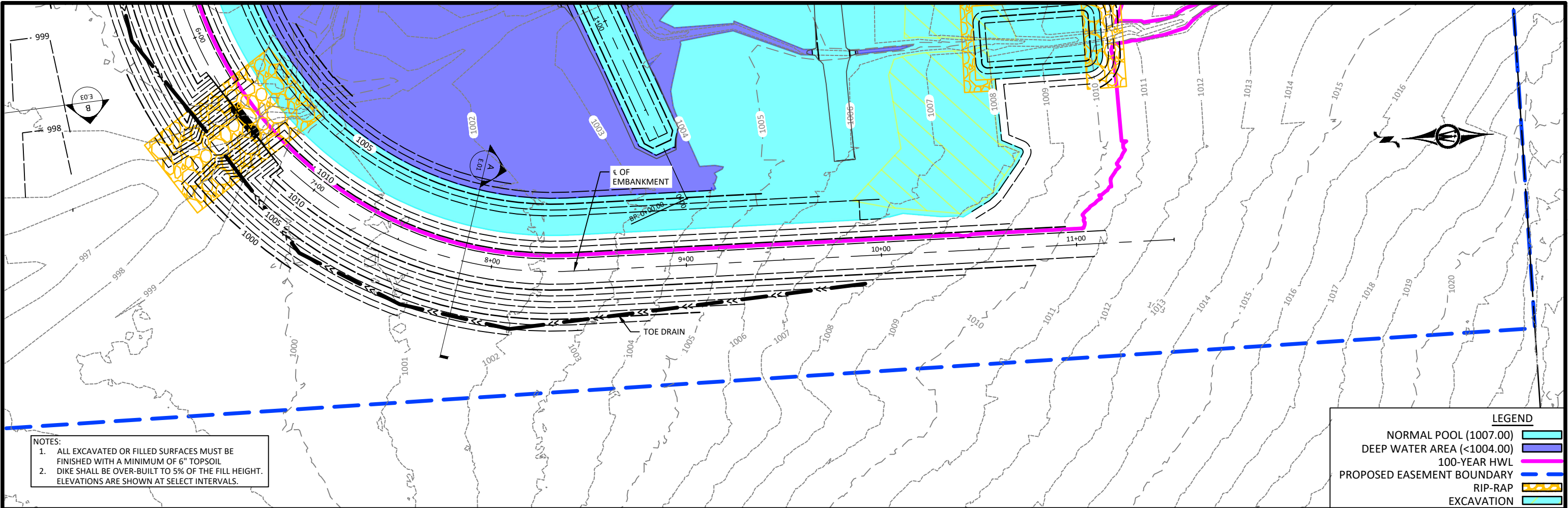
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PLAN & PROFILE - EMBANKMENT

SHEET E.01



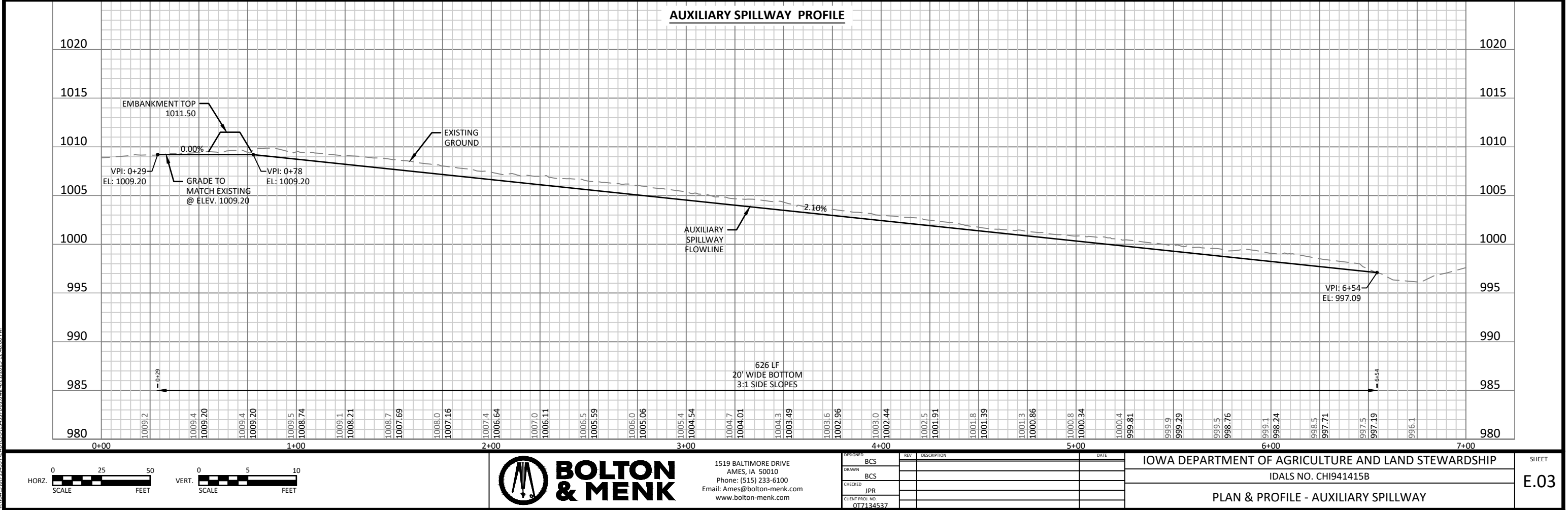
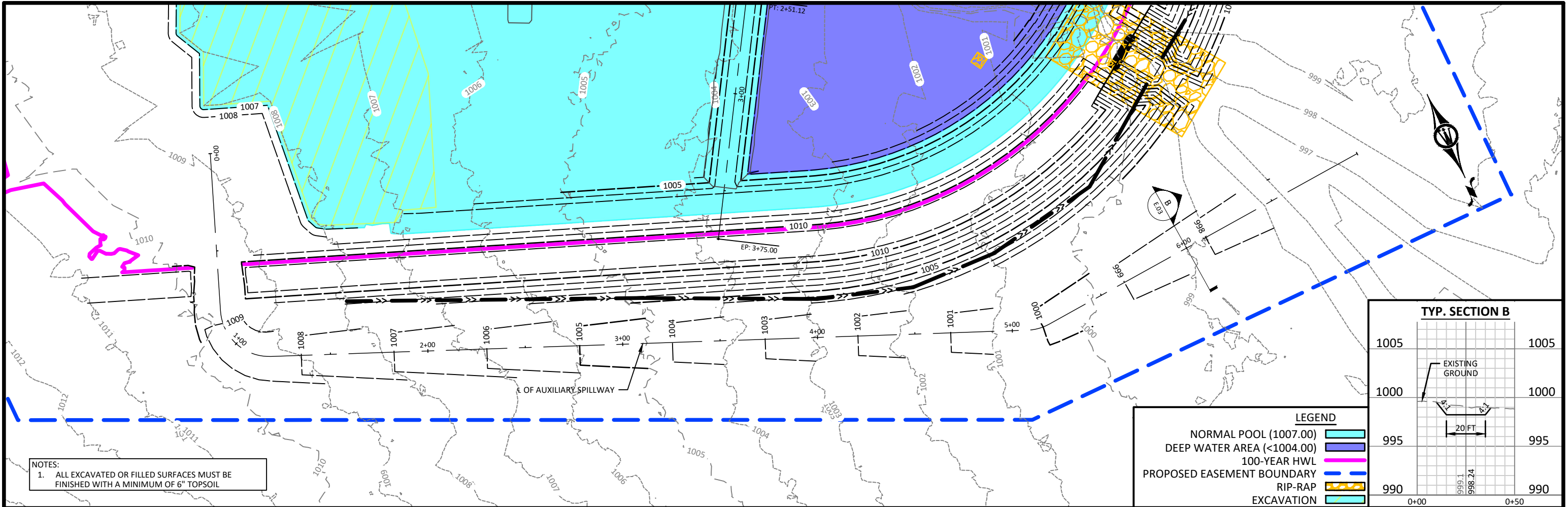
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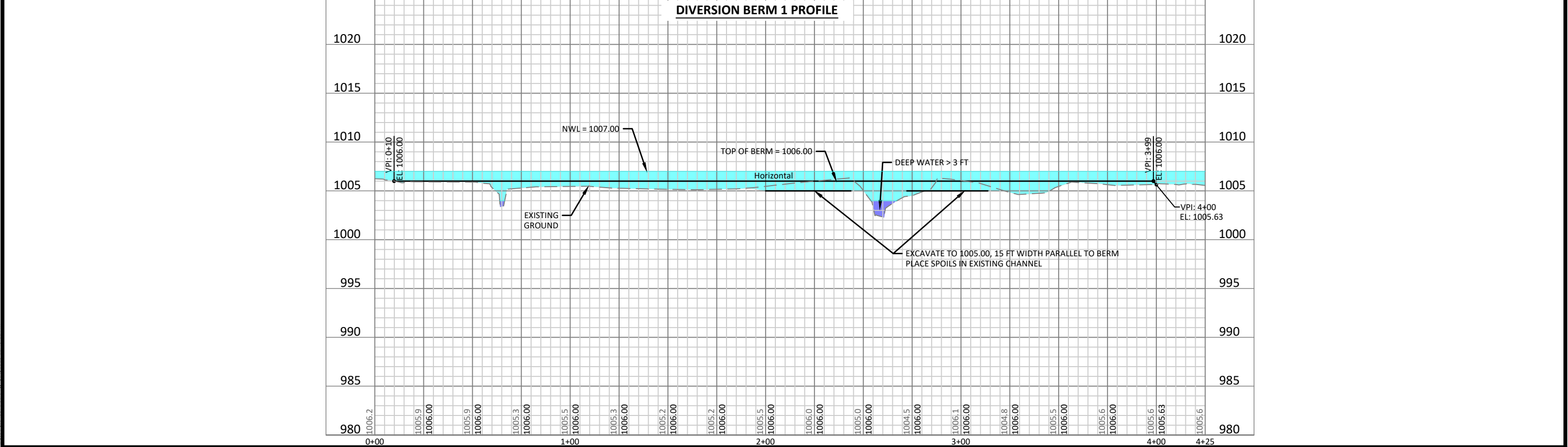
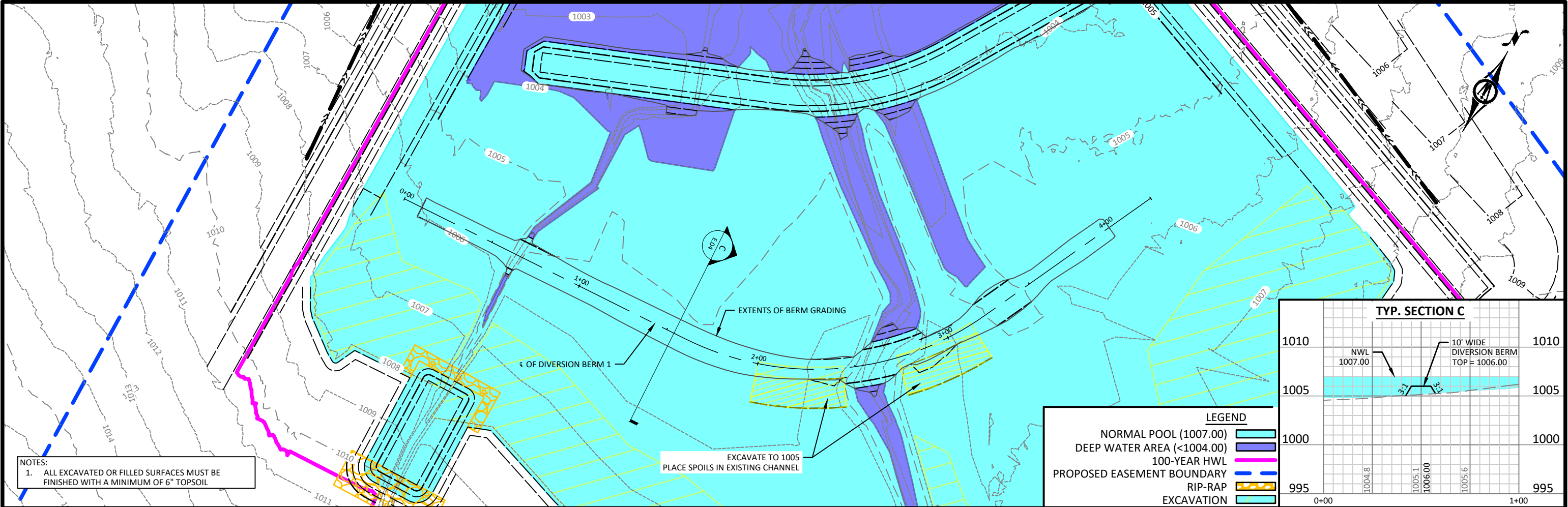
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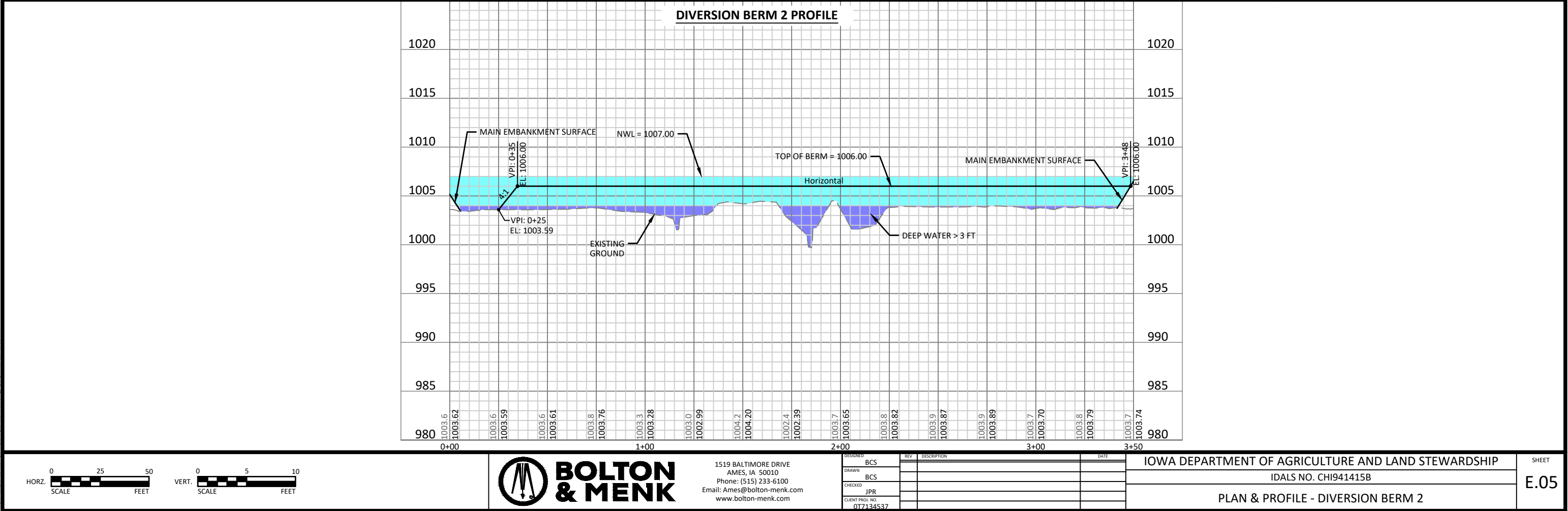
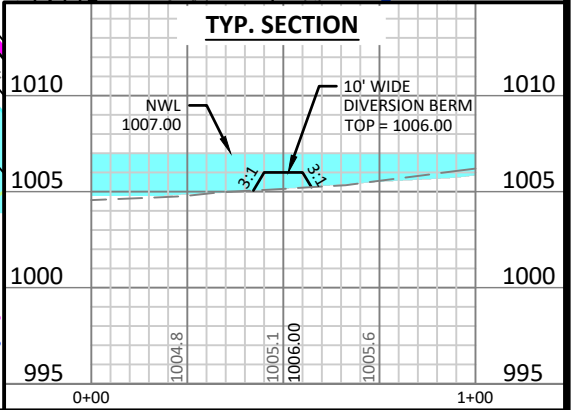
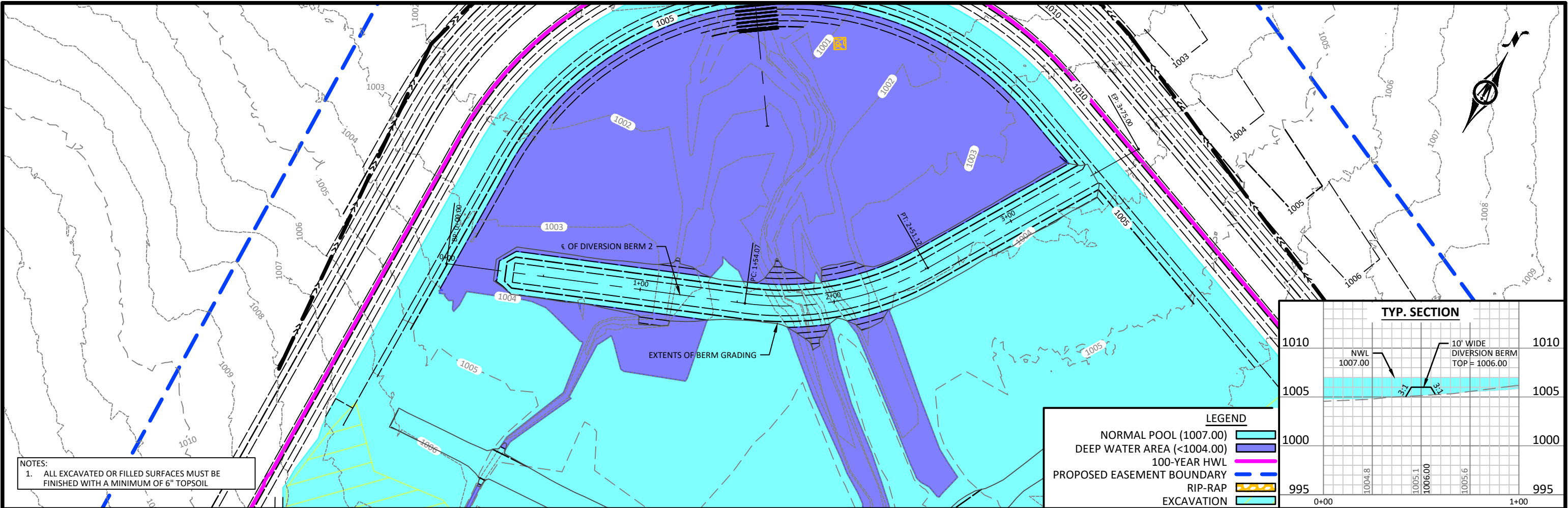
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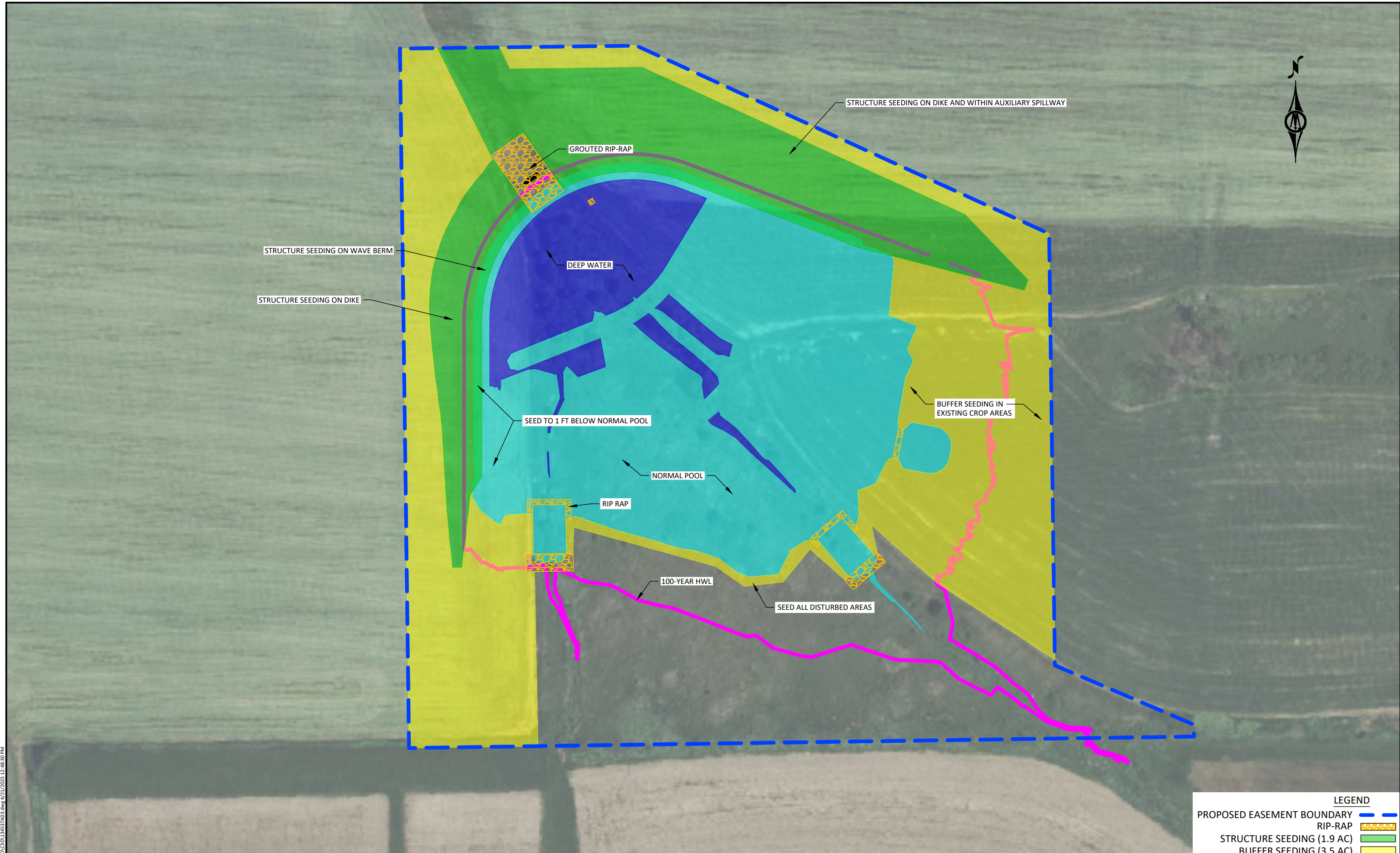
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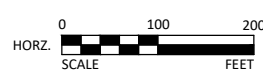




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LEGEND	
PROPOSED EASEMENT BOUNDARY	
RIP-RAP	
STRUCTURE SEEDING (1.9 AC)	
BUFFER SEEDING (3.5 AC)	





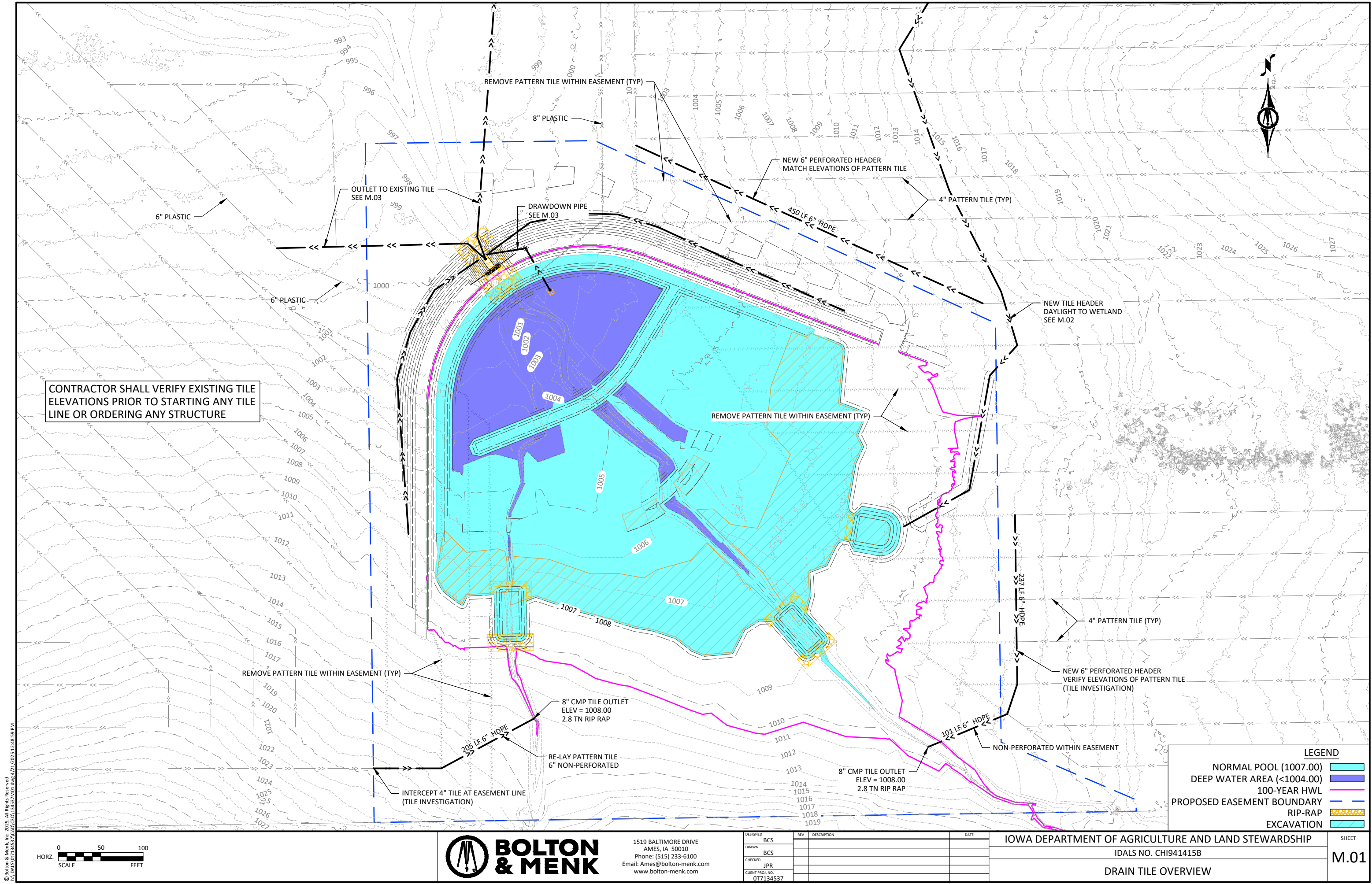
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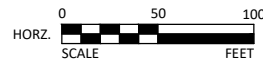
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
IDALS NO. CHI941415B
SEEDING PLAN

SHEET
K.01



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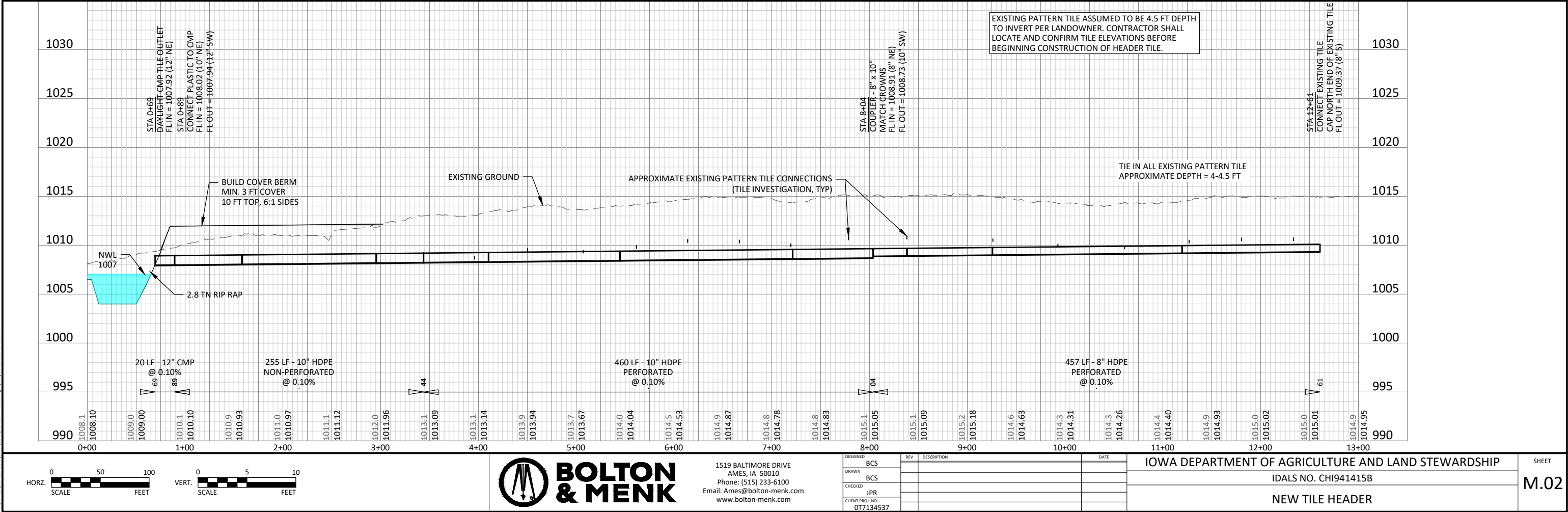
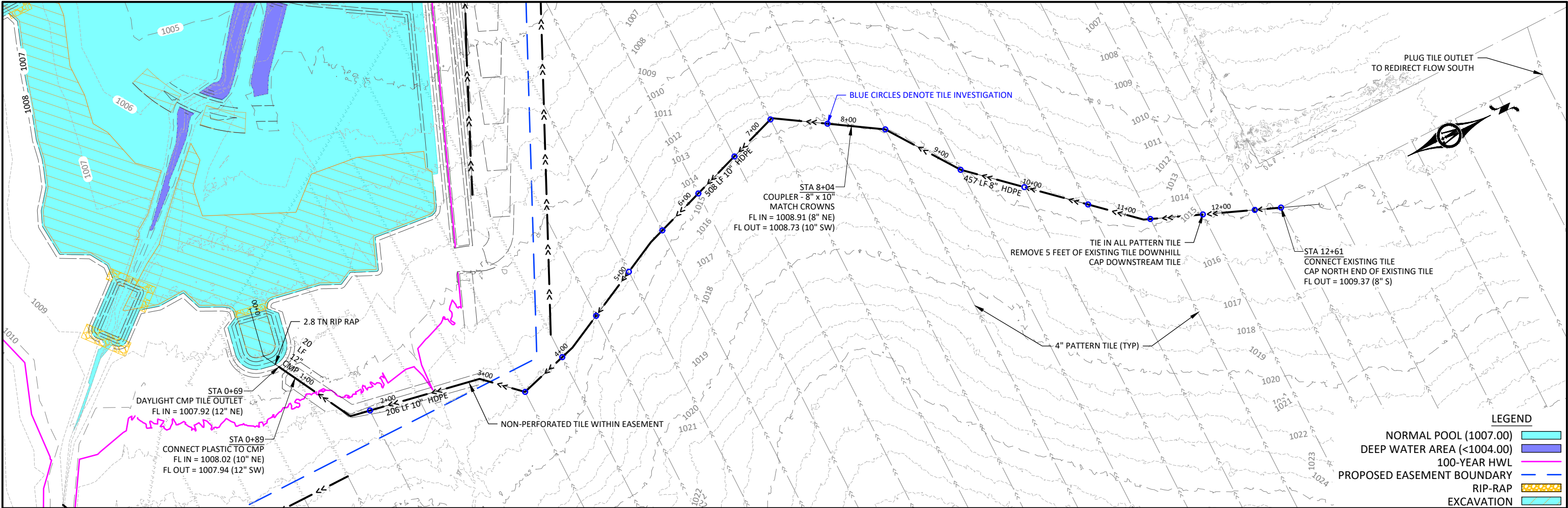


