

CONSTRUCTION PLANS

THREE OAKS PARKWAY EXTENSION

LEE COUNTY PROJECT NO. CN160642/ANB

BOARD OF LEE COUNTY COMMISSONERS

District ONE
Kevin Ruane

District TWO
Cecil Pendergrass

District THREE
Ray Sandelli

District FOUR
Brian Hamman

District FIVE
Frank Mann

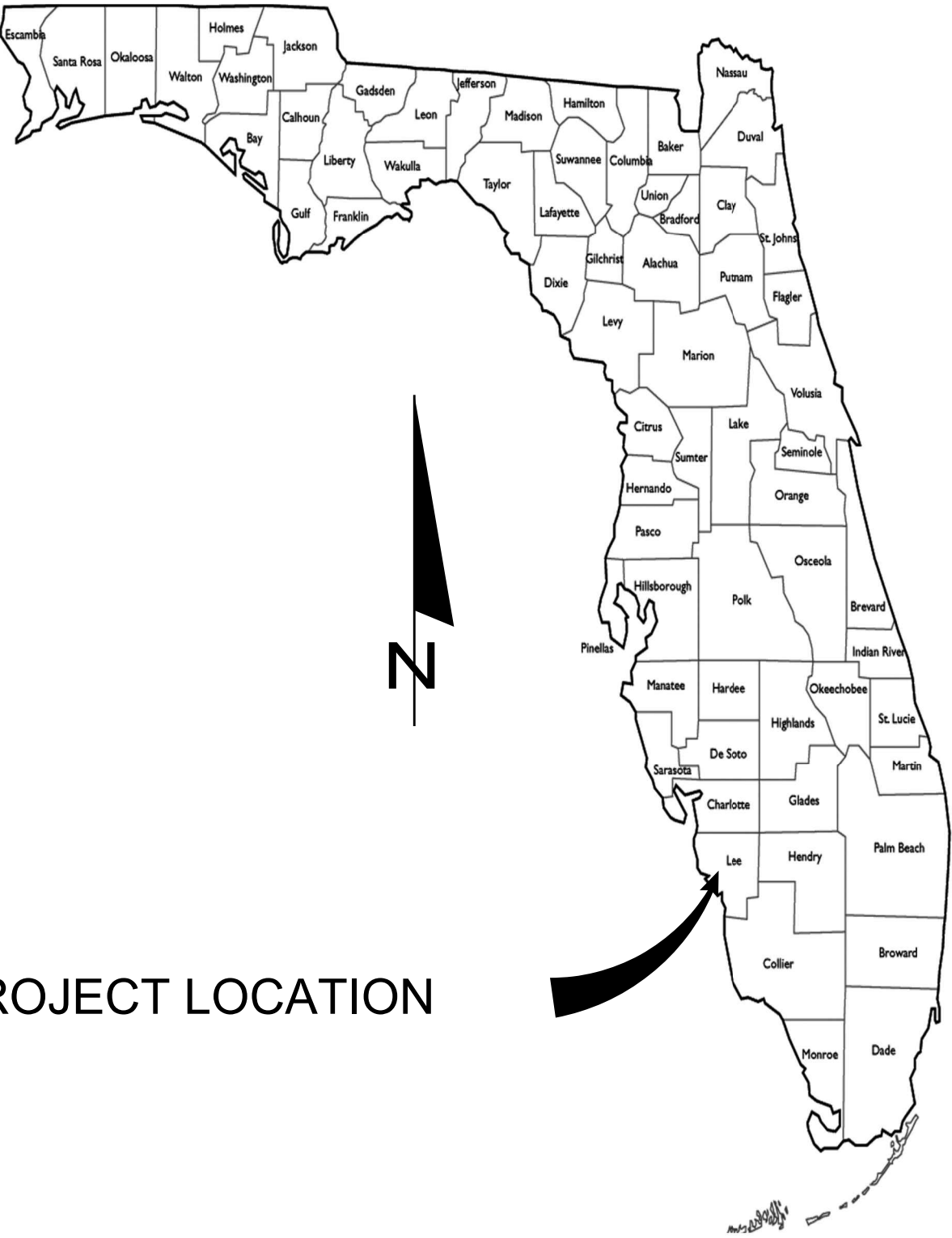
LEE COUNTY MANAGER

Roger Desjarlais

LEE COUNTY DEPARTMENT OF TRANSPORTATION

Randy Cerchie, Director
Vincent Miller, Project Manager

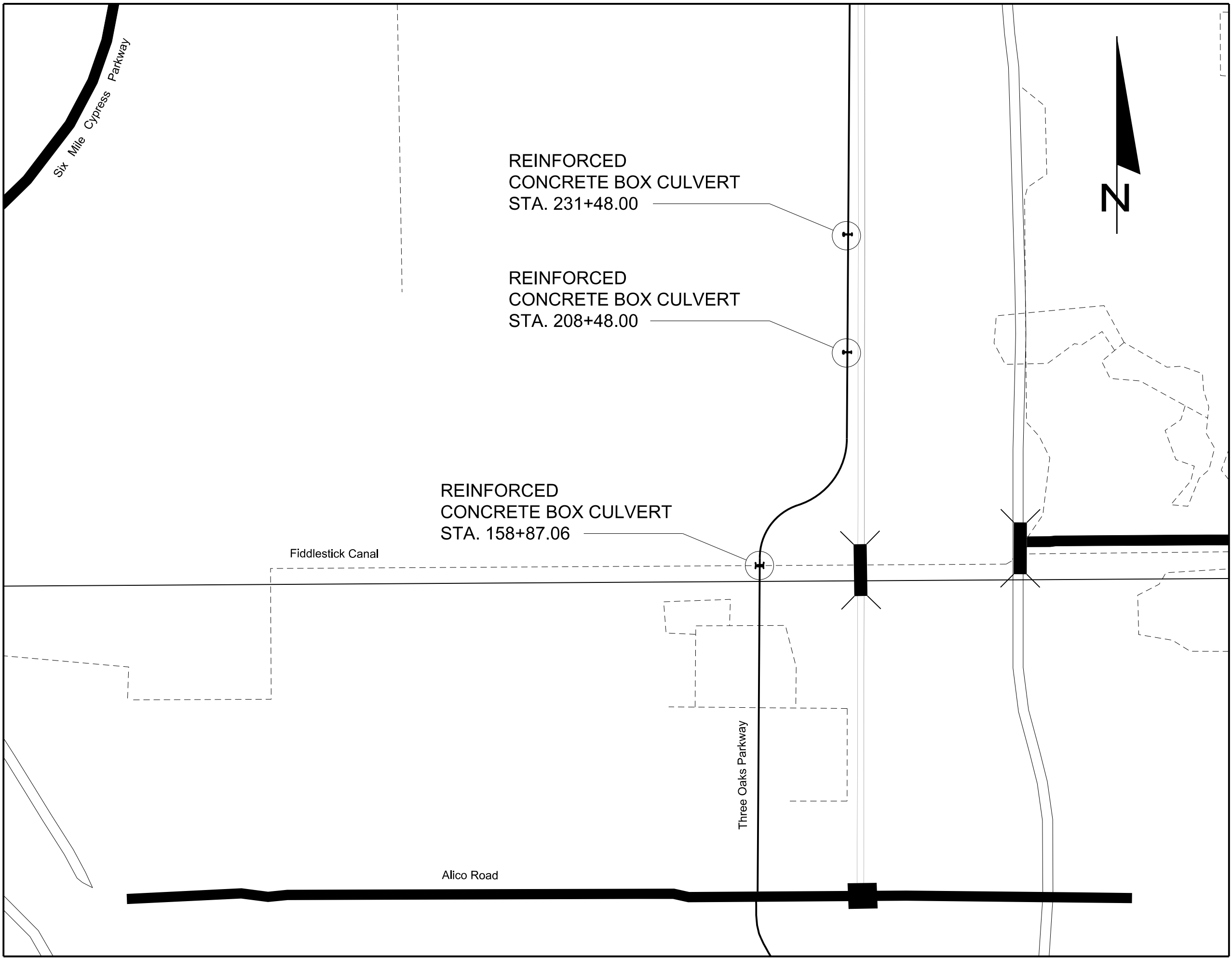
STRUCTURE PLANS



PROJECT LOCATION

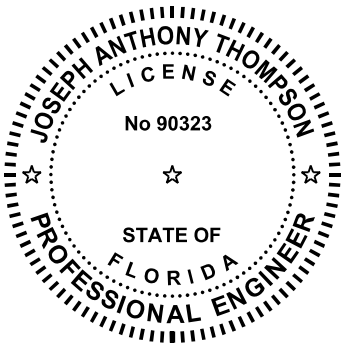
INDEX OF STRUCTURE PLANS

SEE INDEX OF STRUCTURE PLANS SHEET



LOCATION MAP
N.T.S.

NOTE: THE SCALE OF THESE PLANS MAY
HAVE CHANGED DUE TO PRODUCTION.



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY

Joseph A
Thompson

Digitally signed by: Joseph A Thompson
DN: CN = Joseph A Thompson C = US
O = Unaffiliated OU =
AQ1410D00000173BA03514A000228A6
Date: 2021.12.14 09:37:35 -05'00'

ON THE DATE ADJACENT TO THE SEAL

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SIGNING AND PAVEMENT
MARKINGS PLAN
ENGINEER OF RECORD:

CHUY J. JAMESON, P.E. NO.: 99992
ROADWAY ENGINEERS, INC.
123 MAIN STREET
TALLAHASSEE, FL 32301
(850) 671-1313
CONTRACT NO.: C0001
VENDOR NO.: 99-999999

FDOT PROJECT MANAGER:

BEN K. UWAIBI, P.E.

DATE	BY	REVISION DESCRIPTION

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PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

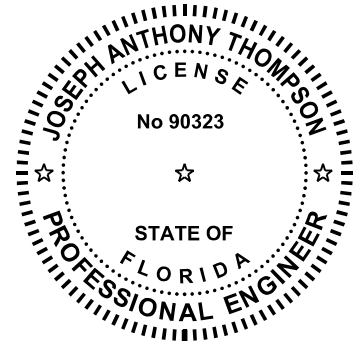
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA

KEY SHEET

SHEET B-1



THIS ITEM HAS BEEN DIGITALLY
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Joseph A
Thompson

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O = Unaffiliated OU =
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Date: 2021.12.14 09:38:24 -05'00'

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McCORMICK TAYLOR, INC
5 CAPITAL DRIVE, SUITE 400
HARRISBURG, PA 17110
JOSEPH A. THOMPSON, P.E. NO. 90323

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

RC CULVERT - STA. 158+00.00

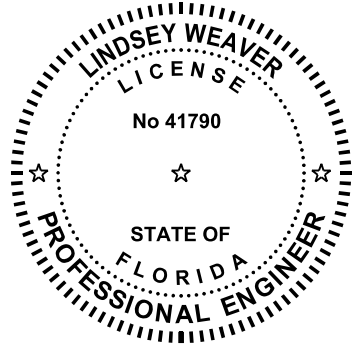
<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
BX1-1	PLAN AND ELEVATION
BX1-2	CULVERT SECTION
BX1-3	CONSTRUCTION SEQUENCING - STAGE 1
BX1-4	CONSTRUCTION SEQUENCING - STAGE 2
BX1-5	STAKE-OUT PLAN
BX1-6	TYPICAL BOX SECTION & DETAILS
BX1-7	HEADWALL DETAILS
BX1-8	WNGWALL DETAILS
BX1-9	UNREINFORCED SLAB & WING FOOTING PLAN
BX1-10	TABLE OF R.C. BOX CULVERT VARIABLES
BX1-11	REINFORCING STEEL DETAILS

RC CULVERT - STA. 208+48.00

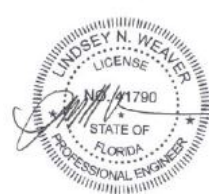
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BX2-1	PLAN AND ELEVATION
BX2-2	STAKE-OUT PLAN
BX2-3	TYPICAL BOX SECTION & DETAILS
BX2-4	WINGWALL DETAILS
BX2-5	TABLE OF R.C. BOX CULVERT VARIABLES
BX2-6	REINFORCING STEEL DETAILS

RC CULVERT - STA. 231+48.00

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
BX3-1	PLAN AND ELEVATION
BX3-2	STAKE-OUT PLAN
BX3-3	TYPICAL BOX SECTION & DETAILS
BX3-4	WINGWALL DETAILS
BX3-5	TABLE OF R.C. BOX CULVERT VARIABLES
BX3-6	REINFORCING STEEL DETAILS



THIS ITEM HAS BEEN DIGITALLY
SIGNED AND SEALED BY



Digitally signed by Lindsey N Weaver
DN: c=US, o=Universal Engineering
Sciences,
ou=A01410D0000016F1014286100029A94,
cn=Lindsey N Weaver
Date: 2021.12.14 14:09:38 -05'00'
Adobe Acrobat version: 2021.007.20099

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UNIVERSAL ENGINEERING SCIENCES
5971 COUNTRY LAKES DRIVES
FORT MYERS, FL 33905
LINDSEY N. WEAVER, P.E. NO. 41790

THE ABOVE NAMED PROFESSIONAL ENGINEER SHALL BE RESPONSIBLE FOR THE
FOLLOWING SHEETS IN ACCORDANCE WITH RULE 61G15-23.004, F.A.C.

RC CULVERT - STA. 158+87.06

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
BX1-12	BORING SHEET

RC CULVERT - STA. 208+48.00

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
BX2-7	BORING SHEET

RC CULVERT - STA. 231+48.00

<u>SHEET NO.</u>	<u>SHEET DESCRIPTION</u>
BX3-7	BORING SHEET

DATE	BY	REVISION DESCRIPTION

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Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

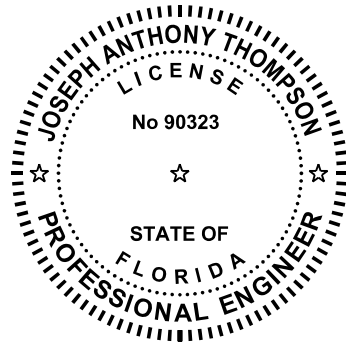
LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA

SIGNATURE SHEET

SHEET B-2

GENERAL SHEETS B-1 KEY SHEET B-2 SIGNATURE SHEET B-3 INDEX OF STRUCTURE PLANS B-4 CULVERT GENERAL NOTES	RC BOX CULVERT STA 158+87.06 BXI-1 PLAN AND ELEVATION BXI-2 CULVERT SECTION BXI-3 CONSTRUCTION SEQUENCING - STAGE I BXI-4 CONSTRUCTION SEQUENCING - STAGE 2 BXI-5 STAKE-OUT PLAN BXI-6 TYPICAL BOX SECTION & DETAILS BXI-7 HEADWALL DETAILS BXI-8 WNGWALL DETAILS BXI-9 UNREINFORCED SLAB & WING FOOTING PLAN BXI-10 TABLE OF R.C. BOX CULVERT VARIABLES BXI-11 REINFORCING STEEL DETAILS BXI-12 BORING SHEET INDEX 400-289 INDEX 400-291 INDEX 400-292 INDEX 415-001	RC BOX CULVERT STA 208+48.00 BX2-1 PLAN AND ELEVATION BX2-2 STAKE-OUT PLAN BX2-3 TYPICAL BOX SECTION & DETAILS BX2-4 WINGWALL DETAILS BX2-5 TABLE OF R.C. BOX CULVERT VARIABLES BX2-6 REINFORCING STEEL DETAILS BX2-7 BORING SHEET INDEX 400-289 INDEX 400-291 INDEX 400-292 INDEX 415-001	RC BOX CULVERT STA 231+48.00 BX3-1 PLAN AND ELEVATION BX3-2 STAKE-OUT PLAN BX3-3 TYPICAL BOX SECTION & DETAILS BX3-4 WINGWALL DETAILS BX3-5 TABLE OF R.C. BOX CULVERT VARIABLES BX3-6 REINFORCING STEEL DETAILS BX3-7 BORING SHEET INDEX 400-289 INDEX 400-291 INDEX 400-292 INDEX 415-001
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LDOT PROJ. MGR. Vince Miller, PE

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THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA

INDEX OF STRUCTURE PLANS

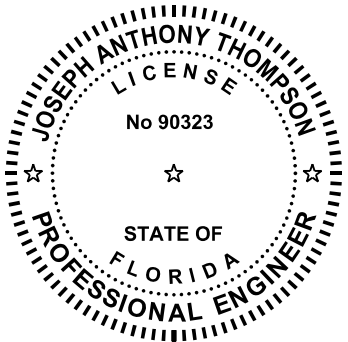
SHEET B-3

GENERAL NOTES

- GENERAL SPECIFICATIONS:
1. ALL MATERIALS, CONSTRUCTION, AND CONSTRUCTION METHODS SHALL CONFORM WITH THE 2021 FLORIDA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION UNLESS OTHERWISE NOTED HEREIN OR IN THE SPECIAL PROVISIONS FOR THIS PROJECT.
- DESIGN SPECIFICATIONS:
2. FDOT STRUCTURES MANUAL DATED JANUARY 2021.
3. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) LOAD AND RESISTANCE FACTOR (LRFD) BRIDGE DESIGN SPECIFICATION, 8TH EDITION.
4. FDOT DESIGN MANUAL DATED JANUARY 2021.
- GOVERNING STANDARDS AND CONSTRUCTION SPECIFICATION:
5. FLORIDA DEPARTMENT OF TRANSPORTATION, FY2020-21 STANDARD PLANS AND REVISED INDEX DRAWINGS AS APPENDED HEREIN, AND 2021 STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION INCLUDING SUPPLEMENTAL SPECIFICATIONS, AS AMENDED BY CONTRACT DOCUMENTS.
6. VERTICAL DATUM - N.A.V.D 88 TO CONVERT TO N.G.V.D 1929 ADD 1.18 FEET (SEE ROADWAY PLANS).
7. ENVIRONMENTAL CLASSIFICATION : MODERATELY AGGRESSIVE
- DESIGN METHODOLOGY:
8. LOAD AND RESISTANCE FACTOR DESIGN (LRFD) METHOD.
- DESIGN LOADS:
9. LIVE LOADS: HL-93 WITH DYNAMIC LOAD ALLOWANCE
- MATERIALS:
10. THE FOLLOWING DESIGN STRESS CRITERIA APPLY:
CONCRETE (PRECAST BOX CULVERTS, HEADWALLS, APRONS, CUT OFF WALLS, WINGWALLS): - CLASS IV F'C = 5,500 PSI
CONCRETE (BASE SLAB): - CLASS III = 3,000 PSI
REINFORCING STEEL - FY = 60,000 PSI
11. ALL REINFORCING STEEL SHALL BE GRADE 60 CARBON STEEL PER SPECIFICATIONS SECTION 931.
12. SOIL PROPERTIES:
FRICTION ANGLE - 30°
MAXIMUM ALLOWABLE BEARING PRESSURE - 2 KIPS/SQ FT
- UTILITIES:
13. FOR PLAN LOCATIONS OF EXISTING UTILITIES, SEE PLAN AND ELEVATION SHEET. LOCATIONS OF UTILITIES, SHOWN IN THE PLANS ARE APPROXIMATE.
14. THE CONTRACTOR WILL INSURE THAT NO INTERRUPTION OF UTILITY SERVICE OCCURS AND SHALL COORDINATE WITH INVOLVED UTILITY COMPANIES TO PERMIT ACCESS TO THEIR WORK AS REQUIRED. NO EQUIPMENT OR MACHINES SHALL BE OPERATED CLOSER THAN 12 FEET TO THE EXISTING POWER LINES AND NO EXCAVATION SHALL BE PERMITTED WITHIN 5 FEET OF POWER POLE FACILITIES.
- GENERAL:
15. ALL DIMENSIONS SHOWN ARE EITHER HORIZONTAL OR VERTICAL UNLESS OTHERWISE NOTED. AN AMBIENT TEMPERATURE OF 70 DEGREES IS ASSUMED FOR ALL MEASUREMENTS.
16. THE CONTRACTOR SHALL APPLY A CLASS 5 FINISH TO ALL EXPOSED SURFACES OF THE HEADWALLS. THIS WORK SHALL BE INCIDENTAL TO THE COST OF THE RESPECTIVE ITEMS INVOLVED.
17. PAYMENT FOR RIPRAP, EXCAVATION, AND REPLACEMENT OF SELECT BEDDING AND BACKFILL MATERIAL, INCLUDING ALL NECESSARY EQUIPMENT AND LABOR, SHALL BE INCLUDED IN THE CONTRACT PRICE FOR RELATED ITEMS IN THE CONTRACT.
18. CONTRACTOR TO PROVIDE MEANS AND METHODS TO MAINTAIN FLOW OF THE FIDDLESTICKS CANAL.
19. CONTRACTOR TO SECURE THE REQUIRED LEE COUNTY PORT AUTHORITY TALL STRUCTURES PERMIT. ALL EQUIPMENT TO BE LESS THAN THE PERMIT STATED ABOVE GROUND MAXIMUM HEIGHT PER THE LEE COUNTY PORT AUTHORITY AIRSPACE MAP.
20. REFER TO INDICES 400-289, 400-291, 400-292, AND 524-001 FOR ADDITIONAL DETAILS.
21. REFER TO GEOTECHNICAL REPORT:
PREPARED BY: UNIVERAL ENGINEERING SERVICES
DATED: 8/2/2019
PROJECT NUMBER: 0530.180215.0000
- COMPLY WITH RECOMMENDATIONS CONTAINED THEREIN, EXCEPT USE CLEAN COARSE SAND (10% FINES) COMPACTED TO 100% OF T99 MAXIMUM DENSITY. SUBGRADE SHALL BE DRY AT TIME OF CULVERT INSTALLATION.

- GEOTECHNICAL NOTES:
1. ALL LOOSE SEDIMENT PRESENT IN THE BASE OF THE CANAL SHOULD BE OVER EXCAVATED AND REMOVED FROM THE LIMITS OF THE CULVERT BEARING SURFACE AND 5 FEET BEYOND.
2. THE #57 STONE WRAPPED IN FILTER CLOTH SHALL BE PLACED IN 6-INCH LIFTS TO ACHIEVE THE REQUIRED BEARING ELEVATION OF THE UNREINFORCED SEAL SLAB.
3. THE FILL MATERIAL SHOULD BE PLACED AS PER THE GUIDANCE IN THE GEOTECHNICAL EXPLORATION REPORT AND PER SECTION 120.
4. EXCAVATION SHOULD BE SLOPED AS NECESSARY TO PREVENT SLOPE FAILURE AND TO ALLOW BACKFILLING. AS A MINIMUM, ALL EXCAVATION OPERATIONS WILL BE REQUIRED TO MEET OSHA 29 CFR PART 1926 SUBPART P REGULATION FOR TYPE C SOILS. WHERE LATERAL CONFINEMENT WILL NOT PERMIT SLOPES TO BE LAID BACK, THE EXCAVATION SHOULD BE SHORED IN ACCORDANCE WITH OSHA REQUIREMENTS.
5. DURING EXCAVATION, EXCAVATED MATERIAL SHOULD NOT BE STOCKPILED AT THE TOP OF THE SLOPE WITHIN A HORIZONTAL DISTANCE EQUAL TO THE EXCAVATION DEPTH. PROVISIONS FOR MAINTAINING WORKMAN SAFETY WITHIN EXCAVATIONS IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF ALL EXCAVATED SLOPES AND THE DESIGN OF ANY TEMPORARY SHORING AND BRACING THAT MAY BE USED. ALL SURFACE RUNOFF SHOULD BE DIVERTED AWAY FROM EXCAVATIONS. PERFORM ALL EXCAVATIONS IN ACORDANCE WITH OSHA REQUIREMENTS. A TEMPORARY SUPPORT SYSTEM IS REQUIRED FOR ANY EXCAVATION EXCEEDING 5 FEET IN HEIGHT. PAYMENT FOR DESIGN AND CONSTRUCTION OF TEMPORARY SUPPORT SYSTEM AND/OR COFFERDAM IS INCLUDED IN ITEM 410-BC1. IN LIEU OF SHORING, THE CONTRACTOR MAY USE 2:1 CUT SLOPE IF PERMITTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR ADDITIONAL EXCAVATION OR FILL OUTSIDE THE PAY LIMITS DEFINED IN SECTION 125 OF THE STANDARD SPECIFICATIONS.
7. REFER TO THE GEOTECHNICAL EXCAVATION REPORT FOR SOIL PARAMETERS TO BE USED FOR THE DESIGN OF COFFERDAMS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DESIGN OF COFFERDAM OR ANY TEMPORARY SUPPORT STRUCTURE.
- THE EARTH PRESSURE COEFFICIENTS PROVIDED IN THE GEOTECHNICAL REPORT ARE BASED ON HORIZONTAL GROUND SURFACES BOTH BEHIND AND IN FRONT OF ANY TEMPORARY SUPPORT SYSTEM. DESIGN OF ANY COFFERDAM OR TEMPORARY SUPPORT SYSTEM MUST CONSIDER THE EFFECTS OF SLOPING GROUND, HYDROSTATIC PRESSURE, AND TRAFFIC SURCHARGE LOADING.
8. BACKFILL AND GRADE ALL EXCAVATIONS AS SOON AS POSSIBLE TO PREVENT SURFACE WATER PONDING AND CONCENTRATING FLOW FROM ENTERING THE EXCAVATION. KEEP THE EXCAVATIONS DRY WITH COFFERDAMS, DIVERSIONS DITCHES, SUMPS AND PUMPS AS REQUIRED. DEWATERING OF THE EXCAVATION IS ANTICIPATED SINCE THE BOTTOM OF FOOTING IS BELOW THE WATER TABLE. DEWATERING AND COFFERDAMS ARE INCIDENTAL TO EXCAVATION FOR THE STRUCTURE.
9. DEWATERING AND COFFERDAM DESIGN AND CONSTRUCTION IS INCLUDED IN ITEM 101-1.

- LEGEND
- ℄ = BASELINE
- ⊕ = CENTERLINE
- CL. = CLEARANCE
- EA. = EACH
- EL. = ELEVATION
- EXIST. = EXISTING
- MAX. = MAXIMUM
- MIN. = MINIMUM
- PGL = PROFILE GRADE LINE
- PROP. = PROPOSED
- SHLDR. = SHOULDER
- SPA. = SPACING
- STR. = STRUCTURE
- TYP. = TYPICAL
- WM = WATER MAIN
- WP = WORKPOINT
- YR. = YEAR



DATE	BY	REVISION DESCRIPTION

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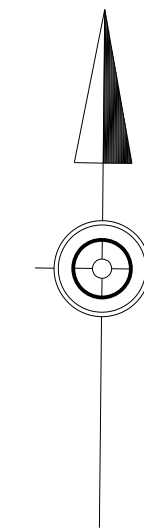
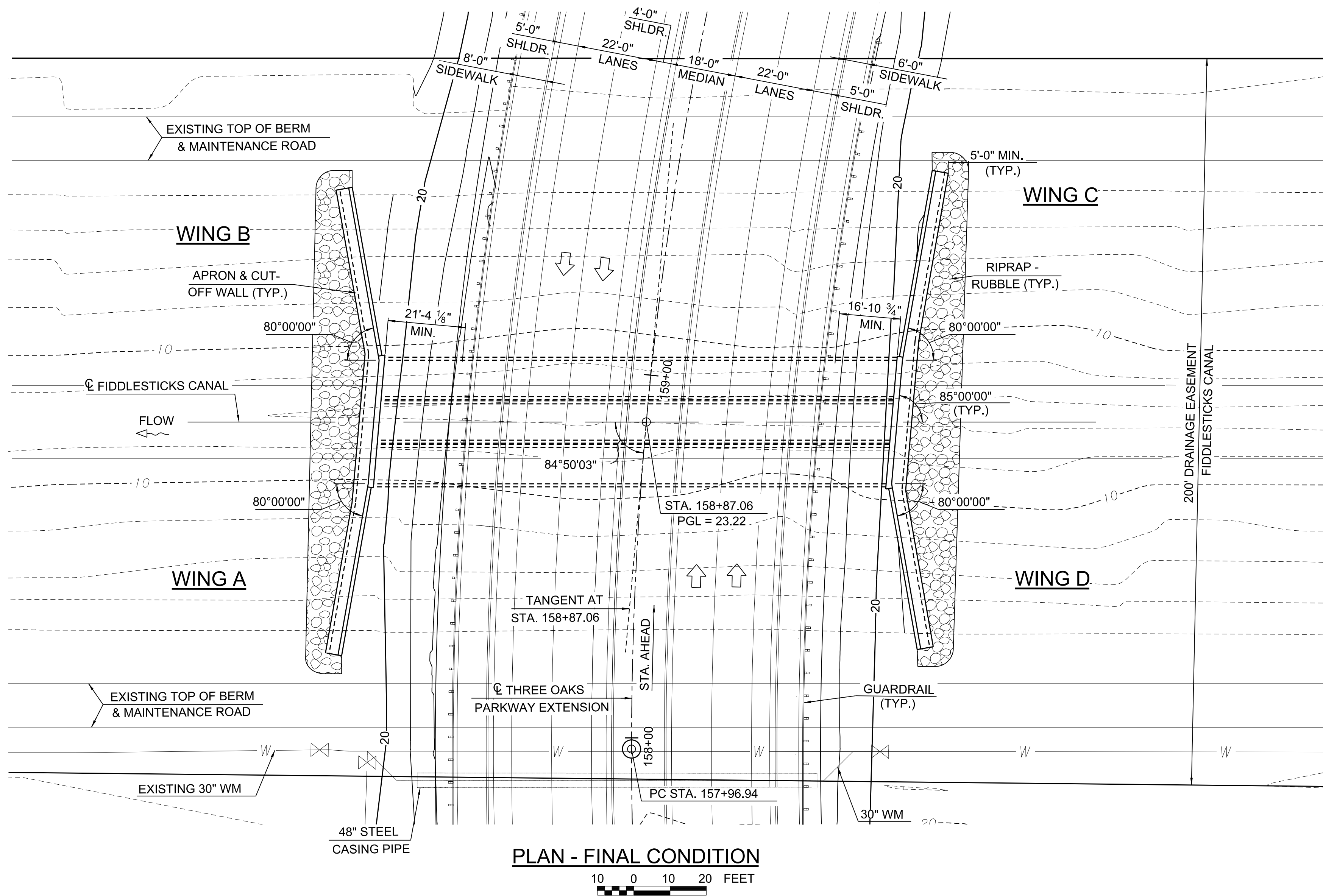
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FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION (239) 533-8580
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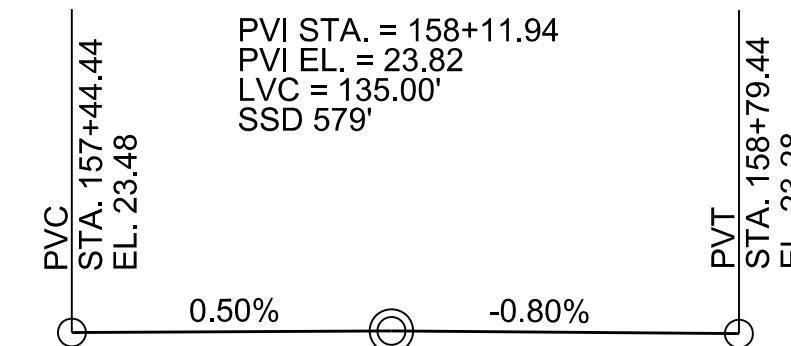
THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA

CULVERT GENERAL NOTES

SHEET B-4

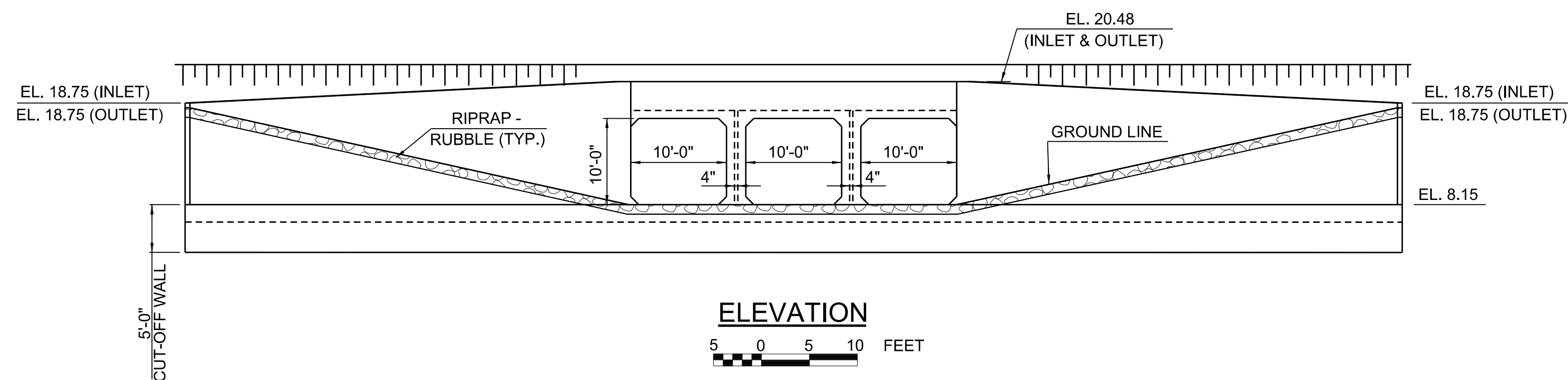
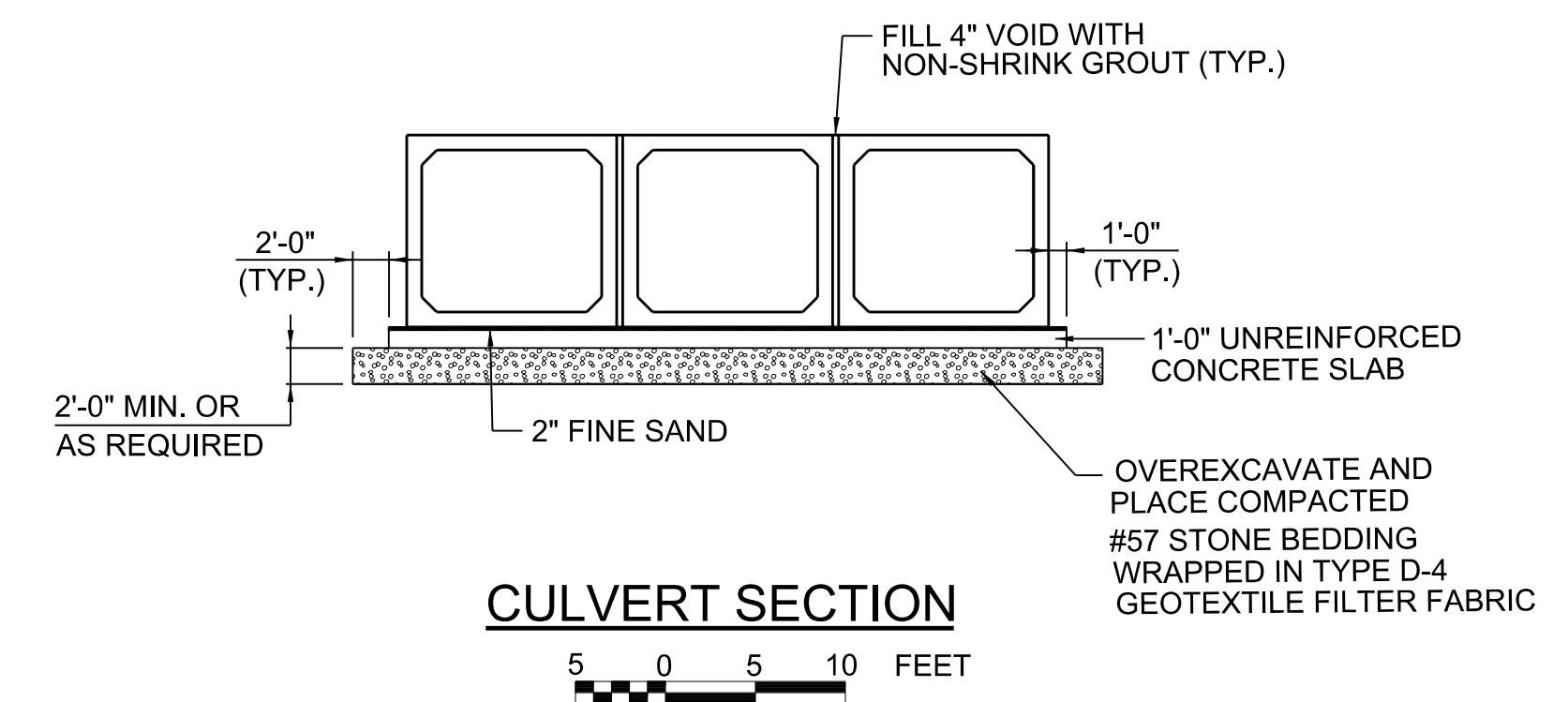


**(FUTURE) THREE OAKS
PARKWAY EXTENSION
VERTICAL CURVE DATA**

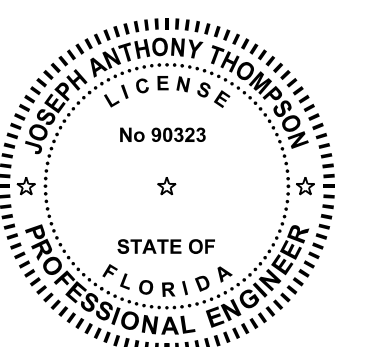


**(FUTURE) THREE OAKS
PARKWAY EXTENSION
HORIZONTAL CURVE DATA**

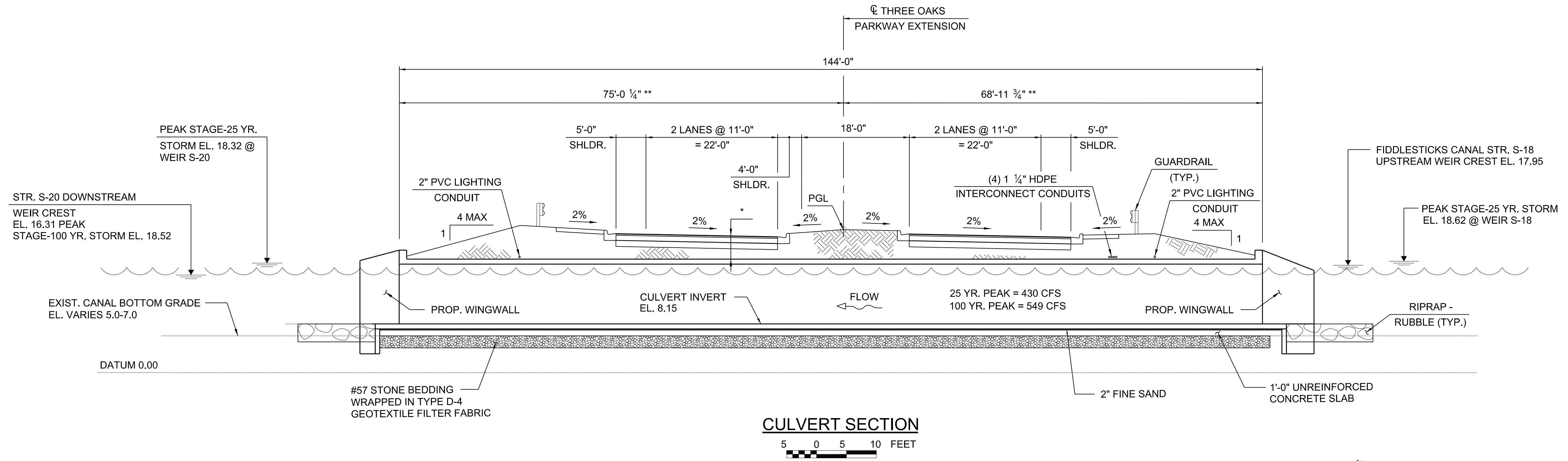
PI STA. = 163+90.13
Δ = 61°21'09"
D = 5°43'46"
T = 593.19'
L = 1000.00'
E = 162.70'
PC STA. = 157+96.94
PT STA. = 168+67.74



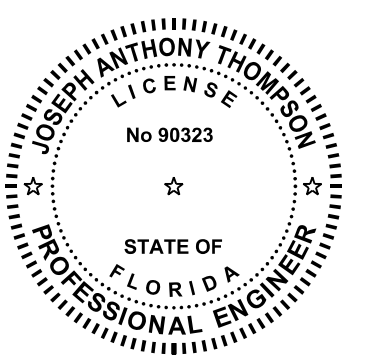
- NOTES:
1. FOR CULVERT GENERAL NOTES SEE SHEET B-4.
 2. FOR LOCATION OF TEMPORARY SHORING COFFERDAM, SEE SHEETS BX1-3 AND BX1-4.
 3. FOR RIPRAP RUBBLE DETAILS SEE INDEX 524-001.



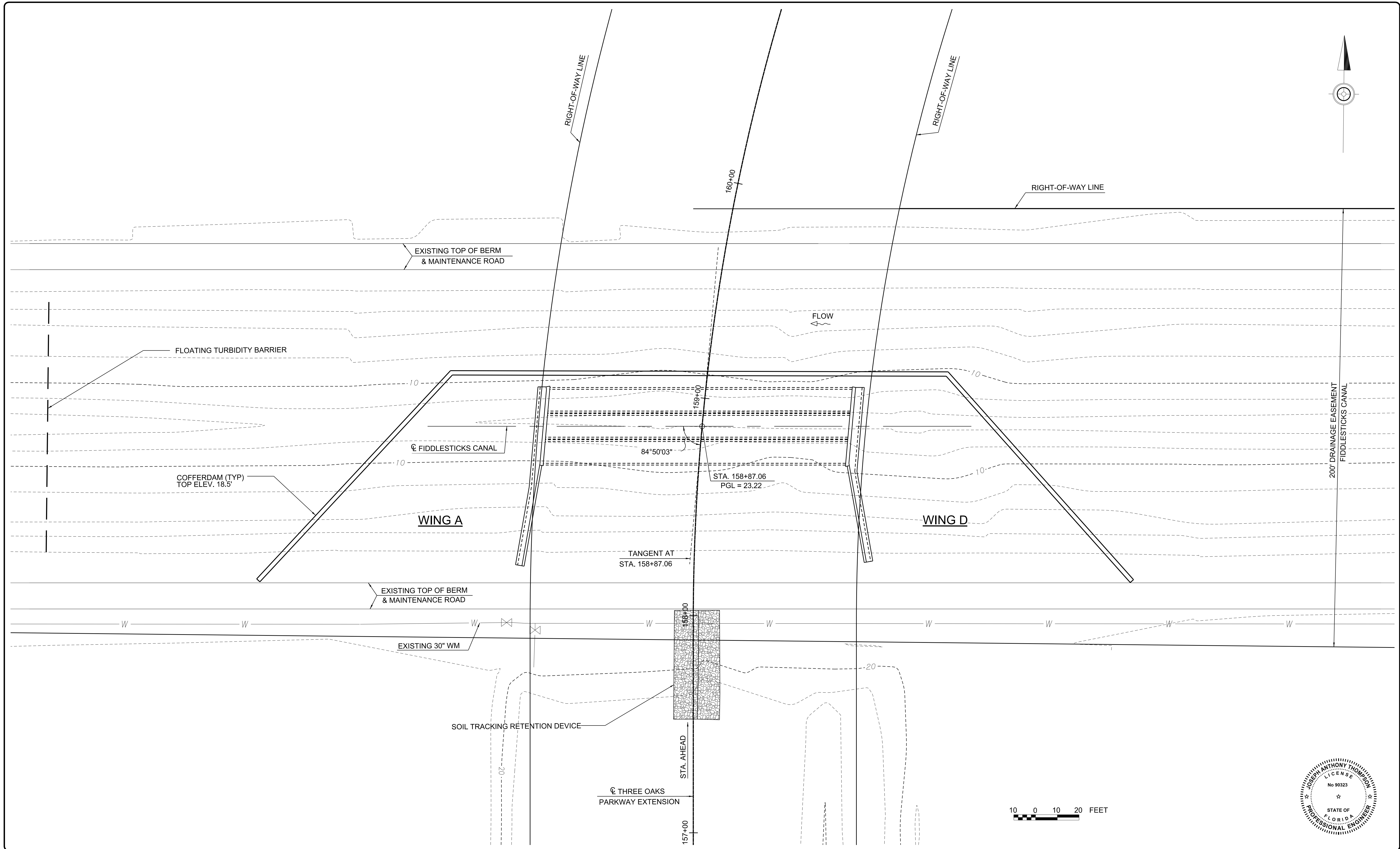
DATE	BY	REVISION DESCRIPTION	PROJECT: 5901-01	McCORMICK TAYLOR, INC.	LEE COUNTY DEPARTMENT OF TRANSPORTATION	THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA	PLAN AND ELEVATION STA. 158+87.06 TRIPLE 10' X 10' REINFORCED CONCRETE BOX CULVERT	SHEET BX1-1
			PROJ. MGR. Melody Matter, PE LEE COUNTY DOT PROJECT: CN160642/ANB LOOT PROJ. MGR. Vince Miller, PE	1404 Dean Street, Suite 200 Fort Myers, FL 33901 FBPE# 29282 (239) 935-5006				



* FILL DEPTH AT THE ROADWAY VARIES 3'-6 1/4" TO 5'-7" BENEATH THE ROADWAY SURFACE
 ** ALONG CENTERLINE OF CULVERT



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			PROJ. MGR. Melody Matter, PE	1404 Dean Street, Suite 200 Fort Myers, FL 33901 FBPE# 29282 (239) 935-5006	(239) 533-8580			
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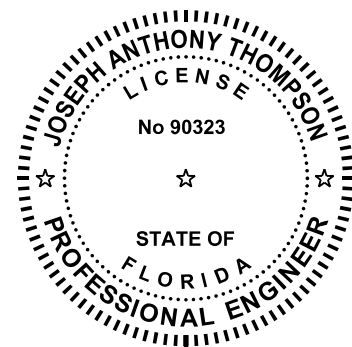
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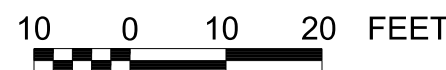
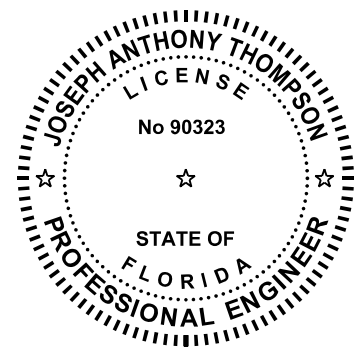
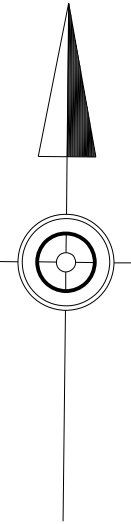
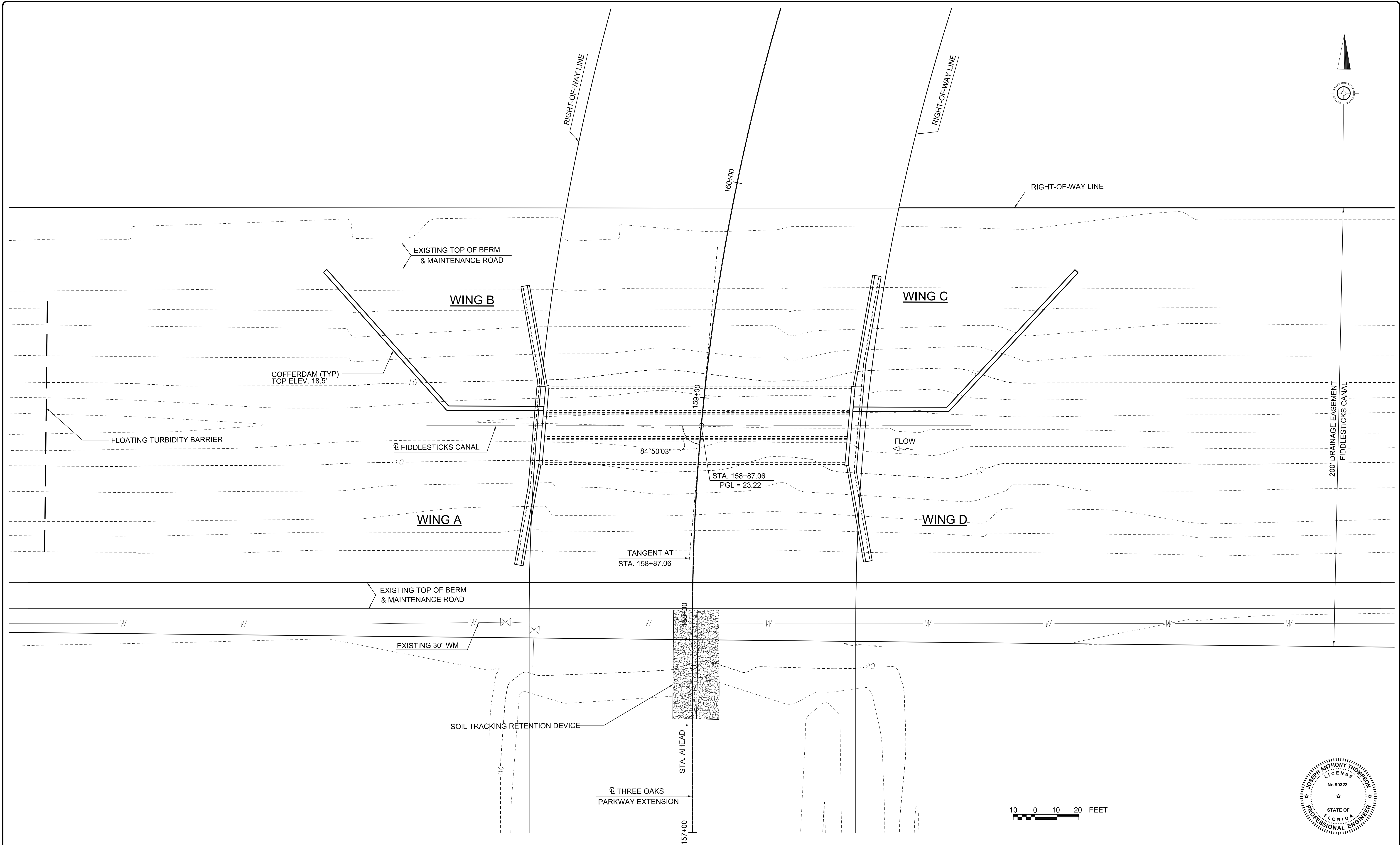
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THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

CONSTRUCTION SEQUENCING - STAGE 1
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

SHEET
BX1-3





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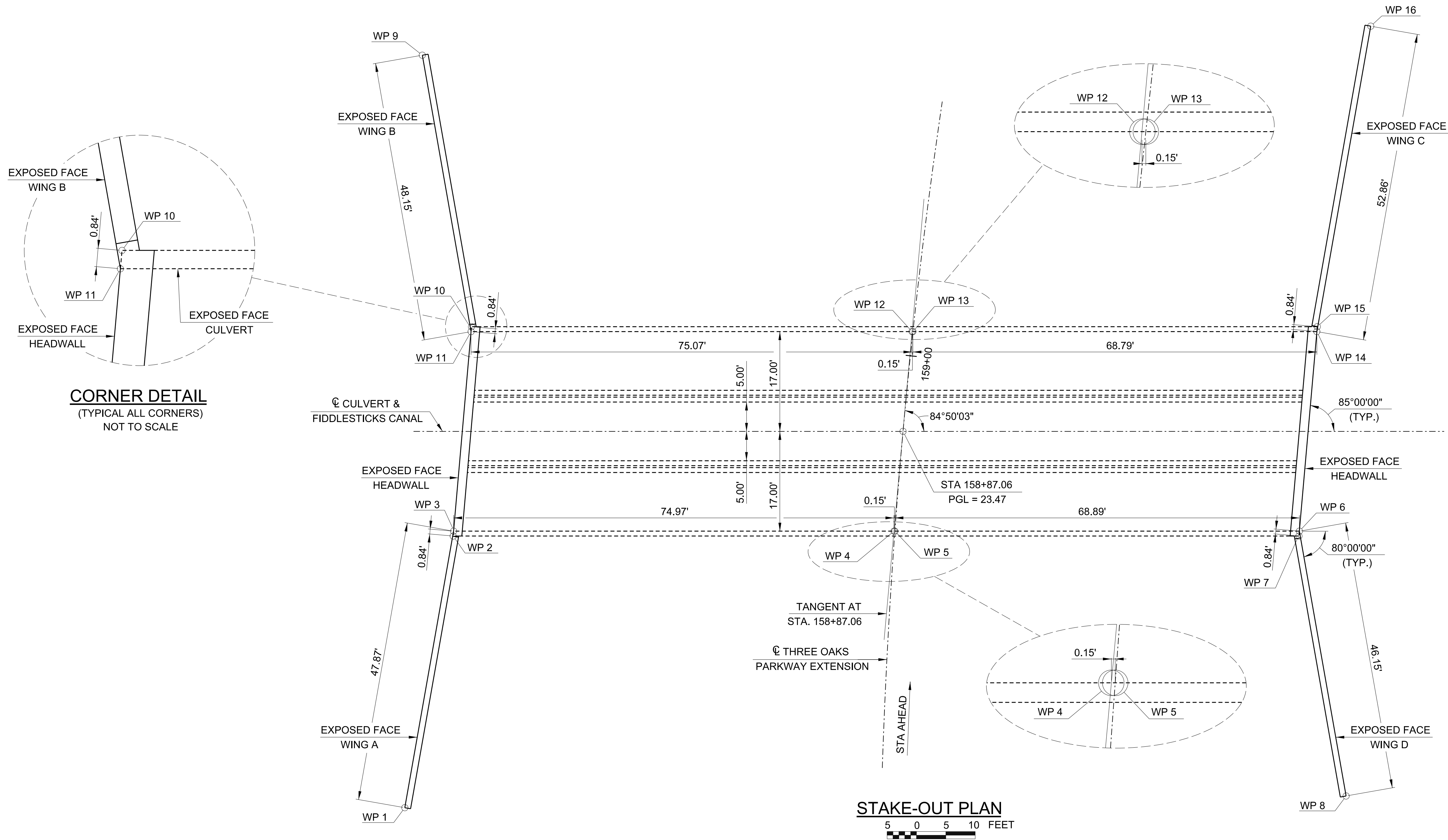
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1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION (239) 533-8580
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THREE OAKS PARKWAY EXTENSION THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL LEE COUNTY, FLORIDA
--

CONSTRUCTION SEQUENCING - STAGE 2 STA. 158+87.06 TRIPLE 10' X 10' REINFORCED CONCRETE BOX CULVERT

SHEET BX1-4



WORK POINTS					
POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
1	791258.8342	721109.6602	9	791387.4194	721111.2121
2	791305.2264	721117.4044	10	791340.9236	721120.1437
3	791306.0601	721117.4683	11	791340.0899	721120.0797
4	791306.8607	721192.4310	12	791340.8916	721195.1415
5	791306.8623	721192.5771	13	791340.8932	721195.2880
6	791307.5979	721261.4601	14	791341.6278	721264.0715
7	791306.7642	721261.3961	15	791342.4615	721264.1354
8	791262.2343	721269.9594	16	791393.7798	721272.6941

STATIONS & OFFSETS					
POINT	STATION	OFFSET	POINT	STATION	OFFSET
1	158+20.86	81.06' LT	9	159+39.24	88.84' LT
2	158+64.12	74.94' LT	10	158+97.43	74.82' LT
3	158+64.90	74.93' LT	11	158+96.65	74.81' LT
4	158+69.99	0.15' LT	12	159+04.13	0.15' LT
5	158+70.00	0.00'	13	159+04.14	0.00'
6	158+75.41	68.69' RT	14	159+12.05	68.36' RT
7	158+74.51	68.68' RT	15	159+12.94	68.34' RT
8	158+26.86	79.16' RT	16	159+68.82	70.00' RT

DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

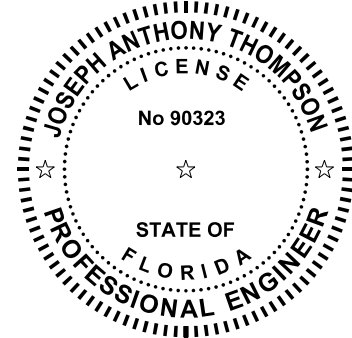
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

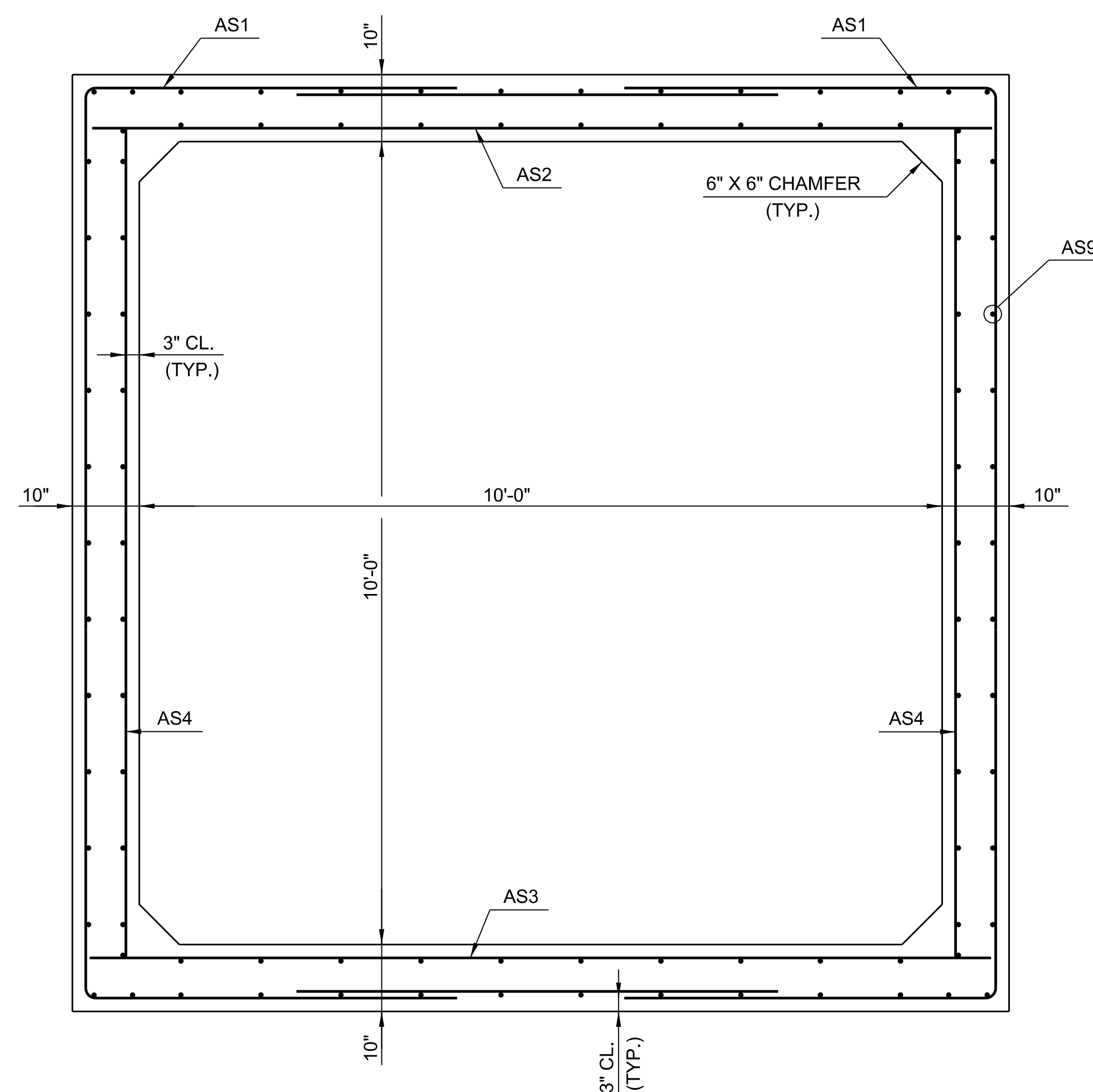
LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

STAKE-OUT PLAN
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

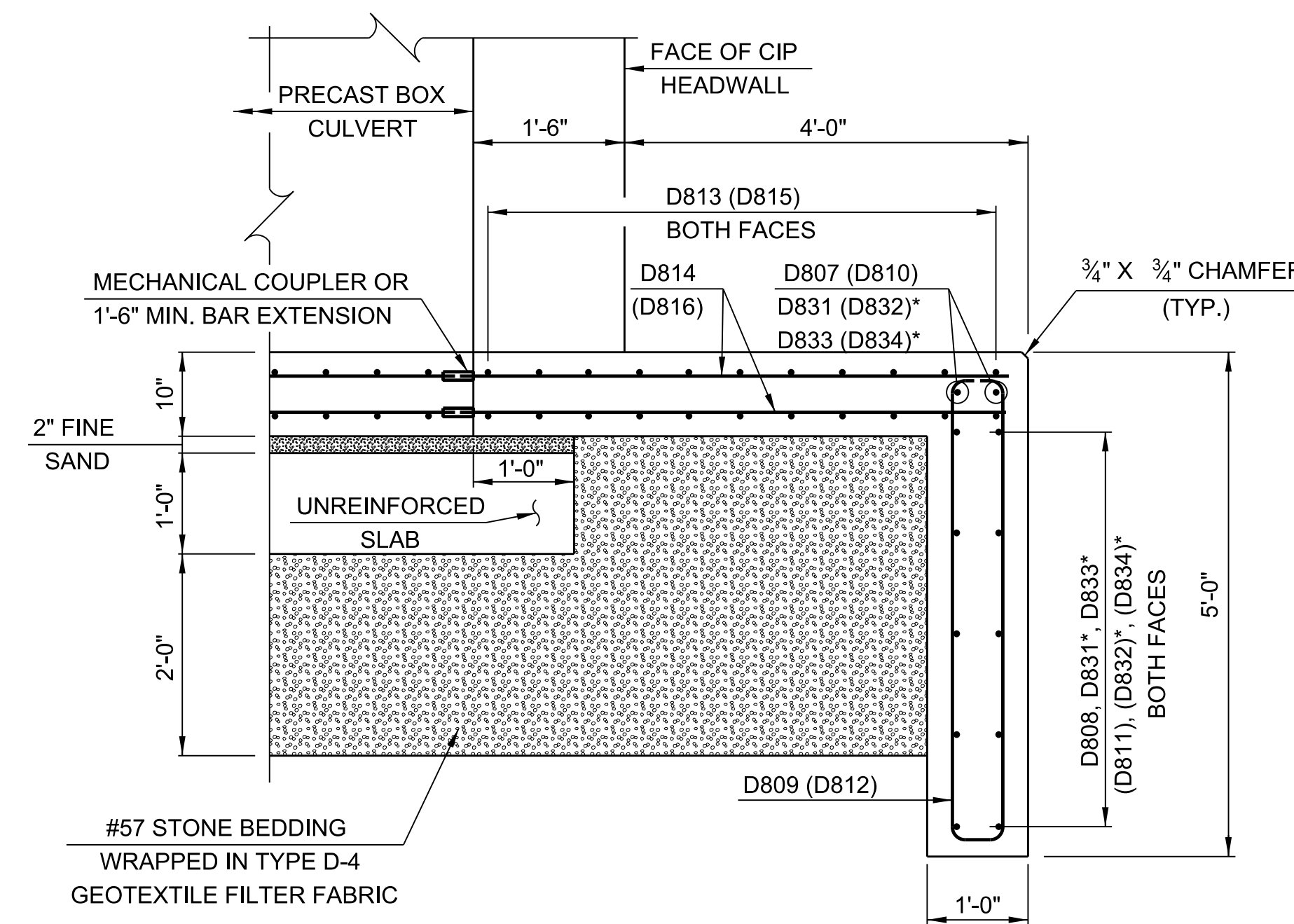
SHEET
BX1-5





TYPICAL BOX CULVERT SECTION

12 0 12 INCHES



APRON AND CUTOFF WALL SECTION

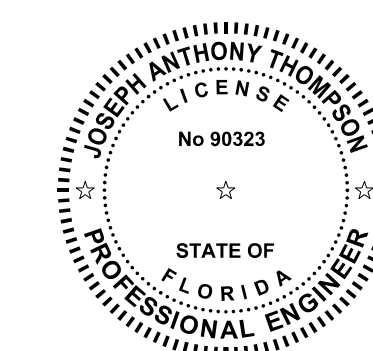
12 0 12 INCHES

*D831/D832 BARS ARE TO BE LAPPED TO D807/D808/D810/D11 AND PROJECT INTO WINGWALLS A AND C AT INTERFACE BETWEEN THE APRON AND THE WINGWALL CUTOFF WALLS.

D833/D834 BARS ARE TO BE LAPPED TO D807/D808/D810/D11 AND PROJECT INTO WINGWALLS B AND D AT INTERFACE BETWEEN THE APRON AND THE WINGWALL CUTOFF WALLS.

NOTES:

1. FOR REINFORCEMENT, SEE SHEET BX1-10.
2. FOR DETAILS NOT SHOWN, SEE INDICES 400-289, 400-291 & 400-292.
3. INLET REINFORCEMENT SHOWN, OUTLET REINFORCEMENT IN ().
4. FOR UNDERDRAIN DETAIL SEE INDEX 400-289.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

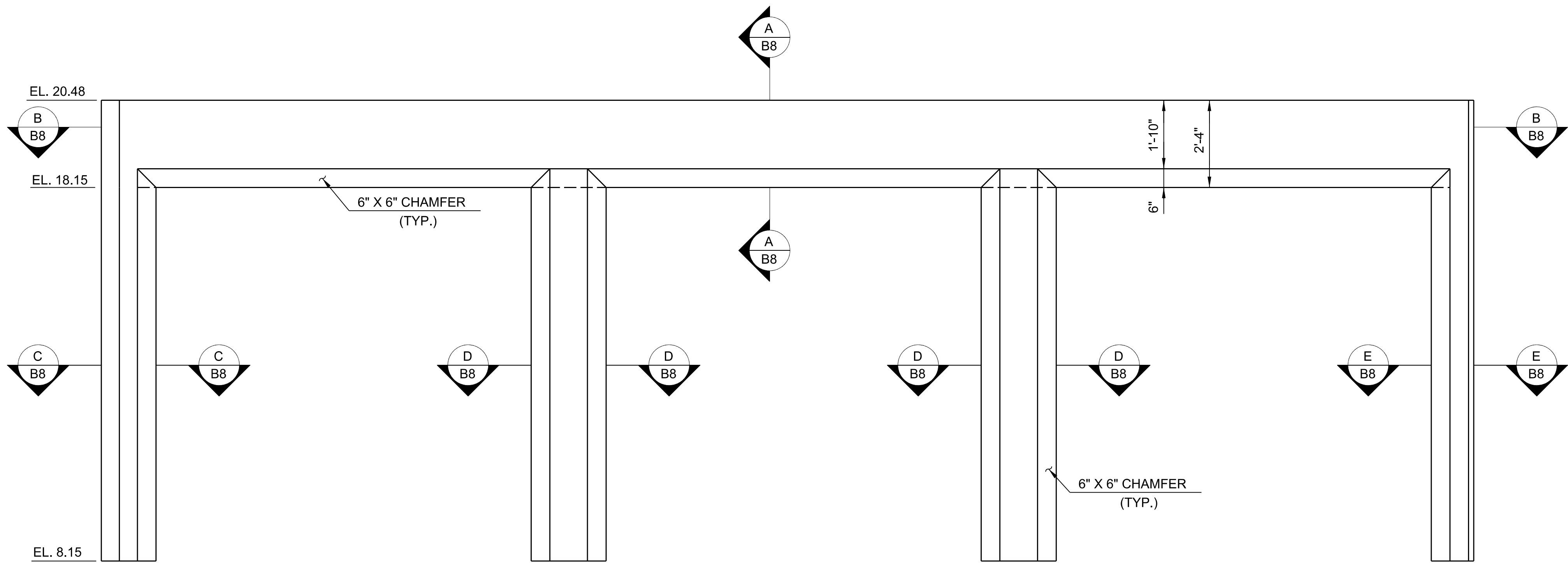
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

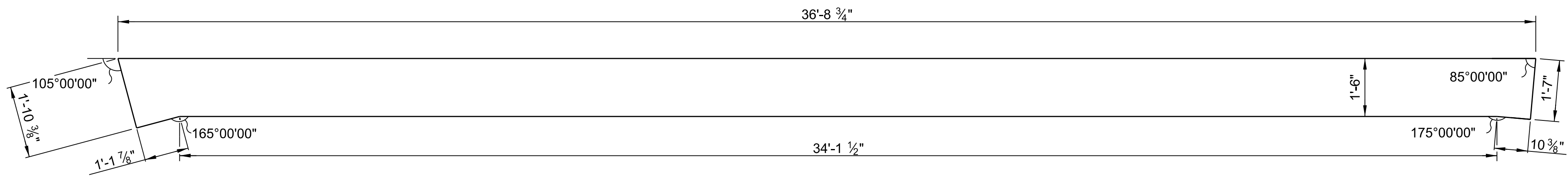
THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

TYPICAL BOX SECTION & DETAILS
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

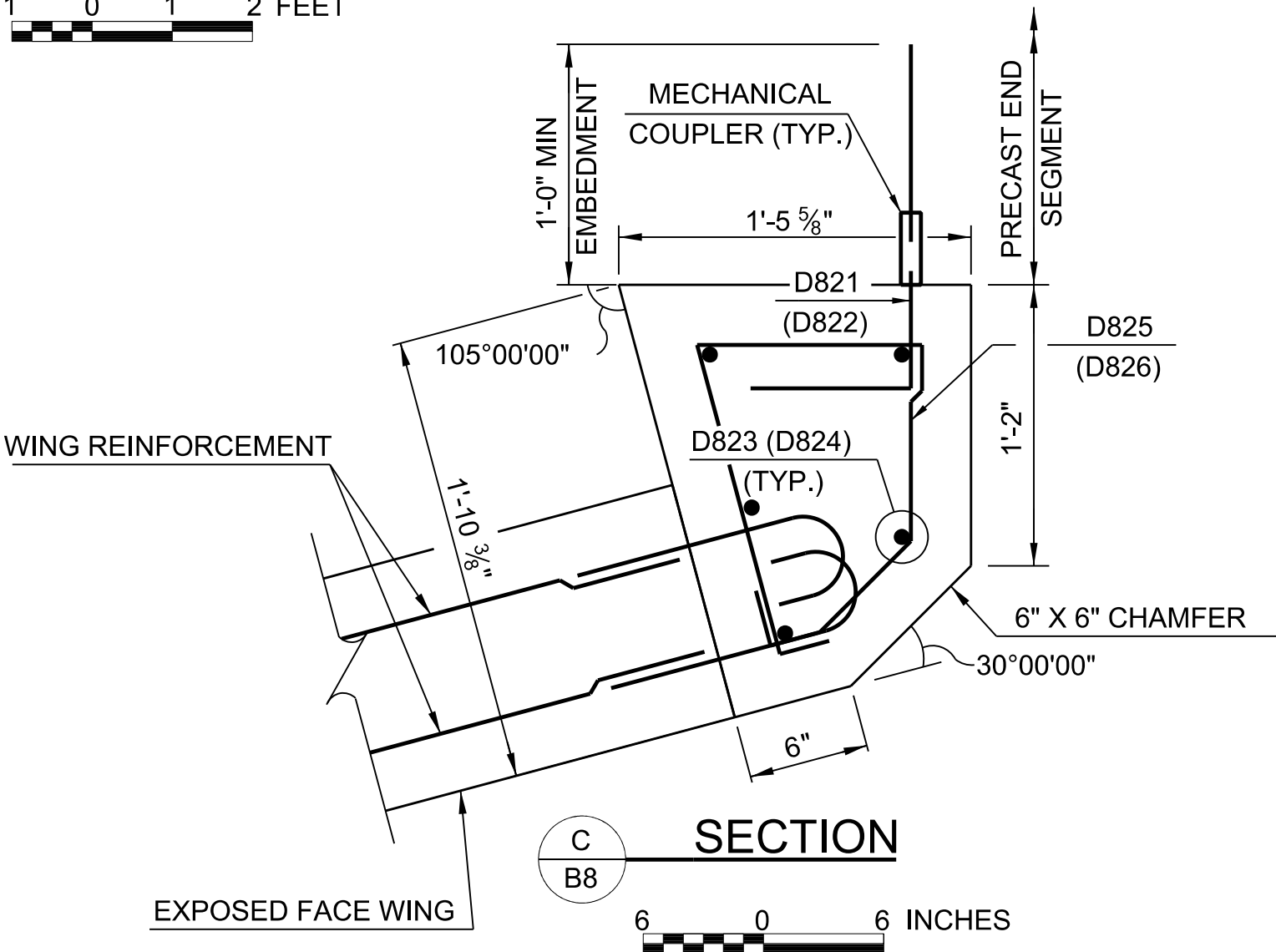
SHEET
BX1-6



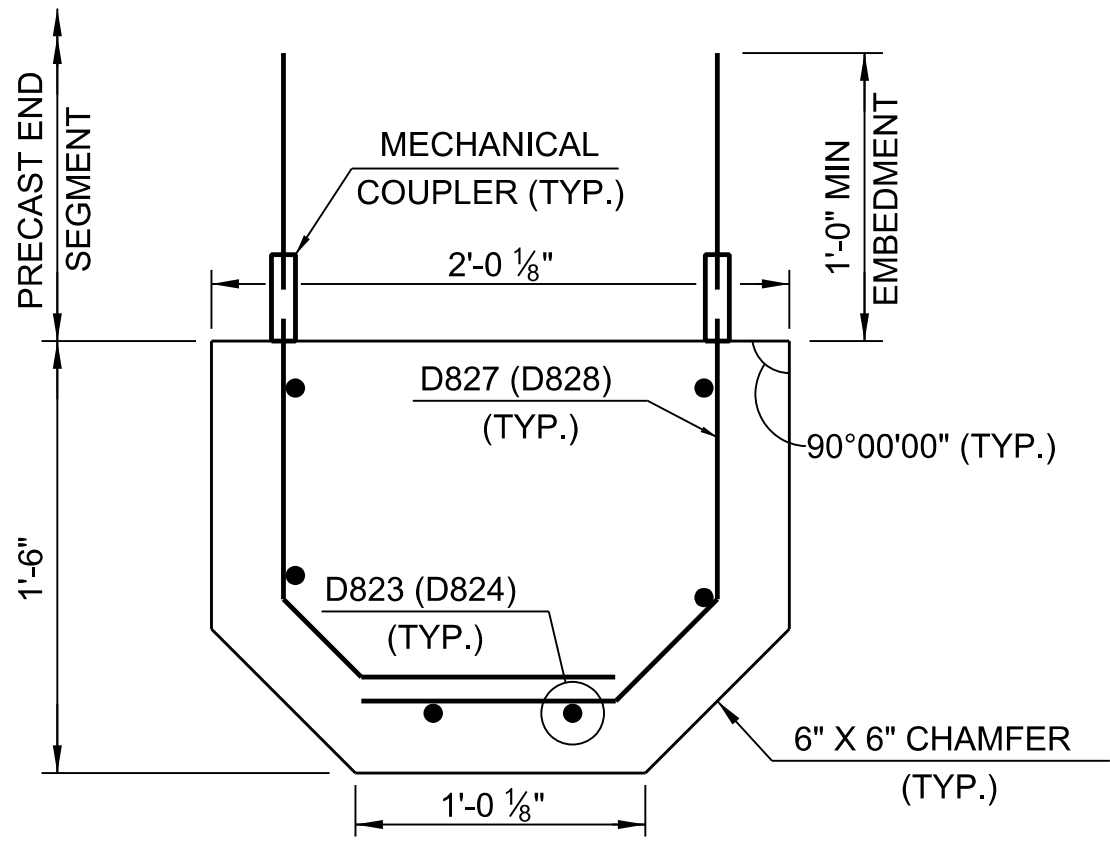
HEADWALL ELEVATION



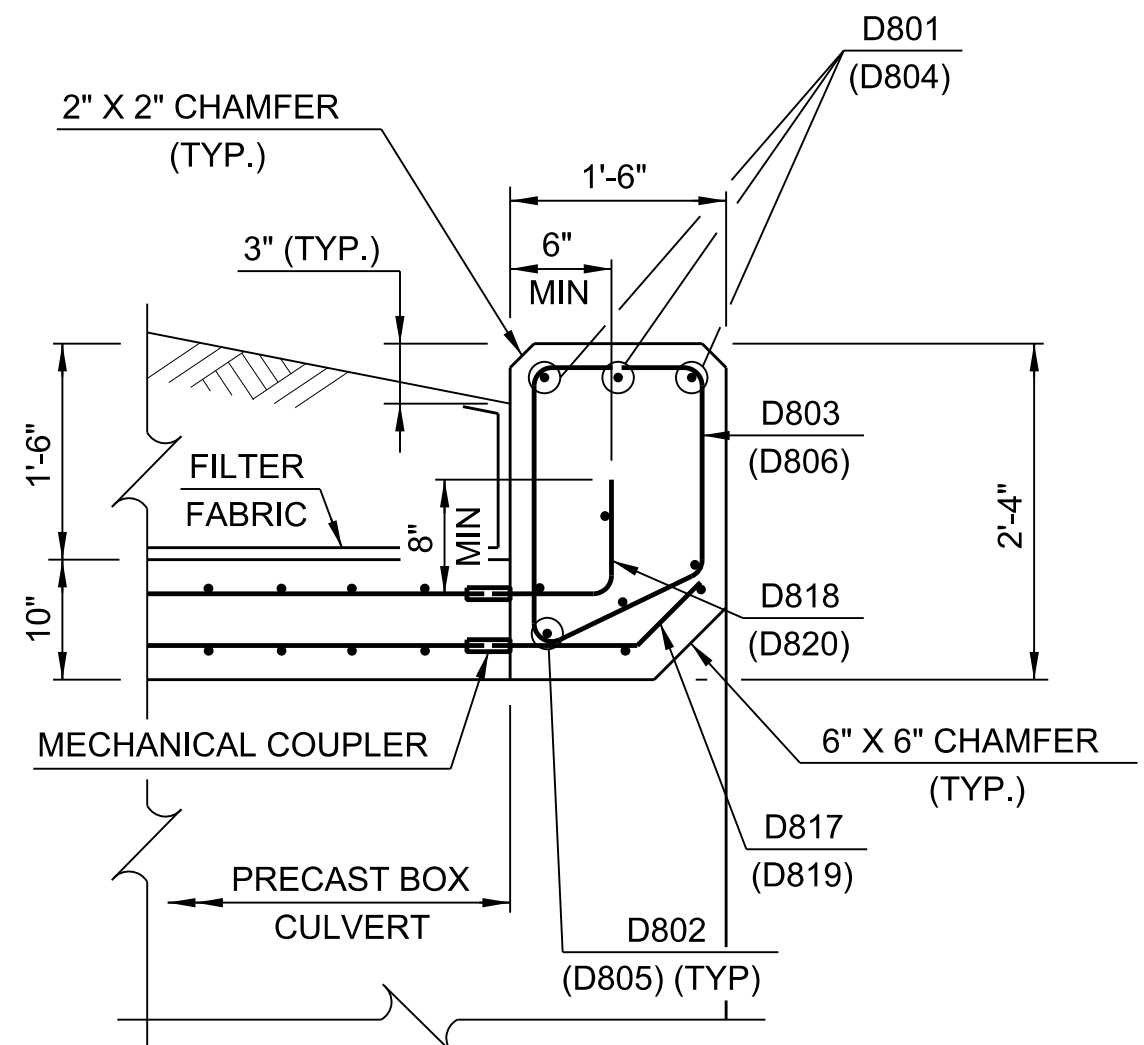
SECTION



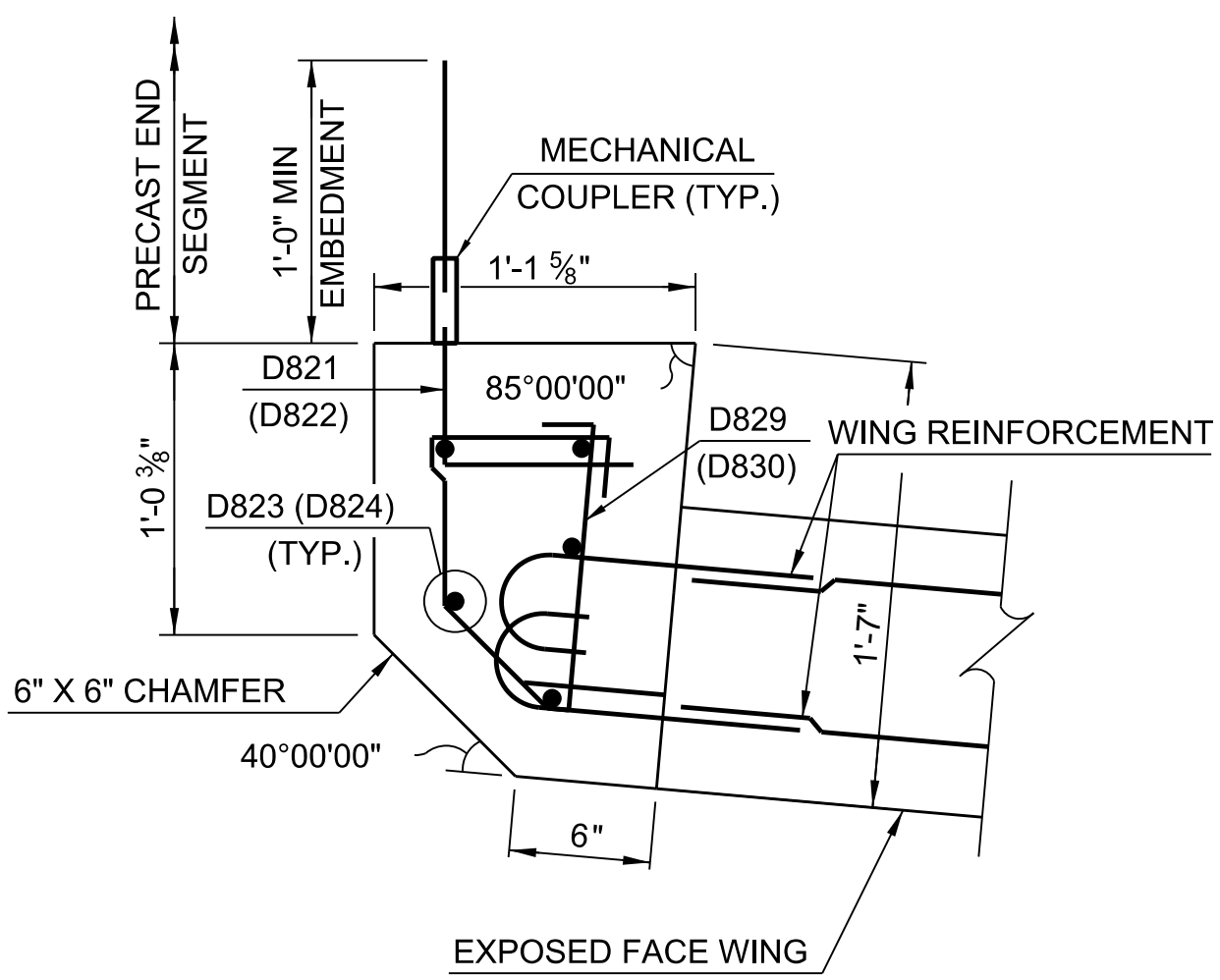
SECTION



SECTION



SECTION

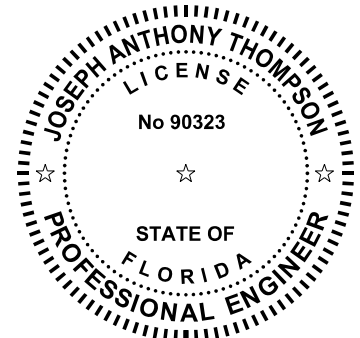


SECTION



NOTES:

1. FOR REINFORCEMENT, SEE INDEX 400-292.
2. FOR DETAILS NOT SHOWN, SEE INDICES 400-289, 400-291 & 400-292.
3. INLET REINFORCEMENT SHOWN, OUTLET REINFORCEMENT IN ().



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

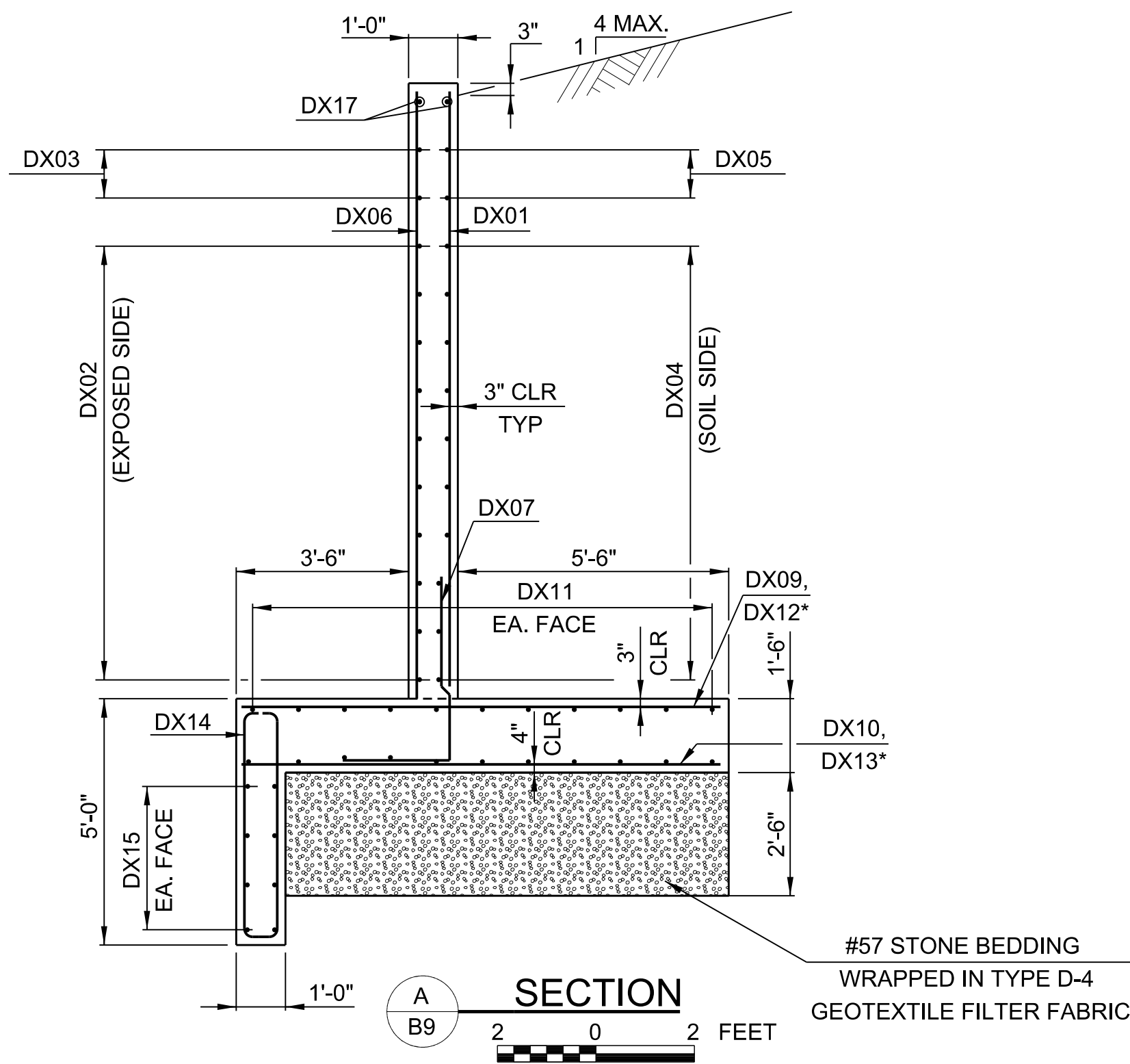
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

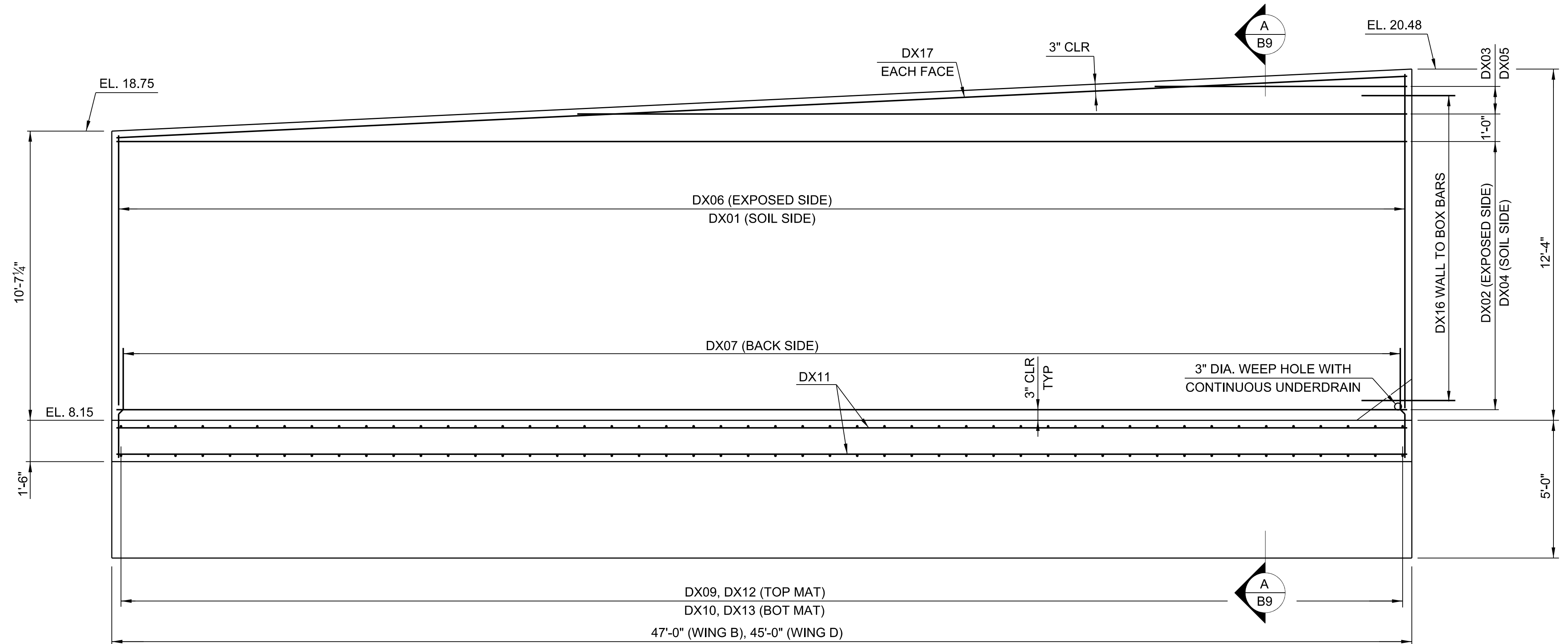
THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

HEADWALL DETAILS
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

SHEET
BX1-7



*DX12 AND DX13 BARS ARE LOCATED AT THE TRANSITION FROM THE WINGWALL FOOTING TO THE APRON



WINGWALL B & D - ELEVATION

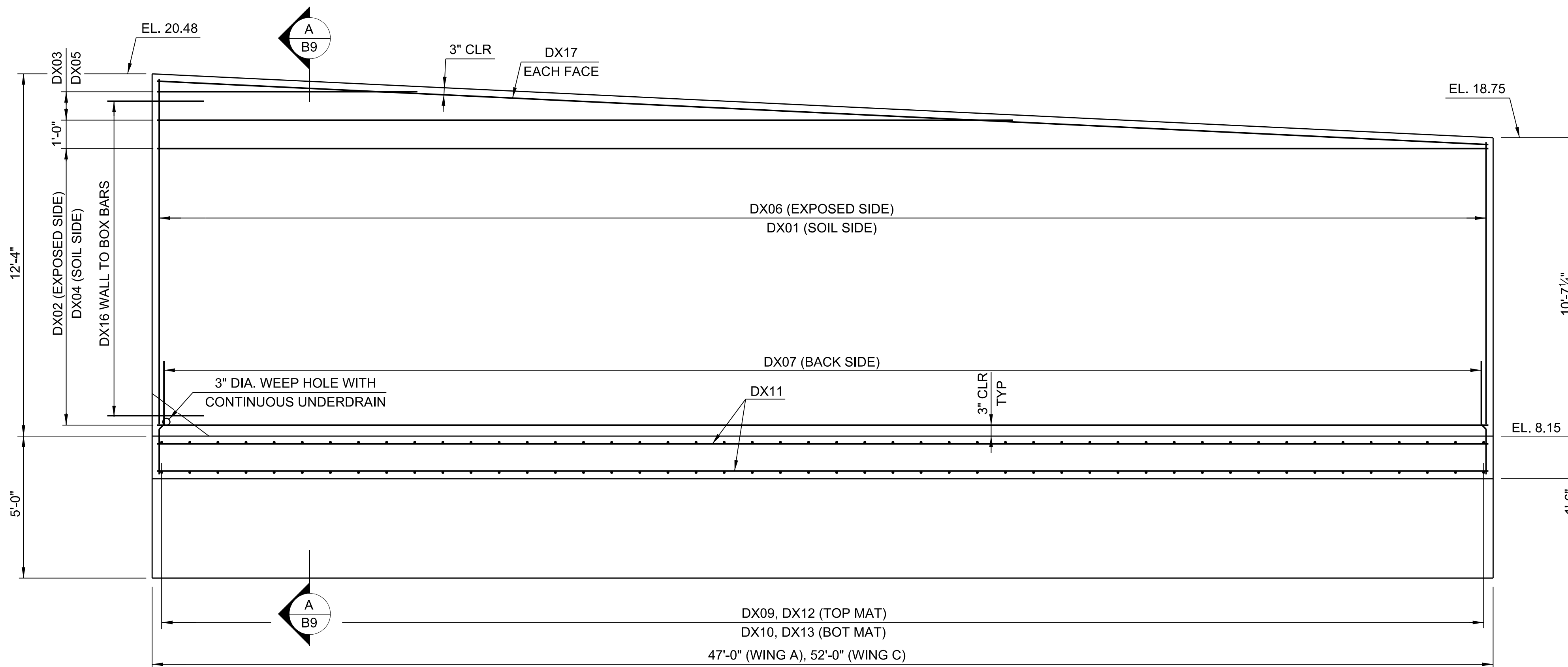


NOTES:

1. WINGWALL CONSTRUCTION JOINT PERPENDICULAR TO WINGWALL.
2. IN THE VICINITY OF THE CONSTRUCTION JOINT, FIELD BEND REINFORCEMENT AS NECESSARY TO MAINTAIN MINIMUM REINFORCEMENT COVER.
3. ADJUST REINFORCEMENT AROUND WEEP HOLE AS NECESSARY.

REINFORCEMENT KEY

WINGWALL A: X = 5
WINGWALL B: X = 4
WINGWALL C: X = 6
WINGWALL D: X = 7



WINGWALL A & C - ELEVATION



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

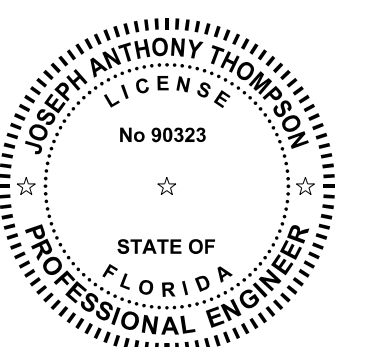
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

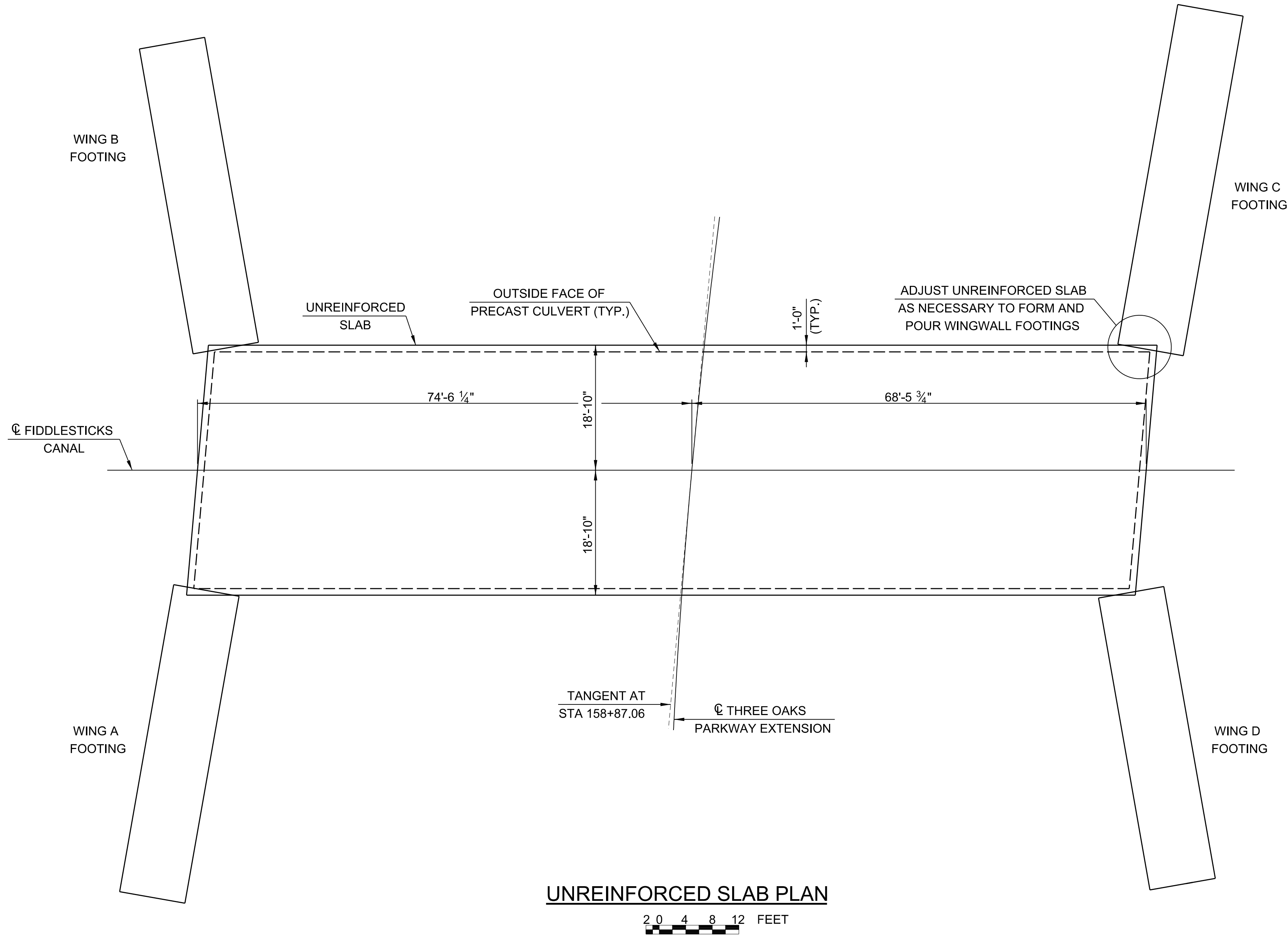
LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

WINGWALL DETAILS
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

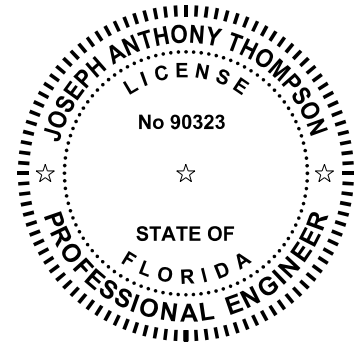
SHEET
BX1-8





UNREINFORCED SLAB PLAN

- NOTES:**
1. FOR WING FOOTING REINFORCEMENT, SEE SHEET BX1-8.
 2. FOR DETAILS NOT SHOWN, SEE INDICES 400-289, 400-291 & 400-292.



DATE	BY	REVISION DESCRIPTION

--

--

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

UNREINFORCED SLAB & WING FOOTING PLAN
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

SHEET
BX1-9

TABLE OF BOX CULVERT VARIABLES (INCHES UNLESS SHOWN OTHERWISE)																				
LOCATION	STRUCTURE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		WC(FT)	HC(FT)	TT	TW	TB	TI	*CELLS	LC(FT)	COVER	BLHW	HLHW	BRHW	HRHW	Blcw	Hlcw	Brcw	HRCW	SL(DEG)	SR(DEG)
STA 158+87.06	BX1	10	10	10	10	10	0	1	144	3	18	28	18	28	12	60	12	60	-5	-5

*EACH PRECAST BOX IS 1 CELL. THE CONCRETE QUANTITIES SHOWN BELOW ARE FOR ALL 3 BOXES COMBINED.

TABLE OF BOX CULVERT VARIABLES (CONT.) (INCHES UNLESS SHOWN OTHERWISE)																		
STRUCTURE NUMBER	LEFT END WINGWALL (WING B)									LEFT BEGIN WINGWALL (WING A)								
	LT	LW	LH	LD	SW(DEG)	B(DEG)	HE(FT)	HS(FT)	LW(FT)	LT	LW	LH	LD	SW(DEG)	B(DEG)	HE(FT)	HS(FT)	LW(FT)
BX1	42	12	66	18	100	14	10.6	12.33	47	42	12	66	18	100	14	10.6	12.33	47

TABLE OF BOX CULVERT VARIABLES (CONT.) (INCHES UNLESS SHOWN OTHERWISE)																		
STRUCTURE NUMBER	RIGHT END WINGWALL (WING C)									RIGHT BEGIN WINGWALL (WING D)								
	RT	RW	RH	RD	SW(DEG)	B(DEG)	HE(FT)	HS(FT)	LW(FT)	RT	RW	RH	RD	SW(DEG)	B(DEG)	HE(FT)	HS(FT)	LW(FT)
BX1	42	12	66	18	100	14	10.6	12.33	52	42	12	66	18	100	14	10.6	12.33	45

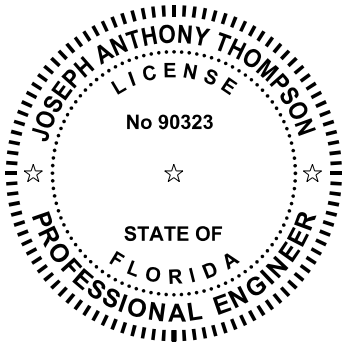
CONCRETE QUANTITIES (C.Y.)																							
STRUCTURE NUMBER	LEFT CUTOFF WALL	RIGHT CUTOFF WALL	BOTTOM SLAB	BOX WALLS	TOP SLAB	LEFT APRON	RIGHT APRON	LEFT HEAD WALL	RIGHT HEAD WALL	SUB TOTAL	WING A			WING B			WING C			WING D			CULVERT TOTAL
											FOOTING	WALL	SUB TOTAL	FOOTING	WALL	SUB TOTAL	FOOTING	WALL	SUB TOTAL	FOOTING	WALL	SUB TOTAL	
BX1	6	6	153	278	153	8	8	8	8	628	33	20	53	33	20	53	36	23	59	31	20	51	843

MAIN STEEL REINFORCEMENT SPACING (IN)																																		
STRUCTURE NUMBER	HEADWALL AND CUTOFF WALL																																	
	D801	D802	D803	D804	D805	D806	D807	D808	D809	D810	D811	D812	D813	D814	D815	D816	D817	D818	D819	D820	D821	D822	D823	D824	D825	D826	D827	D828	D829	D830	D831	D832	D833	D834
BX1	6	0	12	6	0	12	0	12	12	0	12	12	6	12	6	12	12	12	12	12	9	9	0	0	9	9	9	9	9	9	12	12	12	12

WINGWALL STEEL REINFORCEMENT SPACING (IN)																																												
STRUCTURE NUMBER	LEFT END WINGWALL (WING B)										LEFT BEGIN WINGWALL (WING B)										RIGHT END WINGWALL (WING C)										RIGHT BEGIN WINGWALL (WING D)													
	401 407(8)	402 (403)	404 (405)	406	409 (412)	410 (413)	411	414	415	416	417	501 507(8)	502 (503)	504 (505)	506	509 (512)	510 (513)	511	514	515	516	517	601 607(8)	602 (603)	604 (605)	606	609 (612)	610 (613)	611	614	615	616	617	701 707(8)	702 (703)	704 (705)	706	709 (712)	710 (713)	711	714	715	716	717
BX1	6	12	12	12	6	12	12	12	12	12	0	6	12	12	12	6	12	12	12	12	12	0	6	12	12	12	6	12	12	12	12	12	0	6	12	12	12	6	12	12	12	12	12	0

PRECAST BOX CULVERT REINFORCEMENT																		
STRUCTURE NUMBER	REINFORCEMENT AREA (SQ IN/FT)									SPACING (IN)								
	AS1	AS2	AS3	AS4	AS5	AS6	AS7	AS8	AS9	AS1	AS2	AS3	AS4	AS5	AS6	AS7	AS8	AS9
BX1	0.79	0.81	0.87	0.23	N/A	N/A	N/A	N/A	0.11	4	4	4	4	N/A	N/A	N/A	N/A	8

NOTE: PRECAST BOX CULVERT REINFORCEMENT PROVIDED FOR INFORMATION ONLY.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

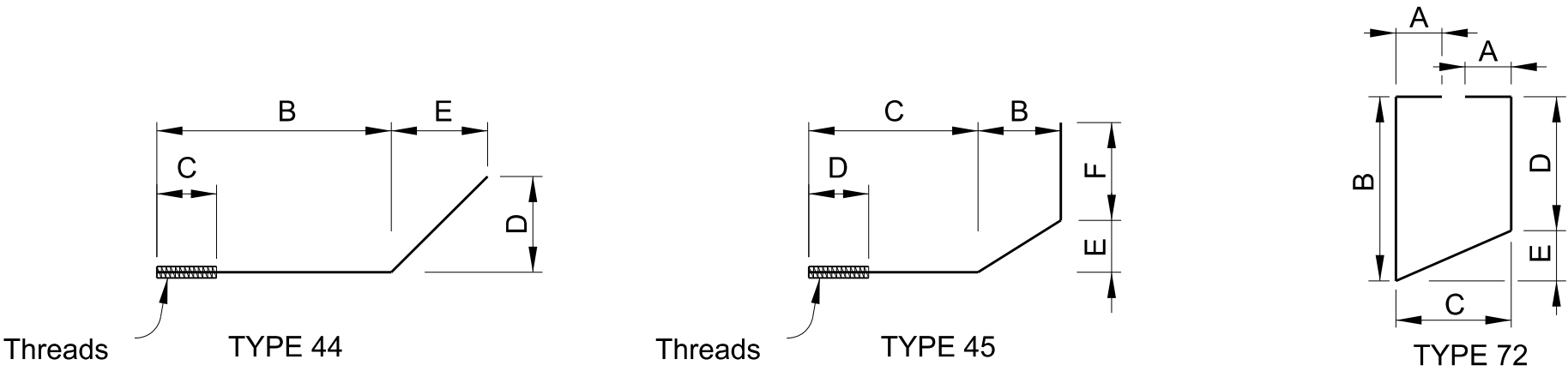
TABLE OF R.C. BOX CULVERT VARIABLES
STA. 158+87.06 TRIPLE 10' X 10'
REINFORCED CONCRETE BOX CULVERT

SHEET
BX1-10

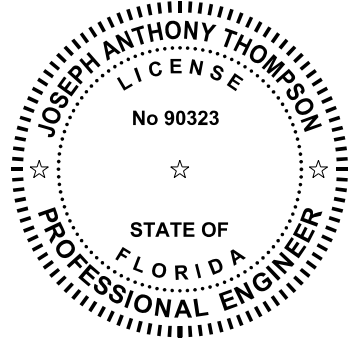
MARK		LENGTH		NO		TYPE		STY		B			C			D			E			F			H			J			K			N		Ø	
SIZE	DES	FT	IN	BARS	BARS	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG				
LOCATION		HEADWALL, TOE SLAB AND CUTOFF WALL																																			
6	D801	35-11		3	1			35-11																													
6	D802	35-11		7	1			35-11																													
3	D803	5-3		37	72			1-10			11 ¼			1-6			4			5½																	
6	D804	35-11		3	1			35-11																													
6	D805	35-11		7	1			35-11																													
3	D806	5-3		37	72			1-10			11 ¼			1-6			4			5½																	
4	D807	41-2		2	1			41-2																													
4	D808	41-2		10	1			41-2																													
4	D809	5-10		42	7			4-6			6			5			5																				
4	D810	41-2		2	1			41-2																													
4	D811	41-2		10	1			41-2																													
4	D812	5-10		42	7			4-6			6			5			5																				
6	D813	41-0		22	1			41-0																													
4	D814	5-7		74	33	0		5-7			3																										
6	D815	41-0		22	1			41-0																													
4	D816	5-7		74	33	0		5-7			3																										
3	D817	1-7		37	44			1-1			3			4¼			4¼																				
3	D818	1-8		37	33	8		1-0			3																										
3	D819	1-7		37	44			1-1			3			4¼			4¼																				
3	D820	1-8		37	33	8		1-0			3																										
3	D821	1-7		28	33	8		11			3																										
3	D822	1-7		28	33	8		11			3																										
6	D823	12-0		22	1			12-0																													
6	D824	12-0		22	1			12-0																													
3	D825	4-9*		14	1			4-9																													
3	D826	4-9*		14	1			4-9																													
3	D827	2-5		56	45			4¼			1-1 ½			3			4¼			9																	
3	D828	2-5		56	45			4¼			1-1 ½			3			4¼			9																	
3	D829	4-1*		14	1			4-1																													
3	D830	4-1*		14	1			4-1																													
4	D831	4-6		12	12			2-3			2-3																						5				
4	D832	4-6		12	12			2-3			2-3																						5				
4	D833	4-6		12	12			2-3			2-3																						15				
4	D834	4-6		12	12			2-3			2-3																						15				
LOCATION		WINGWALL B																																			
6	D401	VARY		94	1			11-11																													
		11-1		0	1			10-3																													
4	D402	46-8		11	1			46-8																													
4	D403	VARY		2	1			26-5																													
		19-8		0	1			12-10																													
4	D404	46-8		11	1			46-8																													
4	D405	VARY		2	1			26-5																													
		19-8		0	1			12-10																													
4	D406	VARY		48	1			11-11																													
		11-1		0	1			10-3																													
6	D407	4-11		94	14			3-11			1-0																						90				
4	D409	9-8		92	1			9-8																													
4	D410	9-8		47	1			9-8																													
4	D411	46-8		22	1			46-8																													
4	D412	VARY		3	1			9-11																													
		9-10		0	1			9-8																													
4	D413	VARY		2	1			9-11																													
		9-10		0	1			9-8																													
4	D414	5-10		47	7			4-6			6			5			5																				
4	D415	45-7		8	1			45-7																													
4	D416	3-6		26	17	6		3-6																													
4	D417	46-8		2	1			46-8																													
LOCATION		WINGWALL A																																			
6	D501	VARY		94	1			11-11																													
		11-1		0	1			10-3																													
4	D502	46-8		11	1			46-8																													
4	D503	VARY		2	1			26-5																													
		19-8		0	1			12-10																													
4	D504	46-8		11	1			46-8																													
4	D505	VARY		2	1			26-5																													
		19-8		0	1			12-10																													
4	D506	VARY		48	1			11-11																													
		11-1		0	1			10-3																													
6	D507	4-11		94	14			3-11			1-0																						90				
4	D509	9-8		84	1			9-8																													
4	D510	9-8		43	1			9-8																													
4	D511	46-8		22	1			46-8																													

MARK		LENGTH		NO	TYPE	STY	B			C			D			E			F			H			J			K			N	Ø	
SIZE	DES	FT	IN	BARS	BARS	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG			
LOCATION		WINGWALL A																															
4	D512	VARY		11	1			10-1																									
		9-11		0	1			9-8																									
4	D513	VARY		6	1			10-1																									
		9-11		0	1			9-8																									
4	D514	5-10		43	7			4-6			6			5			5																
4	D515	41-9		8	1			41-9																									
4	D516	3-6		26	17	6		3-6																									
4	D517	46-8		2	1			46-8																									
LOCATION		WINGWALL C																															
6	D601	VARY		104	1			11-11																									
		11-1		0	1			10-3																									
4	D602	51-8		11	1			51-8																									
4	D603	VARY		2	1			29-3																									
		21-9		0	1			14-3																									
4	D604	51-8		11	1			51-8																									
4	D605	VARY		2	1			29-3																									
		21-9		0	1			14-3																									
4	D606	VARY		53	1			11-11																									
		11-1		0	1			10-3																									
6	D607	4-11		104	14			3-11			1-0																						90
4	D609	9-8		95	1			9-8																									
4	D610	9-8		48	1			9-8																									
4	D611	51-8		22	1			51-8																									
4	D612	VARY		11	1			10-1																									
		9-11		0	1			9-8																									
4	D613	VARY		6	1			10-1																									
		9-11		0	1			9-8																									
4	D614	5-10		48	7			4-6			6			5			5																
4	D615	46-9		8	1			46-9																									
4	D616	3-6		26	17	6		3-6																									
4	D617	51-8		2	1			51-8																									
LOCATION		WINGWALL D																															
6	D701	VARY		90	1			11-11																									
		11-1		0	1			10-3																									
4	D702	44-8		11	1			44-8																									
4	D703	VARY		2	1			25-3																									
		18-9		0	1			12-3																									
4	D704	44-8		11	1			44-8																									
4	D705	VARY		2	1			25-3																									
		18-9		0	1			12-3																									
4	D706	VARY		46	1			11-11																									
		11-1		0	1			10-3																									
6	D707	4-11		90	14			3-11			1-0																						90
4	D709	9-8		88	1			9-8																									
4	D710	9-8		45	1			9-8																									
4	D711	44-8		22	1			44-8																									
4	D712	VARY		3	1			9-11																									
		9-10		0	1			9-8																									
4	D713	VARY		2	1			9-11																									
		9-10		0	1			9-8																									
4	D714	5-10		45	7			4-6			6			5			5																
4	D715	43-7		8	1			43-7																									
4	D716	3-6		26	17	6		3-6																									
4	D717	44-8		2	1			44-8																									

* BEND BAR AS NEEDED IN FIELD



1. ALL REINFORCING STEEL SHALL BE GRADE 60 IN ACCORDANCE WITH THE LATEST EDITION OF AASHTO M31M/M31.
2. ALL FABRICATION OF REINFORCING STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCEMENT CONCRETE STRUCTURES (ACI 315).
3. CONTRACTOR SHALL REVIEW AND APPROVE ALL REINFORCING DETAIL SCHEDULES AND QUANTITIES PRIOR TO FABRICATION.
4. FOR ADDITIONAL BAR BENDS, SEE INDEX 415-001.



DATE	BY	REVISION DESCRIPTION

--

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
 1404 Dean Street, Suite 200
 Fort Myers, FL 33901
 FBPE# 29282 (239) 935-5006



LEE COUNTY DEPARTMENT
OF
TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

REINFORCING STEEL DETAILS
STA. 158+87.06 TRIPLE 10 X 10 REINFORCED CONCRETE BOX CULVERT

SHEET
BX1-11

B-1

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-4-5	9			Loose and Medium Dense Light Brown and Gray Fine Sand with varying Roots and traces of Rock Fragments (A-3)		
5		4-5-12	17					
10		12-14-12	26					
15		10-8-9	16					
20		7-8-9	17					
25		7-9-11	20					
30		6-7-8	15					
35		6-8-8	16			Very Stiff Dark Gray Sandy Silt with varying Cemented Shell Fragments (A-4)		
40		8-6-4	10			Loose and Medium Dense Fine Sand and Rock Fragments with Silt (A-2-4)		
45		5-4-5	9					
50		5-5-5	10					
55		2-1-2	3			Soft Greenish-Gray Sandy Clay (A-6)		
60		1-1-4	5			Medium Stiff Greenish-Gray and Gray Sandy Clay (A-6)		
65		2-2-2	4					
70		1-2-3	5					
75		2-3-3	6					
80		2-3-5	8					
85		3-2-4	6					
90		2-3-3	6					
95		3-4-2	6			Loose and Medium Dense Gray Clayey Sand (A-2-4)		
100		3-4-5	9					
105		5-6-6	12					
110		7-7-13	20			Medium Dense and Dense Fine Sand and Rock Fragments with Silt (A-2-4)		
115		10-18-12	30					
120		12-24-20	44			BORING TERMINATED		

B-3

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-6-6	12			Medium Dense and Loose Brown and Gray Fine Sand with traces of Rock Fragments (A-3)		
5		4-4-5	9					
10		6-5-6	11					
15		8-10-12	12					
20		8-6-10	16					
25		10-10-12	22					
30		7-12-7	19					
35		5-4-5	9			Medium Stiff and Stiff Light Gray and Light Brown Sandy Silt with Cemented Shell and Rock Fragments (A-4)		
40		3-3-4	7					
45		1-3-7	10					
50		4-3-5	8					
55		3-2-4	6			Medium Stiff and Stiff Greenish Gray Sandy Clay with Rock Fragments (A-6)		
60		2-3-3	6			Loose and Medium Dense Gray and Dark Gray Clayey Sand with traces of Phosphate Fragments (A-2-4)		
65		2-2-3	5					
70		2-2-3	5					
75		3-2-3	5					
80		1-3-3	6					
85		3-3-3	6					
90		3-4-3	7					
95		4-4-6	10					
100		4-5-7	12			Medium Dense and Dense Light Gray and Light Brown Fine Sand and Cemented Shell Rock Fragments with Silt (A-2-4)		
105		5-4-4	8					
110		7-8-9	17					
115		12-24-19	43					
120		10-16-17	33			BORING TERMINATED		

B-4

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-5-5	10			Medium Dense Light Brown and Gray Fine Sand with varying Roots and traces of Rock Fragments (A-3)		
5		5-5-6	11					
10		8-14-16	30					
15		16-13-13	26					
20		8-8-12	20					
25		8-7-9	16					
30		4-6-7	13			Stiff and Very Stiff Light Gray Sandy Silt with Cemented Shell and Rock Fragments (A-4)		
35		7-7-8	15					
40		8-7-5	12					
45		5-10-6	16					
50		12-21-4	25			Medium Stiff Greenish-Gray Sandy Clay with traces of Shell Fragments (A-6)		
55		3-3-2	5					
60		1-2-2	4					
65		1-2-2	4					
70		2-2-3	5			Loose Greenish-Gray and Gray Clayey Sand with traces of Shell and Phosphate Fragments (A-6)		
75		2-1-2	3					
80		2-2-3	5					
85		3-3-3	6					
90		3-2-4	6					
95		4-3-5	8			Medium Dense Gray Fine Sand with Clay and traces of Phosphate Fragments (A-2-4)		
100		6-5-9	14					
105		19-28-22	50			Medium Dense, Dense and Very Dense Fine Sand and Rock Fragments with varying Silt (A-2-4)		
110		15-22-20	42					
115		19-12-17	29					
120		20-40-13	53			BORING TERMINATED		

B-5

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-4-7	11			Medium Dense Light Gray and Gray Fine Sand with varying Roots (A-3)		
5		5-6-14	20					
10		11-15-16	31					
15		11-13-15	28					
20		9-9-13	22					
25		7-9-7	16					
30		5-5-5	10			Very Loose to Loose Light Gray Silty Sand with varying Cemented Shell Fragments (A-4)		
35		2-1-1	2					
40		1-1-1	2					
45		2-2-2	4					
50		6-16-15	31			Dense Light Gray Fine Sand and Cemented Shell Rock Fragments with Silt (A-2-4)		
55		2-2-3	5			Medium Stiff Greenish-Gray Sandy Clay with traces of Shell Rock Fragments (A-6)		
60		1-3-2	5					
65		2-3-2	5					
70		2-2-5	7			Medium Stiff and Stiff Greenish-Gray and Gray Clayey Sand with traces of Shell and Phosphate Fragments (A-6)		
75		3-2-3	5					
80		2-3-4	7					
85		3-5-4	9					
90		3-5-4	5					
95		4-3-2	6					
100		3-3-3	13					
105		5-4-9	22			Medium Dense, Dense and Very Dense Gray Fine Sand and Cemented Shell Rock Fragments with Silt (A-2-4)		
110		12-19-22	41					
115		15-22-19	41					
120		21-26-32	58			BORING TERMINATED		

B-6

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-2-4	6			Loose to Medium Dense Gray and Dark Brown Fine Sand (A-3)		
5		4-4-4	8					
10		4-5-6	11					
15		5-7-6	13			Medium Dense Gray and Light Brown Fine Sand with Silt (A-2-4)		
20		9-9-6	15					
25		7-8-9	18					
30		6-6-6	12			Medium Dense to Loose Gray and Light Brown Fine Sand with Silt and Rock fragments (A-2-4)		
35		6-10-12	22					
40		2-1-9	10			Very Loose to Loose Greenish-Gray Clayey Fine Sand (A-2-6)		
45		2-2-2	4					
50		2-3-3	6					
55		3-3-3	6			Loose to Medium Dense Greenish-Gray Clayey Fine Sand (A-6)		
60		3-4-3	7					
65		4-4-4	8					
70		4-3-4	7					
75		4-4-4	8					
80		4-4-3	7					
85		6-8-6	14			Hard Greenish-Gray Sandy Clay (A-6)		
90		12-15-21	36					
95		25-32-30	62			Medium Dense, Dense and Very Dense Gray and Light Brown Fine Sand with Silt, Cemented Sand, Rock and Shell fragments (A-2-4)		
100		12-15-15	30					
105		11-9-9	18					
110		11-15-15	30			BORING TERMINATED		

B-7

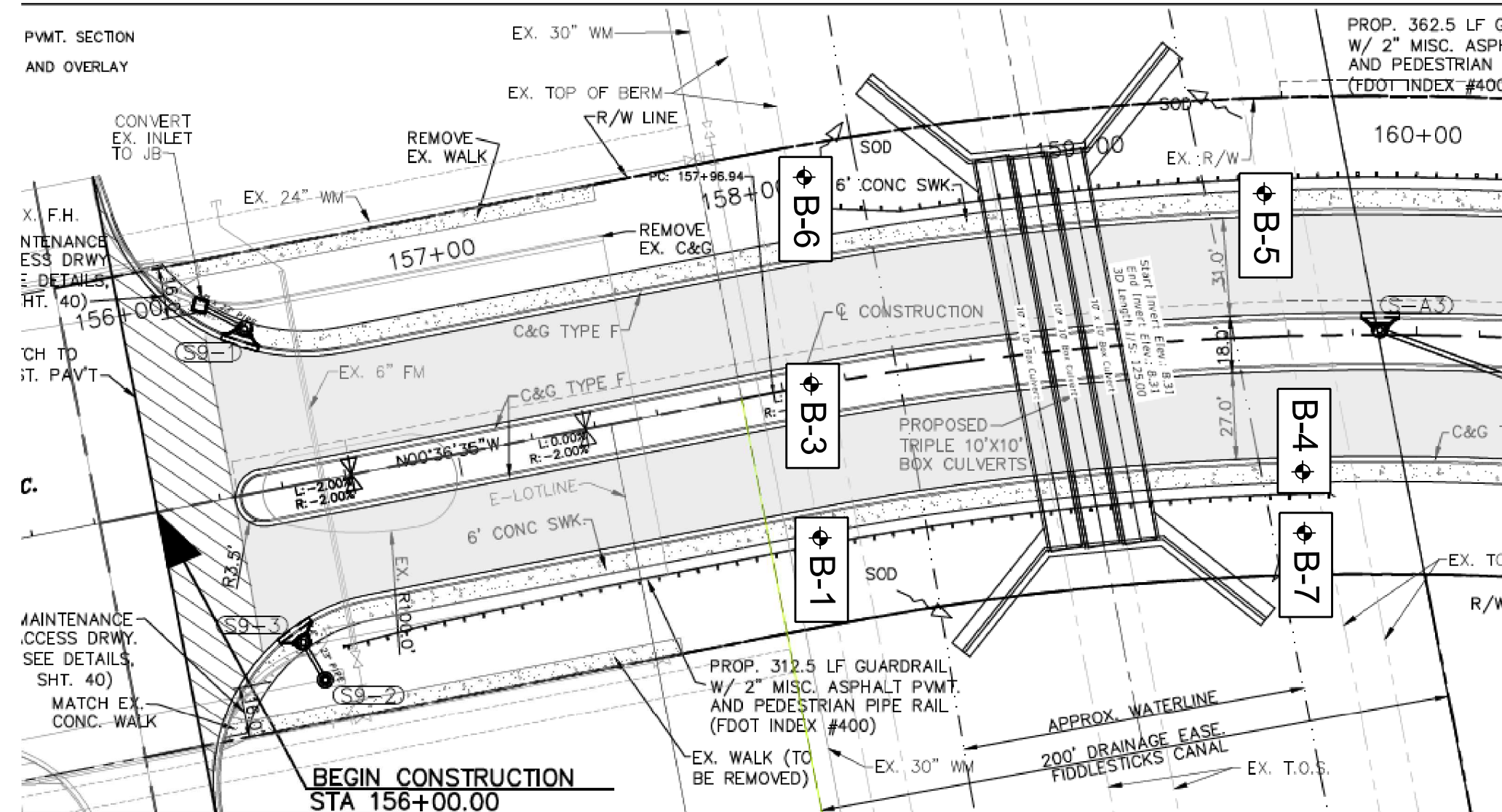
DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		4-5-4	9			Loose to Medium Dense Gray and Dark Brown Fine Sand (A-3)		
5		5-6-3	9					
10		5-6-4	10					
15		7-6-6	11			Medium Dense Gray and Light Brown Fine Sand with Silt (A-2-4)		
20		6-6-6	14					
25		8-6-8	15			Very Loose to Loose Gray and Light Brown Fine Sand with Silt, Rock and Shell fragments (A-2-4)		
30		9-11-9	20					
35		2-2-2	4					
40		2-2-4	6					
45		2-2-3	5					
50		3-3-3	6			Loose Greenish-Gray Clayey Fine Sand with Shell fragments (A-6)		
55		3-2-3	5					
60		3-3-3	6			Loose to Medium Dense Greenish-Gray Clayey Fine Sand (A-6)		
65		4-3-3	6					
70		4-4-4	8					
75		6-4-3	7					
80		4-4-3	7					
85		6-5-4	9					
90		8-6-9	15					
95		9-11-15	26			Very Stiff Greenish Gray Sandy Clay (A-6)		
100		20-18-25	43			Medium Dense and Dense Gray and Light Brown Fine Sand with Silt, Cemented Sand, Rock and Shell fragments (A-2-4)		
105		15-21-25	46					
110		9-9-21	30					
115		15-15-21	36					
120		9-11-11	22			BORING TERMINATED		

NOTES TO BORING LOGS

- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT (18" SPOON - ASTM D 1586)
- (SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL BASED ON VISUAL OBSERVATION
- 200 PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- WC NATURAL MOISTURE CONTENT (%)
- LL LIQUID LIMIT 6.0 Δ EST. SEASONAL HIGH GROUNDWATER TABLE
- PI PLASTICITY INDEX

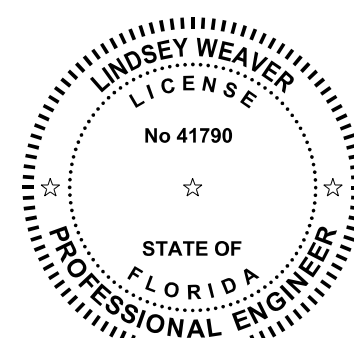
CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR MATERIALS (SANDS & GRAVELS)		COHESIVE MATERIALS (SILTS & CLAYS)	
CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)	CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)
Very Loose	0-4	Very Soft	0-2
Loose	5-10	Soft	3-4
Medium Dense	11-30	Firm	5-8
Dense	31-50	Stiff	9-16
Very Dense	50+	Very Stiff	17-30
		Hard	30+



LEGEND:

◆ B-1 Approximate SPT boring location



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
 PROJ. MGR. Melody Matter, PE
 LEE COUNTY DOT PROJECT: CN160642/ANB
 LDOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
 1404 Dean Street, Suite 200
 Fort Myers, FL 33901
 FBPE# 29282 (239) 935-5006

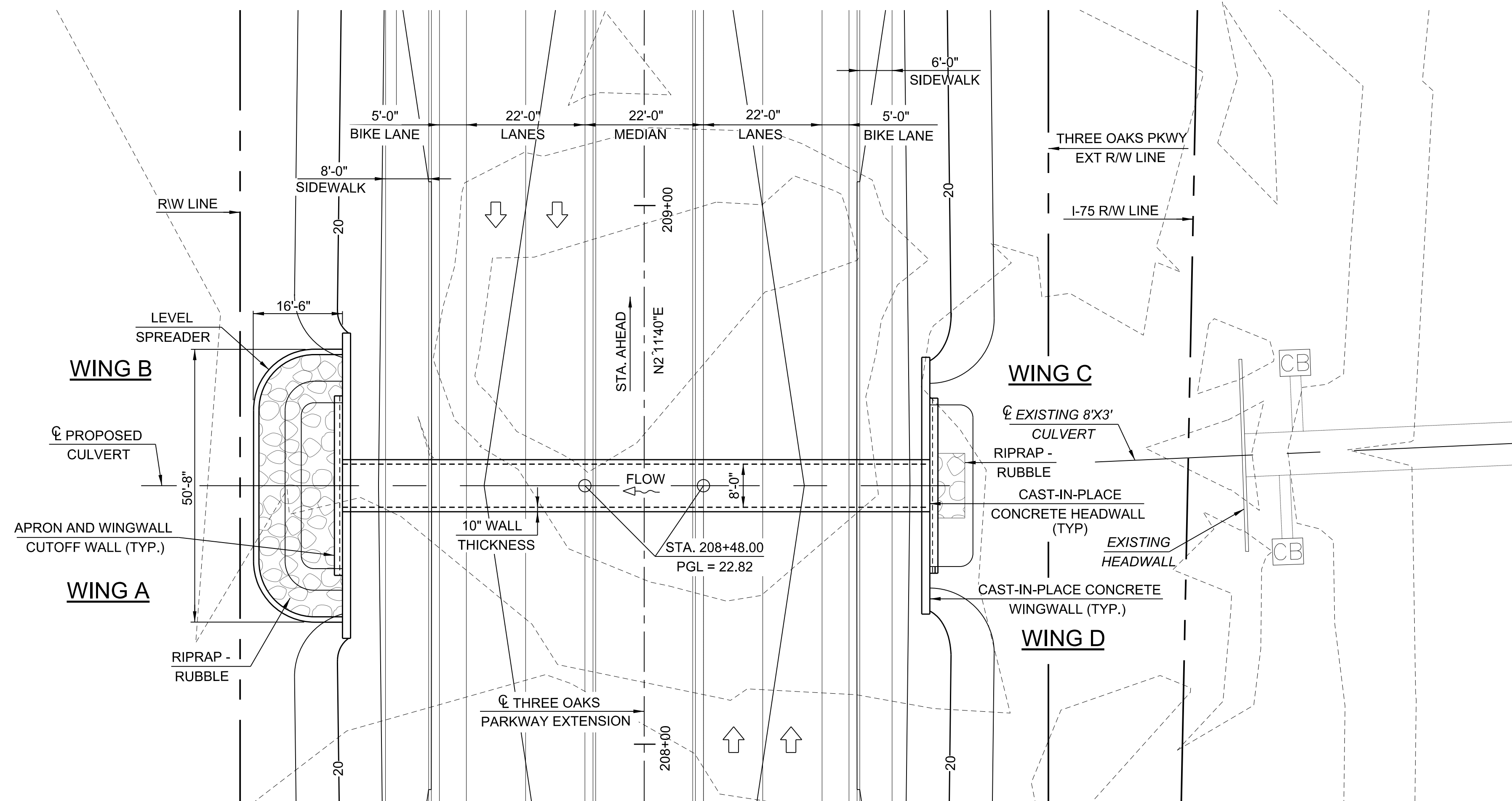
LEE COUNTY DEPARTMENT OF TRANSPORTATION
 (239) 533-8580

THREE OAKS PARKWAY EXTENSION
 THREE OAKS PARKWAY OVER FIDDELESTICKS CANAL
 LEE COUNTY, FLORIDA

BORING SHEET

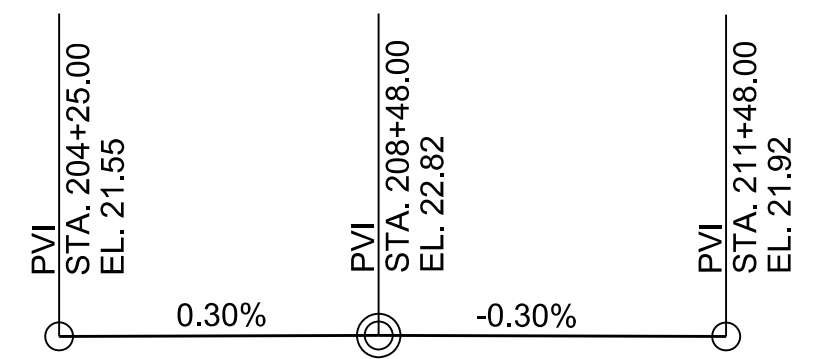
SHEET

BX1-12



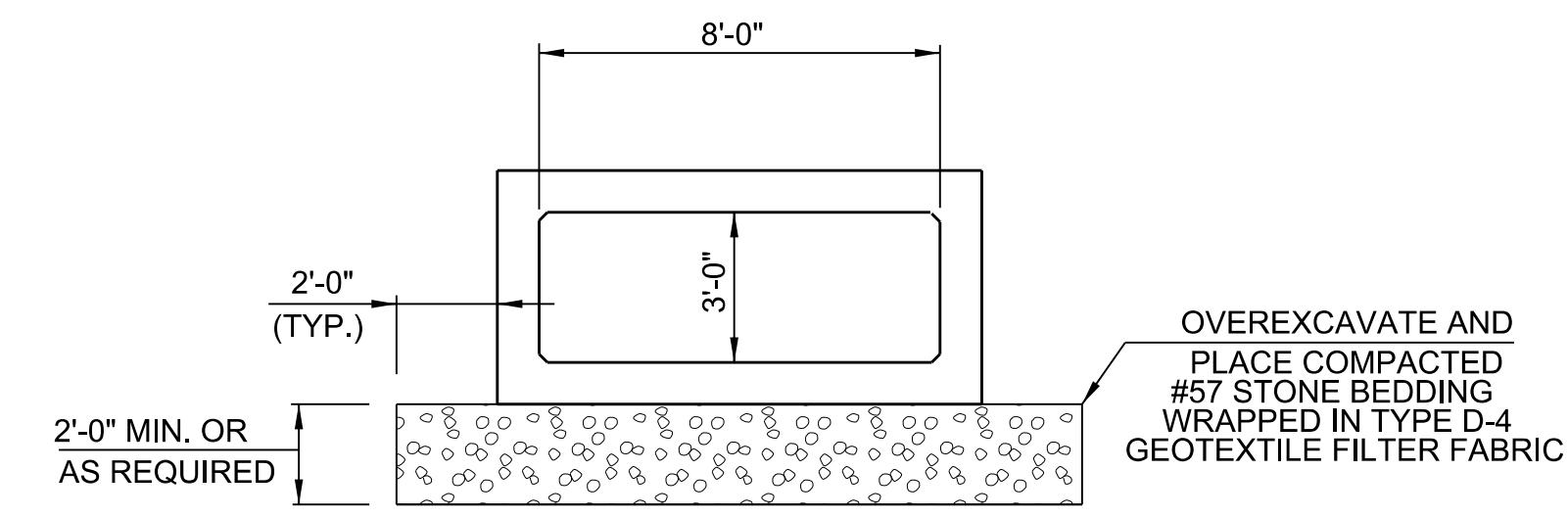
PLAN
15 0 15 FEET

THREE OAKS
PARKWAY EXTENSION
VERTICAL CURVE DATA

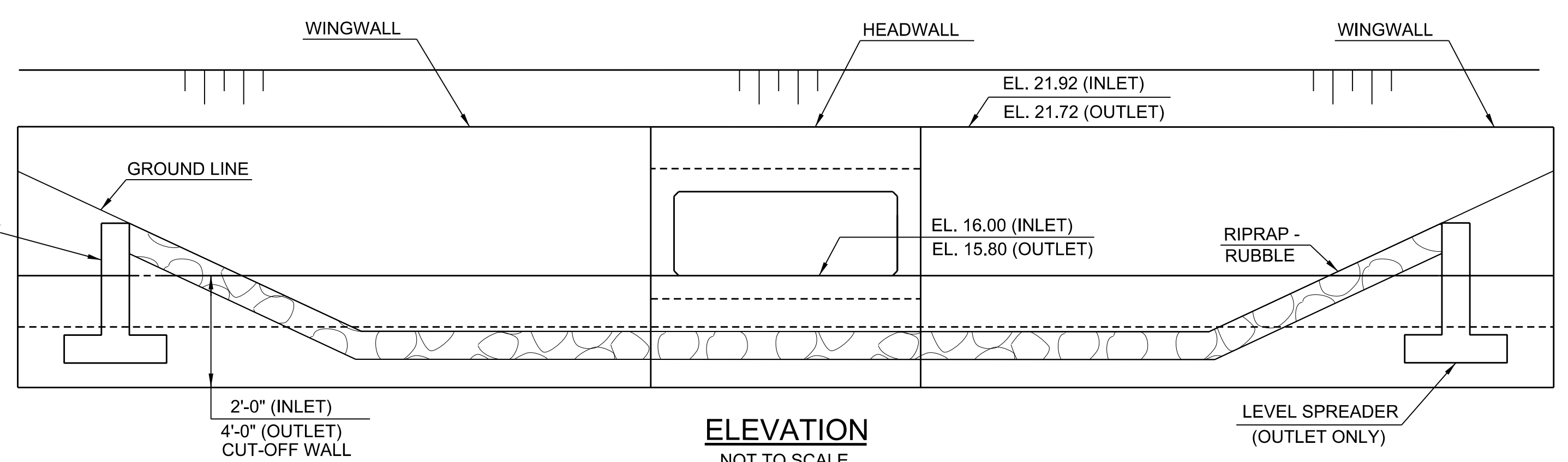


THREE OAKS
PARKWAY EXTENSION
HORIZONTAL CURVE DATA

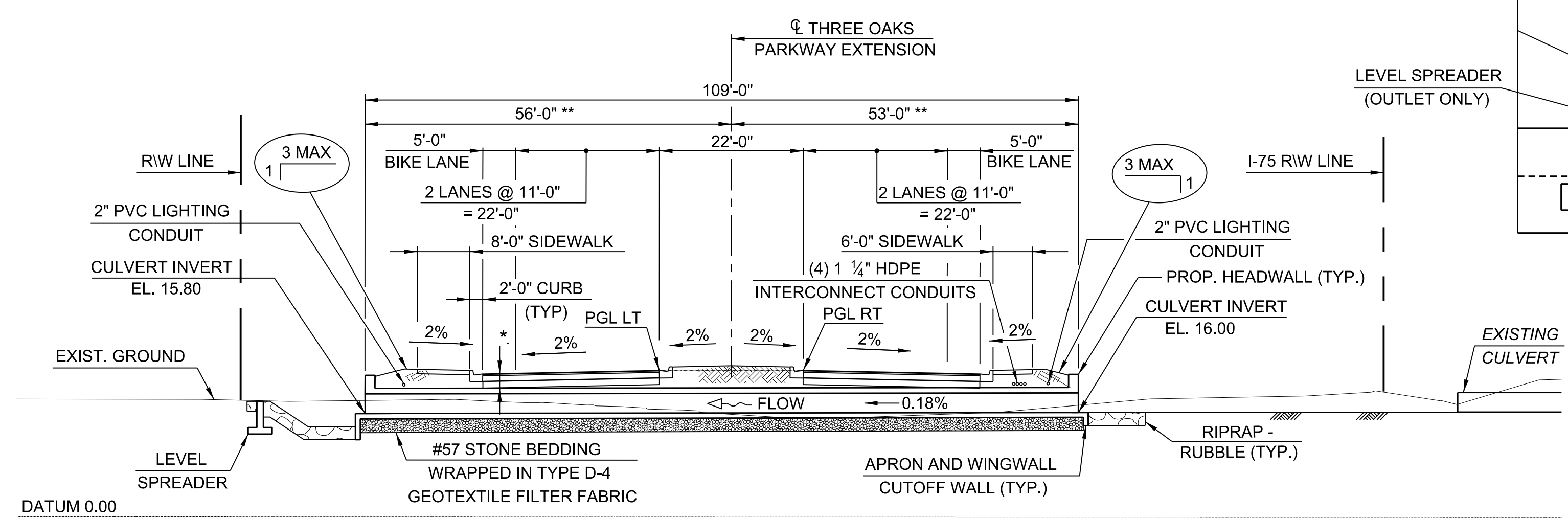
N 02°11'40"E TANGENT



CULVERT SECTION
5 0 5 FEET



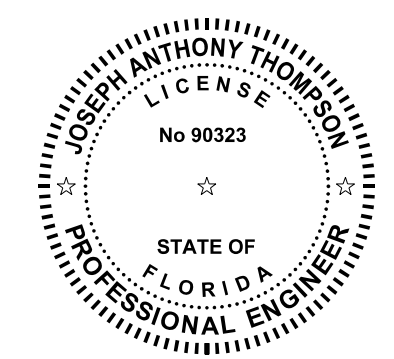
ELEVATION
NOT TO SCALE

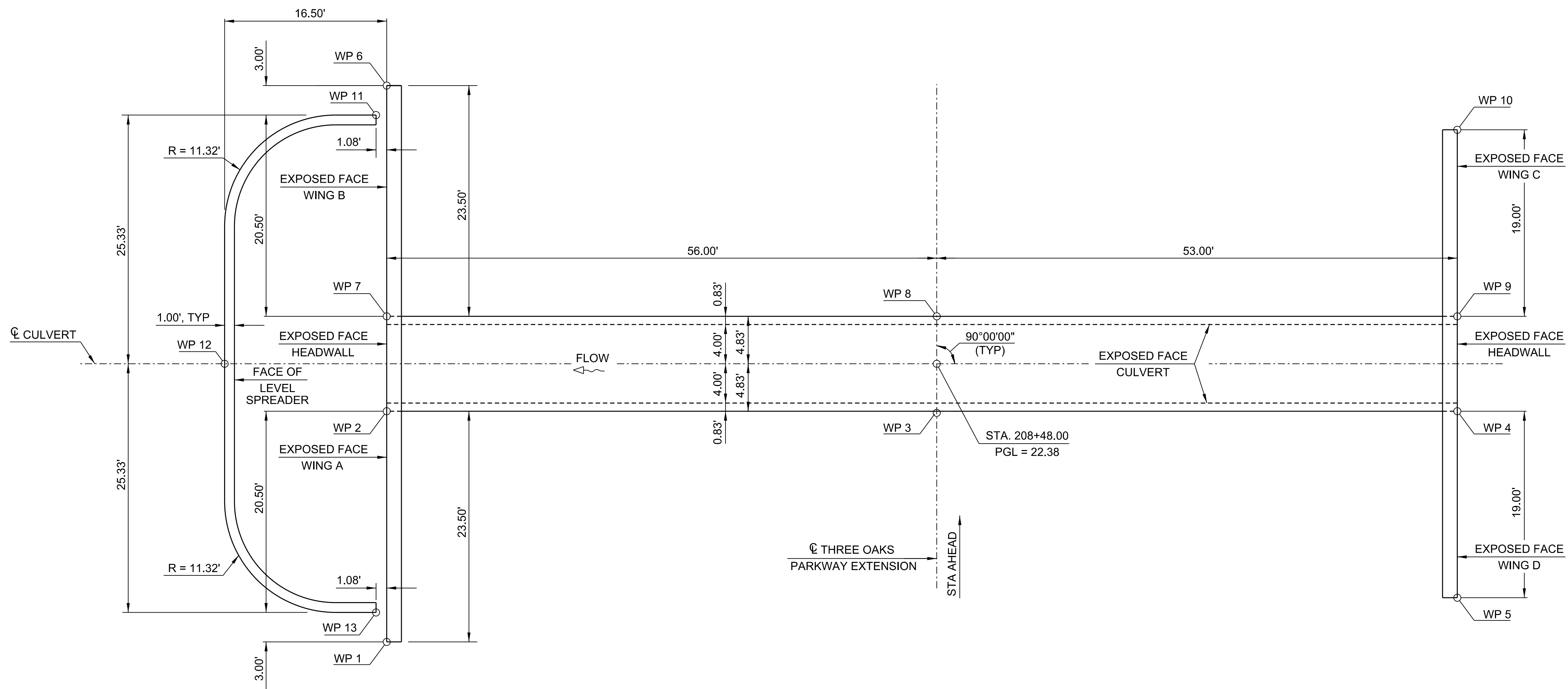


CULVERT SECTION
15 0 15 FEET

* FILL DEPTH AT THE ROADWAY VARIES 2'-5 1/2" TO 3'-1 1/8"
** ALONG CENTERLINE OF CULVERT

- NOTES:
1. FOR CULVERT GENERAL NOTES SEE SHEET B-4.
2. FOR RIPRAP RUBBLE DETAILS SEE INDEX 524-001.



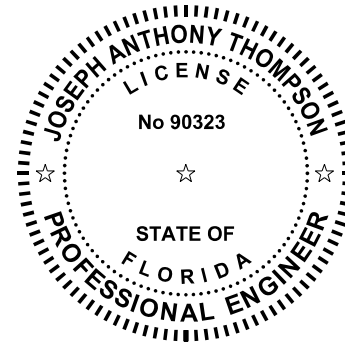


STAKE-OUT PLAN



WORK POINTS		
POINT	NORTHING	EASTING
1	795472.69	722935.98
2	795496.18	722936.88
3	795494.03	722992.84
4	795492.00	723045.80
5	795473.02	723045.07
6	795529.32	722938.15
7	795505.84	722937.25
8	795503.69	722993.21
9	795501.66	723046.17
10	795520.65	723046.89
11	795526.36	722936.95
12	795501.64	722920.57
13	795475.73	722935.01

STATIONS & OFFSETS		
POINT	STATION	OFFSET
1	208+19.67	56.00 LT
2	208+43.17	56.00 LT
3	208+43.17	0
4	208+43.17	53.00 RT
5	208+24.17	53.00 RT
6	208+76.33	56.00 LT
7	208+52.83	56.00 LT
8	208+52.83	0
9	208+52.83	53.00 RT
10	208+71.83	53.00 RT
11	208+73.33	57.08 LT
12	208+48.00	72.50 LT
13	208+22.67	57.08 LT



DATE	BY	REVISION DESCRIPTION

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PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

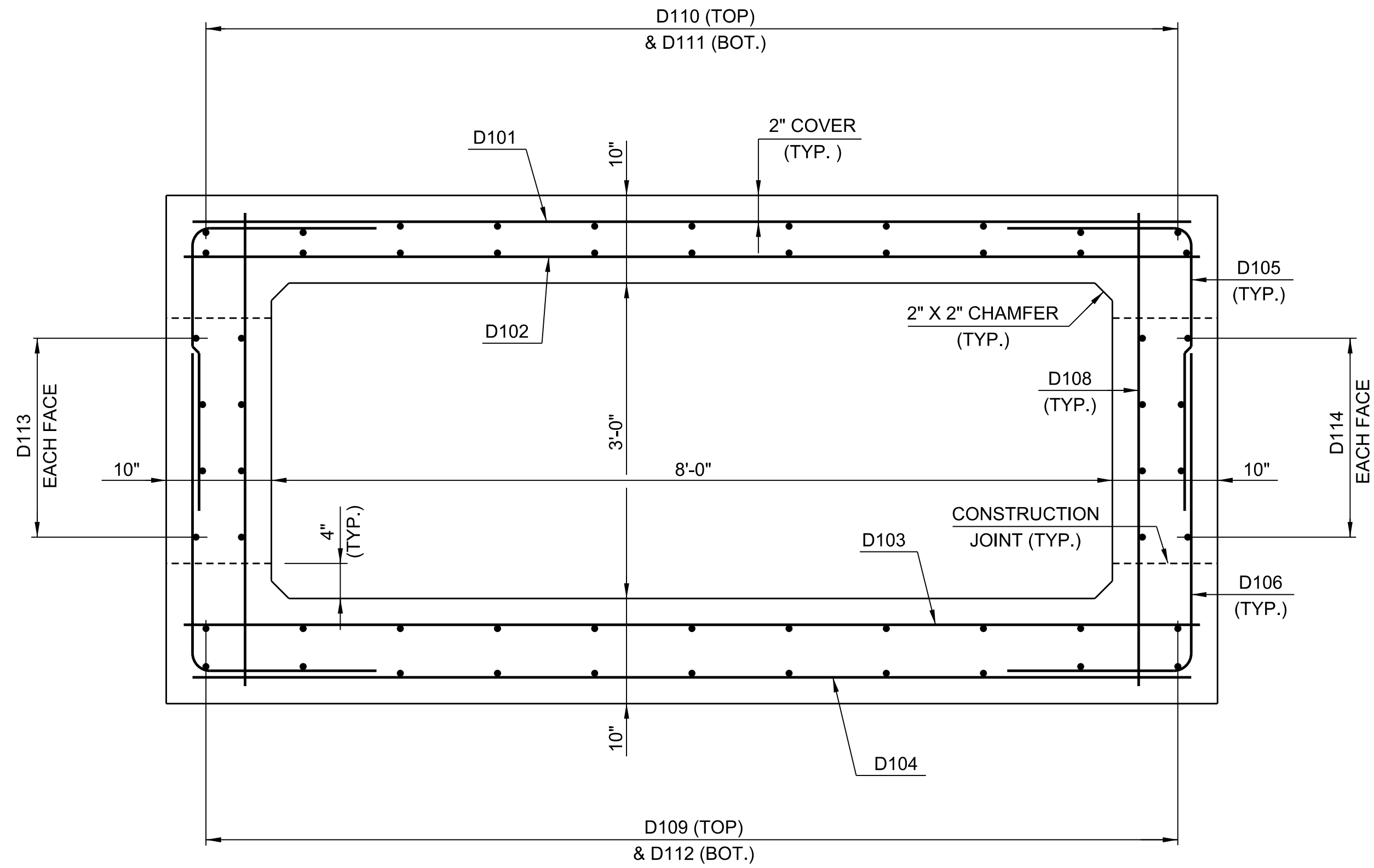
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION (239) 533-8580
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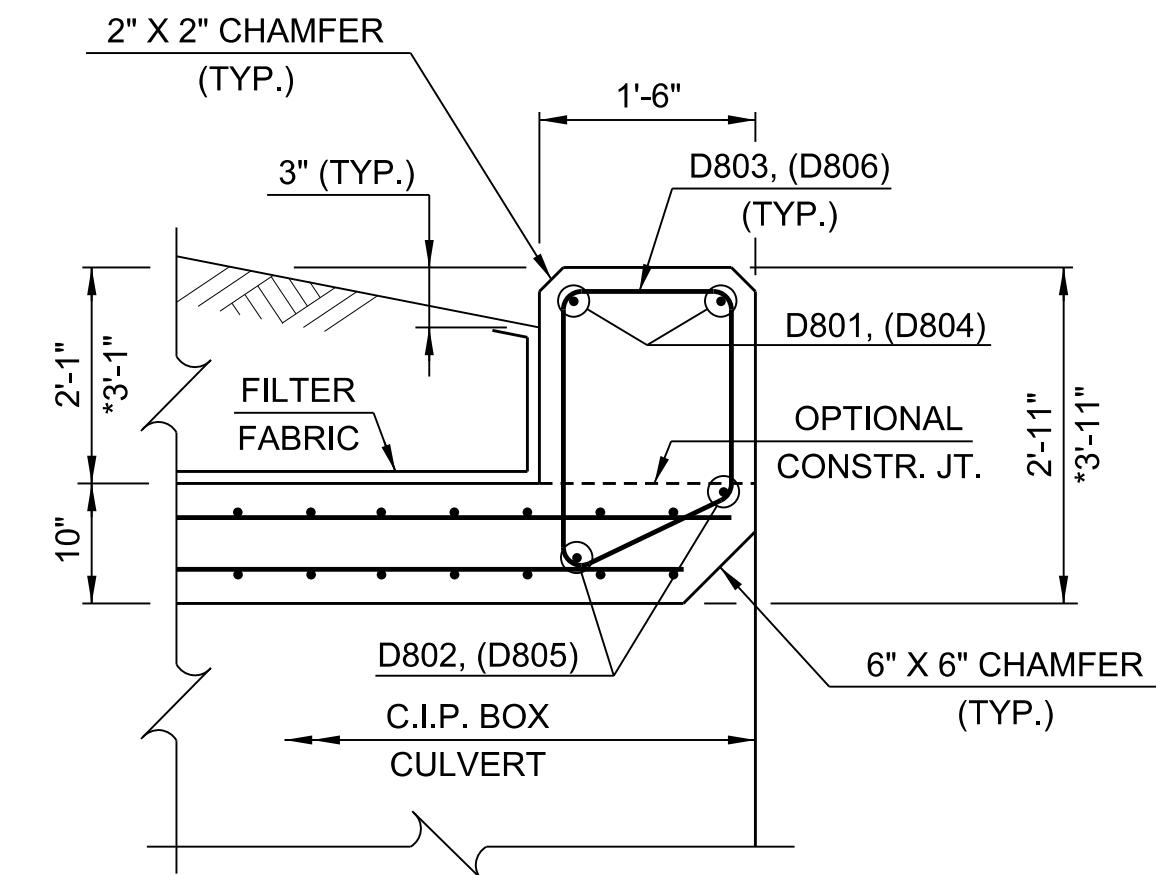
THREE OAKS PARKWAY EXTENSION
THREE OAKS PARKWAY OVER FIDDLESTICKS CANAL
LEE COUNTY, FLORIDA

STAKE-OUT PLAN
SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX2-2

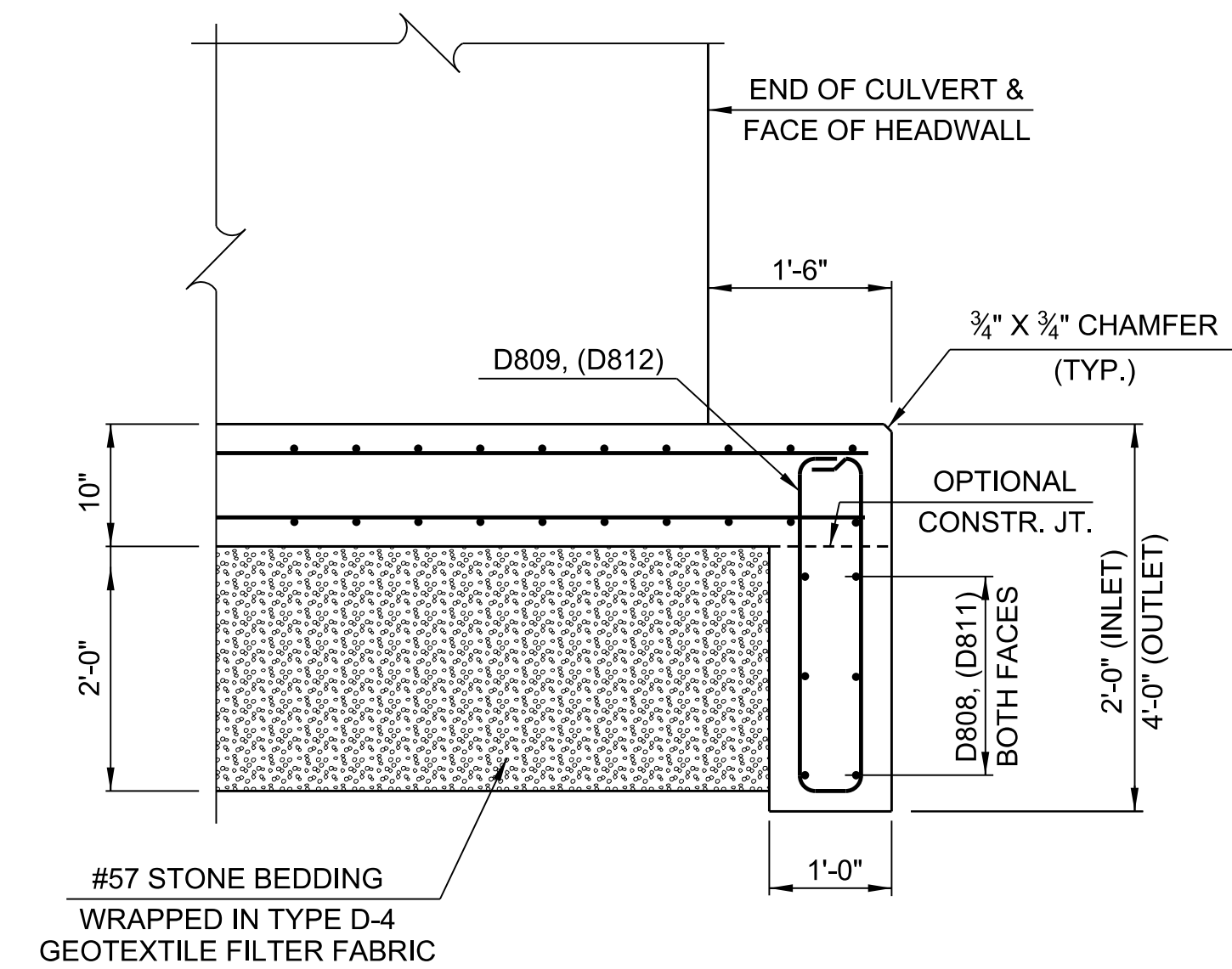


TYPICAL BOX CULVERT SECTION



* STA 231+48 CULVERT OUTLET

HEADWALL SECTION

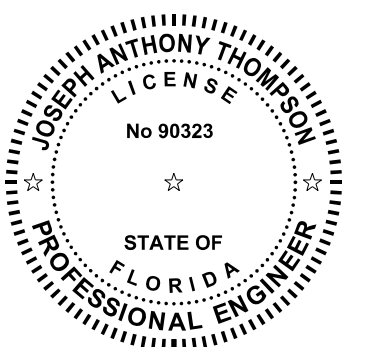


APRON AND CUTOFF WALL SECTION



NOTES:

1. FOR REINFORCEMENT, SEE SHEETS BX2-6 AND BX2-7.
2. FOR DETAILS NOT SHOWN, SEE INDEX 400-289.
3. INLET REINFORCEMENT SHOWN, OUTLET REINFORCEMENT IN ().
4. FOR UNDERDRAIN DETAIL SEE INDEX 400-289.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

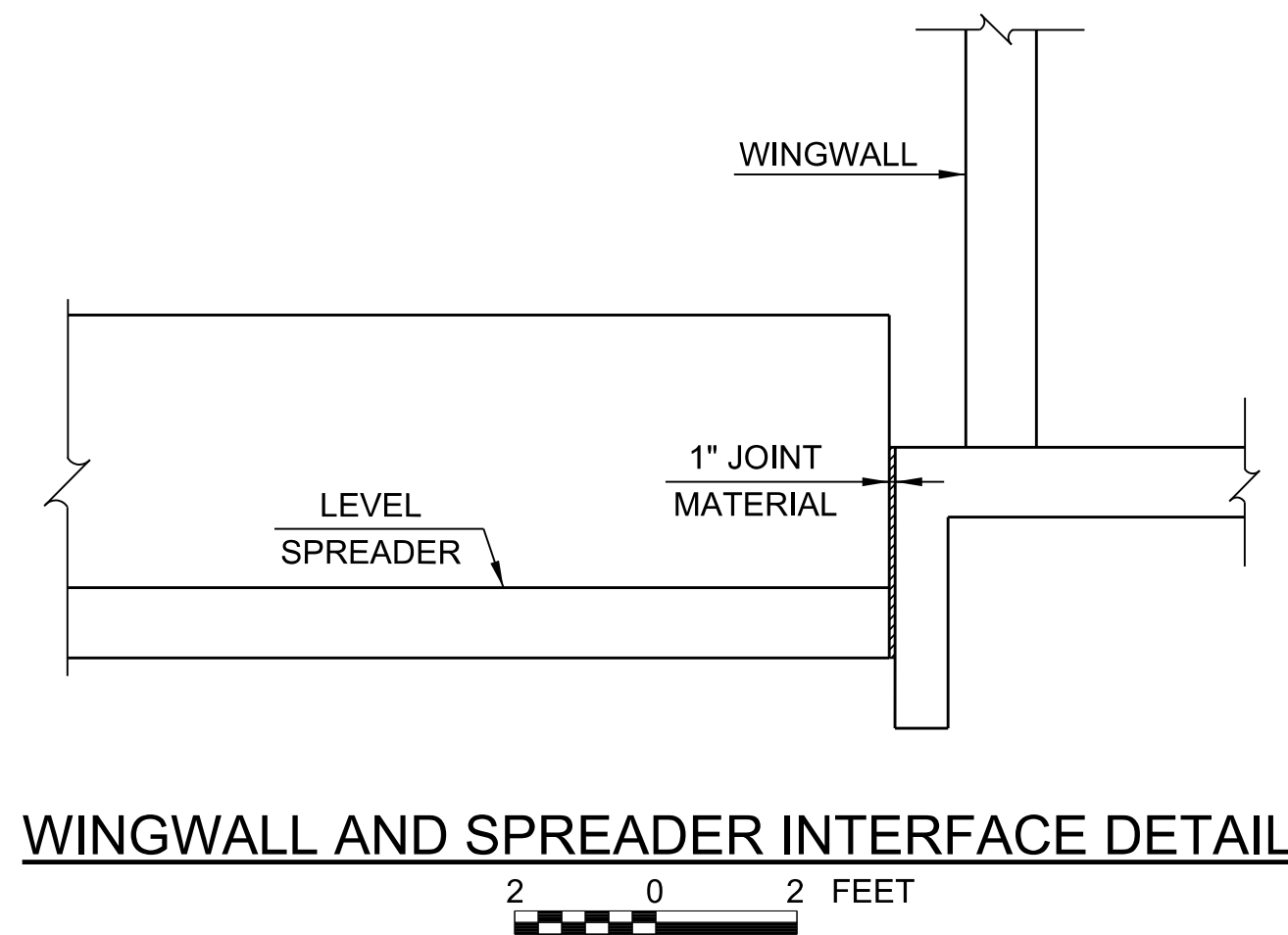
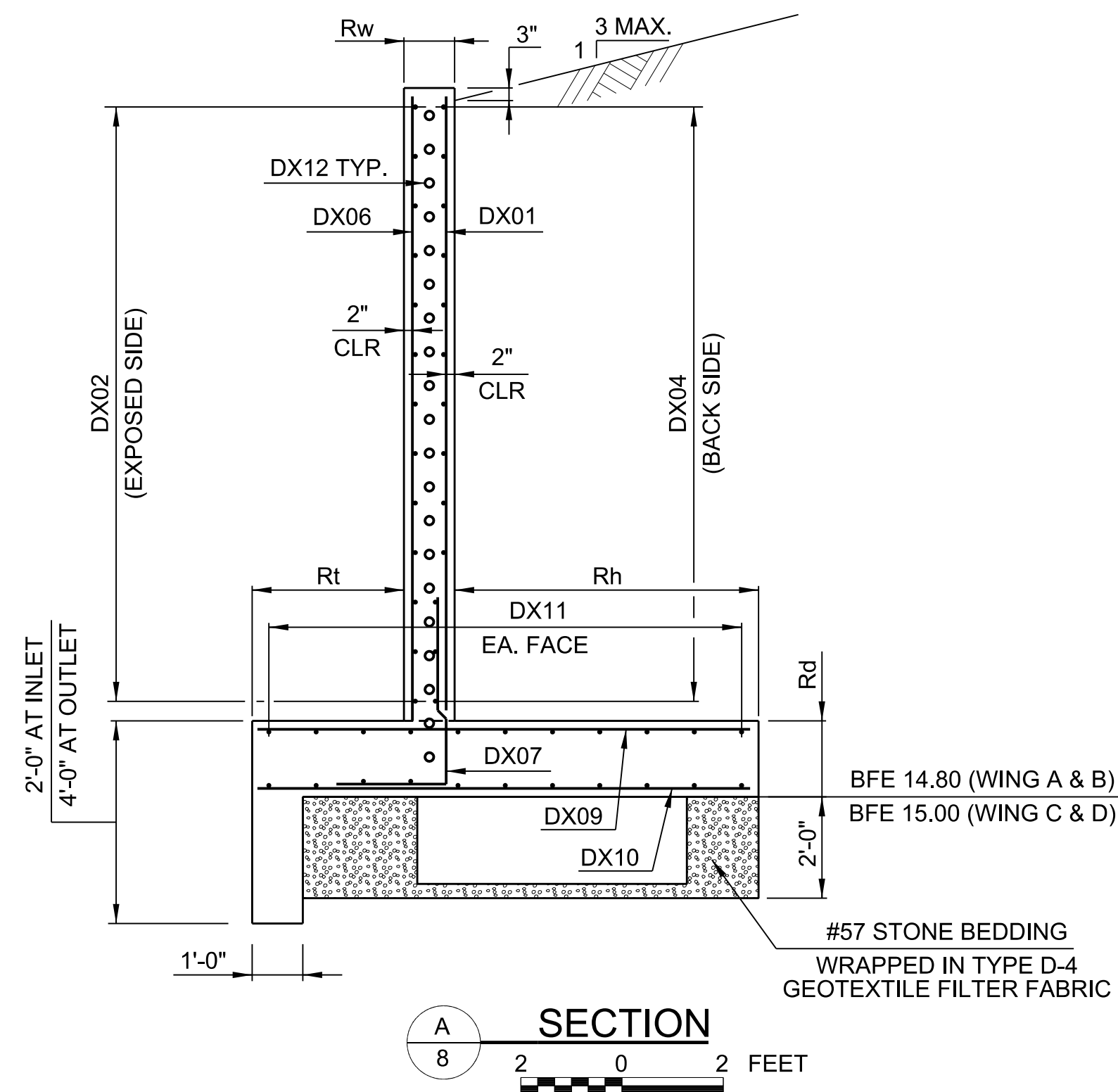
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

TYPICAL BOX SECTION & DETAILS
STA. 208+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX2-3



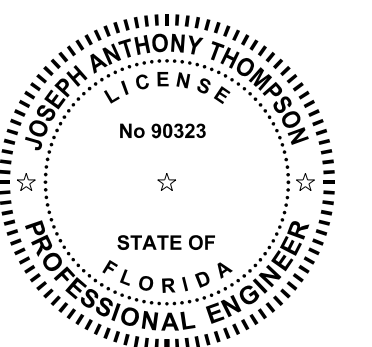
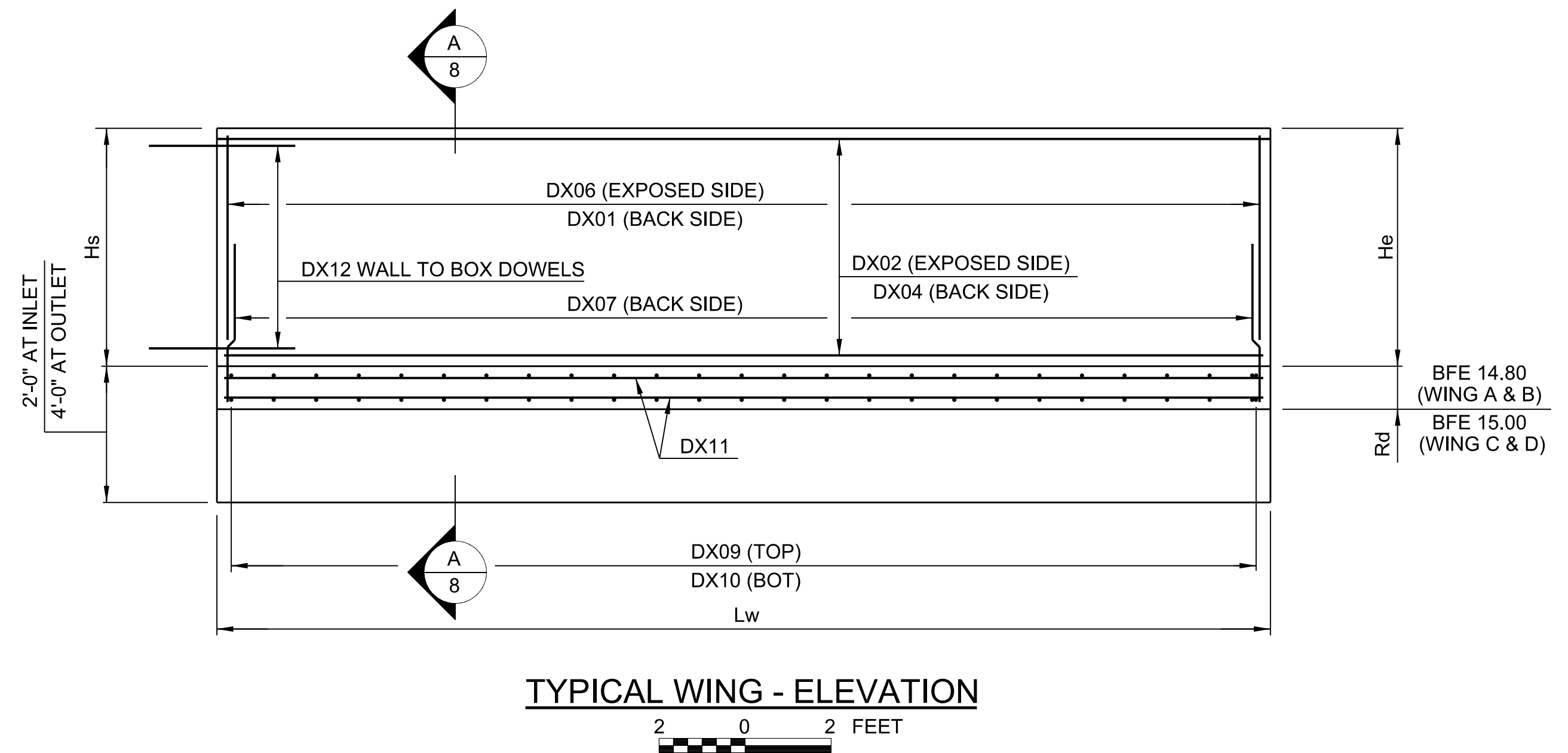
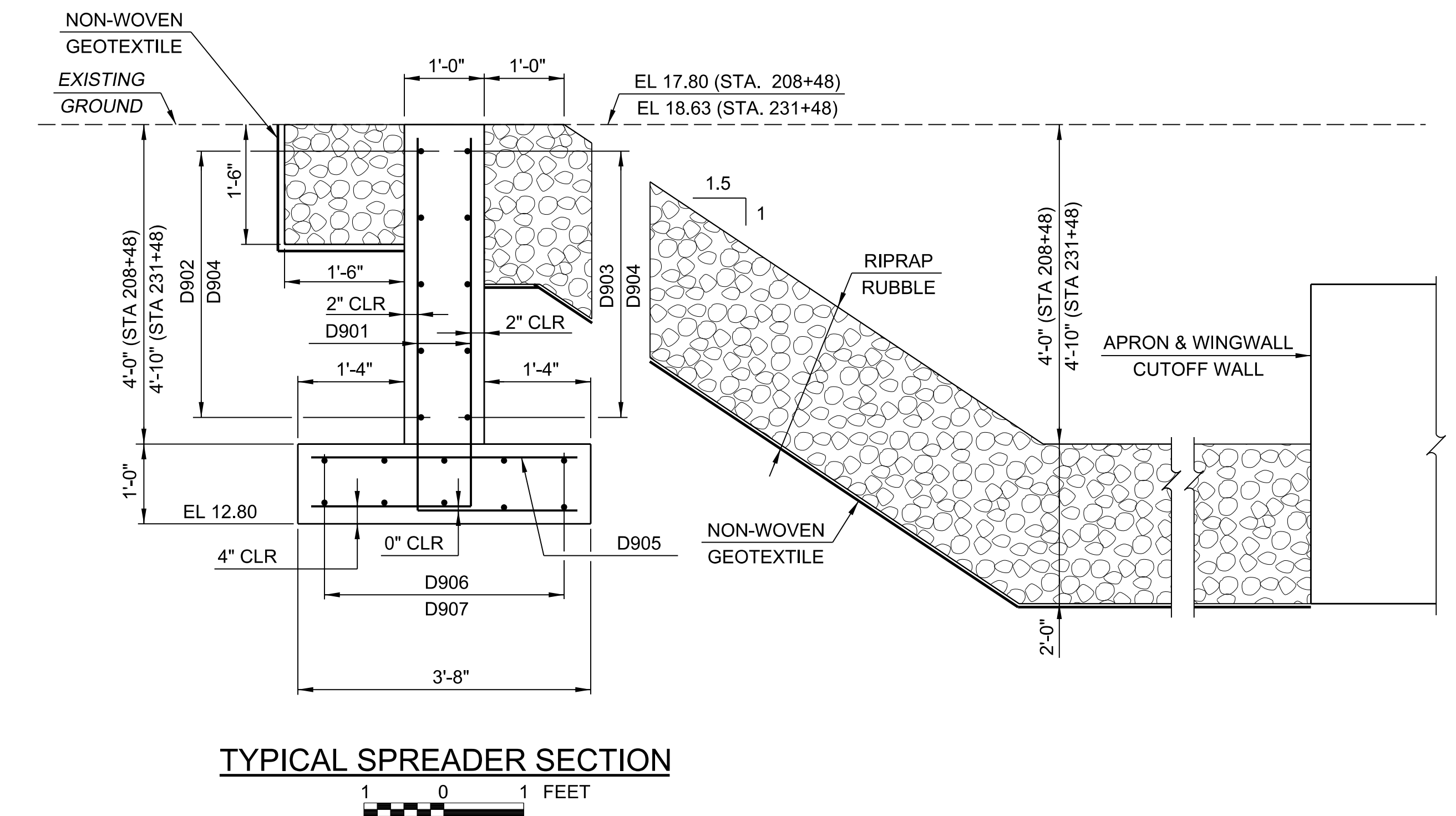
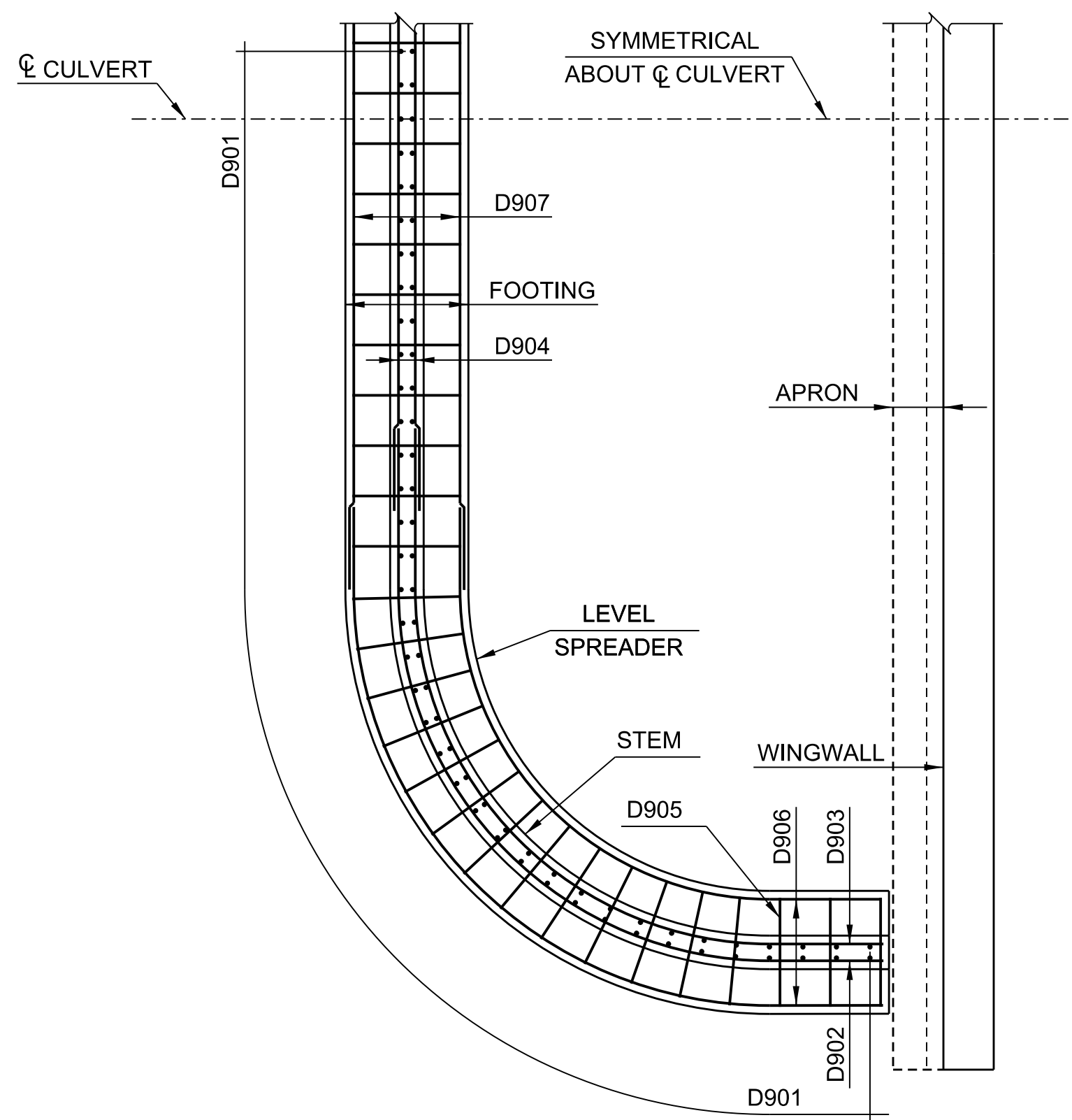
NOTES:

1. WINGWALL CONSTRUCTION JOINT PERPENDICULAR TO WINGWALL.
2. IN THE VICINITY OF THE CONSTRUCTION JOINT, FIELD BEND REINFORCEMENT AS NECESSARY TO MAINTAIN MINIMUM REINFORCEMENT COVER.

REINFORCEMENT KEY

WINGWALL A: X = 5
WINGWALL B: X = 4
WINGWALL C: X = 6
WINGWALL D: X = 7

PLAN - CURVED SPREADER REINFORCEMENT



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE 1 FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

WINGWALL DETAILS
STA. 208+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX2-4

BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise)																				
LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brcw	Hrcw	SL(deg)	SR(deg)
STA 208+48.00	BX2	8	3	10	10	10	-	1	109	2	18	35	18	35	12	48	12	24	90	90

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL									LEFT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
BX2	12	12	36	12	90	18.4	5.92	5.92	23.5	12	12	36	12	90	18.4	5.92	5.92	23.5

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		
STRUCTURE /BRIDGE NUMBER	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
BX2	12	12	36	12	90	18.4	5.92	5.92	19	12	12	36	12	90	18.4	5.92	5.92	19

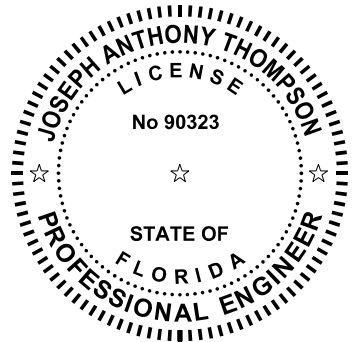
ESTIMATED CONCRETE QUANTITIES (CY)																							
STRUCTURE /BRIDGE NUMBER	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL			SPREADER		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
BX2	1.13	0.42	32.52	20.41	32.52	1.12	1.12	89.24	5.22	5.15	10.37	5.22	5.15	10.37	4.22	4.17	8.39	4.22	4.17	8.39	9.54	10.40	19.94

MAIN STEEL REINFORCEMENT SPACING (inches)																			
STRUCTURE /BRIDGE NUMBER	BOX															HEADWALLS		CUTOFF WALLS	
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116...	803	806	809	812
BX2	12	12	12	12	12	12	-	12	12	12	12	12	12	12	N/A	9	9	15	15

WINGWALL STEEL REINFORCEMENT SPACING (inches)																																
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL								LEFT BEGIN WINGWALL								RIGHT END WINGWALL								RIGHT BEGIN WINGWALL							
	401 407(8)	402 (403)	404 (405)	406	409	410	411	412	501 507(8)	502 (503)	504 (505)	506	509	510	511	512	601 607(8)	602 (603)	604 (605)	606	609	610	611	612	701 707(8)	702 (703)	704 (705)	706	709	710	711	712
BX2	12	12	12	12	12	12	12	8	12	12	12	12	12	12	12	8	12	12	12	12	12	12	12	8	12	12	12	12	12	12	12	8

WINGWALL NOTE: Bar designations in "()" are only required for variable height wingwalls.

SPREADER STEEL REINFORCEMENT SPACING (inches)							
STRUCTURE /BRIDGE NUMBER	SPREADER						
	901	902	903	904	905	906	907
BX2	12	12	12	12	12	12	12



DATE	BY	REVISION DESCRIPTION

--

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PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION
	(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

TABLE OF R.C. BOX CULVERT VARIABLES
STA. 208+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

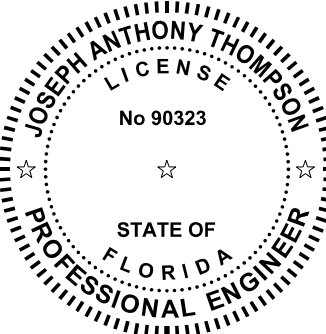
SHEET
BX2-5

MARK		LENGTH		NO		TYPE		STY		B			C			D			E			F			H			J			K			N		Ø	
SIZE	DES	FT	IN	BARS	BARS	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG				
LOCATION		CULVERT STA 208+48.00																																			
5	D101	9-4		110	1						9-4																										
6	D102	9-4		110	1						9-4																										
6	D103	9-4		113	1						9-4																										
5	D104	9-4		113	1						9-4																										
7	D105	6-10		220	10						3-9		3-1																								
7	D106	6-10		220	10						3-9		3-1																								
4	D108	4-4		220	1						4-4																										
4	D109	113-5		11	2						1-9		111-8																		1						
4	D110	110-5		11	2						1-9		108-8																		1						
4	D111	109-9		11	2						1-9		108-0																		1						
4	D112	113-5		11	2						1-9		111-8																		1						
4	D113	110-5		8	2						1-9		108-8																		1						
4	D114	110-5		8	2						1-9		108-8																		1						
6	D801	9-4		2	1						9-4																										
6	D802	9-4		2	1						9-4																										
3	D803	7-11		14	27						2-6		6		8		5		2-1		1-0		1-0														
6	D804	9-4		2	1						9-4																										
6	D805	9-4		2	1						9-4																										
3	D806	7-11		14	27						2-6		6		8		5		2-1		1-0		1-0														
4	D807	9-4		2	1						9-4																										
4	D808	9-4		2	1						9-4																										
3	D809	8-10		9	7						3-7		8		6		6																				
4	D810	9-4		2	1						9-4																										
4	D811	9-4		2	1						9-4																										
3	D812	4-10		9	7						1-7		8		6		6																				
LOCATION		WINGWALL B STA 208+48.00																																			
4	D401	5-8		25	1						5-8																										
4	D402	23-2		7	1						23-2																										
4	D404	23-2		7	1						23-2																										
4	D406	5-8		25	1						5-8																										
4	D407	4-4		25	10						2-7		1-9																								
4	D409	4-8		25	1						4-8																										
4	D410	4-8		25	1						4-8																										
4	D411	23-2		12	1						23-2																										
5	D412	2-0		10	1						2-0																										
LOCATION		WINGWALL A STA 208+48.00																																			
4	D501	5-8		25	1						5-8																										
4	D502	23-2		7	1						23-2																										
4	D504	23-2		7	1						23-2																										
4	D506	5-8		25	1						5-8																										
4	D507	4-4		25	10						2-7		1-9																								
4	D509	4-8		25	1						4-8																										
4	D510	4-8		25	1						4-8																										
4	D511	23-2		12	1						23-2																										
5	D512	2-0		10	1						2-0																										
LOCATION		WINGWALL C STA 208+48.00																																			
4	D601	5-8		20	1						5-8																										
4	D602	18-8		7	1						18-8																										
4	D604	18-8		7	1						18-8																										
4	D606	5-8		20	1						5-8																										
4	D607	4-4		20	10						2-7		1-9																								
4	D609	4-8		20	1						4-8																										
4	D610	4-8		20	1						4-8																										
4	D611	18-8		12	1						18-8																										
5	D612	2-0		10	1						2-0																										
LOCATION		WINGWALL D STA 208+48.00																																			
4	D701	5-8		20	1						5-8																										
4	D702	18-8		7	1						18-8																										
4	D704	18-8		7	1						18-8																										
4	D706	5-8		20	1						5-8																										
4	D707	4-4		20	10						2-7		1-9																								
4	D709	4-8		20	1						4-8																										
4	D710	4-8		20	1						4-8																										
4	D711	18-8		12	1						18-8																										
5	D712	2-0		10	1						2-0																										
														</																							

MARK		LENGTH		NO	TYPE	STY		B			C			D			E			F			H			J			K			N	Ø
SIZE	DES	FT	IN	BARS	BARS	A	G	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	FT	IN	FR	NO	ANG			
LOCATION		SPREADER STA 231+48																															
4	D901	6-5		154	10			4-6			1-11																						
4	D902	23-3 1/8		10	36			1-10			11-1 3/4			3-11			15-0 3/4																90
4	D903	22-2 1/2		10	36			1-10			10-5 7/8			3-11			14-5																90
4	D904	28-0		10	1			28-0																									
4	D905	3-4		77	1			3-4																									
4	D906	VARY		20	36			1-10			9-1 3/4			3-11			13-1																90
	*	22-8 7/8		0	36						12-5 3/4						16-5																
4	D907	28-0		10	1			28-0																									

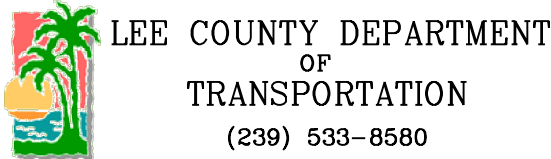
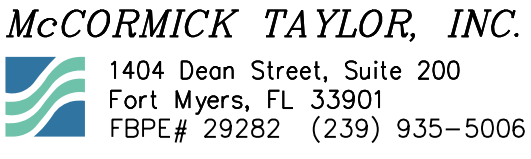
* D906 IS 4 SETS OF 5 VARYING BARS

1. ALL REINFORCING STEEL SHALL BE GRADE 60 IN ACCORDANCE WITH THE LATEST EDITION OF AASHTO M31M/M31.
2. ALL FABRICATION OF REINFORCING STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCEMENT CONCRETE STRUCTURES (ACI 315).
3. CONTRACTOR SHALL REVIEW AND APPROVE ALL REINFORCING DETAIL SCHEDULES AND QUANTITIES PRIOR TO FABRICATION.
4. FOR BAR BENDS, SEE INDEX 415-001.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
 PROJ. MGR. Melody Matter, PE
 LEE COUNTY DOT PROJECT: CN160642/ANB
 LDOT PROJ. MGR. Vince Miller, PE



THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

REINFORCING STEEL DETAILS

STA. 208+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX2-6

PROJECT: Proposed Three Oaks Parkway Extension Phase 1
Airport Canal to Indian Pony Drive
Fort Myers, Lee County, FL

BORING DESIGNATION: B-21

CLIENT: Avalon Engineering Inc.

LOCATION: Proposed 3'X8' BOX Culvert - East Side at STA 208+48

REMARKS: Formerly Known as B-10

WATER TABLE (ft): 6

DATE OF READING: 05/26/2002

DATE STARTED: 5/26/02

DATE FINISHED: 5/26/02

DRILLED BY: JERRY/CISSNE

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)
0		3-2-2	4			Very Loose to Loose Gray and Brown Fine Sand (A-3)		
		2-2-3	5					
		5-4-4	8					
5		4-3-4	7	▼				
		4-2-6	8					
		2-7-5	12			Medium Dense to Very Loose Gray and Brown Fine Sand (A-3)		
10		3-2-2	4			Loose Gray and Light Brown Silty Fine Sand with Limerock (A-2-4)		
15		1-6-2	8					
20		3-5-2	7					
25		2-6-4	10					
30		4-3-3	6			BORING TERMINATED		

PROJECT: Proposed Three Oaks Parkway Extension Phase 1
Airport Canal to Indian Pony Drive
Fort Myers, Lee County, FL

BORING DESIGNATION: B-22

CLIENT: Avalon Engineering Inc.

LOCATION: Proposed 3'X8' BOX Culvert - West Side at STA 208+48

REMARKS: Formerly Known as B-11

WATER TABLE (ft): 5.7

DATE OF READING: 05/26/2002

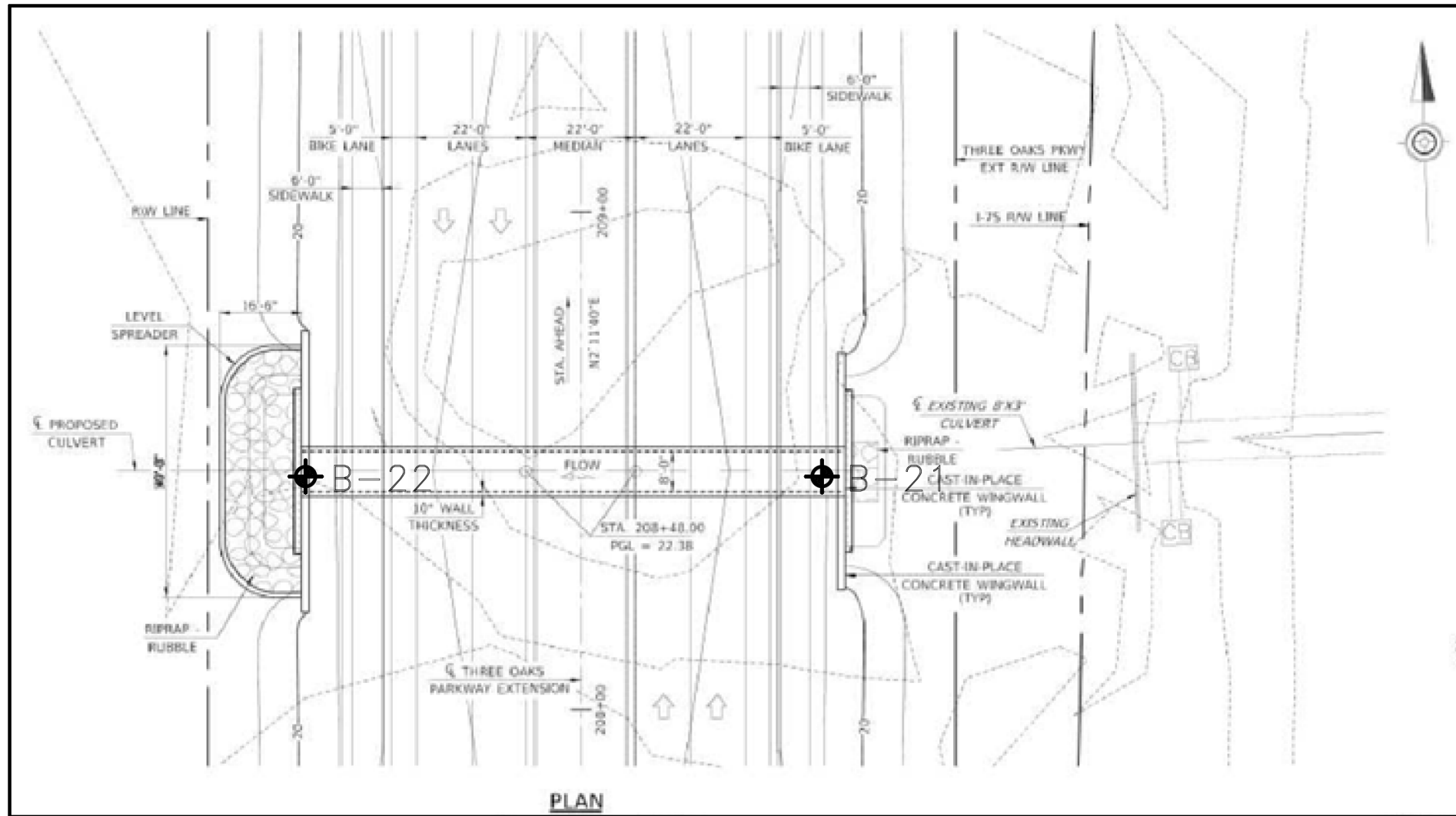
DATE STARTED: 5/26/02

DATE FINISHED: 5/26/02

DRILLED BY: JERRY/CISSNE

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)
0		3-4-3	7			Loose Gray and Dark Brown Fine Sand (A-3)		
		3-4-4	8					
		4-5-3	8					
5		2-2-6	8	▼		Loose Gray and dark Brown Fine Sand with Silt (A-2-4)		
		6-2-5	7					
		4-3-3	6					
10		3-3-3	6			Very Loose to Loose Gray and Light Brown Fine Sand with Silt and Lime Rock (A-2-4)		
15		1-1-1	2				5	14
20		6-5-3	8					
25		1-2-5	7					
30		3-2-4	6			BORING TERMINATED		



LEGEND:

◆ B-# Approximate SPT boring location

NOTES TO BORING LOGS

N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT (18" SPOON - ASTM D 1586)

(SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL BASED ON VISUAL OBSERVATION

-200 PERCENT PASSING NO. 200 U.S. STANDARD SIEVE

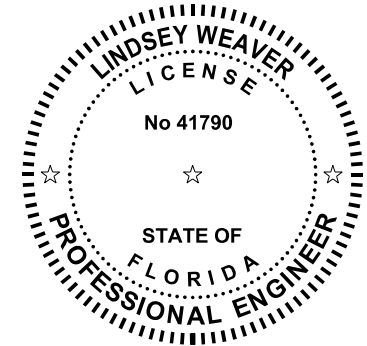
WC NATURAL MOISTURE CONTENT (%)

LL LIQUID LIMIT 6.0 2 EST. SEASONAL HIGH GROUNDWATER TABLE

PI PLASTICITY INDEX

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR MATERIALS (SANDS & GRAVELS)		COHESIVE MATERIALS (SILTS & CLAYS)	
CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)	CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)
Very Loose	0-4	Very Soft	0-2
Loose	5-10	Soft	3-4
Medium Dense	11-30	Firm	5-8
Dense	31-50	Stiff	9-16
Very Dense	50+	Very Stiff	17-30
		Hard	30+



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

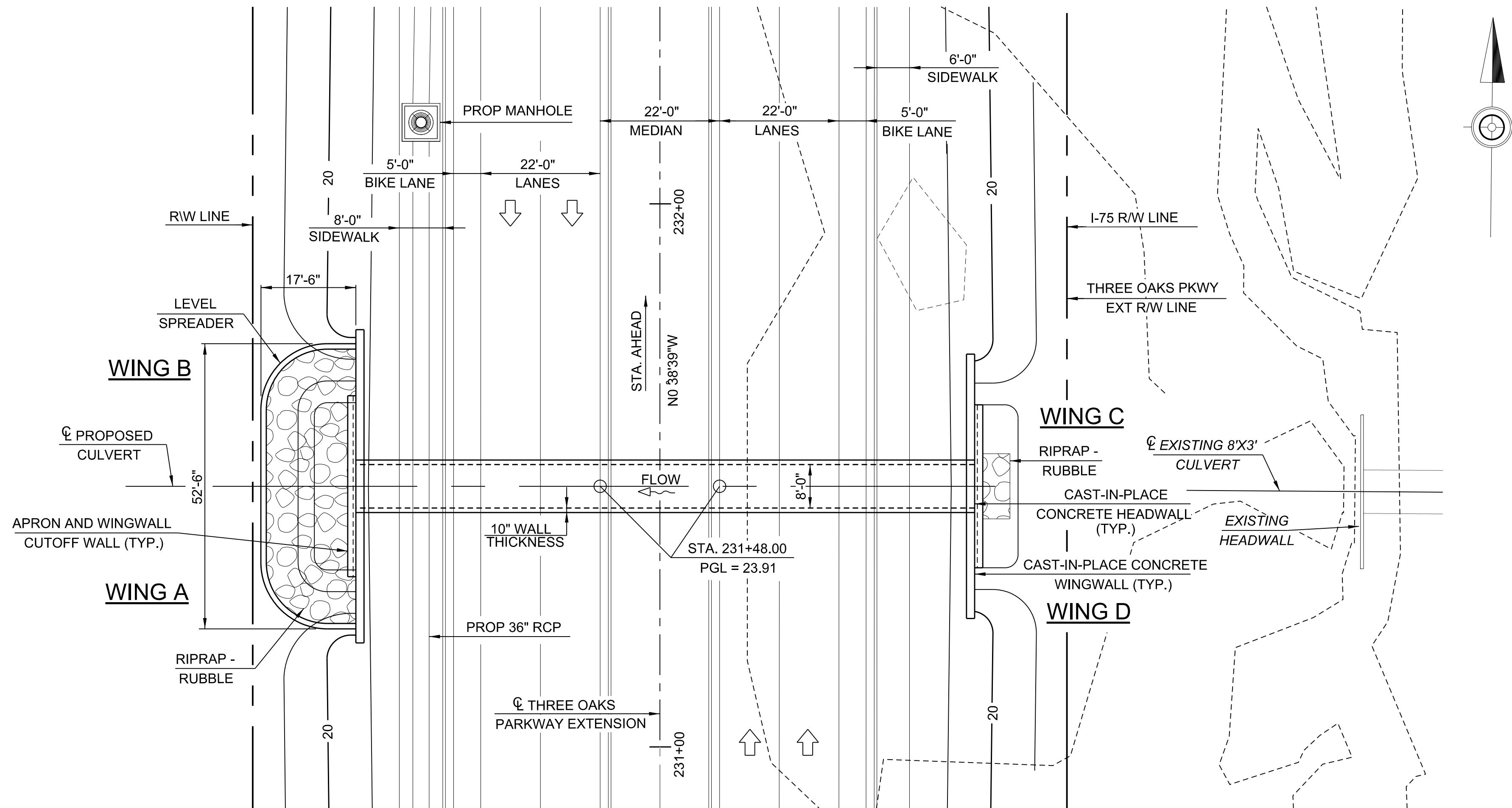
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT
OF
TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE 1 FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

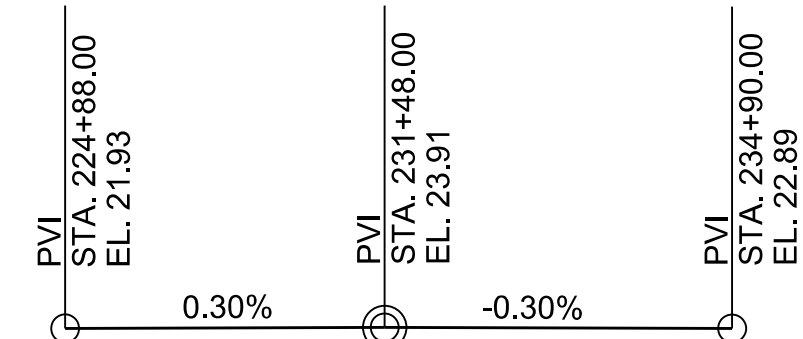
BORING SHEET
STA. 208+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX2-7



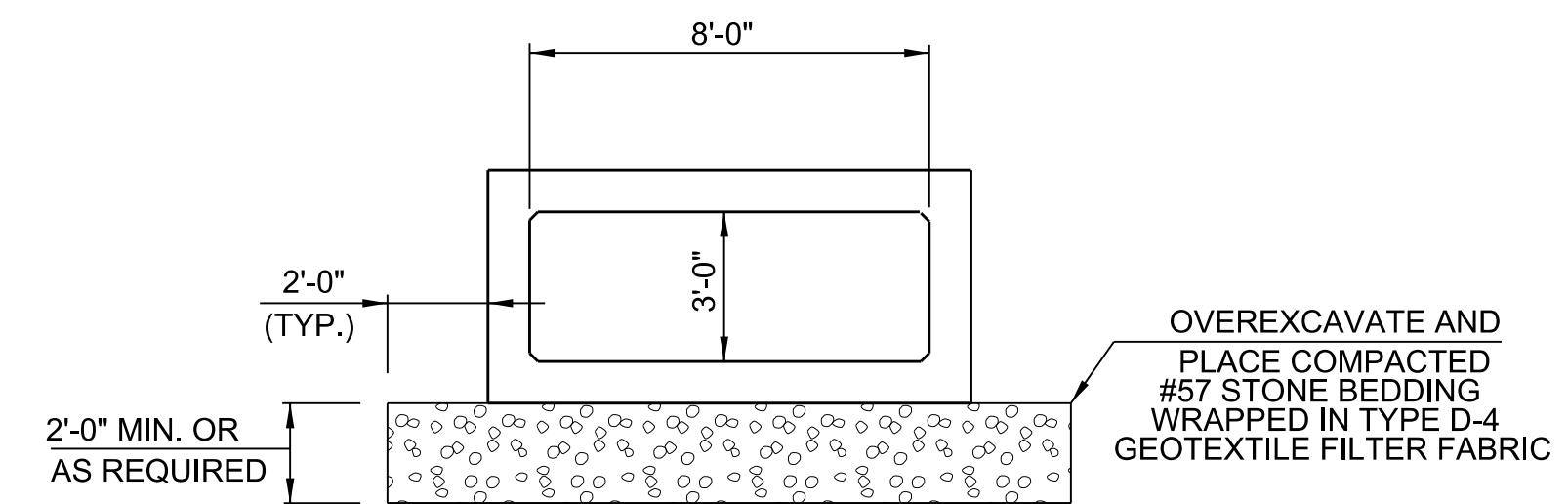
PLAN

THREE OAKS
PARKWAY EXTENSION
VERTICAL CURVE DATA

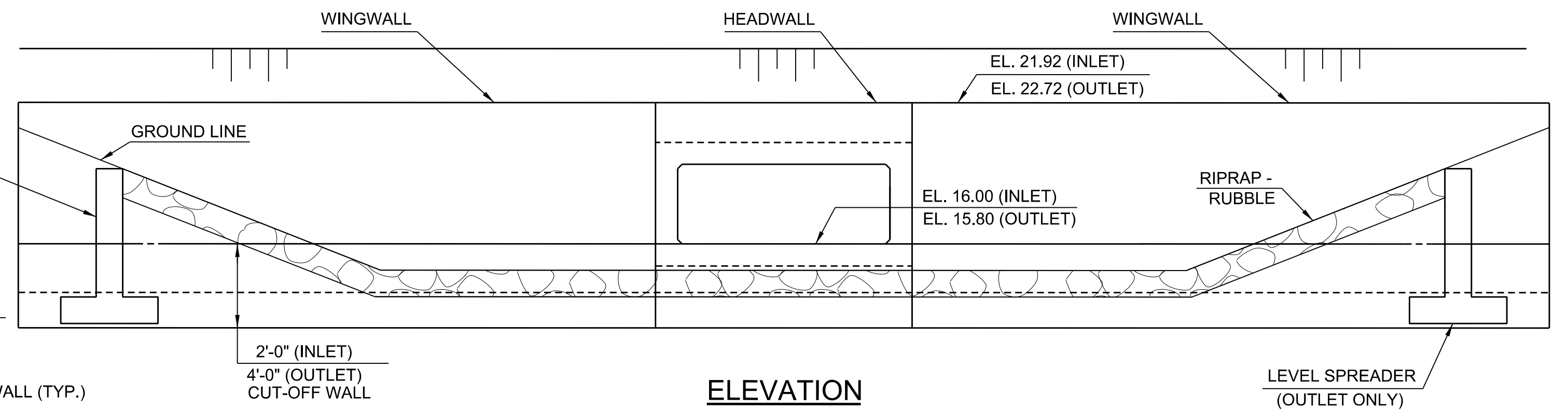


THREE OAKS
PARKWAY EXTENSION
HORIZONTAL CURVE DATA

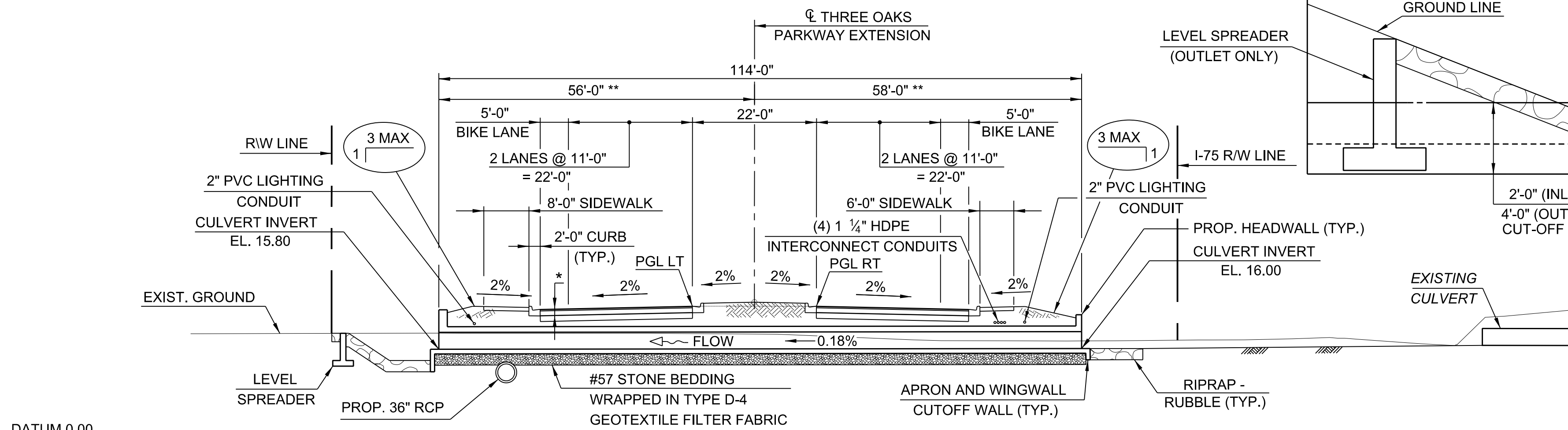
N 0°38'39"W TANGENT



CULVERT SECTION



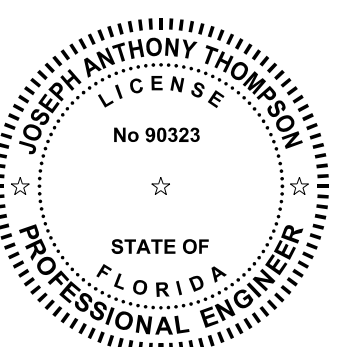
ELEVATION
NOT TO SCALE



CULVERT SECTION

* FILL DEPTH AT THE ROADWAY VARIES 3'-6" TO 4'-2" 1/4"
** ALONG CENTERLINE OF CULVERT

- NOTES:
1. FOR CULVERT GENERAL NOTES SEE SHEET B-4.
 2. FOR RIPRAP RUBBLE DETAILS SEE INDEX 524-001.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01 PROJ. MGR. Melody Matter, PE LEE COUNTY DOT PROJECT: CN160642/ANB LOOT PROJ. MGR. Vince Miller, PE
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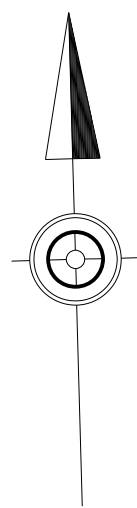
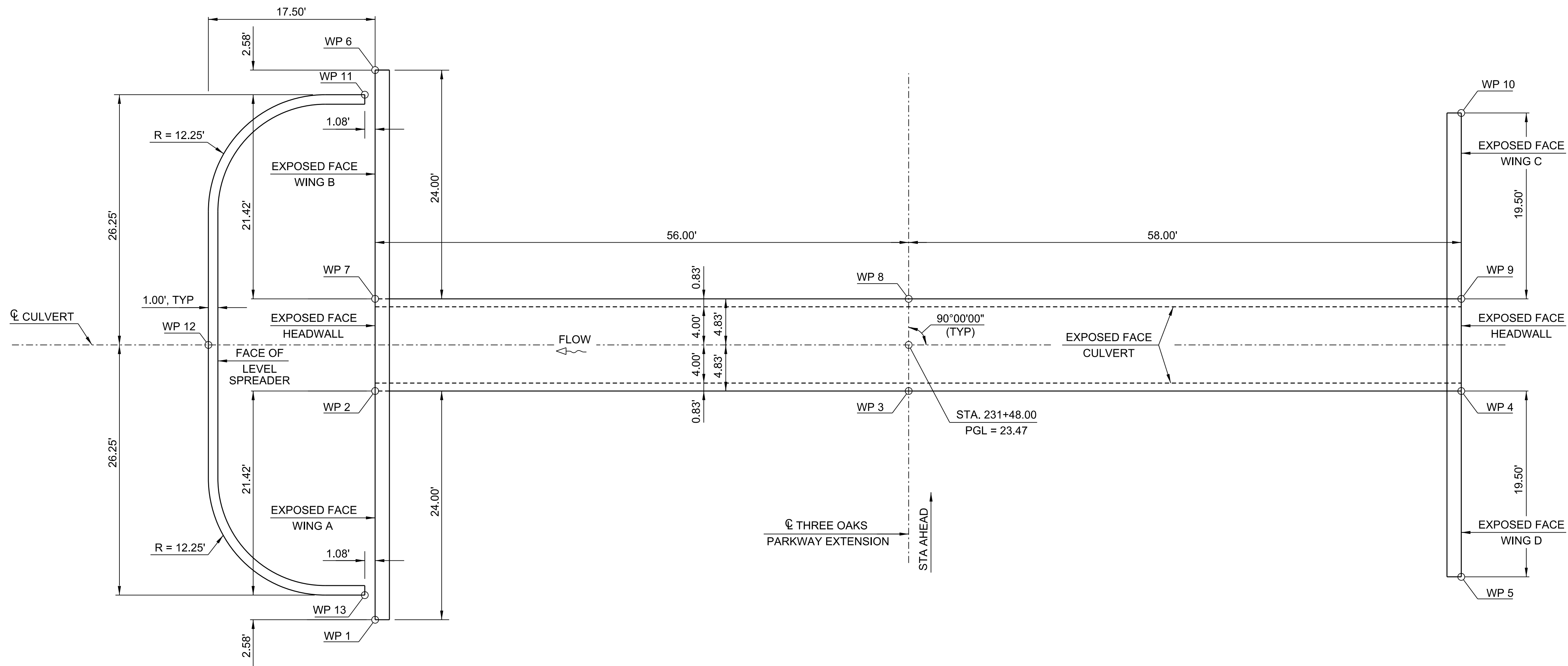
McCORMICK TAYLOR, INC. 1404 Dean Street, Suite 200 Fort Myers, FL 33901 FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION (239) 533-8580

THREE OAKS PARKWAY EXTENSION PHASE 1 FIDDELESTICKS CANAL TO STA 283+40 LEE COUNTY, FLORIDA
--

PLAN AND ELEVATION STA. 231+48.00 SINGLE CELL 3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET BX3-1

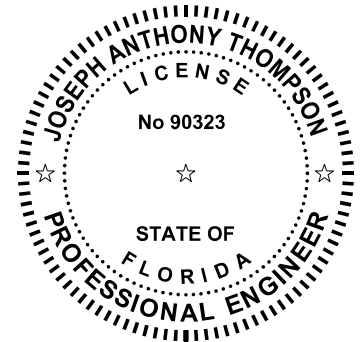


STAKE-OUT PLAN



WORK POINTS		
POINT	NORTHING	EASTING
1	797768.51	722967.90
2	797792.51	722967.63
3	797793.14	723023.62
4	797793.79	723081.62
5	797774.29	723081.84
6	797826.17	722967.25
7	797802.18	722967.52
8	797802.81	723023.52
9	797803.46	723081.51
10	797822.96	723081.29
11	797823.58	722966.20
12	797797.15	722950.07
13	797771.08	722966.79

STATIONS & OFFSETS		
POINT	STATION	OFFSET
1	231+19.17	56.00 LT
2	231+43.17	56.00 LT
3	231+43.17	0
4	231+43.17	58.00 RT
5	231+23.67	58.00 RT
6	231+76.83	56.00 LT
7	231+52.83	56.00 LT
8	231+52.83	0
9	231+52.83	58.00 RT
10	231+72.33	58.00 RT
11	231+74.25	57.08 LT
12	231+48.00	73.50 LT
13	231+21.75	57.08 LT



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LDOT PROJ. MGR. Vince Miller, PE

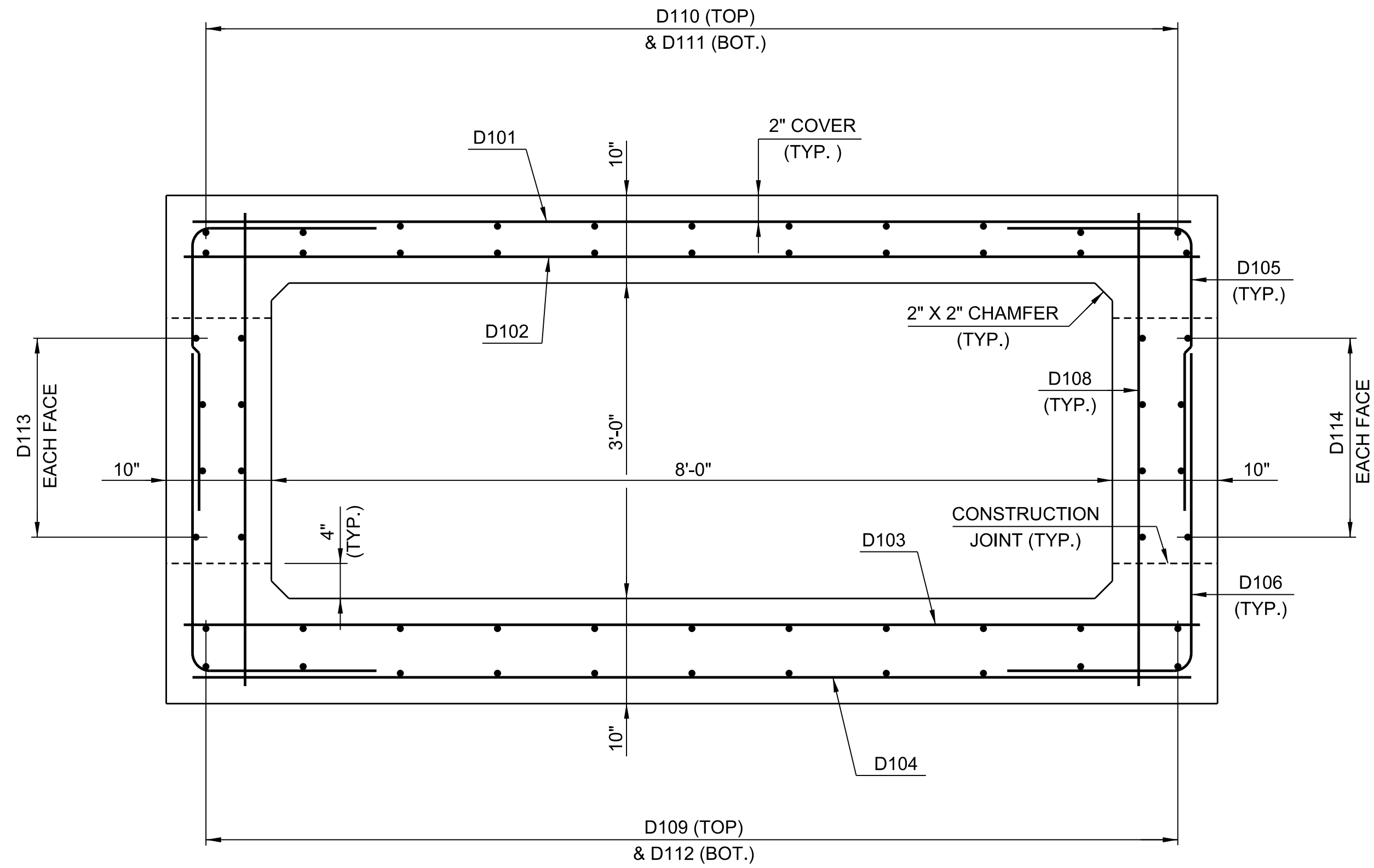
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION (239) 533-8580
--	---

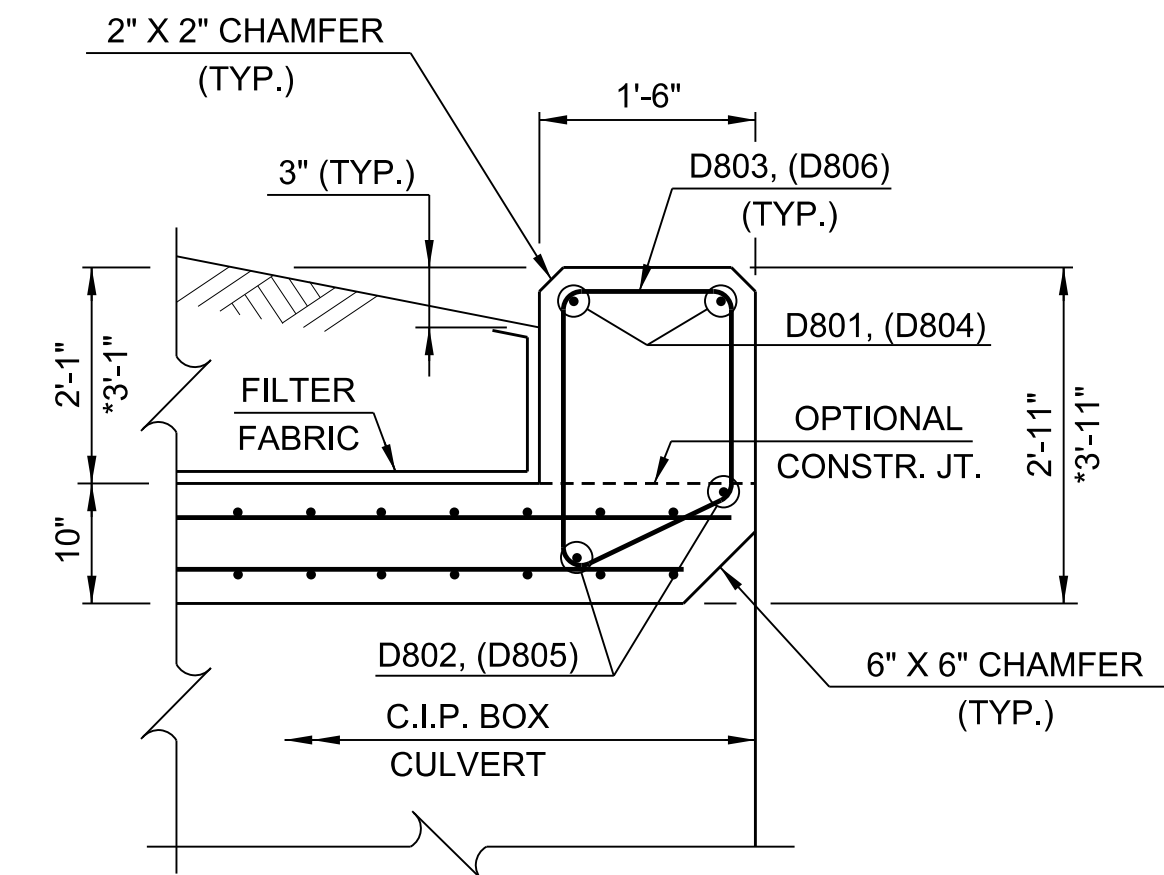
THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

STAKE-OUT PLAN
STA. 231+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX3-2

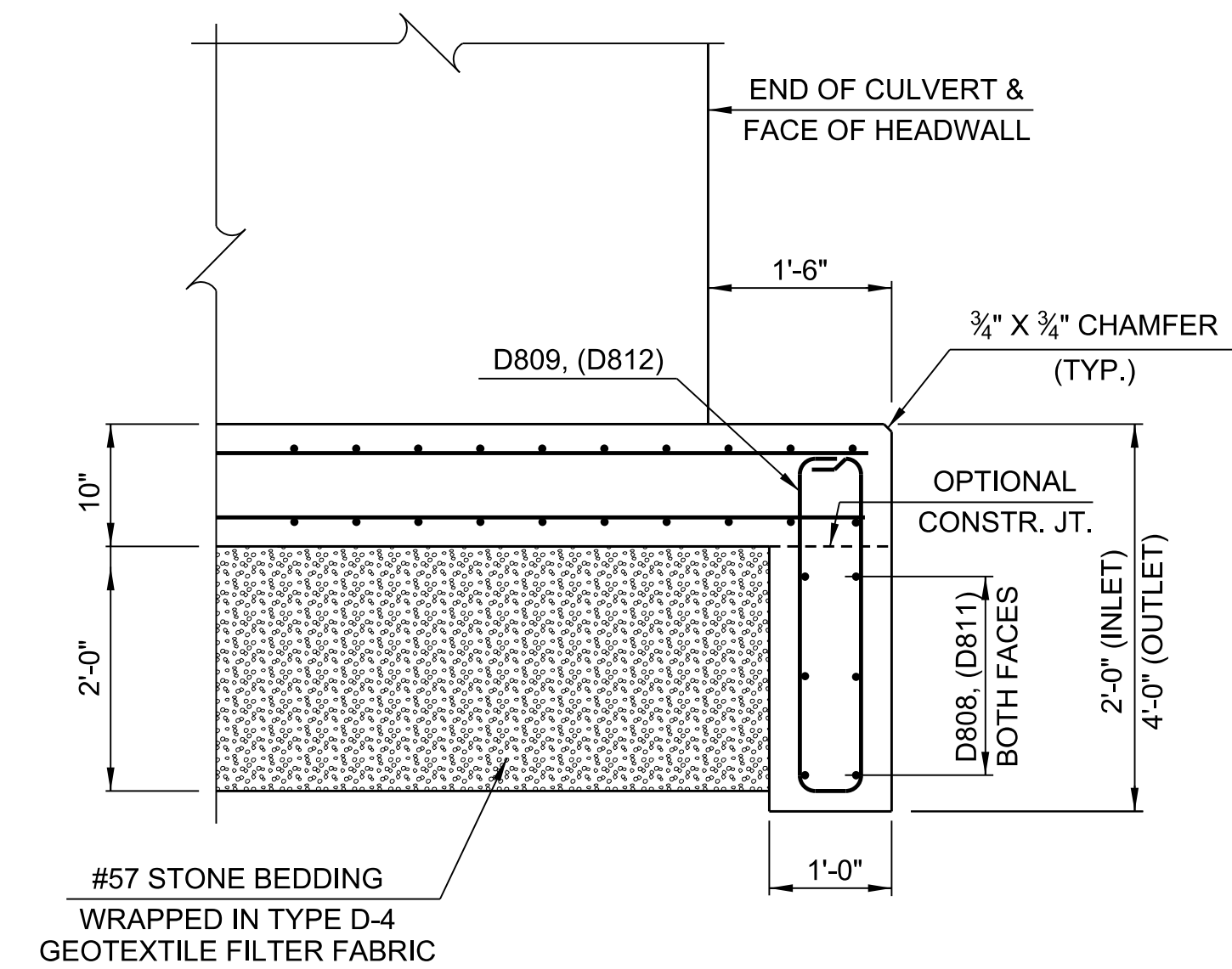


TYPICAL BOX CULVERT SECTION



* STA 231+48 CULVERT OUTLET

HEADWALL SECTION

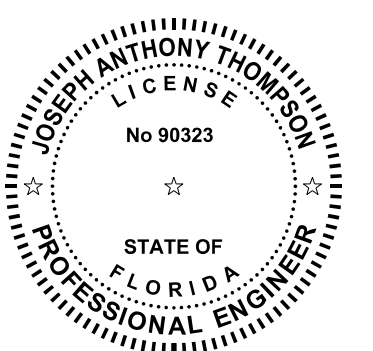


APRON AND CUTOFF WALL SECTION



NOTES:

1. FOR REINFORCEMENT, SEE SHEETS BX3-5 AND BX3-6.
2. FOR DETAILS NOT SHOWN, SEE INDEX 400-289.
3. INLET REINFORCEMENT SHOWN, OUTLET REINFORCEMENT IN ().
4. FOR UNDERDRAIN DETAIL SEE INDEX 400-289.



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

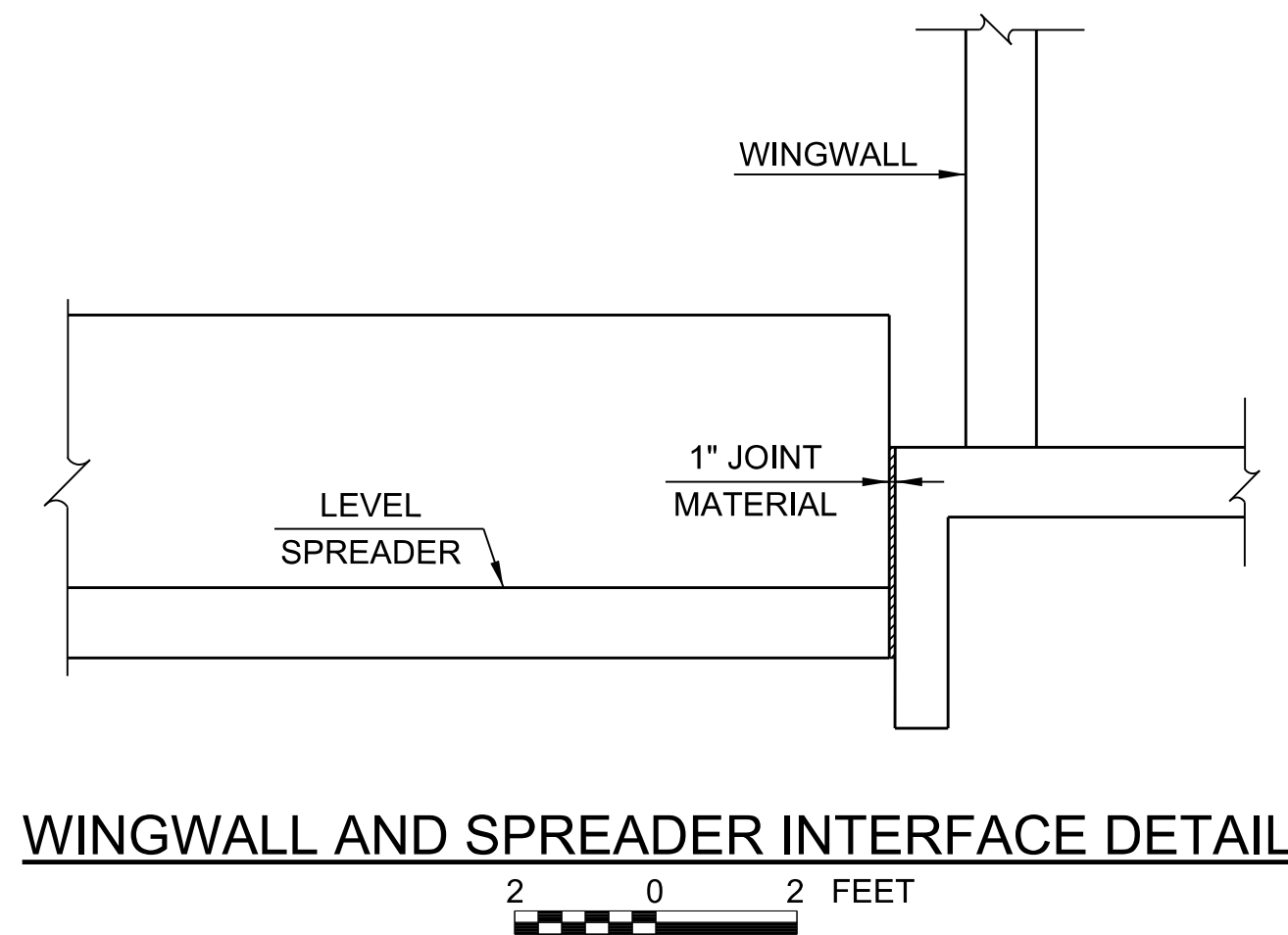
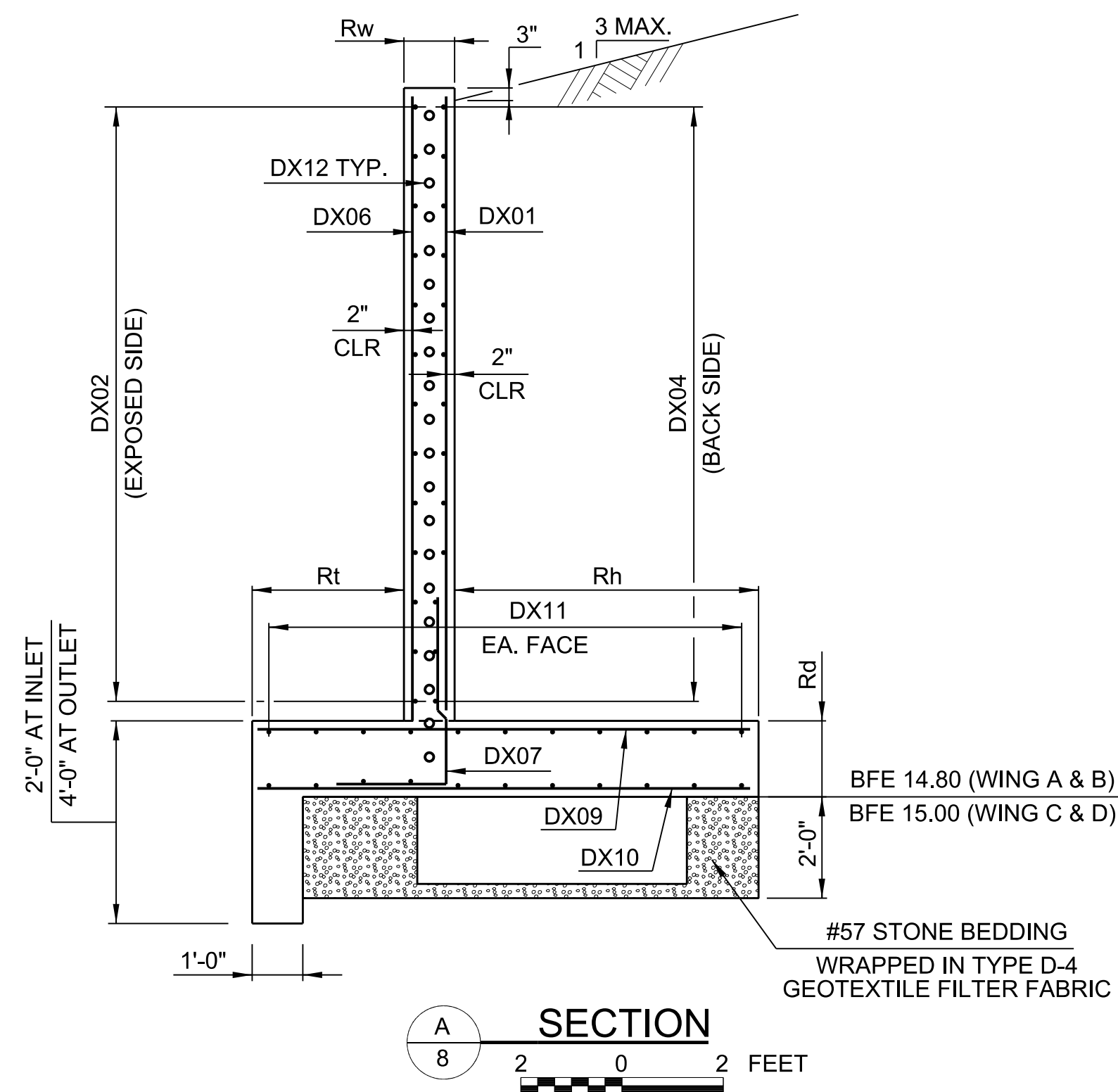
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

TYPICAL BOX SECTION & DETAILS
STA. 231+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX3-3

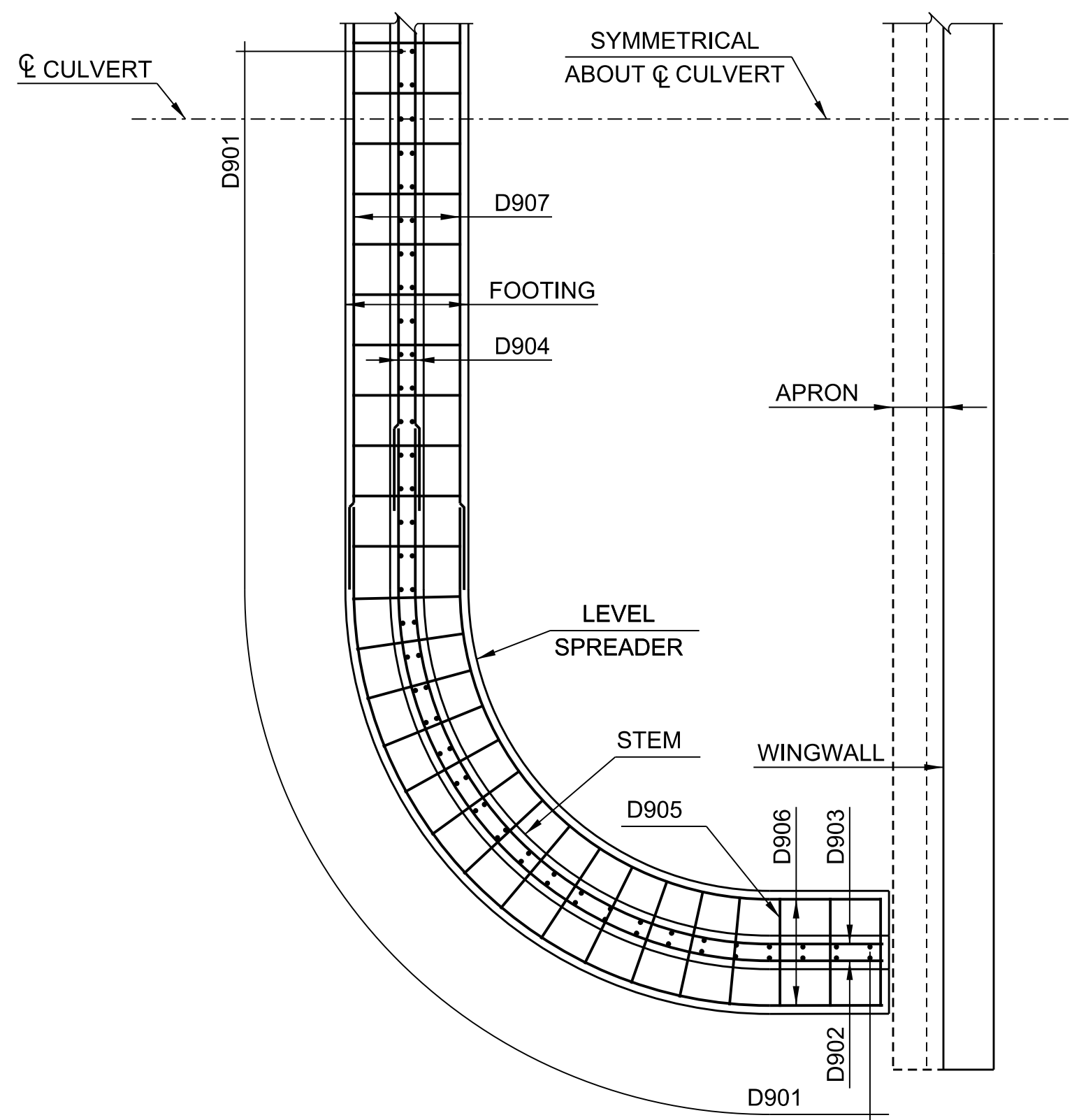


NOTES:

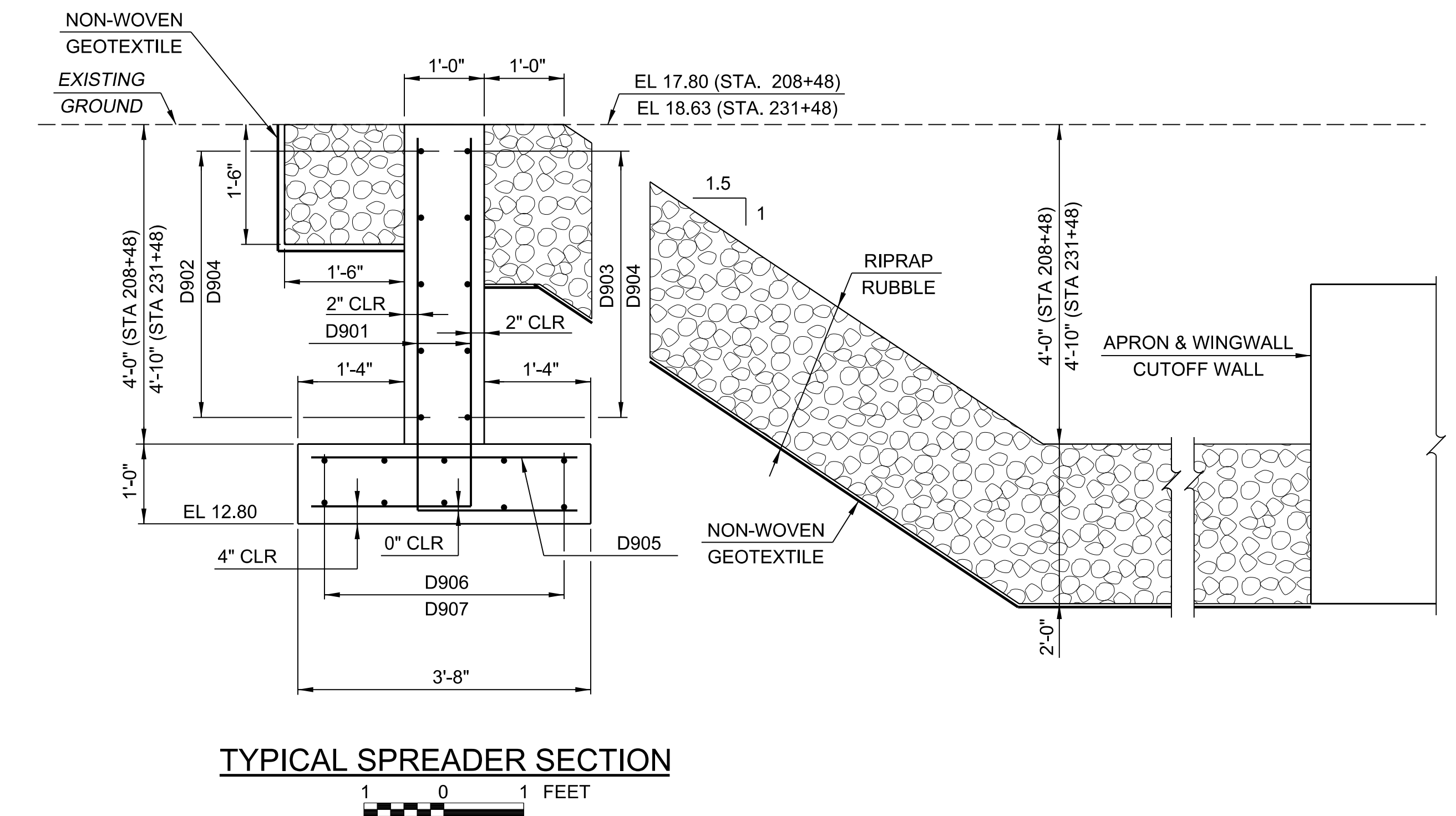
1. WINGWALL CONSTRUCTION JOINT PERPENDICULAR TO WINGWALL.
2. IN THE VICINITY OF THE CONSTRUCTION JOINT, FIELD BEND REINFORCEMENT AS NECESSARY TO MAINTAIN MINIMUM REINFORCEMENT COVER.

REINFORCEMENT KEY

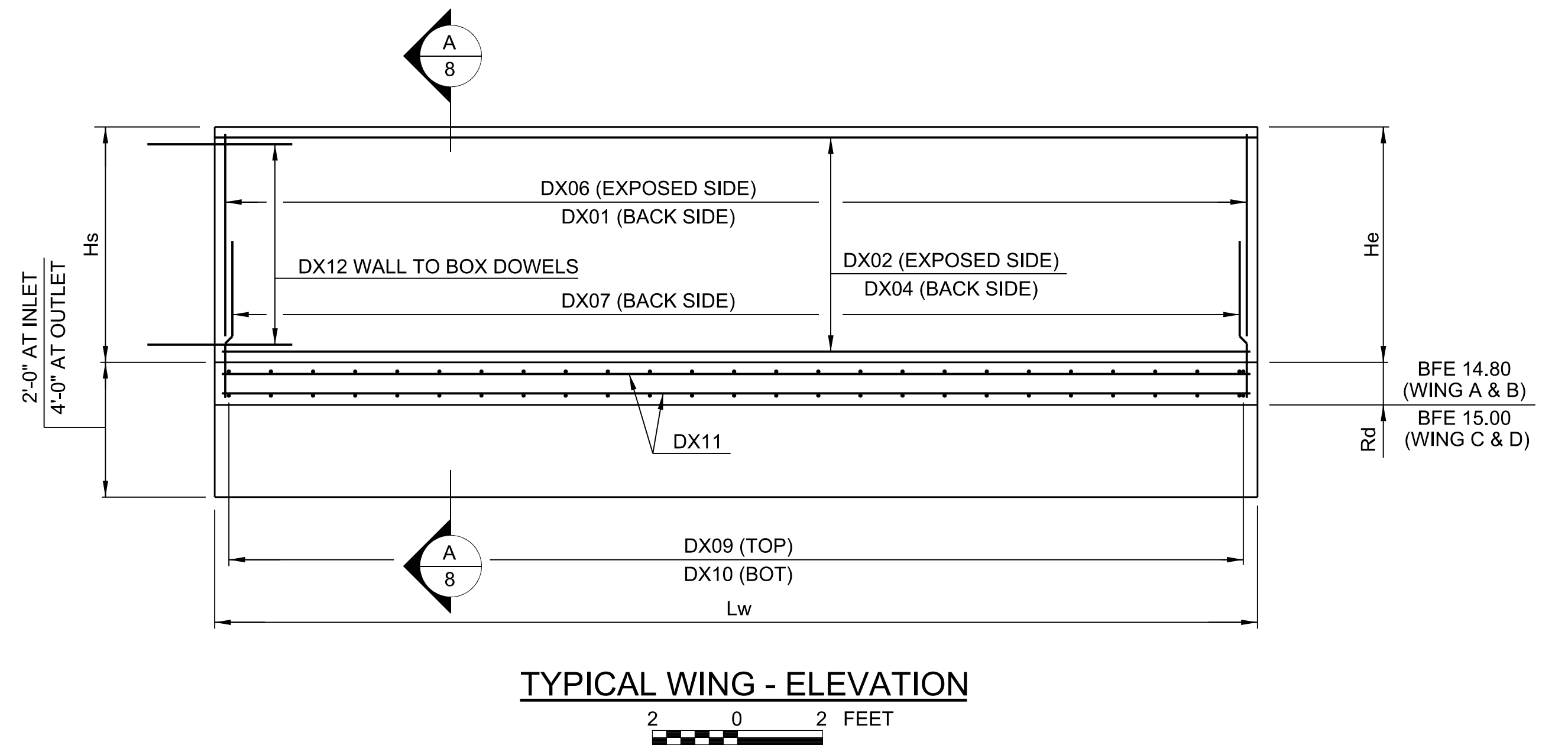
WINGWALL A: X = 5
WINGWALL B: X = 4
WINGWALL C: X = 6
WINGWALL D: X = 7



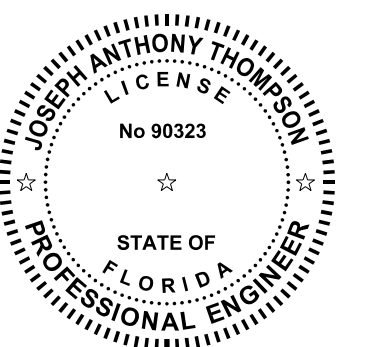
PLAN - CURVED SPREADER REINFORCEMENT



TYPICAL SPREADER SECTION



TYPICAL WING - ELEVATION



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
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THREE OAKS PARKWAY EXTENSION
PHASE 1 FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

WINGWALL DETAILS
STA 231+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX3-4

BOX CULVERT DATA TABLES

BOX, HEADWALL AND CUTOFF WALL DATA TABLE (inches unless shown otherwise)																				
LOCATION	STRUCTURE /BRIDGE NUMBER	BOX									HEADWALL AND CUTOFF WALL									
		Wc(ft)	Hc(ft)	Tt	Tw	Tb	Ti	#cells	Lc(ft)	Cover	Blhw	Hlhw	Brhw	Hrhw	Blcw	Hlcw	Brcw	Hrcw	SL(deg)	SR(deg)
STA 231+48.00	2	8	3	10	10	10	-	1	114	2	18	35	18	47	12	48	12	24	90	90

LEFT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL									LEFT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
BX3	15	12	39	12	90	18.4	6.92	6.92	24	15	12	39	12	90	18.4	6.92	6.92	24

RIGHT SIDE WINGWALLS DATA TABLE (inches unless shown otherwise)																		
STRUCTURE /BRIDGE NUMBER	RIGHT END WINGWALL									RIGHT BEGIN WINGWALL								
	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)	Rt	Rw	Rh	Rd	SW(deg)	β (deg)	He(ft)	Hs(ft)	Lw(ft)
BX3	12	12	36	12	90	18.4	5.92	5.92	19.5	12	12	36	12	90	18.4	5.92	5.92	19.5

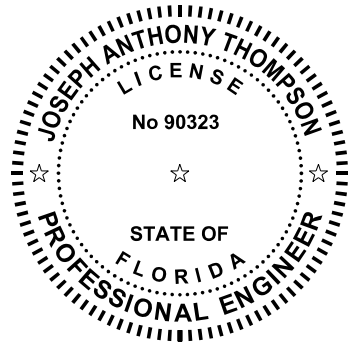
ESTIMATED CONCRETE QUANTITIES (CY)																							
STRUCTURE /BRIDGE NUMBER	BOX								LEFT END WINGWALL			LEFT BEGIN WINGWALL			RIGHT END WINGWALL			RIGHT BEGIN WINGWALL			SPREADER		
	Left Cutoff Wall	Right Cutoff Wall	Bottom Slab	Walls	Top Slab	Left Head Wall	Right Head Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total	Footing	Wall	Sub Total
BX3	1.13	0.42	34.01	21.34	34.01	1.65	1.12	93.69	7.78	6.15	13.93	7.78	6.15	13.93	4.33	4.28	8.61	4.33	4.28	8.61	9.95	13.11	23.06

MAIN STEEL REINFORCEMENT SPACING (inches)																			
STRUCTURE /BRIDGE NUMBER	BOX															HEADWALLS		CUTOFF WALLS	
	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115, 116...	803	806	809	812
BX3	12	12	12	12	12	12	-	12	12	12	12	12	12	12	N/A	9	9	15	15

WINGWALL STEEL REINFORCEMENT SPACING (inches)																																
STRUCTURE /BRIDGE NUMBER	LEFT END WINGWALL								LEFT BEGIN WINGWALL								RIGHT END WINGWALL								RIGHT BEGIN WINGWALL							
	401 407(8)	402 (403)	404 (405)	406	409	410	411	412	501 507(8)	502 (503)	504 (505)	506	509	510	511	512	601 607(8)	602 (603)	604 (605)	606	609	610	611	612	701 707(8)	702 (703)	704 (705)	706	709	710	711	712
BX3	9	12	12	12	12	9	12	8	9	12	12	12	12	9	12	8	12	12	12	12	12	12	12	8	12	12	12	12	12	12	12	8

WINGWALL NOTE: Bar designations in "()" are only required for variable height wingwalls.

SPREADER STEEL REINFORCEMENT SPACING (inches)							
STRUCTURE /BRIDGE NUMBER	SPREADER						
	901	902	903	904	905	906	907
BX3	12	12	12	12	2	12	12



DATE	BY	REVISION DESCRIPTION

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PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
Fort Myers, FL 33901
FBPE# 29282 (239) 935-5006

	LEE COUNTY DEPARTMENT OF TRANSPORTATION
	(239) 533-8580

THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

TABLE OF R.C. BOX CULVERT VARIABLES
STA 231+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

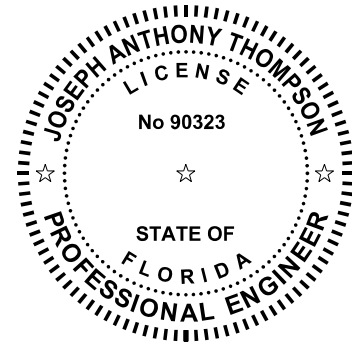
SHEET
BX3-5

CULVERT STA 231+48.00																
5	D101	9-4	115	1				9-4								
6	D102	9-4	115	1				9-4								
6	D103	9-4	118	1				9-4								
5	D104	9-4	118	1				9-4								
7	D105	6-10	230	10				3-9	3-1							
7	D106	6-10	230	10				3-9	3-1							
4	D108	4-4	230	1				4-4								
4	D109	118-5	11	2				1-9	116-8							1
4	D110	115-5	11	2				1-9	113-8							1
4	D111	114-9	11	2				1-9	113-0							1
4	D112	118-5	11	2				1-9	116-8							1
4	D113	115-5	8	2				1-9	113-8							1
4	D114	115-5	8	2				1-9	113-8							1
6	D801	9-4	2	1				9-4								
6	D802	9-4	2	1				9-4								
3	D803	7-11	14	27				2-6	6	8	5	2-1	1-0	1-0		
6	D804	9-4	2	1				9-4								
6	D805	9-4	2	1				9-4								
3	D806	9-11	14	27				3-6	6	8	5	3-1	1-0	1-0		
4	D807	9-4	2	1				9-4								
4	D808	9-4	2	1				9-4								
3	D809	4-10	9	7				1-7	8	6	6					
4	D810	9-4	2	1				9-4								
4	D811	9-4	2	1				9-4								
3	D812	8-10	9	7				3-7	8	6	6					
LOCATION WINGWALL B STA 231+48.00																
4	D401	6-8	33	1				6-8								
4	D402	23-8	8	1				23-8								
4	D404	23-8	8	1				23-8								
4	D406	6-8	25	1				6-8								
4	D407	4-9	33	10				2-7	2-2							
4	D409	5-5	25	1				5-5								
4	D410	5-5	33	1				5-5								
4	D411	23-8	14	1				23-8								
5	D412	2-0	12	1				2-0								
LOCATION WINGWALL A STA 231+48.00																
4	D501	6-8	33	1				6-8								
4	D502	23-8	8	1				23-8								
4	D504	23-8	8	1				23-8								
4	D506	6-8	25	1				6-8								
4	D507	4-9	33	10				2-7	2-2							
4	D509	5-5	25	1				5-5								
4	D510	5-5	33	1				5-5								
4	D511	23-8	14	1				23-8								
5	D512	2-0	12	1				2-0								
LOCATION WINGWALL C STA 231+48.00																
4	D601	5-8	21	1				5-8								
4	D602	19-2	7	1				19-2								
4	D604	19-2	7	1				19-2								
4	D606	5-8	21	1				5-8								
4	D607	4-4	21	10				2-7	1-9							
4	D609	4-8	21	1				4-8								
4	D610	4-8	21	1				4-8								
4	D611	19-2	12	1				19-2								
5	D612	2-0	10	1				2-0								
LOCATION WINGWALL D STA 231+48.00																
4	D701	5-8	21	1				5-8								
4	D702	19-2	7	1				19-2								
4	D704	19-2	7	1				19-2								
4	D706	5-8	21	1				5-8								
4	D707	4-4	21	10				2-7	1-9							
4	D709	4-8	21	1				4-8								
4	D710	4-8	21	1				4-8								
4	D711	19-2	12	1				19-2								
5	D712	2-0	10	1				2-0								

[illegible]

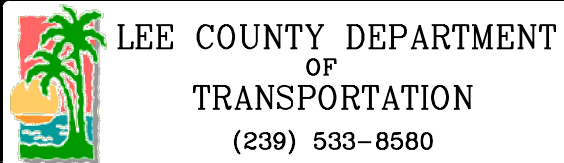
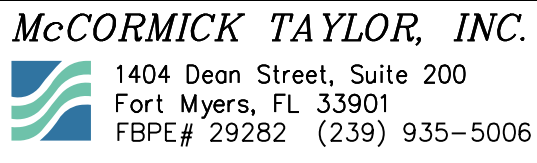
* D906 IS 4 SETS OF 5 VARYING BARS

1. ALL REINFORCING STEEL SHALL BE GRADE 60 IN ACCORDANCE WITH THE LATEST EDITION OF AASHTO M31M/M31.
2. ALL FABRICATION OF REINFORCING STEEL SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCEMENT CONCRETE STRUCTURES (ACI 315).
3. CONTRACTOR SHALL REVIEW AND APPROVE ALL REINFORCING DETAIL SCHEDULES AND QUANTITIES PRIOR TO FABRICATION.
4. FOR BAR BENDS, SEE INDEX 415-001.



DATE	BY	REVISION DESCRIPTION

PROJECT:	5901-01
PROJ. MGR.	Melody Matter, PE
LEE COUNTY DOT PROJECT:	CN160642/ANB
LDOT PROJ. MGR.	Vince Miller, PE



THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

STA. 231+48.00 SINGLE CELL 3' X 8'
REINFORCED CONCRETE BOX CULVERT

SHEET
BX3-6

PROJECT: Proposed Three Oaks Parkway Extension Phase 1
Airport Canal to Indian Pony Drive
Fort Myers, Lee County, FL

CLIENT: Avalon Engineering Inc.

LOCATION: Proposed 3'X8' BOX Culvert - East Side at STA 231+48

REMARKS: Formerly Known as B-8

BORING DESIGNATION: B-19

WATER TABLE (ft): 6.2

DATE OF READING: 05/26/2002

DATE STARTED: 5/26/02

DATE FINISHED: 5/26/02

DRILLED BY: JERRY/CISSNE

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		3-4-4	8			Loose Gray and Brown Fine Sand (A-3)		
		4-5-4	9					
		5-6-5	11					
5		6-8-7	15			Medium Dense to Loose Gray and Dark Brown Fine Sand with Silt (A-2-4)	7	18
		7-6-5	11					
		5-4-4	8					
10		3-4-3	7					
						Very Loose to Loose Gray and Light Brown Silty Fine Sand with Limerock (A-2-4)		
15		1-2-1	3					
20		3-4-4	8					
25		4-2-4	6					
30		4-4-3	7			BORING TERMINATED		

PROJECT: Proposed Three Oaks Parkway Extension Phase 1
Airport Canal to Indian Pony Drive
Fort Myers, Lee County, FL

CLIENT: Avalon Engineering Inc.

LOCATION: Proposed 3'X8' BOX Culvert - West Side at STA 231+48

REMARKS: Formerly Known as B-9

BORING DESIGNATION: B-20

WATER TABLE (ft): 6.1

DATE OF READING: 05/26/2002

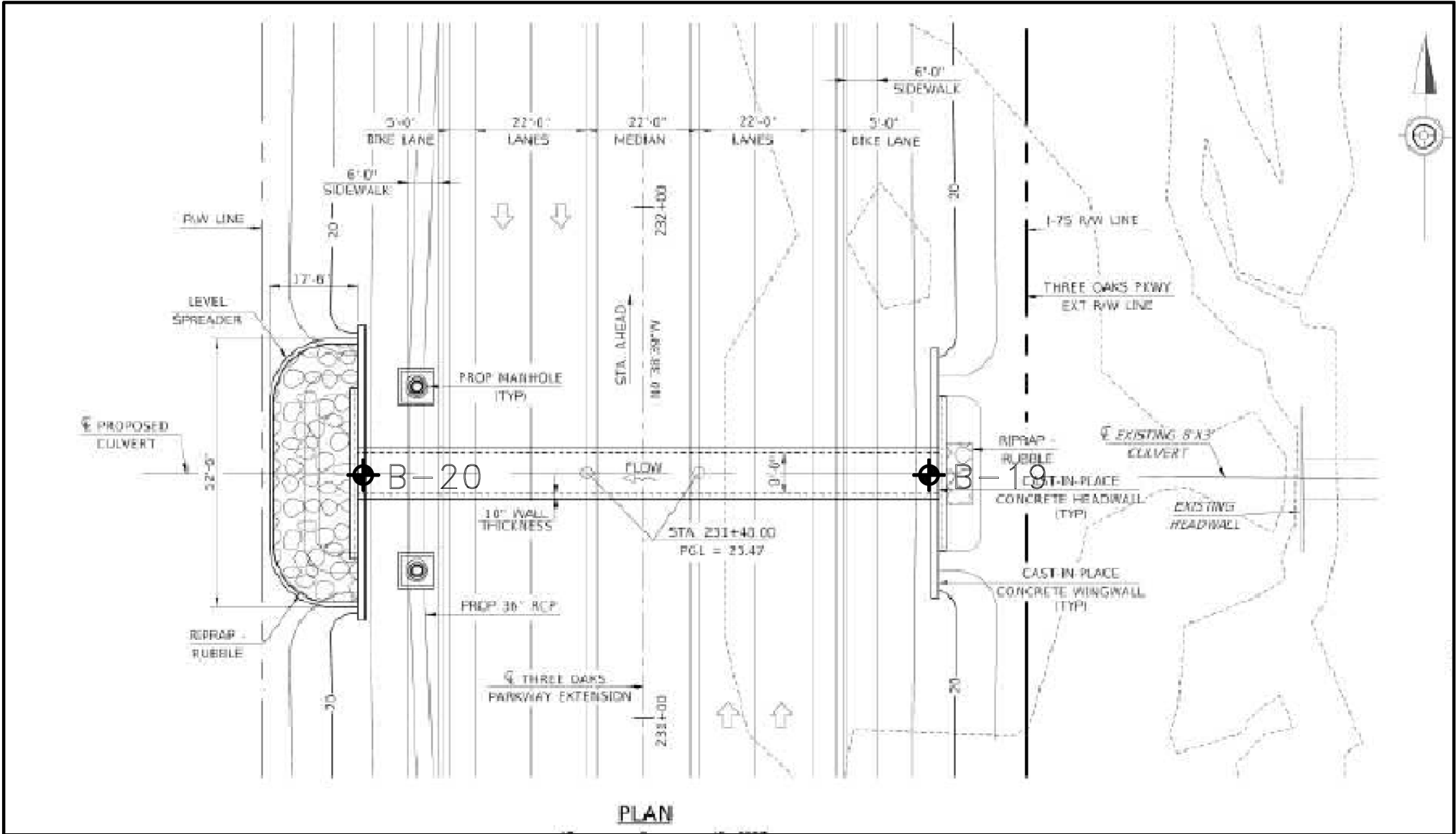
DATE STARTED: 5/26/02

DATE FINISHED: 5/26/02

DRILLED BY: JERRY/CISSNE

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	SAMPLE	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	SYMBOL	DESCRIPTION	-200 (%)	MC (%)
0		2-3-3	6			Loose Gray and Dark Brown Fine Sand (A-3)		
		3-4-3	7					
		3-5-4	9			Medium Dense to Loose Gray and Dark Brown Fine Sand with Silt (A-2-4)		
5		5-6-9	15				6	21
		8-7-6	13					
		6-3-3	6					
10		3-3-3	6			Loose to Very Loose Gray and Light Brown Silty Fine Sand with Limerock (A-2-4)		
15		2-6-1	7					
20		8-3-2	5					
25		3-2-2	4				18	15
30		4-2-1	3			BORING TERMINATED		



LEGEND:

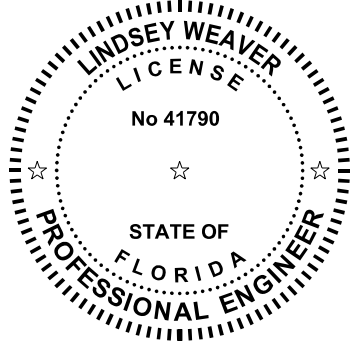
◆ B-# Approximate SPT boring location

NOTES TO BORING LOGS

- N STANDARD PENETRATION RESISTANCE IN BLOWS PER FOOT (18" SPOON – ASTM D 1586)
- (SP) UNIFIED SOIL CLASSIFICATION SYSTEM GROUP SYMBOL BASED ON VISUAL OBSERVATION
- 200 PERCENT PASSING NO. 200 U.S. STANDARD SIEVE
- WC NATURAL MOISTURE CONTENT (%)
- LL LIQUID LIMIT 6.0 2 EST. SEASONAL HIGH GROUNDWATER TABLE
- PI PLASTICITY INDEX

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY OF SOIL

GRANULAR MATERIALS (SANDS & GRAVELS)		COHESIVE MATERIALS (SILTS & CLAYS)	
CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)	CONSISTENCY DESIGNATION	SPT N (BLOWS/FT.)
Very Loose	0–4	Very Soft	0–2
Loose	5–10	Soft	3–4
Medium Dense	11–30	Firm	5–8
Dense	31–50	Stiff	9–16
Very Dense	50+	Very Stiff	17–30
		Hard	30+



DATE	BY	REVISION DESCRIPTION

PROJECT: 5901-01
PROJ. MGR. Melody Matter, PE
LEE COUNTY DOT PROJECT: CN160642/ANB
LOOT PROJ. MGR. Vince Miller, PE

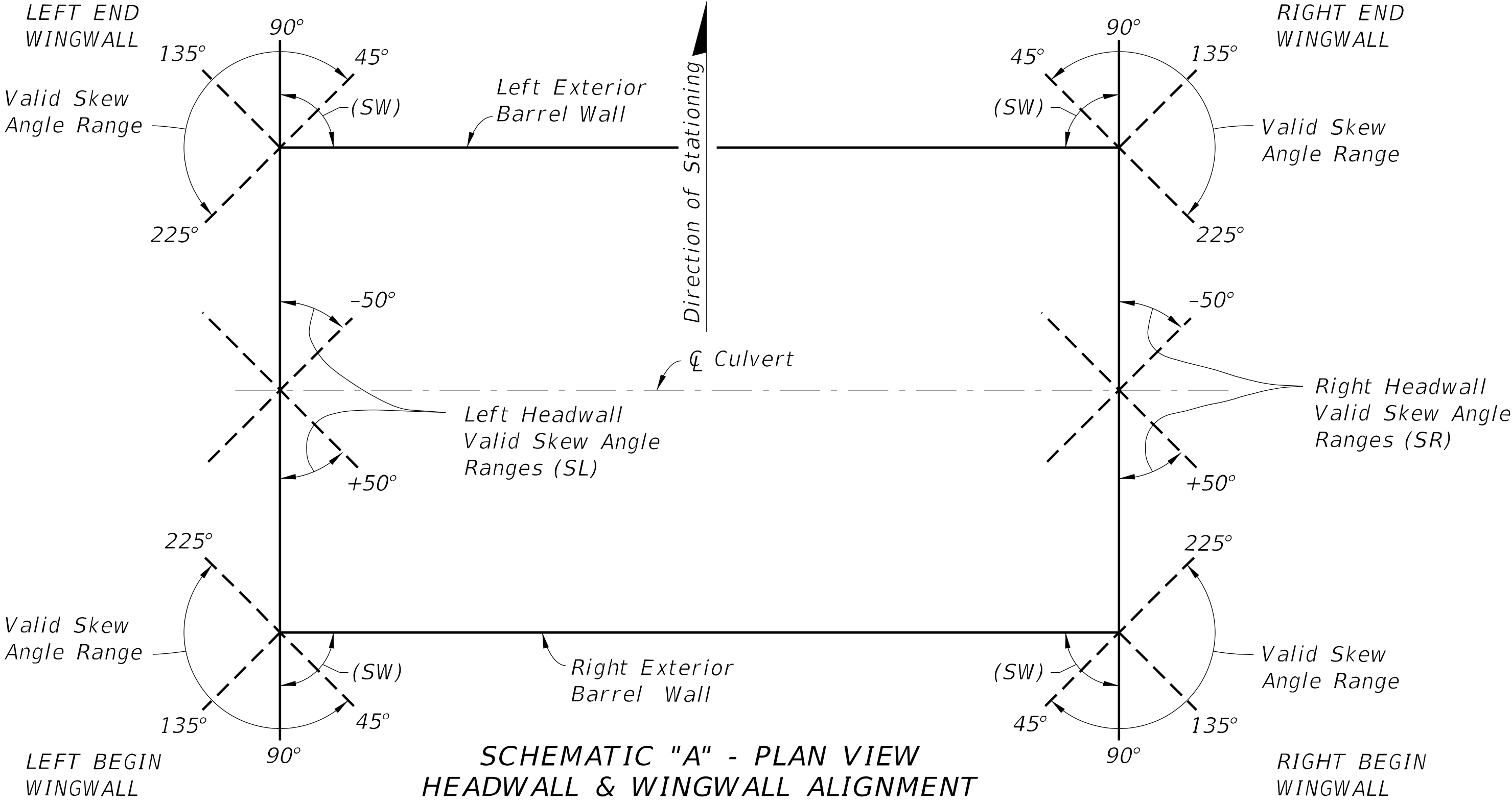
McCORMICK TAYLOR, INC.
1404 Dean Street, Suite 200
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FBPE# 29282 (239) 935-5006

LEE COUNTY DEPARTMENT OF TRANSPORTATION
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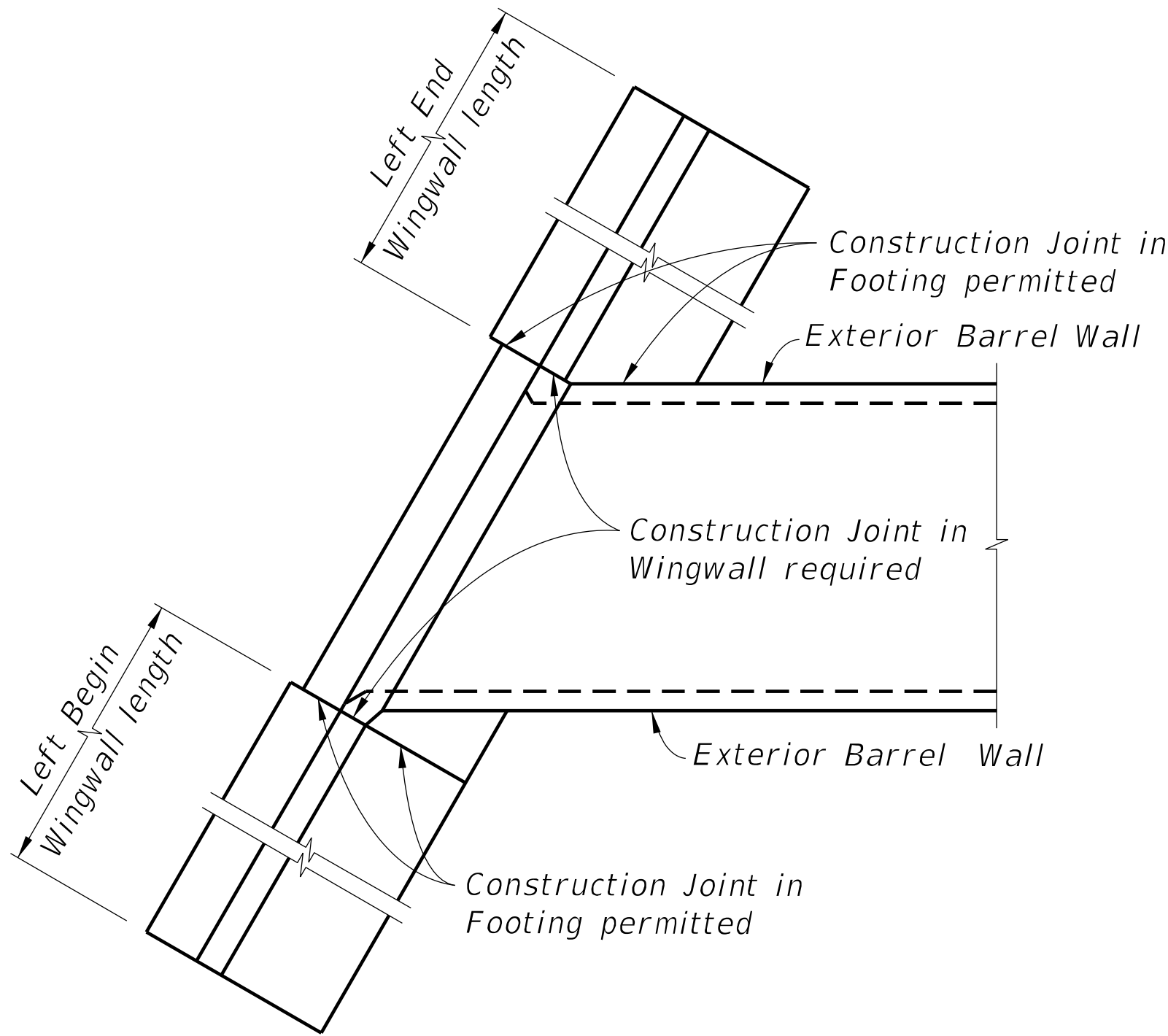
THREE OAKS PARKWAY EXTENSION
PHASE I FIDDLESTICKS CANAL TO STA 283+40
LEE COUNTY, FLORIDA

BORING SHEET
STA. 231+48.00 SINGLE CELL
3' X 8' REINFORCED CONCRETE BOX CULVERT

SHEET
BX3-7

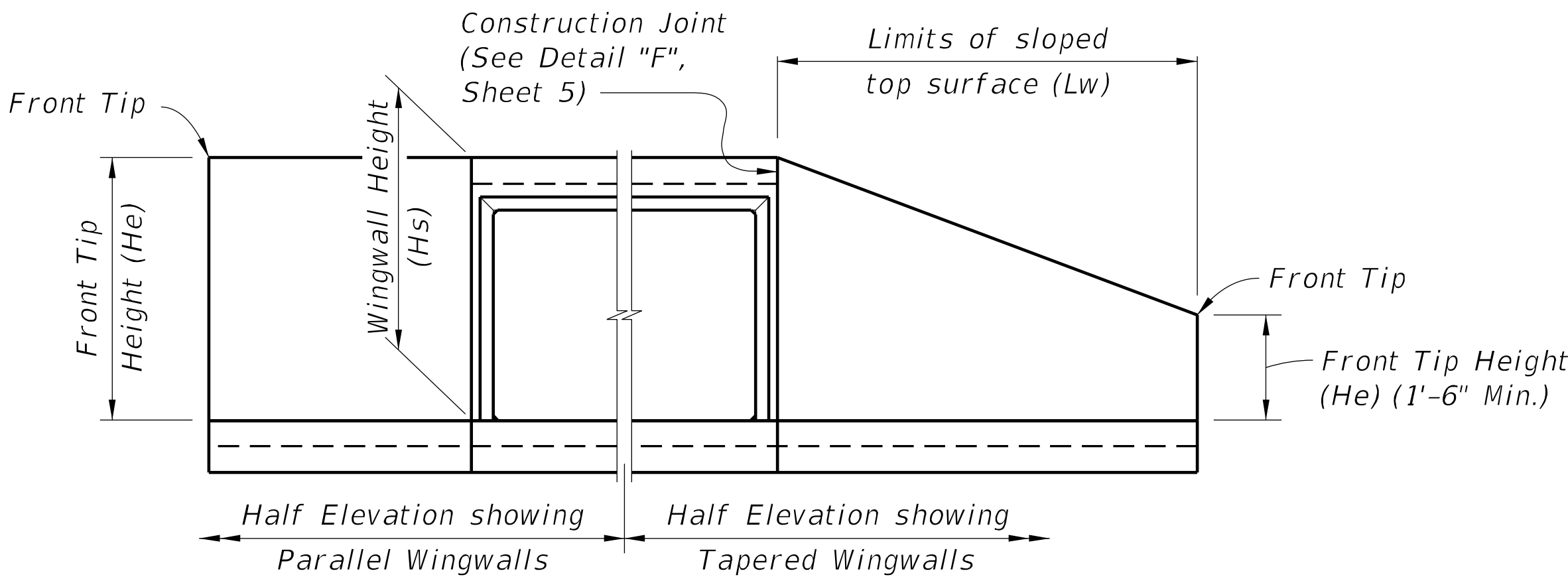


NOTE: All headwall and culvert skew angles are measured in degrees from a line perpendicular to the centerline of culvert (counter-clockwise positive), see Schematic "B".



PART PLAN SHOWING PARALLEL WINGWALLS AND LOCATION OF CONSTRUCTION JOINTS

NOTE: Construction Joints in wingwalls and footings are located as follows: For non-skewed wingwalls they are located adjacent to the exterior face of the exterior barrel wall; when the ϕ of wingwall and ϕ of exterior barrel wall results in an acute angle see Left End Wingwall above, and when the angle is obtuse see Left Begin Wingwall above and Detail C (Sheet 5).



END ELEVATION OF CULVERT

GENERAL NOTES:

LIVE LOAD: HL-93.

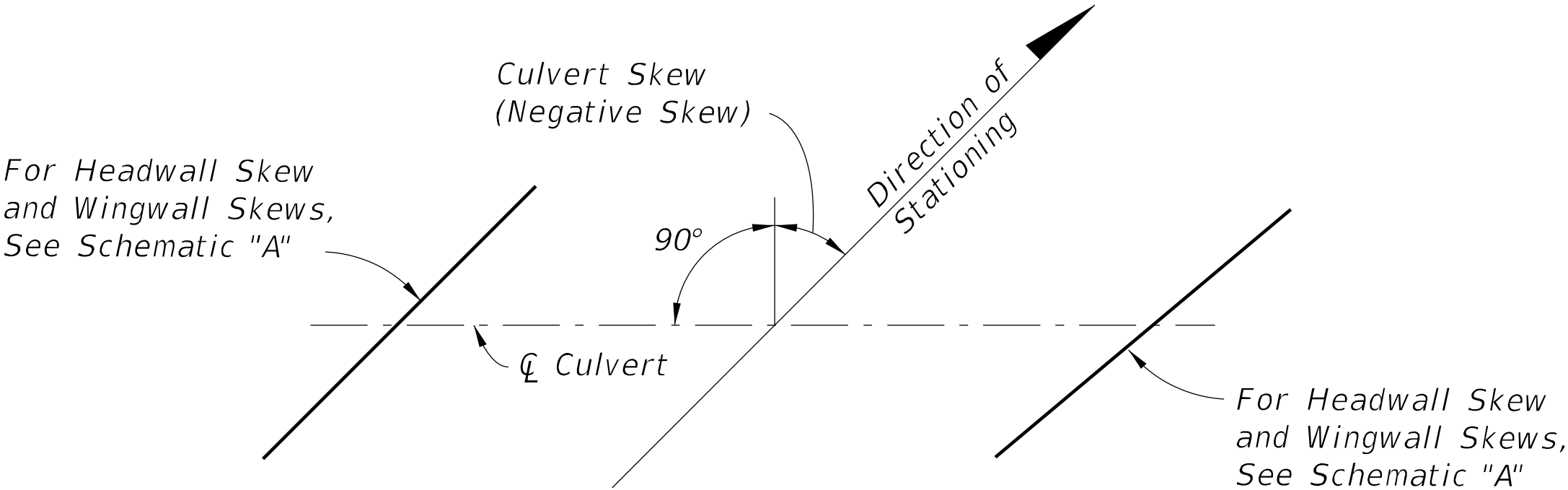
CONSTRUCTION LOADING: It is the construction Contractor's responsibility to provide for supporting construction loads that exceed AASHTO HL-93, and any construction load applied prior to 2 feet of compacted fill placed above the top slab.

SURFACE FINISH: All concrete surfaces shall receive a general surface finish.

SKEWED CONSTRUCTION JOINTS: Construction joints in barrels of culverts with skewed wingwalls may be placed parallel to the headwalls and the reinforcing steel, and the slabs may be cut provided that the cut reinforcing steel extends beyond the construction joint enough for splices to be made in accordance with Table 1 on this sheet. The cost of construction joints and additional reinforcing shall be at the expense of the Contractor.

CULVERT EXTENSIONS: For cut backs and ties into existing concrete box culverts see Sheet 6 of 8.

REINFORCING STEEL: See the "Box Culvert Data Tables" in the Contract Plans for grade and bar spacing. See the Reinforcing Bar List in the Contract Plans for bar sizes and bar bending details.



SCHEMATIC "B" - PLAN VIEW CULVERT ALIGNMENT

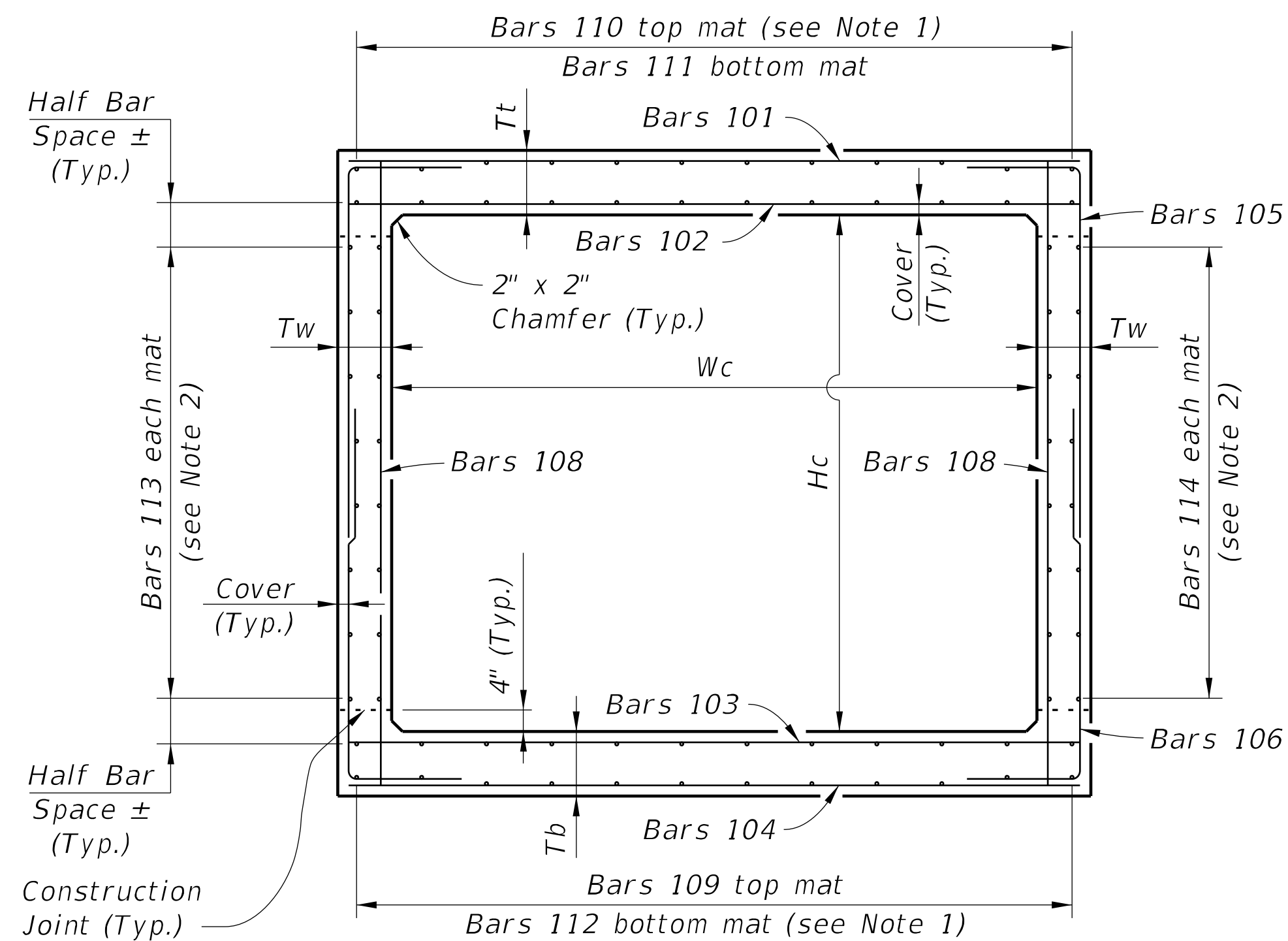
NOTE: For Culvert Skew see Contract Plans.

TABLE 1 - MINIMUM BAR SPLICE LENGTHS FOR LONGITUDINAL REINFORCING					
BAR SIZE	SPLICE (CLASS B)		BAR SIZE	SPLICE (CLASS B)	
	CLASS II (3400 psi)	CLASS IV (5500 psi)		CLASS II (3400 psi)	CLASS IV (5500 psi)
#3	1'-4"	1'-0"	#8	3'-5"	2'-8"
#4	1'-9"	1'-4"	#9	4'-3"	3'-4"
#5	2'-2"	1'-8"			
#6	2'-7"	2'-0"			
#7	3'-0"	2'-4"			

TABLE 1 NOTE: Splice lengths are based on an AASHTO Class B tension lap splice for the Specification Section 346 concrete class shown.

10/8/2020 10:42:26 AM

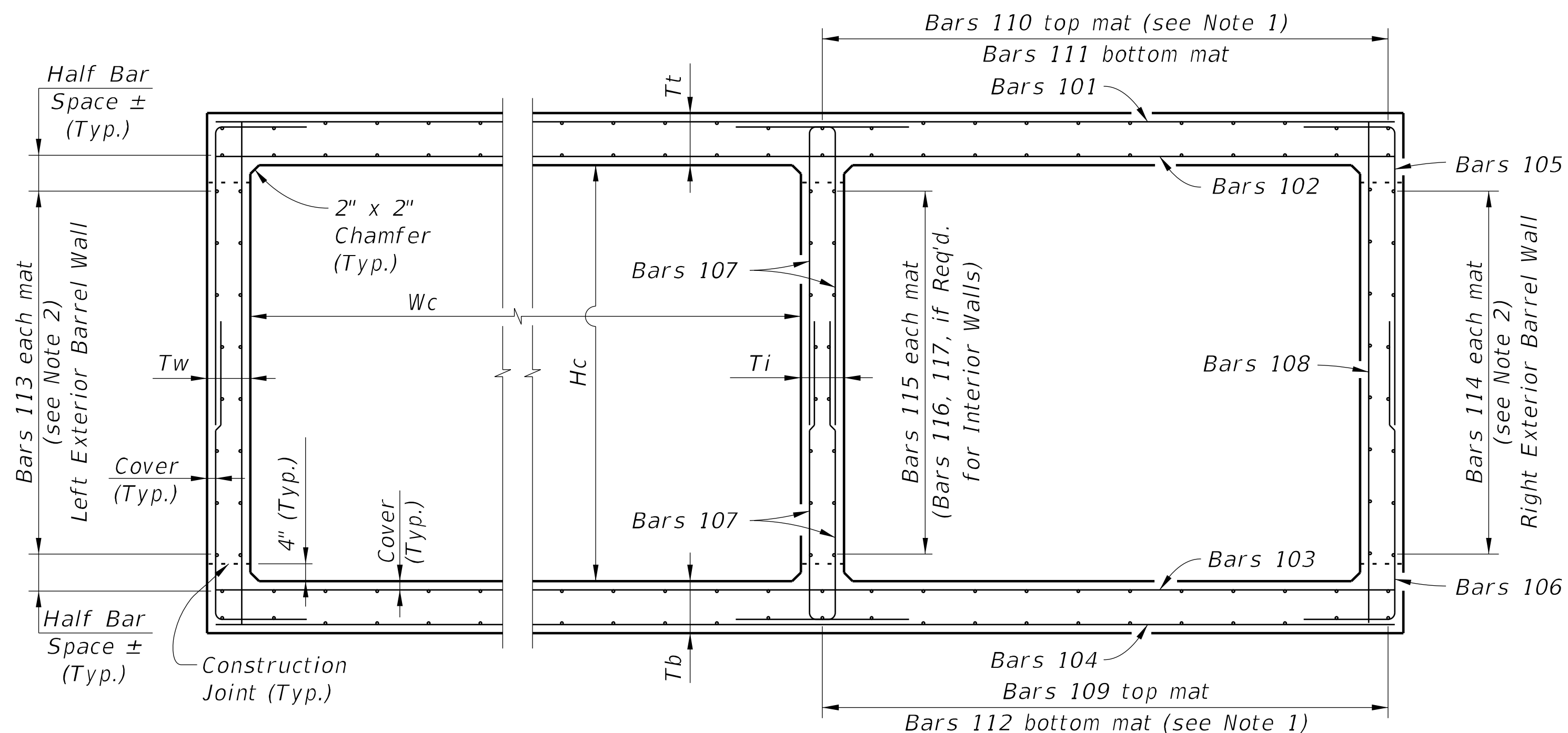
10/8/2020 10:42:28 AM



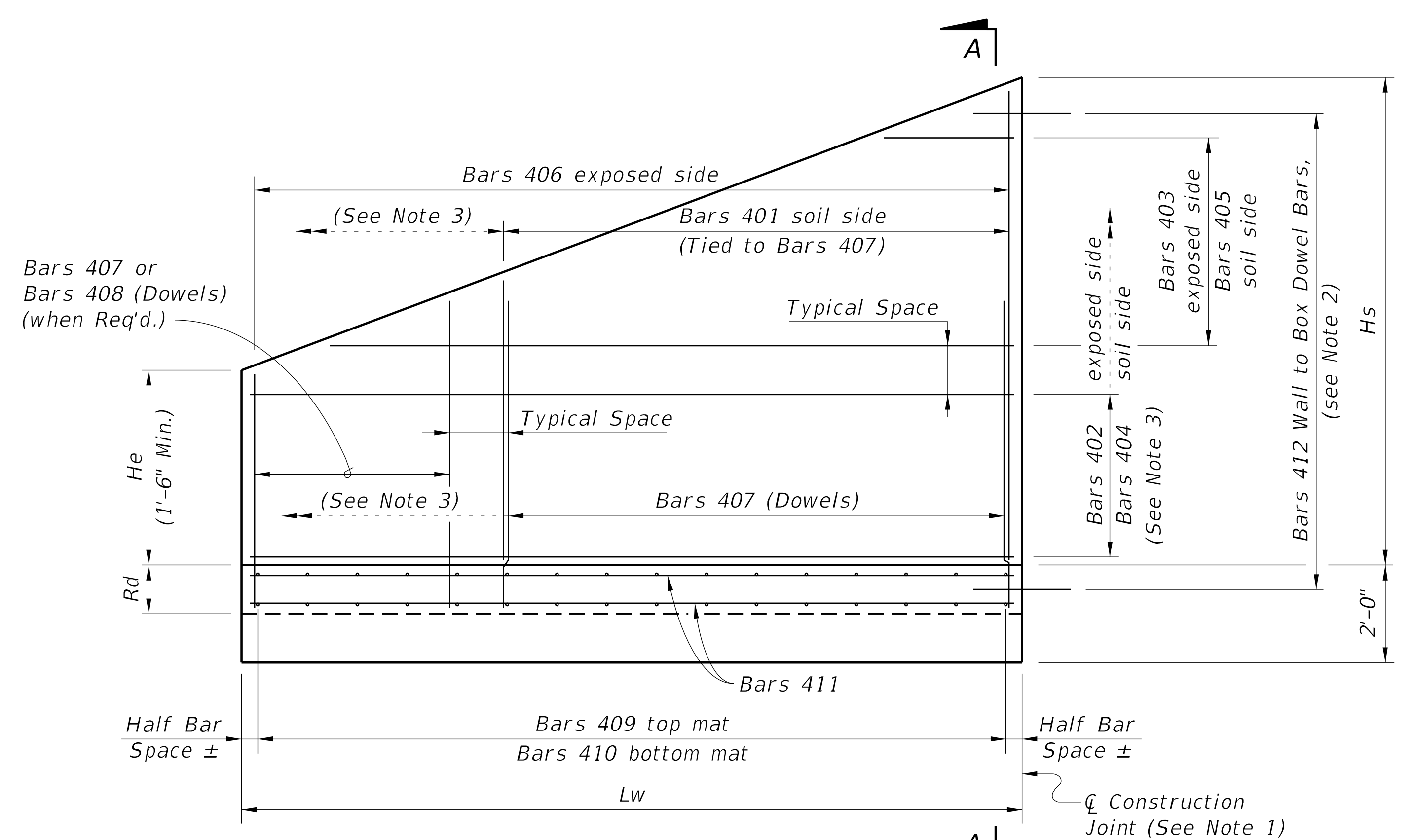
TYPICAL SECTION THRU SINGLE BARREL CULVERT

CULVERT BARREL NOTES:

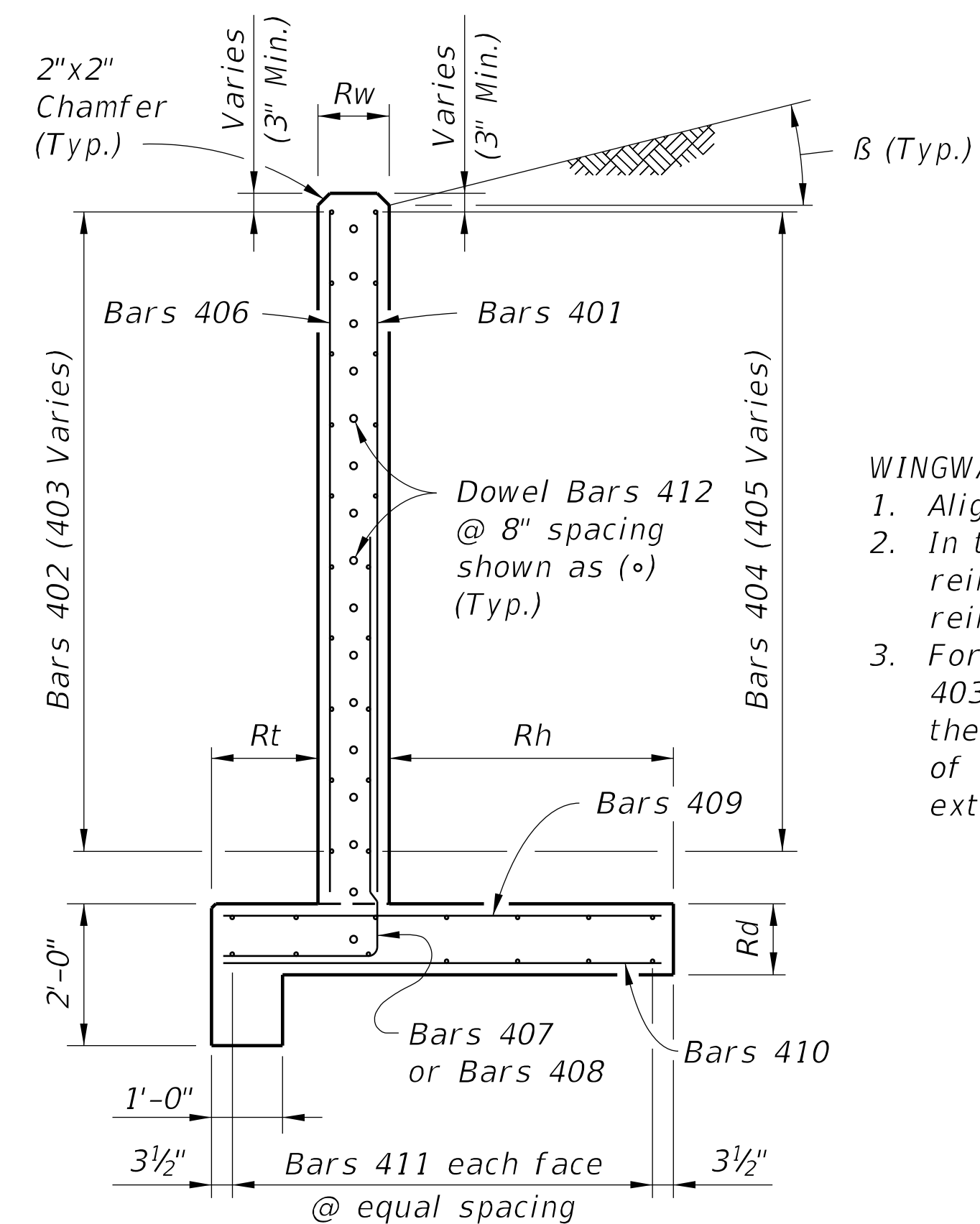
1. Space Bars 110 and 112 with a bar in each corner, and at the C of interior walls (for multiple barrel culverts only), and the remaining bars placed at equal spacing shown in the Contract Plans. Adjust last bar spacing when required.
2. Place Bars 113 and 114 at spacing shown in the Contract Plans evenly between Bars 109 and 111.
3. Locate the first transverse bar from the ends of the culvert at one half the bar spacing, but provide the minimum reinforcement cover and not greater than 4" clear.



TYPICAL SECTION THRU MULTIPLE BARREL CULVERT



WINGWALL ELEVATION - Variable Height
(Left End shown - other corners similar)



WINGWALL SECTION A-A

WINGWALL NOTES:

1. Align construction joint perpendicular to wingwall.
2. In the vicinity of the construction joint, field bend reinforcement as necessary to maintain minimum reinforcement cover.
3. For constant height wingwalls, variable length Bars 403, 405 & 408 are not required, and as such the limits of Bars 401 & 407 extend the full length of the wingwall, and the limits of Bars 402 & 404 extend to the full height of the wingwall.

LAST
REVISION
07/01/13

REVISION

DESCRIPTION:

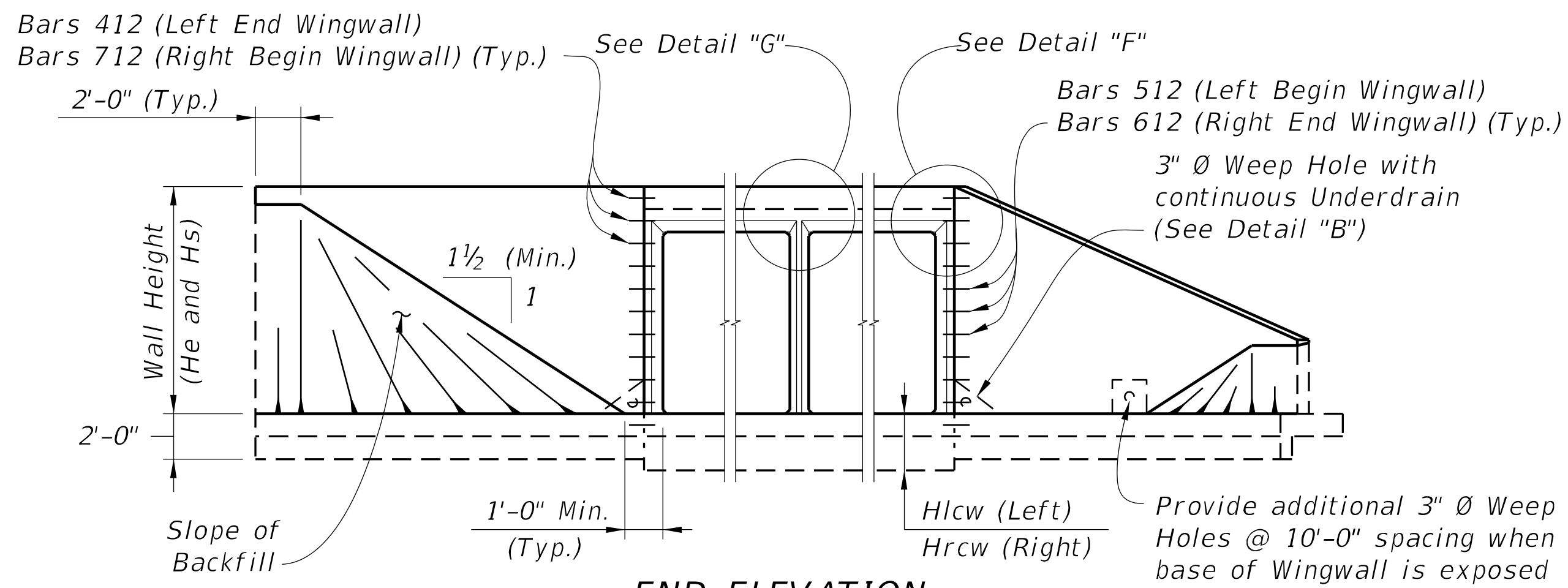


FY 2021-22
STANDARD PLANS

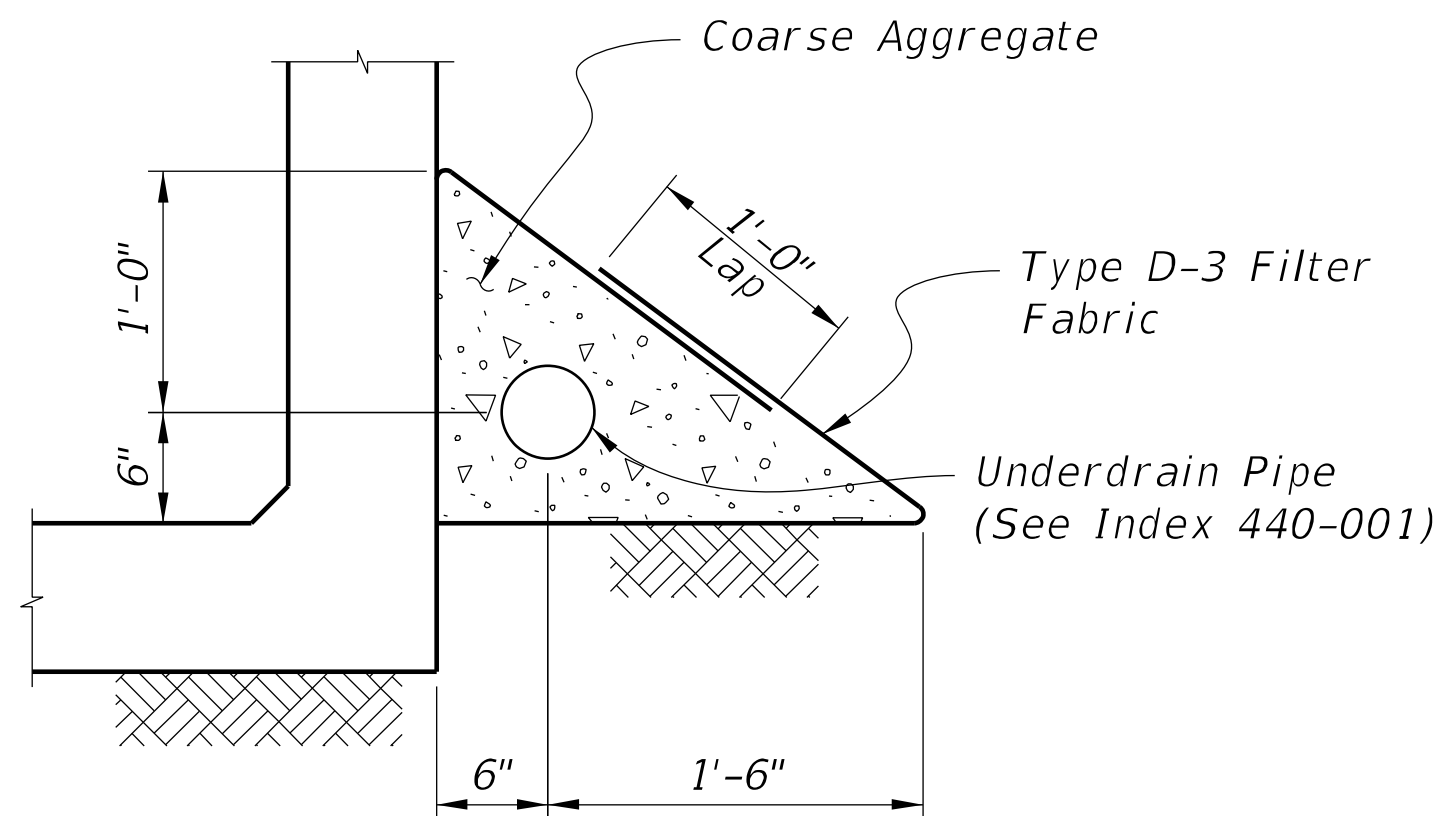
CONCRETE BOX CULVERT DETAILS

INDEX
400-289

SHEET
2 of 8



END ELEVATION
(Showing Constant Height And Variable Height Wingwalls)

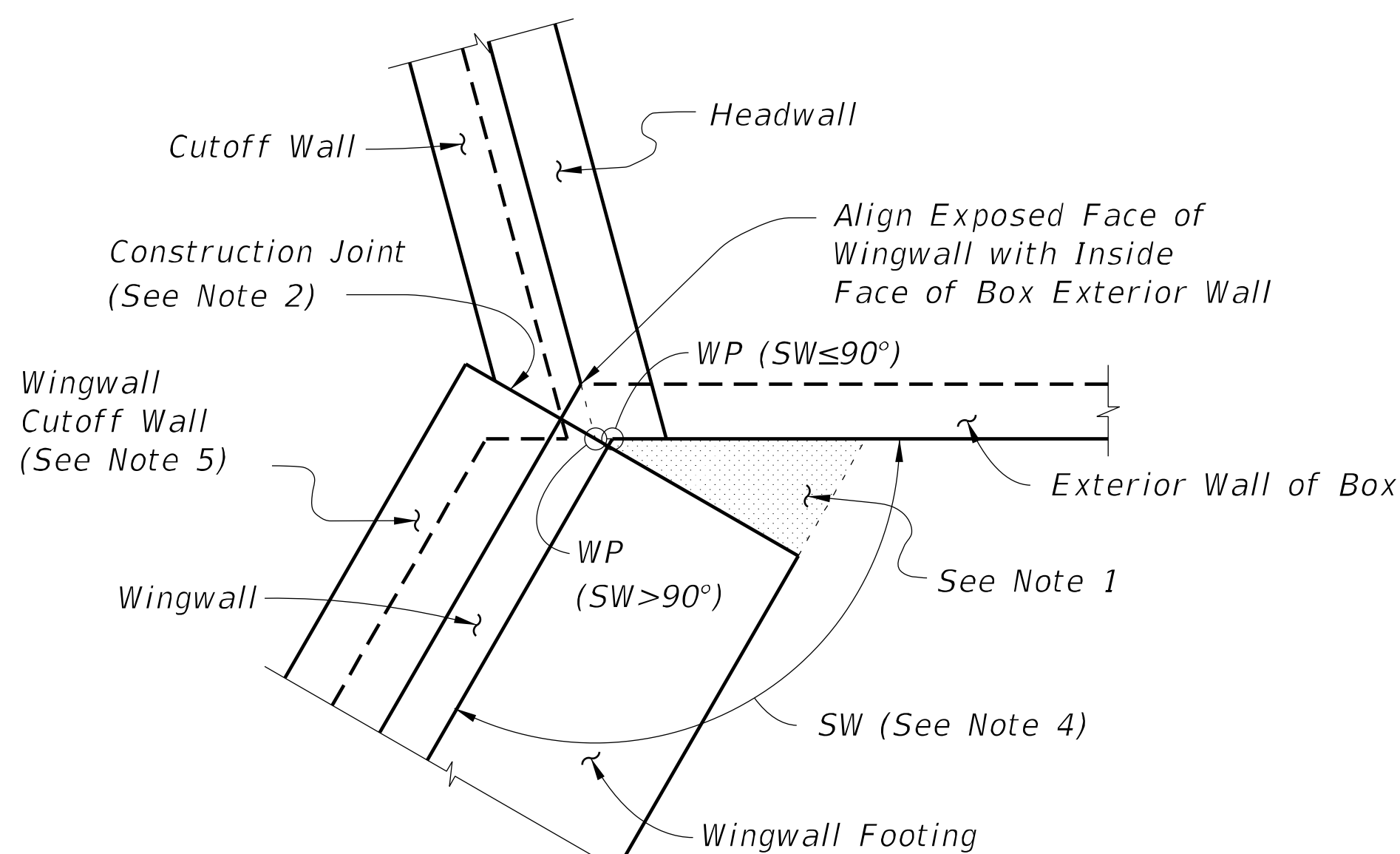


DETAIL "B"
UNDERDRAIN DETAIL
(Similar to Type II ~ Index 440-001)

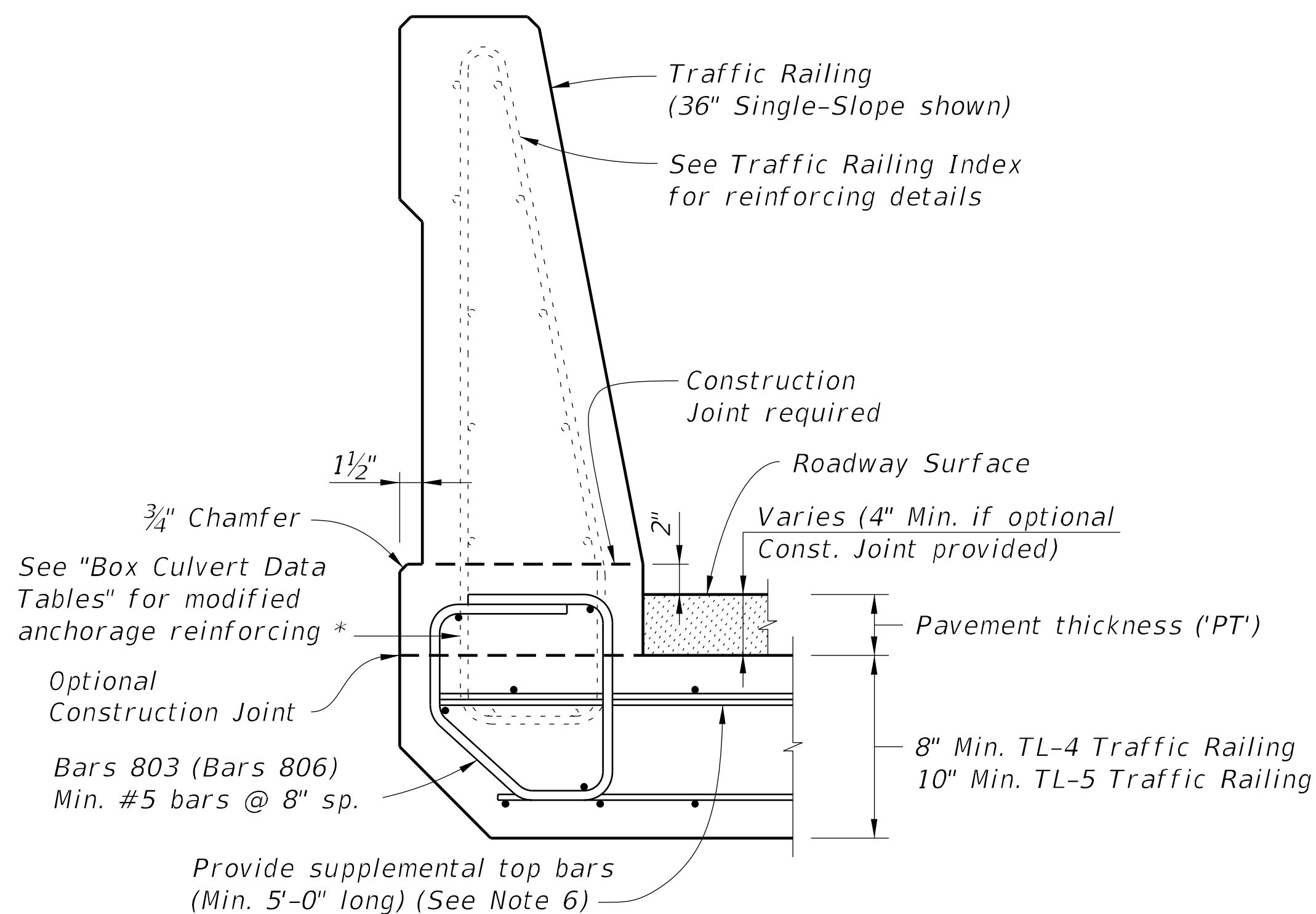
NOTES:

1. For small angles, the Contractor may elect to fill the area between the box and the wingwall footing with unreinforced concrete. For wingwall skew angles less than 90 degrees, field bend wingwall reinforcement as necessary while maintaining cover. No additional payment will be made for this work.
2. Location of Construction Joint determined by WP at theoretical intersection of:
 - Soil side face of Headwall and outside face of Box Exterior Wall, for $SW \leq 90^\circ$;
 - Outside face of Wingwall and outside face of Box Exterior Wall, for $SW > 90^\circ$.
3. Provide 6" chamfer when angle 'A' is greater than 45°. Maintain minimum wall thickness. Field adjust reinforcing to maintain cover.
4. Wingwall Skew Angles (SW) are measured from the adjacent box exterior wall to the wingwall.
5. Turn or extend Wingwall Cutoff Wall as necessary to meet Box Cutoff Wall.
6. Provide additional reinforcement in the top of the top slab below traffic railings to ensure a minimum area of 0.80 sq. in./ft. transverse reinforcing.

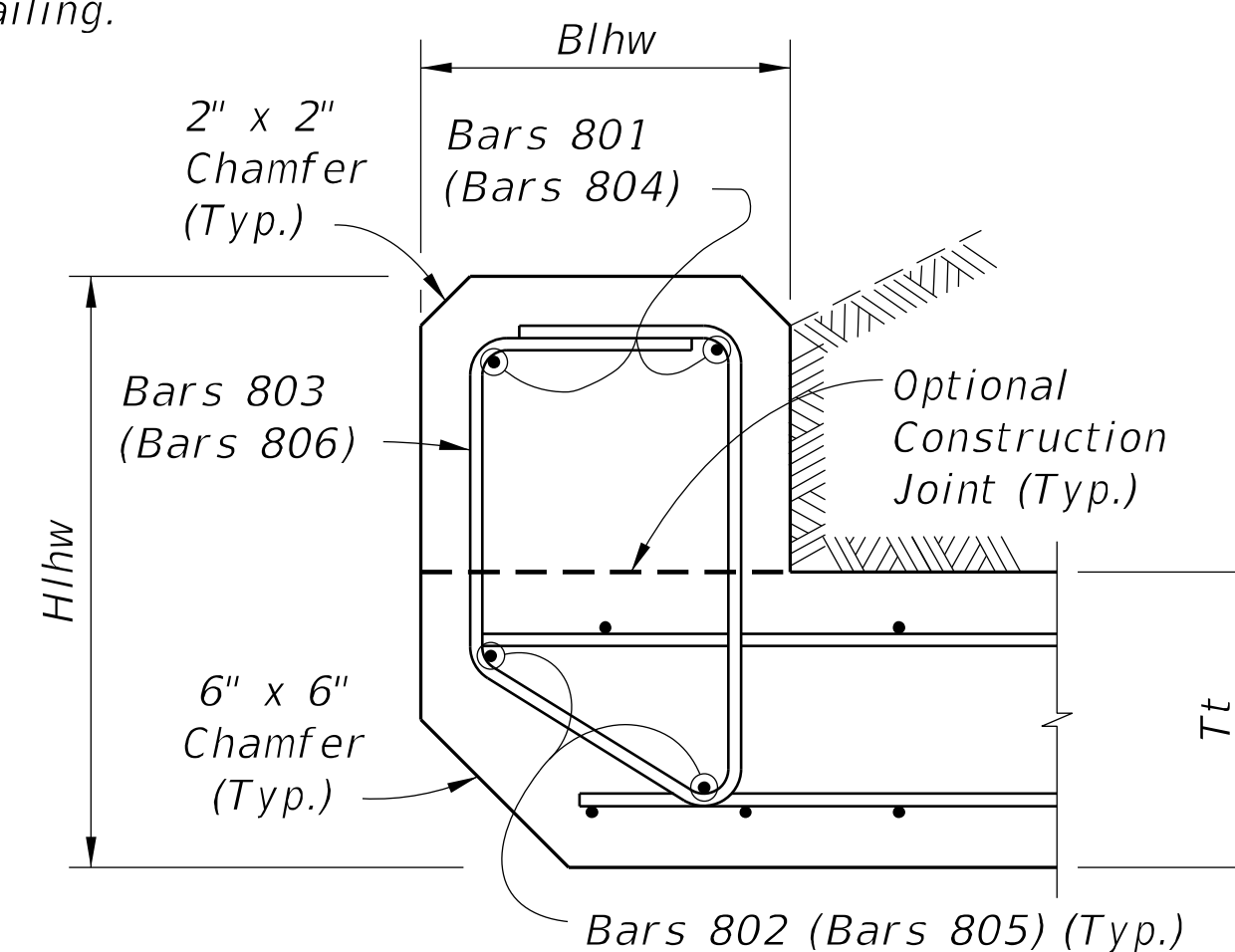
* Included in the cost of the Traffic Railing.



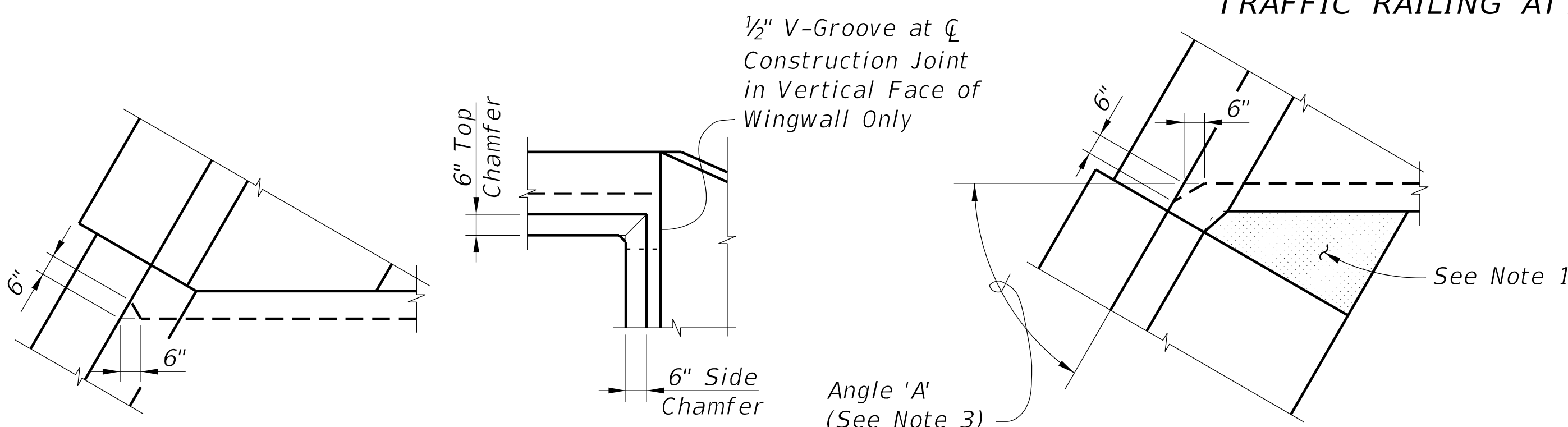
DETAIL "C" - PLAN VIEW
WINGWALL TO BOX CONNECTION
(Left Begin Corner Shown, Other Corners Similar)



DETAIL "I"
TRAFFIC RAILING ATTACHMENT TO HEADWALL



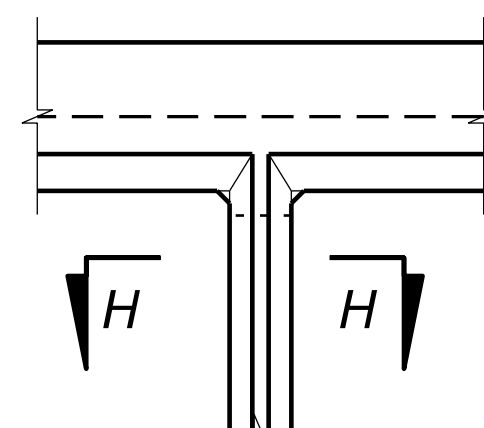
DETAIL "J"
LEFT HEADWALL SECTION
(Right Headwall similar)



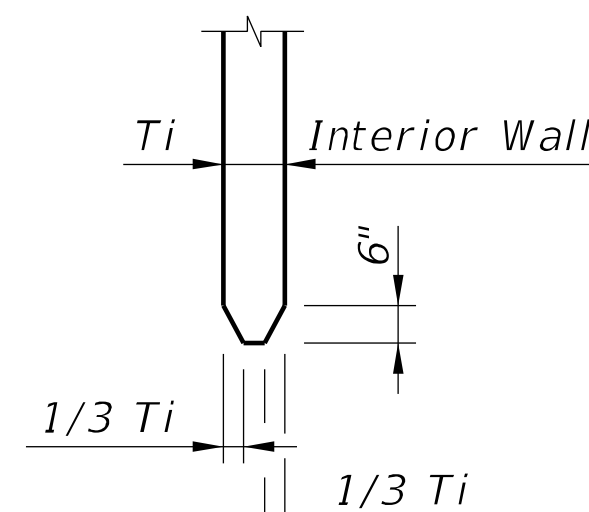
DETAIL "D"

DETAIL "F"

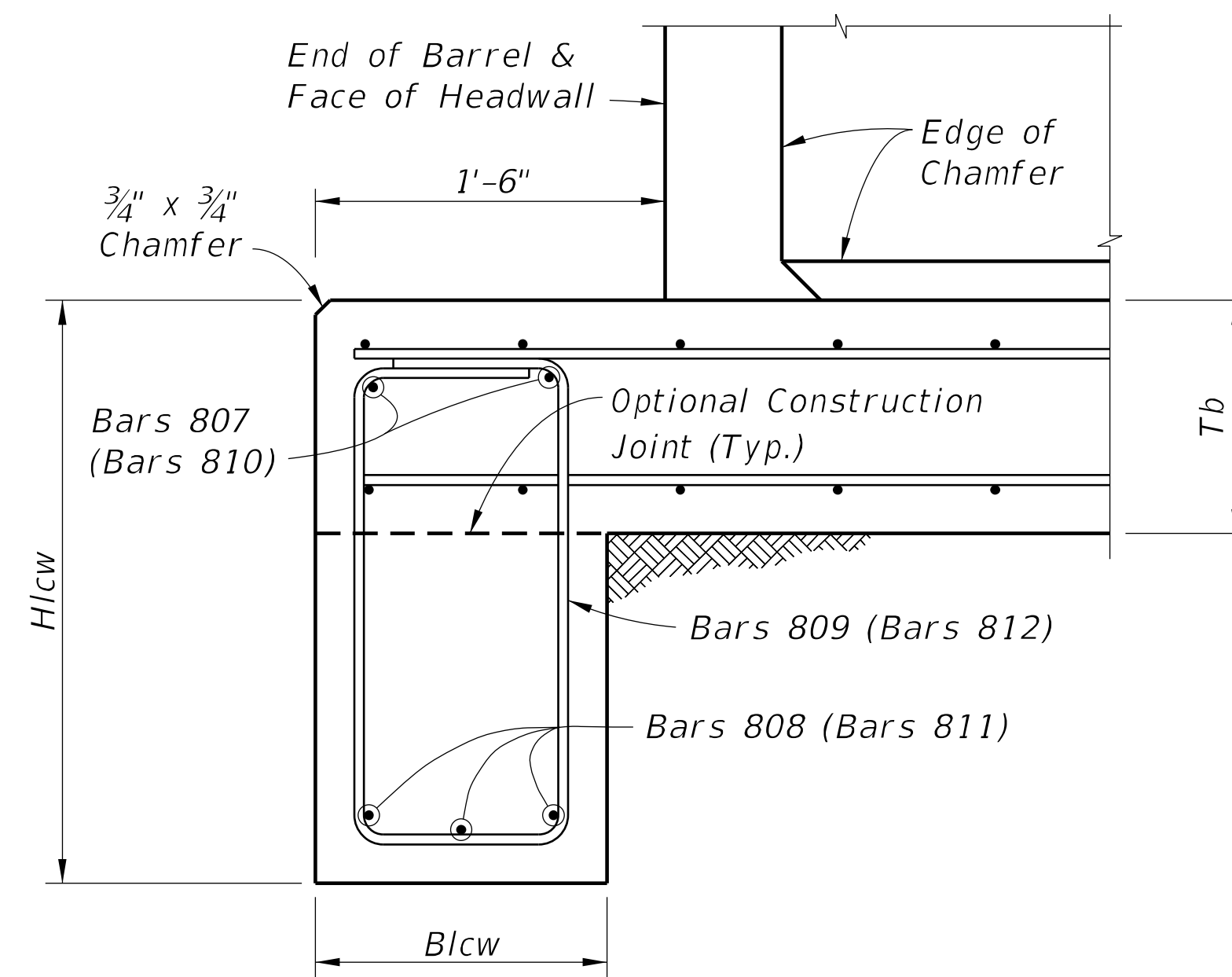
DETAIL "E"



DETAIL "G"



SECTION H-H



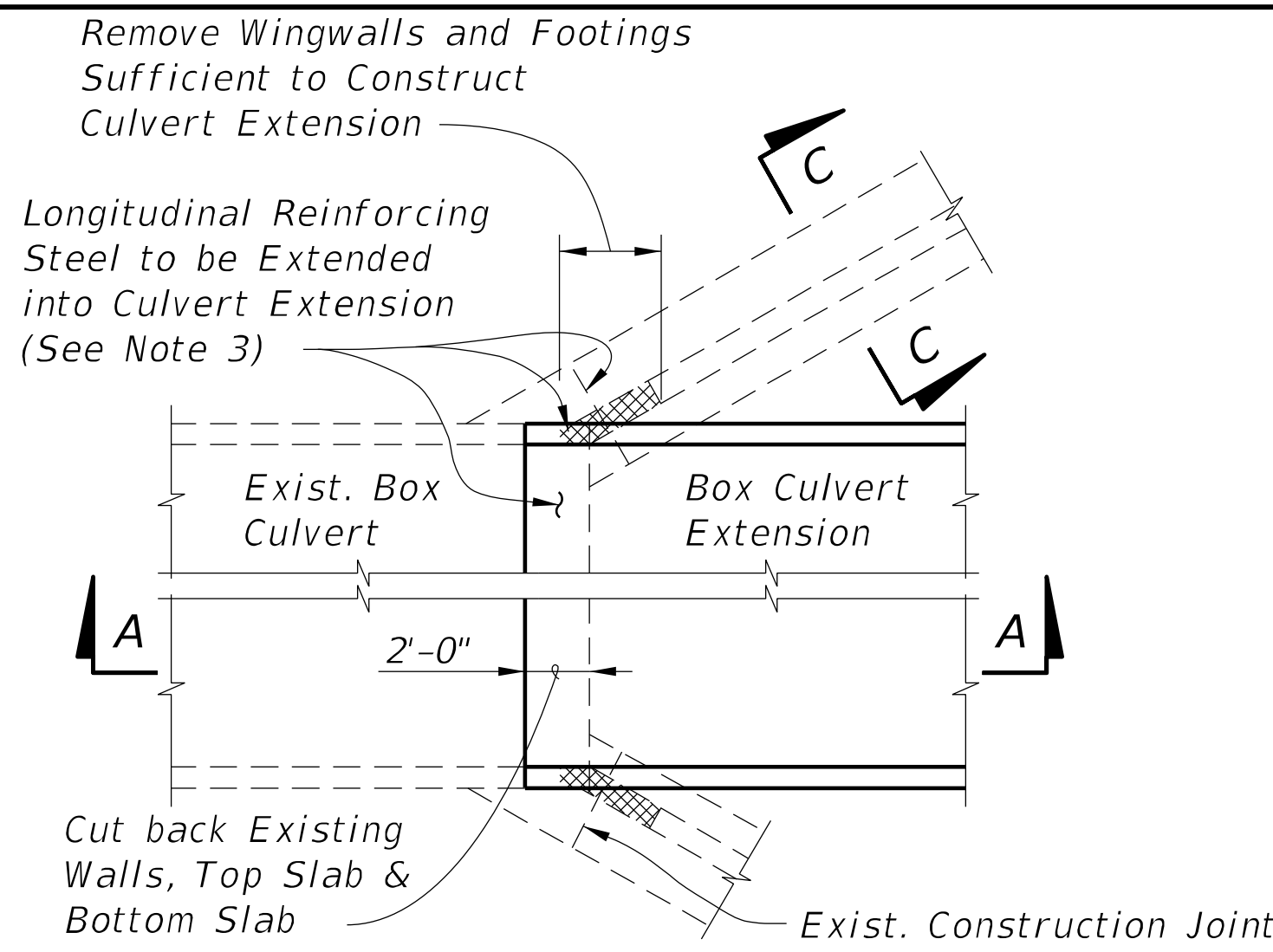
DETAIL "K"
LEFT CUTOFF WALL SECTION
(Right Cutoff Wall similar)

CROSS REFERENCE:

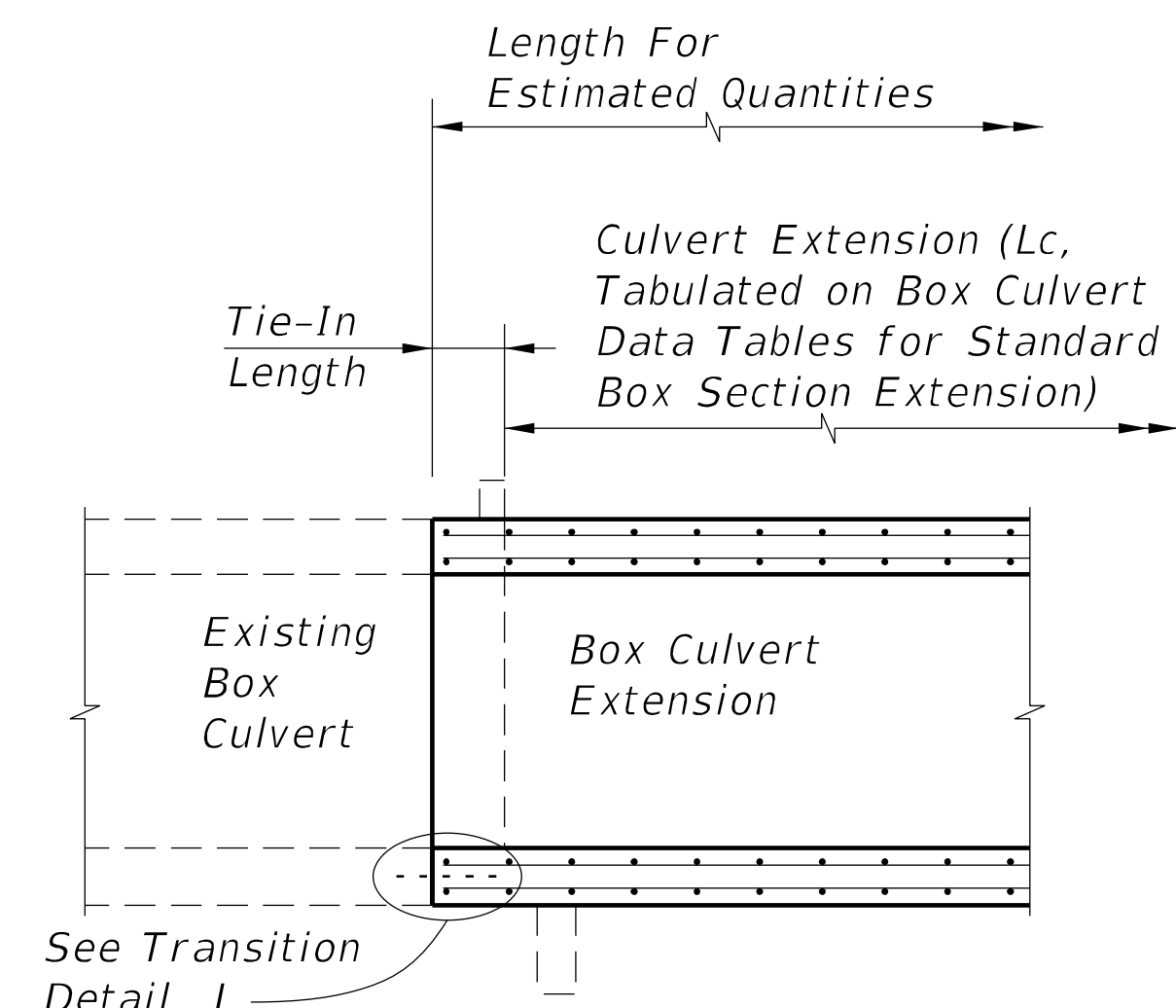
See Sheet 3 for locations of Details "D", "E", "J" & "K".
See Sheet 4 for locations of Detail "C".

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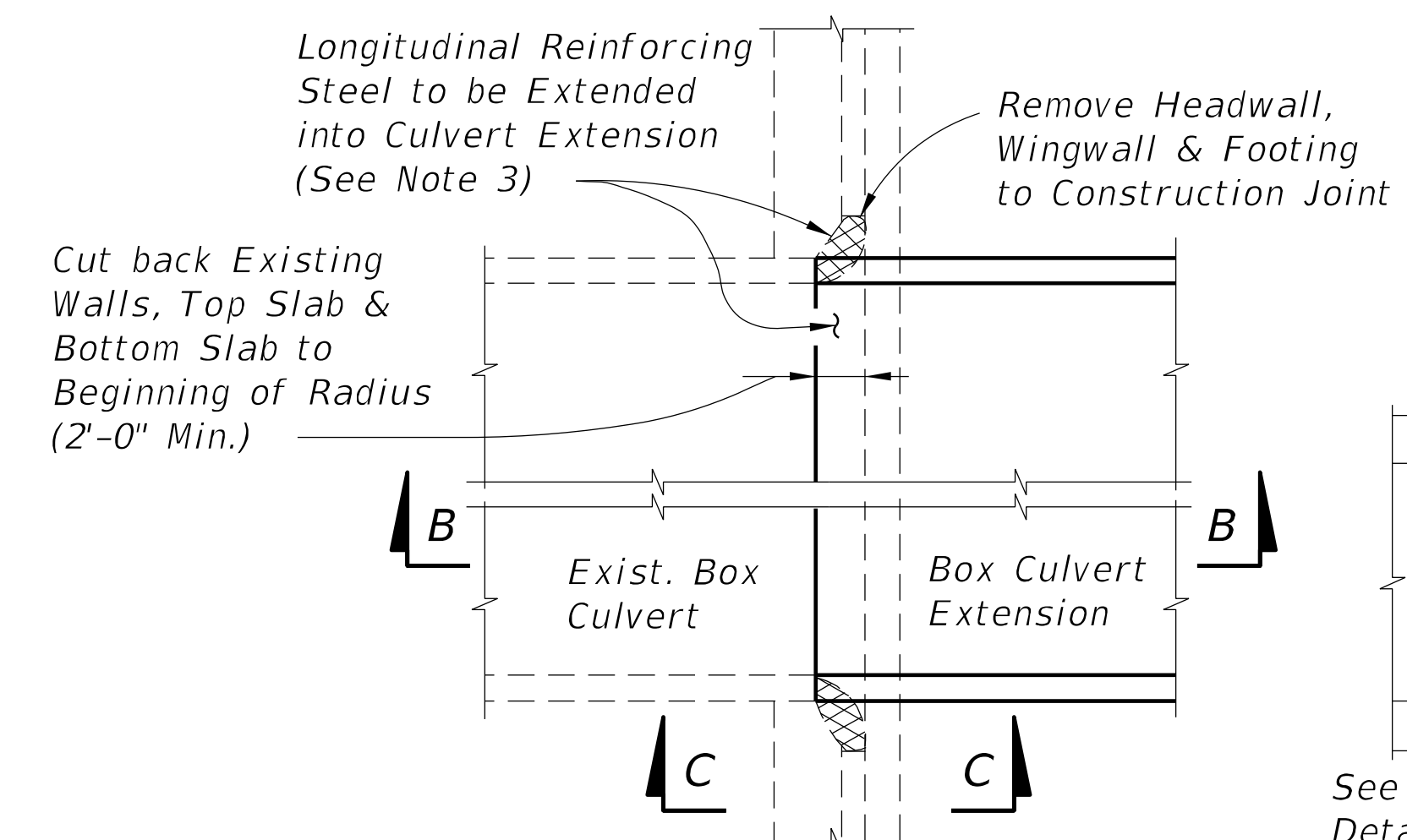
LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX	SHEET
11/01/17					400-289	5 of 8



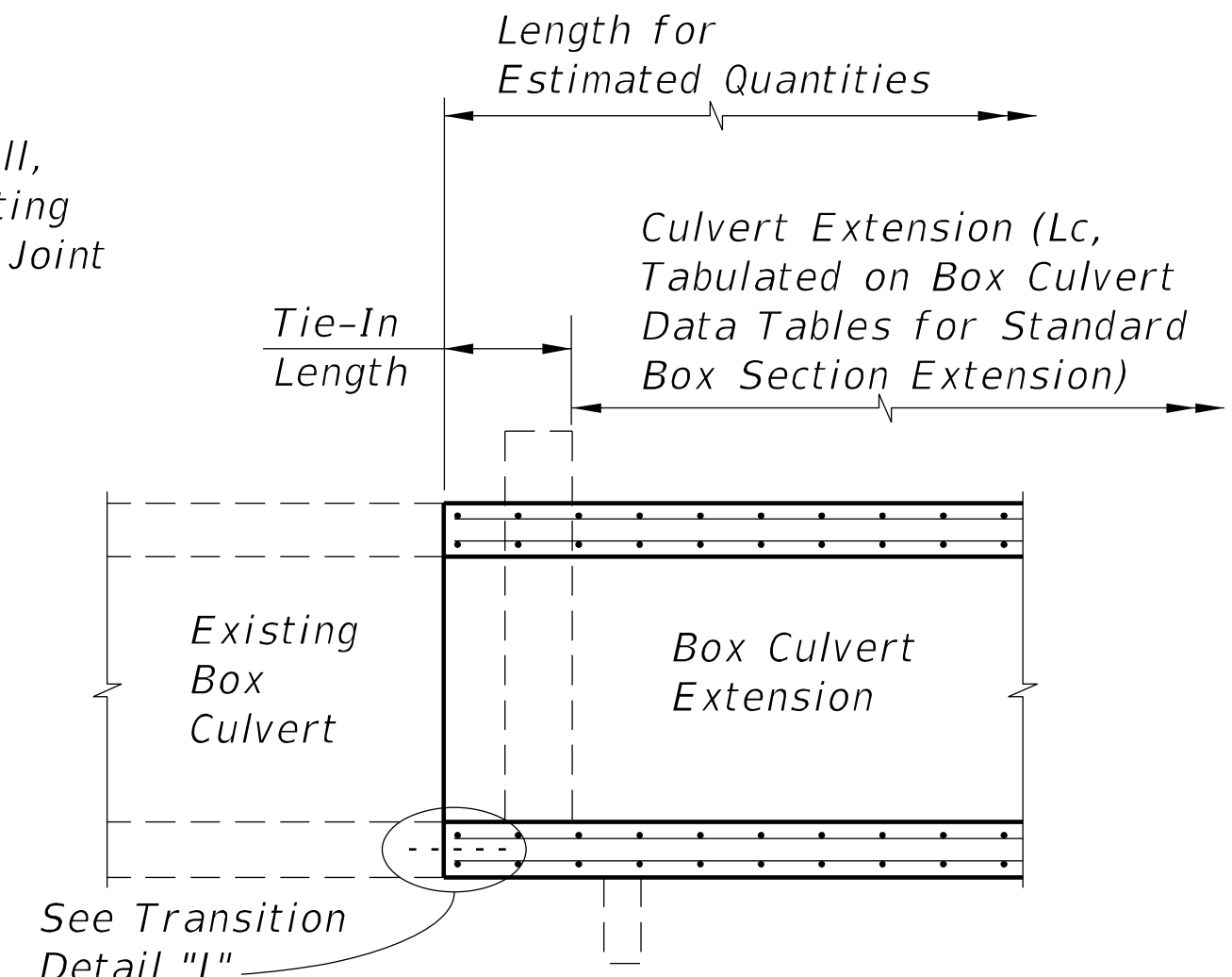
OUTSIDE WALLS OF BOXES



SECTION A-A

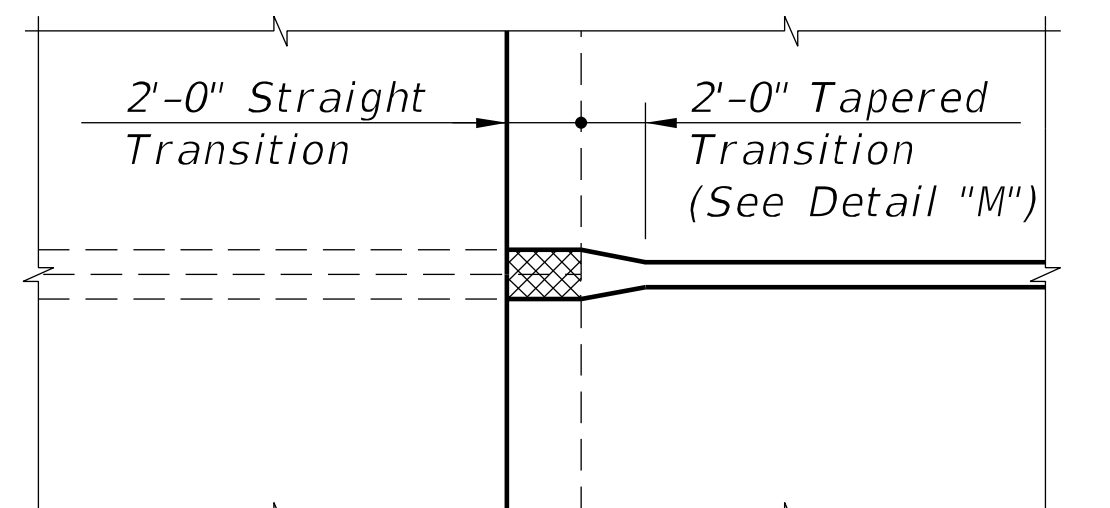


OUTSIDE WALLS OF BOXES

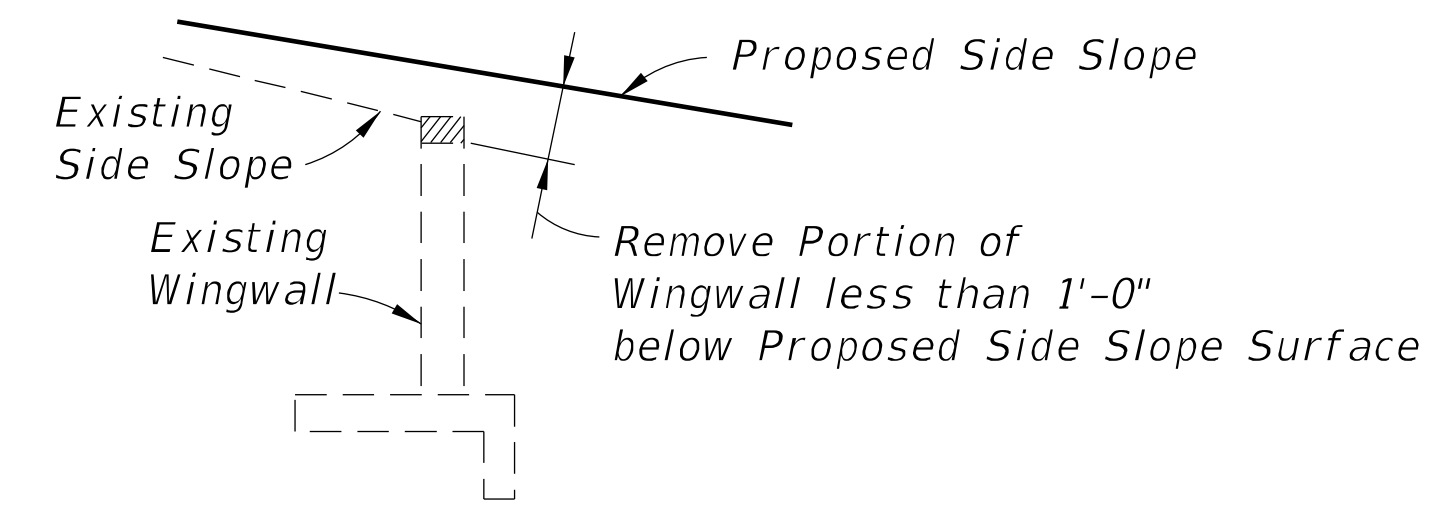


SECTION B-B

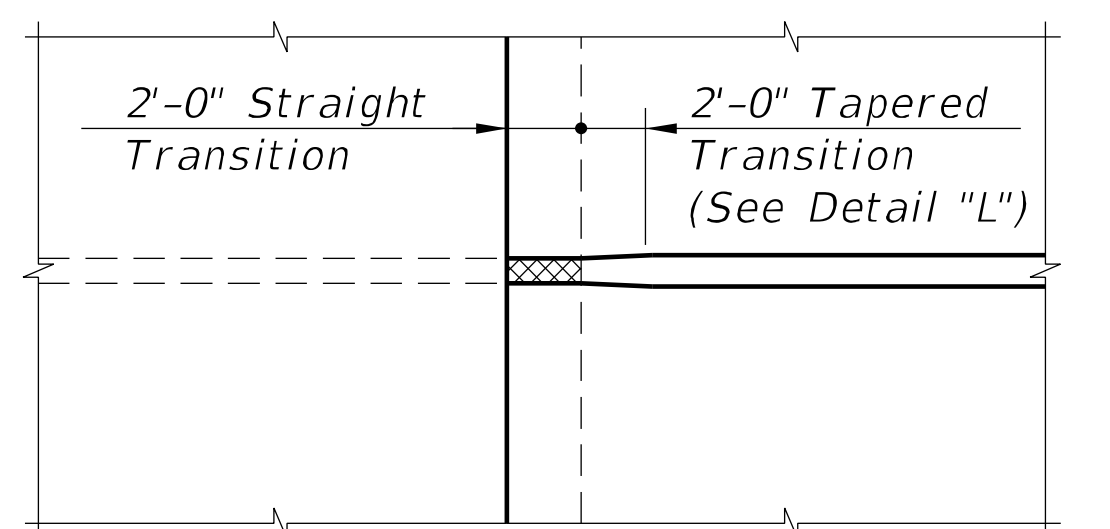
FLARED WINGWALL



INTERIOR DOUBLE WALLS OF BOXES



SECTION C-C



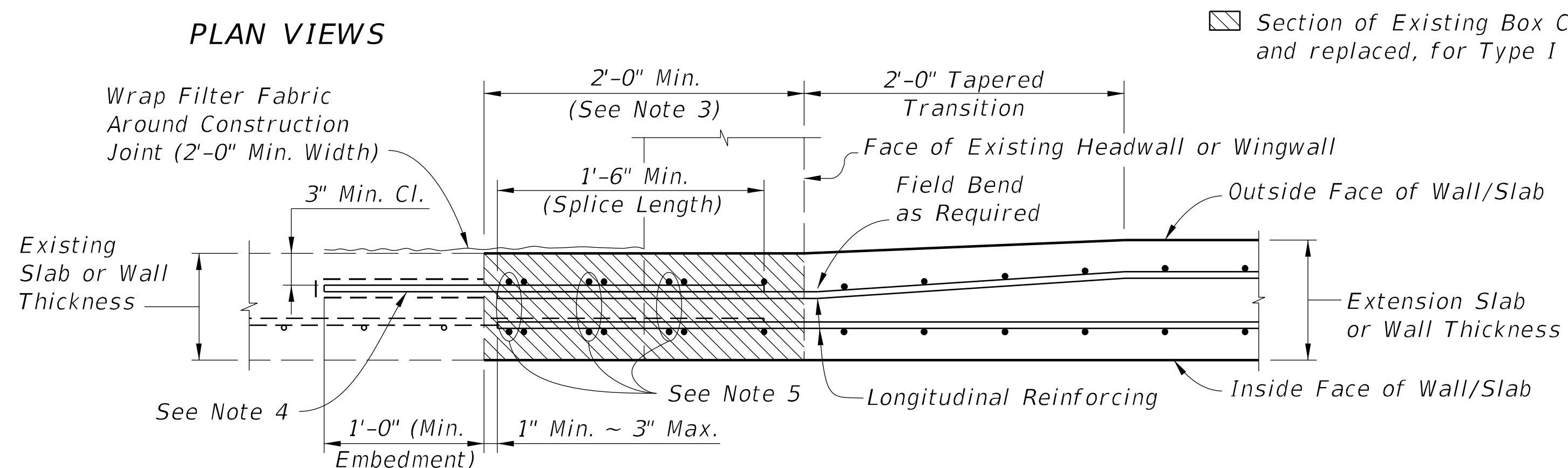
INTERIOR SINGLE WALLS OF BOXES

STRAIGHT WINGWALL

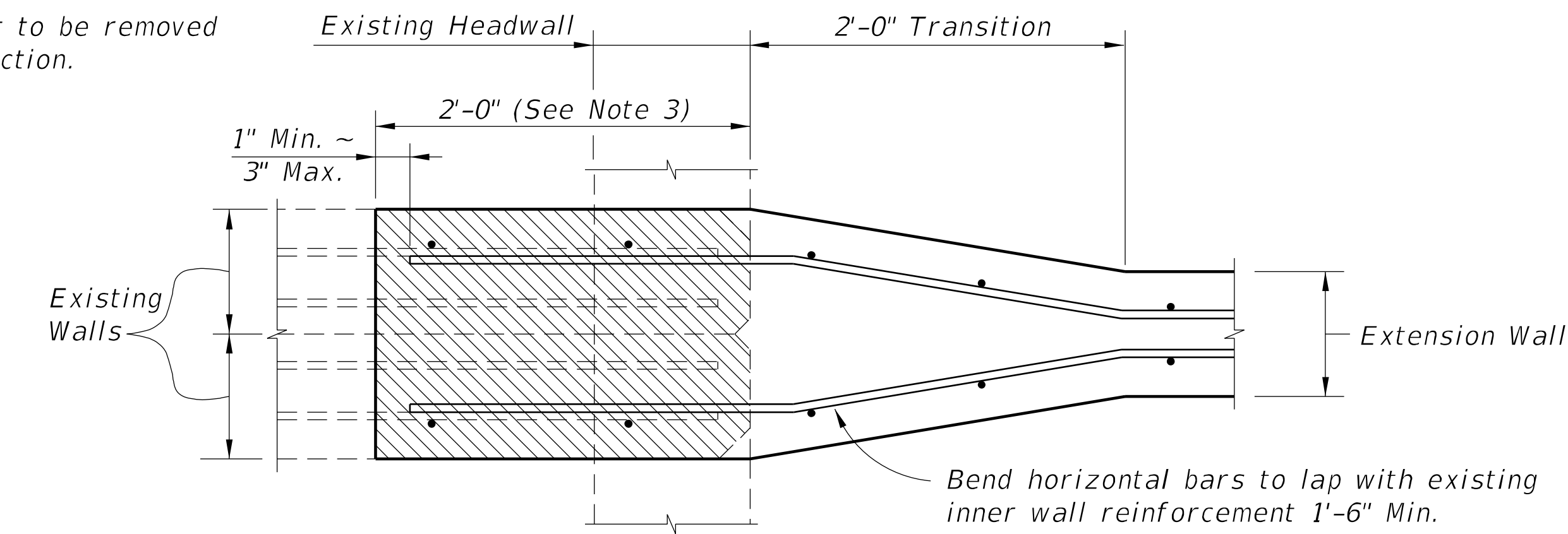
NOTES:

1. The Box Culvert Data Tables and Reinforcing Bar List do not include the additional quantities needed for dowel connections or transitions from double walls of existing concrete box culverts; the cost for additional reinforcement and the thickened concrete wall in the transitional area shall be included in the costs for concrete and steel in the culvert extension.
2. Cost for removal and disposal of material from existing headwalls, wingwalls and box, and cost of cleaning, straightening and extending or dowing longitudinal reinforcing steel shall be included in the cost for concrete and steel of the culvert extension.
3. Remove existing concrete while avoiding damage to existing reinforcement. Clean and straighten existing reinforcement, lap and tie onto extension reinforcement.
4. Dowel in #4 Bars @ 1'-0" max. spacing into wall/slab when there is a single mat of existing reinforcing steel, otherwise splice 1'-6" as shown for inside reinforcement. Use an Adhesive Bonding Material System in accordance with Specifications Section 416 & 937.
5. Provide additional transverse bars for top and bottom slab, parallel and full width of any skewed joint connection when shown in the Plans.
6. See Box Culvert Data Table notes in Plans for Connection Types allowed.

PLAN VIEWS



DETAIL "L" - TRANSITION FOR EXTERIOR WALL/SLAB EXTENSION
(Interior Single Walls Similar)

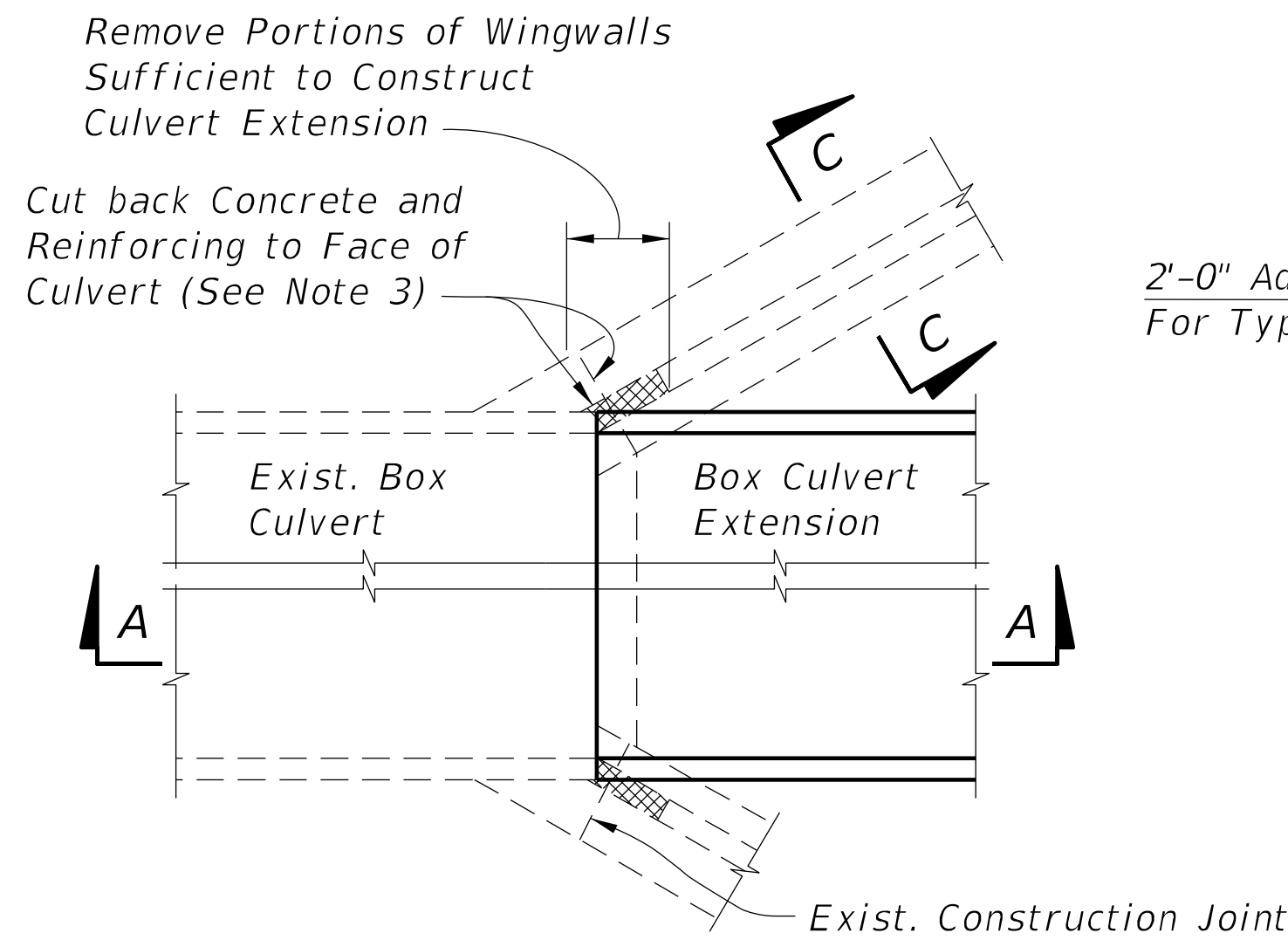


DETAIL "M" - TRANSITION FOR INTERIOR DOUBLE WALLS OF BOX CULVERTS

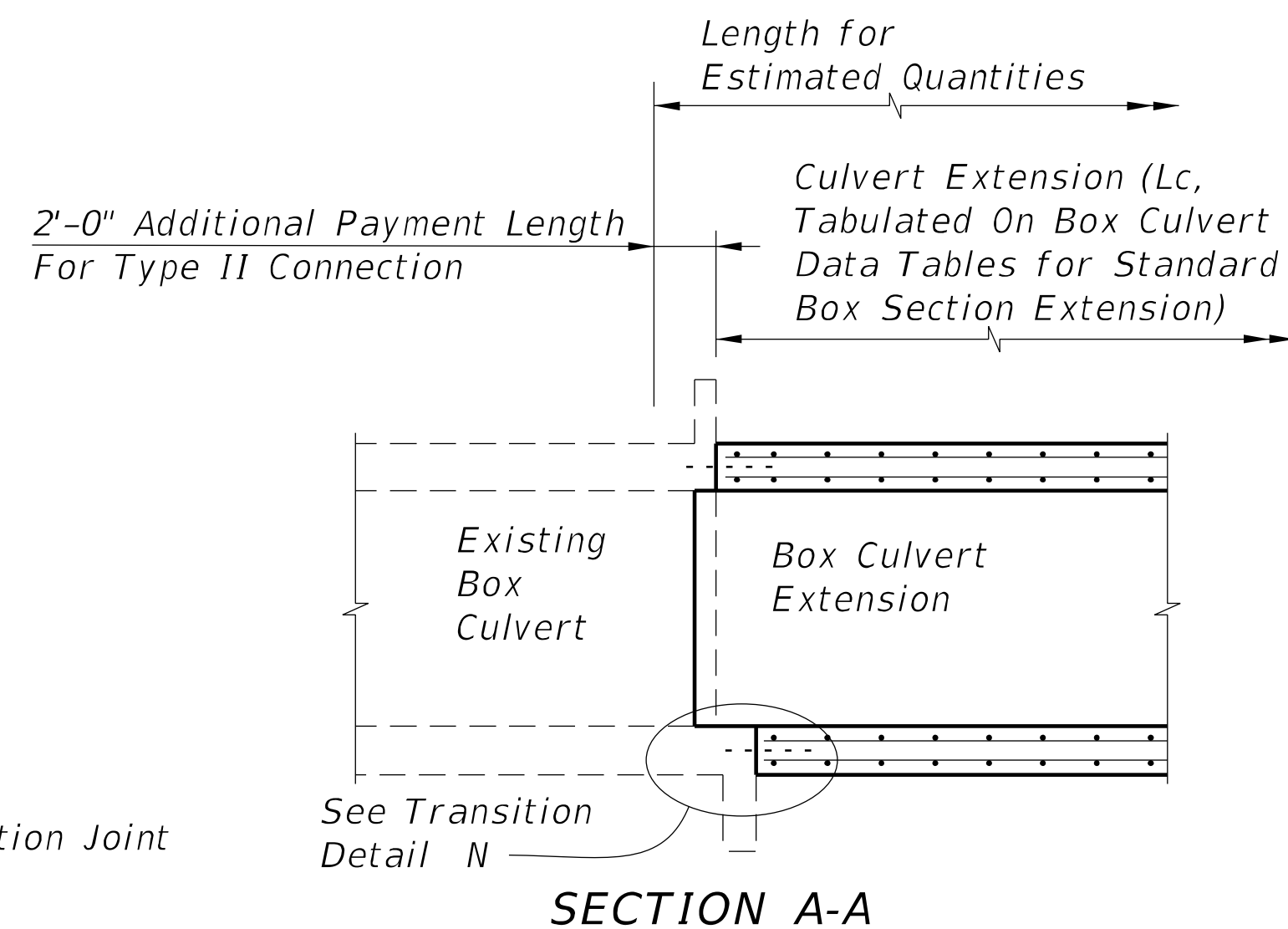
TYPE I CONNECTION DETAILS FOR CONCRETE BOX CULVERT EXTENSIONS
(CUT BACK EXISTING CONCRETE)

10/8/2020 10:42:35 AM

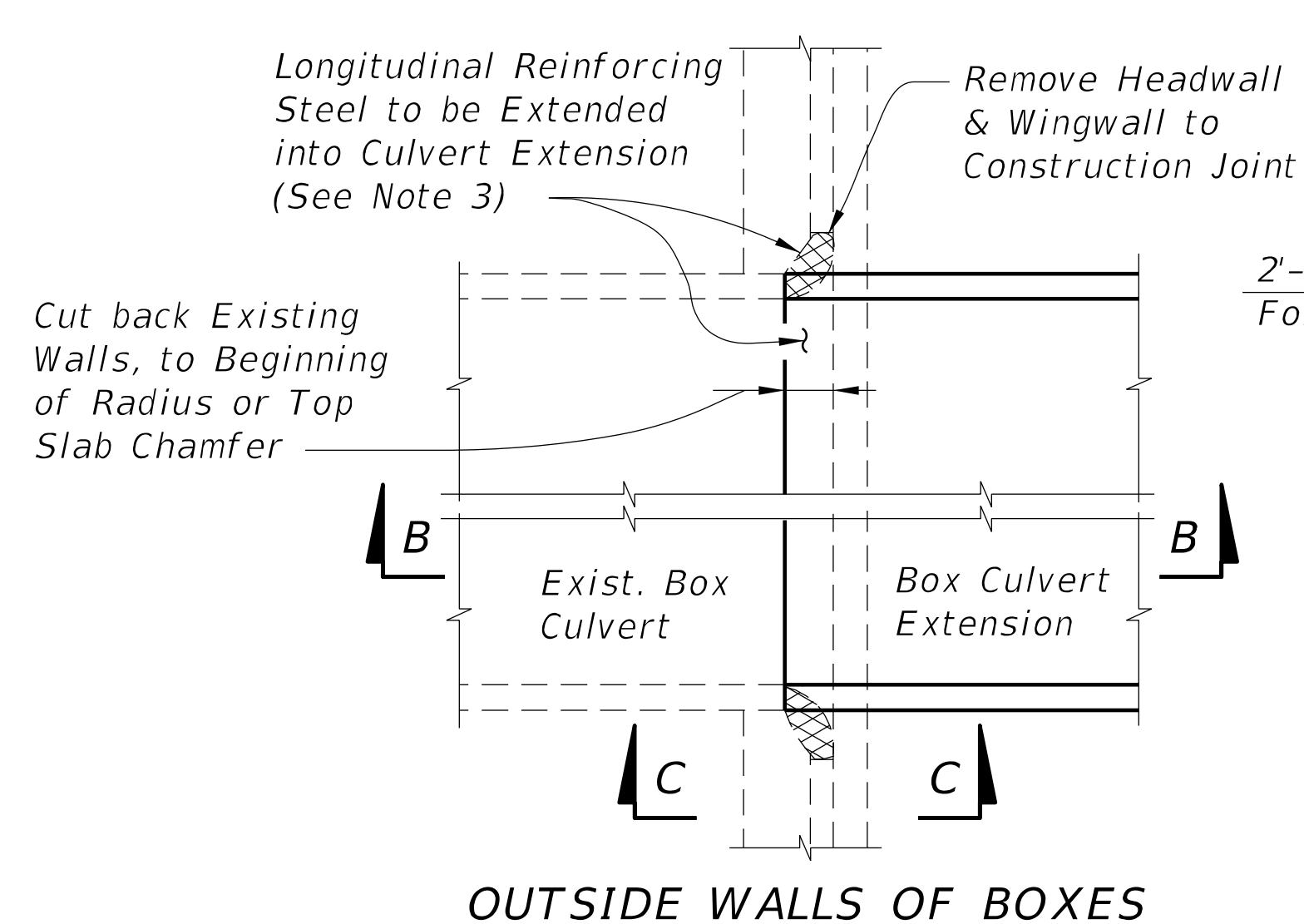
LAST REVISION 01/01/12	REVISION DESCRIPTION:	 FY 2021-22 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289	SHEET 6 of 8
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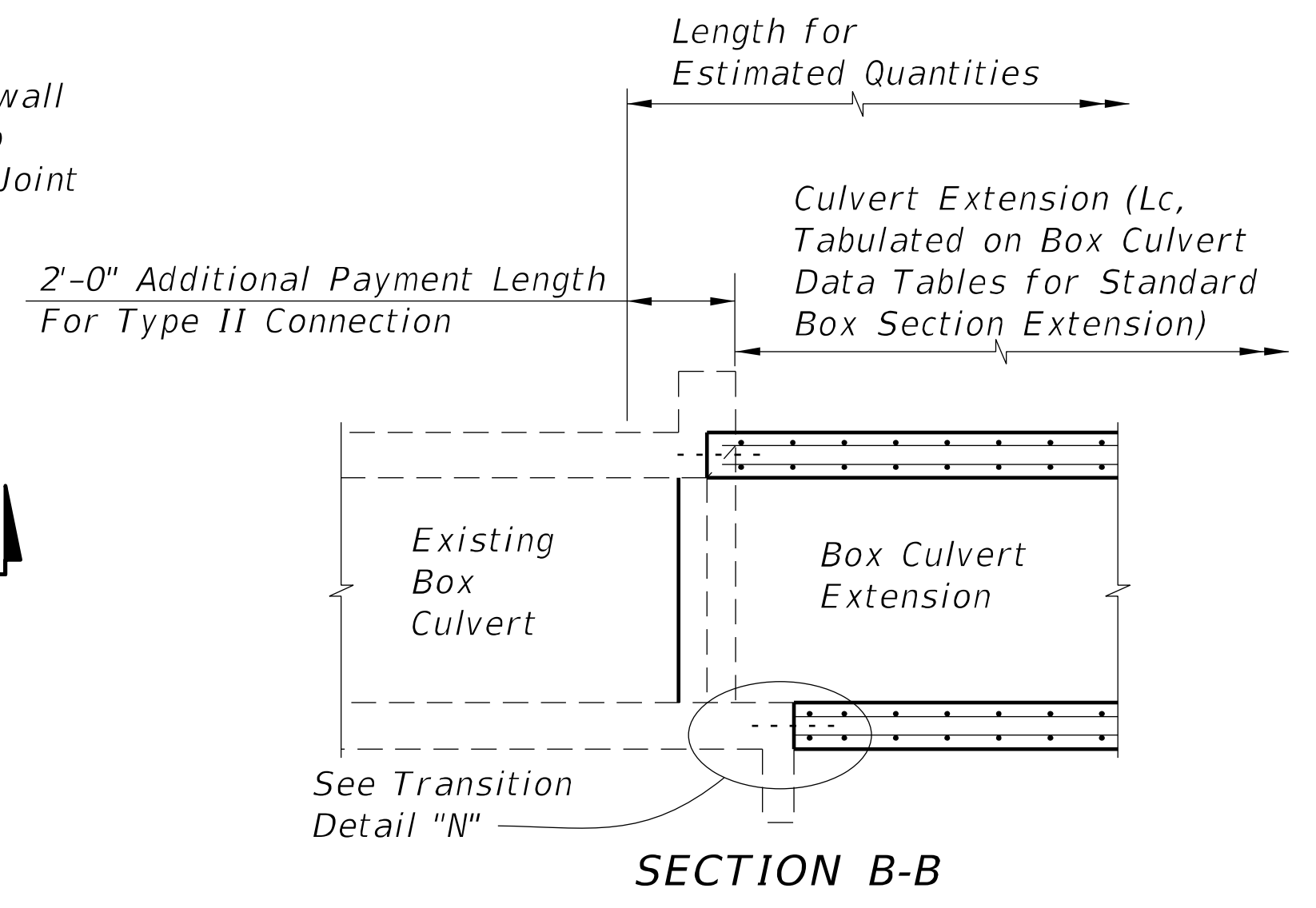
OUTSIDE WALLS OF BOXES



SECTION A-A



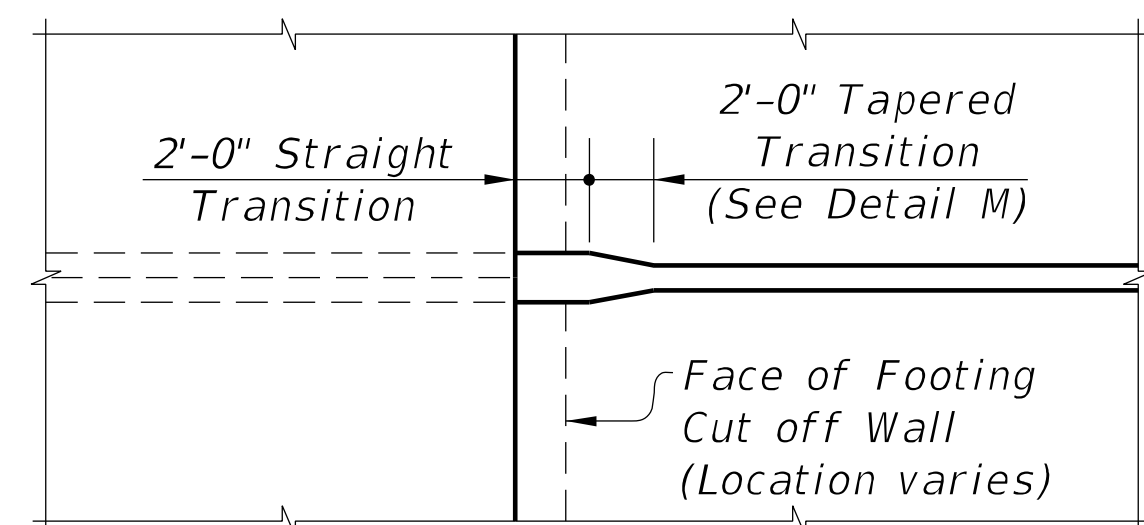
OUTSIDE WALLS OF BOXES



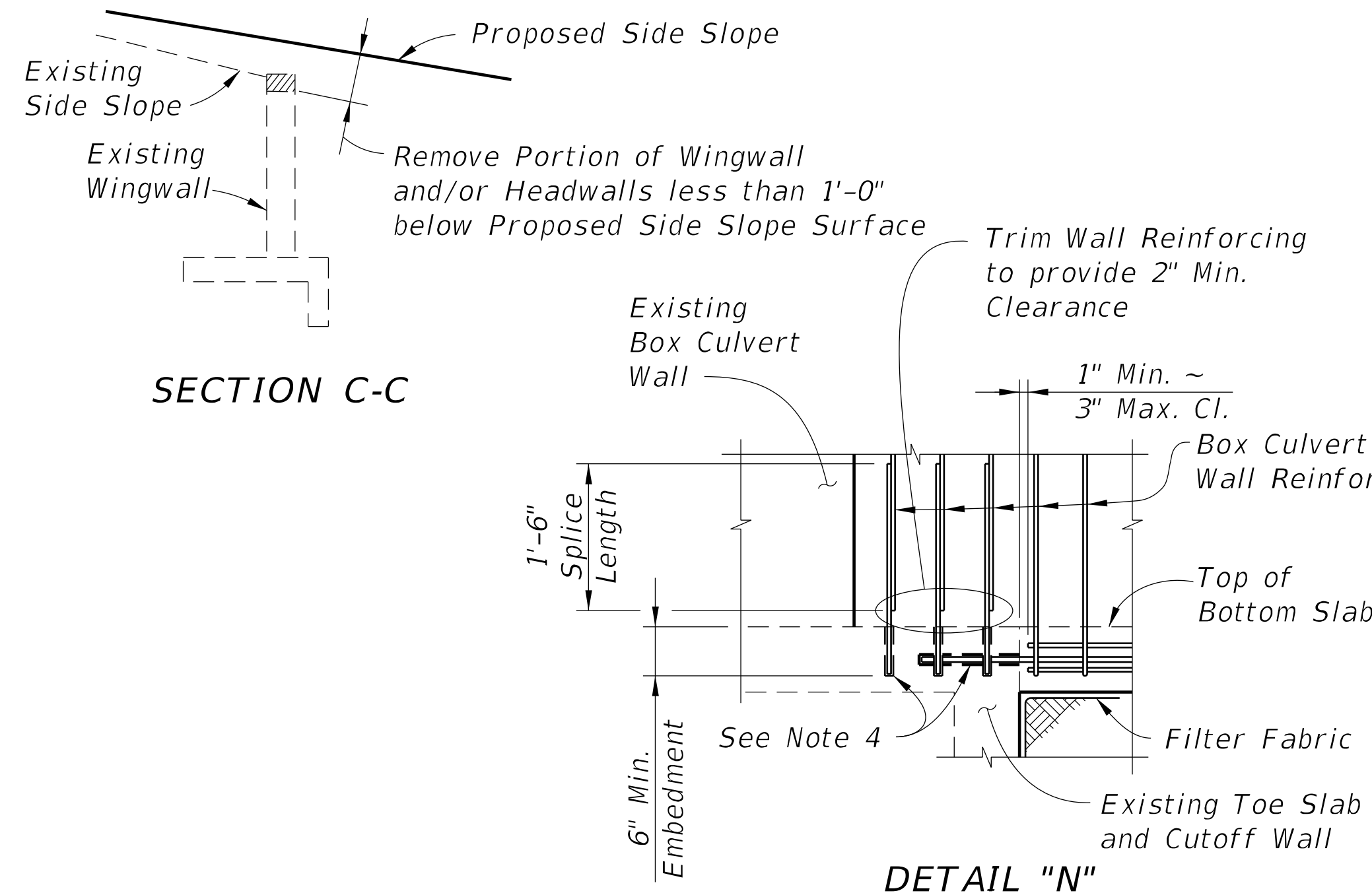
SECTION B-B

FLARED WINGWALL

STRAIGHT WINGWALL

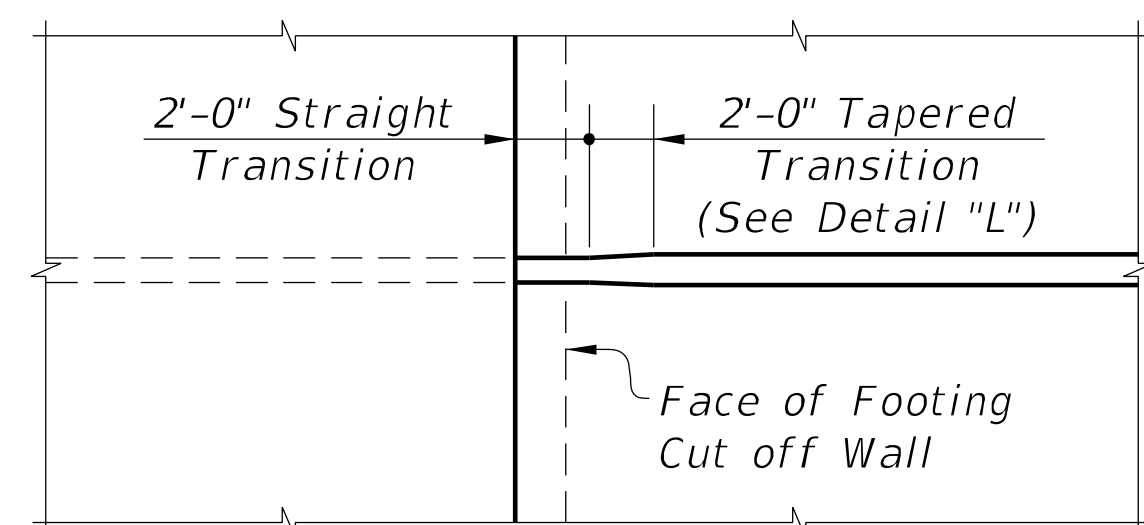


INTERIOR DOUBLE WALLS OF BOXES

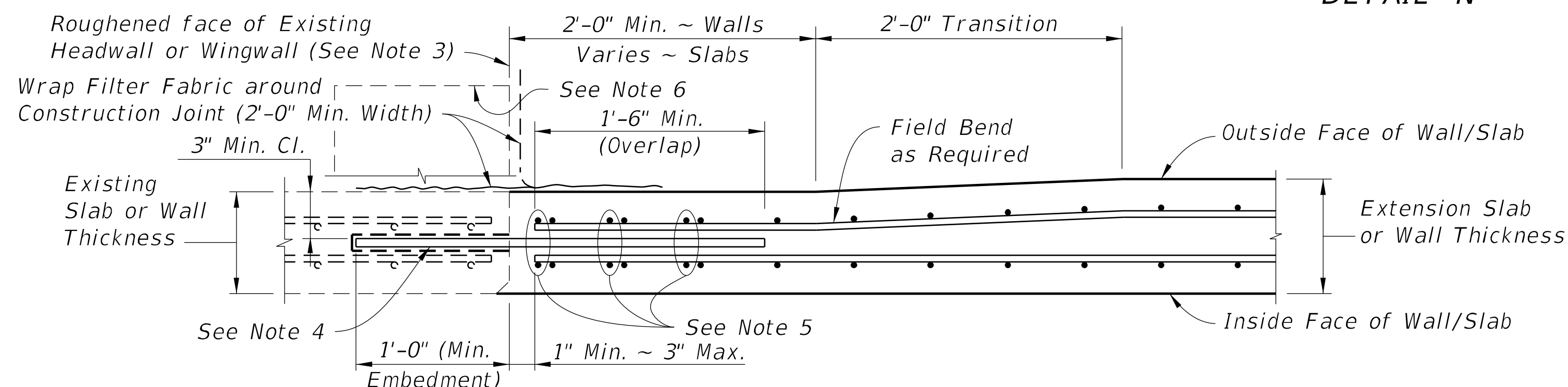


SECTION C-C

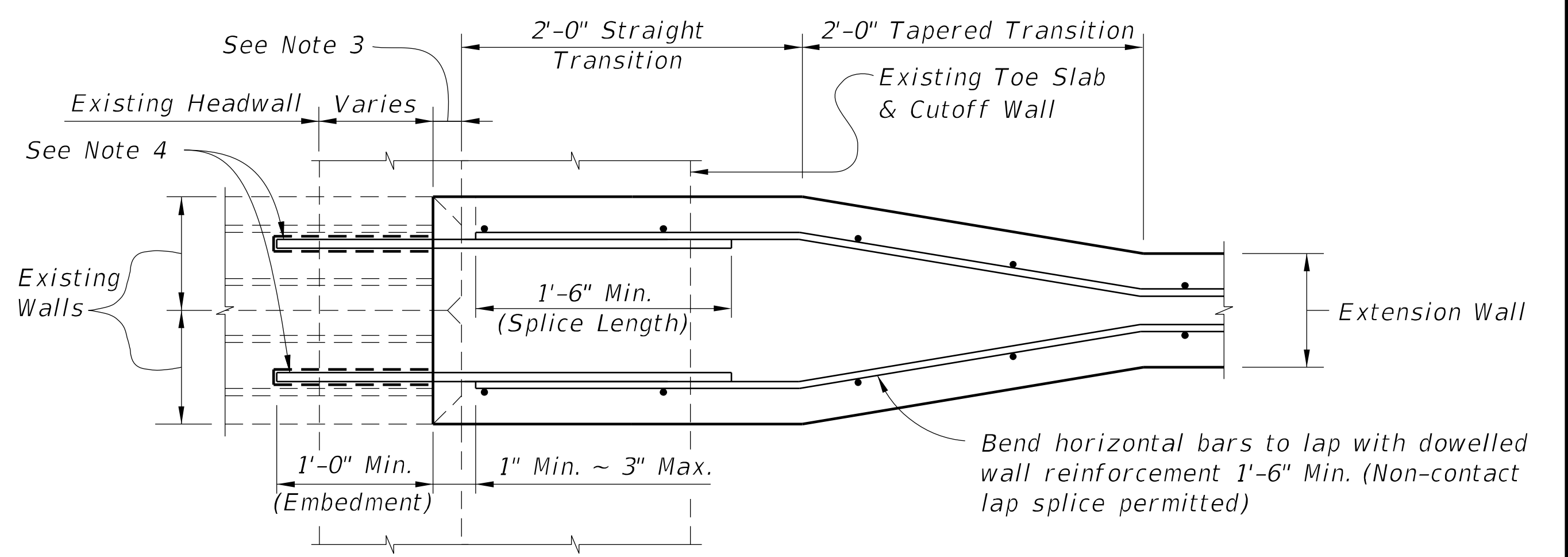
DETAIL "N"



INTERIOR SINGLE WALLS OF BOXES
PLAN VIEWS



DETAIL "L" - TRANSITION FOR EXTERIOR WALL/SLAB EXTENSION
(Interior Single Walls Similar)



DETAIL "M" - TRANSITION FOR INTERIOR DOUBLE WALLS OF BOX CULVERTS

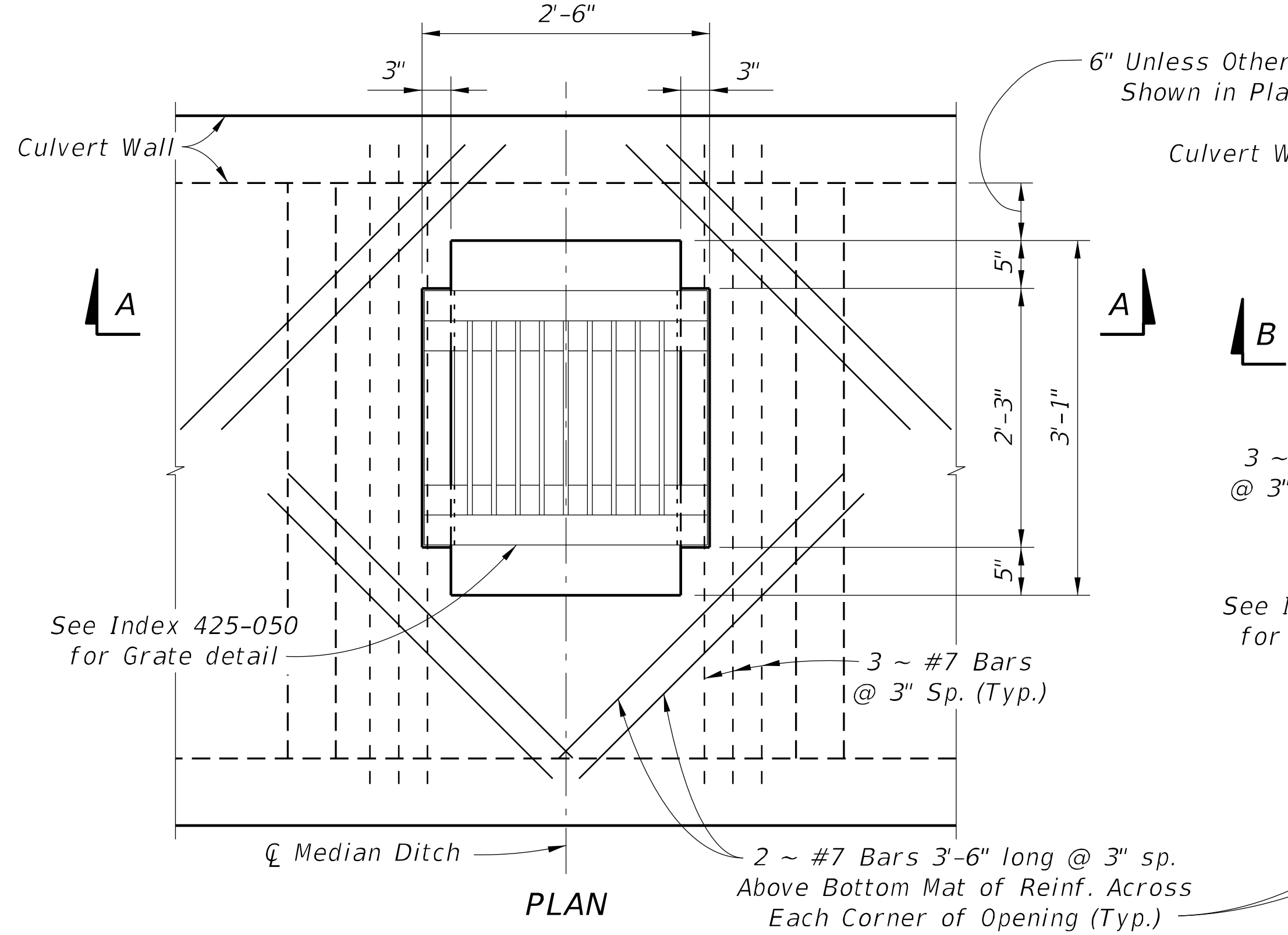
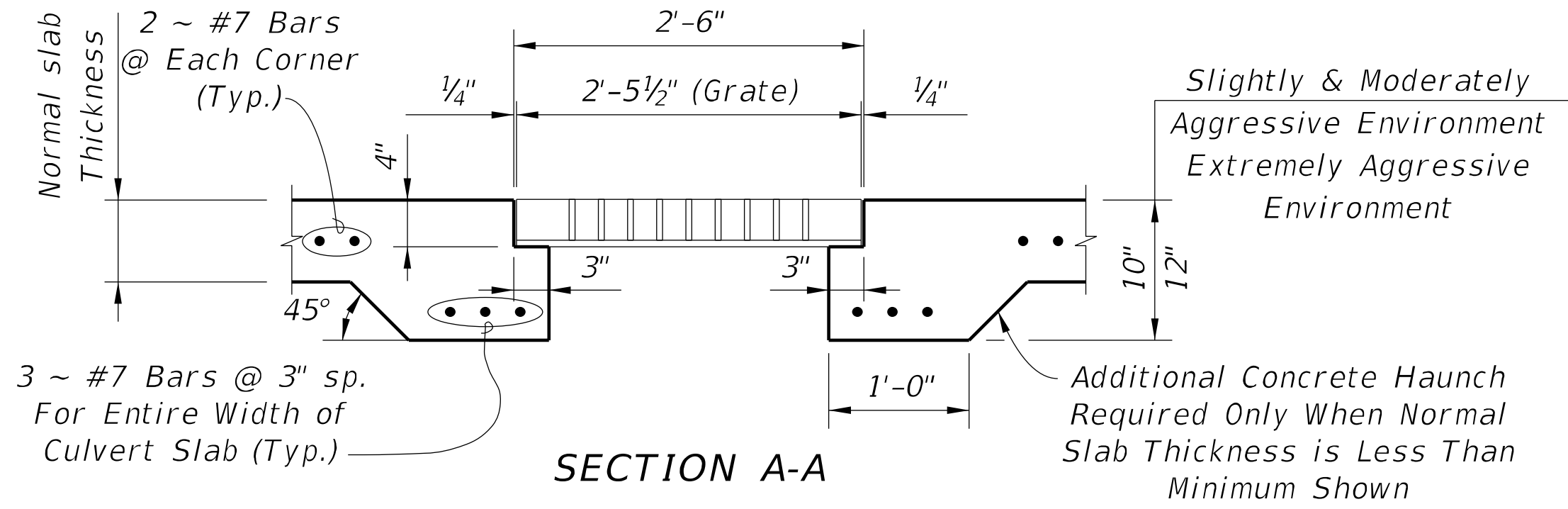
NOTES:

1. The Box Culvert Data Tables and Reinforcing Bar List do not include the additional quantities needed for dowel connections or transitions from double walls of existing concrete box culverts; the cost for additional reinforcement and the thickened concrete wall in the transitional area shall be included in the costs for concrete and steel in the culvert extension.
2. Cost for roughening and cleaning existing headwalls, wingwalls and box, and cost of doweling longitudinal reinforcing steel shall be included in the cost for concrete and steel of the culvert extension.
3. Remove existing concrete and reinforcing back to edge of any chamfers exceeding 1". Roughen and clean existing or exposed surface and coat with a Type A epoxy bonding compound in accordance with the manufacturer's recommendations.
4. Dowel in #5 Bars @ 1'-0" max. spacing horizontally into center of wall/slab. Provide vertical dowels in footing to match size, alignment and spacing of outside vertical wall reinforcing. Use an Adhesive Bonding Material System in accordance with Specifications Section 416 & 937.
5. Provide additional transverse bars for top and bottom slab, parallel and full width of any skewed joint connection when shown in the Plans.
6. Remove top of existing headwall when necessary to provide 1'-0" clearance below finished grade. Saw cut full width and seal with Type F-2 epoxy compound to protect exposed reinforcing.
7. See Box Culvert Data Table notes in Plans for Connection Types allowed.

TYPE II CONNECTION DETAILS FOR CONCRETE BOX CULVERT EXTENSIONS
(ADHESIVE DOWEL TO EXISTING CONCRETE)

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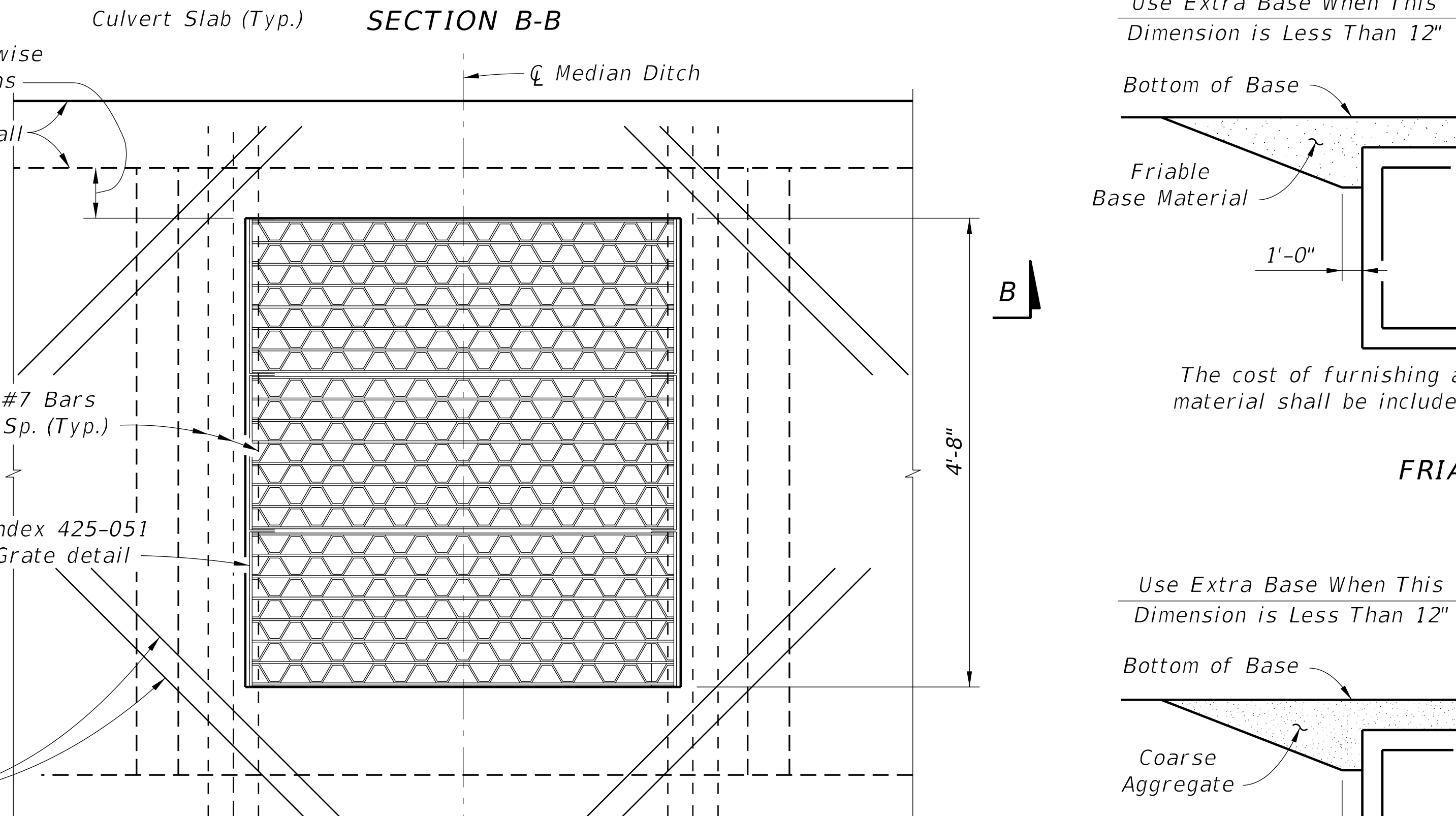
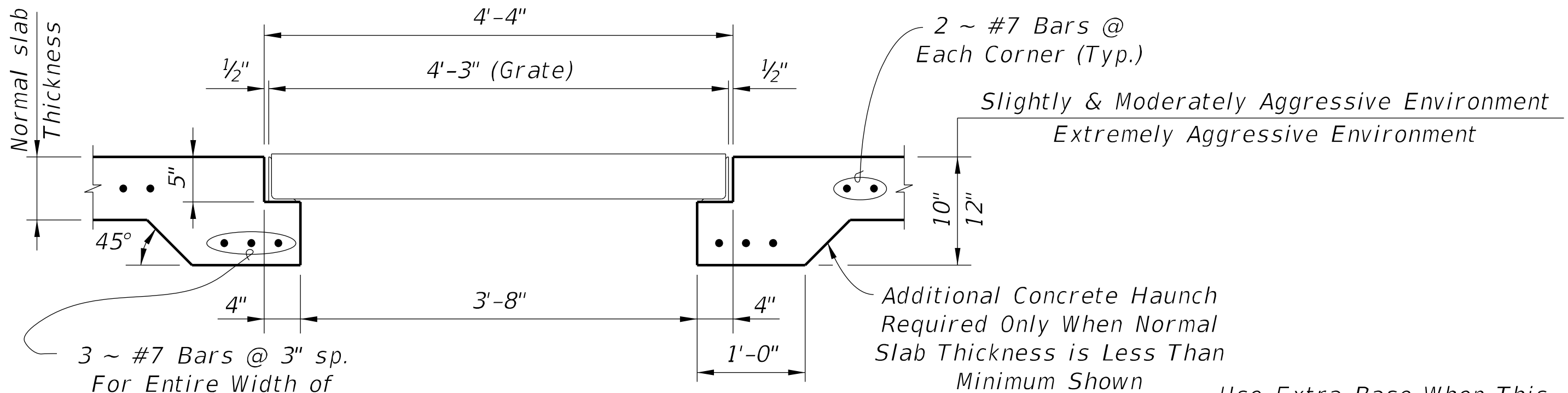
LAST REVISION 01/01/12	REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289	SHEET 7 of 8
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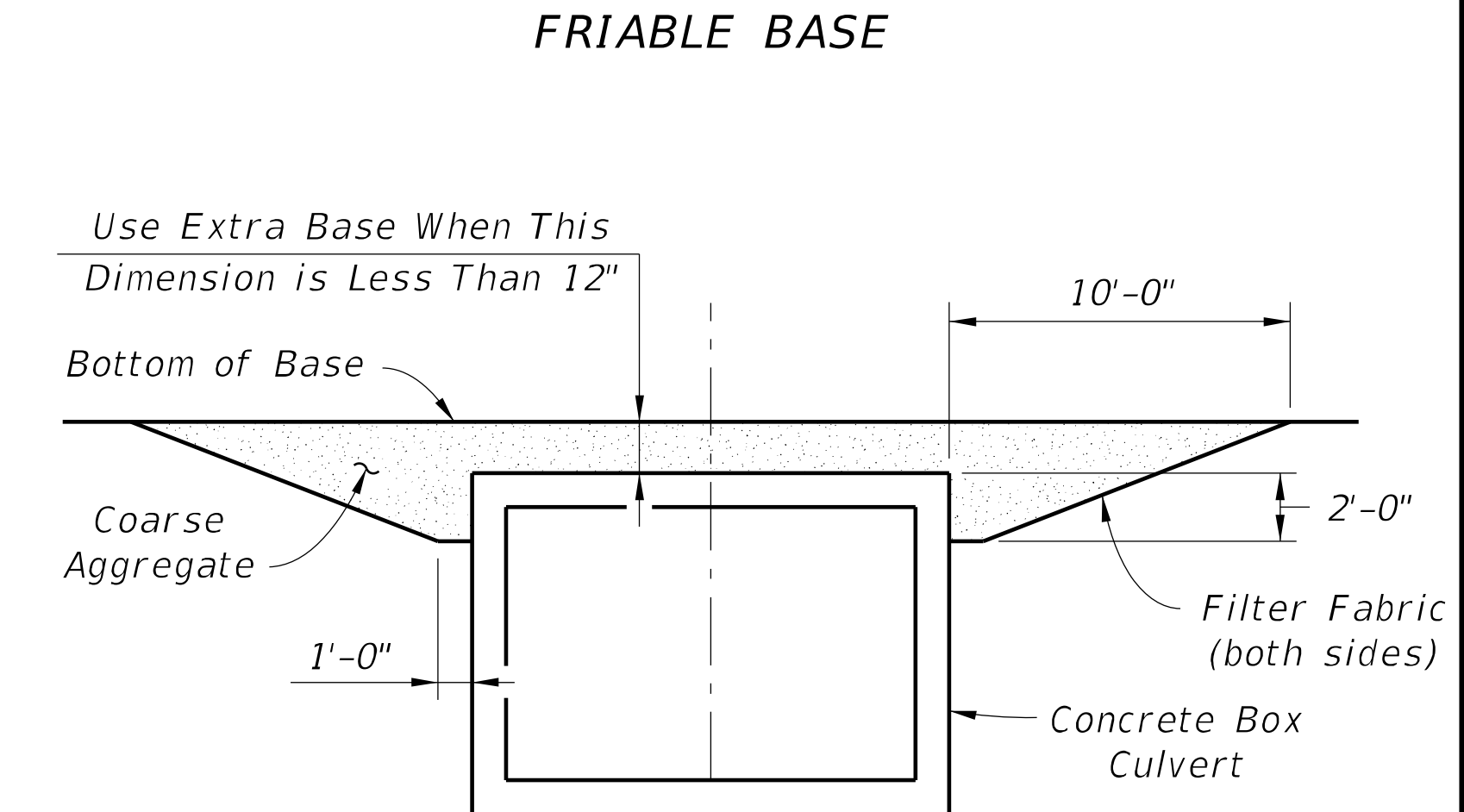
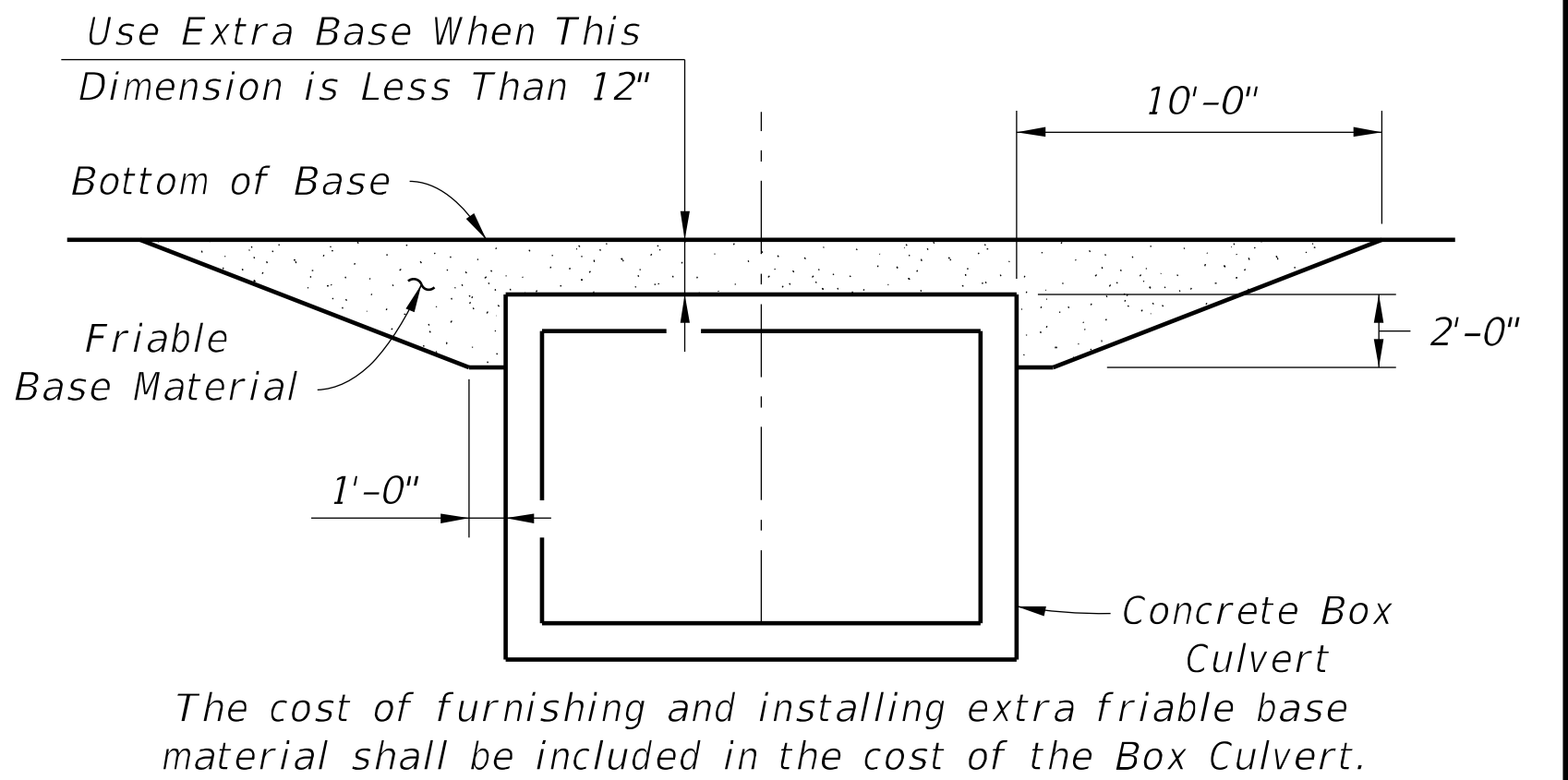
INLET TYPE A GRATE

NOTES:

1. Cost of Steel Grating to be included in cost of Box Culvert.
2. All reinforcing shall be 2" clear for Slightly and Moderately Aggressive Environments, and 3" clear for Extremely Aggressive Environments.



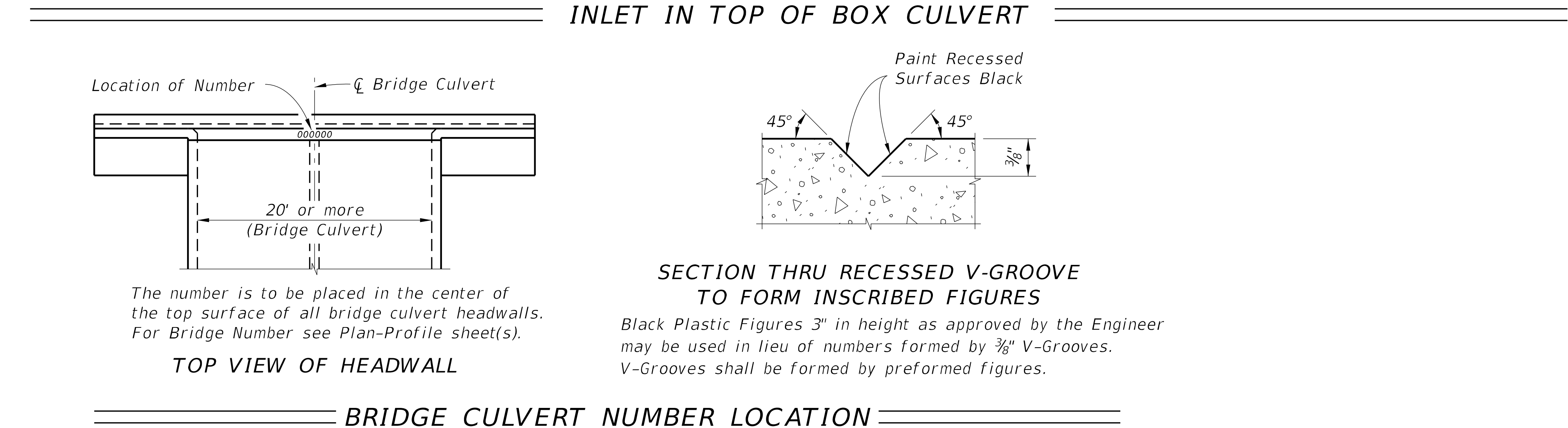
INLET TYPE B GRATE



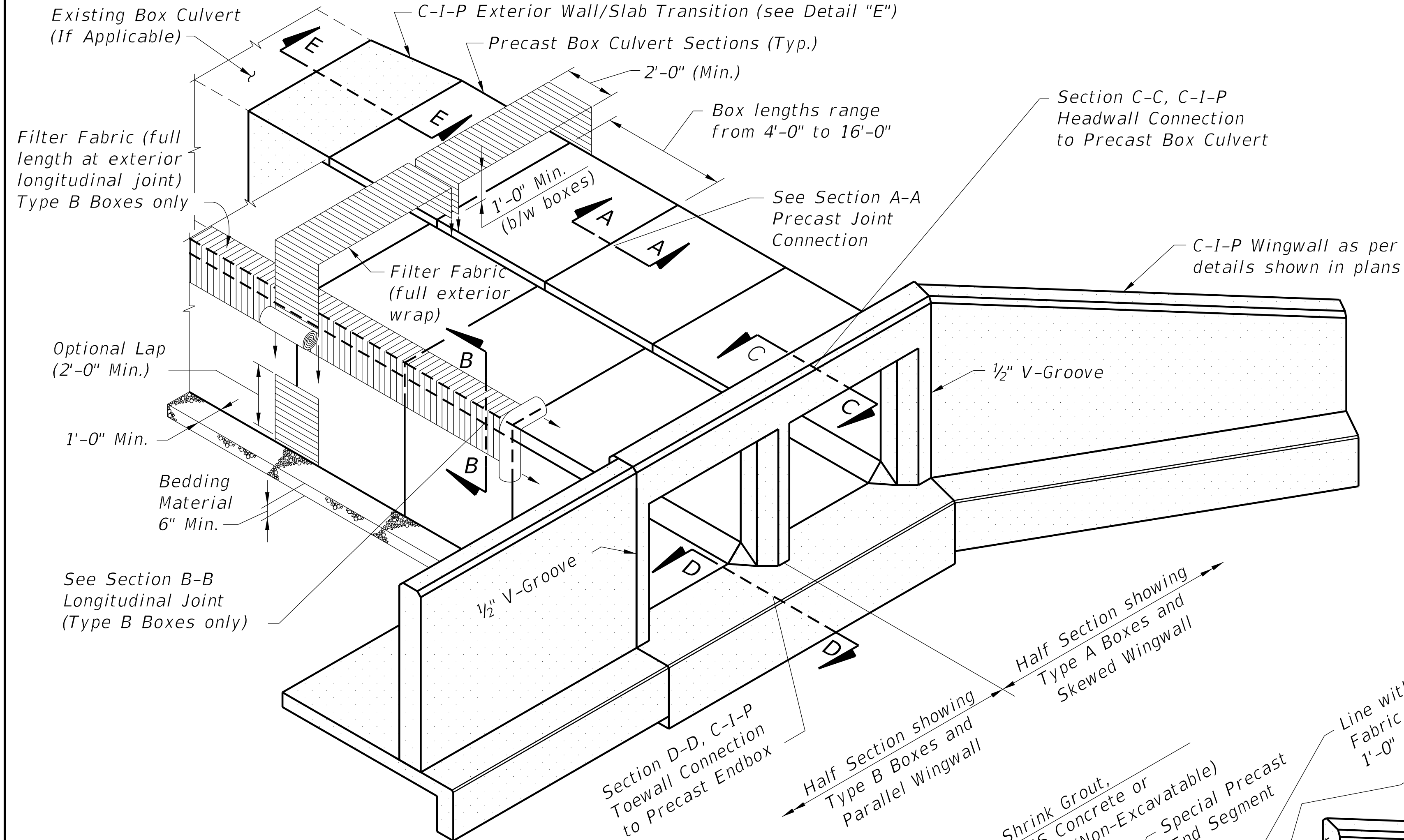
Place coarse aggregate in 6 inch lifts and compact sufficiently as to be firm and unyielding. Provide coarse aggregate gravel or stone meeting the requirements of Specification Section 901-2 or 901-3 respectively. Meet the gradation requirements of Specification Section 901-6, Grades 4, 467, 5, 56 or 57 unless restricted in the plans. Provide Type D-3 filter fabric (see Specification Section 985) The cost of furnishing and installing the coarse aggregate and filter fabric shall be included in the cost of the Box Culvert.

EXTRA BASE FOR BOX CULVERTS CROSSING UNDER FLEXIBLE PAVEMENT

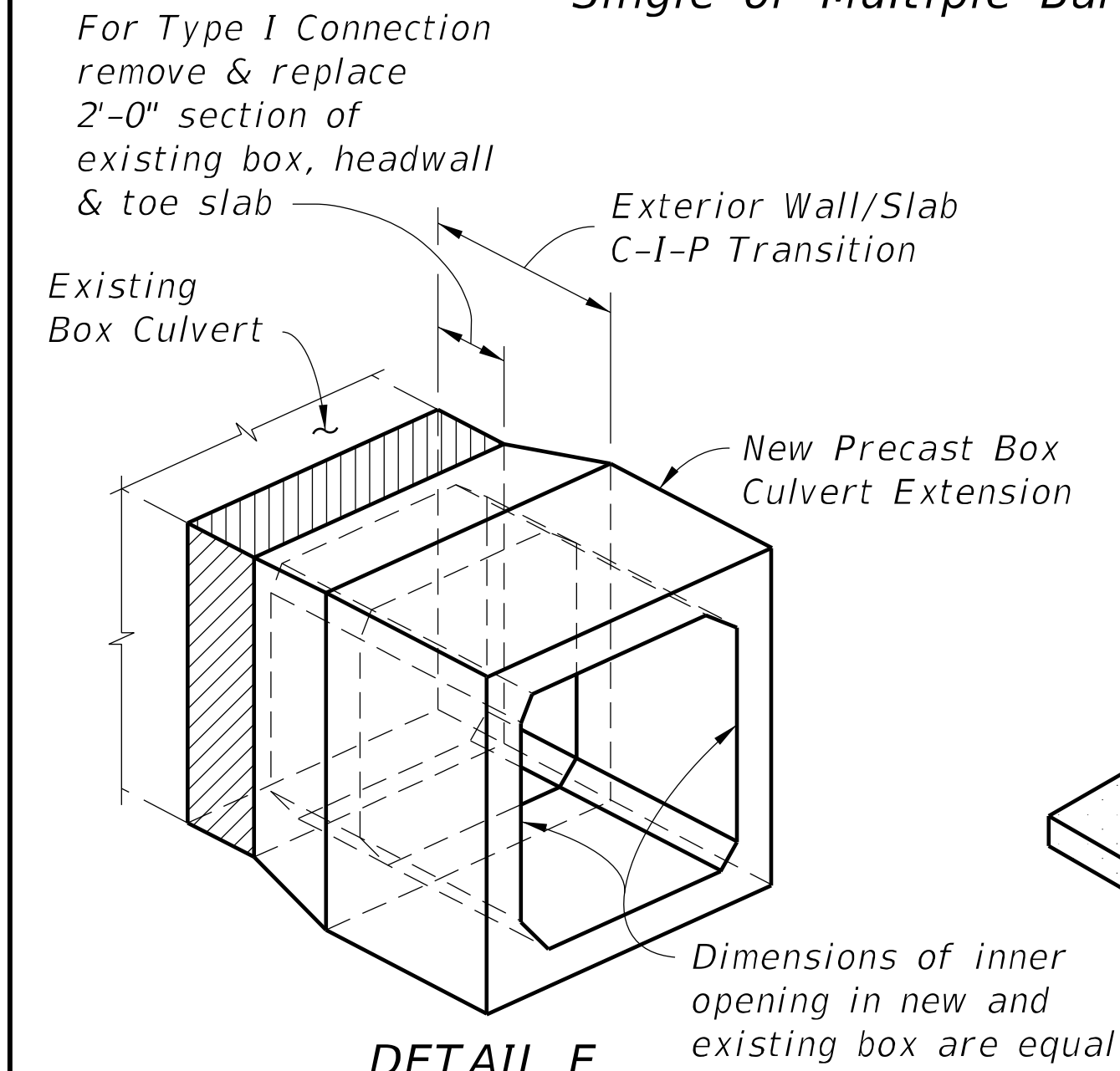
NOTE: Extra base is required when cross box culverts are located on facilities subject to high speed traffic (>45 mph) or high traffic volumes (>1600 ADT) and the cover is within the range specified in the notation above.



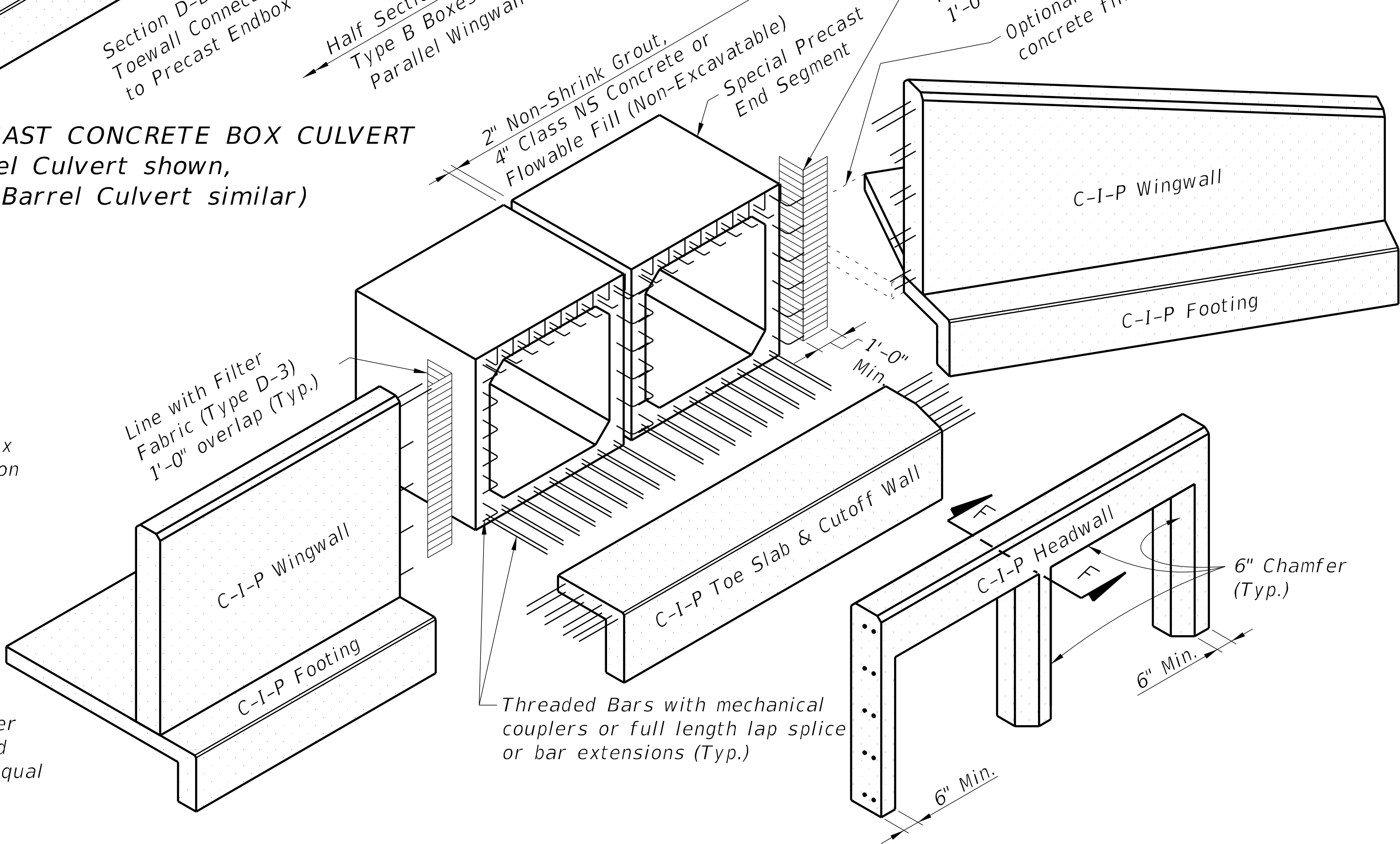
LAST REVISION 07/01/14	DESCRIPTION:	FDOT FY 2021-22 STANDARD PLANS	CONCRETE BOX CULVERT DETAILS	INDEX 400-289	SHEET 8 of 8
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ISOMETRIC VIEW OF PRECAST CONCRETE BOX CULVERT
(Double Barrel Culvert shown,
Single or Multiple Barrel Culvert similar)



DETAIL E
PICTORIAL VIEW OF EXTERIOR
WALL/SLAB TRANSITION

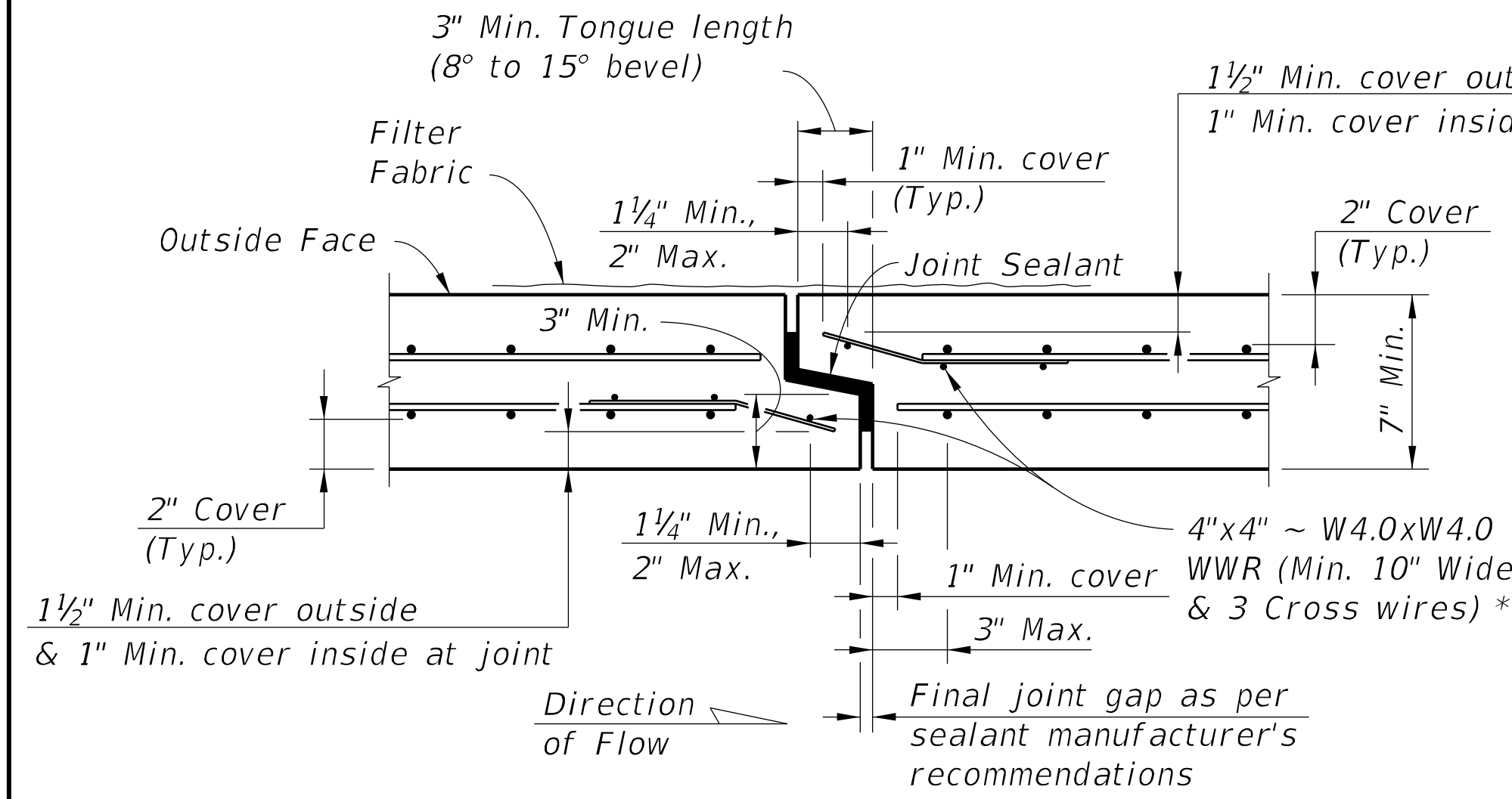


EXPLODED VIEW OF CONNECTIONS AT END OF CULVERT
(Double Barrel Culvert shown, Single or Multiple Barrel Culvert similar)

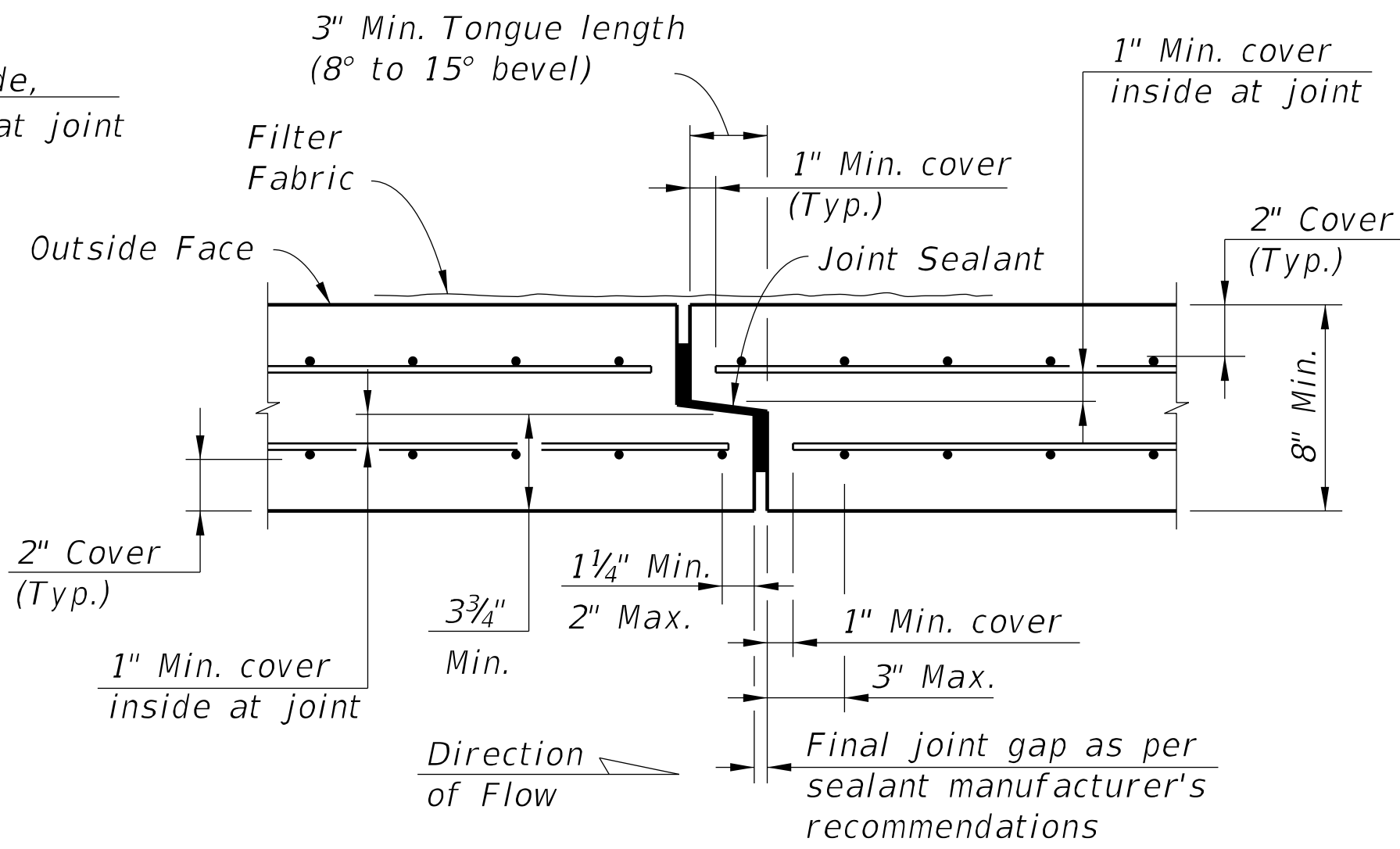
PERMITTED PRECAST ALTERNATE BOX SECTIONS				
TYPE	DESCRIPTION	SINGLE BARREL	MULTIPLE BARRELS	DESIGN NOTES
A	Single Cell Monolithic (Four Sided)			Index 400-292 or Contractor Design
B	Single Cell Two-Piece (Four Sided)			Contractor Design
C	Multicell Monolithic	Not Applicable		Contractor Design

GENERAL NOTES:

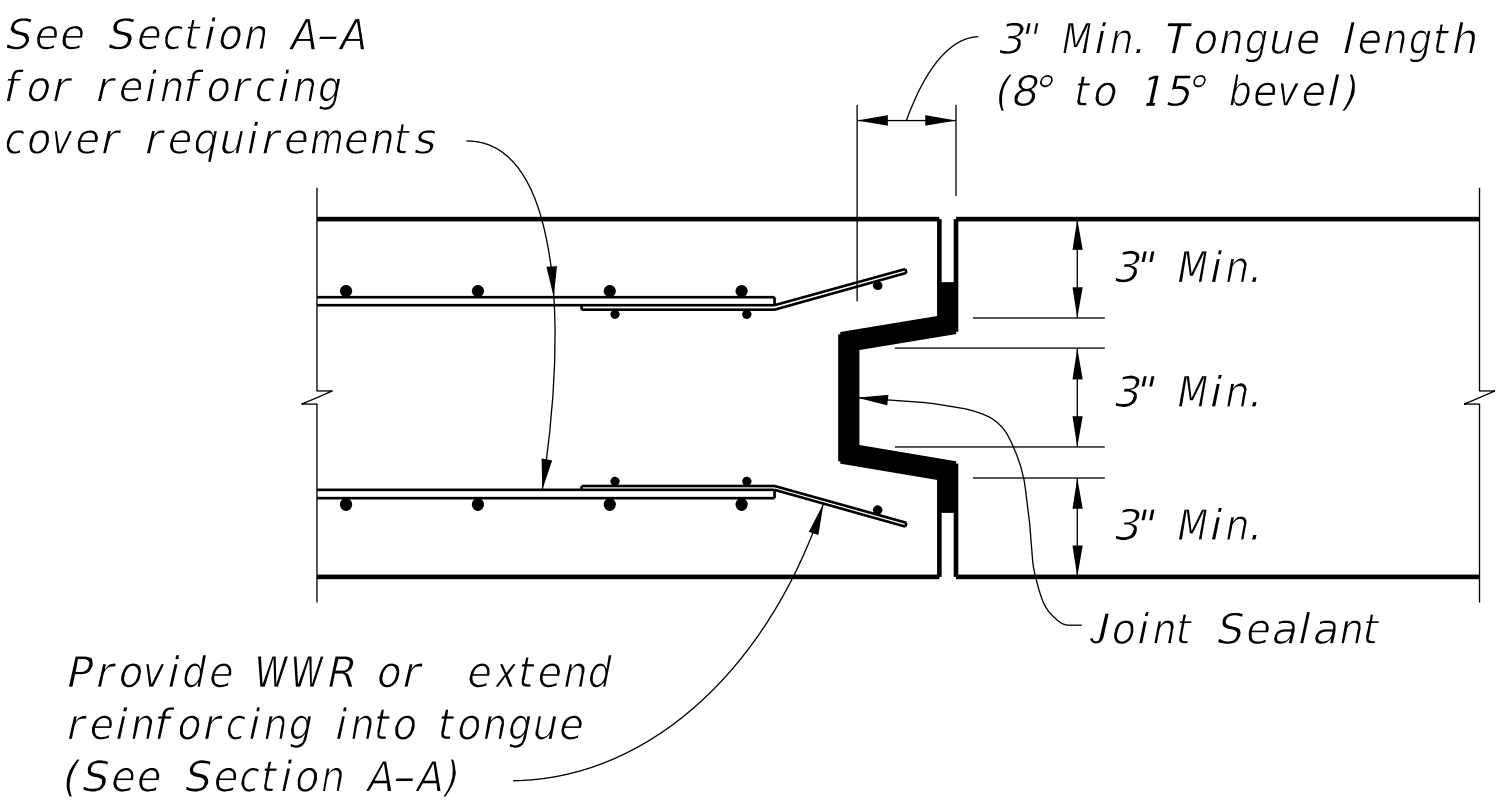
- Specifications:
 - General:
 - FDOT Standard Specifications for Road and Bridge Construction, Section 410 (current edition, and supplements thereto).
 - Concrete (Precast):
 - Class III or Class II Modified (5,000 psi) for slightly aggressive environments.
 - Class IV (5,500 psi) for moderately to extremely aggressive environments.
 - Concrete (Cast-In-Place):
 - Class II (3,400 psi) for slightly aggressive environments.
 - Class IV (5,500 psi) for moderately to extremely aggressive environments.
 - Reinforcing Steel:
 - Maintain minimum clearance of 2" for slightly and moderately aggressive environments or 3" for extremely aggressive environments, unless otherwise shown. Equal area substitution of welded wire (WWR) reinforcement is permitted.
- Work this Index with the Cast-In-Place Concrete Box Culvert Details and Data Tables shown in the plans, Index 400-289 and the Precast Concrete Box Culverts shown in the shop drawings.
- All joints between precast sections must be tongue & groove with joint sealant. Joints between cast-in-place & precast sections shall have longitudinal reinforcing extending from top, bottom & both side slabs of the precast box tied to the cast-in-place reinforcement. Single barrel culverts may have precast headwalls cast integrally with the end segment when approved by the Engineer.
- Extension of existing multiple barrel box culverts with multiple single cell precast box culverts is not permitted unless approved by the District Structures Engineer. Full transition details must be shown in the shop drawings when approved.
- Culverts larger than the specified size may be substituted with no additional payment to the Contractor. Substitution must be approved by the Engineer, minimum earth cover and invert elevations shown in the Contract Documents must be maintained.



SECTION A-A
(2" Cover - Thin Wall Detail)

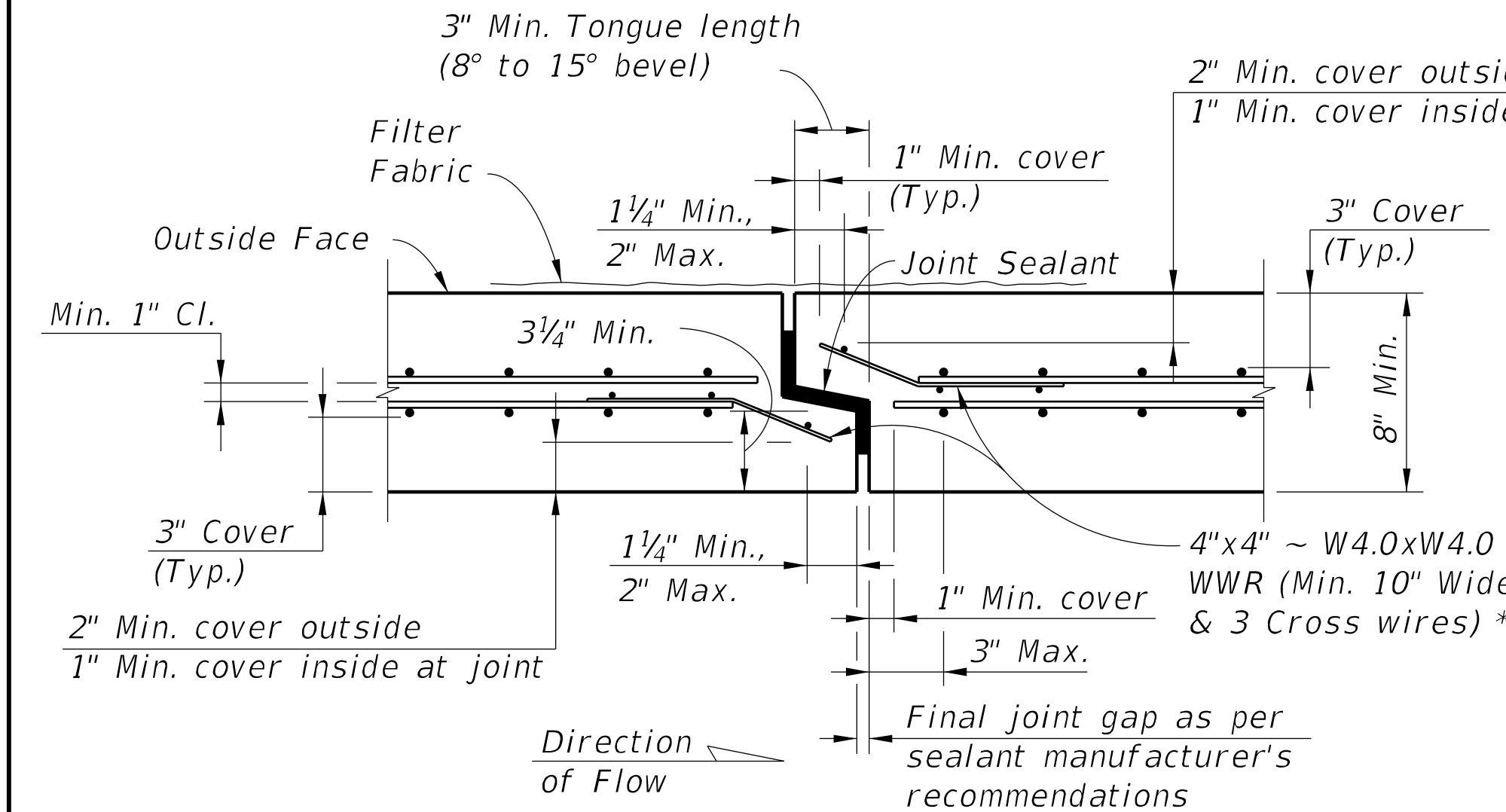


SECTION A-A
(2" Cover - Thick Wall Detail)

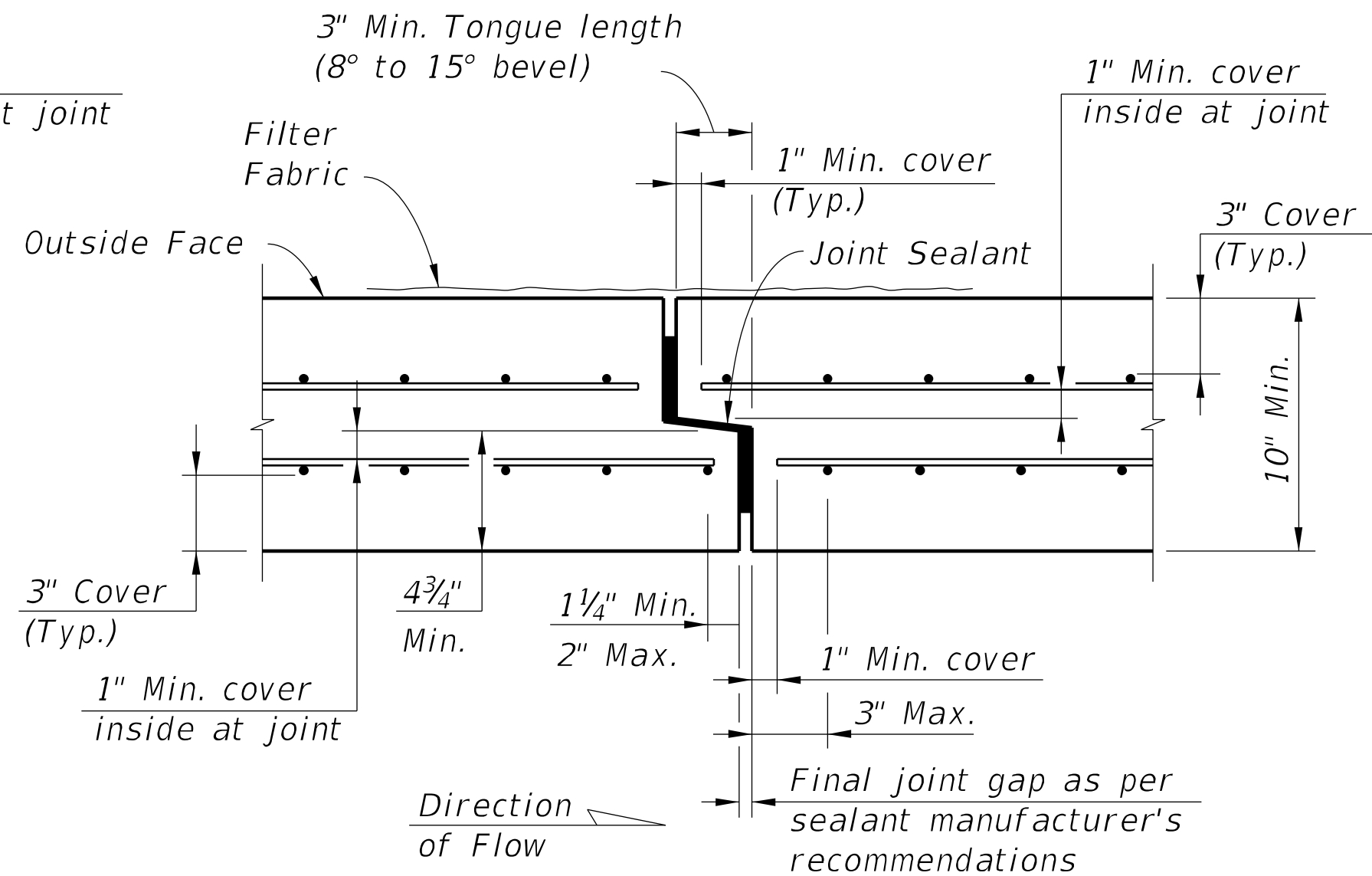


ALTERNATE BOTTOM SLAB TRANSVERSE JOINT
TYPICAL SECTION
(DOUBLE-SIDED TONGUE & GROOVE JOINT)
(All reinforcing not shown for clarity)

NOTE:
Bottom Slab Joints in Type B Boxes may be single tongue & groove joints as shown in Section A-A when the Top Slab Joints are oriented as shown in Schematic "A".

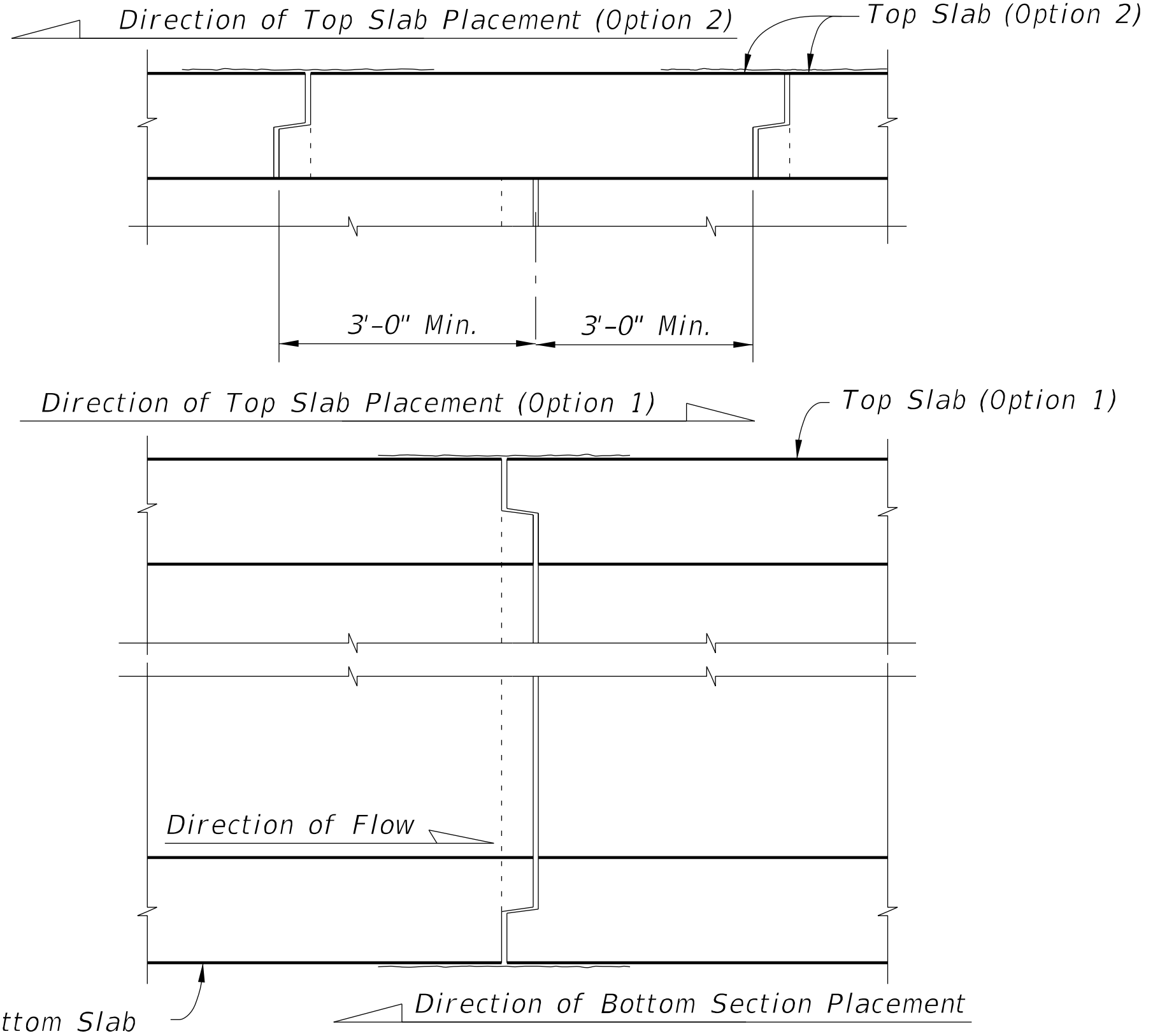


SECTION A-A
(3" Cover - Thin Wall Detail)



SECTION A-A
(3" Cover - Thick Wall Detail)

* At the Contractor's option when the box culvert reinforcing utilizes WWR, extend wall and slab reinforcing into the joint and bend to maintain cover in lieu of 4"x4" ~ W4.0xW4.0 WWR at joint. Transverse wire in tongue may be cut at corners of box to allow bending of the WWR.

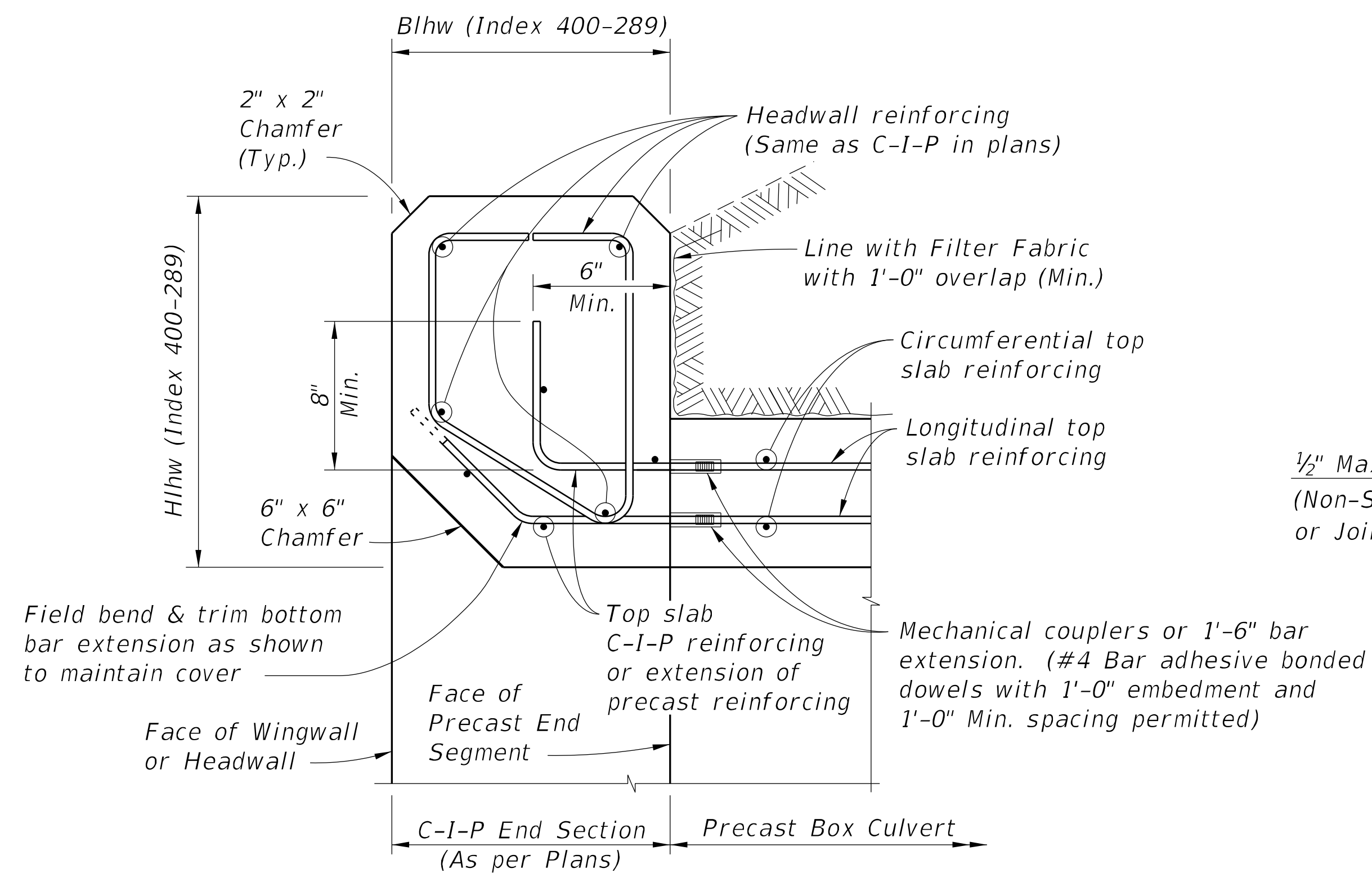


SCHEMATIC "A"
TYPE B BOX SECTION PLACEMENT
FOR SINGLE TONGUE & GROOVE JOINTS

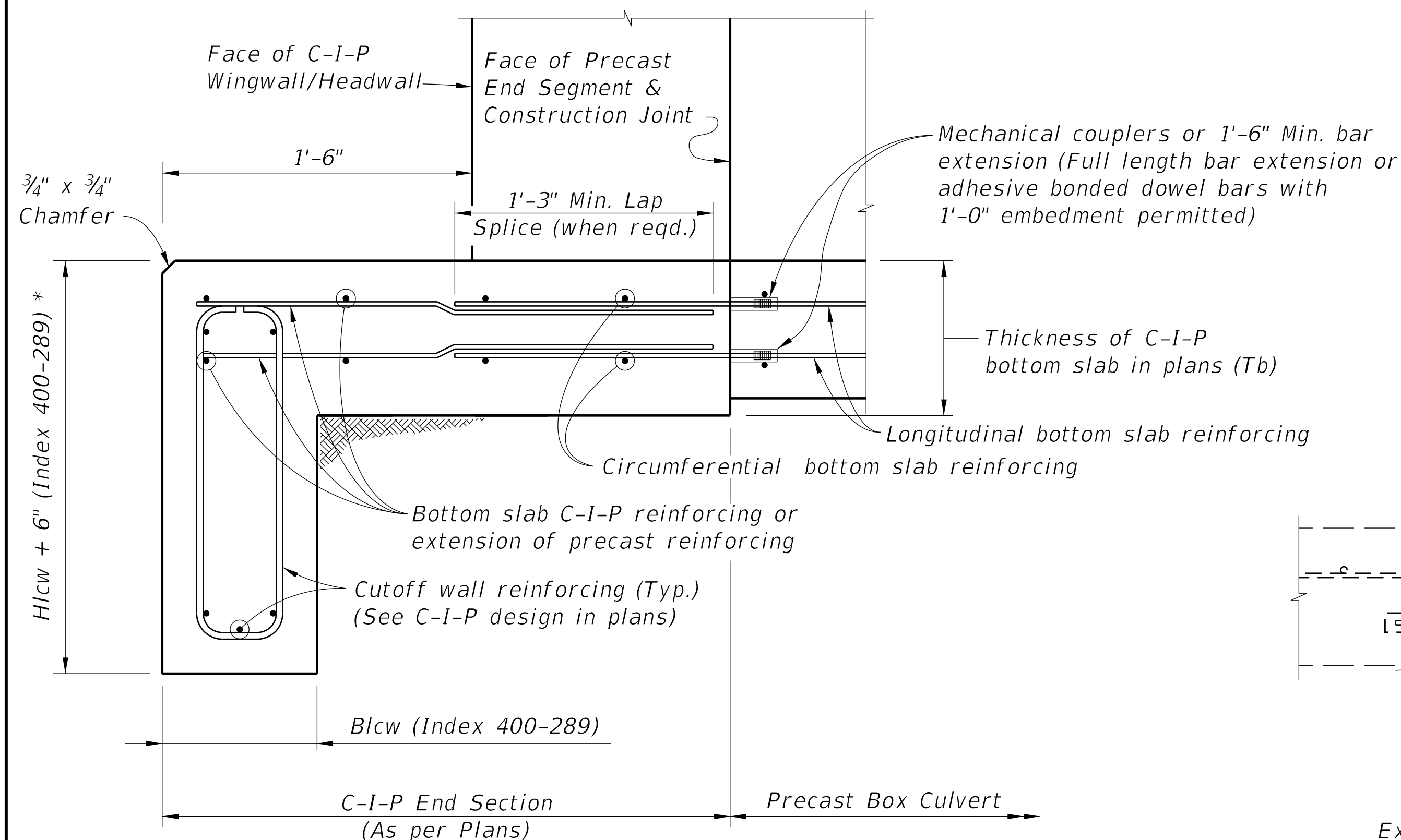
PRECAST SEGMENT TO SEGMENT TONGUE & GROOVE TRANSVERSE JOINTS

TWO-PIECE PRECAST SEGMENT
ADDITIONAL JOINT DETAILS
(TYPE B BOX)

10/8/2020 10:42:05 AM

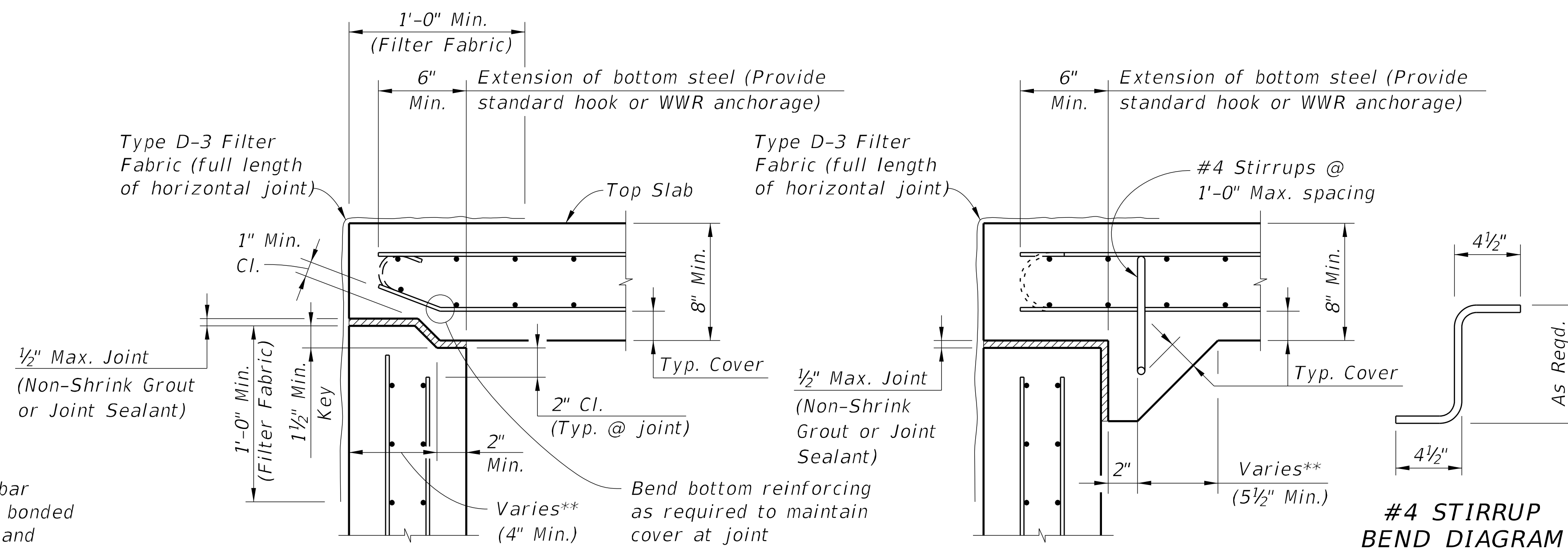


SECTION C-C
C-I-P HEADWALL DETAILS AND CONNECTION TO PRECAST BOX



SECTION D-D
C-I-P TOE SLAB & CUTOFF WALL DETAILS
AND CONNECTION TO PRECAST BOX

* Provide additional 6" depth of cutoff wall at no additional cost.



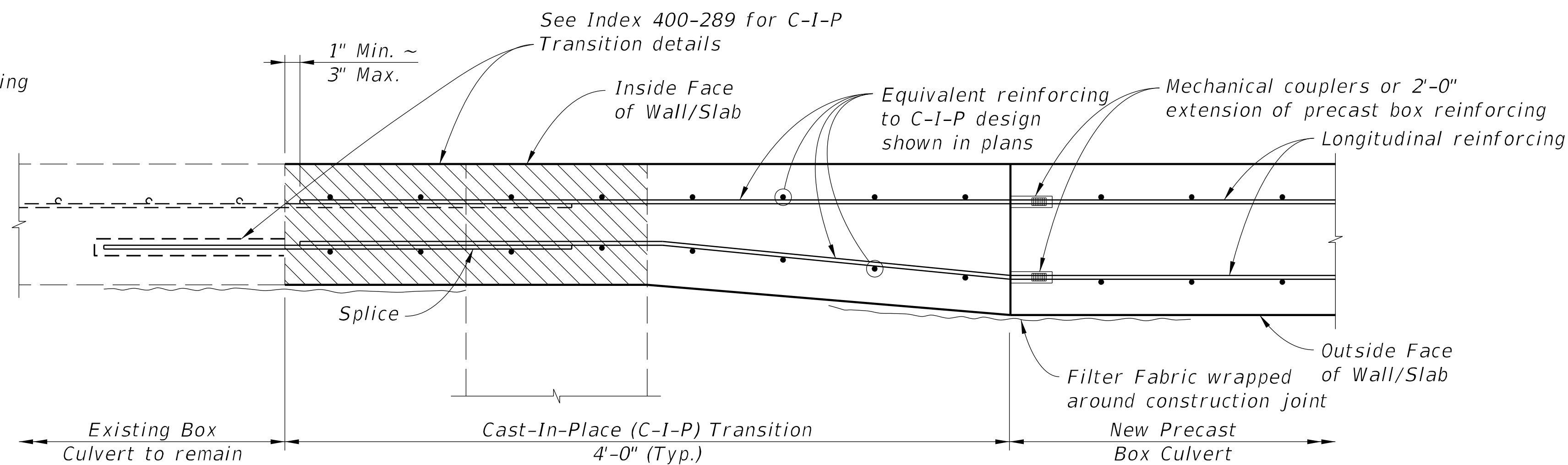
SECTION B-B
TOP SLAB TO WALL JOINT
(KEYED JOINT)

** Provide adequate width to satisfy shear strength requirements at joint

SECTION B-B
TOP SLAB TO WALL JOINT
(HAUNCHED JOINT)

**#4 STIRRUP
BEND DIAGRAM**

TYPE B BOX LONGITUDINAL JOINTS

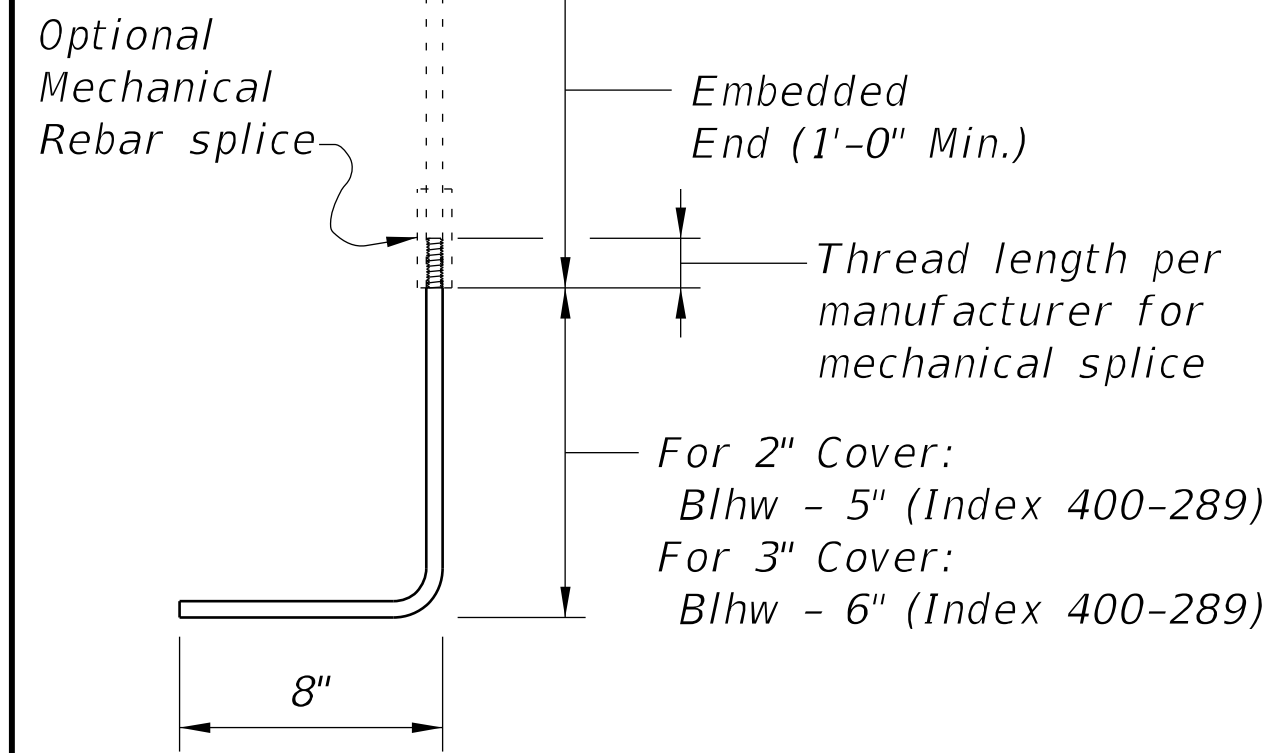


SECTION E-E
EXTERIOR WALL/SLAB TRANSITION DETAIL FOR PRECAST EXTENSION
(Type I Connection shown, Type II Connection similar)

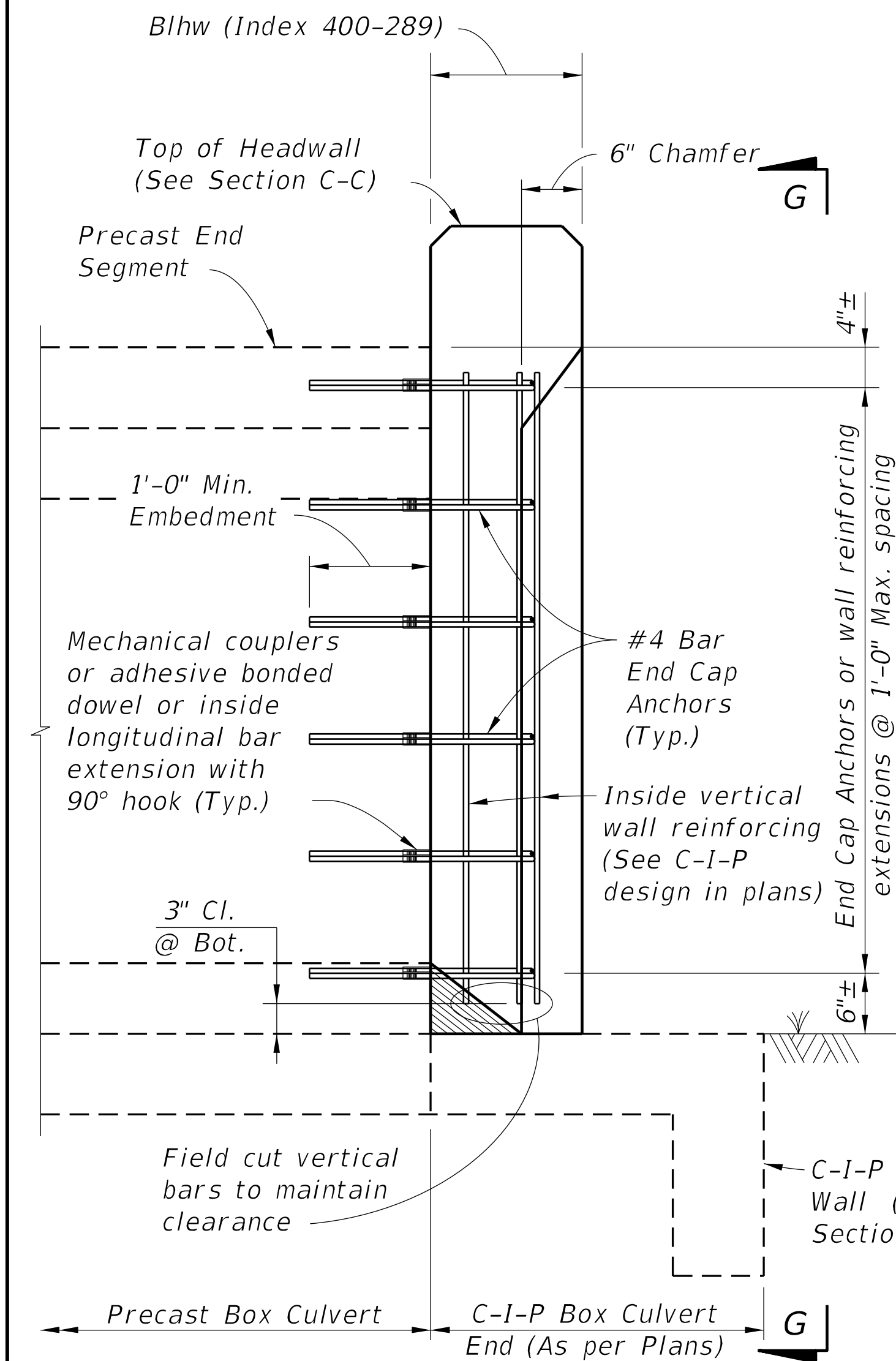
Section of Existing Box Culvert to be removed and replaced, for Type I Connection.

10/8/2020 10:42:07 AM

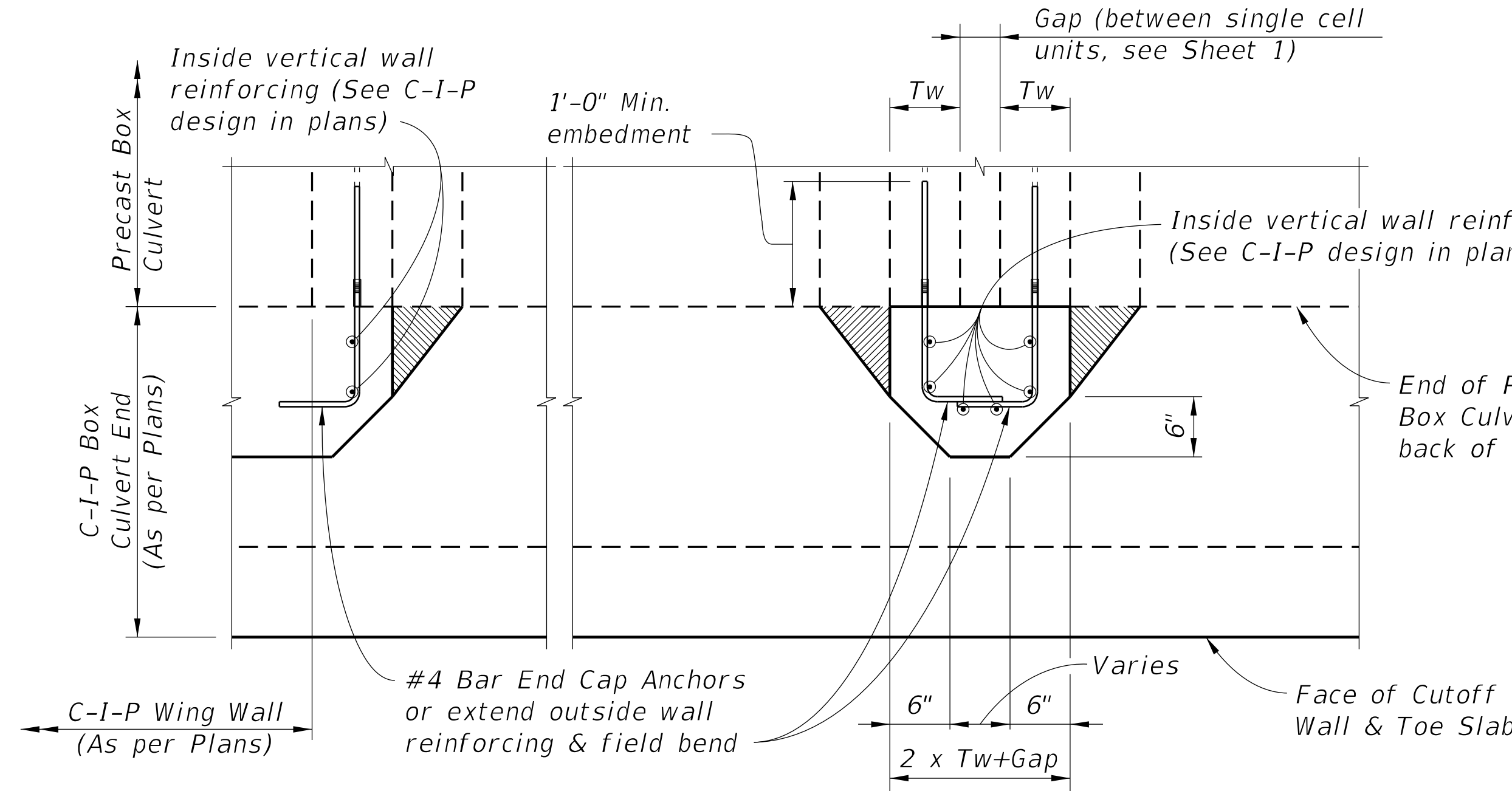
LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	PRECAST CONCRETE BOX CULVERTS - SUPPLEMENTAL DETAILS	INDEX 400-291	SHEET 3 of 5
01/01/12						



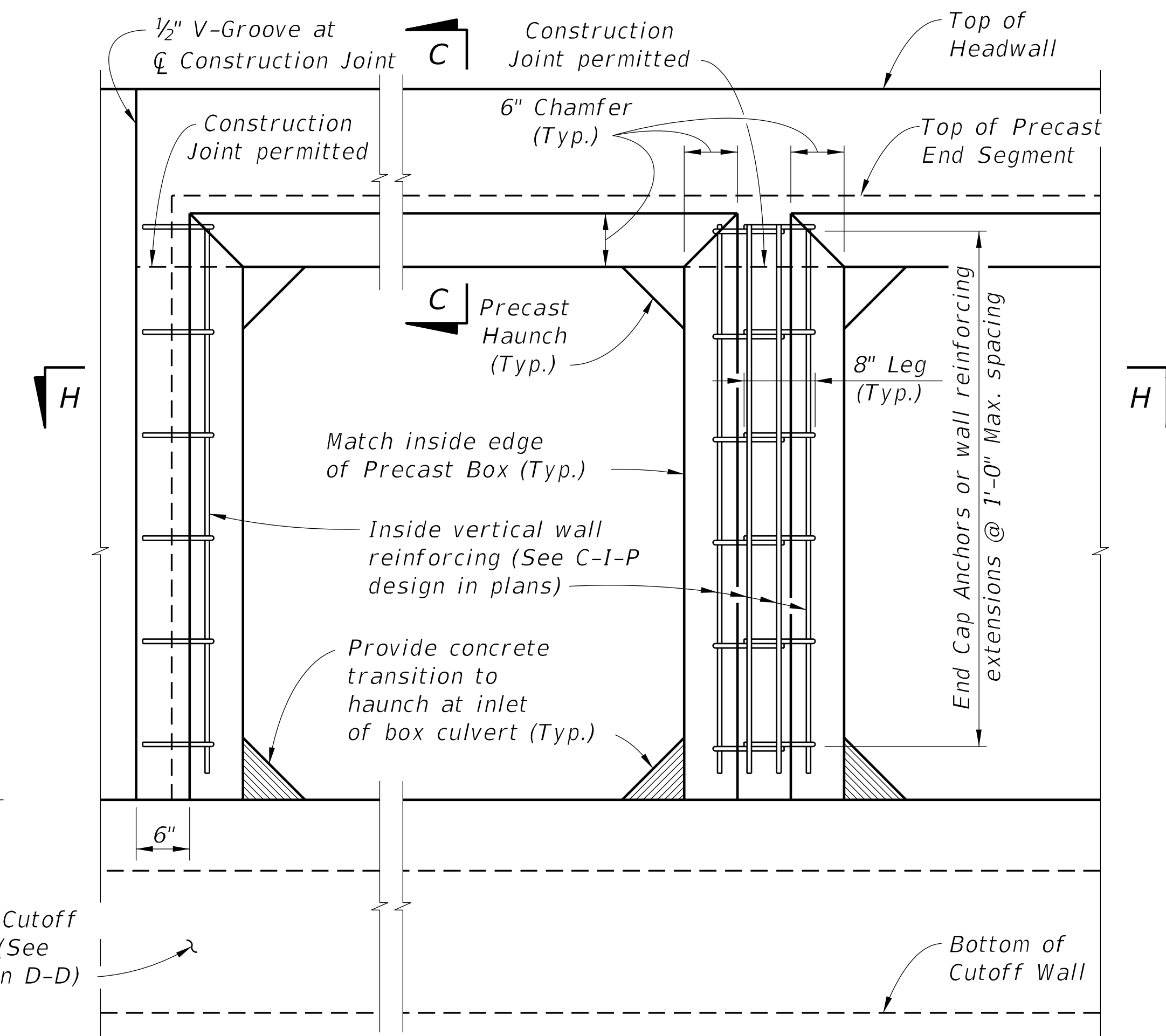
**#4 BAR END CAP ANCHOR
BAR BEND DIAGRAM**



SECTION F-F



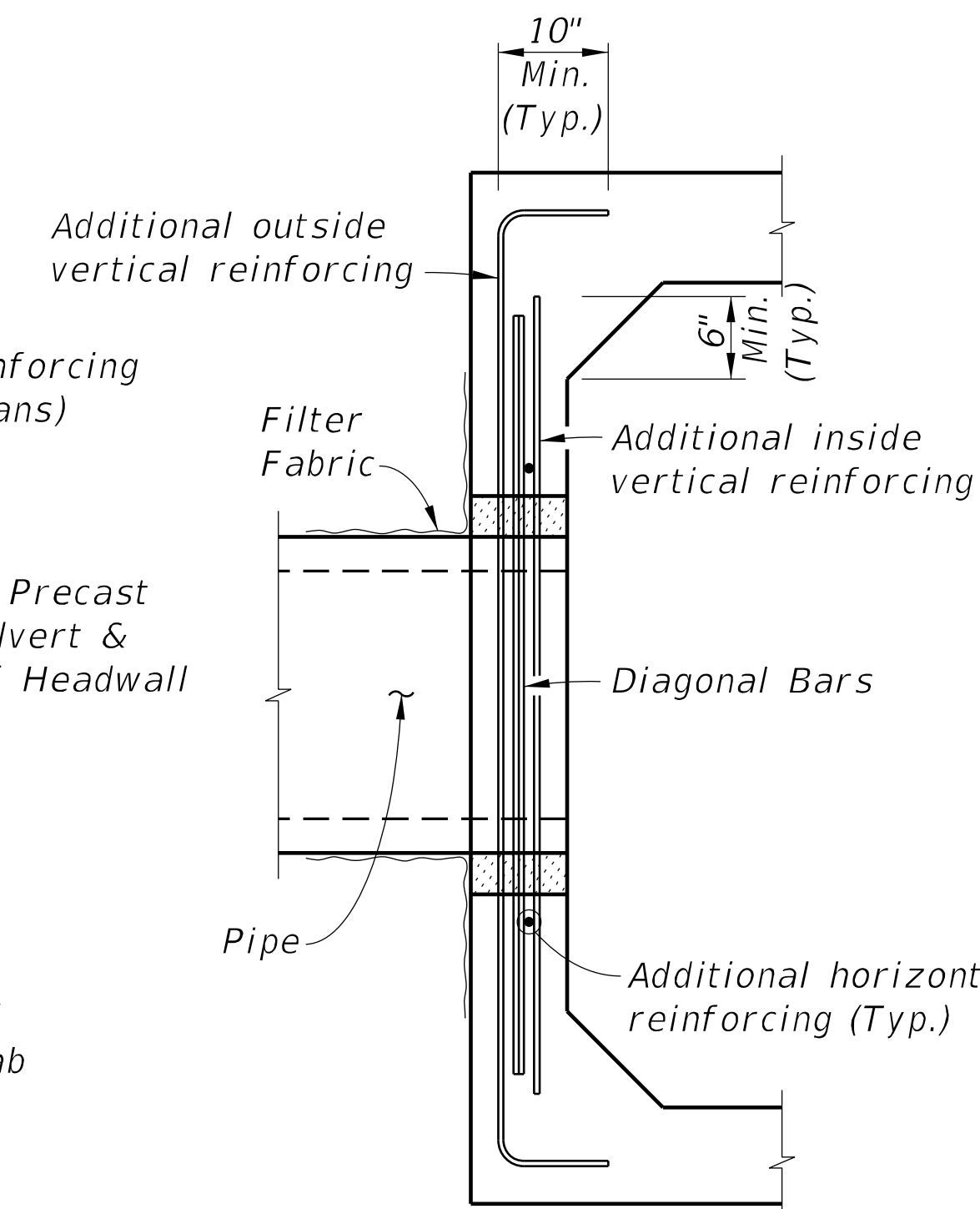
SECTION H-H



VIEW G-G

(Headwall, Toe Slab and Cutoff Wall Reinforcing not shown for clarity)

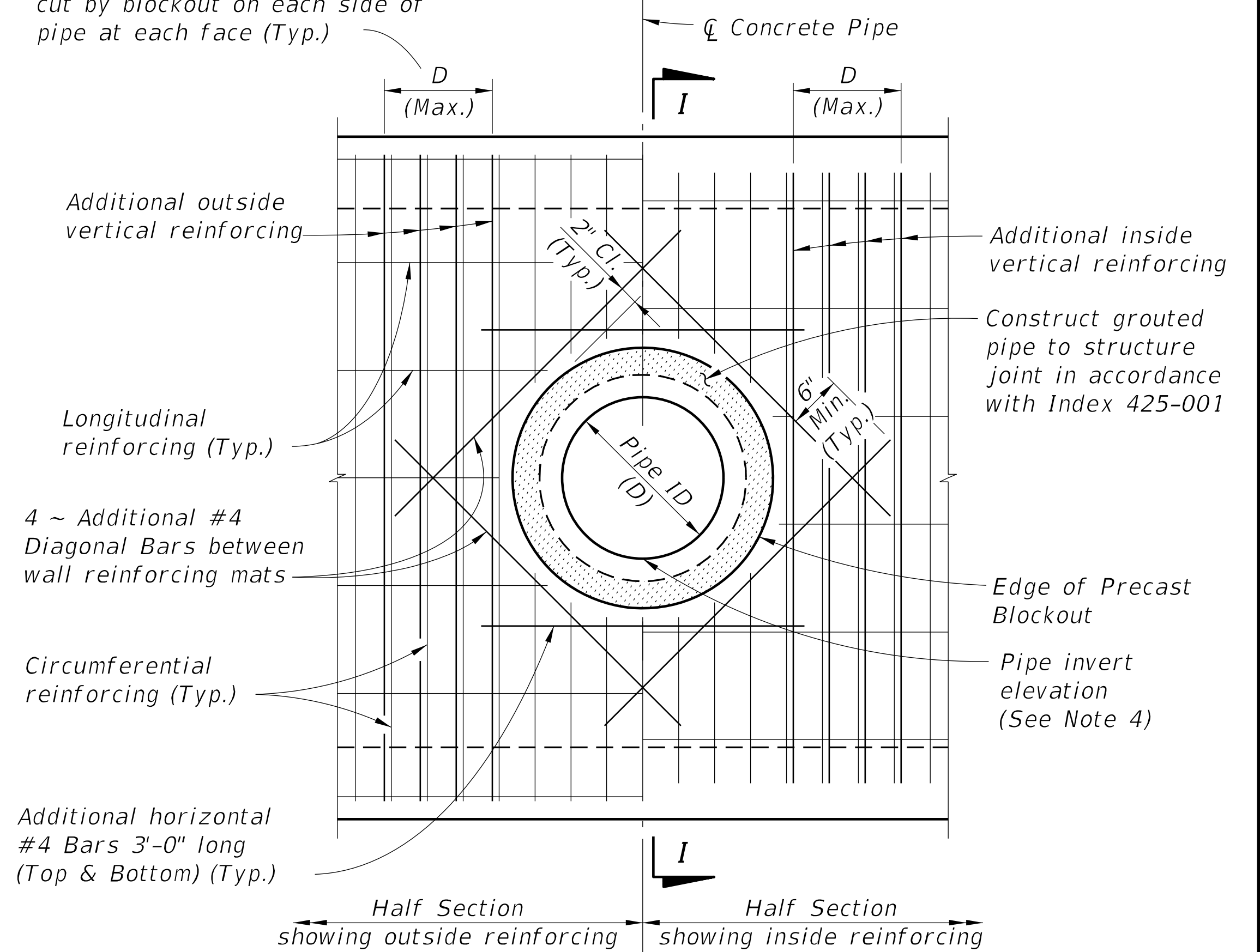
C-I-P END CAP DETAILS AND CONNECTION TO PRECAST BOX



SECTION I-I

(Showing additional blockout reinforcing only)

Provide 50% of vertical reinforcing cut by blockout on each side of pipe at each face (Typ.)

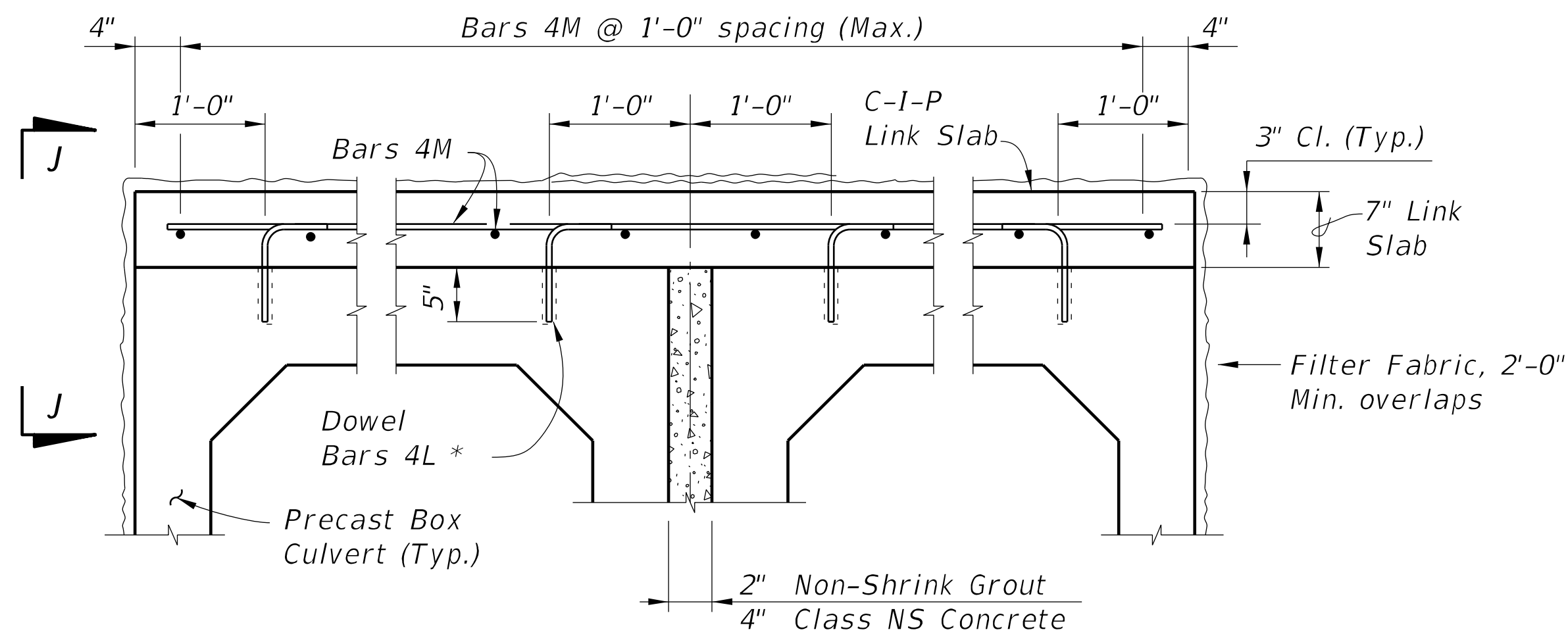


ELEVATION VIEW

PIPE BLOCKOUT DETAILS

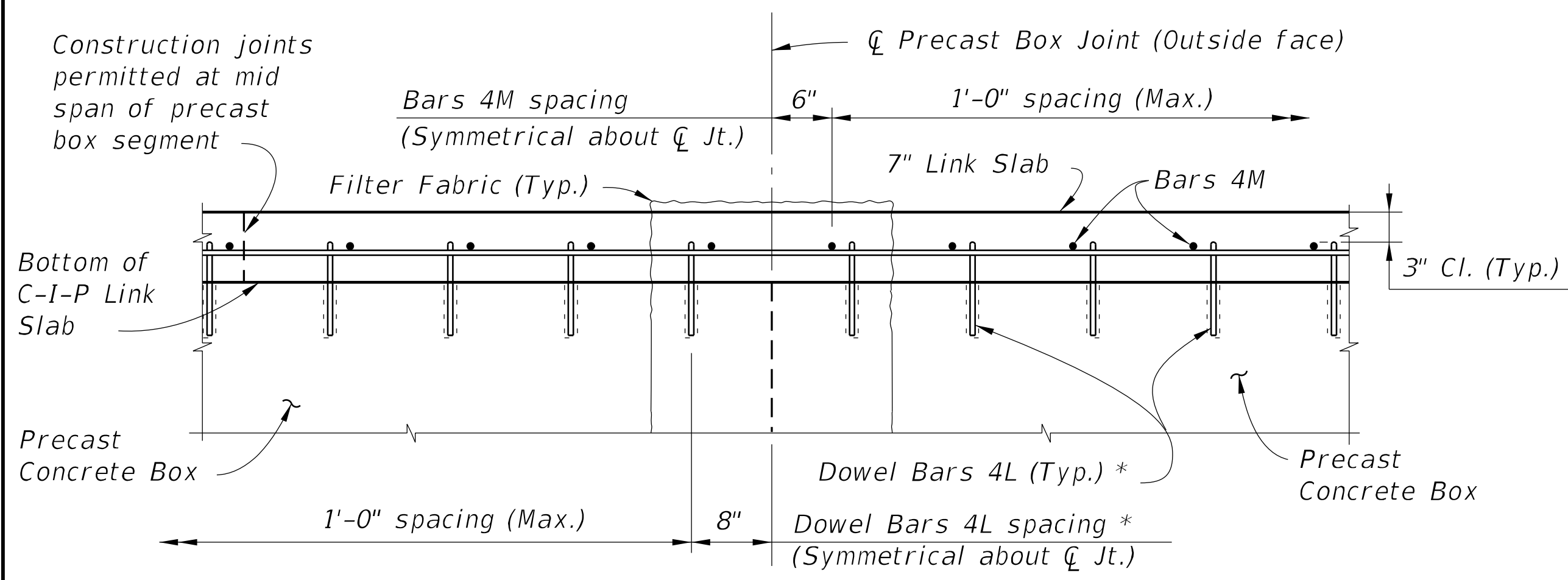
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LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	PRECAST CONCRETE BOX CULVERTS - SUPPLEMENTAL DETAILS	INDEX	SHEET
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LINK SLAB TYPICAL SECTION
(Multiple Barrel Culvert shown, Single Barrel Culvert similar)

* Install dowels with an Adhesive Bonding Material System in accordance with Specification Section 416. The Contractor may substitute mechanical couplers in lieu of adhesive bonded dowels. Shift dowels to clear box culvert reinforcing.



VIEW J-J

LINK SLAB NOTES:

1. Provide a Cast-In-Place Link Slab to ensure uniform joint opening of precast box culverts when the differential settlement shown in the plans exceeds the following limits, except that a Link Slab is not required for differential settlements less than 1/2".

$$\Delta Y \leq \frac{(L)^2}{760 \times R \times W}$$

Where:

ΔY = Maximum Long-Term Differential Settlement (ft.)

R = Exterior height of Box Culvert (ft.)

W = Length of Box Culvert Segments (ft.)

L = Effective length for single curvature deflection (ft.)

2. Extend Link Slab to back face of headwalls and to limits of existing box culverts for extensions.

ESTIMATED LINK SLAB QUANTITIES		
ITEM	UNIT	QUANTITY
Class II or IV Concrete (Culvert)	CY/SF	0.0216
Reinforcing Steel (Roadway)	Lb./SF	1.52

NOTE: Estimated quantities are based the plan area of precast box slabs, and are provided for information only. No additional payment will be made for Link Slabs where these are required for the precast box culverts.

BILL OF REINFORCING STEEL

MARK	SIZE	NO. REQ'D	LENGTH
L	4	2 per Barrel/Ft.	1'-3"
M	4	As Req'd.	As Req'd.

REINFORCING STEEL BENDING DIAGRAM

Length as required

BAR 4M

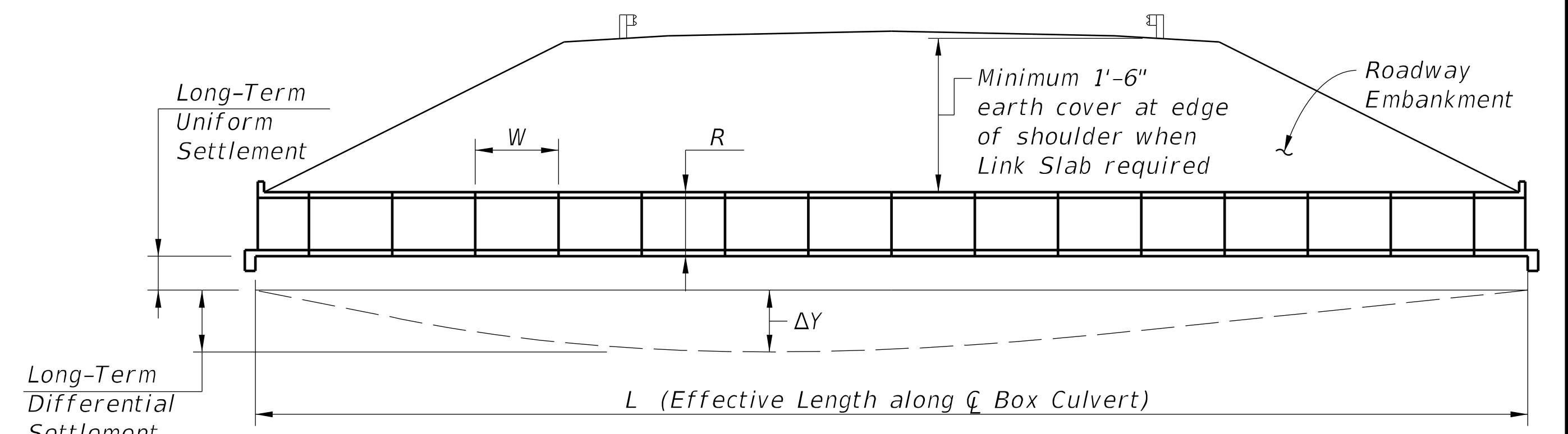
DOWEL BARS 4L

NOTES:

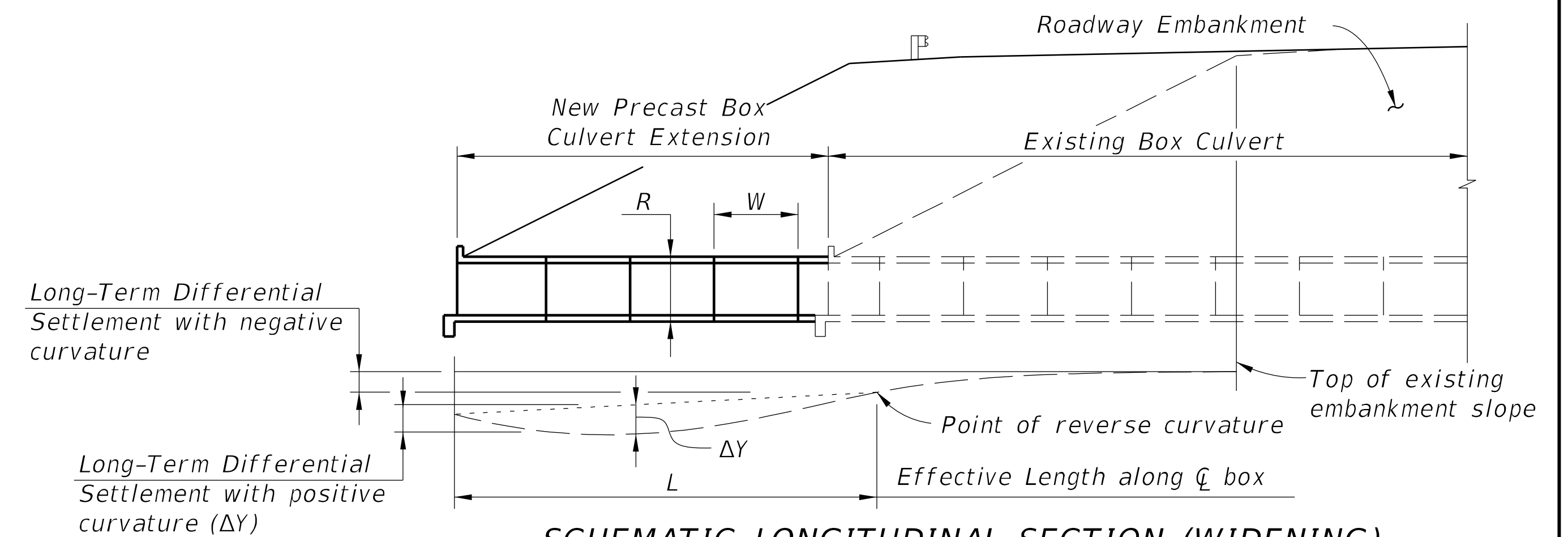
1. All bar dimensions are out to out.
2. Lap splice length for Bars 4M is 1'-4" minimum.

DESIGN NOTE:

1. Link Slab required when joint openings from differential settlement exceed 1/8" as determined in Link Slab Note 1.



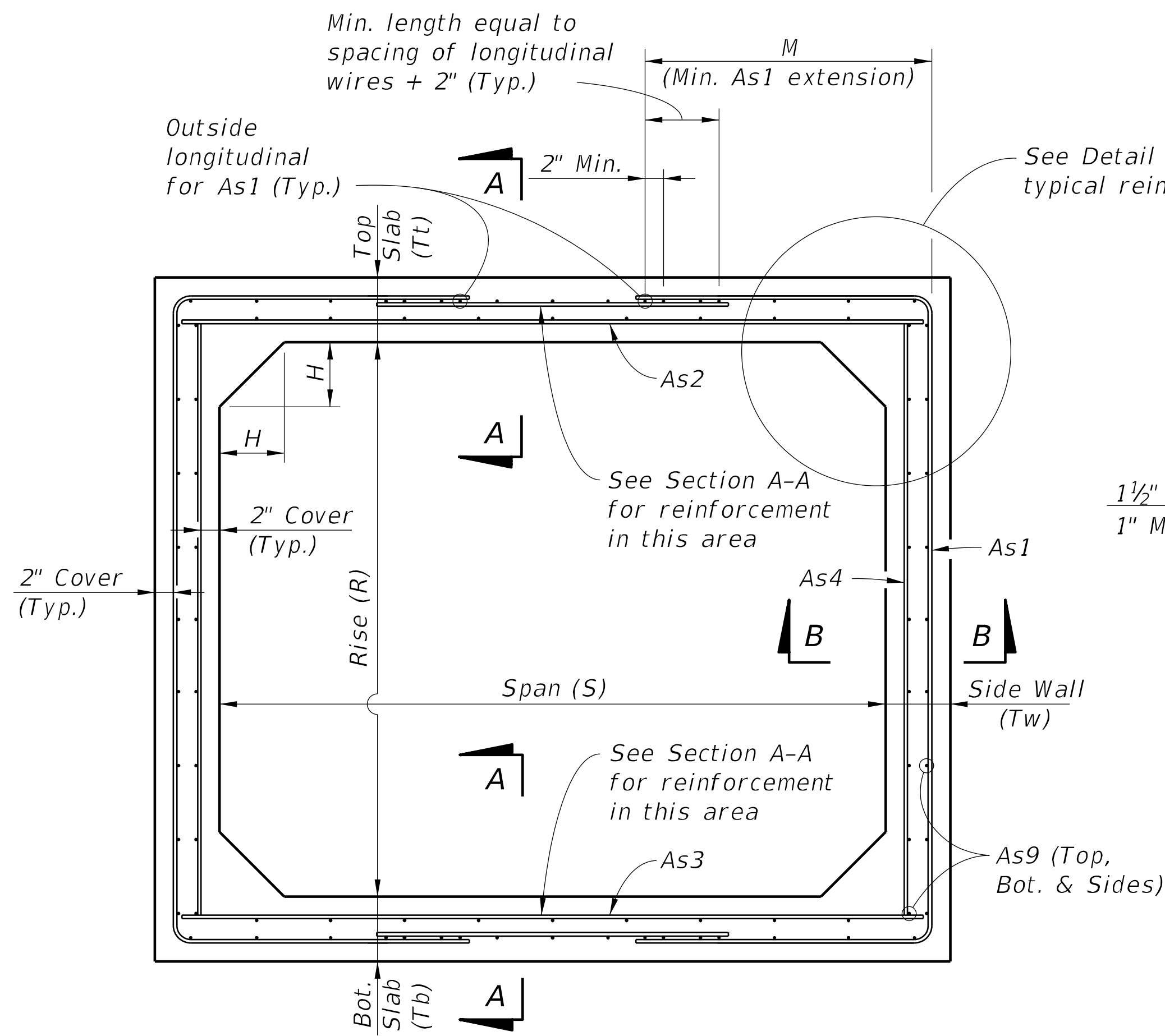
SCHEMATIC LONGITUDINAL SECTION (NEW CONSTRUCTION)



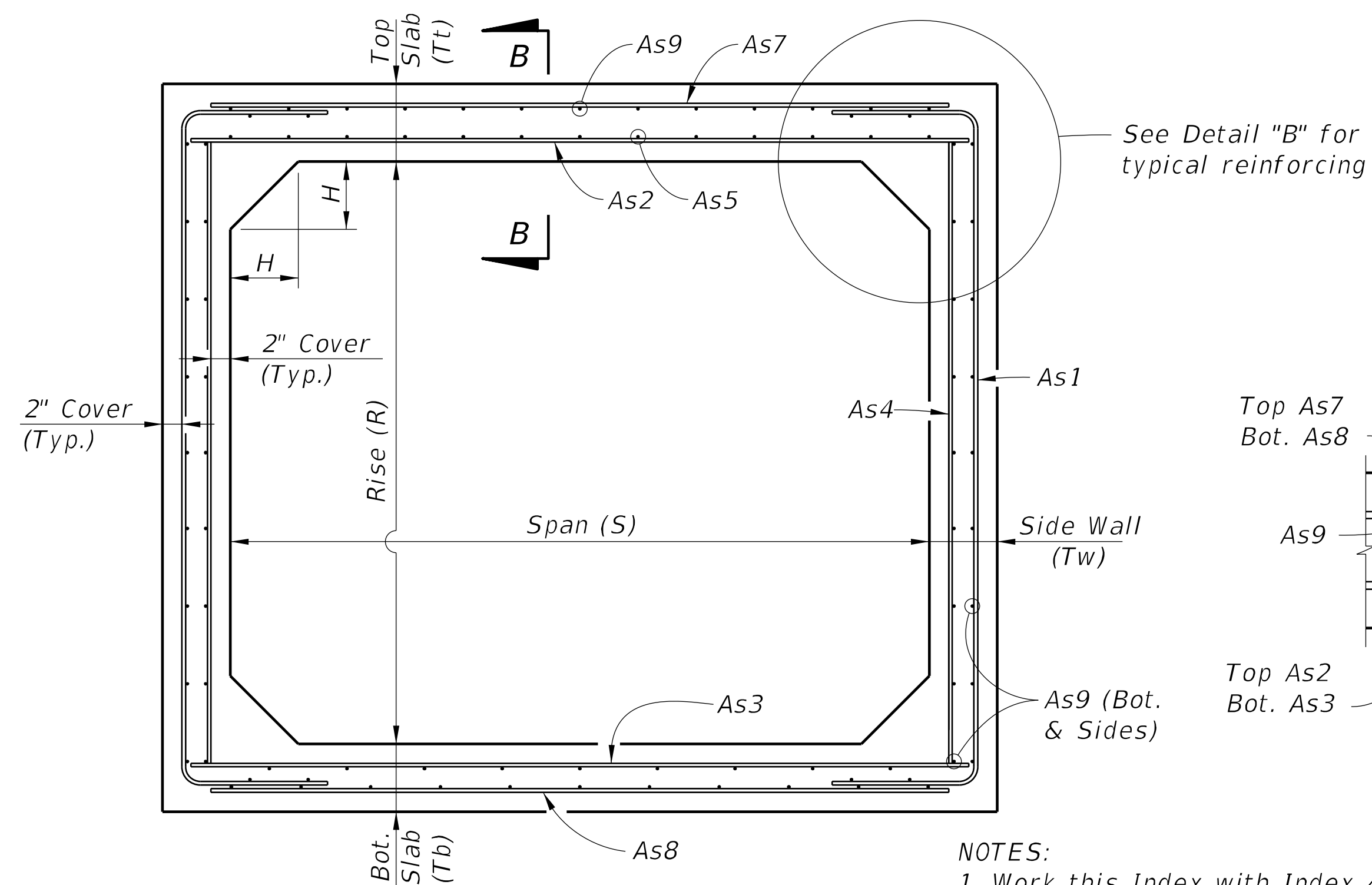
SCHEMATIC LONGITUDINAL SECTION (WIDENING)

DIFFERENTIAL SETTLEMENT COUNTERMEASURES FOR PRECAST BOX CULVERTS

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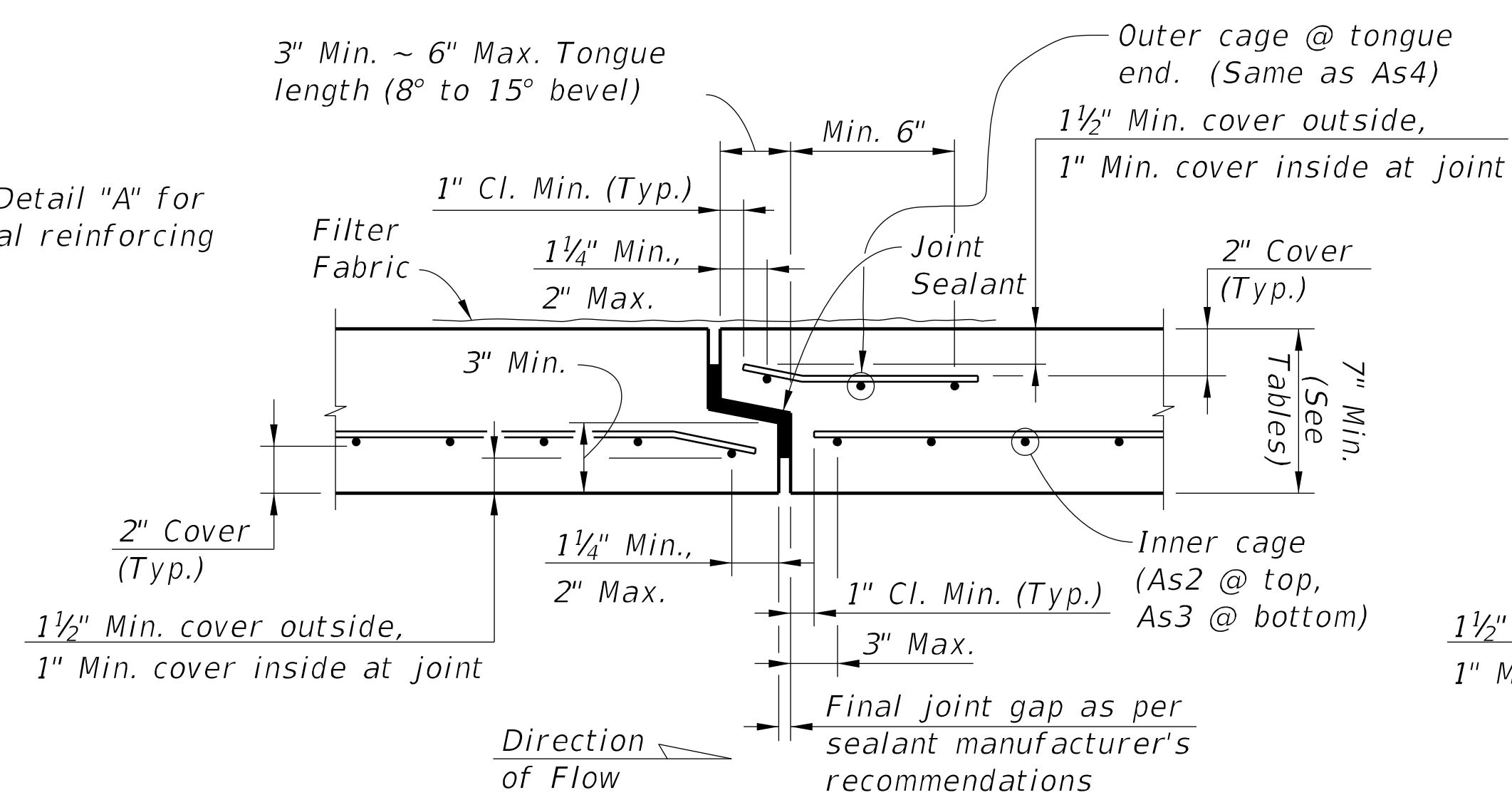


TYPICAL BOX SECTION (TYPE 2)
DESIGN EARTH COVER 2' OR GREATER
(Option 1 Reinforcing Configuration Shown)

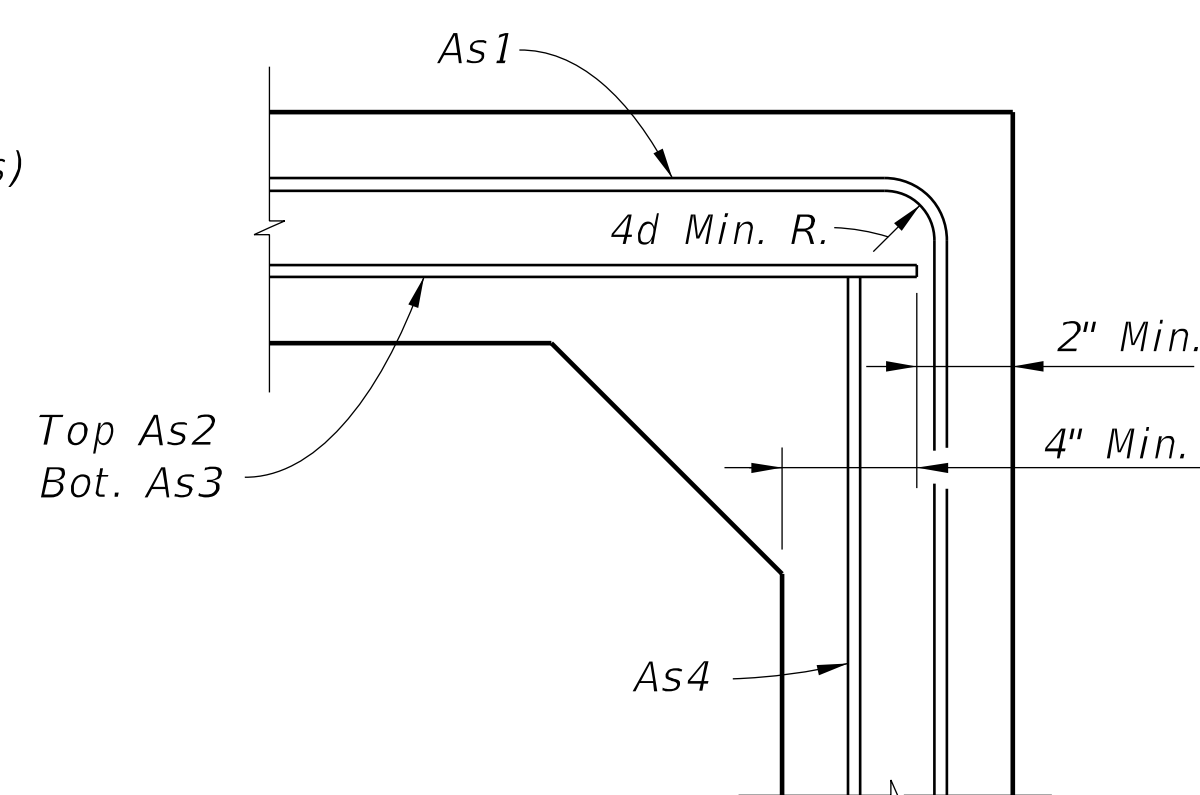


TYPICAL BOX SECTION (TYPE 1)
DESIGN EARTH COVER LESS THAN 2'
(Option 1 Reinforcing Configuration Shown)

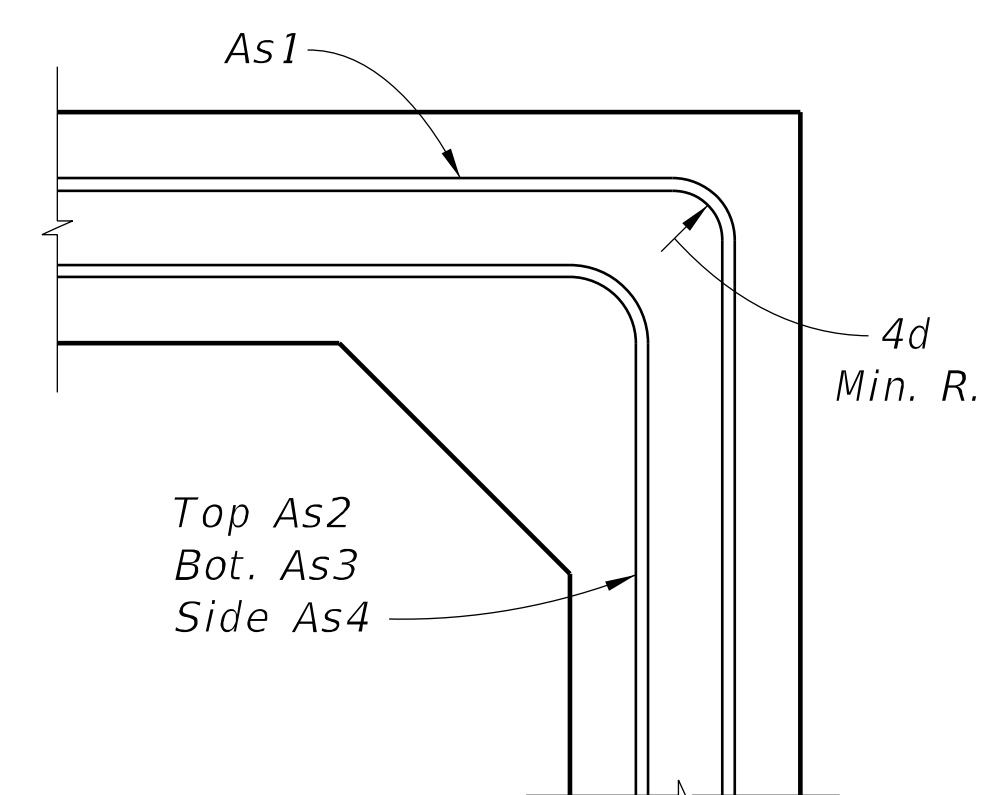
- NOTES:
1. Work this Index with Index 400-291.
2. See sheets 2 thru 5 for dimensions and areas of reinforcement.



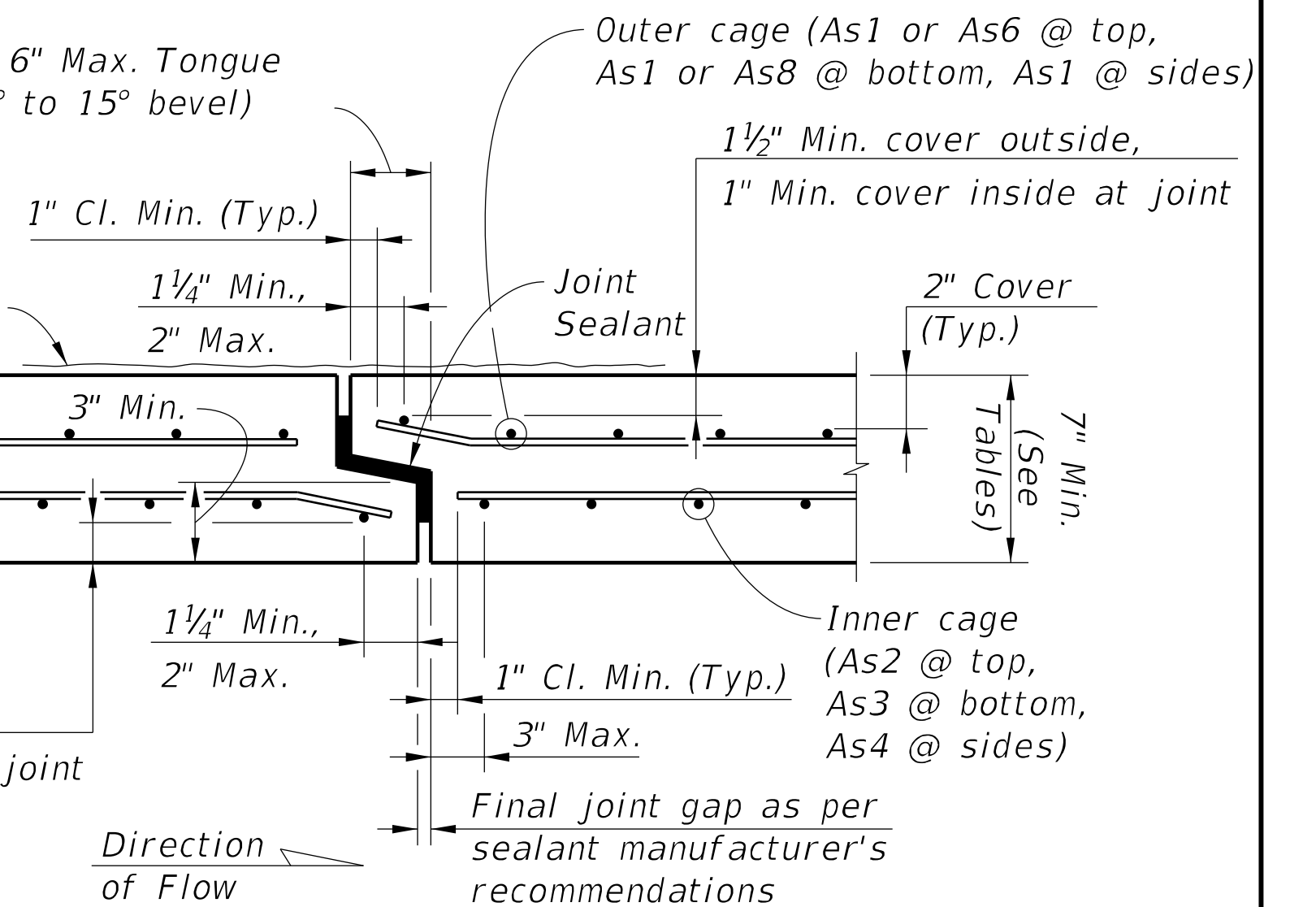
SECTION A-A



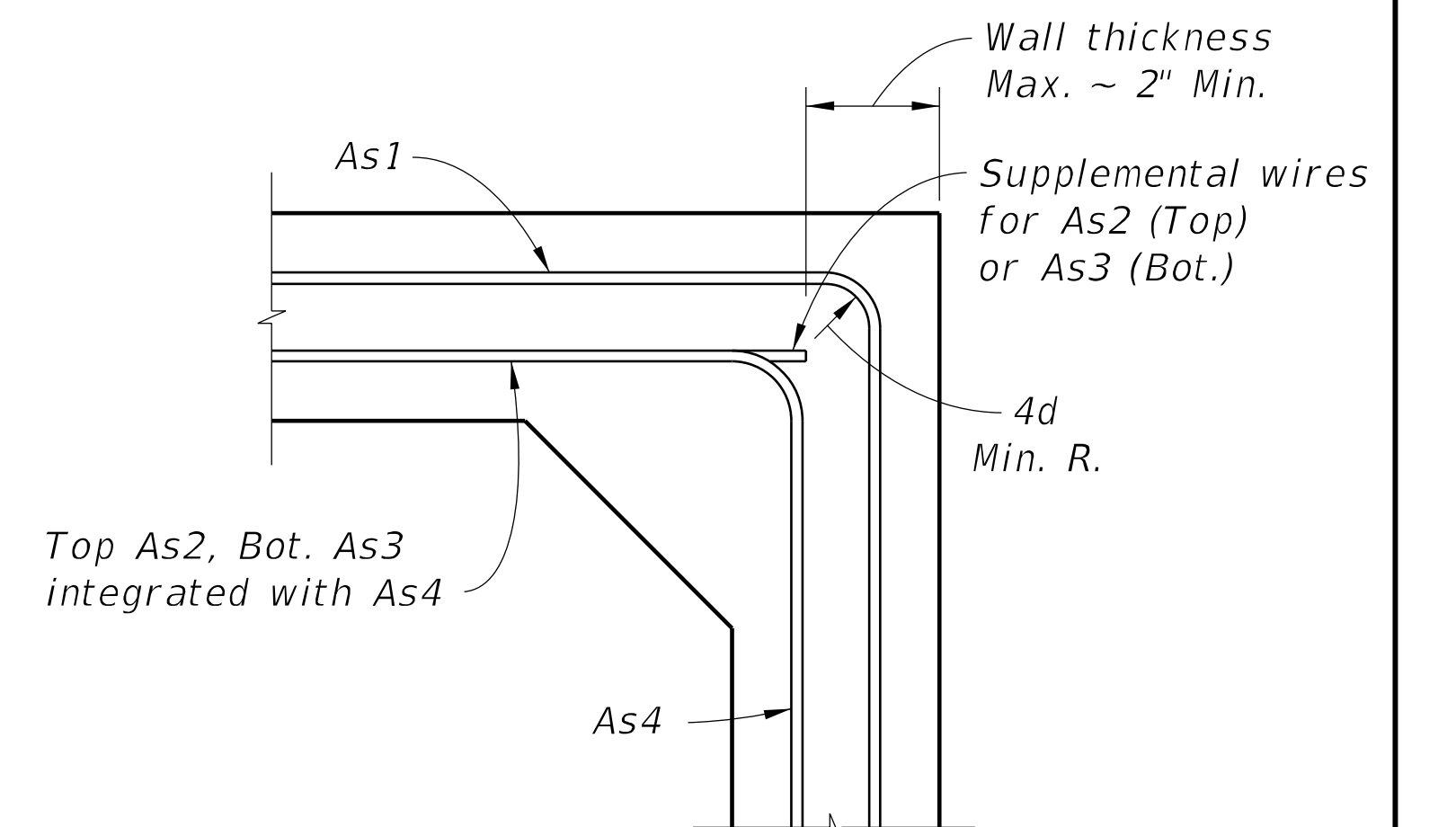
DETAIL "A" (OPTION 1)



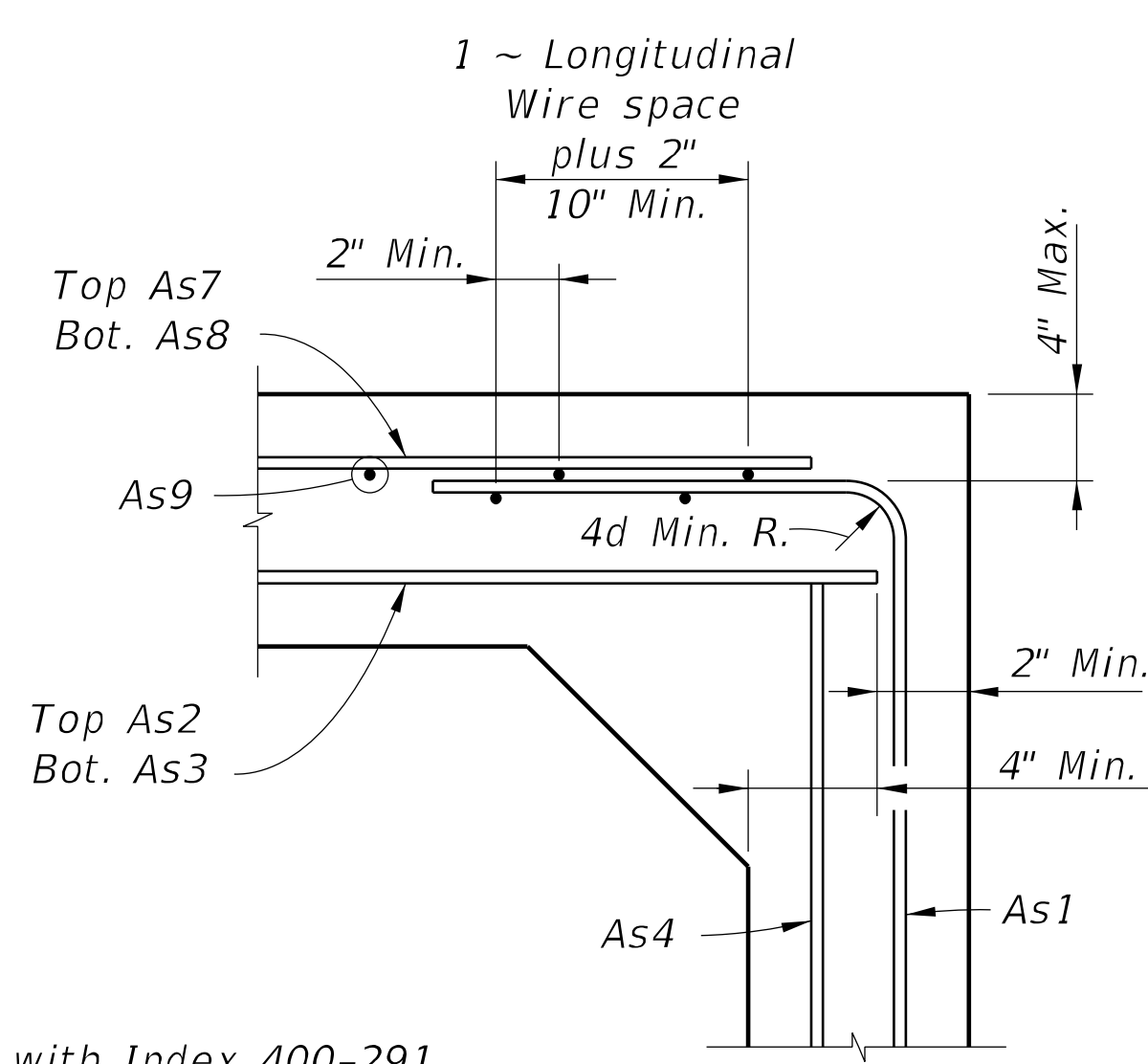
DETAIL "A" (OPTION 2)



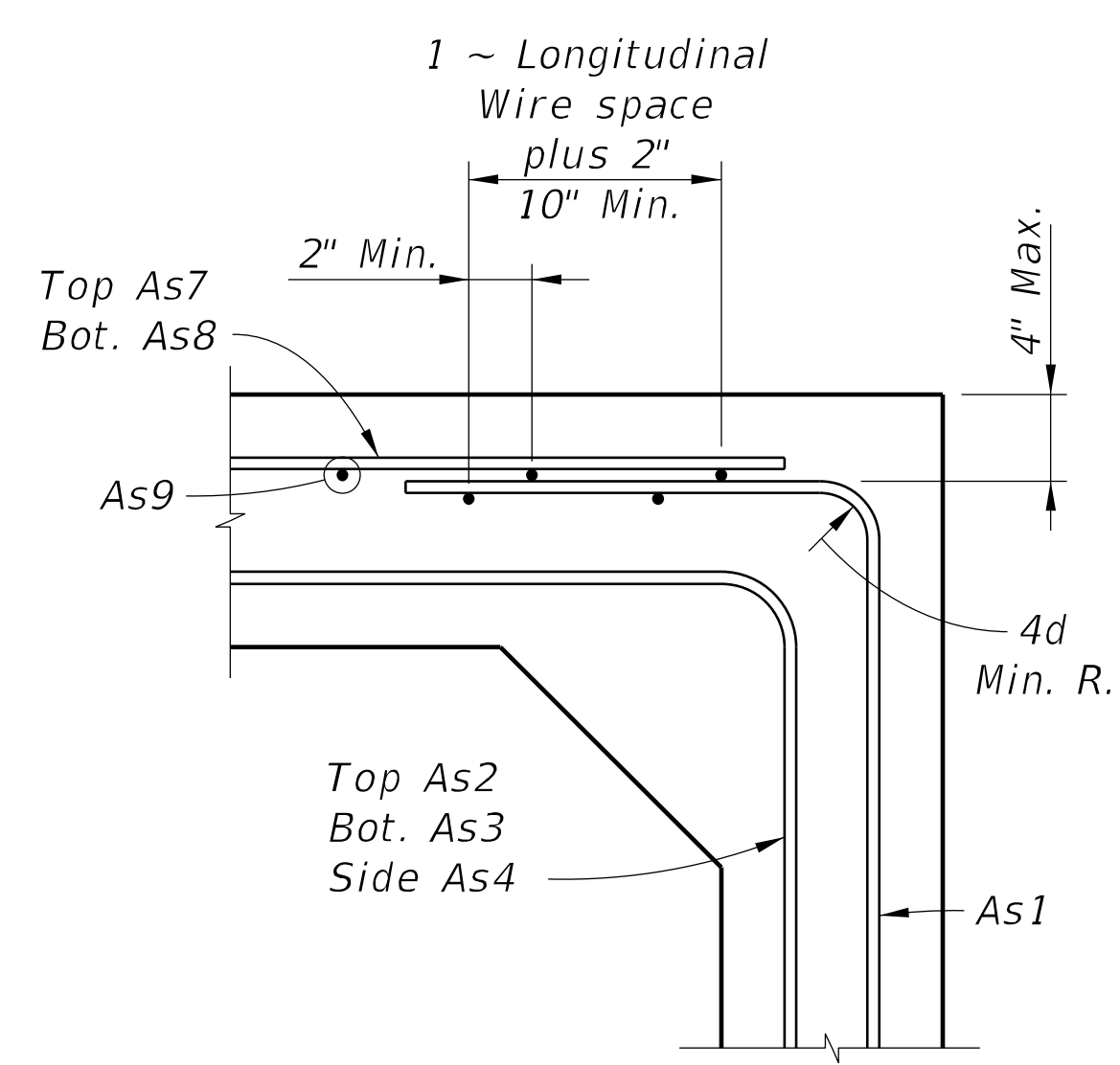
SECTION B-B
TYPICAL SECTION THRU JOINT



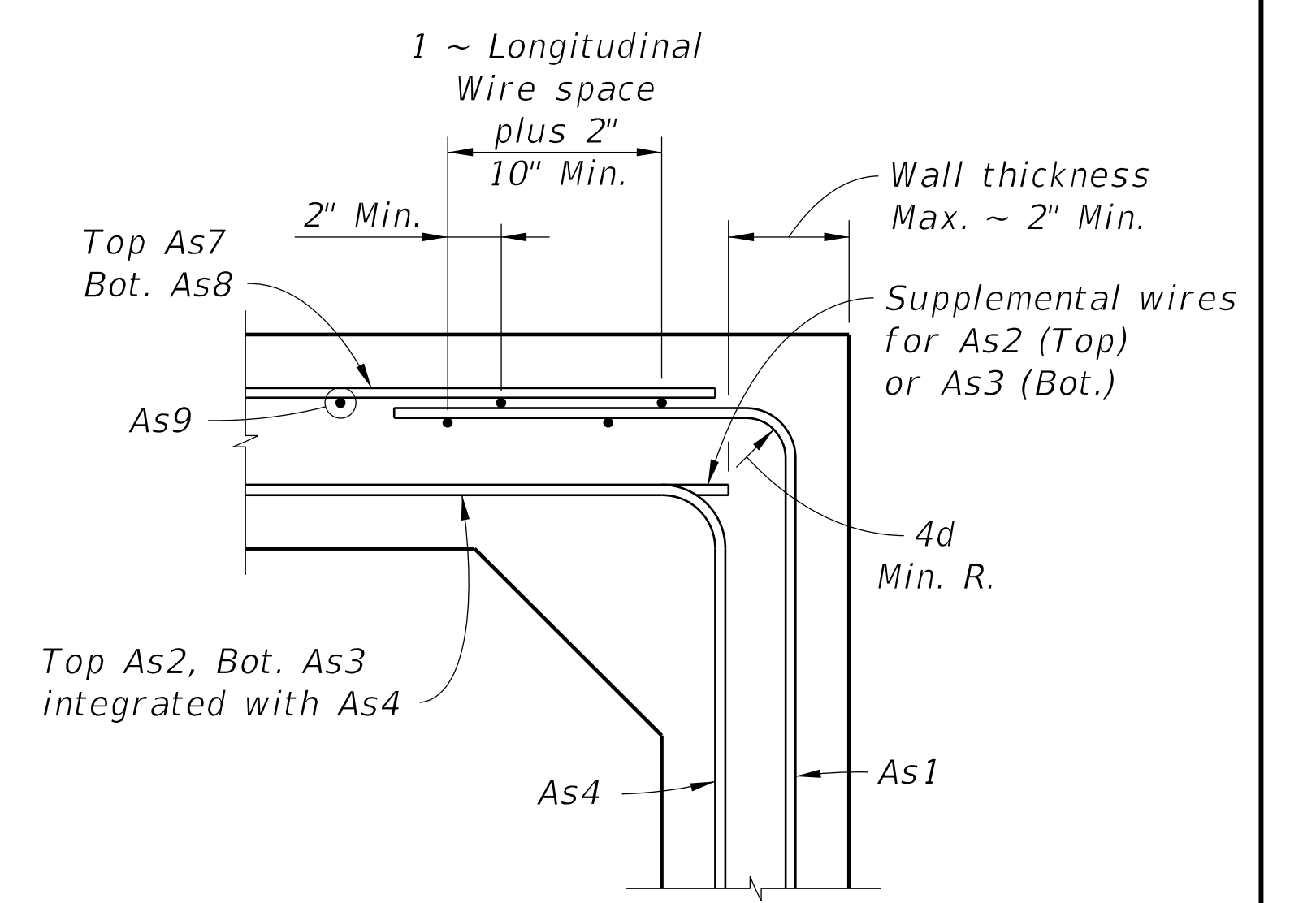
DETAIL "A" (OPTION 3)



DETAIL "B" (OPTION 1)



DETAIL "B" (OPTION 2)



DETAIL "B" (OPTION 3)

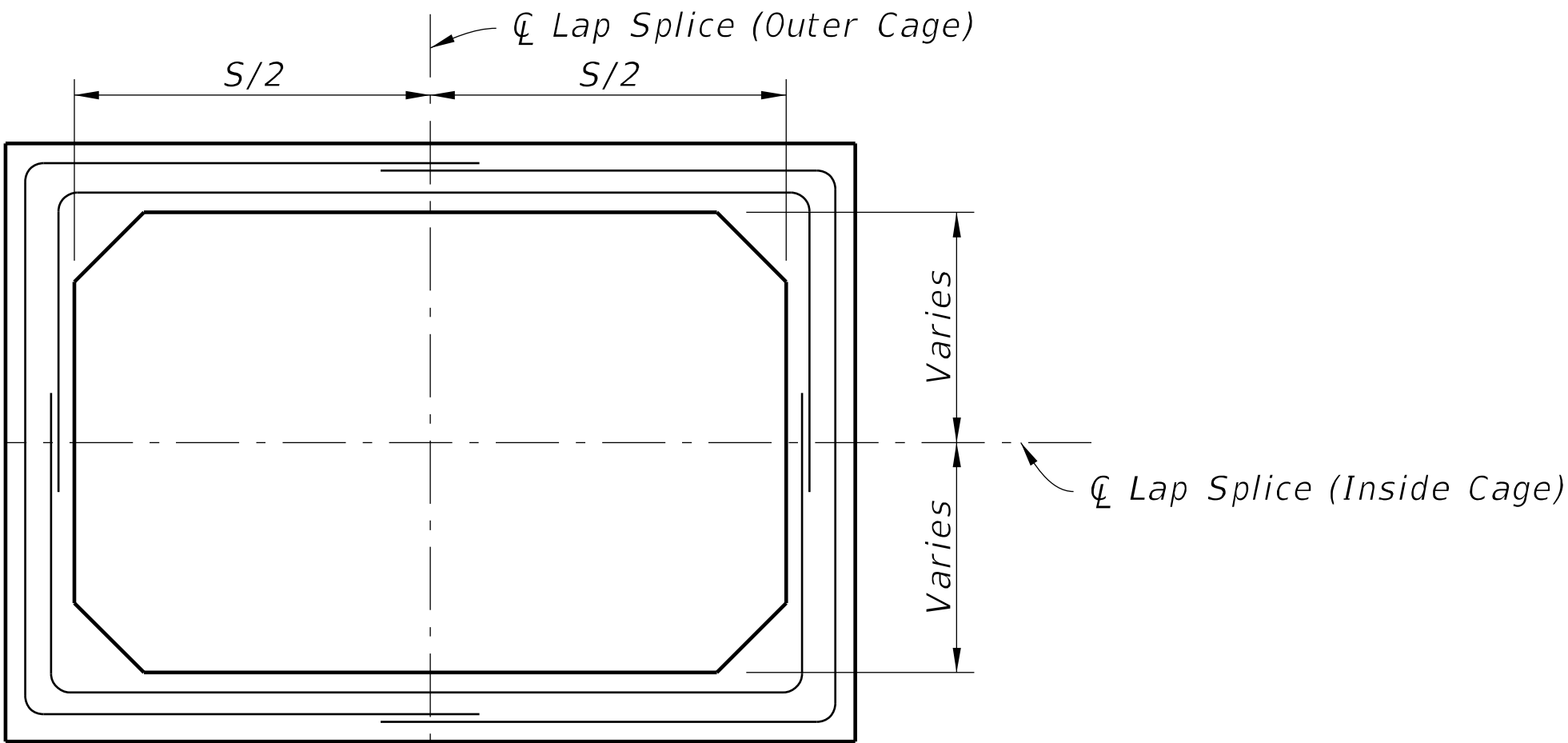
STANDARD PRECAST BOX CULVERT WITH 2" CONCRETE COVER

LAST REVISION	DESCRIPTION:	FDOT	FY 2021-22 STANDARD PLANS	STANDARD PRECAST CONCRETE BOX CULVERTS	INDEX	SHEET
07/01/13					400-292	1 of 14

GENERAL NOTES:

1. These precast designs may be substituted for cast-in-place box culverts designed to AASHTO LRFD Bridge Design Specifications, 4th Edition. Designs are based on the design criteria shown in FDOT Structures Design Guidelines.
2. Loading: HL-93 & any fill heights between the minimum & maximum shown.
3. Only one design of precast box culvert is to be used for any installation.
4. Reinforcing steel must consist of smooth or deformed welded wire reinforcement (WWR) meeting the requirements of Specification Section 931. Longitudinal reinforcement may consist of reinforcing bars meeting the requirements of Specification Section 931. Minimum cover must be 2" for slightly or moderately aggressive environments or 3" for extremely aggressive environments, unless otherwise shown. The spacing of circumferential wires must not be less than 2" nor more than 4". The spacing of longitudinal wires or bars must not be more than 8".
5. As9 longitudinal wires must have a minimum cross-sectional area of 40% of the circumferential wires, but not less than a W2.5 or D4.0 for WWR, or #3 bars for deformed bars.
6. Welding of reinforcement must be limited to the locations shown in ASTM C1577 and in accordance with ANSI/AWS D1.4 "Structural Welding Code - Reinforcing Steel".
7. For alternate reinforcing configuration Options 2 and 3 shown in Detail "A" and "B" (Sheet 1), As1 may be extended to the middle of either slab and lap spliced with As7 and As8. As4 may be lap spliced at any location or connected to As2 or As3 at corners by welding.
8. Haunch dimensions may vary between the minimum and maximum dimensions shown in the Design Tables but only one haunch dimension must be used within the full length of the box culvert installation.

9. Submittal of redesign calculations are not required for any increase to the slab and/or wall thickness when the minimum reinforcement areas shown in the Design Tables are provided.
10. For Design Earth Cover greater than 10 feet, the Contractor may interpolate the required areas of reinforcement and slab or wall thickness. Interpolated areas of reinforcement, slab or wall thickness must be approved by the Engineer.
11. Minimum length of precast box segments is 4 feet and maximum length is 16 feet.
12. See Index 400-291 for connections to wingwalls, headwalls and other general details.



SCHEMATIC OF LAP SPLICE LOCATIONS
FOR OPTION 2 & 3 REINFORCING CONFIGURATIONS

TABLE 1A - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 3' & 4' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
3' x 3'	7	7	7	4	0.33' - <2'	0.17	0.29	0.21	0.17	0.17	0.17	0.17	See General Note 5	-
					2' - <3'	0.13	0.28	0.21	0.09	-	-	-		31
					3' - <5'	0.09	0.17	0.17	0.09	-	-	-		31
					5' - 10'	0.09	0.17	0.17	0.09	-	-	-		31
				8	15'	0.09	0.17	0.17	0.09	-	-	-		31
					20'	0.12	0.17	0.17	0.09	-	-	-		31
					25'	0.14	0.18	0.18	0.09	-	-	-		31
					30'	0.17	0.21	0.22	0.09	-	-	-		31
					35'	0.19	0.25	0.25	0.09	-	-	-		31
4' x 3'	7	7	7	4	0.33' - <2'	0.19	0.38	0.26	0.17	0.19	0.17	0.19	See General Note 5	-
					2' - <3'	0.19	0.38	0.26	0.09	-	-	-		38
					3' - <5'	0.14	0.20	0.22	0.09	-	-	-		38
					5' - 10'	0.11	0.17	0.17	0.09	-	-	-		38
				8	15'	0.15	0.17	0.18	0.09	-	-	-		38
					20'	0.20	0.23	0.23	0.09	-	-	-		38
					25'	0.24	0.28	0.29	0.09	-	-	-		38
					30'	0.29	0.34	0.35	0.09	-	-	-		38
4' x 4'	7	7	7	4	0.33' - <2'	0.19	0.41	0.28	0.17	0.21	0.17	0.19	See General Note 5	-
					2' - <3'	0.19	0.41	0.28	0.09	-	-	-		38
					3' - <5'	0.14	0.21	0.24	0.09	-	-	-		38
					5' - 10'	0.12	0.17	0.17	0.09	-	-	-		38
				8	15'	0.16	0.19	0.20	0.09	-	-	-		38
					20'	0.21	0.25	0.25	0.09	-	-	-		38
					25'	0.26	0.31	0.32	0.09	-	-	-		38
					30'	0.31	0.37	0.38	0.09	-	-	-		38

TABLE 1B - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 3' & 4' SPANS																			
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)					
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9						
3' x 3'	8	8	8	4	0.33' - <2'	0.20	0.26	0.32	0.20	0.20	0.20	0.20	See General Note 5	-					
					2' - <3'	0.16	0.25	0.31	0.10	-	-	-		31					
					3' - <5'	0.10	0.20	0.20	0.10	-	-	-		31					
					5' - 10'	0.10	0.20	0.20	0.10	-	-	-		31					
					15'	0.10	0.20	0.20	0.10	-	-	-		31					
				8	20'	0.10	0.20	0.20	0.10	-	-	-		31					
					25'	0.11	0.20	0.20	0.10	-	-	-		31					
					30'	0.13	0.20	0.20	0.10	-	-	-		31					
					35'	0.15	0.21	0.21	0.10	-	-	-		31					
					4' x 3'	8	8	8	4	0.33' - <2'	0.20	0.31		0.22	0.20	0.20	0.20	See General Note 5	-
2' - <3'	0.12	0.31	0.22	0.10						-	-	-	38						
3' - <5'	0.12	0.20	0.20	0.10						-	-	-	38						
5' - 10'	0.10	0.20	0.20	0.10						-	-	-	38						
15'	0.12	0.20	0.20	0.10						-	-	-	38						
8	20'	0.16	0.20	0.20					0.10	-	-	-	38						
	25'	0.19	0.24	0.24					0.10	-	-	-	38						
	30'	0.22	0.28	0.29					0.10	-	-	-	38						
	4' x 4'	8	8	8					4	0.33' - <2'	0.20	0.33	0.24	0.20	0.20	0.20	See General Note 5		-
										2' - <3'	0.17	0.33	0.24	0.10	-	-			-
3' - <5'					0.12	0.20	0.20	0.10		-	-	-	38						
5' - 10'					0.10	0.20	0.20	0.10		-	-	-	38						
15'					0.13	0.20	0.20	0.10		-	-	-	38						
8					20'	0.16	0.21	0.22	0.10	-	-	-	38						
					25'	0.20	0.26	0.27	0.10	-	-	-	38						
					30'	0.23	0.31	0.32	0.10	-	-	-	38						

NOTES: 1. See Sheet 1 for Reinforcing Details and dimension locations.
2. See Sheet 14 for WWR Bending Diagram.

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TABLE 2A - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 5' & 6' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
5' x 3'	7	7	7	4	0.33' - <2'	0.31	0.48	0.42	0.17	0.21	0.23	0.31	See General Note 5	-
					2' - <3'	0.31	0.48	0.42	0.09	-	-	-		45
					3' - <5'	0.20	0.27	0.27	0.09	-	-	-		36
				8	5' - 10'	0.17	0.19	0.21	0.09	-	-	-		36
					15'	0.24	0.25	0.25	0.09	-	-	-		35
					20'	0.32	0.33	0.33	0.09	-	-	-		35
					25'	0.39	0.41	0.42	0.09	-	-	-		35
30'	0.47	0.50	0.50	0.09	-	-	-	35						
5' x 4'	7	7	7	4	0.33' - <2'	0.30	0.51	0.45	0.17	0.23	0.21	0.30	See General Note 5	-
					2' - <3'	0.30	0.51	0.45	0.09	-	-	-		45
					3' - <5'	0.18	0.30	0.29	0.09	-	-	-		45
				8	5' - 10'	0.17	0.21	0.23	0.09	-	-	-		36
					15'	0.24	0.27	0.28	0.09	-	-	-		35
					20'	0.31	0.36	0.37	0.09	-	-	-		35
					25'	0.39	0.45	0.46	0.09	-	-	-		35
30'	0.46	0.55	0.56	0.09	-	-	-	35						
5' x 5'	7	7	7	4	0.33' - <2'	0.30	0.53	0.48	0.17	0.24	0.21	0.30	See General Note 5	-
					2' - <3'	0.29	0.53	0.48	0.09	-	-	-		45
					3' - <5'	0.19	0.31	0.31	0.09	-	-	-		45
				8	5' - 10'	0.19	0.22	0.25	0.09	-	-	-		45
					15'	0.26	0.29	0.31	0.09	-	-	-		36
					20'	0.34	0.39	0.40	0.09	-	-	-		35
					25'	0.41	0.49	0.50	0.09	-	-	-		35
30'	0.49	0.59	0.61	0.09	-	-	-	35						
6' x 3'	7.5	7	7	4	0.33' - <2'	0.39	0.54	0.48	0.17	0.22	0.25	0.39	See General Note 5	-
	7	7	7		2' - <3'	0.39	0.58	0.49	0.09	-	-	-		43
					3' - <5'	0.28	0.36	0.36	0.09	-	-	-		39
				5' - 10'	0.25	0.26	0.28	0.09	-	-	-	39		
	12	15'	0.36	0.34	0.34	0.09	-	-	-	38				
		20'	0.47	0.46	0.46	0.09	-	-	-	38				
		25'	0.59	0.57	0.55	0.09	-	-	-	38				
30'		0.60	0.64	0.64	0.09	-	-	-	38					
6' x 4'	7.5	7	7	4	0.33' - <2'	0.37	0.58	0.52	0.17	0.24	0.23	0.37	See General Note 5	-
	7	7	7		2' - <3'	0.37	0.61	0.53	0.09	-	-	-		43
					3' - <5'	0.26	0.39	0.39	0.09	-	-	-		39
				5' - 10'	0.24	0.28	0.31	0.09	-	-	-	39		
	12	15'	0.35	0.37	0.38	0.09	-	-	-	38				
		20'	0.46	0.50	0.50	0.09	-	-	-	38				
		25'	0.56	0.63	0.60	0.09	-	-	-	38				
30'		0.58	0.69	0.69	0.09	-	-	-	38					
6' x 5'	7.5	7	7	4	0.33' - <2'	0.36	0.60	0.56	0.17	0.25	0.22	0.36	See General Note 5	-
	7	7	7		2' - <3'	0.36	0.64	0.56	0.09	-	-	-		43
					3' - <5'	0.26	0.410	0.42	0.09	-	-	-		43
				5' - 10'	0.25	0.30	0.33	0.09	-	-	-	39		
	12	15'	0.34	0.40	0.41	0.09	-	-	-	38				
		20'	0.46	0.54	0.54	0.09	-	-	-	38				
		25'	0.56	0.67	0.65	0.09	-	-	-	38				
30'		0.60	0.74	0.74	0.09	-	-	-	38					
6' x 6'	7.5	7	7	4	0.33' - <2'	0.36	0.63	0.59	0.17	0.26	0.22	.036	See General Note 5	-
	7	7	7		2' - <3'	0.35	0.67	0.59	0.09	-	-	-		52
					3' - <5'	0.27	0.43	0.44	0.09	-	-	-		52
				5' - 10'	0.27	0.32	0.35	0.09	-	-	-	43		
	12	15'	0.38	0.43	0.44	0.09	-	-	-	39				
		20'	0.50	0.57	0.59	0.09	-	-	-	39				
		25'	0.60	0.72	0.70	0.09	-	-	-	38				
30'		0.67	0.78	0.79	0.09	-	-	-	38					

TABLE 2B - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 5' & 6' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
5' x 3'	8	8	8	4	0.33' - <2'	0.26	0.39	0.36	0.20	0.20	0.20	0.26	See General Note 5	-	
					2' - <3'	0.26	0.39	0.36	0.10	-	-	-		45	
					3' - <5'	0.16	0.23	0.24	0.10	-	-	-		36	
					5' - 10'	0.13	0.20	0.20	0.10	-	-	-		36	
				8	15'	0.19	0.21	0.22	0.10	-	-	-		35	
					20'	0.24	0.28	0.28	0.10	-	-	-		35	
					25'	0.30	0.34	0.35	0.10	-	-	-		35	
					30'	0.36	0.41	0.41	0.10	-	-	-		35	
5' x 4'	8	8	4	0.33' - <2'	0.25	0.42	0.38	0.20	0.20	0.20	0.25	-			
				2' - <3'	0.25	0.42	0.38	0.10	-	-	-	45			
				3' - <5'	0.16	0.25	0.25	0.10	-	-	-	45			
				5' - 10'	0.13	0.20	0.20	0.10	-	-	-	36			
			8	15'	0.19	0.23	0.24	0.10	-	-	-	35			
				20'	0.24	0.30	0.31	0.10	-	-	-	35			
				25'	0.30	0.37	0.38	0.10	-	-	-	35			
				30'	0.35	0.45	0.46	0.10	-	-	-	35			
5' x 5'	8	8	4	0.33' - <2'	0.25	0.44	0.41	0.20	0.20	0.20	0.25	-			
				2' - <3'	0.25	0.44	0.41	0.10	-	-	-	45			
				3' - <5'	0.16	0.26	0.27	0.10	-	-	-	45			
				5' - 10'	0.15	0.20	0.22	0.10	-	-	-	45			
			8	15'	0.20	0.25	0.26	0.10	-	-	-	36			
				20'	0.26	0.32	0.33	0.10	-	-	-	35			
				25'	0.32	0.40	0.41	0.10	-	-	-	35			
				30'	0.37	0.48	0.49	0.10	-	-	-	35			
6' x 3'	8	8	4	0.33' - <2'	0.32	0.47	0.41	0.20	0.20	0.25	0.32	-			
				2' - <3'	0.32	0.47	0.41	0.10	-	-	-	43			
				3' - <5'	0.23	0.30	0.31	0.10	-	-	-	39			
				5' - 10'	0.19	0.22	0.24	0.10	-	-	-	39			
			12	15'	0.28	0.29	0.29	0.10	-	-	-	38			
				20'	0.36	0.38	0.38	0.10	-	-	-	38			
				25'	0.45	0.47	0.47	0.10	-	-	-	38			
				30'	0.54	0.57	0.57	0.10	-	-	-	38			
6' x 4'	8	8	4	0.33' - <2'	0.31	0.50	0.44	0.20	0.21	0.23	0.31	-			
				2' - <3'	0.31	0.50	0.44	0.10	-	-	-	43			
				3' - <5'	0.23	0.32	0.34	0.10	-	-	-	39			
				5' - 10'	0.19	0.24	0.26	0.10	-	-	-	39			
			12	15'	0.27	0.31	0.32	0.10	-	-	-	38			
				20'	0.35	0.41	0.41	0.10	-	-	-	38			
				25'	0.43	0.51	0.51	0.10	-	-	-	38			
				30'	0.52	0.62	0.62	0.10	-	-	-	38			
6' x 5'	8	8	4	0.33' - <2'	0.30	0.52	0.47	0.20	0.22	0.22	0.30	-			
				2' - <3'	0.30	0.52	0.47	0.10	-	-	-	43			
				3' - <5'	0.22	0.34	0.36	0.10	-	-	-	43			
				5' - 10'	0.20	0.26	0.28	0.10	-	-	-	39			
			12	15'	0.27	0.33	0.34	0.10	-	-	-	38			
				20'	0.36	0.44	0.45	0.10	-	-	-	38			
				25'	0.44	0.55	0.55	0.10	-	-	-	38			
				30'	0.52	0.66	0.67	0.10	-	-	-	38			
6' x 6'	8	8	4	0.33' - <2'	0.30	0.54	0.50	0.20	0.22	0.22	0.30	-			
				2' - <3'	0.30	0.54	0.50	0.10	-	-	-	52			
				3' - <5'	0.23	0.36	0.38	0.10	-	-	-	52			
				5' - 10'	0.21	0.27	0.30	0.10	-	-	-	43			
			12	15'	0.29	0.35	0.37	0.10	-	-	-	39			
				20'	0.38	0.47	0.48	0.10	-	-	-	39			
				25'	0.47	0.59	0.60	0.10	-	-	-	38			
				30'	0.55	0.70	0.71	0.10	-	-	-	38			

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TABLE 3 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 7' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
7' x 4'	8	8	8	4	0.33' - <2'	0.37	0.58	0.49	0.20	0.22	0.29	0.37	See General Note 5	-	
					to	2' - <3'	0.37	0.58	0.49	0.10	-	-		-	43
						3' - <5'	0.30	0.40	0.42	0.10	-	-		-	43
				12		5' - 10'	0.26	0.30	0.33	0.10	-	-		-	43
					15'	0.37	0.40	0.40	0.10	-	-	-		41	
					20'	0.49	0.53	0.53	0.10	-	-	-		41	
	7	to	25'	0.60	0.67	0.66	0.10	-	-	-	41				
			12	30'	0.68	0.79	0.78	0.10	-	-	-	41			
7' x 5'	8	8	8	4	0.33' - <2'	0.36	0.60	0.53	0.20	0.23	0.28	0.36		-	
					to	2' - <3'	0.36	0.60	0.53	0.10	-	-		-	47
						3' - <5'	0.30	0.42	0.45	0.10	-	-		-	43
				12		5' - 10'	0.26	0.32	0.35	0.10	-	-		-	43
					15'	0.37	0.43	0.44	0.10	-	-	-		41	
					20'	0.48	0.57	0.57	0.10	-	-	-		41	
	7	to	25'	0.60	0.72	0.72	0.10	-	-	-	41				
			12	30'	0.67	0.84	0.84	0.10	-	-	-	41			
7' x 6'	8	8	8	4	0.33' - <2'	0.36	0.63	0.56	0.20	0.24	0.27	0.36		-	
					to	2' - <3'	0.36	0.63	0.56	0.10	-	-		-	59
						3' - <5'	0.29	0.44	0.47	0.10	-	-		-	47
				12		5' - 10'	0.27	0.34	0.37	0.10	-	-		-	43
					15'	0.38	0.46	0.46	0.10	-	-	-		41	
					20'	0.49	0.60	0.61	0.10	-	-	-		41	
	7	to	25'	0.61	0.76	0.76	0.10	-	-	-	41				
			12	30'	0.69	0.89	0.89	0.10	-	-	-	41			
7' x 7'	8	8	8	4	0.33' - <2'	0.36	0.65	0.58	0.20	0.25	0.27	0.36		-	
					to	2' - <3'	0.36	0.65	0.58	0.10	-	-		-	59
						3' - <5'	0.30	0.46	0.50	0.10	-	-		-	59
				12		5' - 10'	0.30	0.35	0.50	0.10	-	-		-	47
					15'	0.41	0.48	0.50	0.10	-	-	-		43	
					20'	0.53	0.64	0.65	0.10	-	-	-		43	
	7	to	25'	0.65	0.80	0.81	0.10	-	-	-	43				
			12	30'	0.72	0.92	0.91	0.10	-	-	-	41			

TABLE 4 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 8' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
8' x 4'	9	8.5	8	4	0.33' - <2'	0.40	0.60	0.52	0.20	0.22	0.28	0.39	See General Note 5	-
	8	8	8		to 12	2' - <3'	0.45	0.66	0.54	0.10	-	-		-
				3' - <5'		0.39	0.48	0.50	0.10	-	-	-		50
				5' - 10'		0.34	0.38	0.40	0.10	-	-	-		45
				15'		0.49	0.51	0.50	0.10	-	-	-		41
				20'		0.65	0.68	0.66	0.10	-	-	-		41
				8.5		8.5	8	8 to	25'	0.76	0.83	0.80		0.10
	9.5	9.5	8	12	30'	0.79	0.94	0.92	0.10	-	-	-		41
8' x 5'	9	8.5	8	4	0.33' - <2'	0.38	0.65	0.59	0.20	0.22	0.30	0.37		-
	8	8	8		to 12	2' - <3'	0.43	0.69	0.58	0.10	-	-		-
				3' - <5'		0.37	0.51	0.53	0.10	-	-	-		45
				5' - 10'		0.33	0.41	0.42	0.10	-	-	-		45
				15'		0.48	0.54	0.53	0.10	-	-	-		41
				20'		0.63	0.73	0.70	0.10	-	-	-		41
				8.5		8.5	8	8 to	25'	0.74	0.88	0.86		0.10
	9.5	9.5	8	12	30'	0.77	1.00	0.98	0.10	-	-	-		41
8' x 6'	9	9	8	4	0.33' - <2'	0.32	0.65	0.58	0.20	0.23	0.25	0.31	-	
	8	8	8		to 12	2' - <3'	0.42	0.71	0.61	0.10	-	-	-	50
				3' - <5'		0.37	0.54	0.56	0.10	-	-	-	50	
				5' - 10'		0.34	0.43	0.45	0.10	-	-	-	45	
				15'		0.49	0.57	0.57	0.10	-	-	-	41	
				20'		0.64	0.77	0.76	0.10	-	-	-	41	
				8.5		8.5	8	8 to	25'	0.74	0.94	0.92	0.10	-
	9.5	9.5	8	12	30'	0.78	1.05	1.04	0.10	-	-	-	41	
8' x 7'	9	9	8	4	0.33' - <2'	0.31	0.67	0.60	0.20	0.24	0.24	0.31	-	
	8	8	8		to 12	2' - <3'	0.42	0.74	0.64	0.10	-	-	-	55
				3' - <5'		0.37	0.56	0.59	0.10	-	-	-	55	
				5' - 10'		0.36	0.45	0.47	0.10	-	-	-	50	
				15'		0.51	0.61	0.61	0.10	-	-	-	45	
				20'		0.66	0.81	0.80	0.10	-	-	-	41	
				8.5		8.5	8	8 to	25'	0.78	0.98	0.97	0.10	-
	9.5	9.5	8	12	30'	0.84	1.10	1.09	0.10	-	-	-	41	
8' x 8'	9	9	8	4	0.33' - <2'	0.32	0.68	0.62	0.20	0.24	0.25	0.32	-	
	8	8	8		to 12	2' - <3'	0.43	0.76	0.67	0.14	-	-	-	65
				3' - <5'		0.38	0.58	0.61	0.14	-	-	-	65	
				5' - 10'		0.39	0.46	0.50	0.13	-	-	-	55	
				15'		0.55	0.64	0.65	0.10	-	-	-	45	
				20'		0.71	0.86	0.85	0.10	-	-	-	45	
				8.5		8.5	8	8 to	25'	0.84	1.03	1.02	0.10	-
	9.5	9.5	8	12	30'	0.93	1.15	1.15	0.10	-	-	-	41	

- NOTES:
- 1. See Sheet 1 for Reinforcing Details and dimension locations.
 - 2. See Sheet 2 for General Notes.
 - 3. See Sheet 14 for Welded Wire Reinforcement Bending Diagram.

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TABLE 5 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 9' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
9' x 5'	9.5	9.5	9	4	0.33' - <2'	0.41	0.62	0.53	0.22	0.23	0.34	0.38	See General Note 5	-
	9	9	9		to 12	2' - <3'	0.44	0.65	0.54	0.11	-	-		-
				3' - <5'		0.39	0.53	0.51	0.11	-	-	-		49
				5' - 10'		0.35	0.42	0.44	0.11	-	-	-		49
				15'		0.50	0.56	0.55	0.11	-	-	-		44
				20'		0.65	0.75	0.73	0.11	-	-	-		44
	9.5	9.5	9	8 to	25'	0.77	0.92	0.90	0.11	-	-	-		44
	10.5	11	9	12	30'	0.81	1.05	1.02	0.11	-	-	-		44
9' x 6'	9.5	9.5	9	4	0.33' - <2'	0.38	0.64	0.56	0.23	0.23	0.33	0.37		-
	9	9	9		to 12	2' - <3'	0.43	0.67	0.57	0.11	-	-		-
				3' - <5'		0.37	0.55	0.54	0.11	-	-	-		49
				5' - 10'		0.35	0.45	0.47	0.11	-	-	-		49
				15'		0.49	0.60	0.59	0.11	-	-	-		44
				20'		0.65	0.80	0.78	0.11	-	-	-		44
	9.5	9.5	9	8 to	25'	0.76	0.98	0.95	0.11	-	-	-		44
	10.5	11	9	12	30'	0.80	1.10	1.08	0.11	-	-	-		44
9' x 7'	9.5	9.5	9	4	0.33' - <2'	0.37	0.67	0.59	0.22	0.23	0.32	0.37		-
	9	9	9		to 12	2' - <3'	0.42	0.69	0.60	0.11	-	-		-
				3' - <5'		0.37	0.58	0.56	0.11	-	-	-		54
				5' - 10'		0.36	0.47	0.49	0.11	-	-	-		49
				15'		0.50	0.63	0.63	0.11	-	-	-		44
				20'		0.66	0.84	0.80	0.11	-	-	-		44
	9.5	9.5	9	8 to	25'	0.77	1.02	1.00	0.11	-	-	-		44
	10.5	11	9	12	30'	0.81	1.15	1.13	0.11	-	-	-		44
9' x 8'	9.5	9.5	9	4	0.33' - <2'	0.37	0.68	0.61	0.22	0.23	0.31	0.37		-
	9	9	9		to 12	2' - <3'	0.42	0.71	0.62	0.11	-	-		-
				3' - <5'		0.37	0.60	0.59	0.11	-	-	-		59
				5' - 10'		0.38	0.49	0.51	0.11	-	-	-		54
				15'		0.53	0.66	0.66	0.11	-	-	-		44
				20'		0.68	0.88	0.87	0.11	-	-	-		44
	9.5	9.5	9	8 to	25'	0.81	1.07	1.05	0.11	-	-	-		44
	10.5	11	9	12	30'	0.86	1.20	1.18	0.11	-	-	-		44
9' x 9'	9.5	9.5	9	4	0.33' - <2'	0.38	0.70	0.63	0.22	0.23	0.32	0.38		-
	9	9	9		to 12	2' - <3'	0.43	0.73	0.65	0.15	-	-		-
				3' - <5'		0.38	0.62	0.61	0.15	-	-	-		72
				5' - 10'		0.41	0.50	0.53	0.14	-	-	-		59
				15'		0.57	0.69	0.70	0.12	-	-	-		49
				20'		0.73	0.92	0.91	0.11	-	-	-		49
	9.5	10	9	8 to	25'	0.83	1.11	1.09	0.11	-	-	-		44
	10.5	11	9	12	30'	0.93	1.25	1.23	0.11	-	-	-		44

TABLE 6 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 10' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
10' x 5'	10	10	10	4	0.33' - <2'	0.46	0.62	0.52	0.24	0.24	0.41	0.45	See General Note 5	-
					2' - <3'	0.46	0.62	0.52	0.12	-	-	-		58
				to	3' - <5'	0.42	0.54	0.50	0.12	-	-	-		53
					5' - 10'	0.38	0.46	0.49	0.12	-	-	-		52
				12	15'	0.52	0.59	0.58	0.12	-	-	-		47
					20'	0.69	0.78	0.76	0.12	-	-	-		47
	8 to	25'	0.81	0.97	0.93	0.12	-	-	-	47				
		12	30'	0.87	1.11	1.11	0.12	-	-	-	47			
10' x 6'	10	10	10	4	0.33' - <2'	0.44	0.64	0.54	0.24	0.24	0.39	0.44		-
					2' - <3'	0.44	0.64	0.54	0.12	-	-	-		58
				to	3' - <5'	0.39	0.57	0.52	0.12	-	-	-		52
					5' - 10'	0.37	0.48	0.52	0.12	-	-	-		52
				12	15'	0.51	0.62	0.61	0.12	-	-	-		47
					20'	0.67	0.83	0.80	0.12	-	-	-		47
	8 to	25'	0.79	1.02	0.99	0.12	-	-	-	47				
		12	30'	0.85	1.17	1.14	0.12	-	-	-	47			
10' x 7'	10	10	10	4	0.33' - <2'	0.43	0.66	0.57	0.24	0.24	0.38	0.43	-	
					2' - <3'	0.43	0.66	0.57	0.12	-	-	-	58	
				to	3' - <5'	0.38	0.59	0.55	0.12	-	-	-	58	
					5' - 10'	0.37	0.50	0.54	0.12	-	-	-	52	
				12	15'	0.52	0.66	0.65	0.12	-	-	-	47	
					20'	0.67	0.87	0.85	0.12	-	-	-	47	
	8 to	25'	0.79	1.07	1.04	0.12	-	-	-	47				
		12	30'	0.84	1.22	1.19	0.12	-	-	-	47			
10' x 8'	10	10	10	4	0.33' - <2'	0.43	0.68	0.60	0.24	0.24	0.38	0.43	-	
					2' - <3'	0.43	0.68	0.60	0.12	-	-	-	64	
				to	3' - <5'	0.38	0.62	0.57	0.12	-	-	-	58	
					5' - 10'	0.38	0.52	0.57	0.12	-	-	-	52	
				12	15'	0.53	0.69	0.68	0.12	-	-	-	47	
					20'	0.68	0.91	0.89	0.12	-	-	-	47	
	8 to	25'	0.81	1.12	1.09	0.12	-	-	-	47				
		12	30'	0.86	1.27	1.25	0.12	-	-	-	47			
10' x 9'	10	10	10	4	0.33' - <2'	0.43	0.70	0.62	0.24	0.24	0.38	0.43	-	
					2' - <3'	0.43	0.70	0.62	0.12	-	-	-	70	
				to	3' - <5'	0.39	0.64	0.60	0.12	-	-	-	64	
					5' - 10'	0.40	0.54	0.59	0.12	-	-	-	58	
				12	15'	0.56	0.72	0.72	0.12	-	-	-	52	
					20'	0.71	0.95	0.94	0.12	-	-	-	47	
	8 to	25'	0.82	1.15	1.13	0.12	-	-	-	47				
		12	30'	0.90	1.32	1.30	0.12	-	-	-	47			
10' x 10'	10	10	10	4	0.33' - <2'	0.44	0.71	0.64	0.24	0.24	0.38	0.44	-	
					2' - <3'	0.44	0.71	0.64	0.17	-	-	-	79	
				to	3' - <5'	0.40	0.65	0.62	0.16	-	-	-	70	
					5' - 10'	0.44	0.56	0.61	0.15	-	-	-	64	
				12	15'	0.60	0.75	0.76	0.12	-	-	-	52	
					20'	0.76	0.99	0.99	0.12	-	-	-	52	
	8 to	25'	0.86	1.20	1.18	0.12	-	-	-	47				
		12	30'	0.97	1.36	1.35	0.13	-	-	-	47			

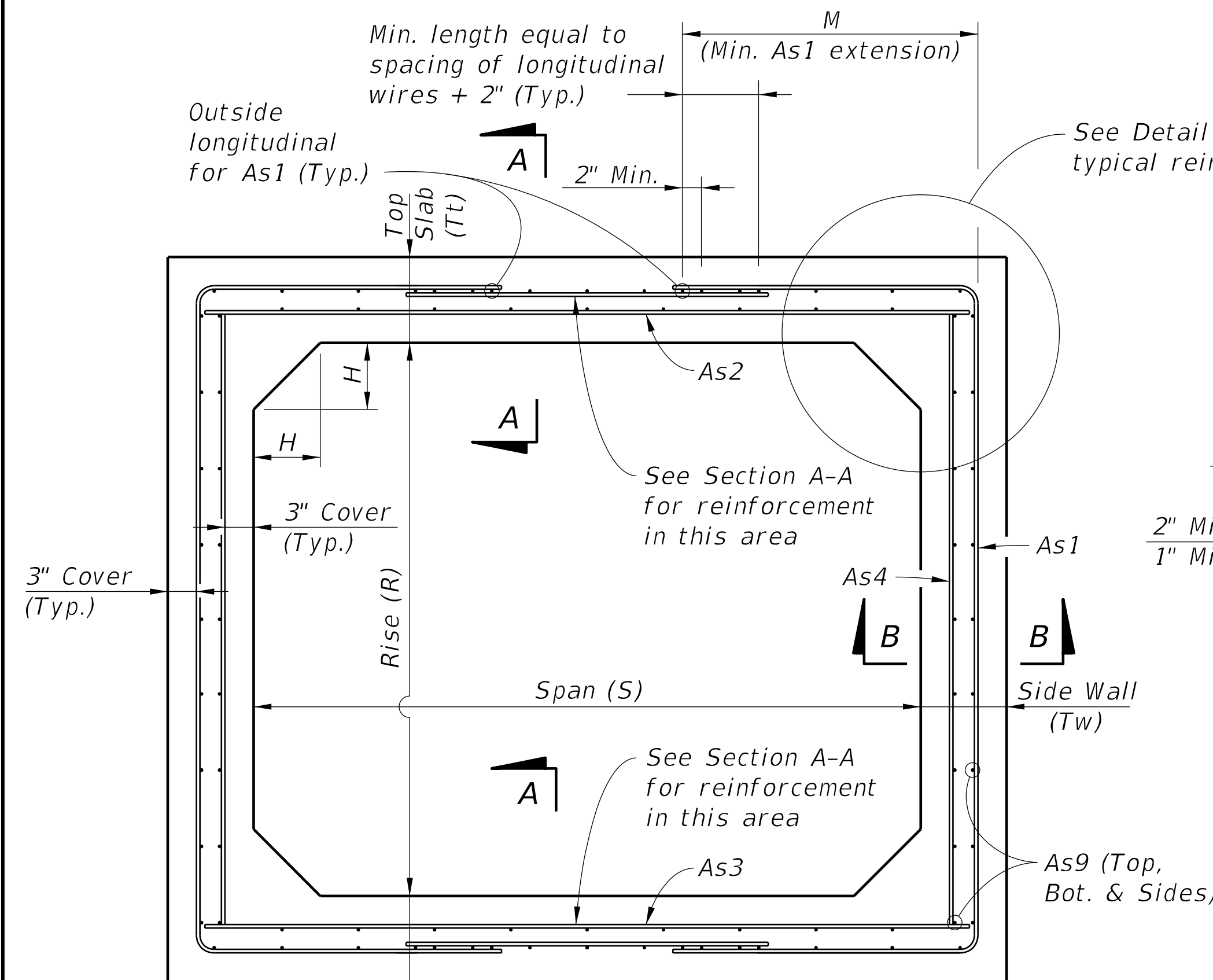
TABLE 7 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 11' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
11' x 4'	11	11	11	4	0.33' - <2'	0.51	0.57	0.47	0.27	0.27	0.45	0.48	See General Note 5	-
				to	2' - <3'	0.51	0.57	0.47	0.14	-	-	-		62
					3' - <5'	0.48	0.57	0.46	0.14	-	-	-		62
					5' - 10'	0.47	0.50	0.50	0.14	-	-	-		55
				12	15'	0.59	0.58	0.56	0.14	-	-	-		55
					20'	0.77	0.77	0.74	0.14	-	-	-		55
	11.5	11.5	11	8 to	25'	0.92	0.95	0.91	0.14	-	-	-		55
	13	13	11	12	30'	0.94	1.09	1.06	0.14	-	-	-		55
11' x 6'	11	11	11	4	0.33' - <2'	0.45	0.62	0.52	0.27	0.27	0.41	0.45		-
				to	2' - <3'	0.45	0.62	0.52	0.14	-	-	-		62
					3' - <5'	0.42	0.58	0.51	0.14	-	-	-		55
					5' - 10'	0.43	0.56	0.56	0.14	-	-	-		55
				12	15'	0.54	0.65	0.64	0.14	-	-	-		50
					20'	0.70	0.86	0.83	0.14	-	-	-		50
	11.5	11.5	11	8 to	25'	0.83	1.07	1.03	0.14	-	-	-		50
	13	13	11	12	30'	0.85	1.22	1.19	0.14	-	-	-		50
11' x 8'	11	11	11	4	0.33' - <2'	0.42	0.67	0.57	0.27	0.27	0.39	0.43		-
				to	2' - <3'	0.43	0.67	0.57	0.14	-	-	-		62
					3' - <5'	0.39	0.63	0.56	0.14	-	-	-		62
					5' - 10'	0.43	0.60	0.61	0.14	-	-	-		55
				12	15'	0.54	0.72	0.71	0.14	-	-	-		50
					20'	0.70	0.94	0.92	0.14	-	-	-		50
	11.5	11.5	11	8 to	25'	0.82	1.16	1.13	0.14	-	-	-		50
	13	13	11	12	30'	0.86	1.32	1.30	0.14	-	-	-		50
11' x 10'	11	11	11	4	0.33' - <2'	0.44	0.71	0.62	0.27	0.27	0.38	0.44		-
				to	2' - <3'	0.44	0.71	0.62	0.14	-	-	-		75
					3' - <5'	0.41	0.67	0.61	0.14	-	-	-		69
					5' - 10'	0.47	0.64	0.66	0.14	-	-	-		62
				12	15'	0.59	0.78	0.78	0.14	-	-	-		55
					20'	0.75	1.03	1.01	0.14	-	-	-		50
	11.5	12	11	8 to	25'	0.85	1.24	1.22	0.14	-	-	-		50
	13	13.5	11	12	30'	0.91	1.40	1.39	0.14	-	-	-		50
11' x 11'	11	11	11	4	0.33' - <2'	0.45	0.72	0.64	0.27	0.27	0.39	0.45		-
				to	2' - <3'	0.45	0.72	0.64	0.18	-	-	-		86
					3' - <5'	0.42	0.69	0.63	0.18	-	-	-		75
					5' - 10'	0.51	0.66	0.69	0.16	-	-	-		69
				12	15'	0.63	0.81	0.82	0.14	-	-	-		55
					20'	0.80	1.07	1.06	0.14	-	-	-		55
	11.5	12	11	8 to	25'	0.91	1.29	1.27	0.14	-	-	-		50
	13	13.5	11	12	30'	0.99	1.44	1.44	0.14	-	-	-		50

TABLE 8 - STANDARD PRECAST BOX CULVERT DESIGNS (2" COVER) - 12' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
12' x 4'	12	12	12	4	0.33' - <2'	0.52	0.57	0.45	0.29	0.29	0.47	0.49	See General Note 5	-
				to	2' - <3'	0.52	0.57	0.45	0.15	-	-	-		73
					3' - <5'	0.50	0.54	0.45	0.15	-	-	-		66
					5' - 10'	0.50	0.52	0.52	0.15	-	-	-		66
				12	15'	0.63	0.61	0.59	0.15	-	-	-		59
					20'	0.82	0.81	0.77	0.15	-	-	-		59
	12.5	12.5	12	8 to	25'	0.99	0.99	0.95	0.15	-	-	-		59
	14	14	12	12	30'	1.03	1.15	1.11	0.15	-	-	-		59
12' x 6'	12	12	12	4	0.33' - <2'	0.47	0.62	0.51	0.29	0.29	0.42	0.46		-
				to	2' - <3'	0.47	0.62	0.51	0.15	-	-	-		66
					3' - <5'	0.45	0.60	0.51	0.15	-	-	-		59
					5' - 10'	0.47	0.59	0.59	0.15	-	-	-		59
				12	15'	0.57	0.68	0.66	0.15	-	-	-		53
					20'	0.74	0.90	0.86	0.15	-	-	-		53
	12.5	12.5	12	8 to	25'	0.88	1.11	1.06	0.15	-	-	-		53
	14	14.5	12	12	30'	0.92	1.27	1.24	0.15	-	-	-		53
12' x 8'	12	12	12	4	0.33' - <2'	0.44	0.67	0.56	0.29	0.29	0.40	0.44		-
				to	2' - <3'	0.44	0.67	0.56	0.15	-	-	-		66
					3' - <5'	0.41	0.64	0.56	0.15	-	-	-		59
					5' - 10'	0.45	0.63	0.64	0.15	-	-	-		59
				12	15'	0.56	0.75	0.73	0.15	-	-	-		53
					20'	0.72	0.98	0.95	0.15	-	-	-		53
	12.5	13	12	8 to	25'	0.85	1.20	1.16	0.15	-	-	-		53
	14	14.5	12	12	30'	0.89	1.38	1.35	0.15	-	-	-		53
12' x 10'	12	12	12	4	0.33' - <2'	0.44	0.71	0.60	0.29	0.29	0.39	0.44		-
				to	2' - <3'	0.44	0.71	0.60	0.15	-	-	-		73
					3' - <5'	0.42	0.68	0.60	0.15	-	-	-		66
					5' - 10'	0.47	0.67	0.69	0.15	-	-	-		59
				12	15'	0.59	0.81	0.81	0.15	-	-	-		53
					20'	0.75	1.06	1.04	0.15	-	-	-		53
	12.5	13	12	8 to	25'	0.87	1.30	1.26	0.15	-	-	-		53
	14	14.5	12	12	30'	0.92	1.47	1.45	0.15	-	-	-		53
12' x 12'	12	12	12	4	0.33' - <2'	0.46	0.74	0.64	0.29	0.29	0.40	0.46		-
				to	2' - <3'	0.46	0.74	0.64	0.20	-	-	-		93
					3' - <5'	0.42	0.72	0.64	0.20	-	-	-		80
					5' - 10'	0.54	0.71	0.74	0.18	-	-	-		73
				12	15'	0.66	0.87	0.89	0.15	-	-	-		59
					20'	0.83	1.14	1.13	0.15	-	-	-		59
	12.5	13	12	8 to	25'	0.96	1.39	1.37	0.15	-	-	-		53
	14	14.5	12.5	12	30'	1.05	1.56	1.56	0.15	-	-	-		53

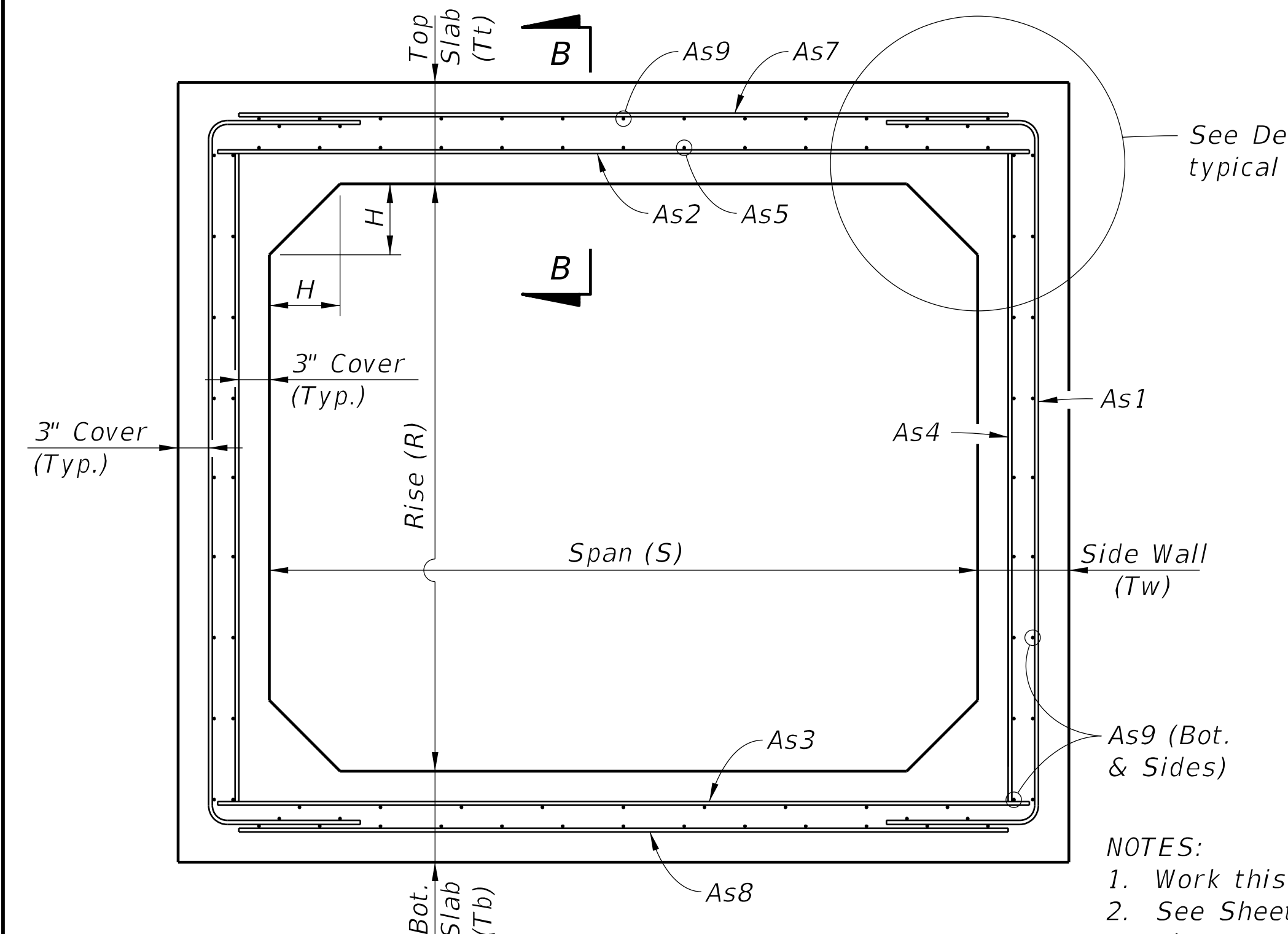
- NOTES:
- See Sheet 1 for Reinforcing Details and dimension locations.
 - See Sheet 2 for General Notes.
 - See Sheet 14 for Welded Wire Reinforcement Bending Diagram.



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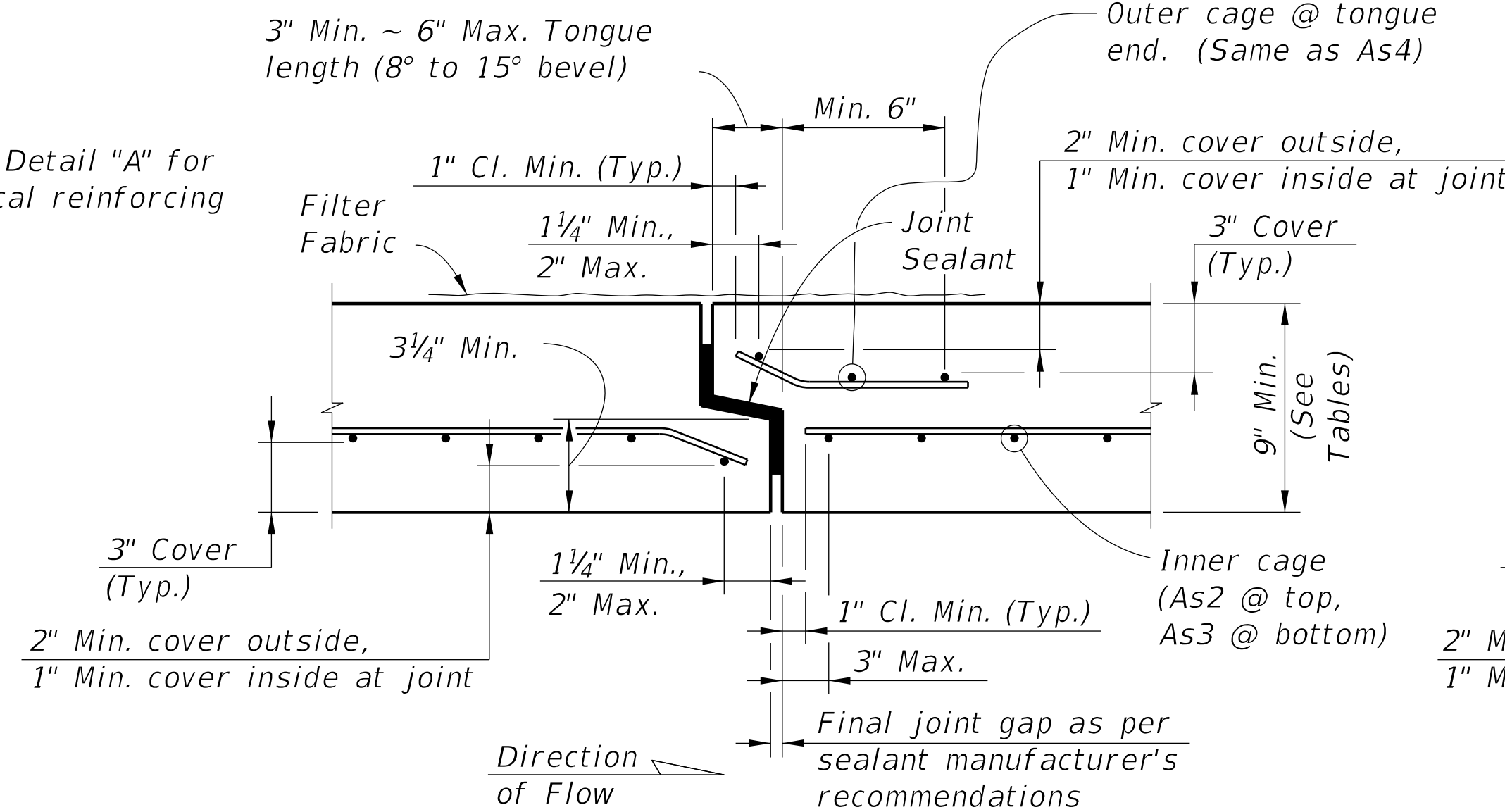


TYPICAL BOX SECTION (TYPE 2)
DESIGN EARTH COVER 2' OR GREATER
(Option 1 Reinforcing Configuration Shown)

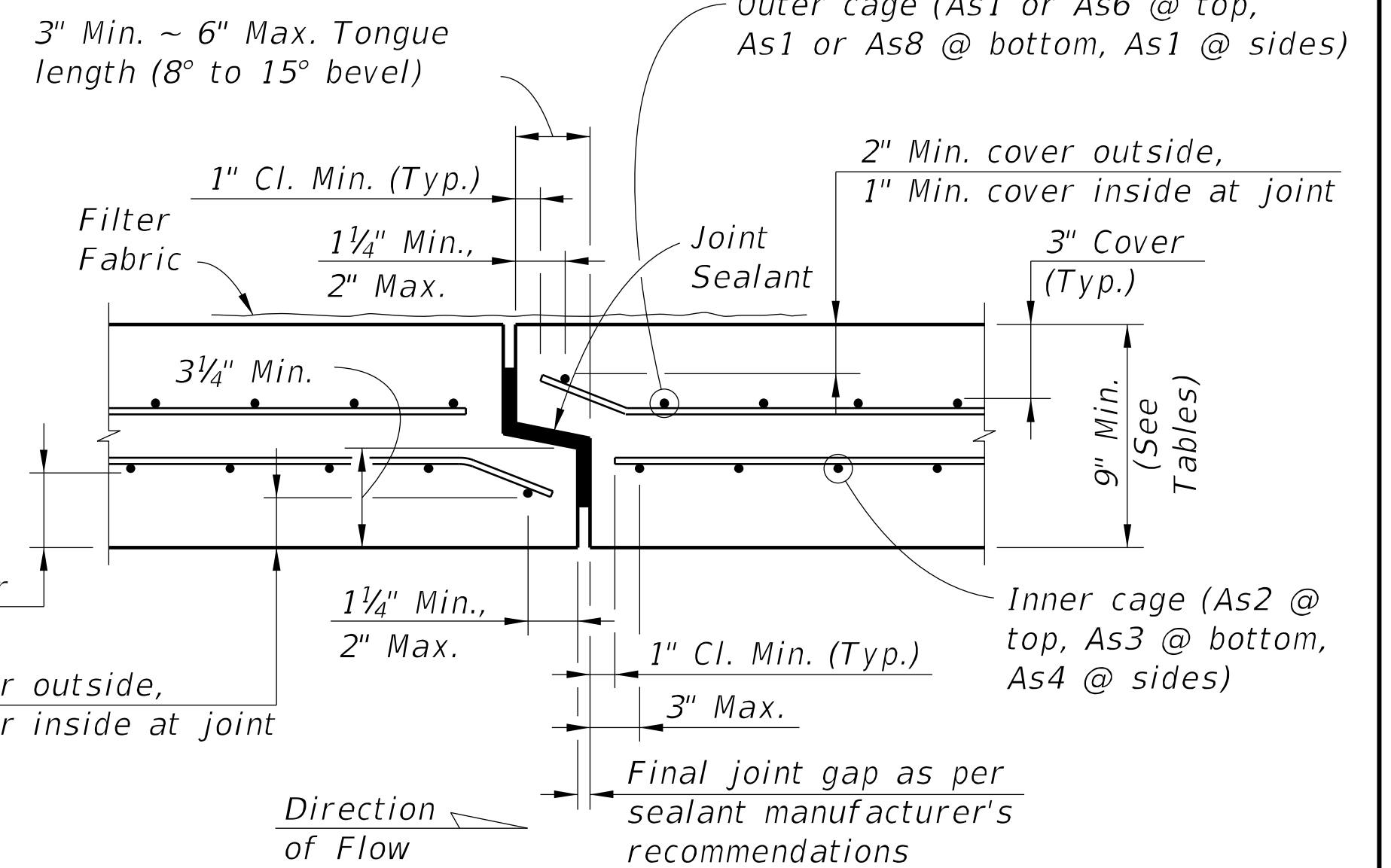


TYPICAL BOX SECTION (TYPE 1)
DESIGN EARTH COVER LESS THAN 2'
(Option 1 Reinforcing Configuration Shown)

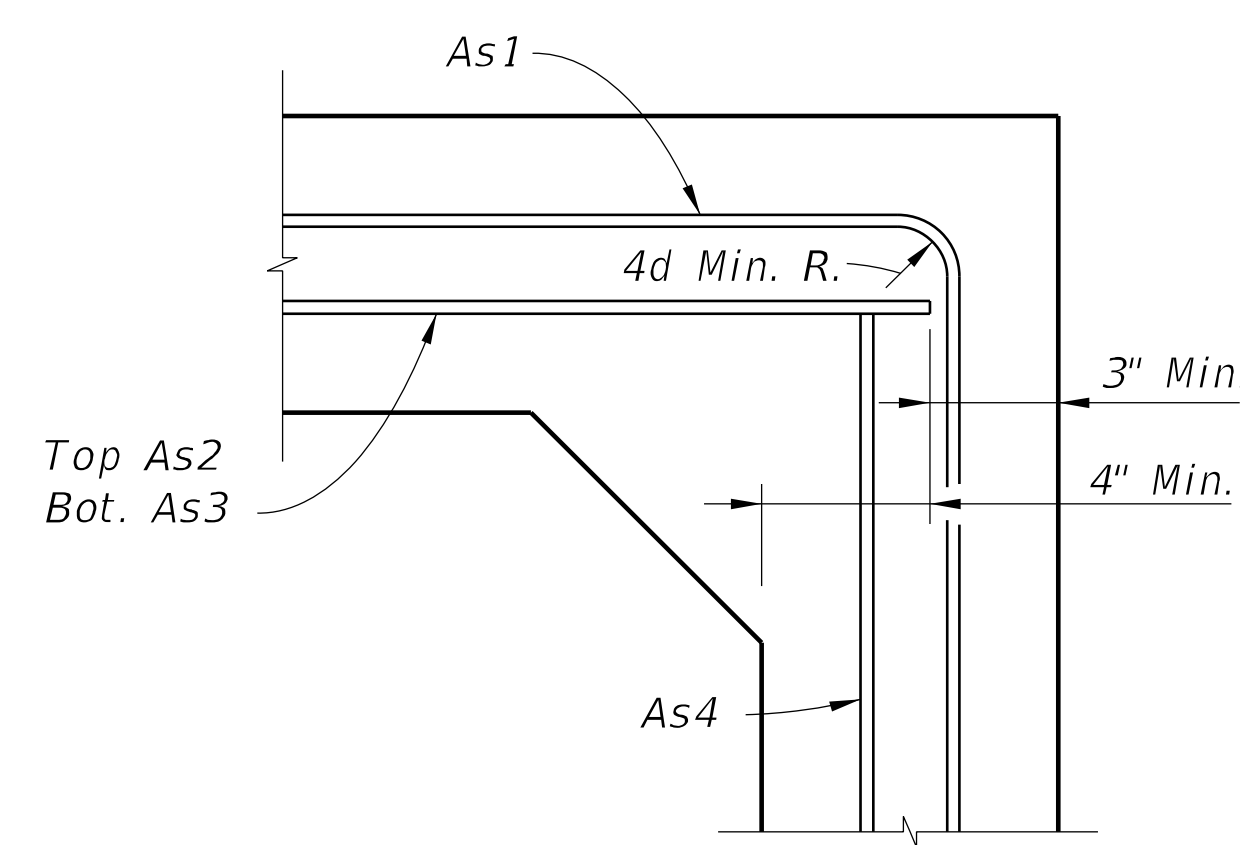
- NOTES:**
1. Work this Index with Index 400-291.
2. See Sheets 8 thru 14 for dimensions and areas of reinforcement.



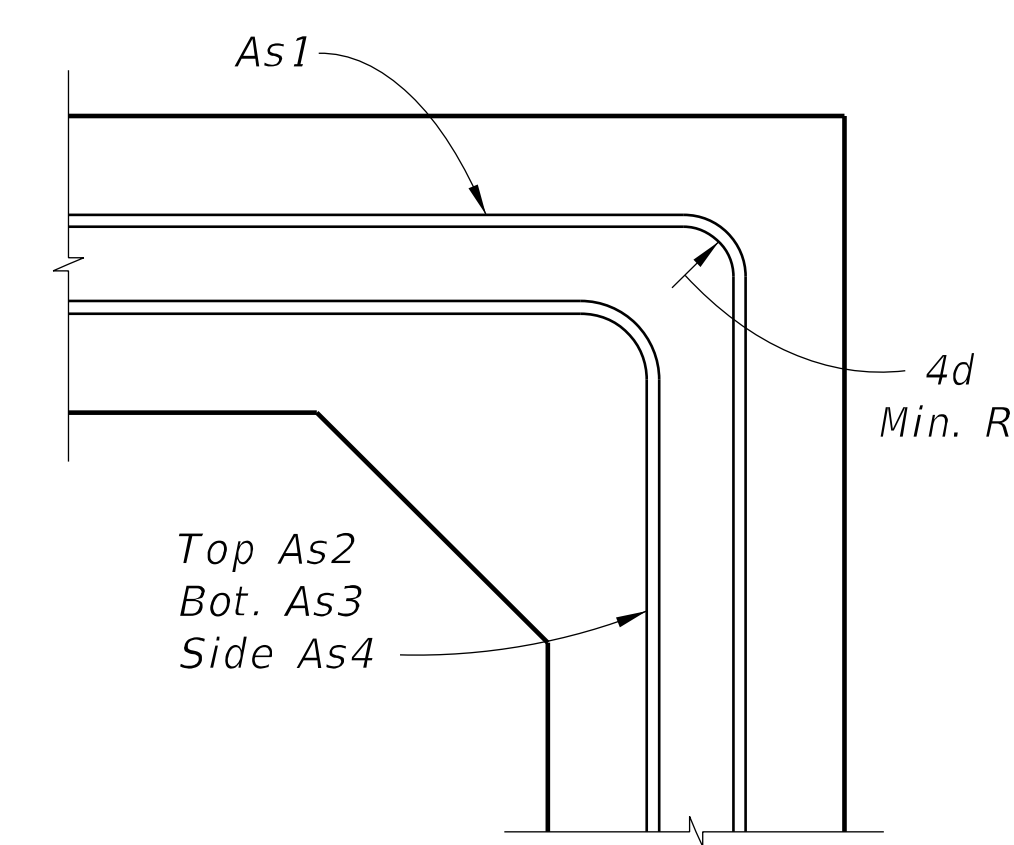
SECTION A-A



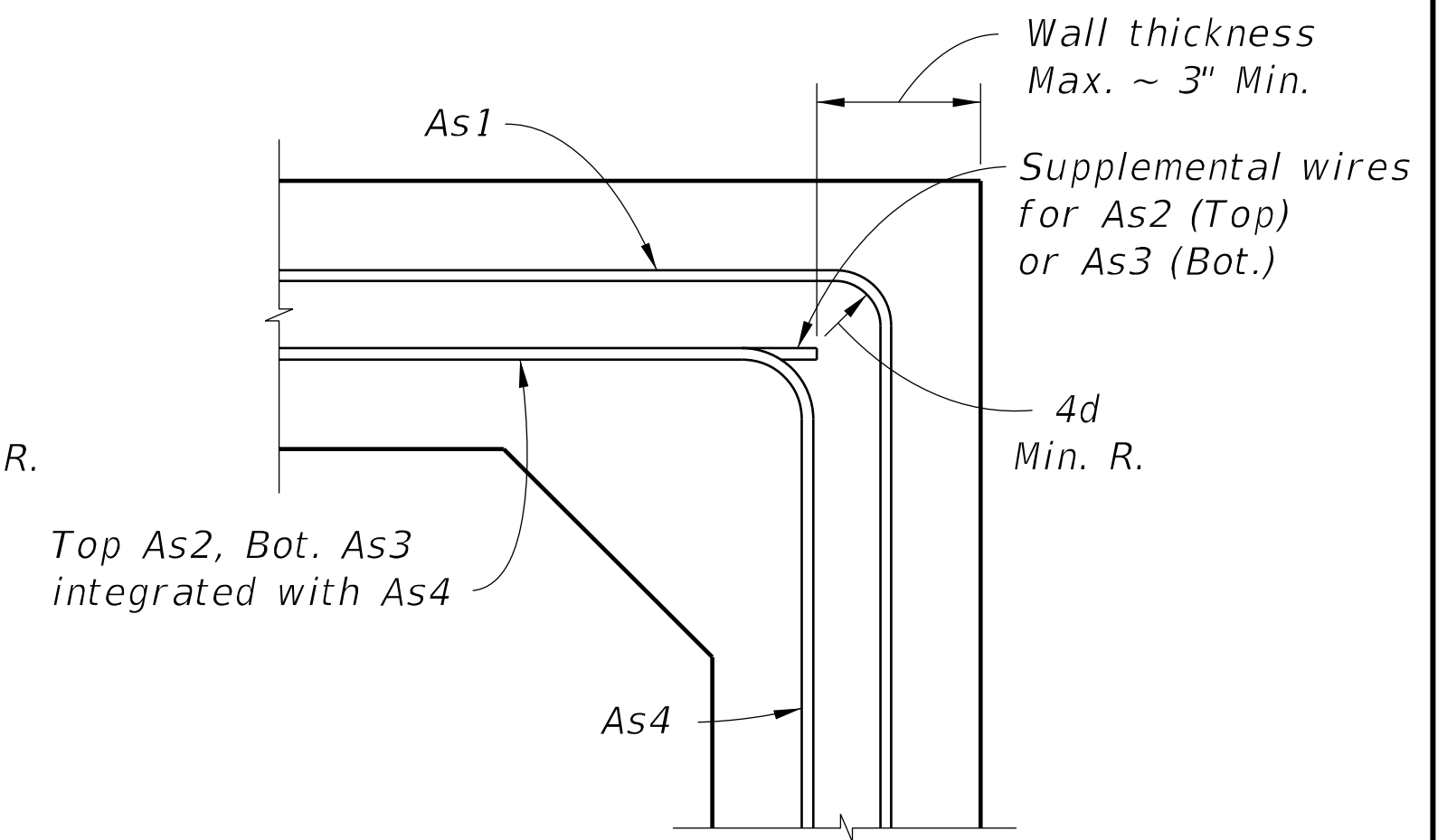
SECTION B-B
TYPICAL SECTION THRU JOINT



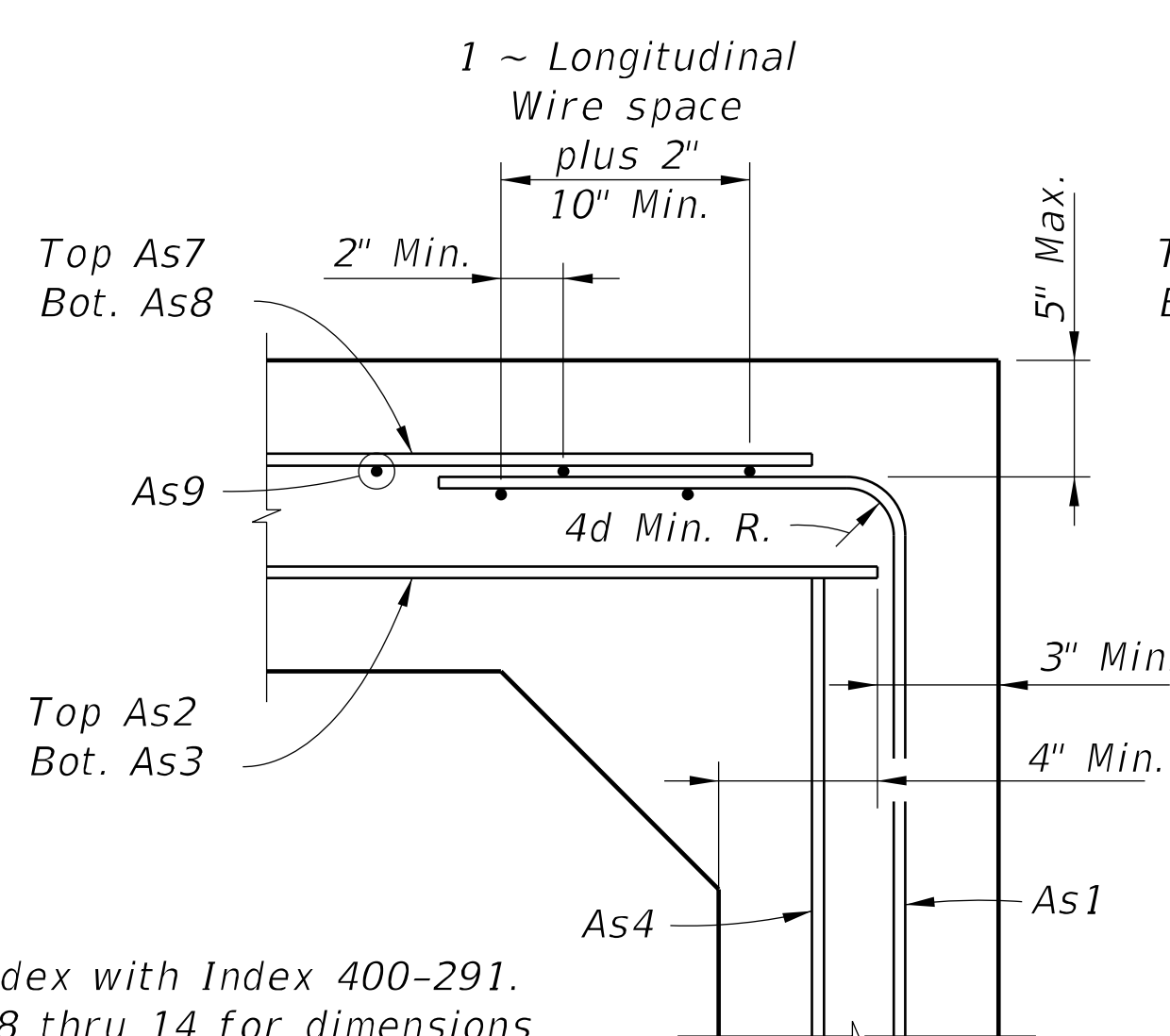
DETAIL "A"
(OPTION 1)



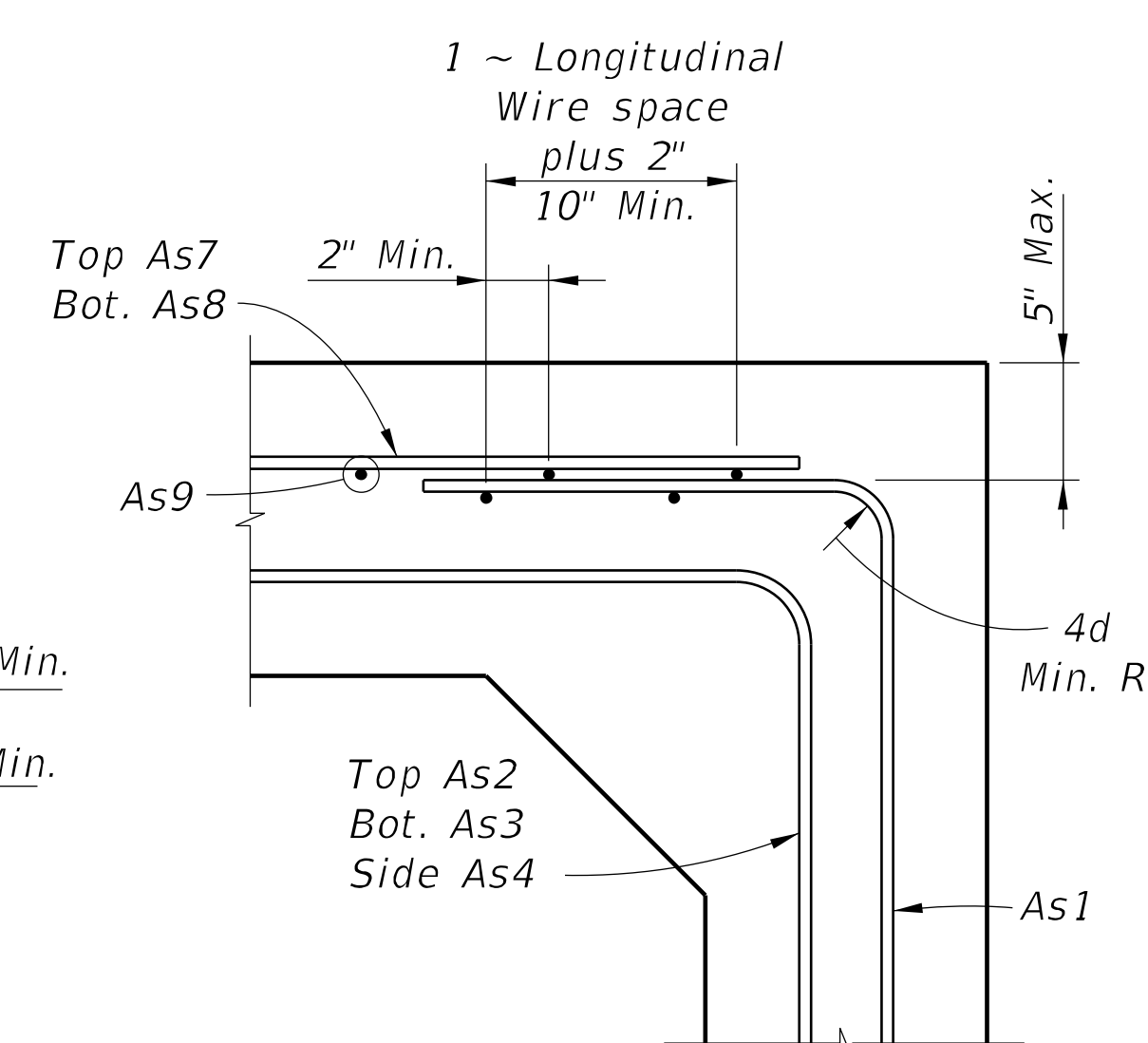
DETAIL "A"
(OPTION 2)



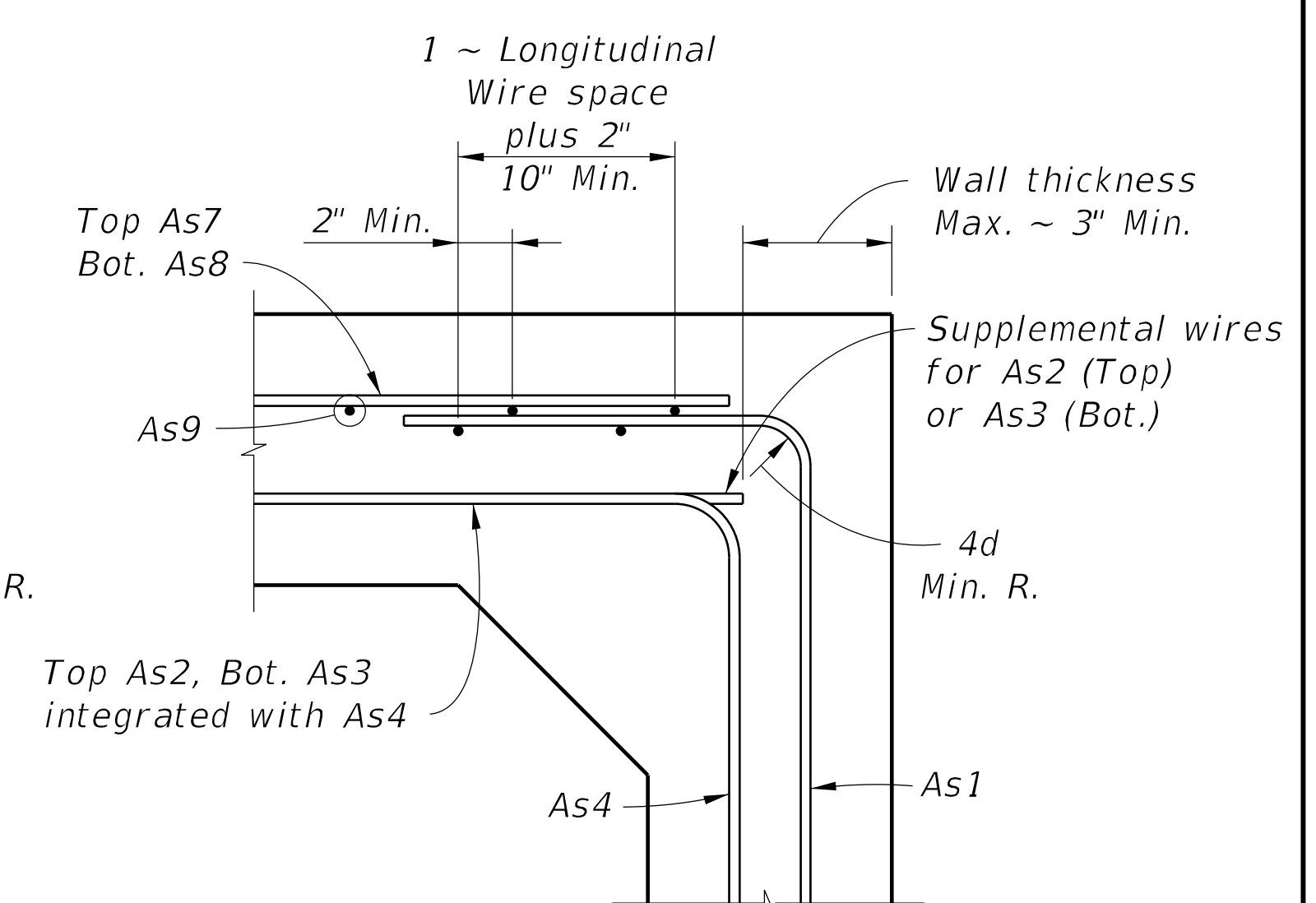
DETAIL "A"
(OPTION 3)



DETAIL "B"
(OPTION 1)



DETAIL "B"
(OPTION 2)



DETAIL "B"
(OPTION 3)

STANDARD PRECAST BOX CULVERT WITH 3" CONCRETE COVER

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TABLE 9A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 3' & 4' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
3' x 3'	9	9	9	to 8	0.33' - <2'	0.22	0.24	0.22	0.22	0.22	0.22	0.22	See General Note 5	-	
					2' - <3'	0.11	0.23	0.22	0.11	-	-	-		31	
					3' - <5'	0.11	0.22	0.22	0.11	-	-	-		31	
					5' - 10'	0.11	0.22	0.22	0.11	-	-	-		31	
					15'	0.11	0.22	0.22	0.11	-	-	-		31	
					20'	0.13	0.22	0.22	0.11	-	-	-		31	
					25'	0.16	0.22	0.22	0.11	-	-	-		31	
					30'	0.19	0.24	0.25	0.11	-	-	-		31	
35'	0.22	0.28	0.29	0.11	-	-	-	31							
4' x 3'	9	9	9	to 8	0.33' - <2'	0.22	0.32	0.24	0.22	0.22	0.22	0.22	See General Note 5	-	
					2' - <3'	0.17	0.31	0.24	0.11	-	-	-		38	
					3' - <5'	0.13	0.22	0.22	0.11	-	-	-		38	
					5' - 10'	0.13	0.22	0.22	0.11	-	-	-		38	
					15'	0.17	0.22	0.22	0.11	-	-	-		38	
					20'	0.23	0.26	0.27	0.11	-	-	-		38	
					25'	0.28	0.32	0.34	0.11	-	-	-		38	
					30'	0.33	0.39	0.40	0.11	-	-	-		38	
4' x 4'	9	9	9	to 8	0.33' - <2'	0.22	0.34	0.26	0.22	0.22	0.22	0.22	See General Note 5	-	
					2' - <3'	0.17	0.33	0.26	0.11	-	-	-		38	
					3' - <5'	0.13	0.22	0.22	0.11	-	-	-		38	
					5' - 10'	0.14	0.22	0.22	0.11	-	-	-		38	
					15'	0.19	0.22	0.23	0.11	-	-	-		38	
					20'	0.24	0.28	0.30	0.11	-	-	-		38	
					25'	0.29	0.36	0.37	0.11	-	-	-		38	
					30'	0.34	0.43	0.45	0.11	-	-	-		38	

TABLE 9B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 3' & 4' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
3' x 3'	10	10	10	4 to 8	0.33' - <2'	0.24	0.24	0.24	0.24	0.24	0.24	0.24	See General Note 5	-	
					2' - <3'	0.12	0.24	0.24	0.24	-	-	-		31	
					3' - <5'	0.12	0.24	0.24	0.24	-	-	-		31	
					5' - 10'	0.12	0.24	0.24	0.24	-	-	-		31	
					15'	0.12	0.24	0.24	0.24	-	-	-		31	
					20'	0.12	0.24	0.24	0.24	-	-	-		31	
					25'	0.13	0.24	0.24	0.24	-	-	-		31	
					30'	0.15	0.24	0.24	0.12	-	-	-		31	
					35'	0.18	0.24	0.24	0.12	-	-	-		31	
4' x 3'	10	10	10	4 to 8	0.33' - <2'	0.24	0.26	0.24	0.24	0.24	0.24	0.24	See General Note 5	-	
					2' - <3'	0.14	0.26	0.24	0.12	-	-	-		38	
					3' - <5'	0.12	0.24	0.24	0.12	-	-	-		38	
					5' - 10'	0.12	0.24	0.24	0.12	-	-	-		38	
					15'	0.14	0.24	0.24	0.12	-	-	-		38	
					20'	0.18	0.24	0.24	0.12	-	-	-		38	
					25'	0.22	0.26	0.27	0.12	-	-	-		38	
					30'	0.26	0.31	0.32	0.12	-	-	-		38	
					4' x 4'	10	10	10	4 to 8	0.33' - <2'	0.24	0.28		0.24	0.24
2' - <3'	0.14	0.28	0.24	0.12						-	-	-	38		
3' - <5'	0.12	0.24	0.24	0.12						-	-	-	38		
5' - 10'	0.12	0.24	0.24	0.12						-	-	-	38		
15'	0.15	0.24	0.24	0.12						-	-	-	38		
20'	0.19	0.24	0.24	0.12						-	-	-	38		
25'	0.23	0.28	0.30	0.12						-	-	-	38		
30'	0.27	0.34	0.35	0.12						-	-	-	38		

- NOTES:
- 1. See Sheet 2 for General Notes.
 - 2. See Sheet 7 for Reinforcing Details and dimension locations.
 - 3. See Sheet 14 for WWR Bending Diagrams.

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TABLE 10A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 5' & 6' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
5' x 3'	9	9	9	4	0.33' - <2'	0.27	0.39	0.37	0.22	0.22	0.22	0.27	See General Note 5	-
					2' - <3'	0.26	0.39	0.37	0.11	-	-	-		45
					3' - <5'	0.19	0.24	0.25	0.11	-	-	-		36
					5' - 10'	0.20	0.22	0.22	0.11	-	-	-		36
				8	15'	0.28	0.28	0.30	0.11	-	-	-		35
					20'	0.37	0.38	0.39	0.11	-	-	-		35
					25'	0.45	0.48	0.49	0.11	-	-	-		35
					30'	0.54	0.58	0.59	0.11	-	-	-		35
5' x 4'	9	9	9	4	0.33' - <2'	0.26	0.42	0.39	0.22	0.22	0.22	0.26	See General Note 5	-
					2' - <3'	0.26	0.42	0.39	0.11	-	-	-		45
					3' - <5'	0.19	0.26	0.27	0.11	-	-	-		45
					5' - 10'	0.20	0.22	0.23	0.11	-	-	-		36
				8	15'	0.27	0.31	0.33	0.11	-	-	-		35
					20'	0.36	0.42	0.43	0.11	-	-	-		35
					25'	0.44	0.52	0.54	0.11	-	-	-		35
					30'	0.53	0.63	0.65	0.11	-	-	-		35
5' x 5'	9	9	9	4	0.33' - <2'	0.27	0.44	0.42	0.22	0.22	0.22	0.27	See General Note 5	-
					2' - <3'	0.27	0.44	0.42	0.11	-	-	-		45
					3' - <5'	0.20	0.27	0.28	0.11	-	-	-		45
					5' - 10'	0.22	0.23	0.26	0.11	-	-	-		45
				8	15'	0.30	0.34	0.36	0.11	-	-	-		36
					20'	0.38	0.45	0.47	0.11	-	-	-		35
					25'	0.47	0.56	0.59	0.11	-	-	-		35
					30'	0.55	0.68	0.71	0.11	-	-	-		35
6' x 3'	9	9	9	4	0.33' - <2'	0.34	0.47	0.42	0.22	0.22	0.25	0.34	See General Note 5	-
					2' - <3'	0.34	0.47	0.42	0.11	-	-	-		43
					3' - <5'	0.27	0.31	0.32	0.11	-	-	-		39
					5' - 10'	0.29	0.26	0.28	0.11	-	-	-		39
				12	15'	0.42	0.39	0.40	0.11	-	-	-		38
					20'	0.55	0.52	0.53	0.11	-	-	-		38
					25'	0.68	0.66	0.67	0.11	-	-	-		38
					30'	0.82	0.81	0.82	0.11	-	-	-		38
6' x 4'	9	9	9	4	0.33' - <2'	0.33	0.50	0.46	0.22	0.22	0.23	0.33	See General Note 5	-
					2' - <3'	0.33	0.50	0.46	0.11	-	-	-		43
					3' - <5'	0.27	0.33	0.35	0.11	-	-	-		39
					5' - 10'	0.28	0.29	0.31	0.11	-	-	-		39
				12	15'	0.40	0.43	0.45	0.11	-	-	-		38
					20'	0.52	0.57	0.59	0.11	-	-	-		38
					25'	0.65	0.73	0.74	0.11	-	-	-		38
					30'	0.78	0.88	0.90	0.11	-	-	-		38
6' x 5'	9	9	9	4	0.33' - <2'	0.33	0.52	0.49	0.22	0.22	0.23	0.33	See General Note 5	-
					2' - <3'	0.33	0.52	0.49	0.11	-	-	-		43
					3' - <5'	0.27	0.35	0.37	0.11	-	-	-		43
					5' - 10'	0.29	0.31	0.34	0.11	-	-	-		39
				12	15'	0.41	0.46	0.49	0.11	-	-	-		38
					20'	0.53	0.62	0.64	0.11	-	-	-		38
					25'	0.66	0.78	0.80	0.11	-	-	-		38
					30'	0.78	0.95	0.97	0.11	-	-	-		38
6' x 6'	9	9	9	4	0.33' - <2'	0.34	0.55	0.51	0.22	0.22	0.24	0.34	See General Note 5	-
					2' - <3'	0.34	0.54	0.51	0.11	-	-	-		52
					3' - <5'	0.29	0.37	0.39	0.11	-	-	-		52
					5' - 10'	0.32	0.34	0.37	0.11	-	-	-		43
				12	15'	0.44	0.50	0.53	0.11	-	-	-		39
					20'	0.57	0.66	0.70	0.11	-	-	-		39
					25'	0.70	0.84	0.87	0.11	-	-	-		38
					30'	0.83	1.02	1.05	0.11	-	-	-		38

TABLE 10B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 5' & 6' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
5' x 3'	10	10	10	4	0.33' - <2'	0.24	0.33	0.32	0.24	0.24	0.24	0.24	See General Note 5	-	
					2' - <3'	0.22	0.33	0.32	0.12	-	-	-		45	
					3' - <5'	0.16	0.24	0.24	0.12	-	-	-		36	
					5' - 10'	0.16	0.24	0.24	0.12	-	-	-		36	
				12	15'	0.23	0.24	0.24	0.12	-	-	-		35	
					20'	0.29	0.30	0.31	0.12	-	-	-		35	
					25'	0.36	0.38	0.39	0.12	-	-	-		35	
					30'	0.43	0.46	0.47	0.12	-	-	-		35	
5' x 4'	10	10	10	4	0.33' - <2'	0.24	0.35	0.34	0.24	0.24	0.24	0.24	See General Note 5	-	
					2' - <3'	0.22	0.35	0.34	0.12	-	-	-		45	
					3' - <5'	0.15	0.24	0.24	0.12	-	-	-		45	
					5' - 10'	0.16	0.24	0.24	0.12	-	-	-		36	
				12	15'	0.22	0.25	0.27	0.12	-	-	-		35	
					20'	0.29	0.33	0.34	0.12	-	-	-		35	
					25'	0.36	0.41	0.43	0.12	-	-	-		35	
					30'	0.42	0.50	0.51	0.12	-	-	-		35	
5' x 5'	10	10	10	4	0.33' - <2'	0.24	0.37	0.36	0.24	0.24	0.24	0.24	See General Note 5	-	
					2' - <3'	0.21	0.37	0.36	0.12	-	-	-		45	
					3' - <5'	0.16	0.24	0.25	0.12	-	-	-		45	
					5' - 10'	0.17	0.24	0.24	0.12	-	-	-		45	
				12	15'	0.24	0.27	0.29	0.12	-	-	-		36	
					20'	0.30	0.36	0.38	0.12	-	-	-		35	
					25'	0.37	0.44	0.47	0.12	-	-	-		35	
					30'	0.44	0.53	0.56	0.12	-	-	-		35	
6' x 3'	10	10	10	4	0.33' - <2'	0.28	0.40	0.36	0.24	0.24	0.24	0.28	See General Note 5	-	
					2' - <3'	0.28	0.40	0.36	0.12	-	-	-		43	
					3' - <5'	0.22	0.26	0.28	0.12	-	-	-		39	
					5' - 10'	0.24	0.24	0.24	0.12	-	-	-		39	
				12	15'	0.34	0.31	0.32	0.12	-	-	-		38	
					20'	0.44	0.41	0.42	0.12	-	-	-		38	
					25'	0.54	0.52	0.53	0.12	-	-	-		38	
					30'	0.64	0.63	0.64	0.12	-	-	-		38	
6' x 4'	10	10	10	4	0.33' - <2'	0.27	0.42	0.39	0.24	0.24	0.24	0.27	See General Note 5	-	
					2' - <3'	0.27	0.42	0.39	0.12	-	-	-		43	
					3' - <5'	0.21	0.28	0.30	0.12	-	-	-		39	
					5' - 10'	0.23	0.24	0.25	0.12	-	-	-		39	
				12	15'	0.32	0.34	0.35	0.12	-	-	-		38	
					20'	0.42	0.45	0.47	0.12	-	-	-		38	
					25'	0.51	0.56	0.58	0.12	-	-	-		38	
					30'	0.61	0.68	0.70	0.12	-	-	-		38	
6' x 5'	10	10	10	4	0.33' - <2'	0.26	0.44	0.42	0.24	0.24	0.24	0.26	See General Note 5	-	
					2' - <3'	0.26	0.44	0.42	0.12	-	-	-		43	
					3' - <5'	0.22	0.30	0.33	0.12	-	-	-		43	
					5' - 10'	0.24	0.25	0.27	0.12	-	-	-		39	
				12	15'	0.33	0.36	0.39	0.12	-	-	-		38	
					20'	0.42	0.48	0.51	0.12	-	-	-		38	
					25'	0.52	0.61	0.63	0.12	-	-	-		38	
					30'	0.61	0.74	0.76	0.12	-	-	-		38	
6' x 6'	10	10	10	4	0.33' - <2'	0.27	0.46	0.44	0.24	0.24	0.24	0.27	See General Note 5	-	
					2' - <3'	0.27	0.46	0.44	0.12	-	-	-		52	
					3' - <5'	0.23	0.31	0.34	0.12	-	-	-		52	
					5' - 10'	0.25	0.27	0.30	0.12	-	-	-		43	
				12	15'	0.35	0.39	0.42	0.12	-	-	-		39	
					20'	0.45	0.52	0.55	0.12	-	-	-		39	
					25'	0.54	0.65	0.68	0.12	-	-	-		38	
					30'	0.64	0.78	0.81	0.12	-	-	-		38	

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TABLE 11A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 7' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
7' x 4'	9	9	9	4 to	0.33' - <2'	0.42	0.58	0.52	0.22	0.22	0.31	0.42	See General Note 5	-
					2' - <3'	0.42	0.58	0.51	0.11	-	-	-		43
					3' - <5'	0.36	0.41	0.44	0.11	-	-	-		43
					5' - 10'	0.39	0.40	0.39	0.11	-	-	-		43
				12	15'	0.56	0.56	0.58	0.11	-	-	-		41
					20'	0.74	0.76	0.77	0.11	-	-	-		41
					25'	0.92	0.97	0.97	0.11	-	-	-		41
	9	9.5	9	7 to 12	30'	1.09	1.18	1.10	0.11	-	-	-		41
7' x 5'	9	9	9	4 to	0.33' - <2'	0.41	0.61	0.55	0.22	0.23	0.30	0.41	See General Note 5	-
					2' - <3'	0.41	0.61	0.55	0.11	-	-	-		47
					3' - <5'	0.37	0.43	0.47	0.11	-	-	-		43
					5' - 10'	0.39	0.41	0.43	0.11	-	-	-		43
				12	15'	0.56	0.61	0.63	0.11	-	-	-		41
					20'	0.73	0.82	0.83	0.11	-	-	-		41
					25'	0.90	1.04	1.06	0.11	-	-	-		41
	9	9.5	9	7 to 12	30'	1.06	1.26	1.19	0.11	-	-	-		41
7' x 6'	9	9	9	4 to	0.33' - <2'	0.42	0.63	0.58	0.22	0.24	0.30	0.42	See General Note 5	-
					2' - <3'	0.42	0.63	0.58	0.11	-	-	-		59
					3' - <5'	0.38	0.45	0.50	0.11	-	-	-		47
					5' - 10'	0.41	0.44	0.47	0.11	-	-	-		43
				12	15'	0.57	0.65	0.68	0.11	-	-	-		41
					20'	0.75	0.87	0.90	0.11	-	-	-		41
					25'	0.93	1.11	1.13	0.11	-	-	-		41
	9	9.5	9	7 to 12	30'	1.07	1.35	1.27	0.11	-	-	-		41
7' x 7'	9	9	9	4 to	0.33' - <2'	0.44	0.66	0.61	0.22	0.25	0.31	0.44	See General Note 5	-
					2' - <3'	0.44	0.65	0.61	0.11	-	-	-		59
					3' - <5'	0.41	0.47	0.52	0.11	-	-	-		59
					5' - 10'	0.44	0.47	0.52	0.11	-	-	-		47
				12	15'	0.62	0.69	0.74	0.11	-	-	-		43
					20'	0.80	0.93	0.97	0.11	-	-	-		43
					25'	0.99	1.18	1.22	0.11	-	-	-		43
	9	9.5	9	7 to 12	30'	1.12	1.43	1.36	0.11	-	-	-		41

TABLE 11B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 7' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
7' x 4'	10	10	10	4	0.33' - <2'	0.33	0.49	0.44	0.24	0.24	0.24	0.33	See General Note 5	-
					2' - <3'	0.33	0.49	0.44	0.12	-	-	-		43
					3' - <5'	0.29	0.35	0.38	0.12	-	-	-		43
					5' - 10'	0.31	0.30	0.31	0.12	-	-	-		43
				12	15'	0.44	0.44	0.45	0.12	-	-	-		41
					20'	0.58	0.59	0.60	0.12	-	-	-		41
					25'	0.71	0.74	0.75	0.12	-	-	-		41
					30'	0.85	0.91	0.91	0.12	-	-	-		41
7' x 5'	10	10	10	4	0.33' - <2'	0.32	0.51	0.47	0.24	0.24	0.24	0.32	See General Note 5	-
					2' - <3'	0.32	0.51	0.47	0.12	-	-	-		47
					3' - <5'	0.29	0.37	0.41	0.12	-	-	-		43
					5' - 10'	0.31	0.32	0.35	0.12	-	-	-		43
				12	15'	0.44	0.47	0.50	0.12	-	-	-		41
					20'	0.57	0.63	0.65	0.12	-	-	-		41
					25'	0.70	0.80	0.82	0.12	-	-	-		41
					30'	0.84	0.97	0.99	0.12	-	-	-		41
7' x 6'	10	10	10	4	0.33' - <2'	0.33	0.53	0.50	0.24	0.24	0.24	0.33	See General Note 5	-
					2' - <3'	0.33	0.53	0.50	0.12	-	-	-		59
					3' - <5'	0.30	0.38	0.43	0.12	-	-	-		47
					5' - 10'	0.33	0.35	0.38	0.12	-	-	-		43
				12	15'	0.45	0.51	0.54	0.12	-	-	-		41
					20'	0.58	0.68	0.70	0.12	-	-	-		41
					25'	0.72	0.85	0.88	0.12	-	-	-		41
					30'	0.85	1.04	1.06	0.12	-	-	-		41
7' x 7'	10	10	10	4	0.33' - <2'	0.35	0.55	0.52	0.24	0.24	0.24	0.35	See General Note 5	-
					2' - <3'	0.35	0.55	0.52	0.12	-	-	-		59
					3' - <5'	0.32	0.40	0.46	0.12	-	-	-		59
					5' - 10'	0.35	0.37	0.41	0.12	-	-	-		47
				12	15'	0.48	0.54	0.58	0.12	-	-	-		43
					20'	0.62	0.72	0.76	0.12	-	-	-		43
					25'	0.76	0.90	0.94	0.12	-	-	-		43
					30'	0.90	1.10	1.13	0.12	-	-	-		41

- NOTES:
- See Sheet 2 for General Notes.
 - See Sheet 7 for Reinforcing Details and dimension locations.
 - See Sheet 14 for WWR Bending Diagrams.

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TABLE 12A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 8' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
8' x 4'	9	9	9	4	0.33' - <2'	0.52	0.66	0.57	0.22	0.24	0.42	0.52	See General Note 5	-
				to	2' - <3'	0.52	0.66	0.57	0.11	-	-	-		50
					3' - <5'	0.48	0.49	0.52	0.11	-	-	-		50
					5' - 10'	0.52	0.48	0.49	0.11	-	-	-		45
					15'	0.75	0.72	0.72	0.11	-	-	-		41
				12	20'	1.00	0.98	0.97	0.11	-	-	-		41
	9	9.5	9	8 to	25'	1.25	1.24	1.14	0.11	-	-	-		41
	10	10.5	9	12	30'	1.31	1.29	1.21	0.11	-	-	-		41
8' x 5'	9	9	9	4	0.33' - <2'	0.51	0.69	0.60	0.22	0.25	0.40	0.51		-
				to	2' - <3'	0.51	0.69	0.60	0.11	-	-	-		50
					3' - <5'	0.46	0.52	0.56	0.11	-	-	-		45
					5' - 10'	0.51	0.51	0.53	0.11	-	-	-		45
					15'	0.74	0.77	0.78	0.11	-	-	-		41
				12	20'	0.97	1.05	1.05	0.11	-	-	-		41
	9	9.5	9	8 to	25'	1.20	1.33	1.23	0.11	-	-	-		41
	10	10.5	9	12	30'	1.26	1.38	1.30	0.11	-	-	-		41
8' x 6'	9	9	9	4	0.33' - <2'	0.51	0.72	0.64	0.22	0.26	0.39	0.51		-
				to	2' - <3'	0.51	0.72	0.64	0.11	-	-	-		50
					3' - <5'	0.47	0.55	0.59	0.11	-	-	-		50
					5' - 10'	0.52	0.55	0.58	0.11	-	-	-		45
					15'	0.74	0.83	0.85	0.11	-	-	-		41
				12	20'	0.97	1.12	1.13	0.11	-	-	-		41
	9	9.5	9	8 to	25'	1.18	1.42	1.32	0.11	-	-	-		41
	10	10.5	9	12	30'	1.26	1.46	1.39	0.11	-	-	-		41
8' x 7'	9	9	9	4	0.33' - <2'	0.52	0.74	0.67	0.22	0.26	0.40	0.52		-
				to	2' - <3'	0.52	0.74	0.67	0.11	-	-	-		55
					3' - <5'	0.49	0.57	0.62	0.11	-	-	-		55
					5' - 10'	0.55	0.59	0.63	0.11	-	-	-		50
					15'	0.77	0.88	0.91	0.11	-	-	-		41
				12	20'	1.01	1.19	1.21	0.11	-	-	-		41
	9	9.5	9	8 to	25'	1.21	1.51	1.41	0.11	-	-	-		41
	10	10.5	9	12	30'	1.31	1.53	1.47	0.11	-	-	-		41
8' x 8'	9	9	9	4	0.33' - <2'	0.55	0.77	0.70	0.22	0.27	0.41	0.55		-
				to	2' - <3'	0.55	0.77	0.70	0.13	-	-	-		65
					3' - <5'	0.53	0.59	0.64	0.12	-	-	-		65
					5' - 10'	0.60	0.63	0.68	0.11	-	-	-		55
					15'	0.83	0.93	0.98	0.11	-	-	-		45
				12	20'	1.08	1.26	1.29	0.11	-	-	-		45
	9	9.5	9	8 to	25'	1.28	1.59	1.50	0.11	-	-	-		41
	10	10.5	9	12	30'	1.41	1.61	1.55	0.11	-	-	-		41

TABLE 12B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 8' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
8' x 4'	10	10	10	4	0.33' - <2'	0.42	0.56	0.49	0.24	0.24	0.32	0.41	See General Note 5	-	
					to	2' - <3'	0.42	0.56	0.49	0.12	-	-		-	50
						3' - <5'	0.38	0.42	0.46	0.12	-	-		-	50
				12		5' - 10'	0.41	0.38	0.39	0.12	-	-		-	45
					15'	0.59	0.56	0.57	0.12	-	-	-		41	
					20'	0.78	0.75	0.76	0.12	-	-	-		41	
	10	10.5	10	8 to 12	25'	0.97	0.96	0.96	0.12	-	-	-		41	
					30'	1.15	1.16	1.10	0.12	-	-	-		41	
8' x 5'	10	10	10	4	0.33' - <2'	0.40	0.58	0.52	0.24	.034	0.31	0.40	See General Note 5	-	
					to	2' - <3'	0.40	0.58	0.52	0.12	-	-		-	50
						3' - <5'	0.37	0.45	0.48	0.12	-	-		-	45
				12		5' - 10'	0.41	0.41	0.43	0.12	-	-		-	45
					15'	0.58	0.60	0.62	0.12	-	-	-		41	
					20'	0.76	0.81	0.81	0.12	-	-	-		41	
	10	10.5	10	8 to 12	25'	0.94	1.03	1.03	0.12	-	-	-		41	
					30'	1.10	1.24	1.24	0.12	-	-	-		41	
8' x 6'	10	10	10	4	0.33' - <2'	0.40	0.60	0.55	0.24	0.24	0.30	0.40	See General Note 5	-	
					to	2' - <3'	0.40	0.60	0.55	0.12	-	-		-	50
						3' - <5'	0.37	0.47	0.51	0.12	-	-		-	50
				12		5' - 10'	0.42	0.43	0.46	0.12	-	-		-	45
					15'	0.58	0.64	0.67	0.12	-	-	-		41	
					20'	0.76	0.86	0.88	0.12	-	-	-		41	
	10	10.5	10	8 to 12	25'	0.94	1.09	1.11	0.12	-	-	-		41	
					30'	1.09	1.32	1.26	0.12	-	-	-		41	
8' x 7'	10	10	10	4	0.33' - <2'	0.41	0.63	0.58	0.24	0.24	0.30	0.41	See General Note 5	-	
					to	2' - <3'	0.41	0.63	0.58	0.12	-	-		-	55
						3' - <5'	0.39	0.49	0.53	0.12	-	-		-	55
				12		5' - 10'	0.44	0.46	0.50	0.12	-	-		-	50
					15'	0.61	0.68	0.72	0.12	-	-	-		45	
					20'	0.78	0.91	0.94	0.12	-	-	-		41	
	10	10.5	10	8 to 12	25'	0.97	1.16	1.18	0.12	-	-	-		41	
					30'	1.11	1.40	1.34	0.12	-	-	-		41	
8' x 8'	10	10	10	4	0.33' - <2'	0.44	0.64	0.60	0.24	0.24	0.31	0.44	See General Note 5	-	
					to	2' - <3'	0.44	0.64	0.60	0.12	-	-		-	65
						3' - <5'	0.42	0.51	0.56	0.12	-	-		-	65
				12		5' - 10'	0.47	0.50	0.55	0.12	-	-		-	55
					15'	0.65	0.72	0.77	0.12	-	-	-		45	
					20'	0.84	0.96	1.01	0.12	-	-	-		45	
	10	10.5	10	8 to 12	25'	1.03	1.22	1.26	0.12	-	-	-		41	
					30'	1.16	1.47	1.42	0.12	-	-	-		41	

- NOTES:
- See Sheet 2 for General Notes.
 - See Sheet 7 for Reinforcing Details and dimension locations.
 - See Sheet 14 for WWR Bending Diagrams.

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TABLE 13A - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 9' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
9' x 5'	9	9	9	4 to 12	0.33' - <2'	0.62	0.78	0.65	0.22	0.26	0.52	0.61	See General Note 5	-	
					2' - <3'	0.62	0.78	0.65	0.11	-	-	-		54	
					3' - <5'	0.58	0.63	0.61	0.11	-	-	-		49	
					5' - 10'	0.65	0.63	0.64	0.11	-	-	-		49	
	9	9	9	8 to 12	15'	0.95	0.96	0.95	0.11	-	-	-		44	
					20'	1.26	1.32	1.28	0.11	-	-	-		44	
					25'	1.39	1.41	1.32	0.11	-	-	-		44	
					30'	1.46	1.50	1.42	0.11	-	-	-		44	
9' x 6'	9	9	9	4 to 12	0.33' - <2'	0.60	0.81	0.69	0.22	0.27	0.51	0.60	See General Note 5	-	
					2' - <3'	0.60	0.81	0.69	0.11	-	-	-		54	
					3' - <5'	0.56	0.66	0.65	0.11	-	-	-		49	
					5' - 10'	0.65	0.68	0.69	0.11	-	-	-		49	
	9	9	9	8 to 12	15'	0.94	1.03	1.02	0.11	-	-	-		44	
					20'	1.25	1.40	1.38	0.11	-	-	-		44	
					25'	1.37	1.49	1.40	0.11	-	-	-		44	
					30'	1.44	1.58	1.50	0.11	-	-	-		44	
9' x 7'	9	9	9	4 to 12	0.33' - <2'	0.61	0.84	0.72	0.22	0.28	0.51	0.61	See General Note 5	-	
					2' - <3'	0.61	0.83	0.72	0.11	-	-	-		59	
					3' - <5'	0.58	0.69	0.68	0.11	-	-	-		54	
					5' - 10'	0.67	0.73	0.75	0.11	-	-	-		49	
	9	9	9	8 to 12	15'	0.96	1.09	1.10	0.11	-	-	-		44	
					20'	1.27	1.49	1.47	0.11	-	-	-		44	
					25'	1.38	1.57	1.48	0.11	-	-	-		44	
					30'	1.49	1.70	1.58	0.11	-	-	-		44	
9' x 8'	9	9.5	9	4 to 12	0.33' - <2'	0.60	0.85	0.73	0.22	0.29	0.52	0.53	See General Note 5	-	
	9	9	9		2' - <3'	0.64	0.86	0.76	0.12	-	-	-		59	
					3' - <5'	0.62	0.72	0.72	0.11	-	-	-		59	
					5' - 10'	0.71	0.77	0.81	0.11	-	-	-		54	
	9	9.5	9	8 to 12	15'	1.01	1.16	1.17	0.11	-	-	-		44	
					20'	1.27	1.56	1.45	0.11	-	-	-		44	
					25'	1.45	1.65	1.57	0.11	-	-	-		44	
					30'	1.59	1.72	1.66	0.11	-	-	-		44	
9' x 9'	9	9.5	9	4 to 12	0.33' - <2'	0.68	0.88	0.76	0.22	0.29	0.55	0.57	See General Note 5	-	
	9	9	9		2' - <3'	0.68	0.88	0.78	0.18	-	-	-		72	
					3' - <5'	0.68	0.75	0.78	0.18	-	-	-		72	
					5' - 10'	0.79	0.82	0.88	0.17	-	-	-		59	
	9	9.5	9	8 to 12	15'	1.11	1.22	1.26	0.13	-	-	-		49	
					20'	1.37	1.64	1.54	0.13	-	-	-		49	
					25'	1.56	1.73	1.65	0.13	-	-	-		44	
					30'	1.56	1.73	1.68	0.12	-	-	-		44	

TABLE 13B - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 9' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
9' x 5'	10	10	10	4	0.33' - <2'	0.49	0.65	0.57	0.24	0.24	0.40	0.48	See General Note 5	-	
					2' - <3'	0.49	0.65	0.57	0.12	-	-	-		54	
				to	3' - <5'	0.46	0.54	0.53	0.12	-	-	-		49	
					5' - 10'	0.52	0.50	0.51	0.12	-	-	-		49	
				12	15'	0.75	0.74	0.75	0.12	-	-	-		44	
					20'	0.98	1.01	1.00	0.12	-	-	-		44	
	8 to 12	10	10.5	10	25'	1.21	1.27	1.19	0.12	-	-	-		44	
		11	11.5	10	30'	1.30	1.36	1.30	0.12	-	-	-		44	
9' x 6'	10	10	10	4	0.33' - <2'	0.48	0.68	0.60	0.24	0.24	0.39	0.48		-	
					2' - <3'	0.48	0.68	0.60	0.12	-	-	-		54	
				to	3' - <5'	0.45	0.57	0.56	0.12	-	-	-		49	
					5' - 10'	0.52	0.53	0.56	0.12	-	-	-		49	
				12	15'	0.74	0.79	0.81	0.12	-	-	-		44	
					20'	0.97	1.07	1.07	0.12	-	-	-		44	
	8 to 12	10	10.5	10	25'	1.18	1.35	1.28	0.12	-	-	-		44	
		11	11.5	10	30'	1.27	1.44	1.38	0.12	-	-	-		44	
9' x 7'	10	10	10	4	0.33' - <2'	0.49	0.70	0.63	0.24	0.24	0.39	0.49	-		
					2' - <3'	0.49	0.70	0.63	0.12	-	-	-	59		
				to	3' - <5'	0.46	0.59	0.59	0.12	-	-	-	54		
					5' - 10'	0.54	0.57	0.60	0.12	-	-	-	49		
				12	15'	0.75	0.84	0.86	0.12	-	-	-	44		
					20'	0.98	1.13	1.14	0.12	-	-	-	44		
	8 to 12	10	10.5	10	25'	1.18	1.43	1.36	0.12	-	-	-	44		
		11	11.5	10	30'	1.28	1.52	1.46	0.12	-	-	-	44		
9' x 8'	10	10	10	4	0.33' - <2'	0.51	0.72	0.65	0.24	0.24	0.39	0.51	-		
					2' - <3'	0.51	0.72	0.65	0.12	-	-	-	59		
				to	3' - <5'	0.49	0.61	0.62	0.12	-	-	-	59		
					5' - 10'	0.57	0.60	0.65	0.12	-	-	-	54		
				12	15'	0.79	0.89	0.92	0.12	-	-	-	44		
					20'	1.02	1.20	1.22	0.12	-	-	-	44		
	8 to 12	10	10.5	10	25'	1.21	1.50	1.44	0.12	-	-	-	44		
		11	11.5	10	30'	1.33	1.59	1.54	0.12	-	-	-	44		
9' x 9'	10	10	10	4	0.33' - <2'	0.54	0.74	0.68	0.24	0.24	0.41	0.54	-		
					2' - <3'	0.54	0.74	0.68	0.15	-	-	-	72		
				to	3' - <5'	0.53	0.63	0.64	0.13	-	-	-	72		
					5' - 10'	0.62	0.64	0.70	0.12	-	-	-	59		
				12	15'	0.85	0.94	0.99	0.12	-	-	-	49		
					20'	1.09	1.26	1.29	0.12	-	-	-	49		
	8 to 12	10	10.5	10	25'	1.28	1.56	1.52	0.12	-	-	-	44		
		11	11.5	10	30'	1.42	1.66	1.66	0.12	-	-	-	44		

- NOT

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TABLE 14 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 10' SPANS														
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9	
10' x 5'	10	10	10	4	0.33' - <2'	0.60	0.73	0.61	0.24	0.24	0.50	0.57	See General Note 5	-
				to	2' - <3'	0.60	0.73	0.61	0.12	-	-	-		58
				12	3' - <5'	0.57	0.64	0.58	0.12	-	-	-		53
				12	5' - 10'	0.65	0.60	0.60	0.12	-	-	-		52
	15'	0.94	0.90		0.89	0.12	-	-	-	47				
	10	10	10	8	20'	1.24	1.23	1.19	0.12	-	-	-		47
	11	11.5	10	to	25'	1.39	1.37	1.28	0.12	-	-	-		47
12.5	12.5	10	12	30'	1.38	1.43	1.41	0.12	-	-	-	47		
10' x 6'	10	10	10	4	0.33' - <2'	0.58	0.75	0.64	0.24	0.24	0.48	0.56		-
				to	2' - <3'	0.58	0.75	0.64	0.12	-	-	-		58
				12	3' - <5'	0.56	0.67	0.62	0.12	-	-	-		52
				12	5' - 10'	0.64	0.64	0.65	0.12	-	-	-		52
	15'	0.92	0.96		0.95	0.12	-	-	-	47				
	10	10	10	8	20'	1.21	1.31	1.27	0.12	-	-	-		47
	11	11.5	10	to	25'	1.35	1.44	1.36	0.12	-	-	-	47	
12.5	12.5	10	12	30'	1.35	1.51	1.49	0.12	-	-	-	47		
10' x 7'	10	10	10	4	0.33' - <2'	0.57	0.78	0.67	0.24	0.24	0.48	0.57	-	
				to	2' - <3'	0.57	0.78	0.67	0.12	-	-	-	58	
				12	3' - <5'	0.58	0.70	0.65	0.12	-	-	-	58	
				12	5' - 10'	0.65	0.68	0.70	0.12	-	-	-	52	
	15'	0.92	1.02		1.02	0.12	-	-	-	47				
	10	10	10	8	20'	1.21	1.38	1.35	0.12	-	-	-	47	
	11	11.5	10	to	25'	1.33	1.52	1.44	0.12	-	-	-	47	
12.5	12.5	10	12	30'	1.38	1.58	1.57	0.12	-	-	-	47		
10' x 8'	10	10	10	4	0.33' - <2'	0.58	0.80	0.70	0.24	0.26	0.48	0.58	-	
				to	2' - <3'	0.58	0.80	0.70	0.12	-	-	-	64	
				12	3' - <5'	0.60	0.72	0.68	0.12	-	-	-	58	
				12	5' - 10'	0.67	0.72	0.75	0.12	-	-	-	52	
	15'	0.95	1.08		1.08	0.12	-	-	-	47				
	10	10	10	8	20'	1.24	1.45	1.44	0.12	-	-	-	47	
	11	11.5	10	to	25'	1.36	1.59	1.52	0.12	-	-	-	47	
12.5	12.5	10	12	30'	1.45	1.64	1.64	0.12	-	-	-	47		
10' x 9'	10	10	10	4	0.33' - <2'	0.61	0.82	0.73	0.24	0.26	0.50	0.61	-	
				to	2' - <3'	0.61	0.82	0.73	0.14	-	-	-	70	
				12	3' - <5'	0.64	0.75	0.73	0.13	-	-	-	64	
				12	5' - 10'	0.72	0.77	0.80	0.12	-	-	-	58	
	15'	1.00	1.13		1.15	0.12	-	-	-	52				
	10	10	10	8	20'	1.30	1.53	1.52	0.12	-	-	-	47	
	11	11.5	10	to	25'	1.42	1.66	1.60	0.12	-	-	-	47	
12.5	12.5	10	12	30'	1.57	1.70	1.72	0.12	-	-	-	47		
10' x 10'	10	10	10	4	0.33' - <2'	0.66	0.84	0.75	0.24	0.27	0.52	0.65	-	
				to	2' - <3'	0.66	0.84	0.75	0.20	-	-	-	79	
				12	3' - <5'	0.70	0.77	0.79	0.19	-	-	-	70	
				12	5' - 10'	0.79	0.81	0.87	0.18	-	-	-	64	
	15'	1.09	1.19		1.23	0.15	-	-	-	52				
	10	10	10	8	20'	1.40	1.61	1.61	0.14	-	-	-	52	
	11	11.5	10	to	25'	1.53	1.74	1.68	0.14	-	-	-	47	
12.5	12.5	10.5	12	30'	1.60	1.71	1.74	0.14	-	-	-	47		

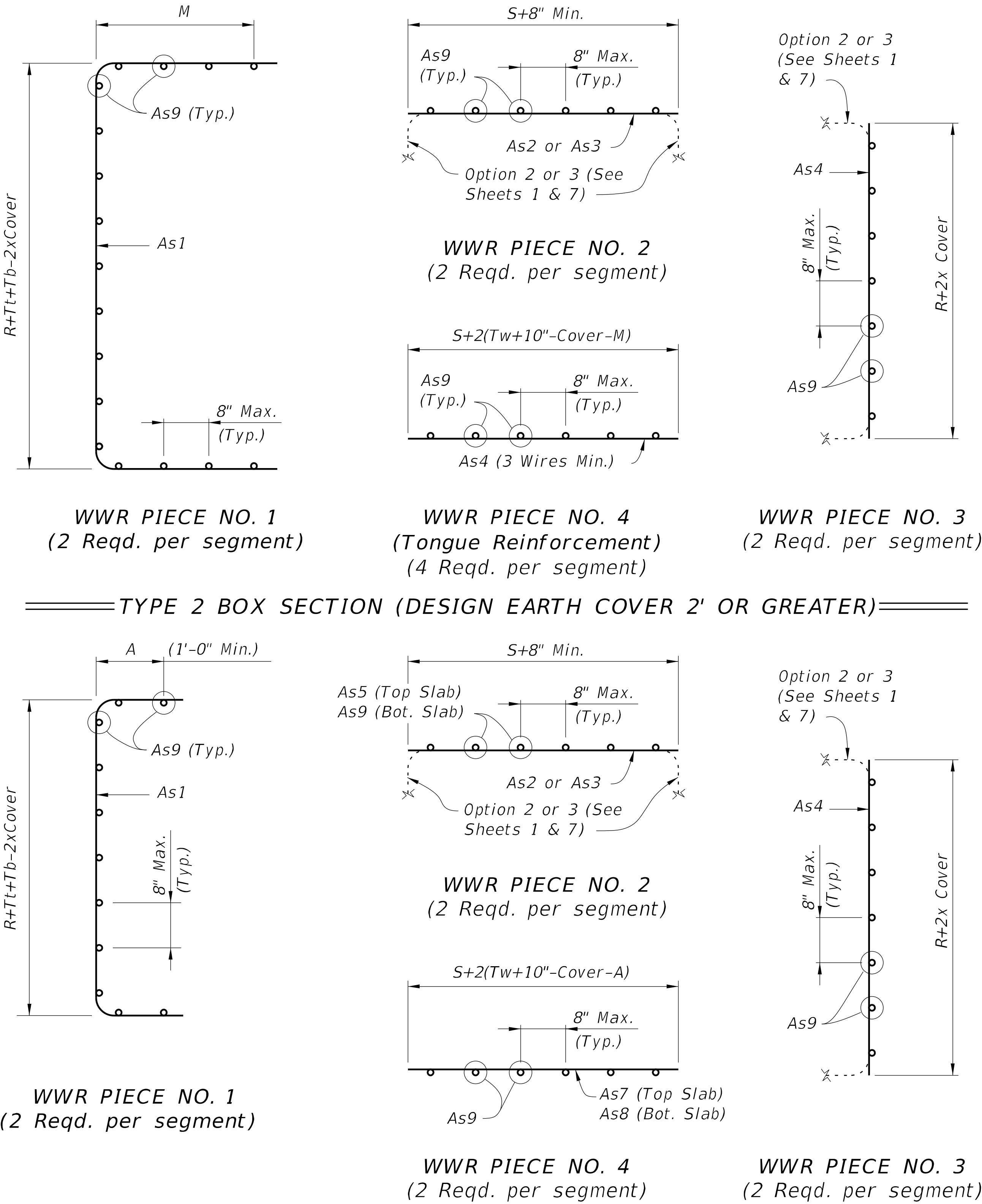
TABLE 15 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 11' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
11' x 4'	11	11	11	4	0.33' - <2'	0.60	0.66	0.54	0.27	0.27	0.52	0.56	See General Note 5	-	
				to	2' - <3'	0.60	0.66	0.54	0.14	-	-	-		62	
					3' - <5'	0.60	0.61	0.53	0.14	-	-	-		62	
					5' - 10'	0.79	0.63	0.62	0.14	-	-	-		55	
					15'	1.01	0.82	0.79	0.14	-	-	-		55	
				12	20'	1.34	1.11	1.06	0.14	-	-	-		55	
	12	12	11	8 to	25'	1.52	1.27	1.23	0.14	-	-	-		55	
	13.5	13.5	11	12	30'	1.54	1.37	1.34	0.14	-	-	-		50	
11' x 6'	11	11	11	4	0.33' - <2'	0.57	0.71	0.60	0.27	0.27	0.47	0.53		-	
				to	2' - <3'	0.56	0.71	0.60	0.14	-	-	-		62	
					3' - <5'	0.56	0.67	0.59	0.14	-	-	-		55	
					5' - 10'	0.73	0.71	0.72	0.14	-	-	-		55	
					15'	0.92	0.92	0.91	0.14	-	-	-		50	
				11	11	11	8	20'	1.21	1.25	1.21	0.14		-	-
	12	12	11	to	25'	1.37	1.43	1.39	0.14	-	-	-		50	
	13.5	13.5	11	12	30'	1.39	1.53	1.50	0.14	-	-	-		50	
11' x 8'	11	11	11	4	0.33' - <2'	0.55	0.76	0.66	0.27	0.27	0.46	0.55		-	
				to	2' - <3'	0.55	0.76	0.66	0.14	-	-	-		62	
					3' - <5'	0.54	0.72	0.65	0.14	-	-	-		62	
					5' - 10'	0.73	0.79	0.82	0.14	-	-	-		55	
					15'	0.93	1.03	1.03	0.14	-	-	-		50	
				11	11	11	8	20'	1.21	1.39	1.36	0.14		-	-
	12	12.5	11	to	25'	1.34	1.56	1.50	0.14	-	-	-		50	
	13.5	13.5	11	12	30'	1.41	1.66	1.65	0.14	-	-	-		50	
11' x 10'	11	11	11	4	0.33' - <2'	0.60	0.81	0.71	0.27	0.27	0.48	0.60		-	
				to	2' - <3'	0.60	0.81	0.71	0.15	-	-	-		75	
					3' - <5'	0.61	0.77	0.70	0.14	-	-	-		69	
					5' - 10'	0.80	0.88	0.93	0.14	-	-	-		62	
					15'	1.01	1.13	1.15	0.14	-	-	-		55	
				11	11	11	8	20'	1.30	1.52	1.52	0.14		-	-
	12	12.5	11	to	25'	1.42	1.70	1.65	0.14	-	-	-		50	
	13.5	14	11	12	30'	1.53	1.77	1.74	0.14	-	-	-		50	
11' x 11'	11	11	11	4	0.33' - <2'	0.64	0.83	0.74	0.27	0.27	0.51	0.64		-	
				to	2' - <3'	0.64	0.83	0.74	0.21	-	-	-		86	
					3' - <5'	0.67	0.79	0.75	0.21	-	-	-		75	
					5' - 10'	0.88	0.93	0.99	0.19	-	-	-		69	
					15'	1.09	1.19	1.23	0.16	-	-	-	55		
				11	11	11	8	20'	1.40	1.59	1.60	0.15	-	-	-
	12	12.5	11	to	25'	1.54	1.77	1.73	0.15	-	-	-	50		
	13.5	14	11.5	12	30'	1.57	1.77	1.76	0.14	-	-	-	50		

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TABLE 16 - STANDARD PRECAST BOX CULVERT DESIGNS (3" COVER) - 12' SPANS															
SPAN x RISE (S) (R) (Ft.)	SLAB / WALL THICKNESS				DESIGN EARTH COVER ABOVE TOP SLAB	REINFORCEMENT AREAS (sq. in./Ft.)								As1 EXT. LENGTH (M) (in.)	
	TOP (Tt) (in.)	BOT. (Tb) (in.)	SIDE (Tw) (in.)	HAUNCH (H) (in.)		As1	As2	As3	As4	As5	As7	As8	As9		
12' x 4'	12	12	12	4	0.33' - <2'	0.59	0.64	0.51	0.29	0.29	0.52	0.55	See General Note 5	-	
				to	2' - <3'	0.60	0.64	0.51	0.15	-	-	-		73	
					3' - <5'	0.60	0.61	0.51	0.15	-	-	-		66	
					5' - 10'	0.81	0.61	0.61	0.15	-	-	-		66	
					15'	1.04	0.80	0.77	0.15	-	-	-		59	
				12	20'	1.37	1.08	1.03	0.15	-	-	-		59	
	13	13	12	8 to	25'	1.58	1.26	1.21	0.15	-	-	-		59	
	14.5	14.5	12	12	30'	1.63	1.38	1.34	0.15	-	-	-		53	
12' x 6'	12	12	12	4	0.33' - <2'	0.56	0.70	0.57	0.29	0.29	0.47	0.52		-	
				to	2' - <3'	0.56	0.70	0.57	0.15	-	-	-		66	
					3' - <5'	0.56	0.67	0.57	0.15	-	-	-		59	
					5' - 10'	0.74	0.69	0.70	0.15	-	-	-		59	
					15'	0.94	0.90	0.88	0.15	-	-	-		53	
				12	20'	1.23	1.22	1.17	0.15	-	-	-		53	
	13	13	12	8 to	25'	1.40	1.42	1.37	0.15	-	-	-		53	
	14.5	15	12	12	30'	1.44	1.54	1.48	0.15	-	-	-		53	
12' x 8'	12	12	12	4	0.33' - <2'	0.55	0.75	0.63	0.29	0.29	0.45	0.53		-	
				to	2' - <3'	0.55	0.75	0.63	0.15	-	-	-		66	
					3' - <5'	0.55	0.73	0.63	0.15	-	-	-		59	
					5' - 10'	0.73	0.77	0.79	0.15	-	-	-		59	
					15'	0.93	1.00	0.99	0.15	-	-	-		53	
				12	20'	1.21	1.35	1.31	0.15	-	-	-		53	
	13	13.5	12	to	25'	1.35	1.55	1.48	0.15	-	-	-		53	
	14.5	15	12	12	30'	1.40	1.67	1.62	0.15	-	-	-		53	
12' x 10'	12	12	12	4	0.33' - <2'	0.57	0.80	0.68	0.29	0.29	0.46	0.57	-		
				to	2' - <3'	0.57	0.80	0.68	0.15	-	-	-	73		
					3' - <5'	0.59	0.77	0.68	0.15	-	-	-	66		
					5' - 10'	0.78	0.85	0.89	0.15	-	-	-	59		
					15'	0.98	1.10	1.11	0.15	-	-	-	53		
				12	20'	1.26	1.47	1.45	0.15	-	-	-	53		
	13	13.5	12	to	25'	1.39	1.68	1.63	0.15	-	-	-	53		
	14.5	15	12	12	30'	1.48	1.79	1.76	0.15	-	-	-	53		
12' x 12'	12	12	12	4	0.33' - <2'	0.65	0.84	0.73	0.29	0.29	0.50	0.65	-		
				to	2' - <3'	0.65	0.84	0.73	0.23	-	-	-	93		
					3' - <5'	0.68	0.81	0.75	0.22	-	-	-	80		
					5' - 10'	0.90	0.94	1.01	0.21	-	-	-	73		
					15'	1.12	1.20	1.24	0.18	-	-	-	59		
				12	20'	1.42	1.60	1.61	0.16	-	-	-	59		
	13	13.5	12	to	25'	1.57	1.81	1.78	0.16	-	-	-	53		
	14.5	15	12.5	12	30'	1.63	1.86	1.85	0.15	-	-	-	53		

- NOTES:
- See Sheet 2 of 14 for General Notes.
 - See Sheet 7 of 14 for Reinforcing Details and dimension locations.

WELDED WIRE REINFORCEMENT BENDING DIAGRAM



- REINFORCEMENT NOTES:
- Reinforcement bending dimensions are out-to-out.
 - See General Notes 4, 5 and 6 on Sheet 2.
 - See Tables 1 thru 16 for dimensions M, R, S, Tb, Tt and Tw.
 - Dimension "A" is determined by the Manufacturer in accordance with the requirements of Detail "B" on Sheets 1 and 7.



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