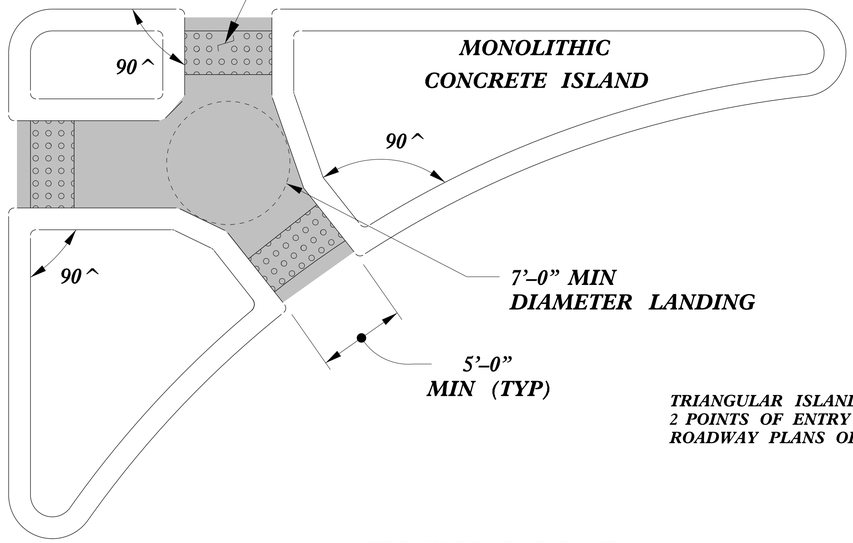
5/14/99

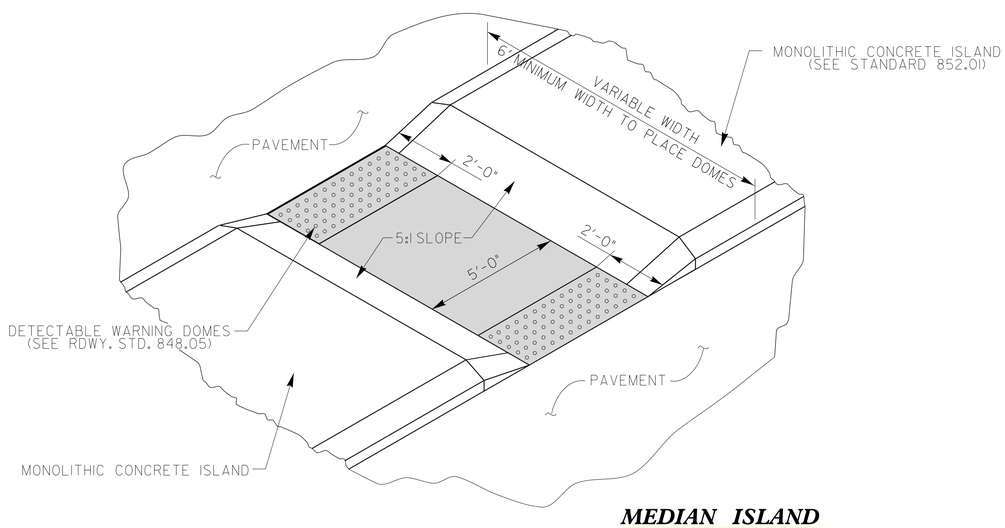
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-1



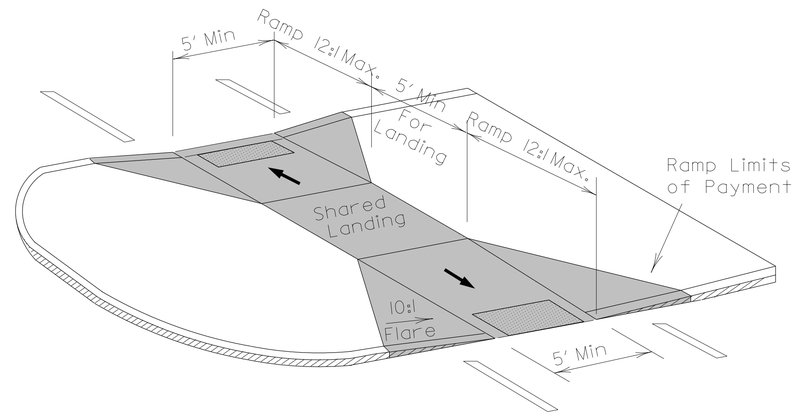
PAY LIMITS FOR 2 OR 3 CURB RAMPS (CALCULATE BASED ON NUMBER OF SETS OF TRUNCATED DOMES)

TRIANGULAR ISLANDS MAY BE CONSTRUCTED WITH ONLY 2 POINTS OF ENTRY AND EXIT AS SHOWN IN THE ROADWAY PLANS OR AS DIRECTED BY THE ENGINEER.

TRIANGULAR ISLAND WITH CUT THROUGH



MEDIAN ISLAND WITH CUT THROUGH



MEDIAN ISLAND CURB RAMPS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
10/14/2021

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

CURB RAMPS

Median or Turn Lane Islands

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC. stds/2012CurbRamp/CurbRampDetails.dgn

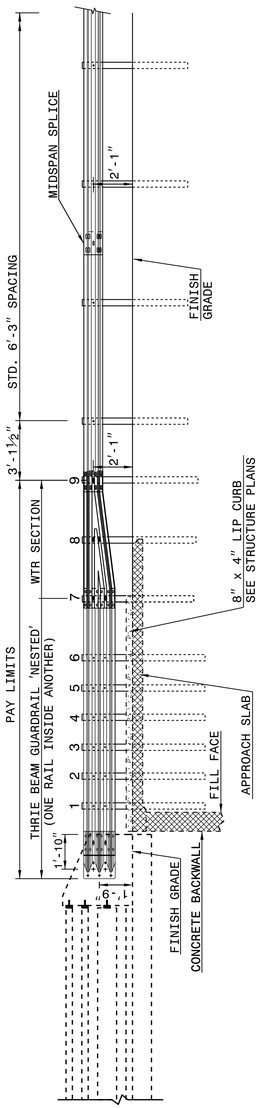
$$$$USERNAME$$$$ $$$$USERNAME$$$$ $$$$SYSTIME$$$$ $$$$SYSTIME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-2

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

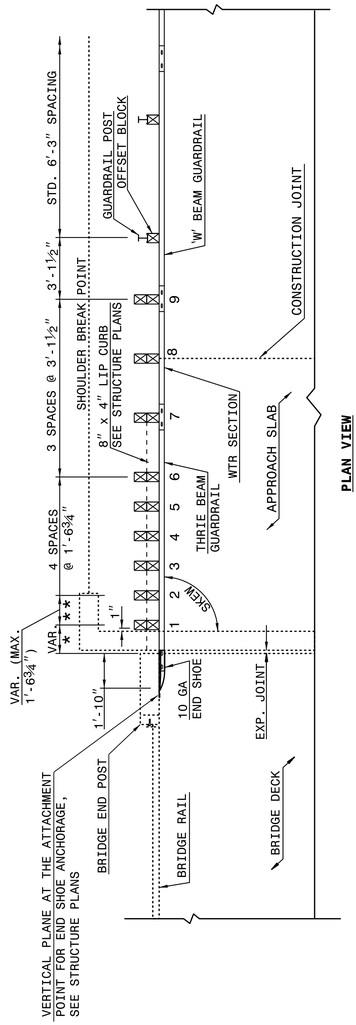
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7
862D03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



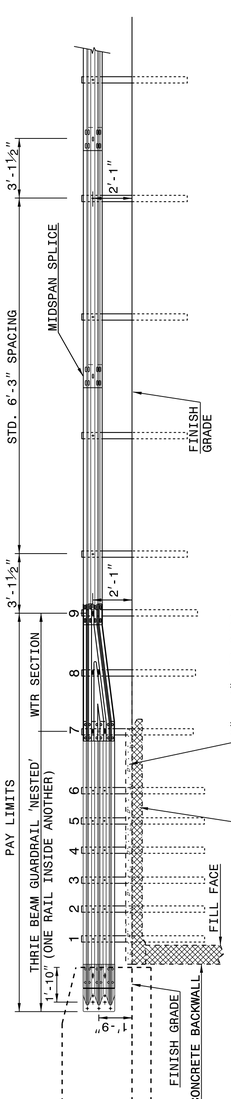
PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III
FOR ATTACHMENT TO RAIL ON BRIDGE

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

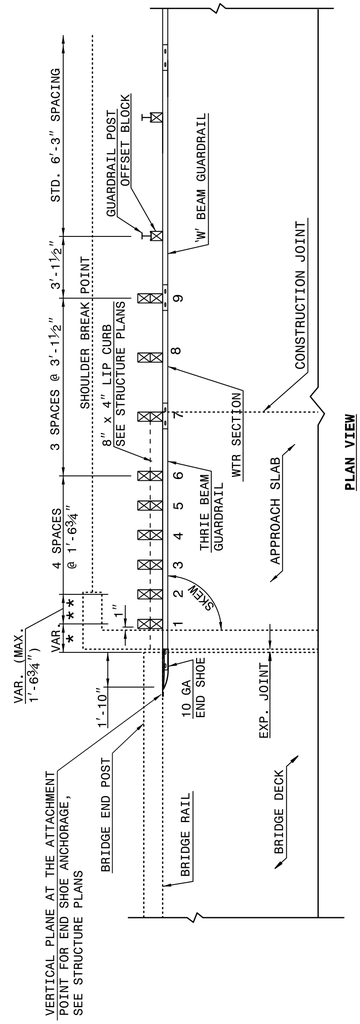
ROADWAY DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862D03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Daniel S. Howerton
10/14/2021

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SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 06-22-12
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

14-DEC-2017 10:36
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jhowerton AT CSD-2425965

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-3

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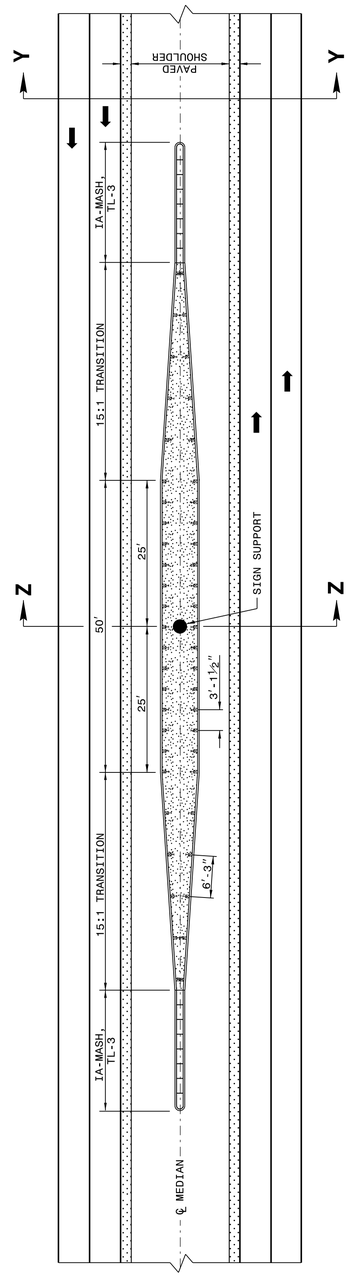
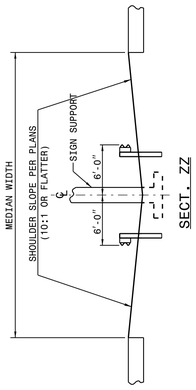
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 2 OF 11
862D01

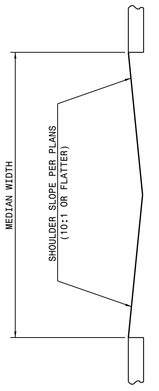




DETAIL OF GUARDRAIL AT MEDIAN SIGN SUPPORT

NOTE SPECIAL LAYER OF PAVEMENT .....

USE 3'-1½" POST SPACING ON THE 50' OF GUARDRAIL PARALLEL TO LANES AND 6'-3" POST SPACING ON 15:1 TRANSITION SECTIONS.
GRADE MEDIAN IN THE VICINITY OF THE SIGN SUPPORT AS ILLUSTRATED IN THE ROADWAY STANDARD DRAWINGS (STARDARD 862.01 SHEET 1 OF 12).



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SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 08-23-18
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

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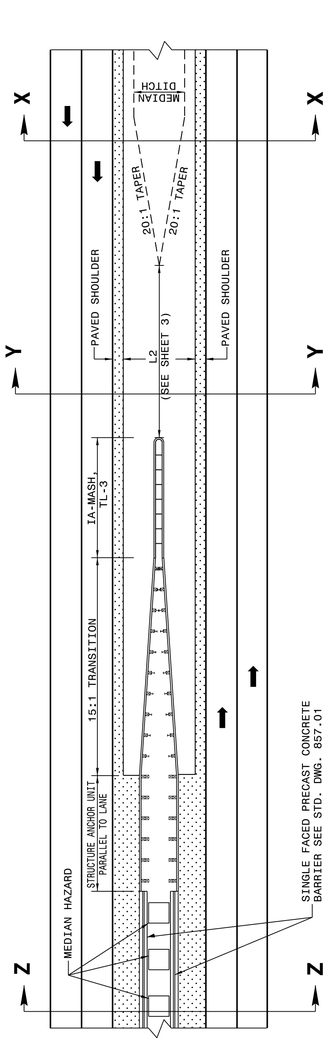
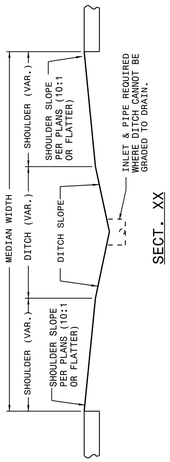
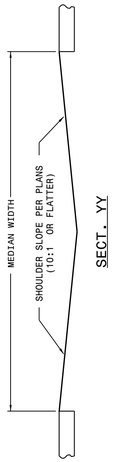
DIVISION OF HIGHWAYS
RALEIGH, N.C.

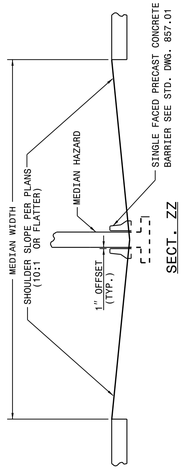
ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01

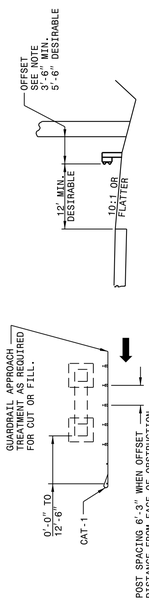








DETAIL OF MEDIAN TREATMENT AT UNDERPASS



NOTE: WHEN OFFSET DISTANCE FROM FACE OF OBSTRUCTION TO FACE OF GUARDRAIL IS BETWEEN 3'-6" AND 5'-6", BEGIN 3'-1½" POST SPACING AT A POINT 25' BEFORE REACHING THE OBSTRUCTION AND CARRY THROUGHOUT ITS LENGTH. IF THE OFFSET IS LESS THAN 3'-6" USE CONCRETE BARRIER.

DETAIL OF RIGHT SIDE GUARDRAIL AT UNDERPASS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL PLACEMENT

SHEET 1 OF 11
862D01

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-4
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

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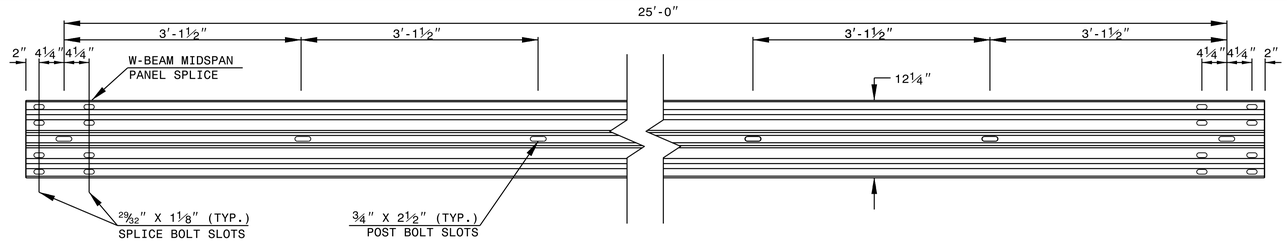
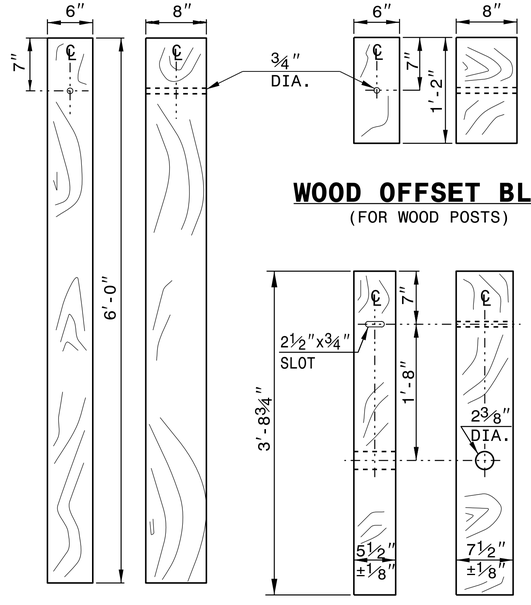
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02



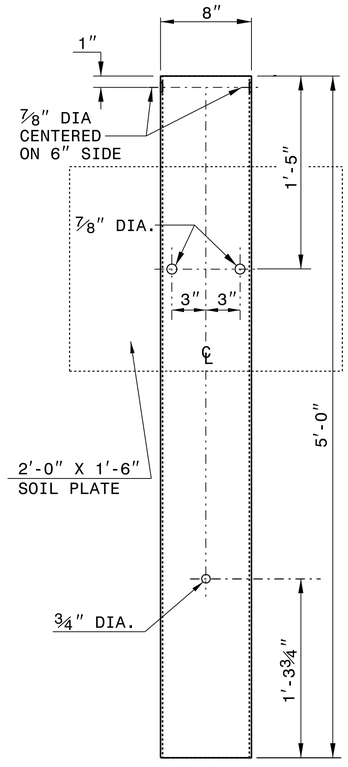
STANDARD W-BEAM GUARDRAIL



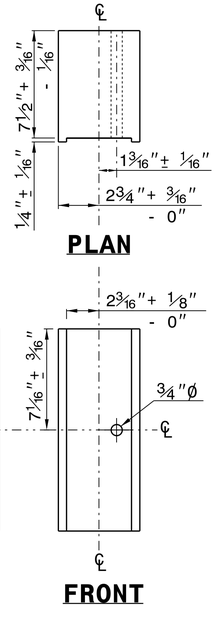
WOOD OFFSET BLOCK
(FOR WOOD POSTS)

STANDARD LINE POST

SHORT WOOD BREAKAWAY POST



STEEL TUBE
TS 6"x8"x0.1875"

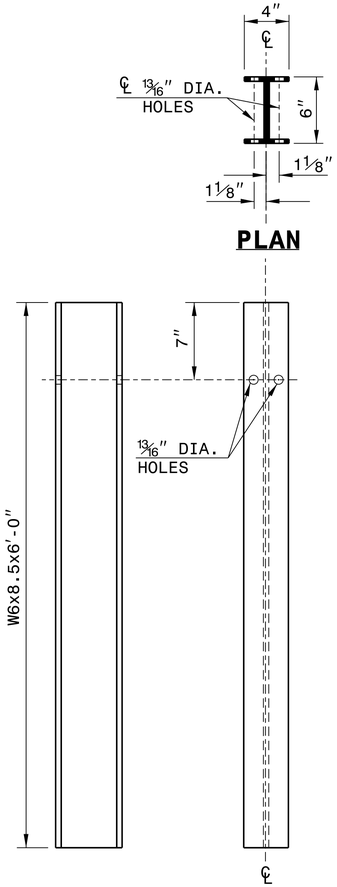


PLAN

SIDE

FRONT

ROUTED OFFSET BLOCK



PLAN

SIDE

FRONT

"W6" STEEL POST

SYSTEM PARTS

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOSEPH S. HOWERTON
10/14/2021

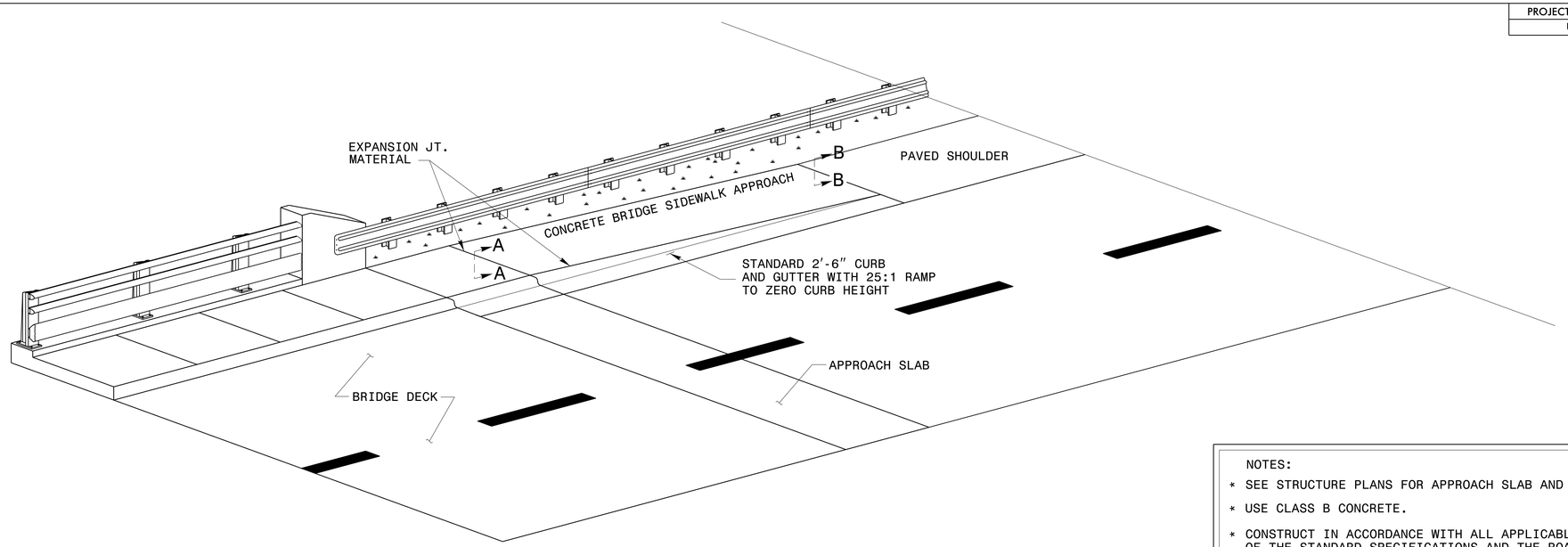
CONTRACTS STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

SEE TITLE BLOCK

ORIGINAL BY: J.HOWERTON DATE: 3-7-2018
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.:

6/10/98

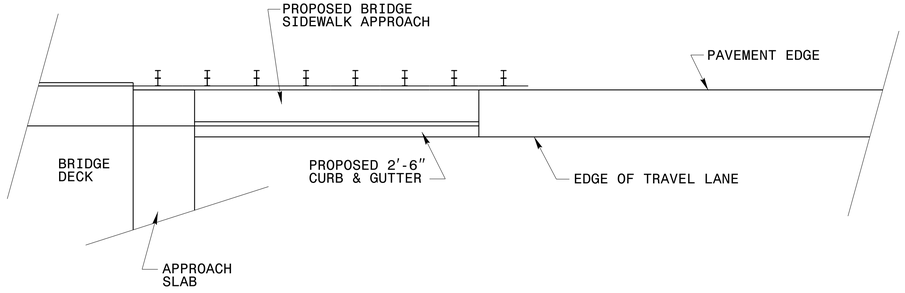
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-5

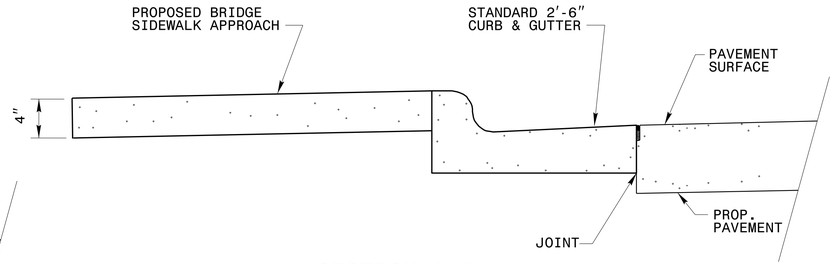


DETAIL OF PROPOSED CONCRETE BRIDGE SIDEWALK APPROACH

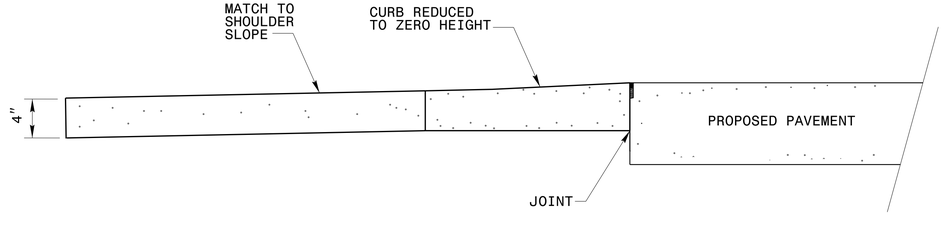
NOTES:

* SEE STRUCTURE PLANS FOR APPROACH SLAB AND CURB DIMENSIONS.
* USE CLASS B CONCRETE.
* CONSTRUCT IN ACCORDANCE WITH ALL APPLICABLE REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE ROADWAY DRAWINGS OR AS DIRECTED BY THE ENGINEER.
* DETERMINE WIDTH OF PROPOSED BRIDGE SIDEWALK APPROACH IN FIELD TO MATCH WALKWAY ON BRIDGE AND APPROACH SLAB OR AS DIRECTED BY THE ENGINEER.
* SEE ROADWAY PLANS FOR GUARDRAIL PLACEMENT.





SECTION A-A



SECTION B-B

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Jason S. Howerton

10/14/2021

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CONTRACT STANDARDS & DEVELOPMENT UNIT
STANDARDS AND SPECIAL DESIGN
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DETAIL OF CONCRETE BRIDGE SIDEWALK APPROACH

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: rnbritt DATE: 10-12-04
CHECKED BY: _____ DATE: _____
FILE SPEC.: details/nbritt/metric/misc/sidewalkapproach.dgn

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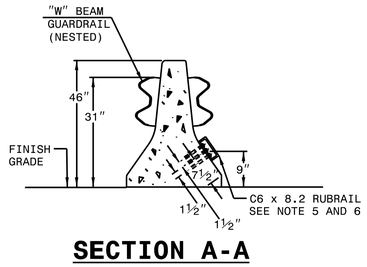
jhowerton AI CSD-218365

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-6



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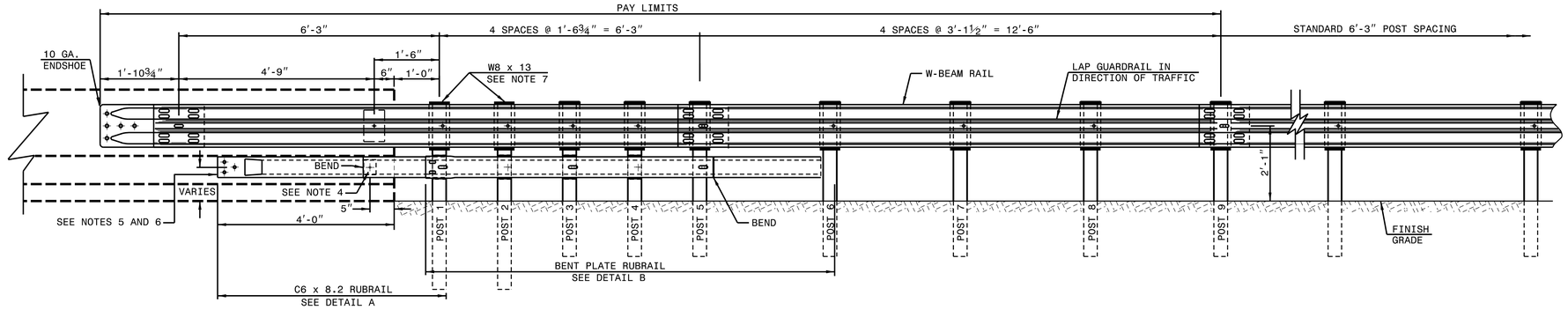
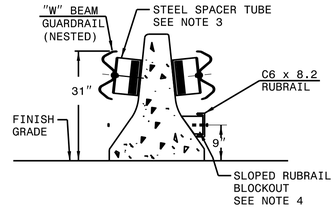
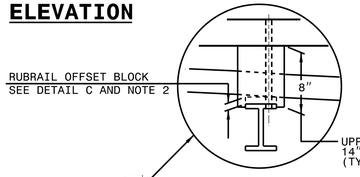
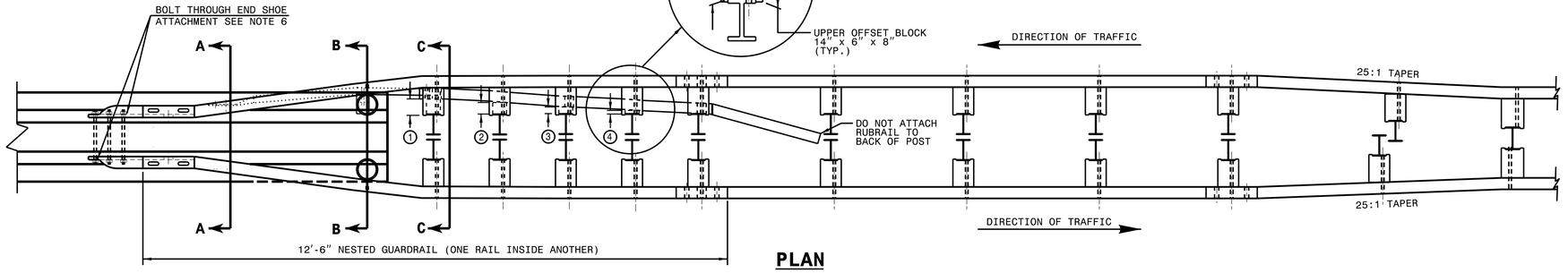


ELEVATION

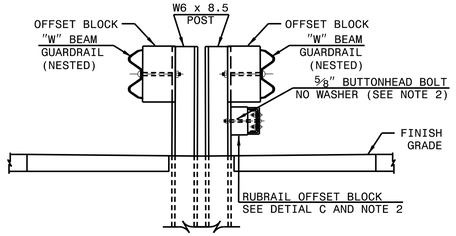


SECTION B-B

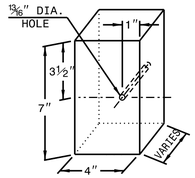




PLAN



SECTION C-C

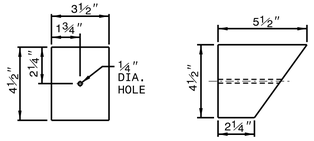


RUBRAIL BLOCKS 7" HIGH x 4" WIDE		
POST	THICKNESS	BOLT LENGTH
1	4¼"	9"
2	3¼"	5" *
3	2"	6"
4	1"	3" *

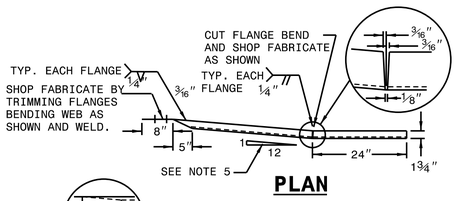
* BOLTS FOR POSTS 2 AND 4 ARE USED TO ATTACH BLOCK TO POST. RUBRAIL NOT ATTACHED TO BLOCK.

DETAIL C
RUBRAIL BLOCKOUT

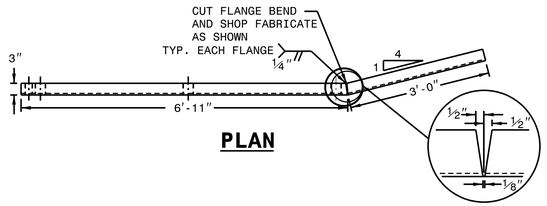
GENERAL NOTES:
1) APPROACH END OF ANCHOR UNIT HAS RUBRAIL. POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH ⅝" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A ⅝" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH ⅝" x 1¼" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE ⅜" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6x8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE JERSEY SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER.
6) ANCHORAGE:
   (a) AT NEW OR EXISTING BARRIERS, RUBRAIL SHALL BE ANCHORED USING THREE ⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS SHALL BE ½".
   (b) AT NEW OR EXISTING BARRIERS, THE W-BEAM END SHOE SHALL BE ANCHORED USING FIVE ⅞" CHEMICALLY ANCHORED THREADED RODS WITH NUTS AND WASHERS. MAXIMUM PROJECTION FOR THREADED RODS SHALL BE ½". THE W-BEAM END SHOE SHALL BE INSTALLED BEHIND THE NESTED W-BEAM ELEMENTS.
7) POSTS 1 AND 2 ARE 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE 6'-0".



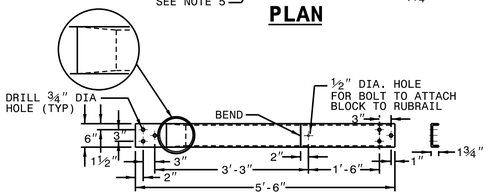
DETAIL D
SLOPED RUBRAIL BLOCKOUT



PLAN

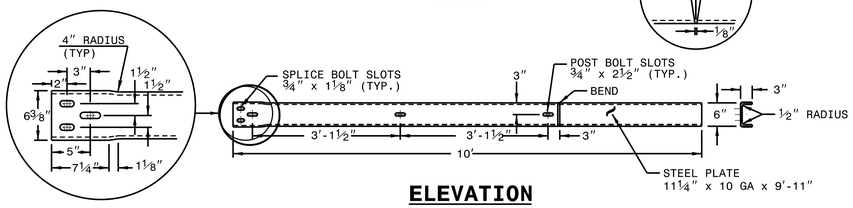


PLAN



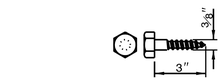
ELEVATION

DETAIL A
C6 x 8.2 RUBRAIL



ELEVATION

DETAIL B
BENT PLATE RUBRAIL



DETAIL E
LAG BOLT

10/14/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

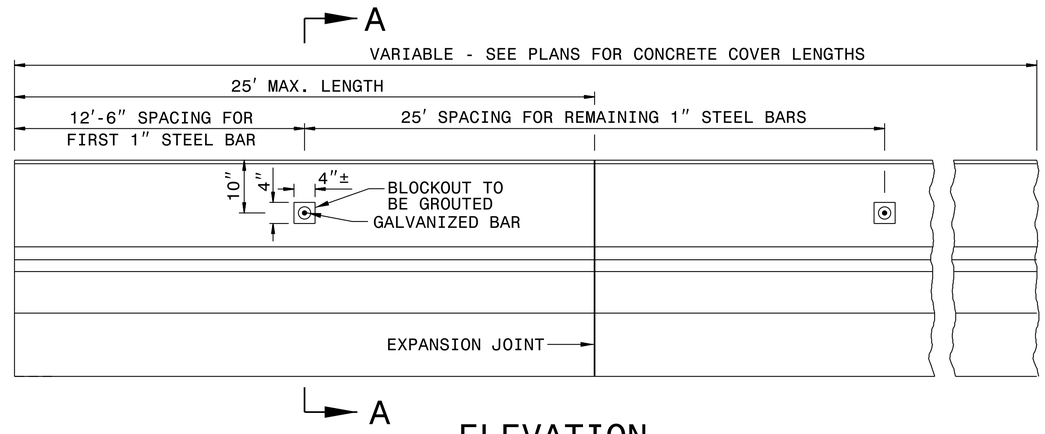
CONTRACT STANDARDS AND DEVELOPMENT UNIT
Office 919-707-6950 FAX 919-250-4119

GUARDRAIL ANCHOR UNIT MODIFIED B-77 TYING TO CONCRETE BARRIER

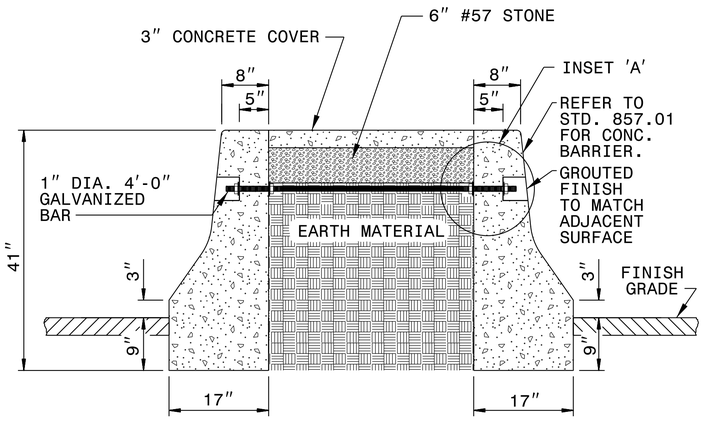
ORIGINAL BY: E.E. WARD DATE: 5-5-03
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: usr\details\stand\862stds\modified B77.dgn

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

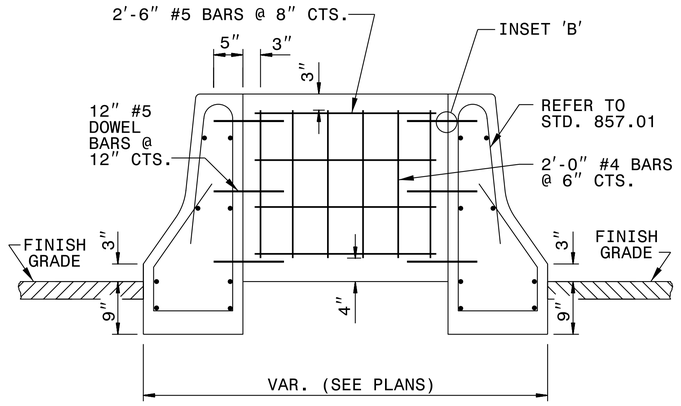
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-7



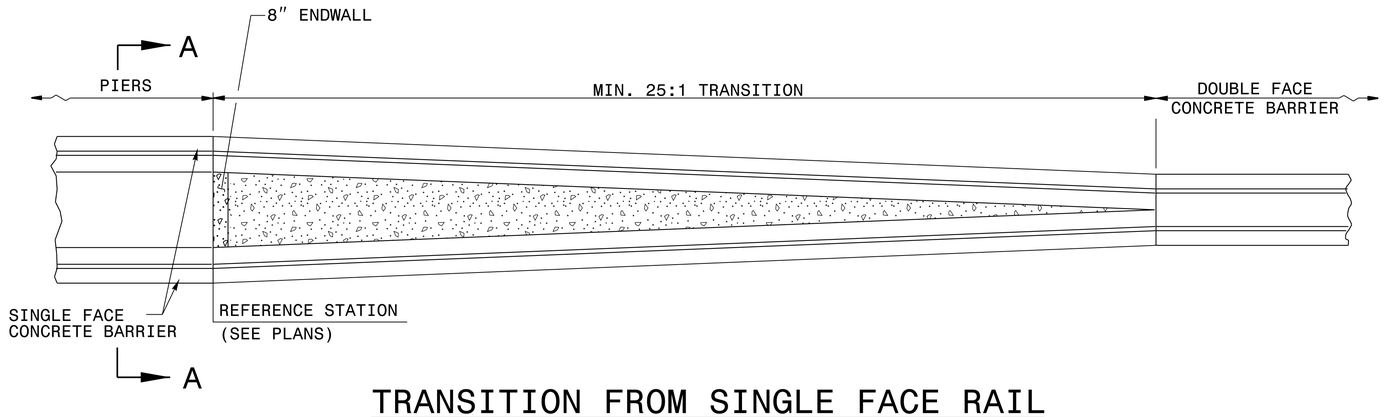
ELEVATION



SECTION 'A-A'



ENDWALL



TRANSITION FROM SINGLE FACE RAIL TO DOUBLE FACE CONCRETE MEDIAN BARRIER

GENERAL NOTES:

USE CLASS 'AA' CONCRETE TO CONSTRUCT CONCRETE BARRIER TRANSITION.

USE CLASS 'B' CONCRETE TO CONSTRUCT CONCRETE COVER.

SEAL ALL EXPANSION JOINTS WITH JOINT FILLER (SEE SECTION 1028 OF THE SPECIFICATIONS).

SUBMIT ALTERNATIVE METHODS FOR STEEL FABRICATION FOR REVIEW.

REFER TO PLANS AND TYPICAL SECTION FOR CONCRETE COVER LOCATIONS.

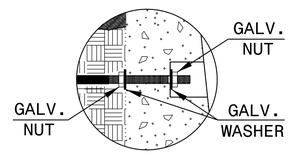
USE AN APPROVED BONDING SYSTEM IN ACCORDANCE WITH SECTION 1081-1, TYPE 3A OF THE STANDARD SPECIFICATIONS.

DRILL ANCHOR HOLES WITH A PNEUMATIC DRILL UNLESS OTHERWISE APPROVED BY THE ENGINEER.

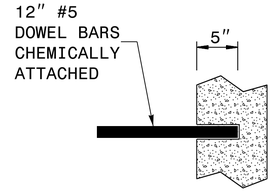
DRILL ANCHOR HOLES IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

REMOVE ALL DEBRIS, CHIPS, DUST, GREASE, OIL AND OTHER FOREIGN MATTER FROM THE ANCHOR HOLES PRIOR TO THE APPLICATION OF THE ADHEIVE BONDING SYSTEM.

BARRIER TRANSITION LOCATED AS FIELD CONDITIONS DICTATE AND AS DIRECTED BY THE ENGINEER.



INSET 'A'



INSET 'B'

10/14/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

MEDIAN HAZARD PROTECTION AND BARRIER TRANSITION

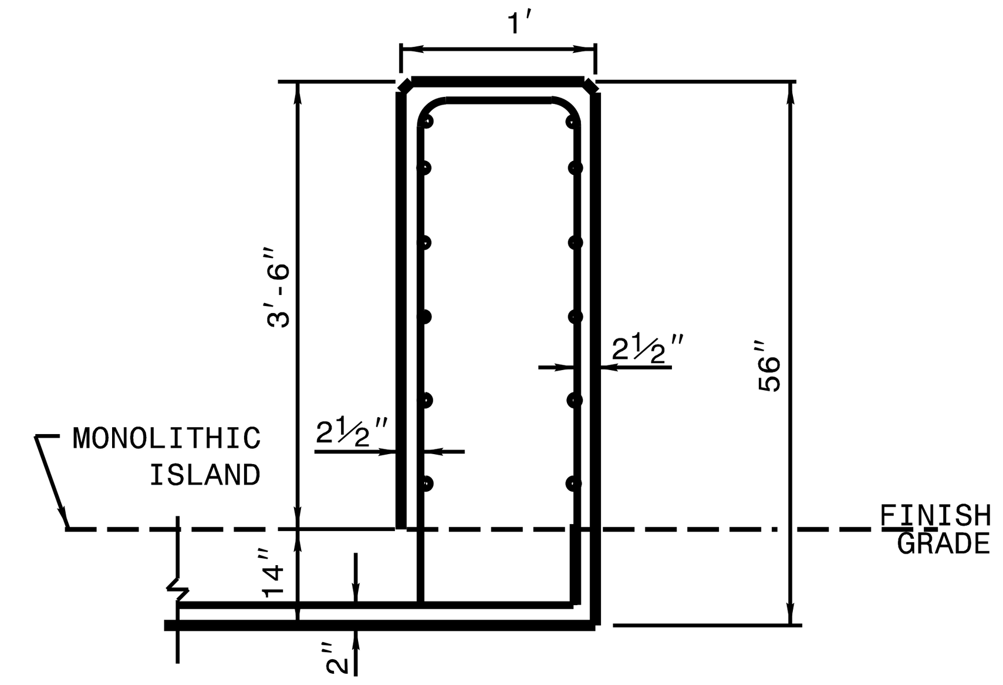
ORIGINAL BY: T.S.Spell DATE: 2-14-00
MODIFIED BY: DATE:
CHECKED BY: DATE:
FILE SPEC.: ericward\usr\details\stand\transbarrier.dgn

09-OCT-2019 09:23
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\tranbarrier.dgn
jhowerton AT CSD-292595

5/14/99

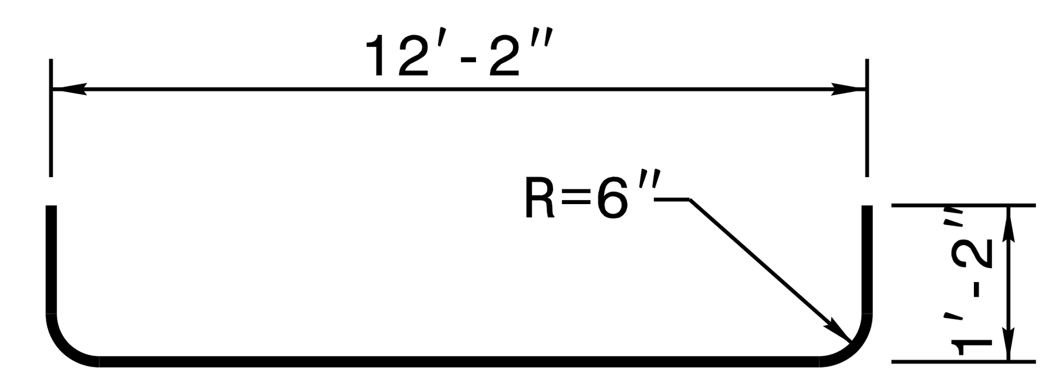
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-8

ALL REBAR TO MATCH THE VERTICAL
BARRIER OF STRUCTURE S2 AS SHOWN
ON SHEET S2-17 OF THE STRUCTURES PLANS



DETAIL X-X

CROSS SECTIONAL VIEW



J - BARS
#5 BAR

GENERAL NOTES:

-CLASS 'AA' CONCRETE TO BE USED THROUGHOUT.

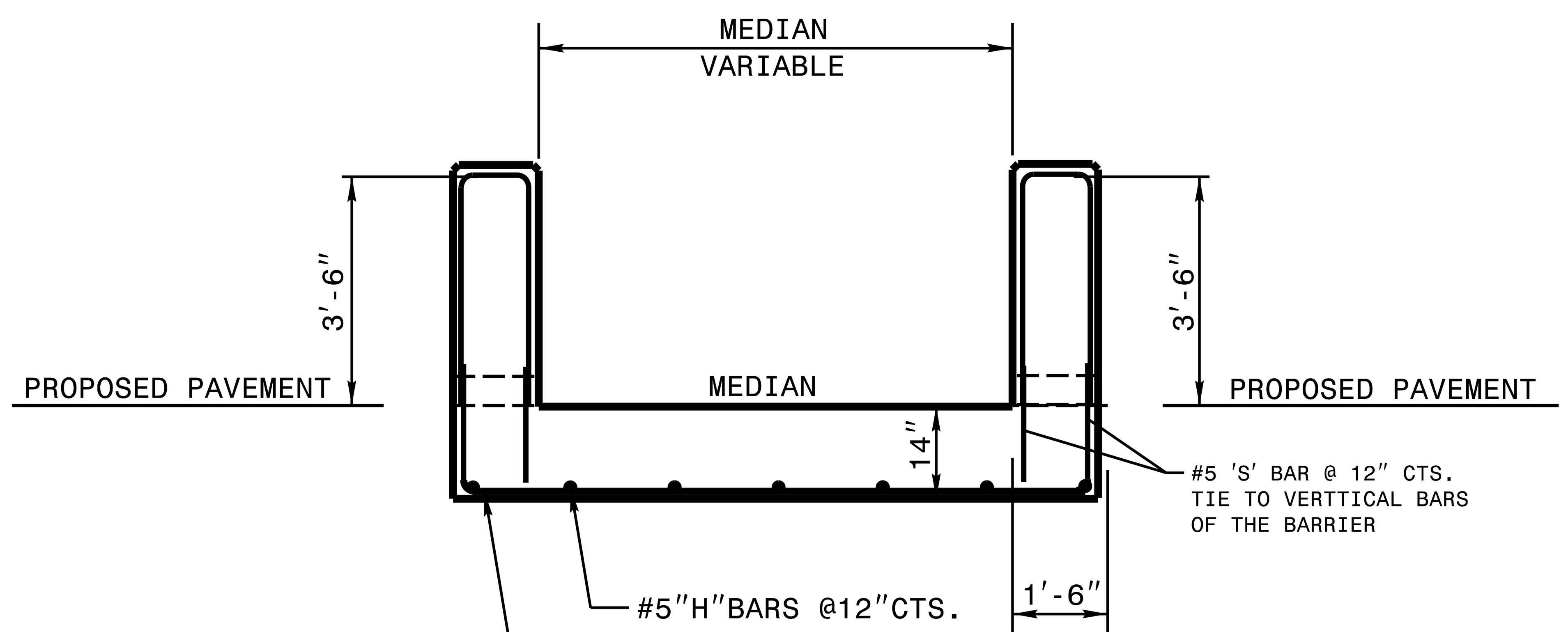
-REINFORCING STEEL TO BE CUT, BENT OR RELOCATED TO POSITION PIPE AS DIRECTED BY THE ENGINEER.

-ALL EXPOSED CORNERS TO BE CHAMFERED 1″.

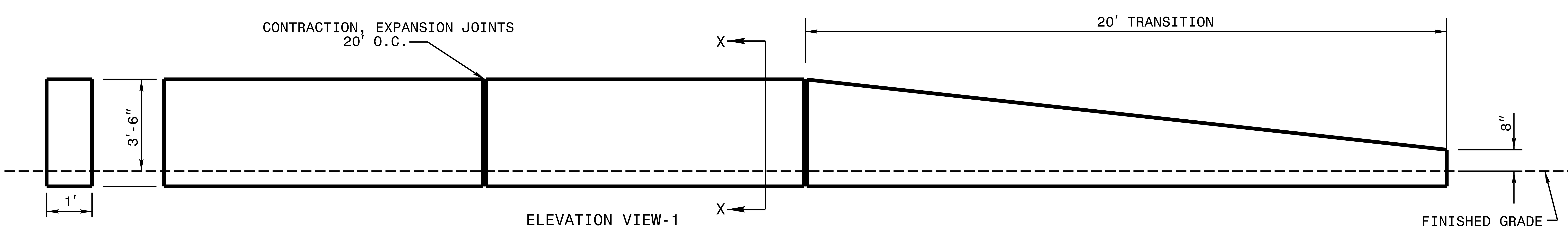
-MAINTAIN 2″ MINIMUM CONCRETE COVERAGE ON ALL STEEL.

BILL OF MATERIAL

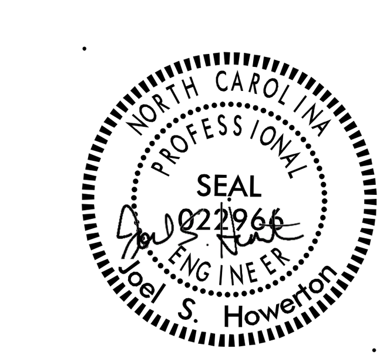
CODE	BAR#	LENGTH	LBS/FT.	QTY.	LBS
H	5	30′	1.043	48	1502
J	5	12′-2″	1.043	120	1528
S	5	1′-8″	1.043	480	836
	TOTAL WEIGHT STEEL				3866
TOTAL CLASS "AA" CONCRETE				220 CU.YDS.	



CROSS SECTIONAL VIEW



ELEVATION VIEW-1



11/9/2021

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACT STANDARDS
STANDARDS AND SPECIAL DESIGN
Office 919-707-6950 FAX 919-250-4119

DDI BARRIER

ORIGINAL BY: ______ DATE: ______
MODIFIED BY: nbritt DATE: 4-26-13
CHECKED BY: ______ DATE: ______
FILE SPEC.: details\nbritt\english\interstate\i5501 bridge barrier.dgn

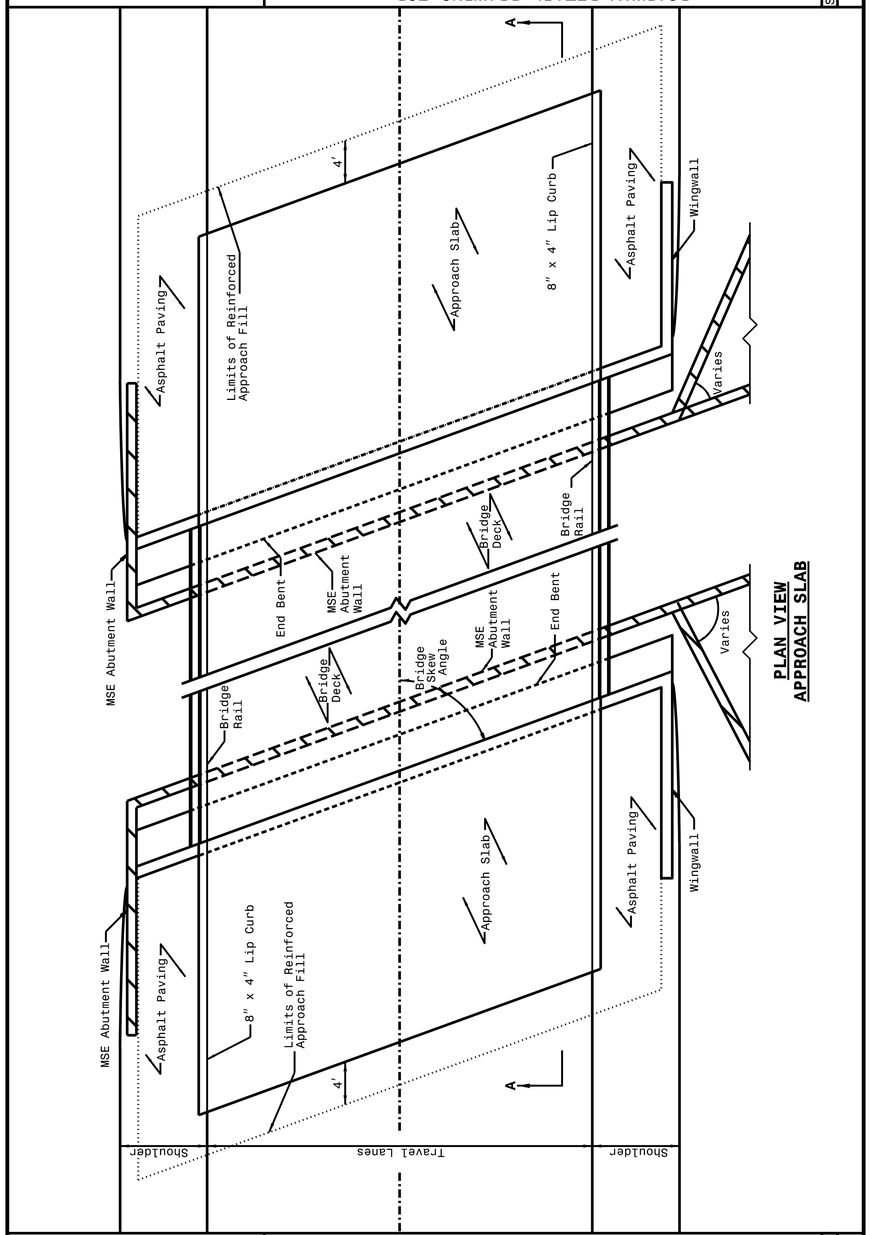
$$$$$$SYSTIME$$$$$
$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$
$$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-9

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2
422D10

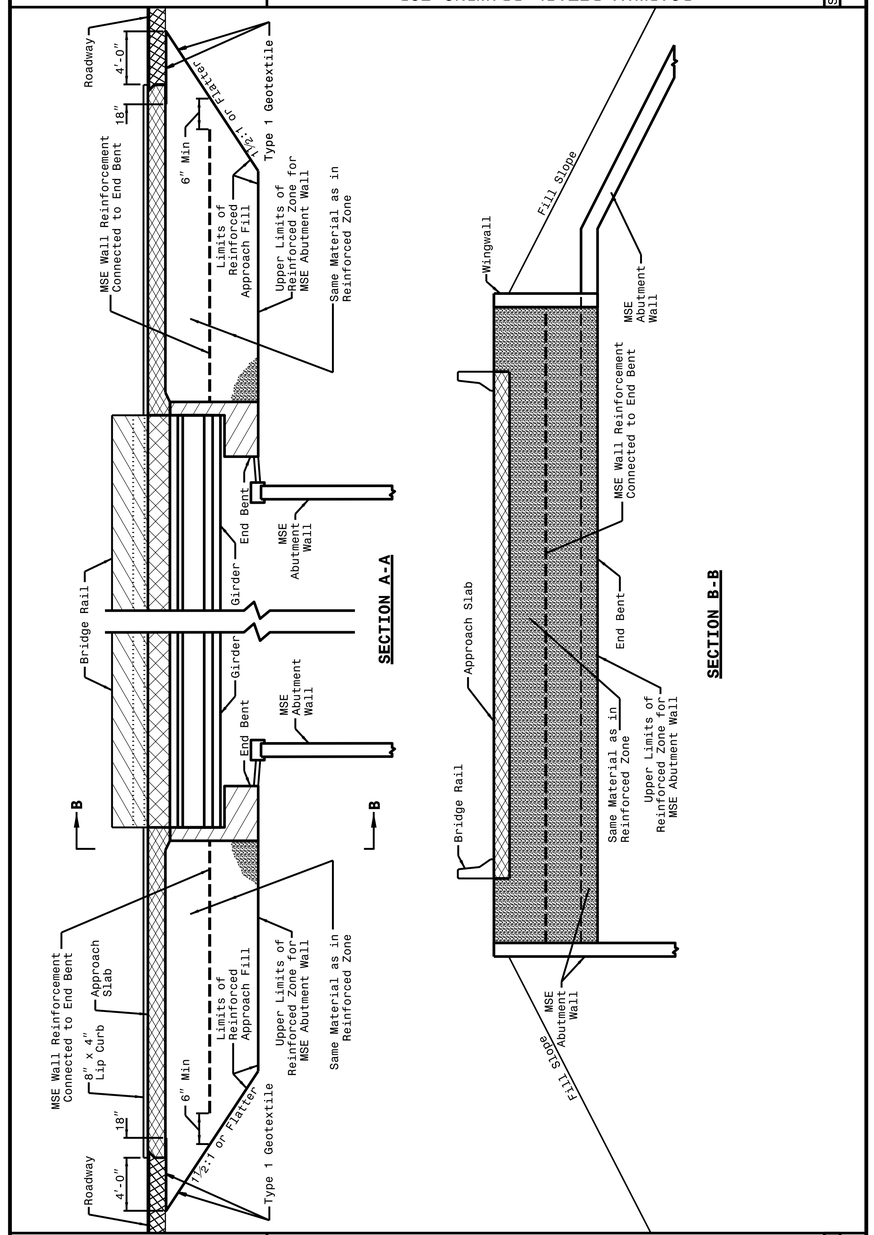


PLAN VIEW
APPROACH SLAB

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 2 OF 2
422D10



SECTION A-A

SECTION B-B

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

ROADWAY DETAIL DRAWING FOR
BRIDGE APPROACH FILLS
TYPE III - REINFORCED APPROACH FILL FOR
MECHANICALLY STABILIZED EARTH (MSE) ABUTMENT WALL

SHEET 1 OF 2
422D10

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

TYPE III REINFORCED APPROACH FILLS

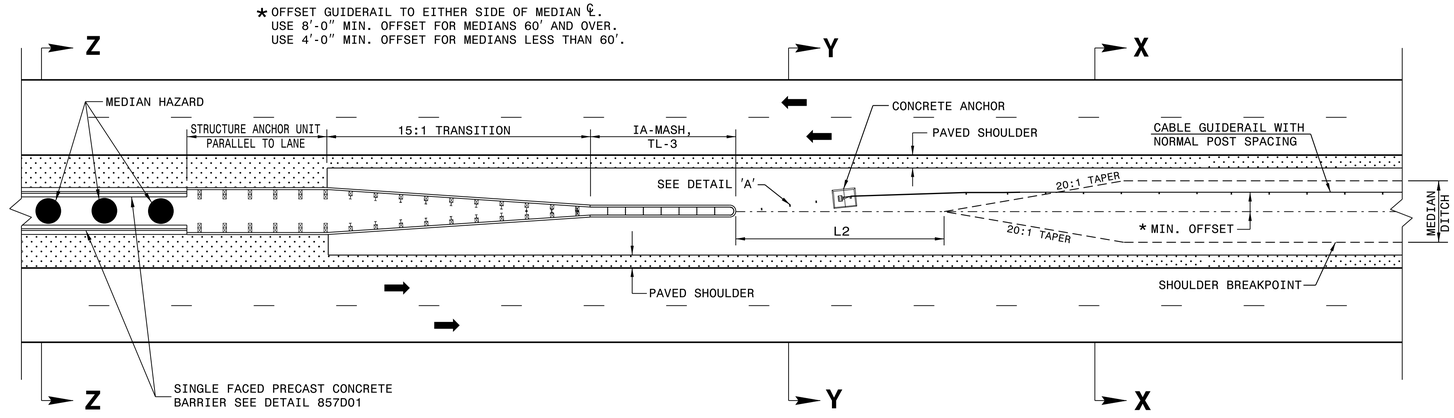
ORIGINAL BY: K. A. KEMPF DATE: JULY 2017
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: 2018 standard drawings\division 422d10.dgn

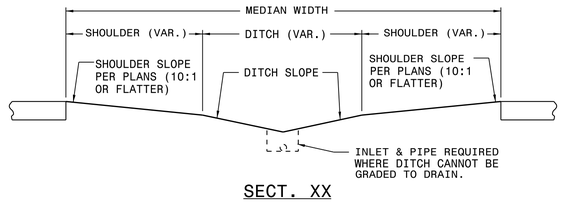
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-10

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

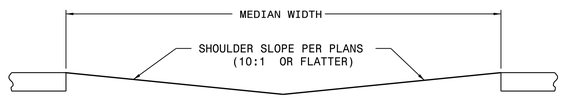
ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

SHEET 1 OF 12
865D01

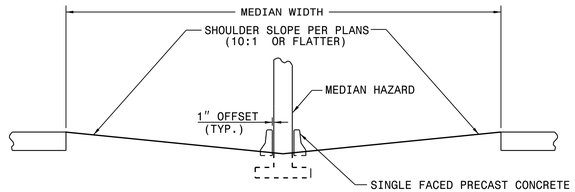




SECT. XX

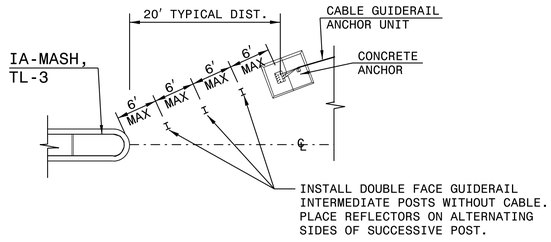


SECT. YY



SECT. ZZ

LIMITS OF -L2-	
MEDIAN WIDTH	-L2- DIMENSION
30'	80.0'
36'	60.0'
40' & ABOVE	40.0'



NOTE: POSTS WILL ONLY BE PLACED IN ONE OF THE TWO OPENINGS AT EACH MEDIAN HAZARD UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

DETAIL 'A'

DETAIL OF TREATMENT AT MEDIAN HAZARDS

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

ROADWAY DETAIL DRAWING FOR
CABLE GUIDERAIL
MEDIAN HAZARD GUIDERAIL LAYOUT

SHEET 1 OF12
865D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Jared S. Howerton

10/14/2021

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

SEE TITLE BLOCK

ORIGINAL BY: J HOWERTON DATE: 08-23-18
MODIFIED BY: _____ DATE: _____
CHECKED BY: _____ DATE: _____
FILE SPEC.: _____

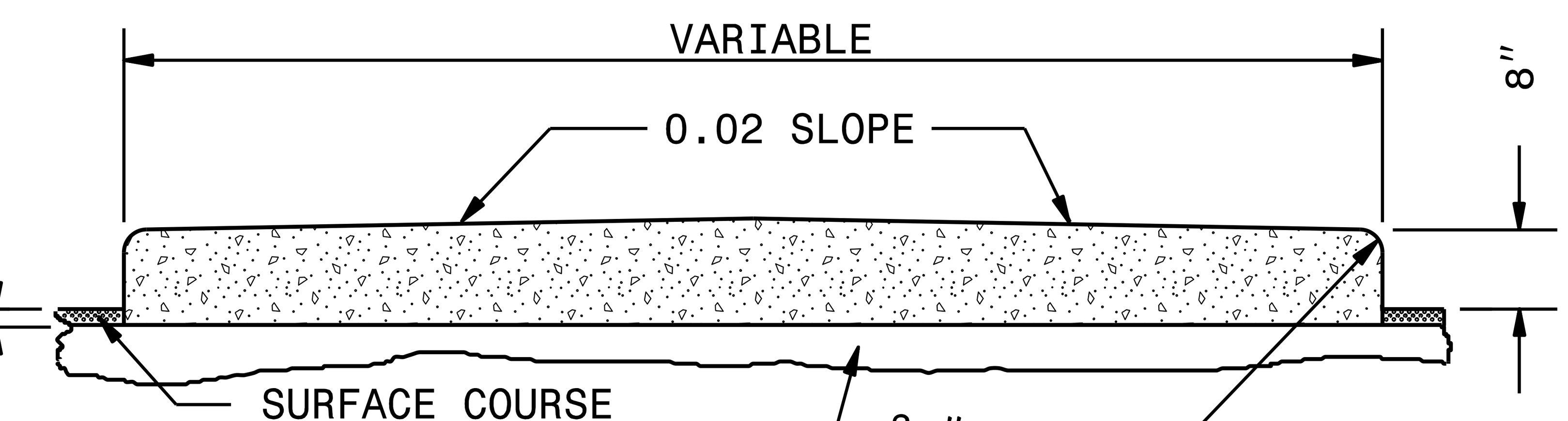
31-JAN-2019 10:43
S:\Contracts\Contracts\Special Details\jhowerton\Standard Drawings\2018 Standard Drawings\Details in Lieu of Standards\Division 8\865D01 Impact Attenuator Sheet 1.dgn
jhowerton AT CSD-29295

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-11

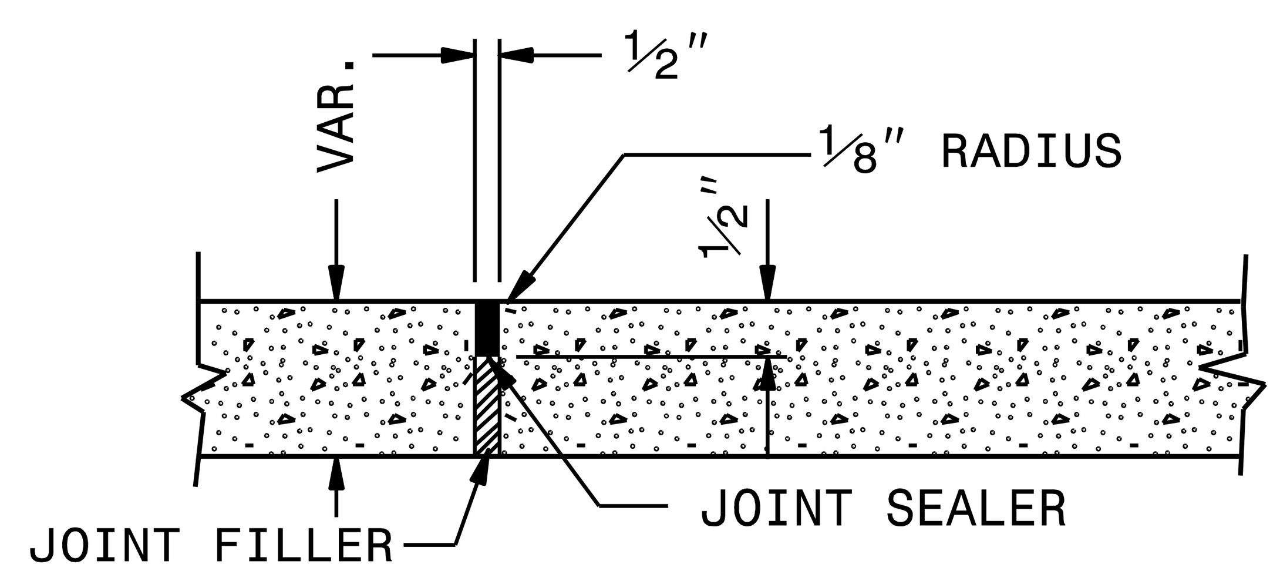
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
CONCRETE ISLANDS
8″ NON-MOUNTABLE

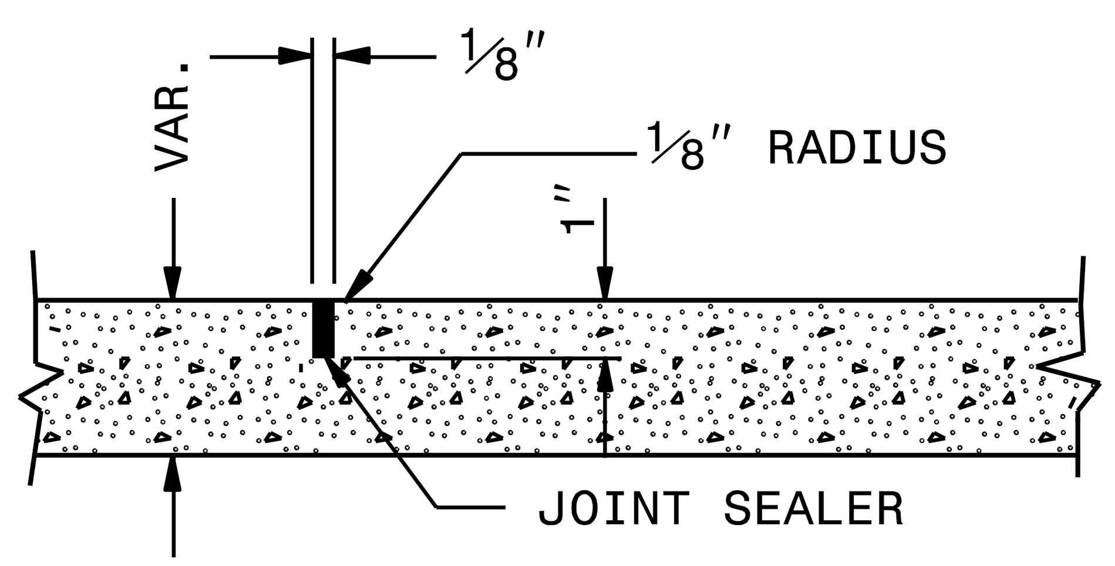
SHEET 1 OF 1
852D01



8″ MONOLITHIC CONCRETE ISLAND (KEYED IN)
ON ASPHALT OR CONCRETE PAVEMENT



SHOWING EXPANSION JOINT



SHOWING GROOVED JOINT

PARTIAL LONGITUDINAL SECTIONS
OF PAVED ISLANDS

NOTE:

REFER TO ROADWAY STANDARD NO. 852.01

SEE ROADWAY PLANS FOR ISLAND DIMENSIONS
AND PAVEMENT DESIGN.

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

ENGLISH DETAIL DRAWING FOR
CONCRETE ISLANDS
8″ NON-MOUNTABLE

SHEET 1 OF 1
852D01

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton
10/14/2021

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PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

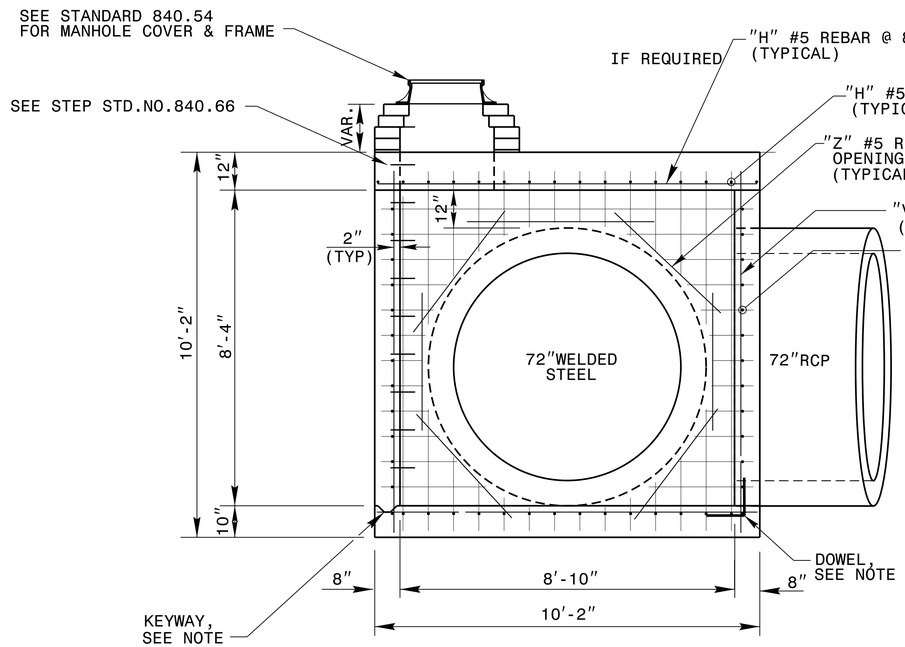
SEE PLATE FOR TITLE

ORIGINAL BY: STD.852.01 DATE:
MODIFIED BY: K.A.Kempf DATE: 1-31-08
CHECKED BY: DATE:
FILE SPEC.: w:tspell/stand/852d01islkeyin.dgn

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

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2C-12



SECTION A-A

GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

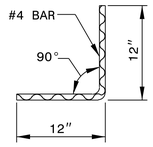
OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS OR BRICK/BLOCK WALLS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

BOX DIMENSIONS MAY BE FIELD ADJUSTED AS DIRECTED BY THE ENGINEER.

2" MINIMUM CONCRETE COVERAGE ON ALL REBAR.

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



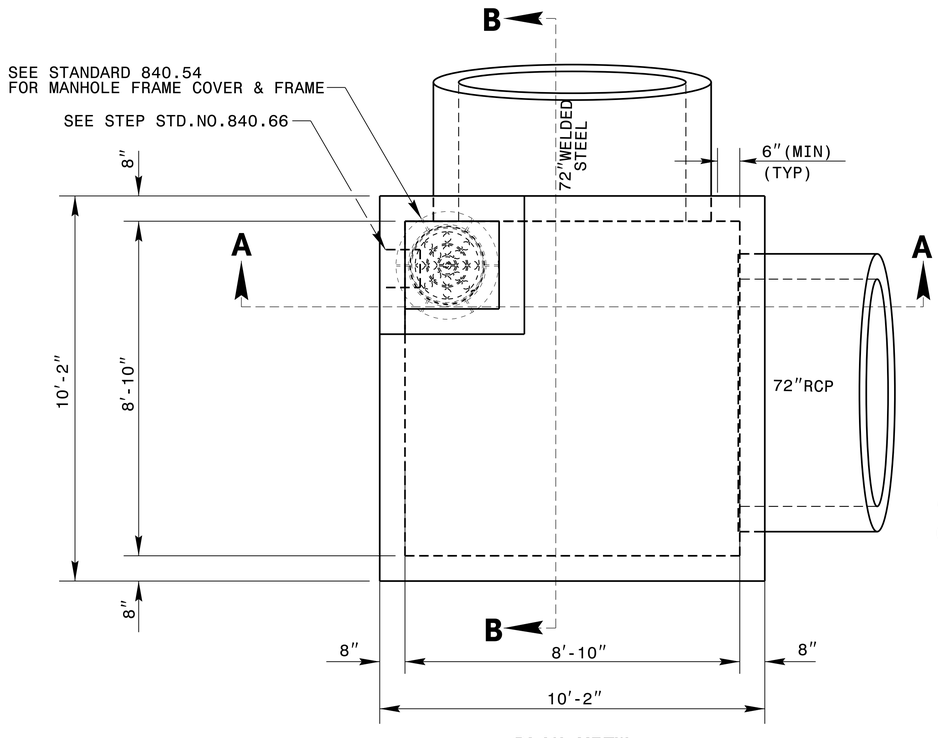
DOWEL

BILL OF MATERIALS

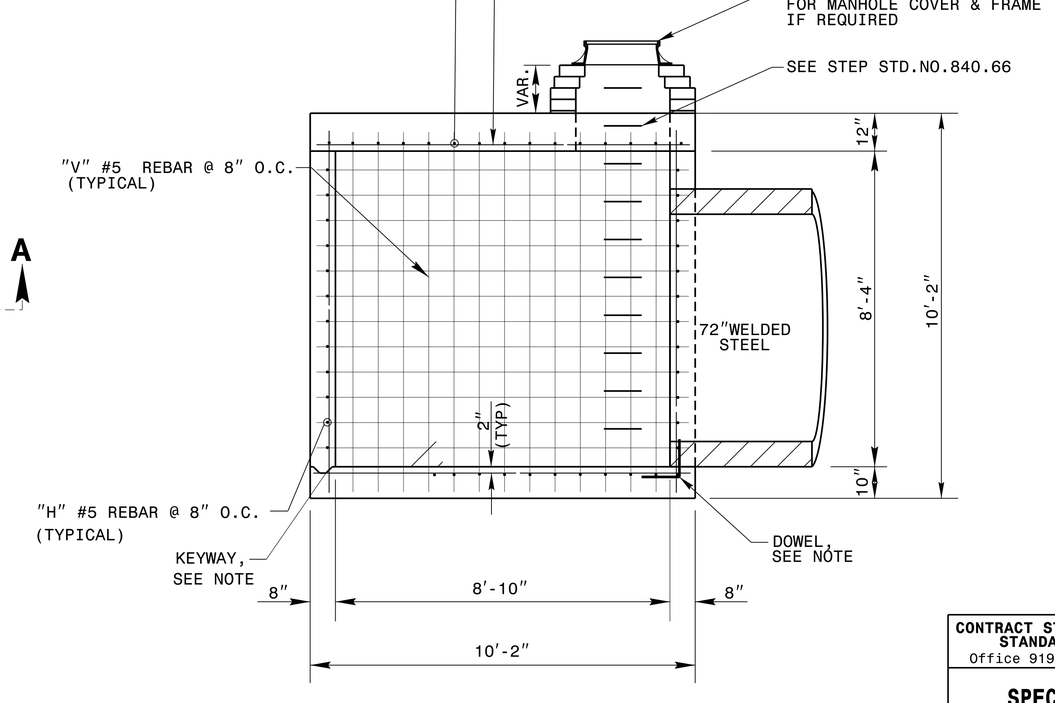
BAR	NO.	SIZE	LENGTH	WEIGHT
H	84	#5	9'-6"	833
V	70	#5	9'-2"	670
Z	14	#5	5'-0"	74
TOTAL REINF. STEEL (LBS.)				1577
TOTAL CONC. (CU. YDS.)				* 15.2

* NO DEDUCTION HAS BEEN MADE FOR PIPES

* 2.00 CU. YD. DEDUCTION FOR 2-72" RC PIPE



PLAN VIEW



SECTION B-B

NORTH CAROLINA PROFESSIONAL SEAL 027966 ENGINEER Joel S. Howerton

10/14/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SPECIAL JUNCTION BOX WITH SLAB LID

ORIGINAL BY: _____ DATE: _____
MODIFIED BY: nbritt DATE: 04/17/09
CHECKED BY: _____ DATE: _____
FILE SPEC.: detail/nbritt/english/rural/r2417c72jb.dgn

14-FEB-2018 13:14
S:\Contracts\Special Details\nbritt\english\rural\r2417c 72 jb.dgn
jhowerton AT CSD-292595

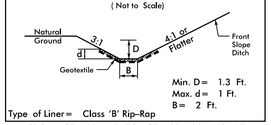
PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-1
R/W SHEET NO.	

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 37526 ENGINEER ANN D. YELVERTON
10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DETAIL A
SPECIAL CUT BASE DITCH
(Not to Scale)

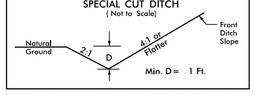


Min. D= 1.3 Ft.
Max. d= 1 Ft.
B= 2 Ft.

Type of Liner= Class 'B' Rip-Rap

FROM STA. 10+40 TO STA. 12+00 –Y6– LT

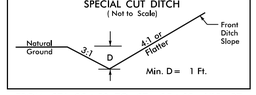
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 12+50 TO STA. 18+00 –Y1B– RT
FROM STA. 12+50 TO STA. 18+00 –Y1B– LT
FROM STA. 36+00 TO STA. 37+50 –Y1B– LT
FROM STA. 40+00 TO STA. 40+50 –Y1B– LT
FROM STA. 40+50 TO STA. 41+17 –Y1B– LT
FROM STA. 45+50 TO STA. 46+50 –Y4– LT
FROM STA. 47+50 TO STA. 54+50 –Y4– RT
FROM STA. 11+75 –Y1– LT TO STA. 47+50 –Y4– RT
FROM STA. 60+00 TO STA. 60+50 –Y4– RT
FROM STA. 57+70 TO STA. 60+50 –Y4– LT
FROM STA. 15+00 TO STA. 17+50 –Y4A– LT
FROM STA. 16+10 TO STA. 17+30 –Y4– RT
FROM STA. 12+30 TO STA. 12+50 –Y4– RT
FROM STA. 12+46 TO STA. 13+00 –Y4– LT
FROM STA. 12+00 TO STA. 13+25 –Y16B– RT
FROM STA. 12+50 TO STA. 13+91 –Y16B– LT
FROM STA. 13+25 TO STA. 13+87 –Y16B– RT
FROM STA. 16+00 TO STA. 17+50 –Y16– RT
FROM STA. 26+74 TO STA. 28+05 –Y16– RT
FROM STA. 28+81 TO STA. 29+60 –Y16– RT
FROM STA. 17+00 TO STA. 17+50 –Y5B– LT
FROM STA. 59+00 TO STA. 60+50 –Y15REV– LT
FROM STA. 61+50 TO STA. 66+00 –Y15REV– LT
FROM STA. 19+50 TO STA. 22+50 –Y15– LT

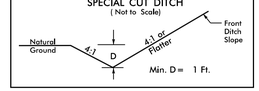
DETAIL C
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 23+50 TO STA. 25+02 –Y15– RT

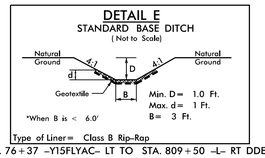
DETAIL D
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 704+50 TO STA. 706+00 –L– RT
FROM STA. 14+50 TO STA. 14+80 –Y8– RT
FROM STA. 25+02 TO STA. 26+00 –Y15– RT
FROM STA. 31+25 TO STA. 31+96 –Y15FLYAC– LT
FROM STA. 35+50 TO STA. 26+88 –Y15– RT
FROM STA. 36+88 TO STA. 39+36 –Y15– RT
FROM STA. 697+00 TO STA. 700+00 –L– RT
FROM STA. 706+00 TO STA. 712+50 –L– RT
FROM STA. 699+00 TO STA. 702+00 –L– LT
FROM STA. 708+00 TO STA. 712+50 –L– LT
FROM STA. 714+00 TO STA. 715+00 –L– RT
FROM STA. 713+50 TO STA. 715+00 –L– LT
FROM STA. 724+50 TO STA. 726+50 –L– RT
FROM STA. 742+50 TO STA. 743+50 –L– RT
FROM STA. 13+91 TO STA. 16+40 –Y4RPC– LT
FROM STA. 12+52 TO STA. 16+72 –Y15FLYCA– RT
FROM STA. 16+72 TO STA. 19+50 –Y15FLYCA– RT
FROM STA. 39+36 TO STA. 40+00 –Y15– RT
FROM STA. 75+00 TO STA. 76+50 –Y15REV– RT
FROM STA. 162+50 TO STA. 163+50 –Y15– RT

DETAIL E
STANDARD BASE DITCH
(Not to Scale)



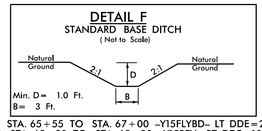
Min. D= 1.0 Ft.
Max. d= 1 Ft.
B= 3 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 76+37 –Y15FLYAC– LT TO STA. 809+50 –L– RT DDE=125 CY

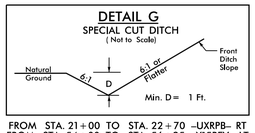
DETAIL F
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.0 Ft.
B= 3 Ft.

FROM STA. 65+55 TO STA. 67+00 –Y15FLYBD– LT DDE=250 CY
FROM STA. 65+30 TO STA. 65+30 –Y15REV– RT DDE=1070 CY

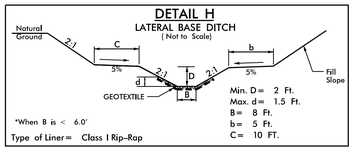
DETAIL G
SPECIAL CUT DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 21+00 TO STA. 22+70 –UXRPB– RT
FROM STA. 54+00 TO STA. 56+25 –Y15REV– LT
FROM STA. 715+50 TO STA. 721+50 –L– RT

DETAIL H
LATERAL BASE DITCH
(Not to Scale)



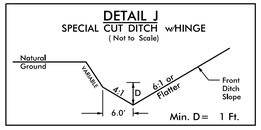
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 26+82 TO STA. 28+87 –Y15FLYAC– RT DDE=855 CY

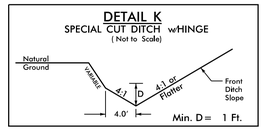
DETAIL J
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 16+00 TO STA. 16+65 –Y15FLYBD– RT
FROM STA. 16+81 TO STA. 17+50 –Y15REV– RT
FROM STA. 26+00 TO STA. 29+00 –Y15– RT
FROM STA. 60+50 TO STA. 61+50 –Y15REV– LT
FROM STA. 72+00 TO STA. 72+46 –Y15REV– RT
FROM STA. 77+50 TO STA. 80+50 –Y15REV– RT
FROM STA. 773+50 TO STA. 774+50 –L– LT

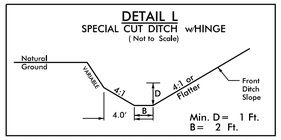
DETAIL K
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 818+00 TO STA. 823+00 –L– LT
FROM STA. 821+00 TO STA. 827+50 –L– RT
FROM STA. 823+00 TO STA. 824+00 –L– LT
FROM STA. 834+50 TO STA. 836+00 –L– RT

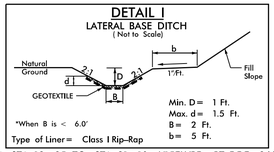
DETAIL L
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.

FROM STA. 20+00 TO STA. 22+00 –Y15FLYCA– LT

DETAIL I
LATERAL BASE DITCH
(Not to Scale)



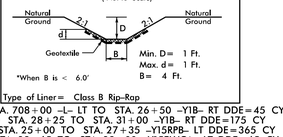
Min. D= 1 Ft.
Max. d= 1.5 Ft.
B= 2 Ft.
b= 5 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 18+95 TO STA. 21+10 –Y15FLYBD– RT DDE=260 CY
FROM STA. 33+13 TO STA. 35+87 –Y15RPDREV– RT DDE=70 CY
FROM STA. 793+00 TO STA. 794+75 –L– LT DDE=924 CY

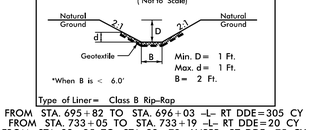
DETAIL N
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2.25 Ft.
B= 2 Ft.
b= 5 Ft.

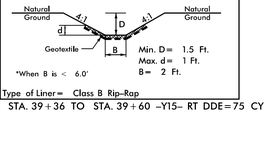
FROM STA. 66+25 TO STA. 68+43 –Y15FLYBD– RT DDE=720 CY

DETAIL O
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 813+00 TO STA. 818+50 –L– RT

DETAIL P
LATERAL BASE DITCH
(Not to Scale)



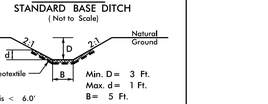
Min. D= 3 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.
b= 5 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 149+46 TO STA. 151+78 –Y15– LT DDE=3485 CY
FROM STA. 152+50 TO STA. 154+24 –Y15– LT DDE=35 CY

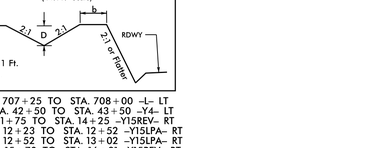
DETAIL Q
LATERAL 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 12+08 TO STA. 18+16 –SR1– RT DDE=990 CY
FROM STA. 20+23 TO STA. 21+26 –SR1– RT DDE=160 CY
FROM STA. 15+74 TO STA. 16+00 –Y15FLYAC– RT DDE=1870 CY
FROM STA. 18+75 TO STA. 20+50 –Y15RPB– LT DDE=2475 CY
FROM STA. 19+00 TO STA. 19+50 –Y15RPC– RT DDE=725 CY
FROM STA. 20+50 TO STA. 21+50 –Y15RPB– LT DDE=820 CY
FROM STA. 22+30 TO STA. 23+75 –Y15FLYBD– LT DDE=540 CY
FROM STA. 25+50 TO STA. 27+09 –Y15FLYBD– LT DDE=155 CY
FROM STA. 41+00 TO STA. 43+50 –Y15FLYAC– RT DDE=180 CY
FROM STA. 43+95 TO STA. 45+70 –Y15REV– LT DDE=40 CY
FROM STA. 72+00 TO STA. 74+07 –Y15REV– LT DDE=290 CY
FROM STA. 161+70 TO STA. 162+50 –Y15– RT DDE=45 CY
FROM STA. 17+63 TO STA. 19+22 –UXRPC– RT DDE=180 CY
FROM STA. 23+75 TO STA. 25+50 –Y15FLYBD– LT

DETAIL R
STANDARD BASE DITCH
(Not to Scale)



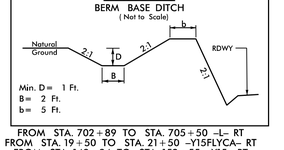
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 6 Ft.
b= 12 Ft.
C= 12 FT.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 31+30 TO STA. 33+00 –Y15RPB– RT DDE=15630 CY

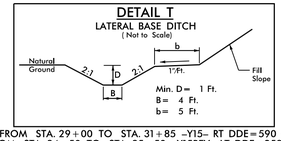
DETAIL S
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 18+00 TO STA. 20+50 –Y1B– RT DDE=160 CY
FROM STA. 31+00 TO STA. 34+50 –Y1B– RT DDE=275 CY
FROM STA. 16+00 TO STA. 17+60 –Y15FLYAC– RT DDE=740 CY
FROM STA. 16+65 TO STA. 18+95 –Y15FLYBD– RT DDE=220 CY
FROM STA. 19+50 TO STA. 25+11 –Y15RPC– RT DDE=335 CY
FROM STA. 22+00 TO STA. 22+10 –Y15RPB– LT DDE=10 CY
FROM STA. 73+00 TO STA. 73+81 –Y15REV– RT DDE=35 CY
FROM STA. 75+50 TO STA. 76+37 –Y15FLYAC– LT DDE=155 CY
FROM STA. 76+50 TO STA. 77+00 –Y15REV– RT DDE=125 CY
FROM STA. 827+95 TO STA. 829+50 –L– LT DDE=2190 CY
FROM STA. 831+00 TO STA. 832+00 –L– RT DDE=510 CY
FROM STA. 832+25 TO STA. 833+00 –L– LT DDE=520 CY
FROM STA. 15+18 TO STA. 16+00 –UXRPC– LT DDE=65 CY
FROM STA. 70+00 TO STA. 71+50 –Y15FLYCA– RT DDE=305 CY
FROM STA. 93+05 TO STA. 94+31 –Y15FLYBD– RT DDE=240 CY

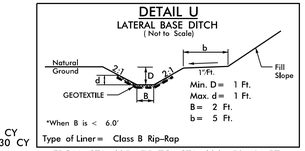
DETAIL T
LATERAL BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 4 Ft.
b= 5 Ft.

FROM STA. 29+00 TO STA. 31+85 –Y15– RT DDE=590 CY
FROM STA. 34+50 TO STA. 35+50 –Y15REV– LT DDE=2530 CY

DETAIL U
LATERAL BASE DITCH
(Not to Scale)



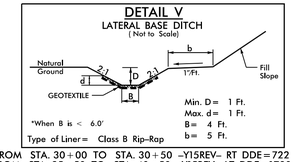
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.
b= 5 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 695+75 TO STA. 696+50 –L– RT
(Dimension b is 15' on this ditch for basin access, see Construction Sheet 4)
FROM STA. 21+50 TO STA. 22+00 –Y15RPB– LT DDE=155 CY
FROM STA. 22+00 TO STA. 22+30 –Y15RPB– LT DDE=90 CY
FROM STA. 34+50 TO STA. 37+30 –Y15FLYBD– LT DDE=2530 CY
FROM STA. 43+62 TO STA. 48+00 –Y15FLYCA– RT DDE=935 CY
FROM STA. 68+30 TO STA. 68+50 –Y15FLYBD– LT DDE=15 CY
FROM STA. 68+50 TO STA. 69+00 –Y15FLYBD– LT DDE=30 CY
FROM STA. 69+90 TO STA. 71+50 –Y15FLYCA– LT DDE=165 CY
FROM STA. 160+00 TO STA. 161+70 –Y15– RT DDE=225 CY
FROM STA. 799+52 TO STA. 800+50 –L– LT DDE=360 CY
FROM STA. 829+50 TO STA. 832+25 –L– LT DDE=2555 CY
FROM STA. 830+00 TO STA. 831+00 –L– RT DDE=155 CY
FROM STA. 831+00 TO STA. 834+50 –L– RT DDE=540 CY
FROM STA. 19+22 TO STA. 20+50 –UXRPC– RT DDE=40 CY
FROM STA. 68+43 TO STA. 70+00 –Y15FLYBD– RT DDE=480 CY
FROM STA. 92+95 TO STA. 93+97 –Y15FLYBD– RT DDE=115 CY

DETAIL V
LATERAL BASE DITCH
(Not to Scale)



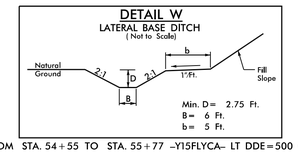
Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.
b= 5 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 30+00 TO STA. 30+50 –Y15REV– RT DDE=722 CY
FROM STA. 35+50 TO STA. 40+50 –Y15REV– LT DDE=1780 CY
FROM STA. 159+50 TO STA. 160+00 –Y15– RT DDE=110 CY
FROM STA. 799+07 TO STA. 799+52 –L– LT
FROM STA. 43+25 TO STA. 43+62 –Y15FLYCA– RT DDE=120 CY

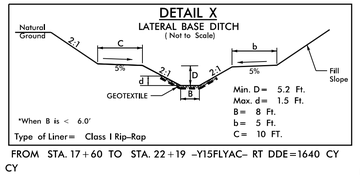
DETAIL W
LATERAL BASE DITCH
(Not to Scale)



Min. D= 2.75 Ft.
B= 6 Ft.
b= 5 Ft.

FROM STA. 54+55 TO STA. 55+77 –Y15FLYCA– LT DDE=500 CY

DETAIL X
LATERAL BASE DITCH
(Not to Scale)



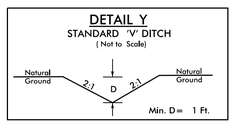
Min. D= 5.2 Ft.
Max. d= 1.5 Ft.
B= 8 Ft.
b= 5 Ft.
C= 10 FT.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 17+60 TO STA. 22+19 –Y15FLYAC– RT DDE=1640 CY

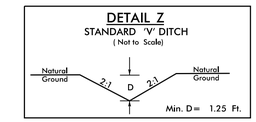
DETAIL Y
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1 Ft.

FROM STA. 57+00 TO STA. 57+46 –Y4– RT DDE=15 CY
FROM STA. 20+18 TO STA. 20+55 –Y5B– RT DDE=20 CY
FROM STA. 67+50 TO STA. 69+40 –Y15REV– LT DDE=130 CY

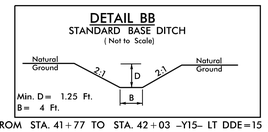
DETAIL Z
STANDARD 'V' DITCH
(Not to Scale)



Min. D= 1.25 Ft.

FROM STA. 823+00 TO STA. 824+00 –L– LT DDE=490 CY

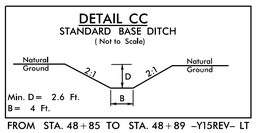
DETAIL BB
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.25 Ft.
B= 4 Ft.

FROM STA. 41+77 TO STA. 42+03 –Y15– LT DDE=15 CY

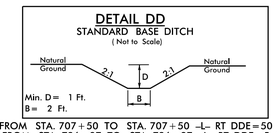
DETAIL CC
STANDARD BASE DITCH
(Not to Scale)



Min. D= 2.6 Ft.
B= 4 Ft.

FROM STA. 48+85 TO STA. 48+89 –Y15REV– LT

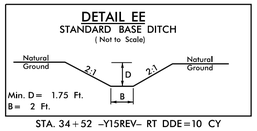
DETAIL DD
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1 Ft.
B= 2 Ft.

FROM STA. 707+50 TO STA. 707+50 –L– RT DDE=50 CY
FROM STA. 736+87 TO STA. 736+97 –L– RT DDE=5 CY
FROM STA. 740+00 TO STA. 740+50 –L– RT DDE=45 CY
FROM STA. 746+70 TO STA. 749+50 –L– RT DDE=360 CY
FROM STA. 749+50 TO STA. 754+50 –L– RT DDE=740 CY
FROM STA. 796+75 TO STA. 797+29 –L– LT DDE=125 CY
FROM STA. 16+40 TO STA. 17+35 –Y15REV– LT DDE=35 CY
FROM STA. 37+30 TO STA. 39+00 –Y15FLYBD– LT DDE=520 CY
FROM STA. 39+00 TO STA. 40+28 –Y15FLYBD– LT DDE=100 CY
FROM STA. 809+00 TO STA. 809+50 –L– RT DDE=75 CY
FROM STA. 35+30 TO STA. 35+85 –Y1B– RT DDE=30 CY

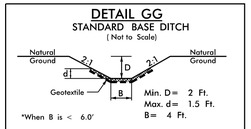
DETAIL EE
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.75 Ft.
B= 2 Ft.

STA. 34+52 –Y15REV– RT DDE=10 CY

DETAIL GG
STANDARD BASE DITCH
(Not to Scale)



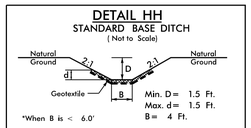
Min. D= 2 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 734+50 TO STA. 735+50 –L– LT DDE=260 CY
FROM STA. 19+37 TO STA. 20+50 –Y15RPC– LT DDE=540 CY

DETAIL HH
STANDARD BASE DITCH
(Not to Scale)



Min. D= 1.5 Ft.
Max. d= 1.5 Ft.
B= 4 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 26+50 TO STA. 28+25 –Y1B– RT DDE=455 CY
FROM STA. 20+50 TO STA. 21+92 –Y15RPC– LT DDE=345 CY

DETAIL II
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 4 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 708+00 –L– LT TO STA. 26+50 –Y1B– RT DDE=45 CY
FROM STA. 28+25 TO STA. 31+00 –Y1B– RT DDE=175 CY
FROM STA. 25+00 TO STA. 27+35 –Y15RPB– LT DDE=365 CY
FROM STA. 28+65 TO STA. 29+00 –Y15FLYCA– LT DDE=65 CY
FROM STA. 27+05 TO STA. 28+40 –Y15FLYBD– LT DDE=1845 CY

DETAIL JJ
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
Max. d= 1 Ft.
B= 2 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 695+82 TO STA. 696+03 –L– RT DDE=305 CY
FROM STA. 733+05 TO STA. 733+19 –L– RT DDE=20 CY
FROM STA. 22+25 TO STA. 22+79 –Y4RPB– RT DDE=75 CY
FROM STA. 22+79 TO STA. 24+80 –Y4SPB1– RT DDE=265 CY
FROM STA. 21+46 TO STA. 22+77 –Y15RPB– LT DDE=155 CY
FROM STA. 75+24 TO STA. 75+65 –Y15REV– LT DDE=25 CY
FROM STA. 21+38 TO STA. 23+18 –Y15RPC– LT DDE=395 CY
FROM STA. 52+50 TO STA. 54+40 –Y15FLYCA– LT DDE=690 CY
FROM STA. 155+51 TO STA. 157+20 –Y15– RT DDE=450 CY
FROM STA. 157+20 TO STA. 157+95 –Y15– RT DDE=550 CY

DETAIL LL
STANDARD BASE DITCH
(Not to Scale)

Min. D= 1.5 Ft.
Max. d= 1 Ft.
B= 2 Ft.

*When B is < 6.0'

Type of Liner= Class B Rip-Rap

FROM STA. 39+36 TO STA. 39+60 –Y15– RT DDE=75 CY

DETAIL MM
STANDARD BASE DITCH
(Not to Scale)

Min. D= 3 Ft.
Max. d= 1 Ft.
B= 5 Ft.

*When B is < 6.0'

Type of Liner= Class I Rip-Rap

FROM STA. 30+50 TO STA. 32+90 –Y15REV– RT DDE=3230 CY

DETAIL NN
BERM 'V' DITCH
(Not to Scale)

Min. D= 1 Ft.
b= 5 Ft.

FROM STA. 707+25 TO STA. 708+00 –L– LT
FROM STA. 42+50 TO STA. 43+50 –Y4– LT
FROM STA. 11+75 TO STA. 14+25 –Y15REV– RT
FROM STA. 12+23 TO STA. 12+52 –Y15LPA– RT
FROM STA. 12+52 TO STA. 13+02 –Y15LPA– RT
FROM STA. 15+70 TO STA. 16+81 –Y15REV– RT
FROM STA. 16+00 TO STA. 19+50 –Y15FLYCA– RT
FROM STA. 23+00 TO STA. 25+95 –Y15FLYCA– RT
FROM STA. 36+88 TO STA. 38+25 –Y15– RT
FROM STA. 42+00 TO STA. 43+30 –Y15– RT
FROM STA. 43+30 TO STA. 47+00 –Y15– RT
FROM STA. 156+50 TO STA. 160+50 –Y15– LT
FROM STA. 18+05 TO STA. 18+18 –Y15LPA– RT
FROM STA. 18+75 TO STA. 20+50 –Y15LPA– RT

DETAIL OO
BERM BASE DITCH
(Not to Scale)

Min. D= 1 Ft.
B= 2 Ft.
b= 5 Ft.

FROM STA. 702+89 TO STA. 705+50 –L– RT
FROM STA. 19+50 TO STA. 21+50 –Y15FLYCA– RT
FROM STA. 149+94 TO STA. 152+55 –Y15– RT

REVISIONS

PLOT DRIVER: NCDOT.pdf.color_eng.50.plt PENTABLE: NCDOT_pshpfi_conventional.tbl
USER: CHARRIS DATE: 9/13/2021 TIME: 9:16:00 AM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_DETAILS

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-2
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 37526 ENGINEER MATT D. YELVERTON

10/13/2021

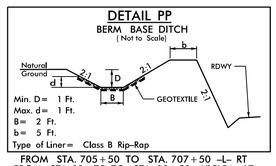
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 9/13/2021 TIME: 9:16:02 AM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_DETAILS

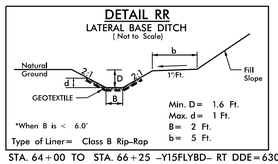
DETAIL PP
BERM BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
Type of Liner = Class B Rip-Rap

FROM STA. 705+50 TO STA. 707+50 –L– RT
FROM STA. 18+75 TO STA. 20+50 –Y15LPA– LT
FROM STA. 65+76 TO STA. 66+25 –Y15REV– RT
FROM STA. 811+50 TO STA. 814+70 –L– LT
FROM STA. 21+50 TO STA. 23+00 –Y15FLYCA– RT
FROM STA. 12+62 TO STA. 14+41 –Y4RPC– LT
FROM STA. 14+41 TO STA. 17+00 –Y4RPC– LT
FROM STA. 90+37 TO STA. 92+03 –Y15FLYBD– RT
FROM STA. 92+03 TO STA. 92+95 –Y15FLYBD– RT
FROM STA. 94+00 TO STA. 97+15 –Y15FLYBD– RT
FROM STA. 97+15 –Y15FLYBD– RT TO STA. 92+50 –Y15REV– RT
FROM STA. 92+50 –Y15REV– RT TO STA. 145+00 –Y15– RT

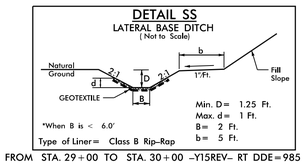
DETAIL RR
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.6 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = Class B Rip-Rap

FROM STA. 64+00 TO STA. 66+25 –Y15FLYBD– RT DDE=630 CY

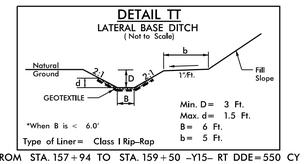
DETAIL SS
LATERAL BASE DITCH
(Not to Scale)



Min. D = 1.25 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = Class B Rip-Rap

FROM STA. 29+00 TO STA. 30+00 –Y15REV– RT DDE=985 CY

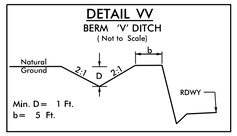
DETAIL TT
LATERAL BASE DITCH
(Not to Scale)



Min. D = 3 Ft.
Max. d = 1.5 Ft.
B = 6 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = Class I Rip-Rap

FROM STA. 157+94 TO STA. 159+50 –Y15– RT DDE=550 CY

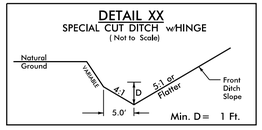
DETAIL VV
BERM 'V' DITCH
(Not to Scale)



Min. D = 1 Ft.
b = 5 Ft.

FROM STA. 732+67 TO STA. 733+70 –L– RT
FROM STA. 736+50 TO STA. 737+00 –L– RT
FROM STA. 152+55 TO STA. 152+75 –Y15– RT
FROM STA. 65+34 TO STA. 65+76 –Y15REV– RT
FROM STA. 70+00 TO STA. 72+75 –Y15FLYBD– RT
FROM STA. 145+00 –Y15REV– TO STA. 149+94 –Y15– RT

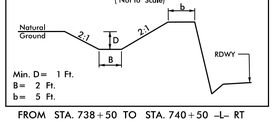
DETAIL XX
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 16+57 TO STA. 16+57 –Y15RPA– RT DDE=1270 CY

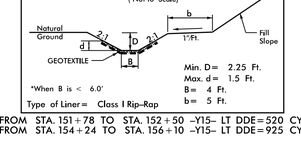
DETAIL BBB
BERM BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
B = 2 Ft.
b = 5 Ft.

FROM STA. 738+50 TO STA. 740+50 –L– RT

DETAIL DDD
LATERAL BASE DITCH
(Not to Scale)



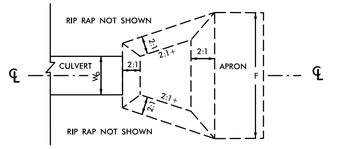
Min. D = 2.25 Ft.
Max. d = 1.5 Ft.
B = 4 Ft.
b = 5 Ft.
*When B is < 6.0'
Type of Liner = Class I Rip-Rap

FROM STA. 151+78 TO STA. 152+50 –Y15– LT DDE=520 CY
FROM STA. 154+24 TO STA. 156+10 –Y15– LT DDE=925 CY

DETAIL EEE
RIP-RAPPED ENERGY DISSIPATOR BASIN

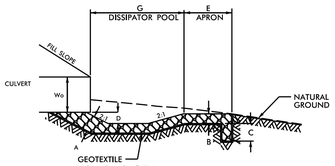
DIM. (ft)	RIP RAP BASIN # 1	2	3
A	3	3	3
B	2	2	2
C	2	2	2
D	1	1	1
E	10	10	10
F	25	12	12
G	25	12	12

ALL DIMENSIONS APPROXIMATE



PLAN

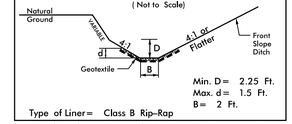
BASIN #	LOCATION (AT OUTLET)
1	–Y15– STA. 56+00
2	–Y4– STA. 40+43
3	–SR1– STA. 16+50



℄ SECTION

7/08

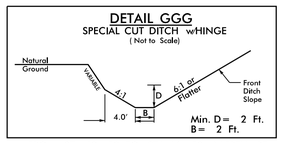
DETAIL FFF
SPECIAL CUT BASE wHINGE
(Not to Scale)



Min. D = 2.25 Ft.
Max. d = 1.5 Ft.
B = 2 Ft.
Type of Liner = Class B Rip-Rap

FROM STA. 8+00 TO STA. 12+50 –Y15REV– RT

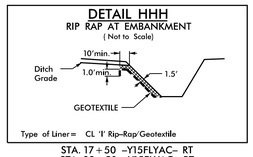
DETAIL GGG
SPECIAL CUT DITCH wHINGE
(Not to Scale)



Min. D = 2 Ft.
B = 2 Ft.

FROM STA. 12+50 TO STA. 16+50 –Y15REV– RT

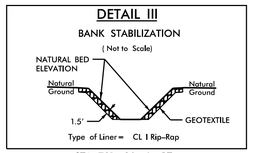
DETAIL HHH
RIP RAP AT EMBANKMENT
(Not to Scale)



Type of Liner = CL 'I' Rip-Rap/Geotextile

STA. 17+50 –Y15FLYAC– RT
STA. 22+50 –Y15FLYAC– RT
STA. 54+38 –Y15FLYCA– LT

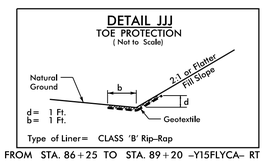
DETAIL III
BANK STABILIZATION
(Not to Scale)



Type of Liner = CL I Rip-Rap

STA. 781+20 –L– RT
STA. 833+40 –L– LT
STA. 28+62 –Y15FLYCA– LT
STA. 40+21 –Y4– RT
STA. 28+88 –Y15FLYAC– RT
STA. 31+85 –Y15– RT

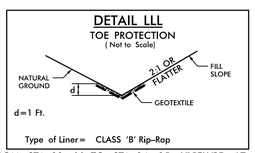
DETAIL JJJ
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
b = 1 Ft.
Type of Liner = CLASS 'B' Rip-Rap

FROM STA. 86+25 TO STA. 89+20 –Y15FLYCA– RT

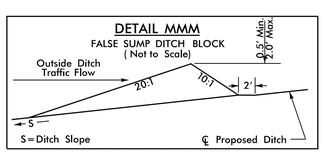
DETAIL LLL
TOE PROTECTION
(Not to Scale)



d = 1 Ft.
Type of Liner = CLASS 'B' Rip-Rap

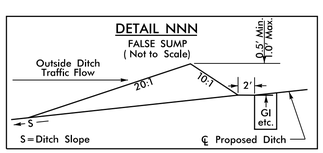
FROM STA. 33+00 TO STA. 34+25 –Y15FLYBD– LT

DETAIL MMM
FALSE SUMP DITCH BLOCK
(Not to Scale)

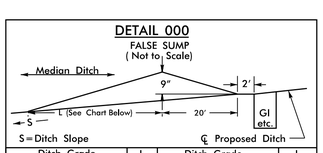


STA. 16+59 –Y15REV– RT
STA. 12+30 –Y15FLYCA– RT

DETAIL NNN
FALSE SUMP
(Not to Scale)

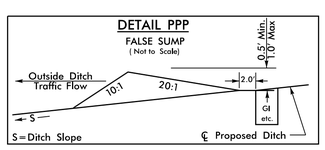


DETAIL 000
FALSE SUMP
(Not to Scale)

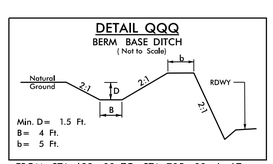


Ditch Grade	L	Ditch Grade	L
0.0% To 2.0%	20'	Over 4.0% To 6.0%	40'
Over 2.0% To 4.0%	30'	Over 6.0%	50'

DETAIL PPP
FALSE SUMP
(Not to Scale)



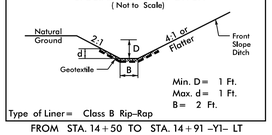
DETAIL QQQ
BERM BASE DITCH
(Not to Scale)



Min. D = 1.5 Ft.
B = 4 Ft.
b = 5 Ft.

FROM STA. 699+00 TO STA. 705+00 –L– LT

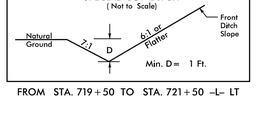
DETAIL RRR
SPECIAL CUT BASE DITCH
(Not to Scale)



Min. D = 1 Ft.
Max. d = 1 Ft.
B = 2 Ft.
Type of Liner = Class B Rip-Rap

FROM STA. 14+50 TO STA. 14+91 –Y1– LT
FROM STA. 14+91 TO STA. 15+00 –Y1– LT

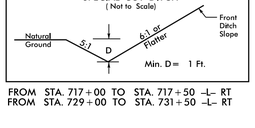
DETAIL SSS
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 719+50 TO STA. 721+50 –L– LT

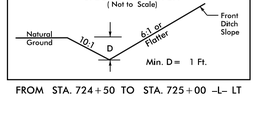
DETAIL TTT
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 717+00 TO STA. 717+50 –L– RT
FROM STA. 729+00 TO STA. 731+50 –L– RT

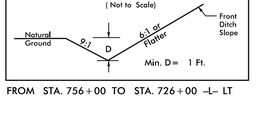
DETAIL UUU
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 724+50 TO STA. 725+00 –L– LT

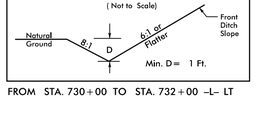
DETAIL VVV
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 756+00 TO STA. 726+00 –L– LT

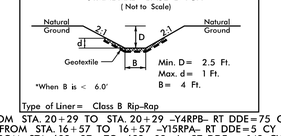
DETAIL WWW
SPECIAL CUT DITCH
(Not to Scale)



Min. D = 1 Ft.

FROM STA. 730+00 TO STA. 732+00 –L– LT

DETAIL XXX
STANDARD BASE DITCH
(Not to Scale)



Min. D = 2.5 Ft.
Max. d = 1 Ft.
B = 4 Ft.
*When B is < 6.0'
Type of Liner = Class B Rip-Rap

FROM STA. 20+29 TO STA. 20+29 –Y4RPB– RT DDE=75 CY
FROM STA. 16+57 TO 16+57 –Y15RPA– RT DDE=5 CY
FROM STA. 689+87 TO 692+09 –L– RT DDE= 142 CY

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-3
R/W SHEET NO.	

HYDRAULICS ENGINEER

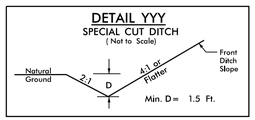
NORTH CAROLINA PROFESSIONAL SEAL 37526 ENGINEER MATT D. YELVERTON

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

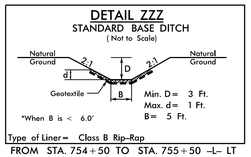
HDR Engineering, Inc. of the Carolinas
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DETAIL YYY
SPECIAL CUT DITCH
(Not to Scale)



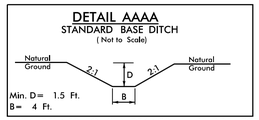
FROM STA. 17+50 TO STA. 18+25 –Y4A LT

DETAIL ZZZ
STANDARD BASE DITCH
(Not to Scale)



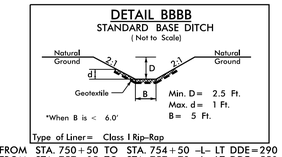
FROM STA. 754+50 TO STA. 755+50 –L– LT

DETAIL AAAA
STANDARD BASE DITCH
(Not to Scale)



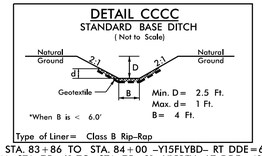
FROM STA. 751+50 TO STA. 754+00 –L– RT DDE=290 CY

DETAIL BBBB
STANDARD BASE DITCH
(Not to Scale)



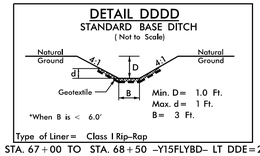
FROM STA. 750+50 TO STA. 754+50 –L– LT DDE=290 CY
FROM STA. 757+05 TO STA. 757+73 –L– LT DDE=550 CY
FROM STA. 54+58 TO STA. 54+62 –Y15FLYCA– LT DDE=97 CY

DETAIL CCCC
STANDARD BASE DITCH
(Not to Scale)



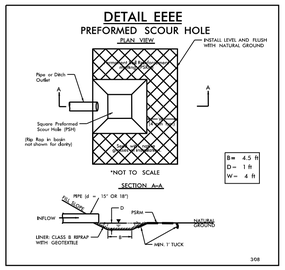
FROM STA. 83+86 TO STA. 84+00 –Y15FLYBD– RT DDE=613 CY
FROM STA. 75+61 TO STA. 75+81 –Y15REV– LT DDE=42 CY
FROM STA. 77+15 TO STA. 77+20 –Y15REV– RT DDE=55 CY

DETAIL DDDD
STANDARD BASE DITCH
(Not to Scale)



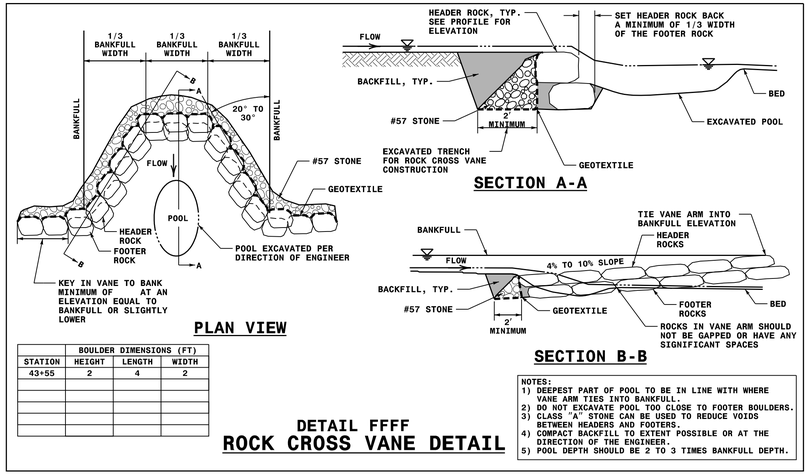
FROM STA. 67+00 TO STA. 68+50 –Y15FLYBD– LT DDE=275 CY

DETAIL EEEE
PREFORMED SCOUR HOLE



FROM STA. 30+50 –Y15– LT
FROM STA. 35+00 –Y15– LT
FROM STA. 40+35 –Y15– LT
FROM STA. 50+50 –Y15– LT
FROM STA. 52+50 –Y15– LT
FROM STA. 55+50 –Y15– LT
FROM STA. 45+38 –Y15REV– RT
FROM STA. 47+32 –Y15FLYAC– LT
FROM STA. 13+58 –Y15RPA– RT
FROM STA. 13+50 –LXRPB– LT
FROM STA. 11+38 –Y15RPB– RT
FROM STA. 84+63 –Y15FLYCA– RT

DETAIL FFFF
ROCK CROSS VANE DETAIL

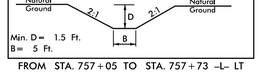


	BOULDER DIMENSIONS (FT)		
STATION	HEIGHT	LENGTH	WIDTH
43+55	2	4	2

NOTES:
1) DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2) DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3) CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4) COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5) POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

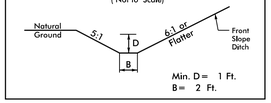
STA. 43+55 –Y15FLYCA– LT
(AS NEEDED, SEE NOTE ON SHEET 11)

DETAIL GGGG
STANDARD BASE DITCH
(Not to Scale)



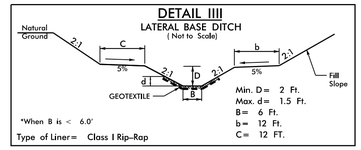
FROM STA. 757+05 TO STA. 757+73 –L– LT

DETAIL HHHH
SPECIAL CUT BASE DITCH
(Not to Scale)



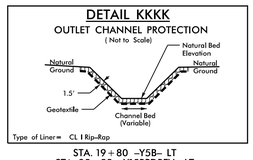
FROM STA. 39+36 TO STA. 40+00 –Y15– RT

DETAIL IIII
LATERAL BASE DITCH
(Not to Scale)



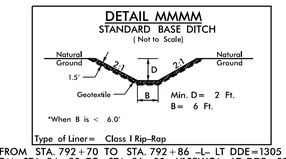
FROM STA. 30+50 TO STA. 38+50 –Y15REV– RT DDE=3900 CY

DETAIL KKKK
OUTLET CHANNEL PROTECTION
(Not to Scale)



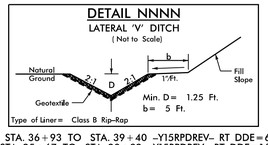
STA. 19+80 –Y5B– LT
STA. 35+55 –Y15RPDREV– LT
STA. 793+60 –L– RT
STA. 43+72 –Y15FLYCA– LT

DETAIL MMMM
STANDARD BASE DITCH
(Not to Scale)



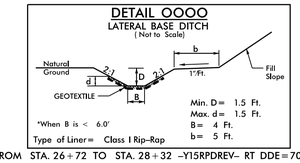
FROM STA. 792+70 TO STA. 792+86 –L– LT DDE=1305 CY
FROM STA. 54+55 TO STA. 56+00 –Y15FLYCA– LT DDE=500 CY

DETAIL NNNN
LATERAL 'V' DITCH
(Not to Scale)



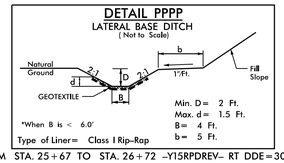
FROM STA. 36+93 TO STA. 39+40 –Y15RPDREV– RT DDE=65 CY
FROM STA. 25+67 TO STA. 28+32 –Y15RPDREV– RT DDE=1620 CY

DETAIL OOOO
LATERAL BASE DITCH
(Not to Scale)



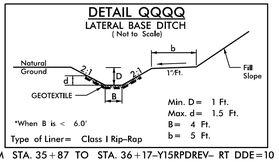
FROM STA. 26+72 TO STA. 28+32 –Y15RPDREV– RT DDE=70 CY

DETAIL PPPP
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 25+67 TO STA. 26+72 –Y15RPDREV– RT DDE=30 CY

DETAIL QQQQ
LATERAL BASE DITCH
(Not to Scale)



FROM STA. 35+87 TO STA. 36+17–Y15RPDREV– RT DDE=10 CY

DETAIL RRRR
SPECIAL CUT BASE DITCH
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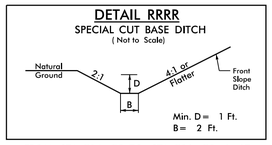
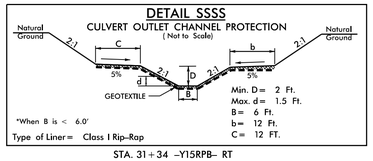


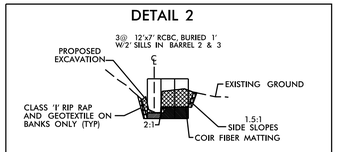
FROM STA. 794+75 TO STA. 796+75 –L– LT

DETAIL SSSS
CULVERT OUTLET CHANNEL PROTECTION
(Not to Scale)



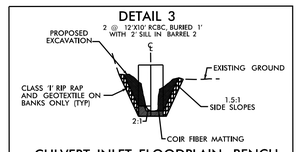
STA. 31+34 –Y15RPB– RT

DETAIL 2



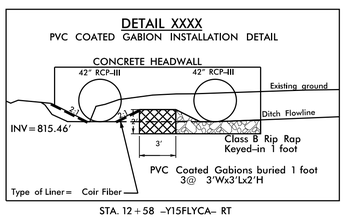
STA. 18+00 –Y5B– CL

DETAIL 3



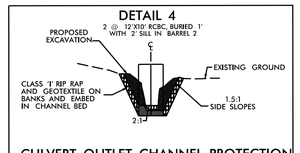
STA. 84+00 –Y15FLYCA– RT

DETAIL XXXX
PVC COATED GABION INSTALLATION DETAIL



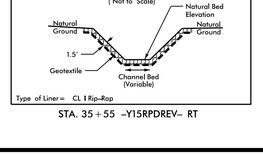
STA. 12+58 –Y15FLYCA– RT

DETAIL 4



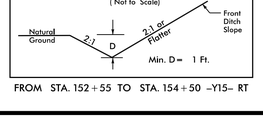
STA. 20+90 –Y15FLYBD– RT

DETAIL VVVV
INLET CHANNEL PROTECTION
(Not to Scale)



STA. 35+55 –Y15RPDREV– RT

DETAIL YYYY
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 152+55 TO STA. 154+50 –Y15– RT

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2D-4
R/W SHEET NO.	

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 37526 ENGINEER MATT D. TELVERTON

10/13/2021

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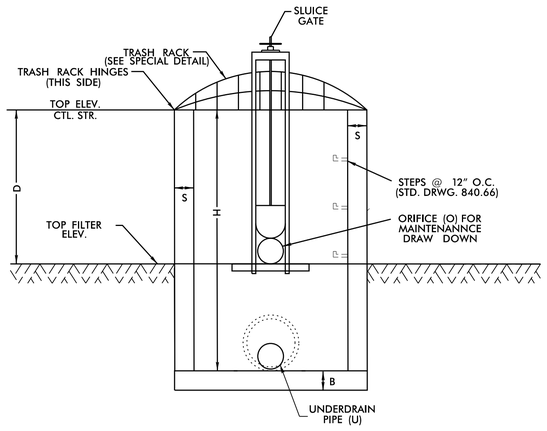
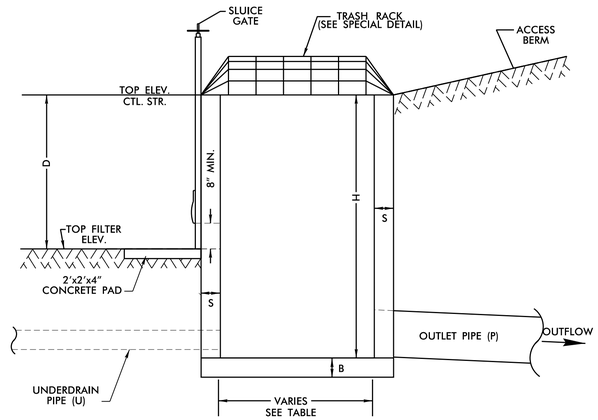
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

OUTLET CONTROL STRUCTURE

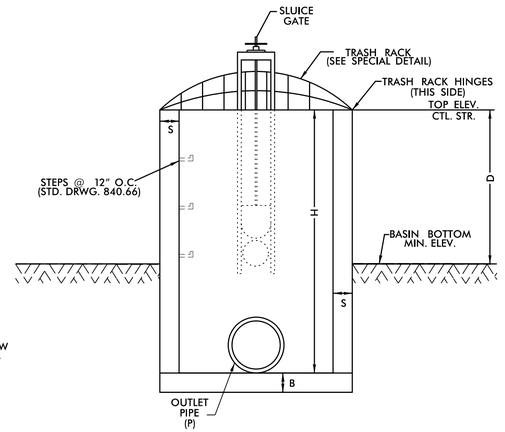
NOT TO SCALE



SIDE 1

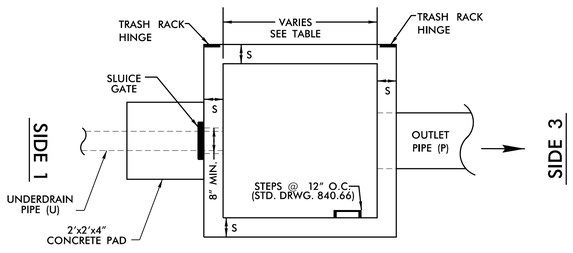


SIDE 2



SIDE 3

NOTES:
1. THE BASIN SHOULD BE DESIGNED TO HOLD THE WATER QUALITY VOLUME.
2. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WATER QUALITY VOLUME.
3. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
4. 8" MIN. ORIFICE WITH SLUICE GATE IS FOR MAINTENANCE AND SHOULD REMAIN CLOSED DURING NORMAL OPERATION. A GATE VALVE MAY BE USED IN LIEU OF THE 8" SLUICE GATE.
5. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
6. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
7. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATE.
8. FOOTER DIMENSION (B) IS ADJUST FOR ANTI-FLOTATION.
9. TOP ELEVATION OF OUTLET CONTROL STRUCTURE SHALL BE SET AT THE WATER QUALITY VOLUME (WQV) ELEVATION.
10. WATER TIGHT SEALS ARE REQUIRED AT ALL PIPE CONNECTIONS TO STRUCTURE.



SIDE 2

PLAN VIEW

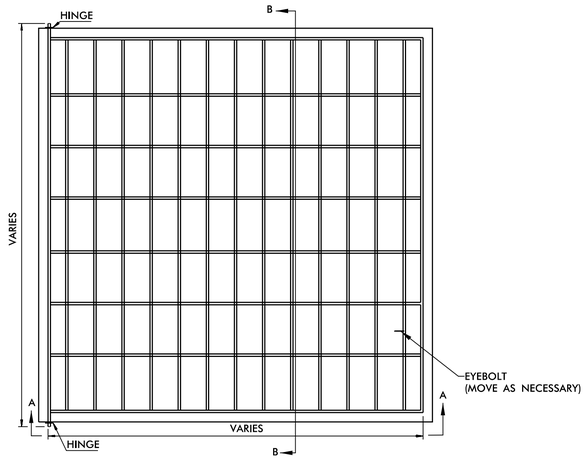
TRASH RACK NOT SHOWN FOR CLARITY

MINIMUM DIMENSIONS FOR OUTLET CONTROL STRUCTURE

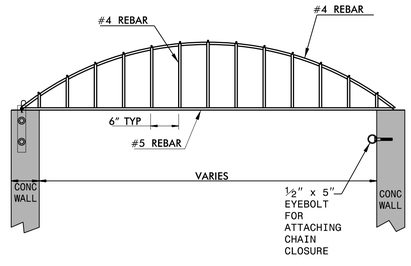
STATION	STRUCTURE NUMBER	S (INCHES) 6" MIN.	B (INCHES) 6" MIN.	TOP ELEVATION CONTROL STRUCTURE	MAX. STORAGE DEPTH(D) FEET	ORIFICE DIAMETER (O) INCHES	ORIFICE INV. ELEV.	CONTROL STRUCTURE INV. ELEV.	CTL. STR. DIMENSIONS (W x L x H)	OUTLET PIPE DIAMETER(P) INCHES
-L- 691+50 RT	0409	6	20	880.50	3.50	1.50	877.00	874.00	4.5x4.5x6.5	42
-SR1- 12+00 LT	0759	6	14	910.50	3.50	0.75	907.00	903.00	4.0x4.0x7.5	42

REMOVABLE ORIFICE TRASH RACK

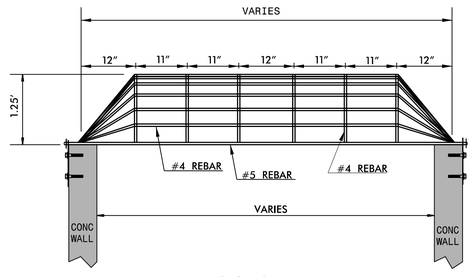
NOT TO SCALE



PLAN



SECTION A-A



SECTION B-B

RISER TRASH RACK NOTES:
1. ALL JOINTS SHALL BE FULLY WELDED AROUND JOINT WITH A MINIMUM OF A 1/4" BEAD.
2. IF BOLTS ARE ANCHORED IN CONCRETE, FOLLOW STD. DWG. 862.03 AND 862.04 FOR ANCHORING PROCEDURE.
3. EYEBOLT FOR CHAIN CLOSURE SHALL BE INSTALLED BY THE SAME METHOD AS THE HINGE PLATE BOLTS.
4. RACK AND HARDWARE SHALL BE ALUMINUM OR REBAR AND GALVANIZED IN ACCORDANCE WITH ASTM A-153.
5. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
U–2579AB	2D–5
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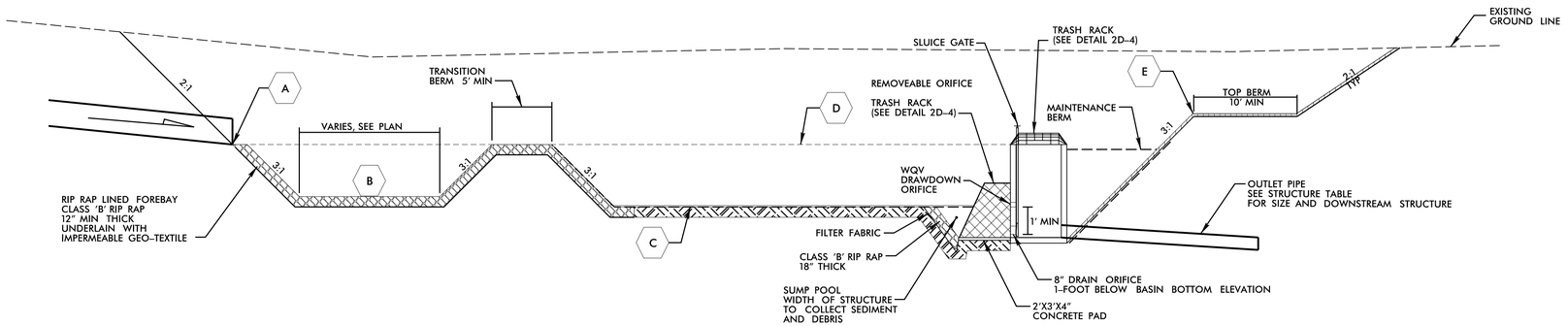
555 Fayetteville St, Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

DRY DETENTION BASIN

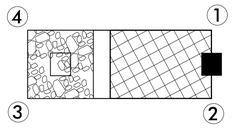
NOT TO SCALE



TYPICAL SECTION
NTS

DRY DETENTION BASIN CORNER LAYOUT POINTS & DIMENSIONS

POINT LOCATION	691+50 RT		12+00 LT	
	NORTH	EAST	NORTH	EAST
1	857,375.04	1,664,099.31	853,238.60	1,664,387.00
2	857,391.61	1,664,071.66	853,236.66	1,664,366.41
3	857,213.56	1,663,965.66	853,305.40	1,664,359.80
4	857,197.44	1,663,993.20	853,307.29	1,664,381.27
	TOP LENGTH	TOP WIDTH	TOP LENGTH	TOP WIDTH
BASIN	229.50	54.50	86.00	38.00
FOREBAY	54.50	37.00	41.00	31.00



BASIN LAYOUT POINT LOCATIONS
NTS

DDE QUANTITY (CY)

STATION	BASIN	FOREBAY	TOTAL
691+50 RT	1195	160	1335
12+00 LT	290	96	386

NOTES:

1. SEE PLANS FOR LOCATION AND BASIN DIMENSIONS.
2. IF SEASONAL HIGH WATER TABLE (SHWT) IS WITHIN 2' OF THE BASIN BOTTOM, CONTACT THE NCDOT HYDRAULIC UNIT PRIOR TO CONSTRUCTION.
3. MEDIA FILTER AND UNDERDRAIN SYSTEM SHALL BE CONSTRUCTED AFTER THE DRAINAGE AREA HAS BEEN STABILIZED
4. ALL DISTURBED BASIN SLOPES DRAINING INTO THE FILTRATION BASIN SHALL BE SODDED WITH FESCUE SOD.
5. ACCESS BERM SHOULD BE PROVIDED TO CONTROL STRUCTURE ON ALL BASINS AS SHOWN IN DETAIL.
6. CONSTRUCT ACCESS PATH TO BASIN WITH 2½" S9.5B AND 6" ABC.

TABLE 1

ELEVATIONS FOR DRY DETENTION BASIN

STATION	A (INLET PIPE INVERT)	B (FOREBAY BOTTOM)	C (BOTTOM OF BASIN)	D (WQV ELEV)	E (TOP OF BERM)
691+50 RT	880.50	877.25	877.00	880.50	882.70
12+00 LT	910.50	907.00	907.00	910.50	912.50

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 7/13/2021 TIME: 12:48:30 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Hydraulics\CADD\U2579AB_HYD_BASIN_DETAILS.dgn

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028893 ENGINEER MICHAEL H. STEPHENS

DocuSigned by: 2/5/2021

C447682092314CC...

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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SKEW: 60 Degrees

765 770

-Y15FLYCA- CS Sta. 86+79.94

-Y15FLYCA- SC Sta. 84+83.27

-Y15RPA- POT Sta. 36+16.69 =
-Y15FLYCA- POS Sta. 80+05.20 12.00 RT

-Y15FLYCA- +83.27
130.00' RT

-Y15FLYCA- +23.27
130.00' RT

-Y15FLYCA- SRS Sta. 81+23.27

-Y15FLYCA- +79.94
130.00' RT

PREFORMED SCOUR HOLE
EST. 20 SY PSRM
EST. 12 SY GEOTEXTILE
EST. 9 TONS CLASS 'B' STONE
DETAIL 'EEEE'

INLET CHANNEL
BANK STABILIZATION
EST. 4 TONS
CLASS 'I' RIP RAP
EST. 33 TONS
47 SY GEOTEXTILE
SEE SEE SHEET 2D-3
DETAIL '3'

Y15FLYCA_8440B

TOE PROTECTION
SEE SHEET 2D-2
SEE DETAIL 'JJJ'

-Y15RPA-
N 9° 45' 36.2" W

GRADE TO DRAIN

L 76818

-Y15FLYCA-

L 76800

S 3° 30' 34.3" W

42" RCP-III

-L- WINSTON-SALEM NORTHERN BELTWAY

42" RCP-III

S 3° 30' 34.3" W 48" RCP-III

2GI(A)

42" RCP-III

L 76911

48" RCP-III

-L- TS Sta. 772+56.63

-Y15FLYBD- SC Sta. 13+60.00

-Y15FLYBD-

L 76995

18" RCP-III

48" RCP-III

HW

-Y15FLYBD- +60.00
120.00' RT

Y15FLYBD_2015

L 77066

-Y15FLYBD- +00.00
120.00' RT

2' BASE LATERAL DITCH
W/CLASS 'I' RIP RAP
EST. 258 TONS
332 SY GEOTEXTILE
SEE SHEET '2D-1'
DETAIL 'I'

OUTLET CHANNEL PROTECTION

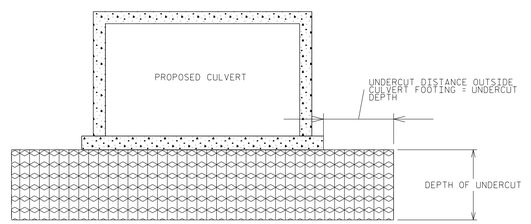
UNDERCUT EXCAVATION
SEE NOTE 2 FOR STANDARD UNDERCUT

FOUNDATION RECOMMENDATIONS

1) FOR CULVERT EXCAVATION, SEE SECTION 414 OF THE STANDARD SPECIFICATIONS.
2) THE REINFORCED CONCRETE BOX CULVERT SHALL BE PLACED ON THE STANDARD 1.0 FOOT BLANKET OF FOUNDATION CONDITIONING MATERIAL SEE SECTION 414 OF THE STANDARD SPECIFICATIONS. STANDARD UNDERCUT IS NOT DEPICTED ON THESE DRAWINGS.
3) UNDERCUT SOFT/VERY LOOSE SOILS THAT MAY BE ENCOUNTERED BENEATH THE BOTTOM OF THE FOUNDATIONS TO A DEPTH OF 5 FT OR TO A SUFFICIENT BEARING MATERIAL. BACKFILL UNDERCUT AREAS WITH FOUNDATION CONDITIONING MATERIAL. SEE DETAIL SHEETS 2G-1 AND 2G-2 FOR LOCATION AND PROFILE VIEWS. ESTIMATED UNDERCUT QUANTITY IS 1,780 CUBIC YARDS. UNDERCUT DISTANCE OUTSIDE THE EDGE OF THE FOOTING WILL EQUAL TO THE DEPTH OF UNDERCUT (SEE DETAIL). UNDERCUT CLASSIFIED AS UNCLASSIFIED EXCAVATION, ACCEPTABLE, BUT NOT IN THE TOP 3 FEET.

COMMENTS

1) THE STATIONS AND ELEVATIONS IN THIS RECOMMENDATION ARE TAKEN FROM THE HYDRAULIC SURVEY REPORT. BOTTOM OF CULVERT INVERT ELEVATIONS RANGE FROM ±829 FT TO ±827 FT.
2) THE REQUIRED BEARING CAPACITY AT THE BASE OF THE CULVERT IS 2 TSF. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.



CULVERT UNDERCUT DETAIL
N.T.S

PROJECT NO.: 34839.1.8 (U-2579AB)
FORSYTH COUNTY
STATION: 768+62.23 -L-
SHEET 1 OF 2

PREPARED BY: MHS	DATE: 2/4/2021
REVIEWED BY: SCC	DATE: 2/4/2021

NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

CULVERT NO. 749 ON FUTURE WS NORTHERN BELTWAY OVER FIDDLER CREEK UNDERCUT PLAN VIEW

REVISIONS

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

SHEET NO. 2G-1

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-126	CL	768+00	0.00-1.50	A-7-6(4)	41	17	32.7	23.2	13.8	30.3	98	77	46		
SS-127	CL	768+00	4.00-5.50	A-2-4(0)	28	5	32.1	44.8	7.0	16.1	97	80	27		
SS-128	CL	768+00	9.00-10.50	A-2-4(0)	27	NP	27.6	50.1	6.2	16.1	100	90	27		
SS-129	CL	768+00	14.00-15.50	A-1-b(0)	20	NP	67.2	22.7	5.0	5.0	68	34	9		
SS-130	75' RT	84+40	0.00-1.50	A-6(6)	38	12	12.1	28.7	20.9	38.3	100	94	64		
SS-131	75' RT	84+40	4.10-5.60	A-2-4(0)	23	NP	24.4	52.5	7.0	16.1	100	95	28		
SS-132	75' RT	84+40	9.10-10.60	A-1-b(0)	23	NP	72.0	18.1	3.8	6.1	89	39	11		
SS-133	75' RT	84+40	14.10-15.60	A-2-4(0)	32	NP	30.9	52.7	8.4	8.1	98	89	22		
SS-137	60' RT	20+75	0.00-1.50	A-6(5)	36	18	30.9	22.2	6.6	40.4	99	80	49		
SS-138	60' RT	20+75	3.00-4.50	A-2-6(0)	35	12	41.8	29.5	4.5	24.2	98	72	31		
SS-139	60' RT	20+75	8.90-10.40	A-2-4(0)	36	NP	45.2	35.1	12.6	7.1	93	65	25		

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028893 ENGINEER MICHAEL H. STEPHENS

DocuSigned by: 2/5/2021 C447682092314CC...

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

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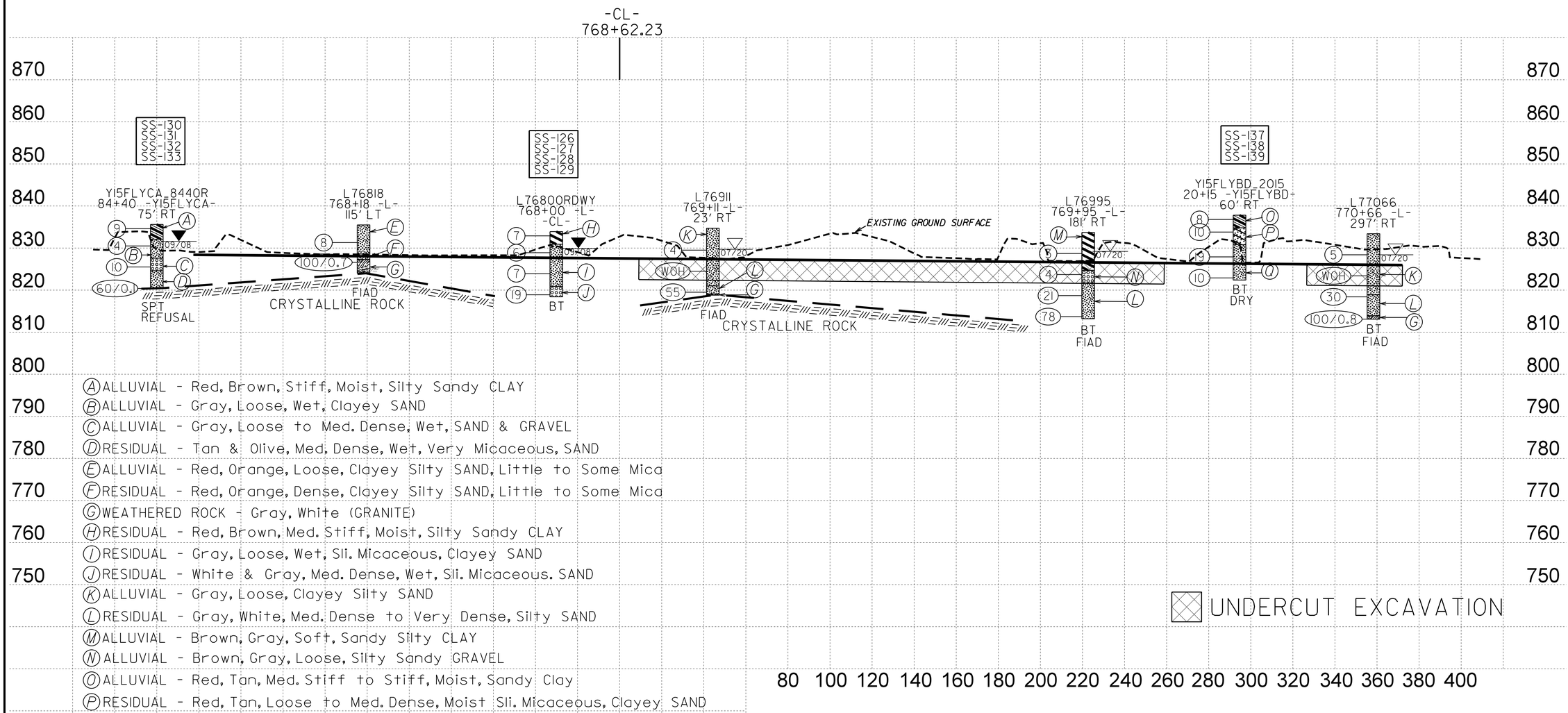

Ⓐ ALLUVIAL - Red, Brown, Stiff, Moist, Silty Sandy CLAY
Ⓑ ALLUVIAL - Gray, Loose, Wet, Clayey SAND
Ⓒ ALLUVIAL - Gray, Loose to Med. Dense, Wet, SAND & GRAVEL
Ⓓ RESIDUAL - Tan & Olive, Med. Dense, Wet, Very Micaceous, SAND
Ⓔ ALLUVIAL - Red, Orange, Loose, Clayey Silty SAND, Little to Some Mica
Ⓕ RESIDUAL - Red, Orange, Dense, Clayey Silty SAND, Little to Some Mica
Ⓖ WEATHERED ROCK - Gray, White (GRANITE)
Ⓗ RESIDUAL - Red, Brown, Med. Stiff, Moist, Silty Sandy CLAY
Ⓘ RESIDUAL - Gray, Loose, Wet, Sli. Micaceous, Clayey SAND
Ⓙ RESIDUAL - White & Gray, Med. Dense, Wet, Sli. Micaceous. SAND
Ⓚ ALLUVIAL - Gray, Loose, Clayey Silty SAND
Ⓛ RESIDUAL - Gray, White, Med. Dense to Very Dense, Silty SAND
Ⓜ ALLUVIAL - Brown, Gray, Soft, Sandy Silty CLAY
Ⓝ ALLUVIAL - Brown, Gray, Loose, Silty Sandy GRAVEL
Ⓞ ALLUVIAL - Red, Tan, Med. Stiff to Stiff, Moist, Sandy Clay
Ⓟ RESIDUAL - Red, Tan, Loose to Med. Dense, Moist Sli. Micaceous, Clayey SAND
Ⓠ RESIDUAL - Tan & White, Med. Dense, Moist, Sli. Micaceous, Silty SAND

▨ UNDERCUT EXCAVATION

PROJECT NO.: 34839.1.8 (U-2579AB)

FORSYTH COUNTY

STATION: 768+62.23 -L-

SHEET 2 OF 2

PREPARED BY: MHS	DATE: 2/4/21
REVIEWED BY: SCC	DATE: 2/4/21

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

CULVERT NO. 749 ON FUTURE WS NORTHERN BELTWAY OVER FIDDLER CREEK UNDERCUT PROFILE VIEW

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	
1			3			2G-2
2			4			

8/17/99

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 11/13

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026545 ENGINEER MICHAEL D. LINDGREN

10/13/2021

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-L-

-Y4RPC-

-NW11/13-

10

15

20

BEGIN NOISE WALL 11/13
-NW11/13- POT Sta. 10+00.00 =
-Y4RPC- POT Sta. 21+60.00 (LT 35.5')

-NW11/13- POT Sta. 21+25.00 =
-Y4RPC- POT Sta. 10+28.42 (LT 27.5')

-NW11/13- POT Sta. 21+40.00 =
-Y4RPC- POT Sta. 10+14.66 (LT 33.5')

-NW11/13- POT Sta. 22+00.00 =
-L- POT Sta. 737+85.15 (RT 86.5')

-NW11/13- POT Sta. 21+85.00 =
-L- POT Sta. 737+71.37 (RT 92.5')

MATCHLINE -NW11/13- STA 23+65.00
SEE SHEET 2

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW11/13-

EXISTING GROUND

MINIMUM WALL HEIGHT

PROPOSED GROUND AT FRONT FACE OF WALL

990 980 970 960 950 940 930 920 910 900

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

MATCHLINE -NW2- STA 23+65.00
SEE SHEET 2

PANEL NUMBER	1	2-3	4-6	7-8	9-10	11-12	13-14	15-16	17-19	20-23	24-27	28-31	32-35
TOP ELEVATION	972'	971'	970'	969'	968'	967'	966'	965'	964'	963'	962'	961'	960'
PANEL(S) LENGTH	15'	30'	45'	30'	30'	30'	30'	30'	45'	60'	60'	60'	60'

PANEL NUMBER	36-45	46-50	51-59	60-68	69-73	74-76	77-79	80-82	83-84	85-87	88-89	90-91
TOP ELEVATION	959'	958'	957'	956'	955'	954'	953'	952'	951'	950'	949'	948'
PANEL(S) LENGTH	150'	75'	135'	135'	75'	45'	45'	45'	30'	45'	30'	30'

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 11/13

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026545 ENGINEER MICHAEL D. LINDGREN

10/13/2021

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MATCHLINE -NW11/13- STA 23+65.00 SEE SHEET 1

-NW11/13-

-L-

25 30 35

MATCHLINE -NW11/13- STA 36+40.00 SEE SHEET 3

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW11/13-

PANEL NUMBER	92	93-94	95-96	97-98	99-100	101-102	103	104-105	106-107	108-109
TOP ELEVATION	947'	946'	945'	944'	943'	942'	941'	940'	939'	938'
PANEL(S) LENGTH	15'	30'	30'	30'	30'	30'	15'	30'	30'	30'

PANEL NUMBER	110-111	112-113	114-115	116-117	118-119	120-121	122-123	124-125	126-128
TOP ELEVATION	937'	936'	935'	934'	933'	932'	931'	930'	929'
PANEL(S) LENGTH	30'	30'	30'	30'	30'	30'	30'	30'	45'

PANEL NUMBER	129-130	131-133	134-135	136-138	139-141	142-143	144-146	147-148	149-151
TOP ELEVATION	928'	927'	926'	925'	924'	923'	922'	921'	920'
PANEL(S) LENGTH	30'	45'	30'	45'	45'	30'	45'	30'	45'

PANEL NUMBER	152-153	154-156	157-158	159-161	162-163	164-166	167-169	170-171	172-174	175-176
TOP ELEVATION	919'	918'	917'	916'	915'	914'	913'	912'	911'	910'
PANEL(S) LENGTH	30'	45'	30'	45'	30'	45'	45'	30'	45'	30'

960 950 940 930 920 910 900 890 880 870

MATCHLINE -NW11/13- STA 23+65.00 SEE SHEET 1

92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 13 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176

MINIMUM WALL HEIGHT

PROPOSED GROUND AT FRONT FACE OF WALL

EXISTING GROUND

MATCHLINE -NW11/13- STA 36+40.00 SEE SHEET 3

23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 11/13

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-3
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026545 ENGINEER MICHAEL D. LINDGREN

10/13/2021

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MATCHLINE -NW11/13- STA 36+40.00 SEE SHEET 2

-L-

-NW11/13-

40

-Y15FLYBD-

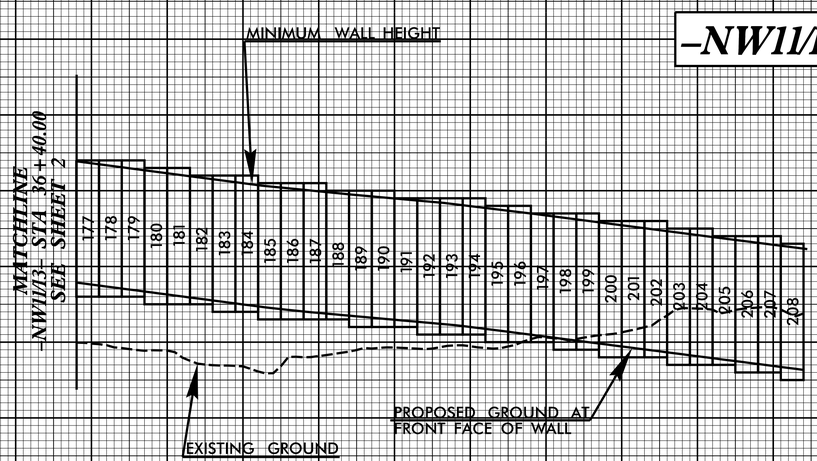
END NOISE WALL -NW11/13-
-NW11/13- POT Sta. 41+20.00 =
-L- POT Sta. 757+30.67 (RT 98.5')

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW11/13-

PANEL NUMBER	177-179	180-181	182-184	185-187	188-190	191-194	195-196	197-199
TOP ELEVATION	909'	908'	907'	906'	905'	904'	903'	902'
PANEL(S) LENGTH	45'	30'	45'	45'	45'	60'	30'	45'

PANEL NUMBER	200-202	203-204	205-207	208
TOP ELEVATION	901'	900'	899'	898'
PANEL(S) LENGTH	45'	30'	45'	15'



930 920 910 900 890 880 870 860 850 840

34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 15/16

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 026515 ENGINEER MICHAEL D. LINDGREN

10/13/2021

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BEGIN NOISE WALL 15/16
-NW15/16- POT Sta. 10+00.00
-Y15RPA- POT Sta. 19+40.00 (RT 27.5')

-NW15/16- POT Sta. 19+00.00
-Y15RPA- POT Sta. 10+40.00 (RT 27.5')

-NW15/16- POT Sta. 19+15.00
-Y15RPA- POT Sta. 10+26.25 (RT 33.5')

-NW15/16- POT Sta. 19+60.00
-Y15FLYAC- POT Sta. 31+79.67 (RT 43.95')

-NW15/16- POT Sta. 19+75.00
-Y15FLYAC- POT Sta. 31+66.56 (RT 36.92')

10 15 -NW15/16- 20

-Y15RPA-

-Y15FLYAC-

MATCHLINE -NW15/16- STA 23+50.00 SEE SHEET 2

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW15/16-

MINIMUM WALL HEIGHT

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 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90

PROPOSED GROUND AT FRONT FACE OF WALL

EXISTING GROUND

PANEL NUMBER	1-4	5-12	13-25	26-32	33-37	38-41	42-44	45-47	48-50	51-53	54-56
TOP ELEVATION	938'	939'	940'	939'	938'	937'	936'	935'	934'	933'	932'
PANEL(S) LENGTH	60'	120'	195'	105'	75'	60'	45'	45'	45'	45'	45'

PANEL NUMBER	57-58	59-61	62-65	66-69	70-71	72-74	75-76	77-79	80-82	83-84	85-87	88-90
TOP ELEVATION	931'	930'	929'	928'	927'	926'	925'	924'	923'	922'	921'	920'
PANEL(S) LENGTH	30'	45'	60'	60'	30'	45'	30'	45'	45'	30'	45'	45'

960 950 940 930 920 910 900 890 880 870

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 15/16

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028516 ENGINEER MICHAEL D. LINDGREN

10/13/2021

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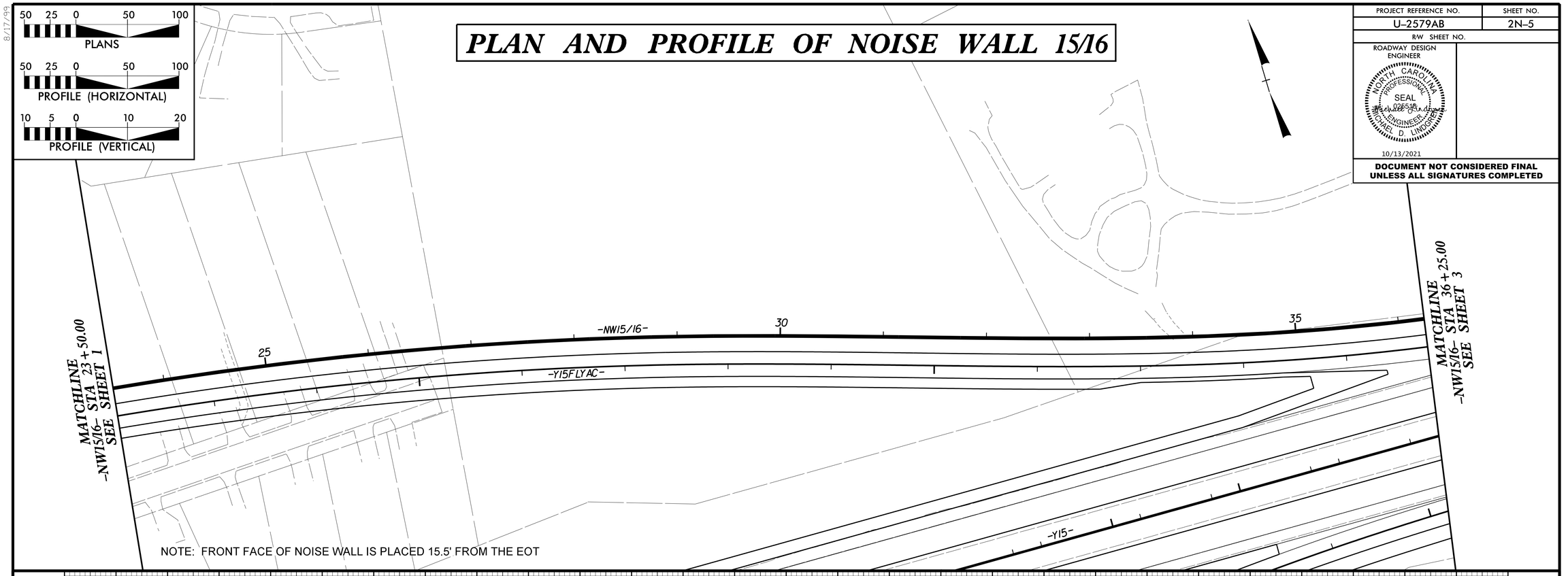
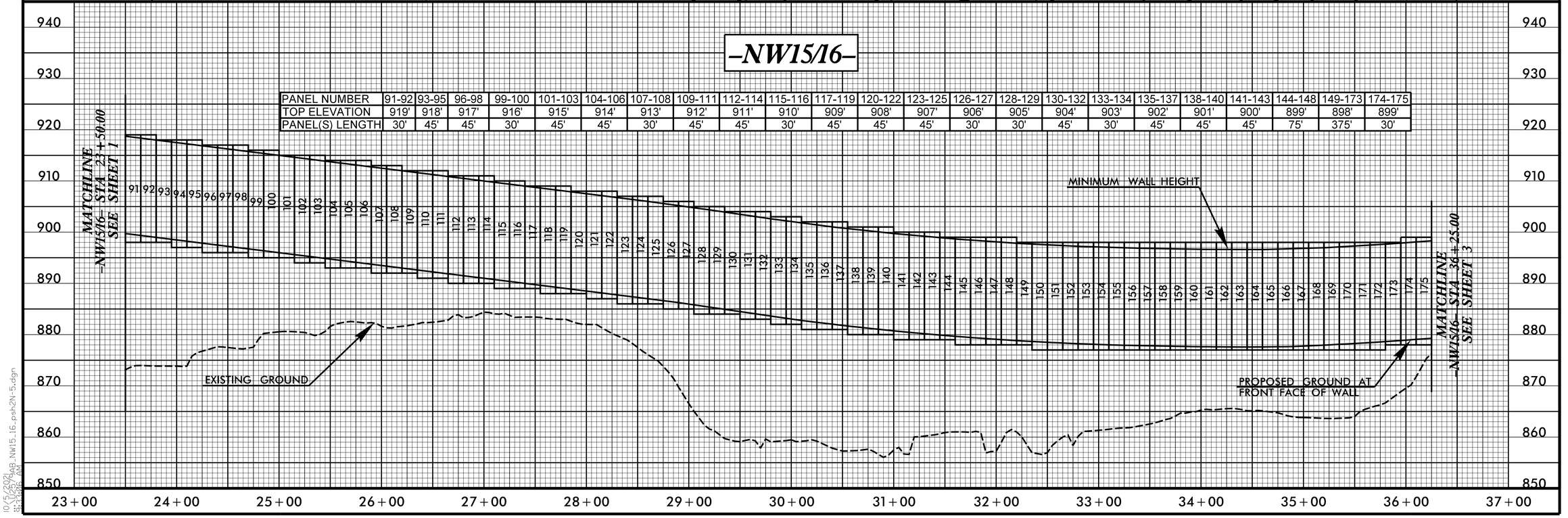


NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW15/16-

PANEL NUMBER	91-92	93-95	96-98	99-100	101-103	104-106	107-108	109-111	112-114	115-116	117-119	120-122	123-125	126-127	128-129	130-132	133-134	135-137	138-140	141-143	144-148	149-173	174-175
TOP ELEVATION	919'	918'	917'	916'	915'	914'	913'	912'	911'	910'	909'	908'	907'	906'	905'	904'	903'	902'	901'	900'	899'	898'	899'
PANEL(S) LENGTH	30'	45'	45'	30'	45'	45'	30'	45'	45'	30'	45'	45'	45'	30'	30'	45'	30'	45'	45'	45'	75'	375'	30'



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8/17/99

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 15/16

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 028516 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-NW15/16- POT Sta. 37+15.00
-Y15FLYAC- POT Sta. 14+29.84 (RT 27.5')

-NW15/16- POT Sta. 37+30.00
-Y15FLYAC- POT Sta. 14+15.91 (RT 33.5')

-NW15/16- POT Sta. 37+75.00
-Y15FLYAC- POT Sta. 13+70.25 (RT 33.5')

-NW15/16- POT Sta. 37+90.00
-Y15FLYAC- POT Sta. 13+56.32 (RT 27.5')

MATCHLINE -NW15/16- STA 36+25.00 SEE SHEET 2

MATCHLINE -NW15/16- STA 49+45.00 SEE SHEET 4

40 45

-NW15/16-

-Y15FLYAC-

-Y15-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW15/16-

MINIMUM WALL HEIGHT

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

PANEL NUMBER	176-178	179-182	183-186	187-189	190-192	193-196	197-200	201-203	204-207	208-212	213-215	216-218
TOP ELEVATION	899'	900'	901'	902'	903'	904'	905'	906'	907'	908'	909'	910'
PANEL(S) LENGTH	45'	60'	60'	45'	45'	60'	60'	45'	60'	75'	45'	45'

PANEL NUMBER	219-222	223-226	227-229	230-232	233-235	236-239	240-244	245-247	248-251	252-254	255-258	259-262	263
TOP ELEVATION	911'	912'	913'	914'	915'	916'	917'	918'	919'	920'	921'	922'	923'
PANEL(S) LENGTH	60'	60'	45'	45'	45'	60'	75'	45'	60'	45'	60'	60'	15'

940 930 920 910 900 890 880 870 860 850

36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00 50+00

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8/17/99

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 15/16

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-7
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022512 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

END NOISE WALL 15/16
-NW15/16- POT Sta.53+95.00
-Y15- POT Sta.154+82.77 (LT 86.5')

MATCHLINE -NW15/16- STA 49+45.00 SEE SHEET 3

50 -NW15/16- -Y15-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW15/16-

MINIMUM WALL HEIGHT

MATCHLINE -NW15/16- STA 49+45.00 SEE SHEET 3

264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

950 940 930 920 910 900 890 880 870 860

49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00

PANEL NUMBER	264-266	267-269	270-273	274-276	277-280	281-283	284-287	288-291	292-293
TOP ELEVATION	923'	924'	925'	926'	927'	928'	929'	930'	931'
PANEL(S) LENGTH	45'	45'	60'	45'	60'	45'	60'	60'	30'

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8/17/99

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 17/18/19

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027518 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BEGIN NOISE WALL 17/18/19A
-NW17/18/19A- POT Sta.10+00.00
-Y15- POT Sta. 17+63.79 (LT 62.45')

10 15 -NW17/18/19A- 20

-Y15-

MATCHLINE -NW17/18/19A-
STA 23+20.00
SEE SHEET 2

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW17/18/19-

PANEL NUMBER	1-3	4-8	9-16	17-23	24-32	33-39	40-46	47-52	53-61	62-68	69-72	73-76	77-81	82-88
TOP ELEVATION	850'	849'	848'	847'	846'	845'	844'	843'	842'	841'	840'	839'	838'	837'
PANEL(S) LENGTH	45'	75'	120'	105'	135'	105'	105'	90'	135'	105'	60'	60'	75'	105'

MINIMUM WALL HEIGHT

EXISTING GROUND

890 880 870 860 850 840 830 820 810 800

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 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88

MATCHLINE -NW17/18/19A-
STA 23+20.00
SEE SHEET 2

10 + 00 11 + 00 12 + 00 13 + 00 14 + 00 15 + 00 16 + 00 17 + 00 18 + 00 19 + 00 20 + 00 21 + 00 22 + 00 23 + 00 24 + 00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 17/18/19

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-9
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 027518 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

END NOISE WALL 17/18/19A
-NW17/18/19A- POT Sta. 24+10.00
-Y15- POT Sta. 31+81.30 (LT 62.53')

BEGIN NOISE WALL 17/18/19B
-NW17/18/19B- POT Sta. 26+50.00
-Y15- POT Sta. 34+26.10 (LT 67.03')

NOTE: DUKE OVERHEAD TRANSMISSION LINES

MATCHLINE -NW17/18/19A-
STA 23+20.00
SEE SHEET 1

MATCHLINE -NW17/18/19B-
STA 35+20.00
SEE SHEET 3

-NW17/18/19B-

-Y15-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW17/18/19-

PANEL NUMBER	89-90	91-94	95-132	133-149	150-152
TOP ELEVATION	837'	836'	834'	835'	836'
PANEL(S) LENGTH	30'	60'	570'	255'	45'

NOTE: NO PANELS BETWEEN PANEL 94 AND 95 DUE TO OVERHEAD TRANSMISSION LINE CLEARANCE

MINIMUM WALL HEIGHT

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

870 860 850 840 830 820 810 800 790 780

22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 17/18/19

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-10
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025518 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -NW17/18/19B- STA 35+20.00 SEE SHEET 2

40 -NW17/18/19B- 45

-Y15-

MATCHLINE -NW17/18/19B- STA 47+20.00 SEE SHEET 4

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW17/18/19-

PANEL NUMBER	153-162	163-174	175-188	189-203	204-218	219-232
TOP ELEVATION	836'	837'	838'	839'	840'	841'
PANEL(S) LENGTH	150'	180'	210'	225'	225'	210'

MINIMUM WALL HEIGHT

PROPOSED GROUND AT FRONT FACE OF WALL

REMOVABLE PANEL

EXISTING GROUND

NOTE: SEE STUCTURE PLANS FOR REMOVABLE PANELS

870 860 850 840 830 820 810 800 790 780

34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00

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817/99

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 17/18/19

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-11
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025515 ENGINEER MICHAEL D. LINDGREN
10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-NW17/18/19B- POT Sta.58+15.00
-Y15REV- POT Sta. 17+80.41 (LT 86.5')

-NW17/18/19B- POT Sta.58+00.00
-Y15REV- POT Sta. 17+66.90 (LT 92.5')

-NW17/18/19B- POT Sta.57+55.00
-Y15REV- POT Sta. 17+22.71 (LT 92.5')

-NW17/18/19B- POT Sta.57+40.00
-Y15REV- POT Sta. 17+09.20 (LT 86.5')

MATCHLINE -NW17/18/19B- STA 47+20.00 SEE SHEET 3

MATCHLINE -NW17/18/19B- STA 59+20.00 SEE SHEET 5

50 55

-NW17/18/19B-

-Y15-

-Y15REV-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW17/18/19-

PANEL NUMBER	233	234-245	246-255	256-264	265-269	270-278	279-289	290-301	302-312
TOP ELEVATION	841'	842'	843'	844'	845'	846'	847'	848'	849'
PANEL(S) LENGTH	15'	180'	150'	135'	75'	135'	165'	180'	165'

MINIMUM WALL HEIGHT

PROPOSED GROUND AT FRONT FACE OF WALL

EXISTING GROUND

REMOVABLE PANEL

NOTE: SEE STUCTURE PLANS FOR REMOVABLE PANELS

890 880 870 860 850 840 830 820 810 800

46+00 47+00 48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 17/18/19

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-12
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025518 ENGINEER MICHAEL D. LINDGREN
10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

END NOISE WALL 17/18/19B
-NW17/18/19B- POT Sta.63+55.00
-Y15RPB- POT Sta. 38+17.97 (RT 27.5')

MATCHLINE -NW17/18/19B-
STA 59+20.00
SEE SHEET 4

60

-NW17/18/19B-

TYPE B-77

-Y15RPB-

-Y15REV-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW17/18/19-

PANEL NUMBER	313	314-323	324-328	329-332	333-336	337-340	341
TOP ELEVATION	849'	850'	851'	852'	853'	854'	855'
PANEL(S) LENGTH	15'	150'	75'	60'	60'	60'	15'

PROFILE FOR TOP OF WALL

MATCHLINE -NW17/18/19B-
STA 59+20.00
SEE SHEET 4

313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

900 890 880 870 860 850 840 830 820 810

58+00 59+00 60+00 61+00 62+00 63+00 64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+0 72+00

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 24/25

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025618 ENGINEER MICHAEL D. LINDGREN
10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y15FLYBD-

-NW24/25-

15

20

MATCHLINE -NW2425- STA 23+05.00 SEE SHEET 2

TYPE B-7

10

BEGIN NOISE WALL 24/25
-NW24/25- POT Sta. 10+00.00 =
-Y15FLYBD- POT Sta. 76+01.05 (RT 27.5')

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW24/25-

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

MINIMUM WALL HEIGHT

PANEL NUMBER	1-6	7-17	18-28	29-37	38-42	43-46	47-49	50-52	53-55	56-58
TOP ELEVATION	923'	922'	921'	920'	919'	918'	917'	916'	915'	914'
PANEL(S) LENGTH	90'	165'	165'	135'	75'	60'	45'	45'	45'	45'

PANEL NUMBER	59-61	62-64	65-67	68-70	71-73	74-76	77-79	80-82	83-86	87
TOP ELEVATION	913'	912'	911'	910'	909'	908'	907'	906'	905'	904'
PANEL(S) LENGTH	45'	45'	45'	45'	45'	45'	45'	45'	60'	15'

950 940 930 920 910 900 890 880 870 860

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00

MATCHLINE -NW2425- STA 23+05.00 SEE SHEET 2

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 24/25

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025518 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y15-

-Y15FLYBD-

-NW24/25-

25

30

35

MATCHLINE -NW24/25- STA 23+05.00 SEE SHEET 1

MATCHLINE -NW24/25- STA 35+50.00 SEE SHEET 3

-NW24/25- POT Sta. 31+90.00 = -Y15- POT Sta. 139+81.57 (RT 98.5')

-NW24/25- POT Sta. 32+05.00 = -Y15- POT Sta. 139+95.32 (RT 104.5')

-NW24/25- POT Sta. 32+50.00 = -Y15- POT Sta. 140+40.32 (RT 104.5')

-NW24/25- POT Sta. 32+65.00 = -Y15- POT Sta. 140+54.07 (RT 98.5')

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW24/25-

MINIMUM WALL HEIGHT

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

PANEL NUMBER	88-91	92-113	114-120	121-125	126-129	130-134	135-140	141-144	145-149	150-154
TOP ELEVATION	904'	903'	904'	905'	906'	907'	908'	909'	910'	911'
PANEL(S) LENGTH	60'	330'	105'	75'	60'	75'	90'	60'	75'	75'

PANEL NUMBER	155-158	159-162	163-166	167-168	169-170
TOP ELEVATION	912'	913'	914'	915'	916'
PANEL(S) LENGTH	60'	60'	60'	30'	30'

930 920 910 900 890 880 870 860 850 840

22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00

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PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 24/25

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-15
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025618 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MATCHLINE -NW2425- STA 35+50.00 SEE SHEET 2

-Y15-

40 -NW24/25- 45

MATCHLINE -NW2425- STA 48+40.00 SEE SHEET 4

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW24/25-

PANEL NUMBER	171	172-176	177-179	180-184	185-187	188-191	192-194	195-197	198-200	201-203	204-208
TOP ELEVATION	916'	917'	918'	919'	920'	921'	922'	923'	924'	925'	926'
PANEL(S) LENGTH	15'	75'	45'	75'	45'	60'	45'	45'	45'	45'	75'

PANEL NUMBER	209-212	213-215	216-219	220-223	224-226	227-230	231-234	235-237	238-241	242-248	249-251	252-256
TOP ELEVATION	927'	928'	929'	930'	931'	932'	933'	934'	935'	936'	937'	938'
PANEL(S) LENGTH	60'	45'	60'	60'	45'	60'	60'	45'	60'	105'	45'	75'

MINIMUM WALL HEIGHT

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

950 940 930 920 910 900 890 880 870

35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00 43+00 44+00 45+00 46+00 47+00 48+00 49+00

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PLANS

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PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

PLAN AND PROFILE OF NOISE WALL 24/25

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	2N-16
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025512 ENGINEER MICHAEL D. LINDGREN

10/13/2021

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-Y15-

MATCHLINE -NW2425- STA 48+40.00 SEE SHEET 3

50 -NW24/25-

-NW24/25- POT Sta. 52+60.00 = -Y15- POT Sta. 160+48.83 (RT 86.5')

-NW24/25- POT Sta. 52+75.00 = -Y15- POT Sta. 160+62.58 (RT 92.5')

-NW24/25- POT Sta. 53+20.00 = -UXRPC- POT Sta. 10+22.12 (RT 33.5')

-NW24/25- POT Sta. 53+35.00 = -UXRPC- POT Sta. 10+35.89 (RT 27.5')

END NOISE WALL 24/25
-NW24/25- POT Sta. 54+55.00 = -UXRPC- POT Sta. 11+56.40 (RT 27.5')

-UXRPC-

NOTE: FRONT FACE OF NOISE WALL IS PLACED 15.5' FROM THE EOT

-NW24/25-

PANEL NUMBER	257-259	260-266	267-273	274-280	281-284	285-291	292-297
TOP ELEVATION	938'	939'	940'	941'	942'	943'	944'
PANEL(S) LENGTH	45'	105'	105'	105'	60'	105'	90'

MINIMUM WALL HEIGHT

MATCHLINE -NW2425- STA 48+40.00 SEE SHEET 3

257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297

EXISTING GROUND

PROPOSED GROUND AT FRONT FACE OF WALL

980 970 960 950 940 930 920 910 900 890

48+00 49+00 50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00

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COMPUTED BY: __JG_____ DATE: _4/8/20____
CHECKED BY: __CEH_____ DATE: 9/16/20__

PROJECT NO.	SHEET NO.
U-2579AB	3B-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Chain	Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
SEGMENT 1						
-L-	773+00.00	789+00.00	403,968	901	0	403,067
-Y5B-	14+50.00	23+00.00	857	6,453	5,596	0
-Y15- LT	17+63.82	56+00.00	3,532	13,107	9,575	0
-Y15REV- LT	81+50.00	96+28.30	11,064	28,457	17,393	0
-Y15- LT	145+00.00	175+50.00	16,745	2,791	0	13,954
-Y15FLYAC-	19+54.00	47+61.78	5,592	340,740	335,148	0
-Y15FLYBD-	23+00.00	39+40.31	0	366,905	366,905	0
-Y15FLYCA-	69+71.79	78+76.00	85,935	11,701	0	74,234
-Y15RPA-	14+52.00	32+11.00	115,804	40,937	0	74,867
-Y15LPA-	17+00.00	23+50.00	37,299	0	0	37,299
-Y15RPB-	17+00.00	28+81.00	100	70,815	70,715	0
-UXRPB-	16+00.00	22+70.00	1,369	980	0	389
-Y15XOVR1-	10+00.00	21+89.81	372	428	56	0
-Y15XOVR2-	10+00.00	21+89.81	347	535	188	0
-Y15- CROSSOVER DETOUR REMOVAL			837	827	0	10
	SUBTOTAL:		683,821	885,577	805,576	603,820
-Y15-	21+50.00	56+00.00	4,935	221	0	4,714
-Y15REV-	81+50.00	96+28.30	1,925	59	0	1,866
-Y15-	145+00.00	176+50.00	3,773	300	0	3,473
	SUBTOTAL:		10,633	580	0	10,053
-L-	789+00.00	818+00.00	347,454	138,393	0	209,061
-Y15- RT	21+50.00	56+00.00	14,566	6,918	0	7,648
-Y15REV-	8+00.00	27+00.00	139,464	13,909	0	125,555
-Y15REV-	27+00.00	46+12.61	80,715	266,550	185,835	0
-Y15REV-	48+57.61	65+00.00	157,578	704	0	156,874
-Y15REV-	65+00.00	81+50.00	88,445	17,620	0	70,825
-Y15REV- RT	81+50.00	96+28.30	39,541	4,403	0	35,138
-Y15FLYAC-	66+68.78	80+50.00	11,523	159,829	148,306	0
-Y15FLYBD-	51+59.31	70+50.00	1,643	294,865	293,222	0
-Y15FLYBD-	70+50.00	86+15.00	132,130	3,690	0	128,440
-Y15FLYCA-	19+50.00	52+30.79	198,716	147,619	0	51,097
-Y15RPC-	16+50.00	25+70.00	3,068	37,872	34,804	0
-Y15RPDREV-	29+68.00	42+55.00	3,692	55,466	51,774	0
-UXRPC-	19+50.00	21+00.00	242	522	280	0
	SUBTOTAL:		1,218,777	1,148,360	714,221	784,638
-L-	818+00.00	836+32.44	176,561	241,600	65,039	0
-Y16-	16+00.00	20+73.53	940	1,856	916	0
-Y16-	25+49.53	29+50.00	138	1,536	1,398	0
-Y16B-	12+00.00	14+00.00	173	12	0	162
-Y16DET-	13+00.00	33+76.97	595	12,215	11,620	0
-Y16B-	14+25.00	15+00.00	22	637	615	0
-Y16DET- & -Y16B- DETOUR REMOVAL			11,176	710	0	10,466
	SUBTOTAL:		189,605	258,566	79,588	10,628
	SEGMENT 1 SUBTOTAL		2,102,836	2,293,083	1,599,385	1,409,139
SEGMENT 2						
-L-	730+00.00	751+00.00	69,795	153,659	83,864	0
-L-	751+00.00	773+00.00	51,104	229,776	178,672	0
-Y6-	10+50.00	12+50.00	928	0	0	928
-Y8-	13+43.63	16+50.00	82	599	517	0
-Y15FLYBD-	19+95.00	23+00.00	0	42,553	42,553	0
-Y15FLYCA-	78+76.00	81+27.00	27,287	0	0	27,287
	SUBTOTAL:		149,196	426,587	305,606	28,215
	SEGMENT 2 SUBTOTAL		149,196	426,587	305,606	28,215

SUMMARY OF EARTHWORK CONT'D

IN CUBIC YARDS

Chain	Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
SEGMENT 3						
-L-	692+32.98	704+00.00	202,051	23,217	0	178,834
-Y1B-	12+50.00	20+50.39	412	2,297	1,885	0
-Y1B-	24+06.18	41+00.00	2,273	4,743	2,470	0
-Y1BDET-	13+00.00	31+00.00	378	7,304	6,926	0
-Y1BDET- DETOUR REMOVAL			6,351	435	0	5,916
	SUBTOTAL:		211,465	37,996	11,281	184,750
-L-	704+00.00	723+00.00	454,482	38	0	454,444
-Y1-	11+00.00	17+50.00	617	2,696	2,079	0
-Y1A-	10+75.00	12+00.00	16	515	499	0
-Y4-	11+50.00	20+50.00	2,937	569	0	2,368
-Y4-	20+50.00	29+85.66	6,677	14,709	8,032	0
-Y4-	31+49.65	45+50.00	11,737	14,864	3,127	0
-Y4-	45+50.00	60+00.00	2,859	1,831	0	1,028
-Y4RPA-	18+87.00	23+75.00	65,126	0	0	65,126
-Y4RPB-	18+63.00	22+70.00	1,778	21,855	20,077	0
-Y4SPB1-	23+33.78	24+69.77	1,055	8,758	7,703	0
-Y4DET-	10+36.67	32+89.22	12,497	17,233	4,736	0
-Y4DEET- DETOUR REMOVAL			14,985	14,372	0	613
-Y4A-	11+00.00	18+00.00	502	752	250	0
	SUBTOTAL:		575,268	98,192	46,503	523,579
-L-	723+00.00	730+00.00	142,143	131	0	142,012
-Y4RPC-	17+89.00	22+91.15	37,359	117	0	37,242
-Y4RPD-	17+81.00	22+31.00	29,933	0	0	29,933
-Y4SPD1-	22+75.88	24+00.00	655	1,586	931	0
	SUBTOTAL:		210,090	1,834	931	209,187
	SEGMENT 3 SUBTOTAL		996,823	138,022	58,715	917,516
	SUMMARY TOTALS		3,248,855	2,857,692	1,963,706	2,354,870
LOSS DUE TO CLEARING AND GRUBBING			-57,000	0	0	-57,000
ROCK WASTE TO REPLACE BORROW			0	0	-37,091	-37,091
ADJUST FOR ROCK WASTE				-5,564	-5,564	0
WASTE IN LIEU OF BORROW			0	0	-1,921,051	-1,921,051
PROJECT TOTALS			3,191,855	2,852,128	0	339,728
SAY			3,192,000			

PAVEMENT STRUCTURE VOLUME = 168,300 CY
EST. SHOULDER BORROW = 21,700 CY
EST. DDE = 162,460 CY
EST. UNDERCUT = 10,000 CY
EST. SHALLOW UNDERCUT = 8,000 CY
EST. SELECT GRANULAR MATERIAL CLASS III = 28,900 CY (FOR WORKING PLATFORMS IN SOFT AND WET SOILS)

Note: These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

COMPUTED BY: __JG_____ DATE: _4/8/20____
CHECKED BY: __CEH_____ DATE: 9/16/20__

PROJECT NO.	SHEET NO.
U-2579AB	3B-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT REMOVAL & BREAKUP SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
L	713+62.91		LT/RT	1,915.81			
L	723+60.14	734+50.00	LT/RT	2,602.87			
L	736+82.08		RT	399.88			
L	734+50.00	745+31.15	LT		2,364.95		
L	747+99.17		LT/RT	199.21	713.22		
L	751+37.51		RT	375.55	305.73		
L	754+76.10	757+04.44	LT/RT	1,119.50			
L	756+79.22	760+02.06	LT/RT	1,177.54			
L	774+81.01		LT/RT	3,081.40			
L	777+96.96		LT/RT	4,118.59			
L	779+53.00		LT/RT	948.20			
Y1B	16+83.35	24+38.46	RT	992.77	488.23		
Y1B	40+00.00	41+64.09	CL	440.63			
Y1BDET	12+17.03	31+03.84	CL	4,227.71			
Y4	29+16.08	37+29.47	LT/RT	2,021.52			
Y4	23+25.00	42+50.00	RT	2,594.51	3,181.90		
Y4DET	10+27.14	24+35.58	CL	4,752.89			
Y4DET	28+95.04	33+28.02	CL	1,154.41			
Y5B	15+27.56	16+45.16	LT/RT	184.99			
Y6	10+29.92	12+50.00	CL	480.43			
Y6	17+78.83	20+85.55	CL	735.46			
Y8	14+90.74	15+50.00	CL		145.68		
Y15	21+50.00	56+00.00	LT			4,139.84	
Y15	21+50.00	56+00.00	RT			5,280.66	
Y15	56+00.00	130+21.70	LT			24,314.61	7,155.70
Y15	56+00.00	128+93.26	RT			28,506.31	2,471.20
Y15	130+21.70	176+96.90	LT			6,711.45	
Y15	128+93.26	176+96.90	RT			6,168.55	
Y15XOVR1	11+19.57	21+89.81	CL	1,830.24			
Y15XOVR2	10+00.00	20+73.67	CL	1,814.42			
Y15RPA	22+70.52		LT/RT	2,257.42			
Y15FLYBD	32+34.34		LT/RT	1,435.68	1,155.40		
Y15FLYAC	44+18.73		LT/RT		468.90		
Y15RPA	15+19.03		LT/RT	462.14	535.93		
15FLYAC	24+86.42	42+68.91	LT/RT		4,379.08		
Y15RPA	11+95.69		LT/RT	150.30	553.65		
Y15FLYAC	31+10.83	33+50.90	RT	328.43	711.69		
Y15FLYBD	57+68.31		LT/RT	511.98	377.51		
Y15FLYAC	13+32.89		LT/RT	319.11			
Y15FLYBD	74+84.17	78+47.39	LT/RT	1,663.08			
Y15FLYBD	78+45.16	80+93.46	LT/RT	1,148.26			
Y15FLYBD	82+14.71	83+60.29	LT/RT	904.71			
Y15FLYBD	87+37.46		LT/RT	655.37			
Y15FLYBD	96+82.00		LT/RT	429.93			
Y15FLYBD	69+85.57		LT/RT	3,532.23			
Y15RPB	13+96.87		LT/RT	595.86	827.35		
Y15FLYCA	70+57.86		LT/RT	1,899.94	439.01		
Y15FLYCA	73+78.91	78+53.65	LT	1,175.58			
Y16	17+50.00	29+50.00	CL	2,958.16			
Y16DET	13+00.00	33+76.97	CL	5,813.83			
SR1	21+03.69	27+53.58	RT	935.36			
		TOTAL:		64,345.90	16,648.23	75,121.42	9,626.90
		SAY:		64,350	16,650	75,130	9,630

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	LENGTH
-L- LT	827+95	836+32	837
-L- RT	828+00	834+55	655
-Y4RPA- RT	24+96	25+14	18
-Y4RPB- RT	18+00	22+22	422
-Y4RPC- RT	23+53	24+48	95
-Y4RPD- RT	10+29	12+36	207
-Y4SPD2- LT	24+92	25+10	18
-Y15- LT	31+81	34+26	245
-Y15REV- RT	28+00	45+63	1,763
-Y15REV- LT	34+52	40+50	598
-Y15REV- LT	45+69	45+97	28
-Y15RPB- RT	10+00	20+50	1,050
-Y15FLYAC- LT	45+55	47+38	183
-Y15FLYAC- LT	66+69	68+44	175
-Y15FLYBD- RT	18+21	25+59	738
-Y15FLYBD- LT	37+19	39+16	197
-Y15FLYBD- LT	51+84	69+00	1,716
-Y15FLYCA- LT	52+16	52+31	15
-Y15FLYCA- LT	69+96	70+13	17
-Y15FLYCA- RT	82+75	88+24	549
-UXRPB- LT	13+49	16+00	251
-UXRPC- RT	17+75	20+00	225
-Y16- RT	25+39	25+53	14
-Y16- LT	25+82	26+44	62
		TOTAL:	10,078
		SAY:	10,080

CABLE GUIDERAIL SUMMARY

SURVEY LINE	STATION	STATION	LENGTH	END ANCHOR	INTERMEDIATE ANCHOR UNIT	COMMENTS
L	823+98.35	836+32.44	1234.09	1		
		SUBTOTAL:	1234.09	1		
LESS TERMINAL ANCHOR UNITS			-25			1 @ 25'-0"
		GRAND TOTALS:	1209.09			
		SAY:	1300.00			
ADDITIONAL GUIDERAIL POSTS - 5						

WOVEN WIRE FENCE SUMMARY

STATION TO STATION	LOCATION	LENGTH	4" POSTS	5" POSTS
L 692+33 to 705+57	LT	1,346	83	24
L 705+33 to Y4 42+00	LT	2,260	138	43
Y4 42+00 to L 767+29	LT	5,280	350	49
L 767+74 to Y15 169+30	LT	7,683	491	106
Y15 169+27 to L 816+58	LT	9,235	587	132
L 816+42 to L 836+32	LT	2,700	165	51
L 692+33 TO 702+47	RT	1,171	69	27
L 701+23 to Y4 21+20	RT	2,971	179	60
Y4 21+20 to L 745+99	RT	2,648	167	40
L 746+05 to 770+27	RT	2,488	158	37
Y15FLYBD 21+50 to 26+67	RT	544	27	22
Y15FLYBD 26+73 to Y15 80+66	RT	1,666	105	25
Y15 48+00 to 76+97	LT	2,956	181	55
Y15 24+65 to 3287	RT	845	53	13
Y15 35+00 to L 821+06	RT	5,929	369	99
L 829+59 to 836+58	RT	2,169	132	42
SUBTOTAL:		51,891	3256	825
SAY:		51,900		

6 - 12' WIDE GATES (SEE PLANS FOR LOCATIONS)

SUMMARY OF CONCRETE BARRIER

IN LINEAR FEET

			LENGTH			EACH
LINE	BEGIN STATION	END STATION	DOUBLE FACED TYPE T	DOUBLE FACED TYPE T1	DOUBLE FACED TYPE T2	CONCRETE BARRIER TRANS. SECTION
-Y15-	21+50	26+50	500			
-Y15-	26+50	28+50		200		
-Y15-	28+50	35+50			700	
-Y15-	35+50	37+50		200		
-Y15-	37+50	49+79	1,229			1
-Y15-	51+14	56+00	486			1
-Y15REV-	8+00	9+50	150			
-Y15REV-	9+50	12+50		300		
-Y15REV-	12+50	30+00			1,750	
-Y15REV-	30+00	32+00		200		
-Y15REV-	32+00	41+01	901			1
-Y15REV-	43+46	45+80	234			1
-Y15REV-	48+90	50+36	146			1
-Y15REV-	53+81	69+00	1,519			1
-Y15REV-	69+00	75+50		650		
-Y15REV-	75+50	78+50			300	
-Y15REV-	78+50	81+00		250		
-Y15REV-	81+00	89+03	803			1
-Y15REV-	90+38	96+28	590			1
-Y15-	145+00	145+50	50			
-Y15-	145+50	146+00		50		
-Y15-	146+00	176+58	3,058			1
		TOTAL:	9,666	1,850	2,750	9
		SAY:	9,670	1,850	2,750	

COMPUTED BY: C. HARRIS DATE: 4/2/2020
CHECKED BY: B. TAYLOR DATE: 9/16/2020

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	3B-3

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE EXISTING GUIDERAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	MOD. B-77	G	NG				
L	685+82.64	688+00.25	LT	218.75				685+94.48	14'	17'									1								ON U-2579B, TIE TO EXIST. GUARDRAIL
L	692+32.98	696+64.23	RT	431.25				696+50.00	14'	17'									1								
L	692+32.98	699+51.73	CL/RT	718.75					12'	12'									1								
L	692+32.98	698+70.48	CL/LT	637.50					12'	12'	50'		1'				1										
L	698+90.82	751+72.07	CL/LT	5,281.25					12'	12'	50'		1'				1		1								
L	699+70.59	752+51.84	CL/RT	5,281.25					12'	12'	50'		1'				1		1								
L	700+24.15	702+35.63	RT	218.75				702+30.00	14'	17'	50'		1'				1		1								
L	704+94.54	708+70.60	LT	268.75				706+00.00	16'	19'	50'		1'				1		1								
L	720+41.12	724+23.11	RT	160.375				721+97.15	14'	17'	137.5'		2.75'			1	1								226		
L	721+74.03	725+38.28	LT	160.375				723+82.06	14'	17'	137.5		2.75'			1	1								208		
L	734+93.01	758+35.28	LT	2,368.75			756+50.00	735+00.00	14'	17'	50'		1'				1		1								
L	747+69.68	747+99.58	202' RT	30.00																							OAKRIDGE PLACE DR. DEAD END
L	751+23.84	751+53.73	202' RT	30.00																							OAKSBURG CT DEAD END
L	751+93.53	804+74.78	CL/LT	5,281.25					12'	12'	50'		1'				1		1								
L	752+72.65	805+53.9	CL/RT	5,281.25					12'	12'	50'		1'				1		1								
L	760+85.79	764+03.13	RT	318.75			762+50.00	763+84.00	14'	17'	50'		1'				1		1								
L	789+51.04	793+18.19	LT	368.75			791+60.00	789+64.00	13.75'	16.75'	362.5'		7.25'				1		1								
L	790+71.65	794+15.40	RT	343.75				794+10.00	14'	17'	50'		1'				1		1								
L	795+96.07	796+89.82	LT	93.75				796+00.00	14'	17'	50		1				1		1								
L	804+92.89	823+76.00	CL/LT	1,881.25					12'	12'	50'		1'				1		1								
L	805+72.85	823+31.26	CL/RT	1,756.25					12'	12'	50'		1'				1		1								
L	823+86.45	834+59.96	RT	1,081.25			826+00.00	834+50.00	14'	17'	50'		1'				1		1								
L	827+88.69	836+32.44	LT	843.75				828+00.00	14'	17'									1								
L	835+44.94	836+32.44	CL/LT	93.75				835+50.00	12'	12'									1								
Y1B	18+51.52	20+70.00 (BR)	RT	218.75				20+70.00 (BR)	7'	10'	200'		4'		1			1									
Y1B	19+35.35	20+29.46 (BR)	LT	93.75			20+29.46 (BR)		8'	11'		75'		1.5'	1			1									
Y1B	23+85.59 (BR)	26+04.61	LT	218.75				23+85.59 (BR)	8'	11'	50'	150'	1'	0.5'	1			1									
Y1B	24+20.31 (BR)	25+13.66	RT	93.75			24+20.31 (BR)		4'	7'		50'		1'	1			1									
Y1B	30+58.71	30+88.26	306' RT	25.00																							SCHOOLVIEW RD DEAD END
Y1B	33+92.49	34+10.83	397' RT	25.00																							OLD WINSTON RD DEAD END
Y4	24+62.31	L 757+29.63	RT	397.875			26+00.00	Y4RPC 21+61.02	12'	14'	25'		1'			1		1							3,120		NW11/13
Y4	35+22.00	36+29.98	CL/LT	106.25				35+29.80	0.75'	1.75'	50'		1'					1	1								
Y4	35+22.00	36+54.65	LT	131.25				35+29.80	12'	14'	25'		1'					1	1								
Y4	39+25.34	41+05.26	RT	143.75	100			41+00.00	14'	16'									1								TIE TO EXIST. G/R FROM -Y4DET-
Y4RPA	24+13.19	25+38.99 (BR)	RT	129.125			25+38.99 (BR)		10'	13'		100'		2'		1			1								
Y4RPB	16+97.54	26+42.94	RT	931.25			18+50.00	26+30.00	14'	17'	50'		1'				1		1								
Y4SPB2	24+33.92	26+58.45 (BR)	LT	222.875				26+58.45 (BR)	12'	15'	50'	143.75'	1'	4'		1	1										
Y4RPC	23+47.50	Y4 29+74.42 (BR)	RT	129.125			Y4 29+74.42 (BR)		10'	13'		100'		2'		1			1								
Y4RPC	10+64.04	10+93.96	153' LT	25.00																							GARDEN VIEW DR DEAD END
Y4SPD2	23+11.19	25+36.01 (BR)	LT	222.875				25+36.01 (BR)	12'	15'	50'	143.75'	1'	4'		1	1										
Y5B	11+01.96	11+01.96	LT/RT	25.00																							MEREDITH WAY DEAD END
Y5B	17+01.00	20+50.96	LT	350.00			18+00.00	19+50.00	4'	7'	25'	25'	0.5'	0.5'				2									
Y5B	16+99.04	20+74.08	RT	375.00			17+50.00	20+00.00	4'	7'	25'	25'	0.5'	0.5'				2									
Y6	17+79.01	17+79.01	LT/RT	25.00																					27		ORVIL LN DEAD END
Y15	17+75.14 (BR)	21+30.68	CL/LT	360.375			17+75.14 (BR)	21+30.68			337.5'		14'			1									8,100	15,384	TIE TO EXIST. BRIDGE RAIL
Y15	17+89.00 (BR)	21+30.68	CL/RT	347.875			17+89.00 (BR)	21+30.68				325'		14'		1						1					TIE TO EXIST. BRIDGE RAIL
Y15	23+00.02	24+54.68	RT	156.25				24+50.00	14'	17'	50'		1'				1		1								
Y15	29+38.02	36+04.27	RT	681.25			30+50.00	35+50.00	14'	17'	50'		1'				1		1								
Y15	31+81.30	34+26.10	LT	245.75			34+26.10	31+81.30	14'	17'						2									1,421		
Y15REV	27+49.27	45+88.35 (BR)	RT	1,835.375			29+00.00	45+88.35 (BR)	14'	17'	50'	100'	1'	2'		1	1										
Y15REV	34+46.28	41+51.50	LT	656.25			40+00.00	34+50.00	14'	17'	50'		1'				1		1								
Y15REV	45+62.62	46+40.76 (BR)	LT	79.125			46+40.76 (BR)		12'	15'						1			1								
Y15REV	48+31.58 (BR)	50+47.22	RT	216.625			48+31.58 (BR)	50+29.00	14'	17'	100'		2'			1			1								
Y15REV	48+83.99 (BR)	52+45.52	LT	372.875				48+83.99 (BR)	12'	15'		350'		7'		1	1										
Y15REV	53+99.68	56+04.94	RT	206.25				56+00.00	14'	17'	50'		1'				1		1								
Y15REV	74+44.77	78+99.74	LT	456.25			77+50.00	74+50.00	14'	17'	50'		1'				1		1								
SHEET TOTAL =				42,653.125	100.00										4	15	27	11	32			1			4,975	8,127	15,384	

COMPUTED BY: C. HARRIS DATE: 4/2/2020
CHECKED BY: B. TAYLOR DATE: 9/16/2020

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	3B-4

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE EXISTING GUIDERAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	MOD. B-77		G	NG				
Y15FLYAC	30+00.72	32+07.34	LT	206.25				32+02.47	12'	15'	50'		1'				1		1									
Y15FLYAC	45+05.20	47+62.78 (BR)	RT	260.375				47+62.78 (BR)	4'	14'	237.5		4.75'			1	1									379		
Y15FLYAC	45+04.57	47+62.78 (BR)	LT	260.375				47+62.78 (BR)	12'	15'	50'		1'			1	1											
Y15FLYAC	66+43.78 (BR)	67+21.58	RT	79.125			66+43.78 (BR)	67+00.00	4'	14'						1			1									
Y15FLYAC	66+43.78 (BR)	68+49.26	LT	204.125			66+43.78 (BR)	68+25.00	12'	15'						1			1									
Y15FLYAC	13+34.33	13+65.62	134' RT	25.00																						68		BROOK BEND DEAD END
Y15FLYBD	10+93.93	14+14.18	RT	318.75				13+97.31	14'	17'	50'		1'				1		1									
Y15FLYBD	17+50.16	Y15RPB 20+55.73	RT	1,856.25			18+50.00	Y15RPB 20+25.00	14'	17'	50'		1'				1		1									
Y15FLYBD	24+38.24	26+43.51	LT	206.25				26+37.00	12'	15'	50'		1'				1		1									
Y15FLYBD	36+68.34	39+41.33 (BR)	LT	272.875				39+41.33 (BR)	12'	15'	50'		1'			1	1											
Y15FLYBD	36+75.64	39+41.33 (BR)	RT	272.875				39+41.33 (BR)	4'	14'	250'		5'			1	1											
Y15FLYBD	51+58.29 (BR)	69+05.49	LT	1,729.125			51+58.29 (BR)	69+00.00	12'	15'						1			1									
Y15FLYBD	51+58.29 (BR)	68+07.50	RT	1,679.125			51+58.29 (BR)	70+00.00	14'	17'	500'		10'			1			1									
Y15FLYBD	73+78.05	UXRPC 11+56.39	RT	222.875			76+01.04		14'	17'	50'		1'			1	1									4,451		NW24/25
Y15FLYBD	78+40.46	78+70.09	164' RT	25.00																								ANSLEY CT DEAD END
Y15FLYBD	82+10.47	82+37.65	197' RT	25.00																								ANSLEY DR DEAD END
Y15FLYBD	86+94.91	87+24.18	176' RT	25.00																								COUNTRY VIEW DR DEAD END
Y15FLYBD	96+79.56	97+09.25	RT	25.00																						71		LAKE VALLEY RD DEAD END
Y15FLYCA	11+59.52	14+04.12	RT	243.75				14+00.00	14'	17'	50'		1'				1		1									
Y15FLYCA	32+71.39	34+74.94	RT	206.25				34+68.00	14'	17'	50'		1'				1		1									
Y15FLYCA	32+74.39	34+80.67	LT	206.25				34+68.00	12'	15'	50'		1'				1		1									
Y15FLYCA	49+27.93	52+55.78 (BR)	RT	322.875				52+55.78 (BR)	4'	14'	300'		6'			1	1											
Y15FLYCA	49+47.41	52+55.78 (BR)	LT	297.875				52+55.78 (BR)	12'	15'						1	1											
Y15FLYCA	69+70.80 (BR)	70+48.40	RT	79.125			69+70.80 (BR)		4'	14'						1			1									
Y15FLYCA	69+70.80 (BR)	70+17.92	LT	41.625			69+70.80 (BR)		12'	15'						1			1									
Y15FLYCA	82+24.75	89+27.76	RT	693.75			83+75.00	89+00.00	14'	17'	50'		1'				1		1									
Y15RPA	19+40.00	Y15 162+05.68	LT	722.875			Y15 154+82.81	Y15RPA 19+40.00	14'	17'	50'		1'			1	1									4,390		NW15/16
Y15RPB	28+76.72	Y15 17+53.25	RT	935.375			30+50.00	38+17.79	14'	17'	50'		1'			1	1									3,703		NW17/18, TIE TO EXIST. BARRIER RAIL
Y15RPDREV	32+25.36	36+44.77	LT	431.25			34+00.00	36+25.00	12'	15'	50'		1'				1		1									
Y15RPDREV	33+24.43	37+50.00	RT	418.75			34+75.00	37+50.00	14'	17'	50'		1'				1		1									
Y16	18+33.97	20+52.72 (BR)	RT	218.75				20+52.72 (BR)	7.5'	11'	50'	150'	1'	0.5'	1		1											
Y16	19+99.64	20+93.37 (BR)	LT	93.75			20+93.37 (BR)		4'	8'		75'		1.5'	1		1											
Y16	25+20.87 (BR)	26+14.60	RT	93.75			25+20.87 (BR)		7.5'	11'		75'		1.5'	1		1											
Y16	25+69.94 (BR)	27+87.67	LT	218.75				25+69.94 (BR)	4'	11'	200'		4'		1		1											
UXRPB	13+41.61	16+78.38	LT	331.25			15+50.00	13+50.00	14'	17'	50'		1'				1		1									
UXRPC	17+23.12	20+05.15	RT	281.25			18+50.00	20+00.00	14'	17'	50'		1'				1		1									
SR1	25+46.48	29+85.45	RT	450.00			26+75.00	29+00.00	4'	7'								2										
	Assembly S			393.75															1									TIE TO EXIST. GUARDRAIL
SHEET SUB-TOTAL =				**14,374.375**	**0.00**										**4**	**15**	**25**	**2**	**19**						**12,544**	**518**		
SHEET 3B-3 SUB-TOTAL =				**42,653.125**	**100.00**										**4**	**15**	**27**	**11**	**32**			**1**			**4,975**	**8,127**	**15,384**	
ALL SHEETS SUB-TOTAL =				**57,027.50**	**100.00**										**8**	**30**	**52**	**13**	**51**			**1**			**17,519**	**8,645**	**15,384**	
LESS ANCHOR DEDUCTIONS																												
	TYPE III :	8	18.75	-150.00																								
	B-77 :	30	22.875	-686.25																								
	GREU TL-3 :	52	50	-2,600.00																								
	GREU TL-2 :	13	25	-325.00																								
	CAT-1 :	51	6.25	-318.75																								
GRAND TOTAL =				**52,947.50**	**100.00**																							
SAY =				**53,000.00**	**150.00**		**10 ADDITIONAL GUARDRAIL POSTS**																		**17,520**	**8,650**	**15,390**	

COMPUTED BY: C. HARRIS DATE: 4/2/2020

CHECKED BY: B. TAYLOR DATE: 9/16/2020

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	3B-5

"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

TEMPORARY GUARDRAIL SUMMARY

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

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS									IMPACT ATTENUATOR		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	Type III	B-77	GREU, TL-3	GREU, TL-2	CAT-1	AT-1	Type III SC	B-77 SC	TES	G	NG				
Y1BDET	18+64.22	26+39.79	LT	762.50			19+50.00	25+25.00	6'	8'	25'	25'	0.5'	0.5'				2										
Y4DET	17+21.52	22+78.48	LT	550.00			18+50.00	21+50.00	8'	10'	25'	25'	0.5'	0.5'				2										
Y4DET	26+45.58	31+53.52	RT	512.50			27+50.00	29+75.00	8'	10'	25'	25'	0.5	0.5'				2										RETAIN 250' OF GUARDRAIL FOR FINAL CONDITION
Y16DET	20+25.35	27+87.85	RT	762.50			21+25.00	26+50.00	8'	10'	25'	25'	0.5'	0.5'				2										
Y16DET	25+17.99	30+73.56	LT	562.50			26+50.00	29+75.00	8'	10'	25'	25'	0.5'	0.5'				2										
SUB-TOTAL =				**3,150.00**														**10**										
LESS ANCHOR DECUCTIONS																												
	GREU TL-2 :	25	10	-250.00																								
GRAND TOTAL =				**2,900.00**																								
SAY =				**2,950.00**																								

PROJECT REFERENCE NO.	SHEET NO.
U-2579AB	3B-6

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116

SUMMARY OF MAINLINE PORTLAND CEMENT CONCRETE PAVEMENT REPAIR

LINE	DAMAGE TYPE	SLAB AREA (SY)	DIRECTION OF TRAVEL	X (LONG.)	Y (LAT.)
–Y15–	CORNER BREAK	16	EB	–80.16093402	36.06833853
–Y15–	CORNER BREAK	16	EB	–80.16094241	36.06834155
–Y15–	CORNER BREAK	16	EB	–80.15856657	36.06883649
–Y15–	CORNER BREAK	16	EB	–80.15823860	36.06890174
–Y15–	CORNER BREAK	16	EB	–80.15706154	36.06923381
–Y15–	CORNER BREAK	16	EB	–80.15667376	36.06934562
–Y15–	CORNER BREAK	16	EB	–80.15633129	36.06949085
–Y15–	CORNER BREAK	16	EB	–80.15583941	36.06968519
–Y15–	CORNER BREAK	16	EB	–80.15563562	36.06978240
–Y15–	CORNER BREAK	16	EB	–80.15541182	36.06988993
–Y15–	CORNER BREAK	16	EB	–80.15523849	36.06996505
–Y15–	CORNER BREAK	16	EB	–80.15516653	36.06999395
–Y15–	CORNER BREAK	16	EB	–80.15481319	36.07015419
–Y15–	CORNER BREAK	16	EB	–80.15444260	36.07029214
–Y15–	CORNER BREAK	16	EB	–80.15382309	36.07055915
–Y15–	CORNER BREAK	16	EB	–80.15196764	36.07130737
–Y15–	CORNER BREAK	16	EB	–80.15061815	36.07187964
–Y15–	CORNER BREAK	16	EB	–80.15018461	36.07210116
–Y15–	CORNER BREAK	16	EB	–80.11546987	36.07498826
–Y15–	CORNER BREAK	16	EB	–80.11634387	36.07502620
–Y15–	CORNER BREAK	16	EB	–80.11635312	36.07500629
–Y15–	CORNER BREAK	16	EB	–80.11891215	36.07500579
–Y15–	CORNER BREAK	16	EB	–80.12154695	36.07506340
–Y15–	CORNER BREAK	16	EB	–80.12195009	36.07507113
–Y15–	CORNER BREAK	16	EB	–80.11226149	36.07496160
–Y15–	CORNER BREAK	16	EB	–80.12195009	36.07507113
–Y15–	CORNER BREAK	16	EB	–80.12235603	36.07508080
–Y15–	CORNER BREAK	16	EB	–80.12270453	36.07506379
–Y15–	CORNER BREAK	16	EB	–80.12270471	36.07506742
–Y15–	CORNER BREAK	16	EB	–80.12304931	36.07508909
–Y15–	CORNER BREAK	16	EB	–80.12360694	36.07509335
–Y15–	CORNER BREAK	16	EB	–80.12359658	36.07507641
–Y15–	CORNER BREAK	16	EB	–80.12405387	36.07504042
–Y15–	CORNER BREAK	16	EB	–80.12404789	36.07503725
–Y15–	CORNER BREAK	16	EB	–80.12439809	36.07505113

LINE	DAMAGE TYPE	SLAB AREA (SY)	DIRECTION OF TRAVEL	X (LONG.)	Y (LAT.)
–Y15–	CORNER BREAK	16	EB	–80.12440136	36.07505172
–Y15–	CORNER BREAK	16	EB	–80.12466831	36.07505551
–Y15–	CORNER BREAK	16	EB	–80.12467115	36.07505012
–Y15–	CORNER BREAK	16	EB	–80.12509667	36.07505637
–Y15–	CORNER BREAK	16	EB	–80.12535594	36.07505672
–Y15–	CORNER BREAK	16	EB	–80.12615322	36.07506916
–Y15–	CORNER BREAK	16	EB	–80.12615090	36.07507674
–Y15–	CORNER BREAK	16	EB	–80.12647423	36.07507630
–Y15–	CORNER BREAK	16	EB	–80.12647307	36.07507049
–Y15–	CORNER BREAK	16	WB	–80.10935904	36.07521183
–Y15–	SPALL	16	WB	–80.15416792	36.07068632
–Y15–	CORNER BREAK	16	WB	–80.15222078	36.07151443
–Y15–	CORNER BREAK	16	WB	–80.15063582	36.07212860
–Y15–	CORNER BREAK	16	WB	–80.12596085	36.07533338
–Y15–	CORNER BREAK	16	WB	–80.12456533	36.07532354
–Y15–	CORNER BREAK	16	WB	–80.12437139	36.07531684
–Y15–	CORNER BREAK	16	WB	–80.12374562	36.07532048
–Y15–	CORNER BREAK	16	WB	–80.12342486	36.07531898
–Y15–	SLAB REPLACEMENT	16	WB	–80.12321369	36.07531302
–Y15–	SLAB REPLACEMENT	16	WB	–80.12309034	36.07531103
–Y15–	SLAB REPLACEMENT	16	WB	–80.12292357	36.07530696
–Y15–	CORNER BREAK	16	WB	–80.12264454	36.07532673
–Y15–	CORNER BREAK	16	WB	–80.12246749	36.07532797
–Y15–	SLAB REPLACEMENT	16	WB	–80.12226126	36.07532627
–Y15–	SLAB REPLACEMENT	16	WB	–80.12207778	36.07530204
–Y15–	CORNER BREAK	16	WB	–80.12178084	36.07530816
–Y15–	CORNER BREAK	16	WB	–80.12098276	36.07530197
–Y15–	CORNER BREAK	16	WB	–80.12030604	36.07529505
–Y15–	CORNER BREAK	16	WB	–80.11995033	36.07529294
–Y15–	CORNER BREAK	16	WB	–80.11962031	36.07528375
–Y15–	CORNER BREAK	16	WB	–80.11878916	36.07528107
–Y15–	CORNER BREAK	16	WB	–80.11867158	36.07526312
–Y15–	CORNER BREAK	16	WB	–80.11840091	36.07527065
–Y15–	CORNER BREAK	16	WB	–80.11817104	36.07527571
–Y15–	CORNER BREAK	16	WB	–80.11798843	36.07528997

LINE	DAMAGE TYPE	SLAB AREA (SY)	DIRECTION OF TRAVEL	STATION
–Y15–	42" RCP	32	EB	36+87
–Y15–	42" RCP	32	WB	36+87
–Y15–	24" RCP	32	WB	42+13
–Y15–	18" RCP	32	WB	153+00
	TOTAL	1,248 SY		
	SAY	1,250 SY		

EST. SELECT MATERIAL, CLASS IV = 50 TONS

REVISIONS

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt PENTABLE: NCDOT_pshpfl_conventional.tbl
USER: CHARRIS DATE: 7/13/2021 TIME: 12:48:42 PM
FILE: NCDOT\NCDOT-U2579AB\6.0_CAD_BIM\6.2_Work_In_Progress\U-2579AB\Roadway\Pro]\u2579ab_rdy_psh_03B-06.dgn

RAL-2TK9470H0P

COMPUTED BY: MKD DATE: 09/13/2021

CHECKED BY: WDY DATE: 09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	Side Drain 18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	C. S. 18 .064	C. S. 24 .064	C. S. 30 .079	C. S. 36 .079	C. S. 42 .109	R. C. PIPE CLASS III 12	R.C. III 15	R.C. III 18	R.C. III 24	R.C. III 30	R.C. III 36	R.C. III 42	R.C. III 48	R. C. PIPE CLASS IV 15	R.C. IV 18	R.C. IV 24	R.C. IV 30	R.C. IV 36	R.C. IV 42	R.C. IV 48	R. C. PIPE CLASS V 42	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	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 D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 695+25	106 LT	0401		892.2																																							1												1				1																												
		0401	0402		889.2	888.6																		104																																																																
L 695+25	0 CL	0402		895.0																																							1	3.4										1					1																												
		0402	0403		886.6	880.5	0.4																					168																																																													
L 697+00	0 CL	0404		899.7																																							1	0.8										1					1																												
		0404	0402		894.0	887.1	0.7																				172																																																														
L 697+00	103 RT	0405		901.5						x			x	x	x																												1												1				1																												
		0405	0406		898.7	889.6	2.6									60																																																											2														
L 695+75	128 RT	0407		882.5																																																																											1								BDO
		0407	0408		881.8	880.5																			52																																																																	
L 493+40	1914 RT	0409																																									1	1.5											1																											1	1						DETENTION BASIN, 42" SLUICE GATE
		0409	0410																									80																																																													
L 692+64	193 RT	0410								x			x	x	x																												1	1.4																		1						1																					
		0410	0411																		80																																																											2										
L 692+32	125 RT	0411																																																													1						1																					
		0411	0412																									20																																																													
L 699+00	101 LT	0501		900.7																																							1												1				1																										603	603' PIPE REMOVAL FOR ALL OF SHEET 5
		0501	0502		896.7	896.2																				100																																																															
L 699+00	0 CL	0502		905.9																																							1	5.0	0.2									1					1																												
		0502	0404		895.7	894.0	0.7																				196																																																														
L 701+00	0 CL	0503		911.8																																							1	1.5										1					1																												
		0503	0502		905.3	895.7	0.3																				196																																																														
Y1B 13+16	26 LT	0506						28																																																																																
Y1B 13+70	24 LT	0507						24																																																																															
Y1B 13+26	27 RT	0508						36																																																																														
Y1B 14+63	33 RT	0509						28																																																																														
L 705+33	83 LT	0511		918.0																																							1												1		1																																	
		0511	0512		913.9	913.6																								64																																																											
L 706+00	84 LT	0512		918.7																																							1	0.3											1		1																																	
		0512	0514		913.3	911.2																		84																																																															
L 704+50	0 CL	0513		919.2																																							1	5.0	0.3									1					1																												
		0513	0521		909.0	908.9																					12																																																														
L 706+00	0 CL	0514		921.0																																							1	5.0	1.3									1					1																												
		0514	0513		909.7	909.0																					148																																																													
L 704+50	90 RT	0515		923.5																																							1												1				1																												
		0515	0513		919.5	910.5																		92																																																																	
L 703+50	0 CL	0516		917.6																																							1	5.0	1.1									1					1																												
		0516	0503		906.5	905.3																					248																																																														
		0517	0501		930.6	896.7	0.5			x			x	x	x			76																																																													2													
L 698+00	177 LT	0517																																								0.984																																																HEADWALL
L 702+50	82 LT	0518		913.3																																							1												1		1																																	
		0518	0519		909.2	908.7																								96																																																												
L 703+50	82 LT	0519		915.3																																							1	1.9											1		1																																	
		0519	0520		908.4	908.1																		68																																																																
L 703+50	12 LT	0520		919.8																																							1	5.0	3.2																		1					1																				
		0520	0516		906.6	906.5																					12																																																													
L 704+50	12 LT	0521		921.5																																							1	5.0	2.6																		1					1																				
		0521	0520		908.9	906.6																					100																																																												
Y1B 24+15	14 LT	0530		945.9																																							1	1.6		1			1																																						
SHEET TOTALS								116								60		76			80			348	52	100	1084	268		160												0.984	20	42.4	8.7	1			1					7	9		4		11			2	2					4					2		2			2	1	1	1					603	

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

RAL-2TK9470H0P

COMPUTED BY:	MKD	DATE:	09/13/2021
CHECKED BY:	WDY	DATE:	09/14/2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U2579-AB	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 (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	Side Drain Pipe 18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 12	R. C. PIPE CLASS III 15	R. C. PIPE CLASS III 18	R. C. PIPE CLASS III 24	R. C. PIPE CLASS III 30	R. C. PIPE CLASS III 36	R. C. PIPE CLASS III 42	R. C. PIPE CLASS III 48	R. C. PIPE CLASS IV 15	R. C. PIPE CLASS IV 18	R. C. PIPE CLASS IV 24	R. C. PIPE CLASS IV 30	R. C. PIPE CLASS IV 36	R. C. PIPE CLASS IV 42	R. C. PIPE CLASS IV 48	R. C. PIPE CLASS V 42	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	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 D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
			0530	0510		939.3	939.2	0.3																		24																																																											
Y1B 15+00	34	RT	0532						28																																																																													
Y1B 16+31	39	RT	0533						28																																																																													
Y1B 17+54	45	RT	0534						24																																																																													
Y1B 16+00	28	LT	0535						36																																																																													
Y1B 18+00	0	CL	0536	0531																					84																																																															
Y1B 25+35	37	LT	0601		943.5																																							1									1	1																																	1916	1916' PIPE REMOVAL FOR ALL OF SHEET 6
			0601	0602		941.3	940.4																	24																																																																	
Y1B 25+35	14	LT	0602		945.3																																							1	0.6		1			1																																						
			0602	0530		939.6	939.3	0.3																									120																																																									
Y1B 26+13	14	LT	0604		945.2																																							1	0.3		1	1																																								
			0604	0602		939.9	939.6																										76																																																									
Y1B 27+43	14	LT	0605		945.5																																							1			1		1																																							
			0605	0604		941.5	940.4	0.8																								128																																																										
Y1B 27+43	34	LT	0606		944.1																																							1									1	1																																		
			0606	0605		941.9	941.7																	20																																																																		
EY3A 21+62	30	RT	0607		958.3																																							1												1					1																													
			0607	0678		953.4	952.7																									12																																																											
Y1B 28+31	35	LT	0608		944.8																																							1									1	1																																		
			0608	0609		942.5	942.4																	20																																																																		
Y1B 28+30	14	LT	0609		946.2																																							1			1		1																																							
			0609	0605		942.1	941.5	0.6																								84																																																										
Y4 40+96	93	LT	0610		936.0																																						3.400																																																	HEADWALL
			0610	0613		935.5	935.3																												44																																																								
Y1B 29+22	32	LT	0611		947.0																																							1									1	1																																		
			0611	0612		944.8	944.5																	16																																																																		
Y1B 29+17	17	LT	0612		947.5																																							1			1		1																																							
			0612	0621		944.3	943.5																									48																																																										
Y4 40+84	53	LT	0613		943.9																																							1	3.6		1		1																																							
			0613	0655		935.3	933.3	0.4																											96																																																								
Y1B 30+70	32	LT	0614		951.0																																							1									1	1																																		
			0614	0615		948.8	948.6																	20																																																																		
Y1B 30+70	14	LT	0615		951.6																																							1			1		1																																							
			0615	0612		948.4	944.3																									152																																																										
Y4 38+39	41	RT	0616		942.8																																							1			1		1																																							
			0616	0660		938.6	938.3																								60																																																												
Y4 39+80	41	RT	0617		943.3																																							1	0.4		1			1																																						
			0617	0655		937.9	935.0																								76																																																												
Y4 39+80	53	LT	0618		942.6																																							1			1		1																																							
			0618	0613		937.7	936.3	0.4																									104																																																									
Y1B 32+65	32	LT	0619		956.3																																							1									1	1																																		
			0619	0620		954.0	953.8																	16																																																																		
Y1B 32+65	14	LT	0620		956.8																																							1			1		1																																							
			0620	0615		953.8	948.6																								192																																																												
Y1B 28+69	17	LT	0621		946.7																																							1			1		1																																							
			0621	6124		943.5	943.2	0.5																								4																																																											
Y4RPA 10+64	90	LT	0622																																																																												1									BDO
			0622	0627		933.0	911.7	0.5											64																																																												2												
Y1B 35+83	40	LT	0623		956.8																																							1			1		1																																							
								SHEET TOTALS	116										64					116	84	24					340	416	300		140								3.400	20	4.9		13	1	10	2			6	6		1					1																	2				1							1916	

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

RAL-2TK9470H0P

COMPUTED BY: MKD DATE: 09/13/2021

CHECKED BY: WDY DATE: 09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-3

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	Side Drain Pipe 18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 12	CLASS III 15	CLASS III 18	CLASS III 24	CLASS III 30	CLASS III 36	CLASS III 42	CLASS III 48	R. C. PIPE CLASS IV 15	CLASS IV 18	CLASS IV 24	CLASS IV 30	CLASS IV 36	CLASS IV 42	CLASS IV 48	R. C. PIPE CLASS V 42
		0623	0675		951.8	951.7																									20						
L 707+91	84 LT	0627		920.0																																	
		0627	0628		911.7	911.2	0.3																			84											
L 708+00	0 CL	0628		922.4																																	
		0628	0514		911.2	910.2	0.5																				196										
Y6 10+40	23 LT	0629	0664		946.0	944.3	0.4																		32												
Y6 10+30	26 RT	0630	0631		945.4	944.9																	24														
Y4B 10+87	13 RT	0631		947.4																																	
L 711+00	114 LT	0632		917.9																																	
		0632	0627		914.9	912.7	0.7																	296													
L 710+00	0 CL	0633		923.7																																	
		0633	0628		921.0	912.5	0.4																196														
Y1B 35+05	29 LT	0635		957.3																																	
		0635	0678		953.1	952.7																								80							
Y1B 34+50	60 RT	0636		955.7																																	
		0636	0638		952.7	950.0																		104													
Y1B 35+82	71 LT	0637		956.3																																	
		0637	0623		951.9	951.8																									32						
L 715+00	91 LT	0639		922.5																																	
		0639	0641		917.8	917.5																			92												
Y4RPA 17+44	48 LT	0640		920.7																																	
		0640	0639		918.6	918.3																		80													
L 715+00	0 CL	0641		927.1																																	
		0641	0644		917.5	916.3																			248												
L 717+50	91 LT	0642		924.5																																	
		0642	0644		921.5	916.8																		92													
L 712+00	0 CL	0643		925.4																																	
		0643	0633		922.6	921.0																	196														
L 717+50	0 CL	0644		928.6																																	
		0644	0649		915.8	915.5																				92											
L 721+59	70 LT	0645		932.2																																	
		0645	0646		927.9	927.5																		68													
L 721+59	0 CL	0646		931.3																																	
		0646	0644		927.5	916.8																		408													
L 721+81	70 RT	0647		932.7																																	
		0647	0646		928.3	927.5																		72													
L 715+50	90 RT	0648		929.1																																	
		0648	0649		926.1	916.5																		204													
L 717+50	92 RT	0649		929.7																																	
		0649	0654		915.5	913.6	0.5																			206											
L 719+50	94 RT	0650		929.1																																	
		0650	0649		926.1	916.5																		204													
Y4RPB 20+30	49 RT	0651		946.2																																	
		0651	0654		932.4	918.5												48																					
Y4RPB 18+02	33 RT	0653		937.7																																	
		0653	0651		933.5	932.4				x			x	x	x	226																					
Y4RPB 20+30	99 RT	0654		923.1																																	
		0654	0652		913.6	913.5																				20											
Y4 40+57	41 RT	0655		943.7																																	
		0655	0688		933.3	910.0	1.8																														
SHEET TOTALS																274							416	1528	372	402	196			80	52						

LINE & STATION	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	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	GRATE TYPE F	GRATE TYPE G	CONCRETE TRANSITIONAL D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
	0623	0675																																																		
L 707+91	0627							1	3.3											1		1																														
	0627	0628																																																		
L 708+00	0628							1	5.0	1.2									1					1																												
	0628	0514																																																		
Y6 10+40	0629	0664																																																		
Y6 10+30	0630	0631																																																		
Y4B 10+87	0631							1			1			1																		1																					
L 711+00	0632							1												1				1																												
	0632	0627																																																		
L 710+00	0633							1												1				1																												
	0633	0628																																																		
Y1B 35+05	0635							1			1			1																																						
	0635	0678																																																		
Y1B 34+50	0636							1												1				1																												
	0636	0638																																																		
Y1B 35+82	0637							1			1	1																																								
	0637	0623																																																		
L 715+00	0639							1												1				1																												
	0639	0641																																																		
Y4RPA 17+44	0640							1												1				1																												
	0640	0639																																																		
L 715+00	0641							1	4.5										1					1																												
	0641	0644																																																		
L 717+50	0642							1												1				1																												
	0642	0644																																																		
L 712+00	0643							1												1				1																												
	0643	0633																																																		
L 717+50	0644							1	5.0	2.9									1					1																												
	0644	0649																																																		
L 721+59	0645							1												1		1																														
	0645	0646																																																		
L 721+59	0646							1												1				1																												
	0646	0644																																																		
L 721+81	0647							1												1		1																														
	0647	0646																																																		
L 715+50	0648							1												1				1																												
	0648	0649																																																		
L 717+50	0649							1	5.0	4.2										1				1																												
	0649	0654																																																		
L 719+50	0650							1												1				1																												
	0650	0649																																																		
Y4RPB 20+30	0651							1	5.0	3.4										1		1																														
	0651	0654																																				2														
Y4RPB 18+02	0653							1												1		1																														
	0653	0651																																				2														
Y4RPB 20+30	0654							1	4.5																		1						1																			
	0654	0652																																																		
Y4 40+57	0655							1	5.0	0.4	1			1																																						
	0655	0688																																																		
SHEET TOTALS								24	37.3	12.1	4	1		3					3	16		5		14			1					1	1					4														

ABBREVIATIONS

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

RAL-2TK9479H0P

COMPUTED BY: MKD DATE: 09/13/2021

CHECKED BY: WDY DATE: 09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-4

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

| LINE & STATION | OFFSET | | STRUCTURE NUMBER FROM | STRUCTURE NUMBER TO | TOP ELEVATION FT. | INVERT ELEVATION FT. | INVERT ELEVATION FT. | MINIMUM REQUIRED SLOPE % | Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE 15 | 18 | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | DO NOT USE PVC | DO NOT USE PP PIPE | C. S. PIPE SIZE 15 | 18 | 24 | 30 | 36 | 42 | R. C. PIPE CLASS III SIZE 12 | 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS IV SIZE 15 | 18 | 24 | 30 | 36 | 42 | 48 | R. C. PIPE CLASS V SIZE 42 | 24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL) | 30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL) | 42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL) | 48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL) | 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 D.I. STD. 852.06 OR STD. 852.04 | OPEN THROAT C.B. STD. 840.04 OR STD. 840.05 | D.I. STD. 840.14 OR STD. 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26 | G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27 | G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28 | G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20 | G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22 | G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22 | G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24 | G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24 | 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 | PIPE CLEANOUT (PER EACH) | M.H. FRAME AND COVER STD. 840.54 | CONVERT EXISTING C.B. TO J.B. | CONVERT EXISTING C.B. TO D.I. | CONVERT EXISTING D.I. TO J.B. | ADJUST D.I. | 15" C.S. ELBOW | 18" C.S. ELBOW | 24" C.S. ELBOW | 30" C.S. ELBOW | 36" C.S. ELBOW | 42" C.S. ELBOW | BERM DITCH OUTLET STD. 850.10 (PER EACH) | ## SLUICE GATE (42" SIZE SLUICE GATE) | TRASH RACK | PREFORMED SCOUR HOLE (PER EACH) | FLOWABLE FILL CY | CONCRETE COLLARS CL. "B" STD. 840.72 CY | PIPE REMOVAL LIN. FT. | REMARKS |
|---|---|---

RAL-2TK9470H0P

COMPUTED BY: MKD **DATE:** 09/13/2021

CHECKED BY: WDY **DATE:** 09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-5

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

Line & Station / Size / Thickness or Gauge	Offset		Structure Number From	To	Top Elevation FT.	Invert Elevation FT.	Invert Elevation FT.	Minimum Required Slope %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. Pipe 15 .064	18 .064	24 .064	30 .079	36 .079	42 .109
			0686	6123		960.6	960.0															
Y4 21+99	53	LT	0687		965.6																	
			0687	0686		961.4	960.8															
Y4 40+45	82	RT	0688		931.0																	
			0688	0656		908.8	908.8	1.8														
Y4 21+20	41	RT	0689		965.3																	
			0689	1327		961.1	956.5															
Y4 22+21	41	RT	0690		966.5																	
			0690	0689		962.3	961.1															
Y4EB 20+12	25	RT	0691		950.3																	
			0691	6117		945.9	945.5															
L 721+67	70	LT	0692		932.3																	
			0692	0645		928.2	928.1															
L 721+91	70	RT	0693		932.7																	
			0693	0647		928.6	928.6															
L 709+50	98	RT	0694		926.3																	
			0694	0695		924.4	923.6															
L 707+50	95	RT	0695		925.5																	
			0695	0696		923.6	923.5															
Y4 24+10	53	RT	0697		967.2																	
			0697	0684		962.9	962.1															
Y4SPC 24+00	14	LT	0698		966.0																	
			0698	0699		959.4	955.8	0.5														
Y4SPC 23+27	17	LT	0699		964.4																	
			0699	6100		955.5	955.1															
Y4WB 12+91	9	RT	6100		965.7																	
			6100	6101		955.1	954.5															
Y4WB 14+08	9	RT	6101		963.4																	
			6101	6102		954.5	954.1															
Y4RPC 24+41	11	RT	6102		961.5																	
			6102	6103		954.1	929.9												128				
L 725+00	78	RT	6103		933.4																	
			6103	0677		929.9	929.0															
L 726+50	91	RT	6104		932.4																	
			6104	6106		929.4	928.4															
L 726+00	91	LT	6105		932.1																	
			6105	6106		929.1	928.4															
L 726+25	0	CL	6106		934.4																	
			6106	0681		927.4	926.0															
Y4RPD 16+00	44	RT	6107		934.4																	
			6107	0723		931.7	924.3															
Y4RPC 16+40	45	LT	6108		933.9																	
			6108	6147		930.4	928.5															
Y4SPC 24+00	48	LT	6109		961.8																	
			6109	0698		959.6	959.4															
Y4 31+91	58	LT	6110		955.9																	
			6110	6111		951.3	951.3															
Y4 31+99	60	LT	6111		955.7																	
			6111	6114		951.0	949.6															
Y4 31+70	57	RT	6112		956.3																	
SHEET TOTALS																		128				

From	To	R. C. Pipe Class III 12	15	18	24	30	36	42	48	R. C. Pipe Class IV 15	18	24	30	36	42	48	R. C. Pipe Class V 42	24" Welded Steel Pipe, In Soil (Out of Soil)	30" Welded Steel Pipe, In Soil (Out of Soil)	42" Welded Steel Pipe, In Soil (Out of Soil)	48" Welded Steel Pipe, In Soil (Out of Soil)	Endwalls Std. 838.01 or Std. 838.11 (Unless Noted Otherwise) CY
0686	6123										112											
0687																						
0687	0686									116												
0688																						
0688	0656																					
0689																						
0689	1327									72												
0690																						
0690	0689									100												
0691																						
0691	6117										80											
0692																						
0692	0645		4																			
0693																						
0693	0647		8																			
0694																						
0694	0695		204																			
0695																						
0695	0696		28																			
0697																						
0697	0684									160												
0698																						
0698	0699									68												
0699																						
0699	6100			92																		
6100																						
6100	6101										120											
6101																						
6101	6102			76																		
6102																						
6102	6103																					
6103																						
6103	0677			80																		
6104																						
6104	6106			96																		
6105																						
6105	6106			92																		
6106																						
6106	0681					272																
6107																						
6107	0723		256																			
6108																						
6108	6147				132																	
6109																						
6109	0698		32																			
6110																						
6110	6111		4																			
6111																						
6111	6114										92											
6112																						
SHEET TOTALS			536	436	132	272				516	404											

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	D.I. Std. 852.04 or Std. 852.06 (Concrete Transitional)	Open Throat C.B. Std. 840.04 or Std. 840.05	D.I. Std. 840.14 or Std. 840.15	D.I. Frame and Grates Std. 840.16	G.D.I. Type "A" Std. 840.17 or Std. 840.26	G.D.I. Type "B" Std. 840.18 or Std. 840.27	G.D.I. Type "D" Std. 840.19 or Std. 840.28	G.D.I. (W.S. Flat) Frame W/ 2 Gra. Std. 840.20	G.D.I. (W.S. SAG) Frame W/ Gra. Std. 840.22	G.D.I. (W.S. SAG) Frame W/ 2 Gra. Std. 840.22	G.D.I. (N.S. SAG) Frame W/ Grate Std. 840.24	G.D.I. (N.S. SAG) Frame W/ 2 Gra. Std. 840.24	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	Pipe Cleanout (Per Each)	M.H. Frame and Cover Std. 840.54
0686	6123																										
0687		1			1	1																					
0687	0686																										
0688		1	5.0	12.2																	1						1
0688	0656																										
0689		1			1			1																			
0689	1327																										
0690		1			1			1																			
0690	0689																										
0691		1			1			1																			
0691	6117																										
0692		1												1		1											
0692	0645																										
0693		1												1		1											
0693	0647																										
0694		1												1				1									
0694	0695																										
0695		1													1			1									
0695	0696																										
0697		1			1			1																			
0697	0684																										
0698		1	1.6		1		1																				
0698	0699																										
0699		1	3.9		1		1																				
0699	6100																										
6100		1	5.0	0.7	1		1																				
6100	6101																										
6101		1	4.0		1		1																				
6101	6102																										
6102		1												1		1											
6102	6103																										
6103		1												1				1									
6103	0677																										
6104		1												1				1									
6104	6106																										
6105		1												1				1									
6105	6106																										
6106		1	2.0										1					1									
6106	0681																										
6107		1												1				1									
6107	0723																										
6108		1												1				1									
6108	6147																										
6109		1									1	1															
6109	0698																										
6110		1												1		1											
6110	6111																										
6111		1												1		1											
6111	6114																										
6112		1												1		1											
SHEET TOTALS		25	21.5	12.9	9	1	4	4			1	1	1	12	1	6		8			1						1

From	To	Convert Existing C.B. to J.B.	Convert Existing C.B. to D.I.	Convert Existing D.I. to J.B.	Adjust D.I.	15" C.S. Elbow	18" C.S. Elbow	24" C.S. Elbow	30" C.S. Elbow	36" C.S. Elbow	42" C.S. Elbow	Berm Ditch Outlet Std. 850.10 (Per Each)	## Sluice Gate (42" Size Sluice Gate)	Trash Rack	Preformed Scour Hole (Per Each)		Flowable Fill CY	Concrete Collars Cl. "B" Std. 840.72 CY	Pipe Removal LIN. FT.	Remarks
0686	6123																			
0687																				
0687	0686																			
0688																				
0688	0656																			
0689																				
0689	1327																			
0690																				
0690	0689																			
0691																				
0691	6117																			
0692																				
0692	0645																			
0693																				
0693	0647																			
0694																				
0694	0695																			
0695																				
0695	0696																			
0697																				
0697	0684																			
0698																				
0698	0699																			
0699																				
0699	6100																			
6100																				
6100	6101																			
6101																				
6101	6102																			
6102																				
6102	6103						2													
6103																				
6103	0677																			
6104																				
6104	6106																			
6105																				
6105	6106																			
6106																				
6106	0681																			
6107																				
6107	0723																			
6108																				
6108	6147																			
6109																				
6109	0698																			
6110																				
6110	6111																			
6111																				
6111	6114																			
6112																				
SHEET TOTALS							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

COMPUTED BY:	MKD	DATE:	09/13/2021
CHECKED BY:	WDY	DATE:	09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-6

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	Side Drain Pipe 18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 .064	C. S. PIPE 18 .064	C. S. PIPE 24 .064	C. S. PIPE 30 .079	C. S. PIPE 36 .079	C. S. PIPE 42 .109	R. C. PIPE CLASS III 12	CLASS III 15	CLASS III 18	CLASS III 24	CLASS III 30	CLASS III 36	CLASS III 42	CLASS III 48	R. C. PIPE CLASS IV 15	CLASS IV 18	CLASS IV 24	CLASS IV 30	CLASS IV 36	CLASS IV 42	CLASS IV 48	R. C. PIPE CLASS V 42	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	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 D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
		6112	6113		952.2	951.6																	4																																																														
Y4 31+77	59 RT	6113		956.0																																							1												1		1																													
		6113	6116		951.6	949.2																									120																																																							
Y4EB 18+15	9 LT	6114		954.0																																							1			1		1																																									
		6114	6115		949.6	947.6																									96																																																							
Y4EB 19+08	9 LT	6115		952.0																																							1			1		1																																									
		6115	6117		947.6	945.5																									72																																																								
Y4WB 18+40	24 RT	6116		953.6																																							1			1			1																																								
		6116	6117		949.2	945.5																									96																																																								
Y4WB 19+31	25 RT	6117		951.6																																							1	1.1		1			1																																								
		6117	0669		945.5	944.6																									68																																																								
Y4EB 13+60	24 LT	6118		963.6																																							1			1		1																																									
		6118	6119		959.5	958.6																								104																																																									
Y4EB 12+62	24 LT	6119		965.6																																							1	2.0		1		1																																									
		6119	6121		958.7	958.2																		104																																																																
Y4SPB1 24+90	17 RT	6120		963.8																																							1	0.9		1			1																																								
		6120	0625		957.9	955.0																		48																																																																
Y4SPB1 25+48	14 RT	6121		964.7																																							1	1.5		1			1																																								
		6121	6120		958.2	957.9																									56																																																								
Y4SPB1 26+65	14 RT	6122		967.0																																							1	2.7		1			1																																								
		6122	6121		959.2	958.2																									108																																																								
Y4 24+28	41 LT	6123																																									1	2.5		1		1																																									
		6123	6122		960.0	959.2																									152																																																								
Y1B 28+64	22 LT	6124																																									1			1		1																																									
		6124	0609		943.2	942.1																									32																																																								
Y1B 27+25	65 RT	6125							16																																																																															
Y1B 28+51	57 RT	6126							16																																																																															
Y1B 29+53	54 RT	6127							20																																																																															
Y1B 30+68	51 RT	6128						28																																																																																
Y1B 31+82	51 RT	6129						20																																																																															
Y1B 32+08	51 RT	6130						20																																																																															
Y6 17+30	16 LT	6131							44																																																																														
Y6 11+00	18 LT	6133							28																																																																														
Y6 12+21	17 LT	6135						28																																																																																
Y6 10+40	17 RT	6136						28																																																																																
Y6 12+00	14 RT	6137						28																																																																																
Y4 37+23	41 RT	6140		944.3																																							1	5.0	0.3	1		1																																									
		6140	6143		934.0	929.1																	100																																																																		
Y4SPD1 25+60	14 RT	6141		948.4																																							1			1		1																																									
		6141	0669		945.0	944.6																									96																																																									
Y4EB 21+82	22 RT	6142		946.0																																							1			1		1																																									
		6142	6140		941.7	934.0																								76																																																									
Y4 37+22	143 RT	6143		935.4																																																																							1															
Y4 37+22	0 CL	6144		945.3																																																																		1			1																
		6144	6140		945.3	936.2																								44																																																										
Y4RPC 16+40	26 LT	6145		937.3																																							1												1		1																													
		6145	6108		934.6	931.2										24																																																								2														
Y4RPC 15+09	25 LT	6146		936.5																																							1												1		1																													
		6146	6147		933.7	929.3										24																																																								2														
Y4RPC 15+09	49 LT	6147		932.9																																							1												1				1																											
SHEET TOTALS								152	124							48							104	152						224	896												18	15.7	0.3	14		9	5						4		3		1									1			1	1	4														

ABBREVIATIONS

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

RAL-2TK9470H0P

RAL-2TK9479H0P

COMPUTED BY: MKD DATE: 09/13/2021

CHECKED BY: WDY DATE: 09/14/2021

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROJECT NO.	SHEET NO.
U2579-AB	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 %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) SIZE 15	18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE THICKNESS OR GAUGE .064	.064	.064	.079	.079	.109
		6147	0703		928.5	927.6												88			
Y4RPA 21+22	21 LT	6148		938.3																	
		6148	6150		935.3	932.8															
Y4RPA 21+50	21 LT	6149		939.6																	
		6149	6148		936.6	935.3															
Y4SPC 22+00	14 LT	6151		959.4																	
		6151	6152		956.4	956.1															
Y4SPC 22+60	14 LT	6152		962.0																	
		6152	0699		956.1	955.8															
Y4 37+35	109 LT	6153		945.5																	
		6153	6144		943.1	937.3															
Y6 18+90	18 RT	0702																			
		0702	0703		942.3	929.8	0.6			x			x	x	x			64			
Y4RPC 14+21	44 LT	0703		933.3																	
		0703	0704		929.3	924.1	0.5														
L 733+65	0 CL	0704		937.1																	
		0704	0723		923.1	922.5															
L 737+00	84 LT	0707		934.1																	
		0707	0726		930.0	914.5				x			x	x	x	56					
L 737+00	103 RT	0708		930.0																	
		0708	0762		927.4	927.3															
L 737+00	155 RT	0709																			
		0709	0708		939.2	927.7	0.5			x			x	x	x	52					
Y4RPC 10+56	173 LT	0711						36													
L 737+00	0 CL	0712		932.7																	
		0712	0714		926.9	917.0	0.4														
L 740+50	0 CL	0714		923.9																	
		0714	0753		916.5	906.6	0.4														
L 740+50	106 RT	0715		920.4																	
		0715	0763		917.6	917.4	0.3														
L 743+00	0 CL	0717		917.5																	
		0717	0719		914.7	906.7															
L 744+00	84 RT	0718		914.7																	
		0718	0729		907.8	907.1	0.7														
L 745+00	0 CL	0719		912.3																	
		0719	0822		906.4	903.8	0.8														
L 734+00	115 LT	0723		933.1																	
		0723	0724		922.5	922.3	0.4														
L 736+67	84 LT	0725		934.7																	
		0725	0707		930.6	930.0															
L 740+52	132 RT	0727																			
		0727	0715		924.5	917.8	0.6														
L 744+00	115 RT	0728		910.7																	
		0728	0718		908.0	907.8															
L 745+00	84 RT	0729		912.1																	
		0729	0719		906.9	906.4	0.4														
Y4RPD 11+83	78 RT	0731																			
		0731	0758		919.4	910.5															
SRI 16+43	46 LT	0732																			
SR1 20+74	22 LT	0750		900.5																	
SHEET TOTALS								36								108		152			

C. S. PIPE THICKNESS OR GAUGE .064	.064	.064	.079	.079	.109	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 42	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)
		88																							
						1																			
						52																			
						28																			
						1																			
						60																			
						1																			
						56																			
						1																			
						108																			
		64																							
						128																			
						1																			
						120																			
						1																			
						1																			
						24																			
						1																			
						348																			
						1																			
						112																			
						1																			
						24																			
						1																			
						196																			
						1																			
						96																			
						1																			
						196																			
						1																			
						52																			
						1																			
													32												
						32																			
						1																			
						84																			
																						1.990			
													160												
						1																			
		152				628	676	240		172	160		32									1.990			

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 D.I. STD. 852.06 OR STD. 852.04	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	## SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
1			1			1																																			
			1			1																																			
1			1		1																																			
1			1		1																																			
1	5.0	4.0										1						1																							
1												1						1																							
1																																								
1																																								
1	0.8																																							
1	2.4																																							
1																																								
1																																								
1	1.8																																							
1	0.9																																							
1	5.0	0.6																																						
1																																								
1	0.2																																							
			1.990																																						
1																																								
19	16.1	4.6	4	2	2		16		3		13											1					4	2			3							950	

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

RAL-2TK9470H0P

COMPUTED BY:	MKD	DATE:	09/13/2021
CHECKED BY:	WDY	DATE:	09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-8

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET		STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)
			0750	0751		897.8	895.3															
L 740+42	110	LT	0753		916.8																	
			0753	0713		906.0	906.0	0.4														
SRI 16+50	0	CL	0757	0732		905.9	903.8															
SRI 11+58	119	LT	0758																			
SRI 12+29	131	LT	0759																			
			0759	0760																		
SRI 21+28	0	CL	0761	0733																		
L 736+99	84	RT	0762		933.6																	
			0762	0712		926.8	926.4															
L 740+50	84	RT	0763		923.7																	
			0763	0714		916.9	916.5															
L 749+00	88	RT	0802		901.8						x			x	x	x						
			0802	0850		897.7	887.3	0.9									44					
L 749+00	0	CL	0803		901.3																	
			0803	0806		898.3	891.4	1.4														
L 751+50	0	CL	0806		894.4																	
			0806	0812		890.9	877.8	0.4														
L 751+50	90	RT	0807		895.3																	
			0807	0851		891.2	884.1	0.4														
L 751+42	157	RT	0808	0819							x			x	x	x	36					
L 754+00	0	CL	0812		887.6																	
			0812	0825		877.3	863.3	0.4														
L 754+00	93	RT	0813		889.0																	
			0813	0812		880.9	877.3															
L 754+53	93	RT	0814		888.1																	
			0814	0813		884.0	882.1															
L 754+00	122	RT	0815	0813		881.0	880.9															
L 756+00	0	CL	0816		882.3																	
			0816	0812		879.5	878.5															
L 747+81	218	RT	0817		895.5																	
			0817	0818		889.3	888.7															
L 747+00	0	CL	0822		906.8																	
			0822	0803		903.8	898.3	1.1														
L 754+20	143	LT	0825		869.2																	
			0825	0810		862.8	862.6	0.4														
SRI 23+34	18	LT	0831						32													
SRI 24+59	19	LT	0832						32													
SRI 25+82	18	LT	0833						32													
SRI 26+40	20	LT	0834						32													
SRI 27+84	22	LT	0835						32													
SRI 28+32	23	LT	0836						32													
L 754+65	261	LT	0837																			
L 757+00	96	RT	0860		882.1																	
			0860	0861		879.3	878.6															
L 757+28	96	RT	0861		881.4																	
			0861	0862		878.6	878.1															
L 761+00	115	LT	0901		868.8																	
			0901	0902		865.8	865.2															
L 761+00	0	CL	0902		869.2																	
								SHEET TOTALS	192								80					

FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 42	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	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
0750	0751		60																										
0753																							1	5.0	0.8				
0753	0713				8																								
0757	0732					80																							
0758																							1						
0759																													
0759	0760							80																					
0761	0733			80																									
0762																							1						
0762	0712			84																									
0763																							1						
0763	0714				84																								
0802																							1						
0802	0850																												
0803																							1						
0803	0806			248																									
0806																							1						
0806	0812				248																								
0807																							1						
0807	0851																												
0808	0819																												
0812																							1	5.0	0.3				
0812	0825													144															
0813																							1	3.1					
0813	0812												92																
0814																							1						
0814	0813									52																			
0815	0813					32																							
0816																							1						
0816	0812		196																										
0817																							1	1.2					
0817	0818		88																										
0822																							1						
0822	0803			196																									
0825																							1	1.4					
0825	0810						44																						
0831																													
0832																													
0833																													
0834																													
0835																													
0836																													
0837				52																									
0860																							1						
0860	0861		24																										
0861																							1						
0861	0862		28																										
0901																							1						
0901	0902			116																									
0902																							1						
SHEET TOTALS			396	776	340	112	44	80		52			92	144									19	15.7	1.1				

FROM	TO	D.I. STD. 852.04 OR STD. 852.06 (CONCRETE TRANSITIONAL)	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0750	0751																																						
0753														1						1																			
0753	0713																																						
0757	0732																																						
0758							1																									1	1						DETENTION BASIN, 42" SLUICE GATE
0759							1		1																														
0759	0760																																						
0761	0733																																						
0762							1		1																														
0762	0712																																						
0763							1		1																														
0763	0714																																						
0802							1		1																													1114	1114' PIPE REMOVAL FOR ALL OF SHEET 8
0802	0850																								2														
0803							1				1																												
0803	0806																																						
0806							1				1																												
0806	0812																																						
0807							1		1																														
0807	0851																																						
0808	0819																								2														
0812						1					1																												
0812	0825																																						
0813							1		1																														
0813	0812																																						
0814							1		1																														
0814	0813																																						
0815	0813																																						
0816							1				1																												
0816	0812																																						
0817														1					1	1																			
0817	0818																																						
0822							1				1																												
0822	0803																																						
0825														1						1																			
0825	0810																																						
0831																																							
0832																																							
0833																																							
0834																																							
0835																																							
0836																																							
0837																																							
0860							1		1																														
0860	0861																																						
0861							1		1																														
0861	0862																																						
0901							1				1																												
0901	0902																		1																				
0902							1				1																												
SHEET TOTALS						1	16		9		7			3					2	3					4							1	1					1114	

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

RAL-2TK9470H0P

COMPUTED BY:	MKD	DATE:	09/13/2021
CHECKED BY:	WDY	DATE:	09/14/2021

PROJECT NO.	SHEET NO.
U2579-AB	3D-9

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

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

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Side Drain Pipe (RCP, CSP, CAAP, HDPE, PVC, or PP PIPE) 15	18	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	DO NOT USE PP PIPE	C. S. PIPE 15 (.064)	18 (.064)	24 (.064)	30 (.079)	36 (.079)	42 (.109)
		0902	0905		865.2	855.4	1.1														
L 761+00	118 RT	0903		868.8																	
		0903	0902		865.8	865.2															
L 762+34	148 RT	0904		857.7																	
		0904	0905		854.2	853.4															
L 762+50	0 CL	0905		865.3																	
		0905	0908		853.4	847.9	0.4														
Y15FLYCA 84+63	81 RT	0906		835.9																	
Y15FLYCA 84+69	37 RT	0907		854.6																	
		0907	0906		846.5	835.7	1.7			x			x	x	x		44				
L 767+00	0 CL	0908		854.1																	
		0908	0914		847.9	843.6	0.4														
Y15FLYBD 18+95	25 RT	0910		853.9																	
		0910	0909		850.3	840.8	1.1			x			x	x	x	40					
Y15FLYBD 19+29	25 RT	0911		853.9																	
		0911	0910		850.5	850.3															
Y15FLYCA 82+75	37 RT	0912		853.7																	
		0912	0907		847.8	846.8	0.4														
Y15FLYCA 82+58	57 RT	0913		850.6																	
		0913	0912		847.9	847.8	0.4														
L 770+53	0 CL	0914		850.8																	
		0914	0916		843.1	828.7	0.5														
L 771+00	152 RT	0916		837.0																	
		0916	0915		828.7	828.0	0.6														
		0917	0916		832.0	831.2															
L 773+50	103 RT	1001		852.2																	
		1001	1002		849.4	848.4	1.0														
L 773+50	0 CL	1002		852.4																	
		1002	0914		845.6	843.1															
L 773+50	124 LT	1003		853.2																	
		1003	1002		849.2	847.1	0.5														
L 774+00	109 LT	1004		853.7																	
		1004	1003		850.2	849.7															
Y15FLYCA 77+72	34 LT	1005		858.1																	
		1005	1003		854.6	849.7	2.0			x			x	x	x			96			
Y15FLYCA 76+20	34 LT	1006		864.0																	
		1006	1005		860.2	854.6	0.4														
Y15RPA 32+30	16 LT	1007		868.6																	
		1007	1006		860.5	860.2	0.3														
Y15RPA 32+30	44 RT	1008		864.3																	
		1008	1007		861.3	861.0															
Y15RPA 30+11	34 LT	1009		876.1																	
		1009	1007		873.1	861.0	0.4														
Y15FLYCA 73+50	44 RT	1010		878.2																	
		1010	1009		875.5	873.3															
Y15RPA 27+00	34 LT	1011		890.2																	
		1011	1009		884.0	873.1															
Y15RPA 27+00	44 RT	1012		887.3																	
		1012	1011		884.3	884.0															
SHEET TOTALS																40	44	96			

FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	R. C. PIPE CLASS IV 15	18	24	30	36	42	48	R. C. PIPE CLASS V 42	24" WELDED STEEL PIPE, IN SOIL(OUT OF SOIL)	30" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	42" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	48" WELDED STEEL PIPE, IN SOIL (OUT OF SOIL)	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY
0902	0905			148																		
0903																						
0903	0902			116																		
0904																						3.800
0904	0905							148														
0905																						
0905	0908							448														
0906																						
0907																						
0907	0906																					
0908																						
0908	0914							352														
0910																						
0910	0909																					
0911																						
0911	0910		36																			
0912																						
0912	0907		188																			
0913																						
0913	0912		28																			
0914																						
0914	0916								160													
0916																						
0916	0915								180													
0917	0916			152																		
1001																						
1001	1002		104																			
1002																						
1002	0914								296													
1003																						
1003	1002					124																
1004																						
1004	1003				52																	
1005																						
1005	1003																					
1006																						
1006	1005				148																	
1007																						
1007	1006				60																	
1008																						
1008	1007			60																		
1009																						
1009	1007			224																		
1010																						
1010	1009		76																			
1011																						
1011	1009			320																		
1012																						
1012	1011			76																		
SHEET TOTALS			432	1096	260	124		948	636													3.800

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 D.I. STD. 852.04 OR STD. 852.06	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME W/ 2 GRA. STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRA. STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRA. STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRA. STD. 840.24
0902	0905																			
0903		1												1				1		
0903	0902																			
0904																				
0904	0905																			
0905		1	5.0	1.9									1					1		
0905	0908																			
0906																				
0907		1	3.1											1		1				
0907	0906																			
0908		1	1.3										1					1		
0908	0914																			
0910		1												1		1				
0910	0909																			
0911		1												1		1				
0911	0910																			
0912		1	1.0											1		1				
0912	0907																			
0913		1												1				1		
0913	0912																			
0914		1	2.8										1					1		
0914	0916																			
0916		1	3.2										1					1		
0916	0915																			
0917	0916																			
1001		1												1				1		
1001	1002																			
1002		1	1.8										1					1		
1002	0914																			
1003		1											1					1		
1003	1002																			
1004		1											1					1		
1004	1003																			
1005		1											1					1		
1005	1003																			
1006		1											1					1		
1006	1005																			
1007		1	3.1										1					1		
1007	1006																			
1008		1											1					1		
1008	1007																			
1009		1												1				1		
1009	1007																			
1010		1												1				1		
1010	1009																			
1011		1	1.3											1				1		
1011	1009																			
1012		1												1				1		
1012	1011																			
SHEET TOTALS		22	22.6	1.9									11	11		4		18		

FROM	TO	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	PIPE CLEANOUT (PER EACH)	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	ADJUST D.I.	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	42" C.S. ELBOW	BERM DITCH OUTLET STD. 850.10 (PER EACH)	##" SLUICE GATE (42" SIZE SLUICE GATE)	TRASH RACK	PREFORMED SCOUR HOLE (PER EACH)		FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	PIPE REMOVAL LIN. FT.	REMARKS
0902	0905																										
0903																											
0903	0902																										
0904																											HEADWALL
0904	0905																										
0905																											
0905	0908																										
0906																						1					
0907																											
0907	0906													2													
0908																											
0908	0914																										
0910																											
0910	0909												2														
0911																											
0911	0910																										
0912																											
0912	0907																										
0913																											
0913	0912																										
0914																											
0914	0916																										
0916																											
0916	0915																										
0917	0916																										
1001																										4470	4470' PIPE REMOVAL FOR ALL OF SHEET 10
1001	1002																										
1002																											
1002	0914																										
1003																											
1003	1002																										
1004																											
1004	1003																										
1005																											
1005	1003														2												
1006																											
1006	1005																										
1007																											
1007	1006																										
1008																											
1008	1007																										
1009																											
1009	1007																										
1010																											
1010	1009																										
1011																											
1011	1009																										
1012																											
1012	1011																										
SHEET TOTALS													2	2	2							1				4470	