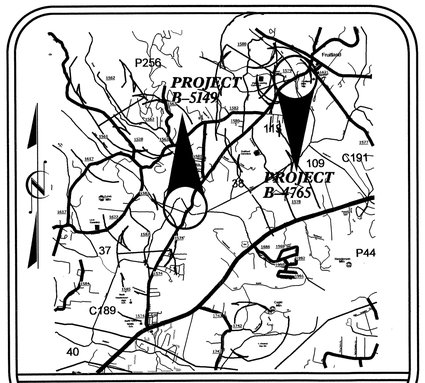
09/08/99

TIP PROJECT: B-5149/B-4765

CONTRACT: C203249

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5149/ B-4765	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
43210.1.1	BRZ-1574(3)	(B-5149) P.E.
43210.2.1	BRZ-1574(3)	(B-5149) R/W&UTIL.
38537.1.2	BRZ-1574(4)	(B-4765) P.E.
38537.1.2	BRZ-1574(4)	(B-4765) R/W&UTIL.
38537.3.FD1	BRZ-1574(4)	(B-5149/B-4765)CONST.

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK. BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK).

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

(NAD 83/ NSRS 2007 B-5149)

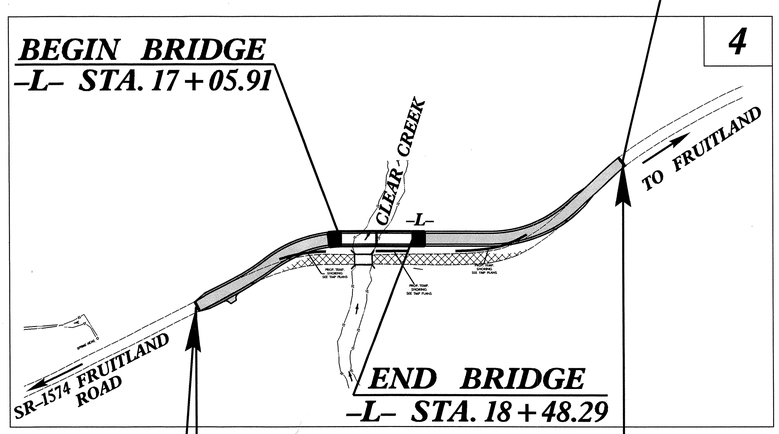
BEGIN TIP PROJECT B-4765
-L- Sta. 10+00

END TIP PROJECT B-4765
-L- Sta. 17+75.00

END TIP PROEJCT B-5149
-L- STA. 23+15.00

BEGIN BRIDGE
-L- Sta. 13+22.51

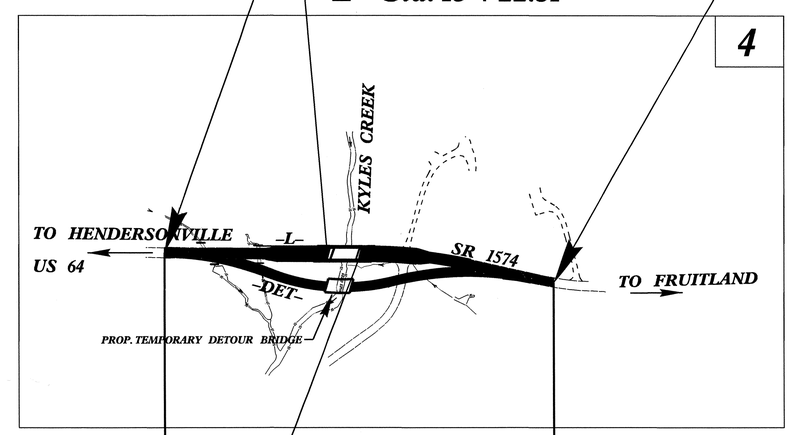
BEGIN BRIDGE
-L- STA. 17+05.91



END BRIDGE
-L- STA. 18+48.29

BEGIN TIP PROEJCT B-5149
-L- STA. 13+84.51

PROJECT NO. B-5149
PART 1



END BRIDGE
-L- Sta. 13+89.84

PROJECT NO. B-4765
PART 2

(NAD 83/95 B-4765)

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5149/B-4765 = 0.283 Miles
LENGTH STRUCTURE TIP PROJECT B-5149/B-4765 = 0.04 Miles
TOTAL LENGTH TIP PROJECT B-5149/B-4765 = 0.323 Miles

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: (B-5149) SEPTEMBER 21, 2012
RIGHT OF WAY DATE: (B-4765) AUGUST 14, 2012
LETTING DATE: OCTOBER 15, 2013

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STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
B-5149/B-4765	1-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE
8-1-13

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET COMBINED PROJECTS
1-A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS COMBINED PROJECTS
2	CONVENTIONAL SYMBOLS
3	SUMMARY OF QUANTITIES COMBINED PROJECTS
1	TITLE SHEET B-5149 (PART 1)
1-A	SURVEY CONTROL SHEET B-5149 (PART 1)
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS B-5149 (PART 1)
2-A	DETAIL OF STRUCTURE ANCHOR UNIT
2-B	STANDARD TEMPORARY SHORING B-5149 (PART 1)
2-C THRU 2-E	STANDARD TEMPORARY WALL B-5149 (PART 1)
3-A	SUMMARY OF DRAINAGE
3-B	SUMMARY OF GUARDRAIL, EARTHWORK, SUBSURFACE DRAINAGE, PAVEMENT REMOVAL AND SHOULDER BERM GUTTER B-5149 (PART 1)
4	PLAN SHEET B-5149 (PART 1)
5	PROFILE SHEET B-5149 (PART 1)
TMP-1 THRU TMP-8	TRAFFIC MANAGEMENT PLANS B-5149 (PART 1)
PM-1	PAVEMENT MARKING PLANS B-5149 (PART 1)
EC-1 THRU EC-5	EROSION CONTROL PLANS B-5149 (PART 1)
SIGN-1 THRU SIGN-3	SIGNING PLANS B-5149 (PART 1)
UO-1 THRU U0-2	UTILITIES BY OTHERS PLANS B-5149 (PART 1)
X-1	EARTHWORK VOLUME SUMMARY B-5149 (PART 1)
X-2 THRU X-19	CROSS-SECTIONS B-5149 (PART 1)
S-1 THRU S-23	STRUCTURE PLANS B-5149 (PART 1)
1	TITLE SHEET B-4765 (PART 2)
1-A	SURVEY CONTROL SHEET B-4765 (PART 2)
2	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS B-4765 (PART 2)
2-A	DETAIL OF STRUCTURE ANCHOR UNIT
3-A	SUMMARY OF DRAINAGE
3-B	SUMMARY OF GUARDRAIL, EARTHWORK, PAVEMENT REMOVAL AND SUBSURFACE DRAINAGE B-4765 (PART 2)
4	PLAN SHEET B-4765 (PART 2)
5	PROFILE SHEET B-4765 (PART 2)
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS B-4765 (PART 2)
PMP-1	PAVEMENT MARKING PLANS B-4765 (PART 2)
EC-1 THRU EC-6	EROSION CONTROL PLANS B-4765 (PART 2)
RF-1	REFORESTATION PLAN B-4765 (PART 2)
SIGN-1	SIGNING PLANS B-4765 (PART 2)
UO-1 THRU U0-2	UTILITIES BY OTHERS PLANS B-4765 (PART 2)
X-1	EARTHWORK VOLUME SUMMARY B-4765 (PART 2)
X-2 THRU X-8	CROSS-SECTIONS B-4765 (PART 2)
S-24 THRU S-38	STRUCTURE PLANS B-4765 (PART 2)

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
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	
815.02	Subsurface Drain
840.00	Concrete Base Pad for Drainage Structures
840.18	Concrete Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.25	Anchorage for Frames – Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' – 12" thru 36" Pipe
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet – for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Precast Drainage Structure
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation
862.03	Structure Anchor Units
866.02	Woven Wire Fence
866.04	Barbed Wire Fence
876.02	Guide for Rip Rap at Pipe Outlets
876.03	Drainage Ditches with Class 'A' Rip Rap

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 STD. NO. 560.01

SUBSURFACE DRAINS:

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

GUARDRAIL:

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

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.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T, DUKE ENERGY, AND MORRIS BROADBAND CATV.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

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04/16/11

PROJECT REFERENCE NO.	SHEET NO.
B-5149/B-4765	2

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.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
ROADWAY SUMMARY OF QUANTITIES FOR CONTRACT - C203249

SUMMARY OF QUANTITIES - B-4765 / B-5149

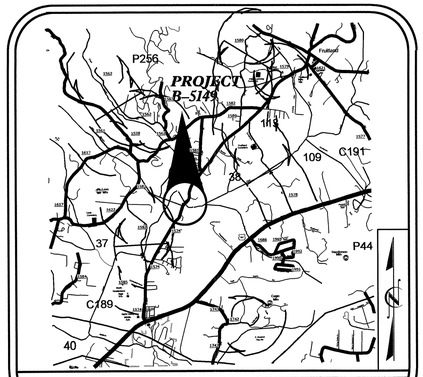
ItemNumber	Sec #	Quantity	Unit	Description
0000100000-N	800	Lump Sum		MOBILIZATION
0000400000-N	801	Lump Sum		CONSTRUCTION SURVEYING
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (13+56.18 -L-)
0030000000-N	SP	Lump Sum		BRIDGE APPROACH FILL - SUB REGIONAL TIER, STATION ******* (17+77.10 -L-)
0043000000-N	226	Lump Sum		GRADING
0050000000-E	226	2	ACR	SUPPLEMENTARY CLEARING & GRUBBING
0057000000-E	226	1,200	CY	UNDERCUT EXCAVATION
0134000000-E	240	225	CY	DRAINAGE DITCH EXCAVATION
0195000000-E	265	200	CY	SELECT GRANULAR MATERIAL
0196000000-E	270	200	SY	GEOTEXTILE FOR SOIL STABILIZATION
0199000000-E	SP	561	SF	TEMPORARY SHORING
0318000000-E	300	110	TON	FOUNDATION CONDITIONING MATERIAL, MINOR STRUCTURES
0320000000-E	300	320	SY	FOUNDATION CONDITIONING GEOTEXTILE
0335200000-E	305	172	LF	15" DRAINAGE PIPE
0335300000-E	305	72	LF	18" DRAINAGE PIPE
0335400000-E	305	292	LF	24" DRAINAGE PIPE
0335800000-E	305	52	LF	48" DRAINAGE PIPE
0335850000-E	305	3	EA	**" DRAINAGE PIPE ELBOWS (15")
0335850000-E	305	1	EA	*** DRAINAGE PIPE ELBOWS (18")
0343000000-E	310	236	LF	15" SIDE DRAIN PIPE
0448300000-E	310	40	LF	18" RC PIPE CULVERTS, CLASS IV
0576000000-E	310	56	LF	**" CS PIPE CULVERTS, ***** THICK (60", 0.138")
0995000000-E	340	192	LF	PIPE REMOVAL
1099500000-E	505	300	CY	SHALLOW UNDERCUT
1099700000-E	505	250	TON	CLASS IV SUBGRADE STABILIZATION
1121000000-E	520	1,000	TON	AGGREGATE BASE COURSE
1220000000-E	545	140	TON	INCIDENTAL STONE BASE
1275000000-E	600	134	GAL	PRIME COAT
1330000000-E	607	1,115	SY	INCIDENTAL MILLING
1489000000-E	610	1,130	TON	ASPHALT CONC BASE COURSE, TYPE B25.0B
1498000000-E	610	650	TON	ASPHALT CONC INTERMEDIATE COURSE, TYPE I19.0B
1519000000-E	610	940	TON	ASPHALT CONC SURFACE COURSE, TYPE S9.5B
1575000000-E	620	140	TON	ASPHALT BINDER FOR PLANT MIX
1814000000-E	660	1,370	SY	ASPHALT SURFACE TREATMENT, STRAIGHT SEAL
2022000000-E	815	67.2	CY	SUBDRAIN EXCAVATION
2026000000-E	815	300	SY	GEOTEXTILE FOR SUBSURFACE DRAINS
2036000000-E	815	50.4	CY	SUBDRAIN COARSE AGGREGATE
2044000000-E	815	300	LF	6" PERFORATED SUBDRAIN PIPE
2070000000-N	815	2	EA	SUBDRAIN PIPE OUTLET
2077000000-E	815	12	LF	6" OUTLET PIPE
2253000000-E	840	4.43	CY	PIPE COLLARS
2286000000-N	840	8	EA	MASONRY DRAINAGE STRUCTURES
2366000000-N	840	3	EA	FRAME WITH TWO GRATES, STD 840.24
2367000000-N	840	5	EA	FRAME WITH TWO GRATES, STD 840.29
2556000000-E	846	530	LF	SHOULDER BERM GUTTER
3030000000-E	862	1,575	LF	STEEL BM GUARDRAIL
3150000000-N	862	15	EA	ADDITIONAL GUARDRAIL POSTS
3165000000-N	SP	10	EA	GUARDRAIL ANCHOR UNITS, TYPE ********** (350 TL-2)
3215000000-N	862	8	EA	GUARDRAIL ANCHOR UNITS, TYPE III
3380000000-E	862	37.5	LF	TEMPORARY STEEL BM GUARDRAIL
3387000000-N	862	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (III)
3389000000-N	SP	4	EA	TEMPORARY GUARDRAIL ANCHOR UNITS, TYPE ********** (350 TL-2)
3563000000-E	SP	600	LF	TEMP **" WOVEN WIRE FENCE, COMPLETE W/POSTS (48")
3575000000-E	SP	350	LF	GENERIC FENCING ITEM TEMP 5 STRAND BARBED WIRE FENCE WITH POSTS
3628000000-E	876	200	TON	RIP RAP, CLASS I
3642000000-E	876	65	TON	RIP RAP, CLASS A
3649000000-E	876	7	TON	RIP RAP, CLASS B
3656000000-E	876	1,790	SY	GEOTEXTILE FOR DRAINAGE
4072000000-E	903	127	LF	SUPPORTS, 3-LB STEEL U-CHANNEL
4096000000-N	904	2	EA	SIGN ERECTION, TYPE D
4102000000-N	904	4	EA	SIGN ERECTION, TYPE E
4155000000-N	907	14	EA	DISPOSAL OF SIGN SYSTEM, U-CHANNEL
4400000000-E	1110	221	SF	WORK ZONE SIGNS (STATIONARY)
4405000000-E	1110	309	SF	WORK ZONE SIGNS (PORTABLE)
4410000000-E	1110	66	SF	WORK ZONE SIGNS (BARRICADE MOUNTED)
4430000000-N	1130	73	EA	DRUMS
4435000000-N	1135	20	EA	CONES
4445000000-E	1145	392	LF	BARRICADES (TYPE III)
4450000000-N	1150	4,080	HR	FLAGGER
4465000000-N	1160	2	EA	TEMPORARY CRASH CUSHIONS
4485000000-E	1170	450	LF	PORTABLE CONCRETE BARRIER
4516000000-N	1180	20	EA	SKINNY DRUM
4650000000-N	1251	120	EA	TEMPORARY RAISED PAVEMENT MARKERS
4810000000-E	1205	28,722	LF	PAINT PAVEMENT MARKING LINES (4")
4905000000-N	1253	44	EA	SNOWPLOWABLE PAVEMENT MARKERS
6000000000-E	1605	3,150	LF	TEMPORARY SILT FENCE
6006000000-E	1610	360	TON	STONE FOR EROSION CONTROL, CLASS A
6009000000-E	1610	545	TON	STONE FOR EROSION CONTROL, CLASS B
6012000000-E	1610	430	TON	SEDIMENT CONTROL STONE
6015000000-E	1615	5	ACR	TEMPORARY MULCHING
6018000000-E	1620	250	LB	SEED FOR TEMPORARY SEEDING
6021000000-E	1620	1.75	TON	FERTILIZER FOR TEMPORARY SEEDING
6024000000-E	1622	400	LF	TEMPORARY SLOPE DRAINS
6029000000-E	SP	700	LF	SAFETY FENCE
6030000000-E	1630	870	CY	SILT EXCAVATION
6036000000-E	1631	7,600	SY	MATTING FOR EROSION CONTROL
6037000000-E	SP	400	SY	COIR FIBER MAT
6038000000-E	SP	300	SY	PERMANENT SOIL REINFORCEMENT MAT
6042000000-E	1632	520	LF	1/4" HARDWARE CLOTH
6048000000-E	SP	75	SY	FLOATING TURBIDITY CURTAIN
6070000000-N	1639	6	EA	SPECIAL STILLING BASINS
6071010000-E	SP	270	LF	WATTLE
6071020000-E	SP	120	LB	POLYACRYLAMIDE (PAM)
6071030000-E	1640	145	LF	COIR FIBER BAFFLE
6071050000-E	SP	2	EA	**" SKIMMER (1-1/2")
6084000000-E	1660	5.25	ACR	SEEDING & MULCHING
6087000000-E	1660	2.5	ACR	MOWING
6090000000-E	1661	100	LB	SEED FOR REPAIR SEEDING
6093000000-E	1661	0.5	TON	FERTILIZER FOR REPAIR SEEDING
6096000000-E	1662	125	LB	SEED FOR SUPPLEMENTAL SEEDING
6108000000-E	1665	3.5	TON	FERTILIZER TOPDRESSING
6114500000-N	1667	20	MHR	SPECIALIZED HAND MOWING
6117000000-N	SP	43	EA	RESPONSE FOR EROSION CONTROL
6123000000-E	1670	0.1	ACR	REFORESTATION

09/08/99

TIP PROJECT: B-5149

CONTRACT: C203249

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

HENDERSON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5149	1	

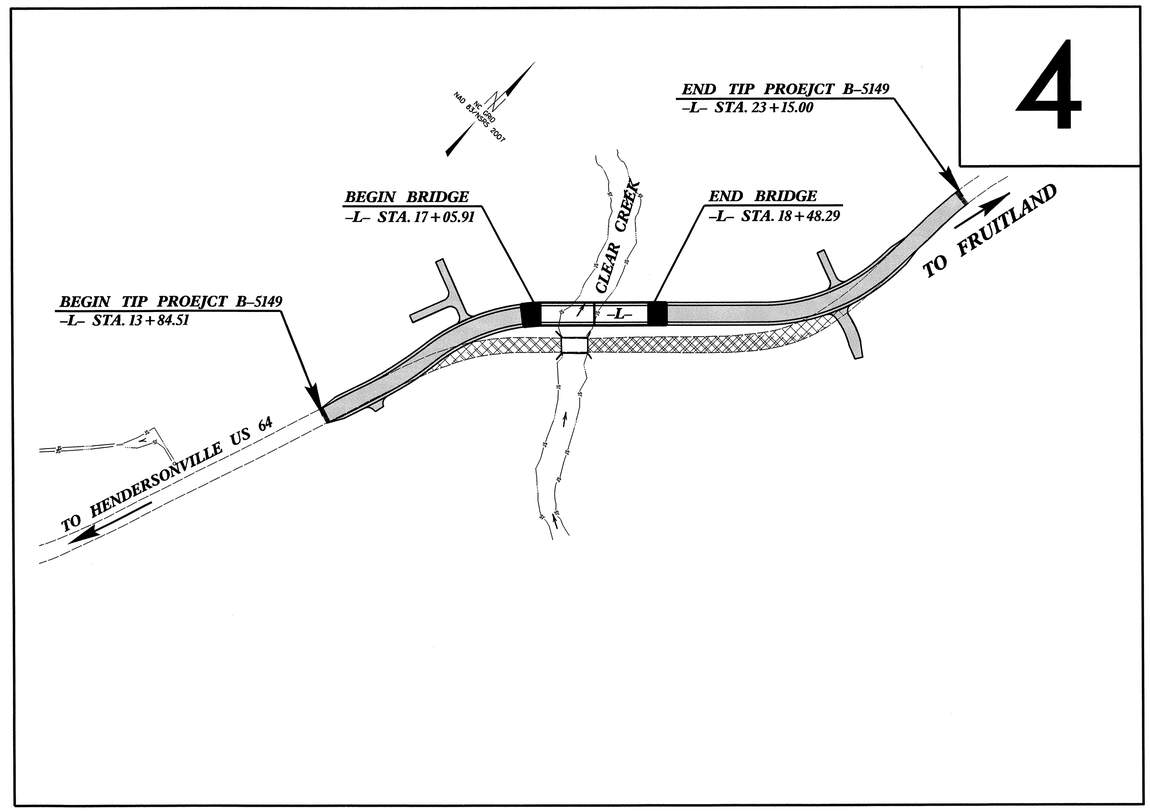
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
43210.1.1	BRZ-1574(3)	PE
43210.2.1	BRZ-1574(3)	R/W&UTIL.
38537.3.FD1	BRZ-1574(4)	CONST.

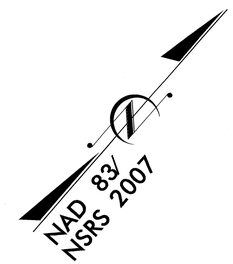
LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK.

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

PART 1 OF 2

4





THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

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 = 4524
ADT 2035 = 9600
K = 10 %
D = 65 %
T = 5 % *
V = 30 MPH
* TTST = 1% DUAL 4%
FUNC CLASS = LOCAL

SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-5149 = 0.149 Miles
LENGTH STRUCTURE TIP PROJECT B-5149 = 0.027 Miles
TOTAL LENGTH TIP PROJECT B-5149 = 0.176 Miles

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
SEPTEMBER 21, 2012

LETTING DATE:
OCTOBER 15, 2013

KEVIN E. MOORE, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER STEPHEN R. MORGAN
SIGNATURE: 7-25-13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE
SIGNATURE: 8-1-13

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

22-JUL-2013 08:20
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5149	1A
Location and Surveys	

SURVEY CONTROL SHEET B-5149
-FINAL-

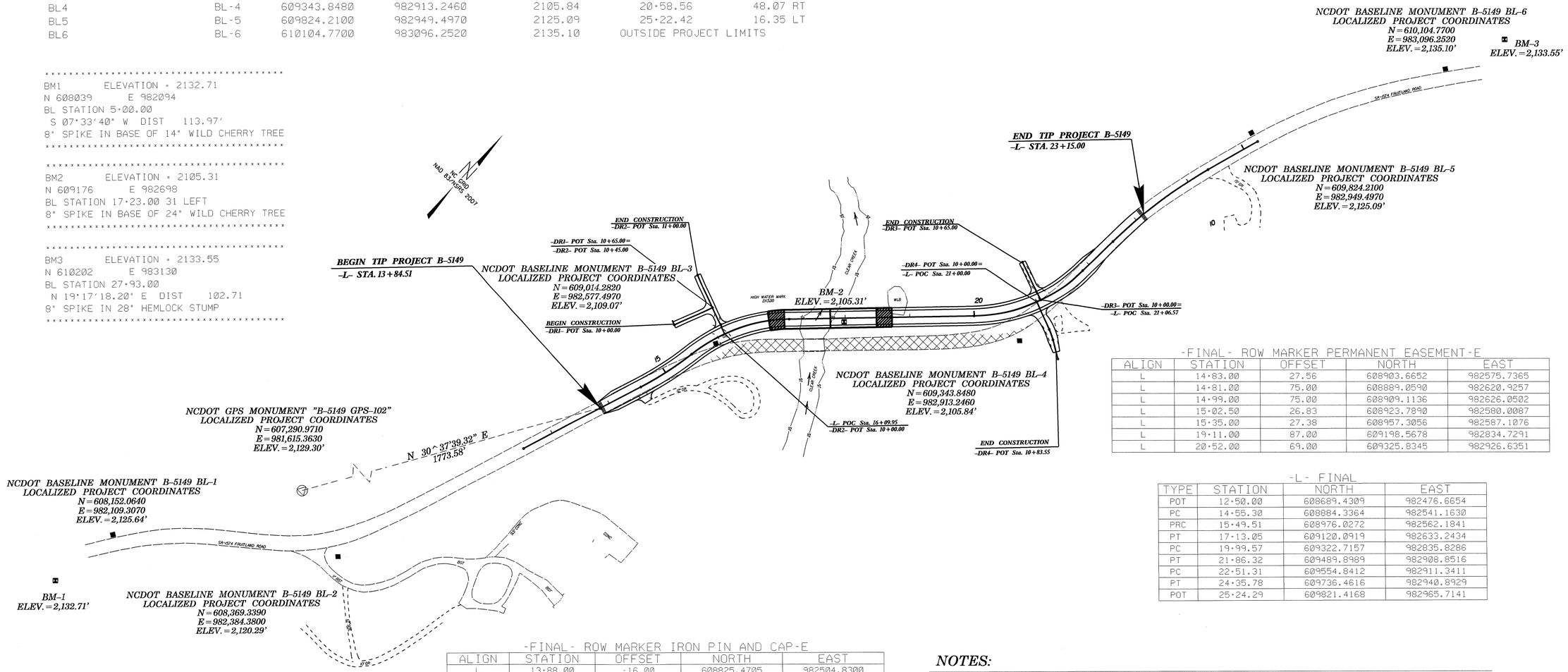
BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
BL1	BL-1	608152.0640	982109.3070	2125.64	OUTSIDE PROJECT LIMITS	
BL2	BL-2	608369.3390	982384.3800	2120.29	OUTSIDE PROJECT LIMITS	
BL3	BL-3	609014.2820	982577.4970	2109.07	15+90.75	6.88 RT
BL4	BL-4	609343.8480	982913.2460	2105.84	20+58.56	48.07 RT
BL5	BL-5	609824.2100	982949.4970	2125.09	25+22.42	16.35 LT
BL6	BL-6	610104.7700	983096.2520	2135.10	OUTSIDE PROJECT LIMITS	

****
BM1 ELEVATION = 2132.71
N 608039 E 982094
BL STATION 5+00.00
S 07°33'40" W DIST 113.97'
8" SPIKE IN BASE OF 14" WILD CHERRY TREE
****

****
BM2 ELEVATION = 2105.31
N 609176 E 982698
BL STATION 17+23.00 31 LEFT
8" SPIKE IN BASE OF 24" WILD CHERRY TREE
****

****
BM3 ELEVATION = 2133.55
N 610202 E 983130
BL STATION 27+93.00
N 19°17'18.20" E DIST 102.71
8" SPIKE IN 28" HEMLOCK STUMP
****



-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	14+83.00	27.56	608903.6652	982575.7365
L	14+81.00	75.00	608889.0590	982620.9257
L	14+99.00	75.00	608909.1136	982626.0502
L	15+02.50	26.83	608923.7890	982580.0087
L	15+35.00	27.38	608957.3056	982587.1076
L	19+11.00	87.00	609198.5678	982834.7291
L	20+52.00	69.00	609325.8345	982926.6351

-L- FINAL

TYPE	STATION	NORTH	EAST
POT	12+50.00	608689.4309	982476.6654
PC	14+55.30	608884.3364	982541.1630
PRC	15+49.51	608976.0272	982562.1841
PT	17+13.05	609120.0919	982633.2434
PC	19+99.57	609322.7157	982835.8286
PT	21+86.32	609489.8989	982908.8516
PC	22+51.31	609554.8412	982911.3411
PT	24+35.78	609736.4616	982940.8929
POT	25+24.29	609821.4168	982965.7141

-FINAL- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	13+88.00	-16.00	608825.4705	982504.8300
L	13+88.00	-40.00	608833.0104	982482.0451
L	15+49.51	-40.00	608981.2585	982522.5276
L	15+53.00	-65.00	608988.8848	982498.3480
L	16+40.00	-65.00	609092.4459	982532.5661
L	16+40.00	-40.00	609080.6114	982554.5875
L	17+13.05	-40.00	609148.3735	982604.9564
L	19+99.57	-40.00	609350.9973	982807.5417
L	21+86.32	-40.00	609491.4312	982868.8810
L	22+51.31	-40.00	609556.3735	982871.3705
L	23+15.00	-16.00	609620.2730	982900.6002
L	23+15.00	16.00	609616.3393	982932.3575
L	22+51.31	30.00	609553.6920	982941.3191
L	21+86.32	34.00	609488.5965	982942.8266
L	21+20.00	37.00	609413.6777	982932.9105
L	20+67.00	38.01	609357.4729	982909.6044
L	15+49.91	28.38	608972.6681	982590.3671
L	14+55.30	30.00	608874.9115	982569.6441
L	13+50.00	16.00	608779.3412	982523.2716

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-5149 GPS-102"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF
NORTHING: 607290.9710(ft) EASTING: 981615.3630(ft)
ELEVATION: 2129.30(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977699
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-5149 G102" TO -L- STATION 13+84.51' IS N 30°37'39.32" E 1773.58'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID: GEOID 03
NOTE: DRAWING NOT TO SCALE

NOTES:

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

THE FILES TO BE FOUND ARE AS FOLLOWS:
B5149_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.

6/2/99

18-JUL-2013 07:33
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$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5149	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

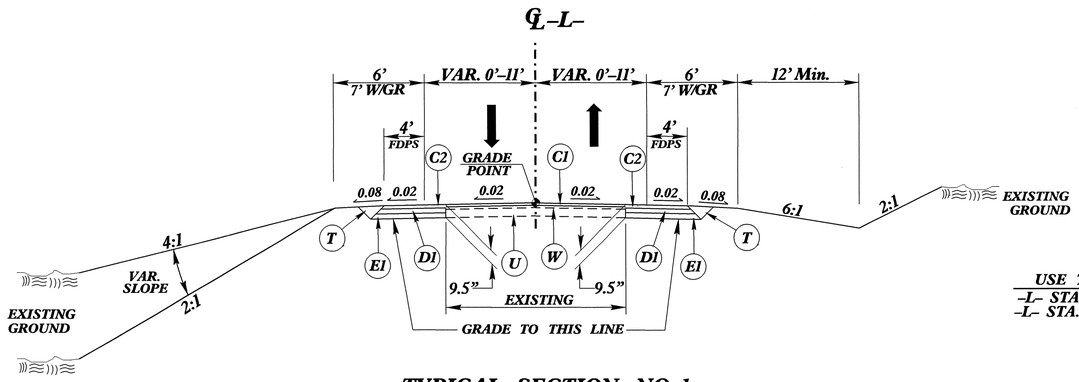
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 8-1-13

NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON 7/19/13

FINAL PAVEMENT SCHEDULE

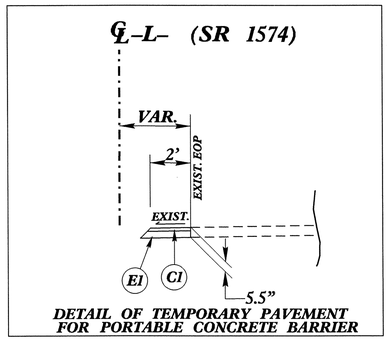
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. 3-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 427.50 LBS. PER SQ. YD.
D3	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 2½" 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 5½" IN DEPTH.
J	PROP. 8" AGGREGATE BASE COURSE.
P	PRIME COAT AT THE RATE OF .35 GAL. PER SQ. YD.
R	SHOULDER BERM GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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



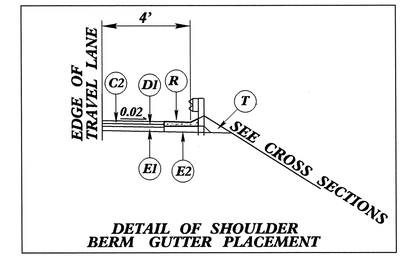
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 13+84.51 TO STA. 15+86.91
-L- STA. 20+61.49 TO STA. 23+15.00



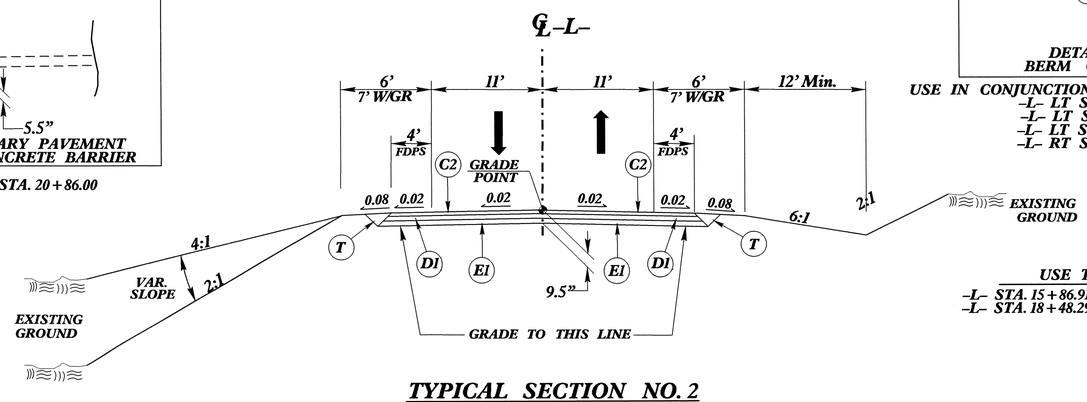
DETAIL OF TEMPORARY PAVEMENT FOR PORTABLE CONCRETE BARRIER

-L- STA. 15+85.00 TO STA. 20+86.00



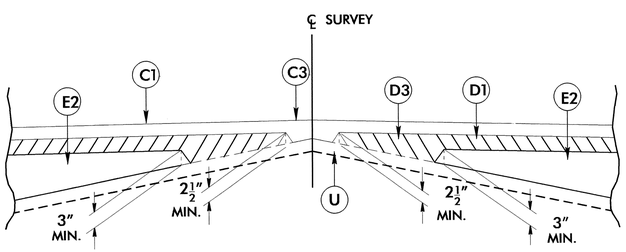
DETAIL OF SHOULDER BERM GUTTER PLACEMENT

USE IN CONJUNCTION WITH TYPICAL SECTIONS 1 AND 2
-L- LT STA. 14+43.28 TO 15+68.34
-L- LT STA. 16+49.33 TO 16+81.91
-L- LT STA. 18+72.29 TO 20+63.67
-L- RT STA. 18+72.29 TO 20+48.95

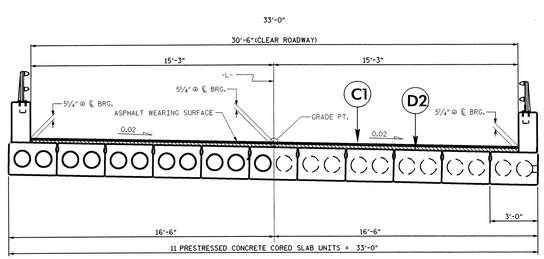


TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 15+86.91 TO STA. 17+05.91 (BEGIN BRIDGE)
-L- STA. 18+48.29 (END BRIDGE) TO STA. 20+61.49

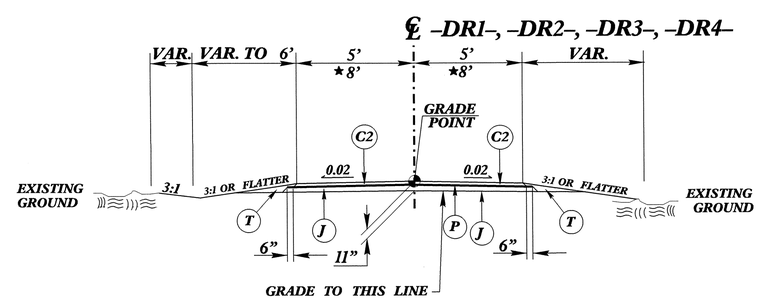


Detail Showing Method of Wedging



TYPICAL SECTION ON STRUCTURE

★*Bicycle Safe Rails Required*



TYPICAL SECTION NO. 3

USE TYPICAL SECTION NO. 3
-DR1- STA. 10+00.00 TO STA. 11+60.00
-DR2- STA. 10+15.07 TO STA. 11+00.00
-DR3- STA. 10+15.00 TO STA. 10+65.00
★-DR4- STA. 10+15.00 TO STA. 10+83.55

6/2/99
17-JUL-2013 14:08
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$$$$$$SYSTIME$$$$$
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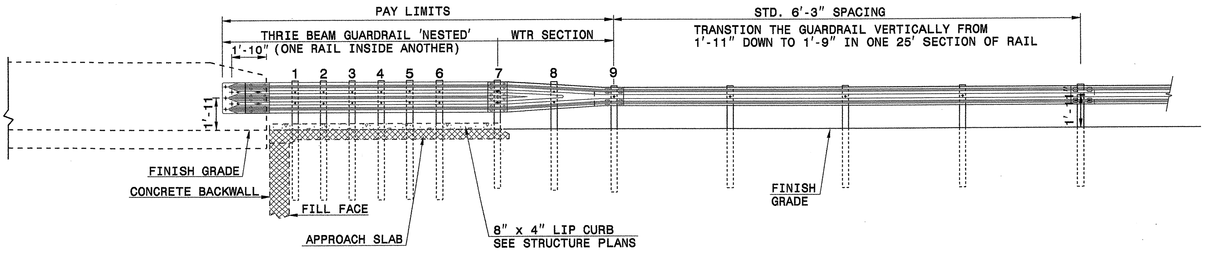
$$$$USERNAME$$$$

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

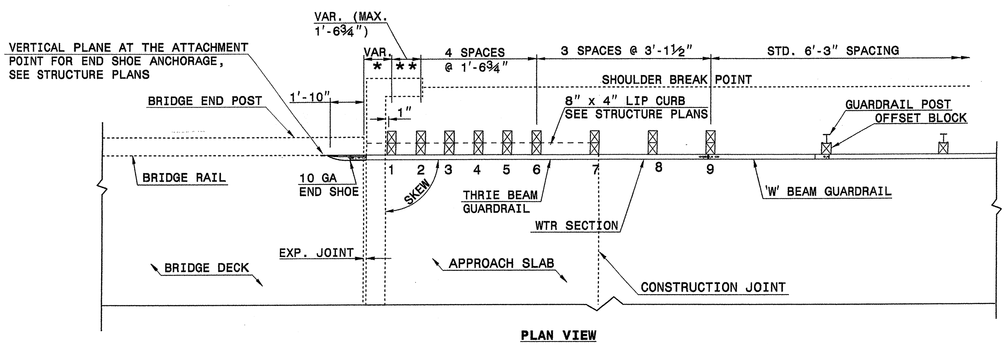
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

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.

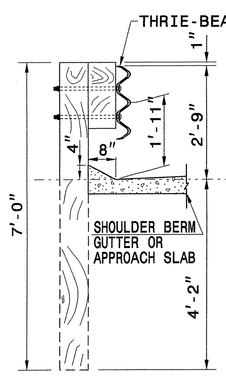
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7
862d03

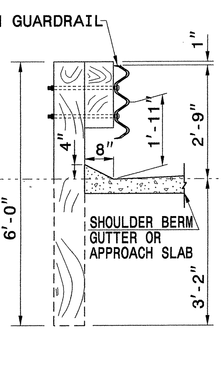
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

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

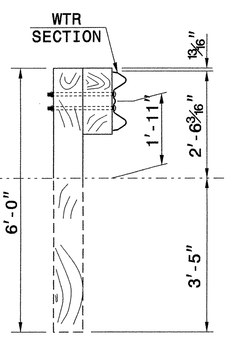
SHEET 3 OF 7
862d03



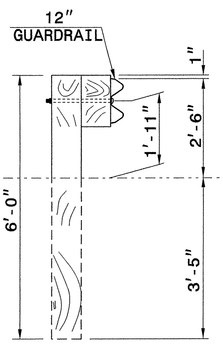
SECTION OF THRIE BEAM POSTS 1 THRU 6



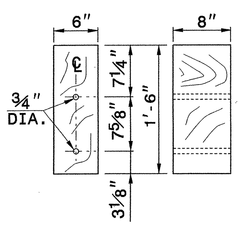
SECTION OF THRIE BEAM POST 7



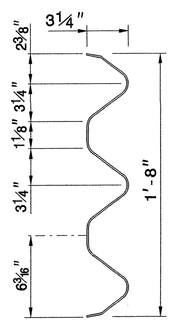
SECTION OF WTR BEAM POST 8



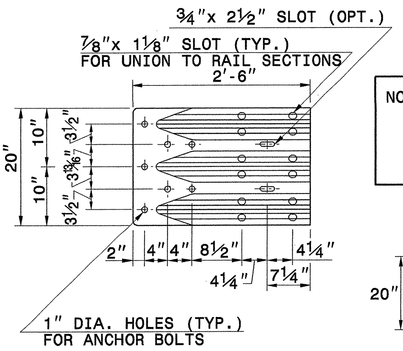
SECTION OF 'W' BEAM POST 9



THRIE BEAM OFFSET BLOCK

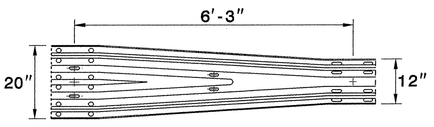


THRIE-BEAM SECTION

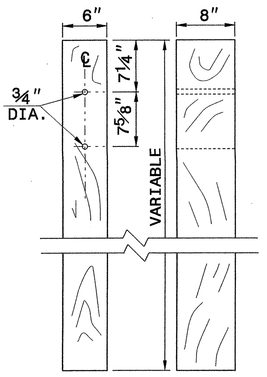


END SHOE

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

ORIGINAL BY: J. HOMERTON DATE: 06-22-12
MODIFIED BY: DATE:
CHECKED BY: DATE: 11/3/12
FILE SPEC:

SEE TITLE BLOCK

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

NORTH CAROLINA PROFESSIONAL SEAL 022966 ENGINEER
8/21/13

PROJECT REFERENCE NO. B-5149
SHEET NO. 2-A

PROJECT REFERENCE NO.	SHEET
B-5149	2-B

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 8/10/12

SIGNATURE DATE

ENGINEER

SIGNATURE DATE

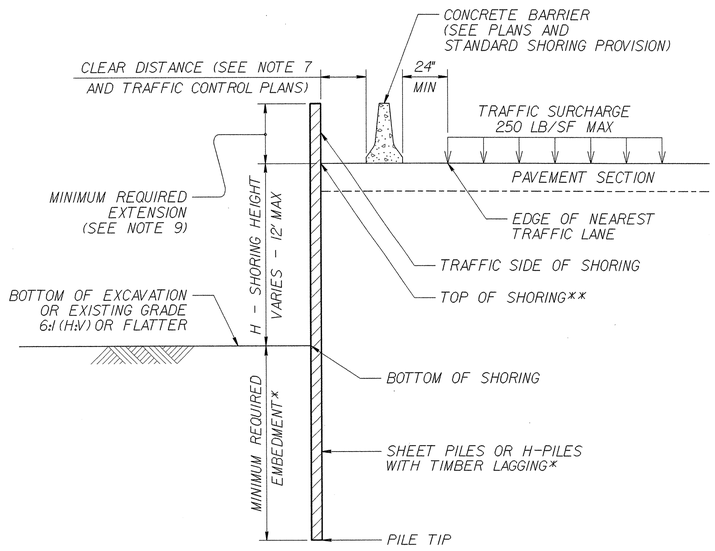
GROUNDWATER CONDITION (SEE NOTE 6)	H SHORING HEIGHT (FT)	SLOPE OR SURCHARGE CASE WITH NO TRAFFIC IMPACT					SURCHARGE CASE WITH TRAFFIC IMPACT				
		SHEET PILES		H-PILES WITH TIMBER LAGGING			SHEET PILES		H-PILES WITH TIMBER LAGGING		
		MINIMUM REQUIRED EMBEDMENT (FT)	MINIMUM REQUIRED SECTION MODULUS (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 BEWTEEN 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 "--".**

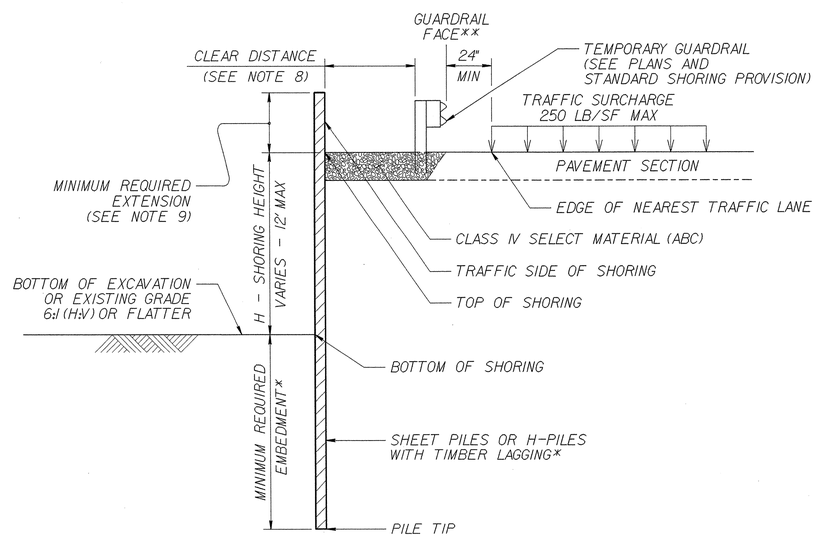
NOTES:

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.
12. CONTACT THE ENGINEER IF PILES DO NOT ATTAIN THE MINIMUM REQUIRED EMBEDMENT.



