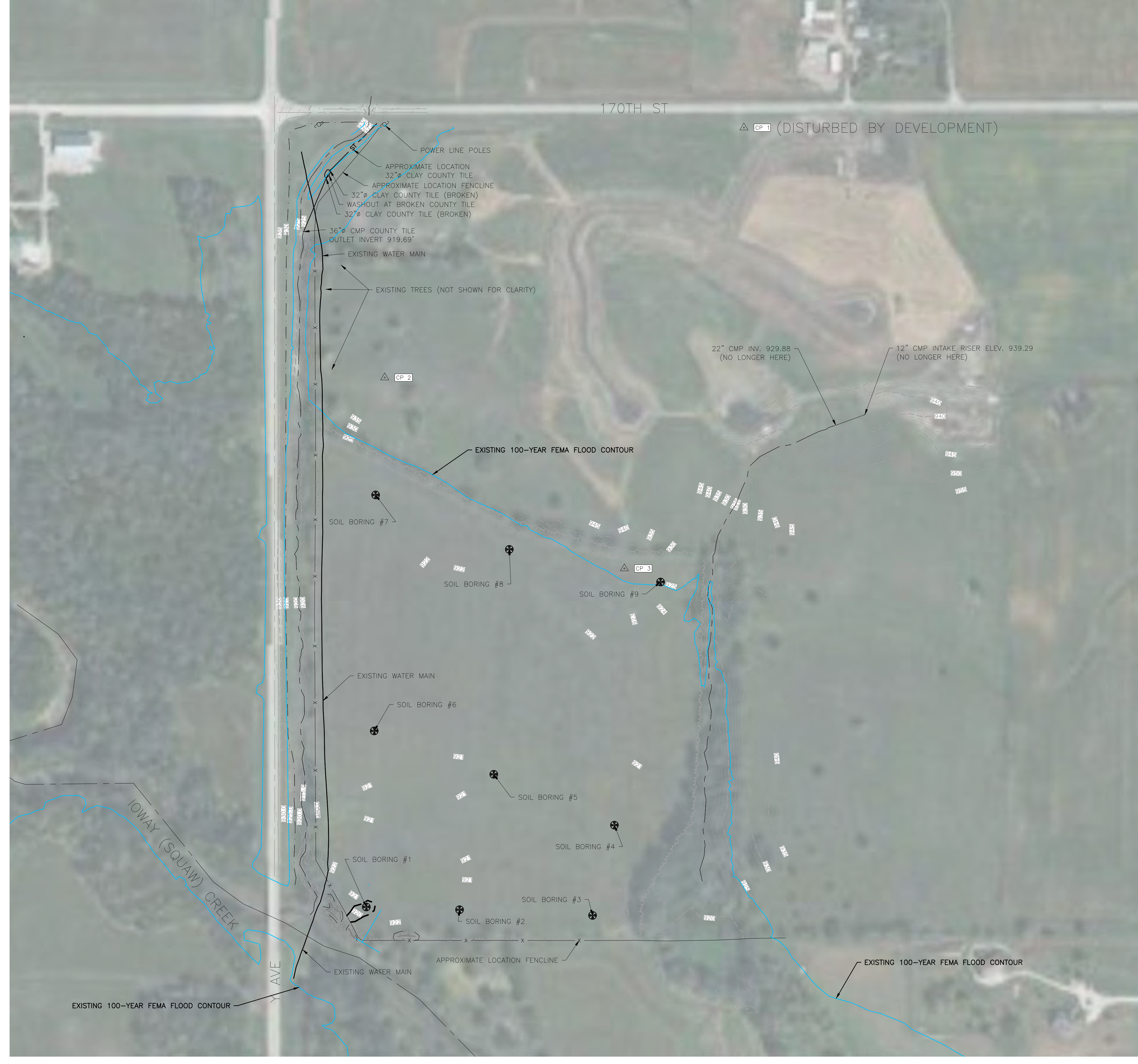


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LEGEND

--- CHANEL	△ HORIZONTAL & VERTICAL CONTROL
-x- FENCE LINE	— EDGE OF PAVEMENT
- - - MAJOR CONTOUR	- - - EDGE OF GRAVEL
- - - MINOR CONTOUR	- - - ROAD OR TRAIL
~ ~ ~ TREE LINE	○ FOUND PROPERTY CORNER
~ ~ ~ EDGE OF VEGETATION	○ UTILITY POLE

March 18, 2021
 US-IA-340-4, Story County - Dotson
 Topographic Survey Field Book: CREP

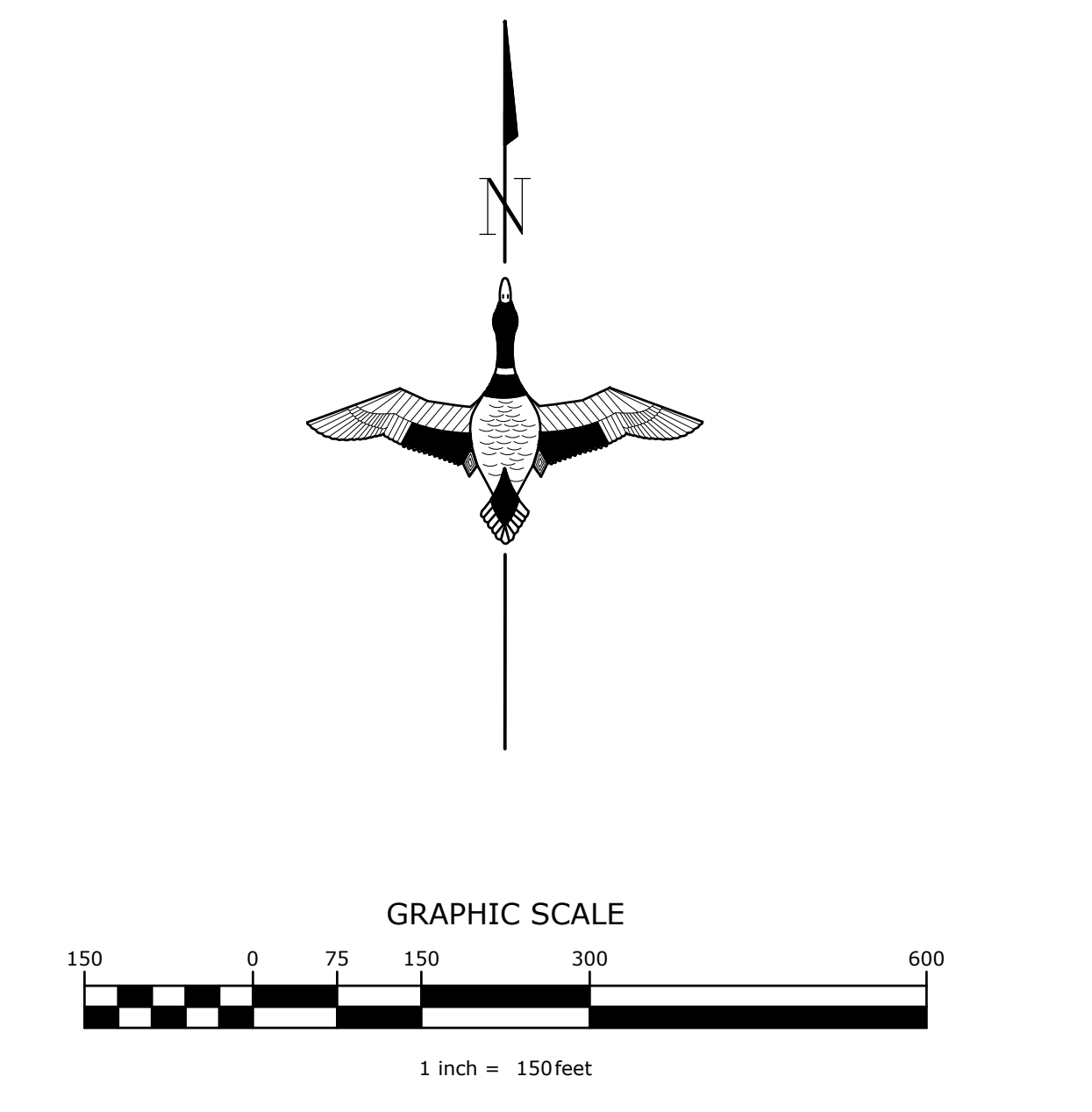
HORIZONTAL CONTROL
 Coordinates are Iowa State Plane Coordinates North, Zone 1401 in US Survey feet (NAD 83 (1996)). They were established from the OPUS solution for control point #1 using a Trimble R10 GPS base receiver, occupied for 8 hours, on March 18, 2021.

VERTICAL CONTROL
 Elevations were established from OPUS solution for control point #1 using (Geoid 2012b) CONUS file, elevation 963.01 feet on the NAVD 88.

August 13, 2021 - DU obtained nine (9) 3' depth auger soil borings with the assistance of Story County Conservation Board. All nine auger borings indicated soil of consistent material, which consisted of topsoil/dark brown clay. Soil Boring #1 was similar with the addition of some sand particles.

December 9, 2021 - DU performed additional topographic survey work to connect the topographic survey on the SCCB property to the property owner to the Southeast.

CONTROL POINT DATA				
POINT #	ELEVATION	NORTH	EAST	DESCRIPTION
CP 1	963.01	3502040.19	4868821.58	SET REBAR; DISTURBED
CP 2	970.56	3501245.42	4867679.51	SET REBAR
CP 3	926.81	3500638.28	4868441.58	SET REBAR



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DUCKS UNLIMITED

AFFIX SEAL: DUCKS UNLIMITED, INC.
 ON:

TOPOGRAPHY & EXISTING CONDITIONS
 PROJECT NO. ST0842407B
 STORY COUNTY
 IOWA

Revision	Sheet	Revisions	Date	By
0		50% REVIEW SET	2-4-22	A.S.
1		95% REVIEW SET	6-27-22	A.S.
2		ISSUED FOR PERMITS	10-24-23	A.S.
3		ISSUED FOR BIDDING	1-25-24	A.S.
4		IDALS REVISIONS	2-27-24	A.S.
5		ADDENDUM 1 REVISIONS	4-4-24	A.S.

CAD FILE:
 STORY - DOTSON C051 TOPO
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.

DATE:
 4-4-24

PROJECT NUMBER:
 US-IA-340-4

C051

NOT FOR CONSTRUCTION

LEGEND

- x — APPROXIMATE FENCE/PROPERTY LINE
- - - PROPOSED DIKE
- · · · · PROPOSED CHANNEL/DITCH
- (000) PROPOSED MAJOR CONTOUR
- (000) PROPOSED MINOR CONTOUR
- PROPOSED WCS STRUCTURE
- - - - - PROPOSED PIPE
- ▭ PROPOSED FULL SERVICE LEVEL (FSL)
- ▨ PROPOSED RIPRAP
- ▩ PROPOSED BORROW AREA
- - - SF - - - PROPOSED SILT FENCE

NOTES:

1. CONTRACTOR WILL BE REQUIRED TO USE MACHINE CONTROL FOR WETLAND BOTTOM AND CHANNEL GRADING. CONTRACTOR SHALL STOCKPILE FIRST 6" OF GRADED MATERIAL (TOPSOIL) FOR RE-SPREADING. MATERIAL BELOW TOP 5" SHALL BE SEPARATED AND UTILIZED FOR GENERAL BERM CONSTRUCTION (NOT BERM CORE).
2. ALL FENCING SHALL BE REMOVED AND REPLACED, AS NECESSARY, IN ORDER TO COMPLETE THE WORK. THIS WORK SHALL BE INCLUDED WITHIN THE SITE PREPARATION BID ITEM.
3. THERE ARE APPROXIMATELY 12-15 LARGE TREES (BOTH DEAD AND ALIVE) THAT WILL NEED TO BE REMOVED ALONG PUMP DISCHARGE PIPELINE. THIS WORK SHALL BE INCLUDED WITHIN THE SITE PREPARATION BID ITEM.

