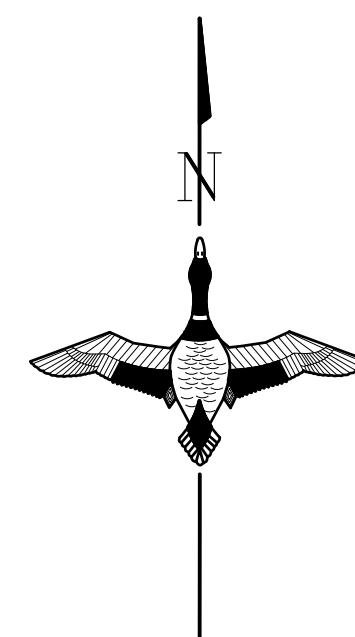




Now what's **below**.
Call before you dig

TICKET #:

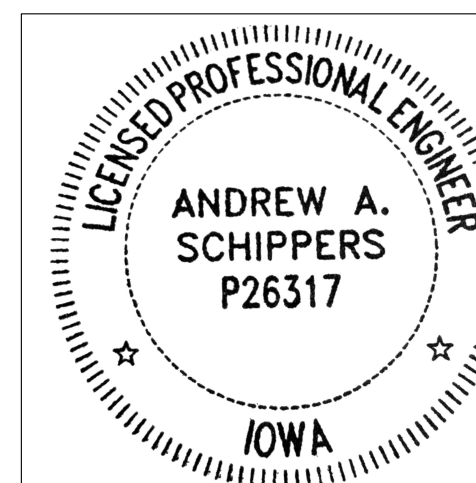
KOSSUTH COUNTY
S07, T96N, R29W
IOWA

IN COOPERATION WITH

IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP
IOWA ENGINEERING JOB CLASS III



SCALE: 1" = 2000'



To the best of my professional knowledge, judgement, and belief, these plans meet applicable NRCS Standards

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.

Andrew Schippers, P.E. Date

My license number is P26317
My license renewal date is December 31, 2025
Pages of sheets covered by this seal: 1 - 21 (C001-C401)

Sheet List Table	
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C001	COVER SHEET
C002	SPECIFICATIONS, QUANTITIES, & NOTES
C051	TOPOGRAPHY & EXISTING CONDITIONS
C101	SITE PLAN
C201	EMBANKMENT PLAN & PROFILE
C202	ENLARGED EMBANKMENT & RIPRAP PLAN
C203	PUMP PLAN & PROFILE
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DEXTER, MICHIGAN 48130
(734) 623-2000
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COVER SHEET
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
0	FINAL PLANS		2024-12-06	MLH
1	IDALS REVISIONS		2025-04-03	AB

CAD FILE: IA-340-010-C001 SHEY COVER - MLH	
DESIGNED BY: A.S. & A.B.	
DRAWN BY: MLH	
SURVEYED BY: A.S. & A.B.	
BIOLOGIST: D.B.	
DATE: 04-03-2025	
PROJECT NUMBER: US-IA-340-010	
C001	

NOT FOR CONSTRUCTION

C:\Users\aschippers\Documents\Iowa02_C3D Projects\IA-340-2 CREP Projects\IA-340-010-C001 SHEY COVER - MLH.dwg, 4/28/2025 12:48 PM, Andrew Schippers, Specs & Notes, None

SPECIFICATIONS:

IA CS-001	SITE PREPARATION
IA CS-005	POLLUTION CONTROL
IA CS-006	SEEDING AND MULCHING FOR PROTECTIVE COVER
CS-008	MOBILIZATION AND DEMOBILIZATION
IA CS-009	SUBSURFACE DRAIN INVESTIGATION, REMOVAL, AND REPAIR
IA CS-011	REMOVAL OF WATER
IA CS-013	SHEET PILING
IA CS-021	EXCAVATION
IA CS-023	EARTHFILL
IA CS-024	DRAINFILL (SAND)
IA CS-026	TOPSOILING
IA CS-031	CONCRETE
IA CS-045	PLASTIC (PVC, PE) PIPE
IA CS-046	TILE DRAINS FOR LAND DRAINAGE
IA CS-051	CORRUGATED METAL PIPE CONDUITS
IA CS-061	LOOSE ROCK RIPRAP
IA CS-062	CONCRETE GROUT FOR RIPRAP
IA CS-081	METAL FABRICATION AND INSTALLATION
IA CS-095	GEOTEXTILE
DU-313	PUMP INSTALLATION
DU-315	SUPPLY OF ELECTRICAL POWER

1. THE BID ITEM FOR SITE STRIPPING & PREPARATION SHALL INCLUDE REMOVAL OF THE FIRST 12" BENEATH THE EMBANKMENT AREA, THE WETLAND GRADING AREA, CHANNEL AREAS, PUMP STATION AREA, PUMP PIPE AREA AND PIPE MOD 2 AREA, AS SHOWN ON THE PLANS (3,497 C.Y.). THIS MATERIAL SHALL BE STOCKPILED SEPARATELY ON-SITE FOR RESPAVED, WHICH IS INCLUDED IN A SEPARATE BID ITEM. CLEARING AND GRUBBING SHALL BE INCLUDED WITHIN THIS BID ITEM AND SHALL INCLUDE TREE/BRUSH REMOVAL, AS INDICATED ON THE PLANS, AND AS DIRECTED BY THE CONSTRUCTION MANAGER. ANY ADDITIONAL MOBILIZATIONS OF LABOR, EQUIPMENT OR MATERIALS REQUIRED TO COMPLETE THE PROJECT WILL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE.
2. THE BID ITEM FOR STRUCTURE & CHANNEL SEEDING SHALL CONSIST OF SEEDING, MULCHING, AND FERTILIZING ALL STRUCTURES, EMBANKMENTS, CHANNEL SIDE SLOPES, AND ALL OTHER DISTURBED AREAS (OUTSIDE OF POOL AREA), AS INDICATED ON THE DRAWINGS OR OTHERWISE DESIGNATED. SEED MIX AND SEED CERTIFICATIONS ARE REQUIRED.
3. THE BID ITEM FOR BUFFER SEEDING SHALL CONSIST OF SEEDING THE AREAS DESIGNATED ON THE PLANS AS BUFFER SEEDING AND INCLUDE BORROW AREAS, DISTURBED AREAS NOT SEED AS PART OF STRUCTURAL SEEDING, AND OTHER AREAS WITHIN THE EASEMENT. SEED MIX AND SEED CERTIFICATIONS ARE REQUIRED.
4. THE BID ITEM FOR MOBILIZATION AND DEMOBILIZATION SHALL INCLUDE THE SUPPLY OF ALL LABOR, MATERIAL, AND EQUIPMENT TO TRANSPORT ALL NEEDED LABOR, MATERIAL, AND EQUIPMENT TO AND FROM THE PROJECT SITE, TO SUCCESSFULLY COMPLETE THE PROJECT, AS SHOWN ON THE PLANS. THIS BID ITEM SHALL ALSO INCLUDE THE REMOVAL, REPLACEMENT, AND REPAIR OF ANY FENCING THAT MUST BE MODIFIED IN ORDER TO COMPLETE THIS PROJECT. THIS BID ITEM SHALL ALSO INCLUDE INSTALLING THE SIGN PROVIDED BY IDALS, AS DESCRIBED IN THE PROJECT SPECIFICATIONS. CONTRACTOR SHALL MAINTAIN ACCESS ROAD DURING CONSTRUCTION, AND RETURN ACCESS ROAD TO ORIGINAL CONDITION UPON PROJECT COMPLETION. ANY EQUIPMENT, MATERIAL, AND LABOR REQUIRED TO ACCOMPLISH THIS SHALL BE CONSIDERED INCIDENTAL TO THIS BID ITEM.
5. BID ITEM FOR DRAINAGE TILE INVESTIGATION SHALL CONSIST OF INVESTIGATION, LOCATION, REPAIR, REMOVAL AND/OR CAPPING/PLUGGING OF SUBSURFACE DRAINS (TILE) IN WETLAND RESTORATION AREA, ENHANCEMENT, OR CREATION PROJECT AREAS, OR OTHER SITUATIONS WHERE SUBSURFACE DRAINS MAY BE PRESENT. REFERENCE OVERALL TILE MODIFICATION PLAN. THIS BID ITEM DOES NOT INCLUDE INSTALLATION OF NEW TILE, WHICH IS INCLUDED IN SEPARATE LINE ITEMS.
6. BID ITEM FOR STEEL SHEET PILING SHALL CONSIST OF FURNISHING AND DRIVING THE SPECIFIED SHEET PILING AT THE LOCATION SHOWN ON THE DRAWINGS. THIS BID ITEM SHALL INCLUDE SHEET PILING CAP AND ALL OTHER LABOR AND MATERIALS NECESSARY TO PROVIDE A COMPLETE INSTALLATION. SHOP DRAWINGS REQUIRED.
7. THE BID ITEM FOR EXCAVATION (GENERAL) SHALL CONSIST OF EXCAVATION AND GRADING OF MATERIAL NEEDED FOR THE SEDIMENTATION BASIN, BERM CORE TRENCH AND THE PUMP STATION PAD. CONTRACTOR SHALL SEPARATELY INITIAL TOPSOIL MATERIAL FROM COHESIVE MATERIAL UPON GRADING/EXCAVATION IN ORDER TO USE APPROPRIATELY IN GENERAL BERM CONSTRUCTION (NOT BERM CORE). DURING EXCAVATION OF CORE TRENCH, CONTRACTOR SHALL SEARCH AND REMOVE ANY TILE BENEATH THE BERM FOOTPRINT. ANY TILE FOUND SHALL BE REMOVED FOR A DISTANCE OF THE BERM WIDTH (TOE-TO-TOE) PLUS 20' INTO THE IMPOUNDMENT SIDE.
8. THE BID ITEM FOR EARTHFILL (GENERAL) SHALL CONSIST OF THE EARTHFILL NECESSARY TO COVER THE 8" PIPE ROUQUET AND THE PUMP STATION PIPE. COHESIVE MATERIAL FOUND DURING GENERAL EXCAVATION CAN BE USED FOR THESE AREAS. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR THIS EARTHFILL. COMPACTION SHALL BE METHOD 1 AS SPECIFIED BY IA 23 PART 6. ALTHOUGH COMPACTION TESTING IS NOT REQUIRED IF THE ENGINEER HAS REASON TO BELIEVE COMPACTION METHODS ARE LESS THAN SATISFACTORY COMPACTION TESTING COMPLETED BY AN APPROVED THIRD-PARTY WILL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT. THE CONTRACTOR WILL FIX ANY DISCREPANCY AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT.
9. THE BID ITEM FOR EARTHFILL (GENERAL BERM) SHALL CONSIST OF PLACING AND COMPACTING EARTHFILL NECESSARY TO CONSTRUCT THE PORTION OF THE EMBANKMENT THAT IS NOT CONSIDERED PART OF THE EMBANKMENT CORE. THIS INCLUDES THE EMBANKMENT CONSTRUCTED DOWNSTREAM OF THE SPILLWAY AT THE STILLING BASIN AND OUTLET CHANNEL. COHESIVE MATERIAL FOUND DURING GENERAL EXCAVATION CAN BE USED FOR THIS AREA. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR FILL FOR THIS ITEM. COMPACTION SHALL BE METHOD 2 AS SPECIFIED BY IA 23 PART 6. ALTHOUGH COMPACTION TESTING IS NOT REQUIRED IF THE ENGINEER HAS REASON TO BELIEVE COMPACTION METHODS ARE LESS THAN SATISFACTORY COMPACTION TESTING COMPLETED BY AN APPROVED THIRD-PARTY WILL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT. THE CONTRACTOR WILL FIX ANY DISCREPANCY AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT.
10. THE BID ITEM FOR EARTHFILL (BERM CORE) SHALL CONSIST OF PLACING AND COMPACTING EARTHFILL NECESSARY TO CONSTRUCT THE PORTION OF THE EMBANKMENT DESIGNATED AS THE EMBANKMENT CORE, INCLUDING THE CORE TRENCH. COHESIVE MATERIAL TAKEN FROM THE DESIGNATED BORROW AREA SHOULD BE USED FOR THIS AREA. ESTIMATED PLAN VALUE INCLUDES 15% SHRINKAGE FACTOR. SAND AND GRAVEL FOUND ON SITE SHALL NOT BE USED FOR FILL FOR THIS ITEM. COMPACTION SHALL BE METHOD 2 AS SPECIFIED BY IA 23 PART 6. ALTHOUGH COMPACTION TESTING IS NOT REQUIRED IF THE ENGINEER HAS REASON TO BELIEVE COMPACTION METHODS ARE LESS THAN SATISFACTORY COMPACTION TESTING COMPLETED BY AN APPROVED THIRD-PARTY WILL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT. THE CONTRACTOR WILL FIX ANY DISCREPANCY AT NO ADDITIONAL EXPENSE TO THE OWNER OR PROJECT.
11. BID ITEM FOR DRAINFILL (SAND) SHALL CONSIST OF FURNISHING AND PLACING DRAINFILL REQUIRED IN THE CONSTRUCTION OF STRUCTURE DRAINAGE SYSTEMS AROUND CONDUITS. THIS ITEM WILL CONSIST OF THE EXCAVATION NECESSARY TO CONSTRUCT THE TOE DRAINS, INCLUDING BACKFILL WITH MATERIAL MEETING THE REQUIREMENTS OF FINE DRAINFILL. GRADATIONS WILL BE PROVIDED TO THE ENGINEER PRIOR TO ARRIVAL ONSITE.
12. BID ITEM FOR FILTER DIAPHRAGM SHALL CONSIST OF FURNISHING AND PLACING ALL MATERIAL REQUIRED IN THE CONSTRUCTION OF FILTER DIAPHRAGM AROUND CONDUITS. THIS ITEM WILL CONSIST OF THE EXCAVATION NECESSARY TO CONSTRUCT THE FILTER, INCLUDING BACKFILLING WITH FILTER GRAVEL (40 TON) OF IA DOT GRADATION 1 SAND MEETING 4110, AND (5 TON) OF IA DOT GRADATION 6 - 3/8" CHIP.
13. THE BID ITEM FOR TOPSOIL PLACEMENT SHALL INCLUDE STOCKPILING AND SPREADING TOPSOIL A MINIMUM 6" OVER FINISHED EMBANKMENTS AND BORROW AREAS AS DETAILED IN THESE PLANS AND SPECIFICATIONS.
14. THE BID ITEM FOR CONCRETE 72"Ø PCC MANHOLE INTERCEPT STRUCTURE SHALL CONSIST OF PROVIDING AND INSTALLING INTERCEPT STRUCTURE, AS SHOWN ON THE DRAWINGS. SHOP DRAWINGS REQUIRED. CONCRETE COLLARS, GROUTING, SHIMMING, CORE DRILLING OR OTHERWISE MODIFYING THE STRUCTURE TO PROVIDE A COMPLETE PUMP STATION IS INCIDENTAL TO THIS ITEM. ALL JOINTS SHALL BE SEALED WITH BITUMINOUS SEALANT.
15. THE BID ITEM FOR 6"Ø POLYVINYL CHLORIDE PIPE (DUAL PUMP OUTLET) SHALL CONSIST OF FURNISHING AND INSTALLING 6-INCH POLYVINYL CHLORIDE PUMP OUTLET PIPE FROM EACH PUMP. CONTRACTOR SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL A COMPLETE WATERTIGHT SYSTEM TO LINE AND GRADE.
16. THE BID ITEM FOR 6"Ø PERFORATED CPP (TIE DRAIN) SHALL CONSIST OF FURNISHING AND INSTALLING 6-INCH PERFORATED CORRUGATED POLYETHYLENE TUBING (SINGLE WALL) USED AS A DRAIN TILE FOR THE TIE DRAIN AS SHOWN ON THE DRAWINGS. SAND BACKFILL AROUND THE TILE SHALL BE PAID UNDER A SEPARATE BID ITEM. TWO TWENTY FOOT (20') LENGTHS OF 8"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLETS OF THE TIE DRAIN TILE (TWO LOCATIONS). QUANTITIES ACCOUNT FOR 3 LF INSERTED INTO THE CMP OUTLET. THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM. PRODUCT DATA REQUIRED.
17. THE BID ITEM FOR 12"Ø DUAL-WALL HDPE (TILE MOD #2) SHALL WILL CONSIST OF PROVIDING AND INSTALLING ALL MATERIALS AND LABOR FOR INSTALLING THE 12-INCH DIAMETER DUAL-WALL HDPE PIPE REQUIRED FOR TILE MOD #2. A TWENTY FOOT (20') LENGTH OF 15"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLET. QUANTITIES ACCOUNT FOR 3 LF INSERTED INTO THE CMP OUTLET. THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM. PRODUCT DATA REQUIRED. ALTHOUGH TELEVISIONING OF PIPE IS NOT REQUIRED IF THE ENGINEER HAS REASON TO BELIEVE LINES AND GRADES ARE NOT TRUE TO THE PLANS, TELEVISIONING OF PIPE RUNS IN QUESTION WILL BE PROVIDED BY AN APPROVED THIRD-PARTY AT NO ADDITIONAL COST TO THE OWNER OR PROJECT. ANY DISCREPANCIES WILL BE FIXED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER OR PROJECT.
18. THE BID ITEM FOR 15"Ø DUAL-WALL HDPE (PUMP OUTLET & INTERCEPT PIPE) SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE 15"Ø DUAL-WALL HDPE PIPE FOR THE PUMP OUTLET, AND THE INTERCEPT PIPE AS DETAILED ON SHEETS C101, C203, C305-C306. A TWENTY FOOT (20') LENGTH OF 18"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLET. QUANTITIES ACCOUNT FOR 3 LF INSERTED INTO THE CMP OUTLET. THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM. PRODUCT DATA REQUIRED.. ALTHOUGH TELEVISIONING OF PIPE IS NOT REQUIRED IF THE ENGINEER HAS REASON TO BELIEVE LINES AND GRADES ARE NOT TRUE TO THE PLANS, TELEVISIONING OF PIPE RUNS IN QUESTION WILL BE PROVIDED BY AN APPROVED THIRD-PARTY AT NO ADDITIONAL COST TO THE OWNER OR PROJECT. ANY DISCREPANCIES WILL BE FIXED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER OR PROJECT.
19. THE BID ITEM FOR 30"Ø DUAL-WALL HDPE (TILE MOD #1) SHALL INCLUDE ALL MATERIAL AND LABOR REQUIRED TO INSTALL THE 30-INCH DIAMETER DUAL-WALL HDPE PIPE, AS SHOWN ON THE DRAWINGS. A TWENTY FOOT (20') LENGTH OF 36"Ø GALVANIZED CMP SHALL BE UTILIZED AT THE EXPOSED OUTLET. QUANTITIES ACCOUNT FOR 3 LF INSERTED INTO THE CMP OUTLET. THE METAL OUTLET SHALL BE PAID UNDER A SEPARATE BID ITEM. PRODUCT DATA REQUIRED. TELEVISIONING/QUALITY TESTING WILL BE REQUIRED WITHIN 30 DAYS OF PIPELINE COMPLETION.

ADDITIONAL NOTES:

1. THE SPECIFICATIONS AS PREPARED BY IOWA DEPARTMENT OF AGRICULTURE AND LAND STEWARDSHIP AND DUCKS UNLIMITED, INC. SHALL BE CONSIDERED AS PART OF THIS DOCUMENT, NATURAL RESOURCES CONSERVATION SERVICE CONSTRUCTION SPECIFICATIONS SHALL APPLY.
2. ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.
3. USDA, IDALS, AND DU DO NOT GUARANTEE THE WETLAND WILL FILL OR REMAIN FILLED WITH WATER TO THE PRINCIPAL CREST ELEVATION.
4. IF CULTURAL RESOURCE IS IDENTIFIED DURING CONSTRUCTION, STOP IMMEDIATELY AND NOTIFY ENGINEER AND IDALS.
5. NO ACTIVITY WILL BE AUTHORIZED WHICH JEOPARDIZES THE CONTINUED EXISTENCE OF A THREATENED OR ENDANGERED SPECIES OR A SPECIES PROPOSED FOR SUCH DESIGNATION, AS IDENTIFIED UNDER THE FEDERAL ENDANGERED SPECIES ACT, OR WILL DESTROY OR ADVERSELY MODIFY THE CRITICAL HABITAT OF SUCH A SPECIES. THE ENGINEER WILL CONSULT WITH A QUALIFIED BIOLOGIST IF SUCH A SITUATION IS BELIEVED TO EXIST ONCE AND A COURSE OF ACTION DETERMINED. EXISTING EAGLE NESTS WILL BE PROVIDED WITH A 660' BUFFER ZONE UNLESS OTHERWISE INDICATED BY THE NATIONAL BALD EAGLE MANAGEMENT GUIDELINES PUBLISHED BY THE USFWS FISH AND WILDLIFE SERVICE MAY 2007.
6. TO PROTECT THREATENED/ENDANGERED BATS, TREES SHALL BE REMOVED IN ACCORDANCE WITH IOWA DOT SPECIFICATION 2101.10 BETWEEN **OCTOBER 1ST AND MARCH 31ST**. TREE FELLING IN THAT TIME WILL ONLY REQUIRE TREES 3" IN DIAMETER AND LARGER TO BE CUT 3 TO 4 FEET ABOVE GROUND LINE. THE CONTRACTOR SHALL LIMIT REMOVAL OF FOREST COVER TO THOSE AREAS WHICH ARE NECESSARY FOR THE CONSTRUCTION OF THE WORK AND AS DIRECTED BY THE ENGINEER.
7. SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. IT IS RECOMMENDED THE CONTRACTOR PREPARE AND CARRY OUT A SAFETY PLAN WHICH COMPLIES WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS INCLUDING THOSE FROM OSHA, EPA AND THE IOWA DOT. ANY TRAFFIC CONTROL REQUIRED IS INCIDENTAL AND SHALL FOLLOW MUTCD AND IOWA DOT SPECIFICATION, HARD HATS AND HIGH VISIBILITY CLOTHING ARE RECOMMENDED. SITE SECURITY IS THE RESPONSIBILITY OF THE CONTRACTOR INCLUDING SITE ACCESS AND SECURING OPEN HOLES AND TRENCHES PROPERLY. TRENCH BOXES AND/OR PROPERLY STEPPED BACK TRENCHES/HOLES PER OSHA WILL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER. ACCIDENTS SHALL BE REPORTED TO THE ENGINEER AS SOON AS PRACTICAL AND AFTER ALL THREAT TO HUMAN HEALTH HAS BEEN ELIMINATED.
8. DE-WATERING AND WATER MAINTENANCE IS THE CONTRACTOR'S RESPONSIBILITY AND IS CONSIDERED INCIDENTAL TO THIS PROJECT. A STEADY AND MAJOR FLOW ACROSS THE DITCH UPSTREAM OF THE PUMP LIFT STATION AND DOWNSTREAM ALONG WITH RE-ROUTING AND/OR PUMPING, MAY BE REQUIRED IN ORDER TO PROPERLY COMPLETE THE WORK AND MAINTAIN EXISTING DRAINAGE. CONSTRUCTION OF EMBANKMENT, CHANNELS, AND ANY OTHER EARTHWORK COMPONENTS SHALL NOT BE CONDUCTED IN WET/MUCKY MATERIALS. CONTRACTOR SHALL MAINTAIN DRAINAGE OF EXISTING WATERWAYS AT ALL TIMES THROUGHOUT CONSTRUCTION.

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ONE

SPECIFICATIONS, QUANTITIES, &

NOTES
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

	Revisions	Date	By
SHEET	FINAL PLANS	2024-12-06	MLH
REVISION	IDALS REVISIONS	2025-04-03	AB

CAD FILE:
IA-340-010-C001 SHEY COVER - MLH

DESIGNED BY: A.S. & A.B.

DRAWN BY: MLH

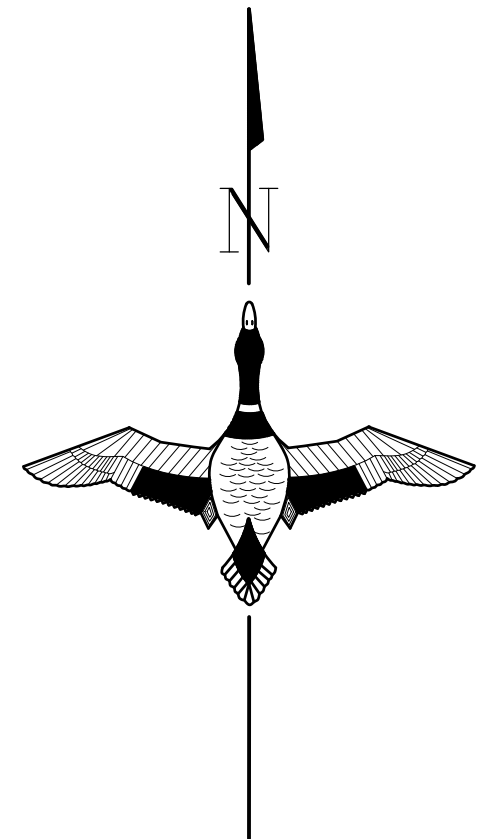
SURVEYED BY: A.S. & A.B.

BIOLOGIST: D.B.

DATE:
04-03-2025

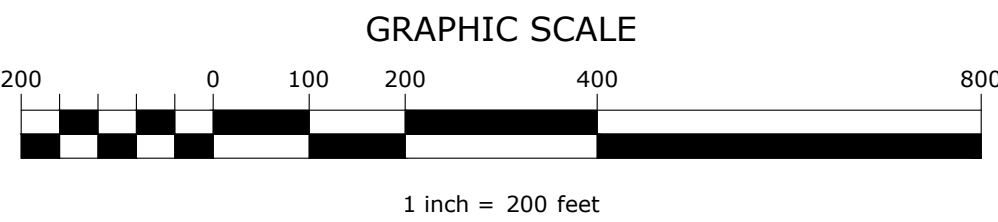
PROJECT NUMBER:
US-IA-340-010

C002



	DIKE		APPROXIMATE PROPERTY LINE
	CHANNEL		APPROXIMATE RIGHT-OF-WAY LINE
	DITCH		GUARD RAIL
	MAJOR CONTOUR		EDGE OF WETLAND
	MINOR CONTOUR		SPOT ELEVATION
	TREE LINE		HORIZONTAL & VERTICAL CONTROL
	EDGE OF VEGETATION		BENCHMARK
	EDGE OF CULTIVATION		SOIL BORING
	EDGE OF CATAILS		WATER CONTROL STRUCTURE
	OUTSIDE EDGE OF CATAILS		FOUND PROPERTY CORNER
	APPROXIMATE WATERLINE		UTILITY POLE
	OVERHEAD ELECTRIC		GUY WIRE
	UNDERGROUND ELECTRIC		GUY POLE
	GAS LINE		LIGHT POLE
	SANITARY SEWER		TELEPHONE PEDESTAL
	WATER SERVICE LINE		CATCH BASIN
	STORM SEWER		MANHOLE
	STORM TILE		WELL
	UNDERGROUND UTILITY		HYDRANT
	UNDERGROUND UTILITY		SINGLE SIGN
	RAILROAD TRACK		DOUBLE SIGN
	EDGE OF RIP-RAP		MAILBOX
	EDGE OF PAVEMENT		RAILROAD CROSSING
	EDGE OF GRAVEL		
	ROAD OR TRAIL		
	FENCE LINE		

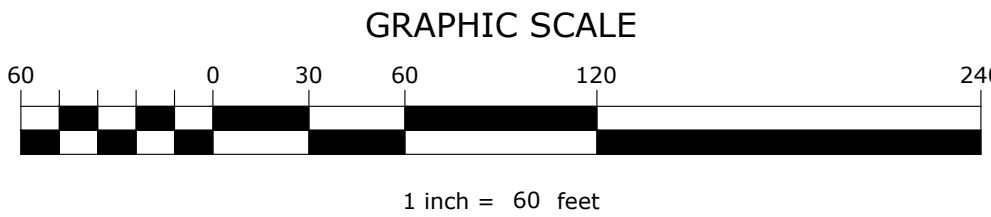
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2	1198.040	3882980.548	4703589.030	CAPPED REBAR
3	1209.446	3884304.764	4703616.104	CAPPED REBAR

[illegible]

IA-340-010-C051 SHEY TOPO - MLH
DESIGNED BY: A.S. & A.B.
DRAWN BY: MLH
SURVEYED BY: A.S. & A.B.
BIOLOGIST: D.B.
DATE: 04-03-2025
PROJECT NUMBER: US-IA-340-010
C051

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C:\Users\mhaase\Documents\Iowa - Iowa\02_C3D Projects\IA-340-2 CREP Projects\KOSOUTH SHEY\C3D_DRAWING\IA-340-010-C101 SHEY SITE PLAN - MLH.dwg, 4/21/2025 12:53 PM, Michael Haase, SITE PLAN, None



DESIGN CRITERIA			
DESIGN CRITERIA	VALUE	UNIT	REQUIREMENT/NOTES
WATERSHED AREA	936.50	ACRES	500 MIN.
POOL NORMAL WATER LEVEL (NWL) ELEVATION	1191.0	FT.	
DESIGNED WETLAND POOL AREA (@ NWL)	4.56	ACRES	1191.0 ELEV.
PERCENT POOL AREA TO WATERSHED AREA	0.50	%	>=0.50%, MAY INCREASE WITH BORROW AREA
MAX. POOL DEPTH	5	FT.	
AVG. POOL DEPTH	1.87	FT.	
DEEP WATER AREA (DEPTH >3 FT)	0.74	ACRES	
PERCENT DEEP WATER TO POOL AREA	17.8	%	<25%
POOL STORAGE VOLUME AT NWL	7.760	ACRE-FT	
BERM ELEVATION	1195.70	FT.	
POOL STORAGE VOLUME AT TOP OF BERM	46.339	ACRE-FT	
MAX BERM HEIGHT	16.7	FT.	
AVG. BERM HEIGHT	4	FT.	
BERM LENGTH	532	FT.	
PRIMARY WEIR ELEVATION	1191.0	FT.	
PRIMARY WEIR LENGTH	72.0	FT.	
25-YEAR STORM HWL IN POOL	1193.81	FT.	
25-YEAR PEAK INFLOW	1209.31	CFS	
25-YEAR PEAK OUTFLOW	1178.98	CFS	
100-YEAR STORM HWL IN POOL	1194.70	FT.	
100-YEAR PEAK INFLOW	1861.36	CFS	
100-YEAR PEAK OUTFLOW	1811.78	CFS	

WETLAND POOL CHARACTERISTICS			
WETLAND POOL DEPTH (FT.)	ELEV. (FT.)	INCREMENTAL AREA (ACRE)	CUMULATIVE VOLUME (ACRE-FT)
0.0	1186.0	.256	0.000
1.0	1187.0	0.390	0.323
2.0	1188.0	0.741	0.888
3.0	1189.0	1.626	2.072
4.0	1190.0	2.793	4.282
5.0	1191.0	4.163	7.760
6.0	1192.0	5.599	12.641
7.0	1193.0	7.098	18.989
8.0	1194.0	9.275	27.176
9.0	1195.0	11.232	37.429
10.0	1195.7	14.224	46.339

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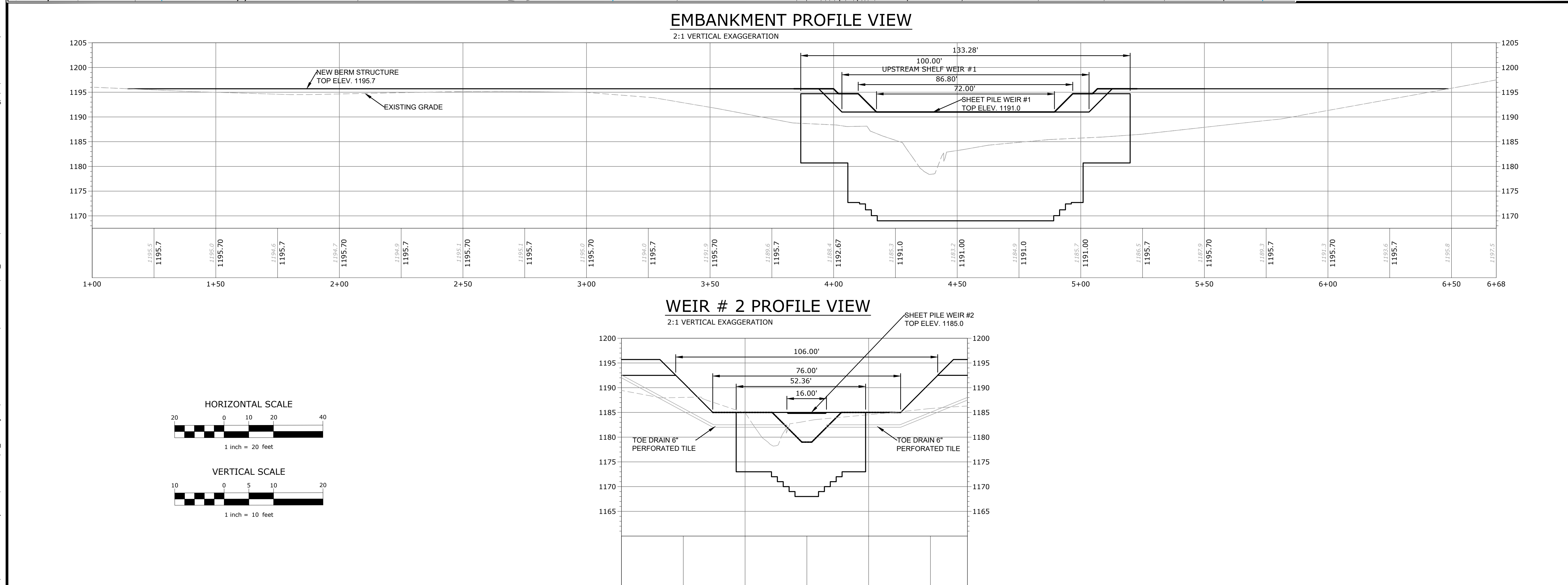
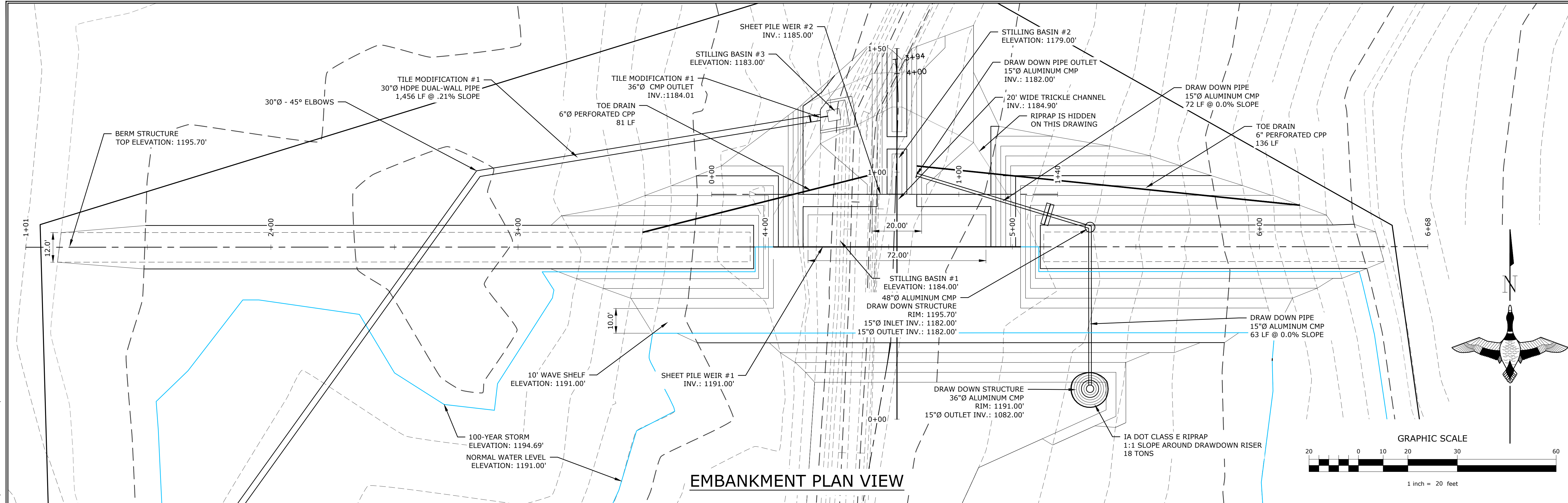
SITE PLAN
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

[illegible]

CAD FILE:	IA-340-010-C101 SHEY SITE PLAN
DESIGNED BY:	A.S. & A.B.
DRAWN BY:	MLH
SURVEYED BY:	A.S. & A.B.
BIOLOGIST:	D.B.
DATE:	04-03-2025
PROJECT NUMBER:	US-IA-340-010
C101	

NOT FOR CONSTRUCTION

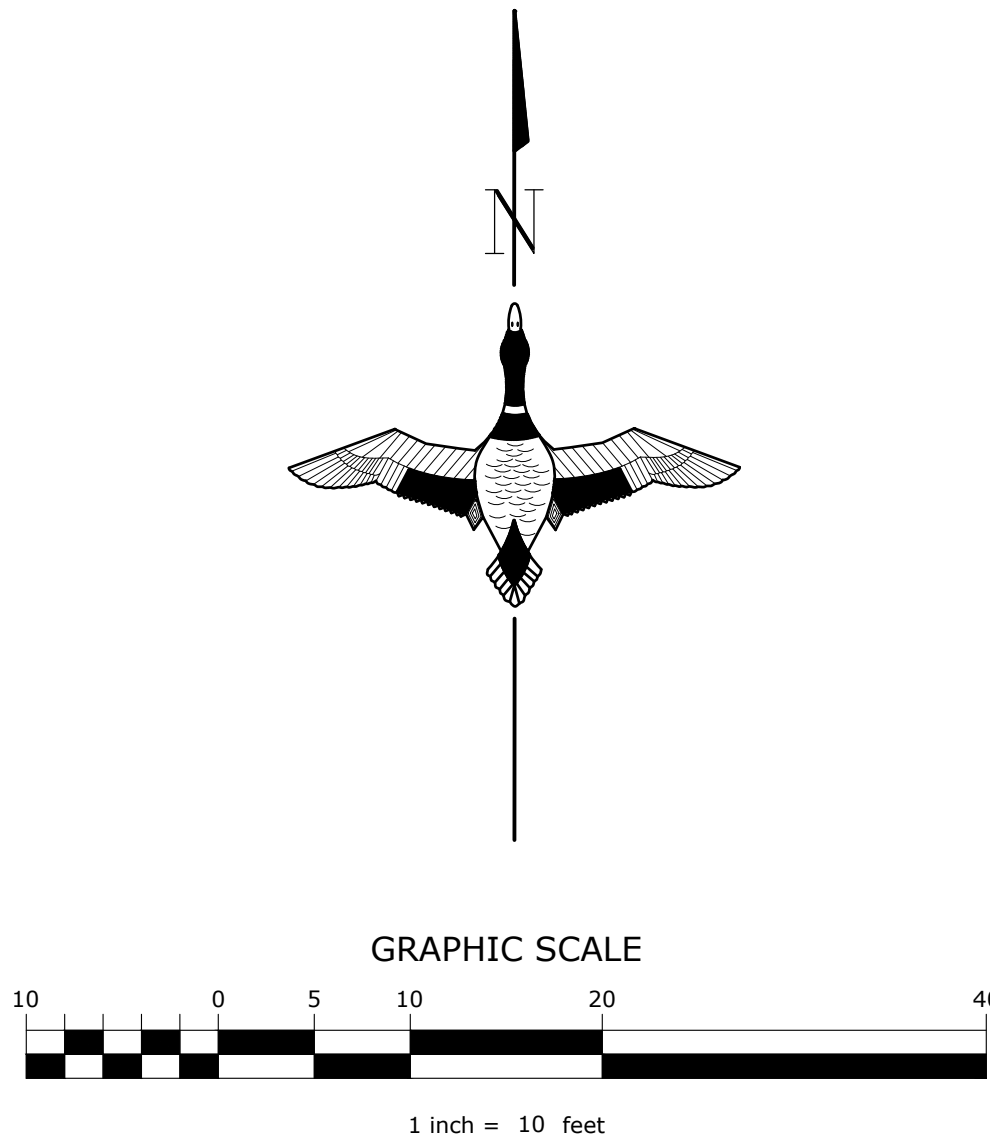
C:\Users\mhasee\Documents\Projects\Kossuth\340-010-C101 SHEY SITE PLAN - MLH.dwg, 4/21/2025 12:53 PM Michael Haase, EMBANKMENT PLAN & PROFILE, None



GREAT LAKES/ATLANTIC REGIONAL OFFICE 7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200 DEXTER, MICHIGAN 48130 (734) 623-2000 www.ducks.org  DUCKS UNLIMITED				GREAT LAKES/ATLANTIC REGIONAL OFFICE 7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200 DEXTER, MICHIGAN 48130 (734) 623-2000 www.ducks.org																																																											
EMBANKMENT PLAN & PROFILE PROJECT NO. KOS962907A KOSSUTH COUNTY IOWA				EMBANKMENT PLAN & PROFILE PROJECT NO. KOS962907A KOSSUTH COUNTY IOWA																																																											
Revisions <table border="1"> <thead> <tr> <th>Revision</th> <th>Sheet</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>----</td> <td>2024-12-06</td> <td>MLH</td> </tr> <tr> <td>1</td> <td>----</td> <td>2025-04-03</td> <td>AB</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> </tbody> </table>				Revision	Sheet	Date	By	0	----	2024-12-06	MLH	1	----	2025-04-03	AB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	Revisions <table border="1"> <thead> <tr> <th>Revision</th> <th>Sheet</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>----</td> <td>2024-12-06</td> <td>MLH</td> </tr> <tr> <td>1</td> <td>----</td> <td>2025-04-03</td> <td>AB</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> </tbody> </table>				Revision	Sheet	Date	By	0	----	2024-12-06	MLH	1	----	2025-04-03	AB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
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CAD FILE: IA-340-010-C101 SHEY SITE PLAN MLH				CAD FILE: IA-340-010-C101 SHEY SITE PLAN MLH																																																											
DESIGNED BY: A.S. & A.B.				DESIGNED BY: A.S. & A.B.																																																											
DRAWN BY: MLH				DRAWN BY: MLH																																																											
SURVEYED BY: A.S. & A.B.				SURVEYED BY: A.S. & A.B.																																																											
BIOLOGIST: D.B.				BIOLOGIST: D.B.																																																											
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NOT FOR CONSTRUCTION

C:\Users\mhaase\Documents\Iowa - Iowa 02 C3D Projects\IA-340-2 CREP Projects\KOSKUTH SHEY/C3D DRAWING\IA-340-010-C101 SHEY SITE PLAN - MLH.dwg, 4/21/2025 12:53 PM, Michael Haase, ENLARGED EMBANKMENT & RIPRAP PLAN, None



AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

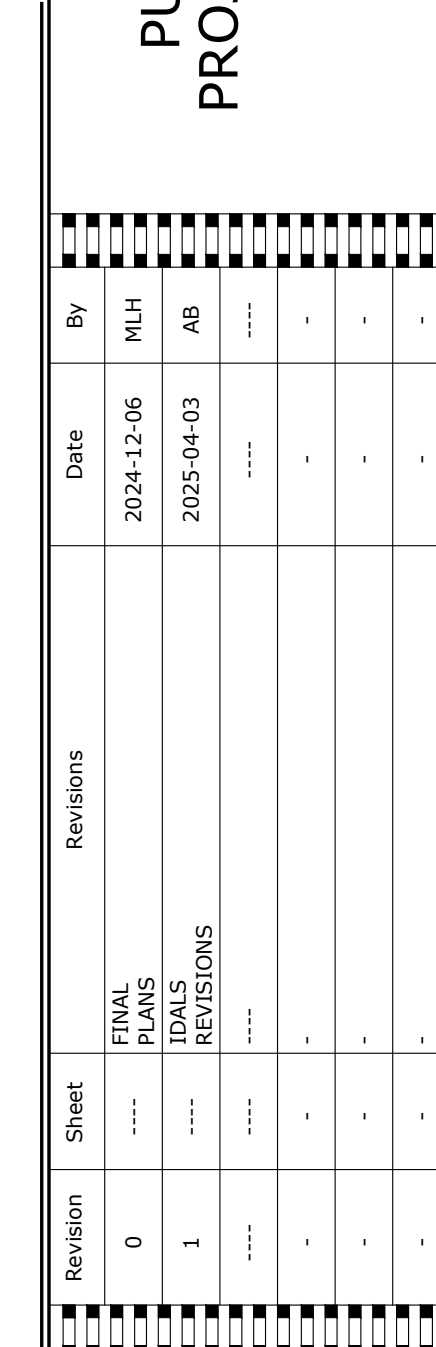
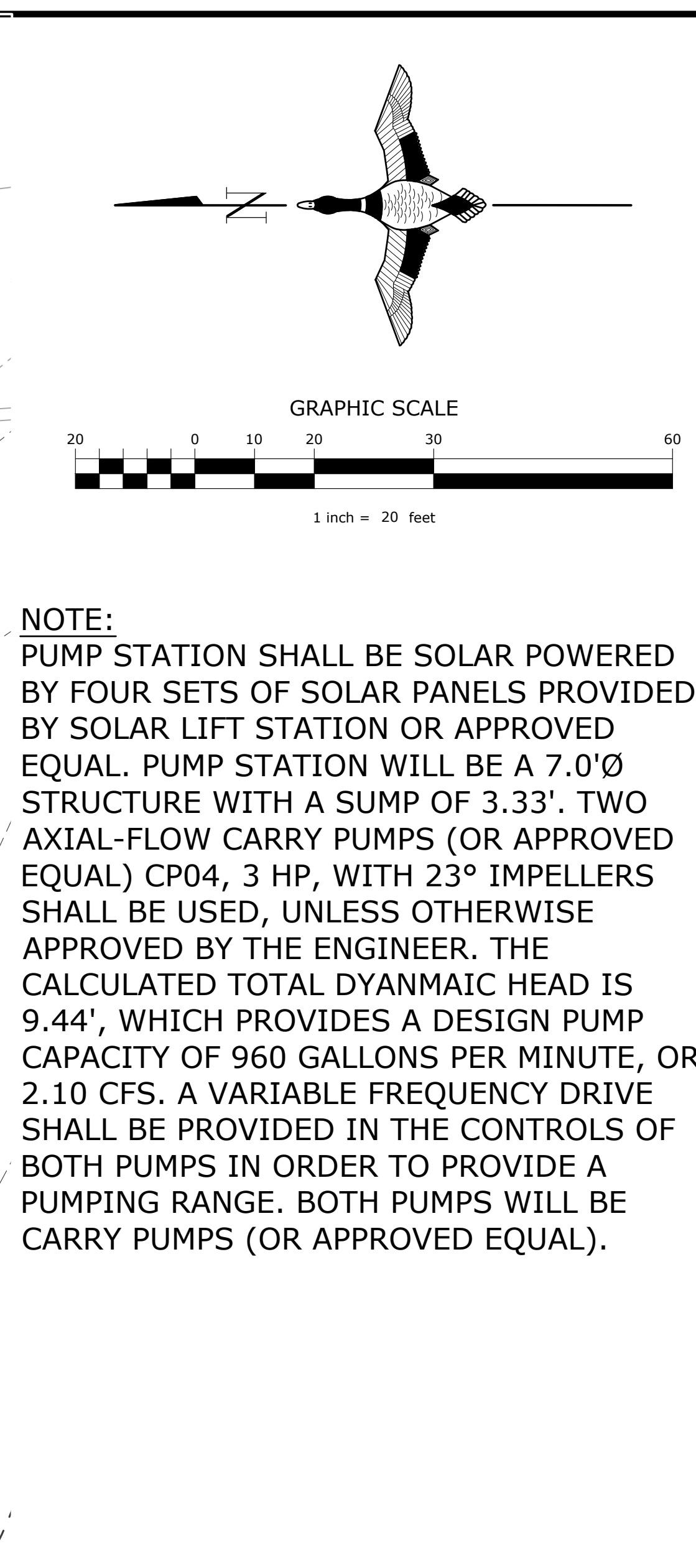
ENLARGED EMBANKMENT &
RIPRAP PLAN
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

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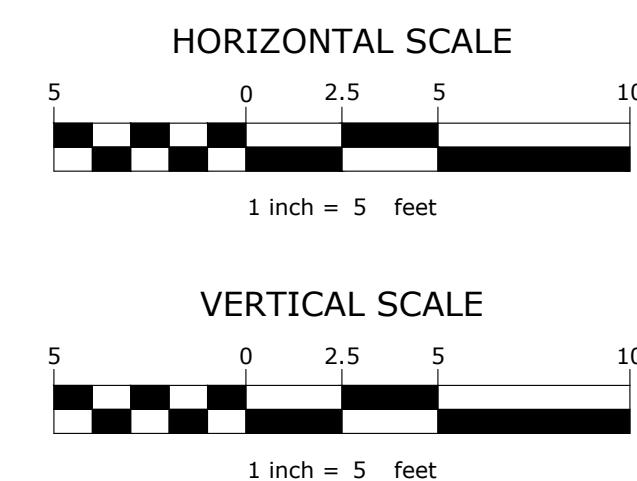
CAD FILE: IA-340-010-C101 SHEY SITE PLAN	
MLH	
DESIGNED BY: A.S. & A.B.	
DRAWN BY: MLH	
SURVEYED BY: A.S. & A.B.	
BIOLOGIST: D.B.	
DATE: 04-03-2025	
PROJECT NUMBER: US-IA-340-010	
C202	

NOT FOR CONSTRUCTION

C:\Users\mhaase\Documents\Iowa - Iowa02 C3D Projects\IA-340-2 CREP Projects\KOSUTH SHEY\CD DRAWING\IA-340-010-C101 SHEY SITE PLAN - MLH.dwg, 4/21/2025 12:53 PM, Michael Haase, PUMP PLAN & PROFILE, None



1:1 VERTICAL EXAGGERATION



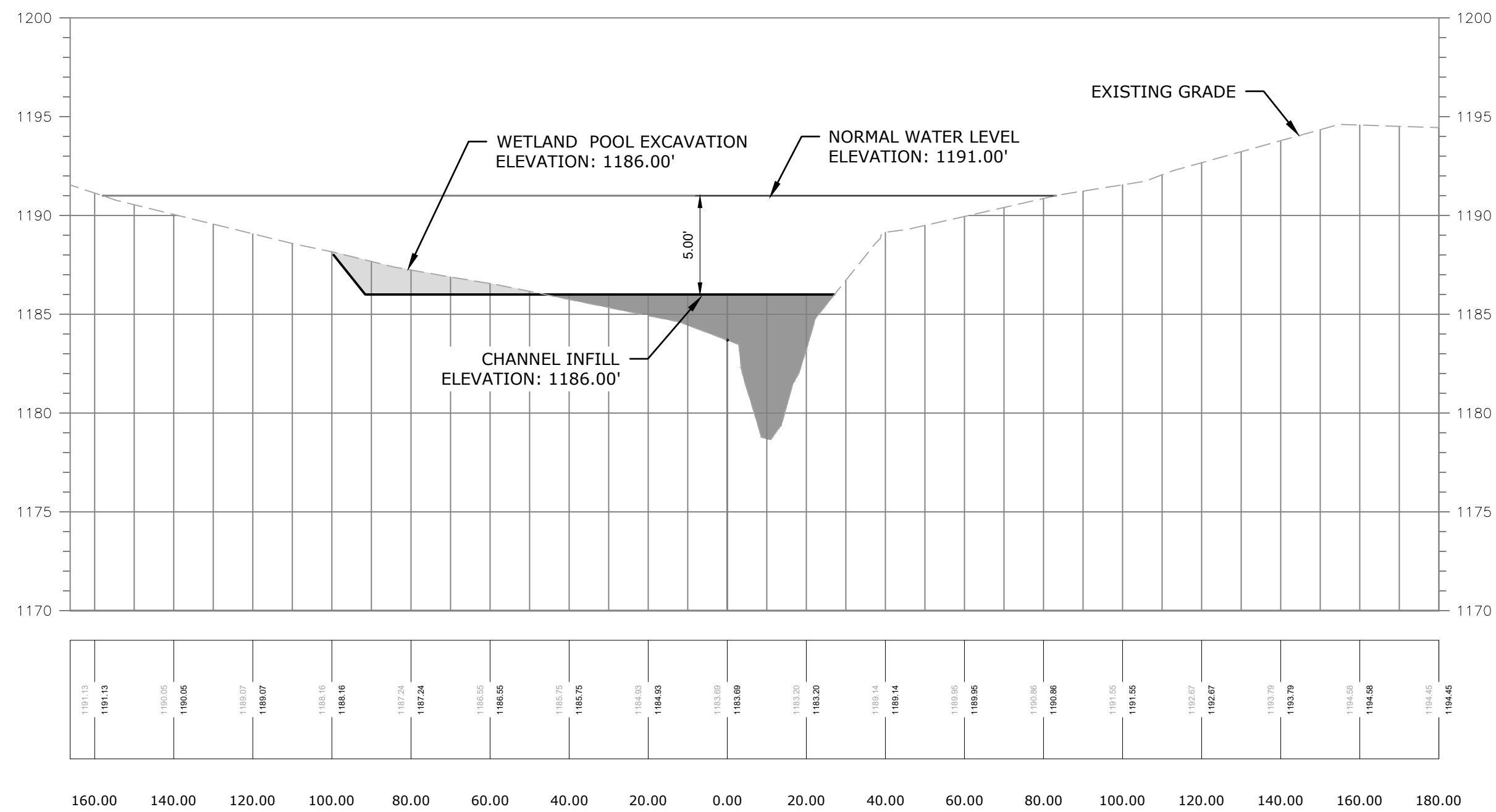
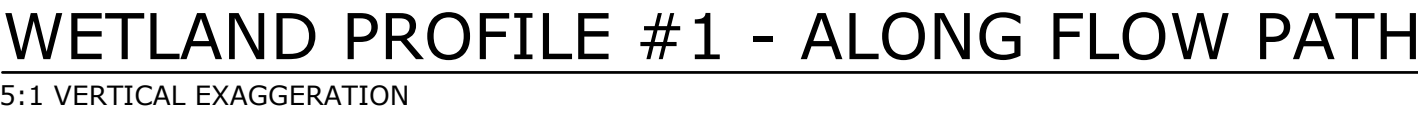
AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

PUMP PLAN & PROFILE
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

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CAD FILE: IA-340-010-C101 SHEY SITE PLAN - MLH	
DESIGNED BY: A.S. & A.B.	
DRAWN BY: MLH	
SURVEYED BY: A.S. & A.B.	
BIOLOGIST: D.B.	
DATE: 04-03-2025	
PROJECT NUMBER: US-IA-340-010	
C203	

NOT FOR CONSTRUCTION



HORIZONTAL SCALE

30 0 15 30 60

1 inch = 30 feet

VERTICAL SCALE

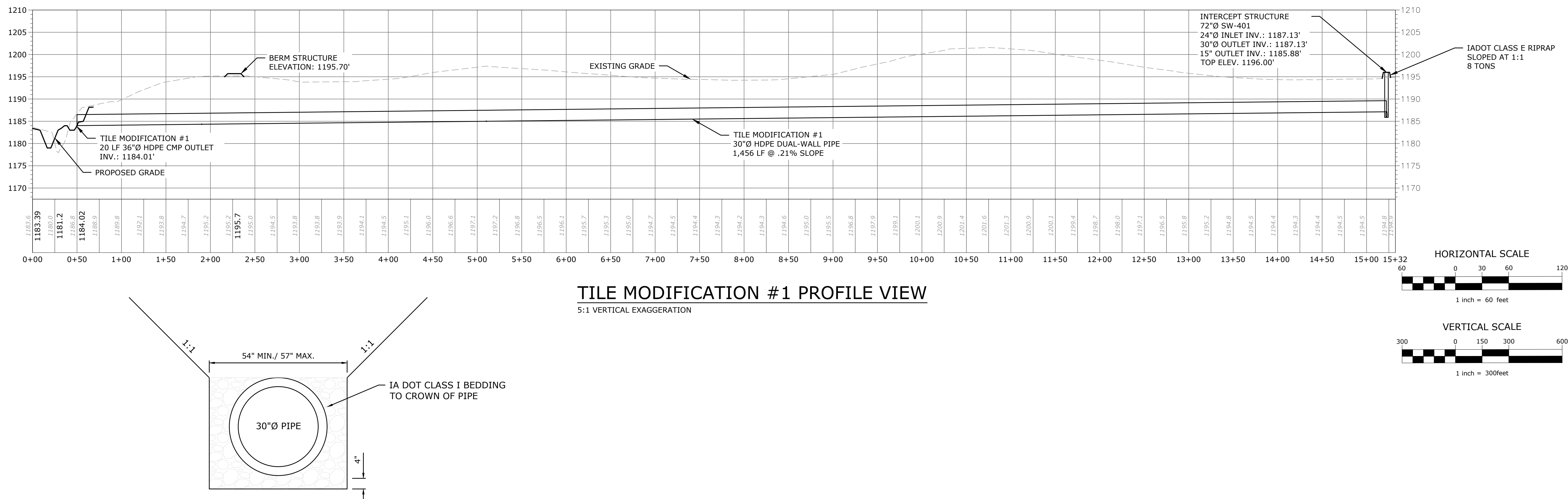
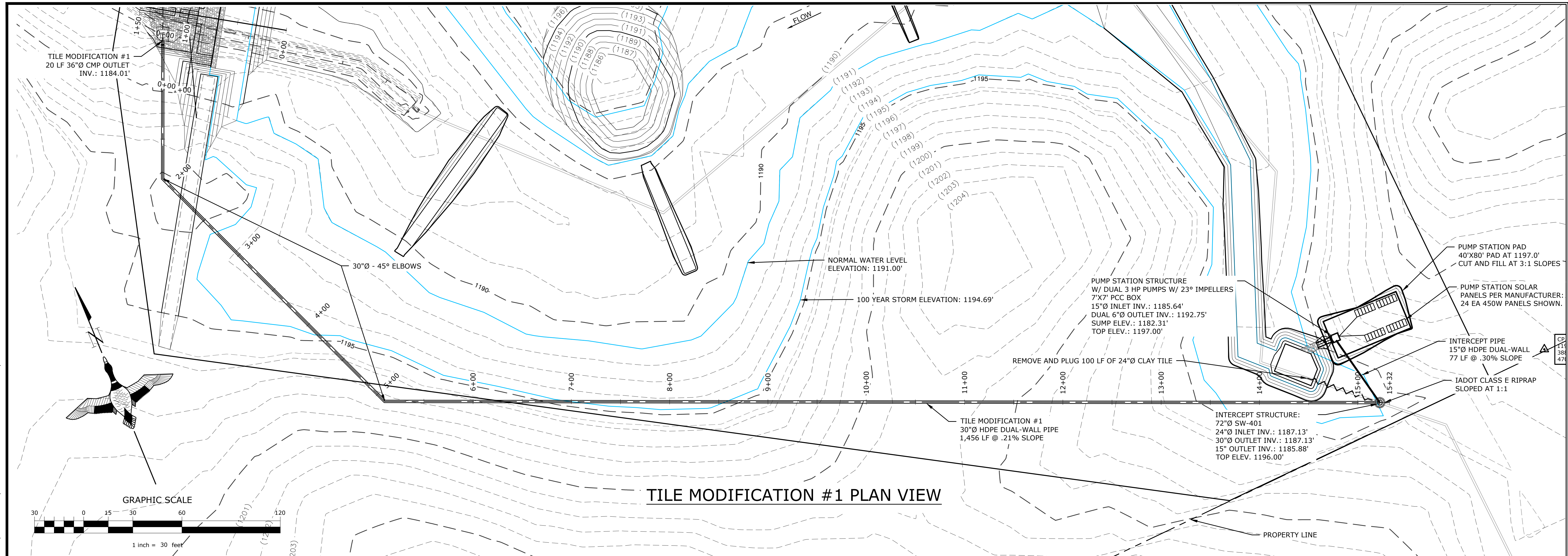
100 0 50 100 200

1 inch = 100feet

WETLAND PROFILES
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

[illegible]

NOT FOR CONSTRUCTION



DETAIL - TYPICAL 30"Ø TILE PIPE BEDDING (TILE #1)
N.T.S.

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 2, STE. 2000
DEXTER, MICHIGAN 48130
(734) 623-2000
www.ducks.org

AFFIX SEAL: DUCKS UNLIMITED, INC.

TITLE MODIFICATION NO. 1 PLAN
& PROFILE
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
0	FINAL PLANS		2024-12-06	MLH
1	IDALS REVISIONS		2025-04-03	AB
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CAD FILE: IA-340-010-C101 SHEY SITE PLAN MLH
DESIGNED BY: A.S. & A.B.
DRAWN BY: MLH
SURVEYED BY: A.S. & A.B.
BIOLOGIST: D.B.
DATE: 04-03-2025
PROJECT NUMBER: US-IA-340-010
C205

NOT FOR CONSTRUCTION

C:\Users\mhaase\Documents\Iowa - Iowa 02 C3D Projects\Iowa-340-2 CREP Projects\KOSKUTH SHEY\C3D DRAWING\IA-340-010-C101 SHEY SITE PLAN - MLH.dwg, 4/21/2025 12:54 PM, Michael Hease, TILE MODIFICATION No. 2 PLAN & PROFILE, None



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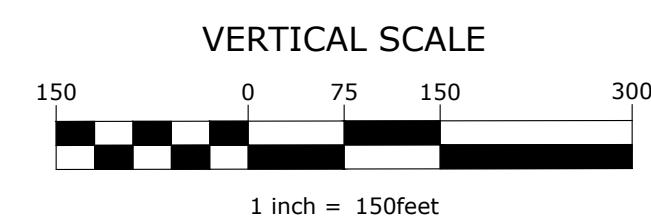
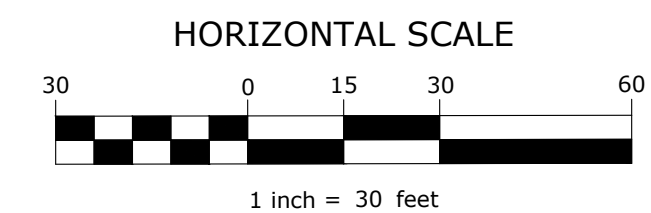
30 0 15 30 60

1 inch = 30 feet

VERTICAL SCALE

150 0 75 150 300

1 inch = 150feet



AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

TILE MODIFICATION NO. 2 PLAN
& PROFILE
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

[illegible]

NOT FOR CONSTRUCTION

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200
DEXTER, MICHIGAN 48130
(734) 623-2000
www.ducks.org

AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

SHEET PILING NO. 1
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

Revisions		Date	By
0	FINAL PLANS	2024-12-06	MLH
1	IDALS REVISIONS	2025-04-03	AB

CAD FILE:

IA-340-010-C301 SHEY DETAILS

DESIGNED BY:

A.S. & A.B.

DRAWN BY:

MLH

SURVEYED BY:

A.S. & A.B.

BIOLOGIST:

D.B.

DATE:

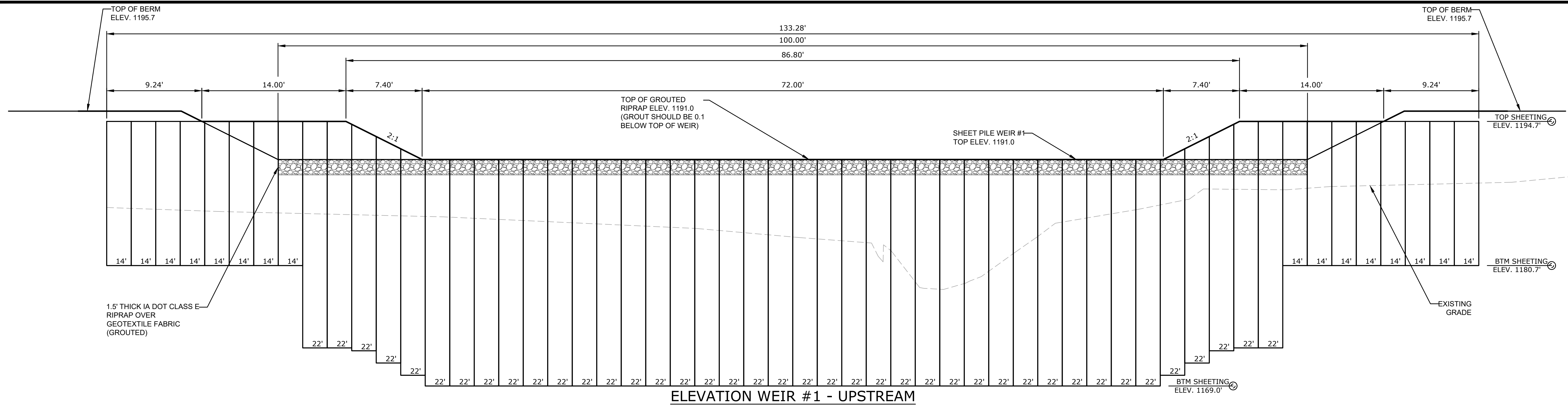
04-03-2025

PROJECT NUMBER:

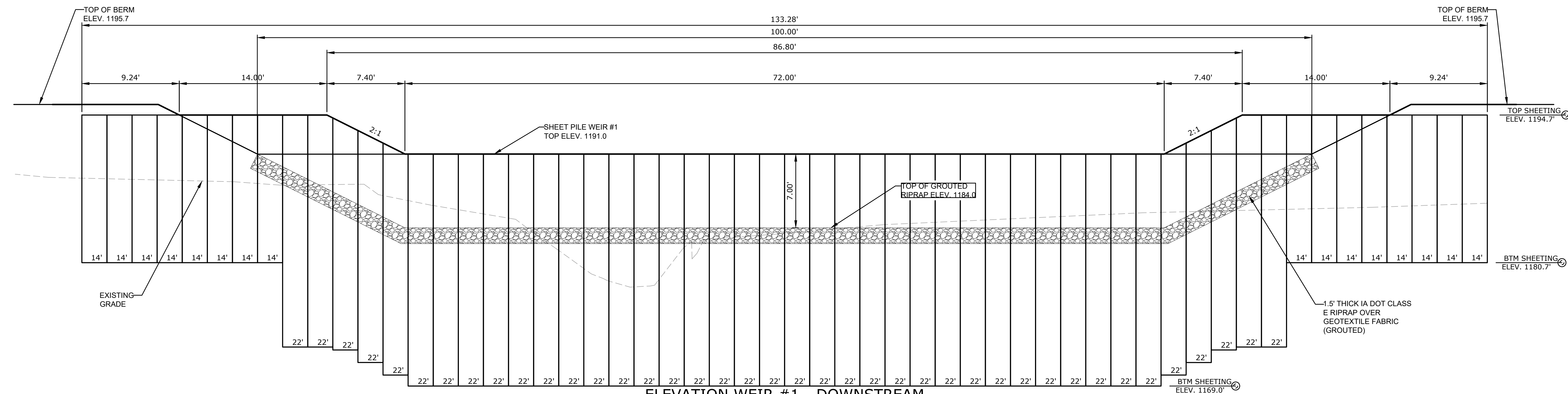
US-IA-340-010

C301

NOT FOR CONSTRUCTION



ELEVATION WEIR #1 - UPSTREAM



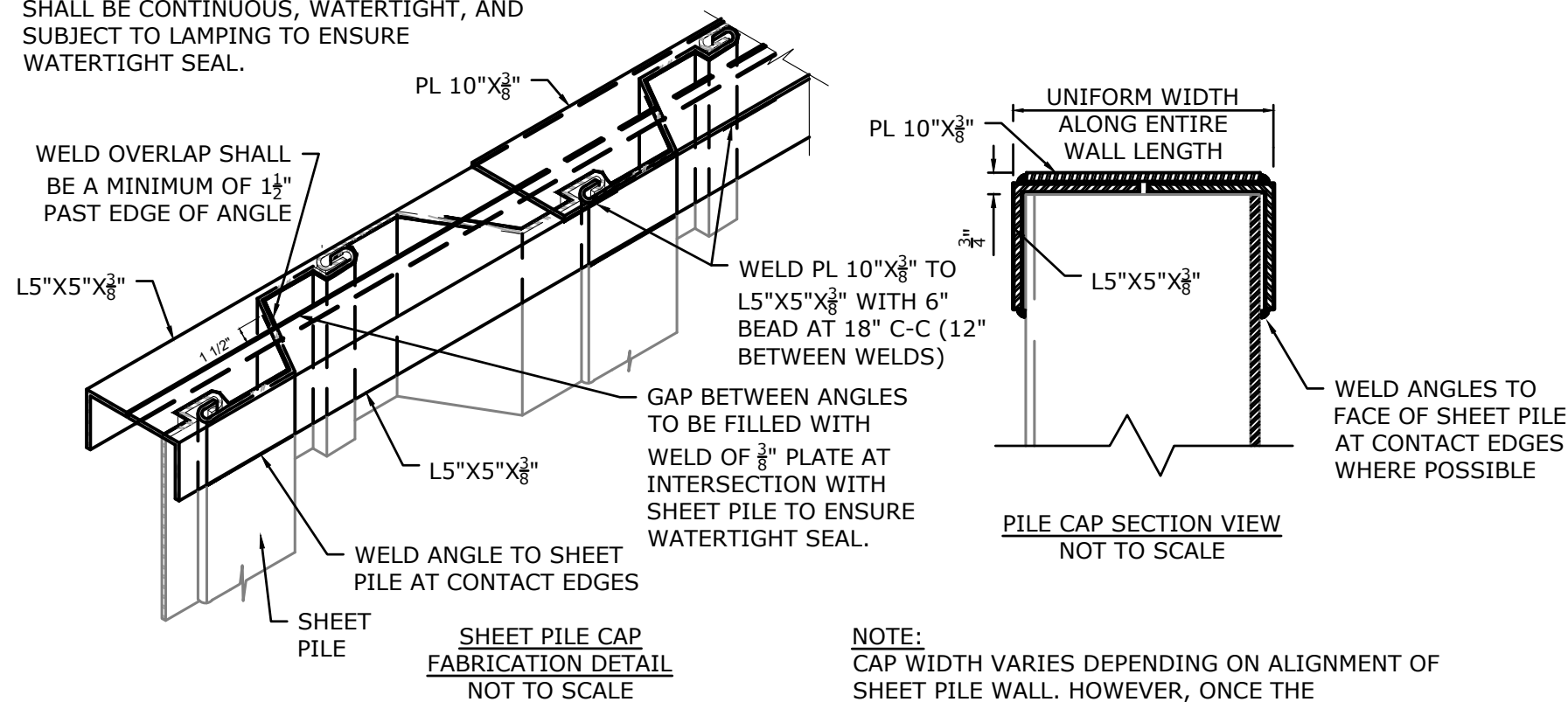
ELEVATION WEIR #1 - DOWNSTREAM

- RECOMMENDED SHEET PILE:**
1. TYPE: SCZ 21N (OR APPROVED EQUAL)
 2. SECTION MODULUS: 21.43 IN³/FT.
 3. THICKNESS: 0.375 IN
 4. STEEL GRADE: 50 KSI
 5. DETAILS BASED ON 28.5" WIDE SHEETS

NOTE:
ALL WELDS AT OR BELOW ELEV. 1090.0'
SHALL BE CONTINUOUS, WATERTIGHT, AND
SUBJECT TO LAMPING TO ENSURE
WATERTIGHT SEAL.

- SHEET PILE MINIMUM DESIGN CRITERIA:**
1. TYPE: SCZ
 2. SECTION MODULUS: 8.2 IN³/FT.
 3. THICKNESS: 0.25 IN
 4. MOMENT OF INERTIA: 22.9 IN⁴/FT.
 5. STEEL GRADE: 50 KSI

NOTE: SHOPS DRAWINGS ARE REQUIRED



NOTE:
CAP WIDTH VARIES DEPENDING ON ALIGNMENT OF SHEET PILE WALL. HOWEVER, ONCE THE APPROPRIATE WIDTH IS DETERMINED, IT SHALL REMAIN UNIFORM ALONG ENTIRE LENGTH OF WALL.

AFFIX SEAL: DUCKS UNLIMITED, INC.

DESIGNED BY: A.S. & A.B.

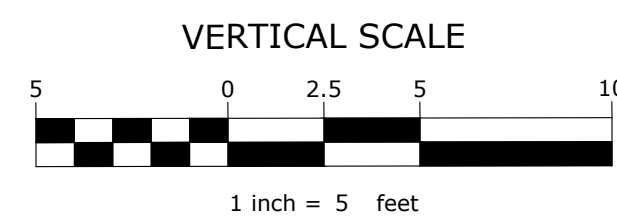
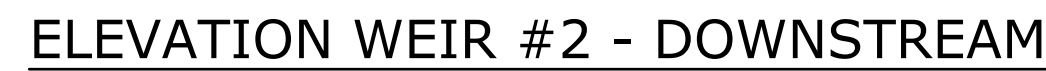
SURVEYED BY: A.S. & A.B.

DATE:
04-03-2025

US-IA-340-010

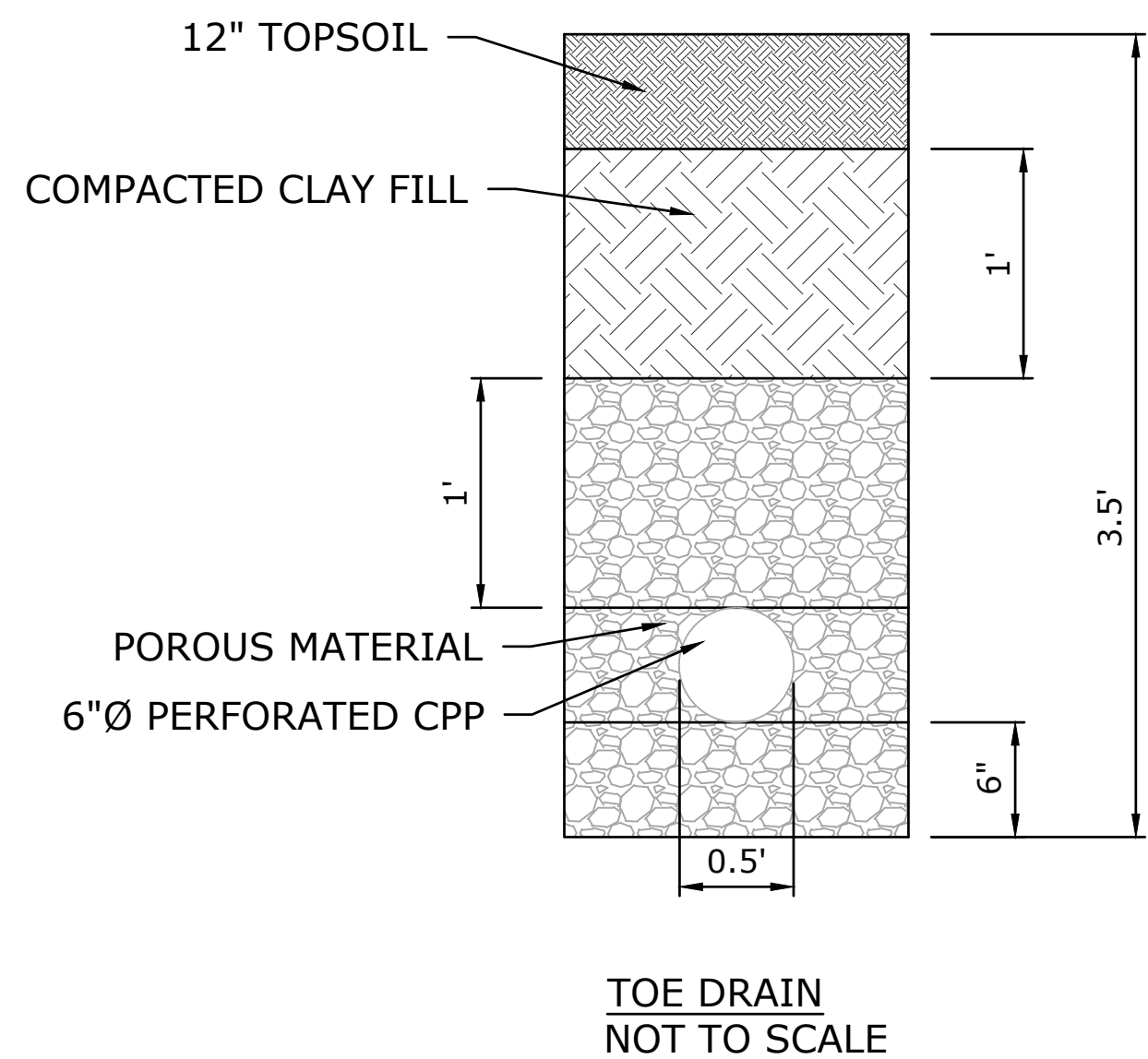
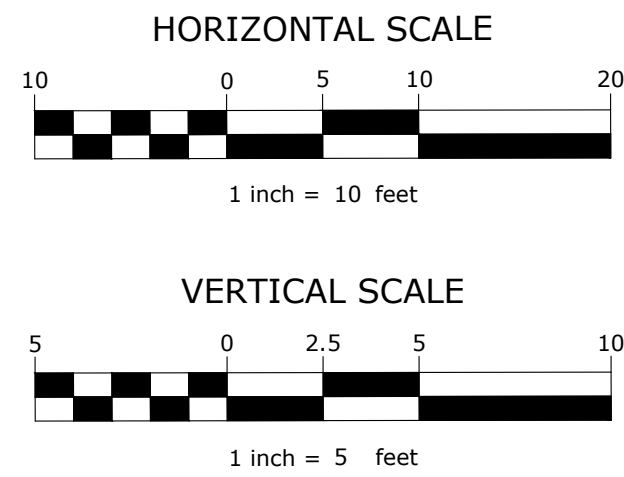
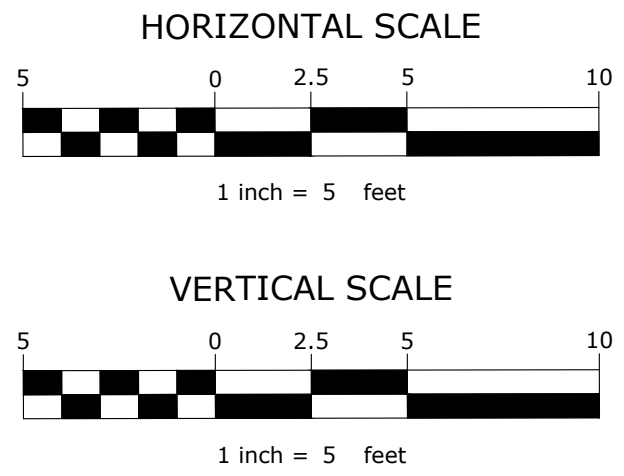
C302

NOT FOR CONSTRUCTION



C:\Users\mhaase\Documents\C3D Projects\IA-340-2 CREP Projects\IA-340-2 C301 SHEY DETAIL S - MI H.dwg 4/21/2025 12:54 PM Michael Haase SHEET PILING NO. 2 None

C:\Users\mhaase\Documents\Iowa - Iowa02_C3D Projects\IA-340-2 CREP Projects\IA-340-010-C301 SHEY DETAILS - MLH.dwg, 4/21/2025 12:55 PM, Michael Haase, CONSTRUCTION DETAILS, None



FIX SEAL: DUCKS UNLIMITED, INC.

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1	IDALS REVISIONS *****	2025-04-03	AB
2	*****		*****
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CAD FILE:
IA-340-010-C301 SHEY DETAILS -
MLH

DESIGNED BY: A.S. & A.B.

DRAWN BY: MLH

SURVEYED BY: A.S. & A.B.

BIOLOGIST: D.B.

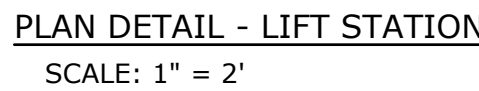
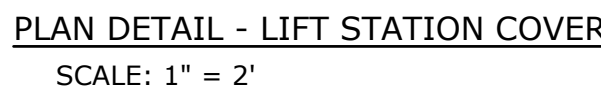
DATE:
04-03-2025

PROJECT NUMBER:
US-IA-340-010

C303

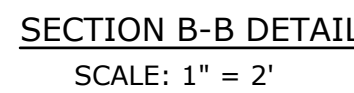
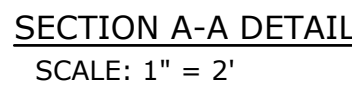
NOT FOR CONSTRUCTION

C:\Users\mhaase\Documents\Projects\IA-340-010-C301 SHEV DETAILS - MLH.dwg, 4/21/2025 12:55 PM, Michael Haase, PUMP DETAILS, None



STEPS SHALL BE NEEHAH FOUNDRY CO.
PATTERN NO. R-1982-F (OR APPROVED EQUAL)
OR POLYPROPYLENE PLASTIC-COATED (ASTM
D-2146 TYPE II CR. 4910B) $\frac{3}{8}$ " GRADE 40
DEFORMED STEEL BAR (ASTM A-615)

3. THE CALCULATED TOTAL DYNAMIC HEAD OF PUMP SYSTEM IS 9.94 FEET.
4. PUMPING SYSTEM SHALL HAVE A DESIGN PUMPING RATE OF 2.1 CFS (APPROXIMATELY 960 GPM). THE PUMPS AND CONTROL PANEL SHALL BE PROVIDED WITH A VARIABLE SPEED DRIVE (VFD) THAT ALLOWS THE PUMPS TO AUTOMATICALLY PUMP AT A RANGE OF 0.5-2 CFS, BASED ON AVAILABLE FLOW FROM THE TILE.
5. PUMP SYSTEM SHALL BE PROVIDED WITH TIMER OR OTHER SAFETY FEATURE TO CONTROL AMOUNT OF PUMP ON/OFF CYCLES PER HOUR, IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
6. A COMPLETE BACKUP SHUT OFF FLOAT ASSEMBLY SHALL BE PROVIDED.
7. A CHECK VALVE SHALL BE PROVIDED INSIDE THE LIFT STATION IN THE VERTICAL SECTION OF PIPE, AS WELL AS A FLANGE-TO-FLANGE (REMOVABLE) JOINT. A WEEP HOLE SHALL BE PROVIDED INSIDE THE CHECK VALVE TO PREVENT WATER STANDING/FREEZING INSIDE PIPE.
8. REMOTE MONITORING CAPABILITIES SHALL BE PROVIDED WITH PUMPING SYSTEM, AND PUMP REPRESENTATIVE SHALL PROVIDE INITIAL SETUP WITH REQUIRED PERSONNEL.
9. SHOP DRAWINGS SHALL BE PROVIDED BY PUMP MANUFACTURER DISPLAYING ALL PERTINENT DETAILS TO PROVIDE A COMPLETE PUMPING SYSTEM. PUMP SYSTEM CONCEPTUAL DETAILS WERE BASED ON CARRY PUMPS, CP04 SERIES PUMP (3 HP, THREE SPEED), WITH EXTERIOR-GRADE CONTROL PANEL AND VFD. CONTRACTOR MAY UTILIZE OTHER PUMPING SYSTEM THAT MEETS THE PUMP SYSTEM DESIGN INTENT, AS APPROVED BY THE ENGINEER.
10. A FACTORY PUMP TEST SHALL BE REQUIRED. THE PUMP SHALL BE TESTED AND PAPERWORK TURNED INTO THE ENGINEER PRIOR TO SHIPPING TO SITE.
11. CONTRACTOR SHALL PROVIDE A REPRESENTATIVE FROM THE PUMP MANUFACTURER (PRIOR TO PROJECT COMPLETION) TO ASSIST IN PUMP STARTUP TO ENSURE PUMPING SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES AND DESIGN INTENT.
12. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PRECAST CONCRETE LIFT STATION SEALING BY A LICENSED ENGINEER. KNOCKOUTS FOR 15" DUAL-WALL PIPE SHALL BE MINIMALLY OVERSIZED TO PROVIDE TOLERANCE FOR DIFFERENCES IN FIELD CONDITIONS.
13. CONTRACTOR SHALL VERIFY HOLES FOR THE TRANSDUCER, FLOAT, POWER AND ANY OTHER NECESSARY EQUIPMENT WITH THE PUMP MANUFACTURER PRIOR TO PRECAST CASTING. ANY HOLES NOT PROVIDED IN PRECAST WILL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE.
14. FRESNO FLAT-BACK 7600 FABRICATED ALUMINUM CANAL GATE WITH RISING STAINLESS STEEL STEM OR APPROVED EQUAL SHALL BE 24". CONTRACTOR/SUPPLIER MAY HAVE TO FABRICATE AN EXTENSION TO GATE FRAME TO MOVE ANCHOR BOLT HOLES AWAY FROM CIRCULAR 22" KNOCK-OUT IN LIFT STATION. IT WILL BE UP TO THE CONTRACTOR TO VERIFY THAT THE CANAL GATE WILL GO INTO THE INSIDE OF THE LIFT STATION WALLS LEAVING A MINIMUM 2-3" CLEARANCE BETWEEN ANCHOR BOLTS AND CIRCULAR KNOCK-OUT. ANY ADDITIONAL WORK WILL BE AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL CORE-DRILL HOLE IN THE COVER SLAB FOR RISING STEM TO PROTRUDE THROUGH. HOLE SHALL BE AS SMALL AS POSSIBLE TO HAVE LESS FLEX IN VERTICAL SHAFT. SUPPORTS SHALL BE USED "AS DETERMINED BY SUPPLIER/CONTRACTOR) ALONG INSIDE FACE OF LIFT STATION TO SECURE VERTICAL RISING STEM. THE PEDESTAL SHALL BE MOUNTED TO ALLOW HAND TO ROTATE FREE FROM OBSTRUCTION. CLEAR PLASTIC CONE GUARD SHALL BE INCLUDED IN GEAR LIFT. COST OF GATE, FRAME, STAINLESS STEEL RISING STEM, OPERATOR, PEDESTAL AND COMPLETE INSTALLATION SHALL BE INCLUDED IN THE CONTRACTOR'S UNIT PRICE FOR "FRESNO 24" FABRICATED ALUMINUM CANAL GATE (24" DIA)".
15. CONTRACTOR SHALL COORDINATE WORK WITH PUMP SUPPLIER AND SOLAR PANEL SUPPLIER TO ENSURE A COMPLETE AND OPERATIONAL PUMPING SYSTEM IS PROVIDED.
16. DETAILED SHOP DRAWINGS OF PUMP SYSTEM AND SOLAR PANEL SYSTEM SHALL BE PROVIDED FROM CONTRACTOR.



- 12" DEPTH OF $\frac{3}{4}$ "-1 $\frac{1}{2}$ "
AGGREGATE BEDDING
BENEATH LIFT STATION;
CONTRACTOR SHALL CREATE
STABLE BASE PRIOR TO
SETTING LIFT STATION

PUMP DETAILS
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

Revisions		Date	By
FINAL PLANS	2024-12-06	MLH	
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NOT FOR CONSTRUCTION

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NOTE: 1. WELD 1/2Ø BAR IN STOPLOGS.

2. STOPLOGS SHALL BE 1" SHORTER THAN WIDTH BETWEEN STOPLOG GUIDES.

3. FABRICATOR TO PROVIDE 1-2" & 1-3" STOPLOG IN ADDITION TO STOPLOGS SPECIFIED.

NOT TO SCALE

-
- Technical drawing of a circular culvert. The left view is a top-down circular cross-section showing eight rectangular bolt slots around the perimeter. Dimension lines indicate:
 - C**: The overall diameter of the culvert.
 - B**: The width of the culvert wall.
 A callout line points from the bolt slots to a text box:

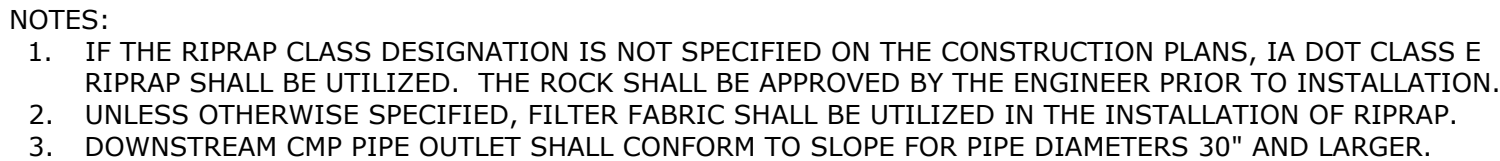
BOLT SLOTS
7/16" WIDE
1" LONG FOR
3/8" SS BOLTS

 The right view is a side elevation of the culvert, showing a semi-cylindrical shape with a wavy line representing the ground surface. It includes dimension lines for:
 - A**: The total height of the culvert structure.
 - B**: The height of the culvert wall above the ground.
 - t**: The thickness of the culvert wall.
 A note indicates:

WELD ON O.D.
OF CULVERT

NOTES: 1. 6"- 36" FLANGES CUT FROM 3/16 ALUMINUM PLATE.
2. GASKETS DIE CUT FROM 1/8" PVC NITRILE FOAM ENSOLITE AND MATCHED TO CORRESPONDING FLANGE DIMENSIONS (BXD)(E) & NO HOLES.
3. 2 WASHERS PER SLOT.

NOT TO SCALE



NOT TO SCALE

WCS SHEET 1
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

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0	----	FINAL PLANS	2024-12-06	MLH
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CAD FILE:

IA-340-010-C301 SHEY DETAILS MLH

DESIGNED BY: A.S. & A.B.

DRAWN BY: MLH

SURVEYED BY: A.S. & A.B.

BIOLOGIST: D.B.

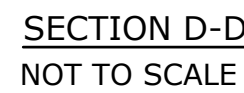
DATE:
04-03-2025

PROJECT NUMBER:
US-IA-340-010

C305

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NOTE: L1 AND L2 EQUAL HEIGHT OF RISER PLUS 1'
MAX LENGTH FOR EACH 5'. AFTER ADD A SECOND EXTENTION L3
2 PER STRUCTURE

AFFIX SEAL: DUCKS UNLIMITED, INC.

WCS SHEET 2
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

Sheet	Revisions	Date	By
0	FINAL PLANS	2024-12-06	MLH
1	IDAMS REVISIONS	2025-04-03	AB
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CAD FILE:

IA-340-010-C301 SHEY DETAILS MLH

DESIGNED BY:

A.S. & A.B.

DRAWN BY:

MLH

SURVEYED BY:

A.S. & A.B.

BIOLOGIST:

D.B.

DATE:

04-03-2025

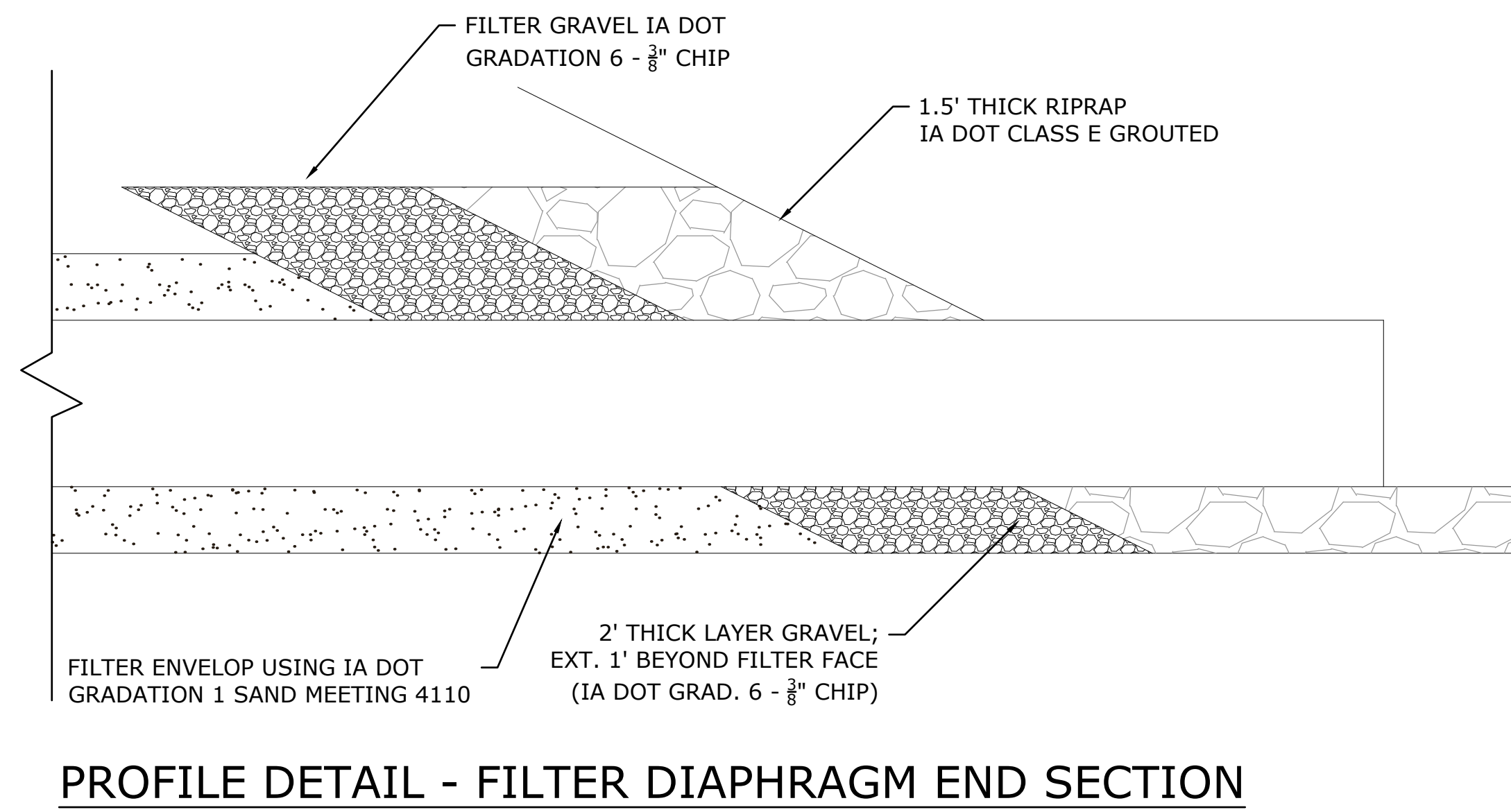
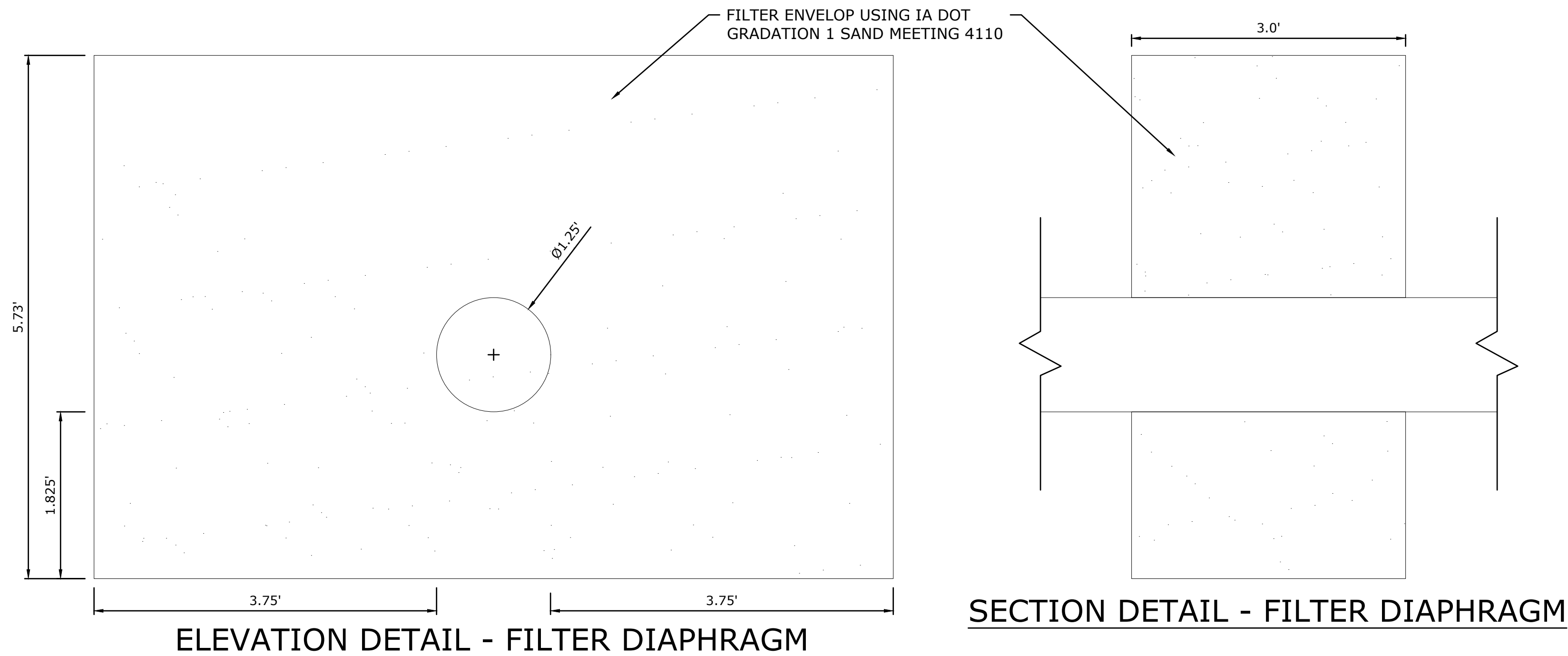
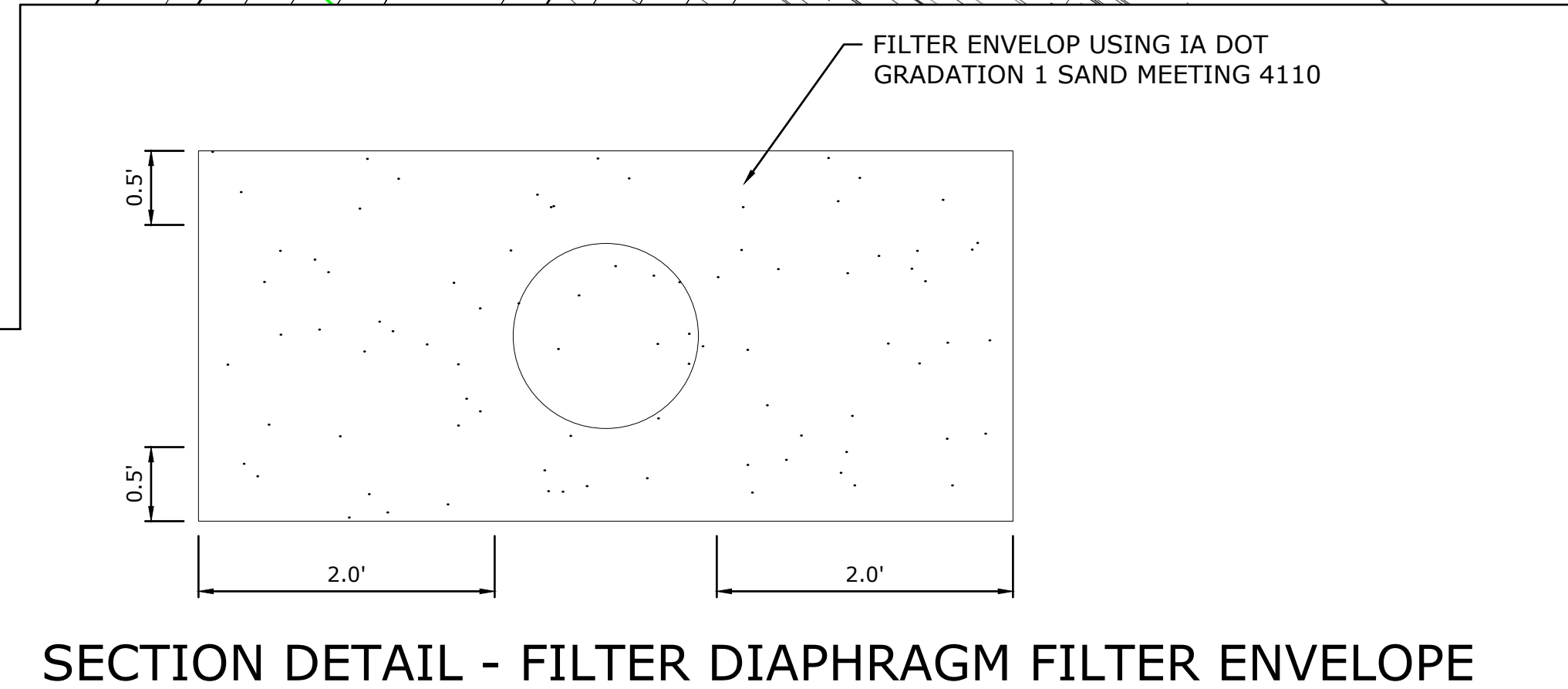
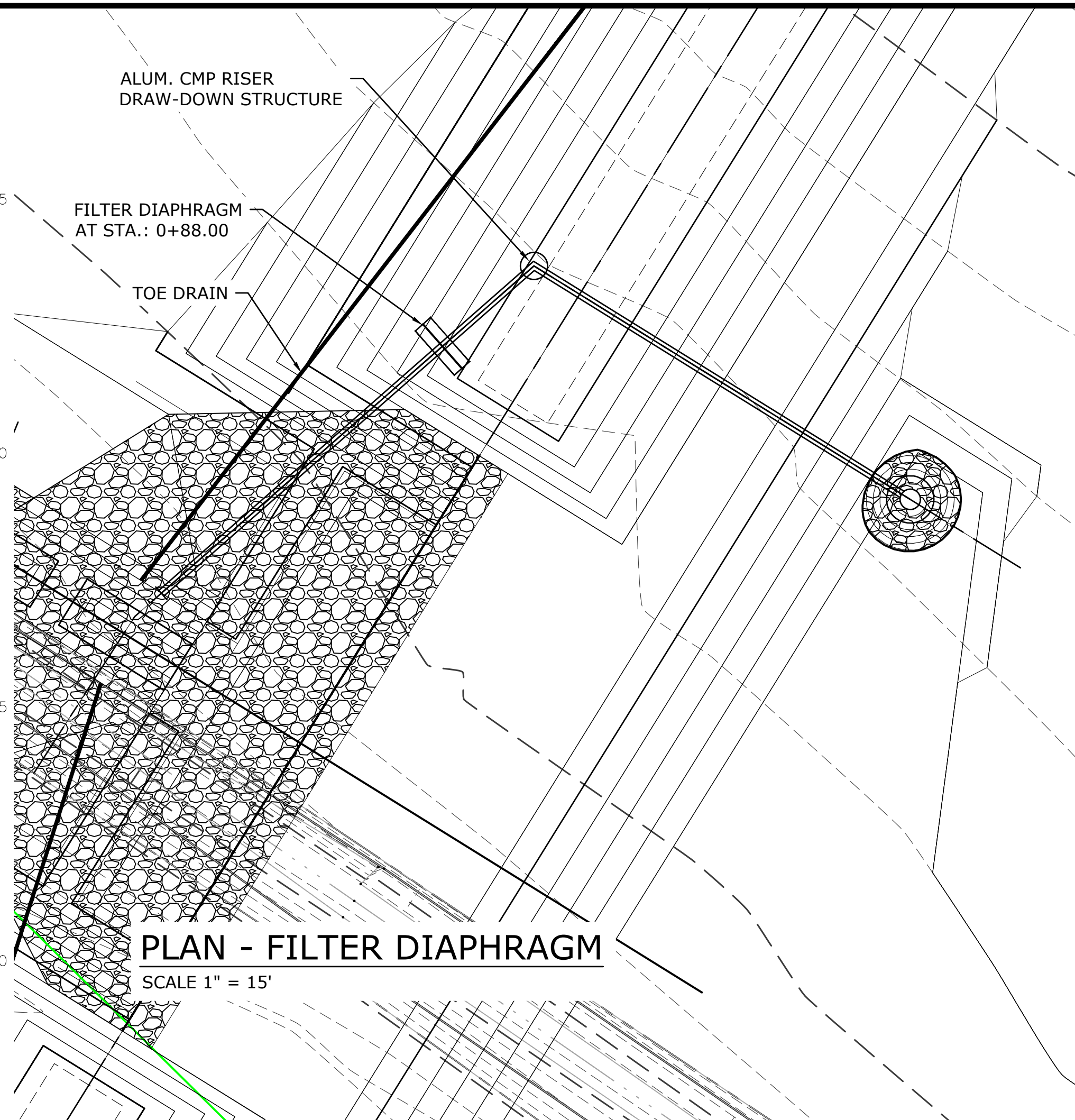
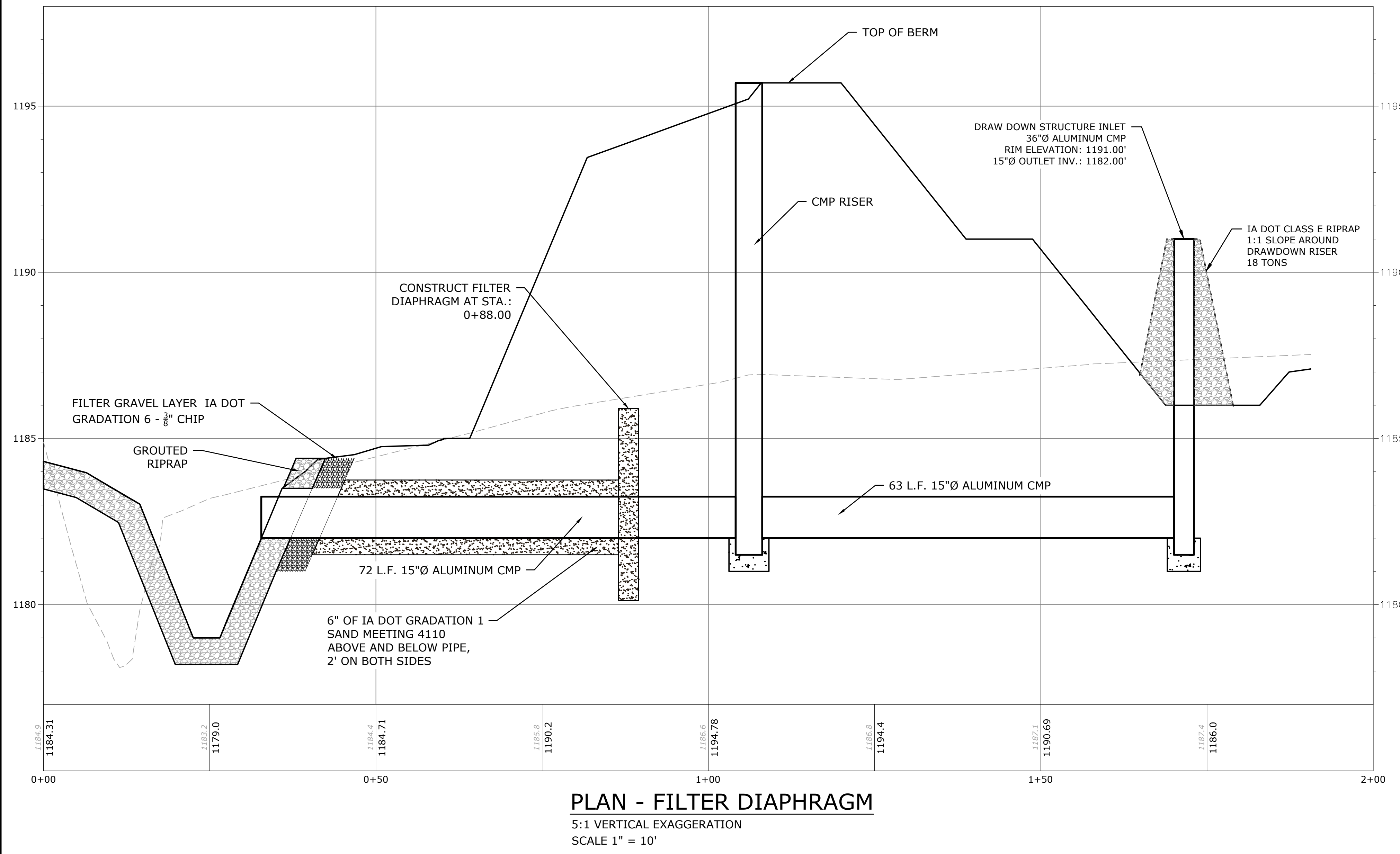
PROJECT NUMBER:

US-IA-340-010

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GREAT LAKES/ATLANTIC REGIONAL OFFICE 7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200 DEXTER, MICHIGAN 48130 (734) 623-2000 www.ducks.org  DUCKS UNLIMITED		ON: _____ AFFIX SEAL: DUCKS UNLIMITED, INC.																													
FILTER DIAPHRAM DETAILS PROJECT NO. KOS962907A KOSSUTH COUNTY IOWA		Revisions <table border="1"> <thead> <tr> <th>Revision</th> <th>Sheet</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>----</td> <td>2024-12-06</td> <td>MLH</td> </tr> <tr> <td>1</td> <td>----</td> <td>2025-04-03</td> <td>AB</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> <tr> <td>----</td> <td>----</td> <td>----</td> <td>----</td> </tr> </tbody> </table>		Revision	Sheet	Date	By	0	----	2024-12-06	MLH	1	----	2025-04-03	AB	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
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CAD FILE: IA-340-010-C301 SHEY DETAILS - MLH DESIGNED BY: A.S. & A.B. DRAWN BY: MLH SURVEYED BY: A.S. & A.B. BIOLOGIST: D.B.		DATE: 04-03-2025 PROJECT NUMBER: US-IA-340-010 C307																													

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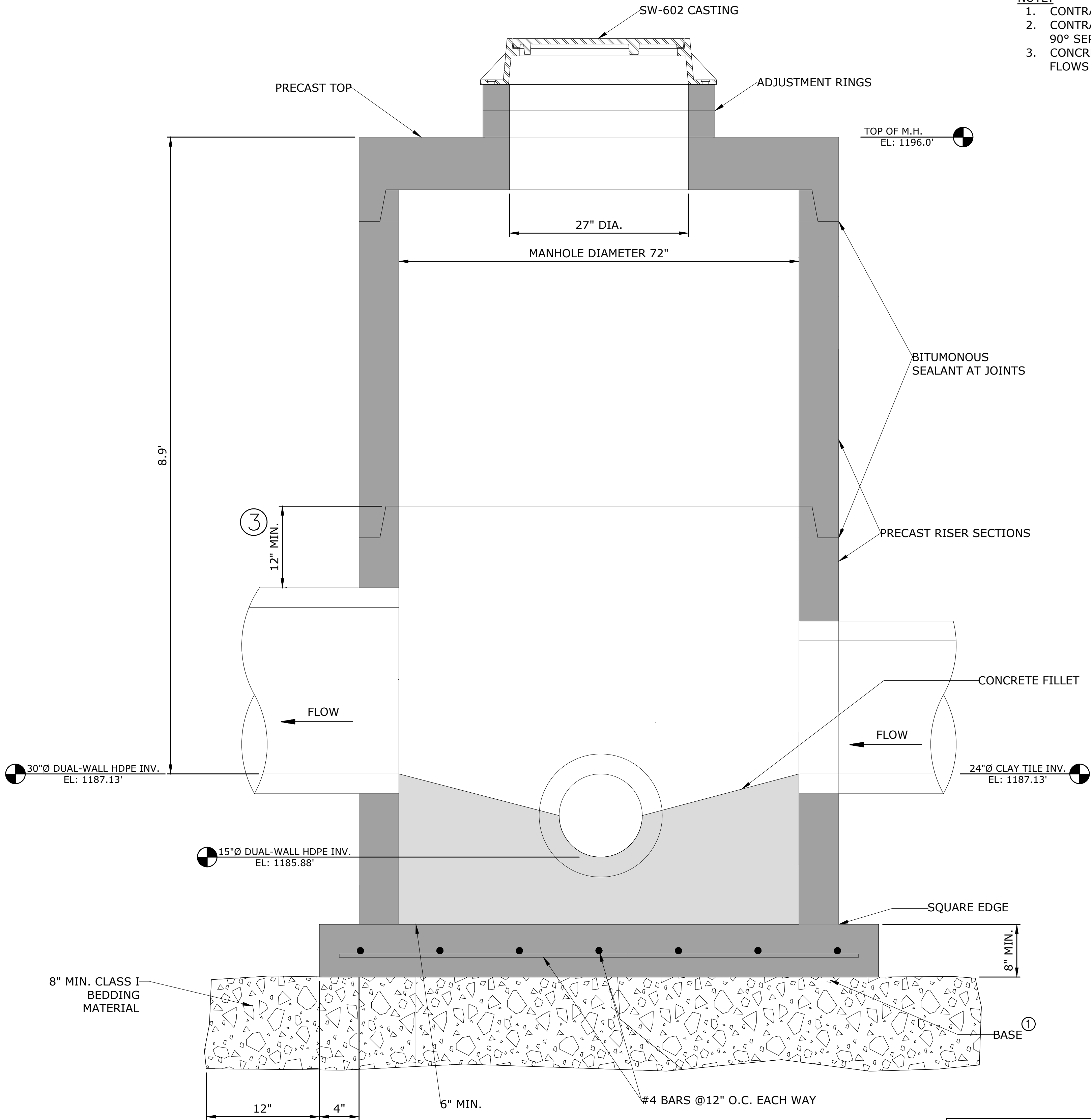
NOTICE: CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. DUCKS UNLIMITED, INC. SHALL NOT ASSUME ANY RESPONSIBILITY FOR THE SAFETY OF THE WORK PERFORMED. PERSONS ENGAGED IN THE WORK, NEARBY STRUCTURES, OR OF OTHER PERSONS ON-SITE. THIS MATERIAL, DATA AND INFORMATION IS THE PROPERTY OF DUCKS UNLIMITED, INC. IT MAY NOT BE USED OR REPRODUCED FOR ANY PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF DUCKS UNLIMITED, INC. DUCKS UNLIMITED, INC. MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, COMPLETENESS, OR QUALITY OF THE INFORMATION PROVIDED. THE USER SHALL BE RESPONSIBLE FOR THE PROPER USE OF THE MATERIAL, DATA AND INFORMATION IS PROVIDED HEREIN. IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR, TO ALTER IN ANY WAY, IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERNING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL SIGN THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SHORT DESCRIPTION OF THE ALTERATION.

C:\Users\mphase\Documents\Projects\IA-340-010-C301 SHEY DETAILS - MUH.dwg, 4/21/2025 12:55 PM, Michael Haseg, 72 IN MANHOLE INTERCEPT STRUCTURE DETAILS, None

NOTE:
CONTRACTOR SHALL UTILIZE 20 L.F. OF 24" HDPE PIPE FROM EXISTING 24" CLAY TILE TO MANHOLE. ALL CONNECTIONS SHALL BE WATERTIGHT; 24" HDPE PIPE SHALL BE INCIDENTAL TO BID ITEM NO. 14.

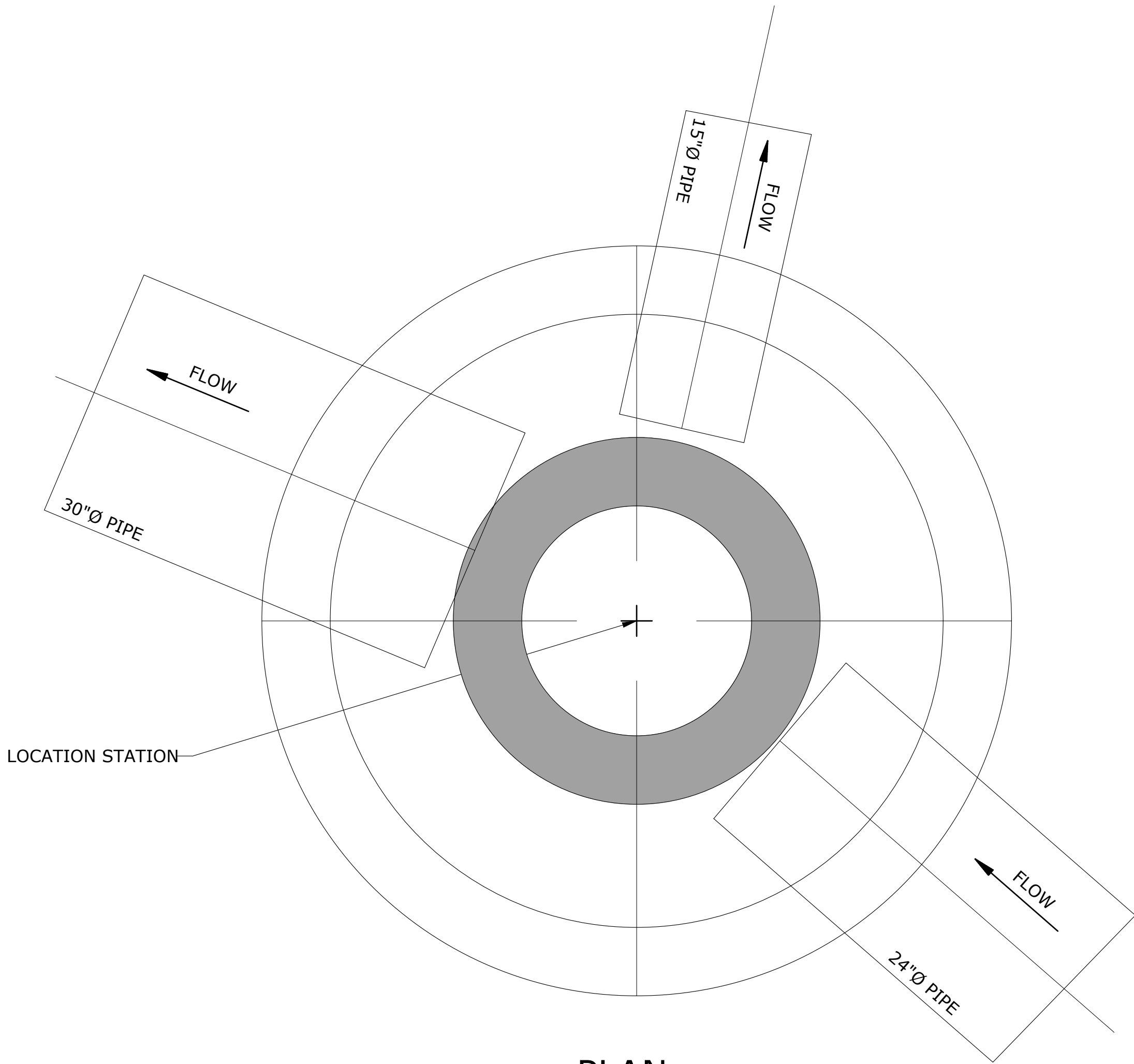
- NOTE:
1. CONTRACTOR TO PROVIDE SHOP DRAWINGS OF MANHOLE STRUCTURE.
 2. CONTRACTOR TO PROVIDE 72"Ø MANHOLE TO ACCOMODATE 15"Ø PIPE W/ 90° SEPARATION TO 36"Ø PIPE.
 3. CONCRETE FILLET SHALL BE PROVIDED TO DIRECT ALL LOW/INITIAL FLOWS INTO 15"Ø PIPE.

- ① CAST-IN-PLACE BASE SHOWN. IF BASE IS PRECAST INTEGRAL WITH BOTTOM RISER, THE FOOTPRINT OF THE BASE IS NOT REQUIRED TO EXTEND BEYOND THE OUTER EDGE OF THE RISER.
- ② FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES OF CONCRETE BETWEEN VERTICAL EDGES OF PIPE OPENINGS.
- ③ 12 INCH MINIMUM RISER HEIGHT ABOVE ALL PIPE OPENINGS.



TYPICAL SECTION
NOT TO SCALE

MANHOLE DIAMETER (INCHES)	MAXIMUM PIPE DIAMETER (INCHES) FOR 2 PIPES ②	
	AT 180° SEPARATION	AT 90° SEPARATION
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42



PLAN
NOT TO SCALE

FIGURE 6010.401	STANDARDROADPLAN	REVISION				
		3	4/20/21			
REVISIONS:		SW-401				
		SHEET 1 of 1				
SUDAS DIRECTOR						
DESIGN METHODS ENGINEER						
CIRCULAR STORM SEWER MANHOLE						

GREAT LAKES/ATLANTIC REGIONAL OFFICE
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DEXTER, MICHIGAN 48130
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AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

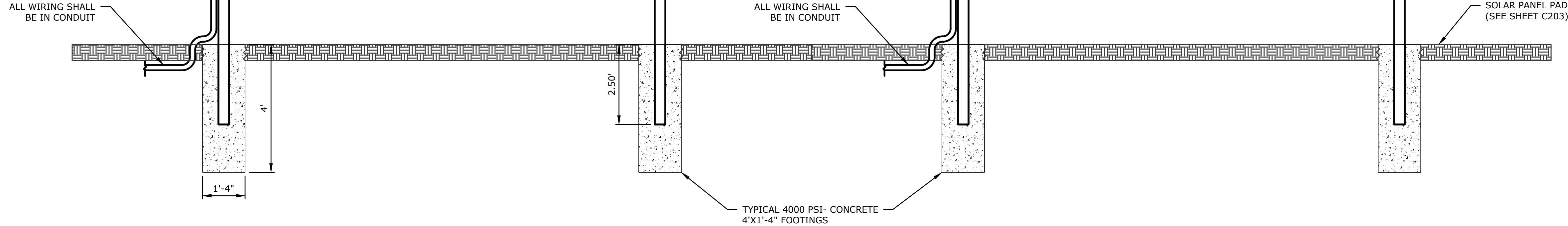
72 IN MANHOLE INTERCEPT
STRUCTURE DETAILS
PROJECT NO. KOS962907A
KOSSEUTH COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
0	----	FINAL PLANS	2024-12-06	MLH
1	----	IDALS REVISIONS	2025-04-03	AB
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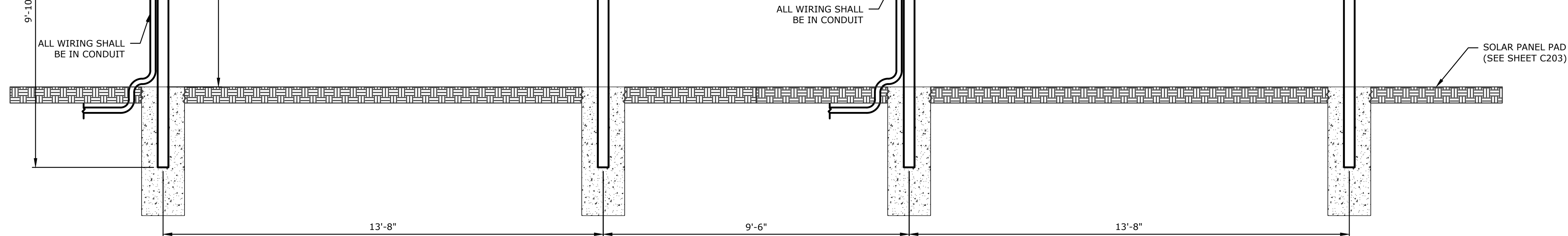
CAD FILE:
1A-340-010-C301 SHEY DETAILS -
MLH
DESIGNED BY: A.S. & A.B.
DRAWN BY: MLH
SURVEYED BY: A.S. & A.B.
BIOLOGIST: D.B.
DATE:
04-03-2025
PROJECT NUMBER:
US-1A-340-010
C308

NOT FOR CONSTRUCTION

C:\Users\mhaase\Documents\Projects\Kossuth SHEY C3D - Iowa\02_C3D Projects\IA-340-2 CREP Projects\Kossuth SHEY C3D - Iowa\02_C3D Projects\IA-340-010-C309 SOLAR PANELS DETAILS - MLH.dwg, 4/21/2025 12:55 PM, Michael Haase, SOLAR PANELS DETAIL SHEET 1, None



SCALE: NOT TO SCALE



NOTE: SOLAR PANELS REMOVED FOR CLARITY
SCALE: NOT TO SCALE

- NOTES:
1. SOLAR PANEL DESIGN IS BASED ON DIMENSIONS GIVEN BY SOLAR LIFT STATIONS.
 2. CONTRACTOR SHALL SUBMIT SCHEMATICS, SHOP DRAWINGS, AND PRODUCT DATA FOR COMPLETE AND FUNCTIONING SOLAR PANEL ARRAY. ACTUAL DIMENSIONS, MOUNTING HARDWARE ETC. MAY VARY WITH SUPPLIER. CONTRACTOR SHALL ANTICIPATE DESIGN DIFFERENCES BASED ON MANUFACTURER CHOSEN BY THE CONTRACTOR. SOLAR PANEL ITEM TO INCLUDE ALL HARDWARE, LABOR, MACHINE TIME, ETC. TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM PER MANUFACTURER'S REQUIREMENTS.
 3. BASES ARE TO BE POURED WITH 4000 PSI CONCRETE AND AT LEAST 4" DEEP. DIAMETER SHALL BE AT LEAST 4" WIDER THAN OUTSIDE DIAMETER OF POST.
 4. SOLAR PANELS WILL BE CANTED SOUTH AND SPACED AND ANGLED PER MANUFACTURER'S DIRECTION.
 5. SHOWN SOLAR ARRAYS ARE SIZED FOR 2 EA 20 LF LENGTHS OF PAINTED STEEL PIPE. ONE 20 LF SECTION OF PIPE TO PROVIDE THE CROSS BEAM AND THE OTHER TO BE CUT AND PROVIDE THE UPRIGHTS.
 6. STEEL ROUND TUBE AND TEE CONNECTION SHALL PAINTED WITH AN APPROVED EXTERIOR PAINT.
 7. ALL HARDWARE SHALL BE STAINLESS STEEL.
 8. ALL WIRING SHALL BE INSTALLED IN CONDUIT. QUANTITY OF CONDUIT WILL BE DETERMINED BASED ON MANUFACTURER'S DIMENSIONS AND IS INCIDENTAL TO THE SOLAR PANEL ITEM.
 9. CONTRACTOR SHALL COORDINATE WORK FROM SOLAR PANEL SUPPLIER AND PUMP SUPPLIER TO ENSURE THE PUMP SYSTEM MEETS THE DESIGN INTENTS AND IS A FULLY OPERATIONAL SYSTEM.

GREAT LAKES/ATLANTIC REGIONAL OFFICE
7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200
DEXTER, MICHIGAN 48130
(734) 623-2000
www.ducks.org

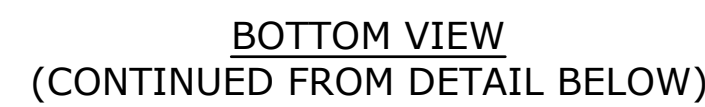
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SOLAR PANELS DETAIL SHEET 1
PROJECT NO. KOS962907A
KOSSUTH COUNTY
IOWA

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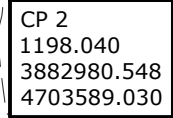
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STRUCTURE SEEDING

BUFFER SEEDING

NOTE:
ALL DISTURBED AREAS SHALL BE SEEDED/MULCHED, AS NECESSARY. REFERENCE SPECIFICATION IA-6 (SEEDING AND MULCHING FOR PROTECTIVE COVER) FOR SEEDING MIXTURE TYPES AND APPLICATIONS STANDARDS. SEED MIX DESIGN SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL AT LEAST 2 WEEKS BEFORE SEEDING.

NOTE:
BUFFER SEEDING: 14.2 ACRES
STRUCTURE SEEDING: 1.0 ACRES

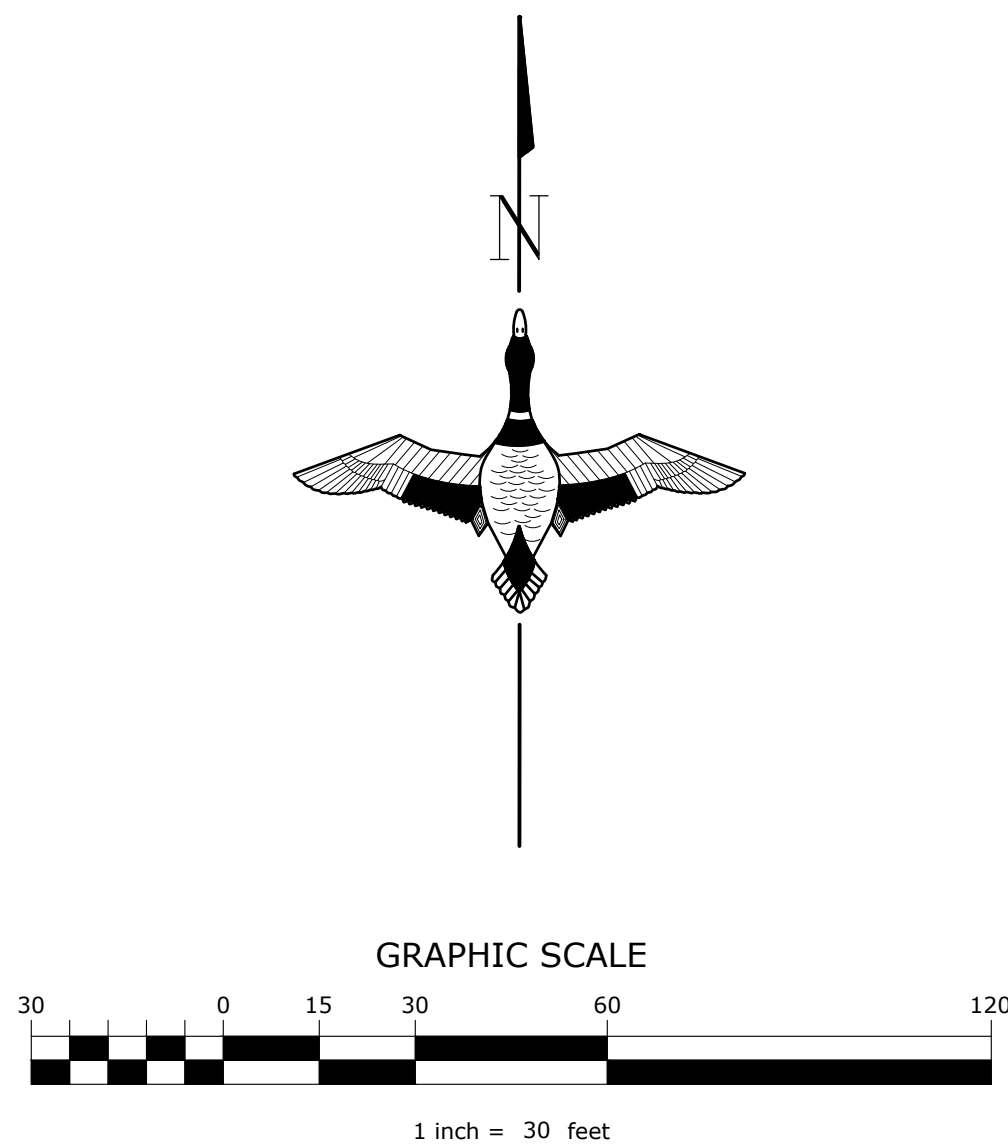
BUFFER SEEDING:

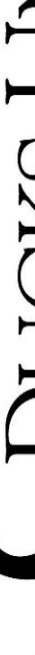
AREA 1 -----	528,824 SQ.FT. ----	12.14 AC.
AREA 2 -----	14,898 SQ.FT ----	0.34 AC .
AREA 3 -----	48,898 SQ.FT. ----	1.12 AC.

STRUCTURAL SEEDING:		TOTAL AC. = 13.6
AREA 1 -----	17,856 SQ.FT. ----	0.41 AC.
AREA 2 -----	7,026 SQ.FT. ----	0.16 AC.
AREA 3 -----	10,600 SQ.FT. ----	0.24 AC.
AREA 4 -----	3,531 SQ.FT. ----	0.08 AC.

TOTAL AC. = .9		

NOTE:
ALL DISTURBED AREAS SHALL BE SEEDED/MULCHED, AS NECESSARY. REFERENCE SPECIFICATION IA-6 (SEEDING AND MULCHING FOR PROTECTIVE COVER) FOR SEEDING MIXTURE TYPES AND APPLICATIONS STANDARDS. SEED MIX DESIGN AND SEEDING CERTIFICATIONS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL AT LEAST 2 WEEKS BEFORE SEEDING.



GREAT LAKES/ATLANTIC REGIONAL OFFICE 7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200 DEXTER, MICHIGAN 48130 (734) 623-2000 www.ducks.org								DUCKS UNLIMITED			
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SEEDING PLAN PROJECT NO. KOS962907A KOSSUTH COUNTY IOWA											
											
											
											
											
											
											
											
											
											
											
											

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