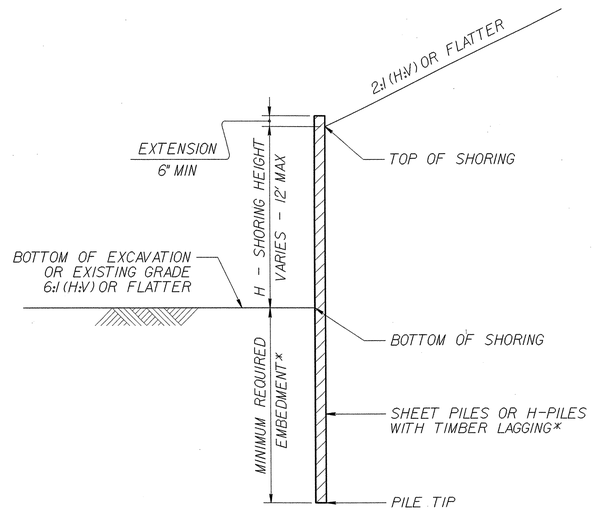
CONCRETE BARRIER

****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: 11-20-12

PROJECT REFERENCE NO.	SHEET
B-5149	2-C

GEOTECHNICAL ENGINEER

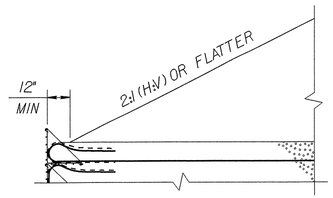
NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 8/10/12

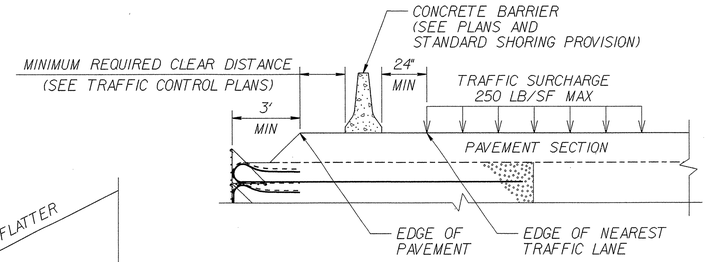
SIGNATURE DATE

ENGINEER

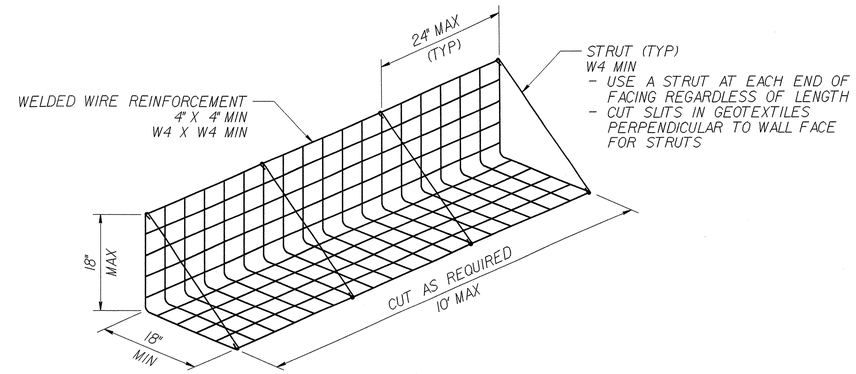
SIGNATURE DATE



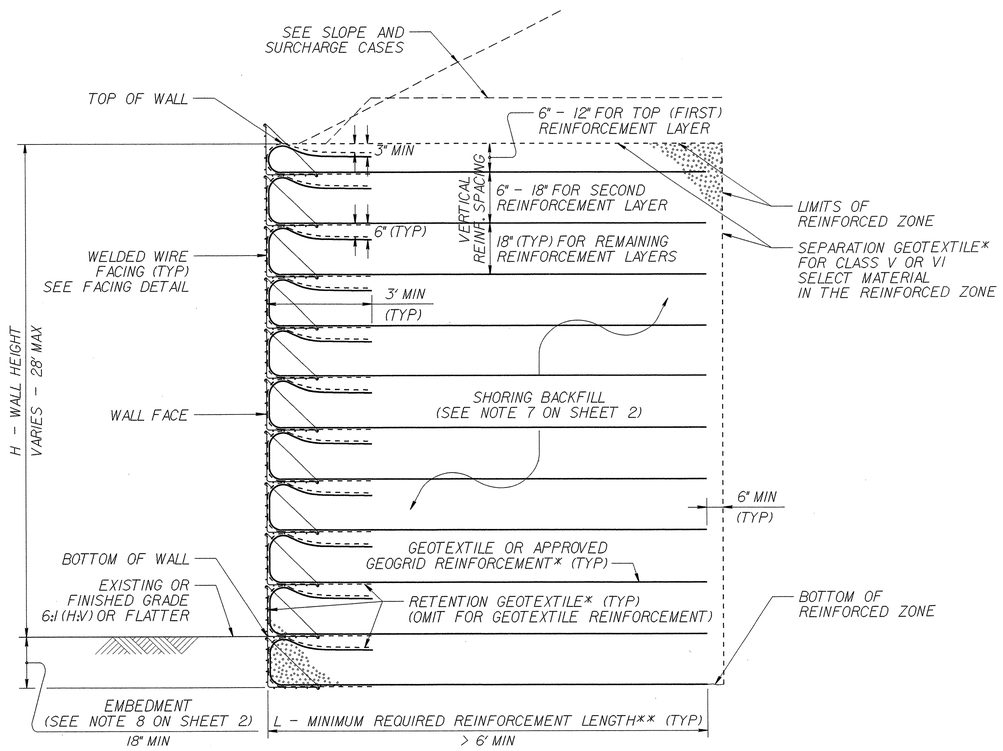
SLOPE CASE



SURCHARGE CASE

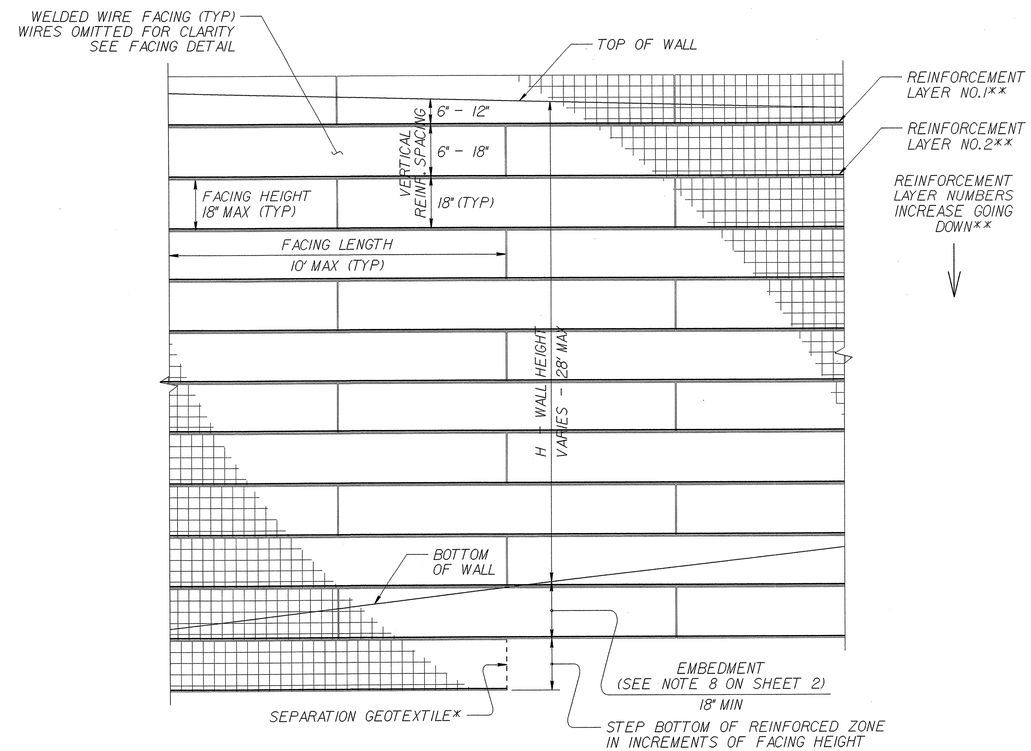


FACING DETAIL



STANDARD TEMPORARY WALL

(FOR STANDARD TEMPORARY WALLS ON STRUCTURES, SEE TEMPORARY WALL ON STRUCTURE DETAIL ON SHEET 2.)
*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.



STANDARD TEMPORARY WALL – PARTIAL ELEVATION

*SEE GEOSYNTHETIC PLACEMENT DETAILS ON SHEET 2.
**SEE REINFORCEMENT TABLES ON SHEET 3.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 1 of 3

DATE: 11-20-12

PROJECT REFERENCE NO.	SHEET
B-5149	2-D

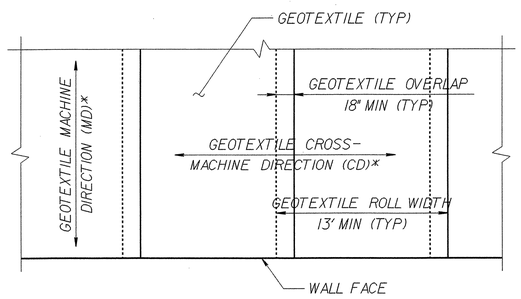
GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 8/10/12
SIGNATURE DATE

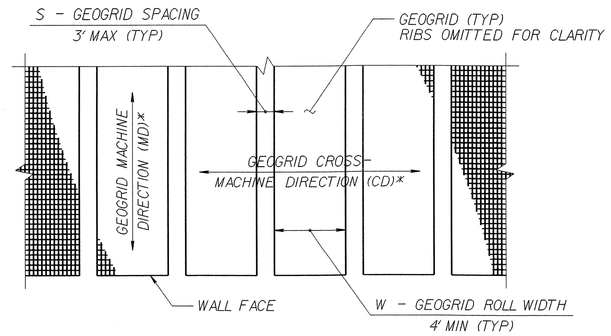
ENGINEER

SIGNATURE DATE



GEOTEXTILE PLACEMENT

(100% COVERAGE MIN FOR GEOTEXTILE REINFORCEMENT)

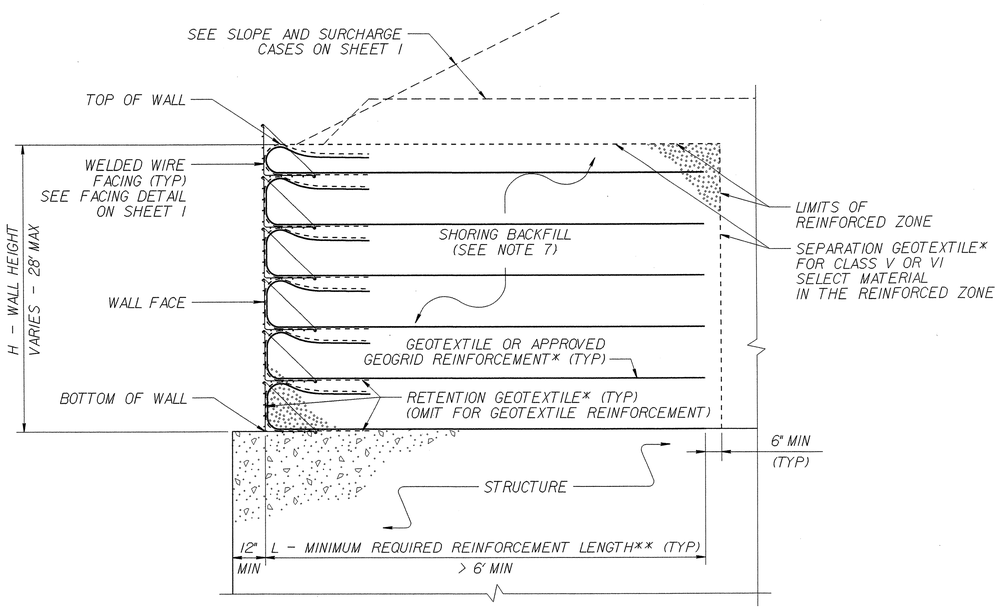


GEOGRID PLACEMENT

(80% COVERAGE MIN FOR GEOGRID REINFORCEMENT – $\frac{W}{W+S} \times 100 \geq 80\%$, SEE NOTE 11)

GEOSYNTHETIC PLACEMENT DETAILS

(PLAN VIEW)
***SEE NOTE 12.**



TEMPORARY WALL ON STRUCTURE DETAIL

***SEE GEOSYNTHETIC PLACEMENT DETAILS.**
****SEE REINFORCEMENT TABLES ON SHEET 3.**

NOTES:

1. AT THE CONTRACTOR'S OPTION, USE STANDARD TEMPORARY WALLS AS NOTED IN THE PLANS.
2. FOR STANDARD TEMPORARY WALLS, SEE STANDARD SHORING PROVISION.
3. STANDARD TEMPORARY WALLS ARE 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 WALLS IF ASSUMED SOIL PARAMETERS ARE NOT APPLICABLE.
5. DO NOT USE STANDARD TEMPORARY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW TEMPORARY WALLS.
6. USE GROUNDWATER ELEVATION NOTED IN THE PLANS. IF NO GROUNDWATER ELEVATION IS SHOWN IN THE PLANS, ASSUME GROUNDWATER DEPTH IS LESS THAN 7' BELOW BOTTOM OF REINFORCED ZONE. DO NOT USE STANDARD TEMPORARY WALLS IF GROUNDWATER IS ABOVE BOTTOM OF REINFORCED ZONE.
7. DO NOT USE A-2-4 SOIL FOR STANDARD TEMPORARY WALLS AROUND CULVERTS OR IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS FOR SLOPE CASES. DO NOT USE CLASS VI SELECT MATERIAL IN THE REINFORCED ZONE OF STANDARD TEMPORARY WALLS WITH GEOTEXTILE REINFORCEMENT.
8. EMBEDMENT IS NOT REQUIRED FOR STANDARD TEMPORARY WALLS ON STRUCTURES OR ROCK AS DETERMINED BY THE ENGINEER.
9. DO NOT USE MORE THAN 4 DIFFERENT REINFORCEMENT STRENGTHS FOR EACH STANDARD TEMPORARY WALL.
10. GEOGRIDS ARE APPROVED FOR SHORT-TERM DESIGN STRENGTHS FOR A 3-YEAR DESIGN LIFE IN THE MACHINE DIRECTION (MD) AND CROSS-MACHINE DIRECTION (CD) BASED ON MATERIAL TYPE. FOR DETAILS OF APPROVED GEOGRIDS AND SHORT-TERM DESIGN STRENGTHS, SEE www.ncdot.org/doh/operations/materials/soils/gep.html
    DEFINE MATERIAL TYPE FROM THE WEBSITE ABOVE FOR SHORING BACKFILL AS FOLLOWS:

MATERIAL TYPE	SHORING BACKFILL
BORROW	A-2-4 SOIL
FINE AGGREGATE	CLASS II, TYPE 1 OR CLASS III SELECT MATERIAL
COARSE AGGREGATE	CLASS V OR VI SELECT MATERIAL

11. FOR GEOGRID REINFORCEMENT WITH LESS THAN 100% COVERAGE, STAGGER REINFORCEMENT SO GEOGRIDS ARE CENTERED OVER GAPS IN THE REINFORCEMENT LAYER BELOW.
12. AT THE CONTRACTOR'S OPTION, REINFORCEMENT MAY BE INSTALLED WITH THE MD PARALLEL TO THE WALL FACE IF BOTH THE FOLLOWING CONDITIONS OCCUR:
    - W (REINFORCEMENT ROLL WIDTH) ≥ L (MINIMUM REQUIRED REINFORCEMENT LENGTH) + 4.5' AND
    - REINFORCEMENT STRENGTH IN CD ≥ MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD.
13. SUBMIT A "STANDARD TEMPORARY WALL SELECTION FORM" AT LEAST 7 DAYS BEFORE STARTING TEMPORARY WALL CONSTRUCTION.
14. DO NOT PLACE SHORING BACKFILL OR REINFORCEMENT UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.
15. FOR STANDARD TEMPORARY WALLS WITH PILE FOUNDATIONS IN THE REINFORCED ZONE, DRIVE PILES THROUGH REINFORCEMENT AFTER CONSTRUCTING TEMPORARY WALLS.
16. DO NOT SPLICE OR OVERLAP REINFORCEMENT SO SEAMS ARE PARALLEL TO THE WALL FACE.
17. CONTACT THE ENGINEER WHEN EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, PAVEMENTS, PIPES, INLETS OR UTILITIES WILL INTERFERE WITH REINFORCEMENT.
18. FOR STANDARD TEMPORARY WALLS WITH INTERIOR ANGLES LESS THAN 90 DEGREES, WRAP GEOSYNTHETICS AT ACUTE CORNERS AS DIRECTED BY THE ENGINEER.
19. FOR STANDARD TEMPORARY WALLS WITH TOP OF WALL WITHIN 5' OF FINISHED GRADE, REMOVE TOP FACING AND INCORPORATE TOP REINFORCEMENT LAYER INTO FILL WHEN PLACING FILL IN FRONT OF WALL.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD TEMPORARY WALL
Sheet 2 of 3

DATE: 11-20-12

PROJECT REFERENCE NO.	SHEET
B-5149	2-E

GEOTECHNICAL ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 022246 ENGINEER SCOTT A. HIDDEN

Scott A. Hidden 8/10/12
SIGNATURE DATE

ENGINEER

SIGNATURE DATE

SLOPE OR SURCHARGE CASE	GROUNDWATER DEPTH BELOW BOTTOM OF REINFORCED ZONE (SEE NOTE 6 ON SHEET 2) (FT)	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)	H - WALL HEIGHT (FT)																								
			< 4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
SLOPE CASE	> 0	CLASS II, TYPE I, CLASS III, CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	8	9	11	12	13	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26	27	27
SURCHARGE CASE	> 0 TO 7 FOR H < 20′ > 0 TO 10 FOR H ≥ 20′	ALL SHORING BACKFILL TYPES	6	7	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	17	17	18	19	19	20	21	22
	> 7 FOR H < 20′ > 10 FOR H ≥ 20′	A-2-4 SOIL	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
		CLASS II, TYPE I OR CLASS III SELECT MATERIAL	6	6	7	7	8	8	9	10	10	11	11	12	12	13	14	15	15	16	16	17	17	18	18	19	20
		CLASS V OR CLASS VI SELECT MATERIAL	6	6	7	7	7	8	8	9	9	10	10	11	12	13	13	14	14	15	15	16	17	17	18	19	19

L – MINIMUM REQUIRED REINFORCEMENT LENGTH (FT)

(FOR ALL REINFORCEMENT TYPES)

WALL HEIGHT (H) + EMBEDMENT (FT)	NUMBER OF REINFORCEMENT LAYERS*
2.5 - 4	3
4 - 5.5	4
5.5 - 7	5
7 - 8.5	6
8.5 - 10	7
10 - 11.5	8
11.5 - 13	9
13 - 14.5	10
14.5 - 16	11
16 - 17.5	12
17.5 - 19	13
19 - 20.5	14
20.5 - 22	15
22 - 23.5	16
23.5 - 25	17
25 - 26.5	18
26.5 - 28	19
28 - 29.5	20

*BASED ON VERTICAL REINFORCEMENT SPACING SHOWN ON SHEET 1.

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V SELECT MATERIAL
1	2400	2400	2400	2400	2400
2	2400	2400	2400	2400	2400
3	2400	2400	2400	2400	2400
4	2400	2400	2500	2400	2400
5	2500	2400	3000	2400	2400
6	3000	2400	3500	2800	2400
7	3500	2700	4000	3200	2600
8	4000	3100	4500	3600	2900
9	4500	3500	5000	4000	3200
10	5000	3900	5500	4400	3500
11	5500	4300	6000	4800	3800
12	6000	4700	6500	5200	4100
13	6500	5100	7000	5600	4400
14	7000	5400	7500	6000	4700
15	7500	5800	8000	6400	5000
16	8000	6200	8500	6800	5300
17	8500	6600	9000	7200	5600
18	9000	7000	9500	7600	5900
19	9500	7400	10000	8000	6200
20	10000	7800	10500	8400	6500

GEOTEXTILE REINFORCEMENT
ULTIMATE TENSILE STRENGTH (LB/FT)

REINFORCEMENT LAYER NUMBER*	SHORING BACKFILL TYPE IN THE REINFORCED ZONE (SEE NOTE 7 ON SHEET 2)				
	SLOPE CASE		SURCHARGE CASE		
	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL	A-2-4 SOIL	CLASS II, TYPE I OR CLASS III SELECT MATERIAL	CLASS V OR CLASS VI SELECT MATERIAL
1	240	200	340	290	240
2	380	310	520	430	350
3	530	420	700	570	460
4	690	550	870	720	570
5	860	690	1050	860	680
6	1030	830	1220	1000	790
7	1200	970	1400	1150	900
8	1370	1110	1580	1290	1010
9	1550	1240	1750	1430	1120
10	1720	1380	1930	1580	1230
11	1890	1520	2100	1720	1340
12	2060	1660	2280	1860	1450
13	2240	1800	2450	2010	1560
14	2410	1940	2630	2150	1670
15	2580	2080	2800	2290	1780
16	2750	2220	2980	2440	1890
17	2930	2360	3160	2580	2000
18	3100	2500	3330	2720	2110
19	3270	2640	3510	2860	2220
20	3440	2780	3690	3000	2330

GEOGRID REINFORCEMENT
SHORT-TERM DESIGN STRENGTH (LB/FT)
(SEE NOTE 10 ON SHEET 2.)

MINIMUM REQUIRED REINFORCEMENT STRENGTH IN MD
(SEE NOTE 9 ON SHEET 2.)
*SEE PARTIAL ELEVATION ON SHEET 1
FOR REINFORCEMENT LAYER NUMBERING.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

GEOTECHNICAL ENGINEERING UNIT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

STANDARD DRAWING NO. 1801.02

STANDARD
TEMPORARY WALL
Sheet 3 of 3

DATE: 11-20-12

4/04/06

COMPUTED BY: M.R. HUSSEY	DATE: 3/02/09
CHECKED BY: J. JOHNSON	DATE: 4/16/2013

PROJECT REFERENCE NO.	SHEET NO.
B-5149	3-A

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 & 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	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	T.B.D.I. STD. 840.35	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29	DRAINAGE PIPE ELBOWS NO. & SIZE	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
13+76	RT.	1	2		2113.2	2110.9																																							36																							
14+12	RT.	2		2113.2	2110.9																																												1											1	1							
14+80	RT.	2	3		2110.9	2109.9																																							140																							
15+25	LT.	4		2112.3	2109.6																																												1										1			1						
15+41	LT.	4	5		2109.6	2109.4			32								X	X																																																		
15+58	LT.	5		2112.1	2109.4																																												1										1			1						
15+58	LT.	5	6		2109.4	2103.6			20							X																																														2@15"					
19+00	RT.	7		2108.0	2104.5																																												1										1			1						
19+00	RT.	7	8		2104.5	2104.0			12							X																																																				
19+49	LT.	9		2108.2	2104.2																																												1										1			1						
19+49	LT.	9	10		2104.2	2102.4			16							X																																														1@15"					
19+97	LT.	9	11		2104.2	2105.0			92								X	X																																																		
20+47	LT.	11		2108.1	2105.3																																												1										1			1						
21+02	RT.	12																																											40																							
SUBTOTAL	B-5149 PART 1								172																																				216				6										5	1	1	5	3@15"					
SUBTOTAL	B-4765 PART 2									72	292				52																					40									20				2											2	2			1@18"	1.0126		136	
TOTAL									172	72	292				52																					40									236				8										5	3	3	5	3@15"	1@18"	1.0126		136	

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 / SIZE / THICKNESS OR GAUGE	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 (UNLESS NOTED OTHRWISE) 54" .109	54" .138	54" .168	54" SHOP ELON-GATED .138	54" SHOP ELON-GATED .168	60" .138	60" .168	66" .138	66" .168	78" .109	78" .138	78" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10		66" 12	66" 10		72" 12	72" 10					REINFORCED ENDWALLS WITH R.C. – C.Y.	WITH C.S. – C.Y.	MASONARY DRAINAGE STRUCTURES CUBIC YARDS															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
SUBTOTALS:																																																															
SUBTOTALS:	B-4765 PART 2																				56																																								3.4176	56	
TOTALS:																					56																																								3.4176	56	

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

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COMPUTED BY: M.R. HUSSEY DATE: 3/02/09
CHECKED BY: J. JOHNSON DATE: 4/6/2013

PROJECT REFERENCE NO.	SHEET NO.
B-5149	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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 SHOULDER WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END	ANCHORS TYPE III	ANCHORS GRAU 350 TL-2	IMPACT ATTENUATOR TYPE 350 NO.	PERMITTED G	PERMITTED NG	REMOVE EXISTING GUARDRAIL	REMARKS
-L-	14+17.80	15+92.00	LT	175.00			15+92.00		4.00	7.00						2					
-L-	16+25.07	17+06.32	LT	81.25			17+06.32		4.00	7.00					1	1					
-L-	16+62.57	17+06.32	RT	43.75				17+06.32	4.00	7.00					1	1					
-L-	18+48.29	20+90.85	LT	243.75				20+40.85	4.00	7.00					1	1					
-L-	18+48.29	20+73.29	RT	225.00				20+23.29	4.00	7.00					1	1					
			TOTALS	768.75											4	6					
ANCHOR DEDUCTIONS: 4 TYPE III @ 18.75' ea. =				-75.00																	
6 TL-2's @ 25' ea. =				-150.00																	
CONTINGENCY (PER DIVISION)				1,000																	
			B-5149 PART 1 TOTAL:	1,543.75			ADDITIONAL GUARDRAIL POSTS = 10								4	6					
			B-4765 PART 2 TOTAL:	25			ADDITIONAL GUARDRAIL POSTS = 5								4	4					
			GRAND TOTAL	1,568.75											8	10					
			SAY	1,575.00			ADDITIONAL GUARDRAIL POSTS = 15								8	10					

"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

TEMPORARY 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 XI MOD	ANCHORS XI	ANCHORS GRAU 350 TL-2	ANCHORS TYPE-III	ANCHORS XIII	ANCHORS CAT-1	ANCHORS VI MOD	ANCHORS BIC	ANCHORS AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
			B-4765 PART 1 TOTALS:	25'																										
			SAY:	37.5													4	4												

SUMMARY OF EARTHWORK IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	EMBT+%	BORROW	WASTE
-L- STA 13+84.51 TO STA 17+05.91		2,234	2,234	
-DR1- STA 10+00.00 TO STA 10+60.00		128	128	
-DR2- STA 10+15.00 TO STA 11+00.00		307	307	
SUMMARY 1 TOTAL		2,669	2,669	
-L- STA 18+48.29 TO STA 23+15.00	1	3,629	3,628	
-DR3- STA 10+15.00 TO STA 10+65.00		92	92	
-DR4- STA 10+15.00 TO STA 10+83.55	2	148	146	
SUMMARY 2 TOTAL	3	3,870	3,867	
EX. -L- REMOVAL	676			676
REM. EX. RDWY FILL AT BRIDGES (PER HYDRO)	590			590
TOTAL:	1,269	6,539	6,536	1,266
LOSS DUE TO CLEAR. & GRUBB.	-2		2	
EST. 5% TO REPLACE TOPSOIL ON BORR. PIT			327	
TOTAL	1,267	6,539	6,865	1,266
B-4765 PART 2 GRAND TOTALS:	1,647	1,446	785	949
GRAND TOTALS:	2,914	7,985	7,650	2,215
SAY:	3,000		7,700	

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

NOTE:
EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL UNIT.

SUMMARY OF PAVEMENT REMOVAL IN SQUARE YARDS

STATION TO STATION	PAVEMENT REMOVAL AREA SQUARE FEET	PAVEMENT REMOVAL SQUARE YARDS
-L- STA 15+18.69 TO 17+33.48	3,114.91 SF	346.10
-L- STA 17+68.10 TO 21+40.92	7,127.36 SF	791.93
EX. -L- STA 15+85.00 TO 20+86.00	707.85 SF	78.65
B-5149	PART 1 TOTAL:	1,216.68
B-4765	PART 2 TOTAL:	1,604.44
	GRAND TOTAL:	2,821.12
	SAY:	2,830

SHOULDER BERM GUTTER SUMMARY

SURVEY LINE	STATION	STATION	LENGTH	SAY
-L- LT.	14+43.28	15+68.34	125.10'	125.1'
-L- LT.	16+49.33	16+81.91	32.60'	32.6'
-L- LT.	18+72.29	20+63.67	191.4'	191.4'
-L- RT.	18+72.29	20+48.95	176.7'	176.7'
TOTAL				525.8'
SAY				530'

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE UD/BD/SD	LF
	B-5149 PART 1 TOTAL:	CONTINGENCY		SD	100
	B-4765 PART 2 TOTAL:	CONTINGENCY		SD	200
			TOTAL:		300
			SAY:		300

PROJECT REFERENCE NO.	SHEET NO.
B-5149	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE 7-24-13

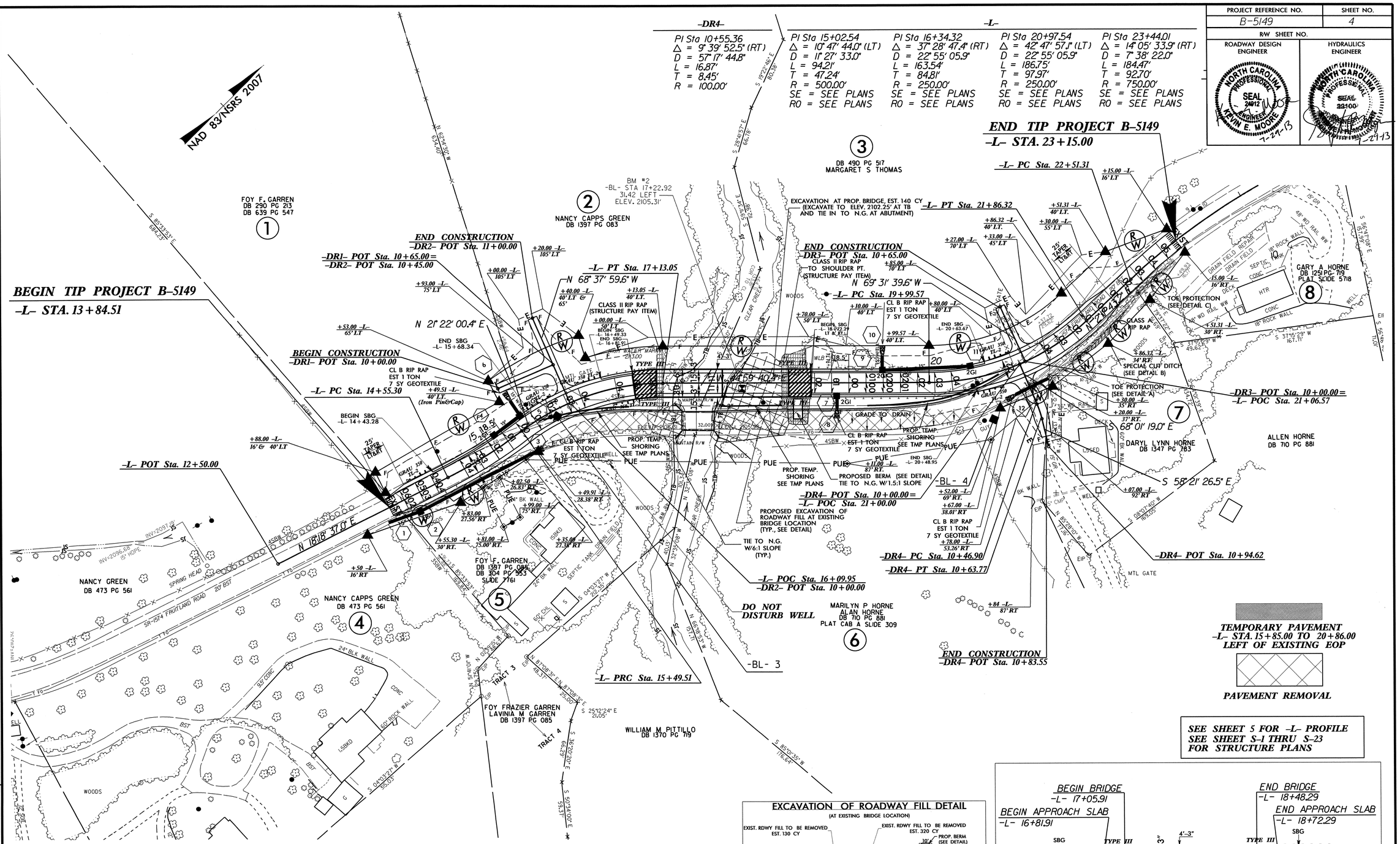
NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER 7-29-13

-DR4-

PI Sta 10+55.36
Δ = 9° 39' 52.5" (RT)
D = 57° 17' 44.8"
L = 16.87'
T = 8.45'
R = 100.00'

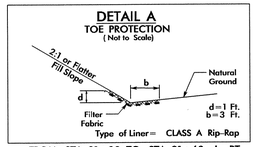
-L-

PI Sta 15+02.54	PI Sta 16+34.32	PI Sta 20+97.54	PI Sta 23+44.01
Δ = 10° 47' 44.0" (LT)	Δ = 37° 28' 47.4" (RT)	Δ = 42° 47' 57.1" (LT)	Δ = 14° 05' 33.9" (RT)
D = 11° 27' 33.0"	D = 22° 55' 05.9"	D = 22° 55' 05.9"	D = 7° 38' 22.0"
L = 94.21'	L = 163.54'	L = 186.75'	L = 184.47'
T = 47.24'	T = 84.81'	T = 97.97'	T = 92.70'
R = 500.00'	R = 250.00'	R = 250.00'	R = 750.00'
SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS	SE = SEE PLANS
RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS	RO = SEE PLANS



SEE SHEET 5 FOR -L- PROFILE
SEE SHEET S-1 THRU S-23
FOR STRUCTURE PLANS

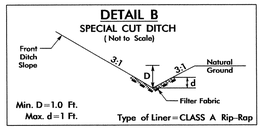
DETAIL A
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS A Rip-Rap

FROM STA. 21+20 TO STA. 21+60 -L- RT

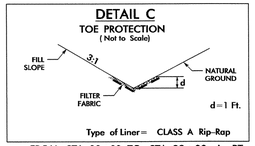
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Type of Liner=CLASS A Rip-Rap

FROM STA. 21+60 TO STA. 22+10 -L- RT

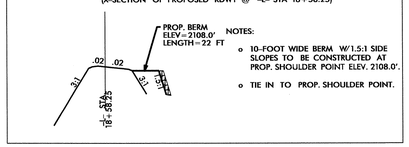
DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS A Rip-Rap

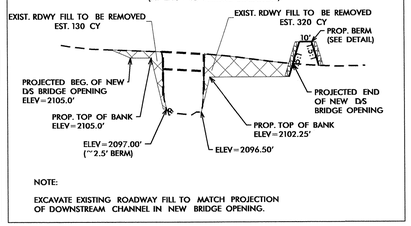
FROM STA. 22+10 TO STA. 23+00 -L- RT

BERM DETAIL
(X-SECTION OF PROPOSED RDWY @ -L- STA 18+58.25)

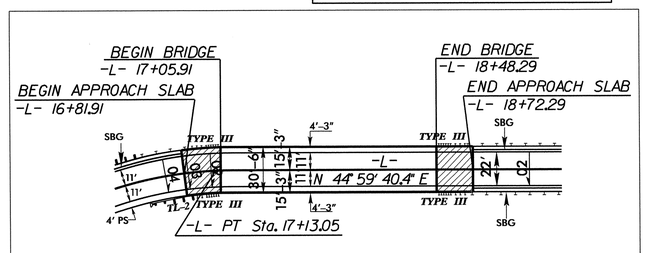


NOTES:
- 10-FOOT WIDE BERM W/1.5:1 SIDE SLOPES TO BE CONSTRUCTED AT PROP. SHOULDER POINT ELEV. 2108.0'.
- TIE IN TO PROP. SHOULDER POINT.

EXCAVATION OF ROADWAY FILL DETAIL
(AT EXISTING BRIDGE LOCATION)



NOTE:
EXCAVATE EXISTING ROADWAY FILL TO MATCH PROJECTION OF DOWNSTREAM CHANNEL IN NEW BRIDGE OPENING.



-L- BRIDGE/PAVEMENT SKETCH

REVISIONS

8/17/99

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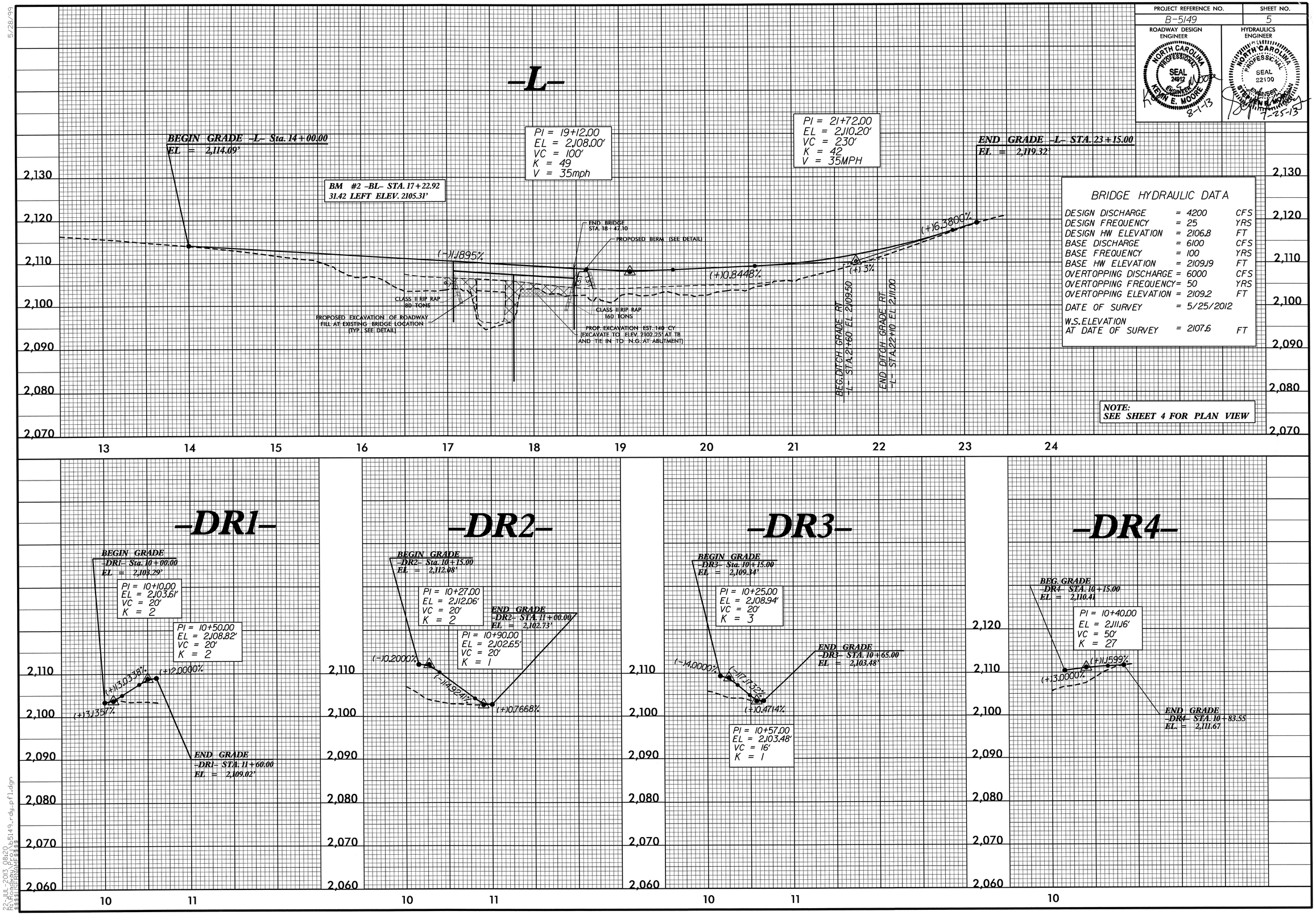
PROJECT REFERENCE NO.	SHEET NO.
B-5149	5

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE — 8-1-13

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER STEPHEN E. MORGAN — 7-25-13



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	=	4200	CFS
DESIGN FREQUENCY	=	25	YRS
DESIGN HW ELEVATION	=	2106.8	FT
BASE DISCHARGE	=	6100	CFS
BASE FREQUENCY	=	100	YRS
BASE HW ELEVATION	=	2109.19	FT
OVERTOPPING DISCHARGE	=	6000	CFS
OVERTOPPING FREQUENCY	=	50	YRS
OVERTOPPING ELEVATION	=	2109.2	FT
DATE OF SURVEY	=	5/25/2012	
W.S. ELEVATION AT DATE OF SURVEY	=	2107.6	FT

5/28/99

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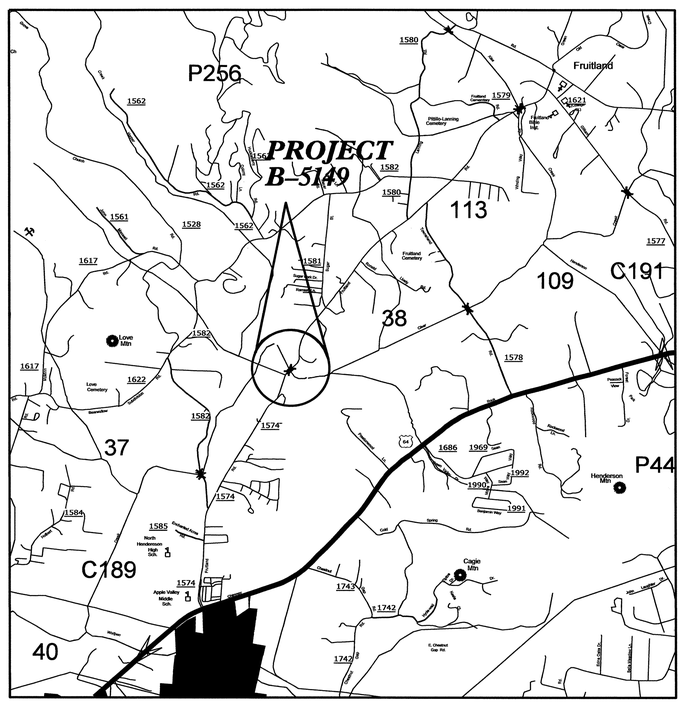
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HENDERSON COUNTY



VICINITY MAP

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND RD) OVER CLEAR CREEK.

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-01	TITLE SHEET, AND INDEX OF SHEETS
TMP-01A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-01B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES AND GENERAL NOTES)
TMP-02	SPECIAL SIGN DESIGN(S)
TMP-03	TEMPORARY SHORING DATA AND PHASING
TMP-04 THRU 07	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-08	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL

SHEET NO.
TMP-01

B-5149

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
4/15/13

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PROJ. REFERENCE NO.	SHEET NO.
B-5149	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 JANAUARY 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
1101.06	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
1180.01	SKINNY - DRUM

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- GRADING
- TEMPORARY SLOPES
  DIRECTION OF DOWNWARD SLOPE

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM

TEMPORARY SIGNING

- STATIONARY SIGN

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD JR.

4/15/13

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-5149	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.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
	SCHOOL DAYS
FRUITLAND ROAD	MONDAY THRU FRIDAY 7:00 AM TO 9:00 AM
	AND 2:30 PM TO 4:30 PM

NOTE: GENERAL NOTE A) DOES NOT APPLY TO PHASE II, STEP 2.

LANE AND SHOULDER CLOSURE REQUIREMENTS

B) 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.

C) 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.

D) 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.

E) 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.

F) 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.

G) DO NOT INSTALL MORE THAN 1500 FT OF LANE CLOSURE ON -L- (SR 1574) MEASURED FROM THE BEGINNING OF THE MERGE TAPER TO THE END OF THE LANE CLOSURE.

H) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON -L- (SR 1574).

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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.

K) 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) X FT/MI IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

M) 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.

N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS AND PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION AND COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION.

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

TRAFFIC CONTROL DEVICES

Q) 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.

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

S) 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

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

MANAGEMENT STRATEGIES

TRAFFIC WILL BE HANDLED WITH LANE CLOSURES FOR THE FIRST PHASE OF THE PROJECT. TRAFFIC WILL BE DETOURED OFFSITE TO COMPLETE THE SECOND PHASE.

APPROVED: _____ DATE _____

SEAL

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

8/19/13

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

TRANSPORATION OPERATIONS PLAN: GENERAL NOTES AND MANAGEMENT STRATEGIES

8/19/2013
P:\TIPProjects\B\B5149\Traffic\TrafficControl\TCP\Non-Detail\B-5149_TC_TCP_TMP_01B_TO.dgn
User:jwoolard

PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-02

SIGN NUMBER: SP12308
TYPE: STATIONARY
QUANTITY: SEE PLANS

SIGN WIDTH: 4'-0"
HEIGHT: 2'-0"
TOTAL AREA: 8.0 Sq.Ft.

BORDER TYPE: INSET
RECESS: 0.38"
WIDTH: 0.63"
RADII: 1.5"

NO. Z BARS:
LENGTH:

BACKG COLOR: Fluorescent Orange
COPY COLOR: Black

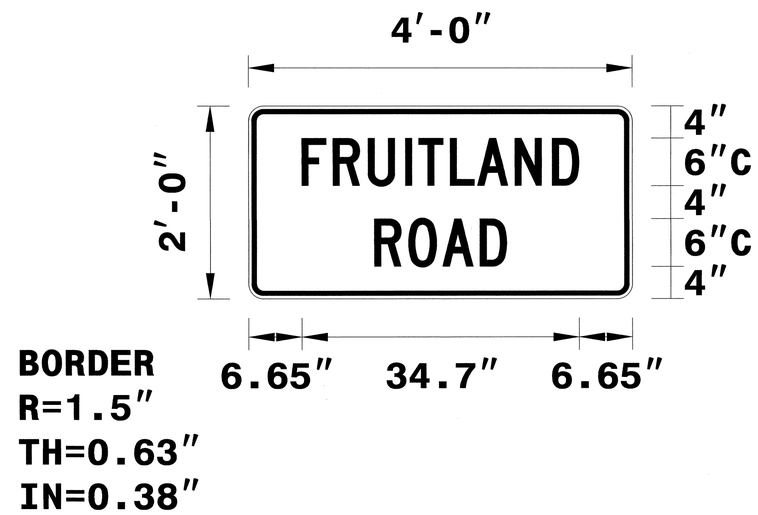
SYMBOL	X	Y	WID	HT

MAT'L: 0.080" (2.0 mm) ALUMINUM

DESIGN BY: M. TRACEY
PROJECT ID: B-5149
CHECKED BY:
DIV: 14
DATE: Oct 10, 2012

USE NOTES: 1,2

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



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																										Series/Size Text Length
	F	R	U	I	T	L	A	N	D																	C 2000
6.7	3.9	4.4	4.7	1.7	3.9	3.4	4.7	4.7	3.4	6.7																34.7
	R	O	A	D																						C 2000
15.7	4.3	4.3	4.7	3.4	15.7																					16.6

FILENAME: Fruitland Rd

NORTH CAROLINA D.O.T. SIGN DETAIL

APPROVED: DATE: 2/5/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SPECIAL SIGN DESIGN

SCALE:	NONE
DATE:	2/13
DWG. BY:	MMT
DESIGN BY:	MMT
REVIEWED BY:	KLJ

REVISIONS

CADD FILE

05-FEB-2013 07:55
P:\TIPProjects-B\B5149\Traffic\Signing\CADD\Sign Designs\B-5149_SD-L_Fruitland Rd.dgn
mtracey AT TE247743

PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-03

Temporary Shoring 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.

AT THE CONTRACTOR*S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 15+75.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 16+72.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

DESIGN SHORING FROM STATION 15+75.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 16+72.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 15+75.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 16+72.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

Temporary Shoring 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.

AT THE CONTRACTOR*S OPTION, USE STANDARD TEMPORARY SHORING FOR TEMPORARY SHORING FROM STATION 17+75.00.00-L-, 6.0 FT. LEFT OF EXISTING E.O.P, TO STATION 18+41.00 -L-, 6.0 FT. LEFT OF EXISTING E.O.P. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING.

DESIGN SHORING FROM STATION 17+75.00.00-L-, 6.0 FT. LEFT OF EXISTING E.O.P, TO STATION 18+41.00 -L-, 6.0 FT. LEFT OF EXISTING E.O.P., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 17+75.00.00-L-, 6.0 FT. LEFT OF EXISTING E.O.P, TO STATION 18+41.00 -L-, 6.0 FT. LEFT OF EXISTING E.O.P. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

Temporary Shoring No. 3

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.

AT THE CONTRACTOR*S OPTION, USE STANDARD SHORING FOR TEMPORARY SHORING FROM STATION 19+33.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 20+75.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P. SEE STANDARD DRAWING NO. 1801.01 FOR STANDARD TEMPORARY SHORING AND 1801.02 FOR STANDARD TEMPORARY WALLS.

DESIGN SHORING FROM STATION 19+33.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 20+75.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P., FOR THE FOLLOWING ASSUMED SOIL PARAMETERS AND GROUNDWATER ELEVATION:

UNIT WEIGHT (γ) = 120 PCF
FRICTION ANGLE, ϕ = 30 DEGREES
COHESION, c = 0 PSF

LIMITED SUBSURFACE INFORMATION IS AVAILABLE IN THE VICINITY OF THE TEMPORARY SHORING FROM STATION 19+33.00.00-L-, 5.0 FT. LEFT OF EXISTING E.O.P, TO STATION 20+75.00 -L-, 5.0 FT. LEFT OF EXISTING E.O.P. THE INFORMATION PROVIDED FOR TEMPORARY SHORING DESIGN WAS ASSUMED AND MAY NOT BE APPLICABLE TO THE ACTUAL SITE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

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 11/09/2012 AND SEALED BY A PROFESSIONAL ENGINEER, SHANE C. CLARK, LICENSE # (029869).

PHASING

PHASE I

STEP 1) USING ROADWAY STANDARD DRAWING (RSD) 1101.01, INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION. IF CONSTRUCTION DOES NOT BEGIN WITHIN THREE (3) DAYS OF SIGN INSTALLATION, COVER OR REMOVE SIGNING.

STEP 2) USING RSD 1101.02 GRADE -L- (SR 1574 FRUITLAND RD) FROM STA. 13+84 -L- TO STA. 15+75 -L- AND FROM STA. 20+75 -L- TO STA. 23+00 -L- UP TO THE EXISTING ELEVATION OF THE EXISTING EDGE OF PAVEMENT WHERE POSSIBLE (SEE SHEETS TMP-04, 05, & 07).

USING RSD 1101.02 INSTALL ALL PORTABLE CONCRETE BARRIER (PCB), TEMPORARY PAVEMENT, AND TEMPORARY SHORING AS SHOWN ON TMP-04. AWAY FROM TRAFFIC AND BEHIND PCB, CONSTRUCT -L- UP TO BUT NOT INCLUDING THE FINAL LIFT OF SURFACE COURSE FROM STA. 15+75 -L- TO STA. 20+75 -L- INCLUDING STRUCTURE, -DW1, -DW2, AND -DW3- (SEE SHEETS TMP-04 THRU 06).

PHASE II

STEP 1) USING RSD 1101.03 AND TMP-08 INSTALL OFFSITE DETOUR SIGNING AND ROAD CLOSURE SIGNING NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF PHASE II, STEP 2 CONSTRUCTION. IF CONSTRUCTION DOES NOT BEGIN WITHIN THREE (3) DAYS OF SIGN INSTALLATION, COVER OR REMOVE SIGNING.

NOTE: WORK IN PHASE II, STEP 2 SHALL START BETWEEN JUNE 15TH AND JULY 15TH OF THE SAME YEAR AND BE COMPLETED WITHIN 30 CALENDAR DAYS OF THE START DATE. SEE SPECIAL PROVISIONS FOR LIQUIDATED DAMAGES.

ICT - 30 DAYS

STEP 2) USING RSD 1101.03 AND SHEET TMP-08 DETOUR TRAFFIC OFFSITE, CLOSE -L-, CONSTRUCT THE REMAINING PORTIONS OF THE PROJECT UP TO AND INCLUDING THE FINAL LIFT OF SURFACE COURSE, FINAL MARKINGS AND MARKERS, AND SHOULDER WORK. OPEN -L- TO THE FINAL TRAFFIC PATTERN.

STEP 3) USING RSD 1101.02 AS NECESSARY, REMOVE EXISTING BRIDGE AND ROADWAY AS SHOWN IN THE CONSTRUCTION PLANS.

STEP 4) REMOVE ALL WORK ZONE SIGNING AND TRAFFIC CONTROL DEVICES.

APPROVED: DATE: 8/19/13

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 SHORING DATA AND PHASING

8/19/2013
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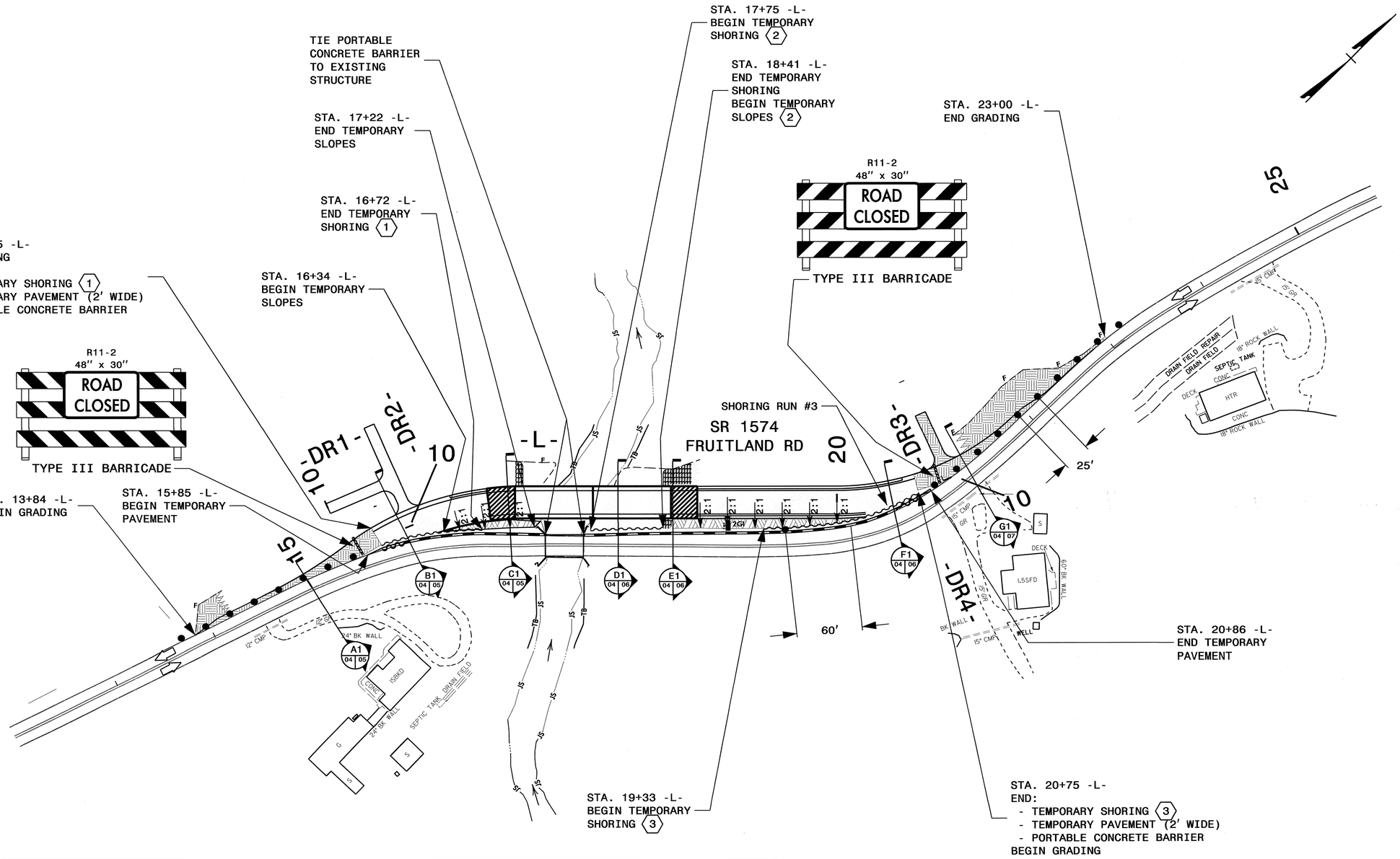
User:chojes76

PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-04



1 QUANTITY = 116.4 SF	2 QUANTITY = 132.0 SF	3 QUANTITY = 312.4 SF
TEMPORARY SHORING FROM STA. 15+75+/- -L-, 5' O.S. LEFT EOP TO STA. 16+72+/- -L-, 5' O.S. LEFT EOP (SEE SHEET TMP-03 FOR TEMPORARY SHORING NOTES)	TEMPORARY SHORING FROM STA. 17+75+/- -L-, 6' O.S. LEFT EOP TO STA. 18+41+/- -L-, 6' O.S. LEFT EOP (SEE SHEET TMP-03 FOR TEMPORARY SHORING NOTES)	TEMPORARY SHORING FROM STA. 19+33+/- -L-, 5' O.S. LEFT EOP TO STA. 20+75+/- -L-, 5' O.S. LEFT EOP (SEE SHEET TMP-03 FOR TEMPORARY SHORING NOTES)

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER W. WOOLARD, JR. 4/15/13

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

PHASE I DETAIL

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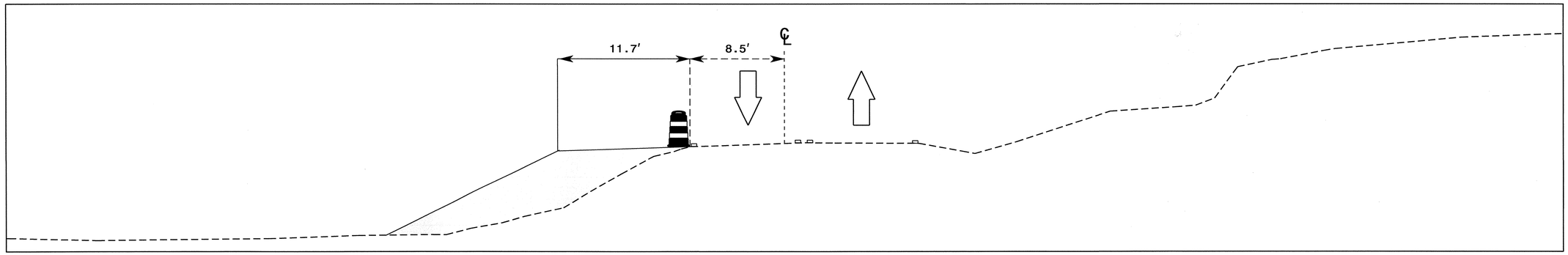
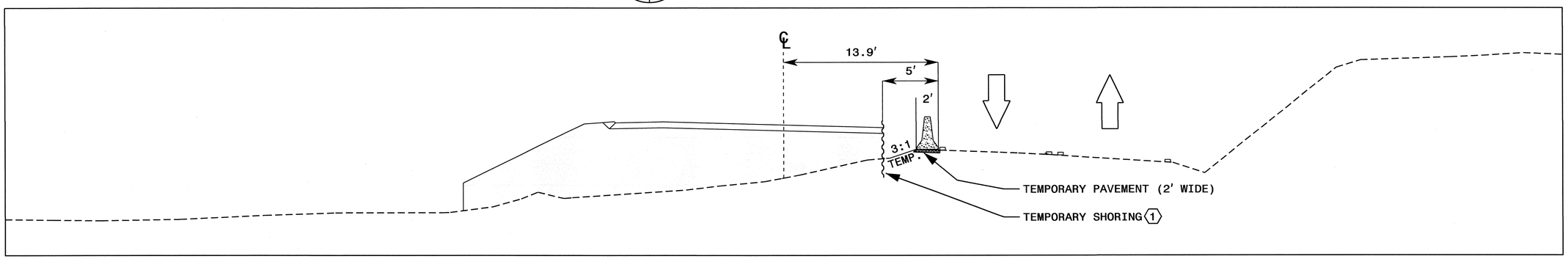
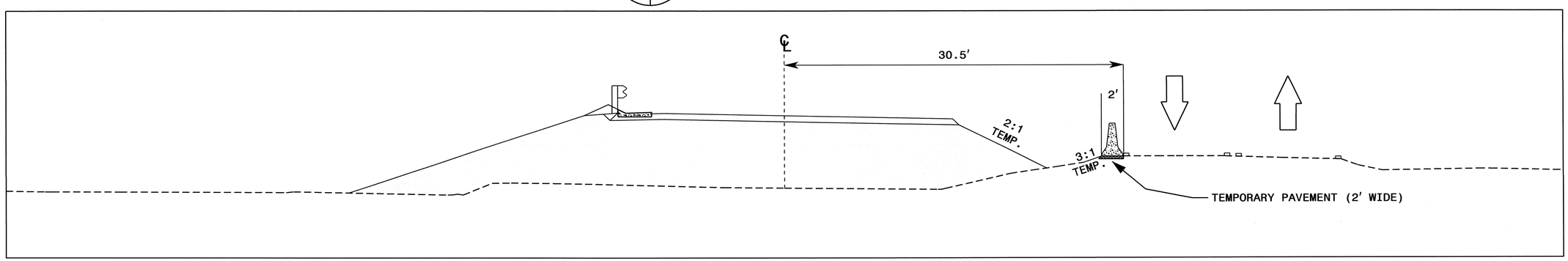
PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-05



A1 / 04 05 CUT SECTION
STA. 15+00 -L-



B1 / 04 05 CUT SECTION
STA. 16+00 -L-



C1 / 04 05 CUT SECTION
STA. 17+00 -L-

NOTE: TEMPORARY DRAINAGE TO BE DESIGNED AT THE DISCRETION OF THE ENGINEER.

APPROVED: DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR. 4/15/13

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

TEMPORARY CUT SECTIONS
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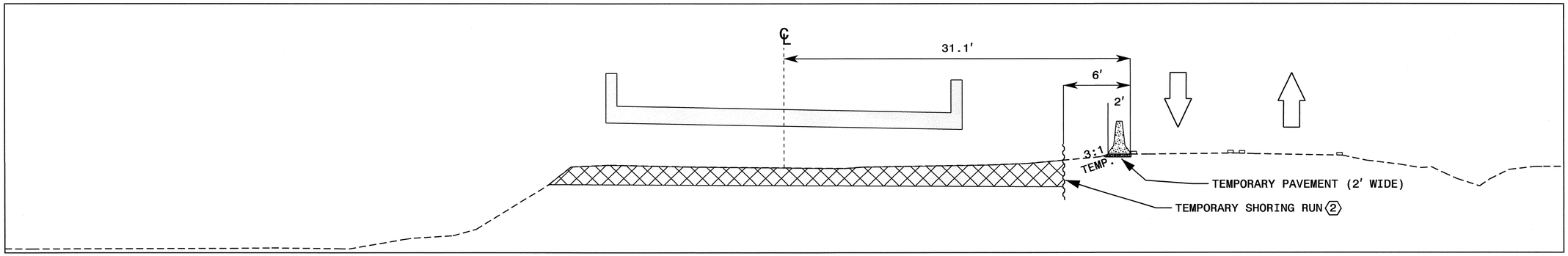
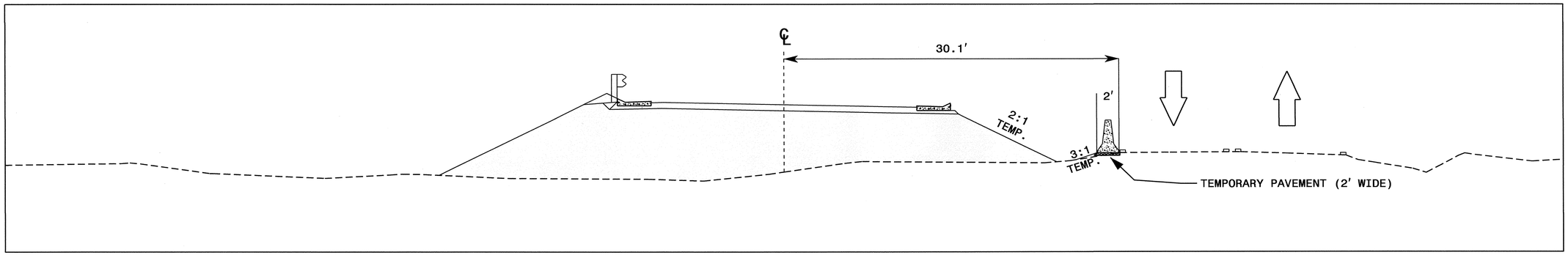
AT TE265810

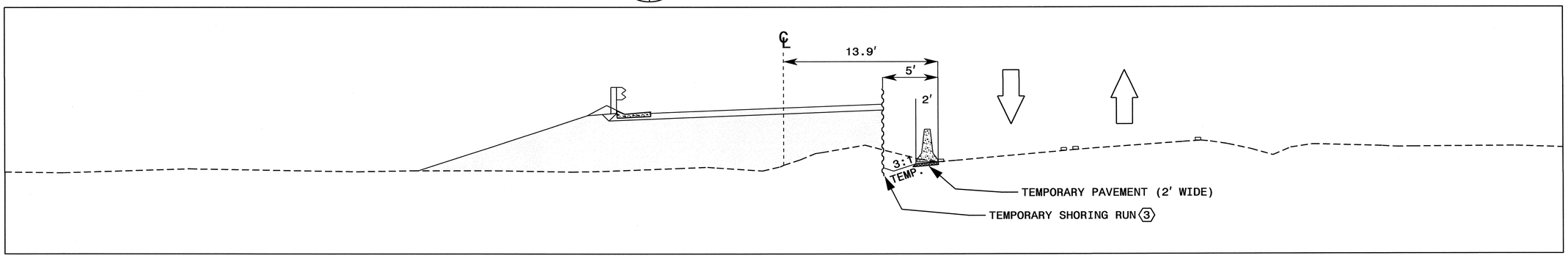
PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-06



D1 04 06 CUT SECTION
STA. 18+00 -L-



E1 04 06 CUT SECTION
STA. 18+50 -L-



F1 04 06 CUT SECTION
STA. 20+50 -L-

NOTE: TEMPORARY DRAINAGE TO BE DESIGNED AT THE DISCRETION OF THE ENGINEER.

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD, JR. 4/15/13

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

TEMPORARY CUT SECTIONS
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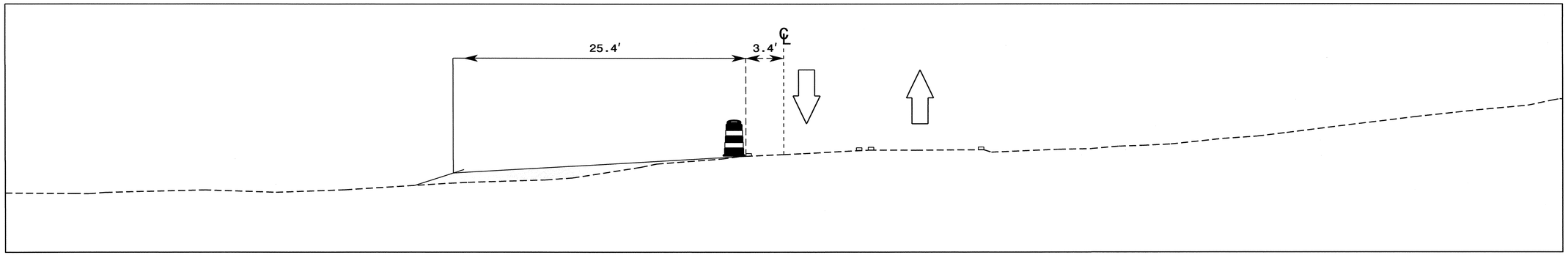
PROJ. REFERENCE NO.	SHEET NO.
B-4159	TMP-07



G1 (04 | 07) CUT SECTION
STA. 21+25 -L-

APPROVED: _____ DATE: _____

SEAL

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

4/15/13

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

TEMPORARY CUT SECTION G

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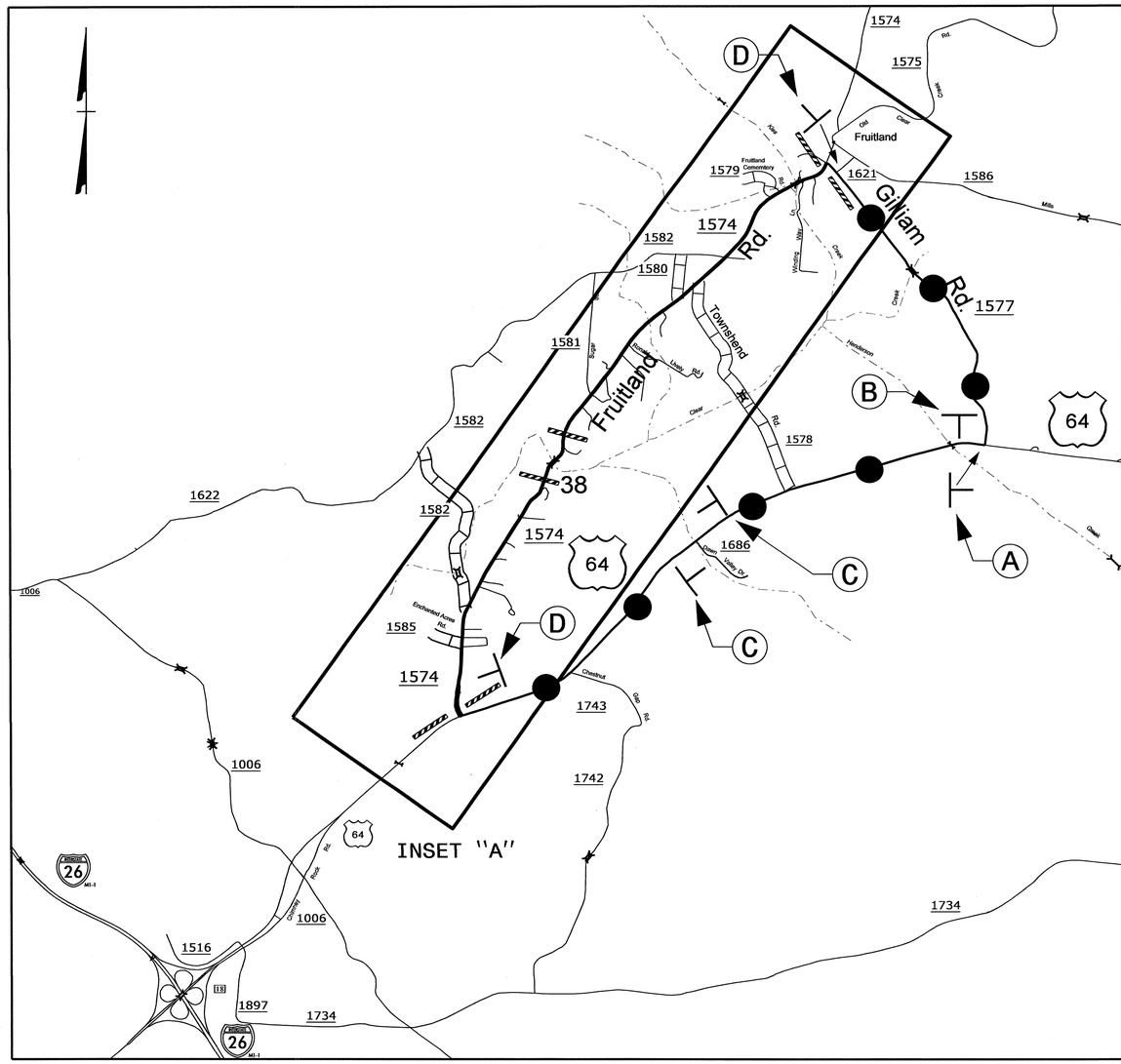
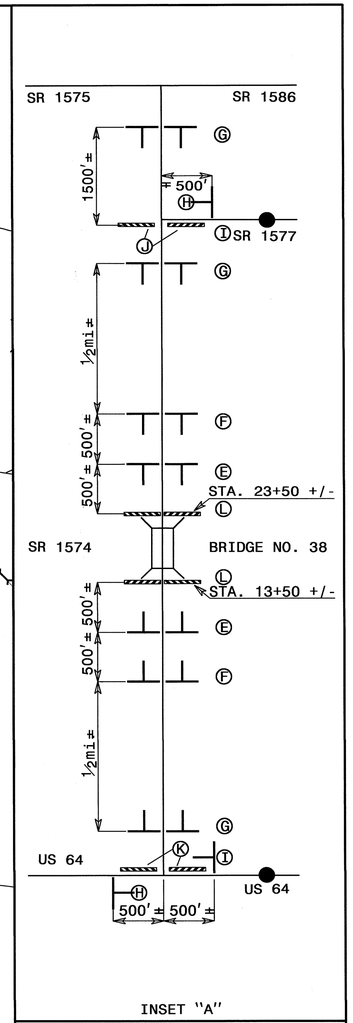
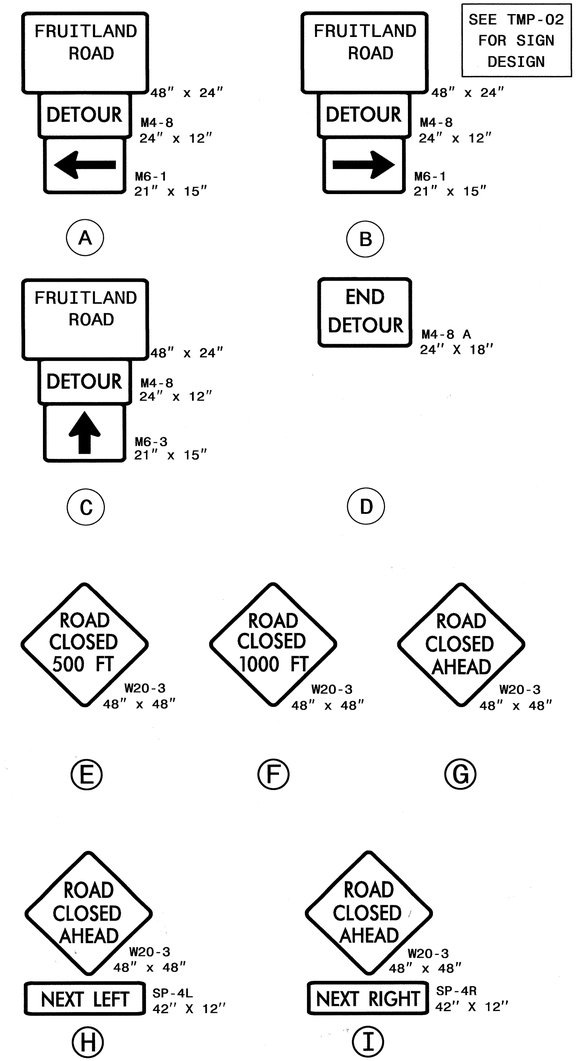
PROJ. REFERENCE NO.	SHEET NO.
B-5149	TMP-08

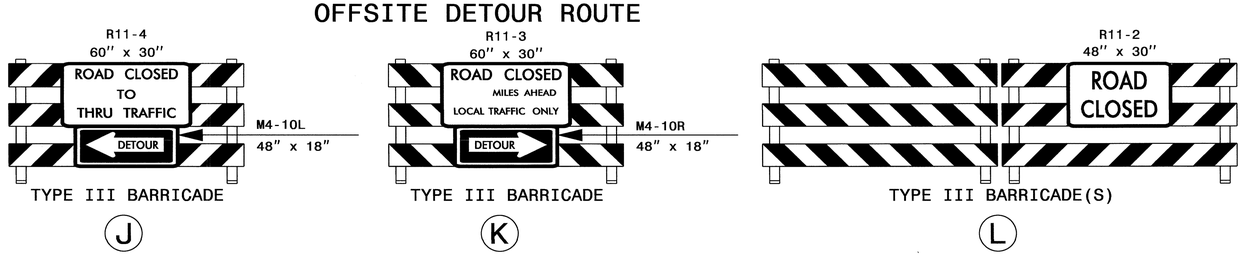




REFER TO ROADWAY STANDARD DRAWING 1101.03, SHEET 1 OF 9 FOR APPLICABLE NOTES.



OFFSITE DETOUR ROUTE



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

OFFSITE DETOUR

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ahayes AT TE26580

T.I.P.: B-5149

CONTRACT:

TIP NO.	SHEET NO.
B-5149	PMP-1

APPROVED: RLW
DATE: 6/17/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

HENDERSON COUNTY

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT	
PA	WHITE EDGELINE (4")
PI	YELLOW DOUBLE CENTER (4")
	MARKERS
SNOWPLOWABLE	
ME	YELLOW & YELLOW

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
1205.12	PAVEMENT MARKINGS - BRIDGES
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

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
SR 1574	PAINT	SNOWPLOWABLE

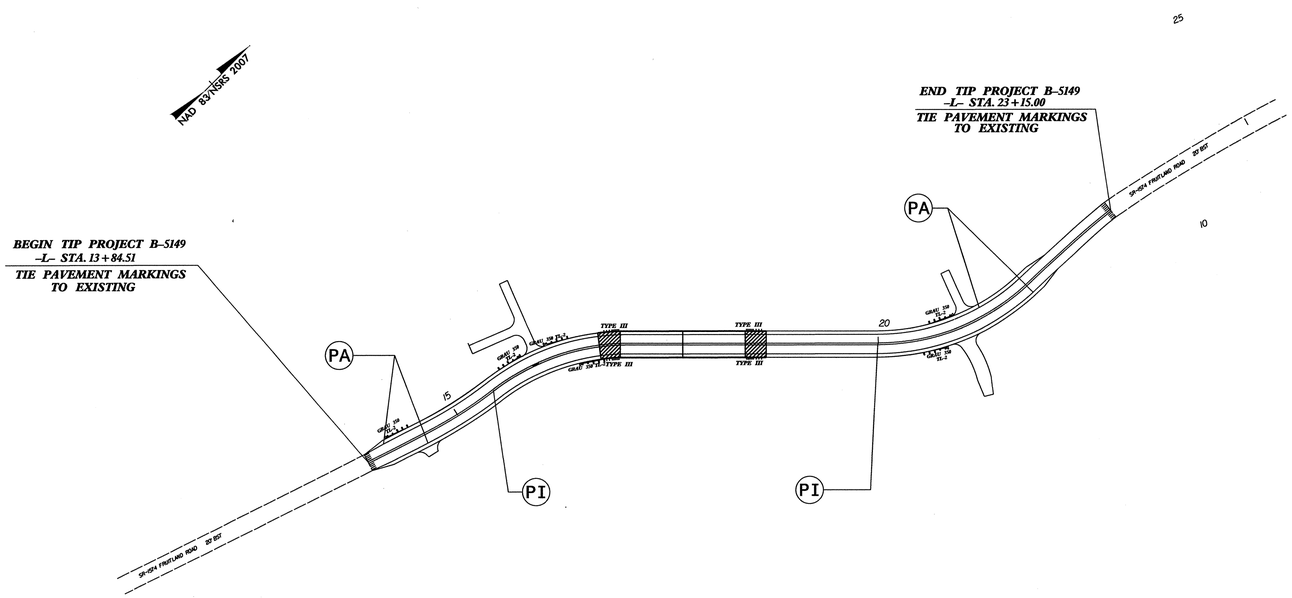
B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING PAINT PAVEMENT MARKING MATERIAL.



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

K. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER
M. TRACEY	SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

INDEX

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

12-JUN-2013 10:32
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mtracey
A1 TE247743

TIP PROJECT: B-5149

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5149	EC-1	

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

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

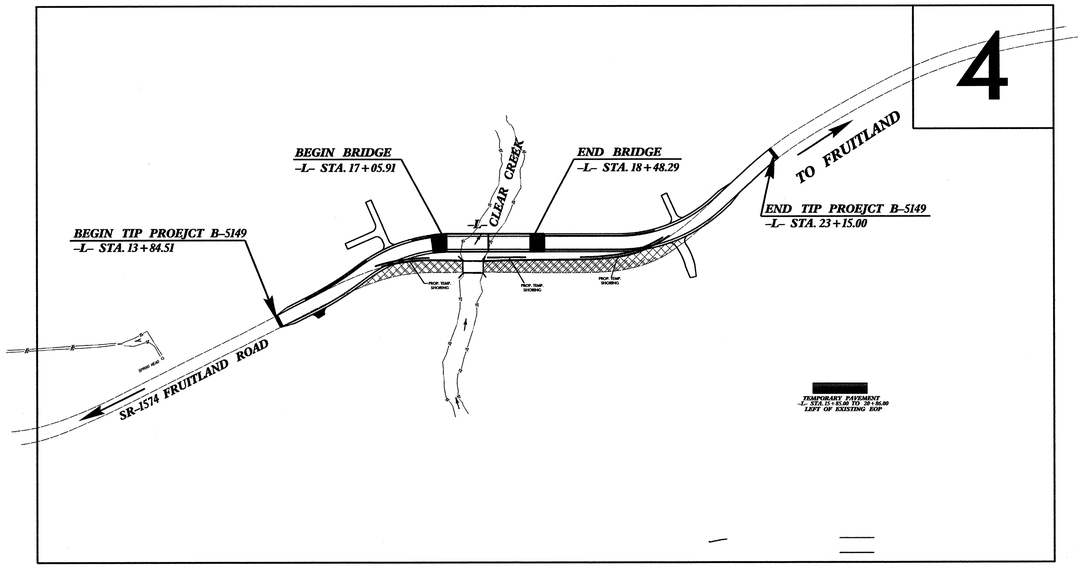
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HENDERSON COUNTY

NAD 83/
NSRS 2007

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK.

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



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.

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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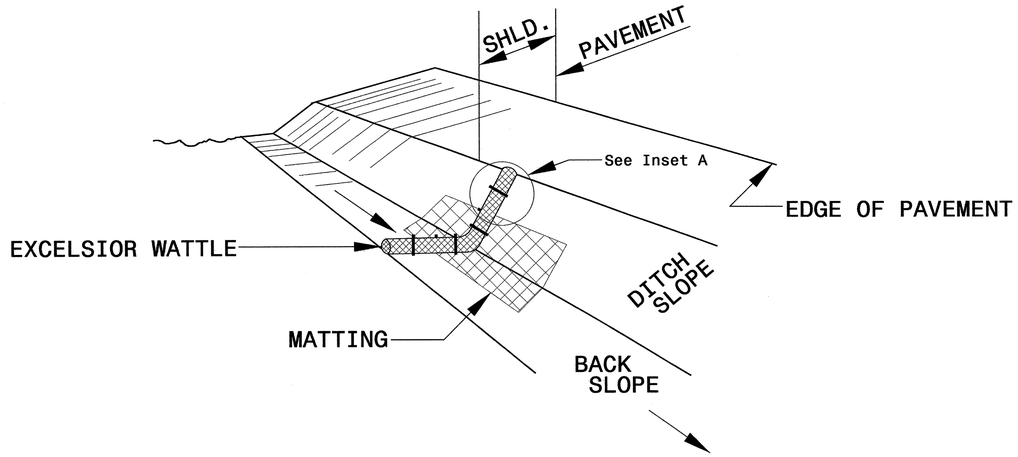
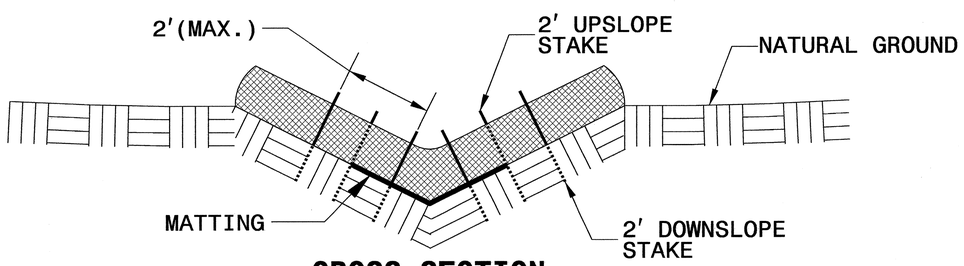
PROJECT REFERENCE NO.	SHEET NO.
B-5149	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

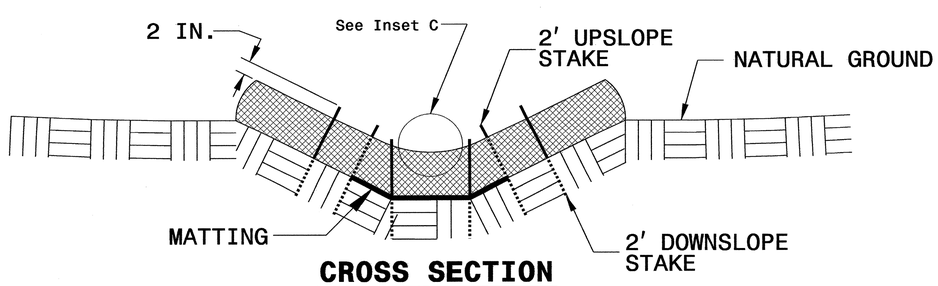
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

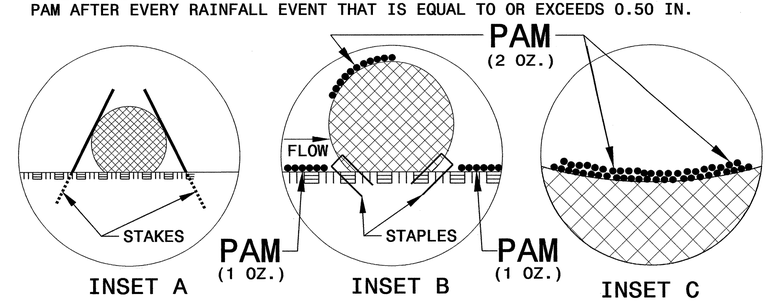
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

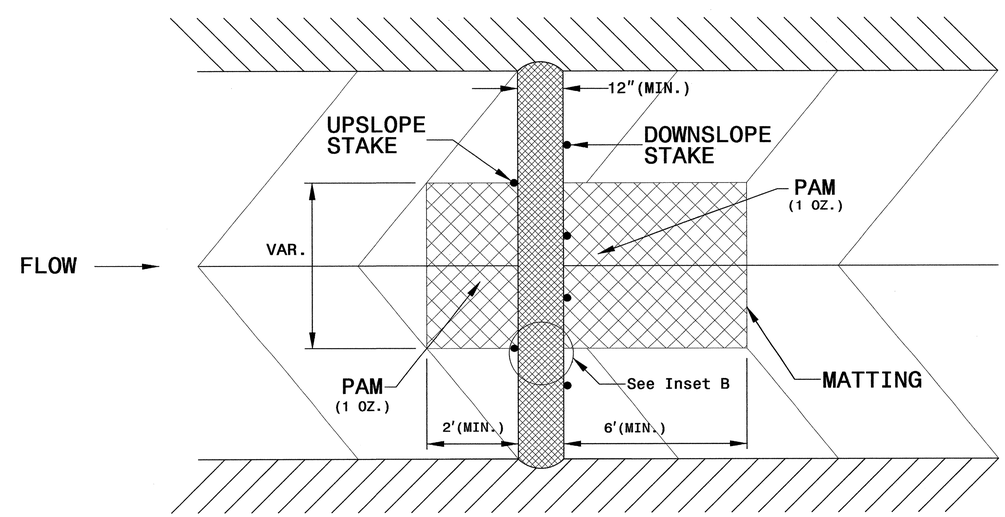
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

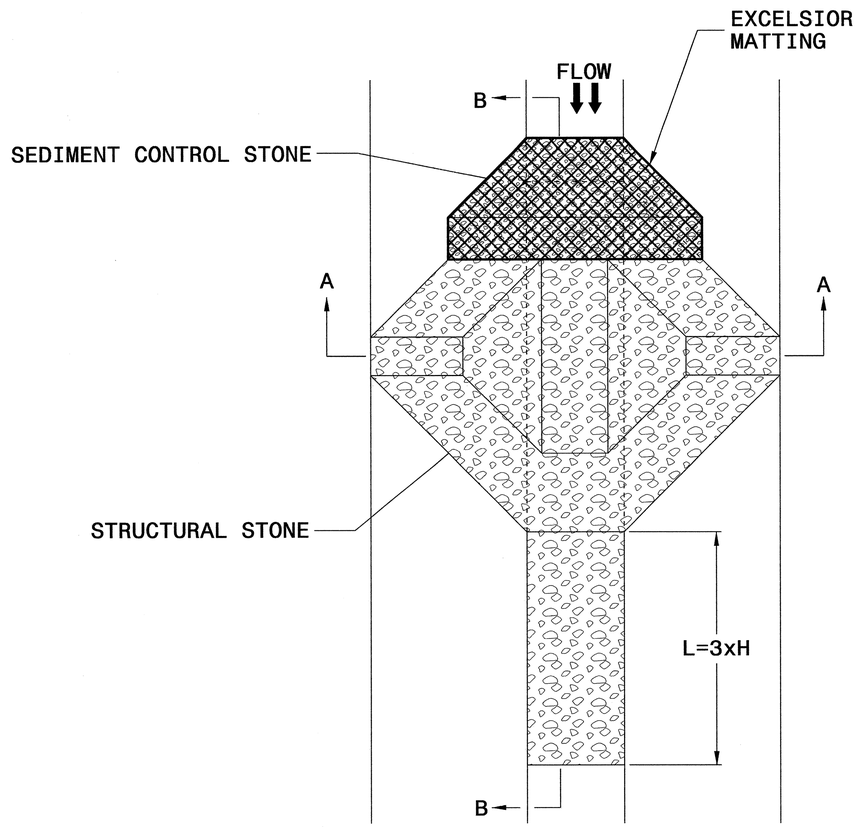




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-5149	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



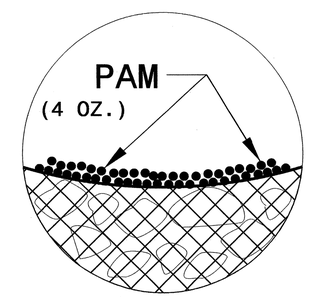
PLAN

NOTES

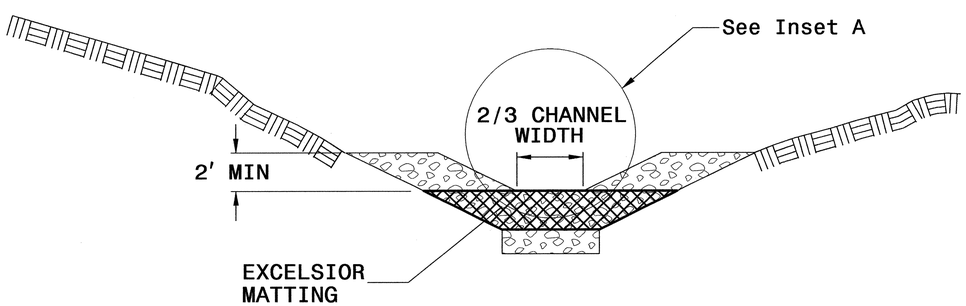
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

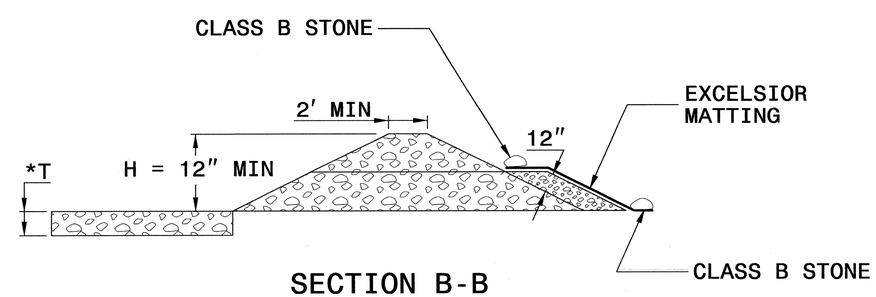
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



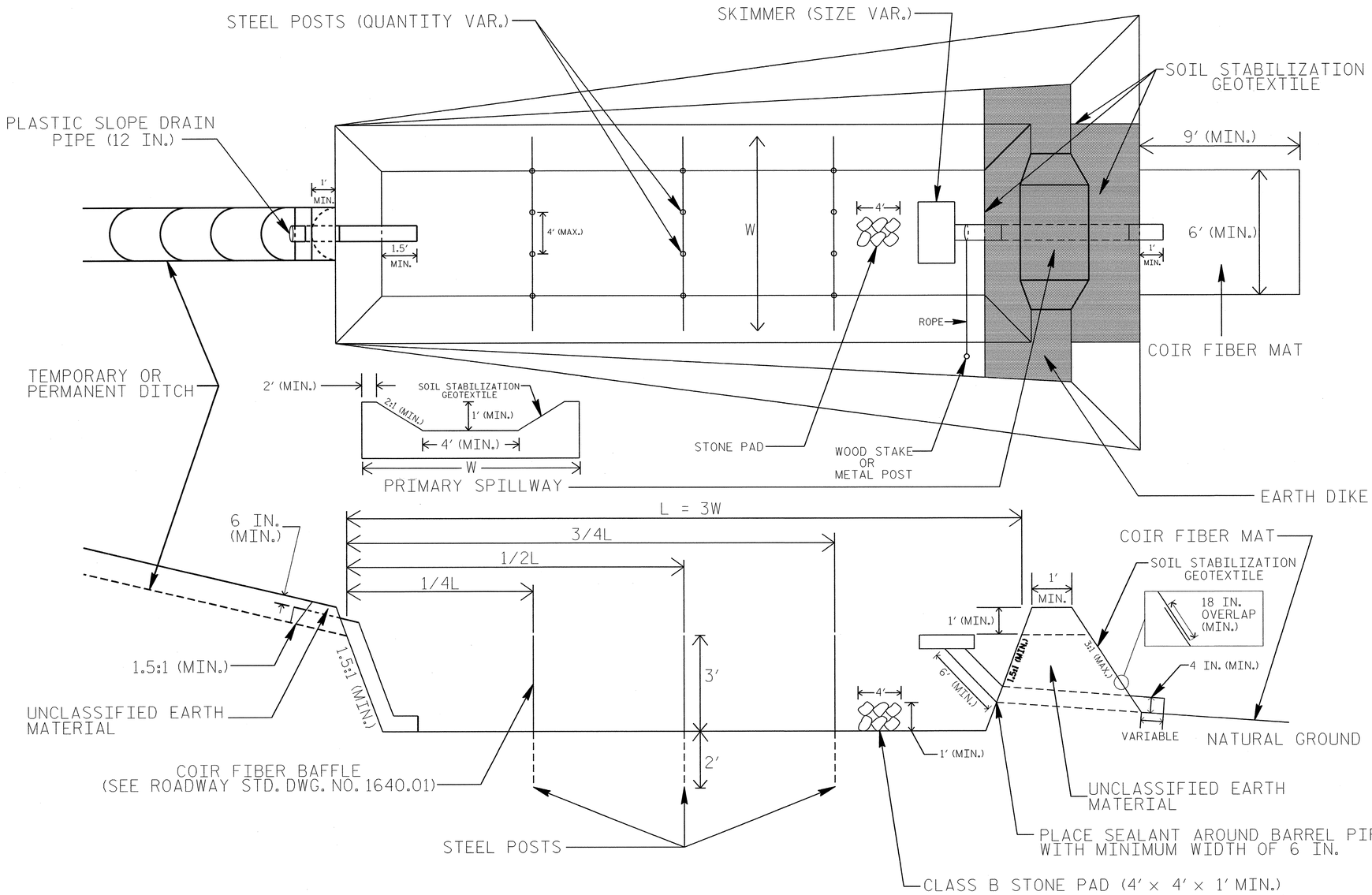
SECTION B-B

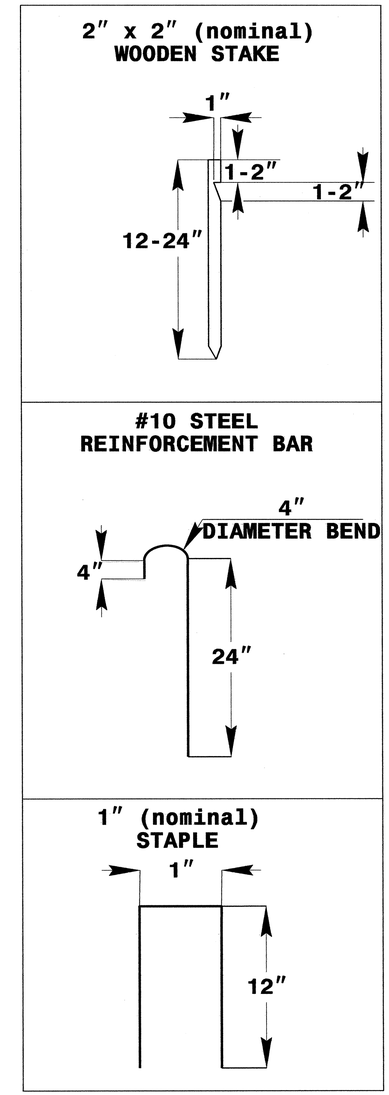
*T = 12" MIN., 18" MAX.

