


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

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

HARNETT COUNTY

**LOCATION: BRIDGE NO. 420195 OVER JONES CREEK
 ON SR 1234 (LEAFLET CHURCH RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

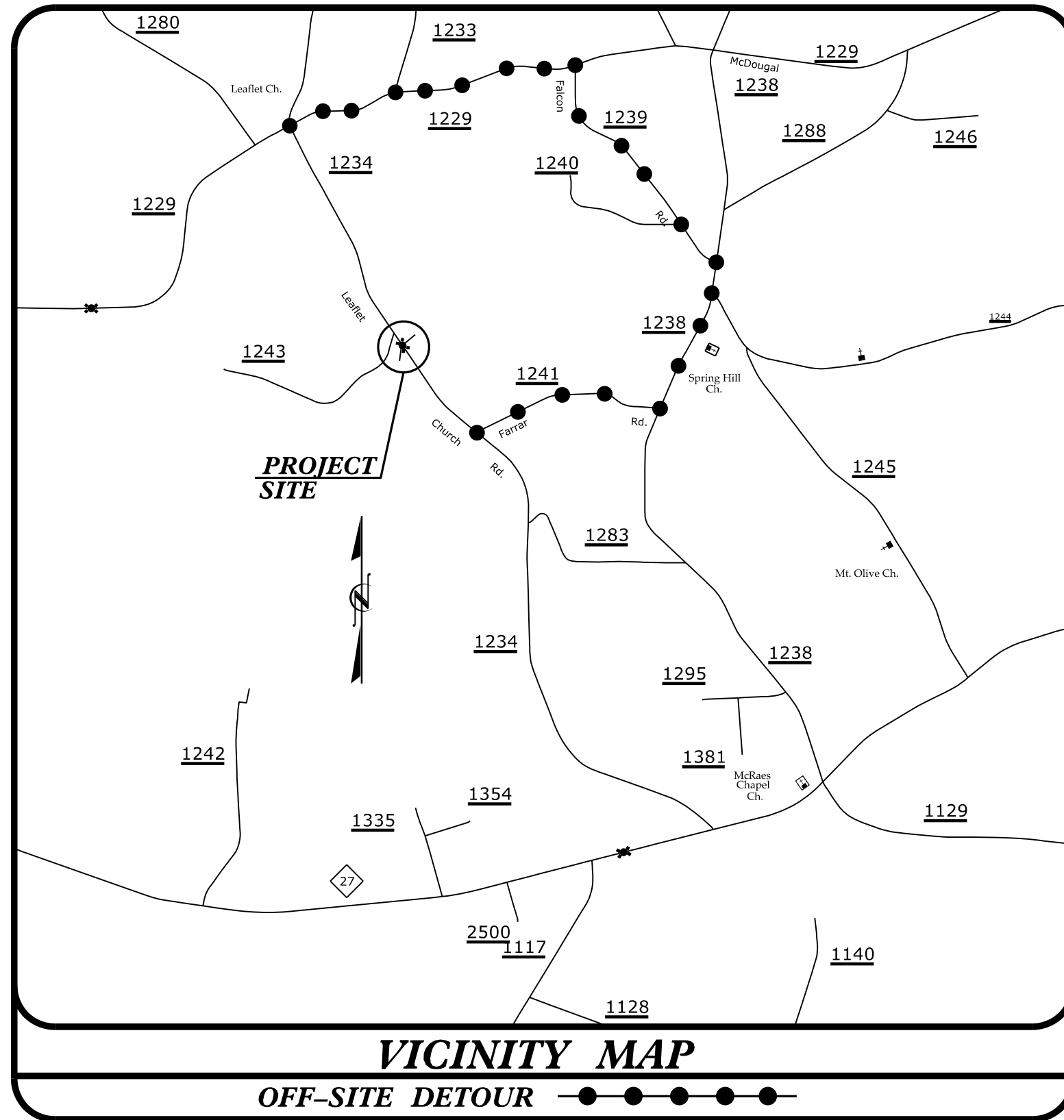
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5414	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
55044.1.1	NHP-1234(002)	PE, UTIL., R/W	
55044.3.1	NHP-1234(002)	CONST.	
 1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107			
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION			

BRIDGE #420195

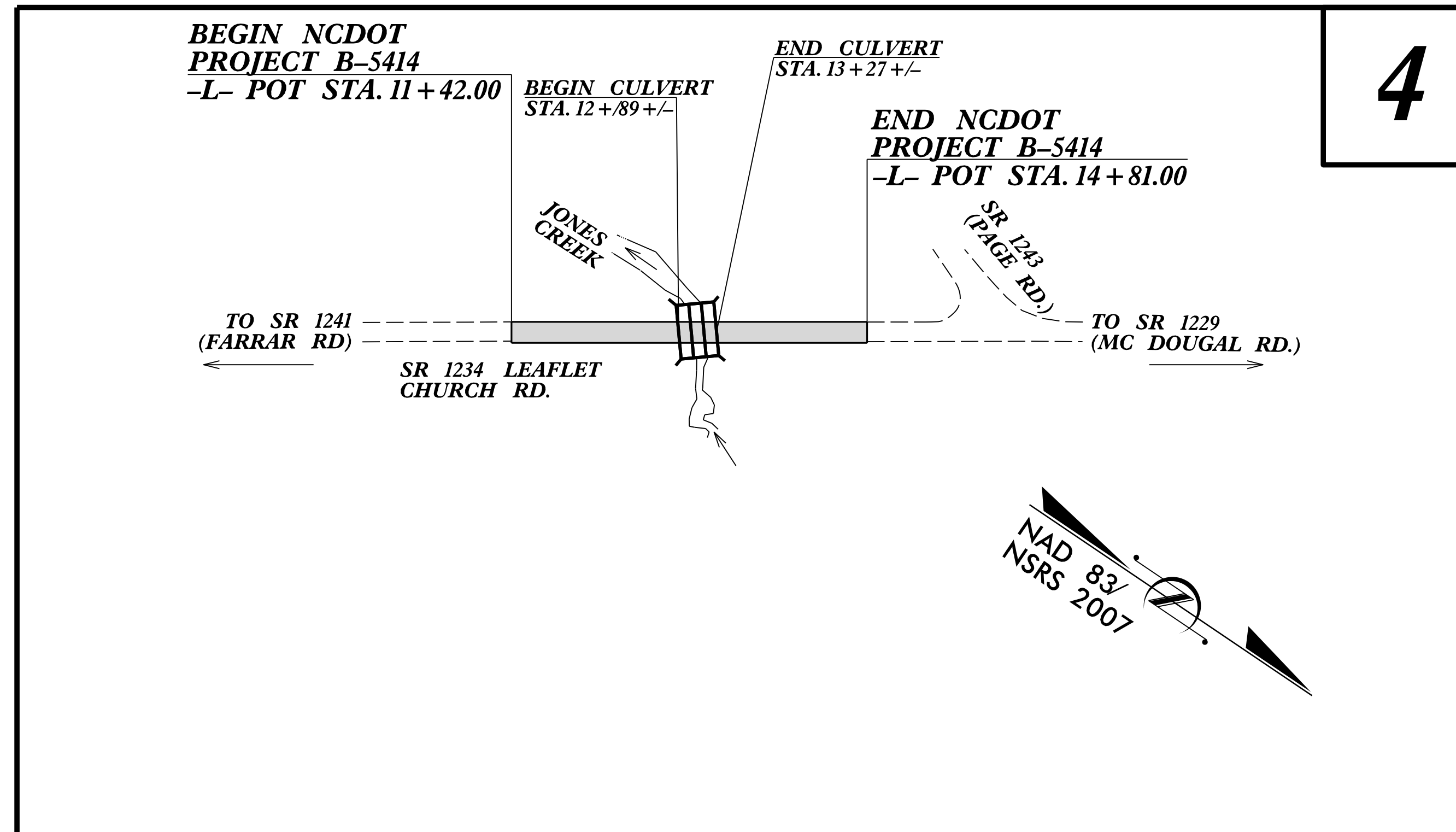
FINAL PLANS

TIP PROJECT: B-5414

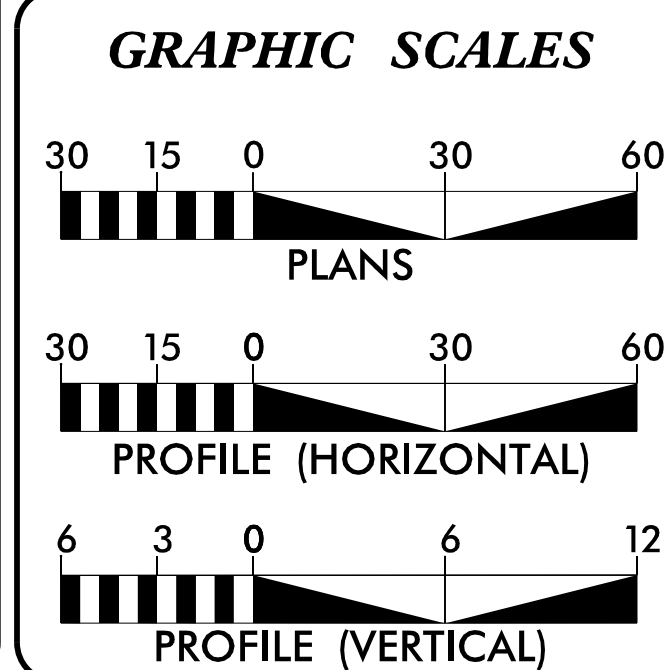
CONTRACT: DF00224



* - DESIGN EXCEPTION
 REQUIRED FOR SAG
 VERTICAL CURVE K VALUE
 AND VERTICAL STOPPING
 SIGHT DISTANCE



DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA
 ADT 2017 = 590

T = 6 % *
 V = 55 MPH
 * (TTST = 3% + DUAL = 3%)

FUNC CLASS =
 RURAL LOCAL
 SUBREGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5414 =	0.057 MILES
LENGTH STRUCTURE PROJECT B-5414 =	0.007 MILES
TOTAL LENGTH PROJECT B-5414 =	0.064 MILES

NCDOT CONTACT: **CHRISTY W. HUFF, PE**
 DIVISION 6 BRIDGE PROGRAM MANAGER

Prepared for:
DIVISION OF HIGHWAYS
DIVISION SIX
 558 GILLESPIE STREET, FAYETTEVILLE NC, 28301

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEBRUARY 9, 2018

LETTING DATE: SEPTEMBER 19, 2018

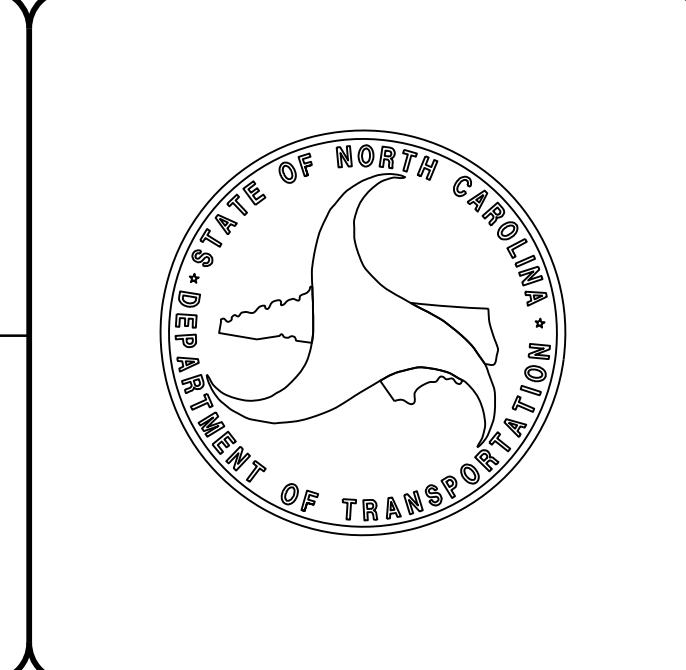
EDWARD G. WETHERILL, PE
 PROJECT ENGINEER

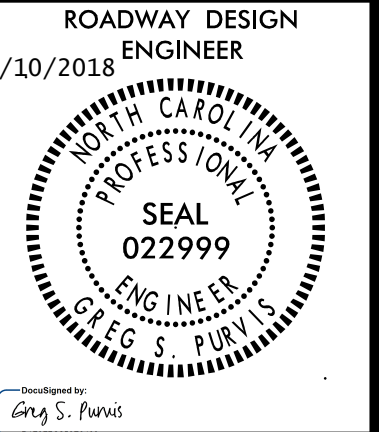
GREG S. PURVIS, PE
 PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
 9/10/2018

ROADWAY DESIGN ENGINEER
 9/10/2018

SEAL 23993
 SEAL 022999





GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS

EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED 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 & 225 .05 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

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.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE
CENTURY LINK (PHONE AND FIBER OPTIC)
HARNETT COUNTY DEPARTMENT OF PUBLIC UTILITIES (WATER)
SOUTH RIVER ELECTRICAL MEMBERSHIP CORP. (POWER)
TIME WARNER CABLE (CATV)

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

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

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 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1	TYPICAL SECTIONS, PAVEMENT SCHEDULE, & MISCELLANEOUS DETAILS
3B-1	SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY AND PAVEMENT REMOVAL
4	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-2A	TRANSPORATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
UC-1 THRU UC-4	UTILITY CONSTRUCTION PLANS
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS-SECTIONS
C-1 THRU C-9	STRUCTURE PLANS
SN	STRUCTURE NOTES

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

12/2/2016

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	-x-x-x-
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	--- WLB ---
Proposed Lateral, Tail, Head Ditch	-----
False Sump	▽

RAILROADS:

Standard Gauge	-----
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	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	--- C ---
Proposed Slope Stakes Fill	--- F ---
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	⊗

VEGETATION:

Single Tree	○
Single Shrub	○

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

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

EXISTING STRUCTURES:

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

UTILITIES:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

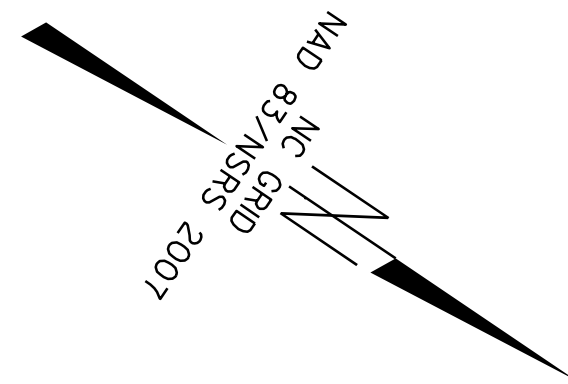
SANITARY SEWER:

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

MISCELLANEOUS:

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

SURVEY CONTROL SHEET B-5414

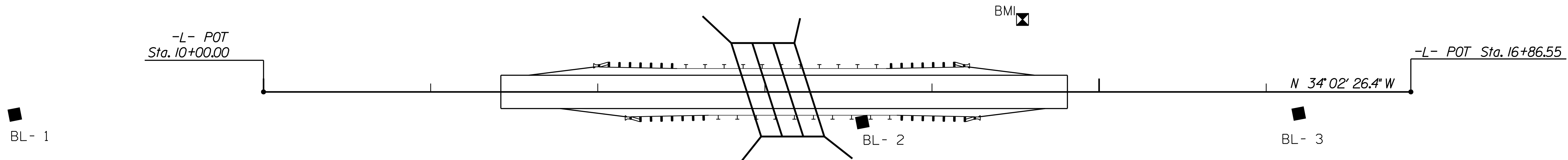


BL	POINT	DESC.	NORTH	EAST	ELEVATION
1	B-5414	BL-1	588691.3110	2010236.5200	243.50
2	B-5414	BL-2	589114.0460	2009956.3860	213.20
3	B-5414	BL-3	589327.5852	2009805.9818	221.71

	L	NORTH	EAST
POT	10+00.00	588807.0304	2010141.9793
POT	16+86.55	589375.9302	2009757.6640

 BM1 ELEVATION = 211.99
 N 589159 E 2009852
 BL STATION 11+04.00 60 LEFT
 SPIKE IN 28" PINE

ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	11+95.00	30.00	588985.4087	2010057.6812
L	12+40.00	60.00	589039.4910	2010057.3503
L	13+85.00	60.00	589159.6439	2009976.1821
L	11+42.00	-30.00	588907.9039	2010037.6312
L	12+00.00	-62.00	588938.0521	2009978.6474
L	13+50.00	-55.00	589066.2666	2009900.4807
L	14+00.00	-30.00	589121.6932	2009893.2077
L	14+50.00	30.00	589196.7121	2009914.9371



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-5412 BL-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 588691.3110(ft) EASTING: 2010236.52(ft) ELEVATION: 243.50(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998691071

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5412 BL-1" TO -L- STATION IS

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

NOTES:

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

NOTE: DRAWING NOT TO SCALE

REVISIONS

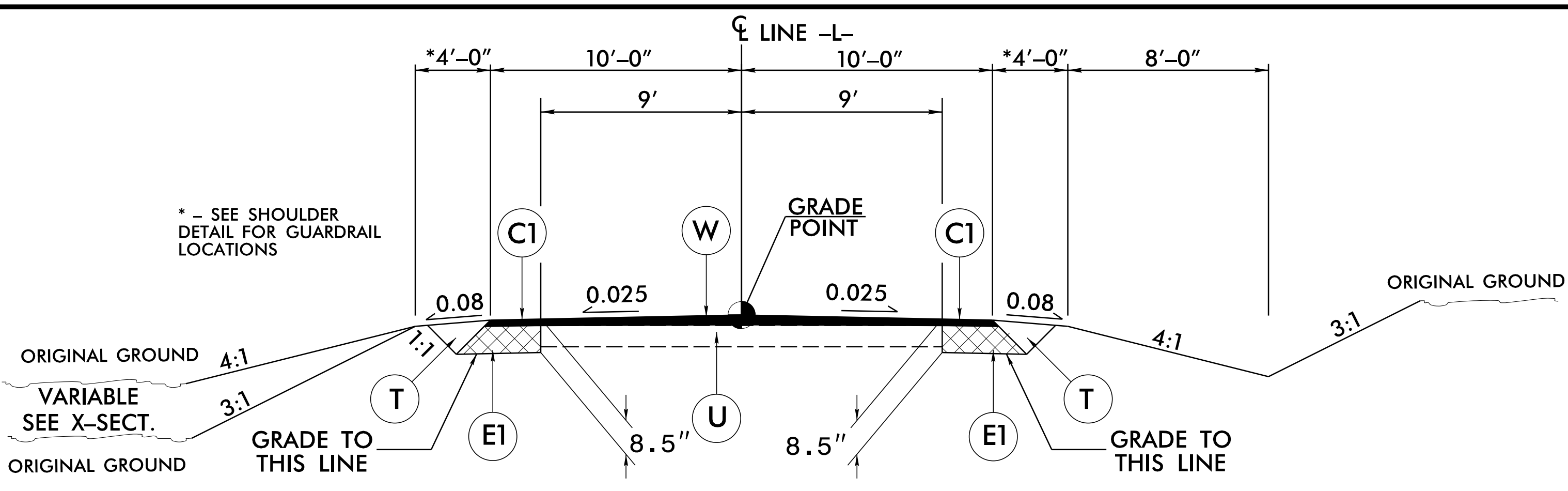
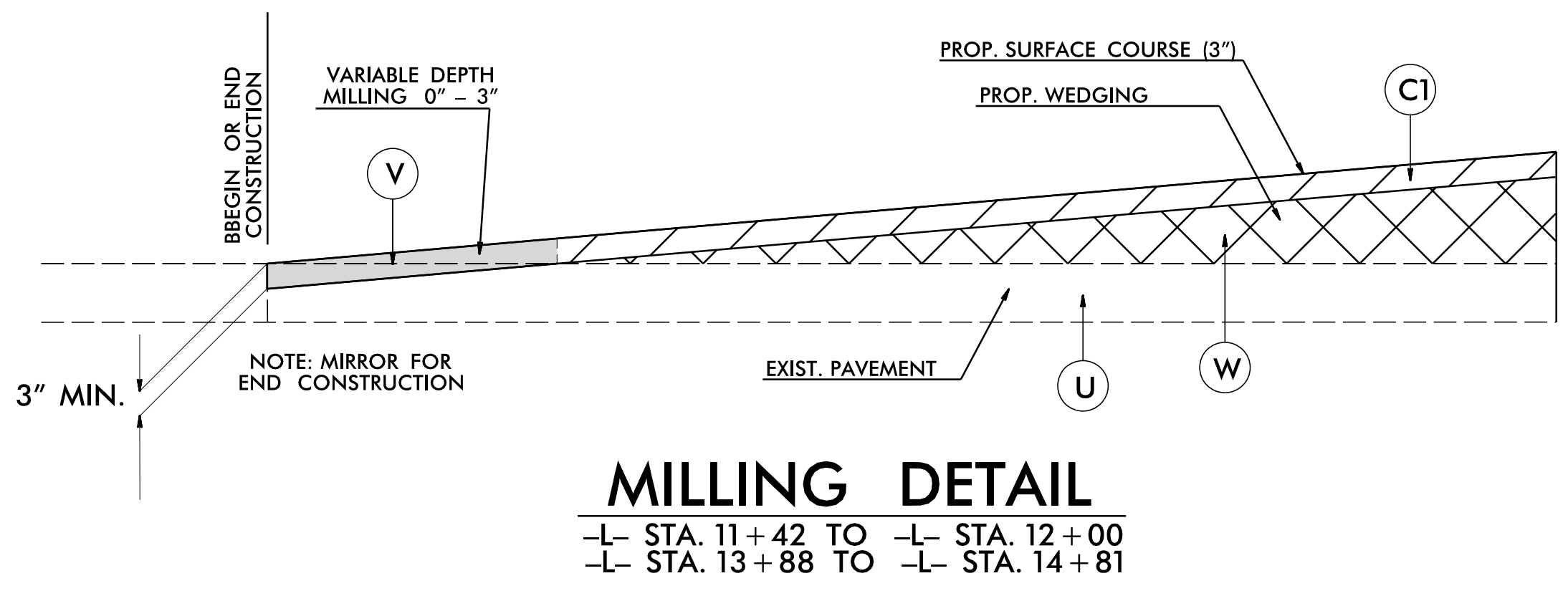
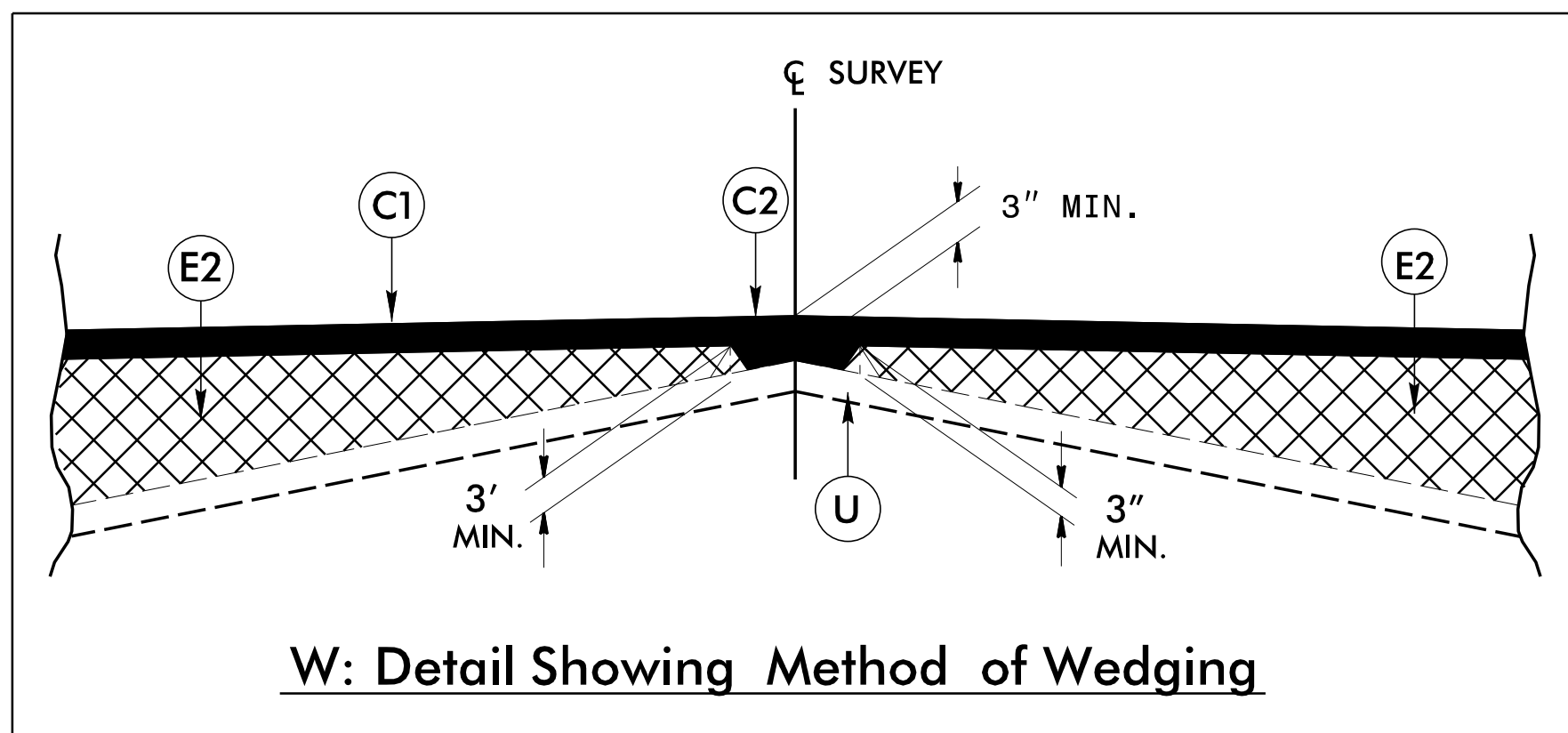
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6/13/2018
 6:\p\c\B-5414\1s_1e-1.dgn
 JEFFREY

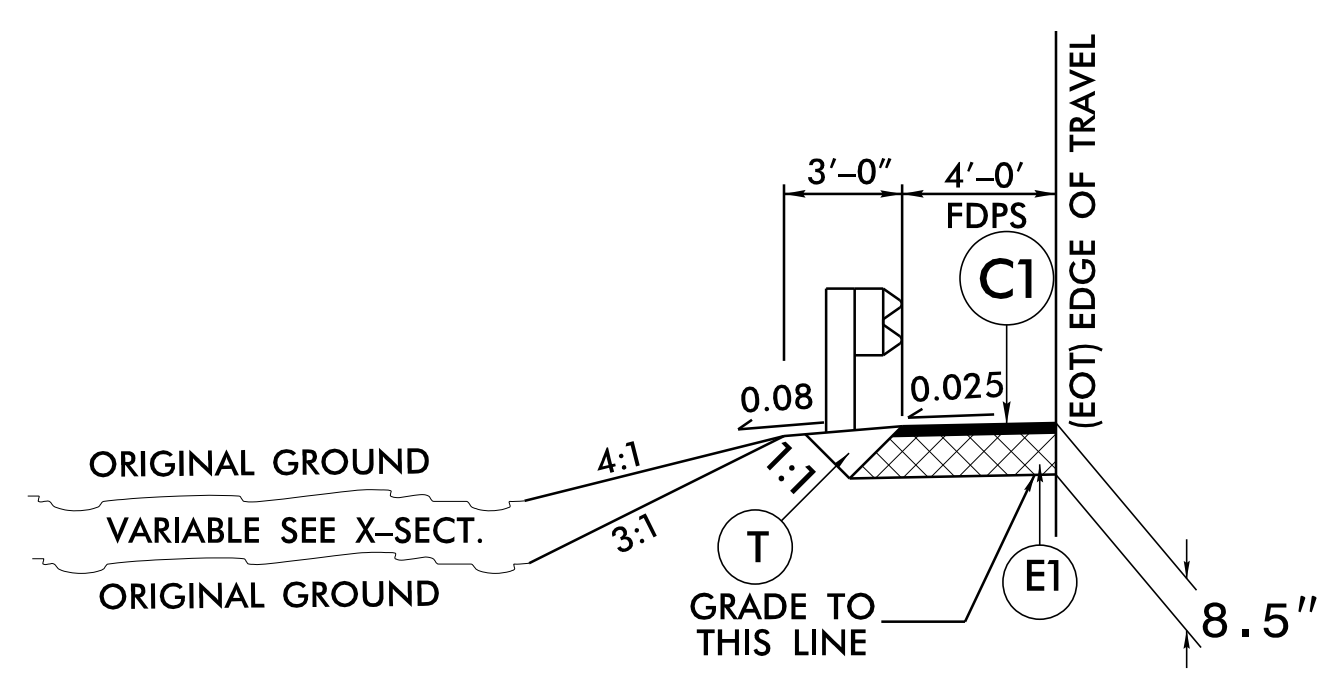
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PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1 1/2" IN DEPTH.
E1	PROP. APPROX. 5.5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 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 1/2" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	MILLING BITUMINOUS PAVEMENT. (SEE MILLING DETAIL)
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL)

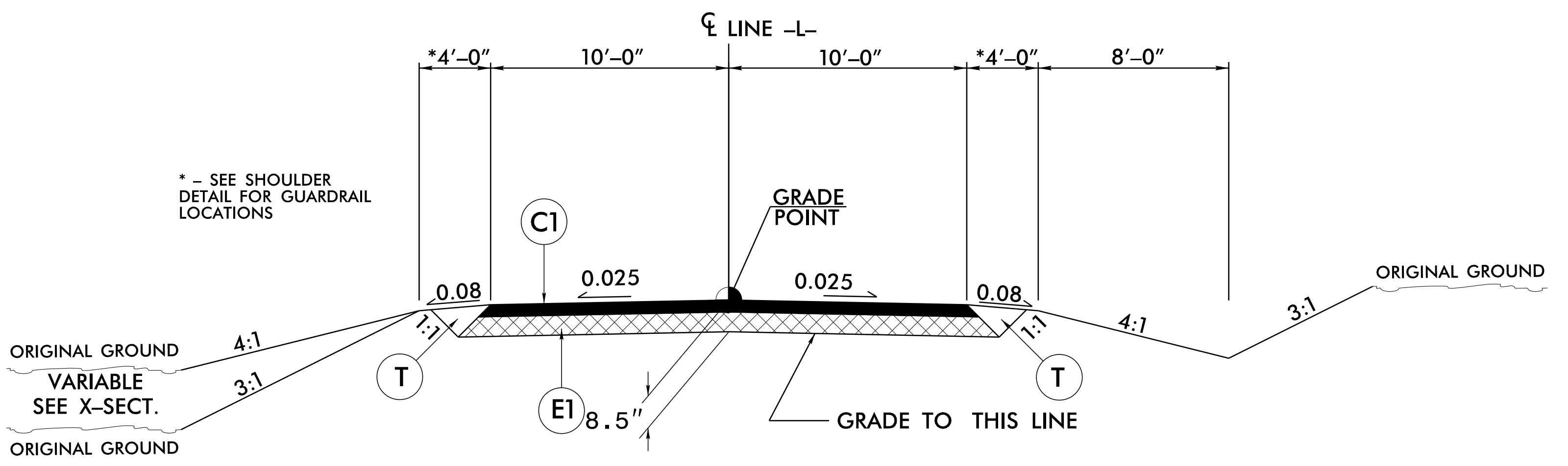
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



TYPICAL SECTION NO. 1
 USE TYPICAL SECTION NO. 1 AS FOLLOWS:
 -L- STA. 11+42.00 TO -L- STA. 12+51.00
 -L- STA. 13+88.00 TO -L- STA. 14+81.00



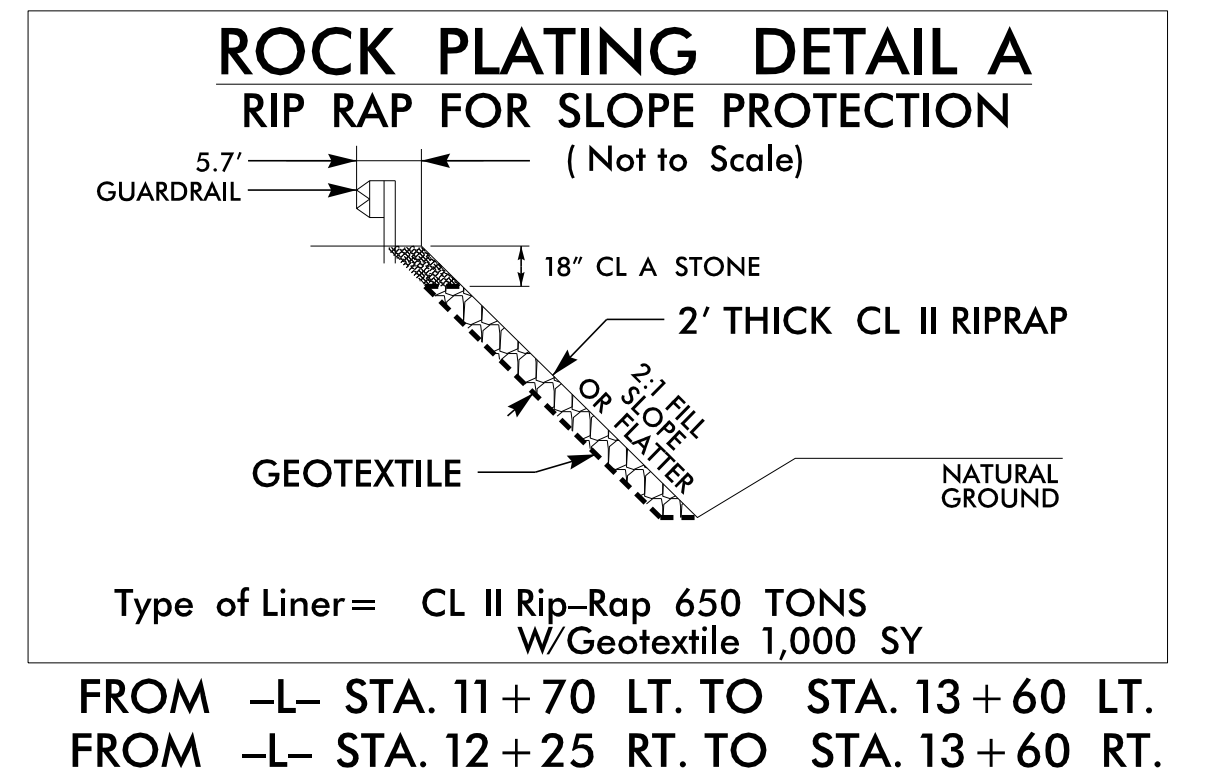
SHOULDER DETAIL
 USE SHOULDER DETAIL IN CONJUNCTION WITH TYPICAL SECTIONS NO. 1 & 2:
 -L- STA. 12+16.38 TO -L- STA. 14+28.88 RT.
 -L- STA. 11+97.50 TO -L- STA. 14+22.51 LT.



TYPICAL SECTION NO. 2
 USE TYPICAL SECTION NO. 2 AS FOLLOWS:
 -L- STA. 12+51.00 TO -L- STA. 13+88.00

PROJECT REFERENCE NO. B-5414	SHEET NO. 2A-1
ROADWAY DESIGN ENGINEER 9/10/2018	PAVEMENT DESIGN ENGINEER
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

BRIDGE #420195



Type of Liner = CL II Rip-Rap 650 TONS
 W/Geotextile 1,000 SY
 FROM -L- STA. 11+70 LT. TO STA. 13+60 LT.
 FROM -L- STA. 12+25 RT. TO STA. 13+60 RT.


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12/06/07

COMPUTED BY: GSP DATE: 12/08/17
 CHECKED BY: REO DATE: 12/08/17

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS

BRIDGE #420195

PROJECT REFERENCE NO. B-5414	SHEET NO. 3B-1
	
1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107	
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- 11+42.00	-L- 14+81.00	85	1206	1121	
SUBTOTALS:		85	1206	1121	
PROJECT SUBTOTALS:		85	1206	1121	
GRAND TOTALS:		85	1206	1121	
SAY:		100		1150	

Note: Approximate quantities only.

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD'
-L-	12+51	13+00	CL	107
-L-	13+36	13+88	CL	120
TOTAL:				227
SAY:				230

RIGHT OF WAY AREA DATA

PARCEL NO.	PROPERTY OWNERS NAMES	TOTAL ACREAGE	ROW	TEMP. CONST. EASE.	PERM. UTILITY EASE.
1	SHIRLEY PAGE		6000.00 SF	2856.00 SF	
2	EDWARD C. & AUDREY FARRAR		538.15 SF		
3	SHIRLEY PAGE		5289.85 SF	2901.00 SF	

N = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
 TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
 FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
 W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
 G = GATING IMPACT ATTENUATOR TYPE 350
 NG = NON-GATING IMPACT ATTENUATOR TYPE 350

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 MASH			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS				
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	TYPE B-83	TYPE III	MASH TL-3	M-350	B-77	CAT-1	VI MOD	BIC	AT-1	EA					G	NG		
-L-	12+16.38	14+28.88	RT.	212.50'			12+98.27	13+46.06	4'-0"	7'-0"	50'-0"	50'-0"	1'-0"	1'-0"																		
-L-	11+97.51	14+22.51	LT.	225.00'			12+70.30	13+17.86	4'-0"	7'-0"	50'-0"	50'-0"	1'-0"	1'-0"																		
PROJECT SUBTOTAL				437.50'																												
LESS ANCHOR DEDUCTIONS				(-)200.00'																												
PROJECT TOTAL				237.50'																												
SAY				237.50'																												
				ADDITIONAL GUARDRAIL POSTS = 5 EACH																												
				MASH TL-3 = 4 @ 50.00' = 200.00'												TOTAL DEDUCTIONS = 200.00'																

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ROADWAY DESIGN ENGINEER 9/10/2018 SEAL 022999 NORTH CAROLINA PROFESSIONAL ENGINEER CARRIG & PURVIS	HYDRAULICS ENGINEER 9/10/2018 SEAL 23993 NORTH CAROLINA PROFESSIONAL ENGINEER MAY & PERRY
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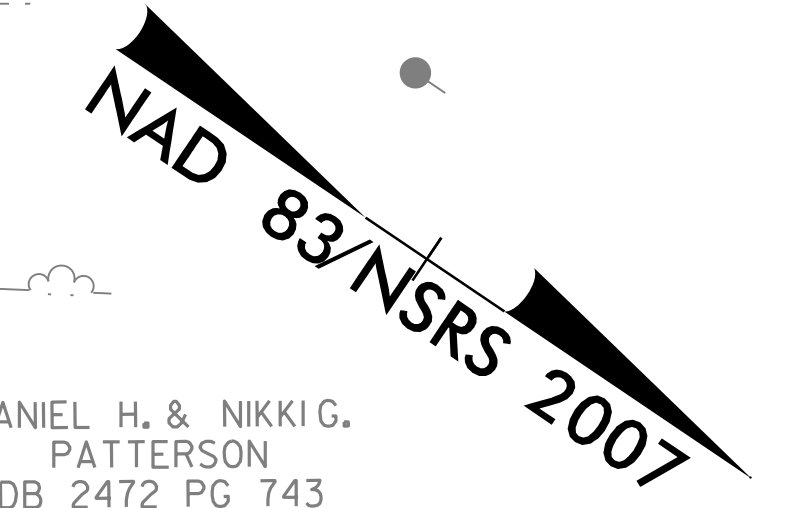
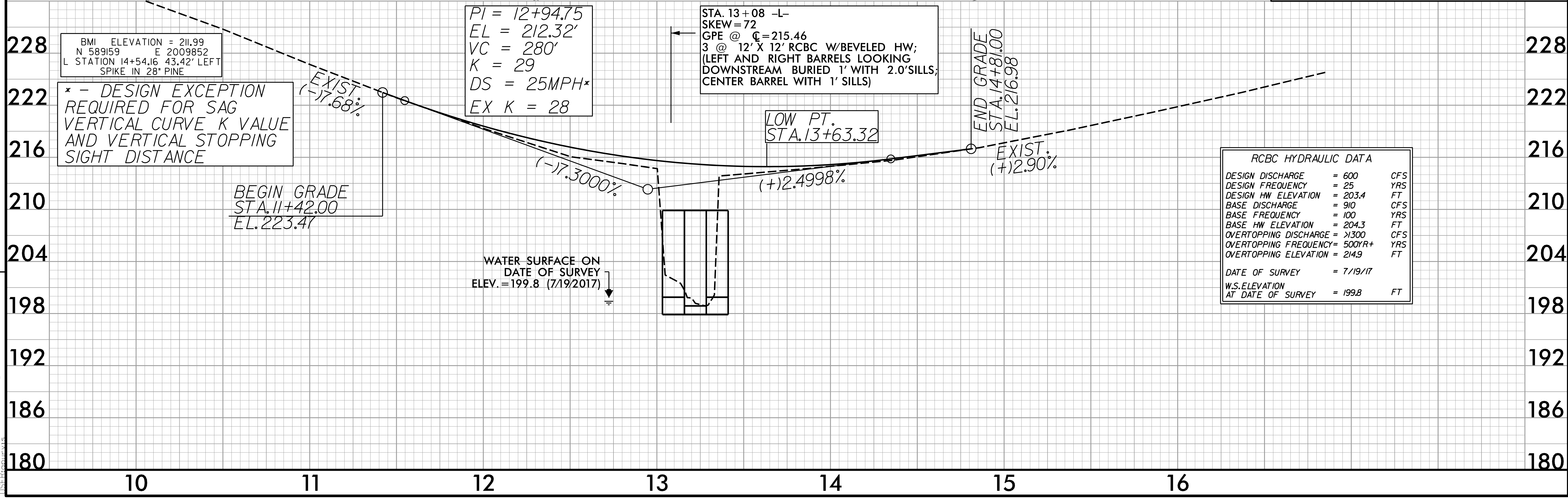
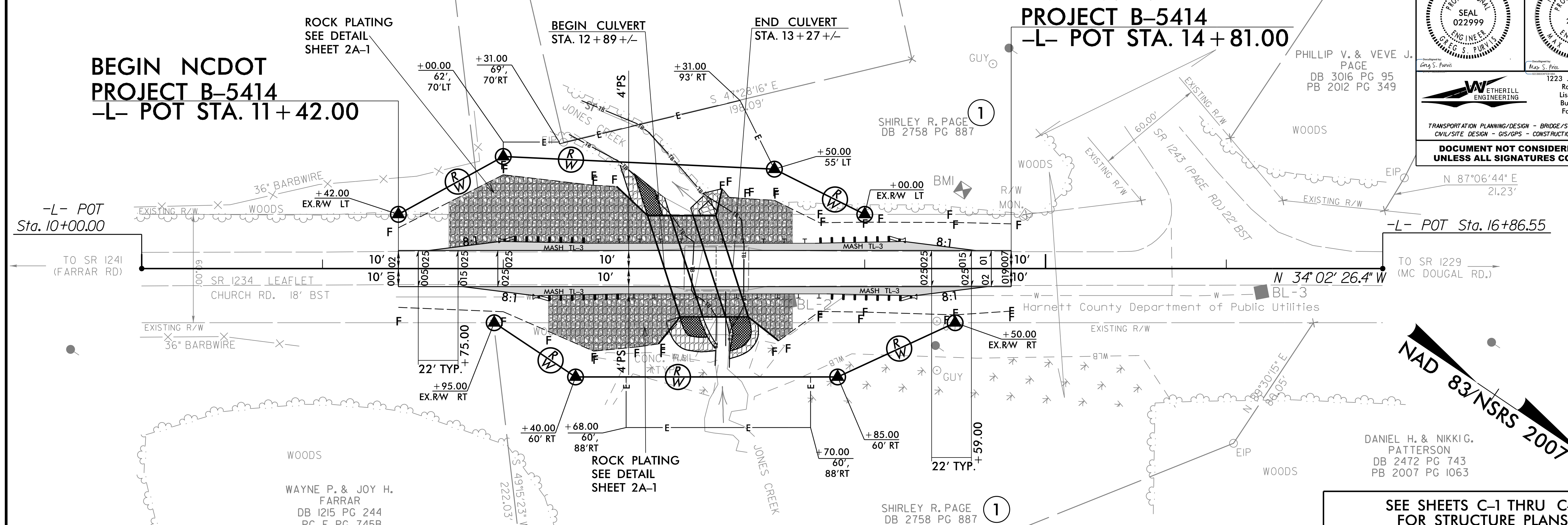
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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

**END NCDOT
PROJECT B-5414
-L- POT STA. 14 + 81.00**

**BEGIN NCDOT
PROJECT B-5414
-L- POT STA. 11 + 42.00**



SEE SHEETS C-1 THRU C-9 FOR STRUCTURE PLANS

REVISIONS

9/10/2018 B-5414_rdy_psh.dgn

EDWARD C. & AUDREY FARRAR
DB 1215 PG 237
PC F PG 745B

JONATHAN DAVID RENFRO
DB 3322 PG 48
PB 2010 F PG 358

SHIRLEY R. PAGE
DB 2758 PG 887

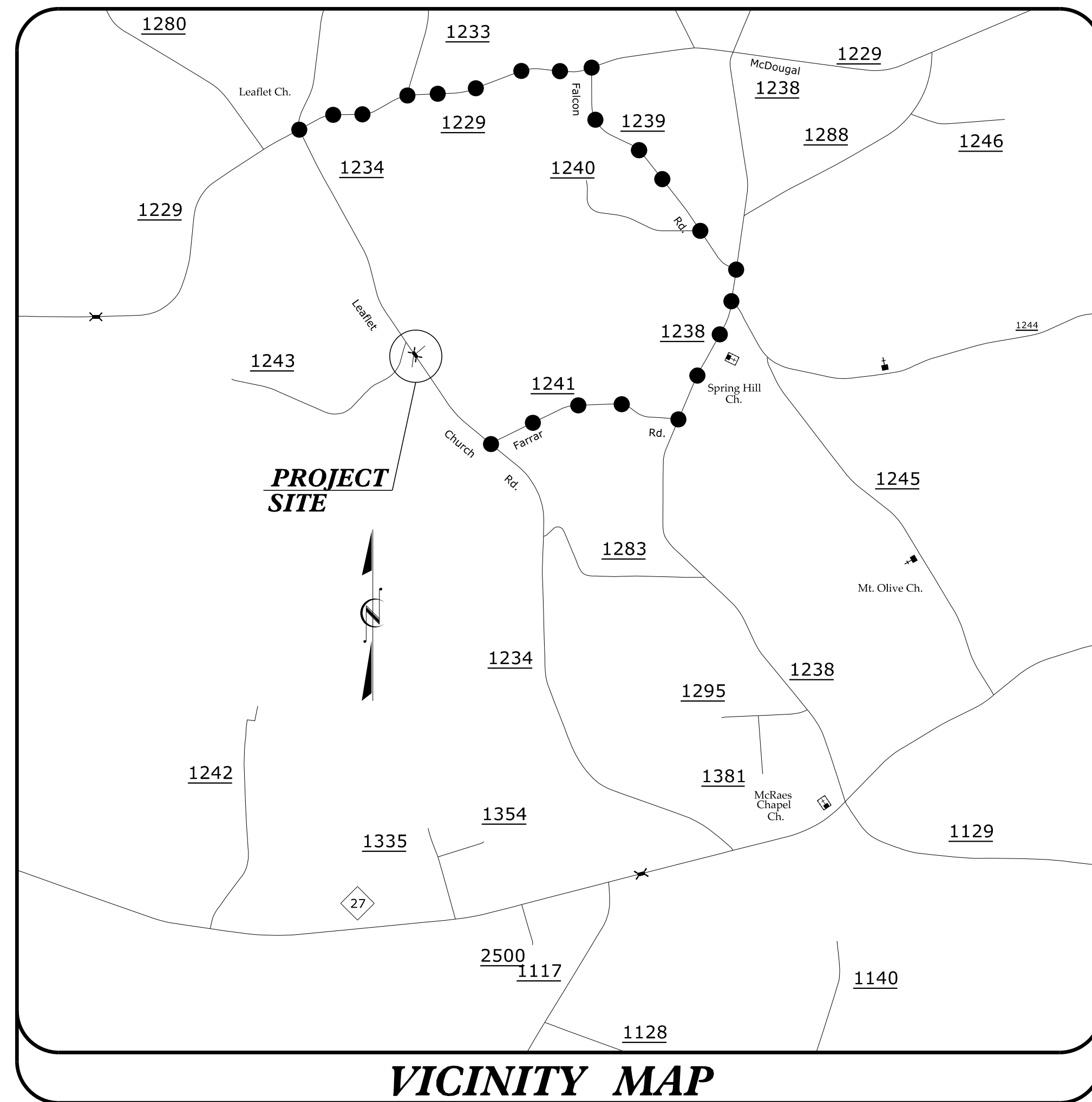
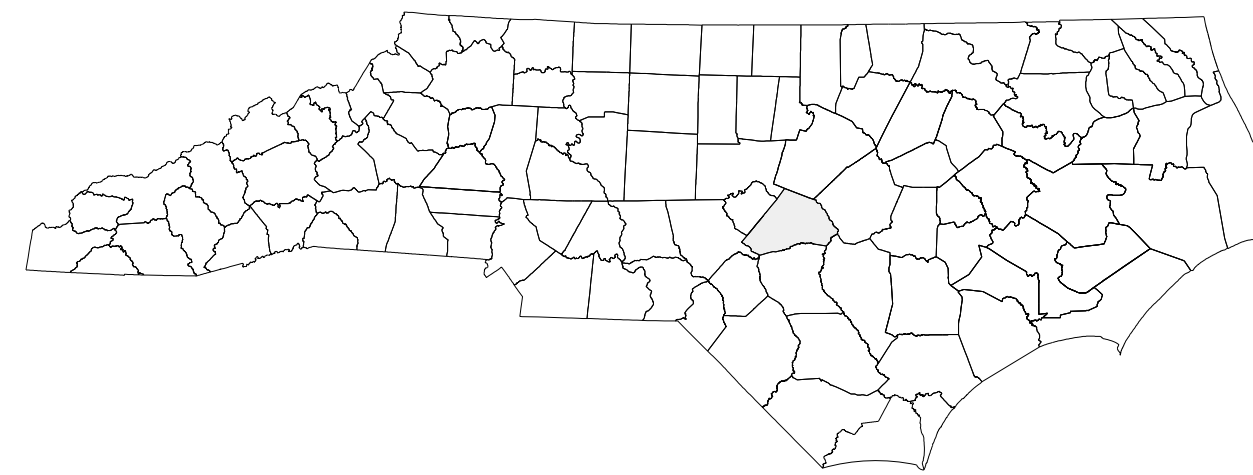
WAYNE P. & JOY H. FARRAR
DB 1215 PG 244
PC F PG 745B

DANIEL H. & NIKKIG. PATTERSON
DB 2472 PG 743
PB 2007 PG 1063

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

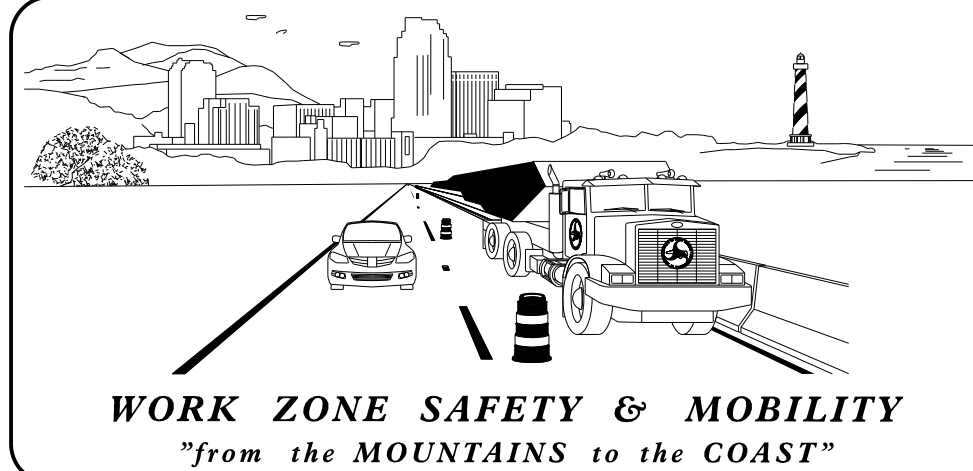
HARNETT



LOCATION: BRIDGE NO. 420195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH RD.)

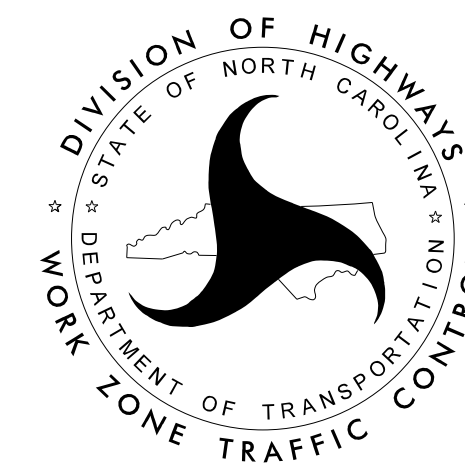
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND STRUCTURE

6/14/2018 P:\2017\17162_01_HARNETT_195\TrafficControl\TCPV420195_TC_TMP_PSH_01.dgn User:SKENNEDY



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

J. E. HUMMER, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
J. S. KITE, P.E. TRAFFIC CONTROL PROJECT ENGINEER
MATT SPRINGER, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. B. JENNINGS TRAFFIC CONTROL DESIGN ENGINEER



INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, GENERAL NOTES AND PHASING
TMP-2	SPECIAL SIGN DESIGN (S)
TMP-2A	DETOUR LEAFLET CHURCH ROAD (SR 1234 -L-)

SHEET NO.
TMP-1

B-5414

TIP PROJECT:

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

PLAN PREPARED FOR NCDOT BY:



GREG S. PURVIS, P.E. PROJECT ENGINEER
JESSE W. GILSTRAP TRAFFIC CONTROL ENGINEER
SCOTT L. KENNEDY TRAFFIC CONTROL ENGINEER

APPROVED: Greg S. Purvis
DATE: 9/10/2018

SEAL



ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.03	TEMPORARY ROAD CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1145.01	BARRICADES

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 UNDESIRE OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING OR REMOVAL OF DEVICES, AS DIRECTED BY THE ENGINEER.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

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

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

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

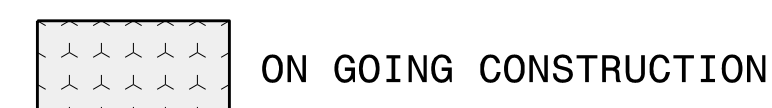
TRAFFIC CONTROL DEVICES

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

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)



SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- SKINNY DRUM
- TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

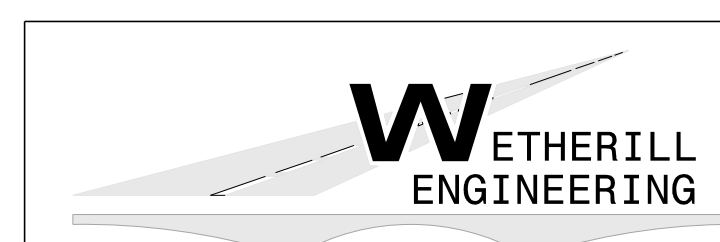
- PAVEMENT MARKING SYMBOLS

PHASING

PHASE I

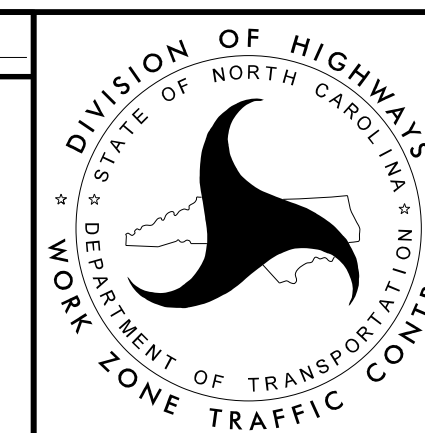
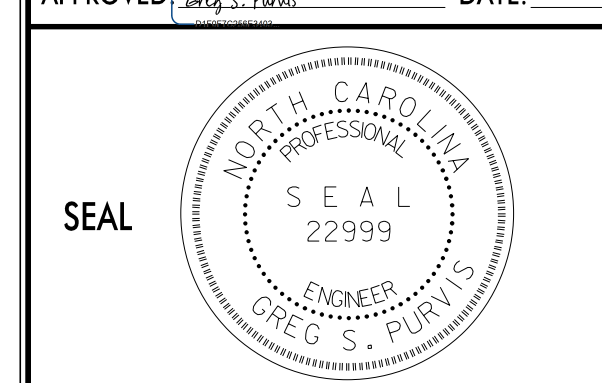
- STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 1 OF 9 AND SHEET TMP-2A CLOSE LEAFLET CHURCH ROAD (-L-/SR 1234) TO TRAFFIC.
- STEP 2: - REMOVE EXISTING BRIDGE AND CONSTRUCT PROPOSED BRIDGE & APPROACHES, UP TO & INCLUDING THE FINAL LAYER OF SURFACE COURSE, AND PLACE FINAL PAVEMENT MARKINGS (SEE ROADWAY PLANS AND FINAL PAVEMENT MARKING PLANS).
- STEP 3: - OPEN LEAFLET CHURCH ROAD (-L-/SR 1234) TO THE FINAL TRAFFIC PATTERN AND REMOVE ALL TRAFFIC CONTROL DEVICES FROM THE PROJECT.

DOCUMENT NOT CONSIDERED FINAL
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APPROVED: DATE: 9/10/2018



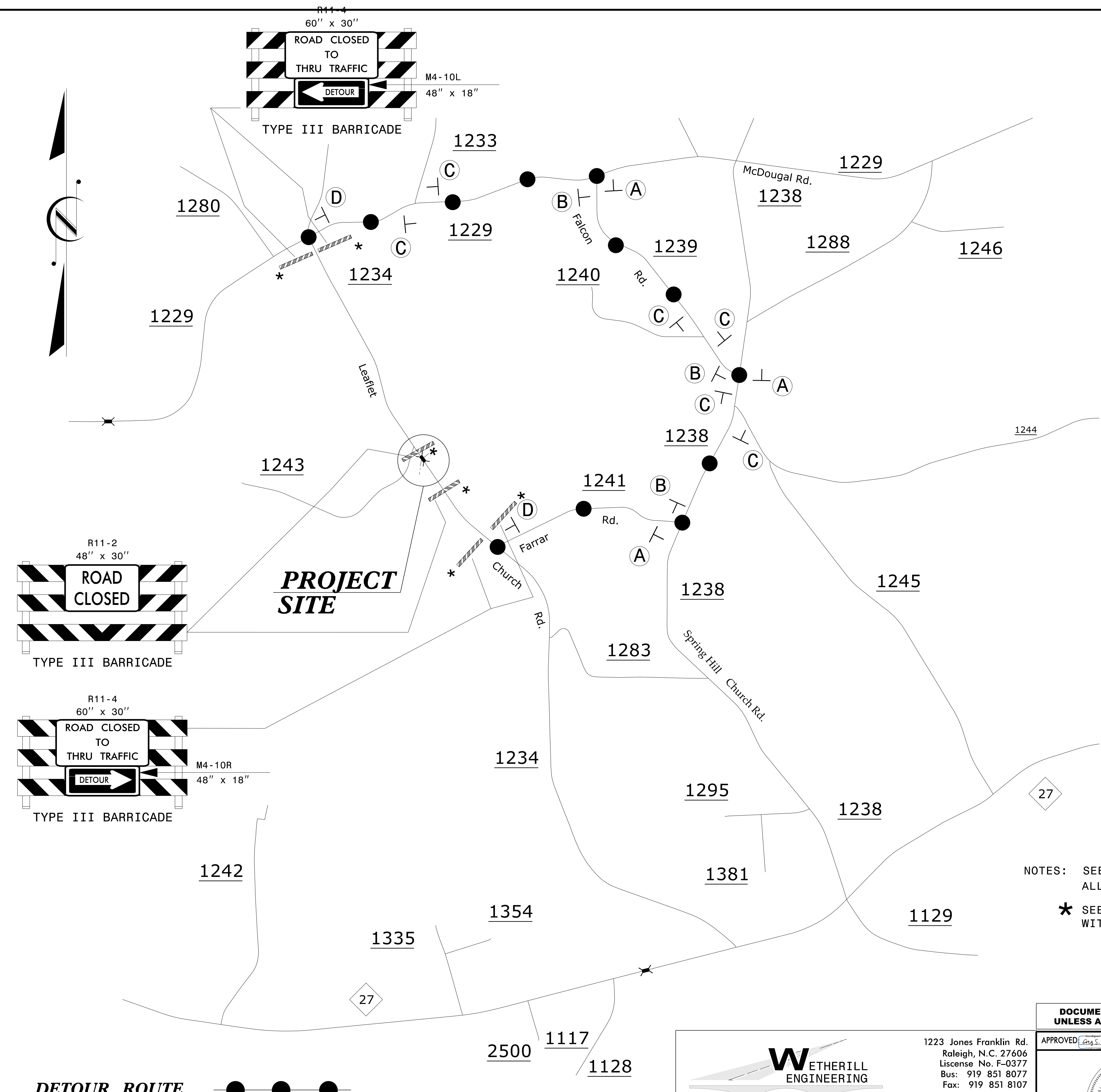
ROADWAY STANDARD
DRAWINGS, LEGEND,
GENERAL NOTES AND
PHASING

<p>SIGN NUMBER: name BACKG COLOR: Fluorescent Orange TYPE: STATIONARY COPY COLOR: Black QUANTITY: SEE PLANS</p> <p>SIGN WIDTH: 4'-0" HEIGHT: 2'-0" TOTAL AREA: 8.0 Sq.Ft.</p> <p>BORDER TYPE: INSET RECESS: 0.38" WIDTH: 0.63" RADII: 1.5"</p> <p>NO. Z BARS: LENGTH:</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>SYMBOL</th> <th>X</th> <th>Y</th> <th>WID</th> <th>HT</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table> <p>MAT'L: 0.080" (2.0 mm) ALUMINUM</p>	SYMBOL	X	Y	WID	HT																																									<p>DESIGN BY: SLK CHECKED BY: JWG Jan 12, 2018 PROJECT ID: B-5414 DIV: 6</p> <div style="text-align: center;"> </div> <p>BORDER R=1.5" TH=0.63" IN=0.38"</p> <p style="text-align: right;">Spacing Factor is 1 unless specified otherwise</p>																																																
SYMBOL	X	Y	WID	HT																																																																																											
<p style="text-align: center;">USE NOTES: 1,2</p> <ol style="list-style-type: none"> 1. Legend and border shall be direct applied black non-reflective sheeting. 2. Background shall be NC GRADE B fluorescent orange retroreflective sheeting. 																																																																																															
<p>LETTER POSITIONS</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="11">Letter locations are panel edge to lower left corner</th> <th>Series/Size</th> <th>Text Length</th> </tr> </thead> <tbody> <tr> <td>L</td><td>e</td><td>a</td><td>f</td><td>l</td><td>e</td><td>t</td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td>D 2000</td><td>19.7</td> </tr> <tr> <td>14.2</td><td>17.7</td><td>21.1</td><td>24.6</td><td>27</td><td>28.6</td><td>31.8</td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td>D 2000</td><td>40.2</td> </tr> <tr> <td>C</td><td>h</td><td>u</td><td>r</td><td>c</td><td>h</td><td> </td><td>R</td><td>o</td><td>a</td><td>d</td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> <tr> <td>3.9</td><td>8.3</td><td>12.2</td><td>16.1</td><td>18.4</td><td>22</td><td>25</td><td>30</td><td>33.9</td><td>37.5</td><td>41.1</td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </tbody> </table> <p style="font-size: small;">FILENAME: Guidesign6_020816 NORTH CAROLINA D.O.T. SIGN DETAIL</p>			Letter locations are panel edge to lower left corner											Series/Size	Text Length	L	e	a	f	l	e	t												D 2000	19.7	14.2	17.7	21.1	24.6	27	28.6	31.8												D 2000	40.2	C	h	u	r	c	h		R	o	a	d										3.9	8.3	12.2	16.1	18.4	22	25	30	33.9	37.5	41.1									
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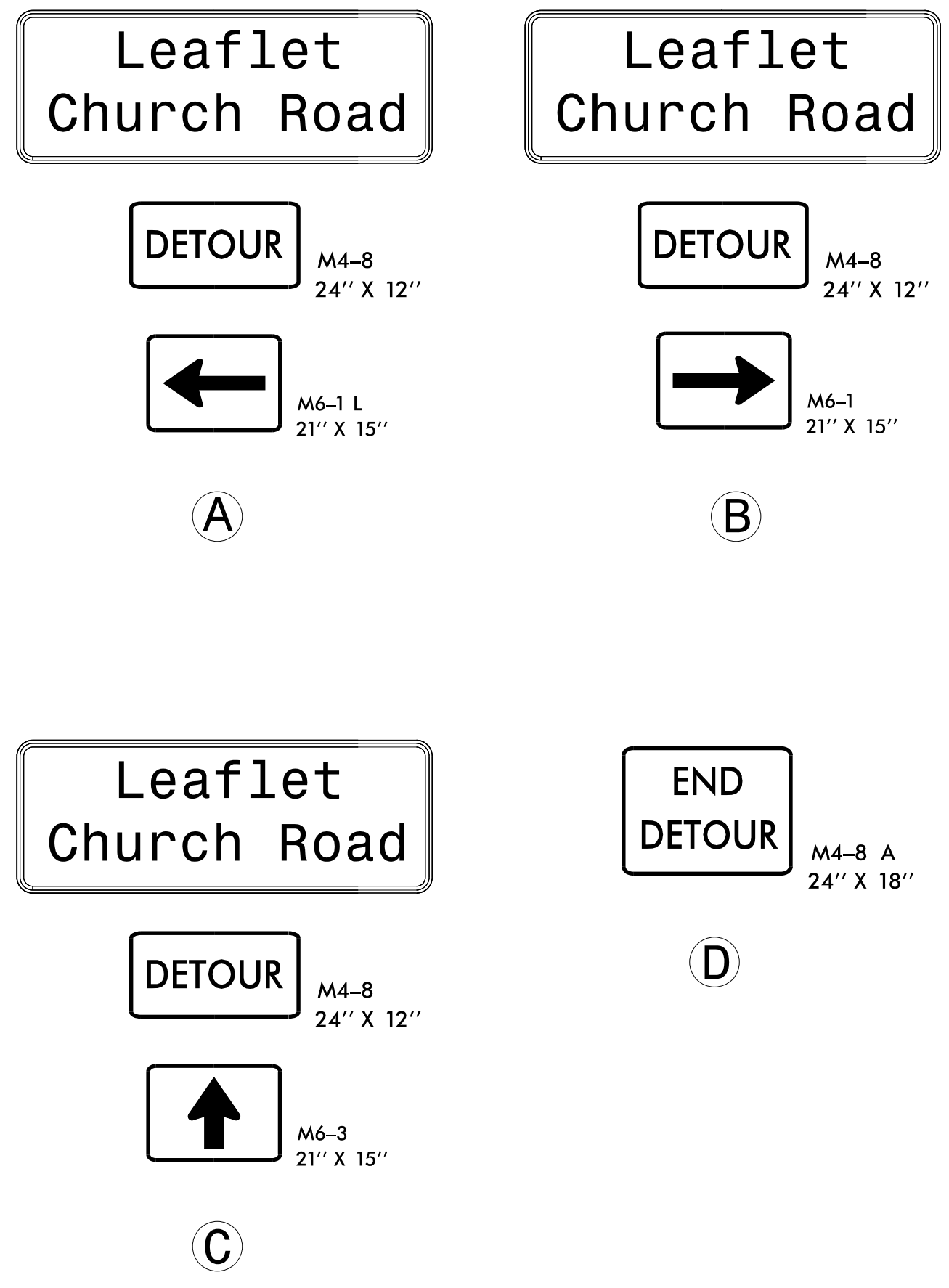
NOTE: TEMPORARY SIGNS TO BE PAID FOR AS "STATIONARY WORK ZONE SIGNS".

6/14/2018 P:\2017\17162_01_HARNETT_195\TrafficControl\TCP\420195_TC_TMP_PSH_02.dgn User:SKENNEDY

<p>WETHERILL ENGINEERING</p> <p style="font-size: x-small;">TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION</p>	<p>1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107</p>	<p>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</p> <p>APPROVED: DATE: 9/10/2018</p> <p>SEAL </p>		<p>SPECIAL SIGN DESIGN(S)</p>
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DETOUR SIGNING



NOTES: SEE TMP-2 FOR "LEAFLET CHURCH ROAD" SPECIAL SIGN DESIGN.
 ALL DETOUR SIGN LOCATIONS ARE APPROXIMATE.
 * SEE RSD 1101.03, SHEET 1 OF 9, FOR TYPE III BARRICADE LOCATION WITH ATTACHED SIGNING & ADDITIONAL SIGNING FOR ROAD CLOSURE.

6/14/2018
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 User: SKENNEDY

DETOUR ROUTE ● ● ●

W ETHERILL ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

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APPROVED: *Greg S. Purvis* DATE: 9/10/2018

SEAL

**DETOUR
 LEAFLET CHURCH ROAD
 (-L-/SR 1234)**

PROJECT: B-5414

**STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN
HARNETT COUNTY**

**BRIDGE NO. 420195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH RD.)**

PROJECT NO. B-5414	SHEET NO. PMP-1
APPROVED: DATE: 9/10/2018	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

ROADWAY STANDARD DRAWING

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

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

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS
		PAINT (4")
PA	WHITE EDGELINE	
PI	YELLOW DOUBLE CENTER	
		PERMANENT RAISE PAVEMENT MARKERS
MA	YELLOW/YELLOW	

GENERAL NOTES

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

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

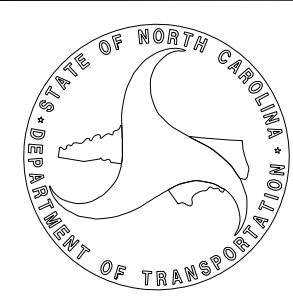
ROAD NAME	MARKING	MARKER
SR 1234	PAINT	RAISED
- B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.
- C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS.
- E) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	PAVEMENT MARKING DETAIL

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

A.I. ALQUODWAH, PE SIGNING & DELINEATION REGIONAL ENGINEER
TBD SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN



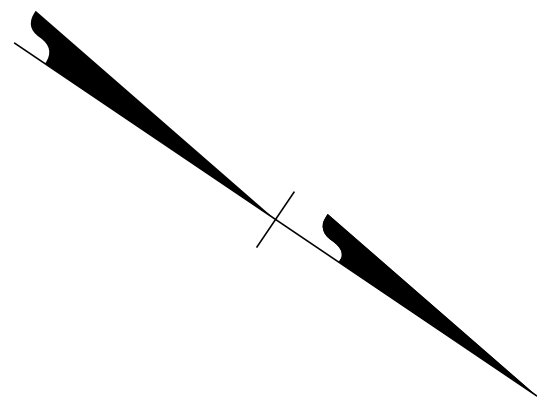
PLAN PREPARED FOR NCDOT BY:

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TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION	

GREG S. PURVIS, P.E. PROJECT ENGINEER
JESSE W. GILSTRAP TRAFFIC CONTROL ENGINEER
SCOTT L. KENNEDY TRAFFIC CONTROL ENGINEER

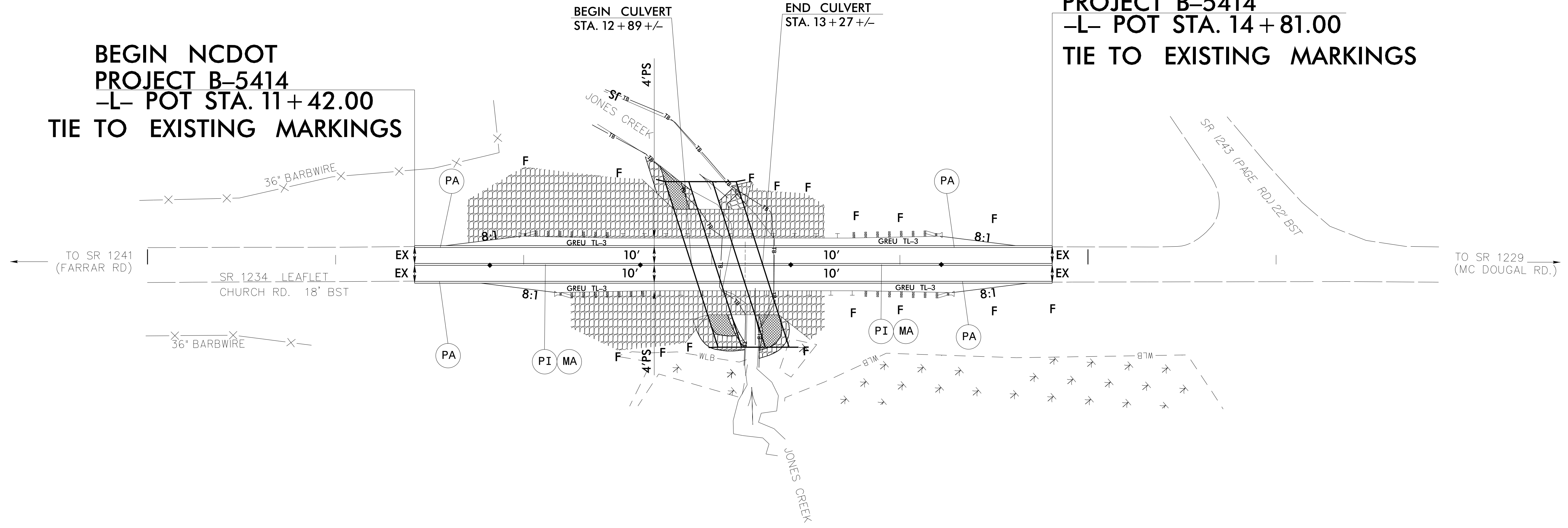
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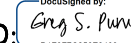
**BEGIN NCDOT
PROJECT B-5414
-L- POT STA. 11+42.00
TIE TO EXISTING MARKINGS**

**END NCDOT
PROJECT B-5414
-L- POT STA. 14+81.00
TIE TO EXISTING MARKINGS**



6/13/2018
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 User: SKENNEDY

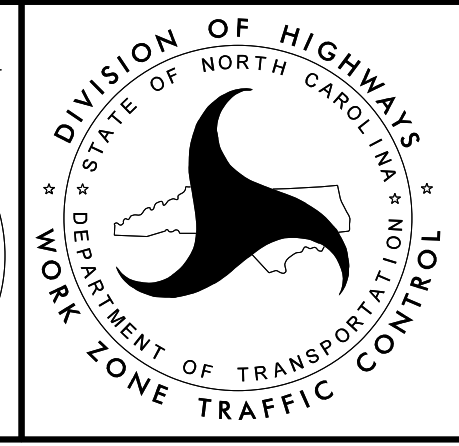
**DOCUMENT NOT CONSIDERED FINAL
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APPROVED: 
 DATE: 9/10/2018
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ENGINEERING**

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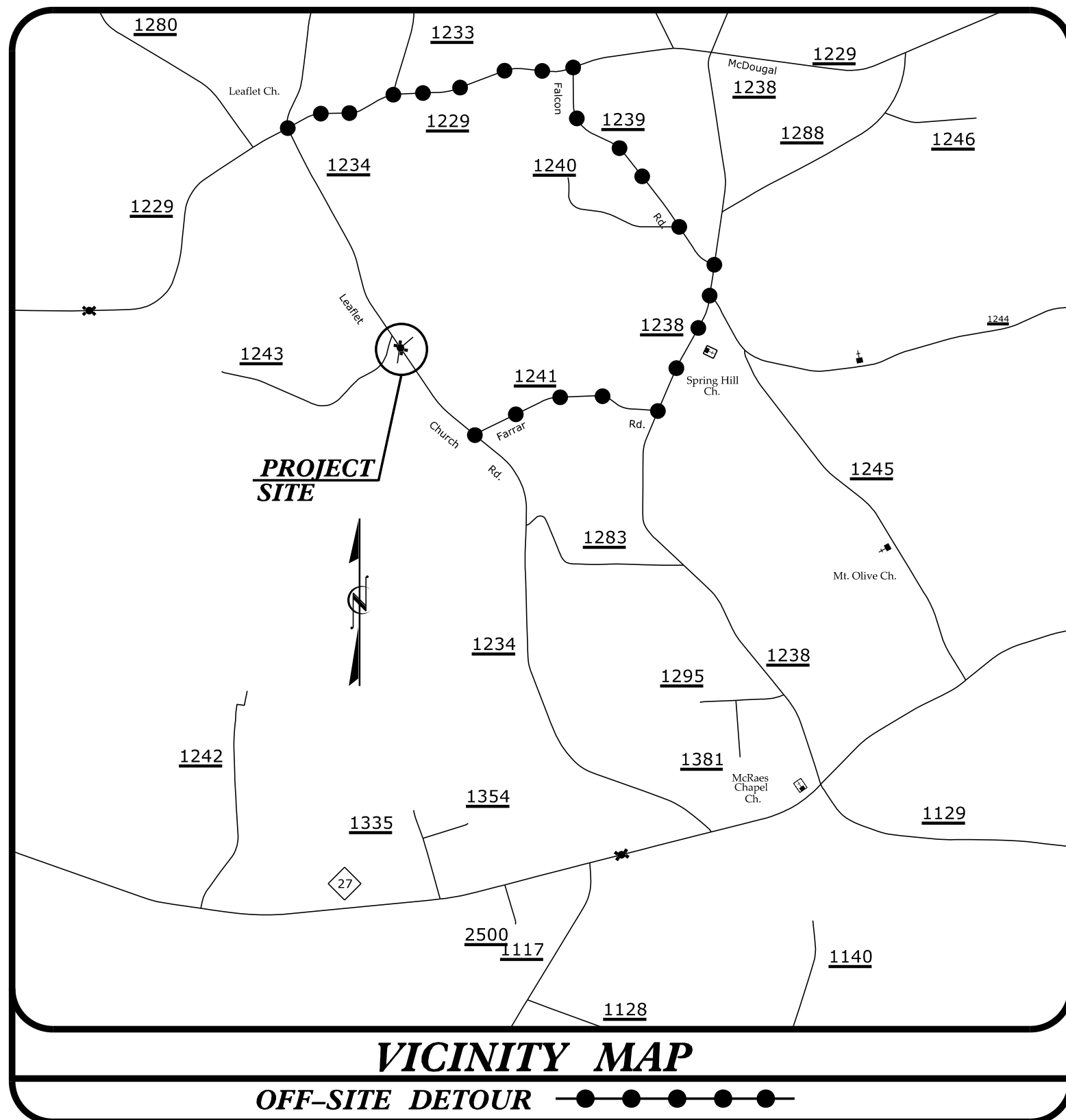
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
 CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



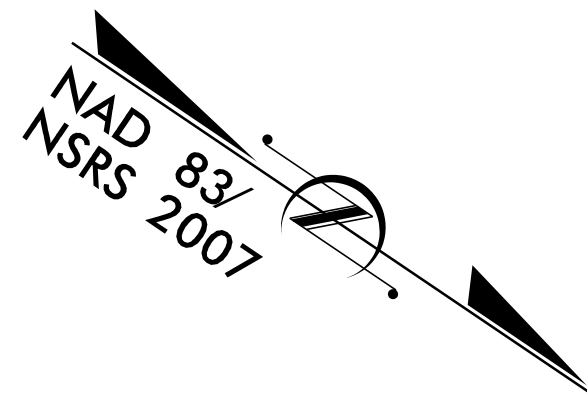
**PAVEMENT MARKING
DETAIL**

TIP PROJECT: B-5414

See Sheet 1-A For Index of Sheets



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



* - DESIGN EXCEPTION
REQUIRED FOR SAG
VERTICAL CURVE K VALUE
AND VERTICAL STOPPING
SIGHT DISTANCE

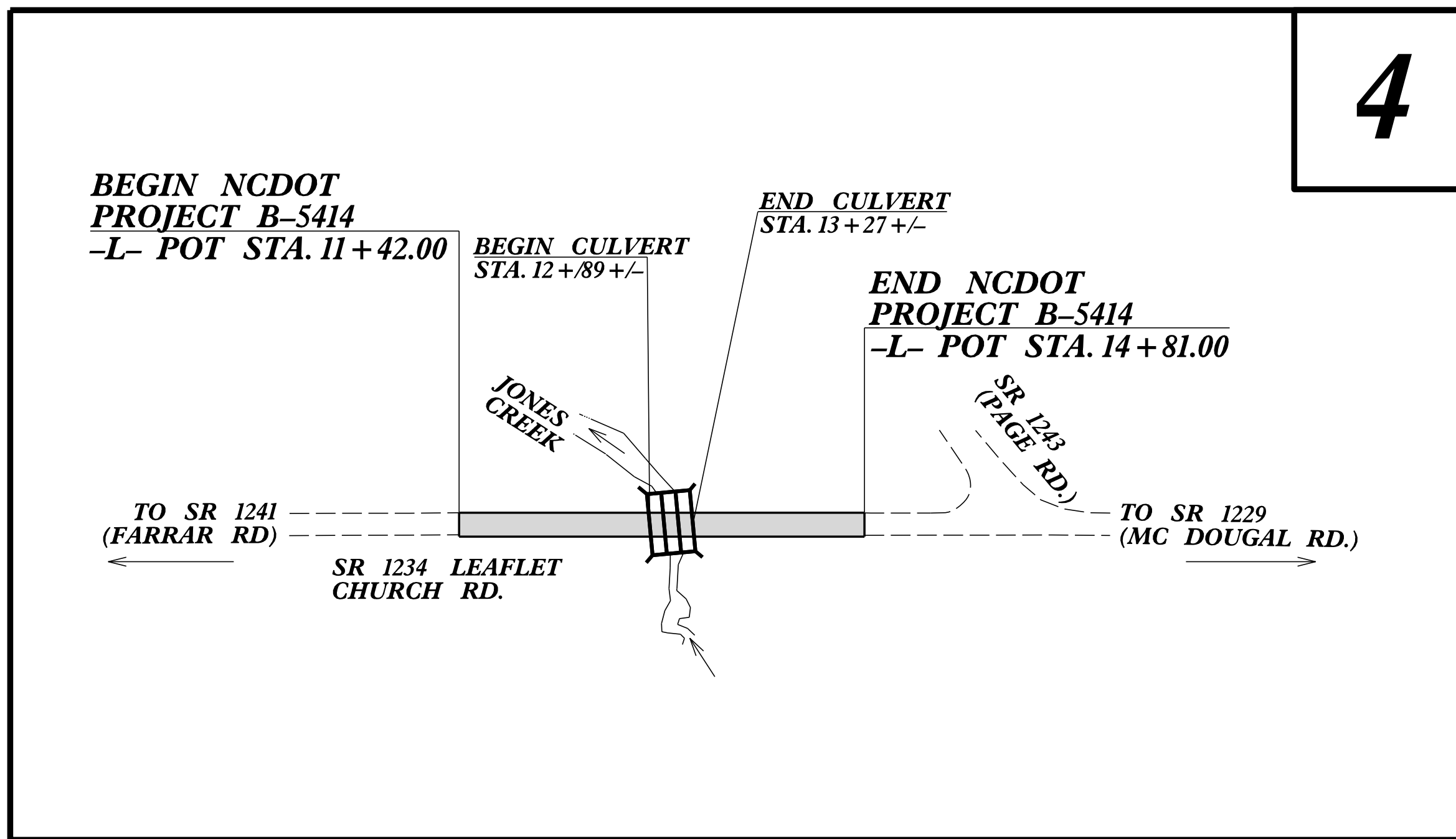
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HARNETT COUNTY

**LOCATION: BRIDGE NO. 420195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5414	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

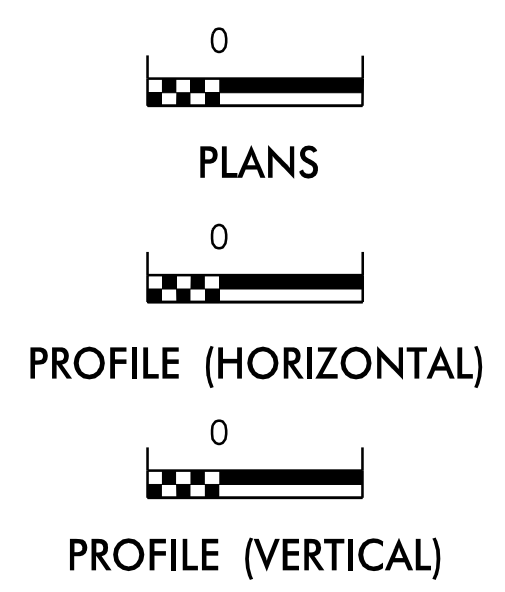
EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	---
1630.05	Temporary Diversion	--- TD ---
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▲▲▲▲▲▲▲▲▲▲
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle / Coir Fiber Wattle	— W —
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	— W —
1634.01	Temporary Rock Sediment Dam Type-A	▨
1634.02	Temporary Rock Sediment Dam Type-B	▨
1635.01	Rock Pipe Inlet Sediment Trap Type-A	U
1635.02	Rock Pipe Inlet Sediment Trap Type-B	U
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.**

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

GRAPHIC SCALE



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

Prepared in the Office of:
WETHERILL ENGINEERING
1223 JONES FRANKLIN RD.
RALEIGH NC 27606

Designed by:
HARMINDER SINGH 3519
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:
NOELLE RING, 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 revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

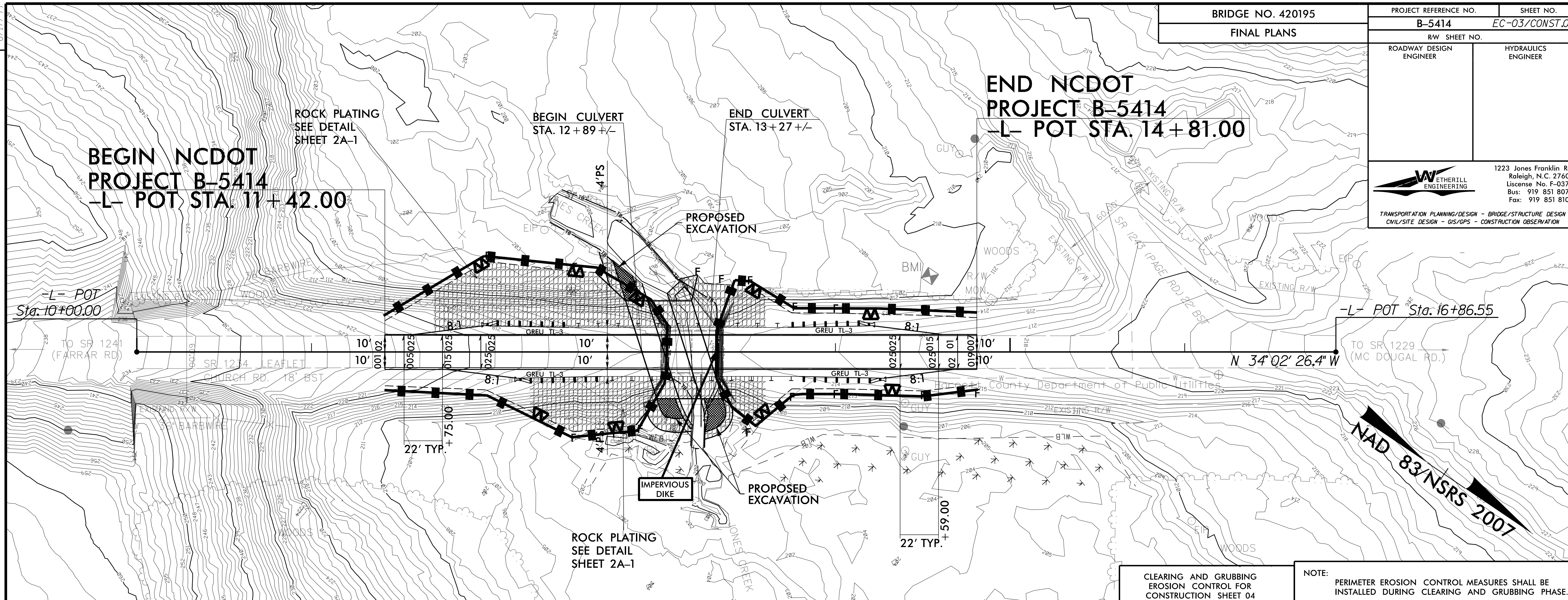
<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES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

END NCDOT
PROJECT B-5414
-L- POT STA. 14+81.00

BEGIN NCDOT
PROJECT B-5414
-L- POT STA. 11+42.00

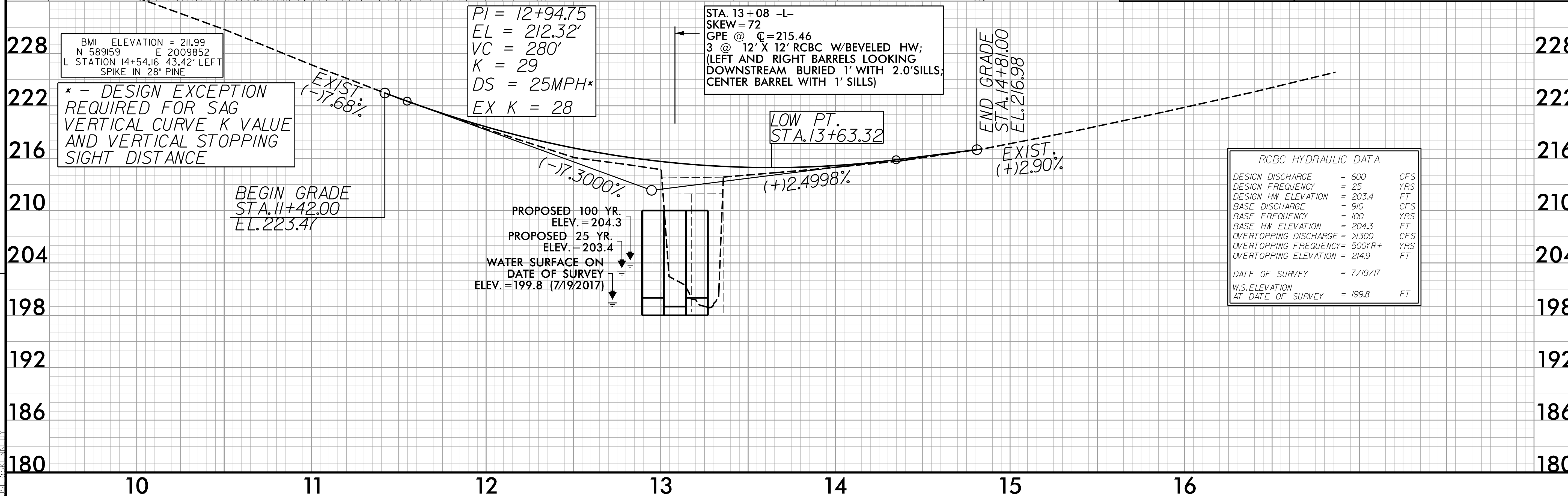
-L- POT
Sta. 10+00.00

-L- POT Sta. 16+86.55



CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 04

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.



BMI ELEVATION = 211.99
N 589159 E 2009852
L STATION 14+54.16 43.42' LEFT
SPIKE IN 28" PINE

* - DESIGN EXCEPTION
REQUIRED FOR SAG
VERTICAL CURVE K VALUE
AND VERTICAL STOPPING
SIGHT DISTANCE

BEGIN GRADE
STA. 11+42.00
EL. 223.47

PROPOSED 100 YR.
ELEV. = 204.3
PROPOSED 25 YR.
ELEV. = 203.4
WATER SURFACE ON
DATE OF SURVEY
ELEV. = 199.8 (7/19/2017)

RCBC HYDRAULIC DATA	
DESIGN DISCHARGE	= 600 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 203.4 FT
BASE DISCHARGE	= 910 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 204.3 FT
OVERTOPPING DISCHARGE	= >1300 CFS
OVERTOPPING FREQUENCY	= 500YR+ YRS
OVERTOPPING ELEVATION	= 214.9 FT
DATE OF SURVEY	= 7/19/17
W.S. ELEVATION AT DATE OF SURVEY	= 199.8 FT

REVISIONS

6/14/2018
6/15/2018 EC.PSH.CC.dgn
TISERSKENNY

B-17/99

CULVERT CONSTRUCTION PHASING

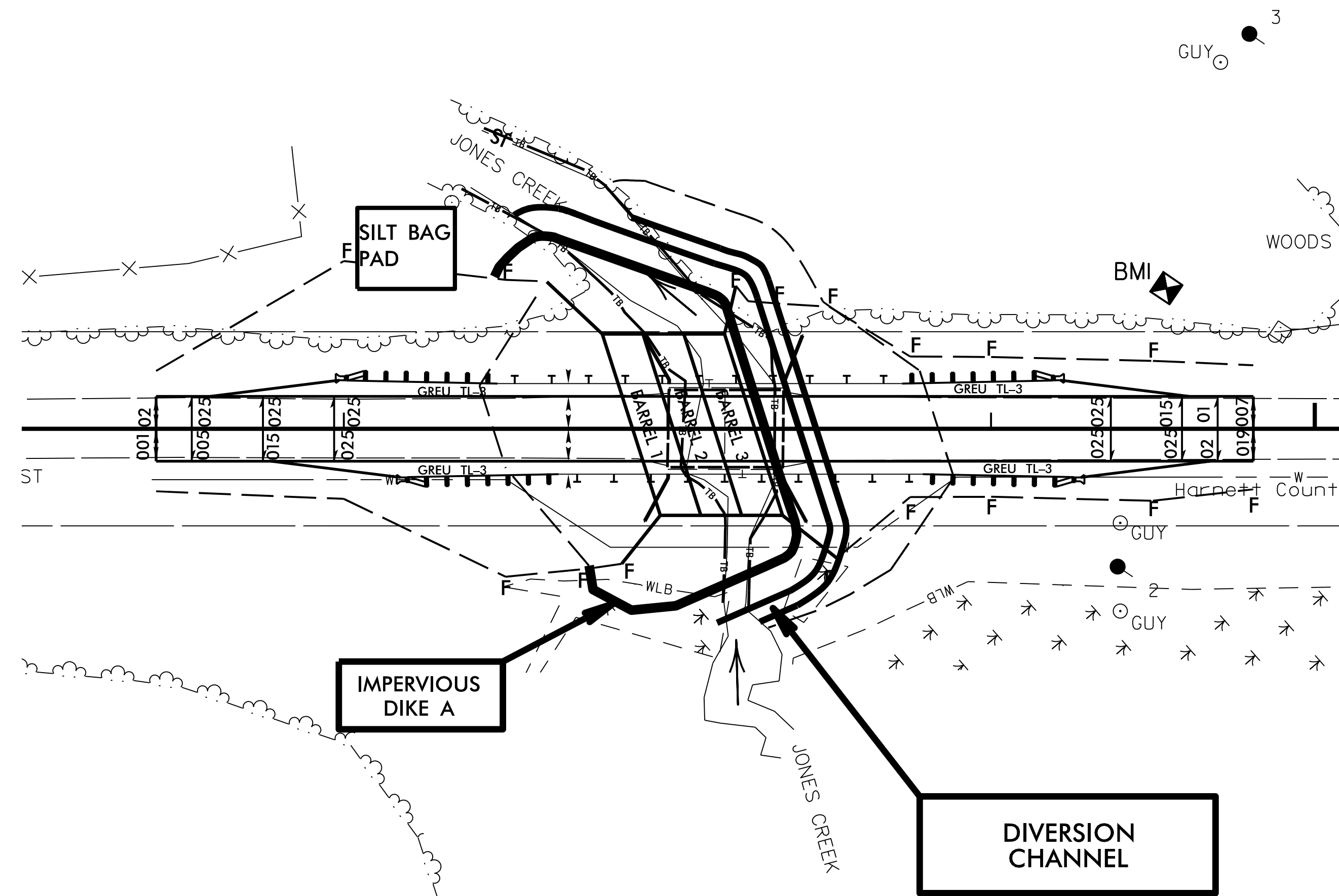
CONSTRUCTION SEQUENCE PHASE A

1. INSTALL PROPOSED EROSION CONTROL MEASURES
2. INSTALL SILT BAG PAD AND SILT BAG FOR PUMPED EFFLUENT.
3. CONSTRUCT BYPASS CHANNEL AND IMPERVIOUS DIKE A.
 CHANNEL DIMESIONS: BASE = 5', DEPTH = 4', SIDE SLOPES :2:1
4. CONSTRUCT BARREL 1 AND 2.

CONSTRUCTION SEQUENCE PHASE B

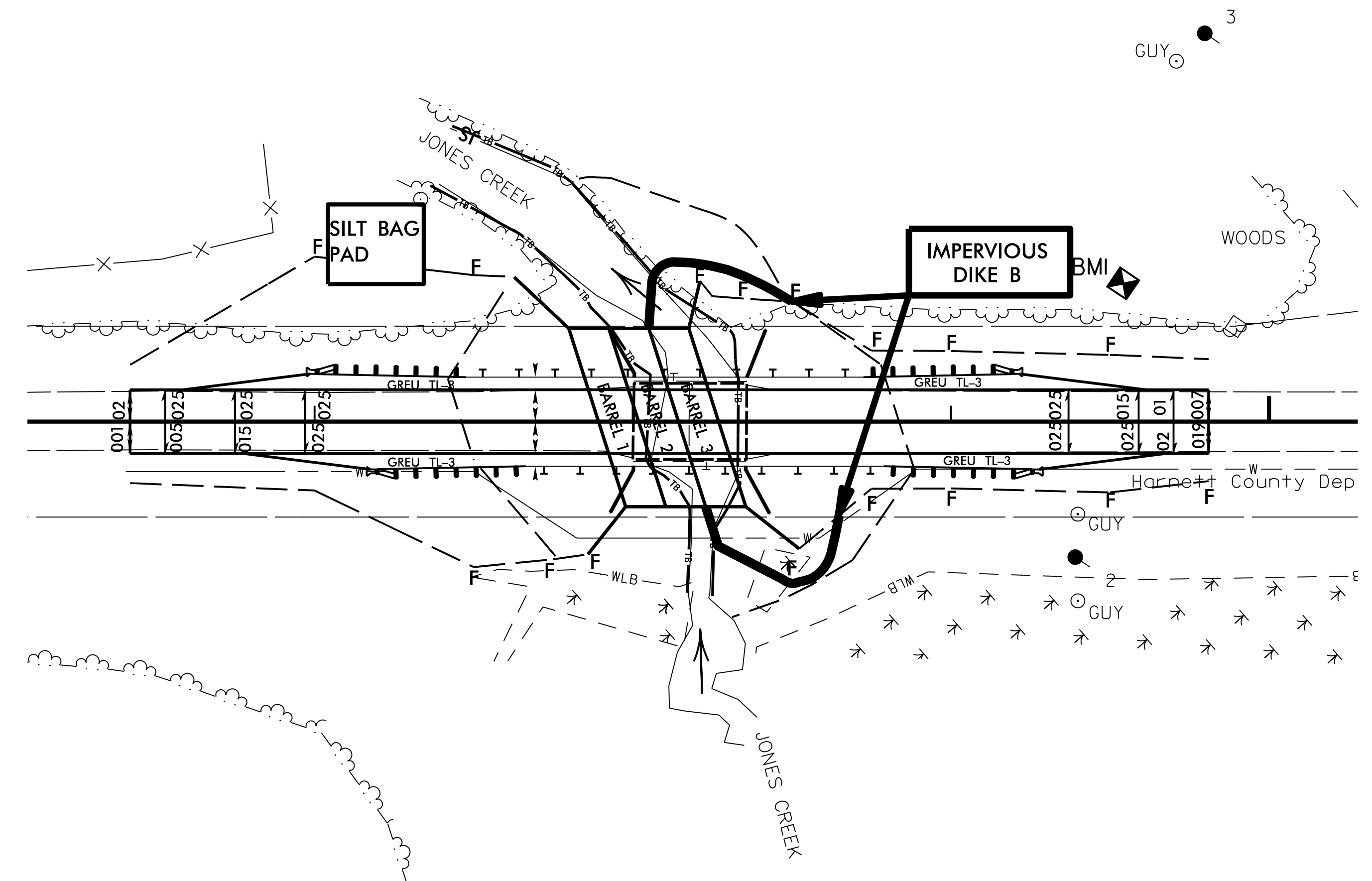
5. REMOVE IMPERVIOUS DIKE A AND DIVERT FLOW INTO BARREL 2.
6. CONSTRUCT IMPERVIOUS DIKE B.
7. CONSTRUCT BARREL 3
8. REMOVE IMPERVIOUS DIKE B AND SILT BAG & PAD AND COMPLETE ROADWAY.

PHASE A



BRIDGE NO. 195

PHASE B



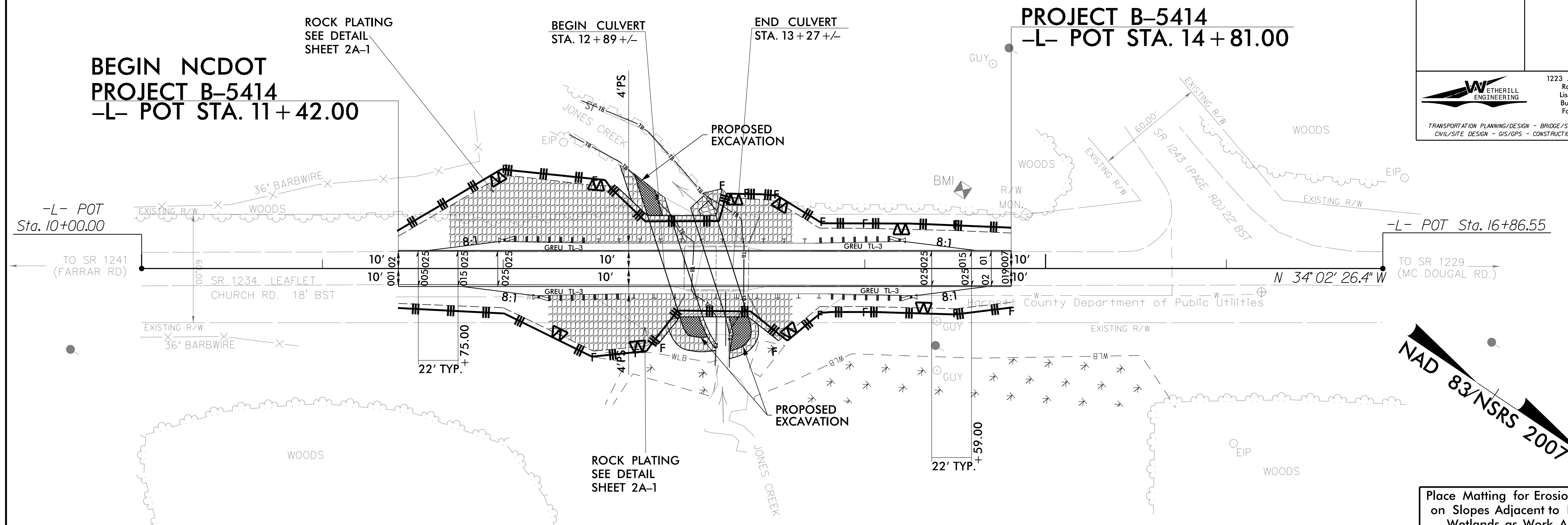
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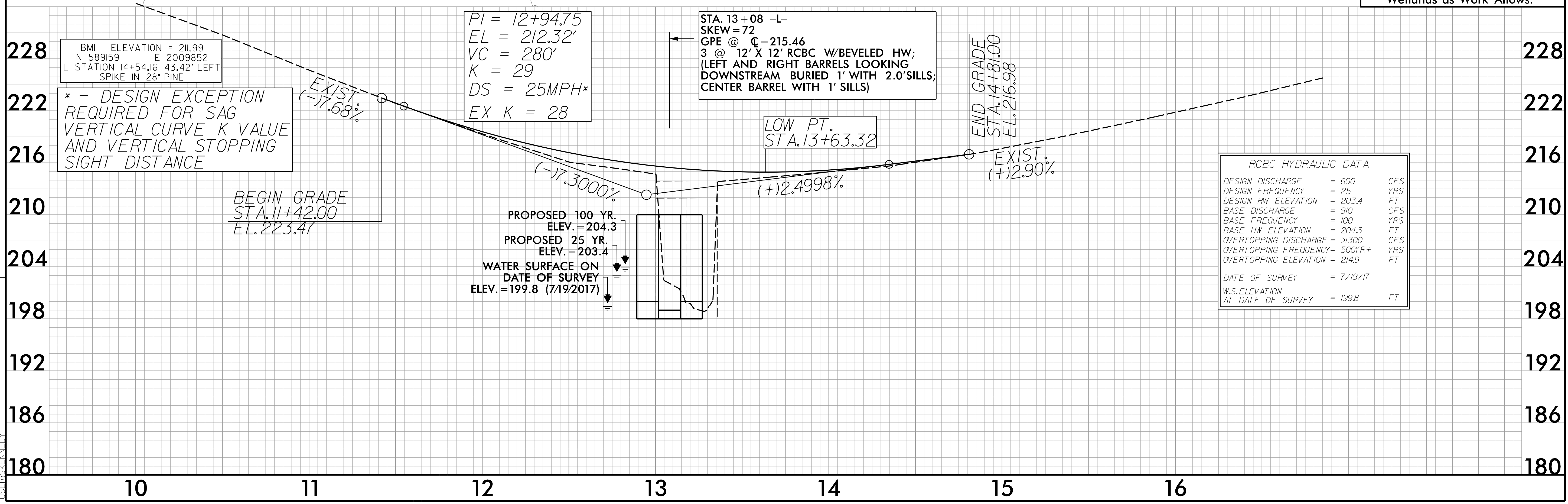
BEGIN NCDOT PROJECT B-5414 -L- POT STA. 11 + 42.00

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



Place Matting for Erosion Control on Slopes Adjacent to Permitted Wetlands as Work Allows.



BMI ELEVATION = 211.99
N 589159 E 2009852
L STATION 14+54.16 43.42' LEFT
SPIKE IN 28" PINE

* - DESIGN EXCEPTION
REQUIRED FOR SAG
VERTICAL CURVE K VALUE
AND VERTICAL STOPPING
SIGHT DISTANCE

BEGIN GRADE
STA. 11+42.00
EL. 223.47

PROPOSED 100 YR.
ELEV. = 204.3
PROPOSED 25 YR.
ELEV. = 203.4
WATER SURFACE ON
DATE OF SURVEY
ELEV. = 199.8 (7/19/2017)

LOW PT.
STA. 13+63.32

RCBC HYDRAULIC DATA	
DESIGN DISCHARGE	= 600 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 203.4 FT
BASE DISCHARGE	= 910 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 204.3 FT
OVERTOPPING DISCHARGE	= >1300 CFS
OVERTOPPING FREQUENCY	= 500YR+ YRS
OVERTOPPING ELEVATION	= 214.9 FT
DATE OF SURVEY	= 7/19/17
W.S. ELEVATION AT DATE OF SURVEY	= 199.8 FT

REVISIONS

8/17/99

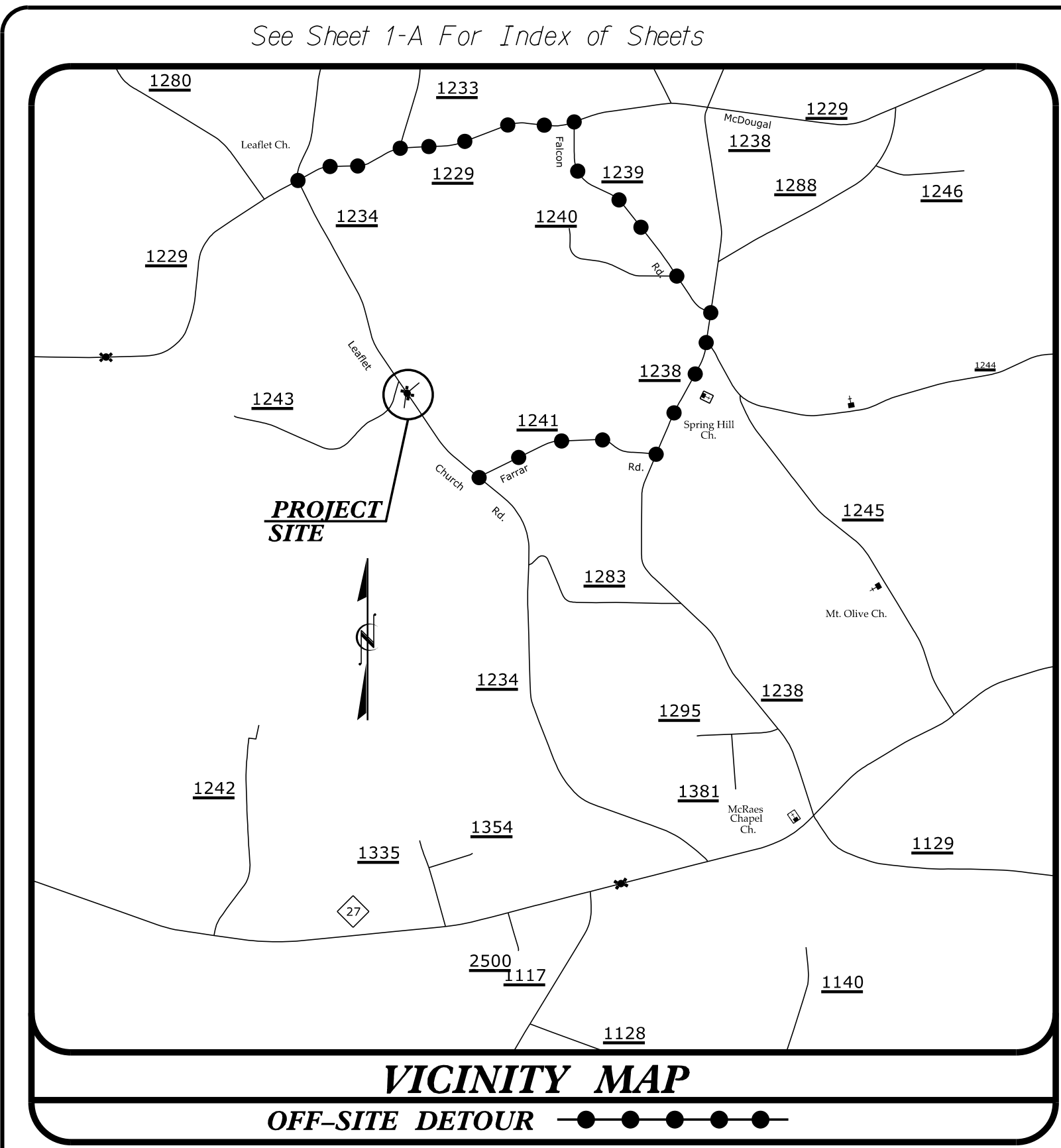
6/14/2018
USERS:SKENNEDY
EC_PSH-Final.dgn

09_08/2018

8/14/2018
I:\Projects\B5414\ut_tsh_uc\psh.dgn
USER:SKENNEDY

TIP PROJECT: B-5414

CONTRACT: DF00224



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITY CONSTRUCTION PLANS
HARNETT COUNTY

LOCATION: BRIDGE NO. 420195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH RD.)

TYPE OF WORK: UTILITY CONSTRUCTION

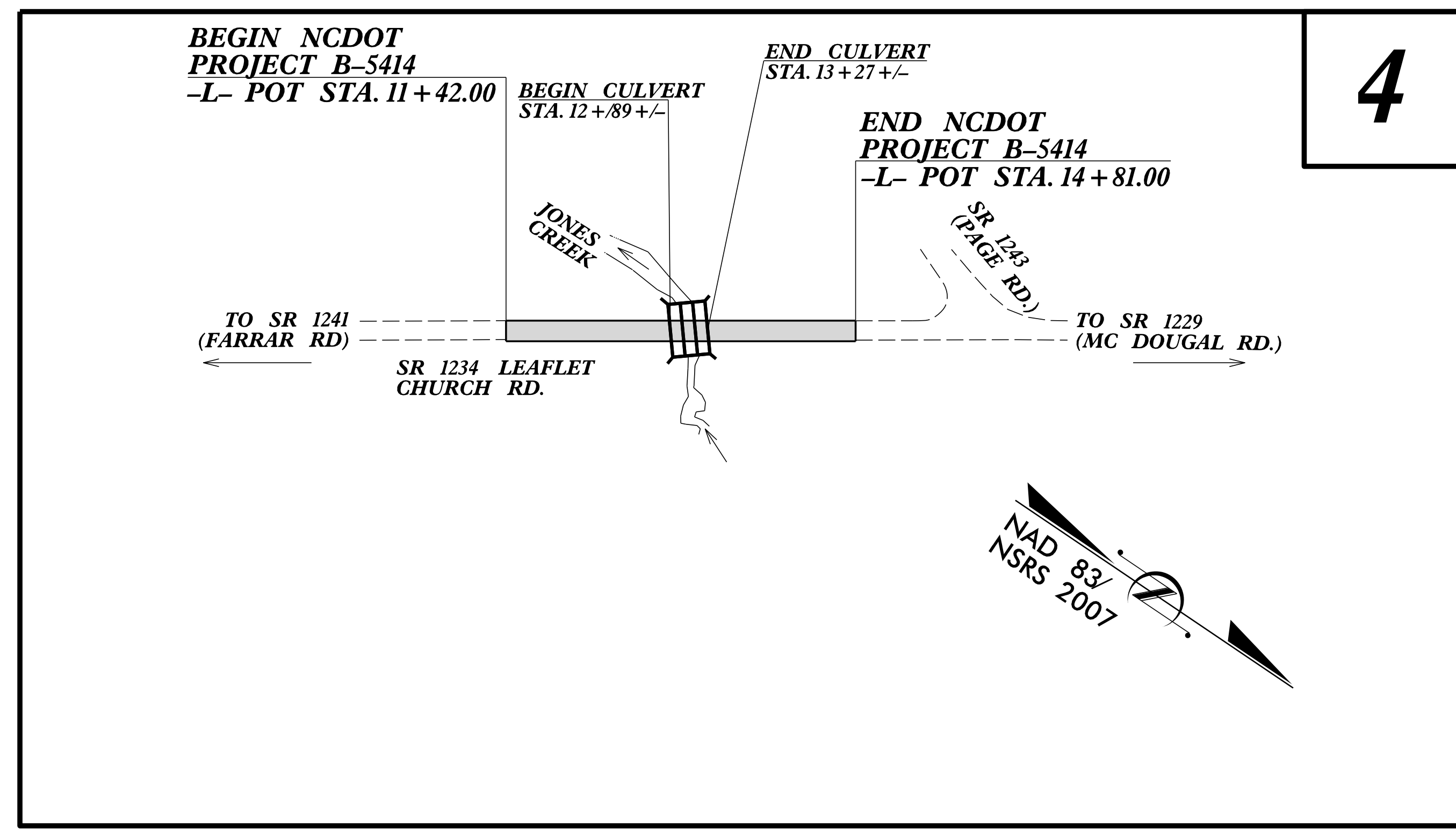
T.I.P. NO.	SHEET NO.
B-5414	UC-1

WETHERILL ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

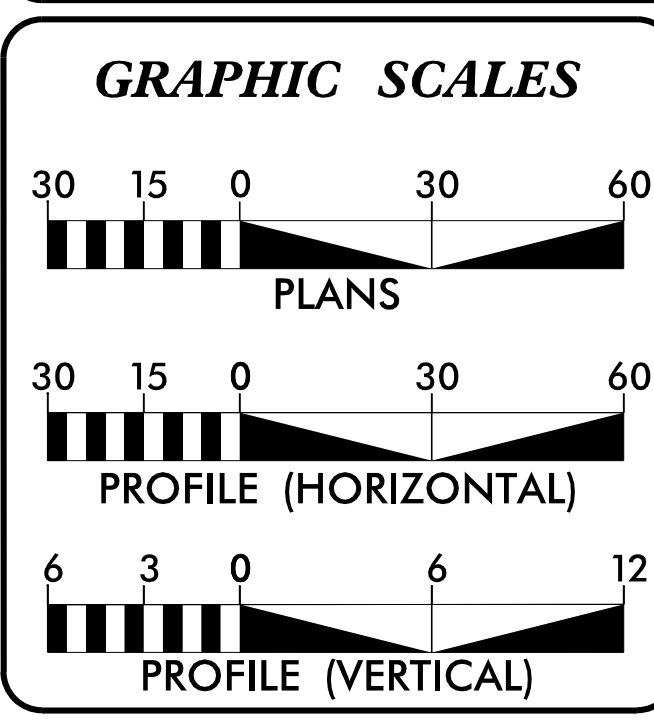
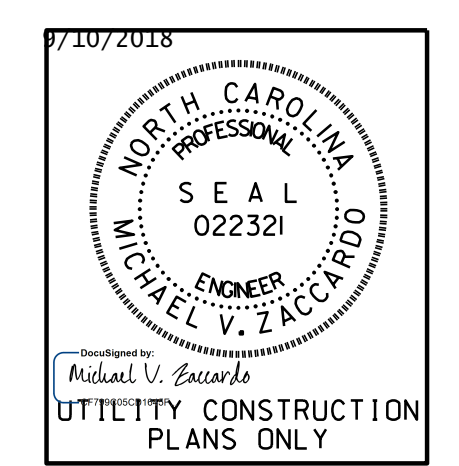
BRIDGE #420195

FINAL DESIGN
RELEASE
FOR CONSTRUCTION



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UC-1	TITLE SHEET
UC-2	SYMBOLGY SHEET
UC-3	GENERAL NOTES SHEET
UC-3A	DETAIL SHEET
UC-4	PLAN & PROFILE SHEET

WATER AND SEWER OWNERS ON PROJECT

(1) HARNETT COUNTY DEPARTMENT OF PUBLIC UTILITIES (WATER)

Prepared for: DIVISION OF HIGHWAYS
DIVISION SIX
in the Office of:

WETHERILL ENGINEERING
2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 9, 2018

LETTING DATE:
AUGUST 15, 2018

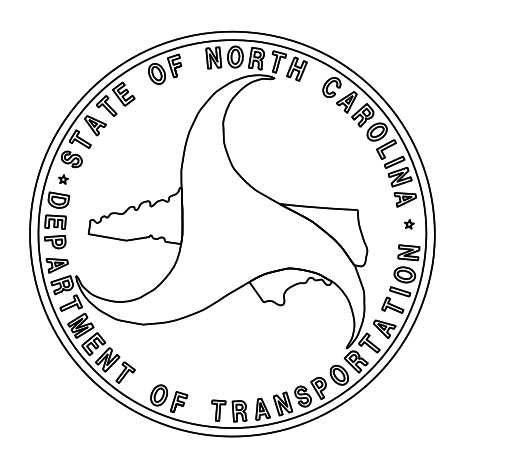
NCDOT CONTACT: CHRISTY W. HUFF, PE
DIVISION 6 BRIDGE PROGRAM MANAGER

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

GREG S. PURVIS, PE
PROJECT DESIGN ENGINEER

MICHAEL V. ZACCARDO, PE
UTILITY DESIGN ENGINEER

1223 JONES FRANKLIN ROAD
RALEIGH, N.C. 27606
LICENSE NO. F-0377
BUS: 919 851 8077
FAX: 919 851 8107



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

Water Line (Sized as Shown)	
11 1/4 Degree Bend	
22 1/2 Degree Bend	
45 Degree Bend	
90 Degree Bend	
Plug	
Tee	
Cross	
Reducer	
Gate Valve	
Butterfly Valve	
Tapping Valve	
Line Stop	
Line Stop with Bypass	
Blow Off	
Fire Hydrant	
Relocate Fire Hydrant	
Remove Fire Hydrant	REM FH
Water Meter	
Relocate Water Meter	
Remove Water Meter	REM WM
Water Pump Station	
RPZ Backflow Preventer	
DCV Backflow Preventer	
Relocate RPZ Backflow Preventer	
Relocate DCV Backflow Preventer	

PROPOSED SEWER SYMBOLS

Gravity Sewer Line (Sized as Shown)	
Force Main Sewer Line (Sized as Shown)	
Manhole (Sized per Note)	
Sewer Pump Station	

PROPOSED MISCELLANEOUS UTILITIES SYMBOLS

Power Pole	
Telephone Pole	
Joint Use Pole	
Telephone Pedestal	
Utility Line by Others (Type as Shown)	
Trenchless Installation	
Encasement by Open Cut	
Encasement	

Thrust Block	
Air Release Valve	
Utility Vault	
Concrete Pier	
Steel Pier	
Plan Note	
Pay Item Note	

EXISTING UTILITIES SYMBOLS

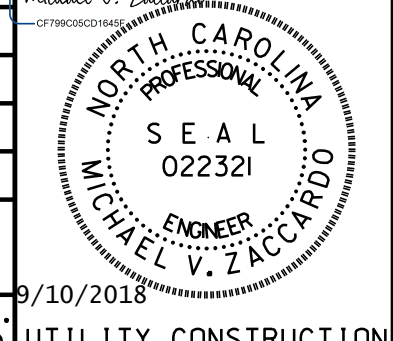

Power Pole		*Underground Power Line	
Telephone Pole		*Underground Telephone Cable	
Joint Use Pole		*Underground Telephone Conduit	
Utility Pole		*Underground Fiber Optics Telephone Cable	
Utility Pole with Base		*Underground TV Cable	
H-Frame Pole		*Underground Fiber Optics TV Cable	
Power Transmission Line Tower		*Underground Gas Pipeline	
Water Manhole		Aboveground Gas Pipeline	
Power Manhole		*Underground Water Line	
Telephone Manhole		Aboveground Water Line	
Sanitary Sewer Manhole		*Underground Gravity Sanitary Sewer Line	
Hand Hole for Cable		Aboveground Gravity Sanitary Sewer Line	
Power Transformer		*Underground SS Forced Main Line	
Telephone Pedestal		Underground Unknown Utility Line	
CATV Pedestal		SUE Test Hole	
Gas Valve		Water Meter	
Gas Meter		Water Valve	
Located Miscellaneous Utility Object		Fire Hydrant	
Abandoned According to Utility Records	AATUR	Sanitary Sewer Cleanout	
End of Information	E.O.I.		

*For Existing Utilities
 Utility Line Drawn from Record (Type as Shown)
 Designated Utility Line (Type as Shown)

5/14/99
6/13/2008
B-5414-UC-2-PSH.dgn
REV: 2/1/2012

5/14/19

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	PROJECT REFERENCE NO.	B-5414	SHEET NO.	UC-3
	DESIGNED BY:	SLK		
	DRAWN BY:	SLK		
	CHECKED BY:	MVZ		
	APPROVED BY:	MVZ		
	REVISED:			
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION		9/10/2018	UTILITY CONSTRUCTION PLANS ONLY	
UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151		 1223 Jones Franklin Rd. Raleigh, N.C. 27696 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION		

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 HARNETT COUNTY.
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. 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, WQ PERMITTING, PERCS UNIT. 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.


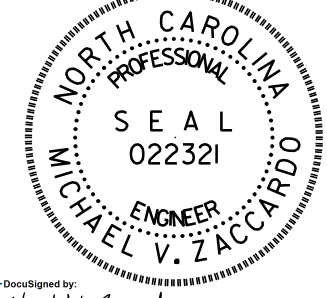
PROJECT SPECIFIC NOTES:

1. PROPOSED WATER LINE FROM -WL- LINE STATION 10+14 +/- TO 11+05 +/- SHALL BE 4" CL51 R.J.DIP, INSTALLED BY OPEN CUT METHOD, AND FROM -WL- LINE STATION 11+05 +/- TO 12+75 +/- SHALL BE 6" DR9 (DIPS) HDPE, INSTALLED BY DIRECTIONAL DRILL METHOD, AND FROM -WL- LINE STATION 12+75 +/- TO 13+57 +/- SHALL BE 4" CL51 R.J. DIP, INSTALLED BY OPEN CUT METHOD.
2. 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.
3. 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.

UTILITY CONSTRUCTION

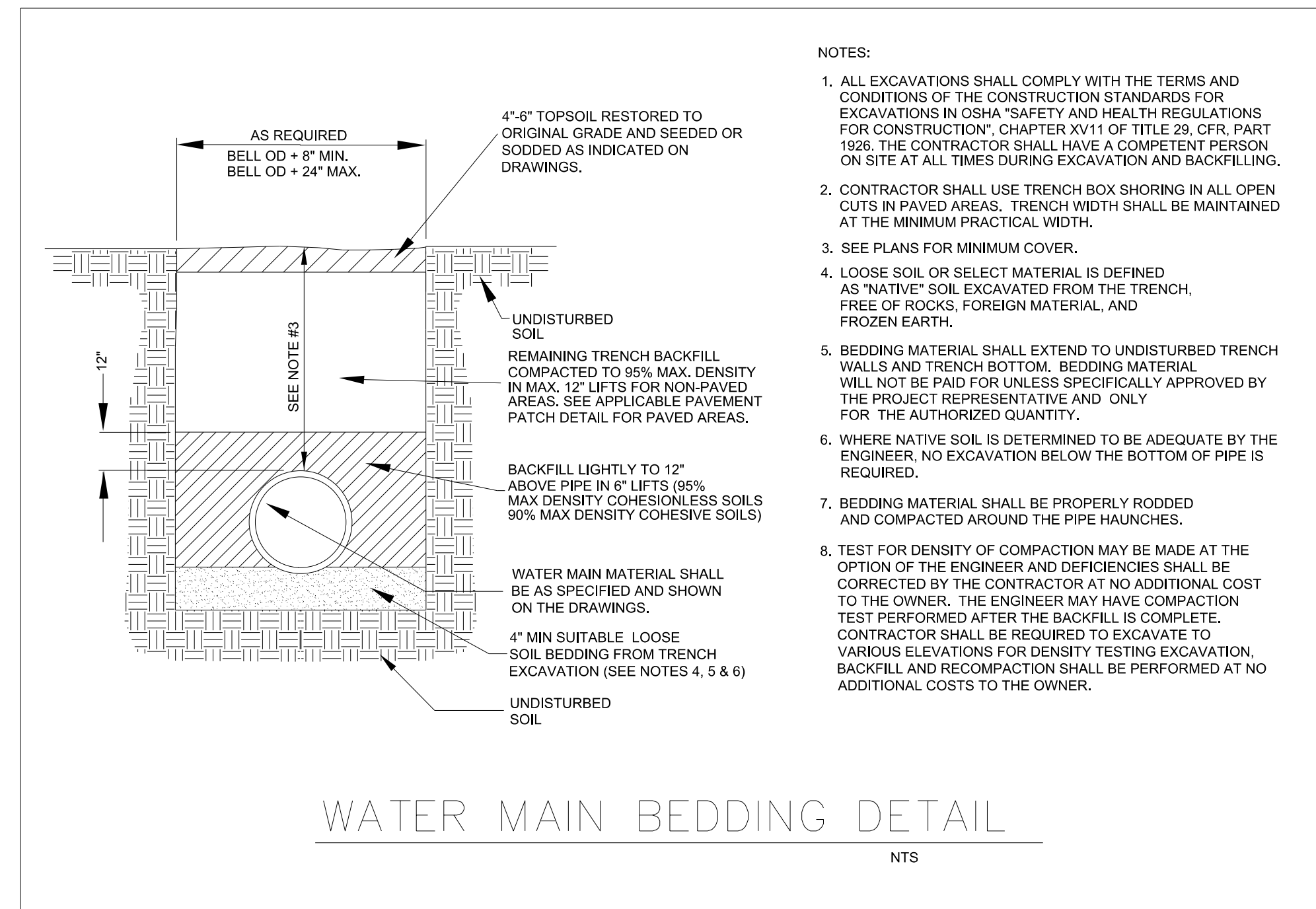
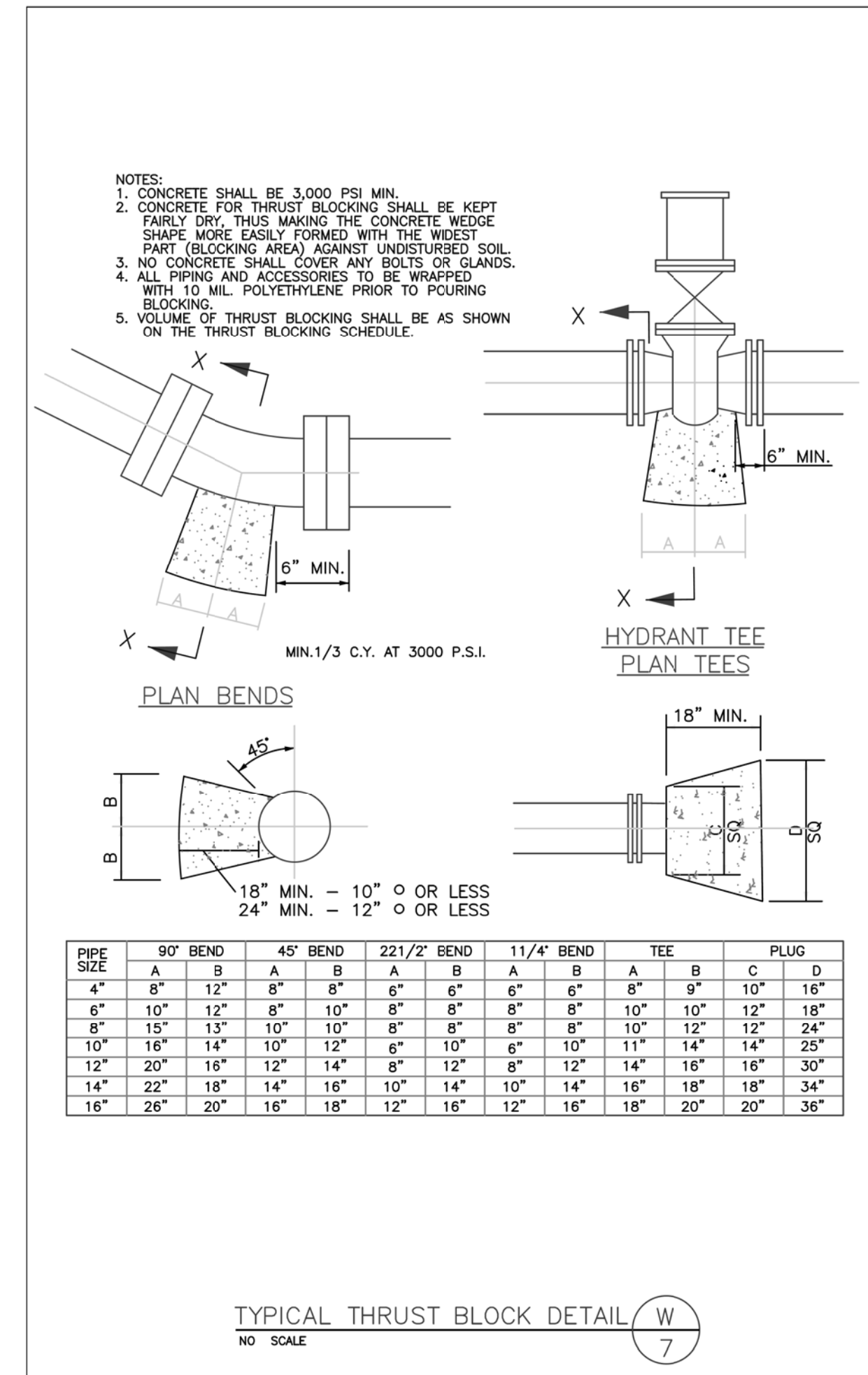
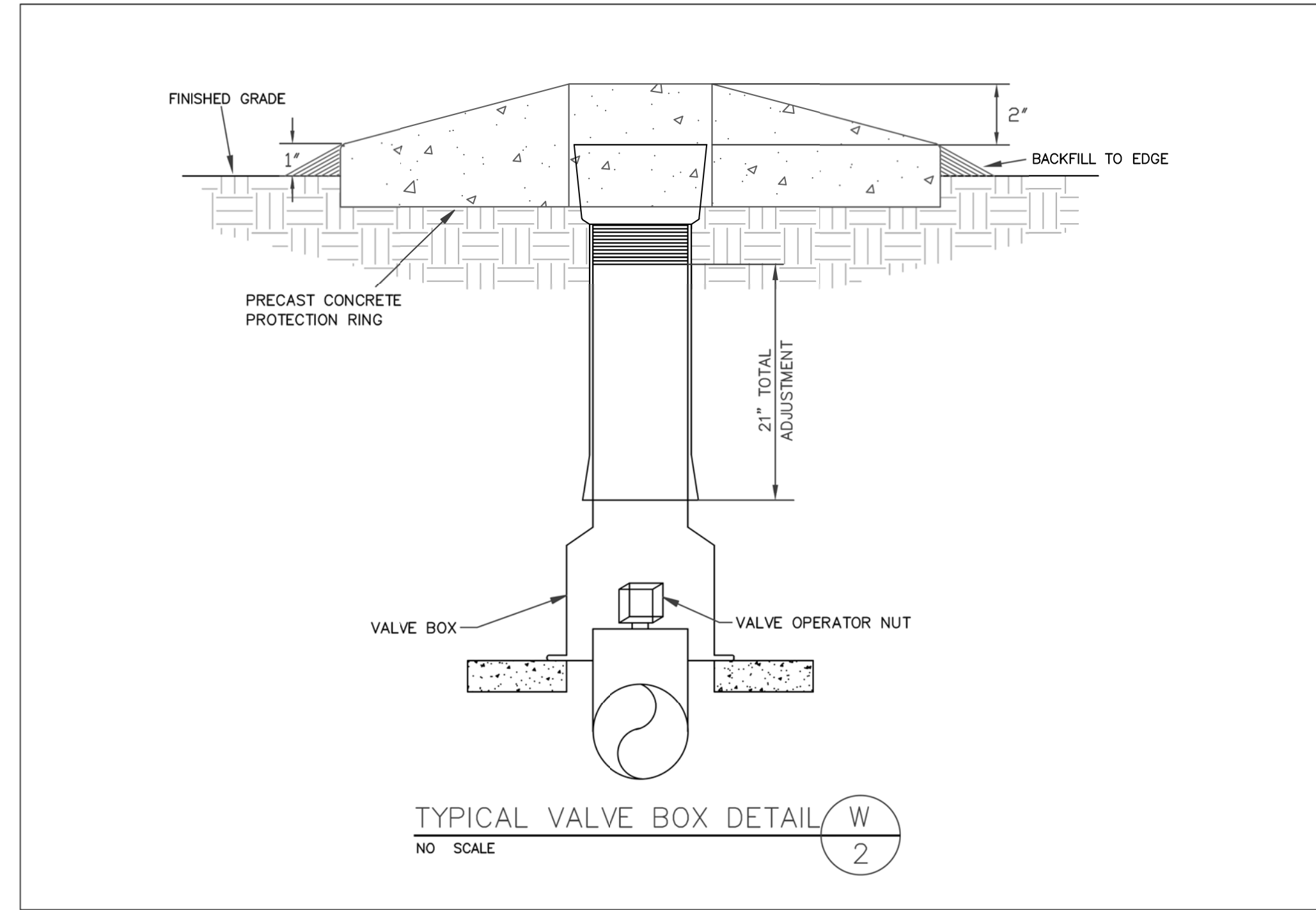
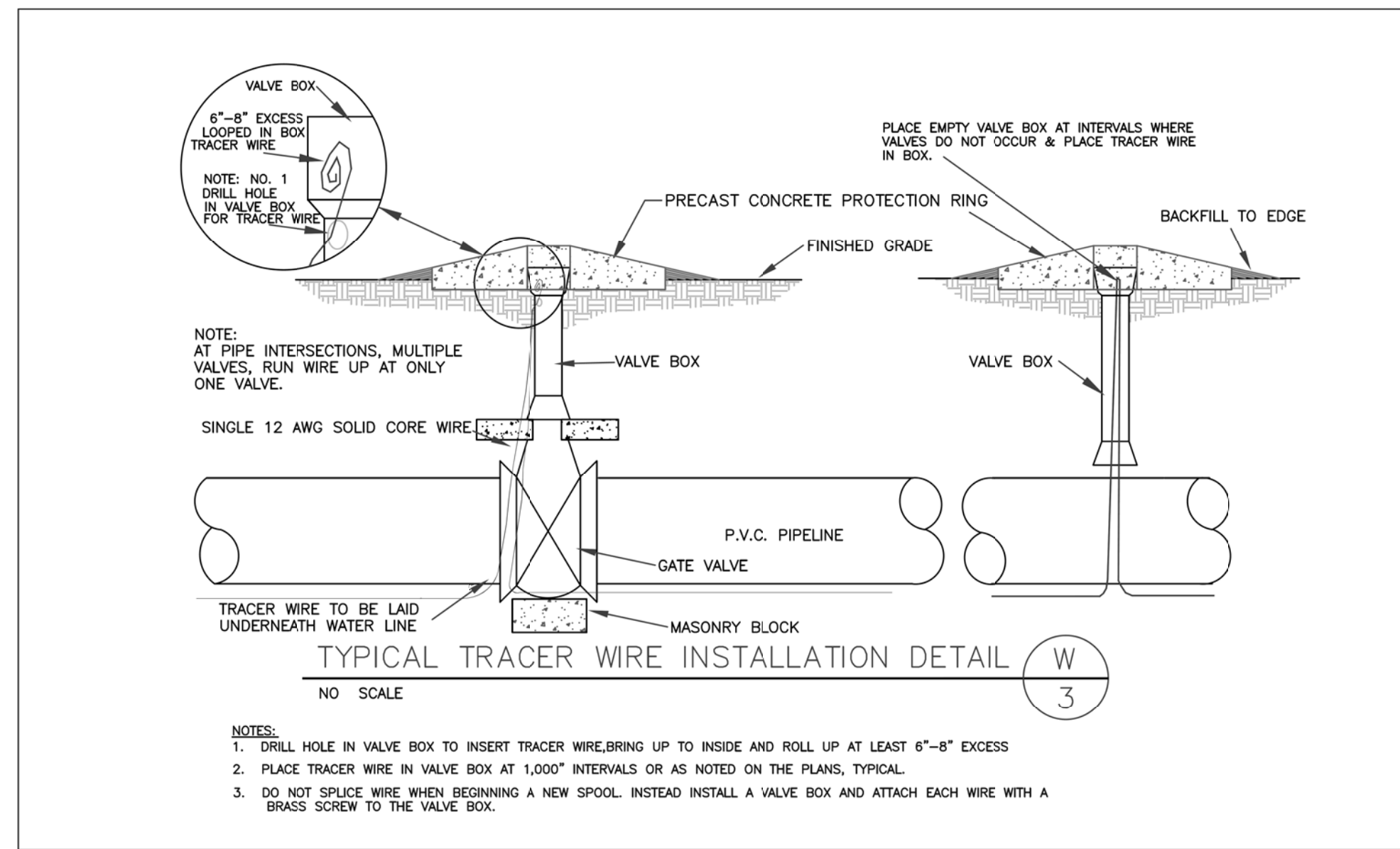
FINAL DESIGN
 RELEASE
 FOR CONSTRUCTION

8/14/2018 8:14 AM 14 ut_rdy4_UC3_psh.dgn

BRIDGE 420195 UTILITY CONSTRUCTION PLANS  1223 Jones Franklin Rd. Raleigh, N.C. 27606 License No. F-0377 Bus: 919 851 8077 Fax: 919 851 8107 TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	PROJECT REFERENCE NO. B-5414	SHEET NO. UC-3A
	DESIGNED BY: SLK DRAWN BY: SLK CHECKED BY: MVZ APPROVED BY: MVZ REVISED:	9/10/2018  NORTH CAROLINA DEPARTMENT OF TRANSPORTATION UTILITIES ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

UTILITY CONSTRUCTION

FINAL DESIGN
 RELEASE
 FOR CONSTRUCTION



NOTE: DUCTILE IRON WATER PIPE FITTINGS SHALL BE PAID FOR PER POUND

INSTALL A 4" LINE STOP ON EACH SIDE OF THE RELOCATED WATER MAIN. COORDINATE WORK WITH HARNETT COUNTY PUBLIC UTILITIES.

CONTRACTOR TO PROVIDE COUPLINGS TO CONNECT 6" DR9 (DIPS) HDPE PIPE TO 4" CLASS 51 R.J. DIP AND FROM 4" DIP TO EXISTING 4" PVC (TYP) BEGIN DIRECTIONAL DRILL OF NEW 6" DR9 (DIPS) HDPE WATER MAIN.

170 LF DIRECTIONAL DRILLING OF 6"

END CULVERT STA. 13+27 +/-

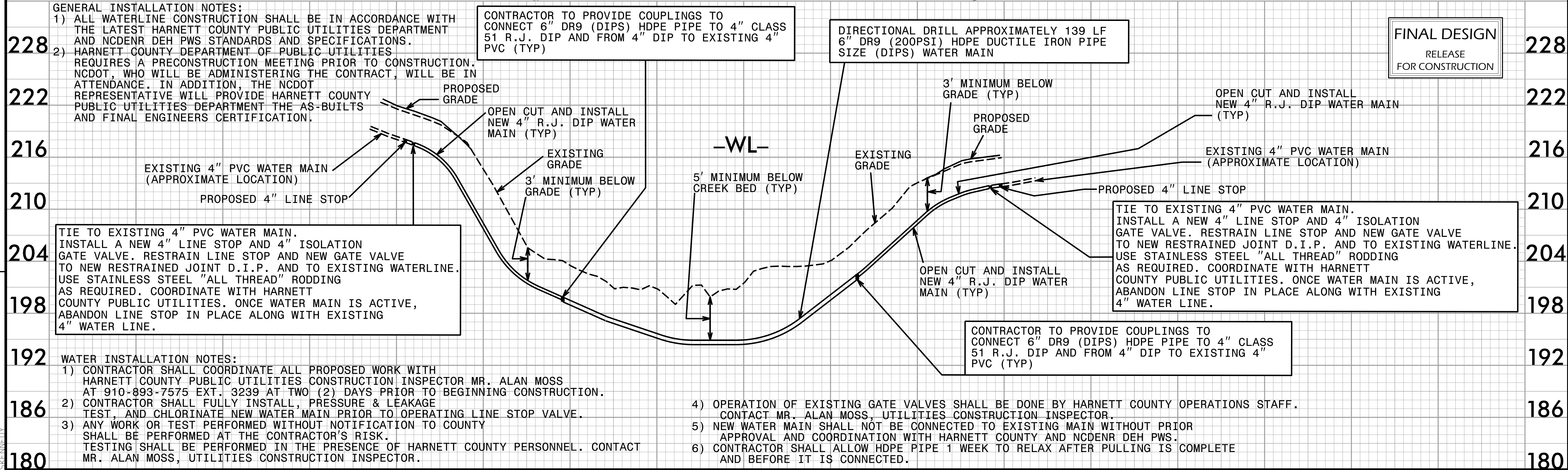
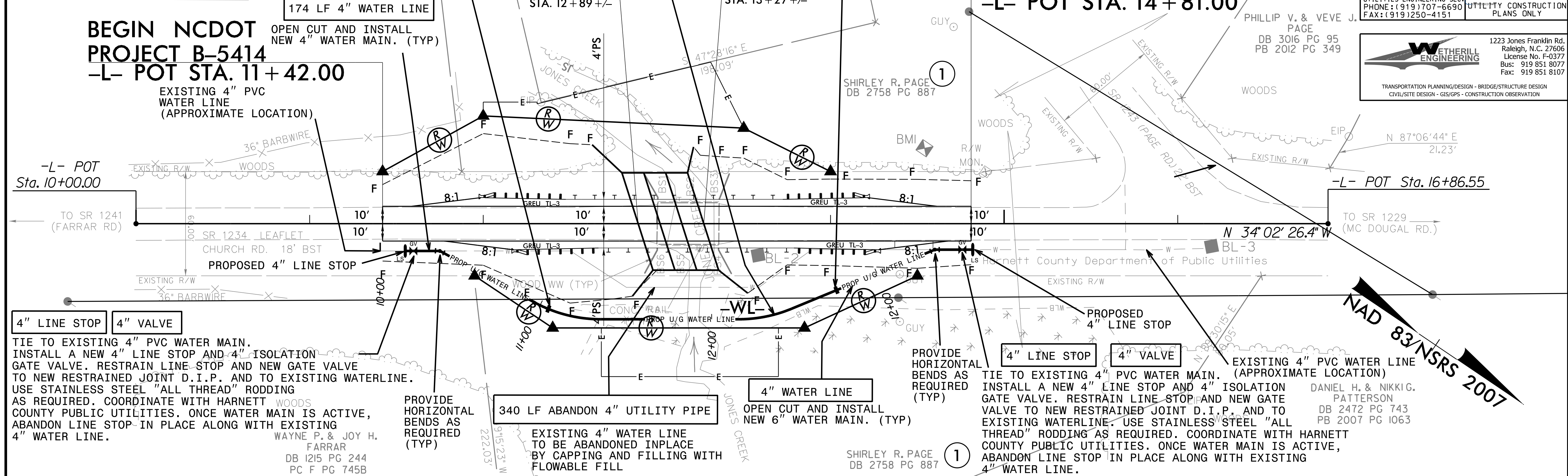
UTILITY CONSTRUCTION PLANS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DESIGNED BY: SLK	9/10/2018
DRAWN BY: SLK	
CHECKED BY: MVZ	
APPROVED BY: MVZ	
REVISED:	

UTILITY ENGINEERING SEC. PHONE: (919) 707-6690 FAX: (919) 250-4151

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



FINAL DESIGN

RELEASE FOR CONSTRUCTION

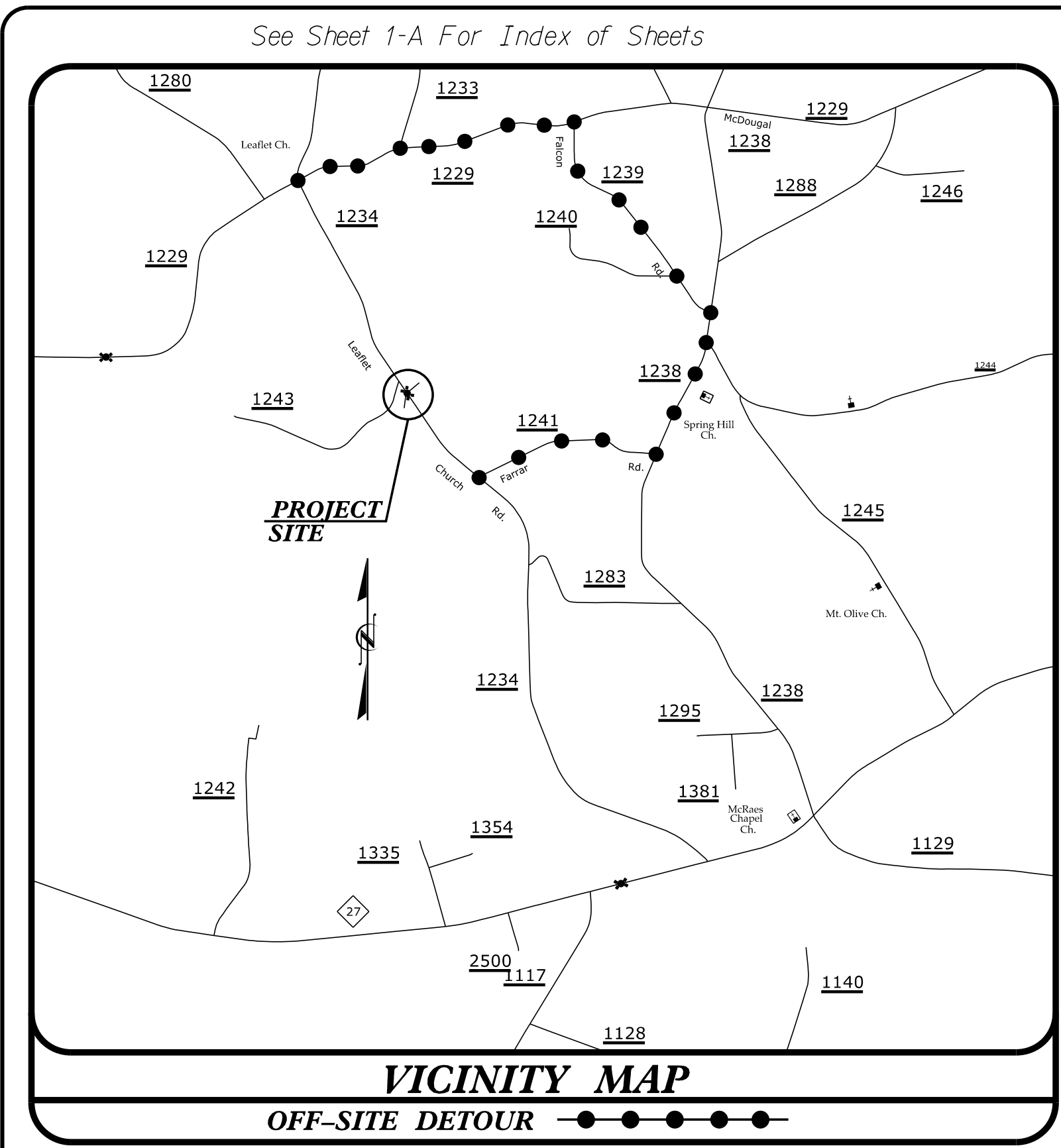
8/17/99

REVISIONS

8/14/2018 B5414.ut_rdy4_uc4_psh.dgn

09.08/09

TIP PROJECT: B-5414



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

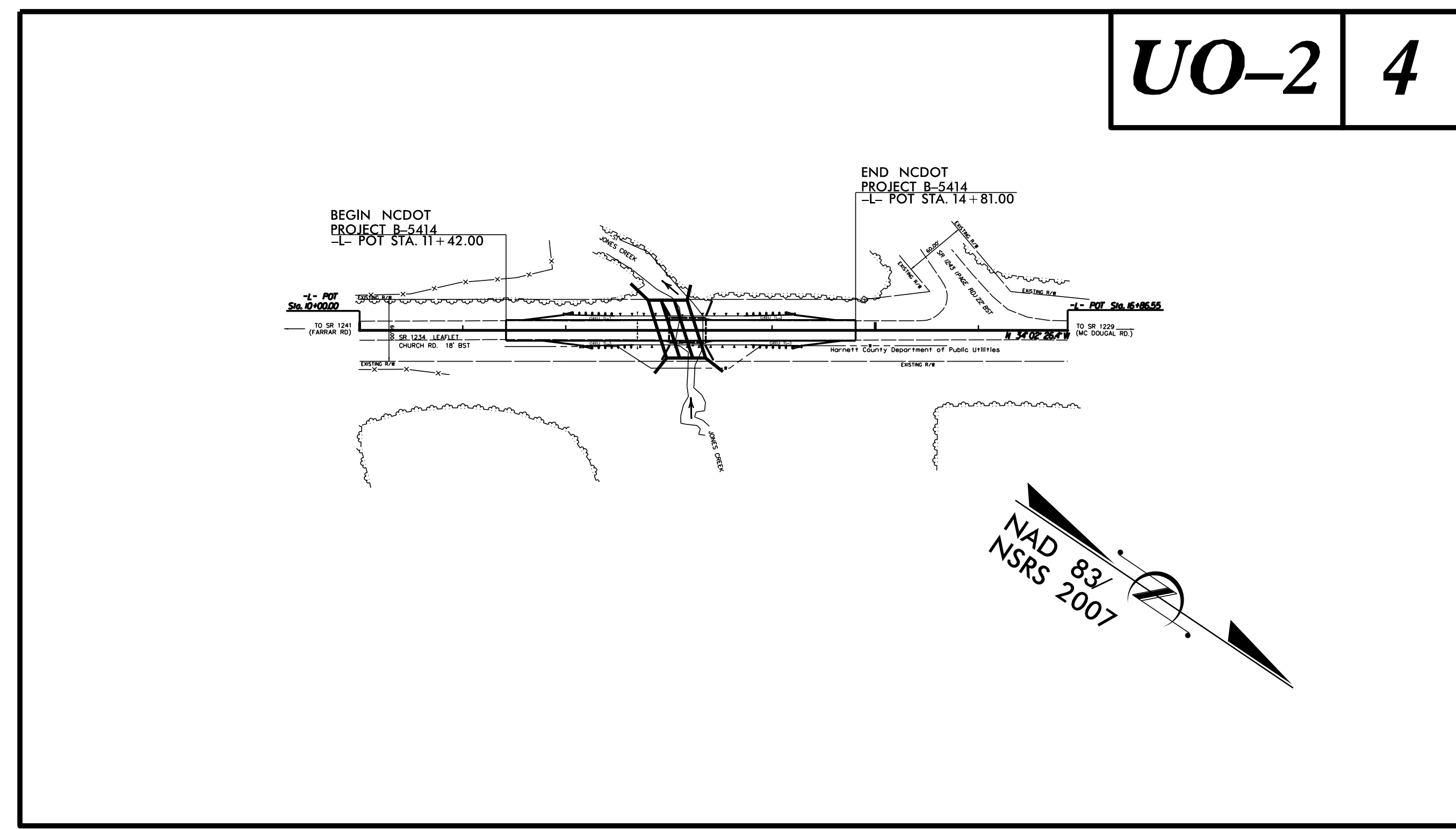
**UTILITIES BY OTHERS PLANS
HARNETT COUNTY**

**LOCATION: BRIDGE NO. 195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH ROAD)**

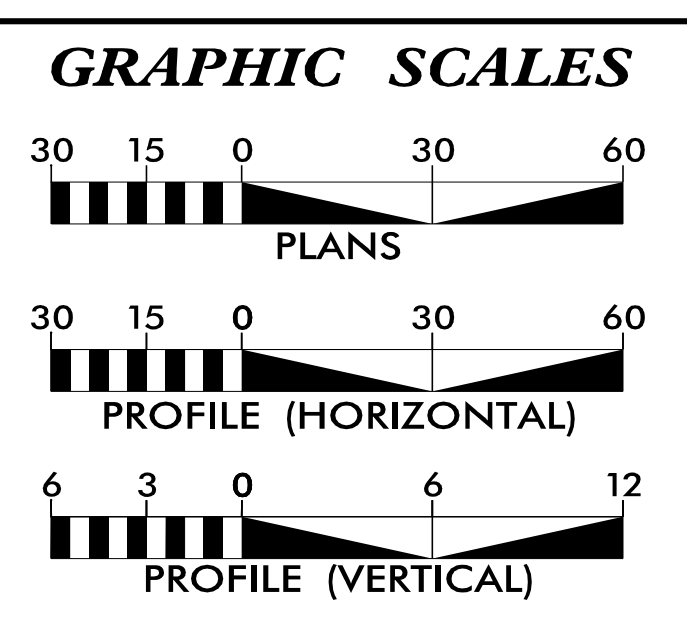
TYPE OF WORK: UTILITY RELOCATION

T.I.P. NO.	SHEET NO.
B-5414	UO-1

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET IS DONE BY OTHERS.
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.



INDEX OF SHEETS

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

- UTILITY OWNERS WITH CONFLICTS**
- (A) WATER - HARNETT COUNTY PUBLIC UTILITIES
 - (B) POWER - SOUTH RIVER EMC
 - (C) TELEPHONE - CENTURYLINK
 - (D) CATV - SPECTRUM

PREPARED IN THE OFFICE OF:

WETHERILL ENGINEERING

1223 Jones Franklin Rd. Raleigh, N.C. 27606
License No. F-0377
Bus: 919.851.8077 Fax: 919.851.8107

John D. Schriener, PLS UTILITY PROJECT MANAGER
John D. Schriener, PLS PROJECT UTILITY COORDINATOR

**DIVISION OF HIGHWAYS
DIVISION 6**

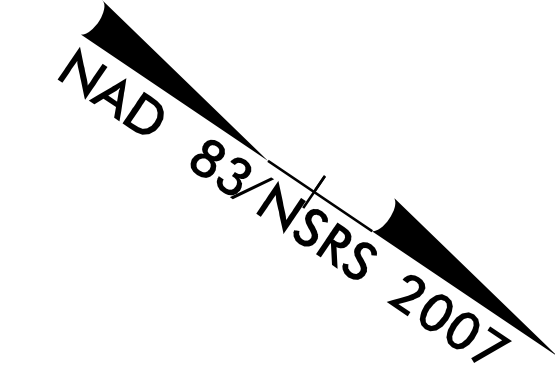
Highway Division 6
558 Gillespie Street
Fayetteville, NC 28301

Christy W. Huff, PE Division Design Engineer
Randy D. Rogers Division Utility Coordinator

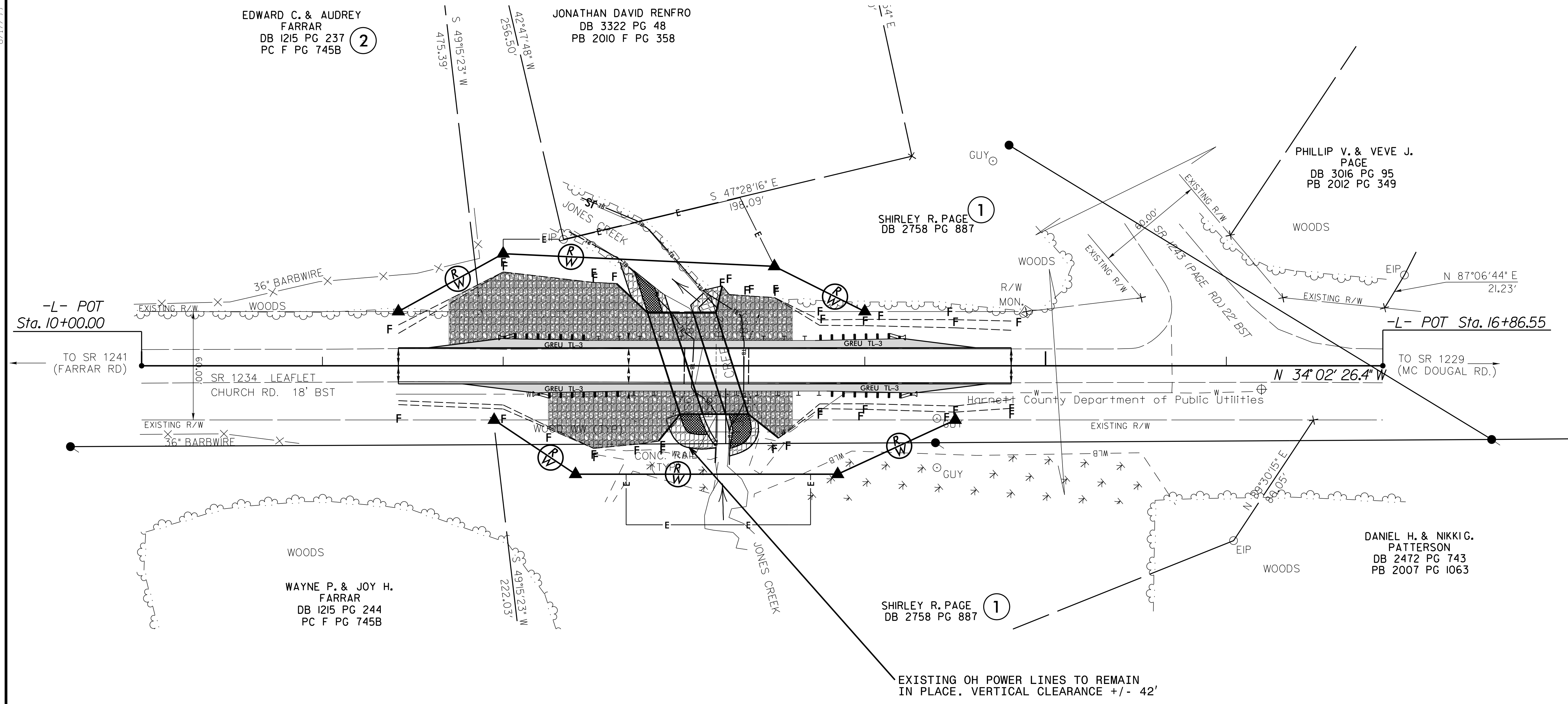
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UTILITIES BY OTHERS

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.



5/14/99
 8/17/99
 6/26/2008
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NOTE: EXISTING O/H POWER WILL NOT BE RELOCATED OR DE-ENERGIZED. CONTRACTOR IS EXPECTED TO WORK AROUND AND UNDER POWER LINES.

EXISTING OH POWER LINES TO REMAIN IN PLACE. VERTICAL CLEARANCE +/- 42'

PROJ. REFERENCE NO.	SHEET NO.
B-5414	X-1A

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station	Uncl. Exc.	Embt																					
L	(cu. yd.)	(cu. yd.)																					
11+42.00	0	0																					
12+00.00	11	31																					
12+50.00	13	77																					
12+75.00	14	43																					
12+88.00	6	26																					
13+00.00	0	69																					
13+12.00	0	177																					
13+25.00	0	287																					
13+37.00	0	181																					
13+50.00	7	45																					
13+75.00	18	6																					
14+00.00	6	5																					
14+50.00	7	11																					
14+81.00	3	7																					

Approximate quantities only. Unclassified excavation, borrow excavation, shoulder borrow, fine grading, clearing and grubbing and removal of existing pavement will be paid for at the lump sum price for "Grading".

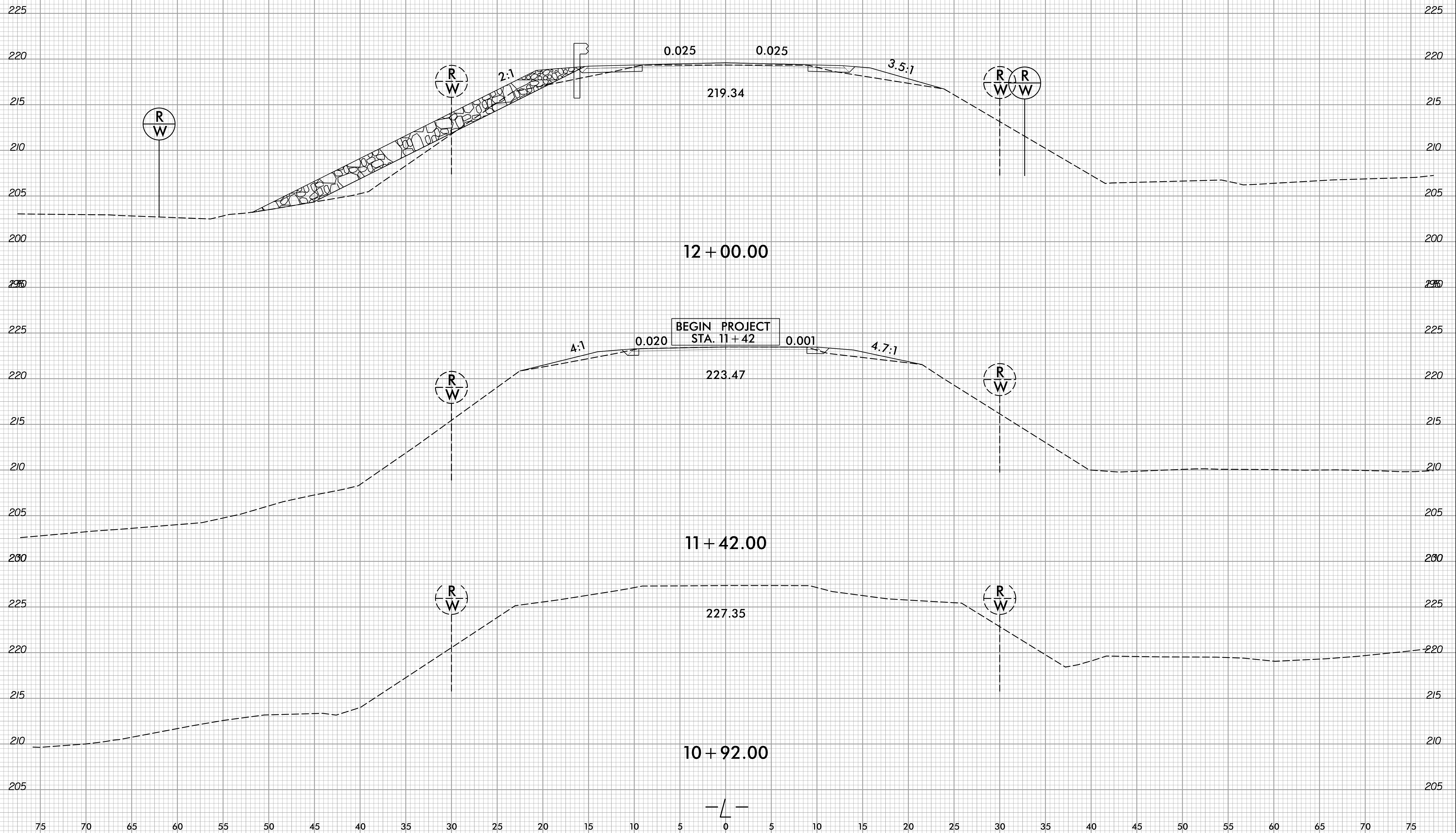
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
B-5414	X-1

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BRIDGE #420195



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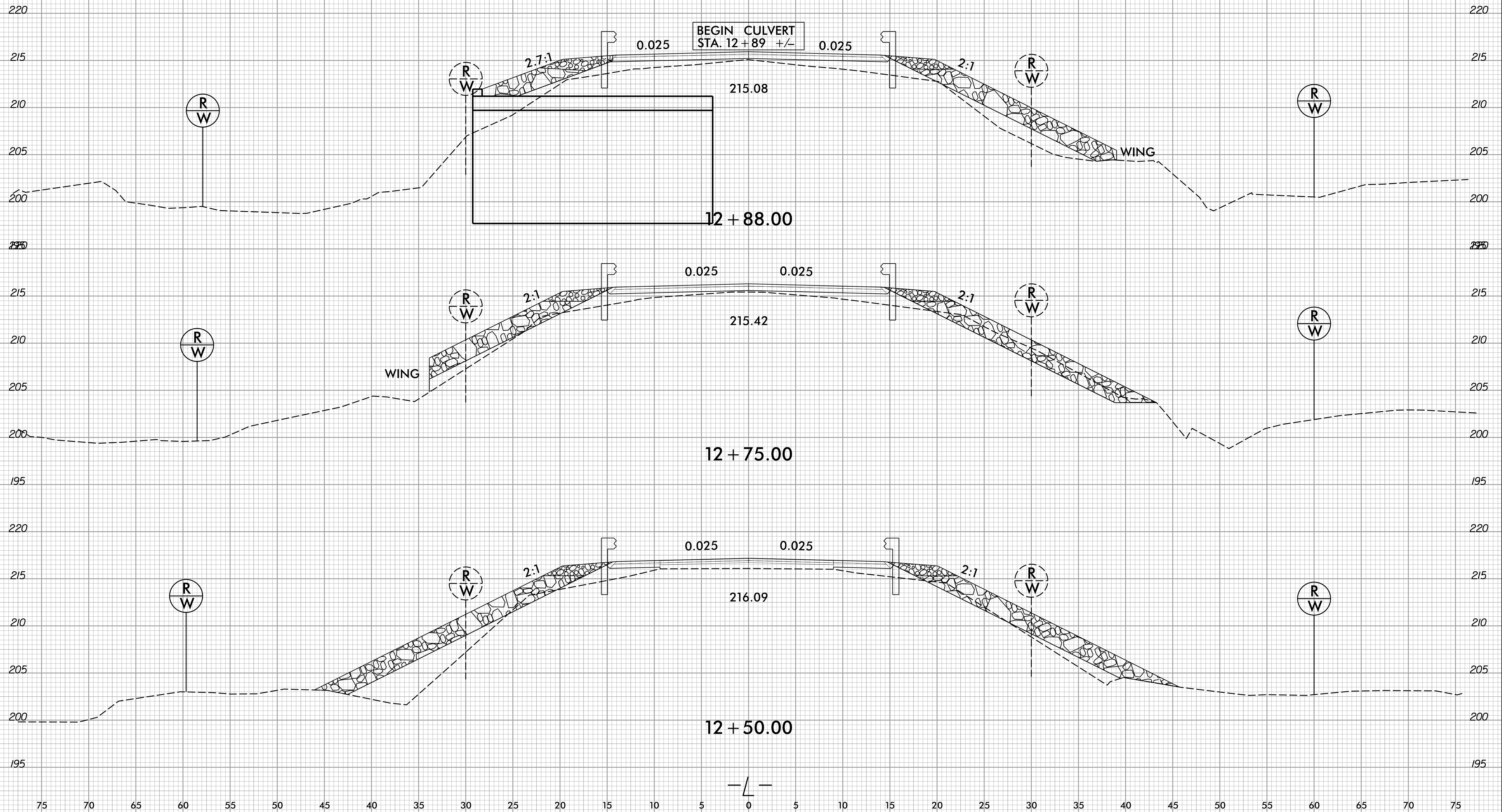
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PROJ. REFERENCE NO.	SHEET NO.
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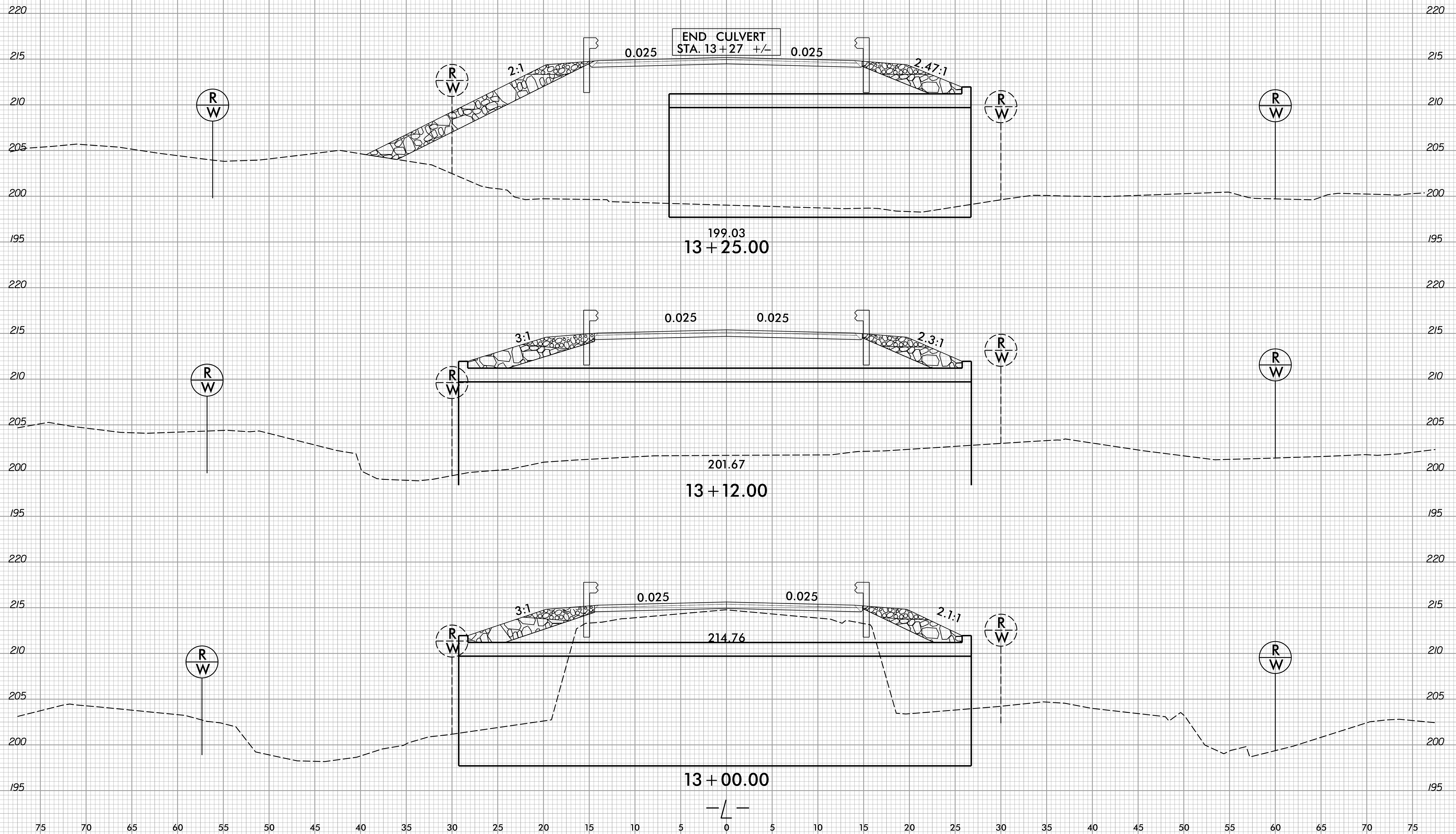


PROJ. REFERENCE NO.
B-5414

SHEET NO.
X-3

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BRIDGE #420195



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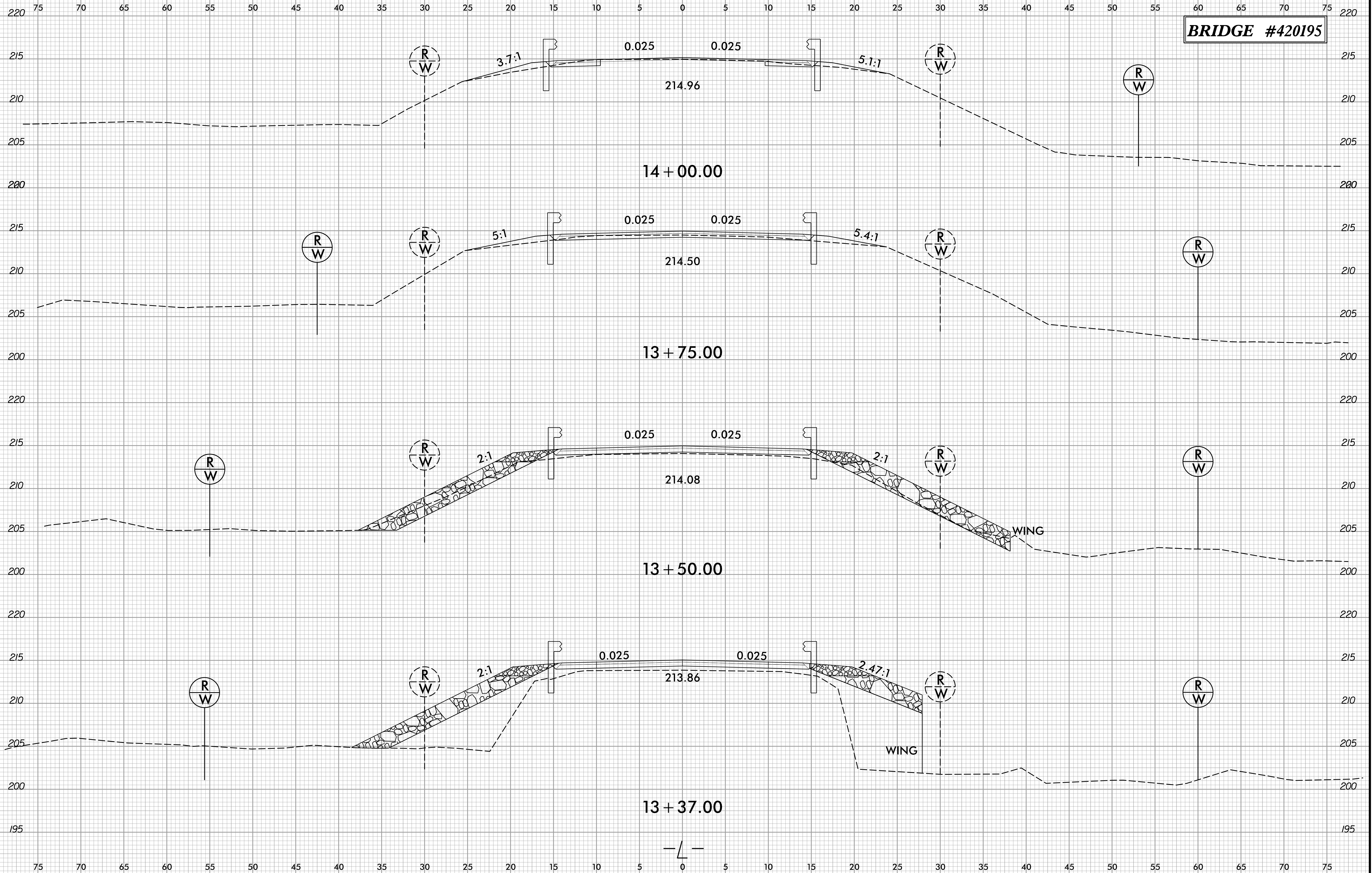
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PROJ. REFERENCE NO.
B-5414

SHEET NO.
X-4

BRIDGE #420195



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6/23/16

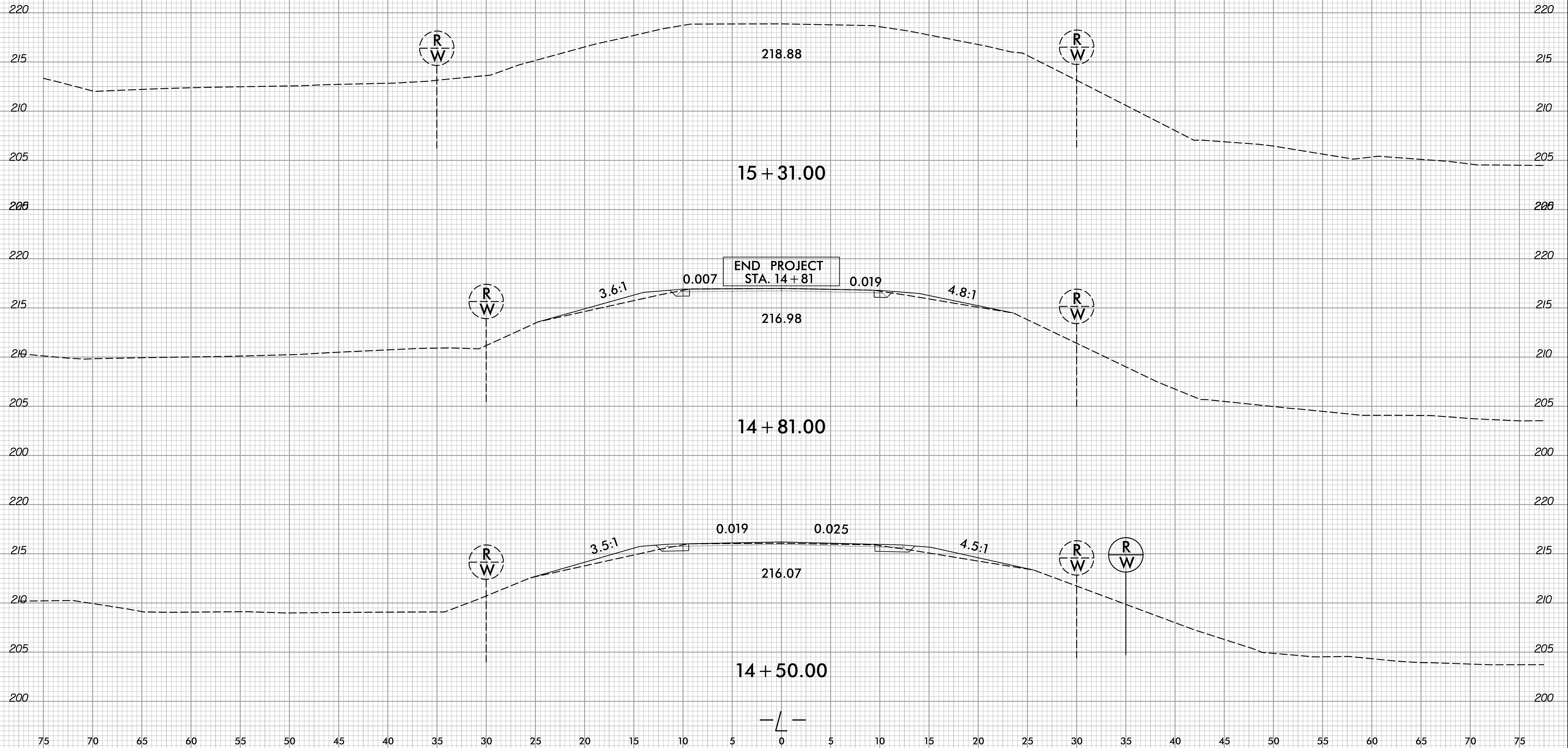


PROJ. REFERENCE NO.
B-5414

SHEET NO.
X-5

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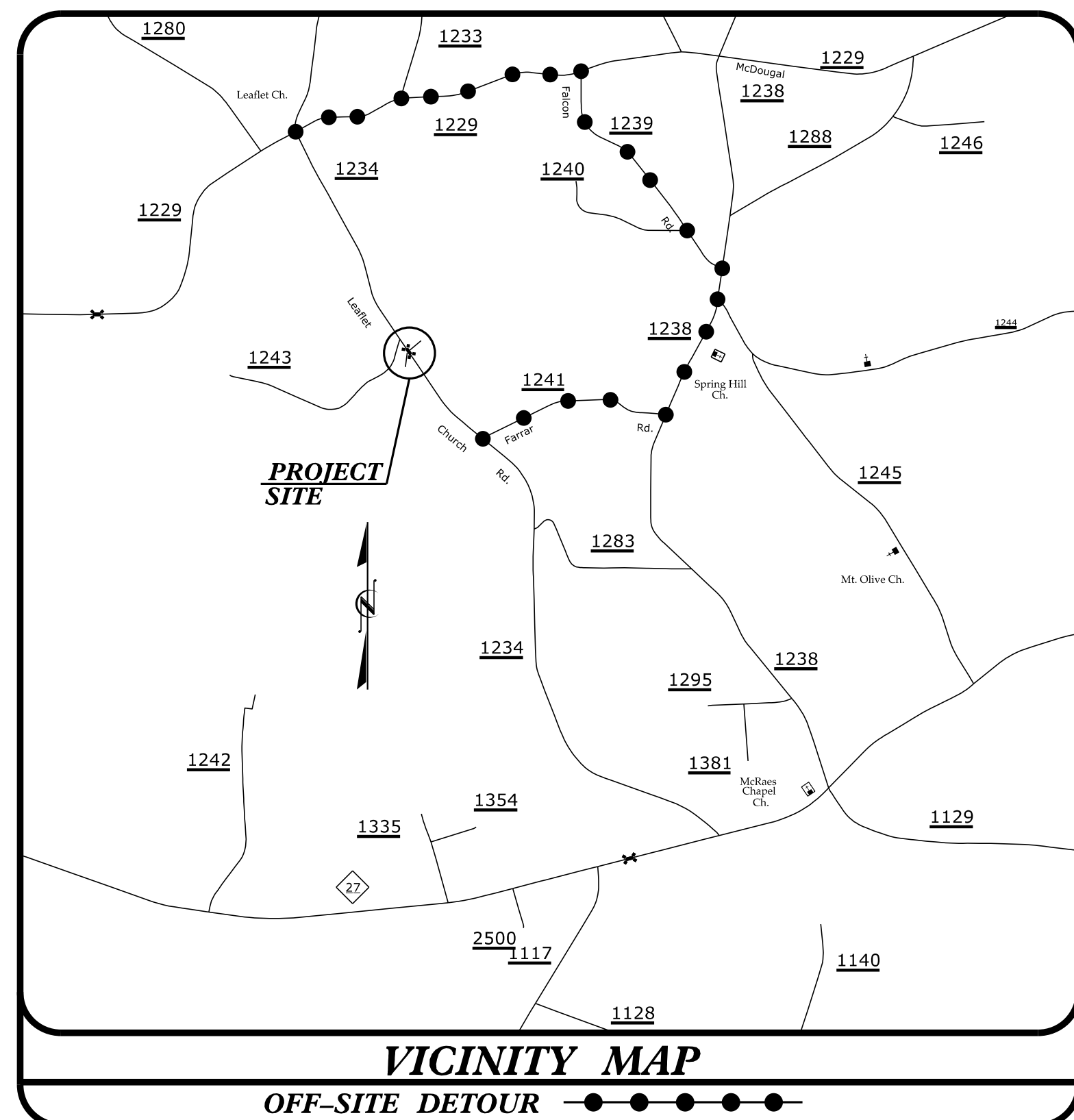
BRIDGE #420195



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TIP PROJECT: B-5414

CONTRACT: DF00224



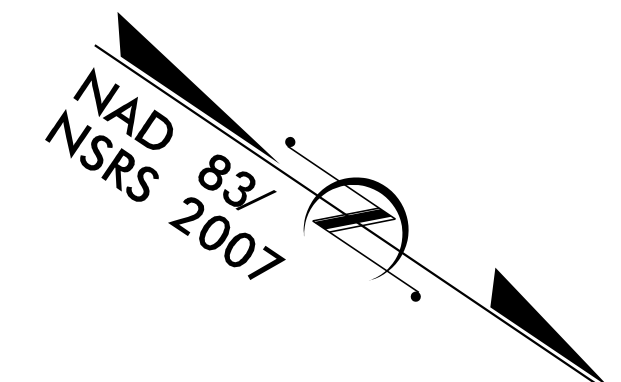
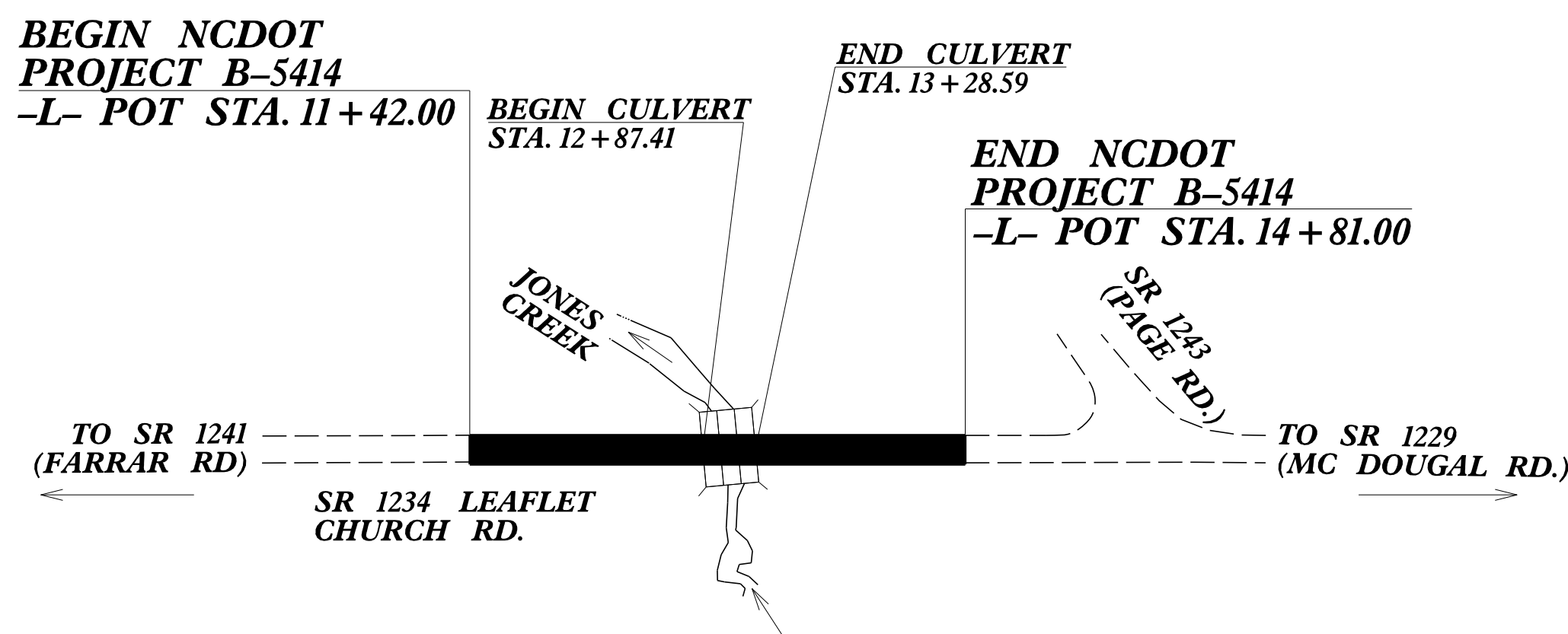
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HARNETT COUNTY

**LOCATION: BRIDGE NO. 420195 OVER JONES CREEK
ON SR 1234 (LEAFLET CHURCH RD.)**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE

STRUCTURE PLANS



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5414		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
55044.1.1	NHP-1234(002)	PE, UTIL., R/W	
55044.3.1	NHP-1234(002)	CONST.	



TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #420195

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

DESIGN DATA

ADT 2017 = 590

T = 6 % *

V = 55 MPH

* (TTST = 3% + DUAL = 3%)

FUNC CLASS =

RURAL LOCAL

SUBREGIONAL TIER

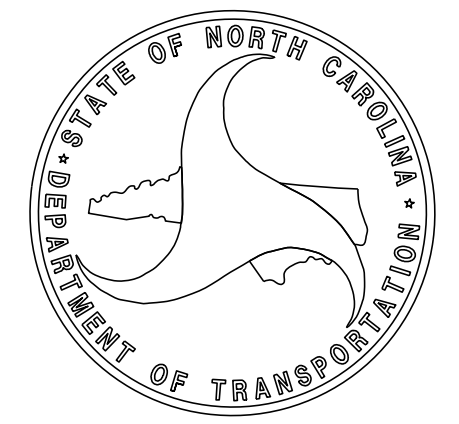
PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5414 =	0.057 MILES
LENGTH STRUCTURE PROJECT B-5414 =	0.007 MILES
TOTAL LENGTH PROJECT B-5414 =	0.064 MILES

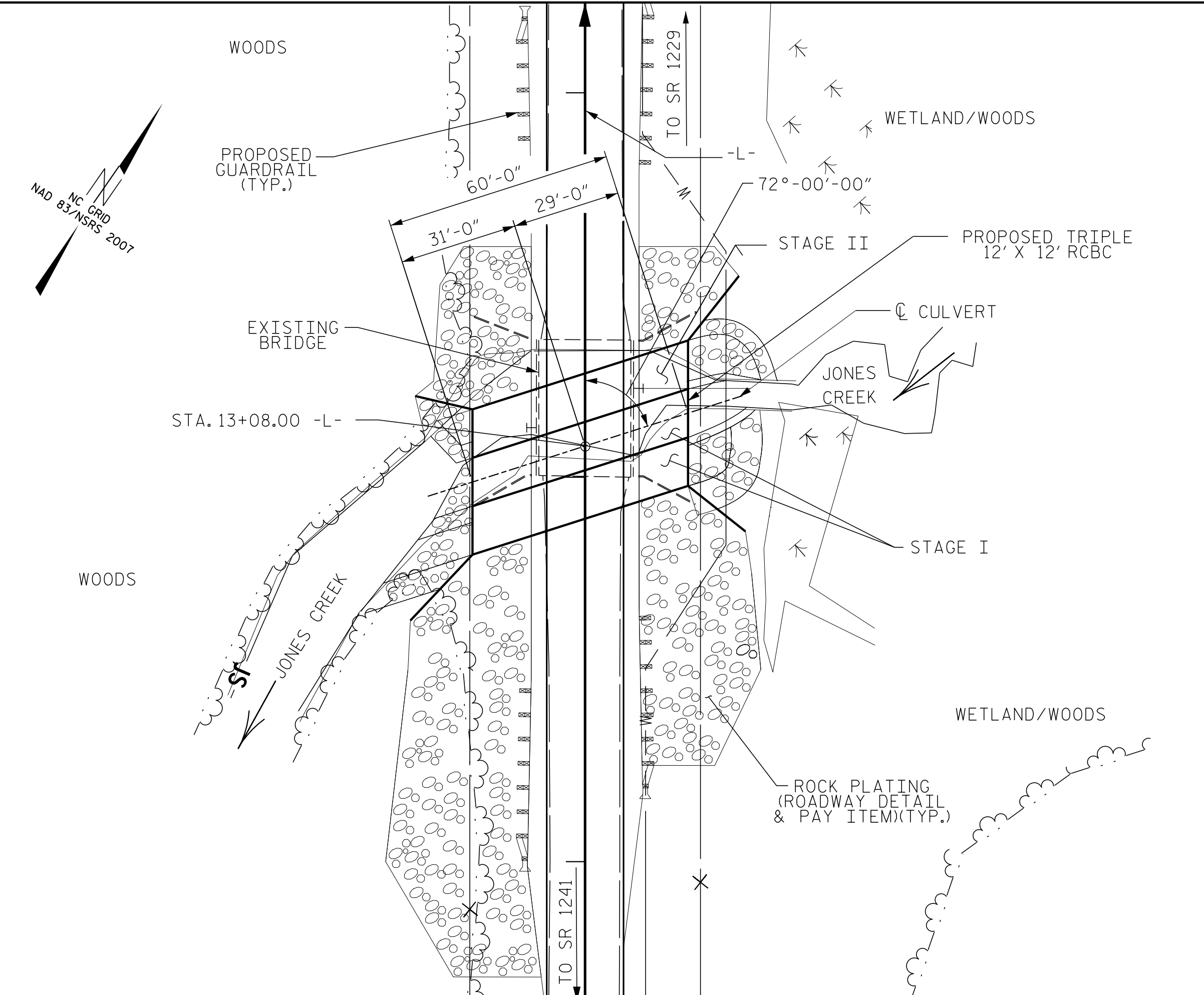
NCDOT CONTACT: CHRISTY W. HUFF, PE
DIVISION 6 BRIDGE PROGRAM MANAGER

Prepared for:
DIVISION OF HIGHWAYS
DIVISION SIX
558 GILLESPIE STREET, FAYETTEVILLE NC, 28301

2018 STANDARD SPECIFICATIONS	EDWARD G. WETHERILL, PE PROJECT ENGINEER
LETTING DATE: SEPTEMBER 19, 2018	B.C. HUNT, PE PROJECT DESIGN ENGINEER



BM #1 R/R SPIKE IN BASE OF 28" PINE -L- STA. 14+54.16 43.4' LT EL. 211.99, N=589159 E=2009852



ROADWAY DATA

GRADE POINT ELEV. @ STA 13+08.00 -L- = 215.46
 BED ELEV. @ STATION 13+08.00 -L- = 197.70
 ROADWAY SLOPES = 2:1

HYDRAULIC DATA

DESIGN DISCHARGE = 600
 FREQUENCY OF DESIGN FLOOD = 25 YR
 DESIGN HIGH WATER ELEVATION = 203.4
 DRAINAGE AREA = 4.2 SQ. MI.
 BASE DISCHARGE (Q100) = 910
 BASE HIGH WATER ELEVATION = 204.3

OVERTOPPING FLOOD DATA

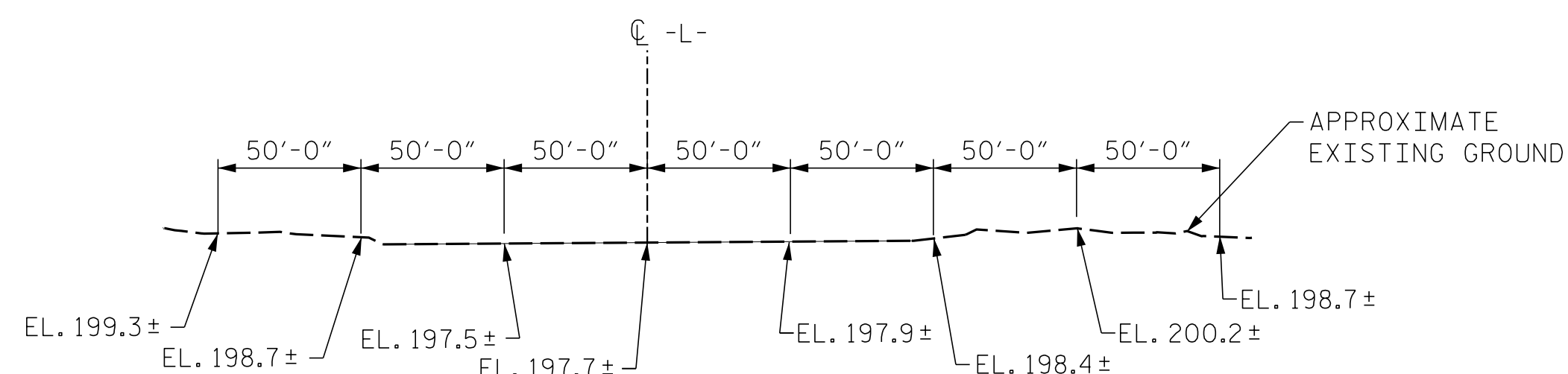
OVERTOPPING DISCHARGE = > 1300
 FREQUENCY OF OVERTOPPING FLOOD = 500+
 OVERTOPPING FLOOD ELEVATION = 214.9

LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD -----HL-93 OR ALTERNATE LOADING.
 DESIGN FILL TO BOTTOM OF TOP SLAB, 4.43' (MIN.) AND 6.23' (MAX.)
 FOR OTHER DESIGN DATA AND NOTES SEE STANDARD NOTE SHEET.
 3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.
 CONCRETE IN THE CULVERT TO BE POURED IN THE FOLLOWING ORDER:
 STAGE I:
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALLS.
 2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT.
 STAGE II
 1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF VERTICAL WALL.
 2. THE REMAINING PORTIONS OF THE WALL AND WINGS FULL HEIGHT FOLLOWED BY THE ENTIRE ROOF SLAB AND HEADWALLS.
 DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.
 THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.
 AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.
 THE EXISTING STRUCTURE CONSISTING OF TWO SPANS @ 17'-10" WITH A 24' CLEAR ROADWAY WIDTH WITH A REINFORCED CONCRETE FLOOR ON TIMBER JOIST SUPERSTRUCTURE ON A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER PILES WITH STEEL CRUTCH BENTS AND LOCATED AT PROPOSED STRUCTURE SHALL BE REMOVED. THE EXISTING CULVERT IS PRESENTLY NOT POSTED FOR LOAD LIMIT.
 FOR CULVERT DIVERSIONS DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.
 A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF EXPANSION JOINT.
 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 CONSTRUCTION SEQUENCE, SEE EROSION CONTROL PLANS.
 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 CULVERT IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.
 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 13+08.00 -L-.

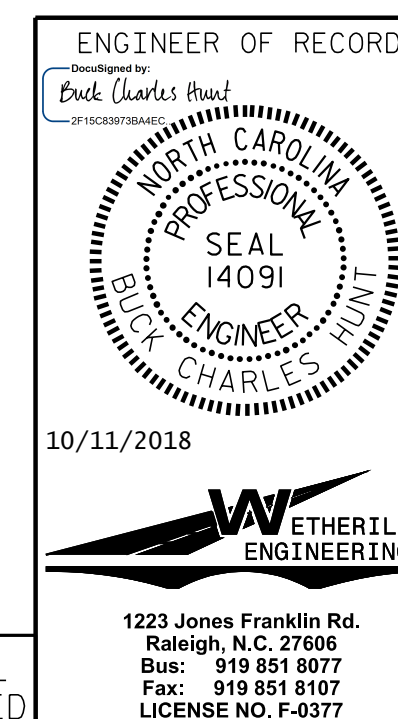


PROFILE ALONG C CULVERT

TOTAL BILL OF MATERIAL			
MATERIAL	ELEMENT	STAGE I	STAGE II
CLASS A CONCRETE (CU. YDS.)	BARREL	118.9	149.0
	HEADWALLS	---	3.8
	CURTAIN WALLS	3.2	1.3
	SILLS	2.7	1.8
	WINGS	25.7	25.7
	TOTAL	150.5	181.6
TOTAL		332.1	
REINFORCING STEEL (LBS.)	BARREL	21922	29491
	WINGS	2070	2071
	TOTAL	23992	31562
TOTAL		55554	
FOUNDATION COND. MAT'L (TONS)	---	125	60
	TOTAL	185	
REMOVAL OF EXISTING STRUCTURE	LUMP SUM		
ASBESTOS ASSESSMENT	LUMP SUM		
CULVERT EXCAVATION	LUMP SUM		

PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-

SHEET 1 OF 9 REPLACES BRIDGE NO. 195



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TRIPLE 12 FT. x 12 FT.
 CONCRETE BOX CULVERT
 72° SKEW**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-1
1			3			TOTAL SHEETS
2			4			9

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

DRAWN BY : B.C. HUNT DATE : 5-18
 CHECKED BY : J.A. DILWORTH DATE : 5-18

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS

LEVEL	VEHICLE	WEIGHT (W) (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE								COMMENT NUMBER		
						LIVE-LOAD FACTORS (γ _{L1})	MOMENT				SHEAR					
							RATING FACTOR	BOX NO.	ELEMENT TYPE	DISTANCE FROM LEFT END OF ELEMENT (FT)	RATING FACTOR	BOX NO.	ELEMENT TYPE		DISTANCE FROM LEFT END OF ELEMENT (FT)	
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.02	--	1.75	1.47	1	TOP SLAB	5.58	1.02	1	TOP SLAB	12.09		
	HL-93 (OPERATING)	N/A		1.32	--	1.35	1.90	1	TOP SLAB	5.58	1.32	1	TOP SLAB	12.09		
	HS-20 (INVENTORY)	36,000	②	1.33	47.9	1.75	1.67	1	TOP SLAB	5.58	1.33	1	TOP SLAB	12.09		
	HS-20 (OPERATING)	36,000		1.72	61.9	1.35	2.16	1	TOP SLAB	5.58	1.72	1	TOP SLAB	12.09		
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13,500		2.47	33.3	1.40	2.99	1	TOP SLAB	5.58	2.47	1	TOP SLAB	12.09	
		SNGARBS2	20,000		2.25	45	1.40	2.8	1	TOP SLAB	5.58	2.25	1	TOP SLAB	12.09	
		SNAGRIS2	22,000		2.34	51.5	1.40	2.99	1	TOP SLAB	5.58	2.34	1	TOP SLAB	12.09	
		SNCOTTS3	27,250	③	1.34	36.5	1.40	1.95	1	TOP SLAB	5.58	1.34	1	TOP SLAB	12.09	
		SNAGGRS4	34,925		1.52	53.1	1.40	2.22	1	TOP SLAB	5.58	1.52	1	TOP SLAB	12.09	
		SNS5A	35,550		1.75	62.2	1.40	2.34	1	TOP SLAB	5.58	1.75	1	TOP SLAB	12.09	
		SNS6A	39,950		1.43	57.1	1.40	2.17	1	TOP SLAB	5.58	1.43	1	TOP SLAB	12.09	
		SNS7B	42,000		1.42	59.6	1.40	2.22	1	TOP SLAB	5.58	1.42	1	TOP SLAB	12.09	
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33,000		1.95	64.4	1.40	2.99	1	TOP SLAB	5.58	1.95	1	TOP SLAB	12.09	
		TNT4A	33,075		1.55	51.3	1.40	2.32	1	TOP SLAB	5.58	1.55	1	TOP SLAB	12.09	
		TNT6A	41,600		1.43	59.5	1.40	2.33	1	TOP SLAB	5.58	1.43	1	TOP SLAB	12.09	
		TNT7A	42,000		1.48	62.6	1.40	2.32	1	TOP SLAB	5.58	1.48	1	TOP SLAB	12.09	
		TNT7B	42,000		1.49	62.6	1.40	2.20	1	TOP SLAB	5.58	1.49	1	TOP SLAB	12.09	
		TNAGRIT4	43,000		1.50	64.5	1.40	2.32	1	TOP SLAB	5.58	1.50	1	TOP SLAB	12.09	
TNAGT5A	45,000		1.49	67.1	1.40	2.31	1	TOP SLAB	12.92	1.49	1	TOP SLAB	12.09			
TNAGT5B	45,000		1.42	63.9	1.40	1.96	1	TOP SLAB	12.92	1.42	1	TOP SLAB	12.09			

LOAD FACTORS:

DESIGN LOAD RATING FACTORS

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

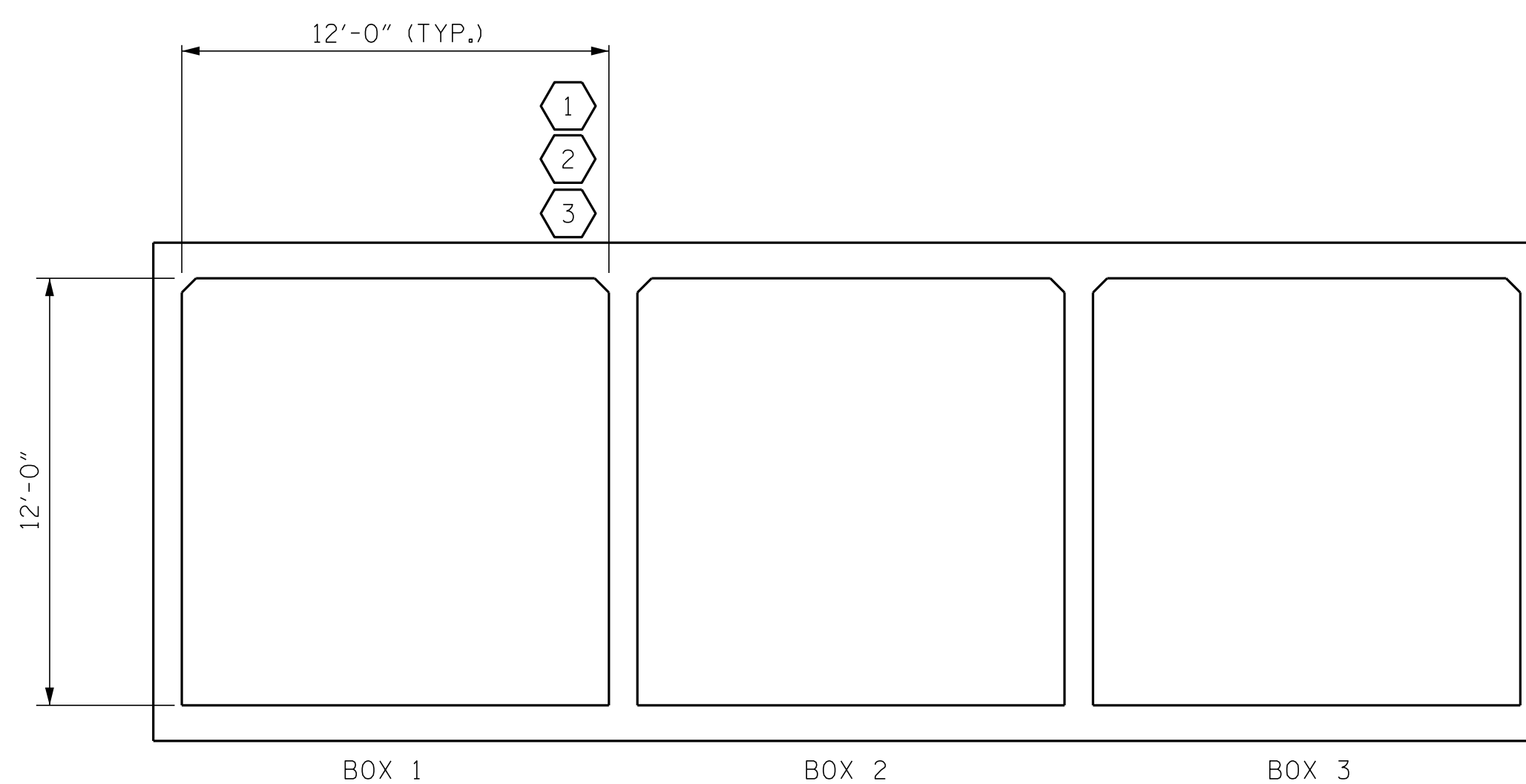
NOTE:

RATING FACTORS ARE BASED ON THE STRENGTH I LIMIT STATE.

COMMENTS:

- 1.
- 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



LRFR SUMMARY
(LOOKING DOWNSTREAM)

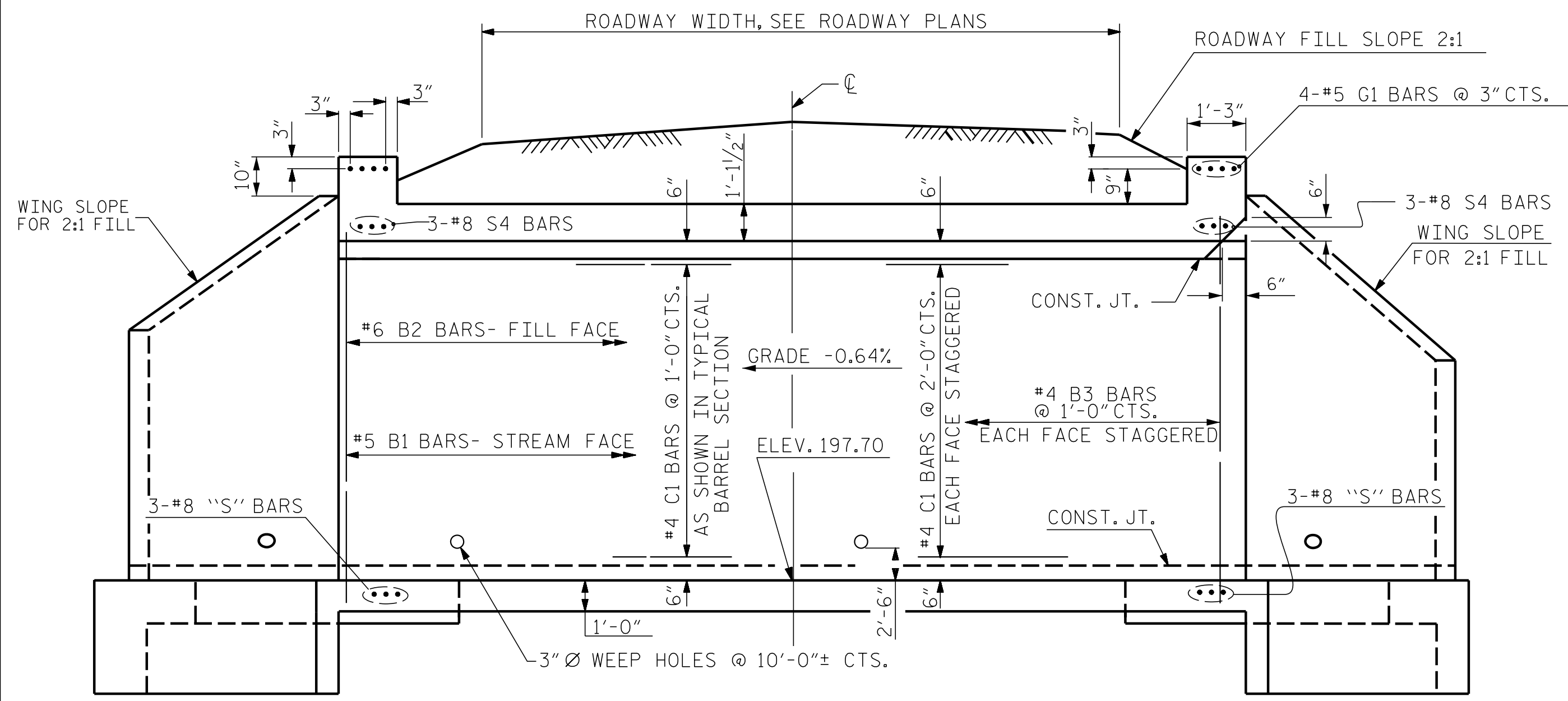
PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-

SHEET 2 OF 9

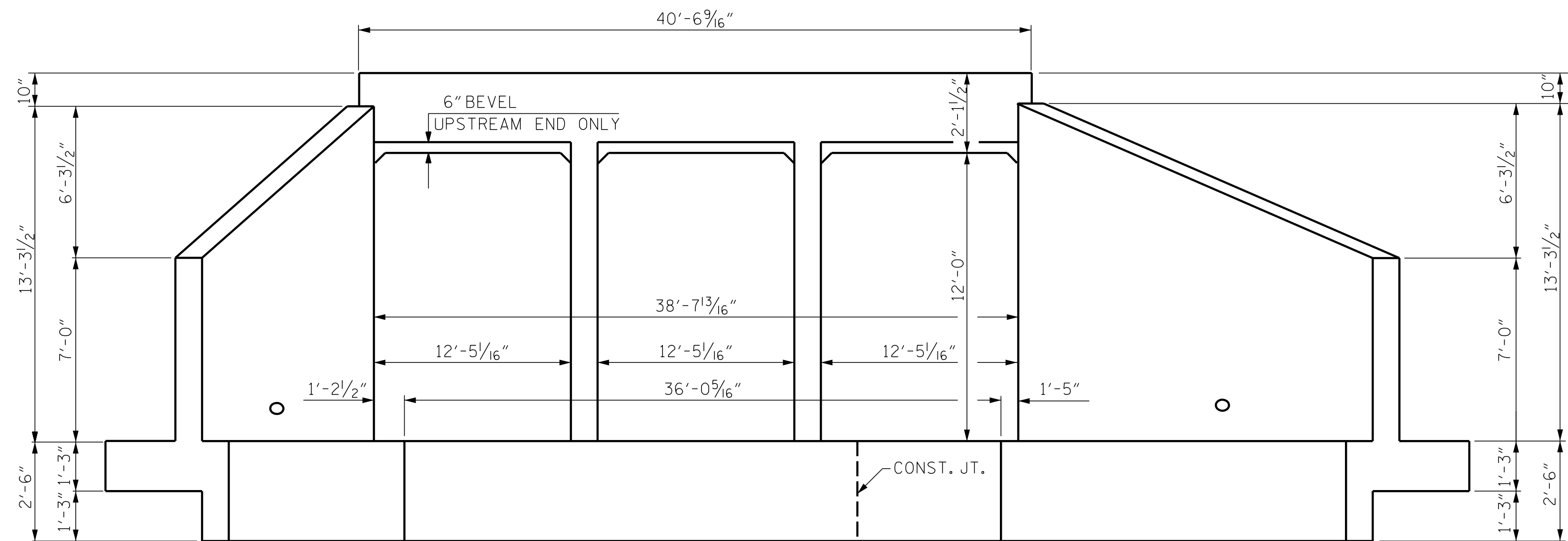
<p>ENGINEER OF RECORD:</p> <p>9/10/2018</p> <p>1223 Jones Franklin Rd. Raleigh, N.C. 27606 Bus: 919 851 8077 Fax: 919 851 8107 LICENSE NO. F-0377</p>	<p>STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH</p> <p>STANDARD LRFR SUMMARY FOR REINFORCED CONCRETE BOX CULVERTS (NON-INTERSTATE TRAFFIC)</p>																		
<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>BY:</th> <th>DATE:</th> <th>NO.</th> <th>BY:</th> <th>DATE:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> <tr> <td>2</td> <td></td> <td></td> <td>4</td> <td></td> <td></td> </tr> </tbody> </table>		NO.	BY:	DATE:	NO.	BY:	DATE:	1			3			2			4		
NO.	BY:	DATE:	NO.	BY:	DATE:														
1			3																
2			4																
<p>SHEET NO. C-2 TOTAL SHEETS 9</p>																			

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

STD. NO. LRFR5



EXTERIOR WALL INTERIOR WALL
CULVERT SECTION NORMAL TO ROADWAY



END ELEVATION NORMAL TO SKEW
 LOOKING DOWNSTREAM

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DRAWN BY : B.C. HUNT DATE : 5-18
 CHECKED BY : A. DILWORTH DATE : 5-18

PROJECT NO. B-5414
 HARNETT COUNTY
 STATION: 13+08.00 -L-

SHEET 3 OF 9

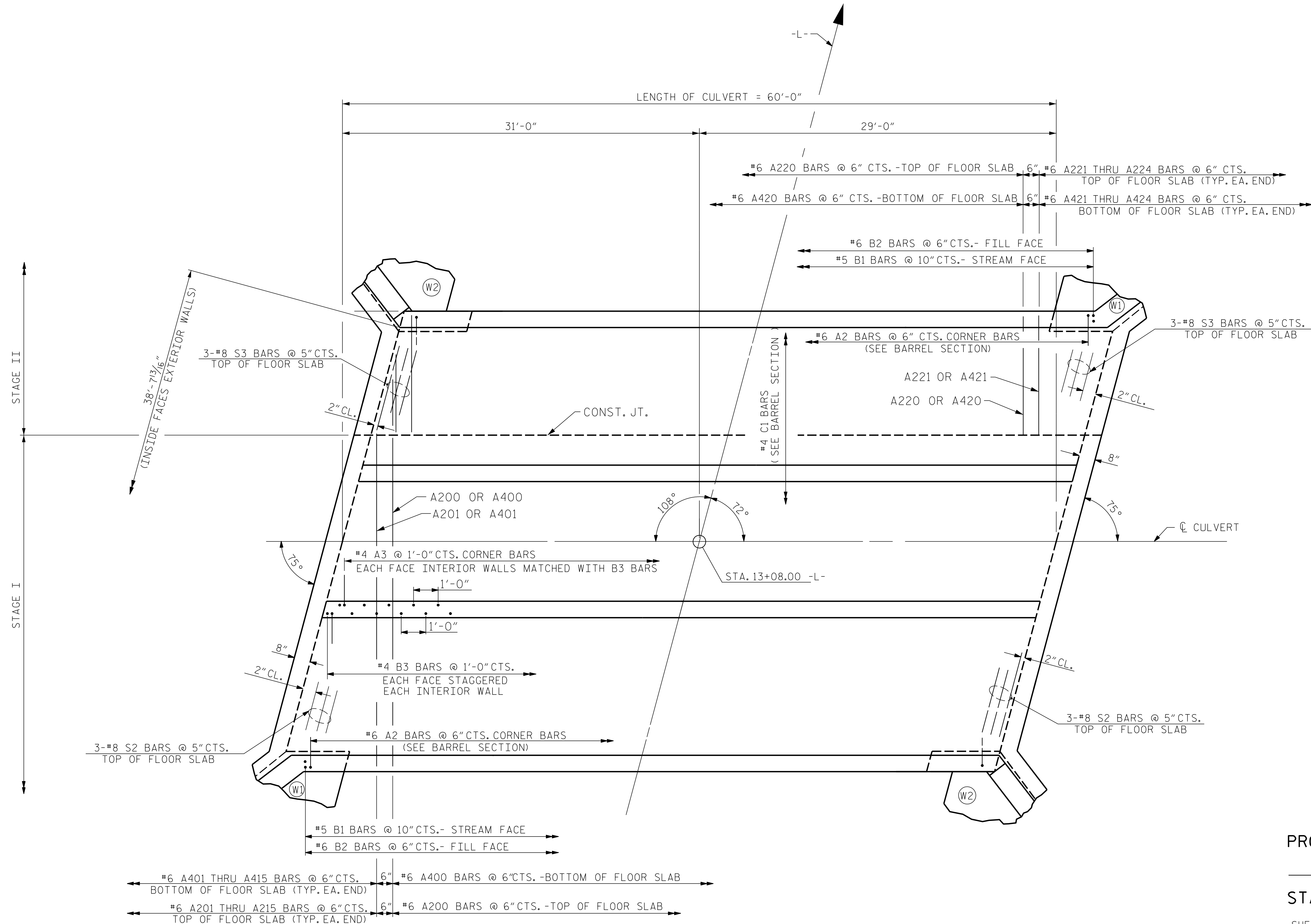
ENGINEER OF RECORD:
 Seal of North Carolina Professional Engineer
 SEAL 14091
 BRUCK CHARLES HUNT
 9/10/2018
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

TRIPLE 12 FT. x 12 FT.
 CONCRETE BOX CULVERT
 72° SKEW

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-3
1			3			TOTAL SHEETS
2			4			9

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FLOOR SLAB

PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-
 SHEET 4 OF 9

ENGINEER OF RECORD:
 Developed by

 9/10/2018

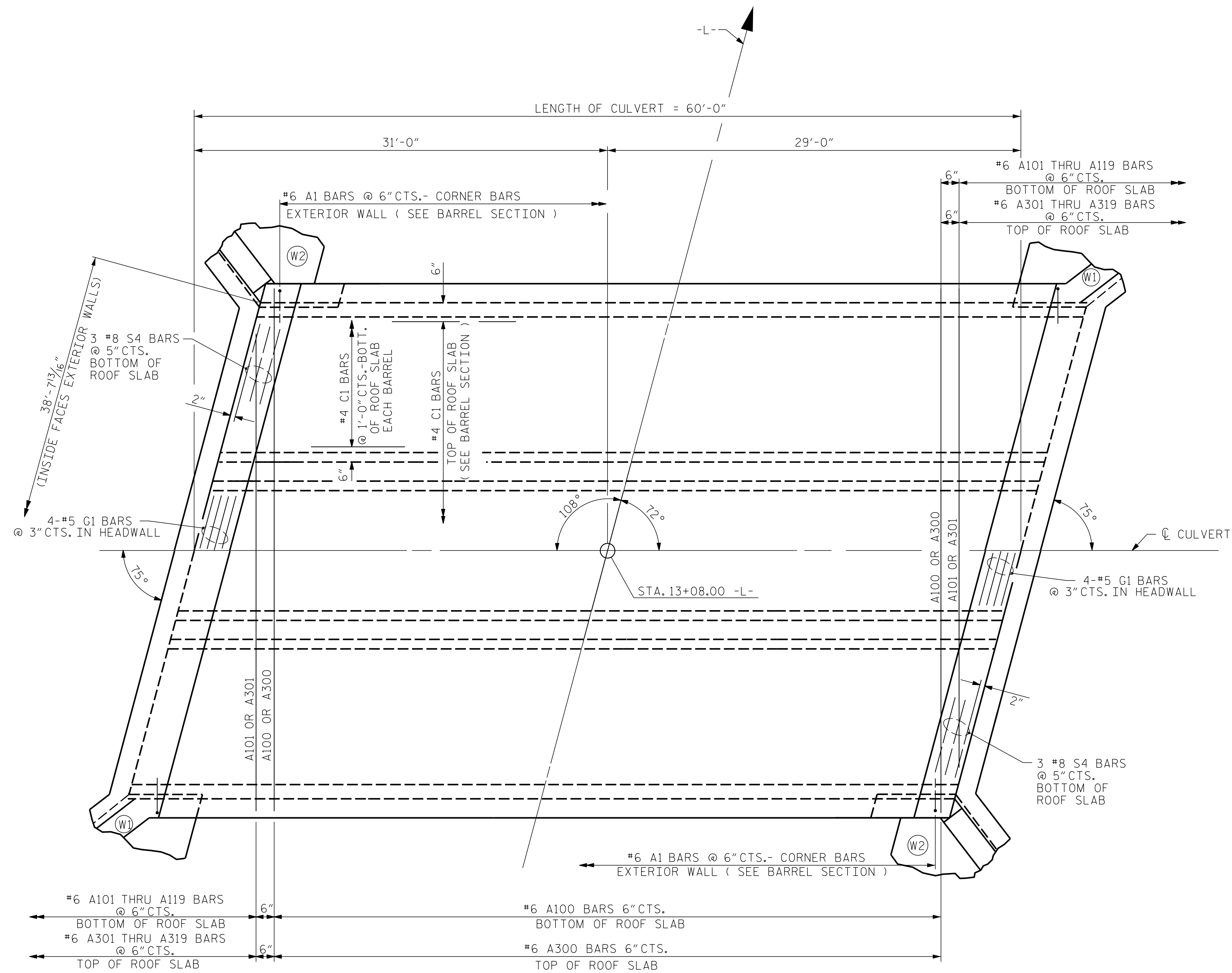
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
 Bus: 919 851 8077
 Fax: 919 851 8107
 LICENSE NO. F-0377

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
TRIPLE 12 FT. x 12 FT. CONCRETE BOX CULVERT 72° SKEW					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
SHEET NO. C-4					TOTAL SHEETS 9

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

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 CHECKED BY : J.A. DILWORTH DATE : 5-18



ROOF SLAB

PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-

SHEET 5 OF 9

ENGINEER OF RECORD:
 Seal of **Charles H. Hetherill**, North Carolina Professional Engineer, License No. 14091.
 Date: 9/10/2018
W HETHERILL ENGINEERING
 1223 Jones Franklin Rd.
 Raleigh, N.C. 27606
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 LICENSE NO. F-0377

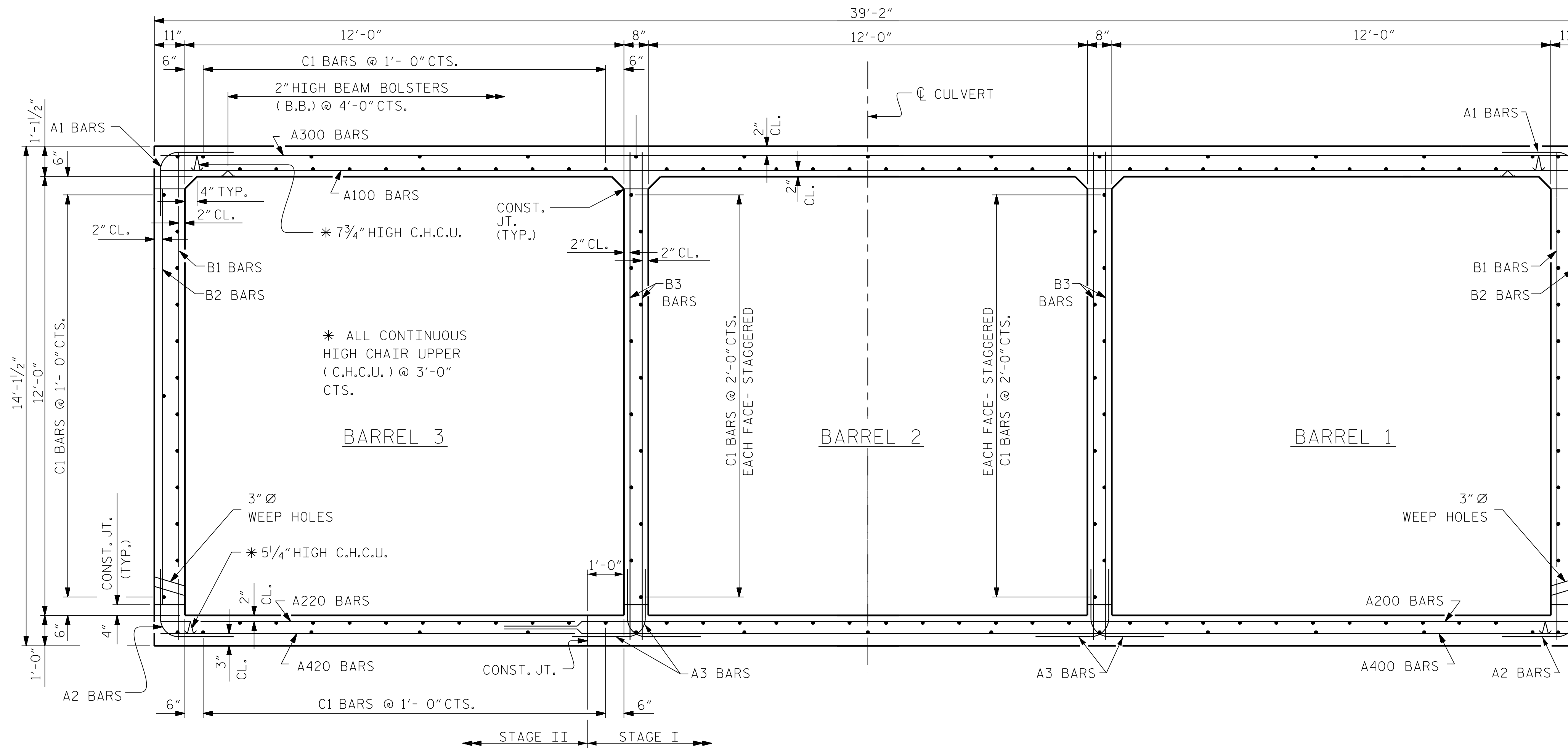
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
**TRIPLE 12 FT. x 12 FT.
 CONCRETE BOX CULVERT
 72° SKEW**

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2			4			9

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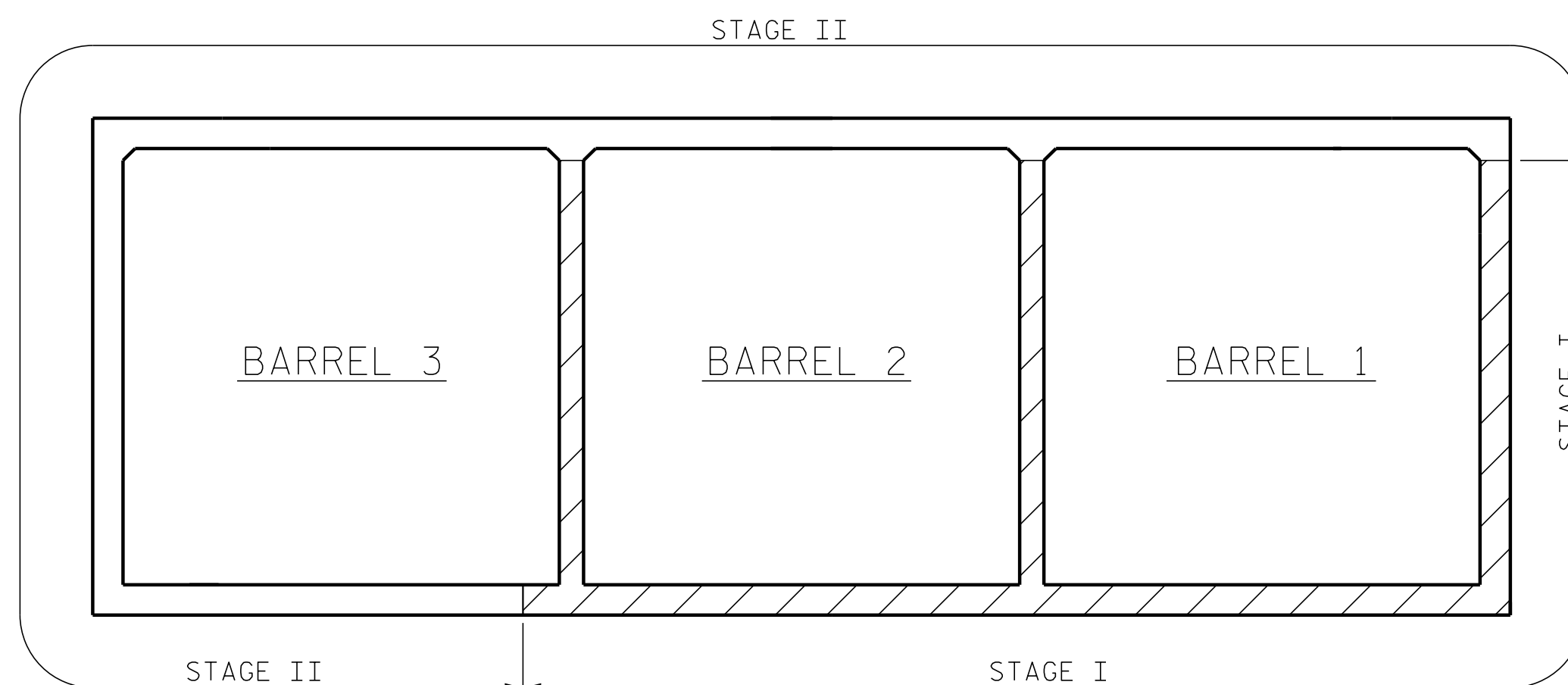
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RIGHT ANGLE SECTION OF BARREL

LOOKING UPSTREAM
THERE ARE 148 "C" BARS IN SECTION OF BARREL.



CONSTRUCTION SEQUENCE

LOOKING UPSTREAM

PROJECT NO. B-5414
HARNETT COUNTY
STATION: 13+08.00 -L-

SHEET 6 OF 9

ENGINEER OF RECORD:
Seal of **Charles Hick**, North Carolina Professional Engineer, License No. 14091, dated 9/10/2018.
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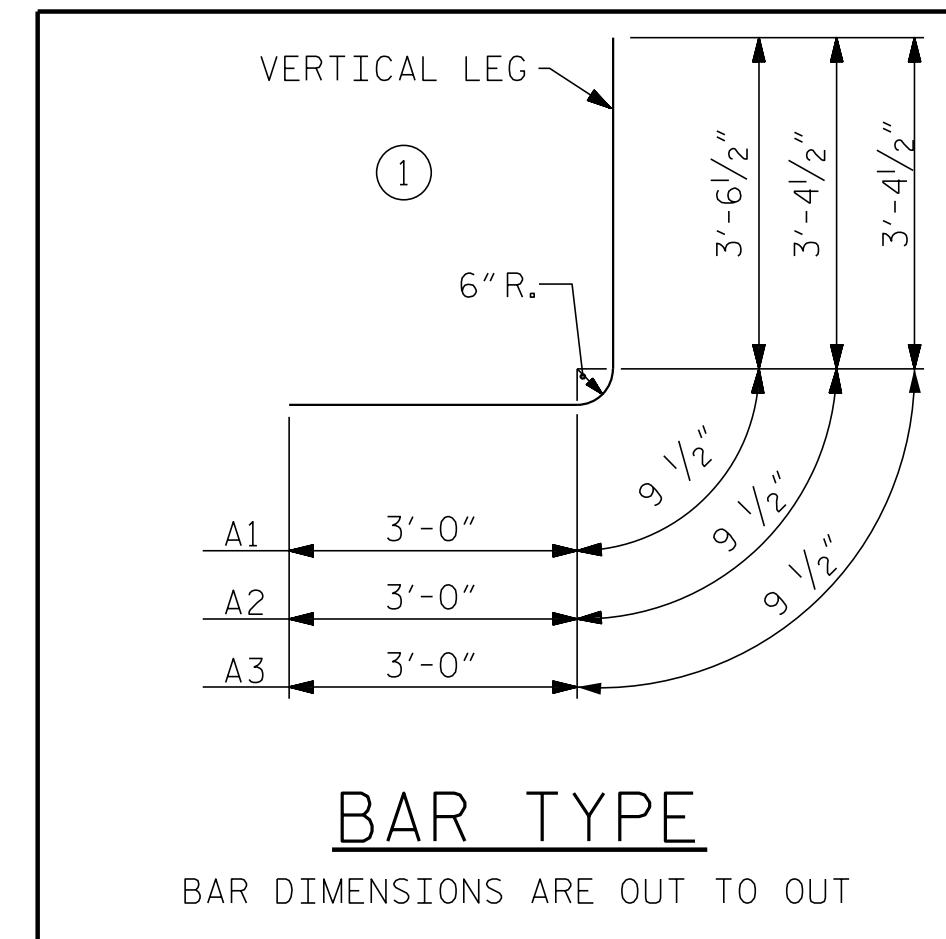
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BARREL REINFORCING STEEL

STAGE I						STAGE II											
BAR	NO	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO	SIZE	TYPE	LENGTH	WEIGHT
A2	119	6	1	7'-2"	1281	A1	238	6	1	7'-4"	2621	A420	114	6	STR	11'-9"	2012
A3	238	4	1	7'-2"	1139	A2	118	6	1	7'-2"	1270	A421	2	6	STR	9'-10"	30
A200	104	6	STR	29'-10"	4660	A100	99	6	STR	38'-10"	5774	A422	2	6	STR	8'-0"	24
A201	2	6	STR	28'-3"	85	A101	2	6	STR	37'-5"	112	A423	2	6	STR	6'-1"	18
A202	2	6	STR	26'-4"	79	A102	2	6	STR	36'-6"	110	A424	2	6	STR	4'-3"	13
A203	2	6	STR	24'-6"	74	A103	2	6	STR	33'-8"	101	B1	72	5	STR	13'-8"	1026
A204	2	6	STR	22'-8"	68	A104	2	6	STR	31'-10"	96	B2	118	6	STR	11'-4"	2009
A205	2	6	STR	20'-9"	62	A105	2	6	STR	29'-11"	90						
A206	2	6	STR	18'-11"	57	A106	2	6	STR	28'-1"	84	C1	231	4	STR	21'-2"	3266
A207	2	6	STR	17'-0"	51	A107	2	6	STR	26'-2"	79						
A208	2	6	STR	15'-2"	46	A108	2	6	STR	24'-4"	73	D1	8	6	STR	2'-7"	31
A209	2	6	STR	13'-4"	40	A109	2	6	STR	22'-6"	68						
A210	2	6	STR	11'-5"	34	A110	2	6	STR	20'-7"	62	G1	8	5	STR	40'-2"	335
A211	2	6	STR	9'-7"	29	A111	2	6	STR	18'-9"	56						
A212	2	6	STR	7'-8"	23	A112	2	6	STR	16'-10"	51	S3	6	8	STR	12'-2"	195
A213	2	6	STR	5'-10"	18	A113	2	6	STR	15'-0"	45	S4	6	8	STR	40'-2"	634
A214	2	6	STR	4'-0"	12	A114	2	6	STR	13'-2"	40						
A215	2	6	STR	2'-1"	6	A115	2	6	STR	11'-3"	34						
						A116	2	6	STR	9'-5"	28	REINFORCING STEEL		29491 LBS			
A400	104	6	STR	29'-10"	4660	A117	2	6	STR	7'-7"	23						
A401	2	6	STR	28'-3"	85	A118	2	6	STR	5'-8"	17						
A402	2	6	STR	26'-4"	79	A119	2	6	STR	3'-10"	12						
A403	2	6	STR	24'-6"	74												
A404	2	6	STR	22'-8"	68	A220	114	6	STR	11'-9"	2012						
A405	2	6	STR	20'-9"	62	A221	2	6	STR	9'-10"	30						
A406	2	6	STR	18'-11"	57	A222	2	6	STR	8'-0"	24						
A407	2	6	STR	17'-0"	51	A223	2	6	STR	6'-1"	18						
A408	2	6	STR	15'-2"	46	A224	2	6	STR	4'-3"	13						
A409	2	6	STR	13'-4"	40												
A410	2	6	STR	11'-5"	34	A300	99	6	STR	38'-10"	5774						
A411	2	6	STR	9'-7"	29	A301	2	6	STR	37'-5"	112						
A412	2	6	STR	7'-8"	23	A302	2	6	STR	36'-6"	110						
A413	2	6	STR	5'-10"	18	A303	2	6	STR	33'-8"	101						
A414	2	6	STR	4'-0"	12	A304	2	6	STR	31'-10"	96						
A415	2	6	STR	2'-1"	6	A305	2	6	STR	29'-11"	90						
						A306	2	6	STR	28'-1"	84						
B1	72	5	STR	13'-8"	1026	A307	2	6	STR	26'-2"	79						
B2	119	6	STR	11'-4"	2026	A308	2	6	STR	24'-4"	73						
B3	238	4	STR	13'-8"	2173	A309	2	6	STR	22'-6"	68						
						A310	2	6	STR	20'-7"	62						
C1	213	4	STR	21'-2"	3012	A311	2	6	STR	18'-9"	56						
						A312	2	6	STR	16'-10"	51						
D1	8	6	STR	2'-7"	31	A313	2	6	STR	15'-0"	45						
D2	8	6	STR	1'-7"	19	A314	2	6	STR	13'-2"	40						
						A315	2	6	STR	11'-3"	34						
S2	6	8	STR	32'-11"	527	A316	2	6	STR	9'-5"	28						
						A317	2	6	STR	7'-7"	23						
						A318	2	6	STR	5'-8"	17						
						A319	2	6	STR	3'-10"	12						
REINFORCING STEEL					21922 LBS												



SPLICE LENGTHS CHART		
BAR	SIZE	SPLICE LENGTH
A200	#6	2'-9"
A400	#6	2'-9"
B1	#5	2'-2"
B3	#4	1'-9"
C1	#4	1'-11"
"S"	#8	4'-11"

PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-
 SHEET 7 OF 9

ENGINEER OF RECORD:
Charles Hunt
 NORTH CAROLINA PROFESSIONAL SEAL 14091
 CIVIL ENGINEER
 BECK CHARLES HUNT
 9/10/2018

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**TRIPLE 12 FT. x 12 FT.
 CONCRETE BOX CULVERT
 72° SKEW**

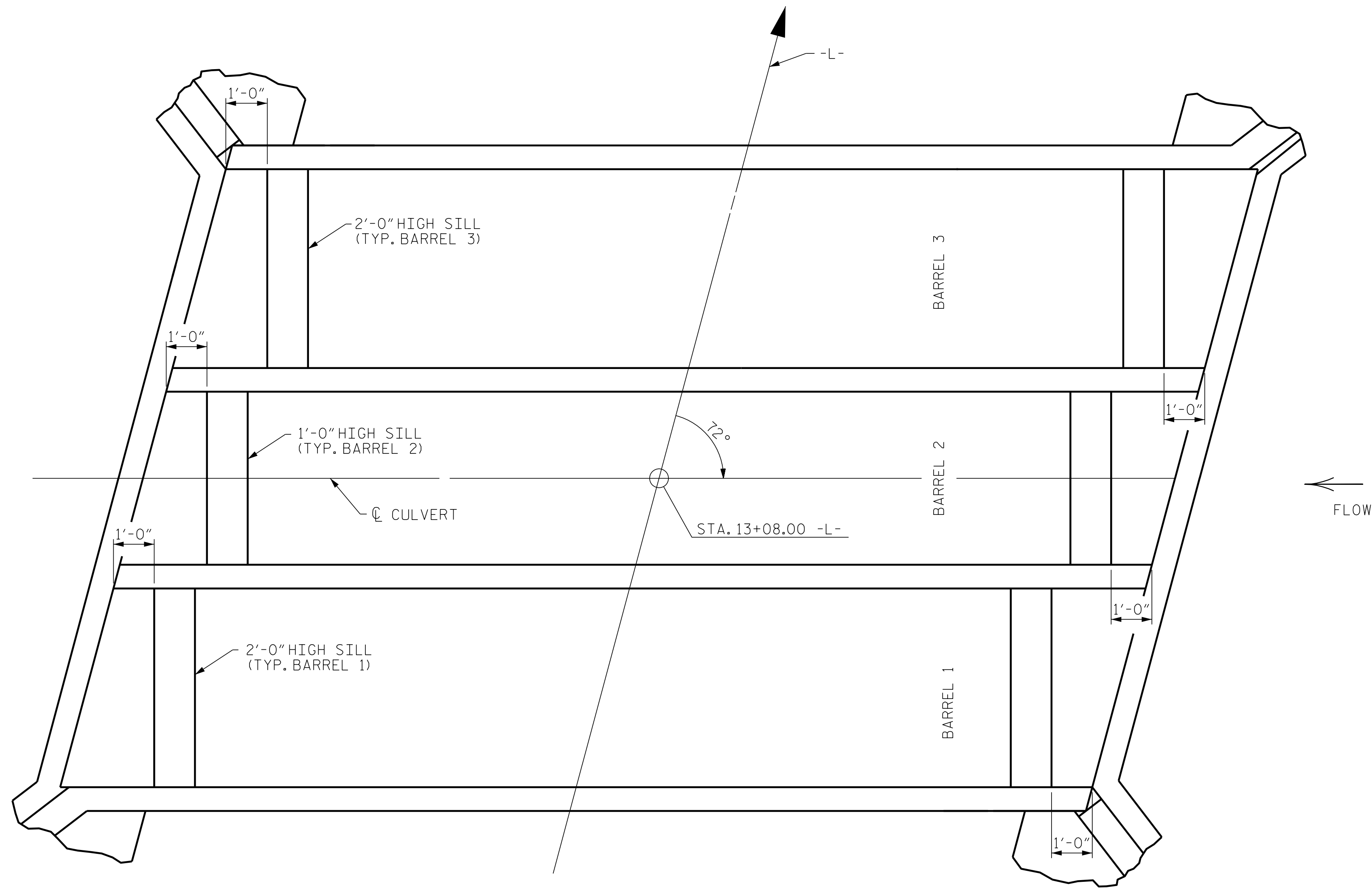
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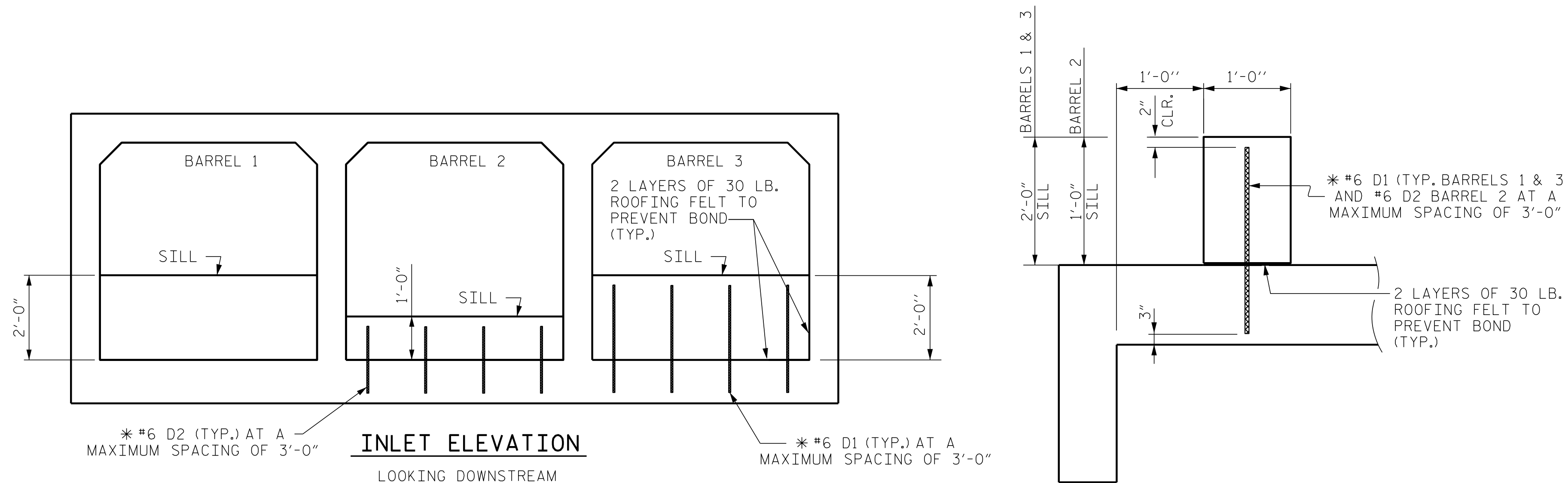
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PLAN - SILL LOCATION
SHOWING PLACEMENT OF SILLS



INLET ELEVATION
LOOKING DOWNSTREAM

SECTION THROUGH SILL

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

CULVERT SILL DETAILS

PROJECT NO. B-5414
HARNETT COUNTY
 STATION: 13+08.00 -L-
 SHEET 8 OF 9

ENGINEER OF RECORD:
Developed by
 Erik Charles Hunt
 NORTH CAROLINA PROFESSIONAL SEAL 14091
 ERIC CHARLES HUNT
 ENGINEER
 9/10/2018
 WETHERILL ENGINEERING
 1223 Jones Franklin Rd.
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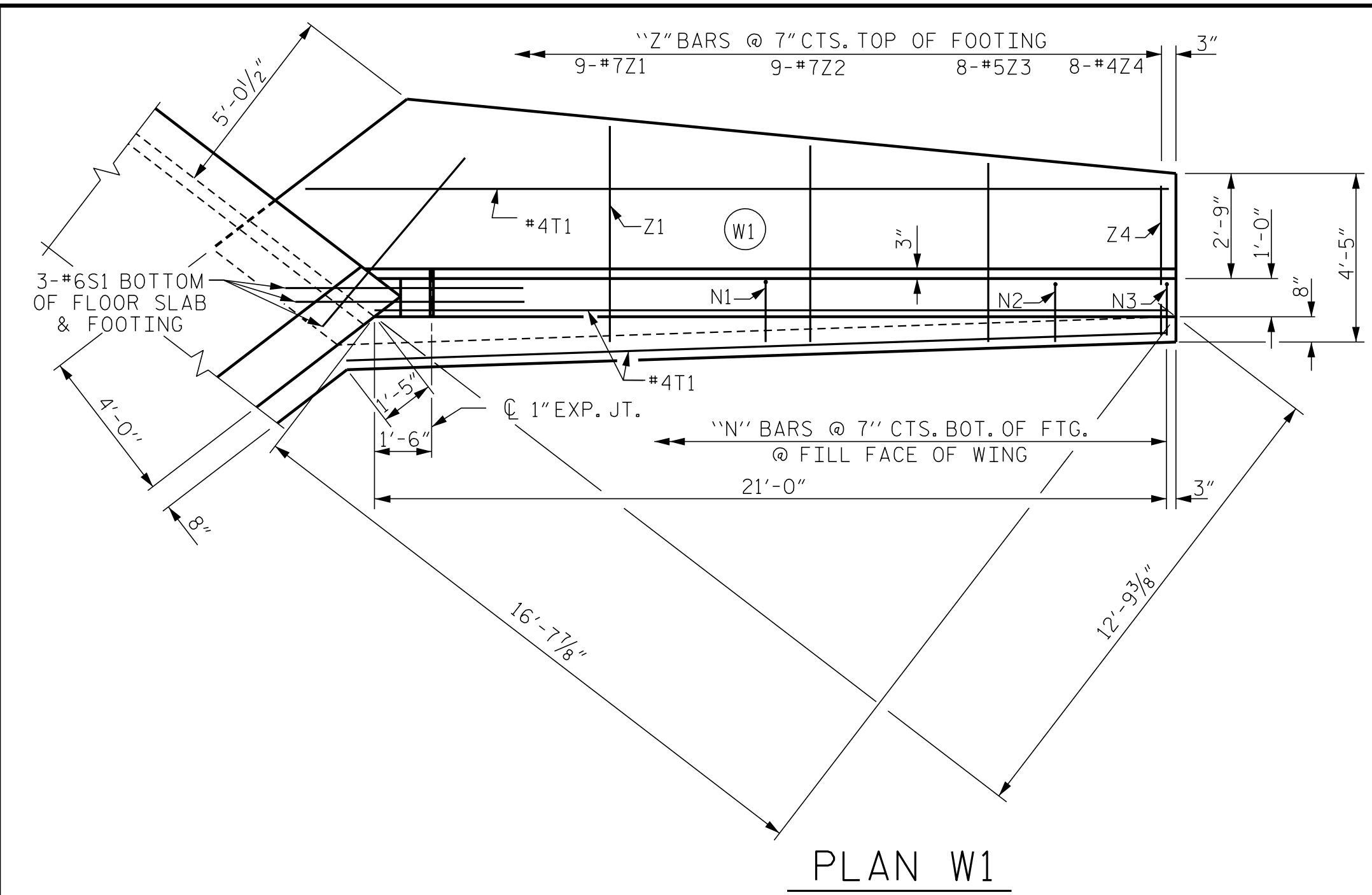
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**TRIPLE 12 FT. x 12 FT.
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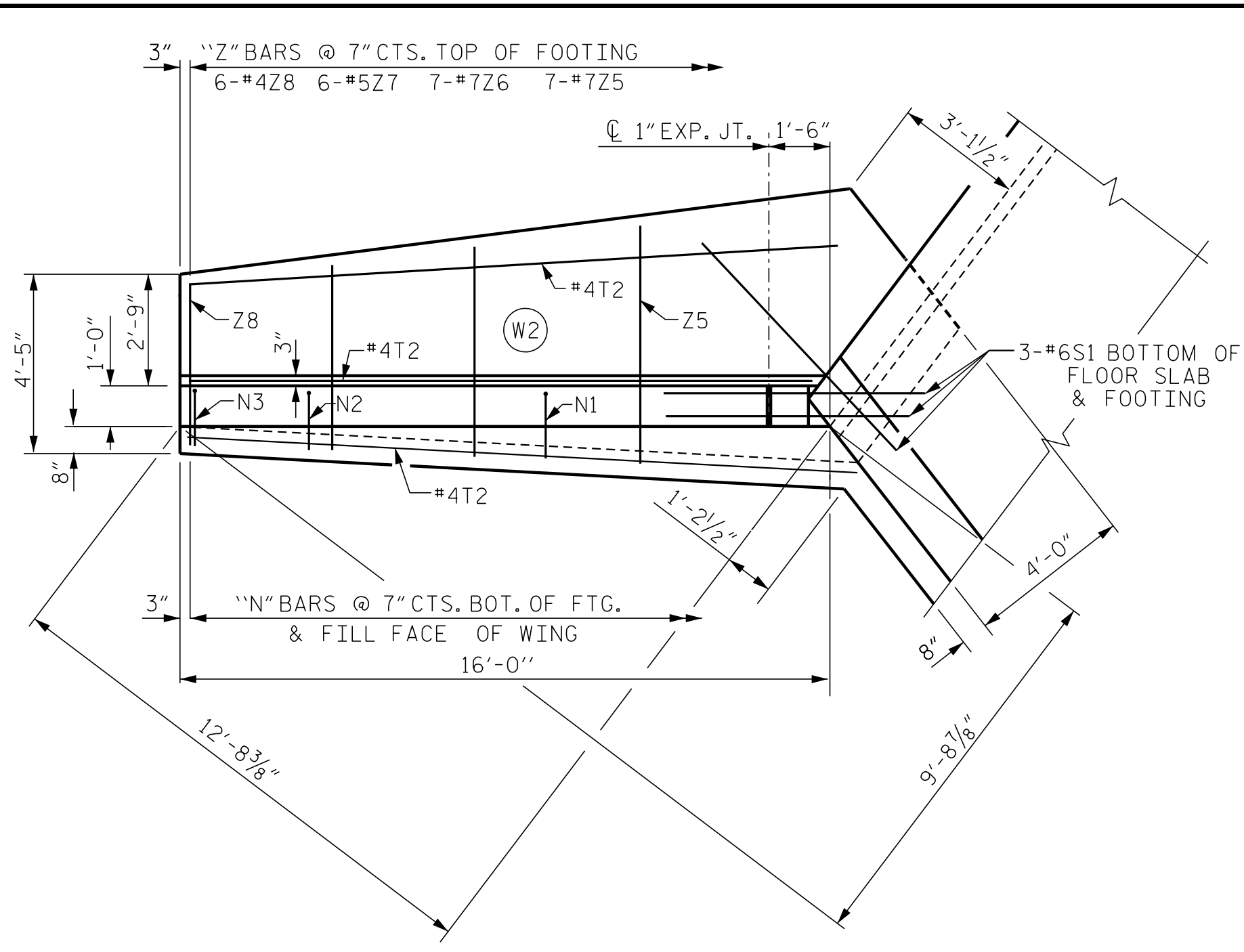
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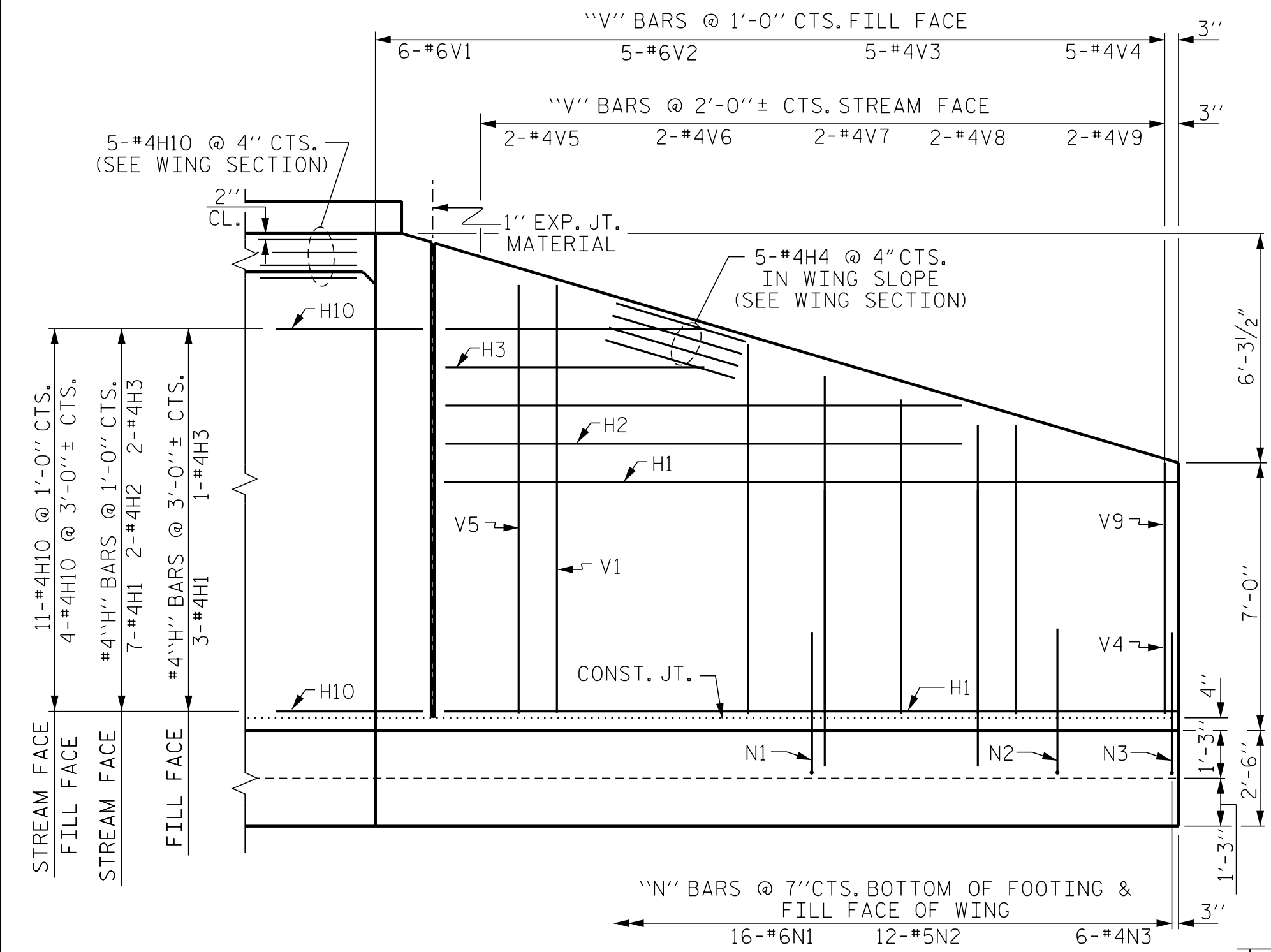
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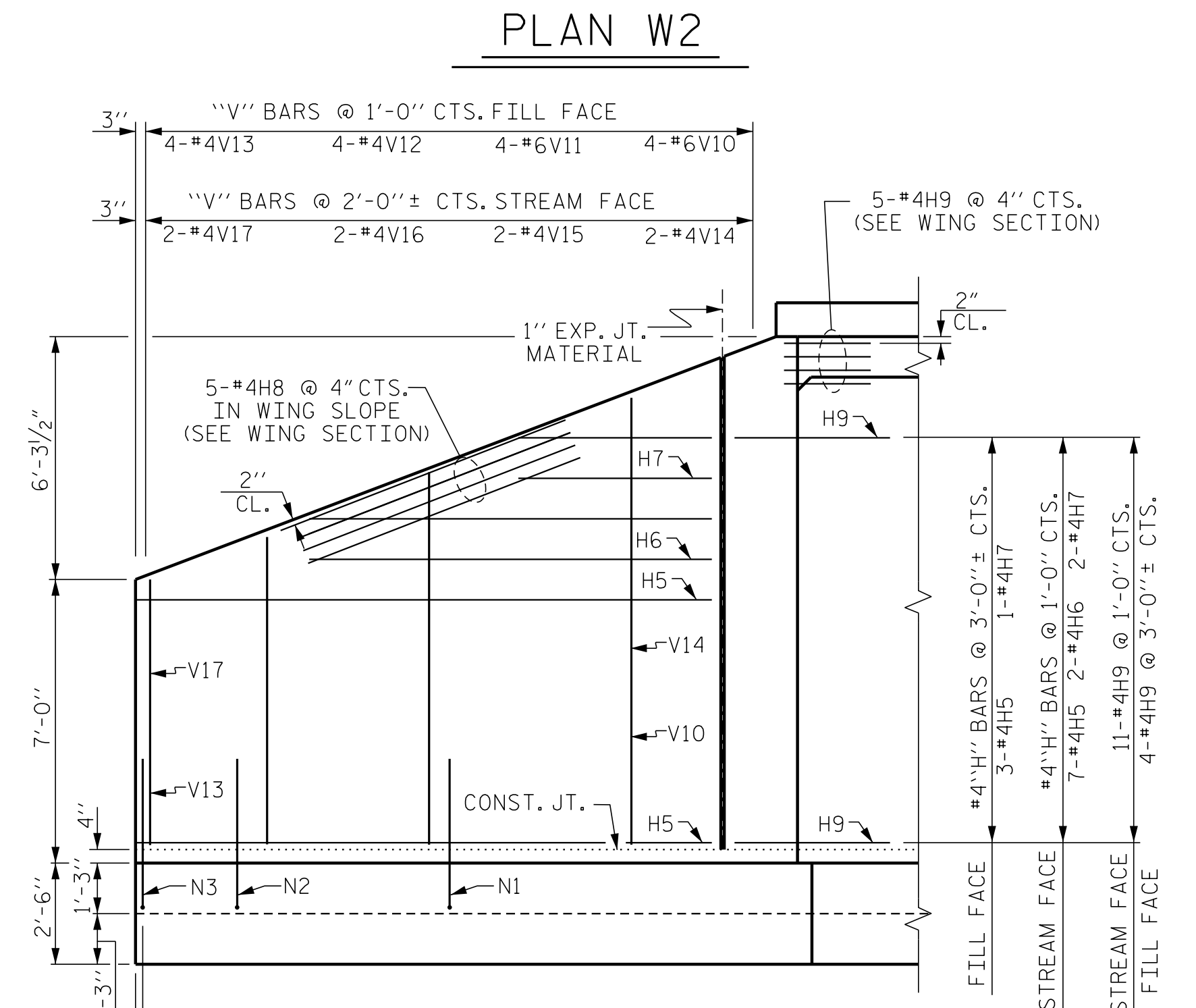
PLAN W1



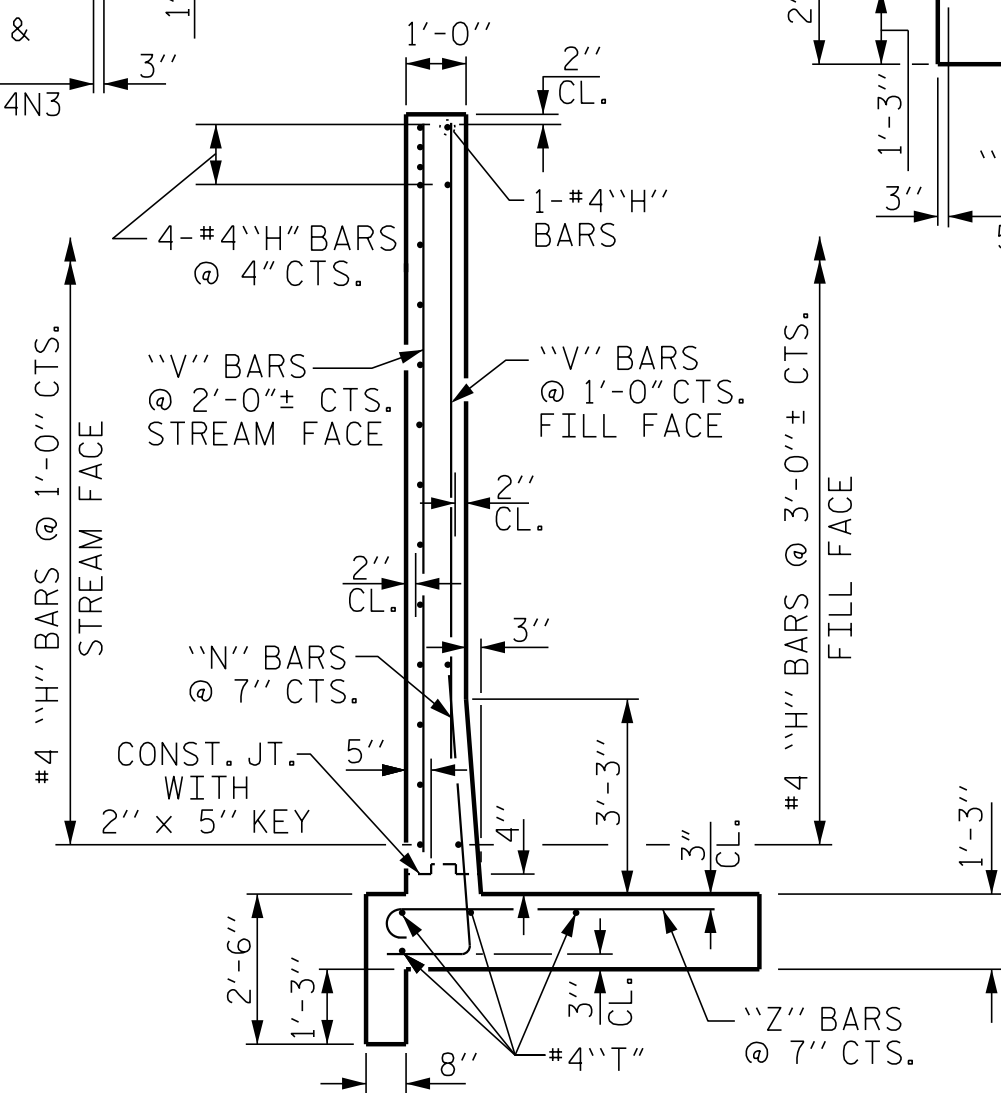
PLAN W2



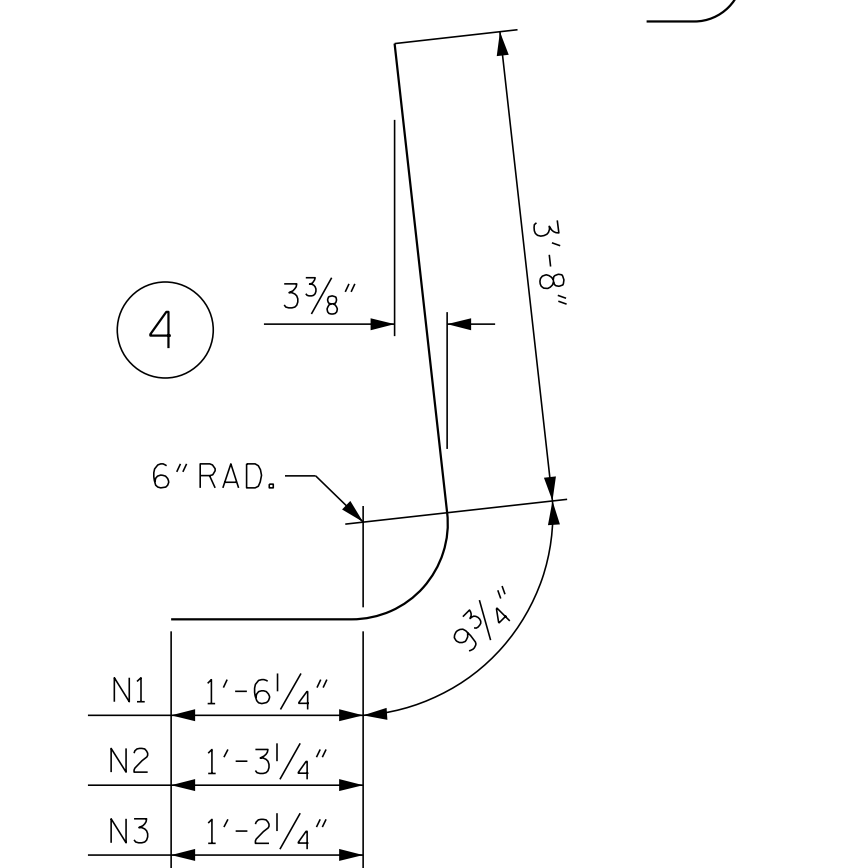
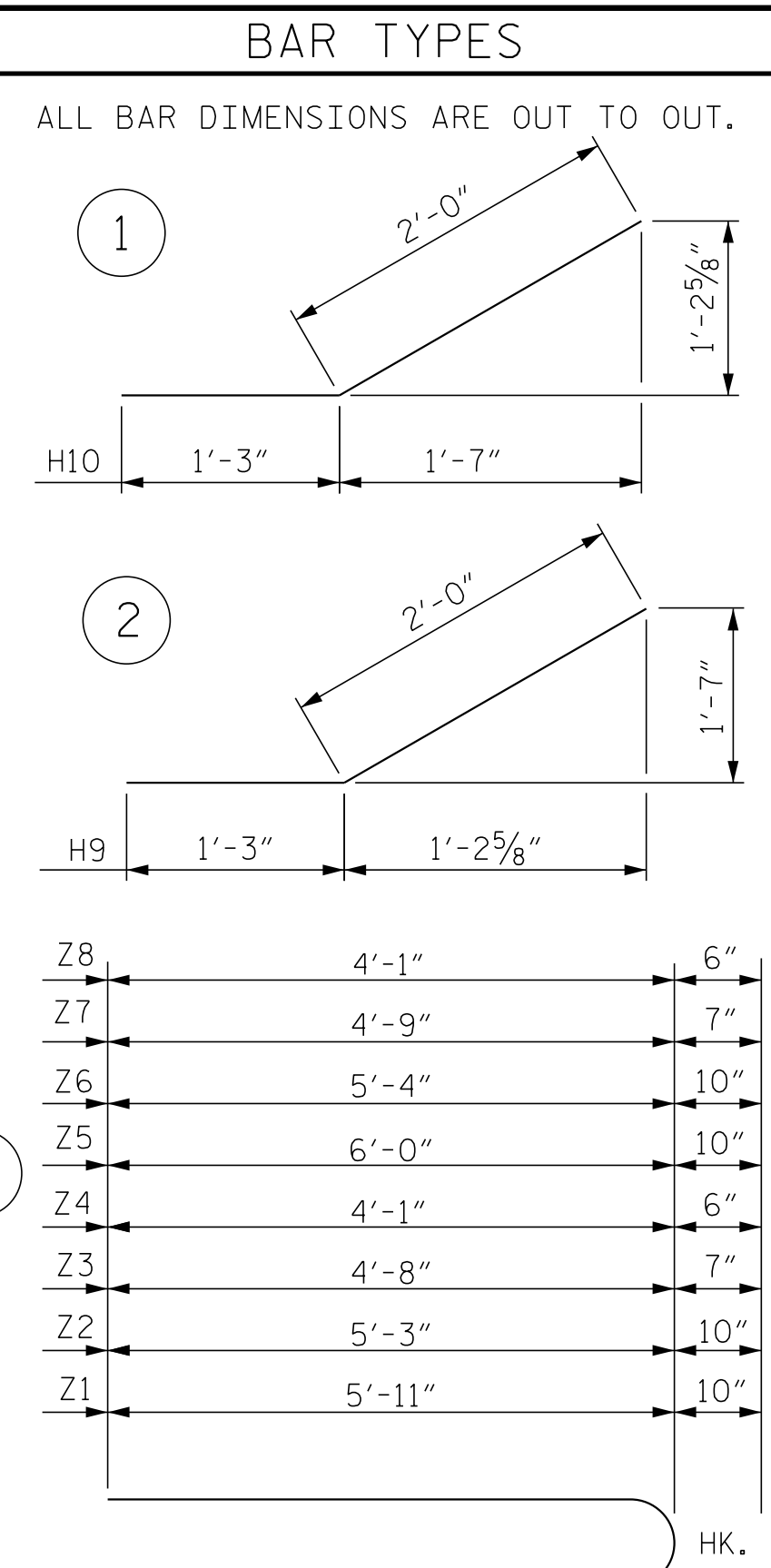
ELEVATION W1



ELEVATION W2



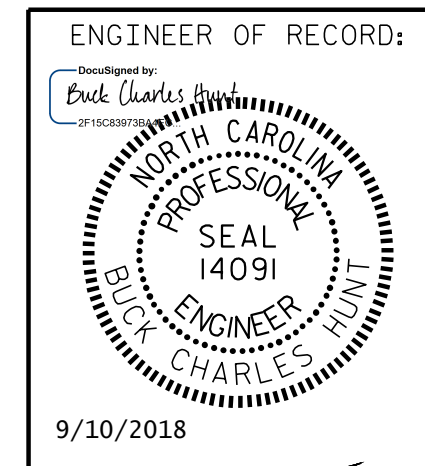
TYPICAL WING SECTION



N1	1'-6 1/4"
N2	1'-3 1/4"
N3	1'-2 1/4"

BILL OF MATERIAL									
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT				
H1	20	#4	STR	19'- 1"	255				
H2	4	#4	STR	13'- 7"	36				
H3	6	#4	STR	6'- 7"	26				
H4	10	#4	STR	19'- 3"	129				
H5	20	#4	STR	14'- 1"	188				
H6	4	#4	STR	10'- 1"	27				
H7	6	#4	STR	4'- 10"	19				
H8	10	#4	STR	14'- 6"	97				
H9	40	#4	2	3'- 3"	87				
H10	40	#4	1	3'- 3"	87				
N1	56	#6	4	6'- 0"	505				
N2	42	#5	4	5'- 9"	252				
N3	22	#4	4	5'- 8"	83				
S1	12	#6	STR	6'- 0"	108				
T1	8	#4	STR	21'- 0"	112				
T2	8	#4	STR	16'- 0"	86				
V1	12	#6	STR	10'- 9"	194				
V2	10	#6	STR	9'- 6"	143				
V3	10	#4	STR	7'- 3"	48				
V4	10	#4	STR	5'- 6"	37				
V5	4	#4	STR	11'- 6"	31				
V6	4	#4	STR	10'- 3"	27				
V7	4	#4	STR	9'- 0"	24				
V8	4	#4	STR	7'- 9"	21				
V9	4	#4	STR	6'- 9"	18				
V10	8	#6	STR	11'- 0"	132				
V11	8	#6	STR	9'- 6"	114				
V12	8	#4	STR	7'- 3"	39				
V13	8	#4	STR	5'- 9"	31				
V14	4	#4	STR	11'- 6"	31				
V15	4	#4	STR	10'- 0"	27				
V16	4	#4	STR	8'- 6"	23				
V17	4	#4	STR	7'- 0"	19				
Z1	18	#7	3	6'- 9"	248				
Z2	18	#7	3	6'- 1"	224				
Z3	16	#5	3	5'- 3"	88				
Z4	16	#4	3	4'- 7"	49				
Z5	14	#7	3	6'-10"	196				
Z6	14	#7	3	6'- 2"	176				
Z7	12	#5	3	5'- 4"	67				
Z8	12	#4	3	4'- 7"	37				
REINFORCING STEEL				4,141 LBS					
CLASS A CONCRETE 4 WINGS				51.3 CY					

PROJECT NO. B-5414
 HARNETT COUNTY
 STATION: 13+08.00 -L-
 SHEET 9 OF 9



9/10/2018
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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 $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

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

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

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

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

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

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

REINFORCING STEEL:

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

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

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset 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 $\frac{3}{16}$ " 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 $\frac{1}{16}$ " 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.

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