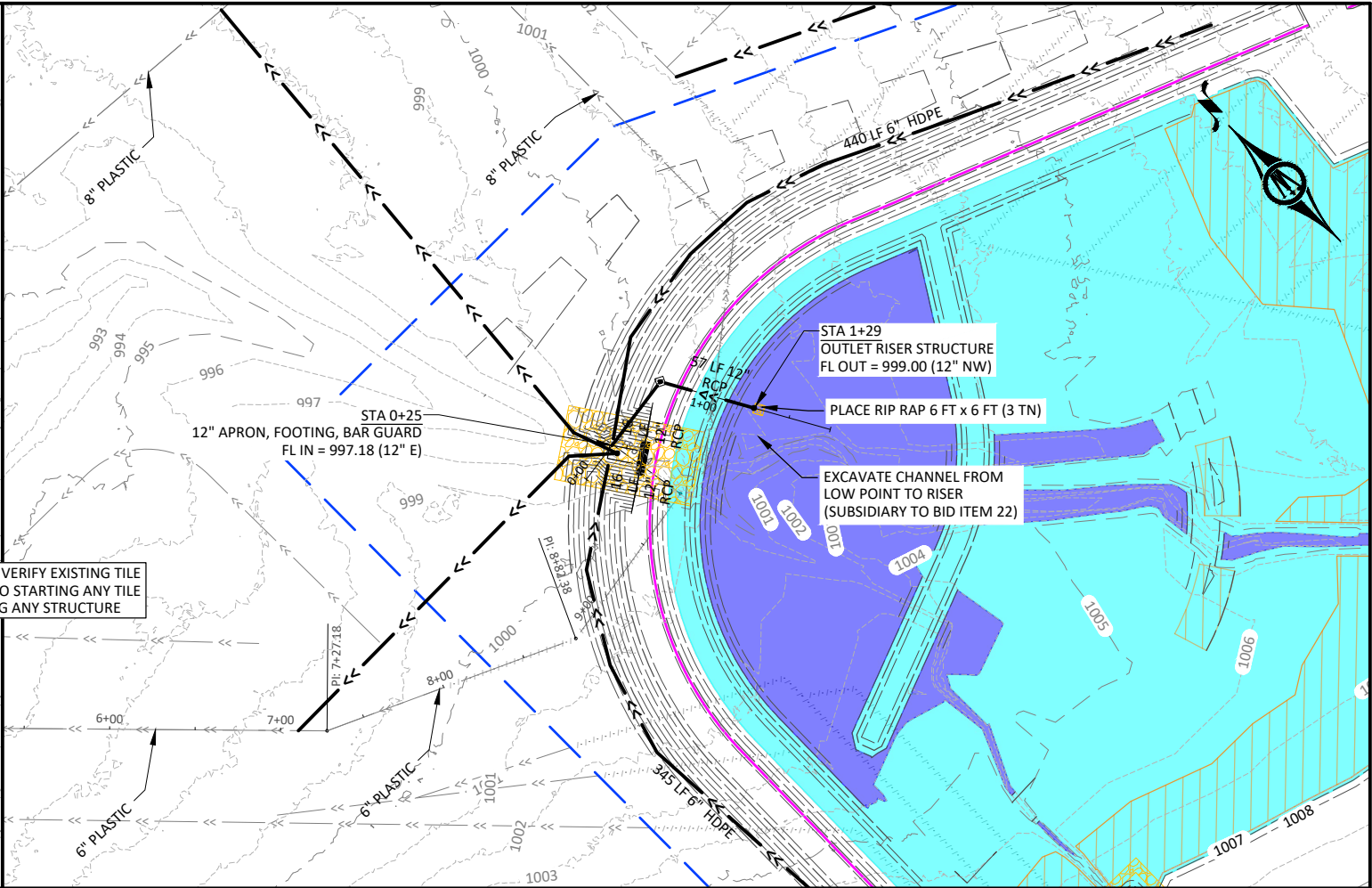
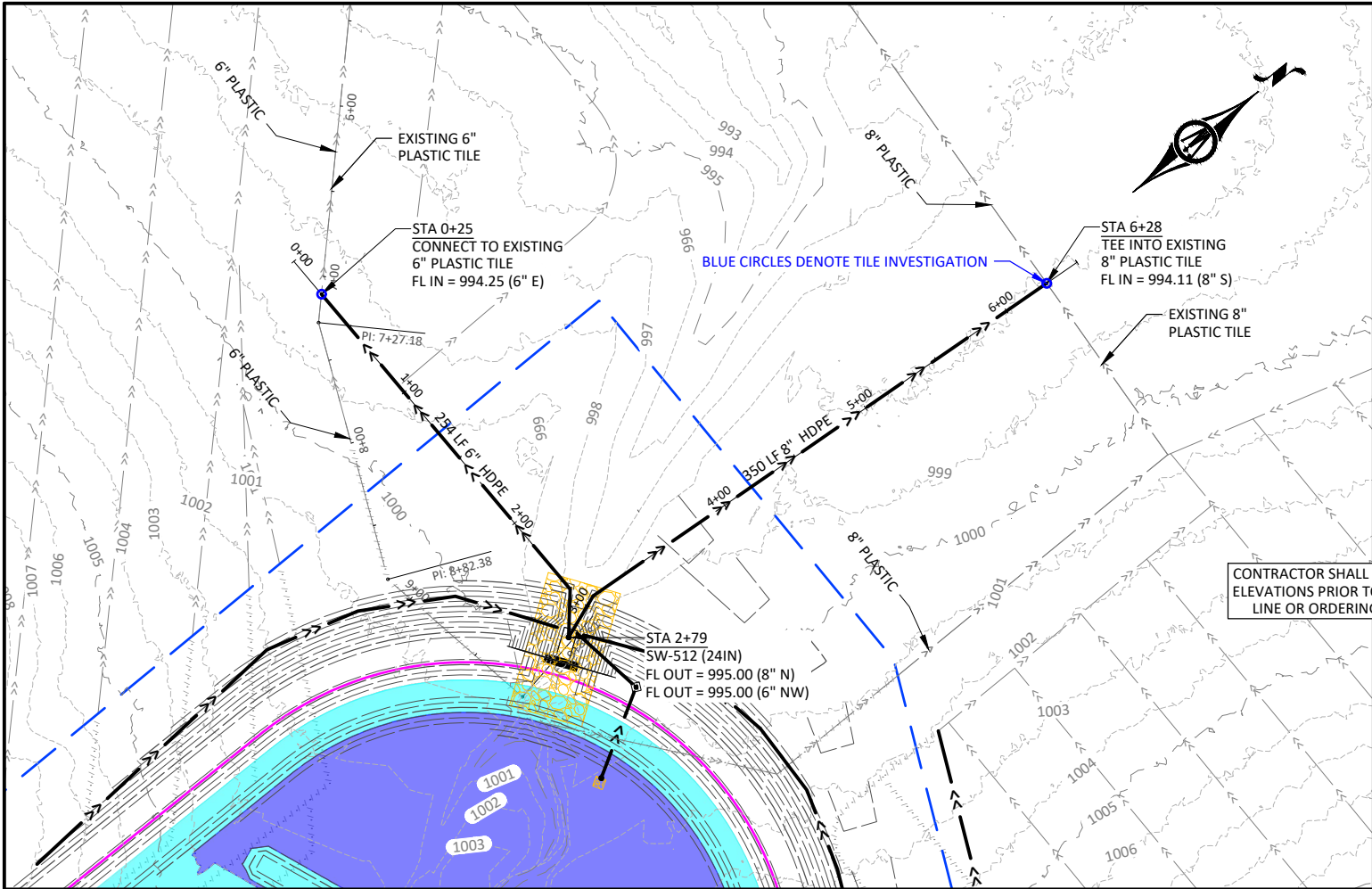
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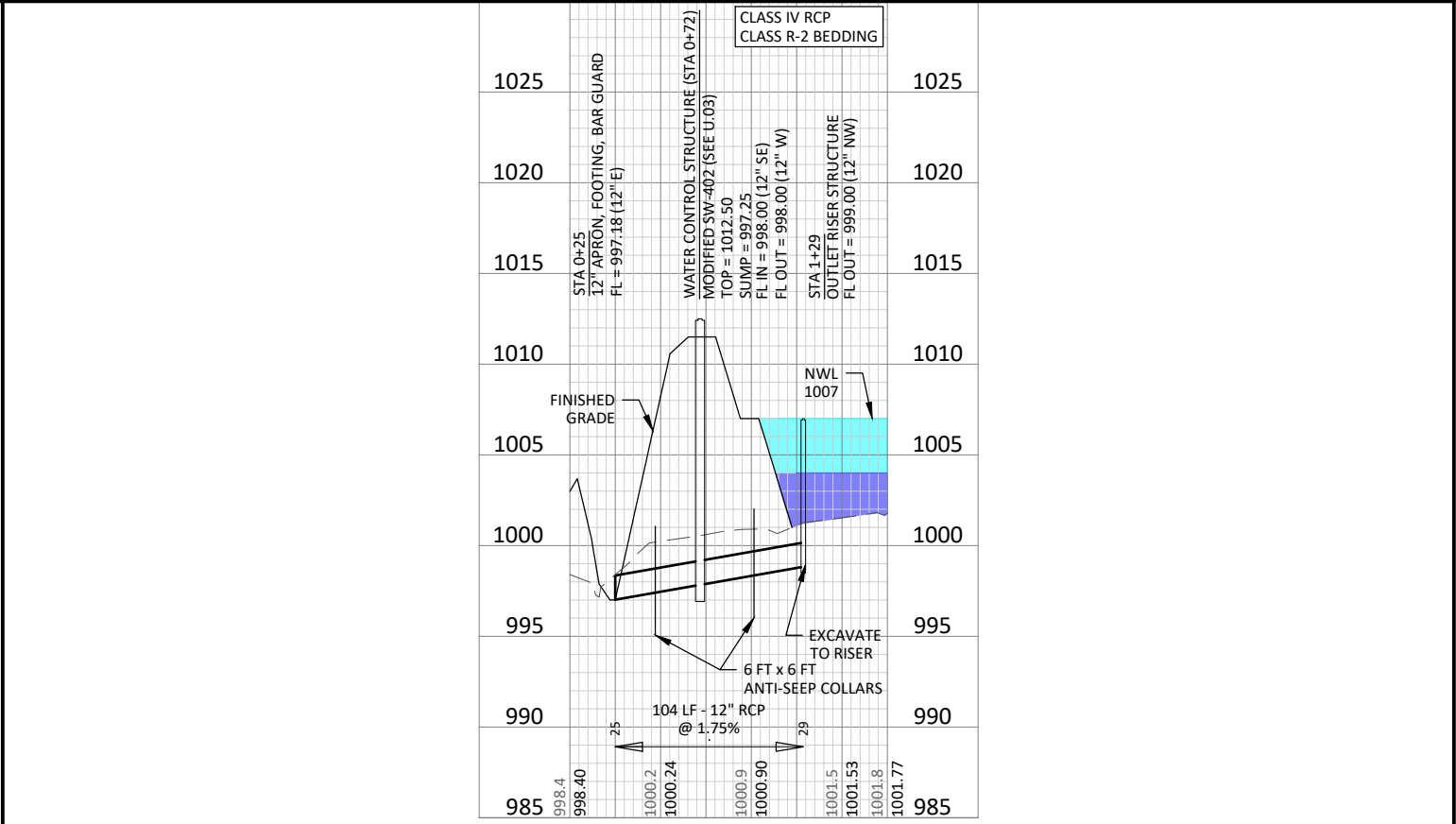
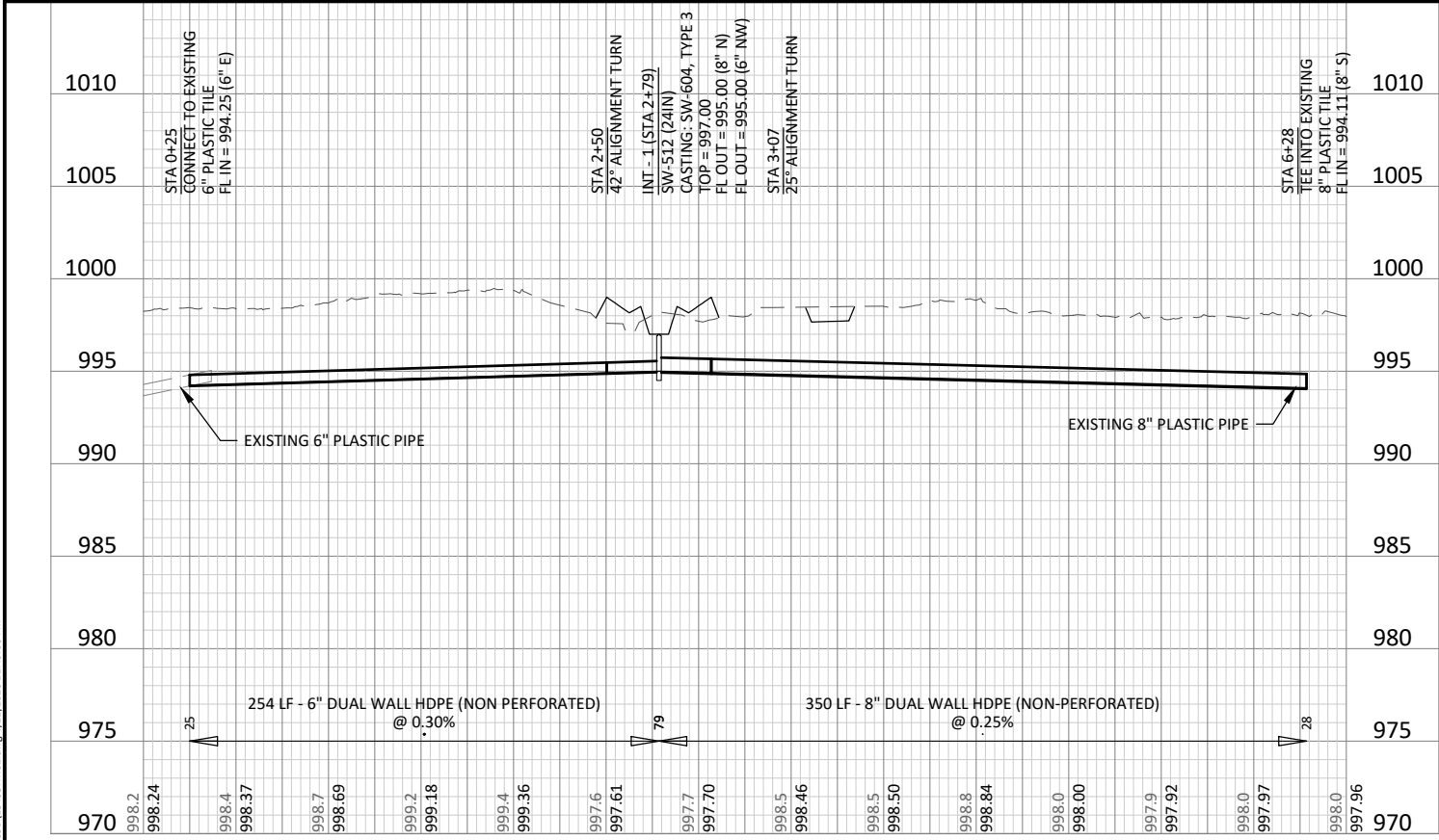
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IDALS NO. CHI941415B
DRAIN TILE OVERVIEW

