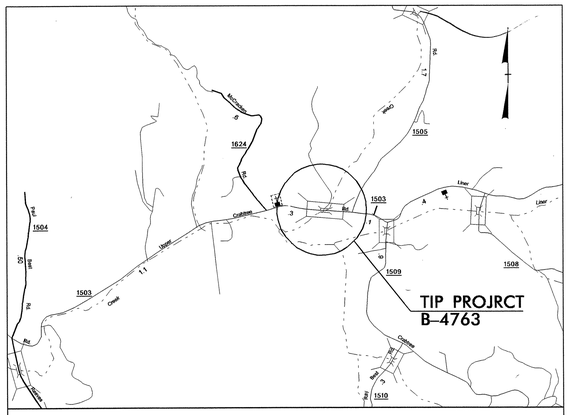
09/08/99

TIP PROJECT: B-4763

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HAYWOOD COUNTY

LOCATION: BRIDGE NO. 35 OVER BALD CREEK ON SR 1503 (UPPER CRABTREE CREEK RD)

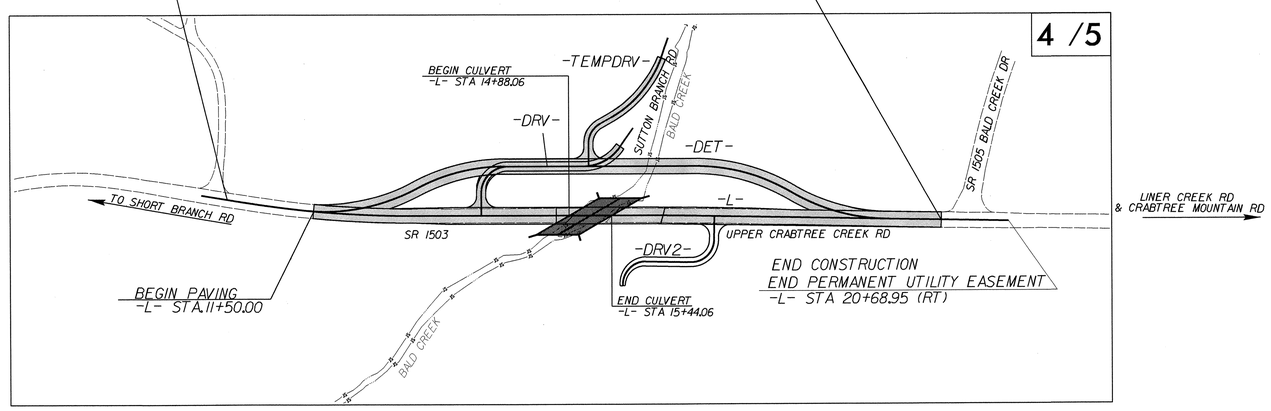
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4763	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
38535.1.1	BRZ-1503(8)	PE
38535.2.1	BRZ-1503(8)	R/W, UTIL
38535.3.FD1	BRZ-1503(8)	CONST.

END TIP PROJECT B-4763
-L- STA. 19+80.00

BEGIN TIP PROJECT B-4763
-L- STA. 10+35.00



NAD 83/
NSRS 2007

CONTRACT: C203365

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 = 1360
ADT 2035 = 2200
DHV = 9 %
D = 70 %
T = 8 % *

* TTST = 1% DUAL 7%
FUNC CLASS =
RURAL, MINOR COLLECTOR
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4763 = 0.168 MILES
LENGTH STRUCTURE TIP PROJECT B-4763 = 0.011 MILES
TOTAL LENGTH TIP PROJECT B-4763 = 0.179 MILES

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MARCH 25, 2013

LETTING DATE:
MARCH 18, 2014

JAMES A. SPEER, PE
PROJECT ENGINEER

ALLISON K. WHITE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022000 ENGINEER W. GALEN CAIL
SIGNATURE: W. Galen Cail 12/31/13 P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 14371 ENGINEER JAMES A. SPEER
SIGNATURE: 12/17/2013 P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14507 ENGINEER JAMES A. SPEER

12/17/2013

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

B-4763

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1-B	CONVENTIONAL SYMBOLS
1-C	SURVEY CONTROL SHEET
2 THRU 2A	PAVEMENT SCHEDULE, TYPICAL SECTION, WEDGING DETAIL
3-A THRU 3-B	SUMMARY OF DRAINAGE QUANTITIES, SUMMARY OF GUARDRAIL, EARTHWORK SUMMARY, PAVEMENT REMOVAL AND SUMMARY OF SUBSURFACE DRAINAGE
4 THRU 5	PLAN SHEET
6	PROFILE SHEET
TMP-1 THRU TMP-06	TRANSPORTATION MANAGEMENT PLANS
PMP-1	PAVEMENT MARKING PLANS
EC-1 THRU EC-9	EROSION CONTROL PLANS
RF-1	REFORESTATION
UO-1 THRU UO-2	UTILITY BY OTHERS PLANS
X-1A	CROSS SECTION VOLUME SHEET
X-1 THRU X-14	PROPOSED CROSS SECTIONS
C-1 THRU C- 7	CULVERT PLANS

GENERAL NOTES:

2012 SPECIFICATIONS
EFFECTIVE: 01-17-12
REVISED: 07/30/12

GRADE LINE:
GRADING AND SURFACING:

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

CLEARING:

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

SUPERELEVATION:

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

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE (1) AT&T OF NC (TELEPHONE)

(2) HAYWOOD EMC (POWER DISTRIBUTION)

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.

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
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
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
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	1B

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 — HH
- 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 — HH
- 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.

PROJECT REFERENCE NO.	SHEET NO.
B-4763	1C
Location and Surveys	

SURVEY CONTROL SHEET B-4763
-FINAL-

-FINAL- PUE MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	11+51.00	-12.00	697881.9391	839959.5731
L	11+51.00	-90.00	697959.0273	839971.4646
L	11+71.00	-87.00	697953.3447	839989.5284
L	11+61.00	-32.00	697900.2522	839972.2780
L	12+42.98	-17.00	697876.0809	840050.4991
L	15+60.00	-215.00	698054.1523	840378.4705
L	16+00.00	-230.00	698066.6357	840420.0646
L	17+12.00	-36.42	697864.9991	840519.9670
L	20+68.95	12.00	697788.3563	840871.9347
L	20+68.95	44.00	697756.4573	840869.3942
L	18+32.00	48.00	697771.3067	840632.8761
L	15+05.00	62.00	697780.9869	840306.8141
L	14+18.00	69.00	697779.2628	840219.5499
L	14+13.00	120.00	697728.6587	840211.4738
L	13+93.00	118.00	697731.8649	840191.6315
L	13+97.00	69.00	697780.5332	840198.5884
L	11+81.00	12.00	697853.9361	839985.8739

-FINAL- PDE MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	15+40.00	-40.00	697880.6828	840347.9205
L	15+40.00	-65.00	697905.6370	840349.4328
L	16+47.88	-64.83	697898.4055	840458.0629

-FINAL- DUE MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+25.00	69.00	697784.8888	840126.7203
L	15+05.00	69.00	697773.9997	840306.3906
L	15+05.00	40.00	697802.9466	840308.1450

-FINAL- ROW MARKER IRON PIN AND CAP-E

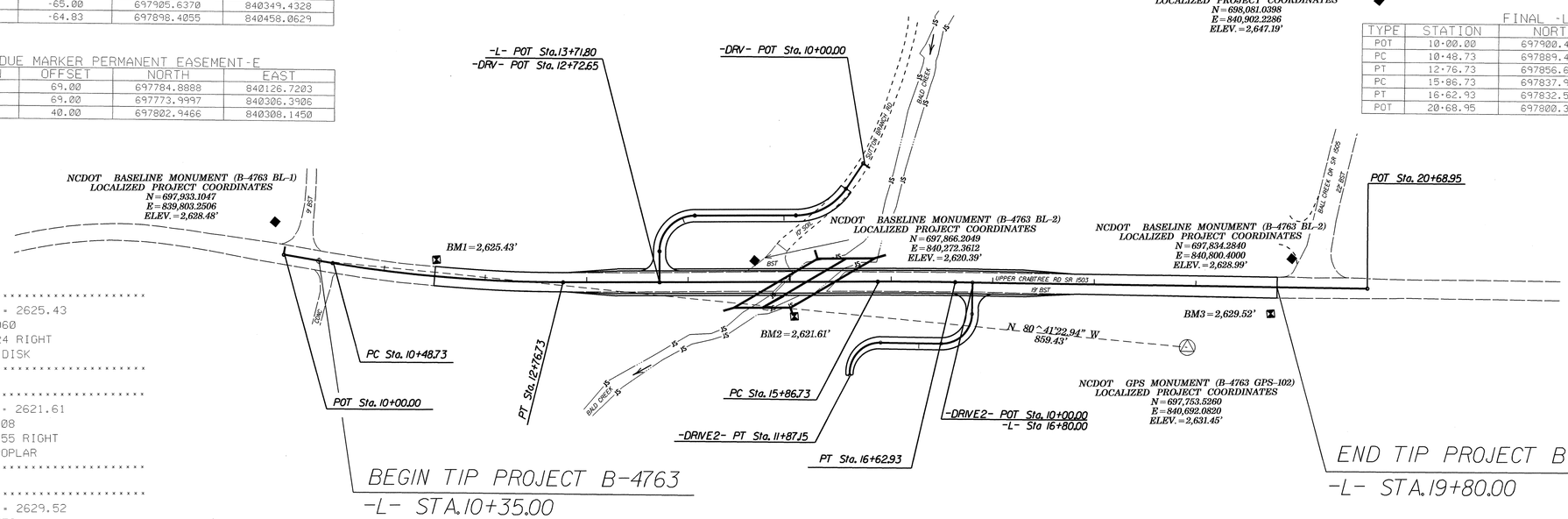
ALIGN	STATION	OFFSET	NORTH	EAST
L	12+30.00	-12.00	697872.2569	840037.2636
L	13+35.00	-50.00	697903.0659	840143.9009
L	14+92.00	-50.00	697893.5682	840300.6133
L	14+92.00	-40.00	697883.5865	840300.0084
L	16+62.93	-40.00	697872.4689	840471.3336
L	18+00.00	-30.00	697851.6037	840607.1781
L	18+00.00	-12.00	697833.6607	840605.7472
L	17+85.00	12.00	697810.9291	840598.8867
L	17+85.00	30.00	697792.9861	840587.4558
L	16+62.93	30.00	697802.6904	840465.7688
L	16+62.93	40.00	697792.7221	840464.9739
L	15+86.73	40.00	697798.0023	840389.7253
L	12+76.73	40.00	697816.7556	840080.2964
L	12+76.73	12.00	697844.7088	840081.9905

NC GRID
NAD 83/NSRS 2007

NCDOT BASELINE MONUMENT (B-4763 BY1-4)
LOCALIZED PROJECT COORDINATES
N=698,081.0398
E=840,902.2286
ELEV.=2,647.19'

FINAL -L-

TYPE	STATION	NORTH	EAST
POT	10+00.00	697900.4864	839809.8854
PC	10+48.73	697889.4576	839857.3502
PT	12+76.73	697856.6824	840082.7162
PC	15+86.73	697837.9289	840392.1484
PT	16+62.93	697832.5955	840468.1537
POT	20+68.95	697800.3184	840872.8887



BM1 ELEVATION = 2625.43
N 697886 E 839960
BL STATION 6+61.00 24 RIGHT
CONC MON WITH BRASS DISK

BM2 ELEVATION = 2621.61
N 697809 E 840308
BL STATION 10+13.00 55 RIGHT
RR SPIKE IN TRIPLE POPLAR

BM3 ELEVATION = 2629.52
N 697782 E 840776
BL STATION 14+82.00 54 RIGHT
RR SPIKE IN UTILITY POLE

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	697933.1047	839803.2506	2628.48	OUTSIDE PROJECT LIMITS	
2	BL-2	697866.2049	840272.3612	2620.39	14+65.45	20.98 LT
3	BL-3	697834.2840	840800.4000	2628.99	OUTSIDE PROJECT LIMITS	

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B4763 GPS-102"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 697753.5260(ft) EASTING: 840692.0820(ft)
ELEVATION: 2631.45(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977012
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B4763 GPS-102" TO -L- STATION 11+50.00 IS
N80°41'22.94"W 859.43'
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:
HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

THE FILES TO BE FOUND ARE AS FOLLOWS:
B4763_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 GLOBAL POSITIONING SYSTEM.

GEOIDAL MODEL — G03NC
NOTE: DRAWING NOT TO SCALE

6/2/99

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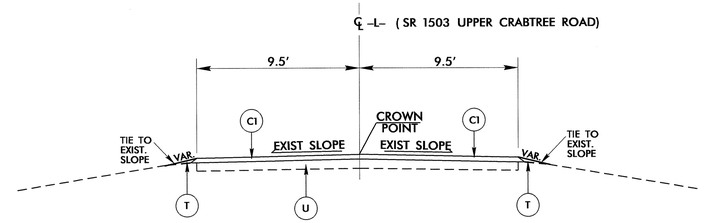
PROJECT REFERENCE NO.	SHEET NO.
B-4763	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
12/17/2013	December 18th 2013

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD
C2	PROP. APPROX. 2.5" 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 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" 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 5.5" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL NO. 1)

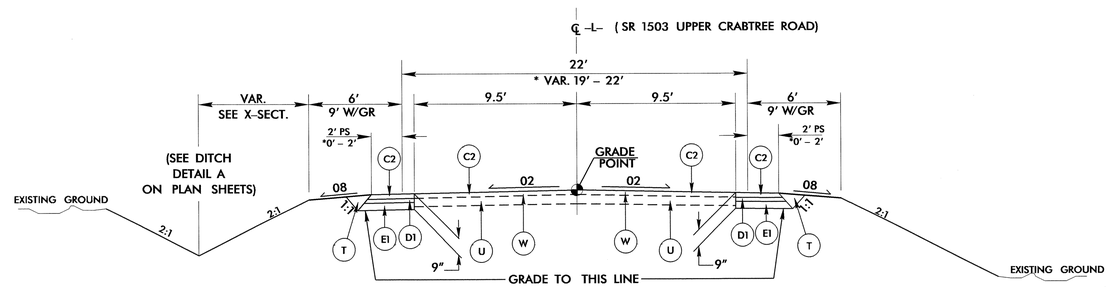
NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE



TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1 AS FOLLOWS:

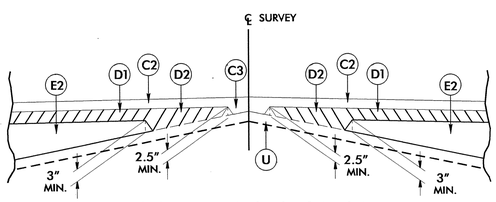
-L- STA. 11+50.00 TO STA. 12+80.00
-L- STA. 17+80.00 TO STA. 19+80.00



TYPICAL SECTION NO. 2

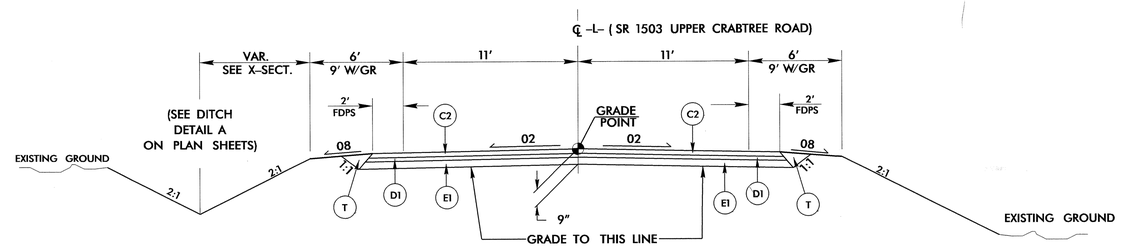
USE TYPICAL SECTION NO. 2 AS FOLLOWS:

*-L- STA 12+80.00 TO STA 13+30.00
-L- STA 13+30.00 TO STA 14+00.00
*-L- STA 17+30.00 TO STA 17+80.00



Detail Showing Method of Wedging

DETAIL 1



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3 AS FOLLOWS:

-L- STA 14+00.00 TO STA 17+30.00

6/2/99
09-DEC-2013 08:24
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PROJECT REFERENCE NO.	SHEET NO.
B-4763	2A
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14571 ENGINEER JAMES A. SPEER
12/17/2013

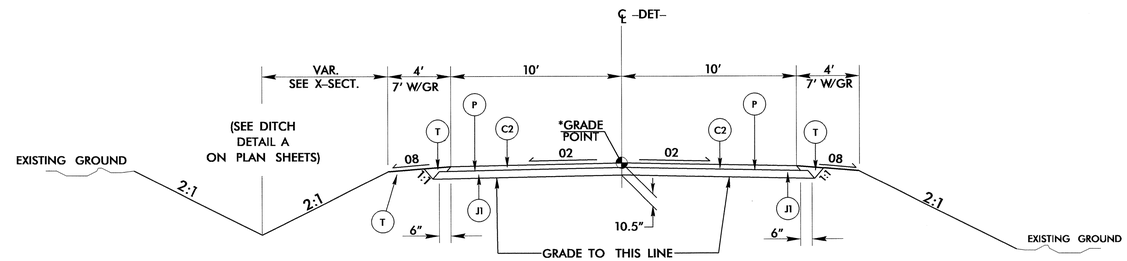
NORTH CAROLINA PROFESSIONAL SEAL 039819 ENGINEER TONYA T. HEYWARD
3/2/13

PAVEMENT SCHEDULE

(FINAL PAVEMENT DESIGN)

C1	PROP. APPROX. 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE SF9.5A, AT AN AVERAGE RATE OF 137.5 LBS. PER SQ. YD
C2	PROP. APPROX. 2.5" 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 1.5" IN DEPTH.
D1	PROP. APPROX. 2.5" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2.5" IN DEPTH OR GREATER THAN 4" 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 5.5" IN DEPTH.
J1	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL PER SQ. YD.
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE DETAIL NO. 1)

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

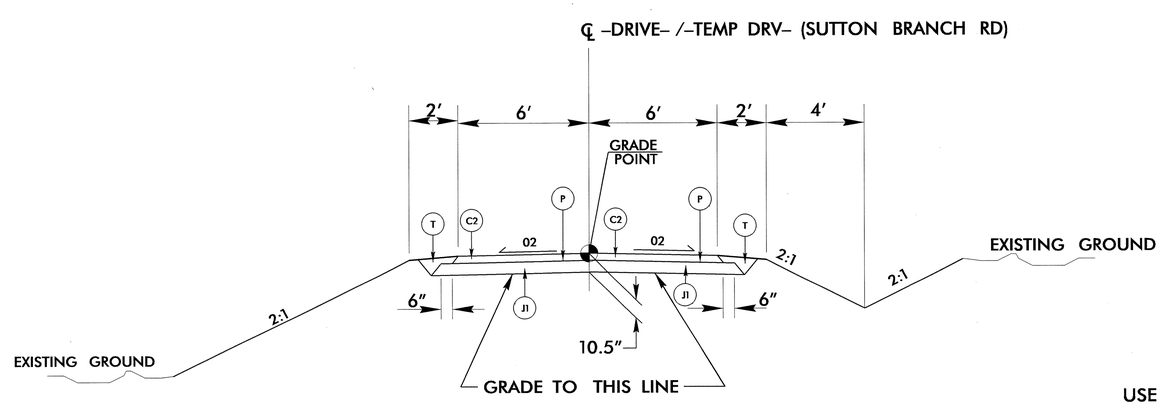


TYPICAL SECTION NO. 4

TRANSITION FROM EXIST TO TYPICAL NO. 4
-DET- STA 10+10.00 TO STA 10+74.93

USE TYPICAL SECTION NO. 4 AS FOLLOWS:
*-DET- STA 10+74.93 TO STA 17+14.98

TRANSITION FROM TYPICAL NO. 4 TO EXISTING
-DET- STA 17+14.98 TO STA 17+84.80



TYPICAL SECTION NO. 5

USE TYPICAL SECTION NO. 5 AS FOLLOWS:
-TEMPDRV- STA 10+28.00 TO STA 12+02.10
-DRV- STA 10+30.04 TO STA 12+63.79
-DRV2- STA 10+11.01 TO STA 11+87.15

6/2/99

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COMPUTED BY: L. JAH	DATE: 10/29/2013
CHECKED BY: AKW	DATE: 12-13-13

PROJECT REFERENCE NO.	SHEET NO.
B-4763	3A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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

SUB-REGIONAL

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

STATION	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	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"	**" 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	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	PIPE REMOVAL LIN.FT.	REMARKS
-DET- STA 13+01	CL	501																																			44																							DETOUR PIPE; RETAIN FOR DRIVE
-TEMPDRV- STA 11+87	CL	502																																											32														32	TEMPORARY DRIVE PIPE
-DET- STA 16+62	CL	503								60																																																	60	TEMPORARY DETOUR PIPE
-DRV- STA 12+46	CL	401																																		32																									
-DRV- STA 11+60 (-DET- STA 13+01)	CL	402																																																										DETOUR PIPE TO REMAIN IN PLACE (SEE 501)
-L- STA 14+37	CL	403																																			60																							
TOTAL										60																										32	104								32														92	

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 PIPES, ENDWALLS, ETC. (FOR PIPES 54" & OVER)

STATION	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	CLASS III R.C. PIPE (UNLESS NOTED OTHERWISE) 54"	60"	66"	72"	78"	84"	C.S. PIPE 120" .138	C.S. PIPE 120" .168	STRUCTURAL PLATE PIPE	REINFORCED ENDWALLS WITH R.C. - C.Y.	WITH C.S. - C.Y.	MASONARY DRAINAGE STRUCTURES CUBIC YARDS	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	CONCRETE TRANSITIONAL SECTION CATCH BASIN	DROP INLET	REINF. CONC. FLARED END SECTIONS NO. & SIZE	CORR. STEEL FLARED END SECTIONS NO. & SIZE	REINF. CONC. ELBOWS NO. & SIZE	CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
-DET- STA 14+58	CL	504												52																	52'	SEE DETOUR, SKEW = 115°
-DET- STA 14+58	CL	504												52																	52'	SEE DETOUR, SKEW = 115°
TOTAL														104																	104'	

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

"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 STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS GRAU 350 TL-3	ANCHORS GRAU 350 TL-2			REMARKS
-L-	13+00.00	16+50.00	RT	350			14+69.00	15+25.00	6	9	50	50	1	1	2				
-L-	14+00.00	17+50.00	LT	350			15+63.00	15+07.00	6	9	50	50	1	1	2				
		SUBTOTAL		700															
		LESS DEDUCTIONS:																	
		GRAU 350 TL-3	4@50	-200															
		TOTAL		500											4				
		SAY		525															
ADDITIONAL GUARDRAIL POSTS = 5																			
TEMPORARY GUARDRAIL SUMMARY																			
-DET-	13+40.00	15+40.00	RT	200			14+41.00	14+65.00	4	7						2			
-DET-	14+00.00	15+75.00	LT	175			14+75.00	14+50.00	4	7						2			
		SUBTOTAL		375															
		LESS DEDUCTIONS:																	
		GRAU 350 TL-2	4@27	-108															
		TOTAL		267												4			REMOVE AFTER MAINLINE -L- TRAFFIC IS RESTORED
		SAY		275															

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	3B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-DET- STA 10+10.00	-DET- STA 17+84.80	115	2169	2054	
-TEMPDRV- STA 10+00.00	-TEMPDRV- STA 12+00.00	61	153	92	
	SUBTOTAL:	176	2322	2146	
-L- STA 12+80.00	-L- STA 17+50.00	129	1599	1470	
-DRV- STA 10+28.00	-DRV- STA 12+02.10	49	132	83	
-DRV2- STA 10+11.01	-DRV2- STA 11+87.15	1	151	150	
	SUBTOTAL:	179	1882	1703	
DETOUR REMOVAL					
-DET- STA 10+10.00	-DET- STA 17+84.80	2169			2169
-TEMPDRV- STA 10+00.00	-TEMPDRV- STA 12+00.00	153			153
	SUBTOTAL:	2322			2322
TOTAL:		2677	4204	3849	2322
LOSS DUE TO CLEARING & GRUBBING		-25		25	
PROJECT TOTAL:		2652	4204	3874	2322
5% FOR BORROW PIT				194	
GRAND TOTAL:		2652		4068	2322
SAY:		2790		4280	

200 CY SHALLOW UNDERCUT
125 TONS CLASS IV SUBGRADE STABILIZATION
100 CY CONTINGENCY UNDERCUT

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of 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.

