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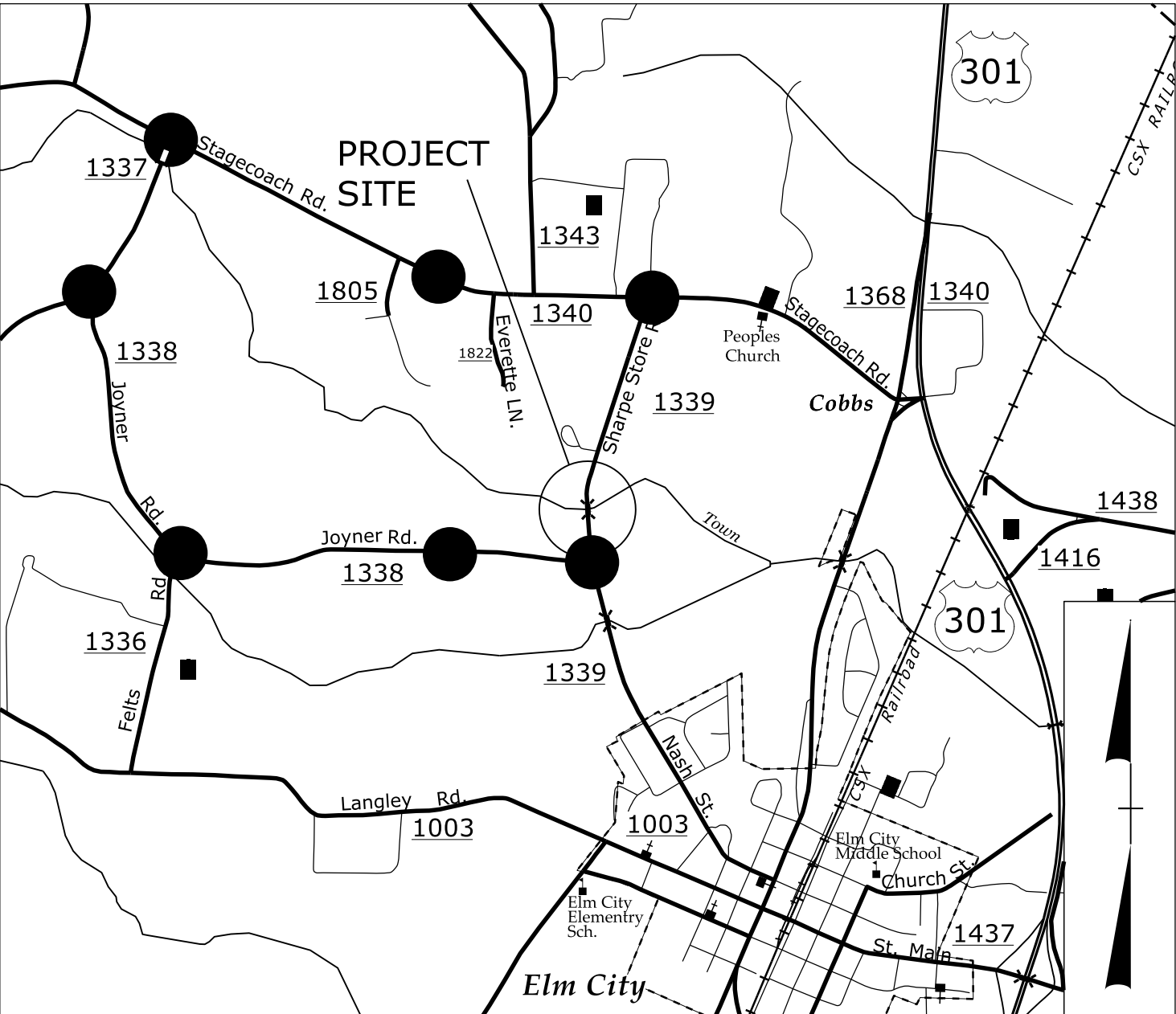


09.08/2019

TIP PROJECT: B-5998

CONTRACT: DD00281

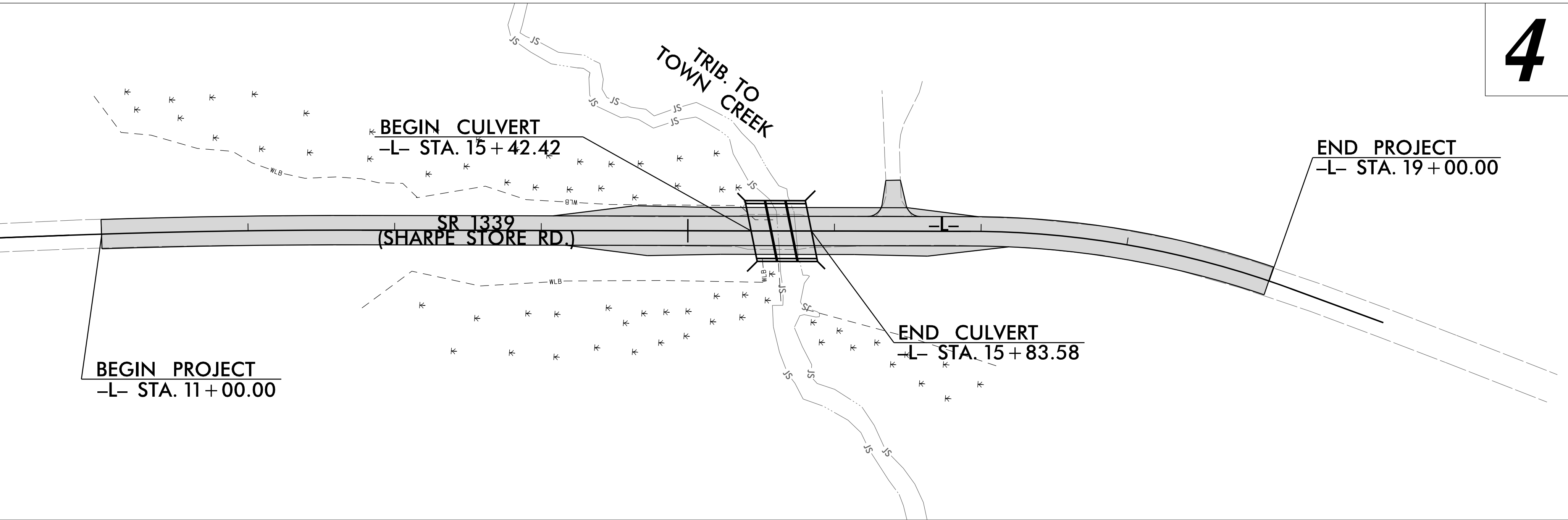
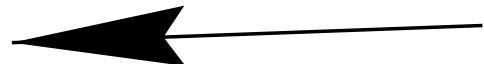
See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



VICINITY MAP

● DETOUR ROUTE

TO SR 1619
(BARNES ST.)

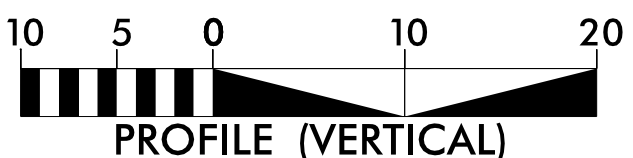
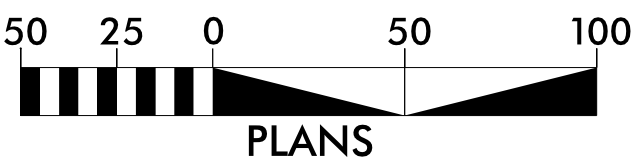


4

TO SR 1340
(STAGECOACH RD.)

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



DESIGN DATA

ADT 2016 = 450
ADT 2025 = 1120
T = 6 % *
V = 55 MPH

* TTST = 3% DUAL 3%

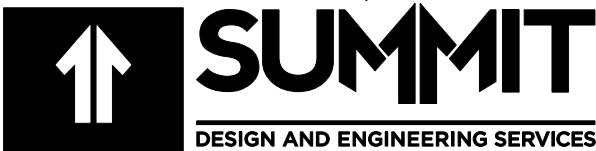
FUNC CLASS =
LOCAL RURAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT = 0.144 MILES
LENGTH STRUCTURES PROJECT = 0.008 MILES
TOTAL LENGTH PROJECT = 0.152 MILES

NCDOT CONTACT:

CHAD COGGINS
DIVISION 4 CONTACT



Prepared in the Office of:

504 Meadowland Drive
Hillsborough, NC 27278-8551
Voice: (919) 732-3883
Fax: (919) 732-6776
www.summit-engineer.com

RIGHT OF WAY DATE:
NOVEMBER 6, 2018

BRANDON W. JOHNSON, PE
PROJECT ENGINEER

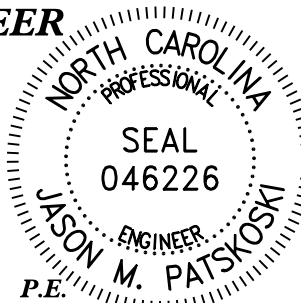
LETTING DATE:
SEPTEMBER 24, 2019

FAITH E. JAHNKE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

8/5/2019

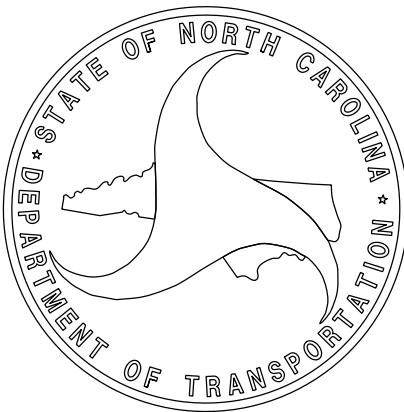
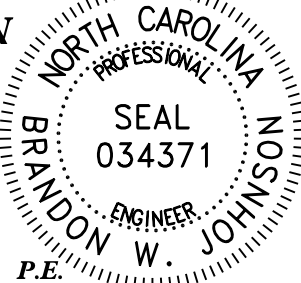
DocuSigned by:
JASON M. PATSKOSKI
SIGNATURE:



ROADWAY DESIGN ENGINEER

8/5/2019

DocuSigned by:
Brandon W. Johnson
SIGNATURE:



STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS
CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
B-5998	1B

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel/Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easment Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage /Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

*S.U.E. = Subsurface Utility Engineering

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole	
Water Meter	
Water Valve	
Water Hydrant	
U/G Water Line LOS B (S.U.E.*)	
U/G Water Line LOS C (S.U.E.*)	
U/G Water Line LOS D (S.U.E.*)	
Above Ground Water Line	

TV:

TV Pedestal	
TV Tower	
U/G TV Cable Hand Hole	
U/G TV Cable LOS B (S.U.E.*)	
U/G TV Cable LOS C (S.U.E.*)	
U/G TV Cable LOS D (S.U.E.*)	
U/G Fiber Optic Cable LOS B (S.U.E.*)	
U/G Fiber Optic Cable LOS C (S.U.E.*)	
U/G Fiber Optic Cable LOS D (S.U.E.*)	

GAS:

Gas Valve	
Gas Meter	
U/G Gas Line LOS B (S.U.E.*)	
U/G Gas Line LOS C (S.U.E.*)	
U/G Gas Line LOS D (S.U.E.*)	
Above Ground Gas Line	

SANITARY SEWER:

Sanitary Sewer Manhole	
Sanitary Sewer Cleanout	
U/G Sanitary Sewer Line	
Above Ground Sanitary Sewer	
SS Forced Main Line LOS B (S.U.E.*)	
SS Forced Main Line LOS C (S.U.E.*)	
SS Forced Main Line LOS D (S.U.E.*)	

MISCELLANEOUS:

Utility Pole	
Utility Pole with Base	
Utility Located Object	
Utility Traffic Signal Box	
Utility Unknown U/G Line LOS B (S.U.E.*)	
U/G Tank; Water, Gas, Oil	
Underground Storage Tank, Approx. Loc.	
A/G Tank; Water, Gas, Oil	
Geoenvironmental Boring	
U/G Test Hole LOS A (S.U.E.*)	
Abandoned According to Utility Records	
End of Information	

6/2/99

REVISIONS

29-MAY-2019 15:16
970092_1s_1c.dgn
Lath, John

SURVEY CONTROL SHEET 97-0092
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

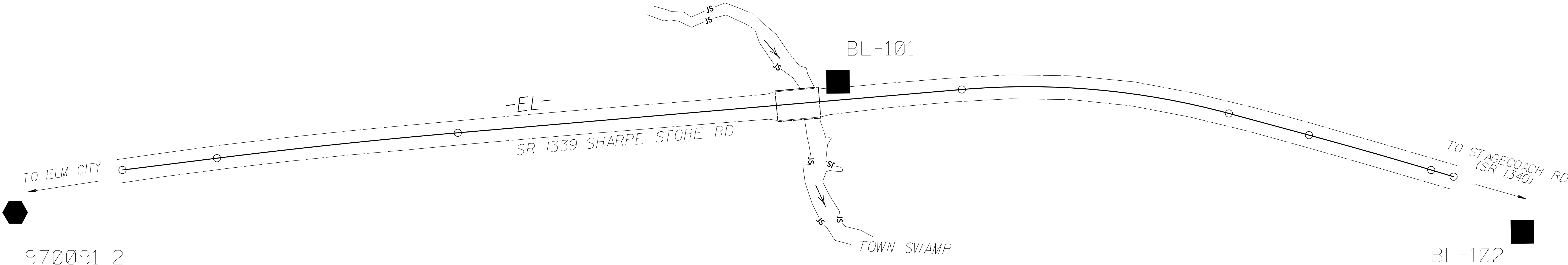
PROJECT REFERENCE NO.	SHEET NO.
B-5998	1C-1
Location and Surveys	

PROJECT
SURVEYOR

970091-1
N:754894.282
E:2334170.567
ELEV.=130.547'

NAD 83 NA 2011
NC GRID

BM#1



DATUM DESCRIPTION
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "970091-2"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 754876.201(±) EASTING: 2334840.621(±)
ELEVATION: 129.78(±)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999920725
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"970091-2" TO -L- STATION IS
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

- NOTES:
- IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
 - PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

NOTE: DRAWING NOT TO SCALE

6/2/99

SURVEY CONTROL SHEET 97-0092
W/EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B-5998	1C-2
Location and Surveys	
PROJECT SURVEYOR	

BASELINE DATA

BL	POINT	DESC.	NORTH	EAST	ELEVATION
2		970091-2	754876.2010	2334840.6210	129.78
101		BL-101	755573.7600	2334744.0170	118.82
102		BL-102	756135.1100	2334873.1710	119.13

BENCHMARK DATA

BM#1 ELEVATION = 118.20
N 755502 E 2334593
TIE SPIKE IN 18" OAK

BM#2 ELEVATION = 120.69
N 756070 E 2334994
TIE SPIKE IN 14" OAK

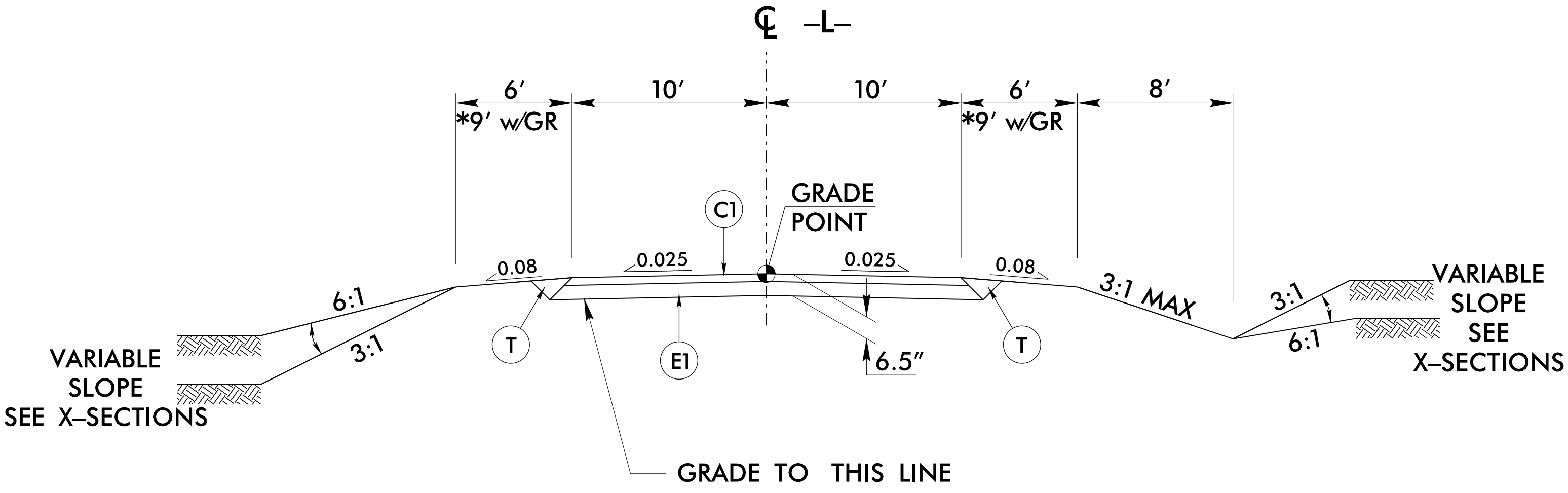
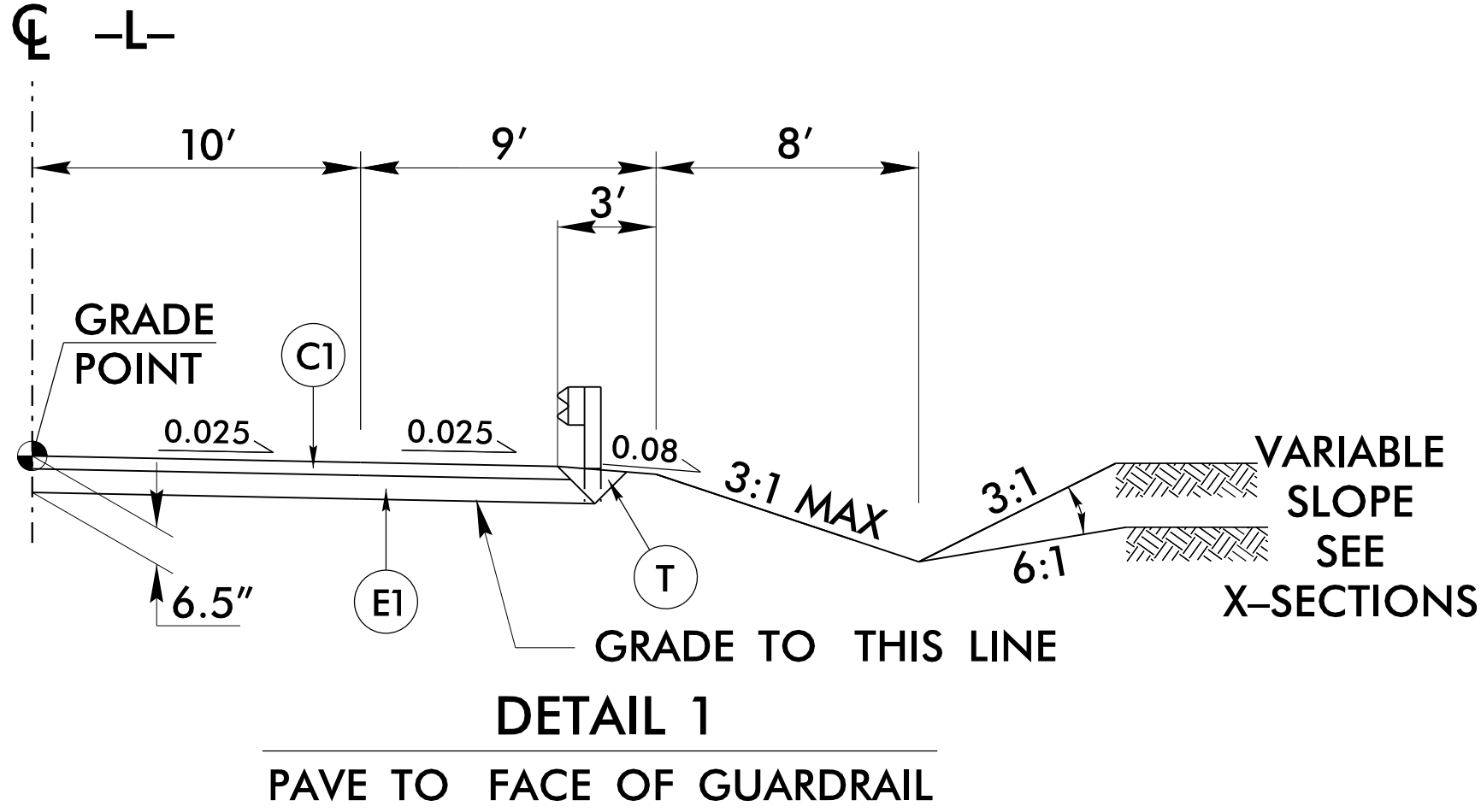
ALIGNMENT DATA

EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	754984.811	2334810.449							
LINE			N 06°32'16.0" W	78.28					
PC	755062.586	2334801.536							
CURVE			N 05°25'35.1" W	199.12	02°13'21.7"(RT)	01°06'58.3"	199.13	99.58	5133.10
PT	755260.811	2334782.706							
LINE			N 04°18'54.3" W	415.99					
PC	755675.620	2334751.406							
CURVE			N 05°42'47.9" E	220.43	20°03'24.4"(RT)	09°03'09.4"	221.56	111.92	632.92
PT	755894.954	2334773.350							
LINE			N 15°44'30.2" E	68.18					
PC	755960.575	2334791.847							
CURVE			N 16°30'16.7" E	104.54	01°31'33.1"(RT)	01°27'34.5"	104.54	52.27	3925.50
PT	756060.806	2334821.546							
LINE			N 17°16'03.2" E	19.20					
POT	756079.144	2334827.246							

6/2/99

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 2.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 140 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 4.0" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
T	EARTH MATERIAL

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



-L- (SHARPE STORE RD.)

USE TYPICAL SECTION NO. 2
-L- STA 11+00.00 TO STA 19+00.00

BRIDGE NO.970092

PROJECT REFERENCE NO.		SHEET NO.
B-5998		2A-1
ROADWAY DESIGN ENGINEER 8/6/2019 NORTH CAROLINA PROFESSIONAL SEAL 034371 BRANDON W. JOHNSON	PAVEMENT DESIGN ENGINEER 8/6/2019 NORTH CAROLINA PROFESSIONAL SEAL 040257 MATTHEW CLARK	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED		
Prepared in the Office of:  SUMMIT NC FIRM LICENSE No.P-0339 504 Macedonia Dr., Suite 212 Raleigh, NC 27603 (919) 732-3883 ~ (919) 732-6676 (FAX)		

* PLACE FDPS TO FACE OF GUARDRAIL AS SHOWN ON PLANS (SEE DETAIL 1)

PROJECT REFERENCE NO.	SHEET NO.
B-5998	2C-1
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

STATE OF
NORTH CAROLINA
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)

**SHORT WOOD
BREAKAWAY POST**

STEEL TUBE
TS 6"x8"x0.1875"

**ROUTED
OFFSET BLOCK**

"W6" STEEL POST

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

ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET 6 OF 8
862D02

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.:	

PROJECT REFERENCE NO.	SHEET NO.
B-5998	2C-2

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

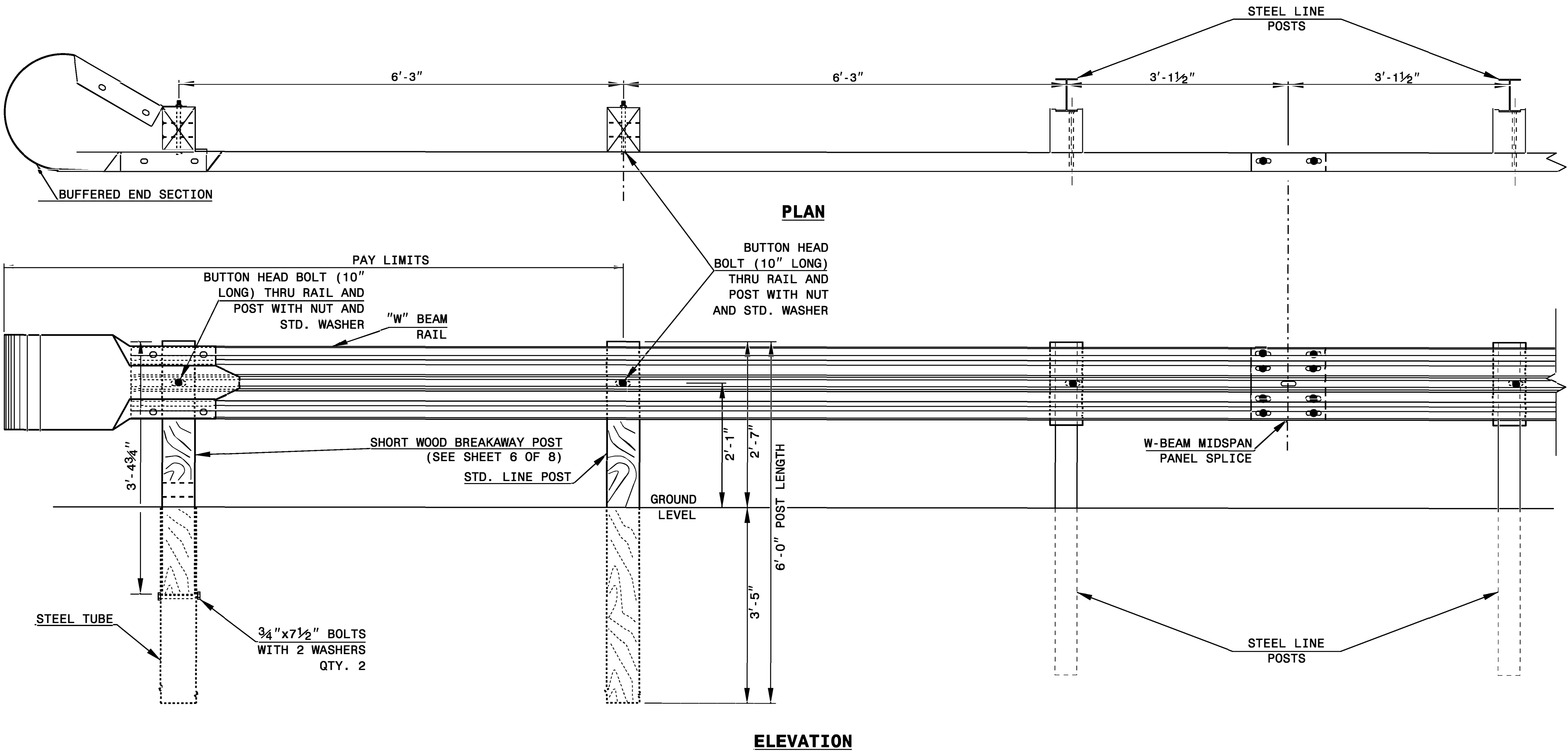
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF

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

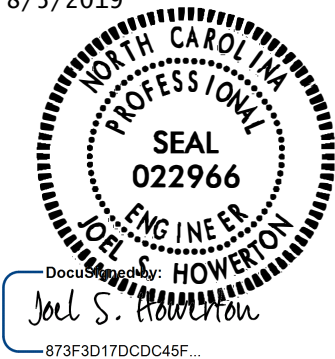
ROADWAY DETAIL DRAWING FOR
GUARDRAIL INSTALLATION

SHEET OF



TRAILING END UNIT ASSEMBLY
A.T. - 1 SYSTEM

8/5/2019



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

CONTRACTS STANDARDS AND DEVELOPMENT UNIT	
Office 919-707-6950	FAX 919-250-4119
A.T. - 1 SYSTEM	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

GUARDRAIL · SUMMARY

ADDITIONAL GUARDRAIL POSTS= 5 EA

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" & UNDER)

ABBREVIATIONS

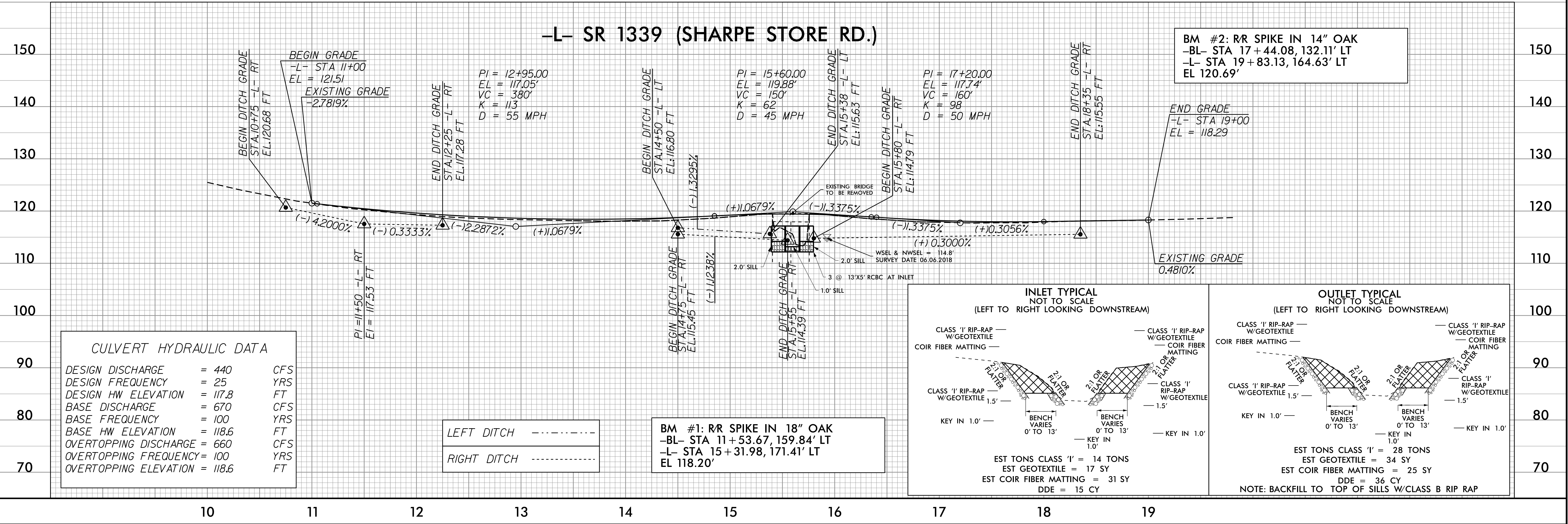
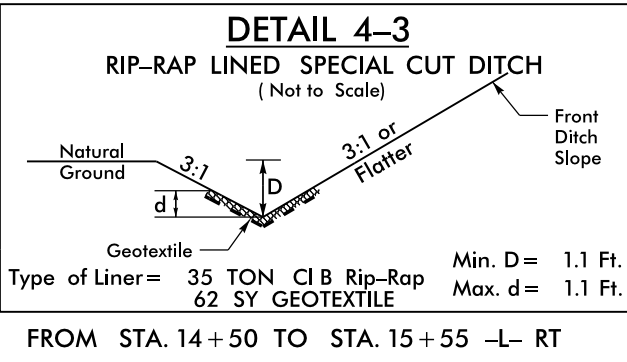
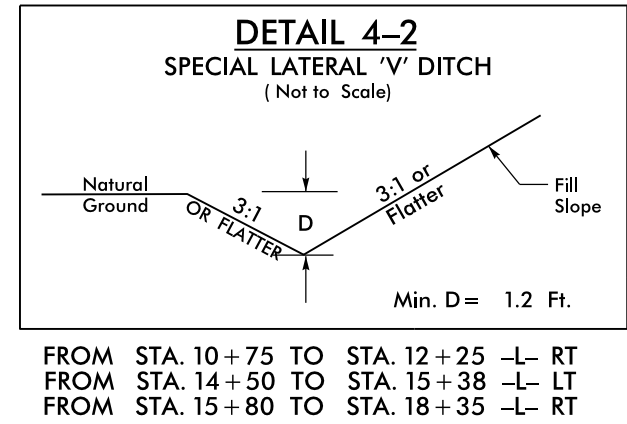
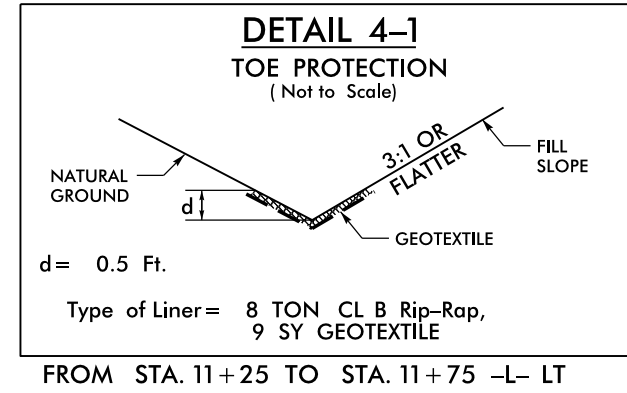
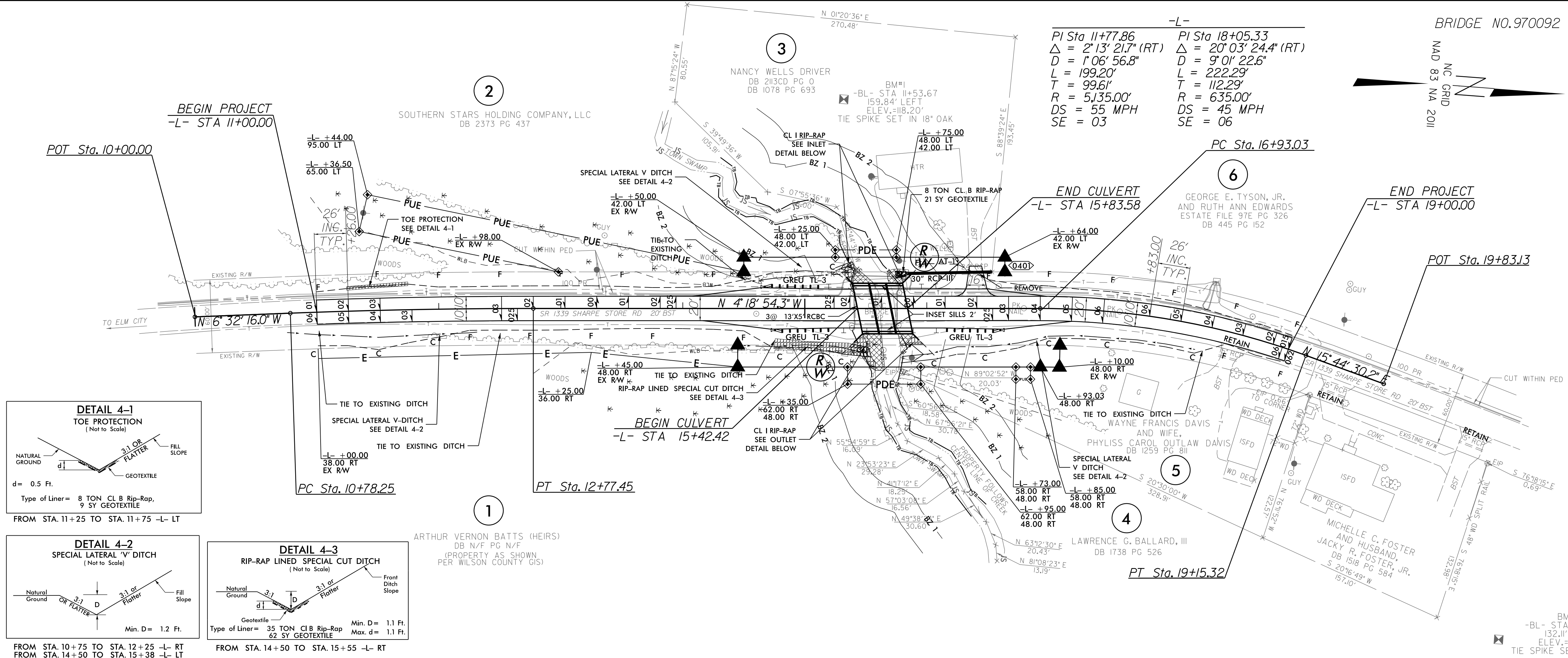
SUMMARY OF EARTHWORK IN CUBIC YARDS

APPROXIMATE QUANTITIES ONLY. CLEARING AND GRUBBING, UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, REMOVAL OF EXISTING ASPHALT PAVEMENT AND FINE GRADING SHALL BE PAID AT THE CONTRACT LS PRICE FOR GRADING.

SUMMARY OF PAVEMENT REMOVAL

1.

8/17/19



PROJECT REFERENCE NO.	SHEET NO.
B-5998	4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 8/5/2019 NORTH CAROLINA PROFESSIONAL SEAL 034371 Brandon W. Johnson	HYDRAULICS ENGINEER 8/5/2019 NORTH CAROLINA PROFESSIONAL SEAL 046226 Jason M. Patskyoski
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
Prepared in the Office of: SUMMIT	NC FIRM LICENSE No: P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 732-3665 • (919) 732-6616 (FAX)

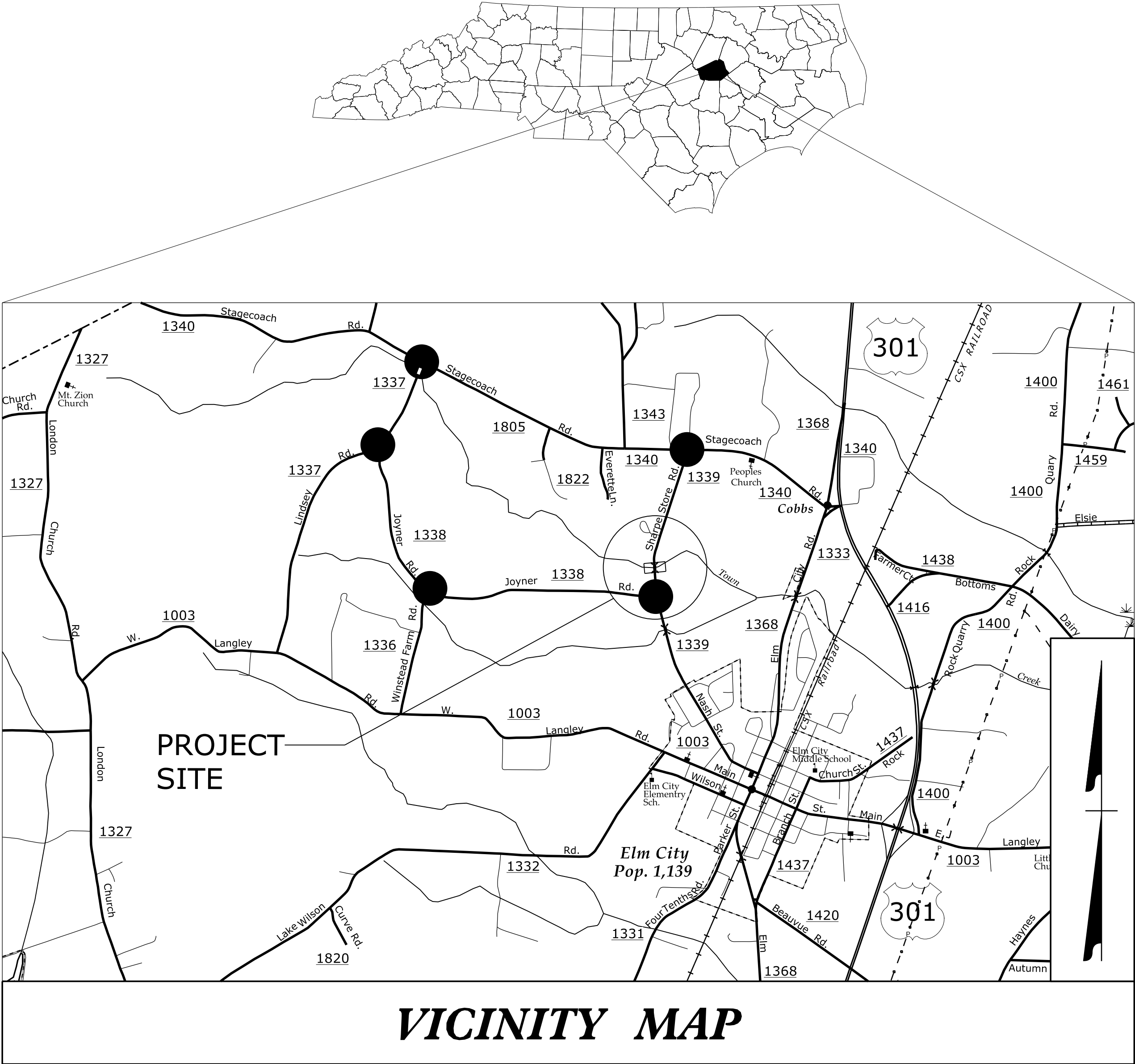
SEE SHEETS C-1 TO C-7
FOR CULVERT PLANS

29-MAY-2019 15:16
9720632 Rod Johnson
Faith Johnson

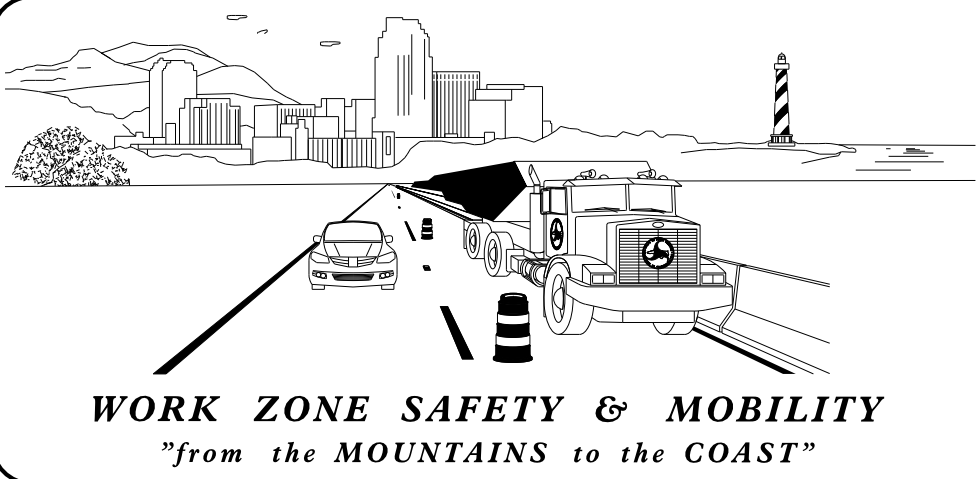
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

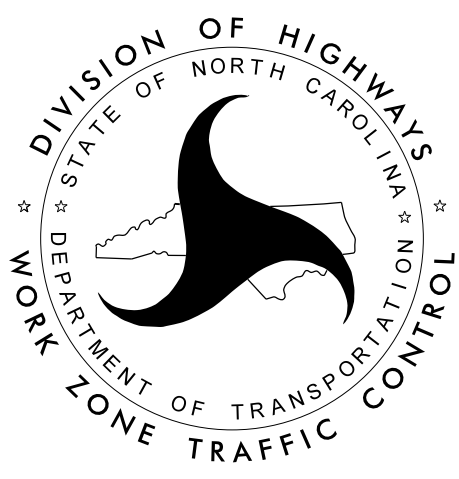
WILSON COUNTY
(BRIDGE NO. 970092)



● DETOUR ROUTE



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY) PHONE: (919) 773-2800 FAX: (919) 771-2745	
J. E. HUMMER, PE.	STATE TRAFFIC MANAGEMENT ENGINEER
J. S. BOURNE, PE.	TRAFFIC CONTROL PROJECT ENGINEER
B. W. JOHNSON, PE.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
SARA LOUKILI	TRAFFIC CONTROL DESIGNER



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-2	PHASE 1 DETAIL DRAWING
TMP-3	OFFSITE DETOUR PLAN
SD-1	SPECIAL SIGN DESIGN
PMP-1	PAVEMENT MARKING PLAN

ROADWAY STANDARD
DRAWINGS

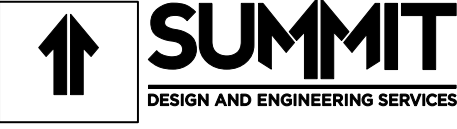
THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

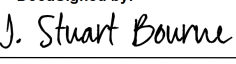
STD. NO.	TITLE
1101.01	WORK ZONE ADVANCED WARNING SIGNS
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES TYPE III

LEGEND

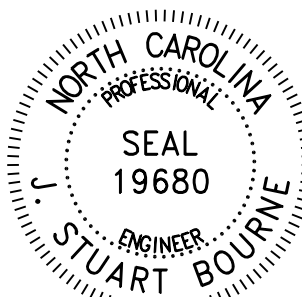
- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- BARRICADE (TYPE III)
- STATIONARY SIGN

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Prepared in the Office of:

NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

APPROVED: 
DATE: 8/5/2019

SEAL



SHEET NO.
TMP-1

B-5998

PROJECT:

MANAGEMENT
STRATEGIES

BRIDGE #970092 ON SR 1339 (SHARPE STORE RD.) REPLACEMENT TO BE PERFORMED UNDER ROAD CLOSURE WITH AN INTERMEDIATE CONTRACT TIME.

LOCAL ACCESS TO ALL RESIDENCES AND BUSINESSES WILL BE MAINTAINED BETWEEN CLOSURE POINTS AT ALL TIMES DURING CONSTRUCTION.

BRIDGE #970091 SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTING BRIDGE #970092

PHASING

THE CONTRACTOR SHALL COMPLETE STEPS 1 THROUGH 3 IN 105 DAYS. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

PROVIDE ENGINEER A THIRTY (30) DAY WRITTEN NOTICE PRIOR TO ROAD CLOSURE.

STEP 1:

USING RSD 1101.03 IMPLEMENT OFF-SITE DETOUR AND ROAD CLOSURE FOR SR 1339 AT BRIDGE #970092 AS SHOWN ON SHEET TMP-2 AND TMP-3 AND IN ACCORDANCE WITH THE GENERAL NOTES. COVER ALL ADVANCE WARNING SIGNS AND DETOUR SIGNS PRIOR TO ROAD CLOSURE.

STEP 2:

WITH SR 1339 CLOSED TO TRAFFIC PERFORM ALL BRIDGE REPLACEMENT OPERATIONS. PRIOR TO OPENING THE ROADWAY TO TRAFFIC, PLACE FINAL PAVEMENT MARKINGS.

STEP 3:

UPON COMPLETION OF BRIDGE WORK REMOVE THE ROAD CLOSURE AND DETOUR SIGNS AND OPEN SR 1339 TO TRAFFIC.

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSION IN THE DETAIL DRAWINGS, STANDARD DETAILS AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS, OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

C) PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS. COVER OR REMOVE SIGNS WHEN DETOUR IS NOT IN OPERATION.

D) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

TRAFFIC CONTROL DEVICES

E) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

F) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE, AS SHOWN IN THE PAVEMENT MARKING PLAN.

G) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

APPROVED:

DocuSigned by:
J. Stuart Bourne

DATE: 8/28/2019

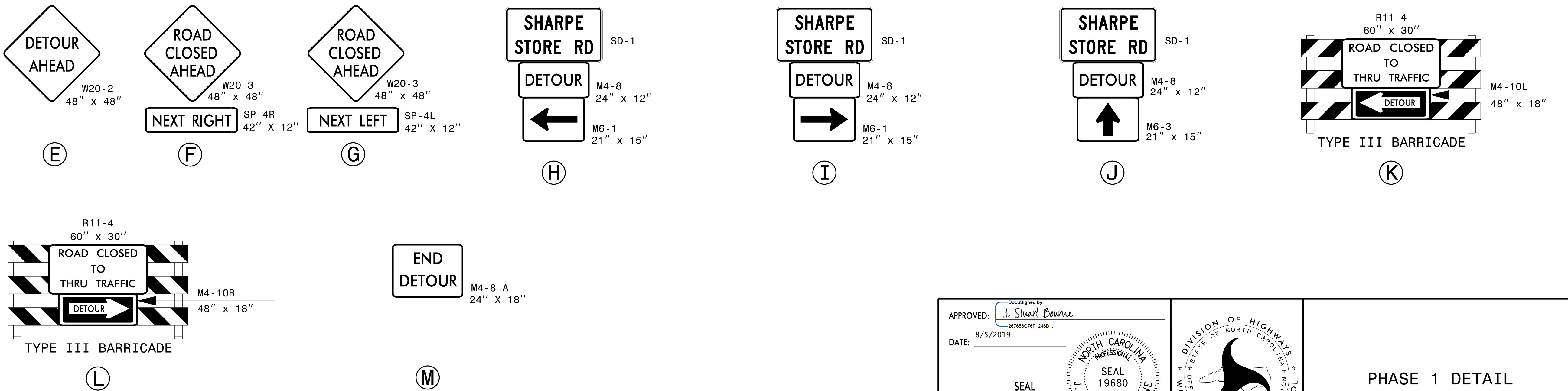
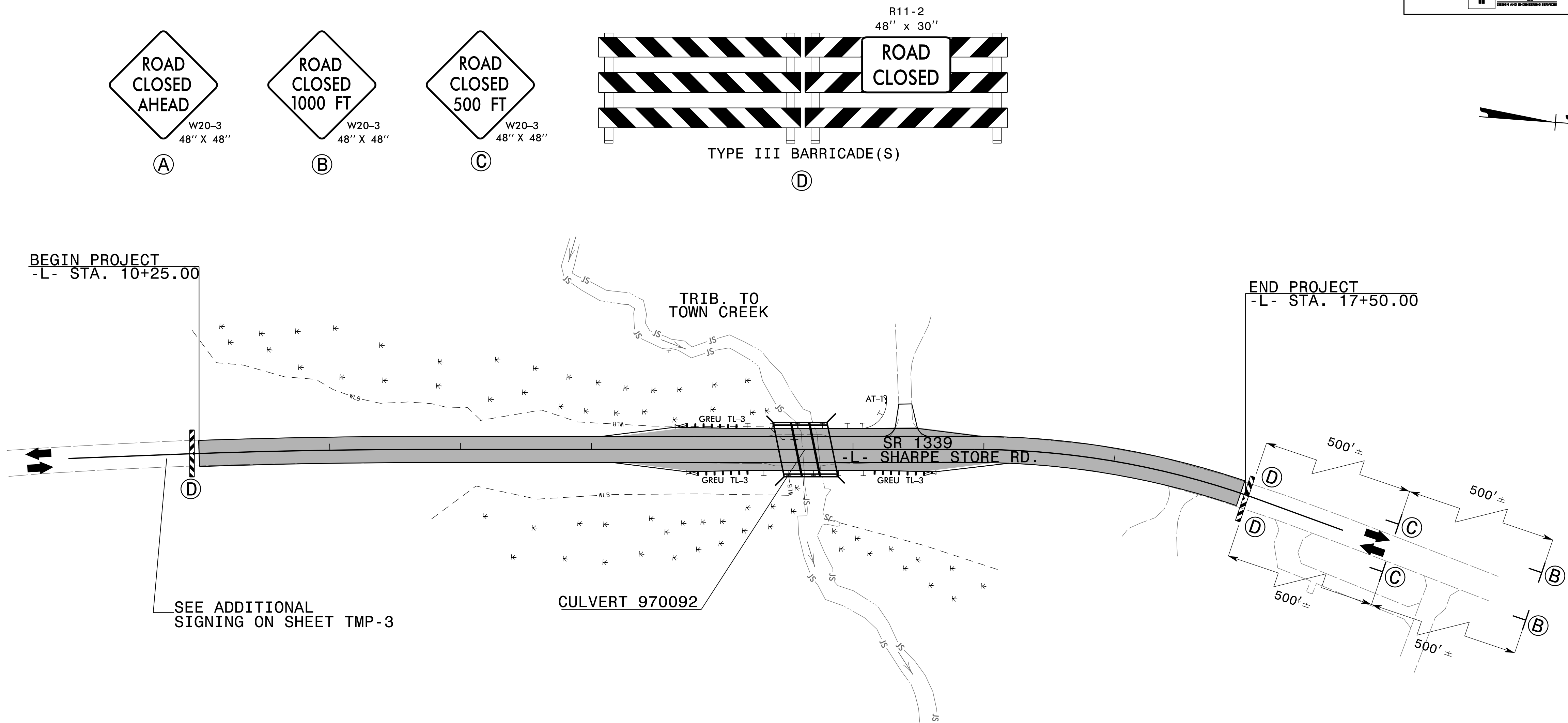
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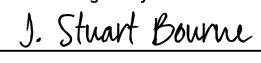
PROFESSIONAL
SEAL
19680
ENGINEER
J. STUART BOURNE

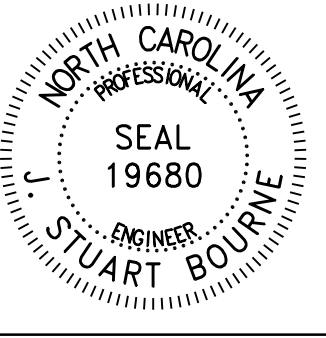
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

TRANSPORTATION
OPERATIONS
PLAN

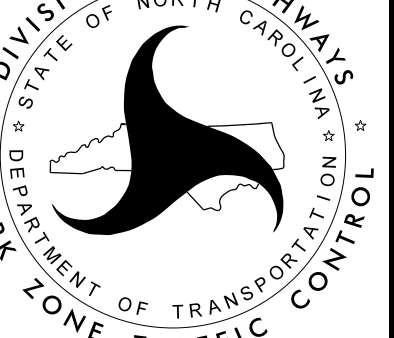


APPROVED: 
DATE: 8/5/2019

SEAL


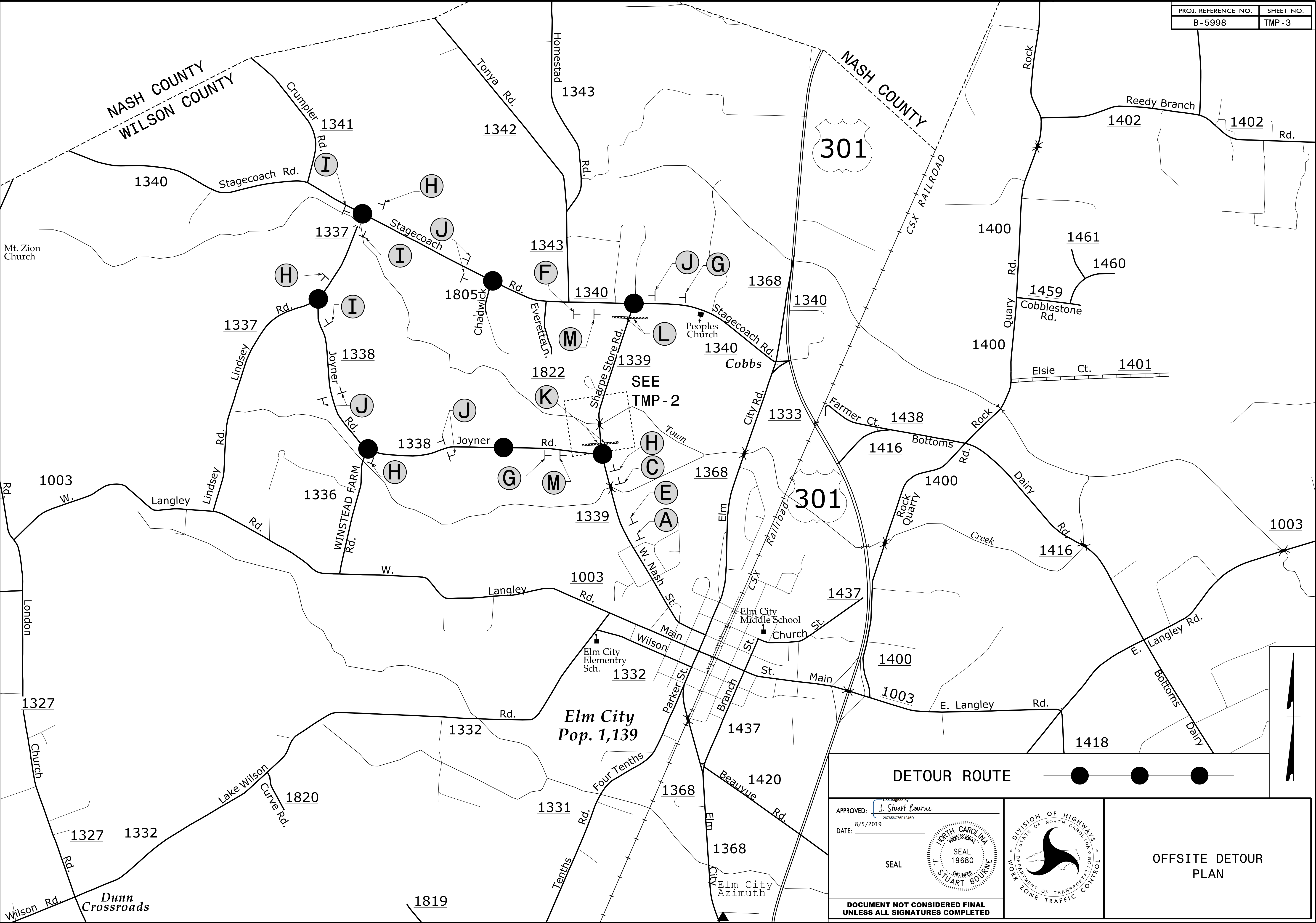
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL



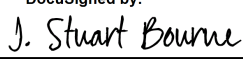
PHASE 1 DETAIL
DRAWING

PROJ. REFERENCE NO.	SHEET NO.
B-5998	TMP -3



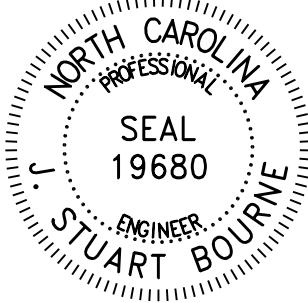
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970092_TC_TMP_3.dgn
neilrhrbaugh

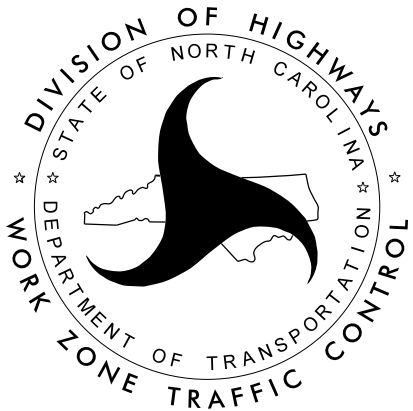
DETOUR ROUTE

APPROVED: 
DATE: 8/5/2019

SEAL

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED





OFFSITE DETOUR
PLAN

[illegible]

APPROVED: <u>J. Stuart Bourne</u> DATE: <u>8/5/2019</u> SEAL			SPECIAL SIGN DESIGN
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

30-MAY-2019 11:51
970092_PMP_1.dgn
nellrohrbaugh

CONTRACT: DD00302

PROJECT: B-5998

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

WILSON COUNTY

LOCATION: BRIDGE NO. 970092 ON SR 1339 (SHARPE STORE RD.)
OVER TOWN CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT.

TIP NO. B-5998	SHEET NO. PMP-1
APPROVED: DocuSigned by: J. Stuart Bourne	
DATE: 8/5/2019 10:55:07PM 1246D...	
SEAL PROFESSIONAL SEAL 19680 ENGINEER STUART BOURNE	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL & BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	QUANTITY
PAINT (4", 2 COATS)		
PA	WHITE EDGE LINE	3200 LF
PI	YELLOW DOUBLE CENTER	3200 LF

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

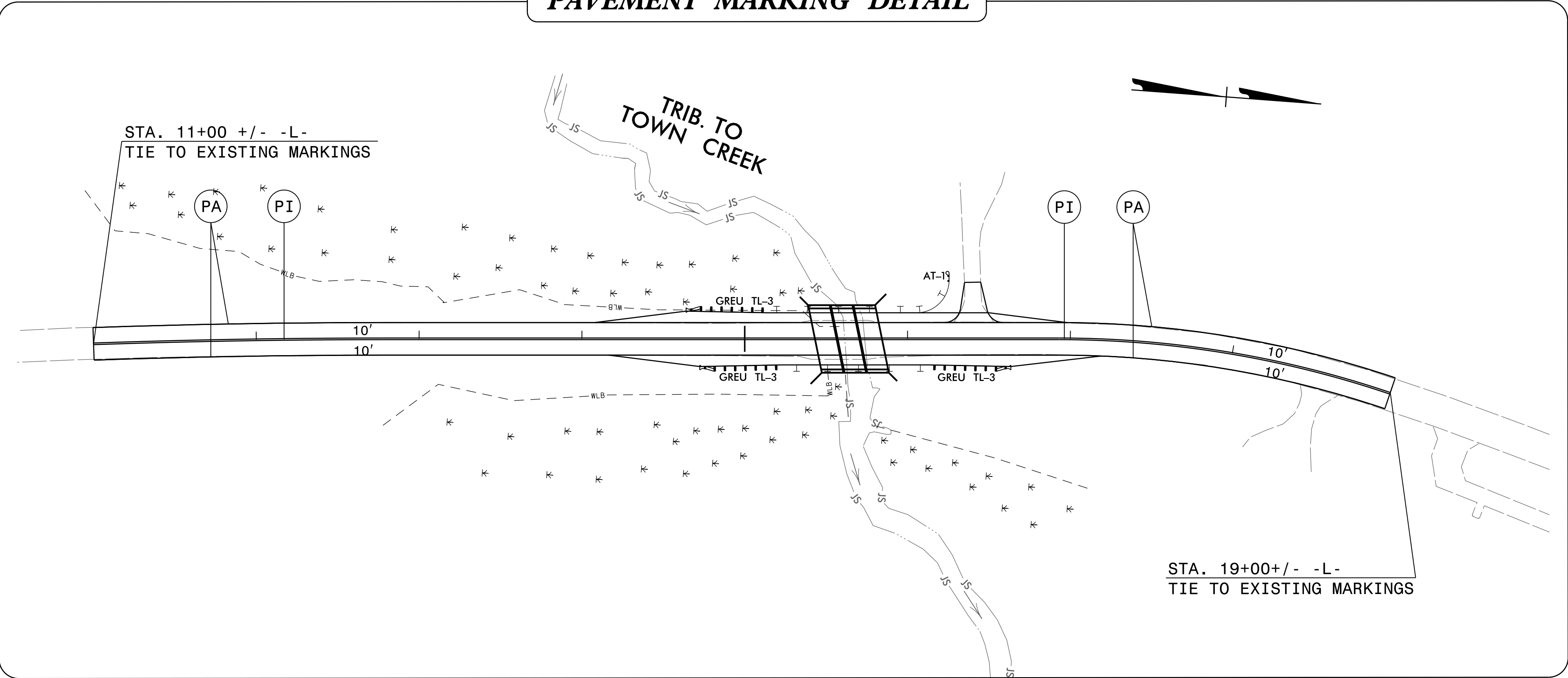
ROAD NAME	MARKING
SHARPE STORE RD.	PAINT

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

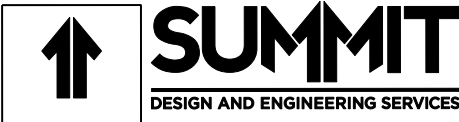
C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

PAVEMENT MARKING DETAIL



Prepared in the Office of:



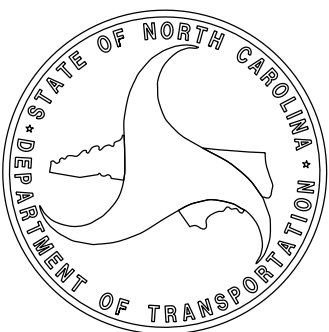
J. STUART BOURNE, PE

NC FIRM LICENSE No: P-0339
504 Meadowlands Drive
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PROJECT ENGINEER

SPENCER W. MERRITT, EI

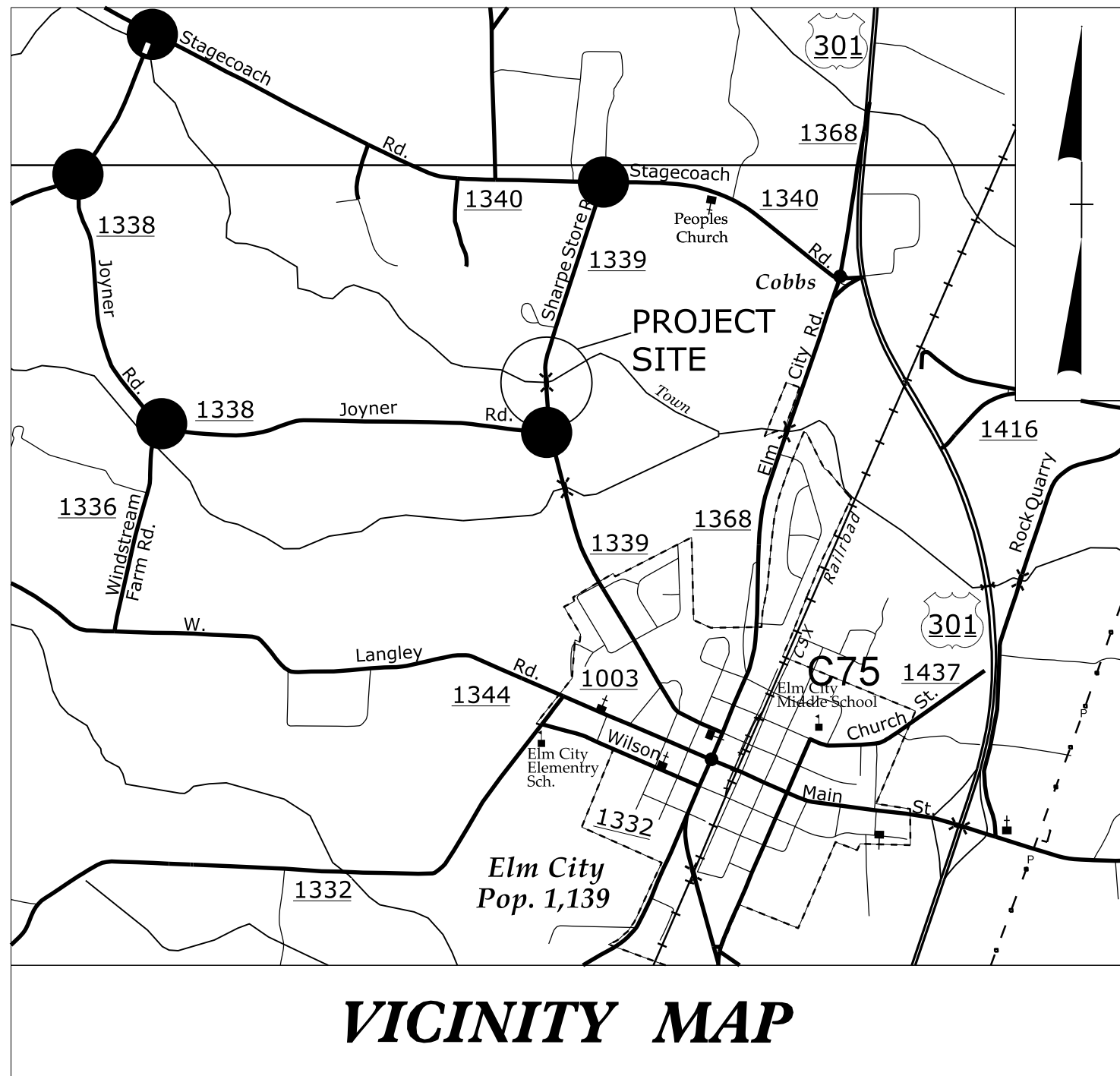
PROJECT DESIGNER



INDEX

PMP-1 PAVEMENT MARKING PLAN TITLE, SCHEDULE, QUANTITIES AND PAVEMENT MARKING DETAIL.

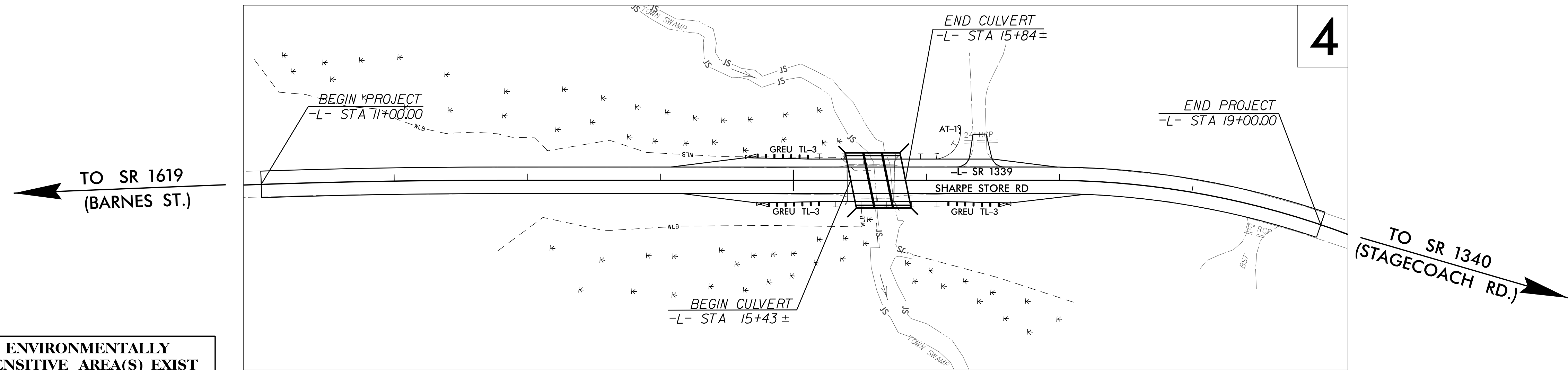
TIP PROJECT: B-5998



NOTE: THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
● DETOUR ROUTE

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
WILSON COUNTY

LOCATION: BRIDGE 970092 ON SHARPE STORE RD. (SR 1339)
OVER TOWN CREEK
TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND CULVERT



ENVIRONMENTALLY
SENSITIVE AREA(S) EXIST
ON THIS PROJECT

Refer To E. C. Special Provisions
for Special Considerations.

CLEARING ON THIS PROJECT SHALL BE PREFORMED TO THE
LIMITS ESTABLISHED BY METHOD II.

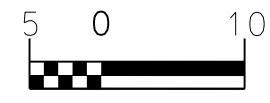
GRAPHIC SCALE



PLANS



PROFILE (HORIZONTAL)



PROFILE (VERTICAL)

THESE EROSION AND SEDIMENT
CONTROL PLANS COMPLY WITH
THE REGULATIONS SET FORTH
BY THE NCG-010000 GENERAL
CONSTRUCTION PERMIT
EFFECTIVE
AUGUST 1, 2016 AND ISSUED BY
THE NORTH CAROLINA
DEPARTMENT
OF ENVIRONMENTAL QUALITY
DIVISION OF WATER
RESOURCES.

Prepared in the Office of:

SUMMIT
DESIGN AND ENGINEERING SERVICES
FIRM NO. P-0339

504 Meadowland Drive
Hillsborough, NC 27278-8551
Voice: (919) 732-3883
Fax: (919) 732-6776
www.summitde.net

Designed by:

NEIL ROHRBAUGH 4142
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:

ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

Reviewed by:

DONALD R. PEARSON

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5998	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

EROSION AND SEDIMENT CONTROL MEASURES

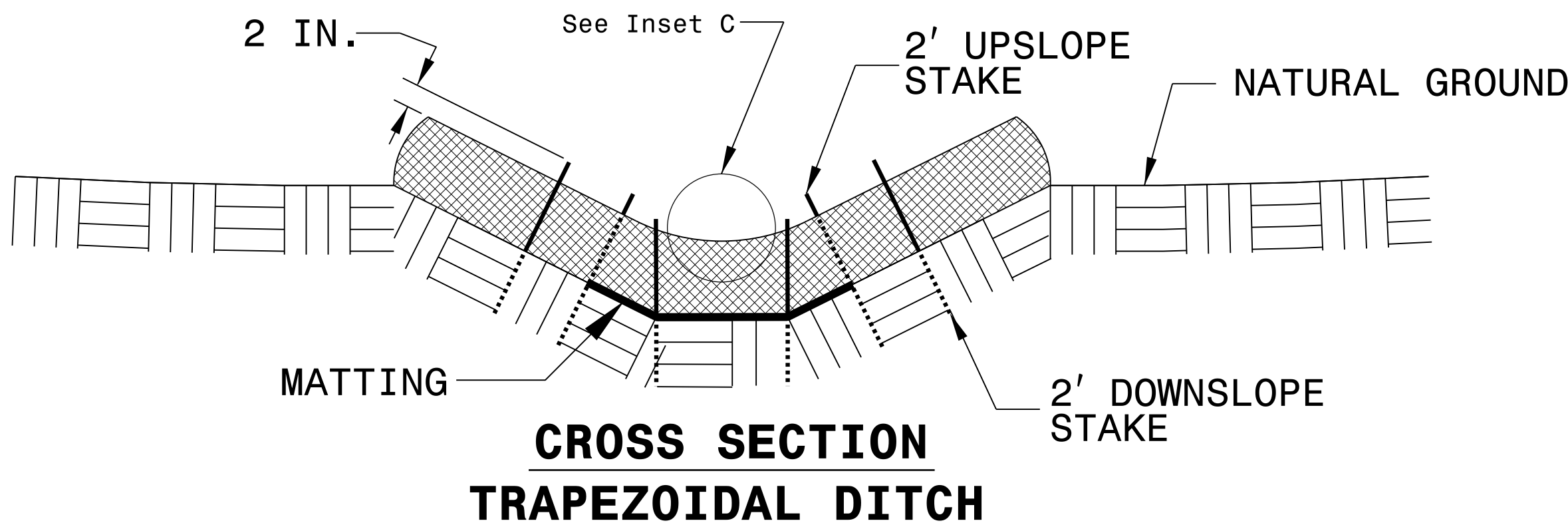
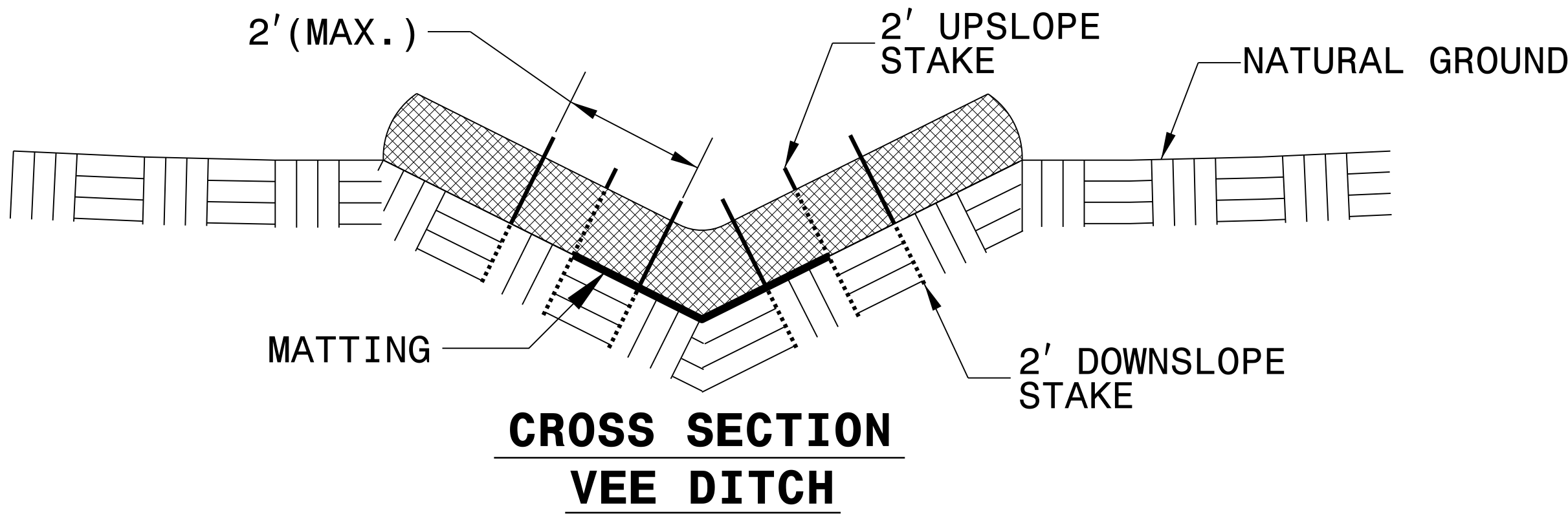
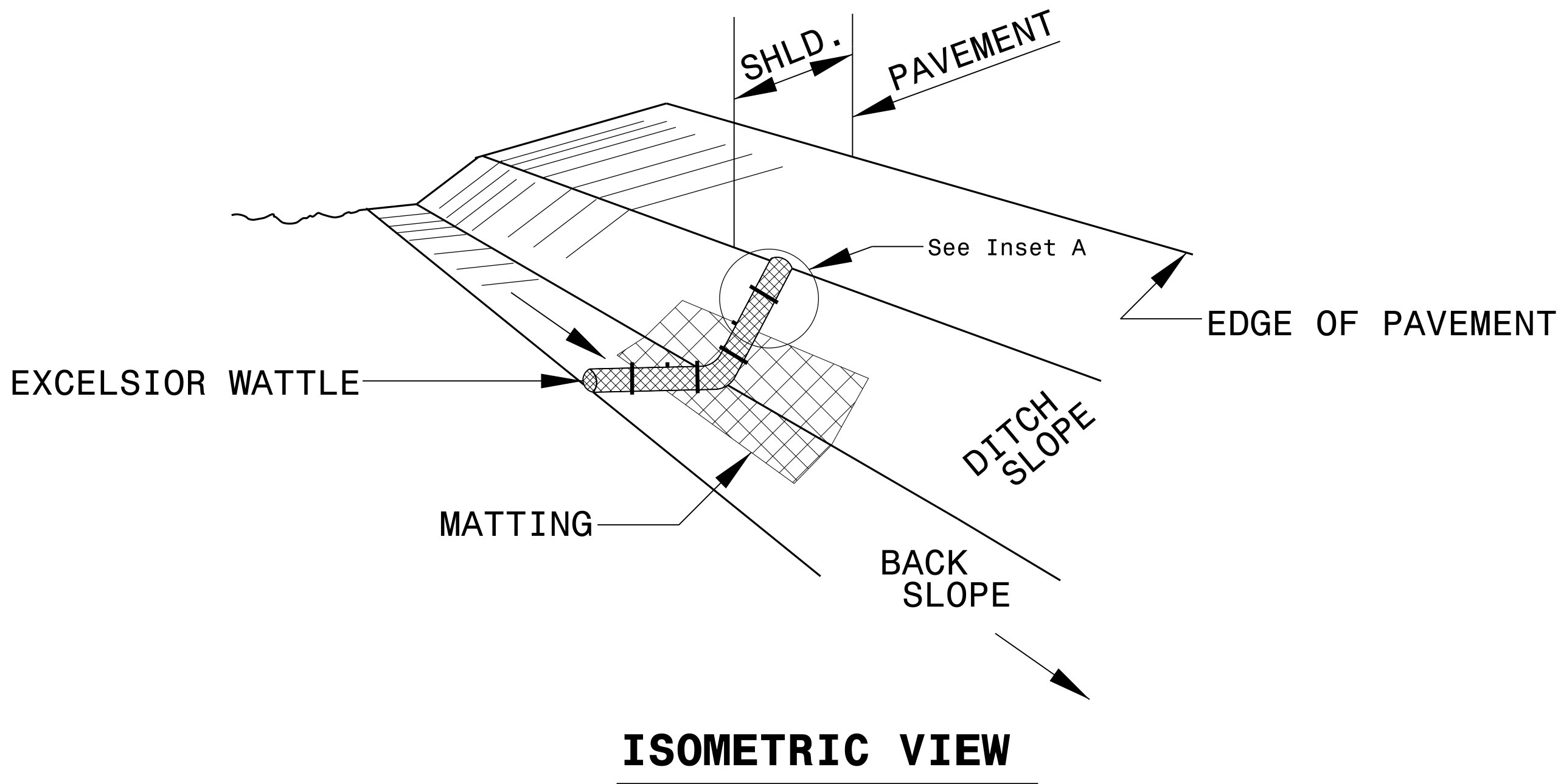
Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1633.01	Temporary Rock Silt Check Type-A	III III III
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	III III III
1633.02	Temporary Rock Silt Check Type-B	III III III
	Wattle/ Coir Fiber Wattle	III III III
	Wattle/ Coir Fiber Wattle with Polyacrylamide (PAM)	III III III
1634.01	Temporary Rock Sediment Dam Type-A	III III III
1634.02	Temporary Rock Sediment Dam Type-B	III III III
1635.01	Rock Pipe Inlet Sediment Trap Type-A	III III III
1635.02	Rock Pipe Inlet Sediment Trap Type-B	III III III

THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

THIS PROJECT HAS
BEEN DESIGNED TO
SENSITIVE WATERSHED
STANDARDS.

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

PROJECT REFERENCE NO.		SHEET NO.	
B-5998		EC-2	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

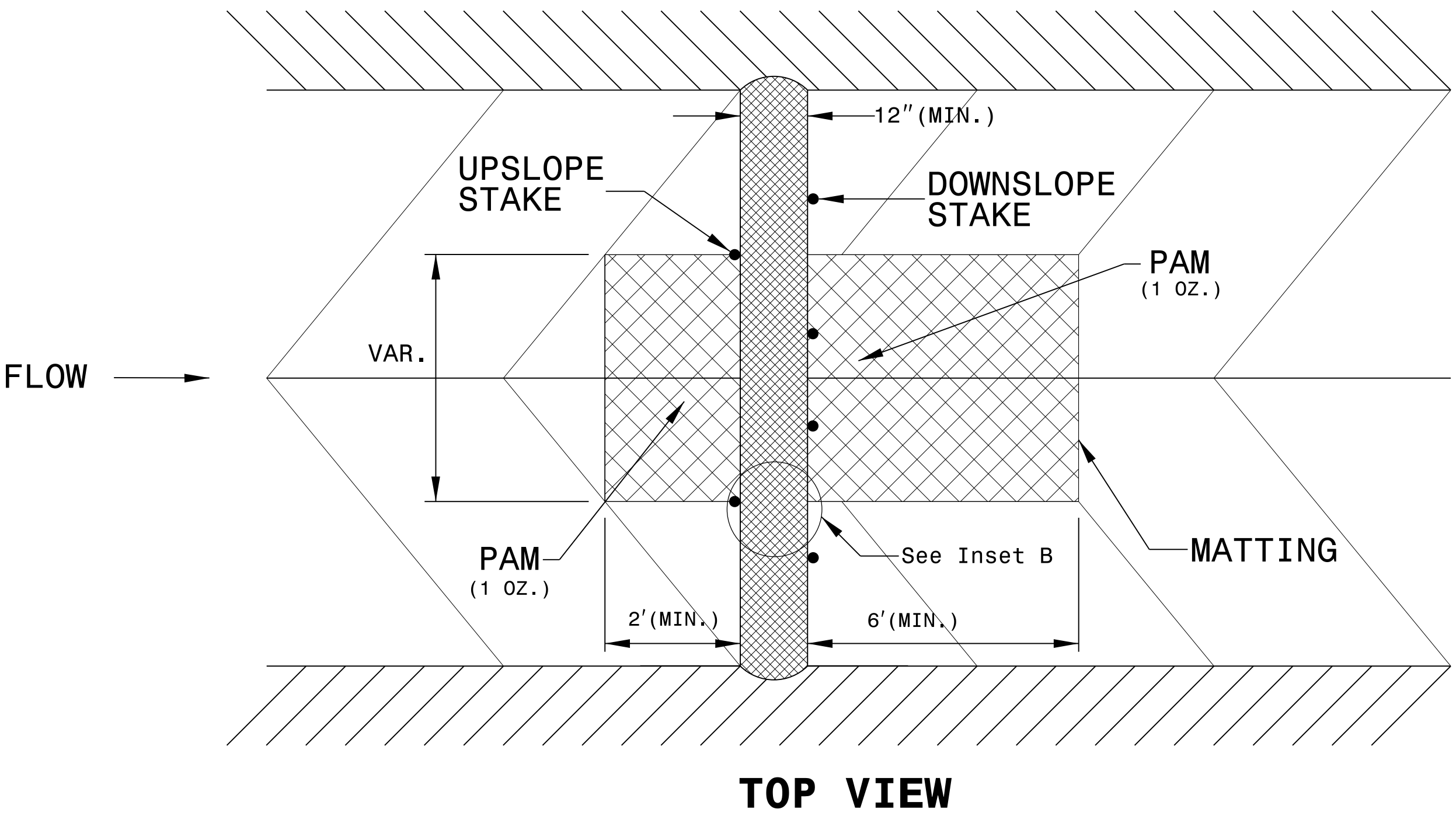
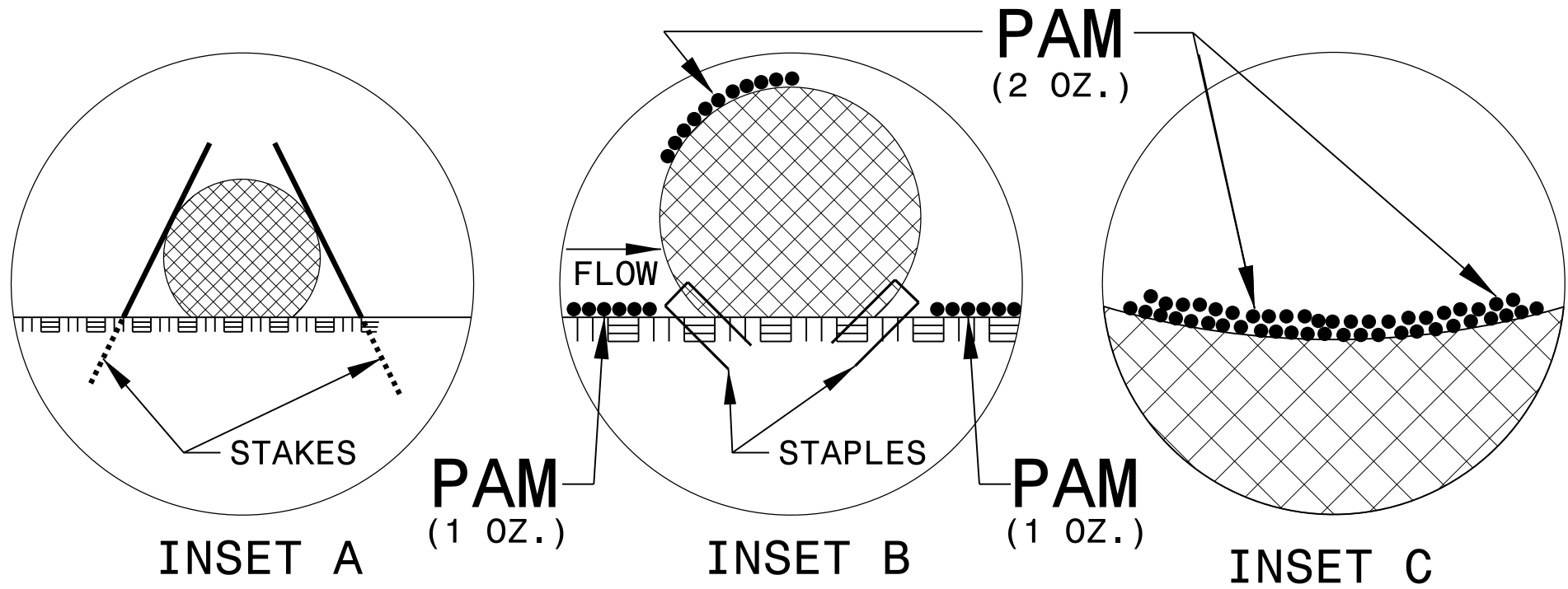
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
B-5998	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
B-5998	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

[illegible]

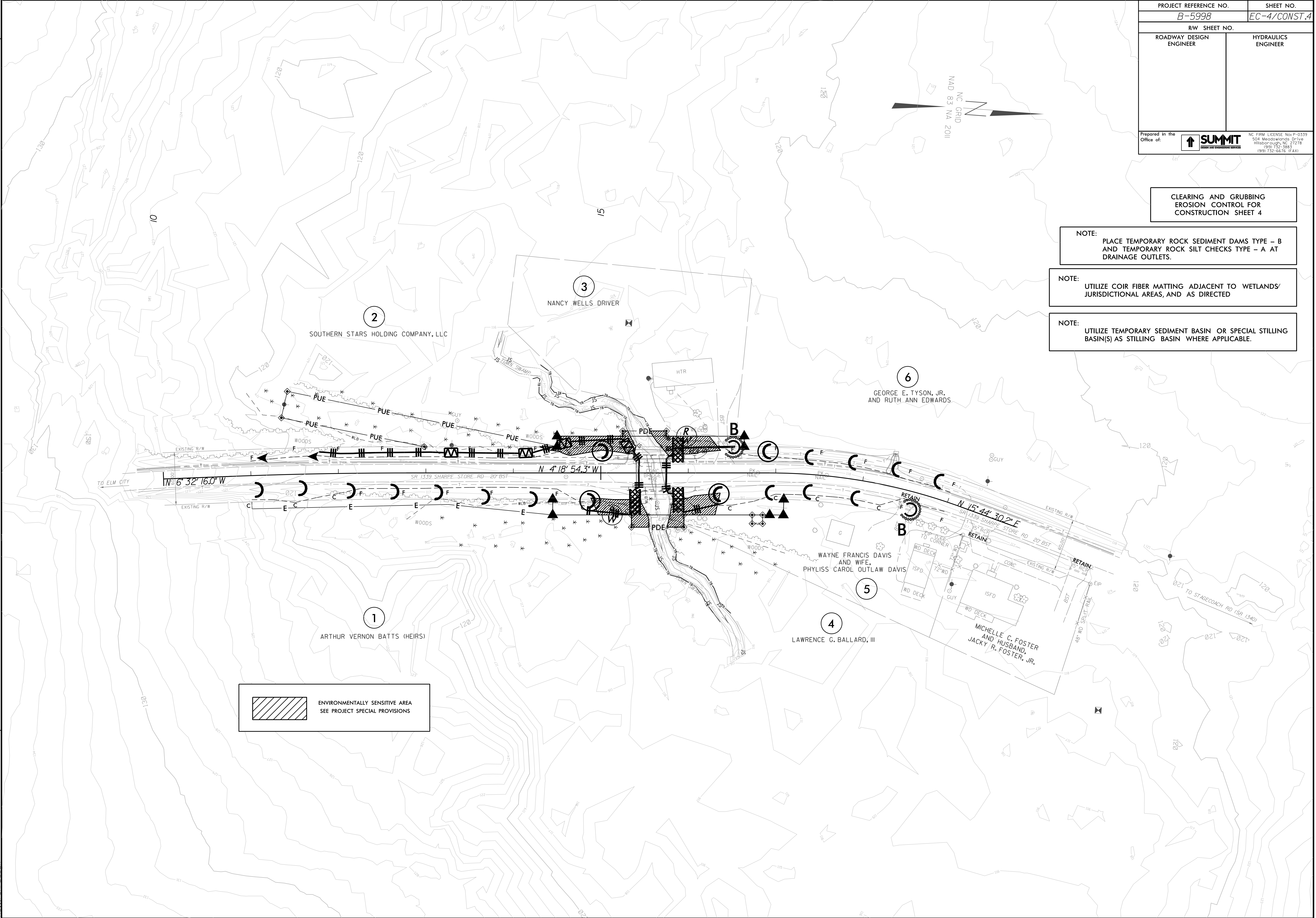
PERMANENT SOIL REINFORCEMENT MAT

[illegible]

8/17/99

05-AUG-2019 14:39
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neil.hobbs

REVISIONS



CONSTRUCTION SEQUENCE
3@13'X5' RCBC

PROJECT REFERENCE NO.	SHEET NO.
B-5998	EC-5/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PHASE 1
DEMOLITION

1. INSTALL PERIMETER SEDIMENT CONTROL DEVICES ALONG AND ADJACENT TO STREAM TO THE GREATEST EXTENT POSSIBLE.

2. INSTALL AND UTILIZE SPECIAL STILLING BASIN.

3. REMOVE EXISTING BRIDGE.

4. INSTALL TEMPORARY 36" MIN GRAVITY PIPE BY TRENCHING AND BACKFILLING. HORIZONTALLY PIPE AROUND CONSTRUCTION OF CENTER BARREL.
5. CONSTRUCT TEMPORARY IMPERVIOUS DIKE 1 UPSTREAM.

6. CONSTRUCT TEMPORARY IMPERVIOUS DIKE 2 DOWNSTREAM.

7. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN.

8. CONSTRUCT CENTER BARREL OF PROPOSED CULVERT.

PHASE 2
CULVERT CONSTRUCTION

1. REMOVE IMPERVIOUS DIKES 1 AND 2 AND TEMPORARY PIPE 1. INSTALL IMPERVIOUS DIKES 3,4,5 AND 6 TO DIVERT FLOW FROM CHANNEL AND WEST DITCHES THROUGH CENTER BARREL AND FLOW FROM EAST DITCHES TO CHANNEL.

2. CONSTRUCT OUTSIDE BARRELS 1 AND 3 OF PROPOSED CULVERT.
3. BACKFILL CULVERT.

4. CONSTRUCT HIGH FLOW BENCHES AND CHANNEL IMPROVEMENTS.

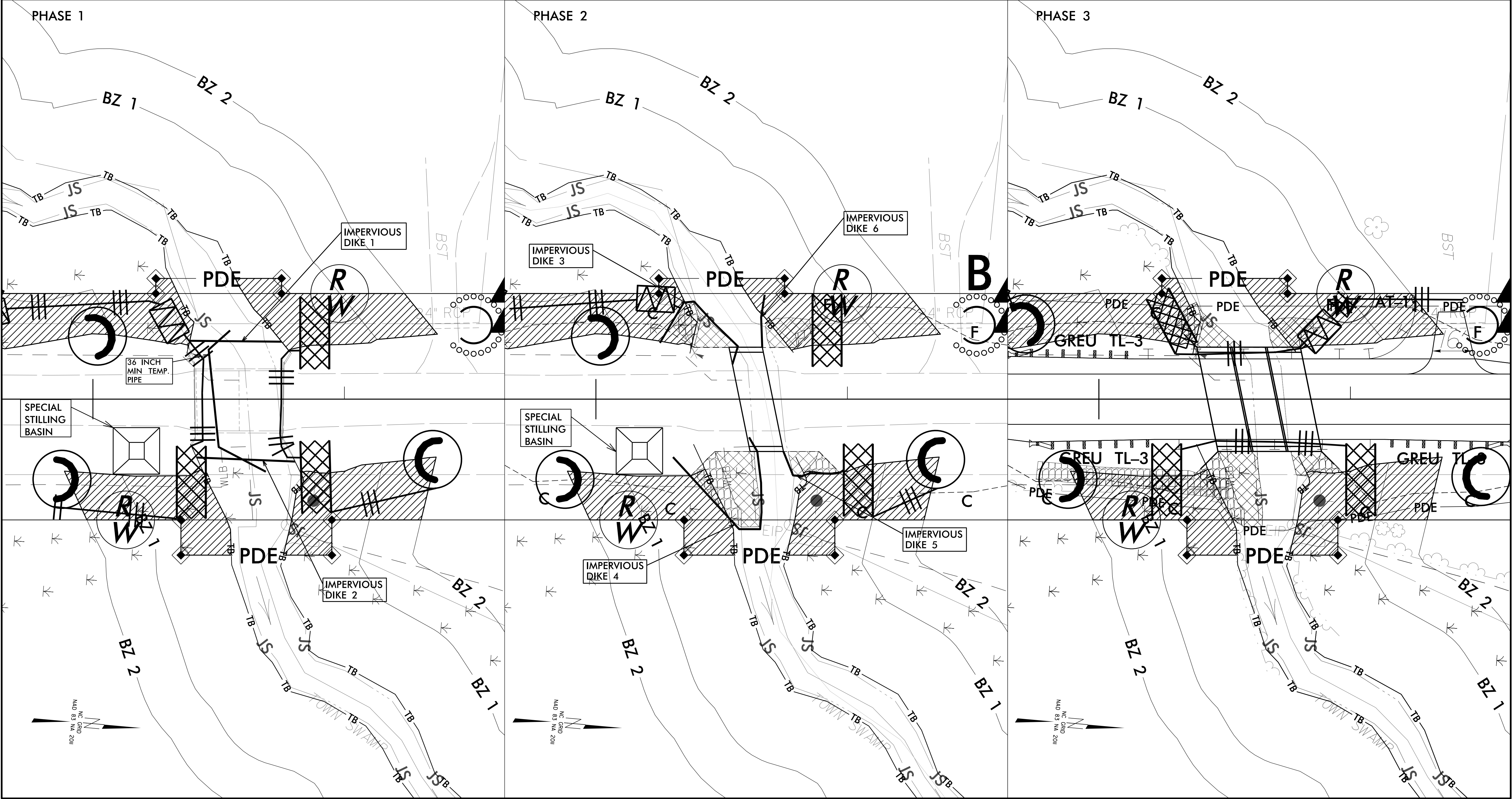
5. REMOVE ALL SEDIMENT ACCUMULATION FROM DEWATERED SREAM BED AND CULVERT.

6. CONSTRUCT STREAMBANK GRADING AND INSTALL RIP RAP TO THE MAXIMUM EXTENT POSSIBLE.

PHASE 3
CULVERT CONSTRUCTION

1. REMOVE IMPERVIOUS DIKES.

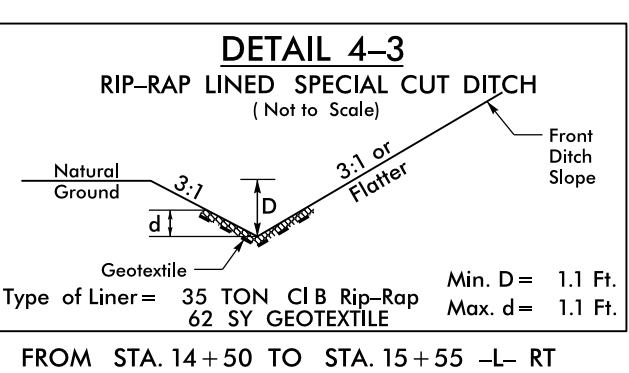
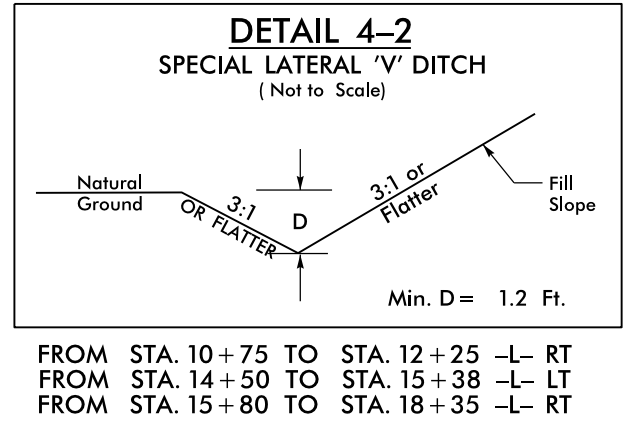
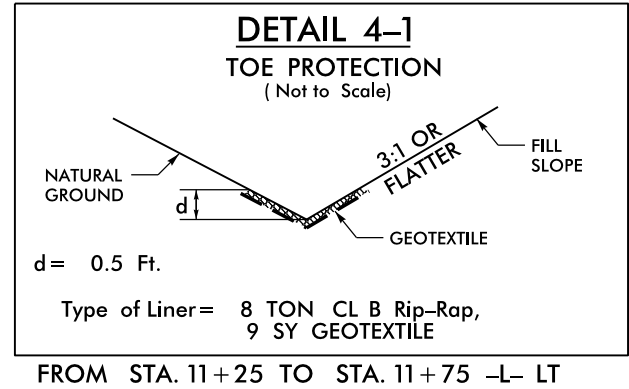
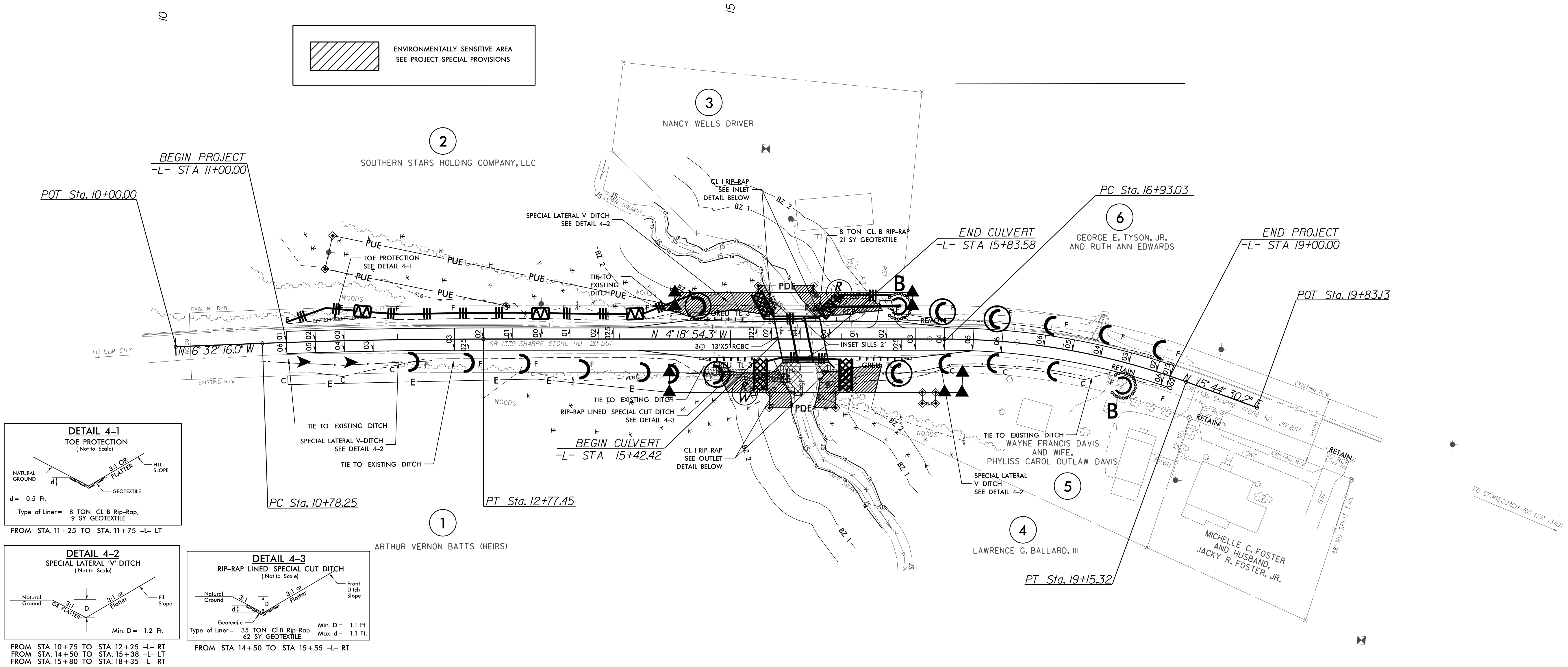
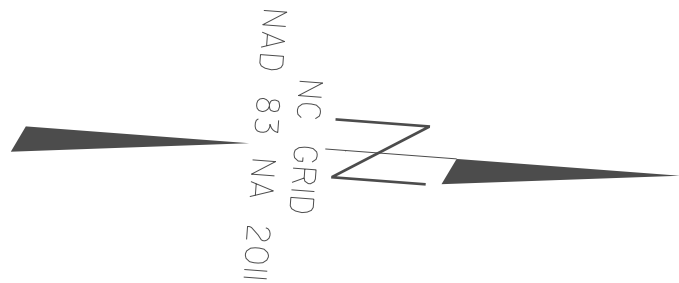
2. REMOVE SPECIAL STILLING BASIN.



PROJECT REFERENCE NO.	SHEET NO.
B-5998	EC-6/CONST.4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
Prepared in the Office of:	
 SUMMIT DESIGN AND ENGINEERING SERVICES	
NC FIRM LICENSE No. P-0339 504 Meadowslands Drive Hillsborough, NC 27278 (919) 332-3883 (919) 732-6676 (FAX)	

NOTE:
UTILIZE COIR FIBER MATTING ADJACENT TO WETLANDS/
JURISDICTIONAL AREAS, AND AS DIRECTED

NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING
BASIN(S) AS STILLING BASIN WHERE APPLICABLE.



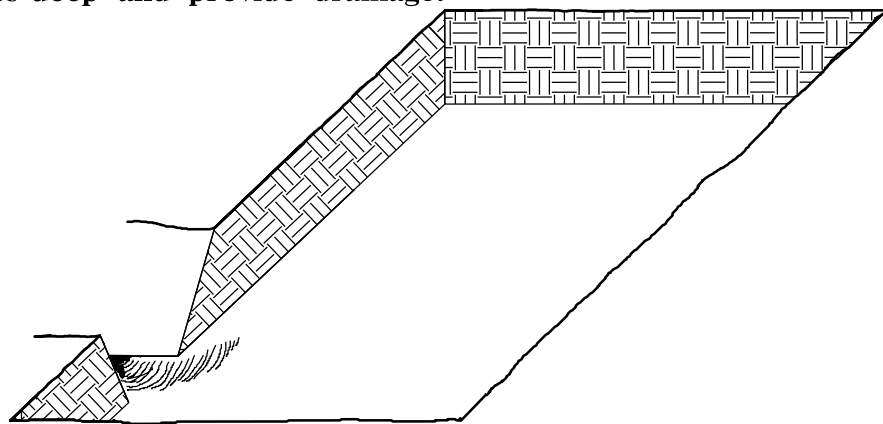
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5998	RF-1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	

PLANTING DETAILS

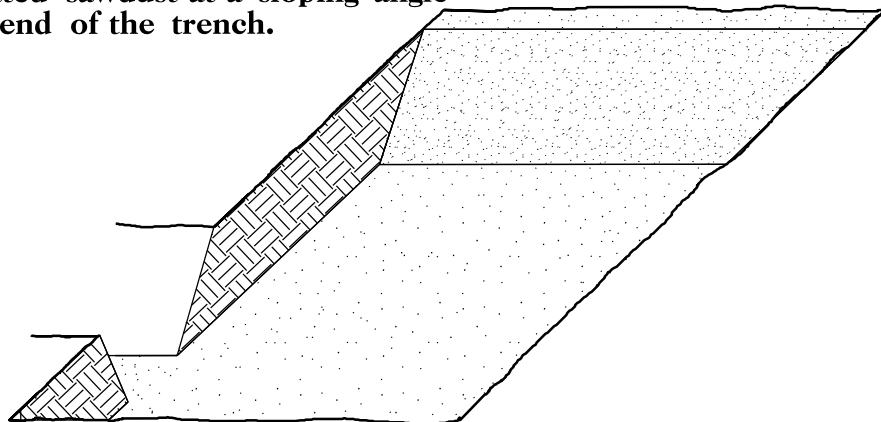
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

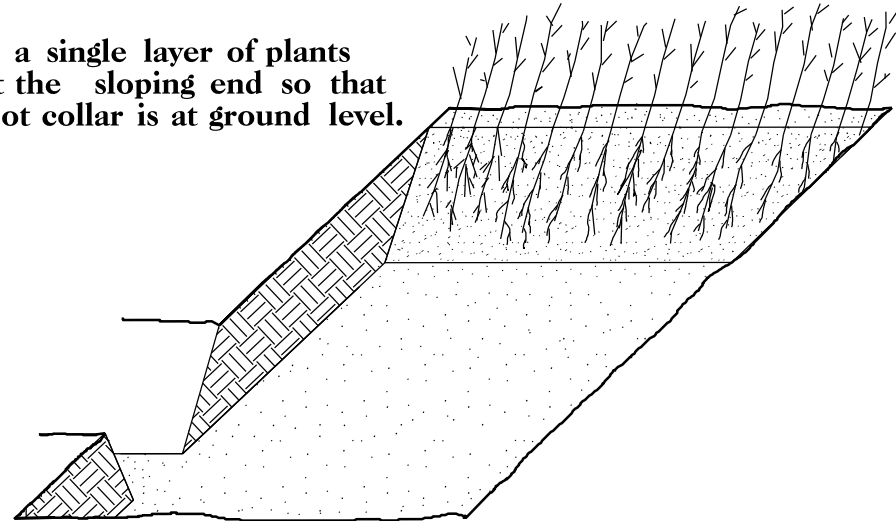
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



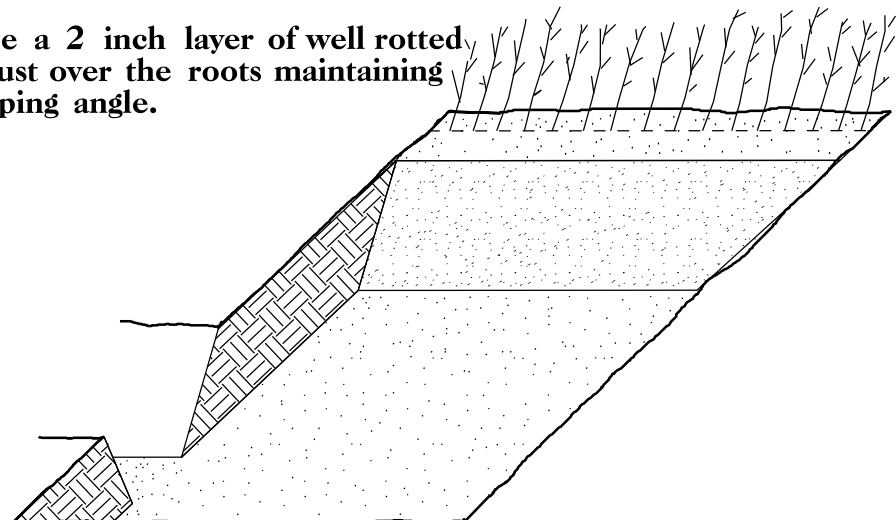
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

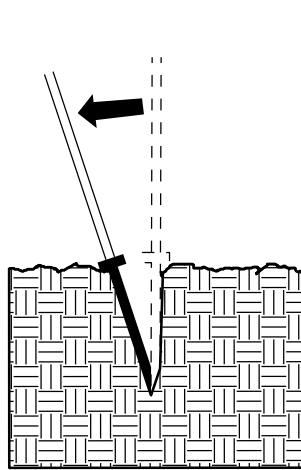


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

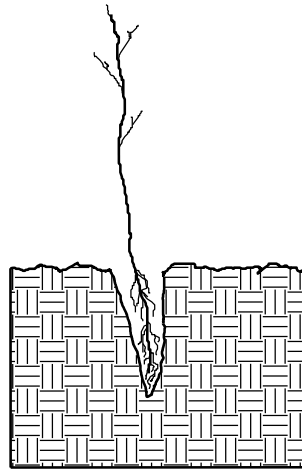


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

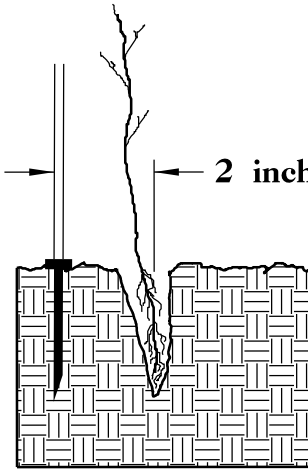
DIBBLE PLANTING METHOD USING THE KBC PLANTING BAR



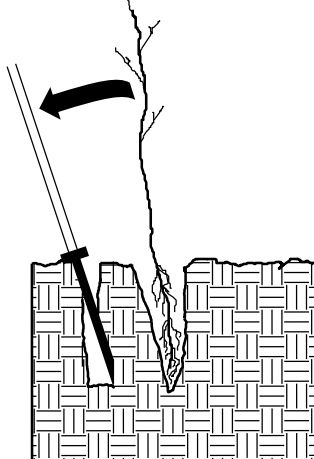
1. Insert planting bar as shown and pull handle toward planter.



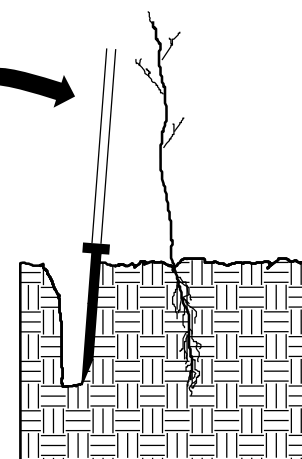
2. Remove planting bar and place seedling at correct depth.



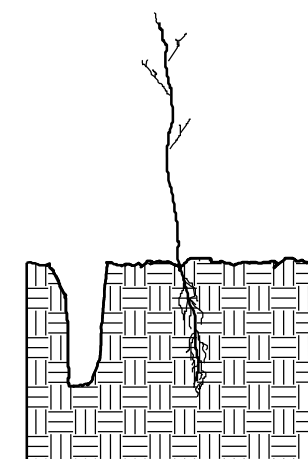
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

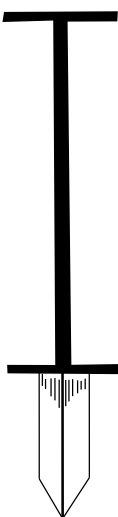
PLANTING BAG

During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR

Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING

All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- ☐ TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

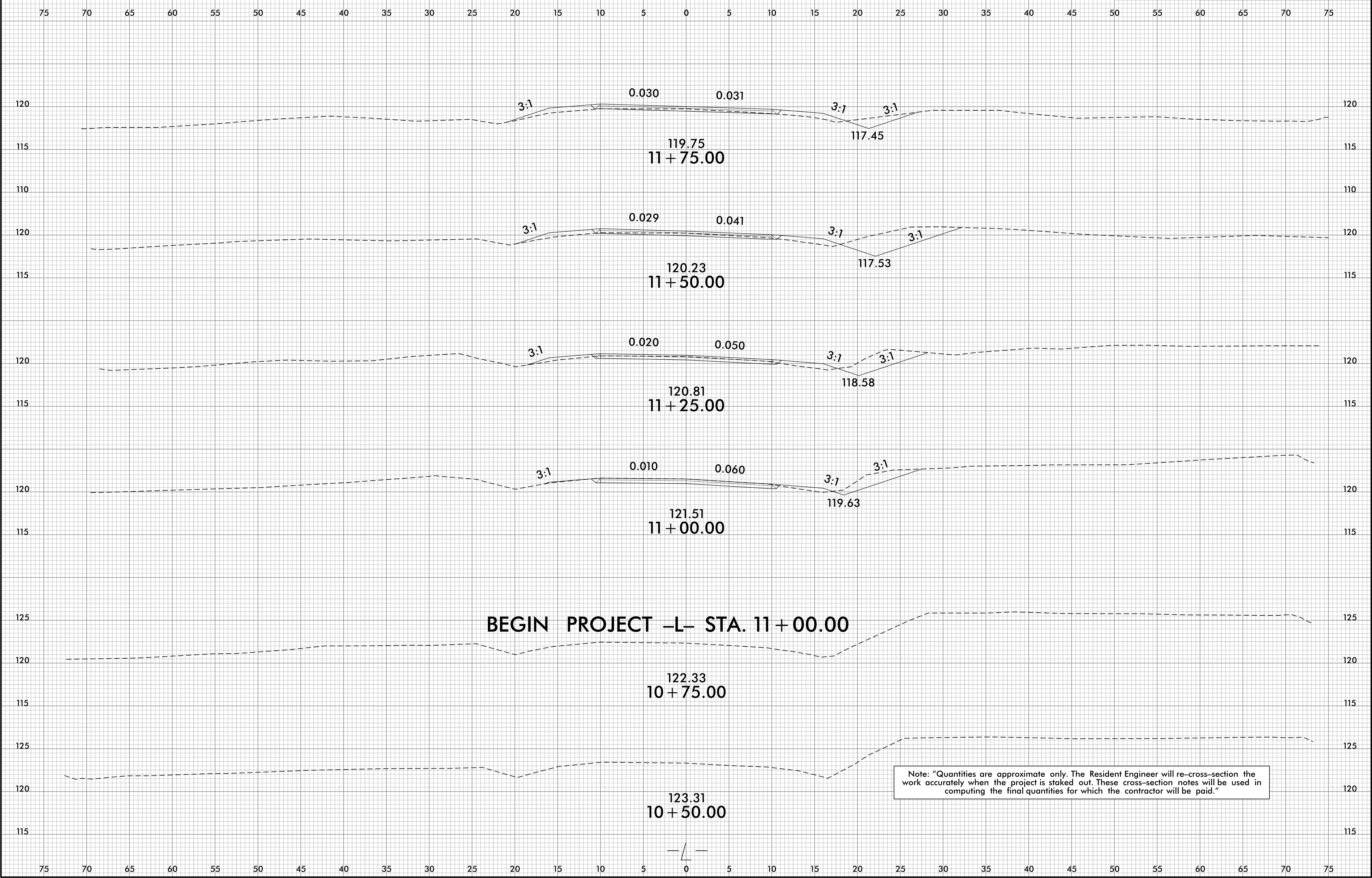
REFORESTATION

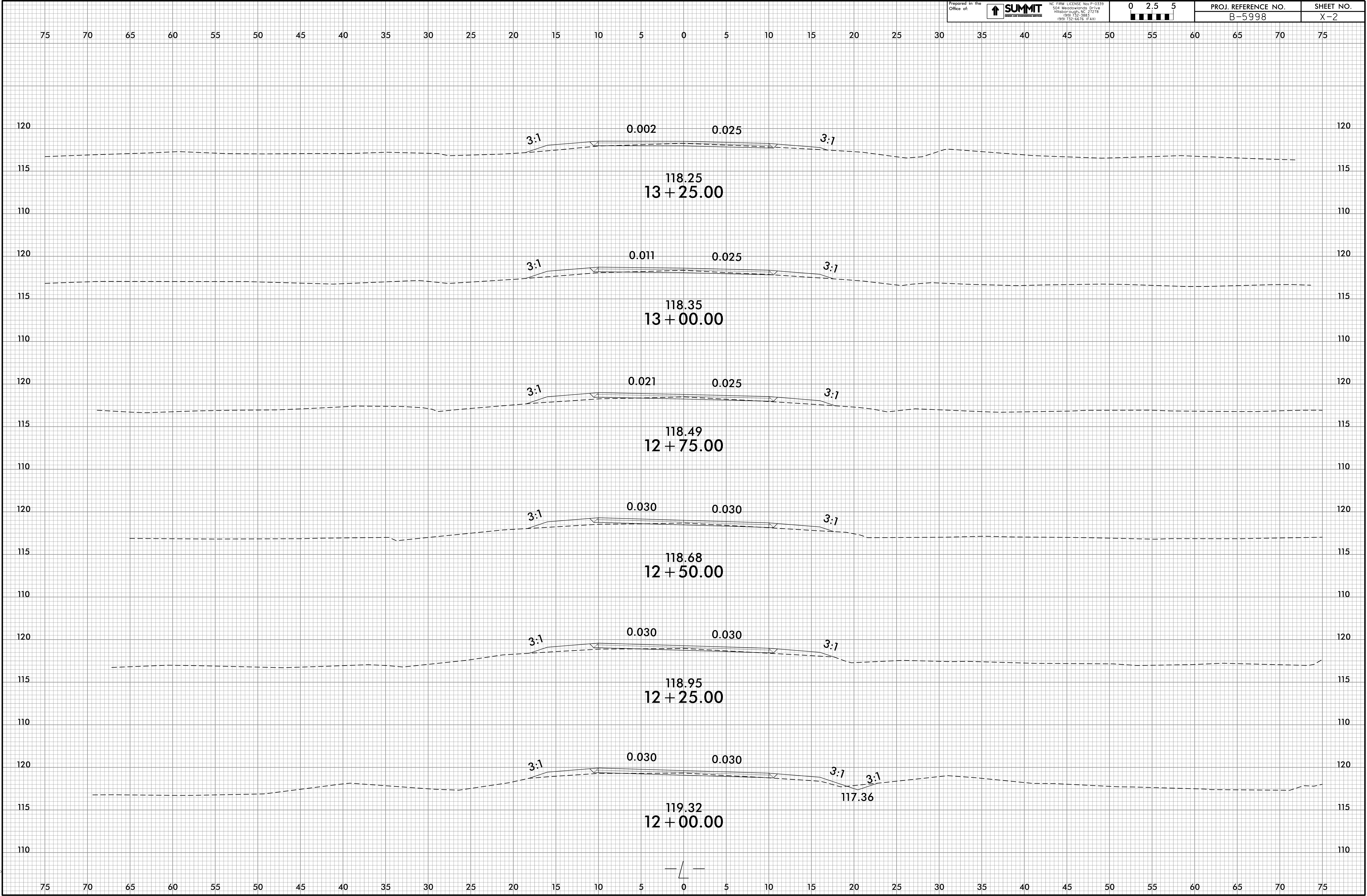
MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in - 18 in BR
25% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in - 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

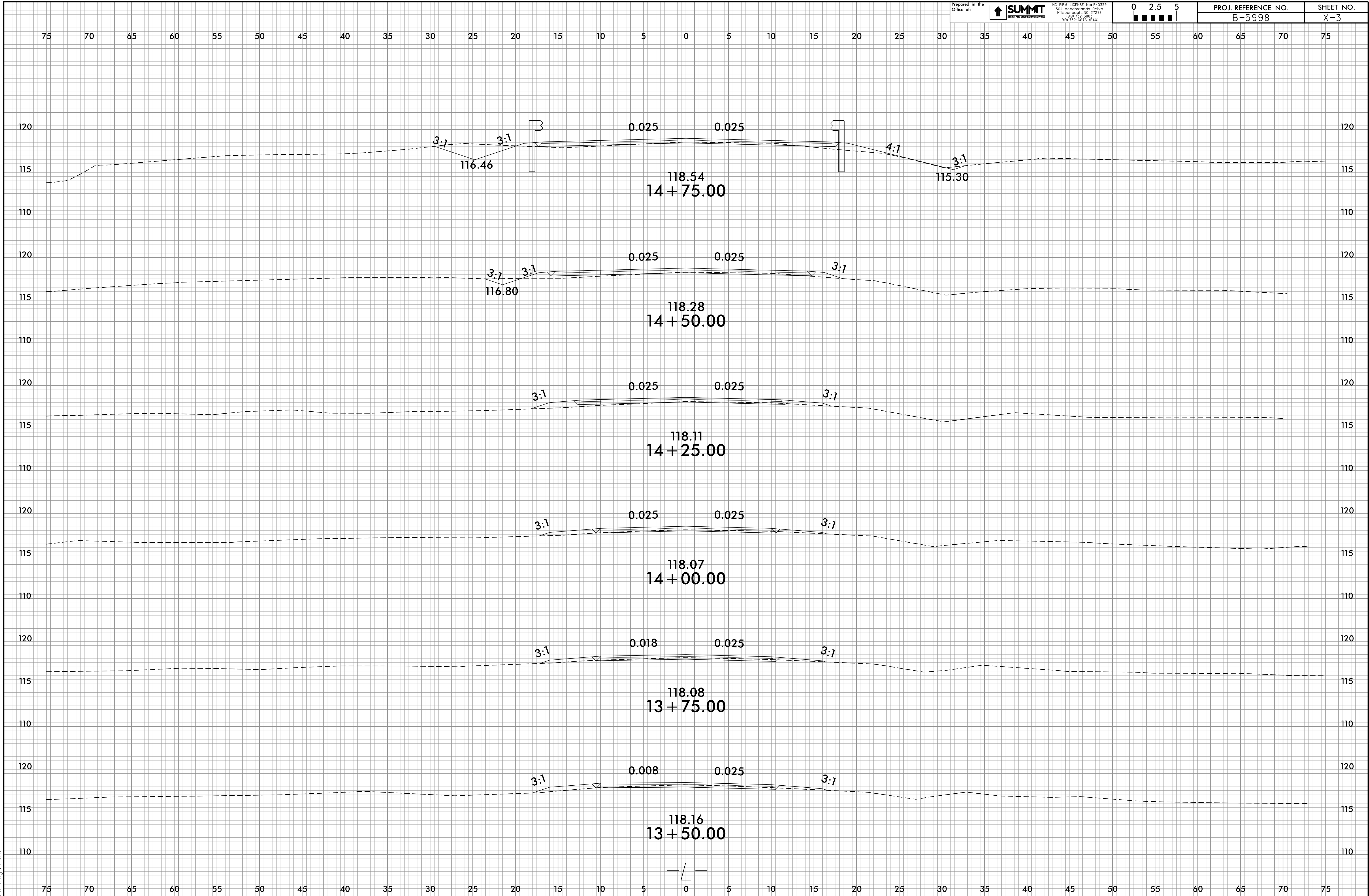
REFORESTATION DETAIL SHEET

N.C.D.O.T. - ROADSIDE ENVIRONMENTAL UNIT

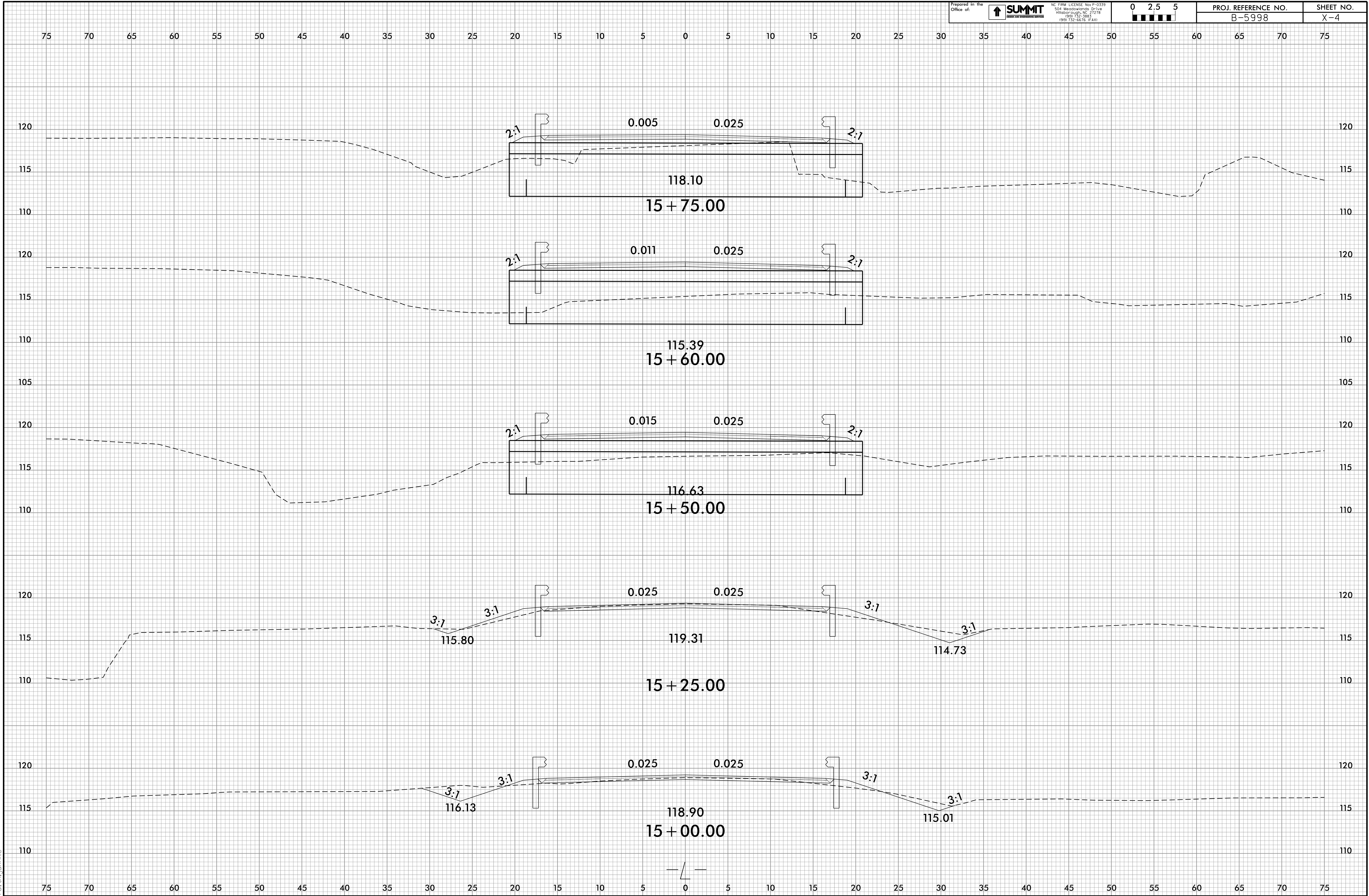




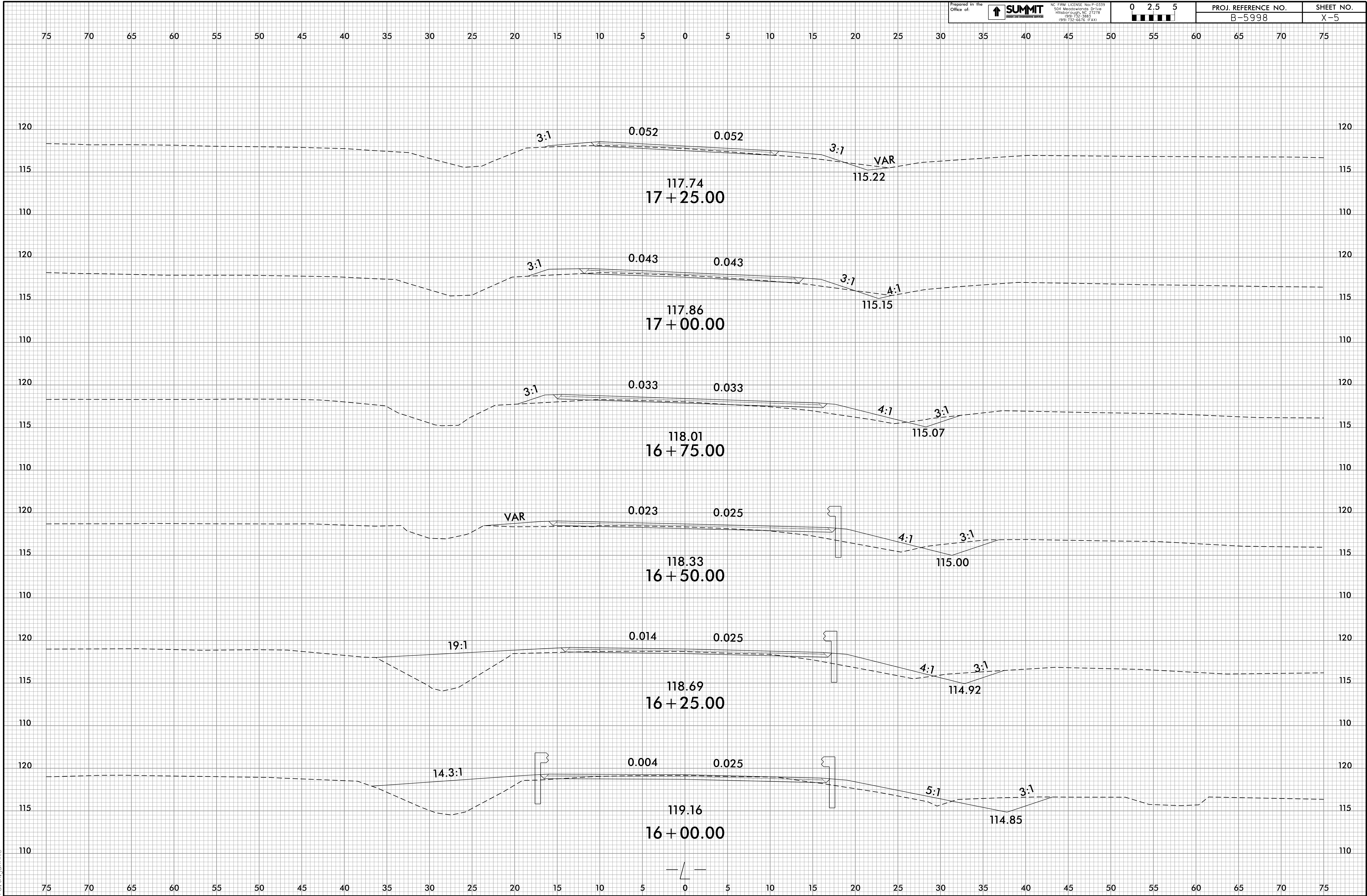
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p:\20012-Relay_xpl.dgn
atlgmike

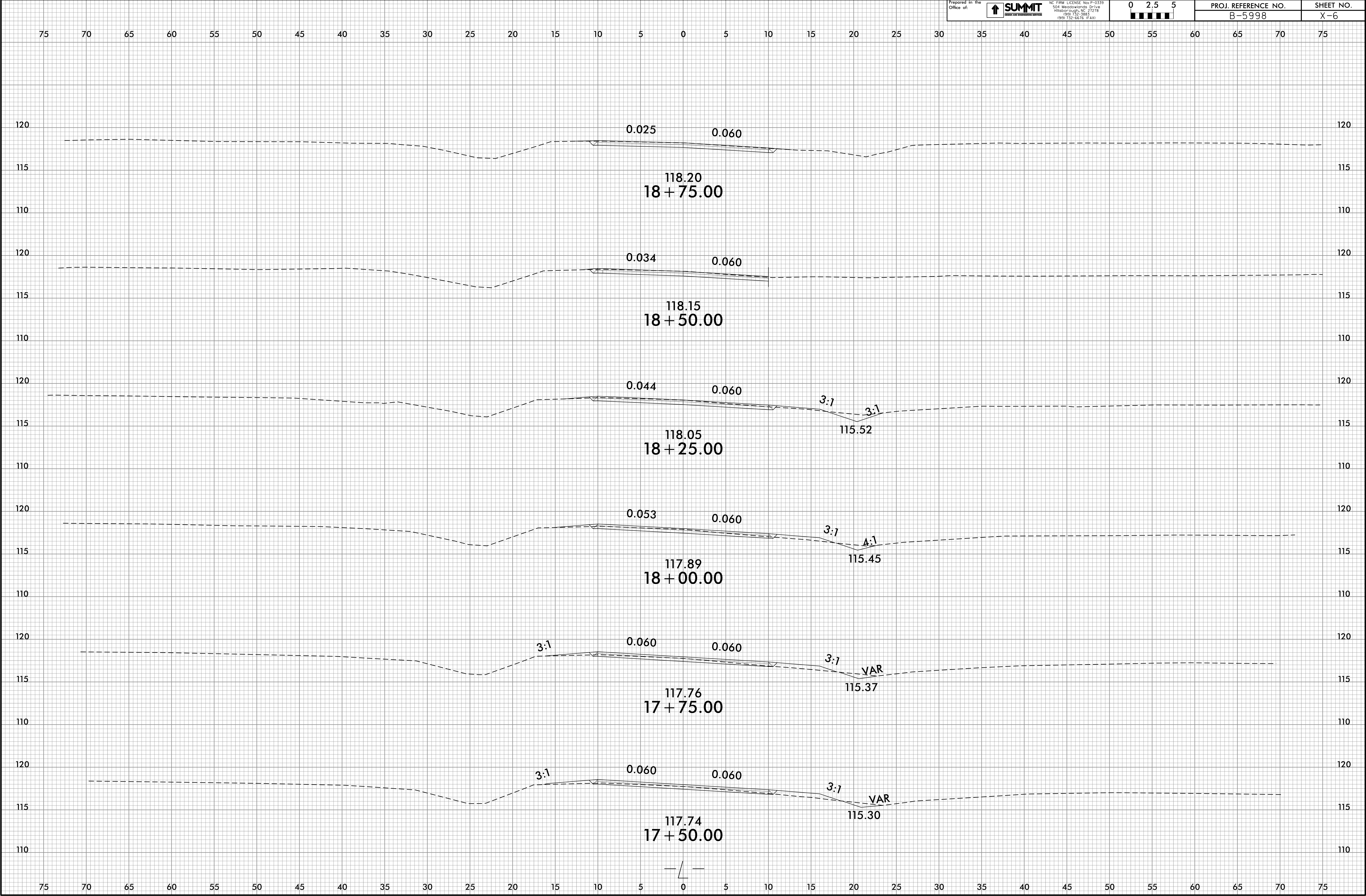


29-MAY-2019 15:16
p:\2009\2-Relay_xpl.dgn
calvin@smk

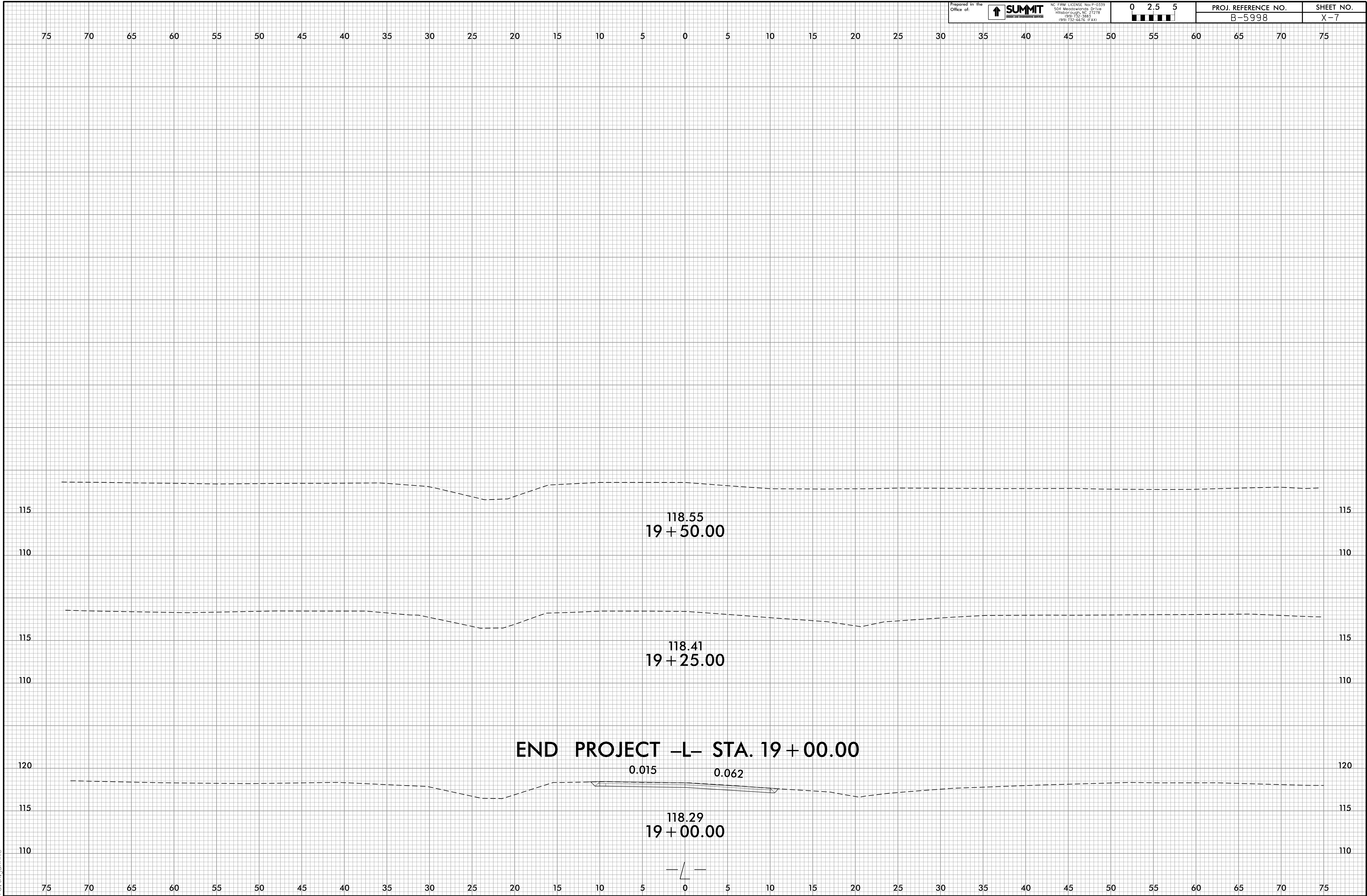


29-MAY-2019 15:16
p:\2009\2-Relay_xpl.dgn
atl\jgmk





29-MAY-2019 15:16
p70002-Relay_xpl.dgn
atl/gmk



Prepared in the
Office of:



NC FIRM LICENSE No. P-0339
504 Meadowslands Drive
Hillsborough, NC 27278
(919) 752-3883
(919) 752-6676 FAX

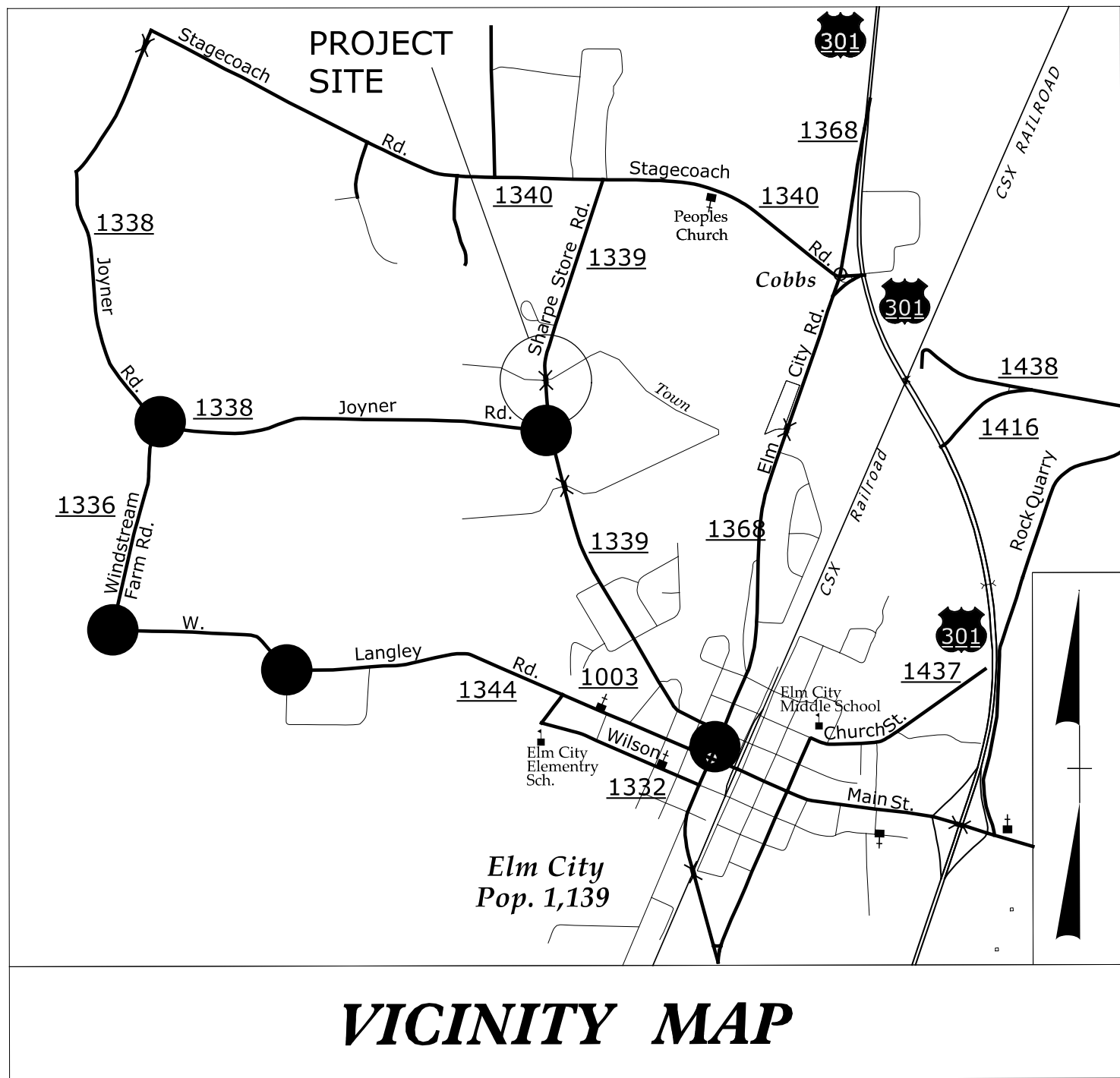
0 2.5 5
[Scale bar with 5 segments]

PROJ. REFERENCE NO.
B-5998

SHEET NO.
X-7

PROJECT: B-5998

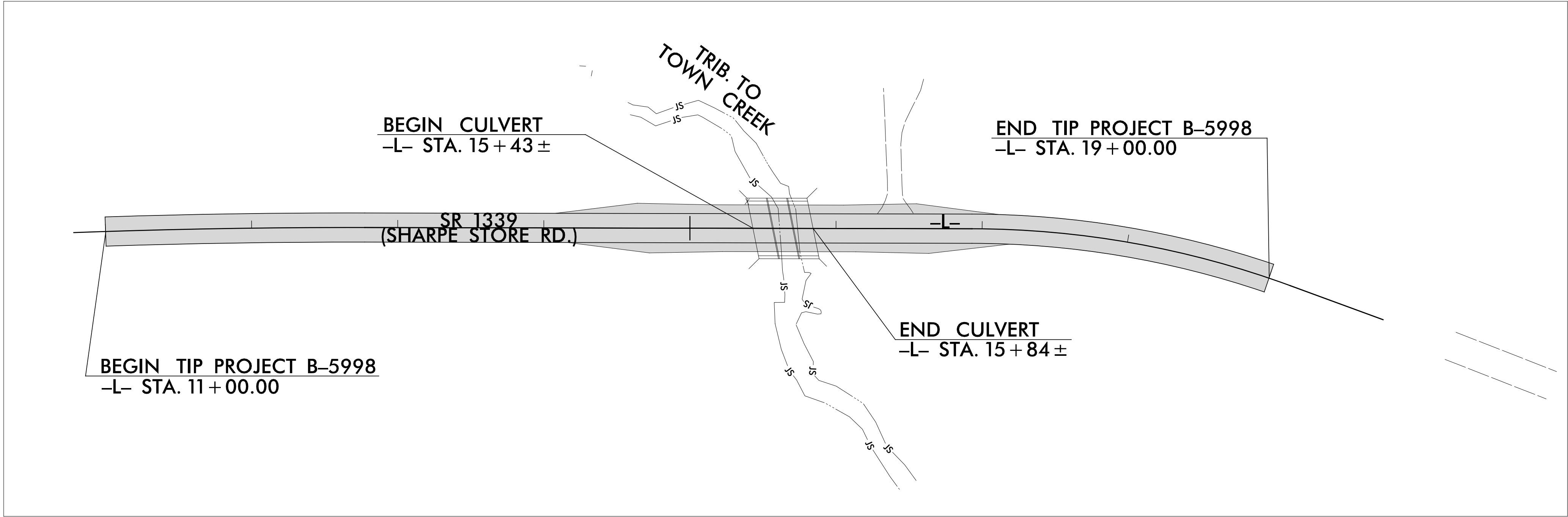
CONTRACT NO: DD00281



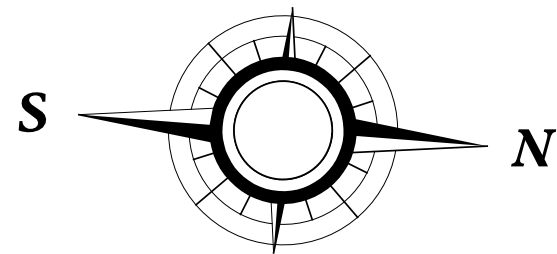
VICINITY MAP

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES
● DETOUR ROUTE

TO SR 1619
(BARNES ST.)



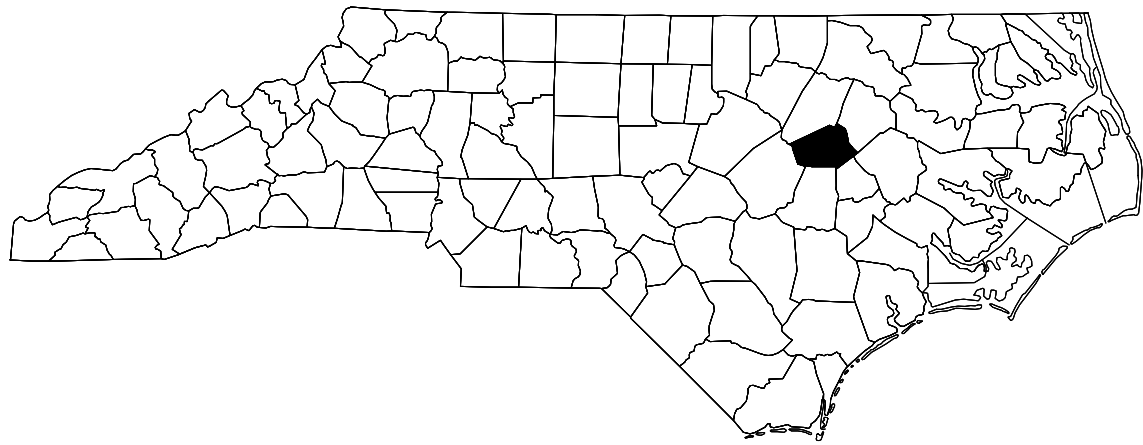
TO SR 1340
(STAGECOACH RD.)



NC GRID
NAD 83 NA 2011

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5998		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
48193.1.2	BRZ-1339(006)	PE	
48193.2.2	BRZ-1339(006)	ROW & UTILITIES	
48193.3.1	BRZ-1339(006)	CONST	



STATE OF NORTH CAROLINA

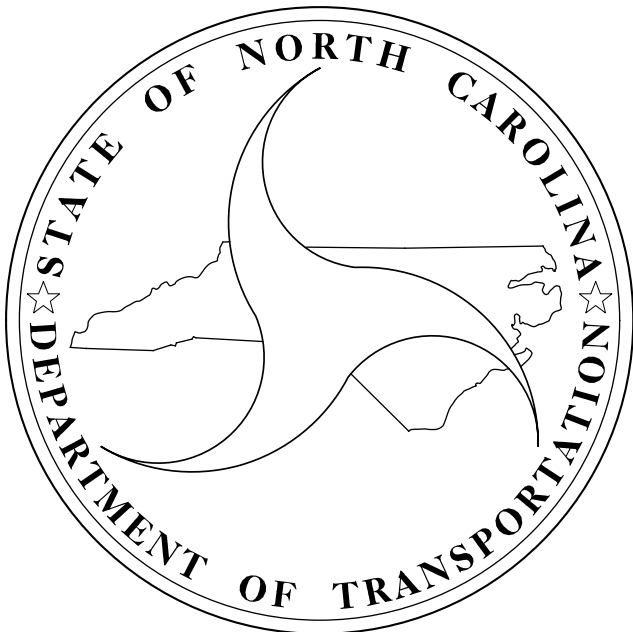
DIVISION OF HIGHWAYS

WILSON COUNTY

STRUCTURES

LOCATION: CULVERT 970092 ON SHARPE STORE RD. (SR 1339)
OVER TOWN CREEK

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT



DESIGN DATA

WILSON COUNTY

ADT 2016 = 450
ADT 2025 = 1120
T = 6%*
V = 55 MPH

*TTST = 3% DUAL 3%

FUNC CLASS = LOCAL RURAL SUB-REGIONAL TIER

PROJECT LENGTH

WILSON COUNTY

LENGTH ROADWAY TIP PROJECT = 0.144 MILES
LENGTH STRUCTURES TIP PROJECT = 0.008 MILES
TOTAL LENGTH TIP PROJECT = 0.152 MILES

NCDOT CONTACT:

CHAD COGGINS
DIVISION 4 CONTACT

PLANS PREPARED BY:



Gannett Fleming

Excellence Delivered As Promised

ERIC B. NELSON, P.E.

PROJECT DESIGN ENGINEER

2018 STANDARD SPECIFICATIONS

2610 Wycliff Road
Suite 102
Raleigh NC 27607-3073
(919) 420-7660
NC Lic. No. F-0270

LETTING DATE:
SEPTEMBER 24, 2019

DocuSigned by:
Eric B. Nelson, P.E.
4/22/2019



ERIC B. NELSON, P.E.
PROJECT DESIGN ENGINEER

BENCH MARK #1: R/R SPIKE IN 18" OAK, 159.84 LT, STA 15+31.98 -L-, ELEV. 118.20

F.A. PROJECT NO. BRZ-1339(006)

GENERAL NOTES

ASSUMED LIVE LOAD HL-93 OR ALTERNATE LOADING.

THIS CULVERT IS LOCATED IN SEISMIC ZONE 1.

DESIGN FILL 2.06' MIN. AND 2.74' MAX.

FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.

3"Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.

2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS IN FIELD. PRIOR TO STAKING OUT CULVERT FOR CONSTRUCTION, CONTRACTOR SHALL SUBMIT LAYOUT CALCULATIONS FOR PROPOSED LENGTH, ELEVATION, AND ALIGNMENT OF CULVERT TO THE RESIDENT ENGINEER FOR APPROVAL.

THIS BARREL STANDARD TO BE USED ONLY ON CULVERTS ON A 75° SKEW AND TO BE USED WITH STANDARD WING SHEET WITH THE SAME SKEW AND VERTICAL CLEARANCE.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

STEEL IN THE BOTTOM SLAB MAY BE SPICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR ASBESTOS ASSESSMENT FOR BRIDGE DEMOLITION AND RENOVATION ACTIVITIES, SEE SPECIAL PROVISIONS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

FOR CHANNEL SUBSTRATE MATERIAL, SEE SPECIAL PROVISIONS.

FOR HIGH FLOW CHANNEL - PLACEMENT OF NATURAL STREAM BED MATERIAL, SEE SPECIAL PROVISIONS.

FOR EROSION CONTROL MEASURE, SEE EROSION CONTROL PLANS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

AT THE CONTRACTOR'S OPTION, HE MAY SPICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPICE LENGTH SHALL BE AS PROVIDED IN THE SPICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

THE EXISTING STRUCTURE CONSISTING OF TWO REINFORCED CONCRETE DECK ON TIMBER JOIST SPANS, 2 @ 17'-7" WITH A CLEAR ROADWAY WIDTH OF 24' ON TIMBER BENTS LOCATED AT THE PROPOSED STRUCTURE SITE SHALL BE REMOVED.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

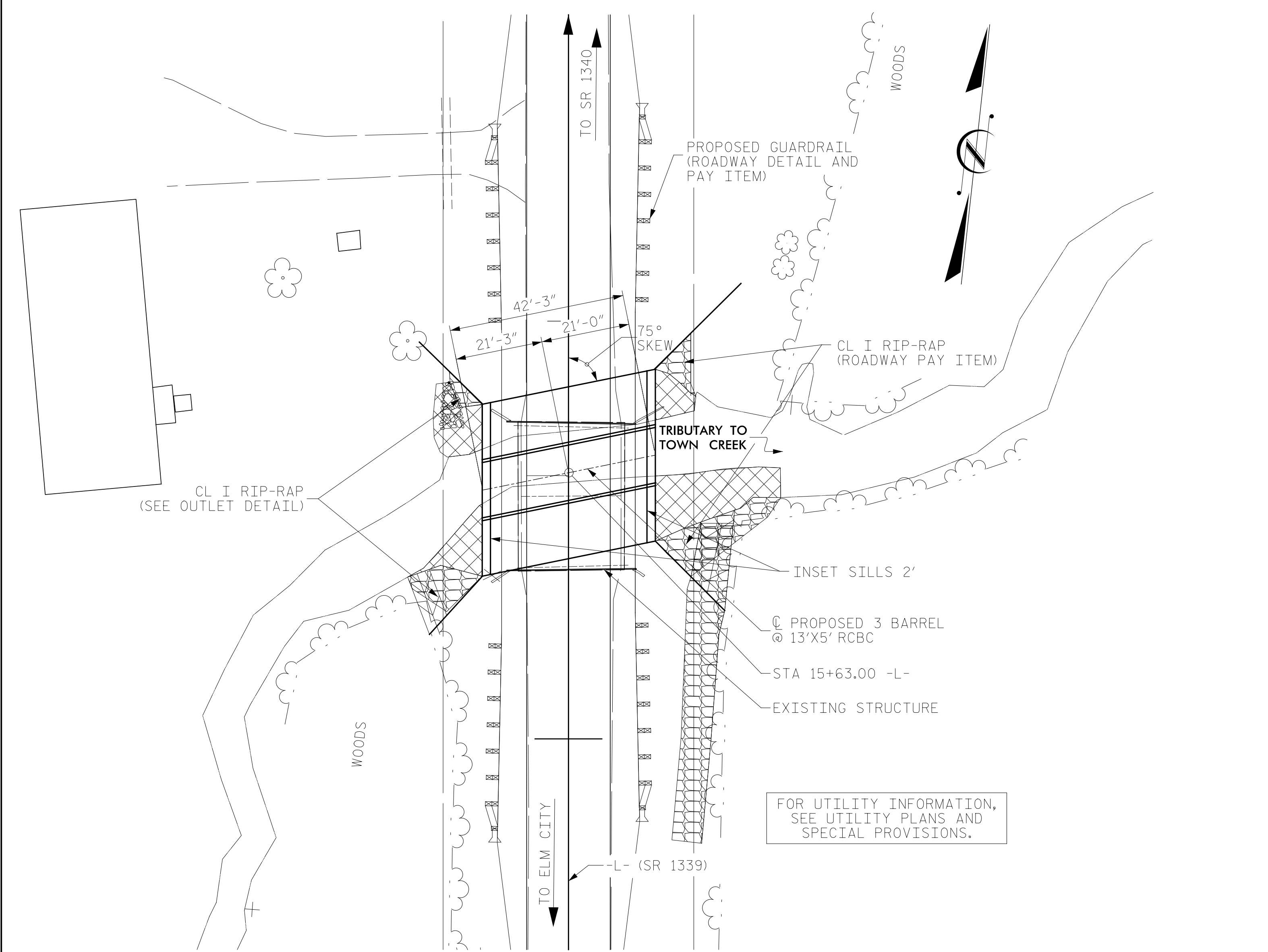
SEE SECTION 414 OF THE STANDARD SPECIFICATIONS FOR CULVERT EXCAVATION AND BACKFILLING.

A 3 FT. STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE".

BENEATH THE ENTIRE BASE OF THE REINFORCED CONCRETE BOX CULVERT (RCBC), PLACE AT LEAST 1-FOOT OF CLASS VI SELECT FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH ARTICLE 414 OF THE STANDARD SPECIFICATIONS FOR ROAD AND STRUCTURES.

DUE TO THE SOFT CLAYS BENEATH THE CULVERT, STABILIZATION OF THE CULVERT FOUNDATION SUBGRADE MAY BE REQUIRED UTILIZING EITHER UNDERCUT EXCAVATION IN ACCORDANCE WITH SECTION 225.4 OF THE STANDARD SPECIFICATIONS FOR ROAD AND STRUCTURES, WITH ADDITIONAL CLASS VI SELECT FOUNDATION CONDITION MATERIAL, OR THE USE OF TYPE 4 GEOTEXTILE IN ACCORDANCE WITH SECTION 270 OF THE STANDARD SPECIFICATIONS FOR ROAD AND STRUCTURES.



LOCATION SKETCH

HYDRAULIC DATA

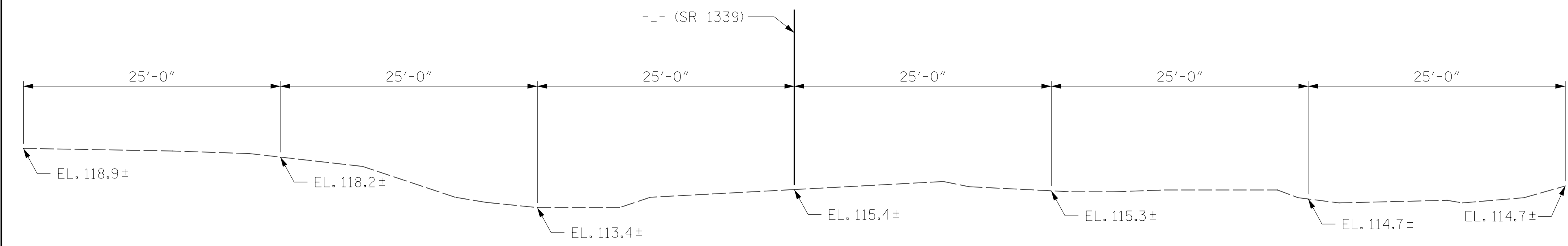
DESIGN DISCHARGE = 440 C.F.S.
FREQUENCY OF DESIGN FLOOD = 25 YRS
DESIGN HIGH WATER ELEVATION = 117.8 FT
DRAINAGE AREA = 2.59 SQ. MI.
BASE DISCHARGE (Q100) = 670
BASE HIGH WATER ELEVATION = 118.6 FT

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE = 660 C.F.S.
FREQUENCY OF OVERTOPPING FLOOD = 100 YRS
OVERTOPPING FLOOD ELEVATION = 118.6 FT

GRADE DATA

GRADE POINT ELEV. @ STA 15+63 -L- = 119.42
BED ELEV. @ STA 15+60 -L- = 112.14
ROADWAY FILL SLOPES = 2:1



PROFILE ALONG CULVERT

DRAWN BY : M. SPENCER DATE : 12/2018
CHECKED BY : J. FARNHAM DATE : 02/2019
DESIGN ENGINEER OF RECORD : R. WERTMAN DATE : 02/2019

TOTAL STRUCTURE QUANTITIES		
CLASS A CONCRETE		
BARREL @	3,335	CY/FT 140.9 C.Y.
WING ETC.		25.3 C.Y.
TOTAL		166.2 C.Y.
REINFORCING STEEL		
BARREL	32828	LBS.
WINGS ETC.	744	LBS.
TOTAL	33572	LBS.
CULVERT EXCAVATION		LUMP SUM
FOUNDATION COND. MAT'L.		136 TONS
REMOVAL OF EXIST. STRUCTURE		LUMP SUM
ASBESTOS ASSESSMENT		LUMP SUM
CHANNEL SUBSTRATE MATERIAL		LUMP SUM

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 1 OF 7 REPLACES BRIDGE NO. 970092



DocuSigned by:
Eric B. Nelson 4/3/2019

PLANS PREPARED BY:
2610 Wycliff Road
Suite 102
Raleigh NC 27607-3073
(919) 420-7660
Gannett Fleming
Excellence Delivered As Promised
NC Lic. No. F-0270

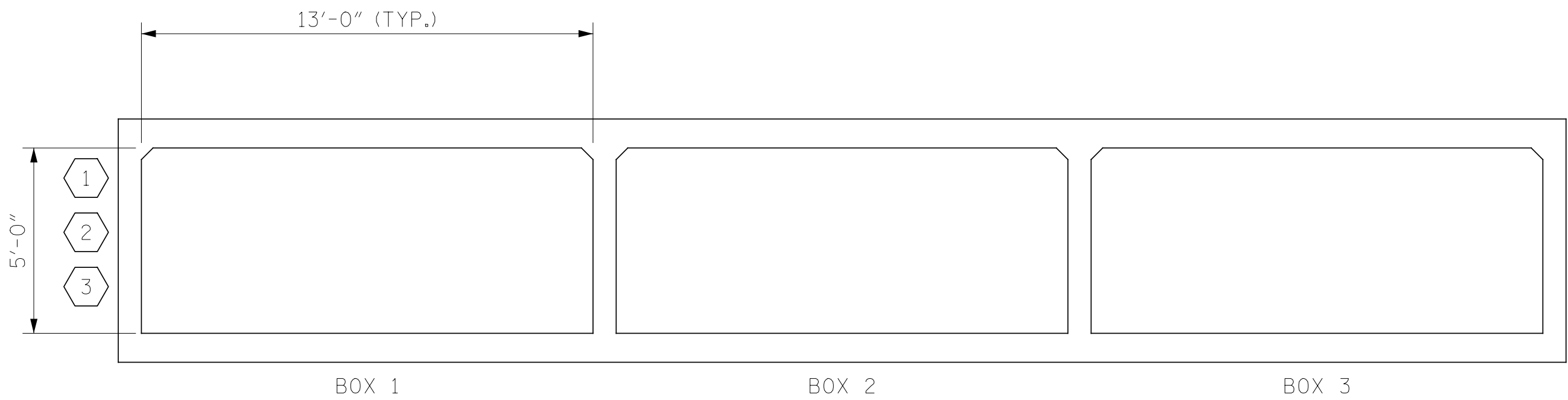
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TRIPLE 13 FT. X 5 FT. CONCRETE BOX CULVERT 75° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO.					C-1
TOTAL SHEETS					7

+

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS																
LEVEL	VEHICLE	WEIGHT (W) (TONS)	# CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W × RF	STRENGTH I LIMIT STATE										COMMENT NUMBER
						LIVE-LOAD, FACTORS (γ _{LL})	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)	RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (ft)		
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	1	1.04	--	1.75	1.04	1	EXTERIOR WALL	4.54	1.14	1	TOP SLAB	11.87	1	
	HL-93 (OPERATING)	N/A		1.34	--	1.35	1.34	1	EXTERIOR WALL	4.54	1.48	1	TOP SLAB	11.87	1	
	HS-20 (INVENTORY)	36.000	2	1.14	41.04	1.75	1.14	1	EXTERIOR WALL	4.54	1.26	1	TOP SLAB	11.87	1	
	HS-20 (OPERATING)	36.000		1.47	52.92	1.35	1.47	1	EXTERIOR WALL	4.54	1.64	1	TOP SLAB	11.87	1	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH		2.20	29.70	1.40	2.20	1	TOP SLAB	5.47	2.97	1	TOP SLAB	11.87	1	
		SNGARBS2		2.05	41.00	1.40	2.05	1	TOP SLAB	5.47	2.74	1	TOP SLAB	11.87	1	
		SNAGRIS2		2.19	48.18	1.40	2.19	1	TOP SLAB	5.47	2.89	1	TOP SLAB	11.87	1	
		SNCOTTS3	3	1.37	37.33	1.40	1.37	1	EXTERIOR WALL	4.54	1.51	1	TOP SLAB	11.87	1	
		SNAGGRS4		1.53	53.43	1.40	1.53	1	EXTERIOR WALL	4.54	1.68	1	TOP SLAB	11.87	1	
		SNS5A		1.50	53.32	1.40	1.50	1	EXTERIOR WALL	4.54	1.61	1	TOP SLAB	11.87	1	
		SNS6A		1.50	59.92	1.40	1.50	1	EXTERIOR WALL	4.54	1.60	1	TOP SLAB	11.87	1	
		SNS7B		1.55	65.10	1.40	1.55	1	EXTERIOR WALL	4.54	1.59	1	TOP SLAB	11.87	1	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3		2.19	72.27	1.40	2.19	1	TOP SLAB	5.47	2.20	1	TOP SLAB	11.87	1	
		TNT4A		1.58	52.25	1.40	1.58	1	EXTERIOR WALL	4.54	1.75	1	TOP SLAB	11.87	1	
		TNT6A		1.61	66.97	1.40	1.61	1	EXTERIOR WALL	4.54	1.61	1	TOP SLAB	11.87	1	
		TNT7A		1.58	66.36	1.40	1.58	1	EXTERIOR WALL	4.54	1.66	1	TOP SLAB	11.87	1	
		TNT7B		1.57	65.94	1.40	1.57	1	EXTERIOR WALL	4.54	1.64	1	TOP SLAB	11.87	1	
		TNAGRIT4		1.58	67.94	1.40	1.58	1	EXTERIOR WALL	4.54	1.71	1	TOP SLAB	11.87	1	
		TNAGT5A		1.70	76.50	1.40	1.84	1	EXTERIOR WALL	4.54	1.70	1	TOP SLAB	11.87	1	
		TNAGT5B		1.58	71.10	1.40	1.58	1	EXTERIOR WALL	4.54	1.67	1	TOP SLAB	11.87	1	

+



LRFR SUMMARY
(LOOKING DOWNSTREAM)

ASSEMBLED BY : M. SPENCER	DATE : 12/2018
CHECKED BY : J. FARNHAM	DATE : 12/2018
DRAWN BY : WMC 7/II	REV. 10/1/II MAA/GM
CHECKED BY : GM 7/II	REV. 12/17 MAA/THC

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

LOAD TYPE	MAX FACTOR	MIN FACTOR
DC	1.25	0.90
DW	1.50	0.65
EV	1.30	0.90
EH	1.35	0.90
ES	1.35	0.90
LS	1.75	--
WA	1.00	--

NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

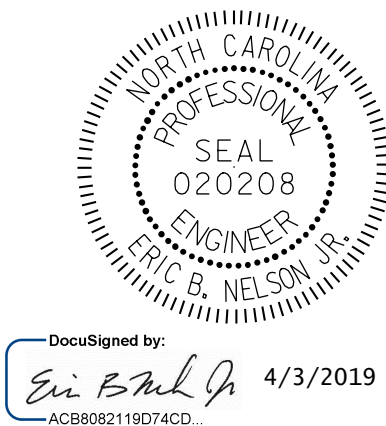
COMMENTS:

1. BOX STRUCTURE IS SYMMETRICAL, THEREFORE BOX 1 RATING SIMILAR TO BOX 3.

⬡#	CONTROLLING LOAD RATING
⬡1	DESIGN LOAD RATING (HL-93)
⬡2	DESIGN LOAD RATING (HS-20)
⬡3	LEGAL LOAD RATING **
** SEE CHART FOR VEHICLE TYPE	

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 2 OF 7

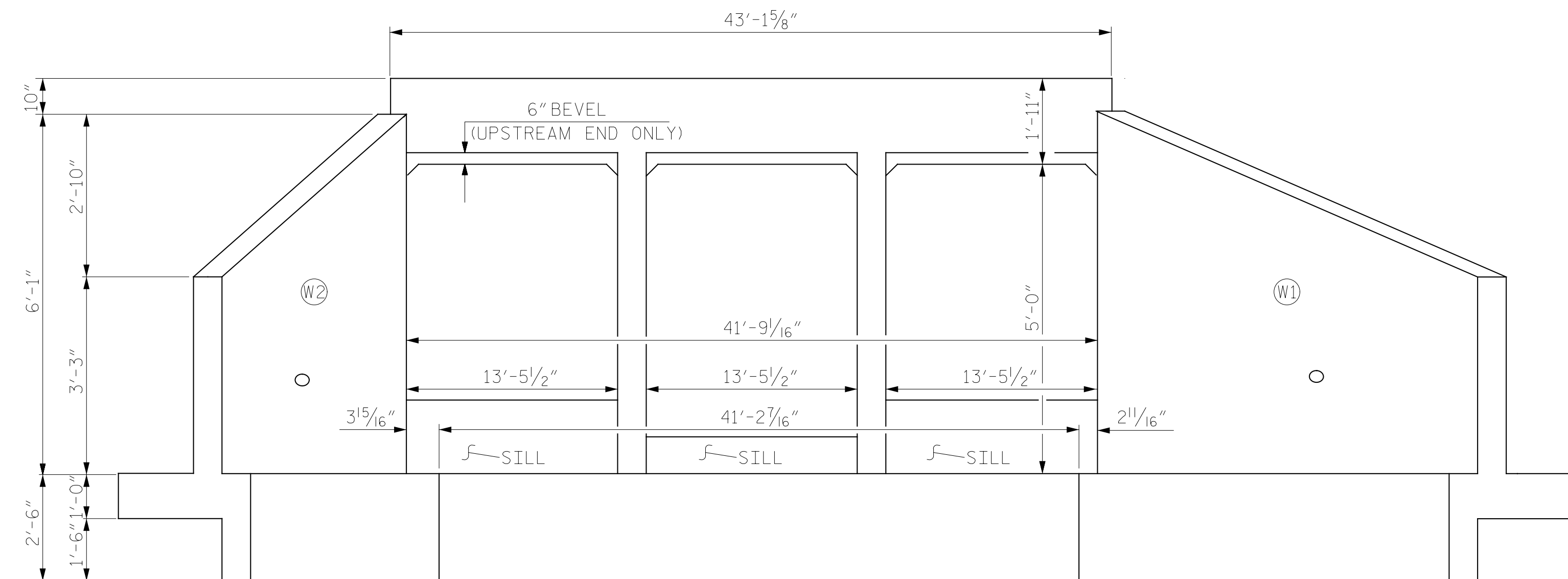


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
LRFR SUMMARY FOR
REINFORCED CONCRETE
BOX CULVERTS
(NON-INTERSTATE TRAFFIC)

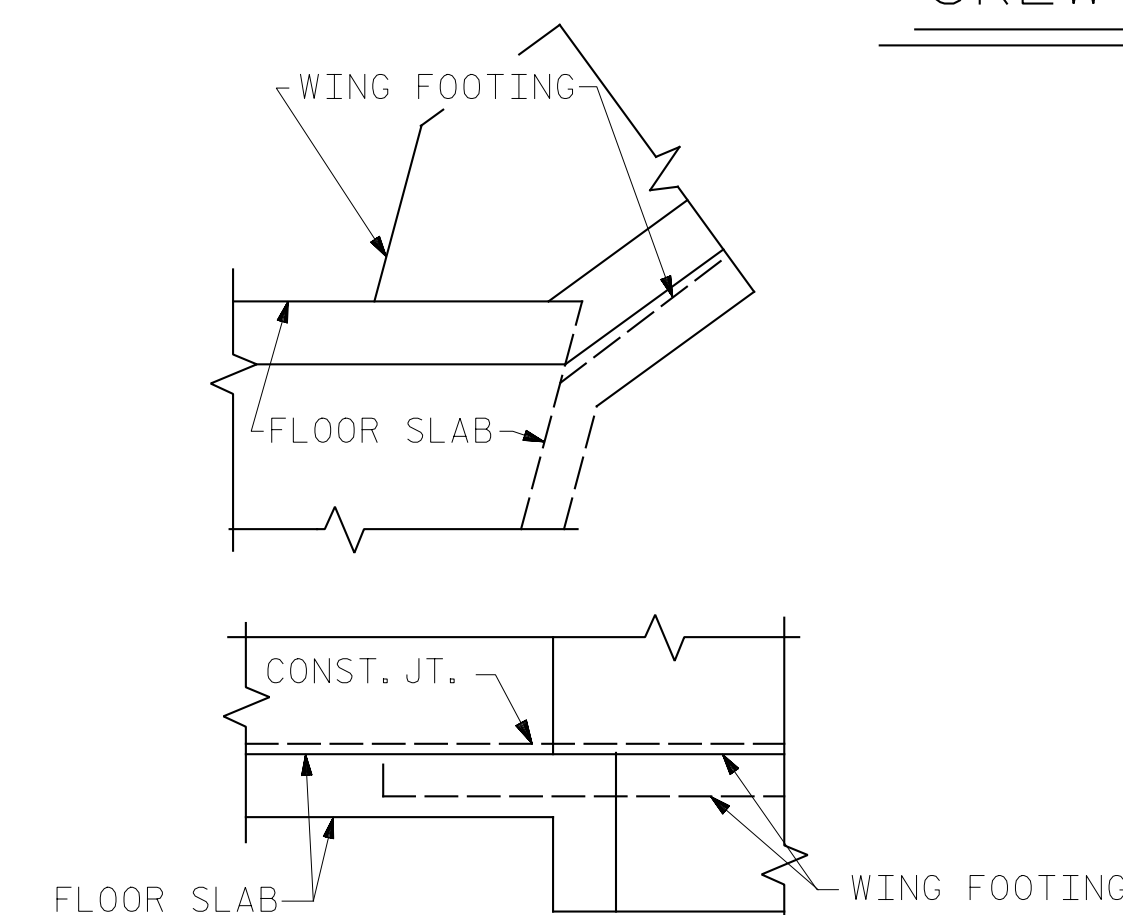
DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

SHEET NO. C-2
TOTAL SHEETS 7

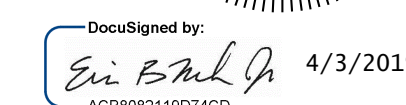


END ELEVATION NORMAL TO SKEW



PROJECT NO. B-5998
WILSON COUNTY
 CULVERT NO. 92
 STATION 15+63.00 -L-

SHEET 3 OF 7



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

TRIPLE
13 FT. X 5 FT.
CONCRETE BOX CULVERT
75° SKEW

REVISIONS						SHEET NO. C-3
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 7
2			4			

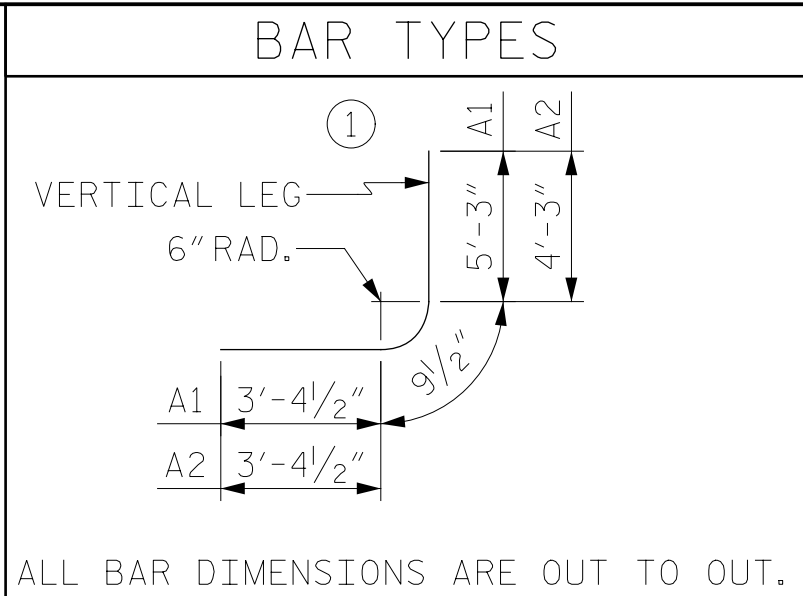
PLANS PREPARED BY:  **Gannett Fleming**
Excellence Delivered As Promised

2610 Wycliff Road
 Suite 102
 Raleigh NC 27607-3077
 (919) 420-7660

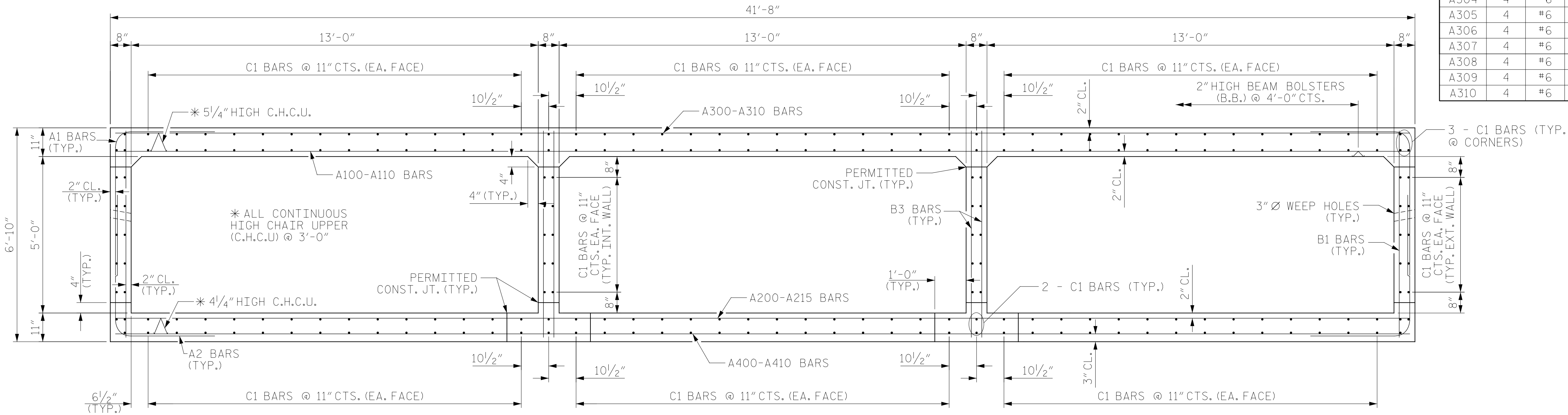
NC Lic. No. F-0270

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

SPLICE LENGTH CHART		
BAR	SIZE	SPLICE LENGTH
A1	#6	3'-1"
A2	#6	3'-1"
C1	#4	1'-11"



BILL OF MATERIAL											
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
A1	102	#6	1	9'-5"	1443	A400	63	#6	STR	41'-4"	3911
A2	102	#6	1	8'-5"	1328	A401	4	#6	STR	37'-2"	223
						A402	4	#6	STR	33'-5"	201
A100	63	#6	STR	41'-4"	3911	A403	4	#6	STR	29'-8"	178
A101	4	#6	STR	37'-2"	223	A404	4	#6	STR	25'-11"	156
A102	4	#6	STR	33'-5"	201	A405	4	#6	STR	22'-2"	133
A103	4	#6	STR	29'-8"	178	A406	4	#6	STR	18'-6"	111
A104	4	#6	STR	25'-11"	156	A407	4	#6	STR	14'-9"	89
A105	4	#6	STR	22'-2"	133	A408	4	#6	STR	11'-0"	66
A106	4	#6	STR	18'-6"	111	A409	4	#6	STR	7'-3"	44
A107	4	#6	STR	14'-9"	89	A410	4	#6	STR	3'-6"	21
A108	4	#6	STR	11'-0"	66						
A109	4	#6	STR	7'-3"	44	B1	102	#4	STR	6'-5"	437
A110	4	#6	STR	3'-6"	21	B3	204	#4	STR	6'-5"	875
A200	47	#6	STR	41'-4"	2918	C1	456	#4	STR	21'-11"	6677
A201	2	#6	STR	38'-4"	115						
A202	2	#6	STR	35'-11"	108	D1	16	#6	STR	2'-6"	60
A203	2	#6	STR	33'-5"	100	D2	8	#6	STR	1'-6"	17
A204	2	#6	STR	30'-11"	93						
A205	2	#6	STR	28'-5"	85	G1	8	#5	STR	42'-10"	357
A206	2	#6	STR	25'-11"	78						
A207	2	#6	STR	23'-5"	70	S2	12	#8	STR	42'-10"	1372
A208	2	#6	STR	20'-11"	63						
A209	2	#6	STR	18'-6"	56						
A210	2	#6	STR	16'-0"	48						
A211	2	#6	STR	13'-6"	41						
A212	2	#6	STR	11'-0"	33						
A213	2	#6	STR	8'-6"	26						
A214	2	#6	STR	6'-0"	18						
A215	2	#6	STR	3'-6"	11						
A300	63	#6	STR	41'-4"	3911						
A301	4	#6	STR	37'-2"	223						
A302	4	#6	STR	33'-5"	201						
A303	4	#6	STR	29'-8"	178						
A304	4	#6	STR	25'-11"	156						
A305	4	#6	STR	22'-2"	133						
A306	4	#6	STR	18'-6"	111						
A307	4	#6	STR	14'-9"	89						
A308	4	#6	STR	11'-0"	66						
A309	4	#6	STR	7'-3"	44						
A310	4	#6	STR	3'-6"	21						

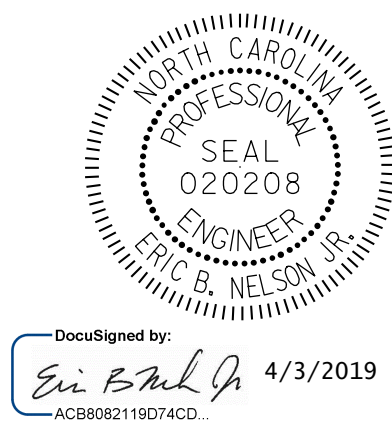


RIGHT ANGLE SECTION OF BARREL

THERE ARE 228 "C" BARS IN SECTION OF BARREL.
(LOOKING DOWNSTREAM)

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 4 OF 7



DEPARTMENT OF TRANSPORTATION RALEIGH					
TRIPLE 13 FT. X 5 FT. CONCRETE BOX CULVERT 75° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-4					TOTAL SHEETS 7

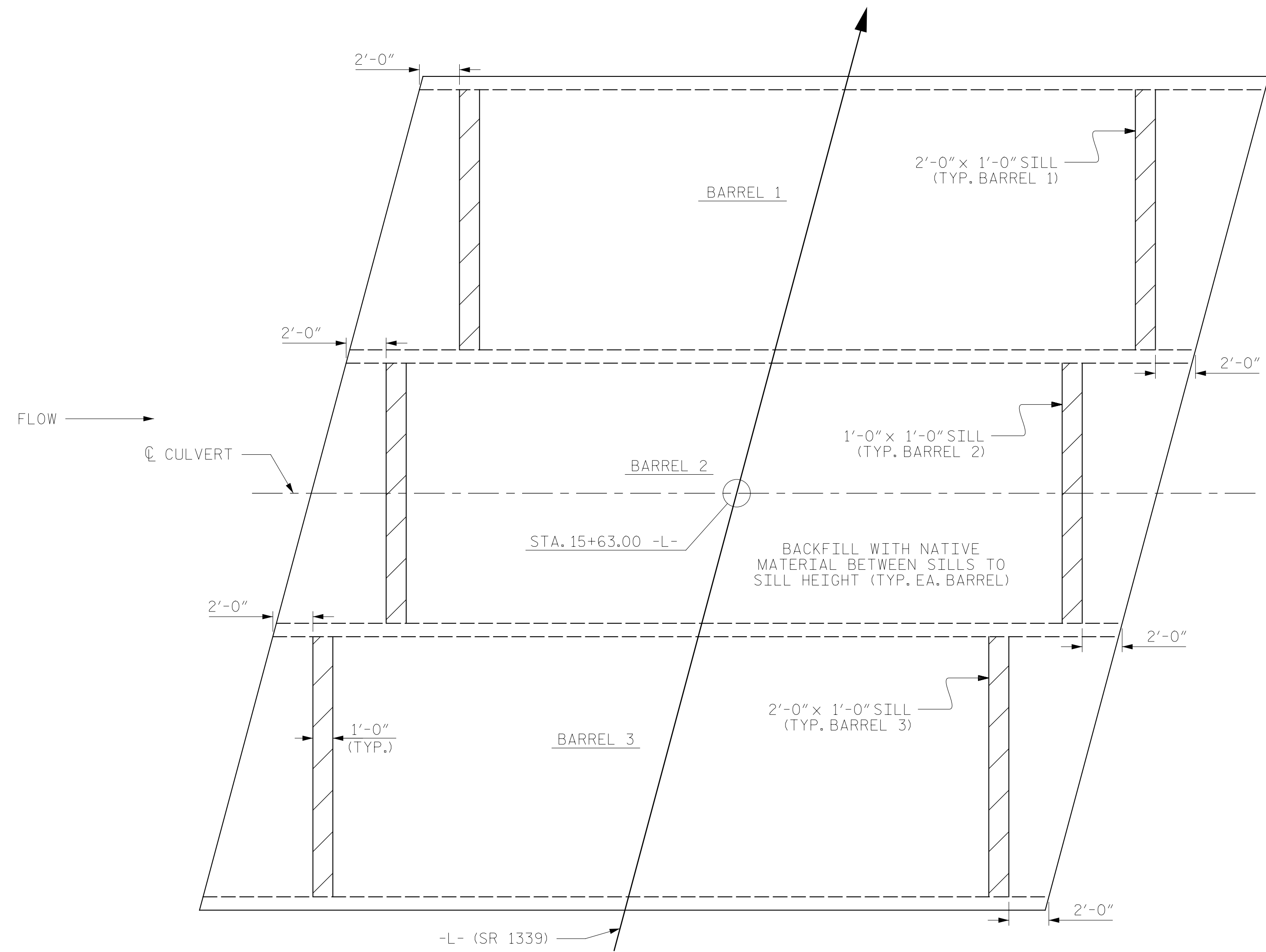
DRAWN BY :	M. SPENCER	DATE :	12/2018
CHECKED BY :	J. FARNHAM	DATE :	02/2019
DESIGN ENGINEER OF RECORD :	R. WERTMAN	DATE :	02/2019

PLANS PREPARED BY:

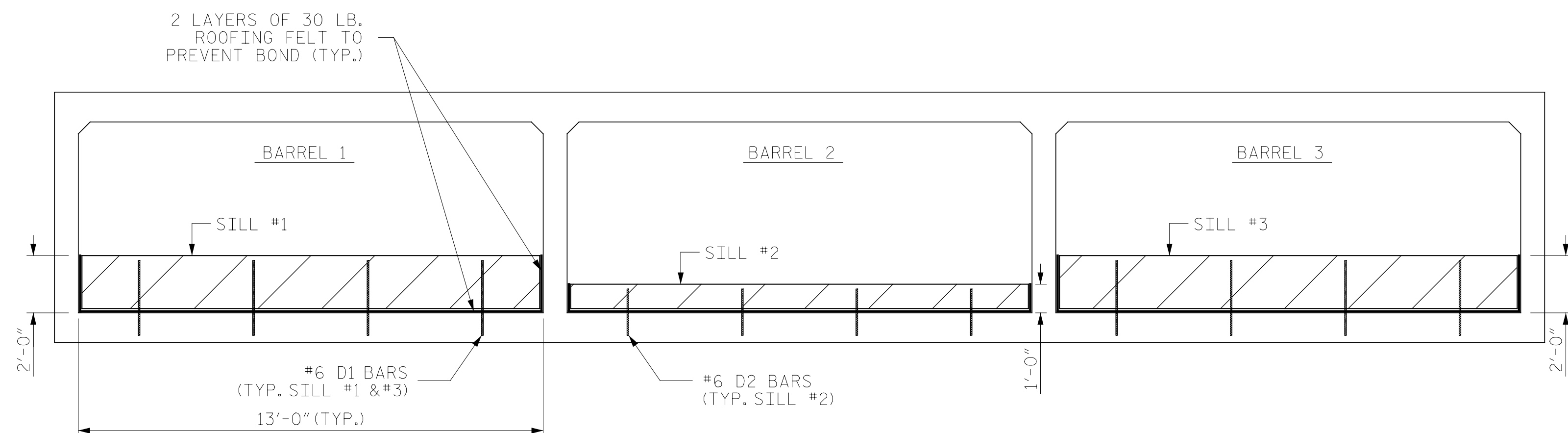
Gannett Fleming
Excellence Delivered **As Promised**

2610 Wycliff Road
Suite 102
Raleigh NC 27607-3073
(919) 420-7660
NC Lic. No. F-0270

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FINAL UNLESS ALL
SIGNATURES COMPLETED



FLOOR SILL LAYOUT



INLET ELEVATION
(LOOKING DOWNSTREAM)

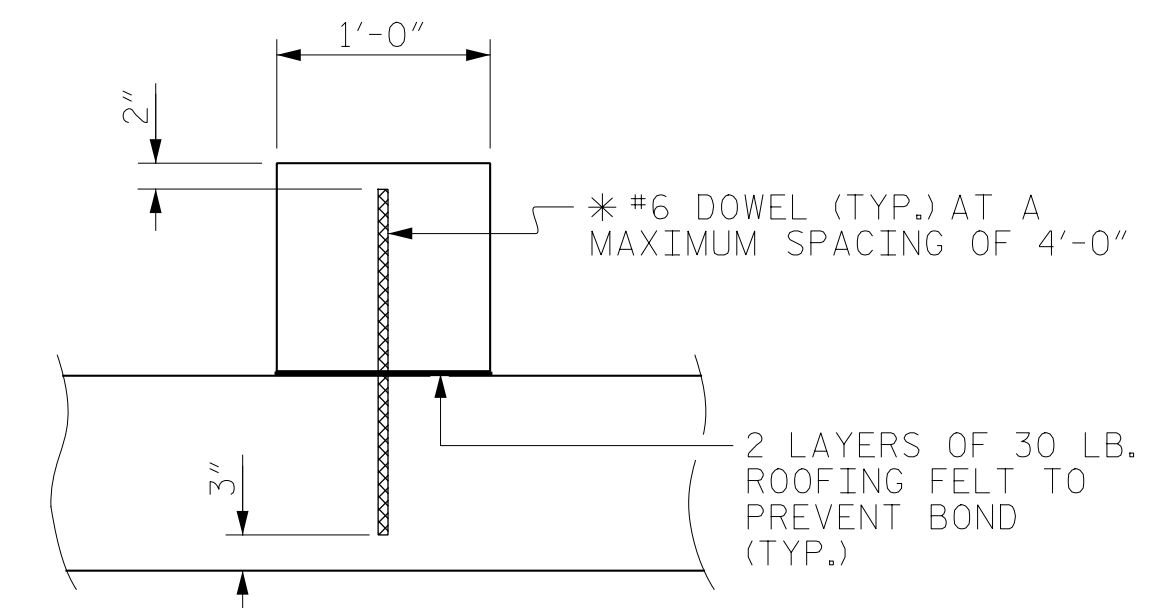
CULVERT SILL DETAILS

NOTES

NATIVE MATERIAL BETWEEN SILLS IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT BARREL. RIP RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL. IF RIP RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL, NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.

SILLS ARE TO BE 1.0 FT. WIDE, CAST SEPERATELY AND ATTACHED BY DOWELS.

DO NOT SET ELEVATION OF HIGH SILLS ABOVE BANK FULL.

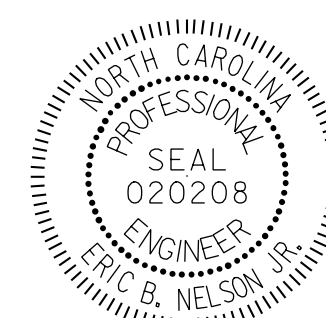


SECTION THROUGH SILL

*DOWELS MAY BE PUSHED INTO GREEN CONCRETE AFTER SLAB HAS BEEN FLOAT FINISHED.

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 5 OF 7



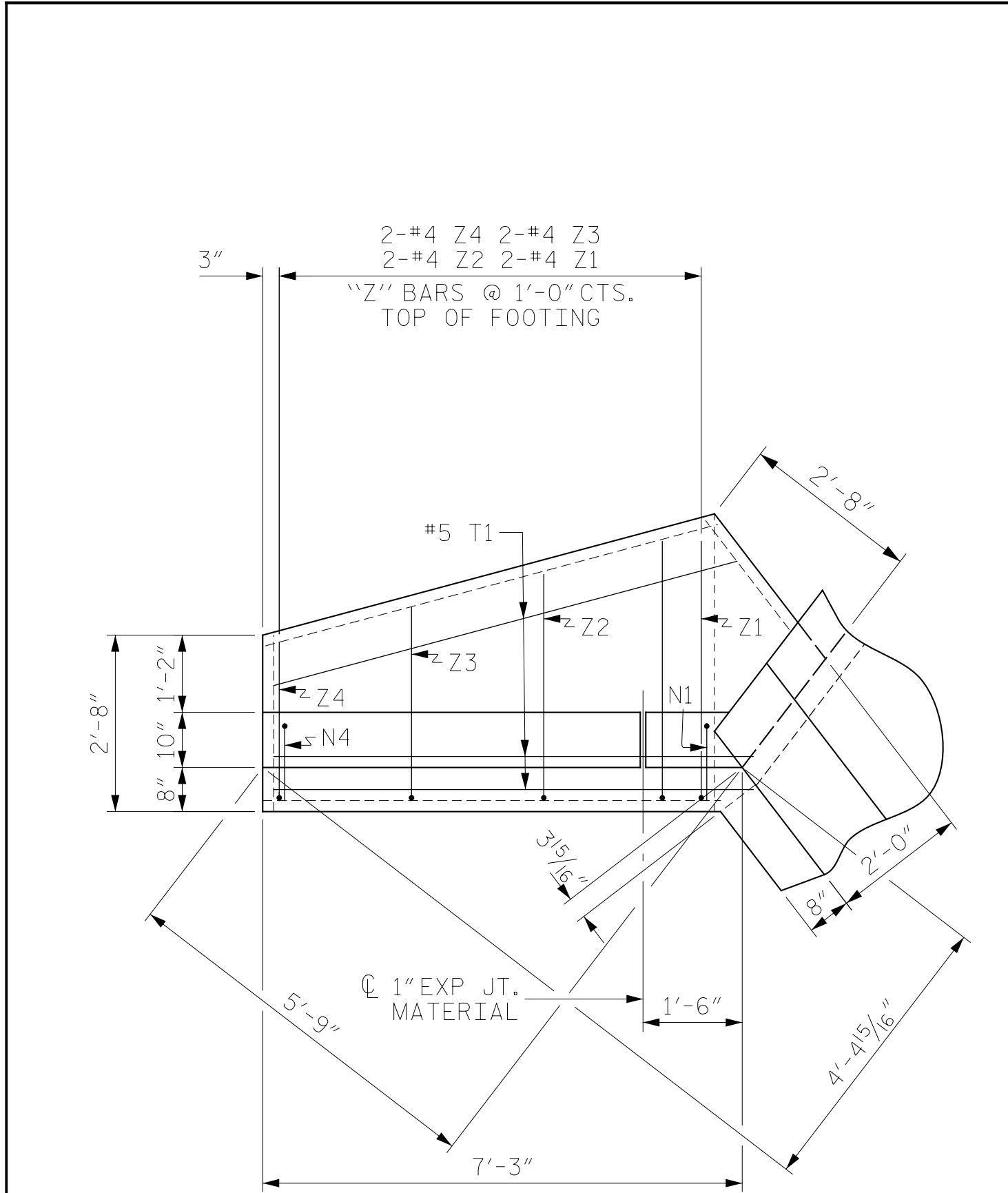
DocuSigned by:
Eric B. Nelson 4/3/2019
NCB08211874CD...

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TRIPLE 13 FT. X 5 FT. CONCRETE BOX CULVERT 75° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-5					TOTAL SHEETS 7

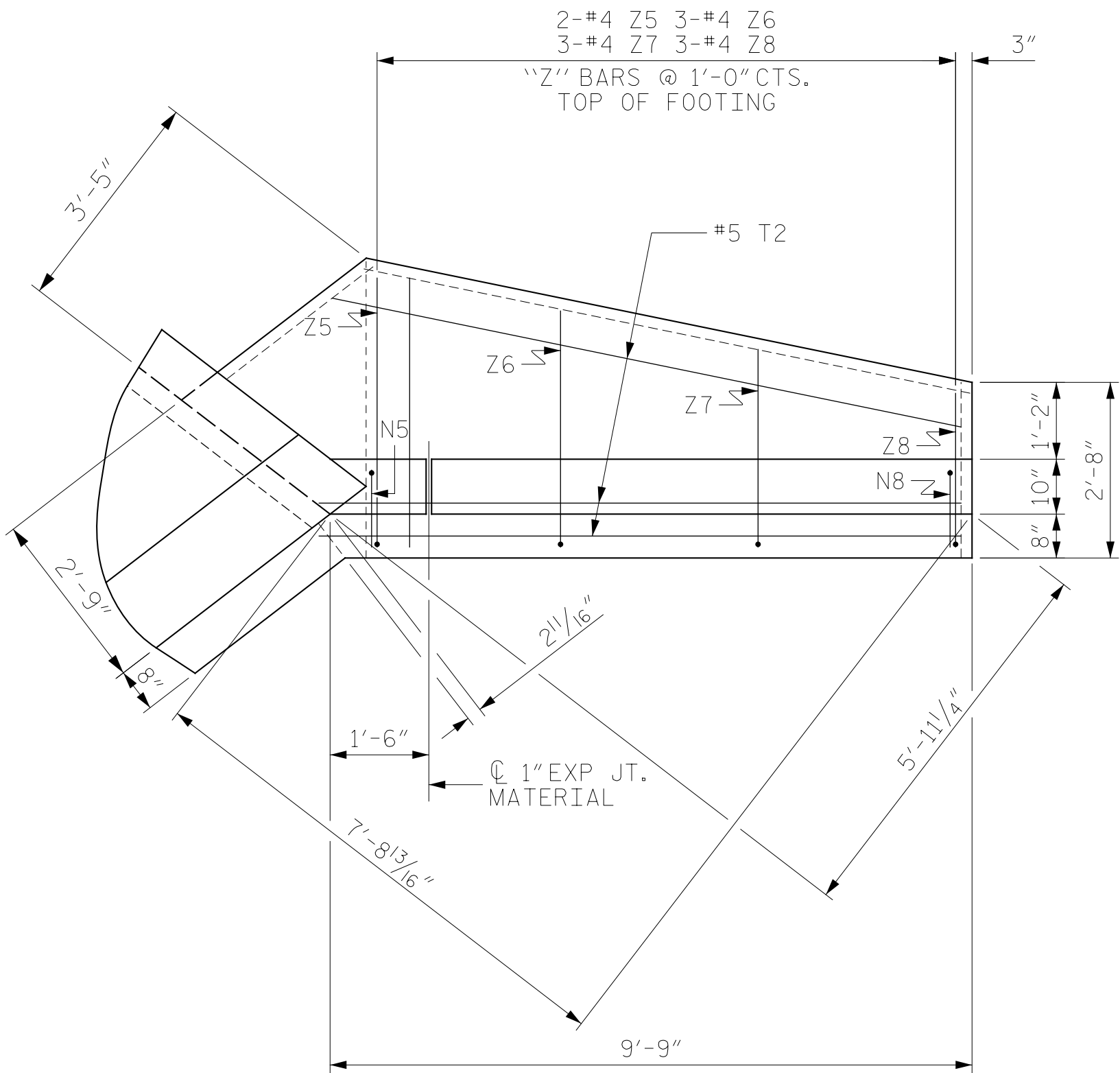
DRAWN BY : M. SPENCER DATE : 12/2018
CHECKED BY : J. FARNHAM DATE : 02/2019
DESIGN ENGINEER OF RECORD : R. WERTMAN DATE : 02/2019

PLANS PREPARED BY:
 Gannett Fleming
Excellence Delivered *As Promised*
2610 Wycliff Road
Suite 102
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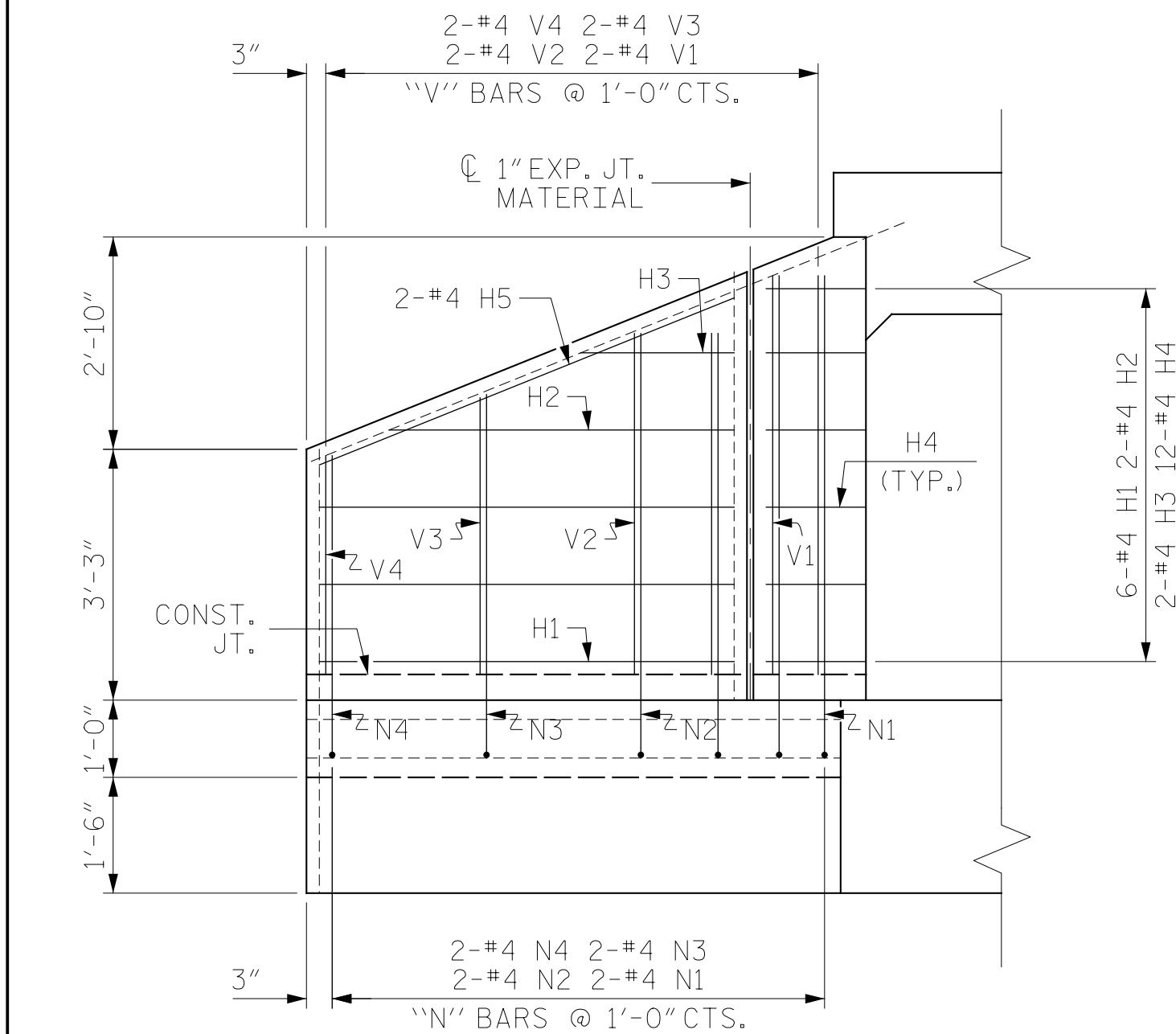
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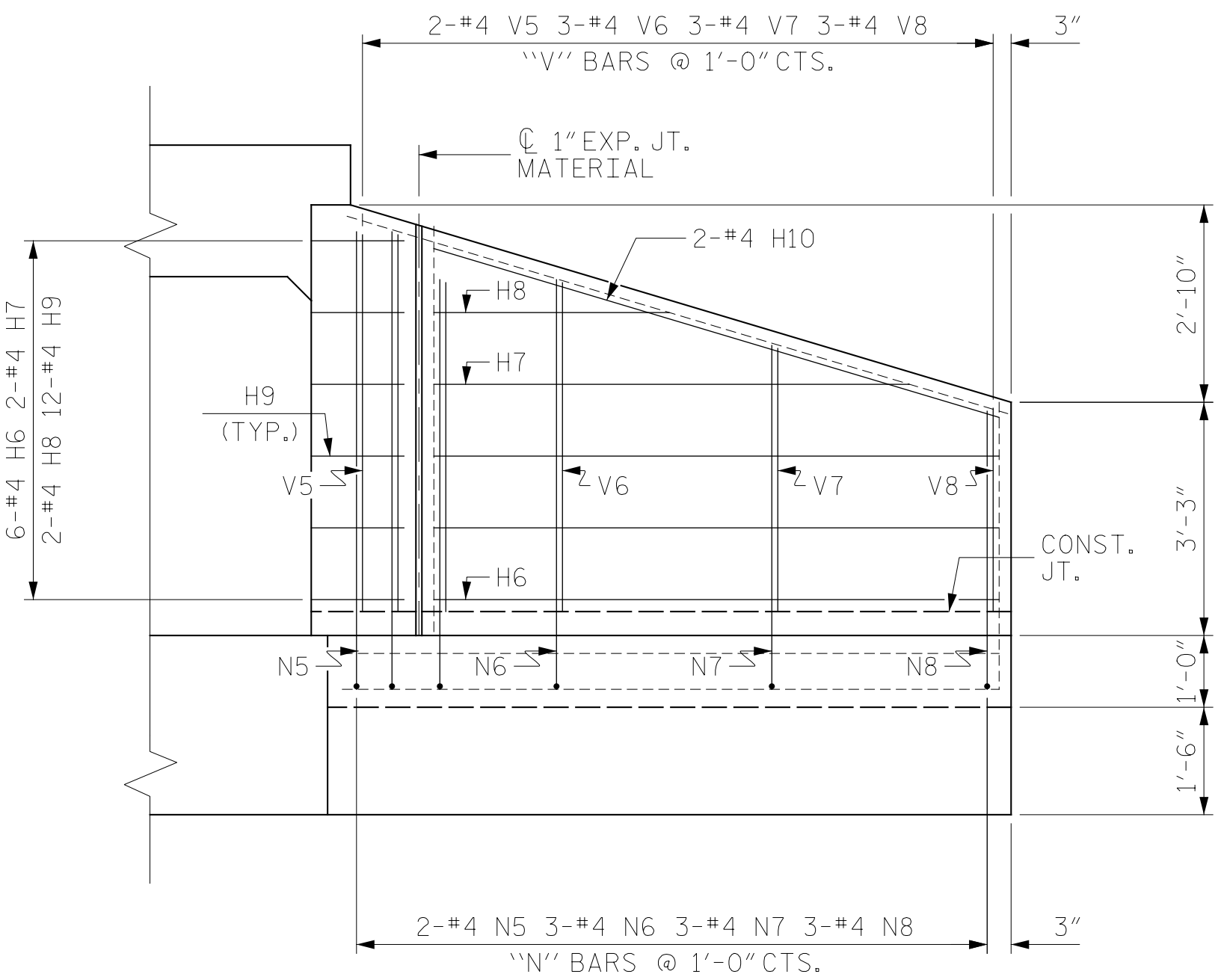
PLAN W2



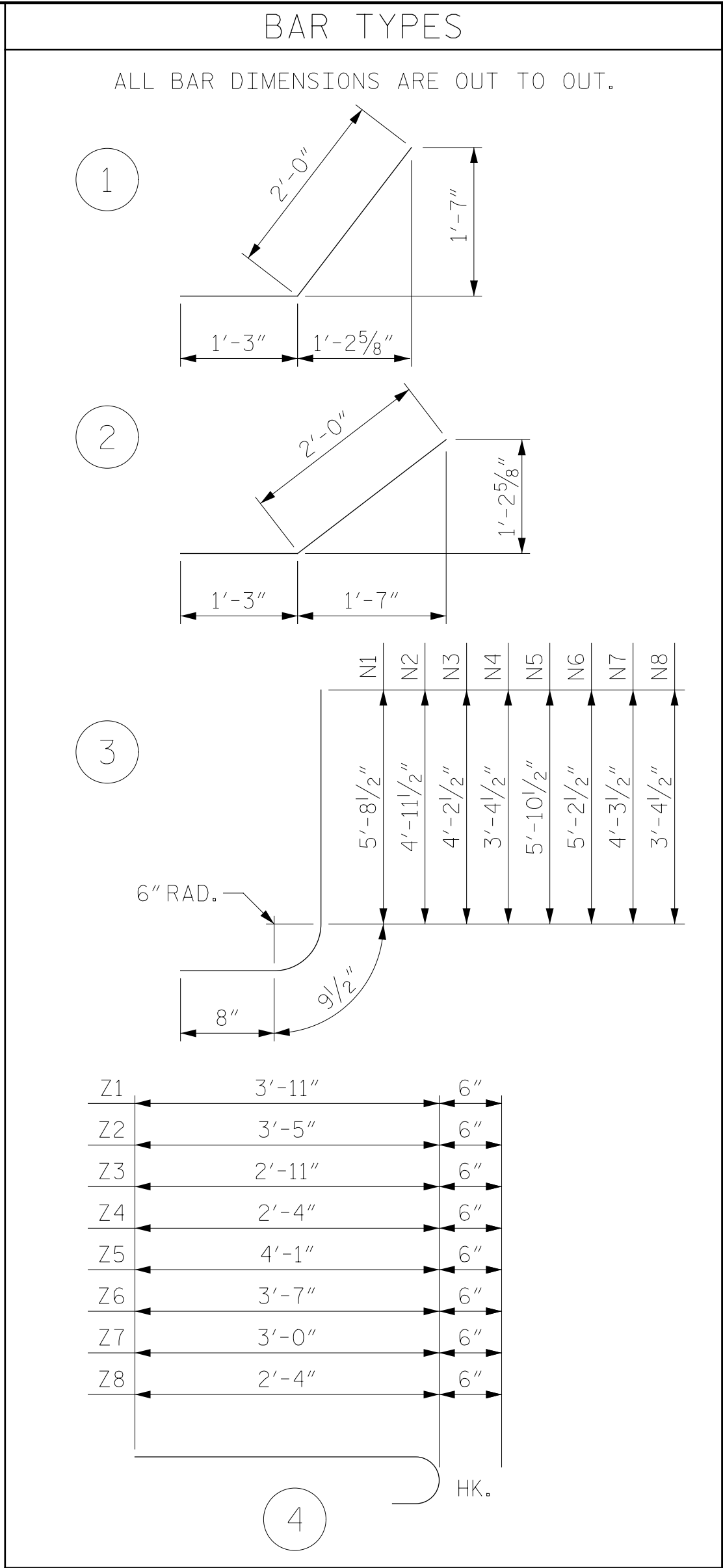
PLAN W1



ELEVATION W2



ELEVATION W1



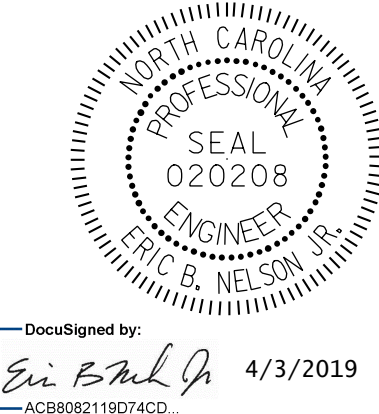
TYPICAL WING SECTION

BILL OF MATERIAL					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
H1	12	#4	STR	5'-4"	43
H2	4	#4	STR	4'-5"	12
H3	4	#4	STR	2'-0"	5
H4	24	#4	1	3'-3"	52
H5	4	#4	STR	5'-9"	15
H6	12	#4	STR	7'-10"	63
H7	4	#4	STR	6'-7"	18
H8	4	#4	STR	3'-3"	9
H9	24	#4	2	3'-3"	52
H10	4	#4	STR	8'-2"	22
N1	4	#4	3	7'-2"	19
N2	4	#4	3	6'-5"	17
N3	4	#4	3	5'-8"	15
N4	4	#4	3	4'-10"	13
N5	4	#4	3	7'-4"	20
N6	6	#4	3	6'-8"	27
N7	6	#4	3	5'-9"	23
N8	6	#4	3	4'-10"	19
T1	6	#5	STR	7'-3"	45
T2	6	#5	STR	9'-9"	61
V1	4	#4	STR	5'-2"	14
V2	4	#4	STR	4'-5"	12
V3	4	#4	STR	3'-7"	10
V4	4	#4	STR	2'-10"	8
V5	4	#4	STR	5'-3"	14
V6	6	#4	STR	4'-7"	18
V7	6	#4	STR	3'-8"	15
V8	6	#4	STR	2'-10"	11
Z1	4	#4	4	4'-5"	12
Z2	4	#4	4	3'-11"	10
Z3	4	#4	4	3'-5"	9
Z4	4	#4	4	2'-10"	8
Z5	4	#4	4	4'-7"	12
Z6	6	#4	4	4'-1"	16
Z7	6	#4	4	3'-6"	14
Z8	6	#4	4	2'-10"	11
REINFORCING STEEL					744 LBS
FOR 4 WINGS					
CLASS A CONCRETE					
4 WINGS					11.2 CY
2 HEADWALLS					4.0 CY
2 END CURTAIN WALLS					5.2 CY
6 SILLS					4.9 CY
TOTAL					25.3 CY

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 6 OF 7

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	C-6	
1			3			TOTAL SHEETS	
2			4			7	



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ASSEMBLED BY : M. SPENCER		DATE : 11/2018	
CHECKED BY : J. FARNHAM		DATE : 12/2018	
DRAWN BY : CCJ	12/99		
CHECKED BY : RWW	03/00		

STD. NO. CW7505

NOTES

- THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS SHALL CONSIST OF THE FOLLOWING COMPONENTS :
- A. FERRULES SHALL BE MADE FROM STEEL MEETING THE REQUIREMENTS OF AASHTO M169, GRADE 12L14 AND SHALL HAVE A MINIMUM LENGTH OF THREADS OF 2 1/2".
- B. 4 - 1" Ø X 2 1/4" BOLTS WITH WASHERS, BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307. BOLTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 1" Ø X 2 1/4" GALVANIZED BOLTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.)
- C. WIRE STRUTS SHOWN IN THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS DETAIL ARE MINIMUM ALLOWABLE SIZE AND SHALL HAVE A MINIMUM TENSILE STRENGTH OF 100,000 P.S.I. AS AN OPTION, A 1/16" Ø WIRE STRUT WITH A MINIMUM TENSILE STRENGTH OF 90,000 PSI IS ACCEPTABLE.

GUARDRAIL ANCHOR ASSEMBLY WITH BOLTS SHALL BE ASSEMBLED IN THE SHOP. BOLT THREADS MAY BE RECUT AS NECESSARY TO INSURE FIT.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR CLASS "A" CONCRETE.

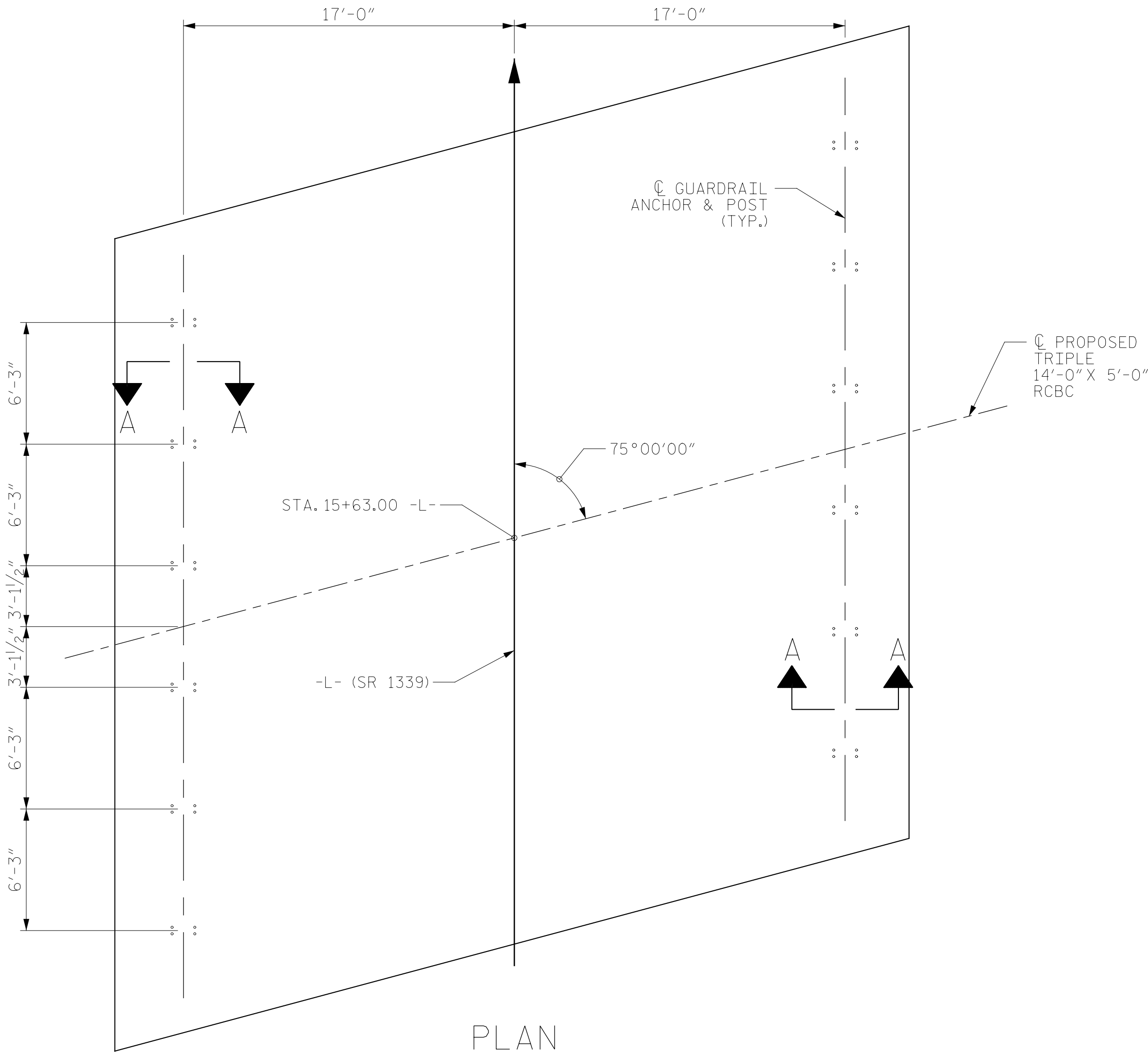
FERRULES TO BE PLUGGED DURING POURING OF SLAB AS RECOMMENDED BY THE MANUFACTURER.

AT THE CONTRACTOR'S OPTION, FERRULES WITH OPEN OR CLOSED ENDS MAY BE USED.

PAYMENT FOR GUARDRAIL, POSTS, AND POST BASE PLATES IS INCLUDED IN ROADWAY PAY ITEMS.

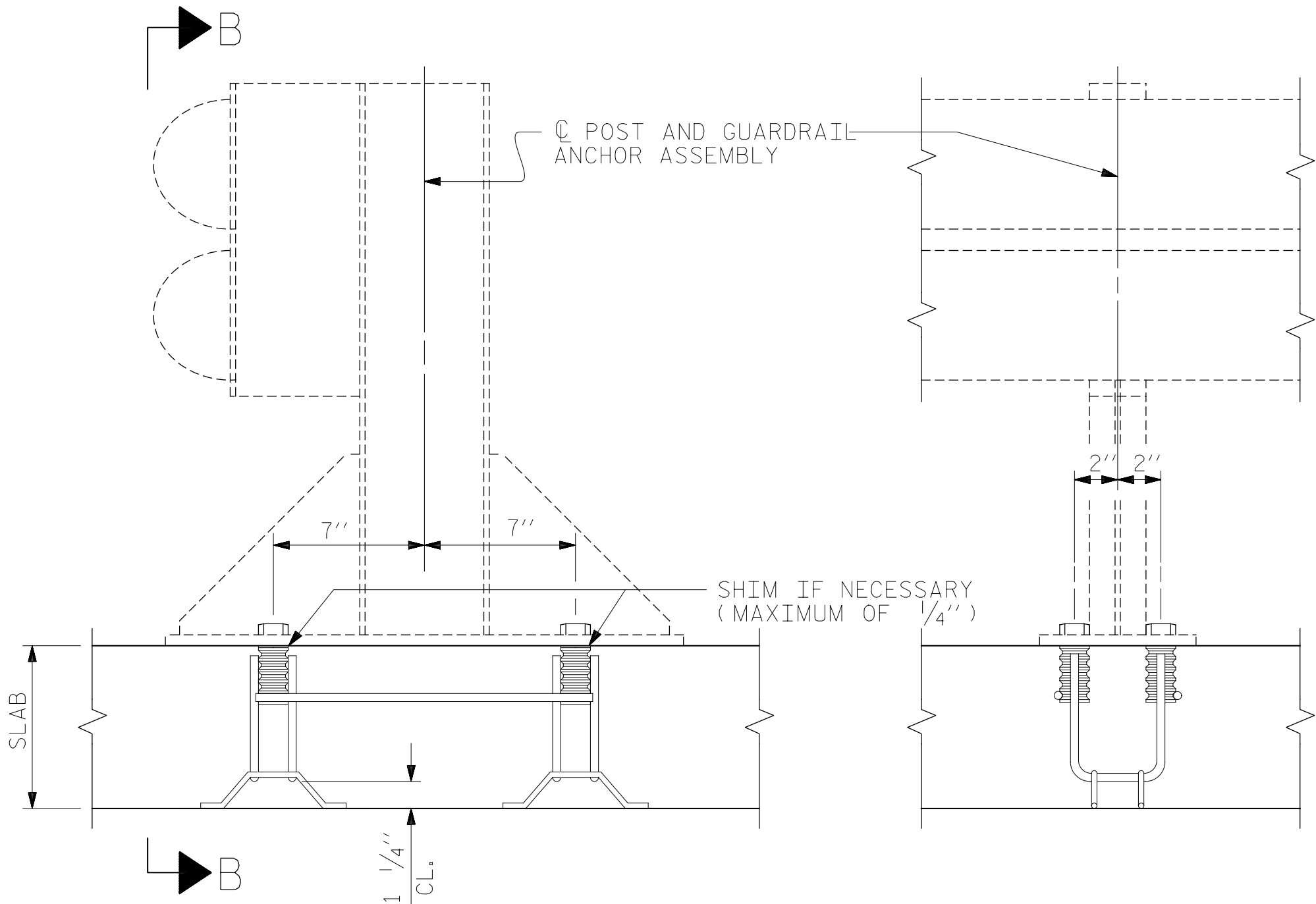
SLAB REINFORCING STEEL MAY BE SHIFTED AS NECESSARY TO CLEAR GUARDRAIL ANCHOR ASSEMBLY. CARE SHOULD BE TAKEN TO KEEP THE SHIFTING OF REINFORCING STEEL TO A MINIMUM.

THE CONTRACTOR MAY USE ADHESIVELY ANCHORED ANCHOR BOLTS IN PLACE OF GUARDRAIL ANCHOR ASSEMBLY. LEVEL TWO FIELD TESTING IS REQUIRED, AND THE YIELD LOAD OF THE 1" Ø BOLT IS 21.8 KIPS. FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS, SEE STANDARD SPECIFICATIONS.



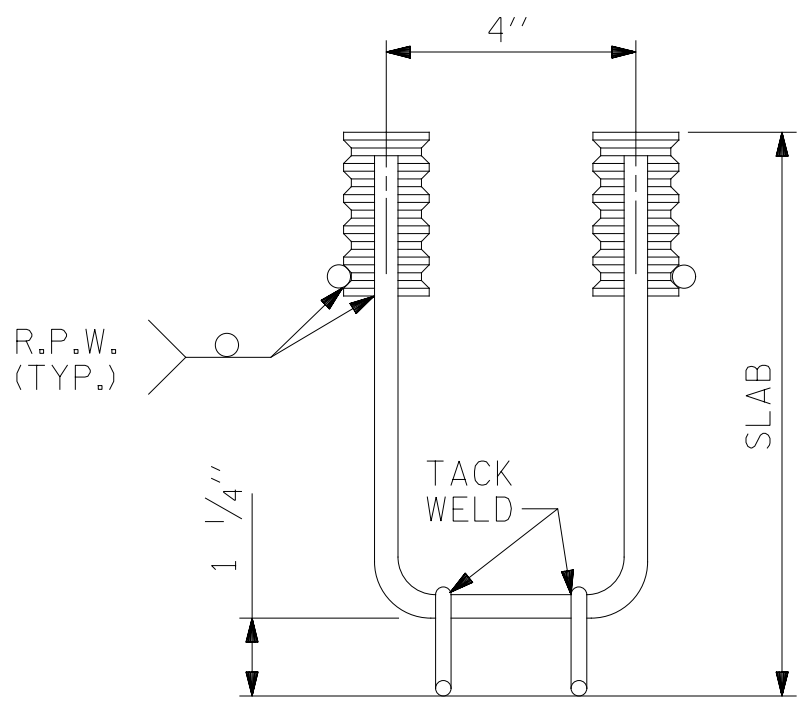
PLAN

SHOWING : GUARDRAIL ANCHOR ASSEMBLY SPACING.

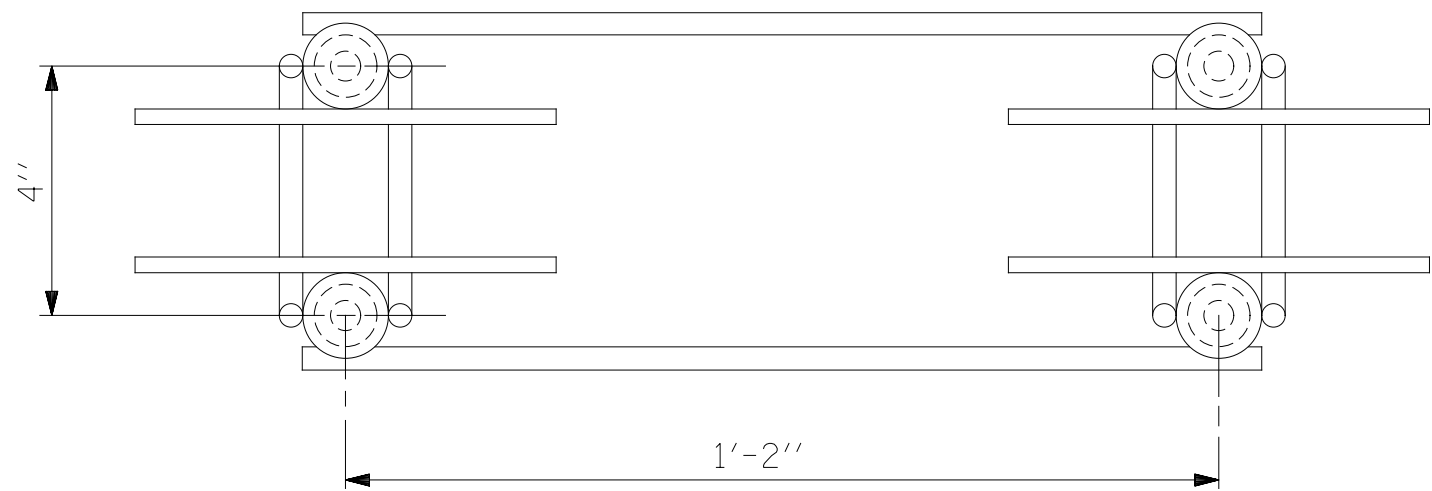


SECTION A-A

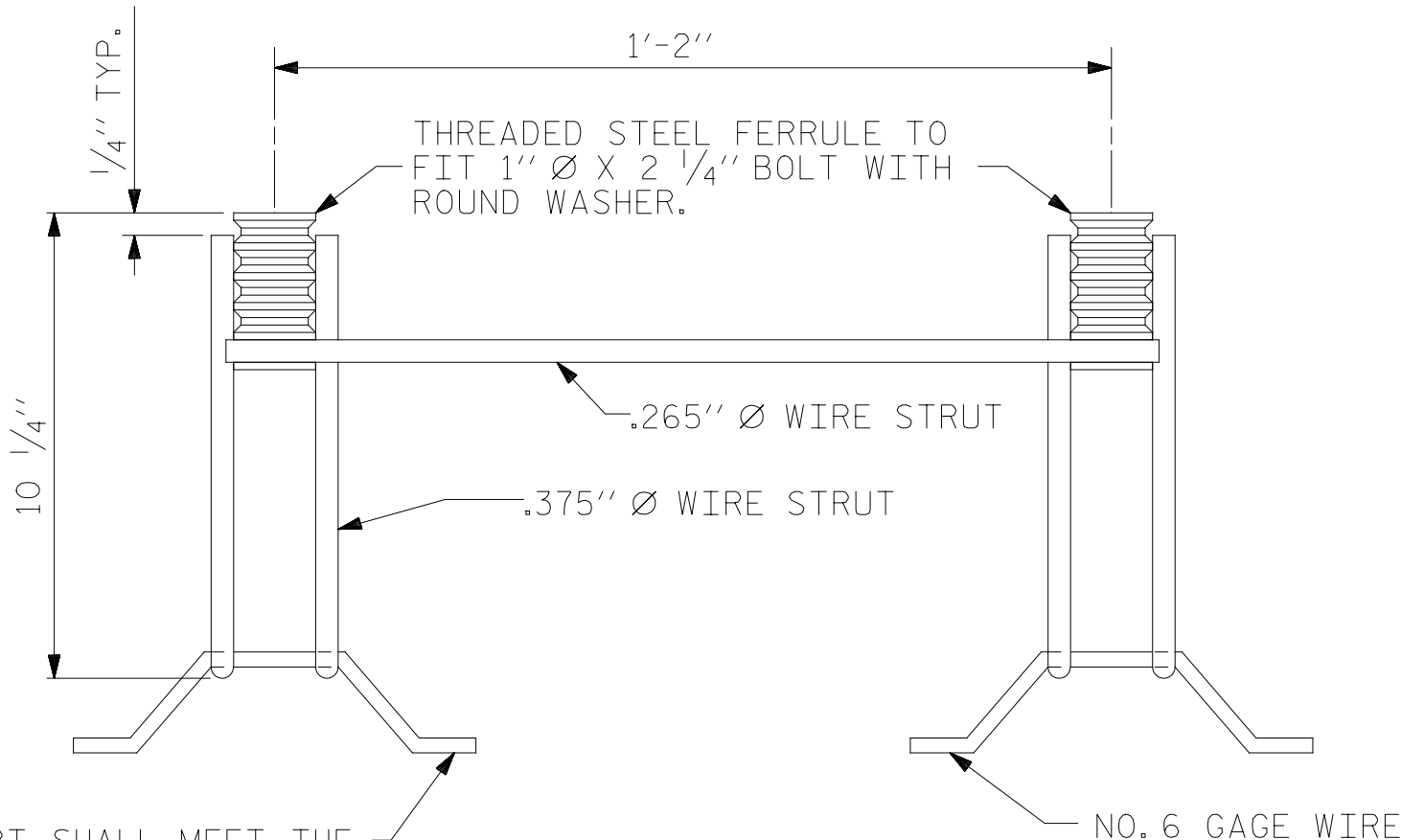
SECTION B-B



ELEVATION



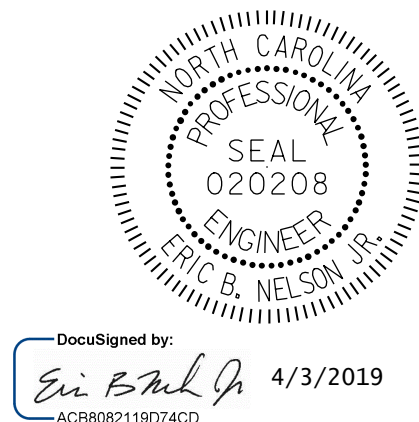
PLAN



SIDE VIEW

PROJECT NO. B-5998
WILSON COUNTY
CULVERT NO. 92
STATION 15+63.00 -L-

SHEET 7 OF 7



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
STANDARD
ANCHORAGE DETAILS FOR
GUARDRAIL ANCHOR ASSEMBLY
FOR CULVERTS

REVISIONS						SHEET NO. C-7
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 7
2			4			

GUARDRAIL ANCHOR ASSEMBLY FOR CULVERTS

STD. NO. GRA1

ASSEMBLED BY : M. SPENCER		DATE : 12/2018	
CHECKED BY : J. FARNHAM		DATE : 12/2018	
DRAWN BY : FCJ	6/88	REV. 5/1/06R	KMM/GM.
CHECKED BY : ARB	6/88	REV. 10/1/11	MAA/GM.
		REV. 12/17	MAA/THC

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	- - - - -	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	- - - - -	SEE PLANS
IMPACT ALLOWANCE	- - - - -	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	- -	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	- -	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	- -	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	- - -	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	- - - - -	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	- - - - -	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	- - -	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	- - - - -	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	- - - - -	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2018 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N.C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1 1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN