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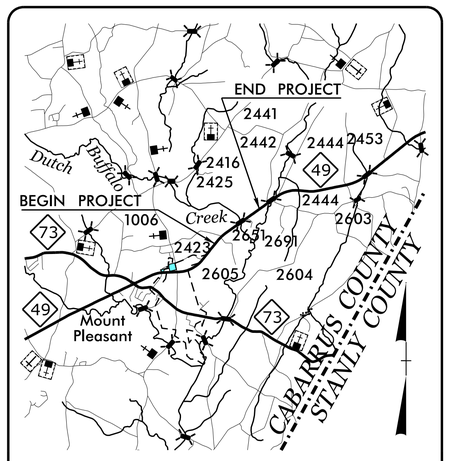
09/08/99

TIP PROJECT: B-5548

CONTRACT: C203828

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CABARRUS COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5548	1	

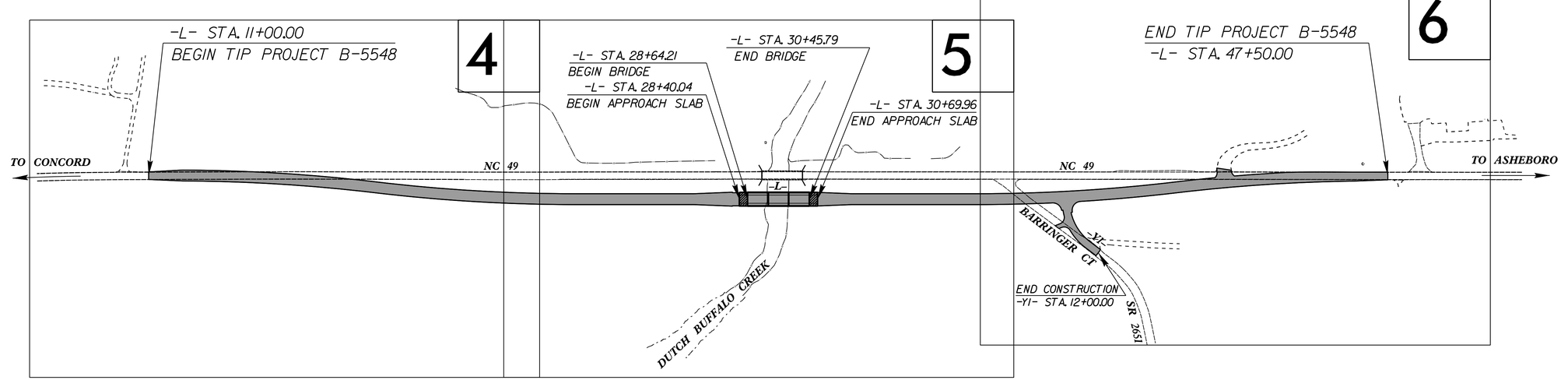
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
55048.1.1	NHPP-0049(032)	PE
55048.2.1	NHPP-0049(032)	R/W,UTIL
55048.3.1	NHPP-0049(032)	CONST

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

LOCATION: BRIDGE NO. 103 OVER DUTCH BUFFALO CREEK ON NC 49.

TYPE OF WORK: GRADING, PAVING, DRAINAGE AND STRUCTURE.

NAD83/1986



GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2017 = 7,200
ADT 2040 = 9,500
K = 9 %
D = 55 %
T = 13 % *
V = 60 MPH
* TTST = 5% DUAL = 8%
FUNC CLASS: ARTERIAL
REGIONAL TIER

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT B-5548 = 0.657 MI
LENGTH OF STRUCTURE TIP PROJECT B-5548 = 0.034 MI
TOTAL LENGTH OF TIP PROJECT B-5548 = 0.691 MI

Prepared in the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JANUARY 21, 2016

LETTING DATE:
JANUARY 17, 2017

GARY LOVERING, PE
PROJECT ENGINEER

THAD F. DUNCAN, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 019865 ENGINEER WILLIAM S ZERMAN JR

DocuSigned by: William S Zerman Jr
SIGNATURE: P.E. 11/28/2016

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad F Duncan

DocuSigned by: Thad F Duncan
SIGNATURE: P.E. 11/28/2016

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-5548	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025477 Digitally signed by: Thad F. Duncan

11/28/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

EFF. 01-17-2012
REV. 02-29-2016
The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2012 are applicable to this project and by reference hereby are considered a part of these plans:

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 4 - MAJOR STRUCTURES	
422.10	Reinforced Bridge Approach Fills
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.45	Precast Drainage Structures
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.04	Anchoring End of Guardrail - B-77 and B-83 Anchor Units
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-2012
REVISED: 10-31-2014

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 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

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE

Duke Energy (Power), Windstream Holdings (Telephone)

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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04/06/15

PROJECT REFERENCE NO.	SHEET NO.
B-5548	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

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

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

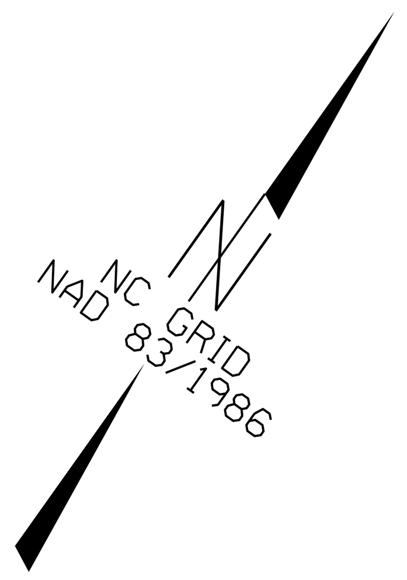
MISCELLANEOUS:

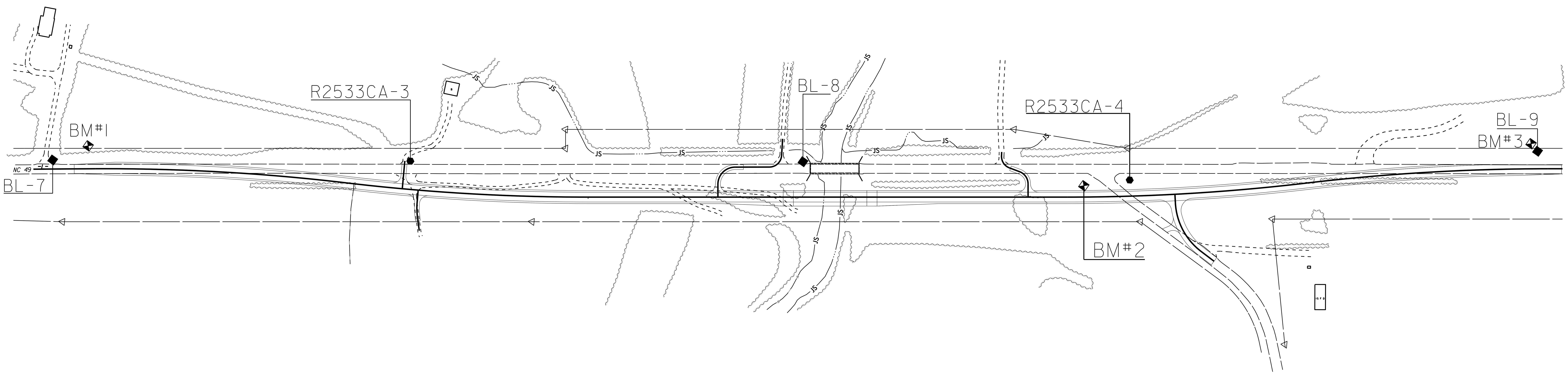
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

SURVEY CONTROL SHEET –Final–

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "WILDLIFE"
WITH NAD 83/1986 STATE PLANE GRID COORDINATES OF
NORTHING: 604227.92(ft) EASTING: 1563242.03(ft)
ELEVATION: N/A(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99985209
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "WILDLIFE" TO -L- STATION 10+00.00 IS
N 61°56'46.8" E 16917.79 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NGVD 29





NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5548_LS_BASELINE.TXT
   B5548_LS_INPUT.ILS

2. SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

3. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

   MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

⬢ INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL
■ INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL
⧓ INDICATES BENCHMARKS FOR VERTICAL CONTROL

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
7	BL-7	612230.0920	1578197.4920	607.31	10+47.36	22.24 LT
3	R2533CA-3	612735.3150	1578913.7940	562.31	19+19.84	69.27 LT
8	BL-8	613291.1170	1579698.9470	543.02	28+88.45	86.86 LT
4	R2533CA-4	613717.9760	1580377.7190	560.82	36+90.27	39.53 LT
9	BL-9	614354.1870	1581151.6510	605.09	46+91.35	43.02 LT

BM1 ELEVATION = 607.21
N 612309 E 1578248
L STATION 5+87.00 35 LEFT
RR SPIKE IN BASE OF 18" PINE

BM2 ELEVATION = 557.26
N 613642 E 1580294
L STATION 30+29.00 20 RIGHT
RR SPIKE IN BASE OF 30" OAK

BM3 ELEVATION = 605.65
N 614360 E 1581128
L STATION 41+28.00 20 LEFT
18" IRON WITH PUNCH HOLE

NOTE: DRAWING NOT TO SCALE

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SURVEY CONTROL SHEET *–Final–*

L

TYPE	STATION	NORTH	EAST
PC	10+00.00	612184.3278	1578172.1056
PCC	11+51.53	612272.9163	1578295.0394
PRC	17+68.86	612601.2369	1578817.3655
PT	23+59.19	612913.8617	1579317.7152
PC	35+36.40	613595.4602	1580277.5268
PRC	41+26.42	613964.6368	1580737.3377
PT	47+16.44	614333.8145	1581197.1501
POT	48+76.24	614426.3423	1581327.4457

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	613753.6779	1580488.3270
PC	10+21.16	613737.0933	1580501.4720
PT	11+60.30	613676.5550	1580621.9110
POT	12+55.00	613673.6248	1580716.5626

PERMANENT EASEMENT POINTS, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	17+45.00	-130.00	612703.58098	1578733.64015
L	17+65.00	-170.00	612748.55784	1578732.44221
L	17+80.00	-145.00	612733.71551	1578757.40847
L	17+85.00	-155.00	612744.81537	1578756.84652
L	17+95.00	-88.32	612691.12284	1578797.57451
L	18+40.00	-93.12	612716.85573	1578833.81098
L	20+40.00	70.70	612677.34510	1579088.92022
L	22+00.00	95.00	612744.60342	1579238.98676
L	22+00.00	105.00	612736.26994	1579244.51425
L	22+20.00	105.00	612747.59108	1579261.50859
L	22+20.00	95.00	612755.90238	1579255.94782
L	35+00.00	-150.31	613696.93493	1580160.82279
L	35+05.00	150.00	613454.98099	1580338.77594
L	35+10.00	-260.00	613792.16124	1580105.46396
L	35+15.00	60.37	613533.85097	1580295.03235
L	35+30.00	-145.31	613710.23015	1580188.17628
L	35+45.00	-255.00	613808.10121	1580136.53377
L	39+02.26	224.26	613645.15355	1580710.67870
L	40+80.00	-150.00	614045.80702	1580603.16891
L	41+05.00	-87.82	614015.67470	1580662.77913
L	41+10.00	-160.00	614072.63287	1580618.18342
L	41+40.00	-83.76	614035.99477	1580691.39341
L	41+70.00	94.08	613923.42946	1580832.29606
L	41+93.33	182.84	613871.99568	1580908.10704
L	42+05.00	250.00	613828.91597	1580960.82436
L	42+05.00	105.00	613937.94840	1580865.23708
L	42+15.00	98.72	613949.12280	1580868.47683
L	42+35.00	245.00	613851.41885	1580979.03761

PERMANENT EASEMENT POINTS, IRON PIN & CAP

ALIGN	STATION	OFFSET	NORTH	EAST
Y1	11+00.00	44.97	613648.32285	1580545.56578
Y1	11+50.00	45.00	613632.40942	1580607.34624
Y1	12+00.00	45.00	613630.34821	1580660.19641

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/*

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   B5548_LS_BASELINE.TXT
   B5548_LS_INPUT.ILS

2. *SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.*

3. *PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM, NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)*

   MONUMENTS USED OR SET FOR PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT:

- ⬣ *INDICATES GEODETIC CONTROL MONUMENTS FOR HORIZONTAL CONTROL*
- ■ *INDICATES BASELINE MONUMENTS FOR HORIZONTAL PROJECT CONTROL*
- ⧓ *INDICATES BENCHMARKS FOR VERTICAL CONTROL*

NOTE: DRAWING NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5548	2A-I

ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad F. Duncan — DocuSigned by: Thad F. Duncan 12B4BCAA851748E... 11/28/2016	NORTH CAROLINA PROFESSIONAL SEAL 022896 ENGINEER CLARK S. MORRISON — DocuSigned by: Clark S Morrison B0A110DD1E004C4... 11/14/2016

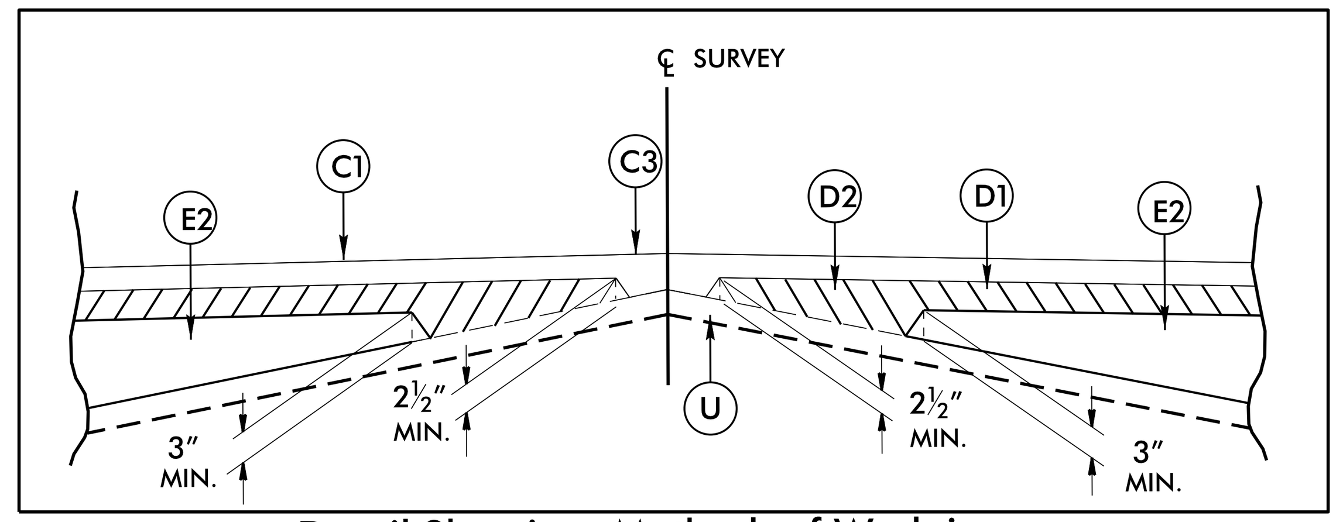
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE

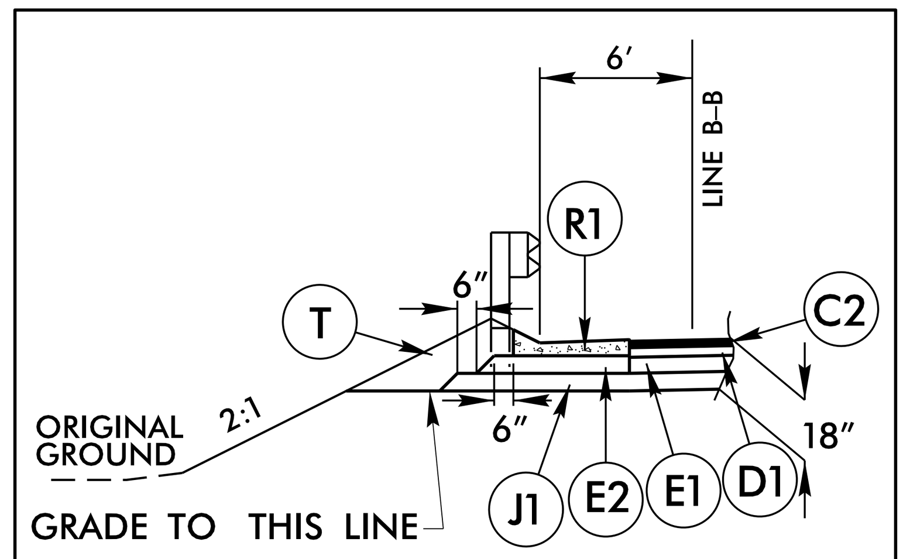
(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2 1/2" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
J1	8" ABC
R1	CONCRETE SHOULDER BERM GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT. (WEDGING)

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



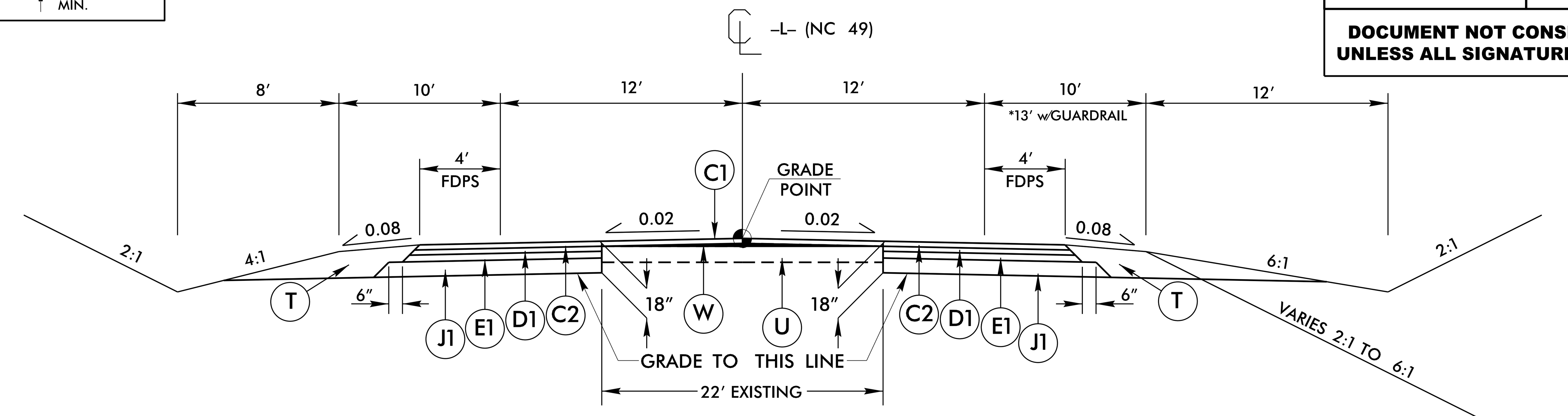
Detail Showing Method of Wedging



DETAIL SHOWING SHOULDER BERM GUTTER

USE WITH TYPICAL SECTION NO. 2

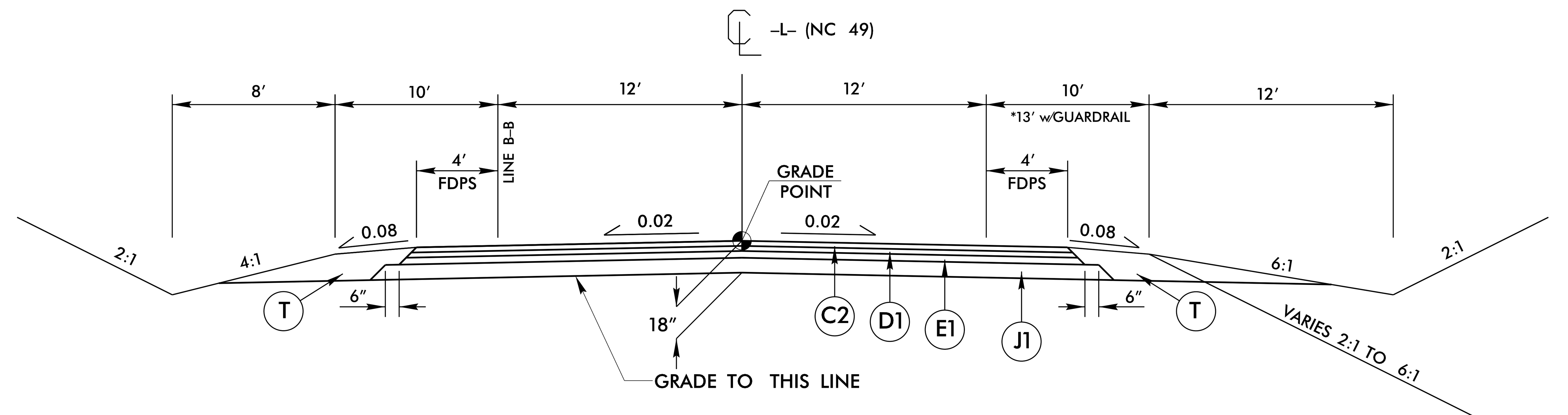
-L-LT. STA. 28+20.00 TO STA. 28+40.00
-L-RT. STA. 28+20.00 TO STA. 28+40.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

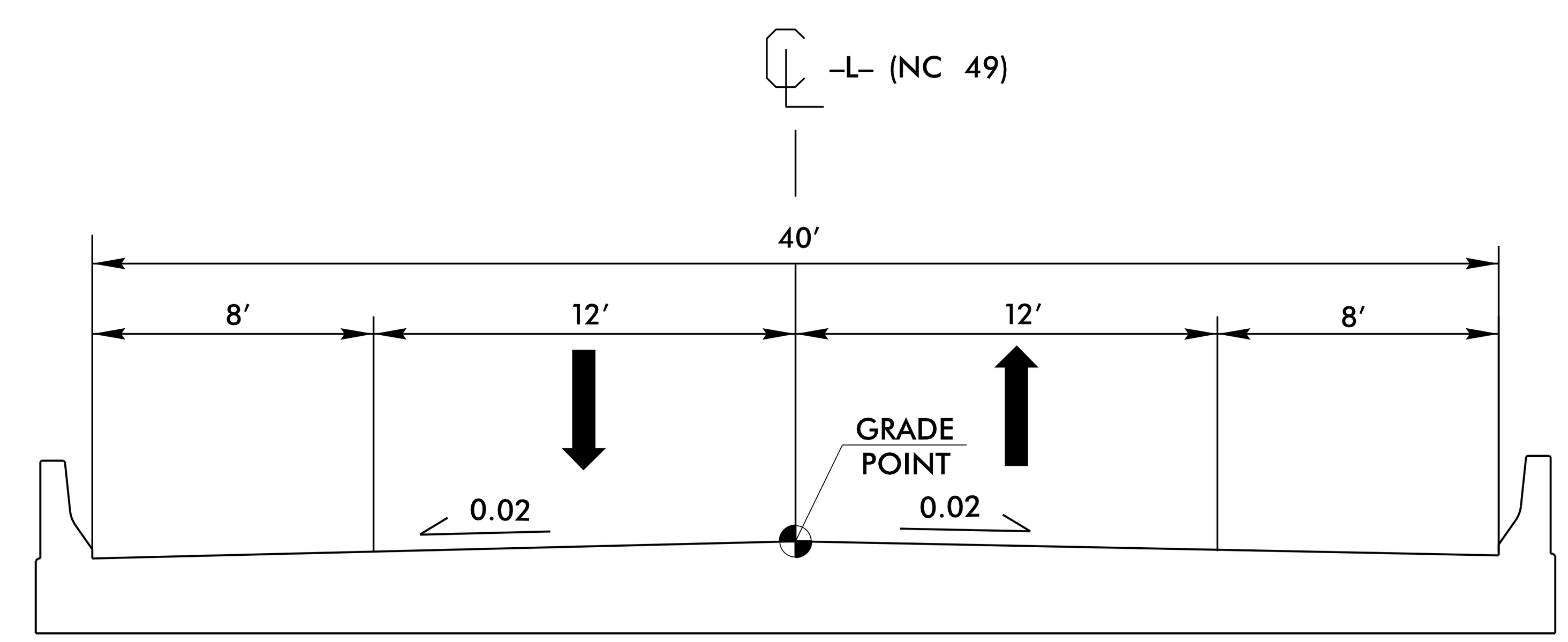
-L- STA. 11+00.00 TO STA. 12+00.00, TRANSITION FROM EXISTING TO TYP. SEC. NO. 1
-L- STA. 12+00.00 TO STA. 16+60.08
-L- STA. 42+35.63 TO STA. 46+50.00
-L- STA. 46+50.00 TO STA. 47+50.00, TRANSITION FROM TYP. SEC. NO. 1 TO EXISTING



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

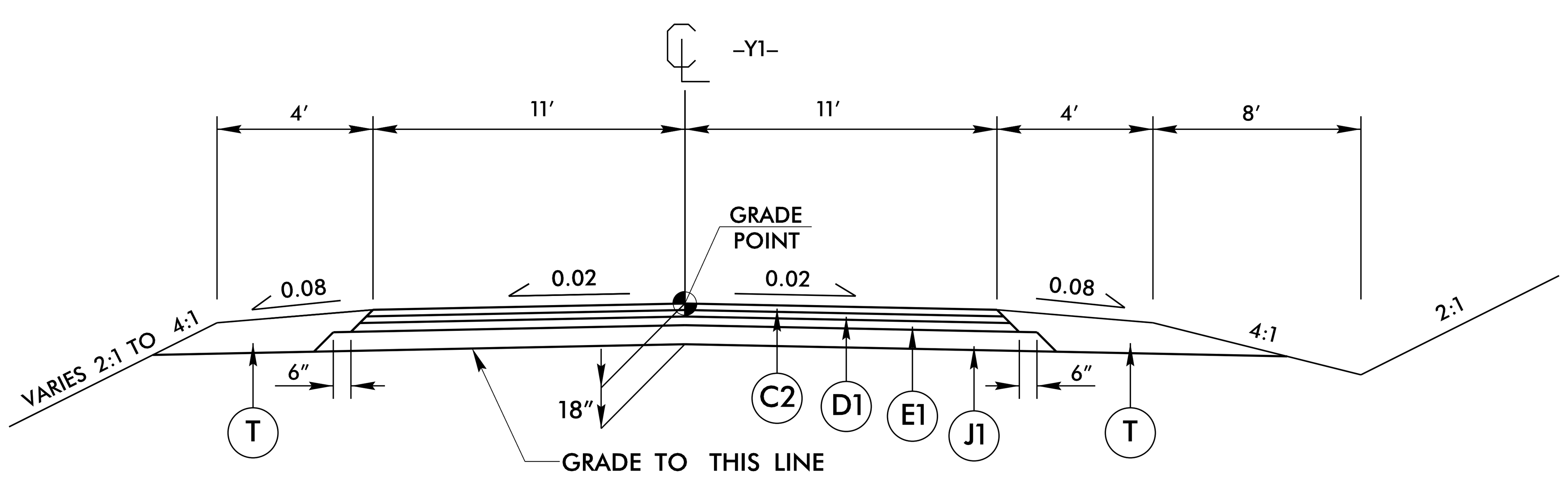
-L- STA. 16+60.08 TO STA. 28+64.21 (BEGIN BRIDGE)
-L- STA. 30+45.79 (END BRIDGE) TO STA. 42+35.63



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

-L- STA. 28+64.21 (BEGIN BRIDGE) TO STA. 30+45.79 (END BRIDGE)



TYPICAL SECTION NO. 4

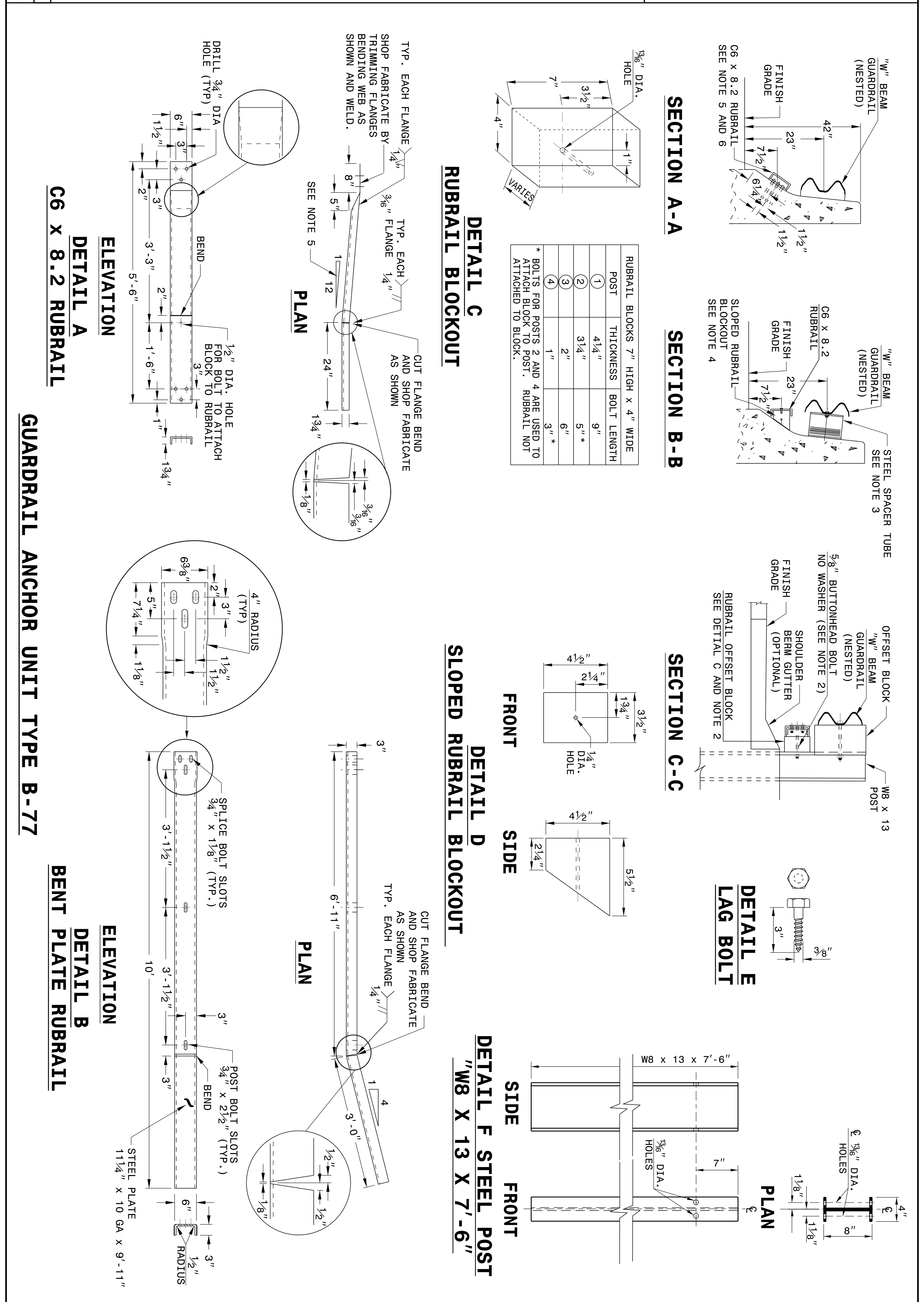
USE TYPICAL SECTION NO. 4

-Y1- STA. 10+12.00 TO STA. 12+00.00

6/2/99

07-NOV-2016 11:04
R:\Roadway\Proj\B-5548_Rdy_typ.dgn
$$$$USERNAME$$$$

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER
SHEET 5 OF 7 862D03



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

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

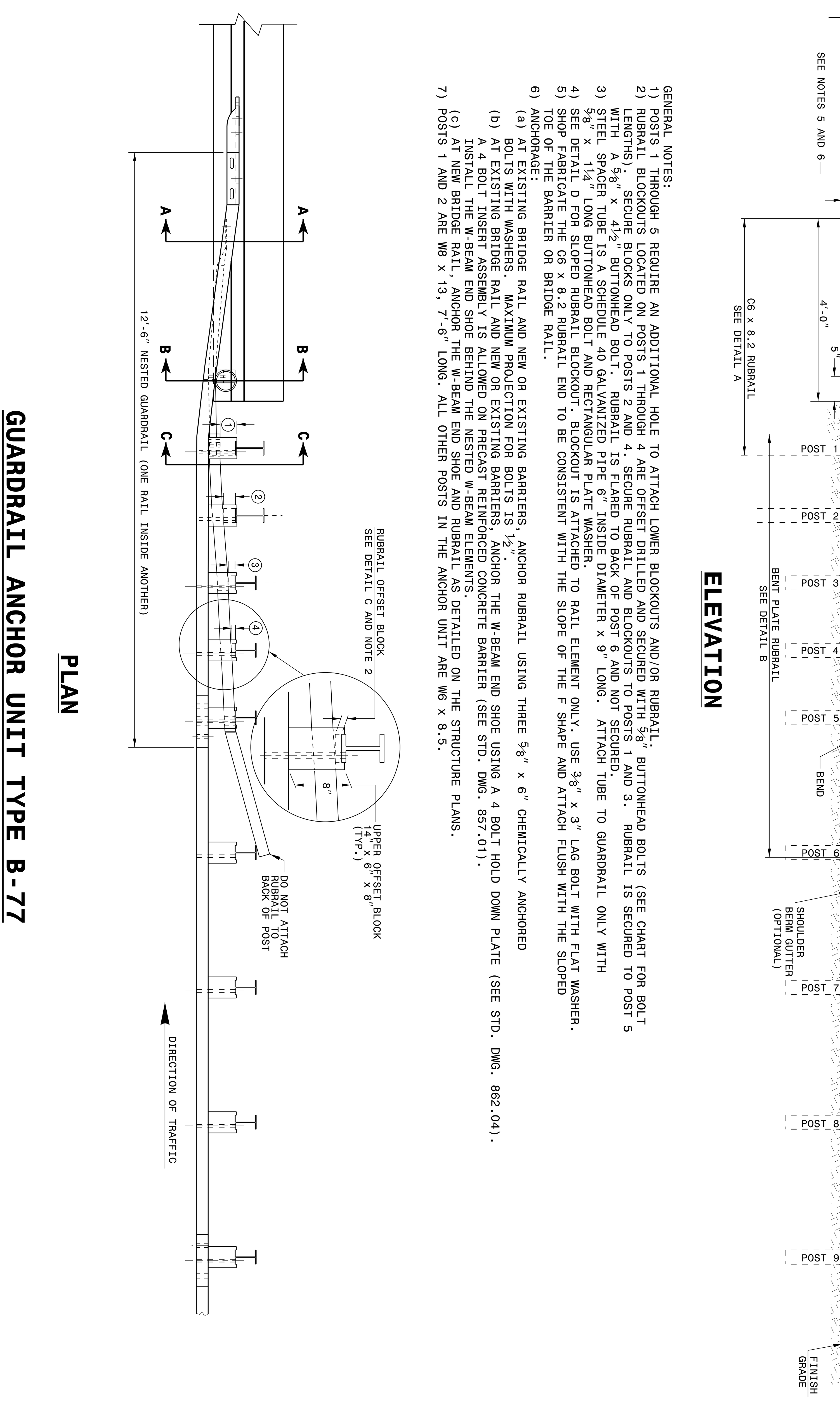
ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 5 OF 7
862D03

STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.
ENGLISH DETAIL DRAWING FOR GUARDRAIL ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER
SHEET 4 OF 7 862D03

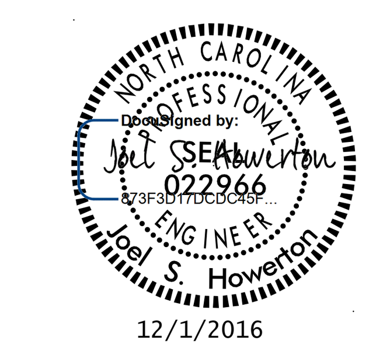
GENERAL NOTES:

1) POSTS 1 THROUGH 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKOUTS AND/OR RUBRAIL.
2) RUBRAIL BLOCKOUTS LOCATED ON POSTS 1 THROUGH 4 ARE OFFSET DRILLED AND SECURED WITH ⅝" BUTTONHEAD BOLTS (SEE CHART FOR BOLT LENGTHS). SECURE BLOCKS ONLY TO POSTS 2 AND 4. SECURE RUBRAIL AND BLOCKOUTS TO POSTS 1 AND 3. RUBRAIL IS SECURED TO POST 5 WITH A ⅝" x 4½" BUTTONHEAD BOLT. RUBRAIL IS FLARED TO BACK OF POST 6 AND NOT SECURED.
3) STEEL SPACER TUBE IS A SCHEDULE 40 GALVANIZED PIPE 6" INSIDE DIAMETER x 9" LONG. ATTACH TUBE TO GUARDRAIL ONLY WITH ⅝" x 1¼" LONG BUTTONHEAD BOLT AND RECTANGULAR PLATE WASHER.
4) SEE DETAIL D FOR SLOPED RUBRAIL BLOCKOUT. BLOCKOUT IS ATTACHED TO RAIL ELEMENT ONLY. USE ⅜" x 3" LAG BOLT WITH FLAT WASHER.
5) SHOP FABRICATE THE C6 x 8.2 RUBRAIL END TO BE CONSISTENT WITH THE SLOPE OF THE F SHAPE AND ATTACH FLUSH WITH THE SLOPED TOE OF THE BARRIER OR BRIDGE RAIL.
6) ANCHORAGE:
   (a) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR RUBRAIL USING THREE ⅝" x 6" CHEMICALLY ANCHORED BOLTS WITH WASHERS. MAXIMUM PROJECTION FOR BOLTS IS ½".
   (b) AT EXISTING BRIDGE RAIL AND NEW OR EXISTING BARRIERS, ANCHOR THE W-BEAM END SHOE USING A 4 BOLT HOLD DOWN PLATE (SEE STD. DWG. 862.04). A 4 BOLT INSERT ASSEMBLY IS ALLOWED ON PRECAST REINFORCED CONCRETE BARRIER (SEE STD. DWG. 857.01). INSTALL THE W-BEAM END SHOE BEHIND THE NESTED W-BEAM ELEMENTS.
   (c) AT NEW BRIDGE RAIL, ANCHOR THE W-BEAM END SHOE AND RUBRAIL AS DETAILED ON THE STRUCTURE PLANS.
7) POSTS 1 AND 2 ARE W8 x 13, 7'-6" LONG. ALL OTHER POSTS IN THE ANCHOR UNIT ARE W6 x 8.5.



ENGLISH DETAIL DRAWING FOR STRUCTURE ANCHOR UNIT GUARDRAIL ANCHOR UNIT TYPE B-77 FOR F-SHAPE BARRIER	STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

SHEET 4 OF 7
862D03



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

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

COMPUTED BY:AJF DATE:8/17/2016
CHECKED BY:KDA DATE: 9/20/2016

PROJECT NO.	SHEET NO.
B-5548	3B-1

RD266404

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

CUBIC YARDS

Station to Station	Uncl. Exc. C.Y.	Embank. +% C.Y.	Borrow C.Y.	Waste C.Y.
-L- 11+00.00 TO 18+64.21 (Begin Bridge)	4,546	31,971	27,425	
Bridge Approach End Bent		298	298	
SUBTOTAL	4,546	32,269	27,723	
-L- 30+45.79 (End Bridge) TO 47+50.00	13,065	14,896	1,831	
Bridge Trailing End Bent		305	301	
-Y1- 10+12.00 TO 12+00.00	102	62		40
SUBTOTAL	13,167	15,263	2,132	40
TOTAL	17,713	47,532	29,855	40
SHOULDER MATERIAL			2,887	
Loss Due To Clearing & Grubbing	-600		600	
Waste In Lieu Of Borrow			-40	-40
PROJECT TOTAL	17,113	47,532	33,302	
Est. 5% To Replace Topsoil at Borrow Pit			1,665	
GRAND TOTAL	17,113		34,967	
SAY	17,450		35,500	

ESTIMATED UNDERCUT = 500 CY
ESTIMATED SHALLOW UNDERCUT = 500 CY
ESTIMATED SELECT GRANULAR MATERIAL = 500 CY

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION FINE GRADING, CLEARING AND GRUBBING AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE LUMP SUM PRICE FOR "GRADING".

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

SUMMARY OF ASPHALT PAVEMENT REMOVAL

Station to Station	LOC LT/RT/CL	Asphalt Removal SQ. YDS.
-L- 12+74.00 TO 29+06.00	LT	3,498
-L- 30+26.00 TO 42+50.00	LT	3,328
-L- 42+92.00 TO 45+84.00	LT	223
-Y1- 10+10.00 TO 10+70.00	RT	259
-Y1- 10+80.00 TO 12+00.00	RT	92
PROJECT TOTAL		7,400
SAY		7,500

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF TRAVEL LANE TO FACE OF GUARDRAIL TOTAL

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

LINE	BEG. STA.	END STA.	LOC.	LENGTH (FT.)			WARRANT POINT		"N" DIST.	TOTAL	FLARE LENGTH		W		ANCHORS						IMPACT ATTEN. TYPE 350			REMOVE EXISTING	REMARKS
				STRAIGHT	SHOP CURVED	WOOD RUB RAIL	APPR. END	TRAIL. END	FROM E.O.L.	SHLDR WIDTH	APPR. END	TRAIL. END	APPR. END	TRAIL. END	GRAU 350 TL-3	TYPE B-77					EA	G	NG	GUARDRAIL	
-L-	25+45.46	28+64.21	RT	318.75'			26+00.00	28+64.21	10'	13'		100'		2'	1	1								560'	BRIDGE WARRANT / FILL WARRANT
-L-	27+20.46	28+64.21	LT	143.75'				28+64.21	10'	13'	75'		1.5'		1	1								560'	BRIDGE WARRANT
-L-	30+45.79	33+89.54	RT	343.75'			30+45.79	33+50.00	10'	13'	100'		2'		1	1								470'	BRIDGE WARRANT / FILL WARRANT
-L-	30+45.79	33+89.54	LT	343.75'			33+50.00	30+45.79	10'	13'		100'		2'	1	1								330'	BRIDGE WARRANT / FILL WARRANT
		SUB-TOTALS		1150'											4	4								1920'	
DEDUCTION FOR ANCHOR UNITS		(4 GRAU TL-3 @ 50')		-200'																					
		(4 TYPE B-77 @ 18.75')		-75'																					
		PROJECT TOTAL		875'											4	4								1920'	
		SAY		950'																					
ADDITIONAL GUARDRAIL POSTS = 10 EA																									

RD266193

COMPUTED BY:	AJF	DATE:	AUGUST 16, 2016
CHECKED BY:	KDA	DATE:	

PROJECT NO.	SHEET NO.
B-5548	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

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

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

LINE & STATION	OFFSET		STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %
L 17+87		CL/LT						
L 23+00	45'	LT						
L 23+00	92'	LT						
L 28+31		LT	0501		546.7	544.0		
L 28+31		CL	0501	0502		544.0	543.8	0.3
L 28+31		RT		0502	546.6	543.8		
L 28+31		RT	0502	0503		543.8	533.8	0.3
L 33+75	120'	LT						
L 36+25	38'	LT						
L 41+75	52'	LT						
L 42+73		LT						
Y1 10+44		CL				562.8	560.0	
Y1 11+75		CL				566.6	564.8	

SIZE / THICKNESS OR GAUGE

LINE & STATION	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 12 (.064)	R. C. PIPE CLASS III 12	15	18	24	30	36	42	48	54	60	66	72	R. C. PIPE CLASS IV 12	15	18	R. C. PIPE CLASS V 12	STRUCTURAL PLATE PIPE 60	66	72
L 17+87																											
L 23+00																											
L 23+00																											
L 28+31																											
L 28+31																						28					
L 28+31																											
L 28+31		36																									
L 33+75																											
L 36+25																											
L 41+75																											
L 42+73		56																									
Y1 10+44																							100				
Y1 11+75																							84				
SHEET TOTALS		92																				28	184				
PROJECT TOTALS		92																				28	184				

LINE & STATION	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	T.B. GRATED DROP INLET STD. 840.35	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	15"DRAINAGE PIPE ELBOW	PIPE CLEANOUT EA	PIPE REMOVAL LIN. FT.	REMARKS
L 17+87																	72	REMOVE EXISTING 18" RCP
L 23+00																	40	REMOVE EXISTING 15" RCP
L 23+00																	52	REMOVE EXISTING 15" CMP
L 28+31				1									1	1				
L 28+31																		
L 28+31				1									1	1	2			
L 28+31																		
L 33+75																1		
L 36+25																	72	REMOVE EXISTING 18" RCP
L 41+75																	52	REMOVE EXISTING 18" RCP
L 42+73																	48	REMOVE EXISTING 15" RCP
Y1 10+44																	24	REMOVE DRIVEWAY PIPE - OFFSET 30' RIGHT
Y1 11+75																	44	REMOVE EXISTING 18" RCP
SHEET TOTALS				2									2	2	2	1	404	
PROJECT TOTALS				2									2	2	2	1	404	

ABBREVIATIONS

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

COMPUTED BY: Eddie Beverly DATE: 9/10/15
CHECKED BY: Shane Clark DATE: 9/10/15

PROJECT NO.	SHEET NO.
B-5548	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	250
				TOTAL LF:	250

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

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilizatio n SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY					500	900	500		
			TOTAL CY/TONS/SY:		500	900	500	0	0

***ASU = Aggregate Subgrade**

***AST = Aggregate Stabilization**

PROJECT REFERENCE NO.	SHEET NO.
B-5548	4
RW SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 025477 ENGINEER Thad F. Duncan	NORTH CAROLINA PROFESSIONAL SEAL 019865 ENGINEER WILLIAM S. ZERMAN, JR.
11/28/2016	11/21/2016

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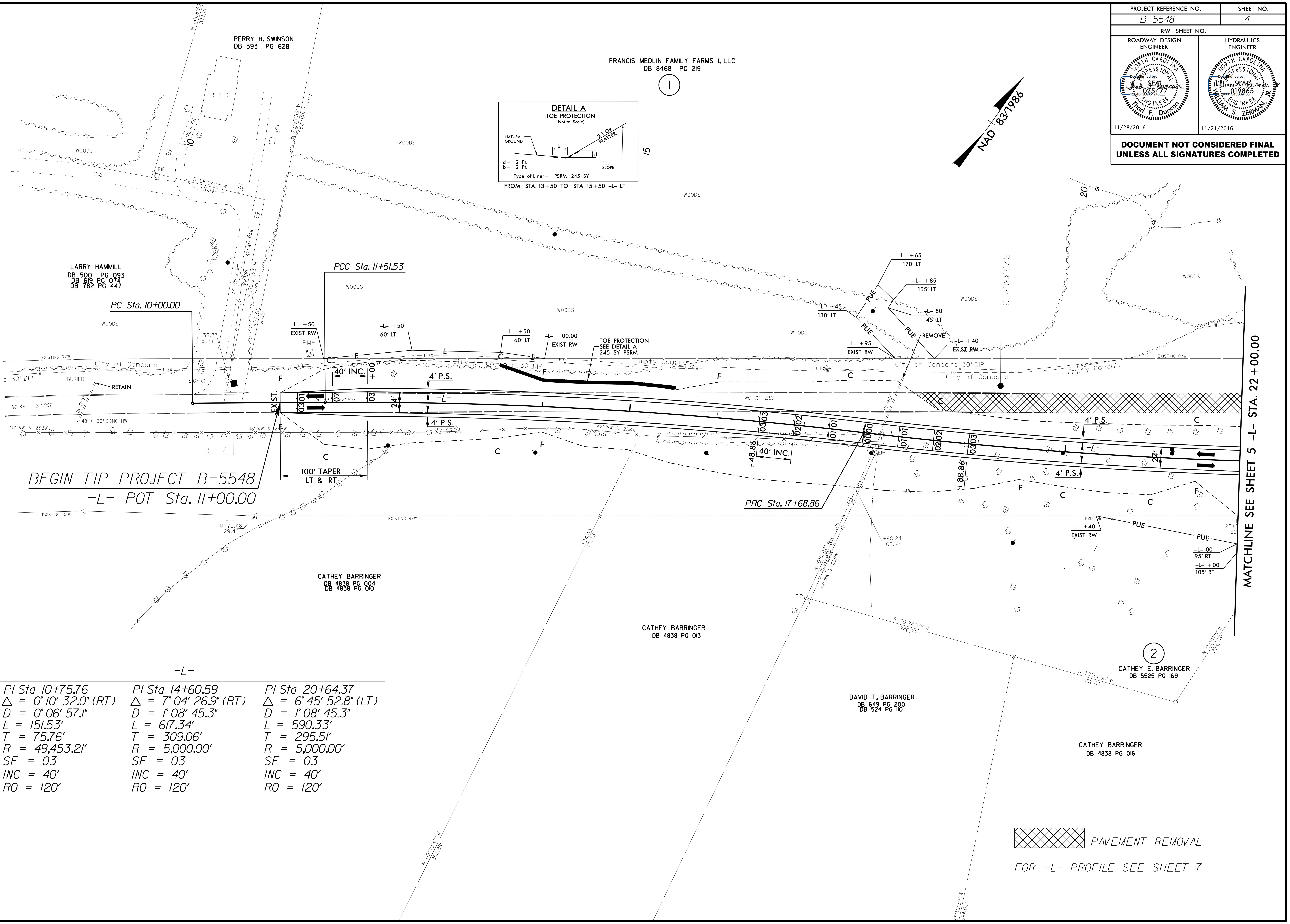

-L-

PI Sta 10+75.76	PI Sta 14+60.59	PI Sta 20+64.37
Δ = 0° 10' 32.0" (RT)	Δ = 7° 04' 26.9" (RT)	Δ = 6° 45' 52.8" (LT)
D = 0° 06' 57.1"	D = 1° 08' 45.3"	D = 1° 08' 45.3"
L = 151.53'	L = 617.34'	L = 590.33'
T = 75.76'	T = 309.06'	T = 295.51'
R = 49,453.21'	R = 5,000.00'	R = 5,000.00'
SE = 03	SE = 03	SE = 03
INC = 40'	INC = 40'	INC = 40'
RO = 120'	RO = 120'	RO = 120'

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 7

07-NOV-2016 11:04
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8/17/99


PROJECT REFERENCE NO. B-5548
SHEET NO. 5
RW SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
11/28/2016
11/21/2016
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
NAD 83/1986
DETAIL B
CUT DITCH
(Not to Scale)
Natural Ground
Front Ditch Slope
Min. D=1.0 Ft.
FROM STA. 22+75 TO STA. 23+25 -L- (LT)
FROM STA. 26+00 TO STA. 28+50 -L- (LT)
FROM STA. 35+50 TO STA. 37+50 -L- (RT)
FRANCIS MEDLIN FAMILY FARMS I, LLC
DB 8468 PG 219
1
ERNEST Y CHOW
DB 1146 PG 096
5
DETAIL D
TOE PROTECTION
(Not to Scale)
d= 2 Ft.
b= 2 Ft.
Geotextile 475 SY
Type of Liner= CLASS B Rip-Rap 120 TONS
FROM STA. 31+00 TO STA. 35+00 -L- (LT)
FROM STA. 34+75 TO STA. 35+00 -L- (RT)
-L- STA. 28+64.21
BEGIN BRIDGE
-L- STA. 28+40.04
BEGIN APPROACH SLAB
-L- STA. 30+45.79
END BRIDGE
-L- STA. 30+69.96
END APPROACH SLAB
PT Sta. 23+59.19
CUT DITCH SEE DETAIL B
GRADE TO DRAIN
REMOVE
CLASS II RIP RAP (Structure Pay Item)
EXCAVATION (Roadway Pay Item)
EXISTING BRIDGE TO BE REMOVED
PIPE EXITS HEADWALL
PIPE CLEANOUT
City of Concord 30" DIP
Empty Conduit
DUTCH BUFFALO CREEK
BL-8
WOODS
TOE PROTECTION SEE DETAIL D
105 TONS CL B RIP RAP
420 SY GEOTEXTILE
GRAU 350 TL-3
TYPE B-77
25:1
4' P.S.
N 54° 37' 12.0" E
40' INC.
SBG STA. 28+20 TO STA. 28+40 (BEGIN APPROACH SLAB) -L- (RT. AND LT.)
CL B RIP RAP 1 TON 5 SY GEOTEXTILE
15 TONS CL B RIP RAP 55 SY GEOTEXTILE
MATCHLINE SEE SHEET 4 -L- STA. 22+00.00
MATCHLINE SEE SHEET 6 -L- STA. 36+00.00
CATHEY BARRINGER DB 4838 PG 016
3
CATHEY BARRINGER DB 4838 PG 004
3
LARRY E. & FRED L. HAMMILL, JR. DB 619 PG 074
6
FRED LEO HAMMILL, JR. DB 460 PG 092
4
PC Sta. 35+36.40
-L-
PI Sta 20+64.37
△ = 6° 45' 52.8" (LT)
D = 1° 08' 45.3"
L = 590.33'
T = 295.51'
R = 5,000.00'
SE = 03
INC = 40'
RO = 120'
PI Sta 38+31.75
△ = 6° 45' 40.0" (LT)
D = 1° 08' 45.3"
L = 590.02'
T = 295.35'
R = 5,000.00'
SE = 03
INC = 40'
RO = 120'
APPROACH SLAB
4' PAVED SHOULDER
SKETCH SHOWING BRIDGE IN RELATION TO PAVEMENT
PAVEMENT REMOVAL
FOR -L- PROFILE SEE SHEET 7
FOR STRUCTURE PLANS SEE SHEET S-1 THRU S-30

PROJECT REFERENCE NO.	SHEET NO.
B-5548	6
RW SHEET NO.	

ROADWAY DESIGN ENGINEER — SEAL 025477 — Thad F. Duncan — 11/28/2016

HYDRAULICS ENGINEER — SEAL 019865 — William S. Zerman, Jr. — 11/21/2016

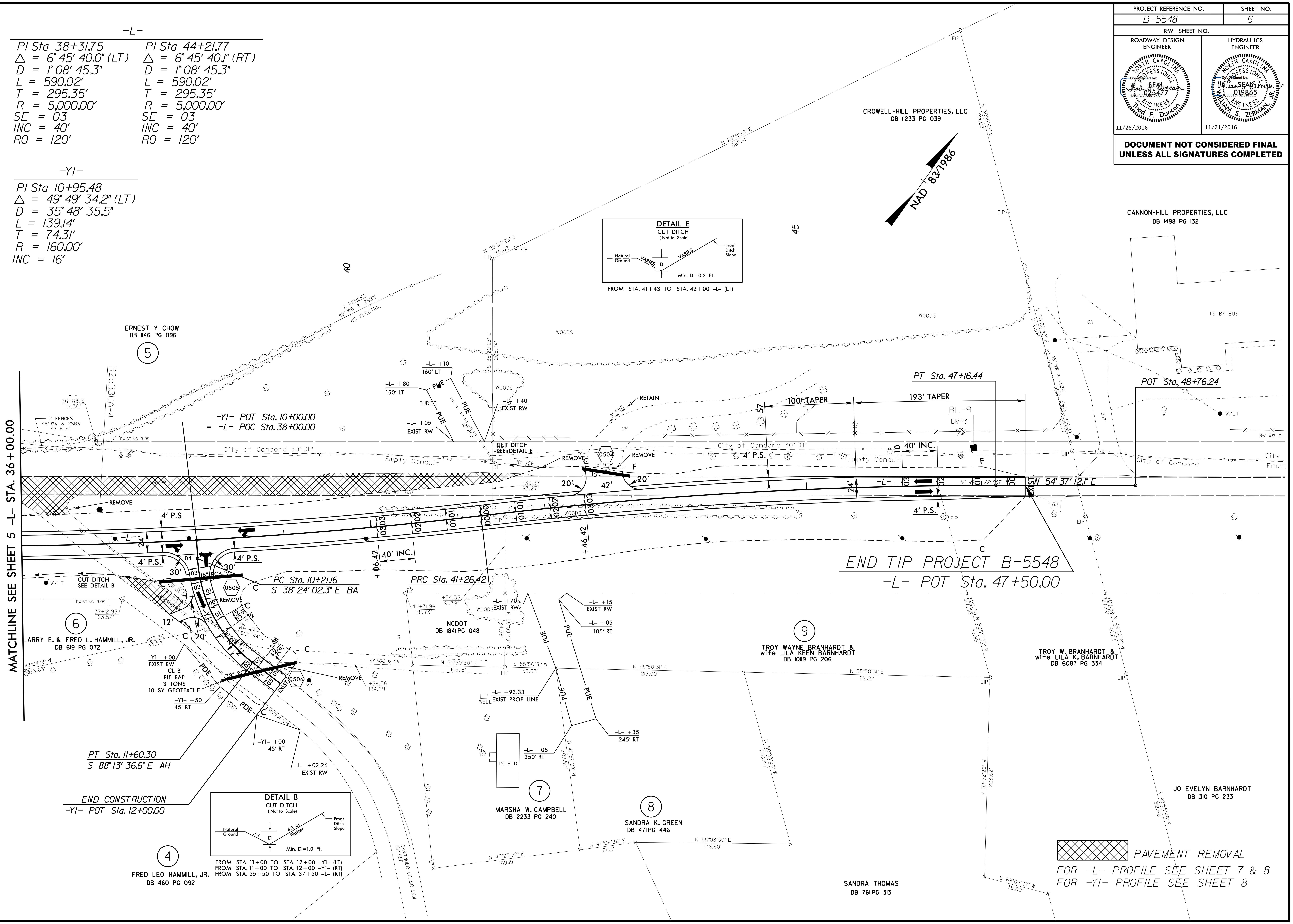
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

PI Sta 38+31.75	PI Sta 44+21.77
△ = 6° 45' 40.0" (LT)	△ = 6° 45' 40.1" (RT)
D = 1° 08' 45.3"	D = 1° 08' 45.3"
L = 590.02'	L = 590.02'
T = 295.35'	T = 295.35'
R = 5,000.00'	R = 5,000.00'
SE = 03	SE = 03
INC = 40'	INC = 40'
RO = 120'	RO = 120'

-Y1-

PI Sta 10+95.48
△ = 49° 49' 34.2" (LT)
D = 35° 48' 35.5"
L = 139.14'
T = 74.31'
R = 160.00'
INC = 16'



MATCHLINE SEE SHEET 5 -L- STA. 36+00.00
NAD 83/1986
CROWELL-HILL PROPERTIES, LLC
DB 1233 PG 039
CANNON-HILL PROPERTIES, LLC
DB 1498 PG 132
ERNEST Y CHOW
DB 1146 PG 096
LARRY E. & FRED L. HAMMILL, JR.
DB 619 PG 072
FRED LEO HAMMILL, JR.
DB 460 PG 092
NCDOT
DB 1841 PG 048
MARSHA W. CAMPBELL
DB 2233 PG 240
SANDRA K. GREEN
DB 471 PG 446
TROY WAYNE BRANHARDT & wife LILA KEEN BARNHARDT
DB 10119 PG 206
TROY W. BRANHARDT & wife LILA K. BARNHARDT
DB 6087 PG 334
JO EVELYN BARNHARDT
DB 310 PG 233
SANDRA THOMAS
DB 761 PG 313
DETAIL E
CUT DITCH
(Not to Scale)
Natural Ground
VARIES
D
Min. D=0.2 Ft.
Front Ditch Slope
FROM STA. 41+43 TO STA. 42+00 -L- (LT)
DETAIL B
CUT DITCH
(Not to Scale)
Natural Ground
2:1
D
4:1 or Flatter
Min. D=1.0 Ft.
Front Ditch Slope
FROM STA. 11+00 TO STA. 12+00 -Y1- (LT)
FROM STA. 11+00 TO STA. 12+00 -Y1- (RT)
FROM STA. 35+50 TO STA. 37+50 -L- (RT)
-Y1- POT Sta. 10+00.00
= -L- POC Sta. 38+00.00
PC Sta. 10+21.16
S 38° 24' 02.3" E BA
PRC Sta. 41+26.42
PT Sta. 47+16.44
POT Sta. 48+76.24
N 54° 37' 12.1" E
PT Sta. 11+60.30
S 88° 13' 36.6" E AH
END CONSTRUCTION
-Y1- POT Sta. 12+00.00
END TIP PROJECT B-5548
-L- POT Sta. 47+50.00
100' TAPER
193' TAPER
40' INC.
4' P.S.
City of Concord 30" DIP
Empty Conduit
CUT DITCH SEE DETAIL E
CUT DITCH SEE DETAIL B
REMOVE
RETAIN
PUE
PDE
WOODS
BL-9
BM#3
CL B RIP RAP 3 TONS 10 SY GEOTEXTILE
EXIST RW
EXIST PROP LINE
BARRINGER CT. SR 2651

PAVEMENT REMOVAL

FOR -L- PROFILE SEE SHEET 7 & 8
FOR -Y1- PROFILE SEE SHEET 8

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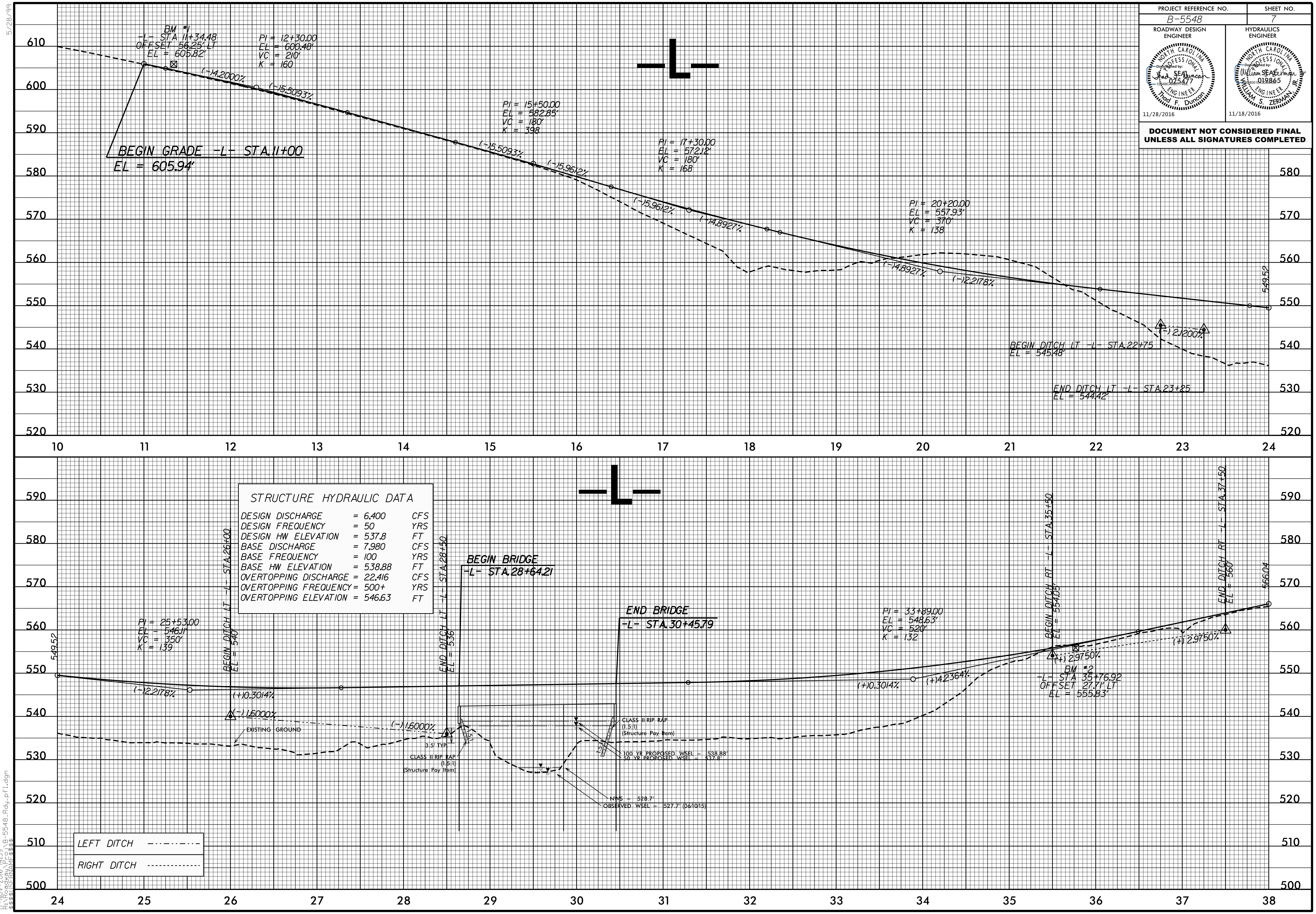
PROJECT REFERENCE NO.	SHEET NO.
B-5548	7

ROADWAY DESIGN ENGINEER — SEAL 025477, Thad F. Duncan, 11/28/2016

HYDRAULICS ENGINEER — SEAL 019865, William S. Zerman, Jr., 11/18/2016

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



STRUCTURE HYDRAULIC DATA

DESIGN DISCHARGE	=	6,400	CFS
DESIGN FREQUENCY	=	50	YRS
DESIGN HW ELEVATION	=	537.8	FT
BASE DISCHARGE	=	7,980	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	538.88	FT
OVERTOPPING DISCHARGE	=	22,416	CFS
OVERTOPPING FREQUENCY	=	500+	YRS
OVERTOPPING ELEVATION	=	546.63	FT

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PROJECT REFERENCE NO.	SHEET NO.
B-5548	8

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025477 Thad F. Duncan (DocuSigned by: Thad F. Duncan, 12B4BCAA851748E...) 11/28/2016	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 019865 WILLIAM S. ZERMAN, JR. (DocuSigned by: William S. Zerman Jr, BC8001C43D39433...) 11/21/2016

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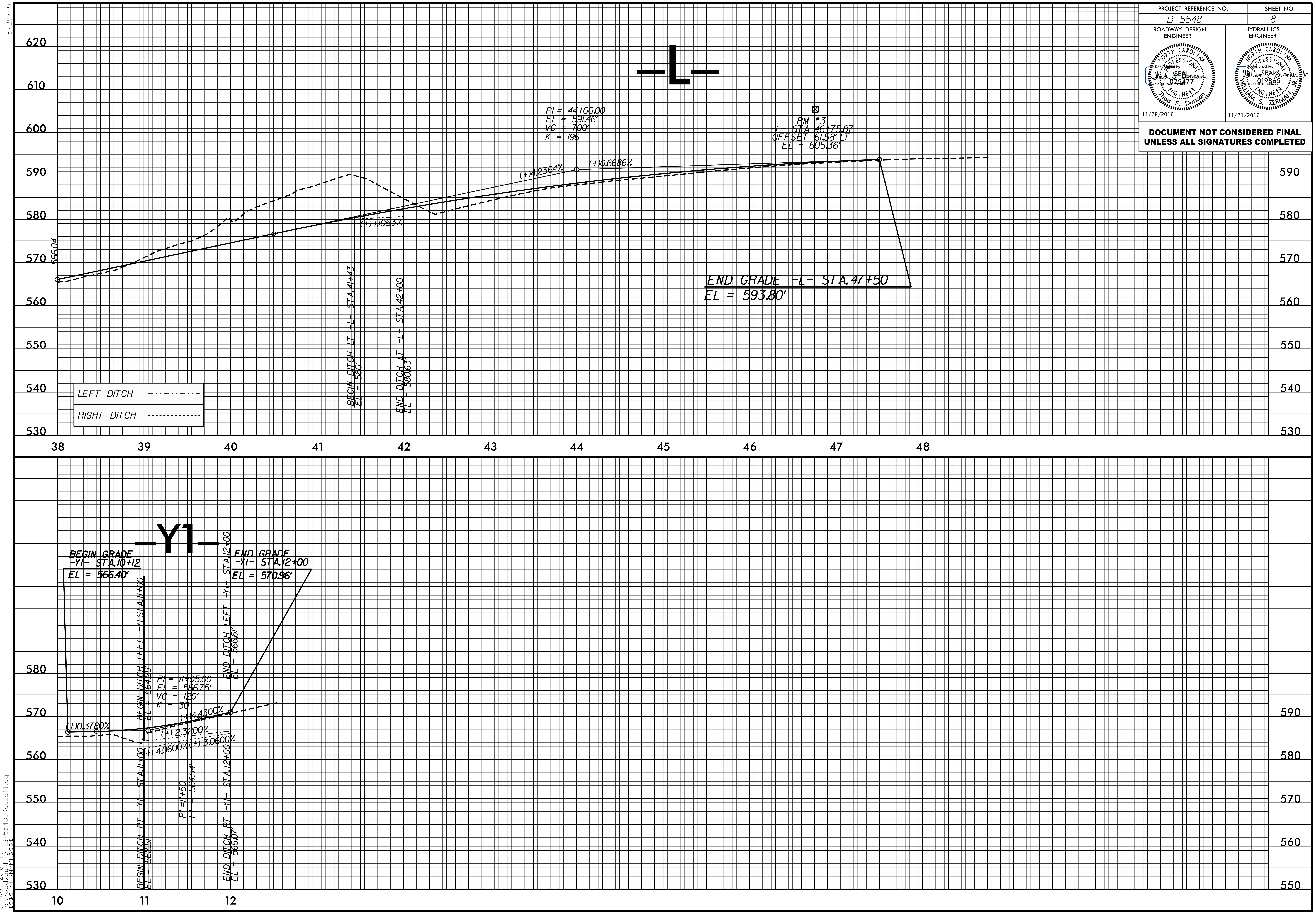

5/28/99

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