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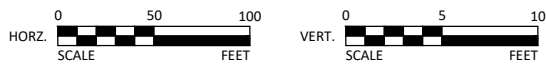




CONTRACTOR SHALL VERIFY EXISTING TILE ELEVATIONS PRIOR TO STARTING ANY TILE LINE OR ORDERING ANY STRUCTURE



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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
IDALS NO. CHI941415B

OUTLET TO TILE & DRAWDOWN PIPE

SHEET
M.03

DESIGN SHEET PILING AREA

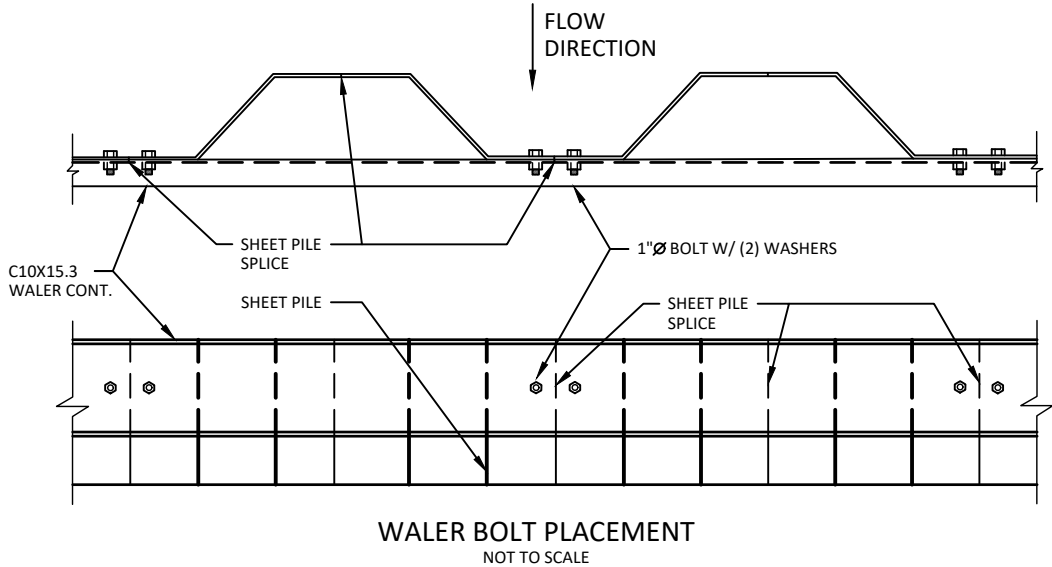
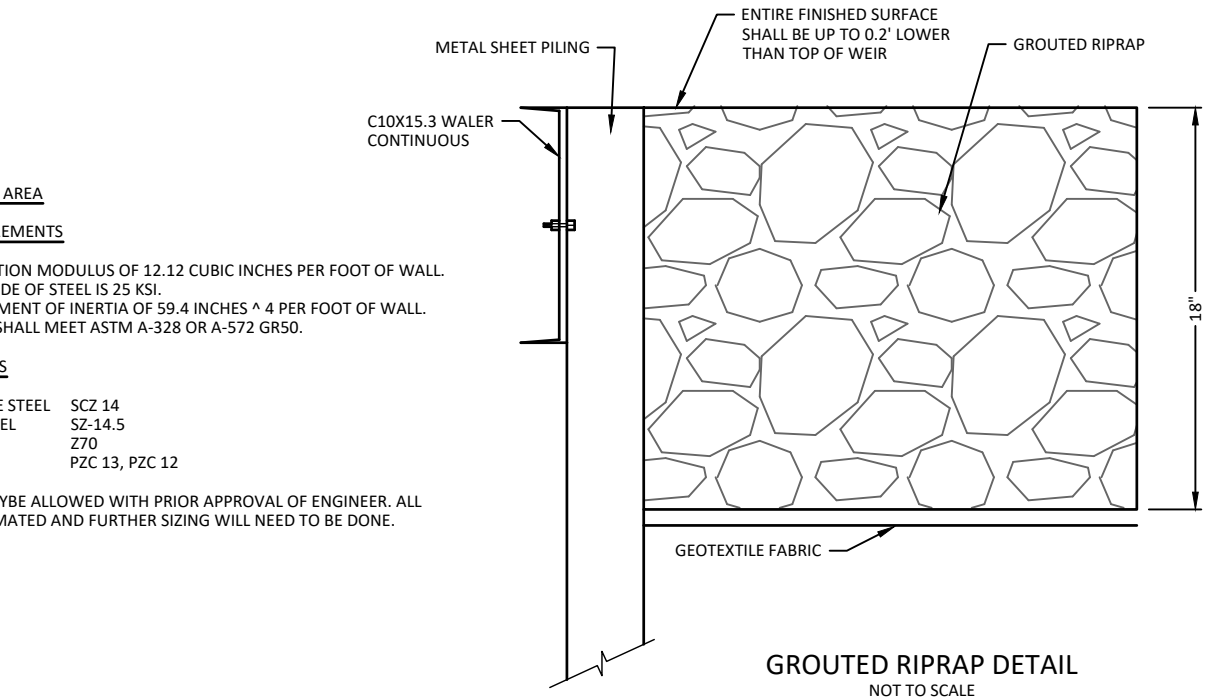
SHEET PILING REQUIREMENTS

MINIMUM SECTION MODULUS OF 12.12 CUBIC INCHES PER FOOT OF WALL.
MINIMUM GRADE OF STEEL IS 25 KSI.
MINIMUM MOMENT OF INERTIA OF 59.4 INCHES ^ 4 PER FOOT OF WALL.
ALL SHEETING SHALL MEET ASTM A-328 OR A-572 GR50.

APPROVED PRODUCTS

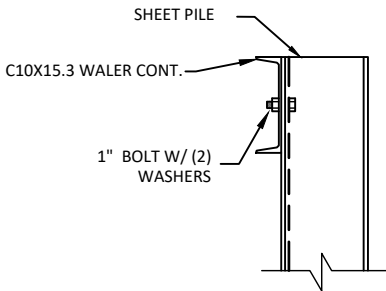
NUCOR SKYLINE STEEL SZ 14
SHORELINE STEEL SZ-14.5
JD FIELDS Z70
GERDAU PZC 13, PZC 12

OTHER SHEETING MAYBE ALLOWED WITH PRIOR APPROVAL OF ENGINEER. ALL MATERIALS ARE ESTIMATED AND FURTHER SIZING WILL NEED TO BE DONE.



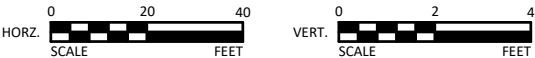
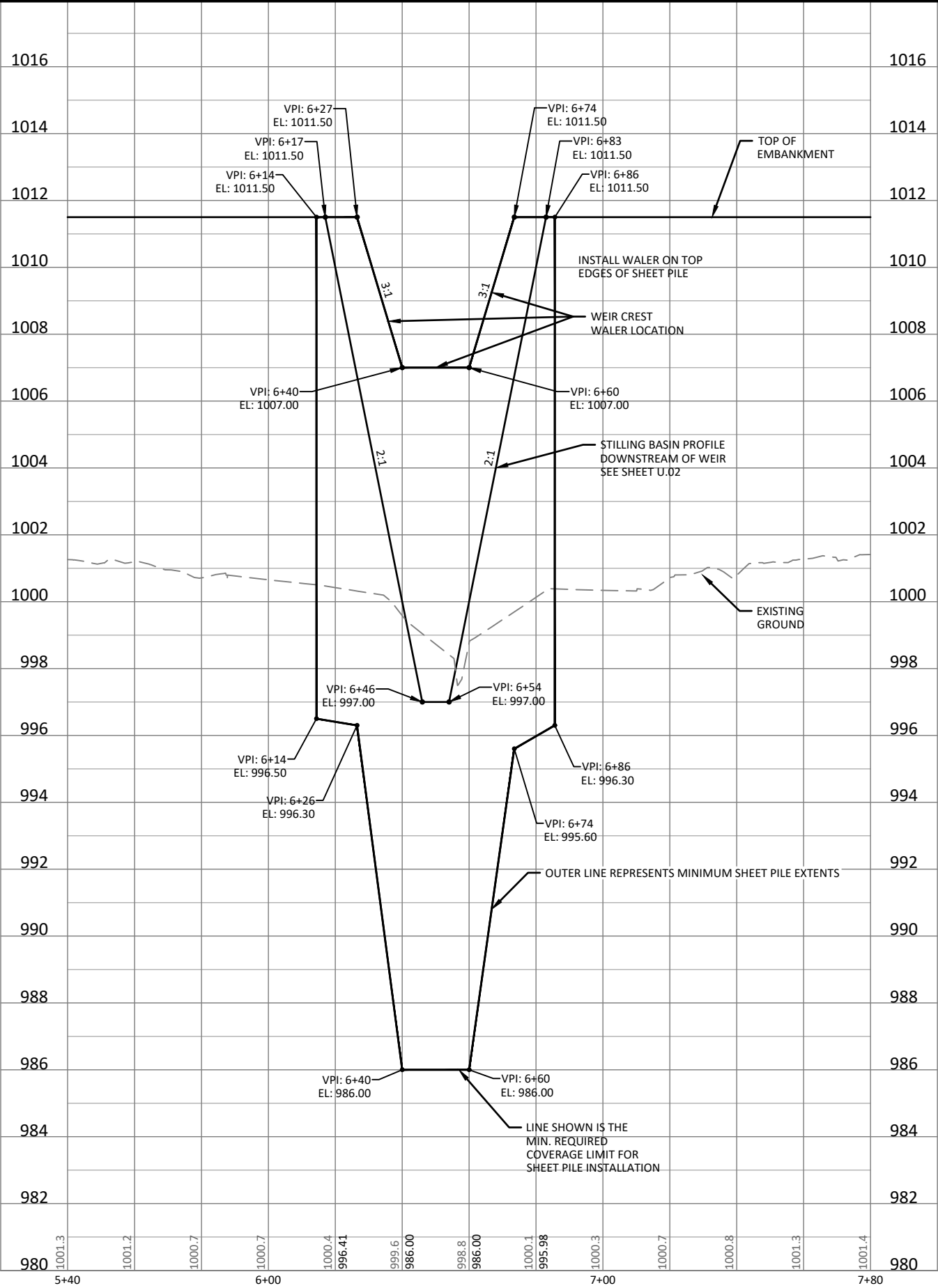
NOTES:

- ALL BOLTS WILL BE 1" DIA. WITH 2 WASHERS. BOLT SHALL BE EXTENDED AT A MINIMUM OF $\frac{3}{8}$ " BEYOND THE NUT.
- ALL HOLES SHALL BE DRILLED $\frac{1}{16}$ " DIA. LARGER THAN THE BOLT.
- THE WALER SHALL BE PLACED ON THE DOWNSTREAM SIDE OF THE WEIR.
- ANY HOLES LEFT IN SHEET PILE (LIFTING HOLES ETC.) SHALL BE WELDED CLOSED.
- AFTER SHEETING AND WALER INSTALLATION ALL SHEETING ON THE WEIR IS TO BE CUT TO CONFORM WITH 3:1 SLOPE AND THE DESIGN ELEVATIONS.
- STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDING WITH THE LATEST SPECIFICATION OF AISC. FABRICATOR SHALL SUBMIT SHOP DRAWINGS SHOWING THAT PLANNED STEEL WILL COMPLETELY COVER INTENDED WALL AREA. FABRICATE AFTER ENGINEER'S REVIEW.
- DEFLECTIONS SHALL BE MADE IN FABRICATED PIECES AND STILL CONFORM TO THE DIMENSIONS GIVEN.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LIVE LOADS.
- PROVIDE ALL NECESSARY TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.



