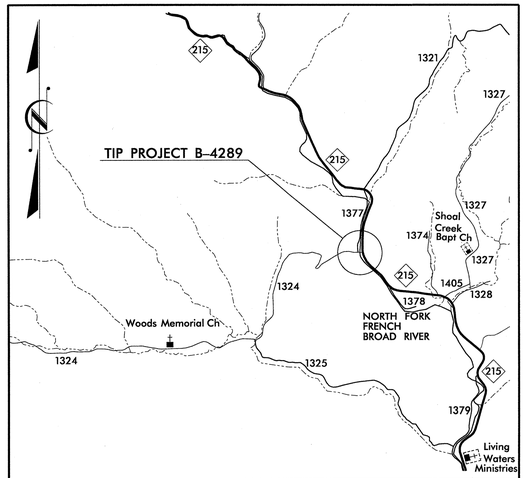
09/08/95

TIP PROJECT: B-4289

CONTRACT: C202817

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

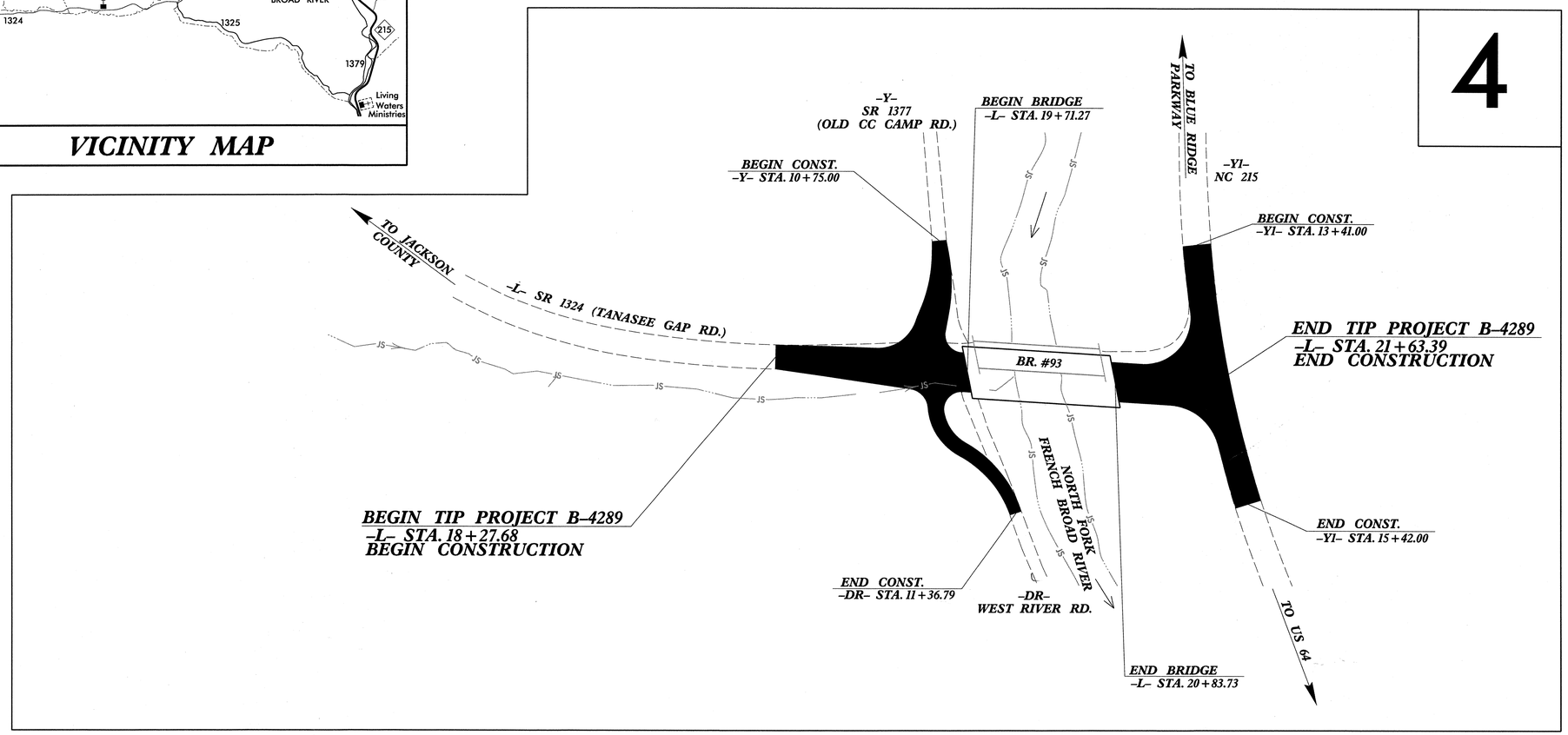
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4289	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
33628.1.1	BRZ-1324(2)	PE
33628.2.1	BRZ-1324(2)	UTIL. & R/W
33628.3.FD1	BRZ-1324(2)	CONST.

LOCATION: BRIDGE NO. 93 OVER NORTH FORK FRENCH BROAD RIVER ON SR 1324 (TANASEE GAP RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE & SIGNALS

4



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 2013 = 765
ADT 2033 = 1070
DHV = 12%
D = 70%
T = 7% *
V = 45 MPH

* (TTST 2% + DUAL 5%)

CLASSIFICATION = RURAL LOCAL
SUBREGIONAL TIER DESIGN

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4289 = 0.043 MILES
LENGTH STRUCTURE TIP PROJECT B-4289 = 0.021 MILES
TOTAL LENGTH TIP PROJECT B-4289 = 0.064 MILES

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258
License No. C-0890

WETHERILL ENGINEERING

Prepared for the North Carolina Department of Transportation in the Office of:
559 JONES FRANKLIN ROAD
SUITE 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 16, 2011

LETTING DATE:
NOVEMBER 19, 2013

NCDOT CONTACT:

EDWARD G. WETHERILL, PE
PROJECT ENGINEER

BOB A. MAY, PE
PROJECT DESIGN ENGINEER

BRENDA L. MOORE, PE
ROADWAY DESIGN: ENGINEERING COORDINATION SECTION PROJECT ENGINEER

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS, JR.

SIGNATURE: 8/21/15

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

SIGNATURE: 8/21/15

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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PROJECT REFERENCE NO.	SHEET NO.
B-4289	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY 9/17/13

GENERAL NOTES

GENERAL NOTES: 2012 SPECIFICATIONS

EFFECTIVE: 01-17-2012
REVISED: 07-30-2012

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
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

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.

UNDERDRAINS:

UNDERDRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.03 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 NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:

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

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 HAYWOOD ELECTRIC COMPANY AND COMPORIUM.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

LIST OF STANDARDS

EFF. 01-17-2012
REV. 10-30-2012

2012 ROADWAY ENGLISH STANDARD DRAWINGS

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

STD.NO.	TITLE
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	
422.11	Reinforced Bridge Approach Fills – Sub Regional Tier
DIVISION 5 – SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction – High Side of Superelevated Curve – Method I
DIVISION 8 – INCIDENTALS	
815.03	Pipe Underdrain and Blind Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts – 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls – 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.17	Concrete Grated Drop Inlet Type 'A' – 12" thru 72" Pipe
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.26	Brick Grated Drop Inlet Type 'A' – 12" thru 72" Pipe
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.45	Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units (Details in Lieu of Standard Drawing as March 2013 Letting)
866.04	Barbed Wire Fence with Wood Posts (2 – 7 Strands)
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

Sheet Number	Sheet
1	Title Sheet
1-A	Index of Sheets, General Notes and list of Standards
1-B	Conventional Symbols
1-C	Survey Control Sheets
1-D	Centerline Coordinate List
1-E	Table of Right of Way/Easement Points
2 Thru 2-A	Typical Sections, Pavement Schedule and Miscellaneous Details not covered by Roadway Standards
2-B	Detail for Temporary Pavement & Guardrail
2-C	Detail for Modified Concrete Flume
2-D	Detail for Structure Anchor Unit, Type III
2-E	Detail for Type B-83 Shop Curved Structure Anchor Unit
2-F	Detail for Standard Temporary Shoring
3 Thru 3-B	Summary of Quantities, Summary of Drainage, Summary of Temporary Drainage, Summary of Guardrail, Summary of Temporary Guardrail Summary of Earthwork and Summary of Pavement Removal
4 Thru 6	Plan and Profile Sheets
TMP-1 Thru TMP-12	Traffic Control Plans
EC-1 Thru EC-5	Erosion Control Plans
RF-1	Reforestation Plans
SIG-1 Thru SIG-5	Signal Plans
UO-1 Thru UO-2	Utilities by Others Plans
X-1A	Cross-Section Summary Sheet
X-1 Thru X-15	Cross-Sections
S-1 Thru S-34	Structure Plans

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PROJECT REFERENCE NO.	SHEET NO.
B-4289	1-B

Note: Not to Scale

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — 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
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

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
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

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

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

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

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (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
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?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 (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

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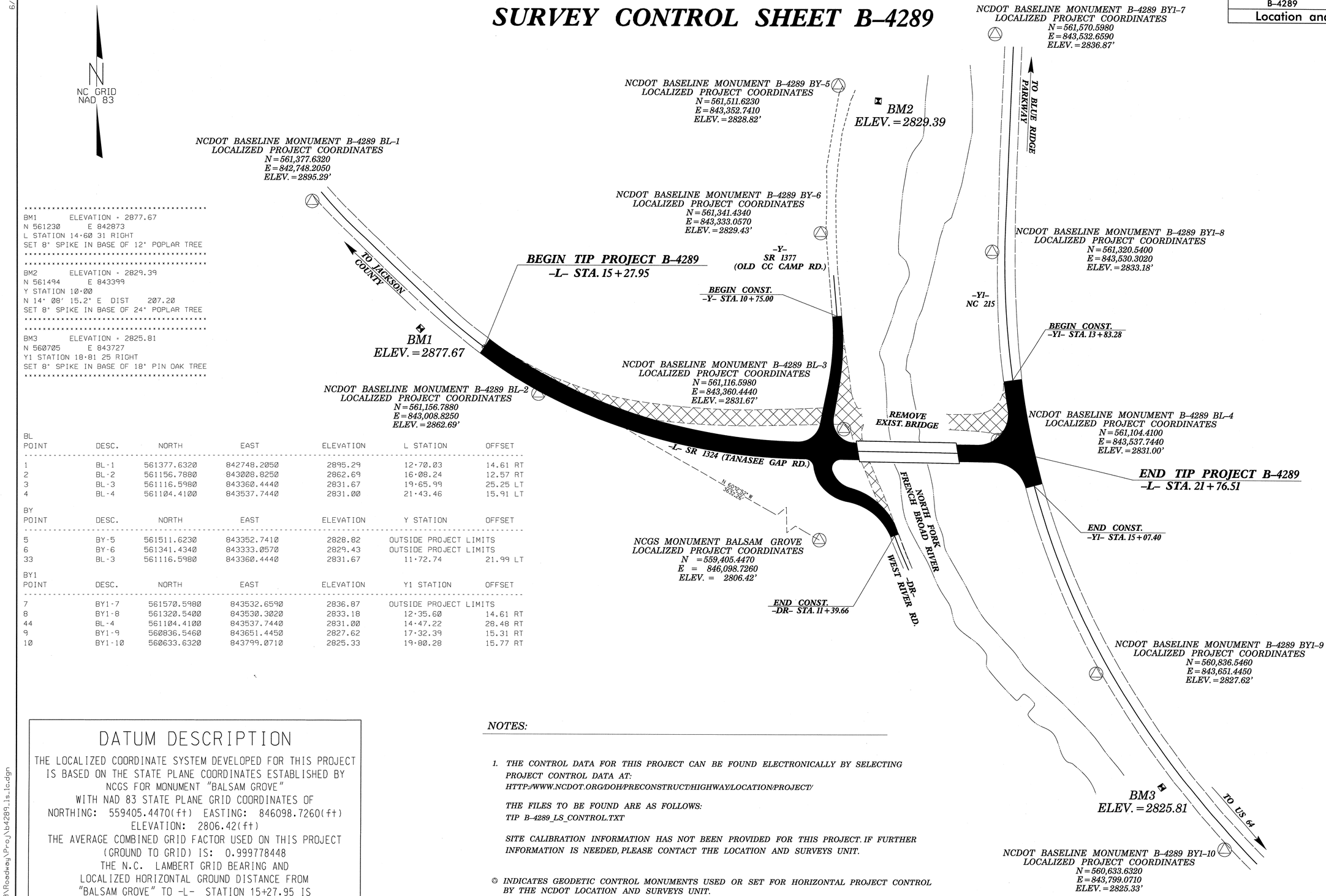
PROJECT REFERENCE NO.	SHEET NO.
B-4289	1-C
Location and Surveys	

SURVEY CONTROL SHEET B-4289




```
*************************************
BM1        ELEVATION = 2877.67
N 561230       E 842873
L STATION 14+60 31 RIGHT
SET 8" SPIKE IN BASE OF 12" POPLAR TREE
*************************************
*************************************
BM2        ELEVATION = 2829.39
N 561494       E 843399
Y STATION 10+00
N 14° 08' 15.2" E  DIST    207.20
SET 8" SPIKE IN BASE OF 24" POPLAR TREE
*************************************
*************************************
BM3        ELEVATION = 2825.81
N 560705       E 843727
Y1 STATION 18+81 25 RIGHT
SET 8" SPIKE IN BASE OF 18" PIN OAK TREE
*************************************
```

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	561377.6320	842748.2050	2895.29	12+70.03	14.61 RT
2	BL-2	561156.7880	843008.8250	2862.69	16+08.24	12.57 RT
3	BL-3	561116.5980	843360.4440	2831.67	19+65.99	25.25 LT
4	BL-4	561104.4100	843537.7440	2831.00	21+43.46	15.91 LT

BY

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
5	BY-5	561511.6230	843352.7410	2828.82	OUTSIDE PROJECT LIMITS	
6	BY-6	561341.4340	843333.0570	2829.43	OUTSIDE PROJECT LIMITS	
33	BL-3	561116.5980	843360.4440	2831.67	11+72.74	21.99 LT

BY1

POINT	DESC.	NORTH	EAST	ELEVATION	Y1 STATION	OFFSET
7	BY1-7	561570.5980	843532.6590	2836.87	OUTSIDE PROJECT LIMITS	
8	BY1-8	561320.5400	843530.3020	2833.18	12+35.60	14.61 RT
44	BL-4	561104.4100	843537.7440	2831.00	14+47.22	28.48 RT
9	BY1-9	560836.5460	843651.4450	2827.62	17+32.39	15.31 RT
10	BY1-10	560633.6320	843799.0710	2825.33	19+80.28	15.77 RT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BALSAM GROVE" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 559405.4470(ft) EASTING: 846098.7260(ft) ELEVATION: 2806.42(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999778448

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BALSAM GROVE" TO -L- STATION 15+27.95 IS N 60° 12' 52" W 3632.26

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   TIP B-4289_LS_CONTROL.TXT

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

◎ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING NCGS MONUMENTS.

NOTE: DRAWING NOT TO SCALE

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PROJ. REFERENCE NO.	SHEET NO.
B-4289	1-D

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CENTERLINE COORDINATE LIST

Point #	Chain	Station	Northing (Y)	Easting (X)
1	L	10+00.00	561622.9508	842630.5386
2	L	10+50.00	561577.1620	842650.6230
3	L	11+00.00	561531.3732	842670.7074
4	L	11+50.00	561486.3166	842692.3510
5	L	12+00.00	561443.2794	842717.7724
6	L	12+50.00	561402.5907	842746.8049
7	L	13+00.00	561364.5529	842779.2329
8	L	13+50.00	561329.2785	842814.6560
9	L	14+00.00	561294.6921	842850.7638
10	L	14+50.00	561260.1056	842886.8717
11	L	15+00.00	561226.6091	842923.9661
12	L	15+50.00	561197.6377	842964.6795
13	L	16+00.00	561173.8212	843008.6077
14	L	16+50.00	561155.5116	843055.1016
15	L	17+00.00	561142.9797	843103.4738
16	L	17+50.00	561135.2518	843152.8640
17	L	18+00.00	561130.6832	843202.6464
18	L	18+50.00	561128.8897	843252.6115
19	L	19+00.00	561126.9771	843302.5745
20	L	19+50.00	561124.3509	843352.5051
21	L	20+00.00	561121.2270	843402.4074
22	L	20+50.00	561118.0855	843452.3086
23	L	21+00.00	561114.9440	843502.2098
24	L	21+50.00	561111.8024	843552.1110
25	L	21+63.39	561110.9611	843565.4749
26	Y	10+00.00	561292.9318	843348.0444
27	Y	10+50.00	561243.1190	843352.3671
28	Y	11+00.00	561193.2652	843355.7990
29	Y	11+50.00	561144.4936	843345.5378
30	Y	11+70.19	561125.0759	843339.9985
31	Y1	10+00.00	561555.8482	843553.6503
32	Y1	10+50.00	561505.8862	843551.6999
33	Y1	11+00.00	561455.9243	843549.7496
34	Y1	11+50.00	561405.9623	843547.7992
35	Y1	12+00.00	561356.0004	843545.8488
36	Y1	12+50.00	561306.0145	843544.8920
37	Y1	13+00.00	561256.0440	843546.4461
38	Y1	13+50.00	561206.2159	843550.5235
39	Y1	14+00.00	561156.6575	843557.1137
40	Y1	14+50.00	561107.4954	843566.2000
41	Y1	15+00.00	561058.8553	843577.7590
42	Y1	15+50.00	561010.8813	843591.8258
43	Y1	16+00.00	560963.7469	843608.4909
44	Y1	16+50.00	560917.5942	843627.7083
45	Y1	17+00.00	560872.5614	843649.4205
46	Y1	17+50.00	560828.7830	843673.5624
47	Y1	18+00.00	560786.3536	843700.0055
48	Y1	18+50.00	560745.1852	843728.3734
49	Y1	19+00.00	560705.3322	843758.5615
50	Y1	19+50.00	560666.8751	843790.5088
51	Y1	20+00.00	560629.8916	843824.1510
52	Y1	20+50.00	560594.4562	843859.4201
53	Y1	21+00.00	560560.6404	843896.2450
54	Y1	21+50.00	560528.3136	843934.3873
55	Y1	22+00.00	560496.2191	843972.7271
56	Y1	22+47.54	560465.7066	844009.1769
57	DRIVE	10+00.00	561124.4389	843351.0266
58	DRIVE	10+50.00	561075.2893	843356.7348
59	DRIVE	11+00.00	561042.9101	843394.1489
60	DRIVE	11+50.00	560999.0830	843417.1820
61	DRIVE	12+00.00	560952.8756	843436.2386
62	DRIVE	12+50.00	560908.5890	843459.4114
63	DRIVE	12+78.02	560884.7454	843474.1287

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

Point #	Chain	Station	Northing (Y)	Easting (X)

PROJECT REFERENCE NO.	SHEET NO.
B-4289	1-E
Location and Surveys	

SURVEY CONTROL SHEET B-4289

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	20+44.15	15.41	561074.6907	843437.9406
L	18+60.00	50.00	561045.6247	843249.1512
L	16+00.00	50.00	561127.9342	842983.4725
L	16+00.00	27.74	561147.4643	842994.1530
L	17+00.00	65.00	561069.6117	843076.4580
L	16+50.00	60.00	561094.8234	843027.5526
L	19+28.38	40.00	561051.9661	843321.7900
L	20+27.72	-79.96	561170.3127	843423.0468
L	19+78.34	-79.96	561171.1069	843373.6731
L	19+41.10	-78.05	561169.7962	843336.4072
L	19+20.00	-68.75	561160.8368	843315.1604

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	10+75.00	29.43	561215.6686	843325.2127
Y	10+75.00	6.41	561217.6585	843348.1436
Y	10+75.00	-6.59	561218.7825	843361.0961
Y	10+75.00	-15.00	561219.5094	843369.4723

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
DRIVE	11+29.19	-35.49	561020.2239	843446.0055
DRIVE	11+39.66	-34.84	561005.9594	843451.7668
DRIVE	11+39.66	10.00	560990.3322	843409.7382
DRIVE	10+65.79	20.00	561021.2357	843361.3438

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	561622.9508	842630.5386
PC	11+05.29	561526.5248	842672.8340
PT	13+33.56	561340.6526	842802.7815
PC	14+65.23	561249.5679	842897.8729
PCC	15+27.95	561209.8010	842946.2937
PT	19+14.83	561092.1789	843308.8844
POT	21+76.51	561087.9697	843570.5283

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	561292.9318	843348.0444
PC	10+85.37	561207.8831	843355.4248
PT	11+29.10	561164.5900	843351.2706
POT	12+04.76	561091.8309	843330.5149

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	561555.8482	843553.6503
PC	12+05.66	561350.3417	843545.6279
PCC	15+09.66	561049.5259	843580.2756
PCC	17+73.78	560808.4433	843685.8745
PT	21+26.05	560543.6892	843916.0199
POT	22+47.54	560465.7066	844009.1769

DRIVE

TYPE	STATION	NORTH	EAST
POT	10+00.00	561091.7740	843334.0519
PC	10+15.00	561076.8120	843335.1187
PRC	10+65.79	561040.7094	843365.9017
PRC	11+39.66	560993.8158	843419.1095
PT	12+62.08	560884.7454	843474.1287
POT	13+00.65	560852.4456	843495.2202

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "BALSAM GROVE" WITH NAD 83 STATE PLANE GRID COORDINATES OF NORTHING: 559405.4470(ft) EASTING: 846098.7260(ft) ELEVATION: 2806.42(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999778448
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BALSAM GROVE" TO -L- STATION 15+27.95 IS N 60° 12′ 52″ W 3632.26
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

NOTES:

1. *THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:*
   HTTP://WWW.NCDOT.ORG/DOH/PRECONSTRUCT/HIGHWAY/LOCATION/PROJECT/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   TIP B-4289_LS_CONTROL.TXT

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

PROJECT CONTROL ESTABLISHED USING NCGS MONUMENTS.

10:28:26 AM
C:\Projects\B-4289\Roadway\Proj\b4289_ls_lf.dgn
5/28/2013

PROJECT REFERENCE NO.	SHEET NO.
B-4289	2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY

8/21/13

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON

8/21/13

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

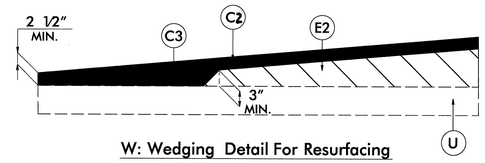
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PAVEMENT SCHEDULE

FINAL PAVEMENT DESIGN

C1	PROP. APPROX. 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD.
C2	PROP. APPROX. 2½" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1½" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0B, 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 5½" IN DEPTH.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL(W))

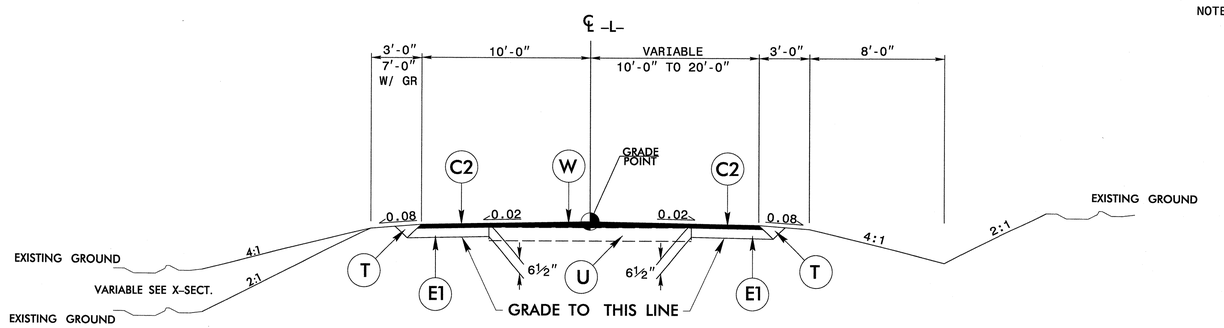
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.



W: Wedging Detail For Resurfacing

NOTE: UTILIZE INCIDENTAL MILLING TO MAKE TIE-INS AT THE FOLLOWING LOCATIONS:
-L- STA. 18+27.68 TO -L- STA. 18+71.23
-L- STA. 21+30.91 TO -L- STA. 21+52.12
-Y1- STA. 13+41.00 TO -Y1- STA. 13+72.25
-Y1- STA. 15+10.75 TO -Y1- STA. 15+42.00

NOTE: RESURFACE -Y1- WITH 1¼" OF SF9.5A (C1)
-Y1- STA. 13+41.00 TO -Y1- STA. 15+42.00



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1

-L- STA. 18+27.68 TO -L- STA. 19+55.00
-L- STA. 21+05.00 TO -L- STA. 21+52.12

6/2/99

11:20:16 AM
P:\2009\B-4289\Roadway\Proj\B-4289_Rdy_typ.dgn
7/8/2013

6/2/99

PAVEMENT SCHEDULE FINAL PAVEMENT DESIGN	
C1	1¼" SF9.5A
C2	2½" SF9.5A
C3	VAR. SF9.5A
E1	4" B25.0B
E2	VAR. B25.0B
T	EARTH MATERIAL
U	EXIST. PAVEMENT
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
B-4289	2-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21146 ENGINEER BOB A. MAY

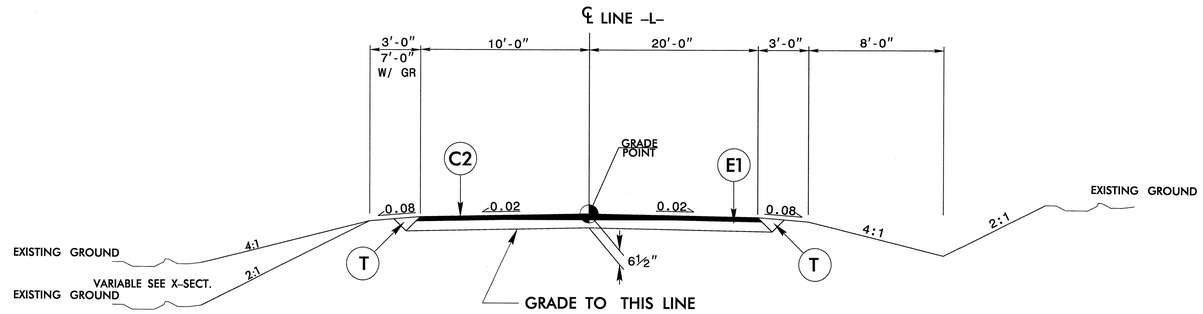
8/21/13

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 22896 ENGINEER CLARK S. MORRISON

8/21/13

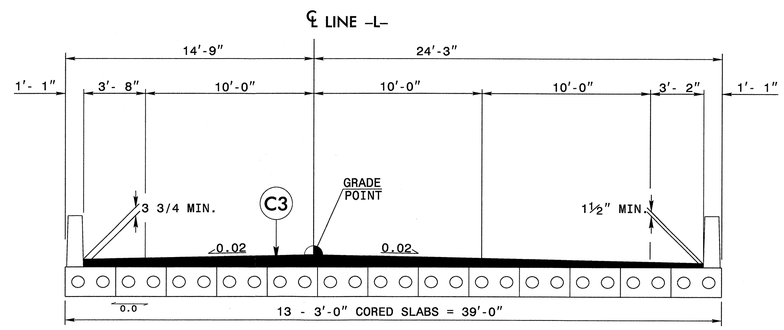
WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2

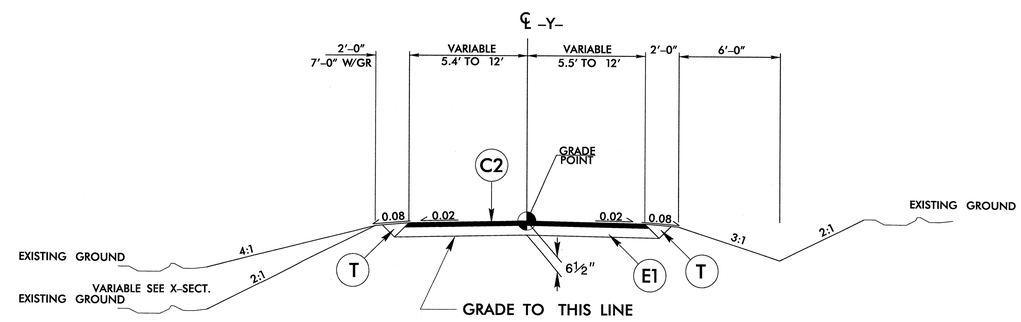
-L- STA. 19+55.00 TO -L- STA. 19+71.27 (BEGIN BRIDGE)
-L- STA. 20+83.73 (END BRIDGE) TO -L- STA. 21+05.00



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3

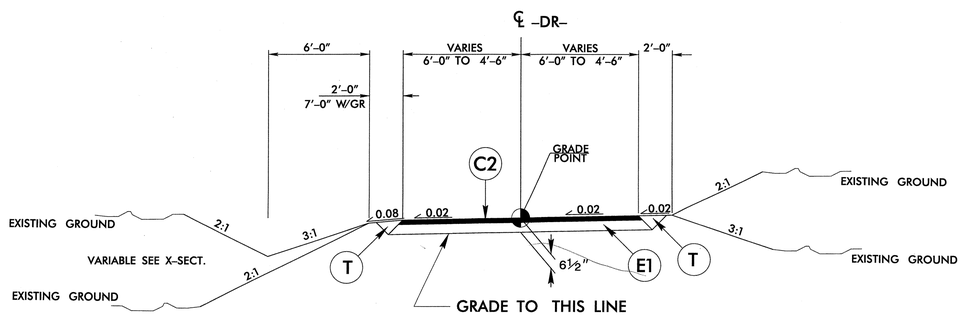
-L- STA. 19+71.27 TO -L- STA. 20+83.73



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4

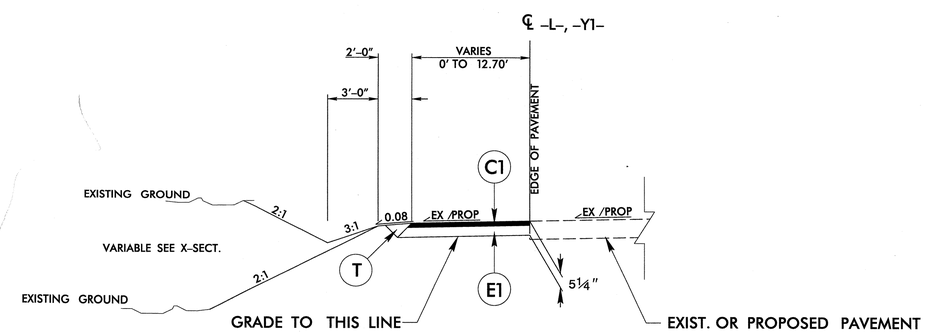
-Y- STA. 10+75.00 TO -Y- STA. 11+59.94



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5

-DR- STA. 10+20.07 TO -DR- STA. 11+36.79



TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6

-L- STA. 21+00.90 TO -Y1- STA. 15+25.20 RT. (INVERSE)
-L- STA. 18+27.68 TO -L- STA. 19+76.93 LT.
-L- STA. 19+56.00 TO -L- STA. 19+82.34 RT. (INVERSE)
-L- STA. 20+78.17 TO -L- STA. 21+36.00 RT. (INVERSE)
-Y1- STA. 13+90.00 TO -Y1- STA. 14+52.45 LT.

11:20:38 AM
B-4289\Roadway\Proj\B-4289_Rdy_typ.dgn
7/18/2013

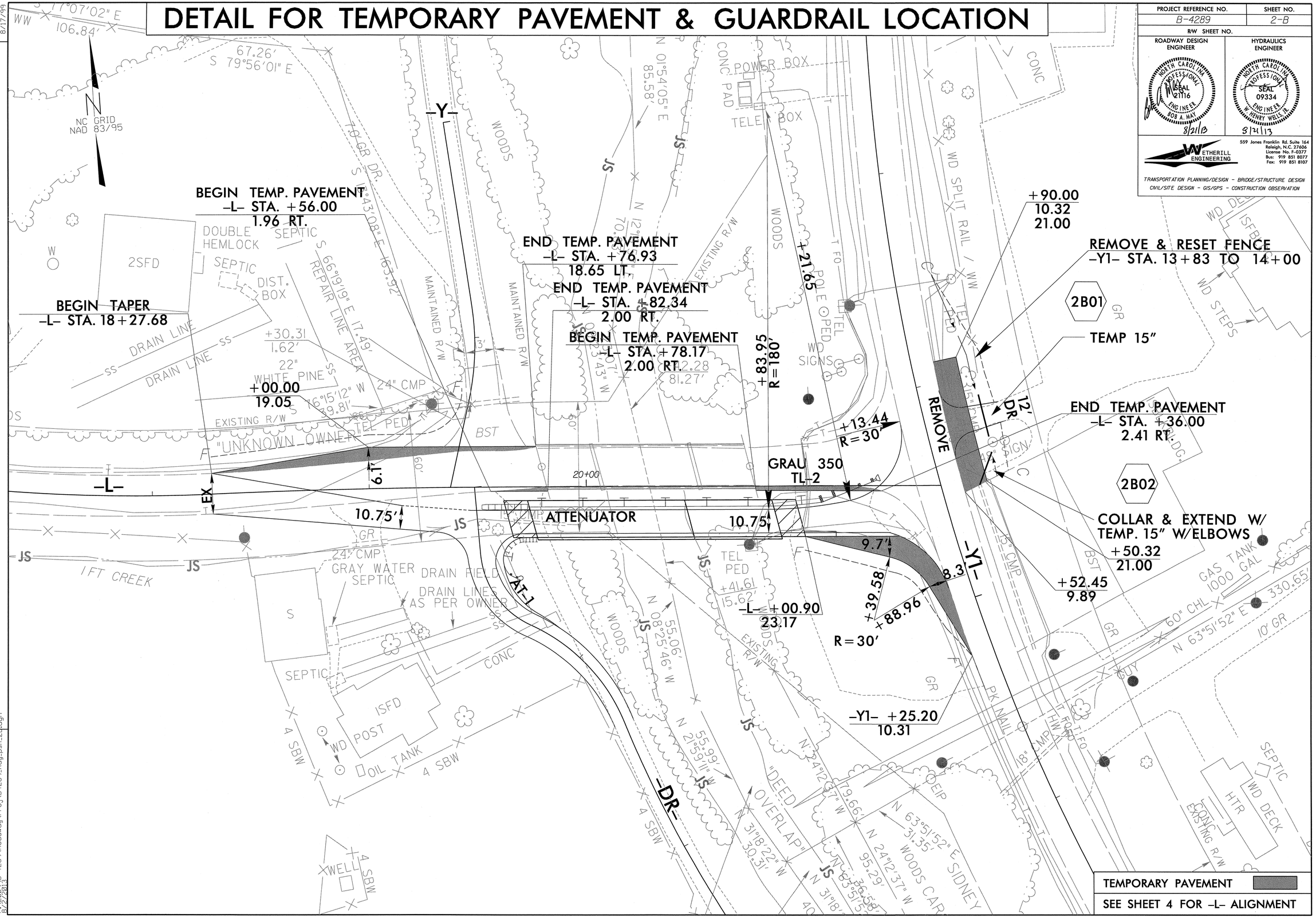
DETAIL FOR TEMPORARY PAVEMENT & GUARDRAIL LOCATION

PROJECT REFERENCE NO.	SHEET NO.
B-4289	2-B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY 8/21/13

NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS, JR. 8/21/13

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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



REVISIONS

8/17/99

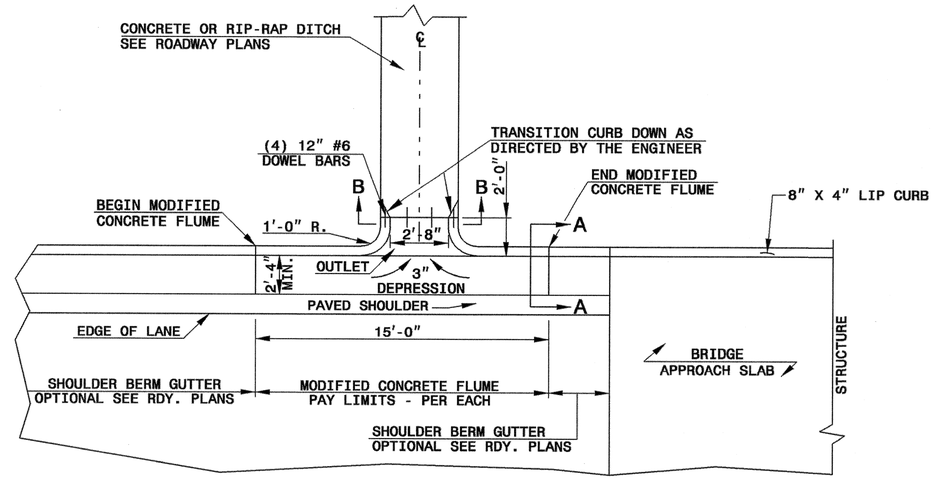
7:05:37 AM
8/21/2013
B-4289\Roadway\Proj\B4289_Rdy_psh_2B.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4289	2-C

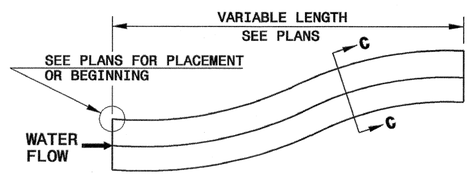
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

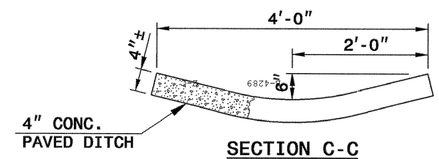
SHEET 1 OF 1
MODFL:MDTCH



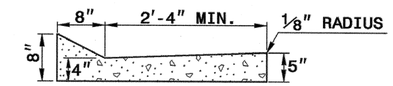
PLAN VIEW



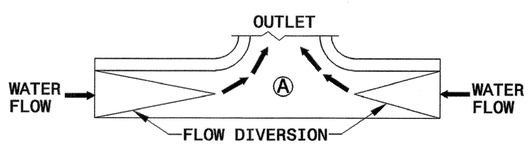
DOWNGRADE OR SAG



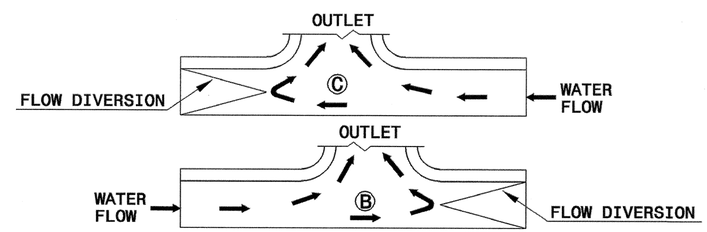
SECTION C-C



SECTION A-A

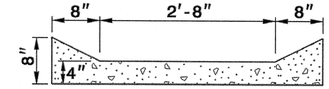


SAG

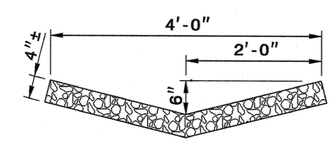


DOWN GRADE

FLOW DIVERSION EXAMPLES



SECTION B-B



RIP-RAP LINED DITCH

NOTES:

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

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

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

SHEET 1 OF 1
MODFL:MDTCH

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER JOEL S. HOWERTON 8/26/13

PROJECT SERVICES UNIT
STANDARDS AND SPECIAL DESIGN
Office 919-250-4128 FAX 919-250-4119

SEE PLATE FOR TITLE

ORIGINAL BY: E.E. Ward DATE: Apr. 2002
MODIFIED BY: E.E. Ward DATE: July 2004
CHECKED BY: DATE:
FILE SPEC.: w:details\stand\modifiedflume.dgn

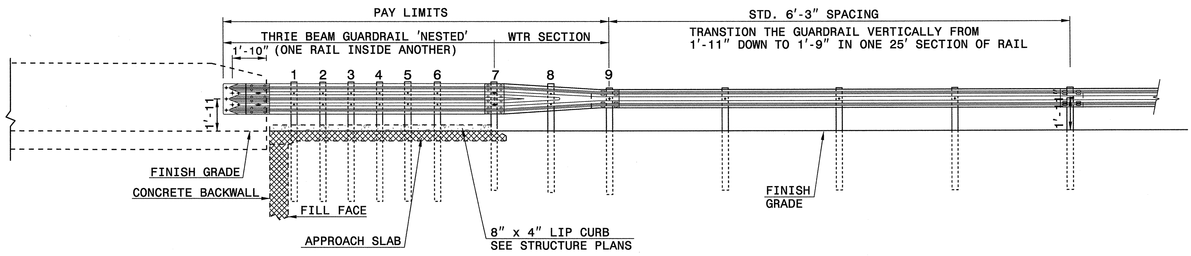
16-MAR-2006 14:32
S:\Contracts\Contracts\Special Details\ericward\usr\details\stand\modifiedflume.dgn
ericward AT PS222293

$$$$$$$SYSTIME$$$$$
$$$$$$$$$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

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

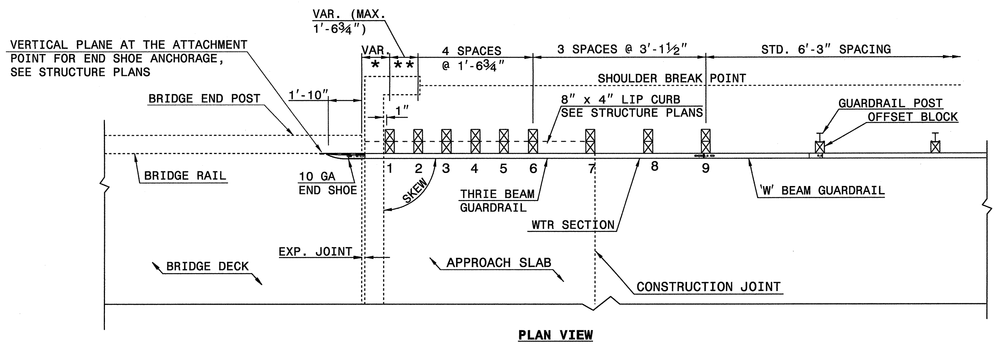
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03



ELEVATION

NOTE:
**POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-SEE SHEET 5 FOR POST SECTIONS 1 THRU 9.



PLAN VIEW

GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

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

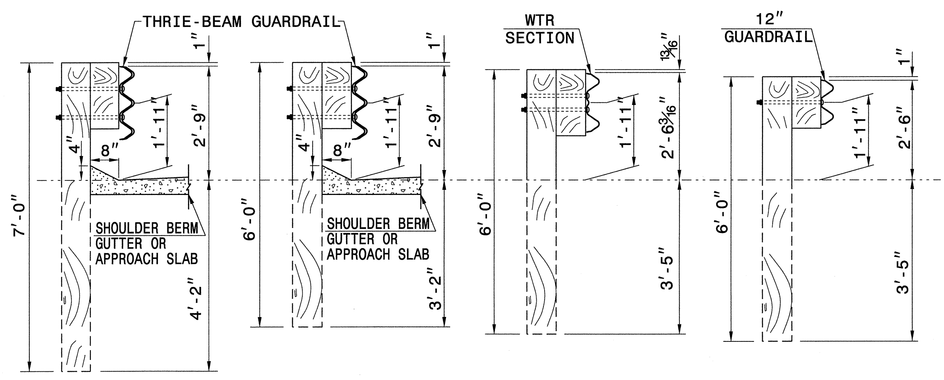
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

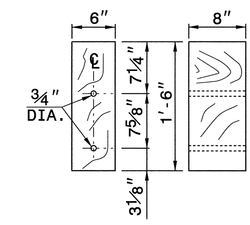
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

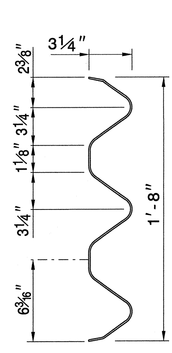
SHEET 3 OF 7
862d03



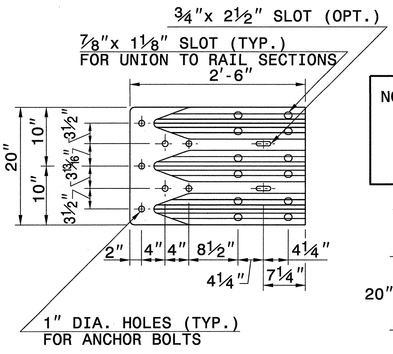
SECTION OF THRIE BEAM POSTS 1 THRU 6 | **SECTION OF THRIE BEAM POST 7** | **SECTION OF WTR BEAM POST 8** | **SECTION OF 'W' BEAM POST 9**



THRIE BEAM OFFSET BLOCK

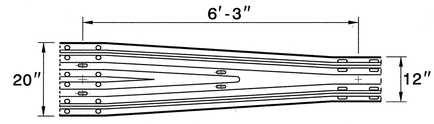


THRIE-BEAM SECTION

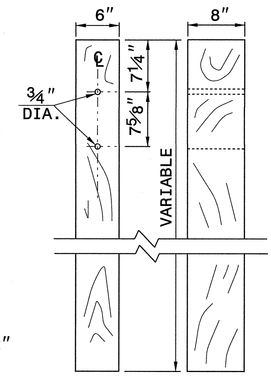


END SHOE

NOTE: THE MID POST AND OFFSET BLOCK OF THE WTR SECTION WILL REQUIRE SPECIAL BOLT HOLE DRILLING IN THE THRIE BEAM OFFSET BLOCK AND LINE POST.



WTR SECTION
ELEVATION VIEW



THRIE BEAM LINE POST

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

ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III

SHEET 3 OF 7
862d03

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

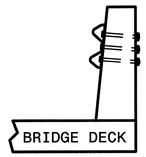
SEE TITLE BLOCK

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

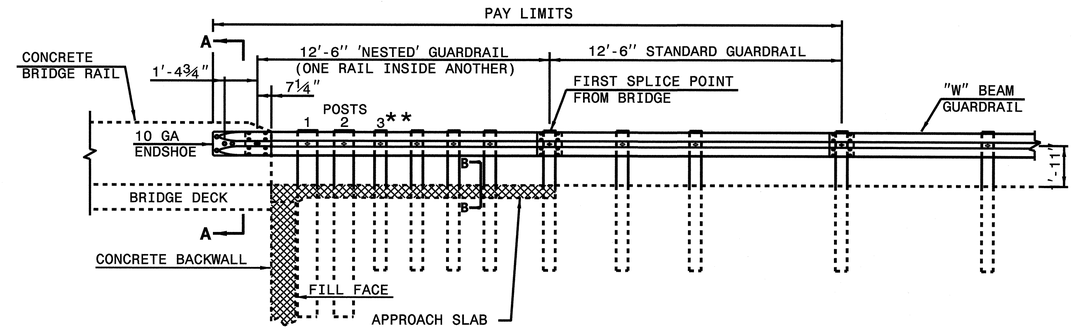
NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
JOHN W. HOWERTON
8/6/13

PROJECT REFERENCE NO. B-4289
SHEET NO. 2-D

PROJECT REFERENCE NO.	SHEET NO.
B-4289	2-E

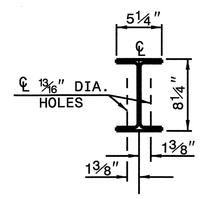


SECTION A-A

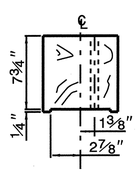


ELEVATION VIEW

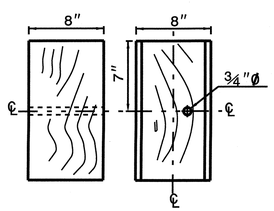
NOTE:
**ELIMINATE POST 3 AND SHIFT POSTS 1 & 2 ON SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.
-MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).
-USE NO WOOD POSTS WITHIN THE GUARDRAIL ANCHOR UNIT LIMITS.
-LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
-POSTS 1 AND 2 TO BE W8 x 21 X 8'-0" LONG STEEL POST AND 8" X 8" X 14" WOOD ROUTED OFFSET BLOCK.



PLAN

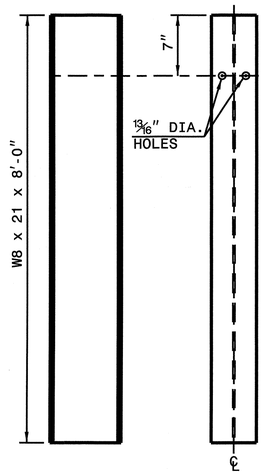


PLAN



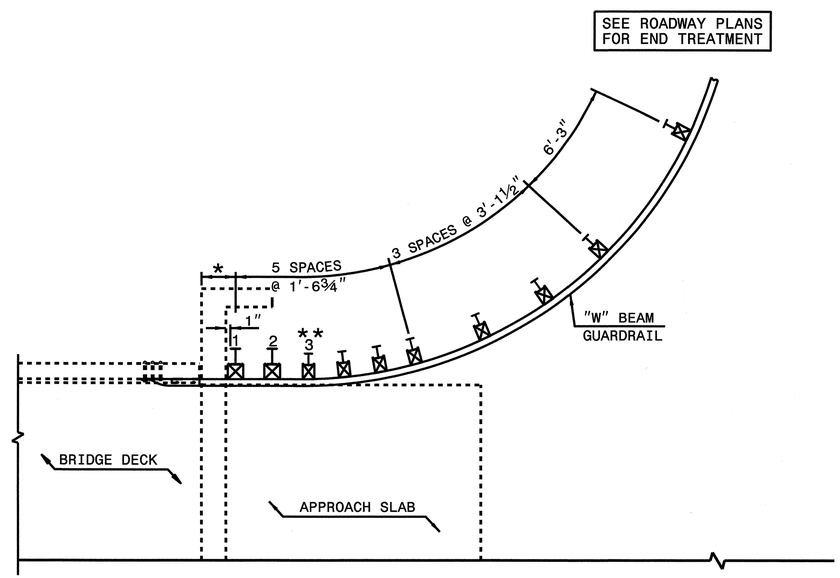
SIDE **FRONT**

8"X 8"X 14" ROUTED WOOD OFFSET BLOCK



SIDE **FRONT**

"W8 X 21 X 8'-0" STEEL POST



PLAN VIEW

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
DENIS L. HONEYCUTT
8/26/13

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

GUARDRAIL ANCHOR UNIT TYPE B-83 SHOP CURVED

ORIGINAL BY:	E.E. WARD	DATE:	6-10-02
MODIFIED BY:	E.E. WARD	DATE:	7-14-04
CHECKED BY:		DATE:	
FILE SPEC.:			

SYSTEM ENGINEER DOUNS

PROJECT REFERENCE NO.	SHEET
B-4289	2-F

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 7/22/13
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

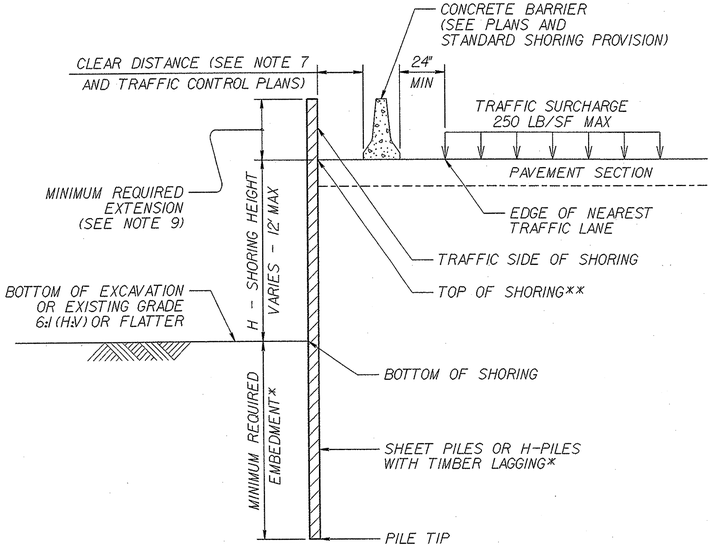
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)			MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (IN^3/FT)	MINIMUM REQUIRED EMBEDMENT* (FT) (SEE NOTE 10)		
				HP 10x42	HP 12x53	HP 14x73			HP 10x42	HP 12x53	HP 14x73
GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP	< 6	11.5	4.5	11.5	11.5	11.5	16.0	12.0	13.0	13.0	13.0
	7	13.0	7.0	13.0	13.0	13.0	17.0	14.5	14.5	14.5	14.5
	8	15.0	10.0	--	15.0	15.0	18.0	17.0	--	15.5	15.5
	9	17.0	14.0	--	17.0	17.0	19.0	20.0	--	17.0	17.0
	10	18.5	19.5	--	--	18.5	20.0	23.5	--	--	18.5
	11	20.5	26.0	--	--	--	21.0	28.0	--	--	20.0
	12	22.5	33.0	--	--	--	22.0	33.0	--	--	21.5
GROUNDWATER ELEVATION BELOW PILE TIP	< 6	7.5	3.0	8.0	8.0	8.0	11.0	10.0	9.5	9.5	9.5
	7	8.5	4.5	9.5	9.5	9.5	12.0	12.0	10.5	10.5	10.5
	8	10.0	6.5	10.5	10.5	10.5	12.5	14.0	11.5	11.5	11.5
	9	11.0	9.5	--	12.0	12.0	13.5	16.5	--	12.5	12.5
	10	12.5	13.0	--	--	13.5	14.0	19.5	--	13.5	13.5
	11	13.5	17.0	--	--	14.5	15.0	22.5	--	--	14.5
	12	15.0	21.5	--	--	16.0	16.0	25.5	--	--	15.5

MINIMUM REQUIRED EMBEDMENT AND SECTION MODULUS

***DO NOT USE H-PILES WITH TIMBER LAGGING FOR GROUNDWATER CONDITION, SHORING HEIGHT AND H-PILE SIZE SHOWN IF MINIMUM REQUIRED EMBEDMENT IS "--".**

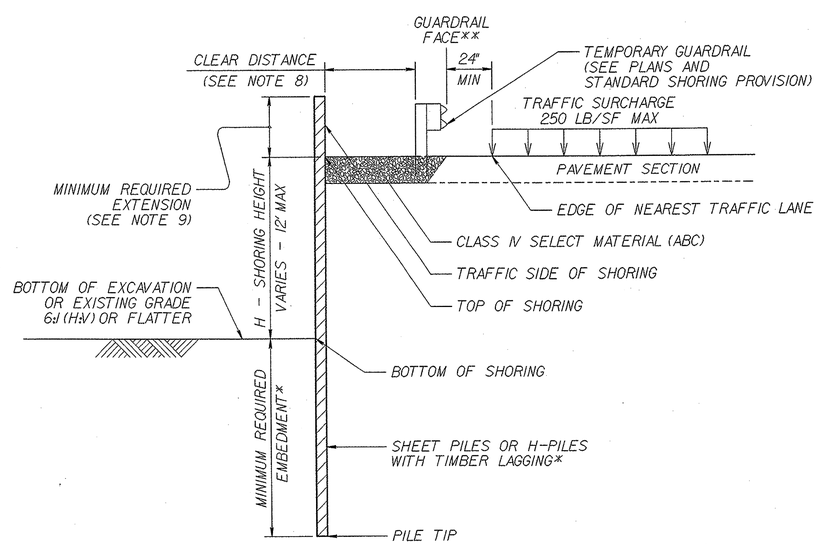
NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY SHORING, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY SHORING IS BASED ON THE FOLLOWING IN-SITU ASSUMED SOIL PARAMETERS:
   UNIT WEIGHT, γ = 120 LB/CF
   FRICTION ANGLE, ϕ = 30 DEGREES
   COHESION, c = 0 LB/SF
4. DO NOT USE STANDARD TEMPORARY SHORING IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY SHORING WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS WITHIN THE EMBEDMENT DEPTH.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, USE "GROUNDWATER ELEVATION BETWEEN BOTTOM OF SHORING AND PILE TIP" FOR GROUNDWATER CONDITION. DO NOT USE STANDARD TEMPORARY SHORING IF GROUNDWATER IS ABOVE BOTTOM OF SHORING.
7. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN THE MINIMUM REQUIRED FOR CONCRETE BARRIER, SET BARRIER NEXT TO AND UP AGAINST TRAFFIC SIDE OF PILES AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
8. AT THE CONTRACTOR'S OPTION OR IF AVAILABLE CLEAR DISTANCE IS LESS THAN 4' FOR TEMPORARY GUARDRAIL, ATTACH GUARDRAIL TO TRAFFIC SIDE OF PILES AS SHOWN IN THE PLANS AND USE "SURCHARGE CASE WITH TRAFFIC IMPACT".
9. MINIMUM REQUIRED EXTENSION IS 6" FOR "SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT" AND 32" FOR "SURCHARGE CASE WITH TRAFFIC IMPACT".
10. MINIMUM REQUIRED EMBEDMENT FOR H-PILES WITH TIMBER LAGGING IS BASED ON DRIVEN H-PILES AT MAXIMUM 6' SPACING. AT THE CONTRACTOR'S OPTION, EMBEDMENT DEPTHS MAY BE REDUCED BY 25% FOR DRILLED-IN H-PILES.
11. SUBMIT A "STANDARD TEMPORARY SHORING SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY SHORING CONSTRUCTION. UP TO 3 SHORING LOCATIONS MAY BE INCLUDED ON EACH FORM. STANDARD SHORING SELECTION FORMS ARE AVAILABLE FROM: connect.ncdot.gov/resources/Geological/Pages/Geotech_Forms_Details.aspx
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



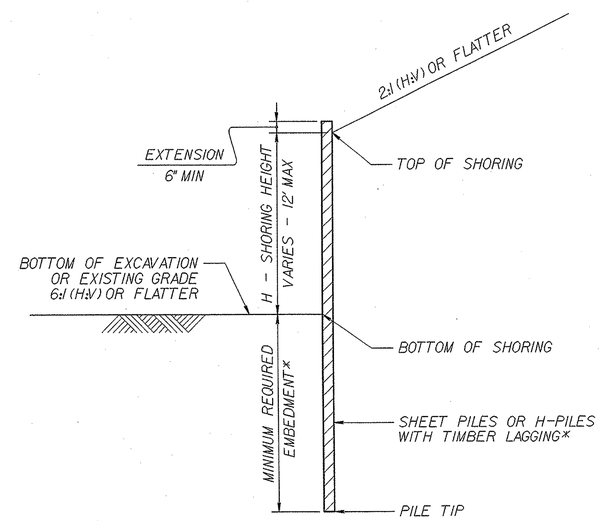
CONCRETE BARRIER

****TOP OF SHORING = EDGE OF PAVEMENT**



TEMPORARY GUARDRAIL

****GUARDRAIL FACE = EDGE OF PAVEMENT**



STANDARD TEMPORARY SHORING

(SLOPE CASE)

***SEE TABLE ABOVE.**

STANDARD TEMPORARY SHORING

(SURCHARGE CASE)

***SEE TABLE ABOVE.**

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.01

STANDARD TEMPORARY SHORING

DATE: 11-19-13

PROJECT REFERENCE NO.	SHEET NO.
B-4289	3

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C202817

ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (20+27.50-L-)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	1	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	220	CY	UNDERCUT EXCAVATION
0134000000-E	240	23	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	100	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	200	SF	TEMPORARY SHORING
0318000000-E	300	25	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	80	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	36	LF	15" DRAINAGE PIPE
0335600000-E	305	68	LF	36" DRAINAGE PIPE
0335850000-E	305	2	EA	**" DRAINAGE PIPE ELBOWS (15")
0372000000-E	310	60	LF	18" RC PIPE CULVERTS, CLASS III
0390000000-E	310	56	LF	36" RC PIPE CULVERTS, CLASS III
0995000000-E	340	128	LF	PIPE REMOVAL
1099500000-E	505	70	CY	SHALLOW UNDERCUT
1099700000-E	505	100	TON	CLASS IV SUBGRADE STABILIZATION
1220000000-E	545	200	TON	INCIDENTAL STONE BASE
1330000000-E	607	350	SY	INCIDENTAL MILLING
1489000000-E	610	235	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1525000000-E	610	210	TON	ASPHALT CONC SURFACE COURSE, TYPE SF9.5A
1575000000-E	620	24	TON	ASPHALT BINDER FOR PLANT MIX
2022000000-E	815	23	CY	SUBDRAIN EXCAVATION
2033000000-E	815	17	CY	SUBDRAIN FINE AGGREGATE
2044000000-E	815	100	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	1	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	6	LF	6" OUTLET PIPE
2209000000-E	838	4	CY	ENDWALLS
2253000000-E	840	1	CY	PIPE COLLARS
2286000000-N	840	2	EA	MASONRY DRAINAGE STRUCTURES
2308000000-E	840	3	LF	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	2	EA	FRAME WITH TWO GRATES, STD 840.24
2556000000-E	846	50	LF	SHOULDER BERM GUTTER
2570000000-N	SP	2	EA	MODIFIED CONCRETE FLUME
2619000000-E	850	10	SY	4" CONCRETE PAVED DITCH
3000000000-N	SP	1	EA	IMPACT ATTENUATOR UNIT, TYPE 350
3030000000-E	862	12.5	LF	STEEL BM GUARDRAIL
3045000000-E	862	75	LF	STEEL BM GUARDRAIL, SHOP CURVED
3150000000-N	862	5	EA	ADDITIONAL GUARDRAIL POSTS
3195000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE AT-1
3215000000-N	862	1	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3270000000-N	SP	1	EA	GUARDRAIL ANCHOR UNITS, TYPE 350
3319000000-N	862	2	EA	GUARDRAIL ANCHOR UNITS, TYPE B-83
3380000000-E	862	150	LF	TEMPORARY STEEL BM GUARDRAIL
3389000000-N	SP	1	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********* (350, TL-2)
3569000000-E	867	30	LF	BARBED WIRE FENCE RESET
3574000000-E	867	25	LF	GENERIC FENCING ITEM SPLIT RAIL FENCE RESET

ItemNumber	Sec #	Quantity	Unit	Description
3628000000-E	876	27	TON	RIP RAP, CLASS I
3649000000-E	876	2	TON	RIP RAP, CLASS B
3656000000-E	876	1,315	SY	GEOTEXTILE FOR DRAINAGE
4400000000-E	1110	320	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	496	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	48	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	60	EA	DRUMS
4435000000-N	1135	60	EA	CONES
4445000000-E	1145	64	LF	BARRICADES (TYPE III)
4450000000-N	1150	1,800	HR	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4470000000-N	1160	1	EA	RESET TEMPORARY CRASH CUSHION
4510000000-N	SP	64	HR	LAW ENFORCEMENT
4516000000-N	1180	60	EA	SKINNY DRUM
4650000000-N	1251	76	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	511	LF	PAINT PAVEMENT MARKING LINES (4")
4835000000-E	1205	182	LF	PAINT PAVEMENT MARKING LINES (24")
4845000000-N	1205	8	EA	PAINT PAVEMENT MARKING SYMBOL
4850000000-E	1205	500	LF	REMOVAL OF PAVEMENT MARKING LINES (4")
6000000000-E	1605	1,150	LF	TEMPORARY SILT FENCE
6006000000-E	1610	255	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	75	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	285	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	0.6	ACR	TEMPORARY MULCHING
6018000000-E	1620	50	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	0.25	TON	FERTILIZER FOR TEMPORARY SEEDING

ItemNumber	Sec #	Quantity	Unit	Description
6024000000-E	1622	200	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	400	LF	SAFETY FENCE
6030000000-E	1630	80	CY	SILT EXCAVATION
6036000000-E	1631	1,500	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	350	SY	COIR FIBER MAT
6038000000-E	SP	75	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	385	LF	1/4" HARDWARE CLOTH
6070000000-N	1639	8	EA	SPECIAL STILLING BASINS
6071010000-E	SP	65	LF	WATTLE
6071020000-E	SP	40	LB	POLYACRYLAMIDE (PAM)
6084000000-E	1660	0.6	ACR	SEEDING & MULCHING
6087000000-E	1660	0.3	ACR	MOWING
6090000000-E	1661	50	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.25	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	50	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	0.5	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	10	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	18	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION
7060000000-E	1705	1,820	LF	SIGNAL CABLE
7120000000-E	1705	16	EA	VEHICLE SIGNAL HEAD (12", 3 SECTION)
7264000000-E	1710	1,000	LF	MESSENGER CABLE (3/8")
7300100000-E	1715	525	LF	UNPAVED TRENCHING FOR TEMPORARY LEAD-IN
7360000000-N	1720	9	EA	WOOD POLE
7372000000-N	1721	11	EA	GUY ASSEMBLY
7408000000-E	1722	1	EA	1" RISER WITH WEATHERHEAD
7420000000-E	1722	6	EA	2" RISER WITH WEATHERHEAD
7444000000-E	1725	500	LF	INDUCTIVE LOOP SAWCUT
7456000000-E	1726	1,825	LF	LEAD-IN CABLE (**********) (14-2)
7484000000-N	SP	3	EA	MICROWAVE VEHICLE DETECTOR
7636000000-N	1745	4	EA	SIGN FOR SIGNALS
7768000000-N	1751	1	EA	CONTROLLER WITH CABINET (TYPE 2070L, POLE MOUNTED)
7780000000-N	1751	3	EA	DETECTOR CARD (TYPE 2070L)

COMPUTED BY: bam	DATE: 3/30/10
CHECKED BY: slk	DATE: 3/1/11

4/04/06

PROJECT REFERENCE NO.	SHEET NO.
B-4289	3-A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUB-REGIONAL & REGIONAL
LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL
-L- 19+20	RT	0402		2832.76			
	RT	0401	0402		2833.00	2827.01	
	RT	0402	0403		2827.01	2825.00	
-L- 19+73	RT	0403		2829.59			
	RT	0403	0404		2822.85	2822.50	
-Y- 11+36	CL	0405			2831.1	2827.5	
-L- 21+04	LT	0406					
-L- 21+11	RT	0407					
TOTAL							

STATION	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-L- 19+20												
						32						
-L- 19+73												
						36						
-Y- 11+36												
-L- 21+04												
-L- 21+11												
TOTAL						68						

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"
-L- 19+20														
												56		
-L- 19+73														
-Y- 11+36									60					
-L- 21+04														
-L- 21+11														
TOTAL									60			56		

STATION	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE
-L- 19+20													
-L- 19+73													
-Y- 11+36													
-L- 21+04													
-L- 21+11													
TOTAL													

STATION	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02
-L- 19+20			1	0.75		
	3.4					
-L- 19+73			1	1.74		
-Y- 11+36						
-L- 21+04						
-L- 21+11						
TOTAL	3.4		2	2.49		
	4.0			3.00		

STATION	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	MODIFIED CONC. FLUME (SEE SHT. 2-C FOR DETAIL)	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	M.H. FRAME & COVER STD. 840.54	T.B.J.B. STD. 840.34	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 19+20							1		1									
																	12	
-L- 19+73								1	1								24	
-Y- 11+36																	32	
-L- 21+04										1								
-L- 21+11										1								
TOTAL							1	1	2	2							68	

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

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

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE
-Y1- 14+20	LT								20										
-Y1- 14+44	LT								16										
TOTAL									36										

STATION	C.S. PIPE 12" (.064)	15" (.064)	18" (.064)	24" (.064)	36" (.079)	42" (.109)	48" (.109)	R.C. PIPE (CLASS III) 15"	18"	24"	30"	36"	42"	48"	R.C. PIPE (CLASS IV) 12"	15"	18"	24"	30"	36"	42"	48"
-Y1- 14+20																						
-Y1- 14+44																						
TOTAL																						

STATION	**" R. C. PIPE (CLASS V)	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	**" R. C. PIPE CULVERTS, CONTRACTOR DESIGN PIPE	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.	QUANTITIES FOR DRAINAGE STRUCTURES PER EACH (0' THRU 5.0')	* TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') LIN. *FT. A 5.0' THRU 10.0'	B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02
-Y1- 14+20											
-Y1- 14+44											
TOTAL											

STATION	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G		CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	T.B.D.I. STD. 840.35	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	M.H. FRAME & COVER STD. 840.54	T.B.J.B. STD. 840.34	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-Y1- 14+20																44'	
-Y1- 14+44													2@15"	0.3990		16'	
TOTAL													2@15"	0.3990		60'	
														SAY 1.0			

ABBREVIATIONS

C.B.	CATCH BASIN
N.D.I.	NARROW DROP INLET
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
G.D.I. (N.S.)	GRATED DROP INLET (NARROW SLOT)
J.B.	JUNCTION BOX
M.H.	MANHOLE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX

COMPUTED BY: bam DATE: 3/30/10
CHECKED BY: slk DATE: 3/1/11

12/06/07

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-4289	3-B

SUMMARY OF EARTHWORK

LINE	STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-L- LT. TEMP.	18+27.68	19+76.93	8	20	12	
-L- RT. TEMP.	19+56.00	19+82.34	4			4
-L- RT. TEMP.	20+78.17	21+36.00	3	2		1
SUBTOTALS:			15	22	12	5
-L- RT.	18+27.68	19+71.27	12	32	20	
-DRIVE-	10+20.07	11+36.79	256			256
SUBTOTALS:			268	32	20	256
-L- RT.	20+83.73	21+52.12	3	33	30	
-L- RT. TEMP.	21+00.90	21+52.12		4	4	
-Y1- LT. TEMP.	13+90.00	14+50.32	63			63
-Y1- RT. TEMP.	14+67.26	15+25.20	2	4	2	
SUBTOTALS:			68	41	36	63
-L- LT.	18+27.68	19+71.27		10	10	
-Y-	10+75.00	11+59.94	9	32	23	
SUBTOTALS:			9	42	33	
-L- LT.	20+83.73	21+52.12	25	4		21
-Y1-	13+41.00	15+42.00	5	8	3	
SUBTOTALS:			30	12	3	21
-L- LT. TEMP.	18+27.68	19+76.93	17			17
-L- RT. TEMP.	21+00.90	21+52.12	3			3
-Y1- RT. TEMP.	14+67.26	15+25.20	3			3
SUBTOTALS:			23			23
PROJECT SUBTOTALS:			413	149	104	368
LOSS DUE TO CLEARING & GRUBBING			(-)10			(-)10
WASTE IN LIEU BORROW					(-)104	(-)104
PROJECT TOTALS:			403		0	254
5% TO REPLACE TOPSOIL ON BORROW PIT					0	
GRAND TOTALS:			403		0	254
SAY:			450		0	

UNDERCUT EXCAVATION = 220 CY
FABRIC FOR SOIL STABILIZATION = 200 SY
CLASS IV SUBGRADE STABILIZATION = 100 TON
SELECT GRANULAR MATERIAL = 100 CY
SHALLOW UNDERCUT = 70 CY
DRAINAGE DITCH EXCAVATION = 23 CY

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	18+36.69	19+19.89	LT.	14.81
-L-	19+29.77	19+81.80	LT.	147.63
-L-	20+72.97	21+32.09	LT.	74.27
TEMPORARY PAVEMENT				
-L-	21+00.90	-Y1- 15+25.20	RT.	67.03
-Y1-	13+90.00	14+52.45	LT.	74.24
-L-	18+27.68	19+76.93	LT.	52.87
-L-	19+56.00	19+82.34	RT.	2.58
-L-	20+78.17	21+05.00	RT.	6.67
			TOTAL:	440.10
			SAY:	450.00

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

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.

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH (FT)
-L- RT	21+00.14	21+15.00	14.86
-L- LT	20+91.72	21+07.00	15.28
		TOTAL:	30.14
		SAY:	50.00

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
CONTINGENCY				UD	100
TOTAL LF					100

*UD = UNDERDRAIN
*BD = BLIND DRAIN
*SD = SUBSURFACE DARIN

"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 TYPE 350			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	XI MOD	XI	GRAU 350	TYPE B-83 SHOP CURVED	TYPE III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	-Y- 11+30.02	19+67.69	LT.		31.25			19+67.69	3.67	6.67		6.25		4.00				1					1							SEE SHEET 2-E, DETAIL FOR TYPE B-83 - SHOP CURVED
-L-	-DRIVE- 10+55.29	19+77.33	RT.		37.50		19+77.33		3.17	6.17	6.25		4.00					1					1							SEE SHEET 2-E, DETAIL FOR TYPE B-83 - SHOP CURVED
-L-	20+80.15	-Y1- 13+41.00	LT.	75.34	53.56		20+80.15		3.67	6.67	50.00		1.00				1		1											SEE SHEET 2-D, DETAIL FOR TYPE III
			SUBTOTAL	75.34	122.31												1	2	1				2							
		ANCHOR DEDUCTIONS		(-)68.75	(-)62.50											ANCHOR DEDUCTIONS														
			TOTAL	5.50	59.81											1 GRAU 350 @ 50.00 EA. = 50.00														
																1 TYPE III @ 18.75 EA. = 18.75														
			SAY	12.50	75.00											2 TYPE B-83 @ 25.00 EA. = 50.00														
						ADDITIONAL GUARDRAIL POSTS = 5 EACH										2 AT-1 @ 6.25 EA. = 12.50														

TEMPORARY 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 TYPE 350			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	XI MOD	XI	GRAU 350 TL 2	M-350	TYPE III	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	19+72.00	21+34.50	LT.	162.50			20+83.73	19+71.27	1.50	3.50		25.00		1.00			1									1				
			SUBTOTAL	162.50													1									1				
		ANCHOR DEDUCTIONS		(-)25.00												ANCHOR DEDUCTIONS														
			TOTAL	137.50												1 GRAU 350 TL 2 @ 25.00 EA. = 25.00														
			SAY	150.00																										

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PROJECT REFERENCE NO.	SHEET NO.
B-4289	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY 9/17/13

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS 9/18/13

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
Raleigh, N.C. 27606
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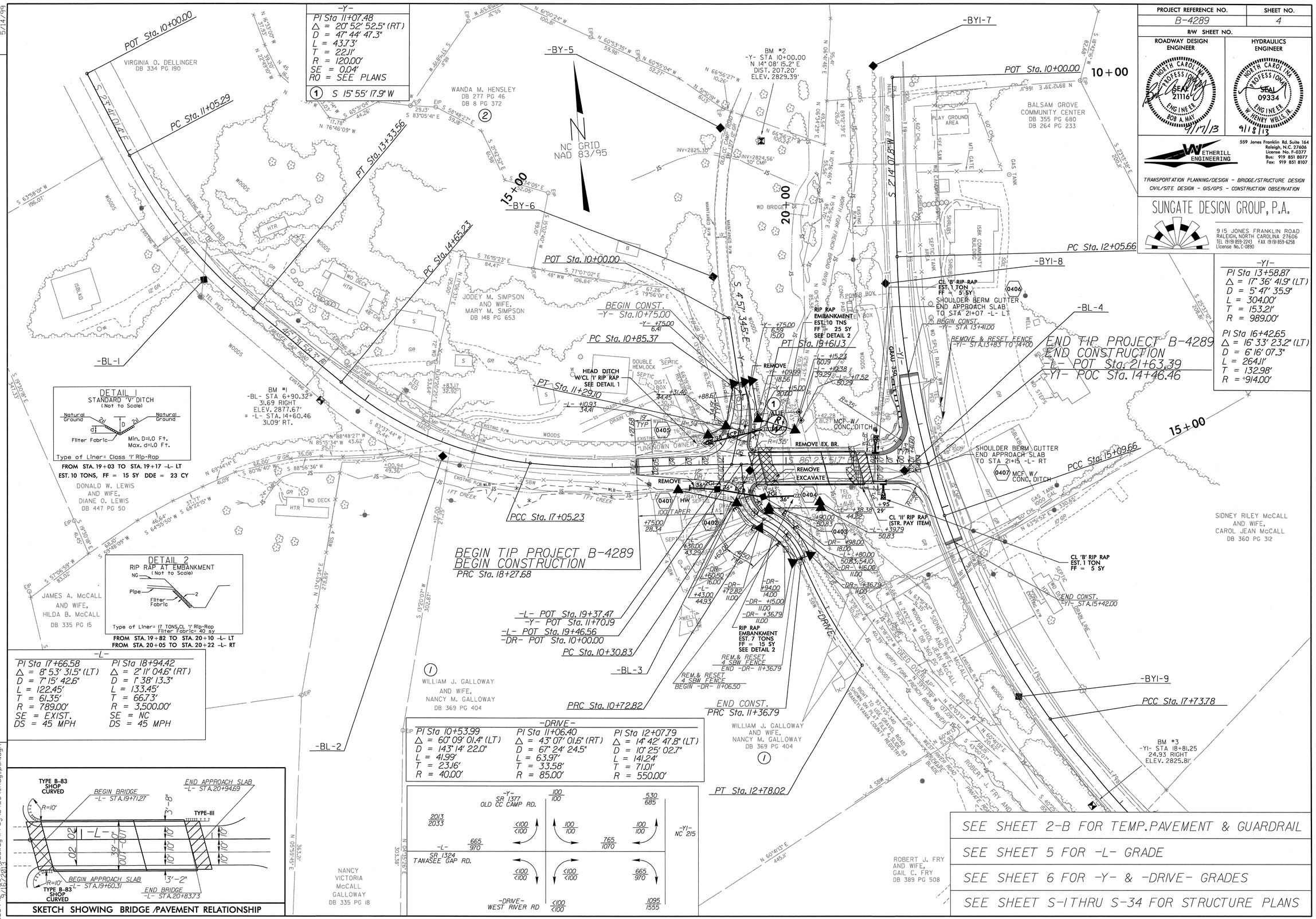
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

SUNGATE DESIGN GROUP, P.A.
915 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243 FAX (919) 859-6258
License No. C-0890

REVISIONS 5/14/99



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WETHERILL ENGINEERING
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PROJECT REFERENCE NO.	SHEET NO.
B-4289	5

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 21116 ENGINEER BOB A. MAY 8/21/13

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS, JR. 8/21/13

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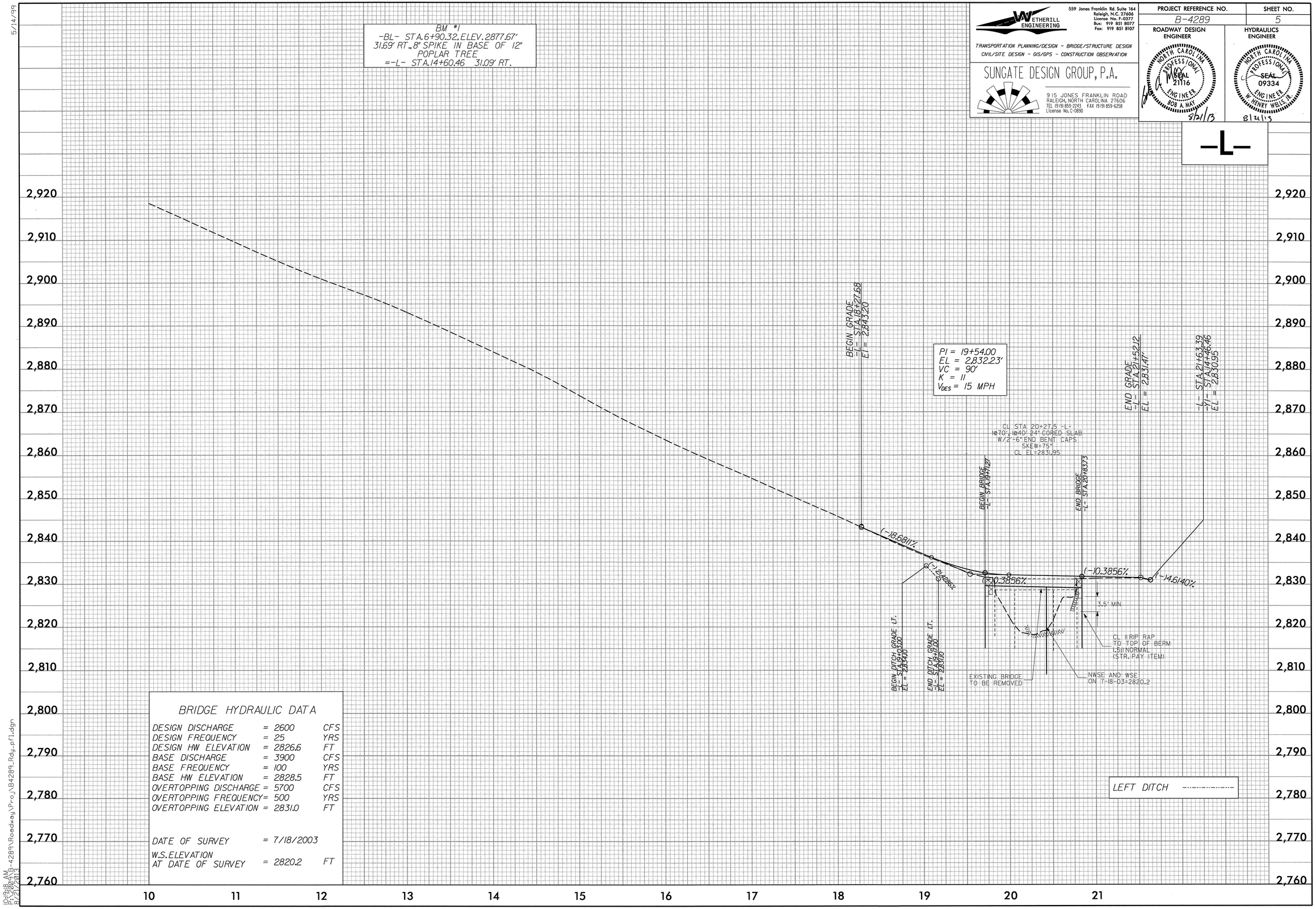

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 2600	CFS
DESIGN FREQUENCY	= 25	YRS
DESIGN HW ELEVATION	= 2826.6	FT
BASE DISCHARGE	= 3900	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2828.5	FT
OVERTOPPING DISCHARGE	= 5700	CFS
OVERTOPPING FREQUENCY	= 500	YRS
OVERTOPPING ELEVATION	= 2831.0	FT
DATE OF SURVEY	= 7/18/2003	
W.S. ELEVATION AT DATE OF SURVEY	= 2820.2	FT

5/14/99

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5/28/99

WETHERILL ENGINEERING
559 Jones Franklin Rd. Suite 164
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PROJECT REFERENCE NO.	SHEET NO.
B-4289	6

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 27116 ENGINEER BOB A. MAY
8/21/13

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 09334 ENGINEER W. HENRY WELLS, JR.
8/21/13

-Y-

BM #2
-Y- STA.10+00.00, ELEV. 2829.39'
N 14° 08' 15.2" E DIST. 207.20'
8" SPIKE SET IN BASE OF 24" POPLAR TREE

BEGIN GRADE -Y- STA.10+75.00
EL = 2,831.55

PI = 11+07.00
EL = 2,831.99'
VC = 60'
K = 32
V_{DES} = 25 MPH

END GRADE
-Y- STA.11+59.94
EL = 2,833.71'

-L- STA.19+37.47
-Y- STA.11+70.19
EL = 2,834.04'

(+)1.3604% (+)5.2565% (+)3.2195%

PIPE HYDRAULIC DATA
DRAINAGE STRUCTURE NO.__

DRAINAGE AREA	= 1.4	AC
DESIGN FREQUENCY	= 25	YRS
DESIGN DISCHARGE	= 5.3	CFS
DESIGN HW ELEVATION	= 2831.29	FT
100 YEAR DISCHARGE	= 6.2	CFS
100 YEAR HW ELEVATION	= 2831.41	FT
OVERTOPPING FREQUENCY	= >500	YRS
OVERTOPPING DISCHARGE	= >7.4	CFS
OVERTOPPING ELEVATION	= **2833	FT

**OVETOPS AT INTERSECTION

2,840 2,830 2,820 2,810 2,800 2,790

10 11

-DRIVE-

BEGIN GRADE
-DR- STA.10+20.07
EL = 2,832.95'

-L- STA.19+48.52
-DR- STA.10+00.00
EL = 2,833.43

PI = 10+38.00
EL = 2,832.53'
VC = 30
K = 16
V_{DES} = 15 MPH

END GRADE
-DR- STA.11+36.79
EL = 2,832.01

(-)2.3162%
(-)2.3916%
(-)0.5311%

2,840 2,830 2,820 2,810 2,800 2,790

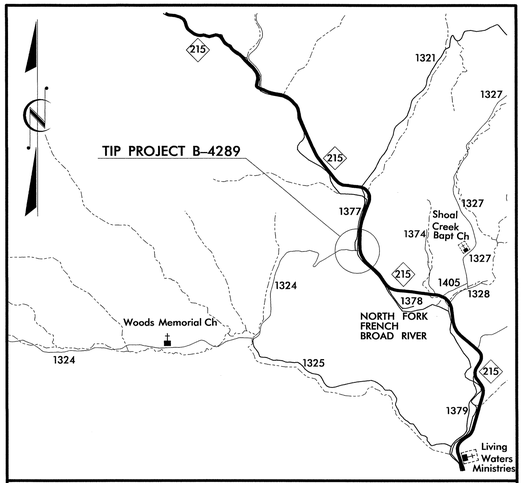
10 11 12

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

TRANSYLVANIA COUNTY

See Sheet 1-A For Index of Sheets



VICINITY MAP

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-01B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-02	TEMPORARY SHORING DATA
TMP-03	TEMPORARY TRAFFIC CONTROL PHASING
TMP-04	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-05	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-06	TEMPORARY TRAFFIC CONTROL PHASE III DETAIL
TMP-07 THRU 12	TEMPORARY CUT SECTIONS

SHEET NO.
TMP-01

B-4289

TIP PROJECT:

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

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

J. S. BOURNE, P.E. STATE TRAFFIC MANAGEMENT ENGINEER
G. L. GETTIER, P.E. TRAFFIC CONTROL PROJECT ENGINEER
J. W. WOOLARD, P.E. TRAFFIC CONTROL PROJECT DESIGN ENGINEER
D. A. HAYES, E.I. TRAFFIC CONTROL DESIGN ENGINEER

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

APPROVED:
DATE:
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD, JR.
9/9/13

9/9/2013
P:\TIPProjects-B\B4289\Traffic\TrafficControl\TCP\NonDetail\B-4289_TC_TMP_01_TTitle.dgn
User:jwoolard

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-01A

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 JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION
1165.01	TRUCK MOUNTED IMPACT ATTENUATOR
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL & BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL & BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS
1264.02	PLACEMENT OF OBJECT MARKERS

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

[ ] TMP SHEET REFERENCE (SEE PHASING)

WORK AREA

REMOVAL

TEMPORARY PAVEMENT

BASE COURSE

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

DRUM

TEMPORARY CRASH CUSHION

TEMPORARY SIGNING

STATIONARY SIGN

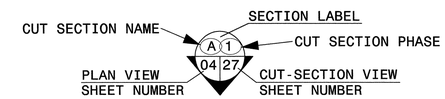
PAVEMENT MARKINGS

EXISTING LINES

TEMPORARY LINES

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	TEMPORARY PAVEMENT MARKINGS
	PAINT(24")
P2	WHITE STOPBAR
	PAINT(4")
PA	WHITE EDGELINE
PD	3 FT. - 9 FT./SP WHITE MINISKIP
PI	YELLOW DOUBLE CENTER
	MARKERS
	TEMPORARY RAISED PAVEMENT MARKERS
MH	YELLOW & YELLOW
MM	CRYSTAL & CRYSTAL



APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

9/9/13

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

ROADWAY STANDARD DRAWINGS & LEGEND

9/9/2013
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PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-01B

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

D) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

E) DO NOT INSTALL MORE THAN ONE LANE CLOSURE, IN ANY ONE DIRECTION, ON -L-.

F) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

PAVEMENT EDGE DROP OFF REQUIREMENTS

G) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

H) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 350 FT IN ADVANCE OF THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

J) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

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

L) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 350 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

M) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.

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

O) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

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

ROAD NAME	MARKING	MARKER
1. -L- SR 1324	PAINT	N/A

R) STATE FORCES WILL INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
1. -L- SR 1324	PAINT	N/A
2. -Y- SR 1377	PAINT	N/A
3. NC 215	PAINT	N/A

S) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

MISCELLANEOUS

U) POLICE MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS, AS DIRECTED BY THE ENGINEER.

V) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAYS TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION, AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 350 FT AND 350 FT RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

MANAGEMENT STRATEGIES

THIS PROJECT WILL UTILIZE A TEMPORARY SIGNAL SYSTEM TO MITIGATE TRAFFIC DURING CONSTRUCTION.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

9/9/13

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

TRANSPORTATION OPERATIONS

9/9/2013
P:\TIPProjects-B\B4289\Traffic\TrafficControl\TCP\NonDetail\B-4289_TC_TMP_01B_TO.dgn
User:jwoolard

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-02

Shoring Location No. 1

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 19+62 L-, 3.5 FT RT., TO STATION 19+82 -L-, 3.5FT RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 19+62 L-, 3.5 FT RT., TO STATION 19+82 L-, 3.5 FT RT. MAY NOT PENETRATE BELOW ELEVATION 2803 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 19+62 L-, 3.5 FT RT., TO STATION 19+82 -L-, 3.5 FT RT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

Shoring Location No. 2

FOR TEMPORARY SHORING AND POSITIVE PROTECTION FOR TEMPORARY SHORING, SEE PLANS AND TEMPORARY SHORING PROVISION.

BEFORE BEGINNING TEMPORARY SHORING DESIGN OR CONSTRUCTION, SURVEY EXISTING GROUND ELEVATIONS IN THE VICINITY OF SHORING LOCATIONS TO DETERMINE ACTUAL SHORING HEIGHTS.

DESIGN TEMPORARY SHORING FROM STATION 20+76 L-, 3.5 FT RT., TO STATION 20+96 L-, 3.5 FT RT., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 LB/CF
FRICTION ANGLE (ϕ) = 30 DEGREES
COHESION (c) = 0 LB/SF
GROUNDWATER ELEVATION = 2825 FT

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF TEMPORARY SHORING FROM STATION 20+76 L-, 3.5 FT RT., TO STATION 20+96 -L-, 3.5 FT RT. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

DRIVEN PILING FOR TEMPORARY SHORING FROM STATION 20+76 L-, 3.5 FT RT., TO STATION 20+96 -L-, 3.5 FT RT. WILL NOT PENETRATE BELOW ELEVATION 2820 FT DUE TO OBSTRUCTIONS, VERY DENSE OR HARD SOIL, BOULDERS OR WEATHERED OR HARD ROCK.

AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 20+76 L-, 3.5 FT RT., TO STATION 20+96 -L-, 3.5 FT RT. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

IT MAY BE PREFERRED TO USE A TEMPORARY SOIL NAIL WALL FOR TEMPORARY SHORING FROM STATION 20+76 L-, 3.5 FT RT., TO STATION 20+96 -L-, 3.5 FT RT. FOR TEMPORARY SOIL NAIL WALLS, SEE TEMPORARY SOIL NAIL WALLS PROVISION.

THE TEMPORARY SHORING NOTES SHOWN ON THIS SHEET WERE PROVIDED THROUGH A SEALED DOCUMENT FROM THE GEOTECHNICAL ENGINEERING UNIT. THE DOCUMENT WAS SUBMITTED TO THE WZTC SECTION ON 07/19/13 AND SEALED BY A PROFESSIONAL ENGINEER, SHANE CLARK, P.E., LICENSE # 029869.

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

9/16/13

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

TEMPORARY SHORING DATA

9/16/2013
R:\TIPP Projects-B\B4289\Traffic\TrafficControl\TCP\NonDetail\B-4289_TC_TMP_02_SDS_9-9-13.dgn
User:jwoolard

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-03

PHASE I

STEP 1) USING ROADWAY STANDARD DRAWING (RSD) 1101.01 INSTALL ADVANCE WARNING SIGNS ON -L-, -Y-, -Y1-, AND -DR1-.

STEP 2) USING RSD 1101.02 INSTALL TEMPORARY PAVEMENT AND TEMPORARY PAVEMENT MARKINGS ON -L- FROM STA. 18+28 -L- TO STA. 19+78 -L- AND SHIFT TRAFFIC ONTO TEMPORARY PATTERN [04].

UNDER TRAFFIC CONSTRUCT -DR1- UP TO AND INCLUDING THE FINAL GRADE [04].

USING RSD 1101.02 AS NEEDED PERFORM ALL CLEARING AND GRUBBING OPERATIONS.

STEP 3) USING RSD 1101.02 PERFORM THE FOLLOWING IN SEQUENCE [04]:
- ◎ INSTALL TEMPORARY PAVEMENT ON -L- FROM STA. 19+56 -L- TO STA. 19+82 -L- AND FROM STA. 20+78 -L- TO STA. 21+36 -L-
- ◎ INSTALL CRASH CUSHIONS ON THE EXISTING BRIDGE DECK
- ◎ INSTALL TEMPORARY SHORING
- ◎ CONSTRUCT:
  - ● -L- RIGHT UP TO AND INCLUDING THE BASE COURSE FROM STA. 18+28 -L- TO STA. 19+66 -L- AND FROM STA. 20+95 -L- TO STA. 21+69 -L-
  - ● STAGE 1 OF PROPOSED STRUCTURE AND APPROACH SLABS FROM STA. 19+66 -L- TO STA. 20+95 -L-
  - ● TEMPORARY PAVEMENT BEGINNING AT STA. 21+01 -L-
- ◎ INSTALL TEMPORARY GUARDRAIL FROM STA. 19+62 -L- TO STA. 20+84 -L-

UNDER TRAFFIC INSTALL THE BASE COURSE ON -DR1- [04].

USING RSD 1101.02 INSTALL TEMPORARY PAVEMENT ON -Y1- BEGINNING AT STA. 13+90 -Y1- [04].

BEGIN THE INSTALLATION OF ALL TEMPORARY SIGNALS.

PHASE II

STEP 1) USING 1101.03, SHEET 8 OF 9 (TYPE III BARRICADES OPTIONAL) FOR NO MORE THAN 15 MINUTES AT ONE TIME, DRUMS, AND BARRICADES PLACE TRAFFIC INTO THE PHASE II TEMPORARY PATTERN AND PERFORM THE FOLLOWING IN SEQUENCE [05]:
- **◎ WEDGE -L- RIGHT FROM STA. 18+28 -L- TO STA. 21+69 -L- AND -DR1-**
- **◎ INSTALL REMAINING TEMPORARY GUARDRAIL AND CRASH ATTENUATORS**
- **◎ REMOVE ALL CONFLICTING MARKINGS AND INSTALL ALL TEMPORARY PAVEMENT MARKINGS**
- **◎ ACTIVATE TEMPORARY SIGNALS**

STEP 2) AWAY FROM TRAFFIC REMOVE THE EXISTING STRUCTURE AND CONSTRUCT -L- LEFT FROM STA. 18+28 -L- TO STA. 21+12 -L-, INCLUDING STAGE II OF THE PROPOSED STRUCTURE, UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE [05].

UNDER TRAFFIC CONSTRUCT -Y- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE [05].

USING RSD 1101.02 CONSTRUCT -Y1- RIGHT FROM STA. 13+41 -Y1- TO STA. 14+08 -Y1- UP TO THE EXISTING EDGE AND ELEVATION [05].

PHASE III

STEP 1) USING 1101.03, 8 OF 9 (TYPE III BARRICADES OPTIONAL) FOR NO MORE THAN 15 MINUTES AT ONE TIME REMOVE TEMPORARY GUARDRAIL AND USING DRUMS TO SHIFT TRAFFIC AWAY FROM THE EDGE OF TRAVEL WEDGE -L- CENTER FROM STA. 19+45 -L- TO STA. 21+13 -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE [06].

STEP 2) USING DRUMS SHIFT TRAFFIC ON -L- AT LEAST 5′ AWAY FROM THE RIGHT EDGE OF THE ROADWAY AND REMOVE TEMPORARY PAVEMENT [06].

USING RSD 1101.02 REMOVE TEMPORARY PAVEMENT ON -Y1- [06].

STEP 3) USING RSD 1101.02 INSTALL THE FINAL LIFT OF SURFACE COURSE, RESURFACING, FINAL PAVEMENT MARKINGS AND MARKERS (SEE FINAL PAVEMENT MARKING PLAN), REMOVE ANY CONFLICTING MARKINGS ON THE ENTIRE PROJECT, AND REMOVE TEMPORARY SIGNALS. PLACE TRAFFIC IN THE FINAL PATTERN.

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

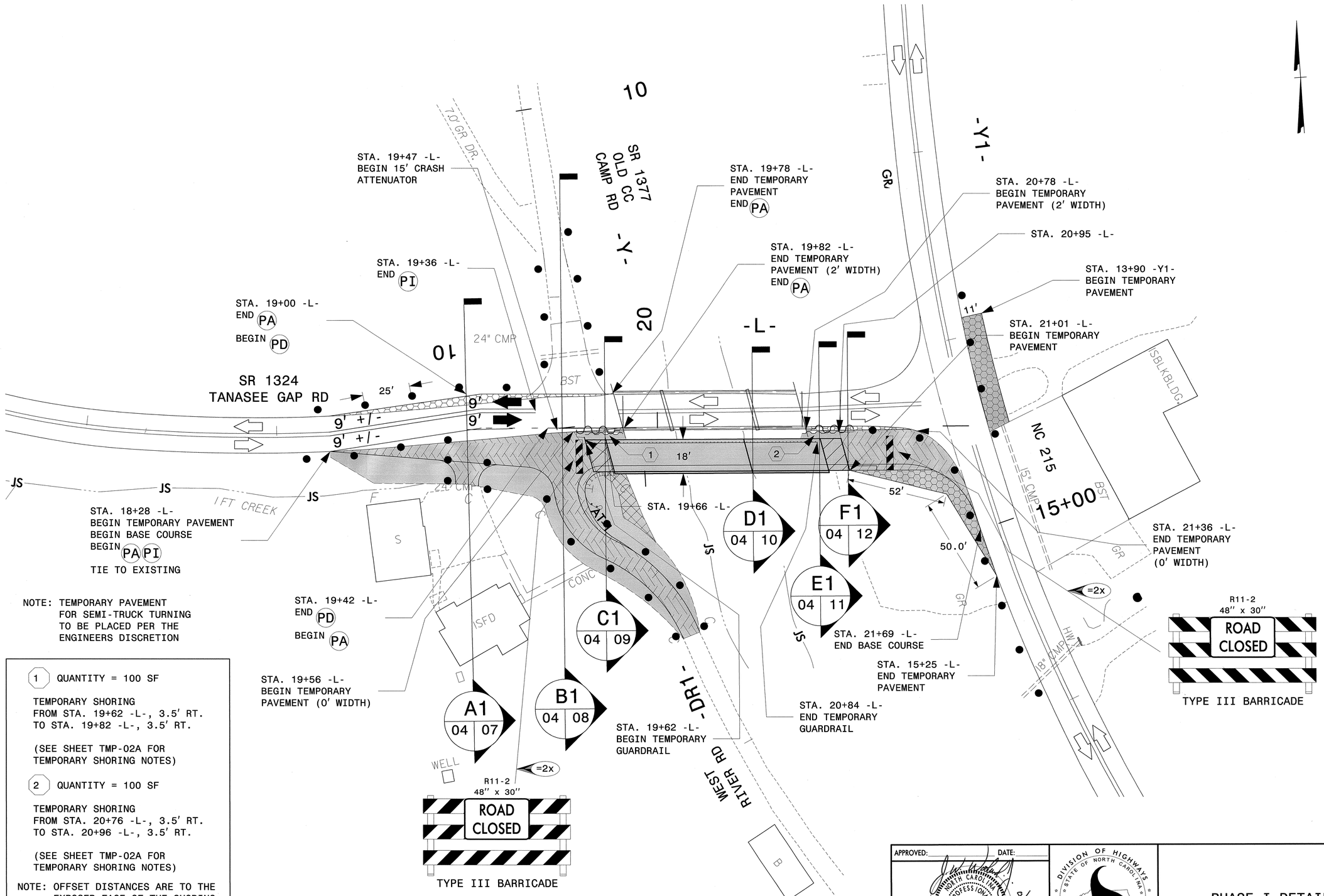
9/17/13

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

PHASING

9/17/2013
P:\TIPProjects-B\B4289\Traffic\TrafficControl\TCP\NonDetail\B-4289_TC_TMP_03_Phasing.dgn
User:jwoolard

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-04



APPROVED:	DATE:
SEAL	8/1/13

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD III

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

PHASE I DETAIL

7/31/2013
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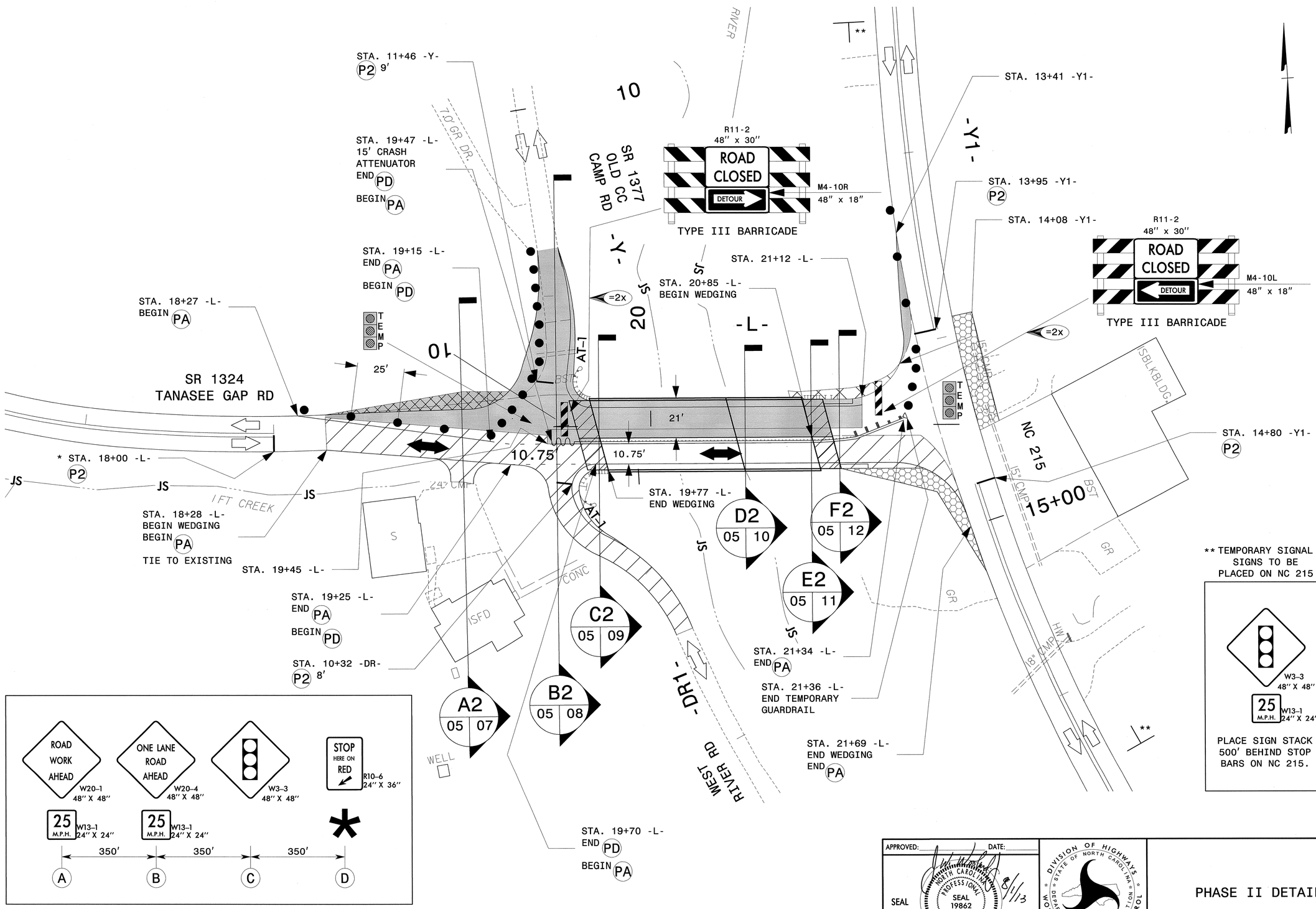
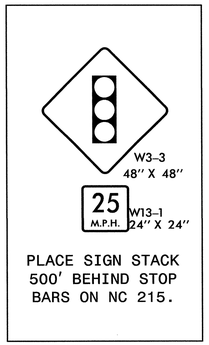
PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-05



** TEMPORARY SIGNAL SIGNS TO BE PLACED ON NC 215



PLACE SIGN STACK 500' BEHIND STOP BARS ON NC 215.

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD JR. 8/1/13

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

PHASE II DETAIL

7/31/2013
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User:chayes16

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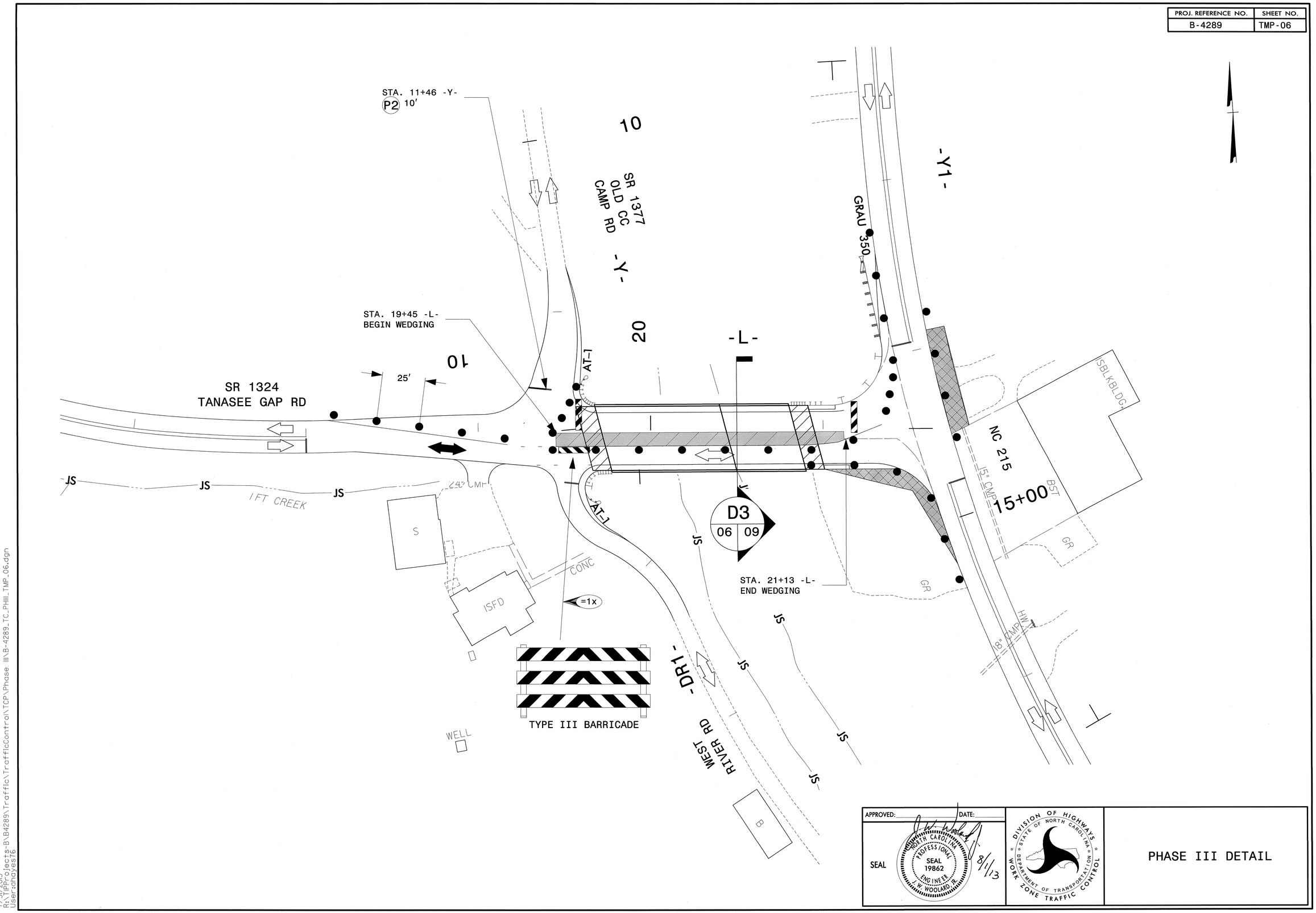
B-4289	TMP-06



APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

8/1/13

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

PHASE III DETAIL

7/31/2013
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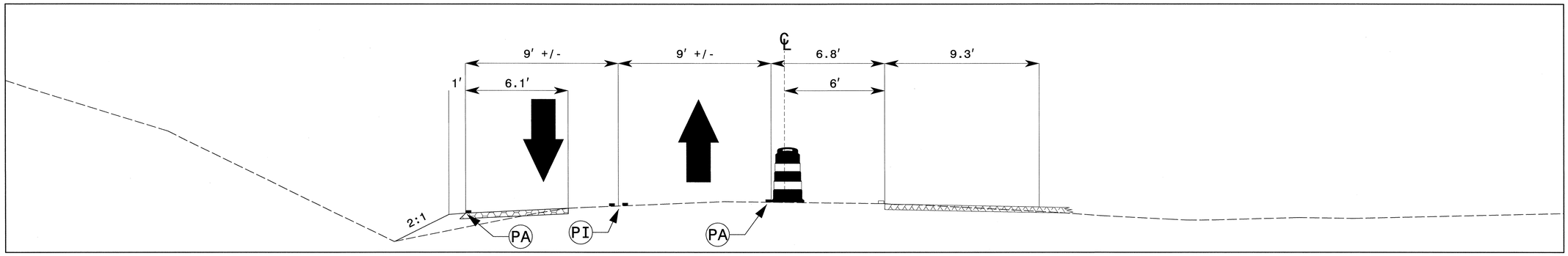
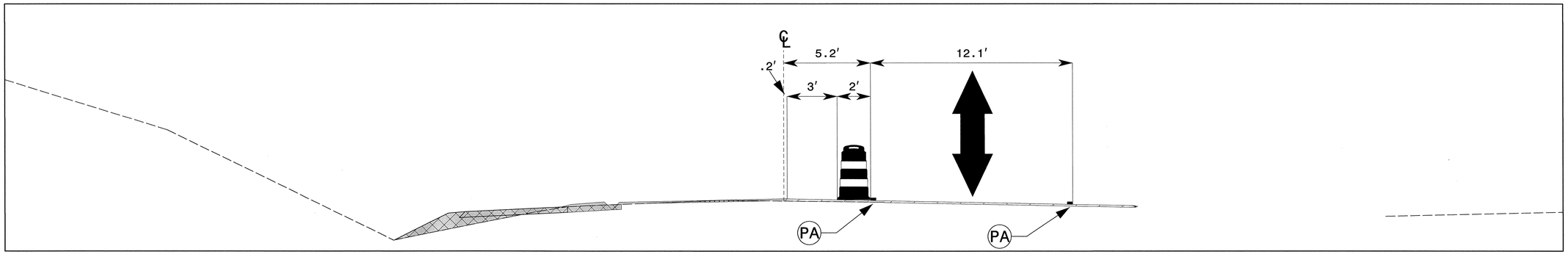
PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-07



A1 | 04 | 07

CUT SECTION
STA. 19+00 -L-



A2 | 05 | 07

CUT SECTION
STA. 19+00 -L-

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

8/1/13

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

TEMPORARY
CUT SECTION A

7/31/2013
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User:rgayes16

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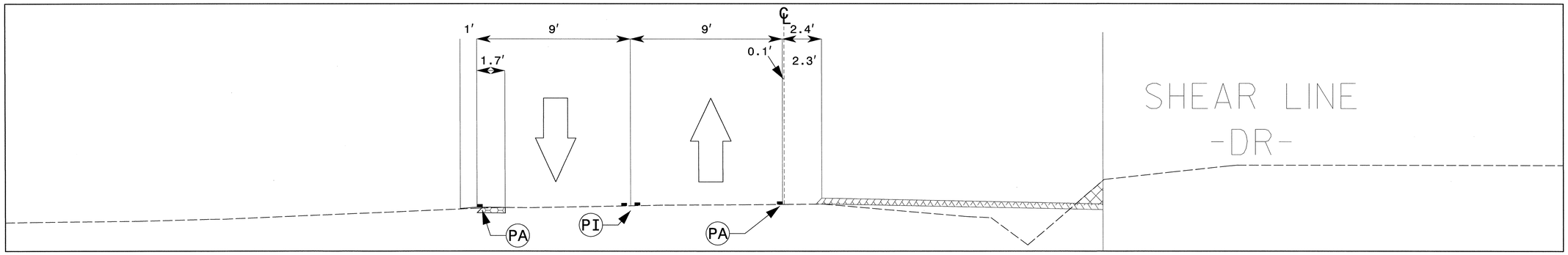
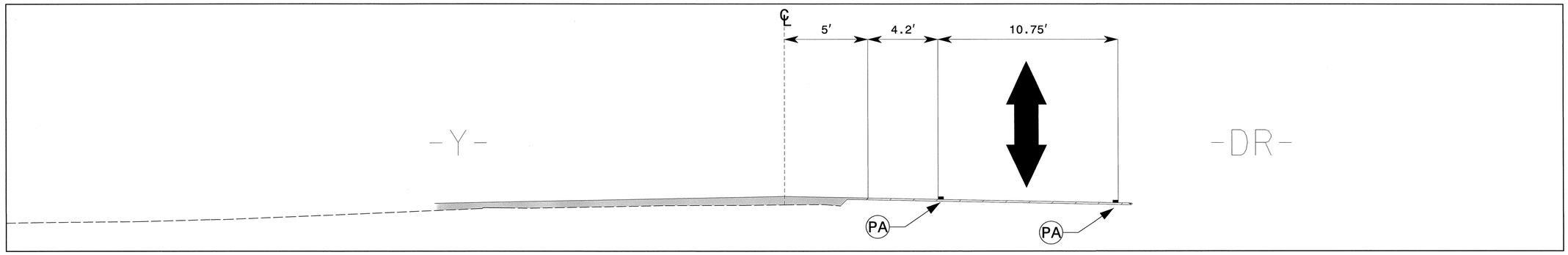
B-4289	TMP-08



B1 04 | 08 — CUT SECTION
STA. 19+50 -L-



B2 05 | 08 — CUT SECTION
STA. 19+50 -L-

APPROVED: J. W. Woolard DATE: 8/1/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

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

TEMPORARY
CUT SECTION B

7/31/2013
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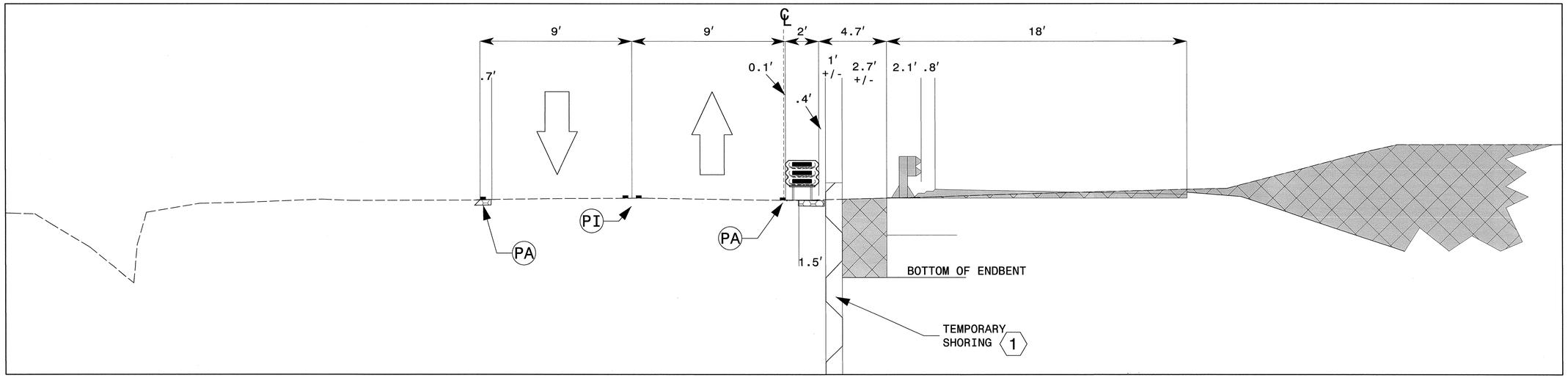
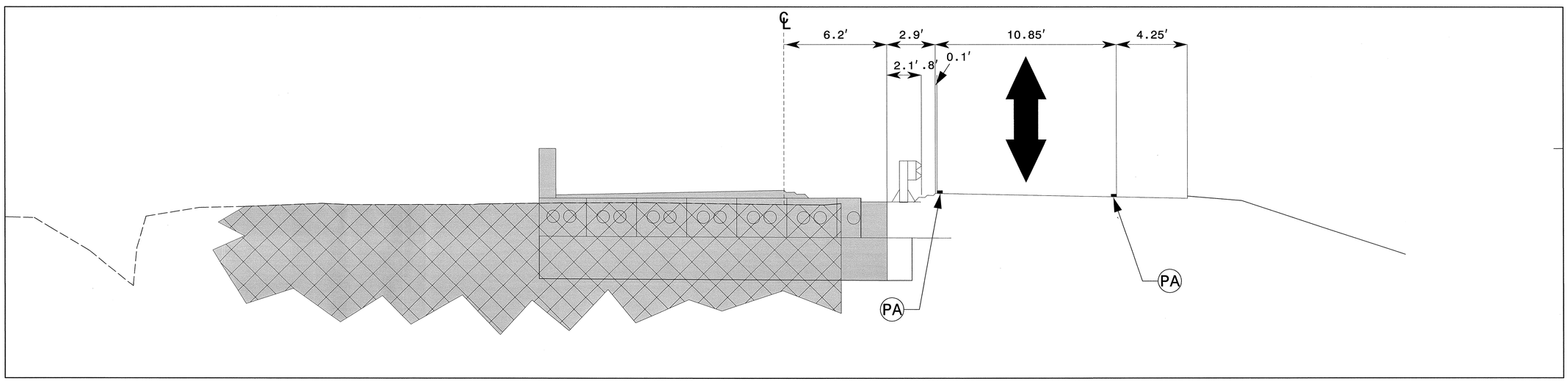
PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-09



C1 | 04 | 09

CUT SECTION
STA. 19+72 -L-



C2 | 05 | 09

CUT SECTION
STA. 19+72 -L-

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

8/1/13

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

TEMPORARY
CUT SECTION C

7/31/2013
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User:dhoyes16

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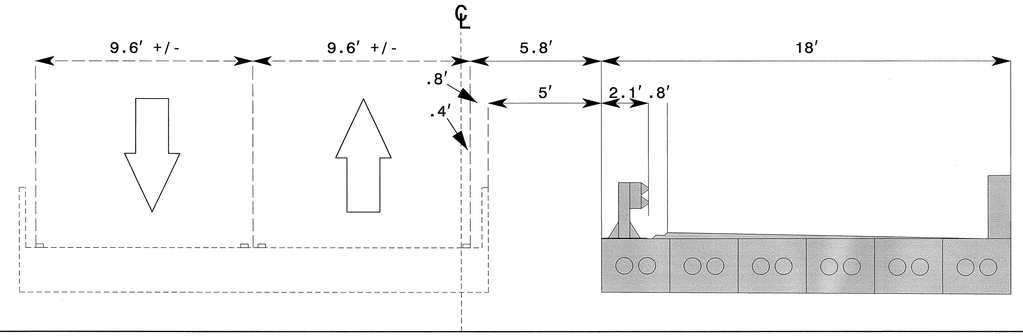
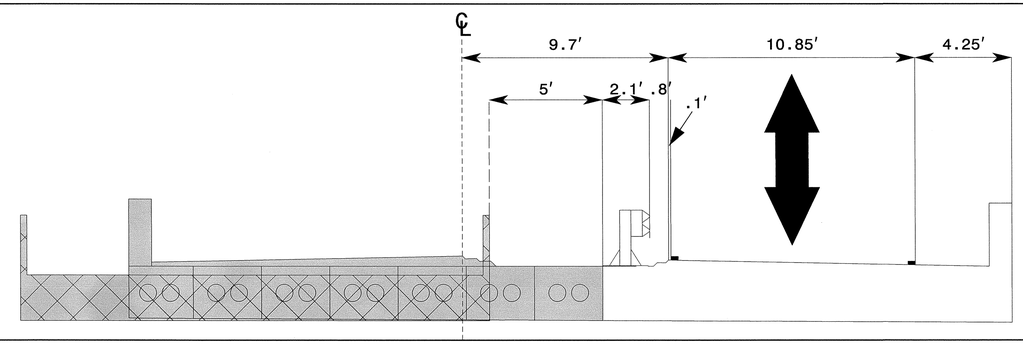
B-4289	TMP-10



D1 | 04 | 10

CUT SECTION
STA. 20+50 -L-



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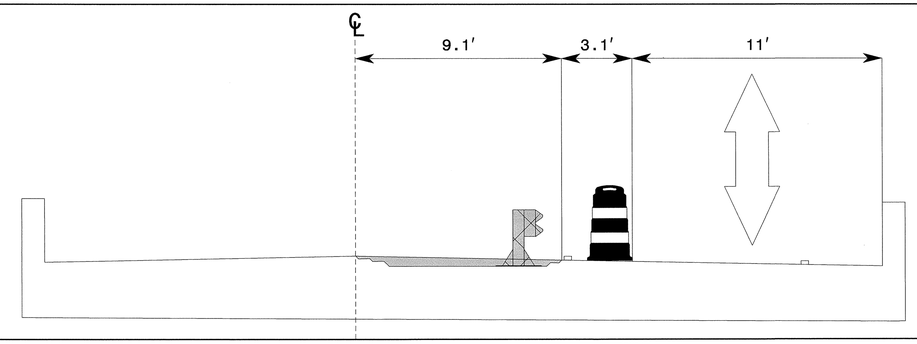
STA. 20+50 -L-



D3 | 06 | 10

CUT SECTION
STA. 20+50 -L-

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.

8/1/13

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

TEMPORARY
CUT SECTION D

7/31/2013
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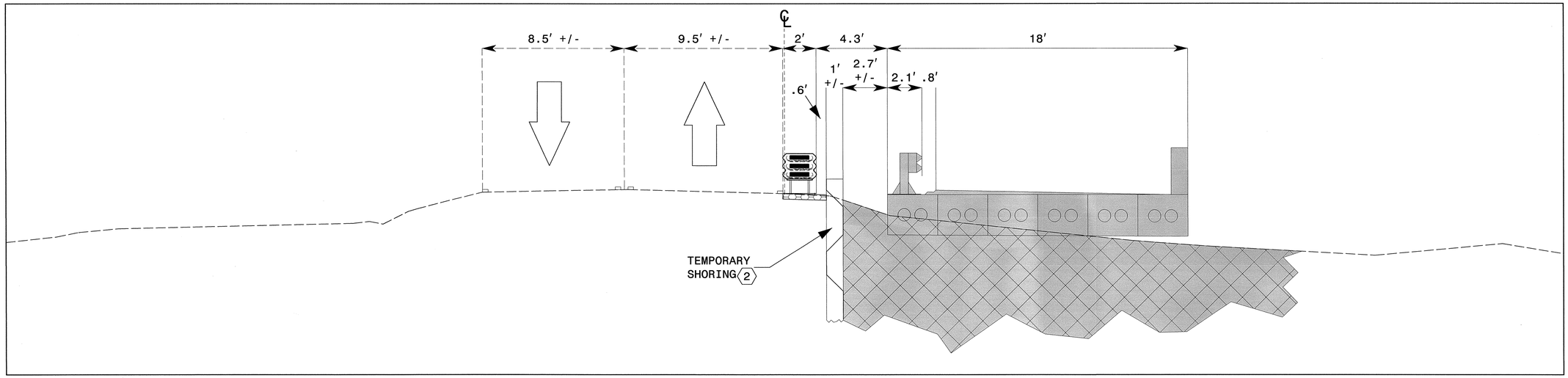
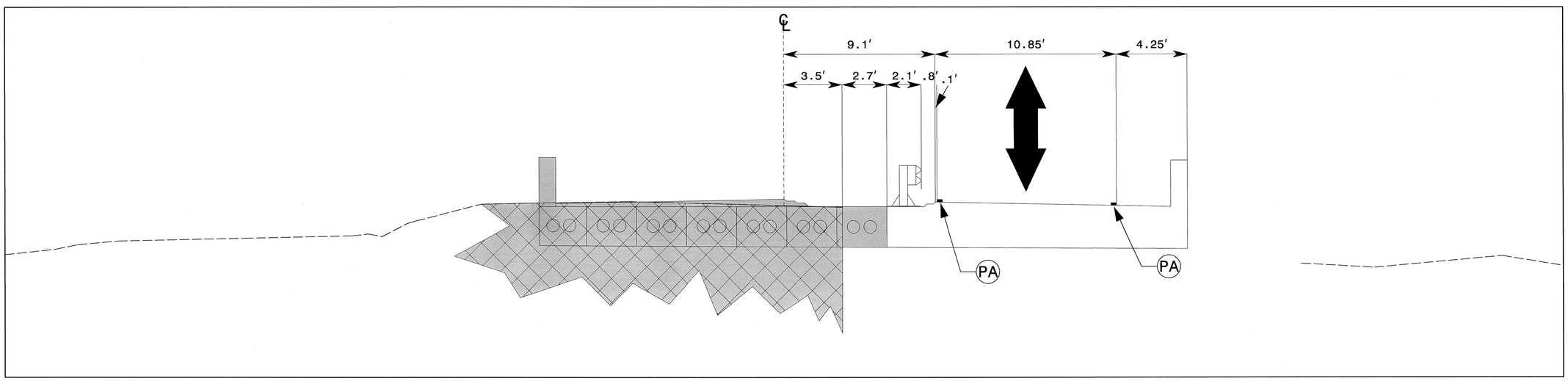
User:ralayes16

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-11



E1 CUT SECTION
04 | 11 STA. 20+85 -L-



E2 CUT SECTION
05 | 11 STA. 20+85 -L-

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR.

8/1/13

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

TEMPORARY
CUT SECTION E

7/31/2013
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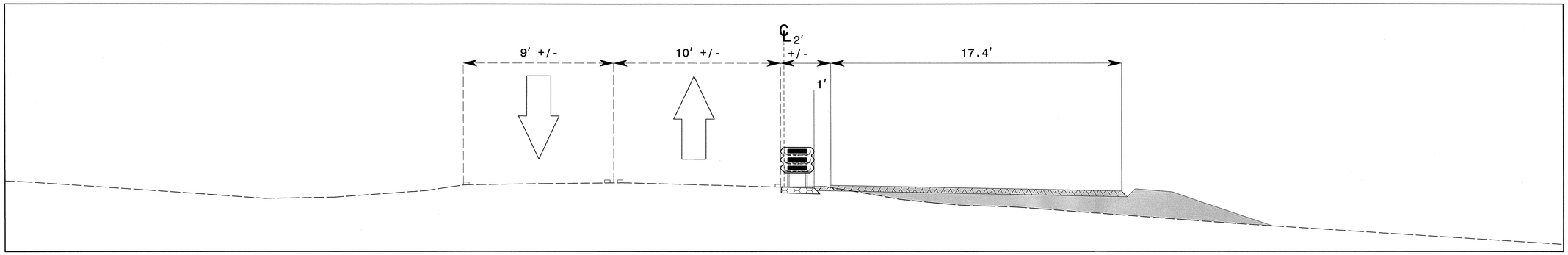
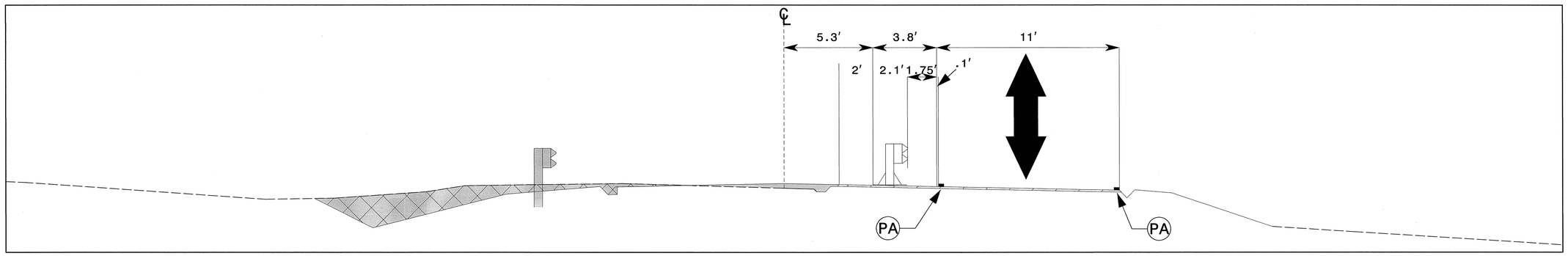
User:ahayes76

PROJ. REFERENCE NO.	SHEET NO.
B-4289	TMP-12



F1 CUT SECTION
04 12 STA. 21+00 -L-



F2 CUT SECTION
05 12 STA. 21+00 -L-

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD, JR.

8/1/13

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

TEMPORARY
CUT SECTION F

7/31/2013
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User:ahayes76

TIP NO.	SHEET NO.
B-4289	PMP-1

APPROVED: [signature]

DATE: 8/8/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 93 ON SR 1324 (TANASEE GAP RD.) OVER NORTH FORK FRENCH BROAD RIVER

T.I.P.: B-4289

CONTRACT: C202817

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 2012 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
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINEATION

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	FINAL PAVEMENT MARKINGS
P2	WHITE STOPBAR (2X)	PAINT(24")
		PAINT(4")
P8	2 FT. - 6 FT./SP WHITE MINISKIP (2X)	
PA	WHITE EDGELINE (2X)	
PD	3 FT. - 9 FT./SP WHITE MINISKIP (2X)	
PE	WHITE SOLID LANE LINE (2X)	
PI	YELLOW DOUBLE CENTER (2X)	
		PAINTMARKING SYMBOLS
QA	LEFT TURN ARROW (2X)	
QB	RIGHT TURN ARROW (2X)	

NOTE: FOR EACH PAINT PAVEMENT MARKING ITEM, 1X IMPLIES A SINGLE APPLICATION, 2X IMPLIES TWO APPLICATIONS, AND 3X IMPLIES THREE APPLICATIONS.

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
ALL	PAINT	NONE

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 AND MARKERS.

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

F) STOPBAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

G) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON THE BRIDGE DECK(s) PRIOR TO PLACING PAINT PAVEMENT MARKING.

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

K. L. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

J. G. MARTINEZ — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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jgmartinez AT TE274401

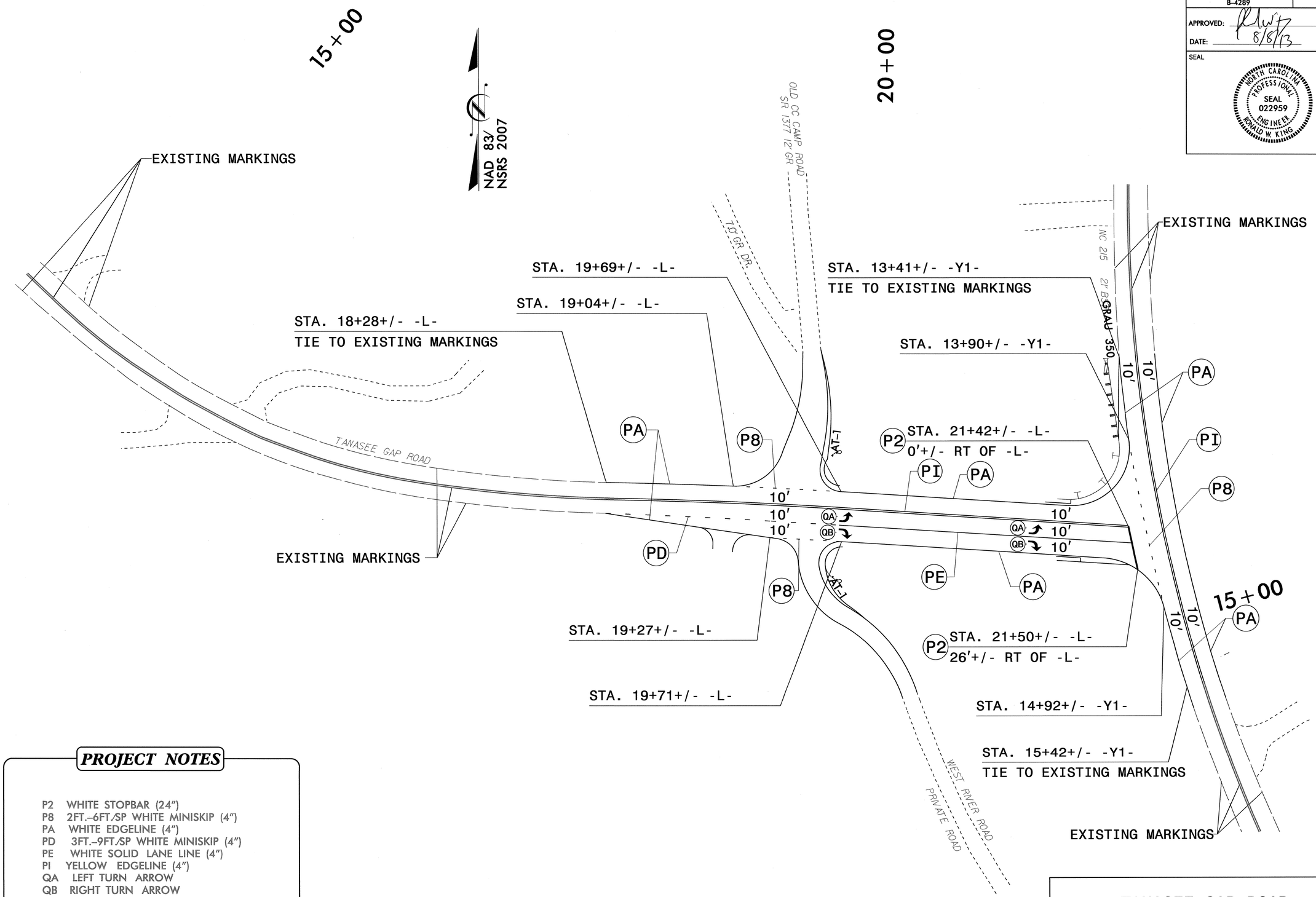
TIP NO.	SHEET NO.
B-4289	PMP-2

APPROVED: 8/8/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING



PROJECT NOTES

P2 WHITE STOPBAR (24")
P8 2FT.–6FT./SP WHITE MINISKIP (4")
PA WHITE EDGELINE (4")
PD 3FT.–9FT./SP WHITE MINISKIP (4")
PE WHITE SOLID LANE LINE (4")
PI YELLOW EDGELINE (4")
QA LEFT TURN ARROW
QB RIGHT TURN ARROW

TANASEE GAP ROAD PAVEMENT MARKING DETAIL

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jgmartinez AT TE274401

TIP PROJECT: B-4289

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4289	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

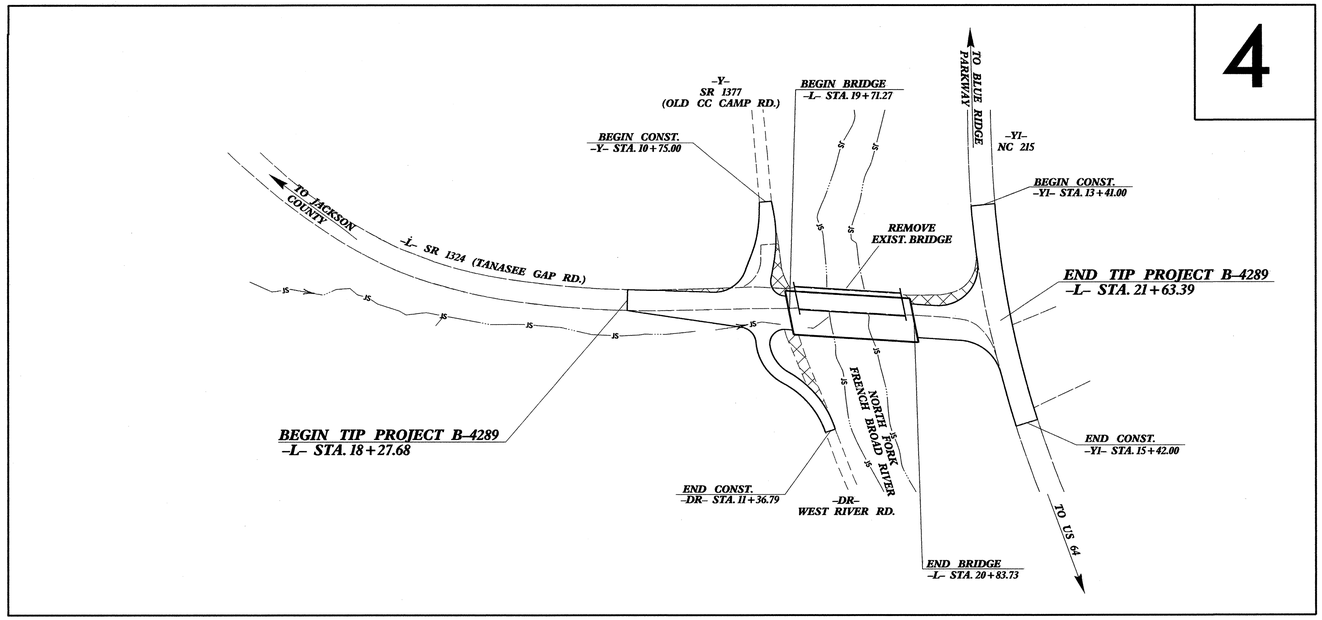
TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 93 OVER NORTH FORK FRENCH BROAD RIVER ON SR 1324 (TANASEE GAP RD.)

TYPE OF WORK: GRADING, DRAINAGE, PAVING, STRUCTURE & SIGNALS

NAD 83/
NSRS 2007

4



EROSION AND SEDIMENT CONTROL MEASURES

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

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared In the Office of:

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

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

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

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

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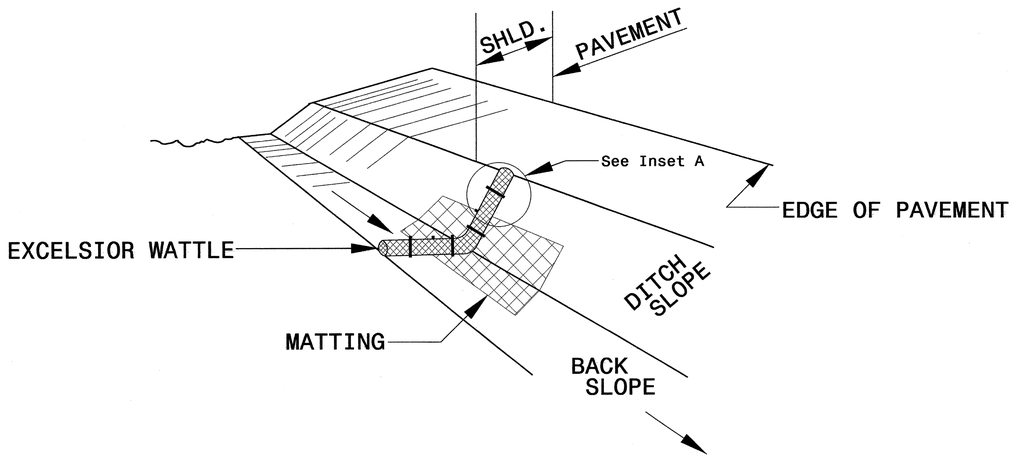
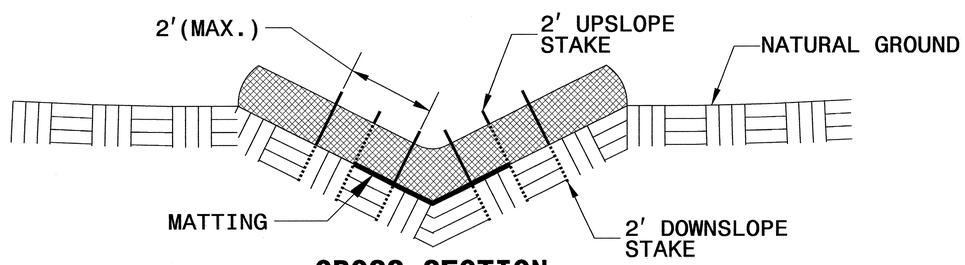
PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

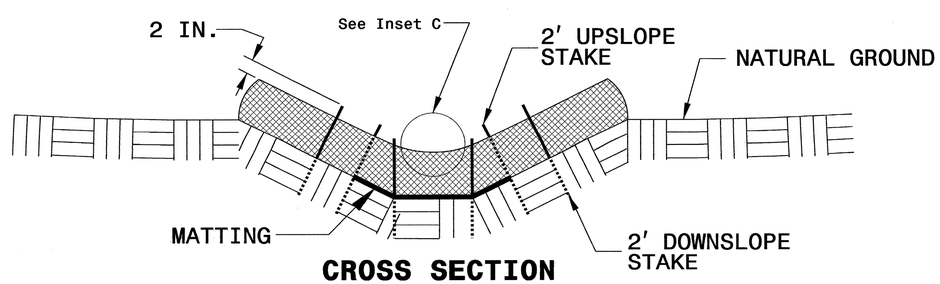
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW



CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

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

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

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

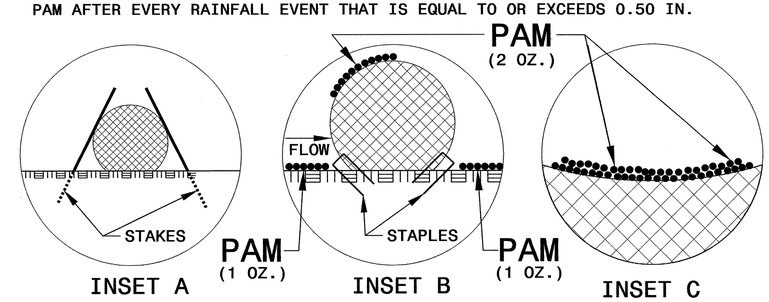
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

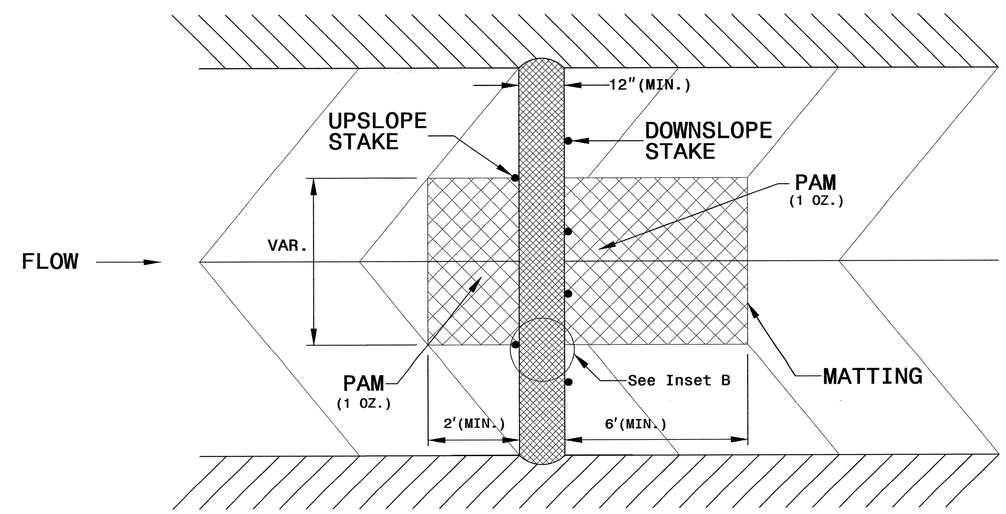
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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

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

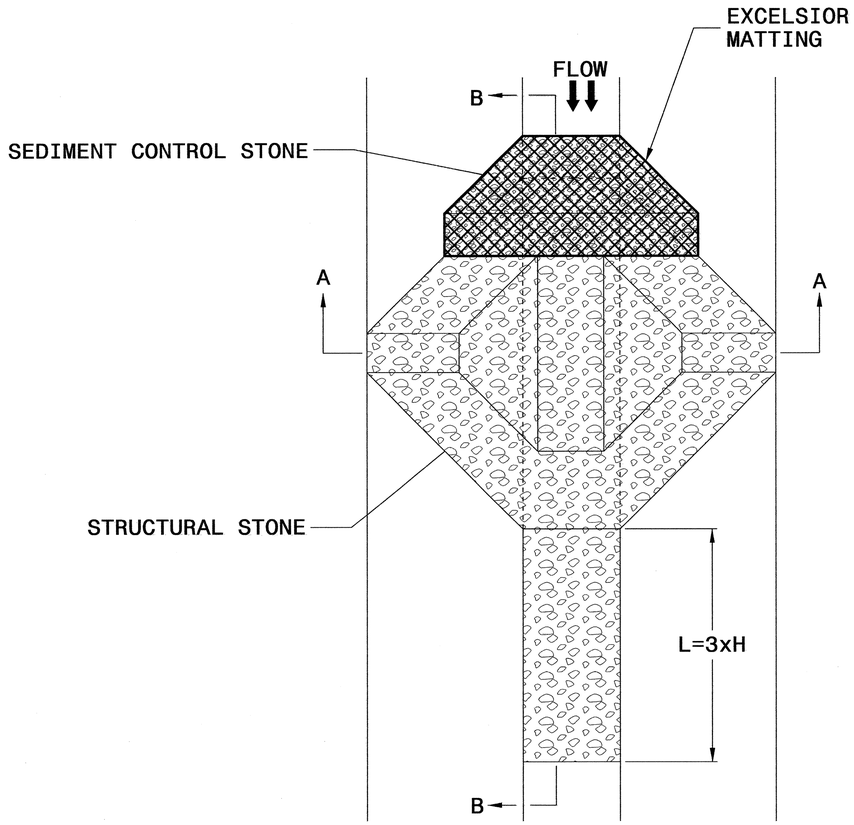




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



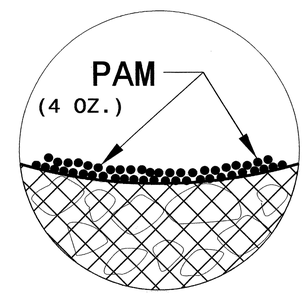
PLAN

NOTES

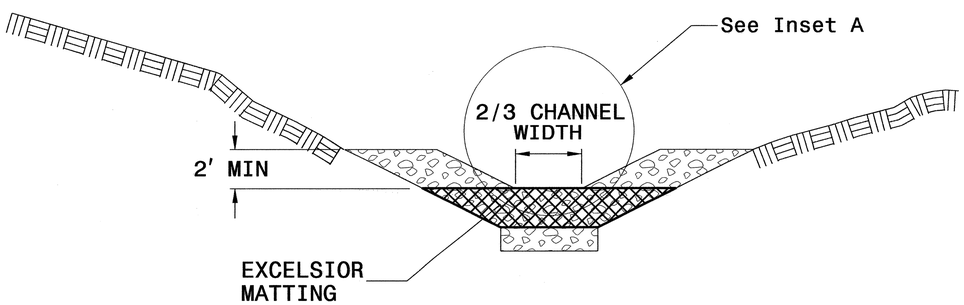
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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

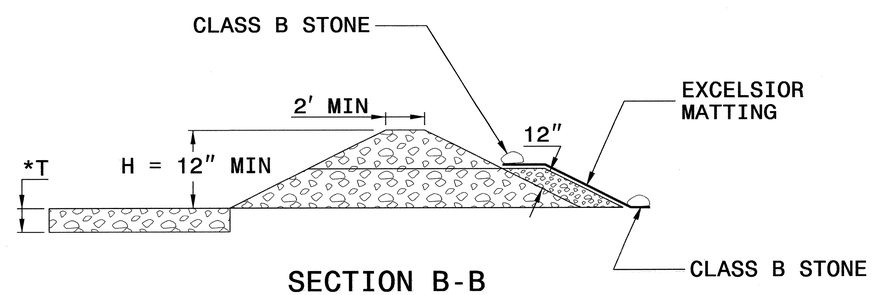
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

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

PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-Y1-	13+90	14+25	LT	50
			SUBTOTAL		50
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1400
				TOTAL	1450
				SAY	1500

PERMANENT SOIL REINFORCEMENT MAT

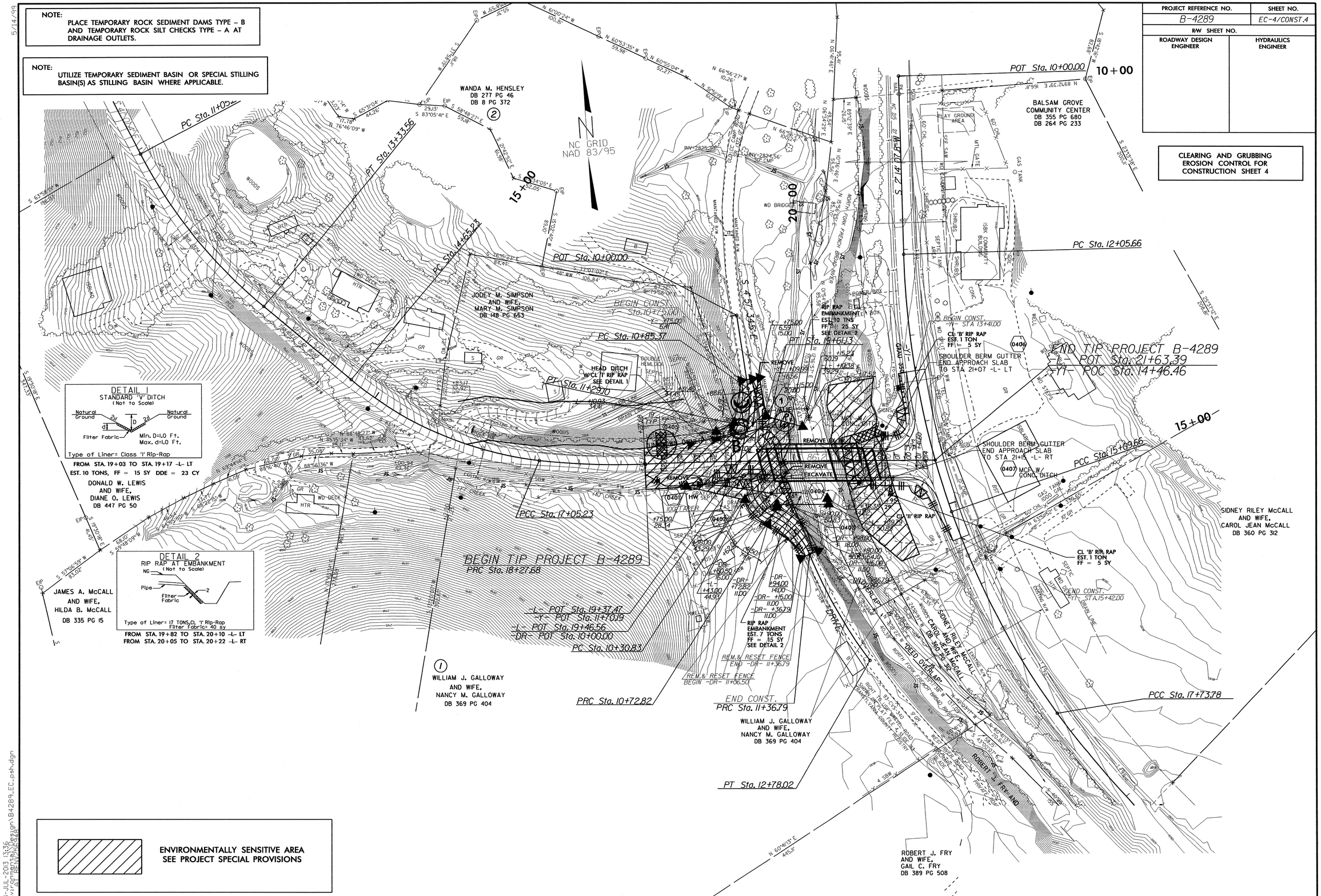
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-DR-	10+30	10+50	LT	70
			SUBTOTAL		70
ADDITIONAL PSRM TO BE INSTALLED					0
				TOTAL	70
				SAY	75

PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

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

CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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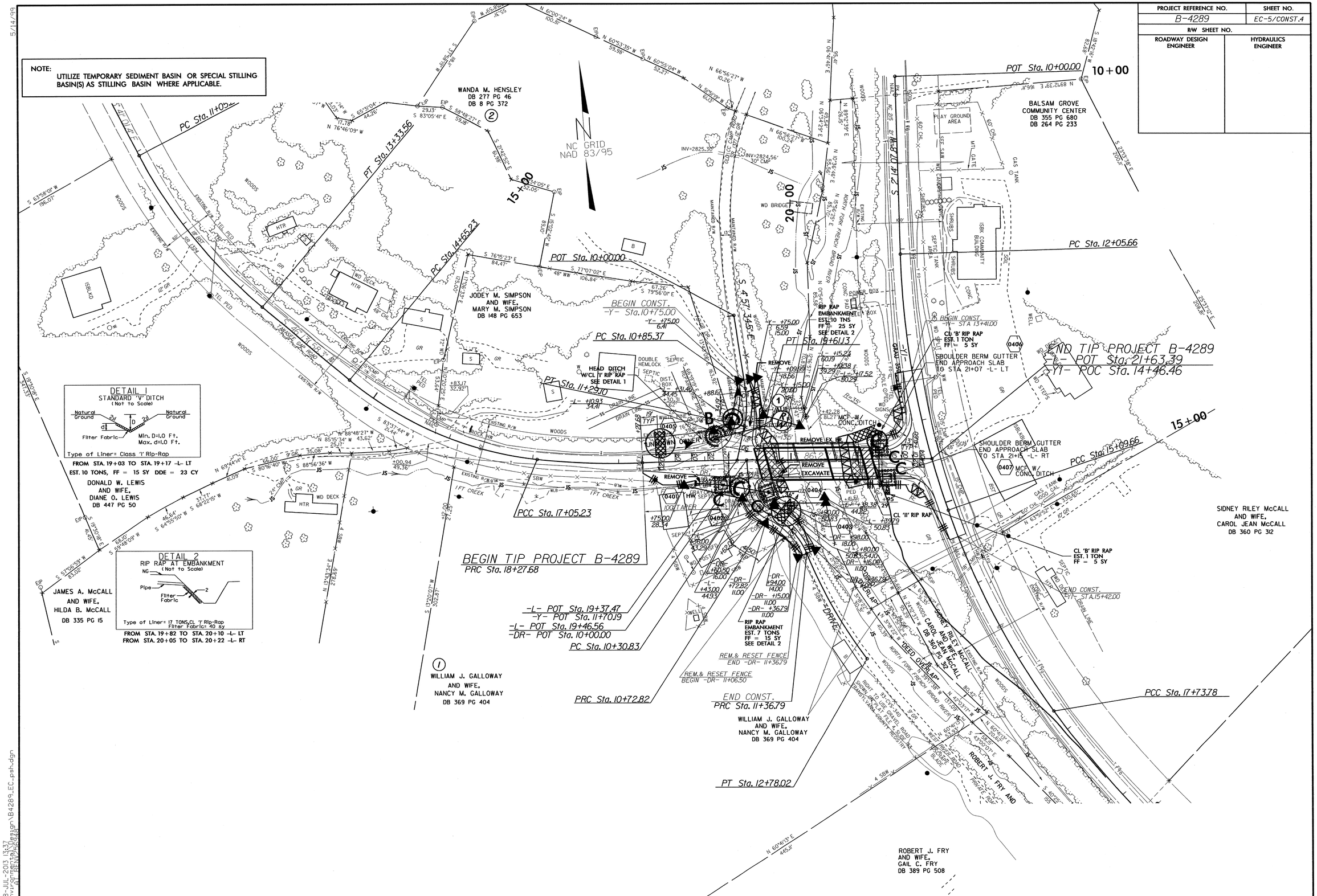
PROJECT REFERENCE NO.	SHEET NO.
B-4289	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



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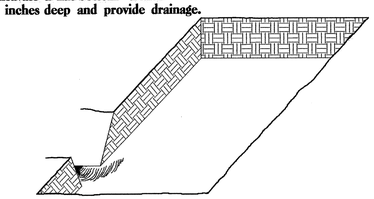
PROJECT REFERENCE NO.	SHEET NO.
B-4289	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

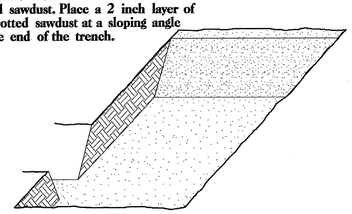
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

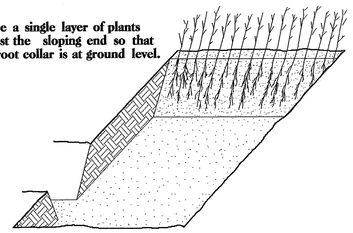
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



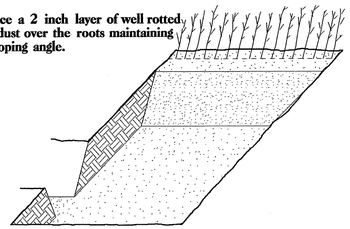
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

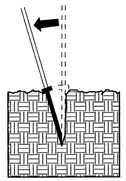


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

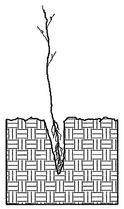


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

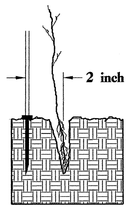
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



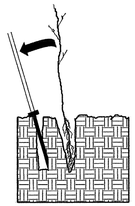
1. Insert planting bar as shown and pull handle toward planter.



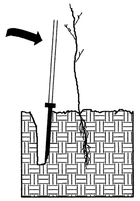
2. Remove planting bar and place seedling at correct depth.



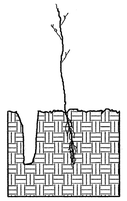
3. Insert planting bar 2 inches toward planter from seedling.



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



5. Push handle forward firming soil at top.



6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

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

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

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

REFORESTATION

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

REFORESTATION

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

34% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
33% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
33% QUERCUS ALBA	WHITE OAK	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

T.I.P.: B-4289

CONTRACT: C202817

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-4289	SIGN-1

APPROVED: RWK
DATE: 1/25/12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGNING PLAN
TRANSYLVANIA COUNTY

LOCATION: BRIDGE NO. 93 ON SR 1324 (TANASEE GAP RD.) OVER NORTH FORK FRENCH BROAD RIVER

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

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.
- SIGNING PLANS DO NOT INCLUDE TEMPORARY CONSTRUCTION SIGNING OR PAVEMENT MARKINGS. SEE TRAFFIC CONTROL PLANS.
- WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER
- ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	86	L.F.
4102000000	904	SIGN ERECTION, TYPE E	5	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	11	EA.

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	E SHEETS
SIGN-3-4	SIGN DETAIL SHEETS

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

K. L. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

J. G. MARTINEZ — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

24-JAN-2012 13:56
R:\Projects\B4289\Traffic\Signing\CADD\Signing Layout Plans\B-4289_Sgn_Proposed.dgn
jgmartinez

TIP NO.	SHEET NO.
B-4289	SIGN-2

APPROVED: RWK

DATE: 1/25/12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

(401) QUANTITY REQ'D _3_

30 X 30
R1-1

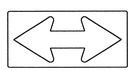
ONE "U" POST PER SIGN

(402) QUANTITY REQ'D _1_

30 X 30
W14-2

ONE "U" POST PER SIGN

(403) QUANTITY REQ'D _1_



48 X 24
W1-7

TWO "U" POSTS PER SIGN

TYPE "E" SIGNS

24-JAN-2012 13:50
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jgonzalez PE247795

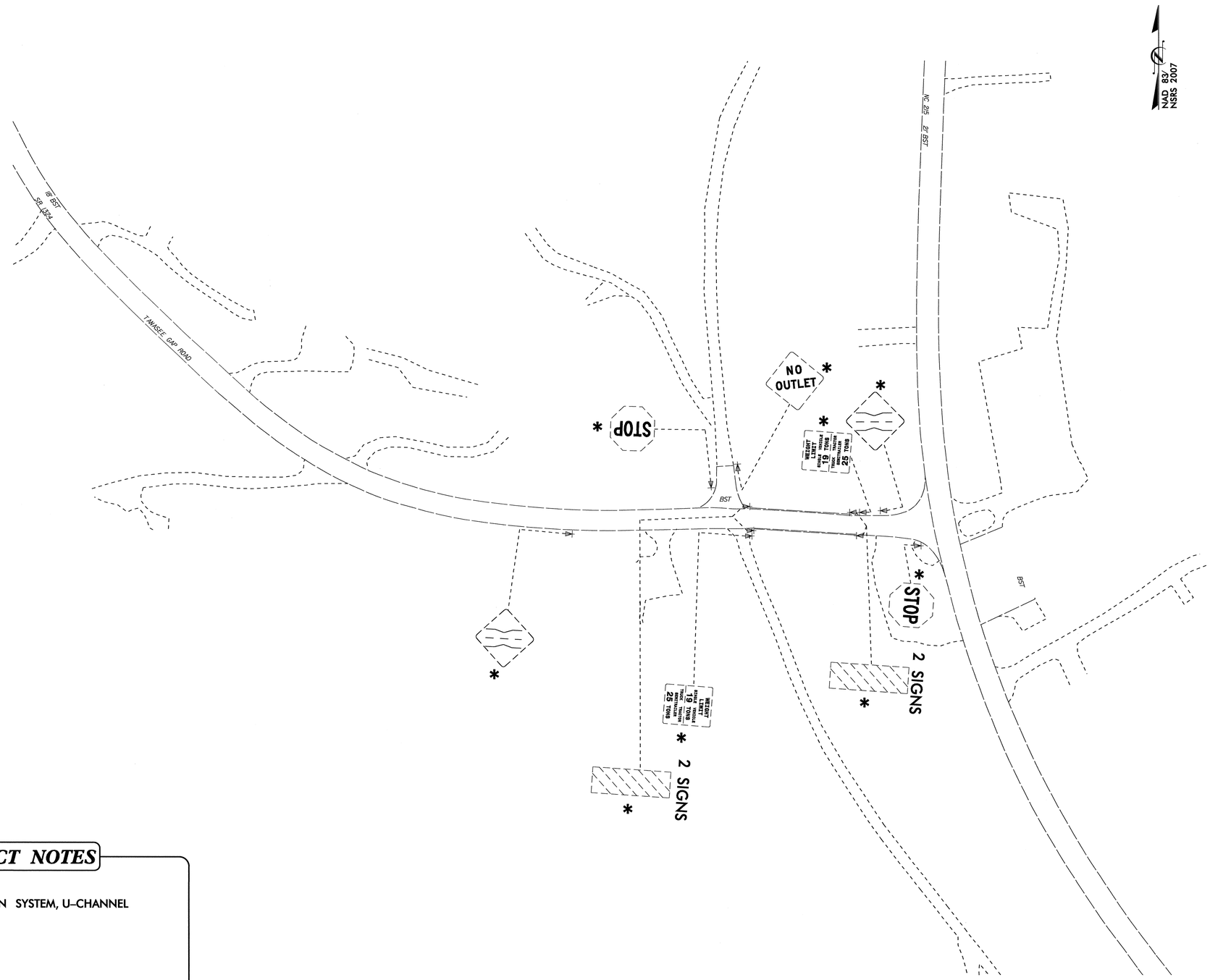
TIP NO.	SHEET NO.
B-4289	SIGN-3

APPROVED: _____

DATE: 1/25/12

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING SIGNS

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jgmartinez

TIP NO.	SHEET NO.
B-4289	SIGN-4

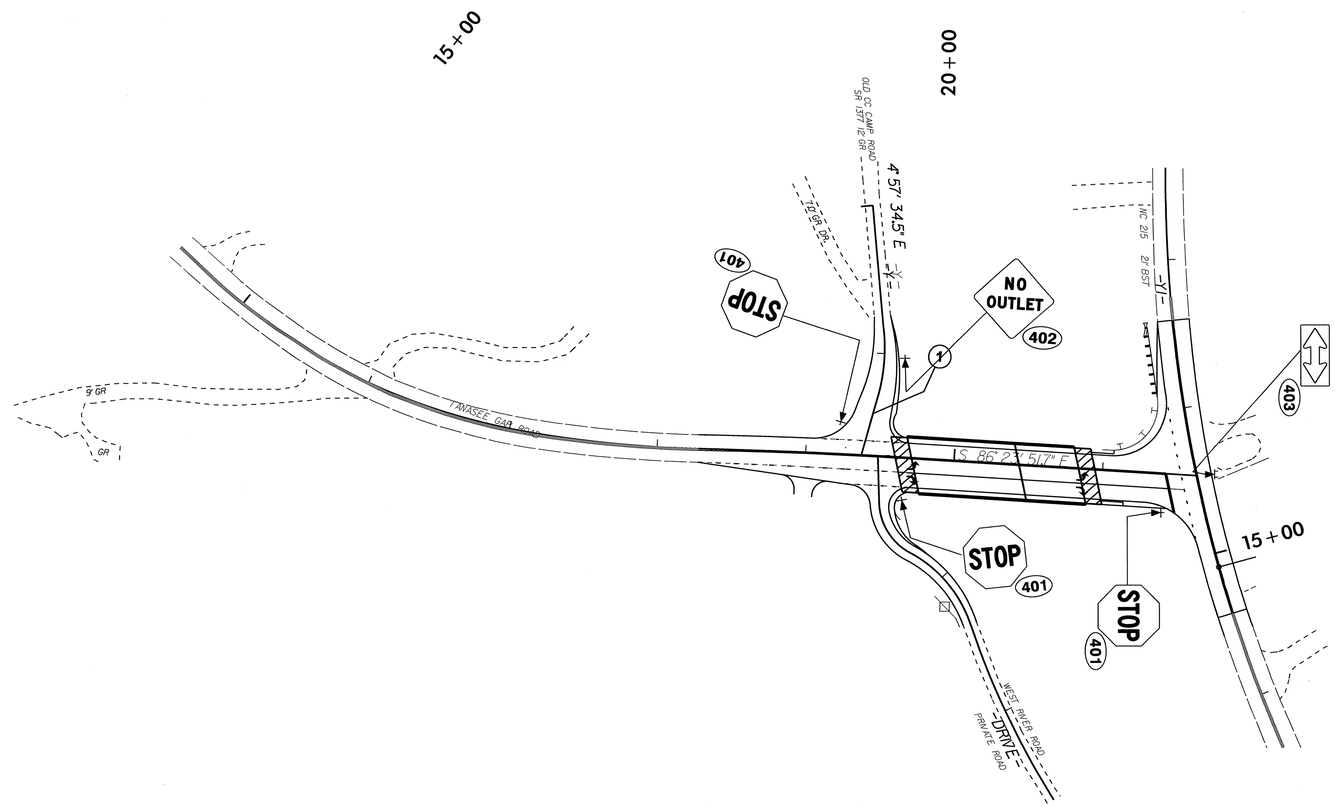
APPROVED: 8/6/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

NAD 83/ NSRS 2007



PROPOSED SIGNS

08-AUG-2013 09:56
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jgmartinez AT TE274401

Project No.	Sheet No.
B-4289	Sig. 1

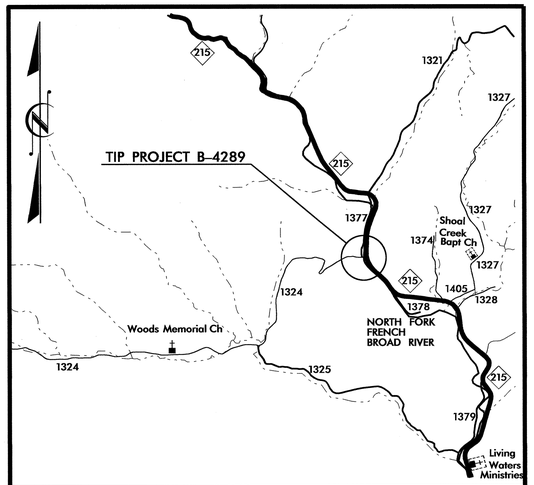
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSYLVANIA COUNTY

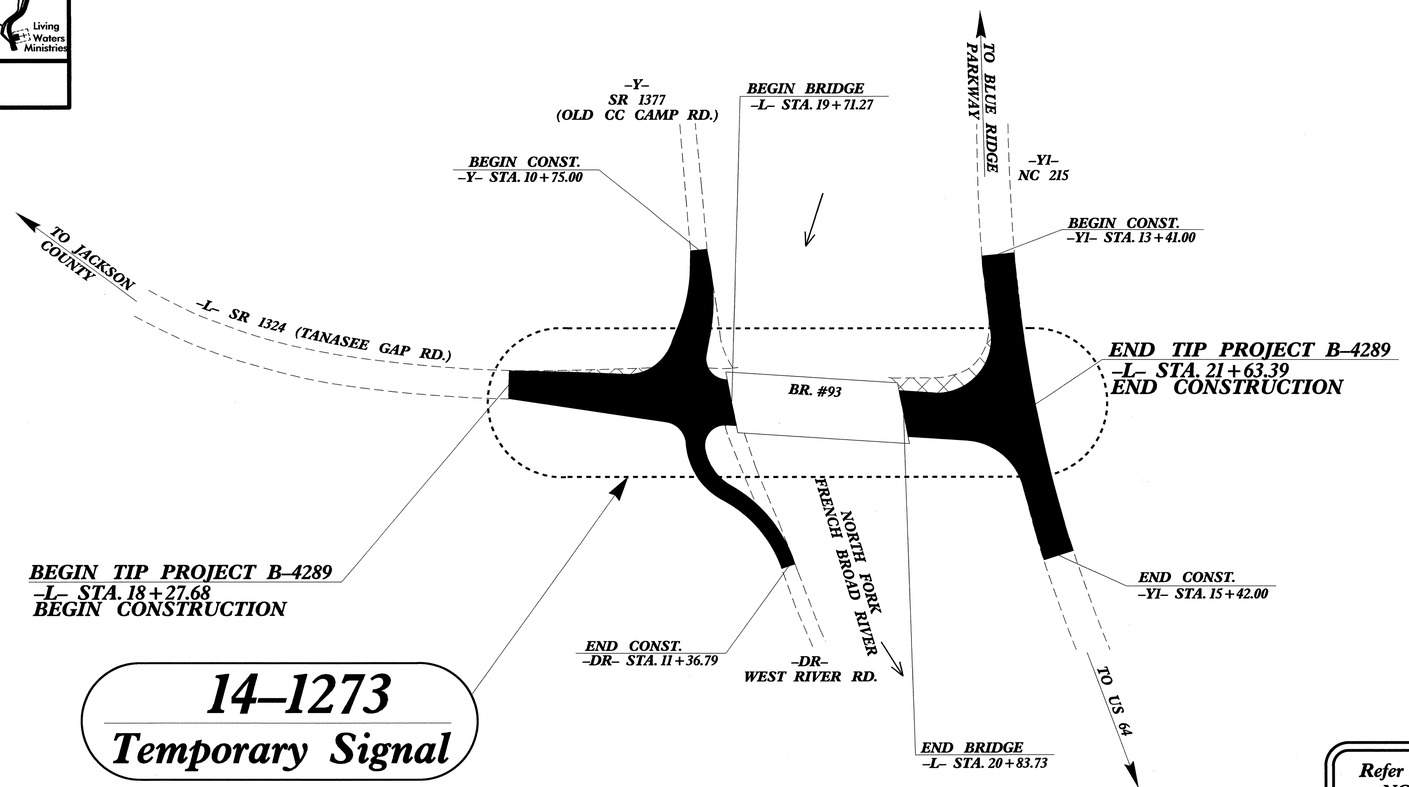
LOCATION: BRIDGE NO. 93 OVER NORTH FORK FRENCH BROAD RIVER ON SR 1324 (TANASEE GAP ROAD)

TYPE OF WORK: TRAFFIC SIGNAL

Project: B-4289



VICINITY MAP



14-1273
Temporary Signal

NAD 83/ NSRS 2007

Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.

Index of Plans

Sheet #	Reference #	Location/Description
Sig. 1	--------	Title Sheet
Sig. 2-5	14-1273T	NC 215 at SR 1324 (Tanasee Gap Rd.)/SR 1377 (Old CC Camp Rd.) & W. River Rd.

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT

Contacts:

Timothy J. Williams, PE - Western Region Signals Engineer
John T. Rowe, Jr., PE - Signal Equipment Design Engineer

Prepared In the Office of:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY

Intelligent Transportation Systems & Signals Unit
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Parkway, Garner, NC 27529

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mmphbnpbp

PROJECT REFERENCE NO.	SHEET NO.
B-4289	Sig. 2

PHASING DIAGRAM

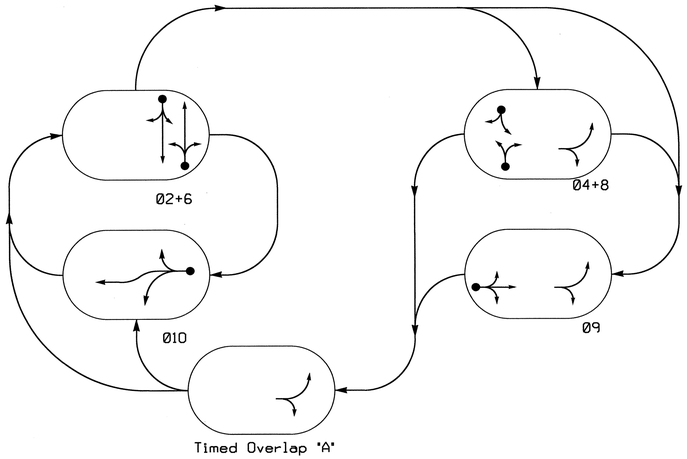
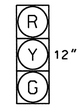


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	Ø4+8	Ø9	TOL (A)	Ø10	FLASH
21, 22, 23	G	R	R	R	R	Y
41, 42	R	G	R	R	R	R
61, 62	G	R	R	R	R	Y
81, 82	R	G	R	R	R	R
91, 92, 93	R	R	G	R	R	R
94, 95	R	G	G	G	R	R
101, 102	R	R	R	R	G	R

SIGNAL FACE I.D.

All Heads L.E.D.



21, 22, 23
41, 42
61, 62
81, 82
91, 92, 93
94, 95
101, 102

OASIS 2070L LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING						
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A	6X6	300	5	Y	2	Y	Y	-	2.5	-	-	Y
2B	6X40	0	2-4-2	Y	2	Y	Y	-	-	-	-	Y
4A	6X20	+5	*	Y	4	Y	Y	-	-	-	-	*
6A	6X6	300	5	Y	6	Y	Y	-	2.5	-	-	Y
6B	6X40	0	2-4-2	Y	6	Y	Y	-	-	-	-	Y
8A	6X20	+5	*	Y	8	Y	Y	-	-	-	-	*
9A	6X40	+5	2-4-2	Y	9	Y	Y	-	-	-	-	Y
10A	6X20	+5	*	Y	10	Y	Y	-	-	10	-	*

* Out Pavement Detection

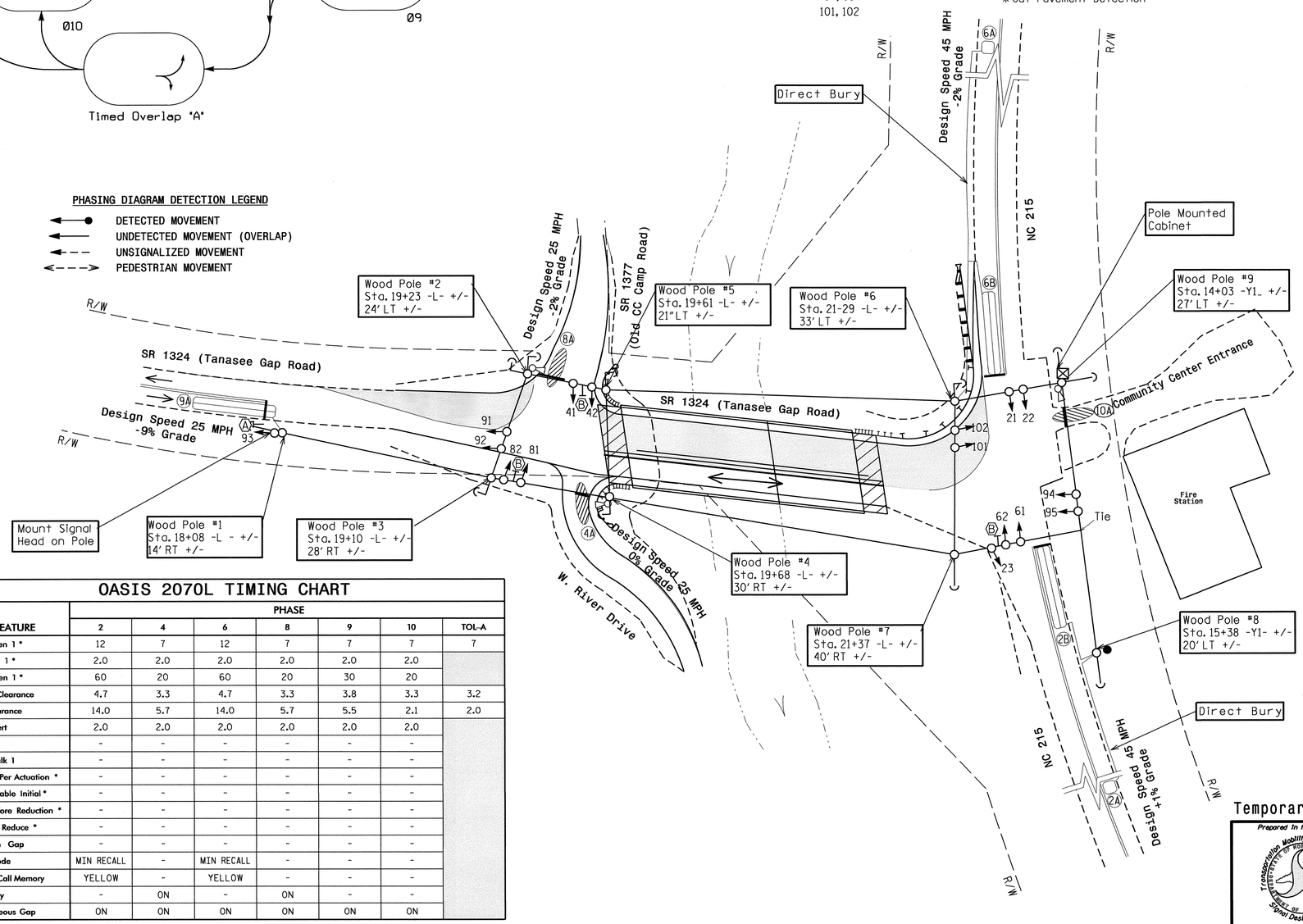
4 Phase
Fully Actuated
Isolated

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation.
3. Set all detector units to presence mode.
4. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.

PHASING DIAGRAM DETECTION LEGEND

- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT



OASIS 2070L TIMING CHART

FEATURE	PHASE 2	4	6	8	9	10	TOL-A
Min Green 1 *	12	7	12	7	7	7	7
Extension 1 *	2.0	2.0	2.0	2.0	2.0	2.0	
Max Green 1 *	60	20	60	20	30	20	
Yellow Clearance	4.7	3.3	4.7	3.3	3.8	3.3	3.2
Red Clearance	14.0	5.7	14.0	5.7	5.5	2.1	2.0
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	
Walk 1 *	-	-	-	-	-	-	
Don't Walk 1	-	-	-	-	-	-	
Seconds Per Actuation *	-	-	-	-	-	-	
Max Variable Initial *	-	-	-	-	-	-	
Time Before Reduction *	-	-	-	-	-	-	
Time To Reduce *	-	-	-	-	-	-	
Minimum Gap	-	-	-	-	-	-	
Recall Mode	MIN RECALL	-	MIN RECALL	-	-	-	
Vehicle Call Memory	YELLOW	-	YELLOW	-	-	-	
Dual Entry	-	ON	-	ON	-	-	
Simultaneous Gap	ON	ON	ON	ON	ON	ON	

* These values may be field adjusted. Do not adjust Min Green and Extension times for phases 2 and 6 lower than what is shown. Min Green for all other phases should not be lower than 4 seconds.

LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	2-in Underground Conduit	
N/A	Right of Way	
	Directional Arrow	
N/A	Guardrail	
	Construction Zone	
	Out of Pavement Detection Zone	
	Out of Pavement Detector	
A	"STOP HERE ON RED" Sign (R10-6)	A
B	"NO TURN ON RED" Sign (R10-11)	B

Temporary Signal Installation - TCP Phase II

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 215 at SR 1324 (Tanasee Gap Road) / SR 1377 (Old CC Camp Road) and W. River Road-Community Center

Division 14 Transylvania County Balsam Grove

PLAN DATE: June 2013	REVIEWED BY: T. Williams
PREPARED BY: M. Mahbooba	REVIEWED BY:

SCALE 0 30 1"=30'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 24393 ENGINEER TIMOTHY A. WILLIAMS

SIGNATURE 7/18/13. DATE

SIG. INVENTORY NO. 14-1273T

01-AUG-2013 13:02
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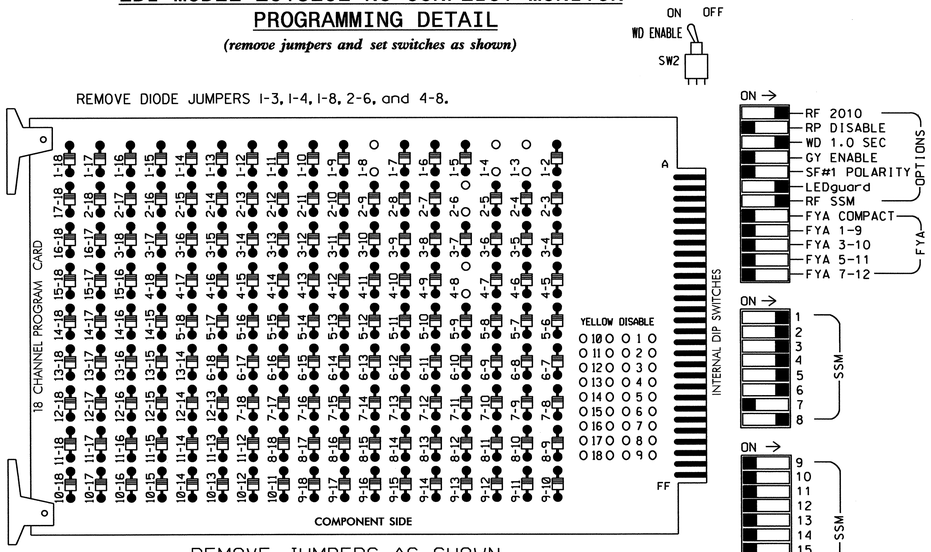
mmahbooba

PROJECT REFERENCE NO.	SHEET NO.
B-4289	Sig. 3

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



■ = DENOTES POSITION OF SWITCH

NOTES:

1. Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
2. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Program phases 4 and 8 for Dual Entry.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Start Up In Green.
5. Program phases 2 and 6 for Yellow Flash.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....336
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....POLE
OUTPUT FILE POSITIONS...12
LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S11
PHASES USED.....2,4,6,8,9,10
OVERLAP A.....NOT USED
OVERLAP B.....NOT USED
OVERLAP C.....NOT USED
OVERLAP D.....NOT USED
OVERLAP E.....4+8+9
OVERLAP F.....9
OVERLAP G.....10

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	OLE	2	2 PED	OLF	4	4 PED	OLG	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	94,95	21,22 23	NU	91,92 93	41,42	NU	101, 102	61,62	NU	NU	81,82	NU
RED	125	128		116	101		131	134			107	
YELLOW	126	129		117	102		132	135			108	
GREEN	127	130		118	103		133	136			109	
RED ARROW												
YELLOW ARROW												
GREEN ARROW												
✋												
🚶												

NU = Not Used

NOTE: Outputs for loadswitches S1, S4, and S7 have changed from overlap programming. See sheet 2 for details.

INPUT FILE POSITION LAYOUT

(front view)

FILE "I"	1	2	3	4	5	6	7	8	9	10	11	12	13	14
U	SLOT EMPTY	Ø2 2A	SLOT EMPTY	SLOT EMPTY *	SLOT EMPTY	Ø6 6A	Ø9 9A	SLOT EMPTY *	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
L		Ø2 2B				Ø6 6B	NOT USED							ST DC ISOLATOR

EX.: 1A, 2A, ETC. = LOOP NO.'S

FS = FLASH SENSE
ST = STOP TIME

* Microwave Detector Input - Do not populate slot with detector card.

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A	TB21-3,4	I2U	39	1	2	2	Y	Y		2.5	
2B	TB23-3,4	I2L	43	5	12	2	Y	Y			
*4A	TB21-7,8	I4U	41	3	4	4	Y	Y			
6A	TB21-11,12	I6U	40	2	6	6	Y	Y		2.5	
6B	TB23-11,12	I6L	44	6	16	6	Y	Y			
*8A	TB22-1,2	I8U	42	4	8	8	Y	Y			
9A	TB21-13,14	I7U	57	19	7	9	Y	Y			
*10A	TB24-1,2	I8L	46	8	18	10	Y	Y			10

* Microwave detector - see wiring detail on sheet 3.

INPUT FILE POSITION LEGEND: I2L
FILE I
SLOT 2
LOWER

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1273T
DESIGNED: June 2013
SEALED: 7/18/13
REVISED: N/A

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

PHASE SEQUENCE: PAGE 1 NEXT: PAGES)

RNG	LEAD	BARRIER 1			X-LAG	LEAD	BARRIER 2			X-LAG	LEAD	BARRIER 3			X-LAG	LEAD	BARRIER 3			X-LAG
1	0	2	0	0	0	4	0	0	0	9	0	0	0	0	10	0	0	0	0	0
2	0	6	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Temporary Signal - TCP Phase II - Sheet 1 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 215 at
SR 1324 (Tanasee Gap Rd)/
SR 1377 (Old CC Camp Rd) and
W. River Road-Community Center

Division 14 | Transylvania County | Balsam Grove

PLAN DATE: July 2013 | REVIEWED BY: JTR
PREPARED BY: S. Armstrong | REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared in the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR.

SIGNATURE | DATE: 7-18-13
SIG. INVENTORY NO. 14-1273T

18-JUL-2013 11:34
S:\TISSIGMTS\Signals\Workgroups\Sig Mgmt\armstrong\41273T_sm_ele_xxx.dgn
armstrong

PROJECT REFERENCE NO.	SHEET NO.
B-4289	Sig. 4

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS).

PRESS '+' FOUR TIMES

```
 PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS:|    X    XX
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........7
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.2
RED CLEAR (0=PARENT,0.1-25.5 SEC)...2.0
OUTPUT AS PHASE # (0=NONE, 1-16)....1
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'F' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS:|         X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....3
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'G' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS:|           X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....5
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 14-1273T
DESIGNED: June 2013
SEALED: 7/18/13
REVISED: N/A

Temporary Signal - TCP Phase II - Sheet 2 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 215 at
SR 1324 (Tanasee Gap Rd)/
SR 1377 (Old CC Camp Rd) and
W. River Road-Community Center

Division 14 Transylvania County Balsam Grove

PLAN DATE:	July 2013	REVIEWED BY:	JTR
PREPARED BY:	S. Armstrong	REVIEWED BY:	

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR

John T. Rowe, Jr. 7-18-13
SIGNATURE DATE

SIG. INVENTORY NO. 14-1273T

18-JUL-2013 11:34
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sarmstrong

PROJECT REFERENCE NO.	SHEET NO.
B-4289	Sig. 5

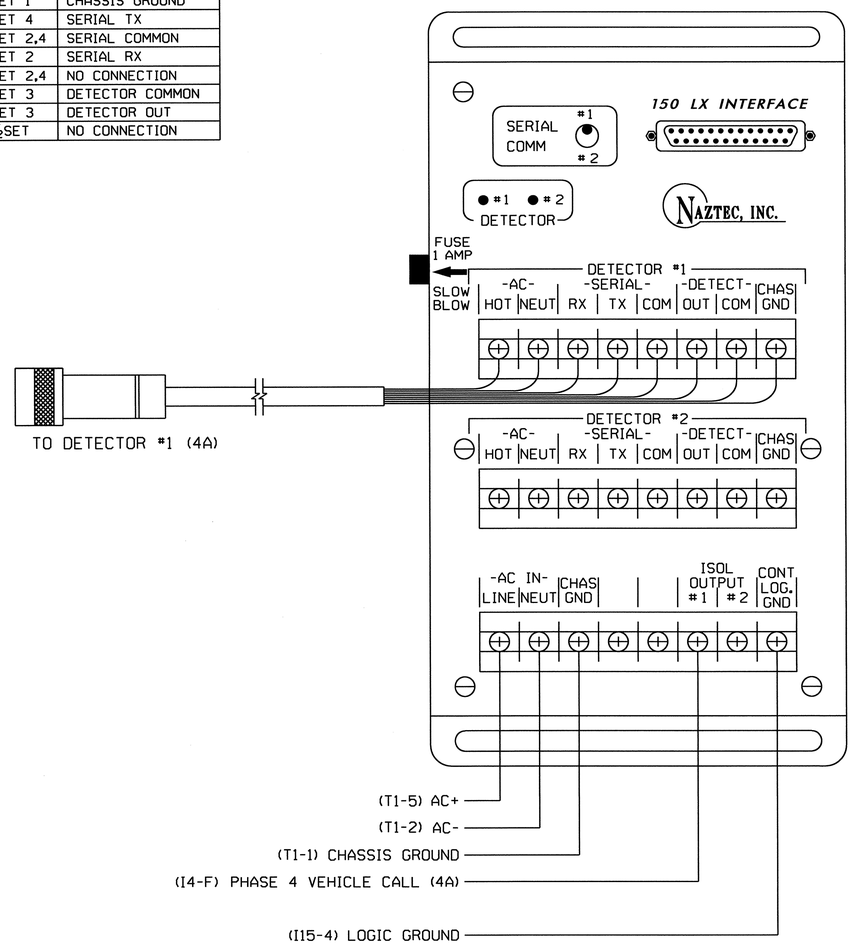
AACCUWAVE DETECTOR PANEL WIRING DETAIL

(wire as shown)

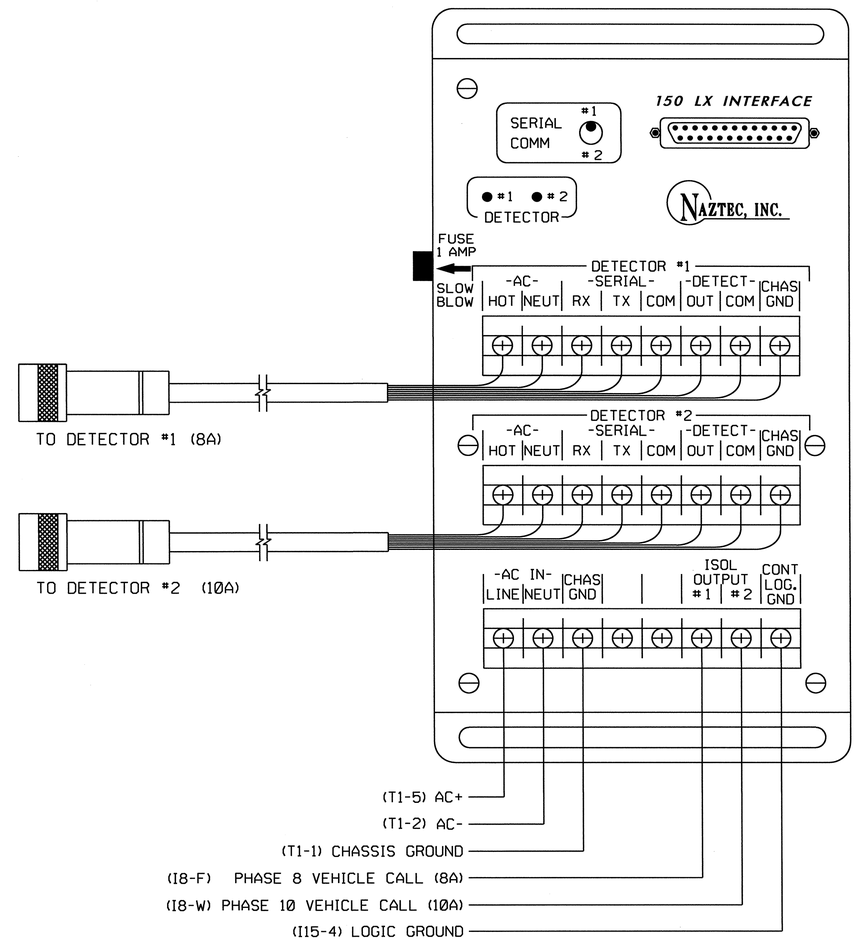
WIRE LIST FOR ACCUWAVE DETECTOR CABLE

COLOR	PIN#	SET #	PANEL CONNECTIONS
BLACK	A	SET 1	AC HOT
WHITE	B	SET 1	AC NEUTRAL
SILVER	C	SET 1	CHASSIS GROUND
BROWN	D	SET 4	SERIAL TX
BLACK	E	SET 2,4	SERIAL COMMON
RED	F	SET 2	SERIAL RX
SILVER	N.C.	SET 2,4	NO CONNECTION
BLUE	H	SET 3	DETECTOR COMMON
BLACK	L	SET 3	DETECTOR OUT
YELLOW	M	½SET	NO CONNECTION

UNIT #1 FOR LOOP 4A



UNIT #2 FOR LOOPS 8A & 10A



NOTES:

1. Detectors are Accuwave Model 150LX presence detectors.
2. Information in the detector cable wire list chart is for cable purchased from Naztec and may vary if purchased from another source.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-1273T
DESIGNED: June 2013
SEALED: 7/18/13
REVISED: N/A

Temporary Signal - TCP Phase II - Sheet 3 of 3

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In the Offices of:
Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 215 at
SR 1324 (Tanasee Gap Rd)/
SR 1377 (Old CC Camp Rd) and
W. River Road-Community Center

Division 14 Transylvania County Balsam Grove

PLAN DATE: July 2013	REVIEWED BY: JTR
PREPARED BY: S. Armstrong	REVIEWED BY:

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 008453 ENGINEER JOHN T. ROWE, JR.
SIGNATURE 7-18-13 DATE
SIG. INVENTORY NO. 14-1273T

18-JUL-2013 11:34
S:\TSGSU\ITS Signals\Workgroups\Sig Man\Armstrong\141273T_sm_ele_xxx.dgn
sarmstrong

See Sheet 1-A For Index of Sheets

09/08/99

TIP PROJECT: B-4289

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

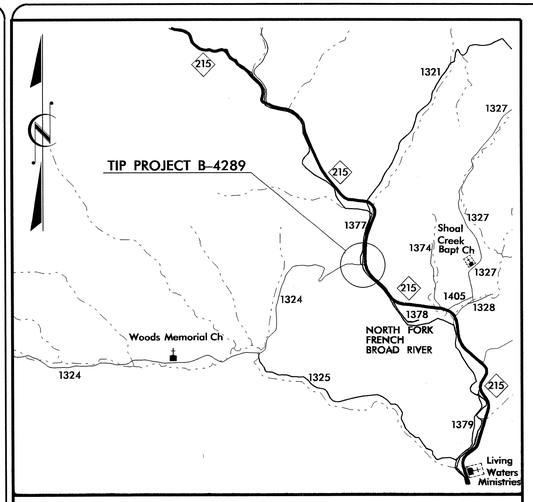
T.I.P. NO.	SHEET NO.
B-4289	UO-1

UTILITIES BY OTHERS PLANS
TRANSYLVANIA COUNTY

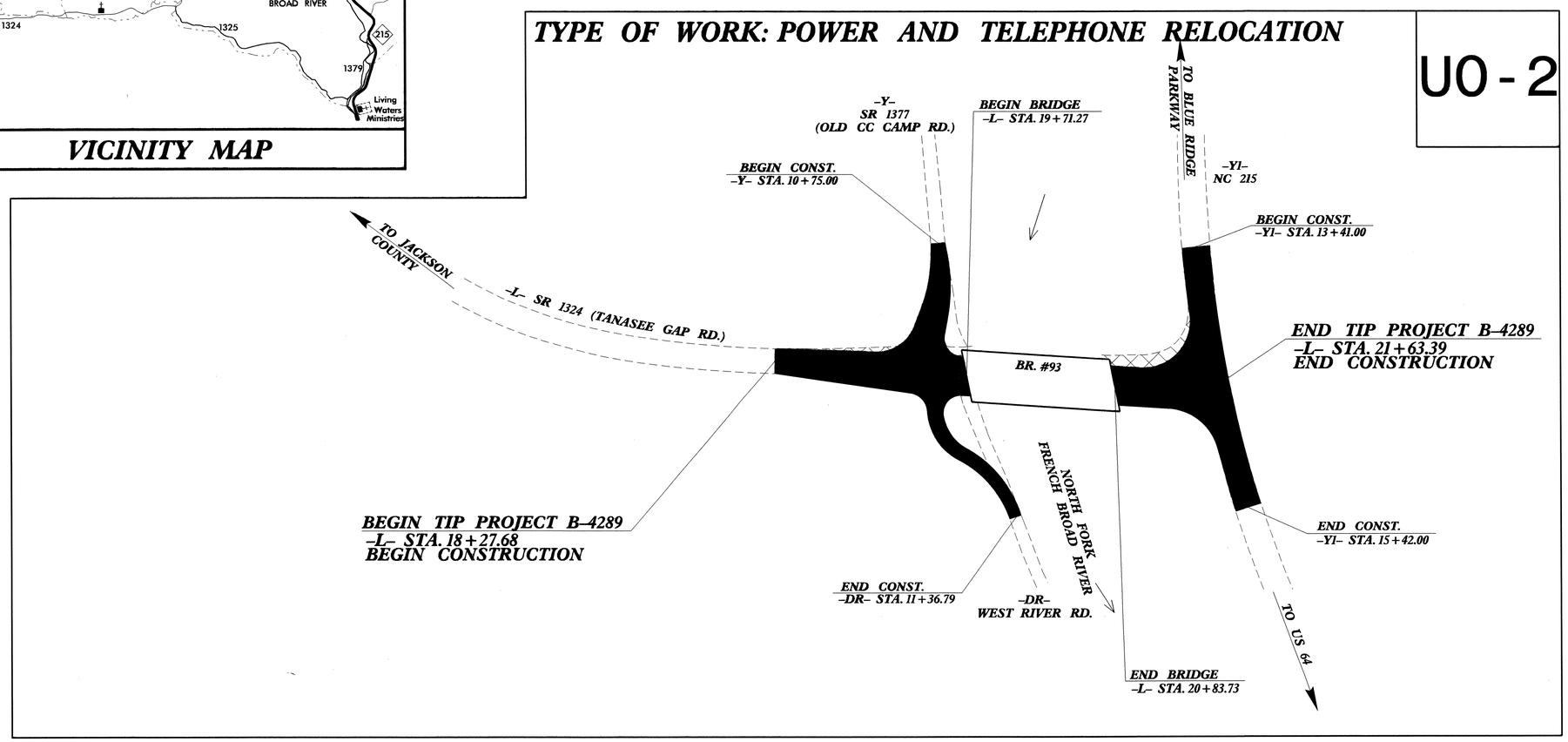
LOCATION: BRIDGE NO. 93 OVER NORTH FORK FRENCH BROAD RIVER ON SR 1324 (TANASEE GAP RD.)

TYPE OF WORK: POWER AND TELEPHONE RELOCATION

UO - 2



VICINITY MAP



NAD 83/
NSRS 2007

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
UO-1	TITLE SHEET
UO-2	UTILITY BY OTHERS PLAN SHEETS

UTILITY OWNERS ON PROJECT

(A) POWER	HAYWOOD EMC
(B) TELEPHONE	COMPORIUM

PREPARED IN THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES UNIT
UTILITIES ENGINEERING
1555 MAIL SERVICES CENTER
RALEIGH NC 27699-1555
PHONE (919) 707-6690
FAX (919) 250-4151

Roger Worthington, P.E.	UTILITIES SECTION ENGINEER
Carl Barclay, P.E.	UTILITIES SQUAD LEADER PROJECT ENGINEER
Ali Koucheki, PE	UTILITIES PROJECT DESIGNER

01-AUG-2013 10:04
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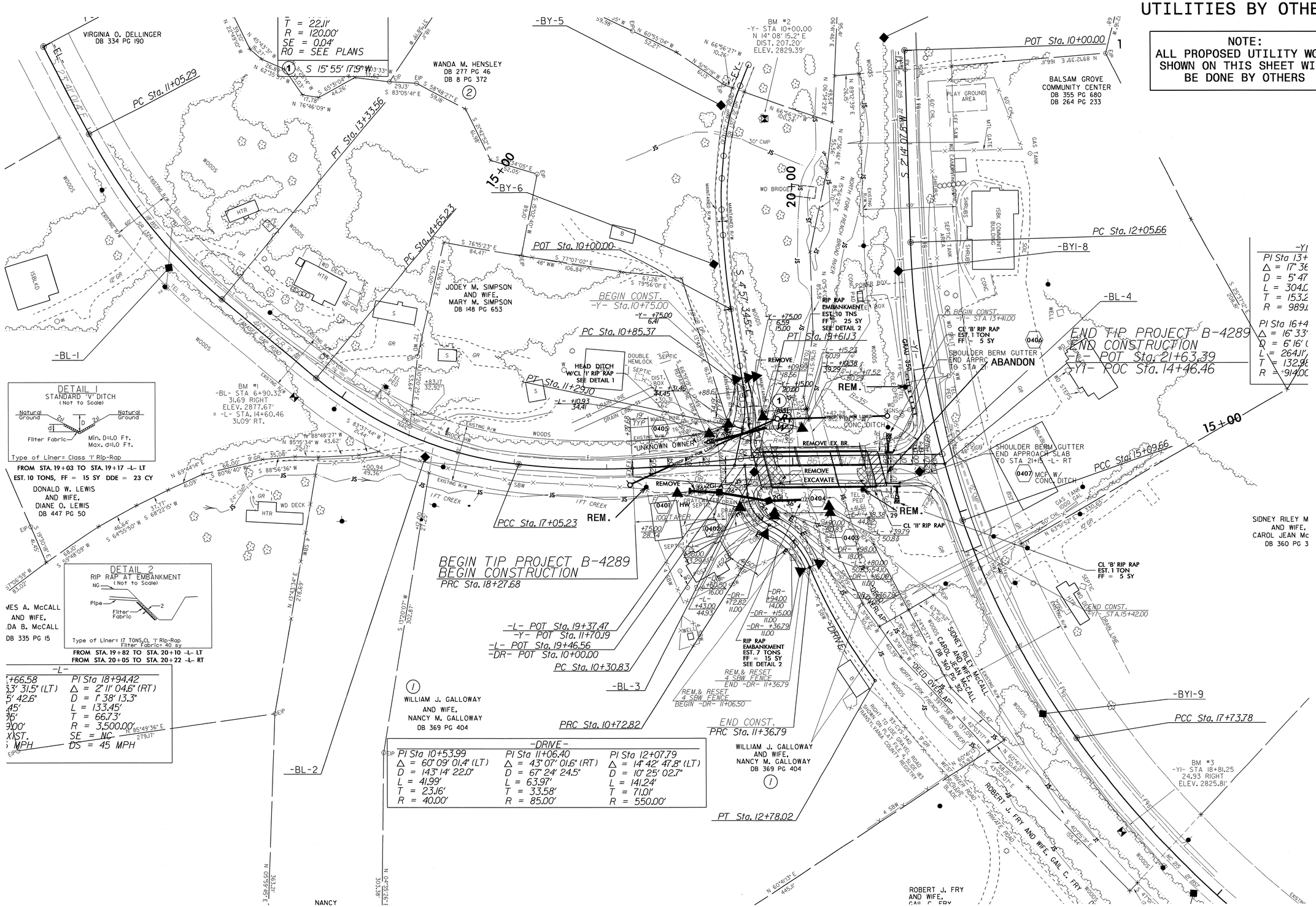
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4289	U0-2

UTILITIES BY OTHERS

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



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PROJ. REFERENCE NO.	SHEET NO.
B-4289	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L RT	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
18+27.68	0	0
18+50.00	0	4
19+00.00	5	10
19+50.00	6	8
19+71.27	1	6

Station Drive	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+20.07	0	0
10+30.83	21	0
10+50.00	72	0
10+72.82	84	0
11+00.00	58	0
11+36.79	21	0

Station Y1 RT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+09.66	1	1
15+25.20	0	0

Station L RT	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+83.73	0	0
21+00.00	0	11
21+50.00	3	18
21+52.12	0	0

Station L LT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
18+27.68	0	0
18+50.00	0	2
19+00.00	2	10
19+50.00	2	5
19+72.50	3	0
19+76.93	1	0

Station L LT	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
18+27.68	0	0
18+50.00	0	1
19+00.00	0	3
19+50.00	0	3
19+71.27	0	2

Station L RT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
19+56.00	0	0
19+72.50	2	0
19+82.34	2	0

Station L LT	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+83.73	0	0
21+00.00	10	1
21+50.00	15	2
21+52.12	0	0

Station L RT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
20+78.17	0	0
20+85.00	1	1
21+00.00	1	1
21+36.00	1	0

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+75.00	0	0
10+85.37	2	0
11+00.00	2	1
11+29.10	1	13
11+50.00	2	12
11+59.94	2	2

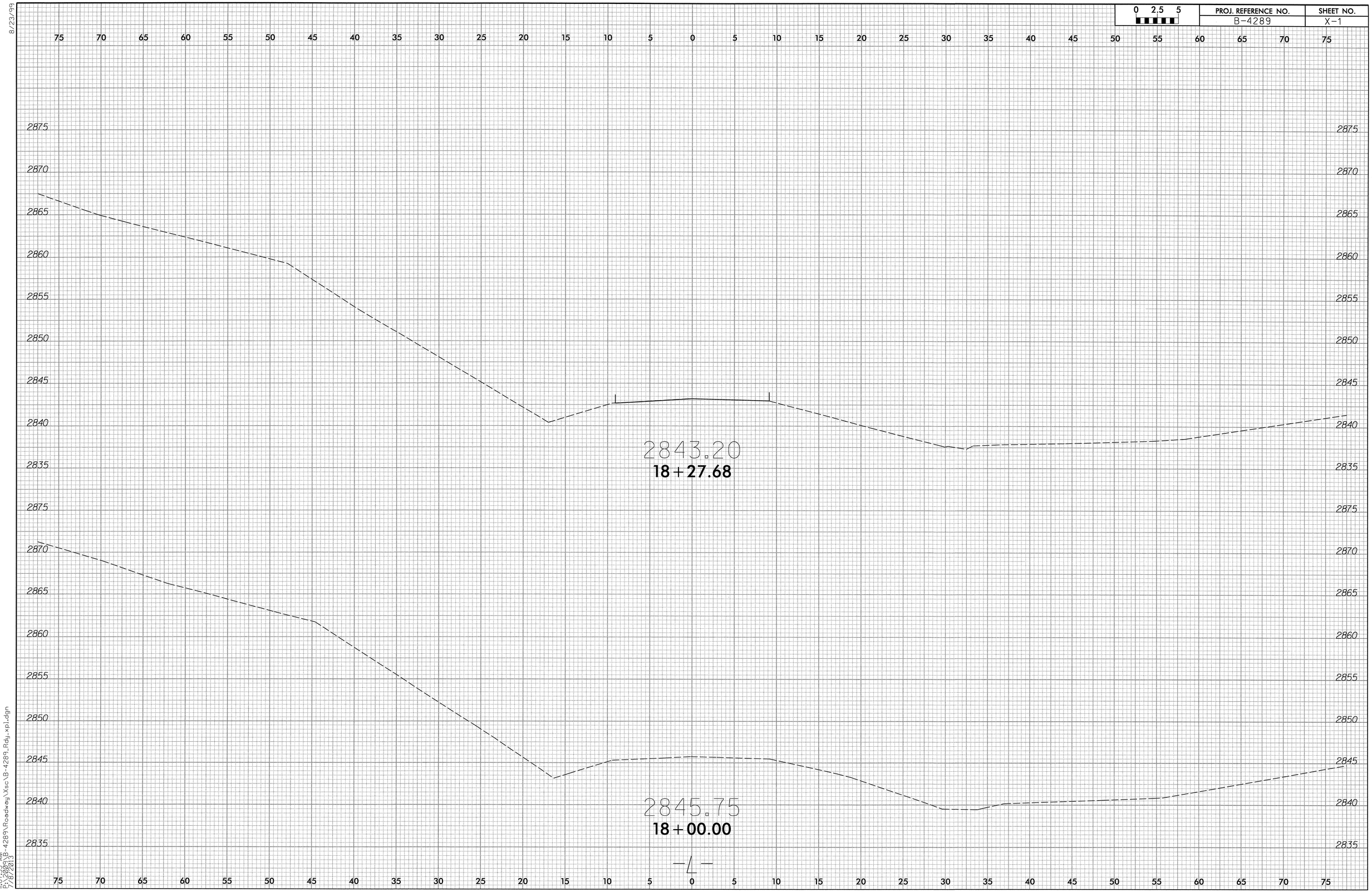
Station L RT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
21+00.90	0	0
21+50.00	0	3
21+52.12	0	0

Station Y1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+41.00	0	0
13+50.00	0	1
13+90.00	2	3
14+00.00	1	1
14+33.26	2	2

Station Y1 LT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+90.00	0	0
14+00.00	9	0
14+20.00	21	0
14+25.00	6	0
14+50.32	27	0

Station Y1 RT TEMP	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
14+67.26	0	0
15+00.00	1	2

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



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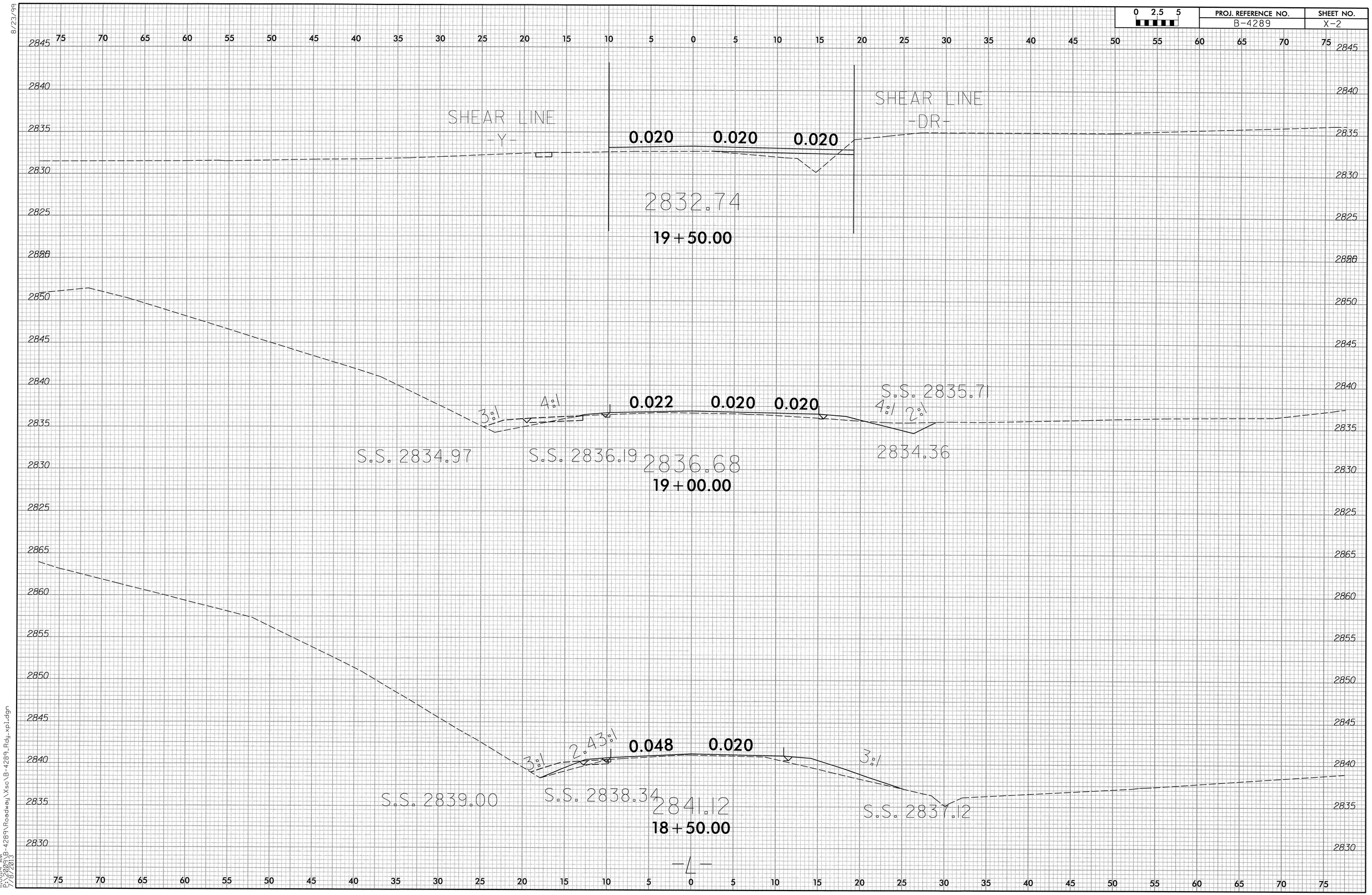

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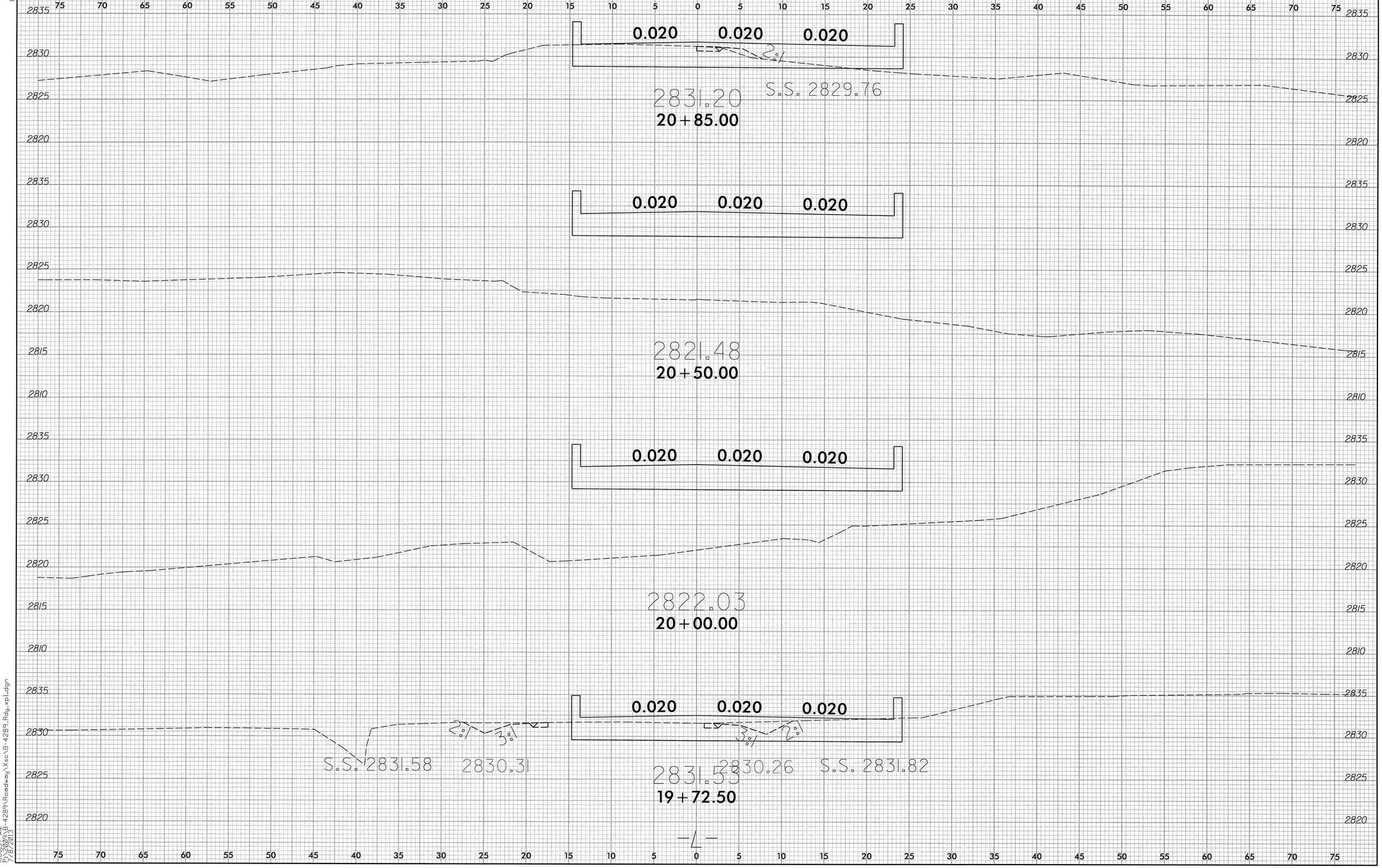

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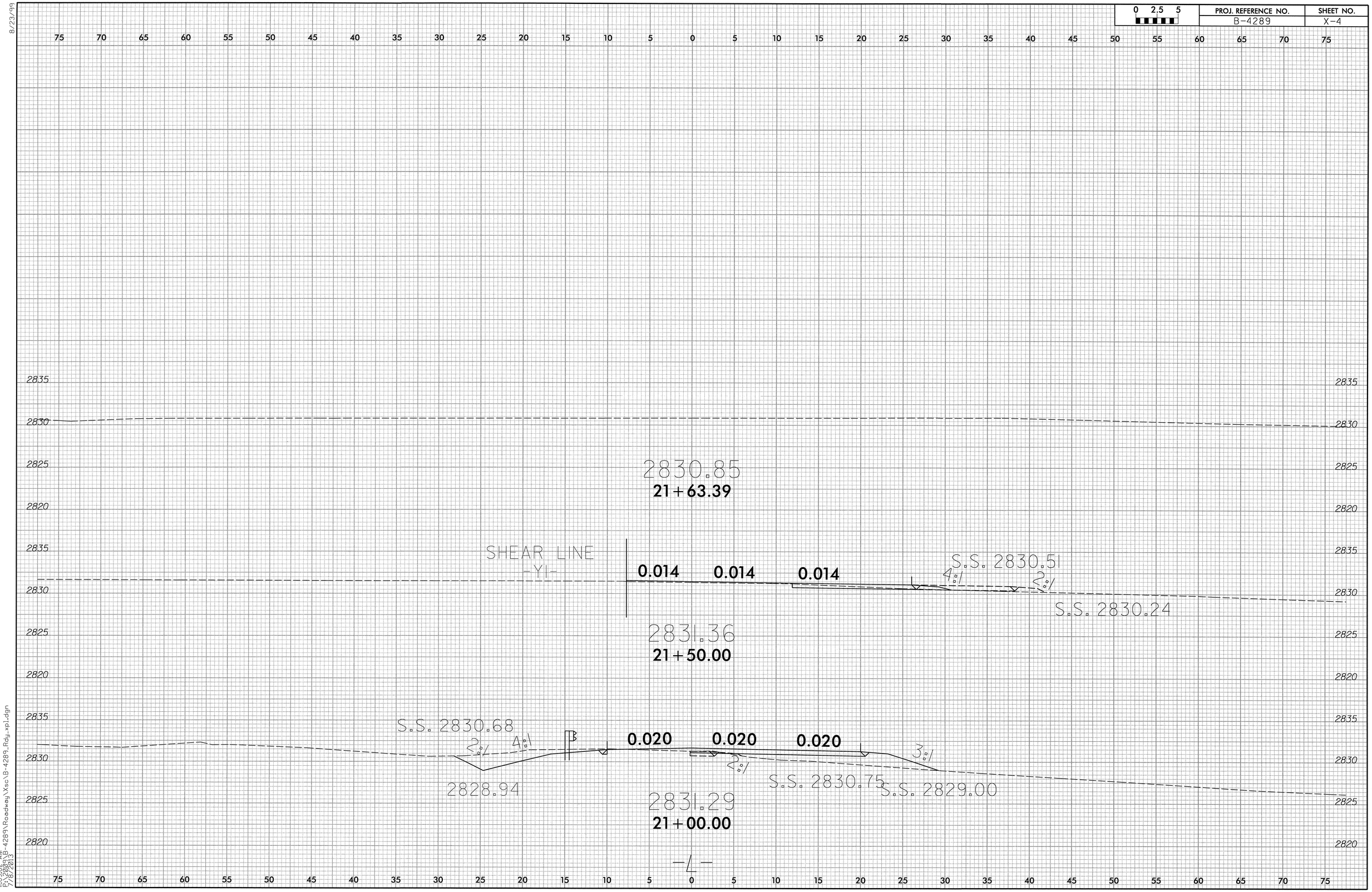

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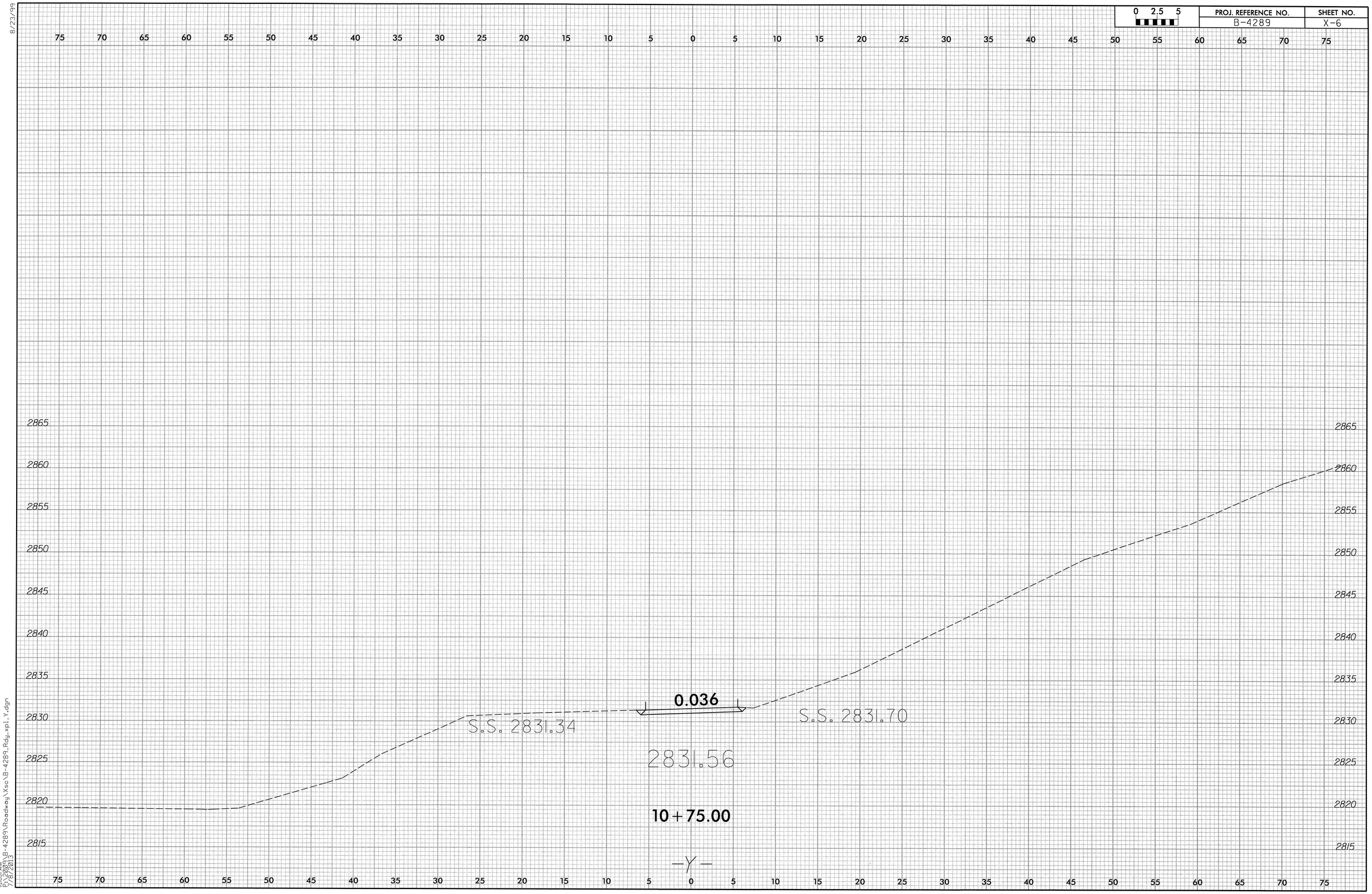

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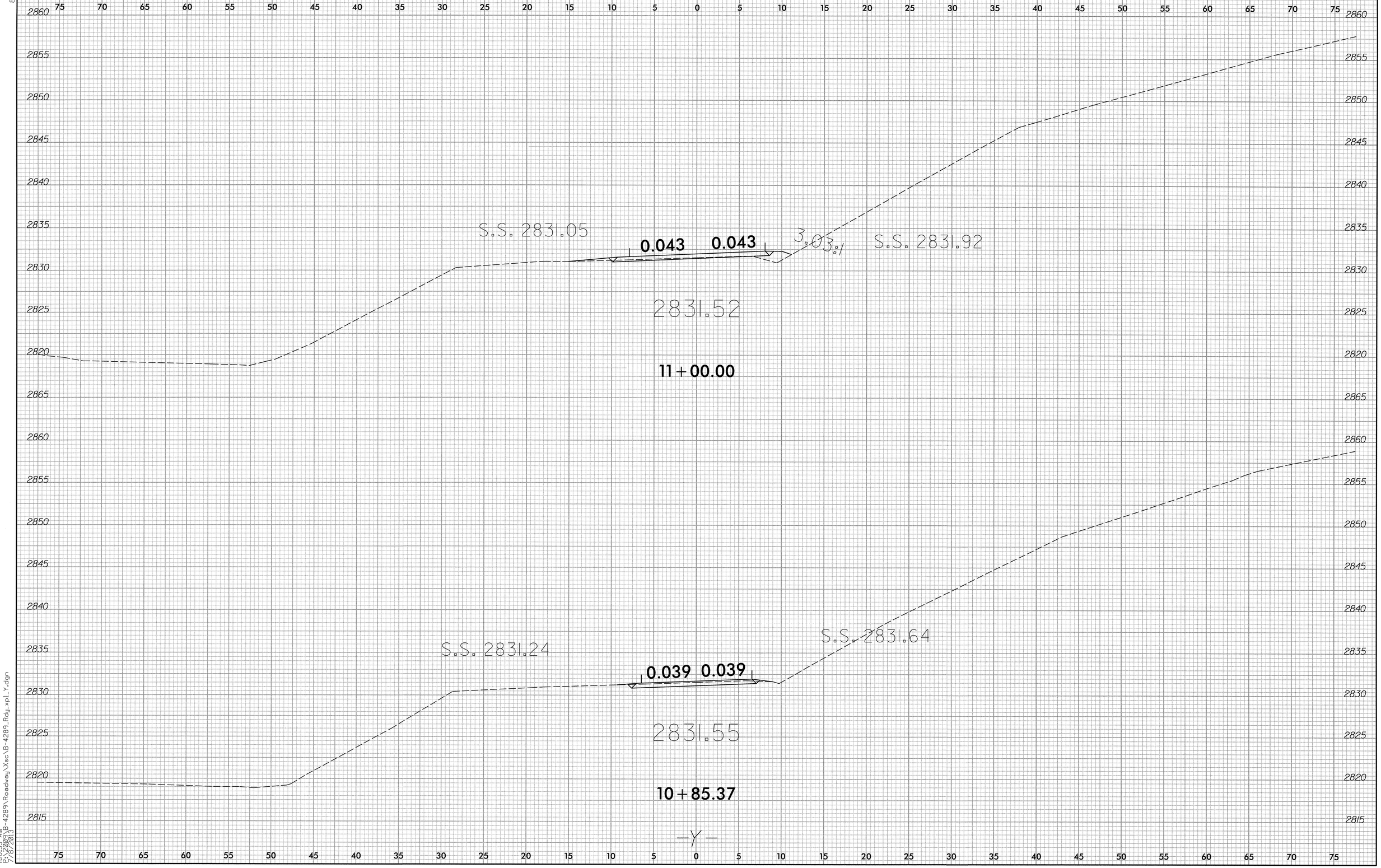

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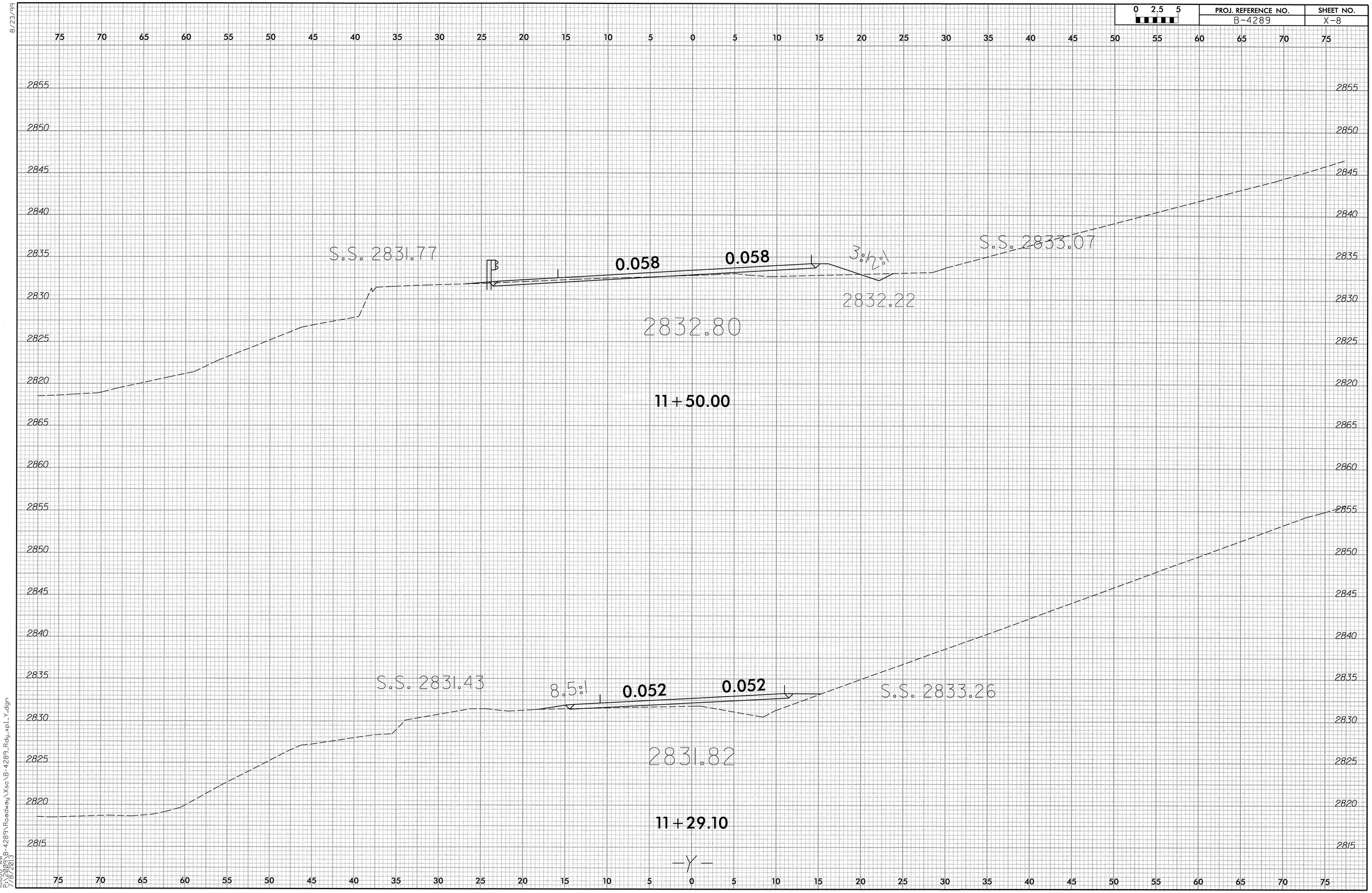

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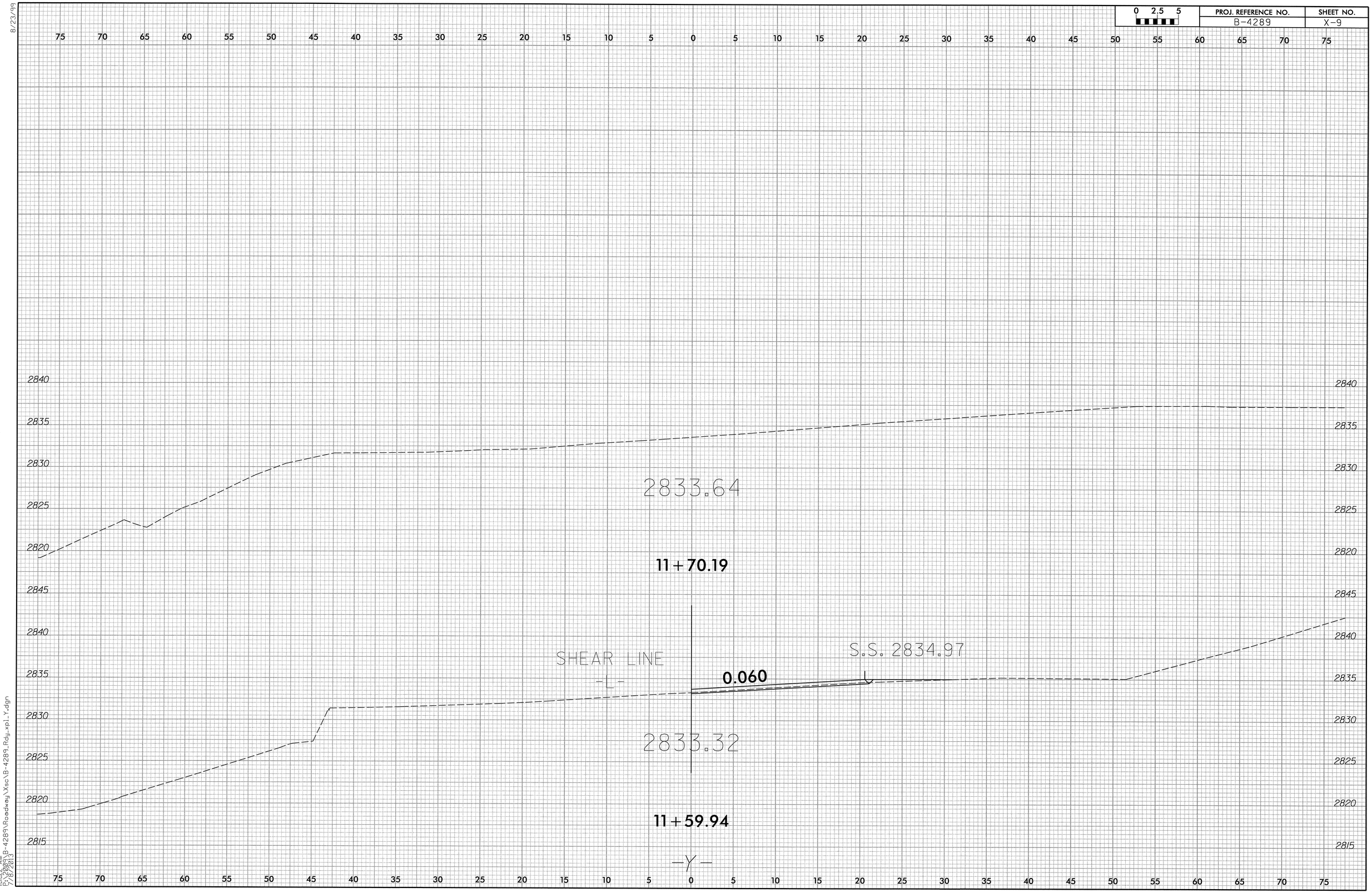

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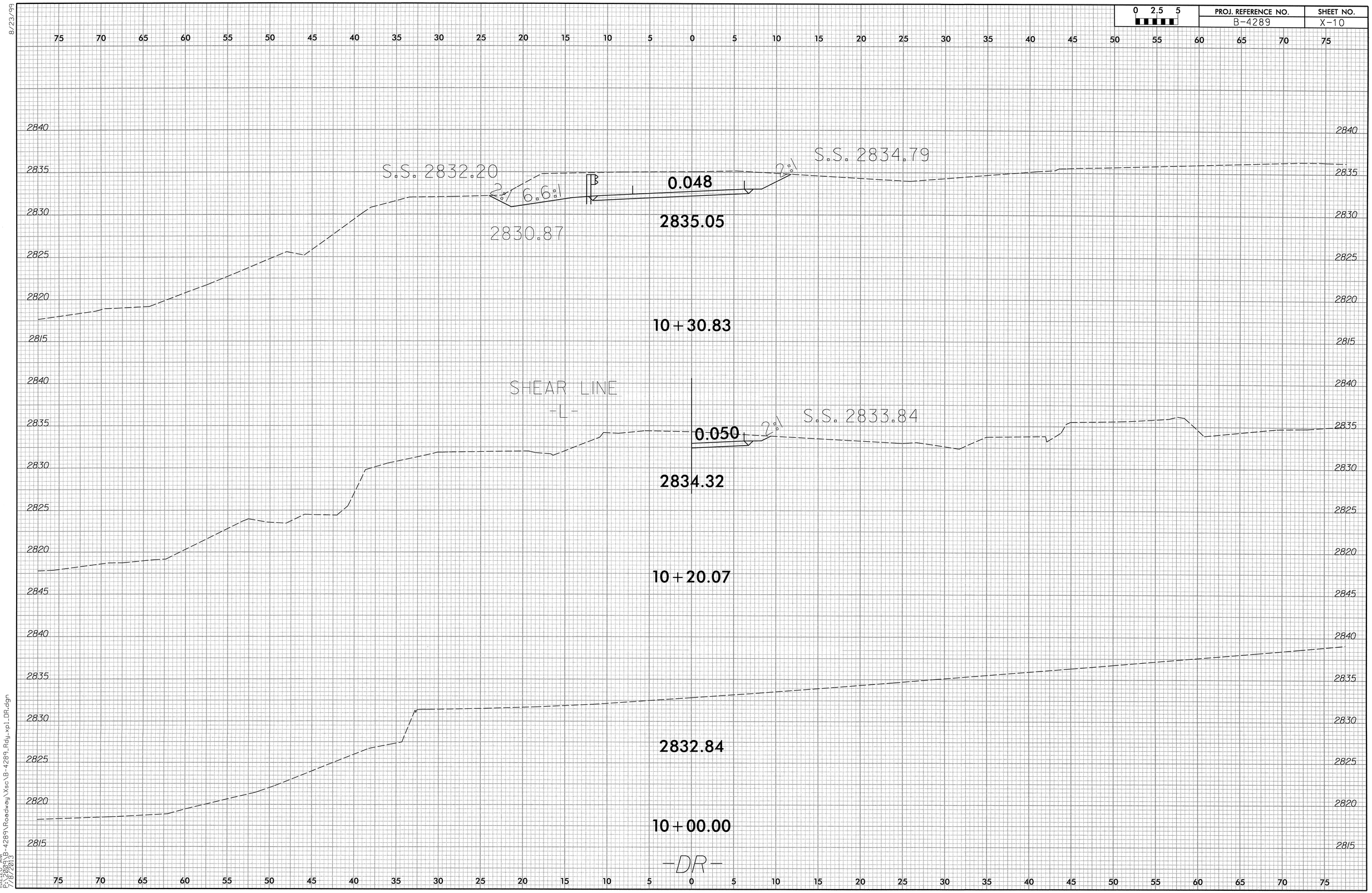

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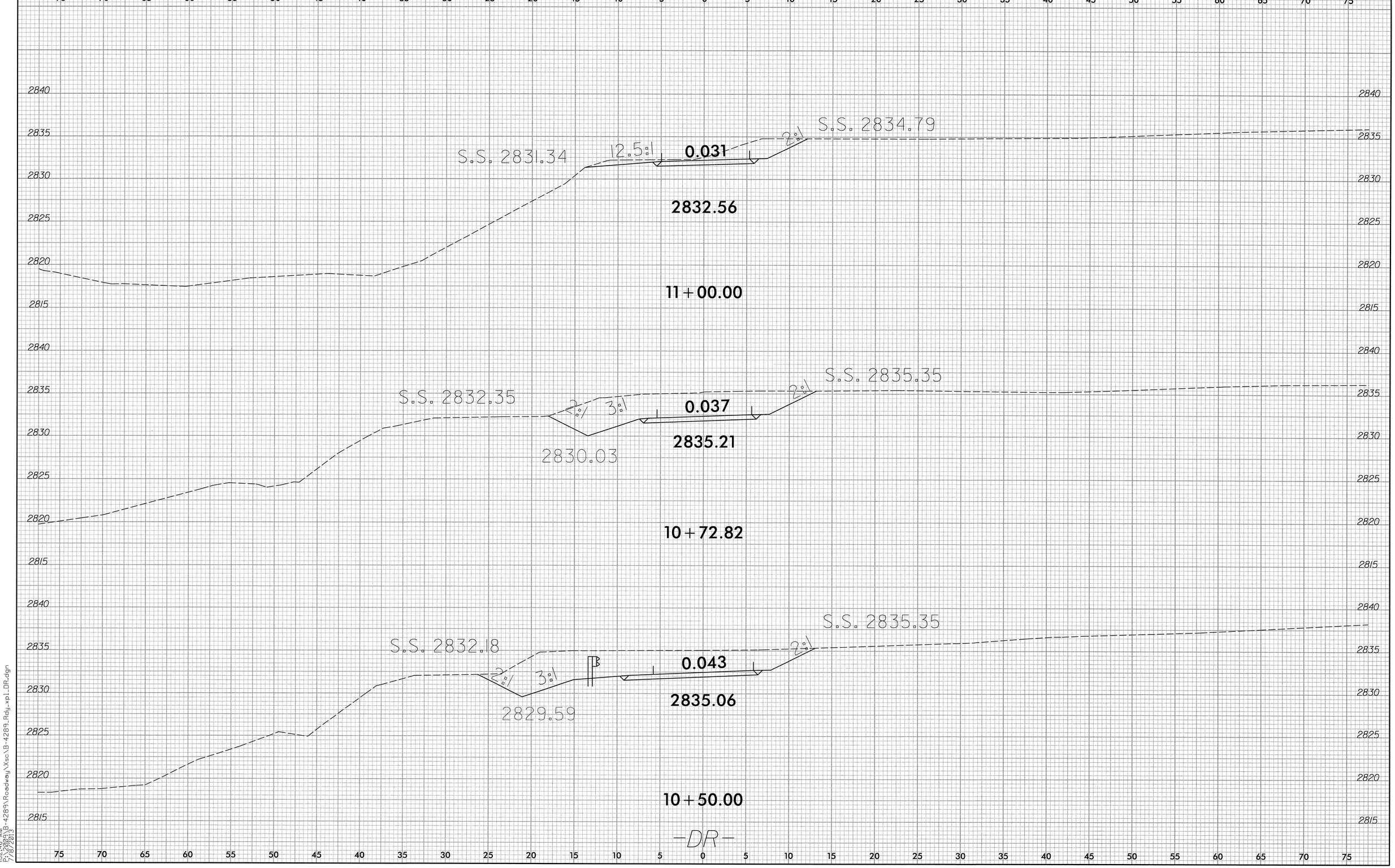

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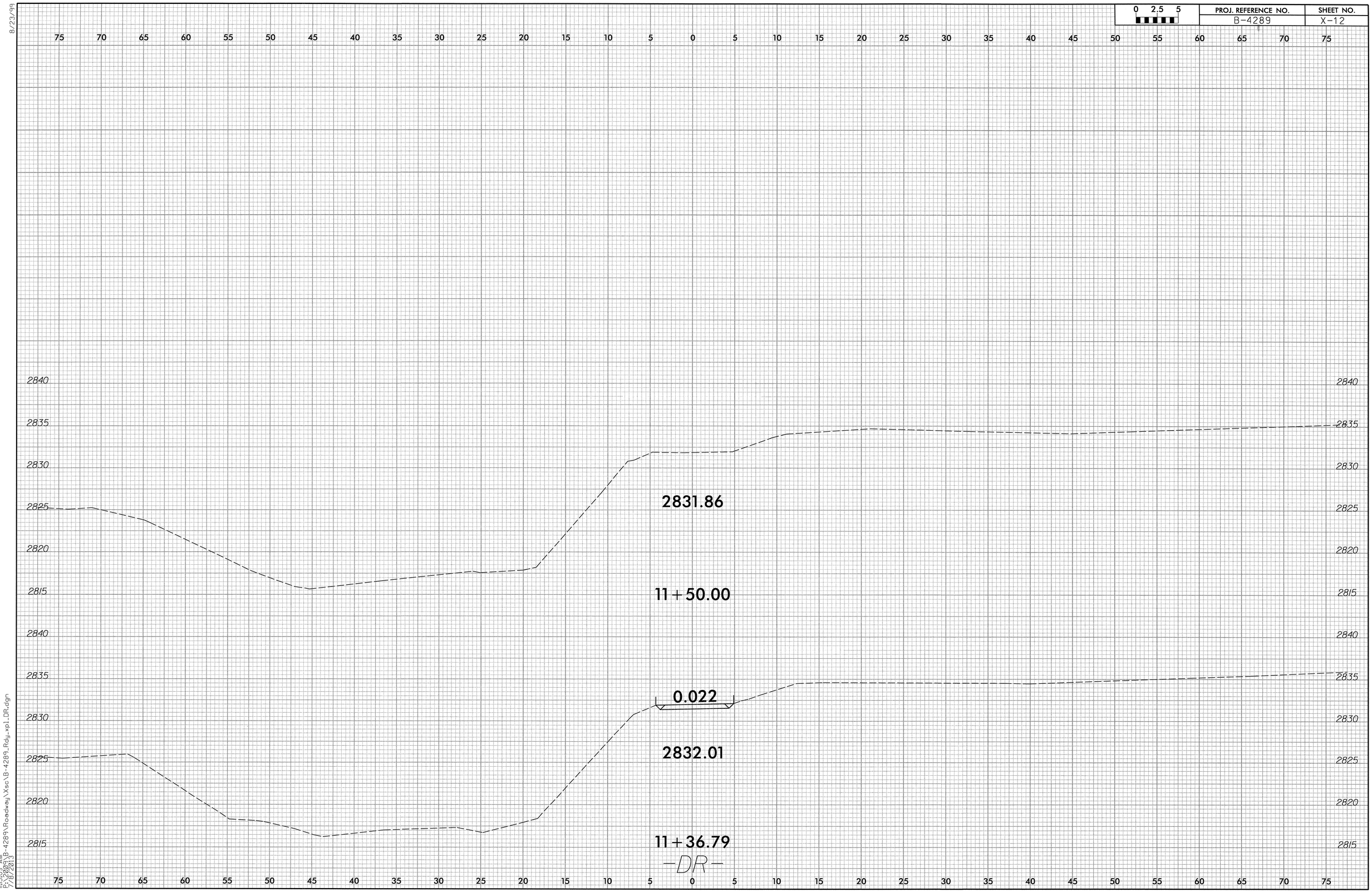

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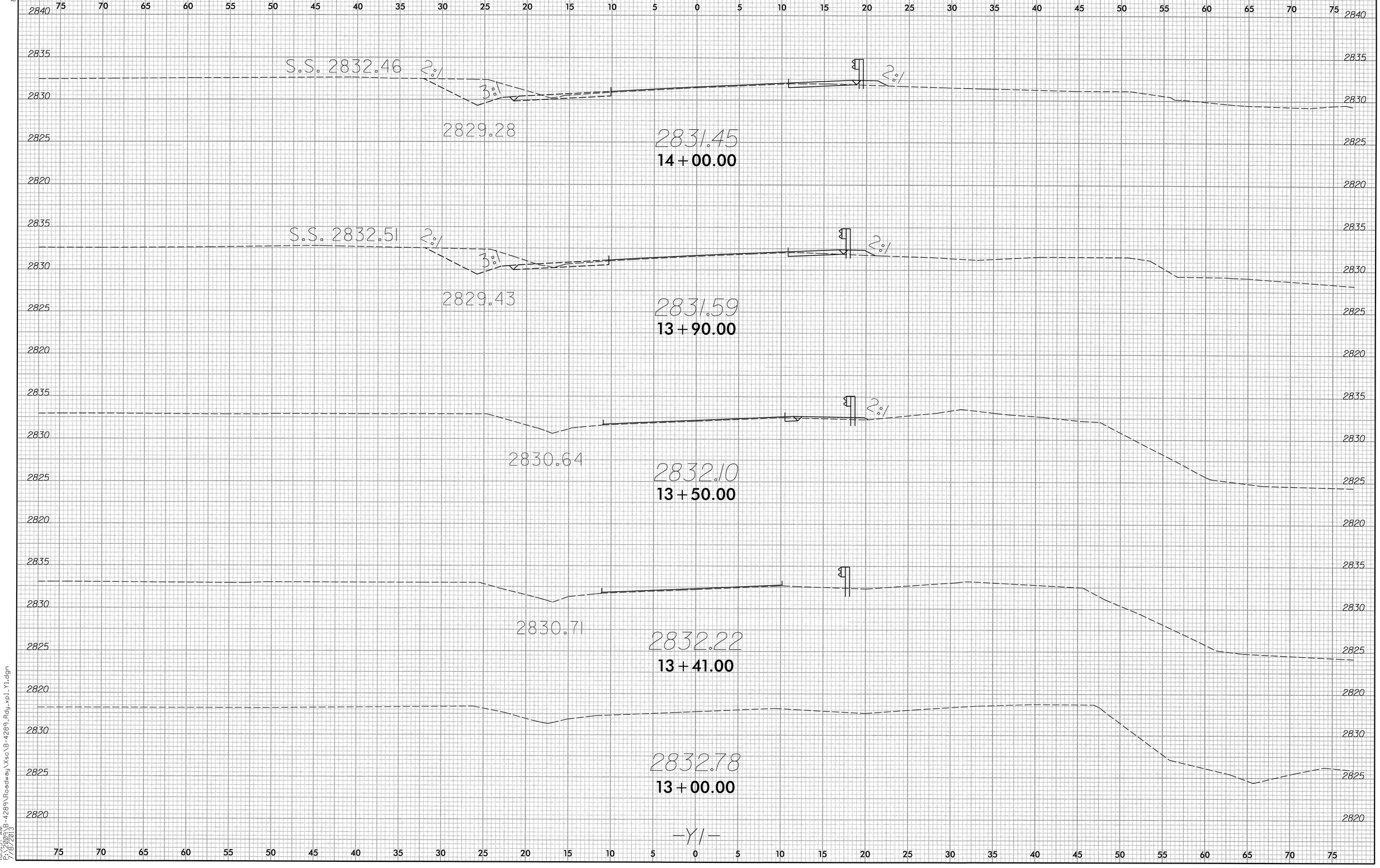

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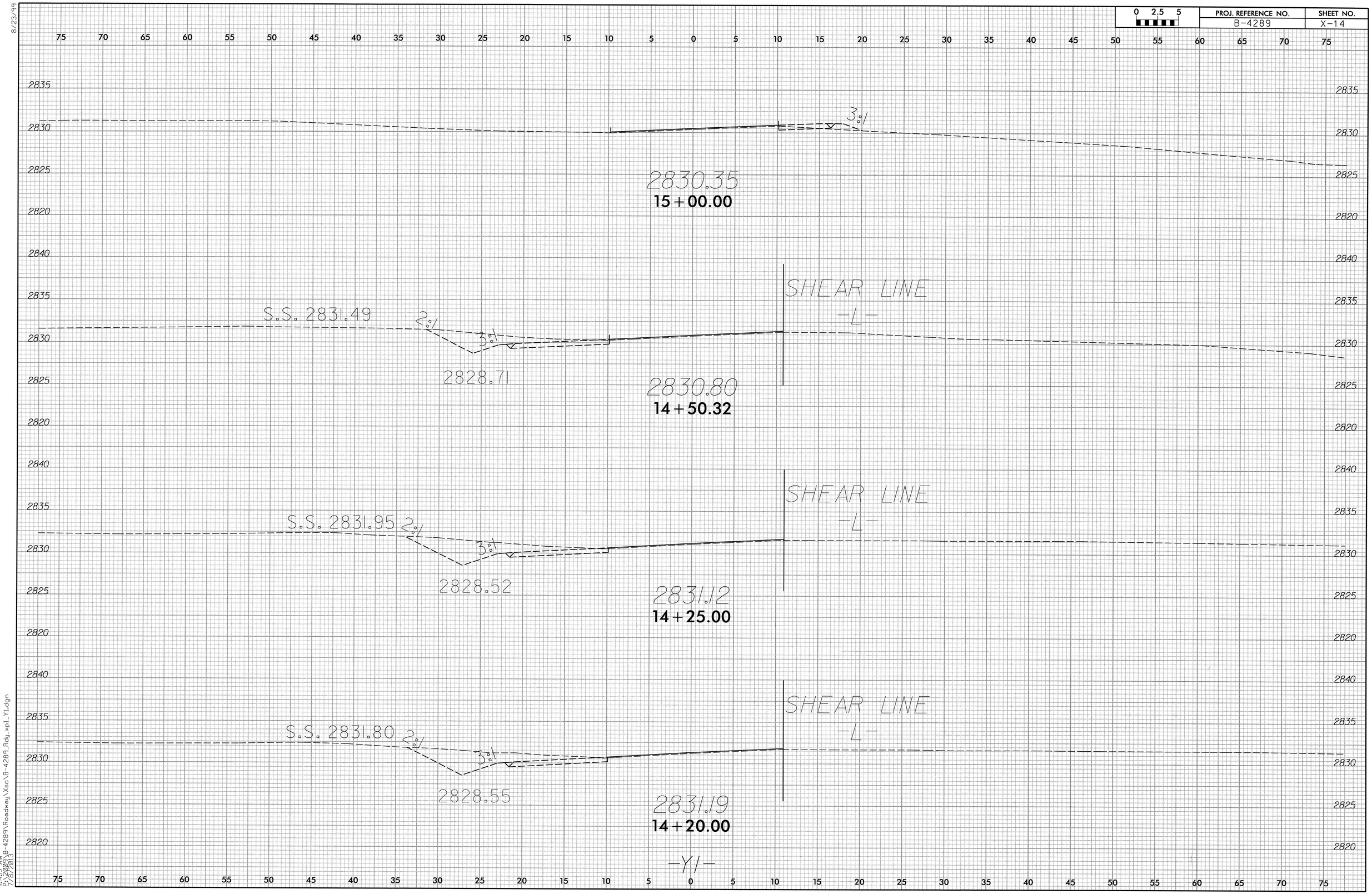

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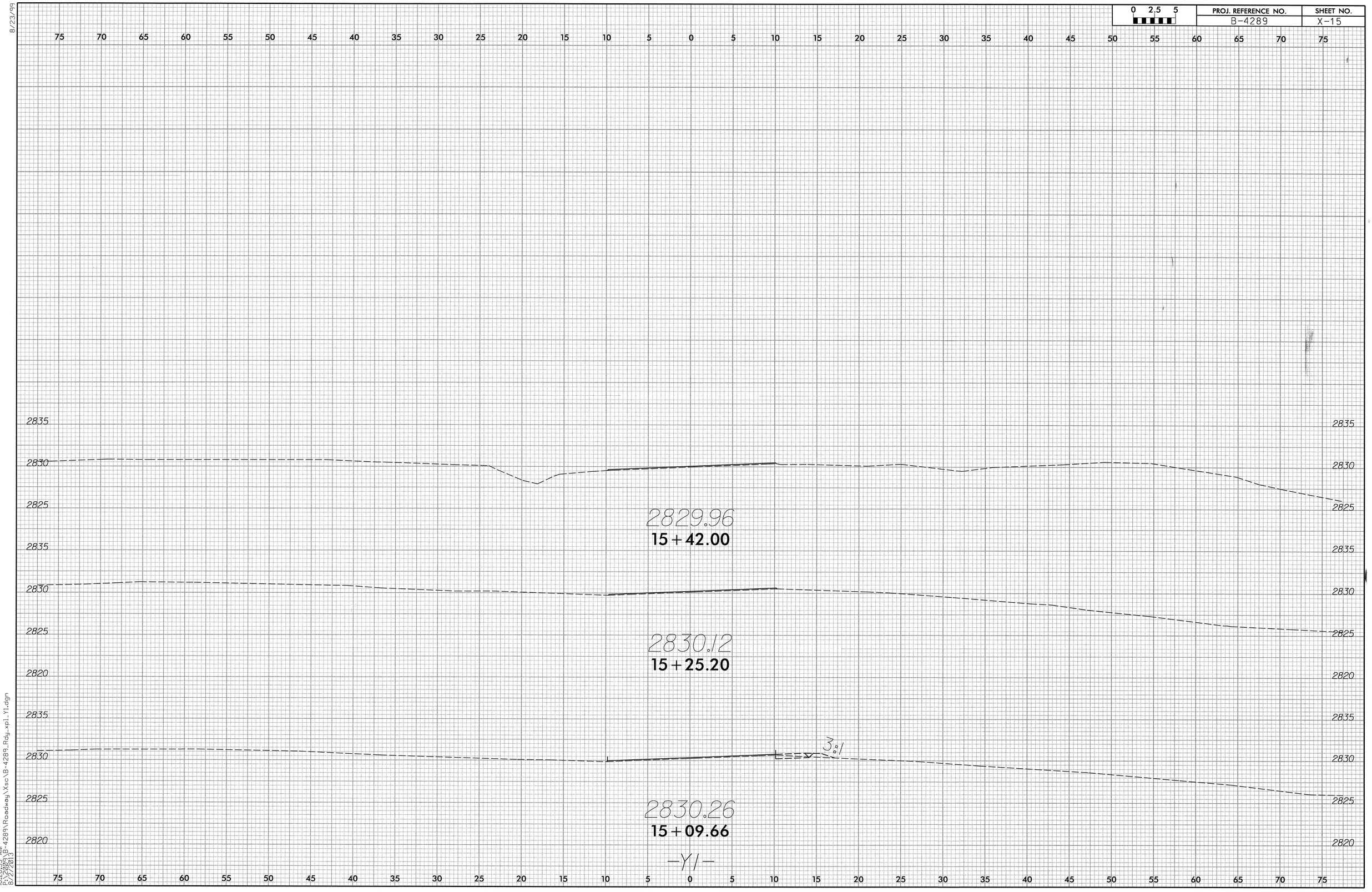

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