GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH COLORADO DEPARTMENT OF TRANSPORTATION STANDARD CONSTRUCTION SPECIFICATIONS, 2022 EDITION, APPLICABLE TO THIS PROJECT.

LOCAL OWNER CRITERIA INCLUDING CITY OF COLORADO SPRINGS REQUIREMENTS SHALL ALSO APPLY AND WHEN IN CONFLICT WITH CDOT REQUIREMENTS, SHALL SUPERCEDE CDOT REQUIREMENTS AT THE OWNER'S DISCRETION.

STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAILS SHOWN IN THESE PLANS AND SECTION 206 OF THE CDOT STANDARD SPECIFICATIONS. DETAILED ITEMS SHALL GOVERN.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

THE FINAL FINISH FOR ALL EXPOSED CONCRETE SURFACES SHALL BE CLASS 2 TO 1'-0" BELOW FINISHED GRADE, UNLESS NOTED OTHERWISE.

WHERE SPECIFIED IN THE PLANS, THE FORMLINER FINISH SHALL EXTEND TO 1'-0" MINIMUM BELOW FINISHED GRADE.

GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS D UNLESS NOTED OTHERWISE.

ALL EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED $\frac{3}{4}$ INCH, UNLESS NOTED OTHERWISE IN PLANS.

THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE IN DRAWINGS:
- CONCRETE CAST AGAINST EARTH = 3 IN
- #6 AND LARGER = 2 IN
- #5 AND SMALLER = 1 1/2 IN

ALL REINFORCING STEEL SHALL BE EPOXY-COATED UNLESS NOTED OTHERWISE.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS PLACED.

THE CONTRACTOR SHALL NOT BACKFILL STRUCTURES UNTIL RETAINING WALLS HAVE REACHED 80% OF DESIGN STRENGTH.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURES DURING CONSTRUCTION.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM CIVIL PLAN SET. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

ABBREVIATIONS:

AH. = AHEAD
ABUT. = ABUTMENT
B.F.= BACK FACE
BLVD. = BOULEVARD
BOT. = BOTTOM
C = CENTERLINE
CLR. = CLEAR
C&G = CURB AND GUTTER
CONST. = CONSTRUCTION
CONT. = CONTINUOUS
E.F. = EACH FACE
ELEV. = ELEVATION
EMBED. = EMEBDMENT
EQ. = EQUALLY
EXP. = EXPANSION
HCL = HORIZONTAL CONTROL LINE
IB = INBOUND
JT. = JOINT
MAX. = MAXIMUM
MIN. = MINIMUM
NO. = NUMBER
OB = OUTBOUND
PC = POINT OF CURVE
PI = POINT OF INTERSECTION
PL = PLATE
PROJ. = PROJECTION
PT = POINT OF TANGENT
PVC = POLYVINYL CHLORIDE
PVI = POINT OF VERTICAL INTERSECTION
ROW = RIGHT OF WAY
SPA. = SPACED
ST = STREET
STA. = STATION
STD. = STANDARD
TYP. = TYPICAL
V.I.F = VERIFY IN FIELD

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

GENERAL DESIGN DATA

REINFORCED CONCRETE:
CLASS D CONCRETE: f'c = 4,500 psi
TYPE II CEMENT REQUIRED
REINFORCING STEEL: f'y = 60,000 psi

REFER TO GEOTECHNICAL REPORTING NO. 211647 BY ENTECH ENGINEERING, IN., DATED APRIL 5, 2022 AND ANY ADDENDA THERETO, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

PER GEOTECH REPORT LISTED ABOVE BEARING CAPACITIES ARE AS FOLLOWS:
2400 PSF (NATIVE SAND)
3000 PSF (STRUCTURAL FILL)
3500 PSF (SANDSTONE BEDROCK)

DESIGN DATA FOR CULVERTS

DESIGNED IN ACCORDANCE WITH AASHTO LRFD, 9th EDITION 2020

ALL BOX CULVERTS
LIVE LOAD: HL-93
LIVE LOAD SURCHARGE: 2 FT DEPTH
EQUIVALENT FLUID PRESSURE: 30-90 PCF

THREE-CELL BOX CULVERT
INTERIOR FLUID: 8 FT ABOVE TOP SLAB
FILL RANGE: 2 FT TO 8 FT
MAXIMUM CALCULATED BEARING PRESSURE = 1300 PSF

10x12 BOX CULVERT
INTERIOR FLUID: 13.5 FT ABOVE TOP SLAB
FILL RANGE: 5.5 FT TO 17.5 FT
MAXIMUM CALCULATED BEARING PRESSURE = 3100 PSF

10x10 BOX CULVERT
INTERIOR FLUID: 3.5 FT ABOVE TOP SLAB
FILL RANGE: 5 FT TO 7 FT
MAXIMUM CALCULATED BEARING PRESSURE = 1500 PSF

DESIGN DATA POND OUTLET STRUCTURES
DESIGNED IN ACCORDANCE WITH IBC 2018 / ACI 318

POND STRUCTURE #1
EQUIVALENT FLUID PRESSURE: 60-90 PCF
LIVE LOAD: 100 PSF OR 200 LBS CONCENTRATED LOAD ON STEEL GRATING
LIVE LOAD SURCHARGE: N/A
INTERIOR FLUID DEPTH: FULL AND EMPTY CONSIDERED FOR STRUCTURAL CAPACITY AND BUOYANCY
MAXIMUM CALCULATED BEARING PRESSURE: 2,500 PSF

POND STRUCTURE #2
EQUIVALENT FLUID PRESSURE: 60-90 PCF
LIVE LOAD: 100 PSF OR 200 LBS CONCENTRATED LOAD ON STEEL GRATING
LIVE LOAD SURCHARGE: N/A
INTERIOR FLUID DEPTH: FULL AND EMPTY CONSIDERED FOR STRUCTURAL CAPACITY AND BUOYANCY
MAXIMUM CALCULATED BEARING PRESSURE: 1,500 PSF

DESIGN DATA FOR WINGWALLS AND HEADWALLS
DESIGNED AND DETAILED BY JR ENGINEERING. REFER TO CIVIL SETS FOR DETAILS.

SUBMITTALS AND SUBSTITUTIONS

CONTRACTOR SHALL SUBMIT THE FOLLOWING FOR REVIEW AND APPROVAL OF THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION:
- MANUFACTURED PRODUCTS
- REINFORCING SHOP DRAWINGS
- CONCRETE MIX DESIGN
- STRUCTURAL STEEL SHOP DRAWINGS

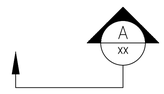
IF THE CONTRACTOR REQUESTS A CHANGE FROM THE STRUCTURAL DRAWINGS, IT SHALL BE APPROVED BY THE ENGINEER AND DESIGNED BY SAN ENGINEERING LLC. PRIOR TO SUBMITTING SHOP DRAWINGS. VARIATION SHALL BE INDICATED ON THE SHOP DRAWINGS. CONTRACTOR SHALL COMPENSATE MARTIN/MARTIN, INC. FOR MAKING THE CHANGE.

CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE IN SUBMITTALS

ALL SHOP DRAWINGS SHALL REFERENCE THE STRUCTURAL DRAWING NUMBER AND DETAIL USED TO PREPARE THE SUBMITTAL

SUBSTITUTIONS: ENGINEER'S APPROVAL SHALL BE SECURED FOR ALL SUBSTITUTIONS

SYMBOLS:



SECTION OR DETAIL IDENTIFICATION
CROSS-REFERENCE SHEET NUMBER (-- = SAME SHEET)

STEP

STRUCTURE DESCRIPTION AND STRUCTURAL SCOPE OF WORK NARRATIVE

THREE-CELL CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERT CARRYING POND BERM AND CUTOFF WALL OVER SAND CREEK CHANNEL OUTLET FROM POND W-3.

13'-0" INTERIOR WIDTH (ALL CELLS)
4'-0" INTERIOR HEIGHT (EXTERIOR CELLS)
2'-0" INTERIOR HEIGHT (INTERIOR CELL)
93'-0" HEADWALL-TO-END

SINGLE-CELL CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERT CARRYING POND EMERGENCY SPILLWAY AND CUTOFF WALL OVER SAND CREEK CHANNEL OUTLET FROM POND #1.

12'-0" INTERIOR WIDTH
10'-0" INTERIOR HEIGHT
8'-6" INTERMEDIATE DROP
149'-0" HEADWALL TO POND OUTLET RISER

SINGLE-CELL CAST-IN-PLACE REINFORCED CONCRETE BOX CULVERT CARRYING POND EMERGENCY SPILLWAY AND CUTOFF WALL OVER SAND CREEK CHANNEL OUTLET FROM POND #2.

10'-0" INTERIOR WIDTH
10'-0" INTERIOR HEIGHT
68'-8" HEADWALL TO POND OUTLET RISER

CAST-IN-PLACE REINFORCED CONCRETE VERTICAL OUTLET RISER FROM POND #1.

25'-0" SQUARE INTERIOR WIDTH
24'-1 1/2" INTERIOR HEIGHT
STEEL-FRAMED GRATED TOP

CAST-IN-PLACE REINFORCED CONCRETE VERTICAL OUTLET RISER FROM POND #2.

25'-0" SQUARE INTERIOR WIDTH
16'-8 3/4" INTERIOR HEIGHT
STEEL-FRAMED GRATED TOP

REFER TO CIVIL PLAN SET BY JR ENGINEERING FOR DETAILS OF HEADWALLS, WINGWALLS AND CUTOFF WALLS.

OWNER/DEVELOPER STATEMENT

I, THE OWNER/DEVELOPER HAVE READ AND WILL COMPLY WITH THE REQUIREMENTS OF THE GRADING AND EROSION CONTROL PLAN.

JAMES F. MORLEY DATE

SR LAND, LLC
20 BOULDER CRESCENT, SUITE 201
COLORADO SPRINGS, CO 80903

DISTRICT APPROVALS

THESE DOCUMENTS HAVE BEEN REVIEWED AND APPROVED FOR STORM DRAIN AND ASSOCIATED UTILITY SERVICE CONSTRUCTION.

FOR AND ON BEHALF OF THE STERLING RANCH METRO DISTRICT NO.3 DATE

EL PASO COUNTY STATEMENT

COUNTY PLAN REVIEW IS PROVIDED ONLY FOR GENERAL CONFORMANCE WITH COUNTY DESIGN CRITERIA. THE COUNTY IS NOT RESPONSIBLE FOR THE ACCURACY AND ADEQUACY OF THE DESIGN, DIMENSIONS, AND/OR ELEVATIONS WHICH SHALL BE CONFIRMED AT THE JOB SITE. THE COUNTY THROUGH THE APPROVAL OF THIS DOCUMENT ASSUMES NO RESPONSIBILITY FOR COMPLETENESS AND/OR ACCURACY OF THIS DOCUMENT.

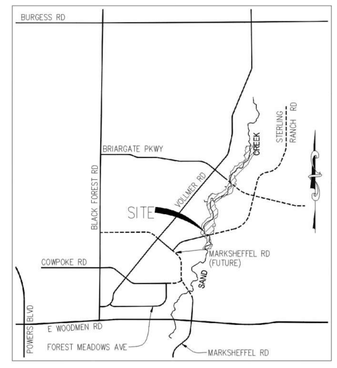
FILED IN ACCORDANCE WITH THE REQUIREMENTS OF THE EL PASO COUNTY LAND DEVELOPMENT CODE, DRAINAGE CRITERIA MANUAL, VOLUMES 1 AND 2, AND ENGINEERING CRITERIA MANUAL AS AMENDED.

IN ACCORDANCE WITH ECM SECTION 1.12, THESE CONSTRUCTION DOCUMENTS WILL BE VALID FOR CONSTRUCTION FOR A PERIOD OF 2 YEARS FROM THE DATE SIGNED BY THE EL PASO COUNTY ENGINEER. IF CONSTRUCTION HAS NOT STARTED WITHIN THOSE 2 YEARS, THE PLANS WILL NEED TO BE RESUBMITTED FOR APPROVAL, INCLUDING PAYMENT OF REVIEW FEES AT THE PLANNING AND COMMUNITY DEVELOPMENT DIRECTORS DISCRETION.

JOSHUA PALMER, P.E. DATE

COUNTY ENGINEER/ECM ADMINISTRATOR

STRUCTURAL DRAWING INDEX



KEY MAP
SCALE: 1"=1500'

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

JOHN MIGLIACCIO, P.E. DATE
COLORADO NO. 34333
FOR AND ON BEHALF OF SAN ENGINEERING, LLC.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, SAN ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT ST.
COLORADO SPRINGS, CO 80903
JAMES F. MORLEY
(719) 419-3024

San Engineering LLC
Civil and Structural Engineering
1150 W. Littleton Blvd. #200
Littleton, CO 80120
303.953.9014 www.sanengineeringllc.com

BY	DATE
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No.	REVISION
.	.

H-SCALE	AS NOTED
V-SCALE	AS NOTED
DATE	7/26/2023
DESIGNED BY	KSP
DRAWN BY	JJM
CHECKED BY	JJM

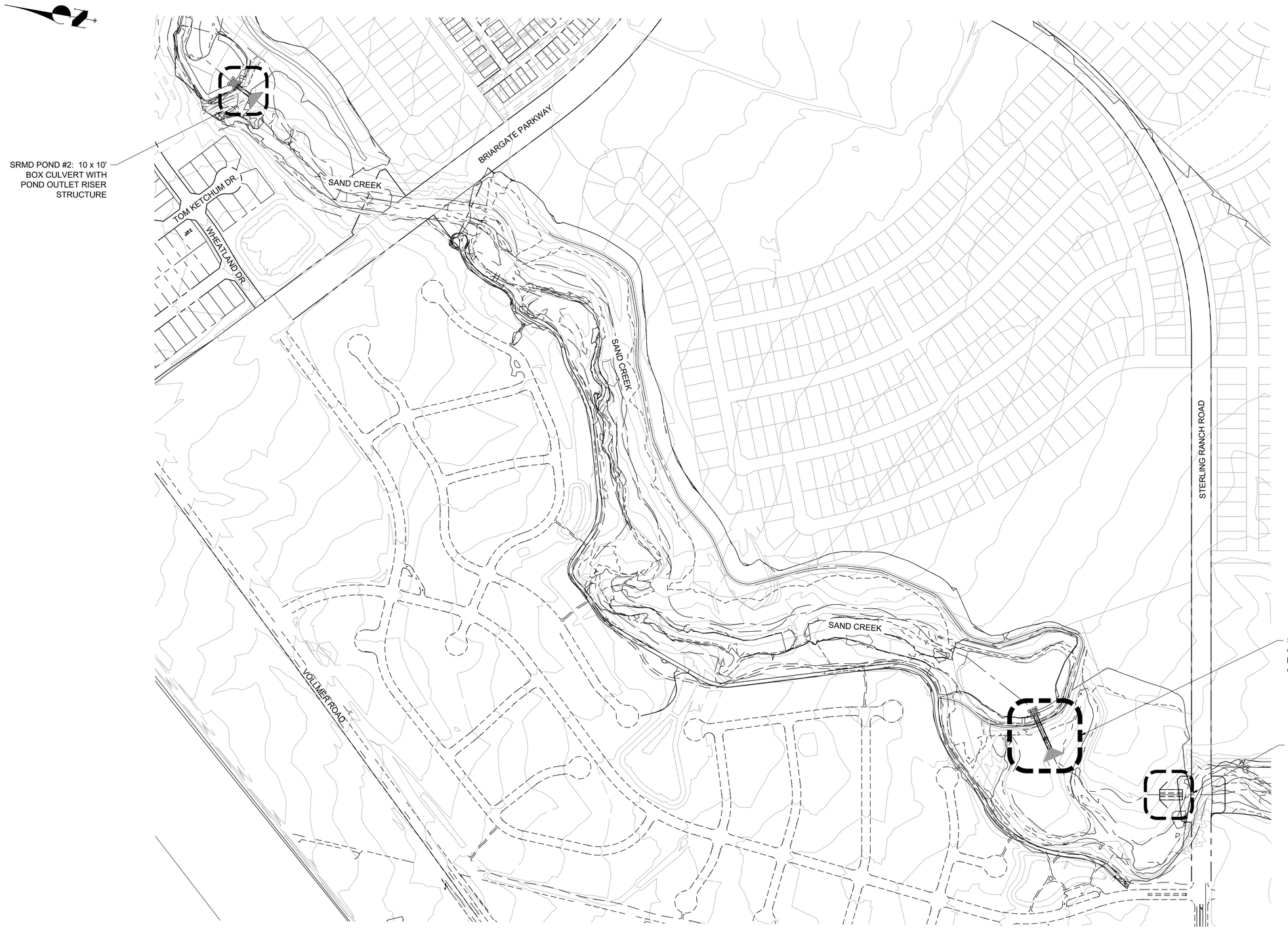
SAND CREEK RESTORATION
STERLING RANCH

SITE STRUCTURES
GENERAL STRUCTURAL
INFORMATION AND INDEX

SHEET S01 OF 25

JOB NO. 25188.04

F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural Details



STRUCTURES KEY PLAN

Know what's below. Call before you dig.

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

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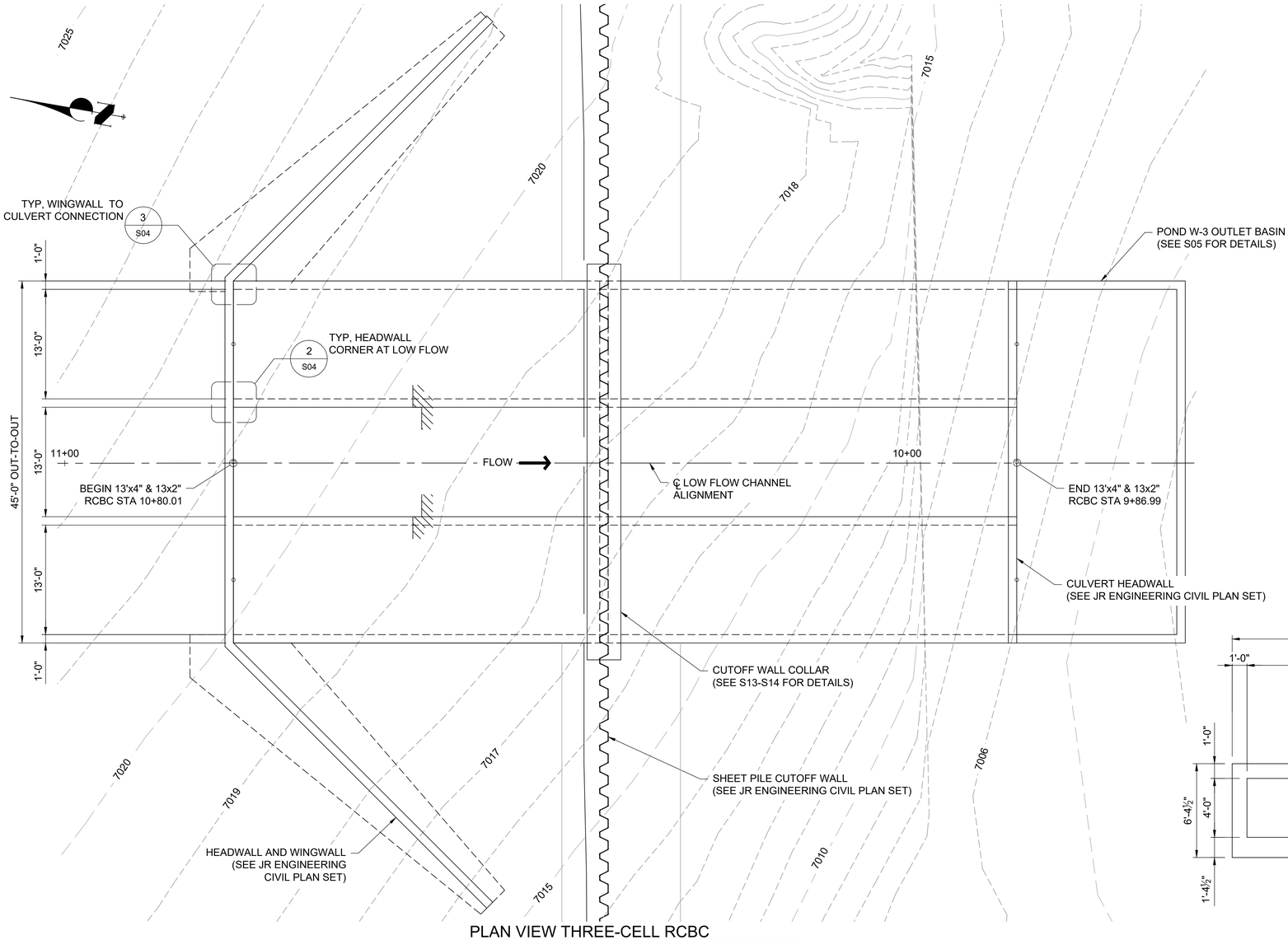
SAND CREEK RESTORATION
STERLING RANCH

STRUCTURES KEY PLAN

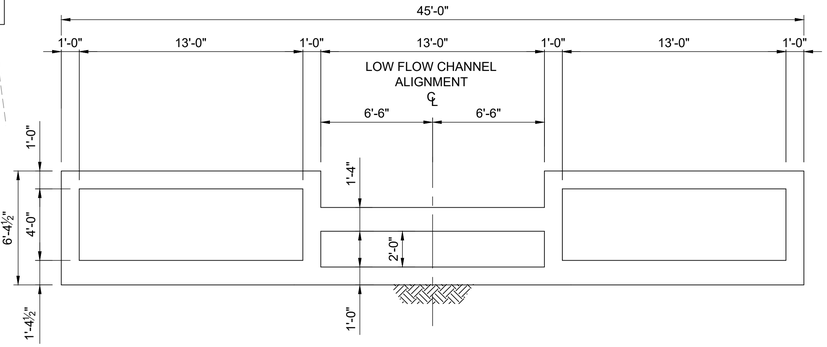
SHEET S02 OF 25

JOB NO. 25188.04

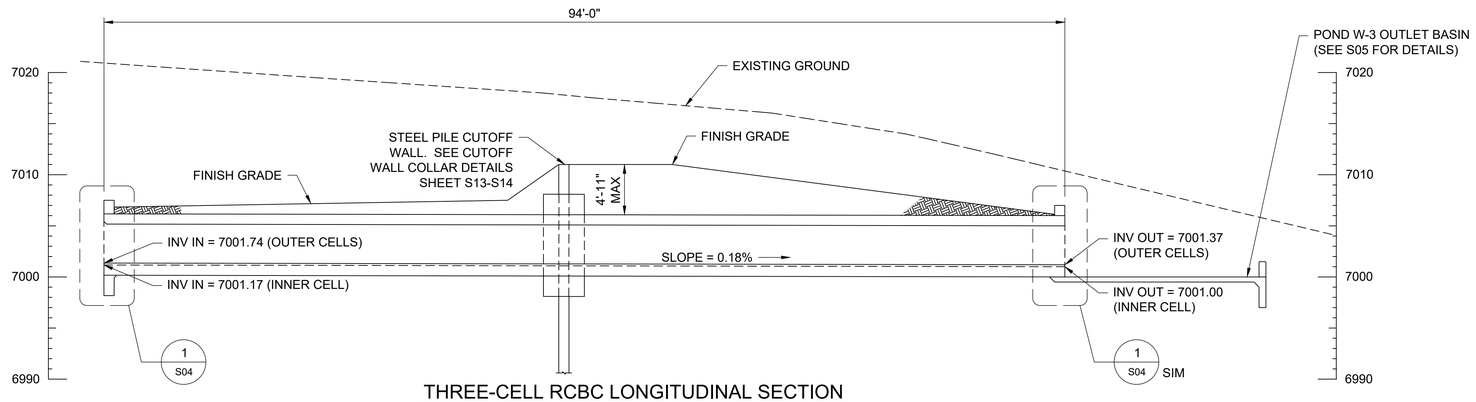
F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Key Plan



PLAN VIEW THREE-CELL RCBC
STOCK POND W-3 LOW FLOW STRUCTURE



THREE-CELL CULVERT SECTION
STOCK POND W-3 LOW FLOW STRUCTURE



THREE-CELL RCBC LONGITUDINAL SECTION
STOCK POND W-3 LOW FLOW STRUCTURE

Know what's below. Call before you dig.

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DRAWN BY	JM
CHECKED BY	JM

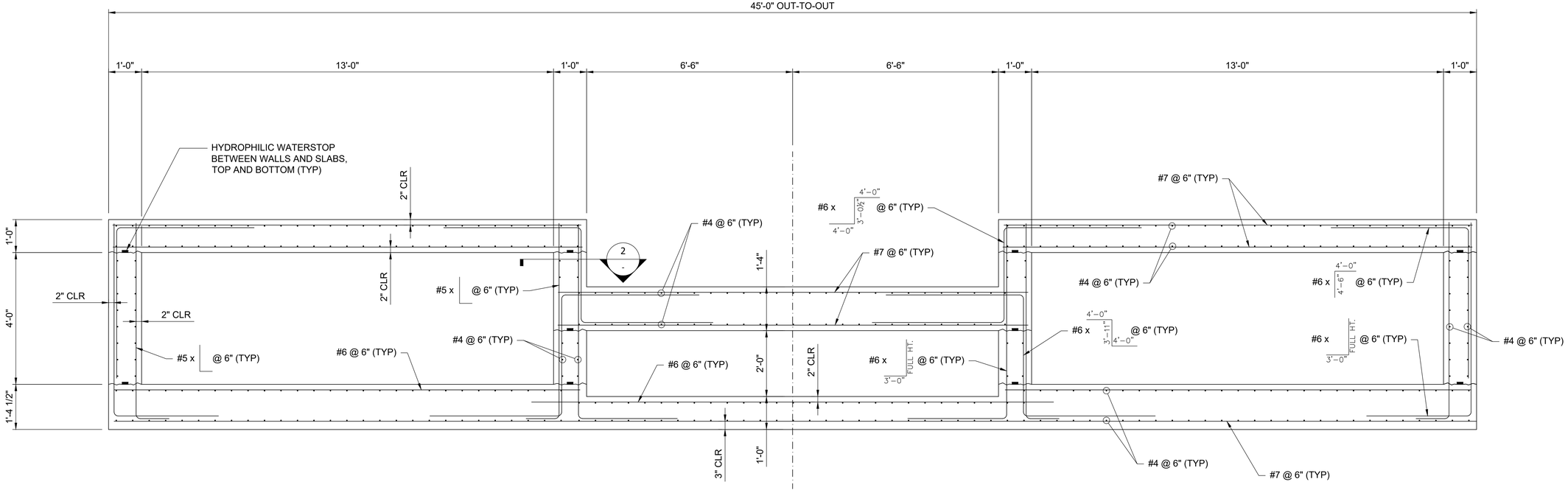
SAND CREEK RESTORATION
STERLING RANCH

STOCK POND W-3 OUTLET
3-CELL BOX CULVERT
GENERAL LAYOUT

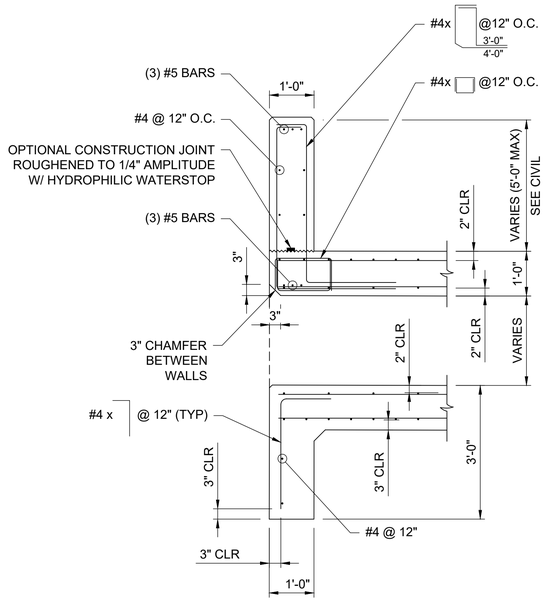
SHEET S03 OF 25

JOB NO. 25188.04

F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural

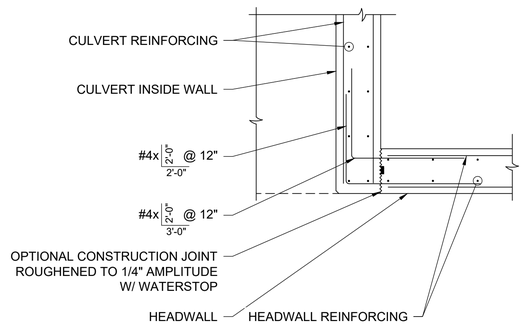


A
-
THREE-CELL RCBC TYPICAL SECTION
STOCK POND W-3 LOW FLOW STRUCTURE

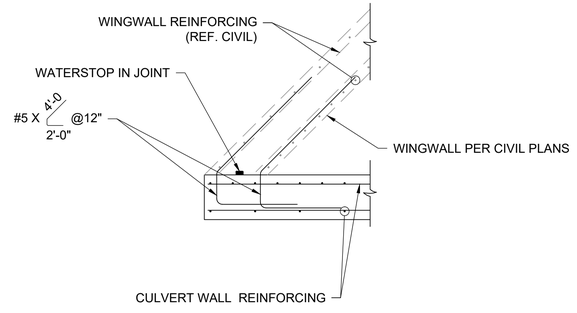


NOTE: OUTLET REINFORCING AT HEADWALL MATCHES DETAILING SHOWN.
TOEWALL AT OUTLET END VARIES AT "SIM". SEE SHEET S05.

1
-
INLET REINFORCING SECTION
STOCK POND W-3 LOW FLOW STRUCTURE



2
-
MIDDLE CELL HEADWALL CORNER DETAIL
STOCK POND W-3 LOW FLOW STRUCTURE



3
-
CULVERT TO WINGWALL CONNECTION

811
Know what's below.
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STRUCTURAL ENGINEER'S STATEMENT
PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

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SAND CREEK RESTORATION
STERLING RANCH
STOCK POND W-3 OUTLET
3-CELL BOX CULVERT
TYPICAL REINFORCING SECTIONS

SHEET S04 OF 25
JOB NO. 25188.04

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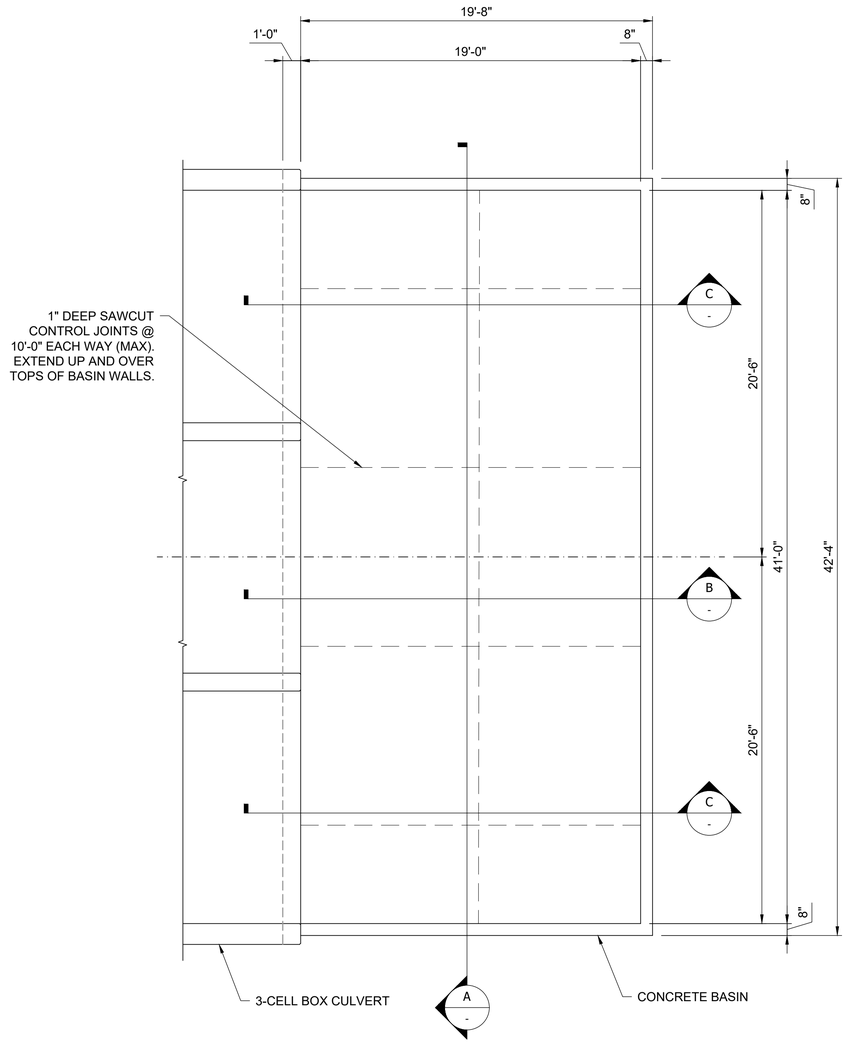
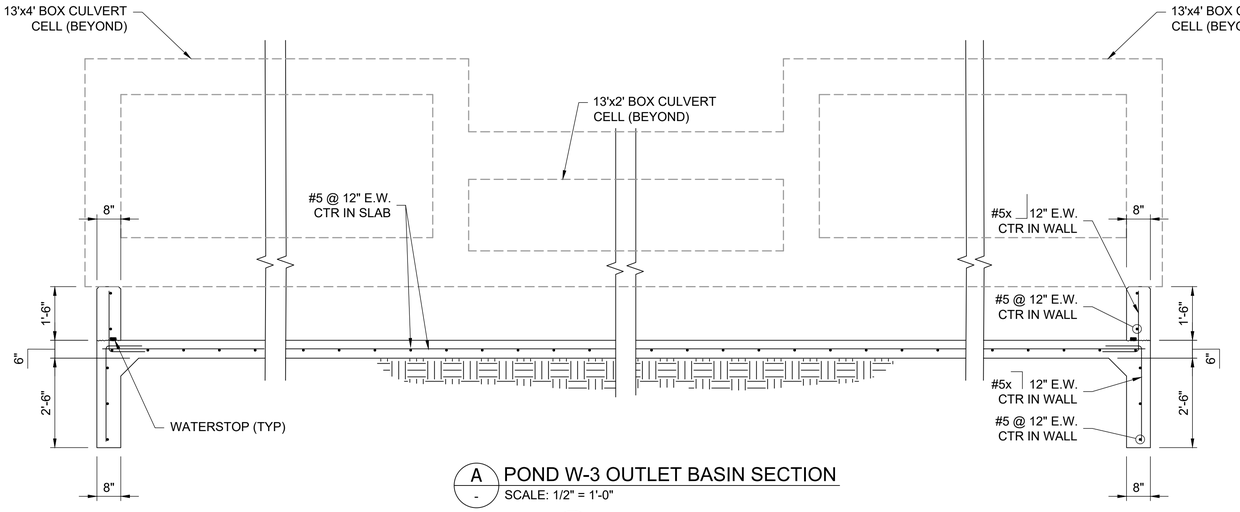
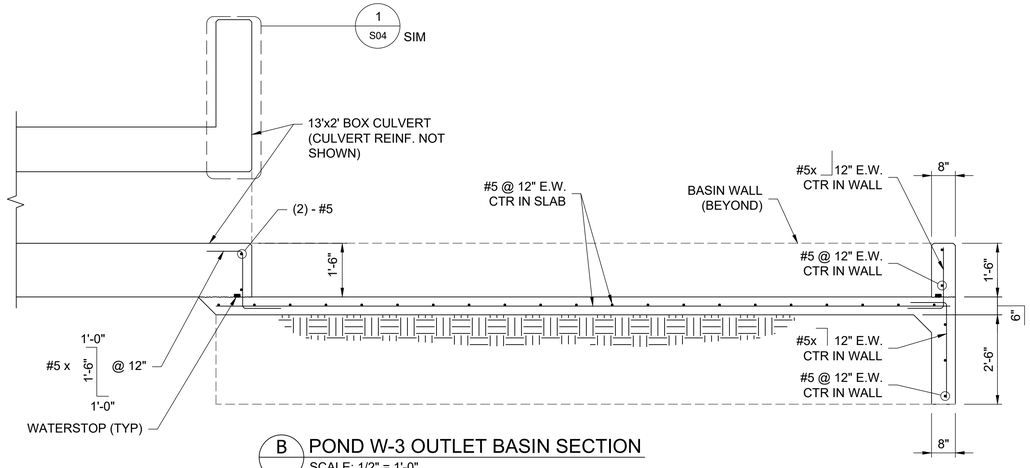


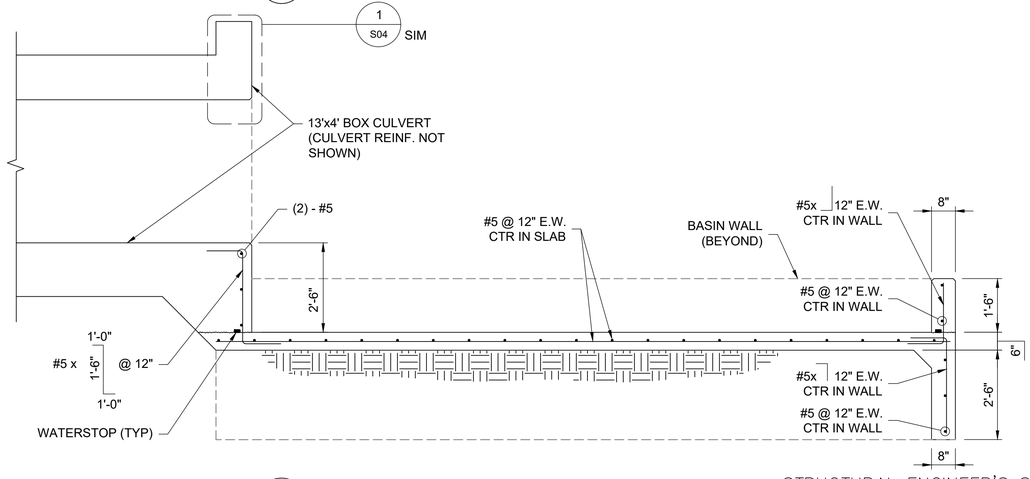
1 - POND W-3 OUTLET BASIN PLAN
SCALE: 1/2" = 1'-0"



A - POND W-3 OUTLET BASIN SECTION
SCALE: 1/2" = 1'-0"



B - POND W-3 OUTLET BASIN SECTION
SCALE: 1/2" = 1'-0"



C - POND W-3 OUTLET BASIN SECTION
SCALE: 1/2" = 1'-0"

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

JOHN MIGLIACCIO, P.E. DATE
COLORADO NO. 34333
FOR AND ON BEHALF OF SAN ENGINEERING, LLC.

Know what's below. Call before you dig.

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PREPARED FOR
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DESIGNED BY KSP
DRAWN BY JJM
CHECKED BY JJM

SAND CREEK RESTORATION
STERLING RANCH

STOCK POND W-3 OUTLET BASIN
STRUCTURAL DETAILS

SHEET S05 OF 25

JOB NO. 25188.04

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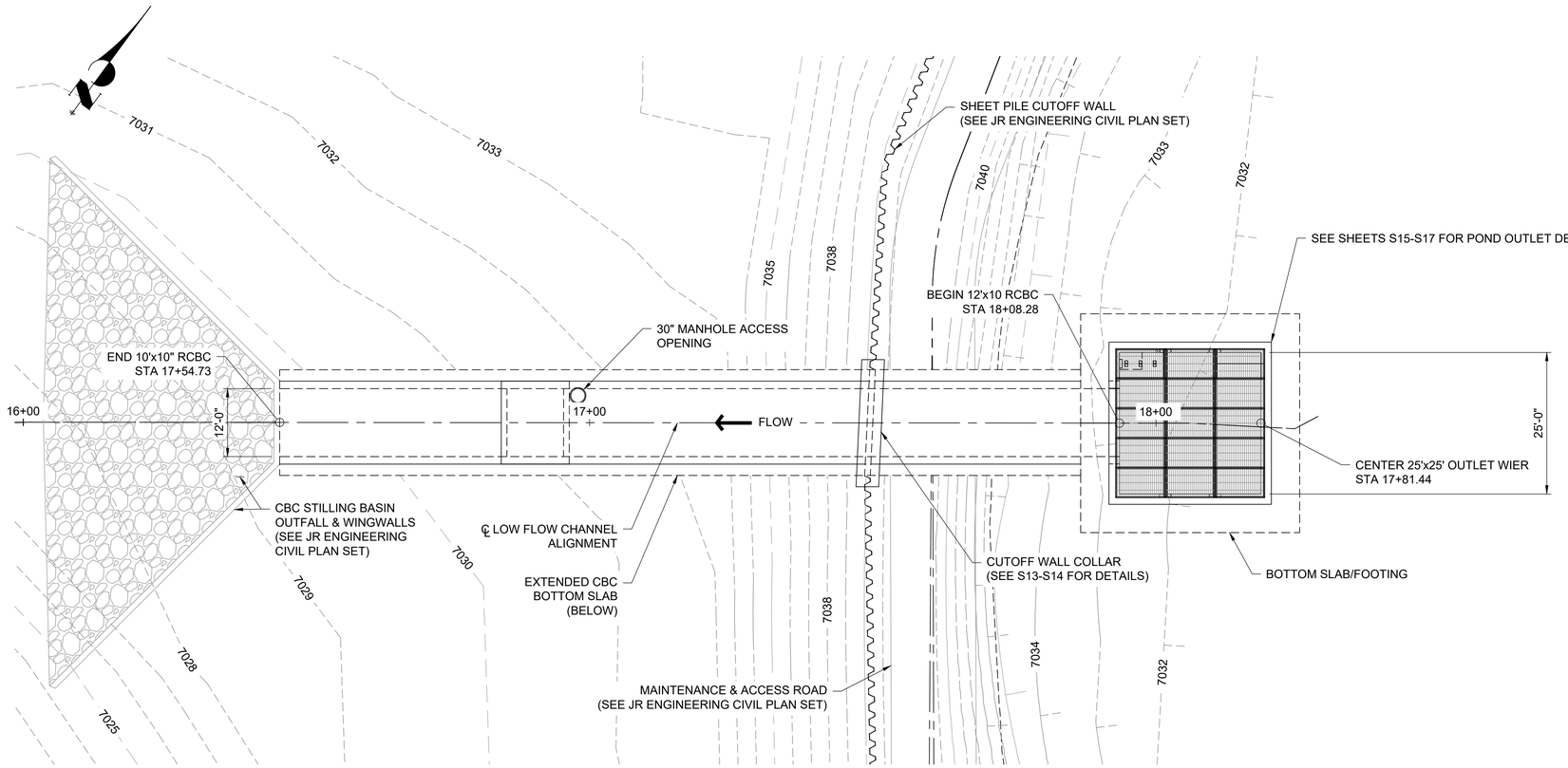
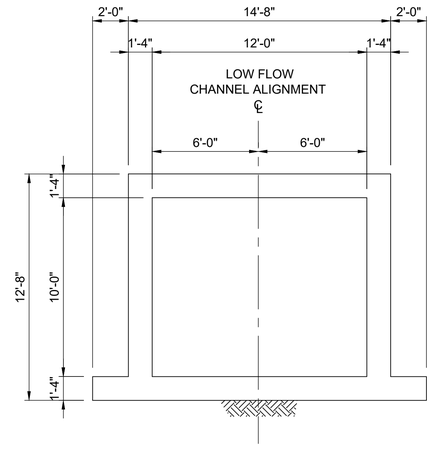
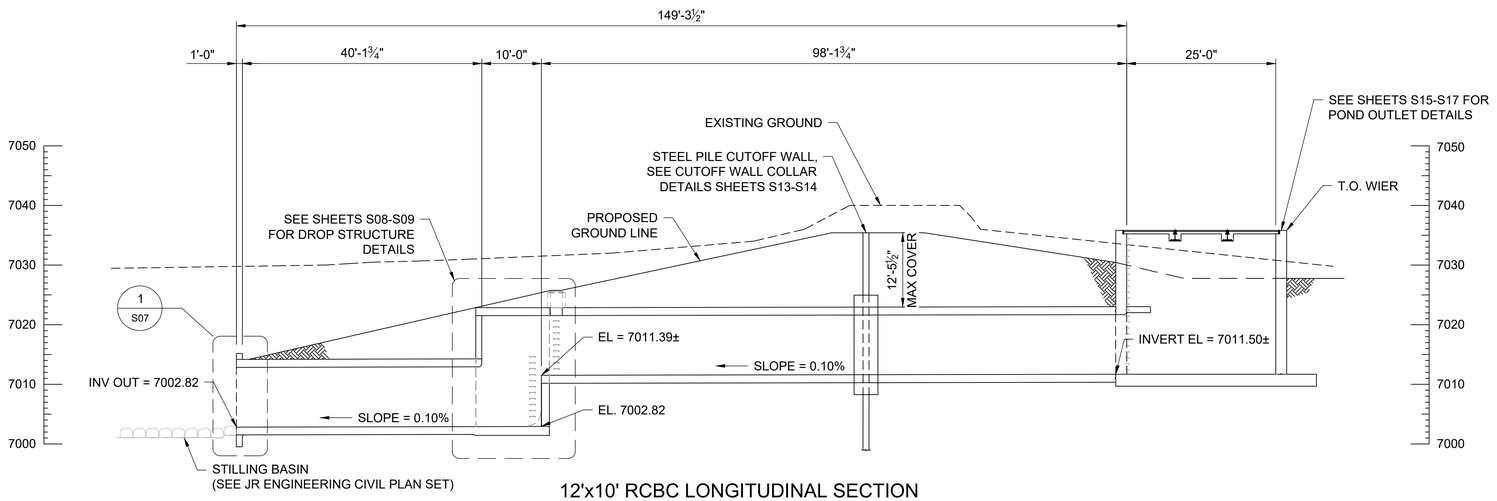


PLAN VIEW 12'x10' RCBC
STOCK POND #1 OUTLET STRUCTURE



12'x10' TYPICAL SECTION
STOCK POND #1 OUTLET STRUCTURE



12'x10' RCBC LONGITUDINAL SECTION
STOCK POND #1 OUTLET STRUCTURE

Know what's below.
Call before you dig.

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

JOHN MIGLIACCIO, P.E. DATE
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Civil and Structural Engineering
1150 W. Littleton Blvd. #200
Littleton, CO 80120
303.953.9014 www.sanengineeringllc.com

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DATE	7/26/2023
DESIGNED BY	KSP
DRAWN BY	JJM
CHECKED BY	JJM

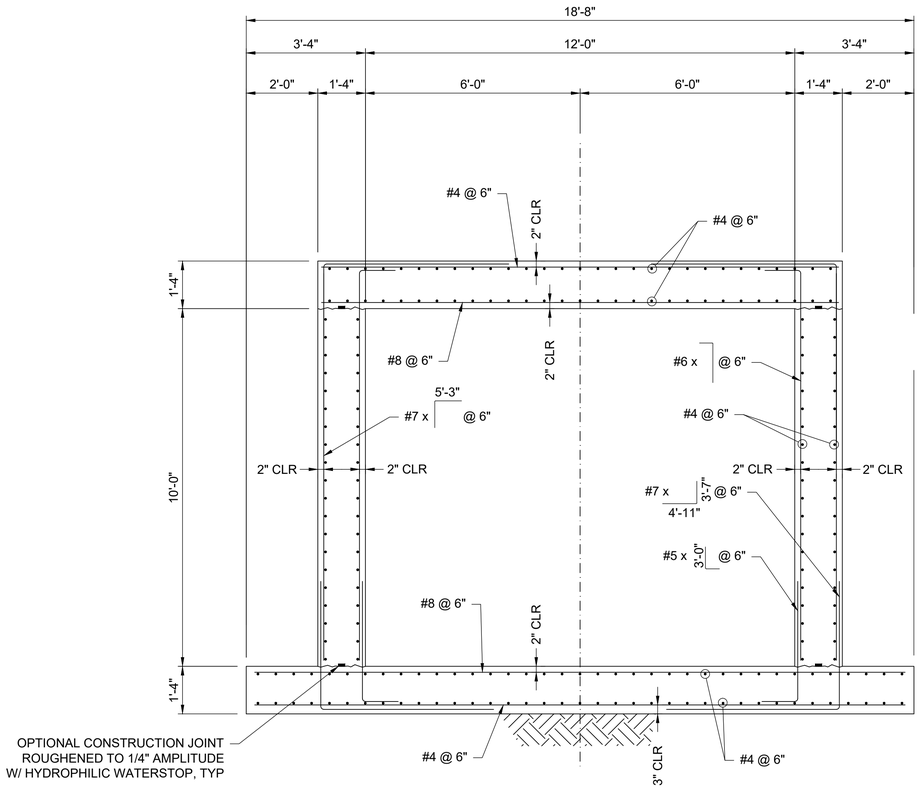
SAND CREEK RESTORATION
STERLING RANCH

STOCK POND 1 OULTET
12'x10' RCBC GENERAL LAYOUT

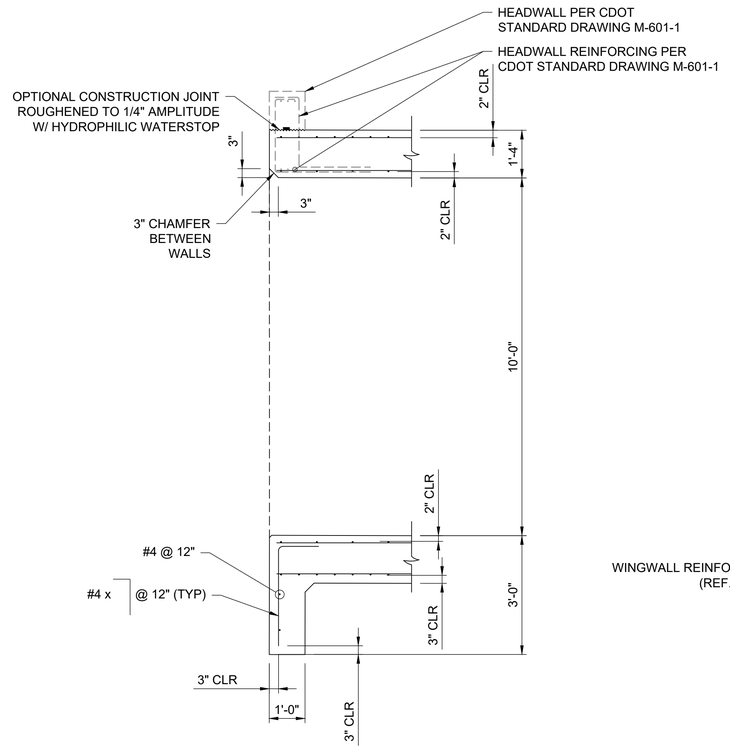
SHEET S06 OF 25

JOB NO. 25188.04

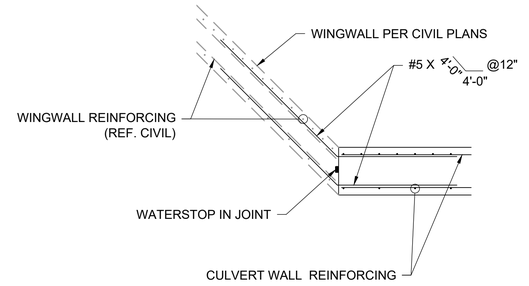
F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural



A - 12'x10' REINFORCING SECTION
STOCK POND #1 OUTLET STRUCTURE



1 - INLET/ OUTLET REINFORCING SECTION



2 - CULVERT TO WINGWALL CONNECTION

Know what's **below.**
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STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

JOHN MIGLIACCIO, P.E. DATE
COLORADO NO. 34333
FOR AND ON BEHALF OF SAN ENGINEERING, LLC.

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SAND CREEK RESTORATION
STERLING RANCH

STOCK POND #1 OUTLET
12' x 10' BOX CULVERT
TYPICAL REINFORCING SECTIONS

SHEET S07 OF 25

JOB NO. 25188.04

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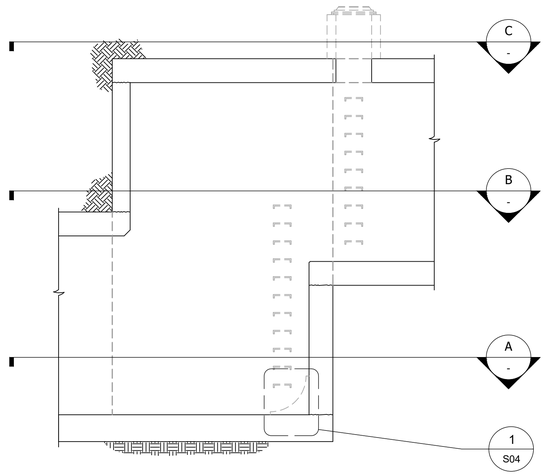
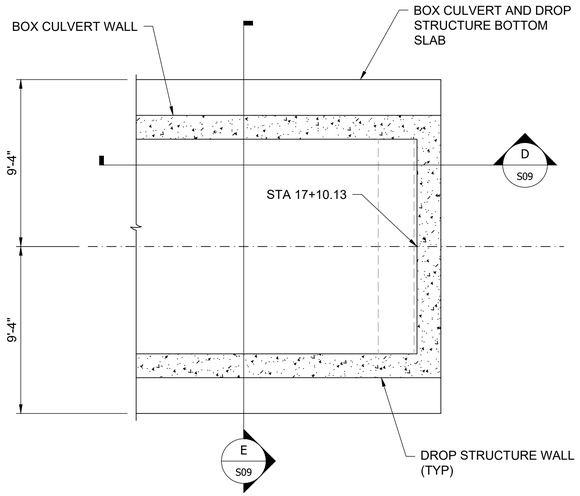
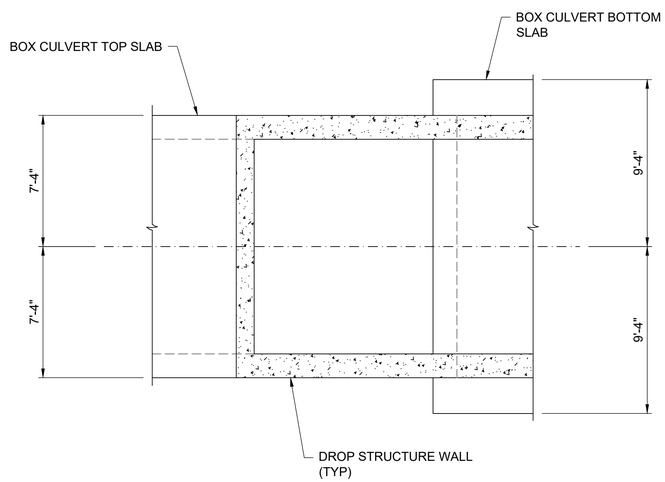


NOTES:
1. SEE 3/S10 FOR BACKFILL REQUIREMENTS AT DROP STRUCTURE.
2. SEE 2/S10 FOR OPTIONAL CONSTRUCTION JOINT REQUIREMENTS.

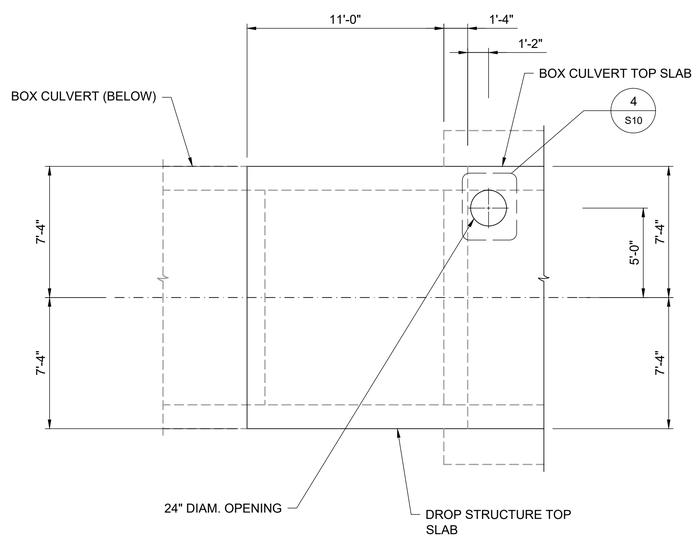
1 / - 12'x10' RCBC DROP STRUCTURE SECTION
SCALE: 1/4" = 1'-0"



A / - 12'x10' RCBC DROP STRUCTURE PLAN (BOTTOM)
SCALE: 1/4" = 1'-0"



B / - 12'x10' RCBC DROP STRUCTURE PLAN (MIDDLE)
SCALE: 1/4" = 1'-0"



C / - 12'x10' RCBC DROP STRUCTURE PLAN (TOP)
SCALE: 1/4" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH
STOCK POND 1 OUTLET
12'x10' RCBC DROP STRUCTURE PLANS

SHEET S08 OF 25
JOB NO. 25188.04

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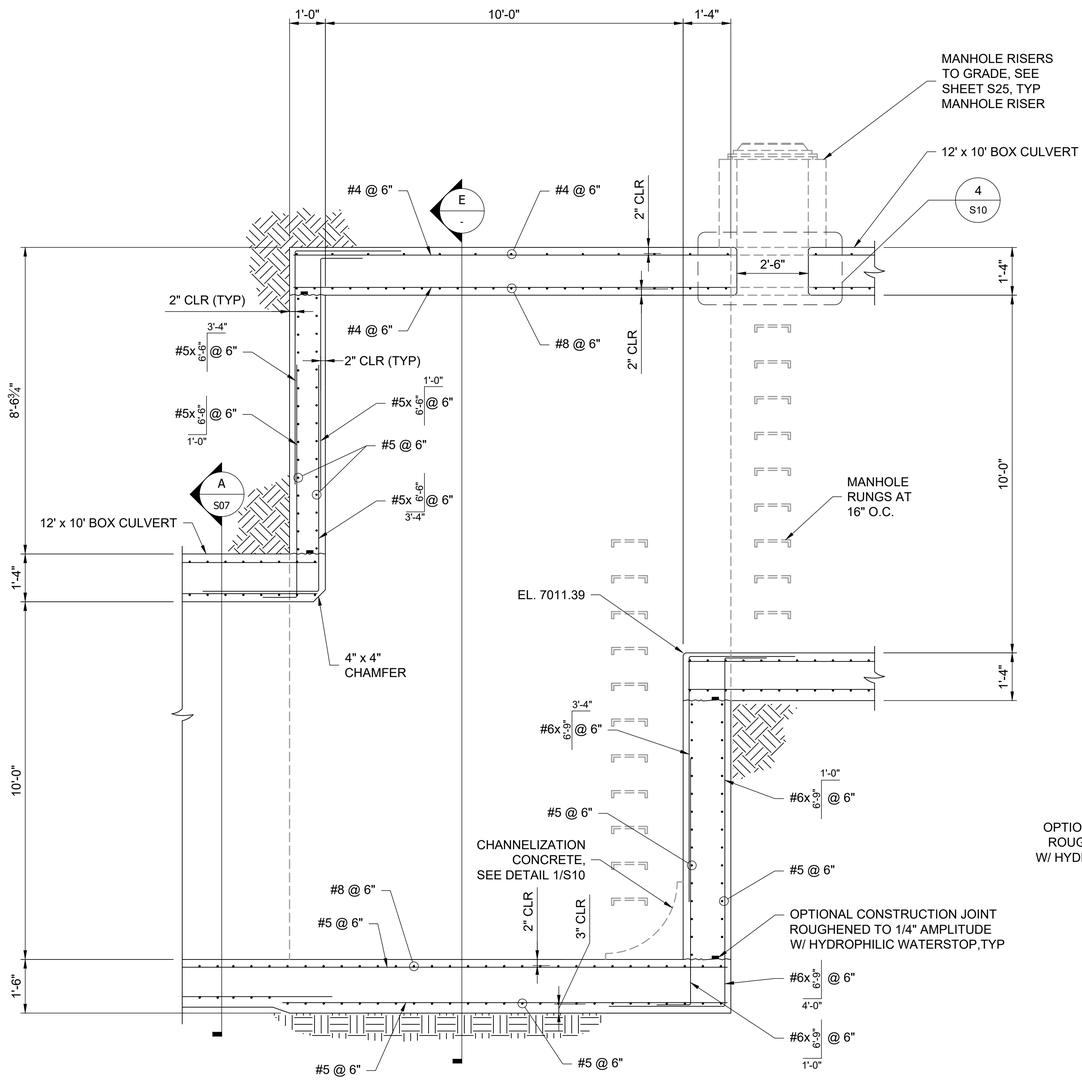
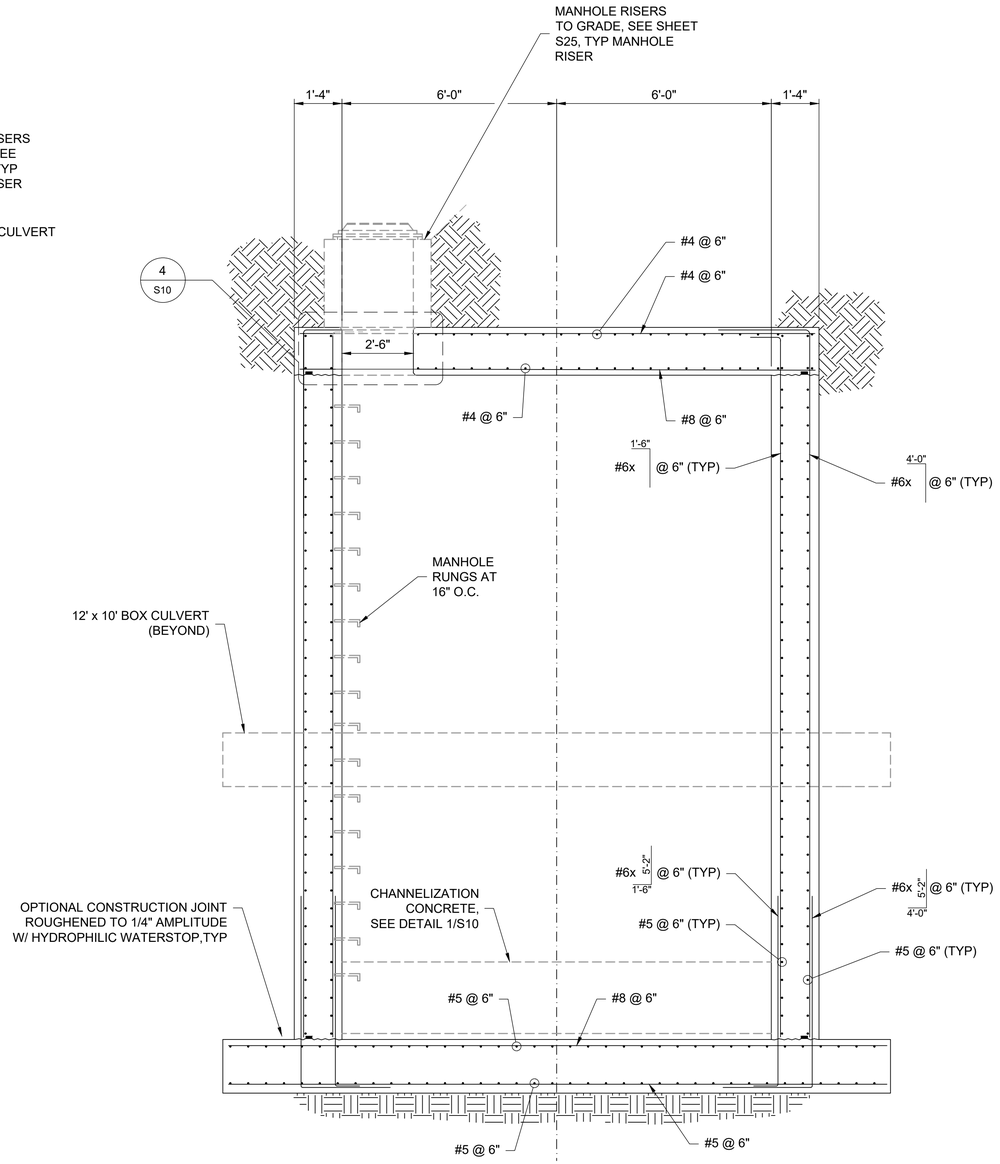


D / - 12'x10' RCBC DROP STRUCTURE REINFORCING SECTION

SCALE: 1/2" = 1'-0"



E / - 12'x10' RCBC DROP STRUCTURE REINFORCING SECTION

SCALE: 1/2" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH

STOCK POND 1 OUTLET
12'x10' RCBC DROP STRUCTURE
REINFORCING SECTIONS

SHEET S09 OF 25

JOB NO. 25188.04

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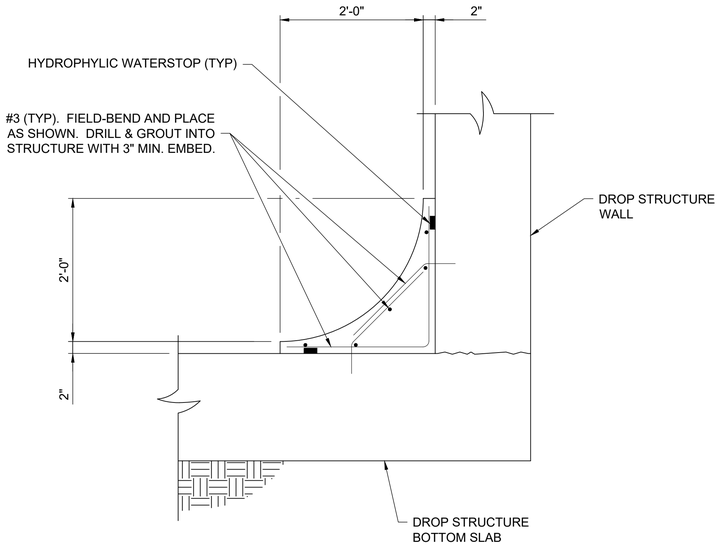
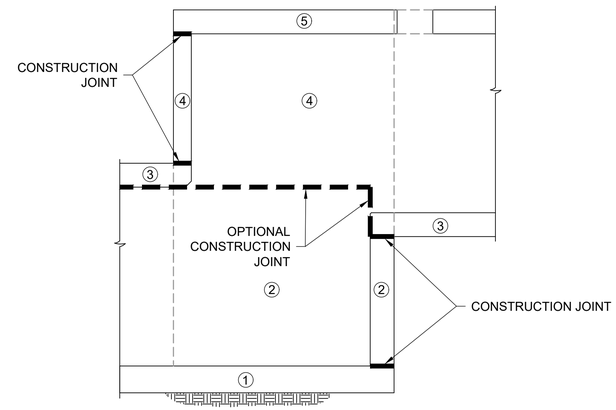


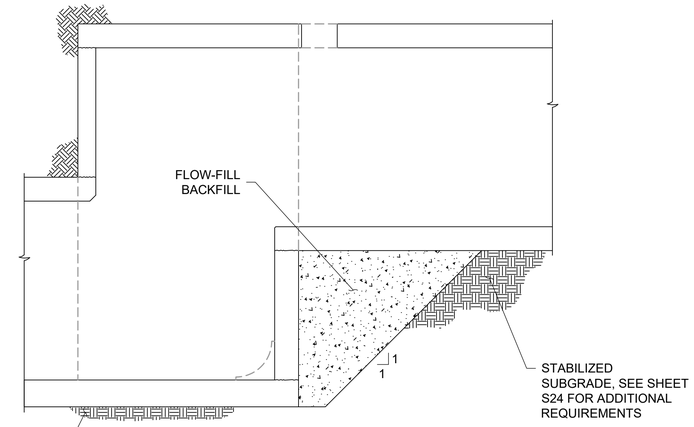
1 - CHANNELIZATION CONCRETE DETAIL



(#) SEQUENCE OF SLAB AND WALL CONSTRUCTION

PHASING AND CONSTRUCTION JOINT LOCATIONS ARE SUGGESTED. ACTUAL CONSTRUCTION PHASING AND MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

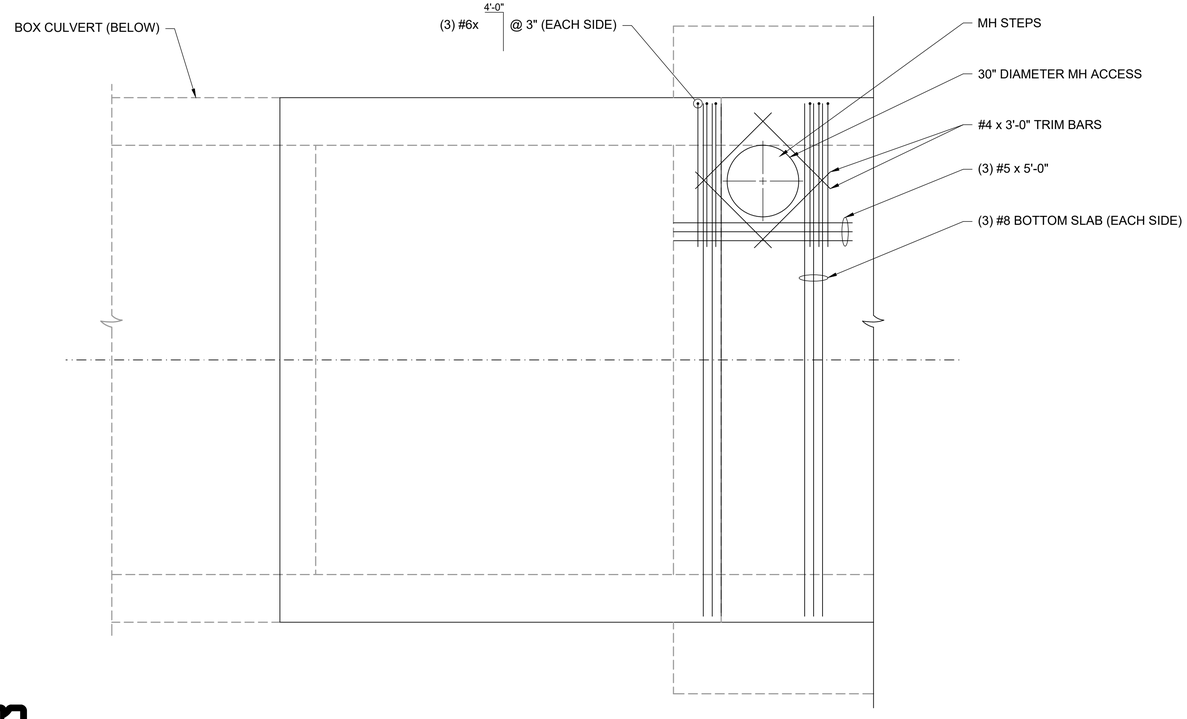
2 - OPTIONAL CONSTRUCTION JOINT DIAGRAM



WALLS SHALL BE ADEQUATELY BRACED FOR TEMPORARY HYDROSTATIC PRESSURES FROM FLOW-FILL BACKFILL.

CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD OF BACKFILL OR TEMPORARY EXCAVATION SUPPORT. ANY METHOD SHALL ELIMINATE THE POTENTIAL FOR SETTLEMENT OF UPPER BOX CULVERT.

3 - BACKFILL REQUIREMENTS AT STEP



4 - 12'x10' RCBC ADDITIONAL REINFORCING AT MANHOLE OPENING
SCALE: 1/2" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH
STOCK POND 1 OUTLET
12'x10' RCBC DROP STRUCTURE
MISCELLANEOUS DETAILS

SHEET S10 OF 25

JOB NO. 25188.04

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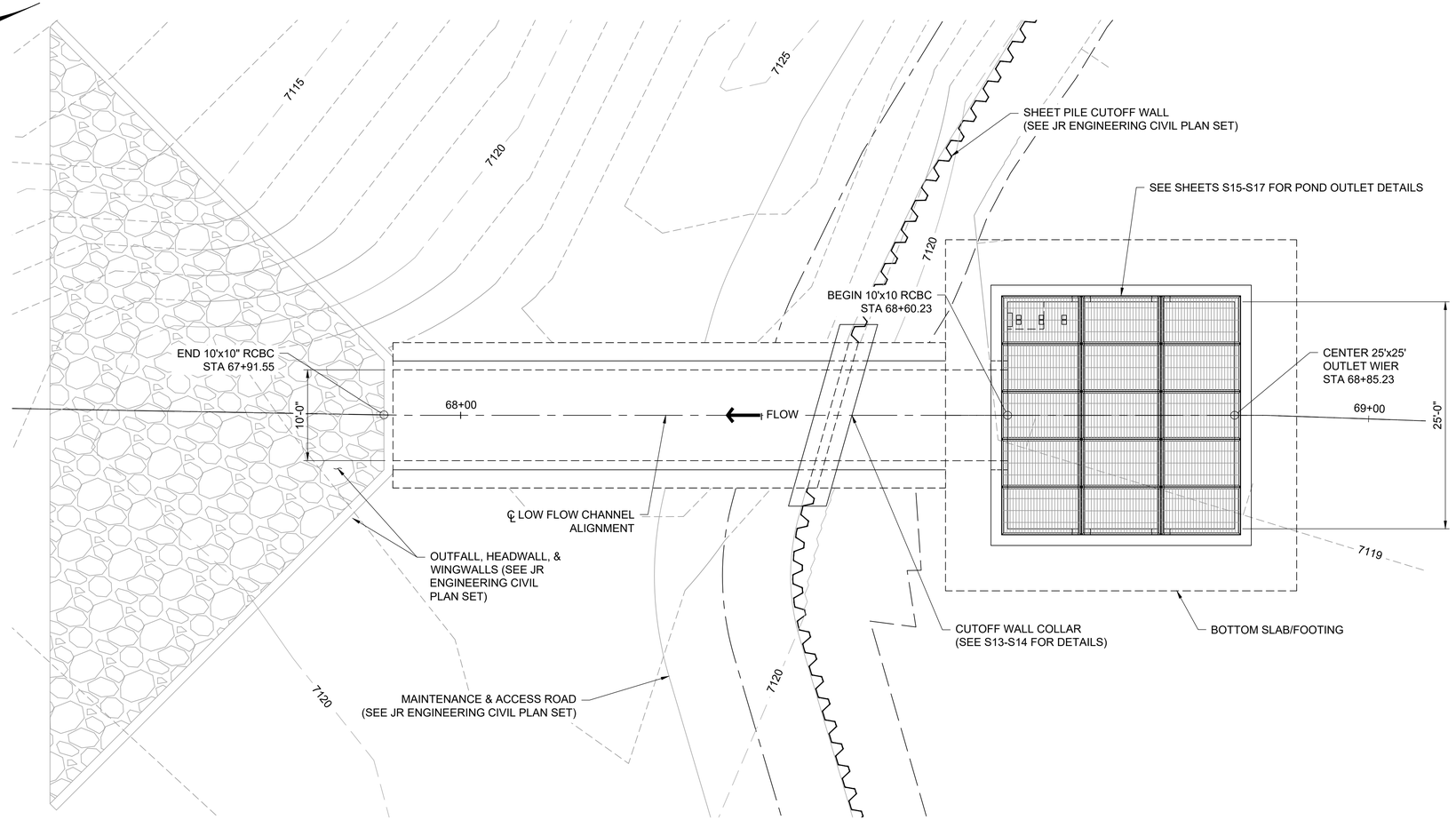
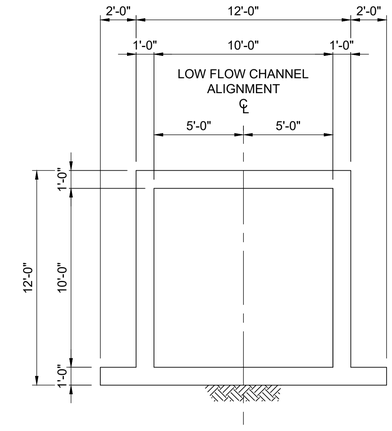
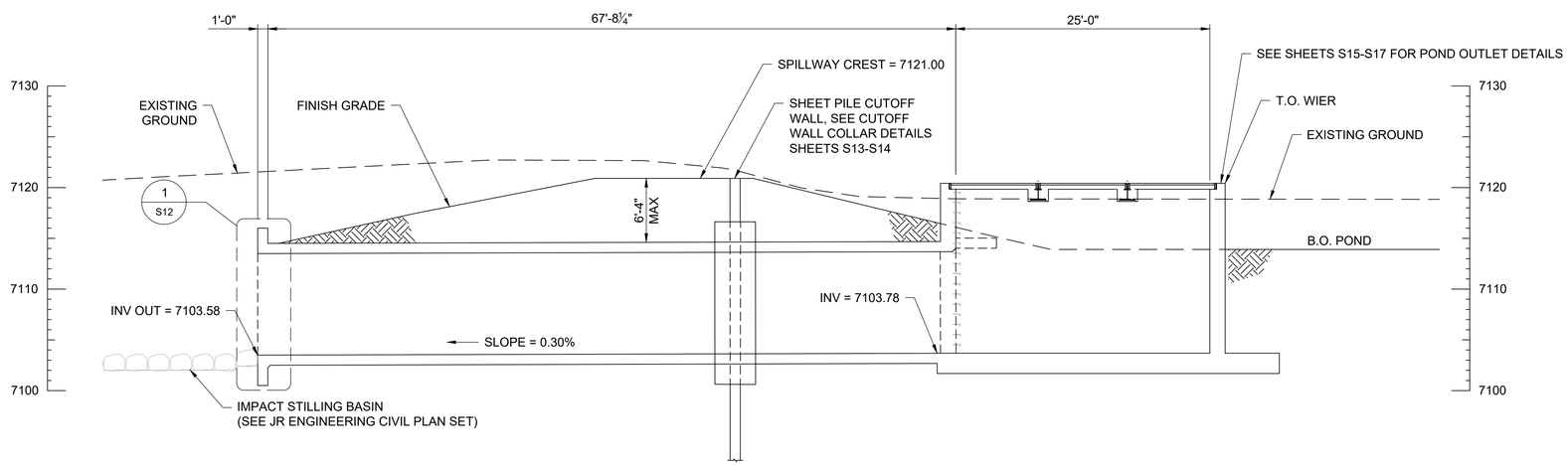


PLAN VIEW 10'x10' RCBC
STOCK POND #2 OUTLET STRUCTURE



10'x10' TYPICAL SECTION
STOCK POND #2 OUTLET STRUCTURE



10'x10' RCBC LONGITUDINAL SECTION
STOCK POND #2 OUTLET STRUCTURE

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SAND CREEK RESTORATION
STERLING RANCH

STOCK POND 2 OUTLET
10'x10' RCBC GENERAL LAYOUT

SHEET S11 OF 25

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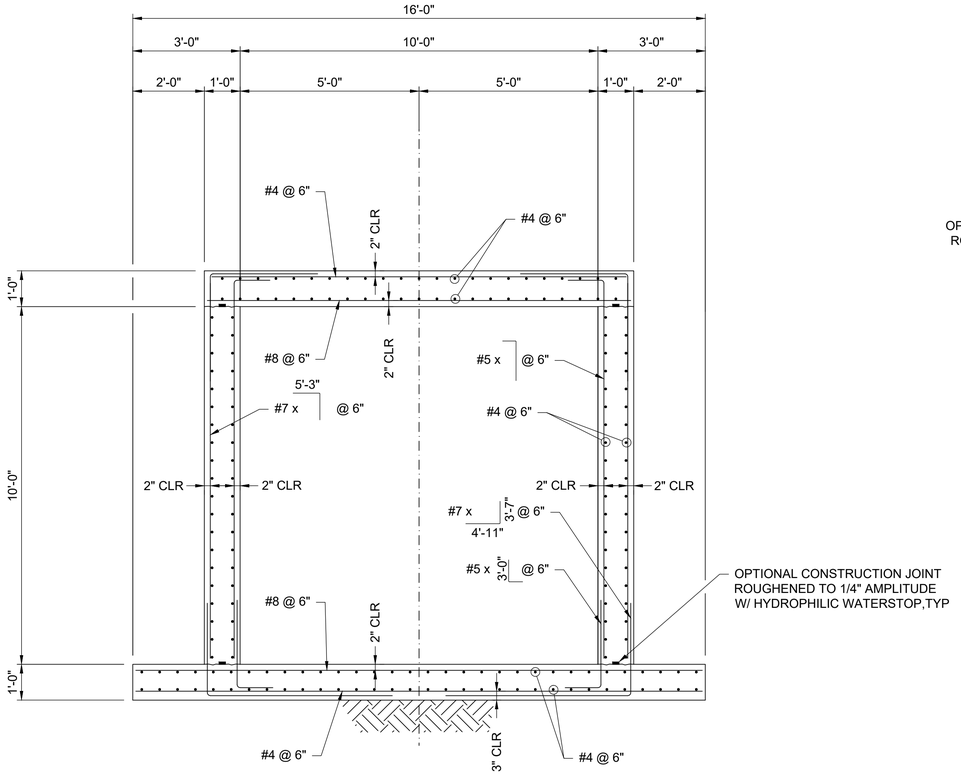
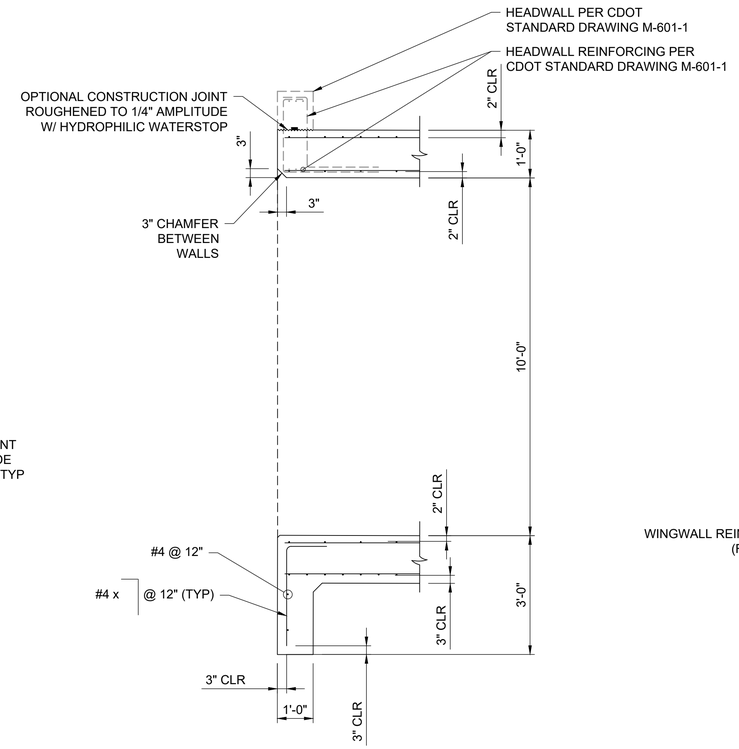


A - 10'x10' REINFORCING SECTION
STOCK POND #2 OUTLET STRUCTURE



1 - INLET/ OUTLET REINFORCING SECTION

2 - CULVERT TO WINGWALL CONNECTION

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SAND CREEK RESTORATION
STERLING RANCH
POND #2 OUTLET
10' x 10' BOX CULVERT
TYPICAL REINFORCING SECTIONS

SHEET S12 OF 25

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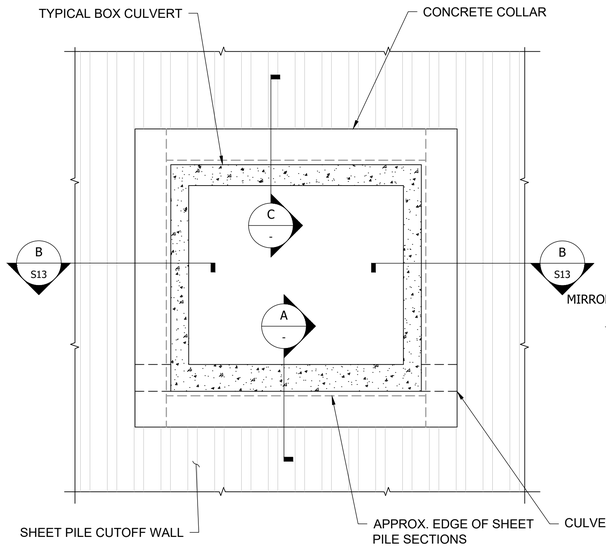
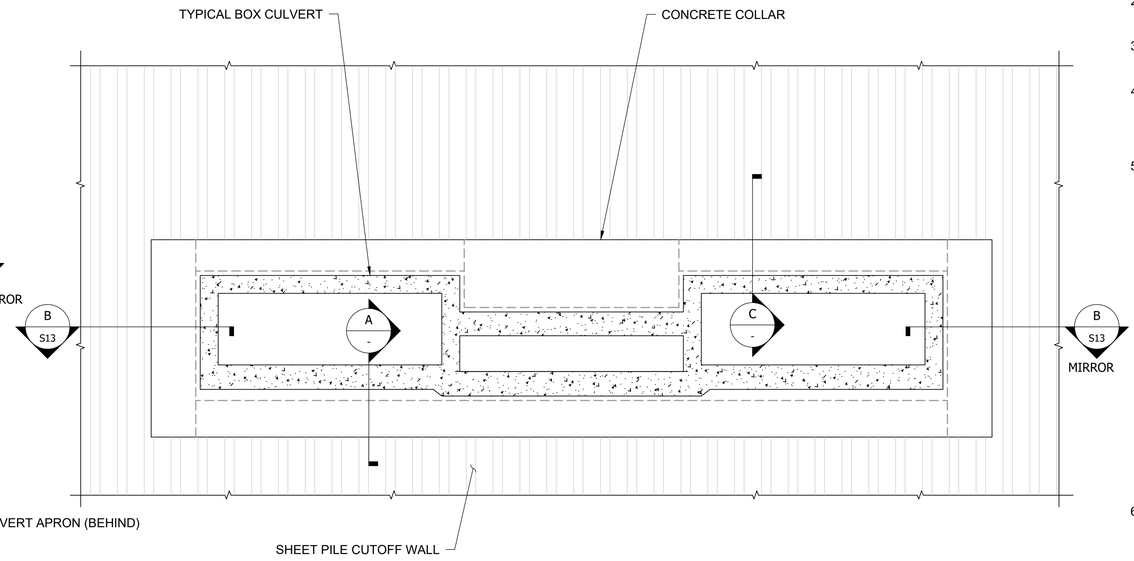


ELEVATION

CUTOFF WALL COLLAR AT STOCK PONDS 1 & 2 CBC

SCALE: N.T.S.

(SIMILAR AT STOCK POND #1)



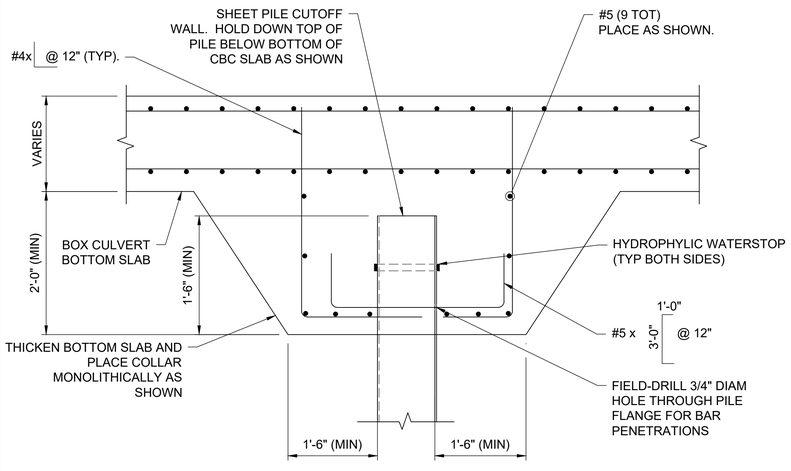
ELEVATION

CUTOFF WALL COLLAR AT POND #3 CBC

SCALE: N.T.S.

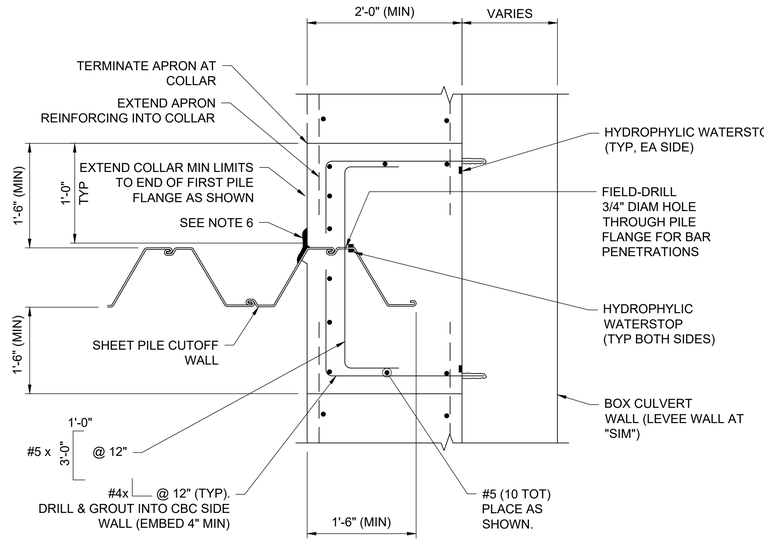
SHEET PILE CUTOFF WALL COLLAR NOTES

1. REFER TO CIVIL PLAN SET BY JR ENGINEERING FOR ALL SHEET PILE CUTOFF WALL HORIZONTAL LAYOUTS, DEPTHS, MATERIALS AND OTHER REQUIREMENTS FOR THE CUTOFF WALLS. FOLLOW THESE DETAILS AT INTERFACES OF CUTOFF WALLS AND BOX CULVERTS.
2. WATERSTOPS SHALL BE CONTINUOUS WITHOUT GAPS ALONG ALL CONCRETE AND STEEL SURFACES INDICATED IN THE COLLAR.
3. STANDARD HOOKS SHALL BE PROVIDED AT CORNERS OF ALL COLLAR PERIMETER REINFORCING BARS.
4. MEANS AND METHODS, SEQUENCE OF CONSTRUCTION, AND STABILITY OF STRUCTURES DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.
5. CONTRACTOR MAY CONSIDER THE FOLLOWING SUGGESTED SEQUENCE OF INSTALLATION OF CUTOFF WALL COLLARS:
   - 5.A. DRIVE SHEET PILING BELOW CBC BOTTOM SLAB. CUT OFF PILES 3"+/- BELOW BOTTOM OF BOTTOM SLAB.
   - 5.B. PLACE BOTTOM SLAB OF BOX CULVERT, INCLUDING CUTOFF WALL COLLAR AT BOTTOM SLAB.
   - 5.C. DRIVE SHEET PILING BESIDE BOX CULVERT BOTTOM SLAB. SUPPORT IN-PLACE.
   - 5.D. PLACE WALLS AND TOP SLAB OF BOX CULVERT.
   - 5.E. SET SHEET PILING ABOVE TOP SLAB OF BOX CULVERT. SUPPORT IN-PLACE.
   - 5.F. PLACE CONCRETE COLLARS AT SIDE WALLS AND TOP SLAB OF BOX CULVERT.
   - 5.G. BACKFILL CULVERT AND CUTOFF WALL. PLACE LIFTS ON EACH SIDE OF CUTOFF WALL EQUALLY DURING BACKFILL.
6. APPLY 40 MIL MIN THICKNESS AND 6" MIN WIDTH OF "SIKA IGOLFLEX AE" LIQUID APPLIED WATERPROOFING MEMBRANE CONTINUOUSLY AT INTFERFACE OF SHEET PILE WALL TO CONCRETE ENCASEMENT ON WATER RETAINING SIDE OF WALL.



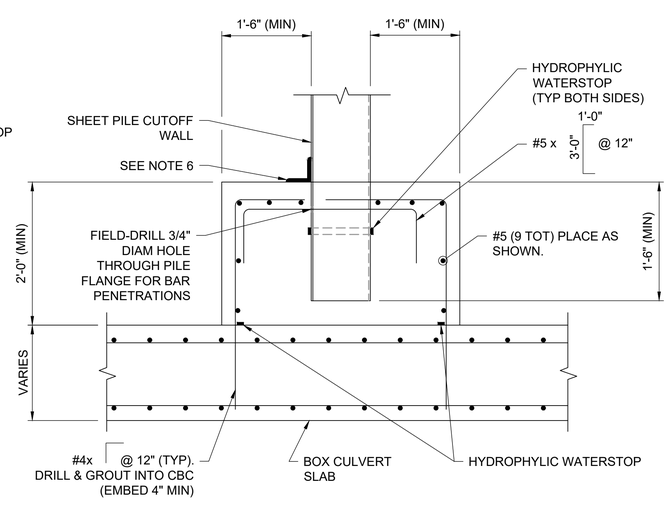
A - CUTOFF WALL COLLAR AT CBC BOTTOM SLAB

SCALE: 3/4" = 1'-0"



B - CUTOFF WALL COLLAR AT CBC WALL

SCALE: 3/4" = 1'-0"



C - CUTOFF WALL COLLAR AT CBC TOP SLAB

SCALE: 3/4" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH

BOX CULVERT STRUCTURES
COLLAR DETAILS

SHEET S13 OF 25

JOB NO. 25188.04

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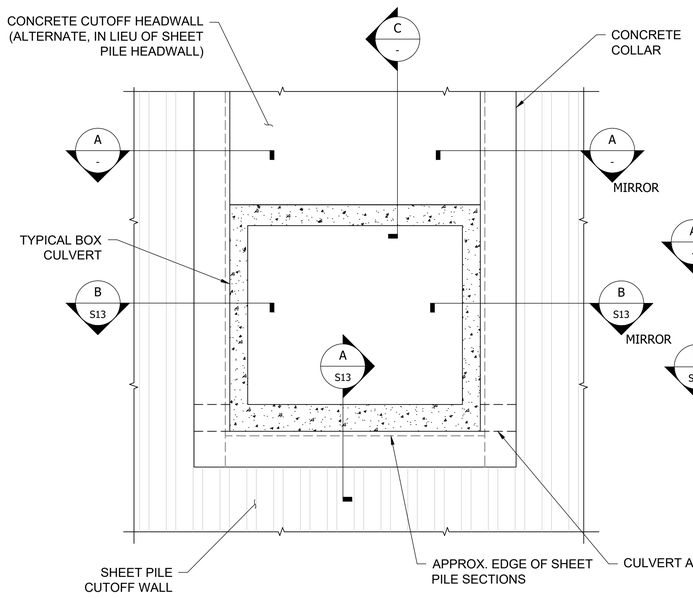
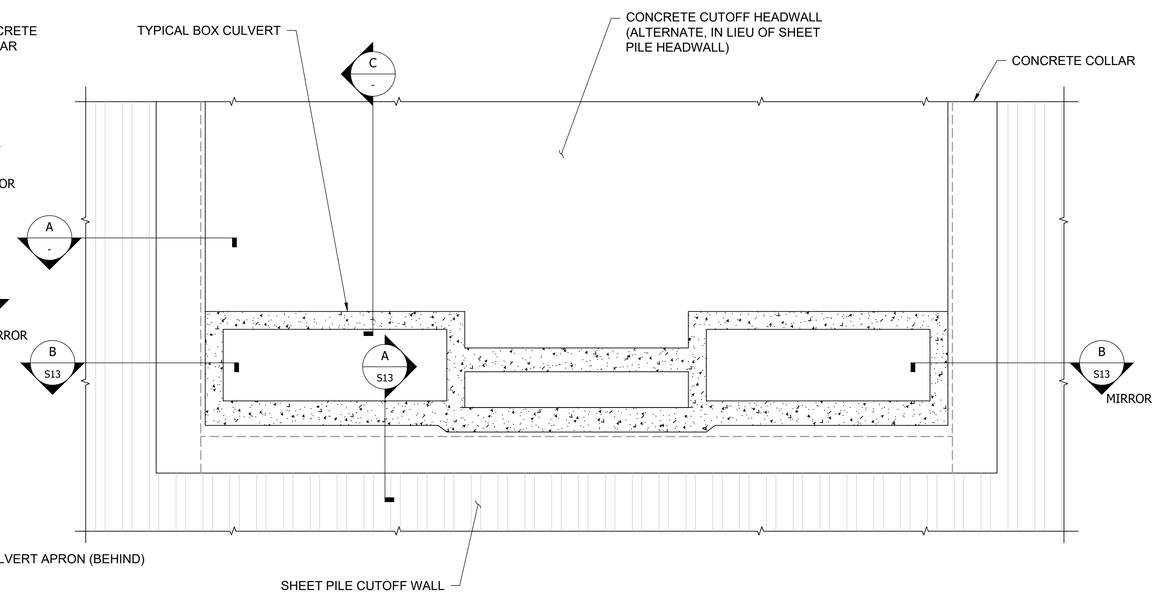


ELEVATION

CUTOFF WALL COLLAR AT STOCK PONDS 1 & 2 CBC

SCALE: N.T.S.

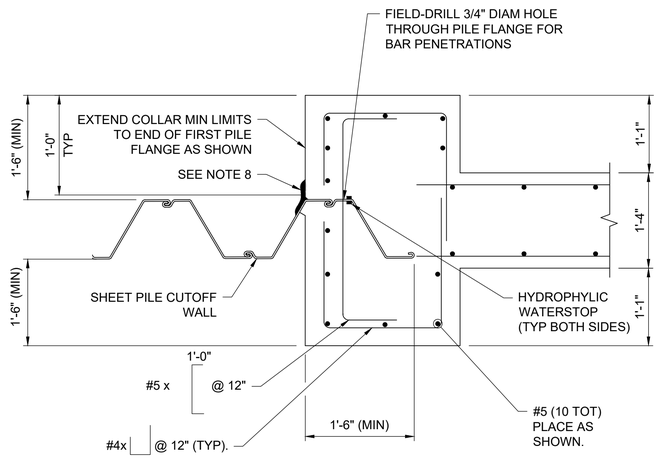
(SIMILAR AT STOCK POND #1)



ELEVATION

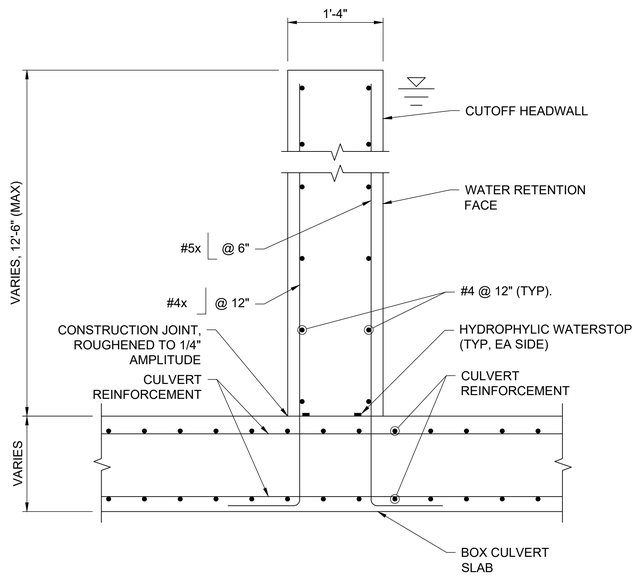
CUTOFF WALL COLLAR AT POND #3 CBC

SCALE: N.T.S.



A / - CUTOFF WALL COLLAR AT HEADWALL

SCALE: 3/4" = 1'-0"



C / - CUTOFF HEADWALL AT CBC TOP SLAB

SCALE: 3/4" = 1'-0"

SHEET PILE CUTOFF WALL ALTERNATE COLLAR NOTES

1. DETAILS SHOWN ARE AN ALTERNATE CONFIGURATION TO THOSE SHOWN ON S-13. CONTRACTOR SHALL SELECT APPROPRIATE CONFIGURATION BASED ON CONSTRUCTABILITY PREFERENCES.
2. REFER TO CIVIL PLAN SET BY JR ENGINEERING FOR ALL SHEET PILE CUTOFF WALL HORIZONTAL LAYOUTS, DEPTHS, MATERIALS AND OTHER REQUIREMENTS FOR THE CUTOFF WALLS. FOLLOW THESE DETAILS AT INTERFACES OF CUTOFF WALLS AND BOX CULVERTS.
3. WATERSTOPS SHALL BE CONTINUOUS WITHOUT GAPS ALONG ALL CONCRETE AND STEEL SURFACES INDICATED IN THE COLLAR.
4. STANDARD HOOKS SHALL BE PROVIDED AT CORNERS OF ALL COLLAR PERIMETER REINFORCING BARS.
5. MEANS AND METHODS, SEQUENCE OF CONSTRUCTION, AND STABILITY OF STRUCTURES DURING CONSTRUCTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR DURING ALL PHASES OF CONSTRUCTION.
6. CONTRACTOR MAY CONSIDER THE FOLLOWING SUGGESTED SEQUENCE OF INSTALLATION OF CUTOFF WALL COLLARS:
   - 6.A. DRIVE SHEET PILING BELOW CBC BOTTOM SLAB. CUT OFF PILES 3"+/- BELOW BOTTOM OF BOTTOM SLAB.
   - 6.B. PLACE BOTTOM SLAB OF BOX CULVERT, INCLUDING CUTOFF WALL COLLAR AT BOTTOM SLAB.
   - 6.C. DRIVE SHEET PILING BESIDE BOX CULVERT BOTTOM SLAB. SUPPORT IN-PLACE.
   - 6.D. PLACE WALLS AND TOP SLAB OF BOX CULVERT.
   - 6.E. PLACE CONCRETE COLLARS AT SIDE WALLS OF BOX CULVERT AND HEADWALL WITH END COLLARS. SUPPORT IN-PLACE.
   - 6.F. BACKFILL CULVERT AND CUTOFF WALL.
7. BACKFILL EACH SIDE OF THE WALL IN EQUAL LIFTS AND NO GREATER THAN 2'-0" DIFFERENCE.
8. APPLY 40 MIL MIN THICKNESS AND 6" MIN WIDTH OF "SIKA IGOLFLEX AE" LIQUID APPLIED WATERPROOFING MEMBRANE CONTINUOUSLY AT INTFERFACE OF SHEET PILE WALL TO CONCRETE ENCASEMENT ON WATER RETAINING SIDE OF WALL.

Know what's below.
Call before you dig.

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

07/25/2023

JOHN MIGLIACCIO, P.E. DATE
COLORADO NO. 34333
FOR AND ON BEHALF OF SAN ENGINEERING, LLC.

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PREPARED FOR
SR LAND, LLC
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303.953.9014 www.sanengineeringllc.com

No.	REVISION	BY	DATE
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H-SCALE: AS NOTED
V-SCALE: AS NOTED
DATE: 7/26/2023
DESIGNED BY: KSP
DRAWN BY: JJM
CHECKED BY: JJM

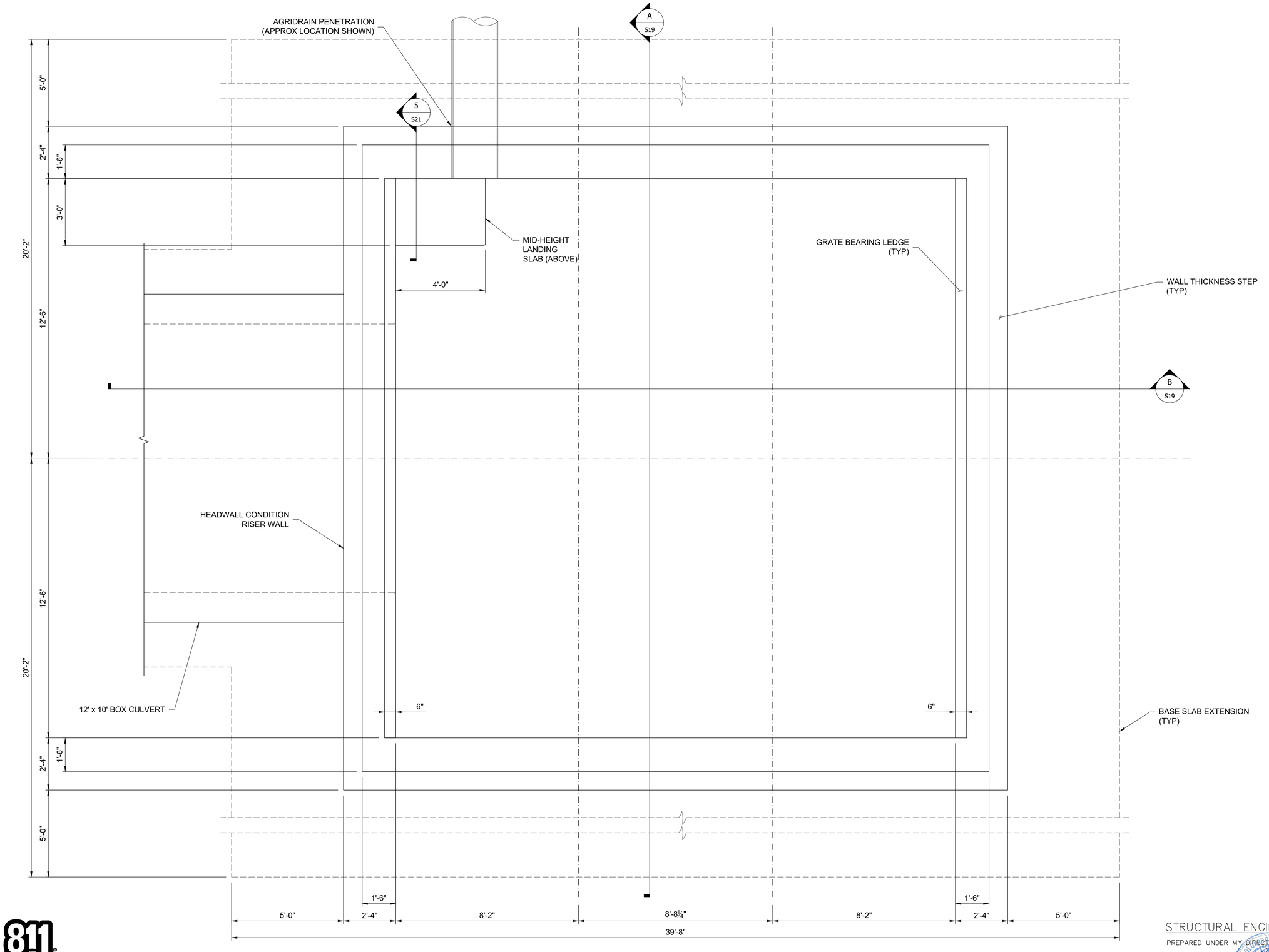
SAND CREEK RESTORATION
STERLING RANCH

BOX CULVERT STRUCTURES
ALTERNATE COLLAR DETAILS

SHEET S14 OF 25

JOB NO. 25188.04

F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural Details



1 - BASE SLAB AND WALL PLAN
STOCK POND #1
SCALE: 1/2" = 1'-0"

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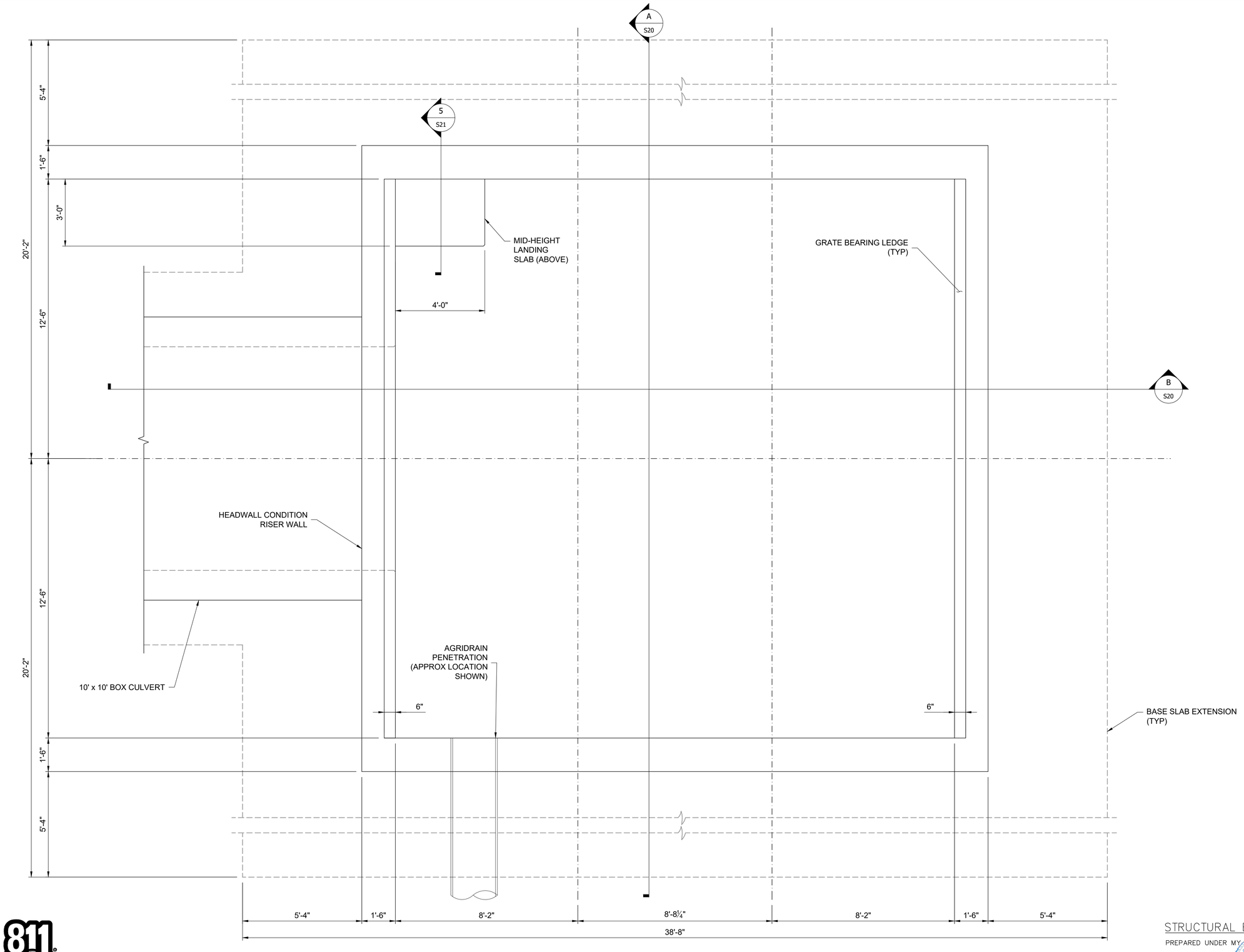
SAND CREEK RESTORATION
STERLING RANCH
STOCK POND #1
OUTLET STRUCTURE
BASE SLAB AND WALL PLAN

SHEET S15 OF 25
JOB NO. 25188.04

F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural Details



1 - BASE SLAB AND WALL PLAN
STOCK POND #2
SCALE: 1/2" = 1'-0"

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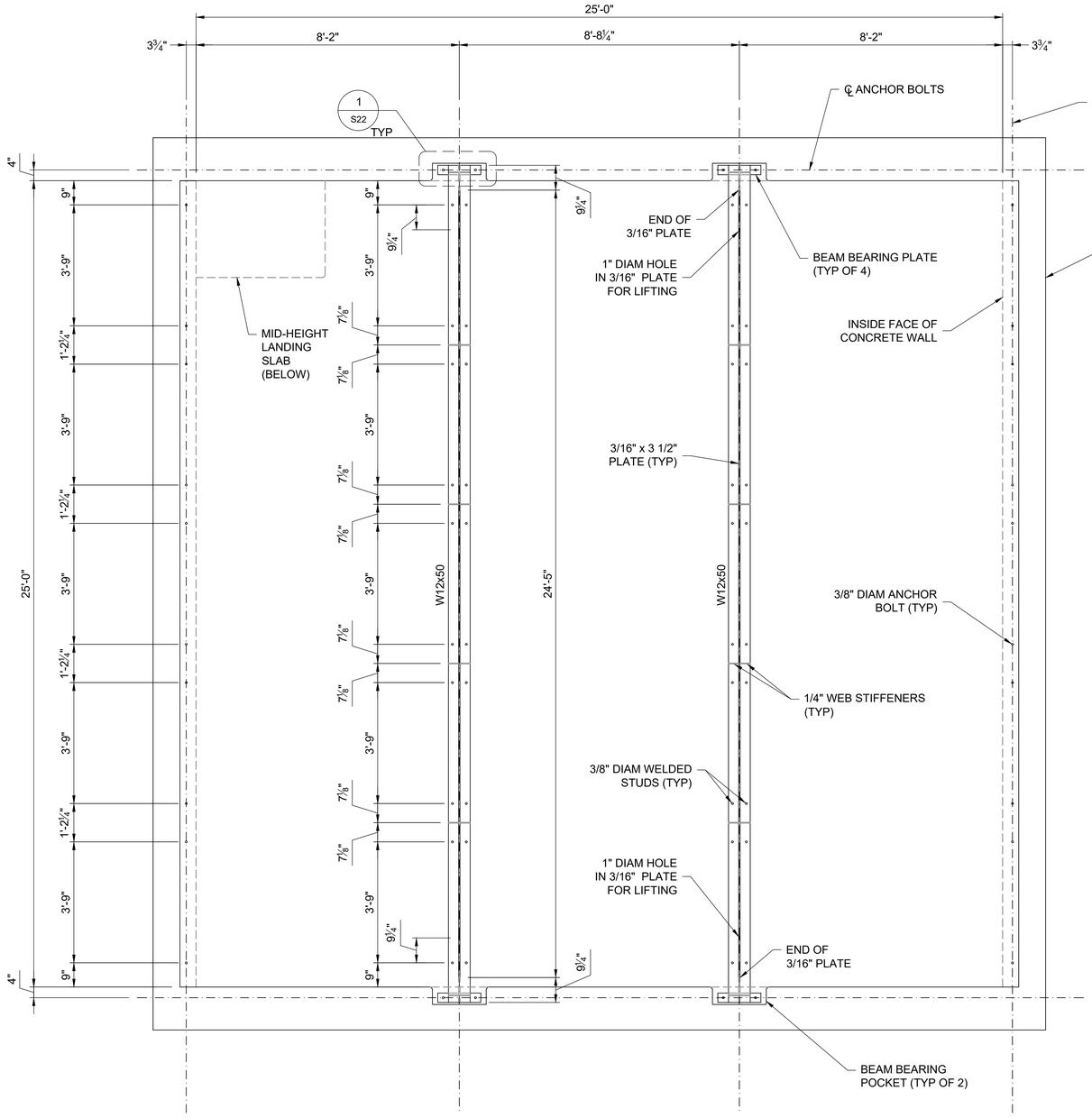
SAND CREEK RESTORATION
STERLING RANCH
STOCK POND #2
OUTLET STRUCTURE
BASE SLAB AND WALL PLAN

SHEET S16 OF 25

JOB NO. 25188.04

F:\Projects\Sand Creek Channel at Sterling Ranch\02 Drawings\Sand Creek Restoration_Structural Details



1 / - FRAMING PLAN
STOCK PONDS #1 AND #2 OUTLET WIERS
SCALE: 1/2" = 1'-0"

STEEL FRAMING AND GRATE NOTES

1. CONTRACTOR SHALL VERIFY ALL CONCRETE DIMENSIONS, LOCATIONS, AND ELEVATIONS PRIOR TO START OF GRATE FABRICATION.
2. SHOP DRAWINGS FOR ALL STRUCTURAL STEEL FRAMING, GRATING, AND ATTACHMENTS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO START OF FABRICATION.
3. GALVANIZE STEEL UNLESS NOTED OTHERWISE. STEEL W SHAPES SHALL CONFORM TO ASTM A992, OR ASTM A-572 GRADE 50. L SHAPES (ANGLES), AND STRUCTURAL PLATES AND BARS, SHALL CONFORM TO ASTM A36.
4. STRUCTURAL TUBING MEMBERS SHALL CONFORM TO ASTM A500, GRADE B, AND PIPE ASTM A53, GRADE B.
5. BOLTS SHALL CONFORM TO ASTM 325, TYPE 1, HEAVY HEX. NUTS SHALL CONFORM TO ASTM A563. WASHERS SHALL CONFORM TO ASTM F436. FINISH SHALL BE HOT DIPPED GALVANIZED.
6. ALL WELDING SHALL BE DONE USING E7013 ELECTRODES AND WELDING SHALL CONFORM TO AISC AND AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 13TH EDITION.
7. STRUCTURAL STEEL BEAMS, COLUMNS, AND CONNECTIONS SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH AISC MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN, NINTH EDITION (INCLUDING AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES).
8. HOLLOW STRUCTURAL STEEL TUBES SHALL BE FABRICATED WITH WEEP HOLES AT LOW ENDS FOR DRAINAGE.
9. POST-INSTALLED ANCHORS SHALL BE HILTI HIT-RE-500-SD ADHESIVE ANCHORS WITH HILTI HAS THREADED RODS AS MANUFACTURED BY HILTI NORTH AMERICA. ANCHORS IN EXTERIOR LOCATIONS SHALL BE STAINLESS STEEL HILTI HAS THREADED RODS. ADHESIVE ANCHORS SHALL BE FURNISHED AS A COMPLETE ASSEMBLY WITH ROD, NUTS, AND WASHER. EMBEDMENT OF ADHESIVE ANCHORS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION FOR MINIMUM EMBEDMENT FOR ROD DIAMETER SHOWN ON DRAWINGS, UNLESS OTHERWISE SPECIFIED. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. OBSERVE MANUFACTURER RECOMMENDATIONS WITH RESPECT TO INSTALLATION TEMPERATURES FOR CARTRIDGE INJECTION ADHESIVE ANCHORS.

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SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2
OUTLET STRUCTURES
FRAMING PLAN

SHEET S17 OF 25

JOB NO. 25188.04

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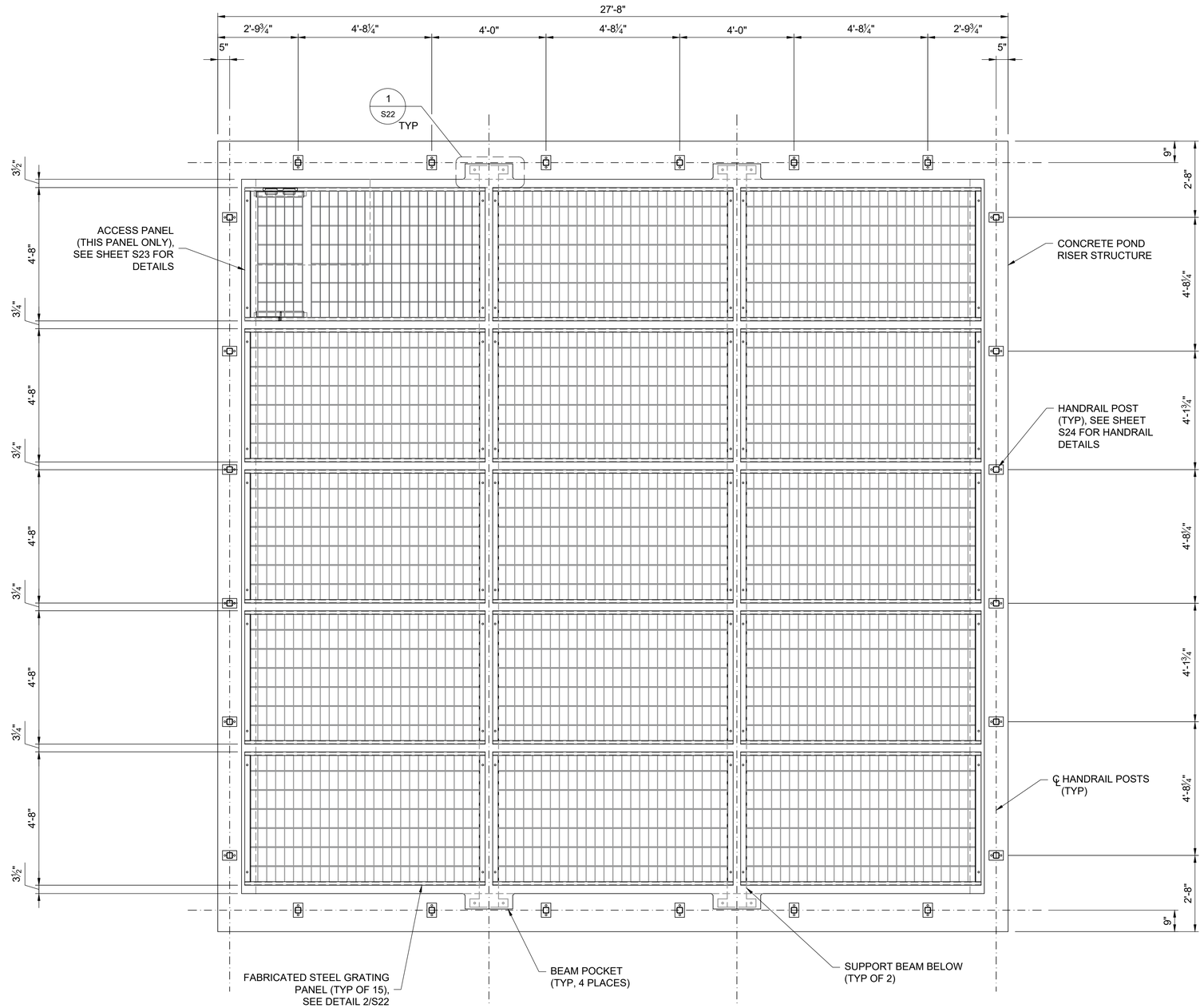

1 / - GRATING AND HANDRAIL PLAN
STOCK PONDS #1 AND #2 OUTLET WIERS
SCALE: 1/2" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2
OUTLET STRUCTURES
GRATING PLAN

SHEET S18 OF 25

JOB NO. 25188.04

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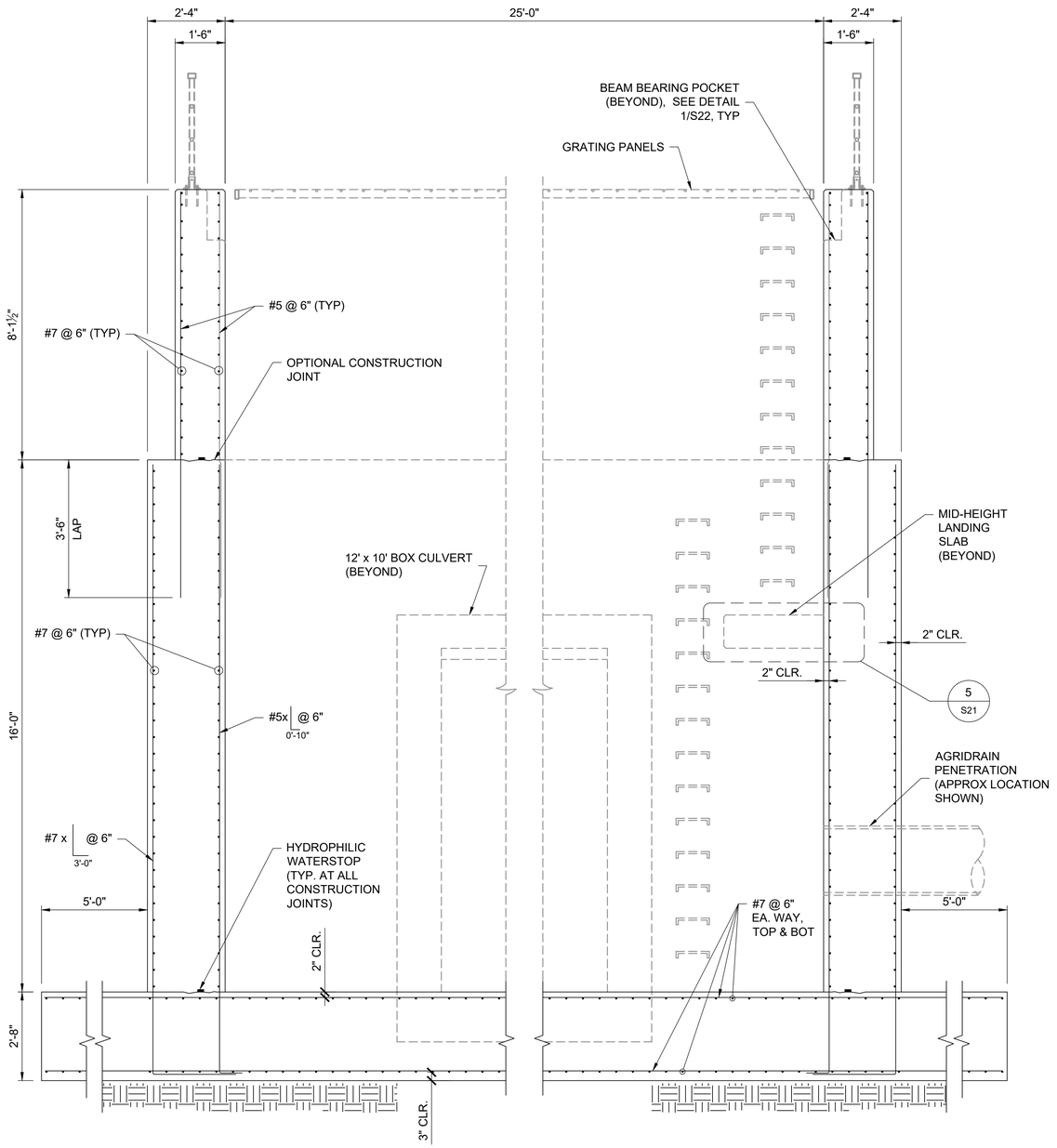
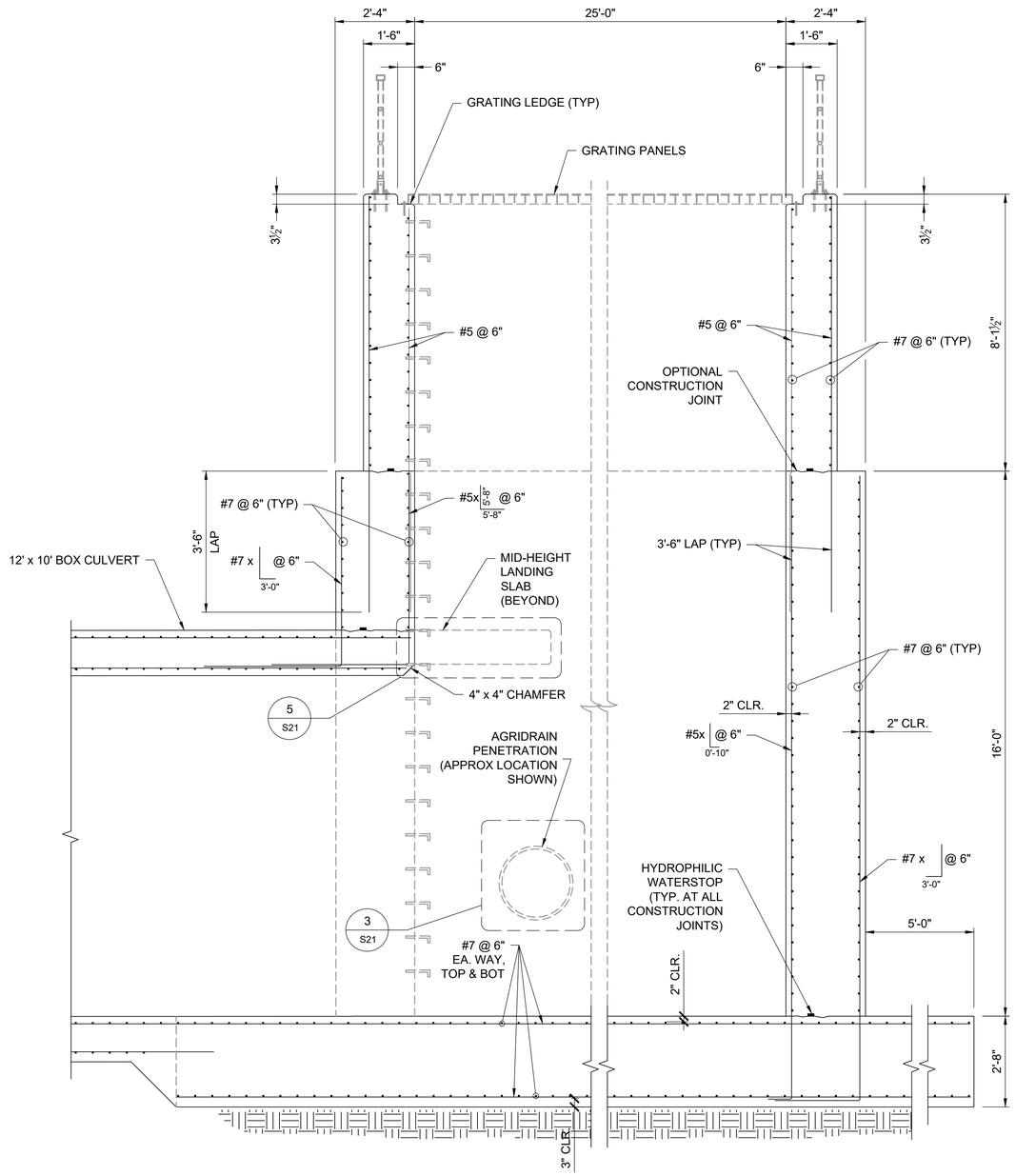


A STRUCTURE REINFORCING SECTION
STOCK POND #1
SCALE: 1/2" = 1'-0"



B STRUCTURE REINFORCING SECTION
STOCK POND #1
SCALE: 1/2" = 1'-0"

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SAND CREEK RESTORATION
STERLING RANCH

STOCK POND #1
OUTLET STRUCTURE
REINFORCING SECTIONS

SHEET S19 OF 25

JOB NO. 25188.04

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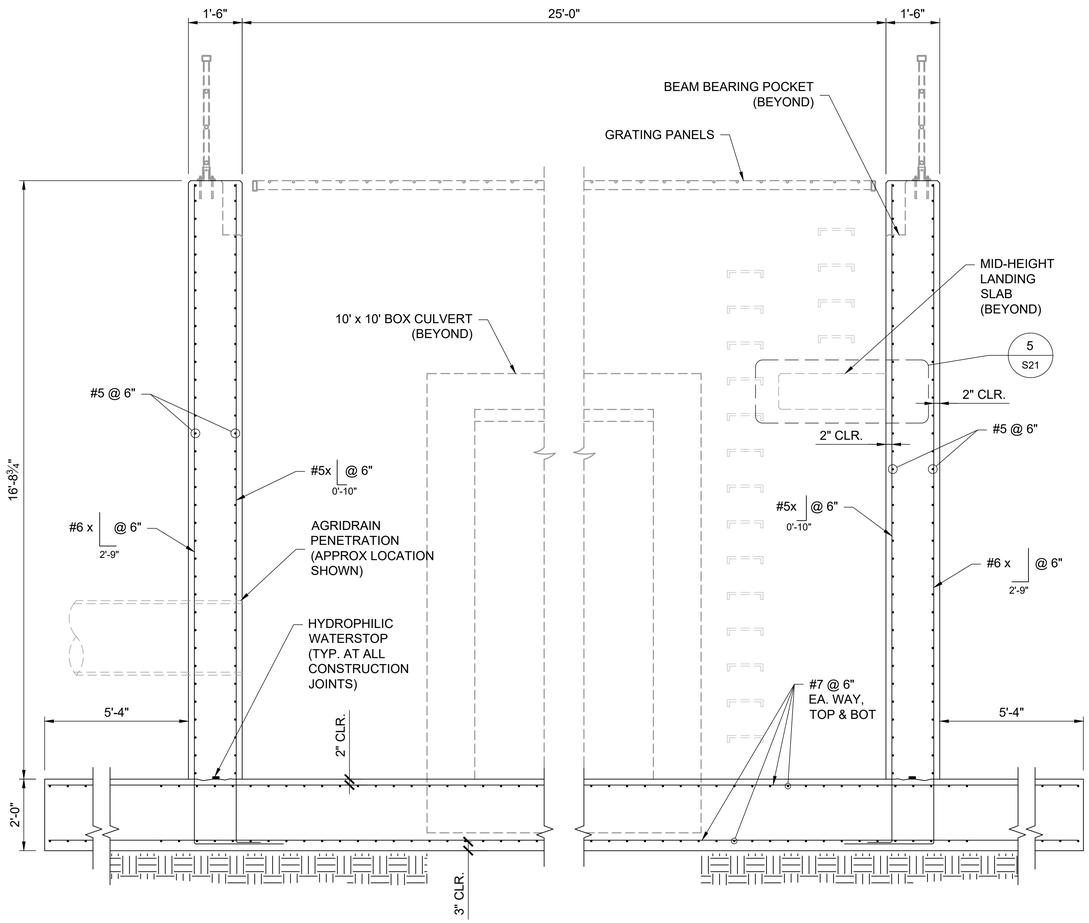
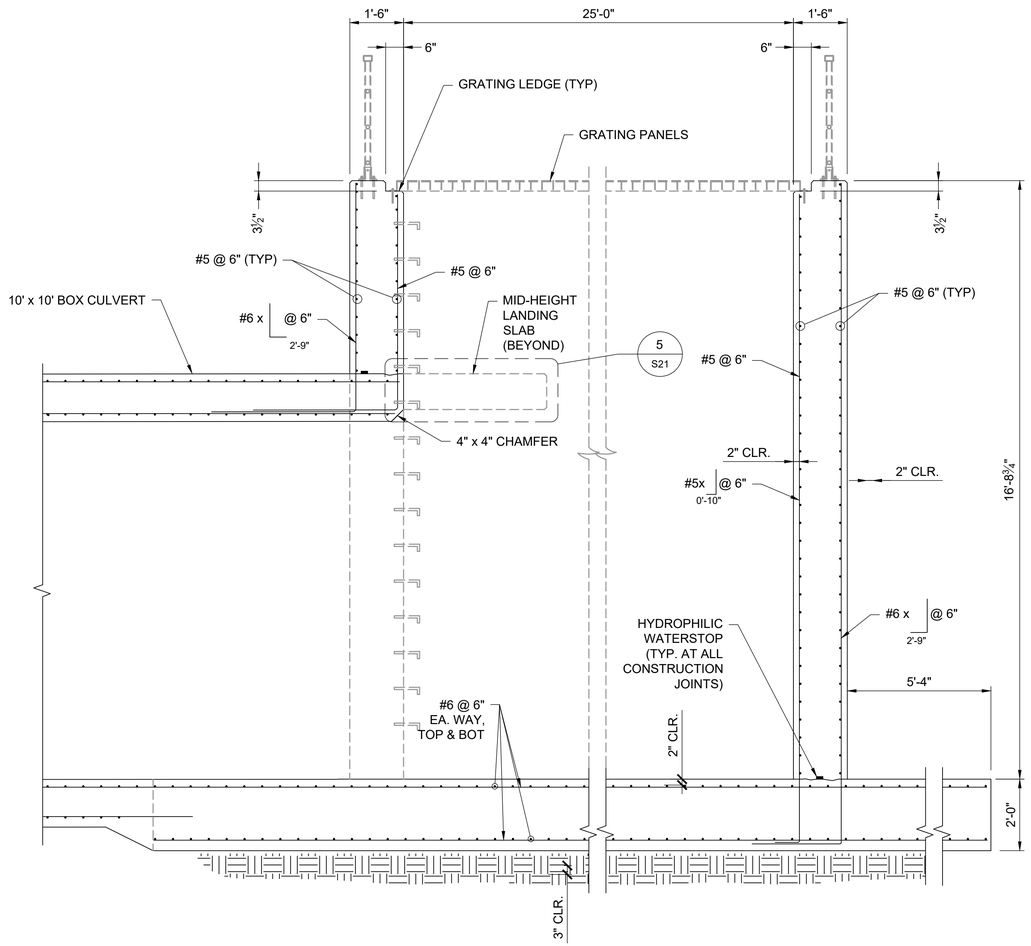


A
-
STRUCTURE REINFORCING SECTION
STOCK POND #2
SCALE: 1/2" = 1'-0"



B
-
STRUCTURE REINFORCING SECTION
STOCK POND #2
SCALE: 1/2" = 1'-0"

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DATE	7/26/2023				

SAND CREEK RESTORATION
STERLING RANCH

STOCK POND #2
OUTLET STRUCTURE
REINFORCING SECTIONS

SHEET S20 OF 25

JOB NO. 25188.04

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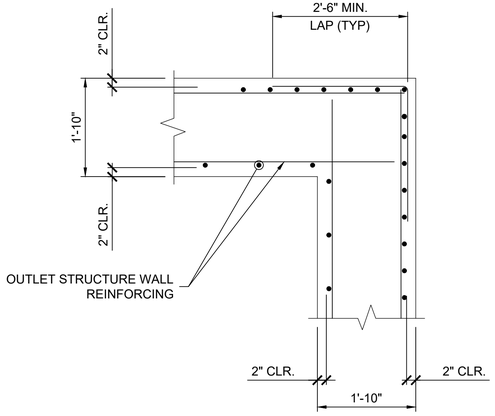
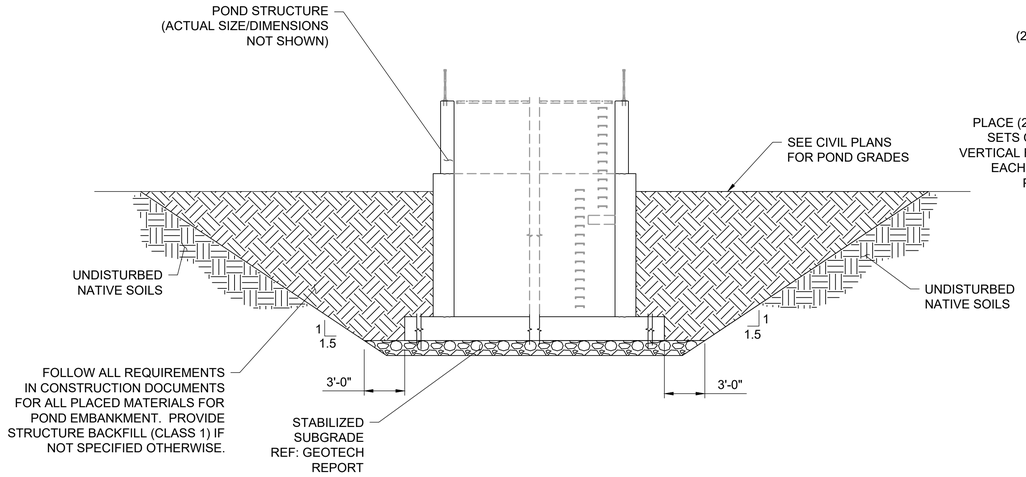
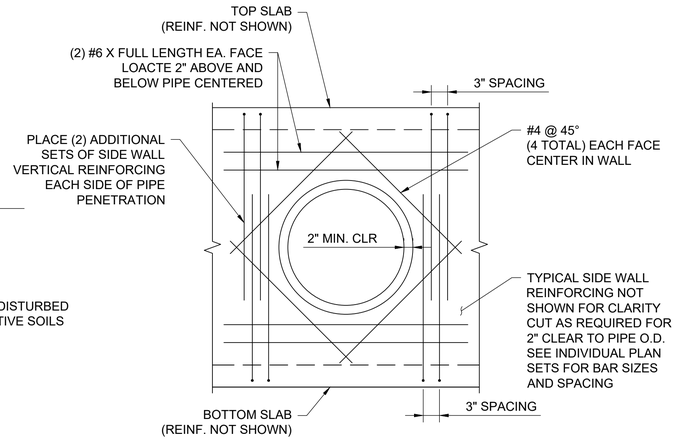


1 - TYPICAL CORNER DETAIL
SCALE: 1/2" = 1'-0"

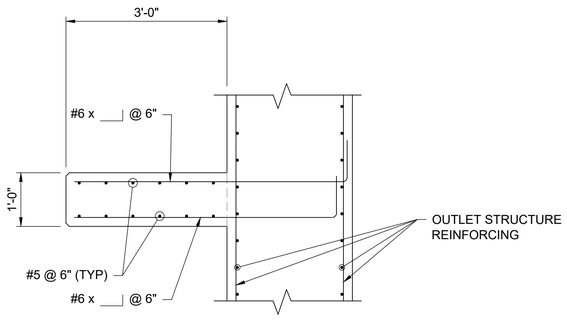


2 - EXCAVATION AND BACKFILL REQUIREMENTS
SCALE: 1/2" = 1'-0"

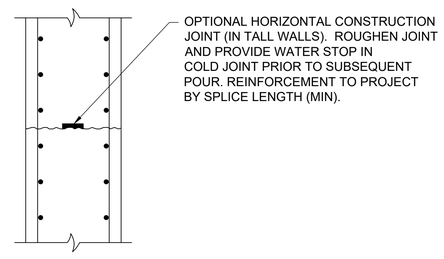


3 - PIPE PENETRATION DETAIL
SCALE: 1/2" = 1'-0"

4 - NOT USED
SCALE: N/A



5 - MID-HEIGHT LANDING SECTION
SCALE: 1/2" = 1'-0"



6 - HORIZONTAL WALL CONSTRUCTION JOINT

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SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2
OUTLET STRUCTURES
MISCELLANEOUS DETAILS

SHEET S21 OF 25

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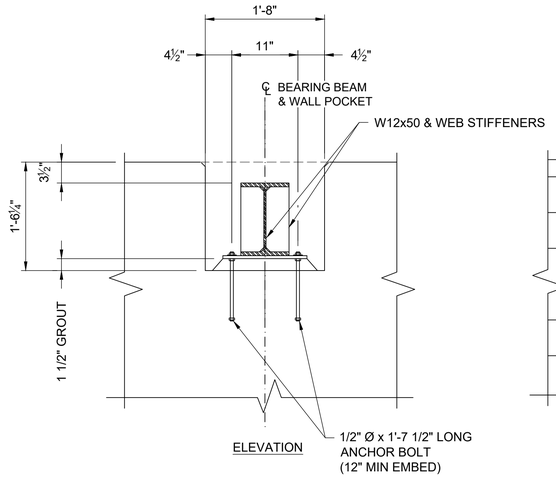
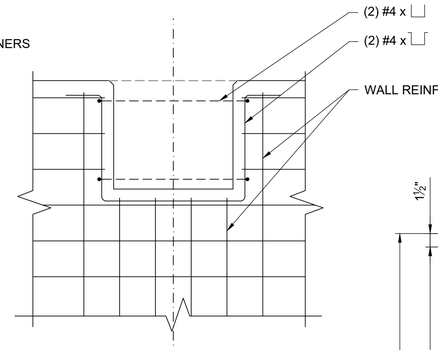
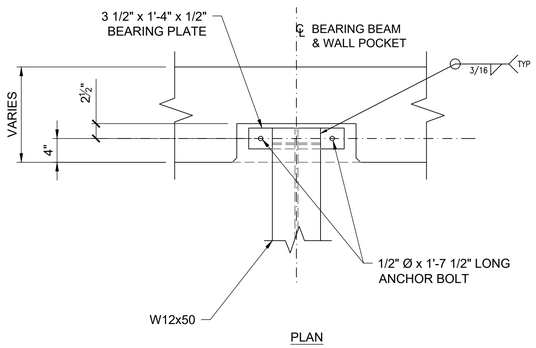


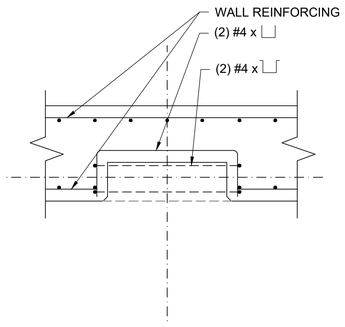
ELEVATION



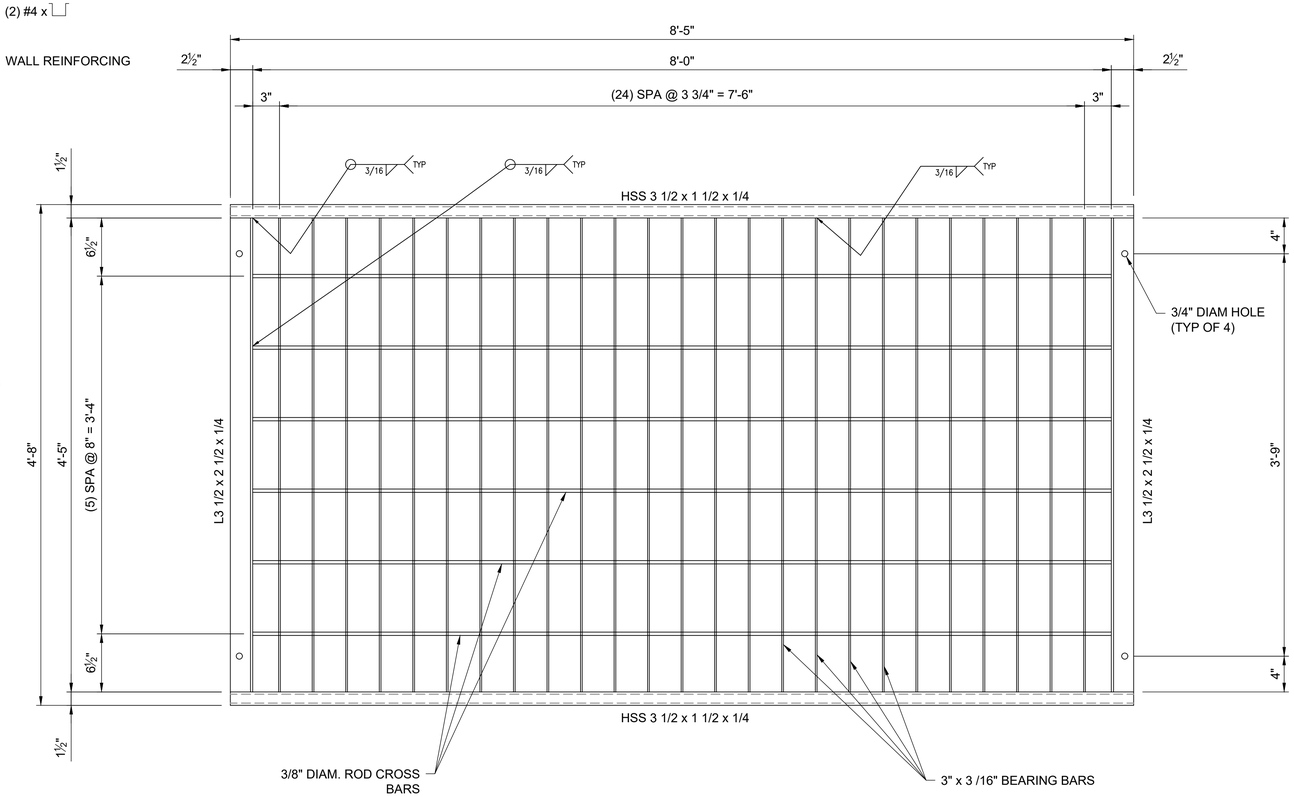
REINFORICNG ELEVATION



PLAN

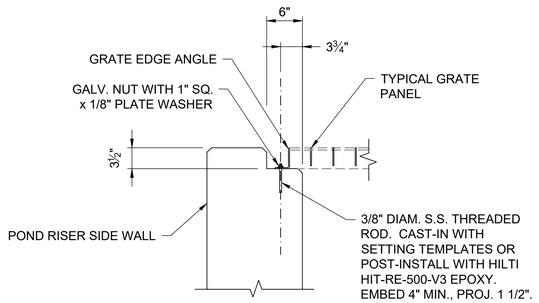


REINFORCING PLAN

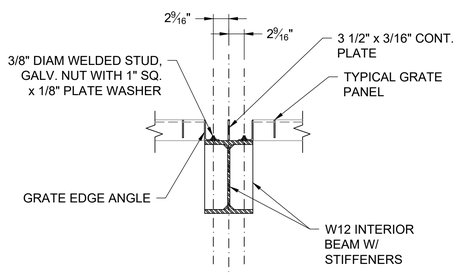


1 BEAM POCKET AND BEARING
SCALE: 1" = 1'-0"

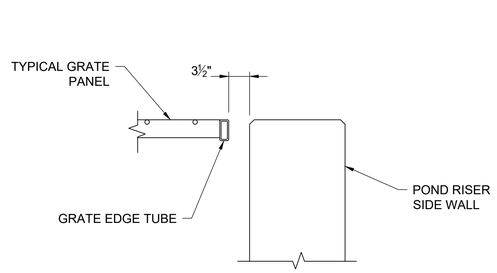
2 TYPICAL GRATE CONSTRUCTION
SCALE: 1 1/2" = 1'-0"



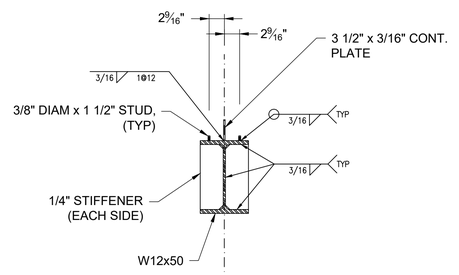
A GRATE BEARING AT WALL
SCALE: 1" = 1'-0"



B GRATE BEARING AT BEAM
SCALE: 1" = 1'-0"



C GRATE EDGE AT WALL
SCALE: 1" = 1'-0"



D BEAM CONSTRUCTION
SCALE: 1" = 1'-0"

Know what's below.
Call before you dig.

STRUCTURAL ENGINEER'S STATEMENT

PREPARED UNDER MY DIRECT SUPERVISION

JOHN MIGLIACCIO, P.E. DATE
COLORADO NO. 34333
FOR AND ON BEHALF OF SAN ENGINEERING, LLC.

UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, SAN ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES DESIGNATED BY WRITTEN AUTHORIZATION.

PREPARED FOR
SR LAND, LLC
20 BOULDER CRESCENT ST.
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JAMES F. MORLEY
(719) 419-3024

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Civil and Structural Engineering
1150 W. Littleton Blvd. #200
Littleton, CO 80120
303.953.9014 www.sanengineeringllc.com

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DATE	7/26/2023
DESIGNED BY	KSP
DRAWN BY	JJM
CHECKED BY	JJM

SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2 OUTLETS
STRUCTURE GRATING &
MISCELLANEOUS STEEL DETAILS

SHEET S22 OF 25

JOB NO. 25188.04

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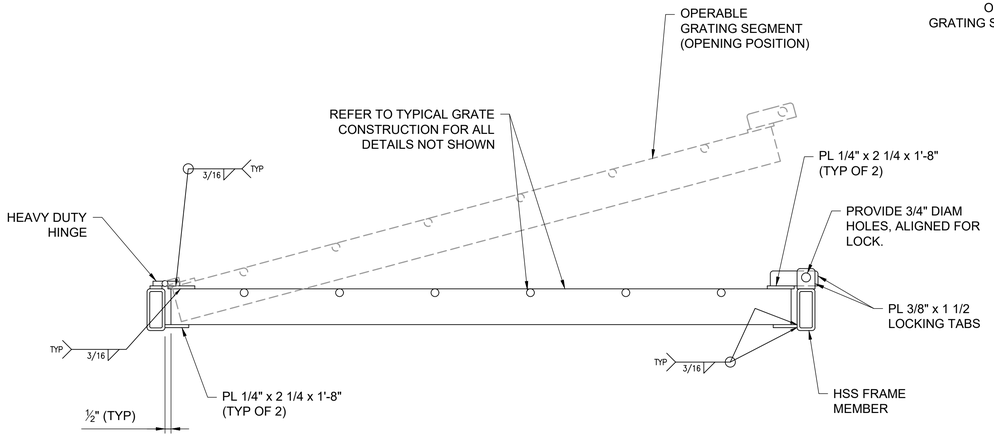
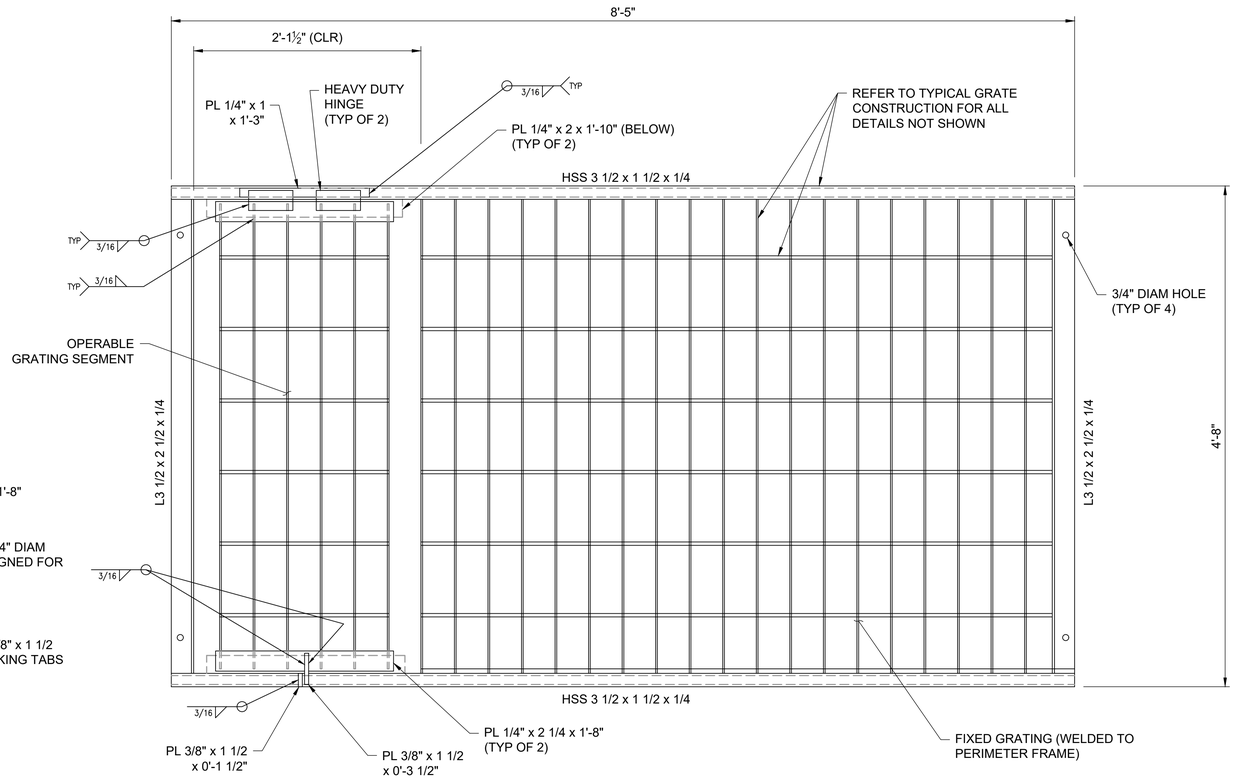


OPERABLE GRATE SEGMENT SECTION

SCALE: 2" = 1'-0"



ACCESSIBLE GRATE CONSTRUCTION

SCALE: 1 1/2" = 1'-0"

GRATING NOTES:

1. ALL TUBES (HSS) SHALL BE ASTM A-500 GRADE B.
2. ALL BASE PLATES SHALL BE ASTM A-572 GRADE 50.
3. ALL WIDE FLANGE MEMBERS SHALL BE ASTM A-992 GRADE 50.
4. ALL OTHER STEEL SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED.
5. THE ABOVE MATERIAL AND ALL MISCELLANEOUS BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
6. CAST-IN ANCHOR BOLTS AND THREADED RODS SHALL BE STAINLESS STEEL.
7. POST-INSTALLED ANCHORS, SHALL BE AN APPROVED PRODUCT, INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. POST-INSTALLED ANCHORS SHALL BE STAINLESS STEEL
8. ALL WELDS SHALL BE E70xx.
9. PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

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SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2 OUTLETS
ACCESSIBLE GRATING
PANEL DETAILS

SHEET S23 OF 25

JOB NO. 25188.04

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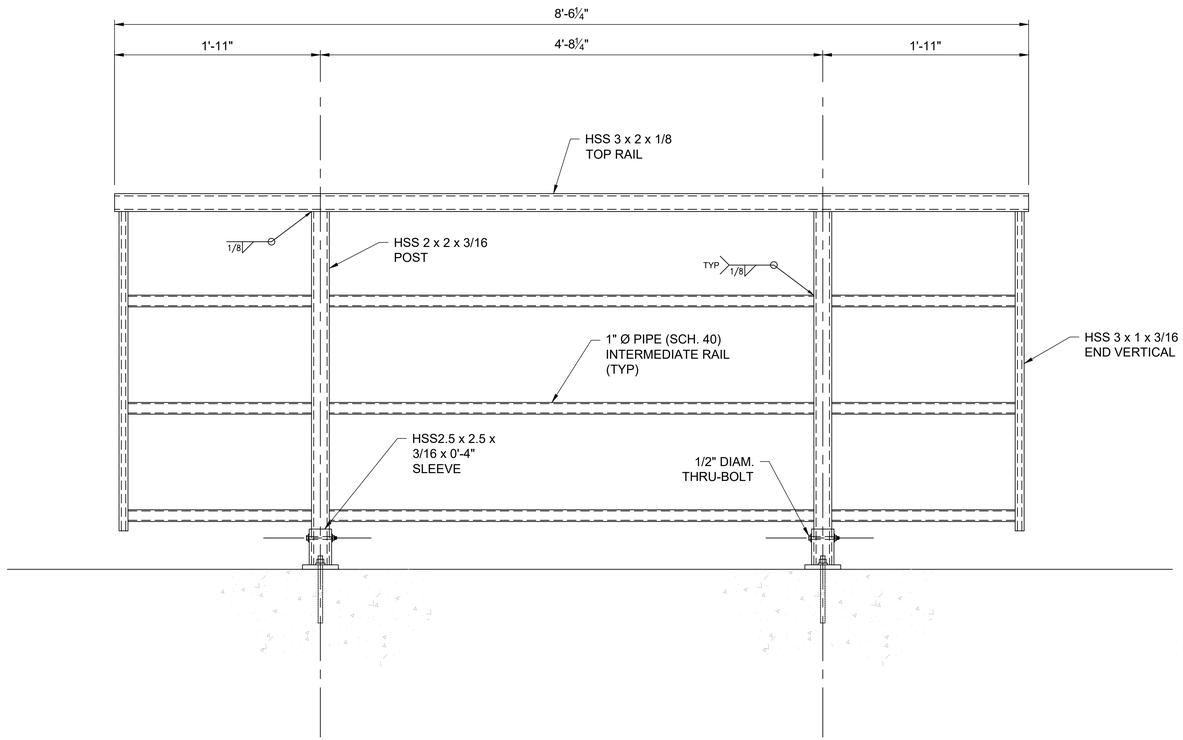
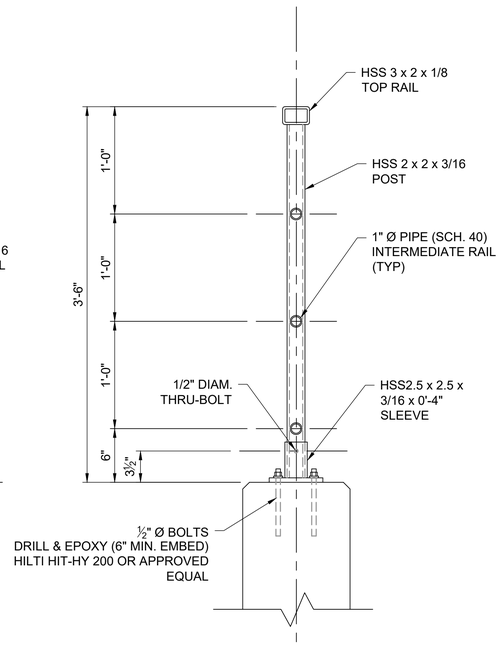
HANDRAIL NOTES

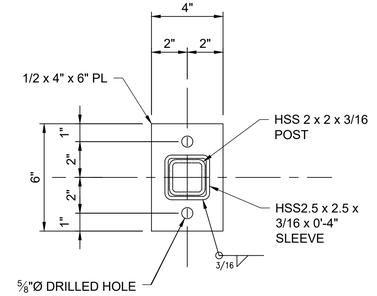
1. ALL TUBES (HSS) SHALL BE ASTM A-500 GRADE B.
2. ALL BASE PLATES SHALL BE ASTM A-572 GRADE 50.
3. ALL OTHER STEEL SHALL BE ASTM A-36 UNLESS OTHERWISE NOTED.
4. THE ABOVE MATERIAL AND ALL MISCELLANEOUS BOLTS, NUTS, AND WASHERS SHALL BE HOT-DIPPED GALVANIZED AND DUPLEX-COATED BLACK WITH AN EXTERIOR COATING SYSTEM COMPATIBLE WITH GALVANIZED MATERIAL. A SAMPLE SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL PRIOR TO FABRICATION.
5. CAST-IN ANCHOR BOLTS, IF UTILIZED, SHALL BE HOT-DIPPED GALVANIZED.
6. POST-INSTALLED ANCHORS, SHALL BE AN APPROVED PRODUCT, INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. POST-INSTALLED ANCHORS SHALL BE STAINLESS STEEL
7. TUBES AND OTHER HORIZONTAL MEMBERS SHALL BE SHOP BENT OR FABRICATED TO FIT HORIZONTAL CURVES.
8. VERTICAL SLOPES AND GRADES OF WINGWALLS AND GROUND NOT SHOWN FOR SIMPLICITY. POSTS SHALL BE VERTICALLY PLUMB.
9. HANDRAILS INSTALLED IN SEGMENTS SHALL BE PROVIDED WITH SPLICE JOINTS GROUND SMOOTH, OR ARRANGED SUCH THAT THE GAPS BETWEEN HANDRAIL SEGMENTS ARE A MAXIMUM OF 3 INCHES. JOINT AND GAP DETAILS SHALL BE CLEARLY SHOWN ON SHOP DRAWINGS
10. ALL WELDS SHALL BE GROUND SMOOTH.
11. PRIOR TO FABRICATION, SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



HANDRAIL ELEVATION - TYPICAL SEGMENT



HANDRAIL SECTION



BASE PLATE DETAIL

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SAND CREEK RESTORATION
STERLING RANCH

STOCK PONDS #1 & #2
OUTLET STRUCTURES
HAND RAIL DETAILS

SHEET S24 OF 25

JOB NO. 25188.04

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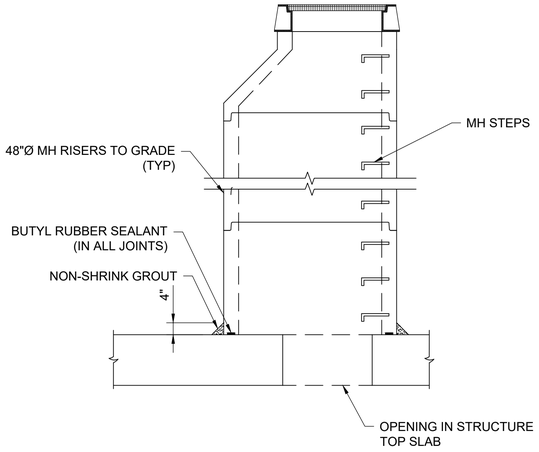
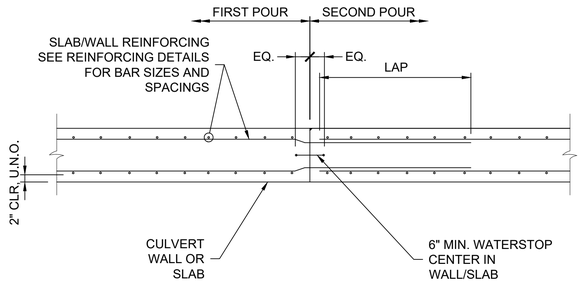
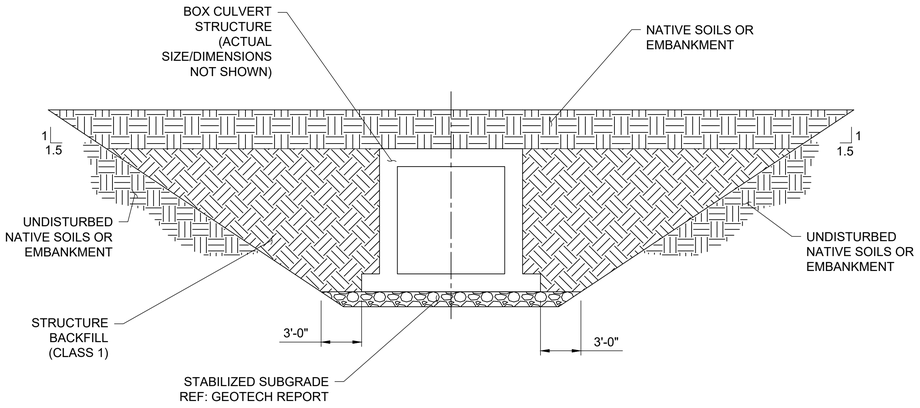


TYPICAL MH RISER DETAILS



TYPICAL BOX CULVERT CONSTRUCTION JOINT



BOX CULVERT BACKFILL REQUIREMENTS

SUBGRADE REQUIREMENTS

1. EXPOSED SUBGRADE FOR ALL FOOTINGS AND BOTTOM SLABS SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER UPON EXCAVATION.
2. FOOTINGS AND BOTTOM SLABS SHALL BE UNDERLAIN BY FIRM, UNDISTURBED NATURAL SOILS, OR STRUCTURAL FILL EXTENDING TO UNDISTURBED NATURAL SOILS. STRUCTURAL FILL SHOULD MEET THE REQUIREMENTS IN THE GEOTECHNICAL REPORT AND SHOULD EXTEND DOWN FROM THE EDGES OF FOOTINGS AT A 1 TO 1 VERTICAL PROJECTION. EXISTING FILL, SOFT OR LOOSE SOILS, OR OTHER DELETERIOUS MATERIALS ENCOUNTERED AT THE BASE OF THE EXCAVATION SHOULD BE REMOVED AND REPLACED WITH STRUCTURAL FILL.
3. UNDISTURBED SUBGRADE, ONLY IF DEEMED ACCEPTABLE BY GEOTECHNICAL ENGINEER MAY BE UTILIZED FOR PLACEMENT OF SLABS AND FOOTINGS.
4. REFER ALSO TO GEOTECHNICAL REPORT NO. DN49,705-125-R1 BY CTL / THOMPSON, DATED JANUARY 31, 2018, AND ANY ADDENDA THERETO, WHICH SHALL BE CONSIDERED A PART OF THE CONSTRUCTION DOCUMENTS, FOR ADDITIONAL EARTHWORK REQUIREMENTS.
5. CONTRACTOR IS ADVISED THAT DEWATERING MAY BE REQUIRED.

CONCRETE JOINT AND WATERSTOP NOTES

1. CONSTRUCTION JOINTS SHOWN ARE TYPICAL OF ALL LOCATIONS UNLESS NOTED OTHERWISE. WATERSTOPS AT PRECAST CONSTRUCTION INTERFACES ARE DETAILED SEPARATELY IN THESE PLANS.
2. WATERSTOPS SHALL BE PVC OR RUBBER END-BELL OR FLAT-STRIP TYPE. PRODUCT DATA FOR PROPOSED WATERSTOP SYSTEMS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
3. WATERSTOPS SHALL BE CONTINUOUS AROUND ALL CORNERS.
4. CONSTRUCTION JOINTS ARE RECOMMENDED TO BE LOCATED AT 80'-0" ON-CENTER MAXIMUM. ALL JOINT LOCATIONS SHALL BE APPROVED BY ENGINEER, OWNER AND CONSTRUCTION MANAGER PRIOR TO CONCRETE CONSTRUCTION.
5. ALL LONGITUDINAL AND HORIZONTAL REINFORCING SHALL BE CONTINUOUS THROUGH JOINTS UNLESS NOTED OTHERWISE.
6. ALL CONSTRUCTION JOINTS SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

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BOX CULVERT STRUCTURES
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SHEET S25 OF 25

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