NOTE: 1 BOLT TO BE PLACED ON EACH SIDE OF SPLICE

BOLT DETAIL
NOT TO SCALE

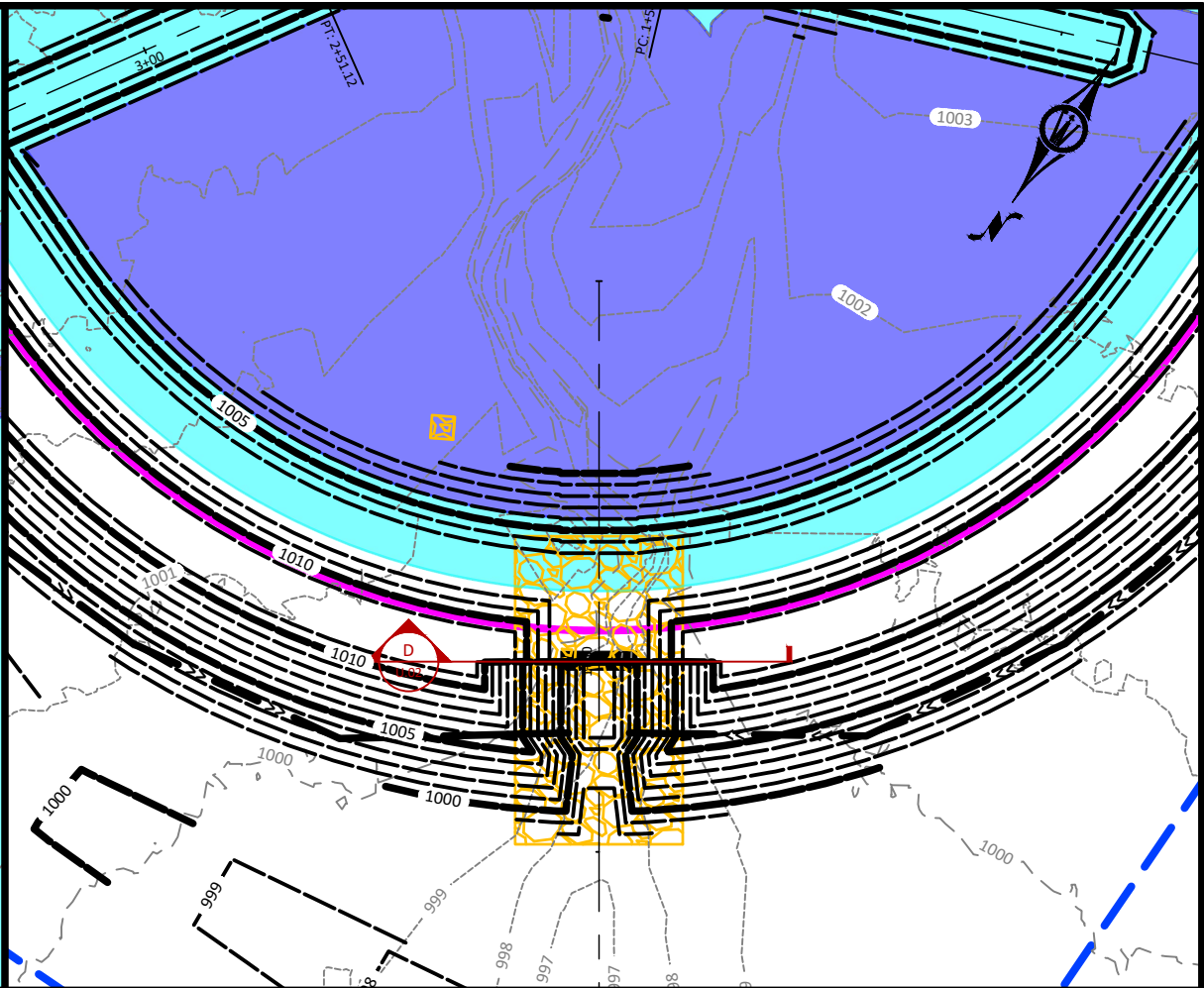
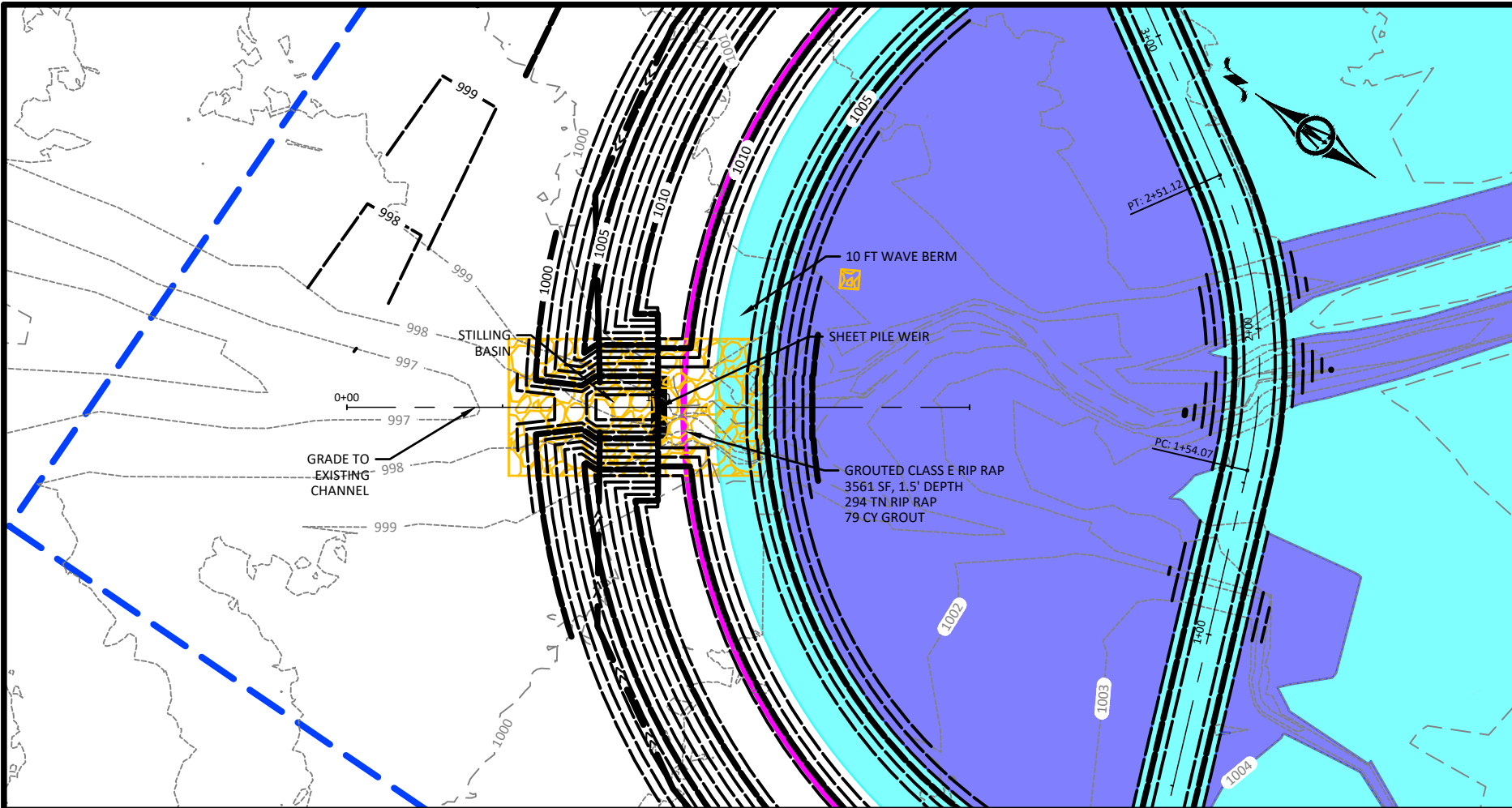


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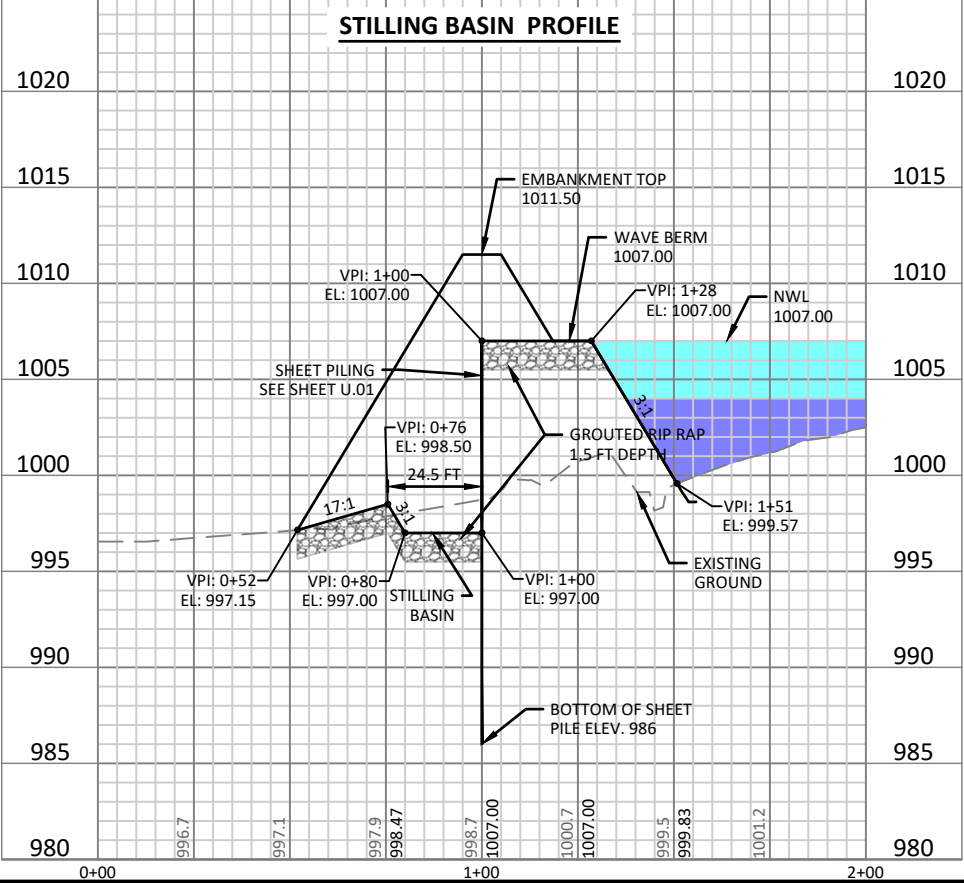
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IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
IDALS NO. CHI941415B
SHEET PILE DETAIL



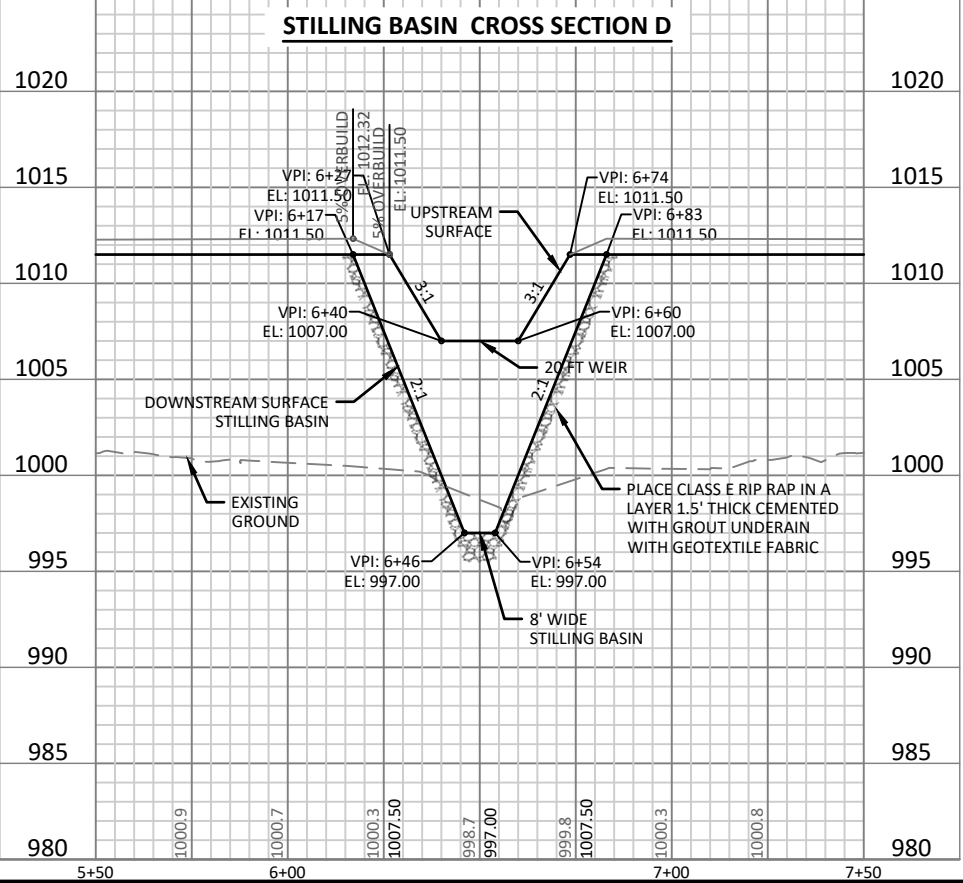
STILLING BASIN PROFILE



LEGEND

- NORMAL POOL (1007.00)
- DEEP WATER AREA (<1004.00)
- 100-YEAR HWL
- PROPOSED EASEMENT BOUNDARY
- RIP-RAP

STILLING BASIN CROSS SECTION D



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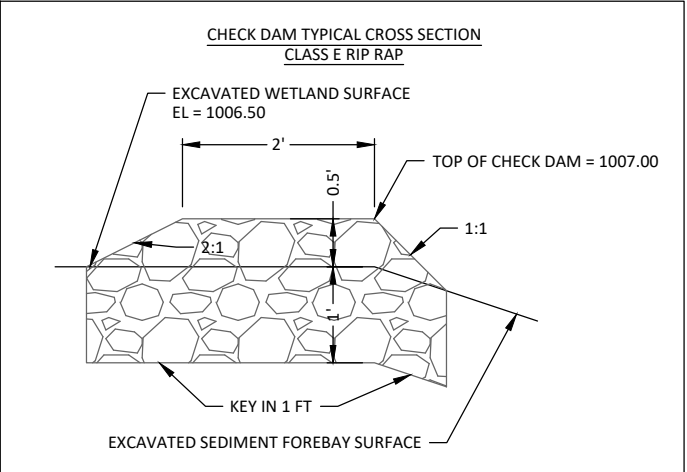
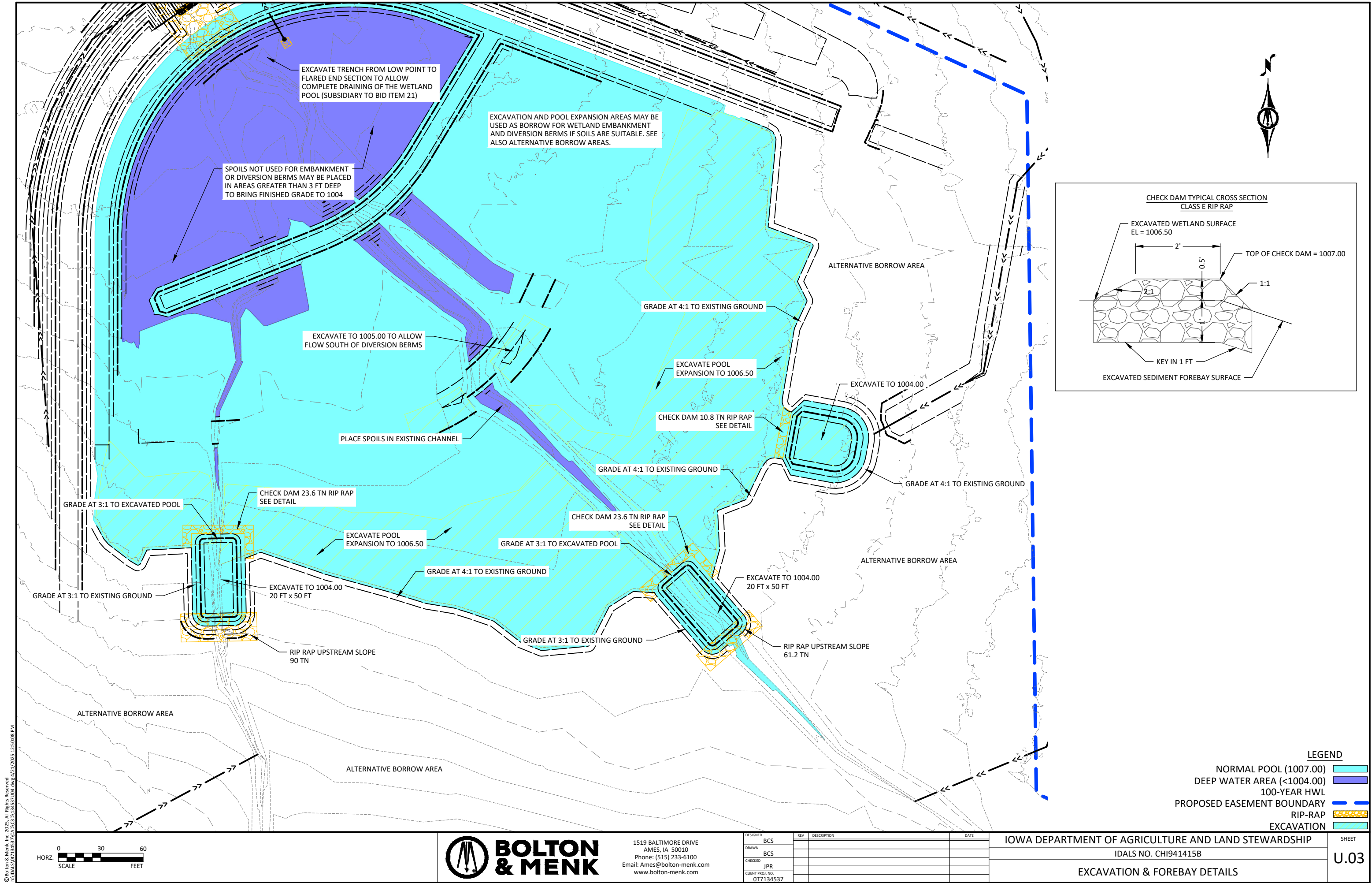


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STILLING BASIN DETAIL

SHEET
U.02



- LEGEND
- NORMAL POOL (1007.00)
 - DEEP WATER AREA (<1004.00)
 - 100-YEAR HWL
 - PROPOSED EASEMENT BOUNDARY
 - RIP-RAP
 - EXCAVATION

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0 30 60
HORIZ. SCALE FEET



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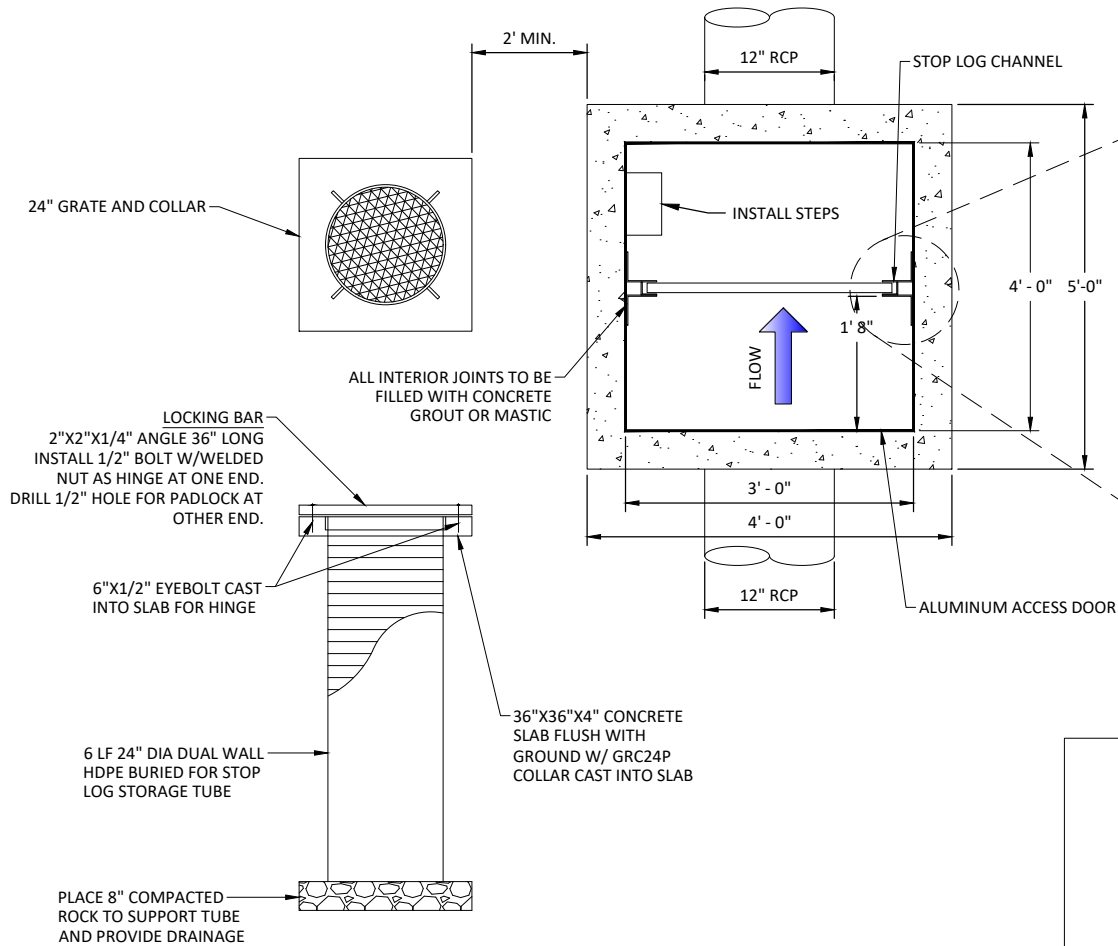
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EXCAVATION & FOREBAY DETAILS

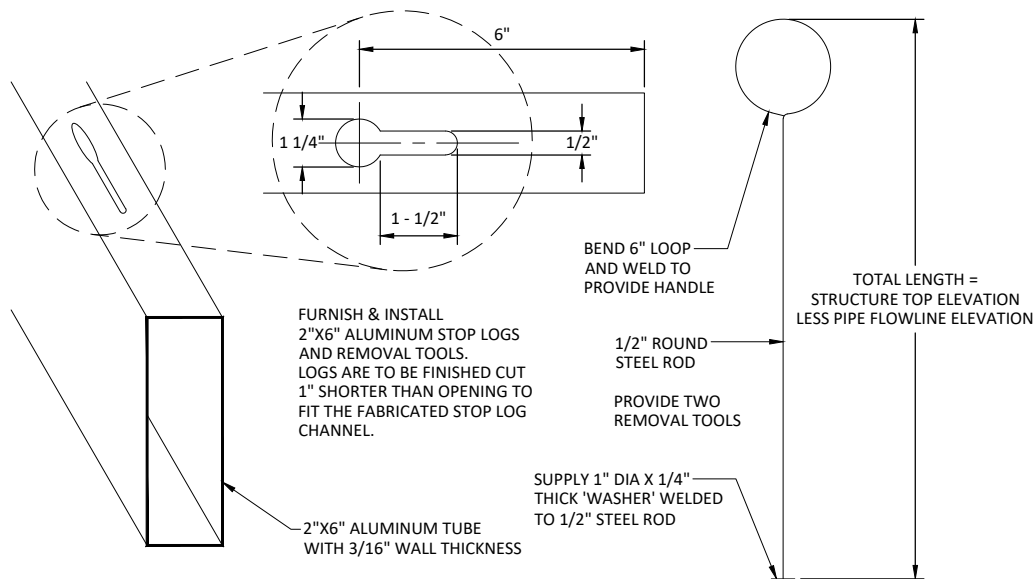
SHEET

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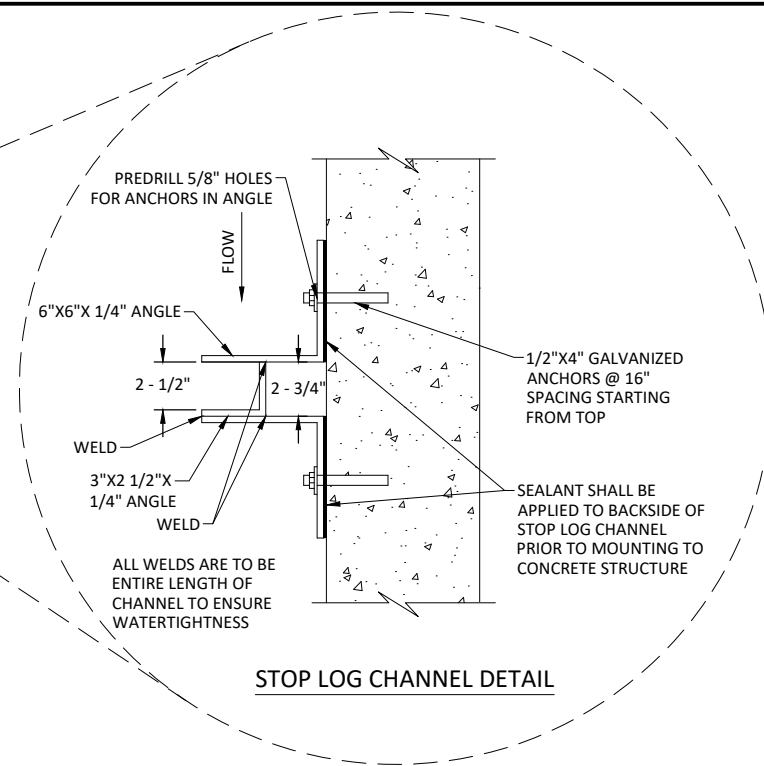
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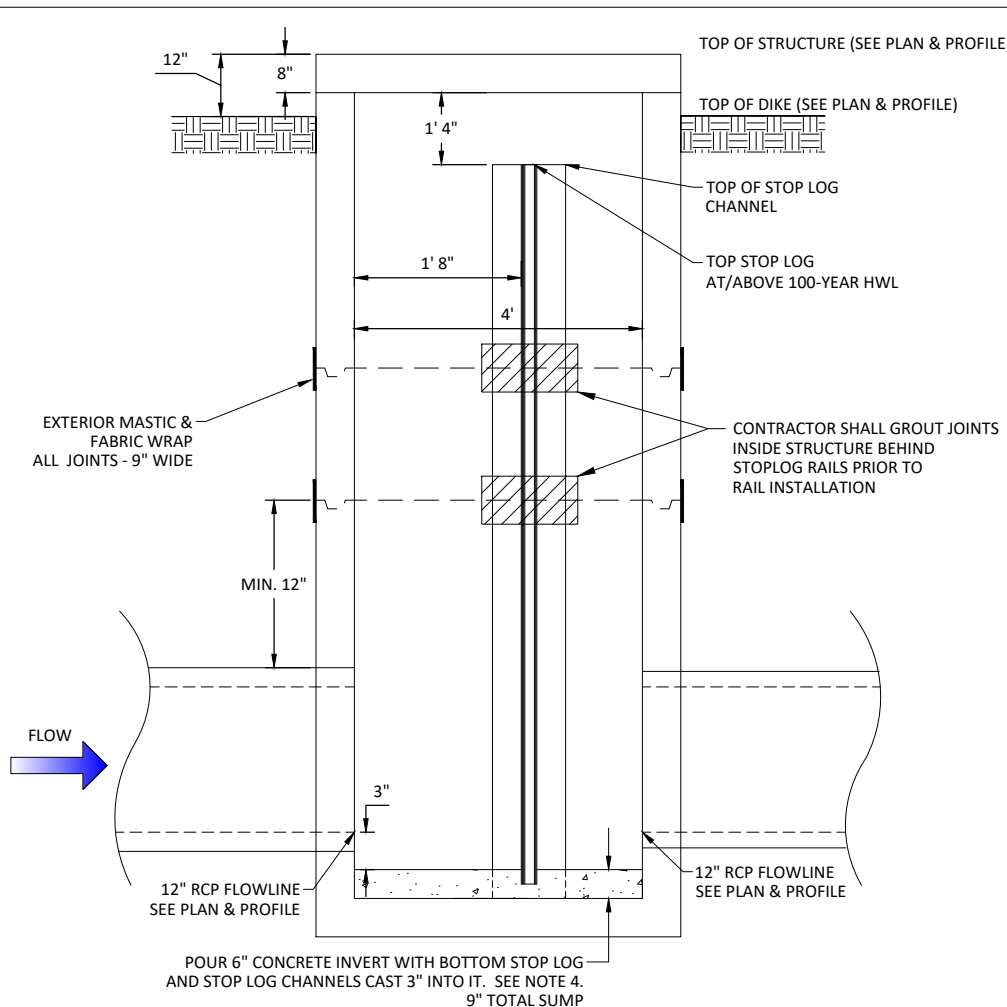
COVER AND STOP LOG
STORAGE DETAIL
NOT TO SCALE



STOP LOG & REMOVAL TOOL
DETAIL
NOT TO SCALE



STOP LOG CHANNEL DETAIL



SW-402 WATER CONTROL OUTLET STRUCTURE SECTION
NOT TO SCALE

COVER/STOP LOG STORAGE NOTES:

1. PROVIDE HALLIDAY PRODUCTS MODEL S1R3648 (OR APPROVED EQUAL) 36" x 48" ALUMINUM ACCESS DOOR WITH LOCKING MECHANISM AND LIFTING HANDLE.
2. TOP OF STRUCTURE SHALL BE AN 8" THICK REINFORCED PRECAST TOP WITH ALUMINUM ACCESS DOOR CAST INTO TOP.
3. PROVIDE 24" GRATE AND COLLAR (AGRI DRAIN GR24 GRATE AND GRC24 COLLAR OR APPROVED EQUAL) FOR STOP LOG STORAGE.
4. PADLOCKS FOR ACCESS DOOR AND STOP LOG STORAGE TUBE SHALL BE KEYED ALIKE. FOUR KEYS ARE TO BE SUPPLIED UPON PROJECT COMPLETION.

STOP LOG CHANNEL NOTES:

1. ALL STEEL SHALL BE FY=36 KSI.
2. ANCHORS SHALL BE GALVANIZED STEEL FURNISHED W/NUTS, WASHERS AND LOCK WASHERS.
3. STOP LOG CHANNEL SHALL BE FURNISHED AS ONE CONTINUOUS PIECE W/CONTINUOUS WELDS.
4. ALL STEEL STOP LOG CHANNEL COMPONENTS ARE TO BE GALVANIZED AFTER WELDING AND DRILLING IS COMPLETE.
5. CONTRACTOR IS TO APPLY SEALANT VERY GENEROUSLY TO BACKSIDE OF STOP LOG CHANNEL TO ENSURE WATERTIGHT SEAL. SEALANT SHALL BE SIKa 30 YEAR INDUSTRIAL CAULK IN LIMESTONE GREY OR APPROVED EQUIVALENT.

WATER CONTROL STRUCTURE NOTES:

1. STRUCTURE FABRICATION AND INSTALLATION SHALL CONFORM TO SUDAS 6010.302 SW-402 RECTANGULAR STORM SEWER MANHOLE
2. STRUCTURE SHOP DRAWINGS ARE REQUIRED FOR ENGINEER'S REVIEW AND APPROVAL BEFORE FABRICATION OF WATER CONTROL STRUCTURE.
3. PRECAST WATER CONTROL STRUCTURE SHALL BE SUPPLIED IN 2 OR 3 SECTIONS, PLUS AN 8" THICK COVER SECTION. SECTION SIZE IS LEFT TO CONTRACTOR'S DISCRETION EXCEPT BOTTOM SECTION SHALL INCLUDE BASE AND WALLS TO 12" ABOVE INLET HOLE.
4. A CONCRETE INVERT IS TO BE INSTALLED AFTER STOP LOG CHANNEL IS INSTALLED. THE BOTTOM STOP LOG IS TO BE CAST INTO THE INVERT WITH THREE HALF INCH DIA. "J BOLTS" FASTENED TO THE BOTTOM STOP LOG. NO LIFTING HOLES ARE REQUIRED FOR THIS BOTTOM LOG.
5. ALL SECTIONS OF THE STRUCTURE ARE TO HAVE "TONGUE AND GROOVE" JOINTS SEALED WITH O RING GASKETS IN THE JOINT AND MASTIC AND FABRIC WRAP ON THE STRUCTURE EXTERIOR.
6. INTERIOR JOINTS SHALL BE FILLED AND SEALED TO PREVENT WATER FLOW IN JOINT BEHIND STOP LOG CHANNEL USING EITHER CONCRETE GROUT OR MASTIC.
7. A-LOK (OR EQUIVALENT) WATERTIGHT SEALS ARE REQUIRED FOR PIPE CONNECTIONS TO THE DRAWDOWN CONTROL STRUCTURE.
8. MANHOLE STEPS ARE TO BE INSTALLED FOR MAINTENANCE ACCESS TO THE STOP LOGS. STEPS ARE TO BE PER SUDAS SECTION 6010-2-2.13.
9. ENSURE THAT ALL JOINTS ARE WATER-TIGHT AND PROPERLY SEALED



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WATER CONTROL STRUCTURE DETAIL	