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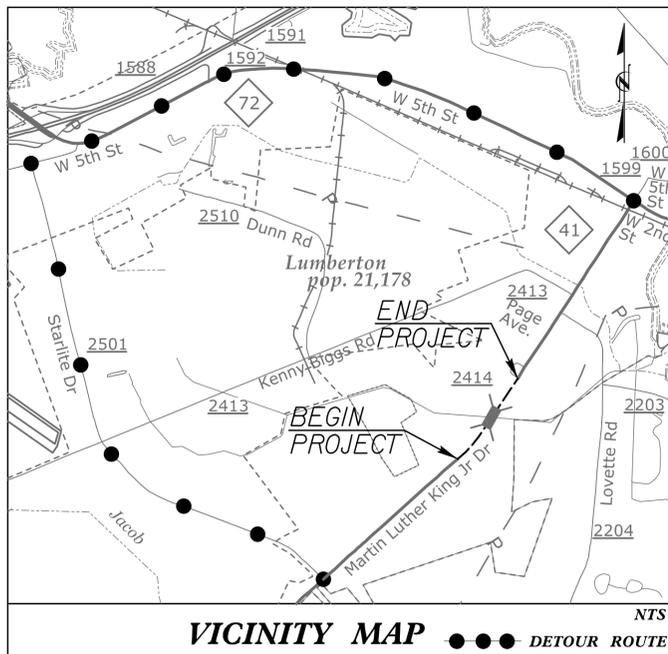
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**TIP PROJECT: 41665.1B**

**CONTRACT: DF00128**

See Sheet 1-A For Index of Sheets



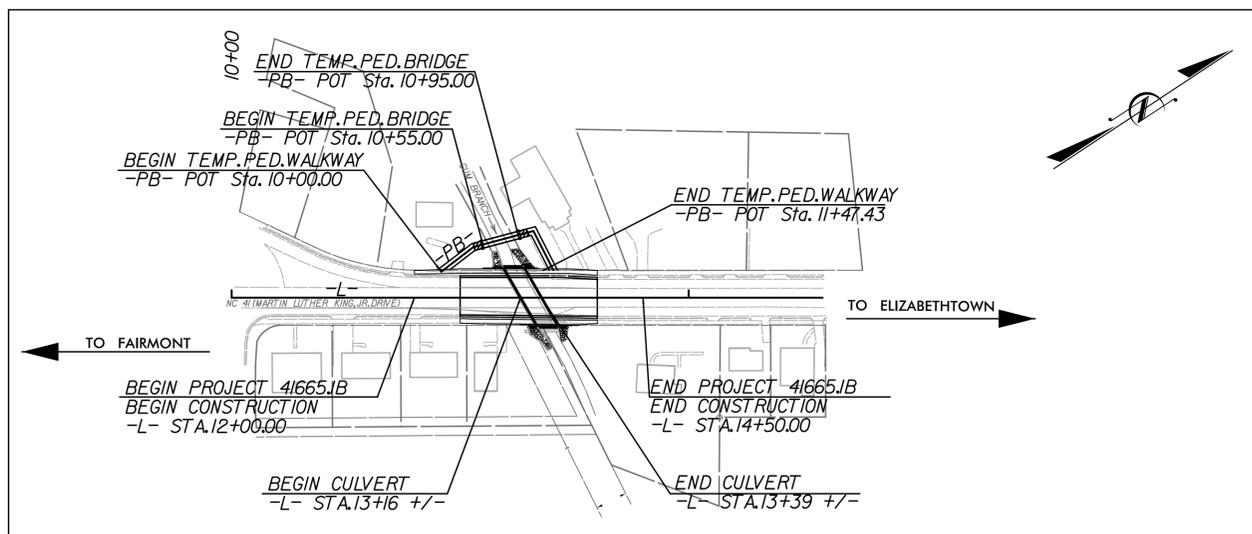
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**ROBESON COUNTY**

**LOCATION: BRIDGE NO. 446 OVER GUM SWAMP CANAL  
ON NC 41 (MARTIN LUTHER KING, JR. DRIVE)**

**TYPE OF WORK: GRADING, PAVING, DRAINAGE, PEDESTRIAN PATH  
& STRUCTURE**

STATE	PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
NC	41665.1B	1	28
STATE PROJ. NO.	DESCRIPTION		
41665.1B	CONST		

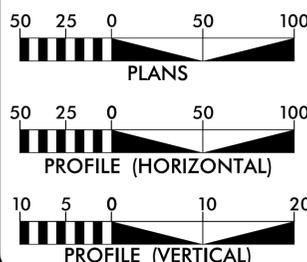


**NOTE:**

- CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
- THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CITY OF LUMBERTON.

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**GRAPHIC SCALES**



**DESIGN DATA**

ADT 2010 = 12000  
ADT 2035 = 24000  
DHV = 10%  
D = 60%  
T = 12% \*  
V = 40 MPH  
\* TTST 4% DUAL 8%  
CLASSIFICATION:  
URBAN PRINCIPAL ARTERIAL

**PROJECT LENGTH**

LENGTH OF ROADWAY TIP PROJECT 41665.1B = 0.043 MI.  
LENGTH OF STRUCTURE TIP PROJECT 41665.1B = 0.004 MI.  
TOTAL LENGTH OF TIP PROJECT 41665.1B = 0.047 MI.

Prepared In the Office of:

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
APRIL 9, 2015

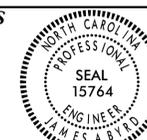
LETTING DATE:  
MAY 18, 2016

**JAMES A. BYRD, PE**  
PROJECT ENGINEER

**BRIAN BLACKWELL, E.I.**  
PROJECT DESIGNER

**BRICE BELL, P.E.**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**



DocuSigned by:  
**James A. Byrd**  
SIGNATURE: 4/26/2016 P.E.

**ROADWAY DESIGN ENGINEER**



DocuSigned by:  
**James A. Byrd**  
SIGNATURE: 4/26/2016 P.E.

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA



STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
41665JB	1-A
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	
	
James A. Byrd 2/16/2016	

**INDEX OF SHEETS**

<u>SHEET NO.</u>	<u>SHEET</u>
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES AND LIST OF STANDARDS
1B	CONVENTIONAL SYMBOLS
2A-1	TYPICAL SECTIONS AND PAYMENT SCHEDULE
2C-1	DETAIL FOR ALUMINUM PEDESTRIAN RAIL AND POST
3B-1	ROW AREA DATA SUMMARY, PAVEMENT REMOVAL SUMMARY, AND SUMMARY OF EARTHWORK
4	PLAN AND PROFILE SHEET
TMP-1 TO TMP-4	TRANSPORTATION MANAGEMENT PLANS
EC-1 TO EC-6	EROSION CONTROL PLANS
UO-1 TO UO-2	UTILITY BY OTHERS PLANS
X-1 TO X-8	CROSS SECTION PLANS
S-1 TO S-2	STRUCTURE PLANS

GENERAL NOTES: 2012 SPECIFICATIONS  
 EFFECTIVE: 01-17-12  
 REVISED: 11/01/11

**GRADE LINE:  
 GRADING AND SURFACING:**

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

**CLEARING:**

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

**SUPERELEVATION:**

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

**DRIVEWAYS:**

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 900 MM RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER

**TEMPORARY SHORING:**

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING"

**SUBSURFACE PLANS:**

NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

**UTILITIES:**

UTILITY OWNERS ON THIS PROJECT ARE THE FOLLOWING:

- POWER - CITY OF LUMBERTON
- PHONE - AT&T
- GAS - PNG
- CATV - TIME WARNER
- WATER - CITY OF LUMBERTON
- SEWER - CITY OF LUMBERTON

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

**RIGHT-OF-WAY MARKERS:**

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY THE CONTRACTOR.

**2012 ROADWAY ENGLISH STANDARD DRAWINGS**

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
806.01	Concrete Right-of-Way Marker
846.01	Concrete Curb, Gutter and Curb & Gutter
848.01	Concrete Sidewalk
848.02	Driveway Turnout - Radius Type
866.02	Woven Wire Fence - with Wood Post
876.01	Rip Rap in Channels

REVISIONS

**Note: Not to Scale**

\*S.U.E. = *Subsurface Utility Engineering*

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

# CONVENTIONAL PLAN SHEET SYMBOLS

**BOUNDARIES AND PROPERTY:**

State Line	_____
County Line	_____
Township Line	_____
City Line	_____
Reservation Line	_____
Property Line	_____
Existing Iron Pin	_____ 
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	_____ 

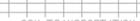
**BUILDINGS AND OTHER CULTURE:**

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	_____ 

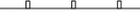
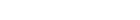
**RAILROADS:**

Standard Gauge	_____ 
RR Signal Milepost	_____ 
Switch	_____ 
RR Abandoned	_____ 
RR Dismantled	_____ 

**RIGHT OF WAY:**

Baseline Control Point	_____ 
Existing Right of Way Marker	_____ 
Existing Right of Way Line	_____ 
Proposed Right of Way Line	_____ 
Proposed Right of Way Line with Iron Pin and Cap Marker	_____ 
Proposed Right of Way Line with Concrete or Granite Marker	_____ 
Existing Control of Access	_____ 
Proposed Control of Access	_____ 
Existing Easement Line	_____ 
Proposed Temporary Construction Easement	_____ 
Proposed Temporary Drainage Easement	_____ 
Proposed Permanent Drainage Easement	_____ 
Proposed Permanent Utility Easement	_____ 

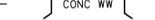
**ROADS AND RELATED FEATURES:**

Existing Edge of Pavement	_____ 
Existing Curb	_____ 
Proposed Slope Stakes Cut	_____ 
Proposed Slope Stakes Fill	_____ 
Proposed Wheel Chair Ramp	_____ 
Proposed Wheel Chair Ramp Curb Cut	_____ 
Curb Cut for Future Wheel Chair Ramp	_____ 
Existing Metal Guardrail	_____ 
Proposed Guardrail	_____ 
Existing Cable Guiderail	_____ 
Proposed Cable Guiderail	_____ 
Equality Symbol	_____ 
Pavement Removal	_____ 

**VEGETATION:**

Single Tree	_____ 
Single Shrub	_____ 
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	_____ 
Recorded U/G Power Line	_____ 
Designated U/G Power Line (S.U.E.*)	_____ 

**TELEPHONE:**

Existing Telephone Pole	_____ 
Proposed Telephone Pole	_____ 
Telephone Manhole	_____ 
Telephone Booth	_____ 
Telephone Pedestal	_____ 
Telephone Cell Tower	_____ 
U/G Telephone Cable Hand Hole	_____ 
Recorded U/G Telephone Cable	_____ 
Designated U/G Telephone Cable (S.U.E.*)	_____ 
Recorded U/G Telephone Conduit	_____ 
Designated U/G Telephone Conduit (S.U.E.*)	_____ 
Recorded U/G Fiber Optics Cable	_____ 
Designated U/G Fiber Optics Cable (S.U.E.*)	_____ 

**WATER:**

Water Manhole	_____ 
Water Meter	_____ 
Water Valve	_____ 
Water Hydrant	_____ 
Recorded U/G Water Line	_____ 
Designated U/G Water Line (S.U.E.*)	_____ 
Above Ground Water Line	_____ 

**TV:**

TV Satellite Dish	_____ 
TV Pedestal	_____ 
TV Tower	_____ 
U/G TV Cable Hand Hole	_____ 
Recorded U/G TV Cable	_____ 
Designated U/G TV Cable (S.U.E.*)	_____ 
Recorded U/G Fiber Optic Cable	_____ 
Designated U/G Fiber Optic Cable (S.U.E.*)	_____ 

**GAS:**

Gas Valve	_____ 
Gas Meter	_____ 
Recorded U/G Gas Line	_____ 
Designated U/G Gas Line (S.U.E.*)	_____ 
Above Ground Gas Line	_____ 

**SANITARY SEWER:**

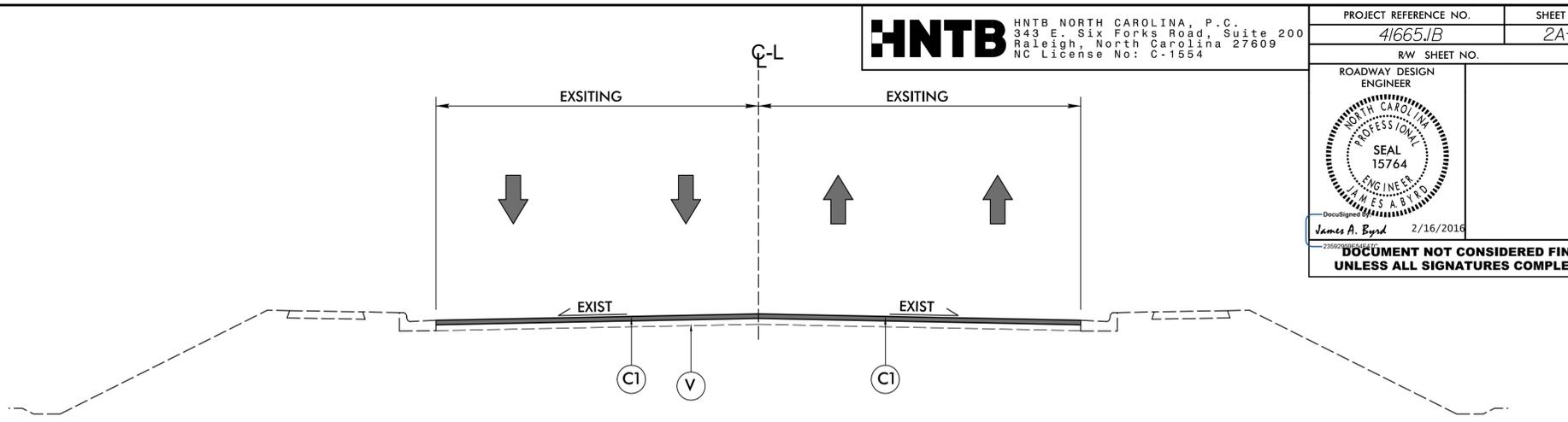
Sanitary Sewer Manhole	_____ 
Sanitary Sewer Cleanout	_____ 
U/G Sanitary Sewer Line	_____ 
Above Ground Sanitary Sewer	_____ 
Recorded SS Forced Main Line	_____ 
Designated SS Forced Main Line (S.U.E.*)	_____ 

**MISCELLANEOUS:**

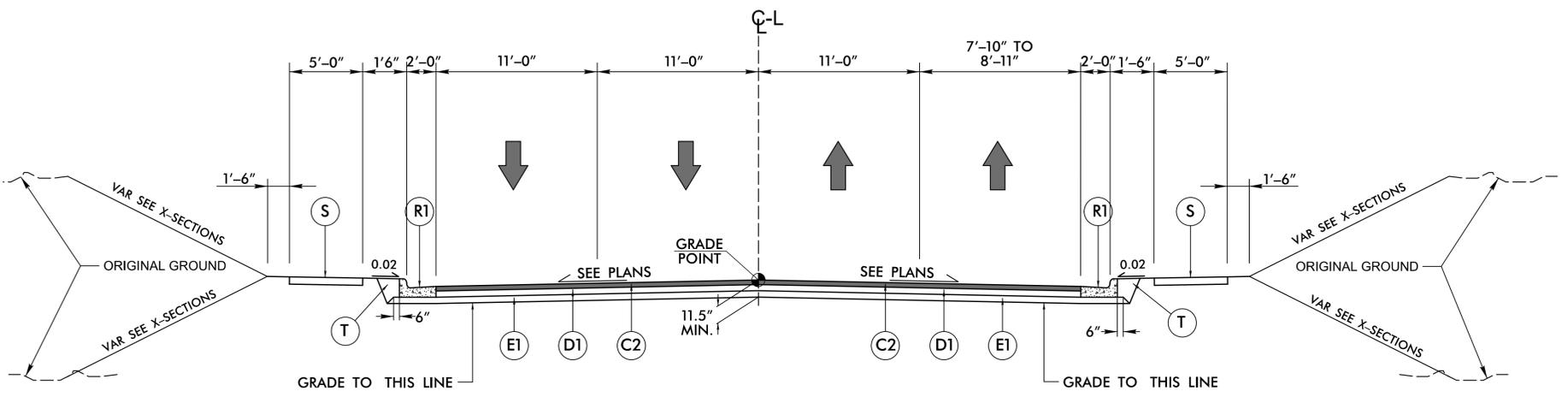
Utility Pole	_____ 
Utility Pole with Base	_____ 
Utility Located Object	_____ 
Utility Traffic Signal Box	_____ 
Utility Unknown U/G Line	_____ 
U/G Tank; Water, Gas, Oil	_____ 
A/G Tank; Water, Gas, Oil	_____ 
U/G Test Hole (S.U.E.*)	_____ 
Abandoned According to Utility Records	_____ 
End of Information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

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD .
C2	PROP. APPROX. 3.0" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4.0" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 513 LBS. PER SQ. YARD.
M1	PROP. 6" SOIL TYPE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER
S	4" CONCRETE SIDEWALK
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING 1 1/2"
Y	PROP. 1" SAND ASPHALT MIX, TYPE S4.75A

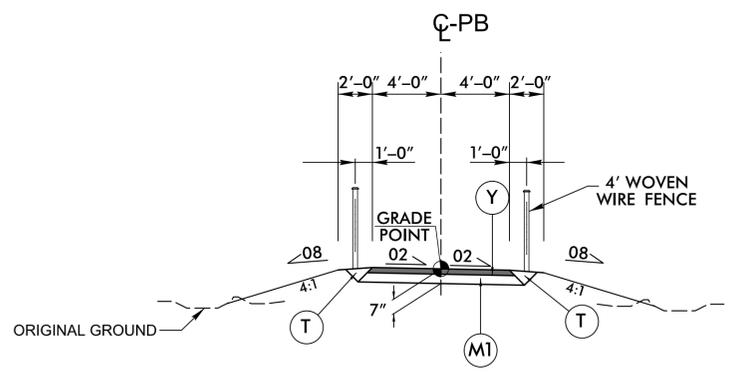
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



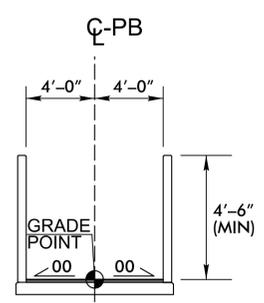
**TYPICAL SECTION NO. 1**  
 MILL 1 1/2" FOR 50' AT THE BEGIN AND END CONSTRUCTION  
 -L- STA. 12+00.00 TO -L- STA. 12+50.00  
 -L- STA. 14+00.00 TO -L- STA. 14+50.00



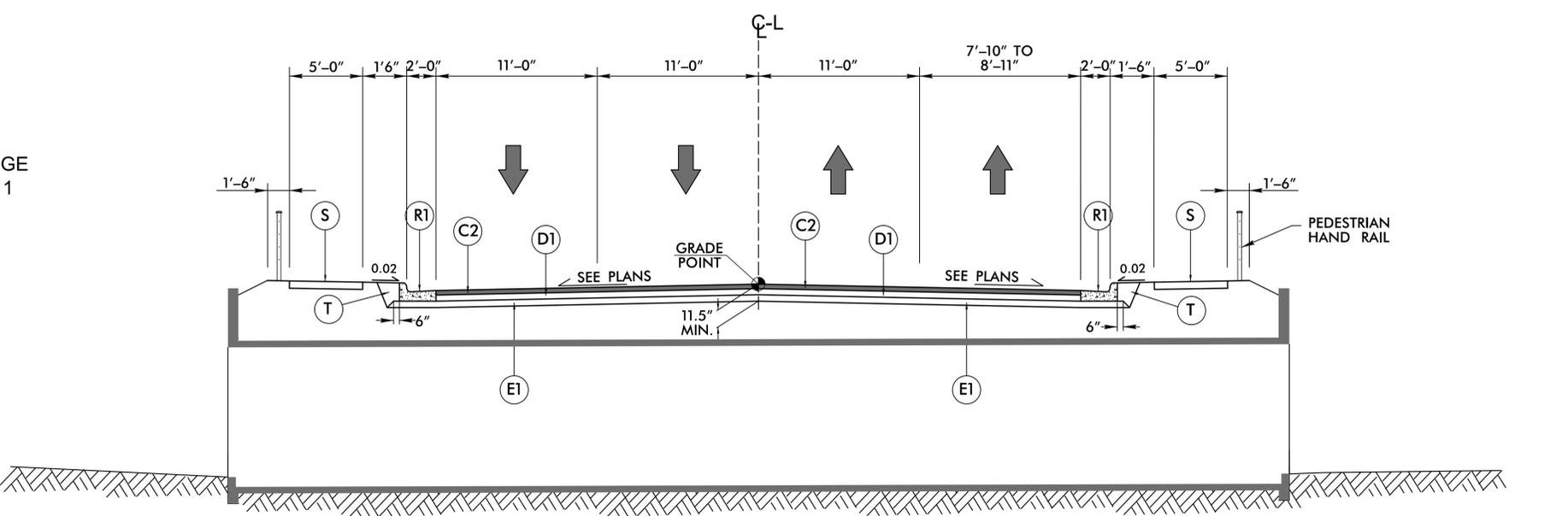
**TYPICAL SECTION NO. 2**  
 -L- STA. 12+00.00 TO -L- STA. 12+50.00 \*  
 -L- STA. 12+50.00 TO -L- STA. 14+00.00  
 \* LEFT SIDEWALK AND SHOULDER ONLY.



**TYPICAL SECTION NO. 3**  
 -PB- STA. 10+00.00 TO -PB- STA. 10+55.00 BEGIN TEMP. PED. BRIDGE  
 -PB- STA. 10+95.00 END TEMP. PED. BRIDGE TO -PB- STA. 11+60.11



**TYPICAL SECTION NO. 4**  
 -PB- STA. 10+55.00 BEGIN TEMP. PED. BRIDGE TO  
 -PB- STA. 10+95.00 END TEMP. PED. BRIDGE

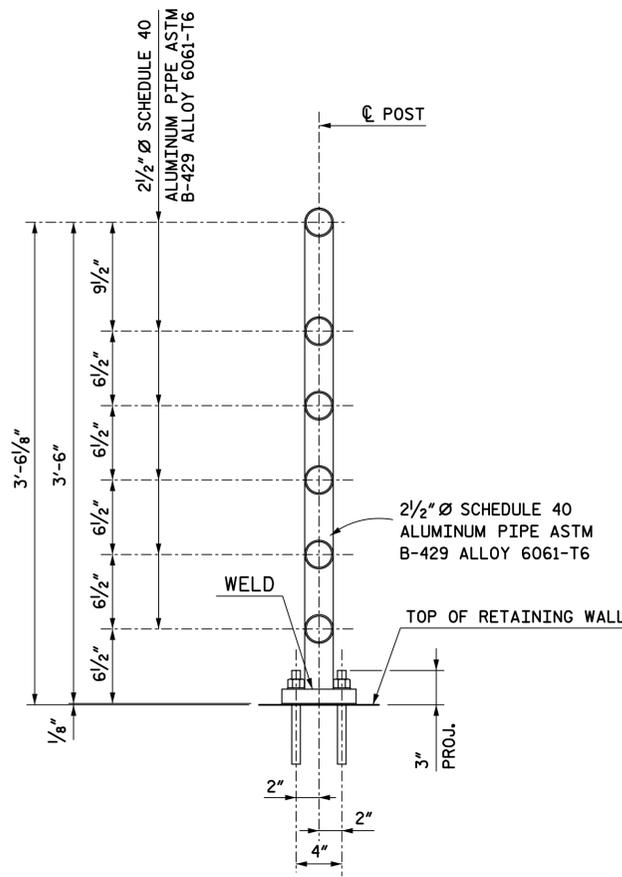


**CULVERT DETAIL**  
 CENTERLINE OF CULVERT -L- STA 13+27.88

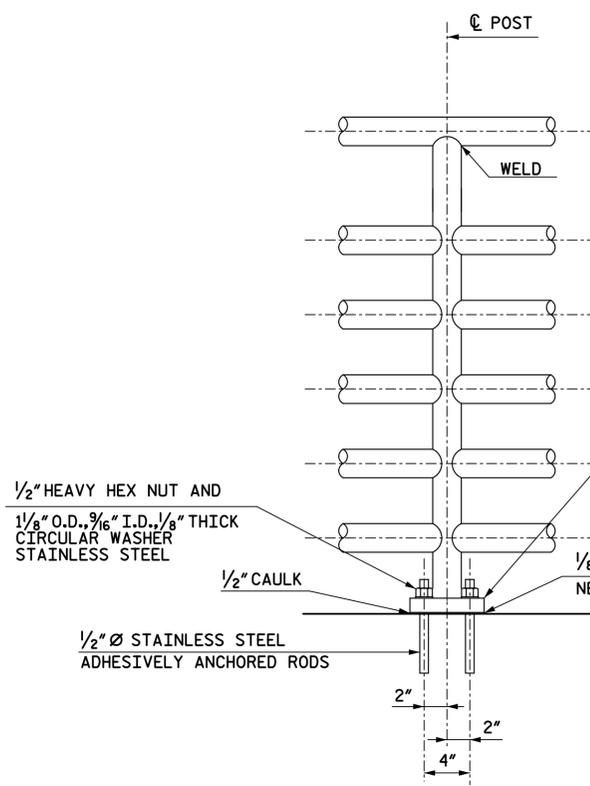
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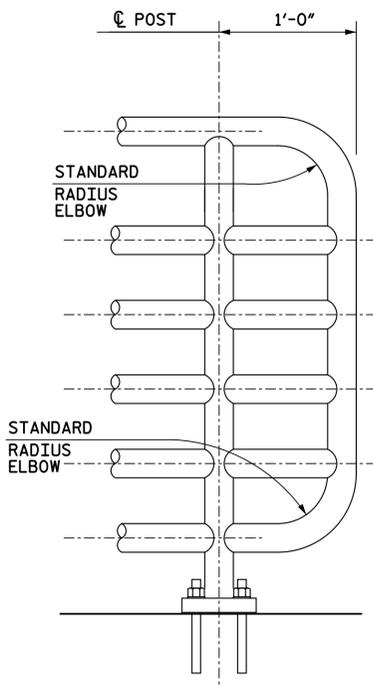
PROJECT REFERENCE NO.	SHEET NO.
41665.1B	2C-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	



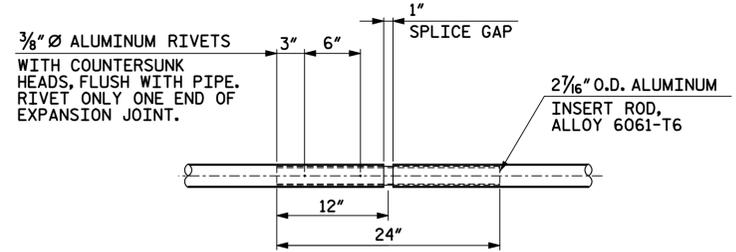
SECTION A-A



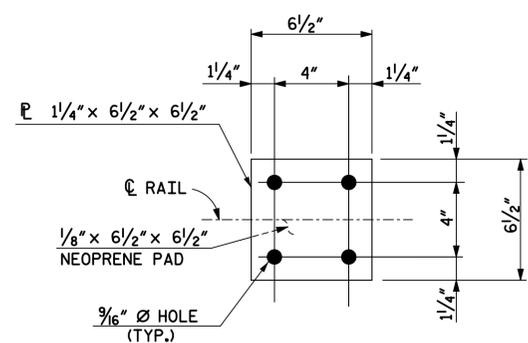
FRONT VIEW



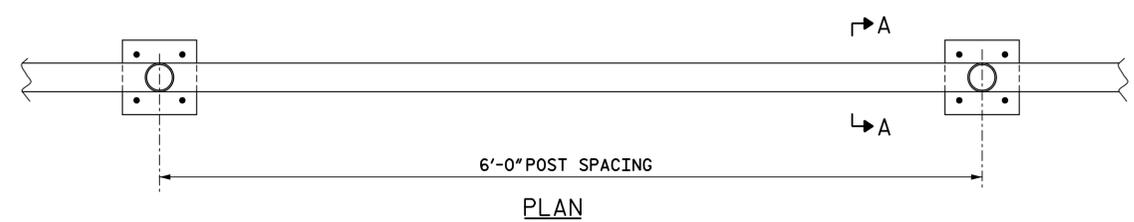
END POST DETAIL



EXPANSION JOINT DETAIL



BASE PLATE



PLAN

ALUMINUM PEDESTRIAN RAIL AND POST

NOTES:

- ALUMINUM PIPE TO BE ASTM B-241 OR B-429 ALLOY 6061-T6 AND BASE PLATE TO BE ASTM B-209, ALLOY 6061-T6.
- STAINLESS STEEL BOLTS AND NUTS TO BE ASTM A-276 TYPE 304. STAINLESS STEEL WASHERS TO BE ASTM A-276 TYPE 302.
- POSTS TO BE SET PLUMB AND RAILS SHALL BE PLACED PARALLEL TO THE GRADE OF THE WALL.
- CERTIFIED MILL REPORTS ARE REQUIRED FOR RAIL AND POSTS. SHOP INSPECTIONS ARE NOT REQUIRED.
- AFTER ANCHOR ROD NUTS HAVE BEEN TIGHTENED, THREADS SHALL BE NICKED TO LOCK NUTS.
- ANCHOR RODS SHALL CONFORM TO ASTM SPECIFICATION A276 TYPE 302 OR 304 STAINLESS STEEL AND THREADS SHALL BE ROLLED, NOT CUT.
- UPPER ANCHOR ROD NUTS SHALL BE HEAVY HEX NUTS, PER ASTM A276 TYPE 302 OR 304 STAINLESS STEEL.
- WELDING SHALL BE IN ACCORDANCE WITH THE CURRENT AWS STRUCTURAL WELDING CODE - ALUMINUM.
- THE BOTTOM OF THE RAIL POSTS SHALL BE THOROUGHLY COATED WITH ALUMINUM IMPREGNATED CAULKING COMPOUND OF APPROVED QUALITY.
- THE LENGTH OF METAL RAIL TO BE PAID FOR SHALL BE THE CONTINUOUS LENGTH MEASURED FROM END TO END OF RAIL, ALONG THE TOP RAIL.
- ADHESIVELY INSTALLED ANCHOR RODS SHALL PROVIDE A TENSILE WORKING LOAD OF 4,000 LBS EACH. EMBEDMENT SHALL BE A MINIMUM OF 3" BUT SHALL NOT EXCEED 5". NO FIELD TESTING IS REQUIRED, SEE PROJECT SPECIFICATIONS.
- RAIL EXPANSION JOINTS SHALL BE PROVIDED AT ALL WALL EXPANSION JOINTS, NOT TO EXCEED 30' IN LENGTH BETWEEN JOINTS.
- THE COST OF ALL PLATES, FASTENERS, NUTS AND ADHESIVE ANCHOR RODS RELATED TO THE INSTALLATION OF THE ALUMINUM RAIL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR HANDRAIL.
- 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.
- DOUBLE END POST SHALL BE PROVIDED AT WALL KINK POINT. MAXIMUM CLEARANCE BETWEEN RAIL ENDS SHALL BE 4".
- PAY LENGTH = 125 Ft.
- USE DETAILS AT THE FOLLOWING LOCATIONS:  
 RT -L- STA 13+15.00 TO STA 13+80.00  
 LT -L- STA 12+75.00 TO STA 13+35.00
- USE 18"Ø BY 30" DEEP SHAFTS AS ALTERNATE FOUNDATION FOR PEDESTRIAN HANDRAIL. USE CLASS "A" CONCRETE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



**Note:**

- On parcels 2 and 4, the contractor shall field adjust grading as necessary to provide positive drainage in the vicinity of the pedestrian path.
- Upstream and downstream headwalls for proposed 1@19'-10"x7'-8" ALBC shall be cast-in-place concrete.
- The contractor in conjunction with the ALBC manufacturer/provider are responsible for providing designs for proposed concrete headwalls for NCDOT approval.
- The concrete headwall costs shall be included in the cost for the ALBC.

Point	North	East	Elevation
BL-1	311805.41	1992719.51	117.33
BL-2	312224.41	1992940.86	117.01
BL-3	312549.84	1993232.92	115.26

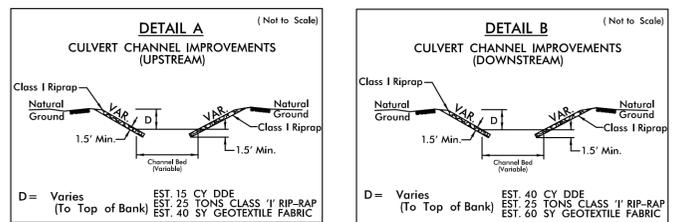
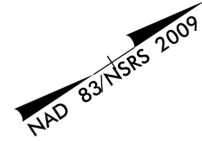
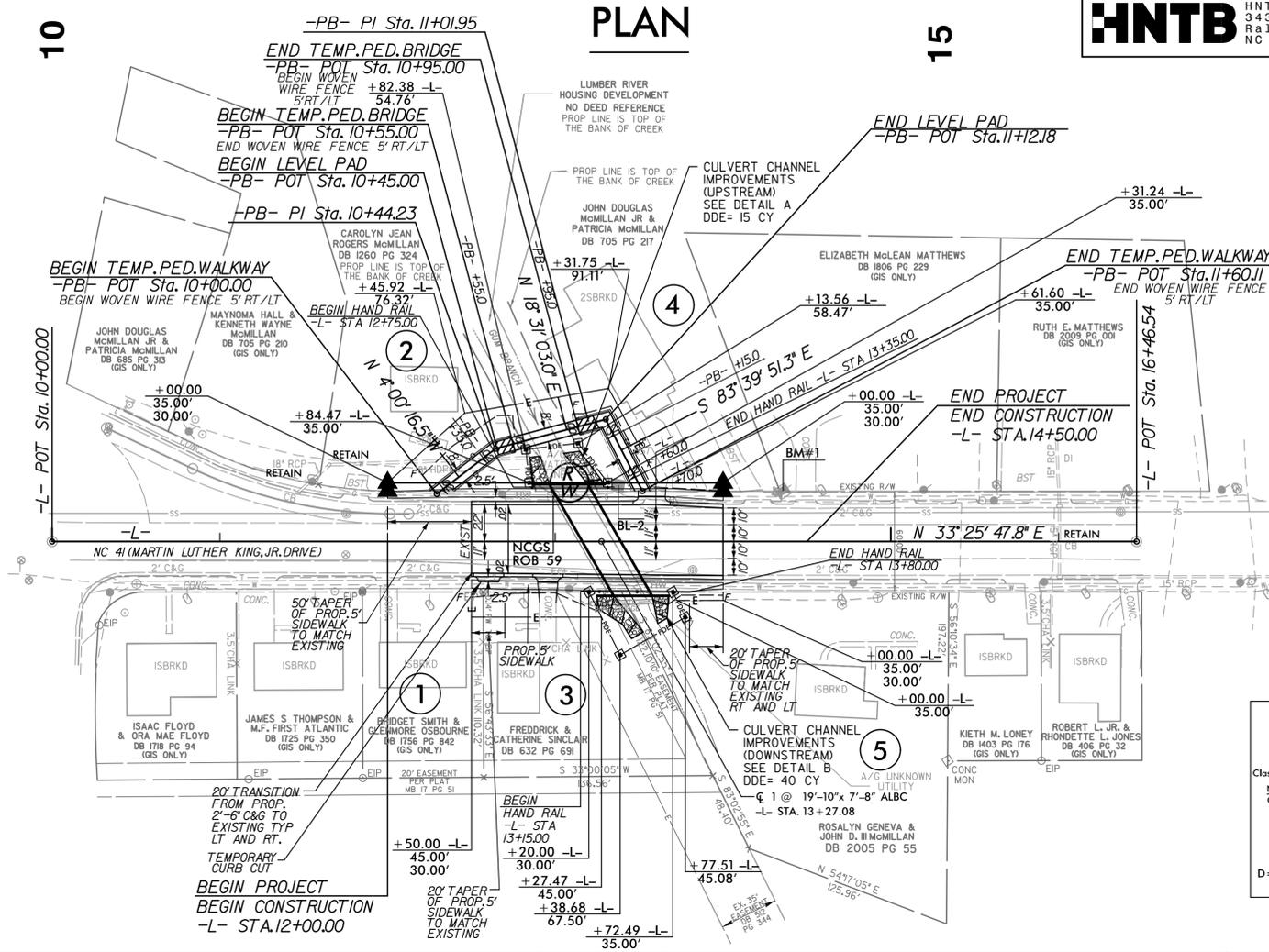
**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2009 STATE PLANE GRID COORDINATES OF NORTHING: 312224.408(ft) EASTING: 1992940.861(ft) ELEVATION: 117.01(ft)

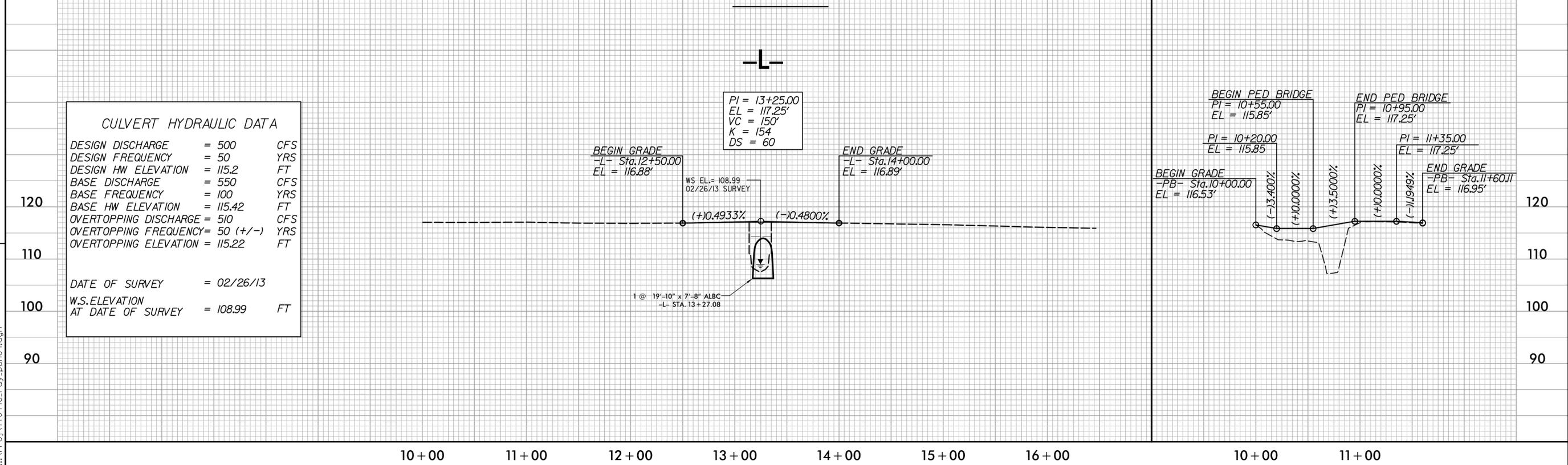
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999351165

VERTICAL WAS ESTABLISHED FROM NGS MONUMENT "ROB 59" WITH AN ELEVATION OF 117.34'

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES  
VERTICAL DATUM USED IS NAVD 88



**PROFILE**



**CULVERT HYDRAULIC DATA**

DESIGN DISCHARGE	= 500	CFS
DESIGN FREQUENCY	= 50	YRS
DESIGN HW ELEVATION	= 115.2	FT
BASE DISCHARGE	= 550	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 115.42	FT
OVERTOPPING DISCHARGE	= 510	CFS
OVERTOPPING FREQUENCY	= 50 (+/-)	YRS
OVERTOPPING ELEVATION	= 115.22	FT
DATE OF SURVEY	= 02/26/13	
W.S. ELEVATION AT DATE OF SURVEY	= 108.99	FT

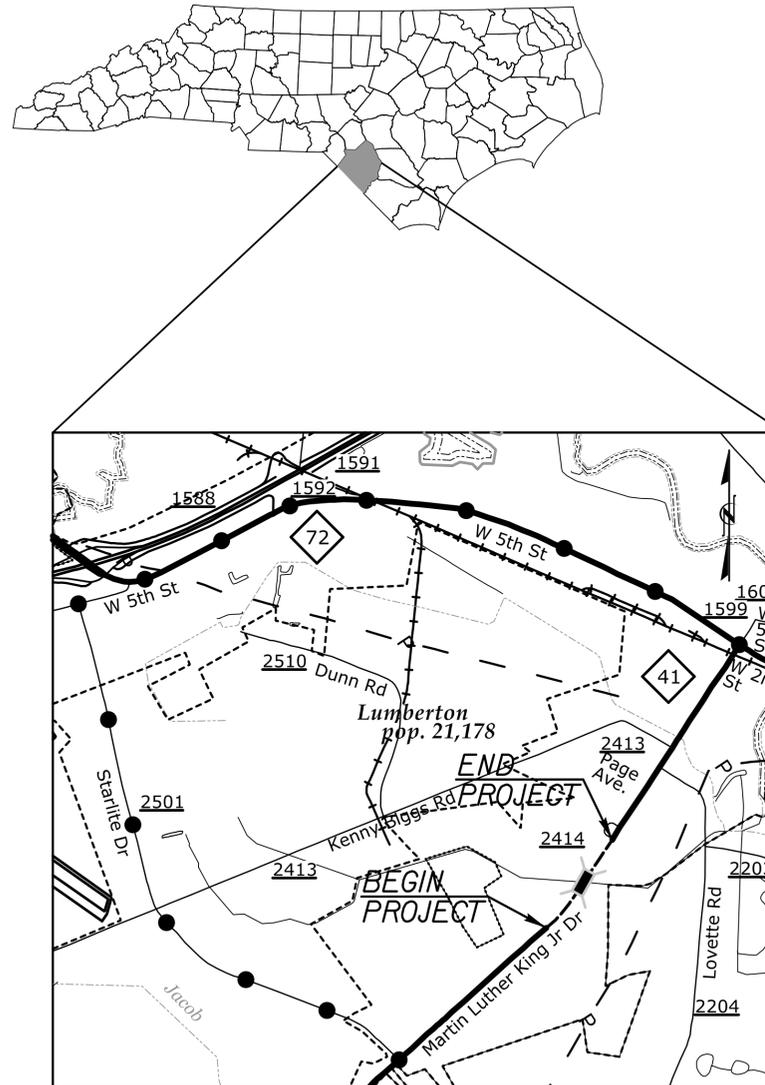
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STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**ROBESON COUNTY**



**LOCATION: BRIDGE NO. 446 OVER GUM SWAMP CANAL  
ON NC 41 (MARTIN LUTHER KING, JR. DRIVE)**

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, INDEX OF SHEETS, VICINITY MAP AND LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS
TMP-2	TRANSPORTATION OPERATIONS PLAN: GENERAL NOTES AND PHASING
TMP-3	DETOUR SIGNING
TMP-4	DETAILS

**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 JAN 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1180.01	SKINNY DRUMS
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPE
1262.01	GUARDRAIL END DELINEATION

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

R. B. EARLY, PE \_\_\_\_\_ TRAFFIC CONTROL PROJECT ENGINEER  
J. A. PHILLIPS \_\_\_\_\_ TRAFFIC CONTROL DESIGN ENGINEER

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

APPROVED: Rhonda B. Early  
DATE: 2/18/2016

SEAL

**WORK ZONE SAFETY & MOBILITY**  
"from the MOUNTAINS to the COAST"

**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

FRANK D. WEST, JR \_\_\_\_\_ DIVISION TRAFFIC ENGINEER

## GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS 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.

### LANE AND SHOULDER CLOSURE REQUIREMENTS

- A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

### TRAFFIC PATTERN ALTERATIONS

- B) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

### SIGNING

- C) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
- D) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

- E) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

### TRAFFIC CONTROL DEVICES

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

### PAVEMENT MARKINGS AND MARKERS

- H) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:

<u>ROAD NAME</u>	<u>MARKING</u>	<u>MARKER</u>
NC 41 (MARTIN LUTHER KING JR, DRIVE)	THERMOPLASTIC	RAISED

- I) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

- J) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

- K) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

## PHASING

### PHASE I

#### STEP 1:

PRIOR TO ANY CONSTRUCTION OPERATIONS, PLACE ADVANCE WARNING SIGNS ACCORDING TO RSD 1101.01 (SHEETS 2 & 3 OF 3) ON -L- (NC 41).

#### STEP 2:

USING RSD 1101.02 (SHEET 3 OF 15) AS NEEDED, CONSTRUCT THE TEMPORARY SIDEWALK AND PEDESTRIAN BRIDGE ON THE NORTH SIDE OF -L- FROM -L- STA 12+25+/- TO -L- STA 13+45+/- . UPON COMPLETION OF THE TEMPORARY SIDEWALK CONSTRUCTION, OPEN THE NORTHSIDE TEMPORARY SIDEWALK TO PEDESTRIAN TRAFFIC. (SEE DETAIL 1)

INSTALL AND COVER OFF-SITE DETOUR SIGNS AS SHOWN ON TMP-2 AND IN ACCORDANCE WITH RSD 1101.03 (SHEETS 1 AND 3 OF 9).

#### STEP 3:

USING OFF-SITE DETOUR, UNCOVER DETOUR SIGNS, CLOSE -L- (NC 41) TO TRAFFIC. USING TEMPORARY SIDEWALK AND PEDESTRIAN BRIDGE, CLOSE EXISTING SIDEWALK ON NORTHSIDE AND SOUTHSIDE OF -L- AND USING BARRICADES DIRECT PEDESTRIANS TO TEMPORARY SIDEWALK. (SEE DETAIL 2.)

#### STEP 4:

AWAY FROM TRAFFIC AND WITHOUT DISTURBING TEMPORARY PEDESTRIAN ACCESS, CONSTRUCT TEMPORARY CURB CUT (12+60+/- RT), THEN REMOVE EXISTING BRIDGE AND CONSTRUCT PROPOSED CULVERT.

NOTE: MAINTAIN ACCESS TO PROPERTIES LOCATED WITHIN THE ROADWAY CLOSURE LIMITS.

#### STEP 5:

BEGIN CONSTRUCTION OF ROADWAY UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE.

CONSTRUCT PROPOSED CURB CUT (13+00+/- RT), REMOVE TEMPORARY CURB CUT AND CONSTRUCT SIDEWALK ON SOUTHSIDE OF -L- .

#### STEP 6:

USING TYPE III BARRICADES WITH SIDEWALK CLOSED SIGNS, SHIFT PEDESTRIAN ACCESS TO SOUTHSIDE OF -L- AND CLOSE THE SIDEWALK ALONG NORTHSIDE OF -L- . CONSTRUCT PROPOSED CURB & GUTTER AND SIDEWALK ALONG NORTHSIDE OF -L- AND REMOVE TEMPORARY SIDEWALK AND PEDESTRIAN BRIDGE, THEN OPEN ALL SIDEWALKS TO PEDESTRIANS. (SEE DETAIL 3)

#### STEP 7:

COMPLETE CONSTRUCTION OF ROADWAY UP TO AND INCLUDING FINAL LAYER OF SURFACE COURSE. PLACE FINAL PAVEMENT MARKINGS AND MARKERS ACCORDING TO ROADWAY STANDARD DRAWINGS. REMOVE BARRICADES AND DETOUR SIGNS AND OPEN -L- (NC 41) TO TRAFFIC.

REVISIONS

2/16/2016  
3:46:46 PM  
C:\BR2416\Temp\TMP\_02\_Notes\_Phasing.dgn

QA/QC STAGE: \_\_\_\_\_  
REVIEW: \_\_\_\_\_  
CONCUR: \_\_\_\_\_  
REVISE: \_\_\_\_\_  
VERIFY: \_\_\_\_\_

APPROVED: *Rhonda B. Early*  
DATE: 2/16/2016

SEAL

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

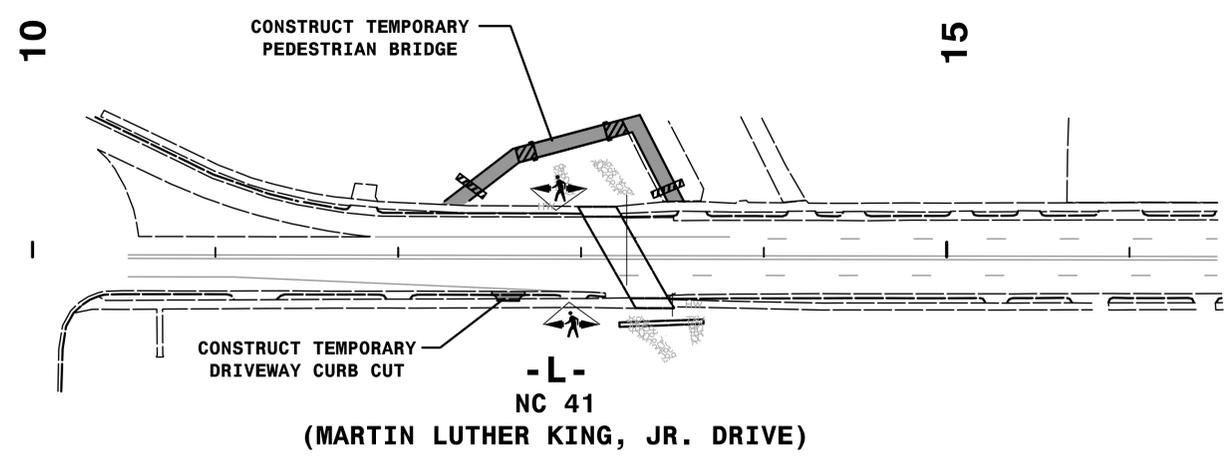


TRANSPORTATION  
MANAGEMENT PLAN

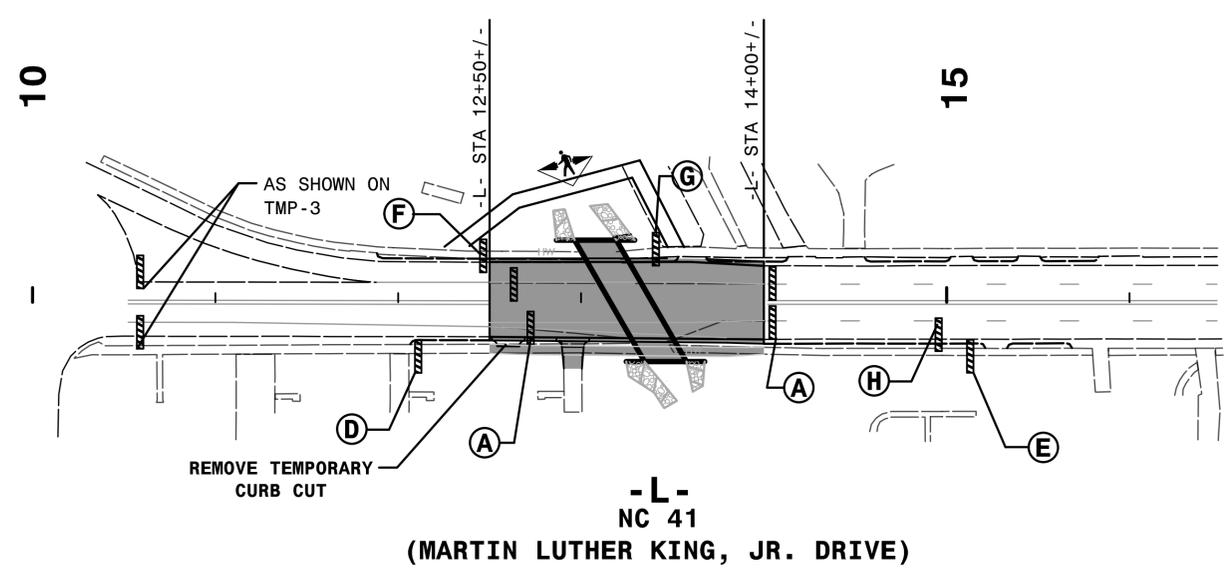
TRANSPORTATION  
OPERATIONS  
PLAN



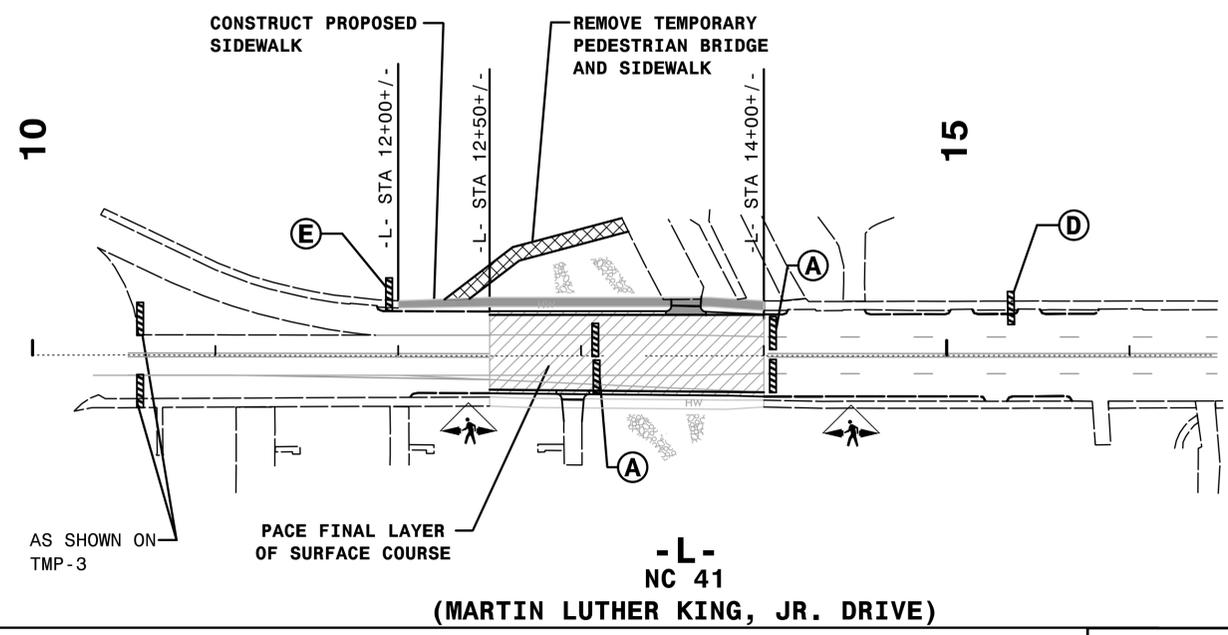
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UNLESS ALL SIGNATURES COMPLETED



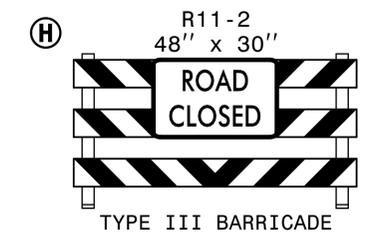
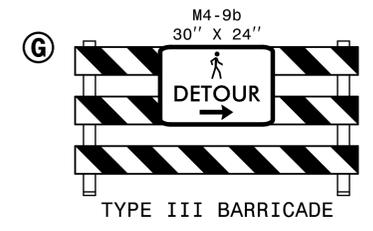
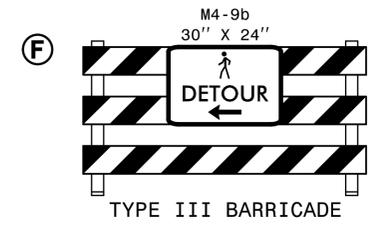
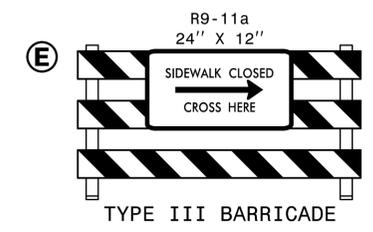
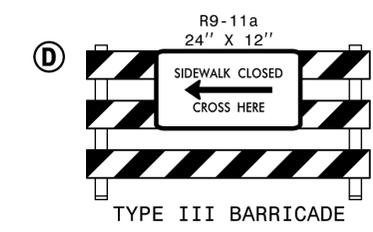
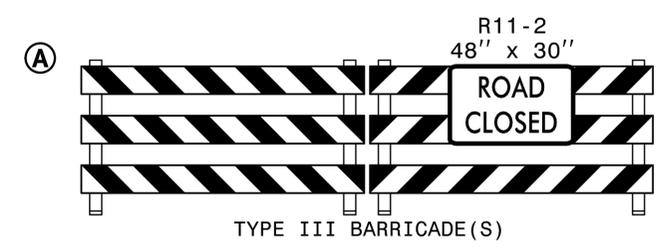
DETAIL 1  
STEP 2



DETAIL 2  
STEPS 3 & 4



DETAIL 3  
STEPS 5 & 6



REVISIONS

QA/QC STAGE:

REVIEW:

CONCUR:

REVISE:

VERIFY:

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APPROVED: *Rhonda B. Early*  
DATE: 2/16/2016

SEAL

SEAL  
023521  
ENGINEER  
RHONDA B. EARLY



TRANSPORTATION  
MANAGEMENT PLAN

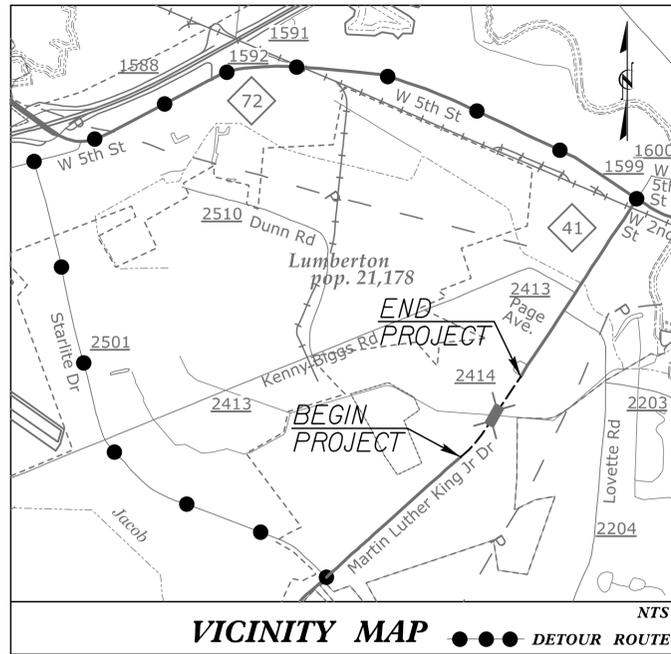
DETAILS

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**TIP PROJECT: 41665.1B**

**CONTRACT:**

See Sheet 1-A For Index of Sheets

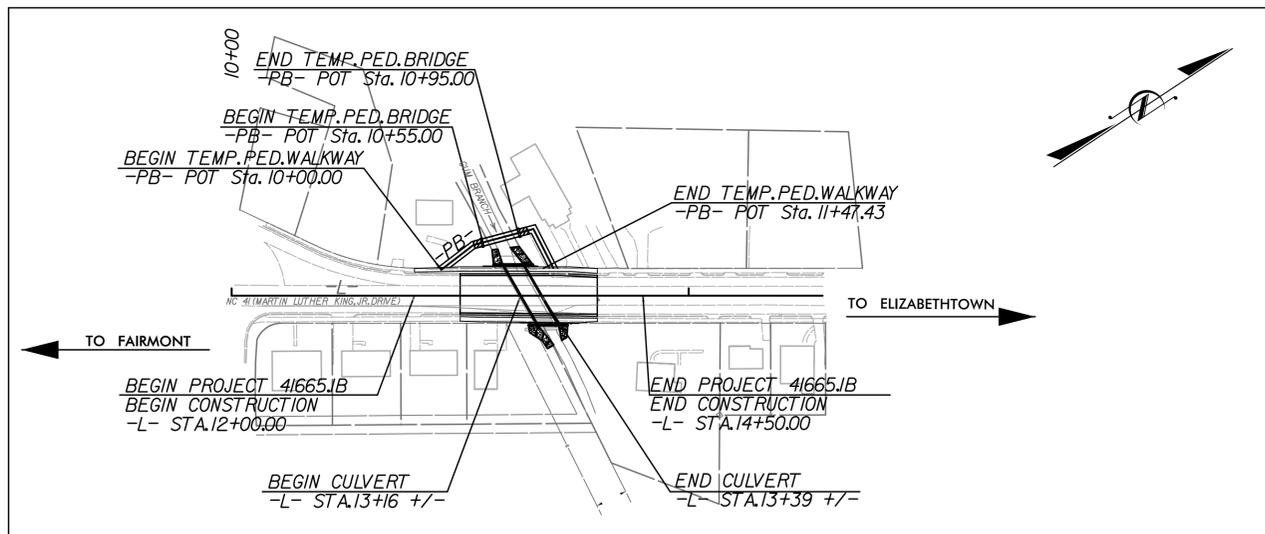


# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

## PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

**LOCATION: BRIDGE NO. 446 IN ROBESON COUNTY OVER  
GUM SWAMP CANAL ON NC 41 (MLK DR.)**

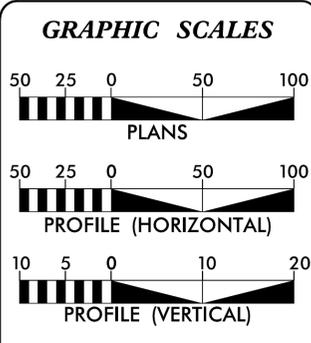
**TYPE OF WORK: GRADING, PAVING, DRAINAGE, PEDESTRIAN PATH  
& STRUCTURE**



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	41665.1B	EC-1	6
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
41665.1B		CONST	

### EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	△△△△△
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle / Coir Fiber Wattle	— W —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— W —
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊓
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊓
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared In the Office of:

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

**2012 STANDARD SPECIFICATIONS**

Designed by:

**JOHN F. WATSON, PE** 3419  
NAME LEVEL III CERTIFICATION NO.

Reviewed In the Office of:

**ROADSIDE ENVIRONMENTAL  
FIELD OPERATIONS DIV. 3 & 6**  
419 TRANSPORTATION DRIVE  
FAYETTEVILLE, NC 28301

**2012 STANDARD SPECIFICATIONS**

Reviewed by:

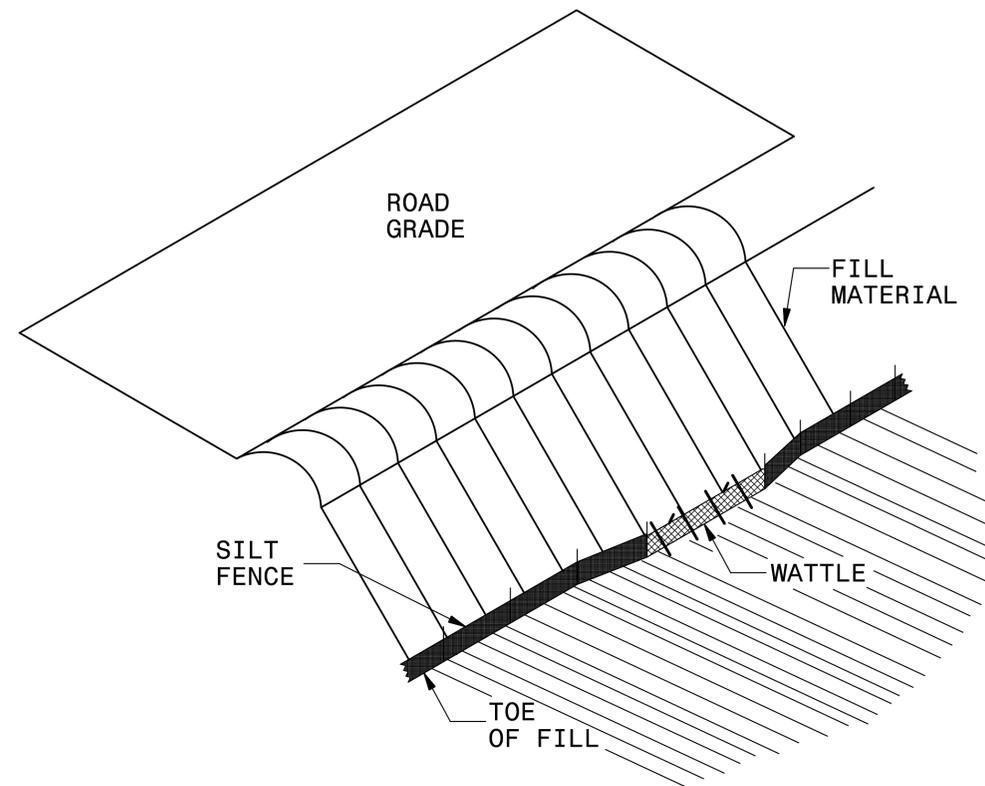
**AARON HARPER**

Roadway Standard Drawings

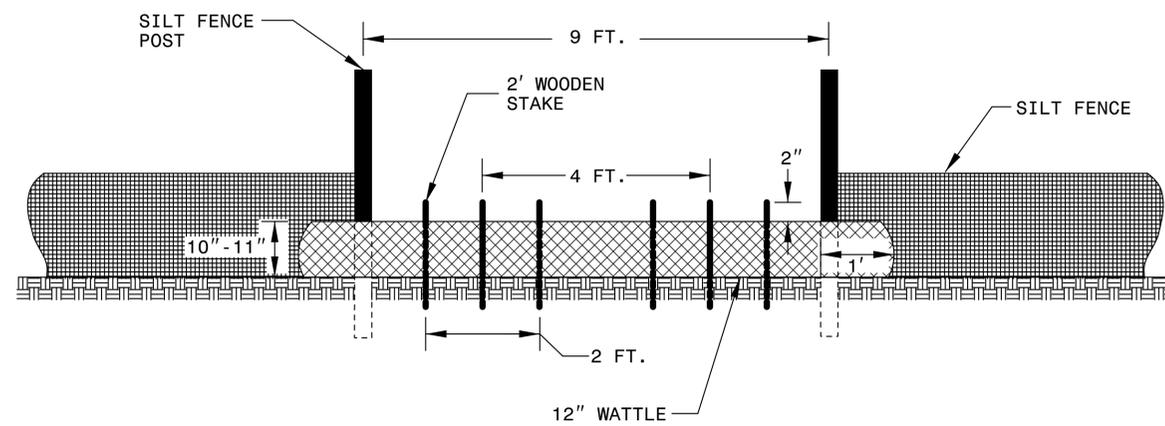
The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2012 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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 Silt 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 Wattle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

# SILT FENCE COIR FIBER WATTLE BREAK DETAIL



**ISOMETRIC VIEW**



**VIEW FROM SLOPE**

**NOTES:**

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.

EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.

DO NOT PLACE WATTLE ON TOE OF SLOPE.

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

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

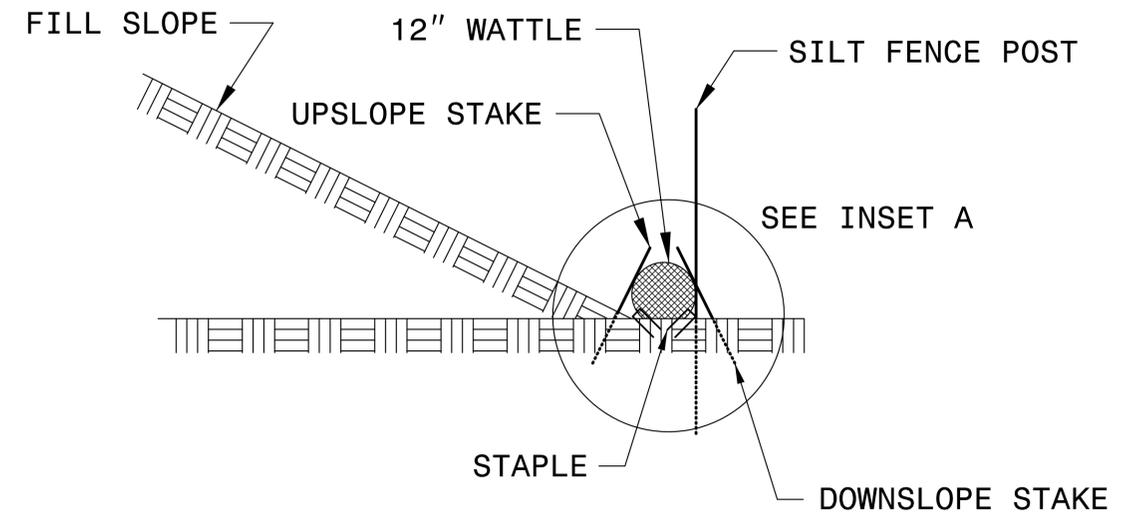
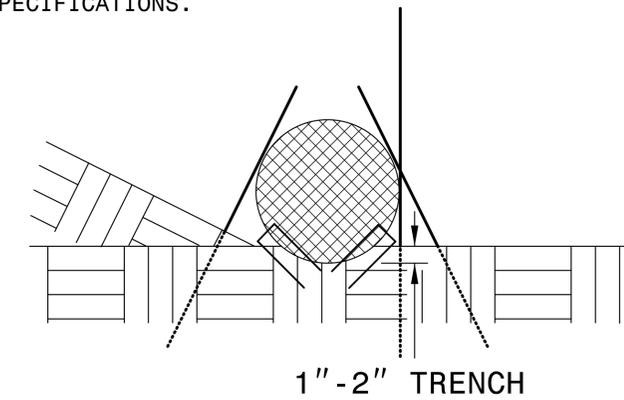
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

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

WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.

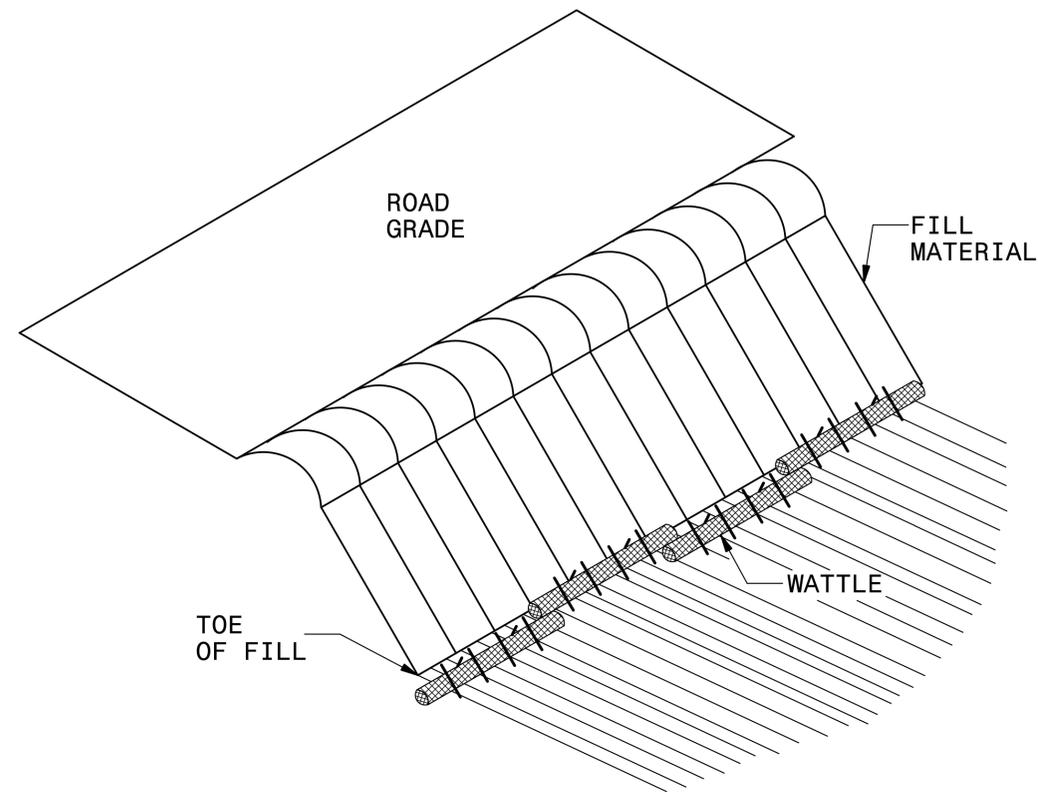
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

**INSET A**

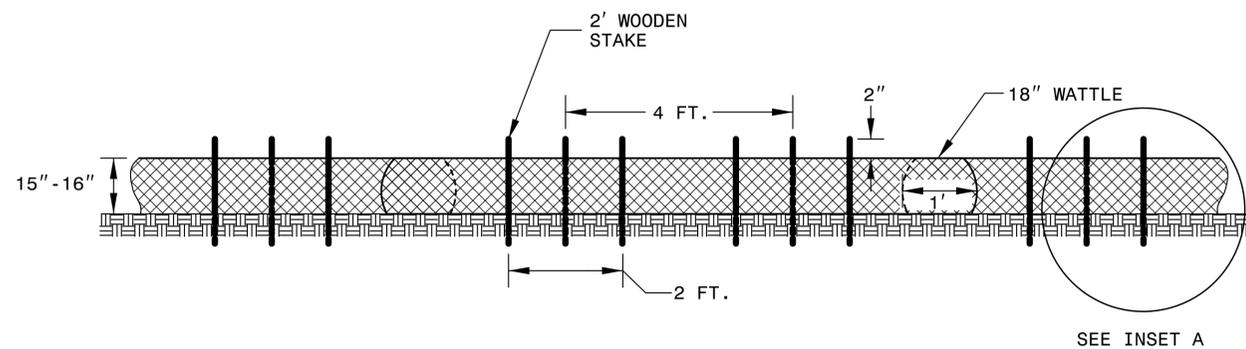


**SIDE VIEW**

# COIR FIBER WATTLE BARRIER DETAIL



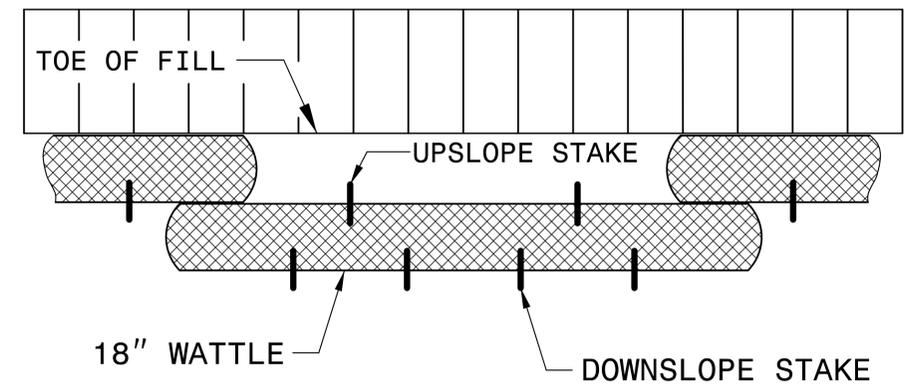
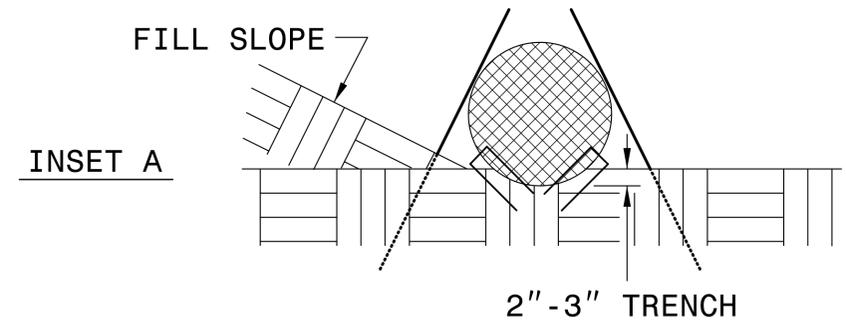
**ISOMETRIC VIEW**



**FRONT VIEW**

**NOTES:**

- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- 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.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 20 FT.



**TOP VIEW**

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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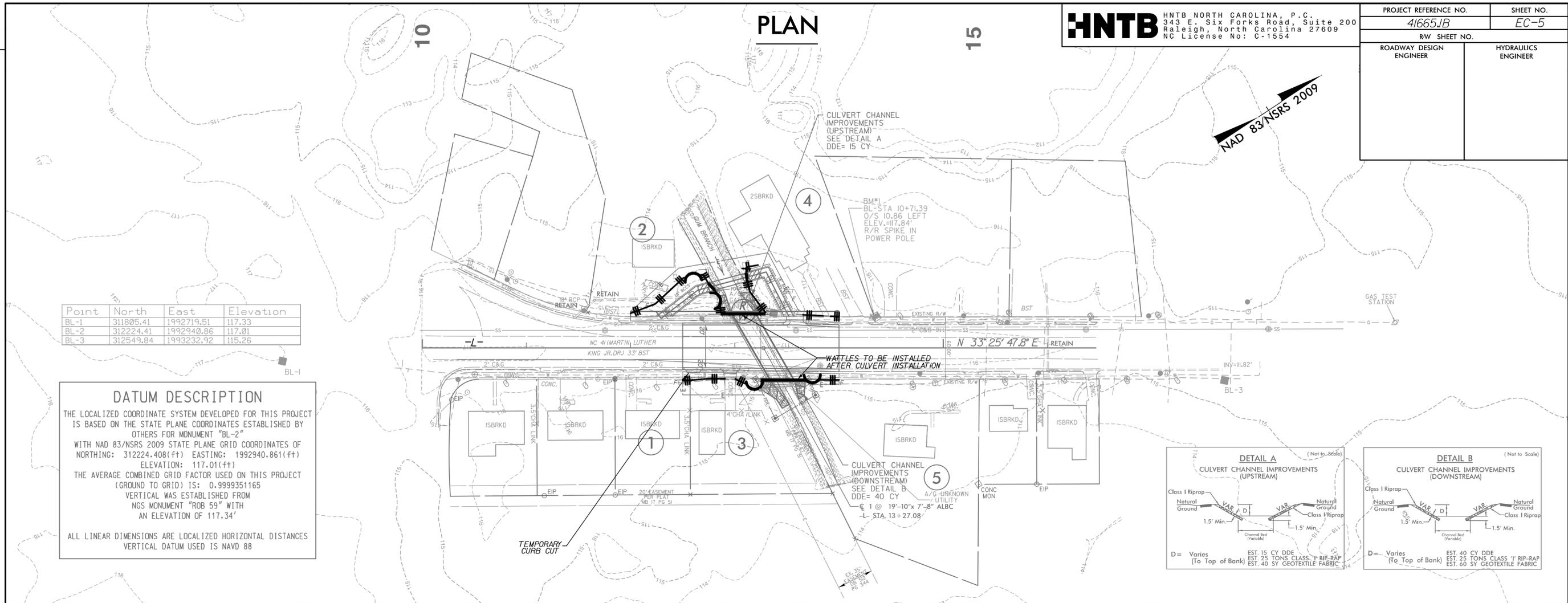


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## ***SOIL STABILIZATION TIMEFRAMES***

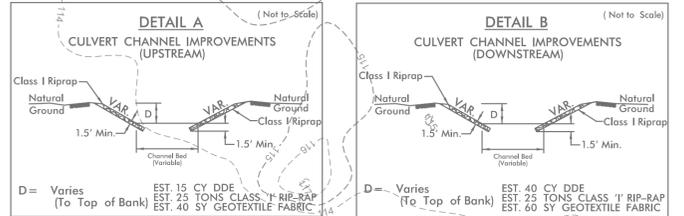
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 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.

PROJECT REFERENCE NO. <b>41665.1B</b>	SHEET NO. <b>EC-5</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



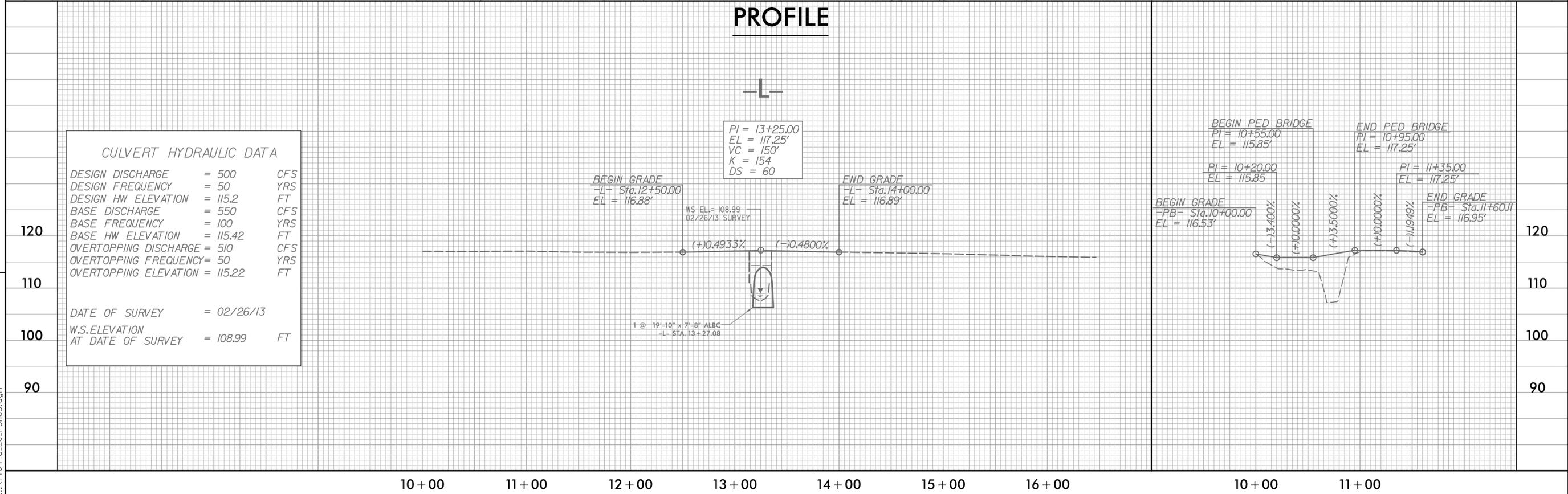
Point	North	East	Elevation
BL-1	311805.41	1992719.51	117.33
BL-2	312224.41	1992940.86	117.01
BL-3	312549.84	1993232.92	115.26

**DATUM DESCRIPTION**  
 THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2009 STATE PLANE GRID COORDINATES OF NORTHING: 312224.408(±) EASTING: 1992940.861(±) ELEVATION: 117.01(±) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9999351165 VERTICAL WAS ESTABLISHED FROM NGS MONUMENT "ROB 59" WITH AN ELEVATION OF 117.34' ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88



REVISIONS

**PROFILE**



**CULVERT HYDRAULIC DATA**  
 DESIGN DISCHARGE = 500 CFS  
 DESIGN FREQUENCY = 50 YRS  
 DESIGN HW ELEVATION = 115.2 FT  
 BASE DISCHARGE = 550 CFS  
 BASE FREQUENCY = 100 YRS  
 BASE HW ELEVATION = 115.42 FT  
 OVERTOPPING DISCHARGE = 510 CFS  
 OVERTOPPING FREQUENCY = 50 YRS  
 OVERTOPPING ELEVATION = 115.22 FT  
 DATE OF SURVEY = 02/26/13  
 W.S. ELEVATION AT DATE OF SURVEY = 108.99 FT

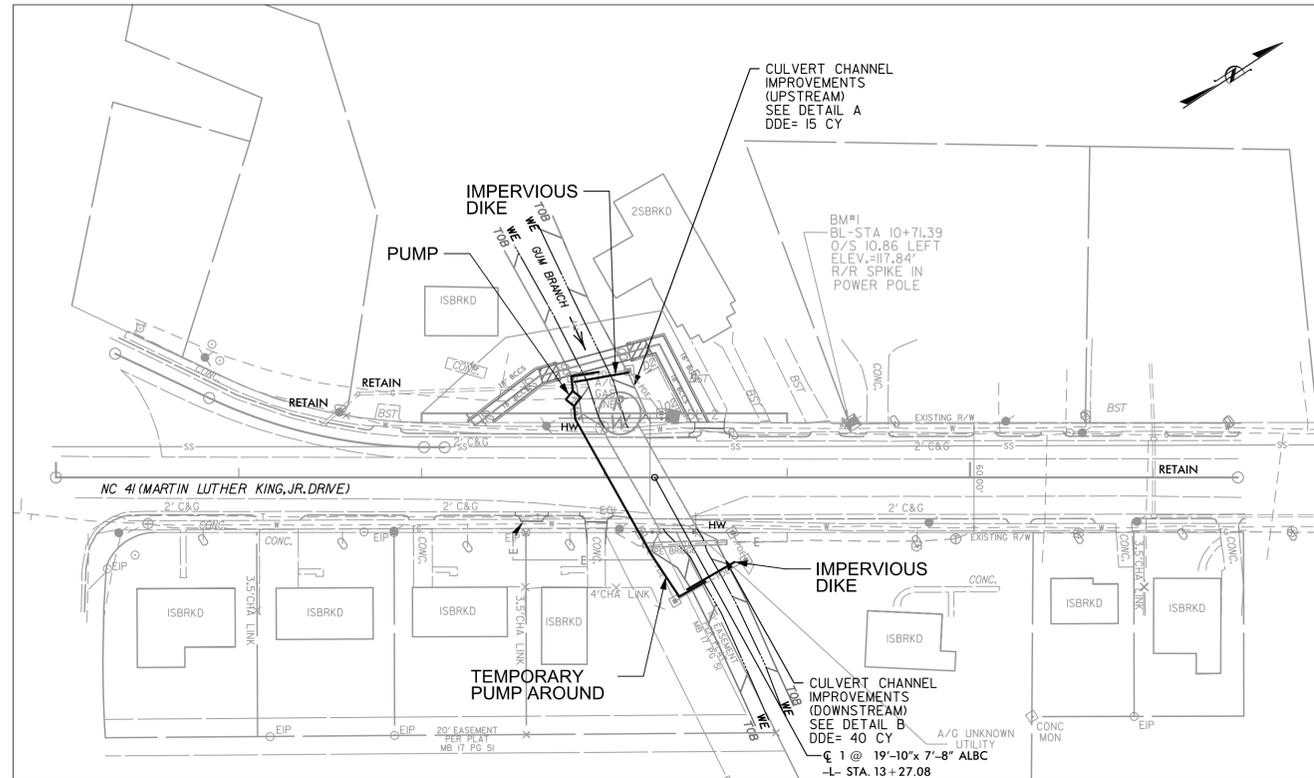
# 41665.1B CULVERT PHASING GUM BRANCH ROBESON COUNTY

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. Six Forks Road, Suite 200  
Raleigh, North Carolina 27609  
NC License No: C-1554

PROJECT REFERENCE NO.	SHEET NO.
41665.1B	EC-6
RW SHEET NO.	

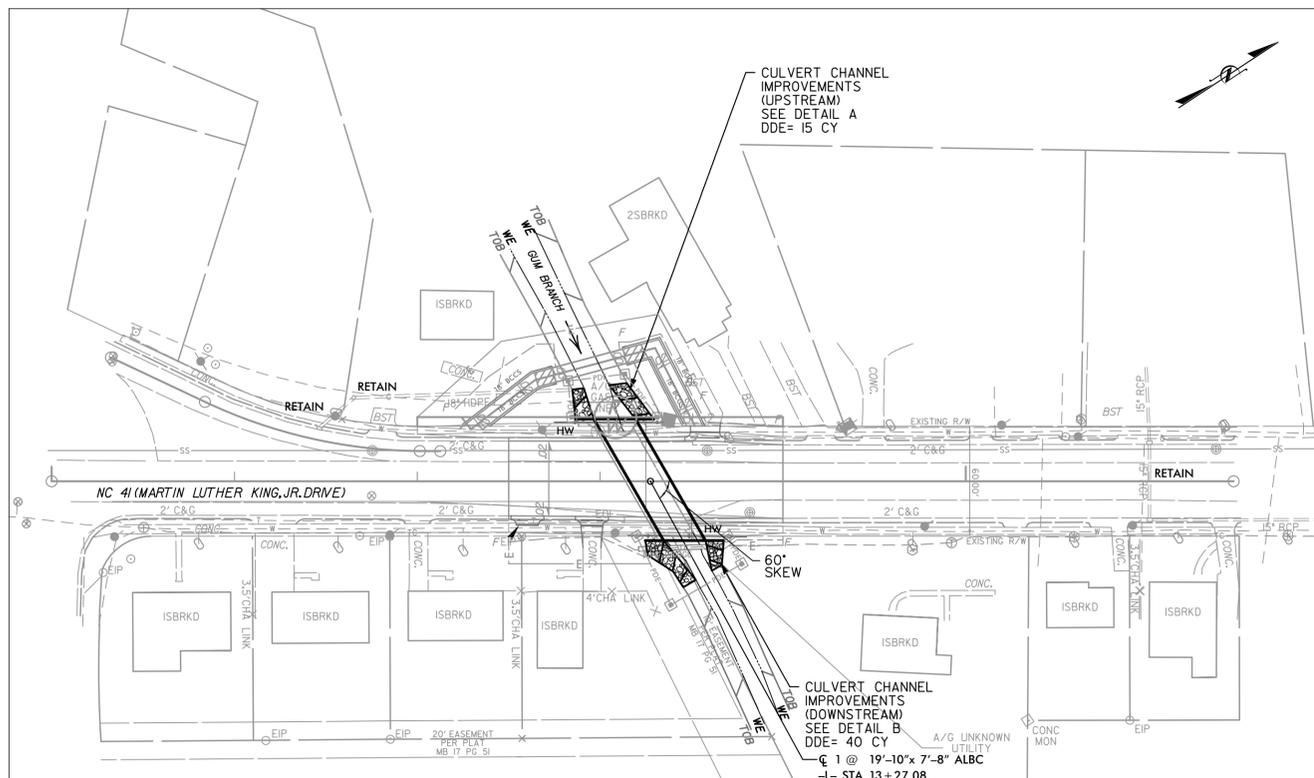
JOHN F. WATSON, P.E.  
EROSION CONTROL  
LEVEL III  
CERTIFICATION #3419

NOTE: EROSION CONTROL DEVICES SHOULD BE INSTALLED TO CONTAIN ALL IMPACTS RELATED TO CONSTRUCTION.



## PHASE I

1. CONSTRUCT TEMPORARY PEDESTRIAN BRIDGE.
2. INSTALL IMPERVIOUS DIKES AS SHOWN.
3. INSTALL PIPE AND PUMP. THEN PUMP MILLS BRANCH AROUND CONSTRUCTION AREA.
4. DEWATER CONSTRUCTION AREA INTO SPECIAL STILLING BASIN(S).

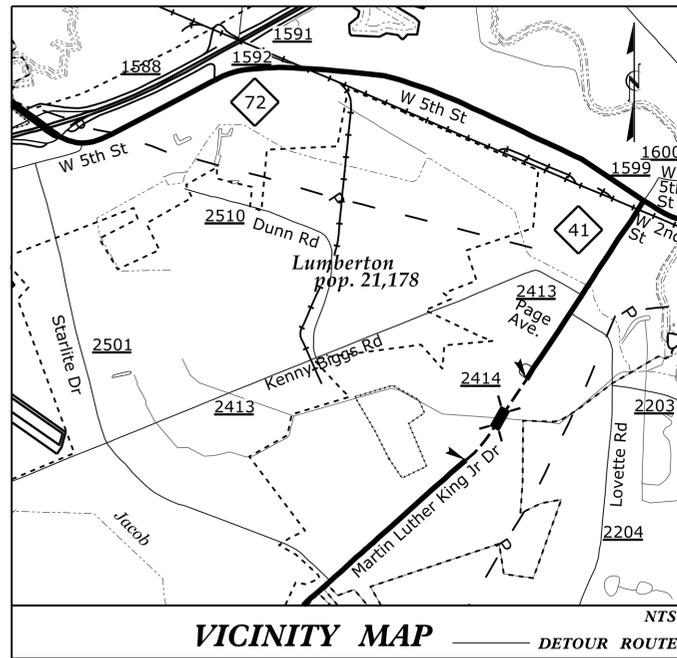


## PHASE II

1. REMOVE EXISTING BRIDGE IN ITS ENTIRETY.
2. INSTALL 1 @ 19'-10" X 7'-8" ALUMINUM BOX CULVERT & GRADE CHANNEL. LINE CHANNEL BANKS WITH CLASS I RIP RAP AS SHOWN.
3. REMOVE IMPERVIOUS DIKES, PUMP AND TEMP. PIPE.
4. INSTALL EROSION CONTROL AS SHOWN ON SHEET EC-5.
5. REMOVE TEMPORARY PEDESTRIAN BRIDGE.

09.08/99

**TIP PROJECT: 41665.1B**



STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**UTILITIES BY OTHERS PLANS  
ROBESON COUNTY**

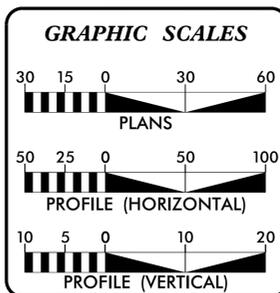
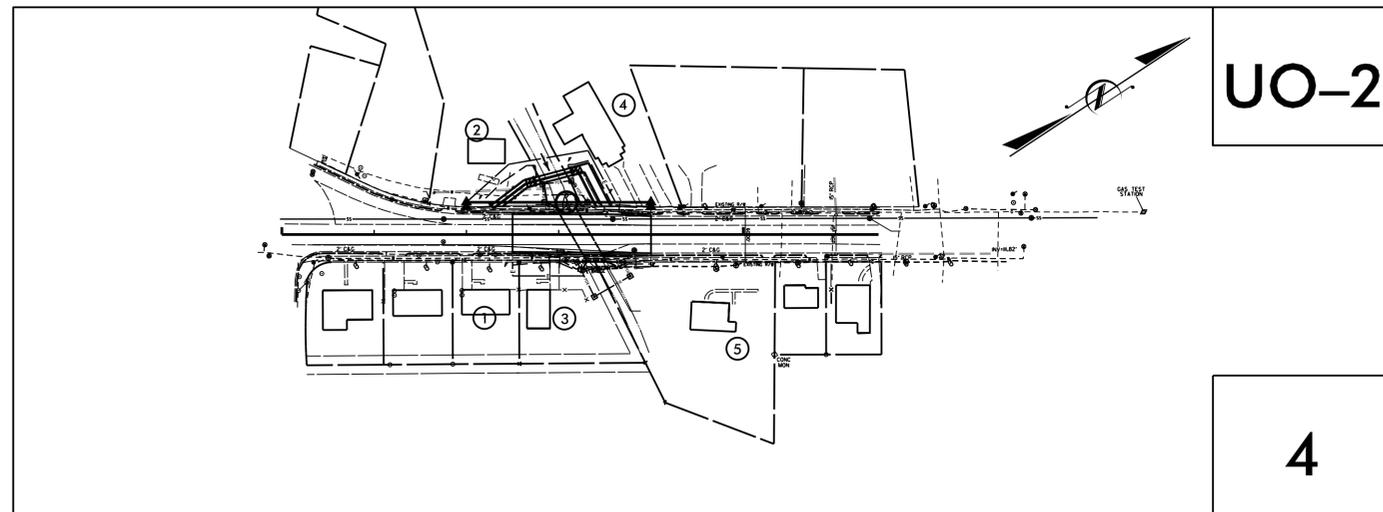
**LOCATION: BRIDGE NO. 446 OVER GUM SWAMP CANAL  
ON NC 41 (MLK DR.)**

**TYPE OF WORK: UTILITY BY OTHERS RELOCATION**

T.I.P. NO.	SHEET NO.
41665.1B	UO-1

**HNTB** HNTB NORTH CAROLINA, P.C.  
343 E. SIX FORKS ROAD, SUITE 200  
RALEIGH, NORTH CAROLINA 27609  
NO. LICENSE NO: C-1554

DATE: APRIL 6, 2015



**INDEX OF SHEETS**

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	PLAN SHEET

**UTILITY OWNERS ON PROJECT**

(1) POWER -	CITY OF LUMBERTON
(2) PHONE -	AT&T
(3) GAS -	PNG
(4) CATV -	TIME WARNER
(5) WATER -	CITY OF LUMBERTON
(6) SEWER -	CITY OF LUMBERTON

**UTILITY DESIGN BY:**  
**M A Engineering Consultants, Inc.** NC License: F-0160  
598 East Chatham Street Suite 137 Cary, NC 27511  
Phone: 919.297.0220 Fax: 919.297.0221

**NCDOT PROJECT ENGINEER:**  
**BRICE BELL, P.E.**

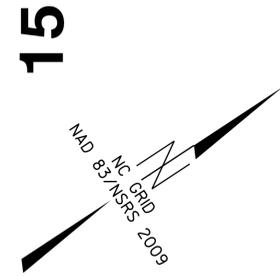
**PREPARED FOR:**  
**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION BRIDGE PROGRAM**

4/9/2015 4:50:42 PM P:\005\0596\020\Robeson 446\Robeson BR446.DGN Files\Utilities\Rdy\_UF\Proj\Robeson446\_UBO\_UO-01.dgn

UTILITIES BY OTHERS

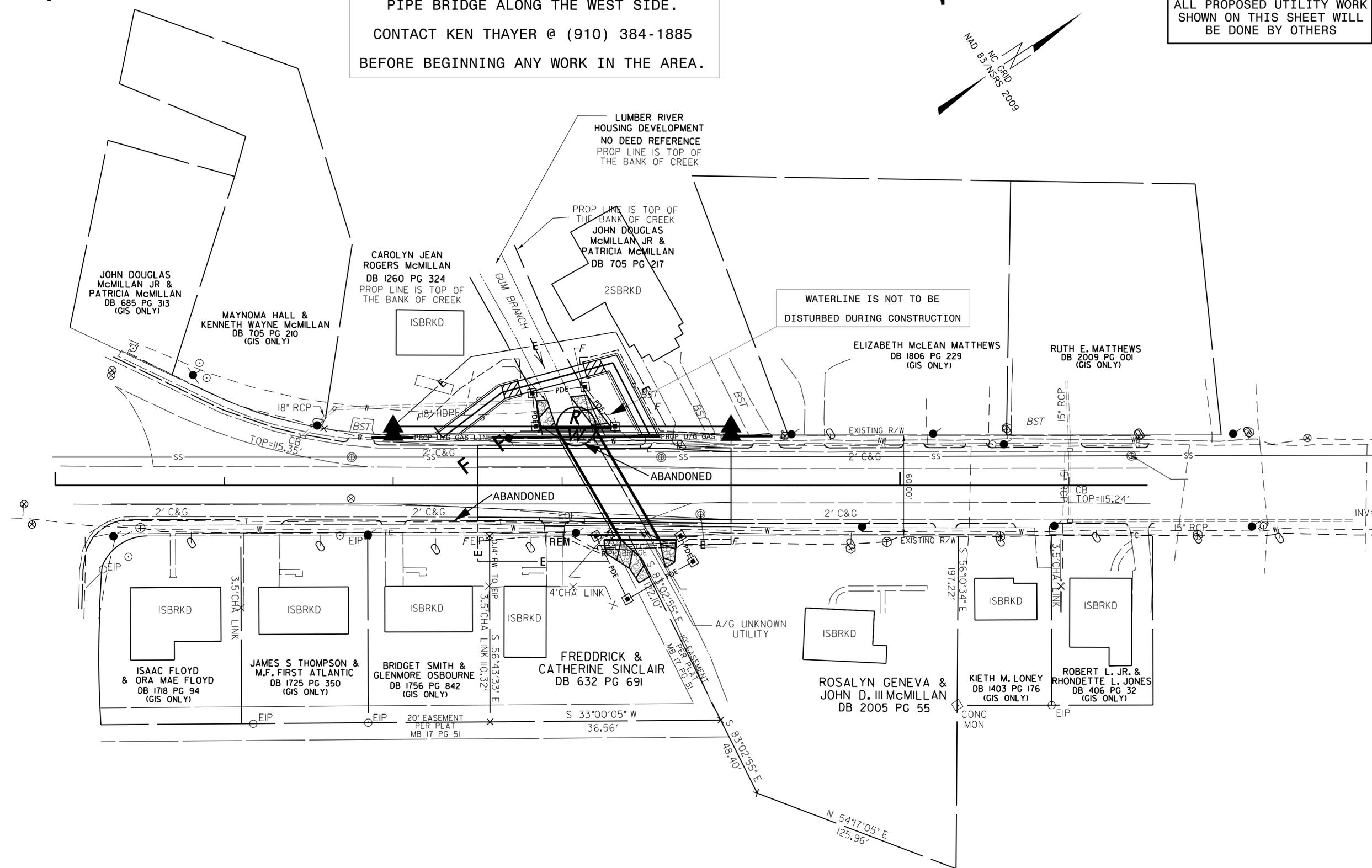
NOTE:  
ALL PROPOSED UTILITY WORK  
SHOWN ON THIS SHEET WILL  
BE DONE BY OTHERS

THE DOT CONTRACTOR WILL PROVIDE SUPPORT  
PIPE BRIDGE ALONG THE WEST SIDE.  
CONTACT KEN THAYER @ (910) 384-1885  
BEFORE BEGINNING ANY WORK IN THE AREA.



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5/14/99  
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Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**CROSS-SECTION SUMMARY**  
*IN CUBIC YARDS*

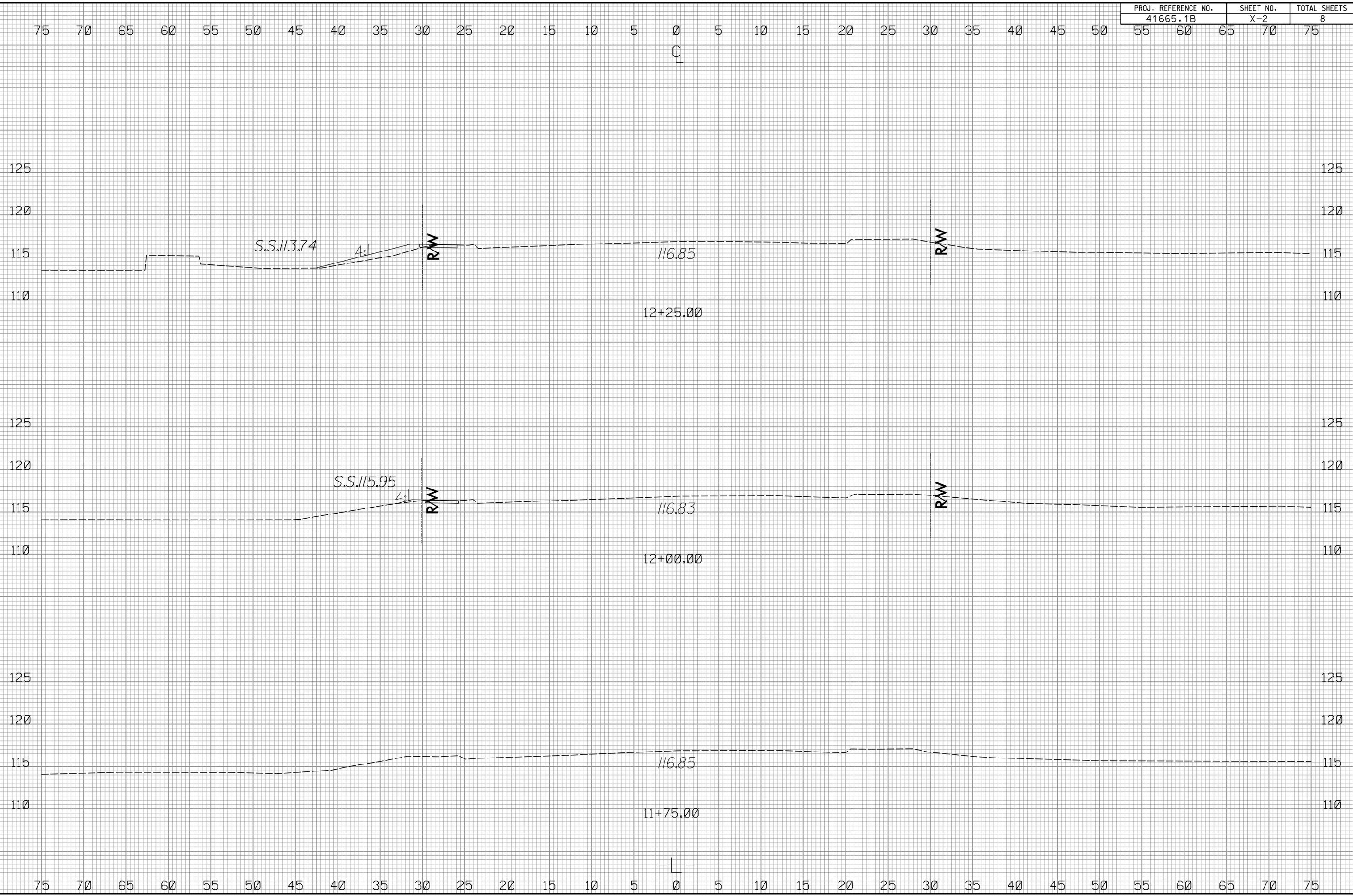
NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATION	UNCLASSIFIED EXCAVATION	EMBANK.	UNDERCUT
-L- STA. 12+00.00	0	0	
-L- STA. 12+25.00	0	3	
-L- STA. 12+50.00	24	7	
-L- STA. 12+75.00	47	8	
-L- STA. 13+00.00	58	15	
-L- STA. 13+25.00	161	72	
-L- STA. 13+50.00	154	70	
-L- STA. 13+75.00	48	10	
-L- STA. 14+00.00	47	1	

STATION	UNCLASSIFIED EXCAVATION	EMBANK.	UNDERCUT
-PB- STA. 10+00.00	0	0	
-PB- STA. 10+20.00	2	15	
-PB- STA. 10+40.00	0	33	
-PB- STA. 10+55.00	0	30	
-PB- STA. 10+95.00	0	54	
-PB- STA. 11+00.00	1	5	
-PB- STA. 11+20.00	4	0	
-PB- STA. 11+40.00	5	0	

02/03/98

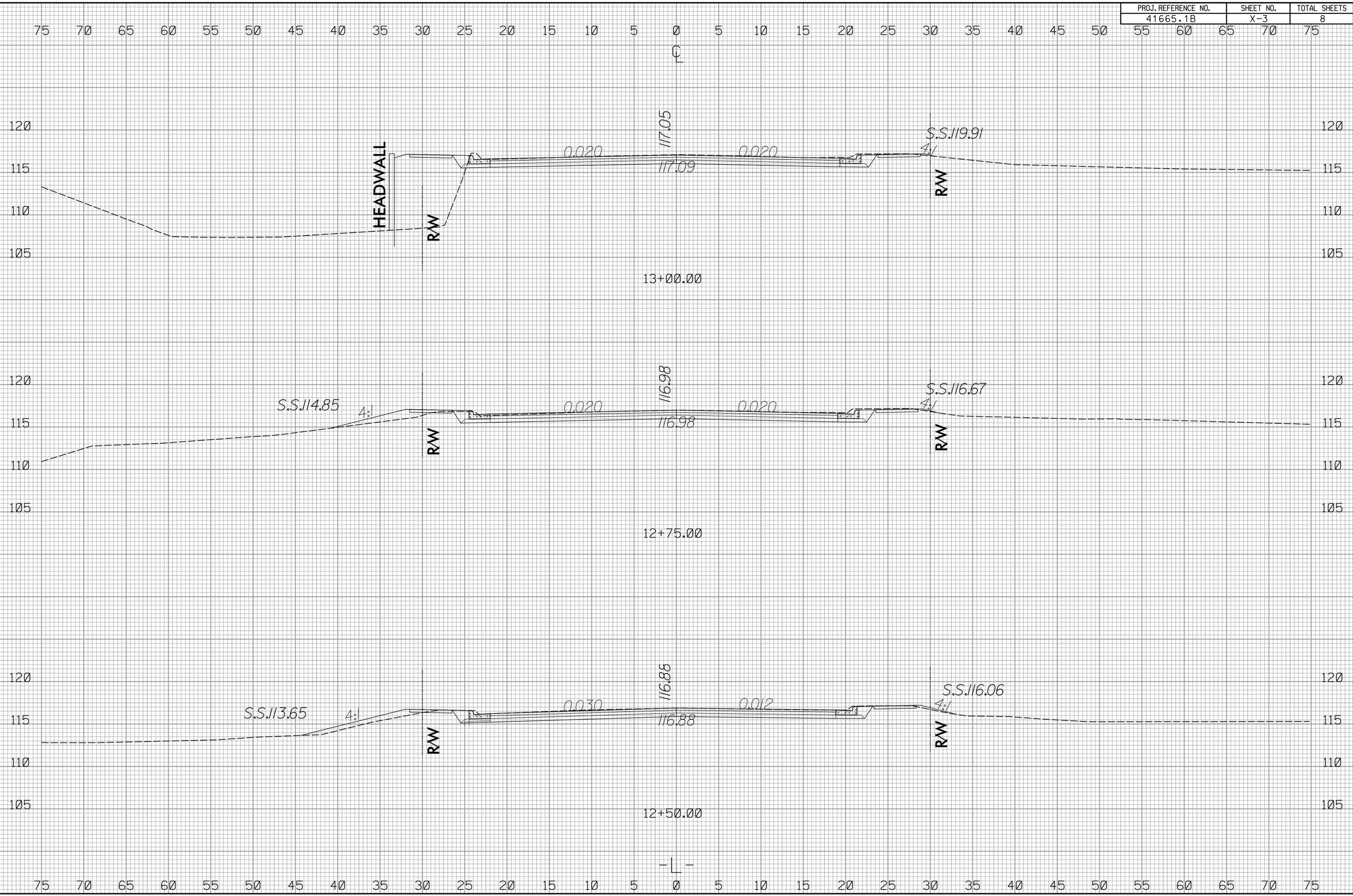
PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
41665.1B	X-2	8



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02/03/98

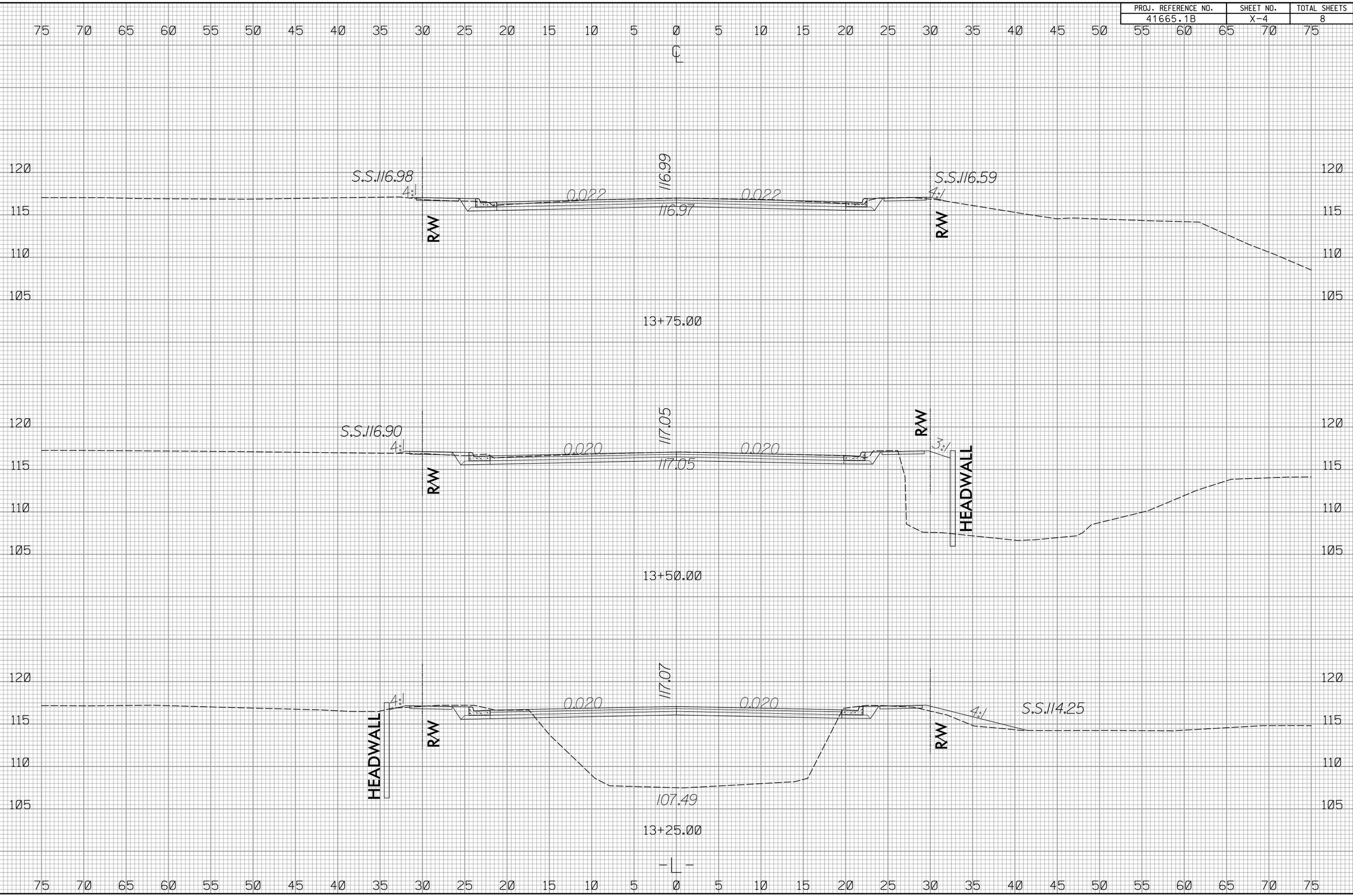
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02/03/98

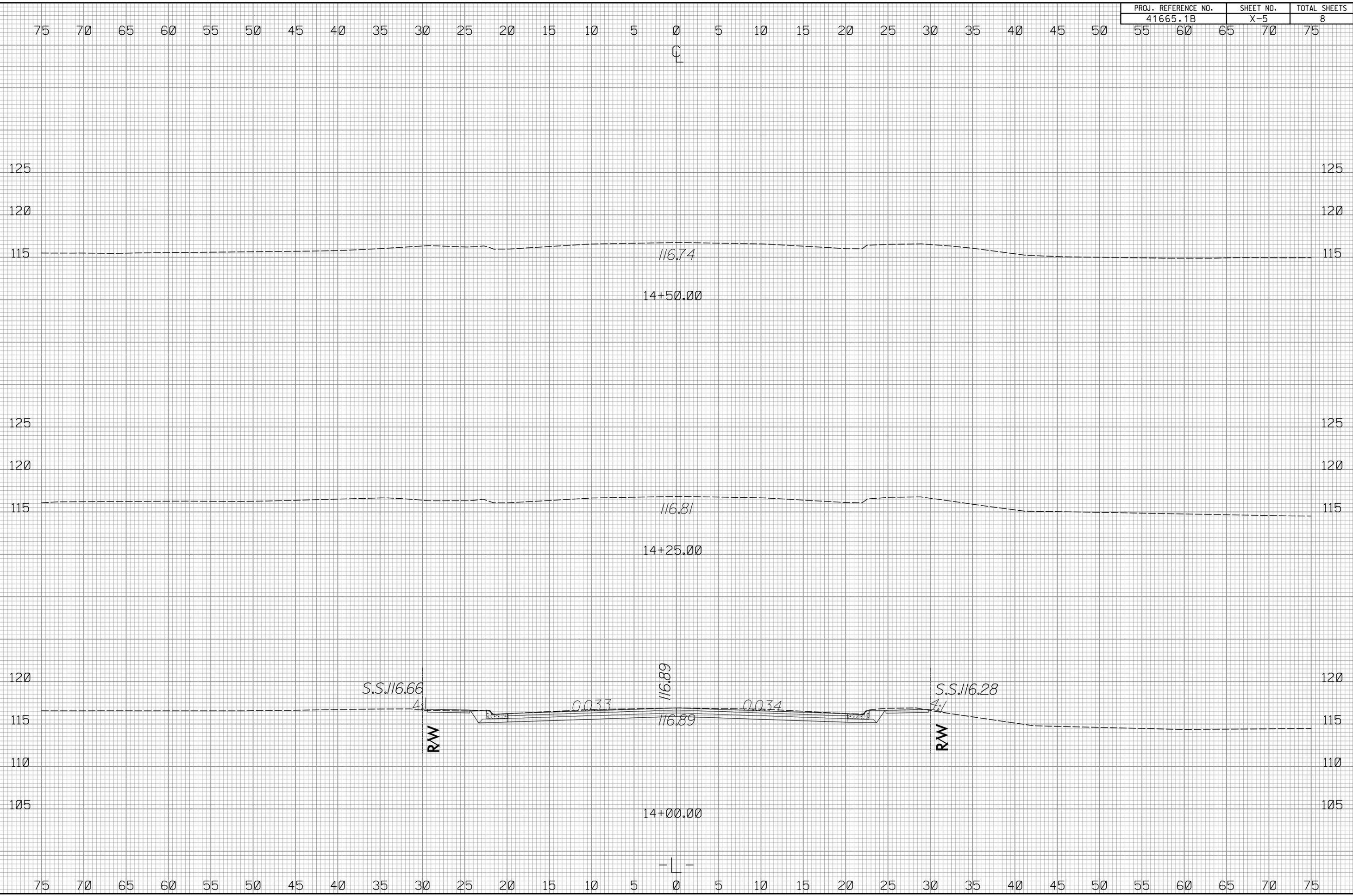
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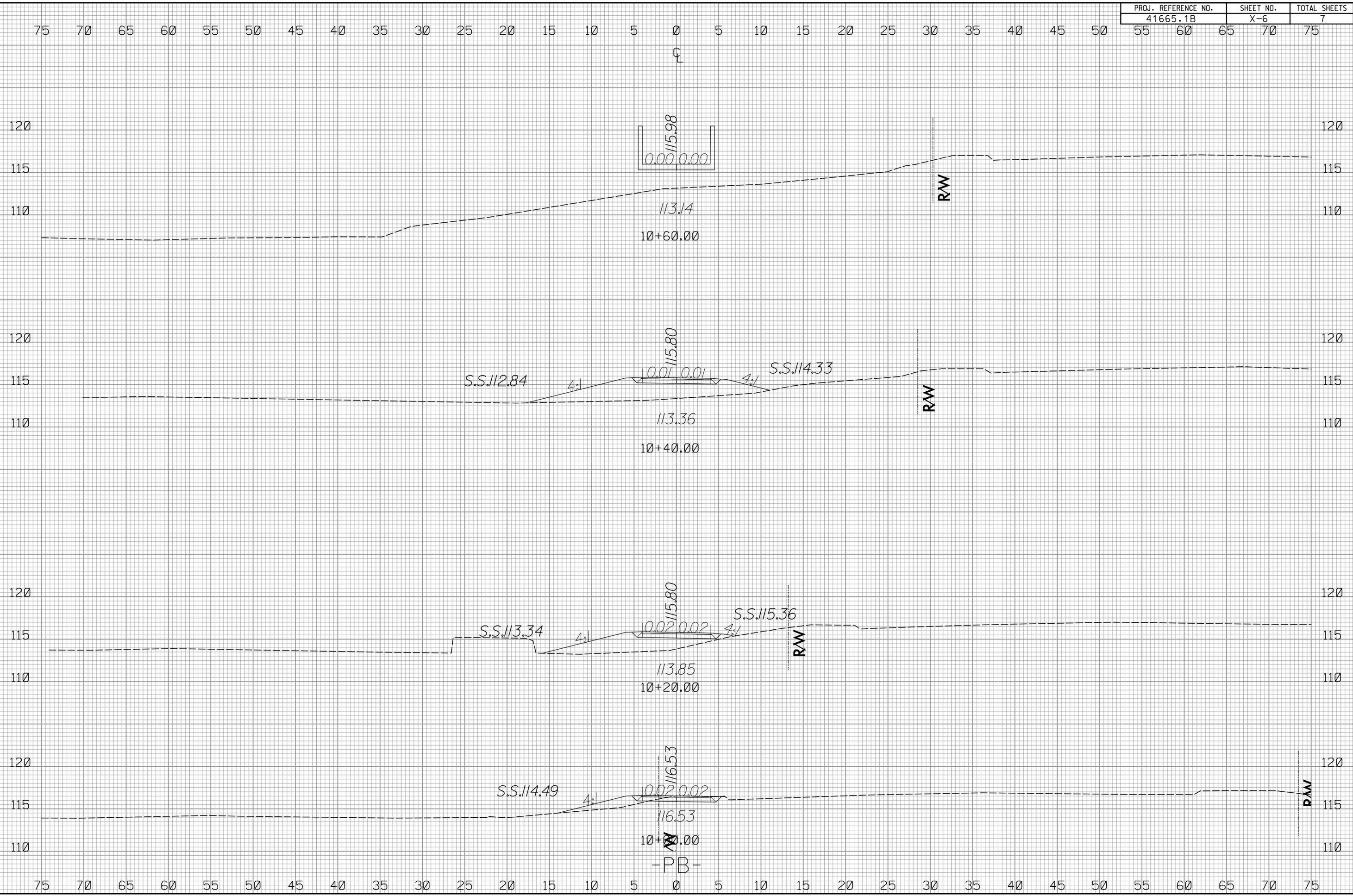
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02/03/98

PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
41665.1B	X-6	7

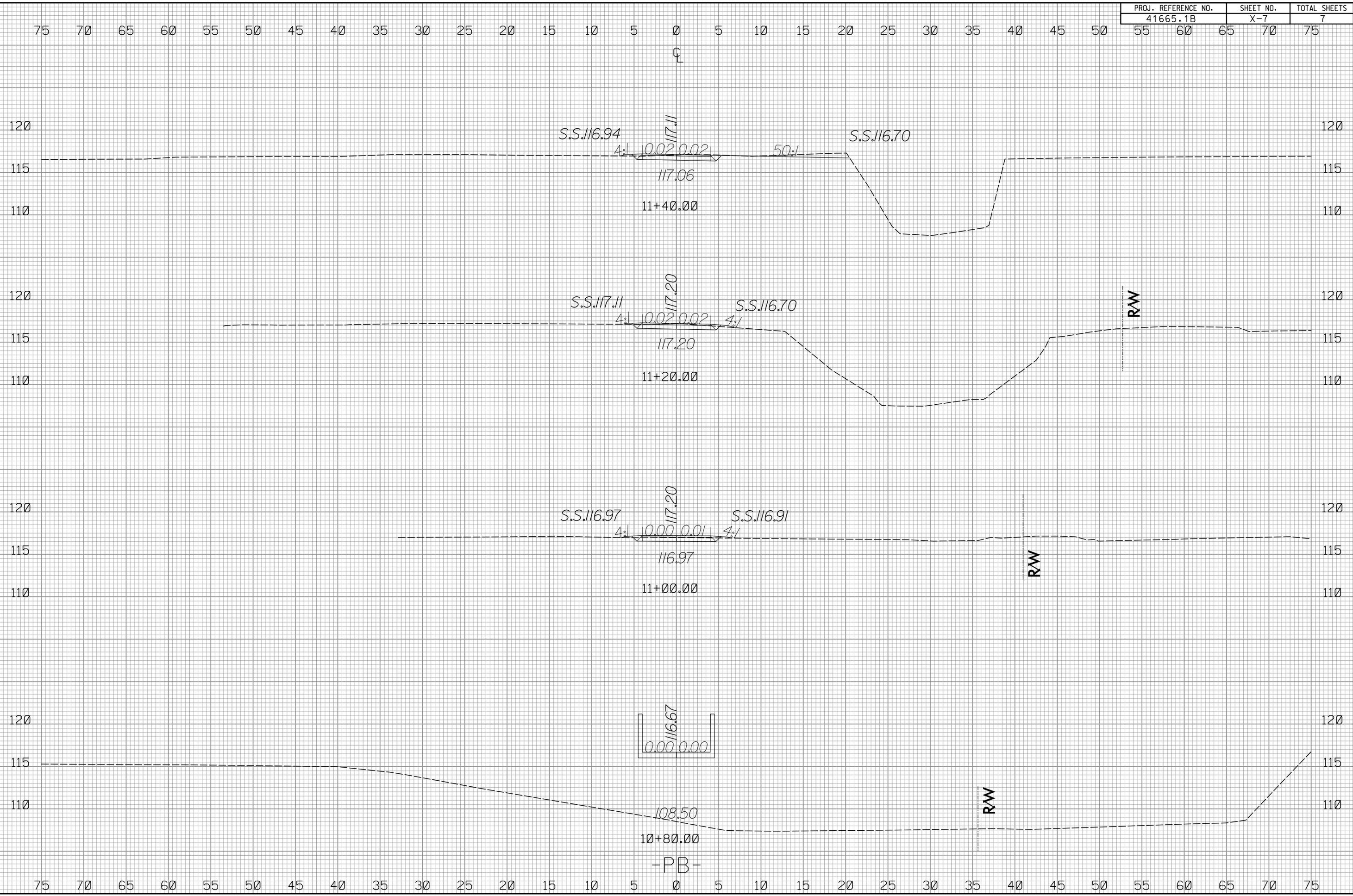


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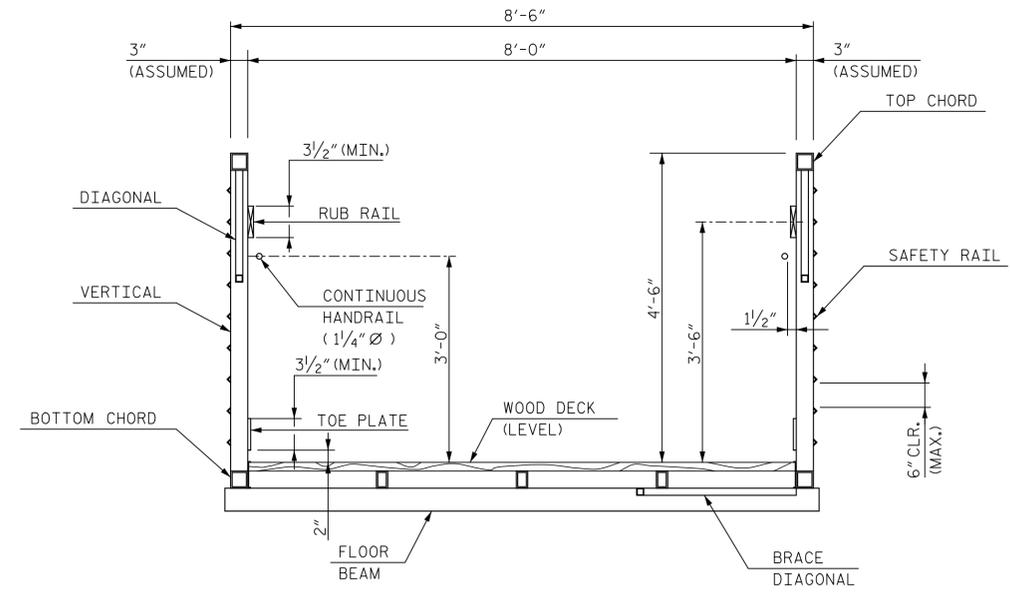
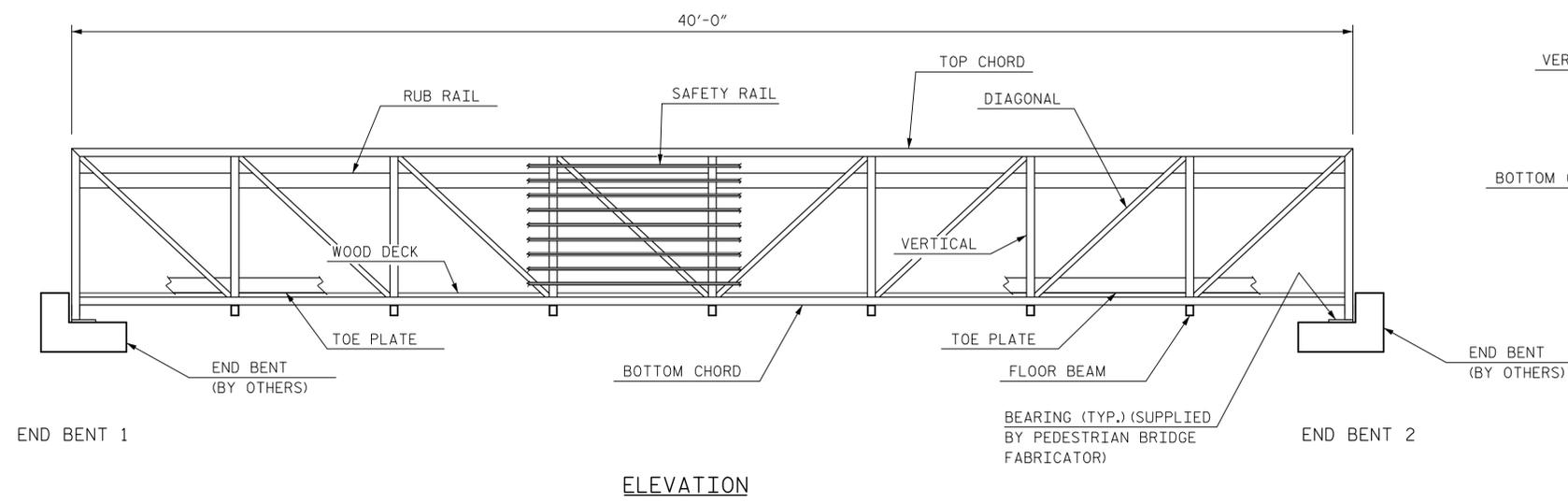
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PROJ. REFERENCE NO.	SHEET NO.	TOTAL SHEETS
41665.1B	X-7	7



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**TYPICAL TEMPORARY BRIDGE SECTION**

NOTES: THIS BRIDGE SHALL BE DESIGNED PER THE AASHTO "LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES", LATEST EDITION.

PEDESTRIAN BRIDGE SHALL BE DESIGNED FOR A UNIFORM PEDESTRIAN LOADING OF 90 PSF. A MAINTENANCE VEHICLE LOAD EQUAL TO A SINGLE STANDARD H5 TRUCK SHALL BE USED WITHOUT DYNAMIC ALLOWANCE.

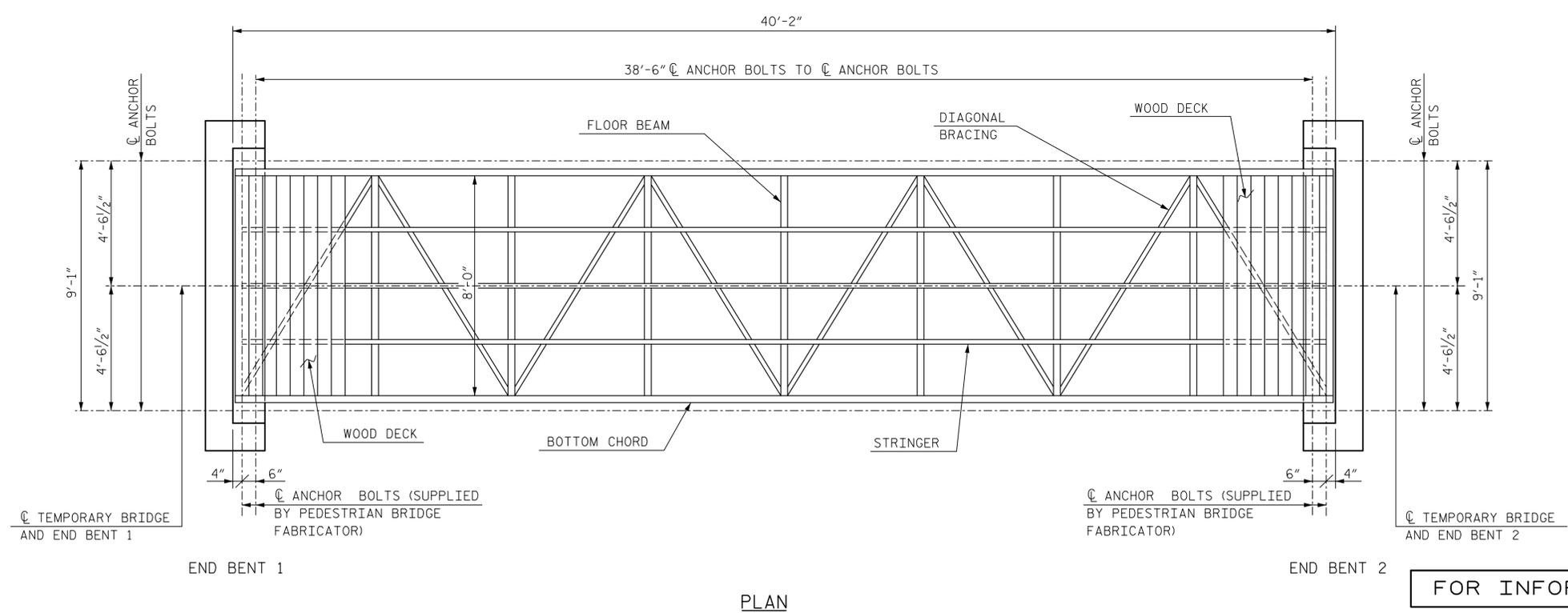
SUPERSTRUCTURE SHALL CONSIST OF PRE-ENGINEERED, PRE-FABRICATED THROUGH TRUSSES OF AASHTO M270 (ASTM A588) WEATHERING STEEL (UNPAINTED) FOR BUILT-UP AND ROLLED SECTIONS OR ASTM A847 FOR STRUCTURAL TUBING.

STRUCTURAL DESIGN OF THE SUPERSTRUCTURE SHALL BE SEALED BY A NORTH CAROLINA LICENSED PROFESSIONAL ENGINEER.

FOR PEDESTRIAN BRIDGE REQUIREMENTS, SEE SPECIAL PROVISIONS.

THIS BRIDGE IS INTENDED TO BE USED AS A TEMPORARY CROSSING FOR THIS PROJECT, REMOVED, AND REUSED AT ANOTHER SITE WITHIN A SIMILAR GEOGRAPHICAL AREA TO BE DETERMINED LATER.

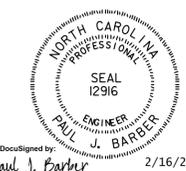
THE SUPERSTRUCTURE SHALL BE PAID FOR UNDER THE LUMP SUM PRICE FOR "PREFABRICATED PEDESTRIAN BRIDGE, STATION 10+75.00 -PB-".



**PLAN**

PROJECT NO. 41665.1B  
ROBESON COUNTY  
 STATION: POT 10+75.00 -PB-

FOR INFORMATION ONLY



Drawn by: Paul J. Barber  
 Date: 2/16/2016

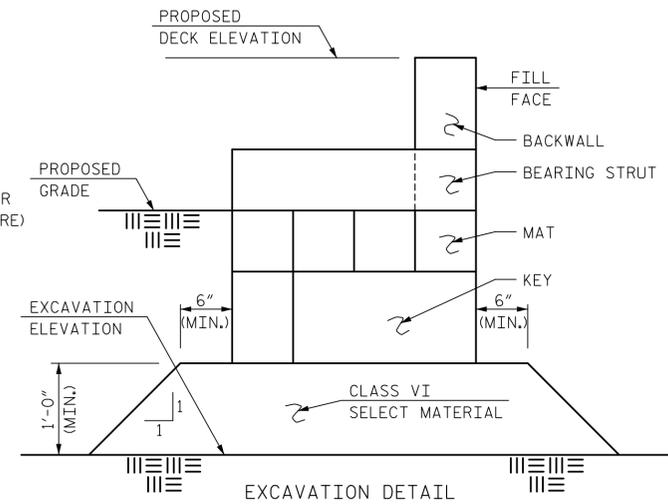
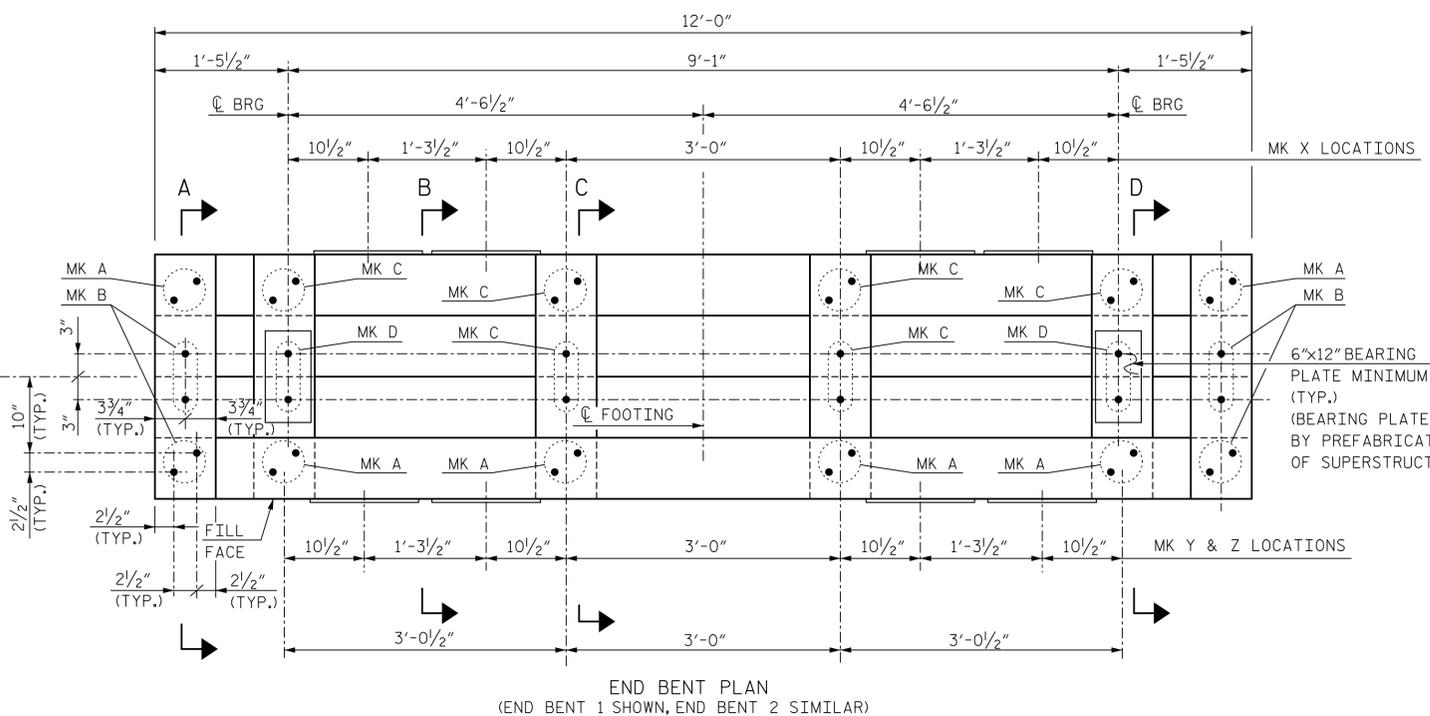
**DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED**

**HNTB** HNTB NORTH CAROLINA, P.C.  
 License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609

DRAWN BY: M. WRIGHT DATE: 10/14  
 CHECKED BY: P. BARBER DATE: 4/15 DWG. NO. 1

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
PEDESTRIAN BRIDGE PLAN, ELEVATION, AND TYPICAL SECTION					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. S01-1					TOTAL SHEETS 2

END BENT & BEARING FOR LOCATION, SEE PREFABRICATED SUPERSTRUCTURE DRAWINGS AND ROADWAY PLANS



NOTES: THE COST OF END BENT EXCAVATION, CONDITIONING MATERIAL AND BACKFILLING SHALL BE INCLUDED IN THE SEVERAL PAY ITEMS FOR "TIMBER END BENTS".

THE ENTIRE COST OF FURNISHING MATERIALS AND CONSTRUCTION OF THE TIMBER END BENT SHALL BE PAID AS A LUMP SUM FOR "TIMBER END BENTS" SEE SPECIAL PROVISION.

FOUNDATION SOILS SHALL HAVE A BEARING CAPACITY OF NOT LESS THAN 2,000 PSF.

TIMBERS SHALL BE SOUTHERN PINE GRADE DENSE STRUCTURAL 65 (TREATED) FOR A PERMANENT INSTALLATION.

TIMBERS MAY BE SOUTHERN PINE GRADE DENSE STRUCTURAL 72 (UNTREATED) FOR A REQUIRED TEMPORARY INSTALLATION OF 3 MONTHS OR LESS.

THREADED ROD AND BOLTS SHALL BE ASTM A307 GRADE A WITH A563 HEX NUTS AND F844 CIRCULAR WASHERS. CONNECTOR PLATES SHALL BE AASHTO M270 GRADE 36. PLATES AND ALL BOLT ASSEMBLIES SHALL BE GALVANIZED.

TIMBERS ARE CALLED OUT USING NOMINAL DIMENSIONS. DRESSED SIZES ARE ASSUMED TO BE 1/2" LESS THAN NOMINAL SIZE. LENGTHS OF TIMBERS ARE BASED UPON DRESSED SIZES, WHEN NECESSARY.

BACKWALL TIMBERS MAY NEED TO BE ADJUSTED IN HEIGHT TO ACCOMMODATE PREFABRICATED SPAN DEPTH.

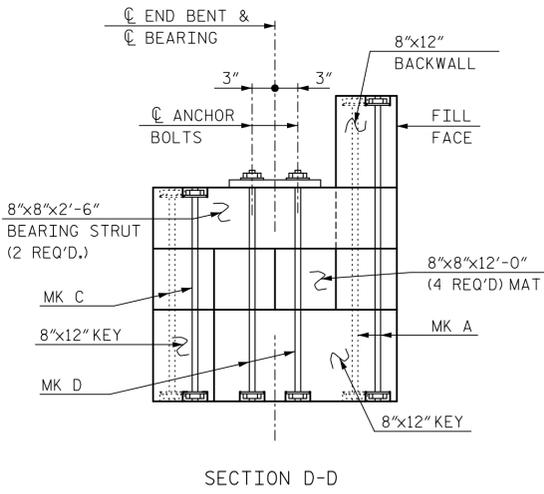
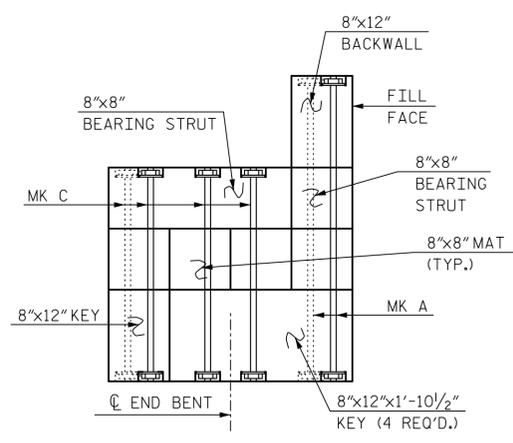
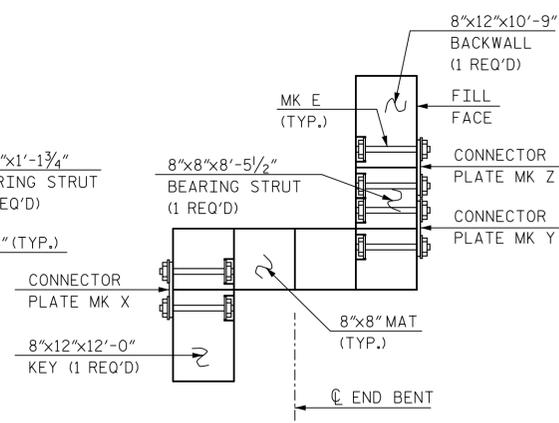
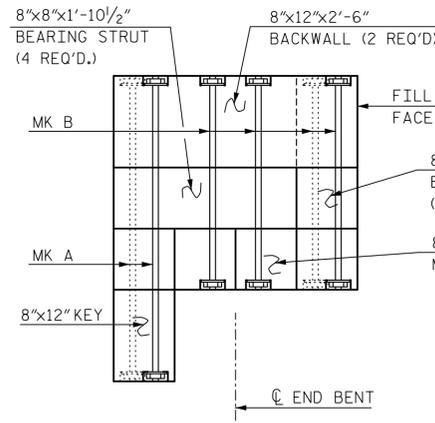
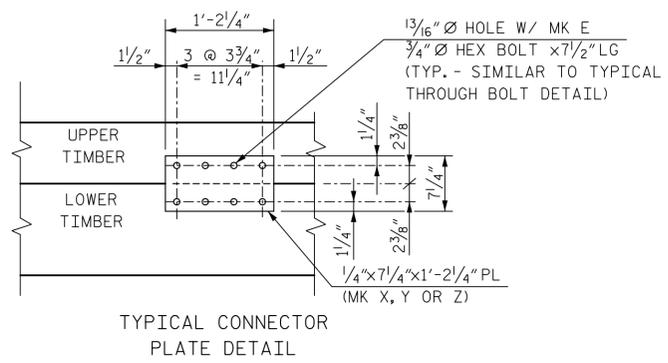
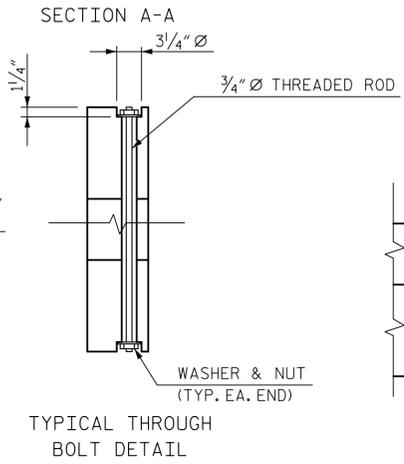


PLATE ASSEMBLIES			
MARK	NO. REQ'D	UPPER TIMBER	LOWER TIMBER
MK X	4	MAT	KEY
MK Y	4	BEARING	MAT
MK Z	4	BACKWALL	BEARING

PROJECT NO. 41665.1B  
 ROBESON COUNTY  
 STATION: POT 10+75.00 -PB-

NOTE: WASHERS SHALL BE 1/4" THICK BY 3" Ø NUTS SHALL BE HEX HEADED.



BOLT ASSEMBLIES	
MARK	NO. REQ'D
MK A	12
MK B	8
MK C	12
MK D	4
MK E	96



DocuSigned by:  
 Paul J. Barber  
 180F19273691A1E 2/16/2016

**HNTB** HNTB NORTH CAROLINA, P.C.  
 License No. C-1554  
 343 E. Six Forks Rd., Suite 200, Raleigh, N.C. 27609  
 DRAWN BY M. WRIGHT DATE 4/15  
 CHECKED BY P. BARBER DATE 4/15 DWG. NO. 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA  
 DEPARTMENT OF TRANSPORTATION  
 RALEIGH

END BENT DETAILS

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		4/15
2			4		4/15

SHEET NO. S01-2  
 TOTAL SHEETS 2