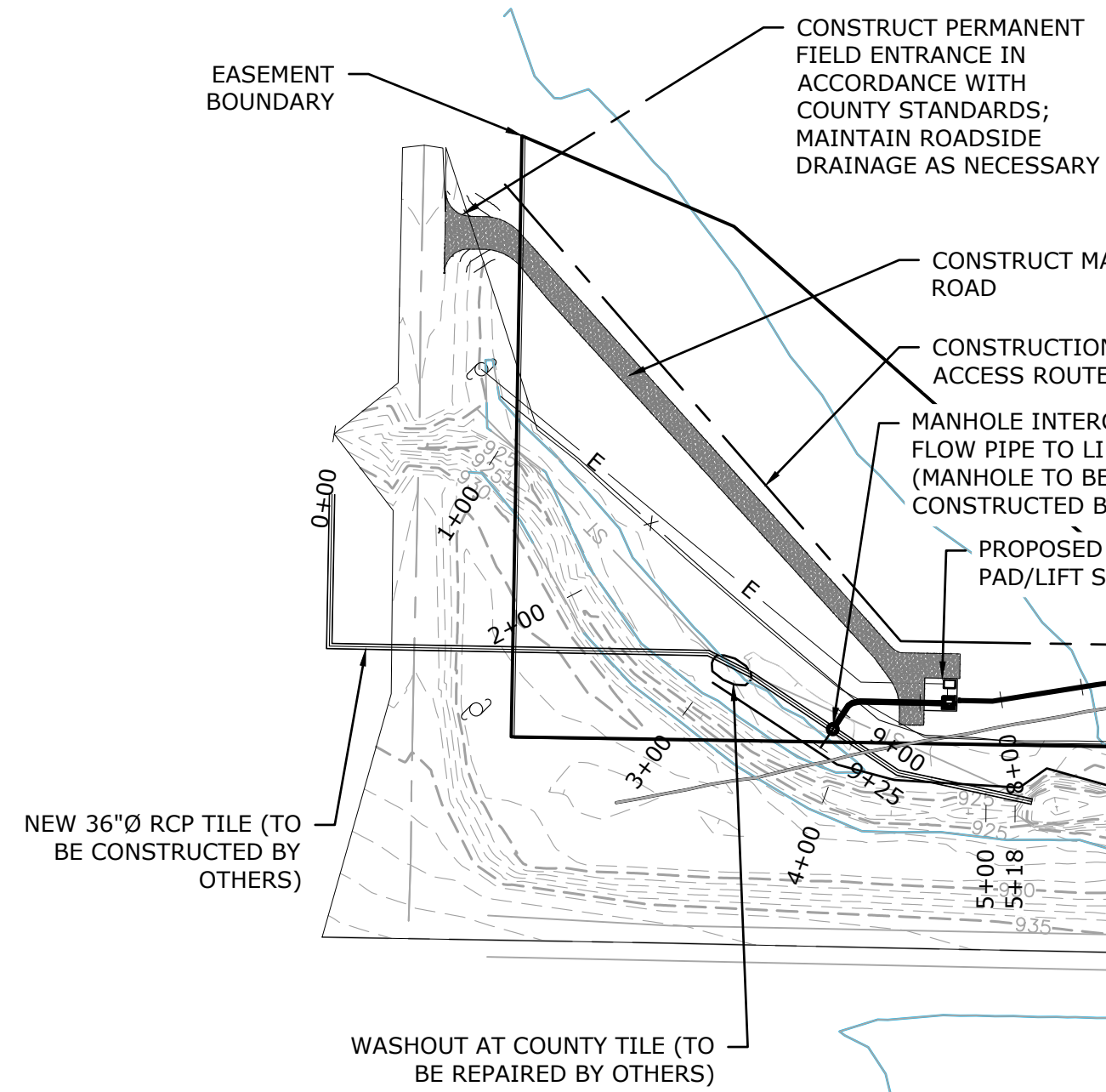
DESIGN CRITERIA

DESIGN CRITERIA	VALUE	UNIT	REQUIREMENT/NOTES
CONTRIBUTING SURFACE WATERSHED AREA	307.7	ACRES	
CONTRIBUTING SUBSURFACE WATERSHED AREA	1932.80	ACRES	
POOL NORMAL WATER LEVEL (NWL) ELEVATION	921.9	FT.	
DESIGNED WETLAND POOL AREA (@ NWL)	21.1	ACRES	
PERCENT POOL AREA TO WATERSHED AREA	1.10	%	>=0.50%
MAX. POOL DEPTH	3	FT.	
AVG. POOL DEPTH	1.27	FT.	
DEEP WATER AREA (DEPTH >3 FT)	0.00	FT. ²	<25%
PERCENT DEEP WATER TO POOL AREA	0	%	
POOL STORAGE VOLUME AT NWL	26.63	ACRE-FT	
BERM ELEVATION	924.5	FT.	
POOL STORAGE VOLUME AT TOP OF BERM	93.64	ACRE-FT	
MAX BERM HEIGHT (TO EXISTING GRADE)	4.5	FT.	
AVG. BERM HEIGHT	2.98	FT.	
BERM LENGTH	3122.0	FT.	
SPILLWAY WEIR ELEVATION	922.2	FT.	
SPILLWAY WEIR LENGTH	50.0	FT.	
12" CMP OUTLET ELEVATION	921.9	FT.	
AREA OF BUFFER	38	ACRES	APPROXIMATE
RATIO BUFFER AREA TO NWL POOL AREA	1.80		
5-YEAR STORM HWL IN POOL	923.01	FT.	
5-YEAR PEAK INFLOW	182.63	CFS	
5-YEAR PEAK OUTFLOW	113.46	CFS	
10-YEAR STORM HWL IN POOL	923.17	FT.	
10-YEAR PEAK INFLOW	228.47	CFS	
10-YEAR PEAK OUTFLOW	150.97	CFS	
25-YEAR STORM HWL IN POOL	923.39	FT.	
25-YEAR PEAK INFLOW	295.70	CFS	
25-YEAR PEAK OUTFLOW	209.15	CFS	
100-YEAR HWL IN POOL	923.72	FT.	
FEMA 100-YEAR FLOOD ELEVATION (NAVD88)	925.00	FT.	APPROXIMATE

WETLAND POOL CHARACTERISTICS

WETLAND POOL DEPTH	ELEV.	INCREMENTAL AREA (FT ²)	CUMULATIVE VOLUME (ACRE-FT)
0.0	919.0	1,496.97	-
1.0	920.0	323,217.51	3.73
2.0	921.0	445,691.02	12.55
3.0	922.0	958,012.65	28.67
4.0	923.0	1,141,145.48	52.76
5.0	924.0	1,210,228.91	79.75
5.5	924.5	1,210,228.91	93.64

NOTE: PERMANENT FIELD ENTRANCE SHALL BE INSTALLED IN ACCORDANCE WITH COUNTY STANDARDS. THIS SHALL INCLUDE 20' WIDE TOP, 8:1 SLOPES, AND TO PROVIDE AN 18"Ø CMP CULVERT (EST. 50' L.F.) TO MAINTAIN DRAINAGE. SURFACE MATERIAL SHALL BE IA DOT CLASS A GRANULAR SURFACING.



PROPOSED BORROW AREA; 4,580 C.Y. NEEDED FROM BORROW AREA FOR BERM CORE; BORROW AREA TO REMAIN 2' DEEPER THAN FINISHED CHANNEL AT END OF PROJECT TO PROVIDE SEDIMENTATION BASIN.

CLEAR & GRUB AS NECESSARY (W/IN 25' OF PIPE ALIGNMENT), AND AS DETERMINED BY CONSTRUCTION MANAGER

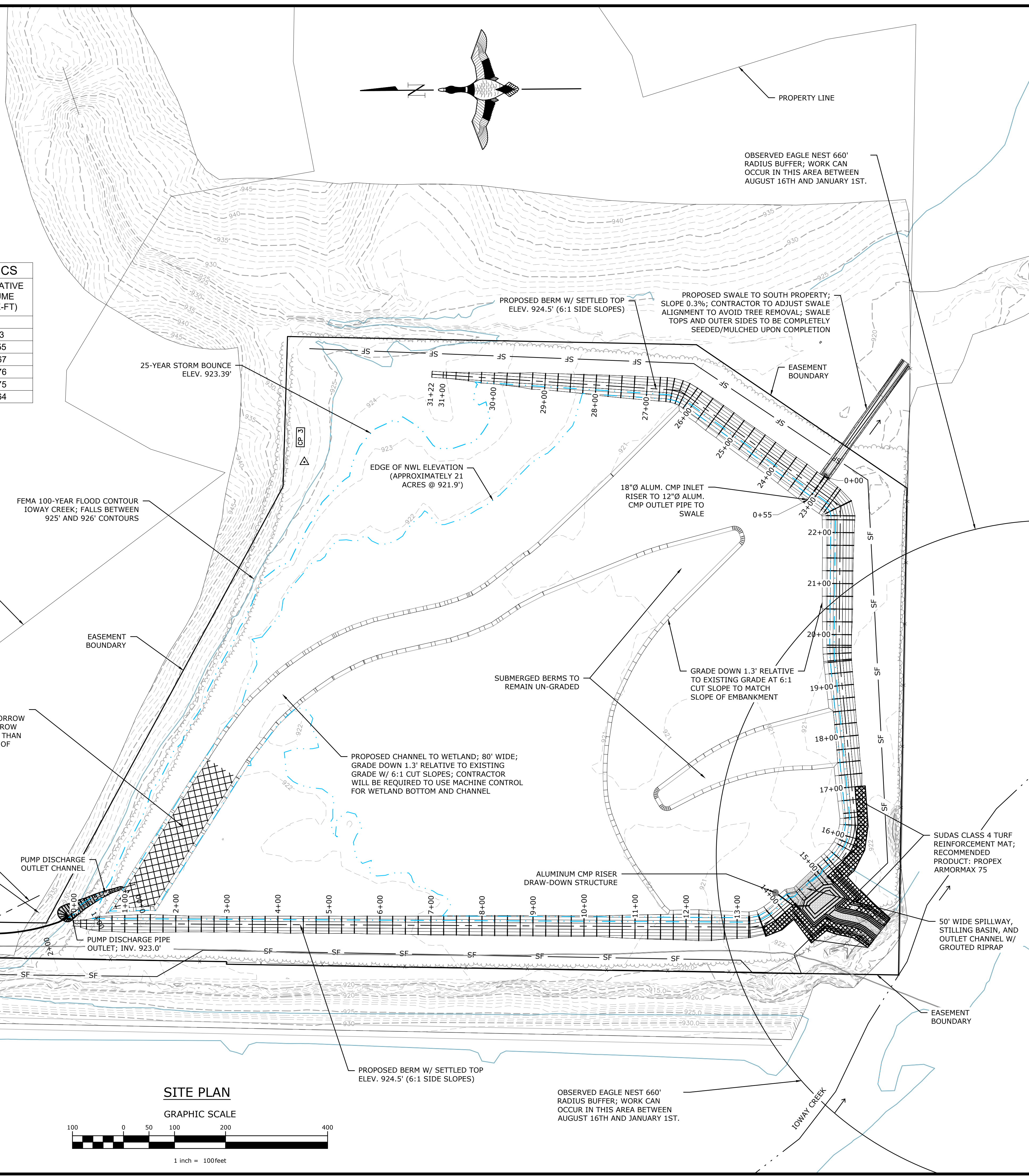
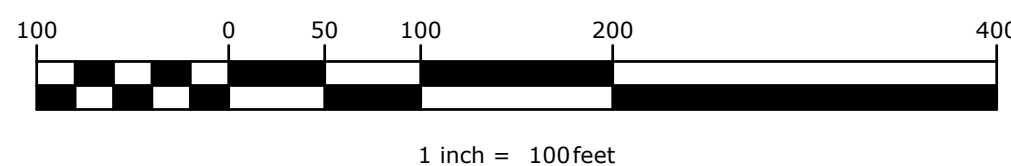
PROPOSED 12"Ø DR9 HDPE 47.10 (INSIDE Ø 9.75") PUMP DISCHARGE PIPE

PUMP DISCHARGE PIPE OUTLET CHANNEL

PUMP DISCHARGE PIPE OUTLET; INV. 923.0'

SITE PLAN

GRAPHIC SCALE



GREAT LAKES/ATLANTIC REGIONAL OFFICE
 7322 NEWMAN BOULEVARD, BUILDING 2, STE. 200
 DEKETER, MICHIGAN 48130
 (734) 623-2000
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AFFIX SEAL: DUCKS UNLIMITED, INC.
 ON:

SITE PLAN
PROJECT NO. ST0842407B
STORY COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
0		50% REVIEW SET	2-4-22	A.S.
1		95% REVIEW SET	6-27-22	A.S.
2		ISSUED FOR PERMITS	10-24-23	A.S.
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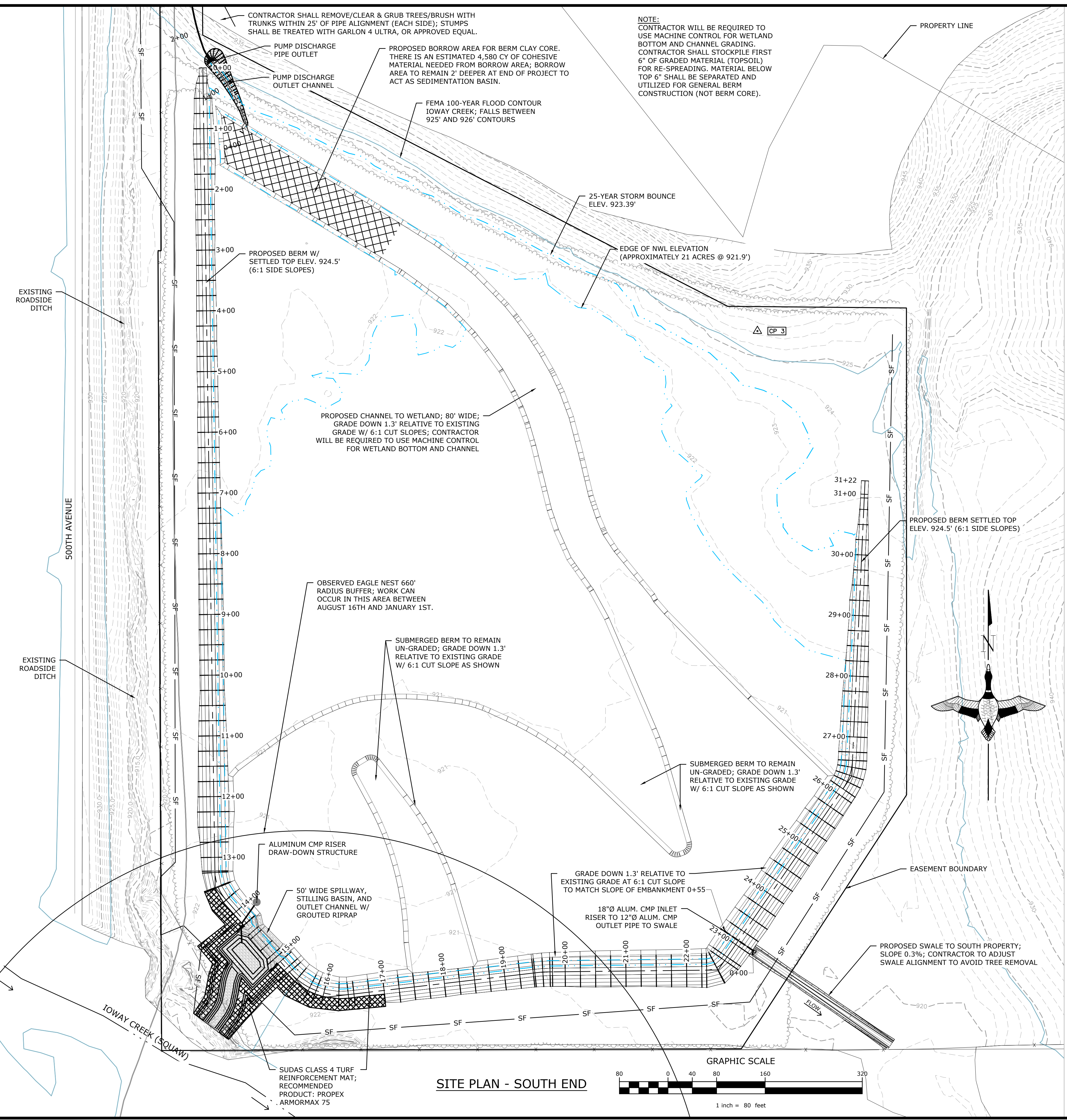
CAD FILE:
 STORY - DOTSON C101 SITE PLAN
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.
 DATE:
 4-4-24
 PROJECT NUMBER:
 US-IA-340-4
C101

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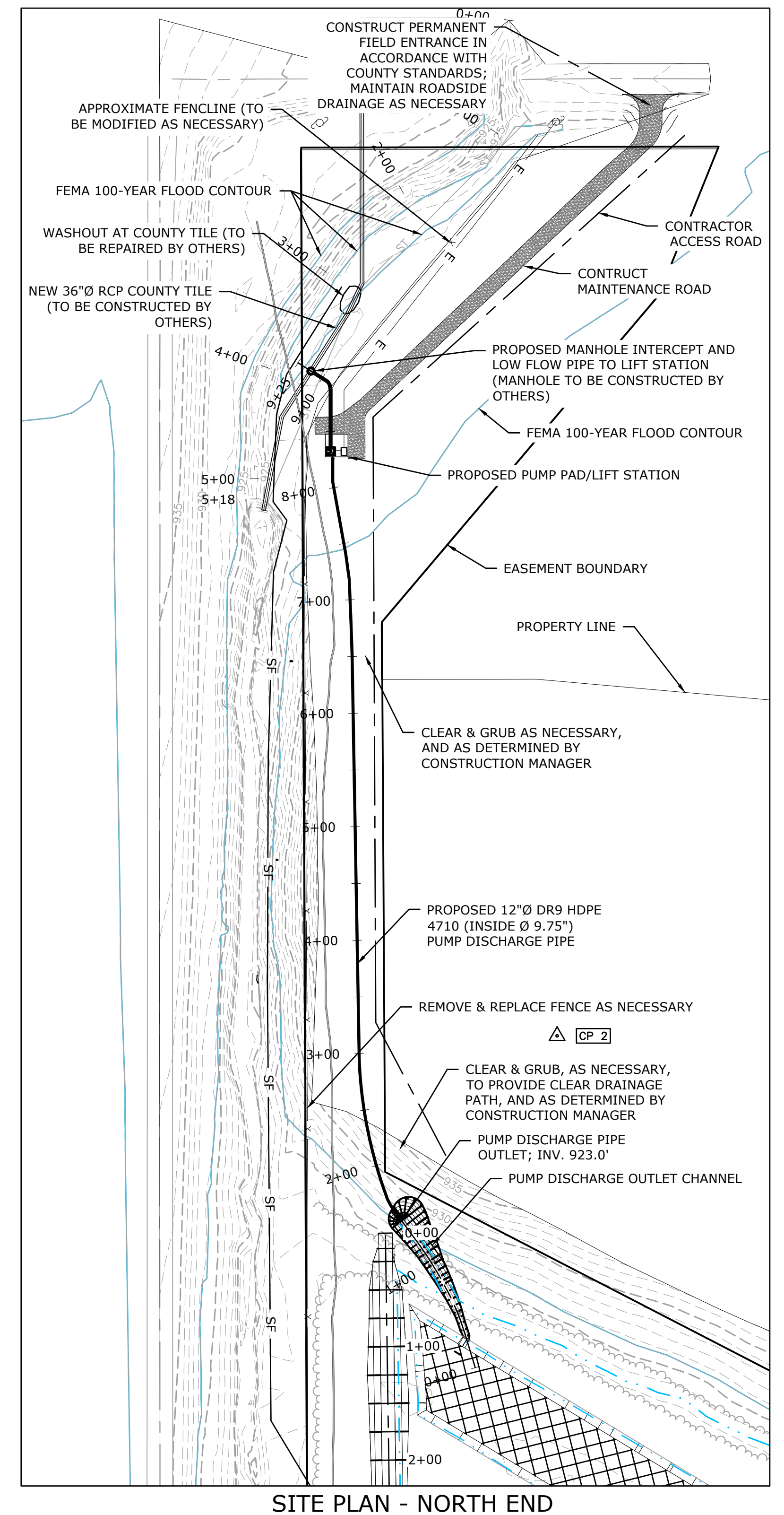
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- LEGEND**
- x — APPROXIMATE FENCE/PROPERTY LINE
 - - - - - PROPOSED DIKE
 - · - · - · - PROPOSED CHANNEL/DITCH
 - (000) PROPOSED MAJOR CONTOUR
 - (000) PROPOSED MINOR CONTOUR
 - PROPOSED AGRIDRAIN STRUCTURE
 - - - - - PROPOSED PIPE
 - ▨ PROPOSED FULL SERVICE LEVEL (FSL)
 - ▨ PROPOSED RIPRAP
 - ▨ PROPOSED BORROW AREA
 - - - - - SF PROPOSED SILT FENCE



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DUCKS UNLIMITED

ENLARGED SITE PLAN
PROJECT NO. ST0842407B
STORY COUNTY
IOWA

Revision	Sheet	Revisions	Date	By
0		50% REVIEW SET	2-4-22	A.S.
1		95% REVIEW SET	6-27-22	A.S.
2		ISSUED FOR PERMITS	10-24-23	A.S.
3		ISSUED FOR BIDDING	1-25-24	A.S.
4		IDEALS REVISIONS	2-27-24	A.S.
5		ADDENDUM 1 REVISIONS	4-4-24	A.S.

CAD FILE:
STORY - DOTSON C101 SITE PLAN
DESIGNED BY: A.S.
DRAWN BY: A.S.
SURVEYED BY: R.V., A.S.
BIOLOGIST: M.S.