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-5149	EC-2B
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-5149	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-5149	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

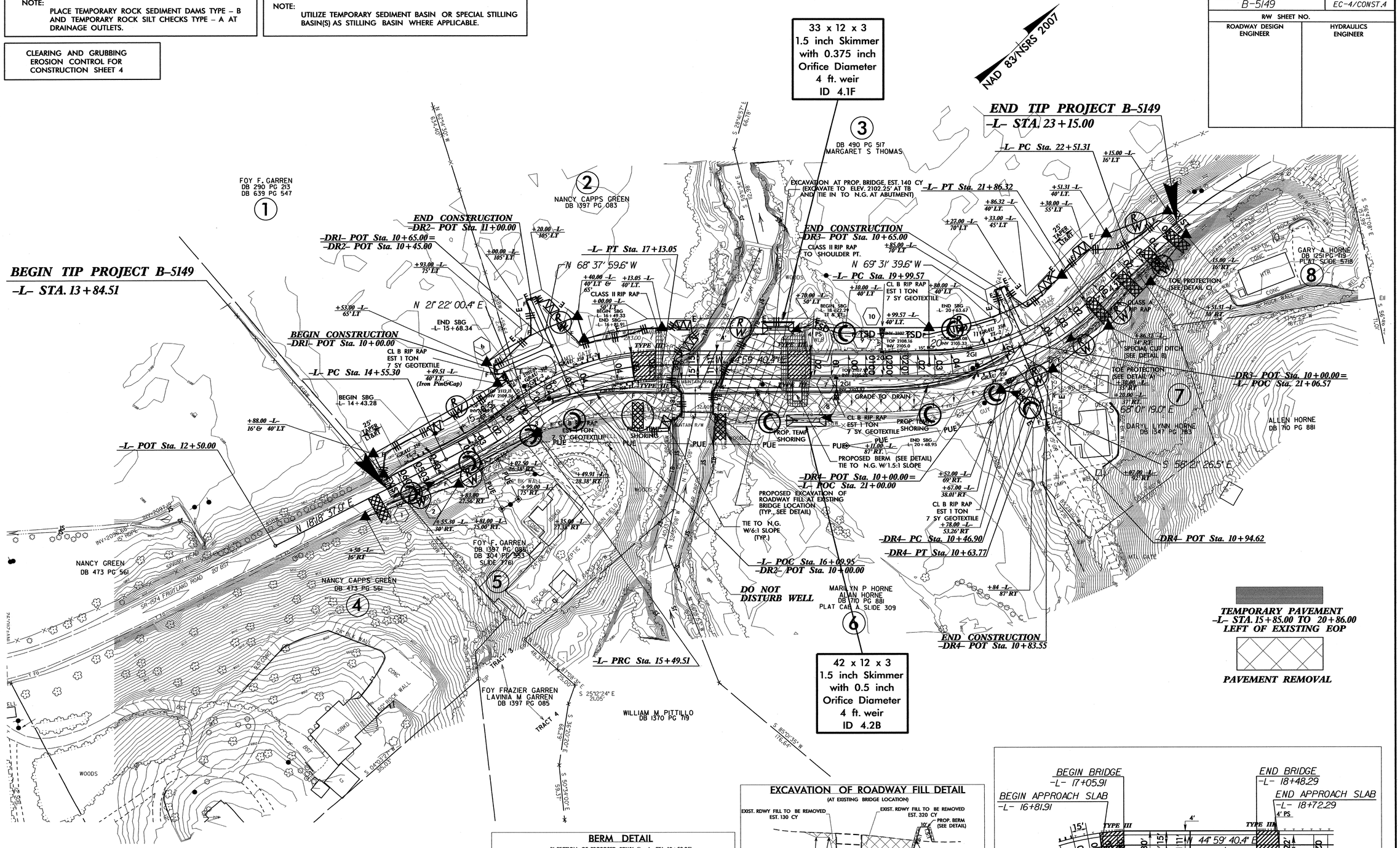
NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE – B AND TEMPORARY ROCK SILT CHECKS TYPE – A AT DRAINAGE OUTLETS.

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

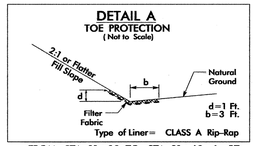
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

33 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.1F

42 x 12 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 4.2B



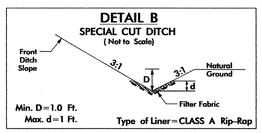
DETAIL A
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS A Rip-Rap

FROM STA. 21+20 TO STA. 21+60 -L- RT
EST. 14 TONS
32 SY GEOTEXTILE

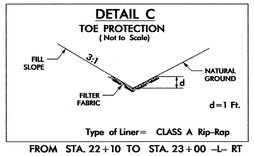
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Min. D=1.0 Ft.
Max. d=1 Ft.
Type of Liner=CLASS A Rip-Rap

FROM STA. 21+60 TO STA. 22+10 -L- RT
EST. 18 TONS
40 SY GEOTEXTILE

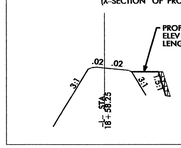
DETAIL C
TOE PROTECTION
(Not to Scale)



Type of Liner= CLASS A Rip-Rap

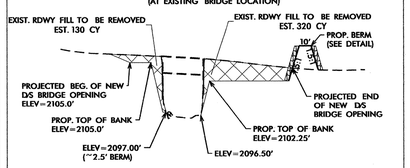
FROM STA. 22+10 TO STA. 23+00 -L- RT
EST. 30 TONS
70 SY GEOTEXTILE

BERM DETAIL
(X-SECTION OF PROPOSED RDWY @ -L- STA 18+58.25)

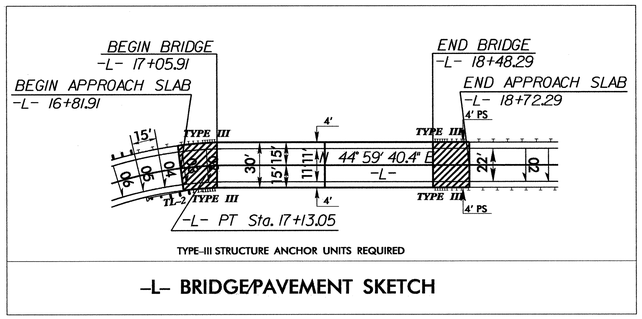


NOTES:
- 10-FOOT WIDE BERM W/1.5:1 SIDE SLOPES TO BE CONSTRUCTED AT PROP. SHOULDER POINT ELEV. 2108.0'.
- TIE IN TO PROP. SHOULDER POINT.

EXCAVATION OF ROADWAY FILL DETAIL
(AT EXISTING BRIDGE LOCATION)



NOTE:
EXCAVATE EXISTING ROADWAY FILL TO MATCH PROJECTION OF DOWNSTREAM CHANNEL IN NEW BRIDGE OPENING.



TYPE-III STRUCTURE ANCHOR UNITS REQUIRED

-L- BRIDGE/PAVEMENT SKETCH

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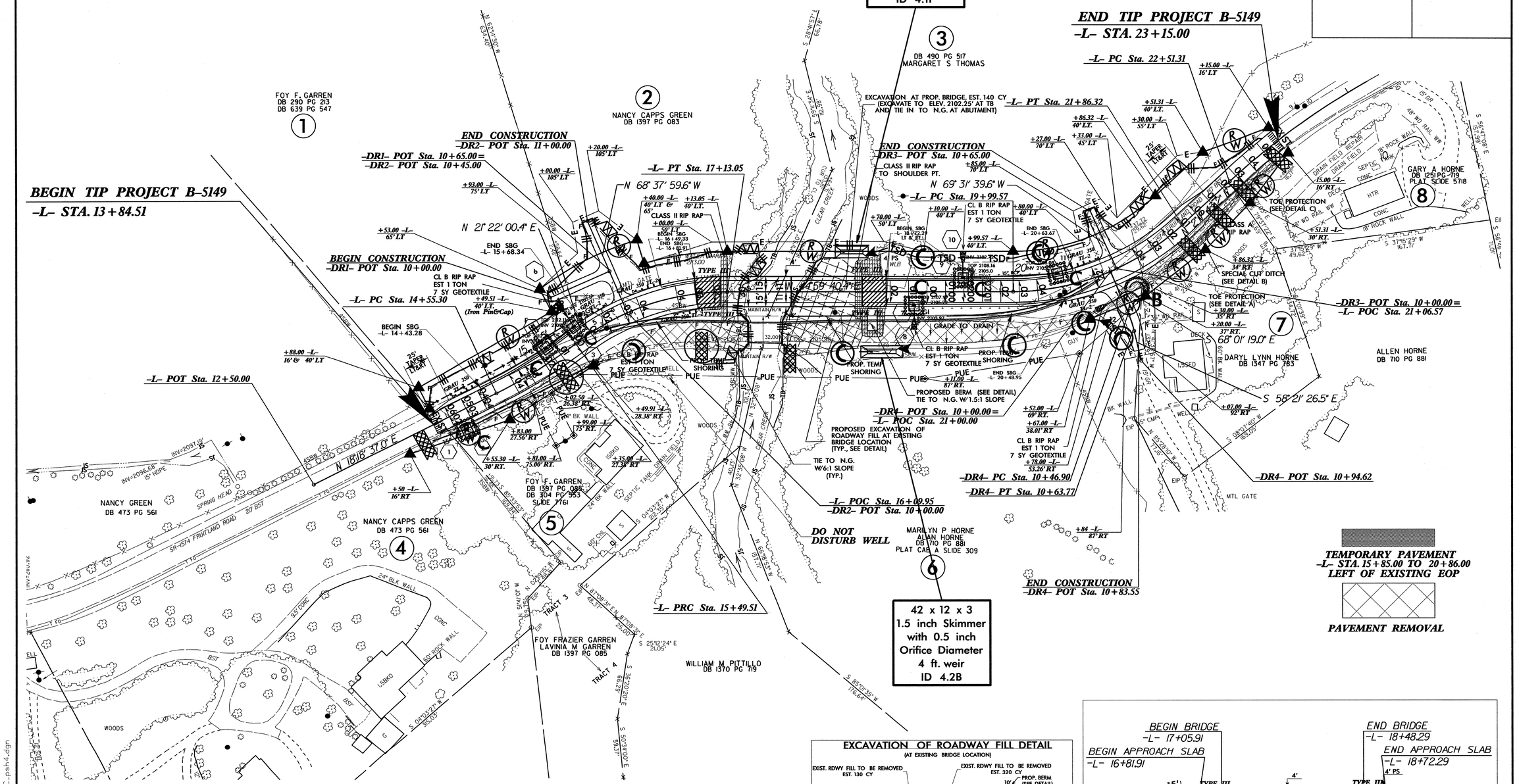
PROJECT REFERENCE NO.	SHEET NO.
B-5149	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

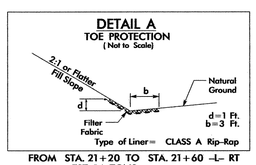
NOTE:
UTILIZE TEMPORARY SEDIMENT BASIN OR SPECIAL STILLING BASIN(S) AS STILLING BASIN WHERE APPLICABLE.

33 x 12 x 3
1.5 inch Skimmer
with 0.375 inch
Orifice Diameter
4 ft. weir
ID 4.1F

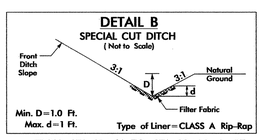
42 x 12 x 3
1.5 inch Skimmer
with 0.5 inch
Orifice Diameter
4 ft. weir
ID 4.2B

NAD 83/NSRS 2007

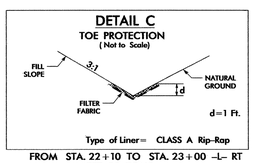




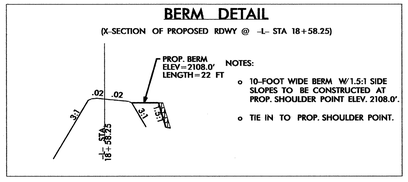
FROM STA. 21+20 TO STA. 21+60 -L- RT
EST. 14 TONS
32 SY GEOTEXTILE

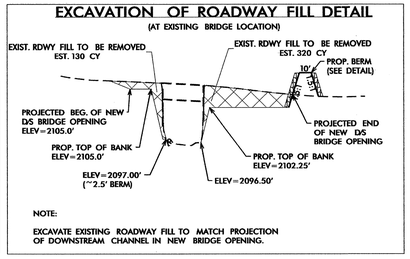


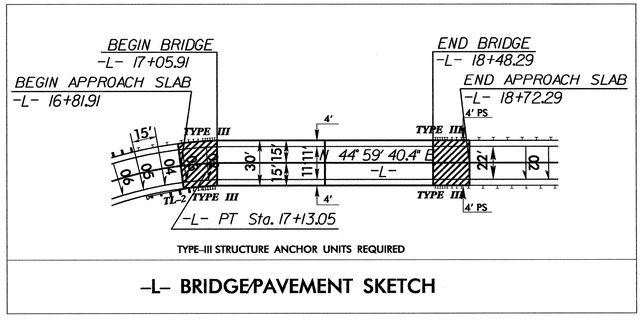
FROM STA. 21+60 TO STA. 22+10 -L- RT
EST. 18 TONS
40 SY GEOTEXTILE



FROM STA. 22+10 TO STA. 23+00 -L- RT
EST. 30 TONS
70 SY GEOTEXTILE







-L- BRIDGE/PAVEMENT SKETCH

8/17/99

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T.I.P.: B-5149

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-5149	SIGN-1

APPROVED: RLW
DATE: 6/17/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGNING PLAN

HENDERSON COUNTY

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	99	L.F.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.
4096000000	904	SIGN ERECTION, TYPE D	2	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	6	EA.

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

GENERAL NOTES

- SIGNS FURNISHED BY STATE
- ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TOW U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.
- 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.
- 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.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

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

TYPE E SIGNS

401 QUANTITY REQ'D 2

36 X 36
W1-4R

ONE "U" POST PER SIGN

INDEX

SHEET NO.	DESCRIPTION
SIGN-1	TITLE SHEET
SIGN-2	SIGN DESIGNS
SIGN-3	SIGN PLAN SHEET

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

K. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

M. TRACEY — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-5149	SIGN-2

APPROVED: [signature]

DATE: 6/17/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGN NUMBER: 301, 302
TYPE: D
QUANTITY: 2

SIGN WIDTH: 5'-0"
HEIGHT: 2'-0"
TOTAL AREA: 10.0 Sq.Ft.

BORDER TYPE: FLUSH
RECESS: 0"
WIDTH: 0.5"
RADII: 2"

NO. Z BARS:
LENGTH:

BACKG COLOR: Green
COPY COLOR: White

SYMBOL	X	Y	WID	HT

MAT'L: 0.125" (3.2 mm) ALUMINUM

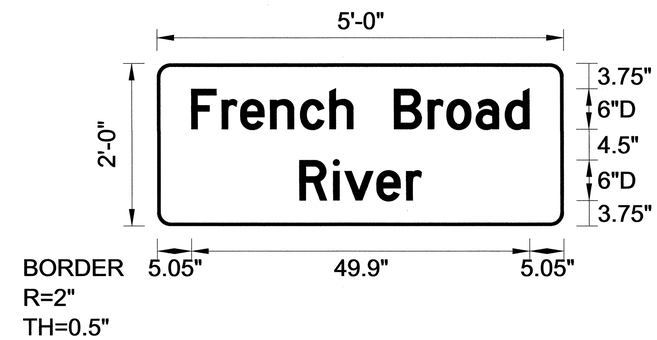
DESIGN BY: MT
PROJECT ID: B-5149

CHECKED BY:
DIV: 14

DATE: Feb 04, 2013

USE NOTES: 1,2

1. Legend and border(except those that are colored black) shall be direct applied Grade C sheeting.
2. Background shall be Grade C reflective sheeting.



Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter locations are panel edge to lower left corner

													Series/Size Text Length
F	r	e	n	c	h		B	r	o	a	d		D 2000
5	9.5	12.3	16.7	21.1	25.4	29	35	40	42.7	47	51.4		49.9
R	i	v	e	r									D 2000
21	26	27.6	32.4	36.8									18.1

FILENAME: sign design

NORTH CAROLINA D.O.T. SIGN DETAIL

SIGN DESIGNS

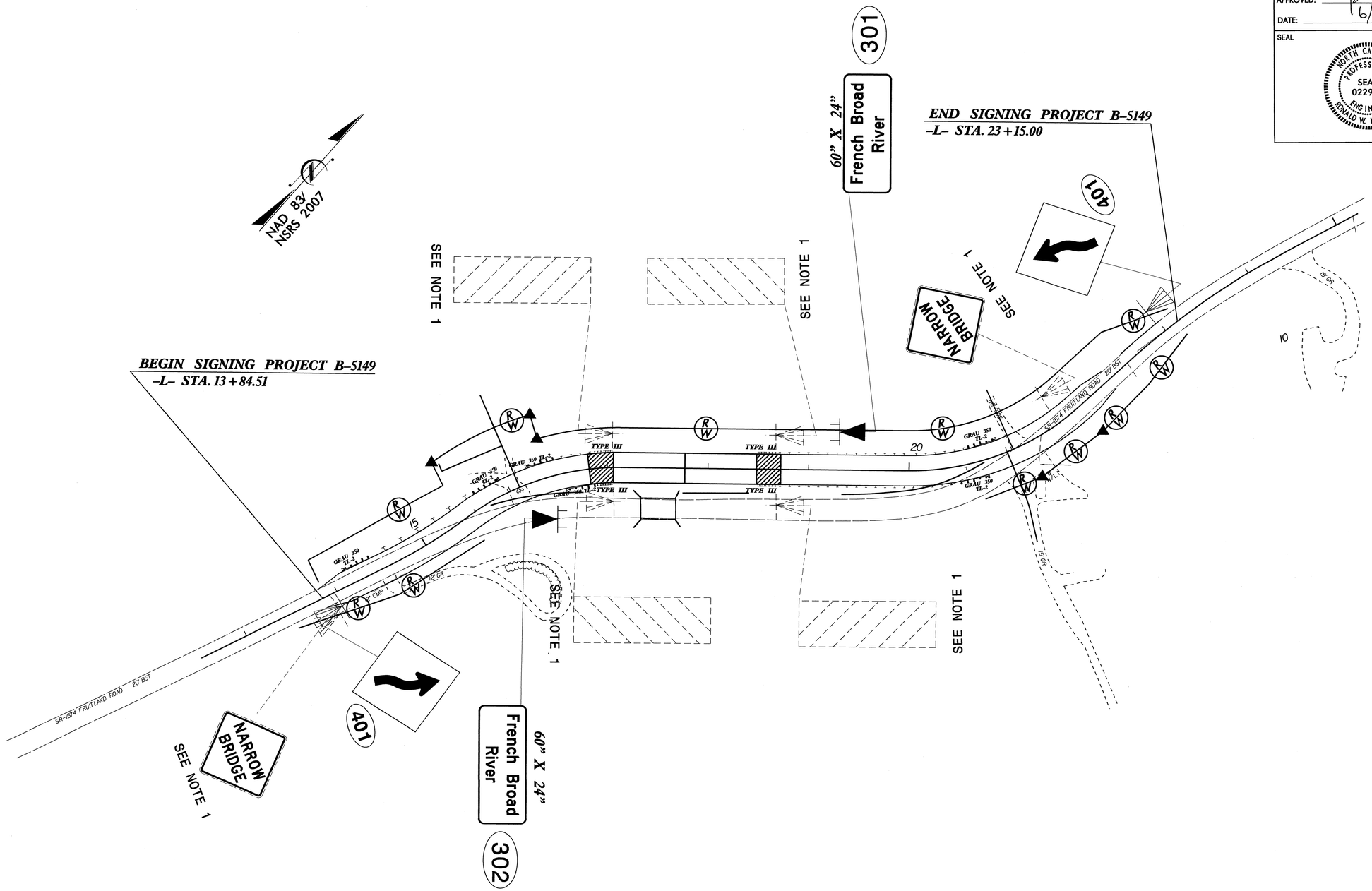
TIP NO.	SHEET NO.
B-5149	SIGN-3

APPROVED: RWK 6/17/13

DATE:

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

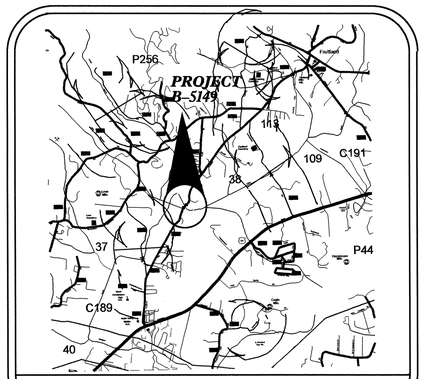


SIGN PLAN SHEET

TIP PROJECT: B-5149

T.I.P. NO.	SHEET NO.
B-5149	UO-1

See Sheet 1-A For Index of Sheets



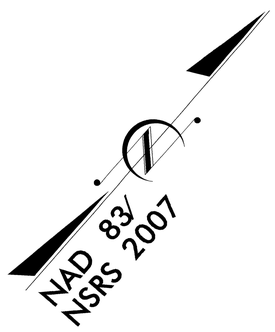
VICINITY MAP

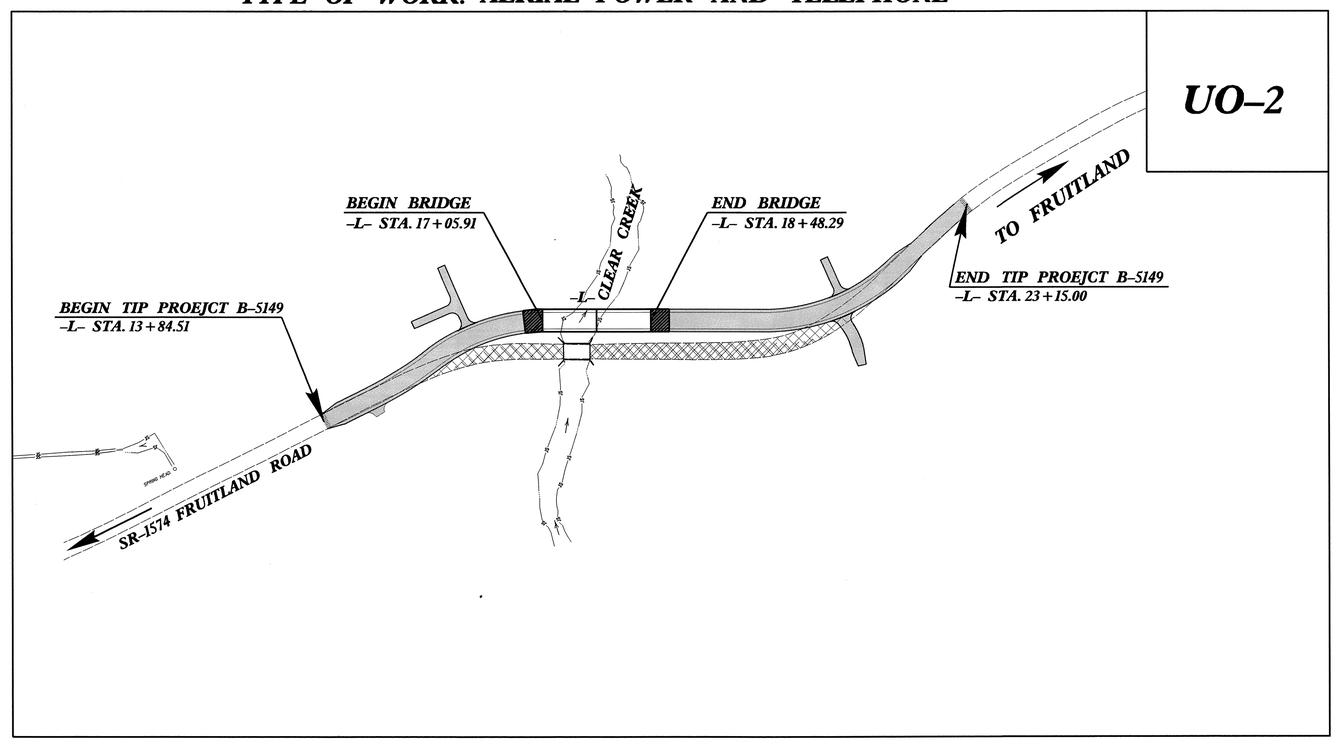
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
HENDERSON COUNTY

LOCATION: BRIDGE NO. 38 ON SR 1574 (FRUITLAND ROAD) OVER CLEAR CREEK

TYPE OF WORK: AERIAL POWER AND TELEPHONE





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 SHEETS

UTILITY OWNERS ON PROJECT

(1) AT&T - (TELEPHONE)

(2) DUKE ENERGY - (POWER)

(3) MORRIS BROADBAND - CATV

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

09/08/95
08-JUL-2013 15:58
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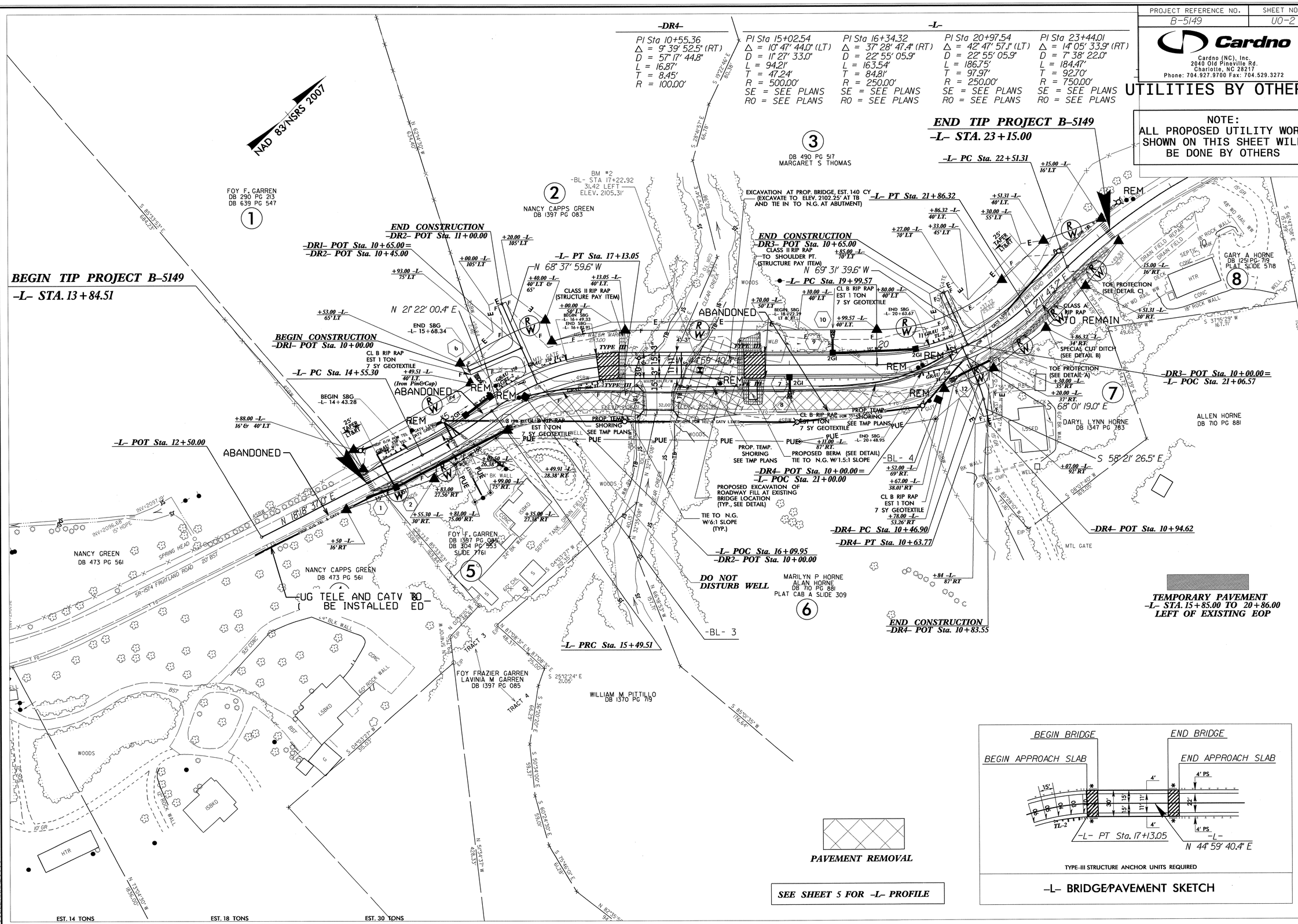
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-5149	U0-2

Cardno
Cardno (NC), Inc.
2040 Old Pineville Rd.
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



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PROJ. REFERENCE NO.	SHEET NO.
B-5149	X-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CROSS-SECTION SUMMARY

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+84.51	0	0
14+00.00	0	11
14+25.00	0	39
14+50.00	0	49
14+75.00	0	64
15+00.00	0	87
15+25.00	0	113
15+50.00	0	140
15+75.00	0	169
16+00.00	0	183
16+25.00	0	206
16+50.00	0	248
16+75.00	0	278
17+00.00	0	288
17+05.91	0	68

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
18+48.29	0	0
18+50.00	1	18
18+75.00	0	361
19+00.00	0	380
19+25.00	0	244
19+50.00	0	213
19+75.00	0	215
20+00.00	0	230
20+25.00	0	225
20+50.00	0	214
20+75.00	0	196
21+00.00	0	149
21+25.00	0	126
21+50.00	0	142
21+75.00	0	139
22+00.00	0	132
22+25.00	0	106
22+50.00	0	49
22+75.00	0	11
23+00.00	0	5
23+15.00	0	1

Station Dr1	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+00.00	0	0
10+10.00	0	1
10+20.00	0	3
10+30.00	0	11
10+40.00	0	24
10+50.00	0	39
10+60.00	0	33

Station Dr2	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+15.0000	0	0
10+20.0000	0	28
10+30.0000	0	59
10+40.0000	0	57
10+50.0000	0	44
10+60.0000	0	37
10+70.0000	0	26
10+80.0000	0	11
10+90.0000	0	4
11+00.0000	0	1

Station Dr3	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+15.0000	0	0
10+20.0000	0	18
10+30.0000	0	32
10+40.0000	0	20
10+50.0000	0	8
10+65.0000	0	2

Station Dr4	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+15.0000	0	0
10+20.0000	0	21
10+30.0000	0	40
10+40.0000	0	34
10+50.0000	0	23
10+60.0000	0	9
10+70.0000	1	2
10+83.5500	1	0

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".

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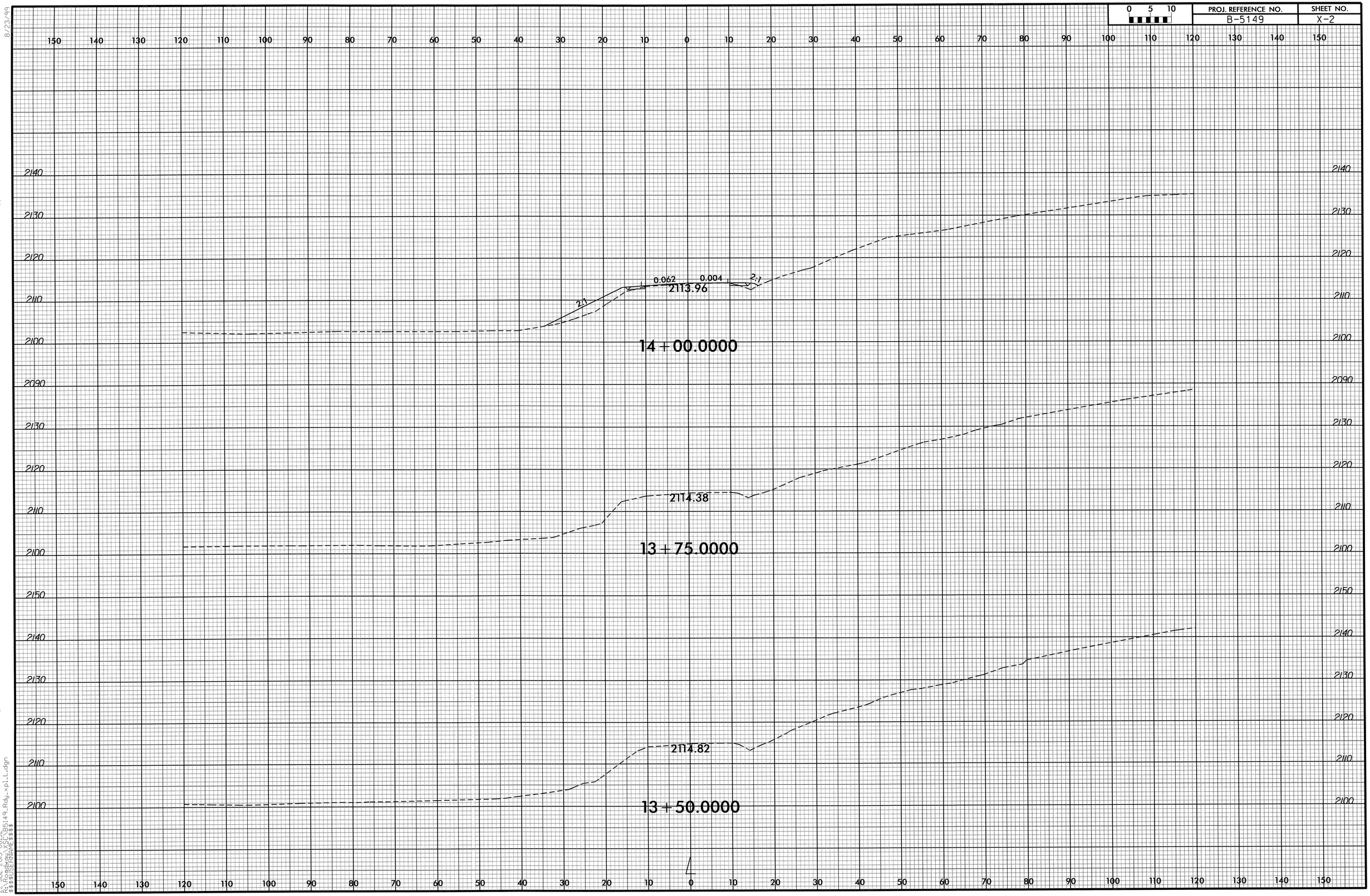

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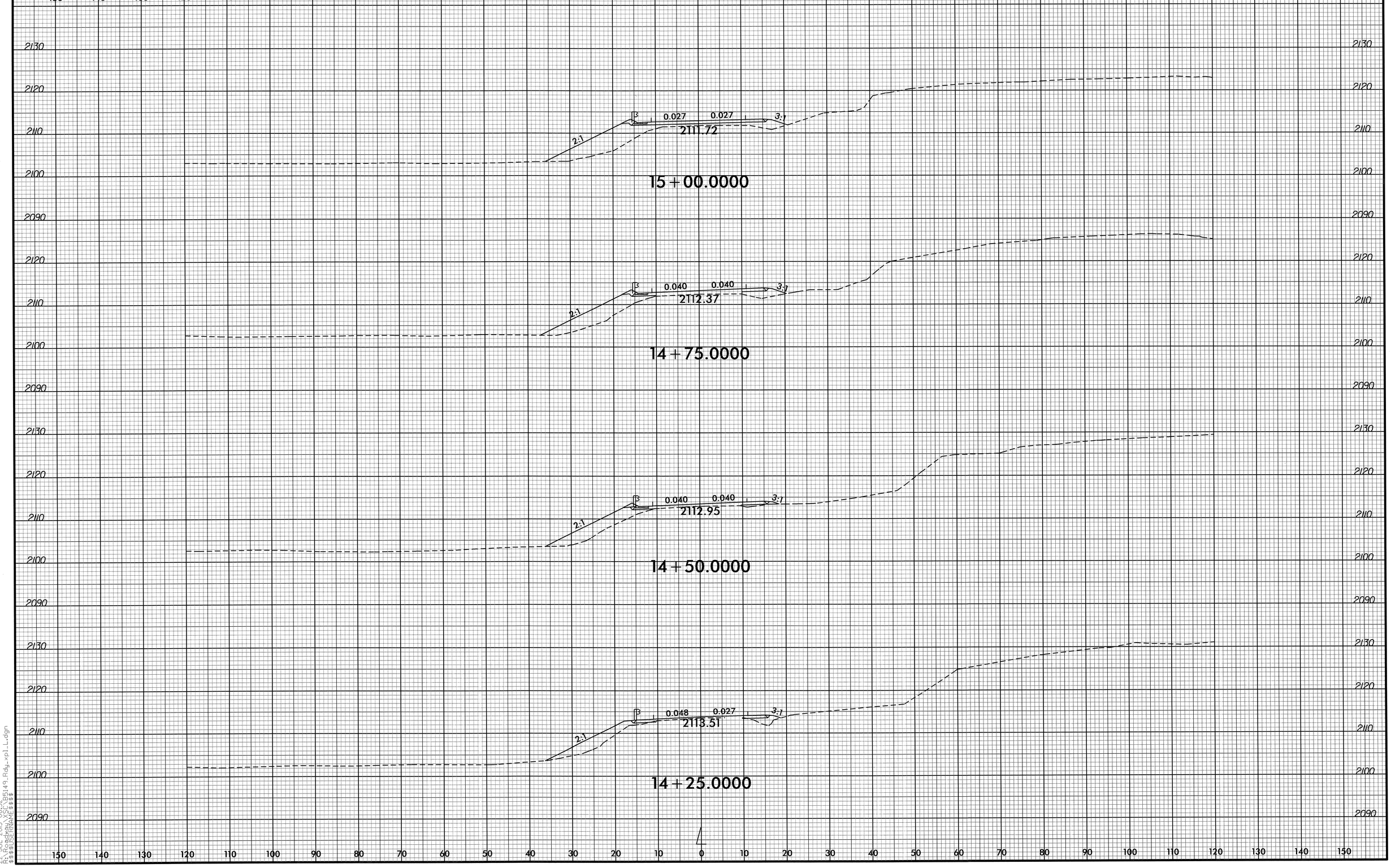

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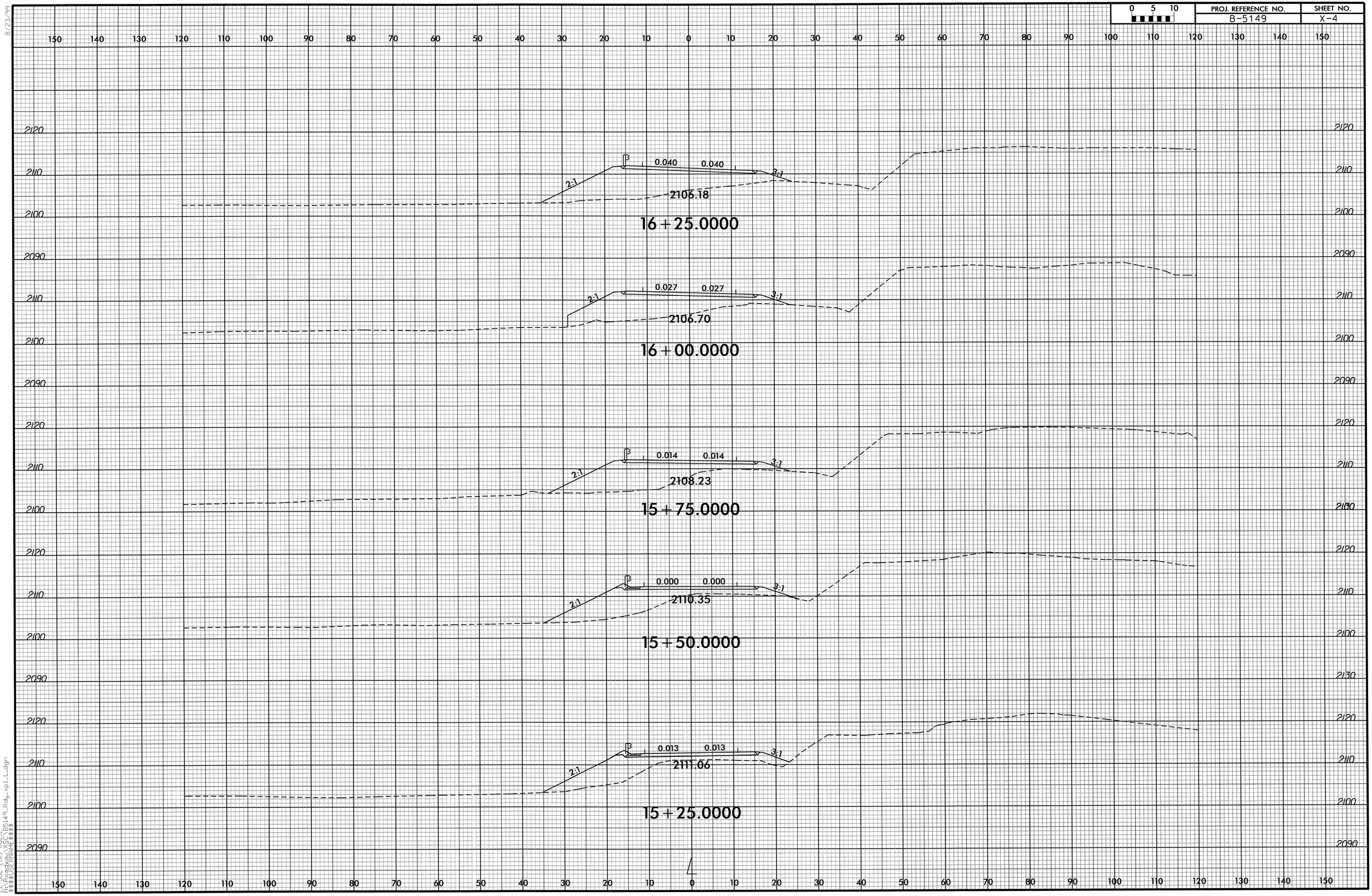

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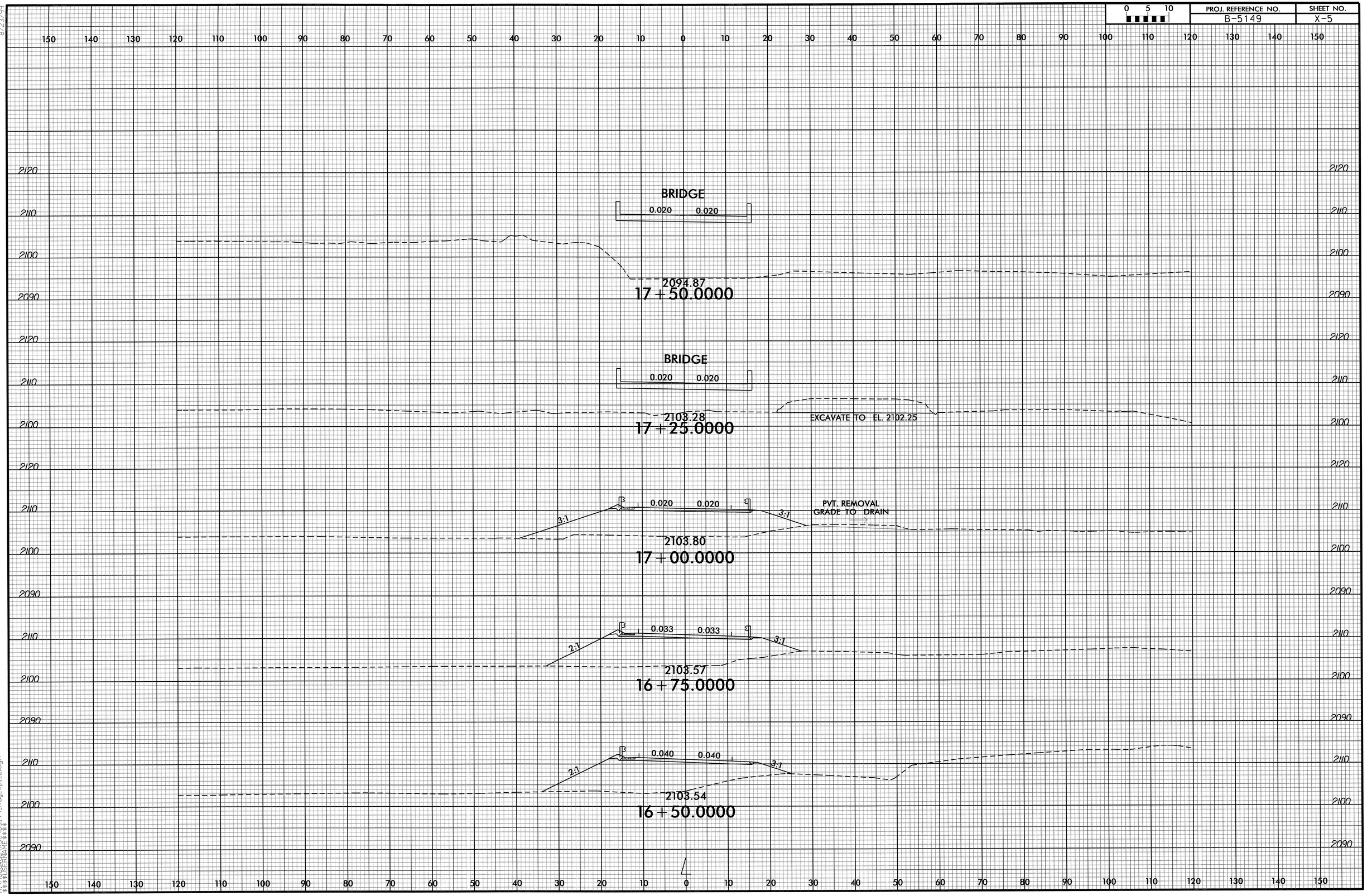

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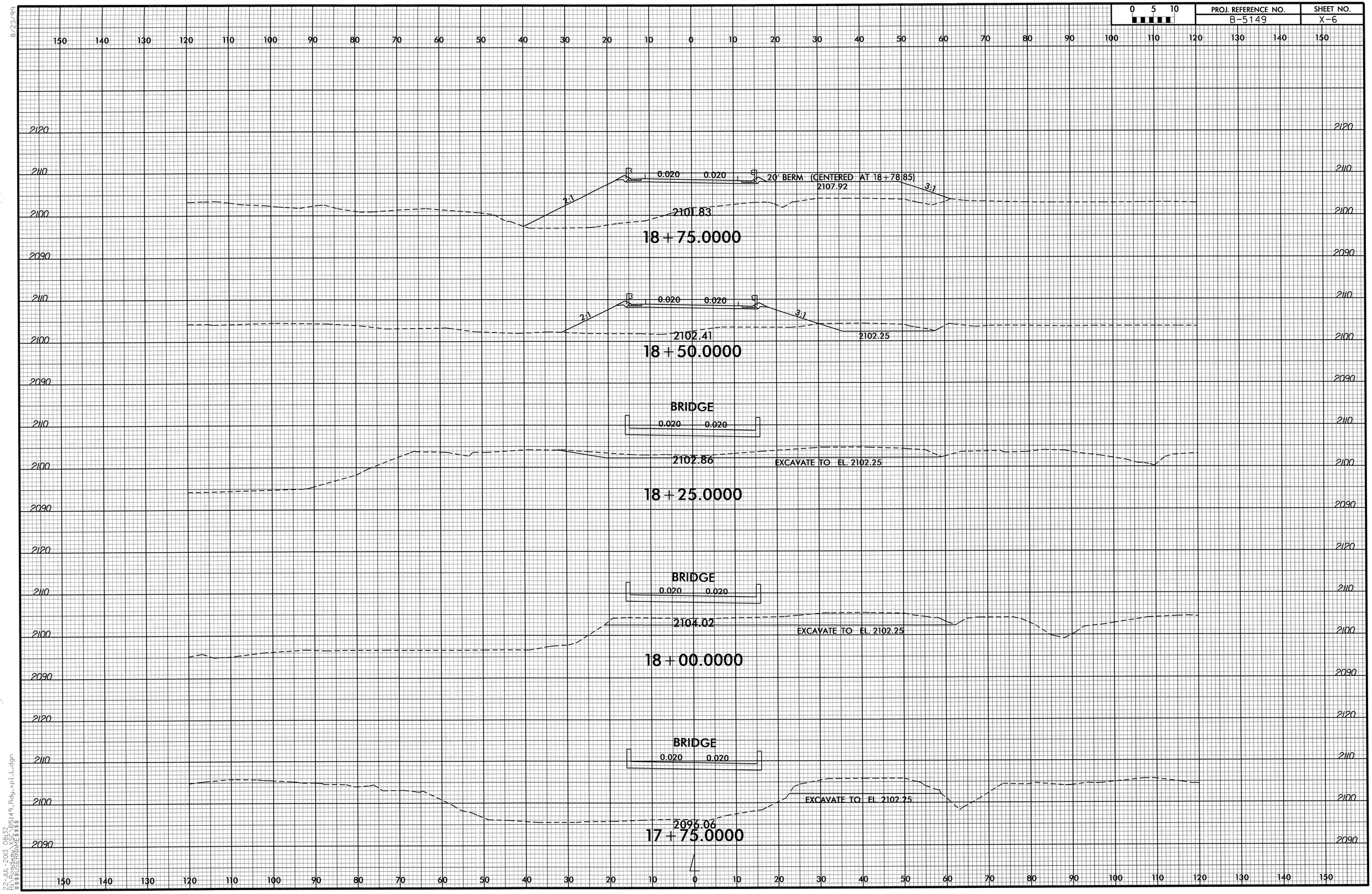

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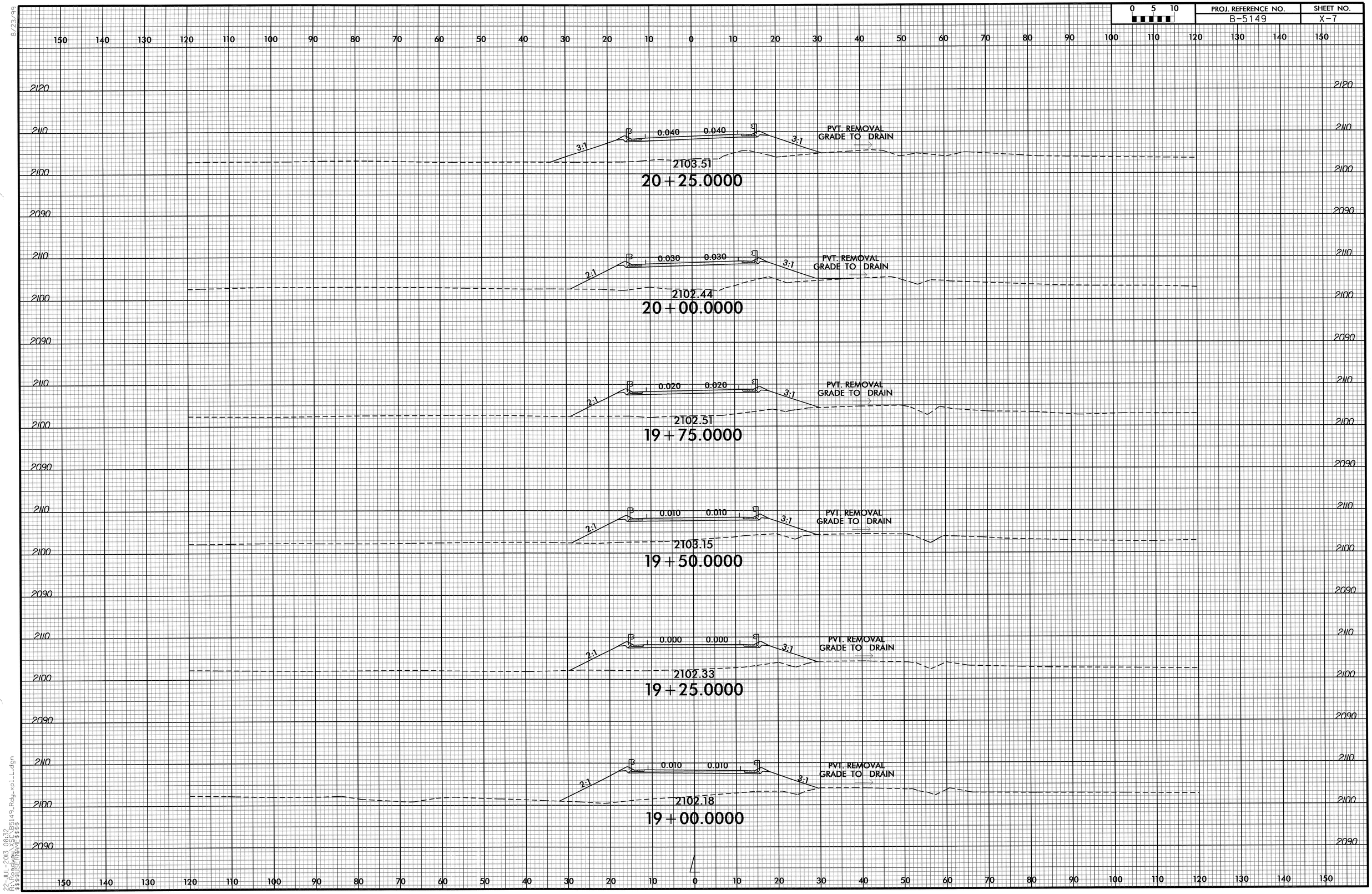

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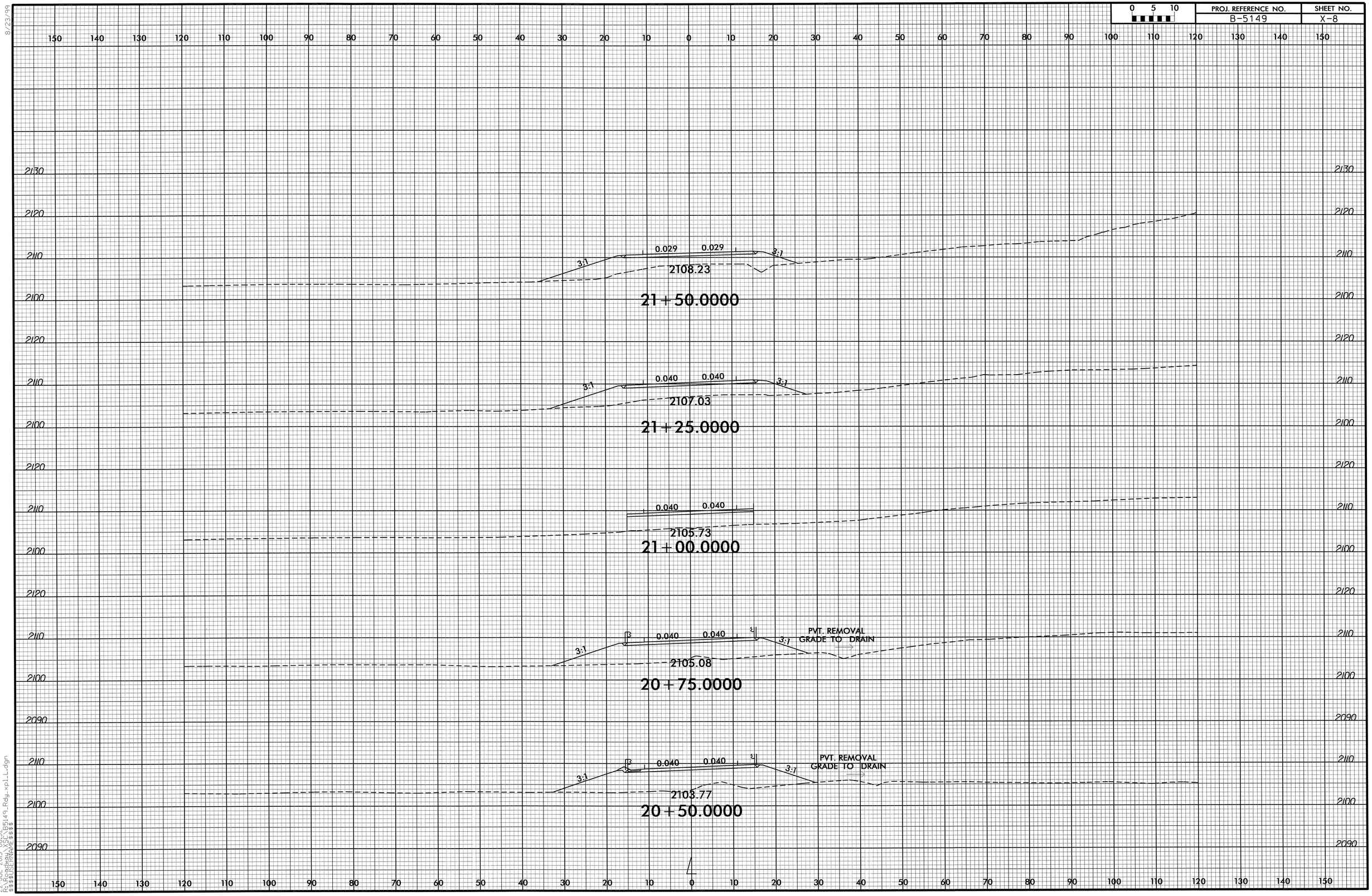

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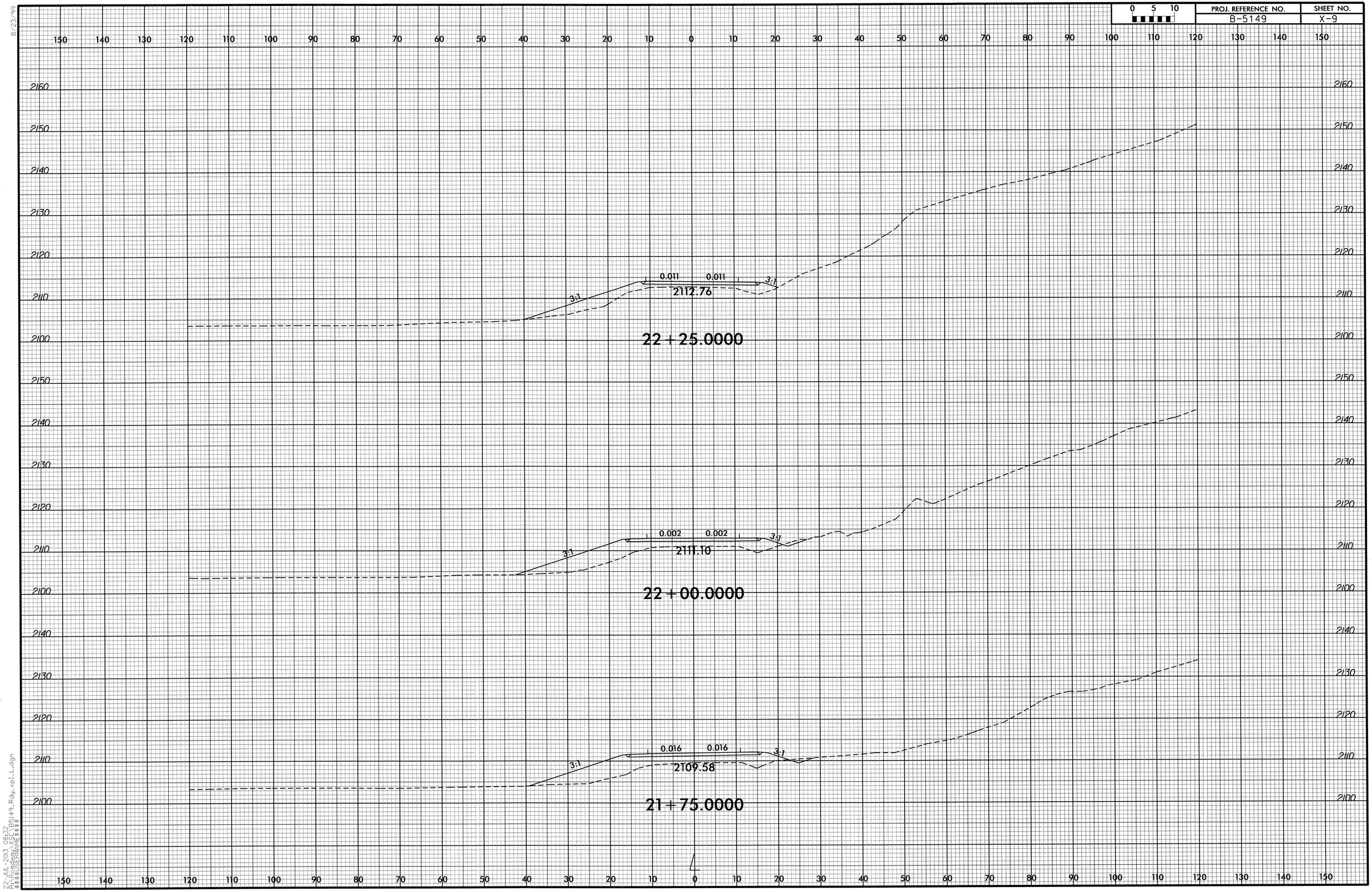

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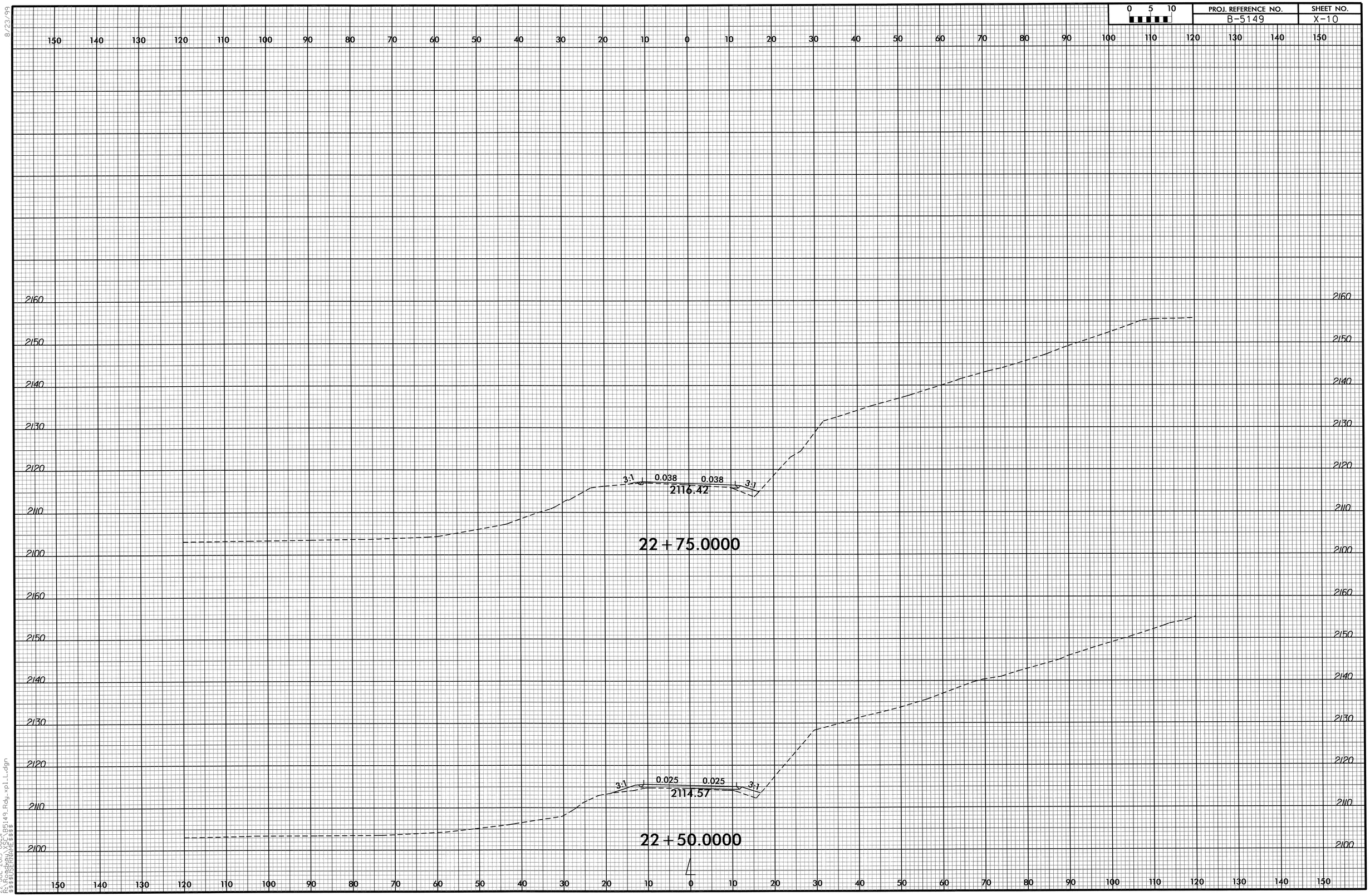

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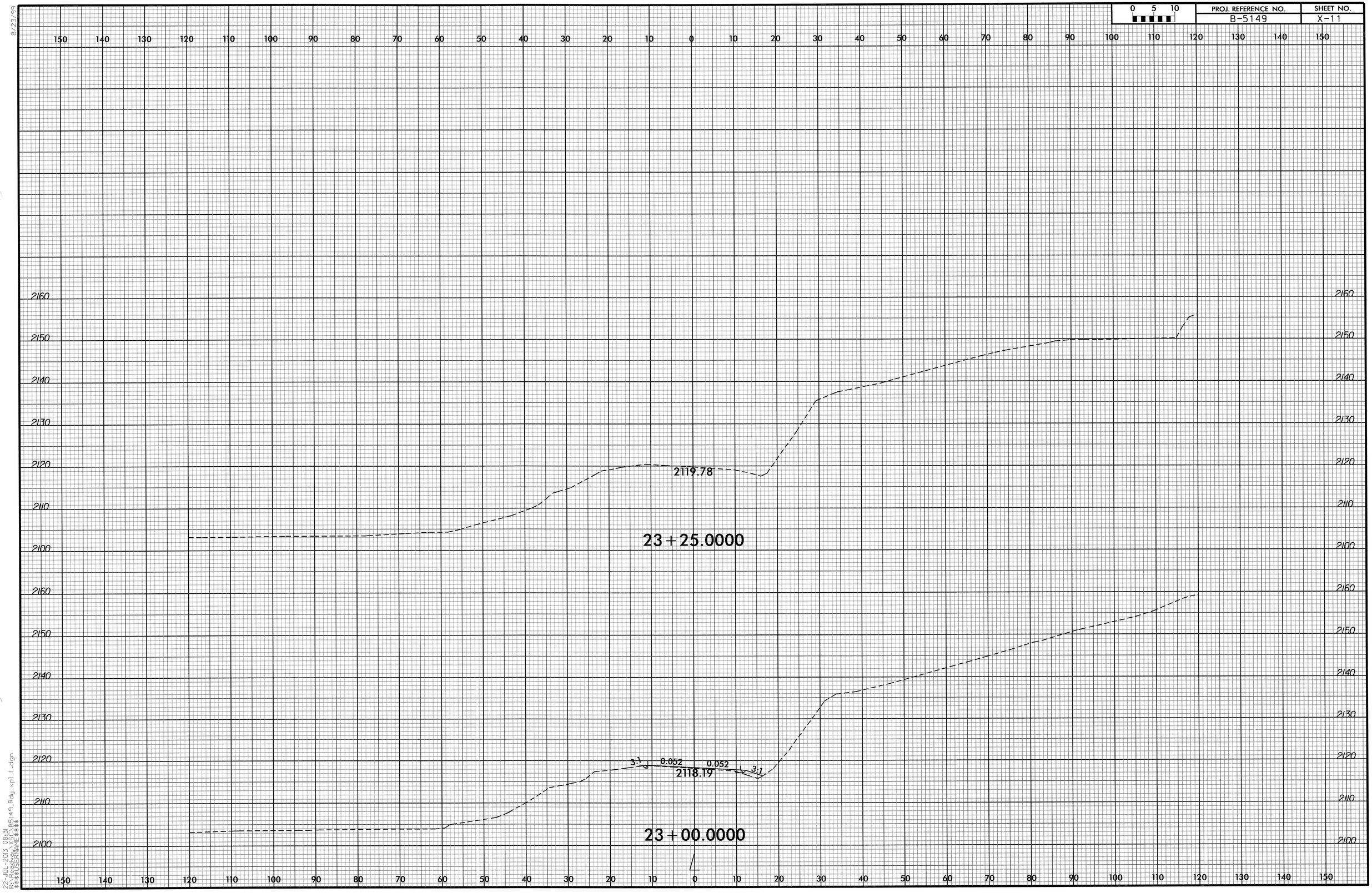

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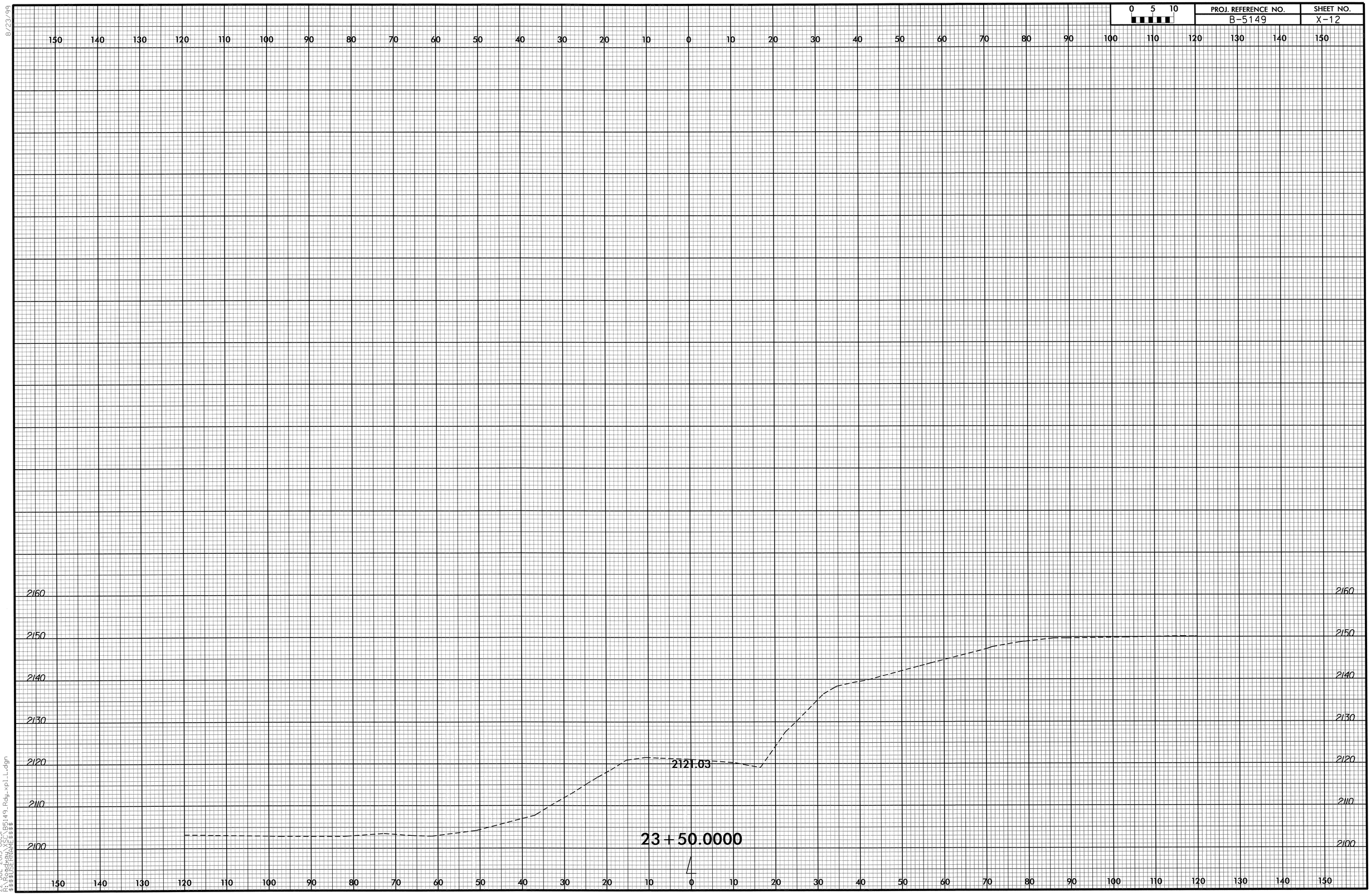

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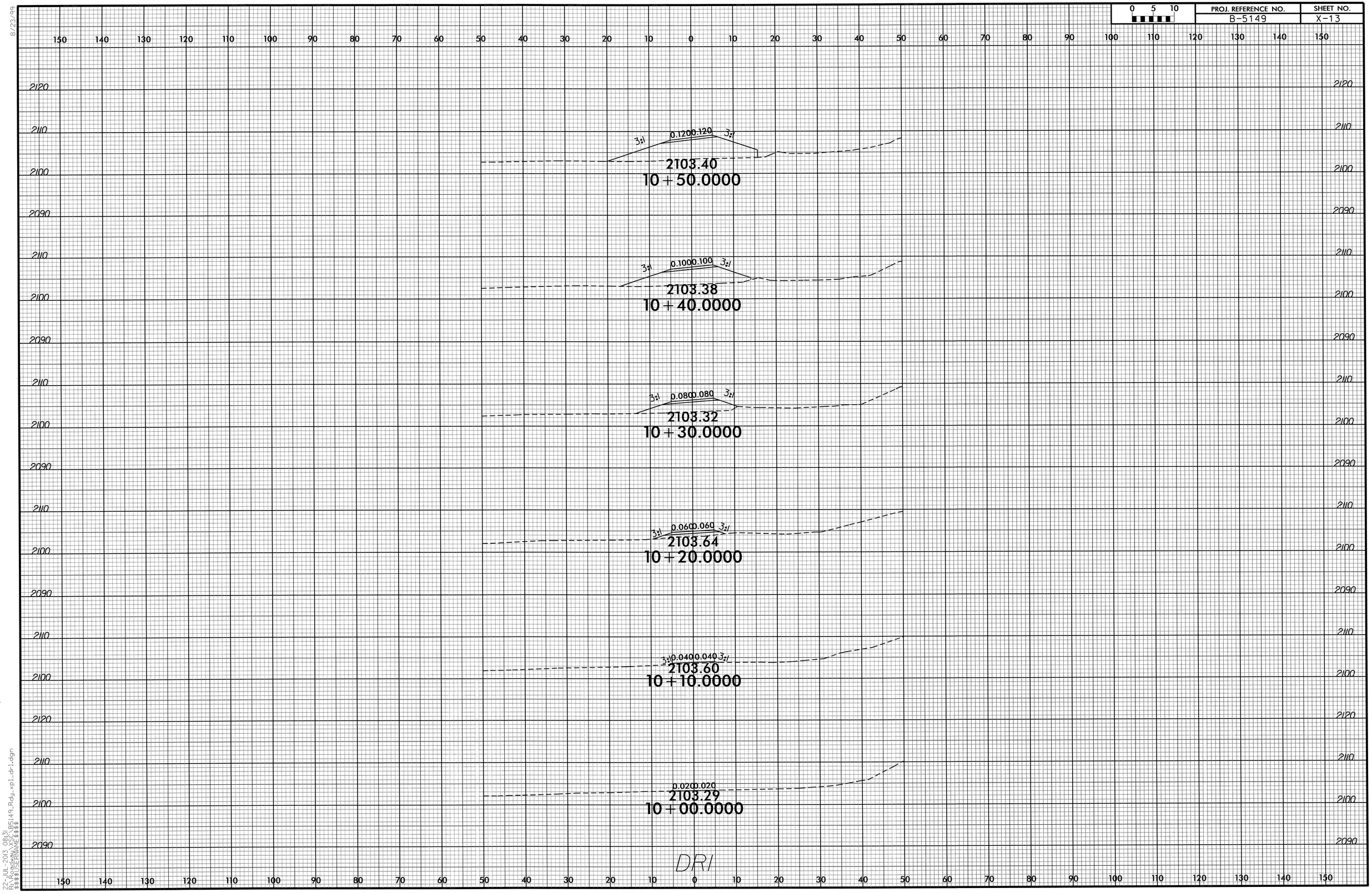

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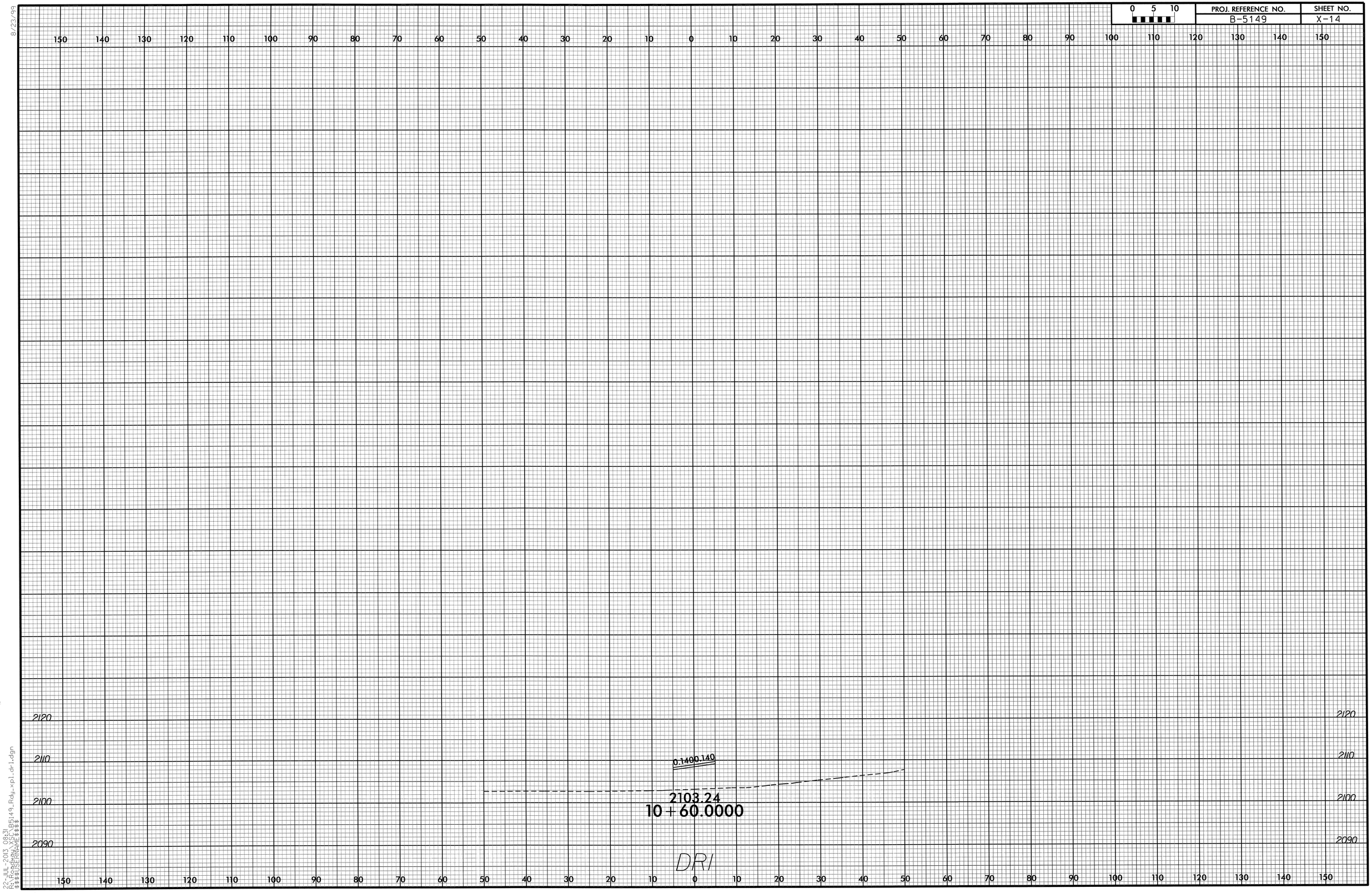

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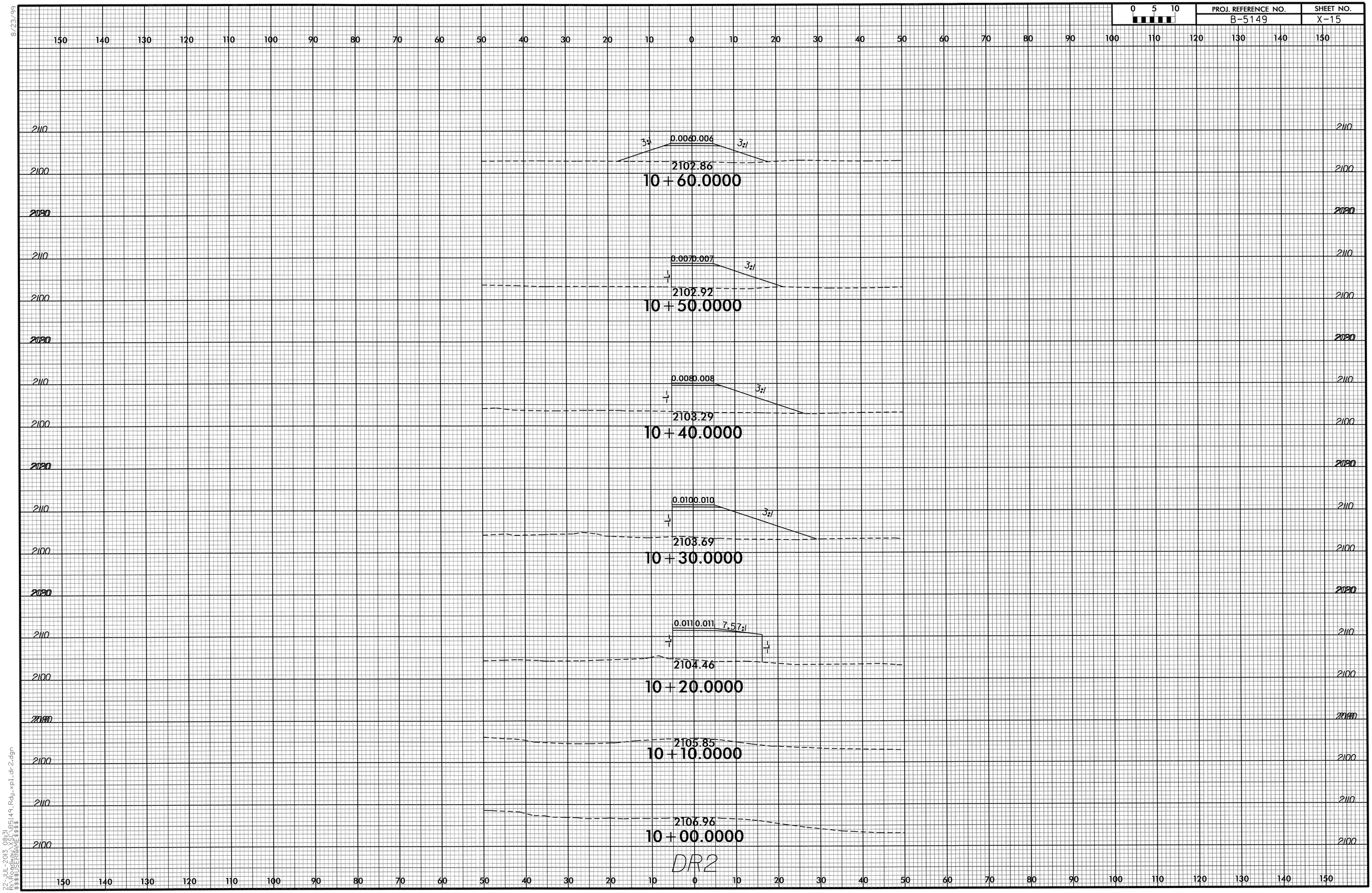

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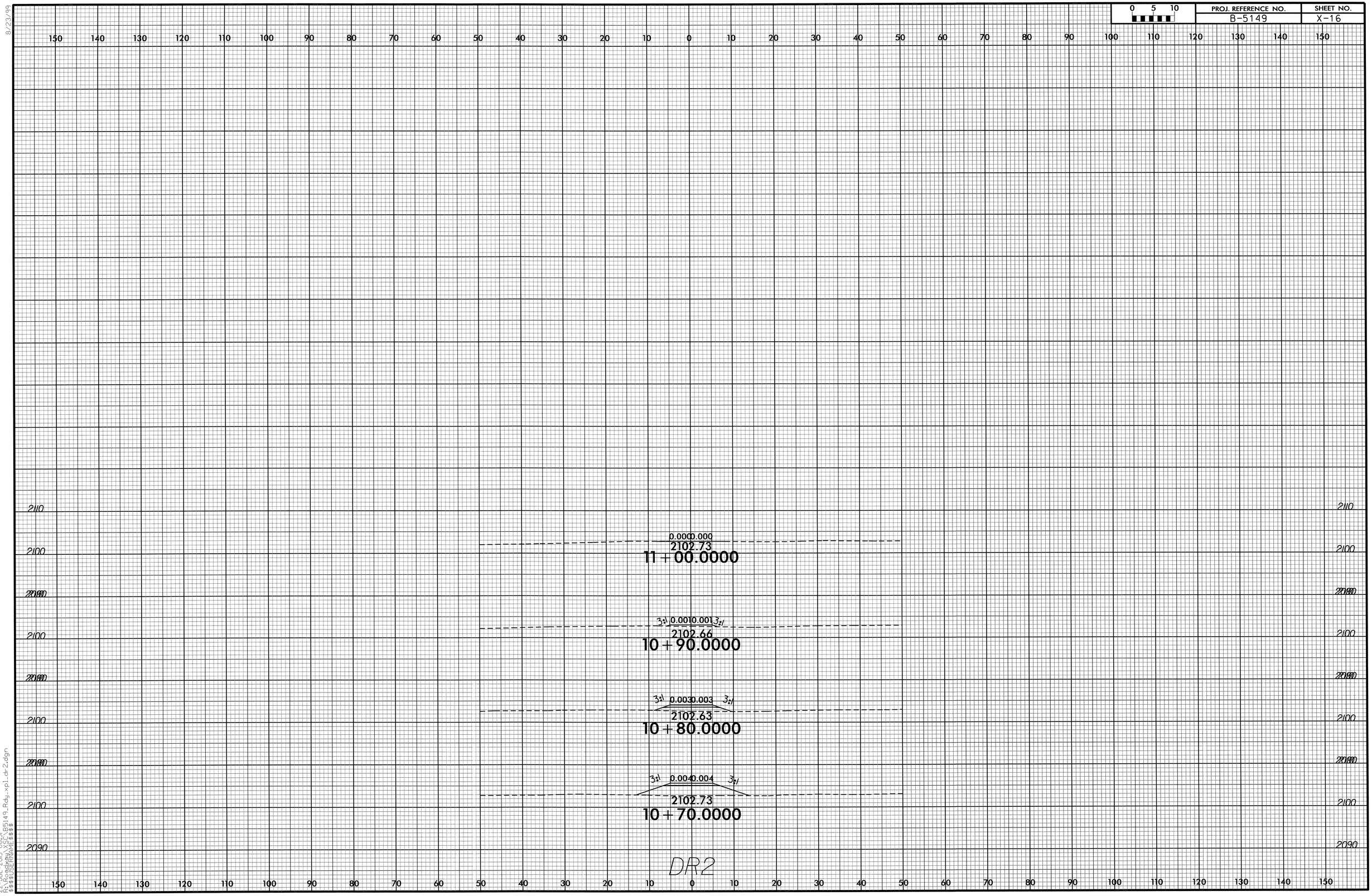

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B-5149
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11+00.0000
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10+90.0000
3:1 0.003 0.003 3:1
2102.63
10+80.0000
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10+70.0000
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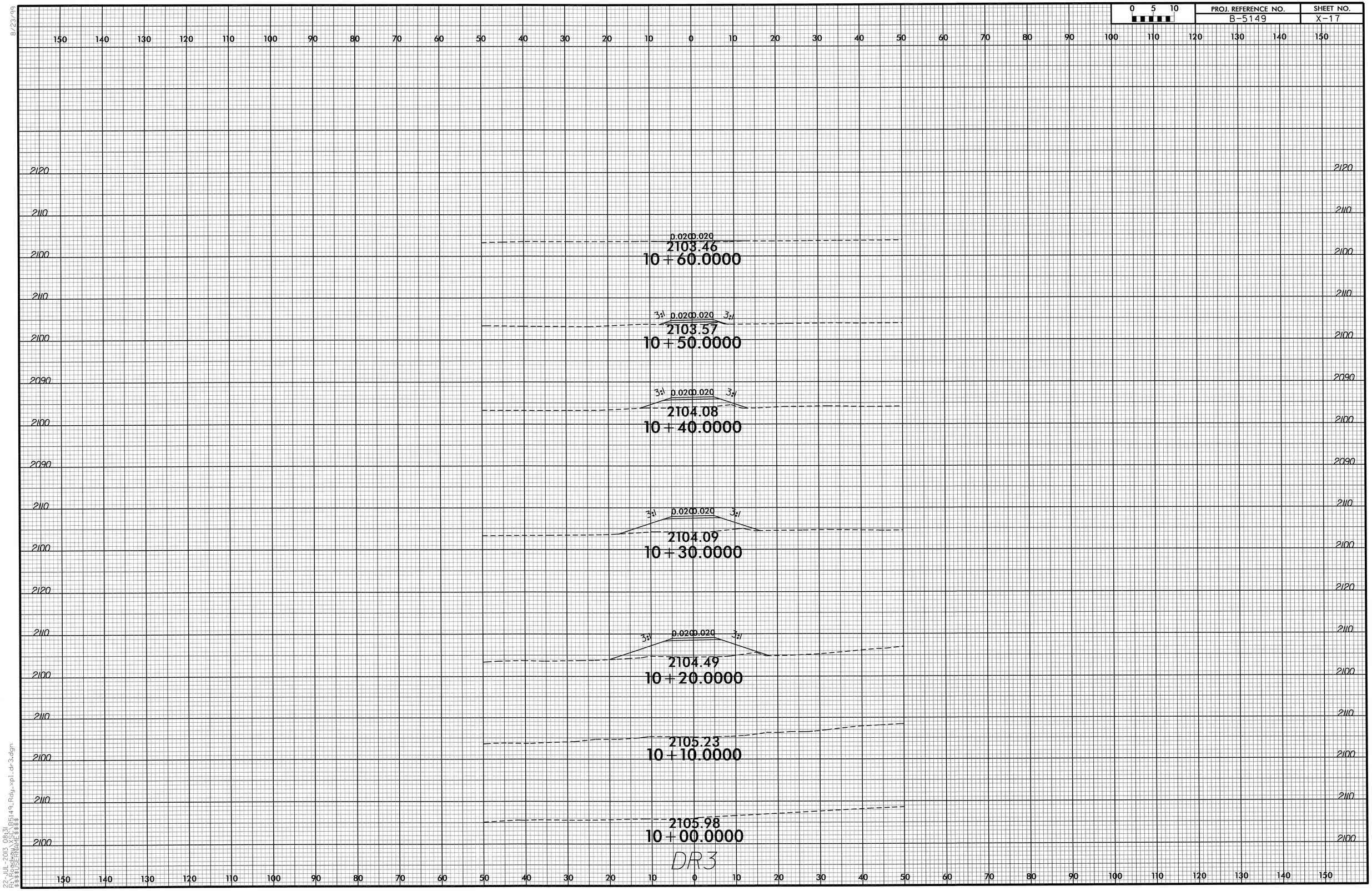

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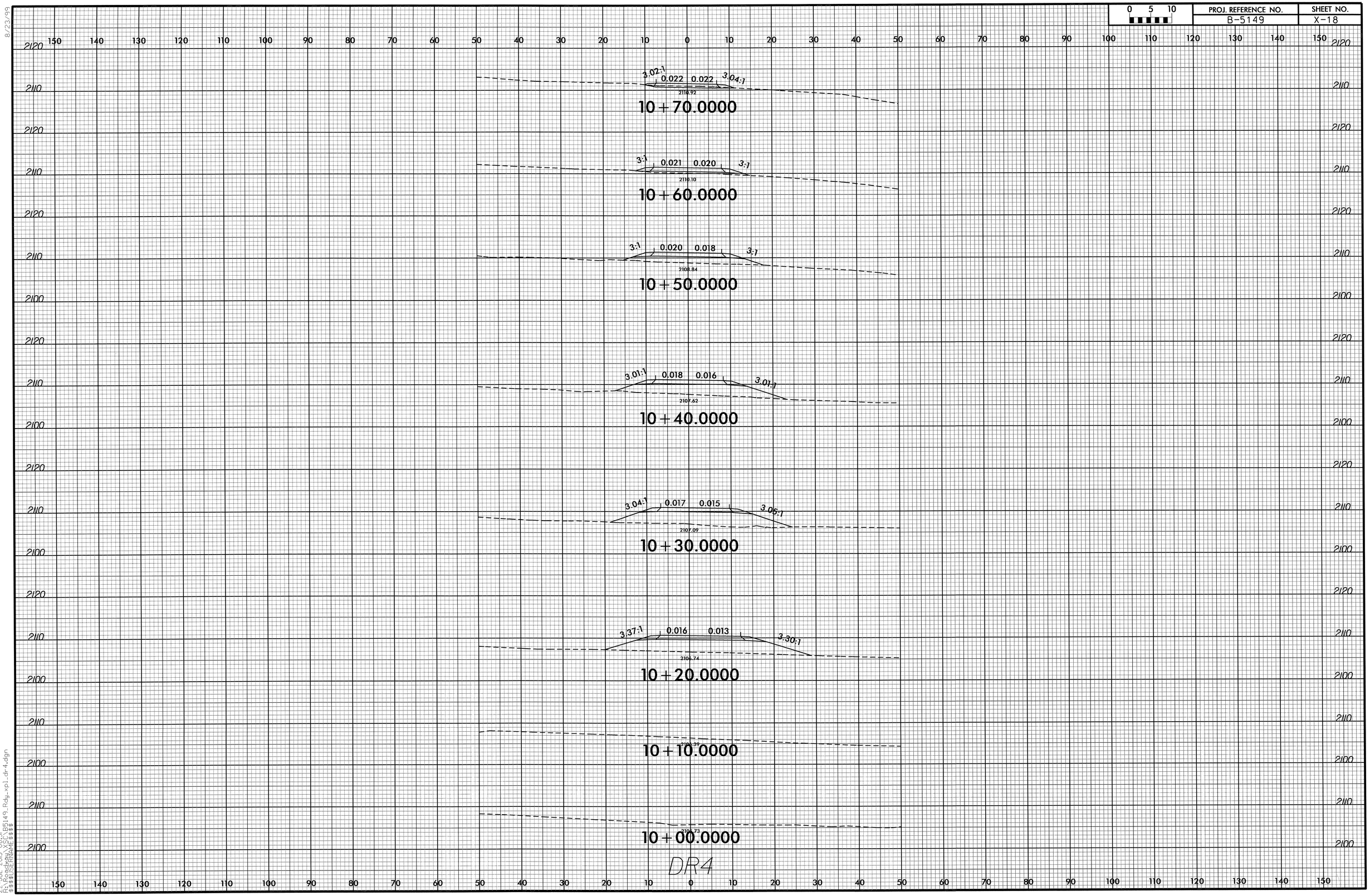

8/23/99

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8/23/99

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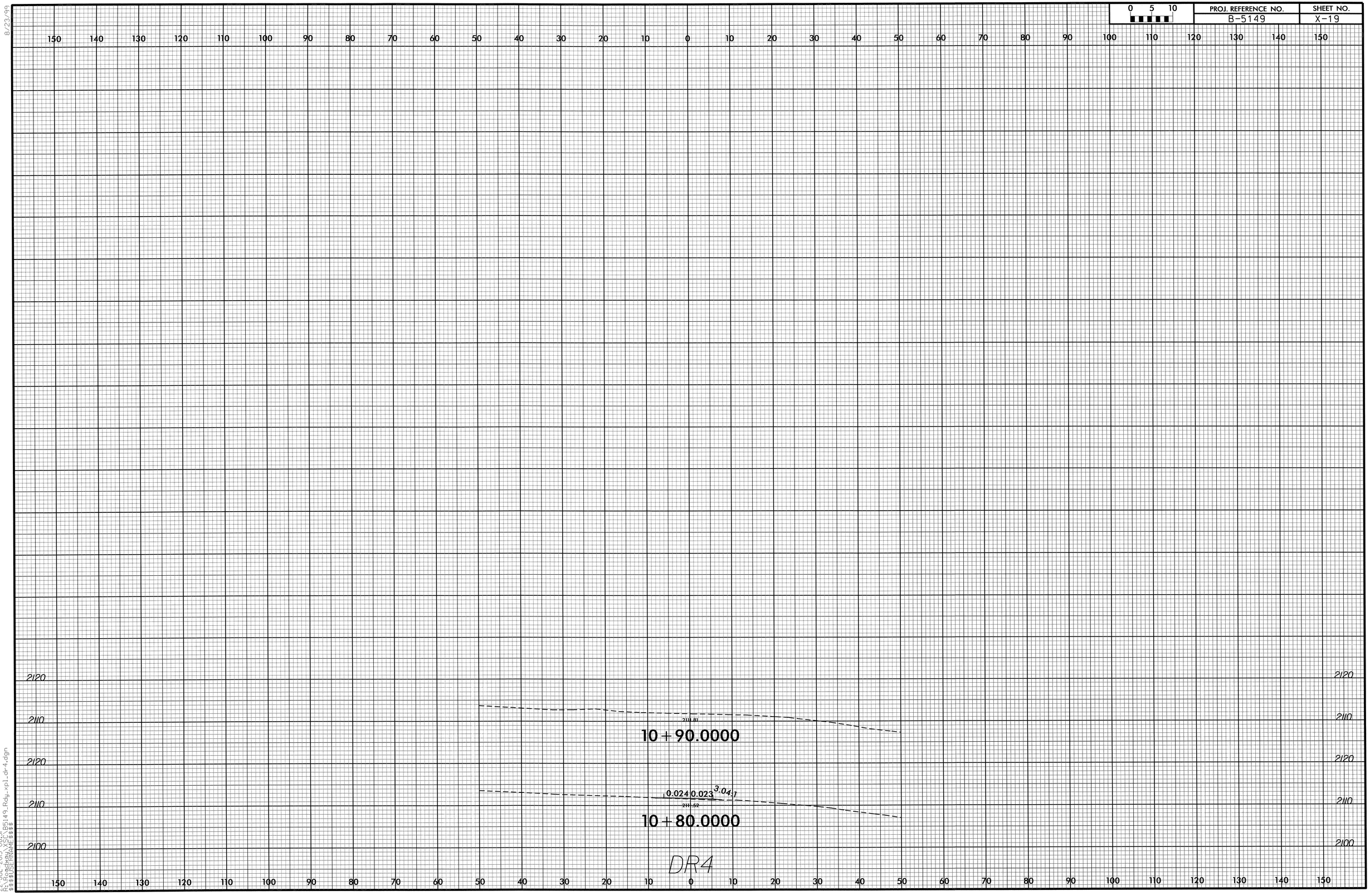

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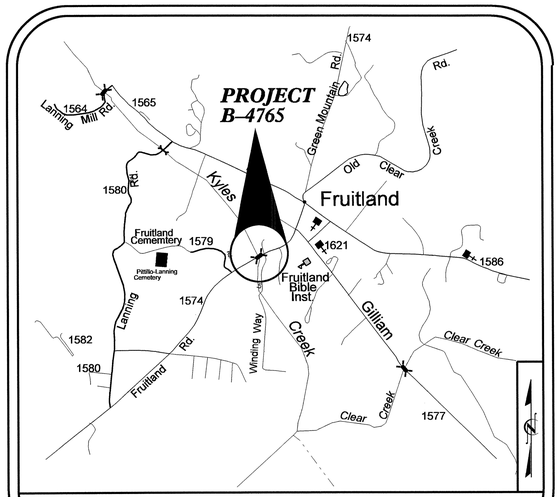
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4765	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
38537.1.2	BRZ-1574(4)	P.E.
38537.2.1	BRZ-1574(4)	R/W & UTIL.
38537.3.FD1	BRZ-1574(4)	CONST.

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

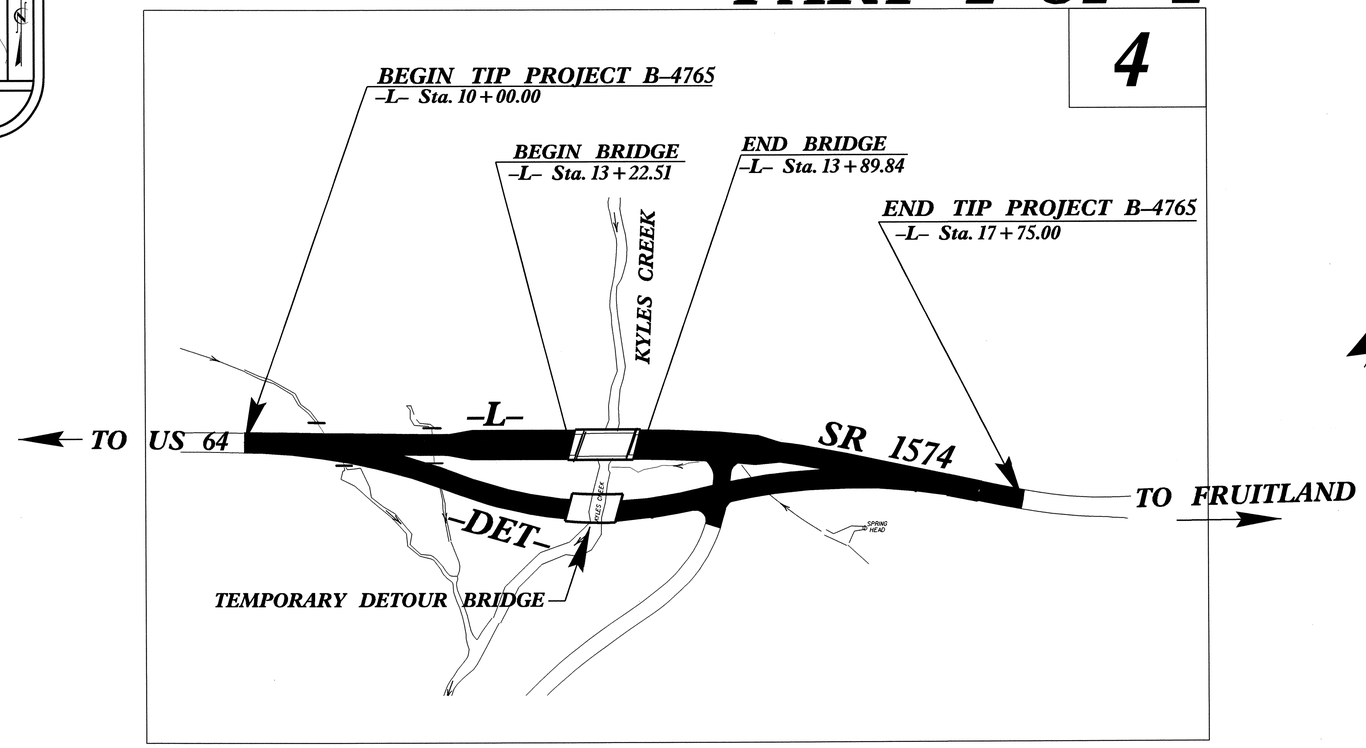
HENDERSON COUNTY

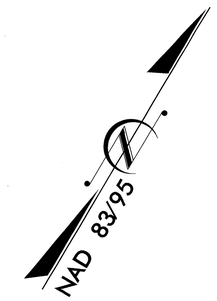
LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK).

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

PART 2 OF 2

4





THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

TIP PROJECT: B-4765

CONTRACT: C203249

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 = 4662
ADT 2035 = 10500
DHV = 10 %
D = 65 %
T = 5 % *
V = 30 MPH
* TTST =1% DUAL 4%
FUNC CLASS = LOCAL
SUB REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4765 = 0.134 Mi.
LENGTH STRUCTURE TIP PROJECT B-4765 = 0.013 Mi.
TOTAL LENGTH TIP PROJECT B-4765 = 0.147 Mi.

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

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
AUGUST 23, 2012

LETTING DATE:
OCTOBER 15, 2013

KEVIN E. MOORE, P.E.
PROJECT ENGINEER

MARK HUSSEY
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER STEPHEN R. MORGAN
SIGNATURE: 8-1-13

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24012 ENGINEER KEVIN E. MOORE
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION

07/08/96
30-JUL-2013 13:13
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PROJECT REFERENCE NO.	SHEET NO.
B-4765	1A
Location and Surveys	

SURVEY CONTROL SHEET B-4765

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	615333.0220	987934.3400	2140.83	10+46.12	17.49 RT
2	BL-2	615501.4710	988162.2630	2136.04	13+27.63	15.53 LT
3	BL-3	615631.9990	988562.2590	2157.66	17+48.29	22.31 RT

****
BM1 ELEVATION = 2150.92
N 615304 E 987897
BL STATION 5+00.00
S 51°53'10.69" W DIST 47.24'
8" SPIKE SET IN BASE OF 20" WHITE PINE TREE
****
****
BM2 ELEVATION = 2138.96
N 615439 E 988358
BL STATION 9+50.00 120 RIGHT
8" SPIKE SET IN BASE OF 15" WHITE PINE TREE
****
****
BM3 ELEVATION = 2158.93
N 615624 E 988572
BL STATION 12+04.00
S 50°43'1.64" E DIST 12.97
8" SPIKE SET IN BASE OF 48" POPLAR TREE
****

NCDOT GPS MONUMENT (B-4765 GPS-100)
LOCALIZED PROJECT COORDINATES
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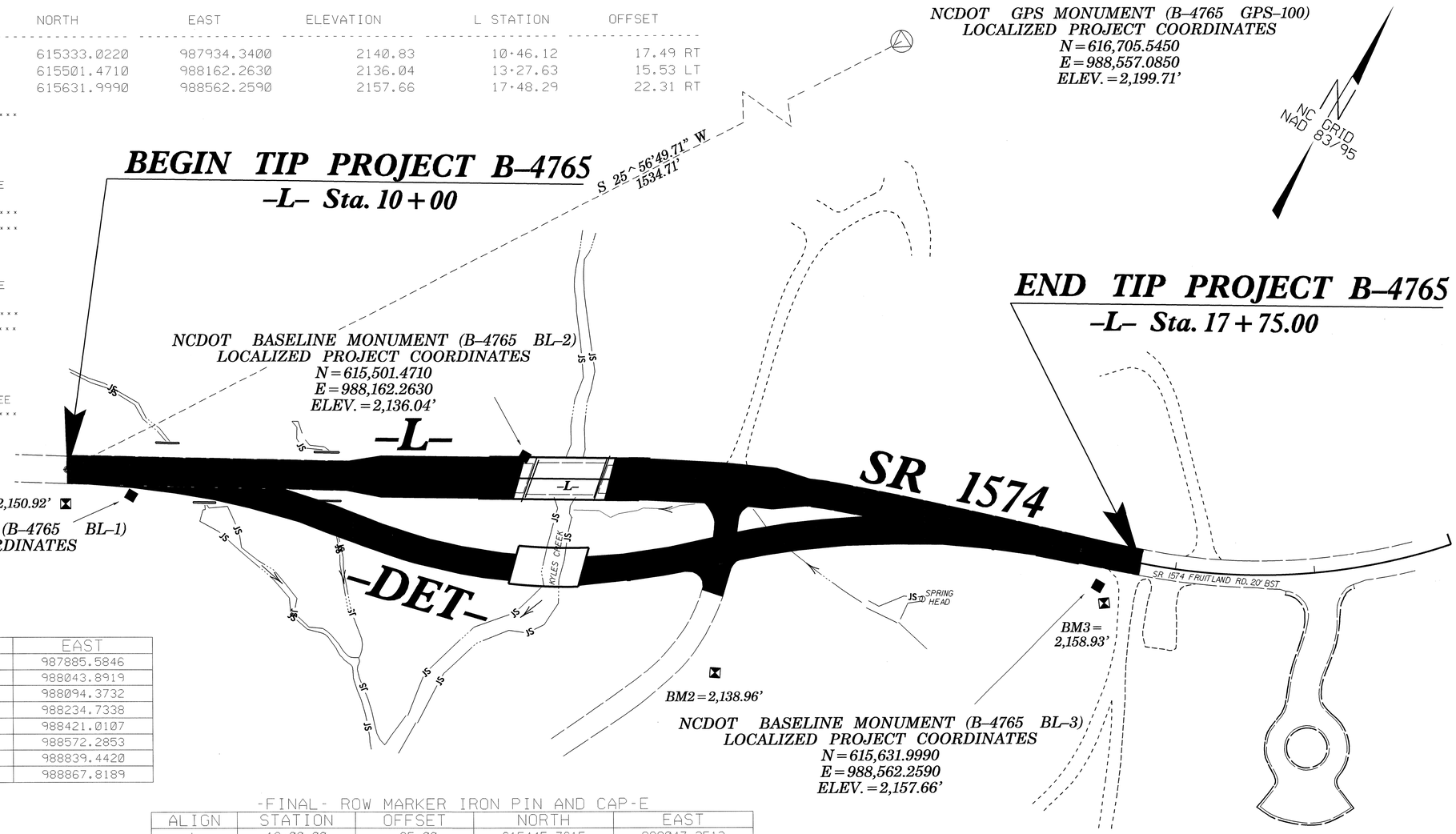
E=988,557.0850
ELEV.=2,199.71'



-L- FINAL

TYPE	STATION	NORTH	EAST
POT	10+00.00	615325.5355	987885.5846
PC	11+81.89	615415.0997	988043.8919
PT	12+40.08	615444.0492	988094.3732
PC	14+02.43	615525.6308	988234.7338
PT	16+06.96	615609.1782	988421.0107
PC	17+66.15	615658.7603	988572.2853
PT	21+46.81	615912.3514	988839.4420
POT	22+25.52	615985.7708	988867.8189

-FINAL- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+00.00	-25.00	615445.7615	988047.2512
L	12+40.08	-40.00	615478.6320	988074.2727
L	14+02.43	-40.00	615560.2146	988214.6351
L	15+25.00	-40.00	615617.2405	988328.6878
L	15+25.00	-25.00	615603.4292	988334.5400
L	15+25.00	25.00	615557.3915	988354.0472
L	15+25.00	45.00	615538.9764	988361.8500
L	14+02.43	45.00	615486.7252	988257.3469
L	12+40.08	45.00	615405.1435	988116.9862
L	12+00.00	25.00	615402.3330	988072.0296

-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	10+89.00	25.00	615347.6015	987975.3571
L	13+09.00	168.00	615333.4343	988238.3810
L	16+07.00	65.00	615547.4245	988441.2958
L	18+83.00	52.00	615666.4490	988705.9112
L	18+89.00	30.00	615688.3484	988699.0131

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "B-4765 GPS-100"
WITH NAD 83/95 STATE PLANE GRID COORDINATES OF
NORTHING: 616705.5450(ft) EASTING: 988557.0850(ft)
ELEVATION: 2199.71(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 9888557.0850
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "B-4765 GPS-100" TO -L- STATION 10+00.00 IS
S 25°56'49.71" W 1534.71'
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:
B4765_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.

GEOID MODEL = GEOID 03
NOTE: DRAWING NOT TO SCALE

6/2/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4765	2
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24012 ENGINEER KELVIN E. MOORE 3-1-13

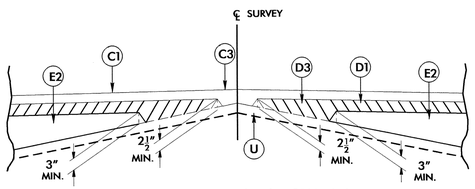
NORTH CAROLINA PROFESSIONAL SEAL 22898 ENGINEER CLARK S. MORRISON 7/19/13

6/2/99

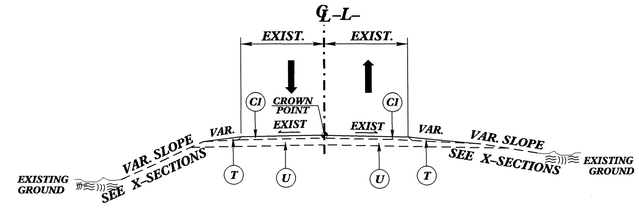
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 3" IN DEPTH.
D1	PROP. APPROX. 2½" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.
D2	PROP. 3-3/4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0B, AT AN AVERAGE RATE OF 427.50 LBS. PER SQ. YD.
D3	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 2½" 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 5½" IN DEPTH.
F	ASPHALT SURFACE TREATMENT, STRAIGHT SEAL
J	PROP. 10" AGGREGATE BASE COURSE.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE STANDARD WEDGING DETAIL)

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

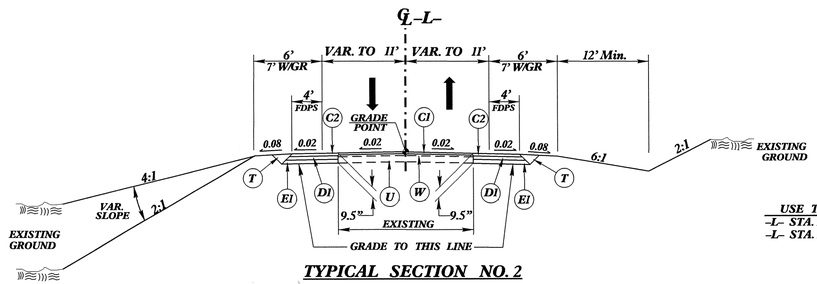


Detail Showing Method of Wedging



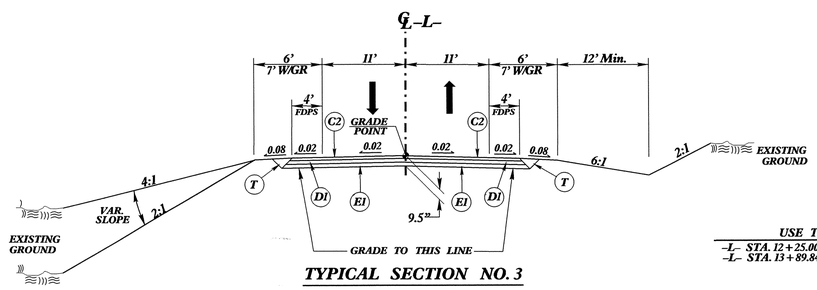
TYPICAL SECTION NO. 1

USE TYPICAL SECTION NO. 1
-L- STA. 10+00.00 TO STA. 12+00.00
-L- STA. 15+25.00 TO STA. 17+75.00



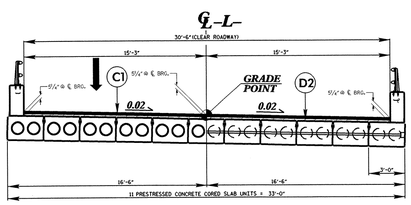
TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 2
-L- STA. 12+00.00 TO STA. 12+25.00
-L- STA. 15+00.00 TO STA. 15+25.00

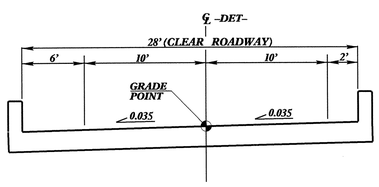


TYPICAL SECTION NO. 3

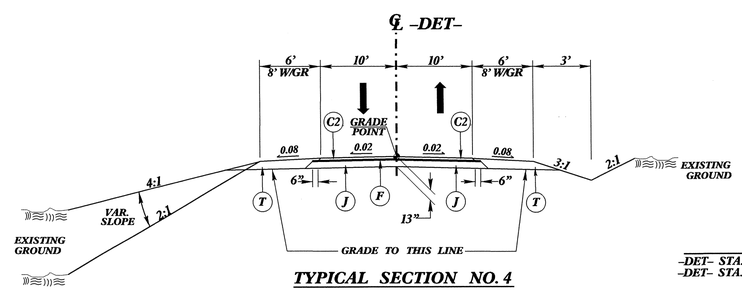
USE TYPICAL SECTION NO. 3
-L- STA. 12+25.00 TO STA. 13+23.51 (BEGIN BRIDGE)
-L- STA. 13+89.84 (END BRIDGE) TO STA. 15+00.00



TYPICAL SECTION ON STRUCTURE
-L- STA. 13+23.51 (BEGIN BRIDGE) TO STA. 13+89.84 (END BRIDGE)



TYPICAL SECTION ON DETOUR STRUCTURE
-DET- STA. 13+28. +/- (BEGIN BRIDGE) TO STA. 13+78. +/- (END BRIDGE)



TYPICAL SECTION NO. 4

USE TYPICAL SECTION NO. 4
-DET- STA. 10+00.00 TO -DET- STA. 13+28. +/- (BEGIN BRIDGE)
-DET- STA. 13+78. +/- (END BRIDGE) TO -DET- STA. 17+39.16

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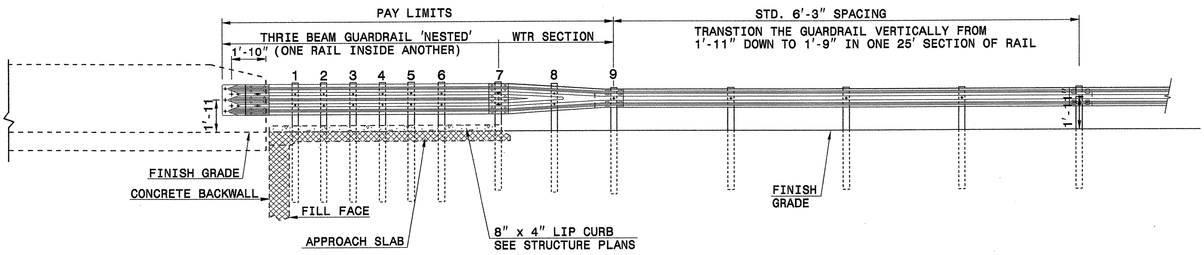
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

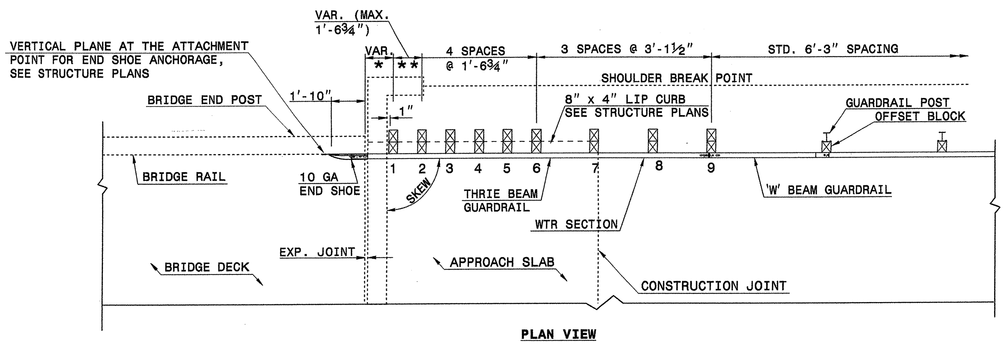
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

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.

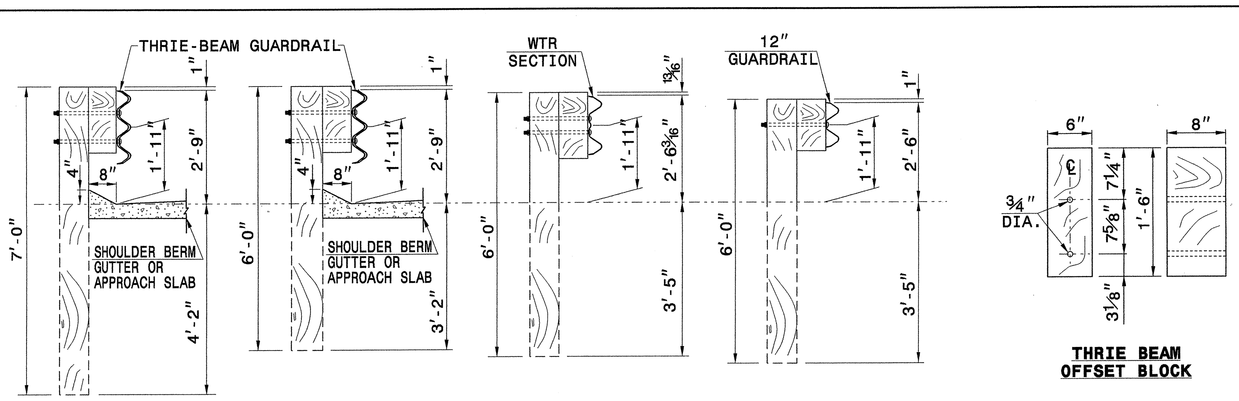
ENGLISH DETAIL DRAWING FOR
STRUCTURE ANCHOR UNITS
GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO
RAIL ON BRIDGE - SUB REGIONAL TIER

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



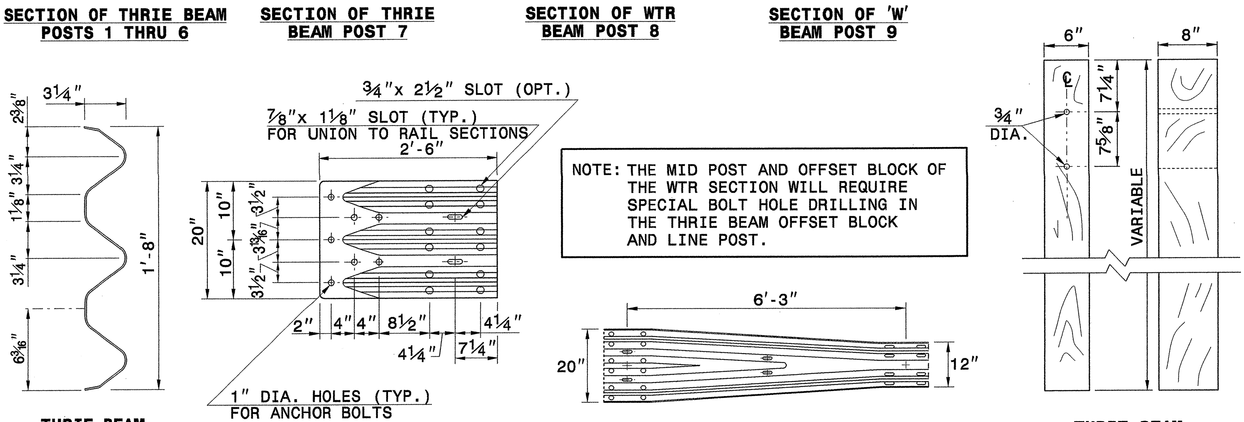
SECTION OF THRIE BEAM POSTS 1 THRU 6

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

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: 11/3/12
FILE SPEC.:

NORTH CAROLINA PROFESSIONAL SEAL 022596 ENGINEER
6/21/13

PROJECT REFERENCE NO.	SHEET NO.
B-4765	2-A

COMPUTED BY: B C FOWLER DATE: 2-2012
CHECKED BY: J E JOHNSON DATE: 5 /2013

PROJECT REFERENCE NO.	SHEET NO.
B-4765	3-A

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 & 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	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"	15"	18"	24"	36"	42"	48"	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"
																				.064	.064	.064	.064	.079	.109	.109															
-DET- 11+00.00	RT	0401	0402		2132.02	2129.0									52																										
-L- 14+75.00	RT	0405	0406		2135.9	2138.7					60																														
-L- 15+15.00	RT	0406		2142.5	2138.7																																				
-L- 15+15.00	RT	0406	0407		2138.7	2140.0				20							X	X																							
-L- 15+15.00	RT	0406	0408		2138.7	2152.5					232																														
-L- 17+31.48	RT	0408		2156.0	2152.5																																				
-L- 17+31.48	RT	0408	0409		2153.0	2155.0																													40						
-L- 17+31.48	RT	0408	0410		2153.0	2155.5				28																															
-L- 15+15.00	RT	0407	0411		2140.2	2140.0				24																															
-L- 14+81.00	LT	0412																																							
TOTALS:										72	292				52																				40						

STATION / SIZE / THICKNESS OR GAUGE	** 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 * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. "A" + (1.3 X COL. "B") PER EACH (0' THRU 5.0')	LIN. FT. A: 5.0' THRU 10.0'	LIN. FT. 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	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	DRAINAGE PIPE ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	PIPE REMOVAL LIN.FT.	REMARKS
-DET- 11+00.00																					1.0126	52	REMOVE TEMP. -DET- PIPE\COLLAR
-L- 14+75.00																						40	REMOVE EXIST. 18" CMP PIPE
-L- 15+15.00								1									1	1				20	REMOVE EXIST. 15" CMP PIPE
-L- 15+15.00																							
-L- 15+15.00																							
-L- 17+31.48								1									1	1					
-L- 17+31.48																							
-L- 17+31.48																							
-L- 15+15.00																				1@18"		24	REMOVE TEMP. -DET- PIPE\ELBOW
-L- 14+81.00				20																			
TOTALS:				20				2									2	2		1@18"	1.0126	136	

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 / SIZE / THICKNESS OR GAUGE	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 (UNLESS NOTED OTHRWISE) 54" .109	54" .138	54" .168	54" SHOP ELON-GATED .138	54" SHOP ELON-GATED .168	60" .138	60" .168	66" .138	66" .168	78" .109	78" .138	78" .168	STRUCTURAL PLATE PIPE 60" 12	60" 10	66" 12	66" 10	72" 12	72" 10
-DET- 11+85.00	CL	0403	0404		2128.85	2128.00													56												
TOTALS:																			56												
SAY:																			56												

STATION / SIZE / THICKNESS OR GAUGE	REINFORCED ENDWALLS WITH R.C. - C.Y.	WITH C.S. - C.Y.	MASONARY DRAINAGE STRUCTURES CUBIC YARDS	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- 11+85.00								3.4176	56	REMOVE TEMP. -DET- PIPE AND COLLAR
TOTALS:								3.4176	56	
SAY:								3.4176	56	

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

6/21/00
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$$$$DATE:$$$$

COMPUTED BY: B C FOWLER DATE: 2-2012
CHECKED BY: J E JOHNSON DATE: 5 /2013

PROJECT REFERENCE NO.	SHEET NO.
B-4765	3-B

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

"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 TL-2	TYPE-III	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-L-	12+68.49	BEGIN BRIDGE 13+18.49	RT	50			13+18.49		6	7							1	1												
-L-	12+76.53	BEGIN BRIDGE 13+26.53	LT	50				13+26.53	6	7							1	1												
-L-	END BRIDGE 13+85.82	14+35.82	RT	50				13+85.82	6	7							1	1												
-L-	END BRIDGE 13+93.86	14+43.86	LT	50			13+93.86		6	7							1	1												
			TOTALS:	200.0																										
	ANCHOR DEDUCTIONS:																													
		4 GRAU 350 TL-2 @ 25' =		-100'																										
		4 TYPE-III @ 18.75' =		-75'																										
			TOTALS:	25'					ADDITIONAL GUARDRAIL POSTS = 5								4	4												

"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

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	TYPE-III	XIII	CAT-1	VI MOD	BIC	AT-1	EA	G	NG				
-DET-	12+76.30	BEGIN BRIDGE 13+26.+-	RT	50.0			13+26.+-		2	4							1	1												
-DET-	12+81.25	BEGIN BRIDGE 13+31.+-	LT	50.0				13+31.+-	6	8							1	1												
-DET-	END BRIDGE 13+74.+-	14+24.83	RT	50.0				13+74.+-	2	4							1	1												
-DET-	END BRIDGE 13+83.+-	14+33.52	LT	50.0			13+83.+-		6	8							1	1												
			TOTALS:	200.0																										
	ANCHOR DEDUCTIONS:																													
		4 GRAU 350 TL-2 @ 25' =		-100'																										
		4 TYPE-III @ 18.75' =		-75'																										
			GRAND TOTALS:	25'					ADDITIONAL GUARDRAIL POSTS 5								4	4												

SUMMARY OF EARTHWORK

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
-DET- 10+50.00	BEGIN BRIDGE -DET- 13+28.+/-	39	815	776	0
-L- 12+00.00	BEGIN BRIDGE -L- 13+23.51	75	65	0	10
	SUBTOTAL:	114	880	776	10
END BRIDGE -DET- 13+78.+/-	-DET- 16+75.00	447	32	0	415
END BRIDGE -L- 13+89.84	-L- 15+25.00	162	131	0	31
	SUBTOTAL:	609	163	0	446
DETOUR REMOVAL -DET- 10+00.00	DETOUR REMOVAL -DET- 17+11.29	949	0	0	949
	TOTALS:	1,672	1043	776	1,405
WASTE IN LIEU OF BORROW				-456	-456
LOSS DUE TO CLEARING & GRUBBING		-25		25	
EST. SHOULDER MATERIAL			403	403	
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT				37	
PROJECT TOTALS:		1,647	1,446	785	949

NOTE:
EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

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

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD^2
-L-	12+25.00	13+23.68	CL	219.29
-L-	13+88.68	15+00.00	CL	247.38
-DET-	10+13.00	11+57.00	CL	160.00
-DET-	11+57.00	13+28.+/-	CL	380.00
-DET-	13+78.+/-	15+83.00	CL	455.56
-DET-	15+83.00	17+11.00	CL	142.22
		TOTAL:		1,604.44

SUMMARY OF SUBSURFACE DRAINAGE

LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE UD/BD/SD	LF
	CONTINGENCY			SD	200
			SAY:		200

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PROJECT REFERENCE NO.	SHEET NO.
B-4765	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 24918 ENGINEER KEVIN E. MOORE 7-29-13

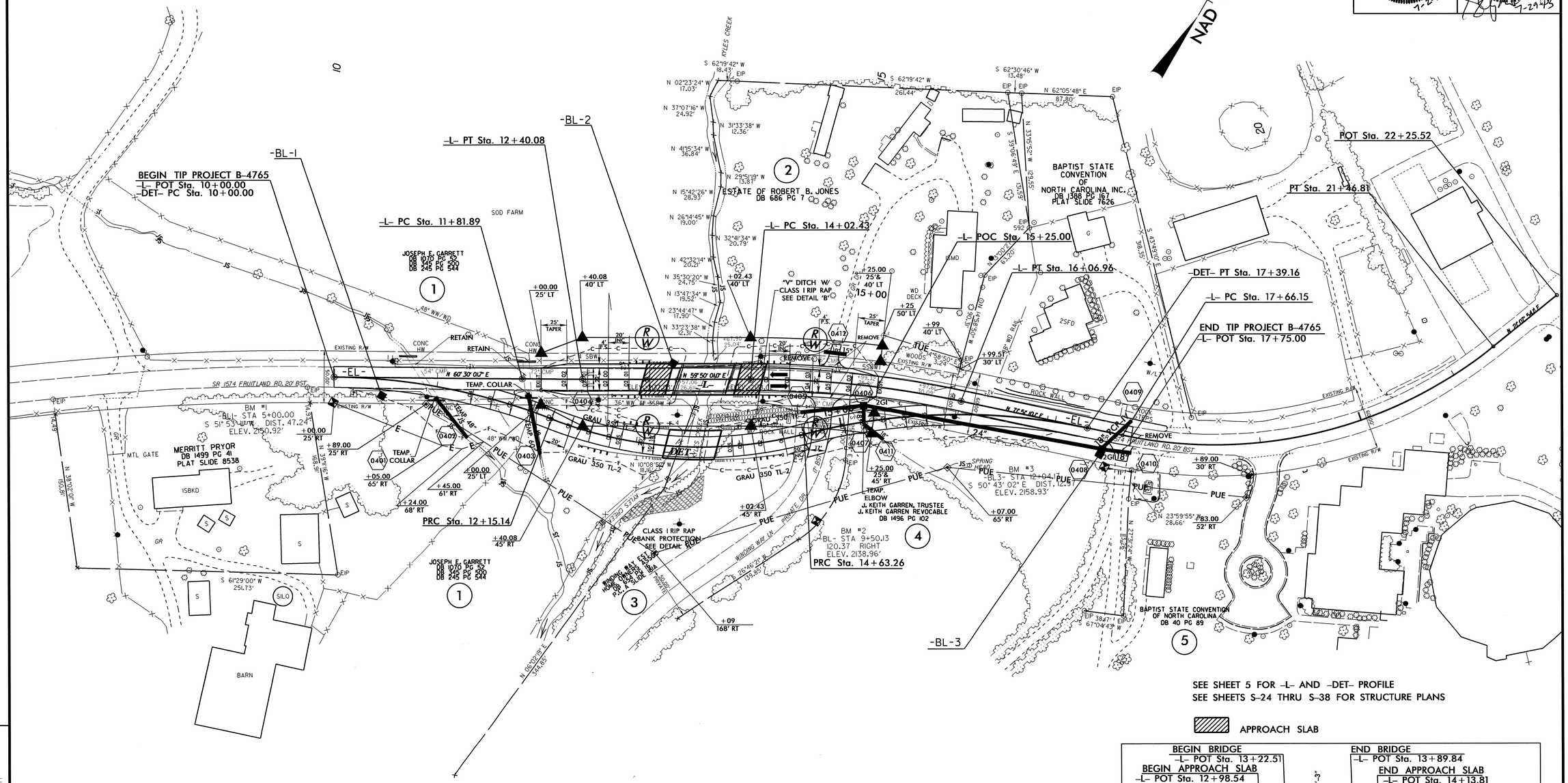
NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER STEPHEN W. MOORE 7-29-13

-L-

PI Sta 12+10.98	PI Sta 15+05.07	PI Sta 19+69.97
Δ = 0° 40' 00.7" (LT)	Δ = 12° 01' 09.0" (RT)	Δ = 50° 43' 16.0" (LT)
D = 1° 08' 45.3"	D = 5° 52' 35.4"	D = 13° 19' 28.6"
L = 58.19'	L = 204.53'	L = 380.66'
T = 29.10'	T = 102.64'	T = 203.82'
R = 5,000.00'	R = 975.00'	R = 430.00'
SE = NC	SE = .03	SE = N.A.

-DET-

PI Sta 11+08.74	PI Sta 13+43.34	PI Sta 16+03.69
Δ = 20° 32' 41.4" (RT)	Δ = 35° 32' 21.0" (LT)	Δ = 26° 20' 47.9" (RT)
D = 9° 32' 57.5"	D = 14° 19' 26.2"	D = 9° 32' 57.5"
L = 215.14'	L = 248.11'	L = 275.90'
T = 108.74'	T = 128.19'	T = 140.43'
R = 600.00'	R = 400.00'	R = 600.00'



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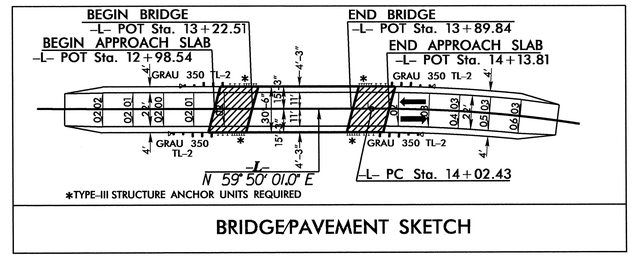
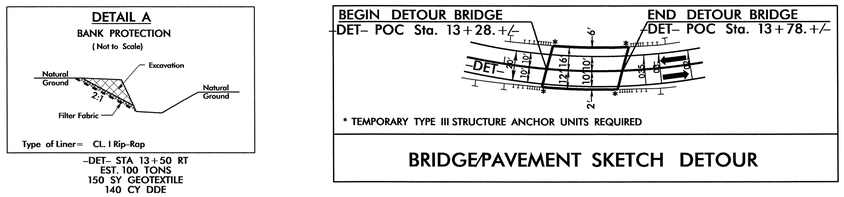
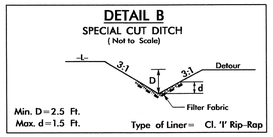


BRIDGE/PAVEMENT SKETCH



BRIDGE/PAVEMENT SKETCH DETOUR

-DET- STA 13+50 RT
EST. 100 TONS
150 SY GEOTEXTILE
140 CY DDE



-DET- STA 13+67 TO 14+63 LT
EST. 75 TONS
95 SY GEOTEXTILE
70 CY DDE

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
B-4765	5

ROADWAY DESIGN ENGINEER

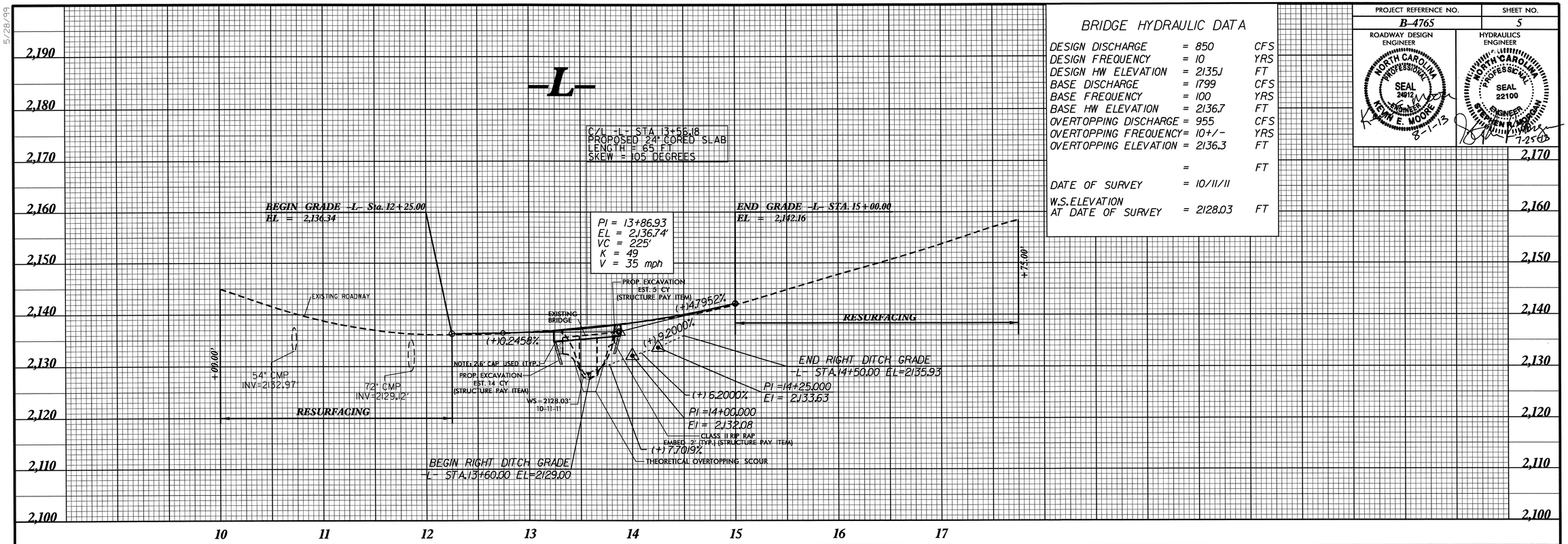
NORTH CAROLINA PROFESSIONAL SEAL 24912 ENGINEER KEVIN E. MOORE

8-1-13

HYDRAULICS ENGINEER

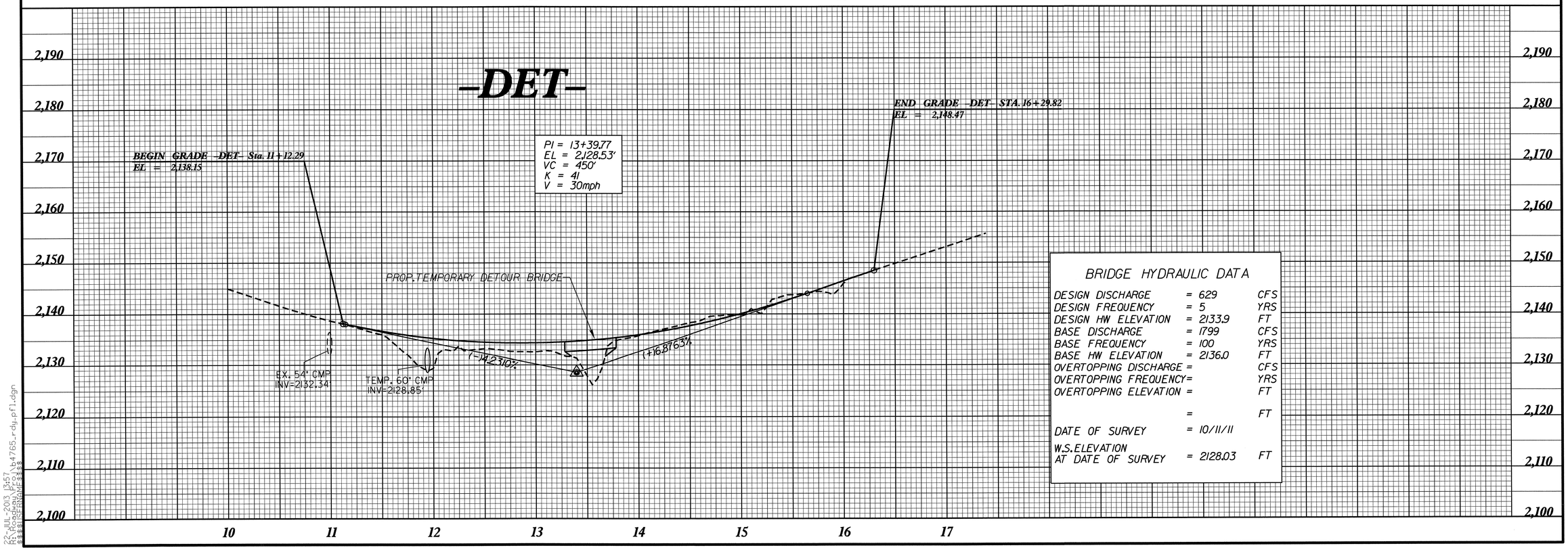
NORTH CAROLINA PROFESSIONAL SEAL 22100 ENGINEER STEPHEN R. MORGAN

7-25-13



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 850	CFS
DESIGN FREQUENCY	= 10	YRS
DESIGN HW ELEVATION	= 2135.1	FT
BASE DISCHARGE	= 1799	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2136.7	FT
OVERTOPPING DISCHARGE	= 955	CFS
OVERTOPPING FREQUENCY	= 10+/-	YRS
OVERTOPPING ELEVATION	= 2136.3	FT
	=	FT
DATE OF SURVEY	= 10/11/11	
W.S. ELEVATION AT DATE OF SURVEY	= 2128.03	FT



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= 629	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2133.9	FT
BASE DISCHARGE	= 1799	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2136.0	FT
OVERTOPPING DISCHARGE	=	CFS
OVERTOPPING FREQUENCY	=	YRS
OVERTOPPING ELEVATION	=	FT
	=	FT
DATE OF SURVEY	= 10/11/11	
W.S. ELEVATION AT DATE OF SURVEY	= 2128.03	FT

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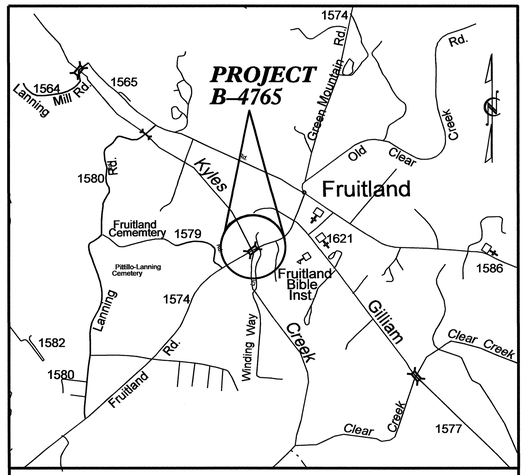
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

HENDERSON COUNTY



VICINITY MAP

LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK).

