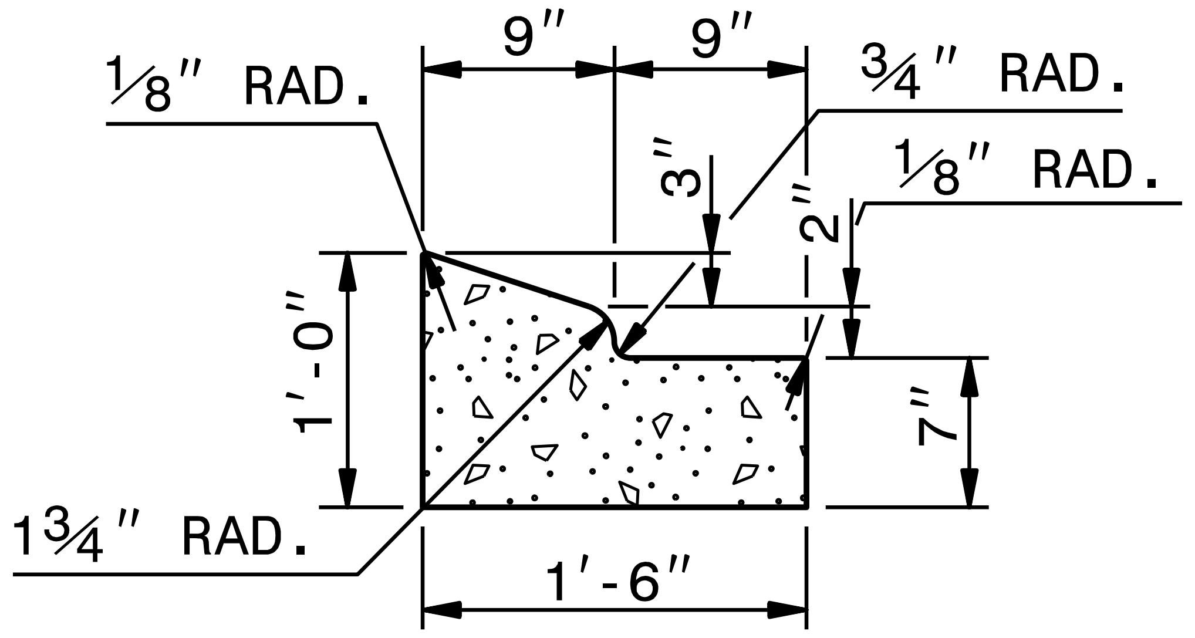
5/14/99

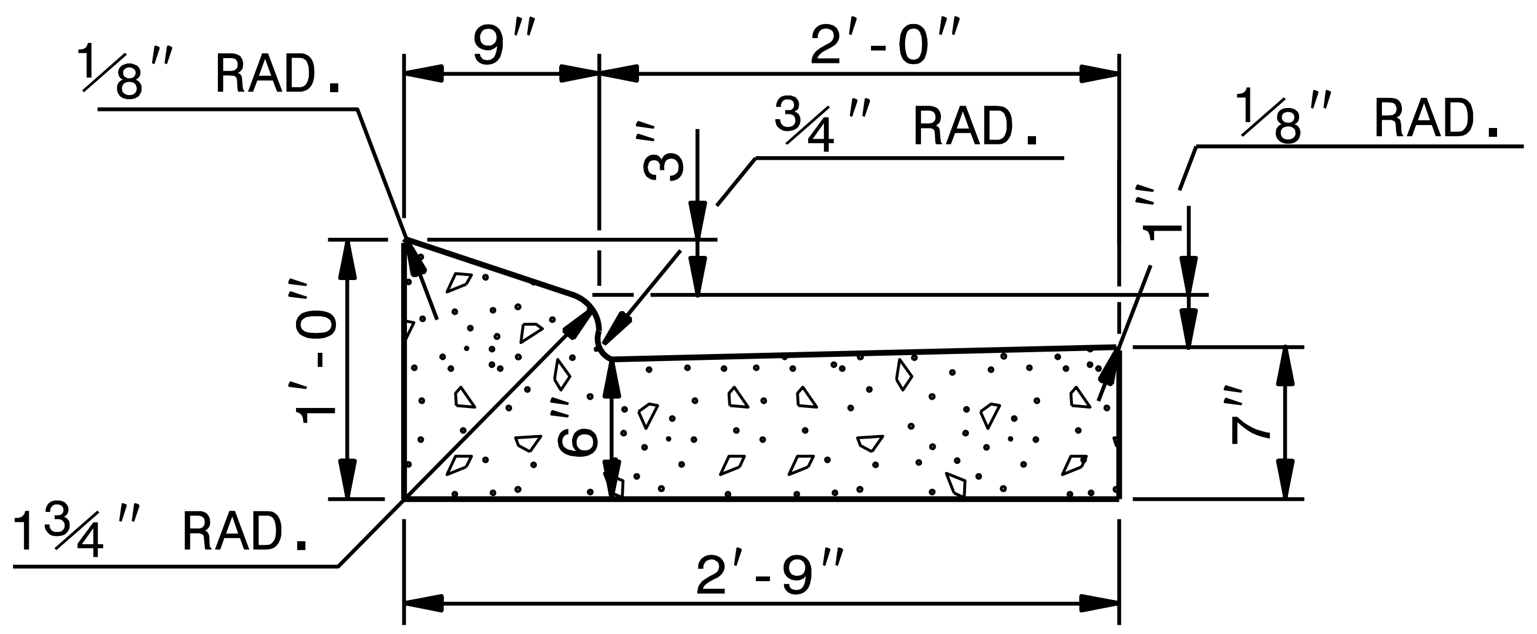
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-18

NOTE: SEE STD. DWG. 846.01 FOR ADDITIONAL CURB AND GUTTER INFORMATION.

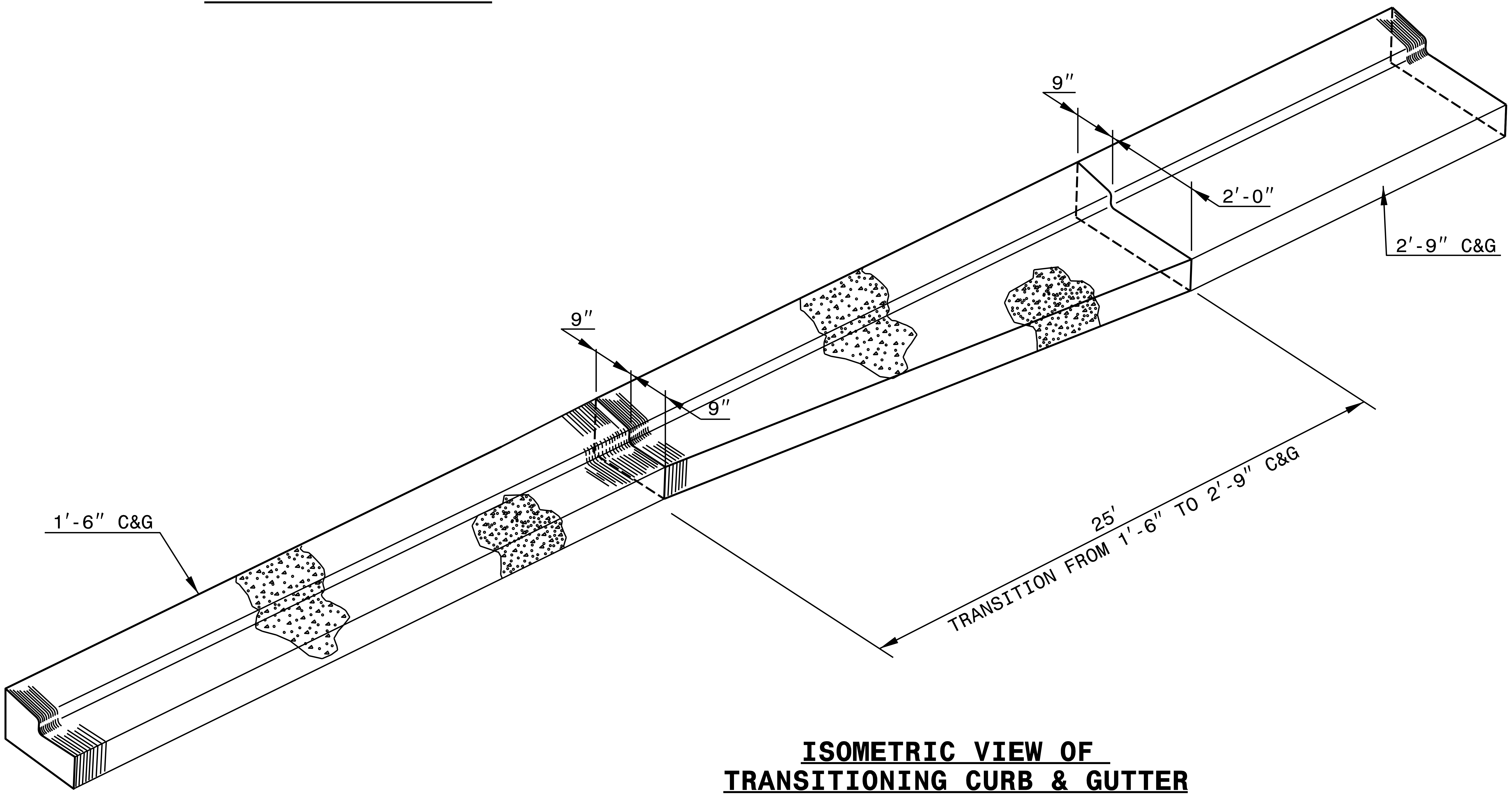
SEE ROADWAY PLANS FOR LOCATION OF CURB TRANSITION.



1′-6″ CURB AND GUTTER



2′-9″ CURB AND GUTTER



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 8:31 AM PDT

SEAL 33144
NICOLE M. HACKLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

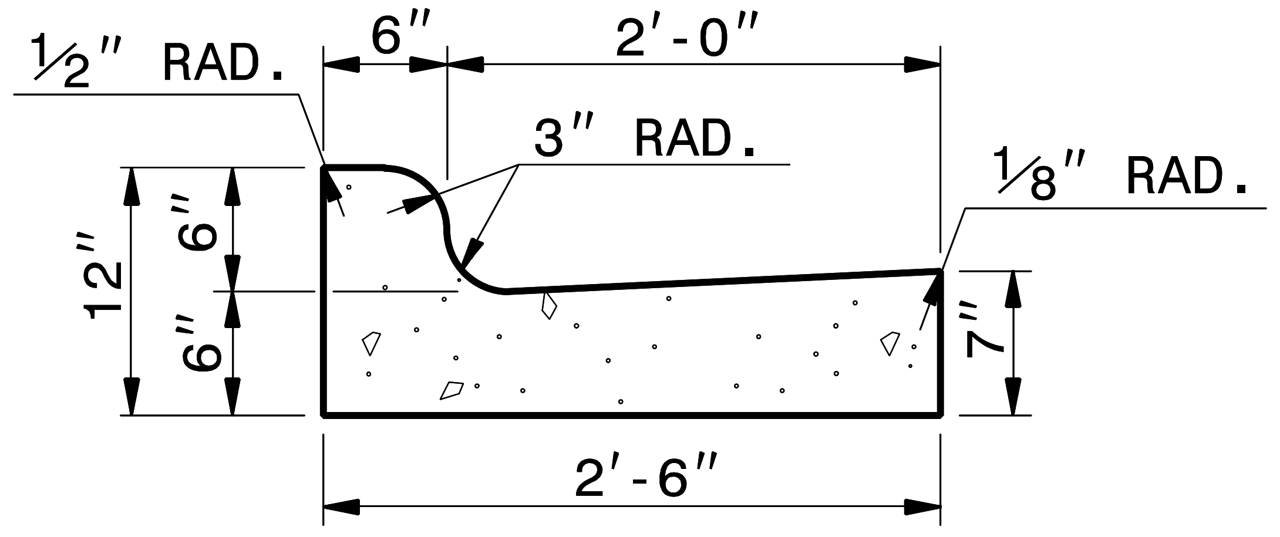
DETAIL OF 1′-6″ TO 2′-9″ CURB & GUTTER TRANSITION SECTION

ORIGINAL BY: T.S.SPELL DATE: NOV. 26, 2001
MODIFIED BY: T.S.SPELL DATE: JAN. 23, 2007
CHECKED BY: DATE:
FILE SPEC.: DS174:usr/details/stand/cgtransit.dgn

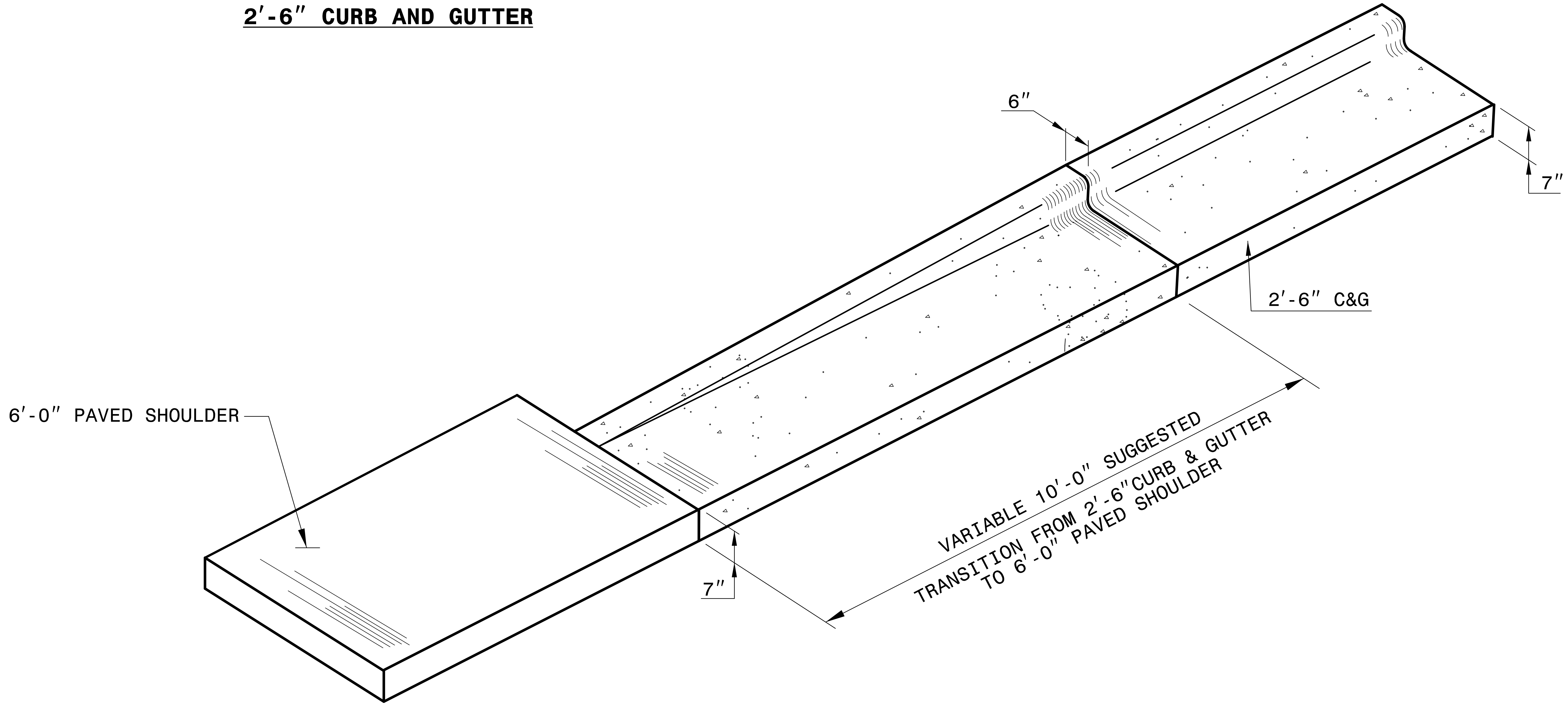
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B /I-5717	2B-19

*NOTE: SEE STD. DWG. 846.01
FOR GENERAL NOTES



2'-6" CURB AND GUTTER



ISOMETRIC VIEW OF TRANSITION

DocuSigned by:
David Burke Evans
1DFC066569F9409...
8/13/2024 | 10:38 AM EDT

SEAL 019724
DAVID BURKE EVANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DETAIL OF 10' TRANSITION FROM 2'-6" CURB & GUTTER TO 6'-0" PAVED SHOULDER

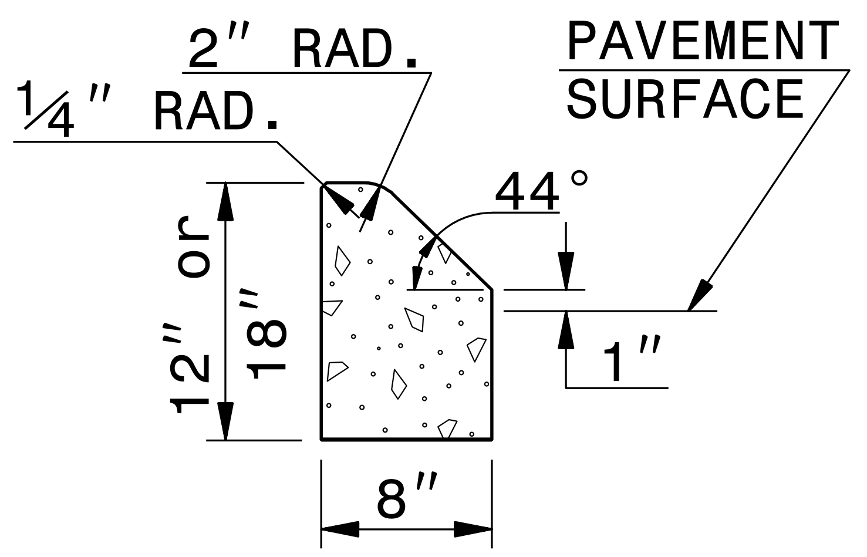
ORIGINAL BY: ________ DATE: ________
MODIFIED BY: bevans DATE: 06-8-2024
CHECKED BY: ________ DATE: ________
FILE SPEC.: ________

6/18/2024
X:\NCDOT\R-2307B\Roadway\Proj\R-2307B_RDY_PSH_02B-19.dgn
User:bevans

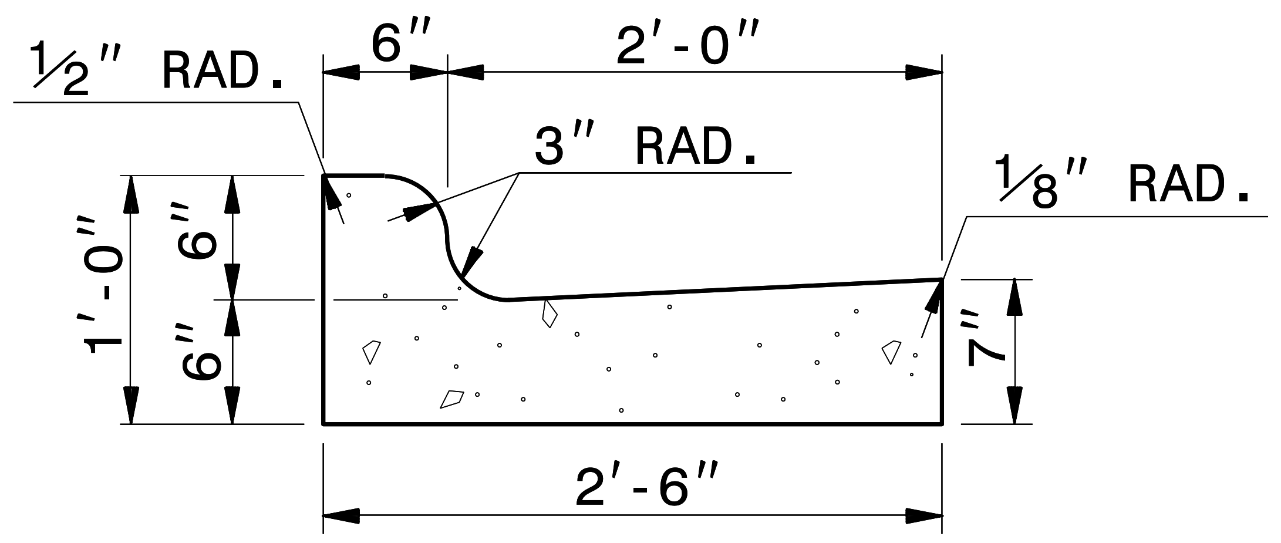
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-20

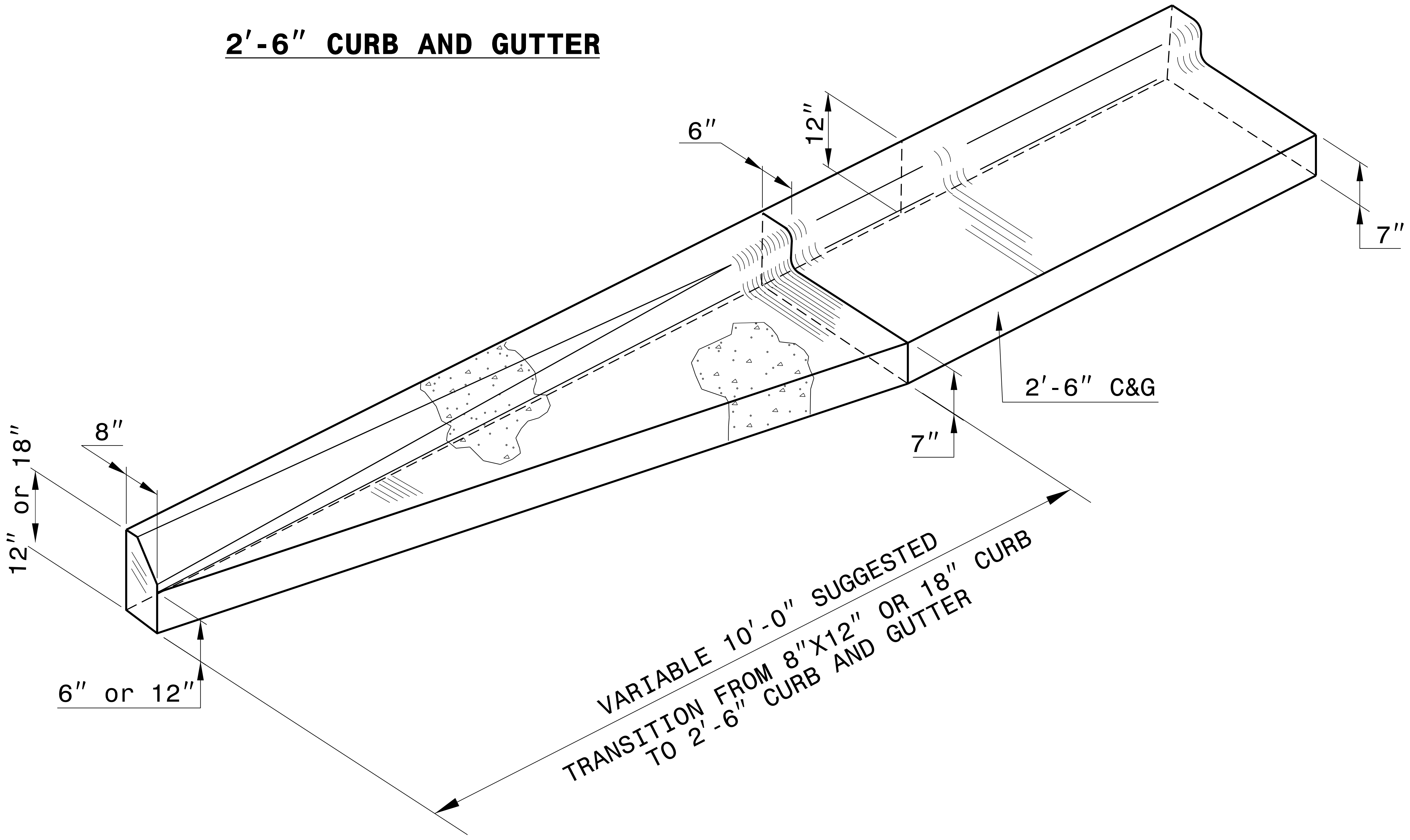
*NOTE: SEE STD. DWG. 846.01
FOR GENERAL NOTES



8″ X 12″ or 18″ CONCRETE CURB



2′-6″ CURB AND GUTTER



ISOMETRIC VIEW OF TRANSITION

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 8:31 AM PDT

SEAL
33144
NICOLE M. HACKLER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL OF 8″x 12″or 18″ CURB
TO 2′-6″ CURB & GUTTER
TRANSITION SECTION

ORIGINAL BY: ______ DATE: ______
MODIFIED BY: K. KEMPF DATE: 4-05-18
CHECKED BY: ______ DATE: ______
FILE SPEC.: details/ericward/usr/details/stand/cgtransit.dgn

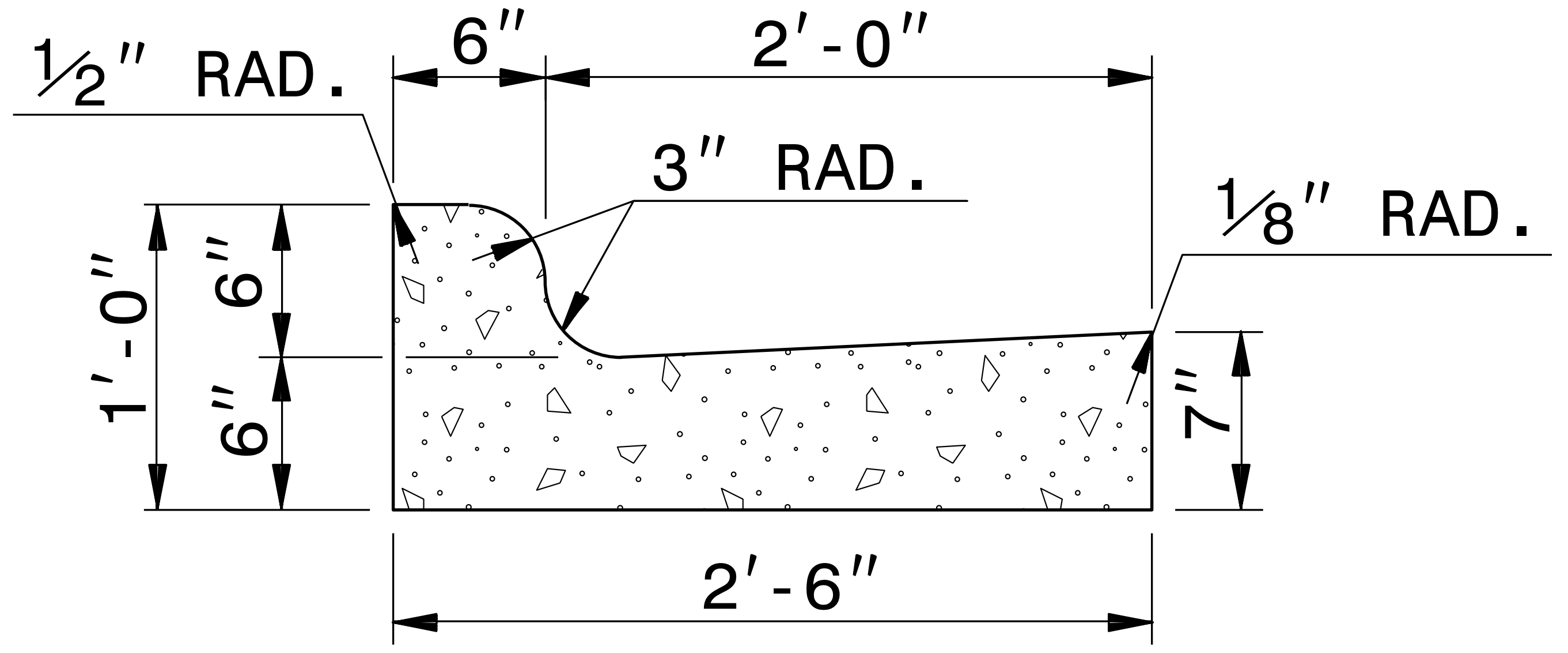
13-MAR-2019 09:50
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\c&g transition sections.dgn
.jhowerton AT CSD-292595

Docusign Envelope ID: 0B08A911-CC03-4BA3-B837-C0F9914F51C3

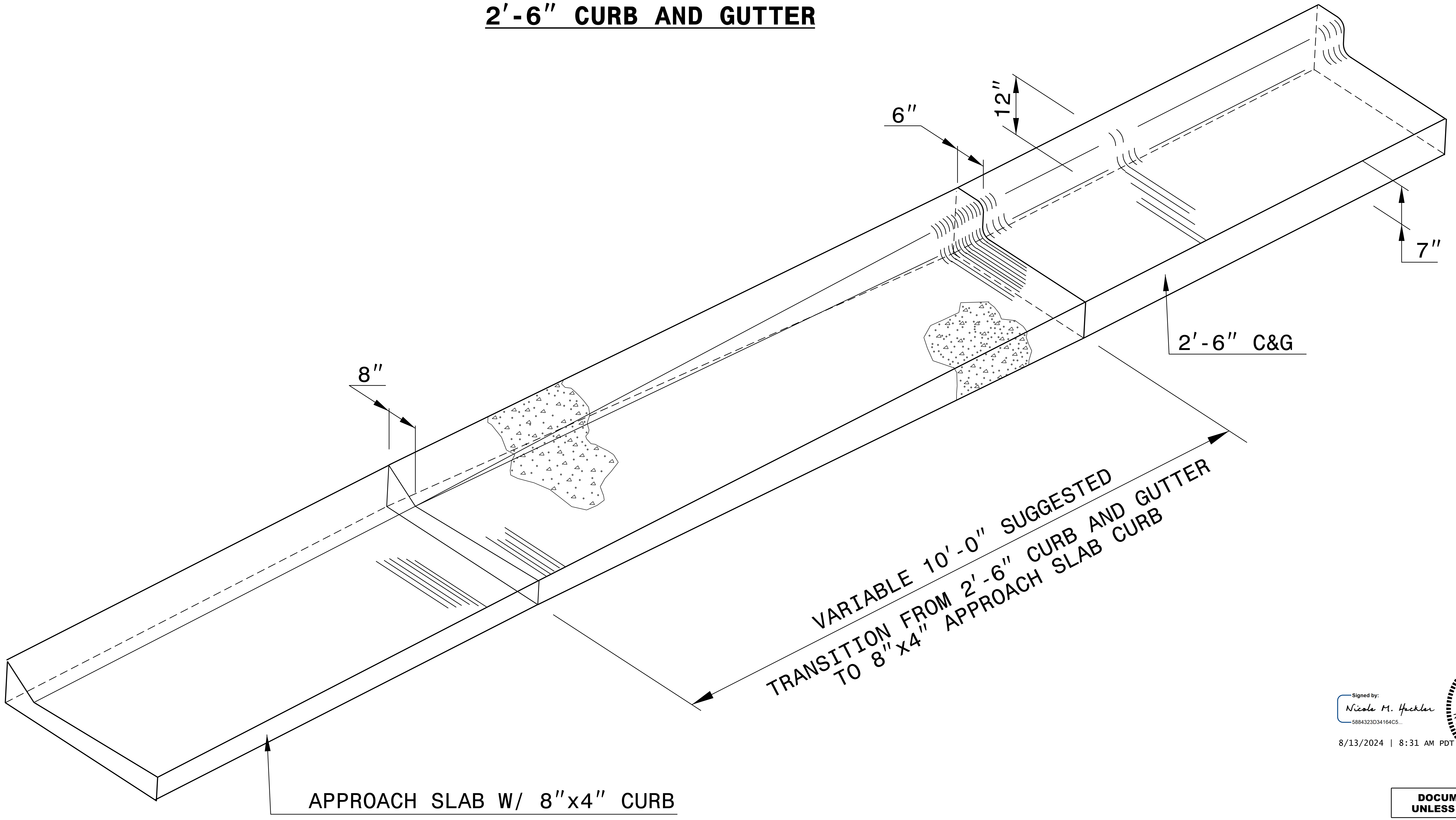
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-21

5/14/99

*NOTE: SEE STD. DWG. 846.01
FOR GENERAL NOTES



2′-6″ CURB AND GUTTER



ISOMETRIC VIEW OF TRANSITION

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 8:31 AM PDT

SEAL 33144
NICOLE M. HACKLER

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

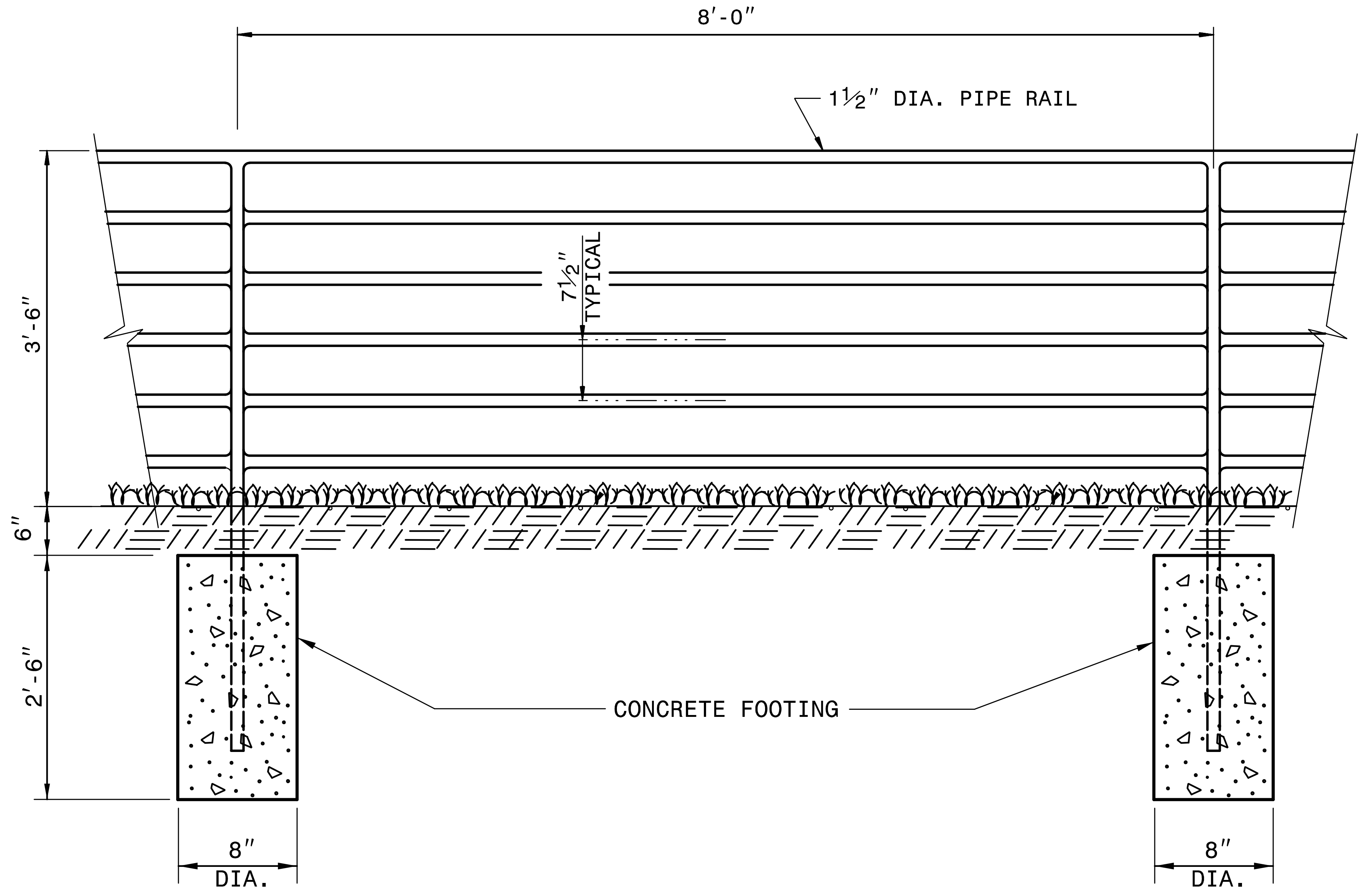
**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF 2′-6″ CURB & GUTTER
TO 8″x4″ APPROACH SLAB CURB
TRANSITION SECTION**

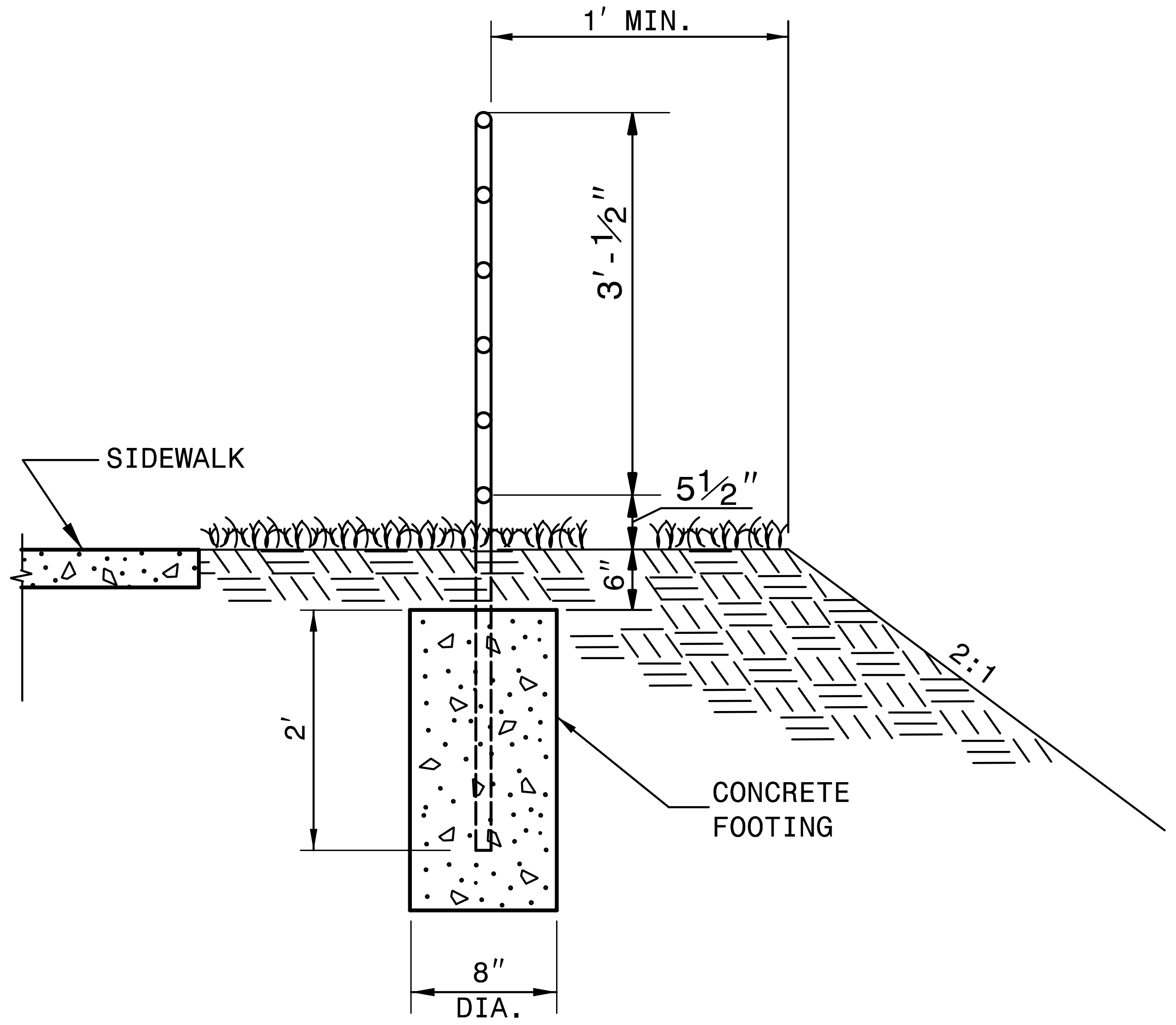
ORIGINAL BY: E.E. WARD DATE: 5-29-02
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/cgtransit.dgn

08-JAN-2020 09:26
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\c&g transition sections.dgn
jhowerton AT CSD-320965

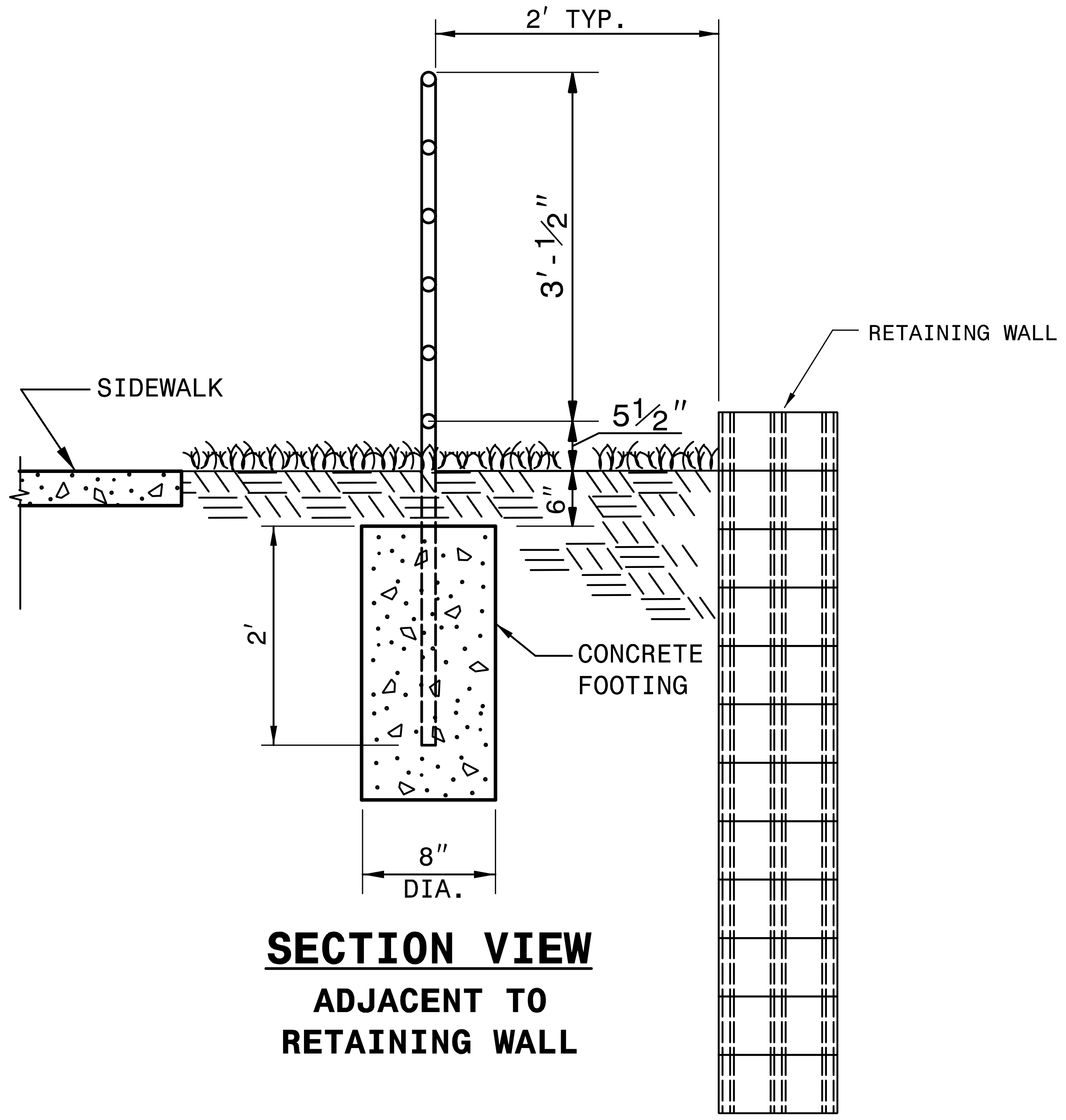
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-22



ELEVATION



SECTION VIEW



SECTION VIEW
ADJACENT TO
RETAINING WALL

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½" DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1076.

PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1080.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

USE CLASS 'B' CONCRETE FOR HANDRAIL FOOTINGS.

PLACEMENT OF HANDRAIL IN RELATION TO RETAINING WALL AND SIDEWALK MAY BE MODIFIED AS DIRECTED BY THE ENGINEER.

DocuSigned by:
David Burke Evans
1DFC06656 9F9409...
9/24/2024

SEAL
019724
DAVID BURKE EVANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

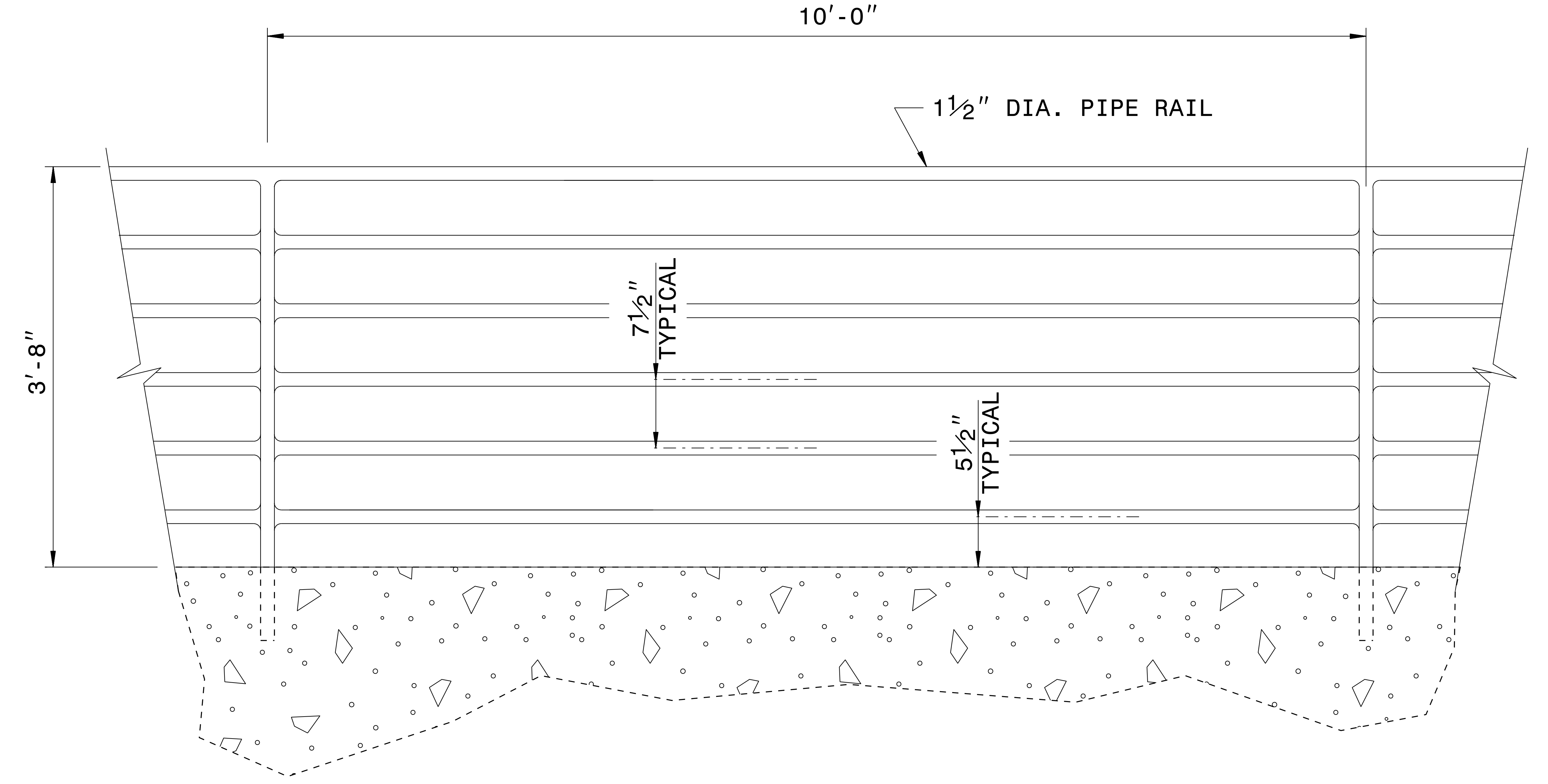
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

PEDESTRIAN SAFETY RAIL

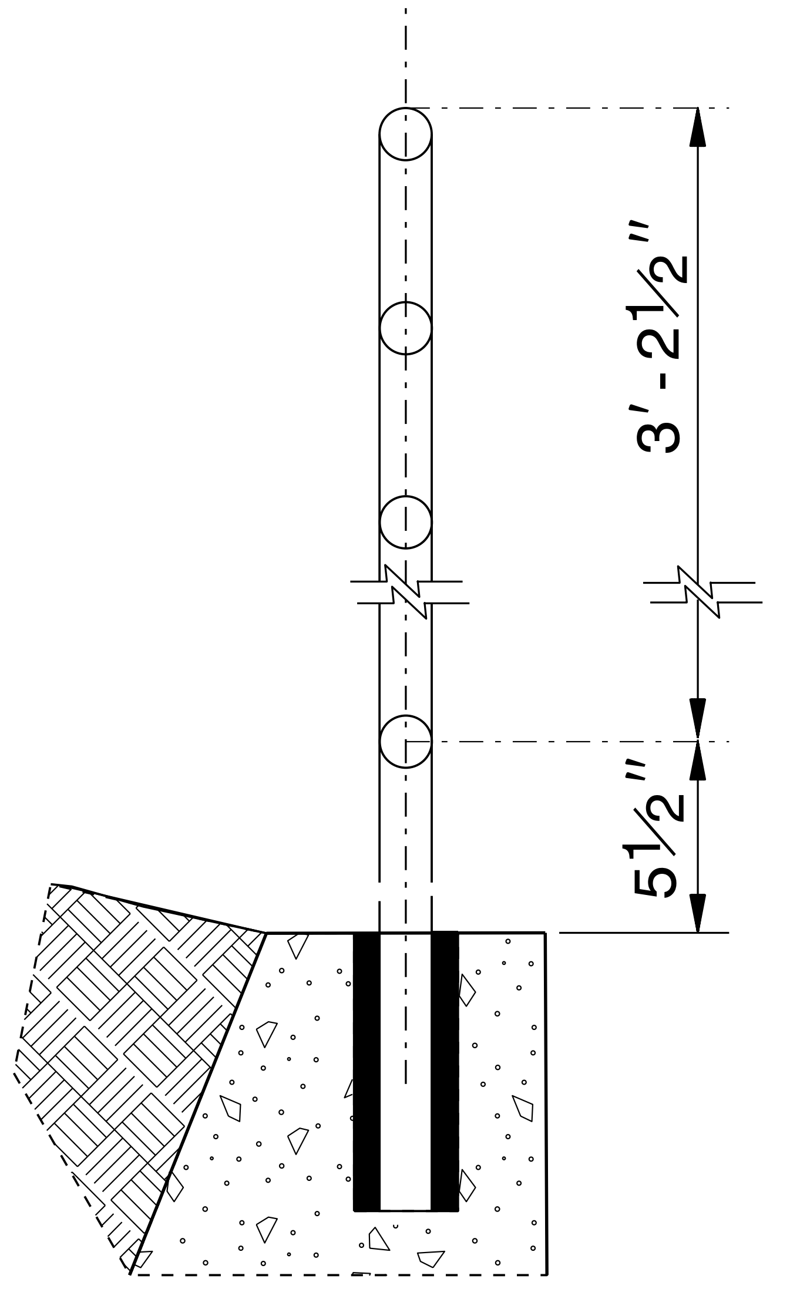
ORIGINAL BY: DATE:
MODIFIED BY: K.A. KEMPF DATE: 7-20-23
CHECKED BY: DATE:
FILE SPEC.: details\kkempf\english\safety rails 2024.dgn

9/24/2024
X:\NCDOT\R-2307B\Roadway\Proj\Safety Rails 2024.dgn
User:bevans

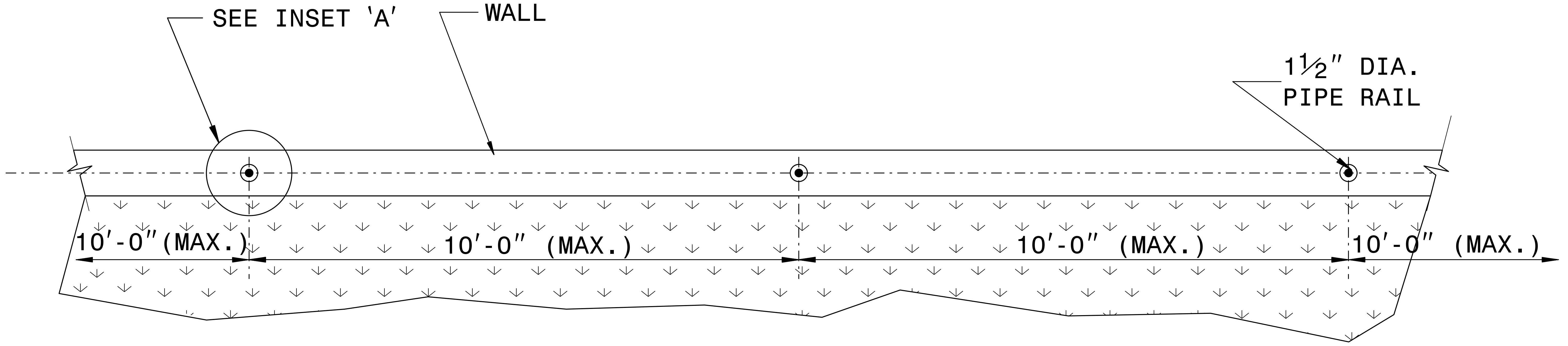
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-23



ELEVATION OF HANDRAIL



INSET 'A'



PLAN VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

EMBED PIPE RAIL INTO PROPOSED WALL WITH CHEMICAL OR CONCRETE GROUT ANCHORING SYSTEM PER THE WALL MANUFACTURER'S RECOMMENDATIONS.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1080.

CENTER THE PROPOSED RAILING ON TOP OF THE WALL WITH POST SPACING SYMMETRICAL ABOUT THE CENTER-LINE OF THE WALL.

WELD IN ACCORDANCE WITH ARTICLE 1072-18 OF THE STANDARD SPECIFICATIONS.

SUBMIT THE ATTACHMENT OF THE HANDRAIL TO THE RETAINING WALL TO THE CONTRACTS AND STANDARDS OFFICE FOR APPROVAL.

DocuSigned by:
David Burke Evans
1DFC066569F9409...
9/24/2024

SEAL
019724
DAVID BURKE EVANS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

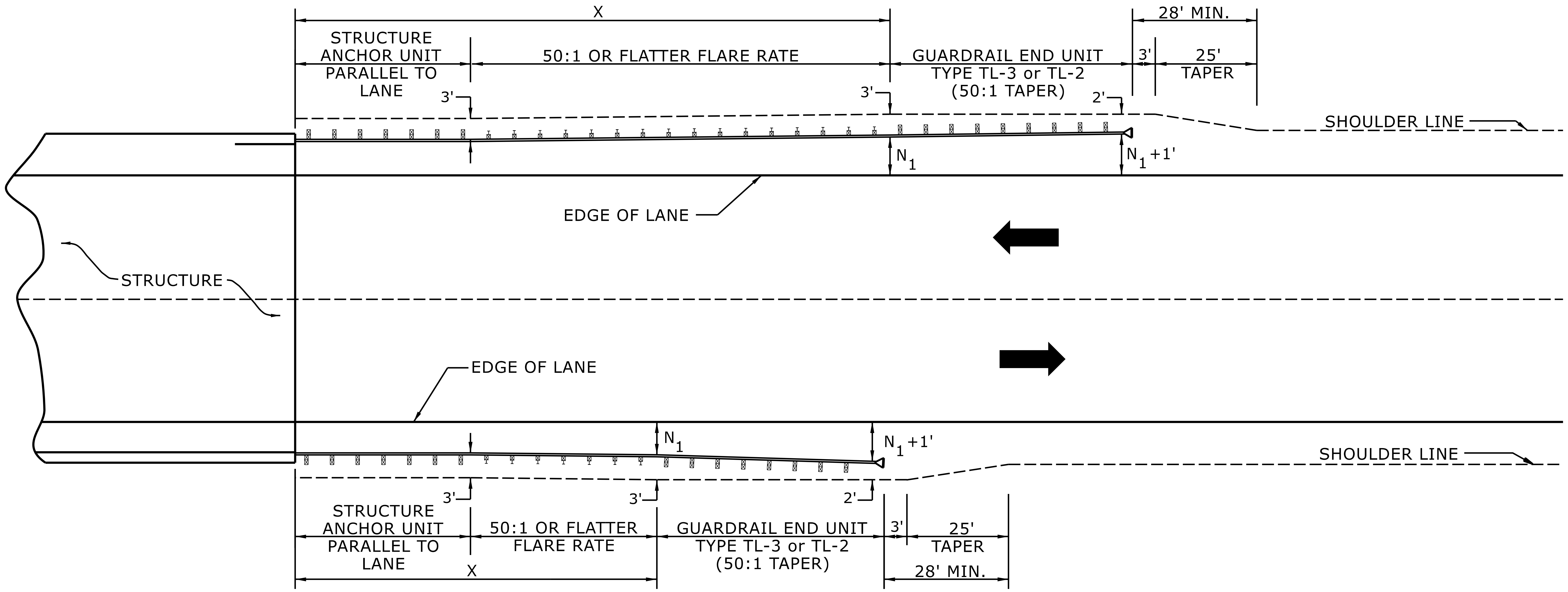
CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

**DETAIL OF PIPE HANDRAIL
MOUNTED ON A WALL**

ORIGINAL BY: E.E. WARD DATE: 12-99
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton/handrail on retaining wall.dgn

24-MAY-2018 14:10
S:\Contracts\Contracts\Special Details\jhowerton\Handrail on Retaining Wall.dgn
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-24



USE FLARE RATE AS THE CONTROL IF THE "N_1" DISTANCE IS NOT OBTAINED.
("N_1" IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS ≥ 45MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED (X) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 4 OF 15
862D01

SEAL
033144
NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/23/2024 | 7:32 AM PDT

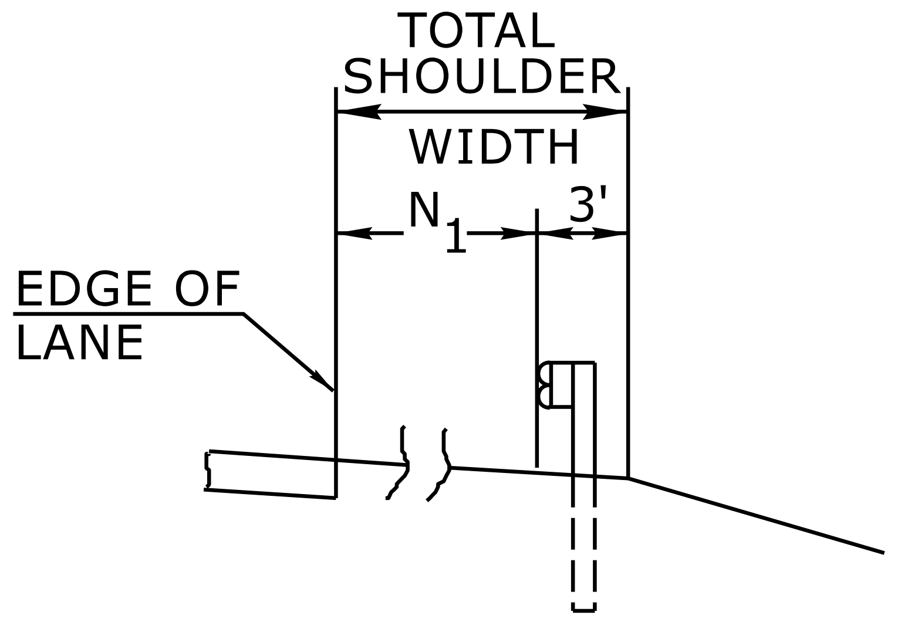
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

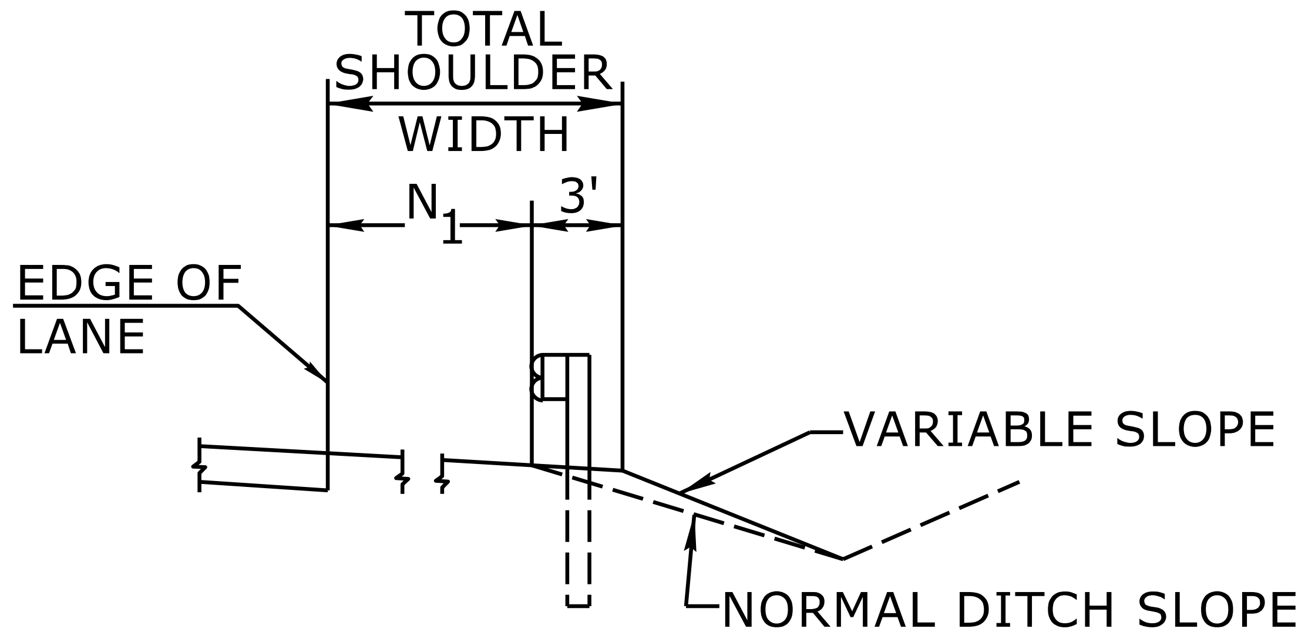
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-25

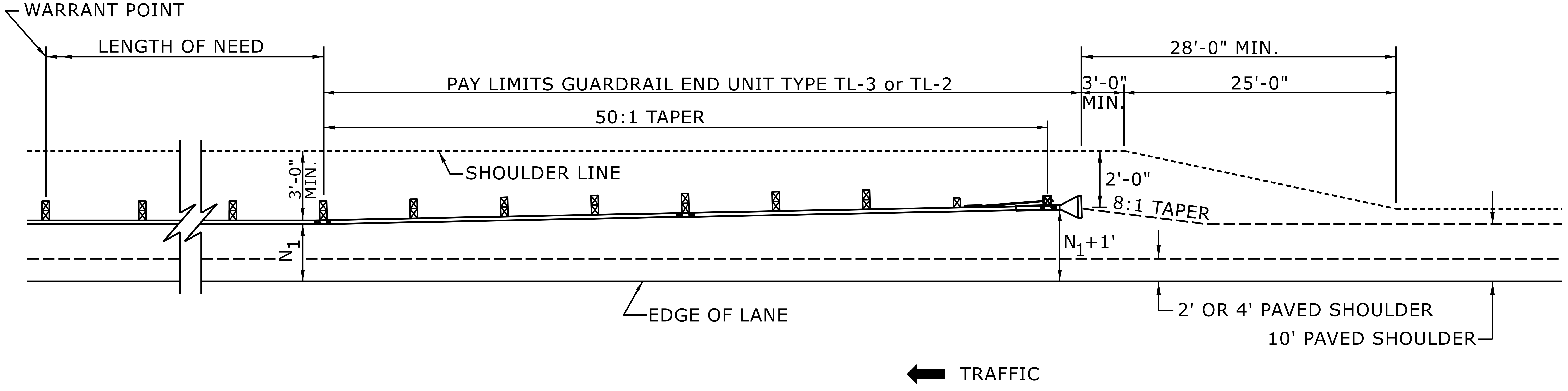


FILL SECTION



CUT SECTION

"N_1"= DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 6 OF 15
862D01

SEAL
033144
NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/23/2024 | 7:32 AM PDT

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

**CONTRACTS STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

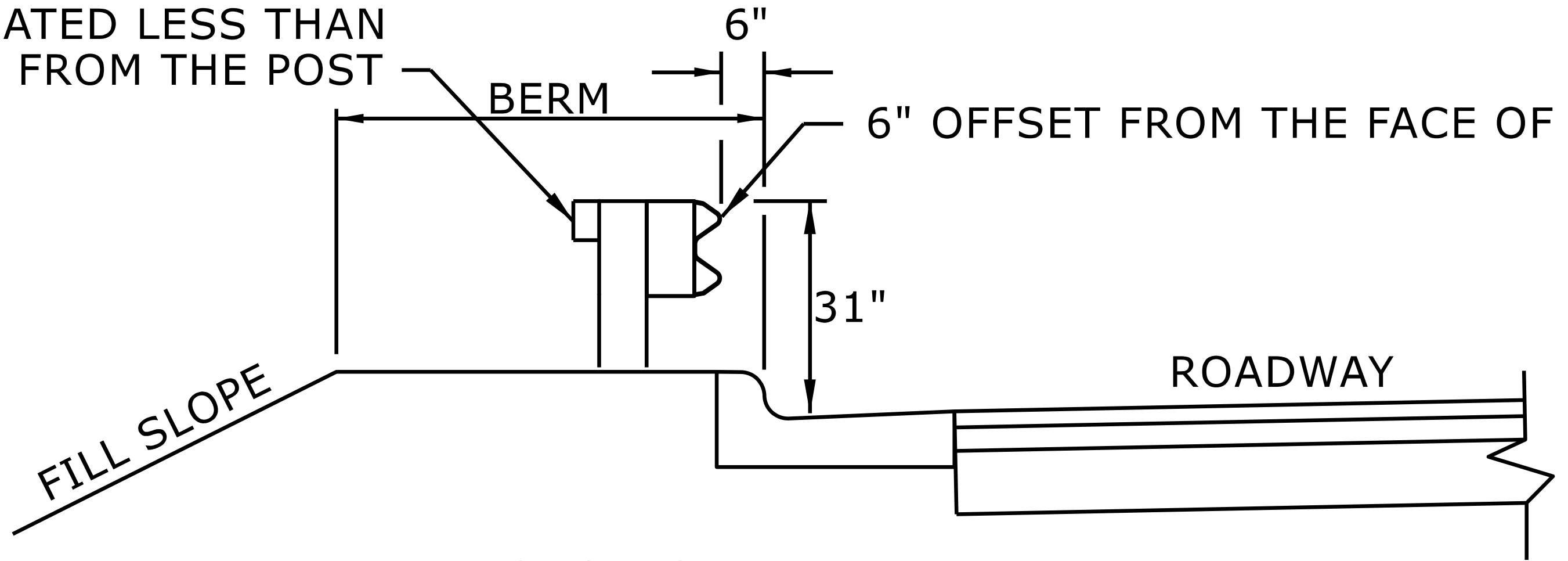
SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______
FILE SPEC.: ______

