IDALS FLO971628B
NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY, IOWA — **CONSTRUCTION PLANS** — **ISG PROJECT # 23-30398**

ISG

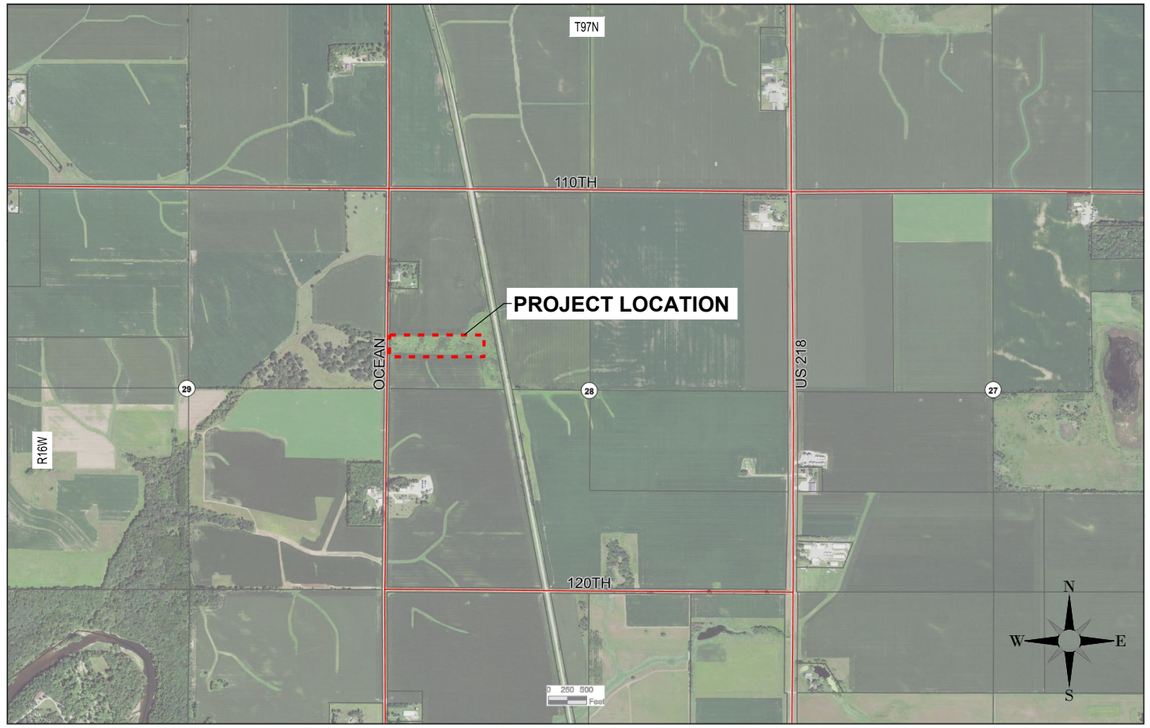
LEGEND

EXISTING

- WATERSHED BOUNDARY
- CITY LIMITS
- SECTION LINE
- QUARTER SECTION LINE
- RIGHT OF WAY LINE
- PROPERTY / LOTLINE
- EASEMENT LINE
- ACCESS CONTROL
- WATER EDGE
- WETLAND BOUNDARY
- FENCE LINE
- EXISTING OPEN DITCH
- CULVERT
- TILE
- PRIVATE TILE
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- UNDERGROUND FIBER OPTIC
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DECIDUOUS TREE
- CONIFEROUS TREE
- TREE LINE
- DROP INTAKE
- HYDRANT
- POWER POLE

PROPOSED

- EASEMENT
- PROPOSED OPEN DITCH
- OPEN DITCH REPAIR
- CULVERT (RCP)
- CULVERT (CMP)
- CULVERT (HDPE)
- TILE
- TILE (PIPE WIDTH)
- PRIVATE TILE
- WATER
- GAS
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TV
- CONTOUR (MAJOR)
- CONTOUR (MINOR)
- DROP INTAKE
- SLOUGH REPAIR
- SPOIL PLACEMENT
- TREE CLEARING
- REMOVE TREE
- BUFFER



LOCATION MAP

IA NRCS JOB CLASS IV

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

ENGINEER'S SIGNATURE DATE

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

LANDOWNER SIGNATURE DATE

I CERTIFY THAT THIS PRACTICE HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

CONTRACTORS SIGNATURE DATE

ENGINEER'S REP. SIGNATURE DATE

CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL

ONE CALL TICKET NO.

IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, WORK WILL STOP IMMEDIATELY AND THE LOCAL NRCS FIELD OFFICE WILL BE NOTIFIED.

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SEAL

LICENSED PROFESSIONAL ENGINEER — SPENCER D. PECH 28161 — IOWA

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

Spencer D Pech — 03-26-25

(signature) (date)

Printed or typed name SPENCER D. PECH

License number 28161

My license renewal date is December 31, 2026

Pages or sheets covered by this seal: ALL SHEETS

GIS DISCLAIMER:

INFORMATION FOR THE BOUNDARY / LOT LINES, AND UNDERGROUND UTILITIES SHOWN WAS DERIVED FROM DIGITAL DATABASES AND IS FOR INFORMATIONAL PURPOSES ONLY. DATA MAY NOT HAVE BEEN PREPARED FOR, OR BE SUITABLE FOR: LEGAL, ENGINEERING, OR SURVEYING PURPOSES.

PROJECT GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE CONTRACT DOCUMENTS, WHICH INCLUDE, BUT ARE NOT LIMITED TO, THE OWNER - CONTRACTOR AGREEMENT, THE PROJECT MANUAL (WHICH INCLUDES GENERAL SUPPLEMENTARY CONDITIONS AND SPECIFICATIONS), DRAWINGS OF ALL DISCIPLINES AND ALL ADDENDA, MODIFICATIONS, AND CLARIFICATIONS ISSUED BY ARCHITECT/ENGINEER.
2. CONTRACT DOCUMENTS SHALL BE ISSUED TO ALL SUBCONTRACTORS BY THE GENERAL CONTRACTOR IN COMPLETE SETS IN ORDER TO ACHIEVE THE FULL EXTENT AND COMPLETE COORDINATION OF ALL WORK.
3. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
4. FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES OR CONDITIONS REQUIRING INFORMATION OR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
5. DETAILS SHOWN ARE INTENDED TO BE INDICATIVE OF THE PROFILES AND TYPE OF DETAILING REQUIRED THROUGHOUT THE WORK. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO DETAILS SHOWN. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
6. ALL MANUFACTURED ARTICLES, MATERIALS, AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, CLEANED, AND CONDITIONED ACCORDING TO MANUFACTURERS' INSTRUCTIONS. IN CASE OF DISCREPANCIES BETWEEN MANUFACTURERS' INSTRUCTIONS AND THE CONTRACT DOCUMENTS, NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.
7. ALL DISSIMILAR METALS SHALL BE EFFECTIVELY ISOLATED FROM EACH OTHER TO AVOID GALVANIC CORROSION.
8. THE LOCATION AND TYPE OF ALL EXISTING UTILITIES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY AND ARE ACCURATE AND COMPLETE TO THE BEST OF THE KNOWLEDGE OF I & S GROUP, INC. (ISG). NO WARRANTY OR GUARANTEE IS IMPLIED. THE CONTRACTOR SHALL VERIFY THE SIZES, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER OF ANY DISCREPANCIES OR VARIATIONS FROM PLAN.
9. THE CONTRACTOR IS TO CONTACT "IOWA ONE CALL" FOR UTILITY LOCATIONS A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION / CONSTRUCTION (1-800-292-8989).

IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

IOWA ONE CALL 1-800-292-8989 www.iowaonecall.com 811

SHEET NOT VALID UNLESS THIS TEXT IS COLOR.

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PROJECT

IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-30398
FILE NAME	30398-TITLE
DRAWN BY	OBO
DESIGNED BY	SDP/JJJ
REVIEWED BY	SDP
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

TITLE

SHEET

C0-10

PROJECT INDEX:

PROJECT ADDRESS / LOCATION:

OCEAN AVE
FLOYD, IA 50435

SECTION 28, T97N, R16W

CEDAR TWP
FLOYD COUNTY, IOWA

MANAGING OFFICE:

ISG

WATERLOO OFFICE
335 CEDAR STREET
SUITE 200
WATERLOO, IA 50701
PHONE: 319.234.1515

PROJECT MANAGER: SPENCER PECH
EMAIL: SPENCER.PECH@ISGINC.COM

SPECIFICATIONS REFERENCE

ALL CONSTRUCTION SHALL COMPLY WITH FLOYD COUNTY'S REQUIREMENTS AND WITH THE 2023 EDITION OF THE NATURAL RESOURCES CONSERVATION SERVICE PRACTICE 656 (CONSTRUCTED WETLAND), UNLESS DIRECTED OTHERWISE.

PROJECT DATUM

HORIZONTAL COORDINATES HAVE BEEN REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), ZONE 2, ON THE IOWA REGIONAL COORDINATE SYSTEM, IN U.S. SURVEY FEET. ELEVATIONS HAVE BEEN REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). RTK GPS METHODS WERE USED TO ESTABLISH HORIZONTAL AND VERTICAL COORDINATES FOR THIS PROJECT.

B.M. ELEVATION=1087.60
TIE IN EAST SIDE OF POWERPOLE
NORTHING: 9809811.97
EASTING: 12499354.21

TOPOGRAPHIC SURVEY

THIS PROJECT'S TOPOGRAPHIC SURVEY CONSISTS OF DATA COLLECTED IN MARCH, 2024 BY ISG.

WETLAND CONSTRUCTION NOTES

1. RIPRAP IS TO BE CLASS E REVETMENT STONE AS DEFINED BY SECTION 4130 OF THE CURRENT IDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION AND SCREENED OVER AN 8" GRIZZLY SEPARATOR. TAKE CARE TO NOT DAMAGE EXPOSED PVC PIPING WHEN PLACING RIPRAP, WHERE APPLICABLE.
2. STRIPPING - ALL EXCAVATIONS AND FILL AREAS ARE TO BE STRIPPED OF TWELVE (12) INCHES OF TOPSOIL (UNLESS OTHERWISE DIRECTED BY PLAN NOTE) TO REMOVE VEGETATION.
3. POOL GRADING AREAS INVOLVE EXCAVATION OF THE DESIGNATED AREAS SHOWN TO THE ELEVATION ON THE PLAN. WASTE SPOIL IN DESIGNATED AREAS OR AS DIRECTED BY ENGINEER. AREAS RECEIVING WASTE SOILS SHALL BE SHAPED TO DRAIN TOWARD POOL AREA. POOL GRADING SPOIL MUST BE LOCATED AT DESIGNATED LOCATION AS SHOWN ON SHEET C4-10.
4. TOPSOIL - ALL EXPOSED BORROW AREA AND POOL GRADING AREA SURFACES SHALL BE TOPSOILED TO A MINIMUM DEPTH OF EIGHT (8) INCHES.
5. THE BERM SURFACE SHALL BE TOPSOILED TO A MINIMUM DEPTH OF EIGHT (8) INCHES.
6. EXCESS TOPSOIL TO BE WASTED IN AN AREA OUTSIDE OF THE POOL DESIGNATED BY THE ENGINEER.
7. ALL AREAS UNDER STRUCTURE FILL SHALL BE SCARIFIED TO A DEPTH OF SIX (6) INCHES AND BE RECOMPACTED IN ACCORDANCE WITH STD. SPEC. IA-23, SECTION 6, METHOD 2.
8. EARTHFILL - CONTRACTOR TO ENSURE ADEQUATE MOISTURE AND DENSITY THROUGHOUT CONSTRUCTION. COMPACTION IS TO BE PERFORMED IN ACCORDANCE WITH SPEC. IA-23 EARTHFILL.
9. FILL SHALL BE PLACED IN LOOSE LIFTS NO THICKER THAN NINE (9) INCHES. ENGINEER MAY DIRECT THINNER LIFTS BASED ON AVAILABLE COMPACTION EQUIPMENT.
10. UTILITIES - CONTRACTOR IS RESPONSIBLE FOR CALLING IOWA ONE CALL: 1-800-292-8989 AND PROTECTION OF ALL UTILITIES.
11. EXISTING TILE - CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING TILE LOCATIONS AND ELEVATIONS, PRIOR TO INSTALLING NEW TILE.
12. SAFETY - ALL WORK SHALL BE DONE ACCORDING TO OSHA STANDARDS FOR PROTECTION OF LIFE. NOTHING INDICATED ON THE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATION.
13. ENCOUNTERED TILE - ALL TILE LINES UNDER FOOT PRINT OF STRUCTURE AND POOL ARE TO BE LOCATED AND REMOVED AND REROUTED AS SHOWN ON PLANS.
14. CONTRACTOR SHALL IMMEDIATELY REPORT TO ENGINEER ALL PREVIOUSLY UNKNOWN TILE LINES ENCOUNTERED DURING THE WORK AND LEAVE THE TILE LINES UNCOVERED FOR EVALUATION BY ENGINEER.
15. CONTROL - CONTRACTOR IS TO PROTECT ALL CONTROL POINT AND WORK LIMIT PINS SET PRIOR TO CONSTRUCTION.
16. SLOPES - BORROW SITES AND POOL GRADING AREAS SHALL BE GRADED WITH A MINIMUM CUT/FILL SLOPE OF 3H:1V.
17. SOILS - CONTRACTOR SHALL OBTAIN FILL FOR STRUCTURE FROM AREAS DESIGNATED ON PLANS.
18. WATER - CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT CONSTRUCTION TO ENSURE FAVORABLE WORKING CONDITIONS, INCLUDING DEWATERING AS NECESSARY.
19. CONTRACTOR IS RESPONSIBLE FOR PROVIDING WATER TO ENSURE SOILS MEET MINIMUM MOISTURE REQUIREMENTS.
20. EQUIPMENT STAGING - CONTRACTOR TO DESIGNATE EQUIPMENT STAGING AREA AT PRECONSTRUCTION MEETING.
21. ACCESS SHALL BE COORDINATED WITH THE LANDOWNER PRIOR TO MOBILIZATION.
22. CONCRETE WASHOUT: A DESIGNATED CONCRETE WASHOUT LOCATION SHALL BE PROVIDED. WASHOUT AREA SHALL NOT BE IN THE WETLAND AREA.
23. SUPPLEMENTAL DETAILS:
    - 23.1. SUDAS 9040.119 - SILT FENCE
    - 23.2. SUDAS 9040.105 - WATTLE
    - 23.3. SUDAS 9040.120 - STABILIZED CONSTRUCTION EXIT

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9. THE CONTRACTOR IS REQUIRED TO CONTACT "IOWA ONE CALL" FOR UTILITY LOCATIONS A MINIMUM OF 2 BUSINESS DAYS PRIOR TO ANY EXCAVATION / CONSTRUCTION (1-800-292-8989).
10. IF A CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY THE LOCAL NATURAL RESOURCES CONSERVATION SERVICE OFFICE.
11. ALL CONSTRUCTION ACTIVITIES SHALL BE IN COMPLIANCE WITH NRCS NATIONAL AND STATE UTILITY SAFETY POLICY (NEM PART 503-SAFETY, SUBPART A - ENGINEERING ACTIVITIES AFFECTING UTILITIES 503.00 THROUGH 503.06)
12. CONSTRUCTION CONTRACT BETWEEN CONTRACTOR AND IDALS, PLANS, SPECIFICATIONS, PROJECT MANUAL, AND ADDENDA. ANY MODIFICATIONS MUST BE APPROVED BY IDALS.
13. NRCS DOES NOT GUARANTEE THAT THE POND WILL FILL AND/OR REMAIN FILLED WITH WATER TO THE PRINCIPAL SPILLWAY CREST ELEVATION.
14. PROPOSED DESIGN MEETS PRACTICE STANDARD DESIGN CRITERIA AND COMPLIES WITH APPLICABLE LAWS AND REGULATIONS SET FORTH IN 210-NEM-505.

CONSERVATION PRACTICE STANDARDS

PRIMARY

656: CONSTRUCTED WETLAND

SUPPORTING

327: CONSERVATION COVER
342: CRITICAL AREA PLANTING
356: DIKE OR LEVEE
378: POND
410: GRADE STABILIZATION STRUCTURE
587: STRUCTURE FOR WATER CONTROL
606: SUBSURFACE DRAIN
620: UNDERGROUND OUTLET

ITEMS OF WORK TABLE

	SUB-ITEM	DESCRIPTION	SPECIFICATION NO.	ESTIMATED QUANTITY	UNIT
1	-	Mobilization & Demobilization	CS-008	1	LS
2	-	Site Stripping & Preparation	IA-CS-001	1	LS
3	-	Crop Damage	IA-CS-001	0	AC
4	-	Silt Fence	IA-CS-005	430	LF
5	-	Straw Wattle	IA-CS-005	175	LF
6	-	Buffer Seeding	IA-CS-006	6.4	AC
7	-	Structure Seeding	IA-CS-006	0.7	AC
8	-	Drain Tile Investigation	IA-CS-009	5	HR
9	-	Drain Tile Removal	IA-CS-009	200	LF
10	-	Steel Sheet Piling	IA-CS-013	1202	SF
11	-	Excavation (General)	IA-CS-021	3535	CY
12	-	Excavation (Core Trench)	IA-CS-021	320	CY
13	-	Earthfill (Submerged Berms)	IA-CS-023	203	CY
14	-	Earthfill (General Dam & Core)	IA-CS-023	2299	CY
15	-	Earthfill (General Stockpiling & Wasting)	IA-CS-023	807	CY
16	-	Topsoil Placement	IA-CS-026	3619	CY
17	-	Corrugated Polyethlylene Tubing (Non-perforated):			
	A	8-inch	IA-CS-046	1672	LF
18	-	Corrugated Polyethlylene Tubing (Perforated):			
	A	4-inch (Toe-Drain)	IA-CS-046	256	LF
19	-	Corrugated profile Wall (Dual Wall) Polyethlyene Pipe			
	A	12-inch	IA-CS-046	49	LF
20	-	Drain Tile Connections			
	A	6-inch	IA-CS-046	5	EA
	B	4-inch	IA-CS-046	22	EA
21	-	Stoplog Storage Structure	IA-CS-046	1	EA
22	-	Water Control Structure Assembly	IA-CS-051	1	EA
23	-	12-inch Tile Outlet	IA-CS-051	4	EA
24	-	Riprap, Class E	IA-CS-061	437	TON
25	-	Granular Foundation Material	IA-CS-061	44.5	TON
26	-	Road Access Driveway	IA-CS-061	1	EA
27	-	Concrete Grout	IA-CS-062	87	CY

INSPECTION TABLE

Bid Item	Sub Item	Description	Spec. Ref	Shop Drawing	Required Inspection or Survey
1	-	Mobilization & Demobilization	CS-008		
2	-	Site Stripping & Preparation	IA-CS-001		Inspection: verify topsoil strip depth Review: by survey or contractor equipment (laser level, machine control)
3	-	Crop Damage	IA-CS-001		Inspection: area damaged Review: engineer's survey of damaged area
4	-	Silt Fence	IA-CS-005	X	Inspection: verify proper installation and total linear feet of material Review: visual
5	-	Straw Wattle	IA-CS-005	X	Inspection: verify proper installation and total linear feet of material Review: visual
6	-	Buffer Seeding	IA-CS-006	X	Inspection: seed bed preperation Review: visual
7	-	Structure Seeding	IA-CS-006	X	Inspection: seed bed preperation Review: visual
8	-	Drain Tile Investigation	IA-CS-009		Inspection: encountered drain tile not shown on plans Review: visual inspection + survey as conditions dictate
9	-	Drain Tile Removal	IA-CS-009		
10	-	Steel Sheet Piling	IA-CS-013	X	Inspection: confirmation of sheet length prior to driving, visual inspection of driving, and survey of final elevations Review: visual and survey
11	-	Excavation (General)	IA-CS-021		Inspection: soils suitability for earthen berm and core trench Review: visual, non-destructive field testing (ribboning)
12	-	Excavation (Core Trench)	IA-CS-021		
13	-	Earthfill (Submerged Berms)	IA-CS-023		Inspection: Compaction of earthern berm and core trench, ensure proper method is utilized Review: visual, field testing as required (proof roll, denting)
14	-	Earthfill (General Dam & Core)	IA-CS-023		
15	-	Earthfill (General Stockpiling & Wasting)	IA-CS-023		Inspection: Final grading Review: visual + survey as conditions dictate
16	-	Topsoil Placement	IA-CS-026		Inspection: subgrade to verify topsoiling depth Review: by survey or contractor equipment (laser level, machine control)
17	-	Corrugated Polyethlylene Tubing (Non-perforated):	IA-CS-046	X	Inspection: Initial blinding, use of ASTM Class 2 backfill Review: visual, engineer supplied pipe crawler (if conditions dictate), survey of flow line elevations upon notice from contractor
	A	8-inch			
18	-	Corrugated Polyethlylene Tubing (Perforated):	IA-CS-046	X	Inspection: Initial blinding, use of ASTM Class 2 backfill Review: visual, engineer supplied pipe crawler (if conditions dictate), survey of flow line elevations upon notice from contractor
	A	4-inch (Toe-Drain)			
19	-	Corrugated profile Wall (Dual Wall) Polyethlyene Pipe	IA-CS-046	X	Inspection: Initial blinding, use of ASTM Class 2 backfill Review: visual, engineer supplied pipe crawler (if conditions dictate), survey of flow line elevations upon notice from contractor
	A	12-inch			
20	-	Drain Tile Connections	IA-CS-046		Inspection: soil tight joint Review: visual
	A	6-inch			
	B	4-inch			
21	-	Stoplog Storage Structure	IA-CS-046	X	
22	-	Water Control Structure Assembly	IA-CS-051	X	Inspection: sub-grade prep and concrete base, verification of flowlines Review: visual and survey
23	-	12-inch Tile Outlet	IA-CS-051	X	Inspection: soil tight joint Review: visual
24	-	Riprap, Class E	IA-CS-061	X	Inspection: Subgrade preperation with base (less around riser), final installation Review: visual, survey or contractor equipment (laser level, machine control) as conditions dictate
25	-	Granular Foundation Material	IA-CS-061	X	Inspection: sub-grade conditions that require foundation Review: visual
26	-	Road Access Driveway	IA-CS-061	X	Inspection: final grading and surfacing placement Review: visual and survey as conditions dictate
27	-	Concrete Grout	IA-CS-062	X	Inspection: pouring/installation of grout Review: visual