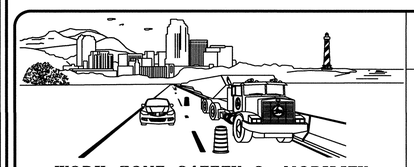
INDEX OF SHEETS

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

SHEET NO.
TMP-1

B-4765

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. GILSTRAP TRAFFIC CONTROL PROJECT DESIGN ENGINEER
S. N. GREEN 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 8973 ENGINEER G. L. GETTIER
7/17/13

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PROJ. REFERENCE NO.	SHEET NO.
B-4765	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 JANAUARY 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
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1180.01	SKINNY - DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
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

LEGEND

GENERAL

DIRECTION OF TRAFFIC FLOW

EXIST. PVMT.

NORTH ARROW

PROPOSED PVMT.

WORK AREA

REMOVAL

PROPOSED CONSTRUCTION

PAVEMENT MARKINGS

EXISTING LINES

TEMPORARY LINES

TRAFFIC CONTROL DEVICES

BARRICADE (TYPE III)

CONE

DRUM SKINNY DRUM TUBULAR MARKER

FLAGGER

TEMPORARY SIGNING

PORTABLE SIGN

STATIONARY SIGN

STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

CRYSTAL/CRYSTAL

CRYSTAL/RED

YELLOW/YELLOW

TEMPORARY PAVEMENT MARKING

4" PAINT

PA	WHITE EDGELINE
PI	DOUBLE YELLOW CENTER LINE

TEMPORARY MARKERS

MH	YELLOW & YELLOW

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

APR 13

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

ROADWAY STANDARD DRAWINGS & LEGEND

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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, OF 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 AS DIRECTED BY THE ENGINEER.

TIME RESTRICTIONS

A) DO NOT CLOSE OR NARROW TRAVEL LANES AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
1. FRUITLAND RD.	SCHOOL DAYS: MONDAY THRU FRIDAY 7:00 AM - 9:00AM 2:30 PM - 4:30PM

B) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
1. FRUITLAND RD.	SCHOOL DAYS: MONDAY THRU FRIDAY 7:00 AM - 9:00AM 2:30 PM - 4:30PM	15 MIN. TRAFFIC OPERATIONS

C) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) 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.

E) 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.

F) 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.

G) 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.

H) 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.

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) 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 A 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.

K) 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) 200 FT IN ADVANCE AND A MINIMUM OF ONCE EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

M) 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.

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

TRAFFIC CONTROL DEVICES

O) 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.

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

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
1. ALL ROADS	PAINT	TEMPORARY RAISED

R) 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.

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

T) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

MANAGEMENT STRATEGIES

CONSTRUCTION

REMOVE AND REPLACE EXISTING STRUCTURE WITH PROPOSED STRUCTURE ALONG THE EXISTING ROADWAY ALIGNMENT AS SHOWN IN THE CONSTRUCTION PLANS.

TMP DESIGN PARAMETERS

TRAFFIC WILL BE DETOURED ON-SITE DURING THE CONSTRUCTION PERIOD.

TRAFFIC SHALL BE MAINTAINED TO EXISTING DRIVEWAY LOCATED WITHIN THE PROJECT LIMITS AND TO WINDING WAY LANE DURING CONSTRUCTION.

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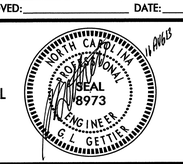

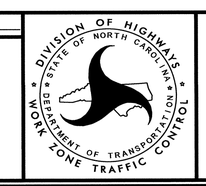

TRANSPORTATION OPERATIONS & PROJECT NOTES

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PROJ. REFERENCE NO.	SHEET NO.
B-4765	TMP-2

PHASE I

NOTE: RETURN TRAFFIC TO THE EXISTING PATTERN AT THE END OF EACH WORK PERIOD UNLESS OTHERWISE STATED IN THE PHASING OR DIRECTED BY THE ENGEINEER.

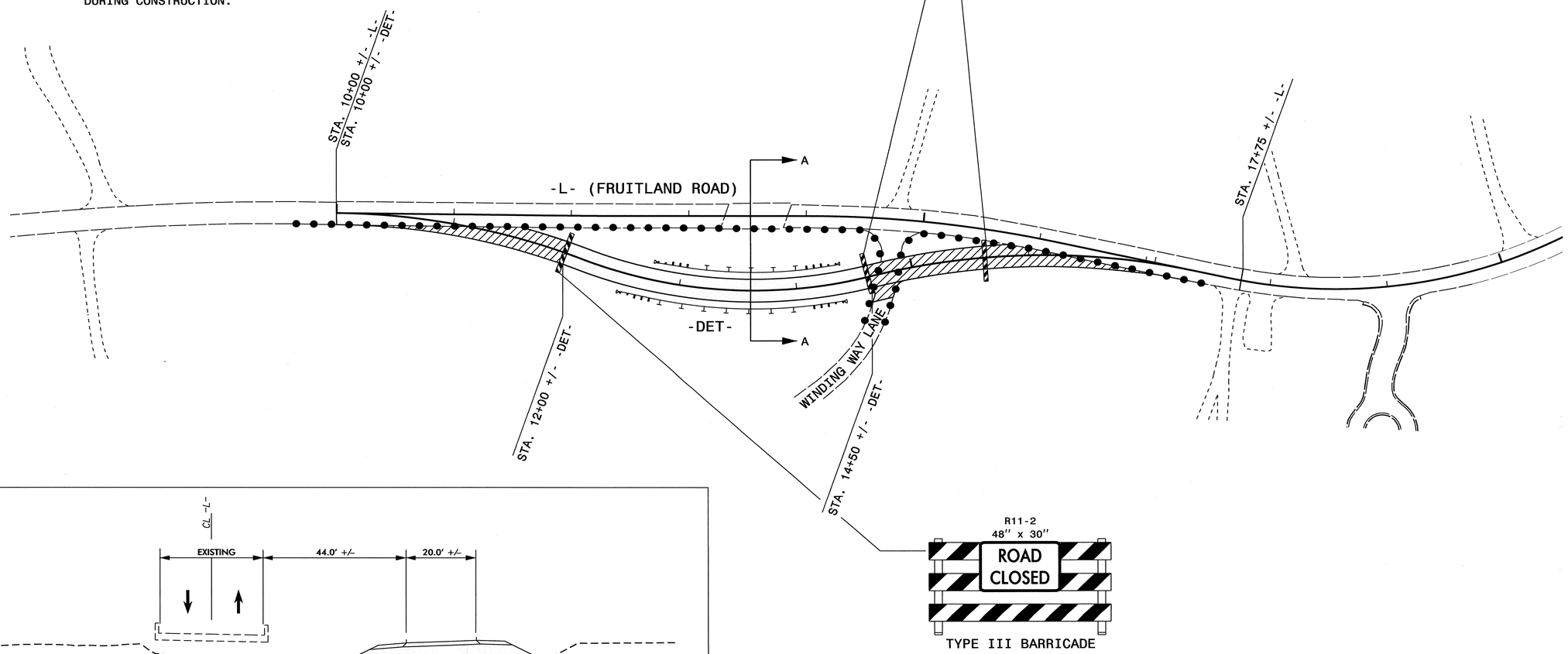
COMPLETE ANY PROPOSED OR TEMPORARY WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANES.

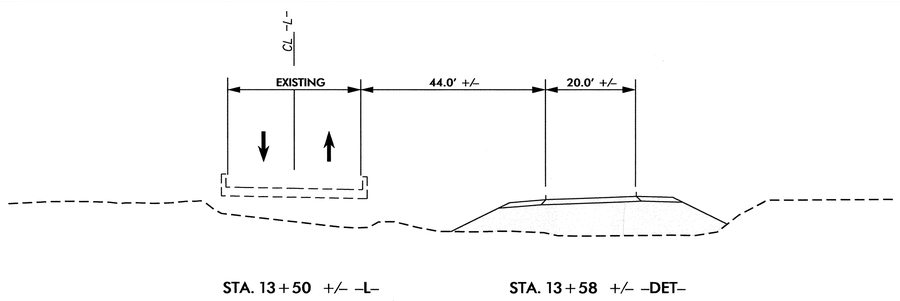
STEP 1: - CONTRACTOR SHALL INSTALL ALL ADVANCE WORK ZONE WARNING SIGNS. (SEE ROADWAY STANDARD DRAWING NO. 1101.01, SHEET 3 OF 3).

STEP 2: - CONSTRUCT AS MUCH AS POSSIBLE, AWAY FROM TRAFFIC, PROPOSED DETOUR (-DET-), BRIDGE AND APPROACHES FROM STATION 12+00 +/- -DET- TO STATION 14+50 +/- -DET- UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE CONSTRUCTION PLANS).

- USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, CONSTRUCT PROPOSED DETOUR (-DET-), FROM STATION 10+00 +/- -DET- TO STATION 12+00 +/- -DET-, FROM STATION 14+50 +/- -DET- TO STATION 17+75 +/- -L-, UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE, AND WINDING WAY LANE TEMPORARY TIE-IN. (SEE CONSTRUCTION PLANS).

NOTE: UTILIZE DRUMS TO MAINTAIN ACCESS TO WINDING WAY LANE DURING CONSTRUCTION.





SECTION A-A

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER 17APR13

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

TEMPORARY TRAFFIC CONTROL PHASE I AND DETAIL

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PROJ. REFERENCE NO.	SHEET NO.
B-4765	TMP-3

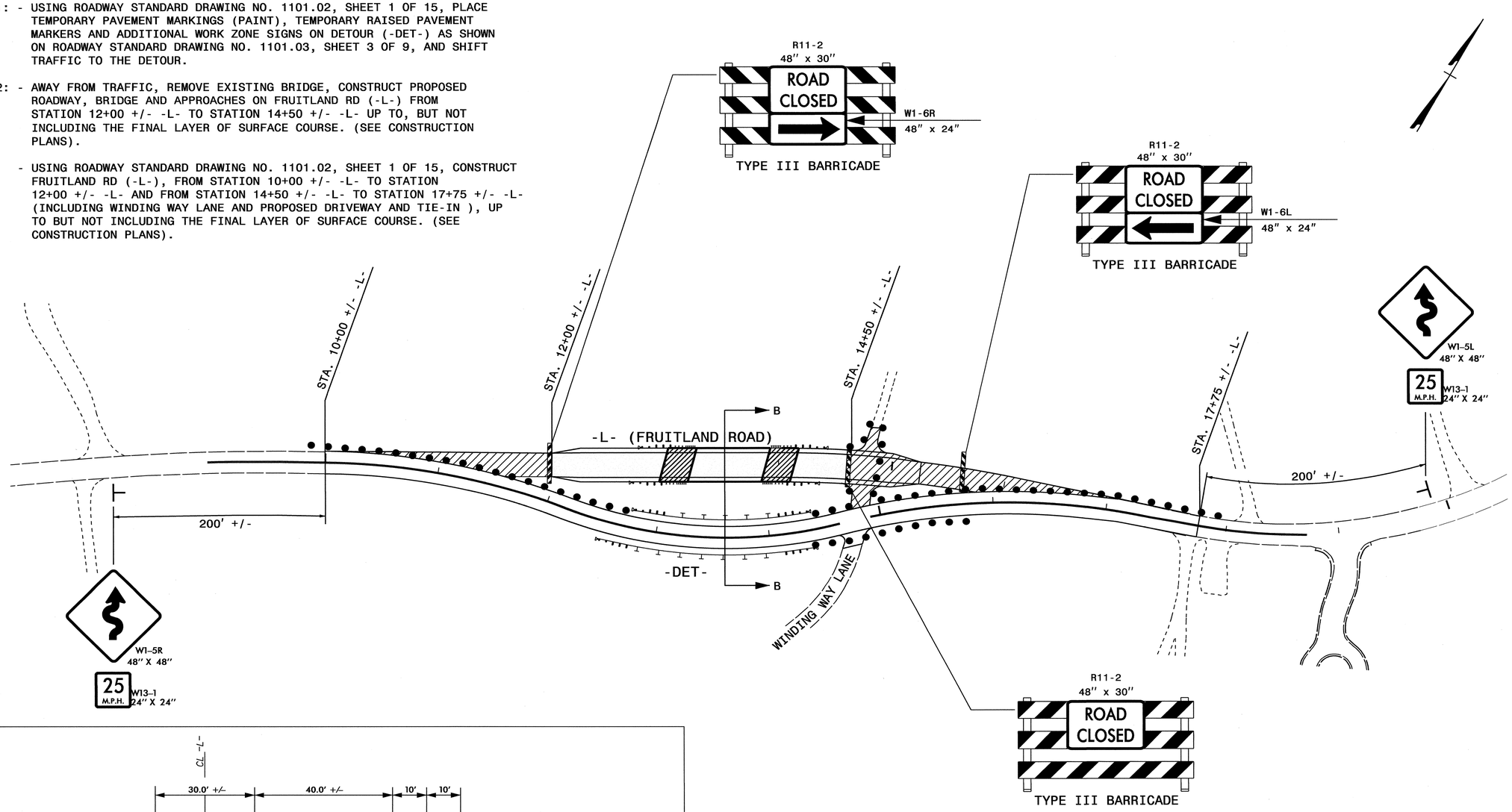
PHASE II

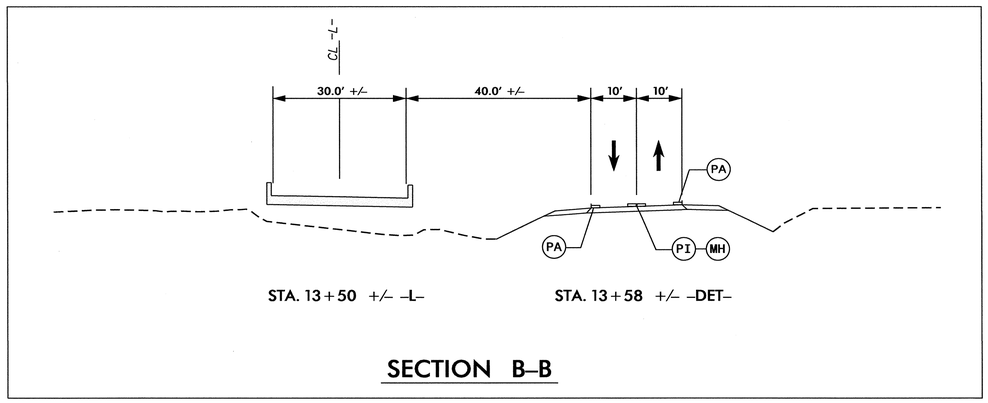
NOTE: COMPLETE ANY PROPOSED OR TEMPORARY WIDENING IN SUCH A MANNER THAT PONDING OF WATER WILL NOT OCCUR IN THE TRAVEL LANES.

STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, PLACE TEMPORARY PAVEMENT MARKINGS (PAINT), TEMPORARY RAISED PAVEMENT MARKERS AND ADDITIONAL WORK ZONE SIGNS ON DETOUR (-DET-) AS SHOWN ON ROADWAY STANDARD DRAWING NO. 1101.03, SHEET 3 OF 9, AND SHIFT TRAFFIC TO THE DETOUR.

STEP 2: - AWAY FROM TRAFFIC, REMOVE EXISTING BRIDGE, CONSTRUCT PROPOSED ROADWAY, BRIDGE AND APPROACHES ON FRUITLAND RD (-L-) FROM STATION 12+00 +/- -L- TO STATION 14+50 +/- -L- UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE CONSTRUCTION PLANS).

- USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, CONSTRUCT FRUITLAND RD (-L-), FROM STATION 10+00 +/- -L- TO STATION 12+00 +/- -L- AND FROM STATION 14+50 +/- -L- TO STATION 17+75 +/- -L- (INCLUDING WINDING WAY LANE AND PROPOSED DRIVEWAY AND TIE-IN), UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. (SEE CONSTRUCTION PLANS).





SECTION B-B

APPROVED: _____ DATE: _____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER 17 APR 13

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

TEMPORARY TRAFFIC CONTROL PHASE II AND DETAIL

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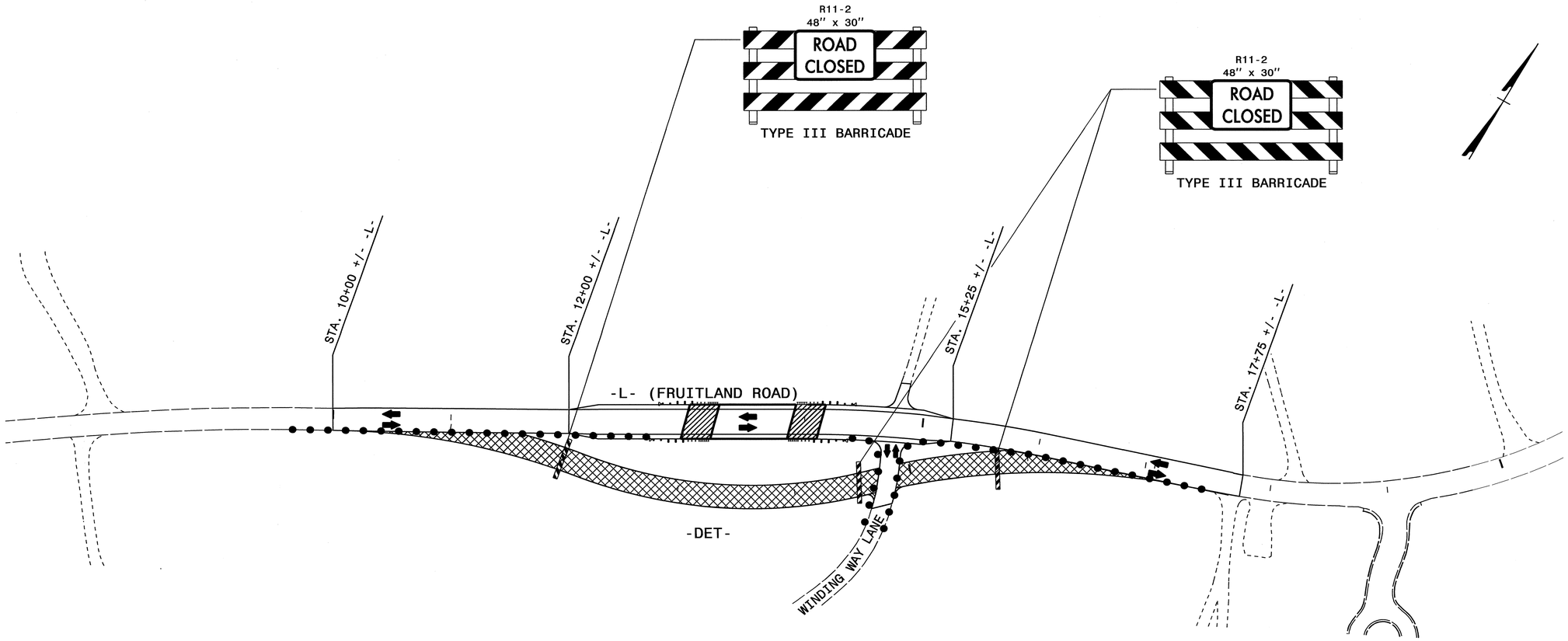
sngreen AT TE26587

PROJ. REFERENCE NO.	SHEET NO.
B-4765	TMP-4



PHASE III

STEP 1: - USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, PLACE TEMPORARY PAVEMENT MARKINGS (PAINT), TEMPORARY RAISED PAVEMENT MARKERS ON PROPOSED FRUITLAND RD (-L-) AND SHIFT TRAFFIC TO FINAL PATTERN. (SEE FINAL PAVEMENT MARKING PLANS).

STEP 2: - USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, REMOVE TEMPORARY DETOUR BRIDGE AND PAVEMENT AND COMPLETE ANY REMAINING CONSTRUCTION OF FRUITLAND RD (-L-). (SEE CONSTRUCTION PLANS).

- USING ROADWAY STANDARD DRAWING NO. 1101.02, SHEET 1 OF 15, PLACE THE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS AND OPEN TO FINAL TRAFFIC PATTERN. (SEE CONSTRUCTION PLANS AND FINAL PAVEMENT MARKING PLANS).

APPROVED:_____ DATE:_____

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 8973 ENGINEER G. L. GETTIER

17 APR 13

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

TEMPORARY TRAFFIC CONTROL PHASE III AND DETAIL

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sngreen AT TE26581

T.I.P.: B-4765

CONTRACT:

TIP NO.	SHEET NO.
B-4765	PMP-1

APPROVED: RWK

DATE: 8/8/13

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

HENDERSON COUNTY

LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A TAZEWELL CREEK).

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAINT	
PA	WHITE EDGELINE (4")
PI	YELLOW DOUBLE CENTER (4")
	MARKERS
SNOWPLOWABLE	
ME	YELLOW & YELLOW

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
1205.12	PAVEMENT MARKINGS - BRIDGES
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

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
SR 1574	PAINT	SNOWPLOWABLE

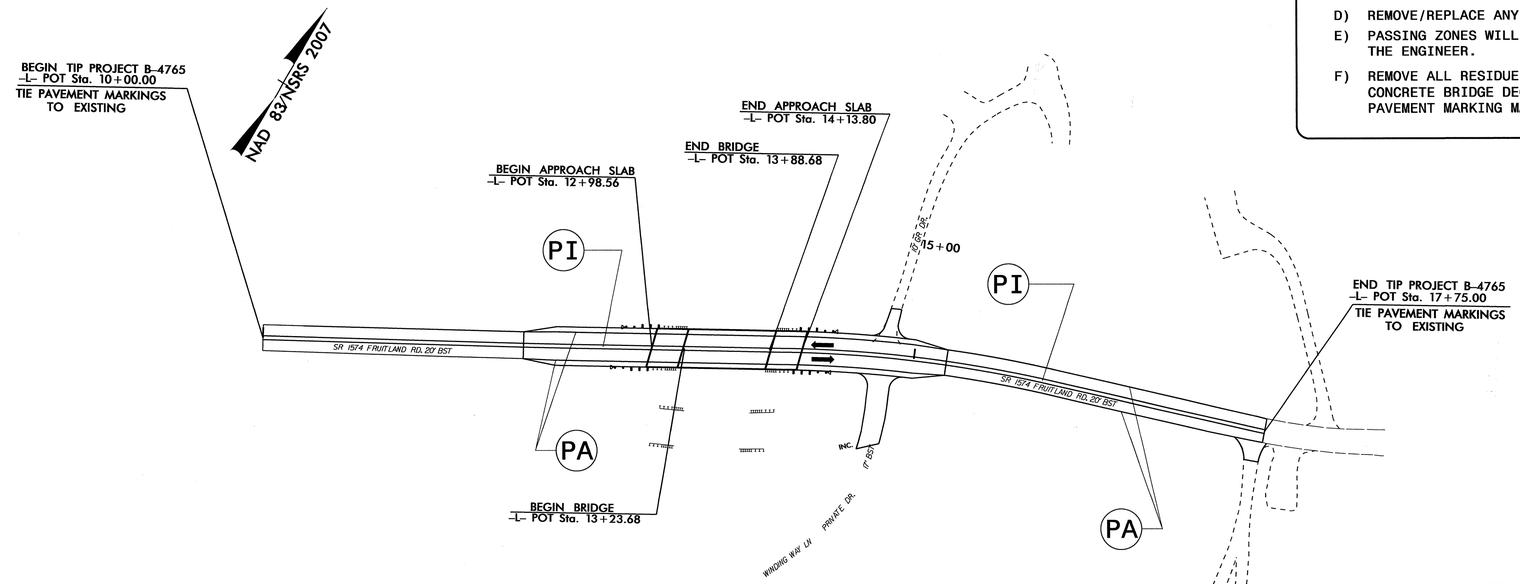
B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

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.

F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING PAINT PAVEMENT MARKING MATERIAL.



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

K. JORDAN	SIGNING & DELINEATION REGIONAL ENGINEER
M. TRACEY	SIGNING & DELINEATION PROJECT DESIGN ENGINEER/TECHNICIAN

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

INDEX

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

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TIP PROJECT: B-4765

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4765	EC-1	

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

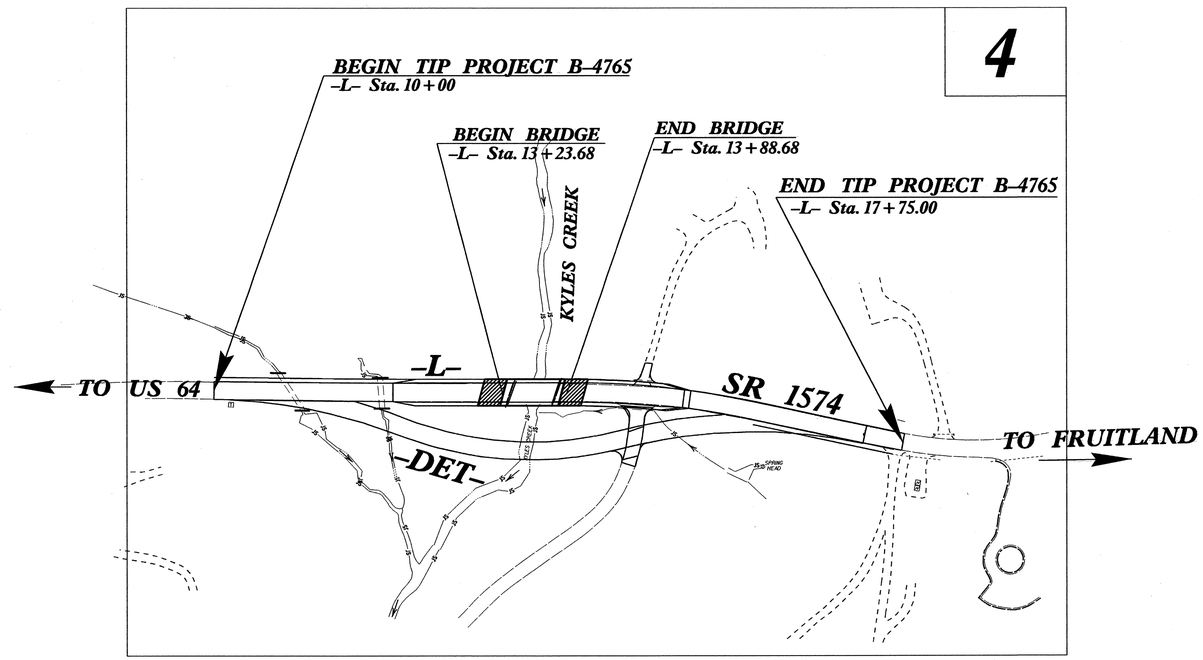
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HENDERSON COUNTY

LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK).

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



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.

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

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

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

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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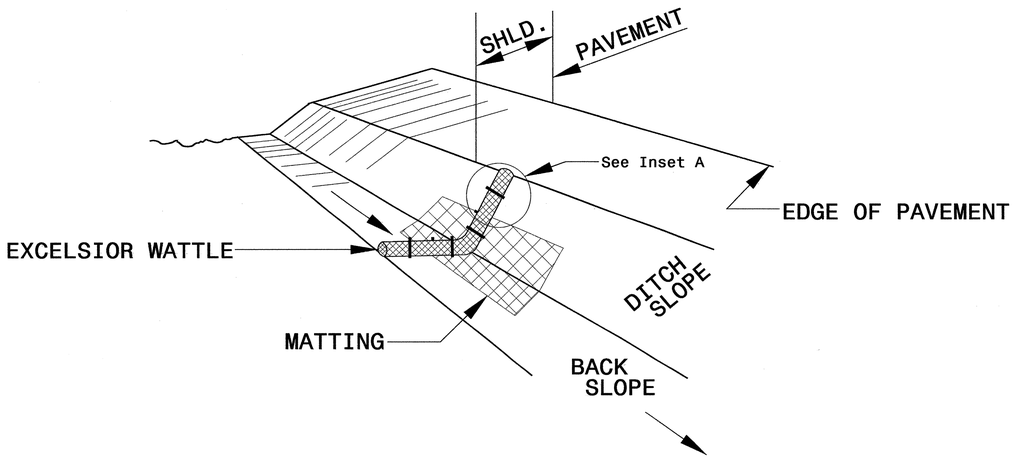
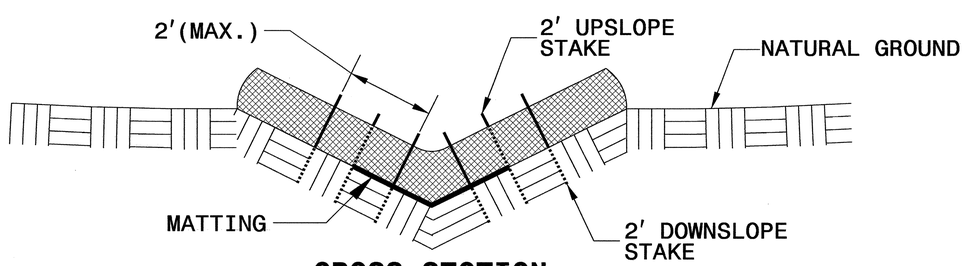
PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-2
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

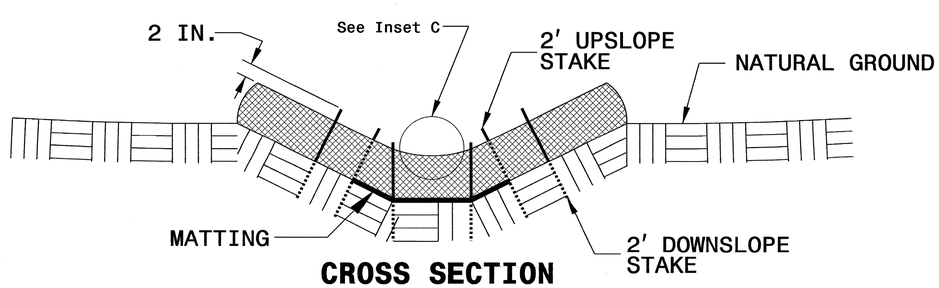
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

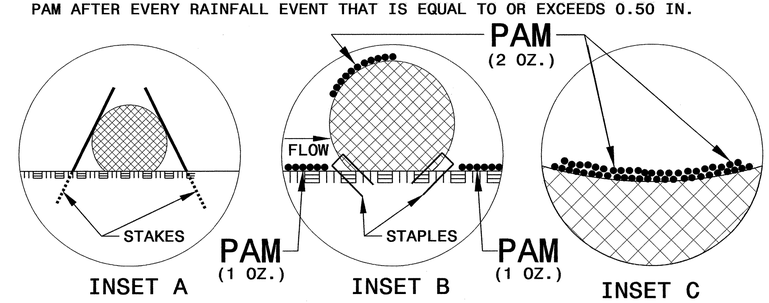
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

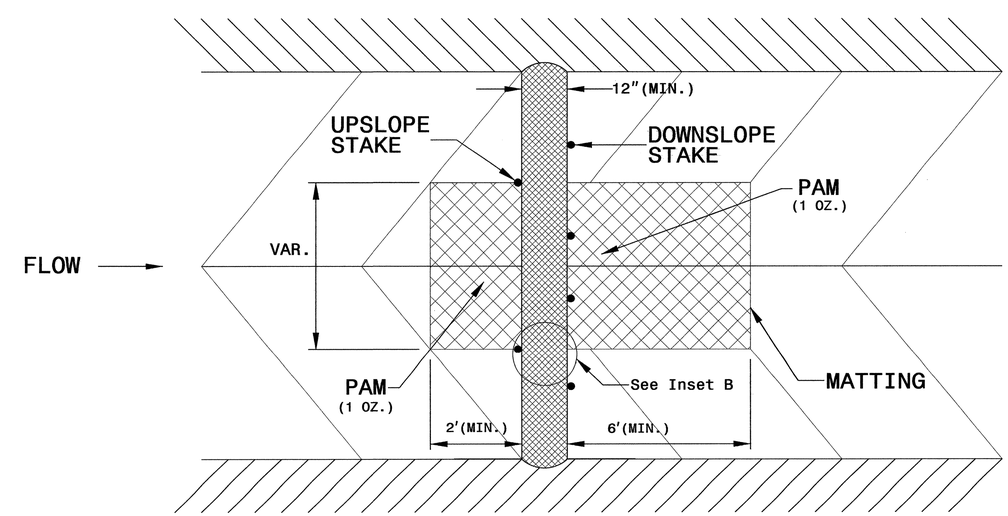
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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.

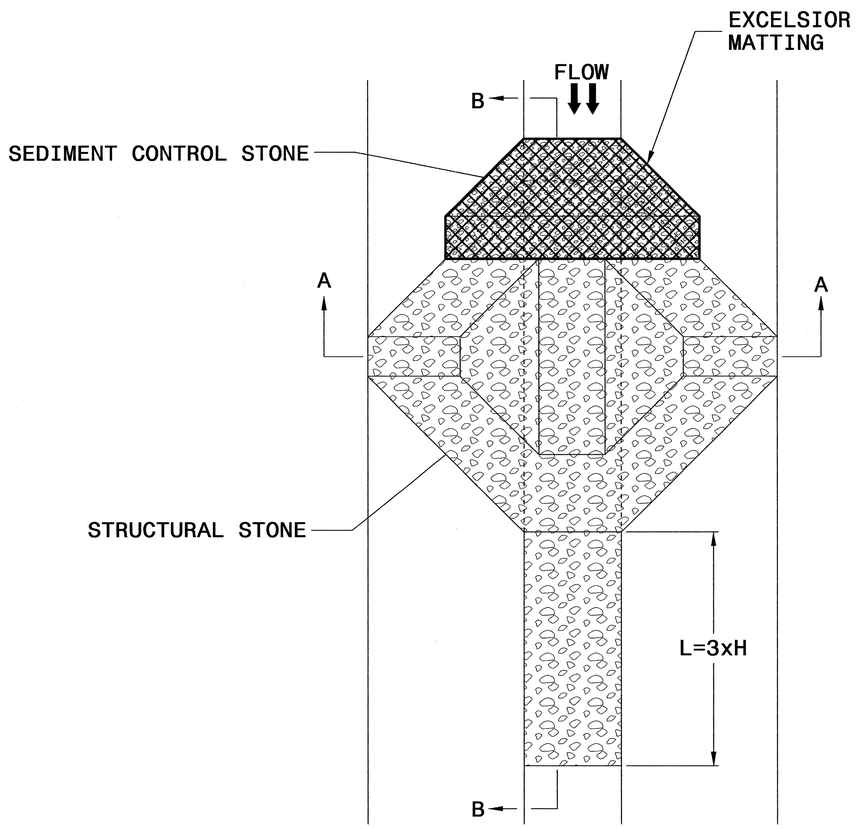




TOP VIEW

PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



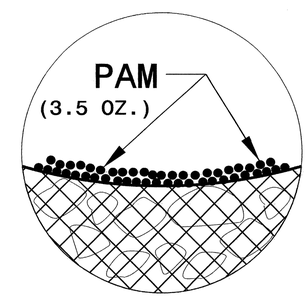
PLAN

NOTES

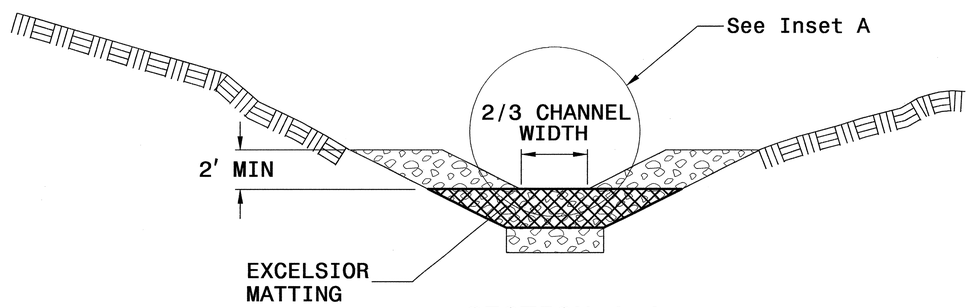
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

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.

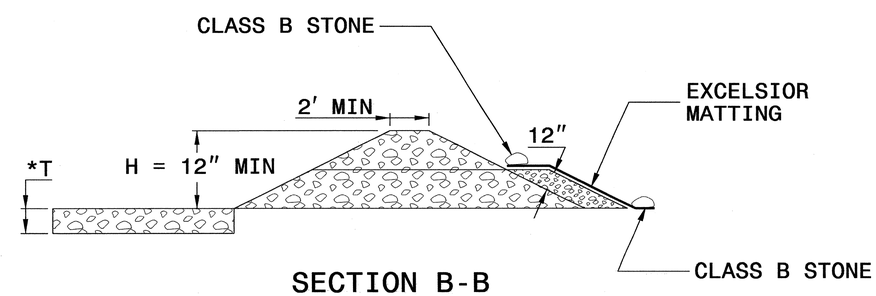
INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

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

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-3
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-	14+00	15+00	LT	95
4	-DET-	13+83.39	14+56.61	RT	45
				SUBTOTAL	140
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					4,400
				TOTAL	4,540
				SAY	4,600

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	13+75	14+50	RT	105
4	-DET-	12+57.15	12+82.82	LT	15
4	-DET-	15+03.36	16+82.59	RT	160
				SUBTOTAL	280
		ADDITIONAL PSRM TO BE INSTALLED			0
				TOTAL	280
				SAY	300

PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-3A
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.

8/17/99

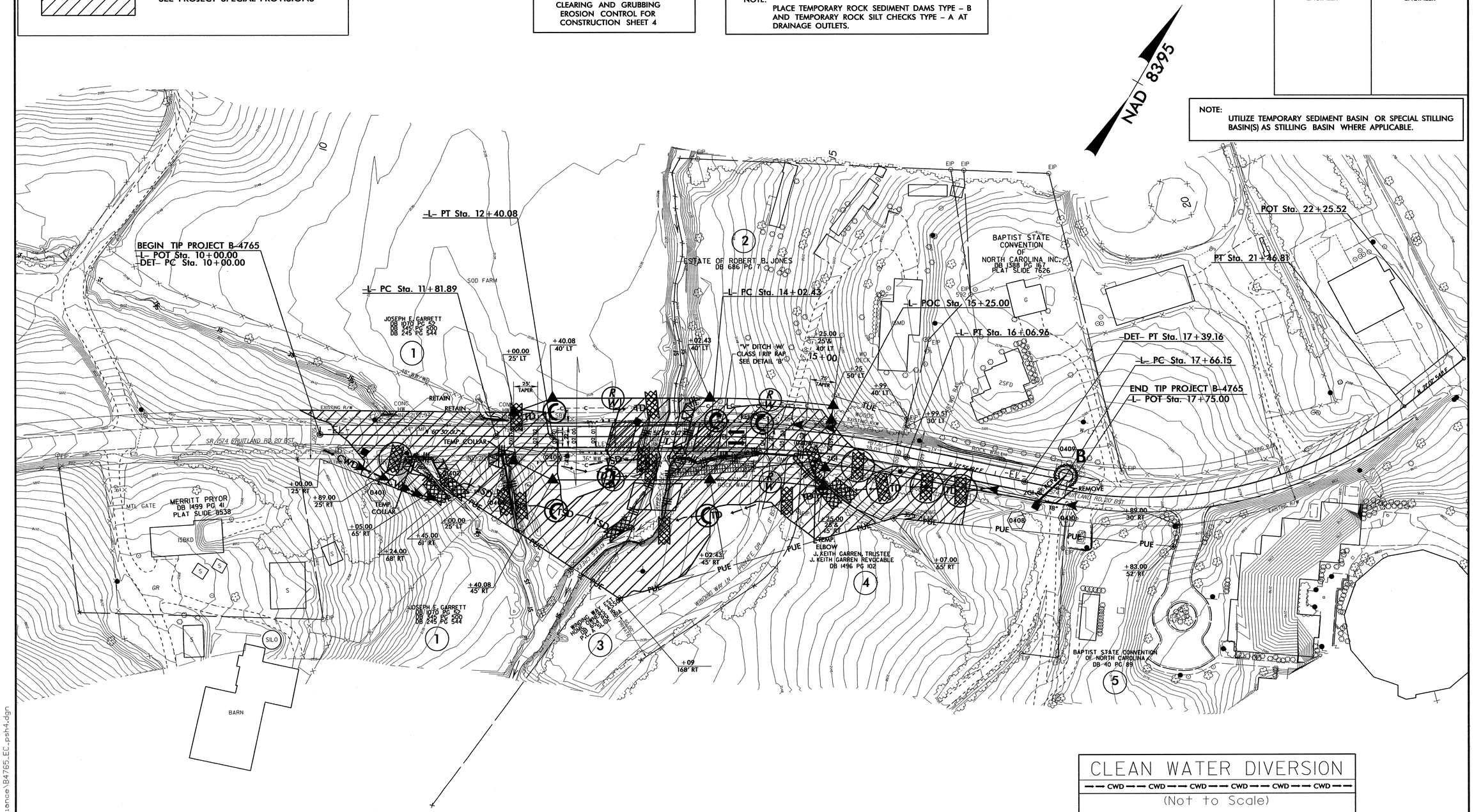
PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

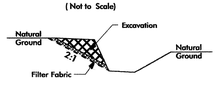
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

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.



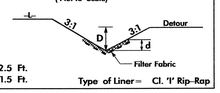
DETAIL A
BANK PROTECTION
(Not to Scale)



Type of Liner= CL. I Rip-Rap

-DET- STA 13+50 RT
EST. 190 TONS
130 SY GEOTEXTILE
180 CY DDE

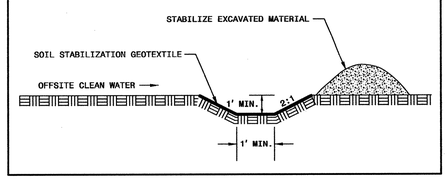
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Min. D=2.5 Ft.
Max. d=1.5 Ft.
Type of Liner= CL. 'I' Rip-Rap

-DET- STA 13+67 TO 14+63 LT
EST. 75 TONS
95 SY GEOTEXTILE
70 CY DDE

CLEAN WATER DIVERSION
CWD CWD CWD CWD CWD CWD
(Not to Scale)



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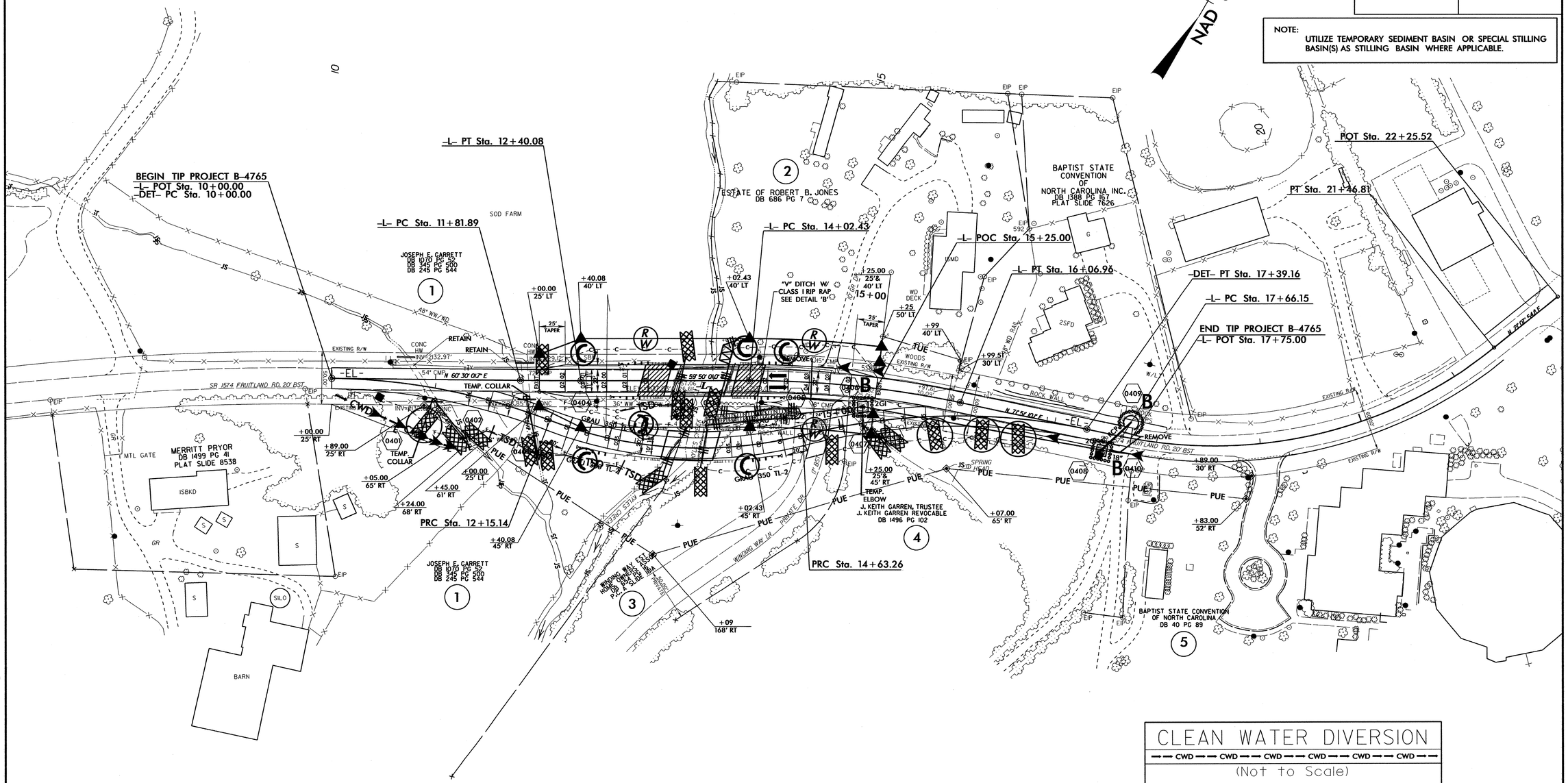
PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

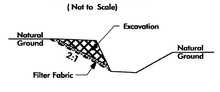
DETOUR

NAD 83/95

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



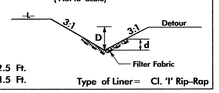
DETAIL A
BANK PROTECTION
(Not to Scale)



Type of Liner= CL. I Rip-Rap

-DET- STA 13+50 RT
EST. 190 TONS
130 SY GEOTEXTILE
180 CY DDE

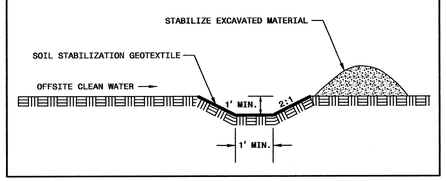
DETAIL B
SPECIAL CUT DITCH
(Not to Scale)



Min. D=2.5 Ft.
Max. d=1.5 Ft.
Type of Liner= Cl. 'I' Rip-Rap

-DET- STA 13+67 TO 14+63 LT
EST. 75 TONS
95 SY GEOTEXTILE
70 CY DDE

CLEAN WATER DIVERSION
(Not to Scale)



8/17/99

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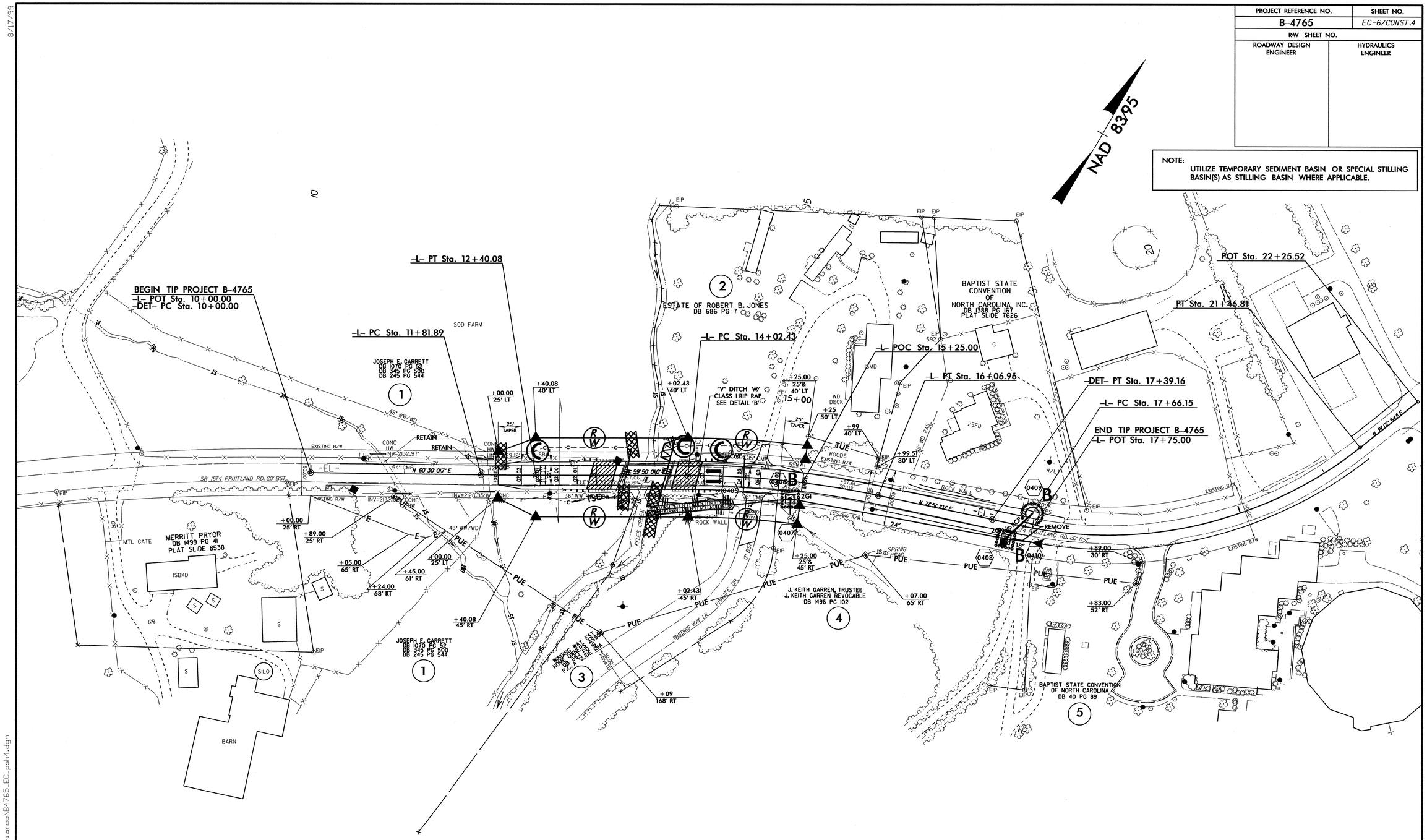
$$$$CELL$$$$
$$$$DATE$$$$
$$$$TIME$$$$

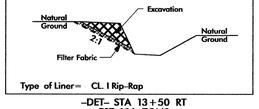
PROJECT REFERENCE NO.	SHEET NO.
B-4765	EC-6/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



DETAIL A

BANK PROTECTION
(Not to Scale)



Type of Liner= CL. I Rip-Rap

-DET- STA 13+50 RT
EST. 120 TONS
170 SY GEOTEXTILE
150 CY DDE

8/17/99

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(cbandler) AT REN/24/7/8

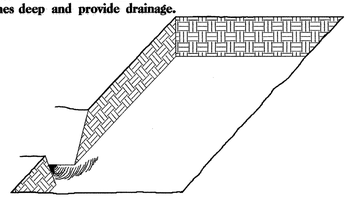
PROJECT REFERENCE NO.	SHEET NO.
B-4765	RF-1
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PLANTING DETAILS

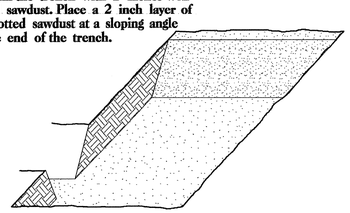
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

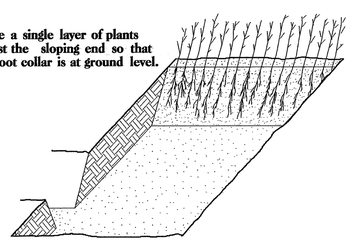
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



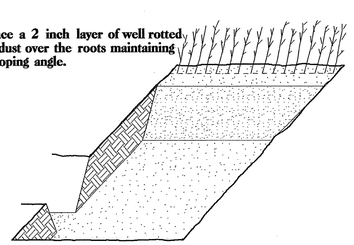
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



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

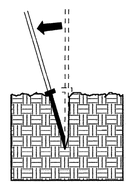


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

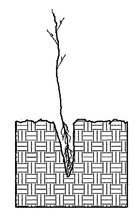


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

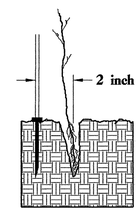
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



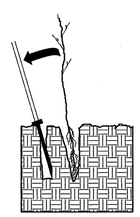
1. Insert planting bar as shown and pull handle toward planter.



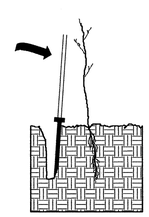
2. Remove planting bar and place seedling at correct depth.



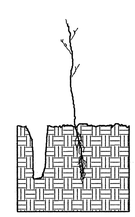
3. Insert planting bar 2 inches toward planter from seedling.



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:

40% PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	12 in - 18 in BR
30% LIRIODENDRON TULIPIFERA	YELLOW POPLAR	12 in - 18 in BR
30% QUERCUS ALBA	WHITE OAK	12 in - 18 in BR

REFORESTATION DETAIL SHEET

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

T.I.P.: B-4765

CONTRACT:

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

TIP NO.	SHEET NO.
B-4765	SIGN-1

APPROVED: RWK
DATE: 6/14/13

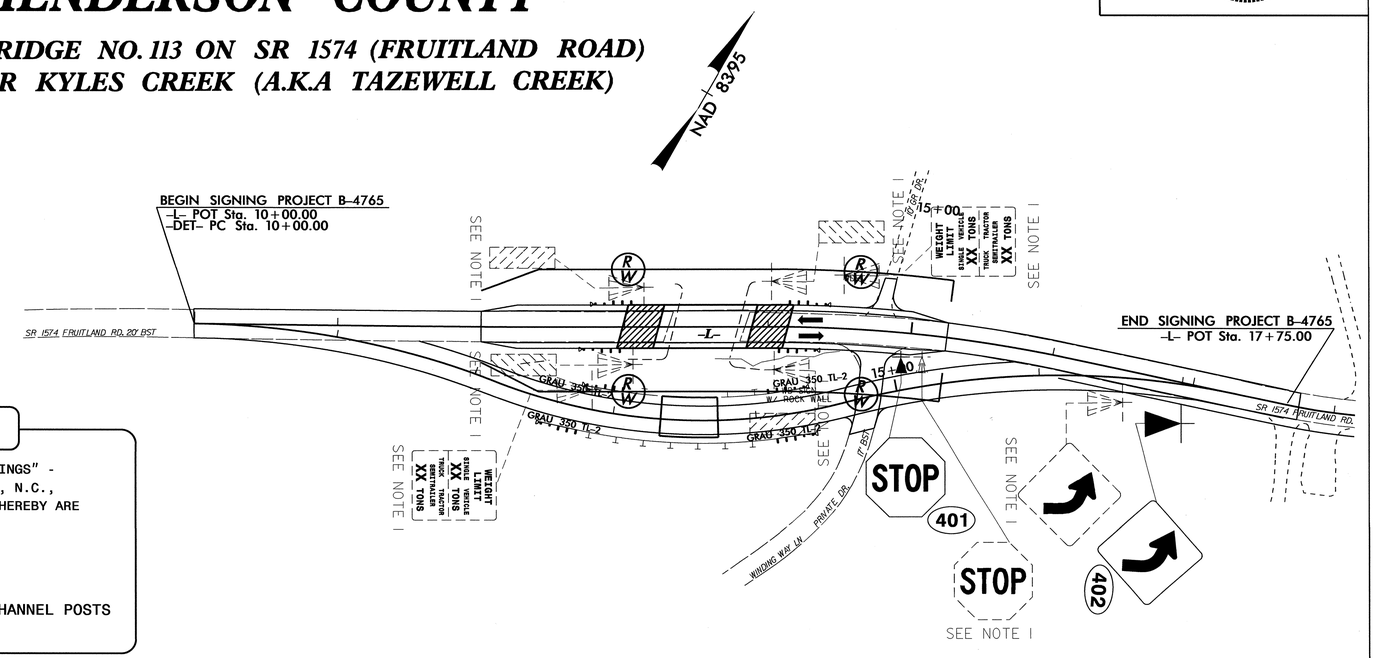
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 022959 ENGINEER RONALD W. KING

SIGNING PLAN
HENDERSON COUNTY

LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A TAZEWELL CREEK)

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	28	L.F.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	8	EA.



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.
- 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.
- WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.
- SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

PROJECT NOTES

1	DISPOSAL OF SIGN SYSTEM, U-CHANNEL

TYPE E SIGNS

(401) QUANTITY REQ'D 1	(402) QUANTITY REQ'D 1
STOP — 30 X 30 R1-1	36 X 36 W1-2L
ONE "U" POST PER SIGN	ONE "U" POST PER SIGN

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

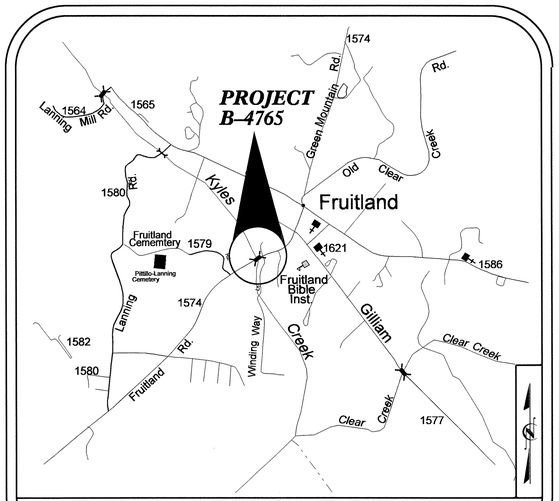
K. JORDAN — SIGNING & DELINEATION REGIONAL ENGINEER

M. TRACEY — SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

TIP PROJECT: B-4765

See Sheet 1-A For Index of Sheets



VICINITY MAP

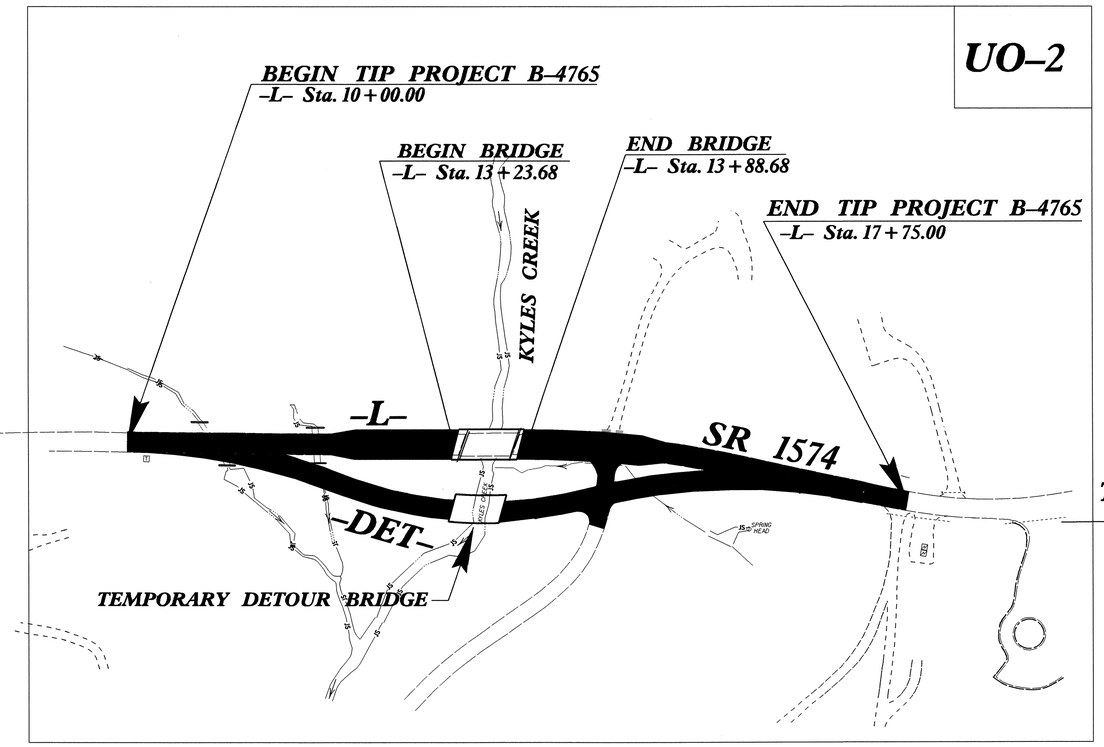
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
B-4765	UO-1

UTILITIES BY OTHERS PLANS
HENDERSON COUNTY

LOCATION: BRIDGE NO. 113 ON SR 1574 (FRUITLAND ROAD) OVER KYLES CREEK (A.K.A. TAZEWELL CREEK)

TYPE OF WORK: AERIAL POWER AND TELEPHONE



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 - (TELEPHONE)

(2) DUKE ENERGY - (POWER)

(3) MORRIS BROADBAND - (CATV)

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 Barclay, P.E. UTILITIES SQUAD LEADER PROJECT ENGINEER
James Swinson UTILITIES PROJECT DESIGNER

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PROJECT REFERENCE NO.	SHEET NO.
B-4765	UO-2

Cardno
Cardno (NC), Inc.
2040 Old Pineville Rd.
Charlotte, NC 28217
Phone: 704.927.9700 Fax: 704.529.3272

UTILITIES BY OTHERS

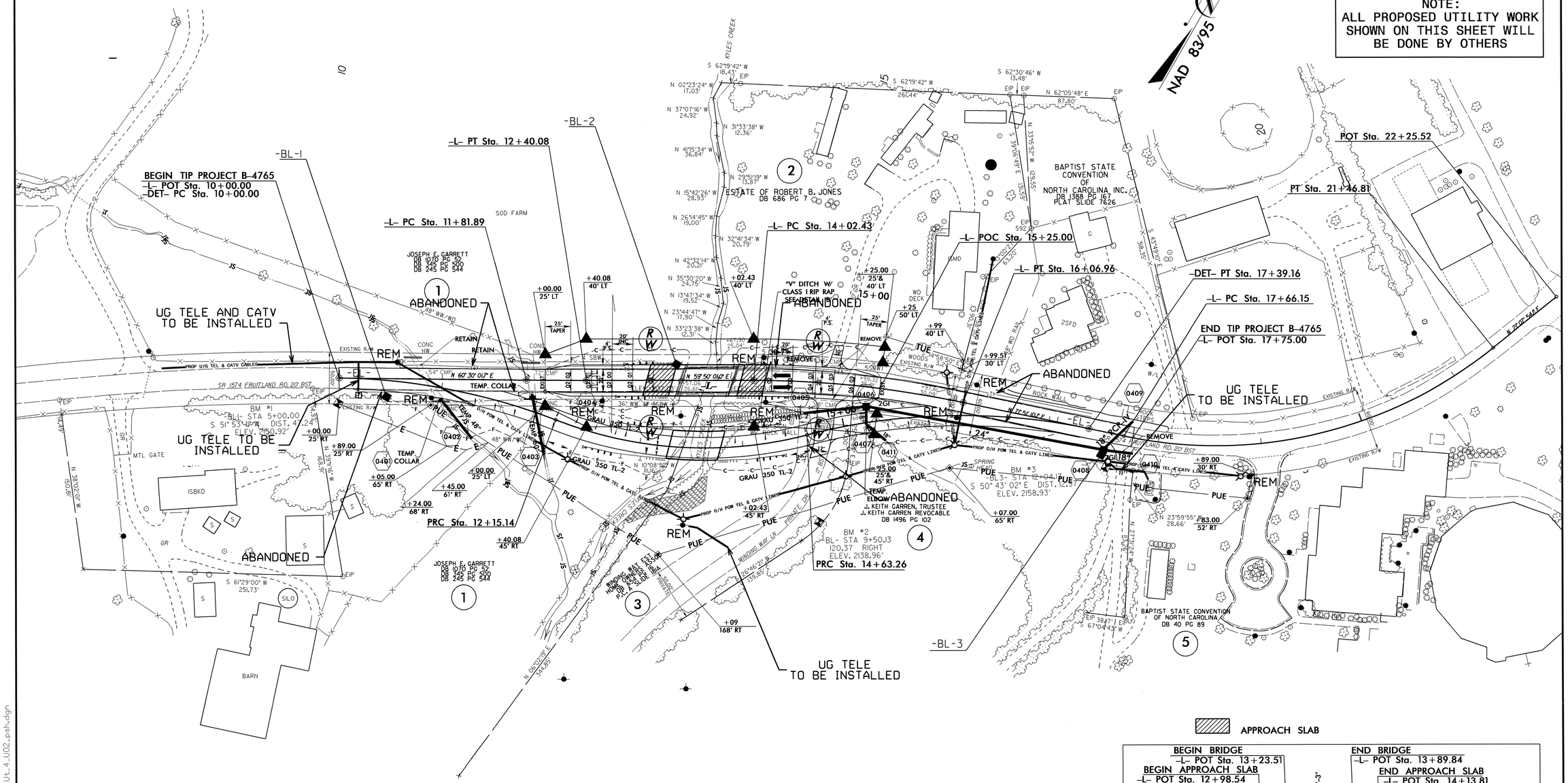
NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS

-L-

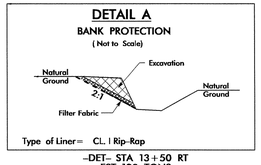
PI Sta 12+10.98	PI Sta 15+05.07	PI Sta 19+69.97
Δ = 0° 40' 00.7" (LT)	Δ = 12° 01' 09.0" (RT)	Δ = 50° 43' 16.0" (LT)
D = 1° 08' 45.3"	D = 5° 52' 35.4"	D = 13° 19' 28.6"
L = 58.19'	L = 204.53'	L = 380.66'
T = 29.10'	T = 102.64'	T = 203.82'
R = 5,000.00'	R = 975.00'	R = 430.00'
SE = NC	SE = .03	SE = N.A.

-DET-

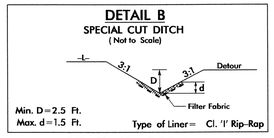
PI Sta 11+08.74	PI Sta 13+43.34	PI Sta 16+03.69
Δ = 20° 32' 41.4" (RT)	Δ = 35° 32' 21.0" (LT)	Δ = 26° 20' 47.9" (RT)
D = 9° 32' 57.5"	D = 14° 19' 26.2"	D = 9° 32' 57.5"
L = 215.14'	L = 248.11'	L = 275.90'
T = 108.74'	T = 128.19'	T = 140.43'
R = 600.00'	R = 400.00'	R = 600.00'



BRIDGE/PAVEMENT SKETCH



-DET- STA 13+50 RT
EST. 190 TONS
130 SY GEOTEXTILE
180 CY DDE



-DET- STA 13+67 TO 14+63 LT
EST. 75 TONS
95 SY GEOTEXTILE
70 CY DDE

5/14/99

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PROJ. REFERENCE NO.	SHEET NO.
B-4765	X-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+00.00	0	0
12+25.00	6	6
12+50.00	12	13
12+75.00	14	15
13+00.00	18	13
13+23.68	20	8
13+34.48	5	2

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+79.27	0	0
13+88.68	4	8
14+00.00	10	20
14+25.00	22	39
14+50.00	22	28
14+75.00	32	12
15+00.00	47	3
15+25.00	25	3

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
16+75.00	8	4

DET REMOVAL

Station DETOUR	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+25.00	0	0
10+50.00	2	0
10+75.00	10	0
11+00.00	68	0
11+25.00	100	0
11+50.00	52	0
11+75.00	62	0
12+00.00	124	0
12+25.00	98	0
12+50.00	40	0
12+75.00	30	0
13+00.00	44	0
13+28.34	85	0
13+43.55	138	0

DET REMOVAL

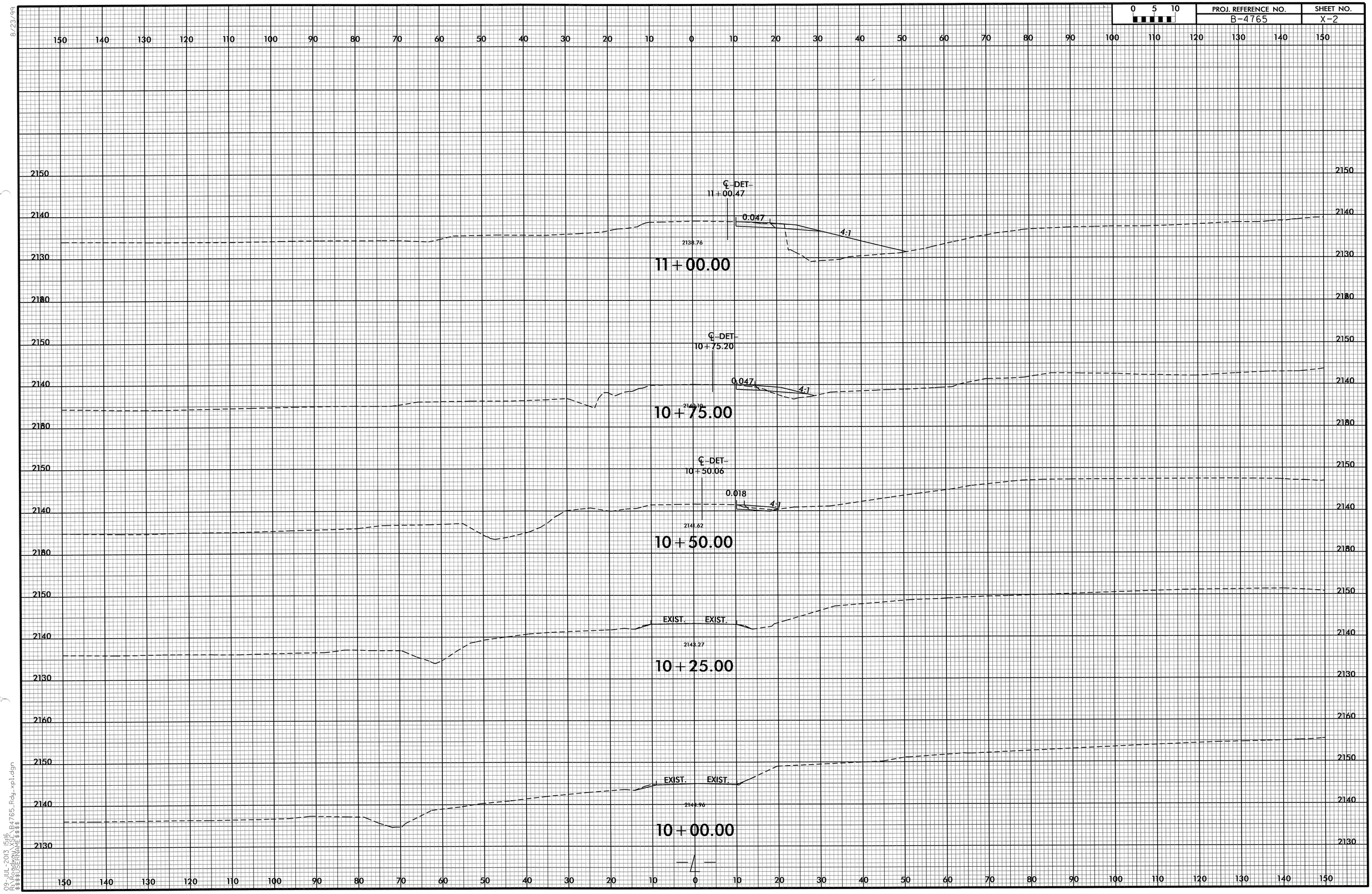
Station DETOUR	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
10+50.00	0	0
10+75.00	3	10
11+00.00	6	68
11+25.00	7	100
11+50.00	6	52
11+75.00	4	60
12+00.00	3	122
12+25.00	2	99
12+50.00	2	42
12+75.00	4	32
13+00.00	2	44
13+28.34	0	62
13+43.55	0	17

Station DETOUR	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+68.07 SUITABL	0	0
13+78.40	71	0
14+00.00	5	0
14+25.00	0	0
14+50.00	0	0
14+75.00	0	0
15+00.00	3	0
15+25.00	6	0
15+50.00	3	0
15+75.00	0	0
16+00.00	0	0
16+25.00	1	0
16+50.00	4	0
16+75.00	3	0

Station DETOUR	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
13+68.07 SUITABL	0	0
13+78.40	11	1
14+00.00	44	1
14+25.00	58	0
14+50.00	63	0
14+75.00	65	0
15+00.00	45	6
15+25.00	31	8
15+50.00	41	3
15+75.00	33	1
16+00.00	24	0
16+25.00	15	1
16+50.00	9	3

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".

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	B-4765	X-2



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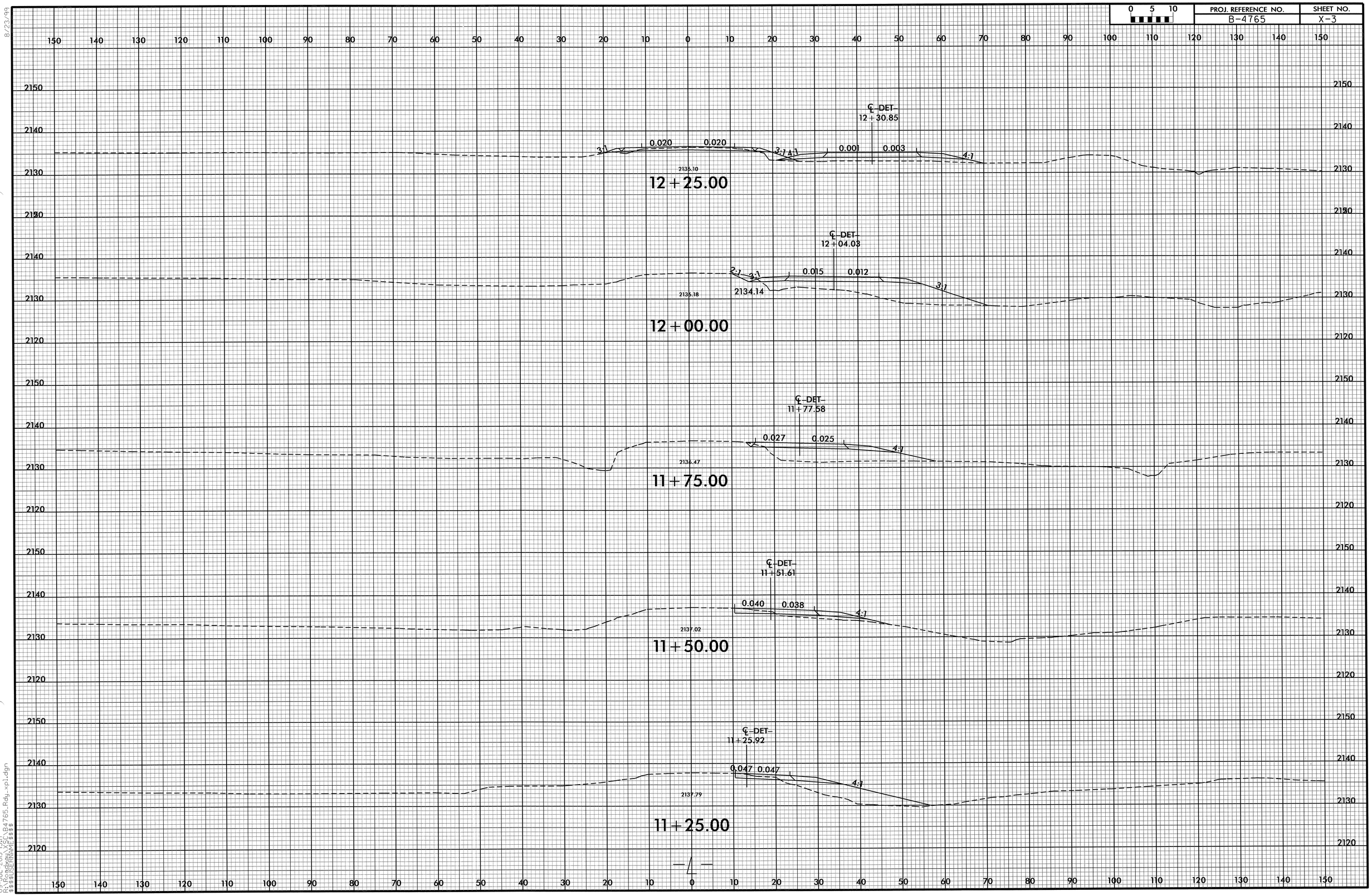
B-4765	X-3



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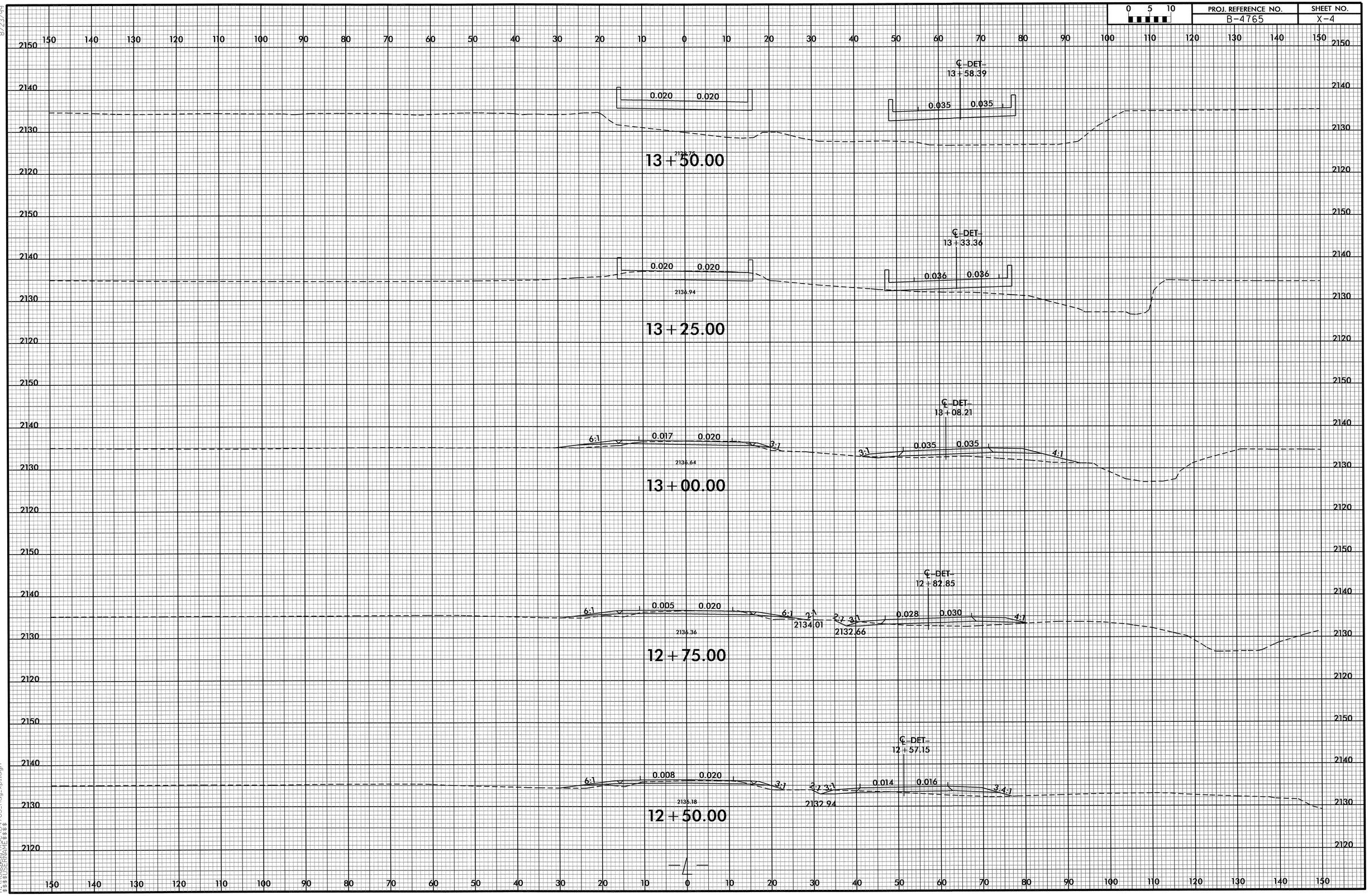

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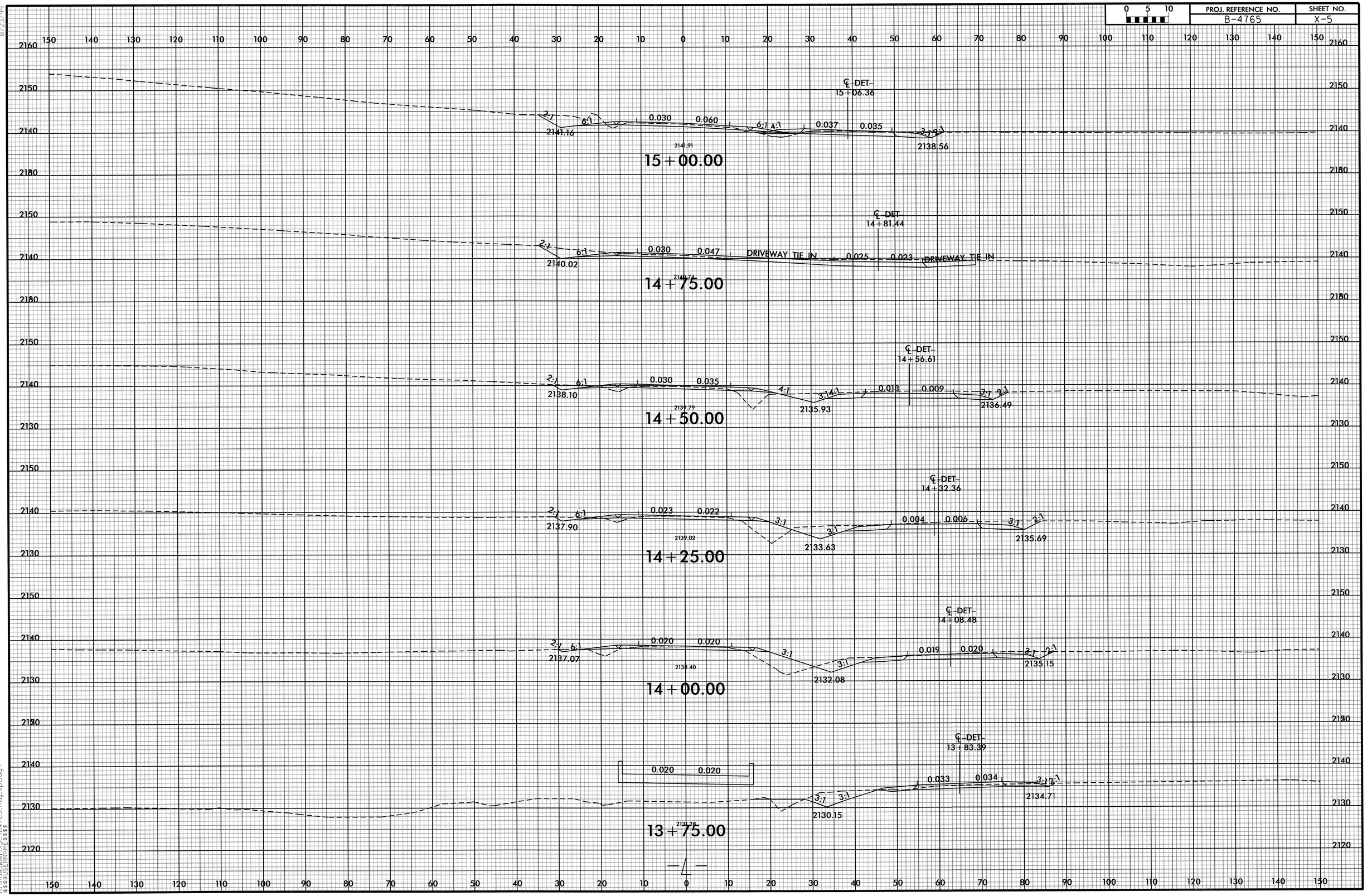

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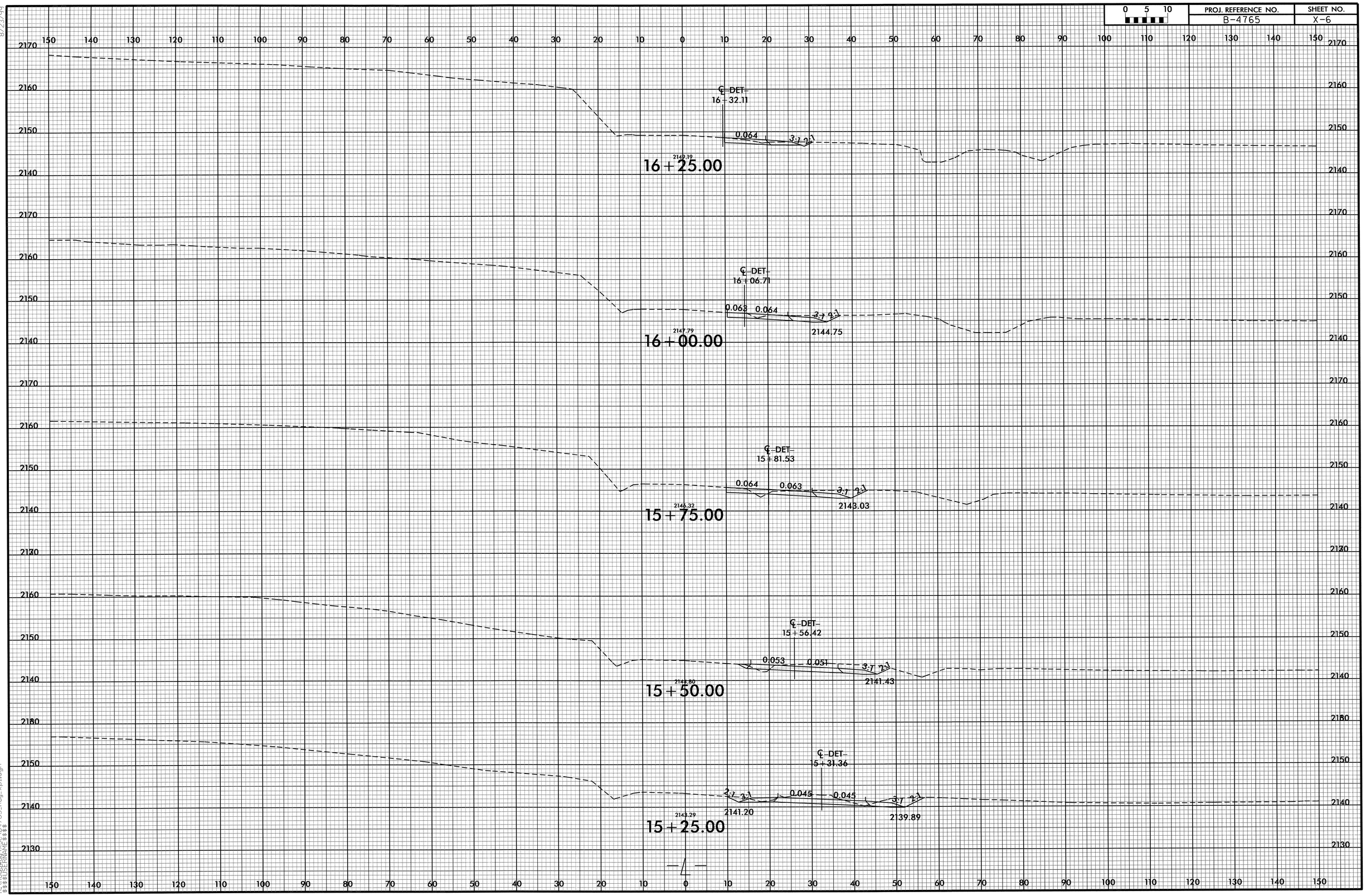
	B-4765	X-6



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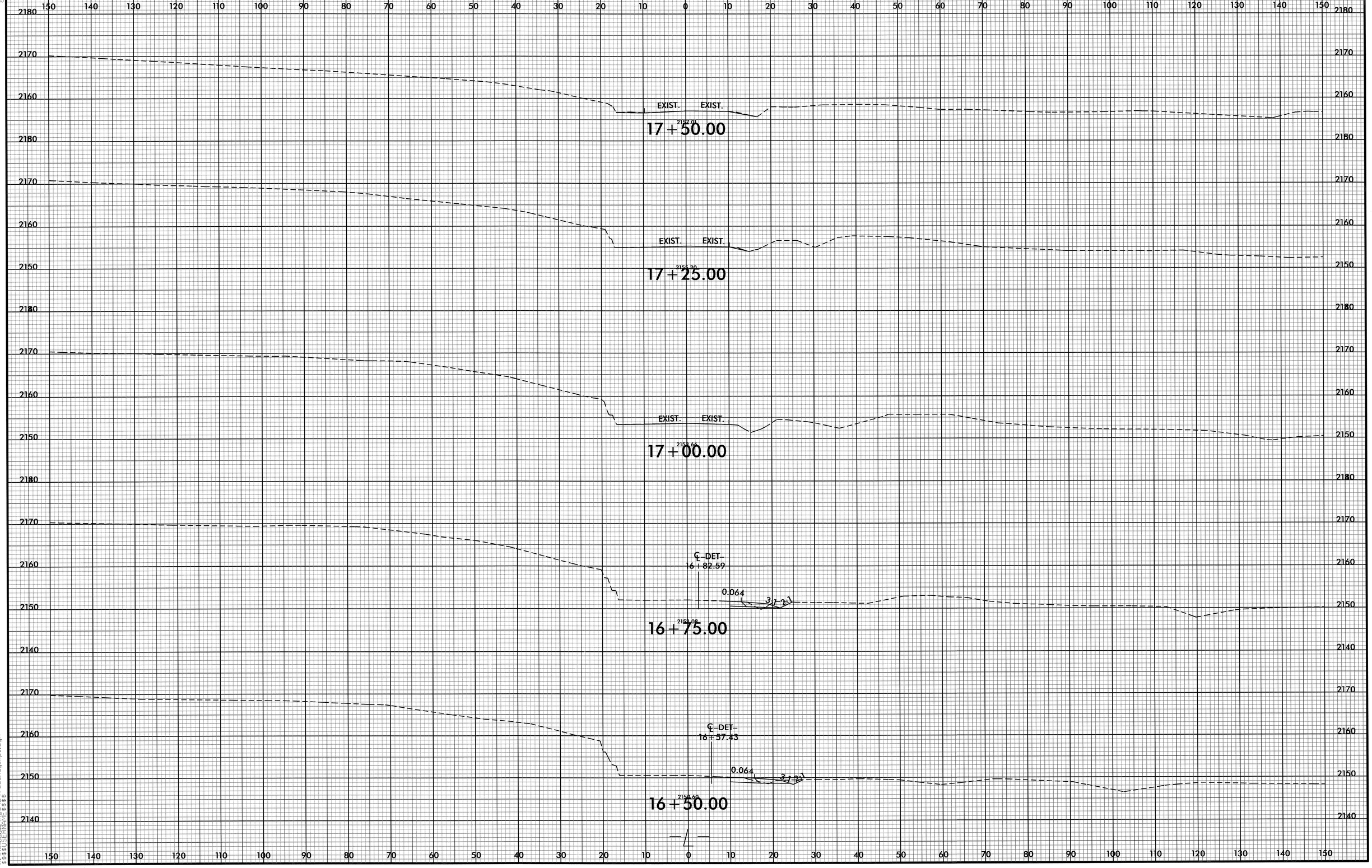
	B-4765	X-7



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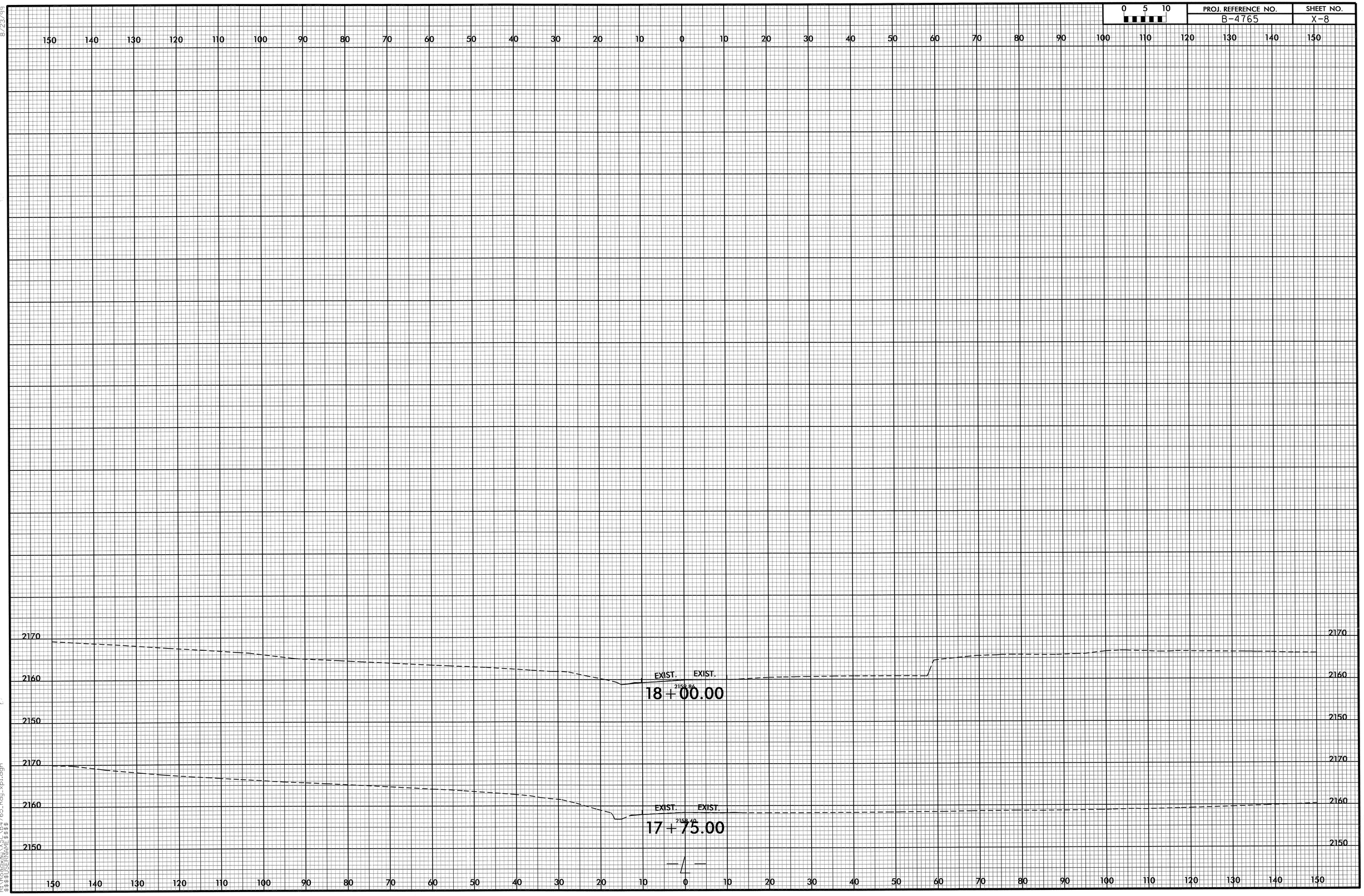
	B-4765	X-8



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