SUMMARY OF SUBSURFACE DRAINAGE

	STATION	STATION	LOCATION LT/RT/CL	DRAINAGE TYPE UD/BD/SD	LF
CONTINGENCY				UD	100
				TOTAL LF	100

"UD" = UNDERDRAIN
"BD" = BLIND DRAIN
"SD" = SUBSURFACE DRAIN

ASPHALT PAVEMENT REMOVAL IN SQUARE YARDS

LINE	STATION	STATION	LOCATION	SY
-L-	14+00	14+94	LT&RT	197.45
-L-	15+45	17+30	LT&RT	389.67
-DET-	10+75	17+15	LT&RT	1422.33
-TEMPDRV-	10+28	12+02	LT&RT	232.00
TOTAL				2241.45
SAY				2250

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14571 ENGINEER JAMES A. SPEER 1/2/2014

NORTH CAROLINA PROFESSIONAL SEAL 021906 ENGINEER W. GALEN CAIL 1/2/14

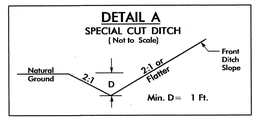
NAD 83/NSRS 2007

SEE SHEET 5 FOR DETOUR

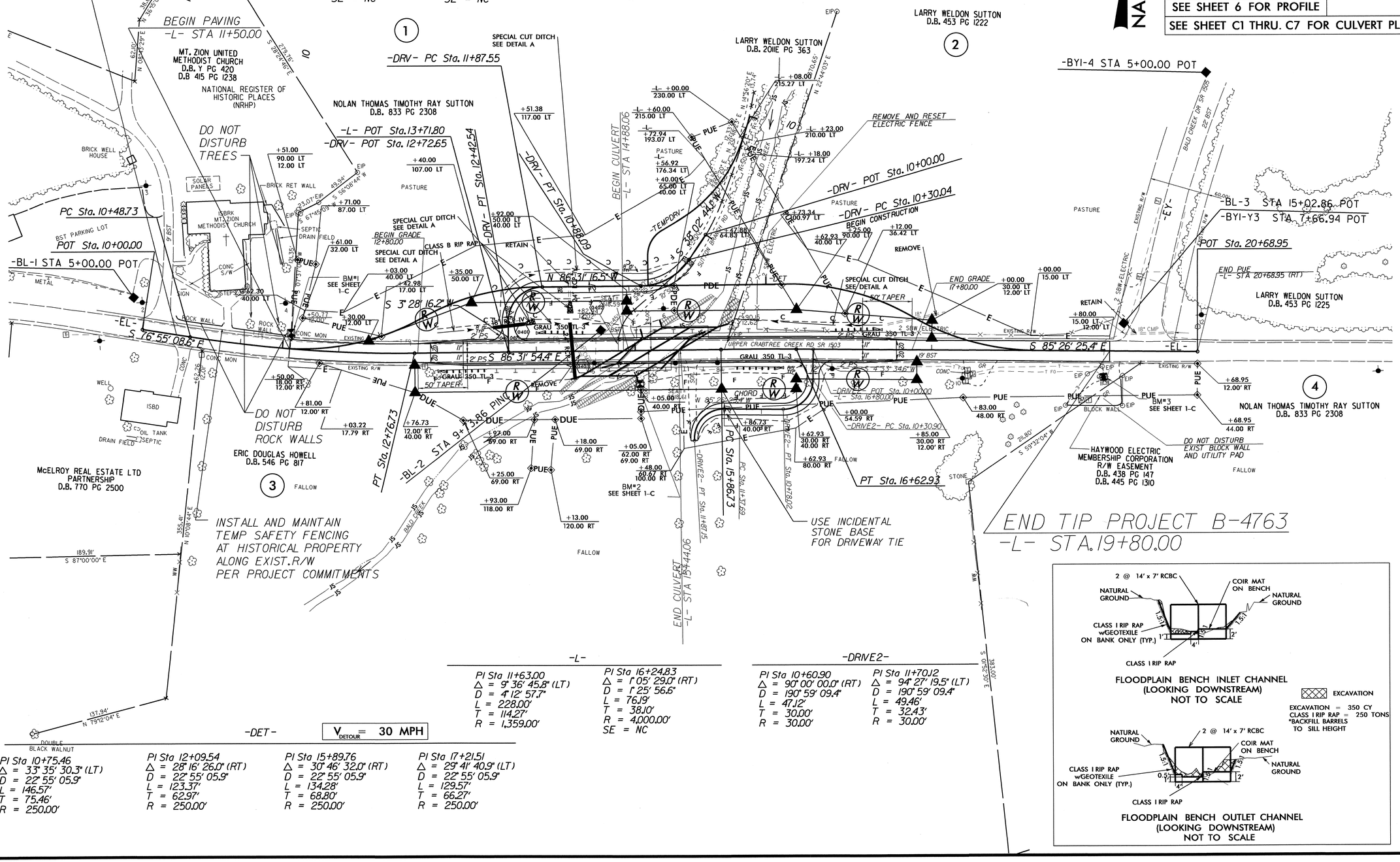
SEE SHEET 6 FOR PROFILE

SEE SHEET C1 THRU. C7 FOR CULVERT PLANS

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-



-DRV-

PI Sta 10+61.57
Δ = 55° 25' 59.4" (RT)
D = 95° 29' 34.7"
L = 58.05'
T = 31.52'
R = 60.00'
SE = NC

PI Sta 12+22.56
Δ = 90° 00' 27.4" (LT)
D = 16.3° 42' 08.0"
L = 54.98'
T = 35.00'
R = 35.00'
SE = NC

-TEMPDRV-

PI Sta 11+68.09
Δ = 60° 05' 11.6" (LT)
D = 190° 59' 09.4"
L = 31.46'
T = 17.35'
R = 30.00'
SE = NC

PI Sta 10+81.43
Δ = 41° 28' 45.2" (RT)
D = 38° 11' 49.9"
L = 108.59'
T = 56.80'
R = 150.00'
SE = NC

-L-

PI Sta 11+63.00
Δ = 9° 36' 45.8" (LT)
D = 4° 12' 57.7"
L = 228.00'
T = 114.27'
R = 1,359.00'

PI Sta 16+24.83
Δ = 1° 05' 29.0" (RT)
D = 1° 25' 56.6"
L = 76.19'
T = 38.10'
R = 4,000.00'
SE = NC

-DRVE2-

PI Sta 10+60.90
Δ = 90° 00' 00.0" (RT)
D = 190° 59' 09.4"
L = 47.12'
T = 30.00'
R = 30.00'

PI Sta 11+70.12
Δ = 94° 27' 19.5" (LT)
D = 190° 59' 09.4"
L = 49.46'
T = 32.43'
R = 30.00'

-DET-

V_{DETOUR} = 30 MPH

PI Sta 10+75.46
Δ = 33° 35' 30.3" (LT)
D = 22° 55' 05.9"
L = 146.57'
T = 75.46'
R = 250.00'

PI Sta 12+09.54
Δ = 28° 16' 26.0" (RT)
D = 22° 55' 05.9"
L = 123.37'
T = 62.97'
R = 250.00'

PI Sta 15+89.76
Δ = 30° 46' 32.0" (RT)
D = 22° 55' 05.9"
L = 134.28'
T = 68.80'
R = 250.00'

PI Sta 17+21.51
Δ = 29° 41' 40.9" (LT)
D = 22° 55' 05.9"
L = 129.57'
T = 66.27'
R = 250.00'

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14571 ENGINEER JAMES A. SPEER — 12/17/2013

NORTH CAROLINA PROFESSIONAL SEAL 022090 ENGINEER W. GALEN CARR — 12/3/13

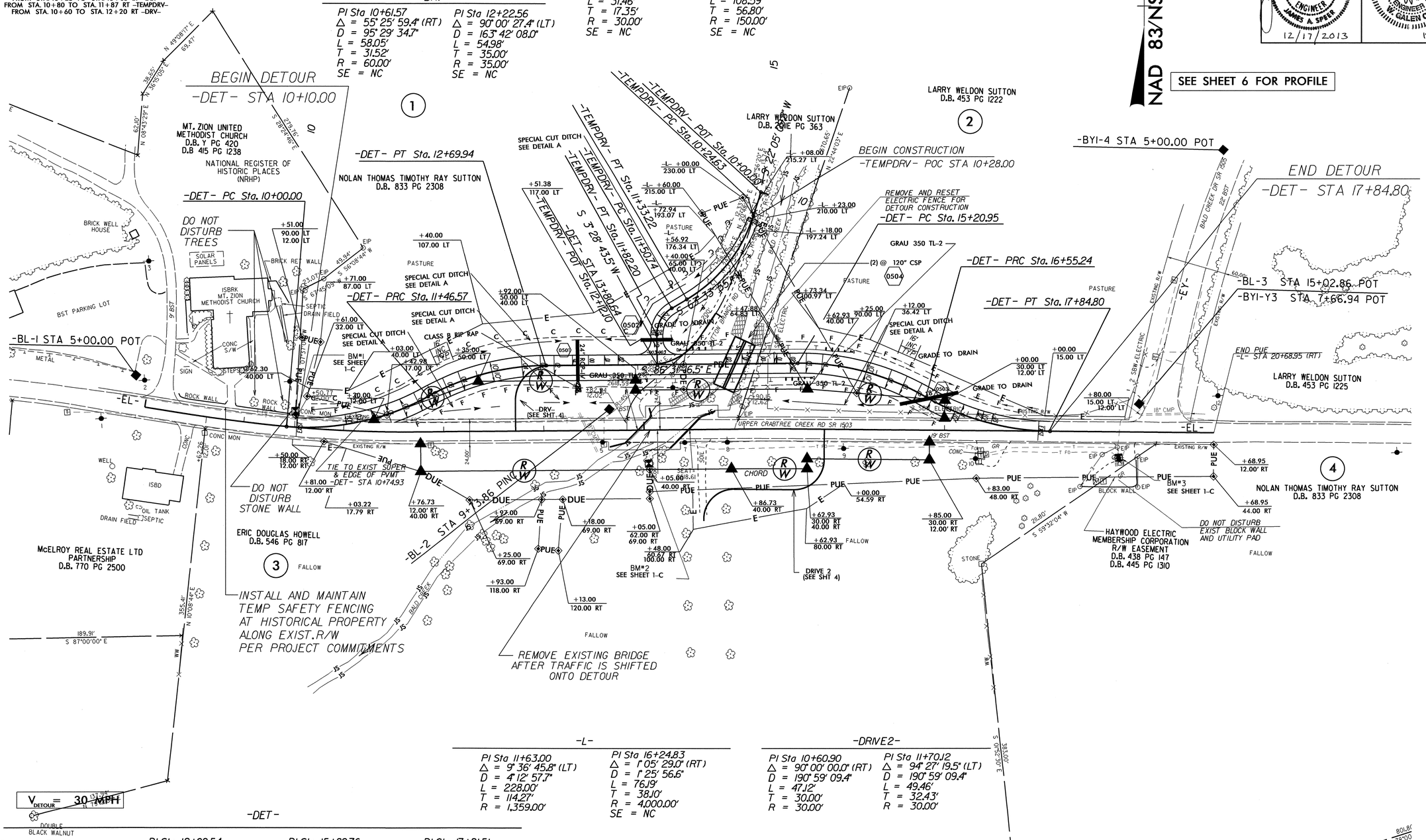
NAD 83/NSRS 2007

SEE SHEET 6 FOR PROFILE

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground; 2:1; D; 2:1 or Flatter; Front Ditch Slope; Min. D = 1 Ft.

FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-



-TEMPDRV-

PI Sta 11+68.09
Δ = 60° 05' 11.6" (LT)
D = 190° 59' 09.4"
L = 31.46'
T = 17.35'
R = 30.00'
SE = NC

PI Sta 10+81.43
Δ = 41° 28' 45.2" (RT)
D = 38° 11' 49.9"
L = 108.59'
T = 56.80'
R = 150.00'
SE = NC

-DRV-

PI Sta 10+61.57
Δ = 55° 25' 59.4" (RT)
D = 95° 29' 34.7"
L = 58.05'
T = 31.52'
R = 60.00'
SE = NC

PI Sta 12+22.56
Δ = 90° 00' 27.4" (LT)
D = 163° 42' 08.0"
L = 54.98'
T = 35.00'
R = 35.00'
SE = NC

-L-

PI Sta 11+63.00
Δ = 9° 36' 45.8" (LT)
D = 4° 12' 57.7"
L = 228.00'
T = 114.27'
R = 1,359.00'

PI Sta 16+24.83
Δ = 1° 05' 29.0" (RT)
D = 1° 25' 56.6"
L = 76.19'
T = 38.10'
R = 4,000.00'
SE = NC

-DRIVE2-

PI Sta 10+60.90
Δ = 90° 00' 00.0" (RT)
D = 190° 59' 09.4"
L = 47.12'
T = 30.00'
R = 30.00'

PI Sta 11+70.12
Δ = 94° 27' 19.5" (LT)
D = 190° 59' 09.4"
L = 49.46'
T = 32.43'
R = 30.00'

-DET-

PI Sta 10+75.46
Δ = 33° 35' 30.3" (LT)
D = 22° 55' 05.9"
L = 146.57'
T = 75.46'
R = 250.00'
SE = VARIES (SEE PLAN)
RO = 64'

PI Sta 12+09.54
Δ = 28° 16' 26.0" (RT)
D = 22° 55' 05.9"
L = 123.37'
T = 62.97'
R = 250.00'
SE = .04%
RO = 64'

PI Sta 15+89.76
Δ = 30° 46' 32.0" (RT)
D = 22° 55' 05.9"
L = 134.28'
T = 68.80'
R = 250.00'
SE = .04 %
RO = 64'

PI Sta 17+21.51
Δ = 29° 41' 40.9" (LT)
D = 22° 55' 05.9"
L = 129.57'
T = 66.27'
R = 250.00'
SE = VARIES (SEE PLAN)
RO = 64'

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4763	6

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 14571 ENGINEER JAMES A. SPEER
12/17/2013

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 022003 ENGINEER W. GALEN CAIN
12/31/13

DITCH LEGEND	
LEFT DITCH	-·-·-·-·-
RIGHT DITCH	----------

BM1: CONCRETE MONUMENT
WITH BRASS DISK
33.76' RT OF -L-
STA. 11+50.44 EL. 2625.43'

BM2: RR SPIKE IN TRIPLE POPLAR
33.76' RT OF -L-
STA. 15+04.37 EL. 2621.61'

-L-

BEGIN PROJECT
-L- STA 10+35.00

BEGIN RESURFACING
-L- STA 11+50.00

BEGIN GRADE
-L- STA 12+80.00
EL = 2,622.78'

RESURFACE W/ (C)

PI = 13+49.00
EL = 2,622.31'
VC = 130'
K = 118
V=55 MPH

℄ STA 15+16 -L-
2 @14'X7' RCBC
SKEW = 150°
GP = 2623.0'

PI = 17+23.00
EL = 2,623.87'
VC = 88'
K = 122
V=55 MPH

END GRADE
-L- STA 17+80.00
EL = 2,624.52'

RESURFACE W/ (C)

END PROJECT
-L- STA 19+80.00

(-)0.6812%
(-)7.9000%
(+)0.4111%
(-)2.1739%
(+)4.2857%
(+)0.4171%
(+)2.0000%
(+)1.1404%

BEGIN DITCH LT
PI =13+00.000
2620.10'

END DITCH LT
PI =13+56.50
2619.03'

BEGIN DITCH LT
PI =15+88.00
2618.40'

PI =14+34.000
EL = 2,617.40'

END DITCH LT
PI =14+83.000
2619.85'

℄ INVERT
ELEV. = 2612.5

BEGIN DITCH LT
PI =16+00.00
2619.00'

END DITCH LT
PI =17+85.00
2622.10'

SEE SHEET 4 FOR PLAN VIEW

CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	=	1700	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	2621.3	FT
BASE DISCHARGE	=	2400	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2623.14	FT
OVERTOPPING DISCHARGE	=	1800	CFS
OVERTOPPING FREQUENCY	=	±25	YRS
OVERTOPPING ELEVATION	=	2622.3	FT

SEE SHEETS 4 AND 5 FOR PLAN VIEW

-DET-

BEGIN GRADE
-DET- STA 10+74.93
EL = 2,622.97'

℄ STA 14+58 -DET-
2 @120" CS
SKEW = 115°
GP = 2624.2'

END GRADE
-DET- STA 17+14.98
EL = 2,625.05'

(+)0.3250%
(-)0.9200%
(-)3.0000%
(+)0.5000%
(+)0.3250%

BEGIN DITCH LT
PI =10+25.00
2621.27'

PI =12+50.000
EL = 2,619.20

PI =13+00.000
EL = 2,617.70

END DITCH LT
PI =13+65.00
2618.03'

PIPE HYDRAULIC DATA
-DET- Sta. 14+58

DRAINAGE AREA	=	4800	AC
DESIGN FREQUENCY	=	5	YRS
DESIGN DISCHARGE	=	950	CFS
DESIGN HW ELEVATION	=	2622.4	FT
100 YEAR DISCHARGE	=	NA	CFS
100 YEAR HW ELEVATION	=	NA	FT
OVERTOPPING FREQUENCY	=	±5	YRS
OVERTOPPING DISCHARGE	=	1000	CFS
OVERTOPPING ELEVATION	=	2623.0'	FT

-TEMPDRV-

BEGIN GRADE
-TEMPDRV- STA 10+28.00
EL = 2622.56'

END GRADE
-TEMPDRV- STA 12+02.10
EL = 2623.76'

PI = 11+26.00
EL = 2,621.53'
VC = 70'
K = 18

(-)1.0476%
(+)2.9304%
(-)1.5000%

BEGIN DITCH RT
PI =10+80.00
2619.64'

END DITCH RT
PI =11+87.00
2618.03'

-DRIVE2-

BEGIN GRADE
-DRIVE2- STA 10+11.00
EL = 2623.47'

END GRADE
-DRIVE2- STA 11+72.10
EL = 2618.10'

(-)13.3333%

-DRIVE-

BEGIN GRADE
-DRV- STA 10+30.04
EL = 2,620.86'

END GRADE
-DRV- STA 12+61.64
EL = 2,622.26'

PI = 10+91.00
EL = 2,620.83'
VC = 30'
K = 34

(-)0.0492%
(+)0.8379%
(-)0.8000%
(+)3.0000%

BEGIN DITCH RT
PI =10+60.00
2618.50'

PI =11+60.000
EL = 2,617.70

END DITCH RT
PI =12+20.00
2619.50'

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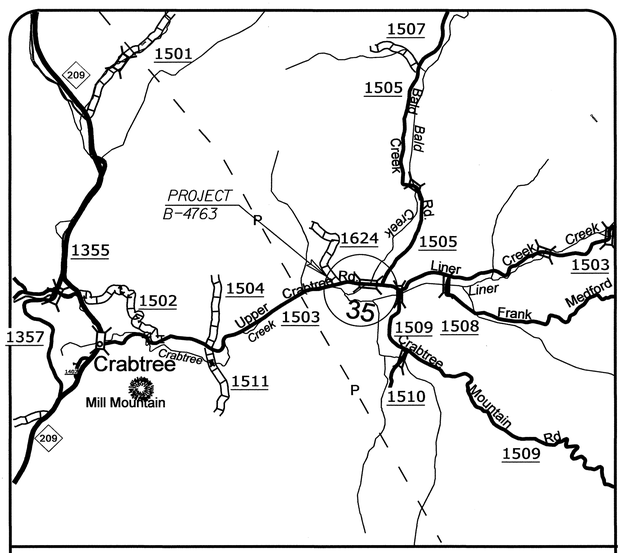
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HAYWOOD COUNTY



VICINITY MAP

BRIDGE NO. 35 OVER BALD CREEK ON
SR 1503 (UPPER CRABTREE CREEK RD)

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKINGS
TMP-2	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-3	TEMPORARY TRAFFIC CONTROL PHASING
TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-4A	PHASE I SECTIONAL VIEWS
TMP-5	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-5A	PHASE II SECTIONAL VIEWS
TMP-6	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

SHEET NO.
TMP-1

B-4763

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*
DENA KLEIN — *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.
11/18/13

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jwoolard
AT TE2666005

PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-1A

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2012 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

PAINT (4")

PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER

APPROVED: _____ DATE: _____

SEAL

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

11/18/13

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

ROADWAY STANDARD DRAWINGS & LEGEND

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PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-2

GENERAL NOTES / LOCAL 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 WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

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

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

D) 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.

E) 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.

PAVEMENT EDGE DROP OFF REQUIREMENTS

F) 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.

G) 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) IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

I) 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.

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

K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 100 IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC CONTROL DEVICES

L) WHEN LANE CLOSURES ARE NOT IN EFFECT 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. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
UPPER CRABTREE CREEK RD	PAINT	TEMPORARY RAISED

O) 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.

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

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

MISCELLANEOUS

R) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S 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) AND RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

MANAGEMENT STRATEGIES

TRAFFIC WILL BE MAINTAINED VIA AN ON-SITE DETOUR DURING CONSTRUCTION OF THE PROPOSED CULVERT.

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR. 11/18/13

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

TRANSPORTATION OPERATIONS PLAN

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jwoolard AT TE266005

PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-3

PHASING

NOTE: MAINTAIN ACCESS TO ALL BUSINESS AND RESIDENCES THROUGHOUT THE PROJECT FOR THE DURATION OF THE PROJECT.

PHASE I

STEP 1: USING RSD 1101.01, SHEET 3 OF 3. INSTALL WORK ZONE ADVANCE WARNING SIGNS

STEP 2: USING RSD 1101.02, SHEET 1 OF 15, CONSTRUCT -DET-, -TEMPDRV- AND -DRIVE2-. (SEE SHEET TMP-4)

PHASE II

STEP 1: USING RSD 1101.02, SHEET 1 OF 15, WEDGE TIE-INS OF -DET-,PLACE TEMPORARY PAVEMENT MARKINGS AND TRAFFIC CONTROL DEVICES USING RSD 1101.03, SHEET 3 OF 9. SHIFT 2 LANE, 2 WAY TRAFFIC ONTO DETOUR. (SEE TMP-5)

STEP 2: CONSTRUCT -L- (SR 1503) UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM STA. 13+00 +/- TO STA. 17+50 +/-. (SEE TMP-5)

COMPLETE CONSTRUCTION OF -DRV- FROM STA. 10+30 TO STA. 12+62. (SEE TMP-5)

STEP 3: USING RSD 1101.02, SHEET 1 OF 15, PLACE TEMPORARY PAVEMENT MARKINGS ON -L- FROM STA. 11+50 +/- TO STA. 19+80 +/-. (SEE TMP-6)

SWITCH TRAFFIC ONTO PROPOSED -L- IN A 2 LANE, 2 WAY TRAFFIC PATTERN. (SEE TMP-6)

STEP 4: PLACE TYPE III BARRICADES AND DRUMS ON DETOUR, AND REMOVE DETOUR, -TEMPDRV-, AND TEMPORARY GUARDRAIL. (SEE TMP-6)

STEP 5: USING RSD 1101.02, SHEET 1 OF 15, PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS ON -L-.

STEP 6: REMOVE ALL TRAFFIC CONTROL DEVICES.

APPROVED: DATE:

SEAL

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

1/7/14

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

PHASING

1/7/2014
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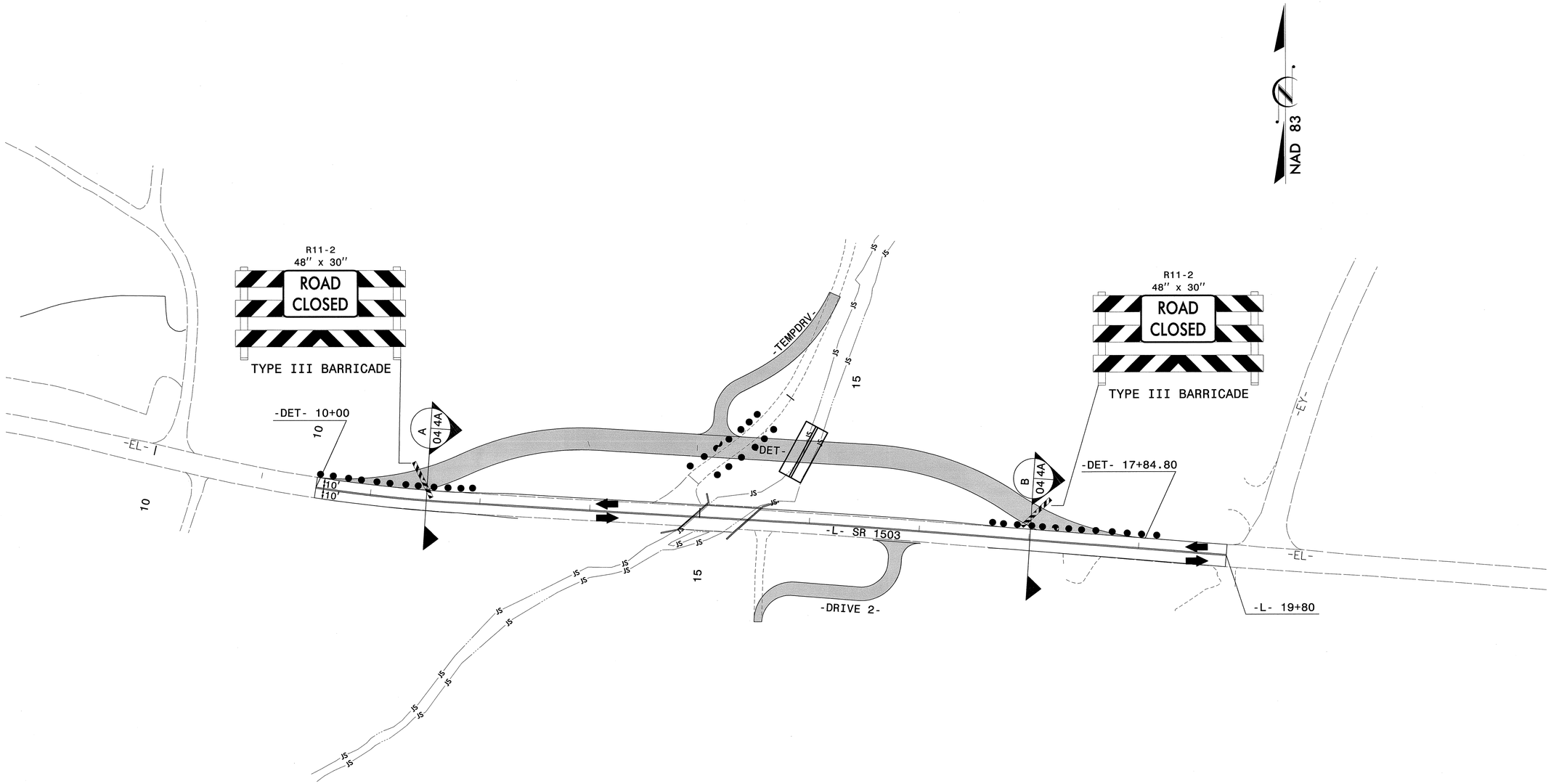
PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-04



* NOTE: ALL STATIONS AND DIMENSIONS SHOWN +/-

* NOTE: SEE TMP-4A FOR CROSS-SECTIONAL VIEWS

APPROVED: DATE:

SEAL

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

11/18/13

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

PHASE I DETAIL

11/15/2013
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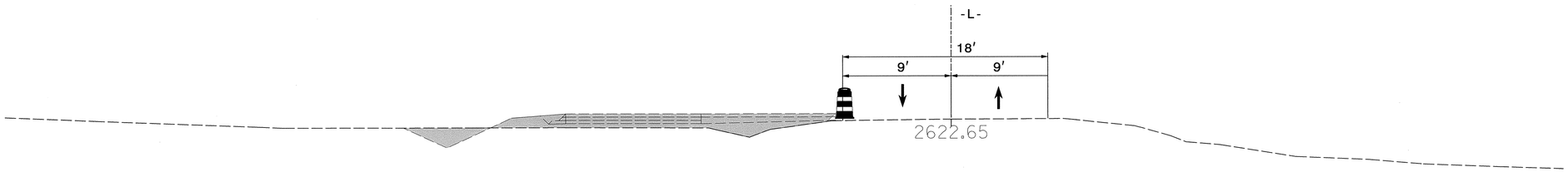
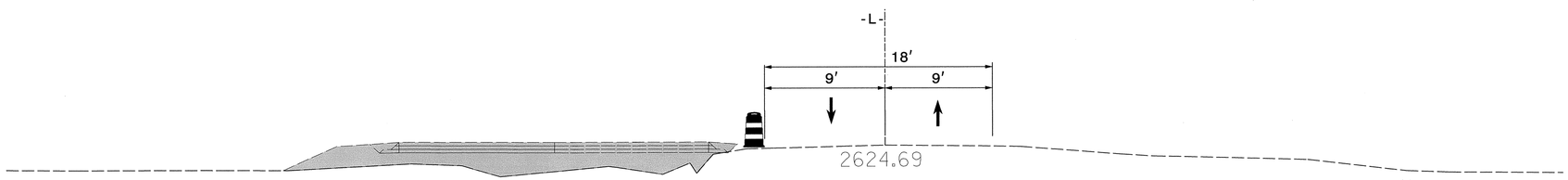
PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-4A



SECTION A -L- 12+50



SECTION B -L- 18+00

APPROVED: DATE:

SEAL

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

11/15/13

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

PHASE I SECTION VIEWS

11/15/2013
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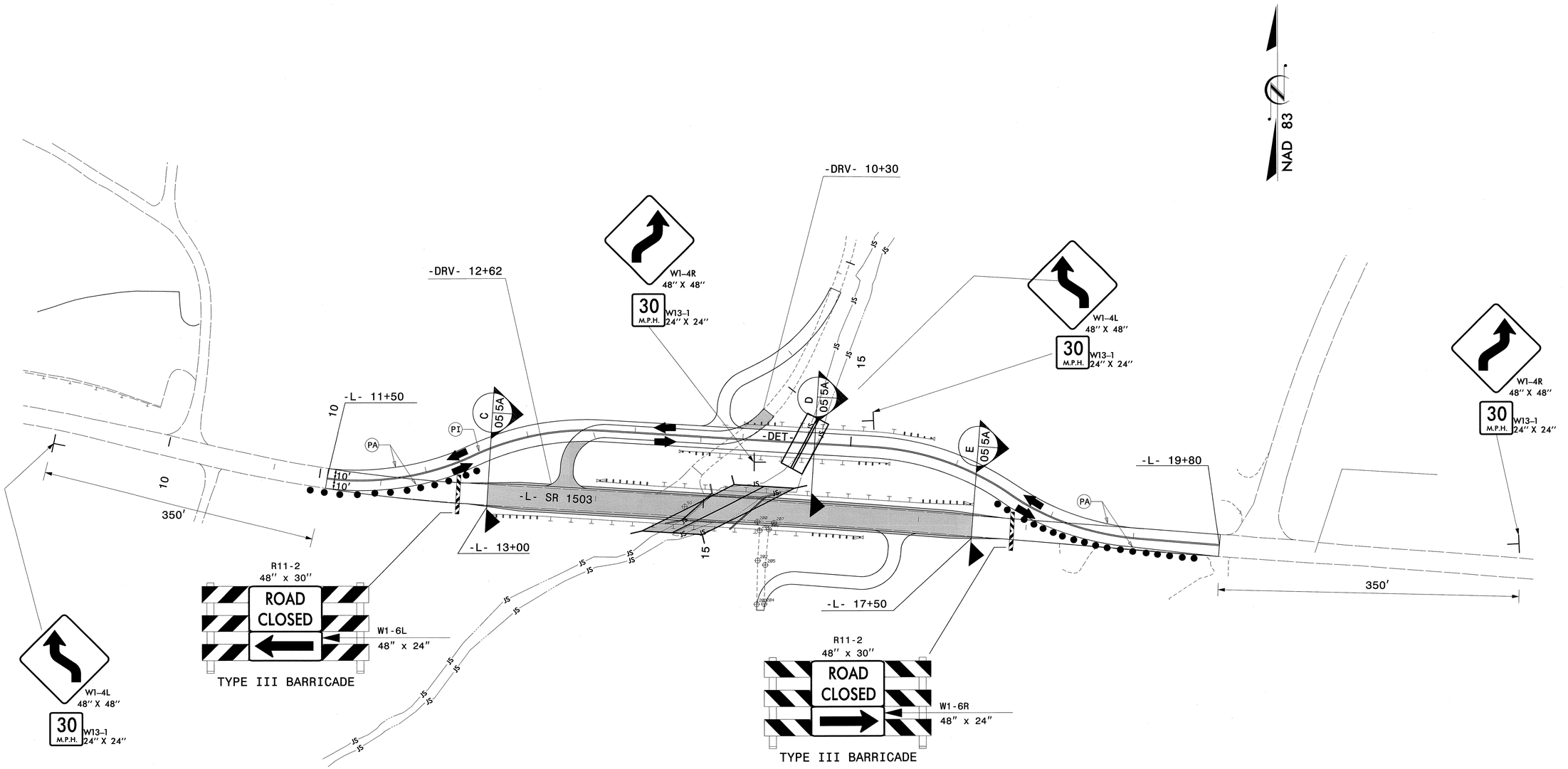
PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-05



* NOTE: ALL STATIONS AND DIMENSIONS SHOWN +/-

* NOTE: PLACE YELLOW/YELLOW TEMPORARY PAVEMENT MARKERS ON THE DOUBLE YELLOW LINE USING 20' SPACING. (SEE RSD 1101.03, SHEET 3 OF 9)

* NOTE: SEE TMP-5A FOR CROSS-SECTIONAL VIEWS

APPROVED: DATE:

SEAL

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

11/18/13

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

PHASE II DETAIL

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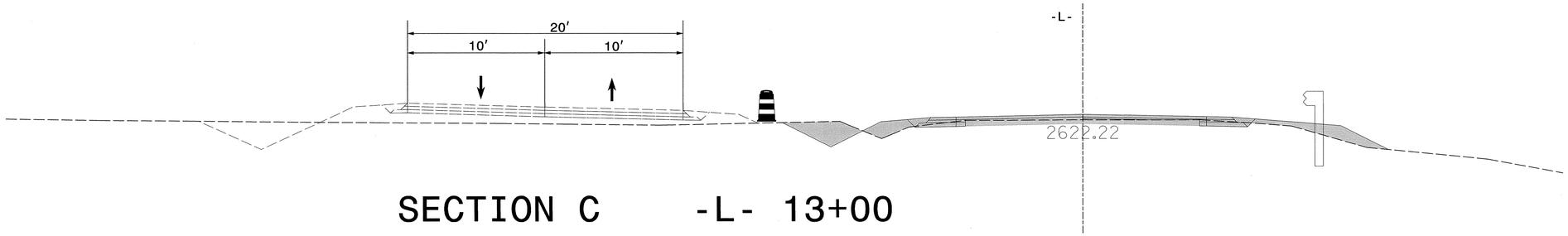
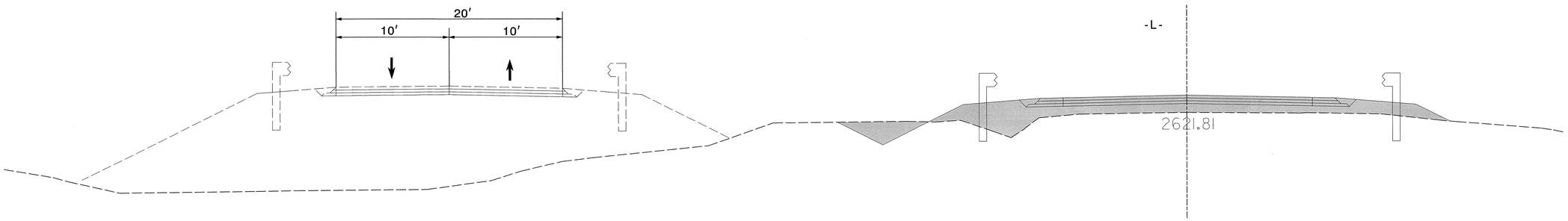
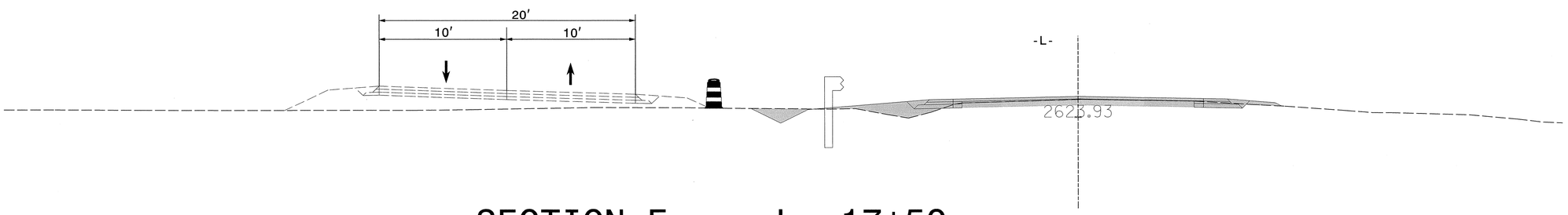
PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-5A



SECTION C -L- 13+00



SECTION D -L- 16+00



SECTION E -L- 17+50

APPROVED: _____ DATE: _____

SEAL

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

11/18/13

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

PHASE II SECTION VIEWS

11/15/2013
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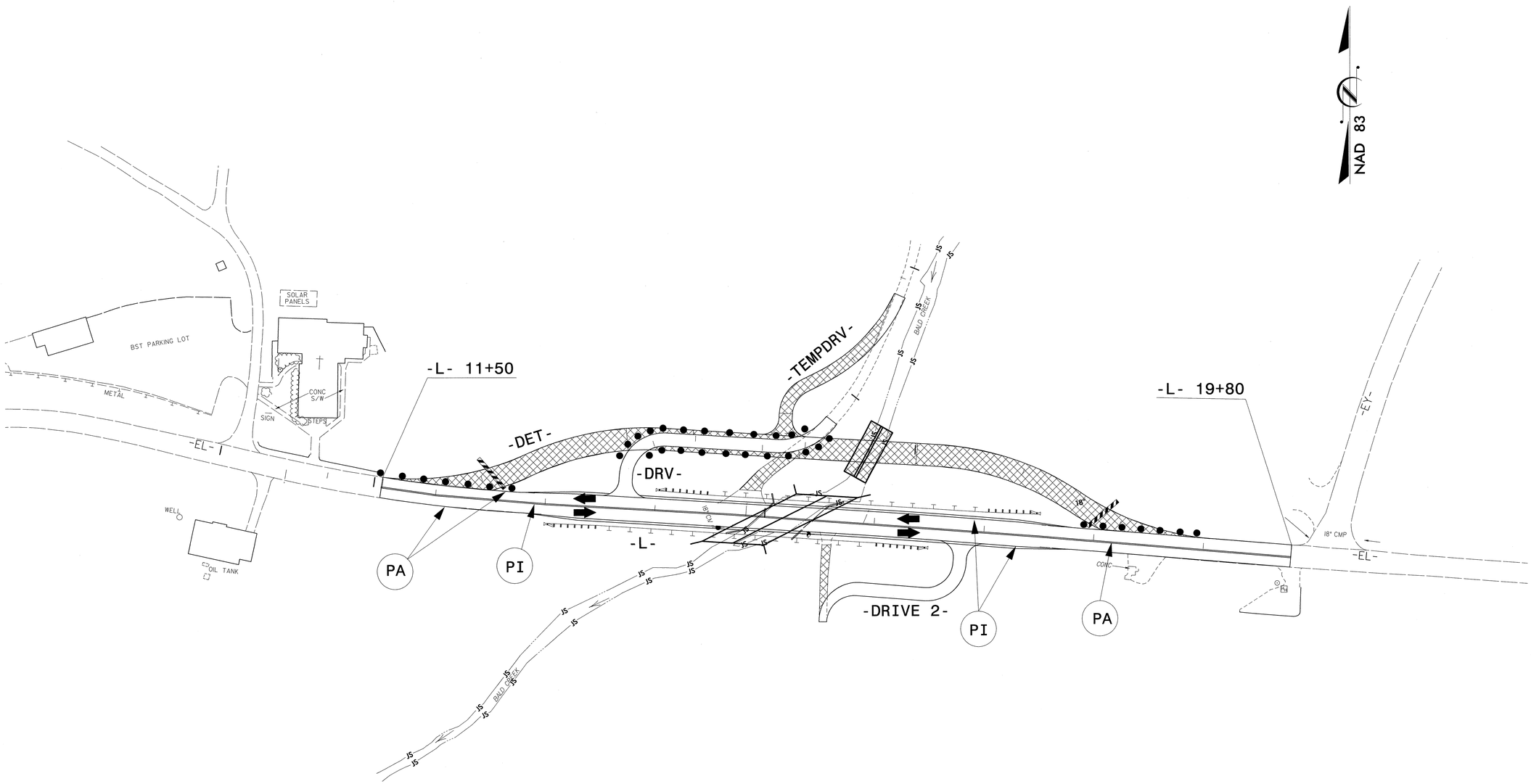
PROJ. REFERENCE NO.	SHEET NO.
B-4763	TMP-06



APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD JR.

11/18/13

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

PHASE II DETAIL

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TIP NO.	SHEET NO.
B-4763	PMP-1

APPROVED: [signature]
DATE: 12/2/13

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
HAYWOOD COUNTY

LOCATION: BRIDGE No. 35 OVER BALD CREEK ON SR 1503 (UPPER CRABTREE CREEK ROAD)

T.I.P.: B-4763

CONTRACT: C203365

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
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

B-4763 PAVEMENT MARKING SCHEDULE

SYMB	DESCRIPTION
	FINAL PAVEMENT MARKINGS
	PAINT (4")
PA	WHITE EDGELINE
PI	YELLOW DOUBLE CENTER
	MARKERS
	SNOWPLOWABLE RAISED PAVEMENT MARKERS
ME	YELLOW & YELLOW

GENERAL NOTES

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

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

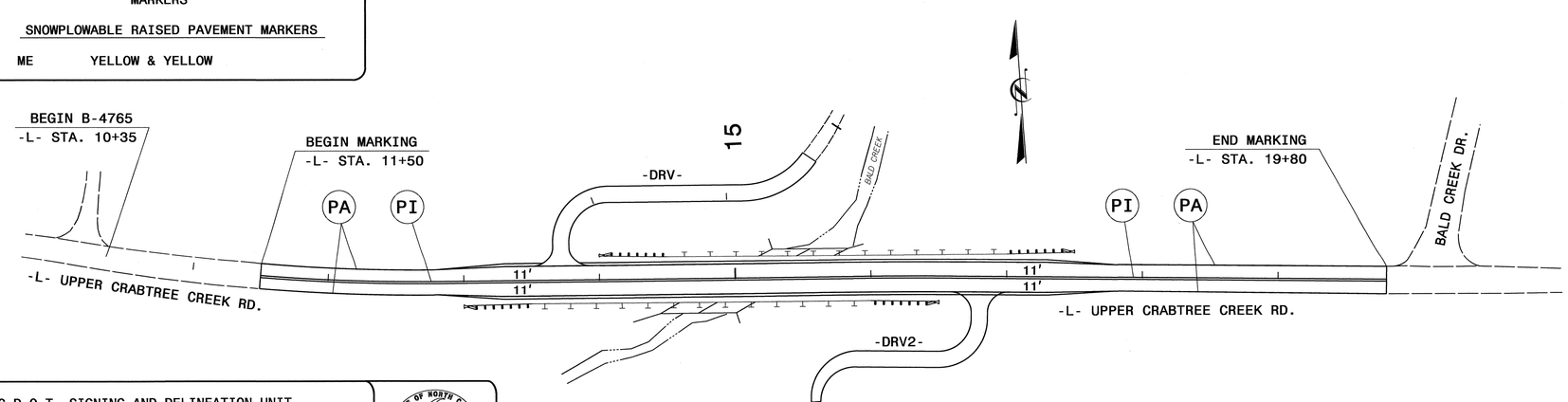
ROAD NAME	MARKING	MARKER
UPPER CRABTREE CREEK RD.	PAINT	SNOWPLOWABLE

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.



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

KELVIN L. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER
DERRICK H. BEARD	SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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TIP PROJECT: B-4763

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4763	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HAYWOOD COUNTY

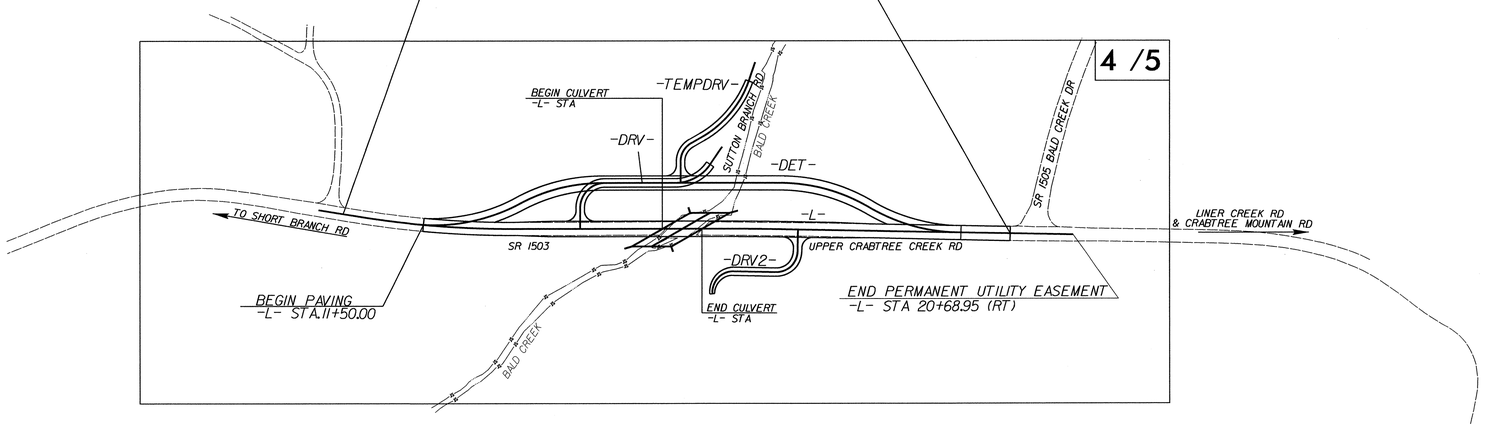
LOCATION: BRIDGE NO. 35 OVER BALD CREEK ON SR 1503 (UPPER CRABTREE CREEK RD)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERT

NAD 83

BEGIN TIP PROJECT B-4763
-L- STA. 10+35.00

END TIP PROJECT B-4763
-L- STA. 19+80.00



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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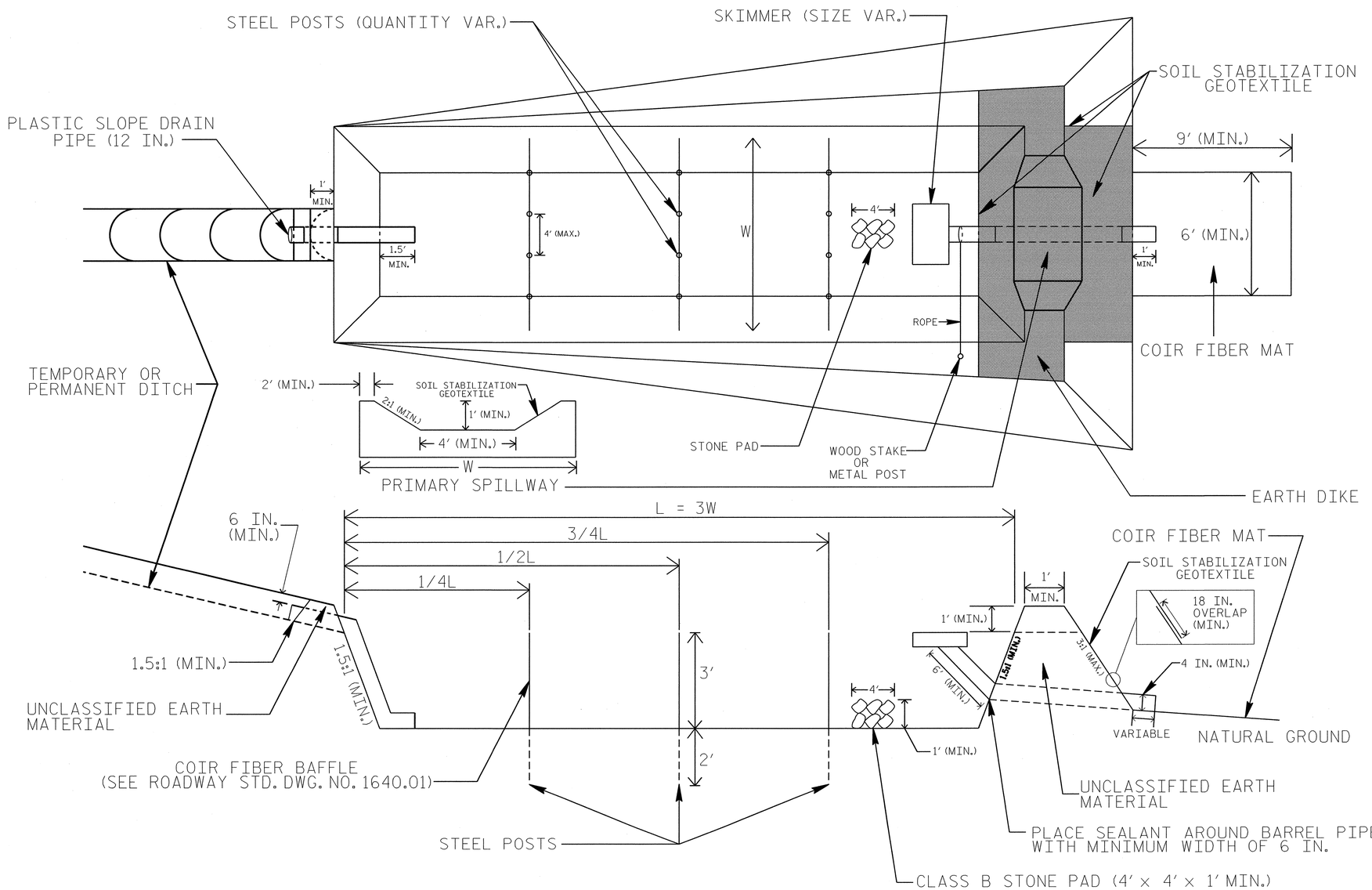
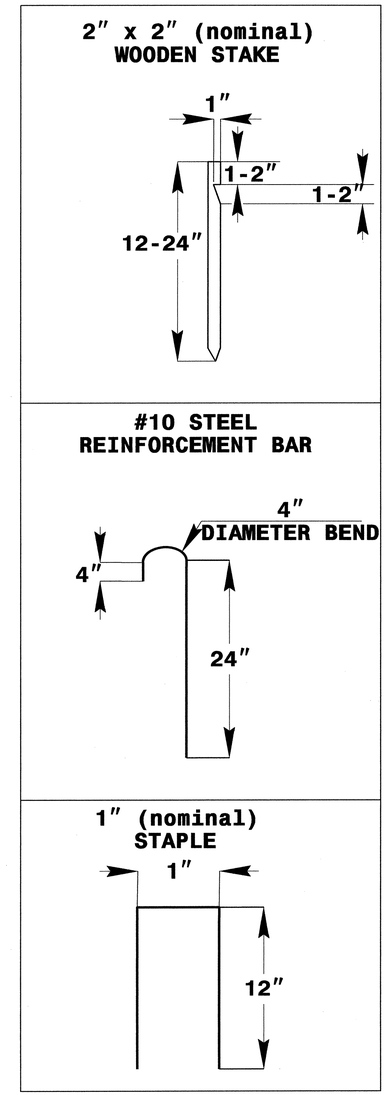
PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

SKIMMER BASIN WITH BAFFLES DETAIL





COIR FIBER MAT ANCHOR OPTIONS

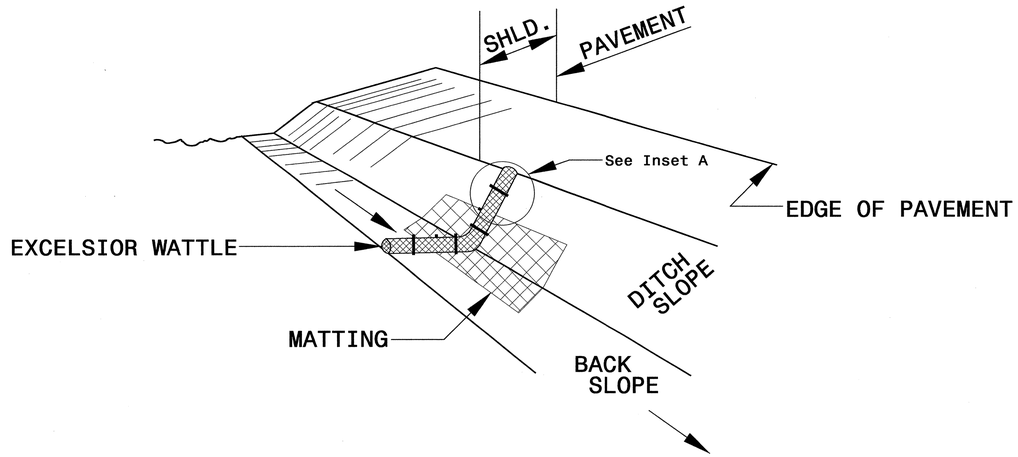
NOTES

1. SEED AND PLACE MATTING FOR EROSION CONTROL ON INTERIOR AND EXTERIOR SIDESLOPES.
2. LIMIT EARTH DIKE HEIGHT TO 5 FT.
3. FOR BASIN DEPTH OF 3 FT., THE MINIMUM BASIN WIDTH SHALL BE 9 FT.
4. DETERMINE PRIMARY SPILLWAY WEIR LENGTH (FT.) USING Q/0.4, WHERE Q IS FLOW RATE (CFS) INTO BASIN.
5. PLASTIC SLOPE DRAIN PIPE AT INLET OF BASIN MAY BE REPLACED BY FILTRATION GEOTEXTILE OR TARP AS DIRECTED.
6. SOIL STABILIZATION GEOTEXTILE FOR PRIMARY SPILLWAY SHALL BE ONE CONTINUOUS PIECE OF MATERIAL OR OVERLAPPED 18 IN. (MIN.).

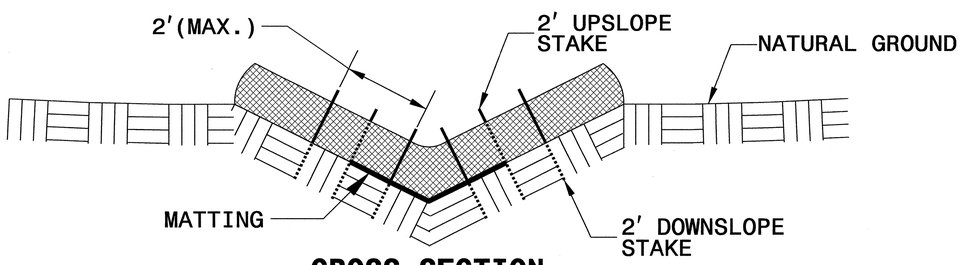
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

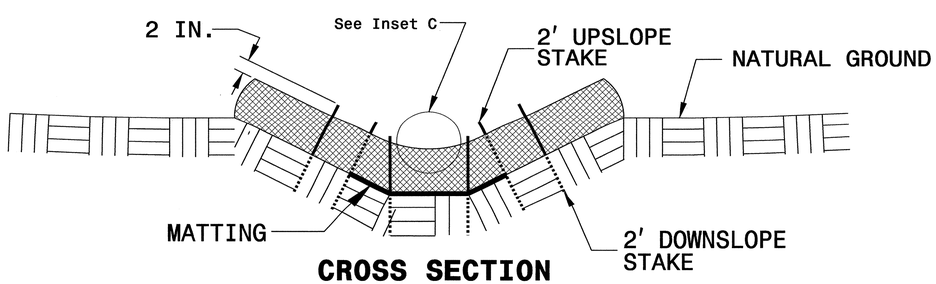
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

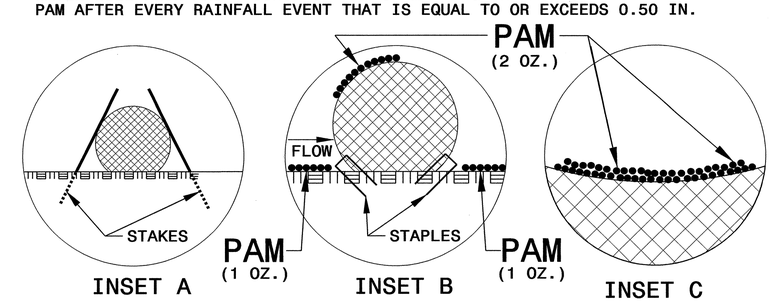
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

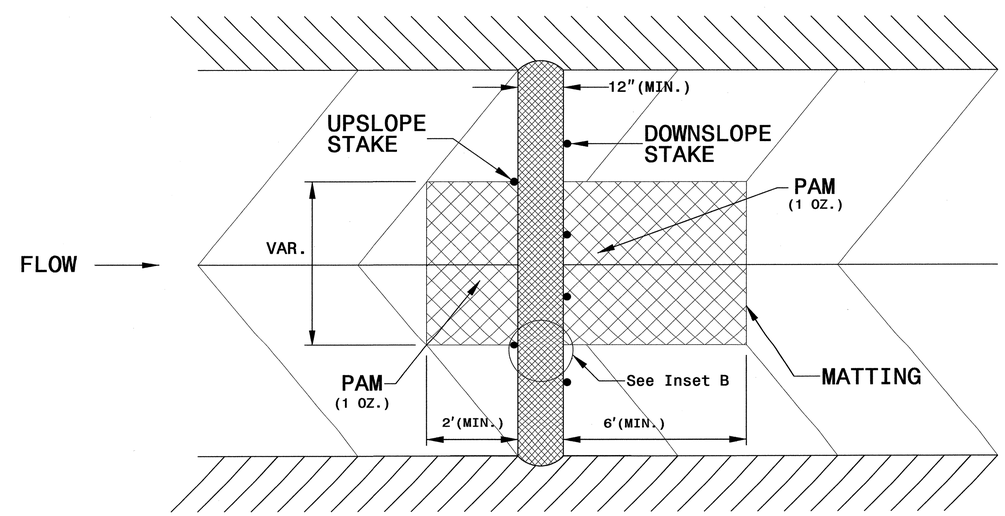
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

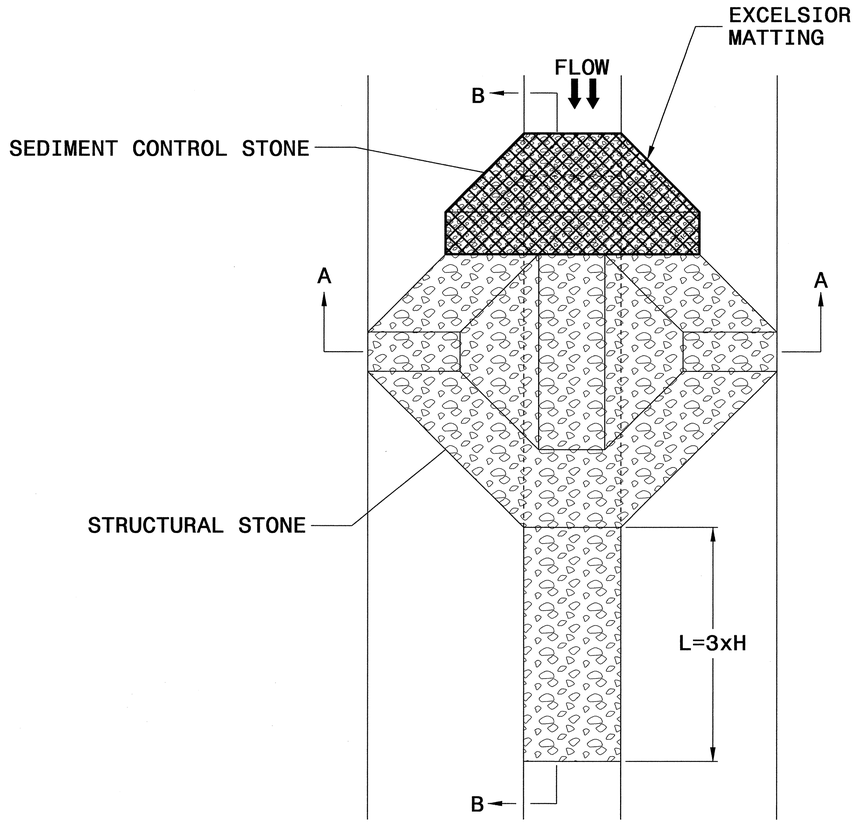




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-2B
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



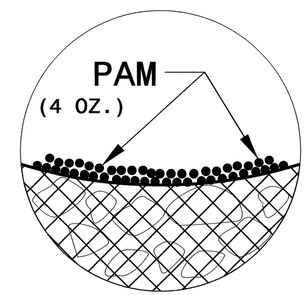
PLAN

NOTES

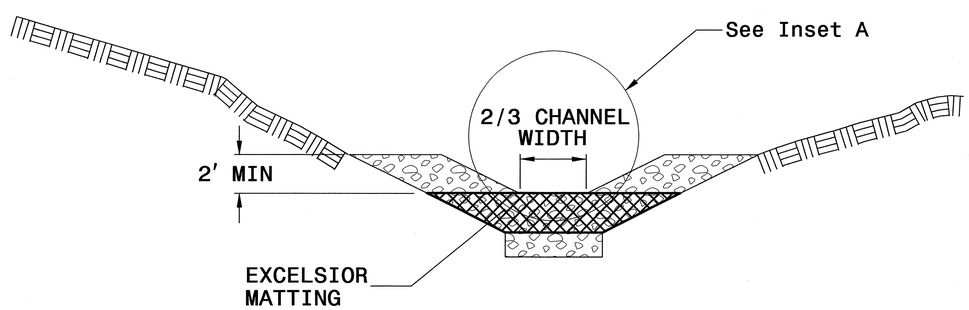
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

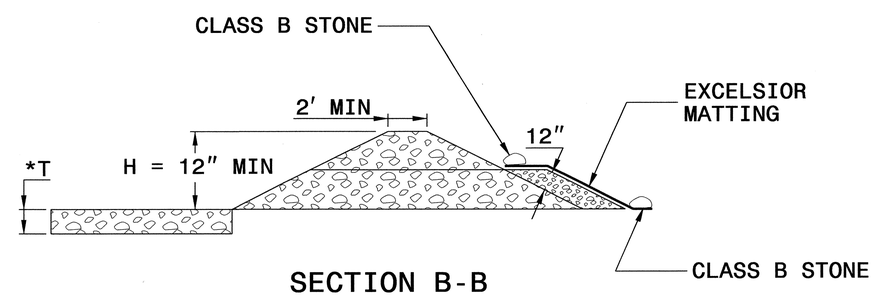
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4763	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-4763	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	-L-	13+00	14+50	LT	80
4	-L-	16+00	17+50	LT	75
4	-DRV-	11+60	12+20	RT	65
5	-DET-	10+25	13+00	LT	140
5	-TEMPDRV-	10+40	10+80	RT	35
5	-TEMPDRV-	10+80	11+80	RT	90
			SUBTOTAL		485
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					3650
			TOTAL		4135
			SAY		4150

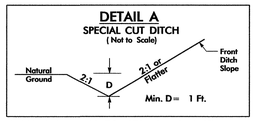
MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

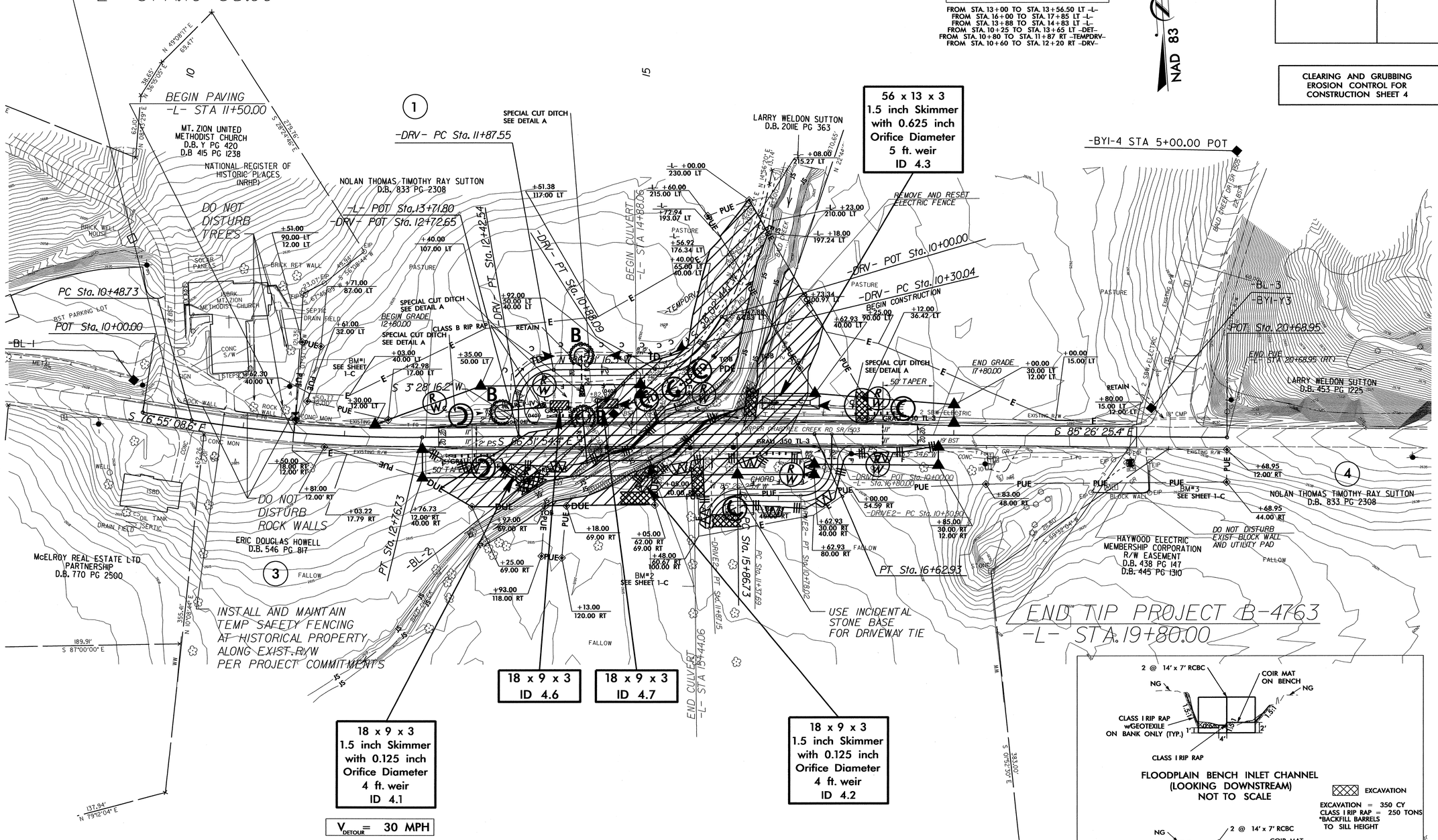
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 4

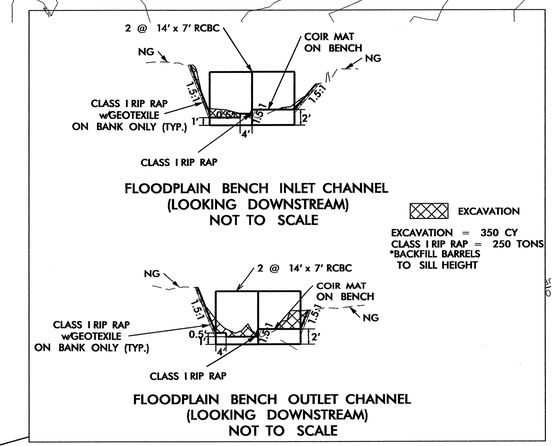
DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

NAD 83





ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

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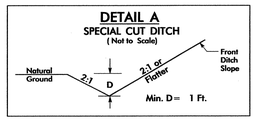
PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-5/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

NAD 83

INSTALL DRIVEWAY PIPE DURING CLEARING & GRUBBING PHASE

42 x 20 x 3
ID 5.4CG

BEGIN DETOUR
-DET- STA 10+10.00

-DET- PC Sta. 10+00.00

-DET- PT Sta. 12+69.94

-DET- PRC Sta. 11+46.57

-DET- STA 13+88.64

-DET- PT Sta. 17+84.80

-DET- PRC Sta. 16+55.24

-DET- PC Sta. 15+20.95

BEGIN CONSTRUCTION
-TEMPDRV- POC STA 10+28.00

-TEMPDRV- POT Sta. 10+24.63

-TEMPDRV- PC Sta. 10+00.00

-TEMPDRV- PT Sta. 11+35.22

-TEMPDRV- PC Sta. 11+50.74

-TEMPDRV- PT Sta. 11+82.20

-TEMPDRV- POT Sta. 12+12.10

END DETOUR
-DET- STA 17+84.80

END PUE
STA 20+68.95 (RT)

-BL-1

-BL-2 STA 9+36.13

-BL-3

-BYI-4

-BYI-3

MT. ZION UNITED METHODIST CHURCH
D.B. Y PG 420
D.B 415 PG 1238

NATIONAL REGISTER OF HISTORIC PLACES (NRHP)

NOLAN THOMAS TIMOTHY RAY SUTTON
D.B. 833 PG 2308

LARRY WELDON SUTTON
D.B. 453 PG 1222

LARRY WELDON SUTTON
D.B. 453 PG 363

LARRY WELDON SUTTON
D.B. 453 PG 1225

NOLAN THOMAS TIMOTHY RAY SUTTON
D.B. 833 PG 2308

ERIC DOUGLAS HOWELL
D.B. 546 PG 817

McELROY REAL ESTATE LTD PARTNERSHIP
D.B. 770 PG 2500

HAYWOOD ELECTRIC MEMBERSHIP CORPORATION
R/W EASEMENT
D.B. 438 PG 147
D.B. 445 PG 1310

DO NOT DISTURB TREES

DO NOT DISTURB STONE WALL

DO NOT DISTURB EXIST BLOCK WALL AND UTILITY PAD

REMOVE AND RESET ELECTRIC FENCE FOR DETOUR CONSTRUCTION

TIE TO EXIST SUPER & EDGE OF PVMT

INSTALL AND MAINTAIN TEMP SAFETY FENCING AT HISTORICAL PROPERTY ALONG EXIST.R/W PER PROJECT COMMITMENTS

REMOVE EXISTING BRIDGE AFTER TRAFFIC IS SHIFTED ONTO DETOUR

56 x 13 x 3
1.5 inch Skimmer
with 0.625 inch
Orifice Diameter
5 ft. weir
ID 4.3

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

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

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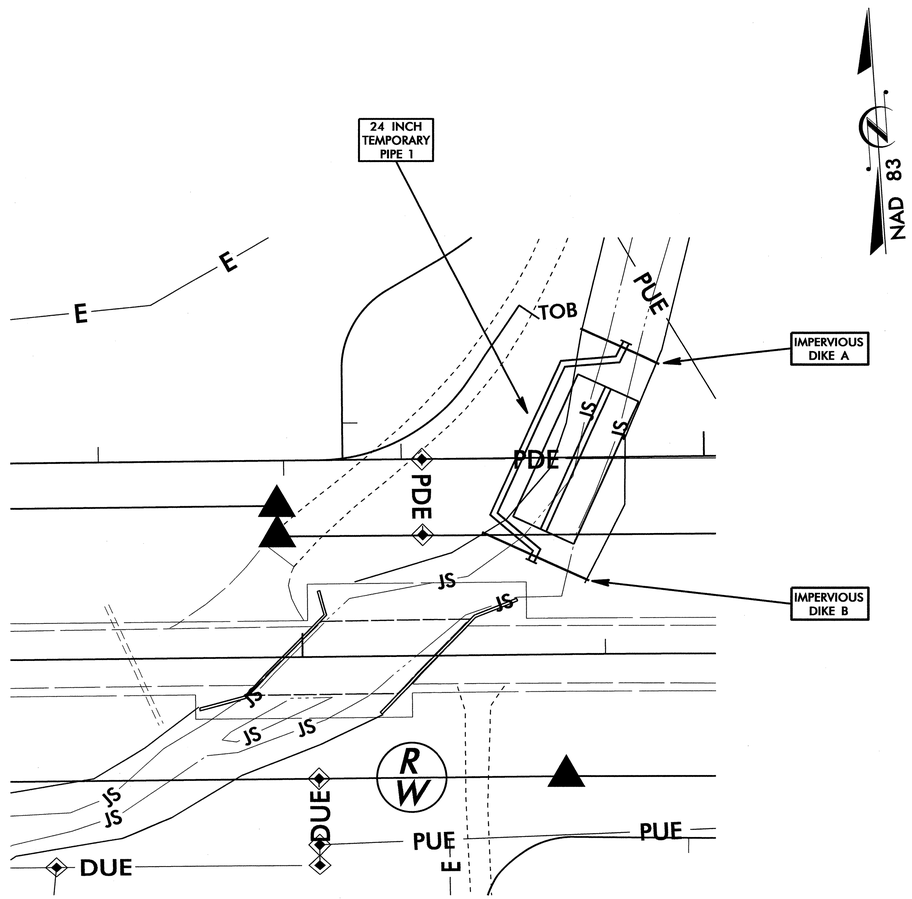
CULVERT CONSTRUCTION SEQUENCE STA. 15+16 –L– (SHEET 1 OF 2)

PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

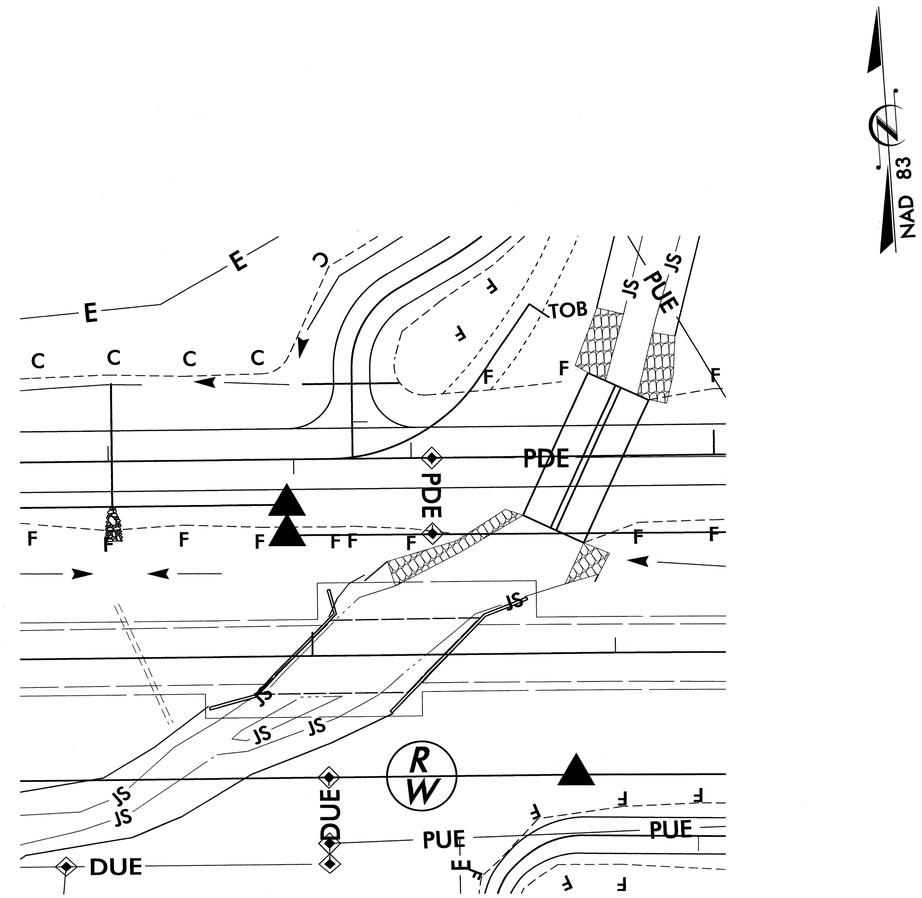
PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT IMPERVIOUS DIKES A AND B AND INSTALL 24 INCH TEMPORARY PIPE 1, DIVERTING FLOW.
3. INSTALL 2 @ 120 INCH CSP FOR THE DETOUR.
4. REMOVE IMPERVIOUS DIKES A AND B AND 24 INCH TEMPORARY PIPE 1, ALLOWING FLOW THROUGH 2 @ 120 INCH CSP.



PHASE II

5. CONSTRUCT INLET/OUTLET CHANNEL IMPROVEMENTS FOR THE 2 @ 120 INCH CSP.
6. CONSTRUCT DETOUR ALIGNMENT AND TEMPORARY DRIVEWAY CONNECTION.
7. SHIFT TRAFFIC TO THE DETOUR ALIGNMENT.

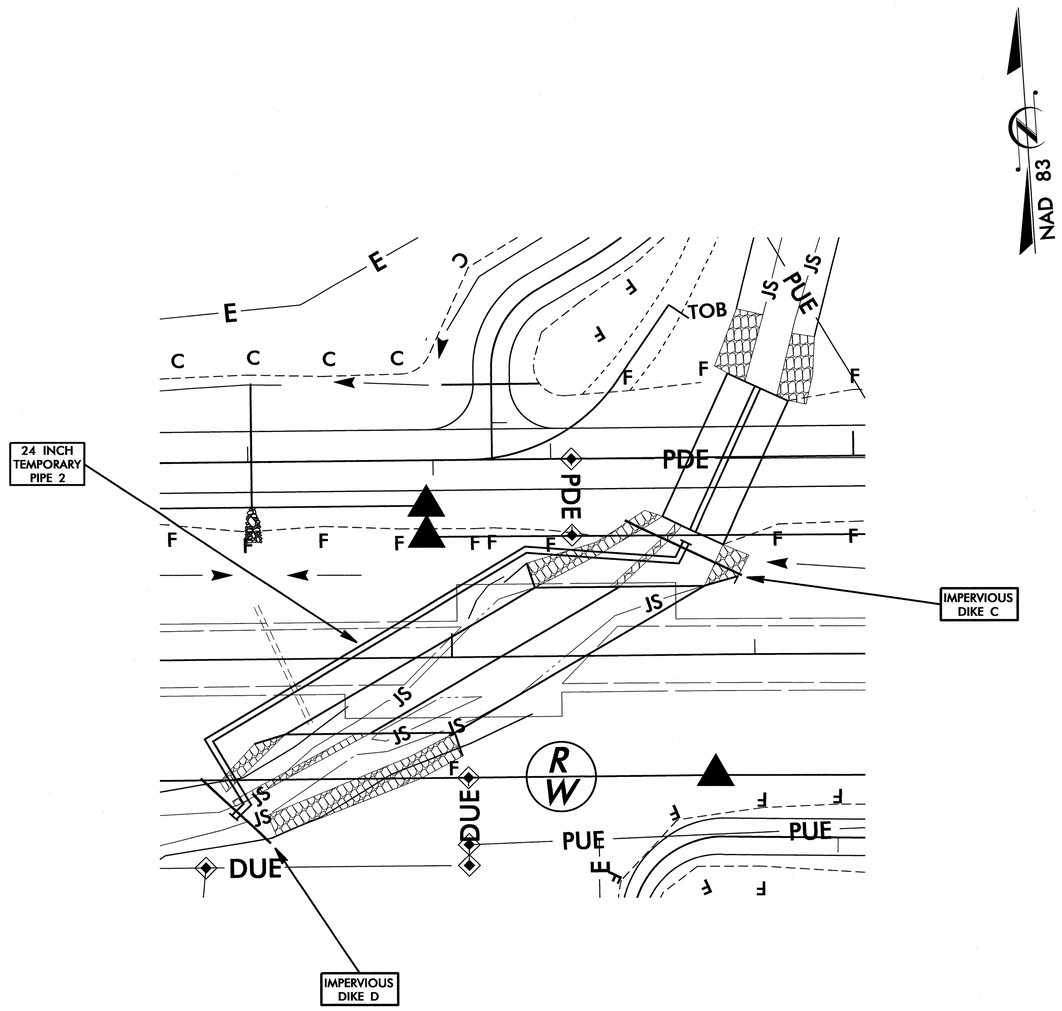


CULVERT CONSTRUCTION SEQUENCE STA. 15+16 –L– (SHEET 2 OF 2)

PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-7/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

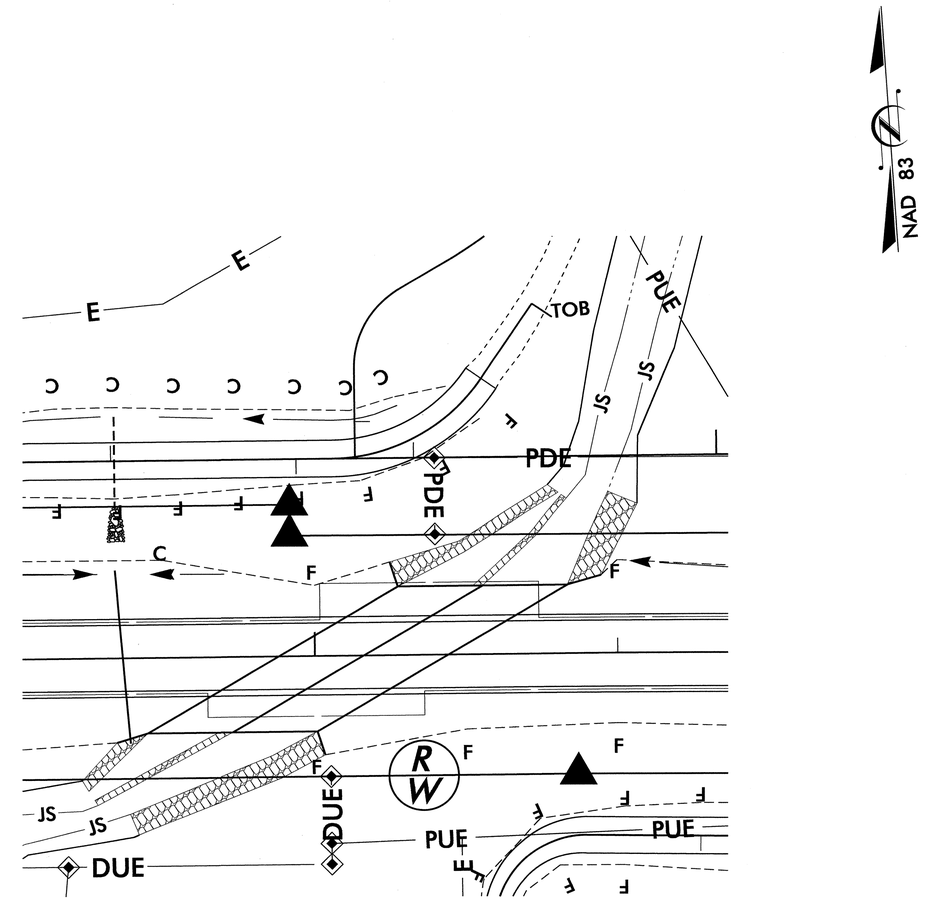
PHASE III

8. REMOVE EXISTING BRIDGE.
9. CONSTRUCT IMPERVIOUS DIKES C AND D AND INSTALL 24 INCH TEMPORARY PIPE 2, DIVERTING FLOW.
10. CONSTRUCT PROPOSED CULVERT, AND PORTION OF INLET/OUTLET CHANNEL IMPROVEMENTS.
11. REMOVE IMPERVIOUS DIKES C AND D, AND 24 INCH TEMPORARY PIPE 2, ALLOWING FLOW THROUGH PROPOSED CULVERT.



PHASE IV

12. COMPLETE INLET/OUTLET CHANNEL IMPROVEMENTS.
13. REMOVE ANY REMAINING SPECIAL STILLING BASIN(S).
14. CONSTRUCT ROADWAY OVER PROPOSED CULVERT AND SHIFT TRAFFIC.
15. REMOVE DETOUR ALIGNMENT AND TEMPORARY DRIVEWAY CONNECTION, AND CONSTRUCT PROPOSED DRIVEWAY.



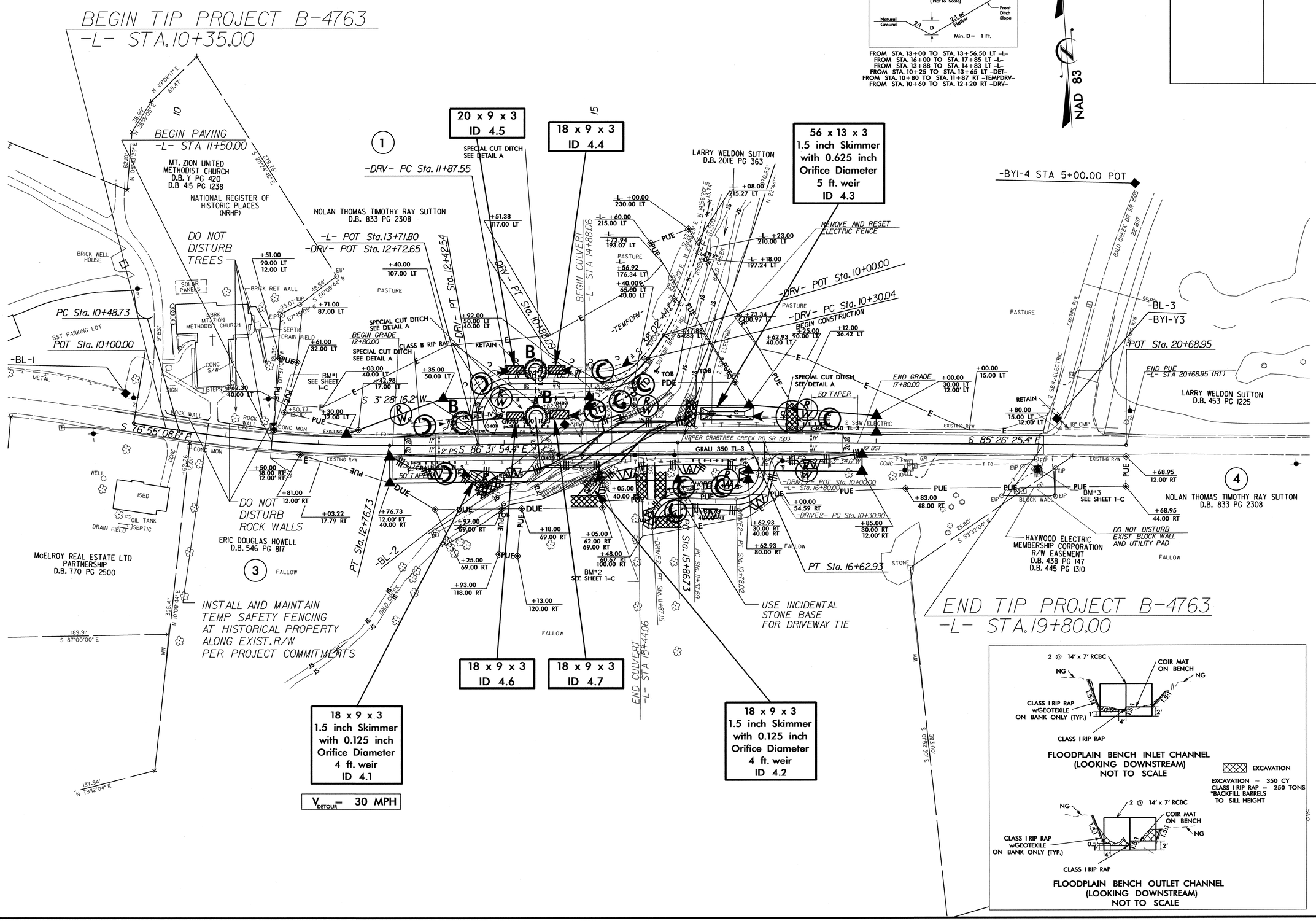
PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-8/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

Natural Ground — 2:1 — D — 2:1 or Flatter — Front Ditch Slope
Min. D= 1 Ft.

FROM STA. 13+00 TO STA. 13+56.50 LT -L-
FROM STA. 16+00 TO STA. 17+85 LT -L-
FROM STA. 13+88 TO STA. 14+83 LT -L-
FROM STA. 10+25 TO STA. 13+65 LT -DET-
FROM STA. 10+80 TO STA. 11+87 RT -TEMPDRV-
FROM STA. 10+60 TO STA. 12+20 RT -DRV-

NAD 83



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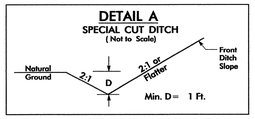
PROJECT REFERENCE NO.	SHEET NO.
B-4763	EC-9/CONST.5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DETOUR

DETAIL A
SPECIAL CUT DITCH
(Not to Scale)



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FROM STA. 16+00 TO STA. 17+85 LT –L–
FROM STA. 13+88 TO STA. 14+83 LT –L–
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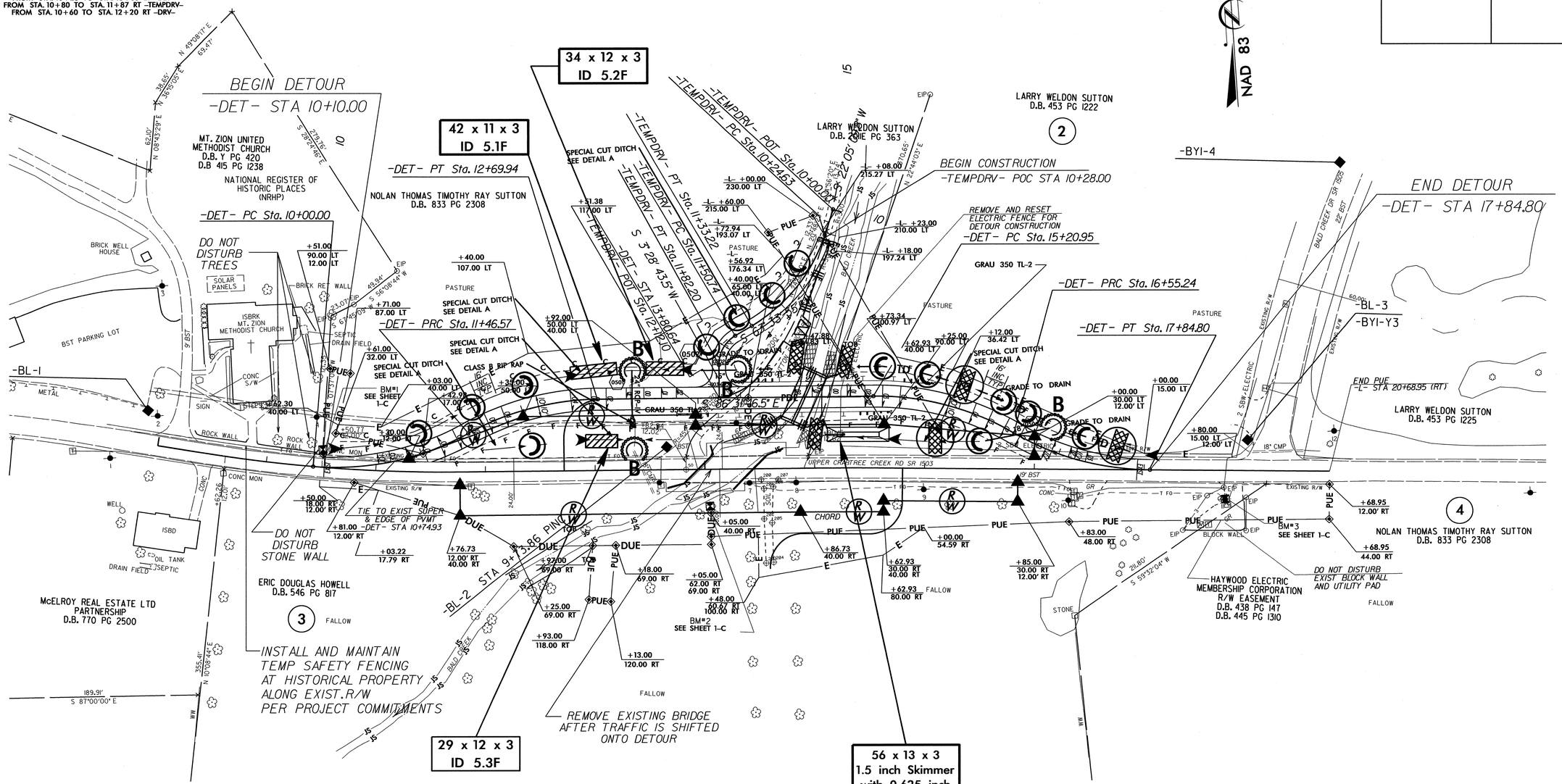
FROM STA. 10+60 TO STA. 12+20 RT –DRV–



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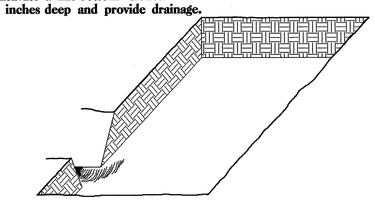
PROJECT REFERENCE NO.	SHEET NO.
B-4763	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

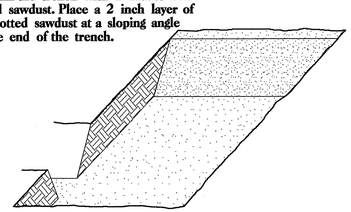
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

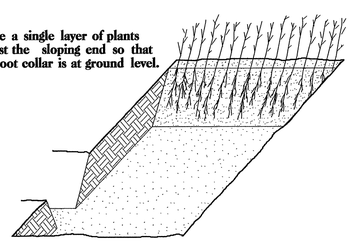
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



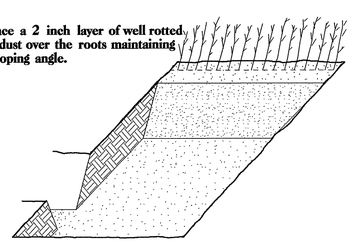
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

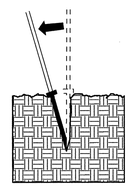


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

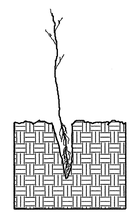


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

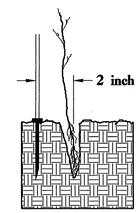
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



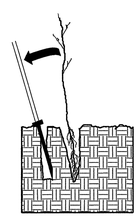
1. Insert planting bar as shown and pull handle toward planter.



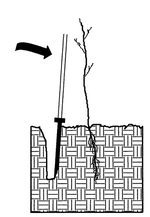
2. Remove planting bar and place seedling at correct depth.



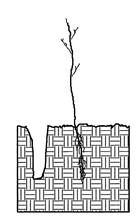
3. Insert planting bar 2 inches toward planter from seedling.



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:

33% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
34% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
33% BETULA NIGRA	RIVER BIRCH	12 in - 18 in BR

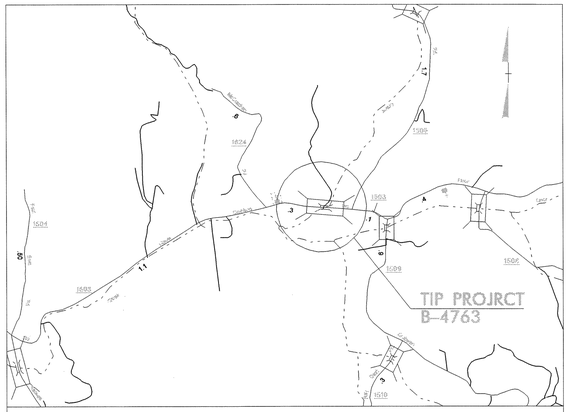
REFORESTATION DETAIL SHEET

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

TIP PROJECT: B-4763

T.I.P. NO.	SHEET NO.
B-4763	UO-1

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

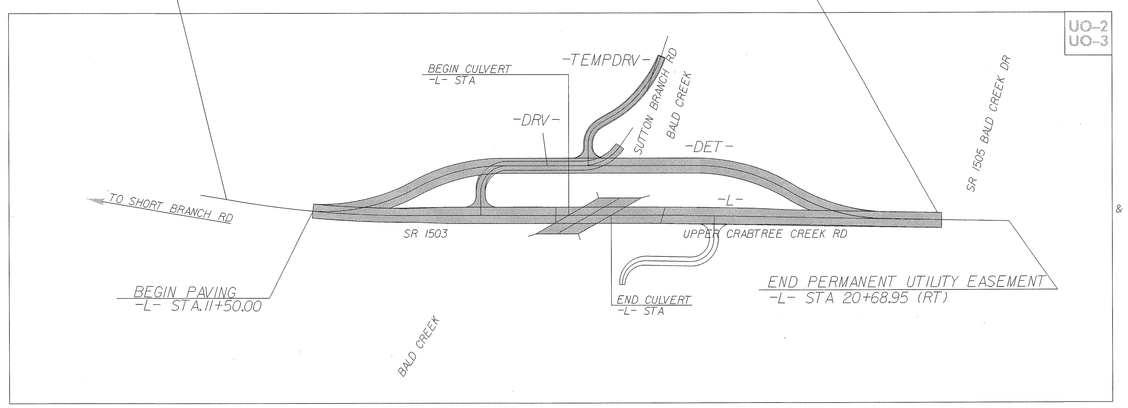
UTILITIES BY OTHERS PLANS
HAYWOOD COUNTY

LOCATION: BRIDGE NO. 35 OVER BALD CREEK ON SR 1503 (UPPER CRABTREE CREEK RD)

TYPE OF WORK: AERIAL POWER AND TELEPHONE

END TIP PROJECT B-4763
-L- STA. 19+80.00

BEGIN TIP PROJECT B-4763
-L- STA. 10+35.00



NAD 83

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	UTILITIES BY OTHERS PLAN SHEET

UTILITY OWNERS ON PROJECT

(1) AT&T OF NC (TELEPHONE)

(2) HAYWOOD EMC (POWER DISTRIBUTION)

Cardno

CARDNO (NC), INC.
4020 OLD PINEVILLE ROAD
CHARLOTTE NC 28217
PHONE (704) 927-9700
FAX (704) 529-3272

Thomas J. Yocom, P.L.S. SENIOR PROJECT MANAGER

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 A. Barclay, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
Ali Koucheki, PE UTILITIES PROJECT DESIGNER

09/08/99
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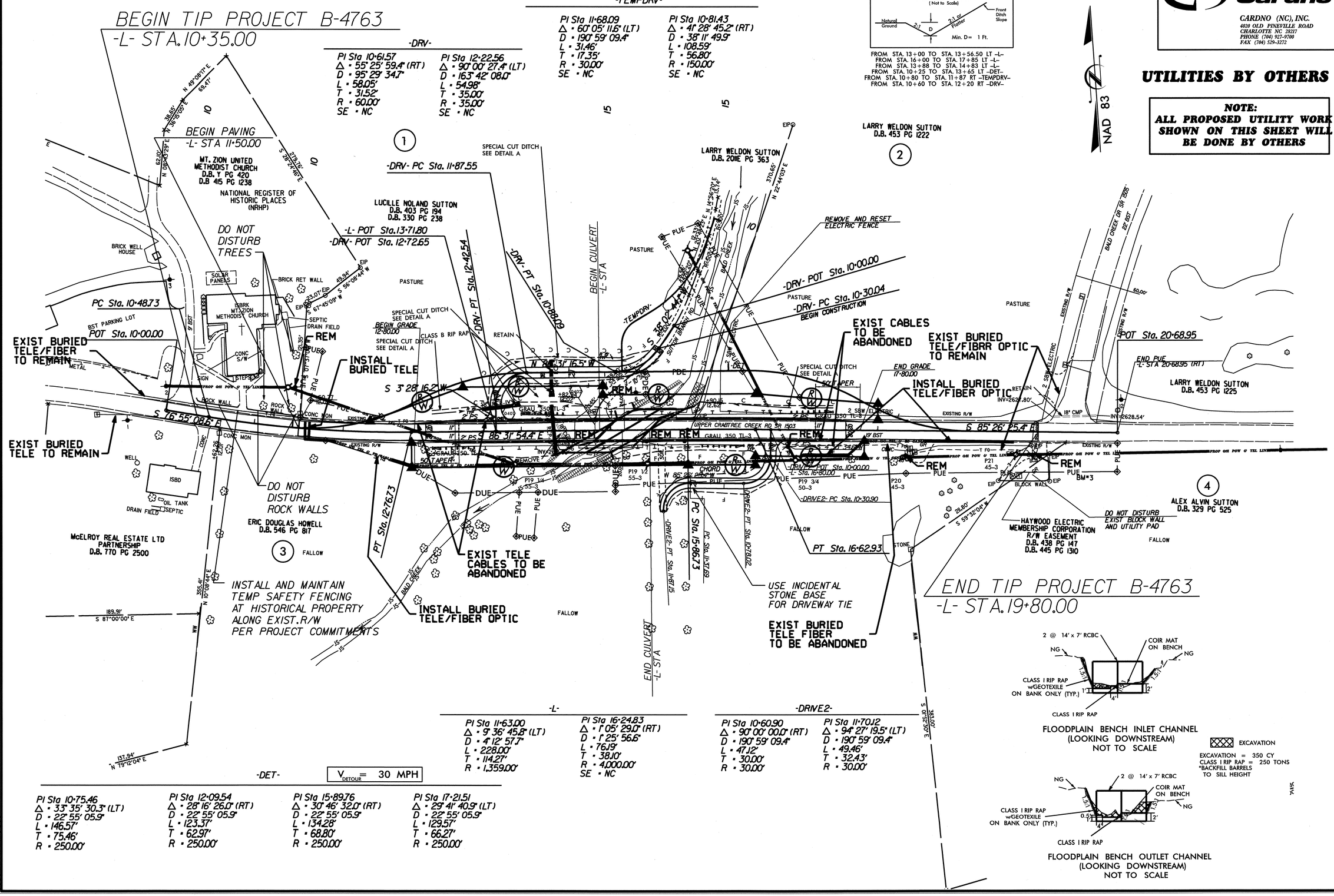
PROJECT REFERENCE NO.	SHEET NO.
B-4763	U02

Cardno

CARDNO (NC), INC.
4020 OLD PINEVILLE ROAD
CHARLOTTE NC 28217
PHONE (704) 927-9700
FAX (704) 529-3272

UTILITIES BY OTHERS

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



DETAIL A
SPECIAL CUT DITCH
(Not to Scale)

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FROM STA. 16+00 TO STA. 17+85 LT –L–
FROM STA. 13+88 TO STA. 14+83 LT –L–
FROM STA. 10+25 TO STA. 13+65 LT –DET–
FROM STA. 10+80 TO STA. 11+87 RT –TEMPDRV–
FROM STA. 10+60 TO STA. 12+20 RT –DRV–

5/14/99

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PROJ. REFERENCE NO.	SHEET NO.
B-4763	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDES BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+00.00	0	0
13+50.00	35	28
14+00.00	28	70
14+50.00	14	155
15+00.00	6	354
15+50.00	0	421
16+00.00	7	213
16+50.00	11	80
17+00.00	9	50
17+50.00	19	19

Station Det	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+25.00	0	0
10+50.00	13	1
10+75.00	10	2
11+00.00	7	7
11+25.00	5	15
11+50.00	6	18
11+75.00	8	19
12+00.00	11	19
12+25.00	14	21
12+50.00	13	40
12+75.00	8	75
13+00.00	6	118
13+25.00	4	132
13+50.00	5	117
13+75.00	3	106
13+80.64	0	23
14+00.00	0	75
14+25.00	0	119
14+50.00	0	200
14+75.00	0	231
15+00.00	0	144
15+25.00	0	78
15+50.00	0	72
15+75.00	0	59
16+00.00	0	45
16+25.00	0	32
16+50.00	0	24
16+75.00	0	28
17+00.00	1	33
17+25.00	1	23
17+50.00	0	10

Station Tempdrv	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+40.00	0	0
10+60.00	11	0
10+80.00	8	1
11+00.00	7	1
11+20.00	9	3
11+40.00	8	7
11+60.00	8	14
11+80.00	7	30
12+00.00	3	77

Station Drv	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+30.04	0	0
10+40.00	2	0
10+60.00	6	0
10+80.00	7	1
11+00.00	4	3
11+20.00	4	9
11+40.00	3	17
11+60.00	3	26
11+80.00	3	26
12+00.00	6	14
12+20.00	7	6
12+40.00	4	4
12+60.00	0	7
12+63.79	0	2

Station Drive2	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+11.01	0	0
10+15.00	0	3
10+25.00	0	9
10+50.00	0	31
10+75.00	0	34
11+00.00	0	27
11+25.00	0	17
11+50.00	0	7
11+72.10	0	2
11+87.15	1	1

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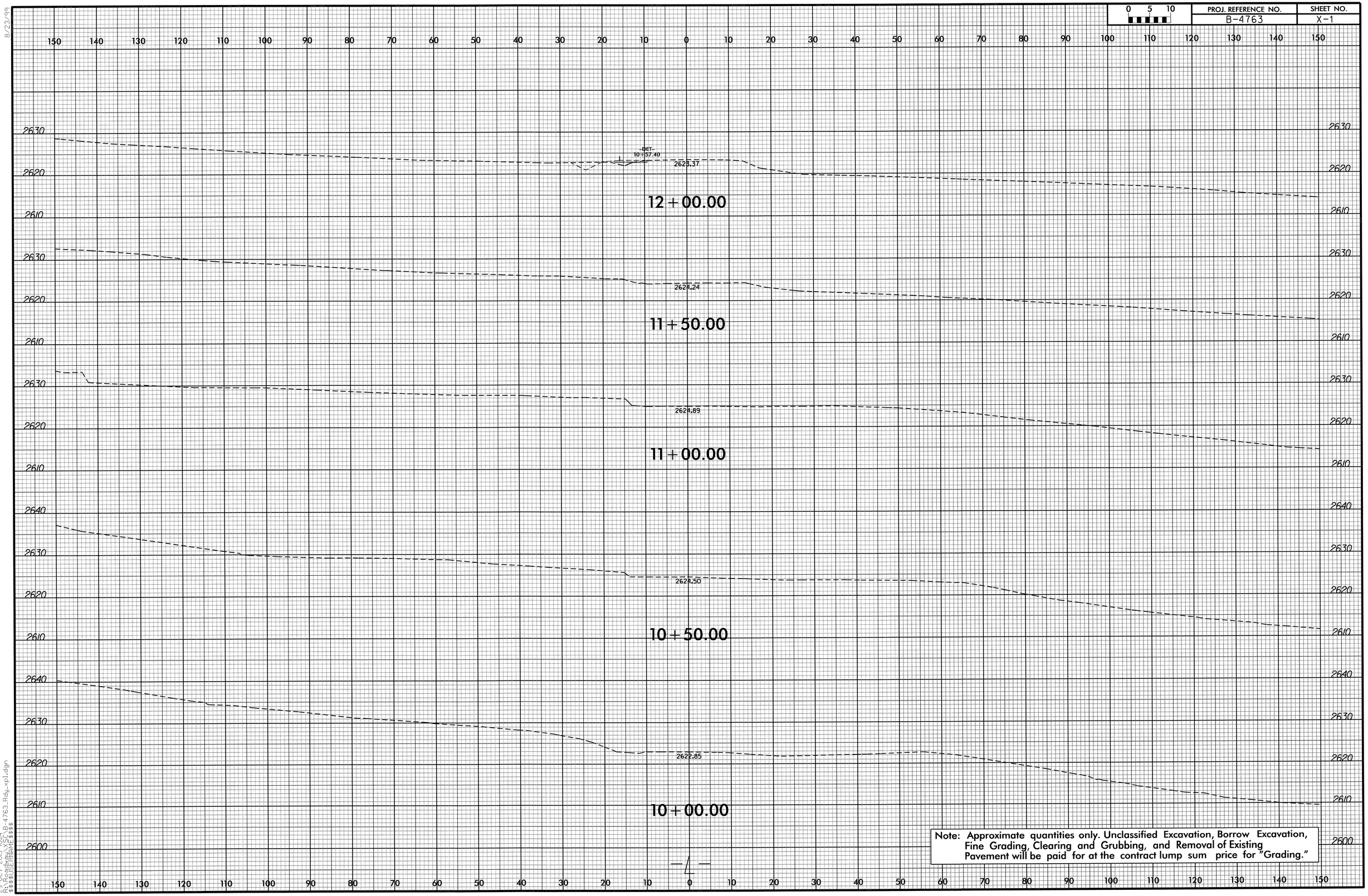

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

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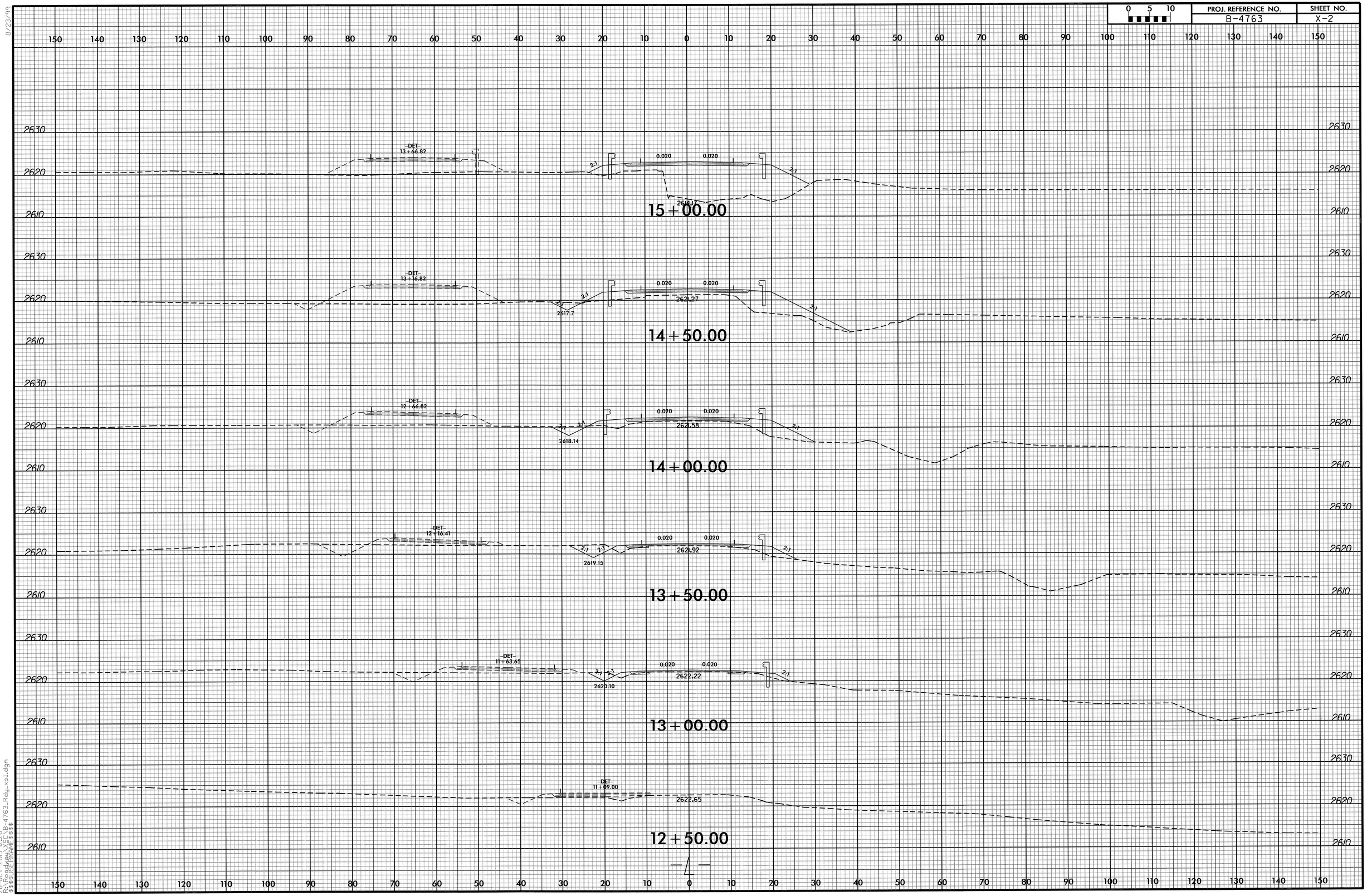

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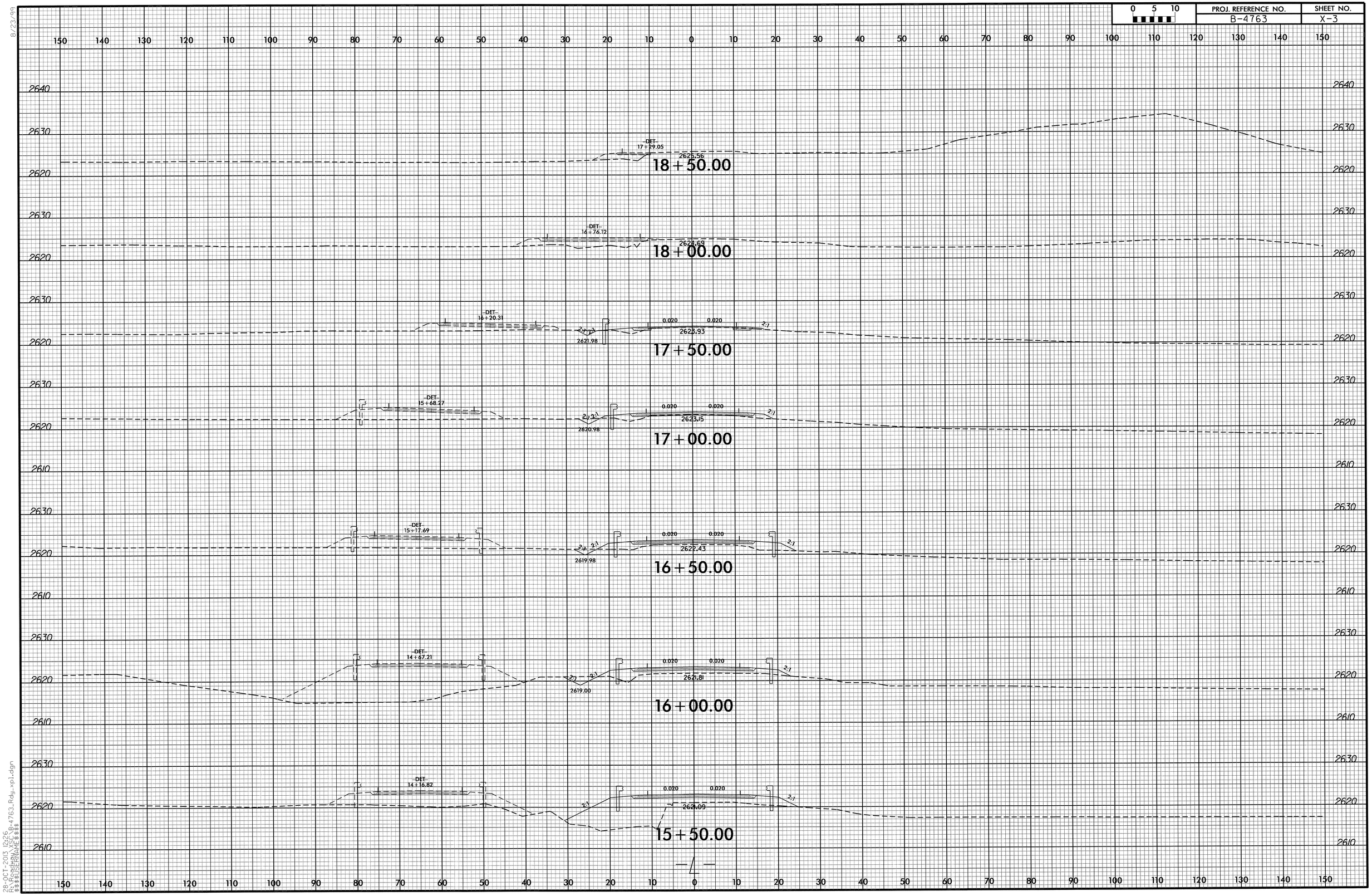

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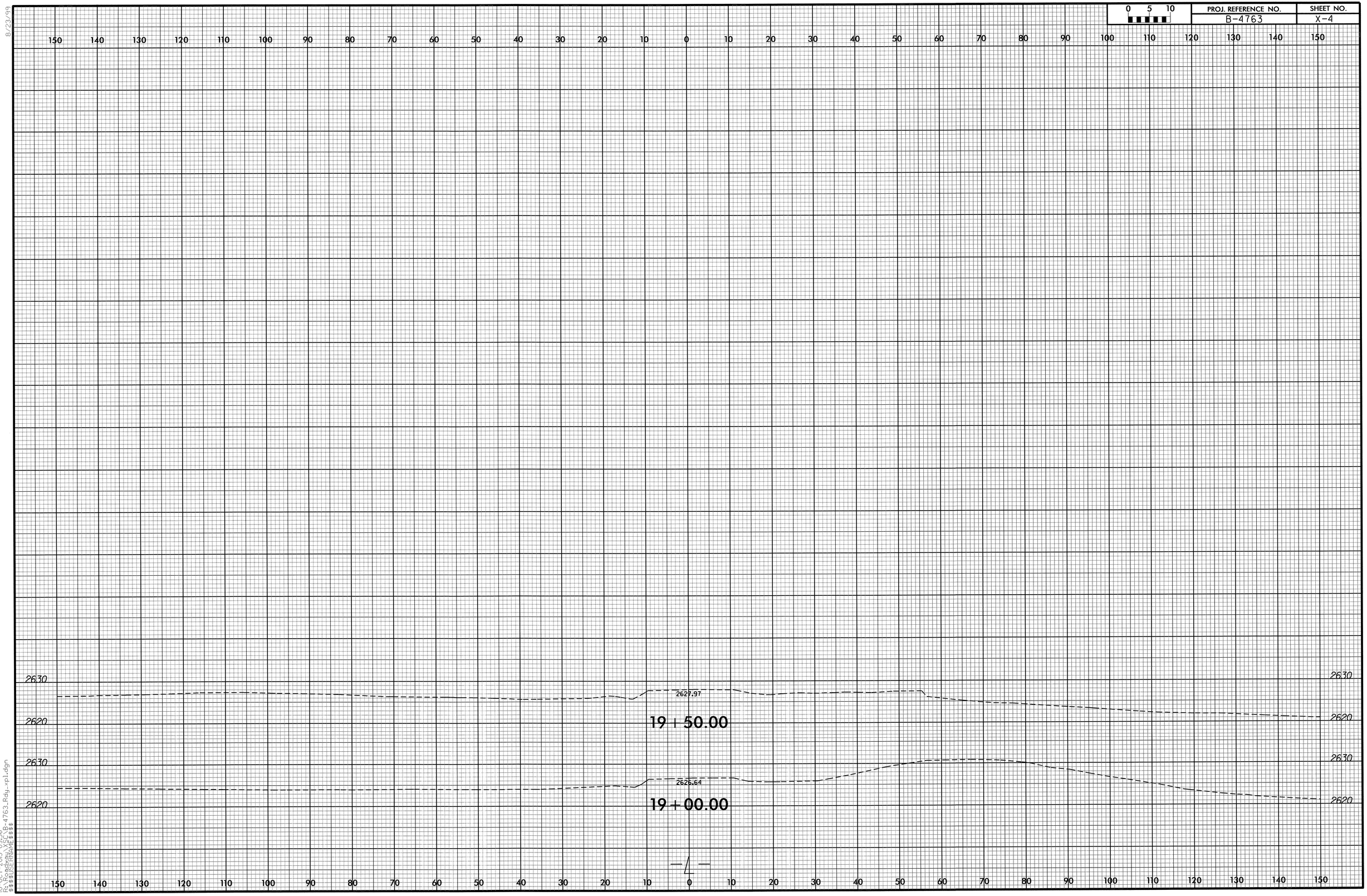

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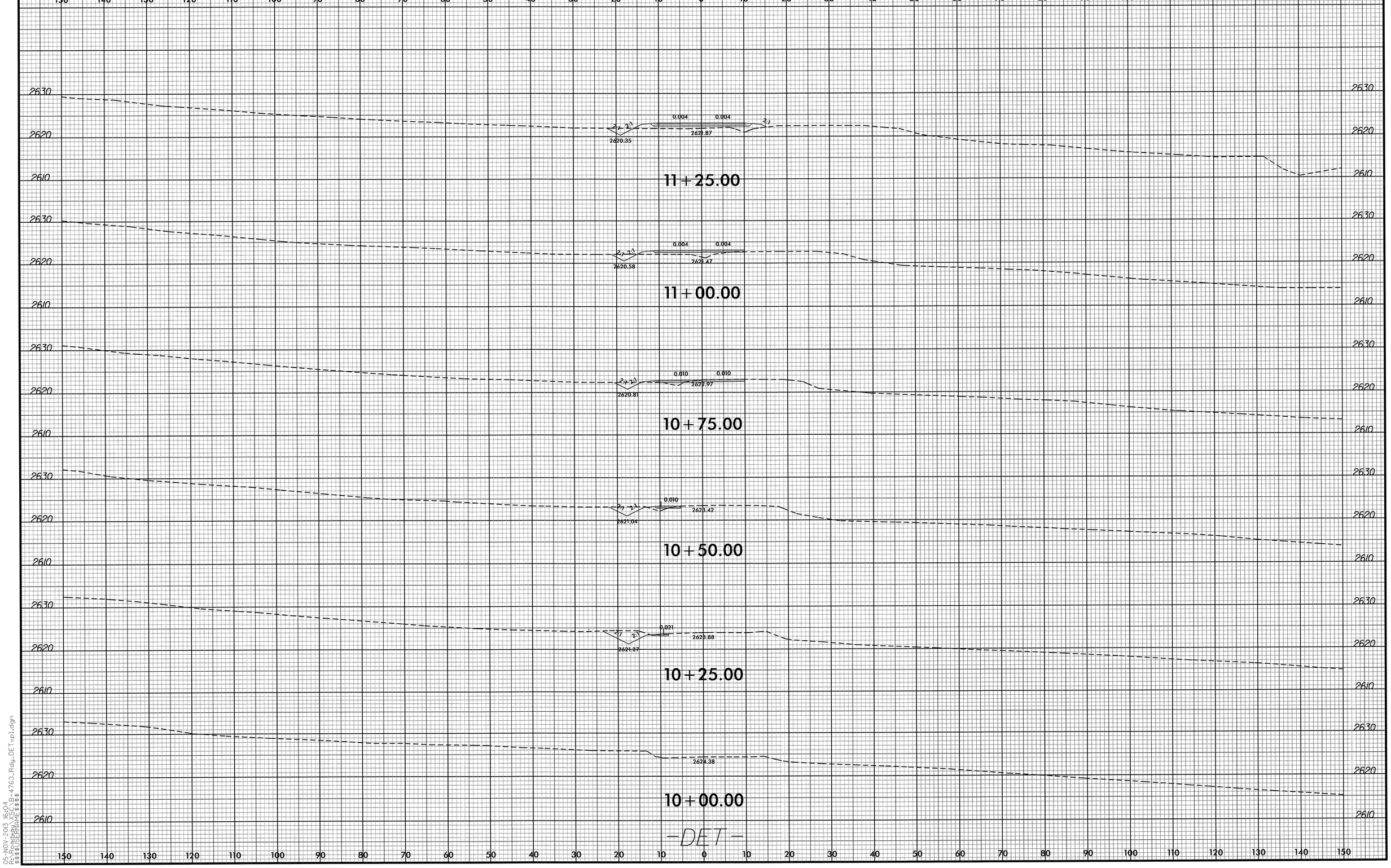

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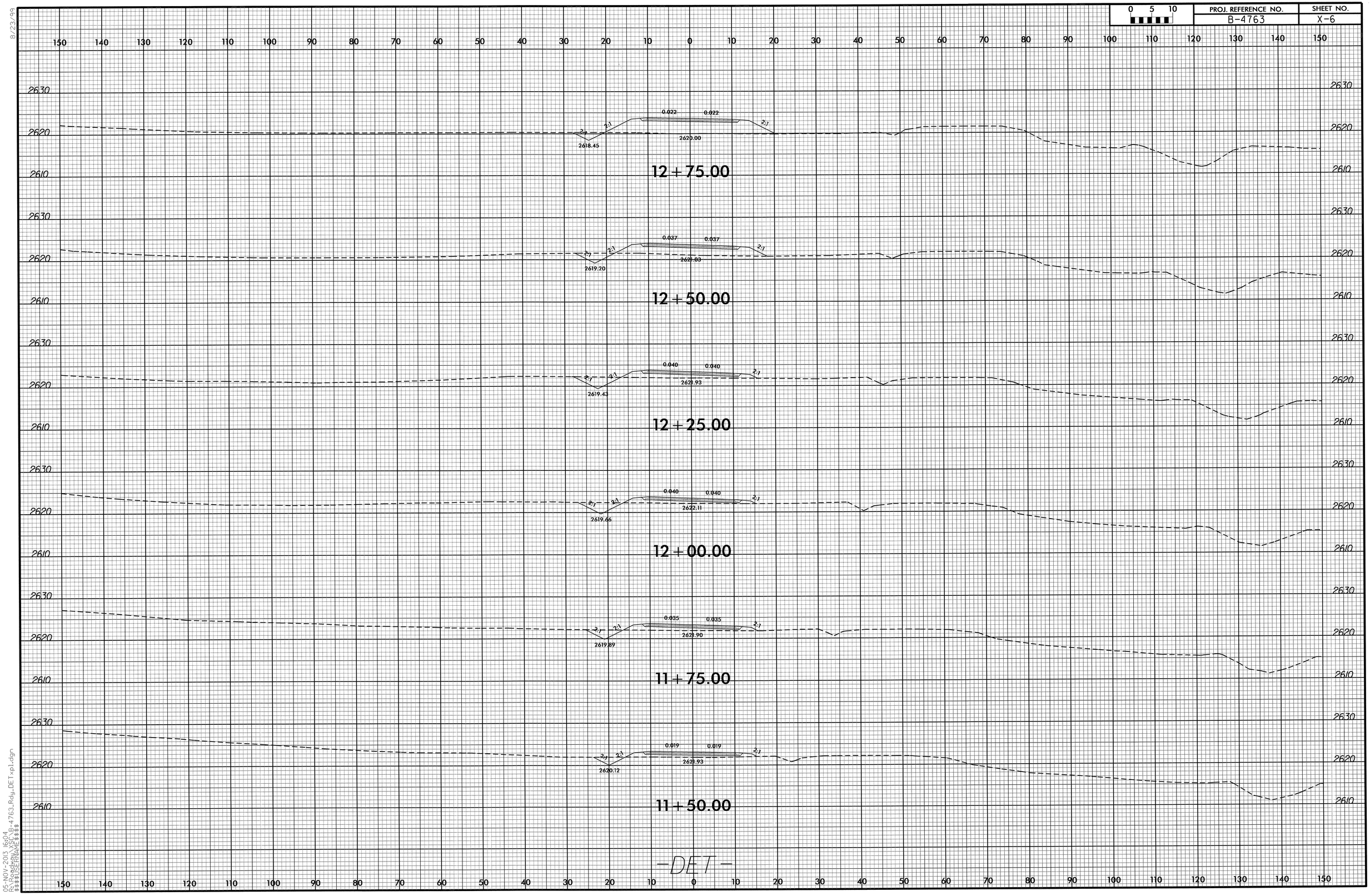

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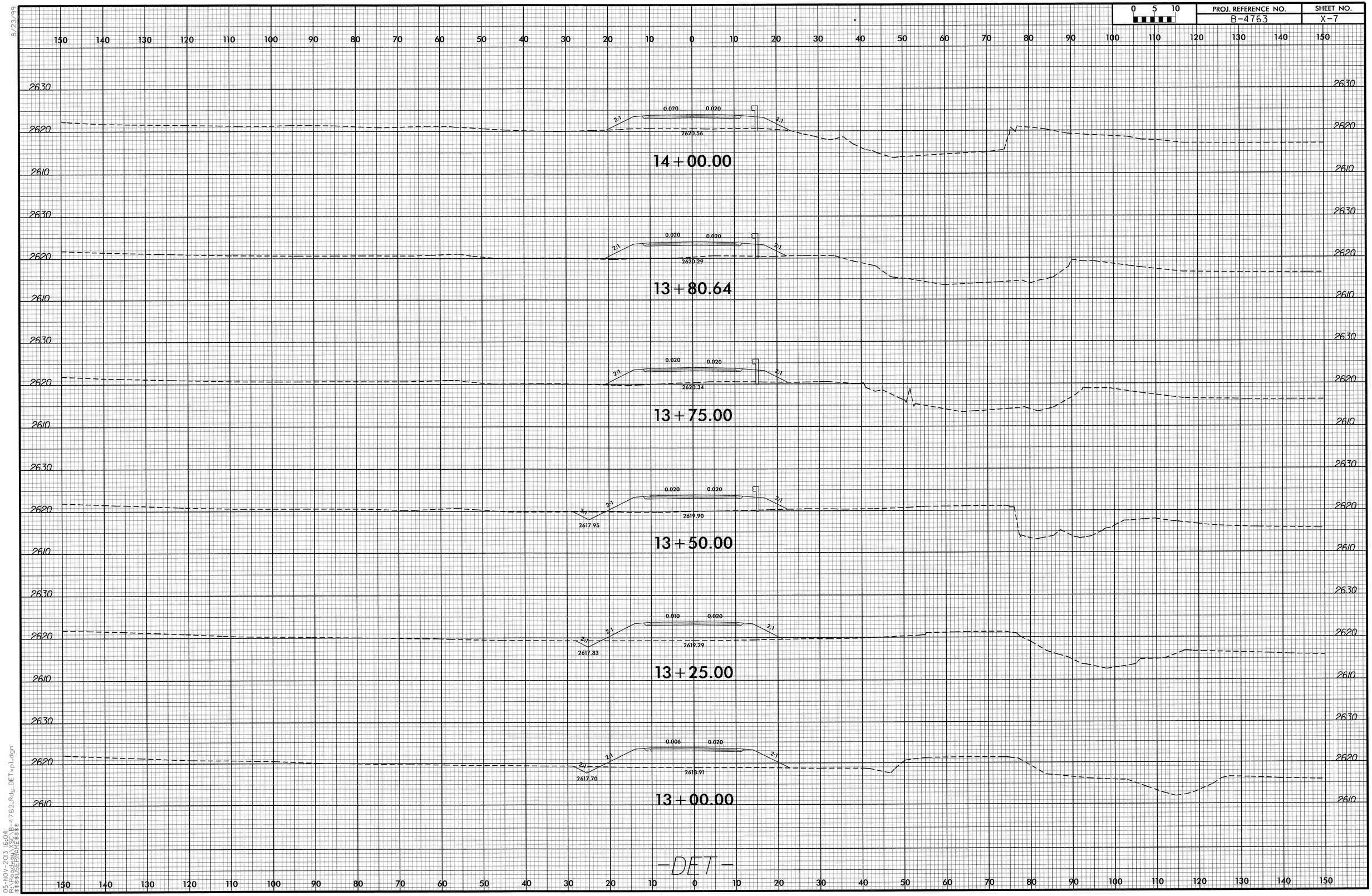

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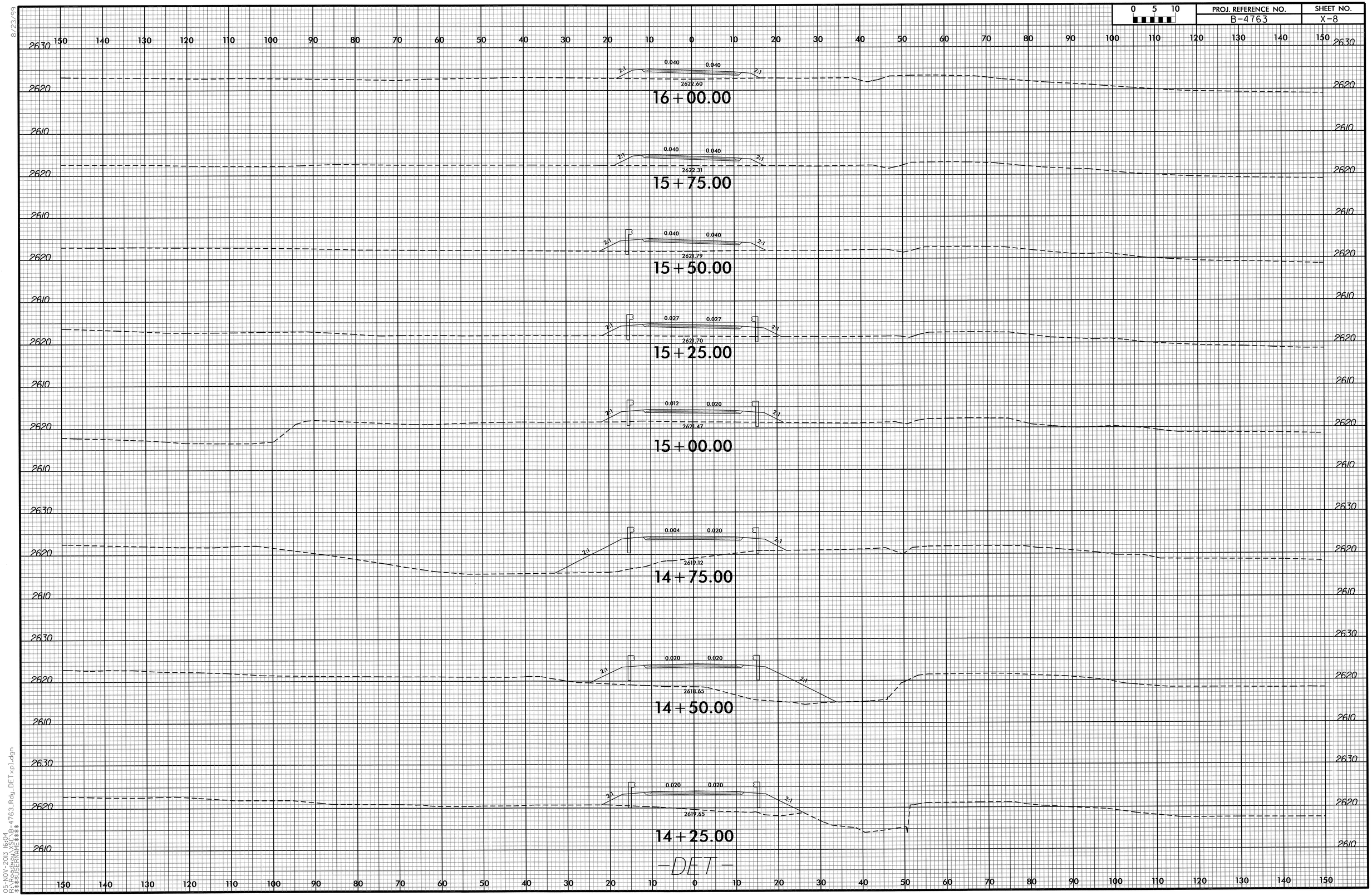

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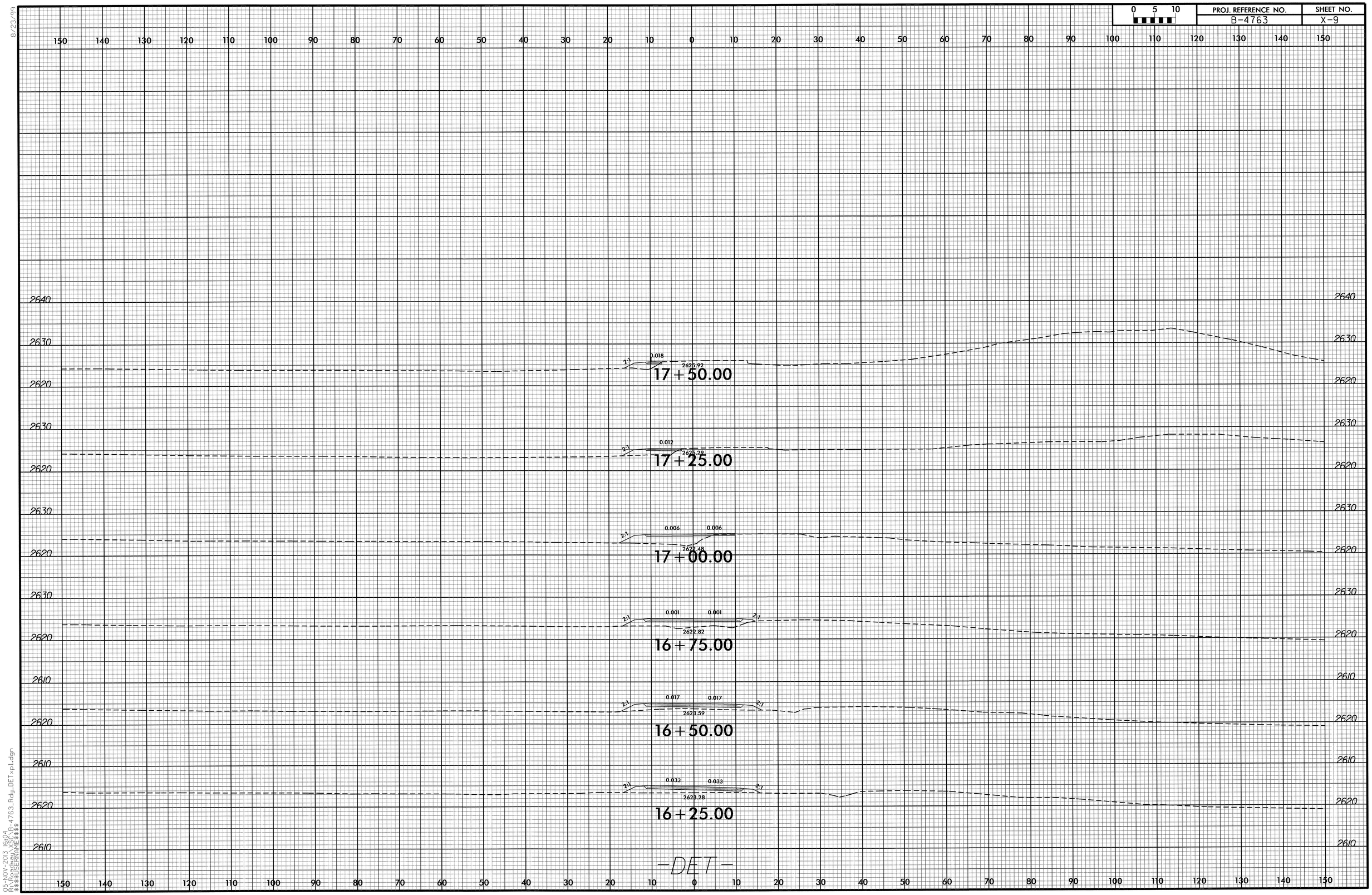

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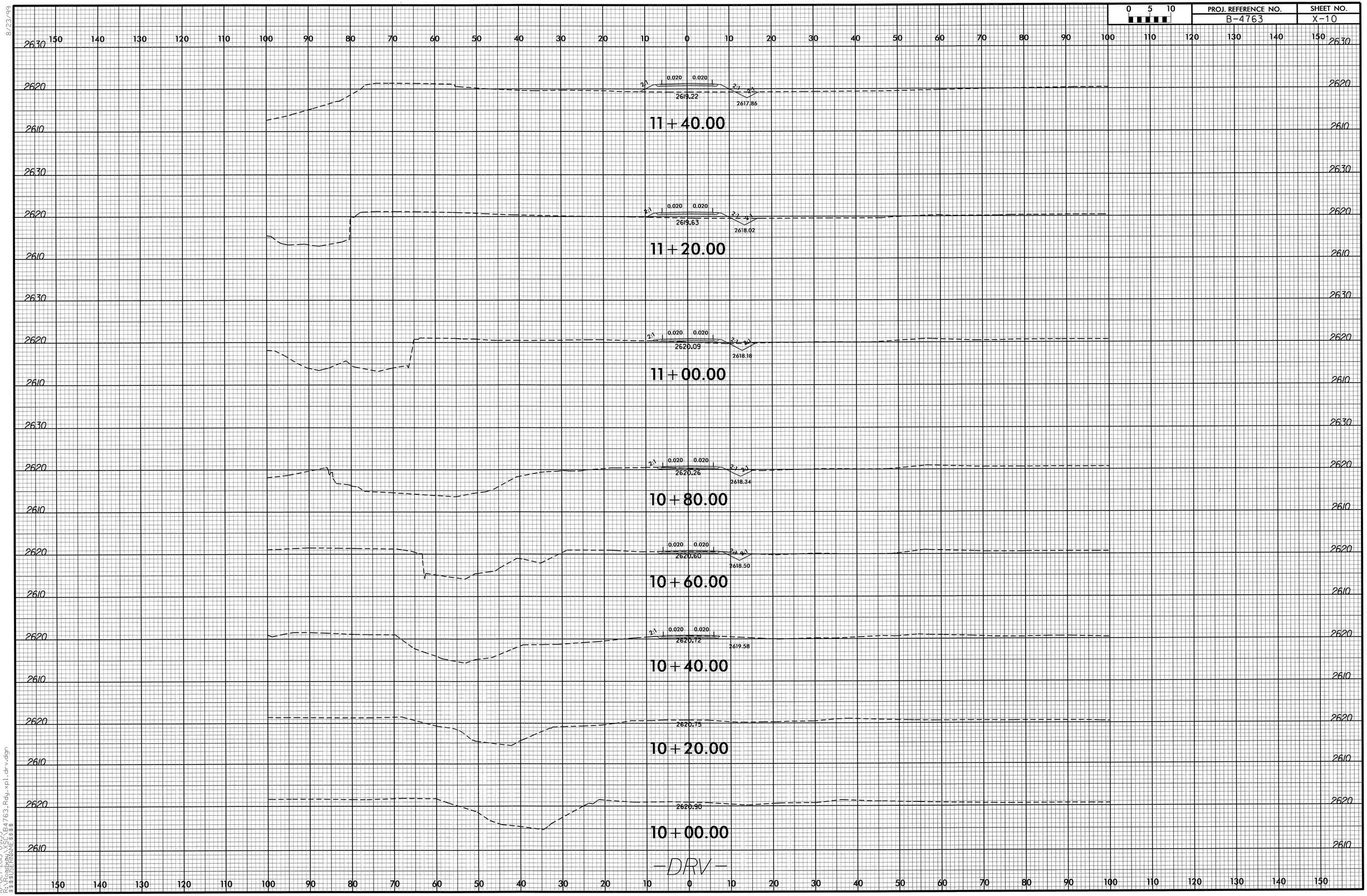

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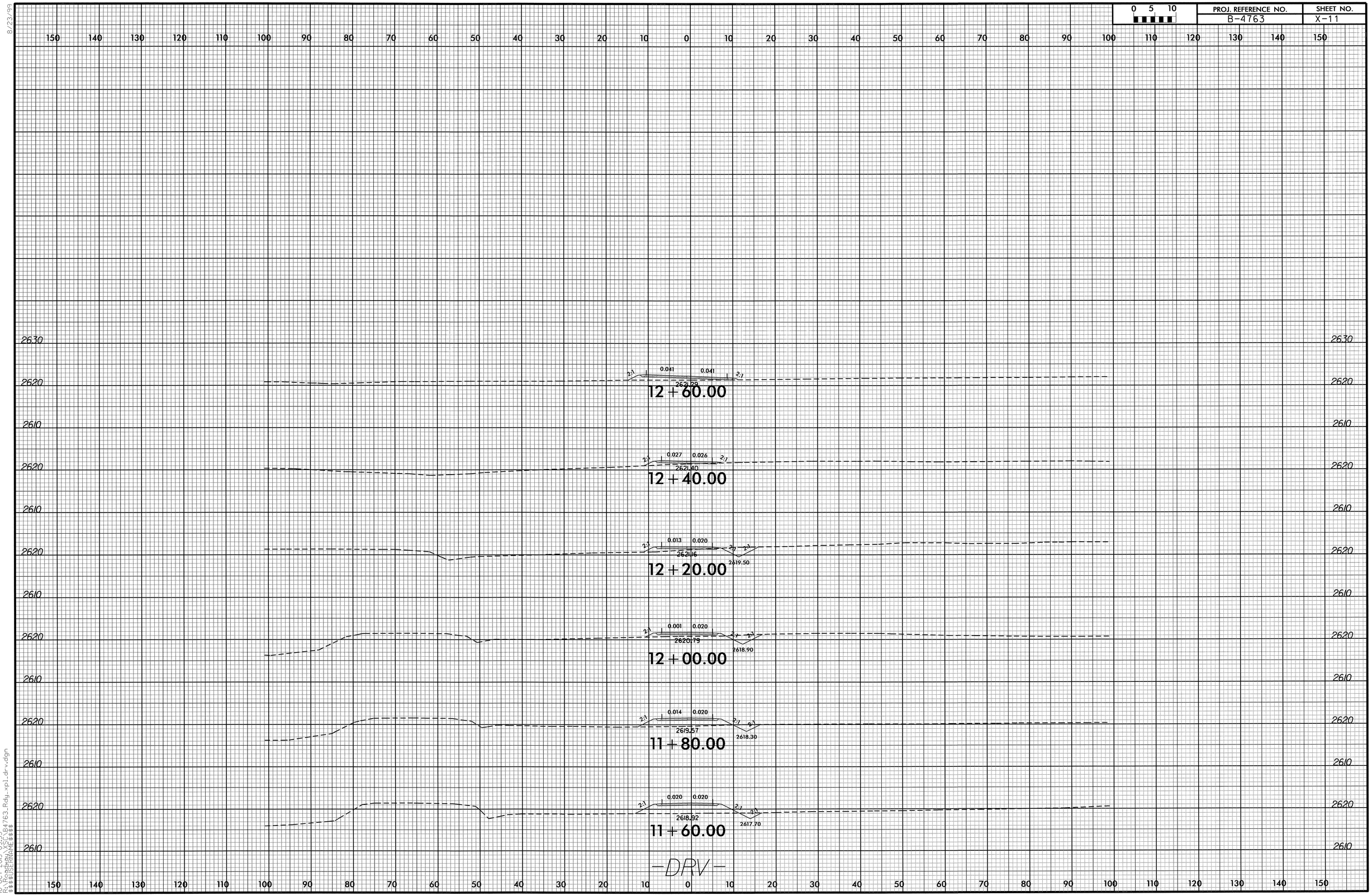

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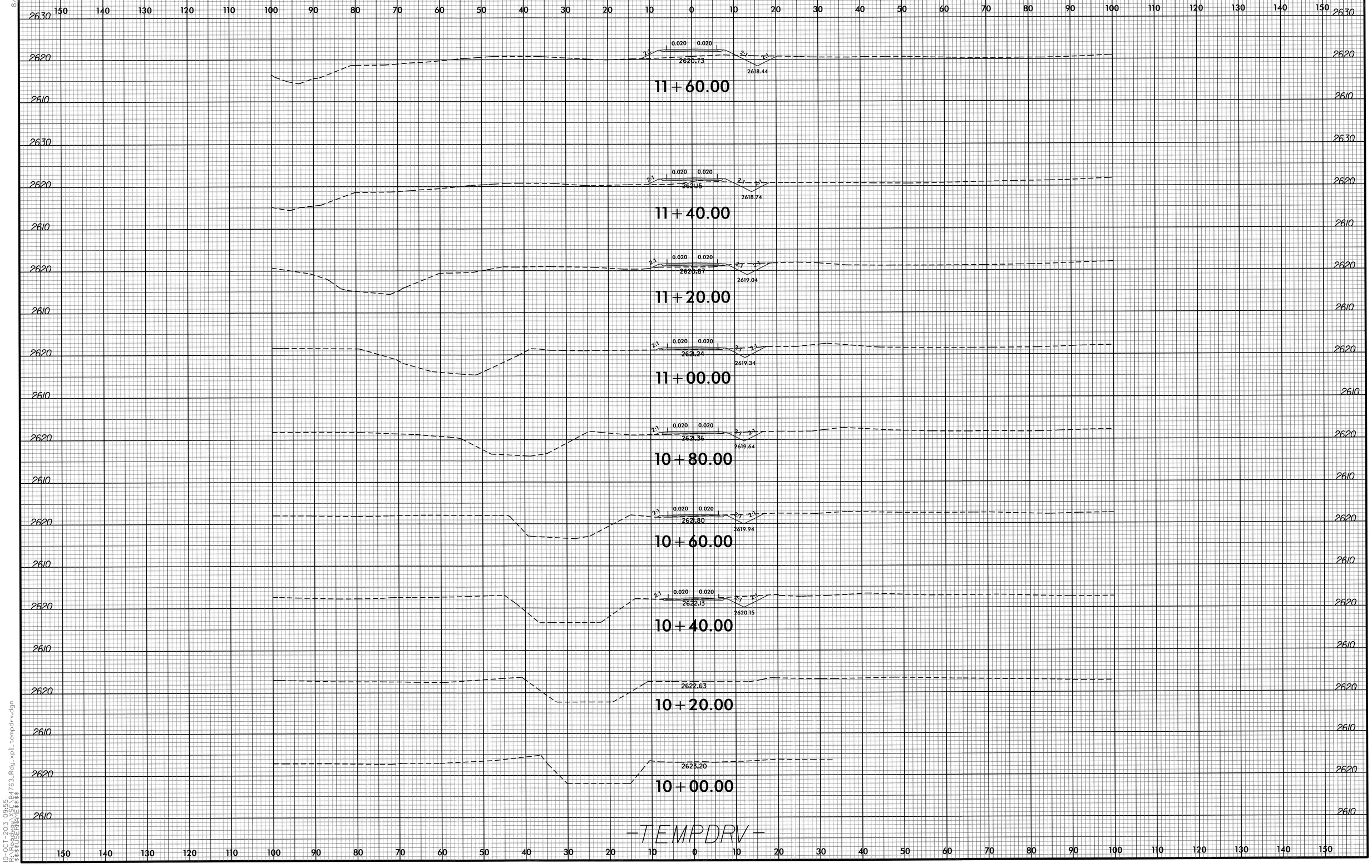

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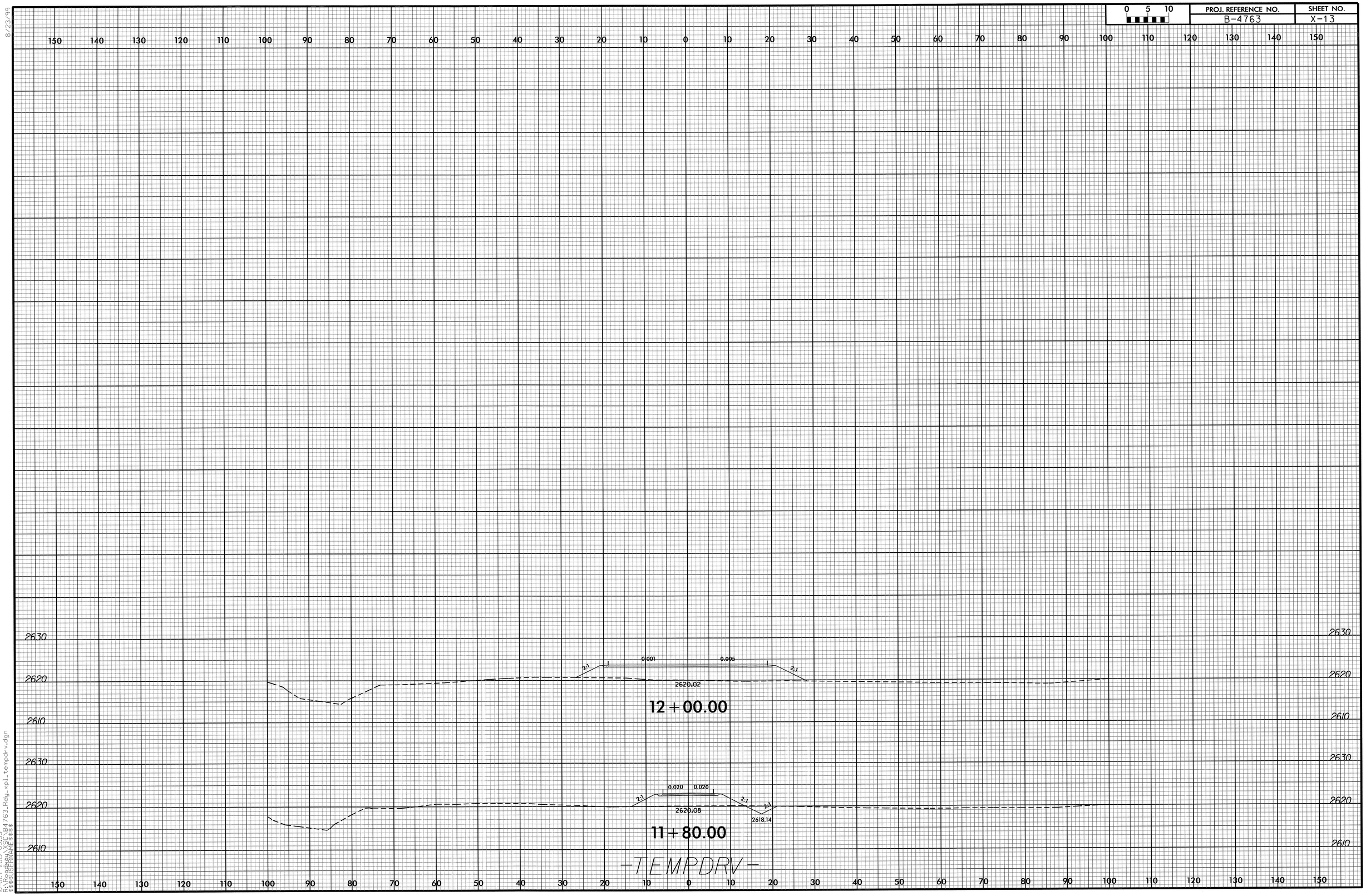

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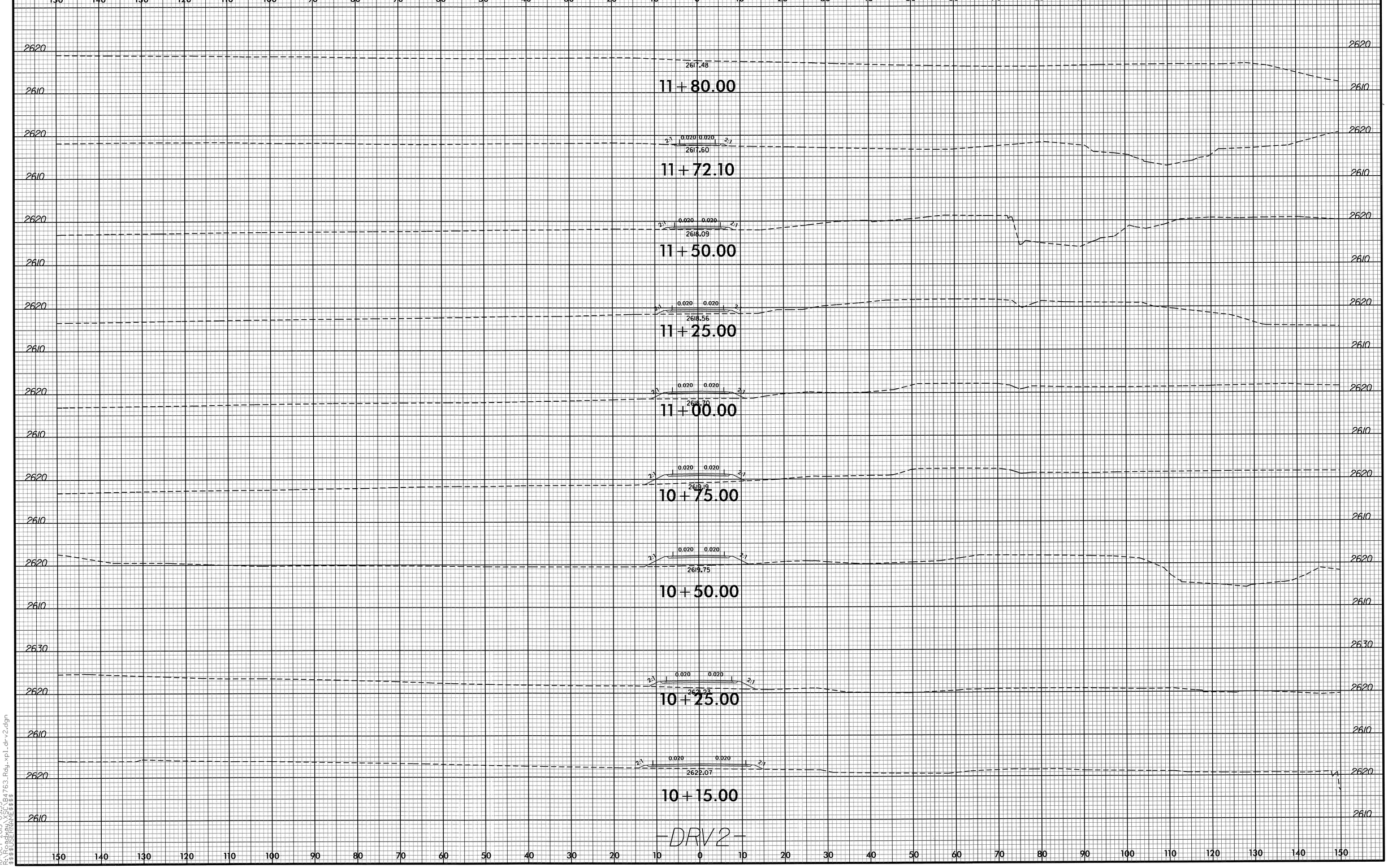

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