Note: Provide Engineer with 48 hours notice prior to anticipated inspection date

ISG

IOWA DEPARTMENT OF AGRICULTURE & LAND STEWARDSHIP

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PROJECT

IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-30398
FILE NAME	30398-C0-DETAILS
DRAWN BY	OBO
DESIGNED BY	SDP/JJJ
REVIEWED BY	SDP
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

CONSTRUCTION NOTES

SHEET

C0-20

ITEM NO.	ITEM CODE	DESCRIPTION
1	CS-008	MOBILIZATION AND DEMOBILIZATION INCLUDES PREPARATORY WORK AND OPERATIONS INCLUDING, BUT NOT LIMITED TO, THOSE NECESSARY FOR THE MOVEMENT OF PERSONNEL, EQUIPMENT, SUPPLIES, AND INCIDENTALS TO THE PROJECT SITE; SIGN INSTALLATION; FOR THE ESTABLISHMENT OF ALL CONTRACTOR FACILITIES NECESSARY FOR WORK ON THE PROJECT; AND FOR ALL OTHER WORK AND OPERATIONS WHICH MUST BE PERFORMED, OR COST INCURRED BEFORE BEGINNING WORK ON THE VARIOUS ITEMS ON THE PROJECT SITE INCLUDING BONDS AND INSURANCE. MOBILIZATION PAYMENT WILL BE PRORATED BASED ON PERCENT OF COMPLETED WORK. SEE SPECIFICATIONS CS-008 FOR DETAILS.
2	IA-CS-001	SITE STRIPPING & PREPARATION ITEM IS FOR CLEARING AND GRUBBING OF TREES, LOGS, STUMPS, ROOTS, HEDGE, BRUSH, FENCE, SIGNS, VEGETATION, AND ANY OTHER DEBRIS LOCATED IN THE PROJECT AREA. ITEM ALSO INCLUDES STRIPPING OF TOPSOIL TO THE DEPTH INDICATED IN THE PLANS AND STOCKPILING TOPSOIL IN DESIGNATED AREAS. (EST 4,000 CY) QUANTITIES SHALL BE CONSIDERED FINAL. SOME GRUBBED MATERIAL MAY BE PILED EAST OF THE WETLAND SITE WITH PERMISSION FROM THE LANDOWNER, ALL REMAINING MATERIAL SHALL BE BURNED OR DISPOSED OF OFFSITE. CONTRACTOR IS RESPONSIBLE FOR BURNING AND BURYING IN ACCORDANCE WITH ALL LOCAL AND STATE REGULATIONS.
3	IA-CS-001	Crop Damage INCLUDES CROP DAMAGE THAT RESULTS FROM CONSTRUCTION ACTIVITES. IT IS RECOMMENDED THE CONTRACTOR REMOVE CORN RESIDUE RATHER THAN KNOCK IT DOWN. THE EXACT LOCATION OF CROP DAMAGE WILL BE DETERMINED DURING CONSTRUCTION AND MEASURED TO THE NEAREST 0.1 ACRE
4	IA-CS-005	SILT FENCE INCLUDES FURNISHING AND INSTALLING SILT FENCE PER SUDAS SPECIFICATIONS. SILT FENCE IS SHOWN ON THE SITE RESTORATION PLAN SHEET. SILT FENCE LOCATIONS AND SIZES ARE APPROXIMATE. EXACT LOCATION AND LENGTH OF SILT FENCE NEEDED WILL BE DETERMINED DURING CONSTRUCTION. IF ACCUMULATED SEDIMENT REACHES A LEVEL ONE-HALF THE HEIGHT OF THE FENCE, REVMOCE THE ACCUMULATED SEDIMENT. THE SILT FENCE SHALL BE CAREFULLY INSPECTED AND ANY MAINTENANCE NEEDED SHALL BE INCLUDED IN BID ITEM.
5	IA-CS-005	STRAW WATTLE TO BE USED AROUND WETLAND AND SPOIL PLACEMENT SITES AND AS NEEDED FOR EROSION CONTROL. INCLUDES PLACEMENT, MAINTENANCE, REMOVAL, AND OFFSITE DISPOSAL OF SEDIMENT, AND REMOVAL OF DEVICE. REFER TO THE SITE RESTORATION PLAN SHEET. EXACT LOCATION AND LENGTH OF WATTLES NEEDED WILL BE DETERMINED DURING CONSTRUCTION.
6	IA-CS-006	BUFFER SEEDING INCLUDES ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO PREPARE SEED BED, SEED, FERTILIZE AND MULCH AND ESTABLISH GROWTH IN DISTURBED AREAS. USE BUFFER SEEDING MIX IN IA CS-006 SPECIFICATION SEED BED PREPARATION SHALL BE REVIEWED AND ACCEPTED BY ENGINEER PRIOR TO SEEDING. ALL ROCKS AND CLODS LARGER THAN GOLF BALL SIZE SHALL BE REMOVED FROM THE SEED BED. WEED CONTROL IS RESPONSIBILITY OF CONTRACTOR. INCLUDES SUPPLEMENTAL WATERING AS REQUIRED AND RESEEDING AREAS OF NON-GERMINATION.
7	IA-CS-006	STRUCTURE & CHANNEL SEEDING INCLUDES ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO PREPARE SEED BED, SEED, FERTILIZE AND MULCH AND ESTABLISH GROWTH IN DISTURBED AREAS. USE STRUCTURE AND WATERWAY/CHANNEL SEEDING MIX IN IA CS-006 SPECIFICATION. SEED BED PREPARATION SHALL BE REVIEWED AND ACCEPTED BY ENGINEER PRIOR TO SEEDING. ALL ROCKS AND CLODS LARGER THAN GOLF BALL SIZE SHALL BE REMOVED FROM THE SEED BED. WEED CONTROL IS RESPONSIBILITY OF CONTRACTOR. INCLUDES SUPPLEMENTAL WATERING AS REQUIRED AND RESEEDING AREAS OF NON-GERMINATION.
8	IA-CS-009	DRAIN TILE INVESTIGATION ALL EXPLORATORY INVESTIGATION IS TO BE COMPLETED BY THE CONTRACTOR PRIOR TO ANY TILE WORK, UNLESS SPECIFICALLY DIRECTED BY THE ENGINEER TO PROCEED DIFFERENTLY. CONTRACTOR IS TO GIVE ENGINEER (712-732-7745) 48 HOURS NOTICE PRIOR TO PERFORMING ANY EXPLORATORY INVESTIGATION WORK. CONTRACTOR IS ENCOURAGED TO PERFORM EXPLORATORY EXCAVATION OF EXISTING UTILITIES AS SOON AS POSSIBLE TO ALLOW PROPER LEAD TIME FOR CONFLICT RESOLUTION, IF NECESSARY.
9	IA-CS-009	DRAIN TILE REMOVAL INCLUDES EXCAVATION; REMOVAL AND DISPOSAL OF EXISTING TILE; AND PLACING, COMPACTING, AND GRADING OF BACKFILL. CONTRACTOR IS TO REMOVE TILE ONLY IN AREAS SPECIFIED IN THE PLANS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MUCH OF THE REMOVAL IS TO OCCUR WITHIN OR NEAR THE PROPOSED POOL AREA AND CAN BE COMPLETED WHILE GRADING THE POOL. ALL REMOVED TILE SHALL BECOME PROPERTY OF THE CONTRACTOR. INSTALLING CAPS ON THE TILE TO REMAIN IN PLACE IS INCIDENTAL TO THIS BID ITEM.
10	IA-CS-013	STEEL SHEET PILING INCLUDES FURNISHING AND DRIVING THE SPECIFIED SHEET PILING AT THE LOCATION SHOWN ON THE DRAWINGS. PILING SHALL BE DRIVEN IN A MANNER SO AS TO ENSURE PERFECT INTERLOCKING THROUGHOUT THE ENTIRE LENGTH OF EACH PILE. PILING SHALL BE DRIVEN TO THE FULL DEPTH SHOWN ON THE DRAWINGS UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL CUT THE PILING OFF AT THE SPECIFIED ELEVATIONS. PILING LENGTH SHALL BE SUFFICIENT TO PERMIT REMOVAL OF ALL MATERIALS DAMAGED BY DRIVING.
11	IA-CS-021	EXCAVATION (GENERAL) REFER TO GRADING PLANS FOR DETAILS AND SHEET C4-10 FOR THE EARTHWORK SUMMARY. QUANTITIES SHALL BE CONSIDERED FINAL AND NO ADDITIONAL PAYMENT WILL BE ALLOWED. INCLUDES REMOVAL AND GRADING TO FINAL SUBGRADE ELEVATIONS, AS WELL AS SCARIFICATION AND COMPACTION OF THE EXPOSED CUT SURFACES.
12	IA-CS-021	EXCAVATION (CORE TRENCH) REFER TO ITEM NUMBER 11
13	IA-CS-023	EARTHFILL (SUBMERGED BERM - METHOD 1) REFER TO GRADING PLANS FOR DETAILS. INCLUDES PLACEMENT AND GRADING OF SUBMERGED BERMS WITHIN THE WETLAND AREA TO FINAL PLAN ELEVATIONS, METHOD 1 COMPACTION WILL BE REQUIRED IN THIS AREA. ADDITIONAL MATERIAL IS TO BE WASTED IN THE SPOILS PLACEMENT AREA TO THE EAST OF THE WETLAND.
14	IA-CS-023	EARTHFILL (GENERAL DAM - METHOD 2) REFER TO GRADING PLANS FOR DETAILS. INCLUDES PLACEMENT AND GRADING TO FINAL SUBGRADE ELEVATIONS. METHOD 2 COMPACTION IS REQUIRED, REFER TO SPECIFICATIONS FOR DETAILS. MATERIAL EXCAVATED FOR THE CORE TRENCH MAY BE REUSED AS FILL, IF MATERIAL IS SUITABLE. ALL OTHER BORROW MATERIAL IS EXPECTED TO COME FROM THE POOL GRADING AND FOREBAY AREAS.
15	IA-CS-023	EARTHFILL (GENERAL STOCKPILING) REFER TO GRADING PLANS FOR DETAILS. INCLUDES PLACEMENT AND GRADING OF EXCESS MATERIAL IN THE SPOILS PLACEMENT AREA TOT HE EAST OF THE WETLAND, METHOD 1 COMPACTION WILL BE REQUIRED IN THIS AREA.
16	IA-CS-026	TOPSOIL PLACEMENT THE PROJECT AREA SHALL BE DRESSED WITH A MINIMUM OF 8" OF TOPSOIL IN AREAS DESIGNATED ON THE PLANS. ANY EXCESS TOPSOIL SHALL BE SPREAD IN THE DESIGNATED AREA EAST OF THE WETLAND, UNLESS OTHERWISE DIRECTED BY ENGINEER OR LANDOWNER.
17	IA-CS-046	CORRUGATED POLYETHYLENE TUBING (NON-PERFORATED) INCLUDES TRENCH EXCAVATION AND INSTALLATION OF PIPE ACCORDING TO PLANS AND SPECIFICATIONS. ITEM INCLUDES LINEAR MEASUREMENT THROUGH ALIGNMENT TURNS, PREFABRICATED ELBOWS, AND TEE SECTIONS. FABRICATION AND INSTALLATION OF FITTINGS AND ANTI-SEEP COLLARS IS INCIDENTAL TO THIS ITEM. MATERIAL SHALL BE STANDARD POLYETHYLENE TUBING AS SPECIFIED IN IA-CS-046. PIPE IS TO BE LAID IN ACCORDANCE WITH SPOON OR FLAT BOTTOM TRENCH (SEE DETAILS). ITEM INCLUDES ALL GRANULAR BEDDING AND ENCASEMENT MATERIAL TO MEET INSTALLATION REQUIREMENTS. AN UNSTABLE TRENCH BOTTOM SHALL BE STABILIZED WITH GRANULAR FOUNDATION MATERIAL UPON APPROVAL FROM THE ENGINEER. GRANULAR FOUNDATION MATERIAL, IF APPROVED BY ENGINEER, WILL BE PAID UNDER A SEPERATE BID ITEM. ITEM ALSO INCLUDES ALL SHORING/BRACING REQUIRED FOR SURROUNDING UTILITIES AND STRUCTURES TO PROPERLY INSTALL PIPE. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS AND ELEVATIONS. SUBSIDIARY TO THIS BID ITEM IS THE SEPARATION OF SOILS DURING INSTALLATION. ALL EFFORTS SHALL BE MADE DURING CONSTRUCTION TO SEPARATE SOIL TYPES. BACKFILL SHALL BE COMPACTED PRIOR TO PLACEMENT OF TOPSOIL. TOPSOIL SHALL BE PLACED TO A MINIMUM OF 18", OR UNIFORM TO THE TOPSOIL DEPTH OF THE SURROUNDING AREA.
18	IA-CS-046	CORRUGATED POLYETHYLENE TUBING (PERFORATED) REFER TO ITEM NUMBER 17
19	IA-CS-046	CORRUGATED PROFILE WALL (DUAL WALL) POLYETHYLENE PIPE INCLUDES TRENCH EXCAVATION AND INSTALLATION OF PIPE ACCORDING TO PLANS AND SPECIFICATIONS. ITEM INCLUDES LINEAR MEASUREMENT THROUGH ALIGNMENT TURNS, PREFABRICATED ELBOWS, AND TEE SECTIONS. FABRICATION AND INSTALLATION OF FITTINGS AND ANTI-SEEP COLLARS IS INCIDENTAL TO THIS ITEM. MATERIAL SHALL BE HIGH DENSITY POLYETHYLENE WITH GASKETED JOINTS AS SPECIFIED IN IA-CS-046. PIPE IS TO BE LAID IN ACCORDANCE WITH SPOON OR FLAT BOTTOM TRENCH (SEE DETAILS). ITEM INCLUDES ALL GRANULAR BEDDING AND ENCASEMENT MATERIAL TO MEET INSTALLATION REQUIREMENTS. AN UNSTABLE TRENCH BOTTOM SHALL BE STABILIZED WITH GRANULAR FOUNDATION MATERIAL UPON APPROVAL FROM THE ENGINEER. GRANULAR FOUNDATION MATERIAL, IF APPROVED BY ENGINEER, WILL BE PAID UNDER A SEPERATE BID ITEM. ITEM ALSO INCLUDES ALL SHORING/BRACING REQUIRED FOR SURROUNDING UTILITIES AND STRUCTURES TO PROPERLY INSTALL PIPE. CONTRACTOR SHALL FIELD VERIFY UTILITY LOCATIONS AND ELEVATIONS. SUBSIDIARY TO THIS BID ITEM IS THE SEPARATION OF SOILS DURING INSTALLATION. ALL EFFORTS SHALL BE MADE DURING CONSTRUCTION TO SEPARATE SOIL TYPES. BACKFILL SHALL BE COMPACTED PRIOR TO PLACEMENT OF TOPSOIL. TOPSOIL SHALL BE PLACED TO A MINIMUM OF 18", OR UNIFORM TO THE TOPSOIL DEPTH OF THE SURROUNDING AREA.
20	IA-CS-045	MISC. DRAIN TILE REPAIRS AND CONNECTIONS ITEM IS TO BE USED FOR CONNECTING ANY TILE PREVIOUSLY CONNECTED TO THE EXISTING TILE, CONNECTING BASIN DRAINS, AND EMERGENCY REPAIR OF UNKNOWN TILE ACCIDENTALLY DAMAGED DURING CONSTRUCTION. ITEM INCLUDES ANY FITTINGS, GRANULAR MATERIAL, CONCRETE, OR OTHER MATERIALS REQUIRED TO REPAIR AND/OR CONNECT THE TILE TO THE PROPOSED PIPE, AND UP TO 20 LF OF TUBING TO MAKE CONNECTIONS. ITEM ALSO INCLUDES THE KEEPING AND DELIVERY OF A LOG OF CONNECTIONS MADE, AND APPROPRIATE CRUSH AND BURY OR REMOVAL AND DISPOSAL OF EXISTING TILE MATERIAL.
21	IA-CS-046	STOPLOG STORAGE STRUCTURE ITEM INCLUDES PIPE AND END CAP AS SHOWN IN THE PLANS. ITEM ALSO INCLUDES ALL EXCAVATION, COMPACTED ROCK, BEDDING AND BACKFILL.
22	IA-CS-051	WATER CONTROL STRUCTURE ASSEMBLY ITEM INCLUDES FURNISHING AND INSTALLATION OF THE CMP RISER INLET STRUCTURE, CMP WATER CONTROL STRUCTURE WITH STOPLOG CHANNEL, STOPLOGS, CONCRETE BASE, DRAWDOWN PIPE, AND 12" CMP PIPE AS SHOWN ON THE PLANS. ITEM ALSO INCLUDES ALL EXCAVATION, PLACING, COMPACTING BACKFILL MATERIAL, AND PIPE CONNECTIONS AND ANTI-SEEP COLLARS REQUIRED FOR THE WATER CONTROL STRUCTURE ASSEMBLY, LABOR, AND OTHER MATERIALS NECESSARY FOR THE INSTALLATION OF THE WATER CONTROL STRUCTURE ASSEMBLY.
23	IA-CS-051	TILE OUTLET ITEM INCLUDES FURNISHING AND INSTALLATION OF THE 20 LF CMP TILE OUTLET, CONCRETE COLLAR, AND ANIMAL GUARD. TILE OUTLET PIPE SHOULD HAVE A MINIMUM GRADE OF 1%. THE OUTLET INVERT SHOULD BE A MINIMUM OF 1-FOOT ABOVE THE NORMAL POOL ELEVATION IN WHICH IT IS DRAINING INTO.
24	IA-CS-061	RIPRAP MATERIAL SHALL COMPLY WITH GRADATION OF IOWA DOT SPECIFICATION 4130.02, CLASS E. PAYMENT WILL BE FOR ACTUAL TONS PLACED BASED ON SCALE TICKETS.
25	IA-CS-061	GRANULAR FOUNDATION MATERIAL INCLUDES FURNISHING, STOCKPILING, AND INSTALLING THE SPECIFIED MATERIAL. MATERIAL SHALL MEET ASTM D2321 CLASS 1 (CRUSHED ROCK, ANGULAR). MATERIAL MUST BE CRUSHED AND ANGULAR, ROUNDED PEBBLES, STONES OR "RIVER ROCK" WILL NOT BE ACCEPTED. ITEM WILL ONLY BE PAID FOR RIPRAP/EROSION FILTER STONE AND HDPE DUAL-WALL PIPE BEDDING, UPON APPROVAL OF ENGINEER. GRANULAR FOUNDATION MATERIAL USED FOR OTHER BID ITEMS, SUCH AS STRUCTURE FOUNDATION OR TILE CONNECTIONS, IS CONSIDERED INCIDENTAL TO THAT SPECIFIC BID ITEM AND WILL NOT BE PAID UNDER THIS ITEM.
26	IA-CS-061	ROAD ACCESS DRIVEWAY INCLUDES THE CONSTRUCTION OF A PERMANENT STABLILIZED DRIVEWAY AND CULVERT AS SHOWN ON PLANS AND IN ACCORDANCE WITH FLOYD COUNTY SECONDARY ROADS. ITEM INCLUDES APPROXIMATLEY 14 TONS OF GRANULAR MATERIAL TO STABILIZE DRIVEWAY.
27	IA-CS-062	CONCRETE GROUT INCLUDES FURNISHING AND PLACING OF CONCRETE GROUT ON THE PORTIONS OF RIPRAP AS INDICATED IN THE PLANS. GROUT SHALL BE CONSOLIDATED INTO THE VOIDS WITH THE USE OF A CONCRETE VIBRATOR. THE GROUT APPLICATION SHALL BE ADJUSTED TO ENSURE THAT VOIDS ARE PROPERLY FILLED THROUGH THE ENTIRE RIPRAP DEPTH AND SHALL NOT CREATE A SMOOTH SURFACE. UNUSED OR WASTED GROUT WILL BE ESTIMATED AND DEDUCTED FROM PAYMENT VOLUME BY THE ENGINEER OR ENGINEER'S REPRESENTATIVE.

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PROJECT

IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-30398
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REVIEWED BY	SDP
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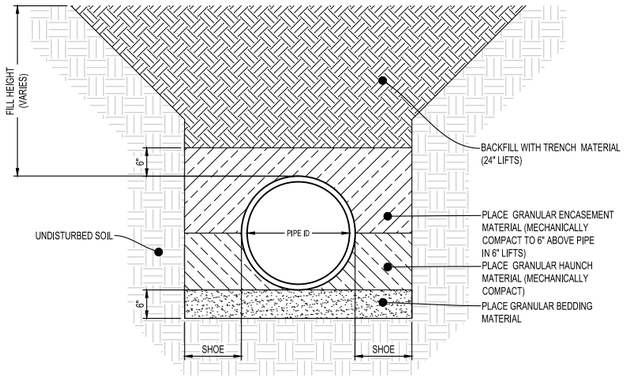
CLIENT PROJECT NO.	-

TITLE

ESTIMATE REFERENCE

SHEET

C0-21

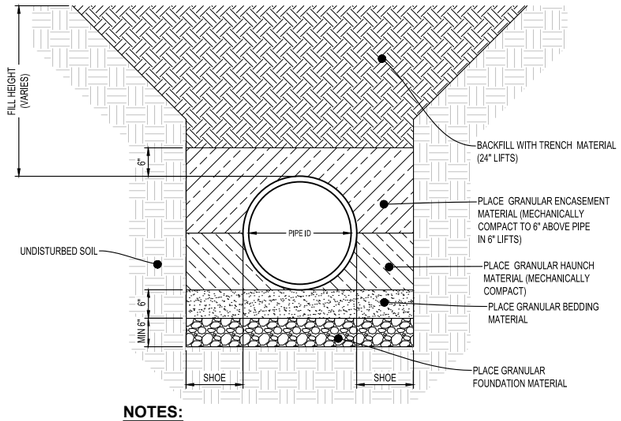


NOTE:

1. GRANULAR BEDDING, GRANULAR ENCASEMENT, AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION.
2. ALL PIPE WITH A FILL HEIGHT GREATER THAN 15-FEET SHALL BE FULLY ENCASED IN ASTM CLASS I MATERIAL.
3. THE SHOE WIDTH SHALL BE THE SAME AS THE COMPACTING MECHANISMS WIDTH OR THE PIPE MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS GREATER.

HDPE FLAT BOTTOM TRENCH

NTS

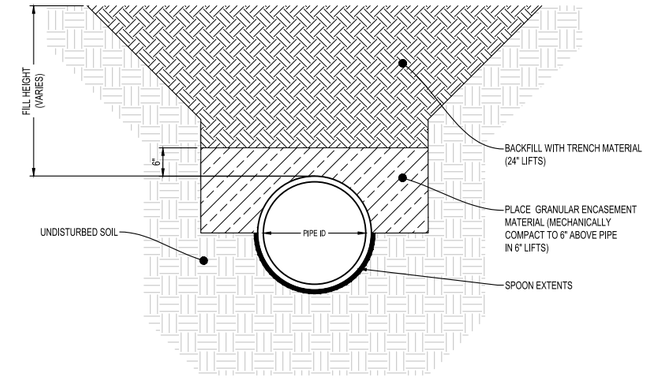


NOTES:

1. GRANULAR BEDDING, GRANULAR ENCASEMENT, AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION.
2. GRANULAR FOUNDATION BELOW THE PIPE SHALL BE PAID FOR BY THE CUBIC YARD, ONLY WHERE APPROVED BY THE FIELD ENGINEER.
3. ALL PIPE WITH A FILL HEIGHT GREATER THAN 15-FEET SHALL BE FULLY ENCASED IN ASTM CLASS I MATERIAL.
4. THE SHOE WIDTH SHALL BE THE SAME AS THE COMPACTING MECHANISMS WIDTH OR THE PIPE MANUFACTURER'S SPECIFICATIONS, WHICHEVER IS GREATER.

HDPE FLAT BOTTOM TRENCH WITH GRANULAR FOUNDATION

NTS



NOTES:

1. GRANULAR ENCASEMENT AND BACKFILL SHALL BE INCIDENTAL TO CONSTRUCTION.
2. SPOON DIMENSIONS SHALL COMPLY WITH PIPE MANUFACTURER'S SPECIFICATIONS.
3. ALL PIPE WITH A FILL HEIGHT GREATER THAN 15-FEET SHALL BE FULLY ENCASED IN ASTM CLASS I MATERIAL.

HDPE SPOON TRENCH

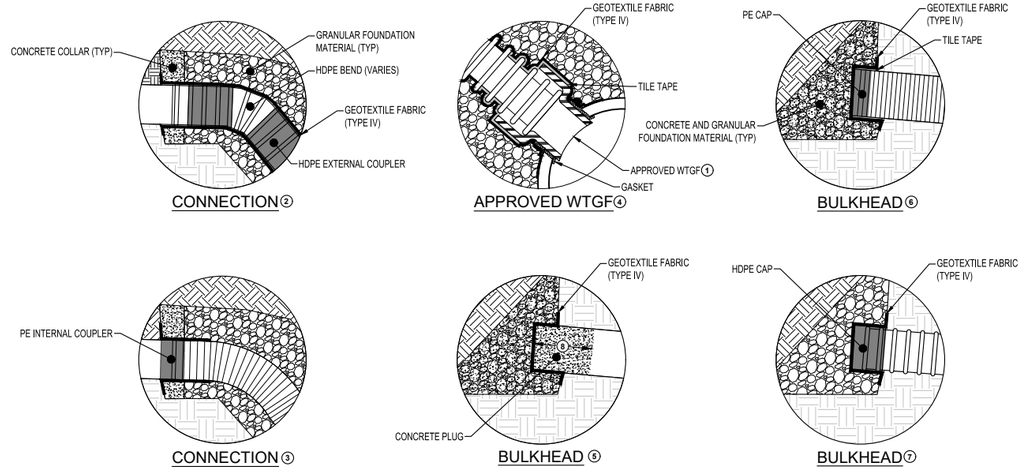
NTS

KEY NOTES:

1. APPROVED WATERTIGHT GASKETED FITTING (WTGF) SHALL ONLY BE USED WHEN THE PIPE TO BE CONNECTED IS 1/2 (OR SMALLER) THE DIAMETER OF THE PIPE TO BE TAPPED. A MOLDED TEE SHALL BE USED IN ALL OTHER SITUATIONS. APPROVED WTGF SHALL NOT BE INSTALLED COMPLETELY VERTICAL OR INTO THE BOTTOM HALF OF THE PIPE TO BE TAPPED.
2. CONNECTION OF HDPE TO CLAY, CONCRETE, OR PE TILE.
3. CONNECTION OF PE TO CLAY, CONCRETE, OR PE TILE.
4. CONNECTION OF PE OR HDPE TO PIPE TO BE TAPPED.
5. BULKHEAD OF EXISTING CLAY OR CONCRETE TILE.
6. BULKHEAD OF EXISTING PE TILE.
7. BULKHEAD OF EXISTING HDPE TILE.
8. CONCRETE BULKHEAD SHALL EXTEND INTO THE PIPE A MINIMUM LENGTH EQUIVALENT TO ONE DIAMETER OF THE PIPE.

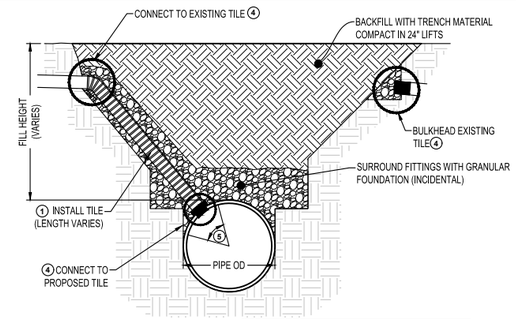
NOTES:

1. ALL TILE, FITTINGS, GEOTEXTILE FABRIC, FOUNDATION ROCK, TILE TAPE, CONCRETE, AND EXCAVATION SHALL BE INCIDENTAL TO RESPECTIVE BID ITEM UNLESS OTHERWISE NOTED.
2. NOT ALL SITUATIONS OR APPROVED EQUALS ARE DEMONSTRATED IN DETAIL. ENGINEER SHALL APPROVE OF EQUALS.



TYPICAL CONNECTION DETAILS

NTS



EXISTING TILE TYPE	FILL HEIGHT	CONNECTION MATERIAL ②
EXISTING PUBLIC TILES	ALL	HDPE
EXISTING PRIVATE TILES	>15 FEET	HDPE
EXISTING PRIVATE TILES	≤15 FEET	③

NOTES:

① REFER TO THE TABLE FOR MATERIAL. SIZE VARIES. THE TILE SHALL BE THE SAME AS OR THE NEXT AVAILABLE SIZE, UNLESS OTHERWISE SPECIFIED OR APPROVED BY THE ENGINEER.

② HDPE SHALL BE USED IF THE EXISTING TILE IS HDPE, REGARDLESS OF THE FILL HEIGHT.

③ HDPE SHALL BE USED WITHIN 5' FROM THE PROPOSED PIPE AND THEN PE MAY BE USED.

④ REFER TO TYPICAL CONNECTION DETAILS.

⑤ CONNECTION TO PROPOSED TILE SHALL BE LIMITED TO 15 TO 75 DEGREES FROM SPRING LINE.

ALL TILE, FITTINGS, GEOTEXTILE FABRIC, FOUNDATION ROCK, TILE TAPE, CONCRETE, AND EXCAVATION SHALL BE INCIDENTAL.

CONNECT TO EXISTING TILE

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FLOYD COUNTY IOWA

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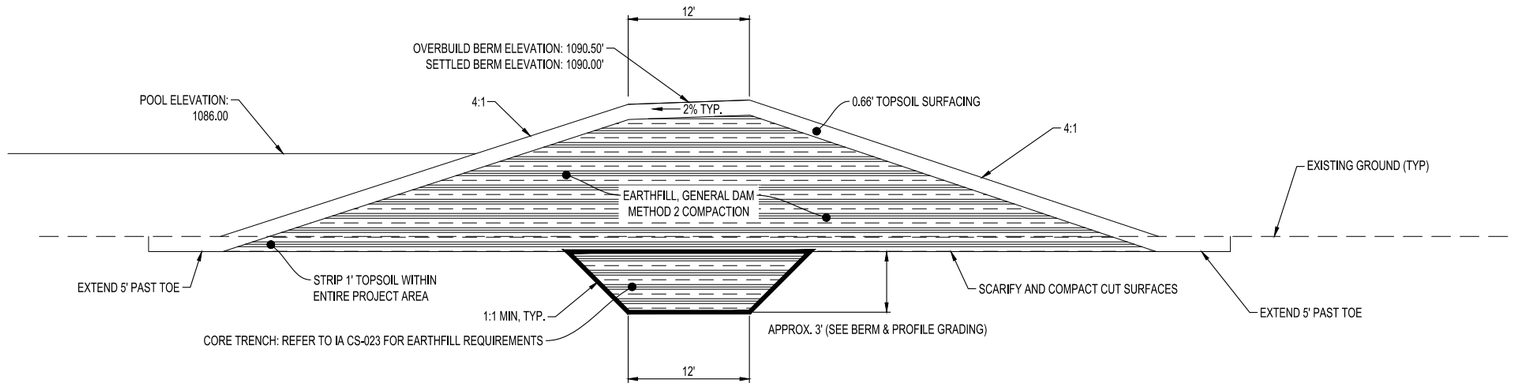
TITLE

DETAILS

SHEET

C0-22



TYPICAL EMBANKMENT SECTION

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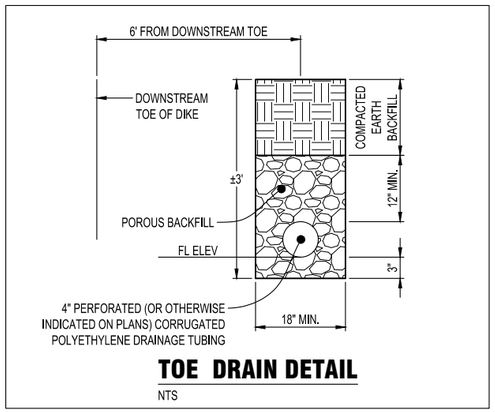
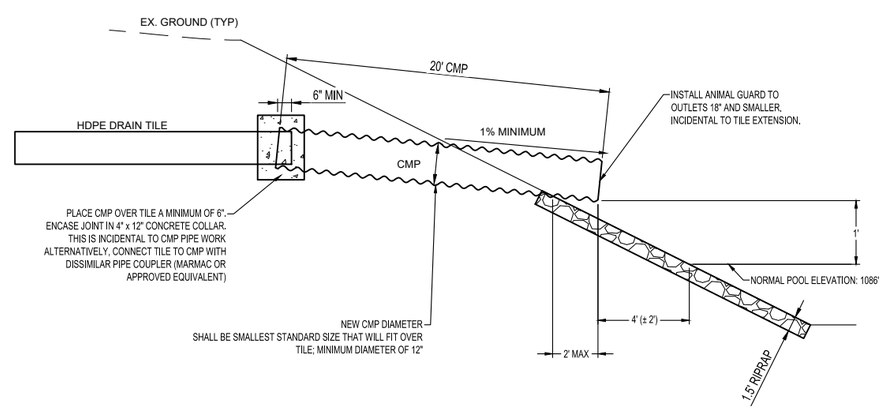


TOE DRAIN DETAIL

NTS



TILE OUTLET

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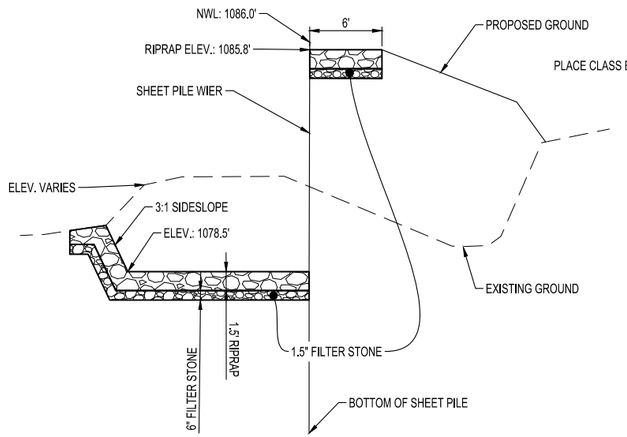
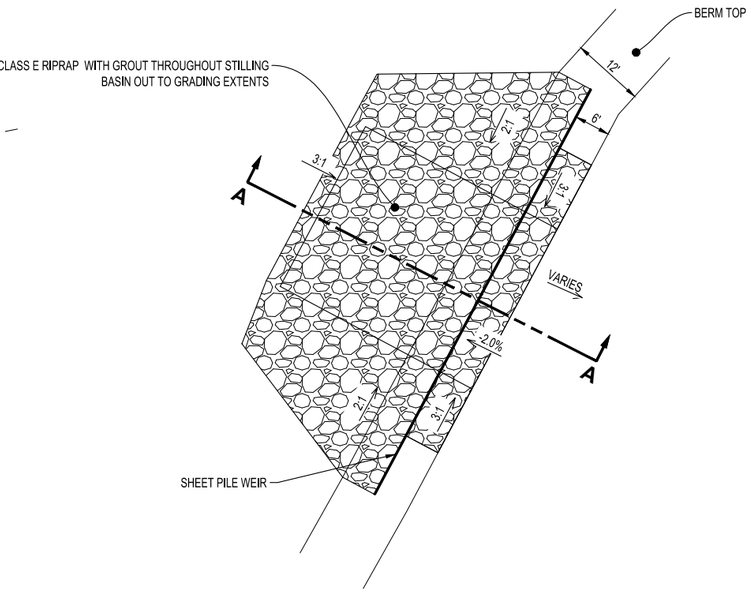
SHEET

C0-23

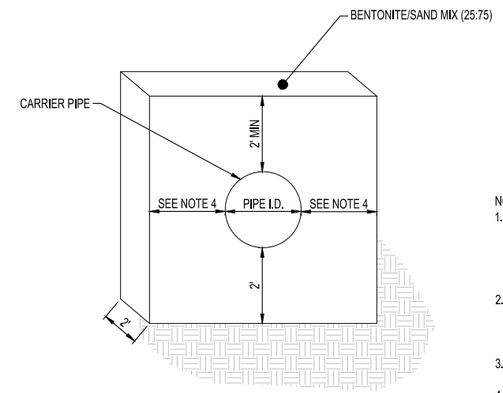


SECTION A-A
PROFILE VIEW
NTS



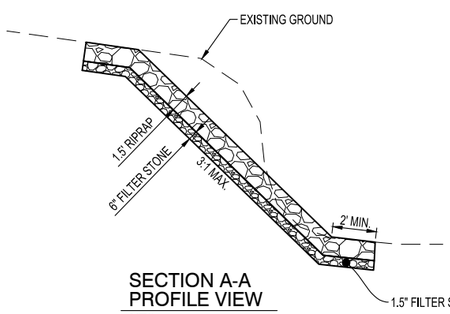
STILLING BASIN RIPRAP
NTS

PLAN VIEW
NTS

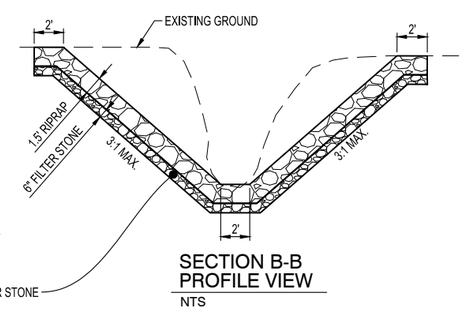


NOTES:
1. BETONITE SHALL BE EITHER IN GRANULAR OR CHIP FORM, WITH A MAXIMUM NOMINAL SIZE OF $\frac{3}{8}$" MIXED WITH NO MORE THAN 80% SAND (C33).
2. THE TRENCH DAM (ANTI-SEEP COLLAR) SHALL EXTEND AT LEAST 6 INCHES BEYOND THE STANDARD PIPE TRENCH.
3. PLACEMENT OF THE COLLAR SHALL NOT BE WITHIN 2 FEET OF A PIPE JOINT.
4. MINMUM DISTANCE FROM EDGE OF PIPE IS 3x PIPE DIAMETER OR 6" BEYOND TRENCH EXTENTS, WHICHEVER IS GREATER, TYP

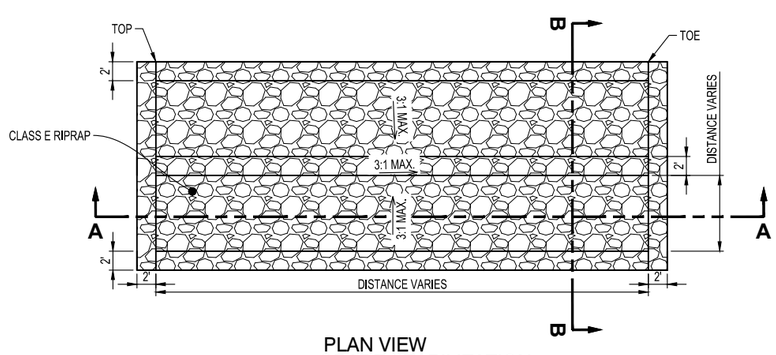
TRENCH DAM
NTS



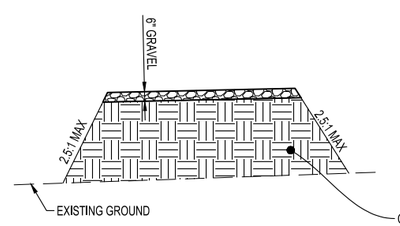
SECTION A-A
PROFILE VIEW
NTS



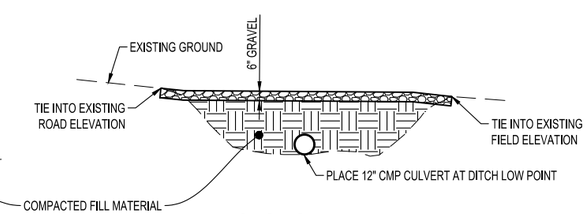
SECTION B-B
PROFILE VIEW
NTS



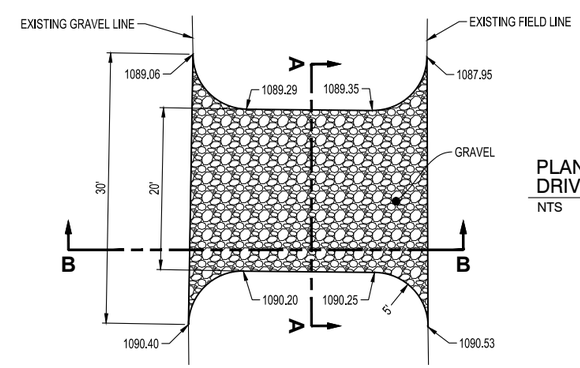
PLAN VIEW
GRADE STABILIZATION
NTS



SECTION A-A
PROFILE VIEW
NTS



SECTION B-B
PROFILE VIEW
NTS



PLAN VIEW
DRIVEWAY
NTS

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PROJECT

IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

PROJECT NO.	23-30398
FILE NAME	30398-C0-DETAILS
DRAWN BY	OBO
DESIGNED BY	SDP/JJJ
REVIEWED BY	SDP
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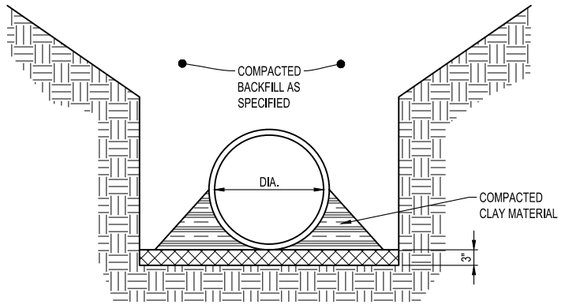
CLIENT PROJECT NO.	-

TITLE

DETAILS

SHEET

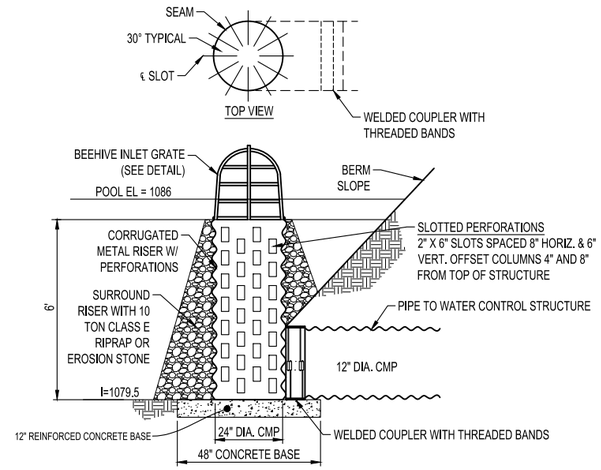
C0-24



NOTES:
1. BEGIN BACKFILL IMMEDIATELY AFTER PIPE HAS BEEN PLACED.
2. EXCAVATE 3" BELOW PIPE GRADE THEN BACKFILL WITH DAMP FRIABLE SOIL FREE FROM LUMPS AND RAKED OR GRADED TO A TRUE PLANE BEFORE PLACING CMP.
3. USE COMPACTED CLAY MATERIAL FOR PIPE BEDDING UPSTREAM OF PIPE DIAPHRAGM.
4. PIPE HAUNCH & BACKFILL MATERIAL SHALL BE HAND TAMPED ONLY. POWER TAMPING IS NOT ALLOWED.

CMP PIPE BEDDING FOR WATER CONTROL STRUCTURE

NTS

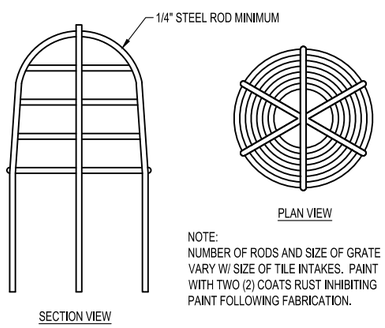


CMP SLOTTED INTAKE RISER

NTS

WATER CONTROL STRUCTURE NOTES:

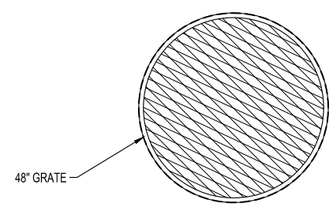
1. STRUCTURE SHOP DRAWINGS ARE REQUIRED FOR ENGINEER'S REVIEW AND APPROVAL BEFORE FABRICATION OF WATER CONTROL STRUCTURE.
2. STRUCTURE IS TO BE CONSTRUCTED OF ALUMINIZED CORRUGATED METAL PIPE.
3. STOP LOG CHANNEL IS TO BE ANCHORED TO THE WALLS AND FLOOR PRIOR TO PLACING CONCRETE INVERT.
4. A CONCRETE 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 Ø "J BOLTS" FASTENED TO THE BOTTOM STOP LOG. NO LIFTING HOLES ARE REQUIRED FOR THIS BOTTOM LOG.
5. PLACE/POUR BASE OF STRUCTURE ON FIRM UNDISTURBED EARTH FOUNDATION APPROVED BY ENGINEER.
6. A-LOK (OR EQUIVALENT) WATERTIGHT SEALS ARE REQUIRED FOR PIPE CONNECTIONS TO THE WATER CONTROL STRUCTURE.
7. MANHOLE STEPS ARE TO BE INSTALLED FOR MAINTENANCE ACCESS TO THE STOP LOGS.
8. STOP LOG ASSEMBLY SHALL BE WATER TIGHT AND CONFORM TO WHIPPS, INC. OR AN APPROVED EQUAL. ALL STRUCTURE JOINTS TO BE WATER TIGHT TO LIMIT ANY WATER MIGRATING THROUGH JOINTS AND AROUND THE STOP LOG CHANNEL.
9. ALL CMP FOR CONTROL STRUCTURE, RISER, AND ASSOCIATED PIPE SHALL BE 14 GA MINIMUM.

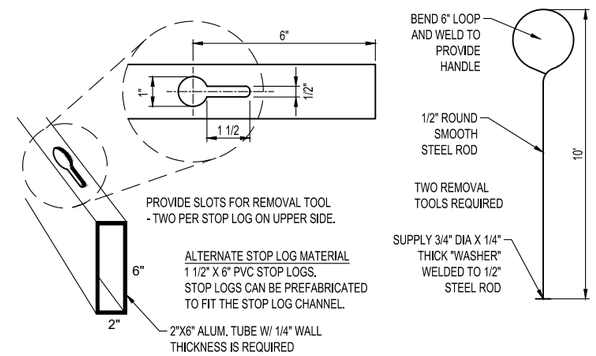


NOTE:
NUMBER OF RODS AND SIZE OF GRATE VARY W/ SIZE OF TILE INTAKES. PAINT WITH TWO (2) COATS RUST INHIBITING PAINT FOLLOWING FABRICATION.

BEEHIVE INLET GRATE (STEEL BARS)

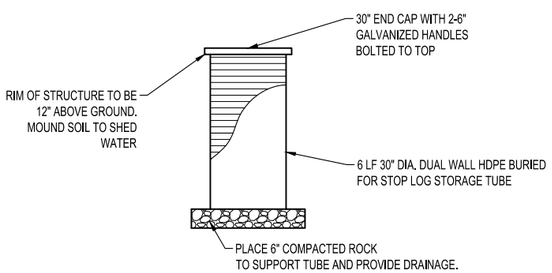
NTS





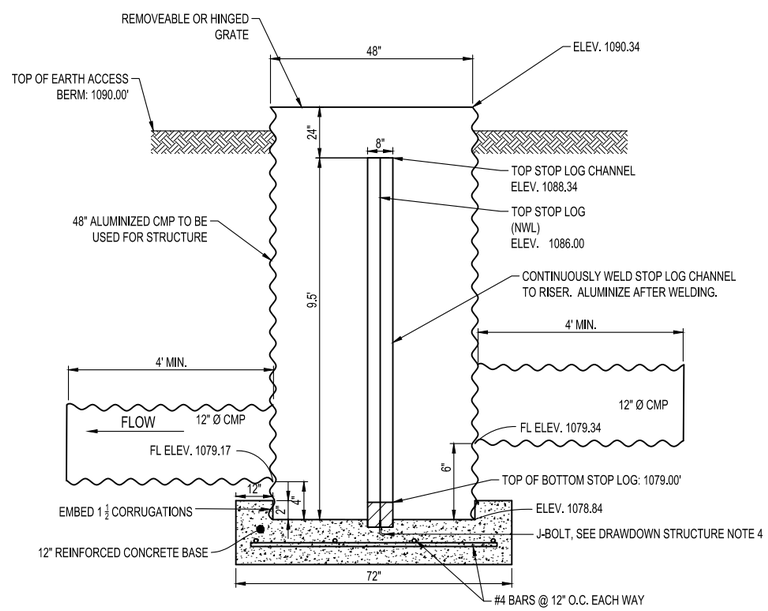
STOP LOG & REMOVAL TOOL DETAILS

NTS



COVER AND STOP LOG STORAGE DETAILS

NTS



WATER CONTROL STRUCTURE ELEVATION

STOP LOG CHANNEL NOTES:

1. ALL STEEL SHALL BE FY=36 KSI.
2. STOP LOG CHANNEL SHALL BE FURNISHED AS ONE CONTINUOUS PIECE W/ CONTINUOUS WELDS
3. ALL STEEL STOP LOG CHANNEL COMPONENTS ARE TO BE ALUMINIZED AFTER WELDING AND DRILLING IS COMPLETE
4. 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.

COVER/STOP LOG STORAGE NOTES:

1. PROVIDE COMPATIBLE GRATE WITH LOCKING MECHANISM AND LIFTING HANDLE (AGRIDRAIN GR24P OR APPROVED EQUIVALENT).
2. BOTH PADLOCKS FOR ACCESS DOOR AND STOPLOG STORAGE TUBE SHALL BE KEYED ALIKE. FOUR KEYS ARE TO BE SUPPLIED UPON PROJECT COMPLETION.
3. STOP LOG STORAGE IS TO BE PLACED CENTERED ON THE TOP OF BERM OFFSET SO AN NOT TO INTERFERE WITH ANTI-SEEP COLLARS OR WATER CONTROL STRUCTURE PIPING.
4. STOP LOGS NOT USED ARE TO BE PLACED IN THE STOP LOG STORAGE.

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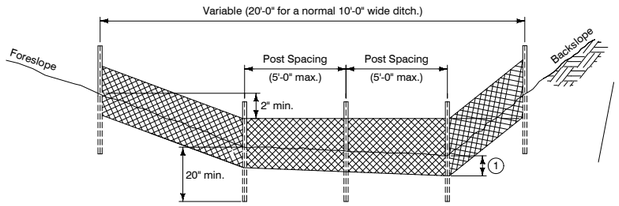
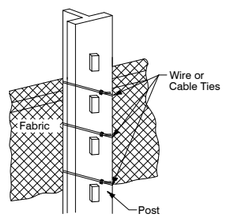
SHEET

C0-25



TYPICAL SILT FENCE DITCH CHECK

1 Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).



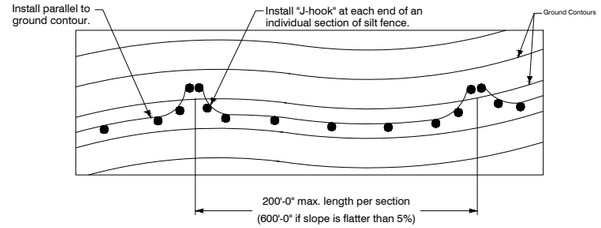
ATTACHMENT TO POST

FIGURE 9040.119 SHEET 1 OF 2

SUDAS 9040.119 REVISION 2 10-21-14 SHEET 1 of 2

SUDAS Standard Specifications

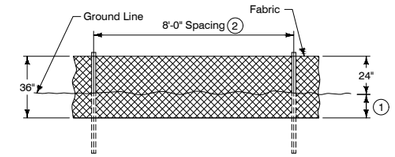
SILT FENCE



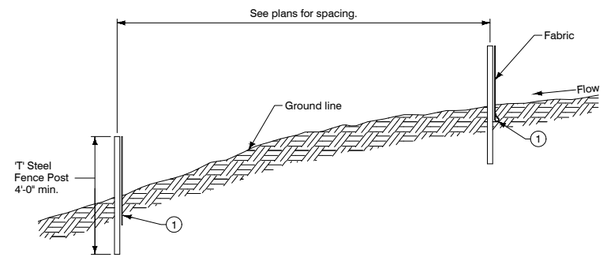
TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Plan View)

1 Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).

2 Reduce post spacing to 5'-0" at water concentration areas, or as required to adequately support fence.



DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES



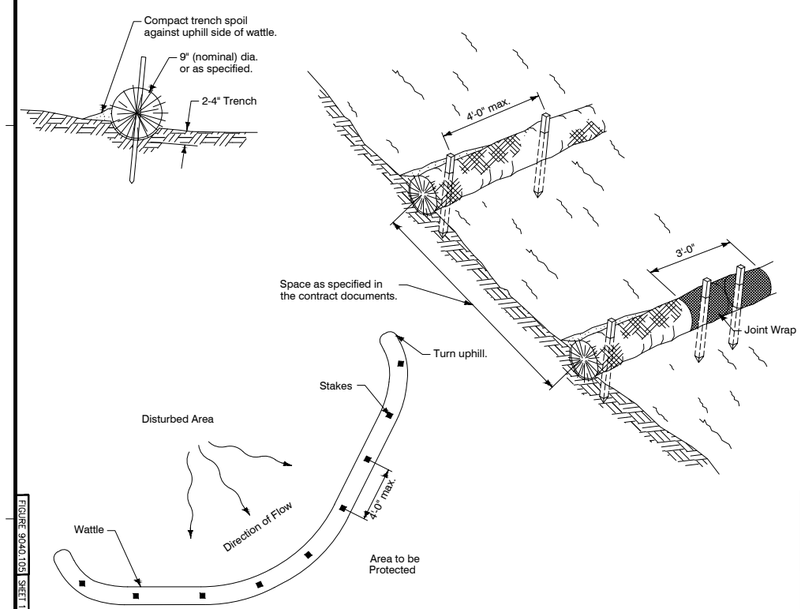
TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Profile View)

SUDAS 9040.119 REVISION 2 10-21-14 SHEET 2 of 2

SUDAS Standard Specifications

SILT FENCE

FIGURE 9040.119 SHEET 2 OF 2

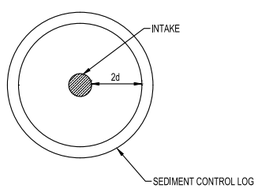


SUDAS 9040.105 REVISION 2 10-21-14 SHEET 1 of 1

SUDAS Standard Specifications

WATTLE

FIGURE 9040.105 SHEET 1 OF 1



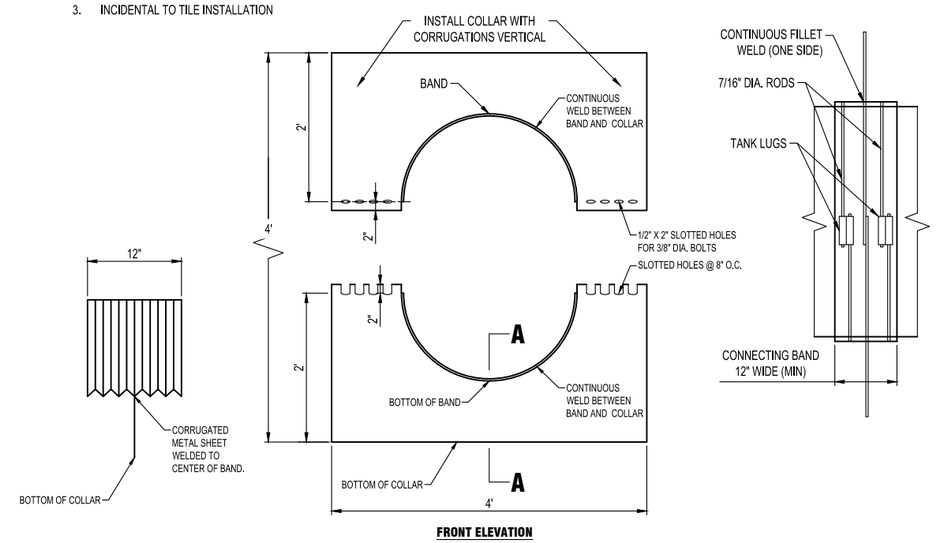
NOTES:

1. d = INTAKE SIZE: 12"-36"

STRAW WATTLE
STORM INLET PROTECTION
NTS

ANTI-SEEP COLLAR NOTES:

1. USE TWO PIECE CORRUGATED STEEL DIAPHRAGM (14 GAUGE) WITH 2-2/3" X 1/2" CORRUGATIONS. MASTIC SEALANT SHALL BE APPLIED TO THE CONNECTING BAND TO PROVIDE A LEAK-PROOF STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR ENSURING ANTI-SEEP COLLAR IS COMPATIBLE WITH PIPE SUPPLIED.
2. PLACE ANTI-SEEP COLLARS AS SHOWN ON THE PLANS.
3. INCIDENTAL TO TILE INSTALLATION



SECTION A-A
NTS

FRONT ELEVATION

CMP ANTI-SEEP COLLAR
NTS

SIDE ELEVATION

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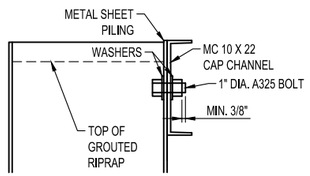
DETAILS

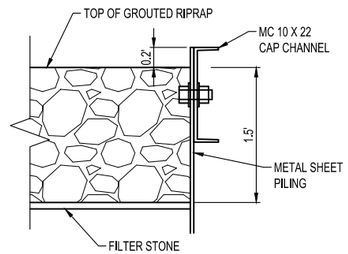
SHEET

C0-26



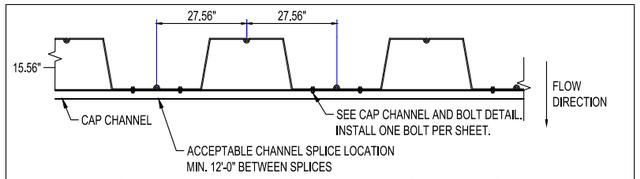
TYPICAL CHANNEL AND BOLT DETAIL

NTS



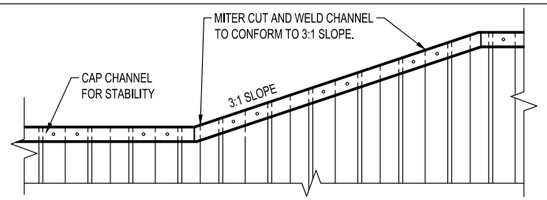
TYPICAL GROUTED RIPRAP DETAIL

NTS



TYPICAL PLAN VIEW CHANNEL BOLT PLACEMENT

NTS * DIMENSIONS SHOWN ARE REPRESENTATIVE OF AZ 19-700 SHEET PILE



TYPICAL FRONT VIEW CHANNEL BOLT PLACEMENT

NTS

SHEET PILING REQUIREMENTS

MINIMUM ELASTIC SECTION MODULUS, Sx = 25.36 IN^3/FT.
MINIMUM GRADE OF STEEL ASTM A572 GR. 60.
SHEET PILING LENGTH = VARIES, SEE ELEVATION.
MINIMUM MOMENT OF INERTIA, Ix = 141.7 IN^3/FT.

SHEETING WHICH MEETS THE REQUIREMENTS:

SHORELINE STEEL SZ-222 (OR APPROVED EQUIVALENT)

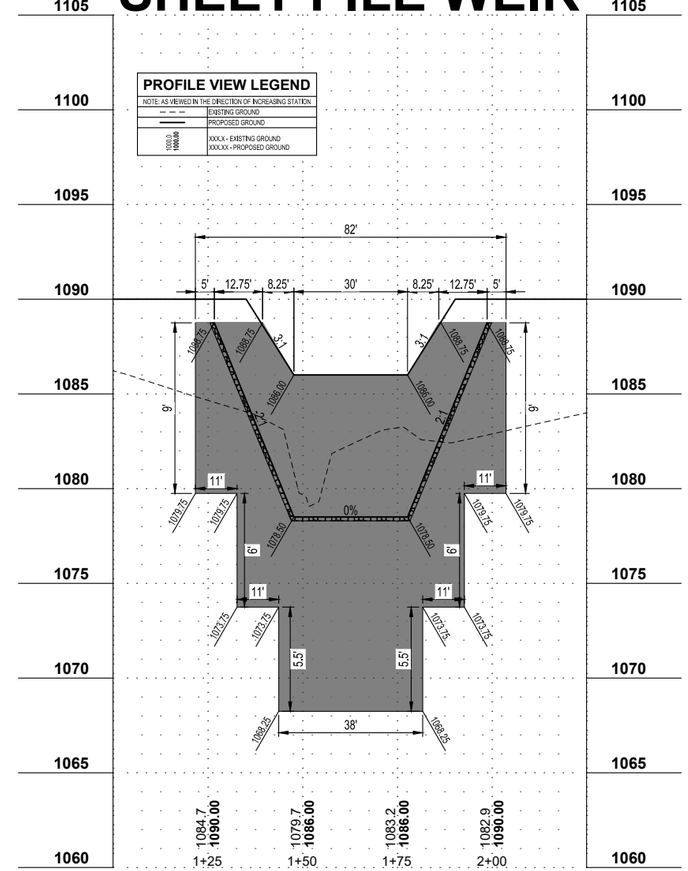
SHEET PILING NOTES

1. SHEETING CHOICES NOT LISTED ABOVE MAY BE ALLOWED WITH PRIOR APPROVAL OF ENGINEER, THIS ALLOWED SHEETING MUST MEET ENGINEERS' DEFLECTION REQUIREMENTS.
2. CONTRACTOR IS RESPONSIBLE TO CONFIRM AND PROVIDE INSTALLATION EQUIPMENT THAT IS COMPATIBLE WITH THE SHEETING TO BE USED. SOME INSTALLATION METHODS MAY WORK BETTER WITH HEAVIER SHEET PILE.

SHEET PILE INSTALLATION NOTES:

1. AFTER INSTALLATION, ANY HOLES LEFT IN SHEET PILE (LIFTING HOOKS ETC.) SHALL BE ABOVE GROUND AND CLOSED OFF TO NOT ALLOW WATER TO FLOW THROUGH.
2. AFTER SHEETING AND CHANNEL INSTALLATION, ALL SHEETING IS TO BE CUT TO CONFORM WITH 3:1 SLOPE AND REMOVE DAMAGE CAUSED BY DRIVING.
3. ALL SHEETS ARE TO BE MARKED AND NUMBERED AT 1' INCREMENTS PRIOR TO INSTALLATION.
4. THE CONTRACTOR SHALL KEEP A LOG TO VERIFY THAT CORRECT DEPTH IS ACHIEVED FOR ALL SHEETS INSTALLED. THIS LOG SHALL BE DELIVERED TO THE ENGINEER FOR REVIEW PRIOR TO ACCEPTANCE.

SHEET PILE WEIR



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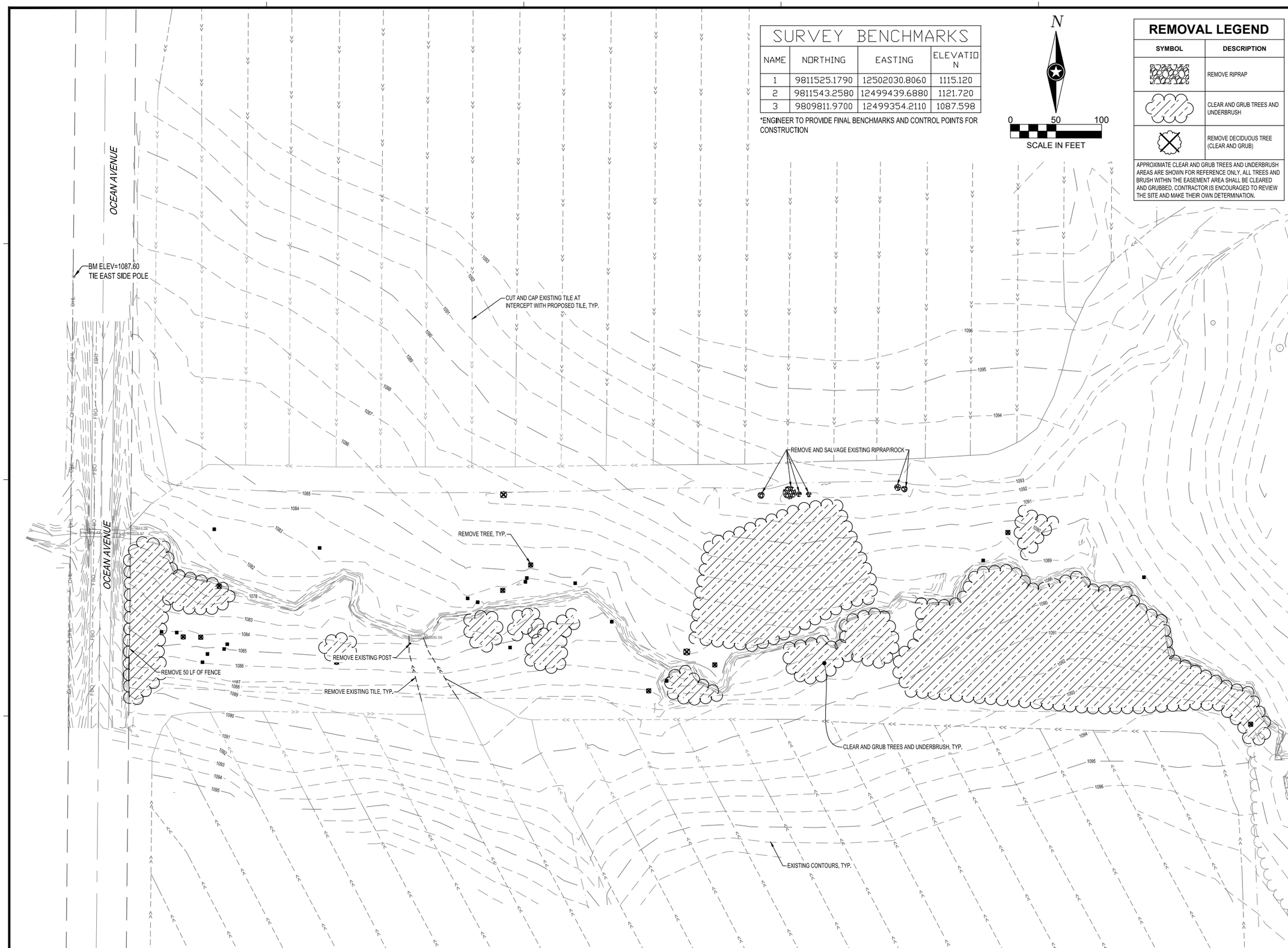
SHEET PILE STRUCTURE

SHEET

C0-27



SURVEY BENCHMARKS

NAME	NORTHING	EASTING	ELEVATION
1	9811525.1790	12502030.8060	1115.120
2	9811543.2580	12499439.6880	1121.720
3	9809811.9700	12499354.2110	1087.598

*ENGINEER TO PROVIDE FINAL BENCHMARKS AND CONTROL POINTS FOR CONSTRUCTION

REMOVAL LEGEND

SYMBOL	DESCRIPTION
	REMOVE RIPRAP
	CLEAR AND GRUB TREES AND UNDERBRUSH
	REMOVE DECIDUOUS TREE (CLEAR AND GRUB)

APPROXIMATE CLEAR AND GRUB TREES AND UNDERBRUSH AREAS ARE SHOWN FOR REFERENCE ONLY. ALL TREES AND BRUSH WITHIN THE EASEMENT AREA SHALL BE CLEARED AND GRUBBED. CONTRACTOR IS ENCOURAGED TO REVIEW THE SITE AND MAKE THEIR OWN DETERMINATION.

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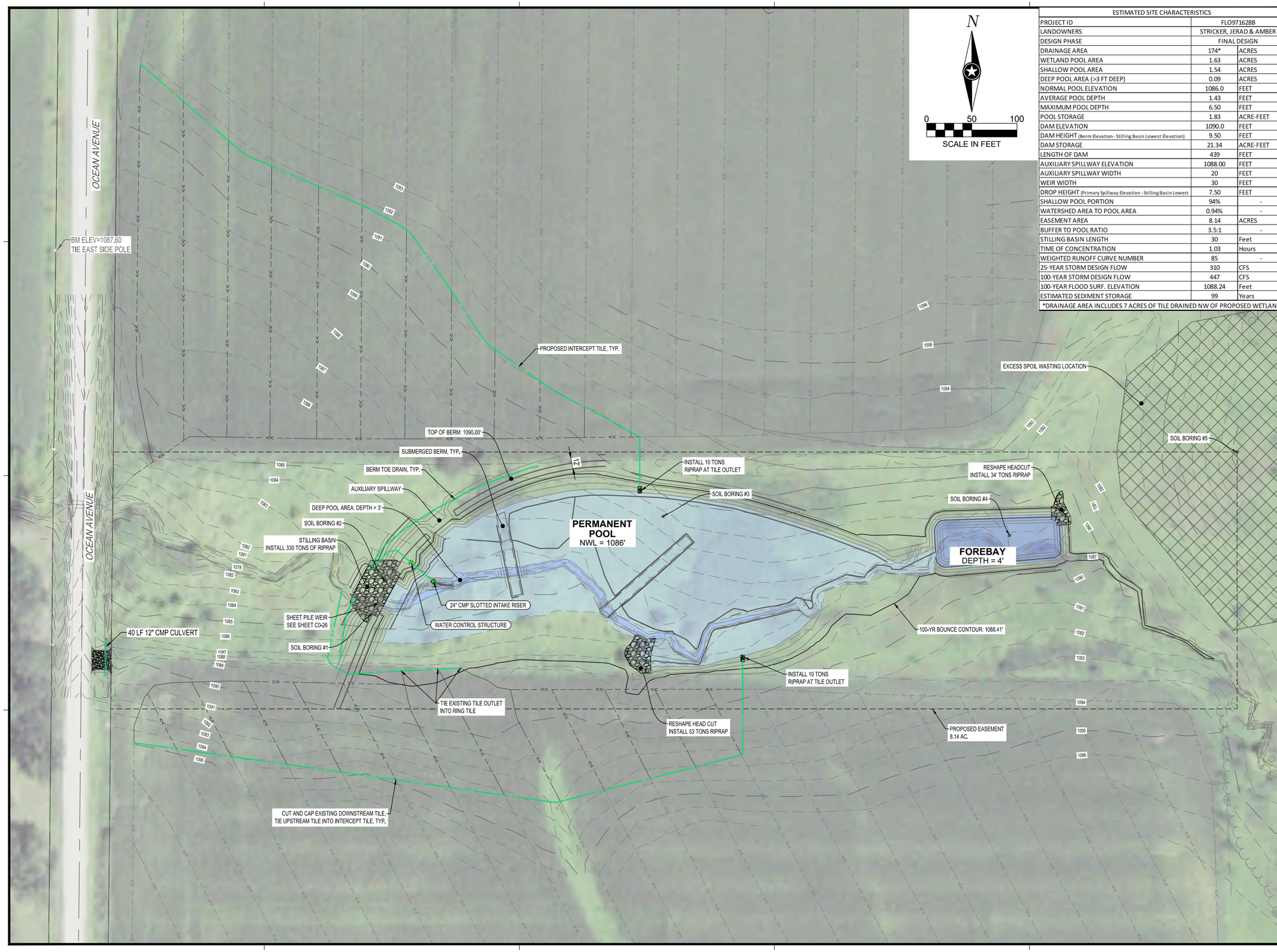
TITLE

EXISTING SITE & REMOVAL PLAN

SHEET

C2-10



ESTIMATED SITE CHARACTERISTICS		
PROJECT ID	FLO971628B	
LANDOWNERS	STRICKER, JERAD & AMBER	
DESIGN PHASE	FINAL DESIGN	
DRAINAGE AREA	174*	ACRES
WETLAND POOL AREA	1.63	ACRES
SHALLOW POOL AREA	1.54	ACRES
DEEP POOL AREA (>3 FT DEEP)	0.09	ACRES
NORMAL POOL ELEVATION	1086.0	FEET
AVERAGE POOL DEPTH	1.43	FEET
MAXIMUM POOL DEPTH	6.50	FEET
POOL STORAGE	1.83	ACRE-FEET
DAM ELEVATION	1090.0	FEET
DAM HEIGHT (Berm Elevation - Stilling Basin Lowest Elevation)	9.50	FEET
DAM STORAGE	21.34	ACRE-FEET
LENGTH OF DAM	439	FEET
AUXILIARY SPILLWAY ELEVATION	1088.00	FEET
AUXILIARY SPILLWAY WIDTH	20	FEET
WEIR WIDTH	30	FEET
DROP HEIGHT (Primary Spillway Elevation - Stilling Basin Lowest	7.50	FEET
SHALLOW POOL PORTION	94%	-
WATERSHED AREA TO POOL AREA	0.94%	-
EASEMENT AREA	8.14	ACRES
BUFFER TO POOL RATIO	3.5:1	-
STILLING BASIN LENGTH	30	Feet
TIME OF CONCENTRATION	1.03	Hours
WEIGHTED RUNOFF CURVE NUMBER	85	-
25-YEAR STORM DESIGN FLOW	310	CFS
100-YEAR STORM DESIGN FLOW	447	CFS
100-YEAR FLOOD SURF. ELEVATION	1088.24	Feet
ESTIMATED SEDIMENT STORAGE	99	Years

*DRAINAGE AREA INCLUDES 7 ACRES OF TILE DRAINED NW OF PROPOSED WETLAND

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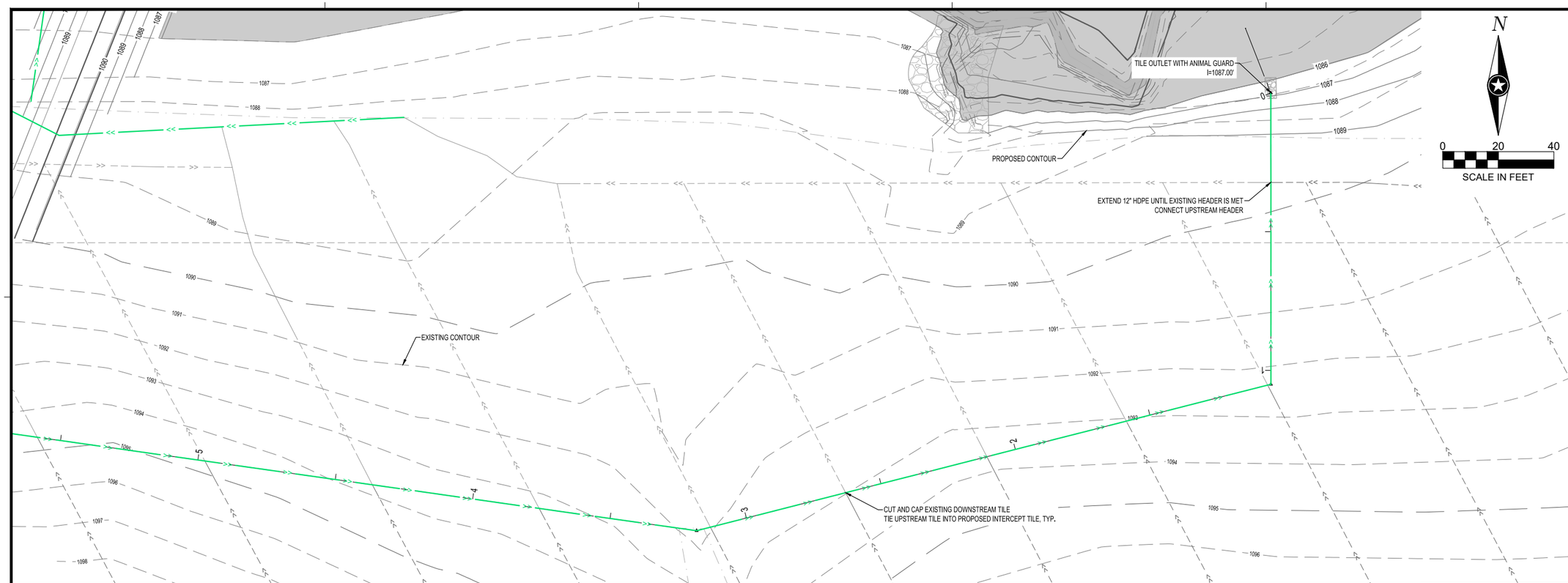
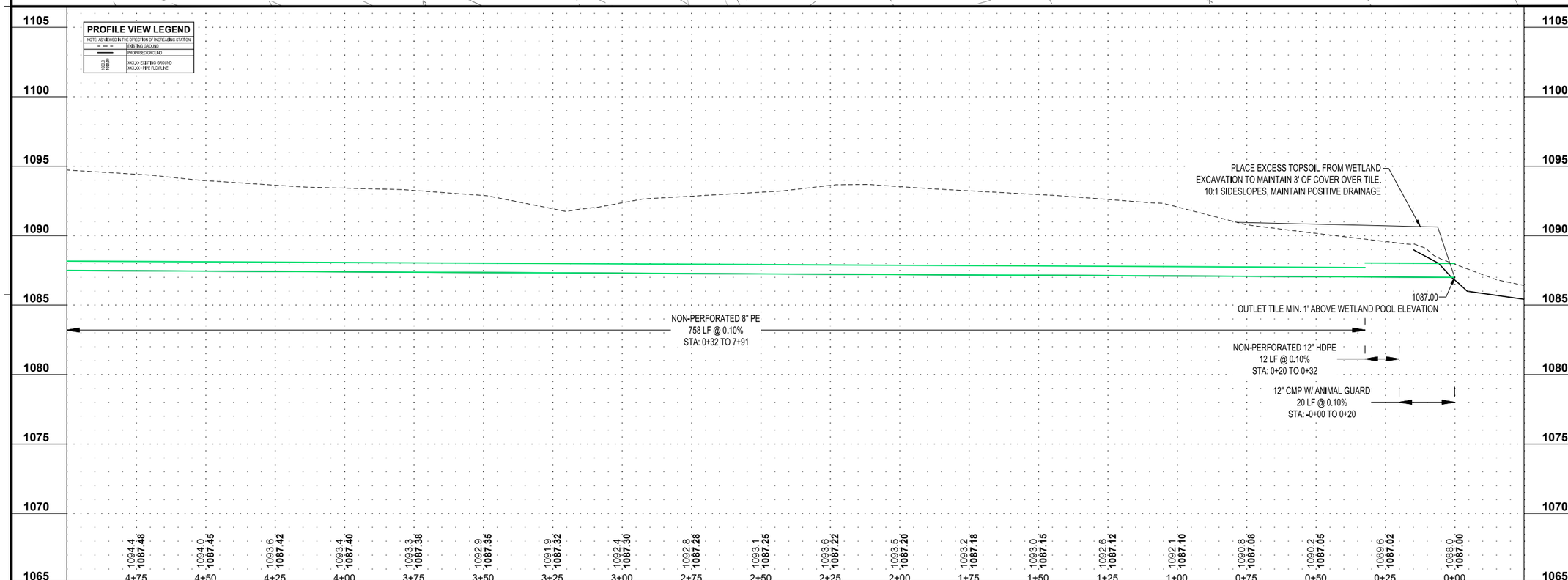
SITE PLAN

SHEET

C3-10





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PROJECT

IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

REVISION SCHEDULE

DATE	DESCRIPTION	BY

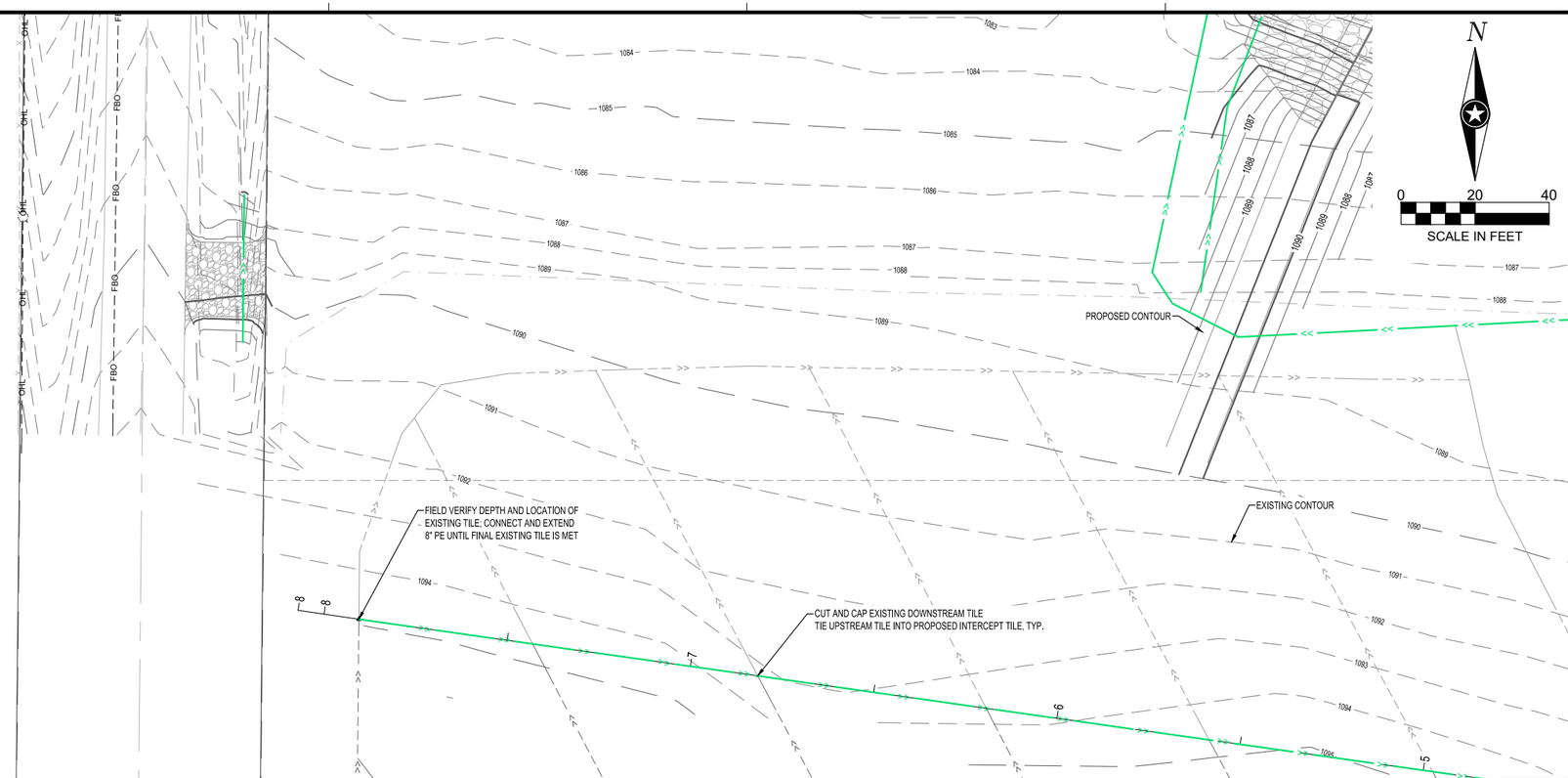
PROJECT NO.	23-30398
FILE NAME	30398-C3-UTILITY-PROF
DRAWN BY	OBO
DESIGNED BY	SDP/JJJ
REVIEWED BY	SDP
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

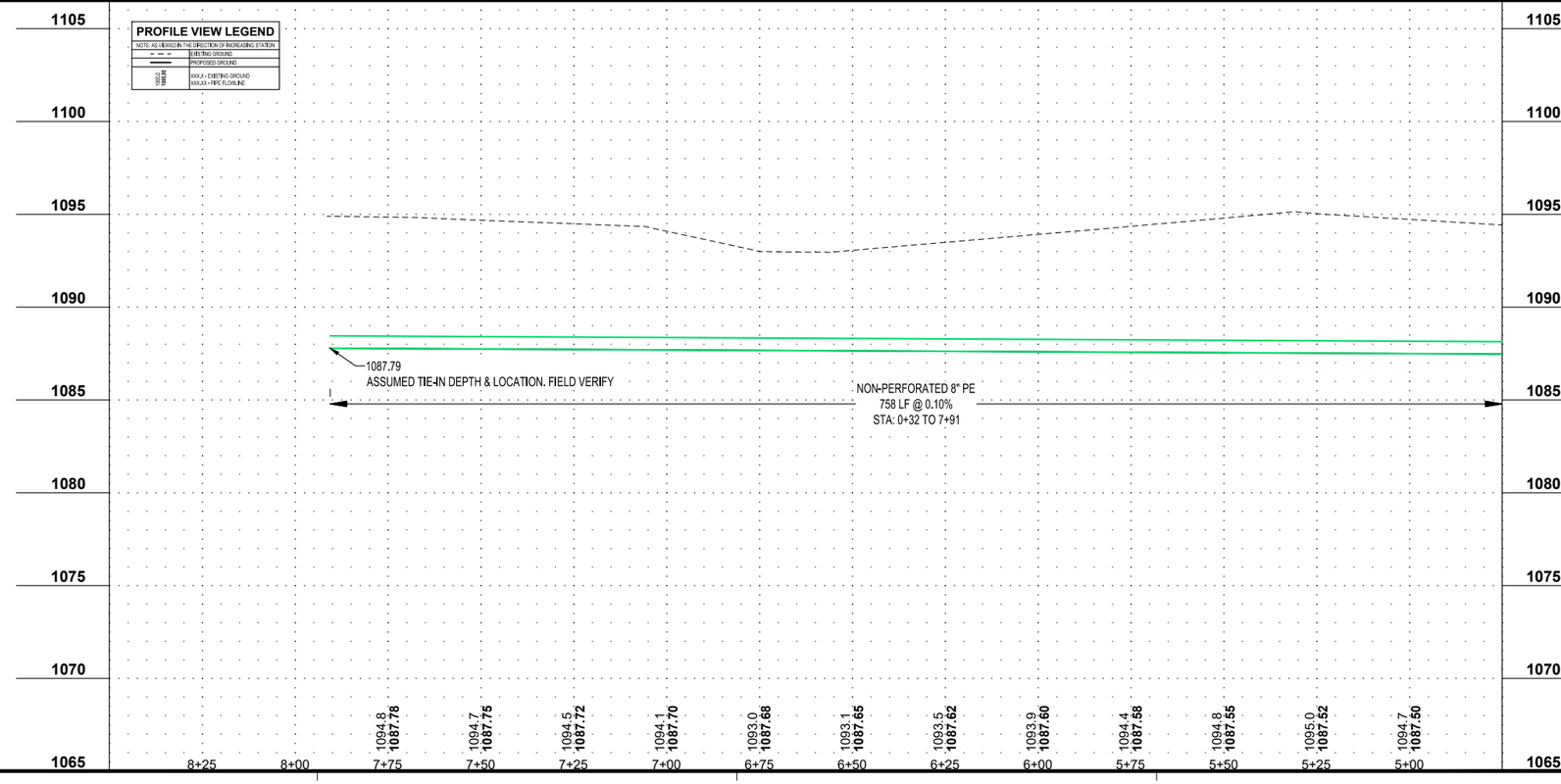
TITLE

SOUTH TILE INTERCEPT PROFILE

SHEET

C3-30





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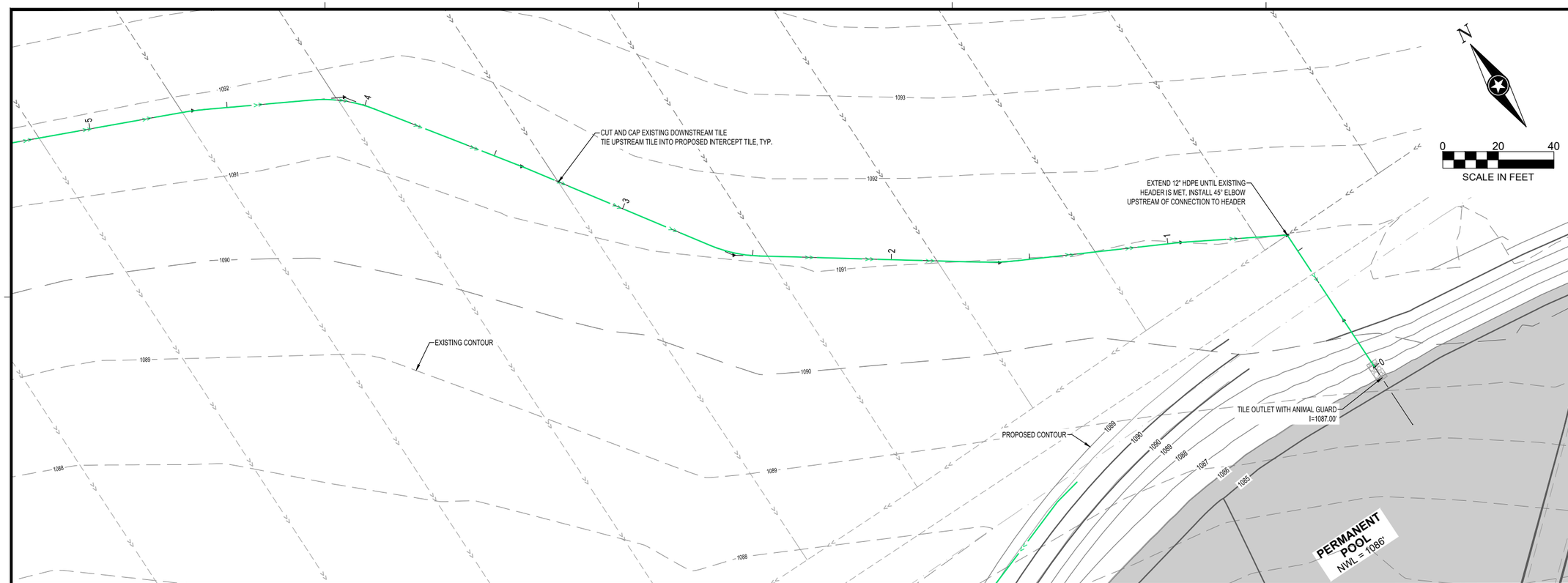
CLIENT PROJECT NO.	-

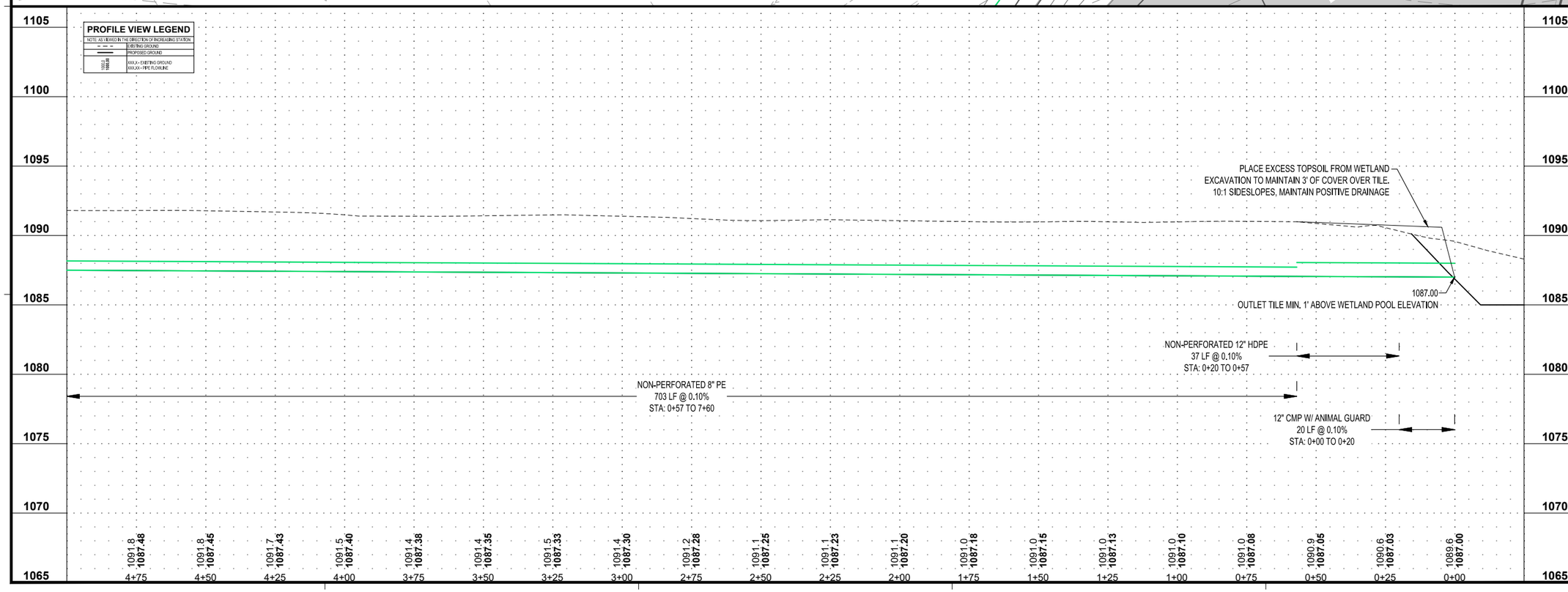
TITLE

SOUTH TILE INTERCEPT PROFILE

SHEET

C3-31





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ORIGINAL ISSUE DATE	--/--/--
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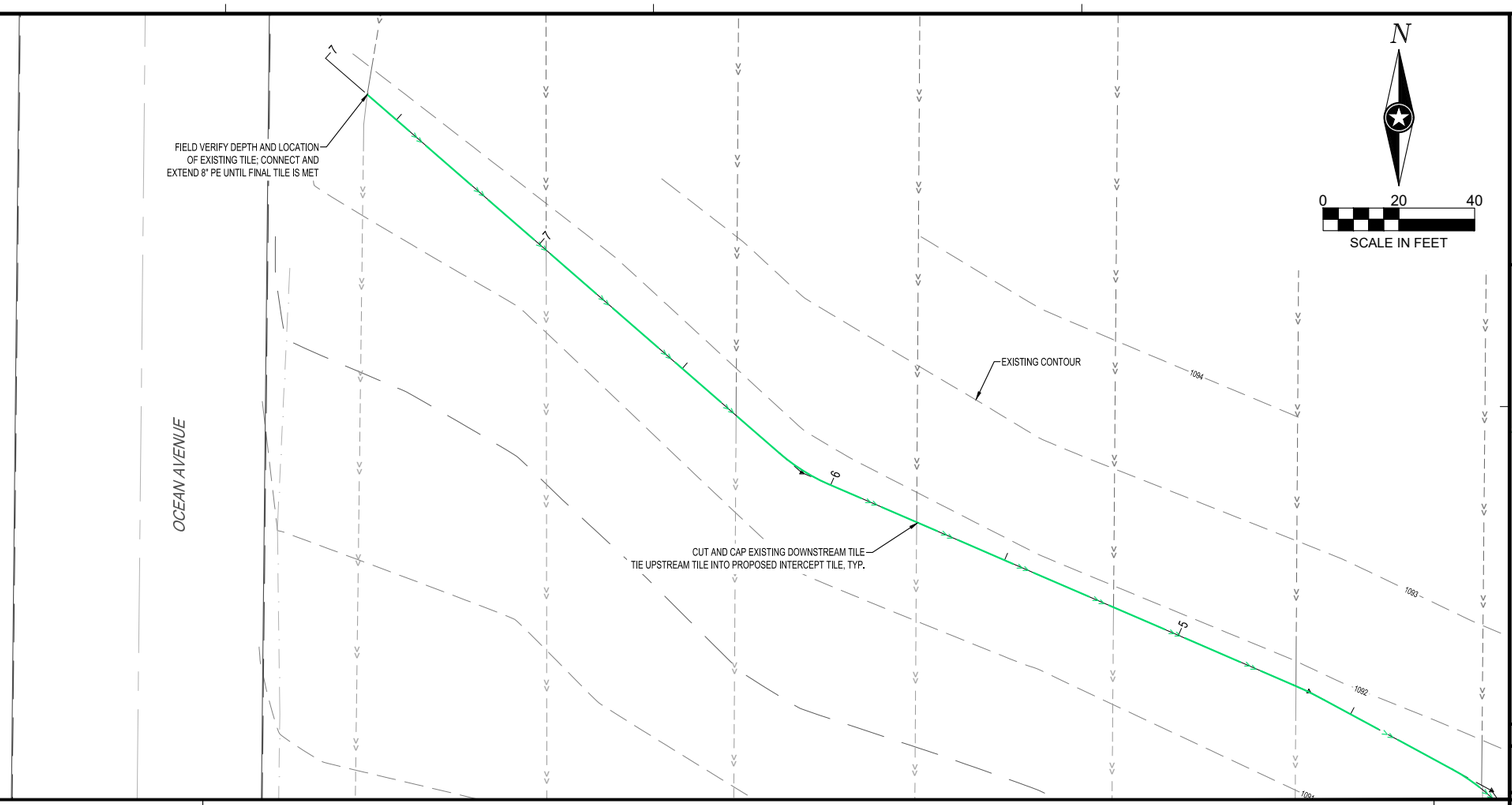
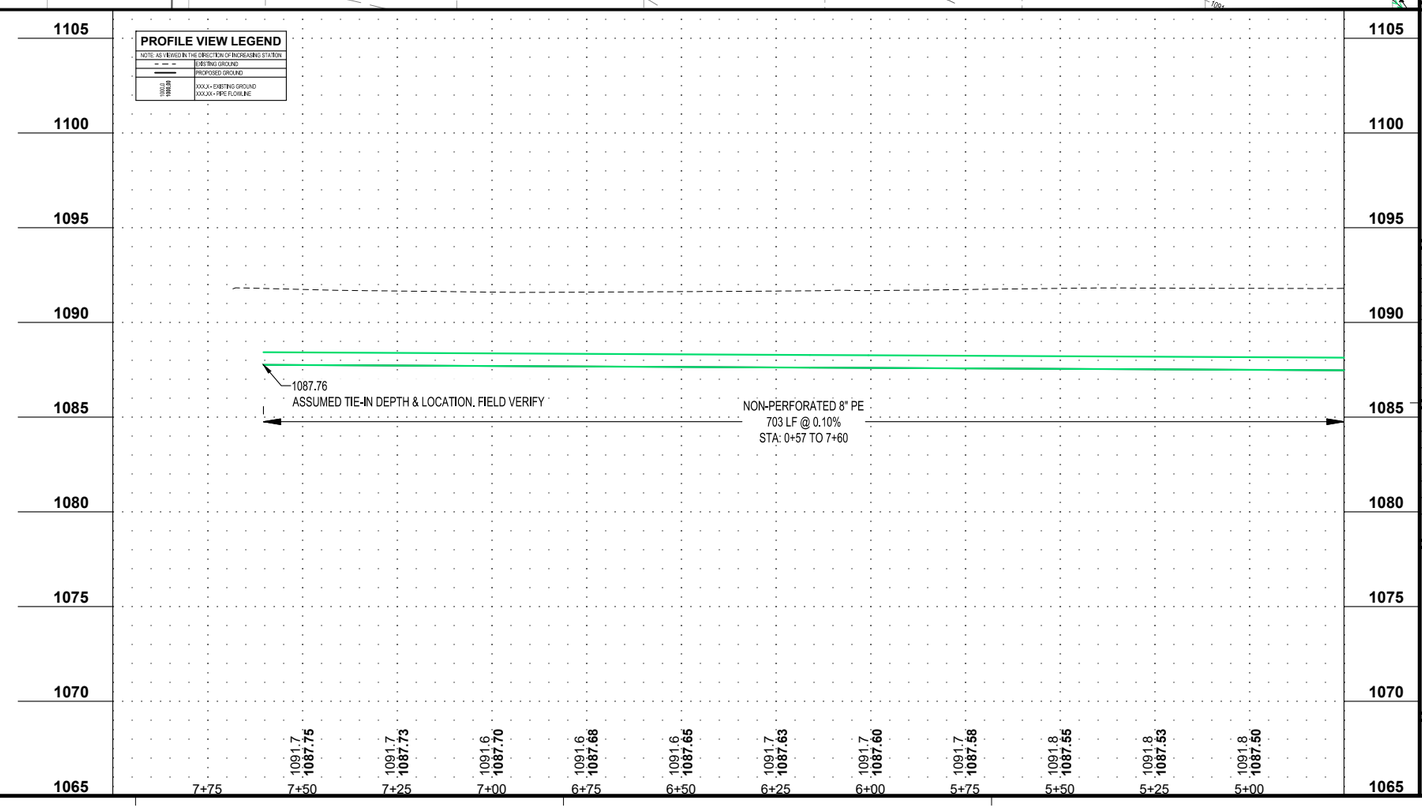
TITLE

NORTH TILE INTERCEPT PROFILE

SHEET

C3-32





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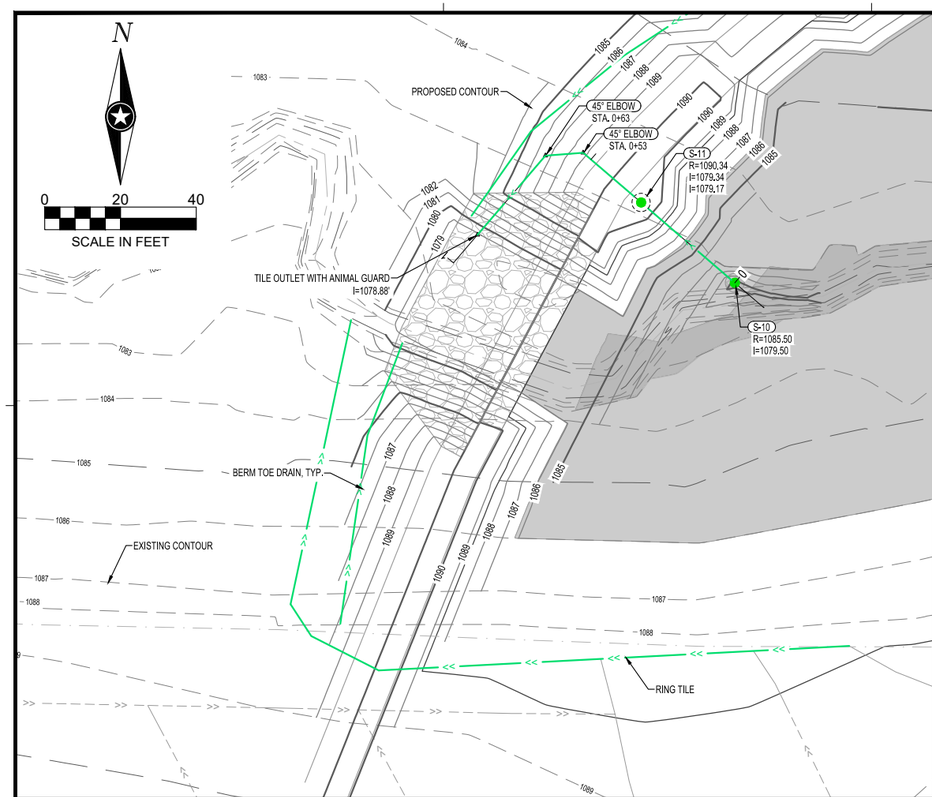
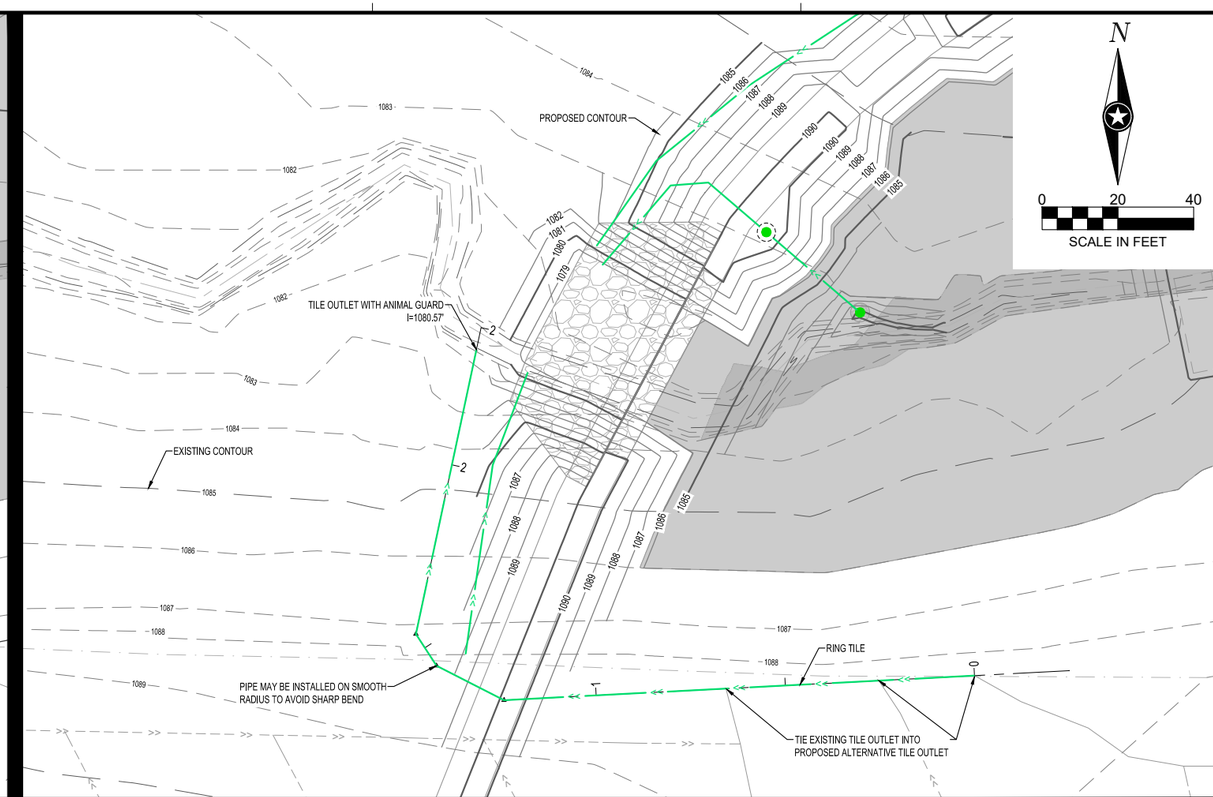
TITLE

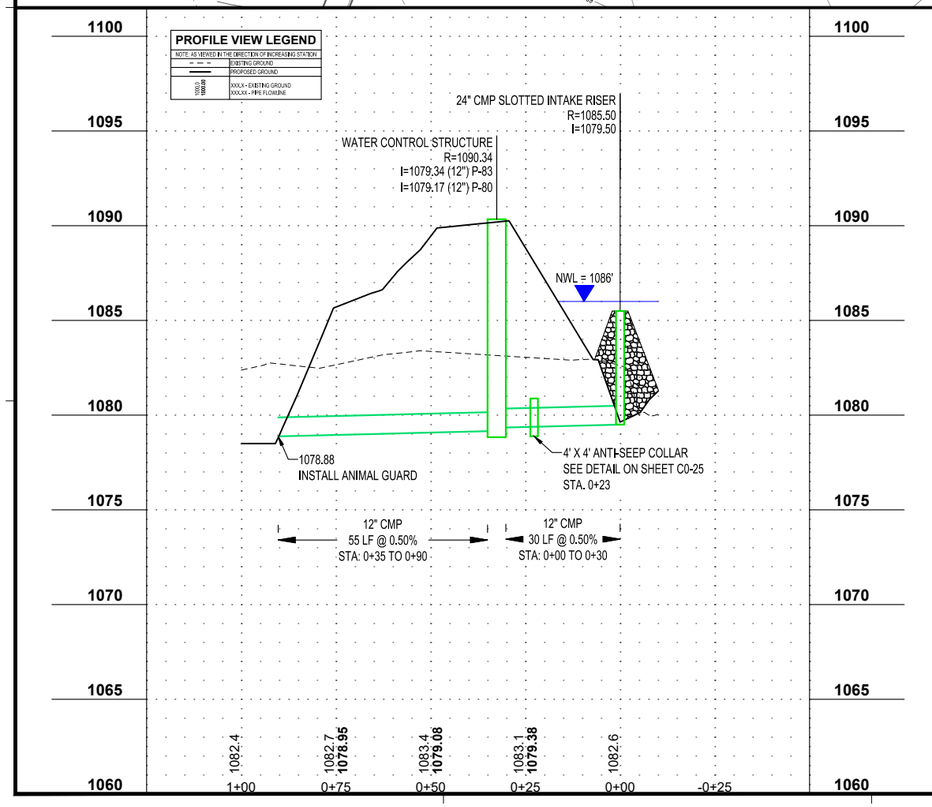
NORTH TILE INTERCEPT PROFILE

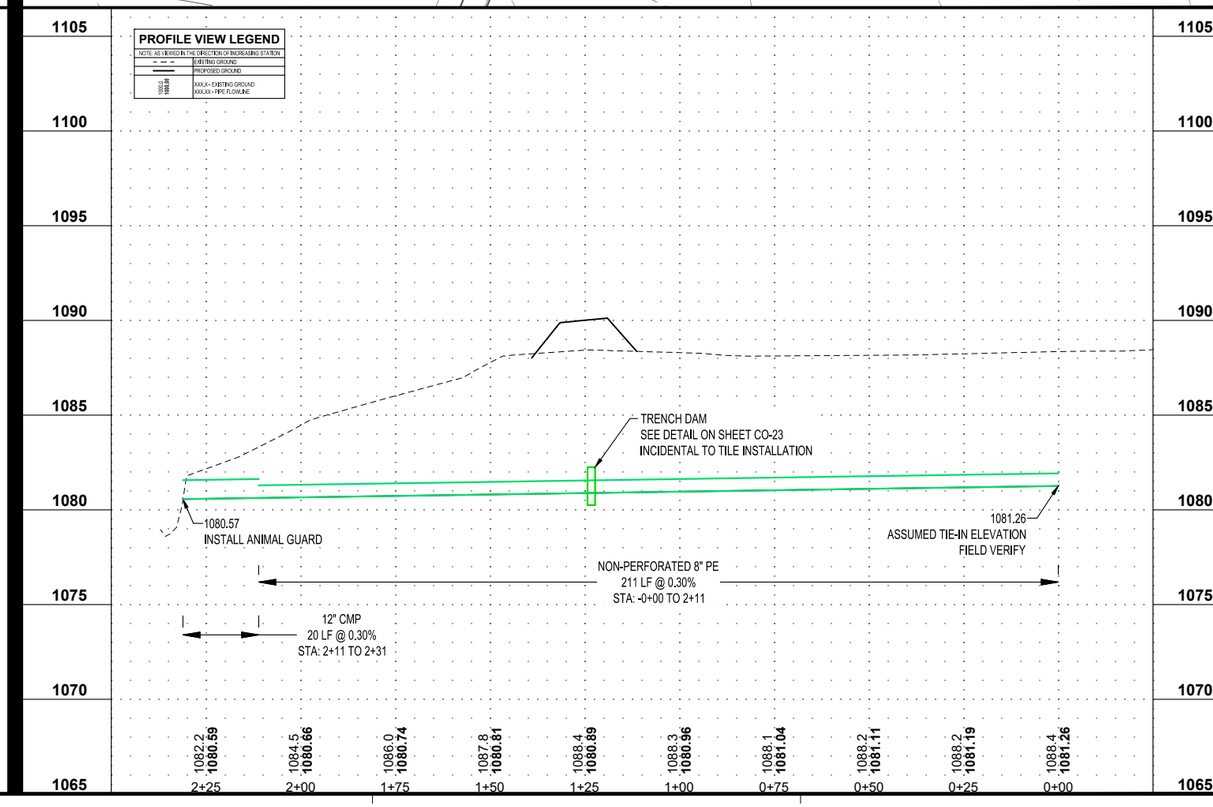
SHEET

C3-33









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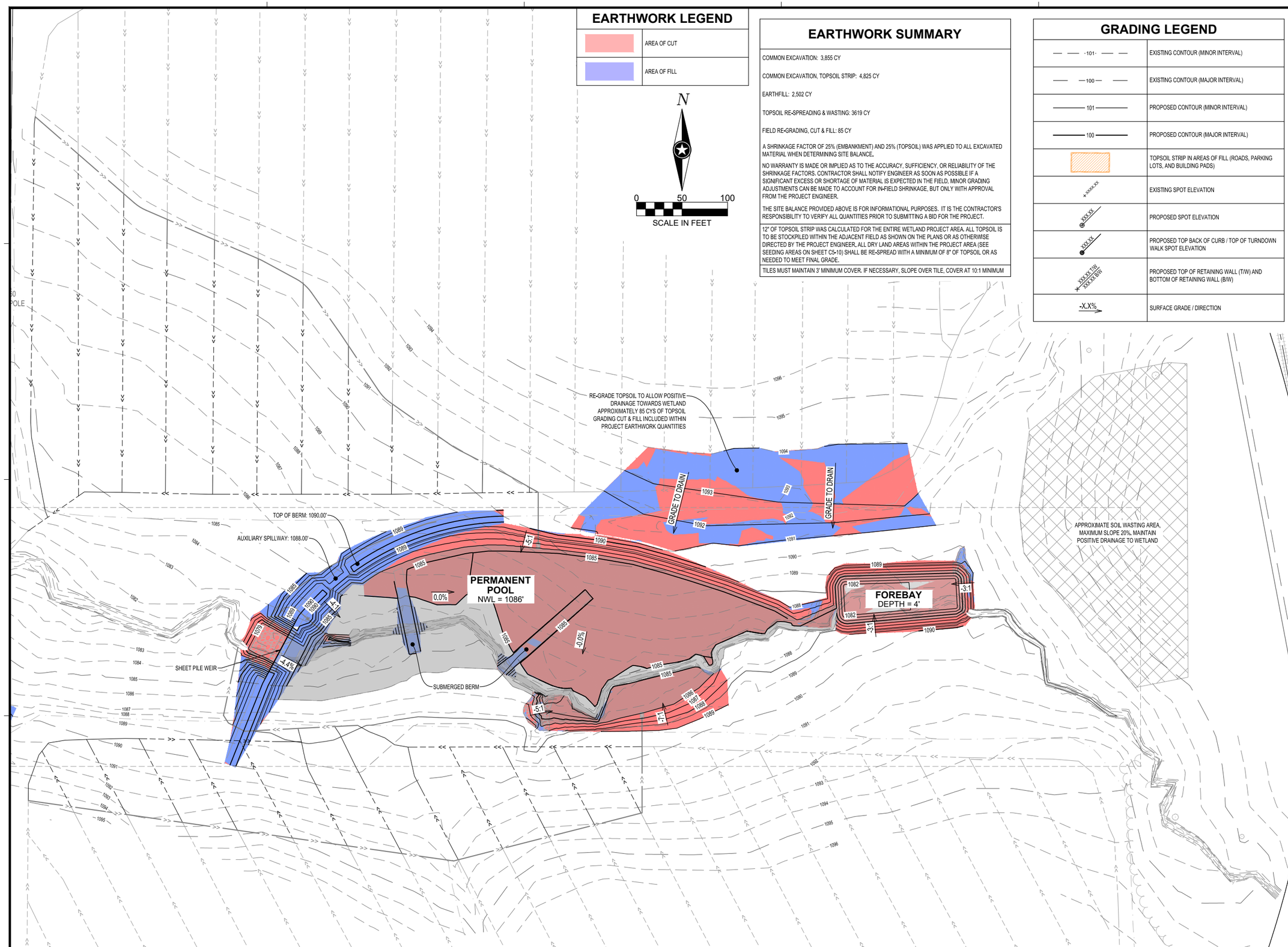
CLIENT PROJECT NO.	-

TITLE

ALTERNATIVE OUTLET PROFILE

SHEET

C3-34



EARTHWORK LEGEND

	AREA OF CUT
	AREA OF FILL

EARTHWORK SUMMARY

COMMON EXCAVATION: 3,855 CY

COMMON EXCAVATION, TOPSOIL STRIP: 4,825 CY

EARTHFILL: 2,502 CY

TOPSOIL RE-SPREADING & WASTING: 3619 CY

FIELD RE-GRADING, CUT & FILL: 85 CY

A SHRINKAGE FACTOR OF 25% (EMBANKMENT) AND 25% (TOPSOIL) WAS APPLIED TO ALL EXCAVATED MATERIAL WHEN DETERMINING SITE BALANCE.

NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY, OR RELIABILITY OF THE SHRINKAGE FACTORS. CONTRACTOR SHALL NOTIFY ENGINEER AS SOON AS POSSIBLE IF A SIGNIFICANT EXCESS OR SHORTAGE OF MATERIAL IS EXPECTED IN THE FIELD. MINOR GRADING ADJUSTMENTS CAN BE MADE TO ACCOUNT FOR IN-FIELD SHRINKAGE, BUT ONLY WITH APPROVAL FROM THE PROJECT ENGINEER.

THE SITE BALANCE PROVIDED ABOVE IS FOR INFORMATIONAL PURPOSES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL QUANTITIES PRIOR TO SUBMITTING A BID FOR THE PROJECT.

12" OF TOPSOIL STRIP WAS CALCULATED FOR THE ENTIRE WETLAND PROJECT AREA. ALL TOPSOIL IS TO BE STOCKPILED WITHIN THE ADJACENT FIELD AS SHOWN ON THE PLANS OR AS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. ALL DRY LAND AREAS WITHIN THE PROJECT AREA (SEE SEEDING AREAS ON SHEET C5-10) SHALL BE RE-SPREAD WITH A MINIMUM OF 8" OF TOPSOIL OR AS NEEDED TO MEET FINAL GRADE.

TILES MUST MAINTAIN 3' MINIMUM COVER. IF NECESSARY, SLOPE OVER TILE, COVER AT 10:1 MINIMUM

GRADING LEGEND

101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)
	TOPSOIL STRIP IN AREAS OF FILL (ROADS, PARKING LOTS, AND BUILDING PADS)
+ XXX.XX	EXISTING SPOT ELEVATION
XXX.XX	PROPOSED SPOT ELEVATION
XXX.XX	PROPOSED TOP BACK OF CURB / TOP OF TURNDOWN WALK SPOT ELEVATION
XXX.XX T/W XXX.XX B/W	PROPOSED TOP OF RETAINING WALL (T/W) AND BOTTOM OF RETAINING WALL (B/W)
-X.X%	SURFACE GRADE / DIRECTION

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IDALS FLO971628B NUTRIENT REDUCTION WQI WETLAND

FLOYD COUNTY IOWA

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DATE	DESCRIPTION	BY

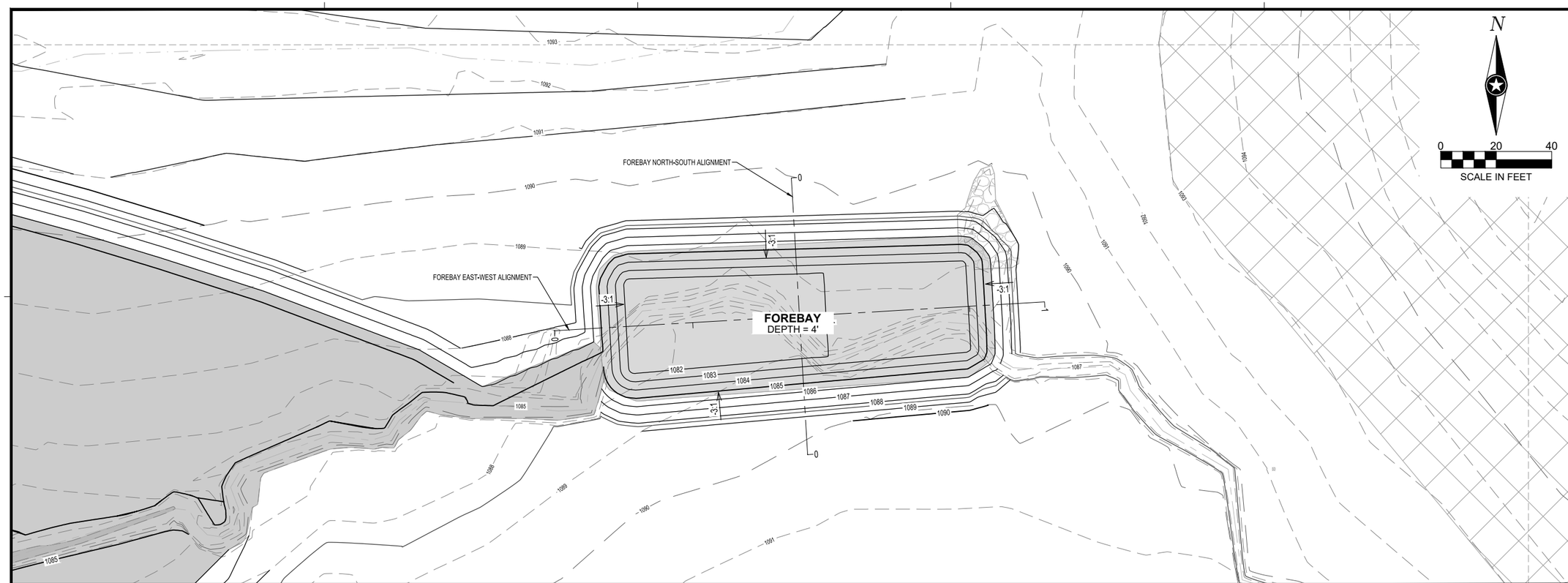
PROJECT NO.	23-30398
FILE NAME	30398-C4-GRADE
DRAWN BY	OBO
DESIGNED BY	SDP/JJJ
REVIEWED BY	SDP
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

OVERALL GRADING PLAN

SHEET

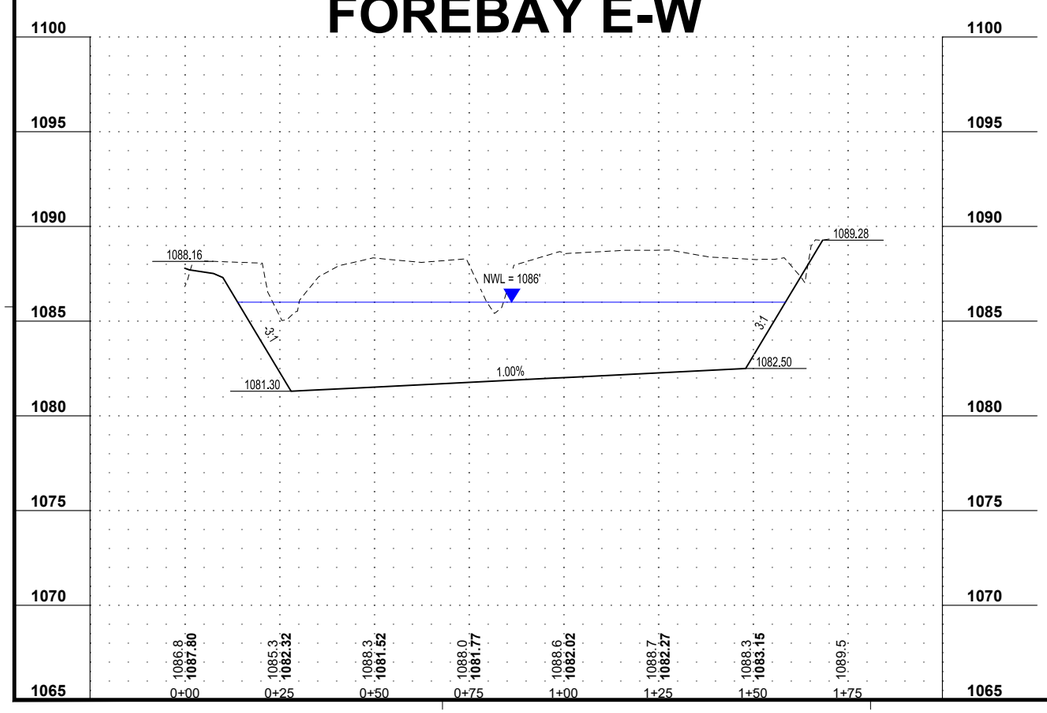
C4-10



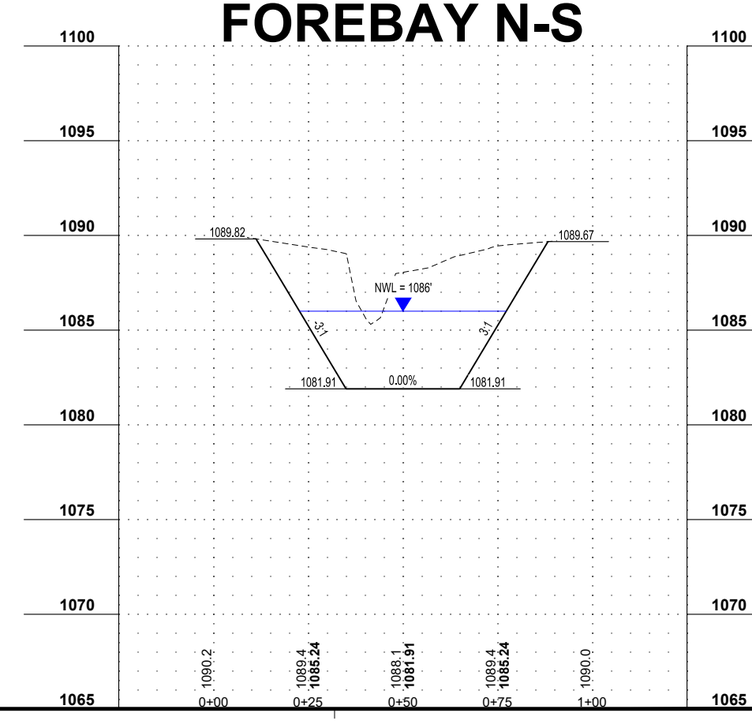
PROFILE VIEW LEGEND

NOTE: AS VIEWED IN THE DIRECTION OF INCREASING STATION	
— — —	EXISTING GROUND
———	PROPOSED GROUND
1070.0 / 1069.00	XXX.X - EXISTING GROUND XXX.XX - PROPOSED GROUND

FOREBAY E-W



FOREBAY N-S



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DESIGNED BY	SDP/JJJ
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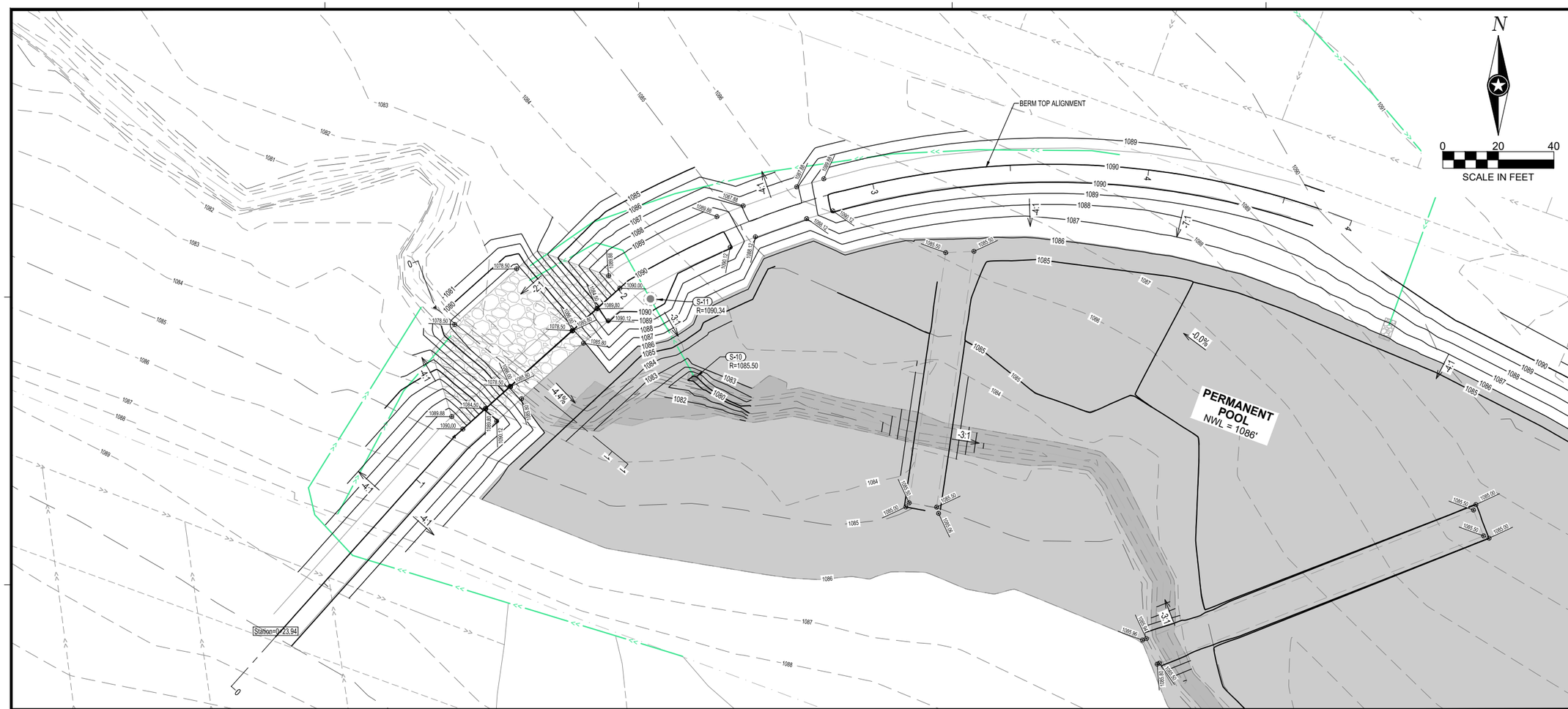
ORIGINAL ISSUE DATE	--/--/--
CLIENT PROJECT NO.	-

TITLE

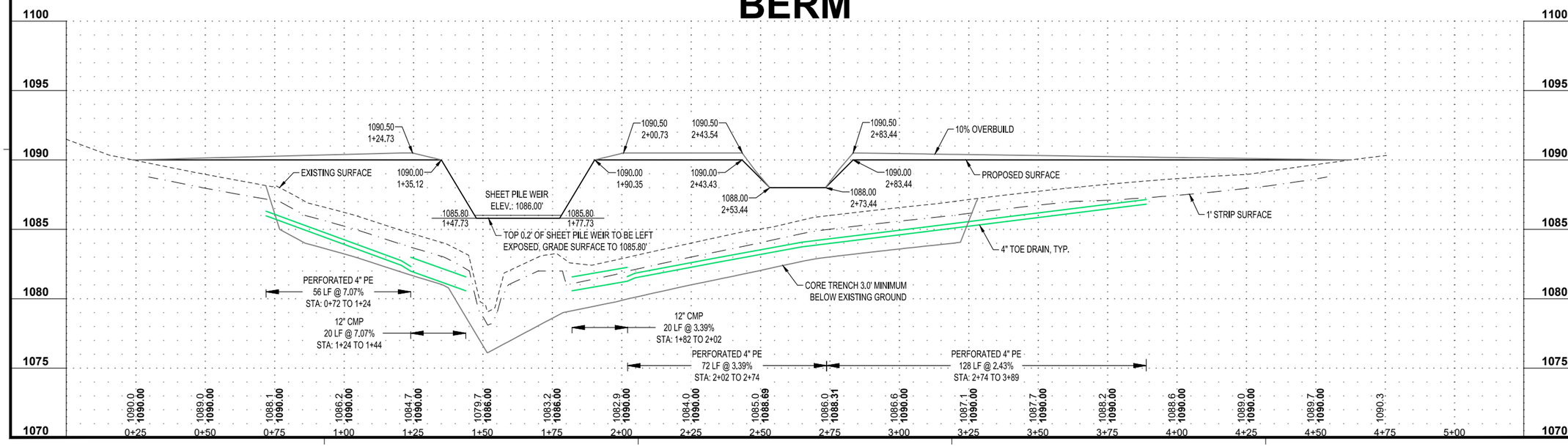
FOREBAY DETAILED GRADING

SHEET

C4-21



BERM



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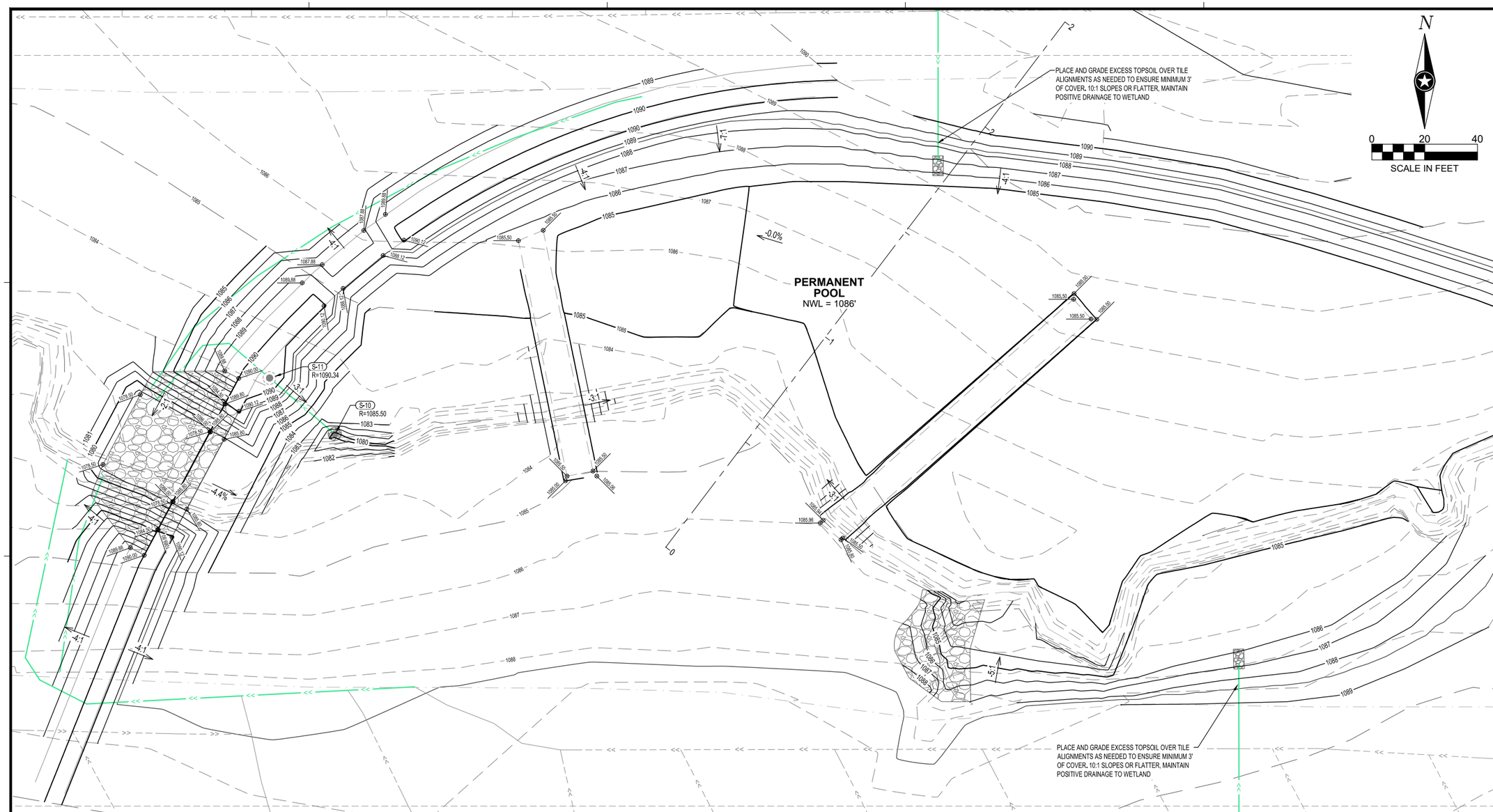
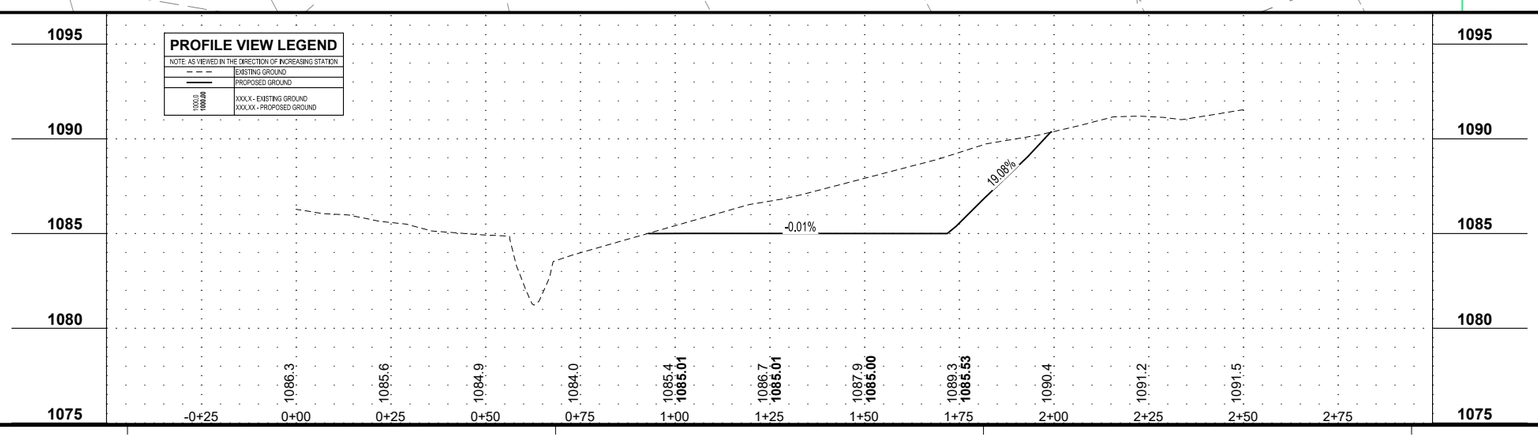
TITLE

BERM PROFILE

SHEET

C4-22





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TITLE

POOL CROSS SECTION

SHEET

C4-23

EROSION CONTROL LEGEND

SYMBOL	DESCRIPTION
	RIP RAP
SF	SILT FENCE
	STORM DRAIN INLET PROTECTION
	WATTLE
	STABILIZED CONSTRUCTION EXIT
101	EXISTING CONTOUR (MINOR INTERVAL)
100	EXISTING CONTOUR (MAJOR INTERVAL)
101	PROPOSED CONTOUR (MINOR INTERVAL)
100	PROPOSED CONTOUR (MAJOR INTERVAL)

PERIMETER CONTROL CAN BE SILT FENCE OR WATTLE.

NOTE: EROSION CONTROL PLAN COVERAGE INCLUDES ELECTRIC, GAS, TELEPHONE, AND CABLE INSTALLATION. EACH COMPANY OR THEIR SUBCONTRACTOR IS RESPONSIBLE TO FOLLOW THE REQUIREMENTS OF THIS PLAN INCLUDING PROVIDING THEIR OWN RESTORATION IF INSTALLATION OCCURS AFTER PRIMARY INSTALLATION OF SEEDING/SODDING/MULCHING DURING CONSTRUCTION OF EACH UTILITY.

TURF RESTORATION LEGEND

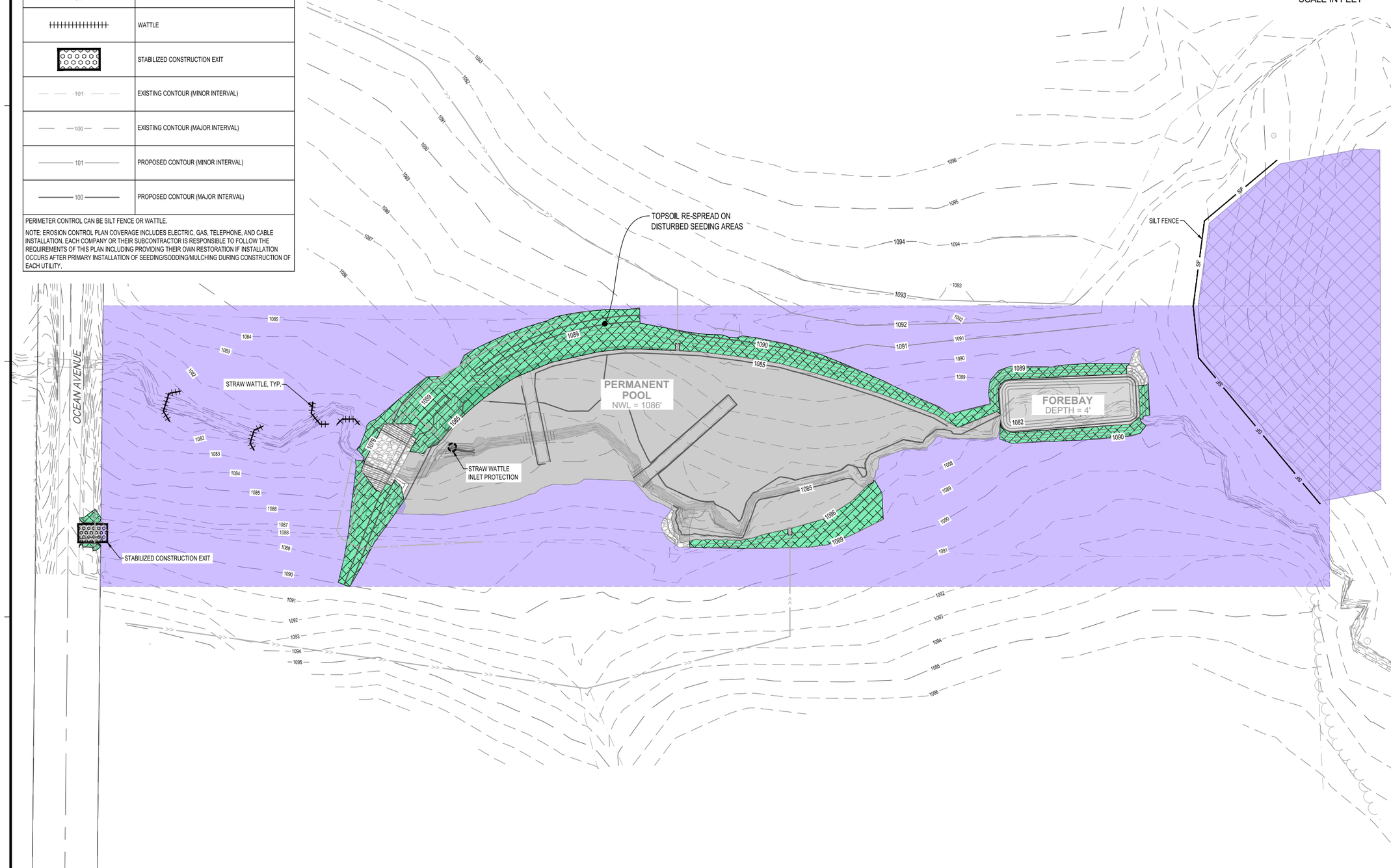
SYMBOL	DESCRIPTION	UNITS	QUANTITY
	STRUCTURAL SEEDING	AC	0.70
	BUFFER SEEDING	AC	6.39

THE QUANTITIES SHOWN ARE TOTAL FOR THE ENTIRE PROJECT NOT SPECIFIC TO THIS SHEET.

N

0 50 100

SCALE IN FEET



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TITLE

SITE RESTORATION PLAN

SHEET

C5-10