DATE:
4-4-24

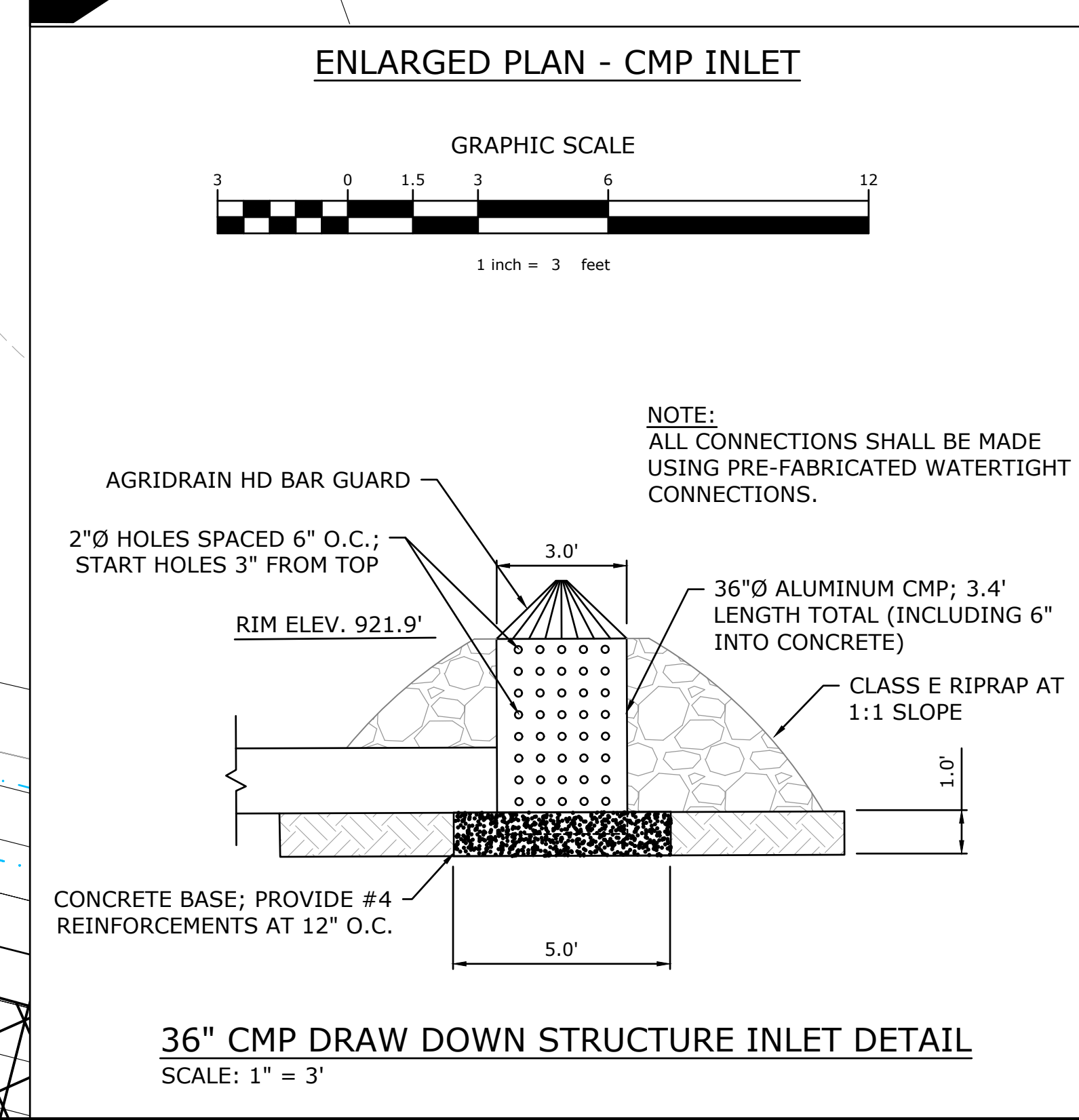
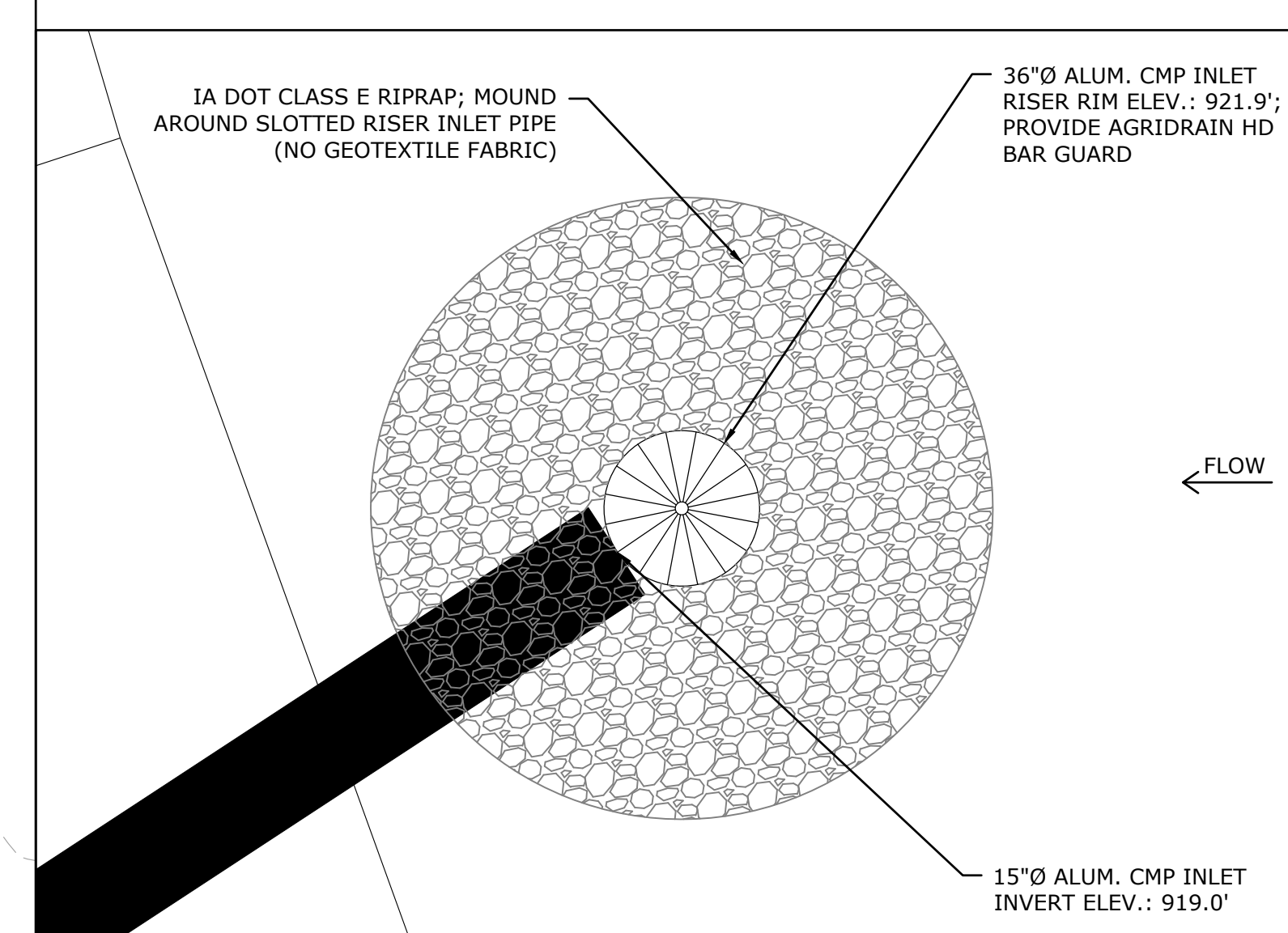
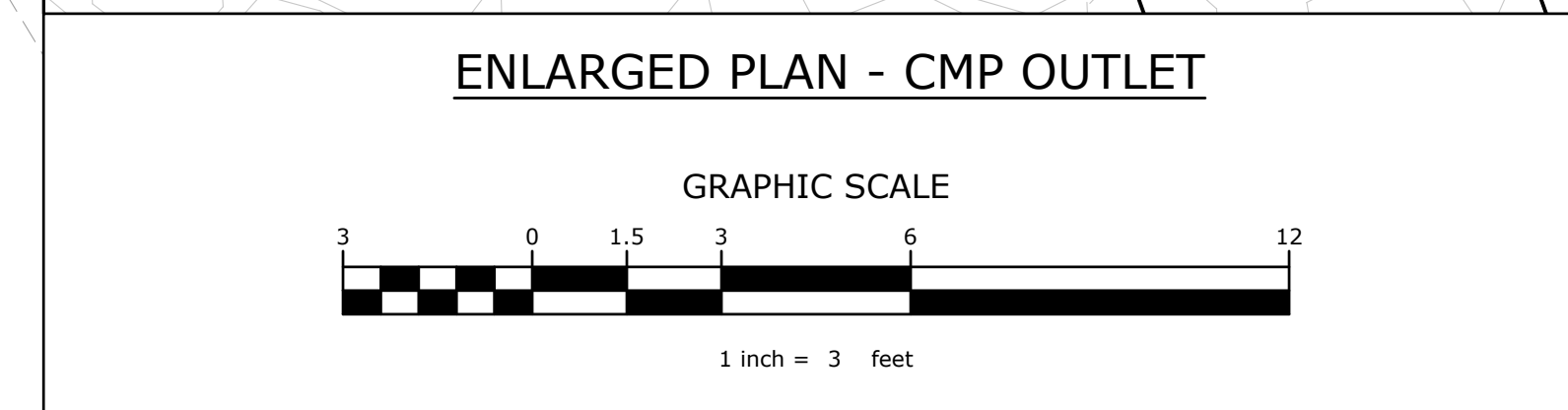
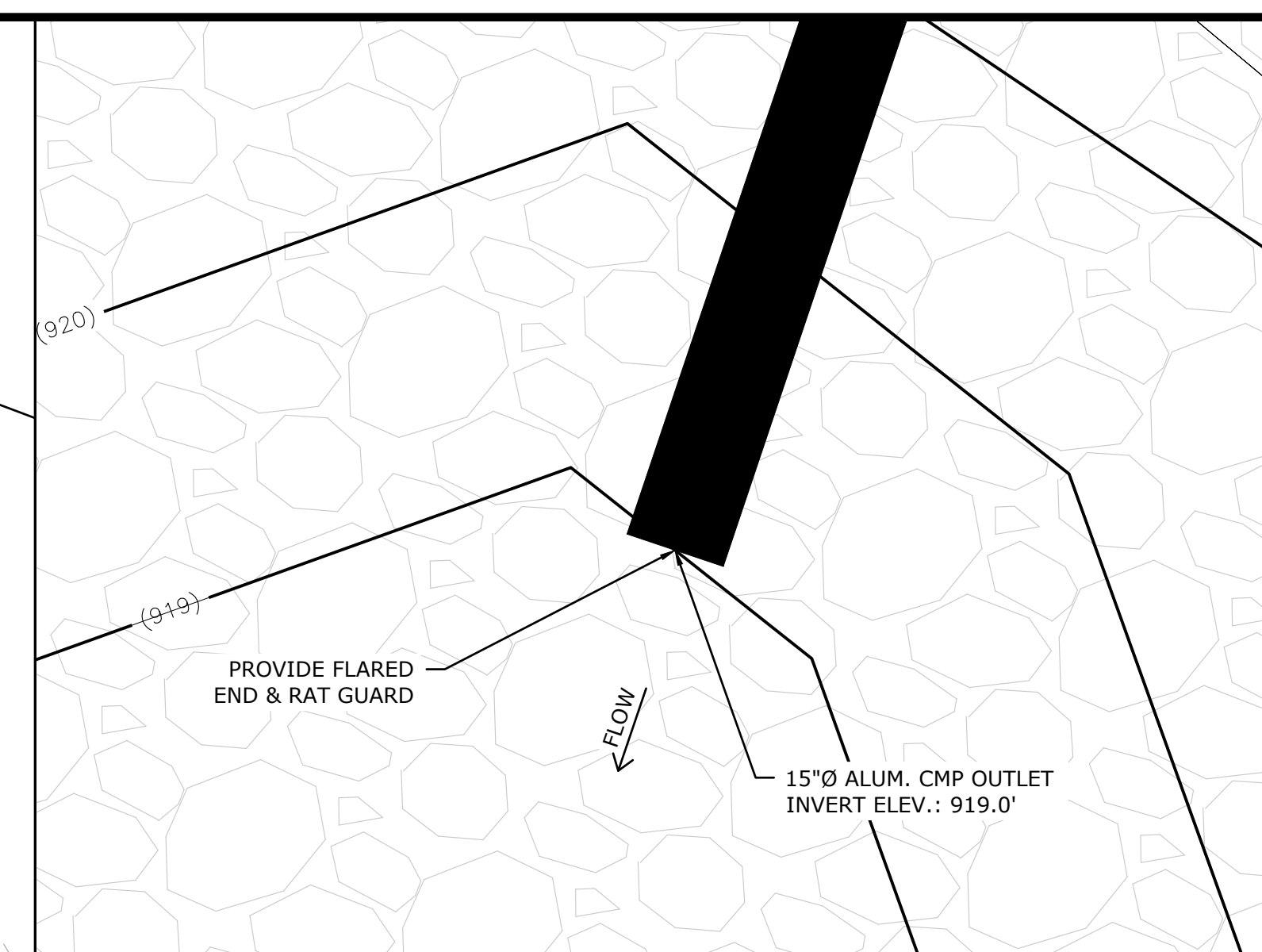
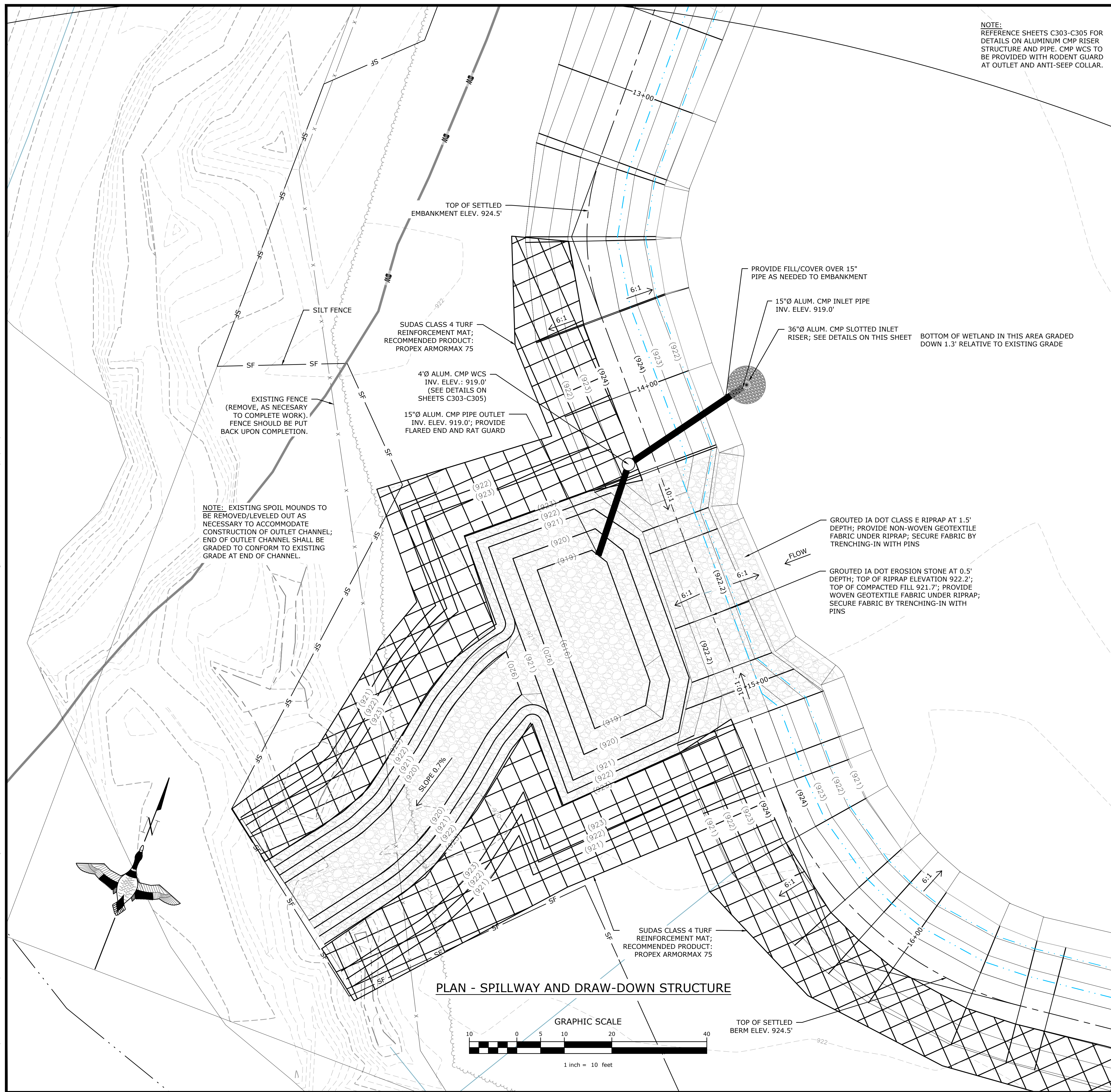
PROJECT NUMBER:
US-IA-340-4

C102

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C:\Users\A\h\key\ducks\unlimited\incorporated\iowa - Documents\iowa02_C3D Projects\IA-340-2 CREP Projects\STORY DOTSON\C101 SITE PLAN.dwg, 4/5/2024 11:02 AM, Alonzo Barkley, Spillway & Draw-Down Plan, None



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 (734) 623-2000
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DUCKS UNLIMITED

SPILLWAY & DRAW-DOWN
 STRUCTURE PLAN
 PROJECT NO. ST0842407B
 STORY COUNTY
 IOWA

Revisions	Date	By
50% REVIEW SET	2-4-22	A.S.
95% REVIEW SET	6-27-22	A.S.
ISSUED FOR PERMITS	10-24-23	A.S.
ISSUED FOR BIDDING	1-25-24	A.S.
IDEALS REVISIONS	2-27-24	A.S.
ADDENDUM 1 REVISIONS	4-4-24	A.S.

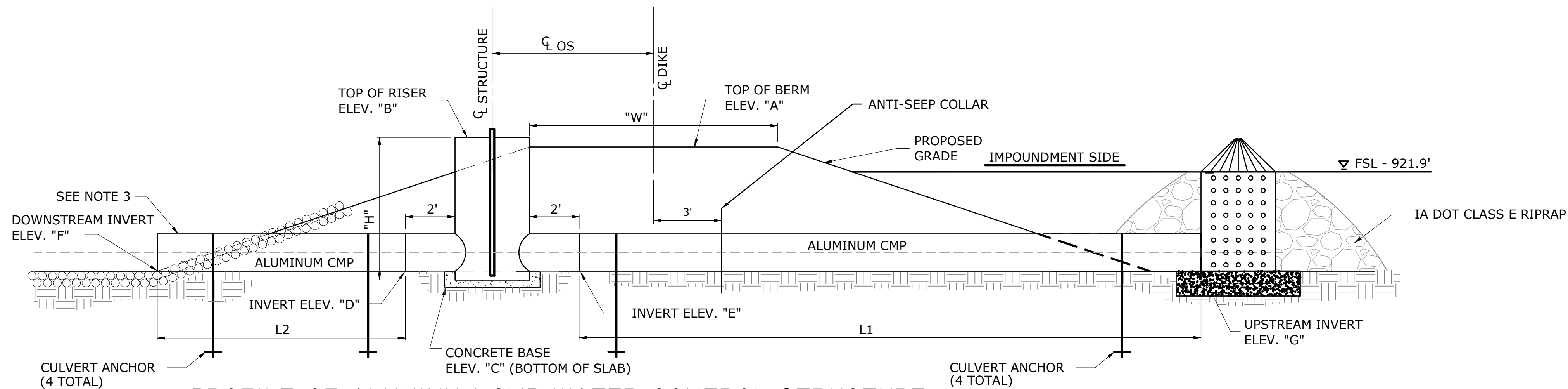
CAD FILE:
 STORY - DOTSON C101 SITE PLAN
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.

DATE:
 4-4-24

PROJECT NUMBER:
 US-IA-340-4

C201

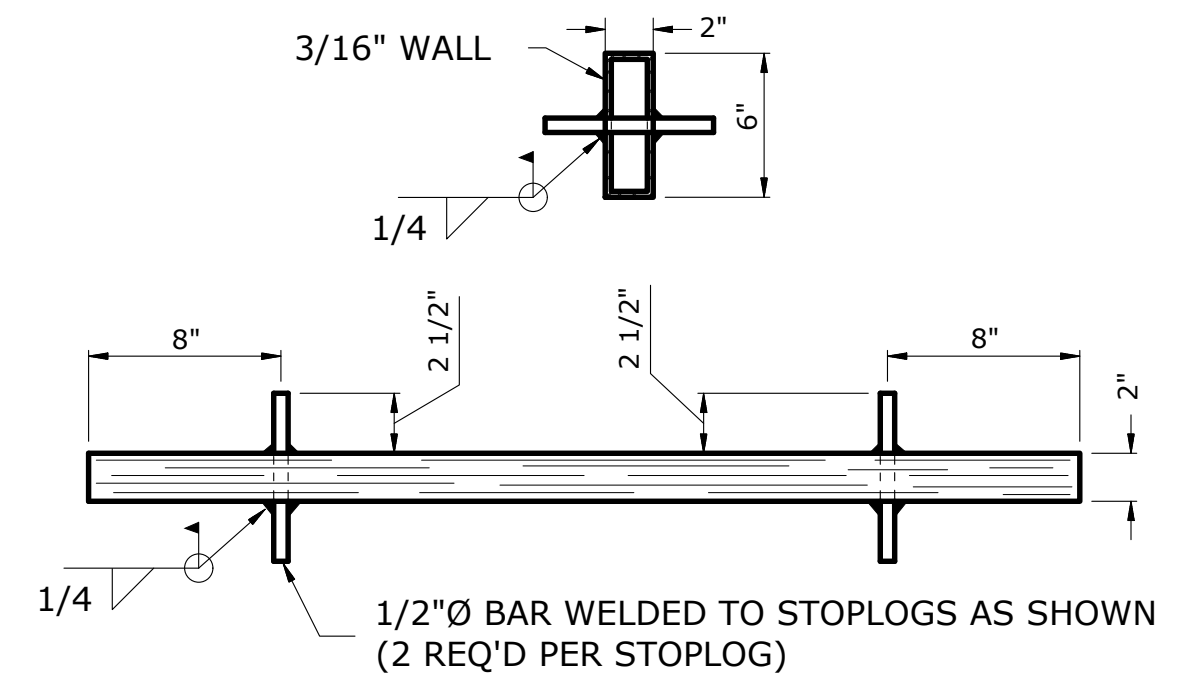
NOT FOR CONSTRUCTION



PROFILE OF ALUMINUM CMP WATER CONTROL STRUCTURE
NOT TO SCALE

STRUCTURE	PIPE		RISER		TOP OF DIKE EL. "A"	TOP OF RISER EL. "B"	CONCRETE BASE EL. "C"	INLET I.E. EL. "D"	OUTLET I.E. EL. "E"	UPSTREAM INV. "F"	DOWNSTREAM INV. "G"	TOP WIDTH "W"	INLET LENGTH "L1"	OUTLET LENGTH "L2"	CL - L C OFFSET	RISER HEIGHT "H"	NO. OF STOPLOGS
	SIZE	GA.	SIZE	GA.													
WCS 1	15"	12	48"	12	924.5'	925.0'	918.0'	919.0'	919.0'	919.0'	919.0'	12'	41'	28'	9'	6.5'	11

NOTE: PROVIDE S.S. RAT GUARDS AT EACH END.