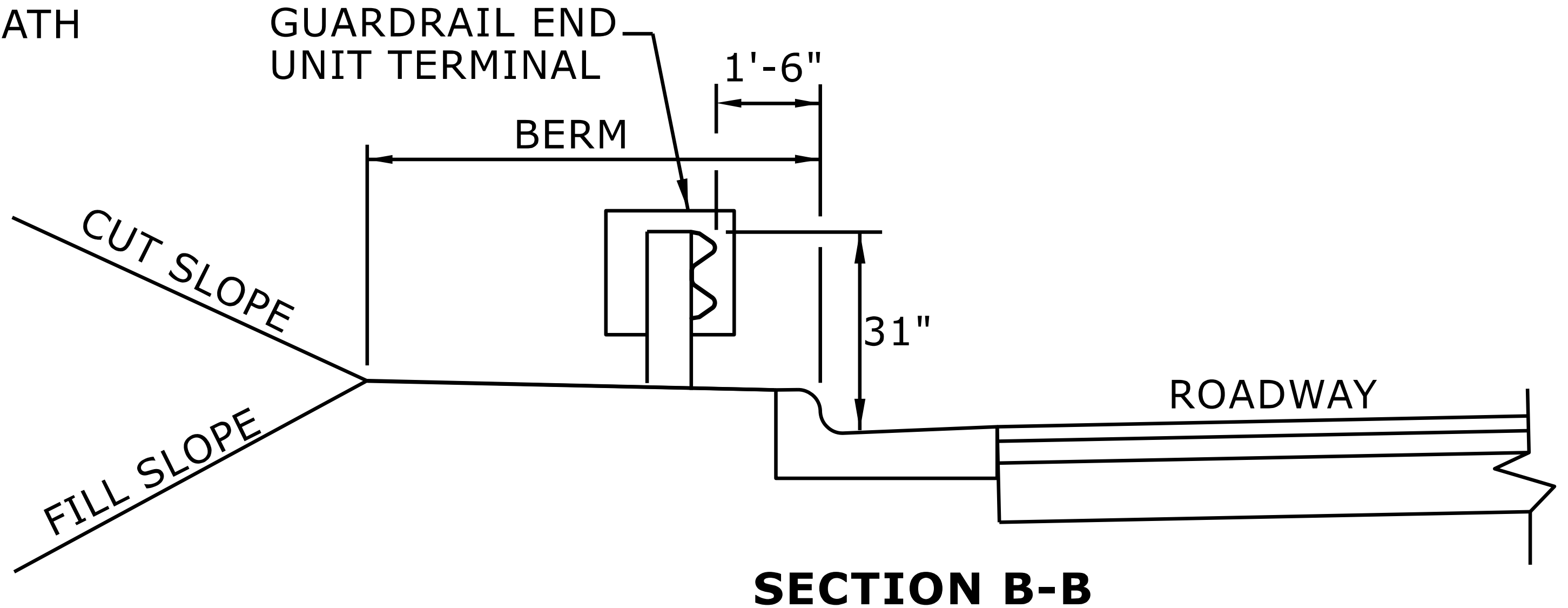
Docusign Envelope ID: C4A5229F-7C87-4BCB-BE0E-4885CD571338

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-26

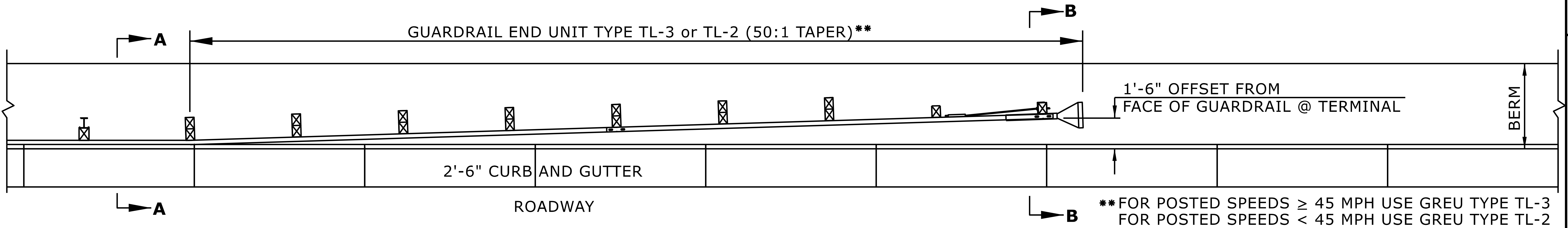
SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH



SECTION A-A



SECTION B-B



**FOR POSTED SPEEDS ≥ 45 MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45 MPH USE GREU TYPE TL-2

BICYCLE FRIENDLY RAILINGS, FENCE OR RUB RAIL SHOULD NOT BE PLACED WITHIN THE LIMITS OF THE STRUCTURAL ANCHOR OR END UNITS

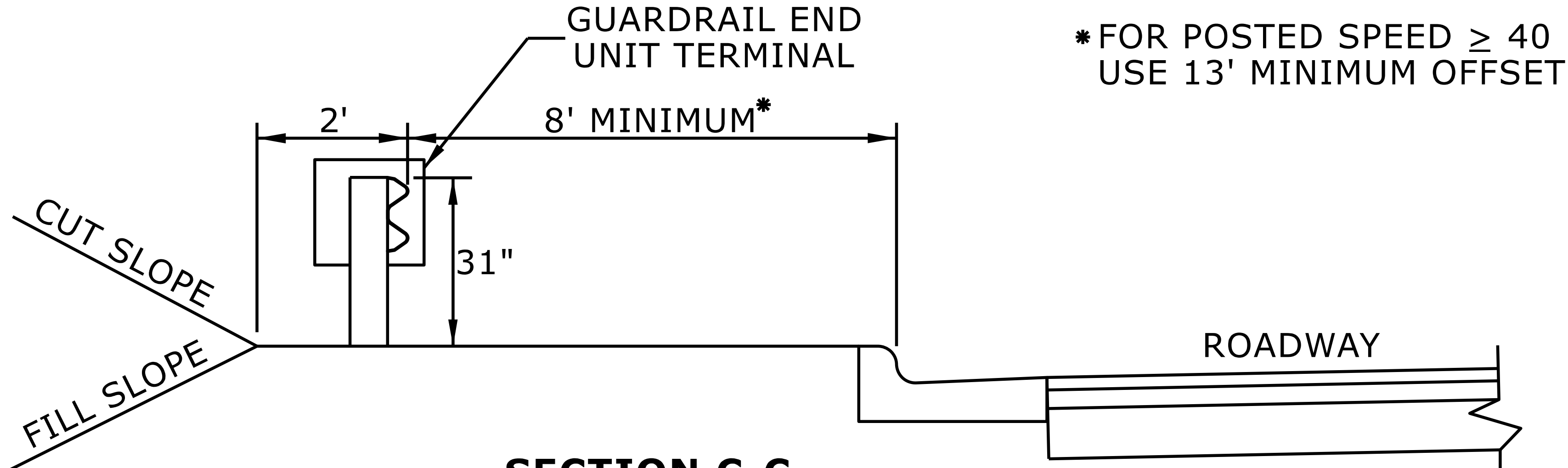
GUARDRAIL 6" FROM THE FACE OF CURB

*FOR POSTED SPEED ≥ 40 MPH USE 13' MINIMUM OFFSET

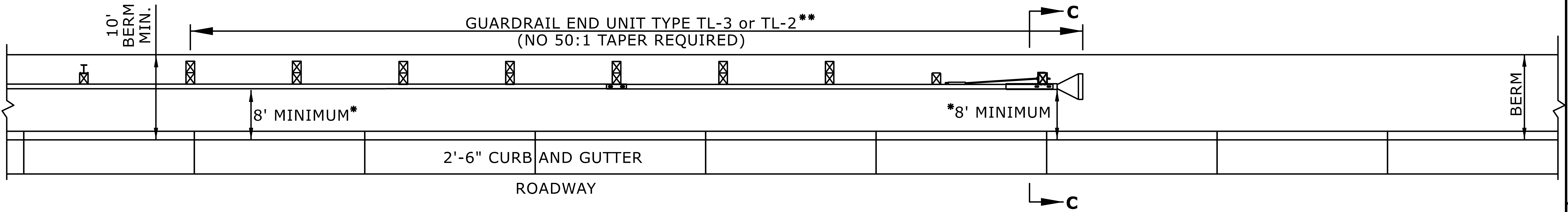
SEE THE ROADWAY DESIGN MANUAL (PART I CHAPTER 4 SECTION 4.14) FOR OFFSET DISTANCES FROM FACE OF GUARDRAIL AND BACK OF GUARDRAIL TO SIDEWALK OR SIDEPATH/SHARED-USE PATH

**FOR POSTED SPEEDS ≥ 45 MPH USE GREU TYPE TL-3
FOR POSTED SPEEDS < 45 MPH USE GREU TYPE TL-2

BICYCLE FRIENDLY RAILINGS, FENCE OR RUB RAIL SHOULD NOT BE PLACED WITHIN THE LIMITS OF THE STRUCTURAL ANCHOR OR END UNITS



SECTION C-C



GUARDRAIL 8' OR GREATER OFFSET FROM FACE OF CURB

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT
GUARDRAIL TREATMENT AT CURB AND GUTTER

SHEET 12 OF 15
862D01

SEAL 033144
NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884233D34164C5...
8/23/2024 | 7:32 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

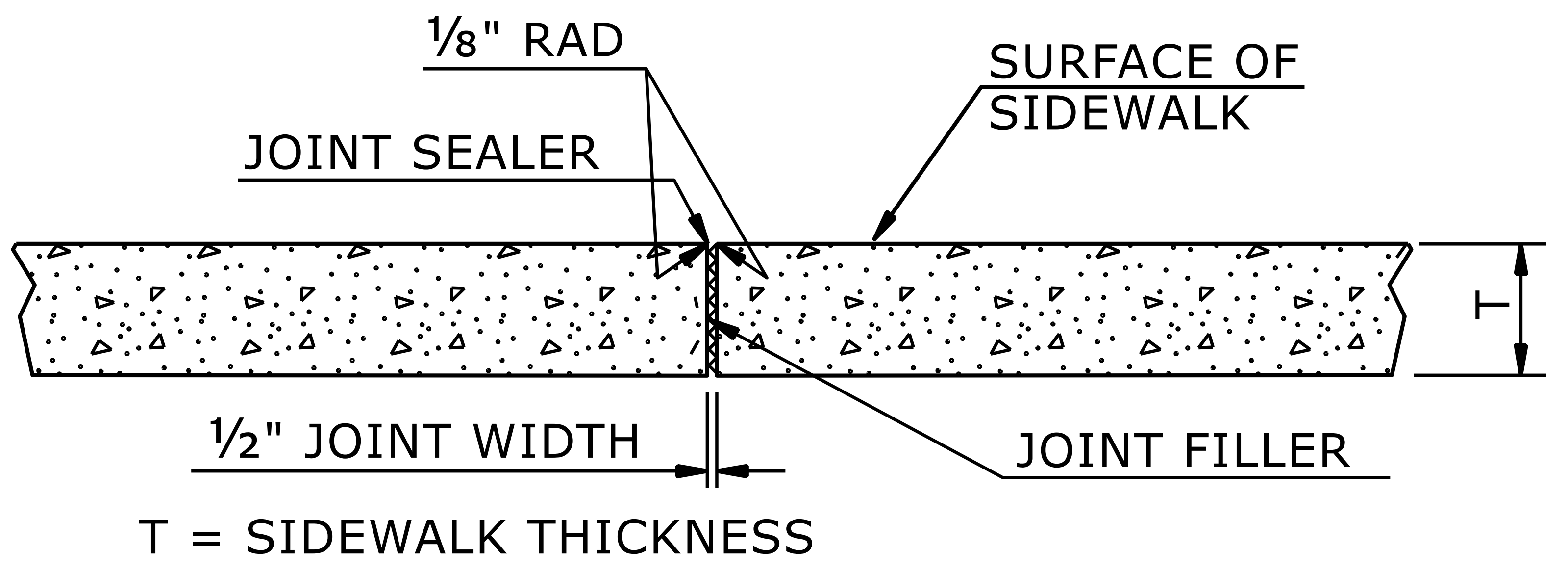
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2B-27

NOTES:

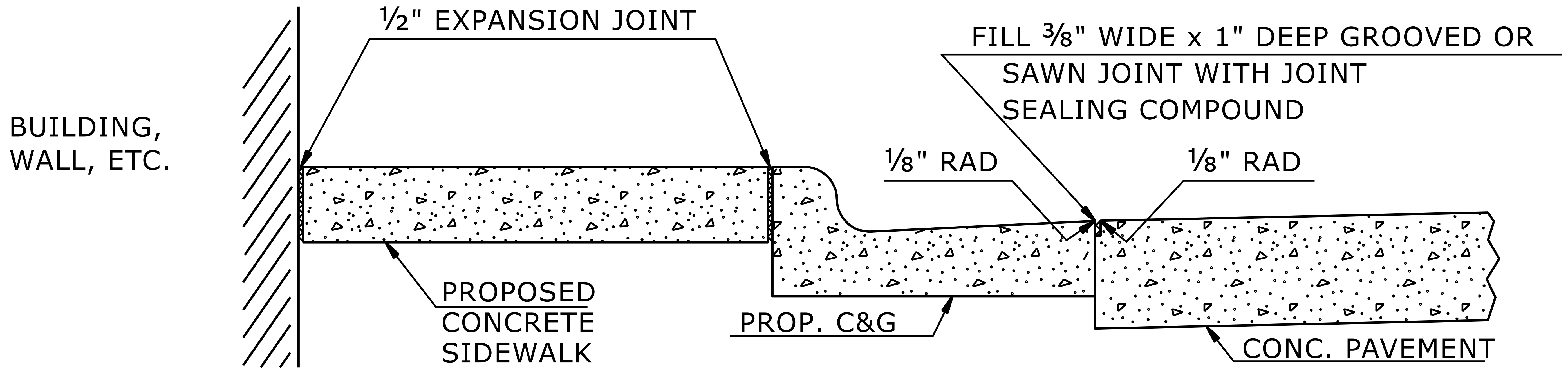
CONSTRUCT STANDARD SIDEWALK 5' WIDE AND 4" THICK UNLESS OTHERWISE DENOTED ON PLANS.

PLACE A GROOVE JOINT 1" DEEP WITH ⅛" RADII IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE ½" EXPANSION JOINT WILL BE REQUIRED AT 50' INTERVALS. A ½" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.

SEE STD. DWG. 848.06 FOR CURB RAMP LOCATION REQUIREMENTS AND CONSTRUCTION GUIDELINES.



TRANSVERSE EXPANSION JOINT IN SIDEWALK



DETAILS SHOWING JOINTS IN CONCRETE SIDEWALK

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
CONCRETE SIDEWALK

SHEET 1 OF 1
848D01

SEAL
033144
NICOLE M. HACKLER

Signed by:
Nicole M. Hackler
5884323D34164C5...
8/23/2024 | 7:32 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

Docusign Envelope ID: B6D34864-3990-42CF-8435-AF50689C8B25

11-SEP-2017 11:55
S:\Contracts\Contracts\Special Details\jhowerton\840D17 Minimum Depth Type A.dgn
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-1

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

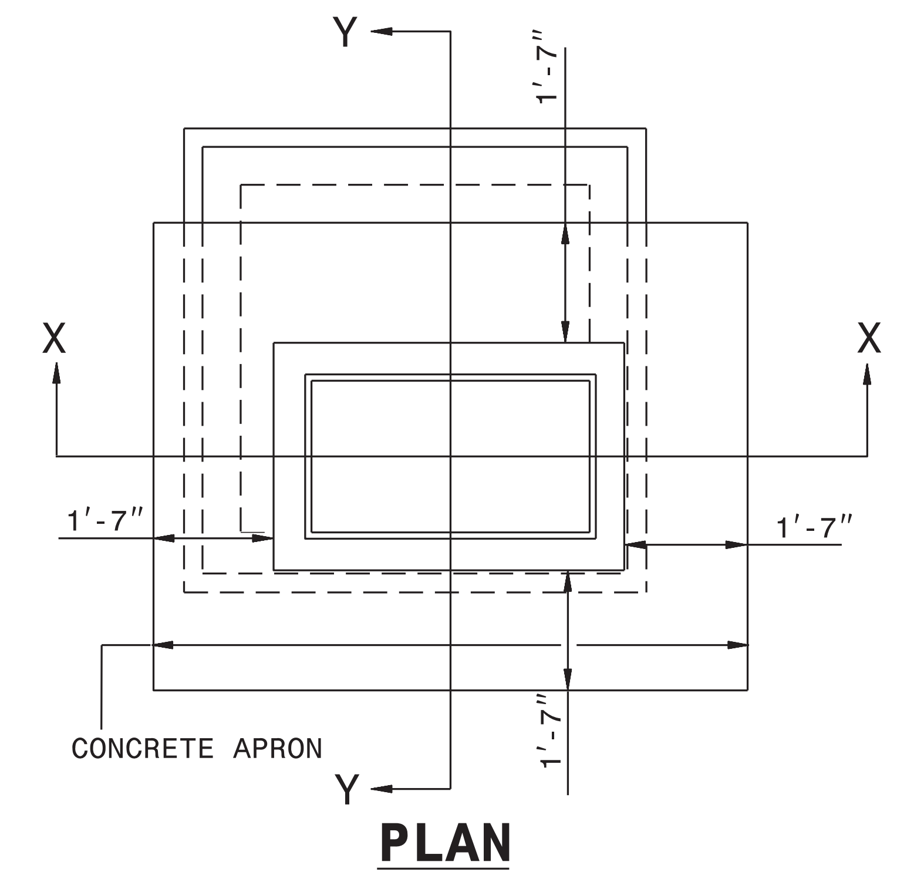
ENGLISH DETAIL DRAWING FOR

CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH

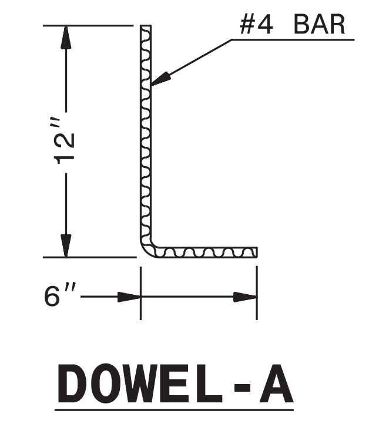
12" THRU 72" PIPE

SHEET 1 OF 2

840d17



PLAN



DOWEL-A

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

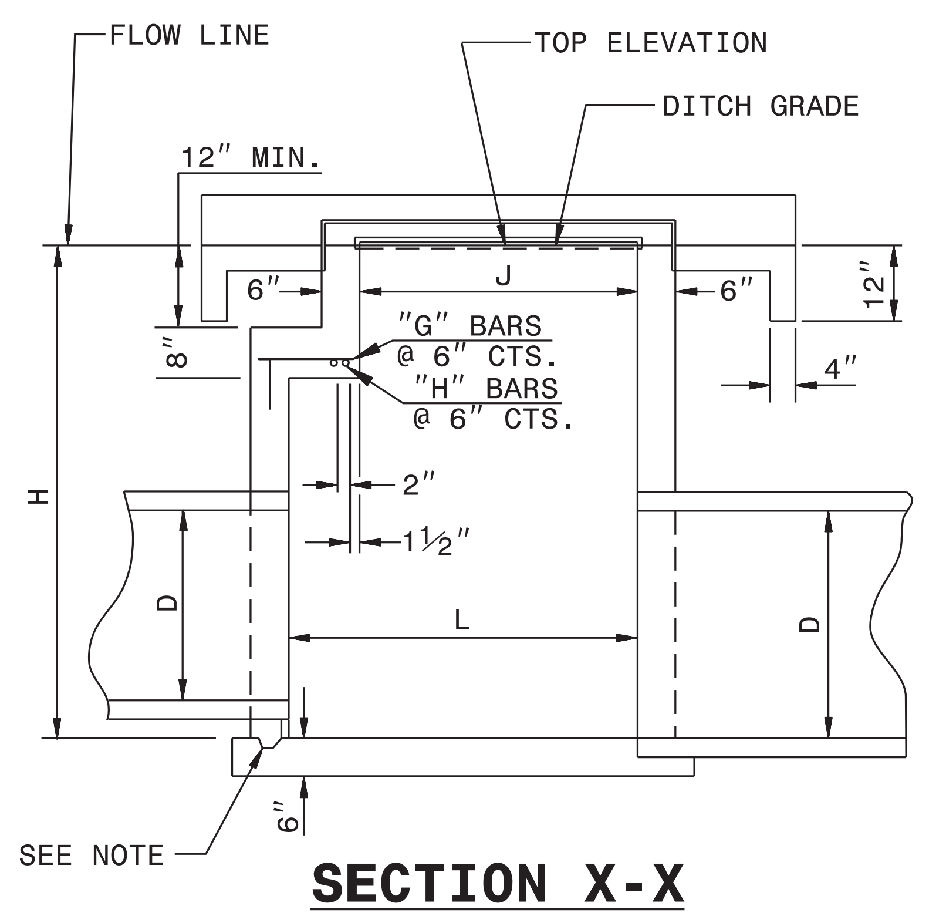
USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24(SHOWN), 840.20 (NOT SHOWN) OR 840.29 (NOT SHOWN).

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES.

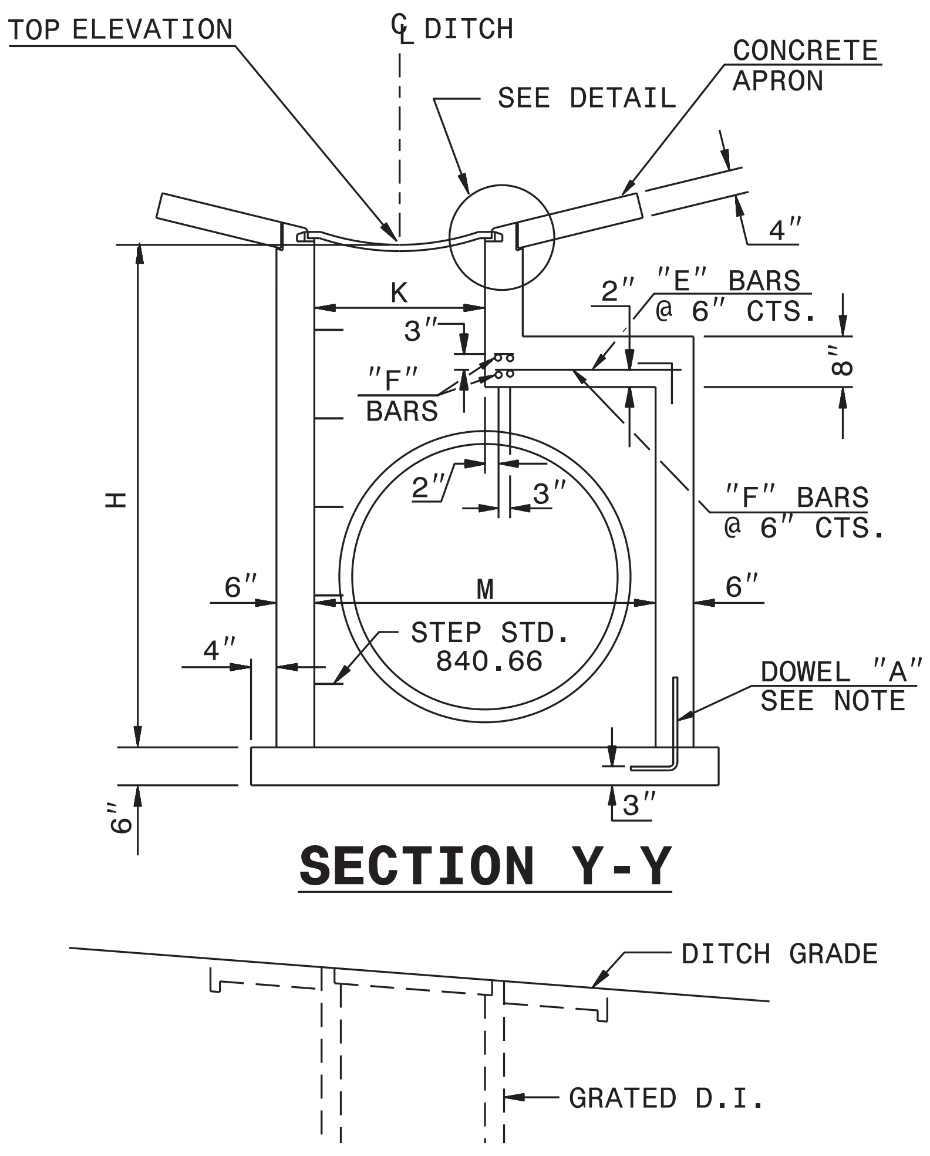
CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

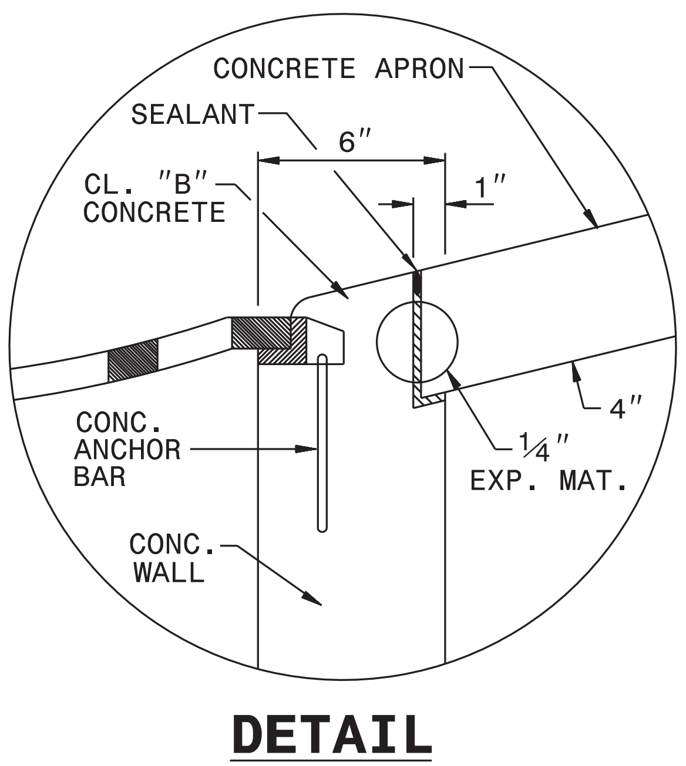
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.



SECTION X-X



SECTION Y-Y



DETAIL

(APRON SUPPORT NOTCH)

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE GRATED DROP INLET TYPE 'A'
MINIMUM DEPTH
12" THRU 72" PIPE

SHEET 1 OF 2
840d17

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

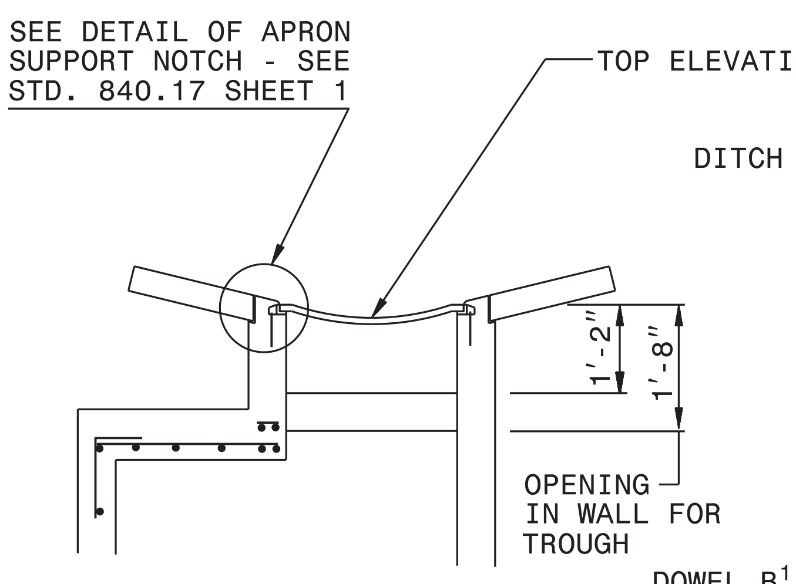
ENGLISH DETAIL DRAWING FOR

CONCRETE GRATED DROP INLET TYPE 'A' MINIMUM DEPTH

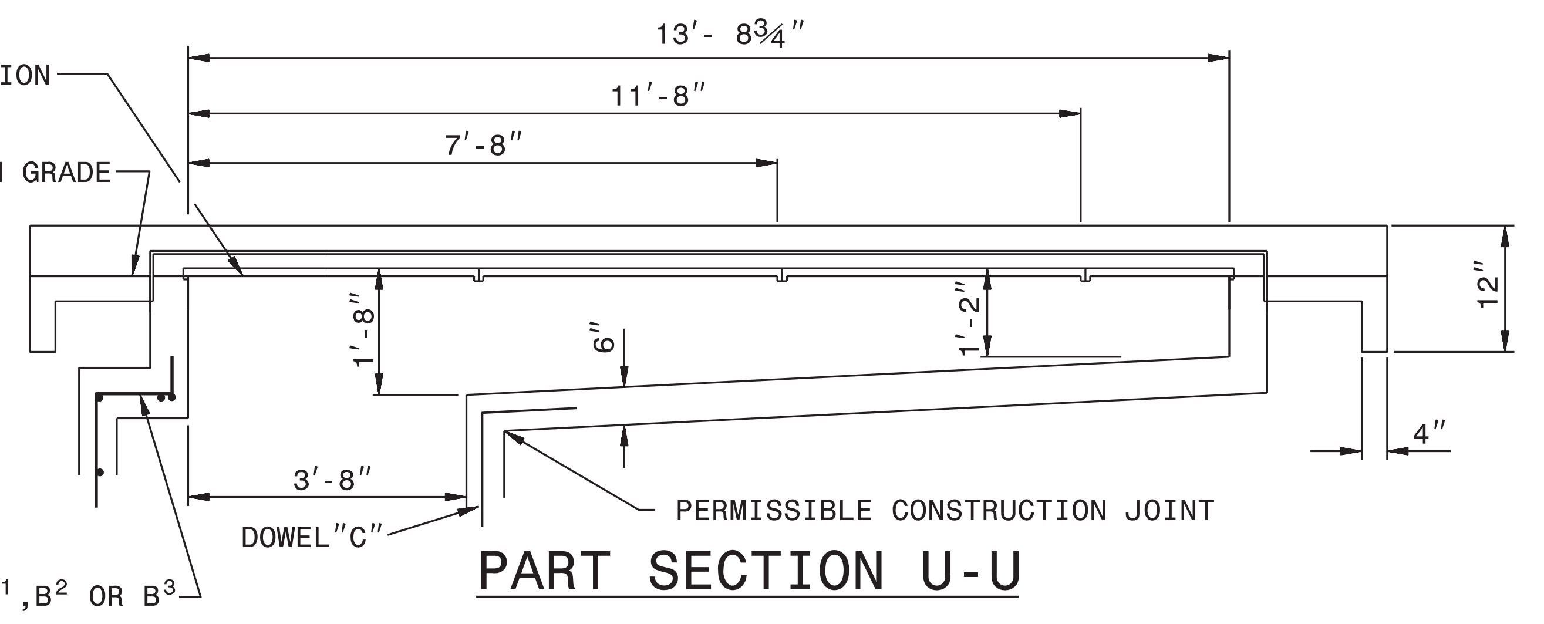
12" THRU 72" PIPE

SHEET 2 OF 2

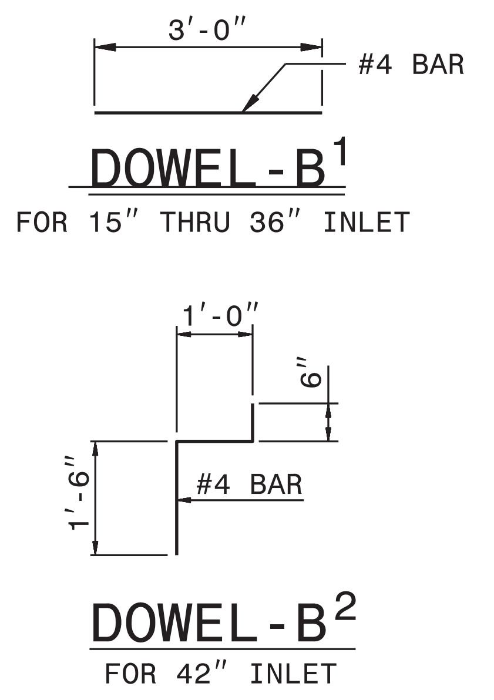
840d17



PART SECTION V-V



PART SECTION U-U

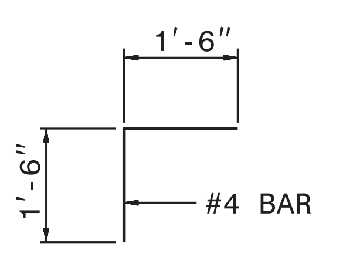


DOWEL-B¹

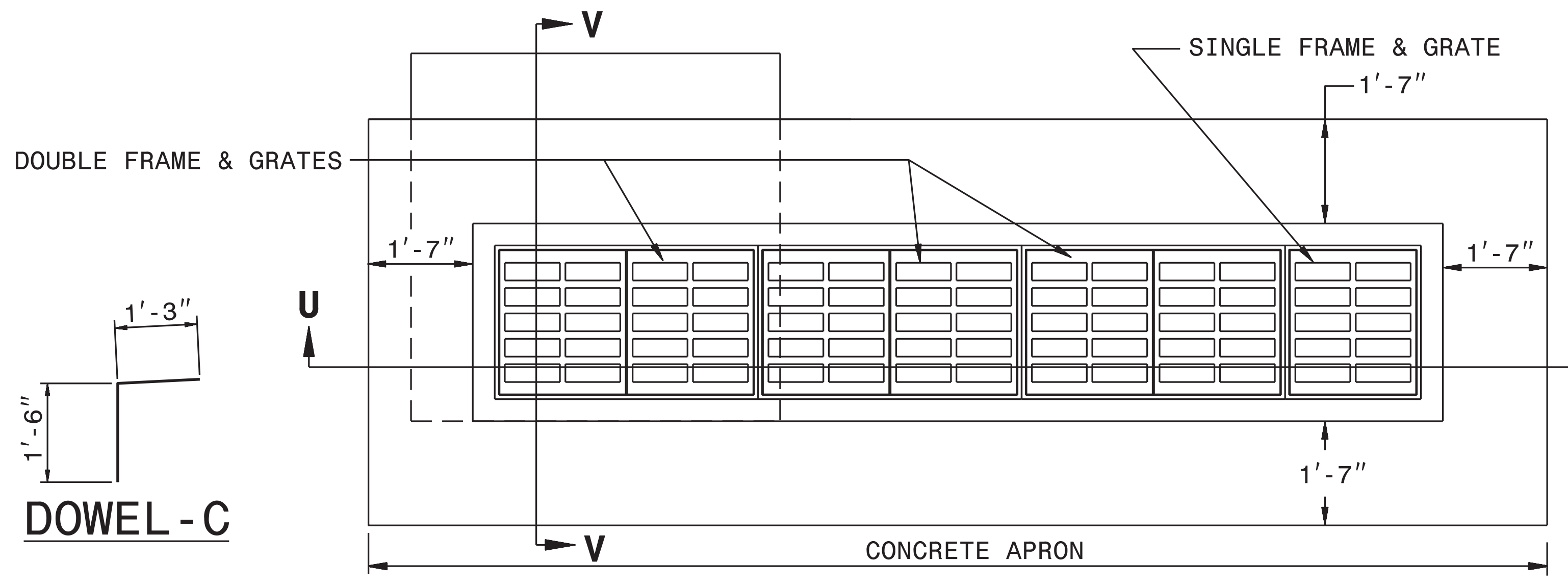
FOR 15" THRU 36" INLET

DOWEL-B²

FOR 42" INLET



DOWEL-B³



DOWEL-C

QUANTITY TO BE ADDED FOR EACH 2' INCREMENT INLET OPENING						
ADDITIONAL INLETS	2'-0"	4'-0"	6'-0"	8'-0"	10'-0"	12'-0"
CONCRETE CU. YDS.	0.191	0.417	0.665	0.897	1.145	1.380
CONCRETE APRON CU. YDS.	0.074	0.148	0.222	0.296	0.370	0.444

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS									CU YDS CONC. IN BOX					DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL LBS.	BOTTOM SLAB	H TOTAL	H PER FT HT	APRON	TOTAL	C.S.	R.C.
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH								
12"	3'-8"	2'-0"	3'-8"	2'-0"	2'-3"	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	0.395	1.683	0.015	0.024
15"	3'-8"	2'-0"	3'-8"	2'-0"	2'-5"	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	0.395	1.745	0.023	0.036
18"	↑	↑	↑	2'-0"	2'-8"	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	↑	1.807	0.033	0.049
24"			↓	2'-10"	3'-3"	8	1'-5"	6	4'-9"	—	—	—	—	27	0.444	1.362	0.278		2.201	0.059	0.085
30"			3'-8"	3'-5"	3'-10"	8	2'-0"	7	4'-9"	—	—	—	—	33	0.502	1.644	0.288		2.541	0.092	0.127
36"			4'-0"	4'-0"	4'-4"	8	2'-5"	8	4'-11"	4	0'-9"	2	4'-11"	47	0.560	1.931	0.321		2.920	0.132	0.178
42"			4'-10"	4'-10"	5'-0"	10	3'-1"	9	5'-7"	↑	1'-5"	3	5'-7"	67	0.704	2.500	0.370		3.677	0.180	0.243
48"			5'-4"	5'-4"	5'-6"	11	3'-7"	10	6'-1"		1'-11"	4	6'-1"	87	0.823	3.013	0.407		4.315	0.235	0.317
54"			6'-0"	6'-0"	6'-0"	12	4'-1"	11	6'-7"		2'-5"	5	6'-7"	107	0.951	3.589	0.444		5.072	0.297	0.401
60"			6'-6"	6'-6"	6'-7"	13	4'-9"	12	7'-3"		3'-1"	6	7'-3"	135	1.311	4.539	0.494		6.170	0.367	0.495
66"	↓	↓	7'-2"	7'-2"	7'-1"	14	5'-4"	14	7'-10"	↓	3'-7"	7	7'-10"	168	1.136	5.061	0.537	↓	6.901	0.444	0.599
72"	3'-8"	2'-0"	7'-8"	7'-8"	7'-8"	15	5'-11"	15	8'-5"	4	4'-3"	8	8'-5"	199	1.500	5.860	0.580	0.395	7.868	0.528	0.713

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE GRATED DROP INLET TYPE 'A'
MINIMUM DEPTH
12" THRU 72" PIPE

SHEET 2 OF 2
840d17

DocuSigned by:
Nicole M. Heckler
5884323D34164C5...
8/13/2024 | 7:49 AM

NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL
33144
NICOLE M. HECKLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J. Howerton DATE: 1/22/14
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: jhowerton\minimum depth type A.dgn

PROJ. REFERENCE NO.	SHEET NO.
R-2307B	2D-2

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL DROP INLETS OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR 2″ KEYWAY OR #4 BAR DOWELS AT 12″ CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

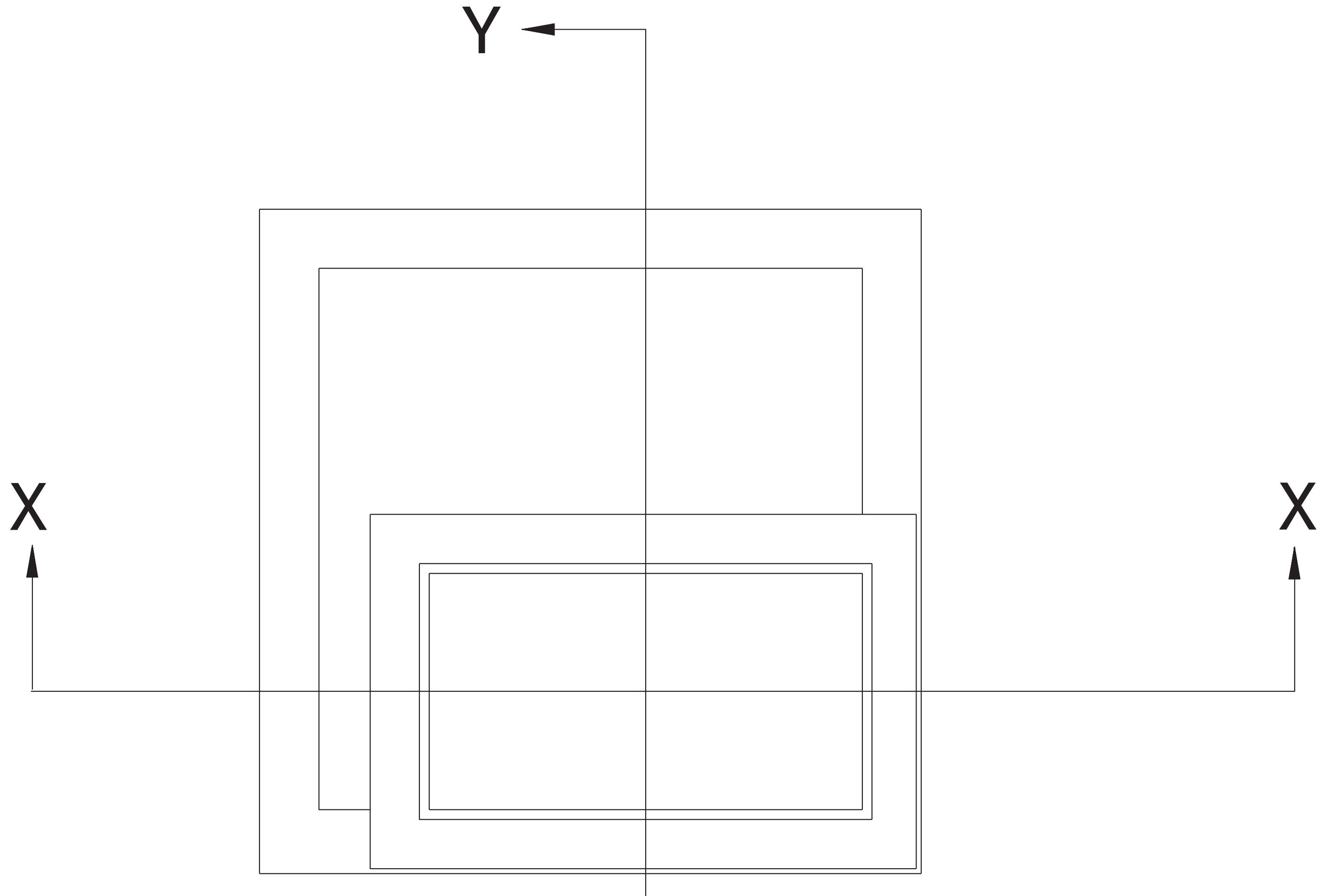
INSTALL 2″ WEEPHOLES AS DIRECTED BY THE ENGINEER.

INSTALL STONE DRAINS, OF A MINIMUM OF 1 CUBIC FOOT OF NO. 78M STONE IN A POROUS FABRIC BAG OR WRAP, AT EACH WEEP HOLE OR AS DIRECTED BY THE ENGINEER.

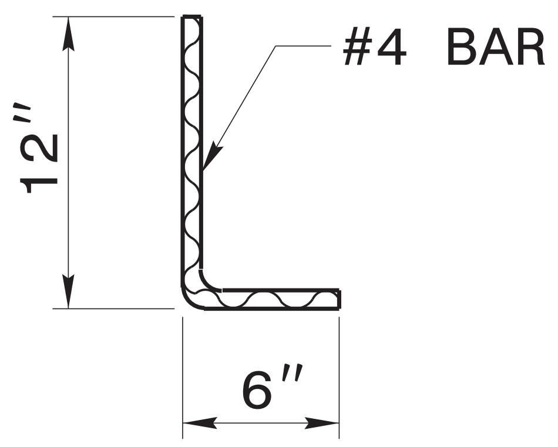
CHAMFER ALL EXPOSED CORNERS 1″.

DRAWING NOT TO SCALE.

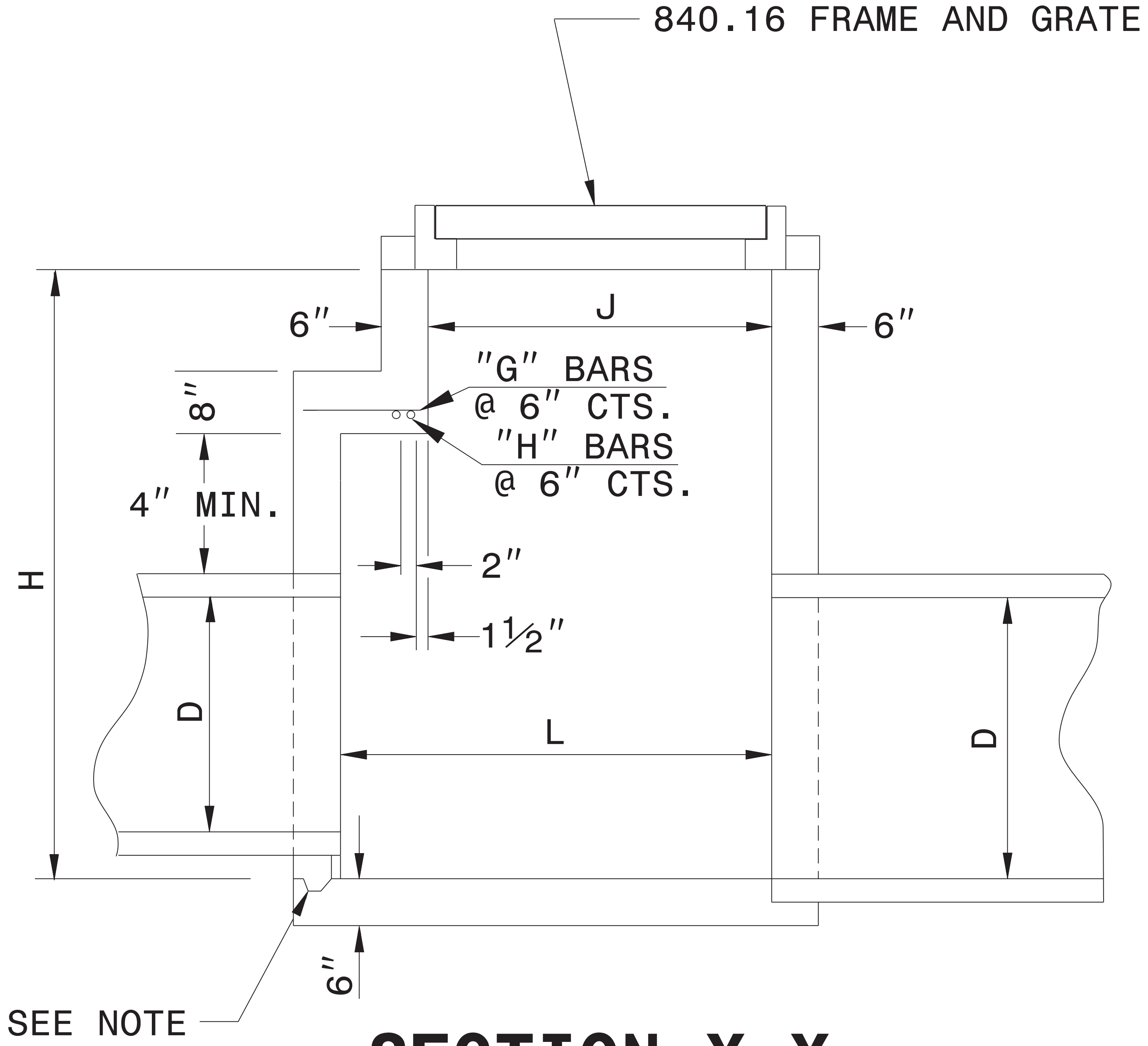
DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.



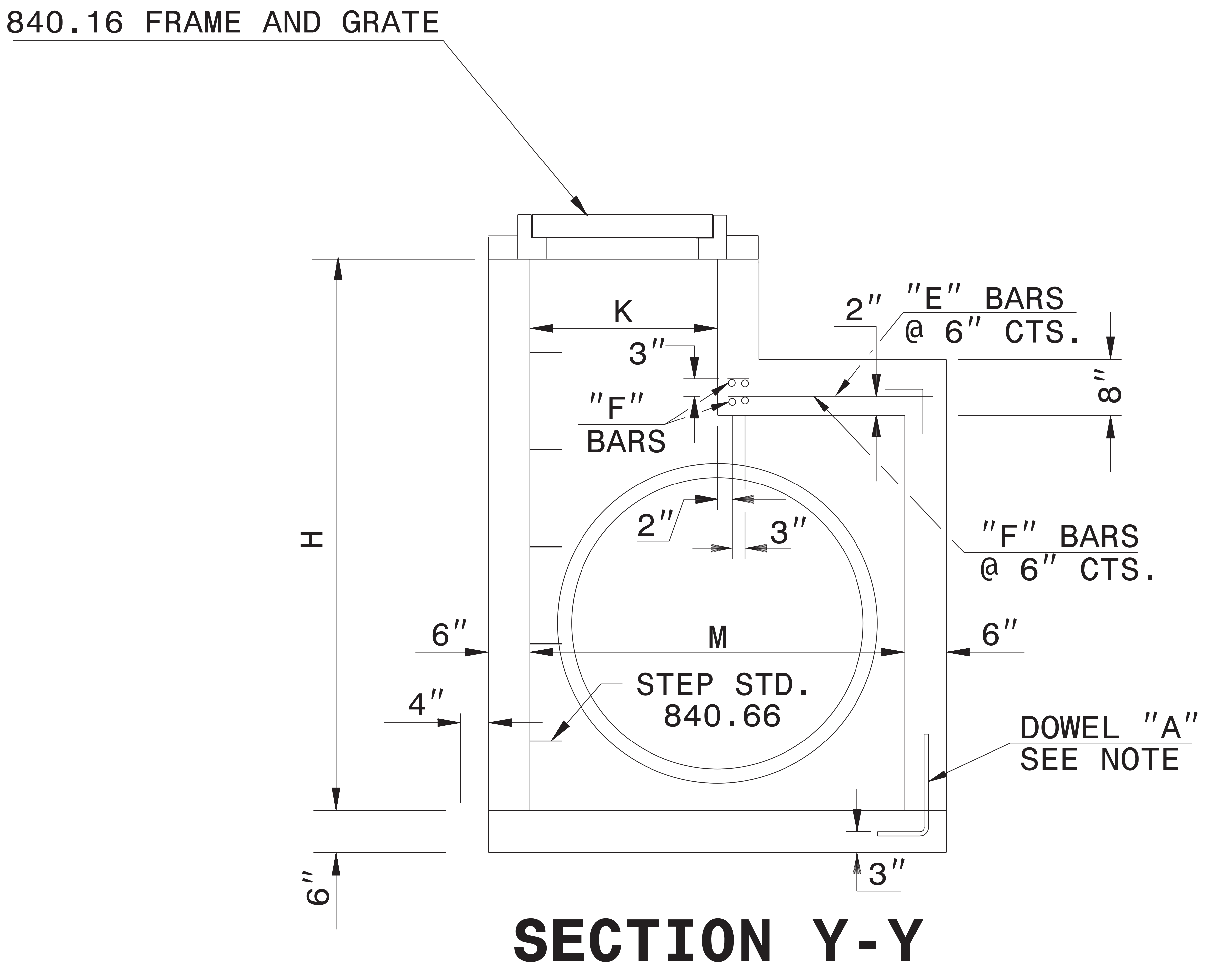
PLAN



DOWEL



SECTION X-X



SECTION Y-Y

MIN. DIMENSIONS AND QUANTITIES FOR CONCRETE DROP INLET(BASED ON MIN. HEIGHT, H)

DIMENSIONS OF BOX AND PIPE						REINFORCING STEEL - NO. 4 BARS									CU YDS CONC. IN BOX				DEDUCTIONS FOR ONE PIPE	
PIPE	SPAN	WIDTH	SPAN	WIDTH	HEIGHT	BARS E		BARS F		BARS G		BARS H		TOTAL LBS.	BOTTOM SLAB	H TOTAL	H PER FT HT	TOTAL		
D	J	K	L	M	H	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH						C.S.	R.C.
12″	3′-0″	2′-0″	3′-8″	2′-0″	3′-9″	—	—	—	—	—	—	—	—	—	0.362	0.926	0.247	1.288	0.015	0.024
15″	3′-0″	2′-0″	3′-8″	2′-0″	4′-0″	—	—	—	—	—	—	—	—	—	0.362	0.988	0.247	1.350	0.023	0.036
18″				2′-0″	4′-3″	—	—	—	—	—	—	—	—	—	0.362	1.050	0.247	1.412	0.033	0.049
24″				2′-10″	4′-9″	8	1′-5″	6	4′-9″	—	—	—	—	27	0.444	1.362	0.278	1.806	0.059	0.085
30″			3′-8″	3′-5″	5′-3″	8	2′-0″	7	4′-9″	—	—	—	—	33	0.502	1.644	0.288	2.146	0.092	0.127
36″			4′-0″	4′-0″	5′-9″	8	2′-5″	8	4′-11″	4	0′-9″	2	4′-11″	47	0.560	1.931	0.321	2.525	0.132	0.178
42″			4′-10″	4′-10″	6′-3″	10	3′-1″	9	5′-7″		1′-5″	3	5′-7″	67	0.704	2.500	0.370	3.282	0.180	0.243
48″			5′-4″	5′-4″	6′-9″	11	3′-7″	10	6′-1″		1′-11″	4	6′-1″	87	0.823	3.013	0.407	3.920	0.235	0.317
54″			6′-0″	6′-0″	7′-3″	12	4′-1″	11	6′-7″		2′-5″	5	6′-7″	107	0.951	3.589	0.444	4.677	0.297	0.401
60″			6′-6″	6′-6″	7′-9″	13	4′-9″	12	7′-3″		3′-1″	6	7′-3″	135	1.311	4.539	0.494	5.775	0.367	0.495
66″			7′-2″	7′-2″	8′-3″	14	5′-4″	14	7′-10″		3′-7″	7	7′-10″	168	1.136	5.061	0.537	6.506	0.444	0.599
72″	3′-0″	2′-0″	7′-8″	7′-8″	8′-9″	15	5′-11″	15	8′-5″	4	4′-3″	8	8′-5″	199	1.500	5.860	0.580	7.473	0.528	0.713

DocuSigned by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 7:49 AM PDT

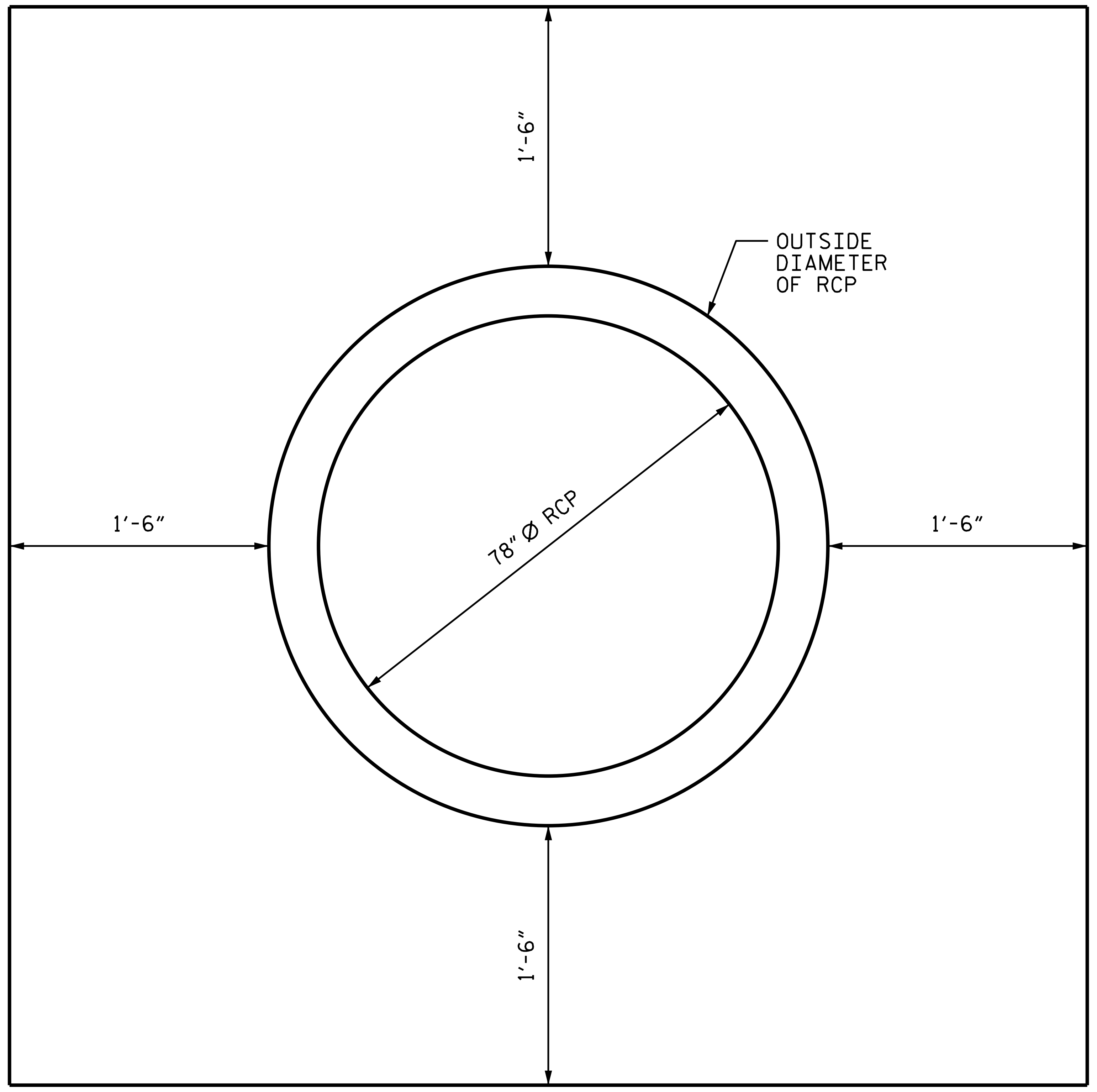
NICOLE M. HACKLER
SEAL 33144

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

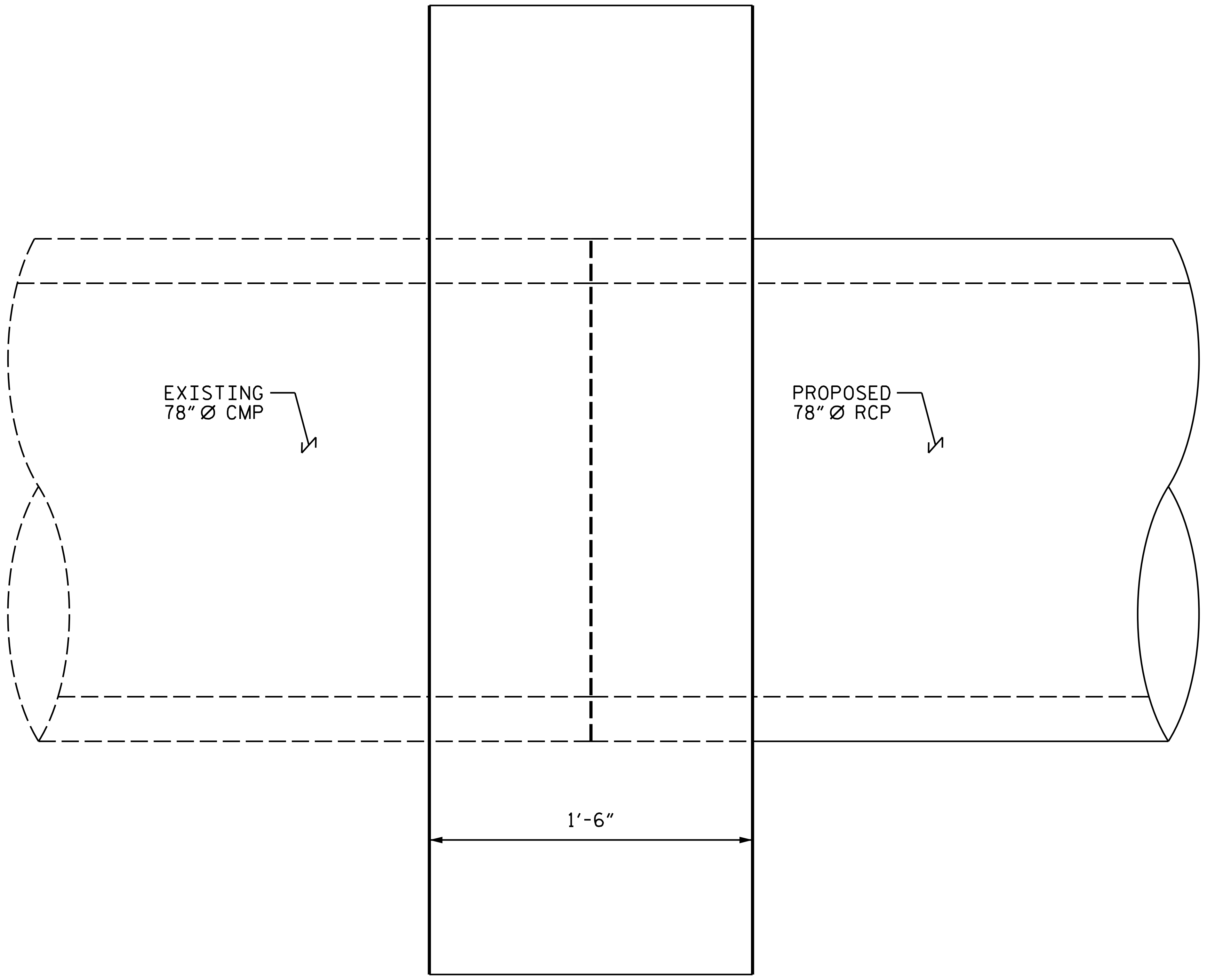
SPECIAL DI

ORIGINAL BY: rnbritt DATE: 05-15-09
MODIFIED BY: rnbritt DATE: 08-25-09
CHECKED BY: DATE:
FILE SPEC.: detail/nbritt/english/interstate/i5010di30-18rcp.dgn

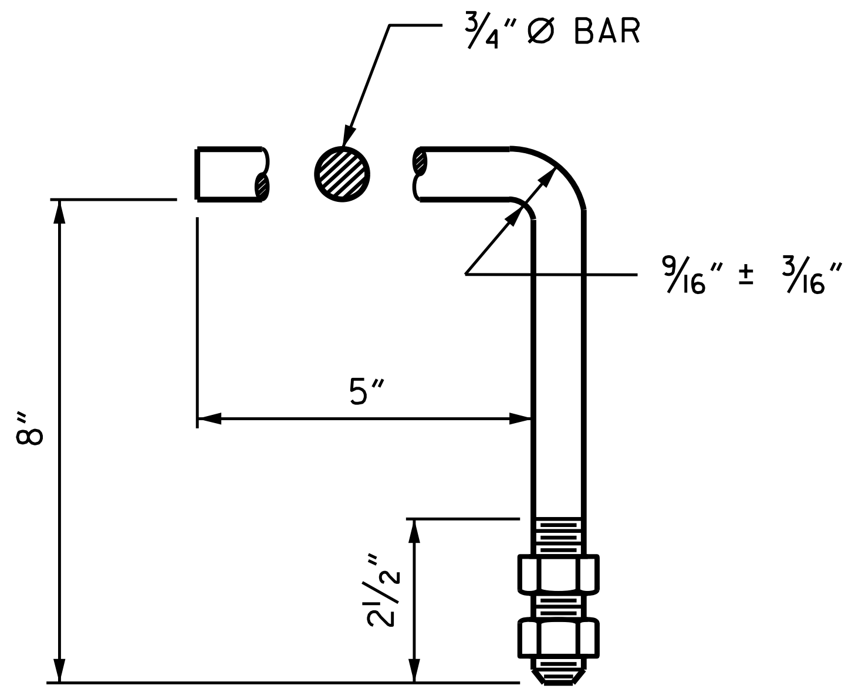
PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-3



ELEVATION



SIDE ELEVATION



HOOK BOLT

NOTES

INSTALL ¾″ Ø HOOK BOLTS ALONG THE CIRCUMFERENCE OF THE EXISTING 78″ Ø CMP.

¾″ Ø HOOK BOLTS SHALL CONFORM TO OR EXCEED ASTM A307 OR ASTM A836.

¾″ Ø HOOK BOLTS AND NUTS SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.

PIPE COLLAR SHALL BE USED TO EXTEND THE EXISTING 78″ Ø CMP AS SHOWN OR AS DIRECTED BY THE ENGINEER.

CONCRETE USED IN COLLAR SHALL MEET OR EXCEED THE REQUIREMENTS OF CLASS “B” CONCRETE.

THE PIPE COLLAR SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 840 OF THE STANDARD SPECIFICATIONS.

¾″ HOOK BOLTS SHALL BE USED TO ANCHOR EXISTING 78″ Ø CMP TO THE CONCRETE COLLAR.

CLASS “B” CONCRETE QUANTITY: 3.8 CU. YDS.

SEAL 20125
MARSHALL G. CHEEK, JR.

DocuSigned by:
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
8/13/2024 | 11:13 AM EDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

78″ Ø
PIPE COLLAR

STRUCTURE 2944

DRAWN BY : STM DATE : 03/24
CHECKED BY : MGC DATE : 04/24

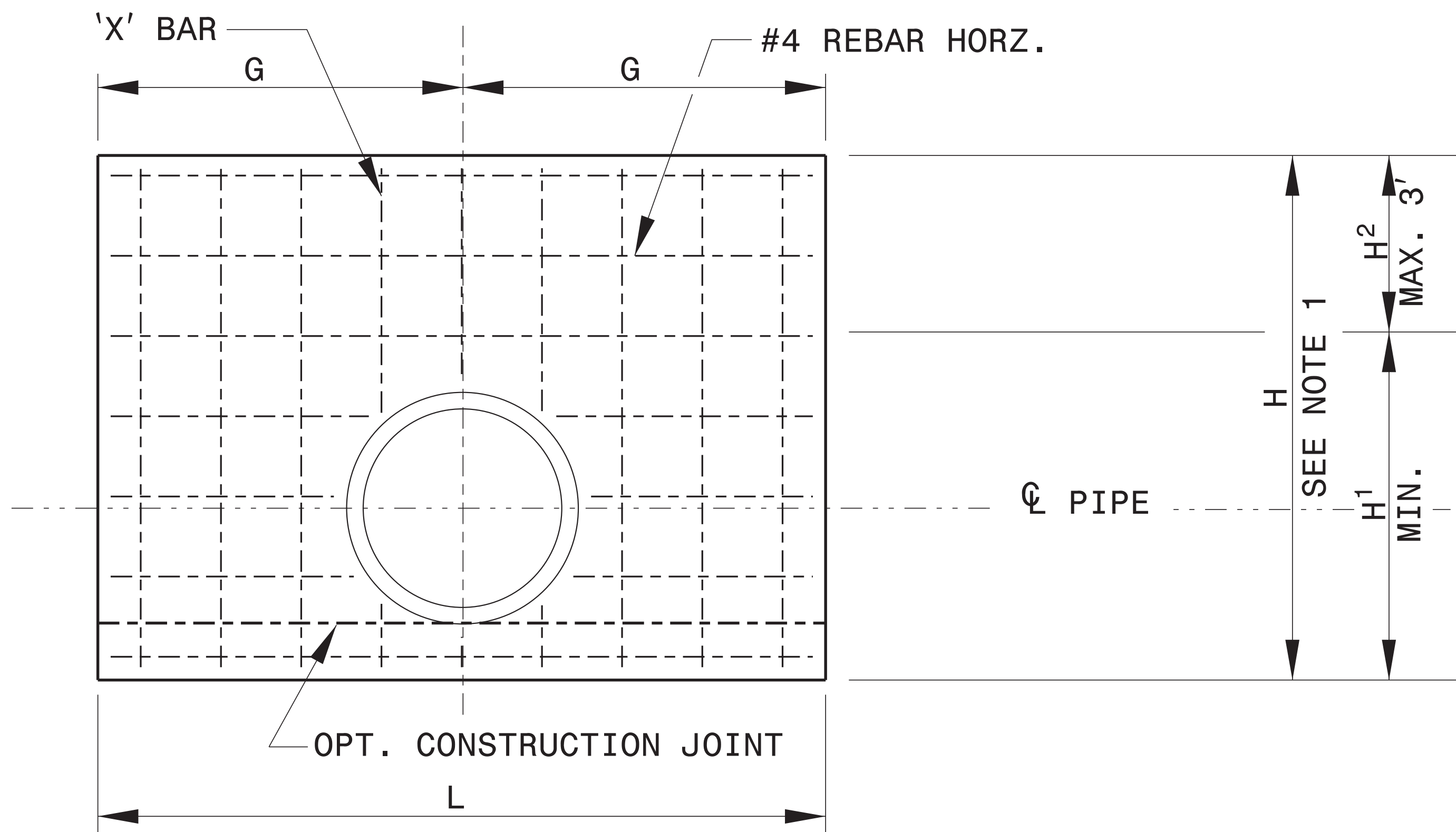
4/16/2024
X:\NCDOT\R-2307B\Structures\Pipe Collar\Working_SMU_SpecialCollar 78in.dgn
User:smassinople

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-4

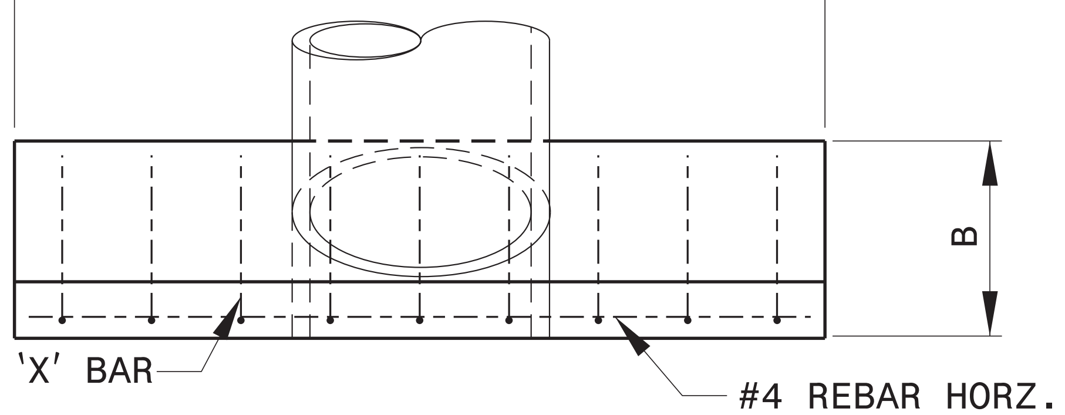
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE ENDWALL AND SLUICE GATE
15″ THRU 48″ PIPE - 90° SKEW

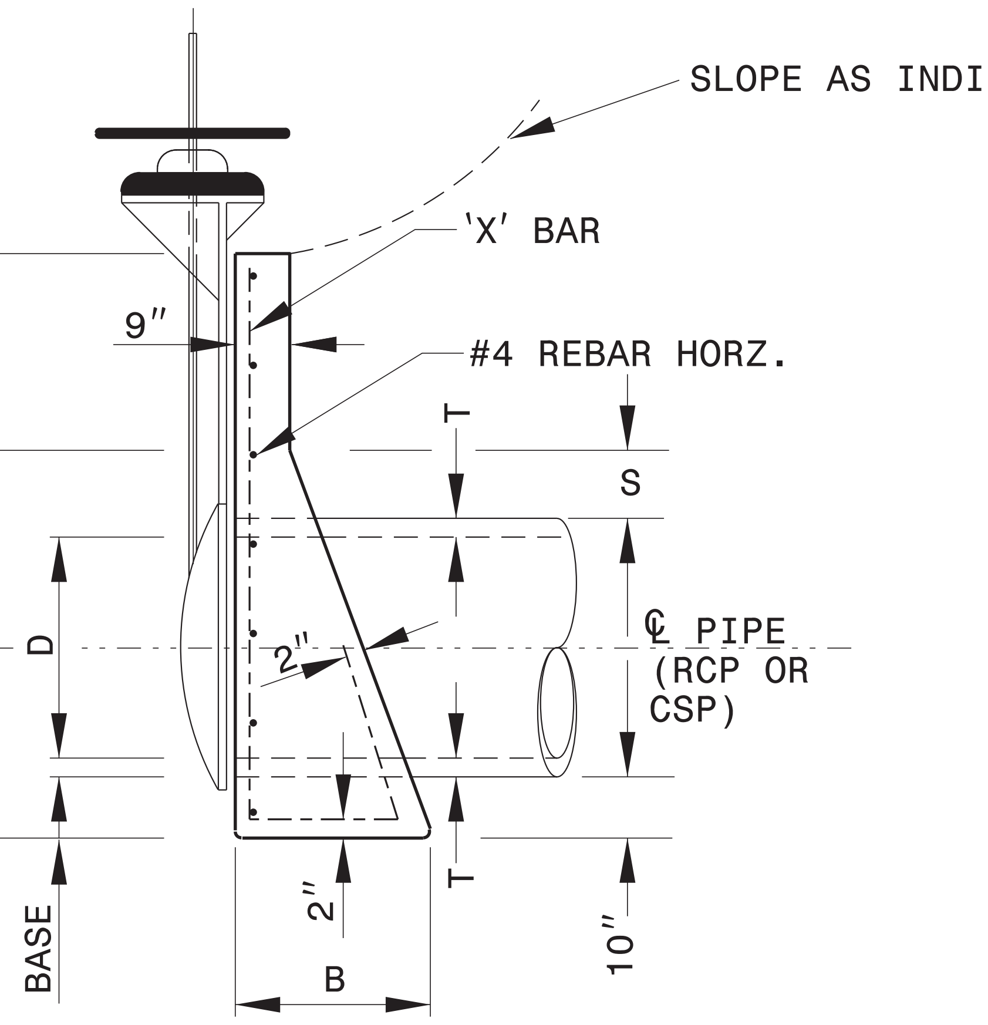
SHEET 1 OF 1
838D02



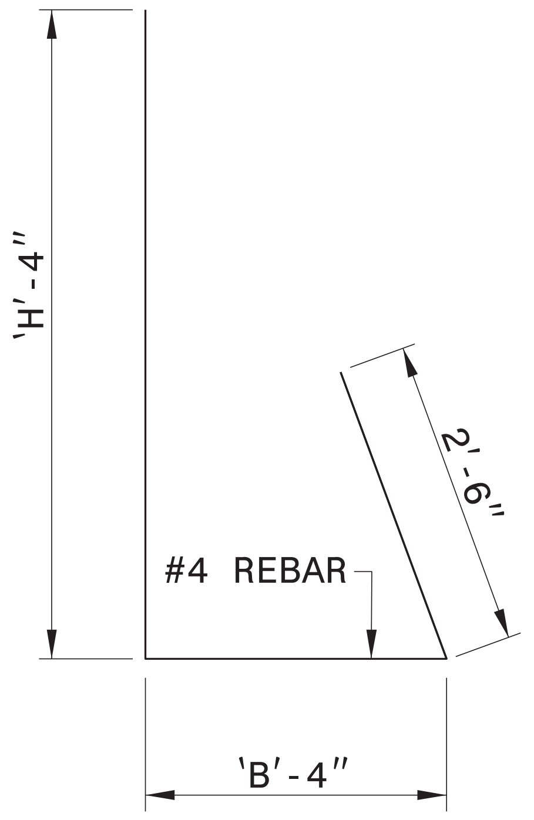
ELEVATION



PLAN

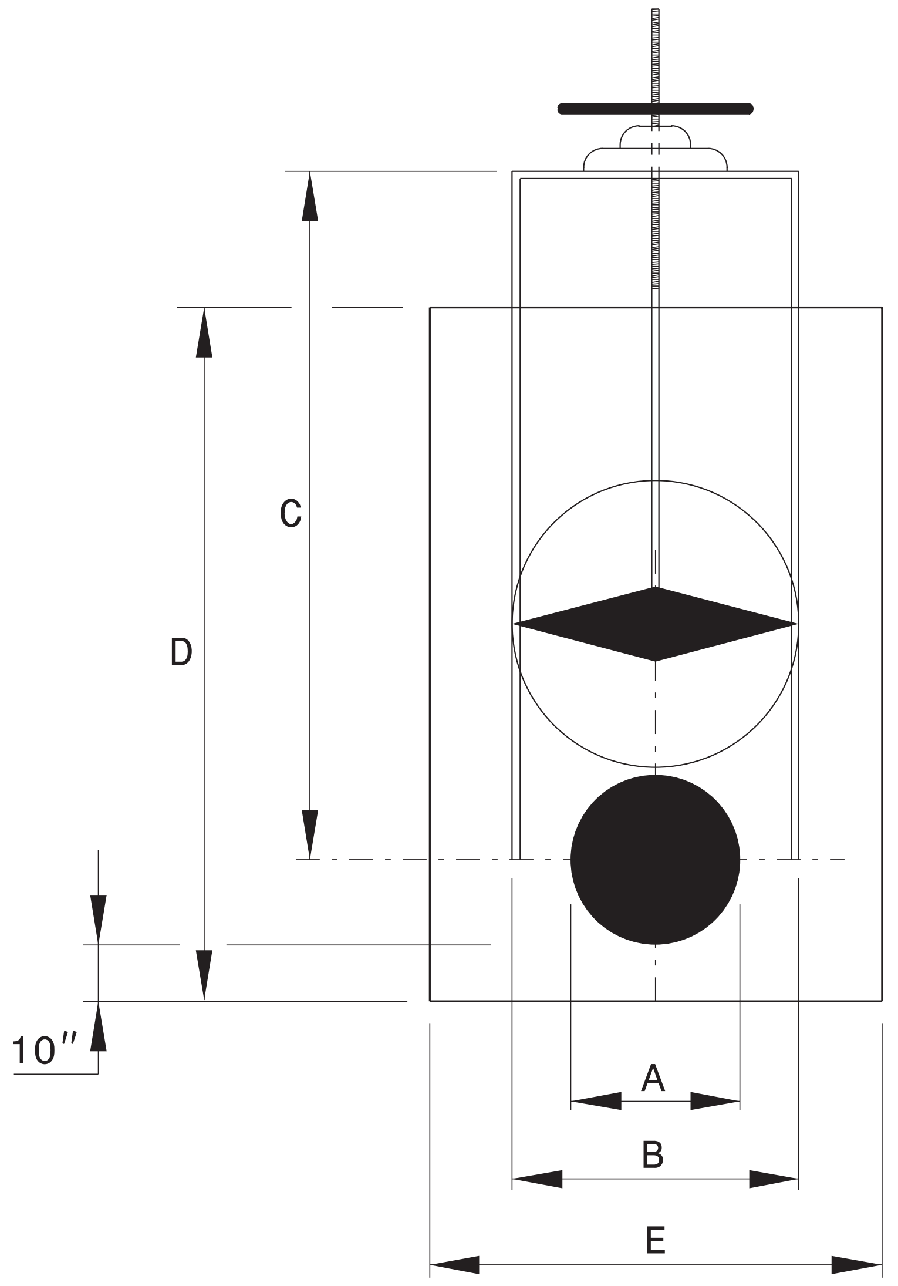


END ELEVATION



DOWEL 'X' BAR

GENERAL NOTES:
1. LIMIT VARIABLE HEIGHT DIMENSION (H) TO FRAME HEIGHT OF SLUICE GATE, 3′ ABOVE THE H^1 DIMENSION OR 10′ WHICHEVER IS LESS.
2. ATTACHMENT OF GATE MAY REQUIRE SPECIFIC POSTIONING OF PIPE AND/OR MODIFICATION OF ENDWALL. CONFIRMATION OF GATE DIMENSIONS AND ATTACHMENT METHOD IS RECOMMENDED PRIOR TO CONSTRUCTION OF ENDWALL.
3. PLACE NO. 4 REBAR ON 12″ HORIZONTAL AND VERTICAL CENTERS WITH 2″ MINIMUM CONCRETE COVERAGE.
4. CONSTRUCT 1″ CHAMFER OR RADIUS ON ALL EXTERIOR CORNERS.
5. USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
6. WALL THICKNESS (T) IS USED TO COMPUTE QUANTITIES, NOT TO INFER SIZE.
7. WHEN THE BASE IS POURED SEPARATELY, LEAVE THE POUR ROUGH.
8. USE CLASS 'B' CONCRETE.
9. CUT OR BEND REBARS AS NEEDED TO ACCOMMODATE PIPE.



DIMENSIONS AND QUANTITIES FOR RCP OR CSP

CALCULATIONS BASED ON CONCRETE PIPE

PIPE DIA.	H^1 MINIMUM DIMENSIONS						
D	H^1	B	G	T	S	L	CONC YD^3
15″	3′-3″	1′-8″	2′-9″	2¼″	9½″	5′-6″	0.7
18″	3′-7″	1′-10″	3′-2″	2½″	10″	6′-4″	1.0
24″	4′-2″	2′-1″	4′-0″	3″	10″	8′-0″	1.5
30″	5′-0″	2′-6″	4′-7″	4¼″	11½″	9′-2″	2.3
36″	5′-8″	2′-8″	5′-6″	4¾″	11½″	11′-0″	3.4
42″	6′-2″	3′-1″	6′-4″	5¼″	11½″	12′-8″	4.5
48″	6′-9″	3′-5″	7′-2″	5¾″	11½″	14′-4″	6.0

H^2 QUANTITES

PIPE DIA.	PER 1′ ADDTIONAL HEIGHT	
D	STEEL LBS.	CONC YD^3
15″	7.5	0.2
18″	8.7	0.2
24″	11.1	0.2
30″	12.6	0.3
36″	15.1	0.3
42″	17.6	0.4
48″	19.1	0.4

REBAR IN ENDWALL (H^1 MIN.)

USE WITH RC OR CS PIPE	PIPE DIA.						
	15″	18″	24″	30″	36″	42″	48″
	QTY	QTY	QTY	QTY	QTY	QTY	QTY
'X' BARS	6	7	9	10	12	14	15
HORZ BARS	4	4	5	6	7	7	8
TOTAL LBS.	41	50	74	112	131	161	195

NOTE:
-THIS STANDARD FOR THE SLUICE GATE PROVIDES ONLY BASIC INFORMATION FOR PLACEMENT.
-INSTALL THE SLUICE GATE IN ACCORDANCE WITH THE MANUFACTURER'S DIMENSIONS AND SPECIFICATIONS.
-SEE PLANS FOR LOCATIONS AND PIPE SIZES

SLUICE GATE DIMENSIONS

PIPE DIAMETER	A	15″	18″	24″	30″	36″	42″	48″
GATE DIAMETER	B	22″	25″	32″	38¾″	46″	52″	60″
FRAME HEIGHT, MIN.	C	36″	36″	48″	60″	72″	84″	96″
H. W. HEIGHT, MIN.	D	4′-5½″	4′-7″	5′-10″	7′-1″	8′-4″	9′-2″	9′-9″
H. W. WIDTH	E	5′-6″	6′-4″	8′-0″	9′-2″	11′-0″	12′-8″	14′-4″

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE ENDWALL AND SLUICE GATE
15″ THRU 48″ PIPE - 90° SKEW

SHEET 1 OF 1
838.02

DocuSigned by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 7:49 AM PDT

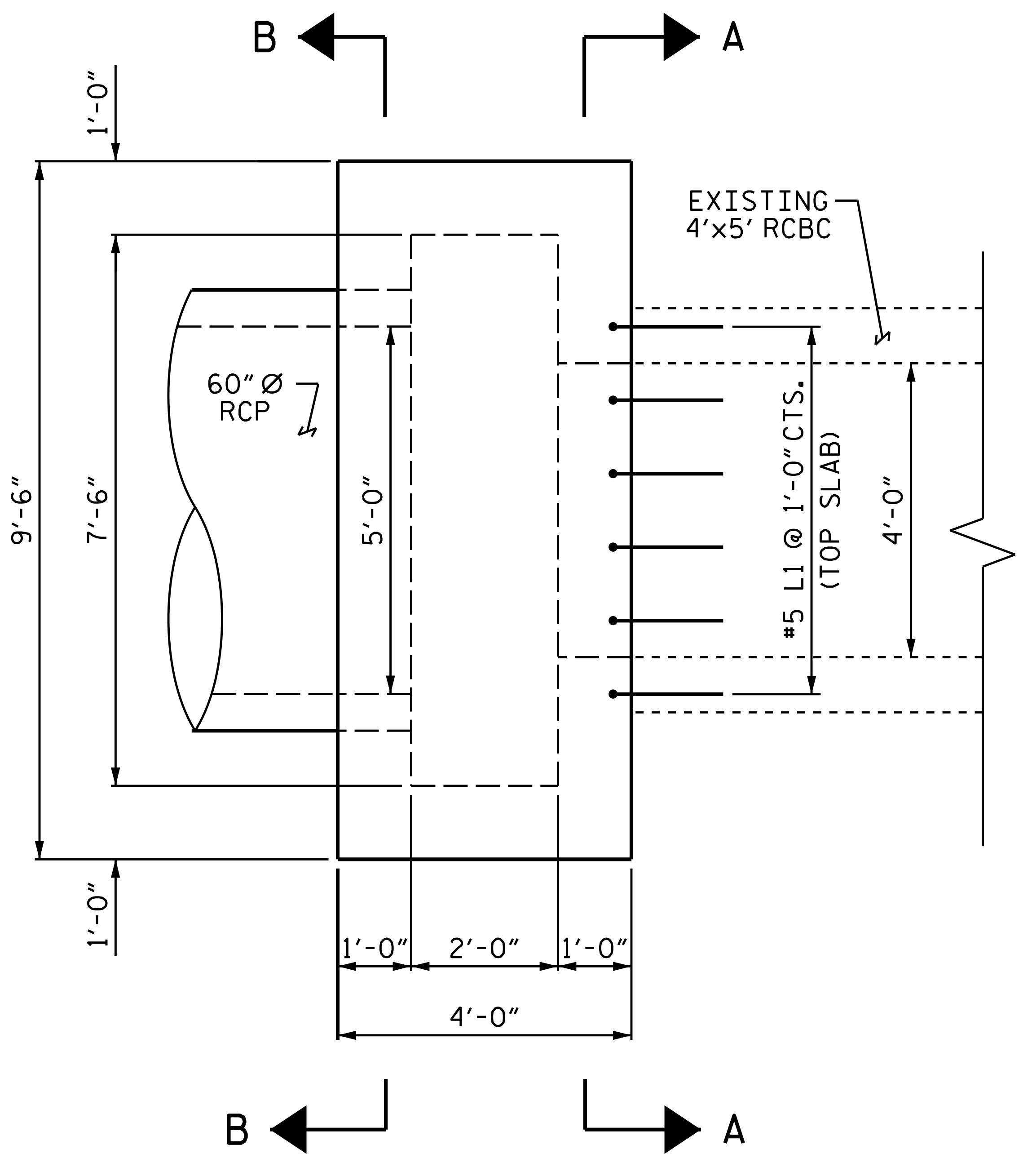
SEAL
33144
NICOLE M. HACKLER

**CONTRACT STANDARDS
AND DEVELOPMENT UNIT**
Office 919-707-6950 FAX 919-250-4119

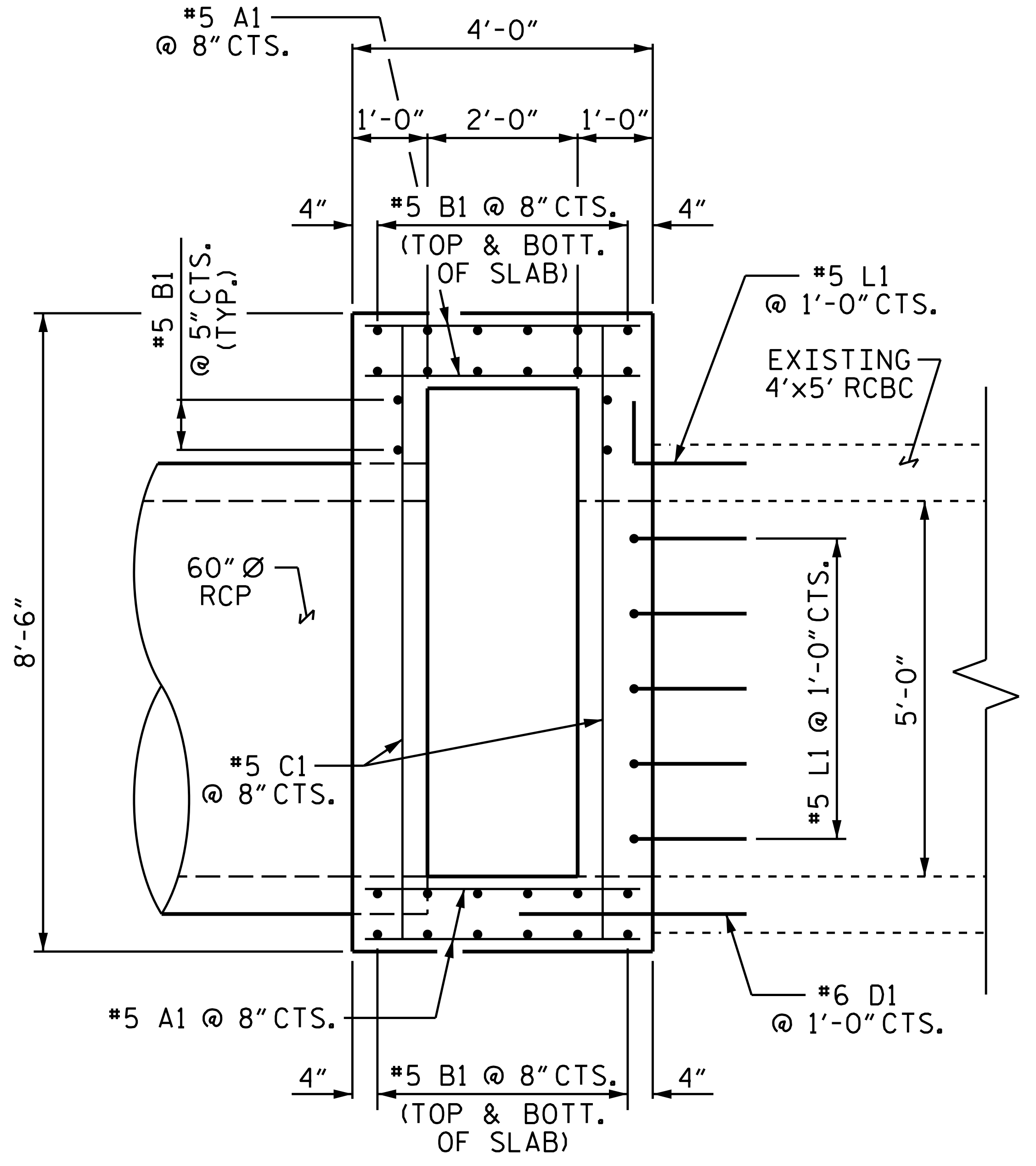
SEE TITLE BLOCK

ORIGINAL BY: E.E.WARD DATE: 12-99
MODIFIED BY: T.S.Spell DATE: 1-4-05
CHECKED BY: DATE:
FILE SPEC.: w:jhowerton\handrail adjacent to sidewalk.dgn

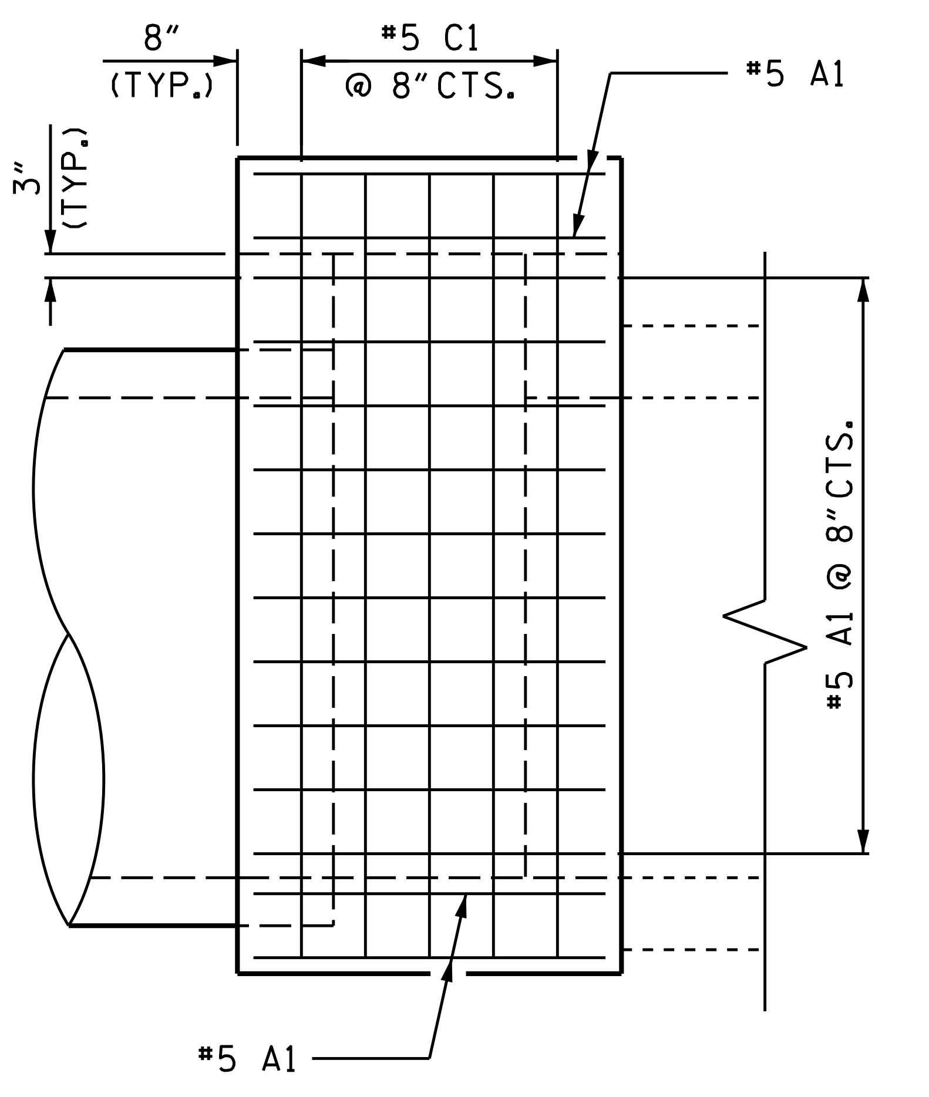
PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-5



PLAN VIEW

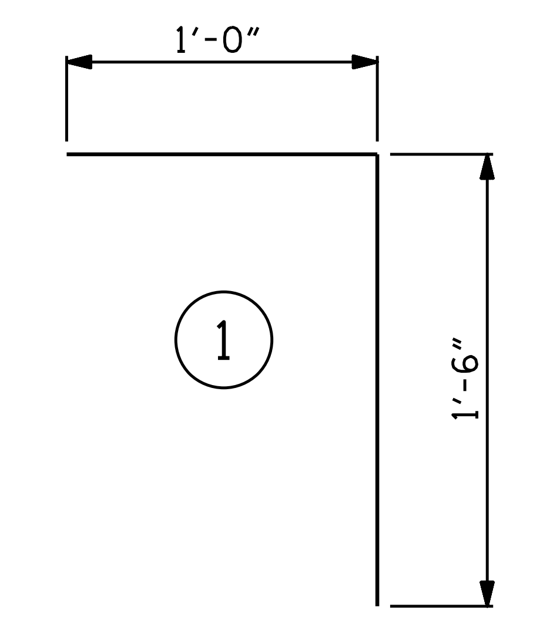


SECTION VIEW



SIDE WALL VIEW

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
A1	76	#5	STR	3'-8"	291
B1	28	#5	STR	9'-2"	268
C1	14	#5	STR	8'-2"	119
D1	6	#6	STR	2'-6"	23
L1	16	#5	1	2'-6"	42
REINFORCING STEEL					743 LBS.
CLASS AA CONCRETE					6.7 C.Y.

NOTES

CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.

DOWELS SHALL BE USED TO CONNECT THE PROPOSED JUNCTION BOX TO THE EXISTING CULVERT. FOR SETTING OF DOWELS, SEE STANDARD NOTES SHEET.

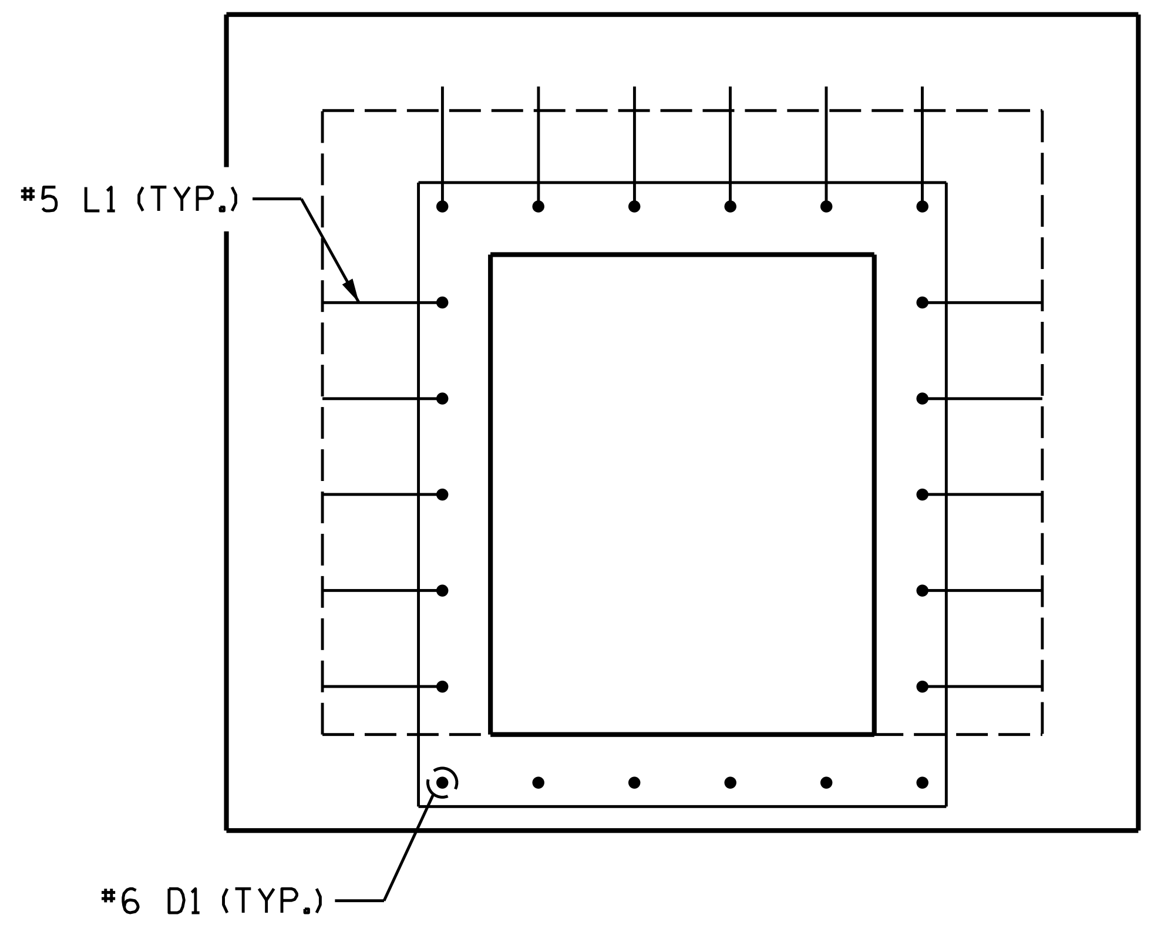
DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.

ALL DIMENSIONS SHOULD BE FIELD VERIFIED.

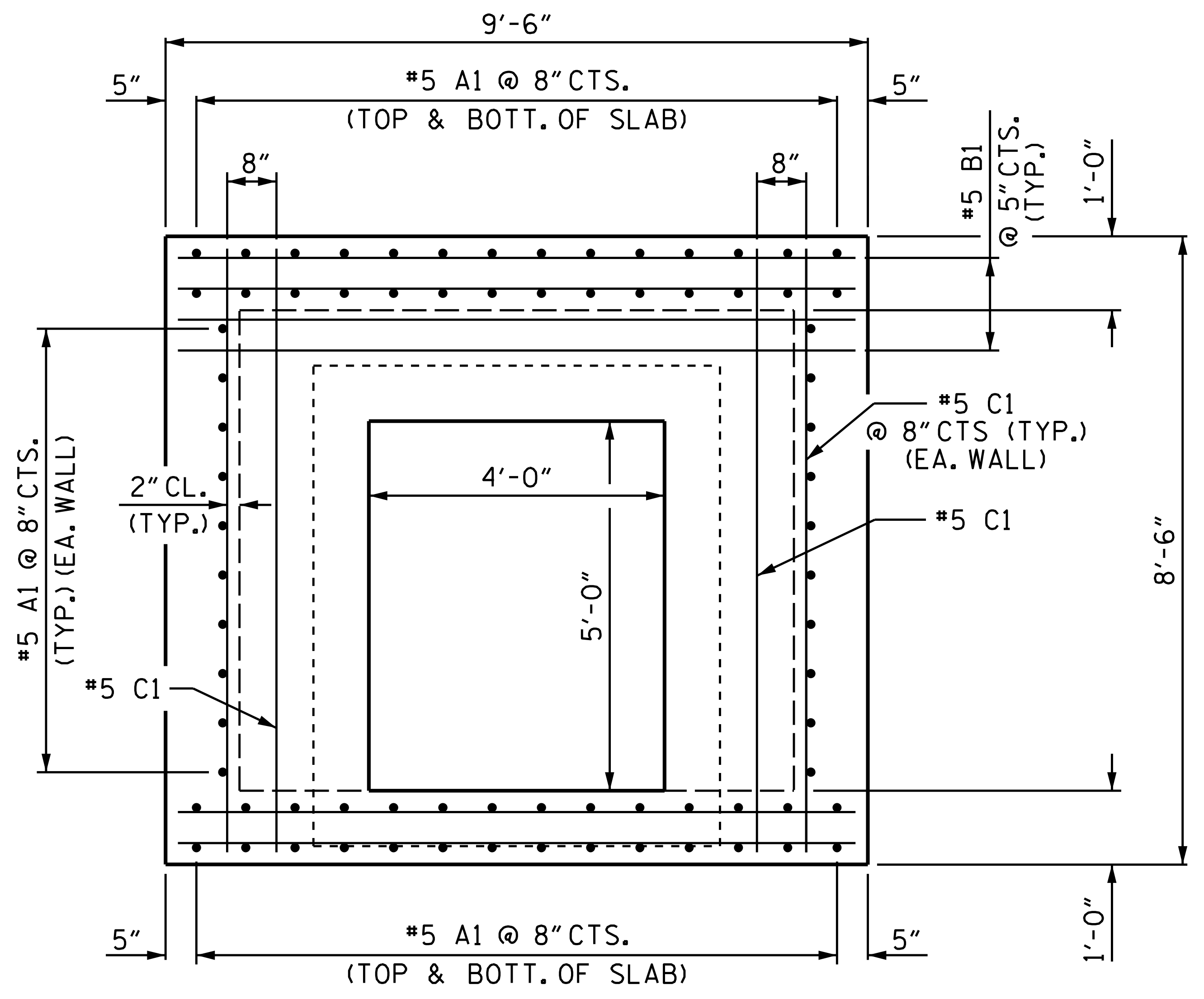
CHAMFER ALL EXPOSED CORNERS 1".

CUT OR BEND REINFORCING BARS AS NEEDED TO PROVIDE 2" CLEARANCE.

ADJUST LENGTH OF REINFORCING BARS AS NEEDED TO COMPENSATE FOR PIPE OPENING.

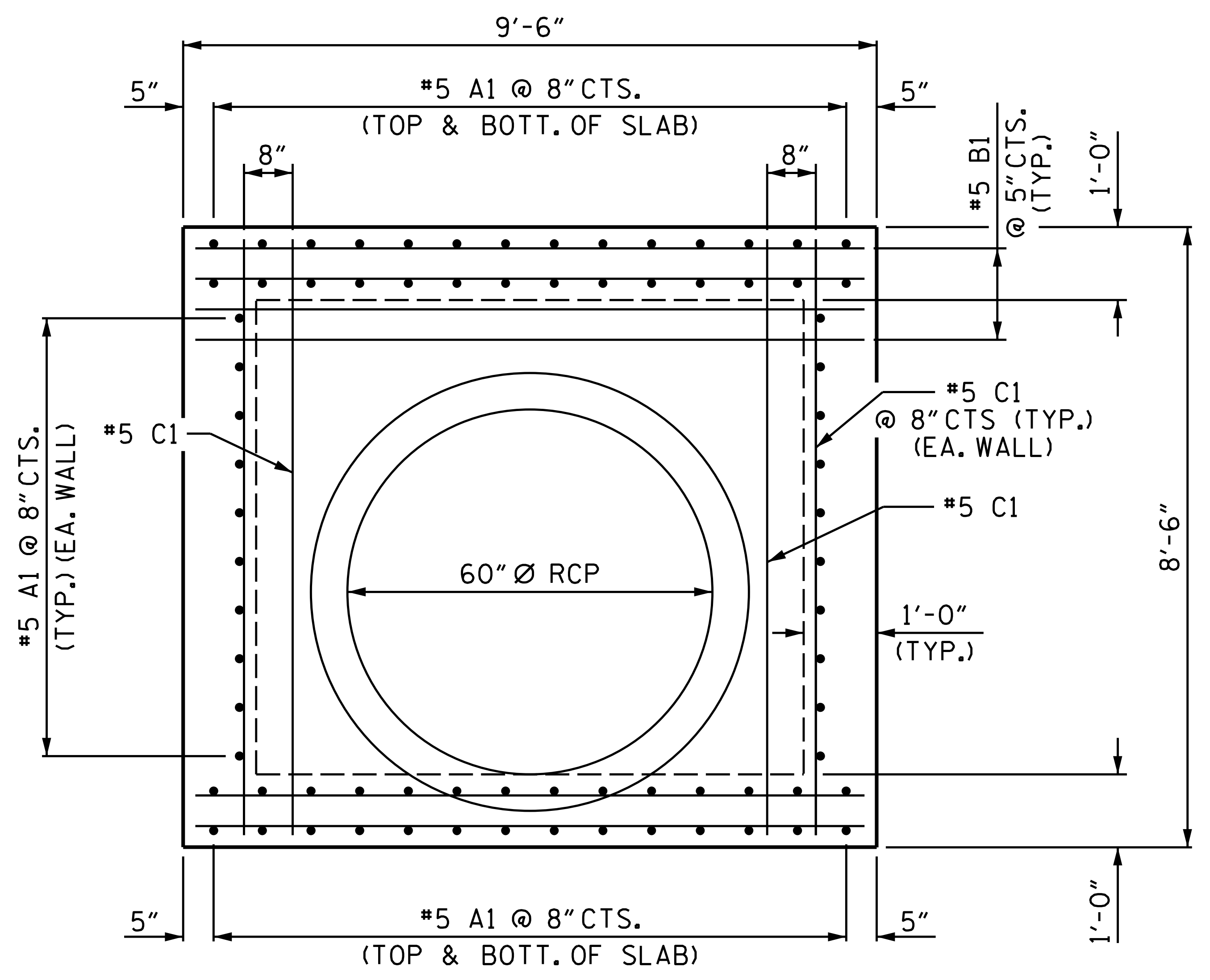


END VIEW



SECTION A-A

#5 A1 BARS SHALL BE FIELD CUT AS NECESSARY FOR INSTALLATION OF THE PIPE



SECTION B-B

#5 A1 BARS SHALL BE FIELD CUT AS NECESSARY FOR INSTALLATION OF THE PIPE

SEAL 20125
MARSHALL G. CHEEK, JR.
DocuSigned by:
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
8/13/2024 | 11:13 AM EDT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

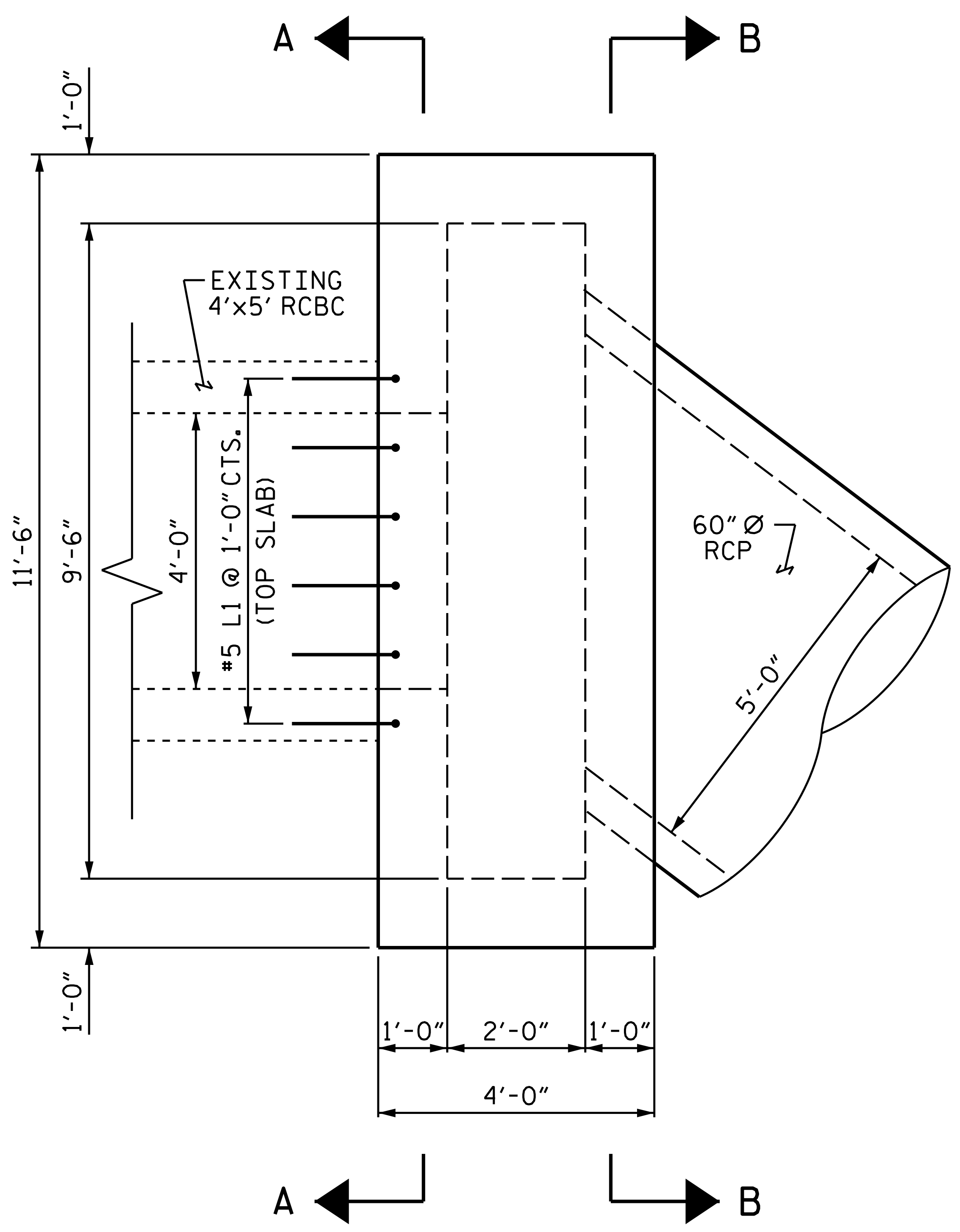
TRAFFIC BEARING JUNCTION BOX

STRUCTURE 3022

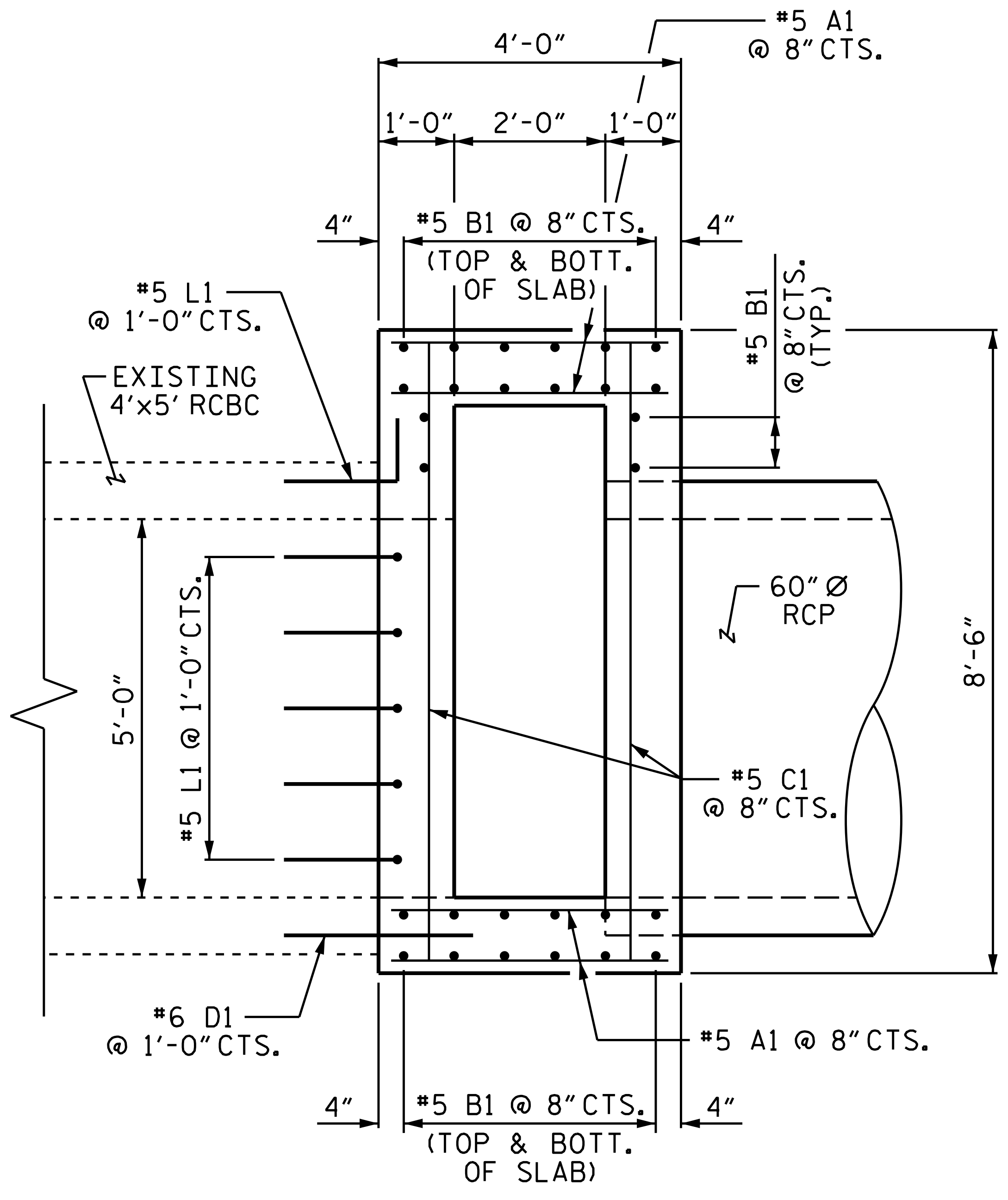
DRAWN BY :	STM	DATE :	03/24
CHECKED BY :	MGC	DATE :	---

5/9/2024
X:\NCDOT\R-2307B\Structures\Special Drainage Structures\Junction Box (Str. 3022 & 3023)\Working_SMU_Special TBJB.dgn
User:smassinople

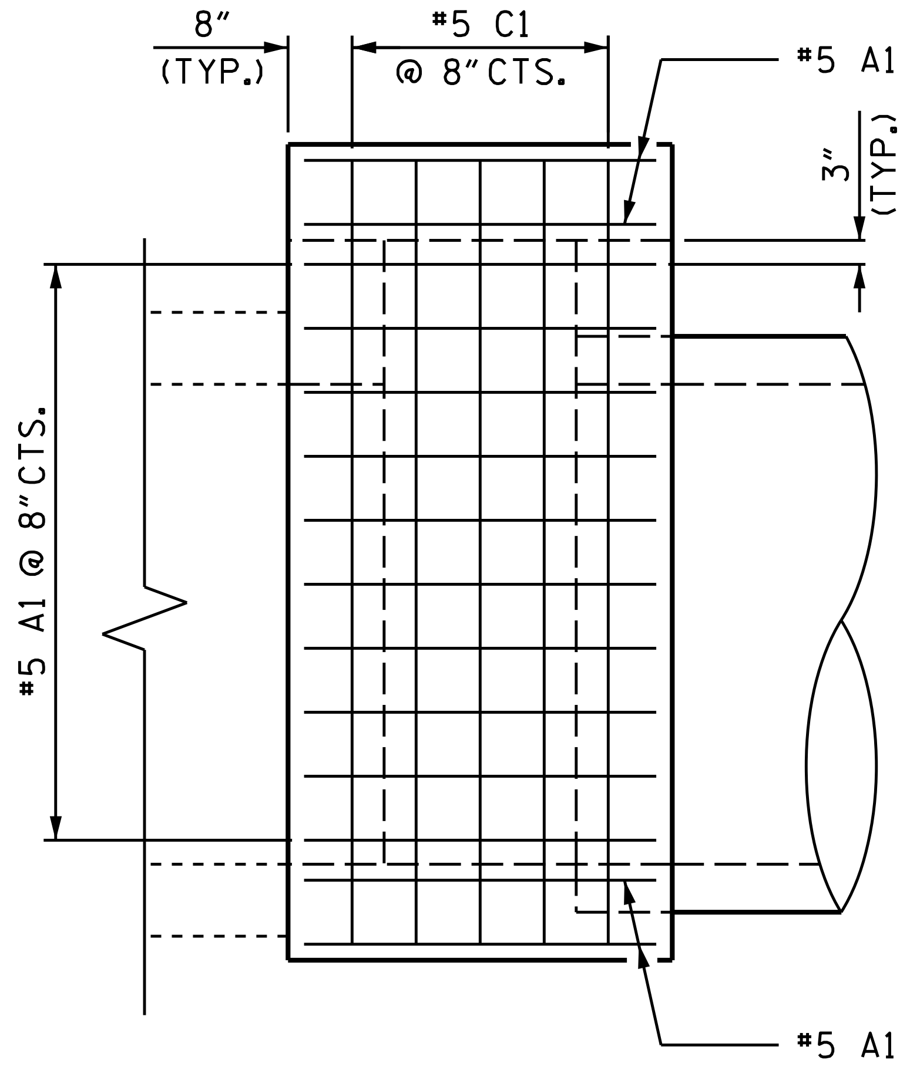
PROJECT REFERENCE NO.	SHEET NO.
15614.1075010	2D-6



PLAN VIEW

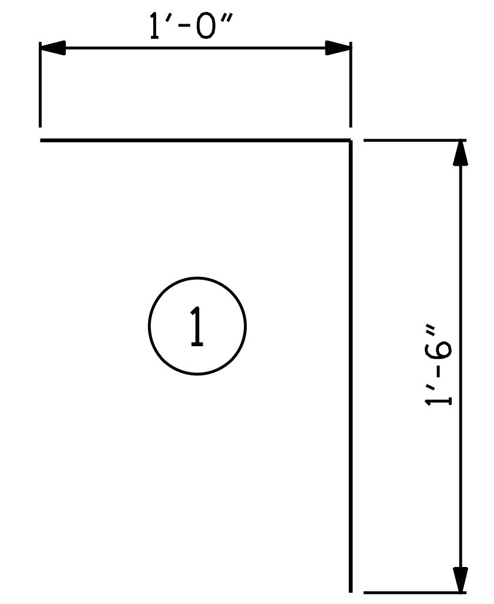


SECTION VIEW



SIDE WALL VIEW

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
A1	88	#5	STR	3'-8"	337
B1	28	#5	STR	11'-2"	326
C1	18	#5	STR	8'-2"	153
D1	6	#6	STR	2'-6"	23
L1	16	#5	1	2'-6"	42
REINFORCING STEEL					881 LBS.
CLASS AA CONCRETE					8.1 C.Y.

NOTES

CONSTRUCT CONCRETE BOX IN ACCORDANCE WITH SECTION 825 OF THE STANDARD SPECIFICATIONS.

DOWELS SHALL BE USED TO CONNECT THE PROPOSED JUNCTION BOX TO THE EXISTING CULVERT. FOR SETTING OF DOWELS, SEE STANDARD NOTES SHEET.

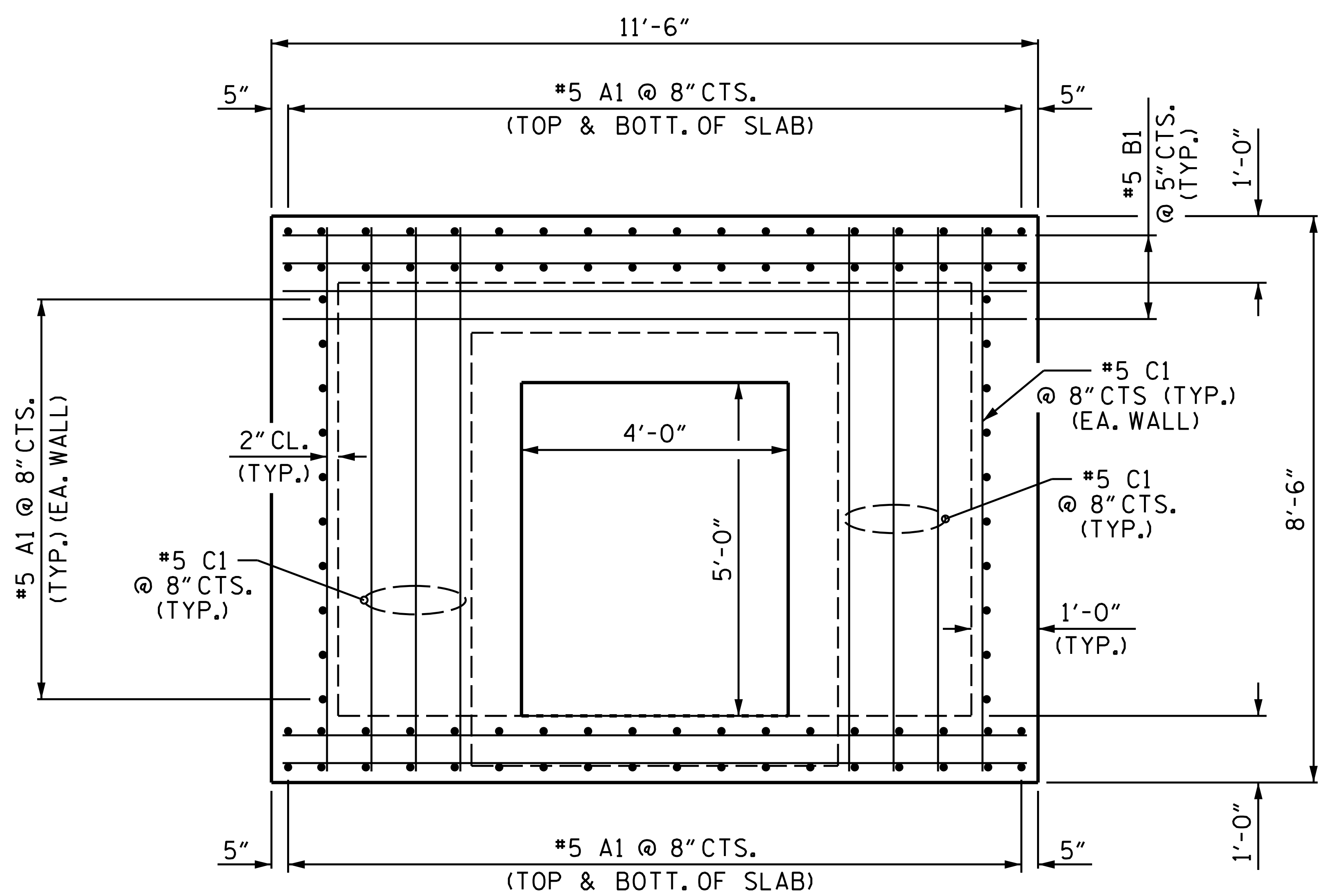
DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.

ALL DIMENSIONS SHOULD BE FIELD VERIFIED.

CHAMFER ALL EXPOSED CORNERS 1".

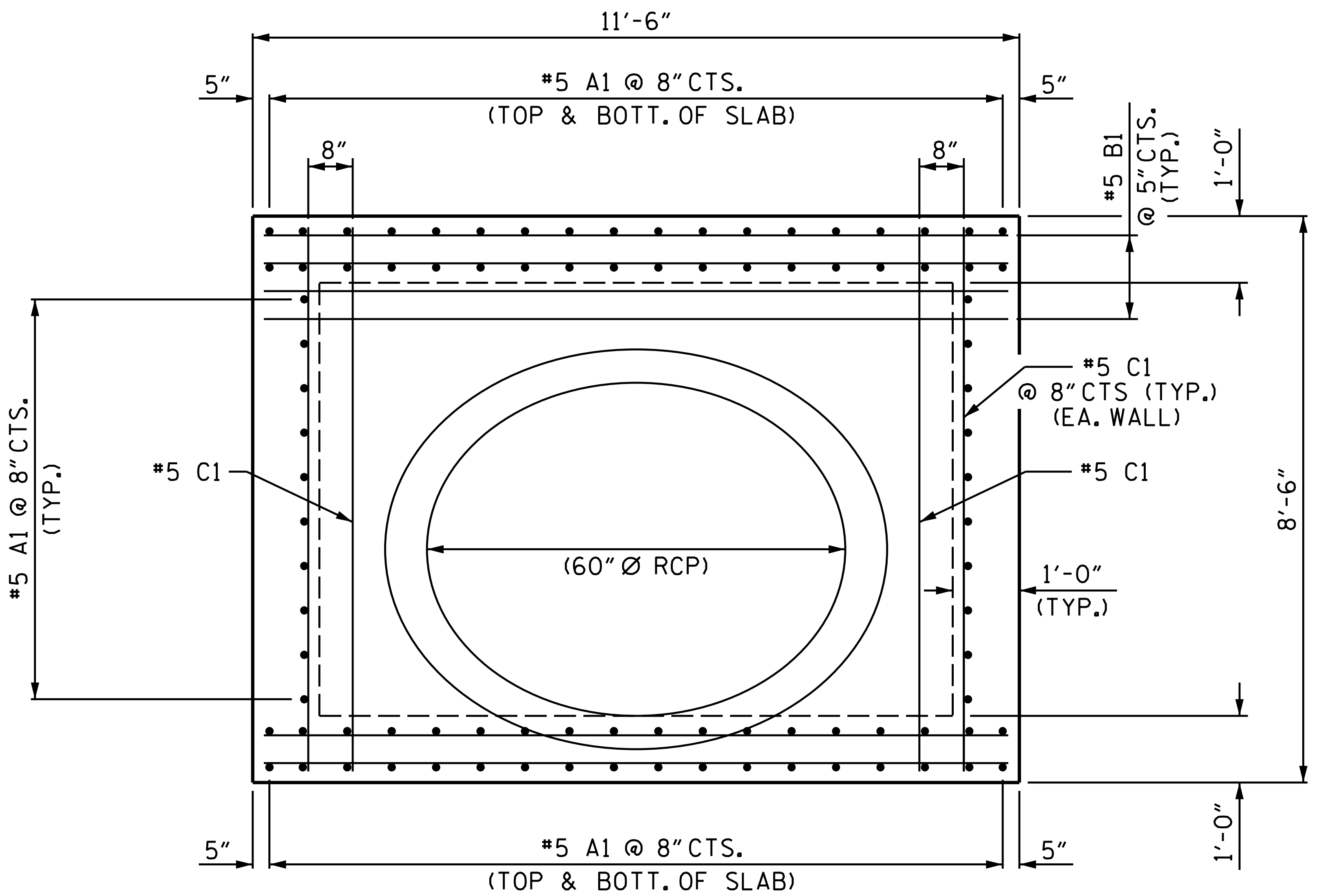
CUT OR BEND REINFORCING BARS AS NEEDED TO PROVIDE 2" CLEARANCE.

ADJUST LENGTH OF REINFORCING BARS AS NEEDED TO COMPENSATE FOR PIPE OPENING.



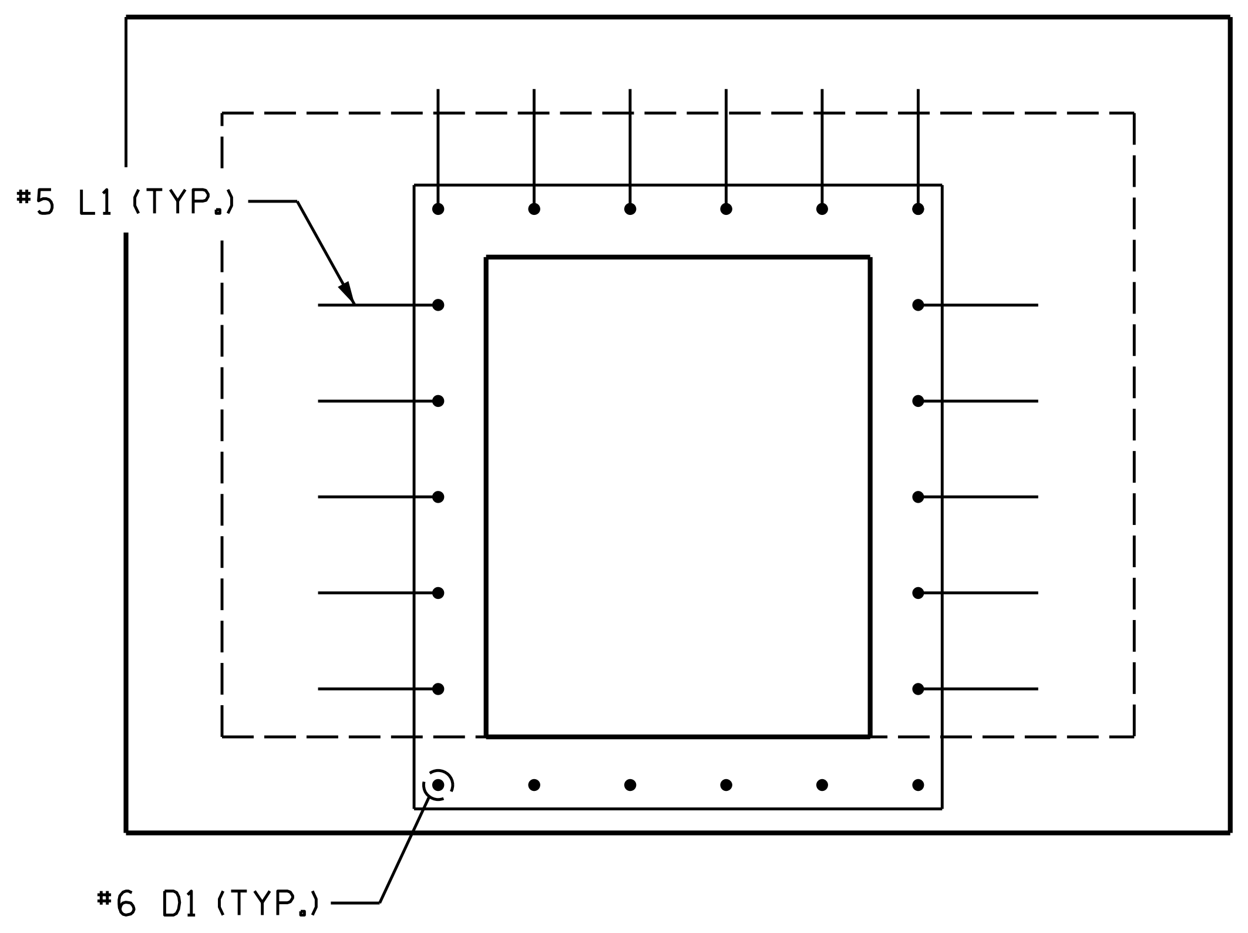
SECTION A-A

#5 A BARS SHALL BE FIELD CUT AS NECESSARY FOR INSTALLATION OF THE PIPE



SECTION B-B

#5 A BARS SHALL BE FIELD CUT AS NECESSARY FOR INSTALLATION OF THE PIPE



END VIEW

SEAL 20125
MARSHALL G. CHEEK, JR.

DocuSigned by:
Marshall G. Cheek, Jr.
5FBCC2F3A4DC413...
8/13/2024 | 11:13 AM EDT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRAFFIC BEARING JUNCTION BOX

STRUCTURE 3023

DRAWN BY : STM DATE : 03/24
CHECKED BY : MGC DATE : ---

5/9/2024
X:\NCDOT\R-2307B\Structures\Special Drainage Structures\Junction Box (Str. 3022 & 3023)\Working_SMU_SpecialTBJB.dgn
User:smassinople

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2D-7

R/W SHEET NO.

HYDRAULICS ENGINEER

SEAL 038697

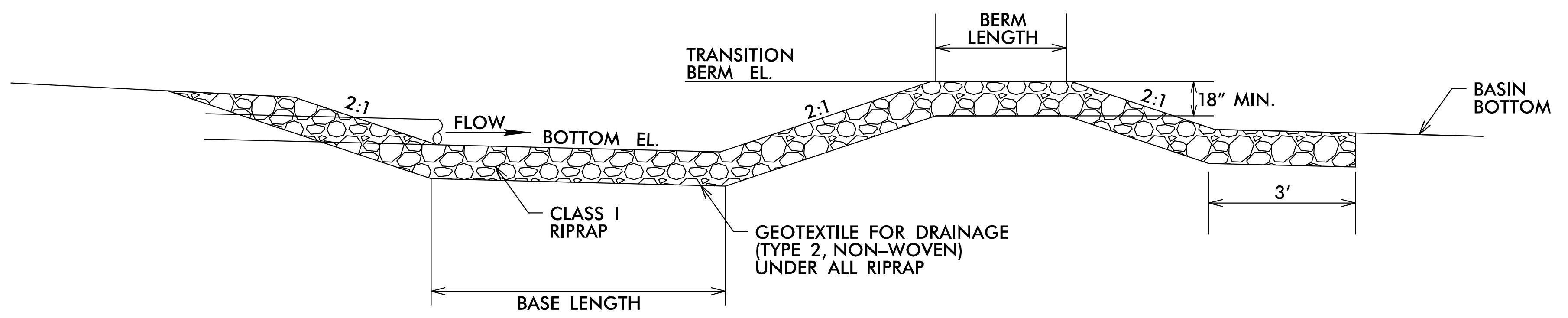
Signed by: David B. Petty

400EFF4863B6465...

8/13/2024 | 10:57 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275



DETAIL 2D–7A

DRY DETENTION/FILTRATION BASIN FOREBAY

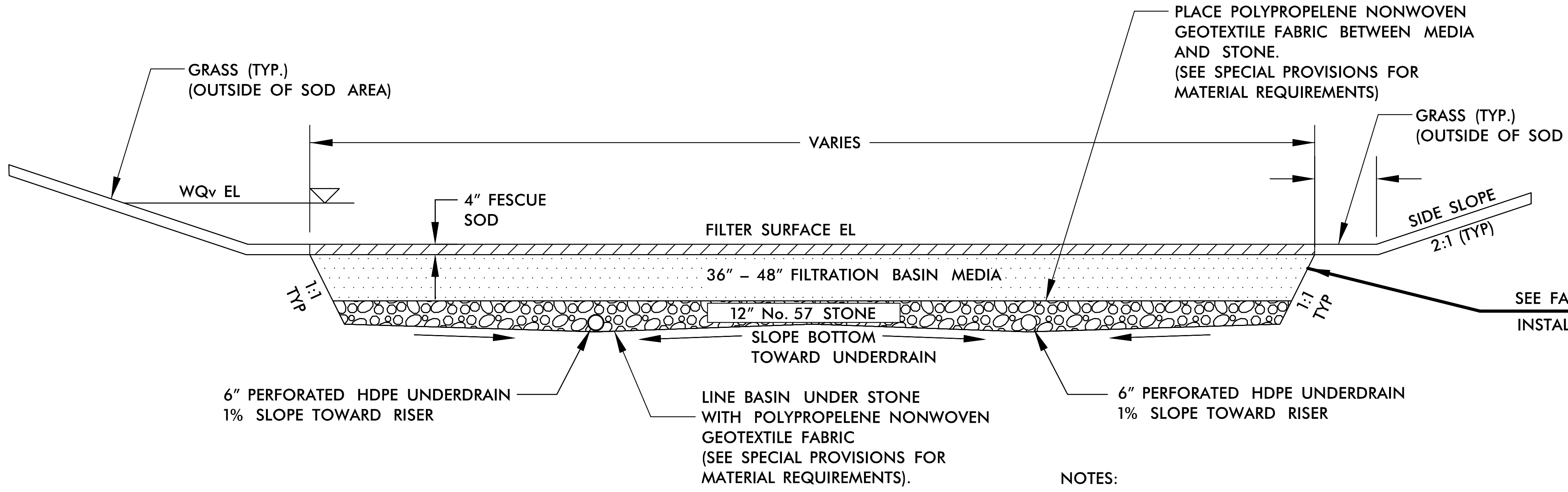
(Not to Scale)

NOTES:

1. DO NOT PLACE ENGINEERED SOIL MEDIA UNDERNEATH RIPRAP.
2. ELEVATIONS INDICATE TOP OF RIPRAP.
3. CLASS I RIPRAP AND GEOTEXTILE QUANTITIES FOR FOREBAYS ARE ON ROADWAY PLANSHEETS AND ACCOUNTED FOR IN ROADWAY QUANTITIES.

FOREBAY DIMENSIONS

BASIN LOCATION	TOP TRANSITION BERM	BERM LENGTH	BOTTOM EL.	BASE LENGTH	TRANSITION WEIR LENGTH (SEE PLAN VIEW)
–L– 560+88 RT	837	5′	834	15′	67′
–L– 634+54 RT	841	5′	838	15′	58′
–L– 655+67 LT	815	5′	812	15′	73′
–L– 677+04 RT	825	5′	822	15′	44′



DETAIL 2D–7B

TYPICAL SECTION – FILTRATION BASIN MEDIA

(Not to Scale)

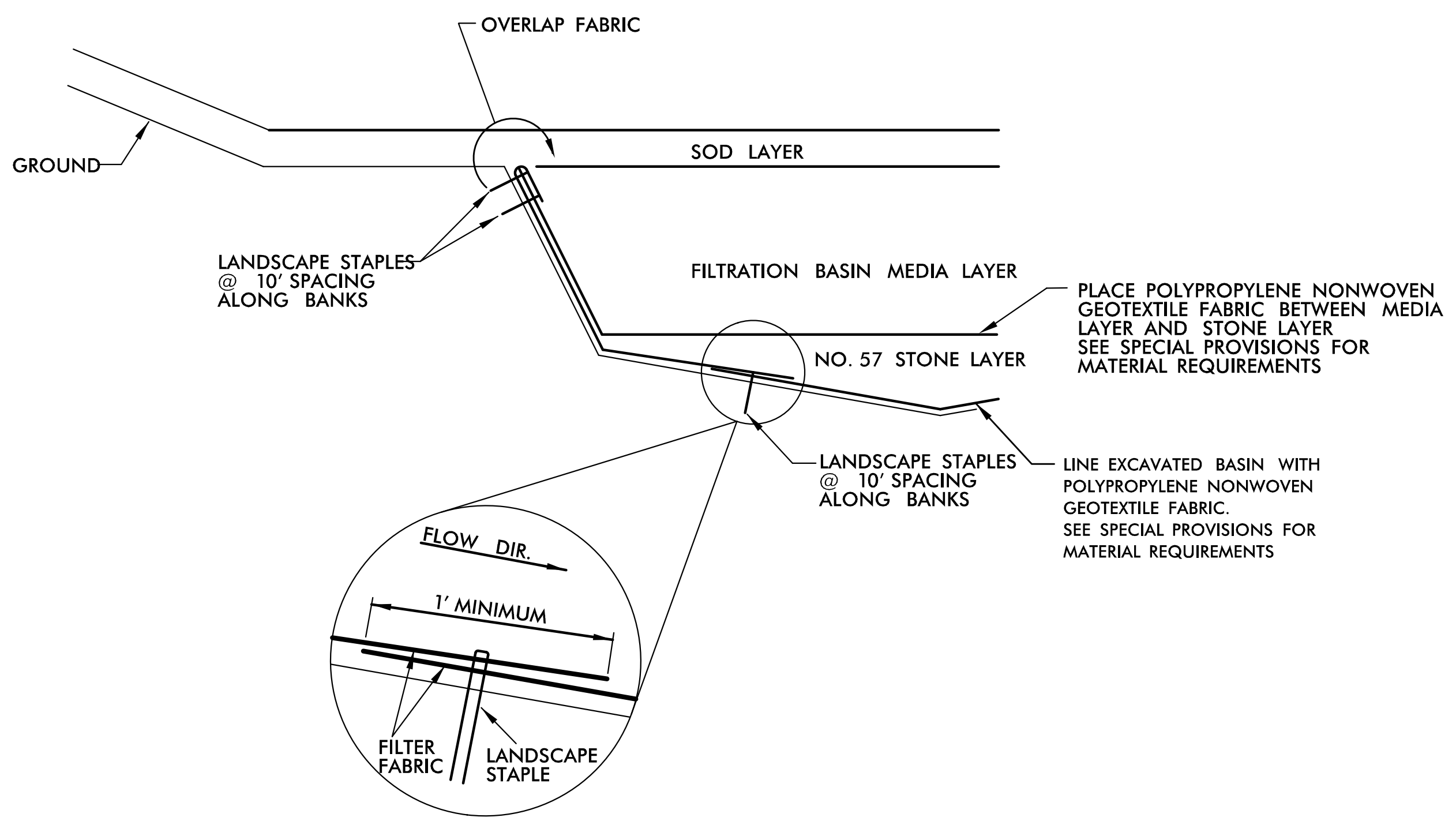
NOTES:

1. STONE TO BE STD. SIZE #57 (DIVISION 10 SECTION 1005), WASHED.
2. PLACE FESCUE SOD ON BASIN BOTTOMS, OVER MEDIA AREA ONLY.
3. SEE PLAN SHEETS FOR UNDERDRAIN CONFIGURATION.
4. SEE SPECIAL PROVISIONS FOR FILTRATION BASIN MEDIA REQUIREMENTS.

DETAIL 2D–7D

FILTRATION BASIN FABRIC INSTALLATION

N.T.S.



NOTES:

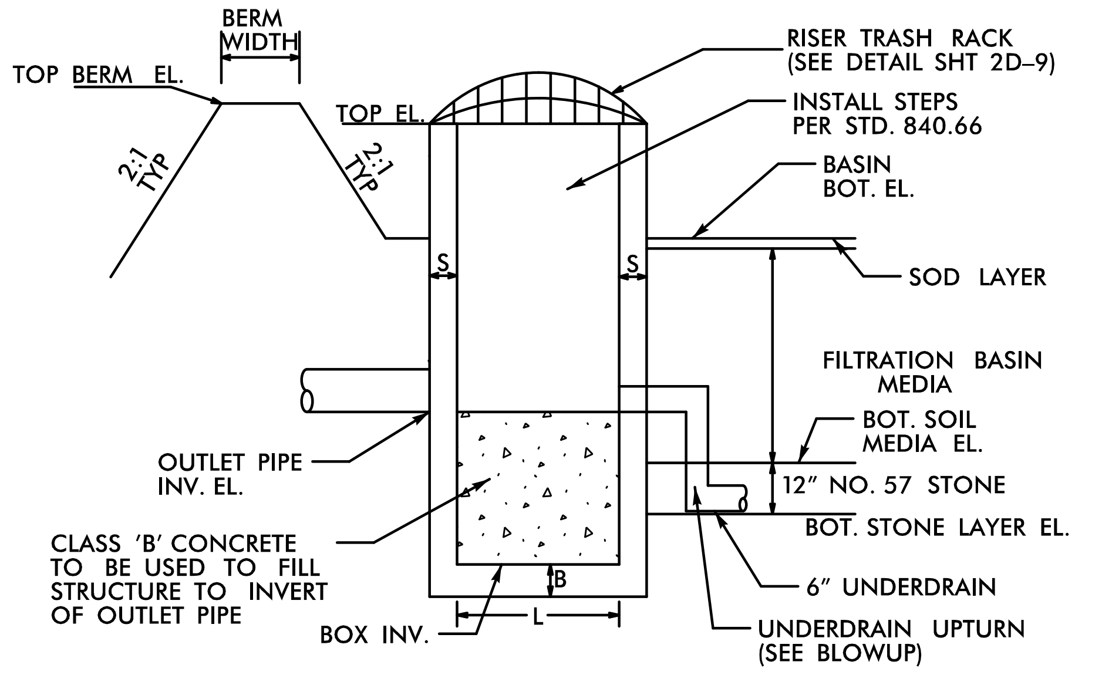
1) LINING FABRIC SHOULD BE FOLDED BACK TO OVERLAP DIVIDING FABRIC AND SECURED WITH LANDSCAPE STAPLES TO ENSURE SEALING THE STONE FROM SOIL.
2) FABRIC SHOULD BE LAYED IN A WAY TO PREVENT WATER FROM FLOWING BETWEEN OVERLAPPED PIECES. (SEE BLOWUP)
3) FABRIC SHOULD BE OVERLAPPED A MINIMUM OF 12 INCHES AND SECURED WITH STAPLES.
4) NO OVERLAPPING SHOULD OCCUR UNDER DRAIN PIPES.

NOTES:

1. SEE DRAINAGE SUMMARY (3D) SHEETS FOR STRUCTURE AND PIPE QUANTITIES.

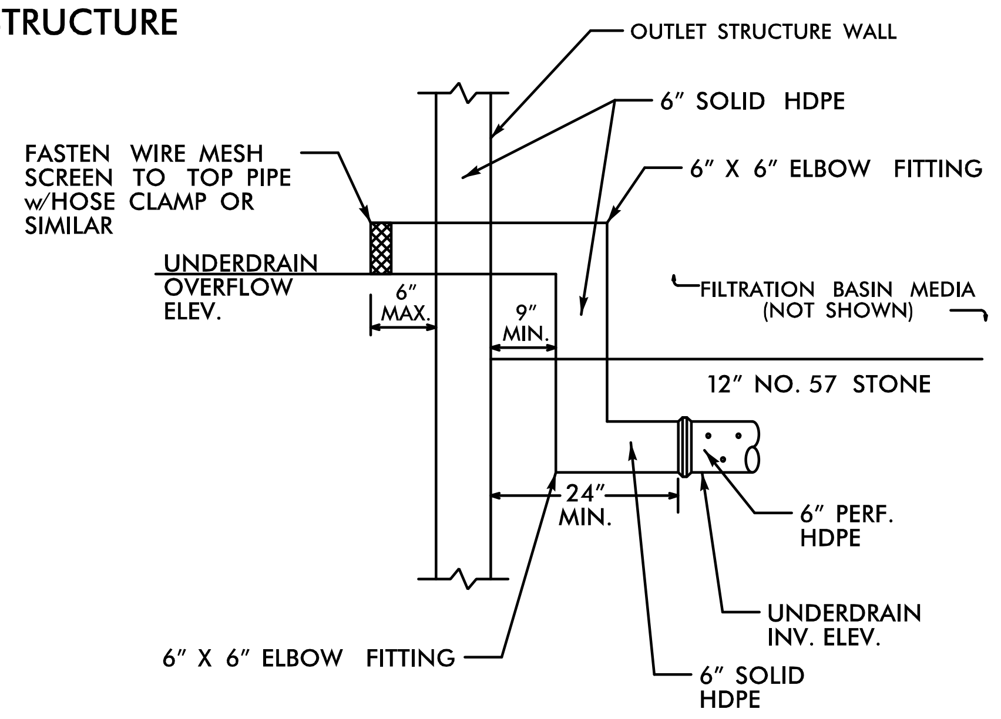
DETAIL 2D–7C

DRY DETENTION/FILTRATION BASIN OUTLET CONTROL STRUCTURE



OUTLET STRUCTURE DETAIL

N.T.S.



UNDERDRAIN UPTURN BLOWUP

N.T.S.

NOTES:
1) PROVIDE WATER TIGHT CONNECTIONS USING WATERSTOP OR COMPRESSION GASKET APPROVED BY ENGINEER ON ALL OUTLET STRUCTURE PENETRATIONS.
2) INSTALL STEPS IN ACCORDANCE WITH STD. 840.66
3) FOR UNDERDRAIN, USE SOLID (NON–PERFORATED) PIPE THROUGH STRUCTURE WALL AND EXTEND 2 FT. MIN. INTO NO. 57 STONE LAYER.
4) SEE FILTRATION BASIN MEDIA DETAIL THIS SHEET (2D–7).
5) SEE DETAIL THIS SHEET FOR UNDERDRAIN UPTURNED ELBOW/OVERFLOW.
6) NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
7) ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE.
8) INTERIOR HORIZONTAL DIMENSIONS OF ALL OUTLET STRUCTURES ARE SQUARE. WIDTH(W)=LENGTH(L).
9) ALL ELBOWS, TEES, WYES, WATER TIGHT GASKETS, COUPLERS, OR OTHER FITTINGS AND FILTER SOCK ARE INCIDENTAL TO THE INSTALLATION OF THE RESPECTIVE PIPES.

STATION	STR. #	S (Inches)	B (Inches)	TOP BOX EL.	CTL. STR. DIMENSIONS			TOP BERM EL.	TOP BERM WIDTH	BASIN BOTTOM EL.	BOTTOM SOIL MEDIA EL.	BOTTOM STONE EL.	UNDERDRAIN INVERT	UNDERDRAIN OVERFLOW EL.	OUTLET PIPE INVERT	BOX INVERT	CLASS B CONCRETE (CY)
					W	L	H										
–L– 560+88 RT	1429	8″	8″	839.0	4′	4′		841.0	10′	835.0	831.0	830.0	830.0	833.0	833.0	832.0	0.6
–L– 634+54 RT	1923	8″	8″	843.0	4′	4′		844.5	10′	839.0	835.0	834.0	834.0	837.7	837.7	836.7	0.6
–L– 655+67 LT	2031	8″	8″	816.8	5′	5′		819.0	10′	813.0	809.0	808.0	808.0	811.0	811.0	809.0	1.9
–L– 677+04 RT	2249	8″	8″	827.0	5′	5′		829.0	10′	823.0	819.0	818.0	818.0	821.5	821.5	819.5	1.9

DRAINAGE SUMMARY (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY BASIN @ –L– STA. 560+88 RT (SHEET NO. 14)	QUANTITY BASIN @ –L– STA. 634+54 RT (SHEET NO. 19)	QUANTITY BASIN @ –L– STA. 655+67 LT (SHEET NO. 20)	QUANTITY BASIN @ –L– STA. 677+04 RT (SHEET NO. 22)	QUANTITY PROJECT TOTALS
UNDERDRAIN PIPE – 6″ HDPE PERFORATED	LF	54	180	180	84	498
UNDERDRAIN PIPE – 6″ HDPE NONPERFORATED	LF	26	36	24	24	108
6″ HDPE TEE	EA	1	3	2	2	8
6″ X 6″ 90 DEG. ELBOW FITTING	EA	4	4	4	3	15
6″ X 6″ 45 DEG. ELBOW FITTING	EA	0	0	0	1	1
POLYPROPYLENE NONWOVEN GEOTEXTILE FABRIC	SY	215	576	559	328	1678

SUMMARY OF EARTHWORK (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY BASIN @ –L– STA. 560+88 RT (SHEET NO. 14)	QUANTITY BASIN @ –L– STA. 634+54 RT (SHEET NO. 19)	QUANTITY BASIN @ –L– STA. 655+67 LT (SHEET NO. 20)	QUANTITY BASIN @ –L– STA. 677+04 RT (SHEET NO. 22)	QUANTITY PROJECT TOTALS
FILTRATION BASIN MEDIA	CY	99	304	290	164	857
WASHED NO. 57 STONE	TON	24	89	84	45	242
UNCLASSIFIED EXCAVATION	CY	1117	252	1968	1074	N/A
BORROW EXCAVATION	CY	0	1087	0	0	N/A

SUMMARY FOR EROSION CONTROL (for Stormwater BMP's)

ITEM DESCRIPTION	UNIT	QUANTITY BASIN @ –L– STA. 561+21 RT (SHEET NO. 14)	QUANTITY BASIN @ –L– STA. 634+06 RT (SHEET NO. 19)	QUANTITY BASIN @ –L– STA. 655+56 LT (SHEET NO. 20)	QUANTITY BASIN @ –L– STA. 677+22 RT (SHEET NO. 22)	QUANTITY PROJECT TOTALS
SODDING	SY	108	288	280	164	840
WATER	M/G	4	10	10	6	30

8/8/2024
X:\NCDOT\R-2307B\Drainage\BASINS\R-2307B_Hyd_det_2D-7.dgn
User:kgray

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2D-8
R/W SHEET NO.	

HYDRAULICS
ENGINEER

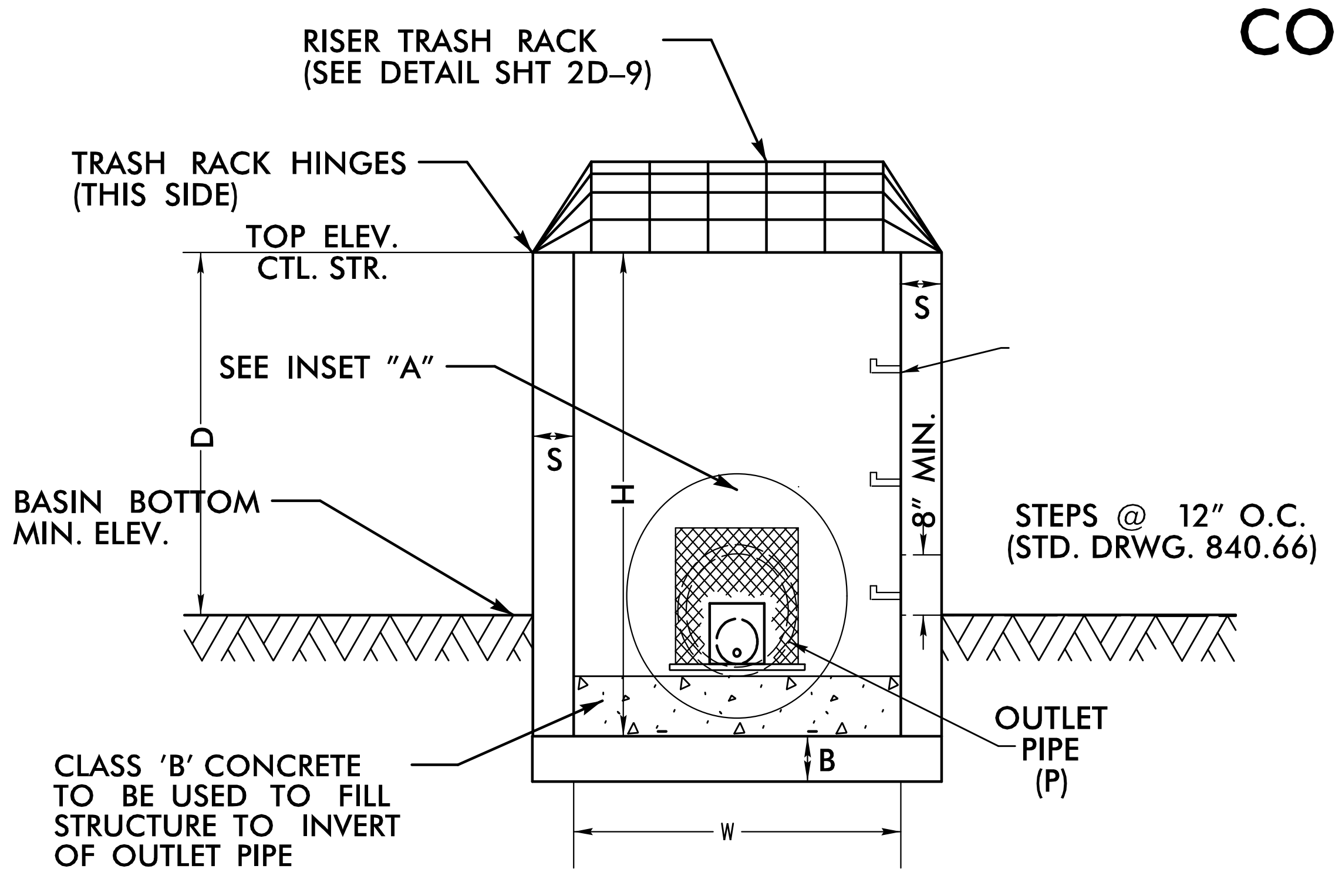
SEAL 038697
Signed by: David B. Petty
400EFF4863B6465...
8/13/2024 | 10:57 AM PDT

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

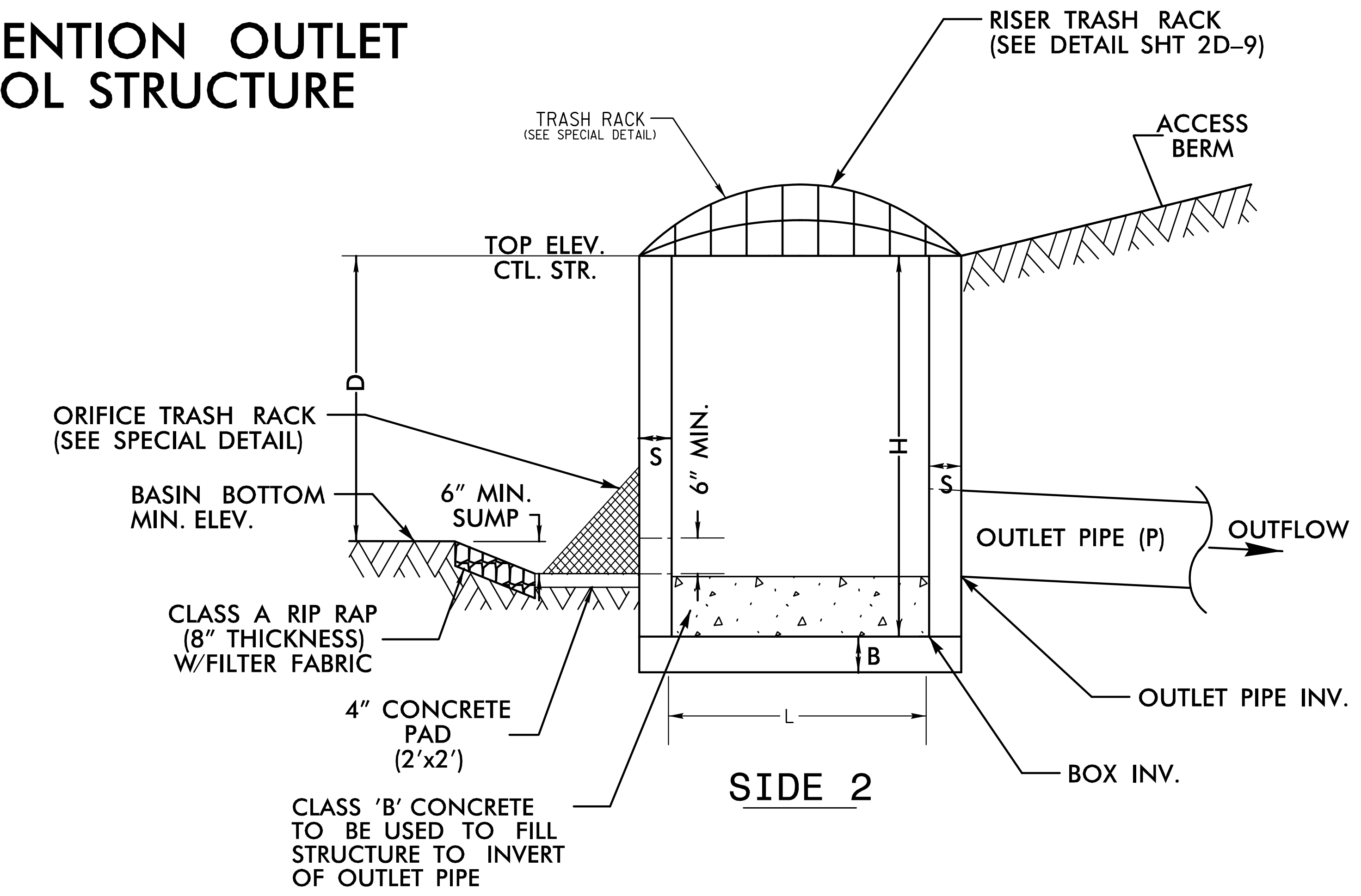
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DETAIL 2D-8A

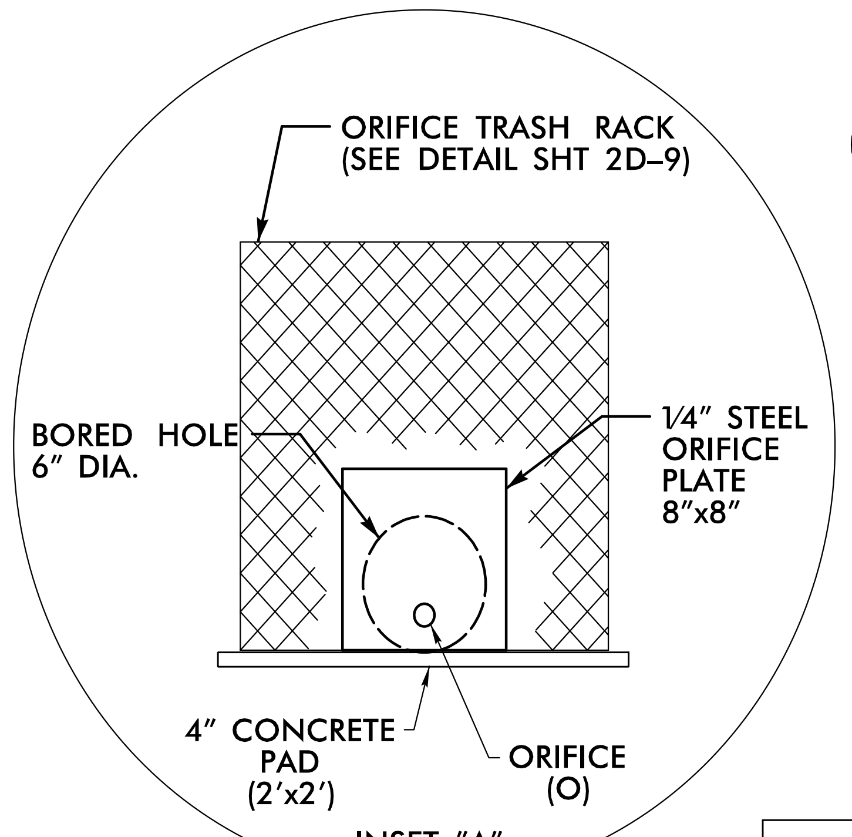
DRY DETENTION OUTLET CONTROL STRUCTURE



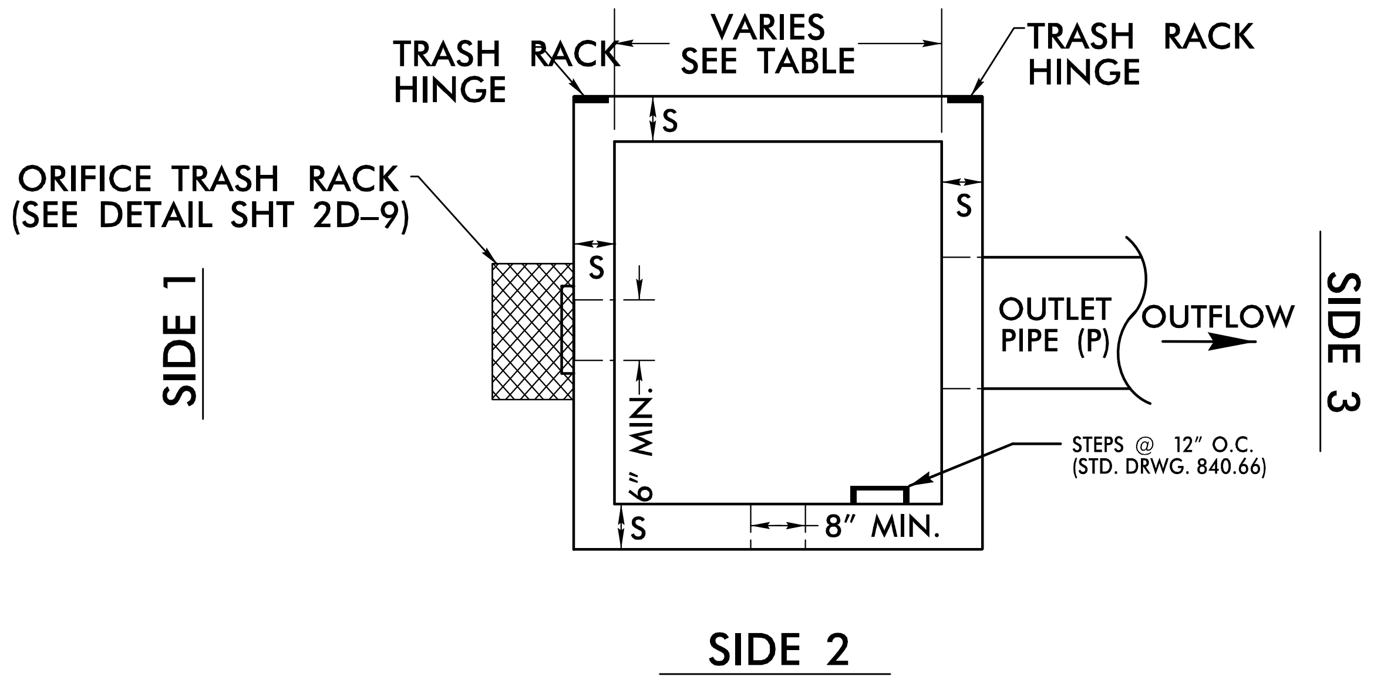
SIDE 1



SIDE 2



INSET "A"



PLAN VIEW

TRASH RACK NOT SHOWN FOR CLARITY

NOTES:

1. NO BEDDING MATERIAL TO BE USED. THERFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
2. ENSURE TRASH RACK OPENS FREELY.
3. SEE DRAINAGE SUMMARY (3D) SHEETS FOR STRUCTURE AND PIPE QUANTITIES.

MINIMUM DIMENSIONS FOR DRY DETENTION BASIN DRAWDOWN STRUCTURE

STATION	STRUCTURE NUMBER	S (INCHES)	B (INCHES)	TOP ELEVATION CONTROL STRUCTURE	CTL. STR. DIMENSIONS			ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	OUTLET PIPE INV.	BOX INV.	OUTLET PIPE DIAMETER(P) INCHES	OUTLET PIPE MATERIAL	CLASS B CONCRETE (CY)	UNCLASS. EXCAV. (CY)	BORROW EXCAV. (CY)
					W	L	H									
-L- 602+69 RT	1725	8	8	843.5	4'	4'		2"	837.5	837.0	835.0	30"	ALT	1.9	816	0

NOT TO SCALE

8/8/2024
X:\NCDOT\R-2307B\Drainage\BASINS\R-2307B_Hyd_det_2D-8.dgn
User:kgray

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2D-9
R/W SHEET NO.	

HYDRAULICS
ENGINEER

SEAL
038697
DAVID B. PETTY

Signed by:
David B. Petty
400EFF4863B6465...
8/13/2024 | 10:57 AM PDT

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

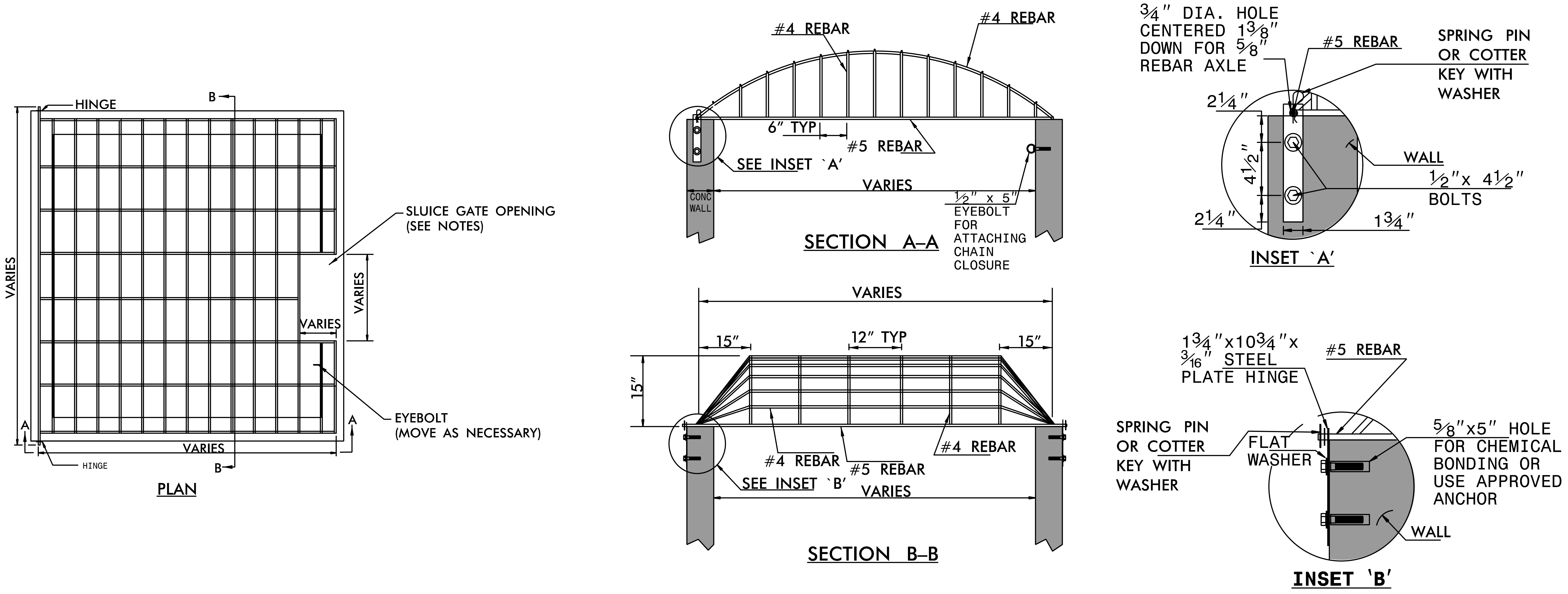
TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

DETAIL 2D-9A

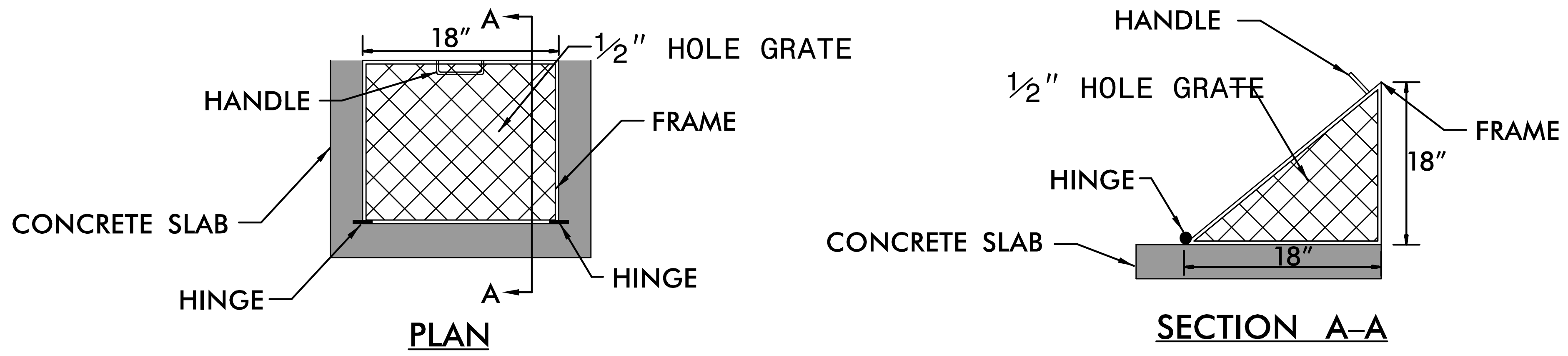
RISER & ORIFICE TRASH RACKS

(N.T.S.)

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. PAYMENT FOR RISER TRASH RACK IS INCIDENTAL TO OUTLET CONTROL STRUCTURE.



REBAR TRASH RACK
NOT TO SCALE



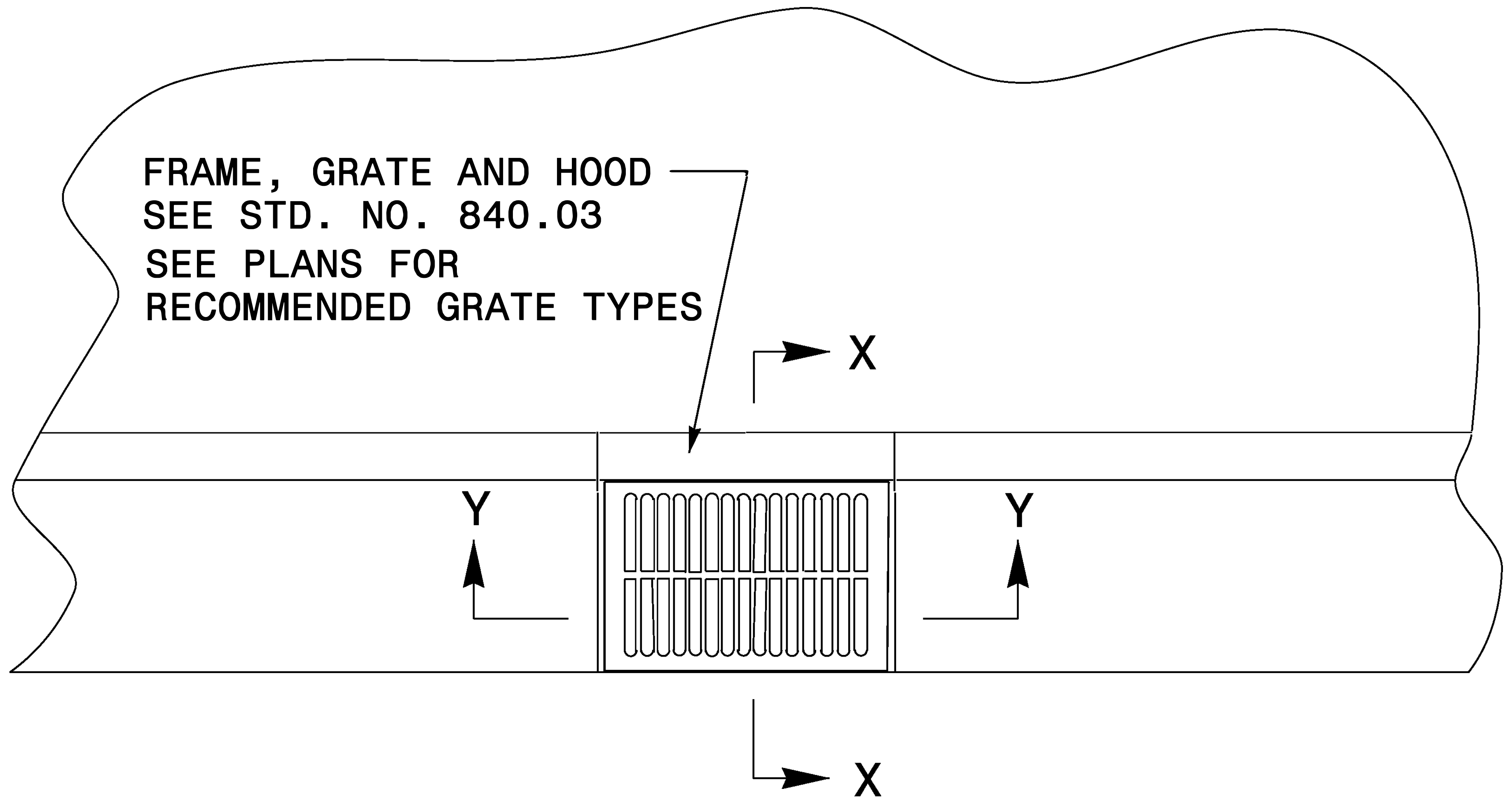
ORIFICE TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. REMOVABLE ORIFICE TRASH RACK SHALL BE ATTACHED TO CONCRETE BOX BY HINGE OR SLIDE RAIL SYSTEM.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. PAYMENT FOR ORIFICE TRASH RACK IS INCIDENTAL TO OUTLET CONTROL STRUCTURE.

ORIFICE TRASH RACK
NOT TO SCALE

Docusign Envelope ID: B6D34864-3990-42CF-8435-AF50689C8B25

5/14/99

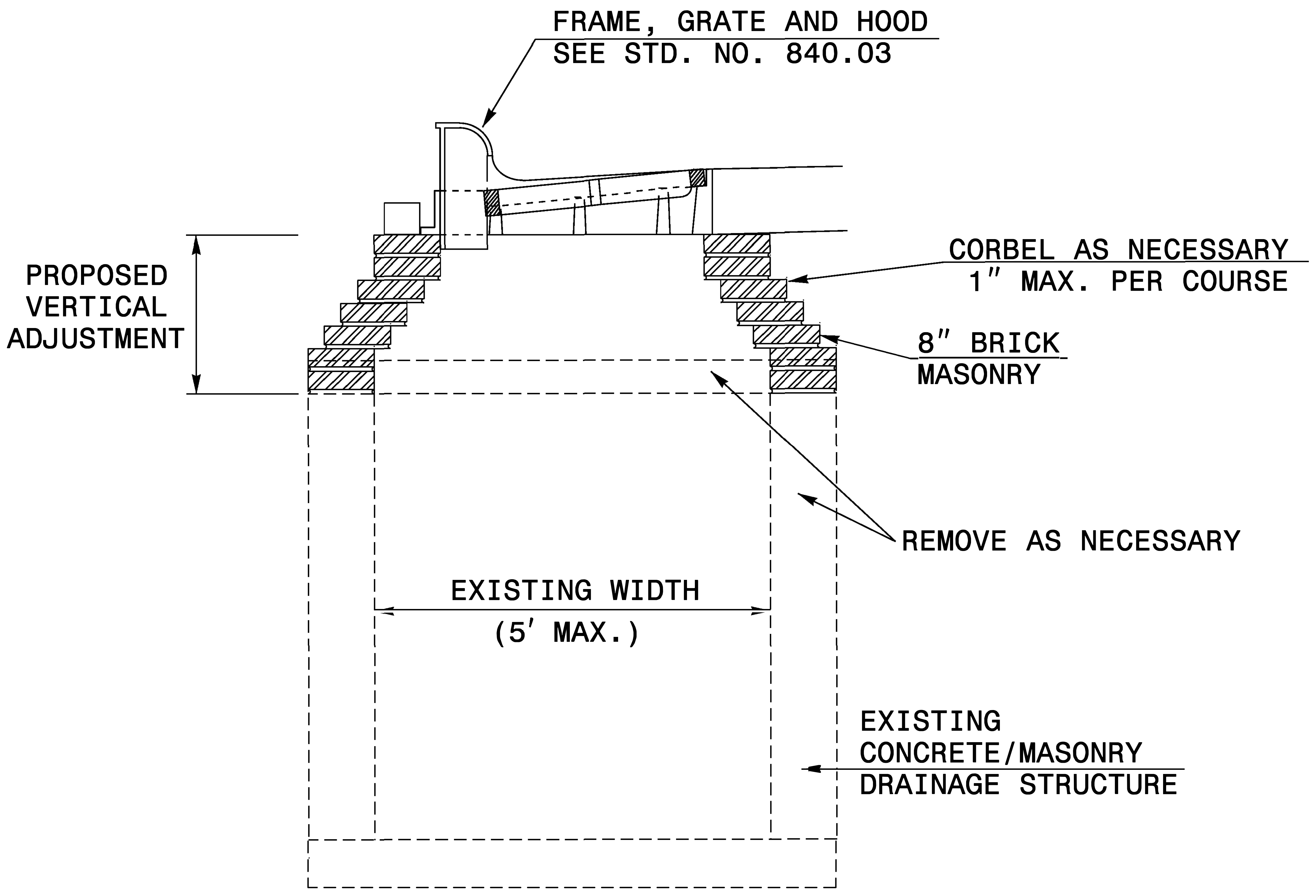
PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	2D-10



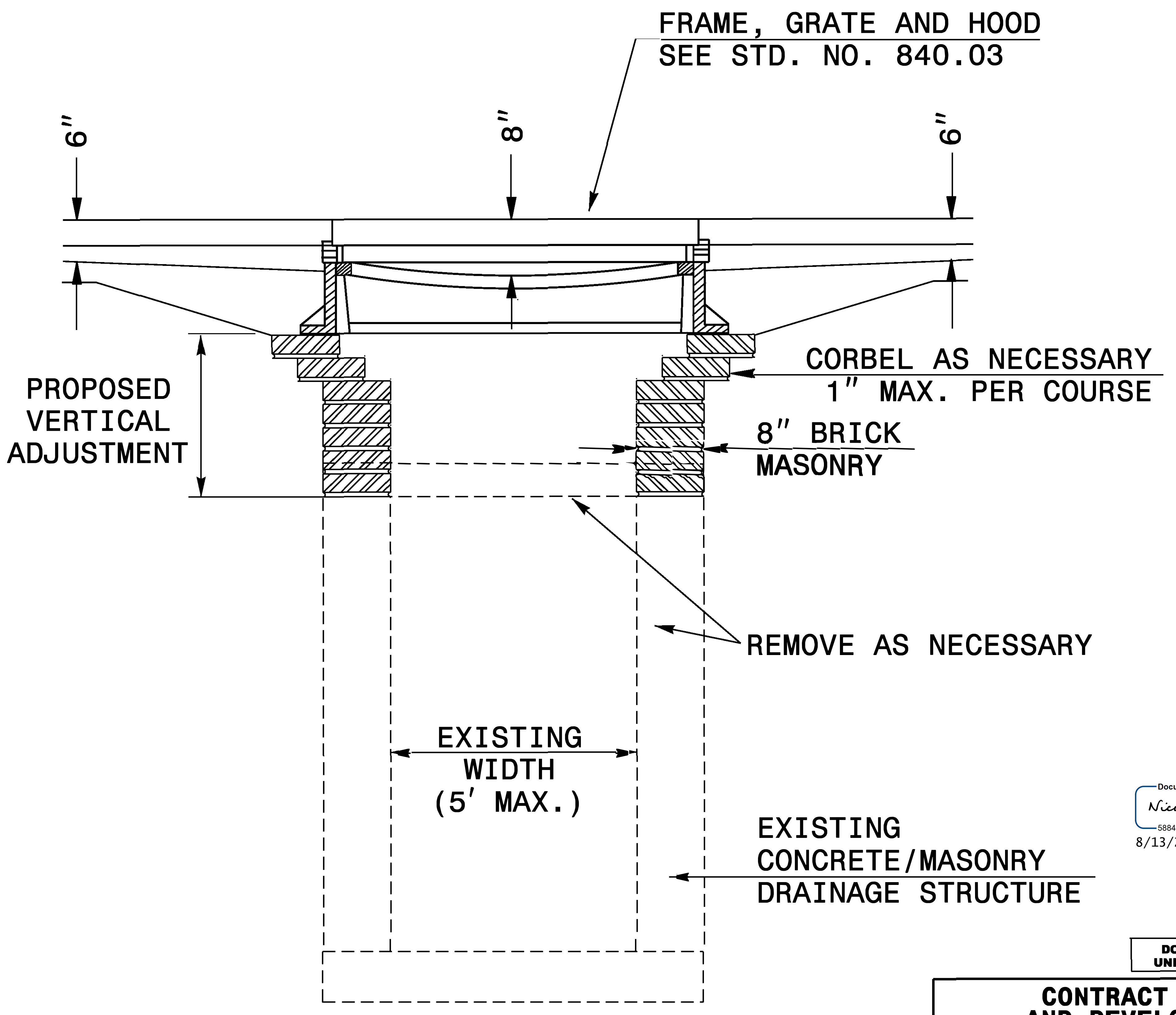
PLAN

GENERAL NOTES:

- THE ROADWAY PLANS INDICATE STRUCTURES TO BE CONVERTED.
- AFTER REMOVAL, STORE GRATES AND FRAMES AS DIRECTED BY THE ENGINEER.
- 4″ SOLID CLAY BRICK, JUMBO BRICK, CONCRETE, OR 4″ SOLID CONCRETE BLOCK MAY BE USED FOR VERTICAL ADJUSTMENT OF THE STRUCTURE.
- CONVERT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.



SECTION X-X



SECTION Y-Y

SEAL
33144
NICOLE M. HACKLER

DocuSigned by:
Nicole M. Hackler
5884323D34164C5...
8/13/2024 | 7:49 AM PDT

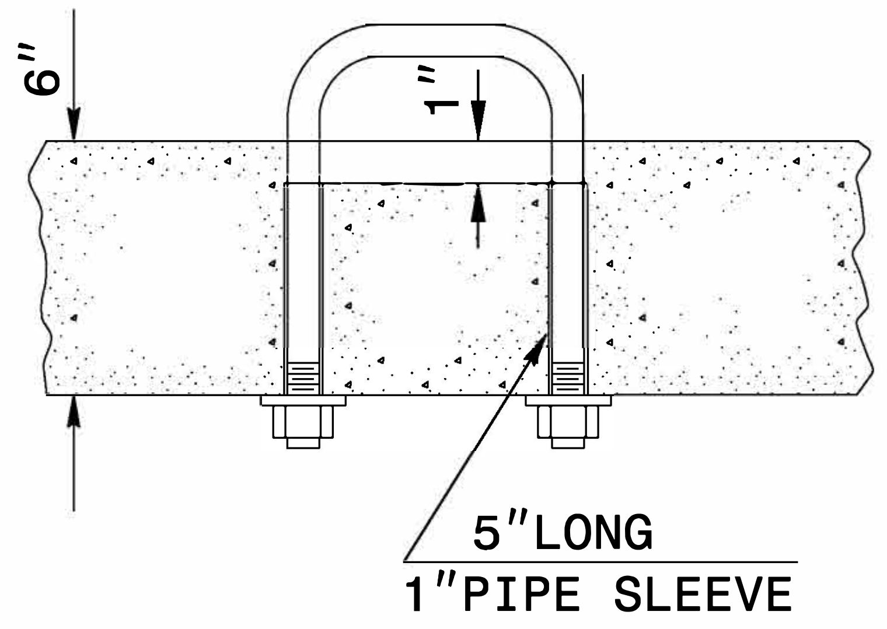
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

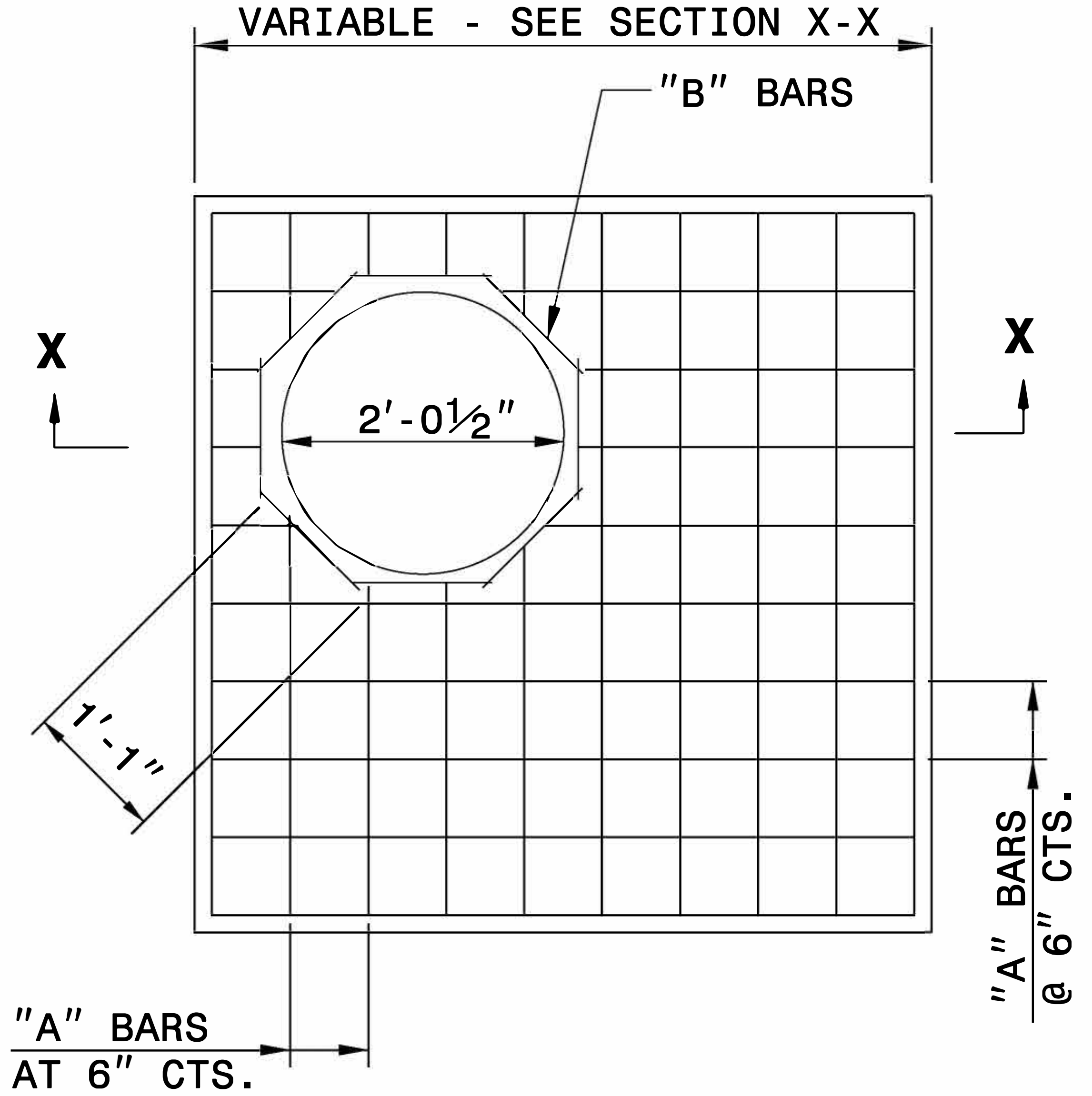
DETAIL TO CONVERT
DROP INLET OR JB
TO CATCH BASIN

ORIGINAL BY: E.E. WARD DATE: 11-97
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: DS37:usr\details\stand\jbtocb.dgn

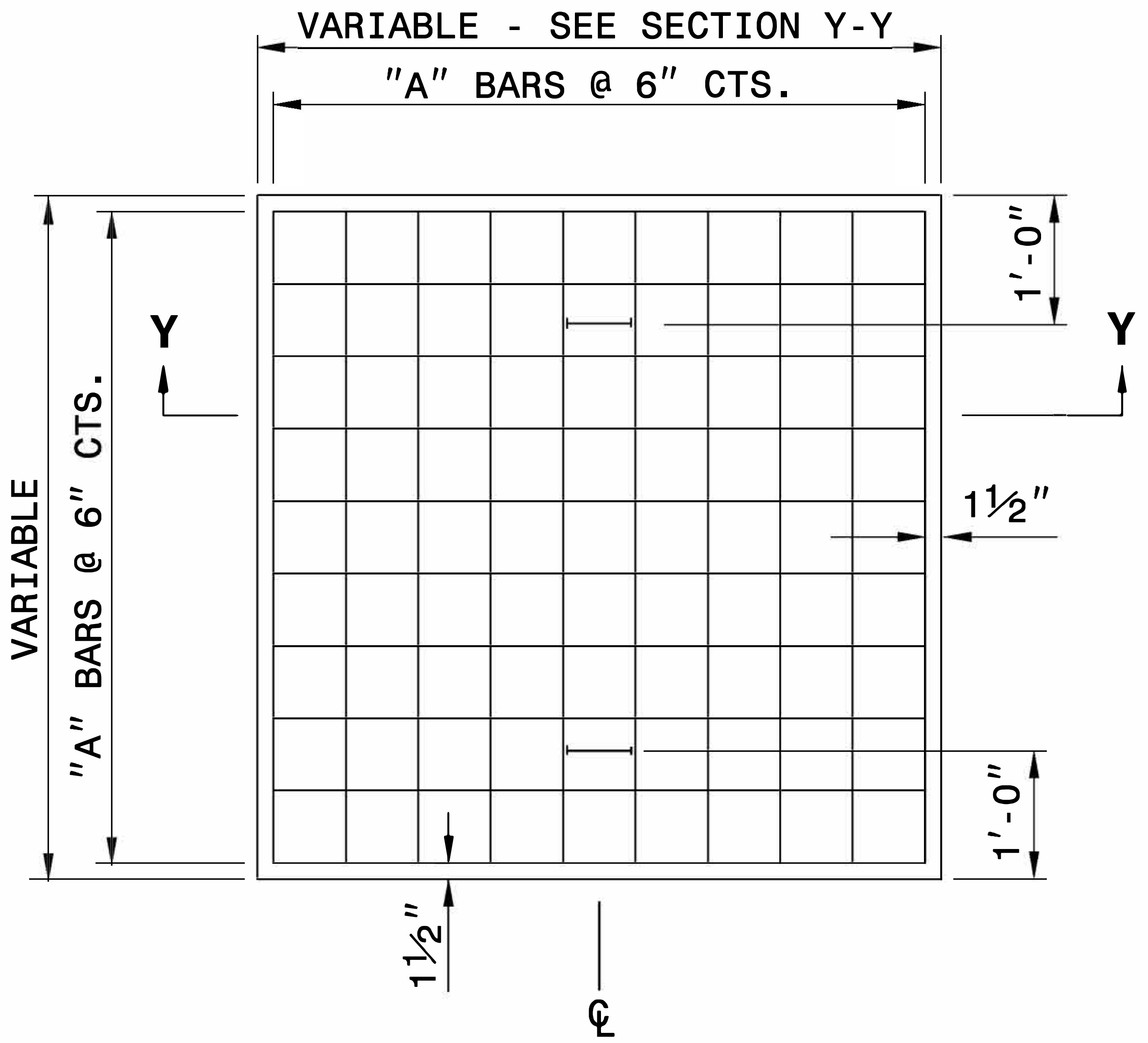
26-JUN-2017 10:42
S:\Contracts\Contracts\Special Details\jhowerton\convert DI or JB to CB.dgn
jhowerton AT CSD-292595



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

THE DIMENSIONS FOR THE EXISTING BOXES ARE APPROXIMATE AND MAY VARY SLIGHTLY.

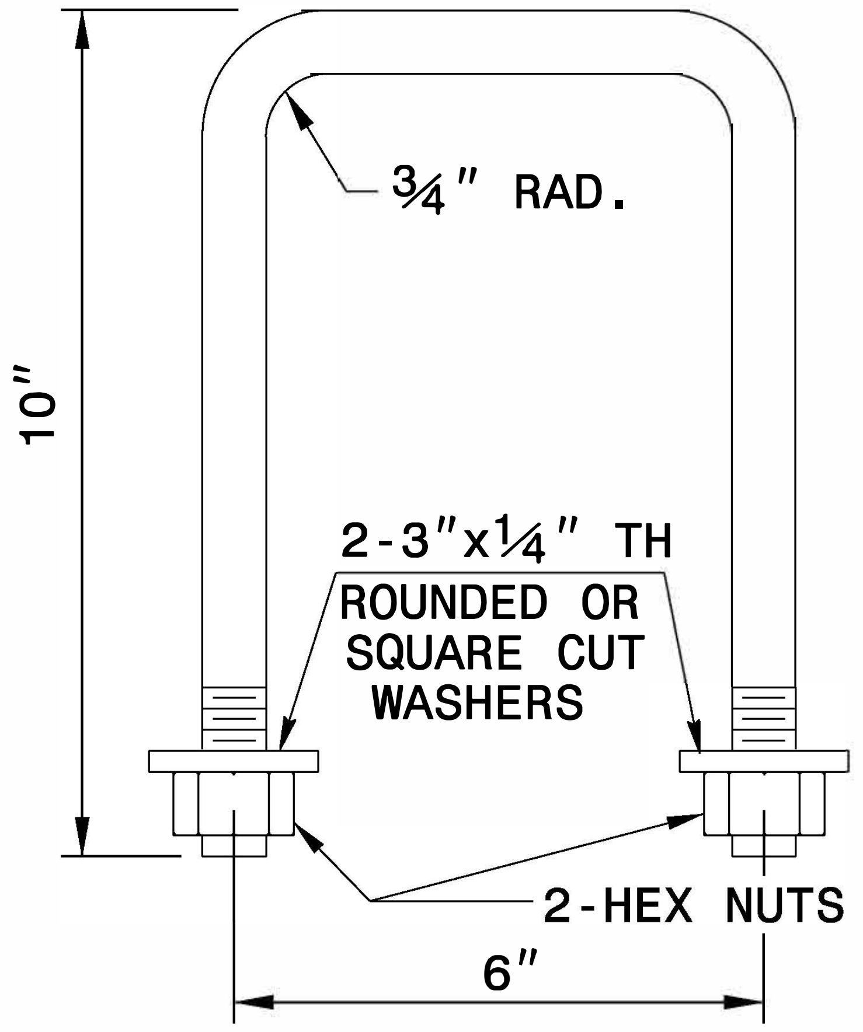
DETAIL INTENDED FOR NON-TRAFFIC BEARING DRAINAGE STRUCTURES.

BILL OF MATERIALS

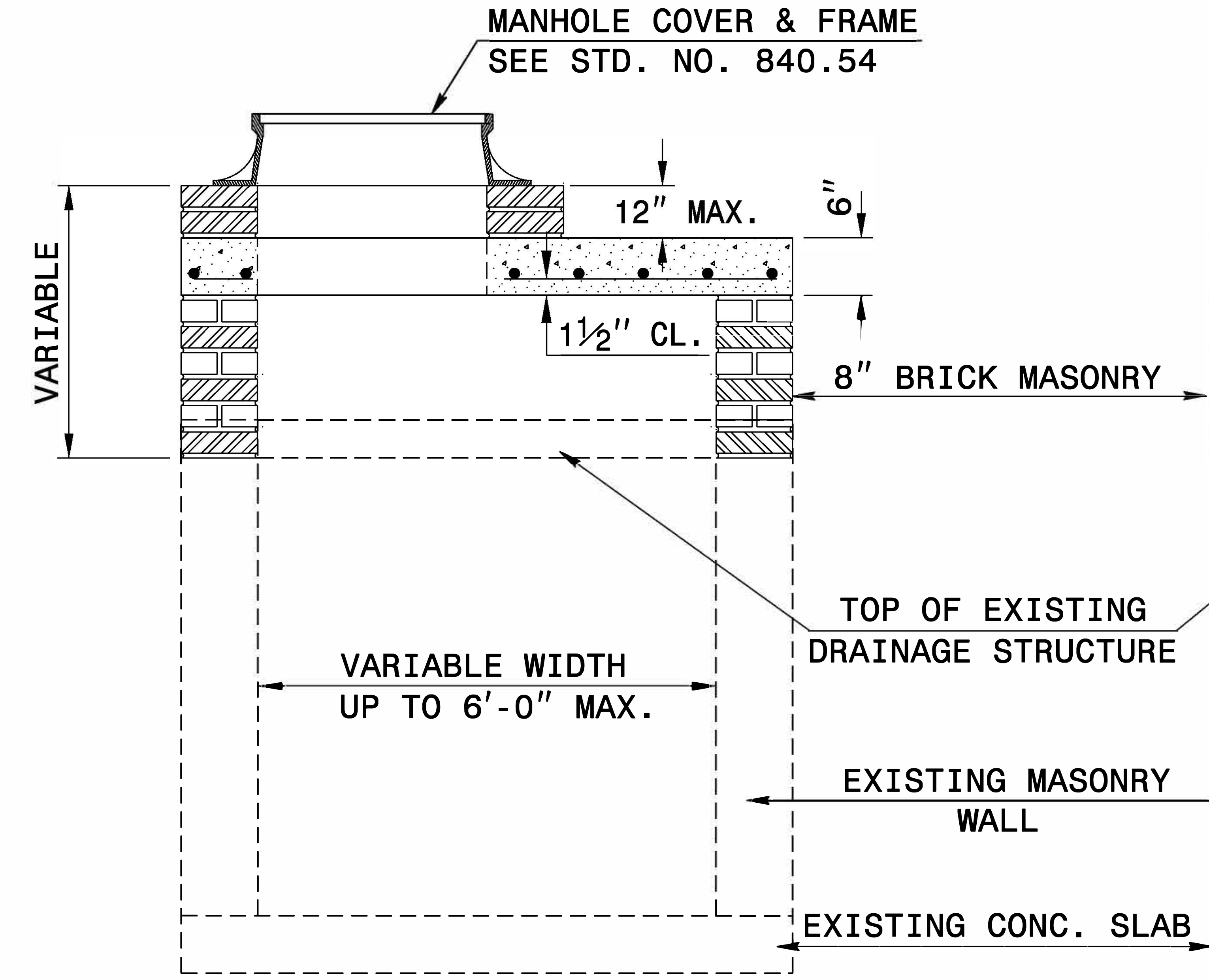
REINFORCING STEEL				
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

MASONRY	CU YDS
TOP SLAB CONCRETE CLASS "B"	.4326 *
BRICK MASONRY PER FT HT (MIN)	.4111

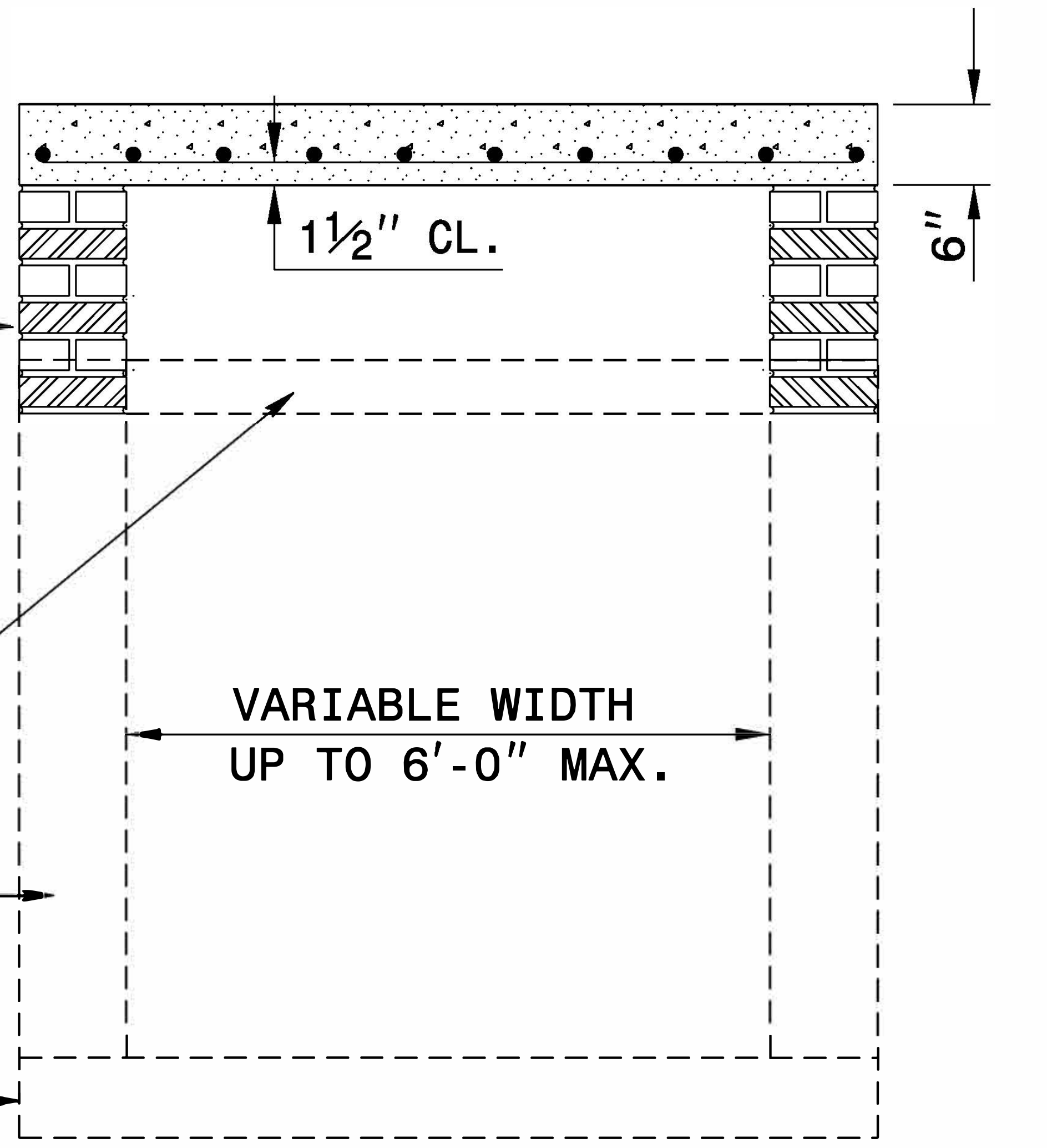
* NOTE:
QUANTITIES BASED ON 3'-6" X 3'-6" DRAINAGE STRUCTURE. ADJUST QUANTITIES FOR LARGER STRUCTURES AND MANHOLE CONSTRUCTION.



DETAIL OF HANDLE



SECTION X-X



SECTION Y-Y

DocuSigned by:
Nicole M. Hackler
5684323D34164C5...
8/13/2024 | 7:49 AM PDT

SEAL 33144
NICOLE M. HACKLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

DETAIL TO CONVERT EXISTING
DI, CB, OTCB or GI
TO JUNCTION BOX
(MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: NOV.1997
MODIFIED BY: T.S.S. DATE: FEB.2000
CHECKED BY: DATE:
FILE SPEC.: ds174:/usr/details/stand/boxtojbe.dgn

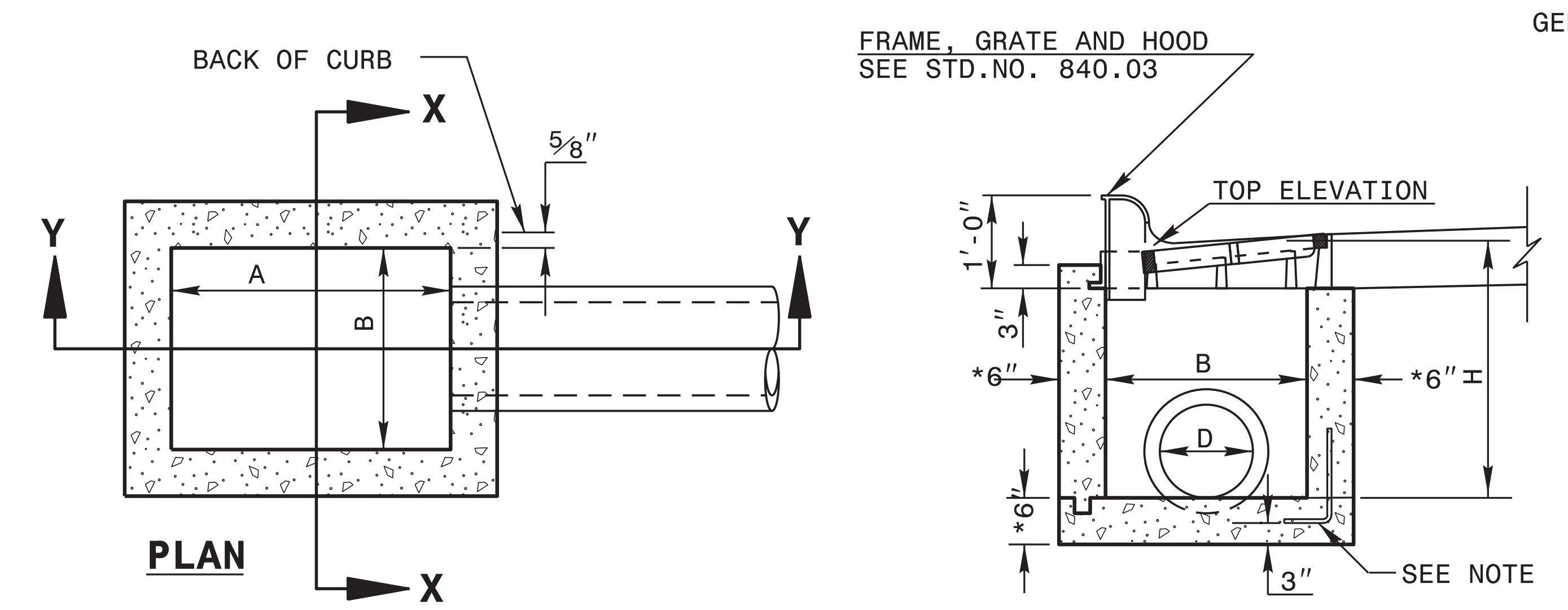
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-12

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
EXTRA DEPTH
CONCRETE CATCH BASIN
12″ THRU 84″ PIPE

SHEET 1 OF 2
840D02



PLAN

SECTION X-X

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3′-6″ IN DEPTH WITH STEPS 12″ ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2″ KEYWAY, OR #4 BAR DOWELS AT 12″ CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

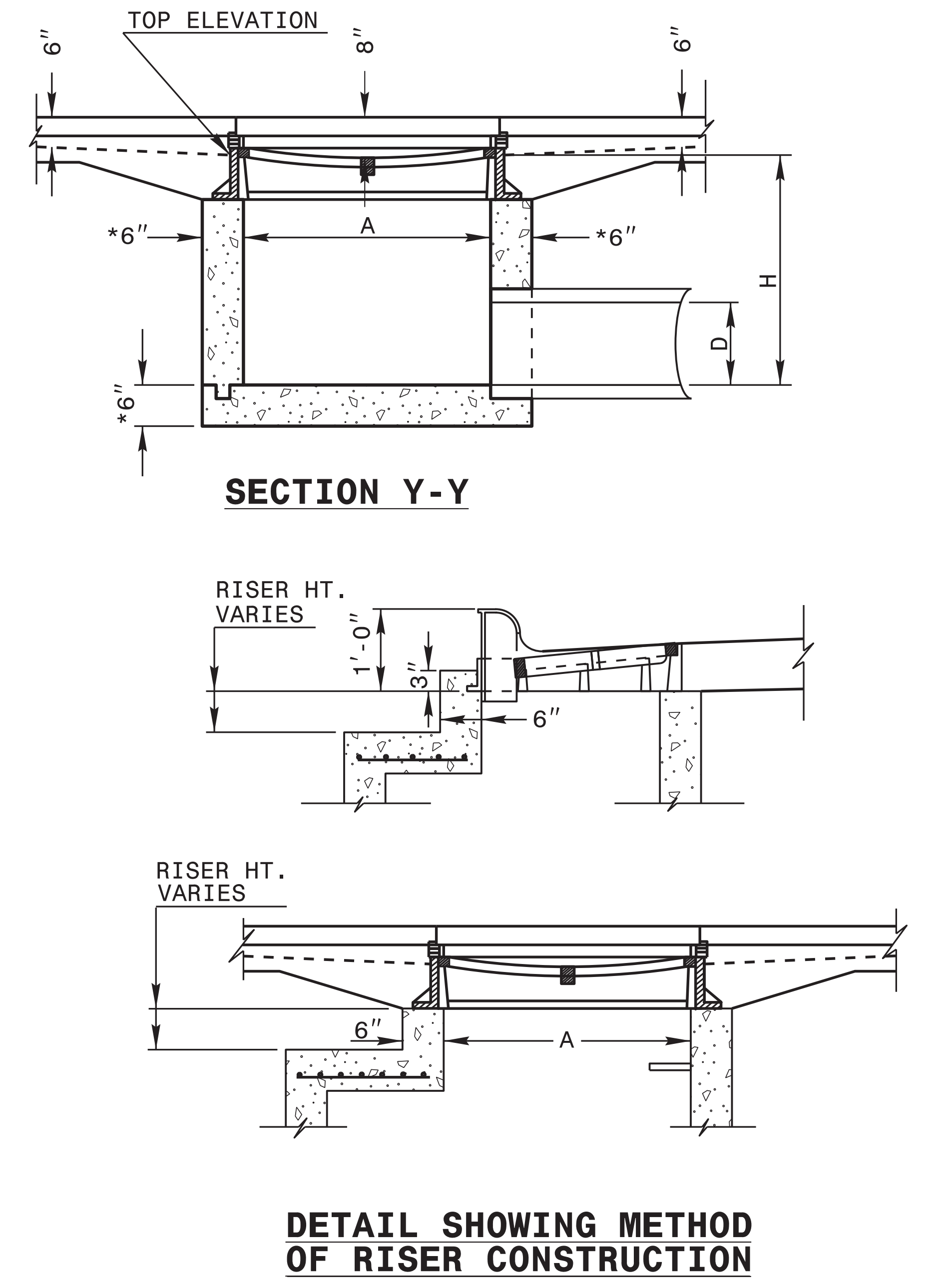
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

* USE 6″ WALLS FOR BOXES UP TO 8′ IN HEIGHT. USE 8″ WALLS, 8″ BOTTOM SLAB AND 8″ TOP SLAB FOR BOXES GREATER THAN 8′ IN HEIGHT AND UP TO 20′ IN HEIGHT.

CONSTRUCT WITH PIPE CROWNS MATCHING.

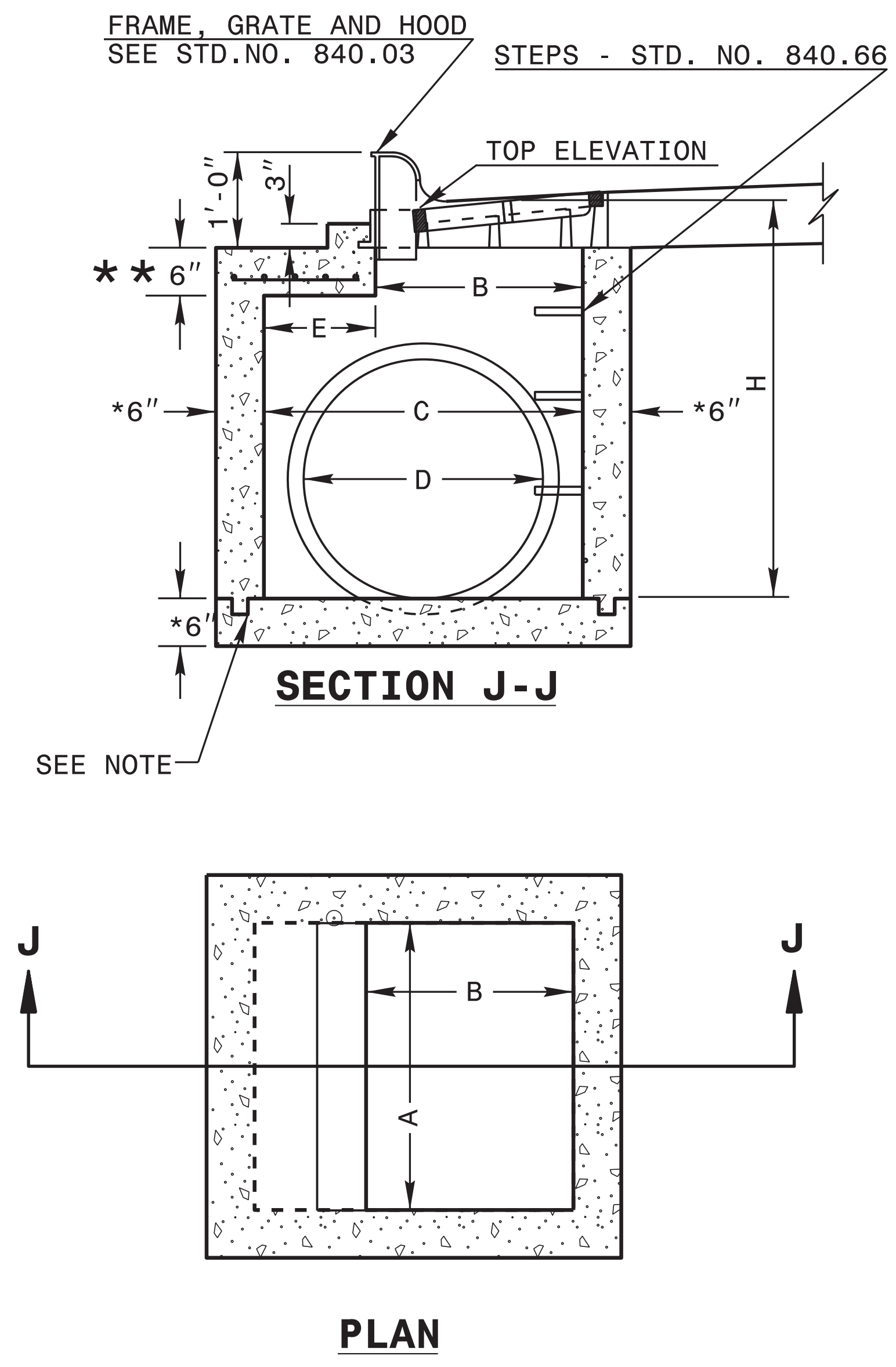
CHAMFER ALL EXPOSED CORNERS 1″.

** FOR STRUCTURES WITH PIPE LARGER THAN 54″, MAKE THE TOP SLAB 8″ THICK.



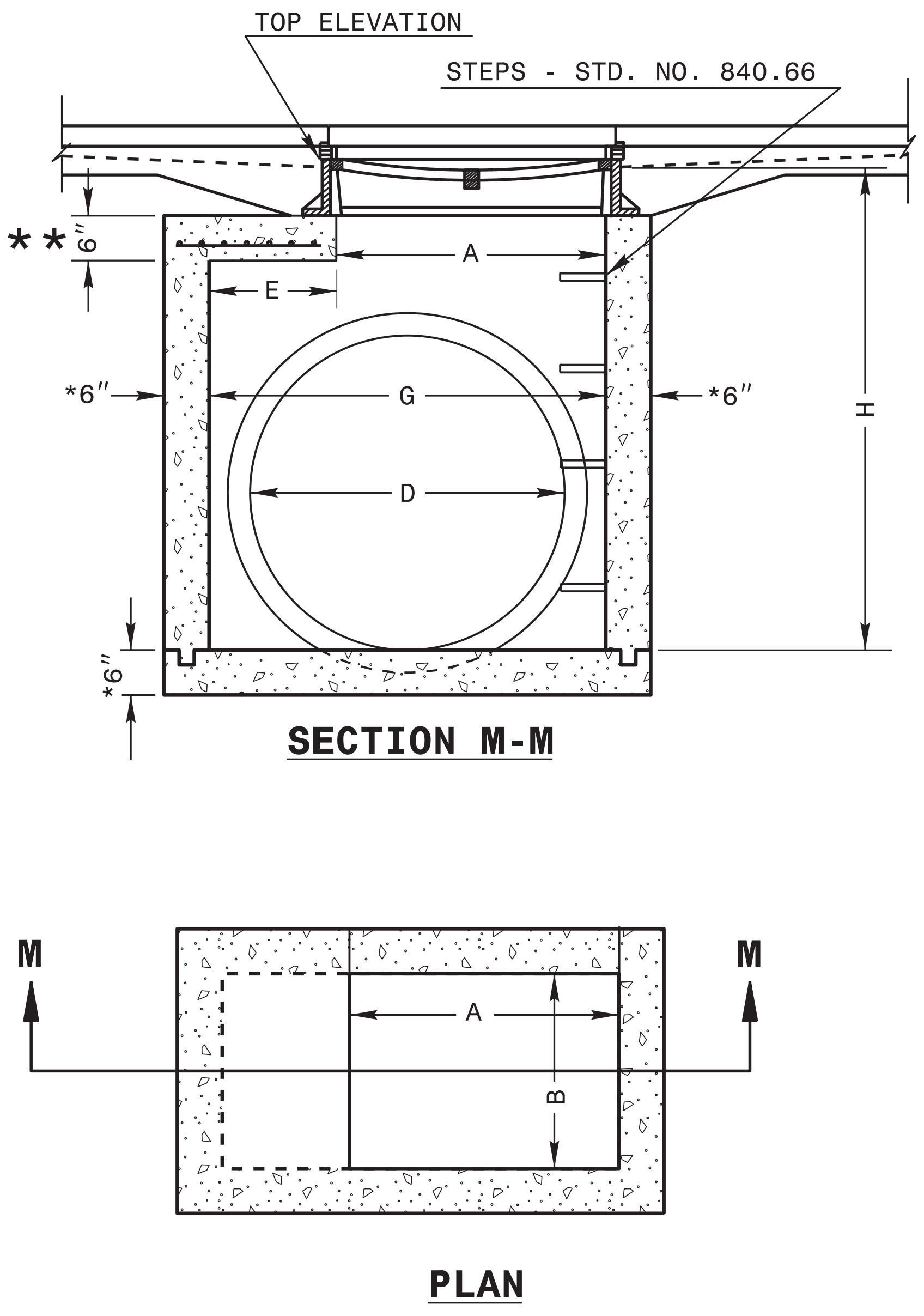
SECTION Y-Y

DETAIL SHOWING METHOD OF RISER CONSTRUCTION



SECTION J-J

PLAN



SECTION M-M

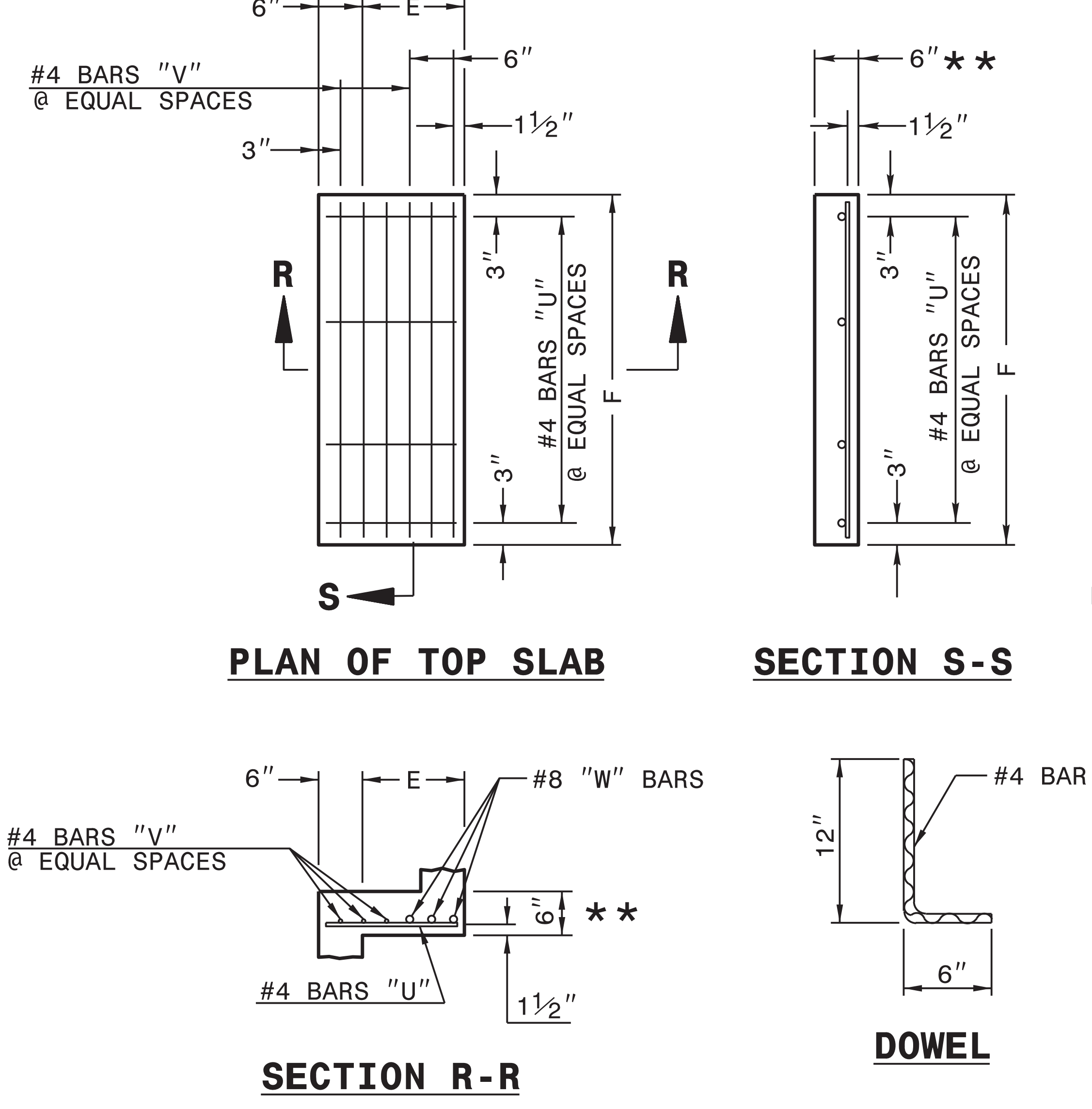
PLAN

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
EXTRA DEPTH
CONCRETE CATCH BASIN
12″ THRU 84″ PIPE

SHEET 2 OF 2
840D02

** FOR STRUCTURES WITH PIPE LARGER THAN 54″, MAKE THE TOP SLAB 8″ THICK.

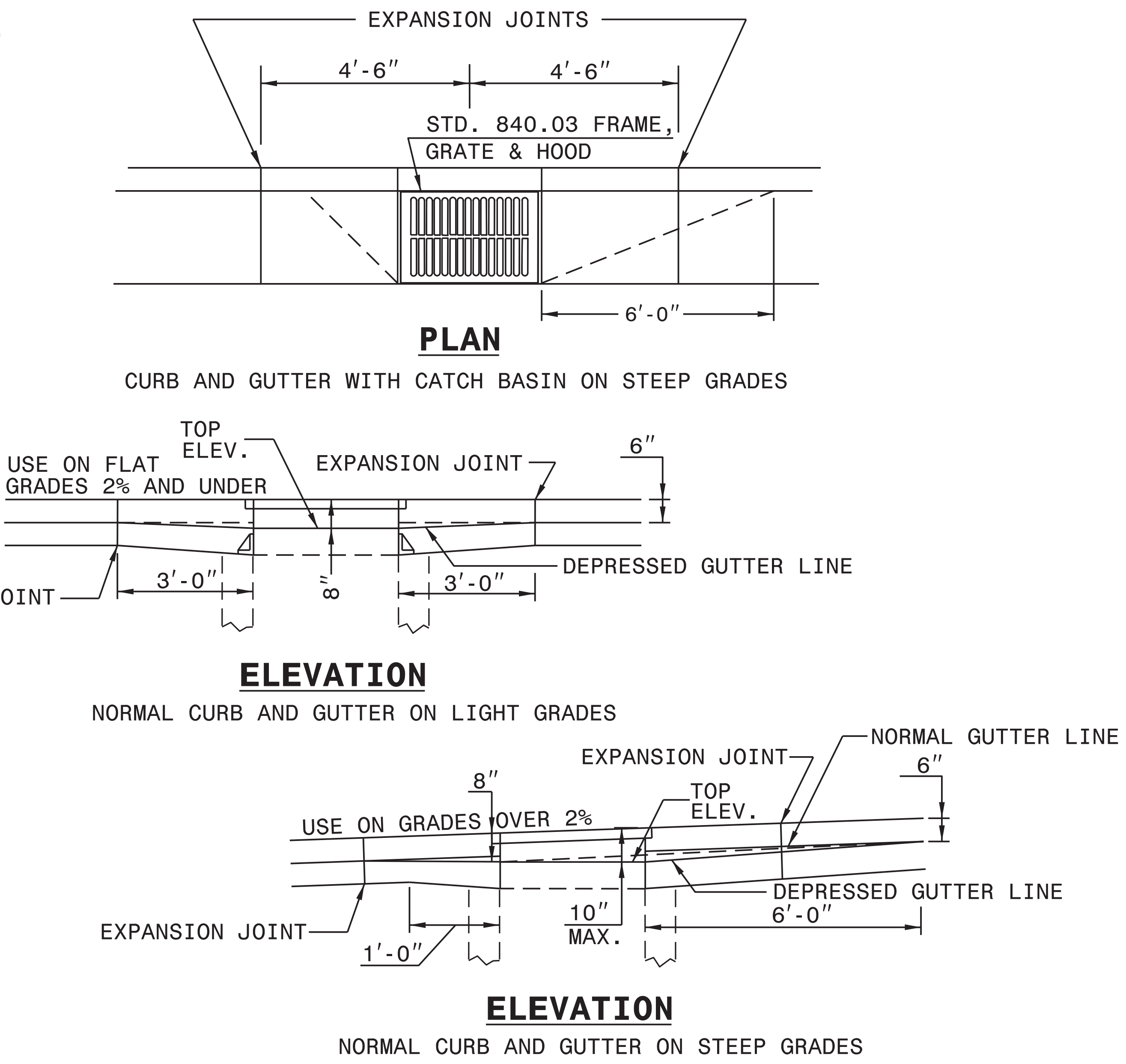


PLAN OF TOP SLAB

SECTION S-S

SECTION R-R

DOWEL



PLAN

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES

ELEVATION

NORMAL CURB AND GUTTER ON LIGHT GRADES

ELEVATION

NORMAL CURB AND GUTTER ON STEEP GRADES

* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN(BASED ON MIN. HEIGHT, H, WITH NO RISER) *

DIMENSIONS OF BOX AND PIPE						COVER DIMENSION									CU.YDS. CONC. IN BOX			DEDUCTIONS ONE PIPE	
PIPE	SPAN	WIDTH	WIDTH	SPAN	MIN. HEIGHT			BARS-U		BARS-V		BARS-W		TOTAL LBS.	TOP SLAB	BOTTOM SLAB	TOT. CONC. FOR MINIMUM HEIGHT, H		
D	A	B	C	G	H	E	F	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH					C.M.	R.C.
12″	3′-0″	2′-2″	--	--	2′-0″	--	--	--	--	--	--	--	--	--	--	0.235	0.772	0.015	0.026
15″	3′-0″	2′-2″			2′-3″											0.235	0.829	0.023	0.036
18″	3′-0″	2′-2″			2′-6″											0.235	0.887	0.033	0.049
24″	3′-0″	2′-2″			3′-1″											0.235	1.001	0.059	0.085
30″	3′-0″	2′-2″	3′-4″	3′-4″	3′-10″	1′-2″	4′-4″	4	1′-5″	2	4′-1″	3	4′-1″	39	0.123	0.347	1.433	0.092	0.127
36″	3′-0″	2′-2″	3′-10″	3′-10″	4′-6″	1′-8″	4′-10″	4	1′-11″	3	4′-7″	3	4′-7″	43	0.161	0.432	1.714	0.132	0.178
42″	3′-0″	2′-2″	4′-5″	4′-5″	4′-11″	2′-2″	5′-5″	5	2′-5″	4	5′-2″	3	5′-2″	47	0.200	0.543	1.738	0.180	0.243
48″	3′-0″	2′-2″	5′-0″	5′-0″	5′-6″	2′-10″	6′-0″	5	3′-1″	4	5′-9″	3	5′-9″	51	0.235	0.667	2.052	0.235	0.317
54″	3′-0″	2′-2″	5′-7″	5′-7″	6′-0″	3′-5″	6′-7″	6	3′-8″	5	6′-4″	3	6′-4″	56	0.289	0.802	2.387	0.297	0.401
60″	3′-0″	2′-2″	6′-3″	6′-3″	6′-6″	4′-1″	7′-3″	6	4′-4″	5	7′-0″	3	7′-0″	61	0.340	0.973	2.722	0.363	0.546
66″	3′-0″	2′-2″	6′-11″	6′-11″	7′-0″	4′-9″	7′-11″	7	5′-0″	6	7′-8″	3	7′-8″	66	0.391	1.160	3.057	0.440	0.655
72″	3′-0″	2′-2″	7′-6″	7′-6″	7′-6″	5′-3″	8′-6″	7	5′-6″	6	8′-3″	3	8′-3″	72	0.442	1.340	3.392	0.524	0.774
78″	3′-0″	2′-2″	8′-1″	8′-1″	8′-0″	5′-11″	9′-1″	8	6′-2″	7	8′-10″	3	8′-10″	78	0.493	1.530	3.727	0.615	0.893
84″	3′-0″	2′-2″	8′-9″	8′-9″	8′-6″	6′-7″	9′-9″	8	6′-10″	7	9′-6″	3	9′-6″	84	0.544	1.760	4.062	0.713	1.010

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
EXTRA DEPTH
CONCRETE CATCH BASIN
12″ THRU 84″ PIPE

SHEET 1 OF 2
840D02

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
EXTRA DEPTH
CONCRETE CATCH BASIN
12″ THRU 84″ PIPE

SHEET 2 OF 2
840D02

Signed by:
Nicole M. Hackler
5884323D34164C5...
9/20/2024

SEAL 33144 NICOLE M. HACKLER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

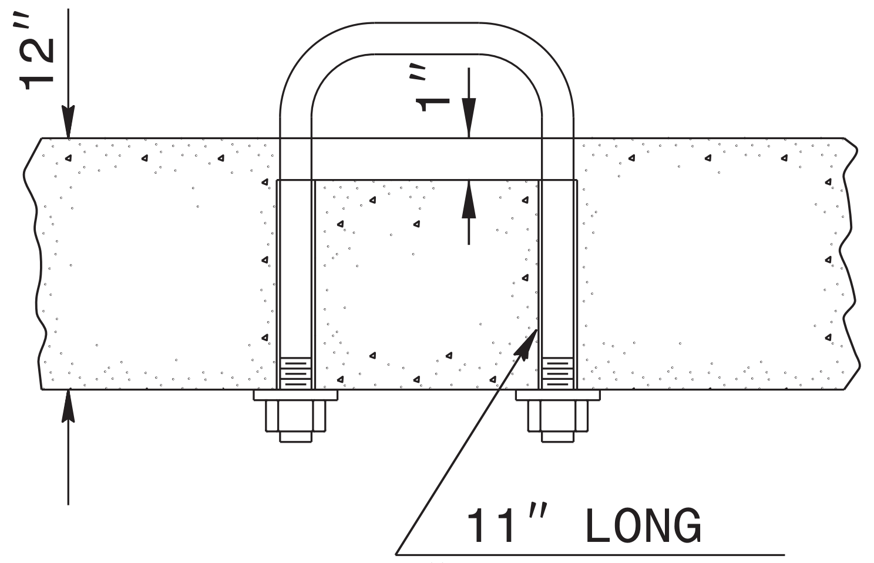
SEE PLATE FOR TITLE

ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
FILE SPEC.: jhowerton/840d02 Extra Depth CB.dgn

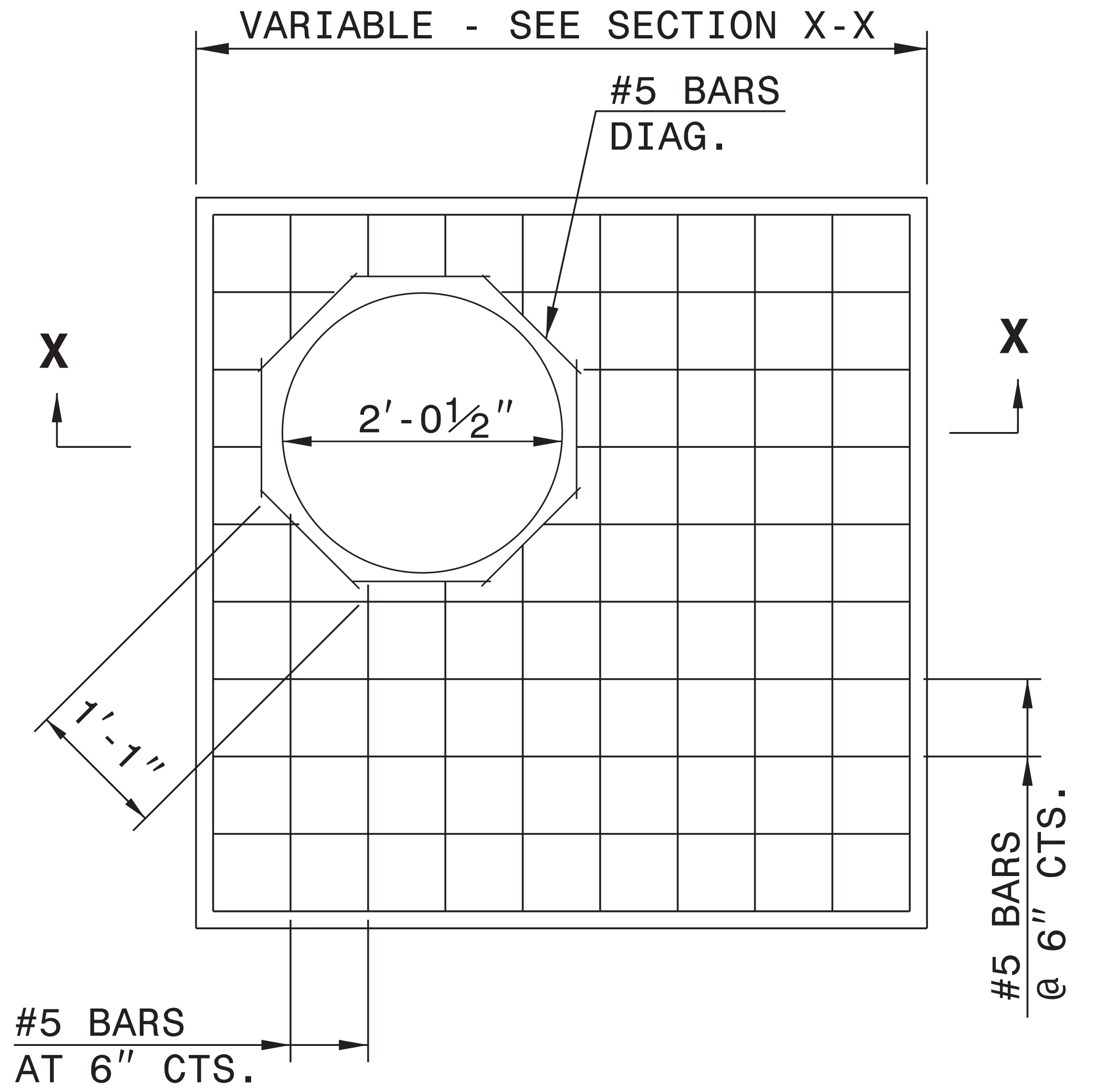
Docusign Envelope ID: 8FD369F3-03DF-45C1-82C7-3600960BAF7D

5/14/99

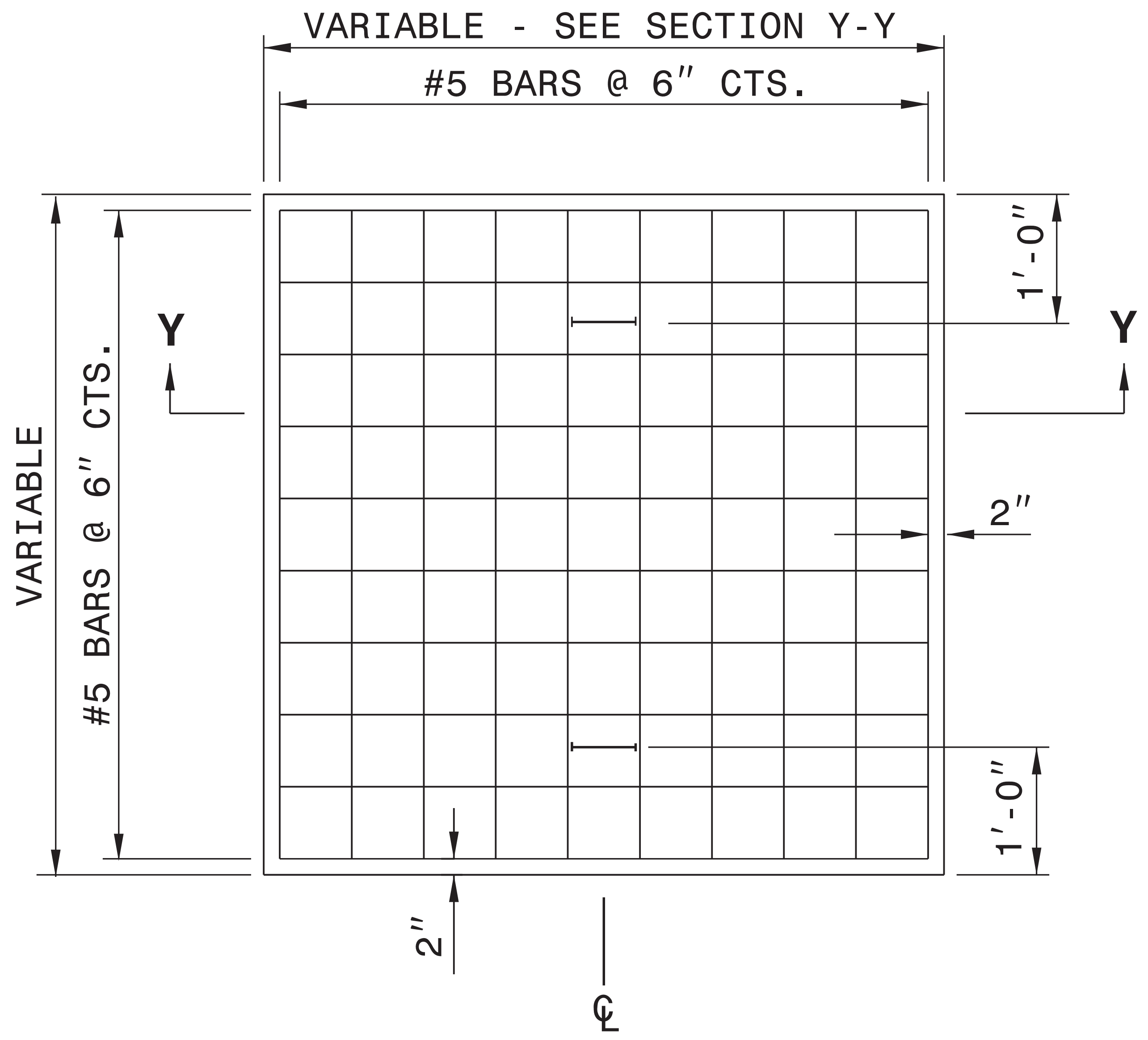
PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2D-13



PARTIAL SECTION



PLAN



PLAN

GENERAL NOTES:

CONSTRUCT IN ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

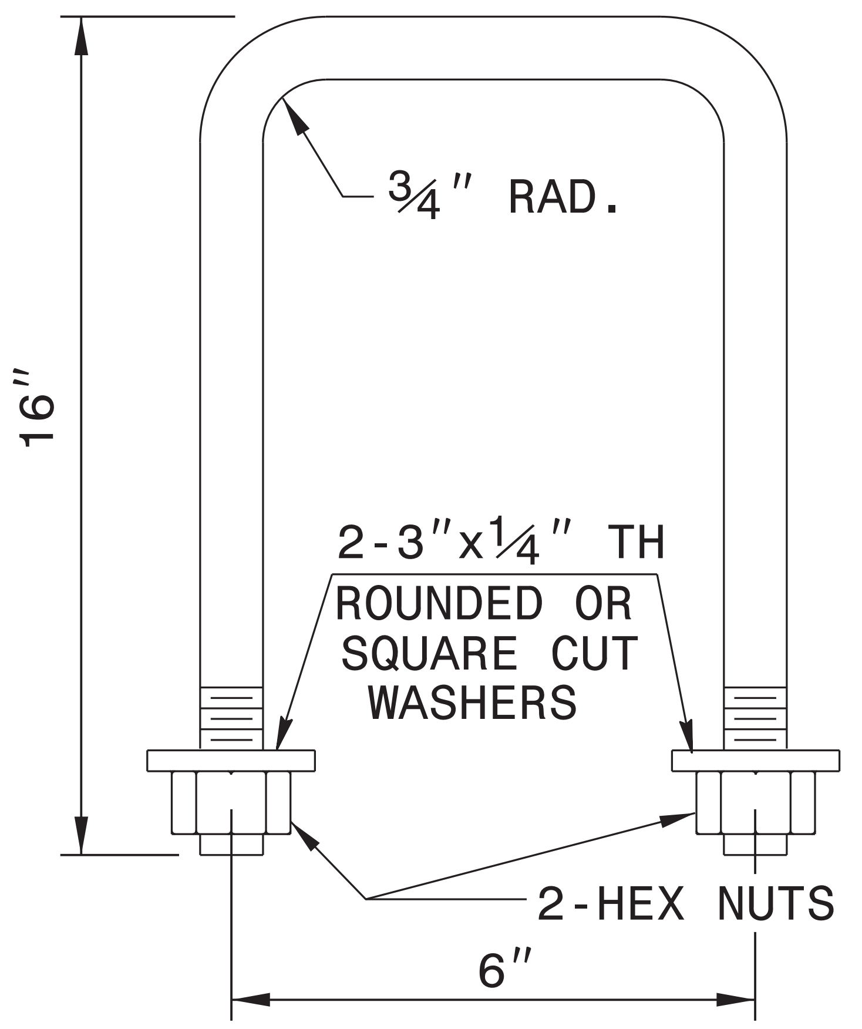
FIELD VERIFY THE DIMENSIONS FOR THE EXISTING BOXES.

BILL OF MATERIALS

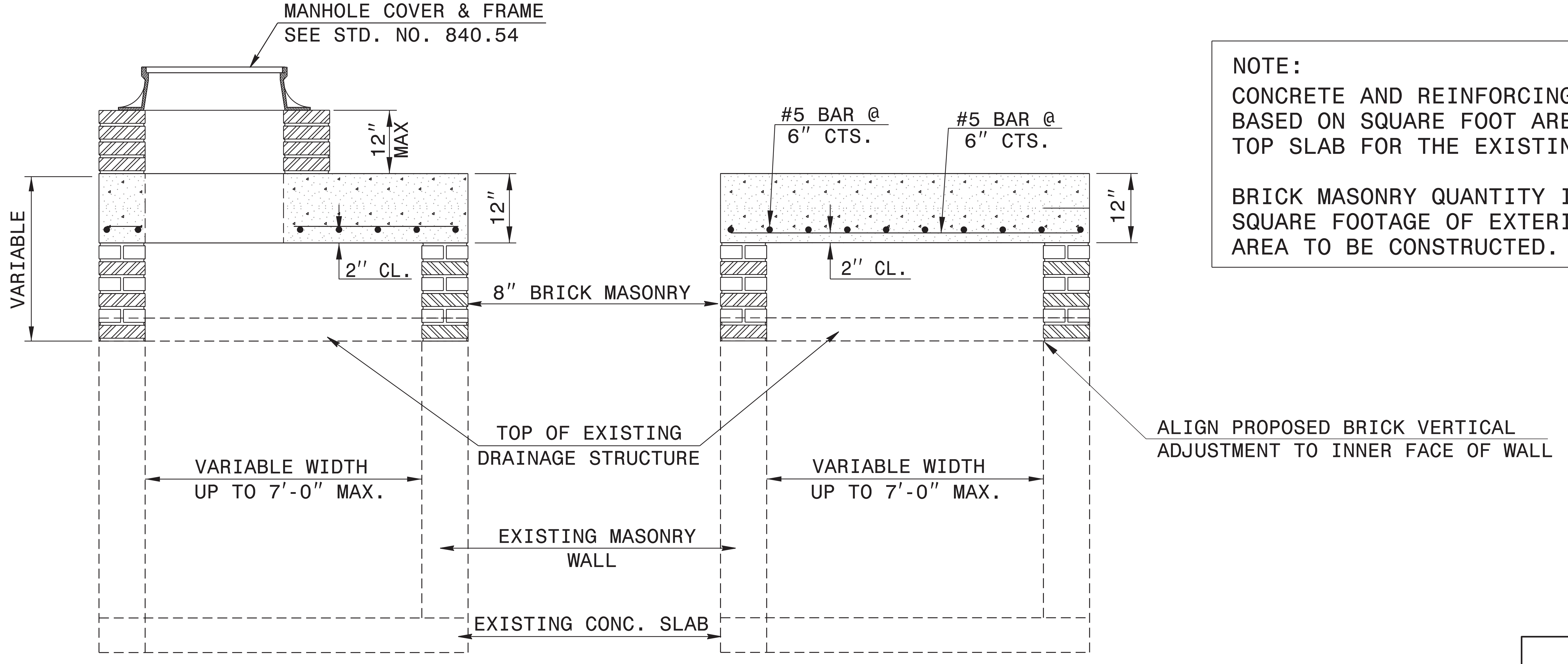
MASONRY			
TOP SLAB CONCRETE CLASS "A"			.037YDS^3 PER FT^2
BRICK MASONRY			.025YDS^3 PER FT^2
REINFORCING STEEL			7.64LBS PER FT^2
MANHOLE OPTION QUANTITIES			
SIZE	QTY.	LENGTH	REINF. STEEL LBS.
#5 DIAG.	8	1′-1″	9.04

NOTE:
CONCRETE AND REINFORCING STEEL QUANTITIES BASED ON SQUARE FOOT AREA OF THE PROPOSED TOP SLAB FOR THE EXISTING DRAINAGE STRUCTURE.

BRICK MASONRY QUANTITY IS BASED ON THE TOTAL SQUARE FOOTAGE OF EXTERIOR WALL SURFACE AREA TO BE CONSTRUCTED.



DETAIL OF HANDLE



SECTION X-X

SECTION Y-Y

Signed by:
Nicole M. Hackler
9/20/2024

SEAL 33144
NICOLE M. HACKLER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

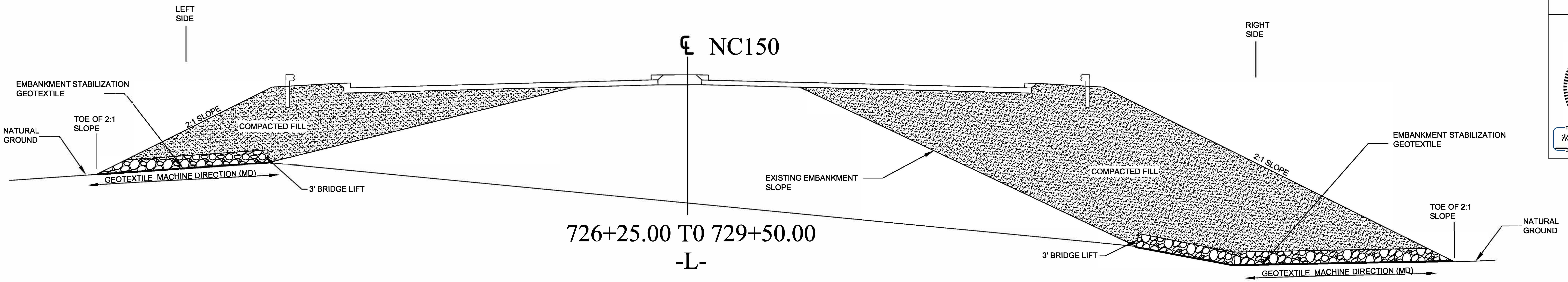
DETAIL TO CONVERT EXISTING TRAFFIC BEARING DROP INLET OR CATCH BASIN TO TRAFFIC BEARING JUNCTION BOX (MANHOLE OPTIONAL)

ORIGINAL BY: T.S.S. DATE: FEB.2000
MODIFIED BY: E.E.W. DATE: NOV.2001
CHECKED BY: DATE:
FILE SPEC.: w:ericward/usr/details/stand/boxtotbjbe.dgn

05-MAR-2018 08:11
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\boxtotbjbe.dgn
jhowerton AT CSD-242595

PROJECT REFERENCE NO.	SHEET
R-2307B	2G-1

GEOTECHNICAL ENGINEER	ENGINEER
SEAL 009551 HAROLD D. PRUITT DocuSigned by: Harold D. Pruitt 07/25/2024 BAE9676E0BF04DA... SIGNATURE DATE	SIGNATURE DATE



EMBANKMENT STABILIZATION CROSS-SECTION

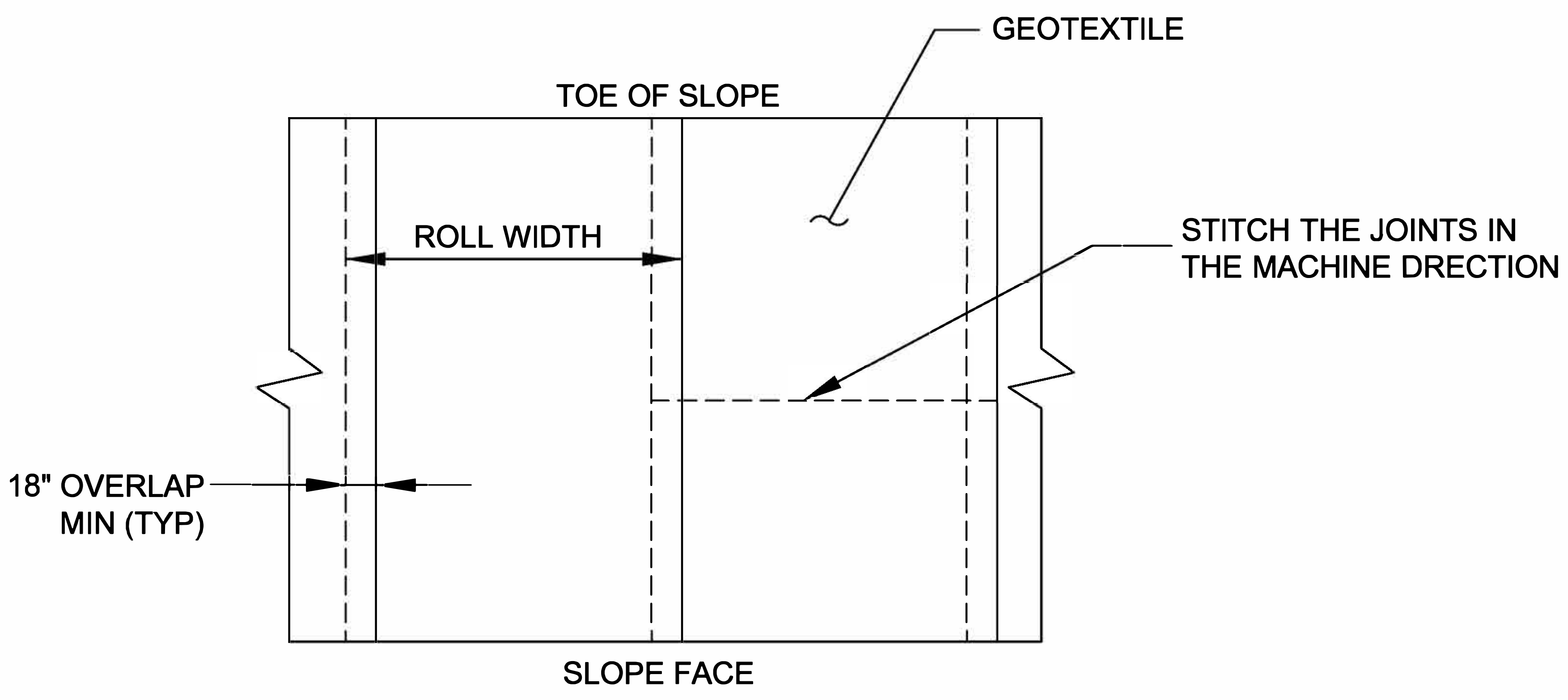
NOTES:

1. PLACE ALL FABRIC WITH THE MACHINE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
2. THE CONTRACTOR TO SUBMIT DETAIL OF FABRIC LAYOUT IN TRANSITION ZONES FOR APPROVAL BY THE ENGINEER PRIOR TO CONSTRUCTION.
3. PLACE GEOTEXTILE FROM TOE OF PROPOSED FILL SLOPE TO EXISTING SLOPE FACE.

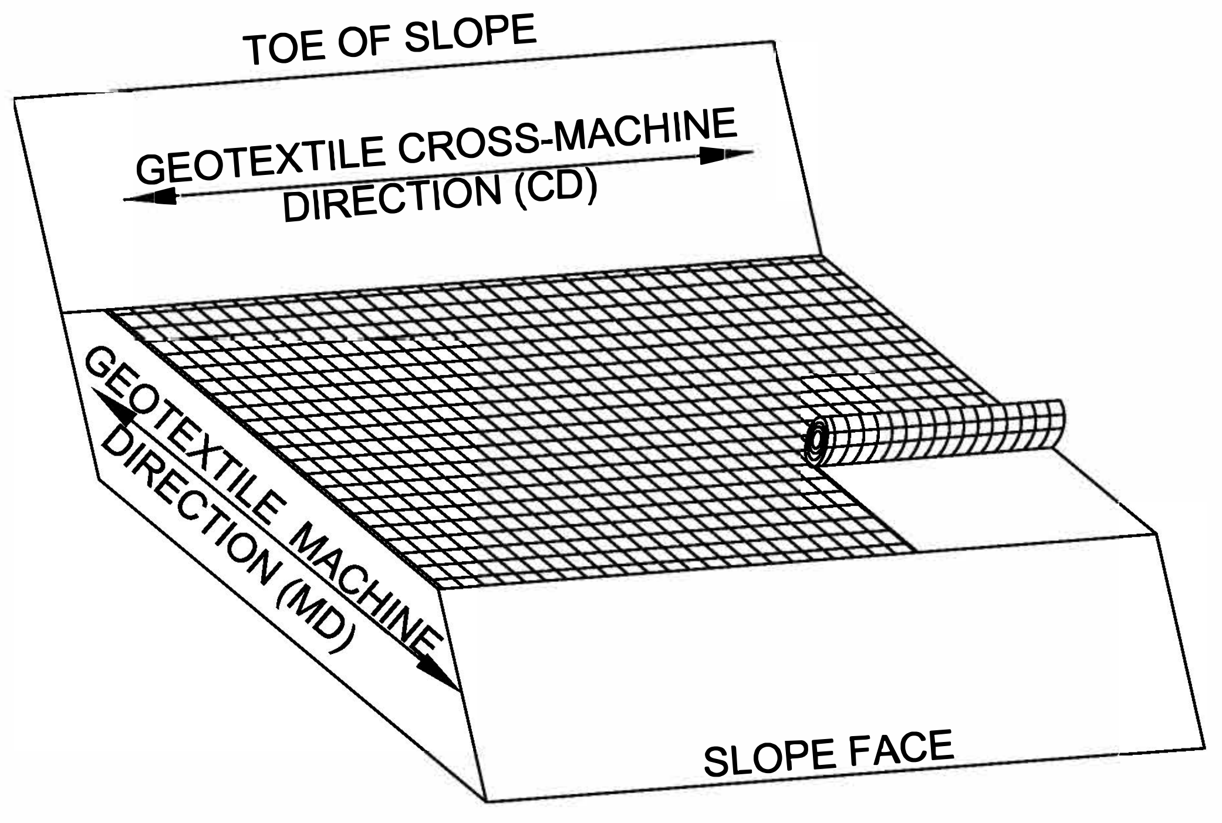
QUANTITIES::

1. GEOTEXTILE FOR EMBANKMENT STABILIZATION:
   a. LEFT SIDE = 855 SQ. YDS.
   b. RIGHT SIDE = 2,300 SQ. YDS.

2. 3-FOOT BRIDGE LIFT (SELECT GRANULAR MATERIAL-SECTION 265):
   a. LEFT SIDE = 700 CUBIC YDS.
   b. RIGHT SIDE = 2,200 CUBIC YDS.



GEOTEXTILE OVERLAP DETAIL (PLAN VIEW)



GEOTEXTILE PLACEMENT DETAIL (PLAN VIEW)

SUMMIT
DESIGN AND ENGINEERING SERVICES
Creatively Inspired - Technically Executed

NO.	REVISIONS	DATE

EMBANKMENT STABILIZATION DETAILS

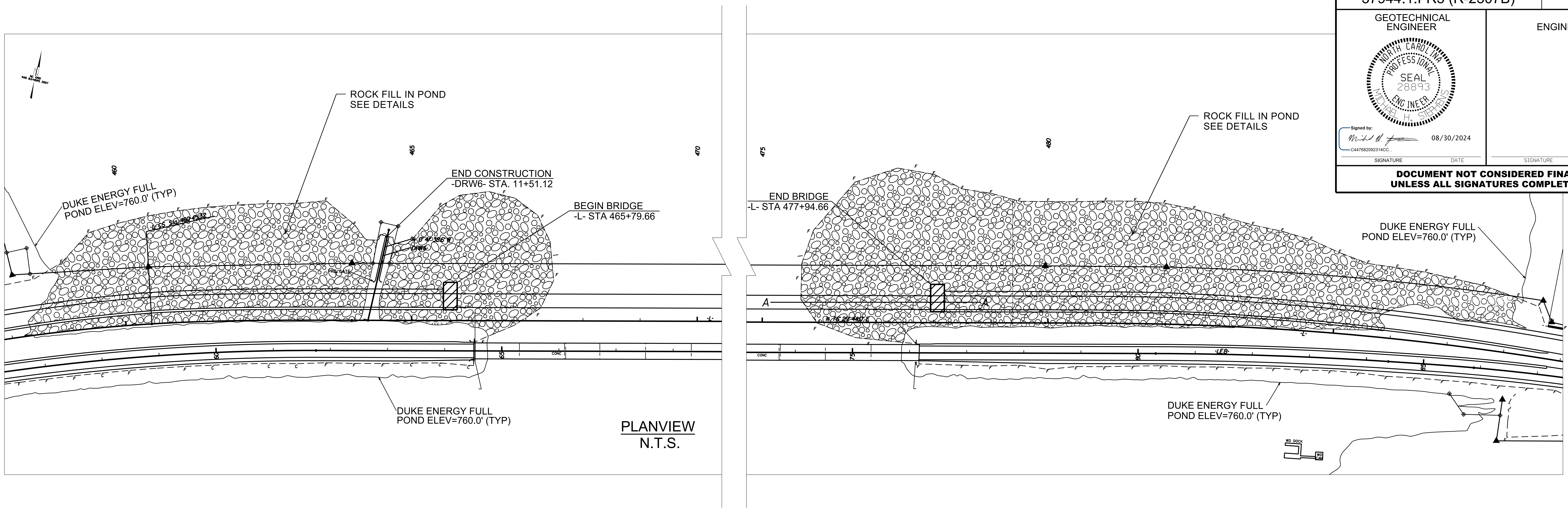
NC 150 FROM SR1840 (GREENWOOD RD.) IN CATAWBA COUNTY TO US-21 IN IREDELL COUNTY

Designer: HDP Date July 27, 2018
Drawn by: HDP Date July 27, 2018

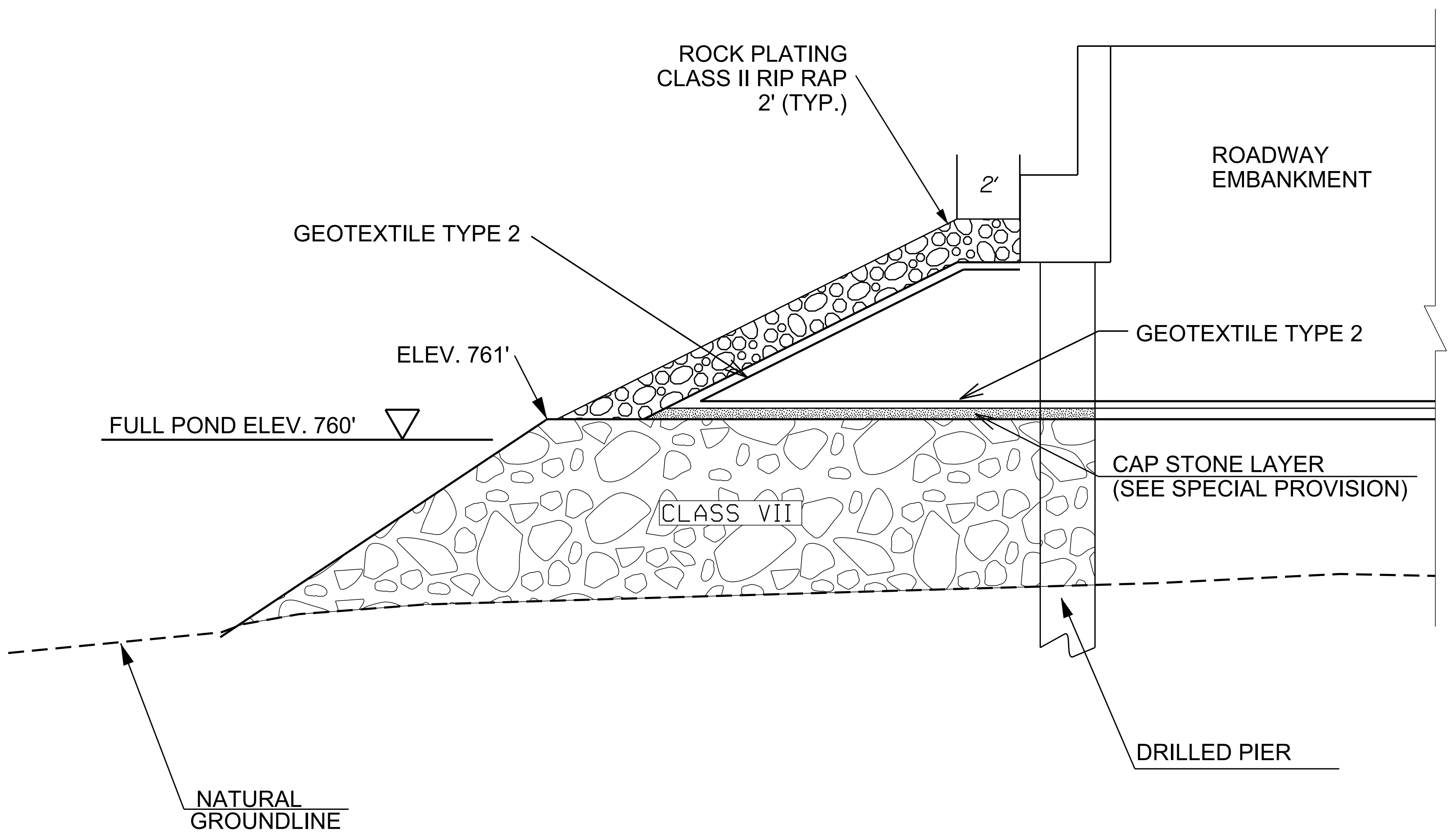
PROJECT REFERENCE NO.	SHEET NO.
37944.1.FR5 (R-2307B)	2G-2

GEOTECHNICAL ENGINEER	ENGINEER
SEAL 28893 MICHAEL H. STEPHENS Signed by: C447682092314CC... 08/30/2024 SIGNATURE DATE	SIGNATURE DATE

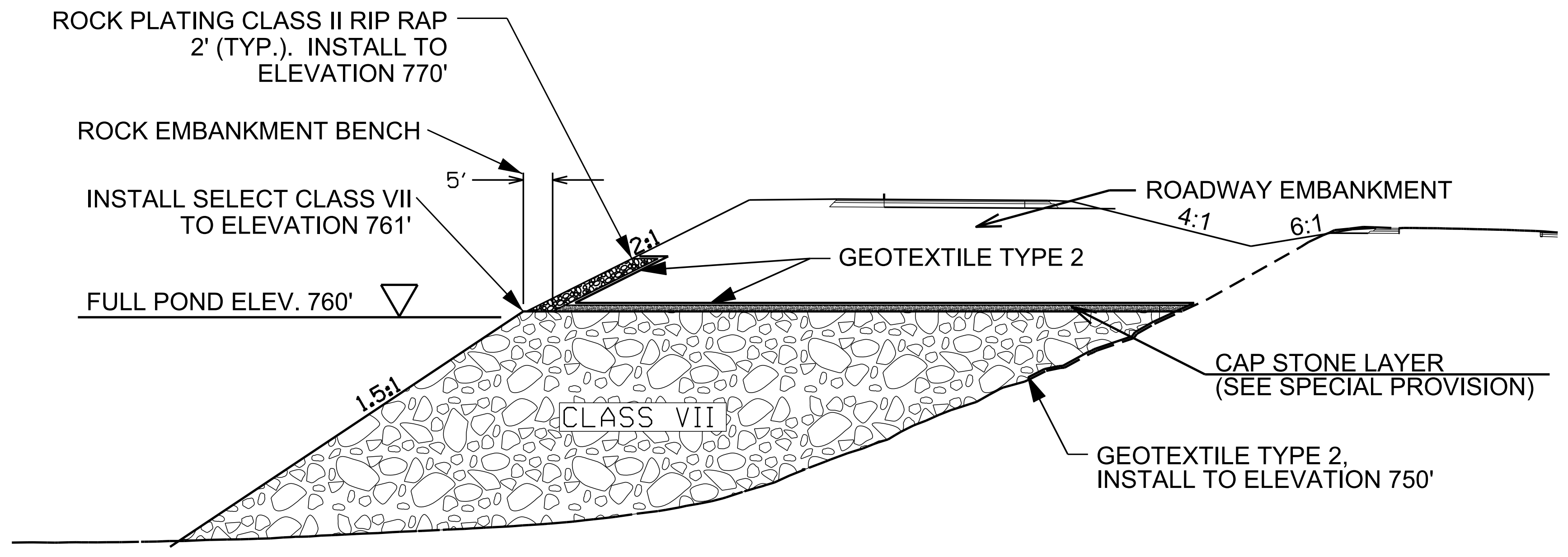
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PLANVIEW
N.T.S.



TYPICAL SECTION AT END BENT
N.T.S



CAUSEWAY EMBANKMENT
TYPICAL SECTION @ STA.
463+50 -L-
N.T.S

ROCK EMBANKMENT
ESTIMATED QUANTITIES

457+75 TO 467+50 & 475+65 TO 488+65 -L-

SELECT MATERIAL, CLASS VII	207,200 TONS
PLAIN RIP RAP, CLASS A	6,440 TONS
PLAIN RIP RAP, CLASS B	12,860 TONS
SELECT MATERIAL, CLASS VI	17,750 TONS
GEOTEXTILE FOR ROCK EMBANKMENTS	19,800 SY

ROCK PLATING
ESTIMATED QUANTITIES

457+75 TO 465+56 & 478+19 TO 488+65 -L-	4,300 SY

✳ ESTIMATED QUANTITIES BASED ON WATER ELEVATION OF 760'

✳ ROCK PLATING QUANTITY DOES NOT INCLUDE ROCK PLACED IN FRONT OF CAP

NOTES ON PLANS:

CONSTRUCT ROCK EMBANKMENT TO ELEVATION 761' AND ACCORDING TO THE SPECIAL PROVISION FOR ROCK EMBANKMENTS.

CONSTRUCT ROCK PLATING FROM TOP OF ROCK EMBANKMENT TO THE SHOULDER POINT AND ACCORDING TO SECTION 275 OF THE STANDARD SPECIFICATIONS.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

ROCK PLATING AND
ROCK EMBANKMENT DETAIL

REVISIONS

NO.	BY	DATE	NO.	BY	DATE
1			3		
2			4		

PREPARED BY: MHS	DATE:1/8/19
REVIEWED BY: SCC	DATE:1/8/19

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2G-3

GEOTECHNICAL ENGINEERING

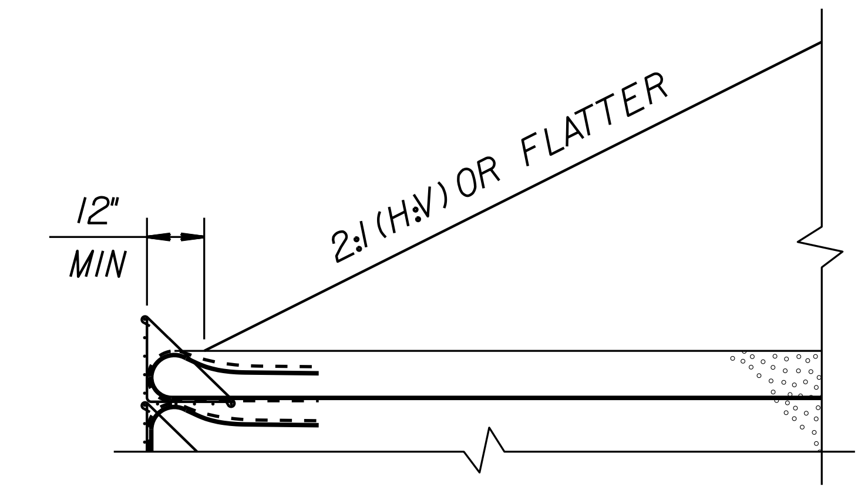
SEAL 022246
SCOTT A. HIDDEN

DocuSigned by:
Scott A. Hidden 05/03/2024
F760CAEB96FC4D3...
SIGNATURE DATE

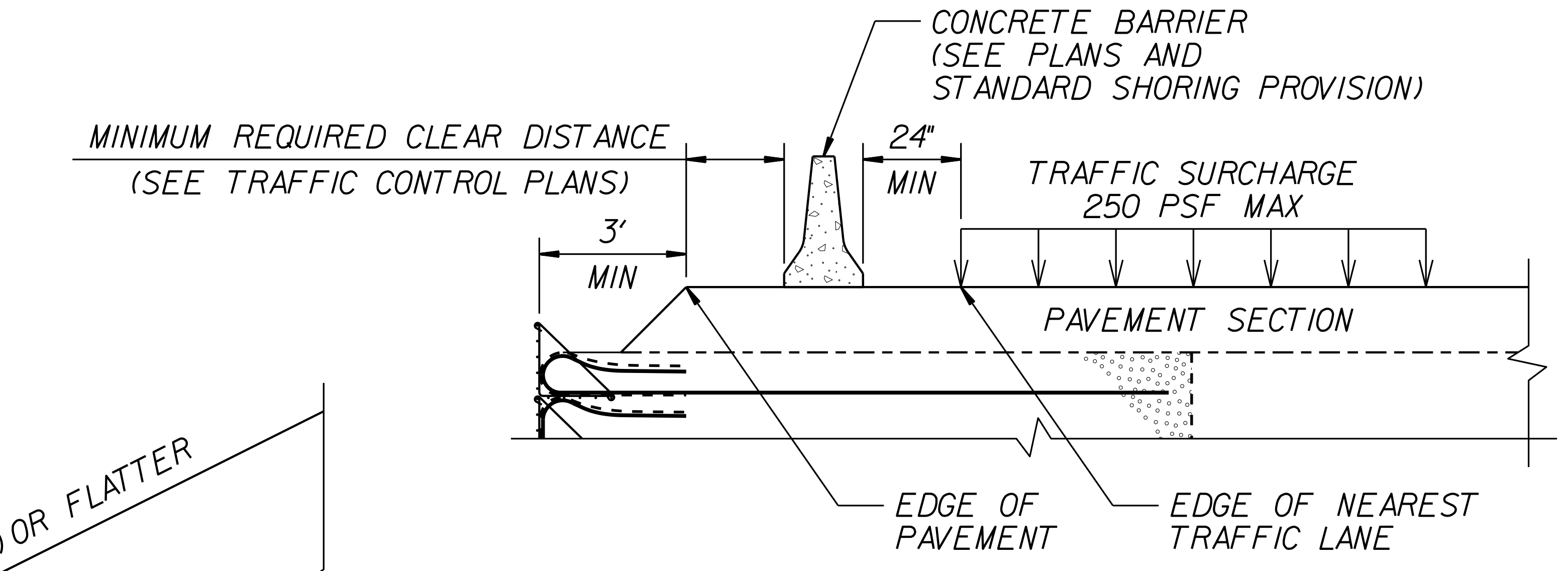
ENGINEER

SIGNATURE DATE

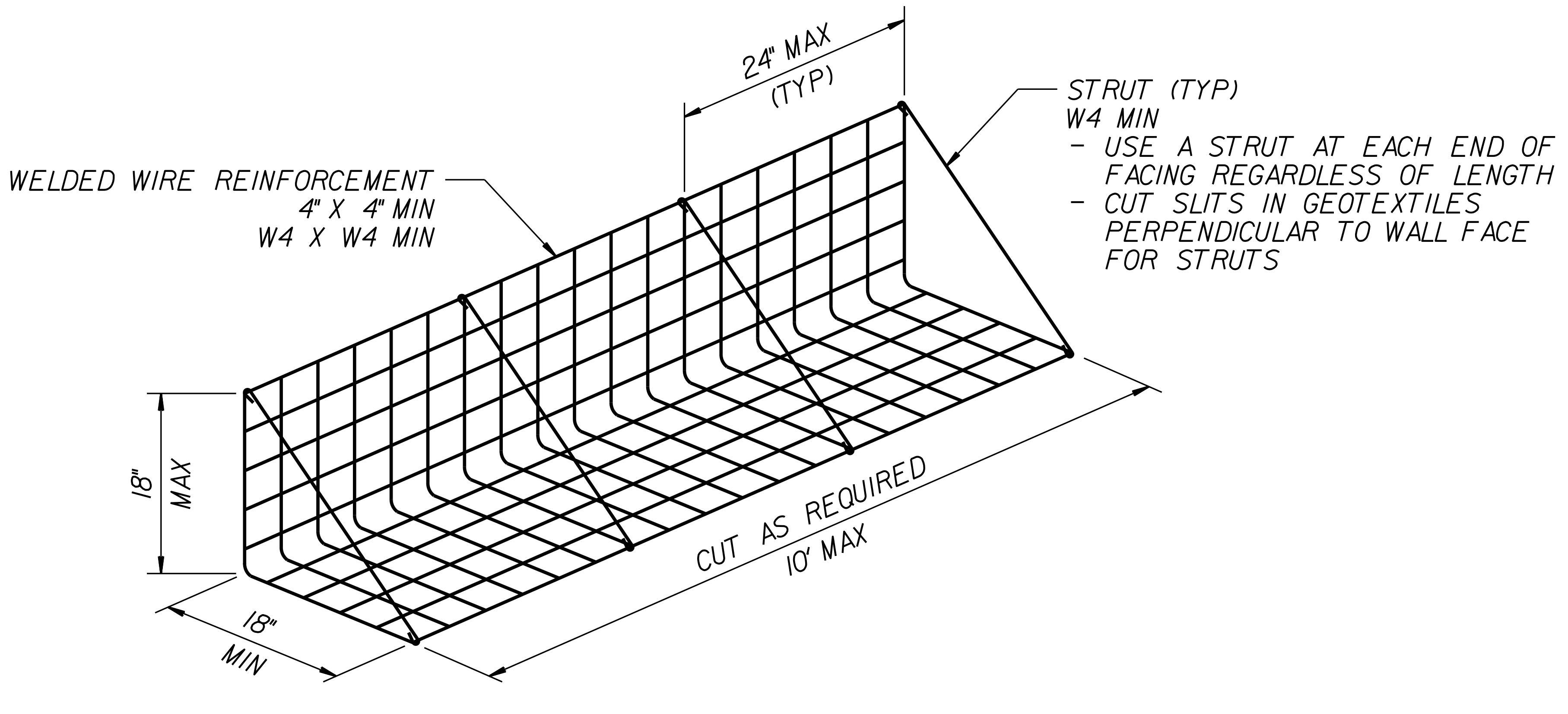
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



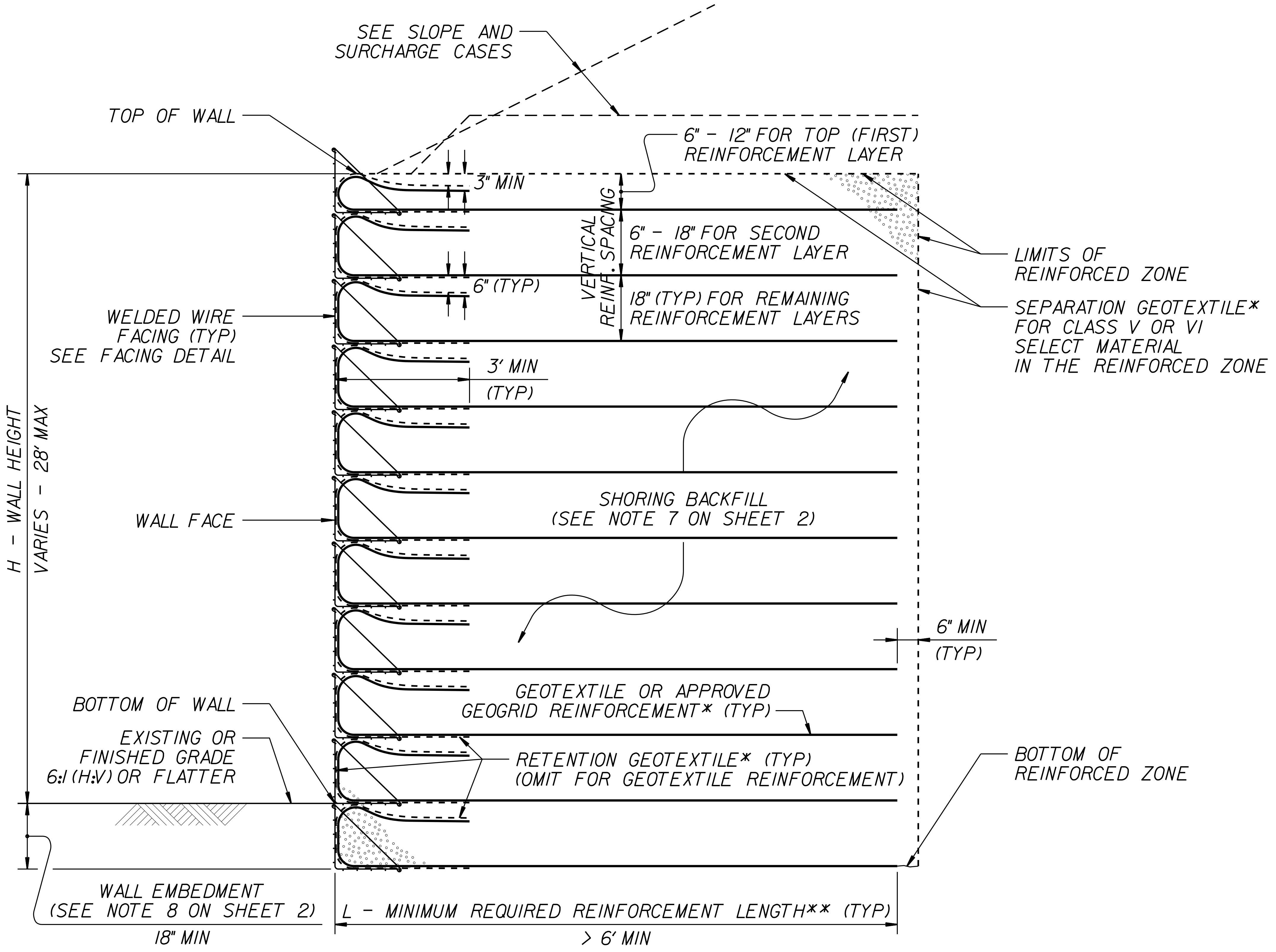
SLOPE CASE



SURCHARGE CASE

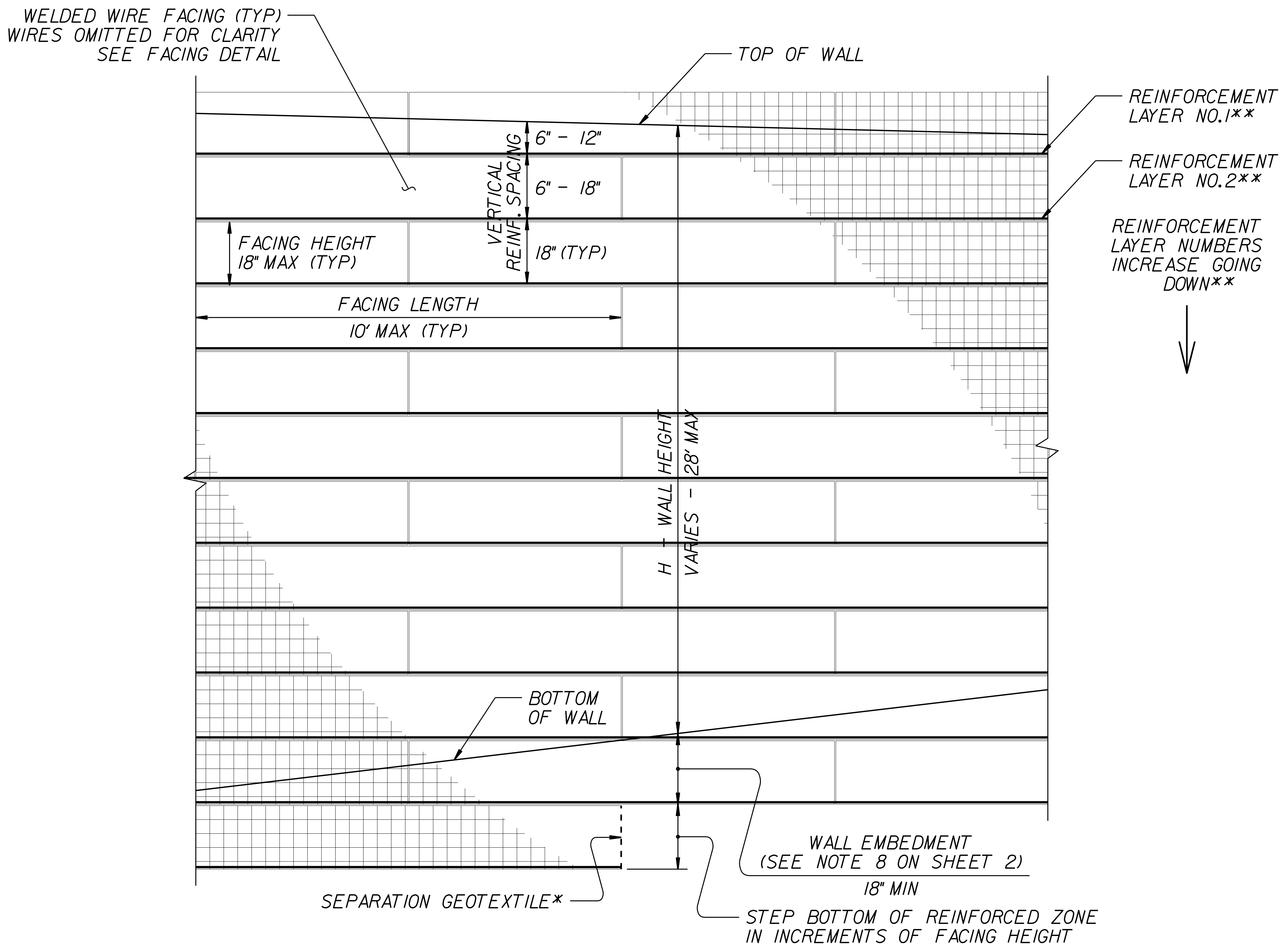


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES,
SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 1 OF 3

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2G-4

GEOTECHNICAL ENGINEER

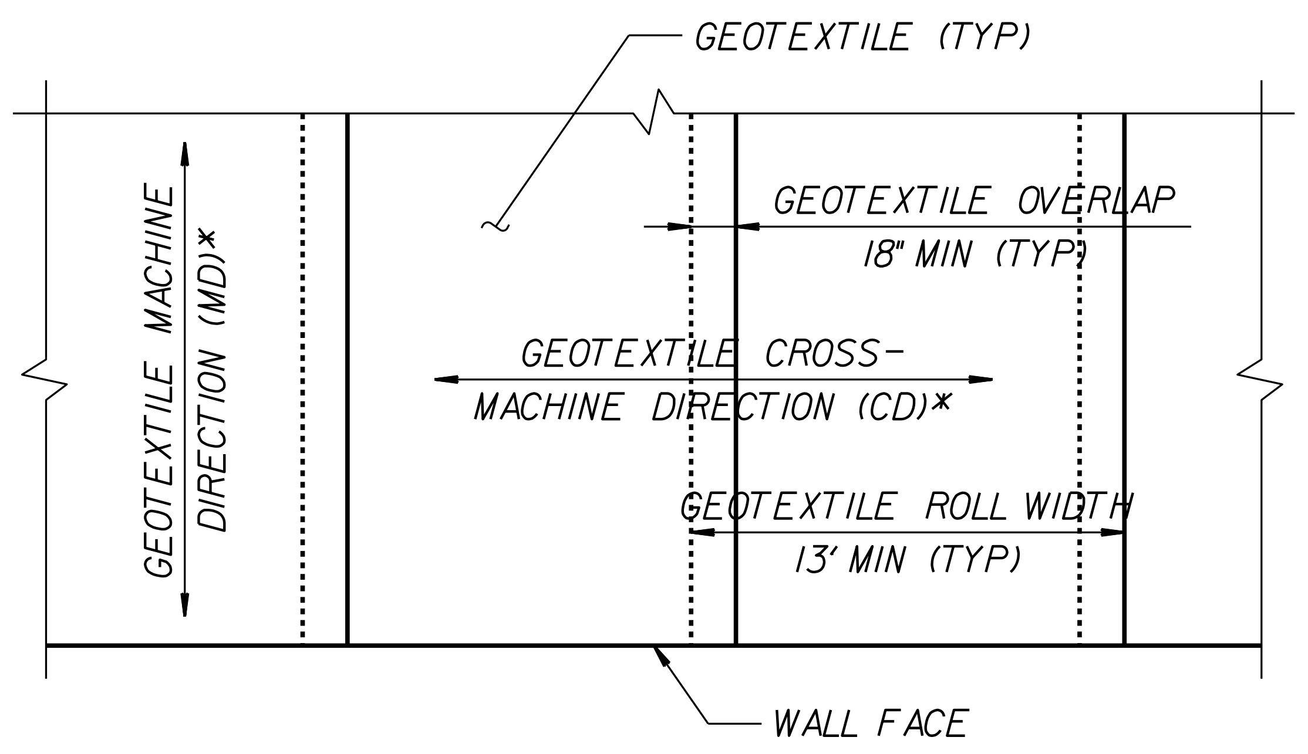
SEAL 022246
SCOTT A. HIDDEN

DocuSigned by:
Scott A. Hidden 05/03/2024
F760CAEB96FC4D3...
SIGNATURE DATE

ENGINEER

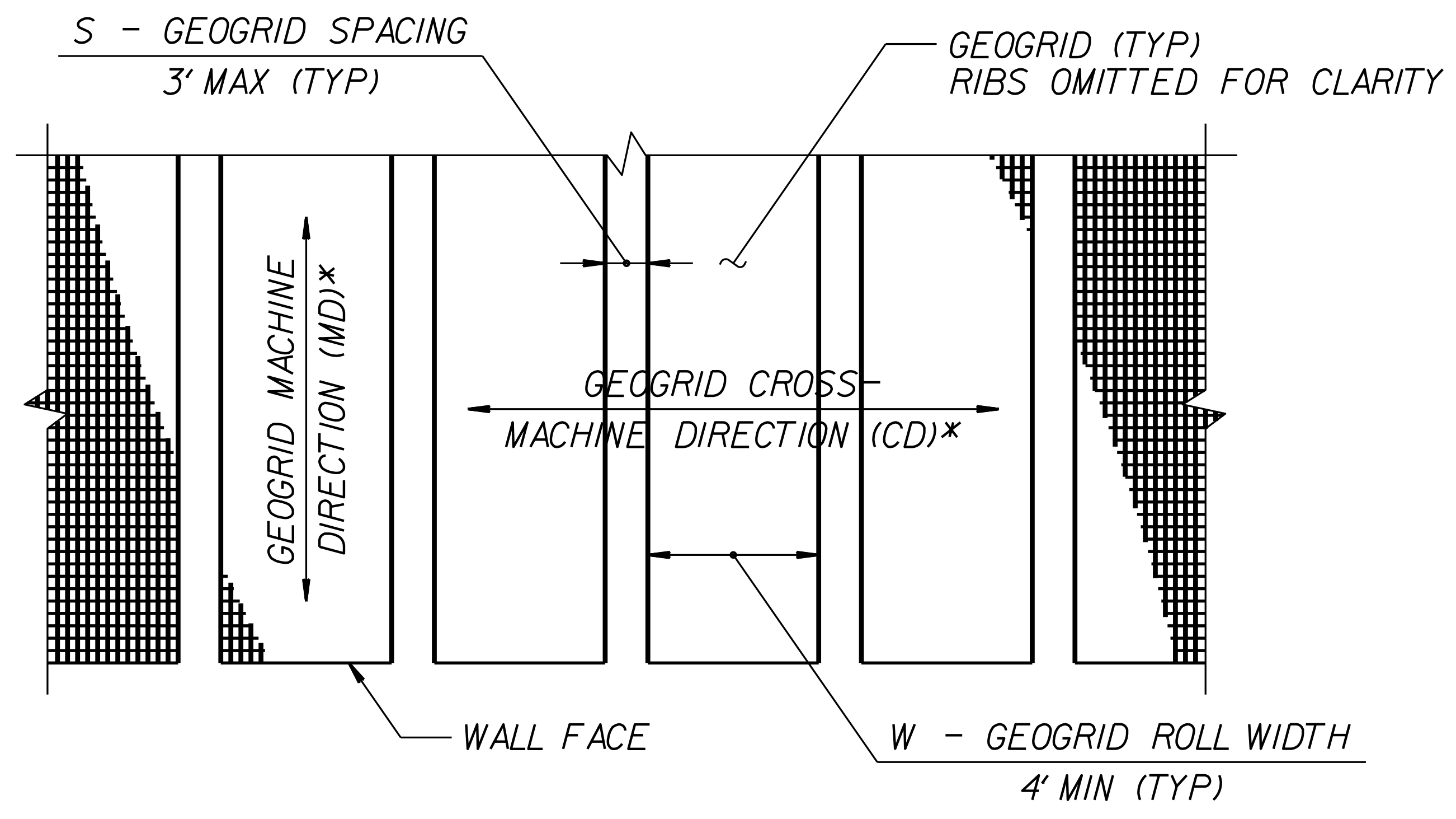
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

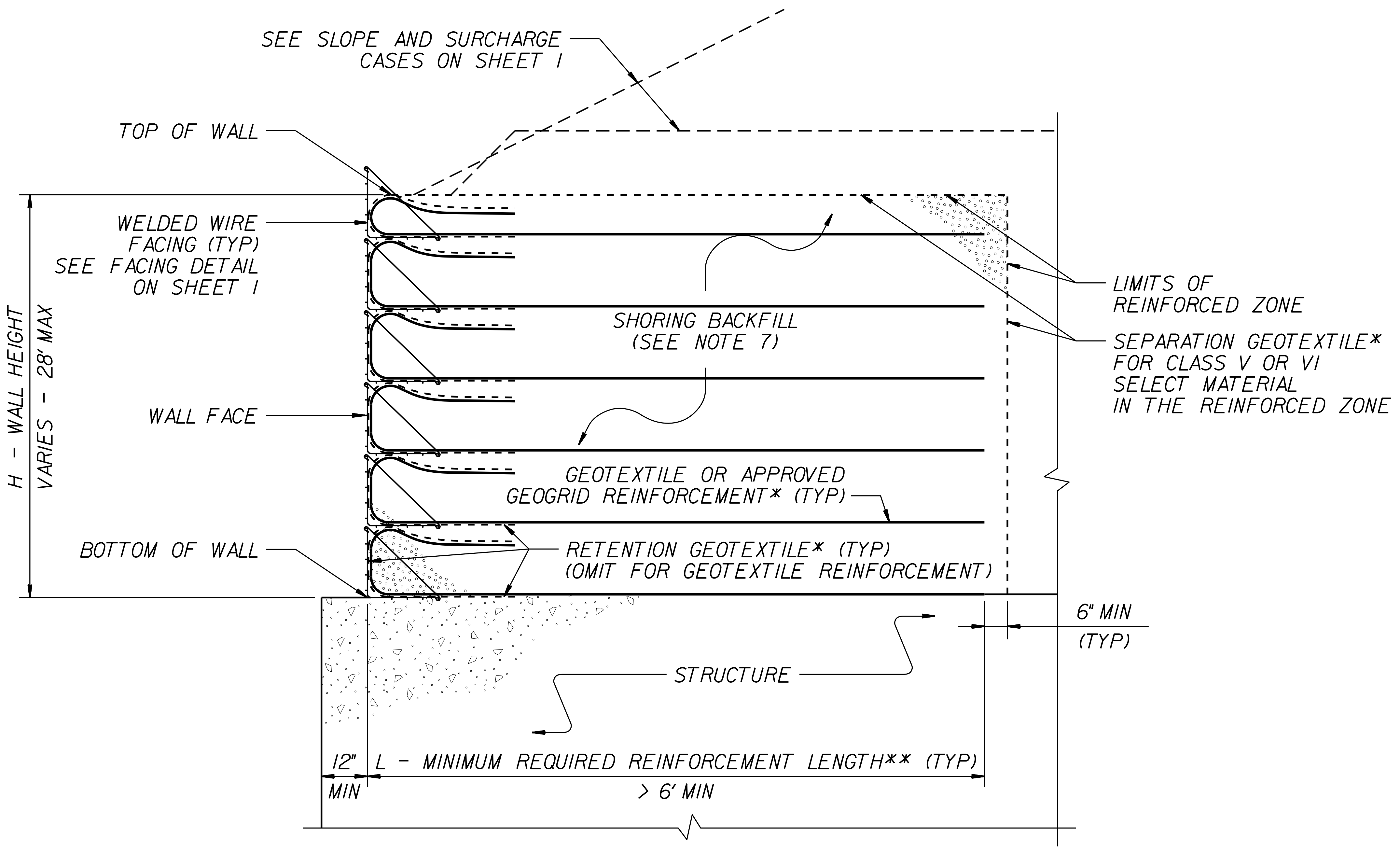


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
*SEE NOTE 12.



TEMPORARY WALL ON STRUCTURE DETAIL

*SEE GEOSYNTHETIC PLACEMENT DETAILS.
**SEE REINFORCEMENT TABLES ON SHEET 3.

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
    UNIT WEIGHT, γ = 120 PCF
    FRICTION ANGLE, ϕ = 30 DEGREES
    COHESION, c = 0 PSF
4. DO NOT USE STANDARD TEMPORARY WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER OR FLOOD ELEVATION IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. WALL EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS FOR GEOGRID REINFORCEMENT ARE APPROVED FOR SHORT TERM DESIGN STRENGTHS (3-YEAR DESIGN LIFE) IN THE MD AND CD BASED ON MATERIAL TYPE. THE LIST OF APPROVED GEOGRIDS WITH DESIGN STRENGTHS IS AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Products.aspx
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE I OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH OF THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) ≥ (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD ≥ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

**NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS**

**GEOTECHNICAL
ENGINEERING UNIT**

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 2 OF 3

DATE: 10-19-21

PROJECT REFERENCE NO.	SHEET NO.
R-2307B	2G-5

GEOTECHNICAL ENGINEER	ENGINEER
SEAL 022246 SCOTT A. HIDDEN DocuSigned by: Scott A. Hidden 05/03/2024 F760CAEB96FC4D3... SIGNATURE DATE	SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II,TYPE I, CLASS III,CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20′ > 0 TO 10 FOR H ≥ 20′	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20′ > 10 FOR H ≥ 20′	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II,TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II,TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT–TERM DESIGN STRENGTH (LB/FT)

(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD

(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

WALL HEIGHT (H) + WALL EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL
REINFORCEMENT SPACING
SHOWN ON SHEET 1.

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL
ENGINEERING UNIT

STANDARD DETAIL NO. 1801.02

STANDARD
TEMPORARY WALL
SHEET 3 OF 3

DATE: 11-19-13

COMPUTED BY: NGP DATE: 08.26.2024
CHECKED BY: DBE DATE: 08.26.2024

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK
IN CUBIC YARDS

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These Earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
PHASE 1						
432+51.35 -L- LT	448+00.00 -L- LT	32,026		6,093		25,933
11+00.00 -DRW7-	11+50.00 -DRW7-			993	993	
10+11.37 -Y-	13+65.00 -Y- (1)	631		274		357
	SUBTOTAL	32,657		7,360	993	26,290
448+00.00 -L-LT	465+95.25 -L-LT	4,687		80,543	75,856	
457+69.00 -L- LT (HAZARDOUS SPILL BASIN)		2,375				2,375
10+68.71 -DRW6-	11+51.12 -DRW6-	7		233	226	
	SUBTOTAL	7,069		80,776	76,082	2,375
					`	
477+79.83 -L-LT	505+00.00 -L-LT	3,717		79,812	76,095	
10+46.40 -DRW1-	13+61.50 -DRW1-	7		331	324	
12+95.08 -Y2DET-	16+80.25 -Y2DET-	53		121	68	
12+95.08 -Y2DET- REM.	16+80.25 -Y2DET- REM.	104		65		39
12+40.00 -Y2-	16+42.42 -Y2-	67		3,153	3,086	
	SUBTOTAL	3,948		83,482	79,573	39
505+00.00 -L-LT	535+00.00 -L-LT	19,692	1,194	24,754	5,062	1,194
13+80.00 -Y4-	15+99.62 -Y4-	912		4		908
10+18.56 -Y4A-	10+90.00 -Y4A-	69		4		65
10+92.26 -DRW3-	13+57.51 -DRW3-	923		147		776
13+50.00 -Y5-	14+88.58 -Y5-	160		25		135
14+00.00 -Y6-	15+52.65 -Y6-	60		53		7
	SUBTOTAL	21,816	1,194	24,987	5,062	3,085
535+00.00 -L- LT	565+00.00 -L- LT	40,576		17,575		23,001
11+51.11 -Y8DET-	16+85.80 -Y8DET-	1,298		23		1,275
10+00.00 -Y9DET-	13+29.80 -Y9DET-	138		1,138	1,000	
11+50.00 -Y8DET- REM.	16+85.80 -Y8DET- REM.	14		1,318	1,304	
10+00.00 -Y9DET- REM.	13+29.80 -Y9DET- REM.	1,002		94		908
10+40.00 -Y8-	14+27.29 -Y8-	9,494		1		9,493
10+80.00 -Y9-	13+29.80 -Y9-	1,151		39		1,112
	SUBTOTAL	53,673		20,188	2,304	35,789
565+00.00 -L- LT	586+55.00 -L- LT (1)	1,166		5,476	4,310	
10+39.50 -DRW14-	11+83.33 -DRW14-	135		270	135	
13+85.00 -Y12-	15+86.18 -Y12-	173		25		148
10+10.00 -DRW4-	11+33.94 -DRW4-	21		21		
	SUBTOTAL	1,495		5,792	4,445	148
578+35.00 -L- RT	595+70.00 -L- RT (1)	782		4,865	4,083	
10+44.00 -Y13-	13+00.00 -Y13-	1,196		4		1,192
10+41.09 -Y14-	11+50.00 -Y14-	89		81		8
	SUBTOTAL	2,067		4,950	4,083	1,200
593+10.00 -L- LT	618+50.00 -L- LT	1,057		36,798	35,741	
11+17.51 -Y16-	25+12.66 -Y16-	2,424		3,508	1,084	
	SUBTOTAL	3,481		40,306	36,825	
618+50.00 -L- LT	638+50.00 -L- LT	154		19,773	19,619	
11+20.00 -Y18-	12+51.13 -Y18-	58		333	275	
	SUBTOTAL	212		20,106	19,894	
618+50.00 -L- RT	638+50.00 -L- RT	5,127		4,931		196
634+54.00 -L- RT (DRY DETENTION BASIN)		252		1,339	1,087	
10+57.50 -Y17- LT	32+70.42 -Y17- LT (1)	2,974		4,295	1,321	
	SUBTOTAL	8,353		10,565	2,408	196
638+50.00 -L- LT	658+50.00 -L- LT	272		10,989	10,717	
655+67.00 -L- LT (DRY DETENTION BASIN)		1,968		511		1,457
10+75.00 -Y46-	11+42.50 -Y46	29		122	93	
13+40.00 -Y19-	14+82.82 -Y19-	69		116	47	
	SUBTOTAL	2,338		11,738	10,857	1,457
638+50.00 -L- RT	658+50.00 -L- RT	5,526		2,856		2,670
10+57.53 -Y20-	11+51.83 -Y20-	22		76	54	
	SUBTOTAL	5,548		2,932	54	2,670

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
PHASE 1 CONT.						
658+50.00 -L- LT	680+50.00 -L- LT	6,004		583		5,421
10+69.50 -DRW5-	12+10.00 -DRW5-	253				253
13+60.00 -Y21- RT	15+32.75 -Y21- RT (1)	461		15		446
	SUBTOTAL	6,718		598		6,120
658+50.00 -L- RT	683+00.00 -L- RT	541		13,491	12,950	
677+04.00 -L- RT (DRY DETENTION BASIN)		1,074		69		1,005
10+81.50 -Y22-	12+22.22 -Y22-	85		144	59	
11+00.11 -Y23- RT	14+85.00 -Y23- RT (1)	306		343	37	
	SUBTOTAL	2,006		14,047	13,046	1,005
681+50.00 -L- LT	689+60.00 -L- LT (1)	1,141	559	1,014		686
10+40.00 -Y24-	10+97.00 -Y24-	15		10		5
	SUBTOTAL	1,156	559	1,024		691
683+00.00 -L- RT	696+27.00 -L- RT (1)	3,410	904	11		4,303
696+95.00 -L- RT	707+00.00 -L- RT (2)	4,955				4,955
	SUBTOTAL	8,365	904	11		9,258
707+00.00 -L- RT	715+31.00 -L- RT (1)	1,760		383		1,377
715+68.00 -L- RT	725+00.00 -L- RT (2)	442	605	1,078	636	605
10+69.50 -DRW9-	11+90.00 -DRW9-	32		224	192	
10+69.50 -DRW11-	11+45.00 -DRW11-	50		44		6
	SUBTOTAL	2,284	605	1,729	828	1,988
725+00.00 -L- RT	732+45.29 -L-RT	51	651	28,442	28,391	651
18+00.00 -Y31RPB-	22+15.53 -Y31RPB-	61	60	1,717	1,656	60
10+74.09 -Y30-	15+25.00 -Y30-	304		694	390	
	SUBTOTAL	416	711	30,853	30,437	711
734+19.78 -L- RT	741+50.00 -L-RT	960	439	7,225	6,265	439
14+52.00 -Y31RPC-	20+43.50 -Y31RPC-	1,315	50	2,081	766	50
10+71.97 -Y32-	12+80.00 -Y32-	67		366	299	
	SUBTOTAL	2,342	489	9,672	7,330	489
741+50.00 -L- LT	770+50.00 -L- LT	3,059	1,884	9,607	6,548	1,884
11+70.00 -Y33- LT	13+46.52 -Y33- LT (1)	46		159	113	
10+20.00 -Y34-	13+01.98 -Y34-	451		230		221
10+92.30 -Y37-	13+23.42 -Y37-	15		1,318	1,303	
14+60.00 -Y38-	15+97.38 -Y38-	359		3		356
11+60.00 -Y39-	19+62.02 -Y39-	502		889	387	
	SUBTOTAL	4,432	1,884	12,206	8,351	2,461
741+50.00 -L- RT	770+50.00 -L -RT	1,327	1,527	20,872	19,545	1,527
10+89.94 -Y35-	14+70.00 -Y35-	75		539	464	
10+87.26 -Y36-	14+50.00 -Y36-	1,227		56		1,171
	SUBTOTAL	2,629	1,527	21,467	20,009	2,698
770+50.00 -L- LT	799+10.00 -L- LT	3,787	1,539	5,711	1,924	1,539
12+50.00 -Y41-	13+43.79 -Y41-	96		1		95
13+39.00 -Y44-	14+67.81 -Y44-	95		34		61
10+50.00 Y45-	12+18.48 -Y45-	65		60		5
	SUBTOTAL	4,043	1,539	5,806	1,924	1,700
770+50.00 -L- RT	799+10.00 -L-RT	4,121	1,298	15,030	10,909	1,298
10+57.79 -Y40- LT	18+95.00 -Y40- LT (1)	1,833		111		1,722
10+57.50 -Y42-	11+50.00 -Y42-	268		28		240
10+54.64 -Y43-	11+00.00 -Y43-	12		88	76	
	SUBTOTAL	6,234	1,298	15,257	10,985	3,260
	PHASE 1 TOTAL	183,282	10,710	425,852	335,490	103,630
ROCK WASTE TO REPLACE BORROW					-877	-877
ADJUST FOR ROCK SWELL				-263	-263	
ELIMINATE EARTH SHRINKAGE FACTOR SINCE THIS MATERIAL IS NOW ROCK.				-171	-171	
WASTE IN LIEU OF BORROW					-92,043	-92,043
	PHASE 1 TOTAL	183,282	10,710	425,418	242,136	10,710

COMPUTED BY: NGP DATE: 08.26.2024
CHECKED BY: DBE DATE: 08.26.2024

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
SUMMARY OF EARTHWORK
IN CUBIC YARDS

NOTE: Earthwork quantities are calculated by the Roadway Design Unit. These Earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

Quantities are approximate only. The Resident Engineer will recross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid.

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
PHASE 2						
431+57.44 -L- RT	448+00.00 -L- RT	12,931		1,781		11,150
13+65.00 -Y-	15+80.00 -Y- (2)	209		78		131
	SUBTOTAL	13,140		1,859		11,281
448+00.00 -L- RT	466+09.02 -L- RT	471		4		467
	SUBTOTAL	471		4		467
477+74.78 -L- RT	505+00.00 -L- RT	2,382		3,553	1,171	
488+59.00 -L- RT (HAZARDOUS SPILL BASIN)		374		595	221	
10+46.19 -Y1-	13+10.00 -Y1-	15		1,135	1,120	
10+50.09 -Y3-	13+00.00 -Y3-	209		94		115
	SUBTOTAL	2,980		5,377	2,512	115
505+00.00 -L- RT	535+00.00 -L- RT	5,295	112	7,094	1,799	112
10+41.50 -DRW2-	12+53.90 -DRW2-	36		2,075	2,039	
10+46.89 -Y7-	12+50.00 -Y7-	69		55		14
	SUBTOTAL	5,400	112	9,224	3,838	126
535+00.00 -L- RT	565+00.00 -L- RT	7,033	441	6,881		593
560+88.00 -L- RT (DRY DETENTION BASIN)		1,117		904		213
10+52.63 -Y10-	12+40.00 -Y10-	154		216	62	
	SUBTOTAL	8,304	441	8,001	62	806
565+00.00 -L- RT	578+35.00 -L- RT (2)	3,391		1,210		2,181
10+39.50 -Y11-	11+50.00 -Y11-	115		197	82	
	SUBTOTAL	3,506		1,407	82	2,181
586+55.00 -L- LT	593+10.00 -L- LT (2)	15		1,572	1,557	
	SUBTOTAL	15		1,572	1,557	
595+70.00 -L- RT	618+50.00 -L- RT	581		3,103	2,522	
602+69.00 -L- RT (DRY DE		816		248		568
10+57.50 -Y17- RT	32+70.42 -Y17- RT (2)	429		3,938	3,509	
	SUBTOTAL	1,826		7,289	6,031	568
680+80.00 -L- LT	681+50.00 -L- LT (2)	135	50	6		179
689+60.00 -L- LT	707+00.00 -L- LT (3)	733	1,041	7,819	7,086	1,041
13+60.00 -Y21- LT	15+32.75 -Y21- LT (2)	331		2		329
12+50.00 -Y23- LT	14+85.00 -Y23- LT (2)	196		91		105
11+90.00 -Y25-	13+07.93 -Y25-	484		10		474
11+71.47 -Y26-	20+04.25 -Y26-	820		5,360	4,540	
10+44.01 -Y27-	11+39.79 -Y27-	721				721
	SUBTOTAL	3,420	1,091	13,288	11,626	2,849
696+95.00 -L- RT	706+50.00 -L- RT (3)		663	7,700	7,700	663
11+26.89 -Y26A-	21+65.00 -Y26A-	723		1,636	913	
	SUBTOTAL	723	663	9,336	8,613	663
707+00.00 -L- LT	725+00.00 -L- LT	3,380	1,033	816		3,597
10+80.00 -Y28-	11+75.76 -Y28-	9		180	171	
11+41.36 -DRW8-	12+42.03 -DRW8-	366		2		364
11+75.00 -DRW10-	12+42.11 -DRW10-	13		8		5
15+40.00 -Y29-	16+97.51 -Y29-	327		23		304
	SUBTOTAL	4,095	1,033	1,029	171	4,270
707+00.00 -L-RT	715+31.00 -L- RT (3)	1,221	794	3,661	2,440	794
	SUBTOTAL	1,221	794	3,661	2,440	794
725+00.00 -L- LT	732+45.28 -L- LT	198	521	10,640	10,442	521
14+03.21 -Y31RPA-	18+97.82 -Y31RPA-	139	140	2,341	2,202	140
	SUBTOTAL	337	661	12,981	12,644	661
734+19.73 -L- LT	741+50.00 -L- LT	1,126	476	3,462	2,336	476
15+00.00 -Y31RPD-	23+05.49 -Y31RPD-	3,247	225	258		3,214
11+70.00 -Y33- RT	13+46.52 -Y33- RT (2)	15		23	8	
	SUBTOTAL	4,388	701	3,743	2,344	3,690

STATION	STATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBANK. +%	BORROW	WASTE
PHASE 2 CONT.						
10+57.79 -Y40- RT	18+95.00 -Y40- RT (2)	29		962	933	
	SUBTOTAL	29		962	933	
	PHASE 2 TOTAL	49,855	5,496	79,733	52,853	28,471
WASTE IN LIEU OF BORROW					-22,975	-22,975
	PHASE 2 TOTAL	49,855	5,496	79,733	29,878	5,496
PHASE 3						
439+80.00 -L- MED	440+35.00 -L- MED			76	76	
488+78.00 -L- MED	490+50.00 -L- MED			184	184	
495+95.00 -L- MED	497+99.00 -L- MED			180	180	
503+40.00 -L- MED	505+40.00 -L- MED			227	227	
510+90.00 -L- MED	529+60.00 -L- MED			3,038	3,038	
535+00.00 -L- MED	543+05.00 -L- MED			746	746	
553+50.00 -L- MED	570+35.00 -L- MED			1,616	1,616	
578+25.00 -L- MED	583+85.00 -L- MED			517	517	
589+40.00 -L- MED	601+90.00 -L- MED			2,607	2,607	
603+05.00 -L- MED	613+80.00 -L- MED			1,384	1,384	
637+10.00 -L- MED	652+30.00 -L- MED			2,276	2,276	
657+00.00 -L- MED	668+85.00 -L- MED			2,072	2,072	
669+90.00 -L- MED	679+95.00 -L- MED			832	832	
703+52.00 -L- MED	706+30.00 -L- MED			566	566	
707+35.00 -L- MED	709+99.00 -L- MED			463	463	
724+07.00 -L- MED	725+24.00 -L- MED			230	230	
725+43.00 -L- MED	730+14.00 -L- MED			576	576	
730+56.00 -L- MED	732+45.28 -L- MED			2,432	2,432	
29+57.95 -Y31- RT	35+73.00 -Y31- RT	1,131	100	2,512	1,381	100
30+13.40 -Y31- LT	36+46.74 -Y31- LT	327	100	2,516	2,189	
734+19.78 -L- MED	736+16.00 -L- MED			2,213	2,213	
736+71.00 -L- MED	743+80.00 -L- MED			1,037	1,037	
745+93.00 -L- MED	747+00.00 -L- MED			73	73	
751+93.00 -L- MED	755+75.00 -L- MED			241	241	
775+22.00 -L- MED	778+35.00 -L- MED			264	264	
784+88.00 -L- MED	791+47.00 -L- MED			426	426	
796+35.00 -L- MED	799+05.00 -L- MED			165	165	
	PHASE 3 TOTAL	1,458	200	29,469	28,011	100
PROJECT SUBTOTAL						
(PHASE 1 + PHASE 2 + PHASE 3)		234,595	16,406	534,620	300,025	16,406
MATERIAL FOR SHOULDER CONSTRUCTION				8,625	8,625	
LOSS DUE TO CLEARING & GRUBBING		-30,000		30,000	30,000	
ADDITIONAL UNDERCUT TO BE FILLED WITH EMBANKMENT			3,500	4,025	4,025	3,500
ADDITIONAL UNDERCUTTO BE FILLED WITH SELECT GRANULAR MATERIAL			11,000			11,000
PROJECT TOTAL		204,595	30,906	577,270	342,675	30,906
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					17,134	
GRAND TOTAL		204,595	30,906	577,270	359,809	30,906
SAY		205,000	31,000		380,000	

NOTE:

EST. DDE = 2,840 CUBIC YARDS

ESTIMATED PAVEMENT STRUCTURE VOLUME: -L- = 132,078 CY, -Y- LINES = 15,783 CY

NOTE: THE FOLLOWING QUANTITIES ARE PER THE "GEOTECHNICAL REPORT - DESIGN AND CONSTRUCTION RECOMMENDATIONS-REV 1" LETTER DATED JULY 19, 2024)

EST. SHALLOW UNDERCUT = 2,500 CY (CONTINGENCY, AS DIRECTED BY THE ENGINEER).

EST. CLASS IV SUBGRADE STABILIZATION = 5,000 TONS (CONTINGENCY, TO BE USED FOR THE AREAS OF AGGREGATE SUBGRADE AT THE DISCRETION OF THE ENGINEER).

EST. SELECT GRANULAR MATERIAL = 16,000 CY (TO BE USED IN THE UNDERCUT FOR EMBANKMENT STABILITY OR SUBGRADE STABILITY LOCATIONS, AS DIRECTED BY THE ENGINEER.)

UNCLASSIFIED EXCAVATION ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3FT OF EMBANKMENT OR BACKFILL = 12,000 CY

NOTE; THE FOLLOWING QUANTITIES ARE PER THE "REVISION 2 RECOMMENDATIONS FOR PAVEMENT AND SUBGRADE" LETTER DATED JUNE 6, 2024)

EST. CLASS IV SUBGRADE STABILIZATION = 45,677 TONS

6/16/99

COMPUTED BY: NGP DATE: 08-12-2024
CHECKED BY: DBE DATE: 08-12-2024

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	3B-3

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR			EXTRA LENGTH GUARDRAIL POST (8′ STEEL)	REMOVE AND RESET EXISTING GUARDRAIL	REMOVE EXISTING GUARDRAIL	ADDITIONAL GUARDRAIL POSTS		REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	AT-1	TYPE III	CAT-1	B-77	TES	NO.	PERMITTED G	PERMITTED NG						
				LF	LF	LF			LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA			EA	EA	LF	EA		
-L-	434+49.62	439+75.20	LT	525.00	50.00		438+75.00	435+75.00	8	11	N/A	50.00	N/A	1	1	1													PER STD. 862.01 SHEET 8, USE MIN. 50′ OF SHOP CURVED GR
-L-	448+47.31	466+09.35	RT	1737.50			449+50.00	EX. BRIDGE	6	8	50.00	N/A	1	N/A	1														TIE TO EXIST. GR
-L-	450+68.78	455+49.11	LT	487.50			454+25.00	438+75.00	8	11	50.00	N/A	1	N/A	1			1											
-L-	464+09.79	466+09.21	RT-MEDIAN	200.00			N/A	EX. BRIDGE	VARIES	VARIES	50.00	N/A	1	N/A	1														TIE TO EXIST. GR
-L-	477+95.00	479+94.45	LT-MEDIAN	200.00			N/A	PRO. BRIDGE	VARIES	VARIES	50.00	N/A	1	N/A	1				1										
-L-	477+71.19	490+40.09	RT	1275.00			EX. BRIDGE	490+40.09	VARIES	VARIES	N/A	N/A	N/A	N/A				1											TIE TO EXIST. GR
-L-	477+95.00	493+44.51	LT																		1								IA-MASH TL-3 AT APPROACH END OF CONCRETE BARRIER
-L-	494+71.13	497+24.35	RT	262.50	75.00		494+75.00	496+75.00	8	11	N/A	N/A	N/A	N/A		1		1											
-L-	516+18.75	525+50.00	LT	931.25			525+25.00	516+25.00	8	11	50.00	N/A	1	N/A	1			1											
-L-	537+68.79	542+00.00	LT	431.25			540+75.00	537+75.00	8	11	50.00	N/A	1	N/A	1			1											
-L-	553+93.37	556+53.11	LT	243.75			537+75.00	554+00.00	21	17′ BERM	50.00	N/A	1	N/A	1			1											
-L-	559+50.00	560+56.25	RT	106.25			560+25.00	560+56.25	18	20′ BERM	50.00	N/A	1	N/A	1			1											
-L-	560+71.46	562+27.70	RT	156.25			560+71.46	562+25.00	18	20′ BERM	50.00	N/A	1	N/A	1			1											
-L-	576+18.75	579+00.00	LT	281.25			577+75.00	576+25.00	6	15′ BERM	50.00	N/A	1	N/A	1			1											
-L-	605+68.78	610+25.00	LT	456.25			605+75.00	609+25.00	22.50	18.50′ BERM	50.00	N/A	1	N/A	1			1											
-L-	608+47.50	610+52.50	LT MEDIAN	162.50			609+50.00	N/A	VARIES	16′ BERM	N/A	N/A	N/A	N/A							1								
-L-	608+47.50	610+52.50	RT MEDIAN	162.50			609+50.00	N/A	VARIES	16′ BERM	N/A	N/A	N/A	N/A							1								
-L-	614+02.97	617+55.06	RT	343.75			614+05.00	617+60.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-Y16-/-L-	23+94.40	626+20.11	LT / LT	737.50	75.00		626+00.00	24+00.00	VARIES	VARIES	50.00	N/A	1	N/A	1			1											
-Y16-	21+20.96	22+38.53	LT	118.75			21+70.00	21+30.00	2	6′ BERM	50.00	N/A	1	N/A	1			1											
-L-	645+78.78	649+85.00	LT	406.25			649+50.00	646+50.00	6	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	676+90.57	679+40.57	LT	250.00			N/A	N/A	21	10′ BERM	N/A	N/A	N/A	N/A						2				40					INSTALL TWO TERMINAL END SECTIONS / USE 8′ GR POSTS FROM -L- 676+90.57 TO 679+40.57
-L-	682+46.31	684+83.81	LT	243.50			684+50.00	682+50.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	687+58.39	688+83.39	RT	125.00			N/A	N/A	21	10′ BERM	N/A	N/A	N/A	N/A						2				20					INSTALL TWO TERMINAL END SECTIONS / USE 8′ GR POSTS FROM -L- 687+58.39 TO 688+83.37
-L-	697+19.77	698+51.02	RT	131.25			698+45.00	N/A	6	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	698+38.68	699+44.92	LT	106.25			699+55.00	698+45.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	700+15.13	701+81.25	LT	168.75			701+40.00	700+00.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	701+54.50	703+09.81	RT	156.25			701+45.00	703+15.00	VARIES	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	703+77.82	705+71.56	RT	193.75			703+80.00	705+65.70	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-Y26-/-L-	18+99.90	708+58.81	LT / LT	143.25	87.50		708+50.00	19+15.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-Y26-	15+50.40	16+88.82	RT	156.25			15+50.00	16+80.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	709+12.00	710+37.26	LT	125.00			N/A	N/A	14	10′ BERM	N/A	N/A	N/A	N/A						2									INSTALL TWO TERMINAL END SECTIONS
-L-	712+17.38	714+91.13	LT	281.25			715+10.00	712+20.80	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	718+35.60	719+80.21	RT	143.75			718+30.00	720+00.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	720+99.31	724+35.40	RT	343.75			721+00.00	724+65.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-/ -Y31RPB-	725+83.03	18+63.68	RT / LT	625.00	150.00		726+40.00	18+50.00	14 / 10	14′ BERM/10′	N/A	N/A	N/A	N/A		1		1											
-Y31RPA-/ -L-	16+25.25	727+31.22	RT / RT	368.75	125.00		17+75.00	727+25.00	14 / 14	4′/14′ BERM	50.00	N/A	1	N/A	1			1											
-L-	730+60.85	732+69.88	RT	206.25			N/A	PROP. BRIDGE	VARIES	VARIES	50.00	N/A	1	N/A	1		1								200.00				REMOVE AND RESET GR PLACED DURING CONSTRUCTION
-L-	730+97.65	732+22.65	LT	112.50			PROP. BRIDGE	N/A	VARIES	VARIES	N/A	N/A	N/A	N/A			1	1											
Y31	30+43.60	31+13.02	RT	68.75			31+77.73	N/A	12	12	50.00	N/A	1	N/A	1				1										
Y31	34+20.00	35+19.00	LT	81.50			34+20.37	N/A	12	12	50.00	N/A	1	N/A	1				1										
-L-	733+99.54	736+12.04	LT	206.25			N/A	PRO. BRIDGE	VARIES	VARIES	N/A	N/A	1	N/A	1		1												
-L-	734+44.97	736+19.97	RT	162.50			PRO. BRIDGE	N/A	VARIES	VARIES	50.00	N/A	1	N/A			1	1							175.00				REMOVE AND RESET GR PLACED DURING CONSTRUCTION
-L-	742+37.89	744+12.98	LT	181.25			742+25.00	744+10.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	741+86.96	743+66.09	RT	181.25			741+45.00	743+88.64	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	745+07.95	748+53.94	LT	343.75			741+45.00	743+88.64	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	751+76.09	755+82.98	RT	406.25			752+25.00	755+83.00	18	14′ BERM	50.00	N/A	1	N/A	1			1											
-L-	754+74.72	757+41.86	LT	262.50	50.00		757+35.00	755+00.00	18	VARIES	50.00	N/A	1	N/A	1	1								42			20		USE 8′ GR POSTS AND 20 ADDITIONAL GUARDRAIL POSTS FROM -L- 756+15 TO 757+35
-L-	757+98.51	759+42.25	LT	143.75			758+83.00	757+93.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	758+94.32	760+75.56	RT	181.25			758+94.08	761+02.29	2	VARIES	50.00	N/A	1	N/A	1			1											
-L-	761+87.98	763+56.71	RT	168.25			761+70.00	763+70.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	764+36.80	768+17.12	RT	381.25			764+25.00	768+10.00	2	10′ BERM	50.00	N/A	1	N/A	1			1											
-L-	778+55.75	780+49.50	LT	193.75			779+45.00	778+62.00	2	VARIES	50.00	N/A	1	N/A	1			1											
-L-	787+72.08	790+28.32	RT	256.25			789+15.00	790+14.00	2	VARIES	50.00	N/A	1	N/A	1			1											
-L-	791+39.49	794+27.49	RT	275.00	50.00		792+00.00	794+25.00	18	14′ BERM	N/A	N/A	N/A	N/A		1		1											
-L-	793+25.07	794+85.42	LT	168.75			794+75.00	793+25.00	18	14′ BERM	50.00	N/A	1	N/A	1			1											
-L-	450+05.82	466+08.30	RT																							1578			
-L-	451+13.99	453+67.98	LT																							254			
-L-	457+78.35	466+09.21	LT																							826			
-L-	477+71.36	489+19.70	LT																							1146			
-L-	477+71.19	489+23.09	RT																							1142			
Y26	15+67.12	16+42.41	RT																							79			
-L-/ -Y31RPB-	726+13.32	18+69.89	RT																							744			
-L-	730+77.02	732+27.42	RT																							151			
-L-	730+79.92	732+06.11	LT																							127			
-L-	734+47.67	735+99.10	LT																							152			
-L-	734+68.99	736+19.62	RT																							151			
-L-	752+09.18	757+20.00	RT																							515			
-L-	754+68.85	757+23.06	LT																							265			

6/16/99

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	3B-4

COMPUTED BY: DBE DATE: 09-24-2024
CHECKED BY: NGP DATE: 09-24-2024

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOULDER WIDTH	FLARE LENGTH		W		ANCHORS						IMPACT ATTENUATOR			EXTRA LENGTH GUARDRAIL POST (8' STEEL)	REMOVE AND RESET EXISTING GUARDRAIL	REMOVE EXISTING GUARDRAIL	ADDITIONAL GUARDRAIL POSTS		REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	AT-1	TYPE III	CAT-1	B-77	TES	NO.	PERMITTED							
				LF	LF	LF			LF	LF	LF	LF	LF	LF	EA	EA	EA	EA	EA	EA	EA	G	NG	EA	EA	LF	EA		
-L-	766+53.65	767+82.69	RT																							130			
-L-	783+01.97	785+19.36	RT																							229			
-L-	785+09.83	786+55.59	RT																							153			
-L-	791+24.51	794+25.46	RT																							333			
-L-	792+82.04	795+34.52	LT																							254			
-L-	794+91.00	796+11.24	RT																							124			
-Y31-	30+84.70	33+39.17	RT																							253			
-Y31-	32+46.28	35+09.62	LT																							265			
																								ADDITIONAL GUARDRAIL POSTS:			10		
		SUBTOTAL		16,767.75	662.50										44	5	4	41	3	6	3			102	375.00	8,871	30		
													ANCHOR UNIT LENGTH (LF)		50	6.25	18.75	6.25	22.875										
													DEDUCTION PER TYPE (LF)		2,200.00	31.25	75.00	256.25	68.625										
		LESS ANCHORS		2,631.125									TOTAL DEDUCTION (LF)		2,574.875														
		TOTAL		14,136.63	662.50																								
		SAY		14,225.00	675.00																			105	400	8,900	30		

SUMMARY OF PEDESTRIAN SAFETY RAIL

IN LINEAR FEET

WALL	LINE	BEG STATION	END STATION	LOCATION	LINEAR FEET	DETAIL SHEET
W–5	–L–	623 + 10.00	626 + 00.00	LT	284	2B–23
W–7	–Y21–/–L–	15 + 00.00	685 + 05.00	LT	423	2B–23
W–8	–L–	687 + 00.00	688 + 00.00	LT	101	2B–23
W–10	–L–	689 + 78.00	691 + 35.00	RT	160	2B–23
W–11	–L–	691 + 87.00	693 + 80.00	RT	193	2B–23
W–12	–L–	694 + 15.00	696 + 00.00	RT	185	2B–23
W–13	–L–	701 + 45.00	703 + 15.00	RT	171	2B–23
W–14	–L–	703 + 80.00	706 + 00.00	RT	232	2B–23
W–15	–Y26–/–L–	18 + 80.00	708 + 50.00	LT	220	2B–23
W–17	–Y28–/–L–	11 + 30.00	715 + 10.00	LT	370	2B–23
W–19	–L–	718 + 30.00	720 + 00.00	RT	170	2B–23
W–20	–L–	721 + 00.00	722 + 50.00	RT	150	2B–23
W–21	–L–	722 + 80.00	724 + 65.00	RT	185	2B–23
W–24	–L–	741 + 45.00	744 + 25.00	RT	299	2B–23
W–25	–L–	742 + 25.00	744 + 10.00	LT	186	2B–23
W–26	–L–	744 + 90.00	748 + 70.00	LT	380	2B–23
W–27	–L–	746 + 15.00	746 + 70.00	RT	58	2B–23
W–30	–L–	757 + 93.00	758 + 83.00	LT	90	2B–23
W–31	–L–	794 + 80.00	796 + 75.00	RT	195	2B–23
W–33	–Y26–	15 + 50.00	16 + 80.00	RT	141	2B–23
W–39	–L–	698 + 45.00	699 + 55.00	LT	110	2B–23
W–40	–L–	700 + 00.00	701 + 40.00	LT	141	2B–23
W–41	–L–	761 + 70.00	763 + 70.00	RT	200	2B–23
W–42	–L–	764 + 25.00	768 + 10.00	RT	330	2B–23
W–43	–L–	776 + 45.00	777 + 50.00	RT	105	2B–23
W–45	–L–	778 + 62.00	779 + 45.00	LT	90	2B–22
W–46	–L–	701 + 53.00	702 + 57.00	LT	104	2B–22
				TOTAL	5,273	
				SAY	5,275	

COMPUTED BY:	NGP	DATE:	JUNE 2024
CHECKED BY:	DBE	DATE:	JULY 2024

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
R-2307B / I-5717	3B-5

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

SUMMARY OF ASPHALT PAVEMENT REMOVAL

IN SQUARE YARDS

LINE	BEG STATION	END STATION	LOCATION	SQUARE YARDS
–Y2DET–	12+00.31	16+80.25	CL	1003
–Y4–	14+68	16+48	LT	206
–L–	513+50	518+39	LT	625
–L–	512+98	517+65	RT	267
–L–	535+04	535+51	MED	11
–Y9DET–	10+27	14+57.21	CL	846
–Y8DET–	11+18.48	16+81	CL	993
–L–	553+50	555+68	MED	165
–L–	589+41	592+97	MED	245
–L–	594+93	601+90	MED	535
–Y22–	10+87	11+75	RT	30
–L–	696+95	706+52	RT	3896
–L–	707+22	715+33	RT	2825
–L–	716+00	716+80	RT	14
–L–	716+78	732+47	RT	70
–L–	734+66	736+39	RT	127
–L–	737+04	737+91	MED	28
–L–/–Y–	418+09	14+79	RT	2116
–L–	439+82.74	440+35	MED	40
–L–	489+25.64	490+50	MED	41
–L–	491+76.39	793+88.79	LT	226
–DRW1–	12+76.26	13+28.26	RT	72
–Y1–	10+16.12	12+25	CL	882
–L–	495+90	497+12.87	CL	56
–Y2–	13+50	16+91.51	CL	1022
–Y3–	10+21.06	11+90	CL	687
–L–	510+90	516+25	MED	787
–L–	520+75	521+75	CL	271
–Y4–	13+80	16+04.07	CL	1210
–Y4A–	10+90	10+18.56	CL	200
–L–	522+28.17	527+78.56	MED	387
–Y5–	13+50	14+25	CL	288
–L–	535+00	535+95.64	MED	79
–L–	537+46.63	540+67.97	MED	14
–L–	540+75	548+75	CL	2231
–Y9–	13+50	14+25	CL	1394
–Y8–	10+40	13+43.10	CL	662
–L–	550+15.65	554+64.7	RT	520
–L–	554+36.41	570+36.25	MED	3934
–L–	575+80	583+84.09	CL	1922
–Y13–	10+00.76	12+25	CL	545
–L–	589+28.85	593+20.67	LT	958
–L–	591+62.87	597+17.21	MED	968
–Y14–	595+74.74	600+31.24	RT	484
–L–	601+11.96	602+22.85	RT	147
–L–	603+61.90	606+64.98	RT	33
–L–	607+09.04	609+56.31	RT	37
–L–	610+03.31	612+25.17	RT	26
–L–	637+10	652+30	MED	4114
–L–	657+01.94	668+85.71	MED	3650
–L–	669+90	679+93.54	MED	2253
–Y21–	13+60	15+63.42	CL	1369
–Y23–	11+67.18	12+27.11	RT	148
–Y23–	11+67.18	13+42.23	LT	55
–Y24–	10+40	11+22.97	CL	301
–Y25–	11+90	13+46.94	CL	944
–Y27–	10+17.41	10+75	CL	220
–DRW8–	11+41.41	12+76.06	CL	587
–Y29–	15+45	17+46.40	CL	854
–L–	724+07.46	725+23.81	MED	377
–L–	725+41.71	730+14.56	MED	1216
–Y31RPB–	20+77.73	21+78.78	LT	51
–Y31RPC–	18+92.61	19+87.14	RT	72
–Y31RPD–	22+44.54	22+74.10	LT	9
–L–	763+70.43	743+79.45	MED	2453

SUMMARY OF ASPHALT PAVEMENT REMOVAL (CONTINUED)

IN SQUARE YARDS

LINE	BEG STATION	END STATION	LOCATION	SQUARE YARDS
–Y34–	10+20	12+25	CL	651
–L–	745+93.25	750+21.65	MED	1074
–Y36–	10+19.84	14+50	CL	1149
–L–	751+92.61	755+74.94	MED	749
–L–	775+22	778+35	MED	684
–L–	784+86.92	791+47	MED	1333
–L–	796+35	799+05.98	MED	495
–Y38–	14+60	16+21.74	CL	678
–Y41–	12+50	13+71.13	CL	550
–Y42–	10+30	11+50	CL	562
–Y24–	14+25	12+76.64	CL	539
–L–	627+27	629+27	RT	858
–L–	703+11.17	703+27.25	RT	70
–L–	703+64.17	703+99.35	RT	86
			TOTAL	**62,274**
			SAY	62,300

SUMMARY OF ASPHALT PAVEMENT BREAKING

IN SQUARE YARDS

LINE	BEG STATION	END STATION	LOCATION	SQUARE YARDS
–L–	516+25	520+75	EX WBL	4138
–L–	701+25	705+75	EX EBL	4045
–L–	711+50	714+00	EX RAMP LT	266
–Y37–	12+25	13+67	EX WBL	787
			TOTAL	7,449
			SAY	7,450

SUMMARY OF CONCRETE BARRIER

IN LINEAR FEET AND EACH

LINE	BEG STATION	END STATION	LOC.	SINGLE FACED BARRIER (LF)	DOUBLE FACED BARRIER TYPE III (VAR. HEIGHT) (LF)	CONC. BARRIER TRANSITION SECTION (EA)	MEDIAN HAZARD PROTECTION (LF)
–L–	457+50.00	464+80.00	LT.		730		
–L–	464+80.00	465+51.00	LT.			1	
–L–	478+19.00	479+00.00	LT.			1	
–L–	479+00.00	493+23.51	LT.		1424		
–Y31–	31+68.36	34+45.16	LT.	277			
–Y31–	31+13.02	34+10.77	RT.	298			
–Y31–	31+20.00	32+05.00	MED.			1	
–Y31–	32+05.00	33+75.00	MED.				170
–Y31–	33+75.00	34+60.00	MED.			1	
			TOTAL	575	2154	4	170
			SAY	580	2200	4	170

SUMMARY OF CHAIN LINK FENCE, 48" FABRIC

IN LINEAR FEET AND EACH

STATION TO STATION	LT. or RT.	FABRIC LF	LINE POSTS EA	TERMINAL POSTS EA	GATE POSTS EA
–TRAIL 1– 27+75.00 LT to –L– 465+51.00 LT	LT	879	73	2	
–L– 477+95.00 LT to –L– 491+70.00 LT	LT	1387	116	2	
–TRAIL2– 78+90.00 LT to –TRAIL2– 80+30.00 LT	LT	140	12	2	
–TRAIL2– 107+50.00 LT to –TRAIL2– 109+75.00 LT	LT	235	20	2	
–TRAIL2– 115+25.00 LT to –TRAIL2– 119+35.00 LT	LT	569	48	2	
–TRAIL 1– 27+08.55 LT to –TRAIL1– 28+47.305 LT	LT	476	41	5	2
–LEB– 86+58.44 RT to –L– 88+39.31 RT	LT	503	43	4	2
–L– 560+52.15 RT to –L– 561+75.61 RT	LT	526	45	6	2
–L– 602+16.64 RT to –L– 603+16.73 RT	LT	347	30	5	2
–L– 633+40.10 RT to –L– 634+61.41 RT	LT	517	44	4	2
–L– 654+90.28 LT to –L– 656+28.27 LT	LT	630	54	4	2
–L– 676+68.33 RT to –L– 677+66.78 RT	LT	422	36		2
NOTE: LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE.	TOTAL	6,470	548	38	14
	SAY	6,500	560	40	14

SUMMARY OF WOVEN WIRE FENCE, 47" FABRIC

IN LINEAR FEET AND EACH

STATION TO STATION	LT. or RT.	LF	4" TIMBER FENCE POSTS 7'-6" LONG	5" TIMBER FENCE POSTS 8'-0" LONG
–L– 720+85.00 LT to –Y29– 15+46.37 RT	LT	487	29	10
–L– 720+85.00 RT to –L– 724+56.76 RT	RT	372	23	7
–Y29– 15+46.37 LT to –L– 728+08.78 LT	LT	409	24	10
–Y30– 11+35.00 RT to –L– 726+40.00 RT	RT	86	2	7
–L– 726+85.00 RT to –Y31RPB– 21+27.06 LT	RT	311	15	13
–Y31RPC– 15+20.34 RT to –L– 740+40.00 RT	RT	788	49	13
–L– 737+53.48 LT to –L– 741+13.54 LT	RT	360	22	7
NOTE: LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE.	TOTAL	2,813	165	67
	SAY	2,820	165	67

SUMMARY OF CHAIN LINK FENCE, 60" FABRIC

IN LINEAR FEET AND EACH

STATION TO STATION	LT. or RT.	FABRIC LF	LINE POSTS EA	TERMINAL POSTS EA	GATE POSTS EA
–DRW7– 12+57.61 LT to –DRW7– 14+48.43 RT	LT/RT	256	22	4	2
NOTE: LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE.	TOTAL	256	22	4	2
	SAY	300	30	4	2

SUMMARY OF CHAIN LINK FENCE, 96" FABRIC

IN LINEAR FEET AND EACH

STATION TO STATION	LT. or RT.	FABRIC LF	LINE POSTS EA	TERMINAL POSTS EA
–TRAIL2– 94+50.00 LT to –TRAIL2– 103+00.00 LT	LT	848	71	2
NOTE: LT. OR RT. INDICATES LEFT OR RIGHT OF THE MAIN LINE.	TOTAL	848	71	2
	SAY	900	80	2

8/15/2024
X:\NCDOT\R-2307B\Roadway\Proj\R-2307B_RDY_PSH_03B-05_Misc_Summaries.dgn
User:bevans

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe 15	Side Drain Pipe 18	Side Drain Pipe 24	Side Drain Pipe 30	Side Drain Pipe 36	Side Drain Pipe 42	Side Drain Pipe 48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 48	R. C. PIPE CLASS IV 12	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
Y2DET 12+90	14 RT	2B01							24																																																																															24	Remove system after detour phase.
Y2DET 13+83	13 LT	2B02							32																																																																															32	Remove system after detour phase.
Y2DET 16+45	1 RT	2B03							36																																																																															36	Remove system after detour phase.
Y9DET 14+45	0 CL	2B04							48																																																																															48	Remove system after detour phase.
Y8DET 12+85	1 LT	2B05							40																																																																															40	Remove system after detour phase.
Y8DET 12+65	20 LT	2B06							28																																																																															28	Remove system after detour phase.
L 697+11	66 RT	2B08		864.4																																			1																1									1																									Remove system after detour phase.
		2B08	2B07		861.0	859.8																											120																																																							120	Remove system after detour phase.
L 698+00	66 RT	2B09		866.2																																			1																1									1																									Remove system after detour phase.
		2B09	2B08		863.2	861.0																											88																																																							88	Remove system after detour phase.
L 701+50	67 RT	2B11		878.9																																			1																1									1																									Remove system after detour phase.
		2B11	2B10		875.9	875.0																											60																																																							60	Remove system after detour phase.
L 702+50	67 RT	2B12		882.0																																			1																1									1																									Remove system after detour phase.
		2B12	2B11		879.0	875.9																											96																																																							96	Remove system after detour phase.
L 704+00	67 RT	2B14		887.1																																			1																1									1																									Remove system after detour phase.
		2B14	2B13		884.1	883.8																											36																																																							36	Remove system after detour phase.
L 730+87	11 LT	2B15		864.2																																			1																1									1																									Remove system after detour phase.
		2B15	2576		861.2	860.9																											60																																																							60	Remove system after detour phase.
L 731+02	35 RT	2B16		863.7																																			1																1									1																									Remove system after detour phase.
		2B16	25102		860.7	860.4																											52																																																							52	Remove system after detour phase.
L 732+20	35 RT	2B17		865.5																																			1																1									1																									Remove system after detour phase.
		2B17	2B16		862.5	860.7																											116																																																							116	Remove system after detour phase.
L 734+55	32 LT	2B18		868.6																																			1																1									1																									Remove system after detour phase.
		2B18	2595		865.6	865.4																											36																																																							36	Remove system after detour phase.
L 734+75	34 RT	2B19		868.9																																			1																1									1																									Remove system after detour phase.
		2B19	25112		865.9	865.7																											44																																																							44	Remove system after detour phase.
L 425+53	50 RT	0401		828.6																																			1													1						1																															
		0401	0402		825.8	824.9			76								X	X																																																																							
L 426+29	35 RT	0402		827.1																																			1														1					1																															
		0402	0403		824.9	824.9				8							X	X																																																																							
L 426+28	26 RT	0403		827.9																																			1																								1																										
Y 13+83	25 LT	0404							32																																																																																
Y 14+62	21 RT	0405							32																																																																																
L 432+29	67 RT	0406		803.5																																			1													1						1																															
		0406	0501		800.5	798.0	0.7			272							X	X																																																																							
L 435+00	57 RT	0501		801.0																																			1													1						1																															
		0501	0502		797.5	797.0																													96																																																						
L 435+00	38 LT	0502		806.5																																			1	4.6											1							1																															
		0502	0503		796.9	773.0	2.0															172																																																									2										w/ ROD & LUG & GASKETS
L 443+00	63 RT	0504		785.0																																			1													1						1																															
		0504	0505		782.2	775.5	0.7		264								X	X																																																																							
L 445+69	62 RT	0505		778.2																																			1													1						1																															
		0505	0506		775.2	772.4	0.4																											128																																																							
L 447+00	62 RT	0506		775.4																																			1													1						1																															
		0506	0507		771.9	771.6																													60																																																						
L 447+00	0 CL	0507		779.8																																			1	3.2																						1					1																						
		0507	0602		771.6	770.1					300						X	X																																																																							
L 442+50	62 LT	0508		786.4																																			1													1						1																															
		0508	0509		783.6	775.9			300								X	X																																																																							
L 445+50	61 LT	0509		778.7																																			1													1						1																															
SHEET TOTALS									912	280	300											172											708	128	156				22	7.8											1	8	1		10			10				1	1	10			1												2									916	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36	
THICKNESS OR GAUGE		FROM	TO													DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													
				FT.	FT.	FT.	%																															CY
		0509	0601		775.9	769.9	0.6		452								X	X																				
L 450+00	68 LT	0601		772.6																																		
		0601	0602		769.1	768.7																													68			
L 450+00	2 RT	0602		775.5																																		
		0602	0603		768.7	767.0	0.5				348						X	X																				
L 453+50	12 RT	0603		773.5																																		
		0603	0604		766.5	764.5						396					X	X																				
L 457+50	17 RT	0604		771.5																																		
		0604	0606		764.5	764.1	0.4																													80		
L 459+00	16 RT	0605		770.7																																		
		0605	0604		766.6	765.5	0.5			148							X	X																				
L 457+50	65 LT	0606		776.3																																		
		0606	0607		764.1	763.2	0.4					84					X	X																				
L 452+46	201 LT	0608			761.0	759.5				220																												
L 457+69	166 LT	0609			763.0	762.0																		36														3.400
L 465+38	66 LT	0701		779.8																																		
		0701	0702		777.0	776.9																											12					
L 465+40	55 LT	0702		780.1																																		
		0702	0703		776.9	776.6																											72					
L 464+65	54 LT	0703		780.1																																		
		0703	0704		776.6	769.6	0.3																										68					
L 464+65	16 RT	0704		772.4																																		
		0704	0605		769.6	766.8	0.4		560								X	X																				
L 478+32	66 LT	0801		779.8																																		
		0801	0802		776.3	776.1																											12					
L 478+30	55 LT	0802		780.1																																		
		0802	0803		776.1	775.6	0.3																										92					
L 479+25	54 LT	0803		779.9																																		
		0803	0804		775.6	769.7	0.4																										76					
L 479+25	24 RT	0804		772.5																																		
		0804	0805		769.5	768.4				224							X	X																				
L 481+51	20 RT	0805		771.6																																		
		0805	0806		767.9	766.1					348						X	X																				
L 485+00	11 RT	0806		772.6																																		
		0806	0807		766.1	764.2																													380			
L 488+83	10 LT	0807		776.7																																		
		0807	0809		764.2	763.7																													100			
L 488+71	55 LT	0808		777.7																																		
		0808	0807		774.9	773.7																											44					
L 489+84	9 LT	0809		777.2																																		
		0809	0810		763.7	763.3	0.3																												84			
L 488+59	86 RT	0812			763.0	761.0																			40													4.500
L 500+35	81 LT	0901		799.7																																		
		0901	0919		796.9	793.3																											136					
L 495+00	71 LT	0902		783.4																																		
		0902	0906		779.7	779.0	0.6																												76			
L 503+50	10 LT	0903		809.1																																		
		0903	0928		806.1	804.8																											116					
L 500+60	9 LT	0904		804.6																																		
		0904	0905		801.5	790.7																											360					
SHEET TOTALS									1012	592	696	480												36	40								988		708	80		7.900

STRUCTURE NUMBER		QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
FROM	TO		A	B		GRATE TYPE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																										
		0' THRU 5'	5' THRU 10'	10' AND ABOVE		E	F	G																																												
		EACH	LIN. FT.	LIN. FT.																																												CY	CY	CY	LIN. FT.	
0509	0601																																																			
0601		1													1							1																														
0601	0602																																																			
0602		1	1.8											1							1																															
0602	0603																																																			
0603		1	2.0											1							1																															
0603	0604																																																			
0604		1	2.0											1							1																															
0604	0606																																																			
0605		1													1							1																														
0605	0604																																																			
0606		1	5.0	2.2											1							1																														
0606	0607																																																			
0608																																																				
0609																																													1						HSB Outlet Structure, w/ ROD & LUG & GASKETS
0701		1																						1	12																											DRIVEWAY GRATE LENGTH=12 FT
0701	0702																																																			
0702		1												1			1	1																																		3GI
0702	0703																																																			
0703		1													1			1																																		
0703	0704																																																			
0704		1													1						1																															
0704	0605																																																			
0801		1																						1	12																											DRIVEWAY GRATE LENGTH=12 FT
0801	0802																																																			
0802		1												1				2																																		4GI
0802	0803																																																			
0803		1													1			1																																		
0803	0804																																																			
0804		1													1				1																																	
0804	0805																																																			
0805		1												1					1																																	
0805	0806																																																			
0806		1	1.5											1					1																																	
0806	0807																																																			
0807		1	5.0	2.5	1			1																																												
0807	0809																																																			
0808		1													1							1																														
0808	0807																																																			
0809		1	5.0	3.5	1			1																																												
0809	0810																																																			
0812																																														1					HSB Outlet Structure, w/ ROD & LUG & GASKETS
0901		1													1						1																															
0901	0919																																																			
0902		1													1						1																															
0902	0906																																																			
0903		1			1			1																																												
0903	0928																																																			
0904		1							1			1	1																																							
0904	0905																																																			
SHEET TOTALS		23	22.3	8.2	3			3	1			1	1	7	10		1	5	3		9	1	2	24																					1	1					

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022
CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY
L 497+00	9 LT	0905		793.7																																		
		0905	0906		790.6	783.5	0.4																										216					
L 494+84	4 RT	0906		786.5																																		
		0906	0910		778.5	778.2																														40		
L 501+00	62 RT	0907		799.8																																		
		0907	0908		797.0	787.0	0.9																										340					
L 497+50	66 RT	0908		789.7																																		
		0908	0909		786.7	786.3	0.5			52							X	X																				
		0909	0910		786.3	781.4	0.5																											220				
L 497+00	45 RT	0909		791.3																																		
		0910	0811		778.2	764.0	0.5																													488		
L 494+77	43 RT	0910		785.6																																		
L 492+50	7 RT	0912		780.6																																		
		0912	0913		777.6	775.9																											92					
L 491+56	8 RT	0913		778.9																																		
		0913	0914		775.8	775.5																											52					
L 491+07	10 LT	0914		778.5																																		
		0914	0915		775.4	774.9																											52					
L 490+54	10 LT	0915		777.9																																		
		0915	0809		774.8	774.2																											68					
Y2 14+40	38 LT	0917		795.1																																		
		0917	0918		792.1	791.7	0.5																											76				
Y2 14+40	39 RT	0918		795.1																																		
		0918	0919		791.6	790.4	0.8			156							X	X																				
L 499+00	73 LT	0919		796.1																																		
		0919	0902		790.2	780.2	1.3																											404				
L 495+00	104 LT	0920		782.4																																		
		0920	0902		781.1	780.6	0.7		32								X	X																				
Y2 13+24	29 RT	0921							92																													
Y1 11+61	24 RT	0922		780.0																																		
Y1 11+59	7 LT	0923		781.2																																		
Y1 11+58	23 LT	0924																																				
Y3 12+28	23 RT	0925		791.7																																		
Y3 12+29	20 LT	0926		791.7																																		
L 502+32	8 RT	0927		806.9																																		
		0927	0928		803.9	803.8																											16					
L 502+32	9 LT	0928		807.8																																		
		0928	0904		803.7	801.6																											172					
Y3 12+61	18 LT	0929		791.7																																		
Y2 13+42	31 LT	0930							52																													
Y1 12+68	27 LT	0931		783.8																																		
L 506+43	9 LT	1001		810.1																																		
		1001	1002		807.1	804.0																											256					
L 508+98	5 RT	1002		807.0																																		
		1002	1003		803.9	803.1																											52					
L 509+53	4 RT	1003		806.1																																		
		1003	1004		803.0	802.1																											52					
L 510+08	4 RT	1004		805.1																																		
		1004	1005		802.0	801.4																											36					
		1005	1006		801.3	795.9																											216					
SHEET TOTALS									176	208																							1620	700		528		

LINE & STATION	OFFSET	FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32
L 497+00	9 LT	0905		1			1			1																	
		0905	0906																								
L 494+84	4 RT	0906		1	3.0						1			1	1												
		0906	0910																								
L 501+00	62 RT	0907		1													1						1				
		0907	0908																								
L 497+50	66 RT	0908		1													1						1				
		0908	0909																								
		0909	0910																								
L 497+00	45 RT	0909		1													1							1			
		0910	0811																								
L 494+77	43 RT	0910		1	2.4											1								1			
L 492+50	7 RT	0912		1							1			1	1												
		0912	0913																								
L 491+56	8 RT	0913		1							1			1	1												
		0913	0914																								
L 491+07	10 LT	0914		1							1			1	1												
		0914	0915																								
L 490+54	10 LT	0915		1							1			1	1												
		0915	0809																								
Y2 14+40	38 LT	0917		1													1						1				
		0917	0918																								
Y2 14+40	39 RT	0918		1													1						1				
		0918	0919																								
L 499+00	73 LT	0919		1	0.9												1						1				
		0919	0902																								
L 495+00	104 LT	0920																									
		0920	0902																								
Y2 13+24	29 RT	0921																									
Y1 11+61	24 RT	0922																									
Y1 11+59	7 LT	0923		1	2.0		1	1				1															
Y1 11+58	23 LT	0924																									
Y3 12+28	23 RT	0925																									
Y3 12+29	20 LT	0926																									
L 502+32	8 RT	0927		1							1			1	1												
		0927	0928																								
L 502+32	9 LT	0928		1							1			1	1												
		0928	0904																								
Y3 12+61	18 LT	0929																									
Y2 13+42	31 LT	0930																									
Y1 12+68	27 LT	0931																									
L 506+43	9 LT	1001		1							1			1	1												
		1001	1002																								
L 508+98	5 RT	1002		1							1			1	1												
		1002	1003																								
L 509+53	4 RT	1003		1							1			1	1												
		1003	1004																								
L 510+08	4 RT	1004		1							1			1	1												
		1004	1005																								
		1005	1006																								
SHEET TOTALS				20	8.3		2	1		1	11	1		11	11	1	6						5	2			

LINE & STATION	OFFSET	FROM	TO	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 497+00	9 LT	0905																												
		0905	0906																											
L 494+84	4 RT	0906																												
		0906	0910																											
L 501+00	62 RT	0907																												
		0907	0908																											
L 497+50	66 RT	0908																												
		0908	0909																											
		0909	0910																											
L 497+00	45 RT	0909																												
		0910	0811																											
L 494+77	43 RT	0910																												
L 492+50	7 RT	0912																												
		0912	0913																											
L 491+56	8 RT	0913																												
		0913	0914																											
L 491+07	10 LT	0914																												
		0914	0915																											
L 490+54	10 LT	0915																												
		0915	0809																											
Y2 14+40	38 LT	0917																												
		0917	0918																											
Y2 14+40	39 RT	0918																												
		0918	0919																											
L 499+00	73 LT	0919																												
		0919	0902																											
L 495+00	104 LT	0920																												OEP
		0920	0902																											
Y2 13+24	29 RT	0921																												
Y1 11+61	24 RT	0922													1															
Y1 11+59	7 LT	0923																												
Y1 11+58	23 LT	0924											1																	
Y3 12+28	23 RT	0925													1															
Y3 12+29	20 LT	0926													1															
L 502+32	8 RT	0927																												
		0927	0928																											
L 502+32	9 LT	0928																												
		0928	0904																											
Y3 12+61	18 LT	0929													1															
Y2 13+42	31 LT	0930																												
Y1 12+68	27 LT	0931														1														
L 506+43	9 LT	1001																												
		1001	1002																											
L 508+98	5 RT	1002																												
		1002	1003																											
L 509+53	4 RT	1003																												
		1003	1004																											
L 510+08	4 RT	1004																												
		1004	1005																											
		1005	1006																											
SHEET TOTALS													1			4	1													

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE **DATE:** 2/28/2022

CHECKED BY: David B. Petty, PE **DATE:** 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE								12	15	18	24	30	36	42	48				
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
L 510+08	41 RT	1005		804.4															
		1006	1007		795.8	793.3													
L 512+25	42 RT	1006		798.9															
L 511+50	62 LT	1008		798.1															
		1008	1009		795.1	794.7													
		1009	1010		794.6	794.4	0.3												
Y4 15+79	5 RT	1009		798.7															
Y4 15+75	23 LT	1010		798.3															
		1010	1012		792.6	792.4	0.4			40							X	X	
L 513+08	50 LT	1011		795.9															
		1011	1010		792.9	792.6													
TRAIL 89+22	12 LT	1013		801.7															
		1013	1014		798.9	798.8													
Y4 14+60	28 RT	1014		803.3															
		1014	1015		798.7	798.3													
Y4A 10+44	14 RT	1015		803.1															
L 516+81	67 LT	1016		783.0															
		1016	1017		779.0	778.0			16								X	X	
		1018	1019		774.7	774.5	0.3			28							X	X	
L 517+19	85 RT	1018		777.7															
L 517+50	86 RT	1019		777.1															
		1019	1102		774.5	773.2	0.4			244							X	X	
DRW3 11+10	7 RT	1020							64										
DRW3 12+57	23 RT	1023									32								
L 519+95	98 RT	1102		777.7															
		1102	1101		767.7	762.0	0.7					188					X	X	
L 527+50	62 LT	1103		806.0															
		1103	1104		803.3	802.8													
		1104	1105		802.7	802.4													
Y5 14+48	1 LT	1104		806.1															
		1105	1106		801.3	796.3			48								X	X	
Y5 14+48	24 RT	1105		805.4															
L 525+78	87 LT	1106		800.3															
		1106	1114		796.2	795.8	0.4												
		1107	1108		794.0	785.9	0.4					328					X	X	
L 525+78	61 RT	1107		801.5															
L 522+50	62 RT	1108		791.1															
		1108	1102		785.7	772.5	0.4					256					X	X	
Y5 13+78	20 LT	1110		806.7															
		1110	1111		803.7	803.0			100								X	X	
L 531+24	9 RT	1112		818.6															
		1112	1115		814.0	806.7													
L 531+90	8 RT	1113		820.2															
		1113	1112		814.4	814.0													
L 525+78	4 LT	1114		805.3															
		1114	1107		794.4	794.1	0.3												
L 528+00	7 LT	1115		810.9															
		1115	1114		806.7	801.1													
L 528+97	239 LT	1116			791.0	767.0				120									
L 532+50	8 RT	1201		821.6															
SHEET TOTALS									228	432	32	772							

LINE & STATION	STRUCTURE NUMBER		C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03		
SIZE			15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B		GRATE TYPE		
THICKNESS OR GAUGE	FROM	TO	.064	.064	.064	.079	.079	.109													CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G
L 510+08	1005																					1						
	1006	1007														84												
L 512+25	1006																					1						
L 511+50	1008																					1						
	1008	1009															88											
	1009	1010															28											
Y4 15+79	1009																					1						
Y4 15+75	1010																					1	0.7		1			1
	1010	1012																										
L 513+08	1011																					1			1			1
	1011	1010														56												
TRAIL 89+22	1013																					1						
	1013	1014							20																			
Y4 14+60	1014																					1			1		1	
	1014	1015														72												
Y4A 10+44	1015																					1			1	1		
L 516+81	1016																					1						
	1016	1017																										
	1018	1019																										
L 517+19	1018																					1						
L 517+50	1019																					1						
	1019	1102																										
DRW3 11+10	1020																											
DRW3 12+57	1023																											
L 519+95	1102																					1	0.7					
	1102	1101																										
L 527+50	1103																					1						
	1103	1104														96												
	1104	1105														24												
Y5 14+48	1104																					1						
	1105	1106																										
Y5 14+48	1105																					1			1	1		
L 525+78	1106																					1						
	1106	1114														80												
	1107	1108																										
L 525+78	1107																					1	2.5					
L 522+50	1108																					1	0.4					
	1108	1102																										
Y5 13+78	1110																					1			1			1
	1110	1111																										
L 531+24	1112																					1						
	1112	1115																	324									
L 531+90	1113																					1	0.8					
	1113	1112																	64									
L 525+78	1114																					1	5.0	0.9				
	1114	1107																	64									
L 528+00	1115																					1						
	1115	1114																	220									
L 528+97	1116																											
L 532+50	1201																					1	1.8					
SHEET TOTALS									20							412	116		672			25	11.9	0.9	6	2	1	3

LINE & STATION	STRUCTURE NUMBER		CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2
	FROM	TO	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																		
L 510+08	1005															1					1	
	1006	1007																				
L 512+25	1006															1					1	
L 511+50	1008								1						1							
	1008	1009																				
	1009	1010																				
Y4 15+79	1009		1						1							1						
Y4 15+75	1010																					
	1010	1012																				
L 513+08	1011																					
	1011	1010																				
TRAIL 89+22	1013								1						1							
	1013	1014																				
Y4 14+60	1014																					
	1014	1015																				
Y4A 10+44	1015																					
L 516+81	1016								1						1							
	1016	1017																				
	1018	1019																				
L 517+19	1018								1							1						
L 517+50	1019								1						1							
	1019	1102																				
DRW3 11+10	1020																					
DRW3 12+57	1023																					
L 519+95	1102							1							1							
	1102	1101																				
L 527+50	1103								1						1							
	1103	1104																				
	1104	1105																				
Y5 14+48	1104		1													1					1	
	1105	1106																				
Y5 14+48	1105																					
L 525+78	1106								1						1							
	1106	1114																				
	1107	1108																				
L 525+78	1107							1								1						
L 522+50	1108							1							1							
	1108	1102																				
Y5 13+78	1110																					
	1110	1111																				
L 531+24	1112		1				1															1
	1112	1115																				
L 531+90	1113		1				1															1
	1113	1112																				
L 525+78	1114		1				1															1
	1114	1107																				
L 528+00	1115		1				1															1
	1115	1114																				
L 528+97	1116																					
L 532+50	1201		1				1															1
SHEET TOTALS			7				5	3	8						8	6					3	5

LINE & STATION	FROM	TO	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 510+08	1005																									
	1006	1007																								
L 512+25	1006																									
L 511+50	1008																									
	1008	1009																								
	1009	1010																								
Y4 15+79	1009																									
Y4 15+75	1010																									
	1010	1012																								
L 513+08	1011																									
	1011	1010																								
TRAIL 89+22	1013																									
	1013	1014																								
Y4 14+60	1014																									
	1014	1015																								
Y4A 10+44	1015																									
L 516+81	1016																									
	1016	1017																								
	1018	1019																								
L 517+19	1018																									
L 517+50	1019																									
	1019	1102																								
DRW3 11+10	1020																									
DRW3 12+57	1023																									
L 519+95	1102																									
	1102	1101																								
L 527+50	1103																									
	1103	1104																								
	1104	1105																								
Y5 14+48	1104																									
	1105	1106																								
Y5 14+48	1105																									
L 525+78	1106																									
	1106	1114																								
	1107	1108																								
L 525+78	1107																									
L 522+50	1108																									
	1108	1102																								
Y5 13+78	1110																									
	1110	1111																								
L 531+24	1112																									
	1112	1115																								
L 531+90	1113																									
	1113	1112																								
L 525+78	1114																									
	1114	1107																								
L 528+00	1115																									
	1115	1114																								
L 528+97	1116																									
L 532+50	1201																									
SHEET TOTALS																										

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET		STRUCTURE NUMBER						Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)
SIZE									12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36	
THICKNESS OR GAUGE			FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													CY
			1201	1113		814.8	814.5																														60		
L 532+50	64	RT	1202		818.2																																		
			1202	1201		815.5	815.3																						56										
L 536+00	94	LT	1203		822.9																																		
			1203	1204		819.9	818.7	0.7																											120				
			1204	1205		818.6	817.5	0.8																											28				
Y6 15+03	4	LT	1204		821.9																																		
Y6 15+02	25	RT	1205		820.8																																		
			1205	1206		817.0	816.5																													104			
L 534+04	8	RT	1206		825.3																																		
			1206	1201		816.4	815.6																													152			
L 544+00	4	LT	1207		863.1																																		
			1207	1220		860.1	859.7																											84					
L 536+00	62	RT	1208		829.1																																		
			1208	1209		826.1	819.4	0.4																											204				
Y6 14+70	41	LT	1210		817.1																																		
			1210	1211		814.3	814.0			72								X	X																				
Y8 13+46	1	RT	1212			861.0	860.4																												56				
L 545+50	41	LT	1213		868.1																																		
			1213	1214		865.1	862.5																											64					
L 544+86	41	LT	1214		865.5																																		
			1214	1215		859.4	858.0																											112					
L 541+00	62	LT	1216		847.2																																		
			1216	1217		844.4	844.2	0.8		20								X	X																				
			1217	1218		844.1	836.1	0.8																			280												
L 541+00	41	LT	1217		850.4																																		
			1218	1219		831.6	831.1	1.1		28								X	X																				
L 538+18	45	LT	1218		839.3																																		
L 544+86	5	LT	1220		866.5																																		
			1220	1214		859.6	859.4																											36					
Y9 12+90	12	LT	1221		867.8																																		
			1221	1222		864.8	863.1																											32					
Y8 11+58	22	RT	1222		865.8																																		
			1222	1223		862.8	862.7			12								X	X																				
Y8 10+47	22	LT	1224							32																													
			1301	1302		869.7	868.2																											172					
L 548+66	94	RT	1301		872.7																																		
L 550+31	46	RT	1302		871.2																																		
			1302	1303		868.1	867.9																											36					
L 550+31	8	RT	1303		871.1																																		
			1303	1321		867.8	864.6																											160					
L 553+60	9	RT	1304		865.2																																		
			1304	1305		862.1	859.6																											192					
L 555+50	9	RT	1305		862.6																																		
			1305	1306		859.5	857.4	0.5																										156					
L 557+06	9	RT	1306		860.4																																		
			1306	1307		857.3	856.0	0.7																										88					
L 557+95	9	RT	1307		859.0																																		
			1307	1312		855.9	855.0	0.7																										52					
L 550+28	81	LT	1308																																				
SHEET TOTALS										164																	280		56					1184	408	256	60		

FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																										
1201	1113																																																			
1202		1														1					1																															
1202	1201																																																			
1203		1													1						1																															
1203	1204																																																			
1204	1205																																																			
1204		1							1													1					1																									
1205		1			1			1																																												
1205	1206																																																			
1206		1	3.9						1				1															1																								
1206	1201																																																			
1207		1							1			1	1																																							
1207	1220																																																			
1208		1													1						1																															
1208	1209																																																			
1210		1													1						1																															
1210	1211																																																			
1212																																																				
1213		1			1		1																																													
1213	1214																																																			
1214		1	1.1		1		1																																													
1214	1215																																																			
1216		1													1						1																															
1216	1217																																																			
1217	1218																																																			
1217		1	1.3																			1					1																									
1218	1219																																																			
1218		1	2.7																			1					1																									
1220		1	1.9						1			1	1																																							
1220	1214																																																			
1221		1			1			1																																												
1221	1222																																																			
1222		1			1			1																																												
1222	1223																																																			
1224																																																				
1301	1302																																																			
1301		1			1	1																																														
1302		1			1		1																																													
1302	1303																																																			
1303		1							1			1	1																																							
1303	1321																																																			
1304		1			1			1																																												
1304	1305																																																			
1305		1			1			1																																												
1305	1306																																																			
1306		1			1			1																																												
1306	1307																																																			
1307		1			1			1																																												
1307	1312																																																			
1308																																													11							15" Berm Ditch Outlet
SHEET TOTALS		23	10.9		11	1	3	7	5			3	4		4	1					5	3					3	1																	11							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	**DATE:**	2/28/2022
CHECKED BY:	David B. Petty, PE	**DATE:**	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36
		1308	1309		879.6	866.7														40																	
L 550+28	42 LT	1309		869.7																																	
		1309	1320		866.6	862.7																											156				
L 553+50	42 LT	1310		863.3																																	
		1310	1322		860.2	858.3	0.6																										144				
L 556+50	42 LT	1311		859.2																																	
		1311	1312		855.9	854.7	0.4																											140			
L 557+95	42 LT	1312		858.0																																	
		1312	1313		854.2	852.0																													164		
L 559+58	42 LT	1313		855.8																																	
		1313	1401		852.0	849.3	0.4																												200		
L 551+56	62 RT	1314		868.7																																	
		1314	1315		865.9	863.5																											100				
L 552+50	73 RT	1315		866.3																																	
		1315	1316		863.3	861.5	0.5																											144			
L 553+87	70 RT	1316		864.6																																	
		1316	1317		861.5	858.7	1.0																											92			
L 554+71	87 RT	1317		861.7																																	
		1317	1318		858.2	853.3	0.4																												148		
		1318	1319		845.2	845.0	0.4				32						X	X																			
L 554+71	63 LT	1318		857.2																																	
L 551+90	42 LT	1320		865.7																																	
		1320	1310		862.6	860.3	0.4																										152				
L 551+90	8 RT	1321		867.9																																	
		1321	1304		864.5	862.2																											172				
L 555+00	42 LT	1322		861.3																																	
		1322	1311		858.2	856.2	0.8																										144				
L 561+60	42 LT	1401		853.1																																	
		1401	1402		849.3	848.6	0.5																												108		
		1402	1428		848.1	848.0																														20	
L 562+68	41 LT	1402		852.4																																	
		1403	1404		856.6	855.8																											56				
L 567+70	65 LT	1403		859.8																																	
		1404	1405		855.8	855.5																						40											
L 567+15	63 LT	1404		858.9																																	
		1405	1406		855.5	853.7	0.5																			28											
L 566+75	69 LT	1405		859.0																																	
L 566+75	42 LT	1406		856.7																																	
		1406	1408		853.6	850.8	0.9																										192				
L 564+83	76 LT	1407																																			
		1407	1408		857.0	850.5	3.9														36																
L 564+83	42 LT	1408		853.8																																	
		1408	1427		850.0	849.0	0.6																												80		
		1409	1428		848.0	847.9																														12	
L 563+04	41 LT	1409		852.3																																	
L 562+50	41 RT	1410		852.4																																	
		1410	1425		846.6	845.9	0.3																														128
L 563+50	41 RT	1411		852.5																																	
		1411	1412		849.5	849.2																											60				
		1412	1410		846.9	846.7	0.3																														40
							SHEET TOTALS				32									40	36					68							1176	376	700	32	168

LINE & STATION	FROM	TO	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29
	1308	1309																						
L 550+28	1309			1			1			1														
	1309	1320																						
L 553+50	1310			1			1			1														
	1310	1322																						
L 556+50	1311			1			1			1														
	1311	1312																						
L 557+95	1312			1			1			1														
	1312	1313																						
L 559+58	1313			1			1			1														
	1313	1401																						
L 551+56	1314			1													1						1	
	1314	1315																						
L 552+50	1315			1													1						1	
	1315	1316																						
L 553+87	1316			1													1						1	
	1316	1317																						
L 554+71	1317			1												1							1	
	1317	1318																						
	1318	1319																						
L 554+71	1318			1	5.0	2.0																		
L 551+90	1320			1			1			1														
	1320	1310																						
L 551+90	1321			1							1			1	1									
	1321	1304																						
L 555+00	1322			1			1			1														
	1322	1311																						
L 561+60	1401			1			1			1														
	1401	1402																						
	1402	1428																						
L 562+68	1402			1			1	1																
	1403	1404																						
L 567+70	1403			1																				1
	1404	1405																						
L 567+15	1404			1																				1
	1405	1406																						
L 566+75	1405			1													1							1
L 566+75	1406			1			1		1															
	1406	1408																						
L 564+83	1407																							
	1407	1408																						
L 564+83	1408			1			1		1															
	1408	1427																						
	1409	1428																						
L 563+04	1409			1			1	1																
L 562+50	1410			1	0.8		1		1															
	1410	1425																						
L 563+50	1411			1			1			1														
	1411	1412																						
	1412	1410																						
SHEET TOTALS				23	5.8	2.0	14	2	3	9	1			1	1	1	4						4	3

LINE & STATION	FROM	TO	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	1308	1309																		1												w/ ROD & LUG & GASKETS
L 550+28	1309																															
	1309	1320																														
L 553+50	1310																															
	1310	1322																														
L 556+50	1311																															
	1311	1312																														
L 557+95	1312																															
	1312	1313																														
L 559+58	1313																															
	1313	1401																														
L 551+56	1314																															
	1314	1315																														
L 552+50	1315																															
	1315	1316																														
L 553+87	1316																															
	1316	1317																														
L 554+71	1317																															
	1317	1318																														
	1318	1319																														
L 554+71	1318				1																											
L 551+90	1320																															
	1320	1310																														
L 551+90	1321																															
	1321	1304																														
L 555+00	1322																															
	1322	1311																														
L 561+60	1401																															
	1401	1402																														
	1402	1428																														
L 562+68	1402																															
	1403	1404																														
L 567+70	1403						1																									
	1404	1405																														
L 567+15	1404						1																									
	1405	1406																														
L 566+75	1405																															
L 566+75	1406																															
	1406	1408																														
L 564+83	1407																									11							18" Berm Ditch Outlet
	1407	1408																			1											w/ ROD & LUG & GASKETS
L 564+83	1408																															
	1408	1427																														
	1409	1428																														
L 563+04	1409																															
L 562+50	1410																															
	1410	1425																														
L 563+50	1411																															
	1411	1412																														
	1412	1410																														
SHEET TOTALS					1		2													1	1					11							

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-7

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36	
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													CY
L 562+90	42 RT	1412		852.3																																		
		1414	1415		850.6	850.4																											32					
L 562+57	66 LT	1414		853.6																																		
		1415	1428		850.3	849.3																											24					
L 562+90	65 LT	1415		853.7																																		
		1416	1415		851.0	850.7																											24					
L 563+45	66 LT	1416		854.0																																		
Y11 10+85	18 LT	1417		855.1																																		
		1417	1418		851.9	851.4																											68					
L 569+44	65 LT	1419		860.3																																		
		1419	1420		857.1	856.1																											24					
L 569+43	42 LT	1420		859.1																																		
		1420	1421		856.0	849.4																											344					
L 572+89	42 LT	1421		852.4																																		
		1421	1530		849.3	846.9	0.4																										124					
L 572+70	47 RT	1422		852.7																																		
		1422	1424		849.7	848.2																											80					
L 573+51	60 RT	1423		850.9																																		
		1423	1424		848.2	848.1																						20												
L 573+51	42 RT	1424		851.2																																		
		1424	1502		848.0	845.5	0.7																										164					
L 561+21	42 RT	1425		853.6																																		
		1425	1413		839.7	834.0	1.4																	56														
L 564+02	74 LT	1426		854.8																																		
		1426	1427		852.0	849.8			32								X	X																				
L 564+02	41 LT	1427		852.8																																		
		1427	1409		848.6	848.1																														96		
		1428	1412		847.4	847.0	0.3																														80	
L 562+90	41 LT	1428		852.3																																		
L 560+88	174 RT	1429		839.0																																		
		1429	1430		833.0	831.0						44					X	X																				
Y11 10+85	17 RT	1431		855.1																																		
		1431	1417		852.1	851.9																											32					
L 573+95	8 LT	1432		851.3																																		
		1432	1530		848.3	846.9																											36					
L 575+14	59 RT	1501		849.8																																		
		1501	1502		847.1	845.5			16								X	X																				
L 575+15	42 RT	1502		848.5																																		
		1502	1503		844.8	844.2																													96			
L 576+13	42 RT	1503		848.0																																		
		1503	1532		841.4	841.2																															36	
		1504	1505		842.5	842.4																								20										
L 576+23	63 RT	1504		846.0																																		
		1505	1503		841.9	841.8	0.4																													8		
L 576+23	42 RT	1505		848.0																																		
L 575+83	42 LT	1506		848.0																																		
		1506	1523		840.8	838.3	0.4																								36									
L 576+48	42 LT	1507		848.0																																		
		1507	1533		844.9	844.7	0.5																										28					
L 577+23	41 LT	1508		848.5																																		
SHEET TOTALS									48			44												56		20		20		36			980		96	104	116	

LINE & STATION	STRUCTURE NUMBER FROM	TO	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
			0' THRU 5' EACH	5' THRU 10' A LIN. FT.	10' AND ABOVE B LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																							CY	CY	CY	LIN. FT.	
L 562+90	1412		1	0.5		1	1																																														
	1414	1415																																																			
L 562+57	1414		1																						1	60																											DRIVEWAY GRATE LENGTH=60 FT
	1415	1428																																																			
L 562+90	1415		1																					1					1																								
	1416	1415																																																			
L 563+45	1416		1																						1	60																											DRIVEWAY GRATE LENGTH=60 FT
Y11 10+85	1417		1			1			1																																												
	1417	1418																																																			
L 569+44	1419		1																				1						1																								
	1419	1420																																																			
L 569+43	1420		1			1			1																																												
	1420	1421																																																			
L 572+89	1421		1			1			1																																												
	1421	1530																																																			
L 572+70	1422		1			1		1																																													
	1422	1424																																																			
L 573+51	1423		1													1						1																															
	1423	1424																																																			
L 573+51	1424		1			1		1																																													
	1424	1502																																																			
L 561+21	1425		1	5.0	3.9	1		1																																													
	1425	1413																																																			w/ ROD & LUG & GASKETS
L 564+02	1426		1													1						1																															
	1426	1427																																																			
L 564+02	1427		1			1		1																																													
	1427	1409																																																			
	1428	1412																																																			
L 562+90	1428		1			1	1																																														
L 560+88	1429		1	2.0																														1																			4'x4' Outlet Structure, See Sheet 2D-7
	1429	1430																																																1.3120			Two pipe collars
Y11 10+85	1431		1			1		1																																													
	1431	1417																																																			
L 573+95	1432		1							1			1	1																																							
	1432	1530																																																			
L 575+14	1501		1													1						1																															
	1501	1502																																																			
L 575+15	1502		1			1		1																																													
	1502	1503																																																			
L 576+13	1503		1	1.6		1	1																																														
	1503	1532																																																			
	1504	1505																																																			
L 576+23	1504		1																					1					1																								
	1505	1503																																																		
L 576+23	1505		1	1.1		1	1																																														
L 575+83	1506		1	2.2		1			1																																												
	1506	1523																																																			
L 576+48	1507		1			1		1																																													
	1507	1533																																																			
L 577+23	1508		1			1		1																																													
SHEET TOTALS			26	12.4	3.9	16	4	8	4	1			1	1		3						4	2	2	120			3					1																		1.3120			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)								DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36	
THICKNESS OR GAUGE																				.064	.064	.064	.079	.079	.109													
		1508	1507		845.4	845.0	0.4																										72					
L 580+44	42 LT	1509		854.5																																		
		1509	1531		849.2	848.7																											56					
Y12 15+62	12 RT	1510		855.0																																		
		1510	1509		849.6	849.3																											56					
Y12 15+22	47 LT	1511		856.6																																		
		1511	1510		852.2	851.9																											72					
Y12 14+80	35 LT	1512		853.9																																		
		1512	1511		852.6	852.3																		44												
L 579+02	41 RT	1513		851.7																																		
		1513	1525		847.8	845.1	0.3																												152			
		1514	1513		849.3	847.9																													160			
Y13 10+50	19 LT	1514		854.9																																		
Y13 10+90	30 LT	1515		853.0																																		
		1515	1514		850.3	850.0																											40					
L 581+00	42 RT	1516		855.6																																		
		1516	1514		852.2	851.7	0.9																											40				
L 582+93	42 RT	1517		859.4																																		
		1517	1516		856.1	852.3	0.6																											192				
L 582+93	10 LT	1518		860.2																																		
		1518	1517		857.1	856.4	0.3																										52					
L 584+02	8 LT	1519		862.7																																		
		1519	1518		859.6	857.2																											108					
L 585+50	8 LT	1520		865.7																																		
		1520	1519		862.6	859.7																											148					
L 587+00	8 LT	1521		868.7																																		
		1521	1520		865.6	862.7																											148					
L 585+90	42 RT	1522		864.4																																		
		1522	1517		861.3	856.4																											292					
L 575+66	75 LT	1523		843.7																																		
L 577+50	42 RT	1525		848.9																																		
		1525	1505		845.0	844.2	0.4																												128			
L 575+00	42 LT	1526		848.7																																		
		1526	1506		845.3	844.8																												84				
L 575+50	6 RT	1527		849.2																																		
		1527	1532		846.2	845.8																											48					
L 576+18	5 RT	1528		848.9																																		
		1528	1532		845.9	845.8																											16					
Y12 14+83	28 RT	1529		852.1																																		
		1529	1510		850.1	849.7																											80					
L 574+14	42 LT	1530		849.9																																		
		1530	1526		846.8	845.7																											84					
L 579+85	42 LT	1531		854.2																																		
		1531	1508		848.6	845.5																											260					
L 576+00	5 RT	1532		848.9																																		
		1532	1506		841.2	840.9																															48	
L 576+18	42 LT	1533		848.0																																		
		1533	1506		844.7	844.5																											32					
L 589+52	9 LT	1601		872.4																																		
		1601	1521		869.4	865.7																											252					
SHEET TOTALS																										44							1816	316	440		48	

QUANTITIES FOR DRAINAGE STRUCTURES

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

STRUCTURE NUMBER FROM	TO	0' THRU 5' EACH	A: 5' THRU 10' LIN. FT.	B: 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
1508	1507																																																			
1509		1	0.3		1		1																																													
1509	1531																																																			
1510		1	0.4		1			1																																												
1510	1509																																																			
1511		1			1		1																																													
1511	1510																																																			
1512																																																				OEP
1512	1511																																																		
1513		1			1			1																																												
1513	1525																																																			
1514	1513																																																			
1514		1	0.6		1	1																																														
1515		1													1						1																															
1515	1514																																																			
1516		1			1			1																																												
1516	1514																																																			
1517		1			1			1																																												
1517	1516																																																			
1518		1			1			1																																												
1518	1517																																																			
1519		1							1			1	1																																							
1519	1518																																																			
1520		1							1			1	1																																							
1520	1519																																																			
1521		1							1			1	1																																							
1521	1520																																																			
1522		1			1			1																																												
1522	1517																																																			
1523		1	1.4																						1					1																						
1525		1			1			1																																												
1525	1505																																																			
1526		1			1			1																																												
1526	1506																																																			
1527		1							1			1	1																																							
1527	1532																																																			
1528		1							1			1	1																																							
1528	1532																																																			
1529		1														1					1																															
1529	1510																																																			
1530		1			1			1																																												
1530	1526																																																			
1531		1	0.6		1		1																																													
1531	1508																																																			
1532		1	2.7						1						1							1																														
1532	1506																																																			
1533		1			1	1																																														
1533	1506																																																			
1601		1			1			1																																												
1601	1521																																																			
SHEET TOTALS		24	6.0		15	2	3	10	6			5	5		2	1					2	1			1					1																						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	**DATE:**	2/28/2022
CHECKED BY:	David B. Petty, PE	**DATE:**	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B		GRATE TYPE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																										
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G																																								CY	CY	CY	LIN. FT.	
L 588+40	8 RT	1602		870.5																																			1							1			1	1																																									
		1602	1603		867.5	866.1																											32																																																									
L 588+40	42 RT	1603		869.1																																			1			1			1																																											
		1603	1522		866.0	861.4																											244																																																									
L 594+50	14 LT	1604		870.2																																			1			1		1																																													
		1604	1606		867.2	861.4																											252																																																									
L 596+84	86 LT	1605		862.8																																			1									1																																												
		1605	1606		859.0	858.7																													68																																																						
L 597+00	19 LT	1606		864.4																																			1	0.8		1		1																																													
		1606	1607		858.6	856.9																													140																																																						
L 598+40	22 LT	1607		860.7																																			1			1		1																																													
		1607	1608		856.8	853.8																													112																																																							
L 599+54	25 LT	1608		857.5																																			1			1		1																																													
		1608	1703		853.7	849.3																													328																																																							
L 593+50	43 RT	1609		869.4																																			1			1		1																																													
		1609	1616		866.4	863.5																											156																																																									
L 596+50	44 RT	1610		863.1																																			1			1		1																																													
		1610	1611		860.0	856.8																											144																																																									
L 597+98	45 RT	1611		859.8																																			1			1		1																																													
		1611	1612		856.7	852.0																											200																																																									
L 600+00	59 RT	1612		855.0																																			1			1		1																																													
		1612	1613		851.9	849.7																											196																																																									
L 601+98	47 RT	1613		852.7																																			1			1		1																																													
		1613	1704		849.6	848.8																											76																																																									
L 601+42	60 LT	1614		853.0																																			1			1			1																																											
		1614	1701		850.0	849.3																											108																																																									
L 598+80	88 LT	1615							40																																																																																		
L 595+10	44 RT	1616		866.5																																			1			1		1																																													
		1616	1610		863.4	860.1																											136																																																									
L 602+50	60 LT	1701		852.3																																			1			1			1																																											
		1701	1702		849.2	849.0																											32																																																										
		1702	1703		848.3	848.1																													32																																																							
L 602+83	60 LT	1702		852.2																																			1			1	1																																														
L 602+83	26 LT	1703		853.0																																			1	0.4						1				1														1																								
		1703	1704		847.6	847.1																														108																																																							
L 602+65	81 RT	1704		851.8																																			1	0.9		1	1																																													
		1704	1705		845.9	838.0	3.1																40																																																																				w/ ROD & LUG & GASKETS
L 609+80	60 LT	1706		863.2																																			1			1		1																																													
		1706	1707		860.2	856.7																											180																																																									
L 608+00	60 LT	1707		859.7																																			1			1		1																																													
		1707	1708		856.6	853.2																											180																																																									
L 606+20	60 LT	1708		856.2																																			1			1		1																																													
		1708	1709		853.1	850.7	0.4																										136																																																									
L 604+85	60 LT	1709		853.7																																			1			1		1																																													
		1709	1710		850.6	849.6	0.6																										96																																																										
L 603+90	60 LT	1710		852.6																																			1			1		1																																													
		1710	1702		849.4	848.9																												108																																																									
L 612+80	15 LT	1711		870.6																																			1			1			1																																											
		1711	1712		867.6	865.9																											76																																																											
L 612+05	15 LT	1712		868.9																																			1			1			1																																											
							SHEET TOTALS		40														40										2244	108	680	108			25	2.1		22	2	15	5	2		1	1	2														1																								

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-10

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET		STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV					
SIZE THICKNESS OR GAUGE			FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	15	18	24	30	36	48	12	15	18	24	30	36
			1712	1714		865.8	864.6																											76				
L 614+05	72	RT	1713		870.1																																	
			1713	1727		867.1	866.8																											16				
L 612+05	59	RT	1714		867.6																																	
			1714	1715		864.5	863.4																											64				
L 611+41	60	RT	1715		866.4																																	
			1715	1717		862.2	860.6	0.3																											128			
L 611+42	79	RT	1716		865.1																																	
			1716	1715		862.4	862.3																												20			
L 610+12	60	RT	1717		863.8																																	
			1717	1718		860.5	859.4	0.4																											60			
L 609+52	60	RT	1718		862.7																																	
			1718	1719		859.3	857.6	0.6																											96			
L 608+57	60	RT	1719		860.8																																	
			1719	1720		857.5	855.0	0.8																											136			
L 607+22	60	RT	1720		858.2																																	
			1720	1721		854.9	852.7	1.0																											116			
L 606+05	60	RT	1721		855.9																																	
			1721	1722		852.6	850.0	1.2																											156			
L 604+50	60	RT	1722		853.3																																	
			1722	1723		849.5	848.6																													100		
L 603+50	64	RT	1723		852.4																																	
			1723	1704		848.5	848.1	0.3																												84		
L 602+29	102	RT	1724							44																												
L 602+99	168	RT	1725		843.5																																	
			1725	1728		837.0	836.5						44					X	X																			
L 615+50	15	LT	1726		872.8																																	
			1726	1801		869.8	868.2																											100				
L 614+01	56	RT	1727		869.8																																	
			1727	1714		866.8	864.5																											192				
L 616+50	15	LT	1801		871.2																																	
			1801	1803		868.1	866.7																											80				
Y16 24+64	128	RT	1802		867.3																																	
			1802	1851		864.3	862.2																											60				
L 617+30	15	LT	1803		869.7																																	
			1803	1804		866.6	865.9																											28				
L 617+30	15	RT	1804		868.9																																	
			1804	1808		862.8	862.5	0.4																										68				
L 616+25	72	RT	1805		869.0																																	
			1805	1806		866.0	864.2																											120				
L 617+50	72	RT	1806		867.2																																	
			1806	1804		863.2	862.9																											60				
L 618+00	83	RT	1807		866.6																																	
			1807	1806		863.6	863.3																											52				
L 618+00	13	RT	1808		867.8																																	
			1808	1809		862.4	862.1	0.5																										48				
L 618+45	11	LT	1809		867.3																																	
			1809	1810		861.9	861.1																												152			
L 620+00	15	LT	1810		865.4																																	
			1810	1811		861.0	860.8																												28			
SHEET TOTALS										44			44																					964	892	184		

LINE & STATION	STRUCTURE NUMBER FROM	TO	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5'	A 5' THRU 10'	B 10' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATE STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
			CY	EACH	LIN. FT.	LIN. FT.																																												CY	CY	CY	LIN. FT.	
	1712	1714																																																				
L 614+05	1713			1			1			1																																												
	1713	1727																																																				
L 612+05	1714			1			1			1																																												
	1714	1715																																																				
L 611+41	1715			1			1			1																																												
	1715	1717																																																				
L 611+42	1716			1													1						1																															
	1716	1715																																																				
L 610+12	1717			1			1			1																																												
	1717	1718																																																				
L 609+52	1718			1			1			1																																												
	1718	1719																																																				
L 608+57	1719			1			1			1																																												
	1719	1720																																																				
L 607+22	1720			1			1			1																																												
	1720	1721																																																				
L 606+05	1721			1			1			1																																												
	1721	1722																																																				
L 604+50	1722			1			1			1																																												
	1722	1723																																																				
L 603+50	1723			1			1			1																																												
	1723	1704																																																				
L 602+29	1724																																																					
L 602+99	1725			1	3.5																														1																			4'x4' Outlet Structure, See Sheet 2D-8
	1725	1728																																																1.3120			Two pipe collars
L 615+50	1726			1							1			1	1																																							
	1726	1801																																																				
L 614+01	1727			1																								1																										
	1727	1714																																																				
L 616+50	1801			1							1			1	1																																							
	1801	1803																																																				
Y16 24+64	1802			1			1			1																																												
	1802	1851																																																				
L 617+30	1803			1							1			1	1																																							
	1803	1804																																																				
L 617+30	1804			1	1.1						1			1	1																																							
	1804	1808																																																				
L 616+25	1805			1			1		1																																													
	1805	1806																																																				
L 617+50	1806			1			1		1																																													
	1806	1804																																																				
L 618+00	1807			1			1		1																																													
	1807	1806																																																				
L 618+00	1808			1	0.4						1			1	1																																							
	1808	1809																																																				
L 618+45	1809			1	0.4						1			1	1																																							
	1809	1810																																																				
L 620+00	1810			1							1			1	1																																							
	1810	1811																																																				
SHEET TOTALS				24	5.4		14		3	11	7			7	7		1						1					1							1																1.3120			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-2307B	3D-11

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER						Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)				FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION																																										
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B		GRATE TYPE																																																
THICKNESS OR GAUGE		FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 620+00	15 RT	1811		865.7																																			1							1			1	1																																									
		1811	1812		860.7	860.4																												68																																																									
L 620+69	15 RT	1812		865.7																																			1	0.4						1			1	1																																									
		1812	1813		860.3	860.1	0.3																											36																																																									
L 621+07	15 RT	1813		865.6																																			1	0.6						1			1	1																																									
		1813	1814		860.0	859.8	0.3																											40																																																									
L 621+50	15 RT	1814		865.6																																			1	0.9						1			1	1																																									
		1814	1815		859.7	859.4	0.3																											48																																																										
L 622+00	15 RT	1815		865.4																																			1	1.1						1			1	1																																									
		1815	1816		859.3	859.1	0.4																											48																																																									
L 622+50	15 RT	1816		865.3																																			1	1.3						1			1	1																																									
		1816	1817		859.0	858.7	0.4																											48																																																									
L 623+00	13 RT	1817		865.1																																			1	1.5						1			1	1																																									
		1817	1818		858.6	857.6	0.4																											204																																																									
L 625+02	15 LT	1818		861.8																																			1							1			1	1																																									
		1818	1819		857.5	856.4	0.5																											116																																																									
L 626+19	15 LT	1819		859.6																																			1							1			1	1																																									
		1819	1820		856.3	853.6	0.6																											140																																																									
L 627+60	15 LT	1820		856.8																																			1							1			1	1																																									
		1820	1821		853.5	848.9	0.7																											240																																																									
L 630+00	15 LT	1821		852.1																																			1							1			1	1																																									
		1821	1904		848.8	845.5	0.7																											168																																																									
L 630+00	15 RT	1822		852.1																																			1							1			1	1																																									
		1822	1905		849.1	845.8																											168																																																										
Y16 24+50	44 LT	1823		865.1																																			1			1		1																																														
		1823	1824		862.1	861.9																											40																																																										
Y16 24+86	61 LT	1824		866.1																																			1			1		1																																														
		1824	1825		861.8	861.6																											40																																																										
L 619+38	72 LT	1825		865.7																																			1			1			1																																												
		1825	1826		861.5	861.3																											40																																																										
L 619+79	72 LT	1826		865.0																																			1			1			1																																												
		1826	1827		861.2	861.1																											8																																																										
L 619+86	72 LT	1827		864.9																																			1			1			1																																											
		1827	1828		861.1	860.9																											32																																																										
L 620+17	72 LT	1828		864.5																																			1			1			1																																												
		1828	1829		860.8	860.6																											48																																																										
L 620+67	72 LT	1829		863.8																																			1			1			1																																											
		1829	1830		860.5	859.9																											80																																																										
L 621+50	72 LT	1830		862.9																																			1			1			1																																											
		1830	1831		859.8	859.3																											96																																																										
L 622+48	72 LT	1831		862.6																																			1			1			1																																											
		1831	1832		859.2	858.7																											96																																																										
L 623+48	60 LT	1832		862.6																																			1			1			1																																											
		1832	1833		858.6	857.3	0.4																										148																																																										
L 625+00	60 LT	1833		860.3																																			1			1			1																																											
		1833	1834		857.2	855.6	0.6																										116																																																										
L 626+19	60 LT	1834		858.6																																			1			1			1																																											
		1834	1836		855.5	848.8	0.7																										332																																																										
Y18 12+37	29 RT	1835		856.6																																																																						1														
L 629+50	72 LT	1836		851.8																																			1			1			1																																											
SHEET TOTALS																																	1244	1156					25	5.8		13		2	11	12			12	12																										1														

ABBREVIATIONS	
C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-12

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER						Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36	
THICKNESS OR GAUGE		FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %									DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109													CY
		1836	1901		848.7	845.9	1.1																										148					
L 621+00	114 RT	1837		860.4																																		
		1837	1838		858.5	857.9			120								X	X																				
L 622+16	104 RT	1838		863.5																																		
		1838	1839		857.9	857.7																											44					
L 622+16	60 RT	1839		866.7																																		
		1839	1840		857.6	856.6	0.3																										184					
L 624+00	60 RT	1840		865.8																																		
		1840	1841		856.5	855.9	0.5																										116					
L 625+15	59 RT	1841		863.8																																		
		1841	1842		855.7	855.2																												104				
L 626+19	59 RT	1842		860.8																																		
		1842	1843		855.1	854.8																												44				
L 626+65	59 RT	1843		859.6																																		
		1843	1844		854.7	854.6																												16				
L 626+65	76 RT	1844		859.6																																		
		1844	1846		854.5	852.9																												116				
L 627+83	93 RT	1845		854.9																																		
		1845	1846		852.1	852.0			16								X	X																				
L 627+83	76 RT	1846		856.1																																		
		1846	1847		851.7	850.6	0.3																											76				
L 628+60	76 RT	1847		853.8																																		
		1847	1848		850.5	848.5	0.5																											88				
L 629+50	76 RT	1848		851.7																																		
		1848	1849		848.4	847.6	0.6																											48				
L 629+98	73 RT	1849		850.8																																		
		1849	1906		847.5	843.0	0.7																											252				
Y16 24+10	98 RT	1850		864.3																																		
		1850	1851		861.6	861.5																				20												
Y16 24+21	84 RT	1851		865.2																																		
		1851	1852		861.5	860.0																											76					
Y16 23+50	49 RT	1852		863.0																																		
		1852	3108		860.0	858.0	0.3																										100					
Y17 11+00	6 RT	1853		866.0																																		
		1853	1854		863.0	862.7																											48					
Y17 11+50	6 RT	1854		865.7																																		
		1854	1855		862.6	862.3																											48					
Y17 12+00	6 RT	1855		865.4																																		
		1855	1856		862.2	861.3																											108					
Y17 13+10	6 RT	1856		864.3																																		
		1856	3201		861.2	860.0																											104					
Y17 11+49	56 LT	1857		864.5																																		
		1857	1858		861.5	861.0																											88					
Y17 12+36	28 LT	1858		864.1																																		
		1858	1859		860.9	860.3																											20					
Y17 12+39	48 LT	1859		863.3																																		
		1859	1860		860.2	859.2																											104					
Y17 13+50	41 LT	1860		862.2																																		
		1860	3203		859.1	857.9																											112					
L 627+00	90 RT	1861							32																													
							SHEET TOTALS		168																	20							1300	744				

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		1836	1901																																																			
L 621+00	114 RT	1837		1														1					1																															
		1837	1838																																																			
L 622+16	104 RT	1838		1	0.6												1						1																															
		1838	1839																																																			
L 622+16	60 RT	1839		1	4.1						1			1	1																																							
		1839	1840																																																			
L 624+00	60 RT	1840		1	4.3						1			1	1																																							
		1840	1841																																																			
L 625+15	59 RT	1841		1	3.1						1			1	1																																							
		1841	1842																																																			
L 626+19	59 RT	1842		1	0.7						1			1	1																																							
		1842	1843																																																			
L 626+65	59 RT	1843		1							1			1	1																																							
		1843	1844																																																			
L 626+65	76 RT	1844		1	0.1		1		1																																													
		1844	1846																																																			
L 627+83	93 RT	1845		1													1						1																															
		1845	1846																																																			
L 627+83	76 RT	1846		1			1		1																																													
		1846	1847																																																			
L 628+60	76 RT	1847		1			1		1																																													
		1847	1848																																																			
L 629+50	76 RT	1848		1			1		1																																													
		1848	1849																																																			
L 629+98	73 RT	1849		1			1		1																																													
		1849	1906																																																			
Y16 24+10	98 RT	1850		1													1						1																															
		1850	1851																																																			
Y16 24+21	84 RT	1851		1			1			1																																												
		1851	1852																																																			
Y16 23+50	49 RT	1852		1			1			1																																												
		1852	3108																																																			
Y17 11+00	6 RT	1853		1							1			1	1																																							
		1853	1854																																																			
Y17 11+50	6 RT	1854		1							1			1	1																																							
		1854	1855																																																			
Y17 12+00	6 RT	1855		1							1			1	1																																							
		1855	1856																																																			
Y17 13+10	6 RT	1856		1							1			1	1																																							
		1856	3201																																																			
Y17 11+49	56 LT	1857		1							1			1	1																																							
		1857	1858																																																			
Y17 12+36	28 LT	1858		1							1			1	1																																							
		1858	1859																																																			
Y17 12+39	48 LT	1859		1			1			1																																												
		1859	1860																																																			
Y17 13+50	41 LT	1860		1			1			1																																												
		1860	3203																																																			
L 627+00	90 RT	1861																																																				
			SHEET TOTALS	24	12.9		9		5	4	11			11	11		3	1					4																															

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022
CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-13

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)	A	B	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	15	18	24	30	36	48	12	15	18	24	30	36	CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																						CY	CY	CY	LIN. FT.	
L 631+00	72 LT	1901		848.9																																			1			1			1																																												
		1901	1902		845.8	843.1	1.3																										144																																																									
L 632+45	70 LT	1902		846.1																																			1			1			1																																													
		1902	1918		842.9	842.3	0.7																											96																																																							
L 633+82	73 RT	1903		845.2																																			1			1			1																																													
		1903	1919		840.2	838.0	0.7					32					X	X																																																																									
L 631+68	15 LT	1904		848.8																																			1							1			1	1																																										
		1904	1905		845.0	844.9																													28																																																					
L 631+68	15 RT	1905		848.8																																			1							1				1															1																								
		1905	1911		844.8	842.7																													196																																																					
L 632+50	60 RT	1906		846.3																																			1			1		1																																														
		1906	1910		842.9	841.7	0.8																											76																																																									
L 637+00	59 RT	1907		850.6																																			1			1			1																																													
		1907	1908		847.6	845.8																											84																																																									
L 635+15	59 RT	1908		848.8																																			1			1			1																																													
		1908	1909		845.7	842.8																											176																																																									
L 634+37	60 RT	1909		845.8																																			1			1			1																																													
		1909	1903		842.7	842.2																											56																																																								
		1910	1903		841.2	840.9																													64																																																					
L 633+21	91 RT	1910		845.0																																			1			1	1																																															
L 633+65	15 RT	1911		846.5																																			1	0.9						1				1															1																								
		1911	1903		840.6	840.3																														60																																																			
L 634+50	15 RT	1912		846.9																																			1							1			1	1																																										
		1912	1911		843.9	843.5																											84																																																									
L 638+49	60 LT	1913		853.1																																			1			1		1																																															
		1913	1914		850.1	847.6																											148																																																									
L 637+00	60 LT	1914		850.6																																			1			1		1																																															
		1914	1915		847.5	845.0																											124																																																									
L 635+77	60 LT	1915		848.0																																			1			1		1																																															
		1915	1916		844.9	842.5																											188																																																									
L 633+90	60 LT	1916		845.5																																			1			1		1																																															
		1916	1917		842.4	842.3																											24																																																									
		1917	1911		841.4	841.1																													72																																																					
L 633+65	60 LT	1917		845.5																																			1			1	1																																															
L 633+40	60 LT	1918		845.5																																			1			1			1																																													
		1918	1917		841.7	841.5																													24																																																					
L 640+58	60 LT	1920		851.9																																			1			1			1																																													
		1920	2001		848.9	842.3																											392																																																										
L 641+40	59 RT	1921		850.5																																			1			1		1																																															
		1921	1922		847.5	844.8																											160																																																									
L 643+00	59 RT	1922		847.8																																			1			1		1																																															
		1922	2010		844.7	843.0	0.5																										108																																																										
L 634+53	182 RT	1923		843.0																																			1	1.3																												1																				4'x4' Outlet Structure, See Sheet 2D-7
		1923	1924		837.7	837.6					36						X	X																																																																					1.1052			Two pipe collars
L 644+50	60 LT	2001		845.3																																			1			1			1																																													
		2001	2002		842.2	835.3																											400																																																									
L 648+50	60 LT	2002		838.3																																			1			1			1																																													
		2002	2003		835.2	828.8	0.5																										136																																																											
L 649+88	60 LT	2003		835.8																																			1			1			1																																													
		2003	2004		832.7	828.7	0.9																										232																																																										
SHEET TOTALS											36	32																					2456	172	384	60			25	2.2		20	2	7	11	4			2	4															2				1																	1.1052			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE **DATE:** 2/28/2022
CHECKED BY: David B. Petty, PE **DATE:** 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-14

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE		
SIZE THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	15	18	24	30	36	48	12	15	18	24	30	36	CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G
L 652+20	60 LT	2004		831.7																																			1			1			1
		2004	2005		828.6	824.0	1.0																										280												
L 655+00	60 LT	2005		827.0																																			1			1			1
		2005	2029		823.9	823.0	1.1																										64												
		2006	2029		814.8	814.4	0.4																								84														
L 656+45	91 LT	2006		825.0																																			1	5.0	0.2	1	1		
L 656+95	60 LT	2007		825.4																																			1	5.0	0.2	1			1
		2007	2006		815.2	814.9	0.4																								60														
L 657+53	90 LT	2008		821.3																																			1						
		2008	2009		818.5	818.2																				32																			
		2009	2007		816.5	816.2	0.3																														64								
L 657+58	60 LT	2009		825.3																																			1	3.8		1	1		
L 644+07	59 RT	2010		846.0																																			1			1		1	
		2010	2011		842.9	839.7	0.8																										192												
L 646+00	59 RT	2011		842.7																																			1			1		1	
		2011	2013		839.6	836.9	1.5																										160												
L 647+60	75 RT	2012		840.0																																			1						
		2012	2013		837.2	836.8			16								X	X																											
L 647+60	59 RT	2013		839.9																																			1			1		1	
		2013	2014		836.1	832.2																													220										
L 649+81	59 RT	2014		836.0																																			1			1		1	
		2014	2016		832.1	828.3	0.3																												220										
L 649+95	82 RT	2015							44																																				
L 652+00	59 RT	2016		832.1																																			1			1		1	
		2016	2018		828.2	825.1	0.4																												184										
L 653+86	85 RT	2017		827.3																																									
		2017	2018		824.8	824.6						28					X	X																											
L 653+86	59 RT	2018		828.8																																			1			1		1	
		2018	2019		824.5	821.7	0.8																													212									
L 656+00	59 RT	2019		826.0																																			1			1		1	
		2019	2020		821.2	820.7	0.3																														96								
L 656+95	59 RT	2020		825.4																																			1	1.8		1		1	
		2020	2027		818.6	818.3	0.5																							48															
L 657+28	123 RT	2021		824.5																																			1						
		2021	2022		821.5	821.3	0.5			36							X	X																											
		2022	2020		819.9	819.7	0.3																												52										
Y20 10+91	14 RT	2022		824.9																																			1			1	1		
		2023	2022		820.6	820.4																												24											
Y20 10+91	13 LT	2023		824.9																																			1			1	1		
L 657+99	59 RT	2024		825.4																																			1			1			1
		2024	2023		820.9	820.7																												48											
L 655+98	15 LT	2025		827.0																																			1						
		2025	2026		824.0	823.7																											60												
L 656+50	12 RT	2026		826.7																																			1						
		2026	2027		823.6	823.3																											44												
L 656+95	12 RT	2027		827.0																																			1	3.8					
		2027	2007		818.2	817.8	0.6																							68															
L 655+62	74 LT	2029		826.0																																			1	5.0	1.7	1			1
		2029	2028		814.3	812.0	0.4										52		X	X																										
L 655+67	249 LT	2031		816.8																																			1	2.8					
SHEET TOTALS									60	36		28			52											32				116	144		800	72	676	212	160		24	27.2	2.1	17	4	8	5

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 652+20	2004																																													
	2004	2005																																												
L 655+00	2005																																													
	2005	2029																																												
	2006	2029																																												
L 656+45	2006																																													
L 656+95	2007																																													
	2007	2006																																												
L 657+53	2008								1						1																															
	2008	2009																																												
	2009	2007																																												
L 657+58	2009																																													
L 644+07	2010																																													
	2010	2011																																												
L 646+00	2011																																													
	2011	2013																																												
L 647+60	2012								1						1																															
	2012	2013																																												
L 647+60	2013																																													
	2013	2014																																												
L 649+81	2014																																													
	2014	2016																																												
L 649+95	2015																																													
L 652+00	2016																																													
	2016	2018																																												
L 653+86	2017																																													OEP
	2017	2018																																												
L 653+86	2018																																													
	2018	2019																																												
L 656+00	2019																																													
	2019	2020																																												
L 656+95	2020																																													
	2020	2027																																												
L 657+28	2021								1						1																															
	2021	2022																																												
	2022	2020																																												
Y20 10+91	2022																																													
	2023	2022																																												
Y20 10+91	2023																																													
L 657+99	2024																																													
	2024	2023																																												
L 655+98	2025		1			1	1																																							
	2025	2026																																												
L 656+50	2026		1			1	1																																							
	2026	2027																																												
L 656+95	2027																			1					1																					
	2027	2007																																												
L 655+62	2029																																													
	2029	2028																																												
L 655+67	2031																										1																			5'x5' Outlet Structure, See Sheet 2D-7
SHEET TOTALS			2			2	2		3						3				1					1		1																				

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-15

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)											
SIZE / THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
		2031	2032		811.0	810.8								36			X	X	
L 647+44	79 LT	2033		828.0															
L 649+81	85 LT	2034		828.3															
L 658+18	60 LT	2101		825.4															
		2101	2009		820.6	820.3													
L 659+20	60 LT	2102		826.0															
		2102	2101		821.3	820.7													
L 660+85	60 LT	2103		828.0															
		2103	2102		823.3	821.8	0.7												
L 660+95	81 LT	2104		827.5															
		2104	2103		824.8	824.6			24								X	X	
L 662+00	60 LT	2105		829.4															
		2105	2103		825.1	823.7	0.4												
L 663+00	59 LT	2106		830.6															
		2106	2105		826.3	825.2	0.4												
L 663+00	76 LT	2107		830.9															
		2107	2106		828.1	827.6	0.7		16								X	X	
L 666+18	60 LT	2108		835.3															
		2108	2106		831.5	826.9	0.6												
L 667+26	59 LT	2109		837.5															
		2109	2108		833.8	831.6	0.4												
L 669+29	59 LT	2110		840.1															
		2110	2125		836.8	835.4	0.5												
L 669+95	90 LT	2111		844.0															
		2111	2110		841.2	837.1	0.7		72								X	X	
L 669+29	9 LT	2112		841.2															
		2112	2110		838.2	837.1													
L 666+32	15 RT	2113		837.8															
		2113	2114		834.8	832.1													
L 664+50	15 RT	2114		835.1															
		2114	2115		832.0	829.1													
L 662+50	16 RT	2115		832.1															
		2115	2116		829.0	827.6	0.4												
L 661+59	15 RT	2116		830.6															
		2116	2117		827.5	826.3	0.5												
L 660+85	16 RT	2117		829.3															
		2117	2103		826.2	825.0	0.5												
L 658+96	59 RT	2118		826.1															
		2118	2024		823.1	822.4													
		2119	2120		837.2	836.5													
L 670+08	80 RT	2119		840.2															
L 671+47	60 RT	2120		840.8															
		2120	2223		836.4	835.7													
L 666+16	87 LT	2121		838.0															
		2121	2108		834.6	832.3			28								X	X	
L 667+26	94 LT	2122		842.0															
		2122	2109		837.4	834.5	0.4		36								X	X	
L 667+67	77 LT	2123		838.2															
		2123	2124		836.2	836.1			24								X	X	
L 667+93	77 LT	2124		838.2															
SHEET TOTALS									200					36					

STRUCTURE NUMBER FROM	TO	C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE		
		15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	15	18	24	30	36	48	12	15	18	24	30	36	CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G
2031	2032																										
2033																											
2034																					1	0.8					
2101																					1			1		1	
2101	2009																		60								
2102																					1			1		1	
2102	2101																		100								
2103																					1			1		1	
2103	2102																	164									
2104																					1						
2104	2103																										
2105																					1			1		1	
2105	2103																	112									
2106																					1			1		1	
2106	2105																	96									
2107																					1						
2107	2106																										
2108																					1			1		1	
2108	2106																308										
2109																					1			1		1	
2109	2108																104										
2110																					1			1		1	
2110	2125															128											
2111																					1						
2111	2110																										
2112																					1						
2112	2110														48												
2113																					1			1		1	
2113	2114														184												
2114																					1			1		1	
2114	2115														200												
2115																					1			1		1	
2115	2116														92												
2116																					1			1		1	
2116	2117														72												
2117																					1			1		1	
2117	2103														76												
2118																					1			1			1
2118	2024														96												
2119	2120														140												
2119																					1			1	1		
2120																					1			1		1	
2120	2223														132												
2121																					1						
2121	2108																										
2122																					1						
2122	2109																										
2123																					1						
2123	2124																										
2124																					1						
SHEET TOTALS															1040	128	412	372	160		25	0.8		16	1	14	1

STRUCTURE NUMBER FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.
2031	2032																															
2033																														1		
2034					1	1																										
2101																																
2101	2009																															
2102																																
2102	2101																															
2103																																
2103	2102																															
2104								1						1																		
2104	2103																															
2105																																
2105	2103																															
2106																																
2106	2105																															
2107								1						1																		
2107	2106																															
2108																																
2108	2106																															
2109																																
2109	2108																															
2110																																
2110	2125																															
2111								1						1																		
2111	2110																															
2112		1			1	1																										
2112	2110																															
2113																																
2113	2114																															
2114																																
2114	2115																															
2115																																
2115	2116																															
2116																																
2116	2117																															
2117																																
2117	2103																															
2118																																
2118	2024																															
2119	2120																															
2119																																
2120																																
2120	2223																															
2121								1						1																		
2121	2108																															
2122								1						1																		
2122	2109																															
2123									1					1																		
2123	2124																															
2124									1					1																		
SHEET TOTALS		1			2	2		5	2					7																1		

STRUCTURE NUMBER FROM	TO	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
2031	2032										1.7712			Two pipe collars
2033														
2034														
2101														
2101	2009													
2102														
2102	2101													
2103														
2103	2102													
2104														
2104	2103													
2105														
2105	2103													
2106														
2106	2105													
2107														
2107	2106													
2108														
2108	2106													
2109														
2109	2108													
2110														
2110	2125													
2111														
2111	2110													
2112														
2112	2110													
2113														
2113	2114													
2114														
2114	2115													
2115														
2115	2116													
2116														
2116	2117													
2117														
2117	2103													
2118														
2118	2024													
2119	2120													
2119														
2120														
2120	2223													
2121														
2121	2108													
2122														
2122	2109													
2123														
2123	2124													
2124														
SHEET TOTALS											1.7712			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSI.TW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022

CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-16

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36
			2124	2125		836.1	835.7			20								X	X																			
L 668+02	59	LT	2125		838.7																																	
			2125	2109		835.3	834.3	0.8																										76			
L 673+60	60	LT	2201		839.5																																	
			2201	2203		836.5	835.5																										84				
L 674+43	82	LT	2202		839.0																																	
			2202	2203		836.0	835.2	0.6			20							X	X																			
L 674+43	60	LT	2203		838.5																																	
			2203	2205		834.7	833.3																												116		
L 675+60	73	LT	2204		837.6																																	
			2204	2205		833.6	833.4			12								X	X																			
L 675+59	60	LT	2205		837.1																																	
			2205	2206		833.2	832.0	0.5																											108		
L 676+68	60	LT	2206		835.7																																	
			2206	2207		831.9	831.1	0.6																											108		
L 677+77	60	LT	2207		834.8																																	
			2207	2208		830.6	830.4																													32	
L 678+09	59	LT	2208		834.8																																	
			2208	2228		827.6	826.9																							140							
L 678+41	59	LT	2209		834.8																																	
			2209	2208		828.3	828.1																						32								
L 679+59	64	LT	2210		835.8																																	
			2210	2209		829.0	828.4																						116								
Y21 15+16	53	RT	2211		836.4																																	
			2211	2210		833.1	832.5	0.9																										36			
Y21 14+58	33	RT	2212		838.4																																	
			2212	2211		835.3	833.4																										56				
Y21 13+76	33	RT	2213		841.7																																	
			2213	2212		837.4	835.4																										76				
Y21 15+25	2	LT	2214		837.5																																	
			2214	2215		834.6	834.4																										8				
Y21 15+33	1	LT	2215		837.4																																	
			2215	2211		834.1	833.2	0.6																										56			
L 681+30	72	LT	2216		839.2																																	
			2216	2215		836.1	834.4	1.2																									84				
L 682+00	71	LT	2217		841.0																																	
			2217	2216		837.9	836.2	0.9																									68				
L 683+40	72	LT	2218		844.6																																	
			2218	2217		841.5	838.0	0.7																									140				
L 684+82	71	LT	2219		848.2																																	
			2219	2218		845.1	841.6	0.4																									140				
L 685+93	59	LT	2220		851.1																																	
			2220	2219		848.0	845.2	0.4																									112				
L 683+07	83	LT	2221		843.2																																	
L 685+82	84	LT	2222		848.0																																	
L 672+80	59	RT	2223		840.2																																	
			2223	2224		835.6	834.9																										136				
L 674+18	59	RT	2224		838.8																																	
			2224	2225		834.8	832.8																										204				
L 676+22	84	RT	2225		835.8																																	
SHEET TOTALS										32	20																			148	140			1108	168	332	32	

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) A 0' THRU 5' EACH	B 5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	2124	2125																																																				
L 668+02	2125			1			1		1																																													
	2125	2109																																																				
L 673+60	2201			1			1			1																																												
	2201	2203																																																				
L 674+43	2202			1													1						1																															
	2202	2203																																																			
L 674+43	2203			1			1			1																																												
	2203	2205																																																				
L 675+60	2204			1													1						1																															
	2204	2205																																																				
L 675+59	2205			1			1			1																																												
	2205	2206																																																				
L 676+68	2206			1			1			1																																												
	2206	2207																																																				
L 677+77	2207			1			1			1																																												
	2207	2208																																																				
L 678+09	2208			1	2.2		1	1																																														
	2208	2228																																																				
L 678+41	2209			1	1.5		1		1																																													
	2209	2208																																																				
L 679+59	2210			1	1.8		1		1																																													
	2210	2209																																																				
Y21 15+16	2211			1			1		1																																													
	2211	2210																																																				
Y21 14+58	2212			1			1		1																																													
	2212	2211																																																				
Y21 13+76	2213			1			1		1																																													
	2213	2212																																																				
Y21 15+25	2214			1							1			1	1																																							
	2214	2215																																																				
Y21 15+33	2215			1							1			1	1																																							
	2215	2211																																																				
L 681+30	2216			1			1		1																																													
	2216	2215																																																				
L 682+00	2217			1			1		1																																													
	2217	2216																																																				
L 683+40	2218			1			1		1																																													
	2218	2217																																																				
L 684+82	2219			1			1		1																																													
	2219	2218																																																				
L 685+93	2220			1			1		1																																													
	2220	2219																																																				
L 683+07	2221			1			1	1																																														
L 685+82	2222			1	0.4												1							1																														
L 672+80	2223			1			1		1																																													
	2223	2224																																																				
L 674+18	2224			1			1		1																																													
	2224	2225																																																				
L 676+22	2225			1			1		1																																													
SHEET TOTALS				26	5.9		21	2	14	5	2			2	2		3						2	1																														

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	**DATE:**	2/28/2022
CHECKED BY:	David B. Petty, PE	**DATE:**	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-17

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
		2225	2226		832.7	831.9	0.5																										76												
L 677+00	84 RT	2226		834.9																																			1			1		1	
		2226	2227		831.5	831.1																												76											
L 677+77	84 RT	2227		834.4																																			1	2.8		1		1	
		2227	2245		826.6	822.0	0.5						56				X	X																											
L 678+09	84 RT	2228		834.3																																			1	2.5		1	1		
		2228	2227		826.8	826.7	0.4																							32															
L 678+41	84 RT	2229		834.4																																			1	0.6		1			1
		2229	2228		828.8	828.7																						32																	
L 679+68	84 RT	2230		835.5																																			1	0.9		1			1
		2230	2229		829.6	828.9																						128																	
Y22 11+00	43 RT	2231		834.6																																			1			1		1	
		2231	2230		829.9	829.7																													48										
Y22 11+42	19 RT	2232		834.0																																			1			1		1	
		2232	2231		830.6	830.4	0.5																											48											
Y22 11+42	22 LT	2233		836.2																																			1						
		2233	2232		831.9	830.7	0.4																											40											
L 680+98	70 RT	2234		838.4																																			1			1			1
		2234	2233		835.4	832.6																											76												
Y23 12+41	14 LT	2235		835.6																																			1			1			1
		2235	2233		832.3	832.0	0.4																											56											
Y23 11+30	14 LT	2236		840.5																																			1	1.0		1			1
		2236	2235		834.5	832.4																												104											
L 683+12	60 RT	2237		844.1																																			1	3.9		1			1
		2237	2236		835.2	834.6																												120											
L 684+11	60 RT	2238		846.6																																			1			1			1
		2238	2237		843.5	841.1	0.3																										100												
L 685+50	60 RT	2239		850.1																																			1			1			1
		2239	2238		847.0	843.6																											140												
L 680+95	4 LT	2240		839.9																																			1						
		2240	2242		836.9	836.5																											80												
L 681+30	85 LT	2241		844.5																																			1	3.2					
		2241	2216		836.3	836.2																											12												
L 681+72	15 RT	2242		841.6																																			1	0.1					
		2242	2243		836.5	835.8																											140												
L 683+12	15 RT	2243		845.3																																			1	4.6					
		2243	2237		835.7	835.5																											44												
L 685+02	15 LT	2244		850.1																																			1						
		2244	2243		847.0	842.3																											192												
L 672+16	82 LT	2246		842.0																																			1						
		2246	2247		839.2	837.6			24								X	X																											
L 672+16	60 LT	2247		840.6																																			1			1			1
		2247	2201		837.6	836.5																											144												
L 676+72	218 RT	2248		829.0																																			1	2.7					
L 677+06	196 RT	2249		827.0																																			1	2.5					
		2249	2248		821.5	821.3								40			X	X																											
Y21 14+82	65 RT	2255		840.1																																			1			1	1		
L 689+80	92 RT	2301		854.1																																			1			1	1		
		2301	2302		851.1	850.8																											68												
L 690+50	81 RT	2302		854.7																																			1			1			1
SHEET TOTALS									24				56	40														160		32			1072	444	48				26	24.8		17	3	4	10

QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION	FROM	TO	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
	2225	2226																																												
L 677+00	2226																																													
	2226	2227																																												
L 677+77	2227																																													
	2227	2245																																												
L 678+09	2228																																													
	2228	2227																																												
L 678+41	2229																																													
	2229	2228																																												
L 679+68	2230																																													
	2230	2229																																												
Y22 11+00	2231																																													
	2231	2230																																												
Y22 11+42	2232																																													
	2232	2231																																												
Y22 11+42	2233																1					1																								
	2233	2232																																												
L 680+98	2234			1																																										
	2234	2233																																												
Y23 12+41	2235																																													
	2235	2233																																												
Y23 11+30	2236																																													
	2236	2235																																												
L 683+12	2237																																													
	2237	2236																																												
L 684+11	2238																																													
	2238	2237																																												
L 685+50	2239																																													
	2239	2238																																												
L 680+95	2240		1			1	1																																							
	2240	2242																																												
L 681+30	2241					1	1																																							
	2241	2216																																												
L 681+72	2242		1			1	1																																							
	2242	2243																																												
L 683+12	2243		1			1	1																																							
	2243	2237																																												
L 685+02	2244		1			1	1																																							
	2244	2243																																												
L 672+16	2246								1							1																														
	2246	2247																																												
L 672+16	2247																																													
	2247	2201																																												
L 676+72	2248																1					1																								
L 677+06	2249																							1																					5'x5' Outlet Structure, See Sheet 2D-7
	2249	2248																																							1.7712			Two pipe collars
Y21 14+82	2255																																													
L 689+80	2301																																													
	2301	2302																																												
L 690+50	2302																																													
SHEET TOTALS			4	1		5	5		1							1				2					2		1																	1.7712			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-18

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B		GRATE TYPE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																												
THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%													.064	.064	.064	.079	.079	.109													CY	0' THRU 5' EACH	5' THRU 10' LIN. FT.	10' AND ABOVE LIN. FT.		E	F	G																																										CY	CY	CY	LIN. FT.	
		2302	2303		850.7	850.1																											108																																																						
L 691+58	60 RT	2303		855.6																																			1	0.6		1			1																																												
		2303	2304		850.0	849.6																											92																																																						
L 692+50	67 RT	2304		855.9																																			1	2.1		1			1																																												
		2304	2309		848.8	848.6																													52																																																		
L 693+35	72 RT	2305		856.3																																			1			1			1																																												
		2305	2304		853.1	852.7																												84																																																			
L 694+40	72 RT	2306		857.6																																			1			1			1																																												
		2306	2305		854.5	853.3	0.3																										104																																																							
L 696+00	72 RT	2307		861.7																																			1			1			1																																												
		2307	2306		858.6	854.6																											160																																																							
L 696+55	75 RT	2308		864.2																																			1							1			1	1																																							
		2308	2307		861.2	858.7																											56																																																						
L 692+50	15 RT	2309		857.1																																			1	3.5						1			1	1																																							
		2309	2317		848.6	848.2																													76																																																		
L 694+07	15 LT	2310		858.5																																			1							1			1	1																																							
		2310	2309		855.5	854.1																											160																																																							
L 695+50	15 LT	2311		861.6																																			1							1			1	1																																							
		2311	2310		858.5	855.5																											140																																																							
L 695+50	15 RT	2312		861.6																																			1							1			1	1																																							
		2312	2311		858.6	858.5																											28																																																							
L 690+42	15 RT	2313		856.1																																			1							1			1	1																																							
		2313	2314		853.1	852.6																											100																																																							
L 691+45	15 RT	2314		856.6																																			1							1			1	1																																							
		2314	2309		852.6	852.1																											104																																																							
L 694+00	60 LT	2315		857.4																																			1			1		1																																													
		2315	2316		854.4	853.3																											100																																																							
L 693+00	60 LT	2316		856.3																																			1			1		1																																												
		2316	2317		853.2	852.9																											72																																																							
L 692+29	59 LT	2317		856.0																																			1	3.6		1		1																																												
L 689+50	63 LT	2320		854.6																																			1			1		1																																													
		2320	2321		851.5	850.7																											92																																																							
L 688+60	85 LT	2321		853.7																																			1			1	1																																														
		2321	2322		850.7	850.1																											124																																																							
L 687+36	60 LT	2322		853.3																																			1			1		1																																													
		2322	2220		850.0	848.1																											144																																																							
L 687+00	60 RT	2323		852.9																																			1			1			1																																												
		2323	2239		849.9	847.1																											148																																																							
L 688+22	15 LT	2324		855.1																																			1							1			1	1																																							
		2324	2244		851.8	847.1																											320																																																							
L 688+22	15 RT	2325		855.1																																			1							1			1	1																																							
		2325	2324		852.0	851.8																											28																																																							
L 689+82	14 LT	2326		855.8																																			1							1			1	1																																							
		2326	2324		852.8	852.0																											160																																																							
L 699+30	59 RT	2327		872.7																																			1			1			1																																												
		2327	2328		869.3	865.2	0.6																											128																																																					
L 698+00	60 RT	2328		868.5																																			1			1			1																																												
		2328	2329		865.1	862.8	0.8																											76																																																						
L 697+25	60 RT	2329		866.0																																			1			1			1																																												
		2329	2331		862.3	861.9																													76																																																		
SHEET TOTALS																																	2240	288	204				25	9.8		15	1	5	9	10			10	10																																												

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE **DATE:** 2/28/2022

CHECKED BY: David B. Petty, PE **DATE:** 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-19

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36
SIZE / THICKNESS OR GAUGE																																					
L 698+17	15 LT	2330		870.2																																	
		2330	2331		867.1	864.5																											64				
L 697+52	15 LT	2331		868.6																																	
		2331	2333		861.8	861.5																													56		
L 698+75	72 LT	2332		870.7																																	
		2332	2333		867.6	863.7	0.7																										124				
L 697+52	71 LT	2333		866.7																																	
		2333	2335		861.4	860.6	0.5																												40		
Y25 12+75	12 LT	2334		862.8																																	
		2334	2335		859.8	859.5																											56				
L 697+20	97 LT	2335		865.0																																	
L 694+30	83 RT	2336		860.9																																	
		2336	2337		856.8	855.1																											240				
L 691+90	83 RT	2337		858.1																																	
		2337	2338		854.9	853.3																												168			
L 690+22	99 RT	2338		856.6																																	
		2338	2339		853.3	853.3	0.4																											4			
L 690+16	100 RT	2339		856.6																																	
		2339	2340		851.5	851.0																													96		
L 689+19	88 RT	2340		855.0																																	
L 691+08	60 LT	2341		855.4																																	
		2341	2320		852.4	851.6																											156				
L 698+17	85 LT	2342		865.8																																	
L 698+23	89 LT	2343		866.1																																	
L 704+50	60 LT	2401		894.9																																	
		2401	2402		891.9	888.4																											108				
L 703+40	59 LT	2402		891.4																																	
		2402	2403		888.3	875.3																											260				
L 700+80	72 LT	2403		878.3																																	
		2403	2404		875.2	872.9	0.3																										52				
L 700+27	72 LT	2404		875.9																																	
		2404	2332		872.8	867.7	0.4																										152				
L 701+02	15 LT	2405		880.8																																	
		2405	2330		877.6	867.2																											284				
L 701+02	15 RT	2406		880.8																																	
		2406	2405		877.8	877.7																											28				
L 703+79	83 RT	2407		892.3																																	
		2407	2408		884.9	879.5																											224				
L 701+60	66 RT	2408		882.5																																	
		2408	2409		877.6	875.5	0.5																										64				
L 700+95	59 RT	2409		879.6																																	
		2409	2410		874.2	874.1	0.3																											20			
L 700+75	60 RT	2410		878.3																																	
		2410	2327		874.0	869.4	0.5																											144			
L 701+58	77 RT	2411		880.5																																	
		2411	2408		877.8	877.7																											12				
L 703+27	115 RT	2412		888.6																																	
		2412	2413		885.6	885.4																											36				
L 703+64	115 RT	2413		888.6																																	
		2413	2407		885.3	885.0																											36				
							SHEET TOTALS																										1896	336	192		

STRUCTURE NUMBER FROM	TO	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
2330			1							1			1	1																																							
2330	2331																																																				
2331			1	1.8																						1					1																						
2331	2333																																																				
2332			1			1		1																																													
2332	2333																																																				
2333			1	0.3		1		1																																													
2333	2335																																																				
2334			1			1			1																																												
2334	2335																																																				
2335			1	2.8																						1					1																						
2336			1			1	1																																														
2336	2337																																																				
2337			1			1	1																																														
2337	2338																																																				
2338			1			1	1																																														
2338	2339																																																				
2339			1			1	1																																														
2339	2340																																																				
2340			1	0.1												1							1																														
2341			1			1		1																																													
2341	2320																																																				
2342																																						1															
2343			1										1	1																																							
2401			1							1			1	1																																							
2401	2402																																																				
2402			1			1		1																																													
2402	2403																																																				
2403			1			1		1																																													
2403	2404																																																				
2404			1			1		1																																													
2404	2332																																																				
2405			1							1			1	1																																							
2405	2330																																																				
2406			1							1			1	1																																							
2406	2405																																																				
2407			1	2.4		1			1																																												
2407	2408																																																				
2408			1			1			1																																												
2408	2409																																																				
2409			1	0.4																							1				1																						
2409	2410																																																				
2410			1			1			1																																												
2410	2327																																																				
2411			1			1	1																																														
2411	2408																																																				
2412			1			1	1																																														
2412	2413																																																				
2413			1			1	1																																														
2413	2407																																																				
SHEET TOTALS			26	7.8		17	7	6	4	4			5	5		1							1			2	1				3							1															

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE **DATE:** 2/28/2022

CHECKED BY: David B. Petty, PE **DATE:** 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-20

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B																																																	
THICKNESS OR GAUGE		FROM	TO													DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109														0' THRU 5'	5' THRU 10'	10' AND ABOVE		GRATE TYPE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																										
				FT.	FT.	FT.	%																															CY	EACH	LIN. FT.	LIN. FT.		E	F	G																																											CY	CY	CY	LIN. FT.	REMARKS
L 703+88	115 RT	2414		889.7																																			1			1	1																																																
		2414	2413		886.7	885.4																											24																																																									
L 704+53	124 LT	2415		891.3																																			1	1.5			1																																																	WIDEN BASE AS NECESSARY
Y26 18+93	92 RT	2416		891.5																																			1													1						1																																	
Y26 18+12	2 LT	2417		893.4																																			1							1			1	1																																										
		2417	2422		890.4	890.1																											60																																																									
Y26 18+12	37 LT	2418		891.8																																			1			1		1																																																
		2418	2420		888.8	888.6																											32																																																									
Y26 17+76	51 LT	2419		891.1																																			1														1					1																																
		2419	2420		889.2	888.6			12								X	X																																																																									
Y26 17+76	38 LT	2420		891.6																																			1			1		1																																																
		2420	2421		888.6	888.5																											24																																																										
Y26 17+49	39 LT	2421		891.5																																			1			1	1																																																	
		2421	2422		888.2	888.0																												36																																																							
Y26 17+49	2 LT	2422		893.2																																			1	0.2						1			1	1																																										
		2422	3404		888.0	887.8																												48																																																								
Y26A 11+59	18 RT	2423		895.6																																			1							1			1	1																																										
		2423	2424		892.6	892.0																											44																																																									
Y26A 12+08	18 RT	2424		895.0																																			1							1			1	1																																										
		2424	3501		892.0	890.7																											96																																																									
L 708+57	83 LT	2425		890.0																																			1			1	1																																																	
		2425	2426		887.0	886.3																											12																																																										
L 708+57	71 LT	2426		889.3																																			1			1			1																																														
		2426	2429		886.2	881.0	0.3																										100																																																										
L 710+24	83 LT	2427		888.7																																			1	5.0	0.1	1	1																																																	
		2427	2428		878.6	878.3																													68																																																							
L 709+56	83 LT	2428		889.8																																			1	5.0	1.5	1	1																																																	
		2428	2429		878.3	878.2																													12																																																							
L 709+56	72 LT	2429		884.0																																			1	0.9		1			1																																															
		2429	2430		878.1	874.2	0.5																												108																																																								
L 710+65	72 LT	2430		877.9																																			1			1			1																																														
		2430	2436		874.1	869.2	0.5																												104																																																								
Y28 11+00	27 RT	2431		874.0																																			1													1						1																																	
		2431	2432		871.3	870.9			12								X	X																																																																									
Y28 11+00	13 RT	2432		873.9																																			1			1		1																																																
		2432	2433		870.8	870.6																											24																																																										
Y28 11+00	14 LT	2433		873.8																																			1			1			1																																														
		2433	2435		870.3	870.0																												32																																																								
Y28 11+00	22 LT	2434		874.4																																			1																							1					1																						
		2434	2433		870.5	870.4				8							X	X																																																																									
Y28 11+32	20 LT	2435		873.2																																			1			1	1																																																		
		2435	2436		869.9	869.7																												32																																																								
Y28 11+60	29 LT	2436		872.9																																			1			1		1																																																
		2436	2437		869.1	868.6	0.9																												48																																																								
L 712+05	62 LT	2437		872.4																																			1			1			1																																														
		2437	2441		868.5	866.5	1.0																												76																																																								
Y28 11+70	55 LT	2438		870.9																																			1			1		1																																																
		2438	2439		867.9	866.2																											40																																																										
L 712+34	71 LT	2439		869.2																																			1			1	1																																																	
		2439	2440		866.1	865.9																											44																																																										
SHEET TOTALS									24	8																							500	148	416				26	12.6	1.6	17	8	5	5	4			4	4		2	1					3				1					1																						

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022

CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-21

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe 15	Side Drain Pipe 18	Side Drain Pipe 24	Side Drain Pipe 30	Side Drain Pipe 36	Side Drain Pipe 42	Side Drain Pipe 48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 48	R. C. PIPE CLASS IV 12	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 712+80	71 LT	2440		869.7																																			1	5.0	5.0	1	1																																																		
		2440	2441		854.7	854.7																														12																																																							
L 712+80	60 LT	2441		870.3																																			1	5.0	6.1	1			1																																																	
		2441	2442		854.2	854.0	0.4																														36																																																					
L 713+15	60 LT	2442		869.8																																			1	5.0	5.9	1			1																																																	
		2442	2443		853.9	853.5	0.5																														72																																																					
L 713+15	15 RT	2443		870.8																																			1	5.0	7.4					1				1														1																								
		2443	2458		853.4	853.0	0.5																														52																																																					
Y26A 11+69	59 LT	2444		893.7																																			1			1		1																																																		
		2444	2446		890.7	889.2																											32																																																												
Y26A 11+22	36 LT	2445		894.7																																			1							1			1	1																																								
		2445	2446		891.7	889.2																											40																																																												
Y26A 11+42	72 LT	2446		892.2																																			1			1		1																																																		
		2446	2447		889.1	886.8																											64																																																												
L 708+13	131 RT	2447		889.8																																			1	3.2		1		1																																																		
		2447	2448		881.6	880.8	0.6																										128																																																												
L 709+42	124 RT	2448		883.8																																			1			1		1																																																		
		2448	2462		880.7	878.5	0.7																										44																																																												
L 709+95	127 RT	2449		880.5																																			1												1						1																																
		2449	2462		877.8	877.6																											20																																																												
L 708+84	60 RT	2450		888.5																																			1							1			1	1																																								
		2450	2451		885.5	885.2																											68																																																												
L 708+13	60 RT	2451		891.6																																			1	1.5						1			1	1																																								
		2451	2452		885.1	884.9																											36																																																												
L 708+13	95 RT	2452		891.0																																			1	1.2						1			1	1																																								
		2452	2453		884.8	882.9																											104																																																												
L 709+20	93 RT	2453		885.9																																			1							1			1	1																																								
		2453	2454		882.8	878.8																											84																																																												
L 710+01	61 RT	2454		881.8																																			1							1			1	1																																								
		2454	2455		878.7	877.0																											32																																																												
L 710+17	91 RT	2455		880.0																																			1			1		1																																																		
		2455	2456		876.7	873.7	1.0																											76																																																											
L 710+90	61 RT	2456		876.9																																			1			1		1																																																		
		2456	2457		873.6	867.9	1.2																											160																																																											
L 712+49	59 RT	2457		871.1																																			1			1		1																																																		
		2457	2458		867.4	865.9																													64																																																										
L 713+15	67 RT	2458		869.6																																			1	5.0	7.7	1		1																																																		Extra Depth CB, See SHT 2D-12
L 713+75	72 RT	2459		868.7																																			1	1.0		1		1																																																		
		2459	2458		862.7	862.4																											60																																																													
L 713+50	71 LT	2461		870.0																																			1			1			1																																																
		2461	2440		867.0	866.6																											68																																																												
L 709+85	109 RT	2462		881.5																																			1			1		1																																																		
		2462	2455		877.3	876.8	0.6																											36																																																												
L 712+05	15 LT	2463		873.6																																			1							1			1	1																																								
		2463	2437		870.6	869.4																											44																																																													
No Chains 716+33	71 LT	2501		872.7																																			1			1	1																																																			
		2501	2502		867.7	867.1																											12																																																													
L 716+33	60 LT	2502		870.1																																			1			1		1																																																		
		2502	2504		867.0	865.5																											140																																																												
DRW8 12+23	26 RT	2503		869.0																																			1			1		1																																																		
SHEET TOTALS																																	976	272	64	12	160		26	31.9	32.1	17	2	12	3	8			7	8		1						1							1																								

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022

CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-22

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	Side Drain Pipe 15	Side Drain Pipe 18	Side Drain Pipe 24	Side Drain Pipe 30	Side Drain Pipe 36	Side Drain Pipe 42	Side Drain Pipe 48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 48	R. C. PIPE CLASS IV 12	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	A 0' THRU 5' EACH	B 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	GRATE TYPE F	GRATE TYPE G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		2503	2504		866.0	865.5																											28																																																								
L 714+93	60 LT	2504		868.5																																			1			1		1																																													
		2504	2505		865.2	865.1																												28																																																							
L 714+62	59 LT	2505		868.4																																			1			1	1																																														
		2505	2506		865.0	864.8	0.3																										24																																																							
L 714+38	60 LT	2506		868.5																																			1			1			1																																												
		2506	2442		864.3	863.7																												124																																																								
L 715+50	10 LT	2507		870.0																																			1							1			1	1																																							
		2507	2508		867.0	866.3																											148																																																								
L 714+03	15 RT	2508		869.7																																			1							1			1	1																																							
		2508	2443		866.2	865.7																											88																																																								
L 716+23	60 RT	2509		870.0																																			1			1			1																																												
		2509	2510		867.0	863.8																											132																																																								
DRW9 10+84	50 RT	2510		866.8																																			1			1		1																																													
		2510	2511		863.7	863.5																											32																																																								
L 714+62	72 RT	2511		868.2																																			1			1		1																																													
		2511	2512		863.4	863.3																											24																																																								
L 714+38	72 RT	2512		868.2																																			1			1		1																																													
		2512	2459		863.2	862.8																											64																																																								
L 719+50	72 LT	2513		869.5																																			1			1	1																																														
		2513	2514		866.5	865.7																											12																																																								
L 719+50	60 LT	2514		868.7																																			1			1			1																																												
		2514	2515		865.6	864.6																											40																																																								
L 719+89	60 LT	2515		867.6																																			1			1			1																																												
		2515	2517		864.5	863.5																											32																																																								
DRW10 11+90	27 RT	2516		867.2																																			1			1	1																																														
		2516	2517		864.2	863.5																											32																																																								
DRW10 12+23	26 RT	2517		866.5																																			1			1			1																																												
		2517	2520		863.4	861.7																											44																																																								
DRW10 11+96	14 LT	2518		864.8																																			1			1	1																																														
		2518	2520		861.8	861.7																											28																																																								
DRW10 12+01	24 LT	2519		864.9																																																																												1																	
		2519	2520		863.3	861.7																											24																																																								
DRW10 12+23	19 LT	2520		864.7																																			1			1			1																																												
		2520	2521		861.3	861.1																												40																																																							
L 720+98	60 LT	2521		864.3																																			1			1			1																																												
		2521	2523		861.0	857.8																												148																																																							
L 722+45	77 LT	2522		861.9																																			1													1						1																														
		2522	2523		859.2	858.1																											16																																																								
L 722+45	60 LT	2523		861.1																																			1			1			1																																												
		2523	2524		857.7	855.1	0.5																											156																																																							
L 724+00	92 LT	2524		858.3																																			1			1	1																																														
		2524	2525		854.6	854.3																													56																																																						
L 724+49	65 LT	2525		858.5																																			1			1			1																																												
		2525	2529		854.2	853.7																													88																																																						
Y29 16+00	21 LT	2526		857.4																																			1			1	1																																														
		2526	2528		854.4	854.2																											40																																																								
Y29 16+37	37 LT	2527		855.5																																			1			1	1																																														
		2527	2528		852.5	852.4																											12																																																								
Y29 16+40	28 LT	2528		857.4																																			1			1	1																																														
SHEET TOTALS																																	796	396	268				24			21	8	4	9	2			2	2		1						1														1																	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022

CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION SIZE THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		2528	2529		852.3	852.2																											36																																																									
Y29 16+74	41 LT	2529		857.6																																			1	1.3		1	1																																														
		2529	2534		851.3	851.0																													56																																																							
L 722+36	13 LT	2530		862.3																																			1							1			1	1																																							
		2530	2531		859.3	857.5																											112																																																									
L 723+50	15 LT	2531		860.5																																			1							1			1	1																																							
		2531	2532		857.4	857.0																											60																																																										
L 724+04	13 RT	2532		860.0																																			1							1			1	1																																							
		2532	2533		856.9	856.1																											152																																																									
L 725+53	17 LT	2533		859.2																																			1							1			1	1																																							
		2533	2534		856.0	855.0																											64																																																										
L 725+81	74 LT	2534		858.0																																			1	2.1		1		1																																															
		2534	2550		850.9	850.8																													20																																																									
L 726+39	76 LT	2535		858.1																																			1	4.0		1		1																																															
		2535	2541		849.1	848.8	0.4																												60																																																									
L 727+81	79 LT	2536		859.4																																			1	5.0	1.2	1		1																																																
		2536	2539		848.2	847.5	0.5																												128																																																									
Y31RPA 18+08	46 RT	2537		861.5																																			1			1			1																																														
		2537	2538		858.5	858.0																											76																																																											
Y31RPA 18+78	76 RT	2538		862.9																																			1			1			1																																														
		2538	2539		858.0	857.0																											68																																																										
L 729+10	69 LT	2539		861.7																																			1	5.0	4.3	1		1																																																
		2539	2540		847.4	843.0	0.6				48						X	X																																																																										
L 727+00	77 LT	2541		858.5																																			1	4.8		1		1																																																
		2541	2536		848.7	848.3	0.4																												80																																																										
L 719+70	60 RT	2542		868.1																																			1			1		1																																																
		2542	2543		865.1	858.6																											228																																																										
L 722+00	72 RT	2543		861.6																																			1			1		1																																																
		2543	2544		858.5	856.4																											140																																																										
L 723+40	72 RT	2544		859.4																																			1			1		1																																																
		2544	2545		856.3	855.4																											96																																																											
L 724+37	73 RT	2545		858.4																																			1	0.9		1		1																																																
		2545	2547		852.5	851.6	0.5																										192																																																											
L 724+37	85 RT	2546		855.7																																			1			1	1																																																	
		2546	2545		852.7	852.6																											12																																																											
L 726+30	66 RT	2547		858.3																																			1	2.0		1			1																																														
		2547	2548		851.3	851.0																												72																																																										
L 727+00	78 RT	2548		858.5																																			1	2.6		1			1																																														
		2548	2549		850.9	850.4	0.3																											84																																																										
L 727+85	93 RT	2549		859.2																																			1	3.9		1			1																																														
		2549	2553		850.3	850.1	0.4																											44																																																									
L 726+03	75 LT	2550		858.0																																			1	2.3		1		1																																															
		2550	2535		850.7	850.5																													36																																																										
L 729+45	93 RT	2552		862.0																																			1			1			1																																														
		2552	2553		859.0	856.9																											116																																																											
L 728+30	93 RT	2553		859.9																																			1	5.0		1			1																																														
		2553	2554		849.9	835.0	2.7														52																																																																							w/ ROD & LUG & GASKETS
L 728+32	146 RT	2554		839.3																																																																													1													
L 728+34	120 RT	2555																																																																												1															
L 728+27	156 RT	2556		836.5																																			1													1						1																																			
							SHEET TOTALS				48										52												1352	200	380				24	38.9	5.5	19	2	10	7	4			4	4		1						1																	1		1													

ABBREVIATIONS	
C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022
CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-24

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)											C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV						ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
SIZE								12	15	18	24	30	36	42	48					15	18	24	30	36	42	15	18	24	30	36	48	12	15	18	24	30	36			A	B																																																
THICKNESS OR GAUGE		FROM	TO													DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	.064	.064	.064	.079	.079	.109														0' THRU 5'	5' THRU 10'	10' AND ABOVE		GRATE TYPE			D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																										
				FT.	FT.	FT.	%																															CY	EACH	LIN. FT.	LIN. FT.		E	F	G																																											CY	CY	CY	LIN. FT.	
		2556	2554		833.8	833.7			12								X	X																																																																									
Y31RPB 21+47	117 LT	2557		826.0																																			1													1				1																																	
		2557	2554		823.0	822.4				120							X	X																																																																								
Y30 11+80	20 RT	2558		851.6																																			1			1		1																																															
		2558	2559		848.6	839.3																											124																																																												
Y30 13+03	18 RT	2559		842.3																																			1			1		1																																															
		2559	2560		837.3	836.0																												28																																																										
Y30 13+31	16 RT	2560		840.4																																			1																									1					1																						
		2560	2569		836.0	835.8																												32																																																									
Y30 13+31	28 LT	2561		839.7																																			1			1			1																																												
		2561	2564		835.6	832.2																												48																																																										
Y30 13+77	36 RT	2562		837.5																																			1			1		1																																															
		2562	2564		834.3	832.2																												68																																																										
Y30 13+79	49 LT	2563		837.9																																			1			1			1																																												
		2563	2564		833.2	832.5																											16																																																												
Y30 13+80	32 LT	2564		836.6																																			1																									1					1																						
		2564	2565		832.2	828.8	0.3																											40																																																										
Y30 14+22	28 LT	2565		832.1																																			1			1			1																																												
		2565	2567		828.7	821.1	0.4																											100																																																									
Y30 15+23	15 RT	2566		824.7																																			1			1		1																																															
		2566	2567		821.7	821.3																											28																																																											
Y30 15+23	15 LT	2567		824.3																																			1	0.3		1			1																																												
Y30 13+38	41 LT	2568		842.2																																			1													1						1																																
		2568	2561		838.2	836.7			16								X	X																																																																										
Y30 13+31	16 LT	2569		839.4																																			1																									1																										
		2569	2561		835.8	835.7																												8																																																										
L 730+72	69 LT	2576		866.0																																			1	0.1		1		1																																														
		2576	2577		860.9	860.4																											104																																																												
L 731+78	69 LT	2577		868.9																																			1	3.6		1		1																																															
		2577	2579		860.3	846.0	0.4													52																																																																							w/ ROD & LUG & GASKETS
L 732+00	69 LT	2578		869.5																																			1			1		1																																															
		2578	2577		866.5	865.9																											20																																																												
Y31 34+52	119 LT	2579		848.7																																			1													1			1																																				
		2579	2580		843.9	841.6			24								X	X																																																																									
Y31 34+55	96 LT	2580		844.3																																			1													1				1																																		
		2580	2581		841.3	841.1				24							X	X																																																																										
Y31 34+51	73 LT	2581		847.6																																			1	1.5																							1					1																						
		2581	2582		841.1	840.7																												76																																																										
Y31 33+73	74 LT	2582		846.5																																			1	1.7												1			1																																				
		2582	2583		839.8	839.7																												8																																																										
Y31 33+71	67 LT	2583		842.2																																																																																				0.4465			18" pipe collar
L 740+34	64 LT	2586		876.1																																			1			1		1																																															
		2586	2587		873.1	871.7																											104																																																												
L 739+29	78 LT	2587		874.7																																			1			1		1																																															
		2587	2588		871.6	870.0																											120																																																												
L 738+10	81 LT	2588		873.0																																			1			1		1																																															
		2588	2589		869.9	868.9																											80																																																												
L 737+28	81 LT	2589		871.9																																			1			1		1																																															
		2589	2590		868.8	867.6																											48																																																												
Y31RPD 22+91	26 LT	2590		870.6																																			1			1		1																																															
SHEET TOTALS									52	144										52													644	408					25	7.2		16		12	4							5			2	2		1				1	3				3																			0.4465			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY: Zachary J. Richard, PE DATE: 2/28/2022
CHECKED BY: David B. Petty, PE DATE: 8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-25

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION	OFFSET	STRUCTURE NUMBER		TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	MINIMUM REQUIRED SLOPE	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC)												C. S. PIPE						R. C. PIPE CLASS III						R. C. PIPE CLASS IV					
SIZE THICKNESS OR GAUGE		FROM	TO	FT.	FT.	FT.	%	12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	15	18	24	30	36	48	12	15	18	24	30	36
		2590	2591		867.5	866.7	0.3																										44				
Y31RPD 22+50	14 LT	2591		869.7																																	
		2591	2592		866.6	866.5	0.4																										28				
Y31RPD 22+50	14 RT	2592		869.7																																	
		2592	2596		866.3	849.4	0.5		168								X	X																			
L 735+60	69 LT	2593		870.4																																	
		2593	2594		867.4	867.2																											28				
L 735+29	69 LT	2594		870.4																																	
		2594	2595		867.2	866.9																											72				
L 734+56	69 LT	2595		870.6																																	
		2595	2596		865.4	849.4	0.5													48																	
Y31 33+72	151 RT	2596		852.1																																	
		2596	2597		846.1	839.4	1.2		64								X	X																			
Y31 34+10	95 RT	2597		842.2																																	
		2597	2598		838.7	838.5					24						X	X																			
Y31 34+17	74 RT	2598		845.4																																	
		2598	25100		838.5	838.1																													84		
Y31 33+32	66 RT	2599		840.4																																	
		2599	25100		837.9	837.9																												8			
Y31 33+30	74 RT	25100		844.2																																	
		25100	25101		836.9	836.1																														148	
Y31 31+80	74 RT	25101		842.0																																	
		25101	25114		836.0	835.7																														76	
L 730+72	78 RT	25102		865.8																																	
		25102	25103		860.4	859.8																											128				
L 732+01	78 RT	25103		869.3																																	
		25103	25105		859.7	845.0	0.4													56																	
L 732+40	78 RT	25104		870.0																																	
		25104	25103		867.0	866.3																											40				
Y31 32+05	165 LT	25105		847.7																																	
		25105	25106		844.9	839.1																											88				
Y31 32+06	74 LT	25106		844.1																																	
		25106	25107		837.8	837.7																												8			
Y31 32+02	67 LT	25107		840.2																																	
L 735+60	78 RT	25110		870.2																																	
		25110	25111		867.2	867.1																											32				
L 735+29	78 RT	25111		870.2																																	
		25111	25112		867.1	866.8																											56				
L 734+72	78 RT	25112		870.3																																	
		25112	25113		865.7	834.9	0.6													80																	
Y31 31+00	95 RT	25113		837.7																																	
		25113	25114		834.8	834.7	0.3																										28				
Y31 31+04	68 RT	25114		841.1																																	
		25114	25118		833.3	831.3	0.3																													140	
Y31 29+63	69 RT	25118		836.5																																	
		25118	25119		831.0	826.8	0.4																													388	
Y31 25+71	67 RT	25119		830.9																																	
		25119	25123		826.7	825.8	0.5																													40	
Y31RPC 14+19	11 LT	25123		831.0																																	
L 739+75	77 RT	25126		875.3																																	
							SHEET TOTALS		232		24									184													544	16	84	792	

LINE & STATION	STRUCTURE NUMBER		ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE)	QUANTITIES FOR DRAINAGE STRUCTURES NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)			C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE			CONCRETE TRANSITIONAL SECTION		OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL	CONCRETE COLLARS CL. "B" STD. 840.72	CONCRETE AND BRICK PIPE PLUG STD. 840.71	PIPE REMOVAL	REMARKS
	FROM	TO	CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.		E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05																																					CY	CY	CY	LIN. FT.	
	2590	2591																																																				
Y31RPD 22+50	2591			1			1		1																																													
	2591	2592																																																				
Y31RPD 22+50	2592			1			1			1																																												
	2592	2596																																																				
L 735+60	2593			1			1		1																																													
	2593	2594																																																				
L 735+29	2594			1			1	1																																														
	2594	2595																																																				
L 734+56	2595			1	0.2		1			1																																												
	2595	2596																																																			w/ ROD & LUG & GASKETS
Y31 33+72	2596			1	1.0												1			1																																		
	2596	2597																																																				
Y31 34+10	2597			1													1				1																																	
	2597	2598																																																				
Y31 34+17	2598			1	1.9																							1					1																					
	2598	25100																																																				
Y31 33+32	2599																																																	0.4465			18" pipe collar
	2599	25100																																																				
Y31 33+30	25100			1	2.3											1				1																																		
	25100	25101																																																				
Y31 31+80	25101			1	1.0											1				1																																		
	25101	25114																																																				
L 730+72	25102			1	0.4		1			1																																												
	25102	25103																																																				
L 732+01	25103			1	4.6		1			1																																												
	25103	25105																																																			w/ ROD & LUG & GASKETS
L 732+40	25104			1			1			1																																												
	25104	25103																																																				
Y31 32+05	25105			1													1			1																																		
	25105	25106																																																				
Y31 32+06	25106			1	1.3												1			1																																		
	25106	25107																																																				
Y31 32+02	25107																																																	0.4465			18" pipe collar
L 735+60	25110			1			1			1																																												
	25110	25111																																																				
L 735+29	25111			1			1	1																																														
	25111	25112																																																				
L 734+72	25112			1			1		1																																													
	25112	25113																																																			w/ ROD & LUG & GASKETS
Y31 31+00	25113			1													1				1																																	
	25113	25114																																																				
Y31 31+04	25114			1	2.8																								1				1																					
	25114	25118																																																				
Y31 29+63	25118			1	0.5											1					1																																	
	25118	25119																																																				
Y31 25+71	25119			1																	1													1																				
	25119	25123																																																				
Y31RPC 14+19	25123			1	0.4																								1																									
L 739+75	25126			1			1			1																																												
SHEET TOTALS				24	16.4		12	2	3	7						3	5			5	4							1	2				2	1																		0.8930			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	**DATE:**	2/28/2022
CHECKED BY:	David B. Petty, PE	**DATE:**	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-26

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY
		25126	25127		872.3	871.3																											76					
L 739+00	79 RT	25127		874.3																																		
		25127	25128		871.2	870.6																											48					
L 738+50	80 RT	25128		873.6																																		
		25128	25130		870.5	869.9																											52					
L 737+97	101 RT	25129		875.5																																		
		25129	25130		870.5	869.9			20								X	X																				
L 737+98	81 RT	25130		872.9																																		
		25130	25131		869.8	867.0	0.4																										64					
Y31RPC 20+17	95 RT	25131		870.0																																		
		25131	25132		866.9	864.9	0.5																										44					
Y31RPC 19+84	63 RT	25132		867.9																																		
		25132	25133		864.8	861.8	0.6																										52					
Y31RPC 19+35	50 RT	25133		864.8																																		
		25133	25134		861.7	858.9	0.6																										36					
Y31RPC 18+98	57 RT	25134		861.9																																		
Y31RPD 19+02	40 LT	25136		859.2																																		
		25136	25137		854.5	854.3	1.9																											12				
Y31RPD 18+99	31 LT	25137		856.8																																		
Y31RPD 18+81	23 RT	25138		859.2																																		
Y33 12+41	19 LT	25143		874.4																																		
		25143	25144		871.4	871.3																											32					
Y33 12+41	14 RT	25144		874.5																																		
		25144	25145		871.3	870.9																											12					
Y33 12+41	25 RT	25145		873.6																																		
L 741+82	73 RT	25147		877.1																																		
		25147	25148		868.2	868.1																											16					
L 741+76	86 RT	25148		871.3																																		
DRW11 11+15	31 RT	25152		863.4																																		
		25152	25153		860.4	860.3																											24					
DRW11 11+43	27 RT	25153		864.9																																		
Y32 12+32	14 RT	25155		869.9																																		
Y32 12+35	16 LT	25156		869.9																																		
L 742+44	72 LT	2601		877.6																																		
		2601	2602		874.6	873.1																											44					
Y33 13+18	47 LT	2602		876.1																																		
L 743+08	86 LT	2603		872.2																																		
		2603	2612		869.5	869.4																											8					
Y34 11+92	26 RT	2604		873.2																																		
		2604	2605		870.2	869.9																											48					
Y34 11+75	19 LT	2605		872.9																																		
		2605	2606		869.8	868.1																											108					
Y34 10+64	15 LT	2606		871.1																																		
Y34 10+95	26 RT	2607		870.6																																		
		2607	2608		867.6	867.5																											24					
Y34 10+71	26 RT	2608		870.7																																		
		2608	2609		867.4	867.4																											4					
Y34 10+64	26 RT	2609		870.8																																		
		2609	2610		867.3	867.0																											8					
Y34 10+64	15 RT	2610		871.1																																		
SHEET TOTALS									20																								700	12				

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
		25126	25127																																																			
L 739+00	79 RT	25127		1			1			1																																												
		25127	25128																																																			
L 738+50	80 RT	25128		1			1			1																																												
		25128	25130																																																			
L 737+97	101 RT	25129		1			1	1																																														
		25129	25130																																																			
L 737+98	81 RT	25130		1			1			1																																												
		25130	25131																																																			
Y31RPC 20+17	95 RT	25131		1			1			1																																												
		25131	25132																																																		
Y31RPC 19+84	63 RT	25132		1			1			1																																												
		25132	25133																																																		
Y31RPC 19+35	50 RT	25133		1			1			1																																												
		25133	25134																																																		
Y31RPC 18+98	57 RT	25134		1	1.7		1			1																																												
Y31RPD 19+02	40 LT	25136		1													1			1																																		
		25136	25137																																																		
Y31RPD 18+99	31 LT	25137																																															0.4465			18" pipe collar
Y31RPD 18+81	23 RT	25138																																			1															
Y33 12+41	19 LT	25143		1			1		1																																													
		25143	25144																																																		
Y33 12+41	14 RT	25144		1			1			1																																												
		25144	25145																																																		
Y33 12+41	25 RT	25145		1													1						1																															
L 741+82	73 RT	25147		1	3.9		1			1																																												
		25147	25148																																																		
L 741+76	86 RT	25148		1			1	1				1																																										
DRW11 11+15	31 RT	25152		1			1	1				1																																										
		25152	25153																																																		
DRW11 11+43	27 RT	25153		1			1		1																																													
Y32 12+32	14 RT	25155																																				1														
Y32 12+35	16 LT	25156		1			1			1																																												
L 742+44	72 LT	2601		1			1		1																																													
		2601	2602																																																		
Y33 13+18	47 LT	2602							1																												1																
L 743+08	86 LT	2603		1																			1						1																									
		2603	2612																																																		
Y34 11+92	26 RT	2604		1			1			1																																												
		2604	2605																																																		
Y34 11+75	19 LT	2605		1			1		1																																													
		2605	2606																																																		
Y34 10+64	15 LT	2606																																				1														
Y34 10+95	26 RT	2607		1			1			1																																												
		2607	2608																																																		
Y34 10+71	26 RT	2608		1			1	1																																														
		2608	2609																																																		
Y34 10+64	26 RT	2609		1			1	1																																														
		2609	2610																																																		
Y34 10+64	15 RT	2610																												1				1																	SEE SHEET 2D-13
SHEET TOTALS				24	5.6		21	5	5	12		2					2			1			2						1			1				1		1	1	2											0.4465			

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

TGSLTW1022

COMPUTED BY:	Zachary J. Richard, PE	DATE:	2/28/2022
CHECKED BY:	David B. Petty, PE	DATE:	8/26/2024

PROJECT NO.	SHEET NO.
R-2307B	3D-27

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

QUANTITIES FOR DRAINAGE STRUCTURES — NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	C. S. PIPE 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	R. C. PIPE CLASS III 15	18	24	30	36	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.02 (UNLESS NOTED OTHERWISE) CY	0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	DI SPEC DSN, SEE SHEET 2D-2	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	2GI SPEC DSN, SEE SHEET 2D-1	BASIN OUTLET STRUCTURE, SEE SHEET 2D-7	BASIN OUTLET STRUCTURE, SEE SHEET 2D-8	CONVERT EXISTING CB TO TBJB, SEE SHEET 2D-13	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING D.I. TO C.B.	CONVERT EXISTING D.I. TO J.B.	ADJUST C.B.	ADJUST M.H.	15" C.S. ELBOW, 0.064" THICK	18" C.S. ELBOW, 0.064" THICK	24" C.S. ELBOW, 0.064" THICK	30" C.S. ELBOW, 0.079" THICK	36" C.S. ELBOW, 0.079" THICK	BDO STD. 850.10 (4" CONC. PAVED DITCH SY)	36" SLUICE GATE STD. 838.02	42" SLUICE GATE SPEC DSN, SEE SHEET 2D-4	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 744+08	73 LT	2611		879.4																																																																1							1														
L 743+07	78 LT	2612		878.9																																																																1							1														
L 742+67	72 RT	2613		877.8																																			1			1			1																																												
		2613	25147		874.8	874.1																												84																																																								
Y35 12+62	27 RT	2614		871.1																																			1			1		1																																													
		2614	2615		868.1	867.0																												36																																																								
Y35 12+67	61 RT	2615		869.9																																			1			1	1																																															
Y35 12+31	42 LT	2616		872.0																																			1			1			1																																												
		2616	2617		869.0	867.7																												20																																																								
Y35 12+43	57 LT	2617		870.7																																			1			1	1																																															
Y35 13+59	42 LT	2618		867.7																																			1			1			1																																												
L 747+50	71 LT	2619		872.1																																			1			1			1																																												
		2619	2620		869.1	865.2																												104																																																								
L 748+55	71 LT	2620		868.2																																			1			1			1																																												
		2620	2621		863.7	863.7																												12																																																								
L 748+60	83 LT	2621		866.7																																			1			1	1																																															
		2621	2622		863.6	863.5	0.4																											16																																																								
L 748+76	92 LT	2622		866.8																																			1			1		1																																													
		2622	2623		863.4	863.2	0.5																											36																																																								
L 749+15	92 LT	2623		866.8																																			1			1			1																																												
		2623	2624		863.1	861.7	0.5																											36																																																								
L 749+43	72 LT	2624		864.7																																			1			1			1																																												
		2624	2625		861.6	856.5	0.7																											132																																																								
L 750+75	86 LT	2625		859.5																																			1			1			1																																												
		2625	2627		856.3	856.0	0.5																												36																																																							
L 751+25	91 LT	2626		860.2																																			1			1	1																																															
		2626	2661		857.2	856.9																												12																																																								
L 751+06	62 LT	2627		859.2																																			1			1			1																																												
		2627	2628		855.9	855.4	1.0																												52																																																							
L 751+16	13 LT	2628		858.6																																			1							1			1	1																																							
		2628	2629		855.3	853.0	1.1																												80																																																							
L 751+98	13 LT	2629		856.2																																			1							1			1	1																																							
		2629	2630		852.9	851.6	1.3																												60																																																							
L 752+60	12 LT	2630		854.9																																			1							1				1															1																							
		2630	2631		851.1	850.0																														68																																																						
L 753+30	12 LT	2631		853.7																																			1							1				1															1																							
		2631	2632		849.9	849.3	0.3																													16																																																						
L 753+30	4 RT	2632		853.1																																			1			1		1																																													
		2632	2633		849.2	848.7	0.3																													68																																																						
L 754+00	4 RT	2633		852.4																																			1			1		1																																													
		2633	2634		848.6	848.3	0.4																													52																																																						
L 754+51	4 RT	2634		852.3																																			1			1	1																																															
		2634	2647		848.2	846.9	0.9																													56																																																						
L 755+00	0 CL	2635		852.5																																			1			1			1		1																																										
		2635	2634		849.2	848.9	0.5																												48																																																							
L 747+34	49 RT	2636		873.1																																			1			1		1																																													
		2636	2637		870.1	865.0																												132																																																								
L 748+66	57 RT	2637		868.0																																			1			1		1																																													
		2637	2638		864.9	861.1																												80																																																								
L 749+48	63 RT	2638		864.1																																			1			1		1																																													
SHEET TOTALS																																		700	276	260				26			22	5	7	10	4	1		2	4															2		2							2															

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT