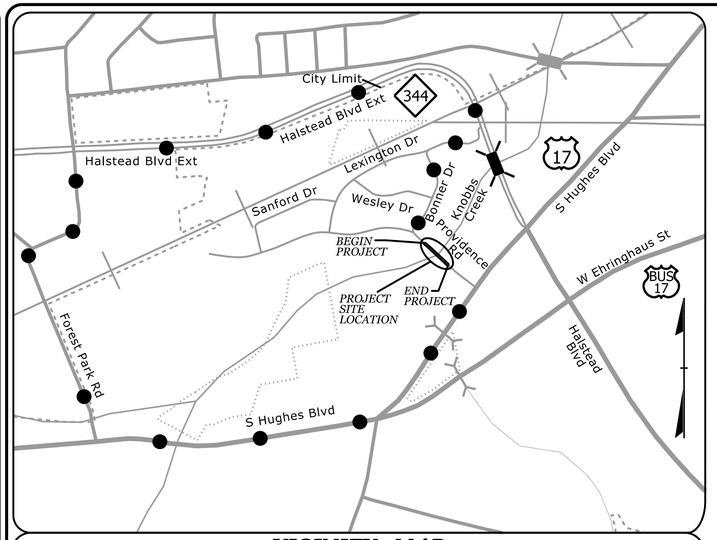
PROJECT : B-6053

CONTRACT:



VICINITY MAP
(NOT TO SCALE)

OFF SITE DETOUR

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PASQUOTANK COUNTY

LOCATION: *Bridge No. 690034 on Providence Road over Knobbs Creek Tributary in Elizabeth City*

TYPE OF WORK: DRAINAGE, PAVING, AND STRUCTURE

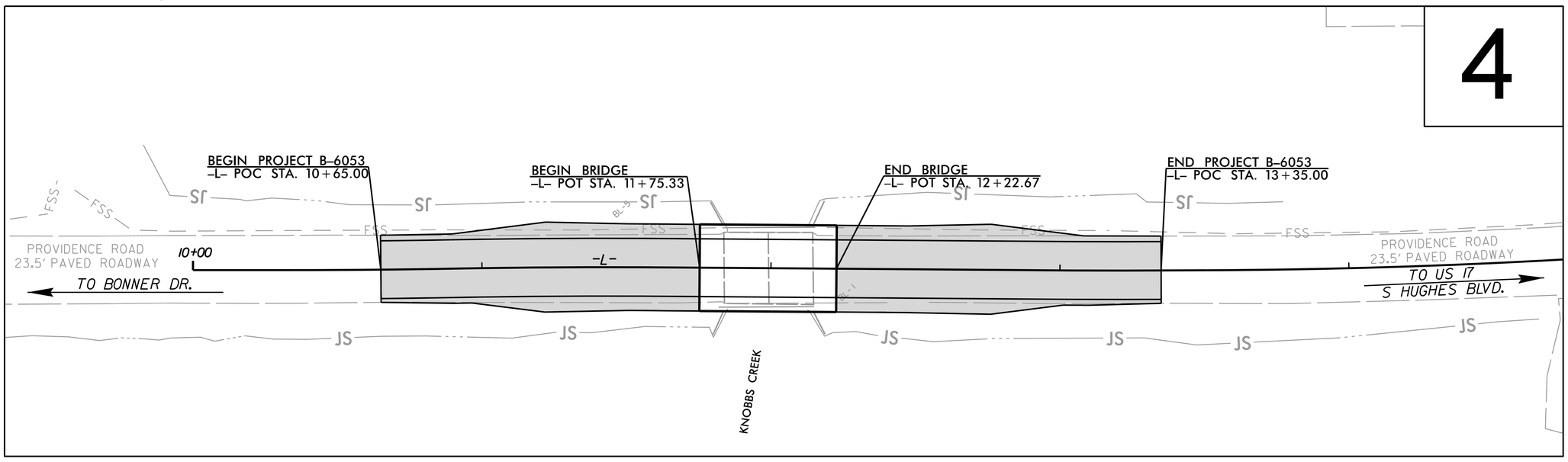
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6053	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48754.1.1	N/A	P.E. / R/W / UTIL
48754.3.1	STBG-0111(026)	CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83/2011

4



GRAPHIC SCALES

PLANS: 20 0 20 40

PROFILE (HORIZONTAL): 20 0 20 40

PROFILE (VERTICAL): 4 0 4 8

DESIGN DATA

ADT = 500
T = 7 %*
V = 30 MPH
* TTST = 3.5% DUAL 3.5%

FUNC CLASS = RURAL
LOCAL

SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-6053 =	0.042 mi
LENGTH STRUCTURE TIP PROJECT B-6053 =	0.009 mi
TOTAL LENGTH TIP PROJECT B-6053 =	0.051 mi

RK&K

RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, SUITE 700
RALEIGH, NORTH CAROLINA 27615
NC LICENSE NO. F-0112
1-888-521-4455 OR 919-878-9560

FOR
DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
August 15, 2020

LETTING DATE:

Scott D. Blevins, P.E.
PROJECT ENGINEER

Bill Bollman
PROJECT DESIGN ENGINEER

Dwan Bell
CITY OF ELIZABETH CITY

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 038644 ENGINEER DOUGLAS M. KELLER
3/18/2021
DocuSigned by: Douglas Keller
P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS
3/18/2021
DocuSigned by: Scott D. Blevins
P.E.
SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

3/12/2021
R:\Roadway\Proj\B6053_Rdy_tsh.dgn
dnefler

690034	PROJECT REFERENCE NO.	SHEET NO.
	B-6053	1A
	R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NO.	SHEET
1	Title Sheet
1-A	Index of Sheets, General Notes, and List of Standards
1-B	Conventional Plan Sheet Symbols
2A-1	Pavement Schedule and Typical Sections
2C-1	Detail of Modified Concrete Flume
2G-1	Detail of Rock Embankment and Rock Plating
3B-1	Summary Earthwork, Guardrail, and Shoulder Berm Gutter
3G-1	Summary Rock Plating and Subsurface Drainage
4	Plan and Profile Sheet
RW01	Right of Way Title Sheet
RW2C-1 thru RW2C-3	Survey Control Sheets
RW02D-1	Proposed Alignment Control Sheet
RW03E-1	Right of Way Control Sheets
RW04	Modified R/W Plan Sheet
TMP-1 thru TMP-3	Transportation Management Plan
SD-1	Sign Design
EC-1 thru EC-5	Erosion Control Plans
UC-1 thru UC-4	Utility Construction Plans
UO-1 thru UO-2	Utilities By Others Plans
X-1 thru X-3	Cross-Sections
S-1 thru S-2	Structure Plans

EFF. 01-16-2018
REV.

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
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
275.01	Rock Plating
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

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.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

END BENTS:

THE ENGINEER SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE City of Elizabeth City, CenturyLink, Charter, and Media-Comm
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RK&K
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Raleigh, North Carolina 27615-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

12/2/2016

6900341	PROJECT REFERENCE NO.	SHEET NO.
	B-6053	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale **S.U.E. = Subsurface Utility Engineering*

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Computed Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Existing Historic Property Boundary — HPB
- Known Contamination Area: Soil — S
- Potential Contamination Area: Soil — S
- Known Contamination Area: Water — W
- Potential Contamination Area: Water — W
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — 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 Easement 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 — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- 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 — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

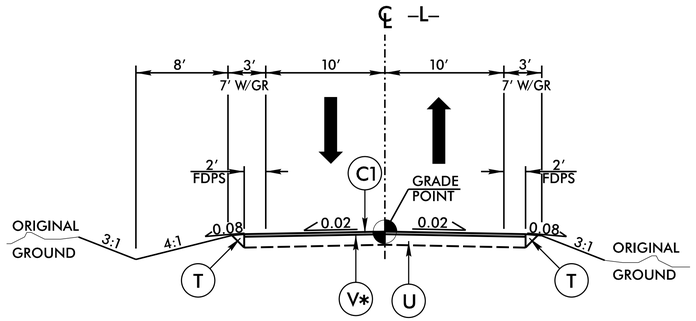
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

8/17/99

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.IN EACH OF TWO LAYERS
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 1" OR GREATER THAN 1.5" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R1	SHOULDER BERM GUTTER.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING EXISTING ASPHALT PAVEMENT 0" TO 1.5".
W	VARIABLE DEPTH ASPHALT PAVEMENT.

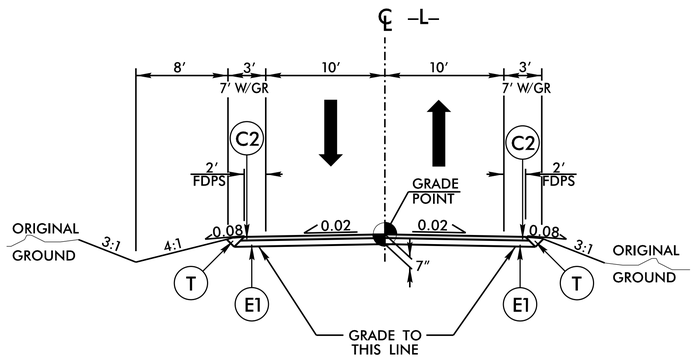
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



*MILLING 0" TO 1.5" TO MEET PROFILE GRADE.

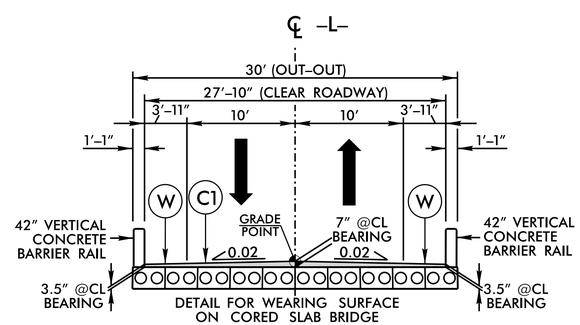
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
–L– STA. 10+65.00 TO 11+52.43
–L– STA. 12+33.25 TO 13+35.00



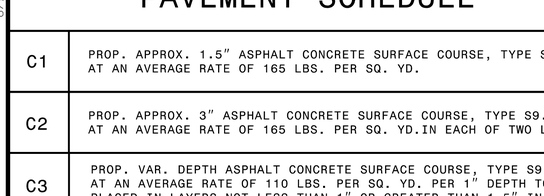
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
–L– STA. 11+52.43 TO 11+75.33 (BEGIN BRIDGE)
–L– STA. 12+22.67 (END BRIDGE) TO 12+33.25

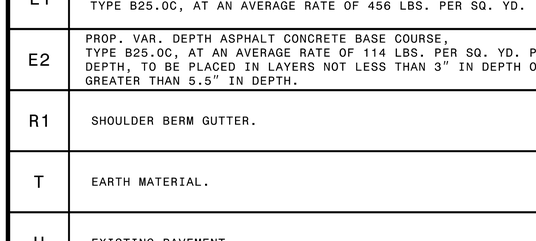


TYPICAL SECTION NO. 3

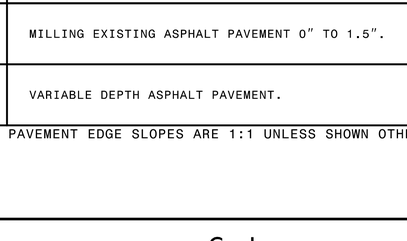
USE TYPICAL SECTION NO. 3
–L– STA. 11+75.33 (BEGIN BRIDGE)
TO 12+22.67 (END BRIDGE)



DETAIL SHOWING METHOD OF WEDGING

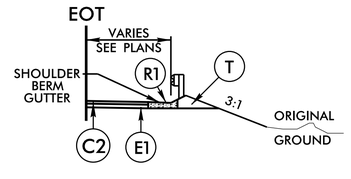


DETAIL OF INCIDENTIAL MILLING PAVEMENT TIE–IN



DETAIL SHOWING PAVING TO THE FACE OF GUARDRAIL

USE –L– STA. 11+49.66 TO 11+64.66 LT. & RT.
USE –L– STA. 12+33.34 TO 12+48.34 LT. & RT.



DETAIL SHOWING SHOULDER BERM GUTTER

690034

PROJECT REFERENCE NO.	SHEET NO.
B-6053	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS — 1/25/2021

PAVEMENT DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 041709 ENGINEER GREGORY K. GOINS — 1/25/2021

DocuSigned by: Scott Blevins — DocuSigned by: Gary Goins

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Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

1/8/2021
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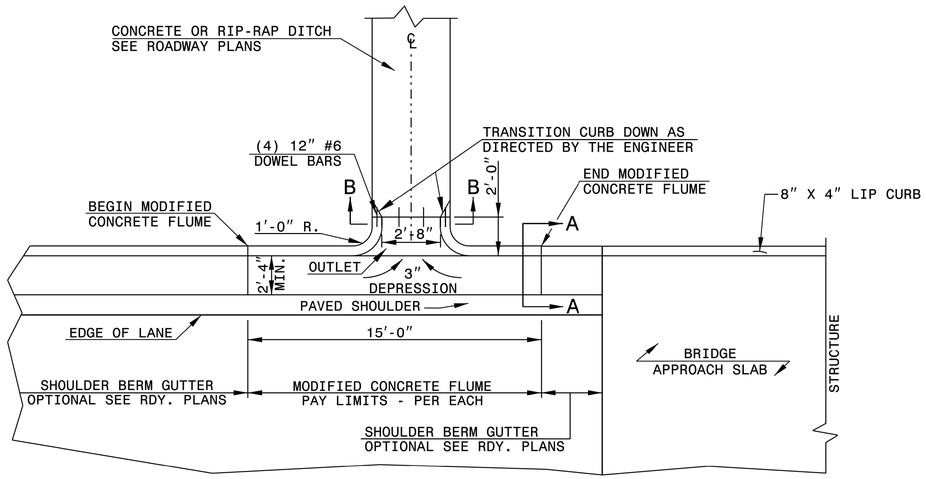
default

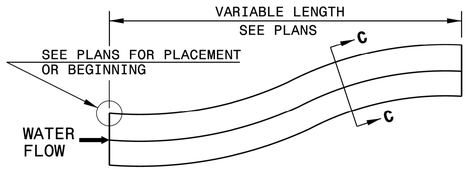
PROJECT REFERENCE NO.	SHEET NO.
B-6053	2C-1

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

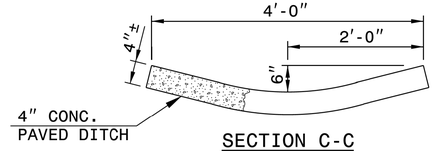
ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH



PLAN VIEW



DOWNGRADE OR SAG



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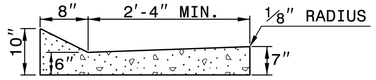
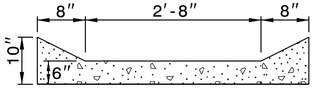
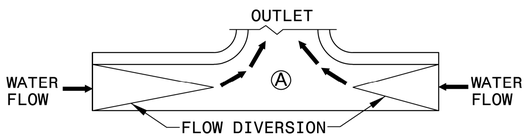


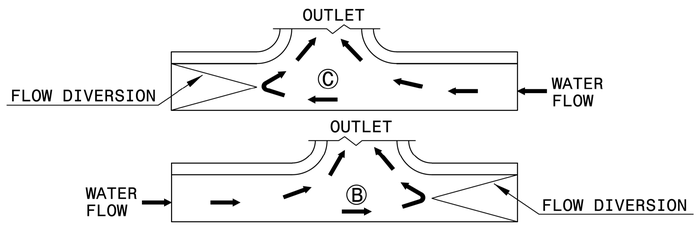
SECTION A-A



SECTION B-B

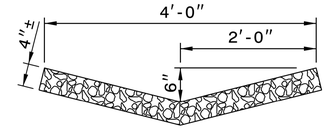


SAG



DOWN GRADE

FLOW DIVERSION EXAMPLES



RIP-RAP LINED DITCH

NOTES:

- CONSTRUCT MODIFIED CONCRETE FLUME AND SHOULDER BERM GUTTER IN ACCORDANCE WITH THIS DETAIL.
- CONSTRUCT CONCRETE DITCH IN ACCORDANCE WITH STD. DWG. NO. 850.01.
- CONSTRUCT RIP RAP LINED DITCH IN ACCORDANCE WITH THIS DETAIL, IF CALLED FOR IN PLANS.
- CONCRETE OR RIP RAP LINED DITCH SHALL BE THE TYPE AND LENGTH SPECIFIED BY THE ROADWAY PLANS. THE DITCH SHALL TERMINATE AS SHOWN ON THE PLANS. IF NO TERMINATION IS INDICATED PLACE RIP-RAP AT THE END OF THE DITCH AS INDICATED BY STD. DWG. 876.02 FOR AN 18″ PIPE. TRANSITIONS FROM THE DITCH TO TERMINATION SHALL BE AS DIRECTED BY THE ENGINEER.
- MODIFICATIONS SHALL BE AS DICTATED BY SITE CONDITIONS AND DIRECTED BY THE ENGINEER.

SHEET 1 OF 1
MODFLMDTCH

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

ENGLISH DETAIL DRAWING FOR
MODIFIED CONCRETE FLUME
WITH CONCRETE OR RIP-RAP DITCH

SHEET 1 OF 1
MODFLMDTCH

18-OCT-2017 14:17
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\modifiedflume.dgn
jhowerton AT CSD-212995

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NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER Joel S. Howerton 10/13/2021
DocuSigned by: 873F3D17DCDC45F...

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

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: J.S. Howerton DATE: October 2017
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-6053	2G-1

GEOTECHNICAL ENGINEER

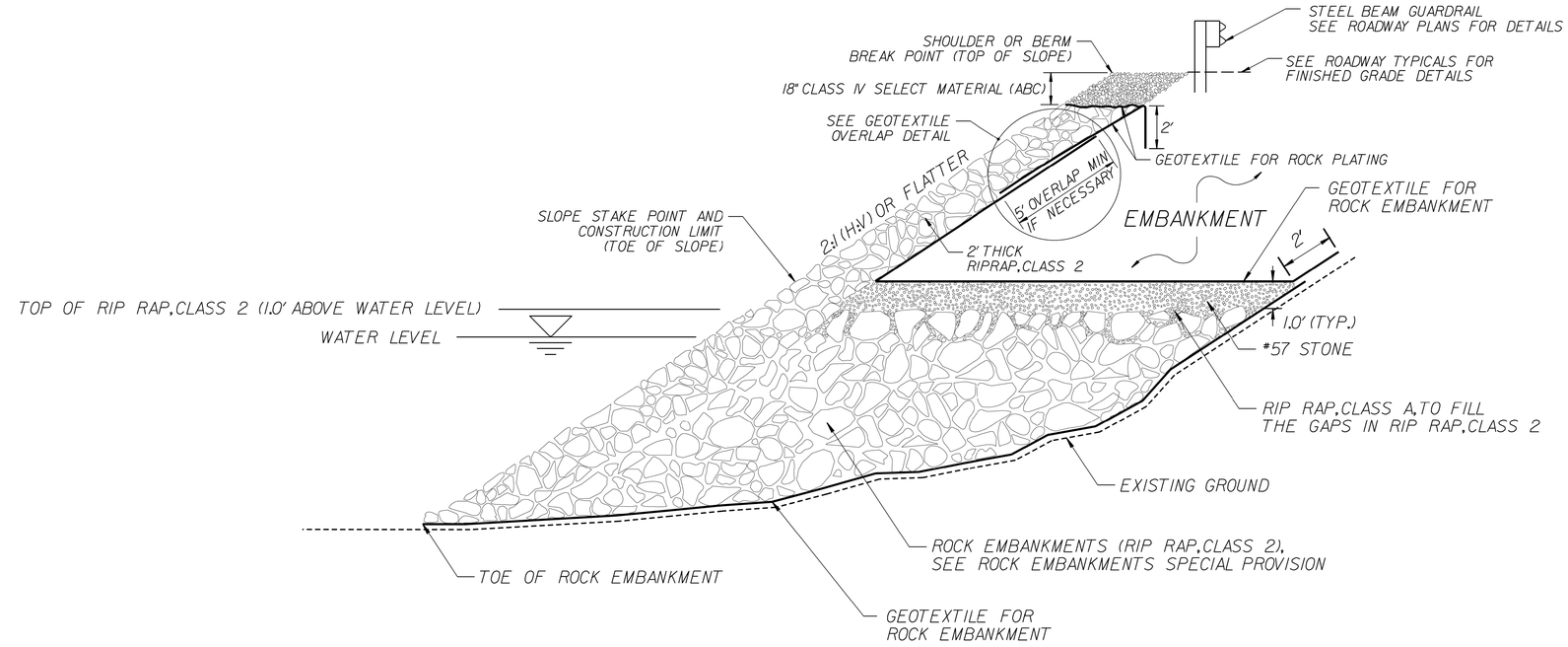
NORTH CAROLINA PROFESSIONAL SEAL 048490 ENGINEER ARASH BOZORGI 1/14/2021

Arash Bozorgi
SIGNATURE DATE

ENGINEER

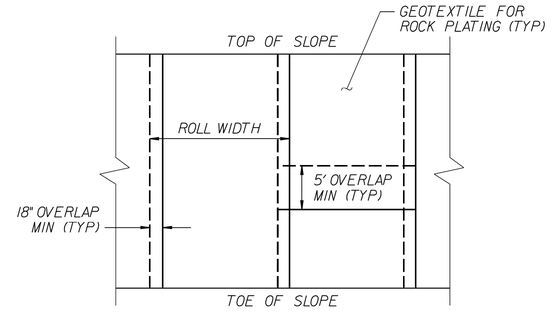
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



ROCK EMBANKMENT TYPICAL SECTION

(NOT TO SCALE)



GEOTEXTILE OVERLAP DETAIL

(PLAN VIEW)

ROCK PLATING /ROCK EMBANKMENT			
LINE	BEGIN	END	LOCATION
L	11+12	11+78	RIGHT AND LEFT
L	12+21	12+80	RIGHT AND LEFT

ESTIMATED QUANTITIES	
RIP RAP, CLASS 2	160 TONS
RIP RAP, CLASS A	70 TONS
#57 STONE	70 TONS
GEOTEXTILE FOR ROCK EMBANKMENTS	280 SY
ROCK PLATING	380 SY

NOTES

1. FOR ROCK EMBANKMENTS, SEE ROCK EMBANKMENTS SPECIAL PROVISION.
2. INSTALL ROCK EMBANKMENTS USING RIP RAP, CLASS 2 .
3. FILL VOIDS IN THE TOP OF ROCK EMBANKMENTS WITH RIP RAP, CLASS A.
4. PLACE #57 STONE (SELECT MATERIAL, CLASS VI) 1.0 FT. (TYP.) ABOVE RIP RAP.
5. INSTALL GEOTEXTILE FOR ROCK EMBANKMENT UNDER RIP RAP, CLASS 2, AND ON TOP OF # 57 STONE.
6. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
7. FOR STANDARD ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.

PREPARED BY: A BOZORGI	DATE: 06/24/20
REVIEWED BY: G. TAYLOR	DATE: 06/24/20

ROCK EMBANKMENTS
/
ROCK PLATING

DETAILS & NOTES

COMPUTED BY: BB DATE: 4-8-20
CHECKED BY: DATE:
REVISED BY: DATE:

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

690034 | PROJECT REFERENCE NO. B-6053 | SHEET NO. 3B-1

SUMMARY OF EARTHWORK
IN CUBIC YARDS

Station	Station	Uncl. Excav.	Embank. +%	Borrow	Waste
-L- 10+65.00	11+75.33	18	65	47	
12+22.67	13+35.00	13	55	42	
SUBTOTALS:		31	120	89	
TOTALS:		31	120	89	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				5	
PROJECT TOTALS:				93	
GRAND TOTALS:					
SAY:		40		100	

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

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.

SHOULDER BERM GUTTER SUMMARY

LINE	Station	Station	LENGTH
-L- LT	11+61.41	11+64.66	3.25
-L- RT	11+61.41	11+64.66	3.25
-L- LT	12+33.34	12+36.89	3.25
-L-RT	12+33.34	12+36.89	3.25
		TOTAL:	13
		SAY:	13

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

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS					IMPACT ATTENUATOR		SINGLE FACED CONCRETE BARRIER	REMOVE EXISTING GUARDRAIL	REMOVE & STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	Type III	B-83	GREU, TL-2	CAT-1	AT-1	G	NG				
-L-	11+25.33	11+75.33	LT	50				11+76.75	5			25		1		1	1								
-L-	11+25.33	11+75.33	RT	50			11+76.75		5		25		1			1	1								
-L-	12+22.67	12+72.67	LT	50			12+21.25		5		25		1			1	1								
-L-	12+22.67	12+72.67	RT	50				12+21.25	5			25		1		1	1								
			SUBTOTAL:	200											0	4	4	0	0						
			LESS ANCHOR DEDUCTIONS																						
		GREU TL-2	4 @ 25	100																					
		TYPE B83	4 @ 25.0	100																					
		5-ADDITIONAL GUARDRAIL POST																							
			PROJECT TOTAL:	0																					
			SAY:	0																					

3/25/2021
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SUMMARY OF ROCK PLATING

LINE	Beginning Slope (H:V)	Approx. Station	Ending Slope (H:V)	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	Rock Plating SY
-L-	2:1	11+12	2:1	11+78	LT	275.01	2	90
-L-	2:1	11+12	2:1	11+78	RT	275.01	2	140
-L-	2:1	12+21	2:1	12+80	LT	275.01	2	70
-L-	2:1	12+21	2:1	12+80	RT	275.01	2	80
							TOTAL SY:	380

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY					200
				TOTAL LF:	200

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

8/17/99

	-L-		
PI Sta 10+62.28	PI Sta 11+27.23	PI Sta 13+13.86	PI Sta 14+18.34
Δ = 1° 06' 15.9" (LT)	Δ = 1° 31' 31.7" (RT)	Δ = 0° 41' 02.9" (LT)	Δ = 3° 16' 29.2" (LT)
D = 2° 01' 28.5"	D = 2° 01' 28.5"	D = 2° 01' 28.5"	D = 2° 26' 17.2"
L = 54.55'	L = 75.35'	L = 33.79'	L = 134.32'
T = 27.28'	T = 37.68'	T = 16.90'	T = 67.18'
R = 2,830.00'	R = 2,830.00'	R = 2,830.00'	R = 2,350.00'
SE = NC	SE = NC	SE = NC	SE = EXIST.

690034	PROJECT REFERENCE NO.	SHEET NO.
	B-6053	04
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS — Scott D. Blevins

NORTH CAROLINA PROFESSIONAL SEAL 038644 ENGINEER DOUGLAS M. KELLER — Douglas Keller

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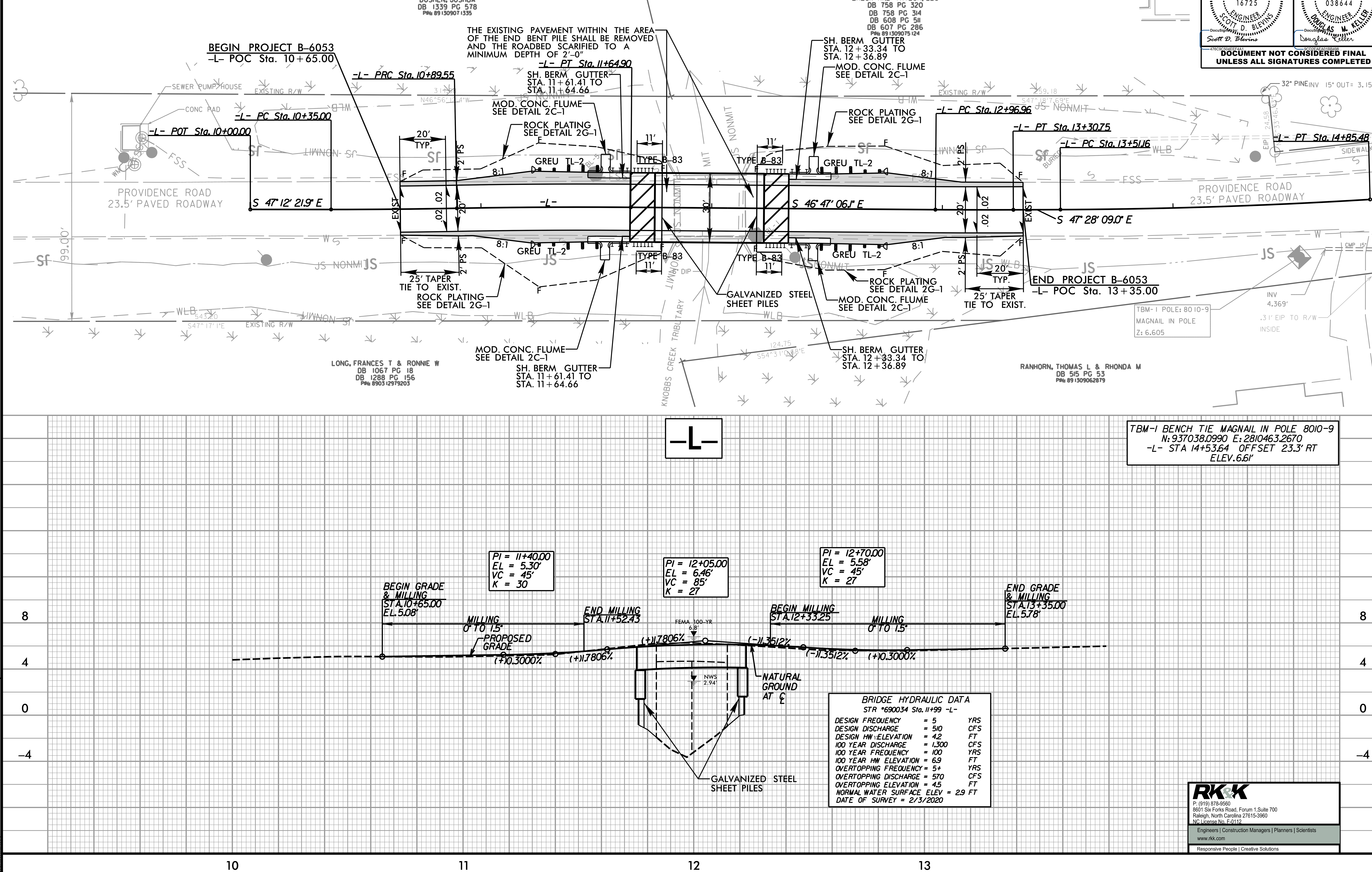
REVISIONS



BRIDGE HYDRAULIC DATA

STR #690034 Sta. 11+99 -L-

DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 510	CFS
DESIGN HW ELEVATION	= 4.2	FT
100 YEAR DISCHARGE	= 1,300	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 6.9	FT
OVERTOPPING FREQUENCY	= 5+	YRS
OVERTOPPING DISCHARGE	= 570	CFS
OVERTOPPING ELEVATION	= 4.5	FT
NORMAL WATER SURFACE ELEV	= 2.9	FT
DATE OF SURVEY	= 2/3/2020	

RK&K
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Raleigh, North Carolina 27615-3960
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09/08/99

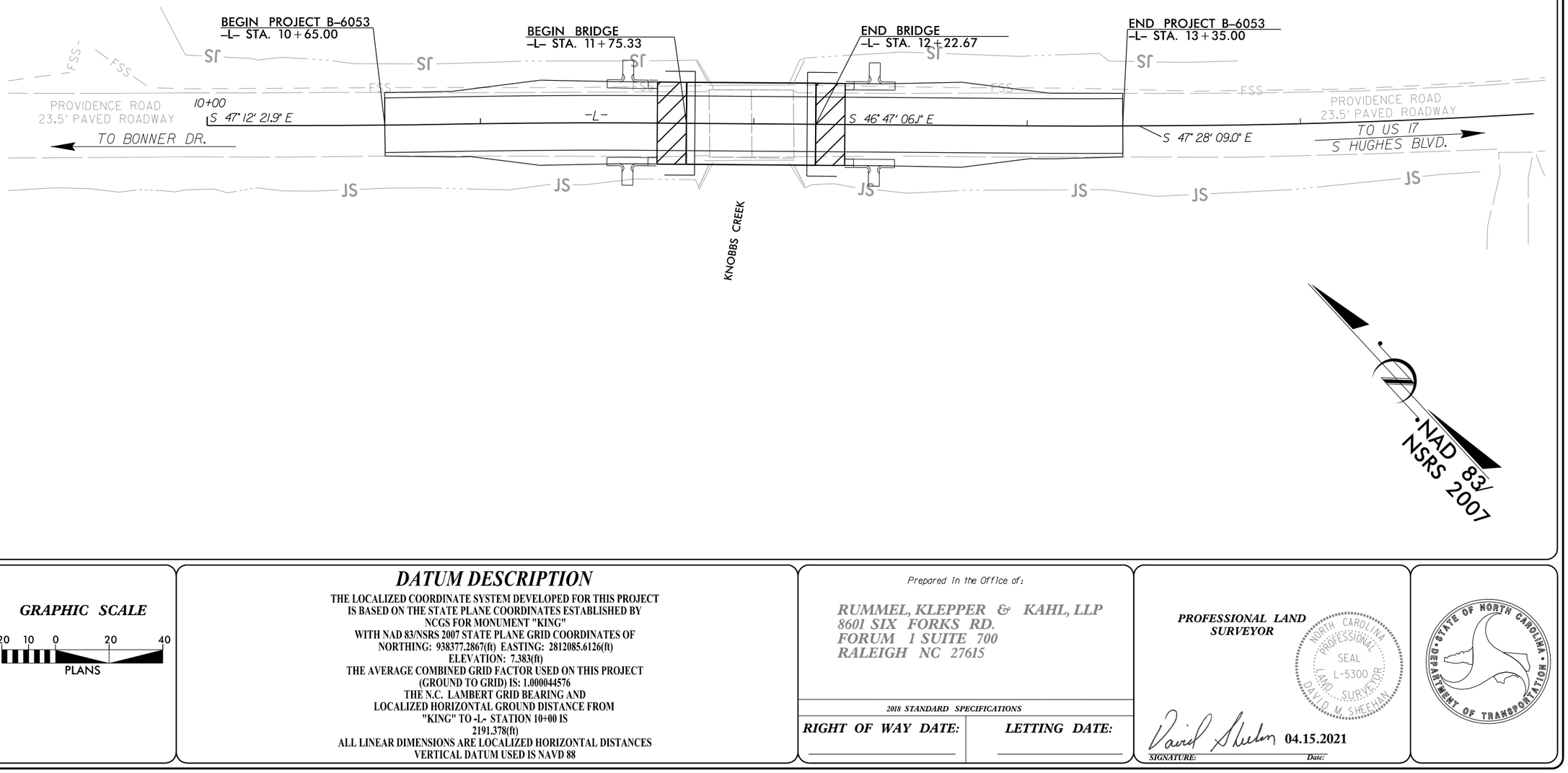
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		RW01	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

PASQUOTANK COUNTY

TIP PROJECT: B-6053



GRAPHIC SCALE

20 10 0 20 40

PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT
IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY
NCGS FOR MONUMENT "KING"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 938377.2867(ft) EASTING: 2812085.6126(ft)
ELEVATION: 7.383(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT
(GROUND TO GRID) IS: 1.000044576
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"KING" TO -L- STATION 10+00 IS
2191.378(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared In the Office of:

RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS RD.
FORUM 1 SUITE 700
RALEIGH NC 27615

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____ ***LETTING DATE:*** _____

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5300 LAND SURVEYOR DAVID M. SHEEHAN

David Sheehan **04.15.2021**

SIGNATURE: *Date:*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

4/15/2021
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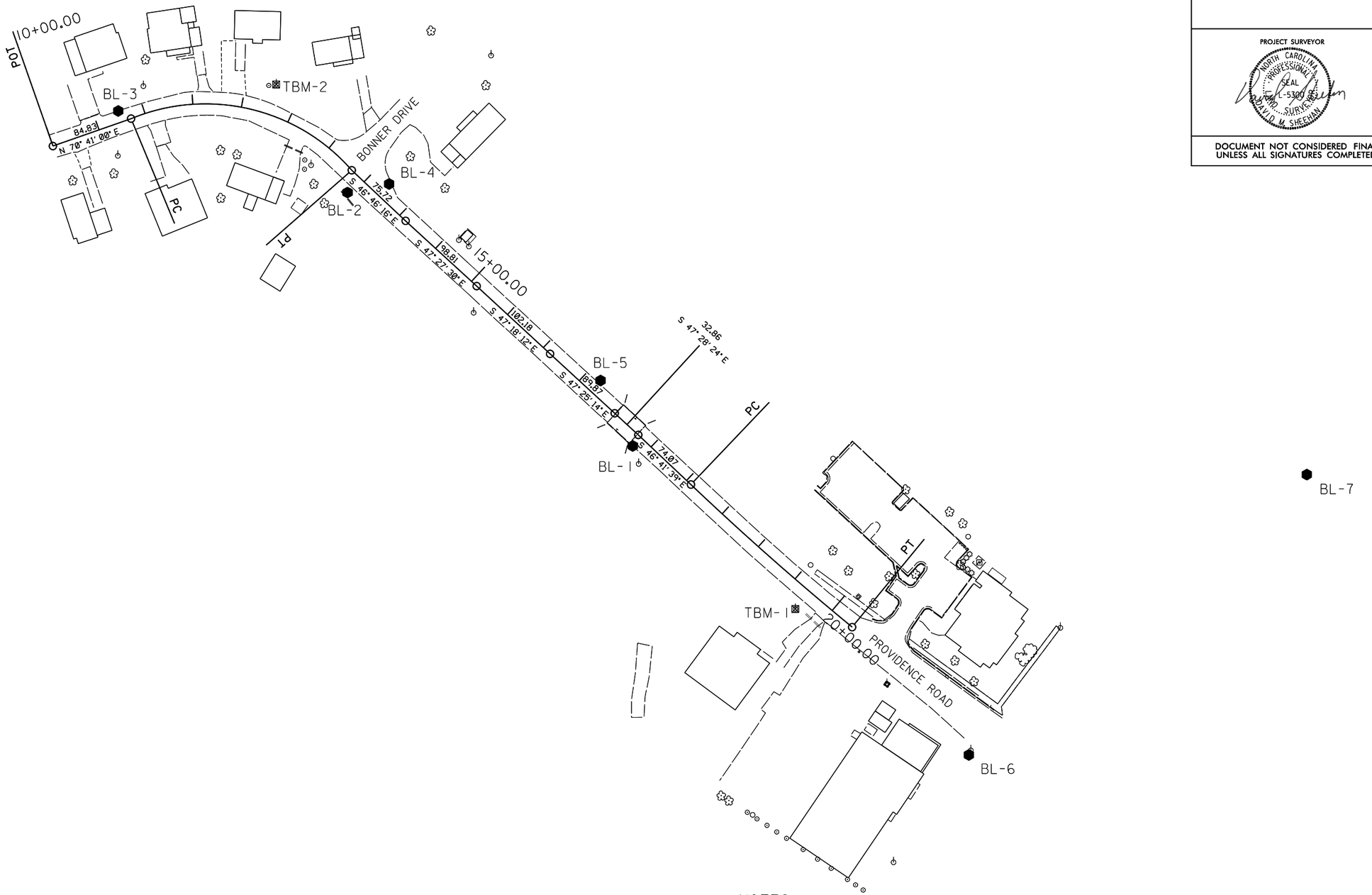
Jbadstein

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

NAD 83/
NSRS 2007

PROJECT REFERENCE NO.	SHEET NO.
B6053	RW02C-1

Location and Surveys

INSERT CONSULTANT'S NAME

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5300 REGISTERED LAND SURVEYOR DAVID M. SHEEHAN

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REVISIONS

6/2/99

4/15/2021
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Badstein

6/2/99

REVISIONS

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B6053	RW02C-2

Location and Surveys

RK&K LLP
8601 SIX FORKS ROAD
FORUM 1 SUITE 700
RALEIGH NC 27615

NORTH CAROLINA PROFESSIONAL SEAL L-5300 REGISTERED LAND SURVEYOR DAVID M. SHEEHAN

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BASELINE POINT	DESC.	NORTH	EAST	ELEVATION
1	BL-6	936888.6700	2810641.0080	7.15
2	BL-7	937175.6600	2810987.1330	7.24
3	BL-1	937204.9886	2810296.7943	6.00
4	BL-2	937464.4323	2810004.6659	4.16
5	BL-3	937547.9308	2809769.7959	6.25
6	BL-4	937473.2496	2810047.2656	4.51
7	BL-5	937271.9252	2810263.8279	5.22

```
*****************************************
2000       ELEVATION = 7.51
N 937575      E 2809932
TBM-2 POLE: 4/X1
*****************************************
```

```
*****************************************
2001       ELEVATION = 6.61
N 937038      E 2810463
TBM-1 POLE: 8010-9
*****************************************
```

NOTES:

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4/15/2021
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badstein

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
B6053	RW02C-3

Location and Surveys

RK&K LLP
8601 SIX FORKS ROAD
FORUM 1 SUITE 700
RALEIGH NC 27615

NORTH CAROLINA PROFESSIONAL SEAL L-5300 SURVEYOR DAVID M. SWEEHAN

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POINT	N	E	EL	BEARING	DIST	DELTA	D	L	T	R
POT	937511.993	2809702.970								
LINE				N 70°41'00.4" E	84.83					
PC	937540.053	2809783.024								
CURVE				S 76°50'52.8" E	232.07	71°21'05.1"(RT)	28°47'51.1"	247.77	142.84	198.96
PT	937487.250	2810009.004								
LINE				S 46°46'15.7" E	75.72					
POT	937435.388	2810064.175								
LINE				S 47°27'30.4" E	98.81					
POT	937368.583	2810136.974								
LINE				S 47°18'12.5" E	102.18					
POT	937299.292	2810212.073								
LINE				S 47°25'14.1" E	89.87					
POT	937238.482	2810278.251								
LINE				S 47°28'23.8" E	32.86					
POT	937216.269	2810302.470								
LINE				S 46°41'39.3" E	74.07					
PC	937165.463	2810356.372								
CURVE				S 48°30'47.5" E	220.35	04°08'28.8"(LT)	01°52'44.5"	220.40	110.25	3049.21
PT	937019.494	2810521.438								

NOTES:

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2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS 6/2/99

4/15/2021
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jbadstein

PROJECT REFERENCE NO.	SHEET NO.
B6053	RW02D-1

Location and Surveys

RK&K LLP
8601 SIX FORKS ROAD
FORUM 1 SUITE 700
RALEIGH NC 27615

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PROPOSED ALIGNMENT CONTROL SHEET

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	937362.1043	2810143.5667
PC	10+35.00	937338.3265	2810169.2498
PRC	10+89.55	937301.6550	2810209.6338
PT	11+64.90	937250.7988	2810265.2266
PC	12+96.96	937160.3697	2810361.4734
PT	13+30.75	937137.3794	2810386.2374
PC	13+51.16	937123.5811	2810401.2794
PT	14+85.48	937035.6626	2810502.7987

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATINO REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

6/2/99

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RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
B6053	RW04

Location and Surveys

RK&K LLP
8601 SIX FORKS ROAD
FORUM 1 SUITE 700
RALEIGH NC 27615

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-5200 LAND SURVEYOR DAVID M. SHEEHAN

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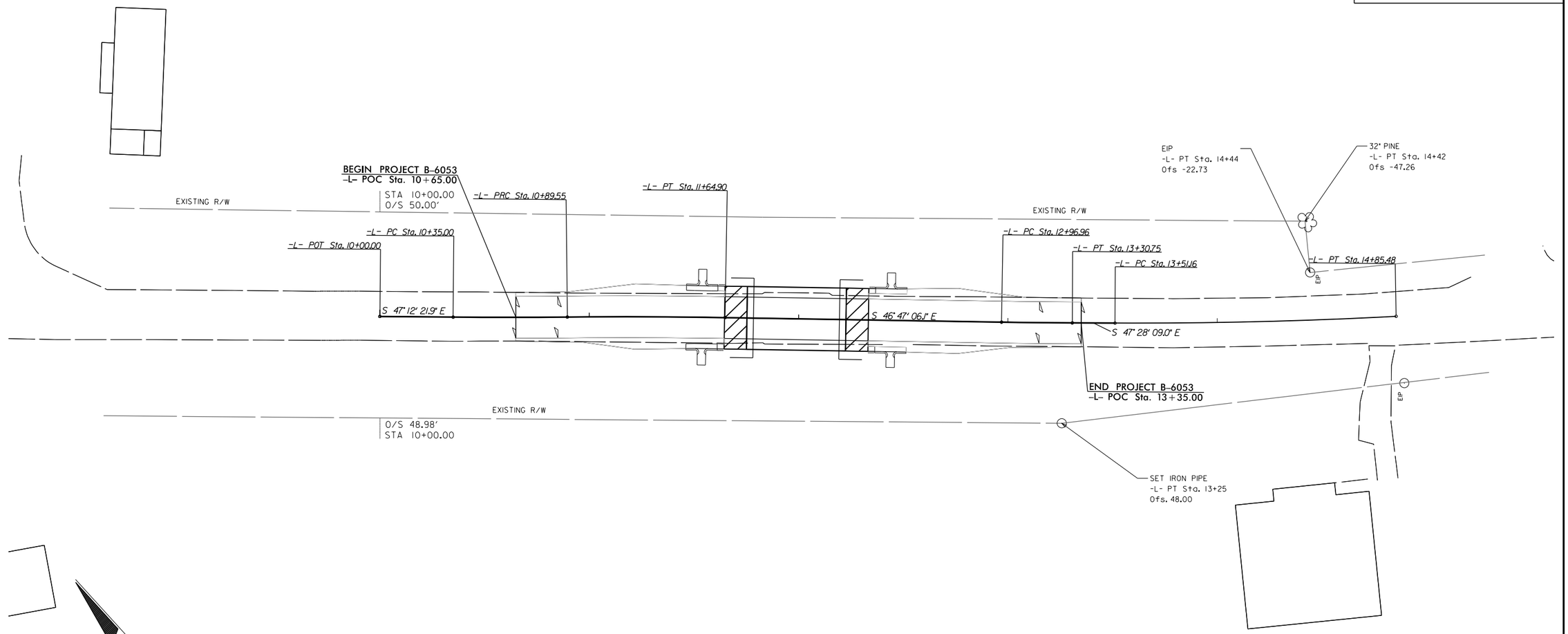
REVISIONS 6/2/99



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

4/15/2021
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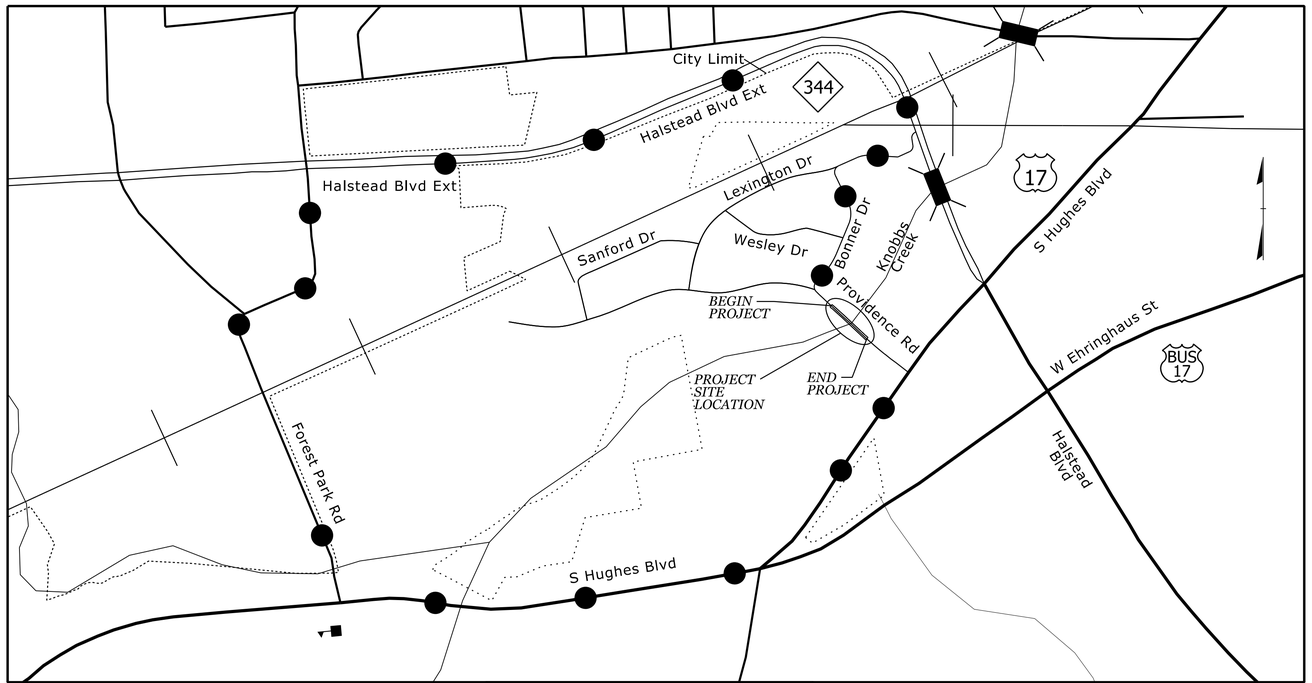
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

PASQUOTANK COUNTY

LOCATION: BRIDGE NO. 690034 ON PROVIDENCE ROAD
OVER KNOBBS CREEK IN ELIZABETH CITY



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-2	TRAFFIC CONTROL PHASING
TMP-3	OFFSITE DETOUR
TMP-4	SIGN DESIGN

SHEET NO.
TMP-1

PROJECT : B-6053

CONTRACT:

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

PLANS PREPARED FOR CITY OF ELIZABETH CITY

ZAC WILSON, EIT
ENGINEER, TRANSPORTATION

SCOTT BLEVINS, PE
SR. MANAGER, TRANSPORTATION

ELIZABETH CITY CONTACT

DWAN BELL

252-337-6628

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

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PLANS PREPARED BY:

RK&K
P: (919) 878-9560
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Raleigh, North Carolina 27615-3960
NC License No. F-0112
Engineers | Construction Managers | Planners | Scientists
www.rkk.com
Responsive People | Creative Solutions

APPROVED: DocuSigned by: Scott D. Blevins 476C9C504EEF4A1...

DATE: 3/19/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

3/19/2021
B6053_TMP_PSHOI.dgn
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PROJ. REFERENCE NO.	SHEET NO.
(B-6053)	TMP-1A

RK&K
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Raleigh, North Carolina 27615-3960
NC License No. F-0112
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ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - 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 ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- REMOVAL

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- FLAGGER

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

APPROVED: DocuSigned by: Scott D. Blevins 476C9C504EEF4A1...

DATE: 3/19/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

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

ROADWAY STANDARD DRAWINGS & LEGEND

3/19/2021
B6053_TMP_PSH01A.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-6053	TMP-1B

RK&K
P: (919) 878-9560
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Raleigh, North Carolina 27615-3960
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MANAGEMENT STRATEGIES

A) INSTALL STATIONARY OFFSITE DETOUR SIGNS.

B) CLOSE PROVIDENCE ROAD TO THROUGH TRAFFIC.

C) DEMOLISH AND REMOVE EXISTING BRIDGE.

D) CONSTRUCT PROPOSED PROVIDENCE ROAD APPROACHES AND PROPOSED BRIDGE.

E) OPEN PROVIDENCE ROAD TO TRAFFIC.

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.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

PROVIDE SIGNING REQUIRED FOR THE OFFSITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

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

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFFSITE DETOUR 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 SUFFICENT LENGTH TO CLOSE THE ENTIRE ROADWAY.

PAVEMENT MARKINGS

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

G) 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.

H) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN 15 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING RDWY. STD. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL, OR A LANE CLOSURE IS INSTALLED.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING RDWY. STD. 1101.02 UNLESS WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

I) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT. OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

J) WHEN PERSONNEL OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

K) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT. ON BOTH SIDES OF AN OPEN TRAVEL WAY, WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

APPROVED: DocuSigned by: Scott D. Blevins 476C9C504EEF4A1...

DATE: 3/19/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

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

3/19/2021
B6053_TMP_PSH01B.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-6053	TMP-2

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TRAFFIC CONTROL PHASING

PHASE I

STEP 1) USING ROADWAY STANDARD DRAWING NUMBER 1101.04, INSTALL ADVANCE WARNING SIGNS FOR THE PROVIDENCE ROAD OFFSITE DETOUR, KEEPING SIGNS COVERED. REFER TO ROADWAY STANDARD DRAWING NUMBER 1101.03 SHEET 1 AND 2, TMP-3 AND TMP-4 FOR SIGN LOCATIONS AND DESIGN.

PHASE II

COMPLETE PHASE II (STEPS 1 THROUGH 4) IN FOURTEEN, (14) CONSECUTIVE CALENDER DAYS.

STEP 1) USING ROADWAY STANDARD DRAWING 1101.02 (SHEET 3 OF 14) CLOSE OUTSIDE SOUTHBOUND LANE OF NC 344 (HALSTEAD BOULEVARD EXTENSION) FROM FAIRGROUND ROAD TO LEXINGTON DRIVE.

UNCOVER THE TEMPORARY DETOUR SIGNS, PLACE TYPE III BARRICADES, AND CLOSE PROVIDENCE ROAD TO THROUGH TRAFFIC AND DIRECT TO ITS TEMPORARY PATTERN (SEE TMP-3).

STEP 2) DEMOLISH AND REMOVE EXISTING BRIDGE 690034 OVER KNOBBS CREEK.

STEP 3) CONSTRUCT PROPOSED STRUCTURE AND APPROACH ROADWAY WIDENING AND PAVING (SEE ROADWAY AND STRUCTURE PLANS). REPLACE ANY SIGNS REMOVED DUE TO CONSTRUCTION OPERATIONS.

STEP 4) PLACE FINAL LAYER OF SURFACE COURSE AND OPEN PROVIDENCE ROAD TO TRAFFIC,

REMOVE LANE CLOSURE ON NC 344 (HALSTEAD BOULEVARD EXTENSION), AND

REMOVE ANY REMAINING TRAFFIC CONTROL DEVICES AND DETOUR SIGNS FROM THE PROJECT.

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DATE: 3/19/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

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TRAFFIC CONTROL PHASING

3/19/2021
B6053_TMP_PSH02.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-6053	TMP-3

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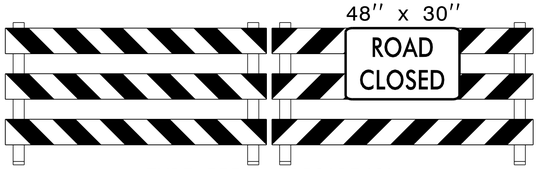
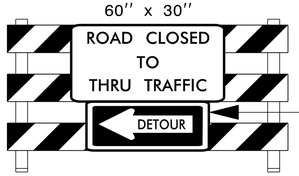
R11-2
48" x 30"



TYPE III BARRICADE(S)

1

R11-4
60" x 30"

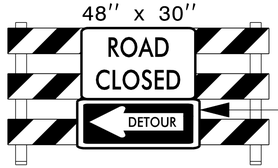


M4-10L
48" x 18"

TYPE III BARRICADE

2

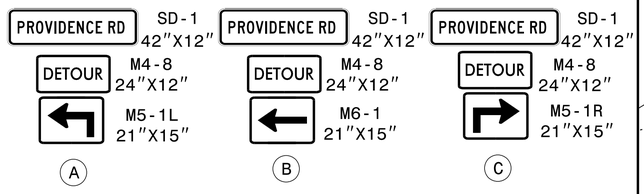
R11-2
48" x 30"



M4-10L
48" x 18"

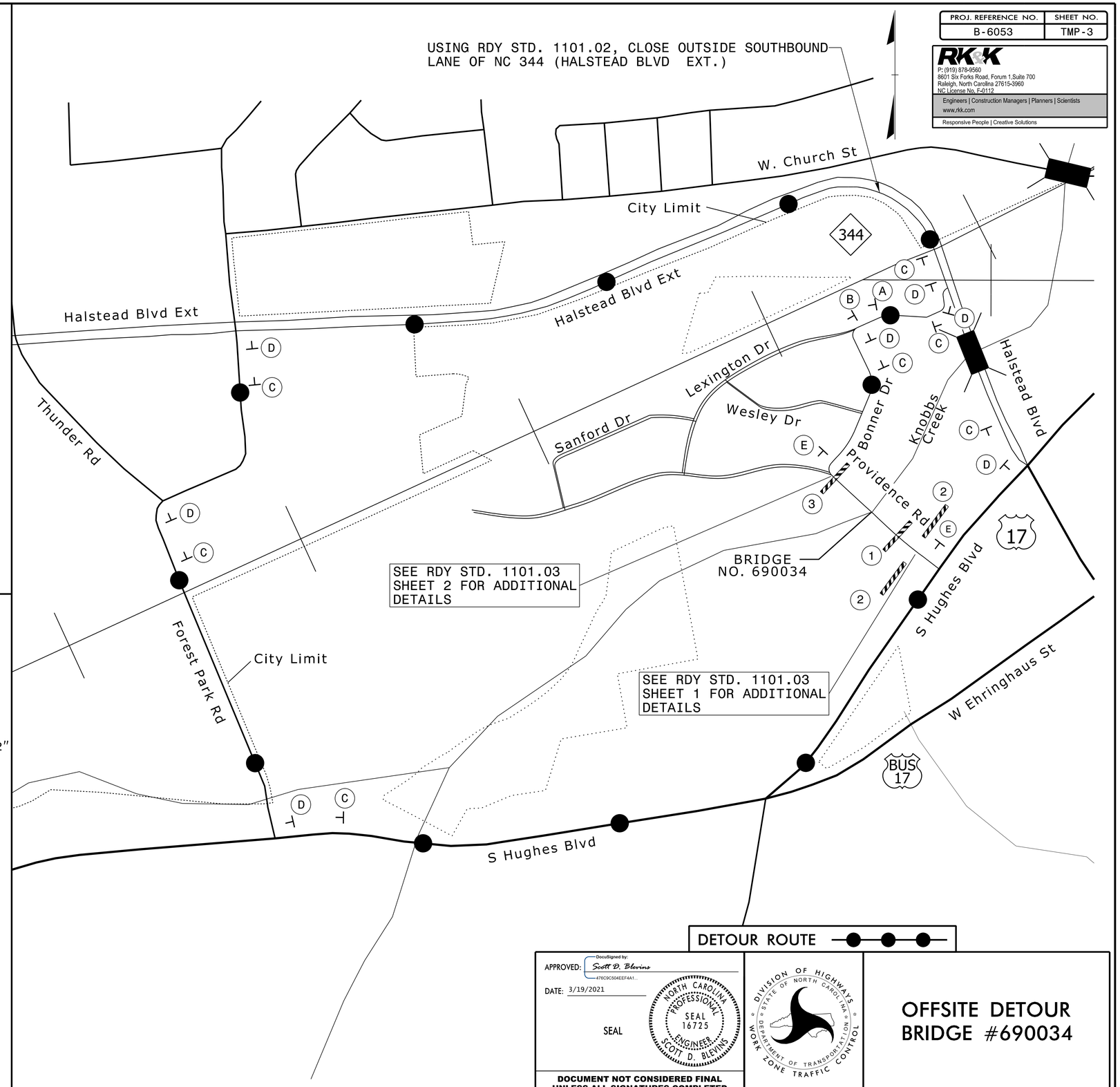
TYPE III BARRICADE

3



NOTE: SEE SHEET TMP-4 FOR SIGN DESIGN

USING RDY STD. 1101.02, CLOSE OUTSIDE SOUTHBOUND LANE OF NC 344 (HALSTEAD BLVD EXT.)



DETOUR ROUTE

APPROVED: DocuSigned by: Scott D. Blevins 476C9C504EEF4A1...

DATE: 3/19/2021

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

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

OFFSITE DETOUR
BRIDGE #690034

3/19/2021
B6053_TMP_PSH03.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-6053	TMP-4

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SIGN NUMBER: SD-1
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 3′-6″
HEIGHT: 1′-0″
TOTAL AREA: 3.5 Sq.Ft.

BORDER TYPE: RECESSED
RECESS: 0.38″
WIDTH: 0.44″
RADII: 1.5″

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

SYMBOL	X	Y	WID	HT

MAT'L: 0.080″ (2.0 mm) ALUMINUM

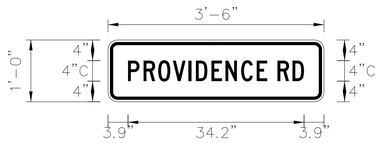
USE NOTES: 1,2

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be NC Grade B fluorescent orange retroreflective sheeting.

DESIGN BY: DTSEARS
PROJECT ID: B-6053

CHECKED BY: CBHOLDEN
DIV. 1

DATE: Jun 12, 2020



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

Series/Size
Text Length

		P	R	O	V	I	D	E	N	C	E		R	D												C 2000
	3.9	3	2.8	2.8	3	1.4	3	2.7	3	3	2	2	2.9	2.2	3.9											34.2

FILENAME: B6053_SD1

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DocuSigned by: Scott D. Blevins 476C9C504EEF4A1...
DATE: 3/19/2021
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 16725 ENGINEER SCOTT D. BLEVINS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

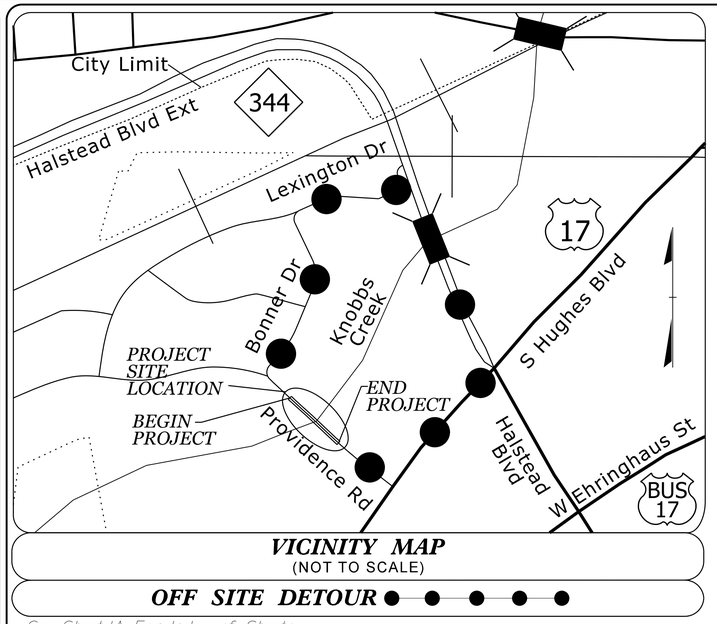
DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

SIGN DESIGN

3/19/2021
B6053_TMP_PSH04.dgn

PROJECT : B-6053

CONTRACT:



VICINITY MAP
(NOT TO SCALE)

OFF SITE DETOUR

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6053	EC-1	5

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48754.1.1	STBG-0111(026)	P.E. / R/W / UTIL
48754.3.1	STBG-0111(026)	CONSTR

PASQUOTANK COUNTY

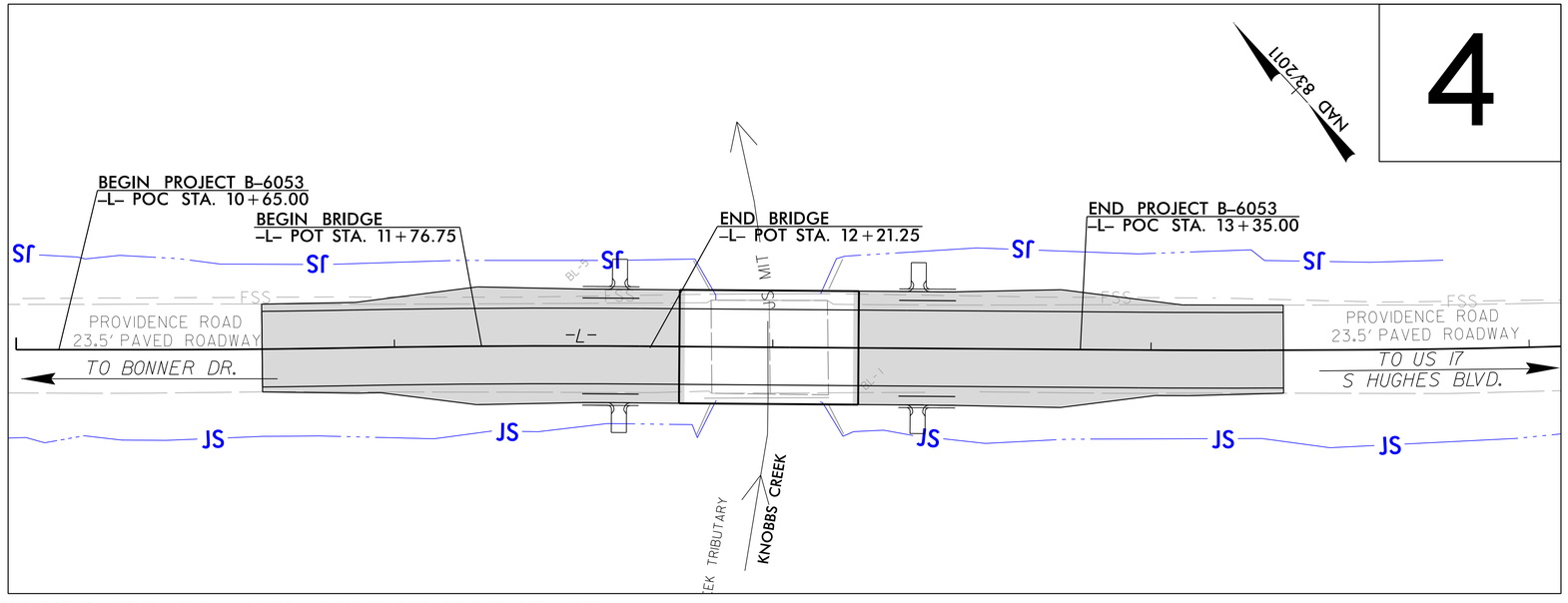
LOCATION: BRIDGE No. 34 on Providence Road over Knobbs Creek in Elizabeth City

TYPE OF WORK: DRAINAGE, PAVING, AND STRUCTURE

Clearing and Grubbing Phase

Final Phase

Both Phases



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ELIZABETH CITY.

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
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	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
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	

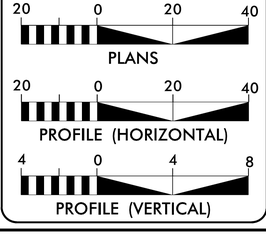
THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALES



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared In the Office of:

RK&K

RUMMEL, KLEPPER & KAHL, LLP
8601 SIX FORKS ROAD, FORUM 1, SUITE 700
RALEIGH, NORTH CAROLINA 27615-3960
NC LICENSE NO. F-0112
919-878-9560

Designed by:

Doug Keller, P.E. — ***3396***
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:

Andy Blankenship, P.E., CPESC

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 revison 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		

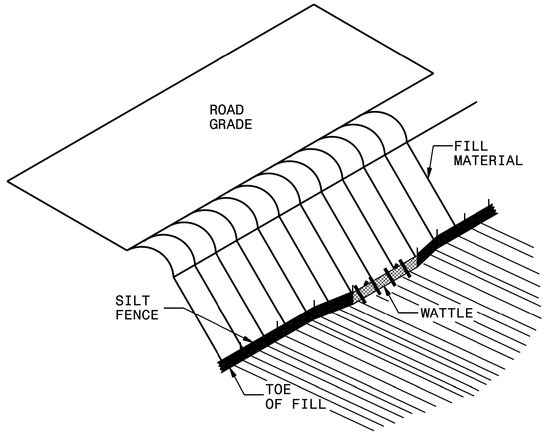
3/12/2021
R:\Hydraulics\CADD\PSH\EC\B6053_Hyd_EC_tsh.dgn
default

690034	PROJECT REFERENCE NO.	SHEET NO.
	B-6053	EC-2
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

REVISIONS

8/17/99

SILT FENCE COIR FIBER WATTLE BREAK DETAIL



ISOMETRIC VIEW

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.

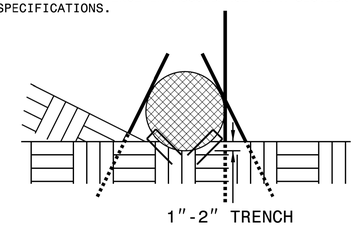
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

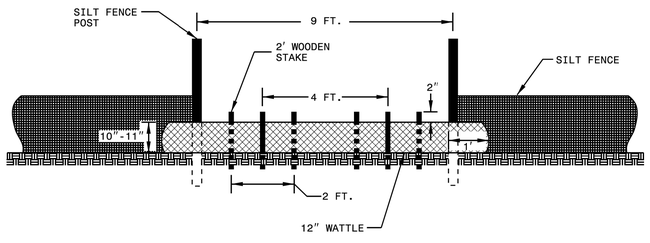
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

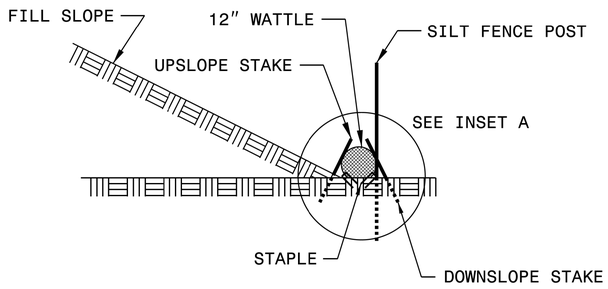
INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

INSET A





VIEW FROM SLOPE



SIDE VIEW

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690034	PROJECT REFERENCE NO.	SHEET NO.
	B-6053	EC-3
	R/W SHEET NO.	
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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.

REVISIONS

8/17/99

3/2/2021
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EROSION CONTROL PLAN

690034

PROJECT REFERENCE NO.	SHEET NO.
B-6053	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PI Sta 10+62.28
△ = 1° 06' 15.9" (LT)
D = 2° 01' 28.5"
L = 54.55'
T = 27.28'
R = 2,830.00'
SE = NC

PI Sta 11+27.23
△ = 1° 31' 31.7" (RT)
D = 2° 01' 28.5"
L = 75.35'
T = 37.68'
R = 2,830.00'
SE = NC

PI Sta 13+13.86
△ = 0° 41' 02.9" (LT)
D = 2° 01' 28.5"
L = 33.79'
T = 16.90'
R = 2,830.00'
SE = NC

PI Sta 14+18.34
△ = 3° 16' 29.2" (LT)
D = 2° 26' 17.2"
L = 134.32'
T = 67.18'
R = 2,350.00'
SE = EXIST.

NAD 83/2011

DOSHEN, JOSHUA
DB 1339 PG 578
PIN: 8913090713351

BRECK AND TAYLOR, LLC
DB 758 PG 320
DB 758 PG 314
DB 608 PG 511
DB 607 PG 286
PIN: 8913090751 24

SPECIAL STILLING BASIN

BEGIN PROJECT B-6053
-L- POC Sta. 10+65.00

-L- PRC Sta. 10+88.55

-L- PT Sta. 11+64.90

MOD. CONC. FLUME
SEE DETAIL 2C-1

SH. BERM GUTTER
STA. 11+49.66 TO
STA. 11+64.66

ROCK PLATING
SEE DETAIL 2G-1

0401
FLUME

-L- PC Sta. 10+35.00

-L- POT Sta. 10+00.00

SEWER PUMP HOUSE

CONC PAD

EXISTING R/W

S 47° 12' 21.9" E

PROVIDENCE ROAD
23.5' PAVED ROADWAY

20' TYP.

11'

TYPE B-83

GREU TL-2

8:1

2' PS

.02

EXIST

20'

30'

-L-

25' TAPER
TIE TO EXIST.

0403
FLUME

FLOATING TURBIDITY CURTAIN

KNOBBS CREEK TRIBUTARY

SH. BERM GUTTER
STA. 11+49.66 TO
STA. 11+64.66

MOD. CONC. FLUME
SEE DETAIL 2C-1

LONG, FRANCES T & RONNIE W
DB 1067 PG 18
DB 1288 PG 156
PIN: 8903129792 03

543.20
S47° 17' 1"E
EXISTING R/W

HP
-L- Sta.12+10.83

MOD. CONC. FLUME
SEE DETAIL 2C-1

SH. BERM GUTTER
STA. 12+33.34 TO
STA. 12+48.34

-L- Sta.12+84.32

EXISTING R/W

259.18
S47° 18' 7.69"E

0402
FLUME

ROCK PLATING
SEE DETAIL 2G-1

-L- PC Sta. 12+96.96

-L- PT Sta. 13+30.75

-L- PC Sta. 13+51.16

-L- PT Sta. 14+85.48

S 46° 47' 06.1" E

S 47° 28' 09.0" E

GALVANIZED STEEL
SHEET PILES

0404
FLUME

ROCK PLATING
SEE DETAIL 2G-1

SH. BERM GUTTER
STA. 12+33.34 TO
STA. 12+48.34

25' TAPER
TIE TO EXIST

END PROJECT B-6053
-L- POC Sta. 13+35.00

FLOATING TURBIDITY CURTAIN

MOD. CONC. FLUME
SEE DETAIL 2C-1

RANHORN, THOMAS L & RHONDA M
DB 515 PG 53
PIN: 8913090628 79

TOP= 5.77'
INV 15" IN= 3.17'
32" PINE INV 15" OUT= 3.15'

SIDEWALK

TBM-1 POLE: 8010-9
MAGNAIL IN POLE
Z: 6.605

INV
4.369'
.3 I' EIP TO R/W
INSIDE

CMP. 15"

NOTE: SPECIAL STILLING BASIN SHOWN ON WEST SHOULDER. CONTRACT SHALL PROVIDE SPECIAL STILLING BASIN FOR SANITARY WORK ON EAST SHOULDER DURING THAT WORK.

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

TBM-1 BENCH TIE MAGNAIL IN POLE 8010-9
N: 937038.0990 E: 2810463.2670
-L- STA 14+53.64 OFFSET 23.3' RT
ELEV. 6.61'

-L-

PI = 11+40.00
EL = 5.30'
VC = 45'
K = 30

PI = 12+05.00
EL = 6.46'
VC = 85'
K = 27

PI = 12+70.00
EL = 5.58'
VC = 45'
K = 27

BEGIN GRADE
& MILLING
STA. 10+65.00
EL. 5.08'

MILLING
0" TO 1.5"

PROPOSED
GRADE

(+)0.3000%

END MILLING
STA. 11+52.43

(+)1.7806%

FEMA 100-YR
6.8'

(+)1.7806%

(-)1.3512%

BEGIN MILLING
STA. 12+33.25

(-)1.3512%

MILLING
0" TO 1.5"

(+)0.3000%

END GRADE
& MILLING
STA. 13+35.00
EL. 5.78'

NWS
2.94'

NATURAL
GROUND
AT ℄

GALVANIZED STEEL
SHEET PILES

BRIDGE HYDRAULIC DATA
STR #690034 Sta. 11+99 -L-

DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 510	CFS
DESIGN HW ELEVATION	= 4.2	FT
100 YEAR DISCHARGE	= 1,300	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 6.9	FT
OVERTOPPING FREQUENCY	= 5+	YRS
OVERTOPPING DISCHARGE	= 570	CFS
OVERTOPPING ELEVATION	= 4.5	FT

NORMAL WATER SURFACE ELEV = 2.9 FT
DATE OF SURVEY = 2/3/2020

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REVISIONS

8/17/99

3/12/2021
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8 4 0 -4

10 11 12 13

EROSION CONTROL PLAN

690034

PROJECT REFERENCE NO.	SHEET NO.
B-6053	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

-L-

PI Sta 10+62.28
△ = 1° 06' 15.9" (LT)
D = 2° 01' 28.5"
L = 54.55'
T = 27.28'
R = 2,830.00'
SE = NC

PI Sta 11+27.23
△ = 1° 31' 31.7" (RT)
D = 2° 01' 28.5"
L = 75.35'
T = 37.68'
R = 2,830.00'
SE = NC

PI Sta 13+13.86
△ = 0° 41' 02.9" (LT)
D = 2° 01' 28.5"
L = 33.79'
T = 16.90'
R = 2,830.00'
SE = NC

PI Sta 14+18.34
△ = 3° 16' 29.2" (LT)
D = 2° 26' 17.2"
L = 134.32'
T = 67.18'
R = 2,350.00'
SE = EXIST.

DOSHEN, JOSHUA
DB 1339 PG 578
PIN: 8913090711335

BRECK AND TAYLOR, LLC
DB 758 PG 320
DB 758 PG 314
DB 608 PG 511
DB 607 PG 286
PIN: 8913090751124

BEGIN PROJECT B-6053
-L- POC Sta. 10+65.00

-L- PRC Sta. 10+89.55

-L- PT Sta. 11+64.90

-L- PC Sta. 10+35.00

-L- POT Sta. 10+00.00

-L- Sta.12+10.83

-L- Sta.12+84.32

-L- PC Sta. 12+96.96

-L- PT Sta. 13+30.75

-L- PC Sta. 13+51.16

-L- PT Sta. 14+85.48

END PROJECT B-6053
-L- POC Sta. 13+35.00

0401 FLUME
0402 FLUME
0403 FLUME
0404 FLUME

MOD. CONC. FLUME SEE DETAIL 2C-1

SH. BERM GUTTER STA. 11+49.66 TO STA. 11+64.66

SH. BERM GUTTER STA. 12+33.34 TO STA. 12+48.34

ROCK PLATING SEE DETAIL 2G-1

GREU TL-2

TYPE B-83

20' TYP.

25' TAPER TIE TO EXIST.

GALVANIZED STEEL SHEET PILES

FLOATING TURBIDITY CURTAIN

KNOBBS CREEK TRIBUTARY

PROVIDENCE ROAD
23.5' PAVED ROADWAY

S 47° 12' 21.9" E

S 46° 47' 06.1" E

S 47° 28' 09.0" E

EXISTING R/W

SEWER PUMP HOUSE

CONC PAD

TOP= 5.77'
INV 15" IN= 3.17'
32" PINE INV 15" OUT= 3.15'

SIDEWALK

CMP. 15"

INV 4.369'
.3 I' EIP TO R/W
INSIDE

6" DIP

543.20
S47° 17' 1"E

259.18
S47° 18' 7.69"E

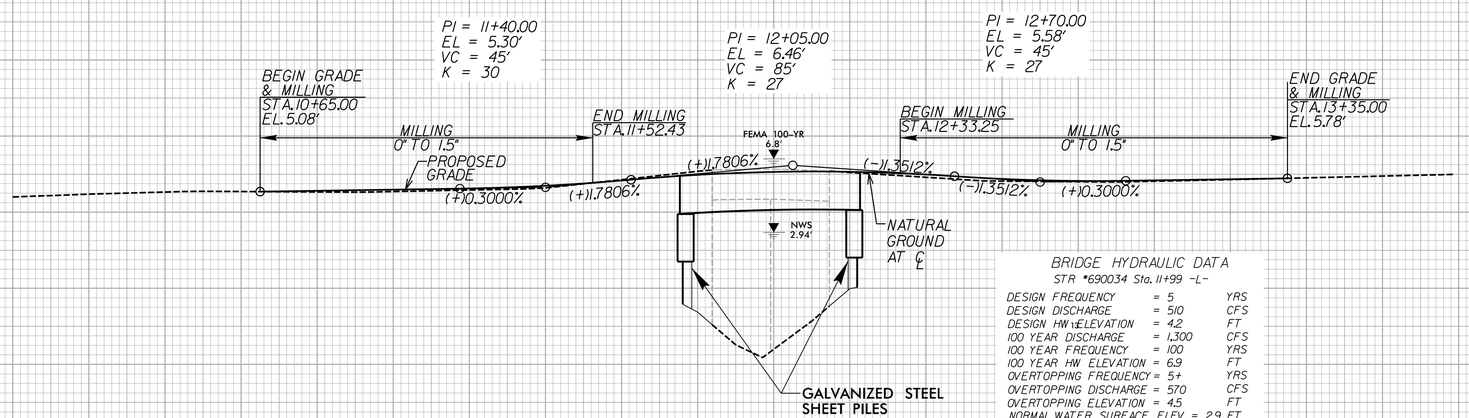
LONG, FRANCES T & RONNIE W
DB 1067 PG 18
DB 1288 PG 156
PIN: 8903129792O3

RANHORN, THOMAS L & RHONDA M
DB 515 PG 53
PIN: 8913090628 79

TBM-1 POLE: 8010-9
MAGNAIL IN POLE
Z: 6.605

Matting with Nylon Mesh Cannot be Used Within 25 feet of the Top of Stream Bank or Open Waters

TBM-1 BENCH TIE MAGNAIL IN POLE 8010-9
N: 937038.0990 E: 2810463.2670
-L- STA 14+53.64 OFFSET 23.3' RT
ELEV. 6.61'



BRIDGE HYDRAULIC DATA
STR #690034 Sta. 11+99 -L-

DESIGN FREQUENCY	= 5	YRS
DESIGN DISCHARGE	= 510	CFS
DESIGN HW ELEVATION	= 4.2	FT
100 YEAR DISCHARGE	= 1,300	CFS
100 YEAR FREQUENCY	= 100	YRS
100 YEAR HW ELEVATION	= 6.9	FT
OVERTOPPING FREQUENCY	= 5+	YRS
OVERTOPPING DISCHARGE	= 570	CFS
OVERTOPPING ELEVATION	= 4.5	FT

NORMAL WATER SURFACE ELEV = 2.9 FT
DATE OF SURVEY = 2/3/2020

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8/17/99

3/12/2021
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6053	UC-1	5

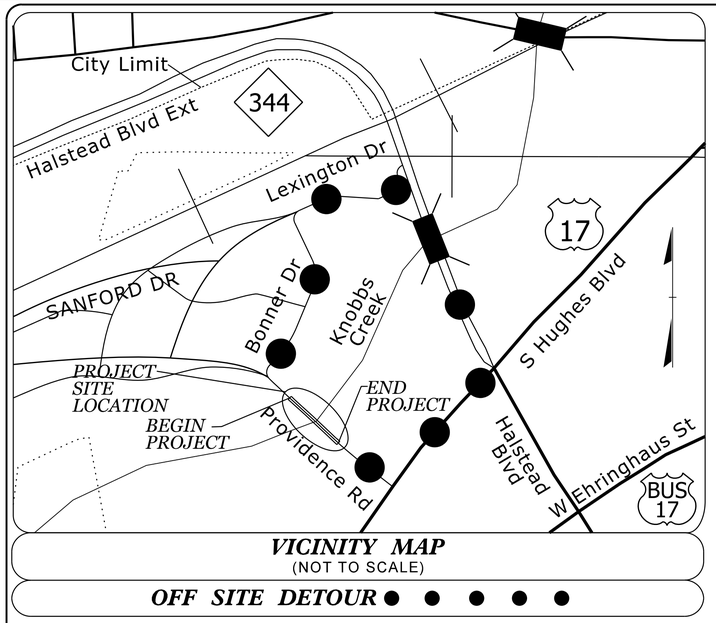
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48754.1.1	STBG-0111(026)	P.E./R/W /UTIL
48754.3.1	STBG-0111(026)	CONSTRUCTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
PASQUOTANK COUNTY

LOCATION: Bridge No. 690034 on Providence Road over Knobbs Creek in Elizabeth City

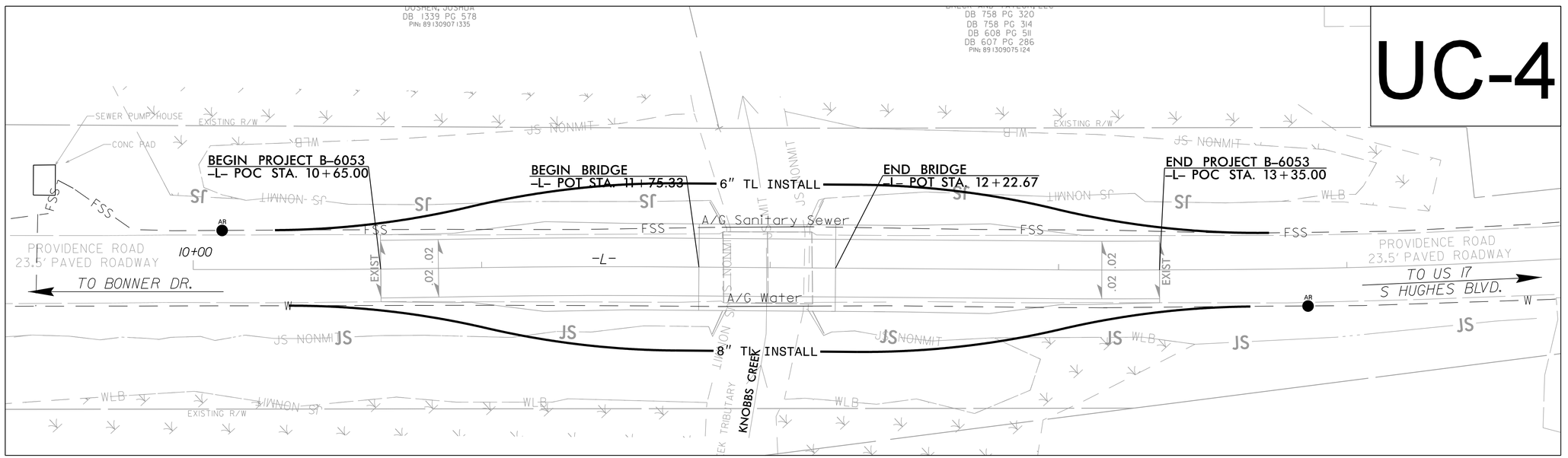
TYPE OF WORK: WATER AND SEWER RELOCATIONS



VICINITY MAP
(NOT TO SCALE)

OFF SITE DETOUR

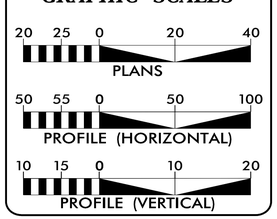
NAD 83/2011



UC-4

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF ELIZABETH CITY.

GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UC-1	*TITLE SHEET*
UC-2	*UTILITY SYMBOLOGY*
UC-3	*NOTES*
UC-3A	*DETAILS*
UC-4	*UTILITY RELOCATION PLAN & PROFILE*

WATER AND SEWER OWNER ON PROJECT

(A) WATER – ELIZABETH CITY
(B) SANITARY SEWER – ELIZABETH CITY

PREPARED IN THE OFFICE OF

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HOWARD WOODALL, PE	*CONSULTANT CONTACT #1*
BRYAN BADEY, PE	*CONSULTANT CONTACT #2*
ZACK ELLERBY	*CONSULTANT CONTACT #3*

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 25881 ENGINEER HOWARD T. WOODALL III

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

TIP PROJECT: B-6053

09/08/99

3/15/2021
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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Item	Symbol
Water Line (Sized as Shown)	12" WL
11¼ Degree Bend	
22½ Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	GV
Butterfly Valve	BV
Tapping Valve	TGV
Line Stop	LS
Line Stop with Bypass	LS/BP
Blow Off	BO
Fire Hydrant	PFH
Relocate Fire Hydrant	RFH
Remove Fire Hydrant	REM FH
Water Meter	PWM
Relocate Water Meter	RWM
Remove Water Meter	REM WM
Water Pump Station	PS(W)
RPZ Backflow Preventer	PRPZ
DCV Backflow Preventer	PBFP
Relocate RPZ Backflow Preventer	RRPZ
Relocate DCV Backflow Preventer	RBFP

PROPOSED SEWER SYMBOLS

Item	Symbol
Gravity Sewer Line (Sized as Shown)	12" SS
Force Main Sewer Line (Sized as Shown)	12" FSS
Manhole (Sized per Note)	
Sewer Pump Station	PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

Item	Symbol
Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	TEL PED
Utility Line by Others (Type as Shown)	PROP O/H POW LINES
Trenchless Installation	12" TL INSTALL
Encasement by Open Cut	24" ENCAS BY OC
Encasement	24" ENCASEMENT
Underground Conduit	
Thrust Block	
Air Release Valve	AR
Utility Vault	UV
Concrete Pier	CP
Steel Pier	SP
Plan Note	NOTE
Pay Item Note	PAY ITEM

EXISTING UTILITIES SYMBOLS

Item	Symbol
Power Pole	
Telephone Pole	
Joint Use Pole	
Utility Pole	
Utility Pole with Base	
H-Frame Pole	
Power Transmission Line Tower	
Water Manhole	
Power Manhole	
Telephone Manhole	
Sanitary Sewer Manhole	
Hand Hole for Cable	
Power Transformer	
Telephone Pedestal	
CATV Pedestal	
Gas Valve	
Gas Meter	
Located Miscellaneous Utility Object	
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

Item	Symbol
*Underground Power Line	P
*Underground Telephone Cable	T
*Underground Telephone Conduit	TC
*Underground Fiber Optics Telephone Cable	T FO
*Underground TV Cable	TV
*Underground Fiber Optics TV Cable	TV FO
*Underground Gas Pipeline	G
Aboveground Gas Pipeline	A/G Gas
*Underground Water Line	W
Aboveground Water Line	A/G Water
*Underground Gravity Sanitary Sewer Line	SS
Aboveground Gravity Sanitary Sewer Line	A/G Sanitary Sewer
*Underground SS Forced Main Line	FSS
Underground Unknown Utility Line	?UTL
SUE Test Hole	
Water Meter	
Water Valve	
Fire Hydrant	
Sanitary Sewer Cleanout	

*For Existing Utilities

Item	Symbol
Utility Line Drawn from Record (Type as Shown)	W
Designated Utility Line (Type as Shown)	W

REV: 2/1/2012

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UTILITY CONSTRUCTION

GENERAL NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING UTILITIES BELONG TO ELIZABETH CITY. THE CONTACT PERSON FOR ELIZABETH CITY IS DWAN BELL AT DBELL@CITYOFEC.COM.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION. ALL SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION. PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.

4. THE UTILITY OWNER OWNS THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNER ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNER AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNER'S REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNER TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. CONTRACTOR'S ATTENTION IS DIRECTED TO SECTIONS 102, 107, AND 1550 OF THE STANDARD SPECIFICATIONS CONCERNING TRENCHLESS INSTALLATION. IT IS CONTRACTOR'S RESPONSIBILITY TO HAVE BORE DESIGNED AND SEALED BY A LICENSED NORTH CAROLINA PROFESSIONAL ENGINEER. NO DAMAGE IS ALLOWED TO RIVER, WETLANDS, OR BUFFER ZONES.

2. IF HDPE PIPE IS INSTALLED BY DIRECTIONAL DRILL. IT SHALL BE FILLED WITH WATER AND NOT BE CONNECTED TO ANY OTHER PIPE OR FITTINGS FOR ONE WEEK FROM THE TIME OF INSTALLATION.

LIST OF STANDARD DRAWINGS

1525.06 PRECAST CONCRETE SANITARY SEWER MANHOLE WITH CAST-IN-PLACE BOTTOM

1101.02 ROADWAY CLOSURE DETAILS

5/14/99
3/15/2021
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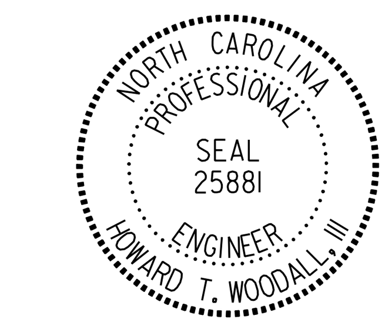
PROJECT REFERENCE NO.	SHEET NO.
B-6053	UC-3A

R/W SHEET NO.

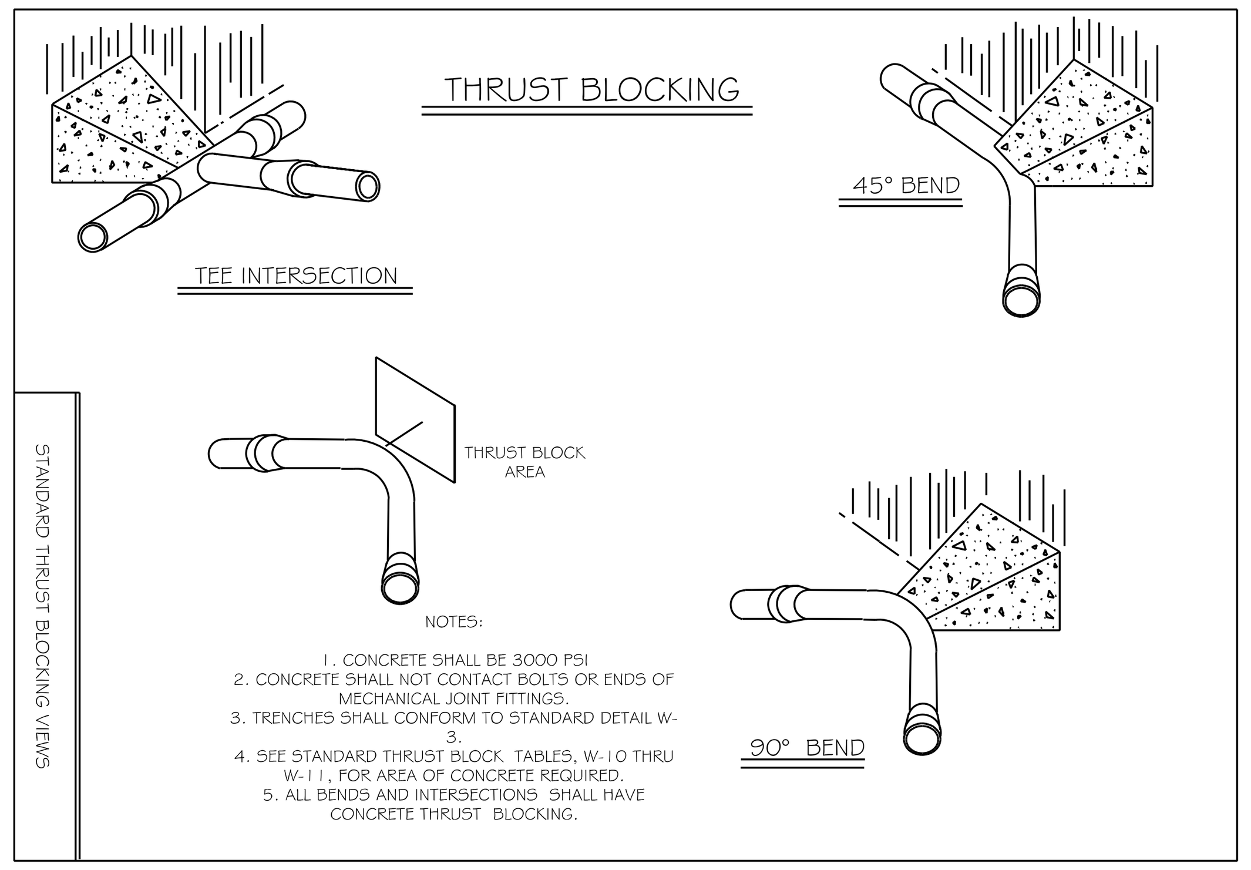
UTILITY ENGINEER



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT PLANS
DO NOT USE FOR CONSTRUCTION

PROJECT TYPICAL DETAILS



NOTES:

1. CONCRETE SHALL BE 3000 PSI
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
3. TRENCHES SHALL CONFORM TO STANDARD DETAIL W-3.
4. SEE STANDARD THRUST BLOCK TABLES, W-10 THRU W-11, FOR AREA OF CONCRETE REQUIRED.
5. ALL BENDS AND INTERSECTIONS SHALL HAVE CONCRETE THRUST BLOCKING.

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS

BASED ON TEST PRESSURE OF 200 P.S.I.

ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	1600 LBS/FT² GRAVEL / COARSE SAND	8000 LBS/FT² DRY CLAY - ALWAYS DRY	SAND, COMPACT FIRM 8000 LBS/FT²	SAND - CLEAN DRY 4000 LBS/FT²	SOIL 1000 LBS/FT² QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT²
6"									
11 1/4°	1,108	1	1	1	1	1	1	2	1
22 1/2°	2,207	1	2	2	1	1	1	3	1
45°	4,328	2	3	3	1	1	2	5	1
90°	7,996	2	4	5	1	1	2	8	1
PLUG	5,655	2	3	4	1	1	2	6	1
8"									
11 1/4°	1,970	1	1	2	1	1	1	2	1
22 1/2°	3,922	1	2	3	1	1	1	4	1
45°	7,694	2	4	5	1	1	2	8	1
90°	14,215	4	8	9	2	2	4	15	2
PLUG	10,053	3	5	6	2	2	3	10	1
12"									
11 1/4°	4,433	2	3	3	1	1	2	5	1
22 1/2°	8,826	3	5	6	2	2	3	9	1
45°	17,312	5	9	11	3	3	5	18	2
90°	31,983	8	16	19	4	4	8	32	4
PLUG	22,619	6	12	14	3	3	6	23	3
16"									
11 1/4°	7,881	2	4	5	1	1	2	8	1
22 1/2°	15,691	4	8	10	2	2	4	16	2
45°	30,779	8	16	19	4	4	8	31	4
90°	56,861	15	29	35	8	8	15	57	6
PLUG	40,213	10	21	25	5	5	10	41	5

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90 BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

THRUST BLOCKING DESIGN QUANTITY TABLE

REACTION BEARING AREAS FOR HORIZONTAL WATER PIPE BENDS

BASED ON TEST PRESSURE OF 200 P.S.I.

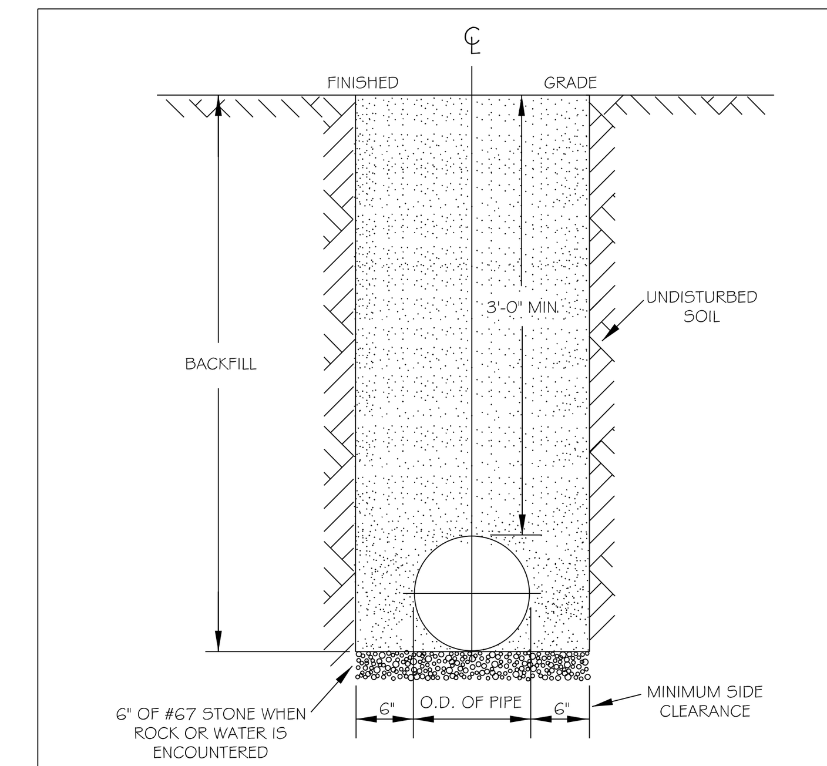
ALL AREAS GIVEN IN SQUARE FEET.

SIZE AND DEGREE OF BEND	STATIC THRUST IN POUNDS	MODERATELY DRY CLAY 4000 LBS/FT²	SOFT CLAY 2000 LBS/FT²	GRAVEL/COARSE SAND 1600LBS/FT²	8000 LBS/FT² DRY CLAY - ALWAYS DRY	SAND, COMPACT FIRM 8000 LBS/FT²	SAND - CLEAN DRY 4000 LBS/FT²	SOIL 1000 LBS/FT² QUICKSAND - VERY POOR	ROCK - POOR 10,000 LBS/FT²
24"									
11 1/4°	17,734	5	9	11	3	3	5	18	2
22 1/2°	35,305	9	18	22	5	5	9	36	4
45°	69,252	18	35	42	9	9	18	70	7
90°	127,936	32	64	77	16	16	32	128	13
PLUG	90,478	23	46	55	12	12	23	91	10
30"									
11 1/4°	27,709	7	14	17	4	4	7	2	3
22 1/2°	55,163	14	28	34	7	7	14	56	6
45°	108,206	28	55	65	14	14	28	109	11
90°	199,900	50	100	120	25	25	50	200	20
PLUG	141,372	36	71	85	18	18	36	142	15
36"									
11 1/4°	39,901	10	20	24	5	5	10	40	4
22 1/2°	79,439	20	40	48	10	10	20	30	8
45°	155,816	39	78	94	20	20	39	156	16
90°	287,855	72	144	172	36	36	72	288	29
PLUG	203,575	51	102	122	26	26	51	204	21
48"									
11 1/4°	70,935	18	36	43	9	9	18	71	8
22 1/2°	141,218	36	71	85	18	18	36	142	15
45°	277,007	70	139	166	35	35	70	277	28
90°	511,742	128	256	320	64	64	128	512	52
PLUG	361,911	91	181	217	46	46	91	362	37

REACTION BEARING AREAS ARE IN SQUARE FEET MEASURED IN A VERTICAL PLANE IN THE TRENCH SIDE AT AN ANGLE OF 90° TO THE THRUST VECTOR.

USE 6" - 90° BEND VALUE FOR HYDRANTS FOR ADDITIONAL SAFETY FACTOR.

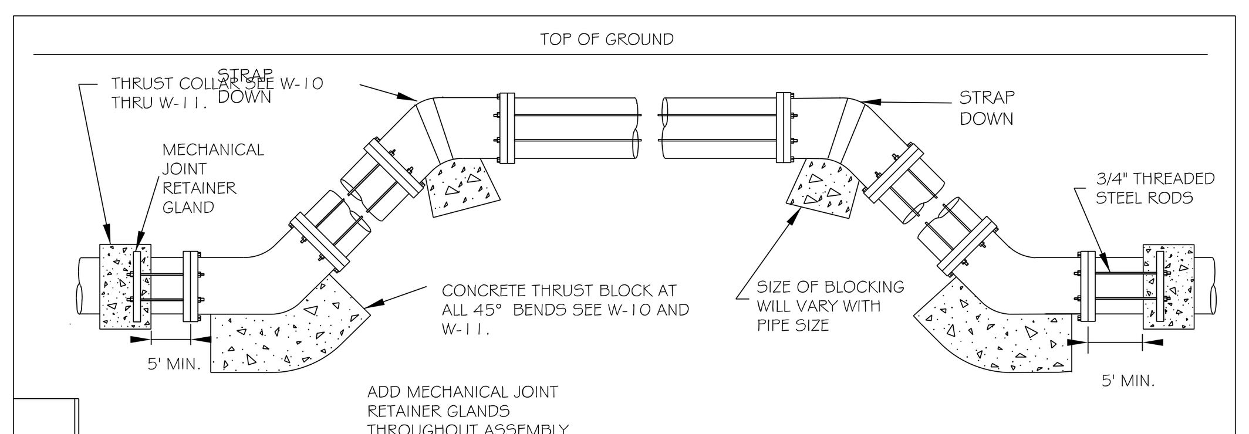
THRUST BLOCKING DESIGN QUANTITY TABLE



NOTES:

1. TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN BACKFILL.
3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
4. BACKFILL SHALL BE TAMPED IN 6" LIFTS.
5. ACHIEVE 95% COMPACTION IN BACKFILL.

TRENCH BOTTOM DIMENSIONS & BACKFILLING REQUIREMENTS FOR DUCTILE IRON



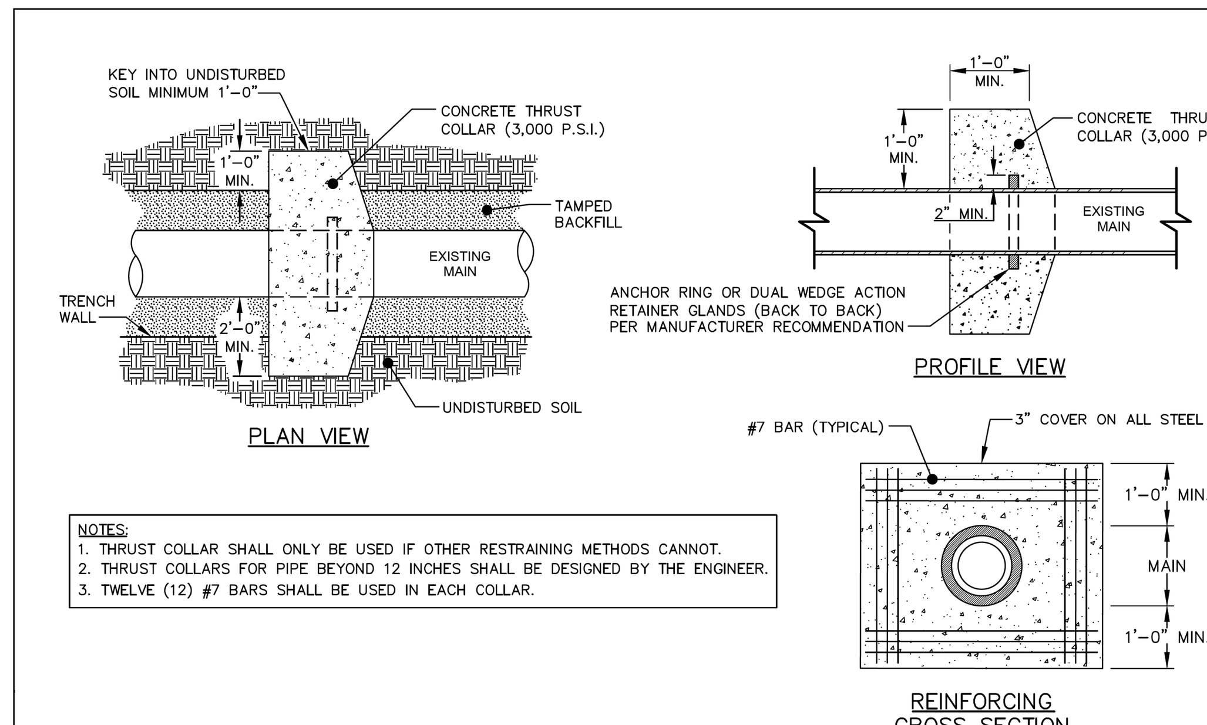
ROD REQUIREMENTS

SIZE OF 45 BEND	STATIC THRUST IN POUNDS	NO. OF RODS REQUIRED
6"	4,328	2
8"	7,694	4
12"	17,312	4
16"	30,779	8
24"	69,252	8

GENERAL NOTES:

1. STEEL RODS AND BOLTS SHALL BE 3/4" HOT DIPPED GALVANIZED.
2. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT BENDS.
3. RESTRAINED MECHANICAL GLANDS TO BE USED AT ALL FITTINGS.
4. MUST USE DUCTILE IRON EYE BOLTS WHERE NECESSARY.
5. 3' MINIMUM COVER MUST BE MAINTAINED ON ALL WATER MAINS

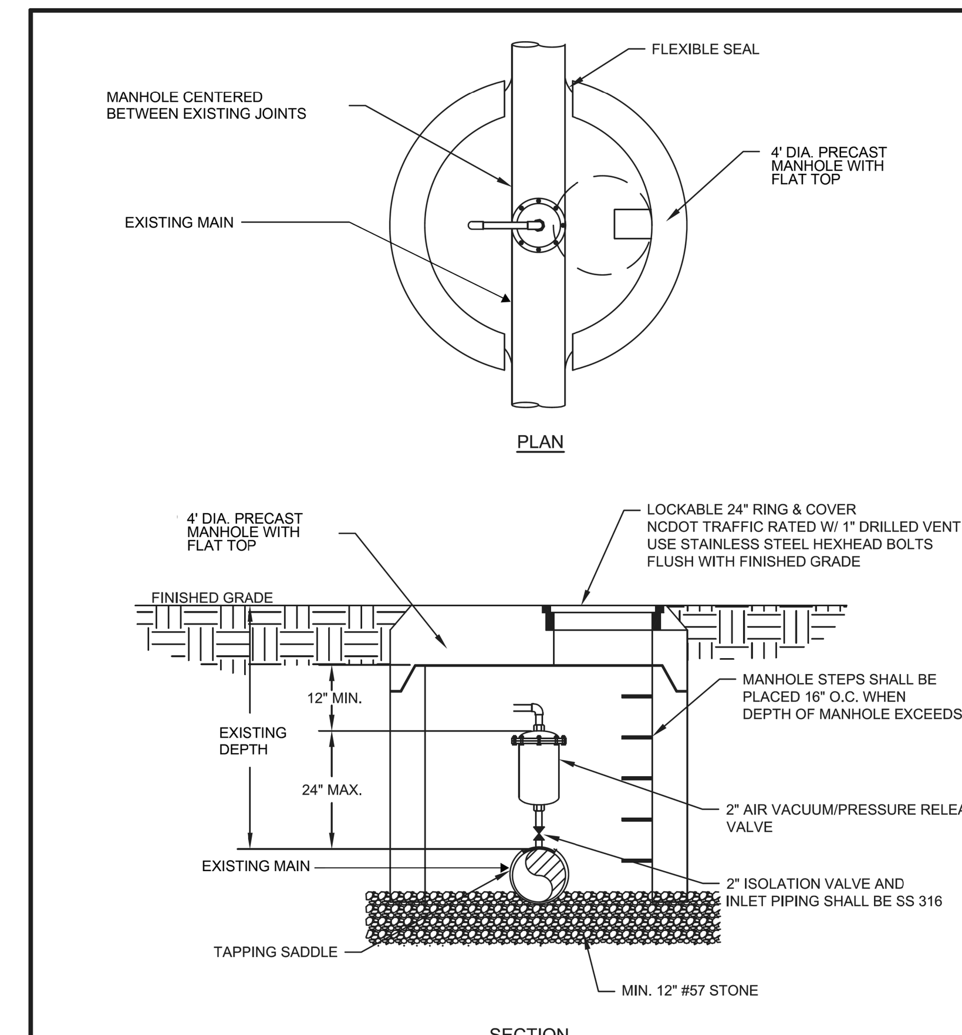
STANDARD VERTICAL BEND



NOTES:

1. THRUST COLLAR SHALL ONLY BE USED IF OTHER RESTRAINING METHODS CANNOT.
2. THRUST COLLARS FOR PIPE BEYOND 12 INCHES SHALL BE DESIGNED BY THE ENGINEER.
3. TWELVE (12) #7 BARS SHALL BE USED IN EACH COLLAR.

STANDARD THRUST COLLAR INSTALLATION
(FOR PIPE DIAMETERS 4" - 12")



STANDARD AIR VACUUM/PRESSURE RELEASE VALVE AND MANHOLE

NOT TO SCALE

5/14/99

3/15/2021
...19\19321.B6053\Design\Utilities\Engineering\UC\Proj\Sheets\B6053_ut_notes_UC3a.dgn
default

PROJECT REFERENCE NO.	SHEET NO.
B-6053	UC-4
R/W SHEET NO.	

UTILITY ENGINEER

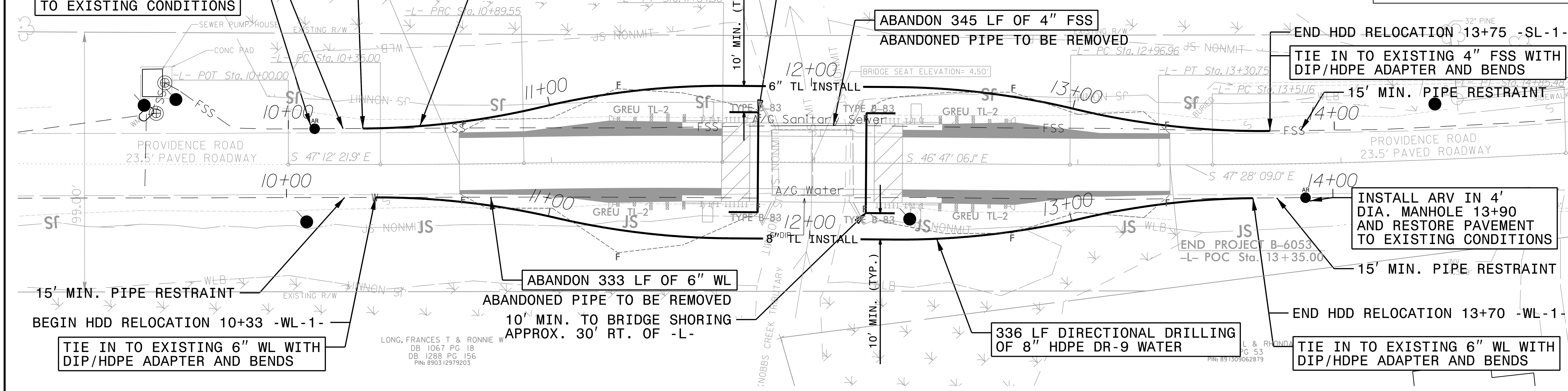
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 25881 HOWARD T. WOODALL III

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

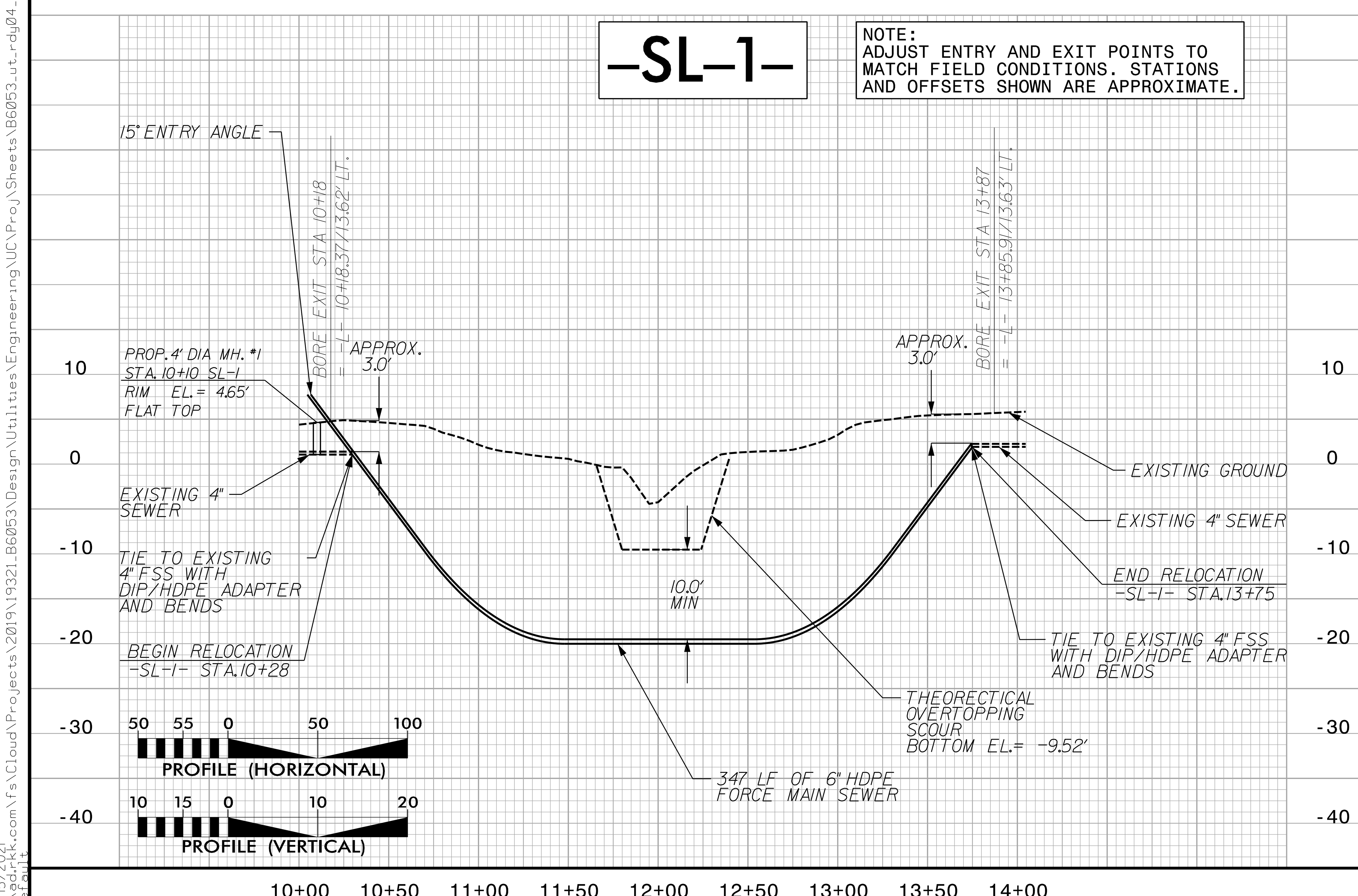
THE ESTIMATED QUANTITY OF DUCTILE IRON SEWER PIPE FITTING ON THIS PLAN SHEET IS XXXX POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.

PRIOR TO COMMENCING WORK ON ANY TRENCHLESS INSTALLATION, PROVIDE A DESIGN FOR THE TRENCHLESS INSTALLATION CERTIFIED BY AN ENGINEER LICENSED BY THE STATE OF NORTH CAROLINA, AS REQUIRED BY SUBARTICLE 1550-3(B) OF THE STANDARD SPECIFICATIONS.

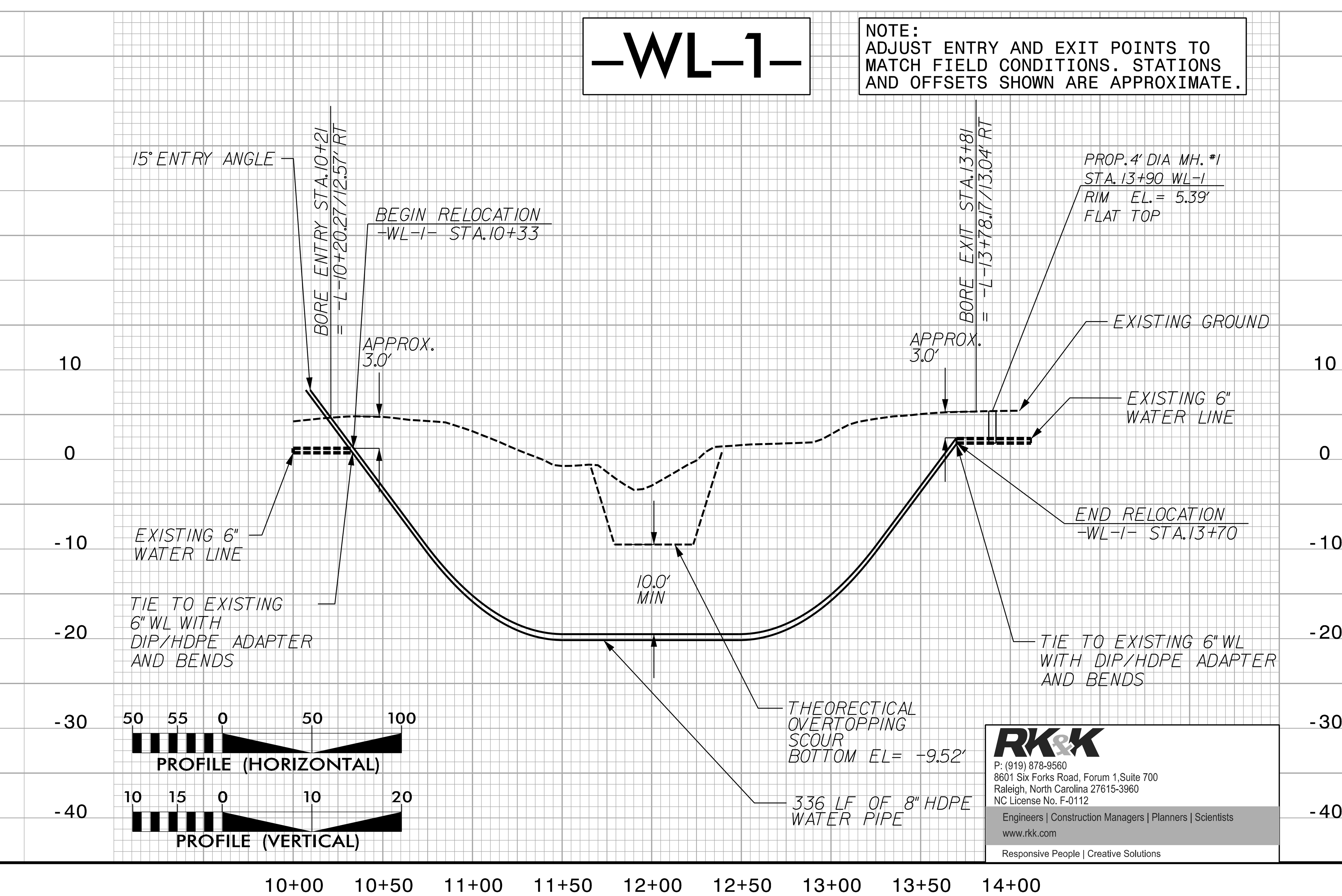
PERMIT PLANS
DO NOT USE FOR CONSTRUCTION



20 25 0 20 40
PLANS
NAD 83/2011
BEGIN HDD RELOCATION 10+28 -SL-1-
TIE IN TO EXISTING 4" FSS WITH DIP/HDPE ADAPTER AND BENDS
15' MIN. PIPE RESTRAINT
INSTALL ARV IN 4' DIA. MANHOLE 10+10 AND RESTORE PAVEMENT TO EXISTING CONDITIONS
347 LF DIRECTIONAL DRILLING OF 6" HDPE DR-9 FSS
BEGIN PROJECT B-6053 -L- POC Sta. 10+65.00
10' MIN. TO BRIDGE SHORING APPROX. 30' LT. OF -L-
BRECK AND TAYLOR, LLC DB 758 PG 320 DB 758 PG 314 DB 608 PG 511 DB 607 PG 286
ABANDON 345 LF OF 4" FSS
ABANDONED PIPE TO BE REMOVED
END HDD RELOCATION 13+75 -SL-1-
TIE IN TO EXISTING 4" FSS WITH DIP/HDPE ADAPTER AND BENDS
15' MIN. PIPE RESTRAINT
10' MIN. (TYP.)
6" TL INSTALL
BRIDGE SEAT ELEVATION= 4.50'
A/C Sanitary Sewer
A/C Water
PROVIDENCE ROAD 23.5' PAVED ROADWAY
S 47° 12' 21.9" E
S 46° 47' 06.1" E
S 47° 28' 09.0" E
-L- PRC Sta. 10+89.55
-L- PT Sta. 11+64.90
-L- PC Sta. 10+35.00
-L- POT Sta. 10+00.00
-L- PC Sta. 12+96.96
-L- PT Sta. 13+30.75
INSTALL ARV IN 4' DIA. MANHOLE 13+90 AND RESTORE PAVEMENT TO EXISTING CONDITIONS
8" TL INSTALL
END PROJECT B-6053 -L- POC Sta. 13+35.00
15' MIN. PIPE RESTRAINT
ABANDON 333 LF OF 6" WL
ABANDONED PIPE TO BE REMOVED
10' MIN. TO BRIDGE SHORING APPROX. 30' RT. OF -L-
END HDD RELOCATION 13+70 -WL-1-
15' MIN. PIPE RESTRAINT
BEGIN HDD RELOCATION 10+33 -WL-1-
TIE IN TO EXISTING 6" WL WITH DIP/HDPE ADAPTER AND BENDS
336 LF DIRECTIONAL DRILLING OF 8" HDPE DR-9 WATER
TIE IN TO EXISTING 6" WL WITH DIP/HDPE ADAPTER AND BENDS
LONG, FRANCES T & RONNIE W DB 1067 PG 18 DB 1288 PG 156
GREU TL-2
TYPE B-83



-SL-1-
NOTE: ADJUST ENTRY AND EXIT POINTS TO MATCH FIELD CONDITIONS. STATIONS AND OFFSETS SHOWN ARE APPROXIMATE.
15° ENTRY ANGLE
BORE EXIT STA 10+18 = -L- 10+18.37/13.62' LT.
BORE EXIT STA 13+87 = -L- 13+85.91/13.63' LT.
PROP. 4' DIA MH. #1 STA. 10+10 SL-1 RIM EL.= 4.65' FLAT TOP
APPROX. 3.0'
EXISTING 4" SEWER
TIE TO EXISTING 4" FSS WITH DIP/HDPE ADAPTER AND BENDS
BEGIN RELOCATION -SL-1- STA. 10+28
10.0' MIN
EXISTING GROUND
EXISTING 4" SEWER
END RELOCATION -SL-1- STA. 13+75
TIE TO EXISTING 4" FSS WITH DIP/HDPE ADAPTER AND BENDS
THEORECTICAL OVERTOPPING SCOUR BOTTOM EL.= -9.52'
347 LF OF 6" HDPE FORCE MAIN SEWER
PROFILE (HORIZONTAL)
PROFILE (VERTICAL)
10 0 -10 -20 -30 -40
10+00 10+50 11+00 11+50 12+00 12+50 13+00 13+50 14+00



-WL-1-
NOTE: ADJUST ENTRY AND EXIT POINTS TO MATCH FIELD CONDITIONS. STATIONS AND OFFSETS SHOWN ARE APPROXIMATE.
15° ENTRY ANGLE
BORE ENTRY STA. 10+21 = -L- 10+20.27/12.57' RT
BEGIN RELOCATION -WL-1- STA. 10+33
BORE EXIT STA. 13+81 = -L- 13+78.17/13.04' RT
PROP. 4' DIA MH. #1 STA. 13+90 WL-1 RIM EL.= 5.39' FLAT TOP
EXISTING GROUND
EXISTING 6" WATER LINE
APPROX. 3.0'
EXISTING 6" WATER LINE
TIE TO EXISTING 6" WL WITH DIP/HDPE ADAPTER AND BENDS
10.0' MIN
END RELOCATION -WL-1- STA. 13+70
TIE TO EXISTING 6" WL WITH DIP/HDPE ADAPTER AND BENDS
THEORECTICAL OVERTOPPING SCOUR BOTTOM EL= -9.52'
336 LF OF 8" HDPE WATER PIPE
PROFILE (HORIZONTAL)
PROFILE (VERTICAL)
10 0 -10 -20 -30 -40
10+00 10+50 11+00 11+50 12+00 12+50 13+00 13+50 14+00

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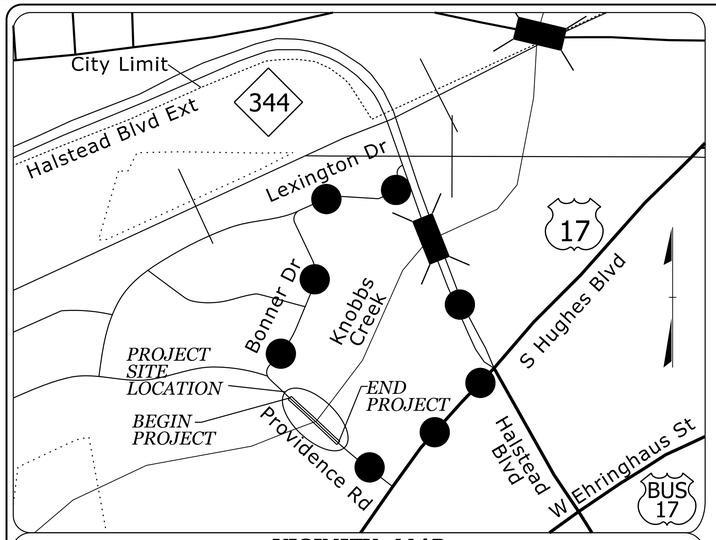
09/08/99

PROJECT : B-6053



VICINITY MAP
(NOT TO SCALE)

OFF SITE DETOUR

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
PASQUOTANK COUNTY

LOCATION: BRIDGE NO. 34 ON PROVIDENCE ROAD OVER KNOBBS CREEK IN ELIZABETH CITY

TYPE OF WORK: UTILITY RELOCATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6053	UO-1	2

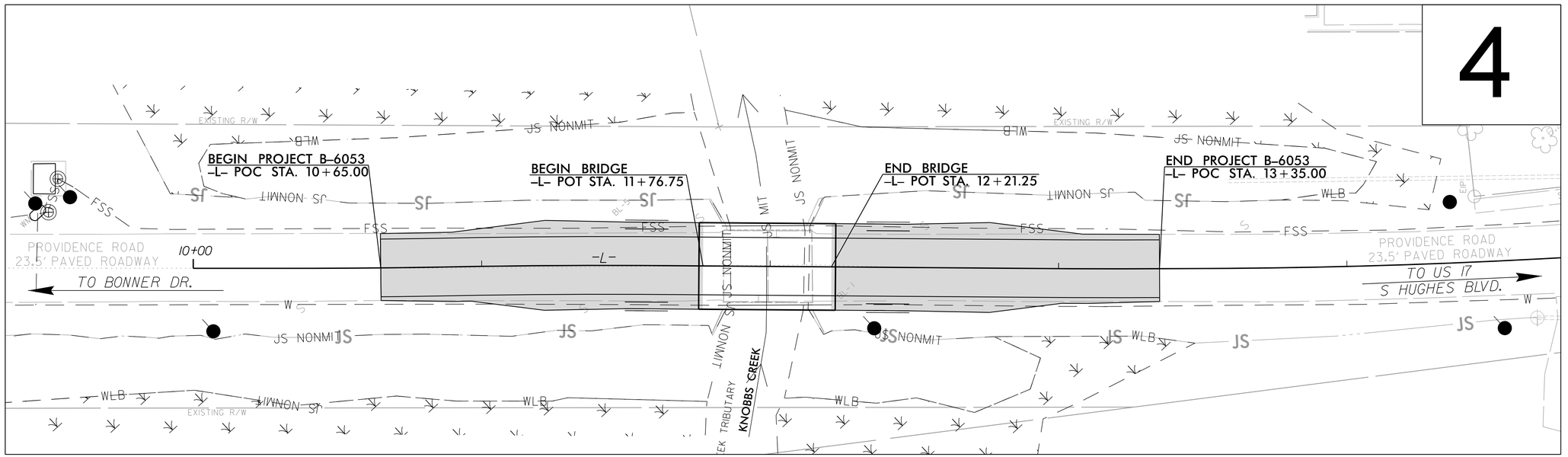
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
48754.1.1	STBG-0111(026)	P.E./R/W /UTIL
48754.3.1	STBG-0111(026)	CONSTRUCTION

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET. WATER AND SEWER WILL BE INCLUDED IN THE CONTRACT AND ARE SHOWN FOR REFERENCE ONLY. THE WATER AND SEWER RELOCATIONS ARE FOR INFORMATION ONLY AND A PART OF THE ROADWAY CONTRACT.

UO-2

NAD 83/2011

4



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES

20 25 0 20 40
PLANS

INDEX OF SHEETS

SHEET NO.:	*DESCRIPTION:*
UO-1	*TITLE SHEET*
UO-2	*UBO PLAN SHEET*

UTILITY OWNERS WITH CONFLICTS

(A) ELIZABETH CITY - POWER, WATER & SEWER
(B) CENTURYLINK - TELECOMMUNICATIONS
(C) CHARTER - CATV
(D) MEDIA-COMM - TELECOMMUNICATIONS

PREPARED IN THE OFFICE OF:

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FOR DIVISION OF HIGHWAYS

HOWARD WOODALL, PE	*UTILITY PROJECT MANAGER*
Wm. LEE JOHNSON	*PROJECT UTILITY COORDINATOR*
ZACK ELLERBY	*PROJECT UTILITY CADD DESIGNER*

DIVISION OF HIGHWAYS
DIVISION 1
113 AIRPORT DRIVE
SUITE 100
EDENTON, NC 27932

RYAN SHOOK	*DIVISION CONTACT #1*
CHRIS SUTTON	*DIVISION CONTACT #2*
XXXX	*DIVISION CONTACT #3*
XXXX	*DIVISION CONTACT #4*

3/12/2021
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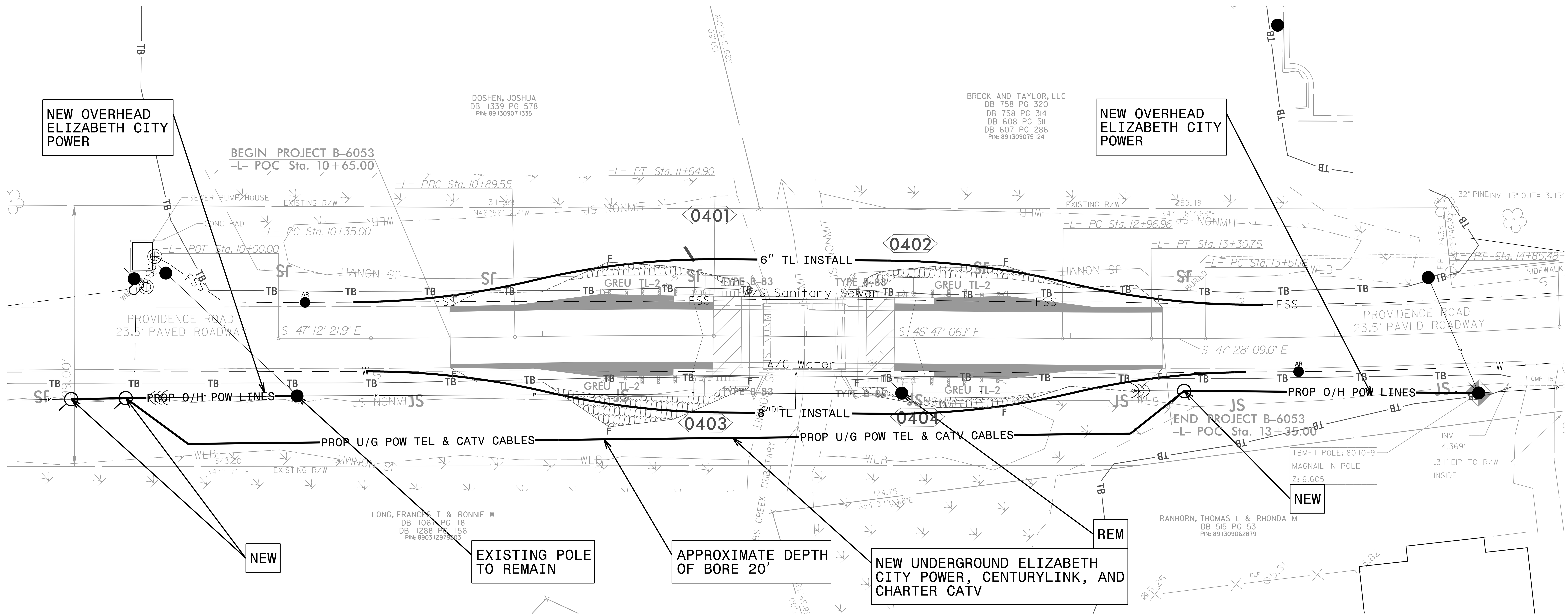
PROJECT REFERENCE NO.	SHEET NO.
B-6053	UO-2

THIS SHEET CORRESPONDS TO RDY-

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET. WATER AND SEWER WILL BE INCLUDED IN THE CONTRACT AND ARE SHOWN FOR REFERENCE ONLY.



UTILITY OWNERS ON THIS SHEET

ELIZABETH CITY – POWER (D)
CENTURYLINK – COMMUNICATIONS
CHARTER – CATV

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3/12/2021
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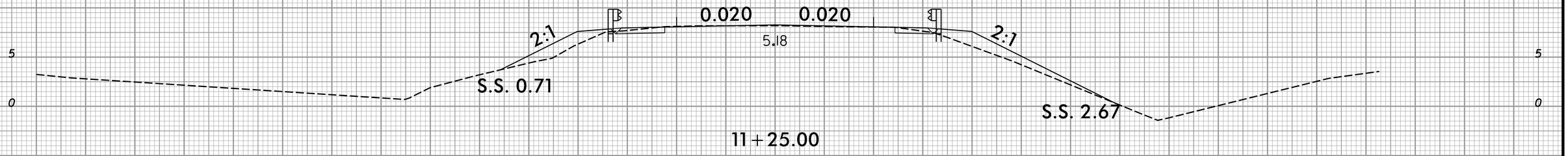
default

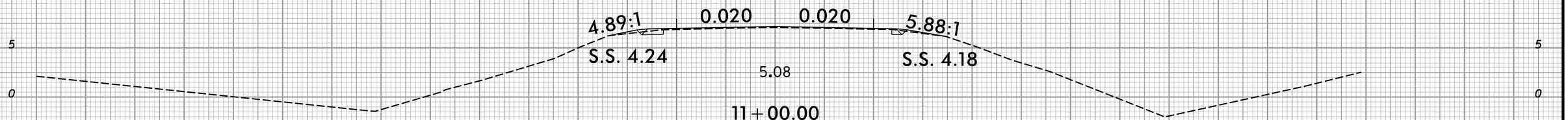
6/23/16

690034	0 2.5 5	PROJ. REFERENCE NO. B-6053	SHEET NO. X-1

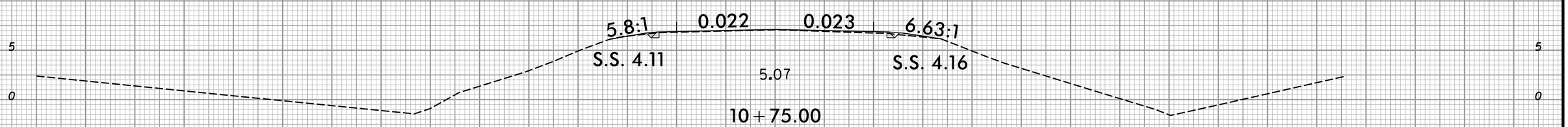
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



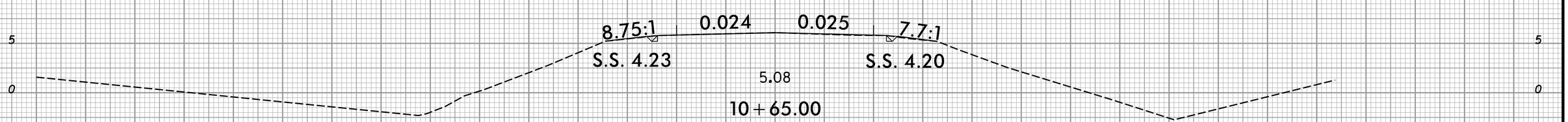
11+25.00



11+00.00

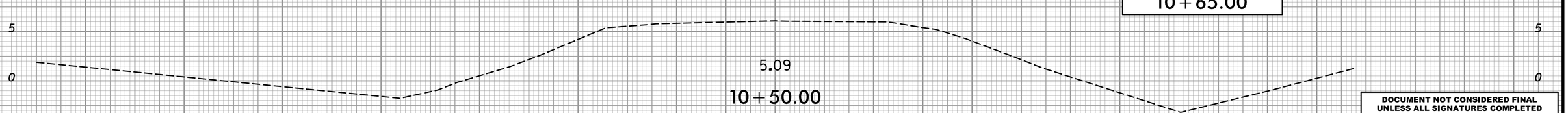


10+75.00



10+65.00

BEGIN PROJECT
10+65.00



10+50.00

-L-

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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."

1/8/2021
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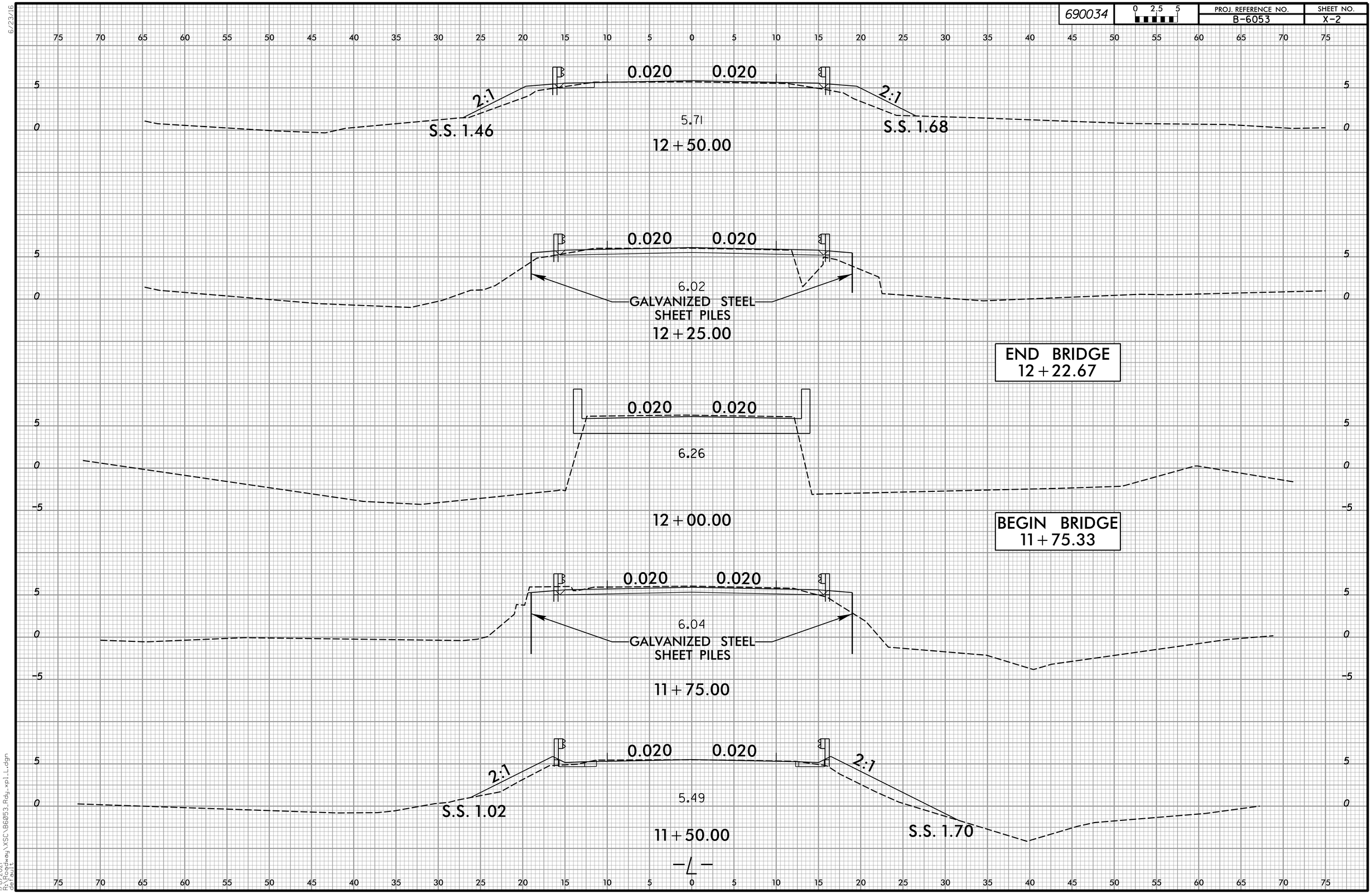
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

690034	0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
		B-6053	X-2



6/23/16

1/8/2021
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6/23/16

690034	0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
		B-6053	X-3

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

5
0

5.85
13+50.00

END PROJECT
13+35.00

8:1 0.022 0.021 4.47:1
S.S. 4.68 S.S. 3.64

5.78
13+35.00

7.42:1 0.021 0.021 4.41:1
S.S. 4.44 S.S. 3.80

5.73
13+25.00

4.78:1 0.020 0.020 4.38:1
S.S. 4.22 S.S. 4.20

5.62
13+00.00

2:1 0.020 0.020 2:1
S.S. 1.42 S.S. 1.78

5.61
12+75.00

—℄—

1/8/2021
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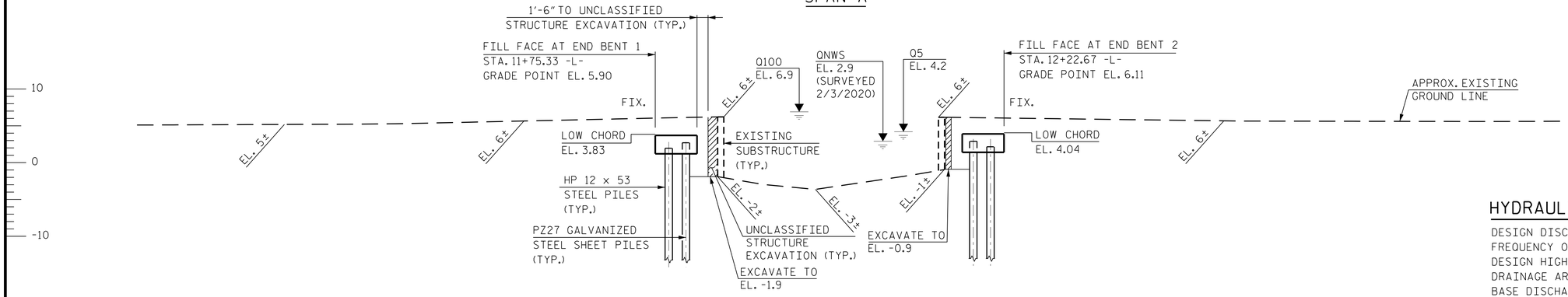
75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

F.A. PROJECT NO. STGB-0111(026)

11+00 11+50 12+00 12+50 13+00

SPAN A



SECTION ALONG ℄ -L-

(SECTION AT END BENTS TAKEN AT RIGHT ANGLES)

P.I. = 12+05.00
EL. = 6.46'
V.C. = 85 FT.
(+)1.7806% (-)1.3512%

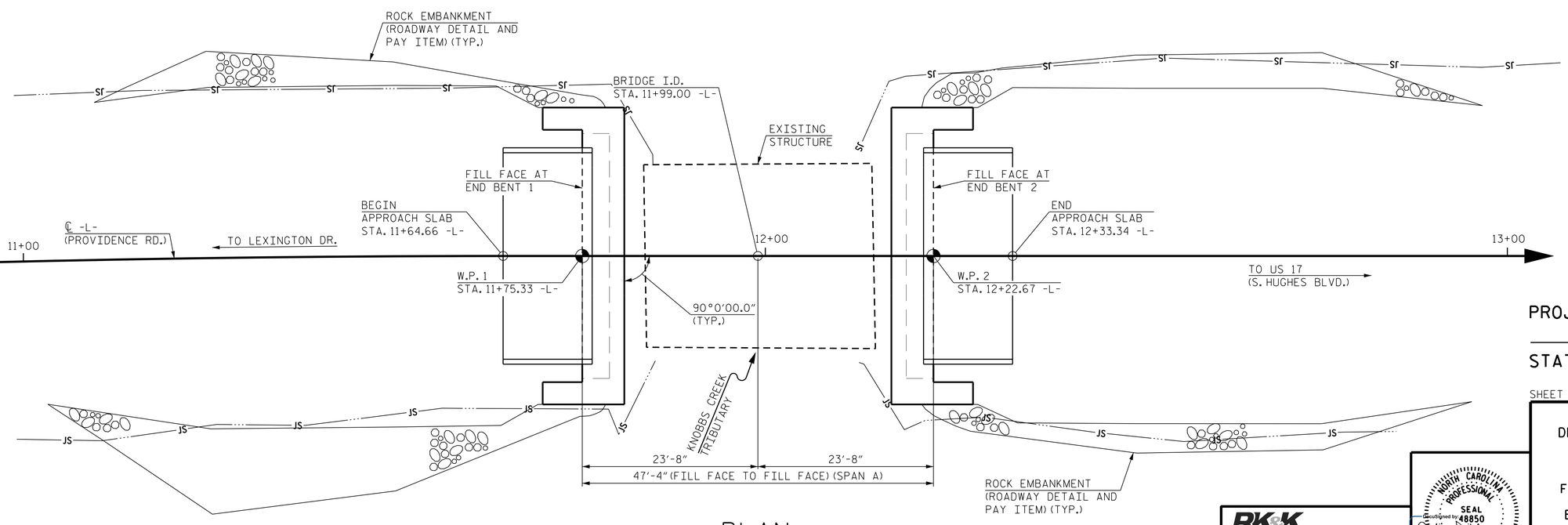
-L- GRADE DATA

HYDRAULIC DATA

DESIGN DISCHARGE----------510 C.F.S.
FREQUENCY OF DESIGN DISCHARGE-------5 YR.
DESIGN HIGH WATER ELEVATION---------4.2
DRAINAGE AREA----------5.9 SQ.MI.
BASE DISCHARGE (Q100)----------1,300 C.F.S.
BASE HIGH WATER ELEVATION----------6.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE----------570 C.F.S.
FREQUENCY OF OVERTOPPING----------5+ YR.
OVERTOPPING ELEVATION----------4.5



PLAN

(PILES NOT SHOWN IN PLAN VIEW FOR CLARITY)

I HEREBY CERTIFY THESE PLANS ARE THE AS-BUILT PLANS

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 1 OF 3 REPLACES BRIDGE NO. 690034

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING

FOR BRIDGE ON PROVIDENCE ROAD OVER KNOBBS CREEK TRIBUTARY BETWEEN US 17 (S. HUGHES BLVD.) AND LEXINGTON DR.

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-1
1			3			TOTAL SHEETS
2			4			18

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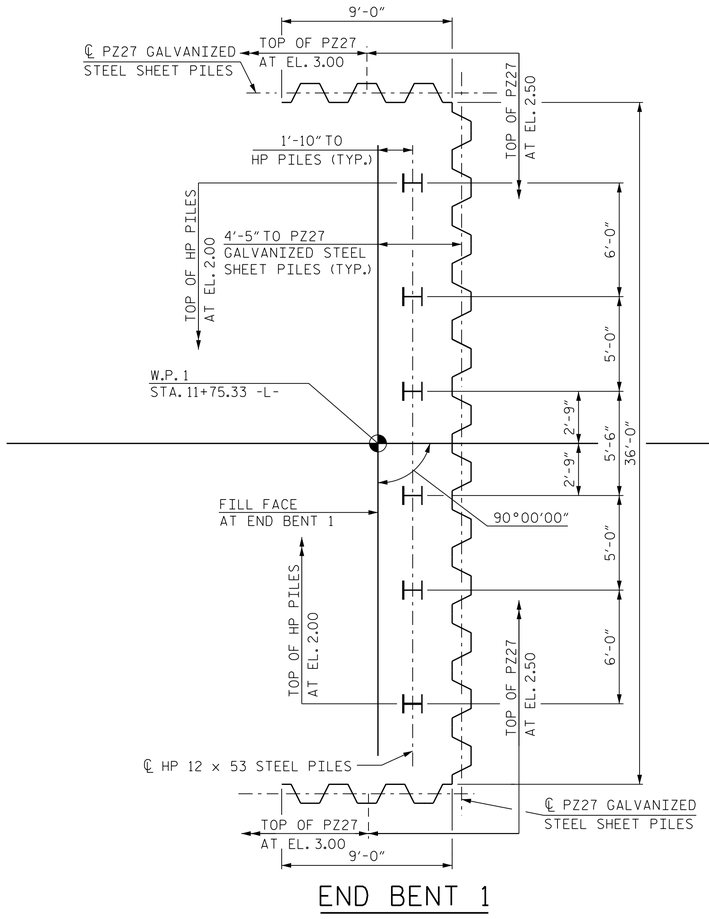
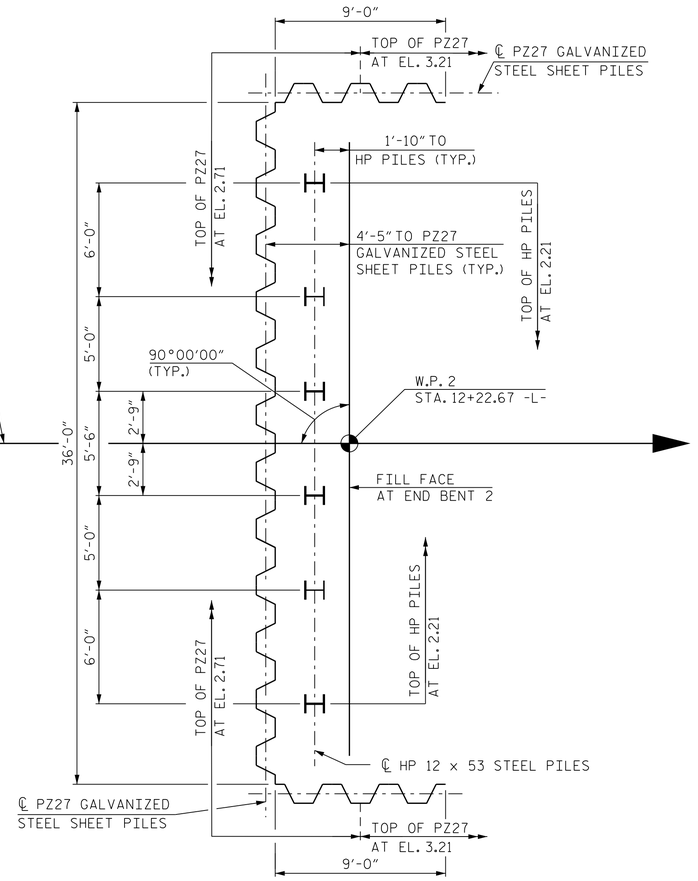
NORTH CAROLINA PROFESSIONAL SEAL 48850 ENGINEER ONDINE J. PAITEL
Digitally signed by Ondine Paitel
C1[illegible]
4/13/2021

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

tboyd
4/13/2021 R:\Structures\DGN\FINAL\690034_SD_GD.dgn



END BENT 1



END BENT 2

FOUNDATION LAYOUT

ALL HP PILES ARE VERTICAL HP 12x53 STEEL PILES
DIMENSIONS LOCATING PILES ARE SHOWN TO THE CENTERLINE OF PILES

FOUNDATION NOTES:

FOR PILES, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

PILES AT END BENTS 1 AND 2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 55 TONS PER PILE.

DRIVE PILES AT END BENTS 1 AND 2 TO A REQUIRED DRIVING RESISTANCE OF 95 TONS PER PILE.

THE SCOUR CRITICAL ELEVATION FOR END BENTS 1 AND 2 IS ELEVATION -12. SCOUR CRITICAL ELEVATIONS ARE USED TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

TESTING PILES WITH THE PDA DURING DRIVING OR REDRIVING MAY BE REQUIRED. THE ENGINEER WILL DETERMINE THE NEED FOR PDA TESTING. FOR PDA TESTING, SEE SECTION 450 OF THE STANDARD SPECIFICATIONS.

SHEET PILES SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

INSTALL PZ27 OR EQUIVALENT SHEET PILE SECTION TO A TIP ELEVATION NO HIGHER THAN EL. -36 AT END BENTS 1 AND 2.

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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NORTH CAROLINA PROFESSIONAL SEAL 19850 ENGINEER ONDINE J PAITEL
Digitally signed by Ondine Paitel
4/13/2021

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

FOUNDATION LAYOUT AND GEOTECH NOTES

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-2
1			3			TOTAL SHEETS
2			4			18

tboyd
4/13/2021 R:\Structures\DGN\FINAL\690034_SD.GN.dgn

NOTES:

THE CONTRACTOR IS ONLY ALLOWED TO CLOSE PROVIDENCE ROAD FOR 14 DAYS.
SUGGESTED CONSTRUCTION SEQUENCE
- STOCKPILE ALL PRECAST ITEMS
- DRIVE SHEET PILES PARALLEL TO PROVIDENCE ROAD ALL FOUR QUADRANTS
- DRIVE H-PILES (ALL 12 FOR BOTH END BENTS) THROUGH THE PAVEMENT AND COVER WITH 57 STONE
- CLOSE PROVIDENCE ROAD SET UP DETOUR
- DEMOLISH EXISTING STRUCTURE
- DRIVE SHEET PILING IN FRONT OF END BENTS
- SET PRECAST SUBSTRUCTURE ON PILES AND GROUT
- SET PRECAST CORED SLAB SUPERSTRUCTURE AND GROUT
- SET PRECAST BARRIER AND GROUT
- OPEN (IF NECESSARY) PROVIDENCE ROAD
- CONSTRUCT APPROACH SLABS
- ATTACH GUARDRAIL TO STRUCTURE
- PAVE PROVIDENCE ROAD

LIQUIDATED DAMAGES $500/DAY FOR TOTAL CONTRACT TIME
LIQUIDATED DAMAGES $5,000/DAY FOR 14 DAY ROAD CLOSURE TIME

ASSUMED LIVE LOAD = HL-93 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THIS BRIDGE IS LOCATED IN SEISMIC ZONE 1.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET S-18.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

FOR ROCK EMBANKMENT AND CORE MATERIAL IN AREAS OF END BENTS, SEE ROADWAY PLANS.

WORK ON END BENTS SHALL NOT BE STARTED UNTIL APPROACH ROCK EMBANKMENT AND CORE MATERIAL IN THE AREA OF END BENT PILES HAVE BEEN PLACED.

ALL BAR SUPPORTS USED IN THE PRECAST ELEMENTS AND ALL INCIDENTAL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

THE EXISTING PAVEMENT WITHIN THE AREA OF THE END BENT PILES SHALL BE REMOVED AND THE ROADBED SCARIFIED TO A MINIMUM DEPTH OF 2'-0".

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 AT STATION 11+99.00 -L-".

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 20 FT EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE EXISTING 2 - 15'-9" SPANS STRUCTURE WITH A CLEAR ROADWAY WIDTH OF 26 FT AND A 2½" ASPHALT WEARING SURFACE ON A TIMBER DECK ON TIMBER BEAMS, WITH A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER POSTS AT ALL THE BENTS AND LOCATED AT THE SITE OF THE PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING BRIDGE IS PRESENTLY NOT POSTED FOR LOAD LIMIT. SHOULD THE STRUCTURAL INTEGRITY OF THE BRIDGE DETERIORATE DURING CONSTRUCTION OF THE PROPOSED BRIDGE, A LOAD LIMIT MAY BE POSTED AND MAY BE REDUCED AS FOUND NECESSARY DURING THE LIFE OF THE PROJECT. FOR REMOVAL OF EXISTING STRUCTURE, SEE SPECIAL PROVISIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. 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.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED IN A MANNER THAT PREVENTS DEBRIS FROM FALLING INTO THE WATER. THE CONTRACTOR SHALL SUBMIT DEMOLITION PLANS FOR REVIEW AND REMOVE THE BRIDGE IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH "HEC 18-EVALUATING SCOUR AT BRIDGES."

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

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

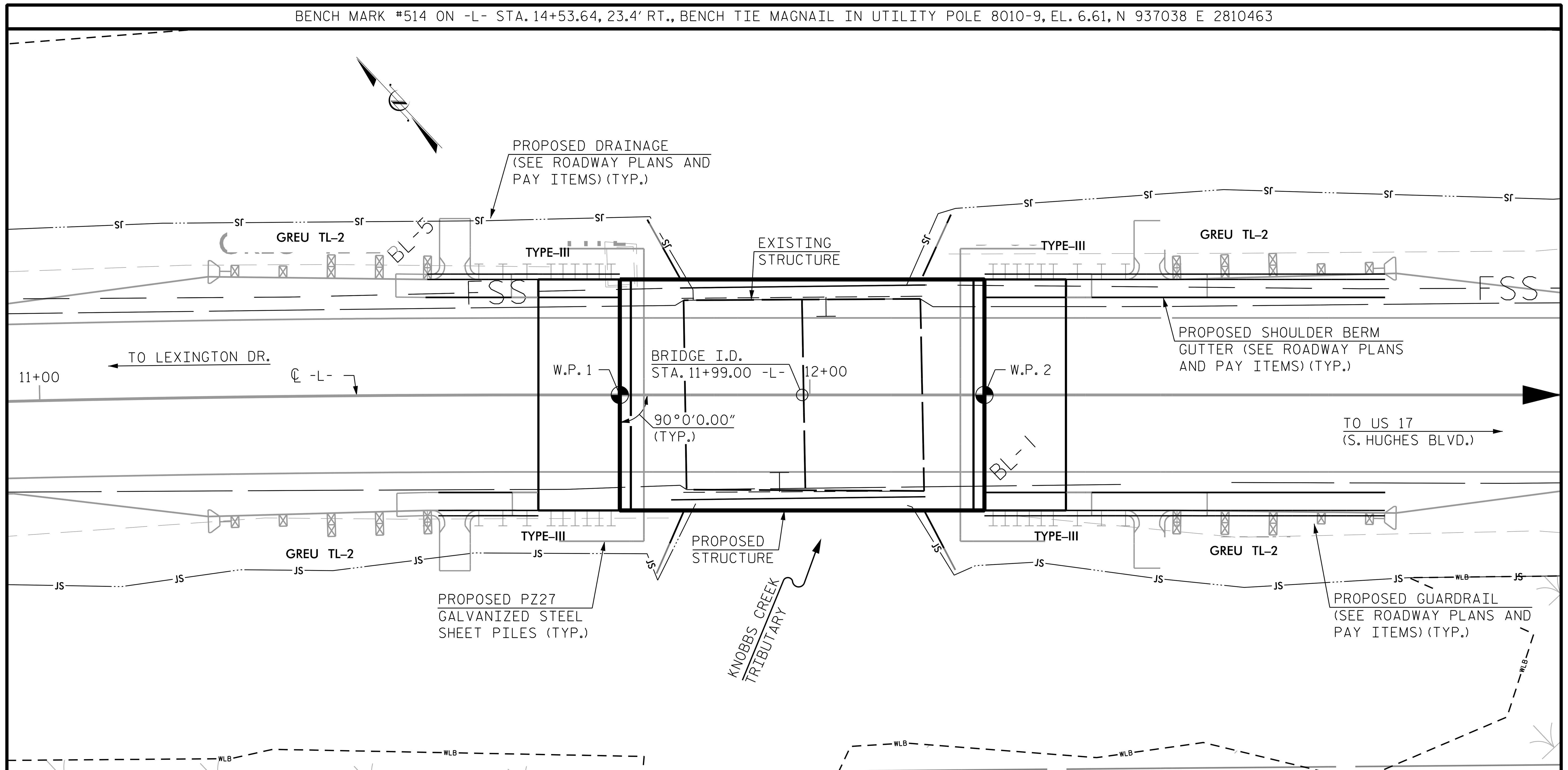
THE PRICE BID FOR PRECAST PIECES EB120, EB130 AND BW150 IS TO INCLUDE THE INDIVIDUAL PIECES "A" AND "B" AS SHOWN ON THE PRECAST PIECE DETAIL SHEETS.

SEE PROJECT SPECIAL PROVISIONS FOR:
- PRECAST PIECE EB110
- PRECAST PIECE EB120
- PRECAST PIECE EB130
- PRECAST PIECE EB140
- PRECAST PIECE BW150

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE AT STATION 11+99.00 -L-	ASBESTOS ASSESSMENT	PDA TESTING	UNCLASSIFIED STRUCTURE EXCAVATION	BRIDGE APPROACH SLAB	HP 12 X 53 STEEL PILES		PZ27 GALVANIZED STEEL SHEET PILES		PILE REDRIVES	ELASTOMERIC BEARINGS	3'-0" X 1'-6" PRESTRESSED CONCRETE CORED SLABS		7'-4" PRECAST VERTICAL RAIL SECTION	10'-0" PRECAST VERTICAL RAIL SECTION	PRECAST PIECE EB110	PRECAST PIECE EB120	PRECAST PIECE EB130	PRECAST PIECE EB140	PRECAST PIECE BW150
	LUMP SUM	LUMP SUM	EACH	LUMP SUM	LUMP SUM	NO.	LIN.FT.	NO.	SQ.FT.	EACH	LUMP SUM	NO.	LIN.FT.	EACH	EACH	EACH	EACH	EACH	EACH	EACH
SUPERSTRUCTURE											LUMP SUM	10	446.67	4	6					
END BENT 1				LUMP SUM		6	450	36	2090	3						1	2	2	2	2
END BENT 2				LUMP SUM		6	450	36	2090	3						1	2	2	2	2
TOTAL	LUMP SUM	LUMP SUM	1	LUMP SUM	LUMP SUM	12	900	72	4180	6	LUMP SUM	10	446.67	4	6	2	4	4	4	4

BENCH MARK #514 ON -L- STA. 14+53.64, 23.4' RT., BENCH TIE MAGNAIL IN UTILITY POLE 8010-9, EL. 6.61, N 937038 E 2810463



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

SAMPLE BAR REPLACEMENT LENGTHS BASED ON 30" (SAMPLE LENGTH) PLUS TWO SPLICE LENGTHS AND f = 60 ksi.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
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GENERAL DRAWING

LOCATION SKETCH, GENERAL NOTES AND TOTAL BILL OF MATERIALS

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4/13/2021

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

SHEET NO. S-3
TOTAL SHEETS 18

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DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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LOAD AND RESISTANCE FACTOR RATING (LRFD) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS

LEVEL		VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING	MINIMUM RATING FACTORS (RF)	TONS = W X RF	STRENGTH I LIMIT STATE											SERVICE III LIMIT STATE						COMMENT NUMBER
								MOMENT					SHEAR						MOMENT					
							LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVELOAD FACTORS	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	
DESIGN LOAD RATING		HL-93(Inv)	N/A	1	1.13	--	1.75	0.259	1.48	A	E	22.5	0.285	3.34	A	E	1.2	0.80	0.259	1.13	A	E	22.5	
		HL-93(Opr)	N/A	--	1.92	--	1.35	0.259	1.92	A	E	22.5	0.285	4.37	A	E	1.2	N/A	--	--	--	--	--	
		HS-20(Inv)	36.000	2	1.39	50.04	1.75	0.259	1.82	A	E	22.5	0.285	3.99	A	E	1.2	0.80	0.259	1.39	A	E	22.5	
		HS-20(Opr)	36.000	--	2.36	84.96	1.35	0.259	2.36	A	E	22.5	0.285	5.22	A	E	1.2	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SV	SNSH	13.500	--	2.75	37.13	1.4	0.259	4.50	A	E	22.5	0.285	11.40	A	E	1.2	0.80	0.259	2.75	A	E	22.5	
		SNGARBS2	20.000	--	2.21	44.20	1.4	0.259	3.61	A	E	22.5	0.285	8.29	A	E	1.2	0.80	0.259	2.21	A	E	22.5	
		SNAGRIS2	22.000	--	2.17	47.74	1.4	0.259	3.52	A	E	17.9	0.285	7.78	A	E	1.2	0.80	0.259	2.17	A	E	22.5	
		SNCOTTS3	27.250	--	1.37	37.33	1.4	0.259	2.25	A	E	22.5	0.285	5.63	A	E	1.2	0.80	0.259	1.37	A	E	22.5	
		SNAGGRS4	34.925	--	1.21	42.26	1.4	0.259	1.97	A	E	22.5	0.285	4.82	A	E	1.2	0.80	0.259	1.21	A	E	22.5	
		SNS5A	35.550	--	1.18	41.95	1.4	0.259	1.92	A	E	22.5	0.285	4.97	A	E	1.2	0.80	0.259	1.18	A	E	22.5	
		SNS6A	39.950	--	1.11	44.34	1.4	0.259	1.81	A	E	22.5	0.285	4.60	A	E	1.2	0.80	0.259	1.11	A	E	22.5	
		SNS7B	42.000	--	1.05	44.10	1.4	0.259	1.72	A	E	22.5	0.285	4.61	A	E	1.2	0.80	0.259	1.05	A	E	22.5	
	TTST	TNAGRIT3	33.000	--	1.36	44.88	1.4	0.259	2.22	A	E	22.5	0.285	5.44	A	E	1.2	0.80	0.259	1.36	A	E	22.5	
		TNT4A	33.075	--	1.37	45.31	1.4	0.259	2.24	A	E	22.5	0.285	5.22	A	E	1.2	0.80	0.259	1.37	A	E	22.5	
		TNT6A	41.600	--	1.15	47.84	1.4	0.259	1.88	A	E	22.5	0.285	5.06	A	E	1.2	0.80	0.259	1.15	A	E	22.5	
		TNT7A	42.000	--	1.17	49.14	1.4	0.259	1.91	A	E	22.5	0.285	4.67	A	E	1.2	0.80	0.259	1.17	A	E	22.5	
		TNT7B	42.000	--	1.22	51.24	1.4	0.259	1.99	A	E	22.5	0.285	4.43	A	E	1.2	0.80	0.259	1.22	A	E	22.5	
		TNAGRIT4	43.000	--	1.16	49.88	1.4	0.259	1.89	A	E	22.5	0.285	4.26	A	E	1.2	0.80	0.259	1.16	A	E	22.5	
		TNAGT5A	45.000	--	1.08	48.60	1.4	0.259	1.76	A	E	22.5	0.285	4.35	A	E	1.2	0.80	0.259	1.08	A	E	22.5	
		TNAGT5B	45.000	3	1.05	47.25	1.4	0.259	1.72	A	E	22.5	0.285	4.03	A	E	1.2	0.80	0.259	1.05	A	E	22.5	

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

COMMENTS:

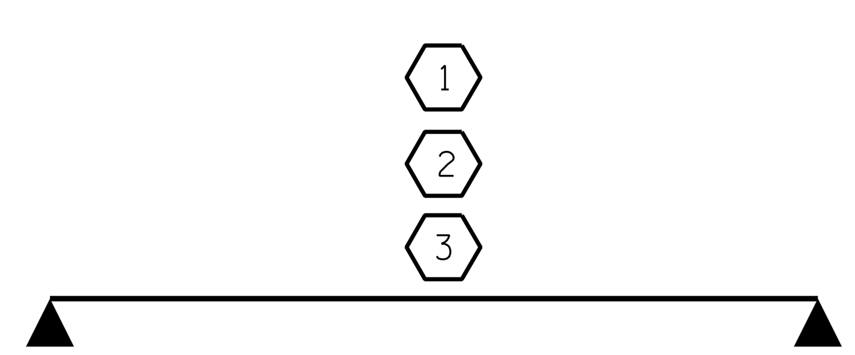
1.
2.
3.
4.

(#) CONTROLLING LOAD RATING

(1) DESIGN LOAD RATING (HL-93)
(2) DESIGN LOAD RATING (HS-20)
(3) LEGAL LOAD RATING ✱✱
✱✱ SEE CHART FOR VEHICLE TYPE

GIRDER LOCATION

I - INTERIOR GIRDER
E - EXTERIOR GIRDER



LRFR SUMMARY

FOR SPAN 'A'

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
LRFR SUMMARY FOR
90° SKEW
(NON-INTERSTATE TRFFIC)

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4/13/2021

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NO.	BY:	DATE:	NO.	BY:	DATE:		S-4
1			3				TOTAL SHEETS
2			4				18

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DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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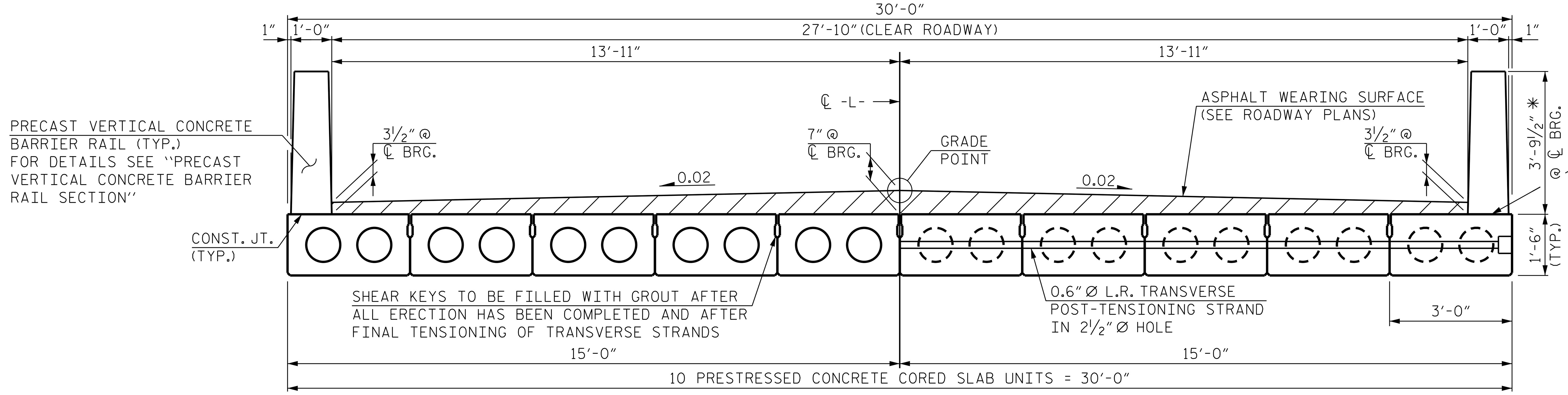
STD. NO. 21LRFR1_90S_50L

NOTES:

#4 S2 AND #4 S4 MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO GROUTED RECESS.

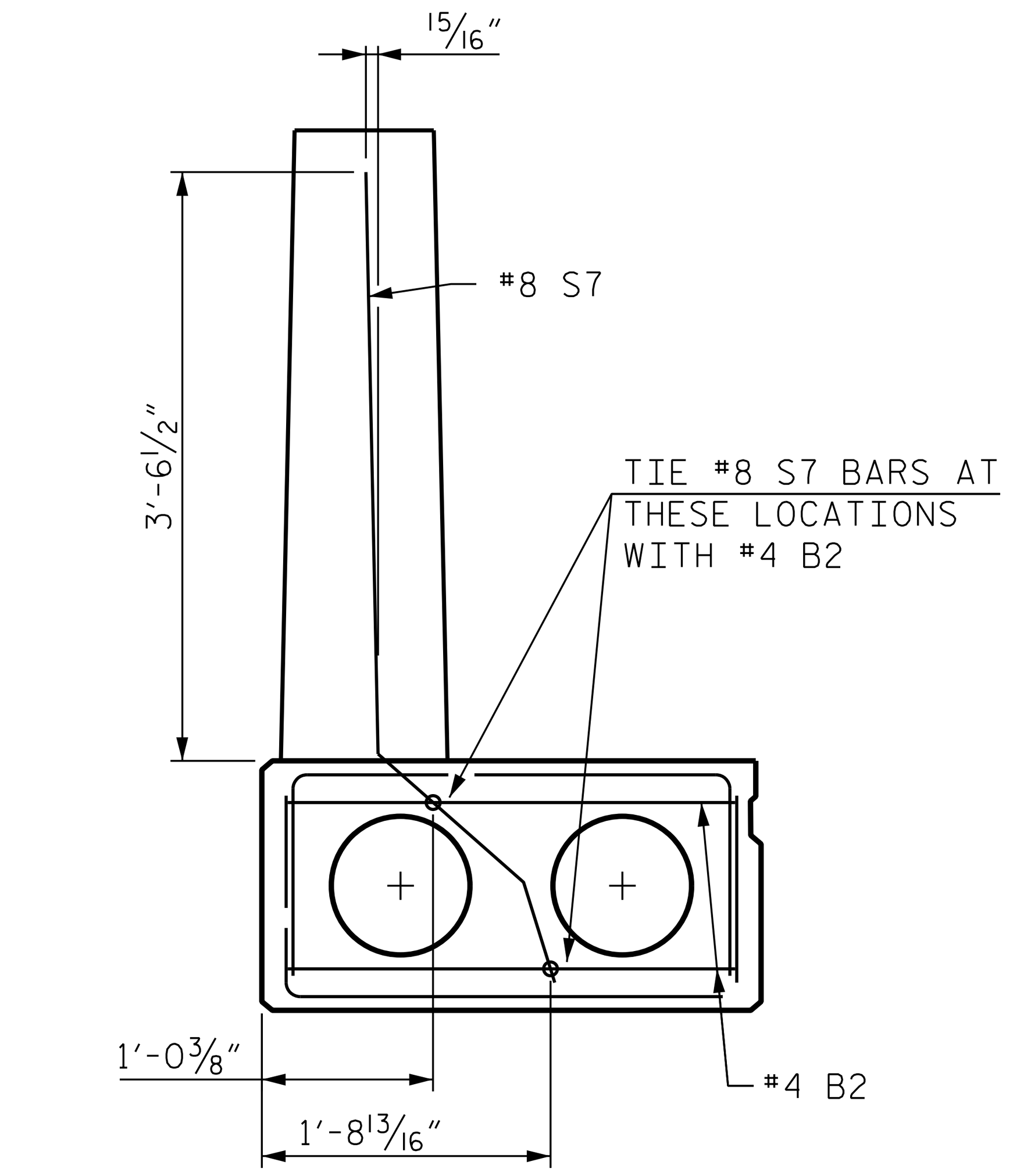


HALF SECTION
THROUGH VOIDS

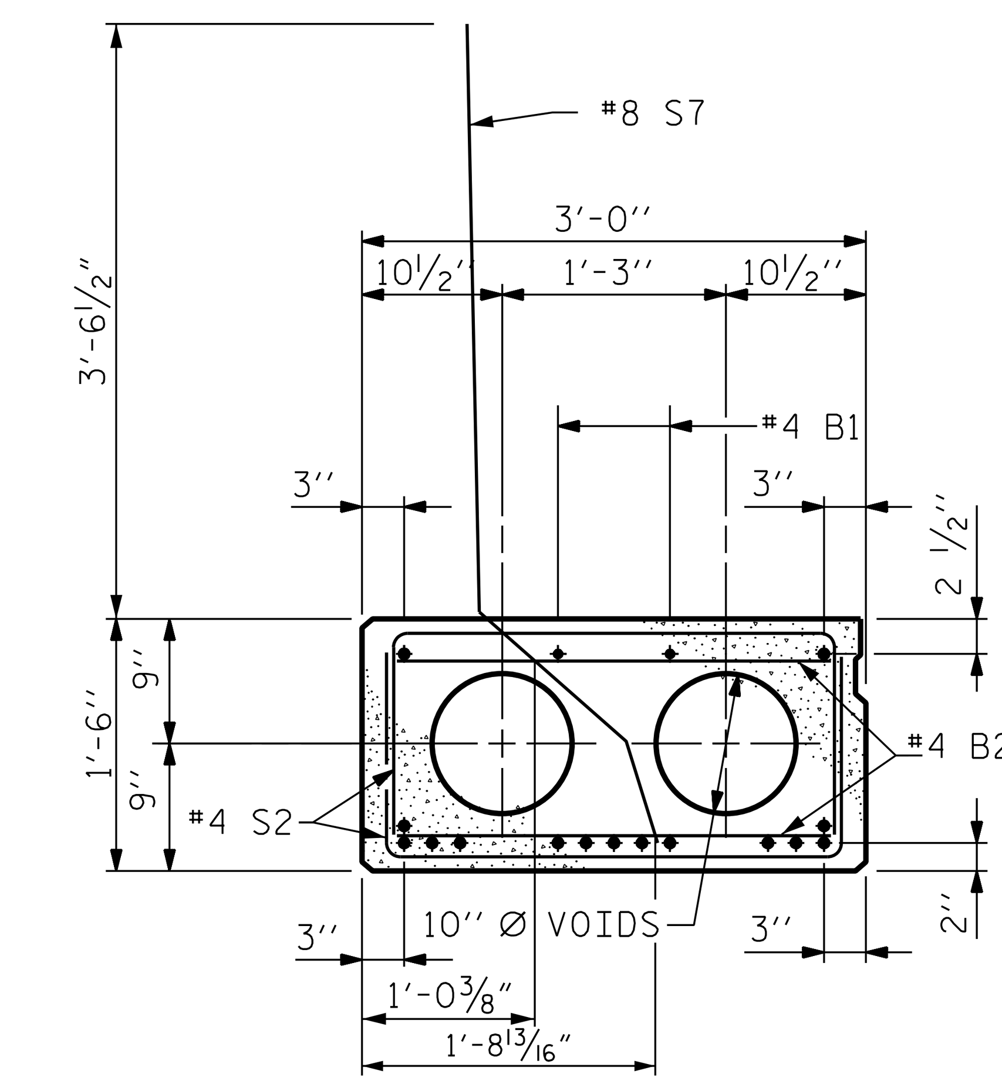
HALF SECTION
AT INTERMEDIATE DIAPHRAGMS

TYPICAL SECTION

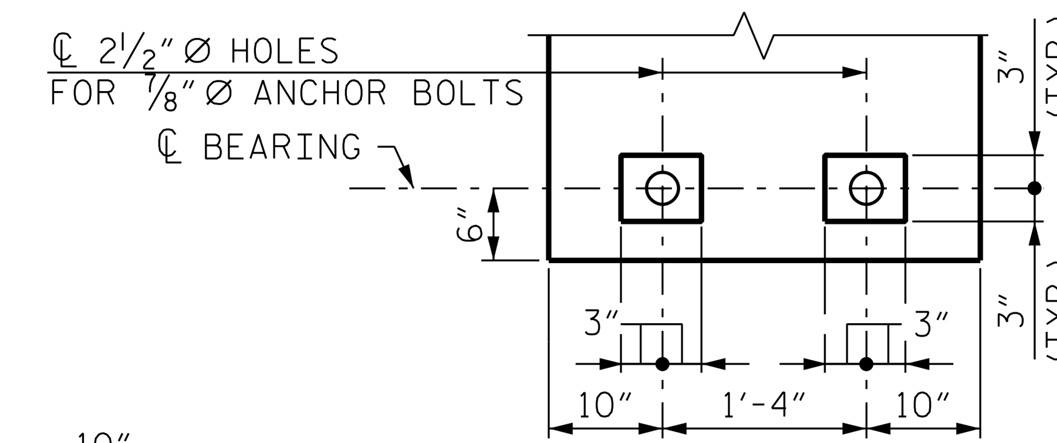
✱-THE MAXIMUM BARRIER RAIL HEIGHT AND ASPHALT THICKNESS IS SHOWN. THE HEIGHT OF THE BARRIER RAIL AND ASPHALT THICKNESS VARIES WHILE THE TOP OF THE BARRIER RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE. FOR RAIL HEIGHT DETAILS AND ASPHALT THICKNESS SEE THE "PRECAST VERTICAL CONCRETE BARRIER RAIL SECTION" DETAIL.



TIE LOCATION FOR #8 S7

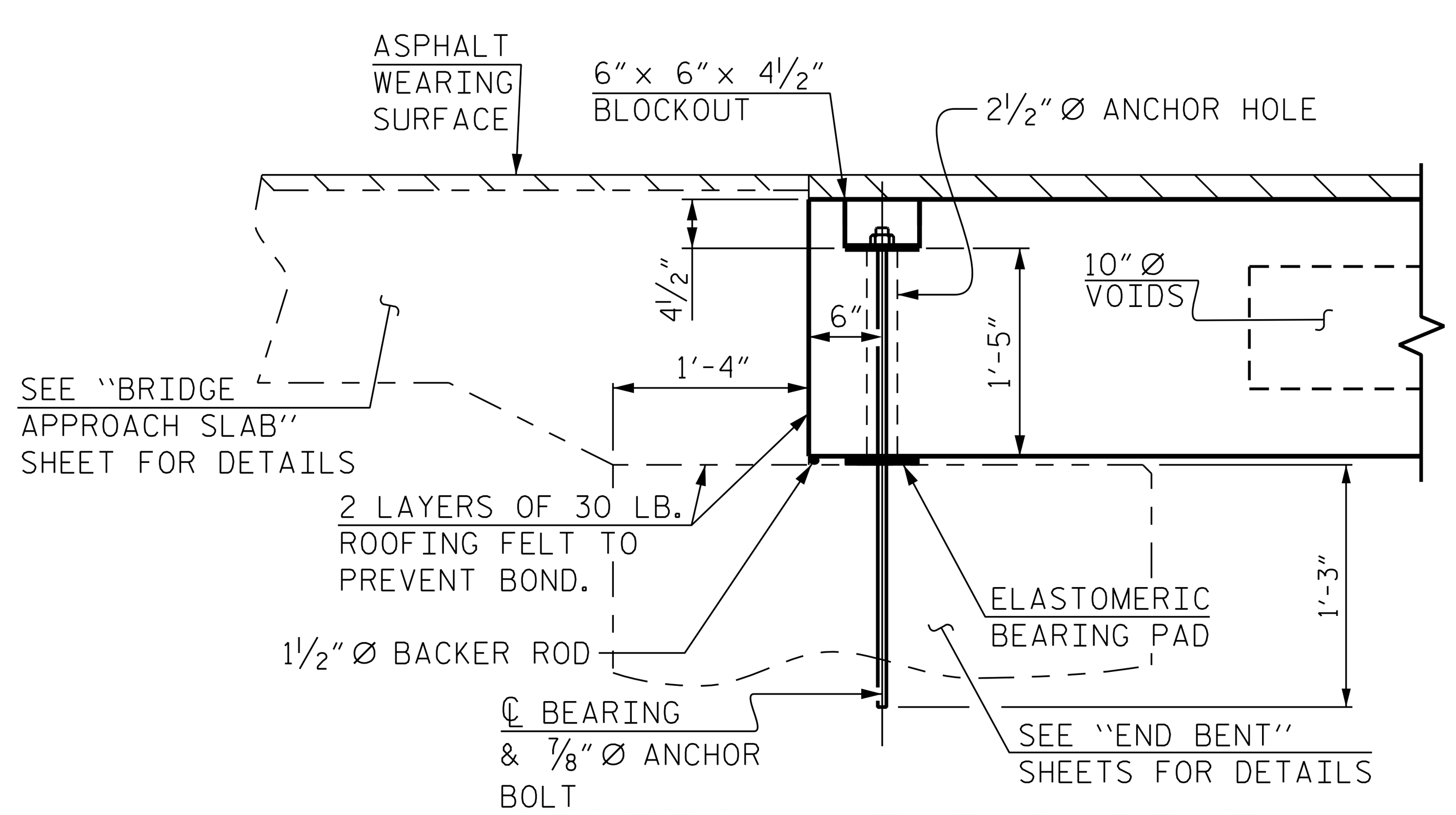


EXTERIOR SLAB SECTION

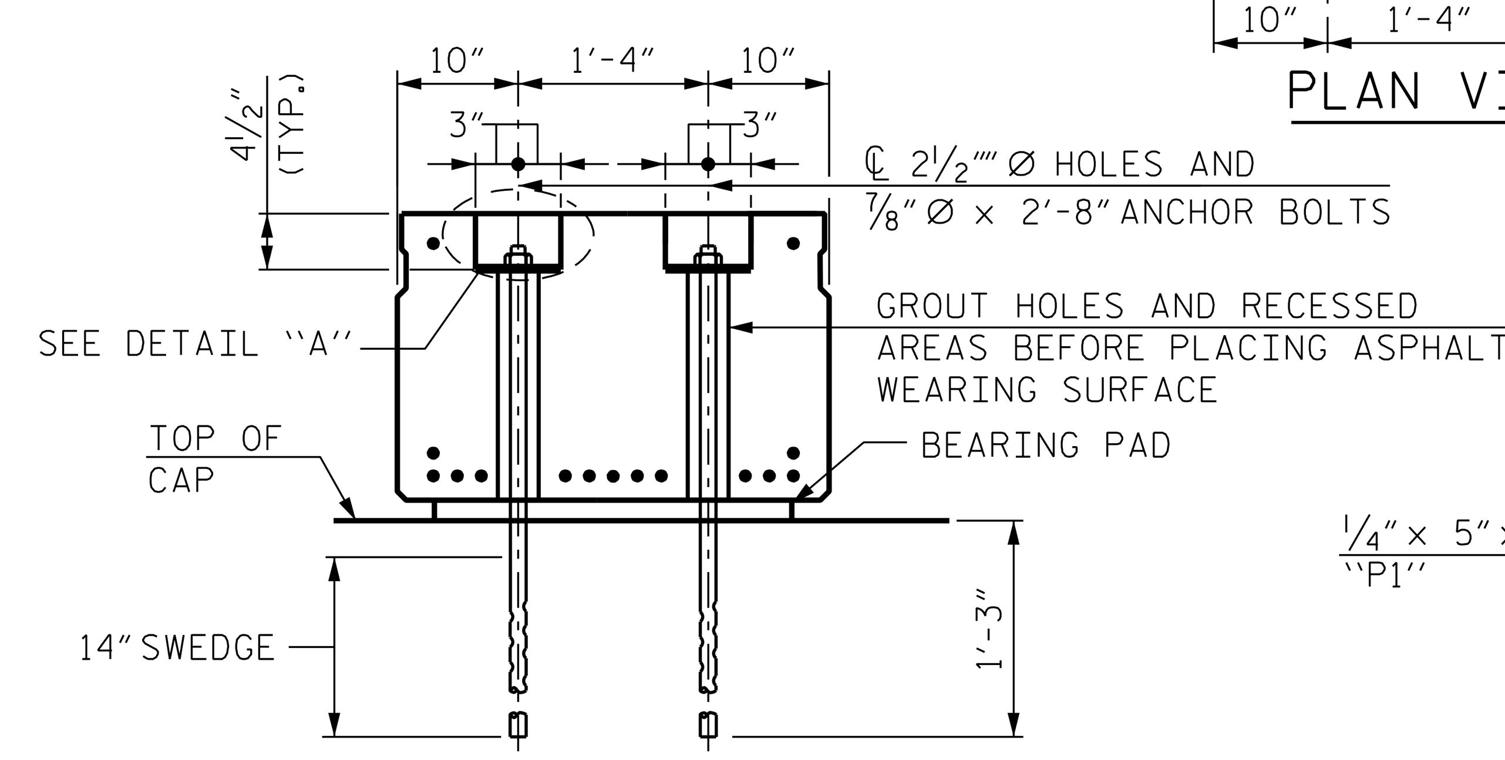


PLAN VIEW

FIXED END

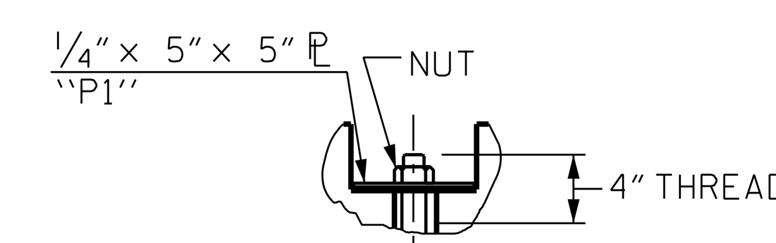


SECTION AT END BENT



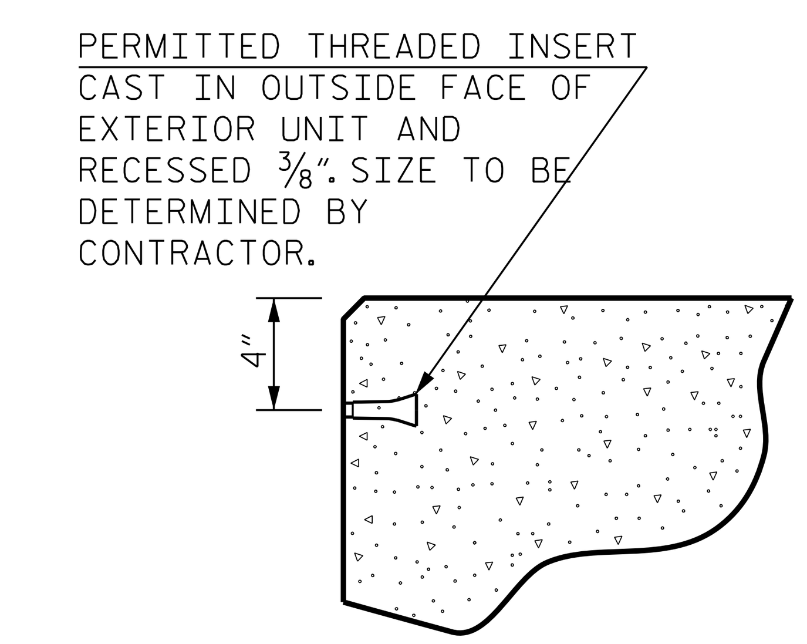
ELEVATION VIEW

CORED SLAB ANCHORAGE DETAIL

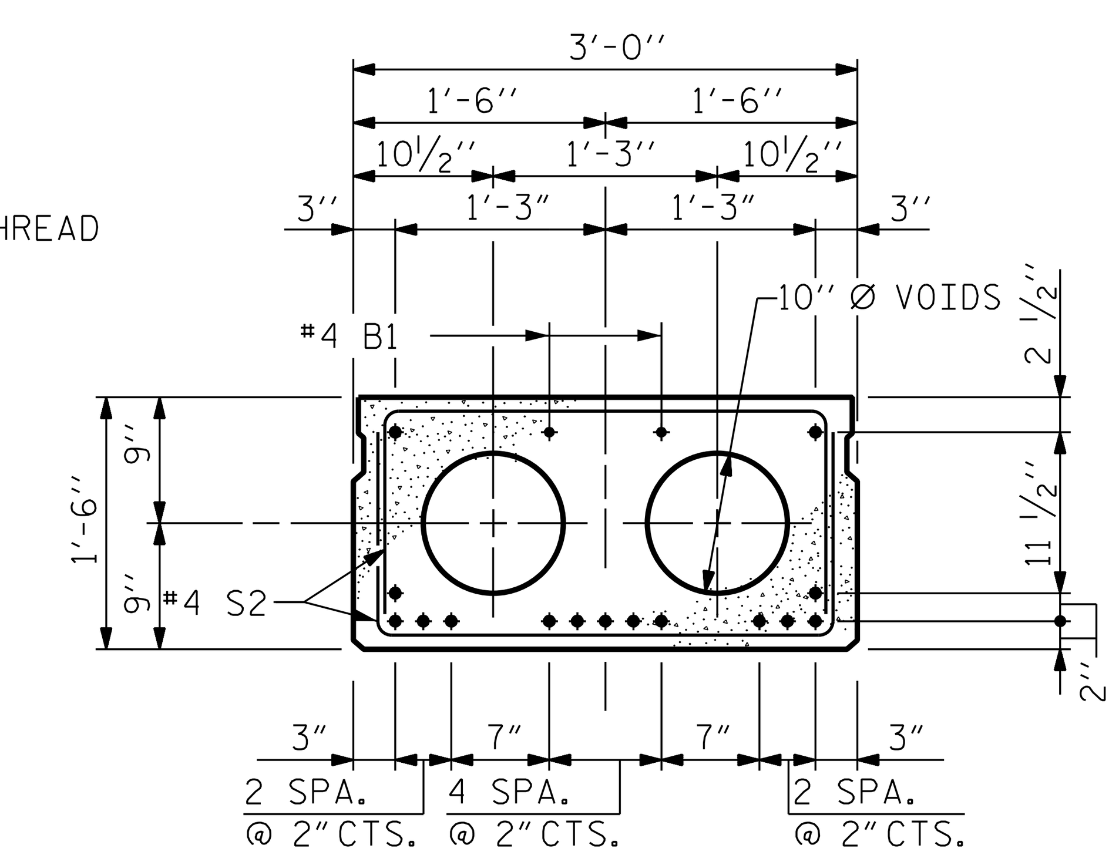


DETAIL "A"

(SEE SHEET NO. S-7 FOR P1 DETAILS)



THREADED INSERT DETAIL



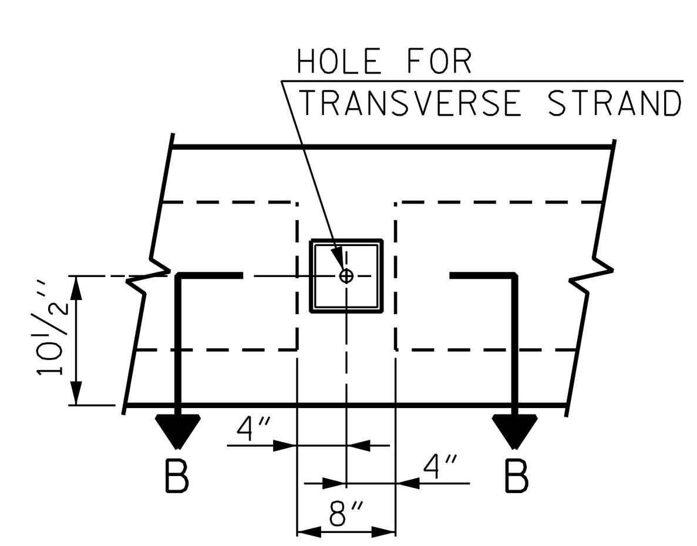
INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT

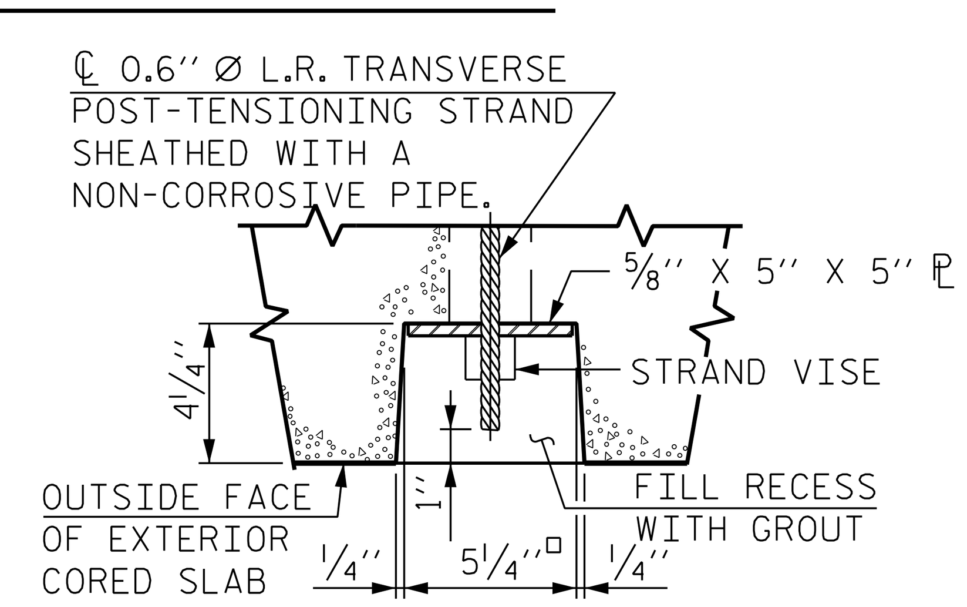
(15-0.6" Ø STRANDS REQUIRED)

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 1 OF 3

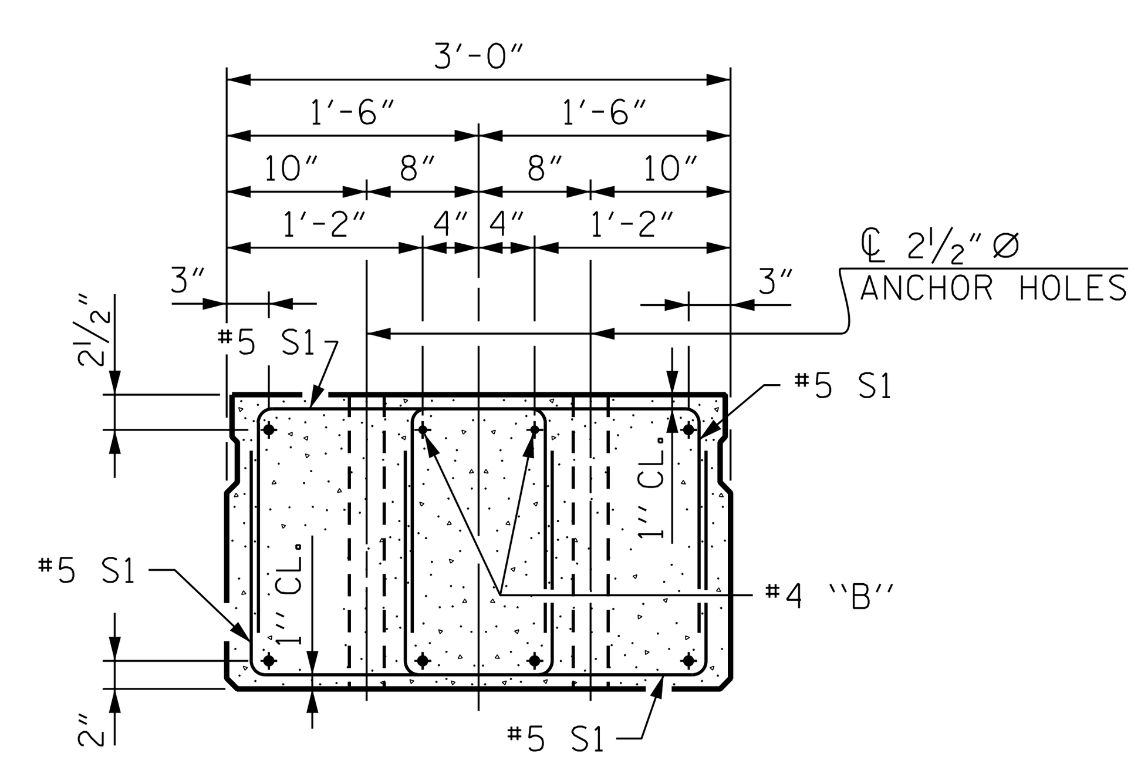


ELEVATION VIEW



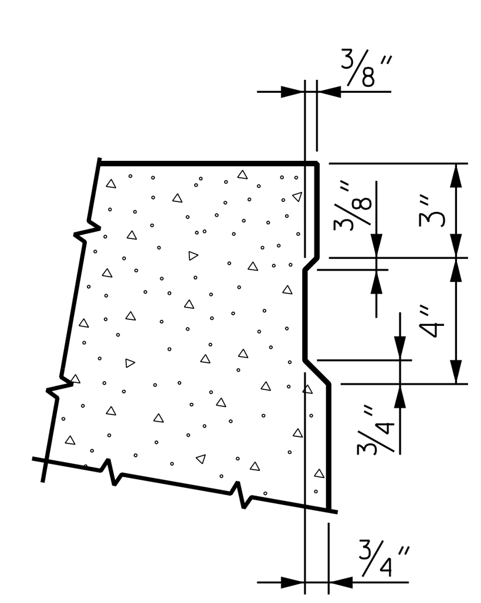
SECTION B-B

GROUTED RECESS AT END OF POST-TENSIONED STRAND OF CORED SLABS



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB UNIT SHOWN-EXTERIOR SLAB UNIT SIMILAR EXCEPT SHEAR KEY LOCATION.



SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.

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4/13/2021

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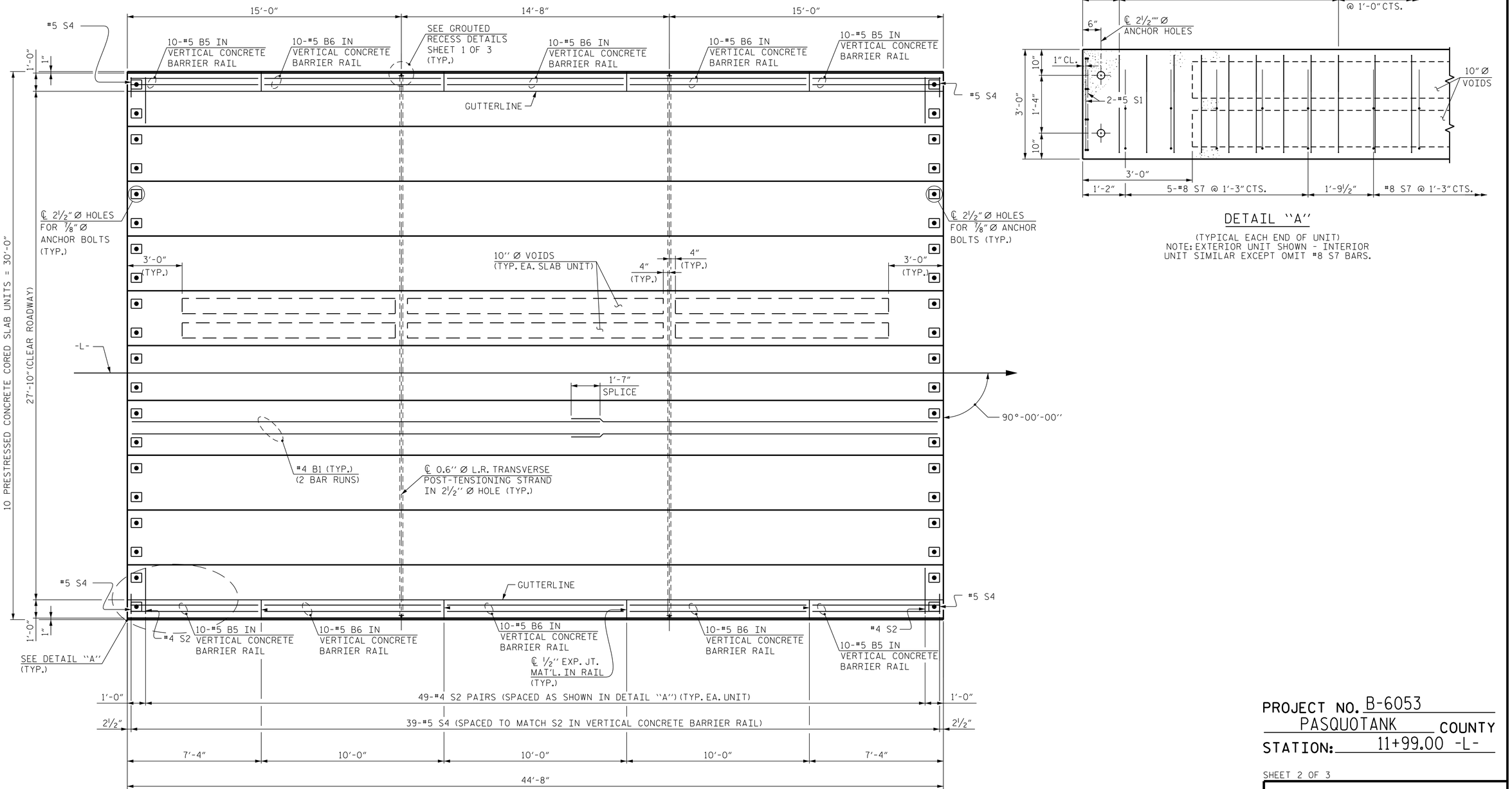
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT

REVISIONS								SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:			S-5
1			3					TOTAL SHEETS
2			4					18



PLAN OF UNIT

DETAIL "A"

(TYPICAL EACH END OF UNIT)
NOTE: EXTERIOR UNIT SHOWN - INTERIOR UNIT SIMILAR EXCEPT OMIT #8 S7 BARS.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

PLAN OF SPAN A
27'-10" CLEAR ROADWAY
90° SKEW

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Docusigned by:
4/13/2021

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-6
1			3			TOTAL SHEETS
2			4			18

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DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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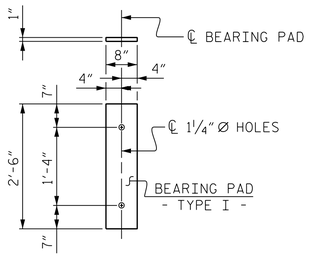


FIXED END

(TYPE I - 20 REQ'D)

ELASTOMERIC BEARING DETAILS

ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

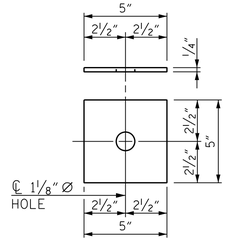


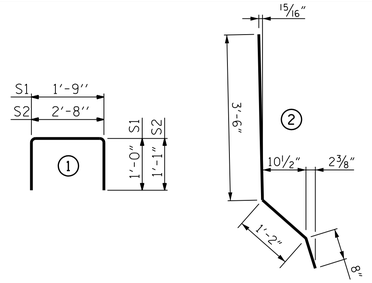
PLATE ''P1'' DETAILS

(40 REQUIRED)

BILL OF MATERIAL FOR ONE 44'-8" CORED SLAB UNIT

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	4	#4	STR.	23'-0"	61	23'-0"	61
B2	136	#4	STR.	2'-8"	242	2'-8"	242
S1	8	#5	1	3'-9"	31	3'-9"	31
S2	98	#4	1	4'-10"	316	4'-10"	316
✳S7	68	#8	2	5'-4"	968		
REINFORCING STEEL LBS.					650		650
✳EPOXY COATED REINFORCING STEEL LBS.					968		
6,500 P.S.I. CONCRETE CU. YDS.					5.6		5.6
0.6" Ø L.R. STRANDS No.					15		15

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

NOTES:

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

CORED SLABS SHALL BE POST TENSIONED PRIOR TO SETTING IN PLACE VERTICAL CONCRETE BARRIER RAIL.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2½" Ø ANCHOR HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE BACKER RODS SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, AN INTERNAL HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDEWAYS. AT LEAST SIX WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THE ANCHOR BOLTS. PAYMENT AT THE CONTRACT UNIT PRICES FOR THE VARIOUS PAY ITEM WILL BE FULL COMPENSATION FOR ALL MATERIALS, EQUIPMENT, TOOLS, LABOR AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.

ALL REINFORCING STEEL IN THE VERTICAL CONCRETE BARRIER RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

FLAME CUTTING OF THE TRANSVERSE POST-TENSIONING STRAND IS NOT ALLOWED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN THE REQUIRED STRENGTH SHOWN IN THE ''CONCRETE RELEASE STRENGTH'' TABLE.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE PERMITTED THREADED INSERTS ARE DETAILED AS AN OPTION FOR THE CONTRACTOR TO ATTACH FALSEWORK AND FORMWORK DURING CONSTRUCTION.

THE PERMITTED THREADED INSERTS IN THE EXTERIOR UNITS SHALL BE SIZED BY THE CONTRACTOR, SPACED AT 4'-0" CENTERS AND GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS. STAINLESS STEEL THREADED INSERTS MAY BE USED AS AN ALTERNATE.

THE PERMITTED THREADED INSERTS SHALL BE GROUTED BY THE CONTRACTOR IMMEDIATELY FOLLOWING REMOVAL OF THE FALSEWORK.

THE COST OF THE PERMITTED THREADED INSERTS SHALL BE INCLUDED IN THE PRICE BID FOR THE PRECAST UNITS.

GUTTERLINE ASPHALT THICKNESS & RAIL HEIGHT

	ASPHALT OVERLAY THICKNESS	RAIL HEIGHT
	@ MID-SPAN	@ MID-SPAN
44'-8" UNITS	3"	3'-9"

CORED SLABS REQUIRED

	NUMBER	LENGTH	TOTAL LENGTH
44'-8" UNIT			
EXTERIOR C.S.	2	44'-8"	89'-4"
INTERIOR C.S.	8	44'-8"	357'-4"
TOTAL	10		446'-8"

CONCRETE RELEASE STRENGTH

UNIT	PSI
44'-8" UNITS	5,000

DEAD LOAD DEFLECTION AND CAMBER

	3'-0" x 1'-6"
44'-8" CORED SLAB UNIT	0.6" Ø L.R. STRAND
CAMBER (SLAB ALONE IN PLACE)	15/16" ↑
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD**	7/16" ↓
FINAL CAMBER	½" ↑

** INCLUDES FUTURE WEARING SURFACE

GRADE 270 STRANDS

	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

PROJECT NO. B-6053

PASQUOTANK COUNTY

STATION: 11+99.00 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE

3'-0" X 1'-6"
PRESTRESSED CONCRETE
CORED SLAB UNIT
90° SKEW

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2			4			18

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NORTH CAROLINA PROFESSIONAL SEAL 49850 ENGINEER ONDINE J. PAITEL

DocuSigned by: Ondine J. Paitel

4/13/2021

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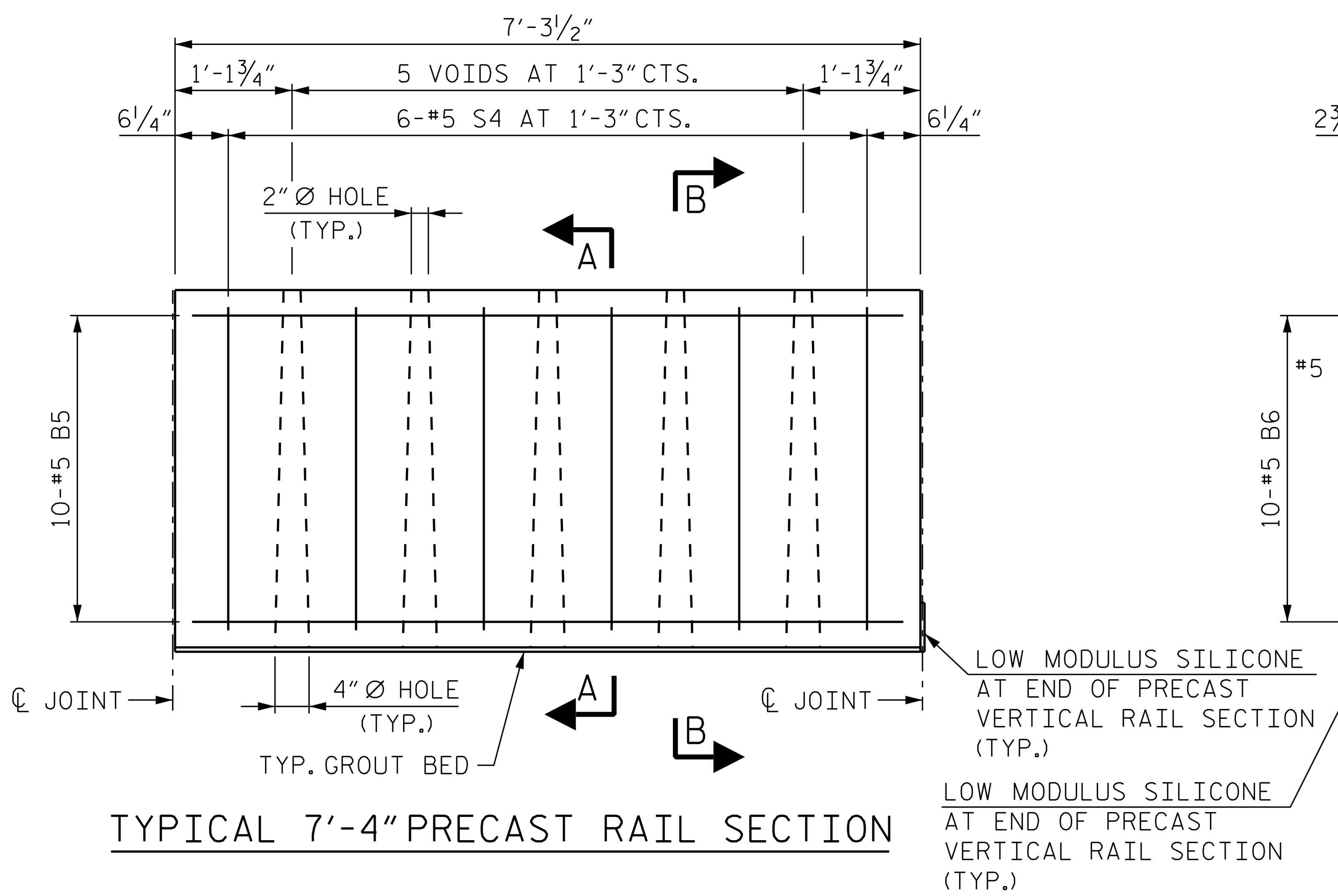
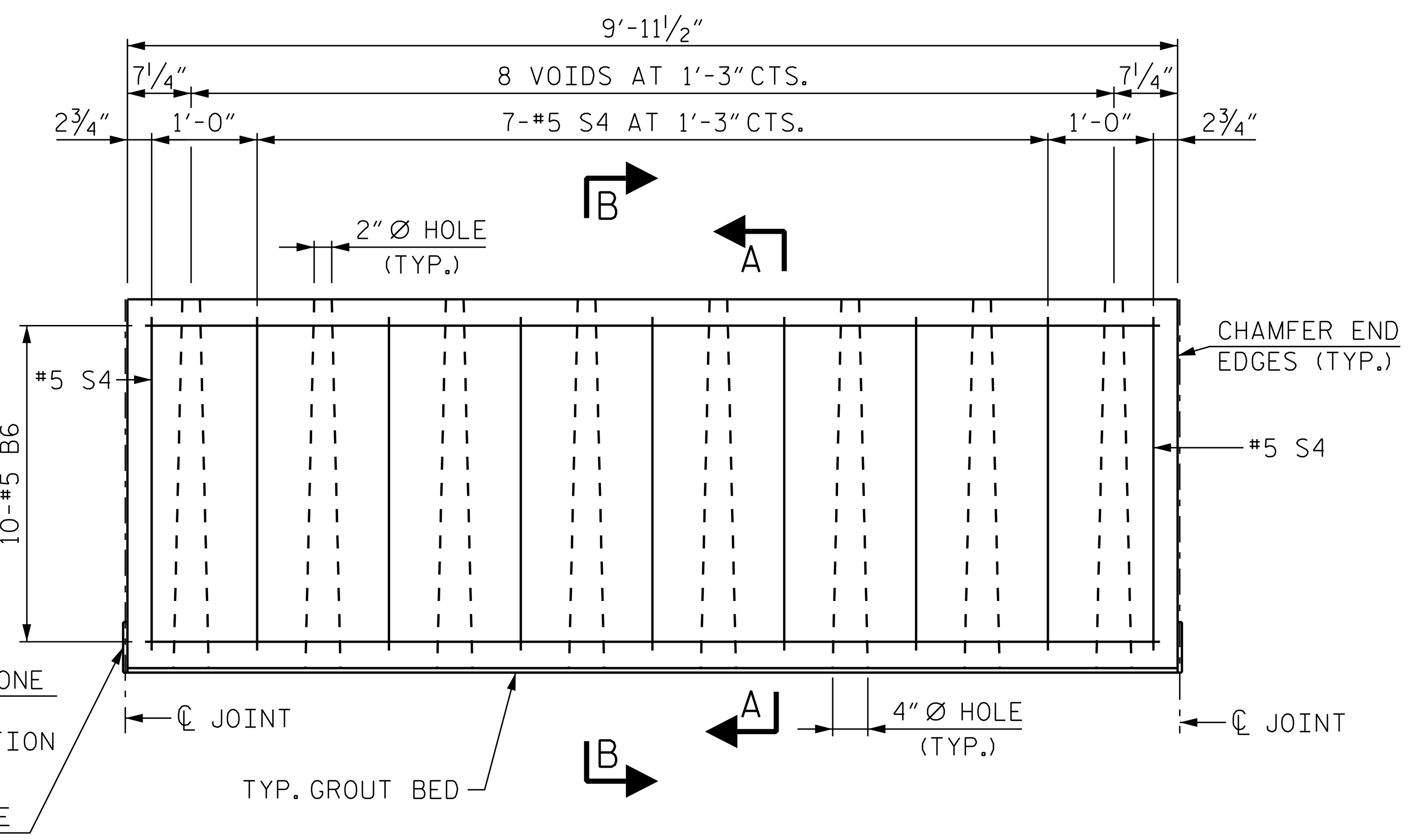
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

tboyd
4/13/2021 R:\Structures\DGN\FINAL\690034_SD_CS_A2.dgn



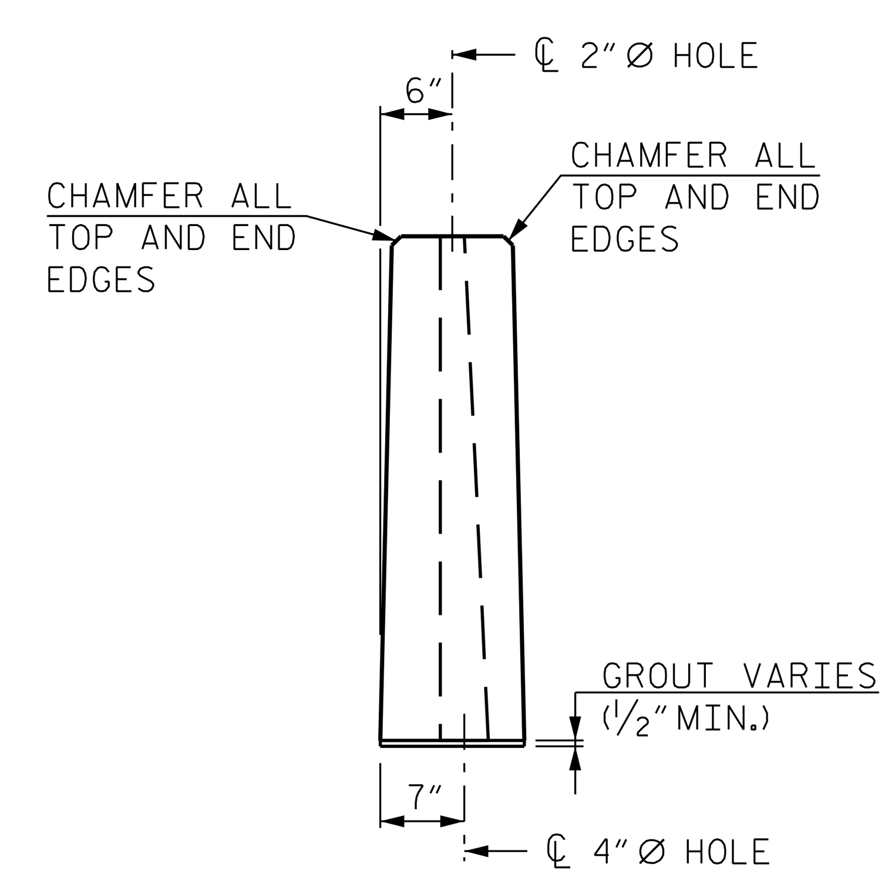
TYPICAL 7'-4" PRECAST RAIL SECTION



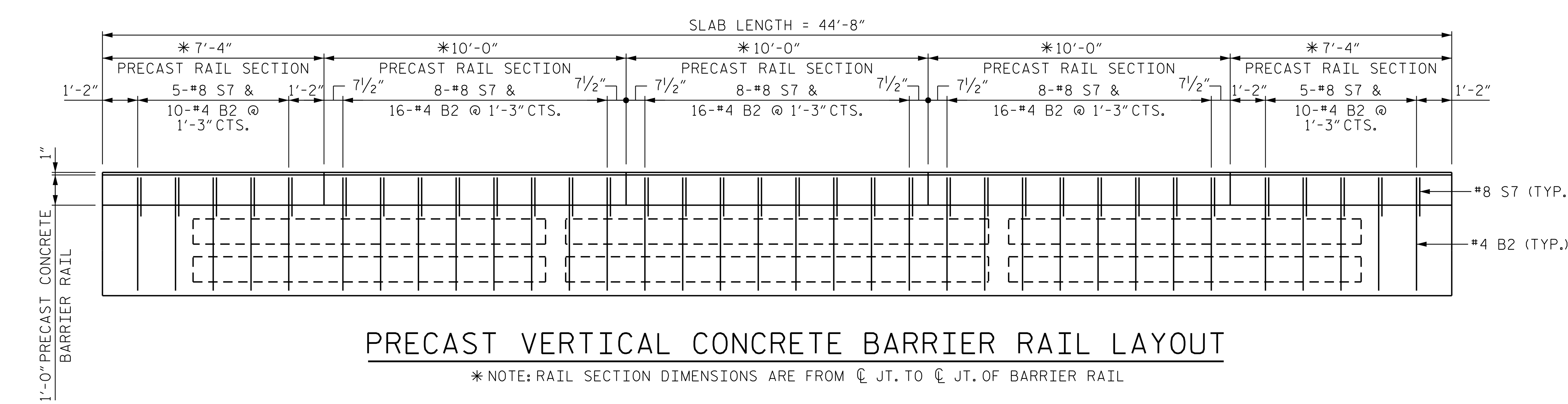
TYPICAL 10'-0" PRECAST RAIL SECTION

BILL OF MATERIAL					
FOR ONE 7'-4" PRECAST RAIL SECTION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S4	6	#5	1	7'-2"	45
* B5	10	#5	STR.	6'-11"	72
EPOXY COATED REINFORCING STEEL					117 LBS.
CLASS AA CONCRETE					0.9 CU. YDS.

BILL OF MATERIAL					
FOR ONE 10'-0" PRECAST RAIL SECTION					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
* S4	9	#5	1	7'-2"	67
* B6	10	#5	STR.	9'-6"	99
EPOXY COATED REINFORCING STEEL					166 LBS.
CLASS AA CONCRETE					1.2 CU. YDS.



SECTION B-B



PRECAST VERTICAL CONCRETE BARRIER RAIL LAYOUT

* NOTE: RAIL SECTION DIMENSIONS ARE FROM ℄ JT. TO ℄ JT. OF BARRIER RAIL

NOTES:

THE BARRIER RAIL SHALL NOT BE SET IN PLACE UNTIL ALL SLAB CONCRETE IN THAT SPAN HAS BEEN POST TENSIONED AND GROUTED TOGETHER.

EACH PRECAST RAIL SECTION SHALL BE CAST WITH CLASS AA (4500 PSI) CONCRETE.

PRECAST RAIL SECTION PIECES TO BE FLUSH WITH CORED SLAB UNITS AT EACH END OF SPAN.

EACH PRECAST RAIL SECTION PIECE SHALL BE SUPPLIED WITH LIFTING DEVICE(S). NO CABLES ARE TO BE WRAPPED AROUND THE PIECES FOR LIFTING.

THE EXPANSION JOINT SEALER SHALL BE LOW MODULUS SILICONE SEALANT. SEE SECTION 1028-4 OF THE STANDARD SPECIFICATIONS.

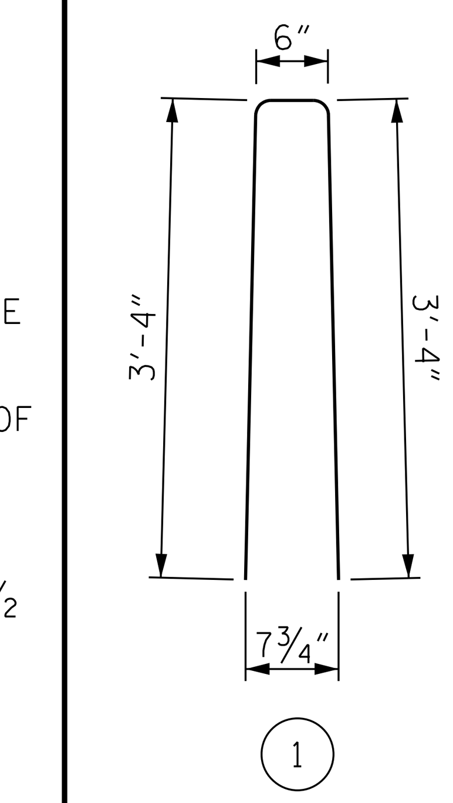
CONCRETE CHAMFERS:
UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON THE STRUCTURES SHALL BE CHAMFERED ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS: CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE ON PLANS.

GROUT SHALL BE 5" ABOVE GROUT BED BETWEEN PRECAST RAIL SECTION PIECES.

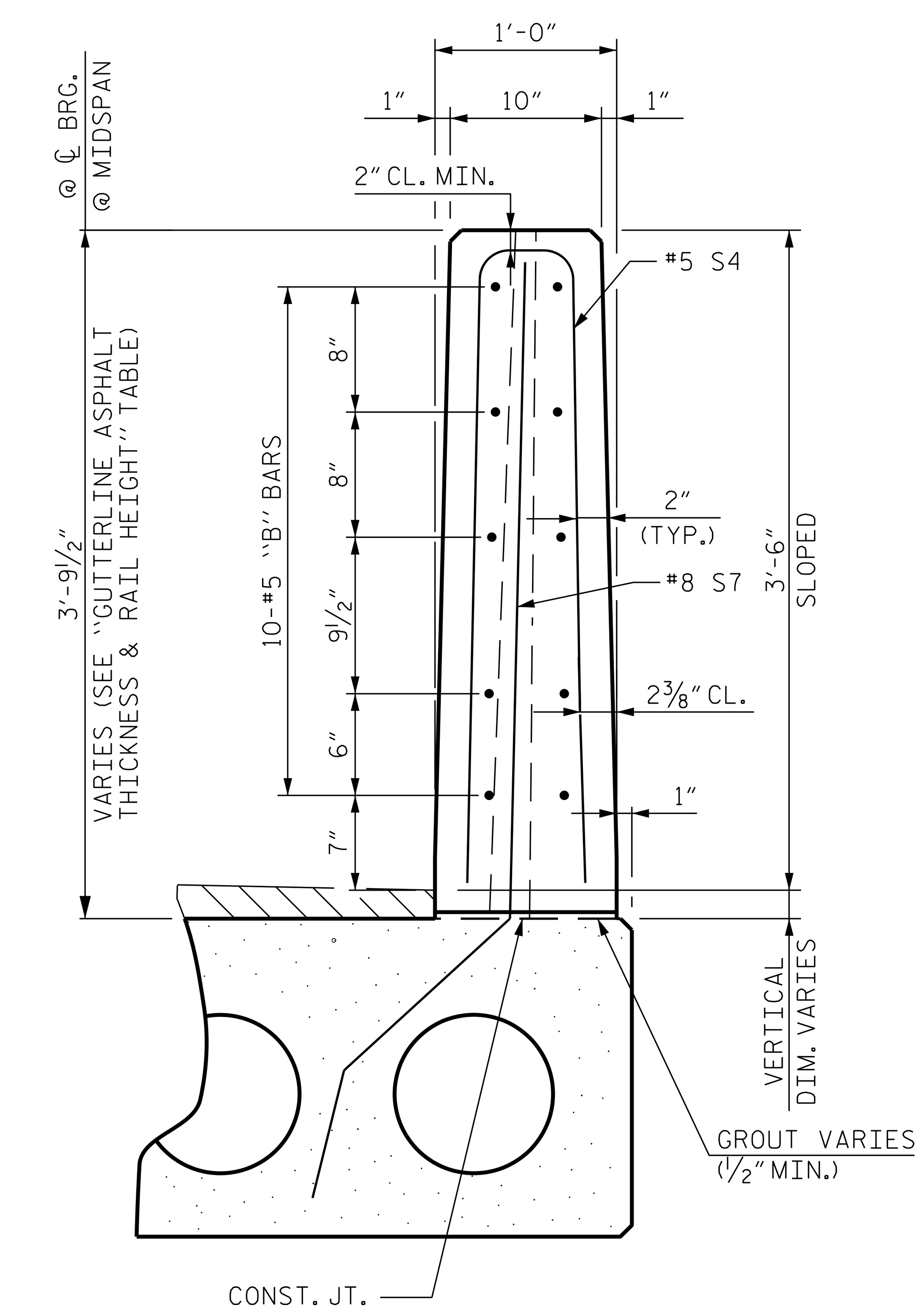
ALL REINFORCING BARS IN THE PRECAST RAIL SECTION PIECES SHALL BE EPOXY COATED.

SEE PROJECT SPECIAL PROVISION, "PRECAST VERTICAL CONCRETE BARRIER RAIL."

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT



SECTION A-A

PRECAST VERTICAL CONCRETE BARRIER RAIL SECTION

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUPERSTRUCTURE
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TOTAL SHEETS 18

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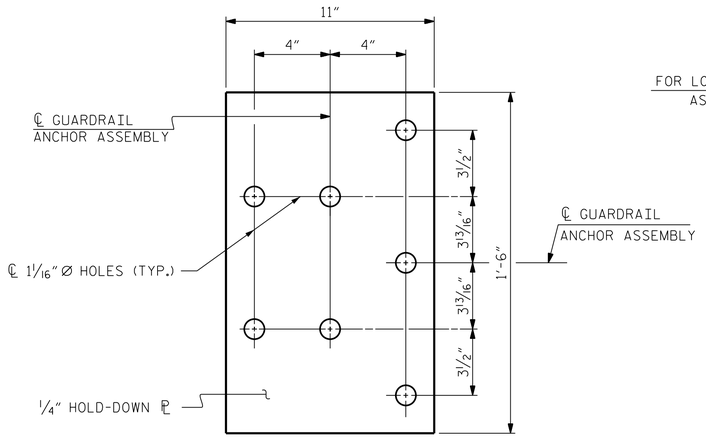
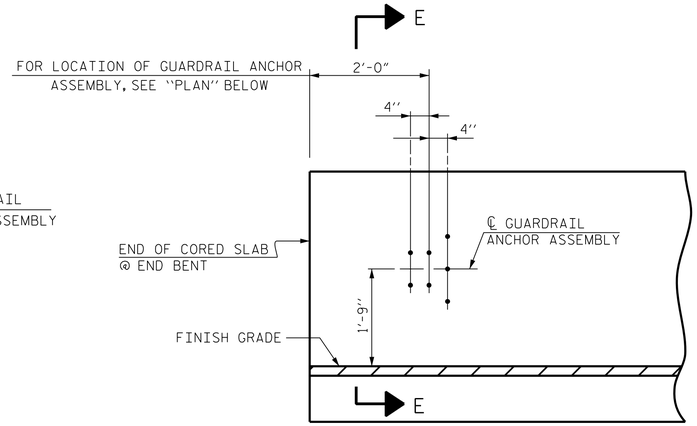


PLAN



ELEVATION

NOTES:

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. (AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS 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.)

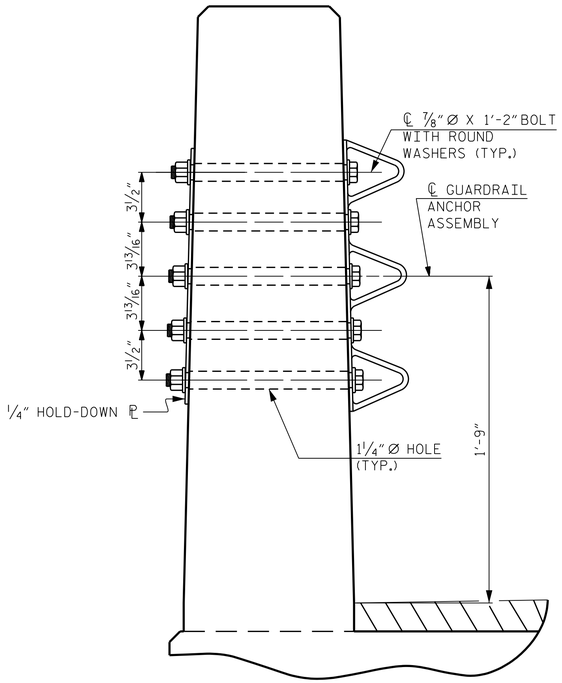
THE GUARDRAIL ANCHOR ASSEMBLY IS REQUIRED AT ALL POINTS WHERE APPROACH GUARDRAIL IS TO BE ATTACHED TO THE END OF BARRIER RAIL. FOR POINTS OF ATTACHMENT, SEE SKETCH.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

THE COST OF THE GUARDRAIL ANCHOR ASSEMBLY SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR VERTICAL CONCRETE BARRIER RAIL.

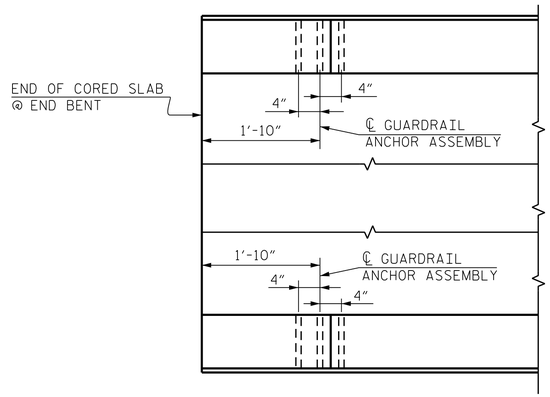
THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE VERTICAL CONCRETE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

THE 1 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



SECTION E-E

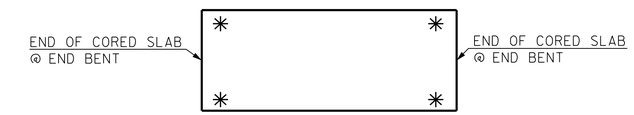
GUARDRAIL ANCHOR ASSEMBLY DETAILS



PLAN

LOCATION OF ANCHORS FOR GUARDRAIL

END BENT #1 SHOWN, END BENT #2 SIMILAR.



SKETCH SHOWING POINTS OF ATTACHMENT

✳ DENOTES GUARDRAIL ANCHOR ASSEMBLY

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
GUARDRAIL ANCHORAGE DETAILS FOR VERTICAL CONCRETE BARRIER RAILS

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1			3			TOTAL SHEETS
2			4			18

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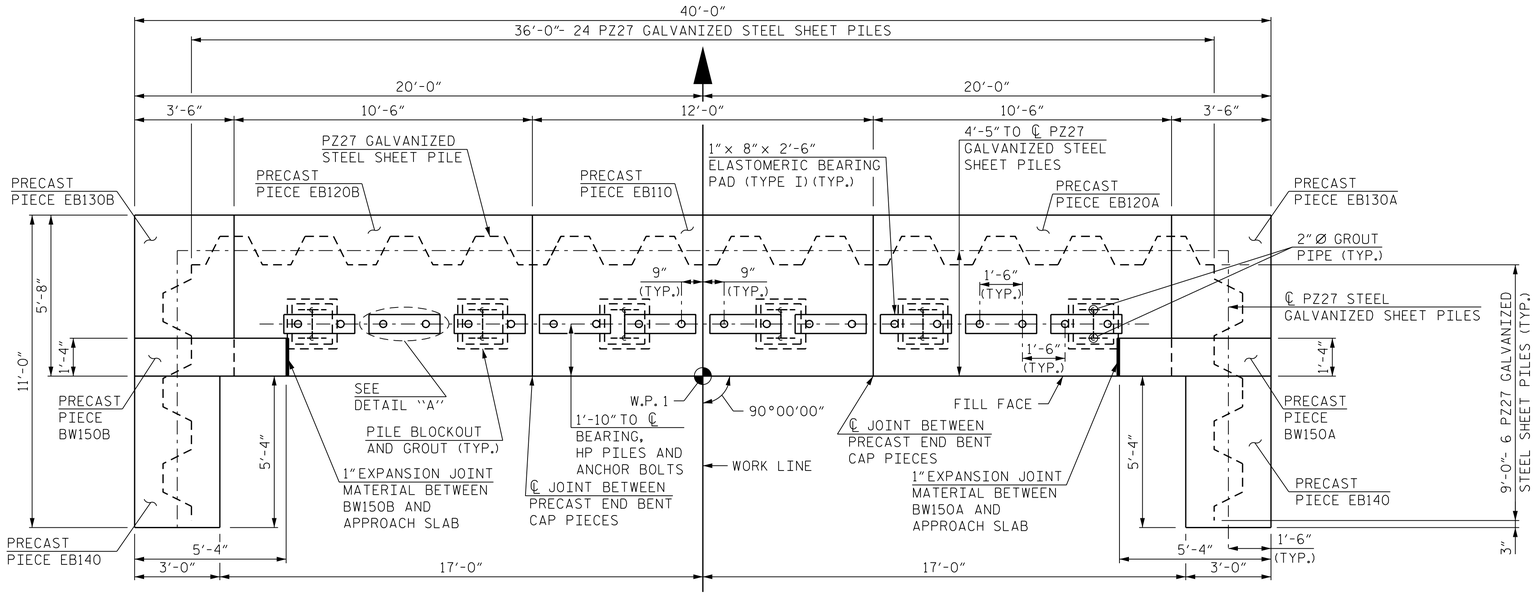
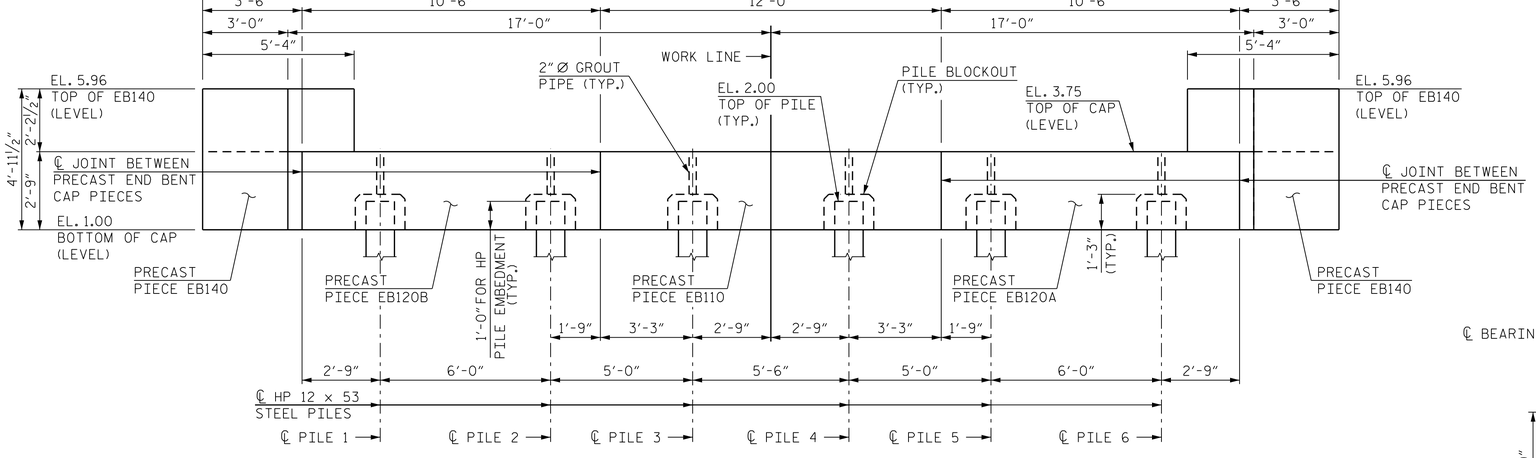
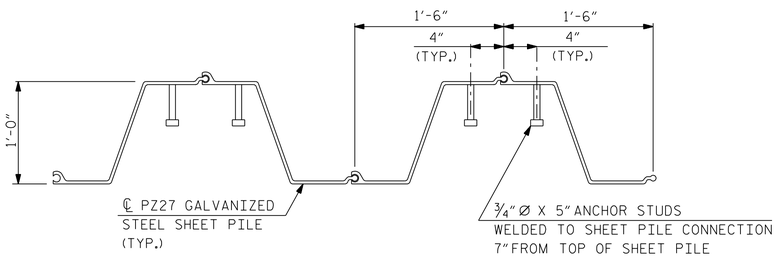


PLAN

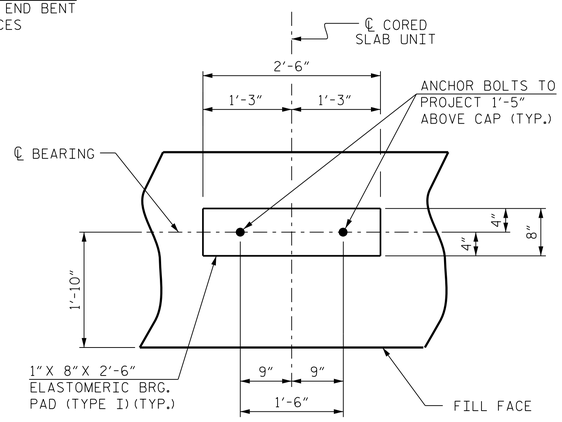


ELEVATION

PZ27 GALVANIZED STEEL SHEET PILES AND NOT SHOWN FOR CLARITY.



SHEET PILE ANCHOR STUD DETAILS



DETAIL "A"

NOTES:

THE FILL FACE OF THE CAP, BACKWALL, AND WINGWALL PIECES SHALL BE LINED WITH GEOTEXTILE FABRIC.

SEE PRECAST PIECE EB110 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB120 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB130 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB140 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE BW150 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

THE MINIMUM REQUIRED SOIL BEARING CAPACITY FOR SOIL BENEATH CAP PIECES AND WING PIECES SHALL BE 2,000 POUNDS PER SQUARE FOOT.

THE GROUT USED TO FILL THE PILE BLOCKOUTS SHALL BE 4,000 POUNDS PER SQUARE INCH AFTER CURING FOR 2 DAYS MINIMUM. SEE PROJECT SPECIAL PROVISION, "GROUT FOR PILE BLOCKOUTS."

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A METHOD TO SUPPORT THE PRECAST CAP IN THE PROPER LOCATION AND ELEVATION AS SHOWN ON THE PLANS PRIOR TO PLACEMENT OF AND CURING OF THE GROUT IN THE PILE BLOCKOUTS. THE METHOD CHOSEN SHALL PROVIDE A WATERTIGHT SEAL AT THE BOTTOM OF THE CAP SO NO GROUT COMES IN CONTACT WITH THE STREAM UNTIL THE GROUT HAS HARDENED.

STIRRUPS IN PRECAST CAP PIECES MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS AND GROUT PIPES.

ALL REINFORCING STEEL CAST WITHIN THE END BENT CAP SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE INDIVIDUAL PRECAST PIECES.

PROJECT NO. B-6053

PASQUOTANK COUNTY

STATION: 11+99.00 -L-

SHEET 1 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
END BENT 1
PLAN AND ELEVATION

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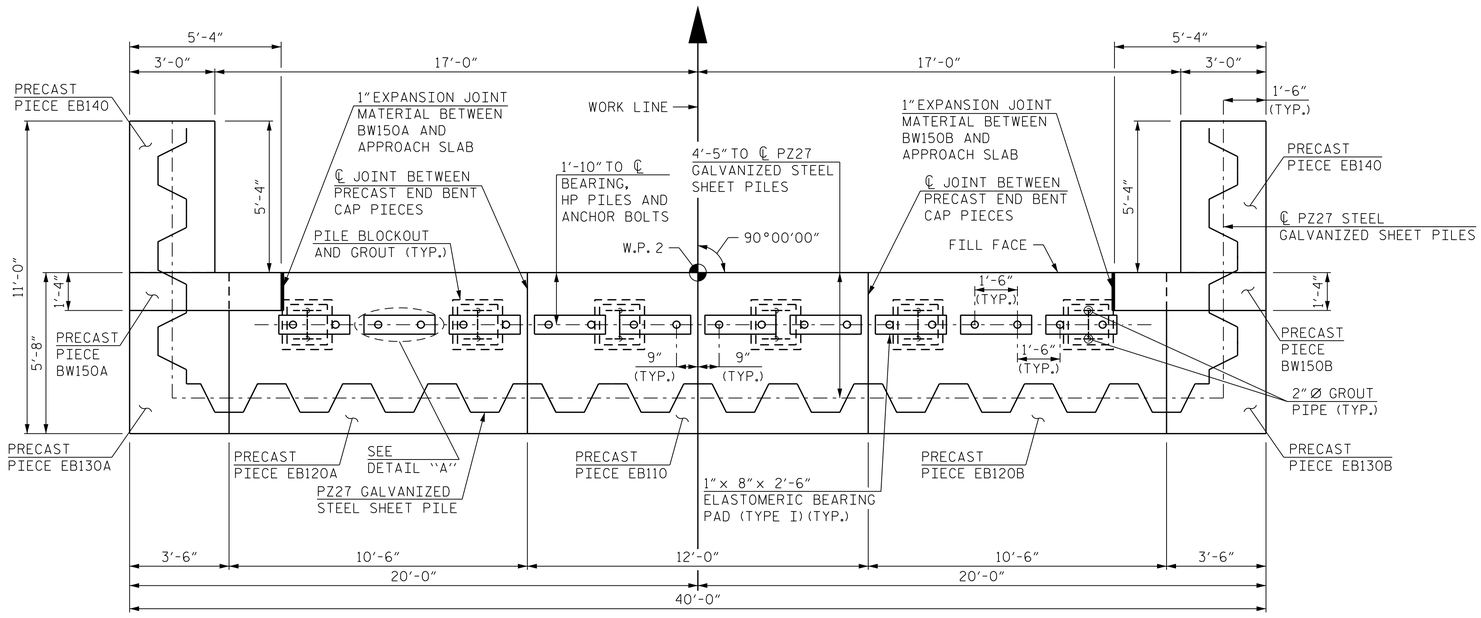
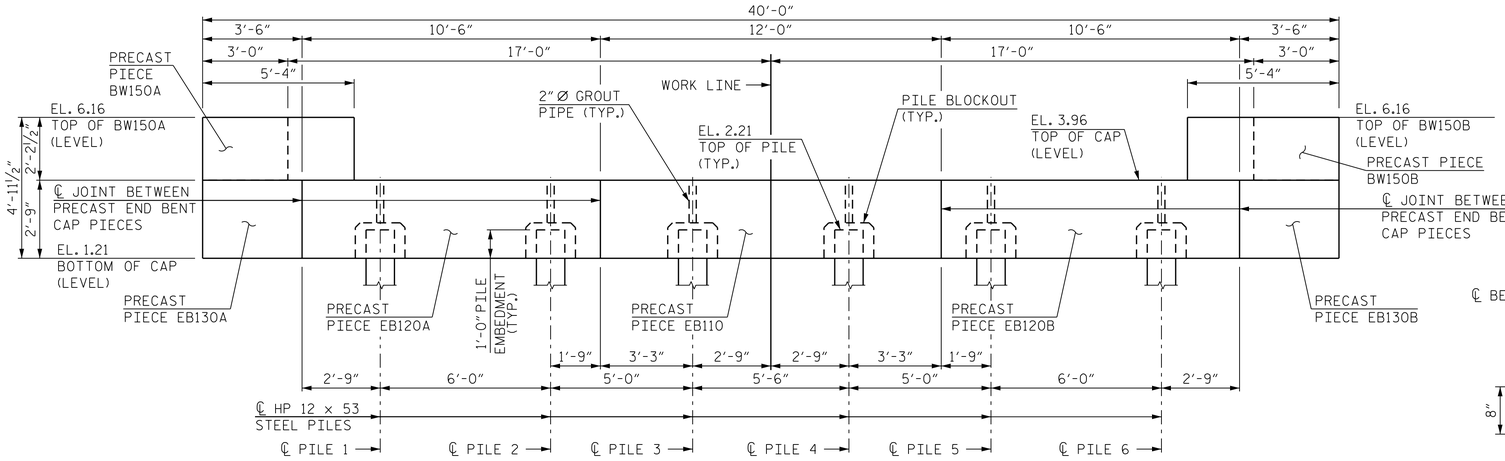
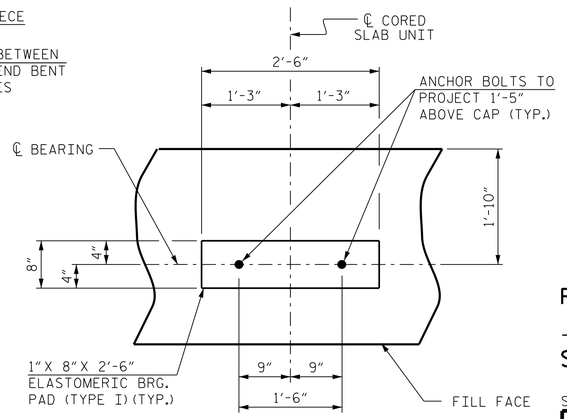


PLAN

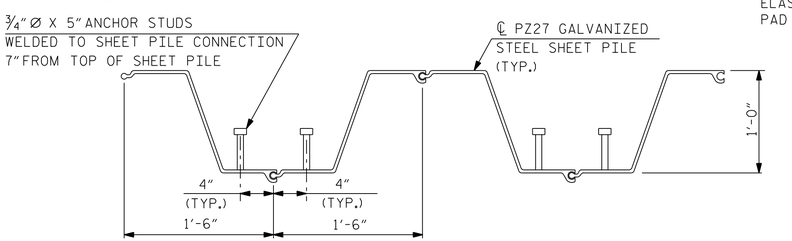


ELEVATION

PZ27 GALVANIZED STEEL SHEET PILES NOT SHOWN FOR CLARITY.



DETAIL "A"



SHEET PILE ANCHOR STUD DETAILS

NOTES:

THE FILL FACE OF THE CAP, BACKWALL, AND WINGWALL PIECES SHALL BE LINED WITH GEOTEXTILE FABRIC.

SEE PRECAST PIECE EB110 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB120 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB130 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE EB140 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

SEE PRECAST PIECE BW150 SHEET FOR DETAILS, NOTES, AND BILL OF MATERIAL.

THE MINIMUM REQUIRED SOIL BEARING CAPACITY FOR SOIL BENEATH CAP PIECES AND WING PIECES SHALL BE 2,000 POUNDS PER SQUARE FOOT.

THE GROUT USED TO FILL THE PILE BLOCKOUTS SHALL BE 4,000 POUNDS PER SQUARE INCH AFTER CURING FOR 2 DAYS MINIMUM. SEE PROJECT SPECIAL PROVISION, "GROUT FOR PILE BLOCKOUTS."

THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A METHOD TO SUPPORT THE PRECAST CAP IN THE PROPER LOCATION AND ELEVATION AS SHOWN ON THE PLANS PRIOR TO PLACEMENT OF AND CURING OF THE GROUT IN THE PILE BLOCKOUTS. THE METHOD CHOSEN SHALL PROVIDE A WATERTIGHT SEAL AT THE BOTTOM OF THE CAP SO NO GROUT COMES IN CONTACT WITH THE STREAM UNTIL THE GROUT HAS HARDENED.

STIRRUPS IN PRECAST CAP PIECES MAY BE SHIFTED AS NECESSARY TO CLEAR ANCHORS AND GROUT PIPES.

ALL REINFORCING STEEL CAST WITHIN THE END BENT CAP SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE INDIVIDUAL PRECAST PIECES.

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PASQUOTANK COUNTY
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SHEET 2 OF 7

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Docusigned by: Ordine Paitel
4/13/2021

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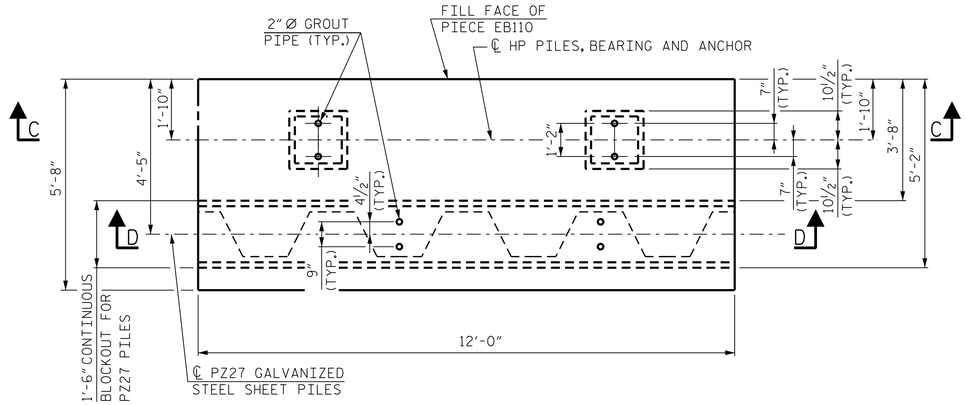
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

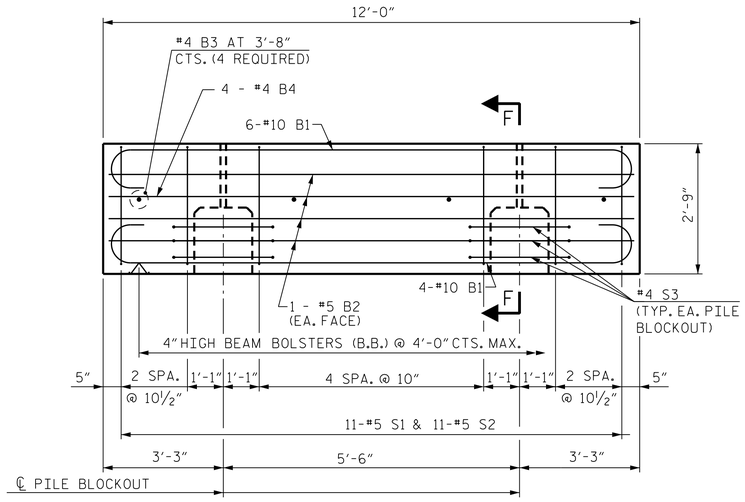
SUBSTRUCTURE
END BENT 2
PLAN AND ELEVATION

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11
1			3			TOTAL SHEETS
2			4			18

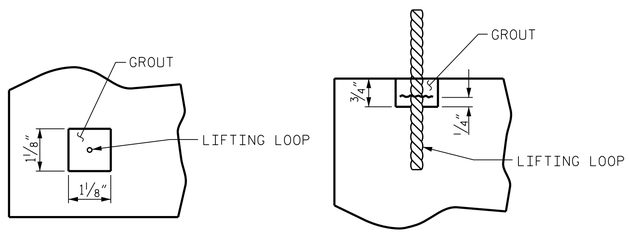
tboyd
4/13/2021 R:\Structures\DGN\FINAL\6900034_SD_EB2.dgn



PLAN - PRECAST PIECE EB110



SECTION C-C: ELEVATION - PRECAST PIECE EB110 ALONG ℄ HP 12x53 STEEL SHEET PILES



GROUTED RECESS FOR LIFTING LOOPS

LIFTING LOOPS TO BE CUT ¼" ABOVE BOTTOM OF RECESS.

NOTES:

STIRRUPS IN PRECAST PIECE EB110 MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND GROUT PIPES.

ALL REINFORCING STEEL AND BAR SUPPORTS SHALL BE EPOXY COATED ACCORDING TO THE STANDARD SPECIFICATIONS.

CLASS AA (4500 PSI) CONCRETE SHALL BE USED IN PRECAST PIECE EB110.

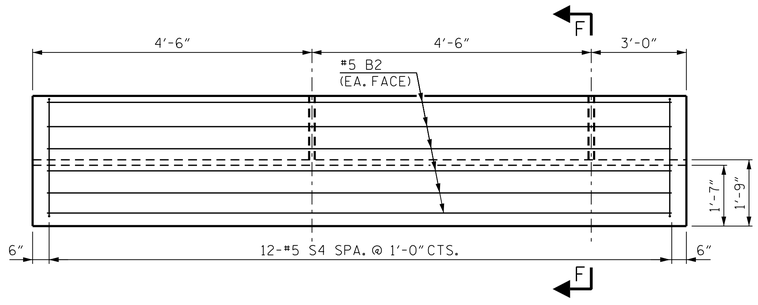
AT THE CONTRACTOR'S OPTION, ANCHOR BOLTS MAY BE ADHESIVELY ANCHORED. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED. SEE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. CORING DOWEL HOLES WILL NOT BE ALLOWED; THE CONTRACTOR SHALL USE A HAMMER DRILL.

TWO LIFTING LOOPS SHALL BE ALLOWED IN THE PRECAST PIECE IN ACCORDANCE WITH ARTICLE 1077-10 OF THE STANDARD SPECIFICATIONS WITH THE FOLLOWING ADDITIONS. THE LIFTING LOOPS SHALL BE BURNED OFF PRIOR TO PLACING THE ELASTOMERIC BEARING PADS. THE ENDS OF THE LIFTING LOOPS TO BE BURNED OFF SHALL BE RECESSED AND GROUTED. SEE DETAIL FOR GROUTED RECESS FOR LIFTING LOOPS. GROUT SHALL BE NON-METALLIC AND NON-SHRINK ACCORDING TO THE STANDARD SPECIFICATIONS. PROPOSED DEVICES FOR LIFTING LOOPS SHALL BE DETAILED IN SHOP DRAWINGS.

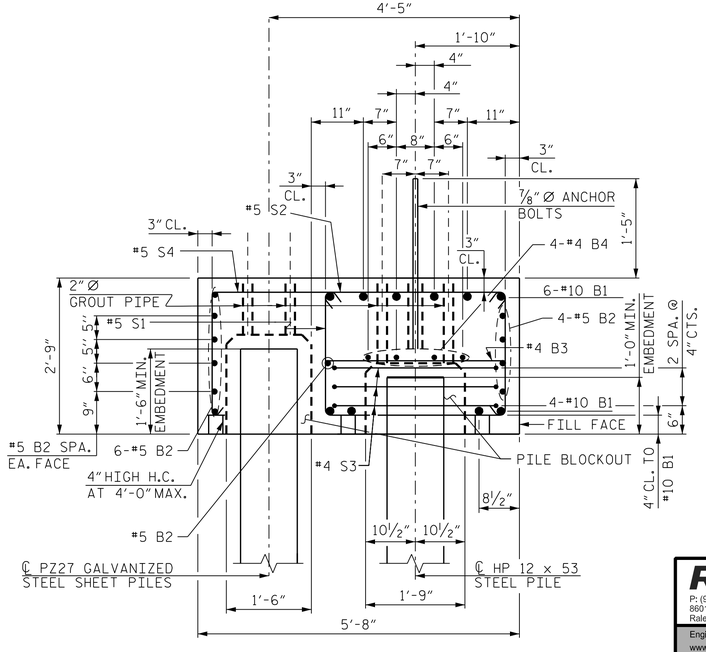
TWO 2 INCH Ø GROUT PIPES SHALL BE PROVIDED AT EACH HP PILE BLOCKOUT AND IN THE CONTINUOUS BLOCKOUT FOR PZ27 PILES, 2 PER PRECAST PIECE. THE 2 INCH Ø GROUT PIPES SHALL BE CUT FROM SCHEDULE 40 PVC PIPE.

THE TOP OF THE PILE BLOCKOUT SHALL BE CHAMFERED 2" ALL AROUND.

SEE PROJECT SPECIAL PROVISIONS FOR PRECAST PIECE EB110.

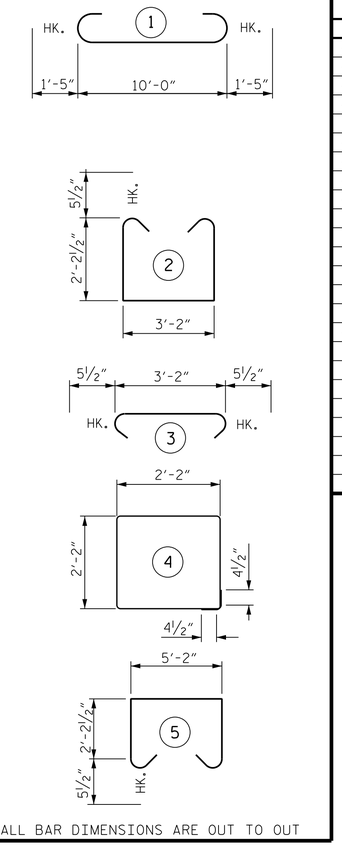


SECTION D-D: ELEVATION - PRECAST PIECE EB110 ALONG ℄ PZ27 STEEL GALVANIZED SHEET PILES



SECTION F-F

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIECE EB110

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱B1	10	10	1	14'-4"	617
✱B2	11	5	STR.	11'-6"	132
✱B3	4	4	STR.	3'-3"	9
✱B4	4	4	STR.	11'-6"	31
✱S1	11	5	2	8'-6"	98
✱S2	11	5	3	4'-1"	47
✱S3	6	4	4	5'-1"	20
✱S4	12	5	5	10'-6"	131

✱EPOXY COATED REINFORCING STEEL TOTAL 1,085 LBS.

CLASS AA (4500 PSI) CONCRETE 5.5 CU. YDS.

GROUT FOR PILE BLOCKOUTS 1.4 CU. YDS.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 3 OF 7

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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NORTH CAROLINA PROFESSIONAL SEAL 48850 ENGINEER ONDINE J. PAITEL
Docusigned by: Ondine Paitel
4/13/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
PRECAST PIECE EB110

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-12
1			3			TOTAL SHEETS
2			4			18

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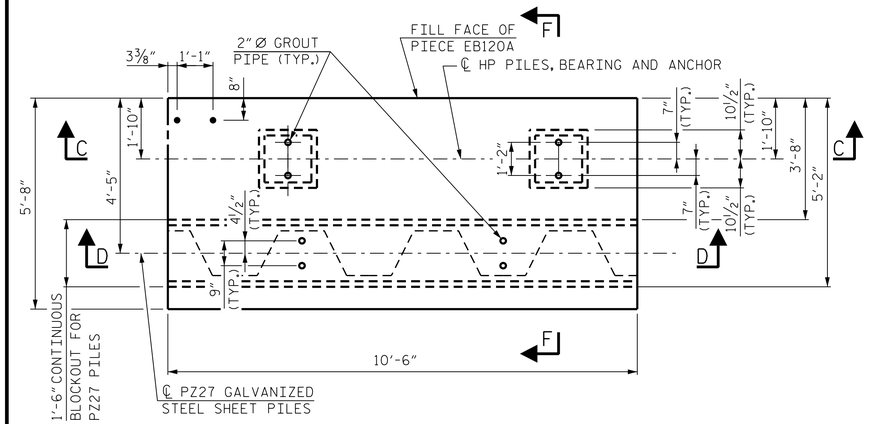
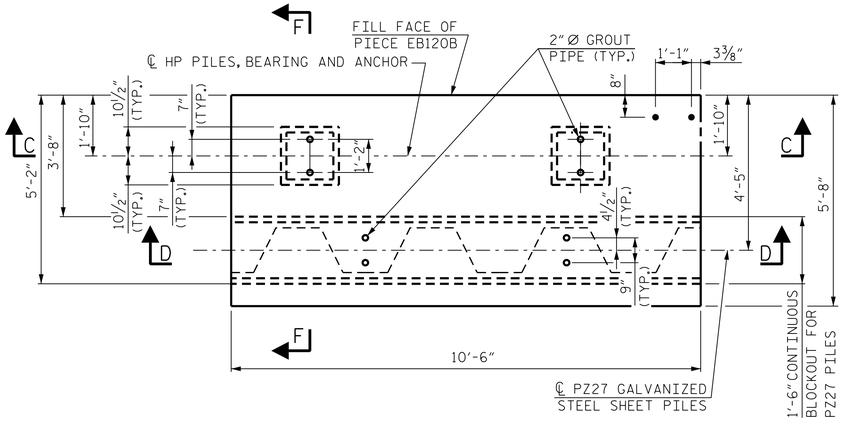
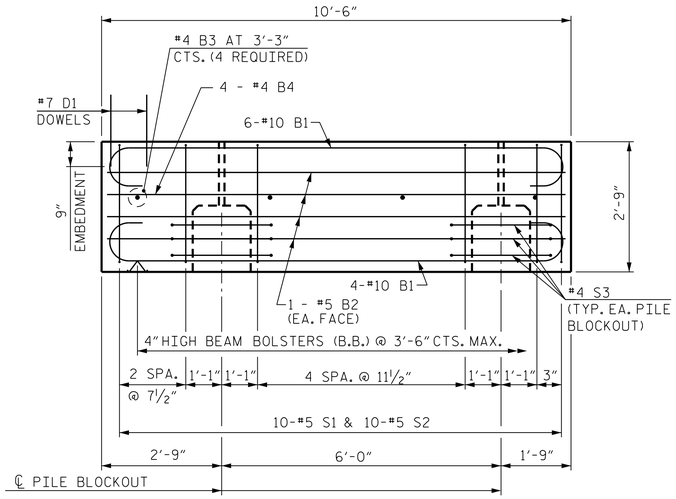
4/13/2021 R:\Structures\DGN\FINAL\6900034_SD_EB3.dgn



PLAN - PRECAST PIECE EB120A

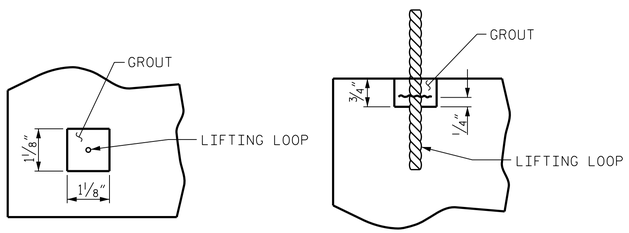


PLAN - PRECAST PIECE EB120B



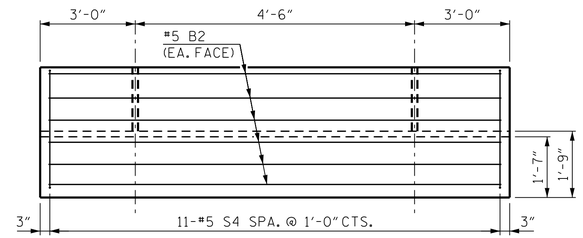
SECTION C-C: ELEVATION - PRECAST PIECE EB120 ALONG ℄ HP 12x53 STEEL SHEET PILES

(EB120A SHOWN, EB120B SIMILAR BY MIRROR)

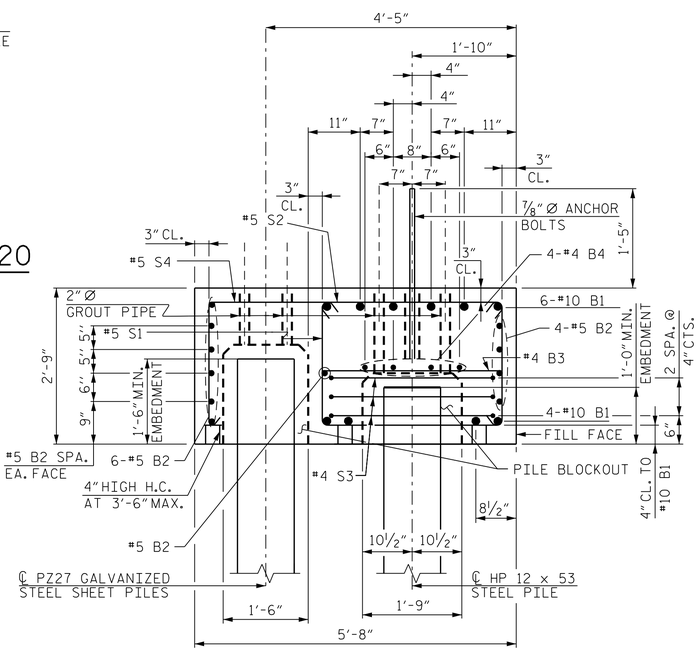


GROUTED RECESS FOR LIFTING LOOPS

LIFTING LOOPS TO BE CUT ¼" ABOVE BOTTOM OF RECESS.

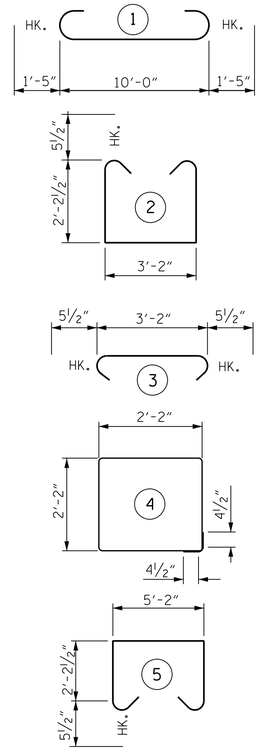


SECTION D-D: ELEVATION - PRECAST PIECE EB120 ALONG ℄ PZ27 STEEL GALVANIZED SHEET PILES



SECTION F-F

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIECE EB120

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱B1	10	10	1	12'-10"	552
✱B2	9	5	STR.	10'-0"	94
✱B3	4	4	STR.	3'-3"	9
✱B4	4	4	STR.	10'-0"	27
✱D1	2	7	STR.	2'-0"	8
✱S1	10	5	2	8'-6"	89
✱S2	10	5	3	4'-1"	43
✱S3	6	4	4	5'-1"	20
✱S4	11	5	5	10'-6"	120

✱EPOXY COATED REINFORCING STEEL
TOTAL 962 LBS.

CLASS AA (4500 PSI) CONCRETE 4.8 CU. YDS.

GROUT FOR PILE BLOCKOUTS 1.3 CU. YDS.

NOTES:

STIRRUPS IN PRECAST PIECE EB120 MAY BE SHIFTED AS NECESSARY TO CLEAR DOWELS AND GROUT PIPES.

ALL REINFORCING STEEL AND BAR SUPPORTS SHALL BE EPOXY COATED ACCORDING TO THE STANDARD SPECIFICATIONS.

CLASS AA (4500 PSI) CONCRETE SHALL BE USED IN PRECAST PIECE EB120.

AT THE CONTRACTOR'S OPTION, ANCHOR BOLTS MAY BE ADHESIVELY ANCHORED. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED. SEE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. CORING DOWEL HOLES WILL NOT BE ALLOWED; THE CONTRACTOR SHALL USE A HAMMER DRILL.

TWO LIFTING LOOPS SHALL BE ALLOWED IN THE PRECAST PIECE IN ACCORDANCE WITH ARTICLE 1077-10 OF THE STANDARD SPECIFICATIONS WITH THE FOLLOWING ADDITIONS. THE LIFTING LOOPS SHALL BE BURNED OFF PRIOR TO PLACING THE ELASTOMERIC BEARING PADS. THE ENDS OF THE LIFTING LOOPS TO BE BURNED OFF SHALL BE RECESSED AND GROUTED. SEE DETAIL FOR GROUTED RECESS FOR LIFTING LOOPS. GROUT SHALL BE NON-METALLIC AND NON-SHRINK ACCORDING TO THE STANDARD SPECIFICATIONS. PROPOSED DEVICES FOR LIFTING LOOPS SHALL BE DETAILED IN SHOP DRAWINGS.

TWO 2 INCH Ø GROUT PIPES SHALL BE PROVIDED AT EACH HP PILE BLOCKOUT AND IN THE CONTINUOUS BLOCKOUT FOR PZ27 PILES, 2 PER PRECAST PIECE. THE 2 INCH Ø GROUT PIPES SHALL BE CUT FROM SCHEDULE 40 PVC PIPE.

THE TOP OF THE PILE BLOCKOUT SHALL BE CHAMFERED 2" ALL AROUND.

SEE PROJECT SPECIAL PROVISIONS FOR PRECAST PIECE EB120.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 4 OF 7

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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DocuSigned by: Ondine Paitel
4/13/2021

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
PRECAST PIECE EB120

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-13
1			3			TOTAL SHEETS
2			4			18

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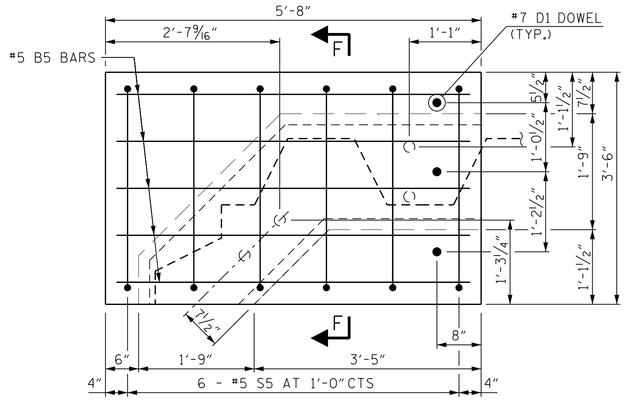
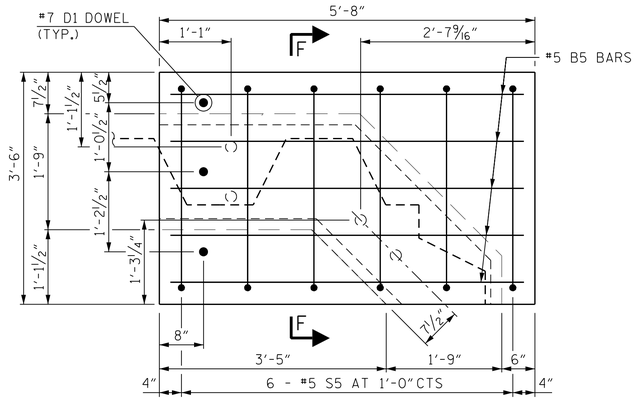
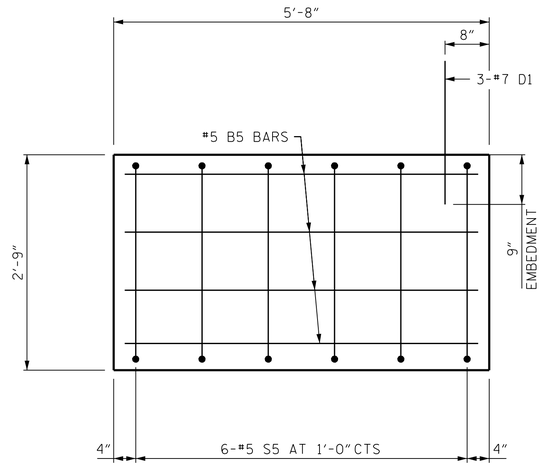
4/13/2021 R:\Structures\DGN\FINAL\690034_SD_EB4.dgn



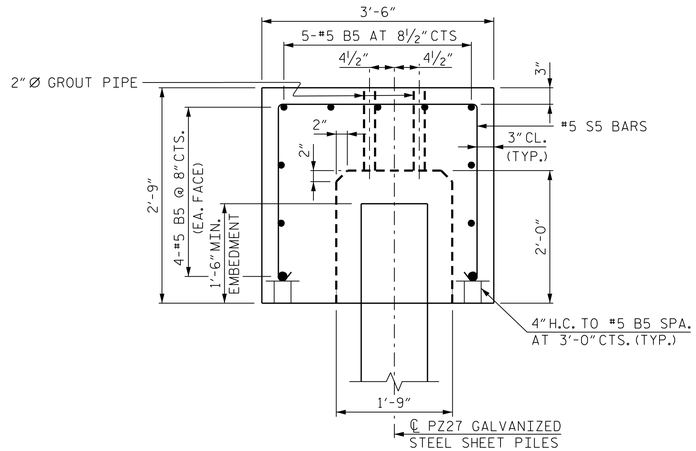
PLAN - PRECAST PIECE EB130A



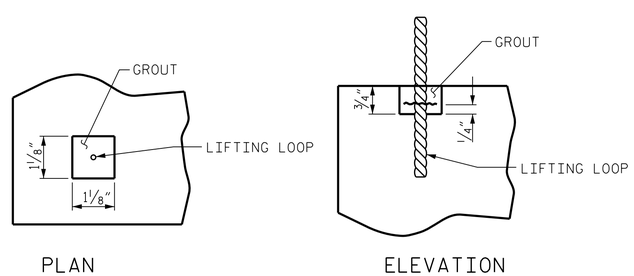
PLAN - PRECAST PIECE EB130B



ELEVATION - PRECAST PIECE EB130



SECTION F-F

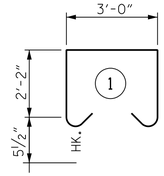


PLAN ELEVATION

GROUTED RECESS FOR LIFTING LOOPS

LIFTING LOOPS TO BE CUT 1/4" ABOVE BOTTOM OF RECESS.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIECE EB130

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B5	11	5	STR.	5'-0"	57
✳D1	3	7	STR.	2'-0"	12
✳S5	6	5	1	7'-9"	48

✳EPOXY COATED REINFORCING STEEL

TOTAL 117 LBS.

CLASS AA (4500 PSI) CONCRETE 1.3 CU. YDS.

GROUT FOR PILE BLOCKOUTS 0.7 CU. YDS.

NOTES:

STIRRUPS IN PRECAST PIECE EB130 MAY BE SHIFTED AS NECESSARY TO CLEAR GROUT PIPES.

ALL REINFORCING STEEL AND BAR SUPPORTS SHALL BE EPOXY COATED ACCORDING TO THE STANDARD SPECIFICATIONS.

CLASS AA (4500 PSI) CONCRETE SHALL BE USED IN PRECAST PIECE EB130.

AT THE CONTRACTOR'S OPTION, #7 D1 DOWELS MAY BE ADHESIVELY ANCHORED. FIELD TESTING OF THE ADHESIVE BONDING SYSTEM IS NOT REQUIRED. SEE STANDARD SPECIFICATIONS FOR ADHESIVELY ANCHORED ANCHOR BOLTS OR DOWELS. CORING DOWEL HOLES WILL NOT BE ALLOWED: THE CONTRACTOR SHALL USE A HAMMER DRILL.

TWO LIFTING LOOPS SHALL BE ALLOWED IN THE PRECAST PIECE IN ACCORDANCE WITH ARTICLE 1077-10 OF THE STANDARD SPECIFICATIONS WITH THE FOLLOWING ADDITIONS. THE LIFTING LOOPS SHALL BE BURNED OFF PRIOR TO PLACING THE ELASTOMERIC BEARING PADS. THE ENDS OF THE LIFTING LOOPS TO BE BURNED OFF SHALL BE RECESSED AND GROUTED. SEE DETAIL FOR GROUTED RECESS FOR LIFTING LOOPS. GROUT SHALL BE NON-METALLIC AND NON-SHRINK ACCORDING TO THE STANDARD SPECIFICATIONS. PROPOSED DEVICES FOR LIFTING LOOPS SHALL BE DETAILED IN SHOP DRAWINGS.

TWO 2 INCH Ø GROUT PIPES SHALL BE PROVIDED IN THE CONTINUOUS BLOCKOUT FOR PZ27 PILES, 2 SET PER PRECAST PIECE. THE 2 INCH Ø GROUT PIPES SHALL BE CUT FROM SCHEDULE 40 PVC PIPE.

THE TOP OF THE PILE BLOCKOUT SHALL BE CHAMFERED 2" ALL AROUND.

SEE PROJECT SPECIAL PROVISIONS FOR PRECAST PIECE EB130.

PROJECT NO. B-6053

PASQUOTANK COUNTY

STATION: 11+99.00 -L-

SHEET 5 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
PRECAST PIECE EB130

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NORTH CAROLINA PROFESSIONAL SEAL 38850 ENGINEER ONDINE J. PAITEL
4/13/2021

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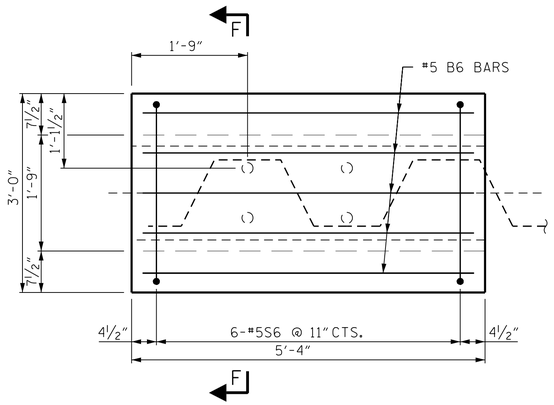
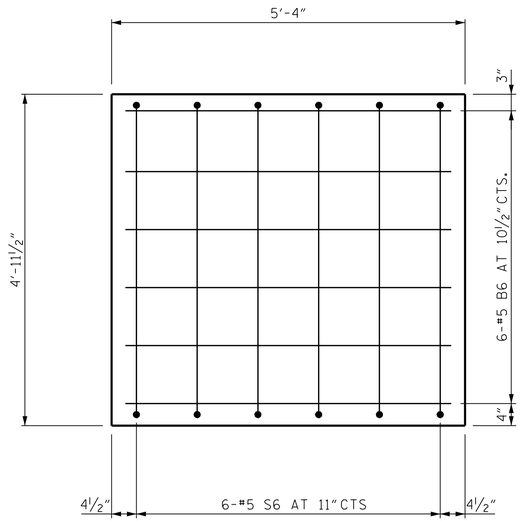
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-14
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

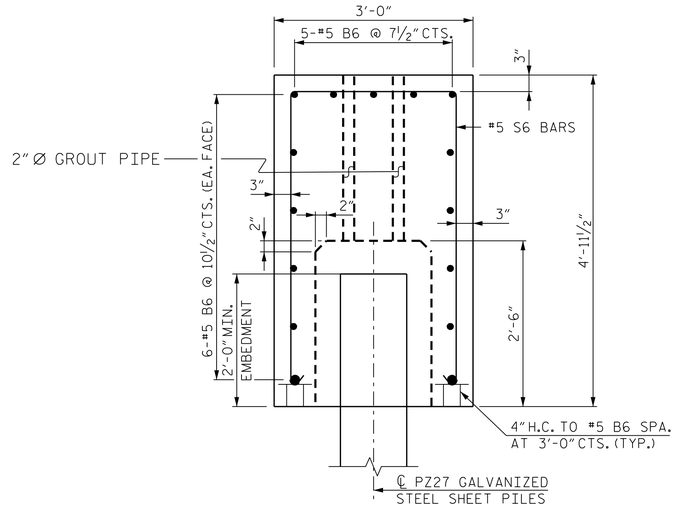
tboyd
4/13/2021 R:\Structures\DGN\FINAL\690034_SD_EB5.dgn



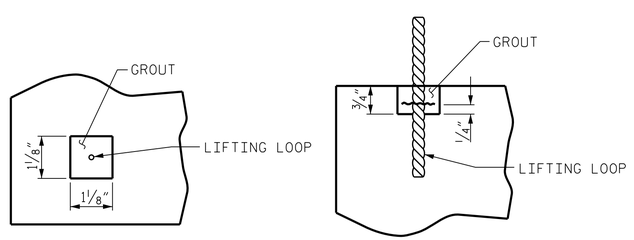
PLAN - PRECAST PIECE EB140



ELEVATION - PRECAST PIECE EB140



SECTION F-F



PLAN ELEVATION

GROUTED RECESS FOR LIFTING LOOPS

LIFTING LOOPS TO BE CUT ¼" ABOVE BOTTOM OF RECESS.

NOTES:

STIRRUPS IN PRECAST PIECE EB610 MAY BE SHIFTED AS NECESSARY TO CLEAR GROUT PIPES.

ALL REINFORCING STEEL AND BAR SUPPORTS SHALL BE EPOXY COATED ACCORDING TO THE STANDARD SPECIFICATIONS.

CLASS AA (4500 PSI) CONCRETE SHALL BE USED IN PRECAST PIECE EB610.

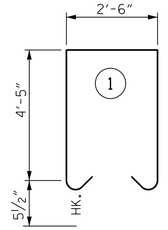
TWO LIFTING LOOPS SHALL BE ALLOWED IN THE PRECAST PIECE IN ACCORDANCE WITH ARTICLE 1077-10 OF THE STANDARD SPECIFICATIONS WITH THE FOLLOWING ADDITIONS. THE LIFTING LOOPS SHALL BE BURNED OFF PRIOR TO PLACING THE ELASTOMERIC BEARING PADS. THE ENDS OF THE LIFTING LOOPS TO BE BURNED OFF SHALL BE RECESSED AND GROUTED. SEE DETAIL FOR GROUTED RECESS FOR LIFTING LOOPS. GROUT SHALL BE NON-METALLIC AND NON-SHRINK ACCORDING TO THE STANDARD SPECIFICATIONS. PROPOSED DEVICES FOR LIFTING LOOPS SHALL BE DETAILED IN SHOP DRAWINGS.

TWO 2 INCH Ø GROUT PIPES SHALL BE PROVIDED AT EACH PILE BLOCKOUT. THE 2 INCH Ø GROUT PIPES SHALL BE CUT FROM SCHEDULE 40 PVC PIPE.

THE TOP OF THE PILE BLOCKOUT SHALL BE CHAMFERED 2" ALL AROUND.

SEE PROJECT SPECIAL PROVISIONS FOR PRECAST PIECE EB140.

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIECE EB140

BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳B6	15	5	STR.	5'-4"	83
✳S6	6	5	1	12'-9"	80

EPOXY COATED REINFORCING STEEL
TOTAL 163 LBS.

CLASS AA (4500 PSI) CONCRETE
2.3 CU. YDS.

GROUT FOR PILE BLOCKOUTS 0.7 CU. YDS.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 6 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
PRECAST PIECE EB140

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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NORTH CAROLINA PROFESSIONAL SEAL 48850 ENGINEER ODIINE J. PAITEL
Electronically signed by Odiine Paitel
4/13/2021

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1			3			TOTAL SHEETS
2			4			18

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4/13/2021 R:\Structures\DGN\FINAL\690034_SD_EB6.dgn

NOTES:

ALL REINFORCING STEEL AND BAR SUPPORTS SHALL BE EPOXY COATED ACCORDING TO THE STANDARD SPECIFICATIONS.

CLASS AA (4500 PSI) CONCRETE SHALL BE USED IN PRECAST PIECE BW150.

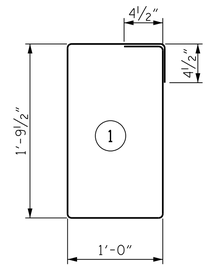
STIRRUPS IN PRECAST PIECE BW150 MAY BE SHIFTED AS NECESSARY TO CLEAR GROUT PIPES.

TWO LIFTING LOOPS SHALL BE ALLOWED IN THE PRECAST PIECE IN ACCORDANCE WITH ARTICLE 1077-10 OF THE STANDARD SPECIFICATIONS WITH THE FOLLOWING ADDITIONS. THE LIFTING LOOPS SHALL BE BURNED OFF SHALL BE RECESSED AND GROUTED. SEE DETAIL FOR GROUTED RECESS FOR LIFTING LOOPS. GROUT SHALL BE NON-METALLIC AND NON-SHRINK ACCORDING TO THE STANDARD SPECIFICATIONS. PROPOSED DEVICES FOR LIFTING LOOPS SHALL BE DETAILED IN SHOP DRAWINGS.

THE GROUT USED TO FILL THE 2½" Ø HOLES SHALL BE NON-SHRINK, NON-METALLIC GROUT THAT IS ON THE DEPARTMENT'S APPROVAL LIST AND SHALL MEET THE APPROVAL OF THE ENGINEER. THE MINIMUM STRENGTH FOR THIS GROUT SHALL BE 4000 POUNDS PER SQUARE INCH AFTER CURING FOR 2 DAYS MINIMUM.

SEE PROJECT SPECIAL PROVISIONS FOR PRECAST PIECE BW150.

BAR TYPES



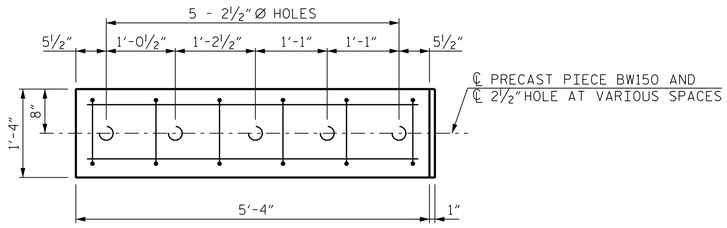
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL FOR ONE PIECE BW150

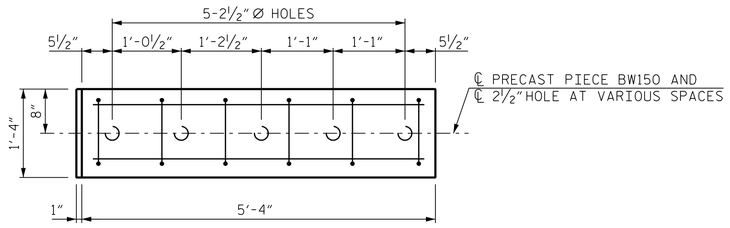
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✳K1	4	5	STR.	5'-0"	21
✳K2	4	4	STR.	5'-0"	13
✳S7	6	4	1	6'-4"	25

EPOXY COATED REINFORCING STEEL
TOTAL 59 LBS.

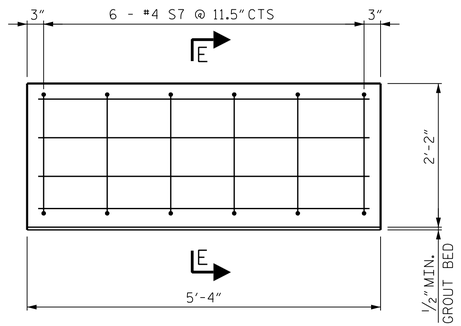
CLASS AA (4500 PSI) CONCRETE
0.6 CU. YDS.



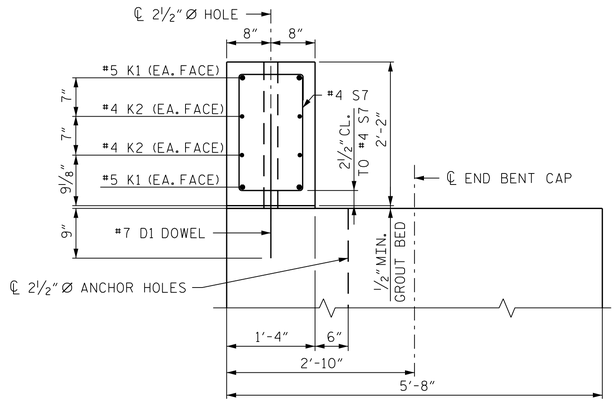
PLAN - PRECAST PIECE BW150A



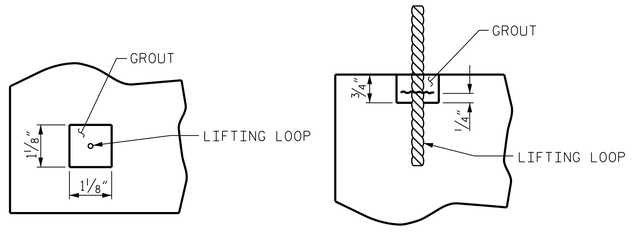
PLAN - PRECAST PIECE BW150B



ELEVATION - PRECAST PIECE BW150A OR BW150B



SECTION E-E



GROUTED RECESS FOR LIFTING LOOPS

LIFTING LOOPS TO BE CUT ¼" ABOVE BOTTOM OF RECESS.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

SHEET 7 OF 7

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

SUBSTRUCTURE
PRECAST PIECE BW150

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NORTH CAROLINA PROFESSIONAL SEAL 48850 ENGINEER ORDINE J. PAITEL
DocuSigned by: Ordine Paitel
4/13/2021

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NO.	BY:	DATE:	NO.	BY:	DATE:	S-16
1			3			TOTAL SHEETS
2			4			18

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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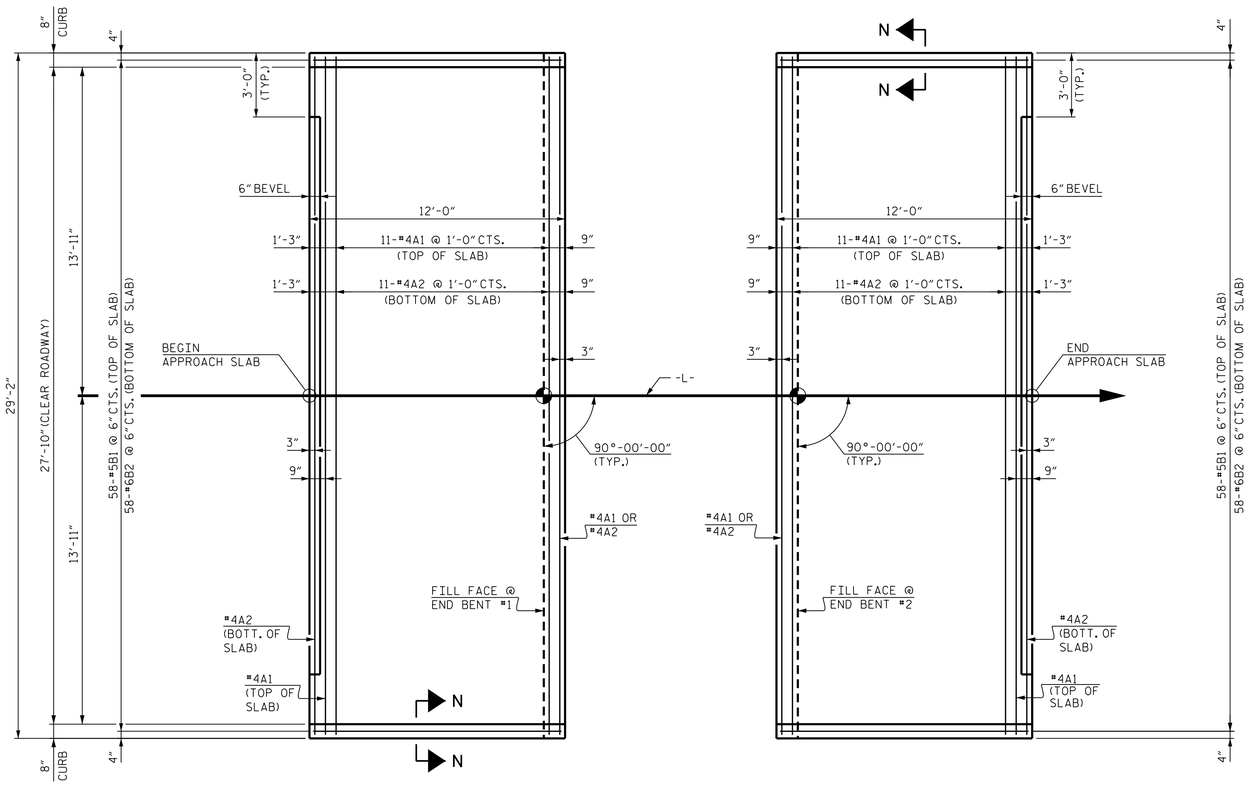
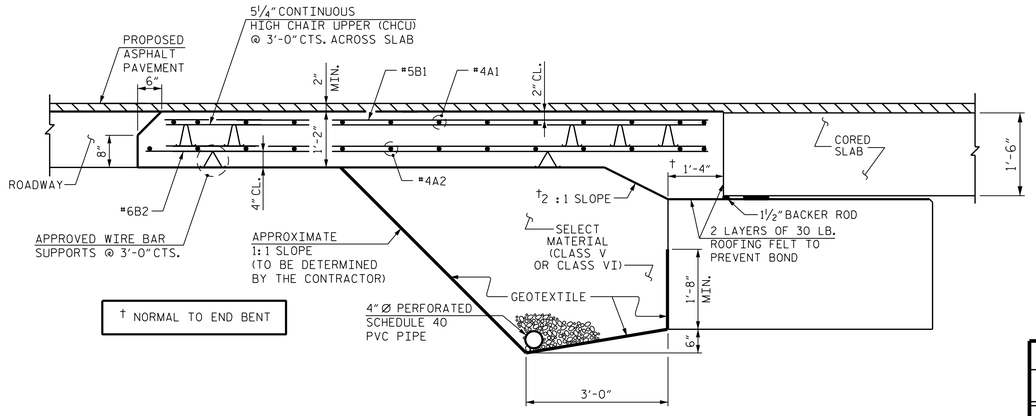
4/13/2021 R:\Structures\DGN\FINAL\690034_SD_EB7.dgn



PLAN @ END BENT #1

PLAN @ END BENT #2

DIMENSIONS SHOWN ARE TYPICAL FOR BOTH APPROACH SLABS



SECTION THRU SLAB

(TYPE II - MODIFIED APPROACH FILL)

SPLICE LENGTHS		
BAR SIZE	EPOXY COATED	UNCOATED
#4	1'-11"	1'-7"
#5	2'-5"	2'-0"
#6	3'-7"	2'-5"

NOTES:

FOR BRIDGE APPROACH FILL INCLUDING GEOTEXTILE, 4"Ø DRAINAGE PIPE, AND SELECT MATERIAL BACKFILL, SEE ROADWAY PLANS.

GEOTEXTILE SHALL BE TYPE 1 IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

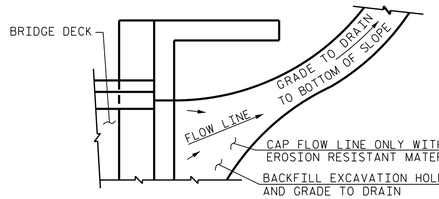
SELECT MATERIAL BACKFILL (CLASS V OR CLASS VI) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

SELECT MATERIAL BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4"Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

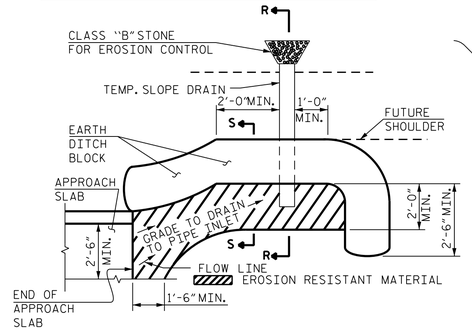
AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



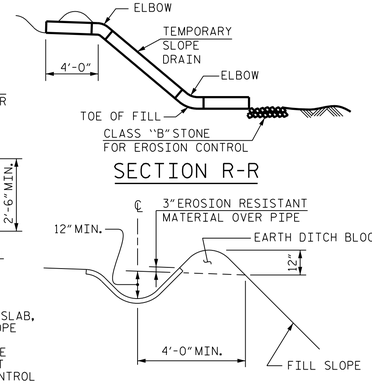
NOTE: IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL



NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW

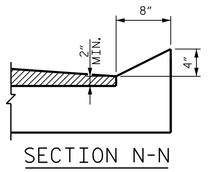


SECTION R-R

SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

(TO BE USED WHEN SHOULDER BERM GUTTER IS REQUIRED)



SECTION N-N

CURB DETAILS

BILL OF MATERIAL					
APPROACH SLAB AT EB 1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
✱ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
✱ EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.0
APPROACH SLAB AT EB 2					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
✱ A1	13	#4	STR	28'-10"	250
A2	13	#4	STR	28'-10"	250
✱ B1	58	#5	STR	11'-2"	676
B2	58	#6	STR	11'-8"	1016
REINFORCING STEEL				LBS.	1266
✱ EPOXY COATED REINFORCING STEEL				LBS.	926
CLASS AA CONCRETE				C. Y.	16.0

PROJECT NO. B-6053

PASQUOTANK COUNTY

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NORTH CAROLINA PROFESSIONAL SEAL 48850 ENGINEER ODINE J. PAITEL
Digitally signed by ODINE J. PAITEL
4/13/2021

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD
BRIDGE APPROACH SLAB FOR PRESTRESSED CONCRETE CORED SLAB UNIT 90° SKEW

REVISIONS						SHEET NO.
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1			3			TOTAL SHEETS
2			4			18

DRAWN BY : T. K. BOYD DATE : SEPT 2020
CHECKED BY : D. B. PETERSON DATE : SEPT 2020
DESIGN ENGINEER OF RECORD : O. J. PAITEL DATE : SEPT 2020

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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 ¾" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1½" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A ¼" 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 ¼" 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 ⅞" Ø SHEAR STUDS FOR THE ¾" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - ⅞" Ø STUDS FOR 4 - ¾" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF ⅞" Ø STUDS ALONG THE BEAM AS SHOWN FOR ¾" Ø STUDS BASED ON THE RATIO OF 3 - ⅞" Ø STUDS FOR 4 - ¾" 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. FINS 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.

PROJECT NO. B-6053
PASQUOTANK COUNTY
STATION: 11+99.00 -L-

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STANDARD NOTES

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