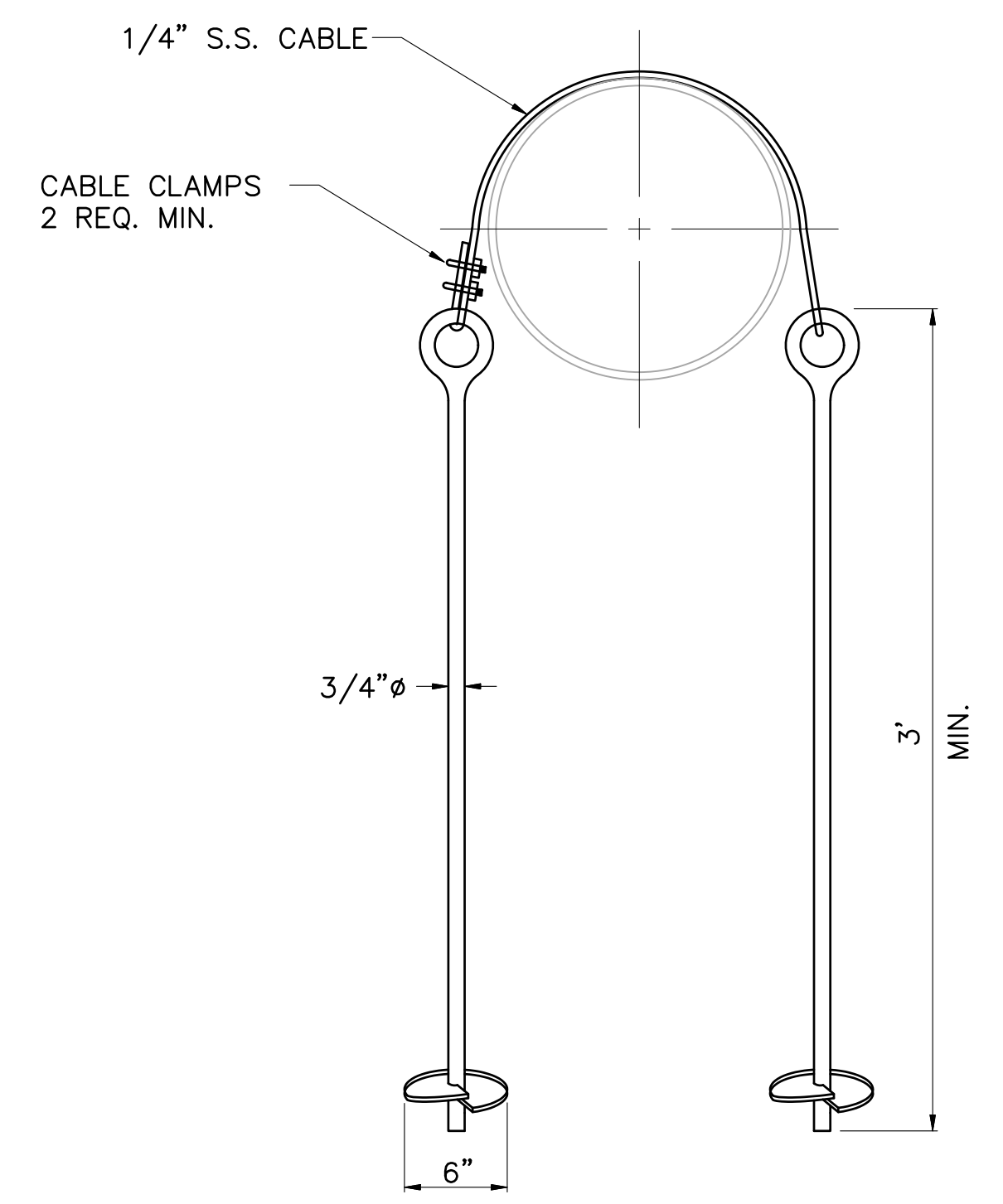


- NOTE: 1. WELD 1/2Ø BAR IN STOPLOGS.
 2. STOPLOGS SHALL BE 1" SHORTER THAN WIDTH BETWEEN STOPLOG GUIDES.
 3. FABRICATOR TO PROVIDE 1-2" & 1-3" STOPLOG IN ADDITION TO STOPLOGS SPECIFIED.

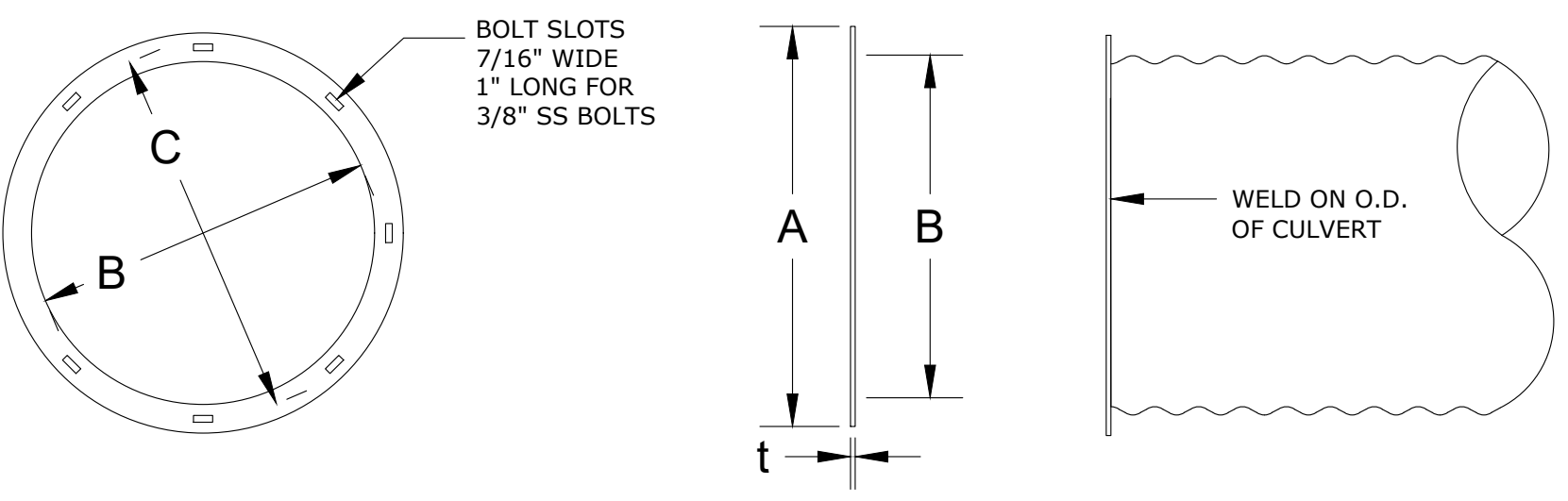
ALUMINUM STOPLOG DETAIL
NOT TO SCALE

NOTES:

- "H" INCLUDES 0.5' OF RISER EMBEDDED IN CONCRETE
- ALL METAL PIPE SHALL BE CONNECTED WITH FLANGE COUPLERS
- DOWNSTREAM PIPE OUTLET SHALL CONFORM TO SLOPE FOR PIPE DIAMETERS 30" AND LARGER
- INLET AND/OR OUTLET PIPES GREATER THAN 20 LF. SHALL BE FABRICATED USING MULTIPLE SECTIONS NOT TO EXCEED 20 LF., CONNECTED W/ FLANGE COUPLERS. A FULL 20' SECTION MUST BE UTILIZED AS THE END SECTION OF PIPE.
- CONTRACTOR SHALL FIELD CHECK ALL EXISTING ELEVATIONS PRIOR TO CONSTRUCTION AND MAKE ADJUSTMENTS, IF NEEDED.



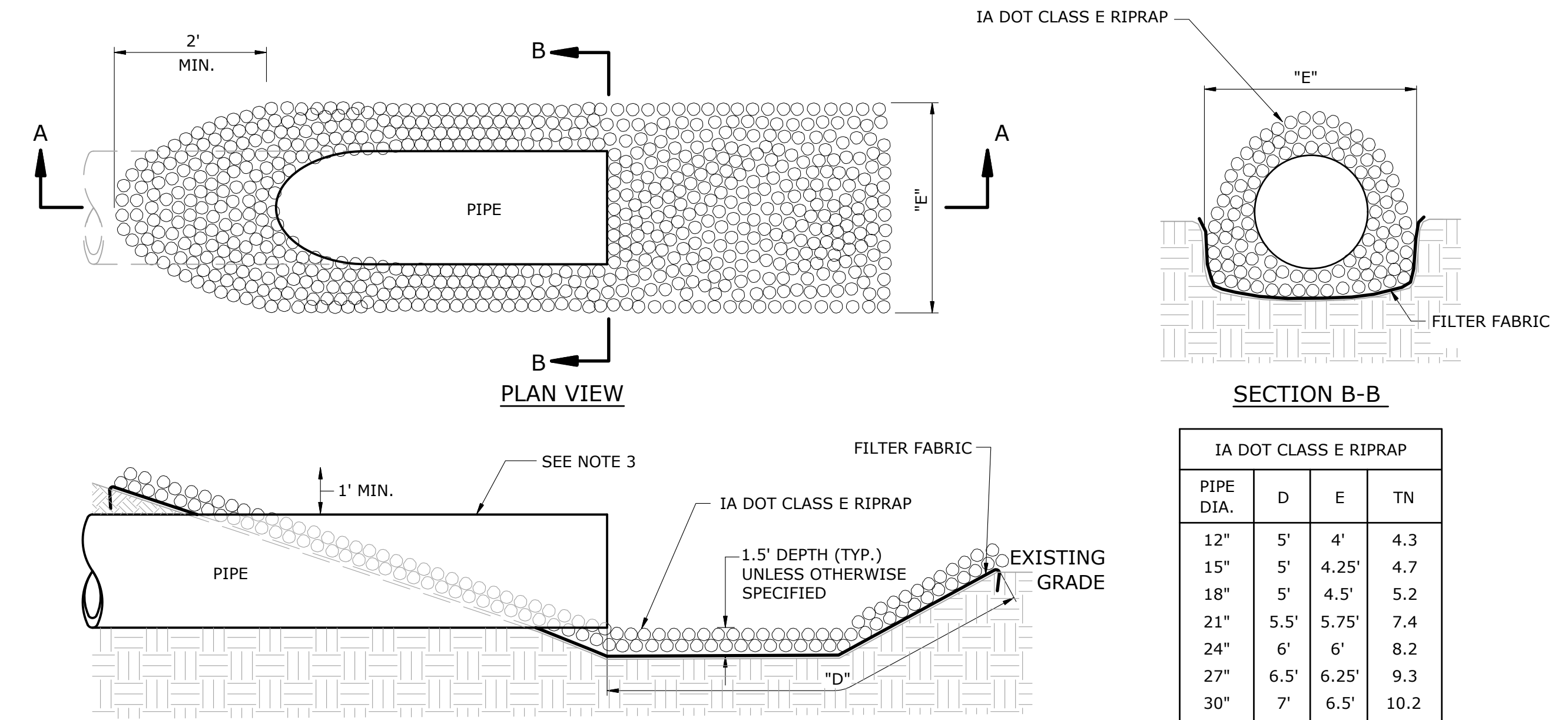
CULVERT ANCHOR
NOT TO SCALE
(PROVIDE 4 AT WCS, 2 AT 12"Ø CMP, AND 1 AT PUMP DISCHARGE PIPE)



BASIC SIZE IN.	ALUM.	O.D. (A) FLANGE	I.D. (B) FLANGE	NO. HOLES	BOLT CIR. DIA. (C)	GASKET NO SECT
6	3/16	10	6	6	8	1
8	3/16	12	8	6	10	1
12	3/16	16	12	10	14	1
15	3/16	19	15	12	17	1
18	3/16	22	18	14	20	1
21	3/16	25	21	16	23	1
24	3/16	28	24	18	26	1
30	3/16	34	30	22	32	2
36	3/16	40	36	26	38	2
42	1/4	46	42	30	44	2
48	1/4	52	48	34	50	2

- 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.

FLANGE COUPLER DETAIL
NOT TO SCALE



- NOTES:
 1. IF THE RIPRAP CLASS DESIGNATION IS NOT SPECIFIED ON THE CONSTRUCTION PLANS, IA DOT CLASS E ROCK RIPRAP SHALL BE UTILIZED. THE ROCK SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
 2. UNLESS OTHERWISE SPECIFIED, FILTER FABRIC SHALL BE UTILIZED IN THE INSTALLATION OF RIPRAP.
 3. DOWNSTREAM CMP PIPE OUTLET SHALL CONFORM TO SLOPE FOR PIPE DIAMETERS 30" AND LARGER.

TYPICAL OUTLET AND RIPRAP DETAIL
NOT TO SCALE

IA DOT CLASS E RIPRAP			
PIPE DIA.	D	E	TN
12"	5'	4'	4.3
15"	5'	4.25'	4.7
18"	5'	4.5'	5.2
21"	5.5'	5.75'	7.4
24"	6'	6'	8.2
27"	6.5'	6.25'	9.3
30"	7'	6.5'	10.2
36"	8'	7'	12.2
42"	9'	7.5'	14.3
48"	10'	8'	16.5
54"	12'	8.5'	19.8
60"	12.5'	9'	21.8

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AFFIX SEAL: DUCKS UNLIMITED, INC.
ON:

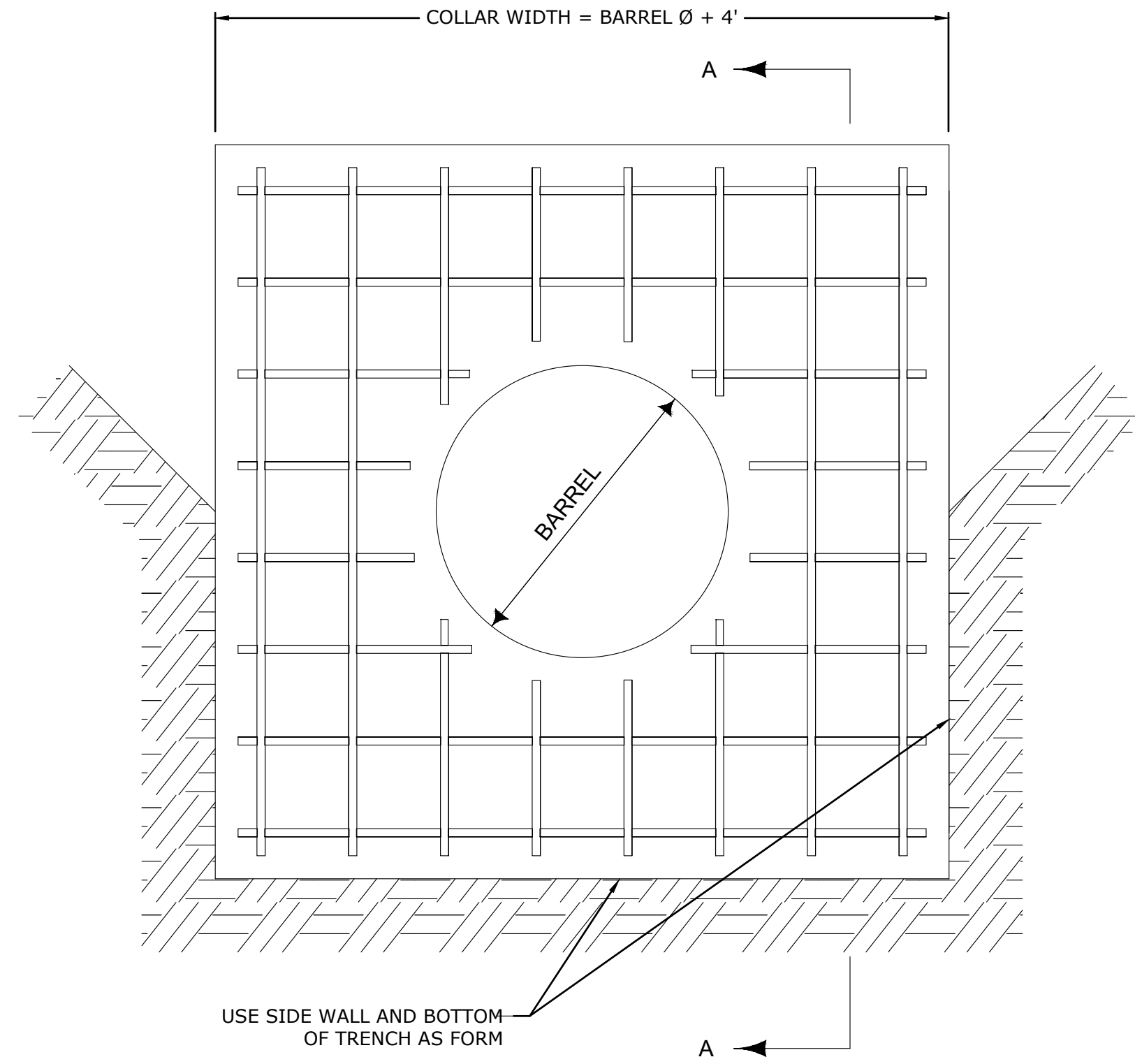
WCS DETAILS SHEET 1
PROJECT NO. ST0842407B
STORY COUNTY
IOWA

Revisions	By	Date
0	A.S.	2-4-22
1	A.S.	6-27-22
2	A.S.	10-24-23
3	A.S.	1-25-24
4	A.S.	2-27-24
5	A.S.	4-4-24

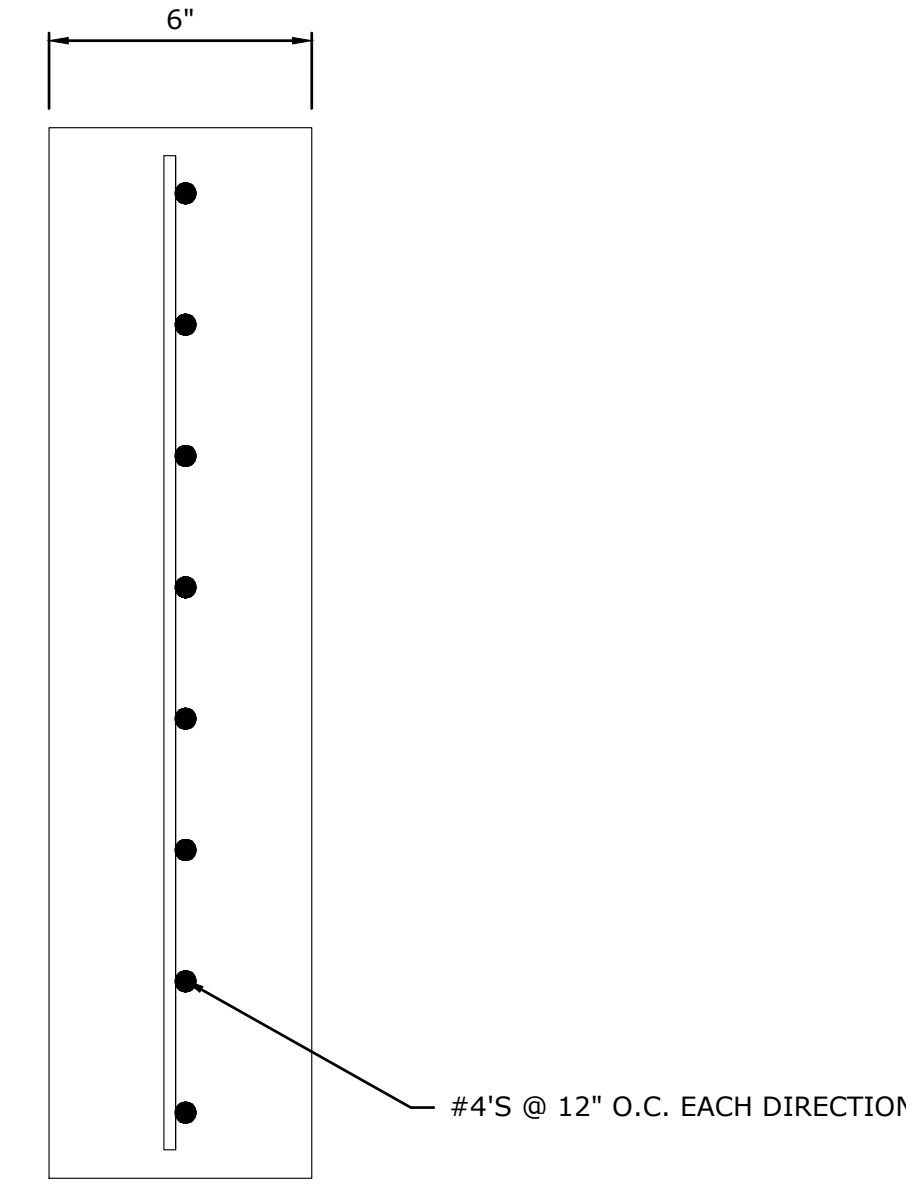
CAD FILE:
 STORY - DOTSON C101 SITE PLAN
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.
 DATE:
 4-4-24
 PROJECT NUMBER:
 US-IA-340-4
C303

NOT FOR CONSTRUCTION

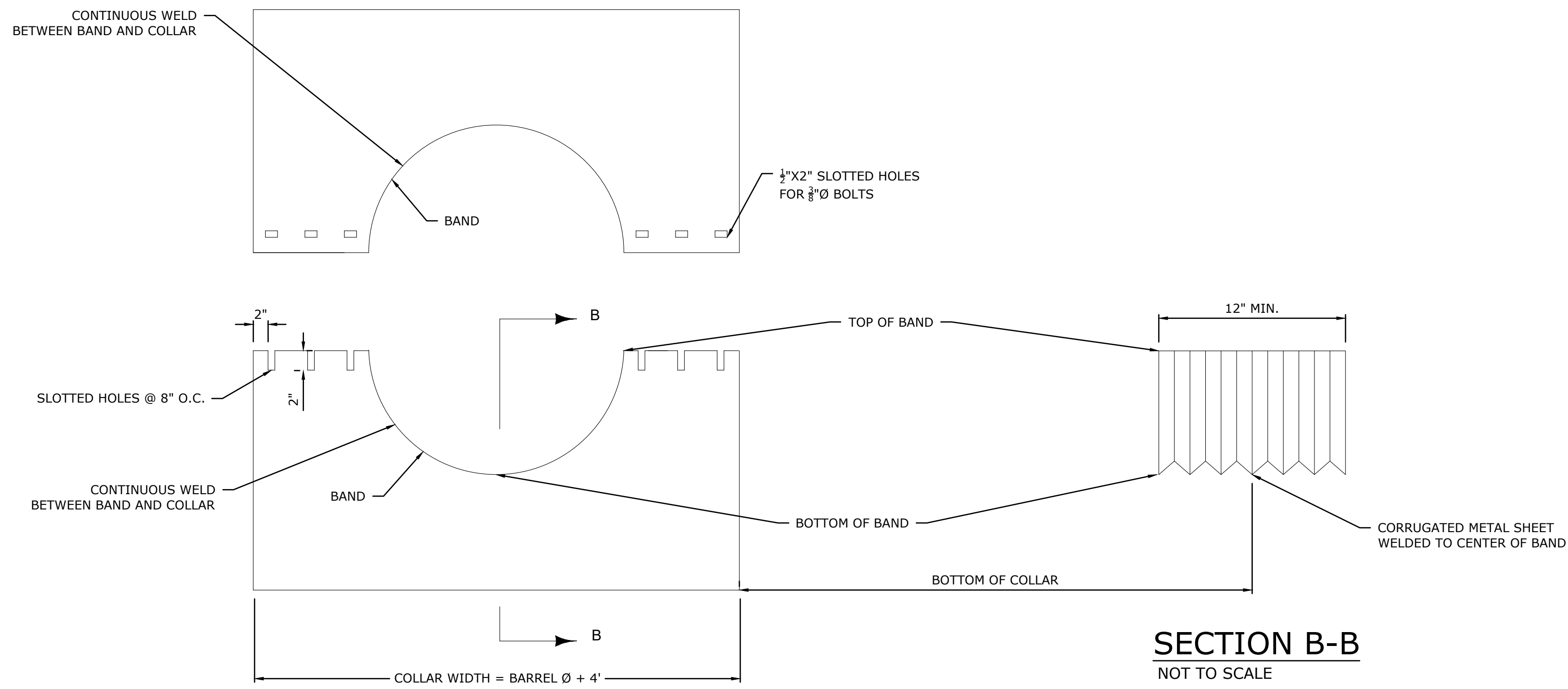
NOTE:
 CONTRACTOR TO PROVIDE ONE ANTI-SEEP COLLAR ON 18"Ø CMP DRAW-DOWN STRUCTURE PIPE, AND ONE ANTI-SEEP COLLAR ON 12"Ø CMP TO SOUTH. CONTRACTOR SHALL UTILIZE EITHER THE CONCRETE COLLAR DETAIL OR CMP COLLAR DETAIL. ANTI-SEEP COLLAR SHALL BE POSITIONED ON THE PIPE 3' UPSTREAM FROM THE BERM CENTERLINE



CONCRETE COLLAR
 NOT TO SCALE



SECTION A-A
 NOT TO SCALE



CMP COLLAR
 NOT TO SCALE

SECTION B-B
 NOT TO SCALE

AFFIX SEAL: DUCKS UNLIMITED, INC.
 ON:

ANTI-SEEP COLLAR DETAILS
 PROJECT NO. ST0842407B
 STORY COUNTY
 IOWA

Revision	Sheet	Revisions	Date	By
0		50% REVIEW SET	2-4-22	A.S.
1		95% REVIEW SET	6-27-22	A.S.
2		ISSUED FOR PERMITS	10-24-23	A.S.
3		ISSUED FOR BIDDING	1-25-24	A.S.
4		IDALS REVISIONS	2-27-24	A.S.
5		ADDENDUM 1 REVISIONS	4-4-24	A.S.

CAD FILE:
 STORY - DOTSON C101 SITE PLAN
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.
 DATE:
 4-4-24
 PROJECT NUMBER:
 US-IA-340-4
C305

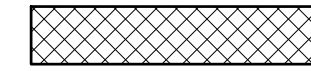
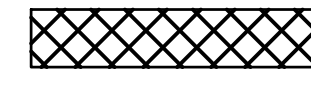
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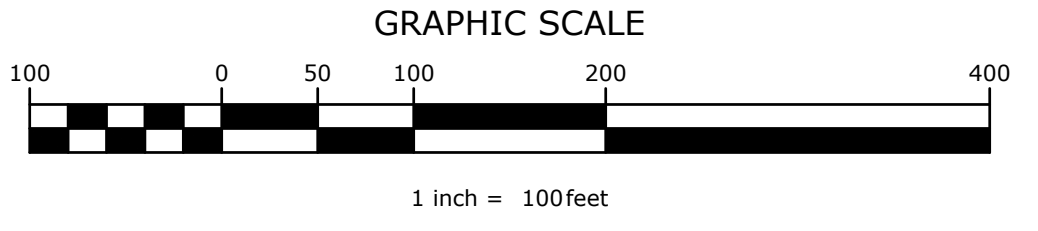
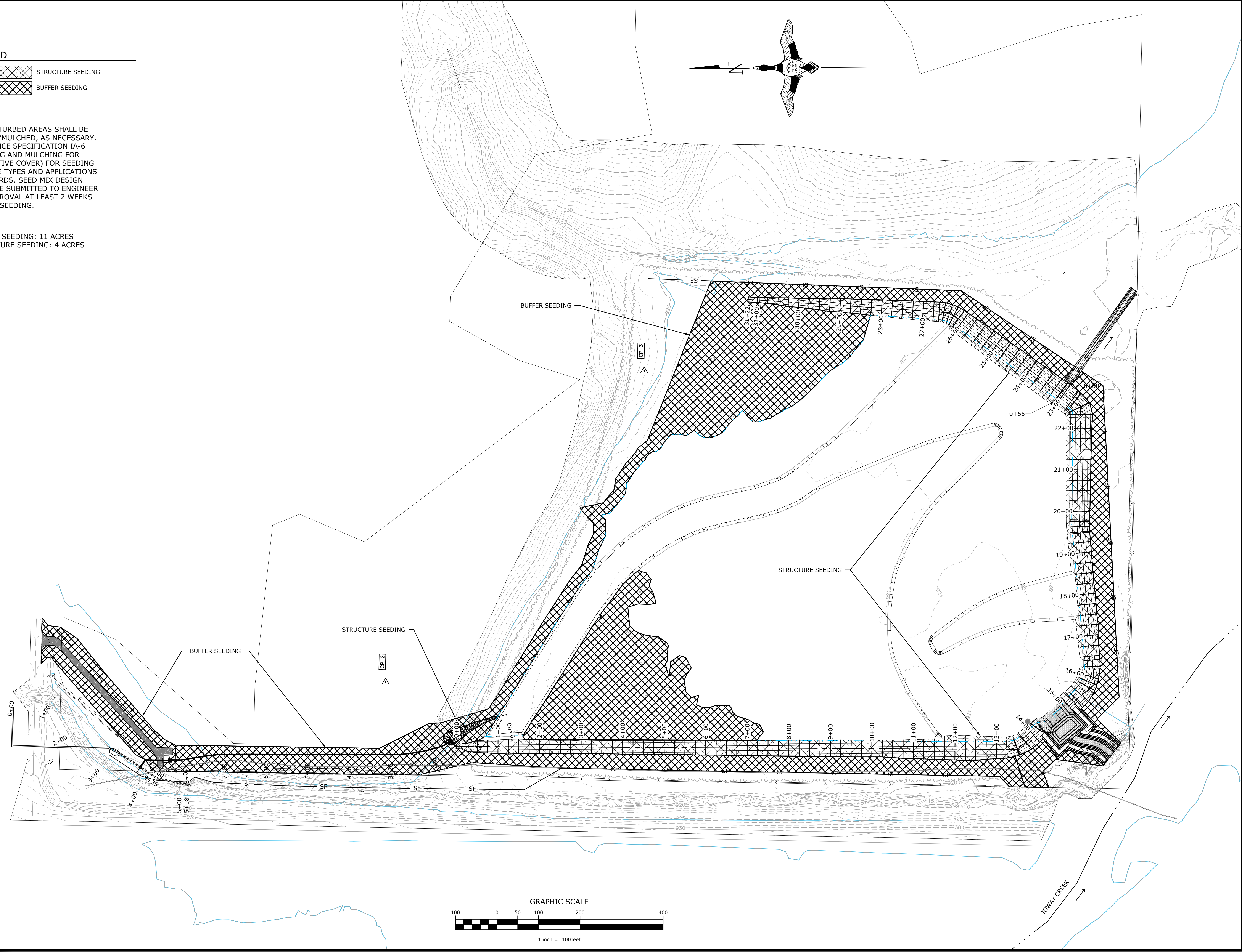
C:\Users\AbaHkey\Documents\Iowa - Documents\Iowa02_C3D Projects\IA-340-2 CREP PROJECTS\STORY DOTSON\C101_DRAWING\STORY - DOTSON C101 SITE PLAN.dwg, 4/5/2024 11:06 AM, Alonzo Barkley, Seeding Plan, None

LEGEND

-  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: 11 ACRES
 STRUCTURE SEEDING: 4 ACRES



SEEDING PLAN
PROJECT NO. ST0842407B
STORY COUNTY
IOWA

Revision	Sheet	Revisions	By	Date
0		50% REVIEW SET	A.S.	2-4-22
1		95% REVIEW SET	A.S.	6-27-22
2		ISSUED FOR PERMITS	A.S.	10-24-23
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4		IDALS REVISIONS	A.S.	2-27-24
5		ADDENDUM 1 REVISIONS	A.S.	4-4-24

CAD FILE:
 STORY - DOTSON C101 SITE PLAN
 DESIGNED BY: A.S.
 DRAWN BY: A.S.
 SURVEYED BY: R.V., A.S.
 BIOLOGIST: M.S.
 DATE:
 4-4-24
 PROJECT NUMBER:
 US-IA-340-4
C401

NOT FOR CONSTRUCTION

DUCKS UNLIMITED
 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: