PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2C-12

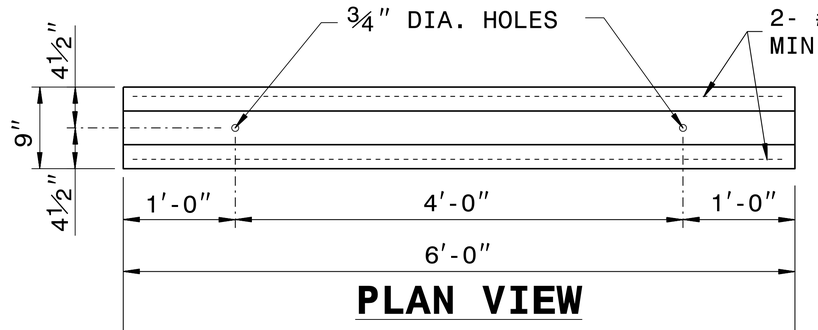
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR

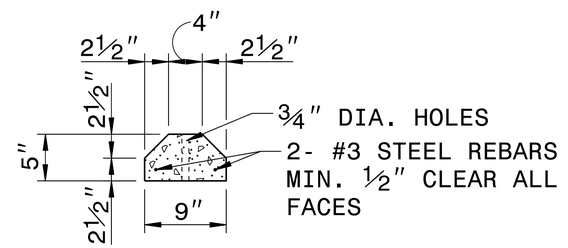
PRECAST CONCRETE PARKING CURB

SHEET 1 OF 1

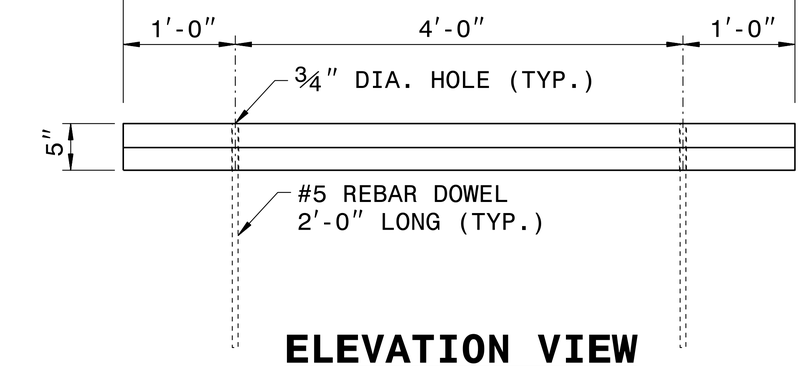
PRCSTCRB



PLAN VIEW

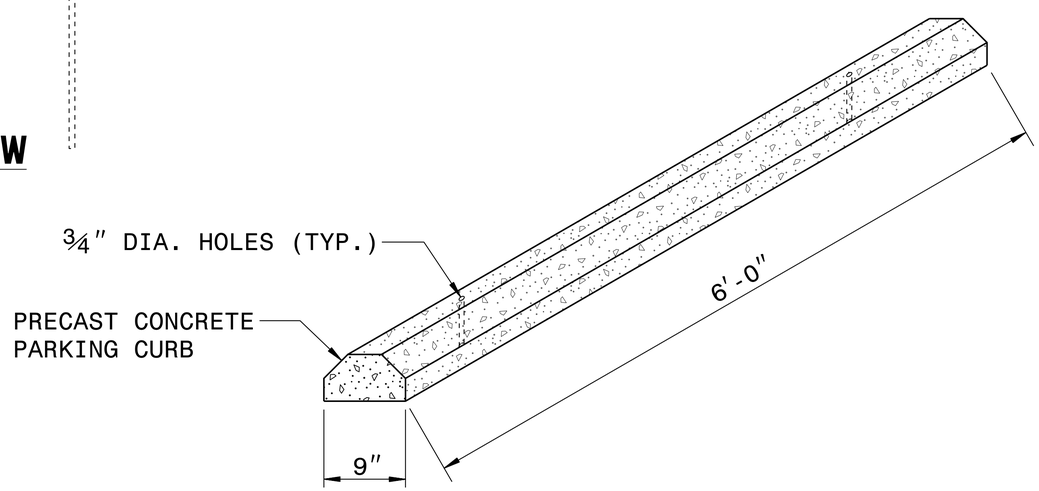


END VIEW



ELEVATION VIEW

CENERAL NOTES:
-CONCRETE COMPRESSIVE STRENGTH
 4000psi MIN.
-ASTM A615M - GRADE 400 REINFORCING
 STEEL.



ISOMETRIC VIEW

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

ENGLISH DETAIL DRAWING FOR

PRECAST CONCRETE PARKING CURB

SHEET 1 OF 1

PRCSTCRB

DocuSigned by:
Nicole Hyatt
5884329C...

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144 NICOLE HYATT

4/27/2023

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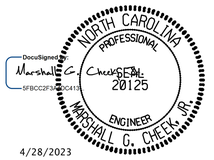
SEE PLATE FOR TITLE

ORIGINAL BY: E.E. WARD DATE: 5-97
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: s:eric\usr\details\metric\stand\prstcrb_eng.dgn

30-NOV-2018 13:30
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\Precast Parking Curb.dgn
jhowerton AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-1



4/28/2023

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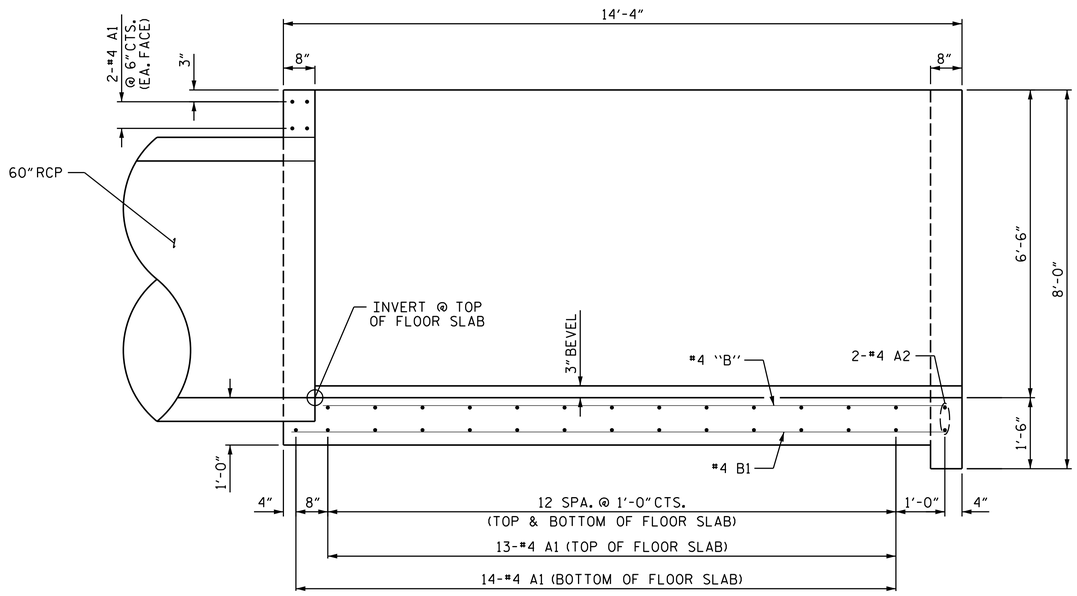
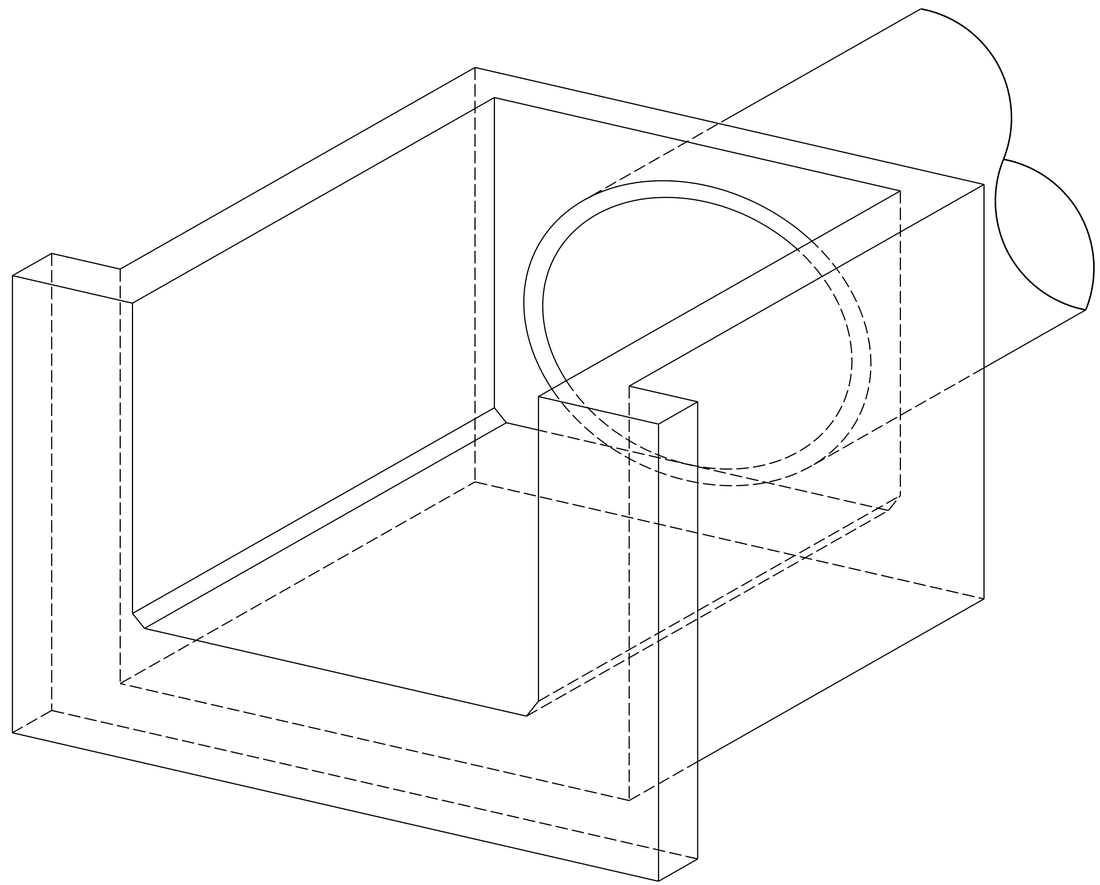
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

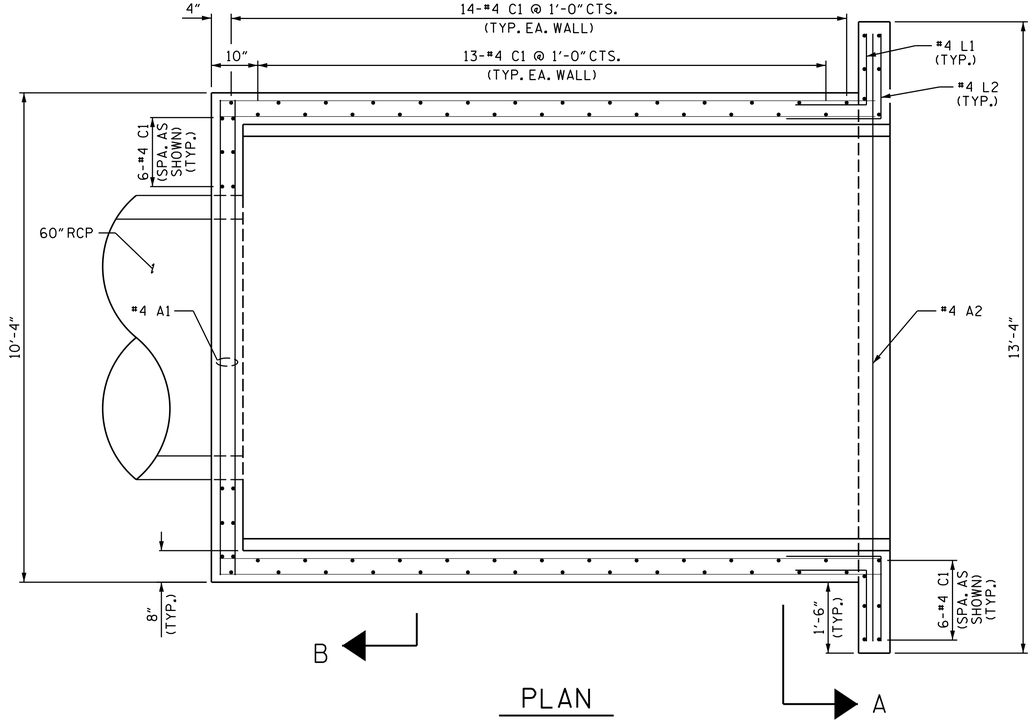
SPECIAL DESIGN ENDWALL

-L- STA. 44+98 LT
STRUCTURE #0656



SECTION ALONG ℄





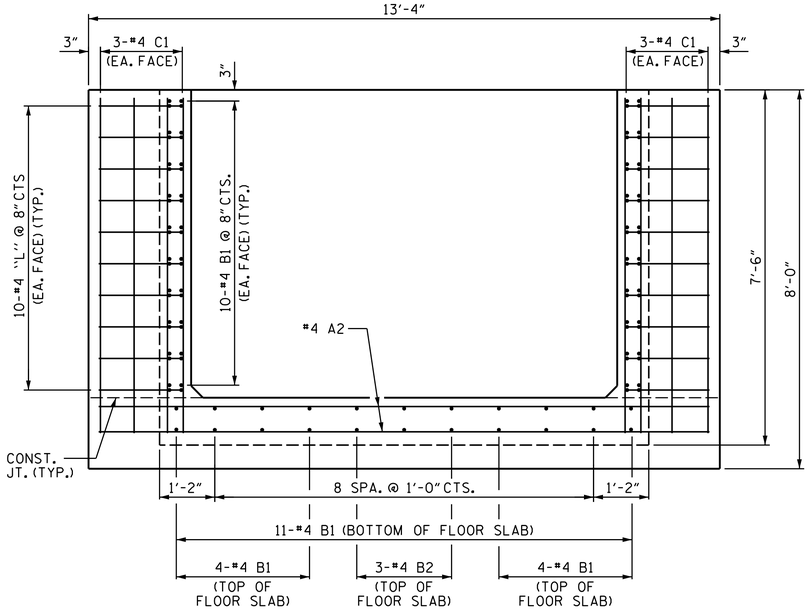
PLAN

DRAWN BY : STM DATE : 09/21
CHECKED BY : MGC DATE : 09/21

2/15/2022
X:\NCDOT\R-3833C\Structures\Energy Dissipator.dgn
User:smassinople

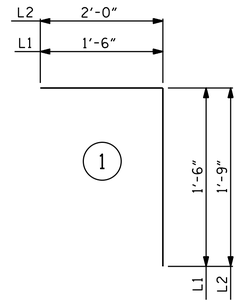
SPECIAL DESIGN ENDWALL

-L- STA. 44+98 LT
STRUCTURE #0656



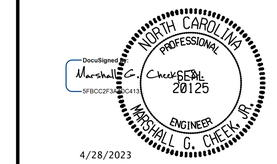
SECTION A-A

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-2



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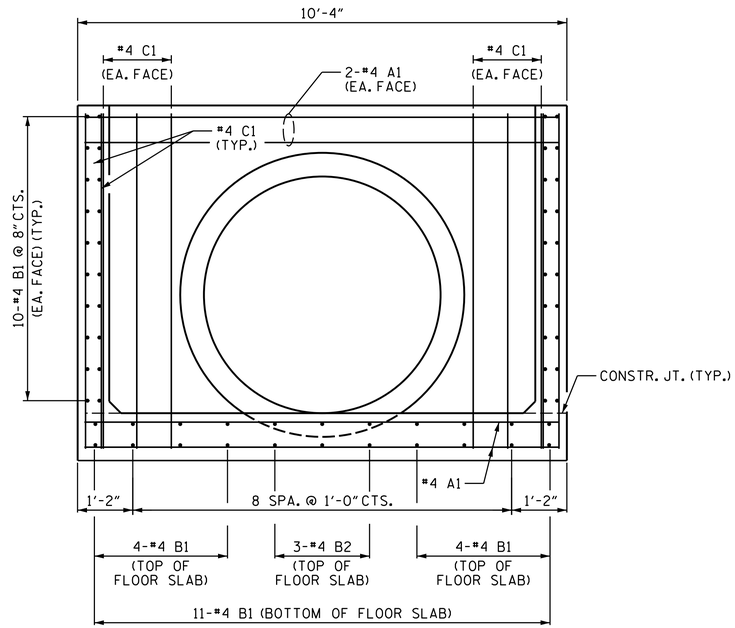
TGS ENGINEERS
706 HILLSBOROUGH STREET
SUITE 200
RALEIGH, NC 27603
PH (919) 773-8887
CORP. LICENSE NO.: C-0275

BILL OF MATERIAL

BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT
A1	31	#4	STR	10'-0"	207
A2	2	#4	STR	13'-0"	17
B1	59	#4	STR	13'-10"	545
B2	3	#4	STR	13'-2"	26
C1	78	#4	STR	7'-1"	369
L1	20	#4	1	3'-0"	40
L2	20	#4	1	3'-9"	50
REINFORCING STEEL					1254 LBS.
CLASS B CONCRETE					11.6 C.Y.



SECTION B-B

NOTES

ALL REINFORCING STEEL SHALL BE 2" CLEAR.

DRAWN BY : STM DATE : 09/21
CHECKED BY : MGC DATE : 09/21

2/15/2022
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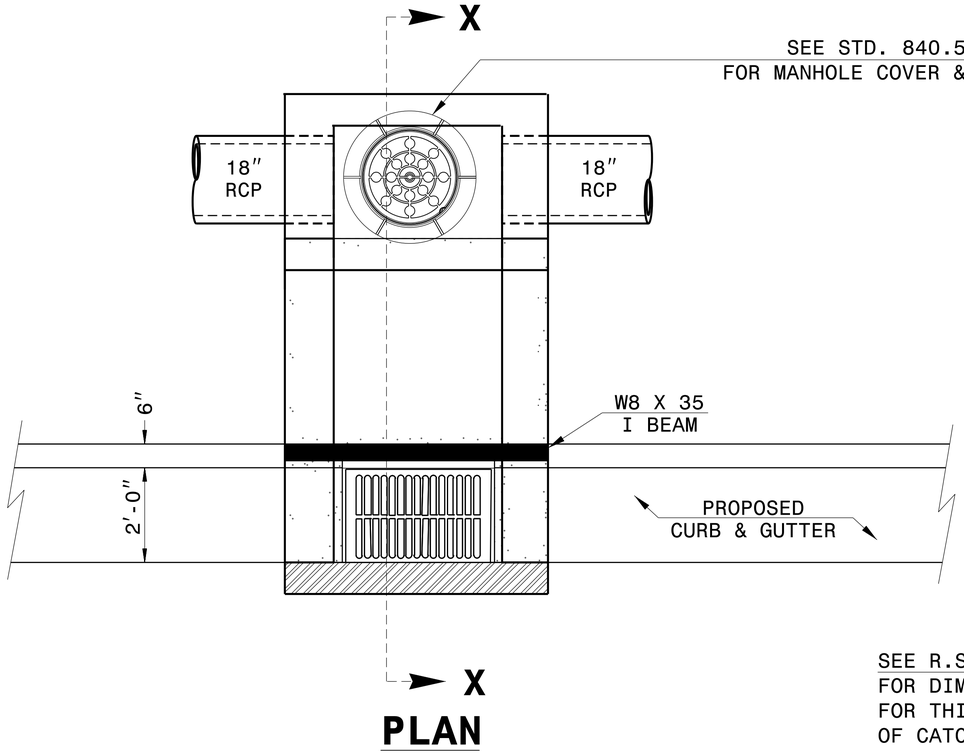
User:smassinople

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-3



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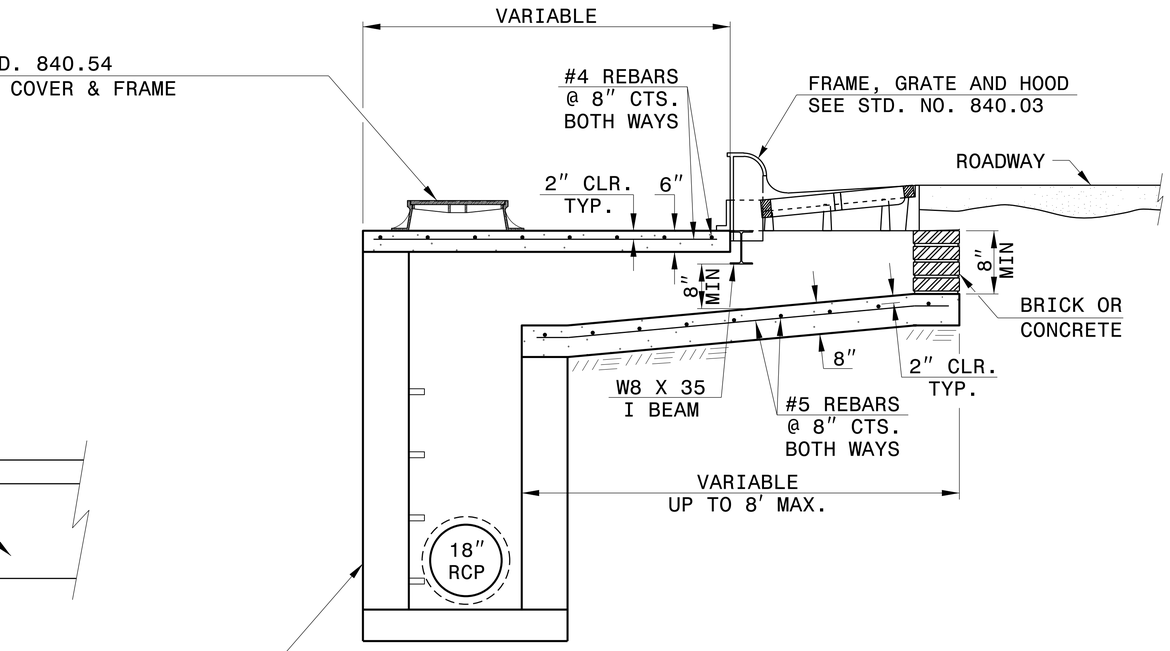


SECTION X-X

NOTES:

MORTAR JOINTS ½″ TO ¼″ THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

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

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

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

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144

DocuSigned by: Nicole Hesters 5884323D...

4/27/2023

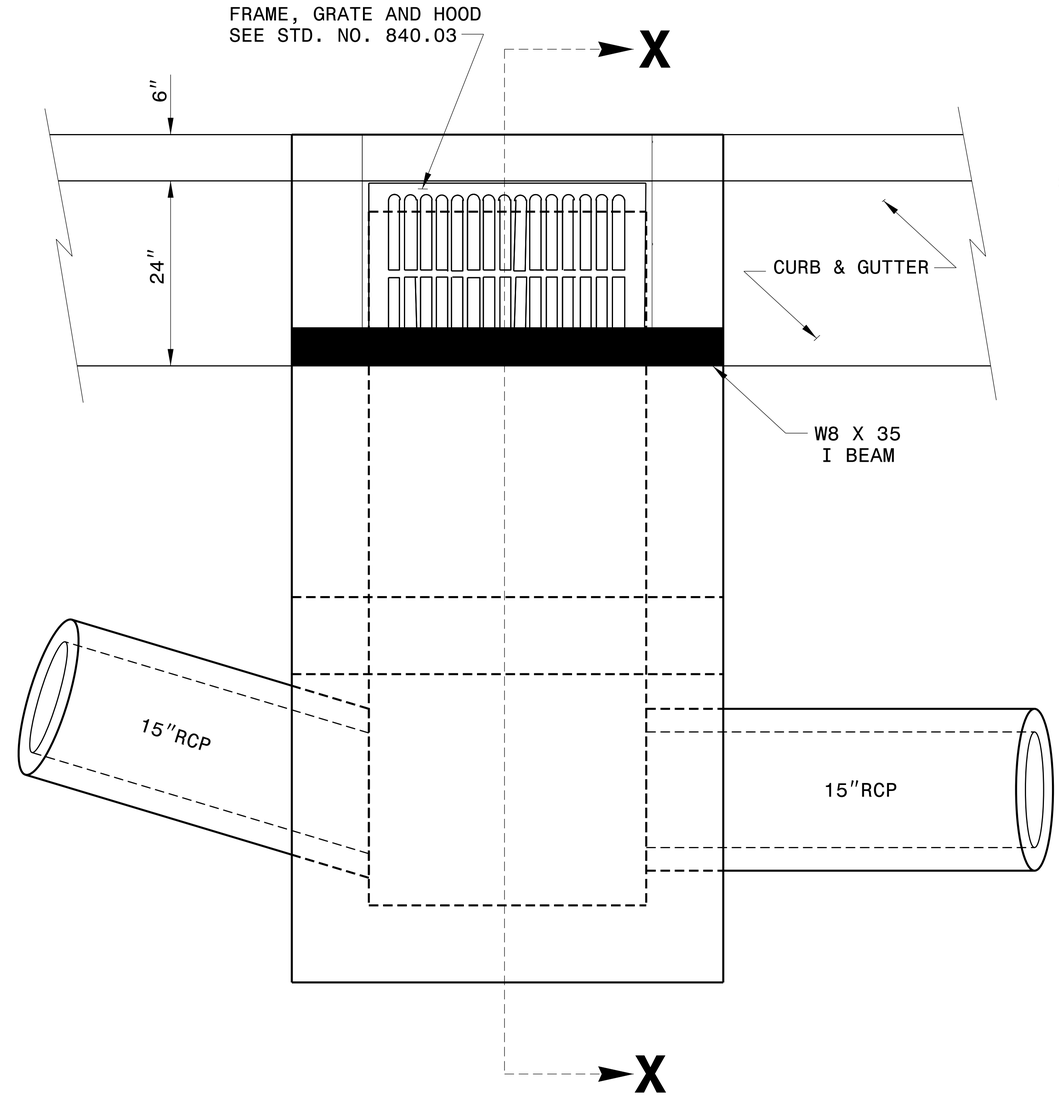
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

PROPOSED OFFSET CATCH BASIN

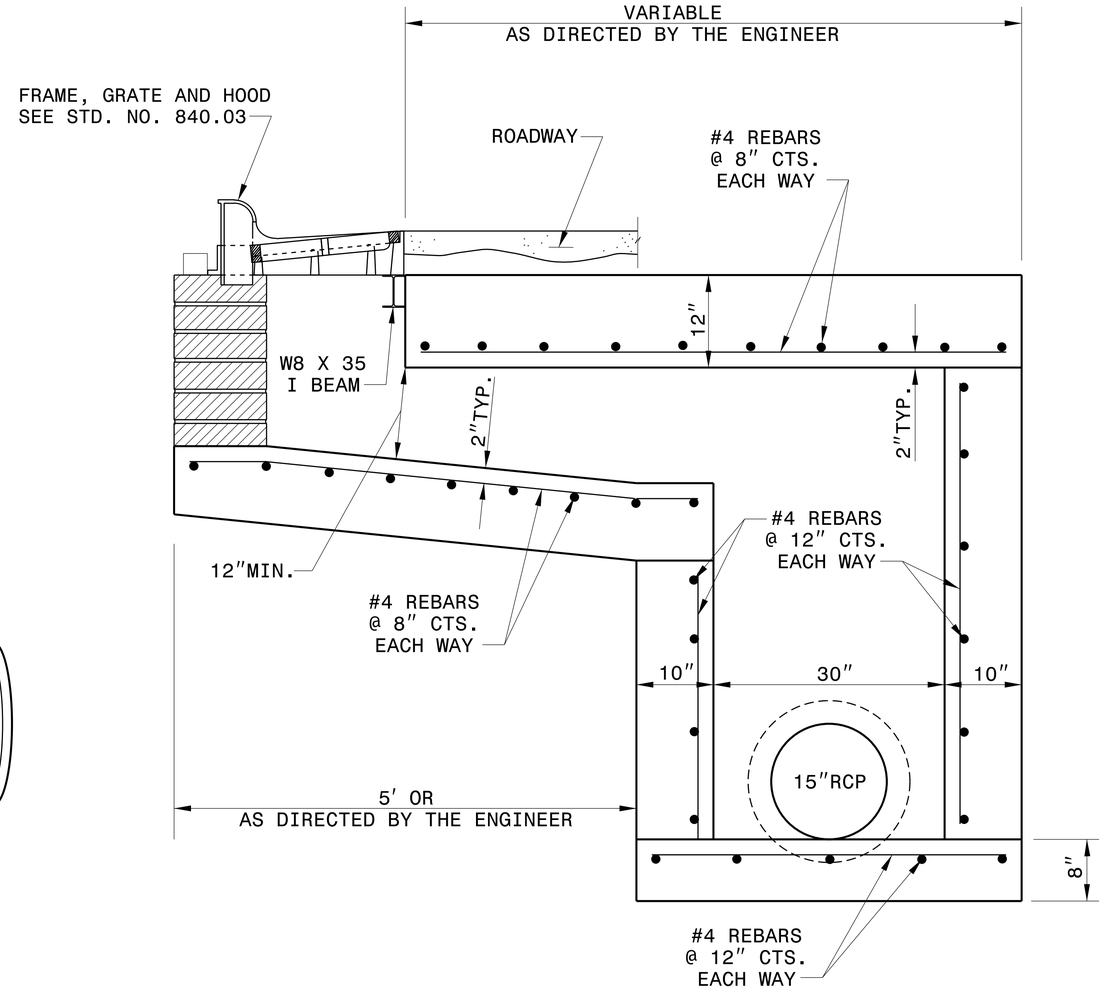
ORIGINAL BY: _____ DATE: _____
MODIFIED BY: K. KEMPF DATE: 2/22/13
CHECKED BY: _____ DATE: _____
FILE SPEC.: nbritt/english/hydro/840d06 offset boxes.dgn

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$RUN$$$$

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-4



PLAN



SECTION X-X

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

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

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DocuSigned by: Nicole Britt 5884325D3...
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144
4/27/2023

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

**PROPOSED
OFFSET CATCH BASIN**

ORIGINAL BY:		DATE:	
MODIFIED BY:	rnbritt	DATE:	10-30-2012
CHECKED BY:		DATE:	
FILE SPEC.:	nbritt/english/hydro/840d06.dgn		

$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$USERNAME$$$$$$

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-5

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.

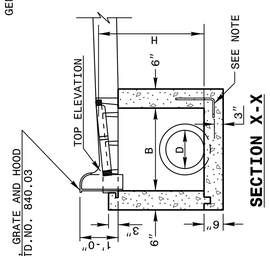
USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

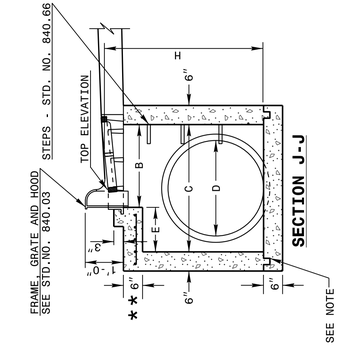
FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.

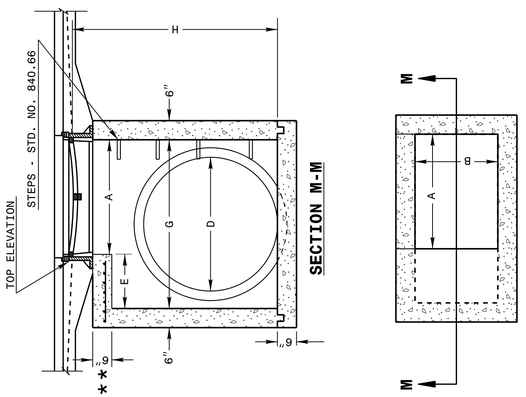
CONSTRUCT WITH PIPE CROWNS MATCHING.

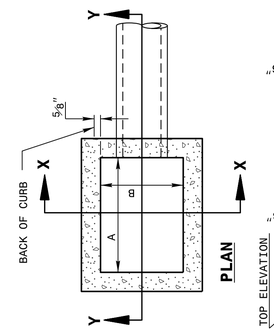
CHAMFER ALL EXPOSED CORNERS 1".

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







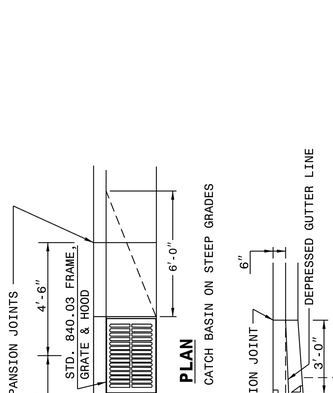


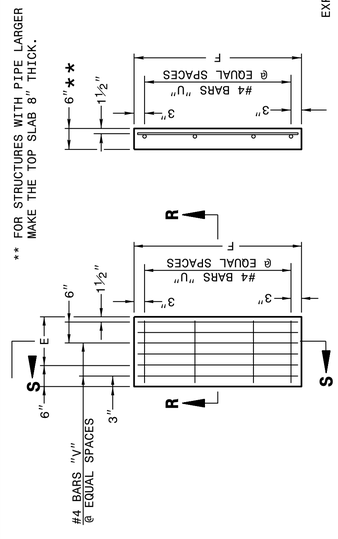
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.	ENGLISH DETAIL DRAWING FOR **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE	SHEET 1 OF 2 **840D02**

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

ENGLISH DETAIL DRAWING FOR **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE

SHEET 1 OF 2 840D02





* 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) *

PIPE D	DIMENSIONS OF BOX AND PIPE COVER DIMENSION SPAN A	WIDTH B	WIDTH C	SPAN G	MIN. HEIGHT H	BARS-U NO.	BARS-U LENGTH	BARS-U E	BARS-U F	BARS-W NO.	BARS-W LENGTH	TOTAL LBS.	CU.YDS. CONC. IN BOX TOP SLAB	CU.YDS. CONC. IN BOX BOTTOM SLAB	CU.YDS. CONC. IN BOX TOT. CONC. FOR MINIMUM HEIGHT H	DEDUCTIONS ONE PIPE C.M.	DEDUCTIONS ONE PIPE 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"	4	1'-2"	1'-2"	4'-4"	4	1'-6"	4	0.123	0.347	1.433	0.092	0.127
36"	3'-0"	2'-2"	3'-10"	3'-10"	4'-6"	4	1'-8"	1'-8"	4'-10"	4	1'-11"	4	0.161	0.432	1.714	0.132	0.178
42"	3'-0"	2'-2"	4'-5"	4'-5"	4'-11"	4	2'-2"	2'-2"	5'-5"	5	2'-5"	5	0.200	0.543	1.738	0.160	0.243
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-6"	5	2'-10"	2'-10"	6'-0"	5	3'-1"	4	0.235	0.667	2.052	0.235	0.317
54"	3'-0"	2'-2"	5'-7"	5'-7"	6'-0"	5	3'-5"	3'-5"	6'-7"	6	3'-8"	5	0.289	0.802	2.387	0.297	0.401
60"	3'-0"	2'-2"	6'-3"	6'-3"	6'-6"	6	4'-1"	4'-1"	7'-3"	6	4'-4"	5	0.340	0.973	2.722	0.363	0.546
66"	3'-0"	2'-2"	6'-11"	6'-11"	7'-0"	7	4'-9"	4'-9"	7'-11"	7	5'-0"	6	0.391	1.160	3.057	0.440	0.655
72"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	7	5'-3"	5'-3"	8'-6"	7	5'-6"	6	0.442	1.340	3.392	0.524	0.774
78"	3'-0"	2'-2"	8'-1"	8'-1"	8'-0"	8	5'-11"	5'-11"	9'-1"	8	6'-2"	7	0.493	1.530	3.727	0.615	0.893
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-6"	8	6'-7"	6'-7"	9'-9"	8	6'-10"	7	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 **MINIMUM DEPTH CONCRETE CATCH BASIN** 12" THRU 84" PIPE

SHEET 2 OF 2 840D02

4/27/2023

DocuSigned by: Nicole E. Ward — 58843233D... — E.E. WARD 33144 — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL

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ORIGINAL BY: 2002 Std.840.01 DATE:
MODIFIED BY: E.E. WARD DATE: 3-1-02
CHECKED BY: DATE:
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10-AUG-2017 10:11
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jhowerton
AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-6

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

ENGLISH DETAIL DRAWING FOR

PRECAST MANHOLE 7′, 8′ AND 9′ DIAMETER

SHEET 1 OF 1

840D52

GENERAL NOTES

USE 4000 PSI MINIMUM COMPRESSIVE STRENGTH CONCRETE.

DESIGN, FABRICATE AND ASSEMBLE PRECAST MANHOLE COMPONENTS IN ACCORDANCE WITH AASHTO M199.

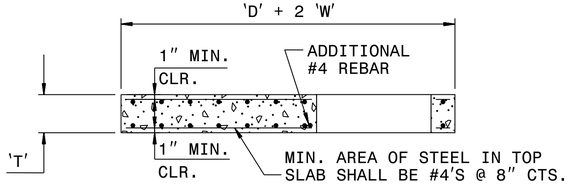
ASSEMBLE RISER AND GRADE RINGS WITH STEPS SPACED 16″ FROM THE TOP TO THE BOTTOM OF THE MANHOLE.

WHERE THE MANHOLE IS EXPOSED TO ROAD TRAFFIC, THE TOP OF THE MANHOLE IS TO BE FLUSH WITH THE GROUND. AT OTHER LOCATIONS IT SHOULD BE A MINIMUM OF 9″ ABOVE THE GROUND.

DEPTH OF FILL LIMITED TO 30′-0″ FROM FINSH GRADE TO TOP OF BOTTOM SLAB.

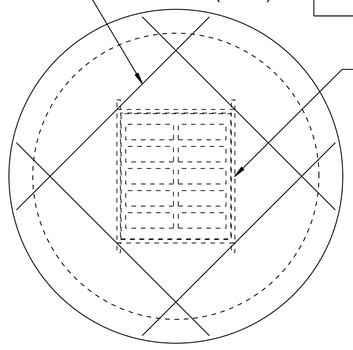
THE MIN. SLAB THICKNESS 'T' SHALL BE THE DIMENSION OF THE THINNEST PORTION OF THE TOP/BOTTOM SLAB.

* TOP MAT OF REINFORCEMENT MAY BE NEGLECTED IF TOP SLAB HAS A DISTINGUISHABLE TOP AND BOTTOM.

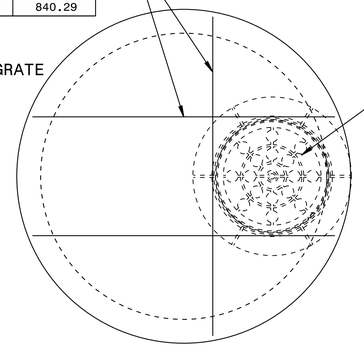


FLAT TOP SLAB

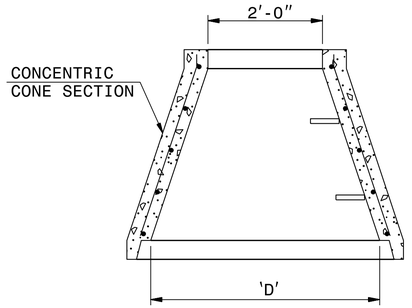
FRAME AND GRATES	STD. NO.
TRAFFIC BEARING	840.37
NONTRAFFIC BEARING:	840.16
	840.20
	840.22
	840.24
	840.29



GRATED INLET OPTION

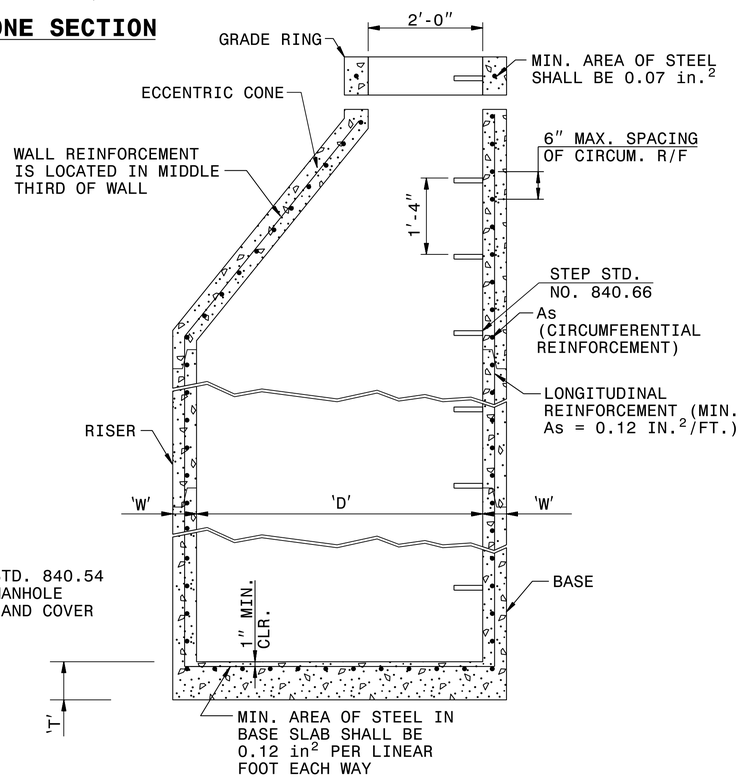


MANHOLE OPTION



ALTERNATE CONE SECTION

D	W	T	As
INTERNAL DIAMETER (FT.)	MIN. WALL THICKNESS (IN.)	MIN. TOP/BOTTOM SLAB THICKNESS (IN.)	MIN. CIRCUMFERENTIAL AREA OF STEEL PER VERTICAL FT. (SQ. IN.)
7	8.0	8	0.21
8	8.5	8	0.24
9	9.0	9	0.27



TYPICAL MANHOLE SECTION

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

ENGLISH DETAIL DRAWING FOR

PRECAST MANHOLE 7′, 8′ AND 9′ DIAMETER

SHEET OF

840D52

DocuSigned by: Nicole Tuttle 58843230340... 4/27/2023

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 33144

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Office 919-707-6950 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: T.S.Spell DATE: 7-17-00
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: ds174:usr/details/stand/840d52_8&9.dgn

04-MAR-2020 lhll
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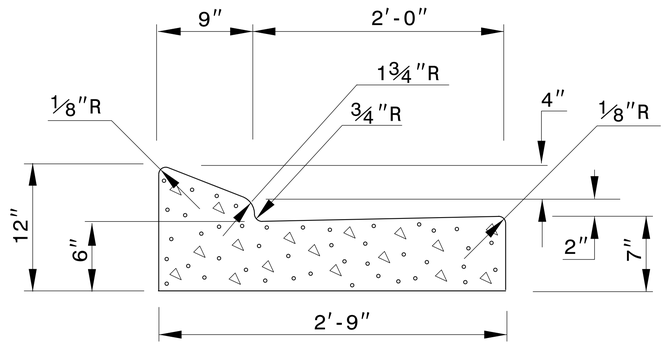
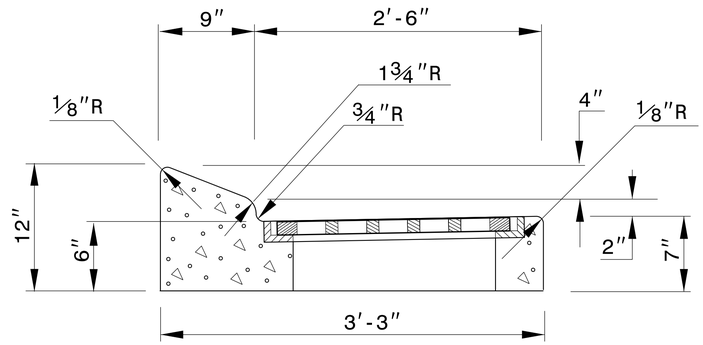
jhowerton AT CSD-320465

5/14/99

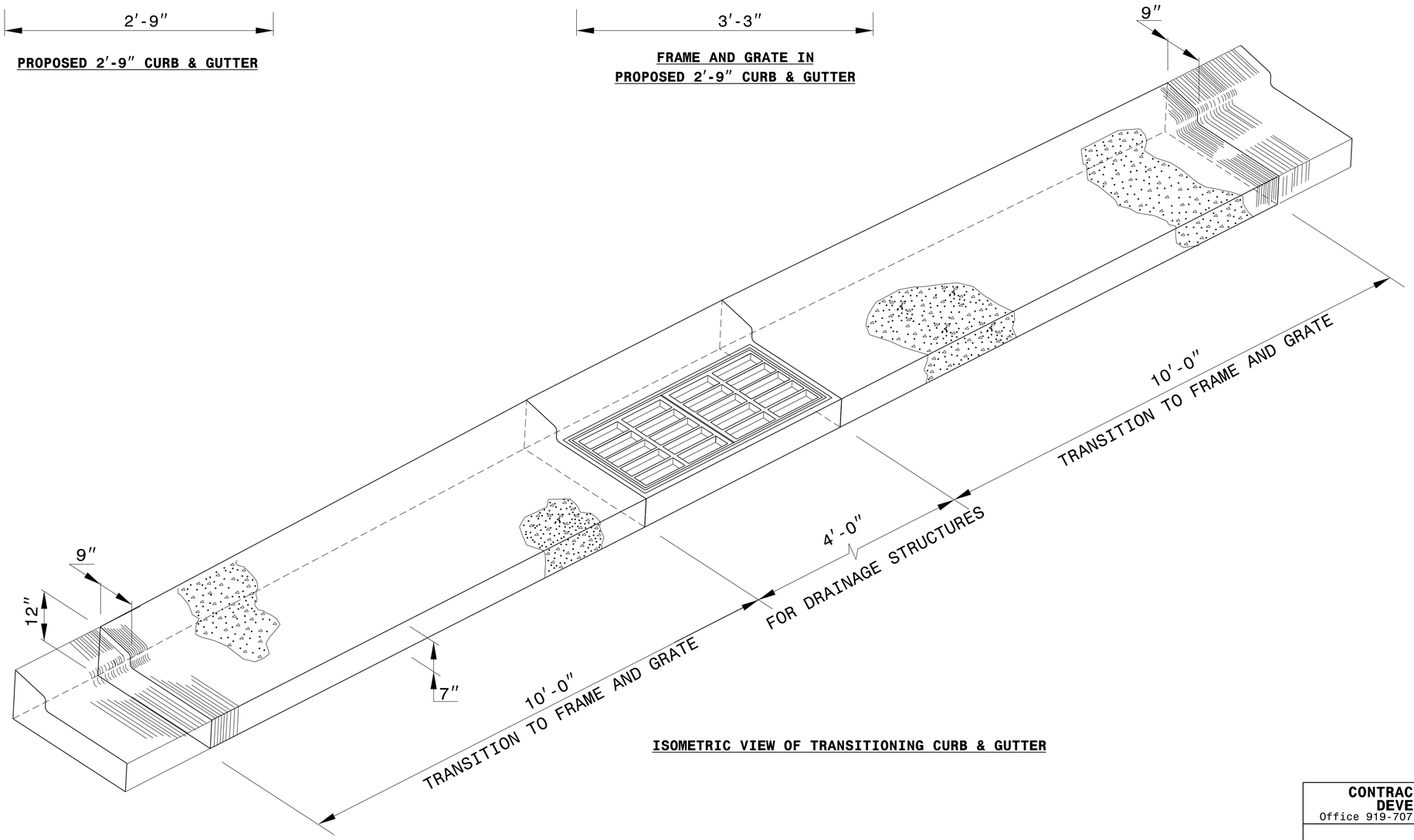
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-7



PROPOSED 2′-9″ CURB & GUTTER



FRAME AND GRATE IN
PROPOSED 2′-9″ CURB & GUTTER



ISOMETRIC VIEW OF TRANSITIONING CURB & GUTTER

DocuSigned by: Nicole 588432303...
NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. KEMPF
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

DETAIL OF 2′-9″ TO FRAME AND GRATE

ORIGINAL BY:_____ DATE:_____
MODIFIED BY:_____ DATE:_____
CHECKED BY:_____ DATE:_____
FILE SPEC.: kkempf/english/curb gutter transition.dgn

8/17/99

ENERGY DISSIPATOR BASIN & CHANNEL CHANGE

SHEET 1 OF 2

1″ = 10′

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-8
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR

DocuSigned by: Benjamin Henegar

4/27/2023

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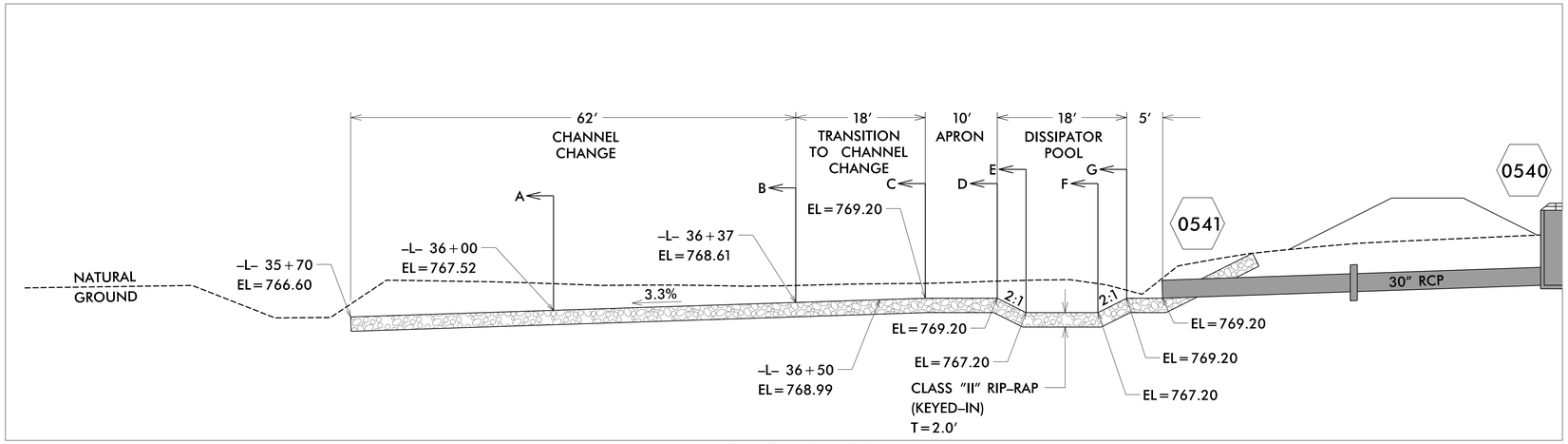
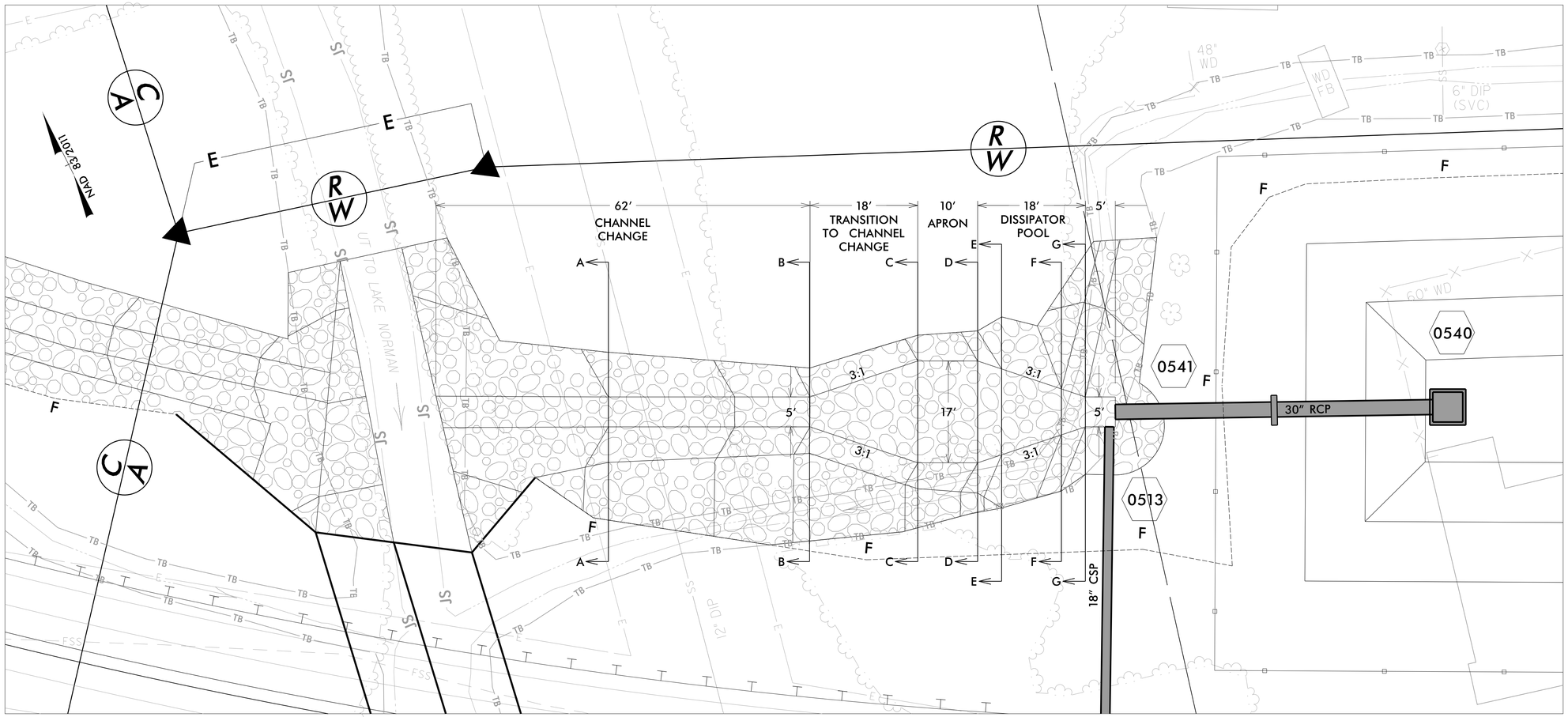


PROFILE VIEW



PLAN VIEW

8/17/99

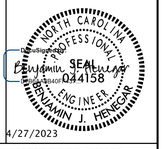
ENERGY DISSIPATOR BASIN & CHANNEL CHANGE

SHEET 2 OF 2

1″ = 10′

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-9
R/W SHEET NO.	

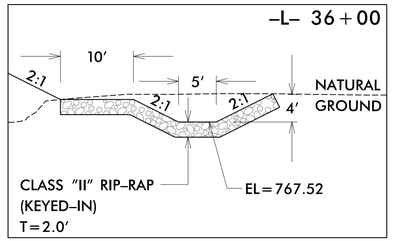
HYDRAULICS ENGINEER



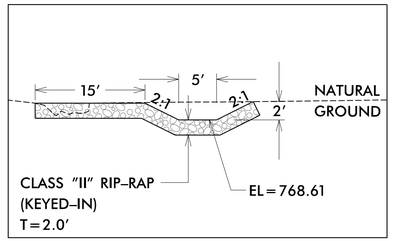
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

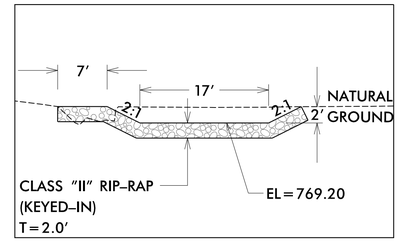
CROSS SECTIONS



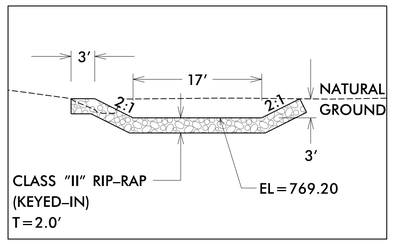
SECTION A–A



SECTION B–B



SECTION C–C



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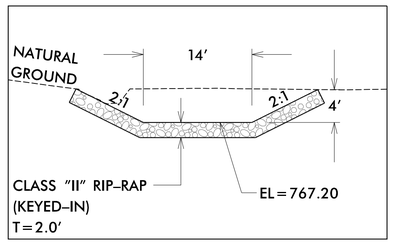

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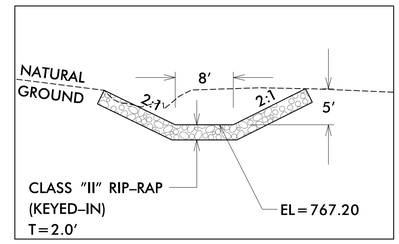

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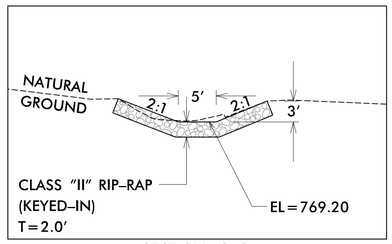

SECTION G–G

8/17/99

DRY DETENTION BASIN

SHEET 1 OF 5

1″=10′

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-10
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR

DocuSigned by: Benjamin Henegar

8/24/2023

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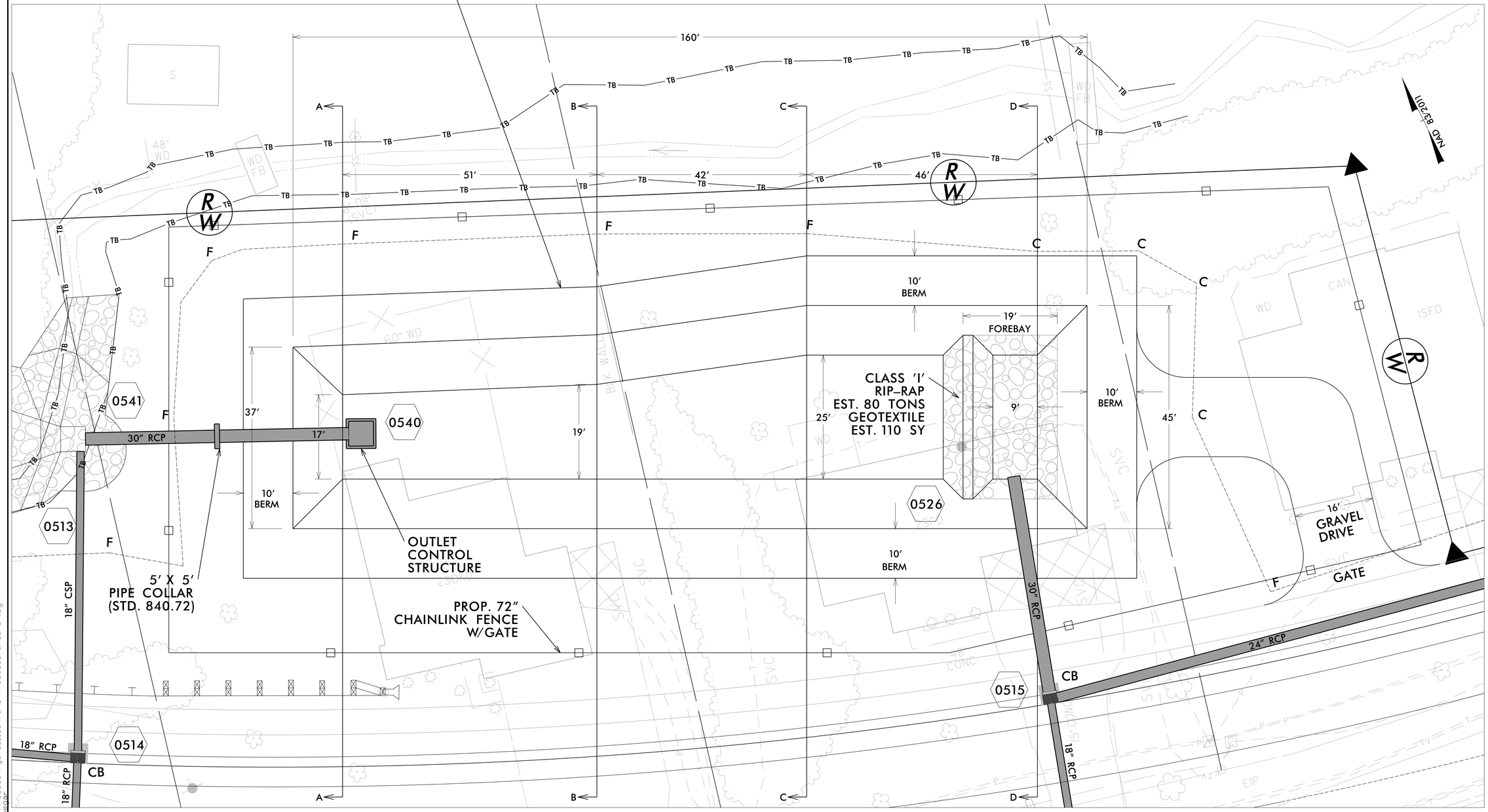
DRY DETENTION BASIN
EST. 19,500 CY UNCLASSIFIED EXCAVATION
EST. 22,500 CY BORROW EXCAVATION



PLAN VIEW

8/23/2023
K:\NCDOT\R-3833C\Hydraulics\Pond\R-3833C_Pond_PSH.dgn
User:bhenegar

8/17/99

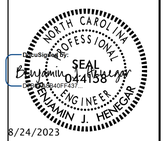
DRY DETENTION BASIN

SHEET 2 OF 5

1″=10′

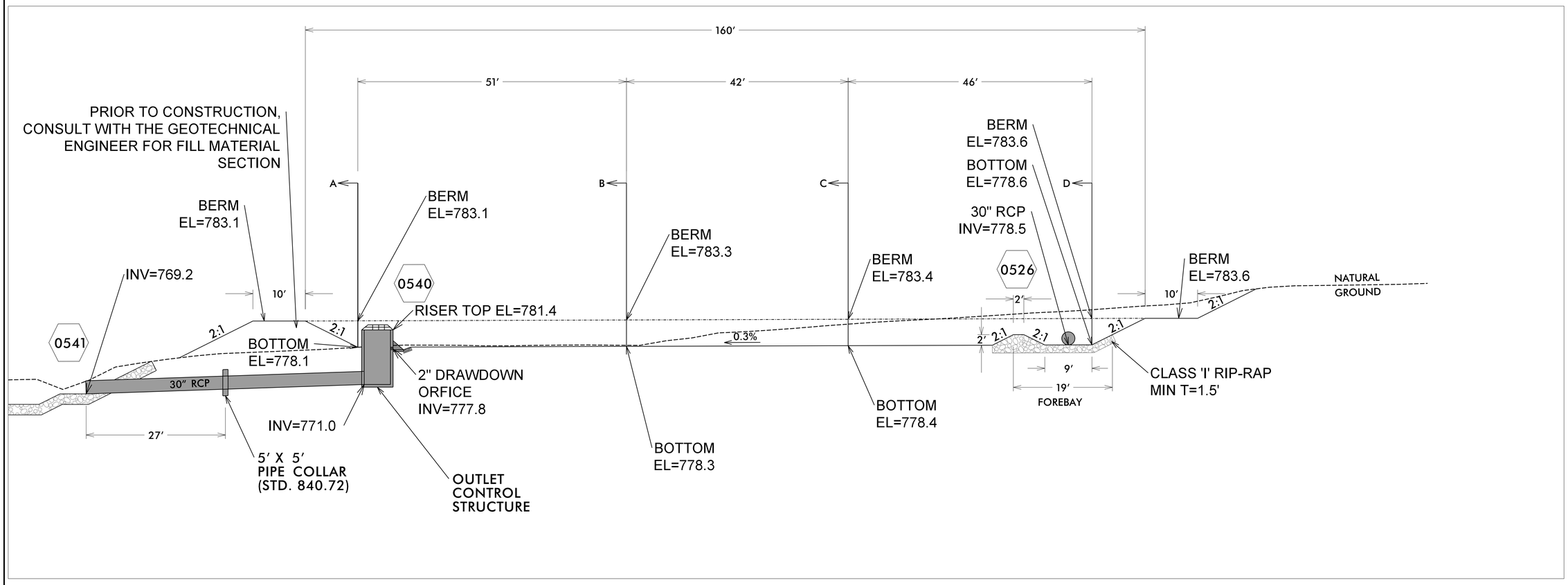
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-11
R/W SHEET NO.	

HYDRAULICS ENGINEER



8/24/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROFILE VIEW

8/23/2023
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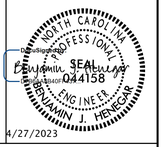
bhenegar

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-12
R/W SHEET NO.	

HYDRAULICS ENGINEER



4/27/2023

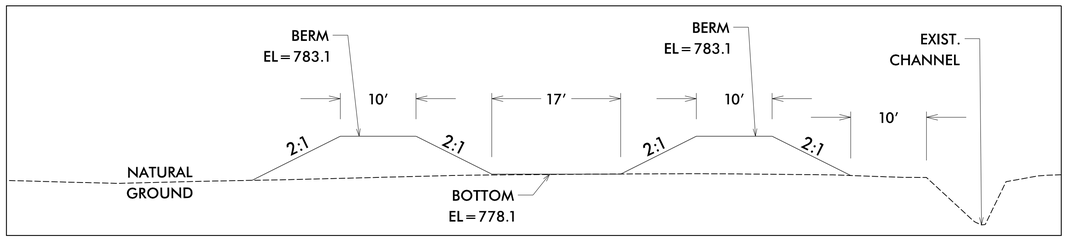
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRY DETENTION BASIN

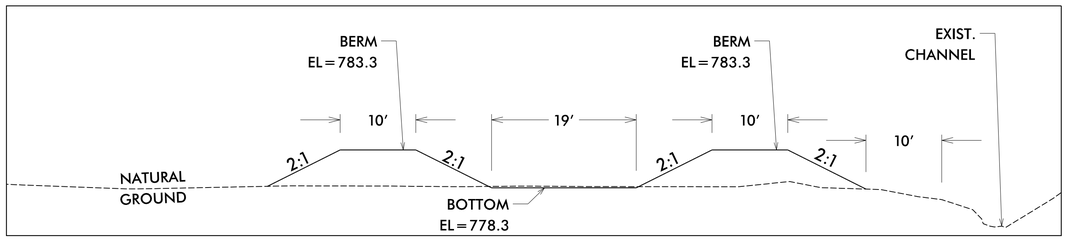
SHEET 3 OF 5

1″ = 10′

CROSS SECTIONS



SECTION A–A



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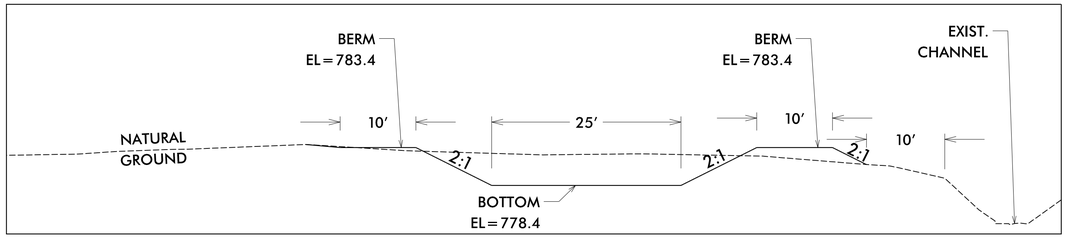

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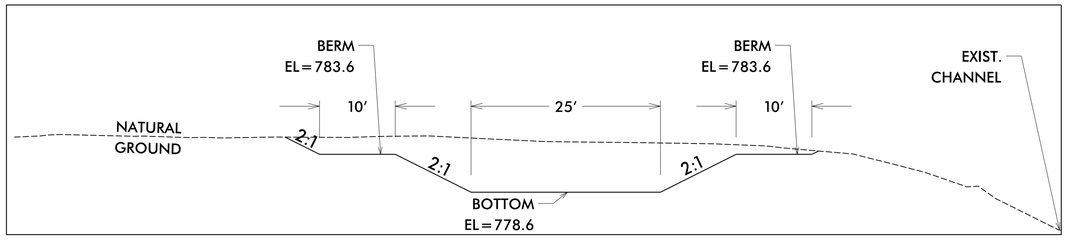


SECTION D–D

2/15/2022
8:11:00 AM
User:bhenegar
C:\Users\R-3833C\Hydraulics\Pond\R-3833C_Pond_PSH.dgn

8/17/99

DRY DETENTION BASIN
SHEET 4 OF 5

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-13
R/W SHEET NO.	

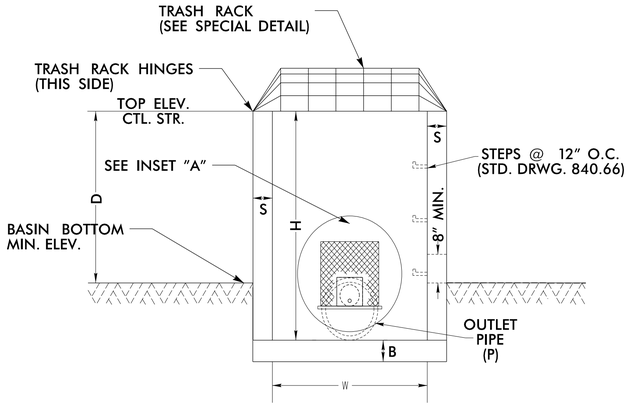
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR

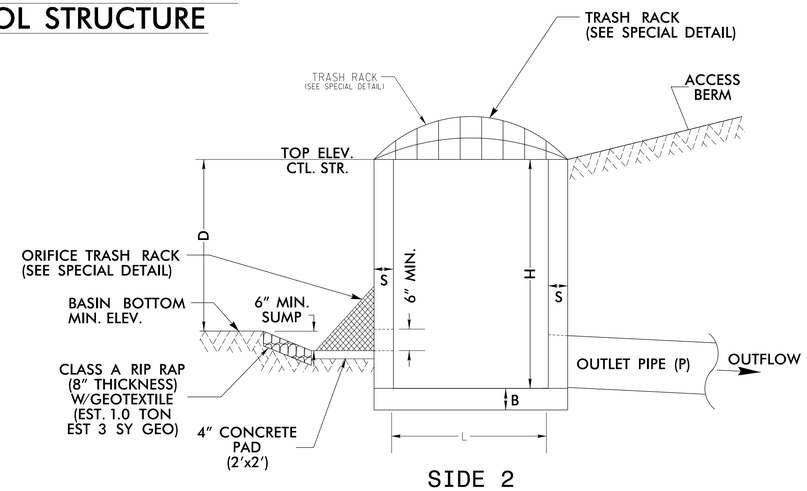
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DRY DETENTION OUTLET CONTROL STRUCTURE



SIDE 1



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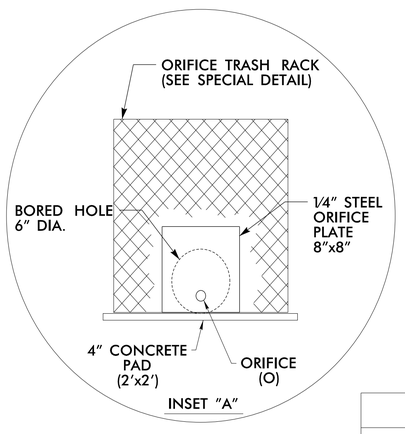
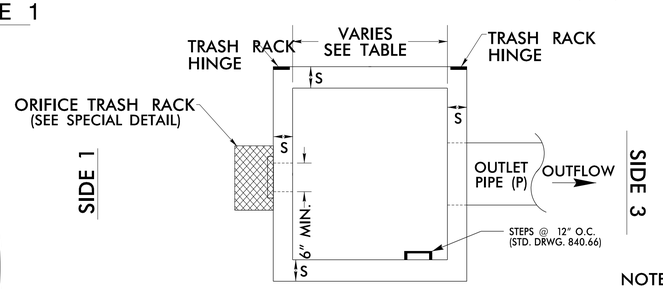


INSET "A"



SIDE 2

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. PAYMENT OF THE TRASH RACKS & 4" CONCRETE PAD ARE INCIDENTAL TO BASIN OUTLET CONTROL STRUCTURE.

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.	OUTLET PIPE DIAMETER(P) INCHES	OUTLET PIPE MATERIAL
					W	L	H					
–L– 37+56 LT	0540	6"	6"	781.4'	5.0'	5.0'	10.4'	2"	777.8'	771.0'	30"	RCP*

*USE CLASS 'III' RCP WITH SEALED JOINTS

NOT TO SCALE

3/20/2023
X:\NCDOT\R-3833C\Hydraulics\Pond\R-3833C_Pond_PSH.dgn
User:bhenegar

8/17/99

DRY DETENTION BASIN
SHEET 5 OF 5

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-14
R/W SHEET NO.	

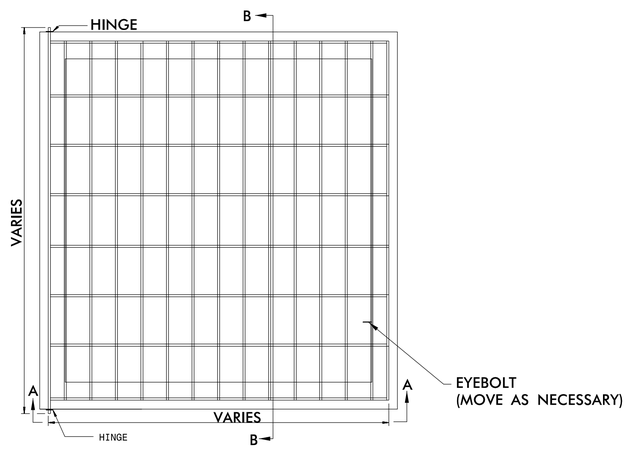
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin J. Henegar
4/27/2023

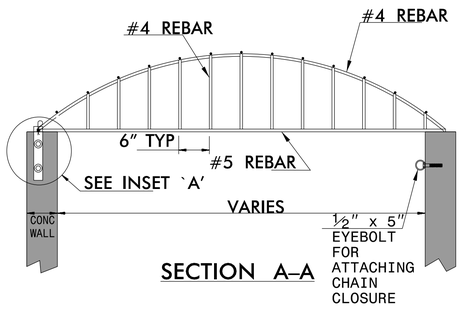
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

REBAR & ORIFICE TRASH RACKS
(N.T.S.)

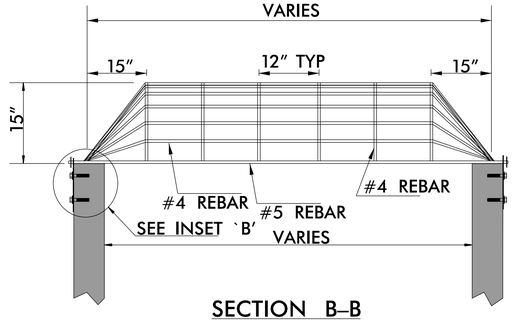
RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK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



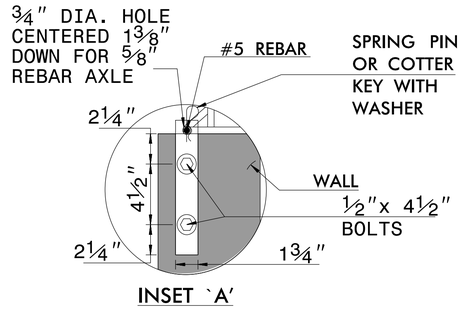
PLAN



SECTION A-A



SECTION B-B



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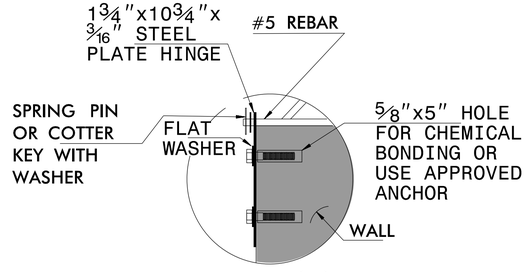
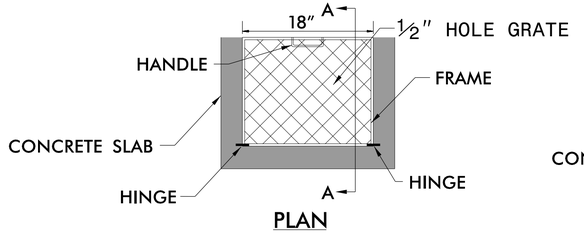
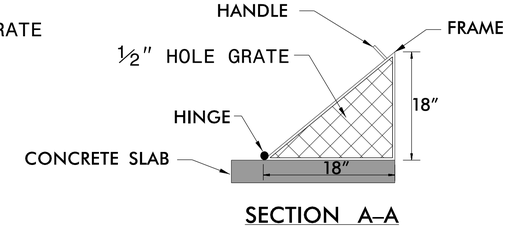


INSET `B'

REBAR TRASH RACK
NOT TO SCALE



PLAN

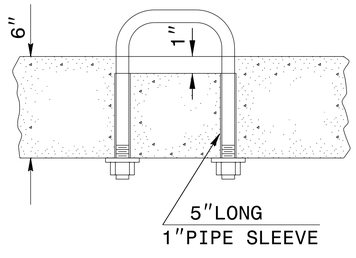


SECTION A-A

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. REMOVEABLE 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.

ORIFICE TRASH RACK
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-15



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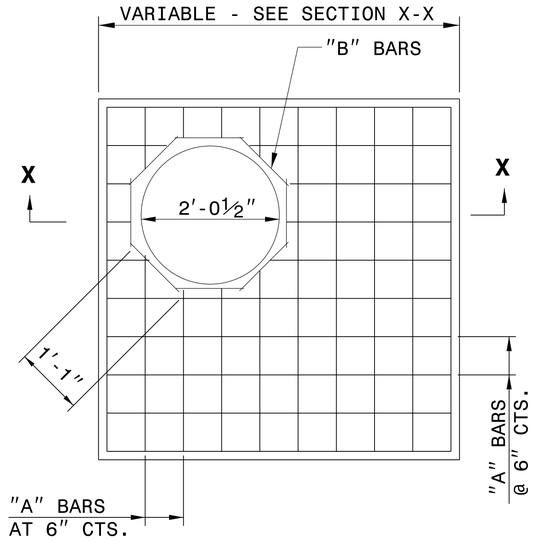
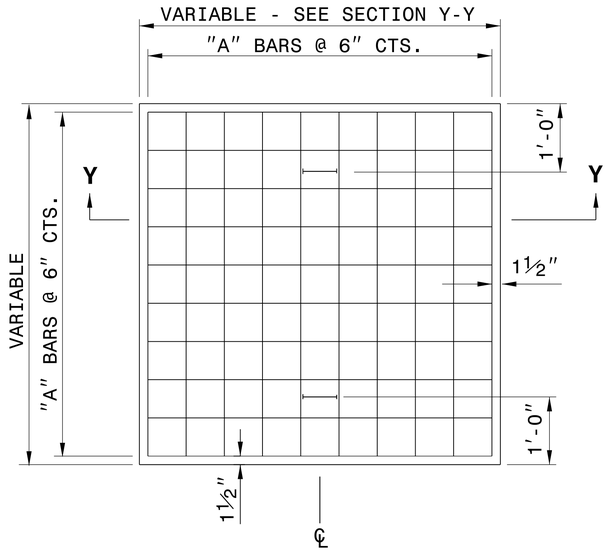


PLAN



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.

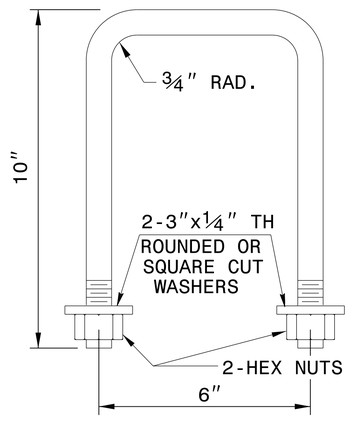
BILL OF MATERIALS

REINFORCING STEEL

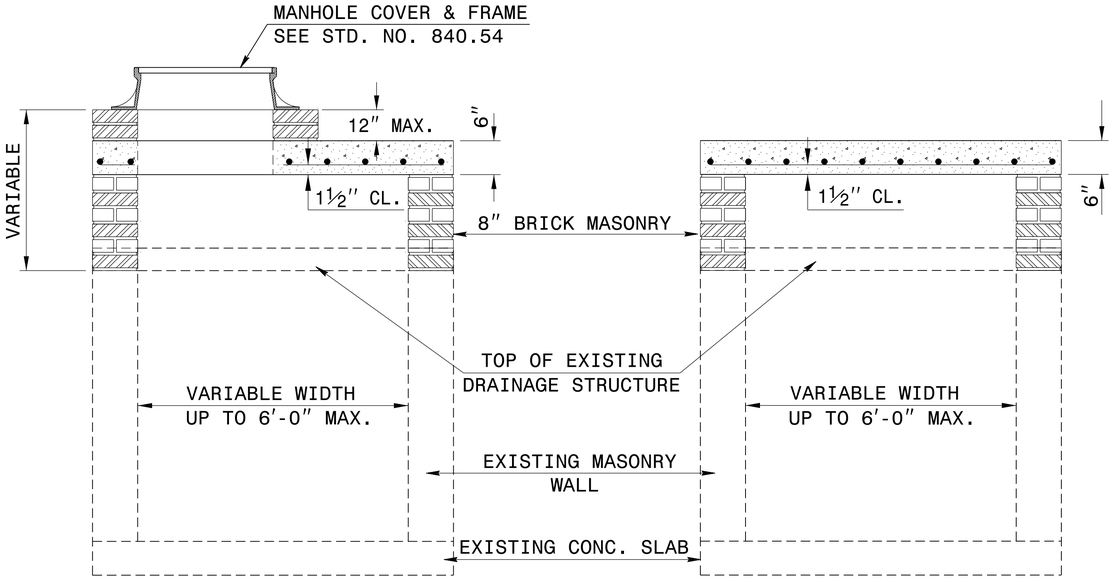
CODE	SIZE	QTY.	LENGTH	REINF. STEEL LBS.
A	#4	20	4'-6"	60.12
B	#4	8	1'-1"	5.79
TOTAL				65.91 *

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. Hickler 5884323C...
4/27/2023

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HICKLER

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

$$$$USERNAME$$$$ $$$$USER$$$$ $$$$TIME$$$$ $$$$DATE$$$$

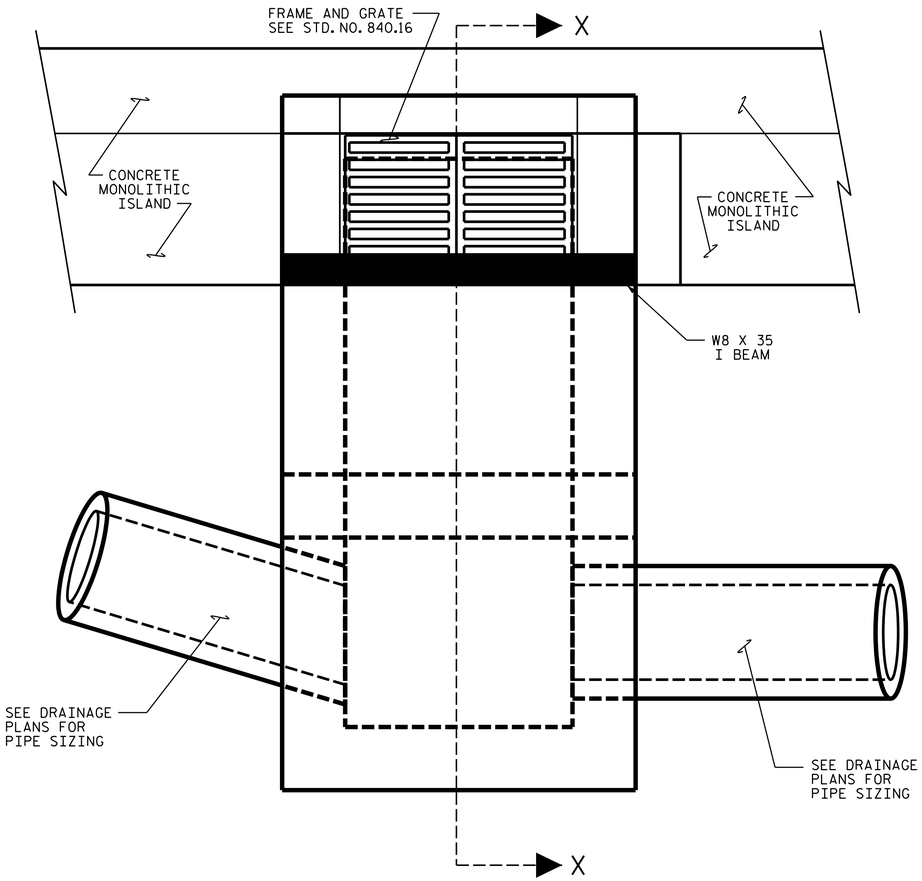
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-16

DocuSigned by: Marshall G. Cheek
5FBCC2F3A4D8433...

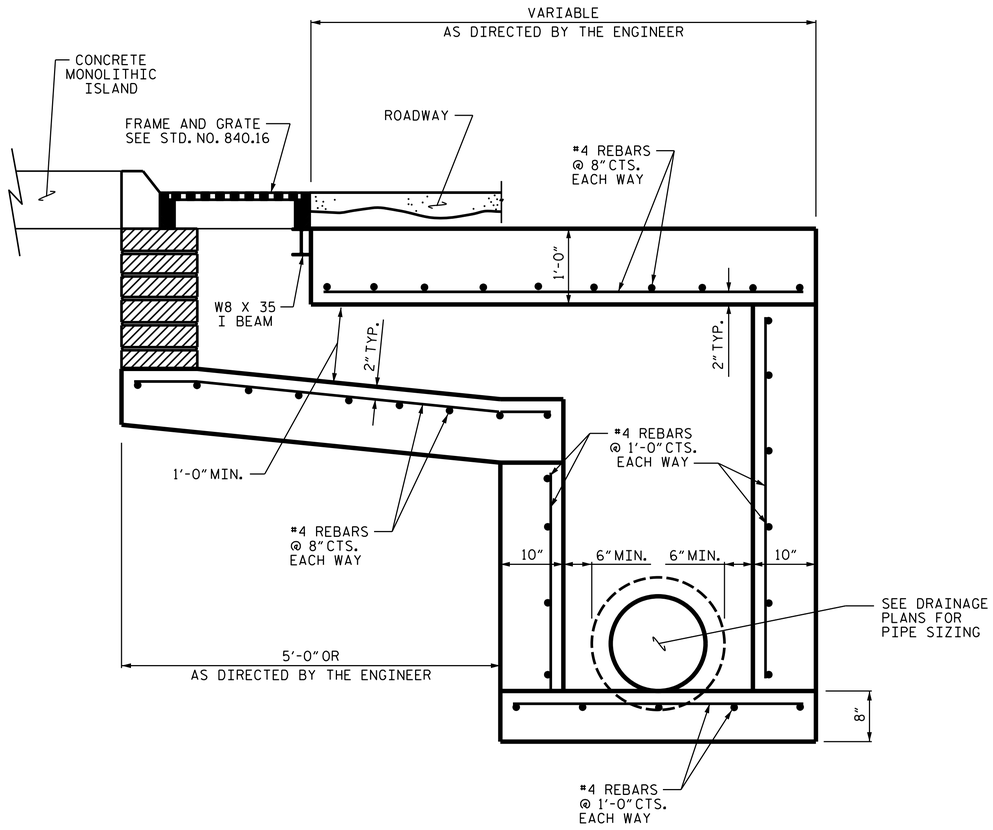
4/28/2023

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



PLAN



SECTION X-X

OFFSET DI W/ SLAB LID

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

DRAWN BY : STM DATE : 03/23
CHECKED BY : MGC DATE : 03/23

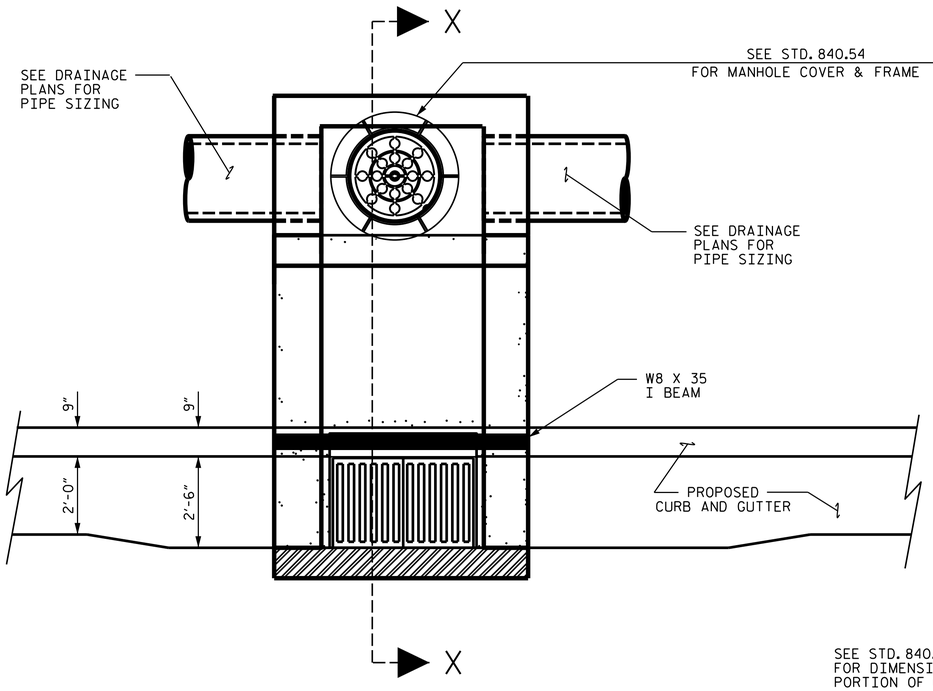
3/29/2023
X:\NCDOT\R-3833C\Structures\Offset Boxes\Offset Boxes_STM.dgn
User:smassinople

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-17

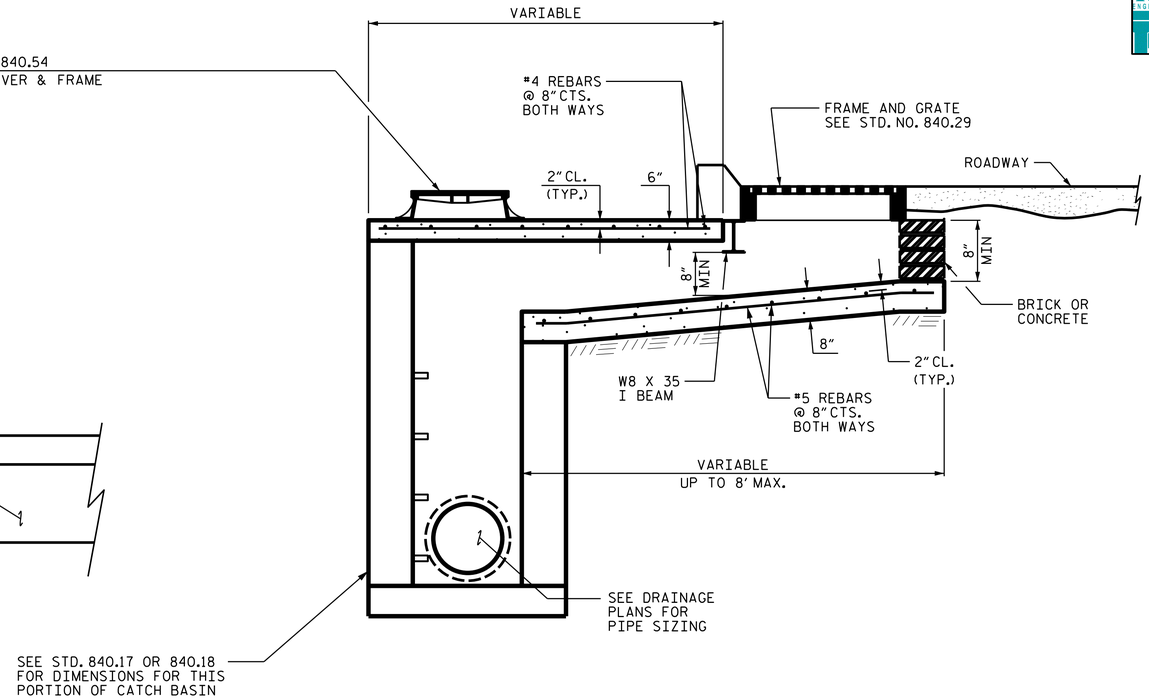
4/28/2023

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



PLAN



SECTION X-X

OFFSET 2GI W/ MANHOLE

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS 1'-0" ON CENTER.
USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66
USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

DRAWN BY : STM DATE : 03/23
CHECKED BY : MGC DATE : 03/23

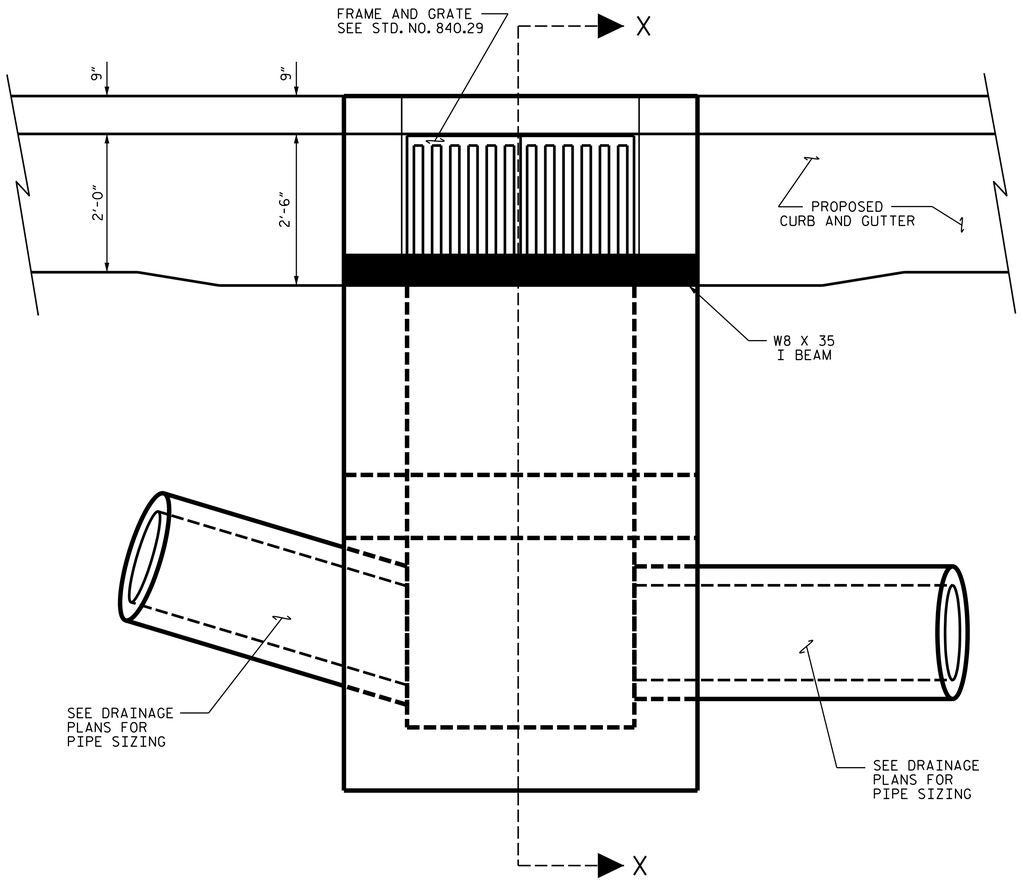
3/29/2023
X:\NCDOT\R-3833C\Structures\Offset Boxes\Offset Boxes_STM.dgn
User:smassinople

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-18

4/28/2023

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



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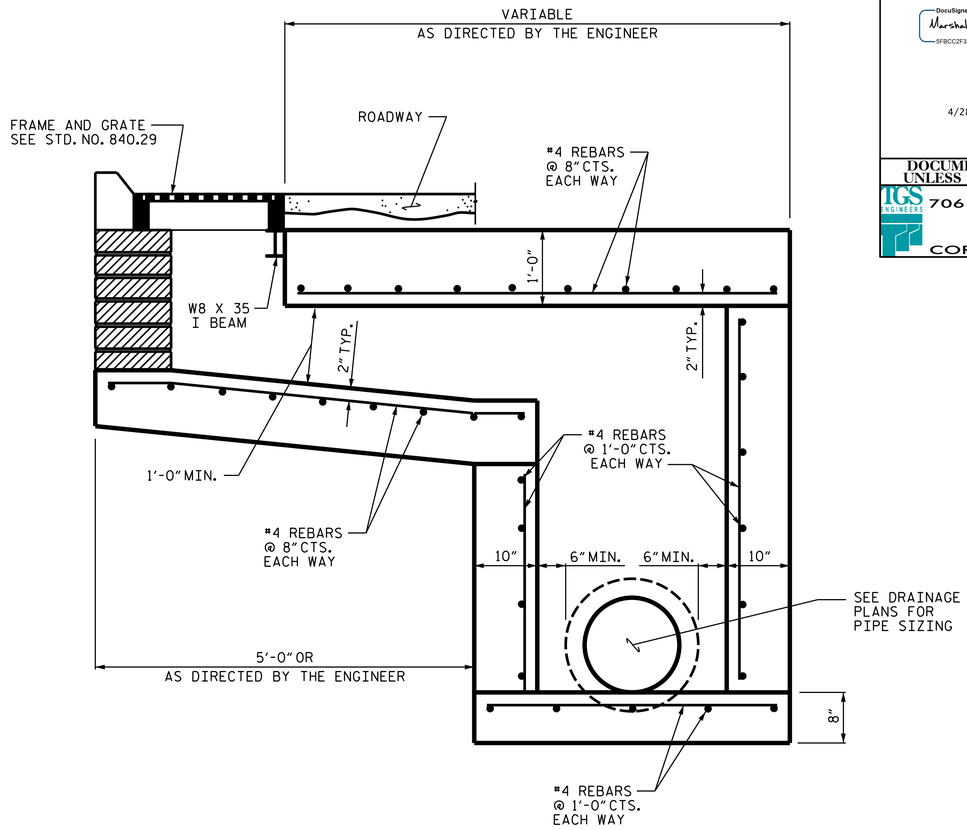


SECTION X-X

OFFSET 2GI W/ SLAB LID

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

DRAWN BY : STM DATE : 03/23
CHECKED BY : MGC DATE : 03/23

3/29/2023
X:\NCDOT\R-3833C\Structures\Offset Boxes\Offset Boxes_STM.dgn
User:smassinople

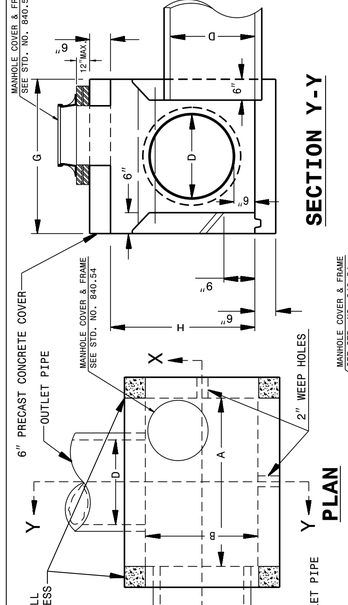
PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2D-19

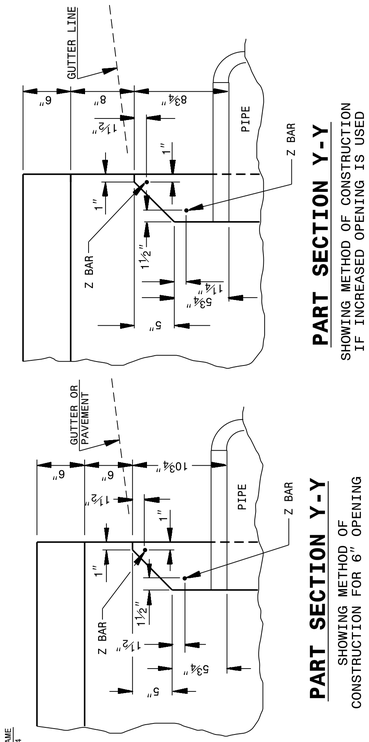
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)
(MANHOLE OPTIONAL)

SHEET 1 OF 2 — **840D04**

GENERAL NOTES:
ALL CATCH BASINS OVER 3'-6" IN DEPTH TO BE PROVIDED WITH STEPS 12" ON CENTERS. STEPS SHALL BE IN ACCORDANCE WITH STD. 840.66.
ALL EXPOSED CORNERS TO BE CHAMFERED 1".
CLASS "B" CONCRETE TO BE USED THROUGHOUT.
2" PIPE WEEPHOLES TO BE PLACED AS DIRECTED BY ENGINEER.
THE 6" OPENING SHOWN MAY BE INCREASED TO 8" MAXIMUM IF DEEMED TO BE NECESSARY BY THE ENGINEER.
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #5 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
FORMS ARE TO BE USED FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STD. DWG. 840.00.
A STONE DRAIN CONSISTING OF 1 CUBIC FOOT OF NO. 78M STONE CONTAINED IN A BAG OF POROUS FABRIC SHALL BE PLACED AT EACH WEEP HOLE.
FOR 8' IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB.
OVER 8' IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. QUANTITIES TO BE ADJUSTED ACCORDINGLY.
DIMENSIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.





PART SECTION Y-Y
SHOWING METHOD OF CONSTRUCTION IF INCREASED OPENING IS USED

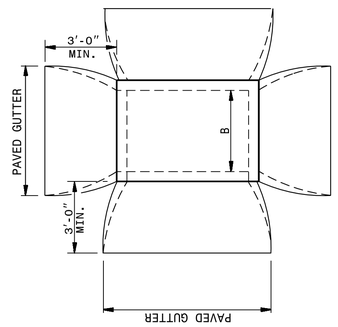
DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H)

PIPE D	*SPAN* A	*WIDTH* B	*HEIGHT* H	*MIN. DIMENSIONS AND REINFORCING* *TOP & BOT. SLAB DIMENSIONS* G	*BARS – X* NO.	LENGTH	*BARS – Y* NO.	LENGTH	*BARS – Z* NO.	LENGTH	F	*CU. YDS. CONC. IN BOX* TOP SLAB	BOT. SLAB	WALL	*TOTAL QUANTITIES BOX & SLABS* LBS. REINF.	FT. HT.	*DEDUCTION ONE PIPE* C.S.	R.C.	*DED. ONE (1) THROAT OPENING* YD³
12"	3'-6"	2'-3"	1'-10"	3'-3"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	0.181	0.271	0.250	27	1.046	0.015	0.032	0.046
15"	3'-6"	2'-3"	2'-1"	3'-3"	4	3'-0"	6	4'-3"	2	4'-3"	4'-6"	0.181	0.271	0.250	27	1.108	0.023	0.036	0.046
18"	4'-0"	2'-8"	2'-4"	3'-8"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	0.226	0.340	0.284	35	1.379	0.033	0.049	0.053
24"	4'-0"	2'-8"	2'-10"	3'-8"	5	3'-5"	7	4'-9"	2	4'-9"	5'-0"	0.226	0.340	0.284	35	1.521	0.059	0.085	0.053
30"	4'-0"	3'-6"	3'-4"	4'-6"	5	4'-3"	9	4'-9"	2	4'-9"	5'-0"	0.278	0.417	0.315	43	1.916	0.092	0.127	0.053
36"	4'-6"	4'-0"	3'-10"	5'-0"	5	4'-9"	10	5'-3"	2	5'-3"	5'-6"	0.340	0.510	0.352	51	2.390	0.132	0.178	0.059
42"	5'-0"	4'-6"	4'-4"	5'-6"	5	5'-3"	12	5'-9"	2	5'-9"	6'-0"	0.407	0.611	0.389	64	2.914	0.180	0.243	0.066
48"	5'-0"	5'-0"	4'-10"	6'-0"	5	5'-9"	13	5'-9"	2	5'-9"	6'-0"	0.444	0.666	0.407	68	3.298	0.235	0.317	0.066

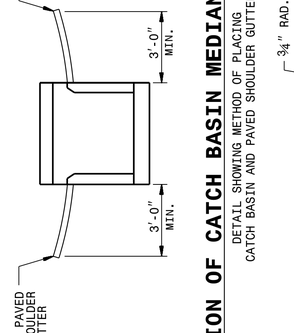
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE CATCH BASIN
(3 OR 4 SIDE OPEN THROAT)
(MANHOLE OPTIONAL)

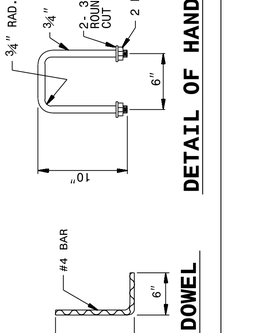
SHEET 2 OF 2 — **840D04**



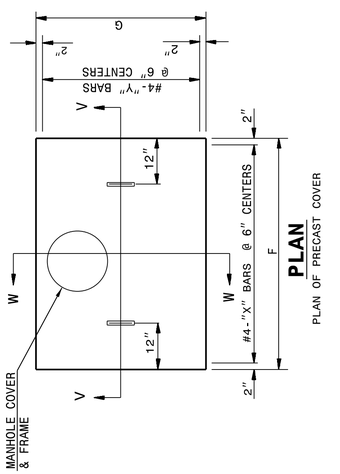
PLAN OF CATCH BASIN IN MEDIAN STRIP

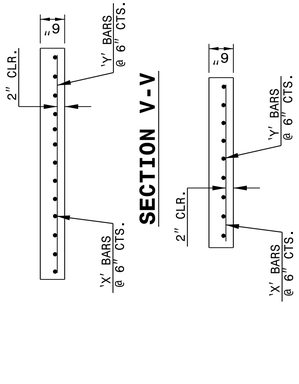


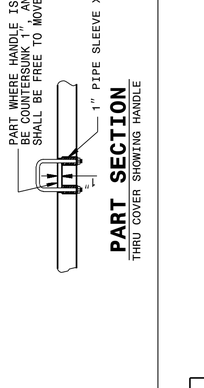
SECTION OF CATCH BASIN MEDIAN STRIP
DETAIL SHOWING METHOD OF PLACING
CATCH BASIN AND PAVED SHOULDER GUTTER



DETAIL OF HANDLE
DOWEL







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: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 07-03-2014
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/english/hydro/840d04.dgn

PLAN AND PROFILE OF NOISE WALL 2

NAD 83/2001

BEGIN NOISE WALL 2
-NW2- Sta. 10+00.00=
-L- Sta. 42+50.63
63.08' LT

-NW2- Sta. 14+20.00=
-L- Sta. 46+97.39
81.91' LT

-NW2- Sta. 14+05.00=
-L- Sta. 46+81.65
76.73' LT

-NW2- Sta. 13+90.00=
-L- Sta. 46+66.15
71.27' LT

-NW2- Sta. 13+75.00=
-L- Sta. 46+50.51
66.44' LT

-NW2- Sta. 13+60.00=
-L- Sta. 46+34.55
62.92' LT

-NW2- Sta. 13+45.00=
-L- Sta. 46+18.38
60.71' LT

-NW2- Sta. 13+30.00=
-L- Sta. 46+02.10
59.85' LT

-NW2- Sta. 13+15.00=
-L- Sta. 45+85.80
60.32' LT

-NW2- Sta. 13+00.00=
-L- Sta. 45+69.59
62.13' LT

-NW2- Sta. 12+85.00=
-L- Sta. 45+53.47
64.82' LT

-NW2- Sta. 12+70.00=
-L- Sta. 45+37.23
67.24' LT

-NW2- Sta. 14+35.00=
-L- Sta. 47+13.37
86.80' LT

-NW2- Sta. 14+50.00=
-L- Sta. 47+30.03
89.77' LT

-NW2- Sta. 14+65.00=
-L- Sta. 47+47.04
88.97' LT

-NW2- Sta. 14+80.00=
-L- Sta. 47+63.32
84.76' LT

-NW2- Sta. 14+95.00=
-L- Sta. 47+79.21
79.75' LT

-NW2- Sta. 15+10.00=
-L- Sta. 47+94.84
74.45' LT

-NW2- Sta. 15+25.00=
-L- Sta. 48+10.23
68.85' LT

-NW2- Sta. 15+40.00=
-L- Sta. 48+25.56
63.42' LT

-NW2- Sta. 15+55.00=
-L- Sta. 48+41.25
59.22' LT

-NW2- Sta. 15+70.00=
-L- Sta. 48+57.20
56.34' LT

-NW2- Sta. 15+85.00=
-L- Sta. 48+73.31
54.79' LT

-NW2- Sta. 16+00.00=
-L- Sta. 48+89.49
54.50' LT

END NOISE WALL 2
-NW2- Sta. 20+05.00=
-L- Sta. 52+99.95
54.50' LT

-NW2- Sta. 17+95.00=
-L- Sta. 50+98.50
54.50' LT

-NW2- Sta. 18+55.00=
-L- Sta. 51+58.50
54.50' LT

-NW2- 10+00
-NW2- 15+00
-NW2- 20+00
-L- 45+00
-L- 50+00
-L- 55+00

CITATION DR
BST
SR 1100 BRAWLEY SCHOOL ROAD
SECRET ARIAT LN
SHINNING ARMOR CT
ROUNDKEEP LN
COMMERCE PARK RD
N 82° 56' 34.6" E
N 32° 37' 11.4" E
15.0'

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	2N-1
RW SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER A. DEAN SARVIS 19828
A Dean Sarvis
4/27/2023

GEOTECHNICAL ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER JEFFREY R. HAWK 39779
Jeffrey R Hawk
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec
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www.stantec.com
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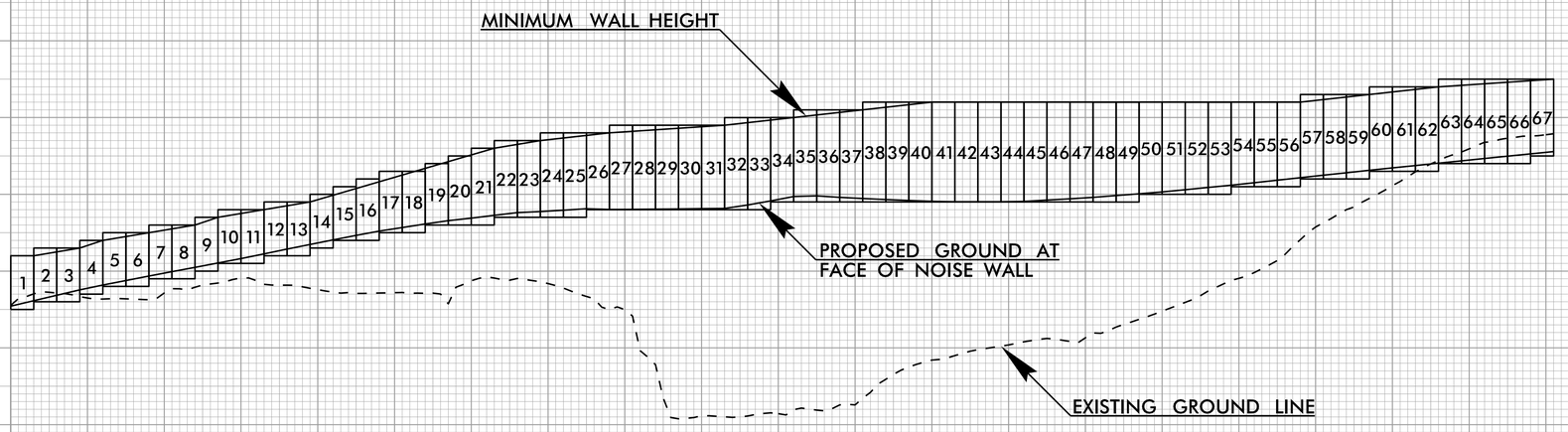
FALCON ENGINEERING
FALCON ENGINEERING, INC.
1210 TRINITY ROAD, SUITE 110
CARY, NC 27513
PHONE: 919.871.0800
www.falconengineers.com
Corporate License Number C-3193

NOISE WALL 2

PANEL NUMBER	1	2-3	4	5-6	7-8	9	10-11	12-13	14	15	16	17-18	19	20	21	22-23	24-25	26	27-31	32-33	34	35-37	38-49	50-53	54-56	57-59	60-62	63-66	67
TOP ELEVATION	812'	813'	814'	815'	816'	817'	818'	819'	820'	821'	822'	823'	824'	825'	826'	827'	828'	828'	829'	830'	830'	831'	832'	832'	832'	833'	834'	835'	835'
PANEL LENGTH	15'	30'	15'	30'	30'	15'	30'	30'	15'	15'	15'	30'	15'	15'	15'	30'	30'	15'	75'	30'	15'	45'	180'	60'	45'	45'	45'	60'	15'
PANEL HEIGHT	7'	7'	7'	7'	7'	7'	7'	7'	7'	7'	8'	8'	8'	9'	10'	10'	11'	10'	11'	12'	11'	12'	13'	12'	11'	11'	11'	11'	10'



COMPUTED BY: LRS DATE: 9/17/2021
CHECKED BY: ADS DATE: 3/25/2023

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Summary of Earthwork

Volumes in Cubic Yards

STATION	STATION	TOTAL UNCLASS.	UNDERCUT	EMBANK. +%	BORROW	WASTE
L_LT1 18+50.00	48+00.00	403		41,378	41,125	150
DRY DETENTION BASIN		19,500		25,875	25,875	19,500
Y1_NORTH 13+00.00	14+25.00	65		12	0	54
Y2 13+00.00	13+50.00	29		75	46	0
Y3 12+22.00	13+00.00	49		2	0	47
	SUBTOTAL	20,046		67,341	67,045	19,750
L_LT2 48+50.00	61+50.00	198		12,938	12,740	
Y6 11+70.00	12+50.00	90		60		30
	SUBTOTAL	288		12,997	12,739	30
Y_LT1 14+00.00	34+49.00	361		3,810	3,559	
DRWY5 10+50.00	11+50.00	0		653	653	0
	SUBTOTAL	361		4,463	4,212	110
Y_LT3 40+87.00	56+00.00	3,516		561		2,955
DRWY7 10+84.67	11+50.00	253		1		252
DRWY8 10+25.00	11+50.00	144		95		49
	SUBTOTAL	3,913		657		3,255
L_LT_RT 63+00.00	75+50.00	520		47,944	47,674	250
Y_LT2 34+50.00	40+87.00	289		4,614	4,325	
DRWY3 10+50.00	11+00.00			347	347	
DRWY4 10+50.00	11+00.00	6		132	126	
DRWY6 10+75.00	11+24.06	25		428	403	
	SUBTOTAL	840		53,464	52,874	250
L_RT1 18+50.00	48+00.00	6,530		18,053	11,973	450
Y1_SOUTH 15+50.00	18+75.00	96		138	42	
DRWY1 10+50.00	11+00.00	53		15		38
DRWY2 11+00.00	11+60.00	10		451	441	
Y4 10+50.00	11+50.00	9		327	318	
	SUBTOTAL	6,698		18,983	12,773	488
L_RT2 48+50.00	61+50.00	996		7,263	6,267	
Y_RT2 38+00.00	57+00.00	1,366		1,926		0
Y5 11+00.00	17+50.00	233		431	298	100
Y7 15+50.00	16+00.00	19		23	4	
	SUBTOTAL	2,614		9,643	7,129	100
Y_RT1 14+00.00	38+00.00	1,997		1,385	0	612
	SUBTOTAL	1,997		1,384	0	612
TOTAL		36,757		168,932	156,772	24,595
MATERIAL FOR SHOULDER CONSTRUCTION				679	679	
LOSS DUE TO CLEARING & GRUBBING		-600			600	
WASTE IN LIEU OF BORROW					-3,895	-3,895
PROJECT TOTAL		36,157		169,610	154,155	20,700
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					7,708	
GRAND TOTAL		36,157		169,610	161,862	20,700
SAY		36,200			161,900	

EST. DDE = 1210 CUBIC YARDS
EST. SHALLOW UNDERCUT = 400 CUBIC YARDS
EST.SHALLOW UNDERCUT BY STATIONS = 1,550 CUBIC YARDS
TOTAL SHALLOW UNDERCUT = 1,950 CUBIC YARDS
PER GEOTECH RECOMMENDATION, ESTIMATED 9,350 CUBIC YARDS OF UNDERCUT TO BE USED AT THE DISCRETION OF THE RESIDENT ENGINEER.
PSV = 21,430 CUBIC YARDS

Note: Earthwork quantities are calculated by Stantec. These earthwork quantities are based in part on subsurface data provided by Falcon Engineering.

Quantities are approximate only. The Resident Engineer will use methods including but not limited to recross–sectioning, truck measurement, and aerial surveys to compute final quantities for which the contractor will be paid.

COMPUTED BY: *LRS* DATE: *12/8/2021*

CHECKED BY: *ADS* DATE: *3/25/2023*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	*3B-2*

"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

GUARDRAIL SUMMARY

G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH (LF)			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL BERM WIDTH FROM FACE	FLARE LENGTH		W		ANCHORS				IMPACT ATTENUATOR IA-MASH TL-3		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TL-3	GREU TL-2	CAT-1	B-77	G	NG				
-L-	24+43.75	37+50	LT	1153.77	183.45'		36+50	24+50	18'	14'/17.5'	50'	0'	1'	0'	1		1							**17.5' total berm width at wall**
-L-	-DRWY2- 10+88.01	-L- 39+56.25	LT / RT	498.75	41.61'		-L- 34+89.10	-L- 39+50.00	18'	14'	N/A	N/A	N/A	N/A			2							
-L-	57+35.00	60+32.65	RT	270.71	15.25'		58+35.00	60+27.17	2'	10'	50'	0'	1'	0'	1		1							
-L-	-Y- 35+37.77	-L- 61+11.53	RT/LT	85.77	63.11'		-L- 61+51.27	-L- 61+17.78	14'/18'	14'/16'	50'	0'	1'	0'	1		1							**16' total berm width at wall**
-L-	-L- 64+23.00	-Y- 33+20.00	LT	332.80	60.07'		-L- 63+48.00	-Y- 33+13.75	14'	14'	50'	0'	1'	0'	1		1							
-L-	-Y- 38+19.12	-L- 65+92.43	LT/RT	353.66	72.11'		-Y- 37+69.12	-L- 65+86.18	20'/14.75'	20' / 14.75'	50'	0'	1'	0'	1		1							**Odd offsets at end to match police station drive**
-L-	66+26.70	68+56.25	RT	180.51			66+32.95	68+50.00	20'	20'	0'	0'	0'	0'			2							
-Y-	31+20.37	32+83.88	RT	134.40			31+98.00	32+27.00	2'	5.5'	0'	0'	0'	0'				2		1	29			**Total berm width = 1/2 of median width**
-Y-	33+05.01	31+41.37	RT	134.40			32+27.00	31+98.00	2'	5.5'	0'	0'	0'	0'				2		1	29			**Total berm width = 1/2 of median width**
-Y-	39+58.37	41+21.62	LT	134.40			40+36.00	40+65.00	2'	5.5'	0'	0'	0'	0'				2		1	29			**Total berm width = 1/2 of median width**
-Y-	41+42.63	39+79.37	LT	134.40			40+65.00	40+36.00	2'	5.5'	0'	0'	0'	0'				2		1	29			**Total berm width = 1/2 of median width**
-Y-	-Y- 41+63.84	-Y5- 17+51.52	RT/LT	279.26	34.64'		-Y- 42+00.00	-Y- 44+42.47	14'	14'	50'	0'	1'	0'	1		1							
-L-	-L- 34+72	-L- 38+28	RT																			365		
-L-	-L- 46+94	-L- 52+51	LT																			554		
															6		**10**	**8**	**0**	**4**	**116**	**919**		
			SUBTOTAL	3692.830	470.24																			
		LESS DEDUCTIONS FOR ANCHORS																						
		GREU TL-3 @ 50' EA =		300.00																				
		CAT-1 @ 6.25' E		62.50																				
		B-77 @ 22.875' EA =		183.00																				
		IA-MASH TL-3 @ 21.00' EA =		84.00																				
		PROJECT TOTALS:		3063.33																				
		SAY:		**3087.50**	**487.50**		**Additional Posts**	**10**	**EA**															
							8' Guardrail Posts	**4**	**EA**															**At Retaining Wall 4. See Detail 2C-11**

COMPUTED BY: LRS DATE: 9/17/2021
CHECKED BY: ADS DATE: 3/21/2023

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	3B-3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL SUMMARY

LINE	STATION	STATION	LOCATION	ASPHALT REMOVAL (SY)
L MEDIAN AREA	22+32	30+38	CL	1862
L, Y7	53+55	53+91	RT	110
L MEDIAN AREA	53+98	61+44	CL	1584
L	58+06	58+91	LT	91
L	63+77	64+05	LT	29
Y	19+31	19+69	LT	69
Y	24+31	25+76	LT	198
Y MEDIAN AREA	30+66	36+31	CL	1026
Y	33+70	35+60	LT	150
Y MEDIAN AREA	37+62	42+11	CL	476
Y2	13+25	13+52	RT	30
Y3	12+80	13+11	RT	215
Y4	10+40	11+25	LT,RT	493
Y6	12+14	12+51	RT	24
DRWY8	10+24	11+31	LT,RT	300
TEMPORARY PAVEMENT REMOVAL				
L	34+06	38+00	LT	163
			TOTAL	6820
			SAY	**6820**

CHAIN LINK FENCE, 48" FABRIC

STATION TO STATION	LT OR RT	A	B	C	D	E	F
		FABRIC LF	END BRACE	CORNER BRACE	LINE BRACE	LINE POSTS EA	TERMINAL POSTS EA
-L- 25+20.00 TO 32+41.7	LT	747.97	2	0	1	62.16	3
-L- 61+17.78 TO 61+50.87	LT	37.61	2	0	0	2.80	2
Y 42+93.61 TO 43+13.17	RT	19.56	2	0	0	1.30	2
Y 43+47.04 TO 43+52.51	LT	55.27	2	0	0	4.27	2
TOTAL	0.00	860.41	0	0	0	70.53	9
SAY	**0.00**	**861.00**	**0**	**0**	**0**	**71.00**	**9.00**

CHAIN LINK FENCE, 72" FABRIC

STATION TO STATION	LT OR RT	A	B	C	D	E	F
		FABRIC LF	END BRACE	CORNER BRACE	LINE BRACE	LINE POSTS EA	TERMINAL POSTS EA
-L- 37+13 TO 39+84	LT	633.00	2	5	0	53.25	7
0.00	0.00	0.00	0	0	0	0.00	0
0.00	0.00	0.00	0	0	0	0.00	0
0.00	0.00	0.00	0	0	0	0.00	0
TOTAL	0.00	633.00	0	0	0	53.25	7
SAY	**0.00**	**633.00**	**0**	**0**	**0**	**54.00**	**7.00**

BREAKING OF EXISTING ASPHALT PAVEMENT

LINE	STATION	STATION	LOCATION	SQUARE YARDS
L	62+50	67+35	LT,RT	2473
L	67+64	67+11	LT,RT	151
L	67+64	70+51	LT,RT	715
			TOTAL	3,339
			SAY	**3,340**

TGSLTW1014

COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

PROJECT NO.	SHEET NO.
R-3833C	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)

Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) — SIZE columns: 12, 15, 18, 24, 30, 36, 42, 48; DO NOT USE RCP, DO NOT USE CSP, DO NOT USE CAAP, DO NOT USE HDPE, DO NOT USE PVC (no entries on this sheet)

12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC

C. S. PIPE (no entries on this sheet)

SIZE	12	15	18	24	30	36	42	48
THICKNESS OR GAUGE	.064	.064	.064	.064	.079	.079	.109	.109

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R. C. PIPE CLASS III 12	III 15	III 18	III 24	III 30	III 36	III 42	III 48	R. C. PIPE CLASS IV 12	IV 15	IV 18	IV 24	IV 30	IV 36	IV 42	IV 48
L 20+99	46	LT	0401		840.9																			
			0401	0402		837.5	828.4												252					
L 23+50	45	LT	0402		831.7																			
			0402	0403		828.4	821.2												160					
L 25+13	45	LT	0403		824.7																			
			0403	0423		821.2	820.8												44					
L 25+13	57	RT	0404		824.2																			
			0404	0409		813.4	813.0	0.5												56				
L 21+94	8	RT	0405		838.5																			
			0405	0406		835.0	832.8												36					
L 21+94	45	RT	0406		837.5																			
			0406	0408		832.8	819.7												176					
L 21+94	61	RT	0407		838.0																			
			0407	0406		833.0	832.8				16													
L 23+70	45	RT	0408		830.9																			
			0408	0413		819.7	817.0	0.4											104					
L 25+70	57	RT	0409		821.3																			
			0409	0414		813.0	812.6	0.5												64				
L 24+95	82	RT	0412		827.9																			
			0412	0404		816.8	813.9				32													
L 24+73	57	RT	0413		826.1																			
			0413	0404		817.0	813.9	0.7											40					
DRWY1 10+62	21	LT	0414		819.1																			
			0414	0422		812.6	812.4	0.6												28				
Y1 15+46	29	RT	0415		847.6																			
			0415	0416		844.0	843.7												24					
Y1 15+45	5	RT	0416		848.2																			
			0416	0417		843.7	841.5												44					
Y1 15+52	40	LT	0417		847.6																			
			0417	0418		841.5	840.9												72					
L 19+30	72	RT	0418		845.7																			
			0418	0407		840.9	833.0												264					
Y1 15+83	25	LT	0419		848.9																			
			0419	0417		841.8	841.5												28					
Y1 16+59	23	LT	0420		848.6																			
			0420	0419		842.5	841.8												72					
Y1 16+59	23	RT	0421		848.7																			
			0421	0420		845.5	842.5												44					
L 26+60	45	RT	0422		816.7																			
			0422	0527		812.4	805.5	0.6												128				
L 25+13	0	CL	0423		826.1																			
			0423	0404		814.2	813.9												56					
L 27+90	12	LT	0501		811.7																			
			0501	0502		808.2	800.7												172					
L 29+63	11	LT	0502		804.2																			
			0502	0503		800.7	786.9												172					
L 31+37	5	LT	0503		796.6																			
			0503	0507		786.9	786.6												44					
L 32+57	8	LT	0504		791.0																			
			0504	0529		787.4	787.1												32					
								SHEET TOTALS			48								1836	276				

STRUCTURE	ENDWALLS STD. 838.01 OR STD. 838.11 (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. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	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
0401		1			1			1													
0402		1			1			1													
0403		1			1			1													
0404		1	5.0	0.8	1		1														
0405		1								1			1	1							
0406		1			1		1														
0407		1											1	1							
0408		1	5.0	1.2	1		1														
0409		1	3.3		1		1														
0412		1	5.0	1.1									1	1							
0413		1	4.1		1		1														
0414		1	1.5		1		1														
0415		1			1	1															
0416		1								1			1	1							
0417		1	1.1		1	1															
0418		1			1		1														
0419		1	2.1		1		1														
0420		1	1.1		1			1													
0421		1			1		1														
0422		1			1		1														
0423		1	5.0	1.9																	
0501		1																			1
0502		1																			1
0503		1	4.7							1				1							
0504		1								1			1	1							
SHEET TOTALS		25	37.9	5.0	16	2	10	4		4			5	6							2

STRUCTURE	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	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	OFFSET CB W/ MH, SEE SHEET 2D-3	OFFSET CB W/ SLAB LID, SEE SHEET 2D-4	MIN. DEPTH CB, SEE SHEET 2D-5	DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13	OFFSET DI W/ SLAB LID, SEE SHEET 2D-16	OFFSET 2GI W/ MH, SEE SHEET 2D-17	OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18	CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15	CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15	3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19	15" C.S. ELBOW	18" C.S. ELBOW	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
0423				1			1																	TBJB W/ MH
0501					1																			TRAFFIC BEARING 2GI
0502					1																			TRAFFIC BEARING 2GI
0503												1												OFFSET DI W/ SLAB LID
SHEET TOTALS				1	2		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

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COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-2

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 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 | DO NOT USE PVC | C. S. PIPE SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS III SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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. | 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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
|---|---|---

TGSLTW1014

COMPUTED BY:	BJH	DATE:	8/18/23
CHECKED BY:	REL	DATE:	8/18/23

PROJECT NO.	SHEET NO.
R-3833C	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	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
			0535	0536		783.4	783.1	0.5
L 34+73	57	RT	0537		786.0			
			0537	0538		780.3	771.3	0.4
L 35+77	48	RT	0538		785.5			
			0538	0539		768.3	766.9	0.4
L 37+23	106	LT	0540		781.4			
			0540	0541		771.0	769.2	
L 40+96	7	LT	0542		798.2			
			0542	0543		794.8	790.0	0.6
L 40+00	3	RT	0543		793.4			
			0543	0521		790.0	785.5	0.7
L 42+58	41	LT	0601		804.8			
			0601	0655		800.9	797.8	
L 48+09	132	LT	0602		790.7			
			0602	0625		787.7	787.0	0.3
L 45+25	41	LT	0603		814.6			
			0603	0623		811.3	803.2	0.4
L 47+25	76	LT	0604		817.0			
			0604	0622		813.7	812.6	
L 42+00	6	LT	0605		803.2			
			0605	0542		795.7	794.8	0.6
L 42+28	4	RT	0606		804.9			
			0606	0605		796.0	795.7	0.5
L 42+23	77	RT	0607		801.0			
			0607	0606		796.7	796.0	
Y4 11+33	22	LT	0608		800.4			
			0608	0607		797.8	797.2	
L 43+86	4	RT	0609		811.5			
			0609	0606		803.7	796.0	0.3
L 43+86	77	RT	0610		807.0			
			0610	0609		804.4	803.7	
L 45+00	3	RT	0611		815.8			
			0611	0609		812.3	803.7	
L 46+59	3	LT	0612		819.4			
			0612	0622		813.1	812.6	
L 46+85	72	RT	0613		818.9			
			0613	0612		813.9	813.1	
Y5 10+81	14	LT	0614		823.2			
			0614	0613		819.6	813.9	
Y5 11+34	14	LT	0615		825.2			
			0615	0614		820.1	819.6	
Y5 12+22	14	LT	0616		828.5			
			0616	0615		820.9	820.1	
Y5 13+04	14	LT	0617		830.6			
			0617	0616		827.0	820.9	
Y5 12+40	27	RT	0618		827.5			
			0618	0616		821.3	820.9	
Y5 13+04	18	RT	0619		830.6			
			0619	0617		827.3	827.0	
Y5 13+04	27	RT	0620		831.1			

SIZE / THICKNESS OR GAUGE — Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC); C. S. PIPE; R. C. PIPE CLASS III; R. C. PIPE CLASS IV

FROM	TO	Drainage Pipe 12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C.S. 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R.C. III 12	15	18	24	30	36	42	48	R.C. IV 12	15	18	24	30	36	42	48
0535	0536																											36										
0537	0538																										108											
0538	0539																										32											
0540	0541																										56											
0542	0543																																96					
0543	0521																																100					
0601	0655																																	60				
0602	0625																								16													
0603	0623																																132					
0604	0622																																68					
0605	0542																																100					
0606	0605																																28					
0607	0606																																72					
0608	0607																								60													
0609	0606																																156					
0610	0609																																72					
0611	0609																																112					
0612	0622																																48					
0613	0612																																80					
0614	0613																																184					
0615	0614																																48					
0616	0615																																80					
0617	0616																																80					
0618	0616																																44					
0619	0617																																32					
SHEET TOTALS																									76		196	36					1532	60				

STRUCTURE	ENDWALLS STD. 838.01 OR STD. 838.11 (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		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. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	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	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	OFFSET CB W/ MH, SEE SHEET 2D-3	OFFSET CB W/ SLAB LID, SEE SHEET 2D-4	MIN. DEPTH CB, SEE SHEET 2D-5	DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13	OFFSET DI W/ SLAB LID, SEE SHEET 2D-16	OFFSET 2GI W/ MH, SEE SHEET 2D-17	OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18	CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15	CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15	3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19	15" C.S. ELBOW	18" C.S. ELBOW	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
0537		1	0.7																					1				1																	JB W/ MH
0538		1	5.0	7.2																							1	1																	MH, 5' DIA.
0540		1	5.0	0.4																												1													DRY DETENTION OUTLET STRUCTURE
0540-0541																																										0.6560			30" RCP-III W/ PIPE COLLAR
0542		1								1			1	1																															
0543		1								1			1	1																															
0601		1			1		1																																						
0602		1																										1										1							4 SIDED OTCB W/ MH
0603		1			1		1																																						
0604		1			1	1																																							
0605		1	2.5							1			1	1																															
0606		1	3.9							1				1																			1												OFFSET DI W/ SLAB LID
0607		1											1	1																															
0608		1											1	1																															
0609		1	2.8							1				1																			1												OFFSET DI W/ SLAB LID
0610		1											1	1																															
0611		1								1			1	1																															
0612		1	1.3							1			1	1																															
0613		1											1	1																															
0614		1			1		1																																						
0615		1	0.1		1		1																																						
0616		1	2.6		1		1																																						
0617		1			1		1																																						
0618		1	1.2										1	1																															
0619		1			1			1																																					
0620		1											1	1																															
SHEET TOTALS		25	25.1	7.6	8	1	6	1		7			11	13										1			1	3				1	2					1				0.6560			

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

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

TGSLTW1014

COMPUTED BY:	BJH	DATE:	8/18/23
CHECKED BY:	REL	DATE:	8/18/23

PROJECT NO.	SHEET NO.
R-3833C	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 / SIZE / THICKNESS OR GAUGE	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
			0620	0619		827.6	827.3	
Y5 13+68	14	LT	0621		831.6			
L 46+54	53	LT	0622		817.2			
			0622	0603		812.6	811.3	0.4
L 43+86	41	LT	0623		809.7			
			0623	0601		802.8	800.9	
L 48+84	54	LT	0627		796.5			
			0627	0626		790.5	787.5	
L 49+36	42	LT	0628		818.0			
			0628	0651		812.7	811.9	0.3
L 49+36	8	RT	0629		820.2			
			0629	0628		816.4	814.5	
L 50+34	41	LT	0630		819.1			
			0630	0628		813.8	812.7	
L 52+78	41	LT	0631		824.2			
			0631	0654		817.8	817.0	
L 52+78	6	LT	0632		823.3			
			0632	0631		819.2	818.8	
L 53+18	7	RT	0633		823.4			
			0633	0632		819.6	819.2	
L 53+13	48	LT	0634		826.0			
			0634	0631		818.2	817.8	
Y6 11+70	25	RT	0635		824.3			
			0635	0653		819.2	819.0	
Y6 11+96	22	LT	0636		823.8			
			0636	0653		820.5	819.0	
L 54+04	41	LT	0637		826.6			
			0637	0634		821.3	818.2	
L 54+04	9	LT	0638		825.5			
			0638	0637		822.0	821.7	
L 50+01	46	RT	0639		821.0			
L 50+05	70	RT	0640		818.5			
			0640	0639		814.5	814.3	0.3
L 50+92	42	RT	0641		820.8			
			0641	0639		815.9	809.2	0.4
L 51+33	69	RT	0642		824.5			
			0642	0641		818.6	815.9	
L 51+58	66	RT	0643		823.9			
			0643	0642		820.6	818.6	
L 52+05	0	CL	0644		822.2			
			0644	0654		818.4	818.0	
L 52+05	49	RT	0645		821.3			
			0645	0641		817.4	816.3	
L 52+78	49	RT	0646		821.7			
			0646	0645		817.9	817.4	
L 53+04	74	RT	0647		825.4			
			0647	0646		819.5	818.4	
Y7 10+72	17	RT	0648		823.6			
			0648	0647		820.0	819.5	
Y7 10+72	17	LT	0649		823.6			
							SHEET TOTALS	

FROM	TO	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC)													C. S. PIPE								R. C. PIPE CLASS III								R. C. PIPE CLASS IV							
		12	15	18	24	30	36	42	48	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	12 .064	15 .064	18 .064	24 .064	30 .079	36 .079	42 .109	48 .109	12	15	18	24	30	36	42	48	12	15	18	24	30	36	42	48
0620	0619																								8													
0622	0603																																120					
0623	0601																																	124				
0627	0626																													60								
0628	0651																																				76	
0629	0628																																48					
0630	0628																																				92	
0631	0654																																				76	
0632	0631																																36					
0633	0632																																40					
0634	0631																																				36	
0635	0653																																24					
0636	0653																																48					
0637	0634																																				96	
0638	0637																																32					
0640	0639																									24												
0641	0639																																			96		
0642	0641																											52										
0643	0642																								24													
0644	0654																																40					
0645	0641																																	112				
0646	0645																																	68				
0647	0646																								36													
0648	0647																								48													
SHEET TOTALS																									116	24		52		60			388	304		96	376	

STRUCTURE	ENDWALLS STD. 838.01 OR STD. 838.11 (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
0621		1	5.0	0.5	1		1							
0622		1			1		1							
0623		1	1.9		1		1							
0627		1	1.0											
0628		1	0.3		1	1								
0629		1								1			1	1
0630		1	0.3		1		1							
0631		1	1.4		1		1							
0632		1								1			1	1
0633		1								1			1	1
0634		1	2.8		1		1							
0635		1	0.1		1	1								
0636		1												
0637		1	0.3		1		1							
0638		1												
0639		1	5.0	3.8	1			1						
0640		1											1	1
0641		1			1			1						
0642		1	0.9											
0643		1			1	1								
0644		1								1			1	1
0645		1						1						
0646		1						1						
0647		1	0.9		1	1								
0648		1			1			1						
0649		1			1		1							
SHEET TOTALS		26	19.9	4.3	15	4	8	5		4			5	5

STRUCTURE	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. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	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	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	OFFSET CB W/ MH, SEE SHEET 2D-3	OFFSET CB W/ SLAB LID, SEE SHEET 2D-4	MIN. DEPTH CB, SEE SHEET 2D-5	DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13	OFFSET DI W/ SLAB LID, SEE SHEET 2D-16	OFFSET 2GI W/ MH, SEE SHEET 2D-17	OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18	CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15	CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15	3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19	15" C.S. ELBOW	18" C.S. ELBOW	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
0627										1																					JB W/ SLAB LID
0636								1	30																						DRIVEWAY DI, GRATE L=30'
0638							1					1																			TRAFFIC BEARING 2GI
0642													1	1																	MH, 6' DIA.
0645														1	1																OFFSET CB W/ MH
0646														1	1																OFFSET CB W/ MH
SHEET TOTALS							1	1	30	1		1	1	3	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

T:\SLT\W1014

COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-5

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 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 | DO NOT USE PVC | C. S. PIPE SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS III SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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. | 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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
|---|---|---

TGSLTW1014

COMPUTED BY:	BJH	DATE:	8/18/23
CHECKED BY:	REL	DATE:	8/18/23

PROJECT NO.	SHEET NO.
R-3833C	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	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage 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	DO NOT USE PVC
			0719	0801		826.0	824.9	0.6													
L 67+12	12	RT	0720		838.3																
			0720	0719		834.4	833.5														
L 55+68	41	RT	0721		828.0																
			0721	0650		824.7	820.3														
L 56+17	53	RT	0722		832.3																
L 57+27	42	RT	0723		833.6																
			0723	0721		830.3	824.7														
L 58+67	59	RT	0724		837.9																
			0724	0745		832.4	831.7														
L 58+92	73	RT	0725		835.6																
			0725	0726		833.4	833.3														
L 59+09	75	RT	0726		835.7																
L 59+99	66	RT	0727		843.4																
			0727	0724		835.1	832.4														
L 59+99	95	RT	0728		838.0																
			0728	0727		835.4	835.1														
Y 38+77	73	RT	0729		846.3																
Y 39+39	89	RT	0730		839.9																
Y 39+56	55	RT	0731		846.9																
			0731	0730		835.6	831.9														
Y 40+48	55	RT	0732		845.8																
			0732	0731		842.5	835.6														
Y 42+30	43	RT	0733		845.1																
			0733	0735		833.5	832.7														
Y 42+30	76	RT	0734		836.4																
			0734	0733		833.8	833.5														
Y 42+95	43	RT	0735		844.7																
			0735	0736		832.7	828.6														
Y 42+95	76	RT	0736		831.5																
Y 42+95	5	LT	0737		845.6																
			0737	0735		835.0	832.7														
Y 42+85	65	LT	0738		844.3																
			0738	0737		835.5	835.0														
Y 40+97	55	LT	0739		845.8																
			0739	0744		842.5	841.5														
Y 39+50	8	LT	0740		848.5																
			0740	0741		844.9	841.9														
Y 38+71	8	LT	0741		849.7																
Y 34+45	9	LT	0742		851.0																
			0742	0743		847.2	845.6														
Y 34+45	43	LT	0743		852.2																
			0743	0712		841.2	840.8														
Y 42+05	55	LT	0744		844.9																
			0744	0738		841.5	838.4														
L 57+93	50	RT	0745		835.6																
			0745	0723		831.7	830.3														
L 66+51	11	RT	0746		841.5																
			0746	0720		837.7	834.4														
L 66+14	99	RT	0747									128									
								SHEET TOTALS				128									

FROM	TO	C. S. PIPE 12 (.064)	15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)	48 (.109)	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
0719	0801																				108					
0720																										
0720	0719																			48						
0721																										
0721	0650																			140						
0722																										
0723																										
0723	0721																			148						
0724																										
0724	0745																			68						
0725																										
0725	0726																		16							
0726																										
0727																										
0727	0724																			124						
0728																										
0728	0727											28														
0729																										
0730																										
0731																										
0731	0730											40														
0732																										
0732	0731																			92						
0733																										
0733	0735																			64						
0734																										
0734	0733											32														
0735																										
0735	0736																			32						
0736																										
0737																										
0737	0735																			48						
0738																										
0738	0737																			60						
0739																										
0739	0744																			108						
0740																										
0740	0741																			76						
0741																										
0742																										
0742	0743																			32						
0743																										
0743	0712																				80					
0744																										
0744	0738																			80						
0745																										
0745	0723																			60						
0746																										
0746	0720																			60						
0747																										
SHEET TOTALS												100							16	1240	188					

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. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	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
0719	0801																				
0720		1																			1
0720	0719																				
0721		1			1			1													
0721	0650																				
0722		1			1	1															
0723		1			1			1													
0723	0721																				
0724		1	0.5		1			1													
0724	0745																				
0725		1				1															
0725	0726																				
0726		1				1															
0727		1	3.3		1			1													
0727	0724																				
0728		1											1	1							
0728	0727																				
0729																					
0730		1	3.0										1	1							
0731		1	5.0	1.3	1		1														
0731	0730																				
0732		1			1		1														
0732	0731																				
0733		1	5.0	1.6	1		1														
0733	0735																				
0734		1											1	1							
0734	0733																				
0735		1	5.0	2.0	1		1														
0735	0736																				
0736		1				1															
0737		1	5.0	0.6						1				1							
0737	0735																				
0738		1	3.8		1			1													
0738	0737																				
0739		1			1			1													
0739	0744																				
0740		1																			1
0740	0741																				
0741		1	2.8																		1
0742		1																			1
0742	0743																				
0743		1	5.0	1.0	1			1													
0743	0712																				
0744		1			1			1													
0744	0738																				
0745		1			1			1													
0745	0723																				
0746		1																			1
0746	0720																				
0747																					
SHEET TOTALS		26	38.4	6.5	14	4	4	9		1			3	4							5

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	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	OFFSET CB W/ MH, SEE SHEET 2D-3	OFFSET CB W/ SLAB LID, SEE SHEET 2D-4	MIN. DEPTH CB, SEE SHEET 2D-5	DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13	OFFSET DI W/ SLAB LID, SEE SHEET 2D-16	OFFSET 2GI W/ MH, SEE SHEET 2D-17	OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18	CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15	CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15	3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19	15" C.S. ELBOW	18" C.S. ELBOW	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
0719	0801																								
0720						1																			TRAFFIC BEARING 2GI
0720	0719																								
0721																									
0721	0650																								
0722																									
0723																									
0723	0721																								
0724																									
0724	0745																								
0725											1														MIN. DEPTH CB
0725	0726																								
0726											1														MIN. DEPTH CB
0727																									
0727	0724																								
0728																									
0728	0727																								
0729								1								1									ADJ. EXIST. DI AND CONVERT TO JB W/ MH
0730																									
0731																									
0731	0730																								
0732																									
0732	0731																								
0733																									
0733	0735																								
0734																									
0734	0733																								
0735																									
0735	0736																								
0736											1														MIN. DEPTH CB
0737													1												OFFSET DI W/ SLAB LID
0737	0735																								
0738																									
0738	0737																								
0739																									
0739	0744																								
0740															1										OFFSET 2GI W/ SLAB LID
0740	0741																								
0741								1						1											OFFSET 2GI W/ MH
0742						1																			TRAFFIC BEARING 2GI
0742	0743																								
0743																									
0743	0712																								
0744																									
0744	0738																								
0745																									
0745	0723																								
0746						1																			TRAFFIC BEARING 2GI
0746	0720																								
0747																									
SHEET TOTALS						3		2			3		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

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COMPUTED BY: BJH DATE: 8/18/23

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NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-7

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 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 | DO NOT USE PVC | C. S. PIPE SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | THICKNESS OR GAUGE .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 | R. C. PIPE CLASS III SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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. | 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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
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COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-8

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 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 | DO NOT USE PVC | C. S. PIPE THICKNESS OR GAUGE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS III: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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 | 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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
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COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-9

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 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 | DO NOT USE PVC | C. S. PIPE SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS III SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV SIZE: 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
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COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3D-10

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 % | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) THICKNESS OR GAUGE DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | C. S. PIPE .064 | .064 | .064 | .064 | .079 | .079 | .109 | .109 | R. C. PIPE CLASS III 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | ENDWALLS STD. 838.01 OR STD. 838.11 (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. SAG) FRAME W/ GRATE STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22 | 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 | M.H. STD. 840.51, STD. 840.52, OR STD. 840.53 | M.H. FRAME AND COVER STD. 840.54 | OFFSET CB W/ MH, SEE SHEET 2D-3 | OFFSET CB W/ SLAB LID, SEE SHEET 2D-4 | MIN. DEPTH CB, SEE SHEET 2D-5 | DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13 | OFFSET DI W/ SLAB LID, SEE SHEET 2D-16 | OFFSET 2GI W/ MH, SEE SHEET 2D-17 | OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18 | CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15 | CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15 | 3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19 | 15" C.S. ELBOW | 18" C.S. ELBOW | 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 |
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COMPUTED BY:	BJH	DATE:	8/18/23
CHECKED BY:	REL	DATE:	8/18/23

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	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		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
Y 28+01	3	RT	3				FILL EXIST. 18" RCP (PARTIAL)
Y 27+92	27	RT				9	REMOVE EXIST.18" RCP (PARTIAL)
Y 27+55	32	RT				68	REMOVE EXIST. 12" RCP / 15" HDPE
Y 26+21	33	RT				16	REMOVE EXIST. 12" RCP
Y 31+74	25	LT				48	REMOVE EXIST. 18" RCP
Y 28+75	28	RT				56	REMOVE EXIST. 15" RCP
Y 29+53	29	RT				44	REMOVE EXIST. 15" RCP
Y 30+41	31	RT				27	REMOVE EXIST. 12" RCP
Y 29+93	45	RT				23	REMOVE EXIST. 15" RCP
Y 29+94	47	RT				23	REMOVE EXIST. 15" RCP
L 47+23	180	LT				216	REMOVE EXIST. 48" CMP / 60" HDPE
L 50+06	64	RT				15	REMOVE EXIST. 24" RCP (PARTIAL)
L 50+03	48	RT				6	REMOVE EXIST. 48" RCP (PARTIAL)
L 59+02	73	RT				12	REMOVE EXIST. 15" RCP (PARTIAL)
L 58+93	72	RT				5	REMOVE EXIST. 6" DIP (PARTIAL)
L 52+96	62	RT				27	REMOVE EXIST. 18" RCP
L 49+71	13	LT				55	REMOVE EXIST. 15" RCP
L 51+52	61	RT				15	REMOVE EXIST. 18" CMP
Y5 16+06	18	RT				20	REMOVE EXIST. 12" HDPE
L 63+98	49	LT				40	REMOVE EXIST. 18" RCP
L 66+13	36	RT				75	REMOVE EXIST. 24" RCP
L 69+72	61	LT				32	REMOVE EXIST. 15" RCP
L 70+27	54	LT				80	REMOVE EXIST. 18" RCP
L 70+63	61	LT				20	REMOVE EXIST. 12" CMP
DRWY4 11+05	2	LT				52	REMOVE EXIST. 18" RCP
L 71+31	38	LT				32	REMOVE EXIST. 18" RCP
L 71+75	34	LT				17	REMOVE EXIST. 18" RCP
L 67+20	75	LT				35	REMOVE EXIST. 24" CMP
L 76+21	26	LT				22	REMOVE EXIST. 24" RCP
Y 14+36	23	RT				35	REMOVE EXIST. 12" RCP
Y 15+44	23	RT				48	REMOVE EXIST. 15" RCP
Y 16+90	22	RT				39	REMOVE EXIST. 15" CMP
Y 18+46	24	RT				29	REMOVE EXIST. 12" RCP
Y 19+71	49	LT			0.029		PLUG EXIST. 6" HDPE
Y 47+55	38	RT				27	REMOVE EXIST. 15" CMP
Y 51+51	33	RT				33	REMOVE EXIST. 24" RCP
Y 51+90	34	RT				46	REMOVE EXIST. 18" RCP
Y 52+49	35	RT				69	REMOVE EXIST. 18" RCP
Y 53+72	34	RT				25	REMOVE EXIST. 24" RCP
Y 56+60	90	RT				145	REMOVE EXIST. 24" RCP
Y 57+66	93	RT				62	REMOVE EXIST. 30" CMP
Y 51+09	53	LT				43	REMOVE EXIST. 15" RCP
Y 50+83	31	LT				41	REMOVE EXIST. 15" HDPE
Y 51+61	31	LT				113	REMOVE EXIST. 15" RCP
Y 52+25	33	LT				15	REMOVE EXIST. 15" HDPE
Y 52+64	33	LT				62	REMOVE EXIST. 15" HDPE
Y 53+57	34	LT				24	REMOVE EXIST. 24" RCP
Y 55+24	40	LT				49	REMOVE EXIST. 12" RCP
Y 56+07	40	LT				112	REMOVE EXIST. 15" HDPE

COLUMN	SHEET TOTALS	PROJECT TOTALS
STRUCTURE NUMBER – FROM		
STRUCTURE NUMBER – TO		
TOP ELEVATION (FT.)		
INVERT ELEVATION (FT.)		
INVERT ELEVATION (FT.)		
MINIMUM REQUIRED SLOPE (%)		
Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12		
Drainage Pipe 15		136
Drainage Pipe 18		200
Drainage Pipe 24		200
Drainage Pipe 30		68
Drainage Pipe 36		
Drainage Pipe 42		
Drainage Pipe 48		
DO NOT USE RCP		
DO NOT USE CSP		
DO NOT USE CAAP		
DO NOT USE HDPE		
DO NOT USE PVC		
C. S. PIPE 12 (.064)		
C. S. PIPE 15 (.064)		
C. S. PIPE 18 (.064)		116
C. S. PIPE 24 (.064)		
C. S. PIPE 30 (.079)		
C. S. PIPE 36 (.079)		
C. S. PIPE 42 (.109)		
C. S. PIPE 48 (.109)		
R. C. PIPE CLASS III 12		
R. C. PIPE CLASS III 15		116
R. C. PIPE CLASS III 18		1160
R. C. PIPE CLASS III 24		220
R. C. PIPE CLASS III 30		228
R. C. PIPE CLASS III 36		132
R. C. PIPE CLASS III 42		52
R. C. PIPE CLASS III 48		60
R. C. PIPE CLASS IV 12		
R. C. PIPE CLASS IV 15		16
R. C. PIPE CLASS IV 18		9272
R. C. PIPE CLASS IV 24		3100
R. C. PIPE CLASS IV 30		376
R. C. PIPE CLASS IV 36		708
R. C. PIPE CLASS IV 42		1124
R. C. PIPE CLASS IV 48		
ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) (CY)		
QUANTITIES FOR DRAINAGE STRUCTURES – 0' THRU 5' (EACH)		223
QUANTITIES FOR DRAINAGE STRUCTURES – A: 5' THRU 10' (LIN. FT.)		271.4
QUANTITIES FOR DRAINAGE STRUCTURES – B: 10' AND ABOVE (LIN. FT.)		
C.B. STD. 840.01 OR STD. 840.02		122
FRAME, GRATES, AND HOOD STD. 840.03 – GRATE TYPE E		17
FRAME, GRATES, AND HOOD STD. 840.03 – GRATE TYPE F		54
FRAME, GRATES, AND HOOD STD. 840.03 – GRATE TYPE G		59
FRAME, GRATES, AND HOOD STD. 840.03 – (blank)		
CONCRETE TRANSITIONAL SECTION – D.I. STD. 852.04 OR STD. 852.06		36
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		53
D.I. FRAME AND GRATES STD. 840.16		59
G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26		3
G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27		4
G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28		1
G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22		
G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22		
G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24		9
G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29		13
DRIVEWAY D.I. STD. 840.30		1
FRAME W/ GRATE FOR DRIVEWAY STD. 840.30		30
J.B. STD. 840.31 OR STD. 840.32		6
T.B.J.B. STD. 840.34		1
T.B.D.I. STD. 840.35		11
M.H. STD. 840.51, STD. 840.52, OR STD. 840.53		3
M.H. FRAME AND COVER STD. 840.54		16
OFFSET CB W/ MH, SEE SHEET 2D-3		3
OFFSET CB W/ SLAB LID, SEE SHEET 2D-4		2
MIN. DEPTH CB, SEE SHEET 2D-5		3
DRY DET. OUTLET CTL. STR, SEE SHEET 2D-13		1
OFFSET DI W/ SLAB LID, SEE SHEET 2D-16		6
OFFSET 2GI W/ MH, SEE SHEET 2D-17		1
OFFSET 2GI W/ SLAB LID, SEE SHEET 2D-18		1
CONVERT EXIST. D.I. TO J.B., SEE SHEET 2D-15		1
CONVERT EXIST. C.B. TO J.B., SEE SHEET 2D-15		1
3 OR 4 SIDED OTCB, SEE DETAIL SHEET 2D-19		1
15" C.S. ELBOW		
18" C.S. ELBOW		4
FLOWABLE FILL (CY)	3	20
CONCRETE COLLARS CL. "B" STD. 840.72 (CY)		1.5490
CONCRETE AND BRICK PIPE PLUG STD. 840.71 (CY)	0.029	0.139
PIPE REMOVAL (LIN. FT.)	2107	4502

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

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

TGSLTW1014

COMPUTED BY: BJH DATE: 8/18/23

CHECKED BY: REL DATE: 8/18/23

PROJECT NO.	SHEET NO.
R-3833C	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 54 INCHES & OVER)

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 %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 54	60	66	72	78	84	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 54	60	66	72	78	84	R. C. PIPE CLASS III 54	60	66	72	78	84	R. C. PIPE CLASS IV 54	60	66	72	78	84	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
L 46+00	248 LT	0624		786.0																																		9.500				
		0624	0656		777.5	776.8																				68																
L 47+94	123 LT	0625		798.0																																		13.800				
		0625	0624		783.5	777.5																				192																
L 48+29	87 LT	0626		809.6																																		20.000				
		0626	0625		786.5	783.5																				44																
L 44+98	257 LT	0656																																			11.600					
SHEET TOTALS																										304											11.600	43.300				
PROJECT TOTALS																										304											11.600	43.300				

LINE & STATION	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	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	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/ GRATE STD. 840.22	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/ GRATE STD. 840.29	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	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	SPECIAL DESIGN ENDWALL, SEE SHEET 2D-1	SPECIAL DESIGN MH, SEE SHEET 2D-6	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	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 46+00																											1		1											MH SPC DSN, 8' DIA
L 47+94																											1		1											MH SPC DSN, 8' DIA
L 48+29																											1		1											MH SPC DSN, 8' DIA
L 44+98																												1												SPC DSN ENDWALL
SHEET TOTALS																											3	1	3											
PROJECT TOTALS																											3	1	3											

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:	BJH	DATE:	8/18/2023
CHECKED BY:	REL	DATE:	8/18/2023

(08-05-21)

TIP/PROJECT NO.	SHEET NO.
R-3833C	3D- 13

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

Note: Not intended for use in determining bid quantities. Only a stormwater control measure device summary list for easy reference and location.

SUMMARY OF STORMWATER CONTROL MEASURES

CONST SHEET NO.	SCM TYPE	LINE	STATION	Location LT/RT/CL	Latitude	Longitude
5	Dry Detention Basin	-L-	38+00	LT	35.577324	-80.847116

SUMMARY OF STORMWATER CONTROL MEASURES

CONST SHEET NO.	SCM TYPE	LINE	STATION	Location LT/RT/CL	Latitude	Longitude

SUMMARY OF STORMWATER CONTROL MEASURES

CONST SHEET NO.	SCM TYPE	LINE	STATION	Location LT/RT/CL	Latitude	Longitude

COMPUTED BY: W. Scott Hunsberger DATE: 1/12/22
CHECKED BY: Jeremy R. Hamm DATE: 1/12/22

(12-17-19)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
R-3833C	3G-1

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	500
				TOTAL LF:	500

***UD = Underdrain**
***BD = Blind Drain**
***SD = Subsurface Drain**

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	21+00	23+50	ASU(1)	12	450	960	1450		
-L-	71+25	72+25	ASU(1)	12	50	120	200		
-L-	74+00	75+50	ASU(1)	12	150	400	550		
-Y-	19+25	25+00	ASU(1)	12	800	1770	2700		
-Y5-	15+00	17+50	ASU(1)	12	100	200	300		
CONTINGENCY			ASU(1)	12	400	800	1200		
				TOTAL CY/TONS/SY:	1950	4250**	6400**	0	0

***ASU(1/2) = Aggregate Subgrade (Type 1 or 2)**
***AST = Aggregate Stabilization**
****Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Soil Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.**

PROJ. REFERENCE NO.	SHEET NO.
R-3833C	3P-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PARCEL INDEX SHEET

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
1	4	BLACKWELDER DONALD L+SHARON
2	4	BRAWLEY BOBBY P+BETTY M
3	4	WELCH CAROL M+EDWARD T MARZANO
4	4	IH6 PROPERTY NC LP
5	4	SCAGLIONE MICHAEL L
6	4	GFS DEVELOPMENT INC
7	4,5	ST THERESE CATHOLIC CHURCH
8	4	GARCIA REYES V+MARTHA A MARQUEZ CARDENAS
009	4	BERTUCCI ROBERT J+MARIA
010	4,5	WELLS KERRY ELLEN
011	5	GARDNER CHRISTIAN A
012	5	DIRTY MO ACRES LLC
013	5	JOLLY DARREN B
014	5	LAURA G. MORGAN AND HUSBAND, JEFFREY P. MORGAN
015	5	SCHAUMBURG PAUL E
016	5	SPADE EDWARD C JR
017	5	GFS DEVELOPMENT INC
018	5	CNB CORP
019	5	MARLO CORPORATION
020	5	RICHARD CHARLENE LNew Owner: Mark Webber
021	5	TURNER JOHNNY DOUGLAS JR
022	5	JOSE FRIAS
023	5	TURNER HARVEY O+DARLENE J
024	5	PAPUGA ROBERT J
025	5	OSTEC REALTY LLC
026	5,6	ZDRENTAN DUMITRU+LIDIA
027	5,6	MORTON DANIELLE L+BRENT A
028	6	BOGGS KATHY
029	6	RANDAZZO DONALD JAMES II+ANGELA
030	6	GREENLEE WARREN+ROGER WAY JR+M SHEA
031	6	DEW DANIEL JOSEPH
032	6	ALEXANDER CHARLES B REVOC LVG TR
033	6	BURNS TAMMY L
034	6	TUTOR TIME MOORESVILLE LLC
035	6	NESTER P JEAN
036	6	HARRIS ALBERT
037	6	MCGINNIS DAVID M+ELIZABETH A
038	6	BARTEAU CURTIS+BARBARA
039	6	MULTIPLE CONDO OWNERS OF 125 COMMERCE PARK
040	6	HACKETT DAVID F+MARIANNA A
041	6	THEISEN FAMILY TRUST
042	6,7	HUTCHISON WILLIAM A+FAYE A
043	6,7	STATE EMPLOYEES CREDIT UNION
044	6,7	SNH SE MOORESVILLE LLC
045	7	NASSAR+SIMONETTI INVESTMENT LLC
046	7	RUSHER OIL COMPANY
047	7,8,11	TOWN OF MOORESVILLE
048	7,8,10	HC 2000 INC
049	8	PERRO DAVID+SARAH
050	8	LHNH COUNTRY CLUB APARTMENTS LLC
051	8	TOWN OF MOORESVILLE
052	8	WALLACH BRIAN K+SUSAN T
053	8	GIBBS JOE B JR+CATHY M
054	8	MASCOLO PETER A
055	8	AMMASAI PALANISAMY+THAVAPRI
056	9	BSL SALES & RENTALS LLC
057/058	9	SPIFFY LUBE PROPERTIES LLC
059/060	9	BSL SALES & RENTALS LLC
061	9	VICKIE A MILLER
062	9	E.L. & SANDRA M JAMES

PARCEL No.	SHEET No.	PROPERTY OWNER NAME
063	9	HILDA L MORTON
064	9	COFFEY PROPERTIES LLC
065	9,10	WALLACE J. PERRIEN & MARY B. PERRIEN TRUSTEES OF THE WALLACE J. PERRIEN AND MARY B. PERRIEN REVOCABLE TRUST
066	10	ROBERT D & ALICE J KERLIN
067	10	STEPHEN B & JANET O POPE
068	10	MARATHEA GROUP LLC
069	10	GLENDA M SLATER & JUDITH M MCDANIELS
070	10	GATES CONSTRUCTION COMPANY
071	10	TOWN & COUNTRY STORAGE MOORESVILLE LLC
072	7,10	RHG DEVELOPMENT CO LLC
073	7,11	BRAWLEY COMMERCE PARK COA INC
074	11	COUNTRY ROADS OF THE CAROLINAS LLC
075	11	DAVID T & JACALYN BEST
076	11	GEORGE HOLSHOUSER & LORRA LEE HOLSHOUSER
077	11	LORRA LEE HOLSHOUSER
078	11	GEORGE HOWARD HOLSHOUSER
079	11	RHONDA H AND CHRISTOPHER DISIBBIO
080	11	ABBERLY GREEN MOORESVILLE PHASE II LIMITED PARTNERSHIP
081	11	ATIRAM, LLC
082	6,11	TOWN OF MOORESVILLE
083	10	SOUTHERN TRUCKIN HOLDINGS, LLC
084	11	GAREN NELSON
085/089	11	GLENDA S. DINGLER
086	6	TERRY WAYNE BROWN AND WIFE, BARBARA J. BROWN
087/088	11	KAZAKOS BROTHERS PROPERTIES, LLC
090	11	KENNETH A. AND SUSAN B KOONTZ
091	11	LAKE NORMAN CHRISTIAN MINISTRIES
092	11	ABBERLY GREEN MOORESVILLE PHASE I LIMITED PARTNERSHIP
093	9	JAMES D. CABE, JR. AND FRANCES B. CABE
094	9	THOMAS E. BRIDGES AND WIFE, TELMA BRIDGES
095	6	RWS REAL ESTATE INVESTMENTS
096	6	JERRY W. PARTIN

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	04
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A. Dean Sarvis
10/16/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin Henegar
10/16/2023

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

Stantec
Stantec Consulting Services Inc
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

FOR -L- PROFILE SEE SHEET 12
FOR -Y1- PROFILE SEE SHEET 17
FOR -Y2- PROFILE SEE SHEET 17
FOR -DRWY1- PROFILE SEE SHEET 19

UPGRADE EXISTING SIGNAL

NAD 83/NA 2011

BEGIN PROJECT R-3833C
-L- POT STA. 17+52.26

BEGIN CONSTRUCTION
-Y1- POT STA. 13+00.00
BEGIN CONSTRUCTION
-Y2- POT STA. 13+00.00

JOSE CHALITA BRUZUAL
CARMEN MORENO DE CHALITA
DB 2321 PG 2027
PB 23 PG 27
POT Sta. 10+00.00

EDWARD R. PRICE, JR.
BONNIE S. PRICE
DB 927 PG 333
PB 23 PG 27

BARRY KEITH DEEL
REBECCA R. DEEL
DB 1403 PG 2742
PB 23 PG 27

DAVID L. HARDING
DEBORAH L. HARDING
DB 1736 PG 2146
PB 23 PG 27

INAE PARRISH
MICHAEL PARRISH
DB 2200 PG 456
PB 23 PG 27

BRAWLEY BOBBY P & BETTY M
DB 2390 PG 1814
PB 22 PG 65

CAROL M. WELCH
EDWARD T. MARZANO
DB 13E PG 679
DB 2199 PG 1560
PB 23 PG 27

JIMMY G. CALDWELL
DB 1372 PG 1683

PT Sta. 17+39.18

DB 727 PG 440
DOYLE A. TILLIS
FANNETTA R. TILLIS

JOHN J. MAHONEY
REGINA M. MAHONEY
DB 2374 PG 972
PB 23 PG 27

DARREN B. JOLLY
DB 930 PG 1466
PB 23 PG 27
POT Sta. 10+00.00

BY26-85

DB 2319 PG 2218
BETHANY S. HOWARD
PB 23 PG 27

PAUL H. MORGAN
VANDA J. MORGAN
DB 1757 PG 2218
PB 23 PG 116

-L- POT Sta. 26+03.04
-DRWY1- POT STA. 10+00.00
S 8° 03' 17.4" W

CARL M. KORCZYKOWSKI
LORI J. KORCZYKOWSKI
DB 2275 PG 574
PB 23 PG 27

GFS DEVELOPMENT, INC.
DB 981 PG 903
PB 23 PG 27

MICHAEL L. SCAGLIONE
DB 1938 PG 1459
PB 23 PG 116

GFS DEVELOPMENT, INC.
DB 981 PG 903
PB 23 PG 116

REYES V. GARCIA
MARTHA A. MAROUEZ-CARDENAS
DB 1956 PG 333
PB 23 PG 116

ROBERT J. BERTUCCI
MARIA BERTUCCI
DB 1003 PG 58
PB 23 PG 116

WELLS KERRY ELLEN
DB 2574 PG 713
PB 23 PG 116

I16 PROPERTY NC LP
DB 2466 PG 1269
PB 23 PG 27

S 17° 41' 28.6" W -Y2-

S 11° 46' 00.0" W

-L- POT Sta. 21+86.27
-Y2- POT STA. 14+03.25

-L- POT Sta. 18+17.35
-Y1- POT Sta. 14+84.94

END CONSTRUCTION
-DRWY1- POC STA. 11+05.00
PT Sta. 11+49.85
S 1° 36' 10.5" E

POT Sta. 12+00.00

PC Sta. 15+29.03

PT Sta. 15+95.54

POT Sta. 20+13.48

S 8° 19' 59.1" E 201.00

S 70° 34' 26.0" E

PC Sta. 10+82.43

MATCHLINE -L- STA 27+00.00 SEE SHEET 5

-Y1-
PI Sta 15+62.88
△ = 26° 05' 59.1" (LT)
D = 39° 14' 37.3"
L = 66.51'
T = 33.84'
R = 146.00'
SE = EXIST.

-L-

PI Sta 14+92.44	PI Sta 29+82.38
△ = 18° 53' 52.5" (RT)	△ = 25° 07' 19.4" (RT)
D = 3° 47' 39.9"	D = 4° 46' 28.7"
L = 498.04'	L = 526.16'
T = 251.30'	T = 267.37'
R = 1,510.00'	R = 1,200.00'
SE = .04	SE = .04
INC = EXIST./49'	INC = 49'

-DRWY1-
PI Sta 11+16.22
△ = 9° 39' 27.8" (LT)
D = 14° 19' 26.2"
L = 67.42'
T = 33.79'
R = 400.00'
SE = SEE PLANS
INC = 18'

WILLIAM L. PETTIT
VERNIE B. PETTIT
DB 1333 PG 1920
PB 17 PG 21

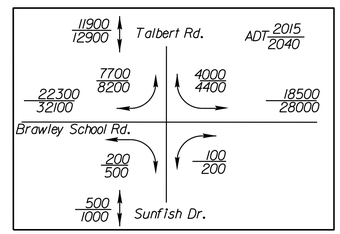
JEREMY E. KLINGEL
DB 13E PG 570
DB 2157 PG 1754
PB 17 PG 21

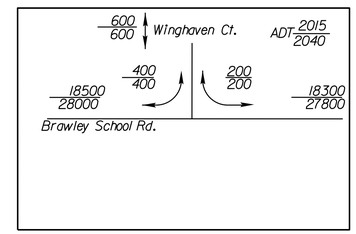
TERRY A. BOYLES
TERESA S. BOYLES
DB 822 PG 451
PB 17 PG 21

END CONSTRUCTION
-Y1- POT STA. 18+84.36

1 DONALD L. BLACKWELDER
SHARON P. BLACKWELDER
DB 753 PG 794
PB 17 PG 21

7 DB 685 PG 508
DB 685 PG 504
PB 27 PG 15
ST. THERESE CATHOLIC CHURCH
C/O MICHAEL J. BEGLEY
BISHOP OF THE ROMAN CATHOLIC
DIOCESE OF CHARLOTTE





10/16/2023
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PostScript

5/14/99

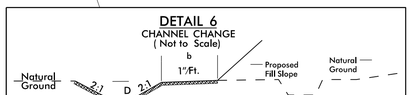
-L-	-DRWY2-
PI Sta 29+82.38	PI Sta 38+56.09
△ = 25° 07' 19.4" (RT)	△ = 46° 35' 27.8" (LT)
D = 4° 46' 28.7"	D = 5° 43' 46.5"
L = 526.16'	L = 813.17'
T = 267.37'	T = 430.58'
R = 1,200.00'	R = 1,000.00'
SE = .04	SE = .04
INC = 49'	INC = 49'

DETAIL 5
LATERAL BASE DITCH
(Not to Scale)

*When B is < 6.0'
Type of Liner= Class "I" Rip-Rap
D= 2.0 Ft.
B= 4.0 Ft.
b= 5.0 Ft.

FROM -L- STA. 29+00 TO STA. 33+00 LT

DETAIL 6
CHANNEL CHANGE
(Not to Scale)



Type of Liner= Class "II" Rip-Rap*
D= 2.0 Ft.
B= 5.0 Ft.
b= 5.0 Ft.
*Rip-Rap to be Keyed-In, Embedded Below Stream Bed, and Top-Dressed with Native Material to Remove Voids.

FROM -L- STA. 33+00 TO STA. 35+55 LT

FOR -L- PROFILE SEE SHEET 12 AND 13
FOR -DRWY2- PROFILE SEE SHEET 19

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	05
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
Digitally signed by A Dean Sarvis
10/16/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Digitally signed by Benjamin J. Henegar
10/16/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
706 HILLSBOROUGH ST. SUITE 200
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801 Jones Franklin Road
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

2001 AN/38 DAN

MATCHLINE -L- STA 27+00.00 SEE SHEET 4

MATCHLINE -L- STA 41+00.00 SEE SHEET 6

10 WELLS KERRY ELLEN DB 2574 PG 713 PB 23 PG 116

11 GARDNER CHRISTIAN A DB 2434 PG 389 PB 26 PG 9

12 DIRTY MO ACRES, LLC DB 1899 PG 2366 PB 26 PG 9

13 DARREN B. JOLLY DB 1192 PG 2050 PB 26 PG 9

LAURA L. GRIFFIN DB 1739 PG 1467 PB 23 PG 116

14

15 SCHAUMBURG PAUL E. DB 2377 PG 2129 PB 26 PG 9

16 SPADE EDWARD C JR DB 2516 PG 331 PB 23 PG 114

17

18

19

20 CHARLENE L. RICHARD DB 2146 PG 1753 PB 25 PG 123

21 JOHNNY DOUGLAS TURNER, JR. DB 1104 PG 535 PB 25 PG 104

22 PAUL T. BRITTON LINDA A. BRITTON DB 1957 PG 680 PB 25 PG 123

23 HARVEY O. TURNER DARLENE J. TURNER DB 977 PG 1997 PB 25 PG 104

24 ROBERT JAY PAPUGA DB 2411 PG 1970 PB 25 PG 104

25 OSTEC REALTY LLC DB 2415 PG 2366 PB 25 PG 123

26 ZORENTAN DUMITRU & LIDIA DB 2488 PG 073 PB 25 PG 104

27 DANIELLE & BRENT A. MORTON DB 2355 PG 832 PB 25 PG 123

7 ST. THERESE CATHOLIC CHURCH C/O MICHAEL J. BEGLEY BISHOP OF THE ROMAN CATHOLIC DIOCESE OF CHARLOTTE DB 685 PG 508 DB 685 PG 504 PB 27 PG 15

MARLO CORPORATION DB 1780 PG 550

DAVID KEITH WOOD, JR. DB 2308 PG 1812 PB 25 PG 104

AMERICAN HOMES 4 RENT PROPERTIES NINE, LLC DB 2337 PG 944 PB 25 PG 104

KRISTEN N. BROOME DB 2346 PG 910 PB 25 PG 104

JAMES RAY WEIDMAN BROOK JUNE WEIDMAN DB 2190 PG 740 PB 25 PG 104

NEAL B. SHUE JENNIFER GREEN SHUE DB 2190 PG 740 PB 25 PG 104

JKB SMART RESIDENTIAL, LLC DB 1896 PG 1737 PB 23 PG 114

GFS DEVELOPMENT, INC. DB 981 PG 905 PB 23 PG 114

-L- POC Sta. 34+42.00
-DRWY2- POT Sta. 10+00.00
S 43° 36' 12.1" W

PC Sta. 34+25.51

RIP-RAP TO EXTEND TO WALL FACE
-L- 31+00 TO 32+00 RT

4' LATERAL BASE DITCH
SEE DETAIL 5
CLASS 'I' RIP-RAP
EST. 700 TONS
GEOTEXTILE
EST. 1150 SY
EST. 420 CY DDE

CHANNEL CHANGE
SEE DETAIL 6
CLASS 'II' RIP-RAP
EST. 640 TONS
EST. 410 CY DDE

FLOODPLAIN BENCH (UPSTREAM)
SEE DETAIL 1

5' STD. BASE DITCH
SEE DETAIL 4
CLASS 'II' RIP-RAP
EST. 35 TONS
L=35 FT
S=2.8%
EST. 40 CY DDE

DRY DETENTION BASIN
SEE SHEET 2D-10
EST. 19,500 CY UNCLASSIFIED EXCAVATION
EST. 22,500 CY BORROW EXCAVATION

END CULVERT
-L- STA. 36+14.76
ENERGY DISSIPATOR BASIN & CHANNEL CHANGE
SEE SHEET 2D-8
CLASS 'II' RIP-RAP
EST. 400 TONS
EST. 320 CY DDE

BEGIN CULVERT
-L- STA. 35+85.80
FLOODPLAIN BENCH (DOWNSTREAM)
SEE DETAIL 2
2 @ 12'x9' RCBC

END CONSTRUCTION
-DRWY2- POC STA. 11+60.00

PT Sta. 12+27.40
N 45° 34' 10.8" W

PC Sta. 22+15.01

PT Sta. 32+41.17

-L- Sta. 37+05.05

580' U-TURN

526.16' MEDIAN TRANSITION LEFT & RIGHT

100' TAPER

150' TAPER

441' LEFT

S 70° 34' 26.0" E

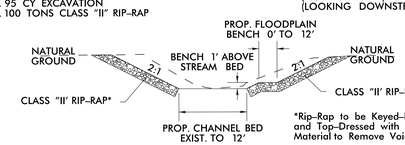
S 45° 27' 06.2" E

S 72° 40' 33" E

DETAIL 1
FLOODPLAIN BENCH
(UPSTREAM)

LENGTH = 50' (FROM CULVERT FACE)
EST. 95 CY EXCAVATION
EST. 100 TONS CLASS "II" RIP-RAP

(NOT TO SCALE)
(LOOKING DOWNSTREAM)

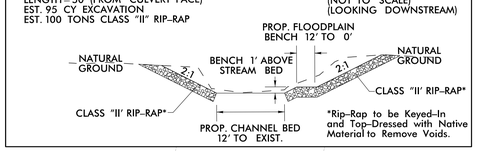


*Rip-Rap to be Keyed-In and Top-Dressed with Native Material to Remove Voids.

DETAIL 2
FLOODPLAIN BENCH
(DOWNSTREAM)

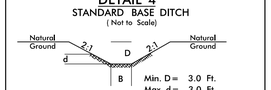
LENGTH = 50' (FROM CULVERT FACE)
EST. 95 CY EXCAVATION
EST. 100 TONS CLASS "II" RIP-RAP

(NOT TO SCALE)
(LOOKING DOWNSTREAM)



*Rip-Rap to be Keyed-In and Top-Dressed with Native Material to Remove Voids.

DETAIL 4
STANDARD BASE DITCH
(Not to Scale)



Min. D= 3.0 Ft.
Max. d= 3.0 Ft.
B= EX. TO 5.0 Ft.
Type of Liner= Class "II" Rip-Rap (To be Keyed-in, Embedded Below Stream Bed, and Top-Dressed with Native Material to Remove Voids.)

-L- STA. 36+90 LT

RICKY D. CARPENTER DB 1721 PG 2481 PB 25 PG 123

TOMAS RIVERA LYDIA E. RIVERA DB 1160 PG 730

10/16/2023
U:\R\3833C\Roadway\R3833C_rdy_pst05.dgn
RSmith

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	06
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A. Dean Sarvis
8/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin J. Henegar
8/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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www.stantec.com
License No. F-0672

FOR -L- PROFILE SEE SHEET 13
FOR -Y3- PROFILE SEE SHEET 17
FOR -Y4- PROFILE SEE SHEET 18
FOR -Y5- PROFILE SEE SHEET 18
FOR -Y6- PROFILE SEE SHEET 18
FOR -Y7- PROFILE SEE SHEET 18

★ PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

-L-

PI Sta 38+56.09	PI Sta 47+51.10	PI Sta 56+10.32
△ = 46° 35' 27.8" (LT)	△ = 55° 20' 14.2" (LT)	△ = 59° 26' 02.5" (RT)
D = 5° 43' 46.5"	D = 7° 38' 22.0"	D = 7° 38' 22.0"
L = 813.17'	L = 724.36'	L = 777.99'
T = 430.58'	T = 393.24'	T = 428.09'
R = 1,000.00'	R = 750.00'	R = 750.00'
SE = .04	SE = .04	SE = .04
INC = 49'	INC = 49'	INC = 49'

-Y3-

PI Sta 10+70.41	PI Sta 12+80.38
△ = 27° 38' 58.0" (RT)	△ = 29° 20' 09.7" (LT)
D = 24° 45' 47.2"	D = 25° 27' 53.2"
L = 111.66'	L = 115.20'
T = 56.94'	T = 58.89'
R = 231.38'	R = 225.00'
SE = SEE PLANS	SE = SEE PLANS
INC = 10'	INC = 10'

-Y4-

PI Sta 11+75.35
△ = 43° 28' 09.6" (RT)
D = 31° 43' 24.8"
L = 137.03'
T = 72.00'
R = 180.61'
SE = SEE PLANS
INC = 18'

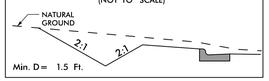
-Y5-

PI Sta 11+71.17
△ = 53° 12' 03.0" (LT)
D = 37° 12' 18.2"
L = 142.99'
T = 77.12'
R = 154.00'
SE = SEE PLANS
INC = 18'

-Y7-

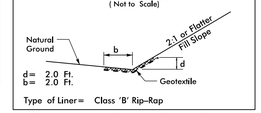
PI Sta 11+15.22
△ = 33° 58' 21.8" (LT)
D = 19° 26' 48.7"
L = 174.70'
T = 90.00'
R = 294.63'
SE = .04
INC = N/A

DETAIL 7
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM -L- STA. 46+85 TO STA. 47+90 RT

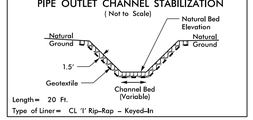
DETAIL 9
TOE PROTECTION
(Not to Scale)



Type of Liner = Class 'B' Rip-Rap

FROM -L- STA. 48+00 TO STA. 52+00 LT

DETAIL 14
PIPE OUTLET CHANNEL STABILIZATION
(Not to Scale)



Type of Liner = CL 'I' Rip-Rap - Keyed-In

STA. 44+60 LT

BEGIN CONSTRUCTION
-Y6- POT STA. 11+70.00

BEGIN CONSTRUCTION
-Y3- POC STA. 12+22.00

END CONSTRUCTION
-Y4- POC STA. 11+65.00

END CONSTRUCTION
-Y7- POT STA. 10+78.94

-L- POC Sta. 53+62.11
-Y6- POT Sta. 13+00.00
S 49° 17' 00.9" E

-L- POC Sta. 41+94.06
-Y3- POT Sta. 13+50.00
S 4° 13' 08.8" E

-L- POC Sta. 41+79.47
-Y4- POT Sta. 10+00.00
S 4° 13' 08.8" E

-L- POC Sta. 48+40.00
-Y5- POT Sta. 10+00.00
S 38° 52' 30.2" E

-L- POC Sta. 53+62.11
-Y7- POT Sta. 10+00.00
S 49° 17' 00.9" E

Meander sidewalk around manhole. Pave sidewalk / outside of manhole diameter and to the face of wall behind manhole.

Do not disturb fence

Do Not Disturb Sign

ADT 2015/2040

500/600 Citation Dr.
300/300 | 200/300
18300/27800 | 18100/27600
Brawley School Rd.
200/300 | 100/100
300/400 Secretariat Ln.

ADT 2015/2040

400/400 Round Keep Ln
100/200 | 200/200
18100/27600 | 17000/25700
Brawley School Rd.
2300/3500 | 1100/1600
3500/5100 Commerce Park Rd

ADT 2015/2040

18100/27600 | 16900/25700
Brawley School Rd.
2300/3500 | 1100/1600
3500/5100 Balmy Ln.

KELLY A. PENNARIO
JANSON J. GAWORECKI
DB 1334 PG 1722
PB 25 PG 189

WEBB A. BEULAH
VENUS R. BEULAH
DB 992
PG 1332
PB 25
PG 105

JERRY W. PARTIN
DB 1967
PG 1941
PB 25
PG 105

RWS REAL ESTATE INVESTMENTS, LLC DB 2212 PG 143
PB 25 PG 105

MICHAEL NORMAN WAGNER
DB 2273
PG 24
PB 25
PG 104

ZDRENTAN DUMITRU & LIDIA
DB 2488 PG 073
PB 25 PG 104

DONALD JAMES RANDAZZO, II
ANGELA RANDAZZO
DB 1807 PG 969
PB 25 PG 105

TAMMY L. BURNS
DB 1969
PG 327
PB 25
PG 105

P. JEAN NESTER
DB 1259 PG 2555
PB 25 PG 105

DANIEL JOSEPH DEW
DB 1204 PG 1907
PB 25 PG 105

CHARLES L. MCCURDY
DB 1746 PG 457
PB 25 PG 105

DAVID M. MCGINNIS
ELIZABETH A. MCGINNIS
DB 1807 PG 1405
PB 25 PG 105

CURTIS BARTEAU
BARBARA BARTEAU
DB 1559 PG 1234
PB 25 PG 105

DAVID F. HACKETT
MARIANNA A. HACKETT
DB 2216 PG 571
PB 25 PG 105

THEISEN FAMILY TRUST
DB 1591 PG 184
PB 25 PG 105

SNH SE MOORESVILLE LLC

DIANNE A. ROBINSON
DB 2129 PG 112
PB 25 PG 105

WILLIAM A. HUTCHISON
FAYE A. HUTCHISON
DB 1010 PG 390
PB 25 PG 105

DANIELLE L. MORTON
BRENT A. MORTON
DB 2355 PG 832
PB 25 PG 123

KATHY BOGGS
DB 1404 PG 371
PB 25 PG 123

MICHAEL CAPPUCCETTI, III
ELIZABETH CAPPUCCETTI
DB 1464
PG 2591
PB 25
PG 123

LISA M. QUALLS
JAMES W. WILBURN
DB 1322 PG 1819
PB 25 PG 123

CHARLES B. ALEXANDER REVOCABLE LIVING TRUST
DB 1983 DB 2310
PB 16 PG 27

WARREN GREENLEE
ROGER WAY, JR.
MICHAEL SHEA
DB 1807 PG 2229
DB 1940 PG 755
PB 16 PG 27

TERRY WAYNE BROWN
BARBARA J. BROWN
DB 689 DB 304
PB 16 PG 27

VICKI M. BRAWLEY
THOMAS A. BRAWLEY
DB 1492 PG 2061
PB 25 PG 123

TOWN OF MOORESVILLE
DB 2113 DB 919
PB 58 PG 78
PB 16 PG 27

BANK OF NORTH CAROLINA
DB 2319 DB 2080
PB 40 PG 42
CB 3 PG 129

TUTOR TIME MOORESVILLE, LLC
DB 2267 DB 1066
PB 40 PG 42

STATE EMPLOYEES CREDIT UNION
DB 1370 DB 859
PB 40 PG 42

MATCHLINE -L- STA 41+00.00 SEE SHEET 5

MATCHLINE -L- STA 55+00.00 SEE SHEET 7

MATCHLINE -Y5- STA 14+00.00 SEE SHEET 11

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

8/19/2023
U:\R\R-3833C_rdy_psh\06_rdy_psh.dgn
dsarvis

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	07
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
Docusigned by: A. Dean Sarvis
10/16/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Docusigned by: Benjamin J. Henegar
10/16/2023

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NAD 83/NA 2011

FOR -L- PROFILE SEE SHEET 13 AND 14
FOR -Y- PROFILE SEE SHEET 15 AND 16
FOR -Y7- PROFILE SEE SHEET 18
FOR -DRWY3- PROFILE SEE SHEET 19
FOR -DRWY6- PROFILE SEE SHEET 19
FOR -DRWY7- PROFILE SEE SHEET 19

UPGRADE EXISTING SIGNAL

MATCHLINE -Y- STA 34+00.00 SEE SHEET 10

MATCHLINE -Y- STA 55+00.00 SEE SHEET 9

MATCHLINE -Y- STA 68+00.00 SEE SHEET 8

MATCHLINE -Y- STA 43+00.00 SEE SHEET 11

72 RHG DEVELOPMENT COMPANY, LLC DB 1093 DB 1640

44 SNH SE MOORESVILLE LLC DB 2126 DB 598

45 NASSAR & SIMONETTI INVESTMENT LLC DB 2491 DB 2273 REMOVE PB 42 PG 69

46 RUSHER OIL COMPANY DB 1434 DB 1831 PB 42 PG 69

48 HC 2000, INC. DB 1069 PG 212

43 STATE EMPLOYEES' CREDIT UNION DB 1370 DB 859 PB 40 PG 42

47 TOWN OF MOORESVILLE DB 594 DB 312 DB 2004 PG 1795

51 TOWN OF MOORESVILLE DB 594 DB 312 DB 2004 PG 1795

73 BRAWLEY COMMERCE PARK CONDOMINIUM OWNERS' ASSOCIATION, INC. DB 1902 DB 1248 CB 2 PG 55 CB 3 PG 1

BEGIN CONSTRUCTION -DRWY3- POT STA. 10+05.00

BEGIN CONSTRUCTION -Y7- POC STA. 15+35.00

BEGIN CONSTRUCTION -DRWY7- POT STA. 10+84.67

END CONSTRUCTION -DRWY6- POT STA. 11+24.06

-L- POT Sta.62+08.79
-Y- POC Sta.36+96.02
-L- POC Sta. 66+12.33
-DRWY6- POT Sta. 10+00.00

-Y- POT Sta. 41+03.25
-Y7- POT Sta. 16+56.38
S 68° 17' 27.3" E
-Y- POT Sta. 42+49.74
-DRWY7- POT Sta.12+14.86

-DRWY7- POT Sta. 10+43.58
-DRWY8- POT Sta. 10+00.00 N 26° 28' 30.3" E
POT Sta. 10+00.00

-L- POT Sta. 67+75.00
-DRWY3- POT Sta. 11+50.00

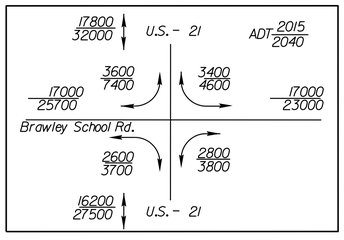
FOR TEMPORARY DRWY8 DESIGN SEE SHEET 2B-4

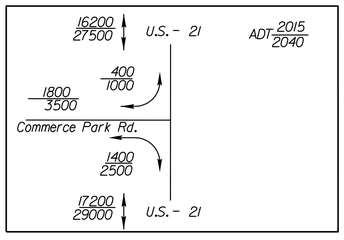
-L-	
PI Sta 56+10.32	PI Sta 65+30.95
△ = 59° 26' 02.5" (RT)	△ = 26° 03' 12.1" (LT)
D = 7° 38' 22.0"	D = 9° 32' 57.5"
L = 777.99'	L = 272.83'
T = 428.09'	T = 138.82'
R = 750.00'	R = 600.00'
SE = .04	SE = .04
INC = 49'	INC = 42'

-DRWY3-	-Y-
PI Sta 10+58.04	PI Sta 35+73.50
△ = 49° 57' 59.0" (RT)	△ = 23° 13' 29.2" (RT)
D = 190° 59' 09.4"	D = 3° 34' 51.6"
L = 26.16'	L = 648.56'
T = 13.98'	T = 328.79'
R = 30.00'	R = 1,600.00'
SE = SEE PLANS	SE = .04
INC = 10'	INC = 36'

DETAIL 8
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL, BOND BREAKER, VARIES, D, B, 2:1, NATURAL GROUND, 4"
D= 1.0'
B= 0.0' (0' TO 2.0')
FROM -Y- STA. 42+20 TO STA. 43+00 RT

-Y7-
PI Sta 15+29.16
△ = 14° 57' 55.4" (RT)
D = 13° 12' 09.7"
L = 113.35'
T = 57.00'
R = 433.97'
SE = .04
INC = 10'





10/16/2023
U:\Projects\R-3833C\Roadway\R3833C_rdy_pst07.dgn
RSarvis

5/14/99

-L-	
PI Sta 71+36.42	PI Sta 79+88.35
△ = 27° 26' 06.9" (RT)	△ = 17° 58' 41.5" (LT)
D = 9° 32' 57.5"	D = 6° 21' 58.3"
L = 287.30'	L = 282.40'
T = 146.46'	T = 142.37'
R = 600.00'	R = 900.00'
SE = .04	SE = EXIST
INC = 42'	INC = EXIST

FOR -L- PROFILE SEE SHEET 14
FOR -DRWY4- PROFILE SEE SHEET 19

NAD 83/NA 2001

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	08
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A. Dean Sarvis
4/27/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin J. Henegar
4/27/2023

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

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801 Jones Franklin Road
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Raleigh, NC 27606
Tel. (919) 851-6866
Fax. (919) 851-7024
www.stantec.com
License No. F-0672

BEGIN CONSTRUCTION -DRWY4- POT STA. 10+35.00

-L- POT STA. 75+82.64 TIE TO TOWN OF MOORESVILLE WILSON AVENUE WIDENING PROJECT

LHNH-COUNTRY CLUB APARTMENTS LLC
DB 2290 PG 2078
50

HC 2000, INC.
DB 1069 PG 212
48

DAVID PERRO
SARAH PERRO
DB 2231 PG 1407
49

BRIAN K WALLACH
DB 1268 PG 1167
PB 24 PG 159
52

JOE B GIBBS JR.
DB 2395 PG 210
PB 24 PG 159
53

PETER A MASCOLO
DB 1898 PG 472
PB 24 PG 159
54

PALANISAMY AMMASAI
DB 1449 PG 1130
PB 24 PG 159
55

YOKO MIURA
DB 1183 PG 1548
PB 24 PG 61

THOMAS P ROGERS
DB 1680 PG 1405
PB 24 PG 61

94 THOMAS E BRIDGES
DB 1612 PG 4
PB 24 PG 159

VINCE GANGEMI
DB 2431 PG 2231
PB 34 PG 73

TOWN OF MOORESVILLE
DB 2004 PG 1795
TRACT A
PB 65 PG 62
47

TOWN OF MOORESVILLE
DB 594 DB 312
DB 2004 PG 1795
51

POT Sta. 10+00.00
S 11° 35' 58.1" E

R3833C-4

DRWY4 +16.00 17.00

DRWY4 +16.00 23.00

BEG C&G +34.88

END C&G +34.89

L +20.00 PROP PUE

L +64.00 105.00 +01.06 EX. R/W

L +10.00 105.00

Remove Flag Poles

Do Not Disturb Sign

EX P/L 80.00

+77.26 65.00 +82.00 73.00

SPECIAL BACK OF CURB CUT DITCH SEE DETAIL 7

EC BASIN

+41.00 83.00

+80.00 73.00 +00.00 65.00

+50.00 EX. R/W

END C&G +82.64

100' TAPER

+60.88 EX R/W

Do not disturb entrance signs

+30.88 EX R/W

+55.00 55.00 EX R/W

PC Sta. 78+45.98

TOE PROTECTION SEE DETAIL 9 CLASS 'B' RIP-RAP EST. 35 TONS GEOTEXTILE EST. 100 SY

P.L. EX. R/W

REMOVE

18" RCP-III

36" RCP-IV

42" RCP-IV

24" RCP-IV

18" RCP-IV

42" RCP

RETAIN

TIE TO SYSTEM BUILT ON WILSON AVE. PROJECT

S 86° 33' 51.3" E

75+00

80+00

70+00

68+00

-L- STA 68+00.00

MATCHLINE -L- STA 75+00.00 SEE SHEET 7

N 66° 00' 01.8" E

-L- POC Sta. 70+85.60

-DRWY4- POT Sta. 11+50.00

+90.00 55.00

+15.00 84.00

+30.00 55.00

+30.00 90.00

150' TAPER

305.38' THROUGH LANE DROP RIGHT

287.3' MEDIAN TRANSITION LEFT & RIGHT

10' MULTI-USE PATH

OFFSET CB W/ MH

OFFSET CB W/ SLAB LID

+64.00 65.00

+00.00 70.00

+77.26 55.00

+05.00 100.00

+70.00 100.00

+95.00 55.00

+46.00 54.00

+63.00 EX. R/W

Do not disturb concrete cart path

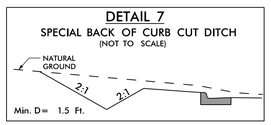
END C&G +09.86

PC Sta. 69+89.96

PT Sta. 72+77.26

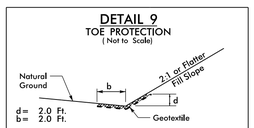
END PROJECT R-3833C -L- POT STA. 76+55.48

DETAIL 7
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM -L- STA. 72+25 TO STA. 74+78 LT

DETAIL 9
TOE PROTECTION
(Not to Scale)



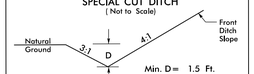
Type of Liner= Class 'B' Rip-Rap

FROM -L- STA. 68+00 TO STA. 69+45 LT

3/30/2023
U:\R3833C_rdy\R3833C_rdy_pst08.dgn
DSarvis

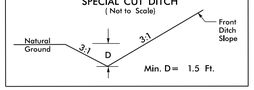
5/14/99

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)



FROM –Y– STA. 13+50 TO STA. 19+00 RT

DETAIL 11
SPECIAL CUT DITCH
(Not to Scale)



FROM –Y– STA. 19+00 TO STA. 20+50 RT

–Y–
PI Sta 19+29.27
△ = 20° 24' 17.5" (LT)
D = 4° 05' 33.2"
L = 498.58'
T = 251.96'
R = 1,400.00'
SE = .04
INC = 49'

–Y8–

PI Sta 14+16.69	PI Sta 17+78.28
△ = 12° 45' 47.8" (LT)	△ = 12° 04' 22.2" (RT)
D = 13° 19' 28.6"	D = 6° 21' 58.3"
L = 95.79'	L = 189.64'
T = 48.09'	T = 95.17'
R = 430.00'	R = 900.00'
SE = N/A	SE = N/A
INC = N/A	INC = N/A

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

FOR –Y– PROFILE SEE SHEET 15

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	09
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A. Dean Sarvis
4/27/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin J. Henegar
4/27/2023

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Raleigh, NC 27606
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

POT Sta. 10+00.00
POT Sta. 13+75.00
BEGIN CONSTRUCTION –Y– POT STA. 13+75.00
PC Sta. 13+68.59
PT Sta. 14+64.38
PC Sta. 16+77.31
PC Sta. 16+83.11
15+00 S 80° 00' 59" W –Y8–
S 23° 38' 48.1" W 15+00
10+00
EX. R/W 53.00
EX. R/W 55.00
EX. R/W 70.00
87.5' MEDIAN TRANSITION LEFT & RIGHT
REMOVE 15" 56' DR C
REMOVE 18" RCP-IV
REMOVE 24" RCP-III
REMOVE 18" RCP-III
PUE
RETAIN
PLUG 18" RCP-III F
COLLAR AND EXTEND W/18" RCP-III
100' TAPER
20+00
SPECIAL CUT DITCH SEE DETAIL 10
SPECIAL CUT DITCH SEE DETAIL 11
CLASS 'I' RIP-RAP EST. 10 TONS GEOTEXTILE EST. 25 SY
CLASS 'I' RIP-RAP EST. 30 SY GEOTEXTILE EST. 15 TONS
EX. R/W 40'

JAMES F RITCHIE
DB 639 PG 654

MT CLONINGER PROPERTIES LLC
DB 2397 PG 1782

JAMES F RITCHIE
DB 692 PG 664

SPIFFY LUBE PROPERTIES LLC
DB 2381 PG 69
57

SPIFFY LUBE PROPERTIES LLC
DB 2336 PG 2013
58

DB 2282 PG 2303
BRETT MERCIER
PB 7 PG 4

LINDA CATHERINE TUCKER MURPHY
DB 1291 PG 1637
PB 7 PG 4

CHARLES LANE MILLER
DB 17E PG 220
PB 7 PG 4

JAMES D CABE
FRANCES B CABE
DB 1595 PG 2
PB 7 PG 4
93

MARK C FOLEY
KRISTIE L FOLEY
DB 2523 PG 2222
PB 7 PG 4

NANCY L EDRESON
JOHN VANDERWERK
DB 1894 PG 2099
PB 7 PG 4

SANDRA M JAMES
DB 1121 PG 796
PB 48 PG 24

SANDRA M JAMES
DB 1332 PG 2147
PB 7 PG 4
62

EDEN ENTERPRISES INC
DB 2287 PG 143
PB 17 PG 93

TRIPLE SSS INC
DB 1189 PG 1117

BSL SALES & RENTALS LLC
DB 2617 PG 2198
PB 5 PG 55
56

BSL SALES+RENTALS LLC
DB 2415 PG 2400
PB 5 PG 55
59

BSL SALES+RENTALS LLC
DB 2415 PG 2400
PB 5 PG 55
60

MILLER VICKIE A
DB 980 PG 1552
PB 5 PG 55
61

MORTON HILDA L
DB 06E PG 347
PB 5 PG 55
63

COFFEY PROPERTIES LLC
DB 1945 PG 604
PB 5 PG 55
64

M+M OF MOORESVILLE INC
DB 750 PG 977
PB 5 PG 55

EDEN ENTERPRISES INC
DB 1531 PG 1937
PB 5 PG 55

MORTON HILDA L ETAL
DB 06E PG 347
PB 5 PG 55

COFFEY PROPERTIES LLC

MATCHLINE –Y– STA 21+00.00 SEE SHEET 10

3/30/2023
U:\R3833C\roj\R3833C-rdy.pstb09.dgn
DGN: RDY.DGN

5/14/99

-Y8-	-Y-	-DRWY5-
PI Sta 17+78.28	PI Sta 19+31.22	PI Sta 35+73.50
△ = 12° 04' 22.2" (RT)	△ = 20° 21' 13.5" (LT)	△ = 23° 13' 29.2" (RT)
D = 6° 21' 58.3"	D = 4° 05' 33.2"	D = 3° 34' 51.6"
L = 189.64'	L = 497.34'	L = 648.56'
T = 95.17'	T = 251.32'	T = 328.79'
R = 900.00'	R = 1,400.00'	R = 1,600.00'
SE = N/A	SE = .04	SE = .04
INC = N/A	INC = 49'	INC = 49'

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

FOR -Y- PROFILE SEE SHEET 15
FOR -DRWY5- PROFILE SEE SHEET 19

PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	10
RW SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A. Dean Sarvis
4/27/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Benjamin J. Henegar
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec
Stantec Consulting Services Inc.
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

BEGIN CONSTRUCTION -DRWY5- POT STA. 10+14.00

MATCHLINE -Y- STA 21+00.00 SEE SHEET 9

MATCHLINE -Y- STA 34+00.00 SEE SHEET 7

LINDA CATHERINE DB 1291 PG 1637
TUCKER MURPHY PB 7 PG 4

JAMES D CABE
FRANCES B CABE
DB 1395 PG 2
PB 7 PG 4

NANCY L EDRESON
DON VANNORTWICK
DB 1894 PG 2099
PB 7 PG 4

URIEL VILLEGAS
DB 2180 PG 1596
PB 7 PG 4

KENNETH DOUTHIT ET AL.
DB 10E PG 14
PB 7 PG 4

SOUTHERN TRUCKIN HOLDINGS, LLC
DB 2506 PG 400
83

ROBERT D KERLIN
DB 2117 PG 279
PB 25 PG 193
66

HC 2000, INC.
DB 1069 PG 212
48

MARATHEA GROUP, L.L.C.
DB 1080 PG 790
68

RHG DEVELOPMENT COMPANY, LLC
DB 1093 DB 1640
72

GATES CONSTRUCTION COMPANY, INC.
DB 731 PG 544
70

A TOWN AND COUNTRY STORAGE-MOORESVILLE, LLC
DB 2272 DB 434
DB 1783 PG 2412
71

POPE STEPHEN B+JANET
DB 683 PG 219
PB 5 PG 55
67

GLENDA M SLATER
DB 1173 PG 754
69

WALLACE J. PERRIEN & MARY B. PERRIEN TRUSTEES OF THE WALLACE J. PERRIEN & MARY B. PERRIEN REVOCABLE TRUST
DB 2434 PG 389
PB 5 PG 55
65

STEPHEN B POPE
DB 683 PG 219
PB 5 PG 55

-Y- POC Sta. 21+09.23
-Y8- POT Sta. 19+33.14

PT Sta. 21+75.89

PT Sta. 18+72.75
N 87° 54' 38.7" W

PT Sta. 11+50.72
N 85° 08' 10.5" W

PC Sta. 10+71.45

PC Sta. 32+44.71

-DRWY5- POT Sta. 12+00.00
-Y- POC Sta. 32+90.00

575' U-TURN

300' THROUGH LANE DROP LEFT

875' MEDIAN TRANSITION LEFT & RIGHT

150' TAPER

200' TAPER

100' TAPER

62.5' ISLAND TAPER

OFFSET DI W/ SLAB LID

TRUCK LANE

RETAIN

REMOVE

CONV. CB TO JB W/MH

TYPE B-77 SFCB

IA-MASH TL-3

BM#6

5/14/99

FOR TEMPORARY DRWY8 DESIGN SEE SHEET 2B-4

+76.00 / 209.00

+24.00 BEG REMOVE TEMPORARY DRIVE
REPLACE C & G AND SIDEWALK
PC Sta. 10+40.24

-DRWY8-
PI Sta 10+78.24
Δ = 89° 59' 29.5" (RT)
D = 150° 46' 42.1"
L = 59.68'
T = 37.99'
R = 38.00'

+21.00 / 209.00
+21.00 / 190.58 RESET STOCKPILED FENCE
+50.54 / 190.57 REMOVE TEMPORARY FENCE
+160 END WALL
PT Sta. 10+99.93S 63° 32' 00.1" E

END REMOVE TEMPORARY DRIVE +30.27
END PERMANENT DRIVE +32.87

EX. P.L. 81.00
EX. P.L. 66.00
+70.00 PROP PUE

-Y- POT Sta. 45+30.00
-Y5- POT Sta. 18+22.77
-Y- POT Sta. 65+60.01
-DRWY8- POT Sta. 12+33.20

MATCHLINE -Y- STA 43+00.00 SEE SHEET 7

DRWY 8

74 COUNTRY ROADS OF THE CAROLINAS, LLC DB 2289 DB 1884

TOWN OF MOORESVILLE DB 594 DB 312 DB 2004 PG 1795

TOWN OF MOORESVILLE DB 2004 PG 1795 TRACT A PB 65 PG 62

+75.00 / 86.00
+80.00 / 66.00
+00.00 / 120.00
+38.00 / 108.00
+40.00 / 105.00
+40.00 / 90.00
+62.00 / 90.00
+05.60 / 90.00

GEORGE HOWARD HOLSHOUSER
LORRA LEE HOLSHOUSER
DB 943 DB 1997
76

PC Sta. 48+05.60

CLASS 'B' RIP-RAP
EST. 3 TON GEOTEXTILE
EST. 10 SY

HOLSHOUSER LORRA LEE
DB 95E PG 287
77

PT Sta. 49+76.68

GEORGE HOWARD HOLSHOUSER
DB 2050 PG 1140
TRACT II

GEORGE HOWARD HOLSHOUSER
DB 2050 PG 1140
78

RHONDA H DISIBBIO
DB 2351PG 1898
79

ABBERLY GREEN - MORRESVILLE - PHASE II, LIMITED PARTNERSHIP
DB 1818 PG 1449
PB 50 PG 127
80

ABBERLY GREEN - MORRESVILLE - PHASE I, LIMITED PARTNERSHIP
DB 1641PG 1767
PB 50 PG 127
92

ATIRAM LLC
DB 2482 PG 1039
PB 8 PG 37
81

TOWN OF MOORESVILLE
ABANDON DB 213 DB 919
PB 58 PG 78
PB 16 PG 27
82

KAZAKOS BROTHERS PROPERTIES LLC
DB 2391PG 1206
PB 16 PG 27
87

KAZAKOS BROTHERS PROPERTIES LLC
DB 2391PG 1206
PB 16 PG 27
88

NELSON GAREN A+TONYA E
DB 1215 PG 1641
PB 16 PG 27
84

DINGLER PAUL L+GLENDA S
DB 845 PG 689
PB 16 PG 27
89

DINGLER PAUL L+GLENDA S
DB 845 PG 689
PB 16 PG 27
85

KOONTZ KENNETH A+SUSAN B
DB 2052 PG 1643
PB 16 PG 27
90

DB 778 PG 184
PB 16 PG 27
LAKE NORMAN CHRISTIAN MINISTRIES CH NAZARENE
91

DAVID T. BEST
JACALYN K. BEST
DB 733 DB 836
PB 16 PG 27
75

BRAWLEY COMMERCE PARK CONDOMINIUM OWNERS' ASSOCIATION, INC.
DB 1902 DB 1248
CB 2 PG 1
CB 3 PG 1
73

CONCRETE DITCH BEHIND RETAINING WALL SEE DETAIL 8

+25.00 / 83.70
+33.00 / 100.00
+50.00 / 74.13
ADD 1 CONCRETE PARKING CURB FOR END SPACE
Y +65.00 / EX. R/W 74.00
Y +10.00 / 72.00

+60.00 END WALL END RAIL

Do not disturb sign
Y +63.00 / EX. R/W

PC Sta. 16+84.00

Y5 +08.00 / 37.00
+88.00
Y5 +89.40 / EX. R/W
Y5 +75.00 / 38.00

N 85° 53' 57.7" E
PT Sta. 16+28.39

+28.39 / R 2988
Y5 +54.76 / EX. R/W
+49.37 / R 20

PC Sta. 15+22.37 BEG C&G +35.98

END C&G +83.00
Y5 +74.62 / EX. R/W
+56.62 / R 30

-Y5-

+65.00 / EX. R/W 46.00'

SEAL ABANDONED WELL

Y +15.00 / 75.00

PT Sta. 17+66.16
S 63° 32' 00.1" E
END C&G +30.00
Y5 +04.34 / 46.00'
Y5 +00.00 / EX. R/W

R3833-10

+73.68 / R 10'
+05.60 / 75.00
+23.42 / R 15'
+77.18 / R 15'
+38.50 / R 10'
+73.68 / R 10'

CLASS 'B' RIP-RAP
EST. 3 TON GEOTEXTILE
EST. 10 SY
1114

+41.29 / R 5'
+68.43 / R 5'
+56.60 / R 5'
+84.11 / R 5'
+42.22 / R 5'
+70.12 / R 5'
+47.23 / R 20'
+30.92 / R 5'
+110.1 / R 20'

+42.00 / 88.00
+13.0 / R 5'
+65.01
+60.00 / 65.00
+39.00 / 85.00
+00.00 / 80.00
+00.00 / 75.00
+53.00 / 80.67 / 104.00
+05.00 / 104.00
+53.00 / EX R/W 96.00
+63.00 / EX R/W 96.00
+58.00 / 85.00
+80.00 / EX. R/W 65.00
+13.00 / 75.00 / 95.00
EX. P.L. 75.00 / 95.00
EX. P.L. 83.94 / 104.00
EX. P.L. 65.00 / EX. R/W
EX. P.L. EX. R/W 100.00
+22.00 / EX. P.L. 110.00

150' TAPER
575' MEDIAN TRANSITION LEFT & RIGHT
300' THROUGH LANE DROP RIGHT
270' LEFT

STD. 'V' DITCH SEE DETAIL 13 S=7.0% EST. 10 CY DDE EST. 15 SY PSRM

SPECIAL CUT DITCH SEE DETAIL 10

SPECIAL CUT DITCH SEE DETAIL 12 CLASS 'B' RIP-RAP EST. 250 TONS GEOTEXTILE EST. 660 SY

CLASS 'I' RIP-RAP EST. 11 TON GEOTEXTILE EST. 22 SY

Do Not Disturb Brick Column or Wall

RETAIN

Retaining Wall 5

OFFSET DI W/ SLAB LID

TRUCK LANE

2.6% C&G

18" RCP-IV
18" RCP-III
15" RCP-III
2GI-D
CB
DI
RW
PUE
REMOVE
PLUG

S 26° 27' 59.9" W
45+00
55+00
50+00
S 25° 29' 11.1" W

S 63° 32' 00.1" E

-Y- STA. 43+00 TO STA. 43+60 RT
-Y5- STA. 43+00 TO STA. 43+60 RT

DETAIL 8
CONCRETE DITCH BEHIND RETAINING WALL
(Not to Scale)
RETAINING WALL, BOND BREAKER, VARIES, NATURAL GROUND, D, B, 2:1, 4"
D= 1.0'
B= 0.0' (0" TO 2.0")

-Y- STA. 47+50 TO STA. 56+86 LT
-Y- STA. 49+00 TO STA. 51+39 RT

DETAIL 10
SPECIAL CUT DITCH
(Not to Scale)
Natural Ground, 3:1, 4:1, D, Front Ditch Slope
Min. D= 1.5 Ft.

-Y- STA. 51+72 TO STA. 57+40 RT

DETAIL 12
SPECIAL CUT BASE DITCH
(Not to Scale)
Natural Ground, 3:1, 4:1, d, D, Geotextile, B, Front Slope Ditch
Min. D= 1.5 Ft.
Max. d= 1.0 Ft.
B= 2.0 Ft.
Type of Liner= Class 'B' Rip-Rap

-Y- STA. 50+95 LT
-Y- STA. 54+95 LT

DETAIL 13
STANDARD 'V' DITCH
(Not to Scale)
Natural Ground, 3:1, D, d
Min. D= 1.0 Ft.
Max. d= 1.0 Ft.
Type of Liner= PSRM

FOR -Y- PROFILE SEE SHEET 16
FOR -Y5- PROFILE SEE SHEET 18

PROPOSED TRAFFIC SIGNAL

NAD 83/NA 2011

-Y-
PI Sta 48+91.15
Δ = 0° 58' 48.8" (LT)
D = 0° 34' 22.6"
L = 171.08'
T = 85.54'
R = 10,000.00'
SE = .04
INC = 49'

-Y5-	
PI Sta 17+26.09	PI Sta 15+75.39
Δ = 30° 34' 02.2" (RT)	Δ = 2° 01' 29.1" (LT)
D = 37° 12' 18.2"	D = 1° 54' 35.5"
L = 82.16'	L = 106.02'
T = 42.08'	T = 53.01'
R = 154.00'	R = 3,000.00'
SE = SEE PLANS	SE = SEE PLANS
INC = 18'	INC = 18'

MATCHLINE -Y5- STA 14+00.00 SEE SHEET 6

END CONSTRUCTION
-Y- POT STA. 56+40.00

PROJECT REFERENCE NO.	SHEET NO.
R-3833C	11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
Digitally signed by A. Dean Sarvis
Date: 2023.08.21 09:23:44 -04'00'
8/21/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN J. HENEGAR
Digitally signed by Benjamin J. Henegar
Date: 2023.08.21 08:58:18 -04'00'
8/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

8/19/2023
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RSmith

5/28/99

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PROJECT REFERENCE NO.	SHEET NO.
R-3833C	12

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 19828 ENGINEER A. DEAN SARVIS
A Dean Sarvis
4/27/2023

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 044158 ENGINEER BENJAMIN I HENEGAR
Benjamin Henegar
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

–L–

BEGIN PROJECT R–3833C
–L– POT STA. 17+52.26

–Y1– TALBERT

BEGIN GRADE
–L– STA. 20+40.00
EL. 844.11'

–Y2– WINGHAVEN

END INCIDENTAL MILLING
CONTINUE 3" RESURFACING
–L– STA. 18+79.13
EL. 848.02'

BEGIN 3" INCIDENTAL MILLING SEE SHEET 2A–1
BEGIN 3" RESURFACING
–L– STA. 18+42.13
EL. 848.18'

FOR –L– PLAN SEE SHEET 4

–L–

PI = 24+55.00
EL = 829.38'
VC = 400'
K = 191
DS = 50+ MPH

(–)3.5500%

(–)5.6400%

BM2 ELEVATION = 830.00
N 670572 E 1449709
BL STATION 24+78 128 RIGHT
L STATION 26+04 150.07 RIGHT
RR SPIKE IN 30" OAK

–DRWY1–

PI = 27+30.00
EL = 813.87'
VC = 150'
K = 112
DS = 50 MPH

(–)5.6400%

(–)4.3000%

BEGIN 4' LAT. BASE DITCH
–L– STA. 29+00.00 LT
EL=783.05

(–) 2.4848%

–L– STA. 32+00.00 LT
EL=775.60

(–) 3.0500%

END 4' LAT. BASE DITCH
BEGIN CHANNEL CHANGE
–L– STA. 33+00.00 LT
EL=772.55

(–) 3.0500%

PI = 31+00.00
EL = 797.96'
VC = 150'
K = 777
DS = 50+ MPH

(–)4.3068%

(–)4.5000%

–L– STA. 34+00.00 LT
EL=769.50

(–) 1.5484%

END CHANNEL CHANGE
–L– STA. 35+55.00 LT
EL=767.10

(–)4.5000%

2 @ 12' x 9' RCBC

–DRWY2–

PI = 36+50.00
EL = 773.21'
VC = 805'
K = 79
DS = 45 MPH

BM3 ELEVATION = 796.17
N 670129 E 1450272
BL STATION 32+81 215 RIGHT
L STATION 34+06 214 RIGHT
CHISLED SQUARE ON CORNER OF CONC CURB

SPECIAL DITCH GRADE LEFT

SPECIAL DITCH GRADE RIGHT

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 1600	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 774.3	FT
BASE DISCHARGE	= 1800	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 775.0	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= >500(+)	YRS
OVERTOPPING ELEVATION	= 785.7	FT

FOR –L– PLAN SEE SHEET 4 & 5

3/30/2023
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