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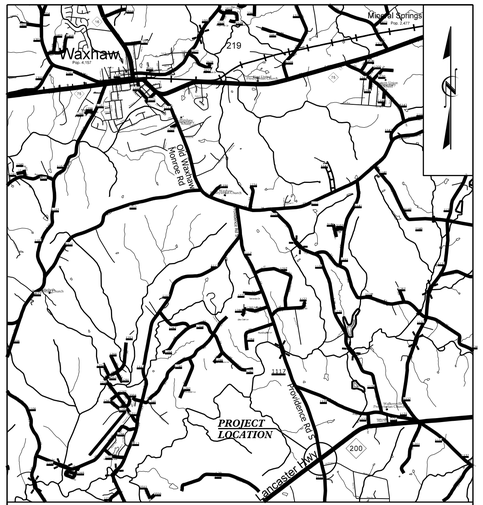
TIP PROJECT: W-5601BK

PROJECT: 50138.3.64

See Sheet 1-A For Index of Sheets



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UNION COUNTY

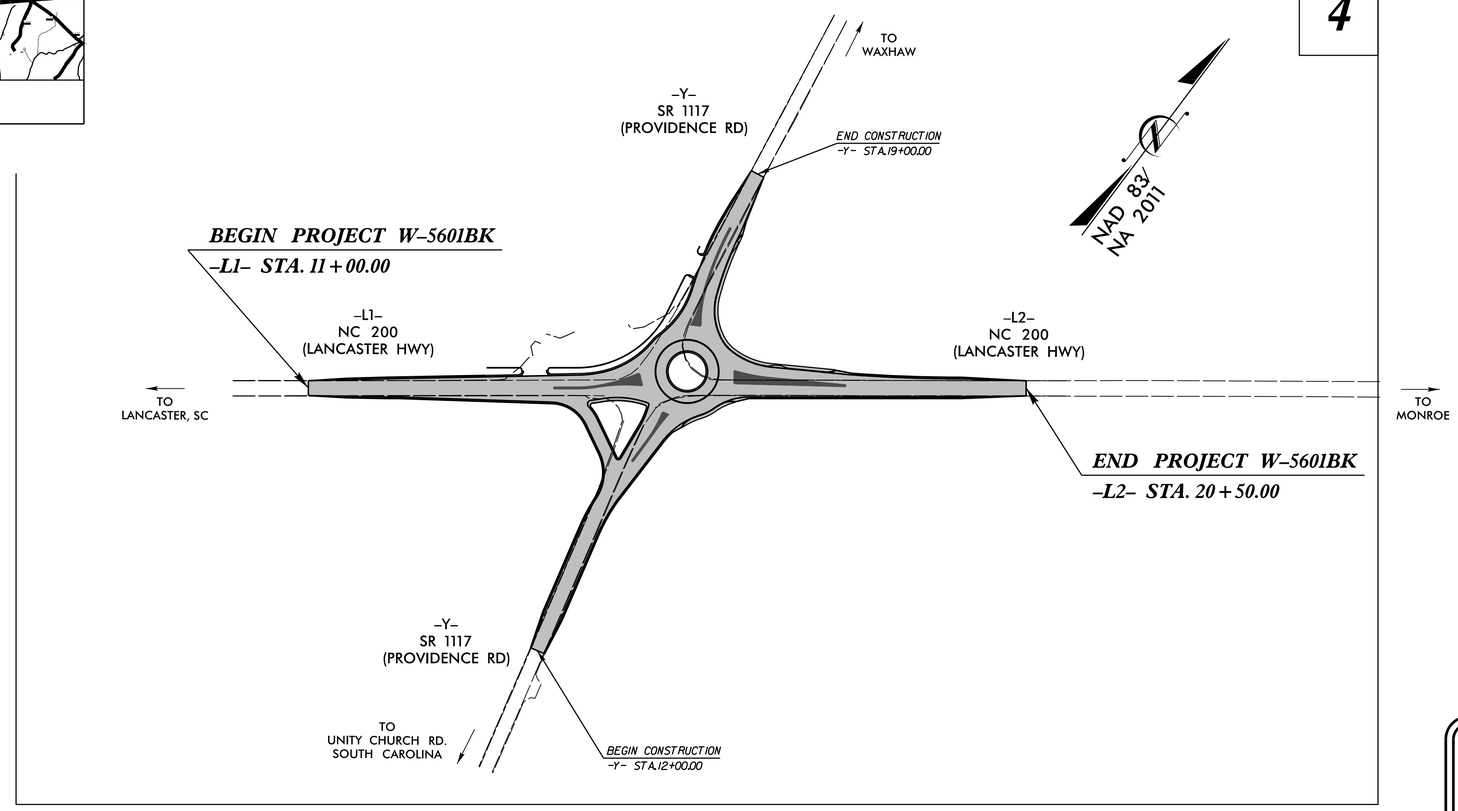
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	50138.3.64	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50138.1.64	HSIP-0200(4)	P.E.
50138.2.64	HSIP-0200(4)	R/W, UTILITIES
50138.3.64	HSIP-0200(4)	CONSTRUCTION

LOCATION: ***INTERSECTION OF NC 200 (LANCASTER HIGHWAY) AND SR 1117 (PROVIDENCE ROAD)***

TYPE OF WORK: ***GRADING, PAVING, DRAINAGE, CONCRETE CURB AND GUTTER, MONOLITHIC ISLANDS, AND PAVEMENT MARKING***

4



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NCDOT CONTACT:

DONALD GRIFFITH
DIVISION 10 DDC ENGINEER
(704) 983-4400

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

-L- ADT 2013 = 3900
-Y- ADT 2013 = 1700

FUNCT. CLASS =
RURAL COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT W-5601BK	=	0.180 MILES
TOTAL LENGTH OF STATE PROJECT W-5601BK	=	0.180 MILES

Prepared for:
DIVISION OF HIGHWAYS
DIVISION 10
By:
M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

KEVIN S. HUTCHENS, PE
PROJECT ENGINEER

ROBERT W. PORTER, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

11/28/2017
DocuSigned by:
Paul H Cameron
8382D9B8C32A0F...
P.E.
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER PAUL H. CAMERON

ROADWAY DESIGN ENGINEER

11/28/2017
DocuSigned by:
Kevin S Hutchens
793AA6A8E405444...
P.E.
SIGNATURE:

NORTH CAROLINA PROFESSIONAL SEAL 039283 ENGINEER KEVIN S. HUTCHENS

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

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8/17/99

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. WHERE NO GRADE LINES ARE SHOWN, THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISTING PAVEMENT ALONG THE CENTER LINE OF SURVEY ON WHICH THE PROPOSED RESURFACING WILL BE PLACED. GRADE LINES MAY BE ADJUSTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

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

SUPERELEVATION:

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

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

SIDE ROADS:

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

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:
POWER - Duke Energy
PHONE - Windstream
CABLE - Spectrum

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

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

2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-2018
REV.

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
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
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
846.01	Concrete Curb, Gutter and Curb & Gutter
848.04	Street Turnout
852.01	Concrete Islands
852.04	Method for Placement of Drop Inlets in Grassed Median - Using 1'-6" Curb and Gutter
876.02	Guide for Rip Rap at Pipe Outlets

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROUNDABOUT DETAIL
2B-2	PAVEMENT REMOVAL DETAIL
3B-1	SUMMARIES OF EARTHWORK, PAVEMENT REMOVAL, DRAINAGE, RIGHT OF WAY AREA DATA
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-3	TRANSPORTATION MANAGEMENT PLANS
TMP-4 THRU TMP-??	OFFSITE DETOUR PLANS (TO BE PROVIDED BY DIVISION)
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-4	EROSION CONTROL PLANS
SIGN-1 THRU SIGN-??	SIGNING PLANS (TO BE PROVIDED BY DIVISION)
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY
X-1 THRU X-12	CROSS-SECTIONS

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	1A

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039283 ENGINEER
11/28/2017

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M A Engineering Consultants, Inc.
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598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

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12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	1-B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- 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 & PROJECT CONTROL:

- Secondary Horiz and Vert Control Point
- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Exist Permanent Easment Pin and Cap
- New Permanent Easement Pin and Cap
- Vertical Benchmark
- Existing Right of Way Marker
- Existing Right of Way Line
- New Right of Way Line — RW
- New Right of Way Line with Pin and Cap — RW
- New Right of Way Line with Concrete or Granite R/W Marker — RW
- New Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- New Control of Access — CA
- Existing Easement Line — E
- New Temporary Construction Easement — E
- New Temporary Drainage Easement — TDE
- New Permanent Drainage Easement — PDE
- New Permanent Drainage / Utility Easement — DUE
- New Permanent Utility Easement — PUE
- New Temporary Utility Easement — TUE
- New Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	1C-1
Location and Surveys	

SURVEY CONTROL SHEET W5601BK

WITH EXISTING CENTERLINE ALIGNMENT PRIOR TO CONSTRUCTION

EXISTING ALIGNMENT DATA

EY

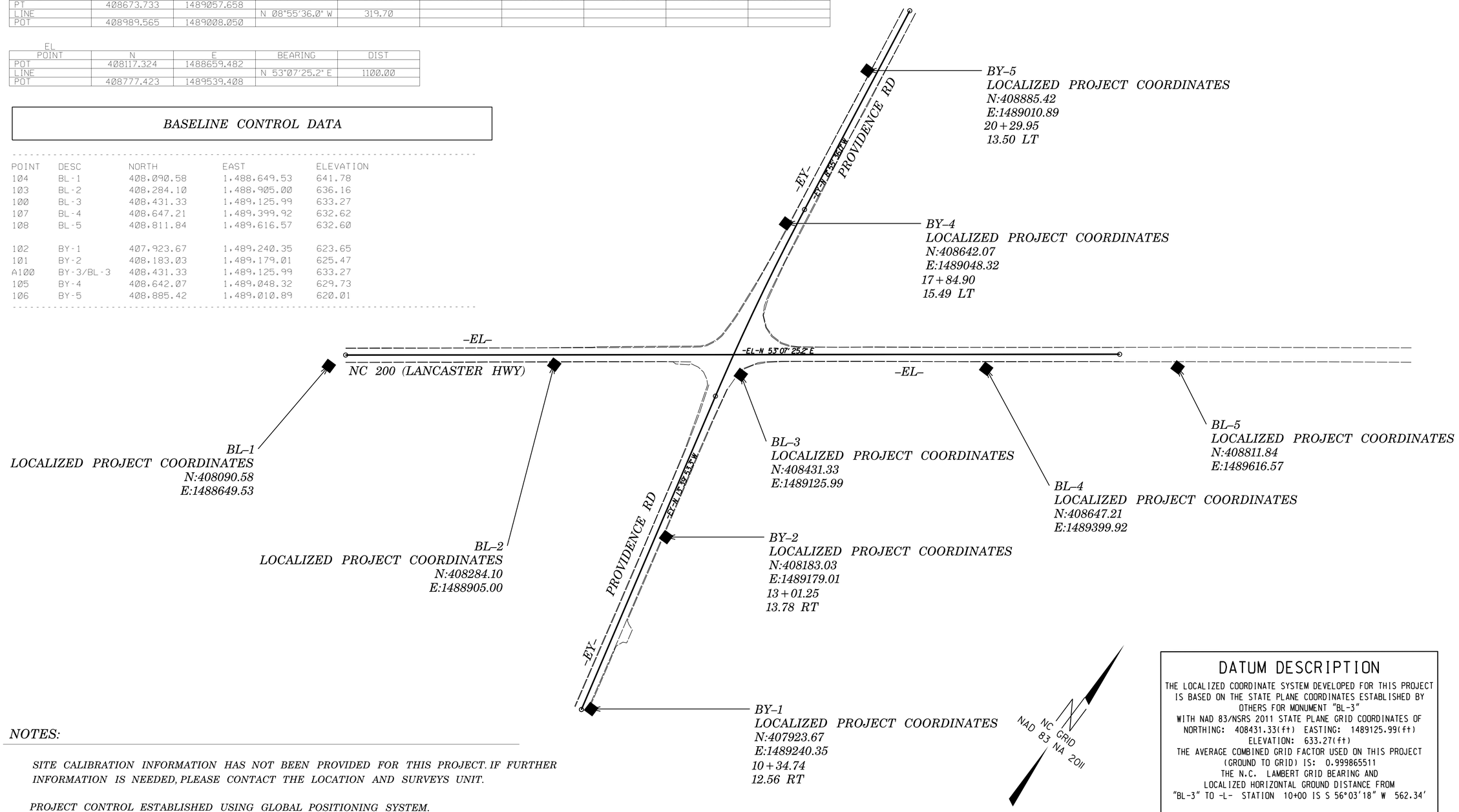
POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	407914.756	1489229.684							
LINE			N 13°39'53.3" W	484.57					
PC	408385.609	1489115.209							
CURVE			N 11°17'44.7" W	293.82	04°44'17.3"(RT)	01°36'43.8"	293.90	147.03	3553.97
PT	408673.733	1489057.658							
LINE			N 08°55'36.0" W	319.70					
POT	408989.565	1489008.050							

EL

POINT	N	E	BEARING	DIST
POT	408117.324	1488659.482		
LINE			N 53°07'25.2" E	1100.00
POT	408777.423	1489539.408		

BASELINE CONTROL DATA

POINT	DESC	NORTH	EAST	ELEVATION
104	BL-1	408,090.58	1,488,649.53	641.78
103	BL-2	408,284.10	1,488,905.00	636.16
100	BL-3	408,431.33	1,489,125.99	633.27
107	BL-4	408,647.21	1,489,399.92	632.62
108	BL-5	408,811.84	1,489,616.57	632.60
102	BY-1	407,923.67	1,489,240.35	623.65
101	BY-2	408,183.03	1,489,179.01	625.47
A100	BY-3/BL-3	408,431.33	1,489,125.99	633.27
105	BY-4	408,642.07	1,489,048.32	629.73
106	BY-5	408,885.42	1,489,010.89	620.01



NOTES:

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

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.
CONTROL ESTABLISHED FROM EXISTING NC VIRTUAL REFERENCE NETWORK

- - - - -

NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY OTHERS FOR MONUMENT "BL-3"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 408431.33(ft) EASTING: 1489125.99(ft)
ELEVATION: 633.27(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999865511
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL-3" TO -L- STATION 10+00 IS S 56°03'18" W 562.34'

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

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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	1D-1
Location and Surveys	

PROJECT SURVEYOR

PROPOSED ALIGNMENT CONTROL SHEET

L1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	408117.365	1488659.285							
LINE			N 53°06'59.7" E	455.23					
PC	408390.589	1489023.405							
CURVE			N 48°24'02.7" E	27.29	09°25'53.9"(LT)	34°30'55.9"	27.33	13.69	166.00
PT	408408.711	1489043.816							
LINE			N 43°41'05.8" E	119.09					
POT	408494.828	1489126.068							

L2

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	408494.828	1489126.068							
LINE			N 57°27'39.2" E	211.39					
PC	408608.527	1489304.271							
CURVE			N 55°17'19.4" E	151.61	04°20'39.5"(LT)	02°51'53.2"	151.64	75.86	2000.00
PT	408694.859	1489428.898							
LINE			N 53°06'59.7" E	138.49					
POT	408777.980	1489539.672							

Y

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	407886.956	1489236.298							
LINE			N 13°34'13.5" W	372.49					
PC	408249.048	1489148.896							
CURVE			N 07°07'50.8" W	56.08	12°52'45.5"(RT)	22°55'05.9"	56.20	28.22	250.00
PT	408304.693	1489141.935							
LINE			N 00°41'28.0" W	131.87					
PC	408436.551	1489140.345							
CURVE			N 13°45'55.0" W	60.00	26°08'53.9"(LT)	43°12'11.9"	60.52	30.80	132.62
PT	408494.828	1489126.068							
LINE			N 26°50'22.0" W	60.00					
PC	408548.364	1489098.978							
CURVE			N 17°51'48.3" W	137.58	17°57'07.3"(RT)	12°59'40.8"	138.15	69.65	440.92
PT	408679.316	1489056.774							
LINE			N 08°53'14.6" W	313.98					
POT	408989.530	1489008.266							

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

11/27/2017
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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	1E-1
Location and Surveys	

RIGHT OF WAY CONTROL SHEET

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4493 LAND SURVEYOR STEVEN C BAILEY

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	12+85.00	-23.83	408158.4088	1489146.2622
Y	12+85.00	-40.00	408154.6142	1489130.5420
Y	12+90.00	45.00	408179.4191	1489211.9958
Y	12+90.00	23.16	408174.2954	1489190.7689
Y	13+05.00	-23.86	408177.8427	1489141.5374
Y	13+05.00	-40.00	408174.0559	1489125.8492
Y	13+10.00	23.13	408193.7293	1489186.0441
Y	13+10.00	45.00	408198.8607	1489207.3030
Y	13+69.00	23.03	408251.0593	1489172.1058
Y	13+78.00	60.00	408267.2071	1489206.2838
Y	13+79.00	22.94	408260.1952	1489169.8847
Y	13+89.00	58.00	408275.0716	1489202.7111
Y	14+28.00	-50.00	408303.2648	1489091.9498
Y	14+28.00	-30.97	408303.5466	1489110.9758
Y	14+52.00	-48.28	408327.4212	1489093.3741
Y	18+09.00	64.00	408680.5814	1489121.4568
Y	18+13.00	30.00	408678.2226	1489087.3513
Y	18+19.00	65.00	408689.1658	1489121.0240
Y	18+23.00	29.69	408687.6300	1489085.5293

ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L1	13+05.00	-50.00	408340.4154	1488873.2321
L1	13+50.00	-35.00	408355.4260	1488918.2286
L1	13+50.00	-27.00	408349.0271	1488923.0301

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L1	13+05.00	-27.00	408322.0186	1488887.0365
L1	13+05.00	-23.31	408319.0683	1488889.2503
L1	13+50.00	23.69	408308.4790	1488953.4562
L1	14+45.00	35.00	408356.4539	1489036.2283
L1	14+55.23	-27.00	408412.1853	1489007.1996
L1	15+00.00	-30.00	408442.0459	1489034.1698
L1	15+60.00	-55.00	408502.7021	1489057.5326

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L2	16+70.00	40.43	408497.5120	1489205.4413
L2	17+05.00	-30.00	408575.7119	1489197.0646
L2	18+13.03	-30.00	408633.8173	1489288.1347
L2	19+64.67	-30.00	408718.8546	1489410.8924
L2	21+00.00	-23.21	408794.6481	1489523.2084

ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
Y	14+00.00	21.60	408278.8226	1489165.3559
Y	14+28.69	25.00	408304.9943	1489166.9333
Y	14+45.00	-34.91	408320.5831	1489106.8338
Y	15+45.00	25.00	408421.2984	1489165.5303
Y	17+00.00	-38.74	408549.4338	1489055.5167
Y	17+05.00	45.00	408588.1006	1489129.9574
Y	17+75.00	30.00	408643.6141	1489094.8123
Y	18+19.23	30.00	408683.9509	1489086.4141
Y	19+00.00	23.45	408762.7412	1489067.4659

I, Steven C Bailey, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, Property) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the property lines shown were compiled under my responsible charge from deeds and plats of record, and limited field surveys; that the existing property related markers as shown were field surveyed from existing survey control by others (see notes on control sheets); that the property lines compiled do not represent a boundary survey; that the parcels shown were compiled without the benefit of title reports and may be subject to or encumbered by easements, rights of way and other title matters not shown herein.

Witness my original signature, registration number and seal this day 11/27/2017.

DocuSigned by:
Steven C Bailey
5618A94C169843A...

Steven C. Bailey, PLS (L-4493)

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

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09/08/99

TIP PROJECT: W-5601BK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601BK	RW1	

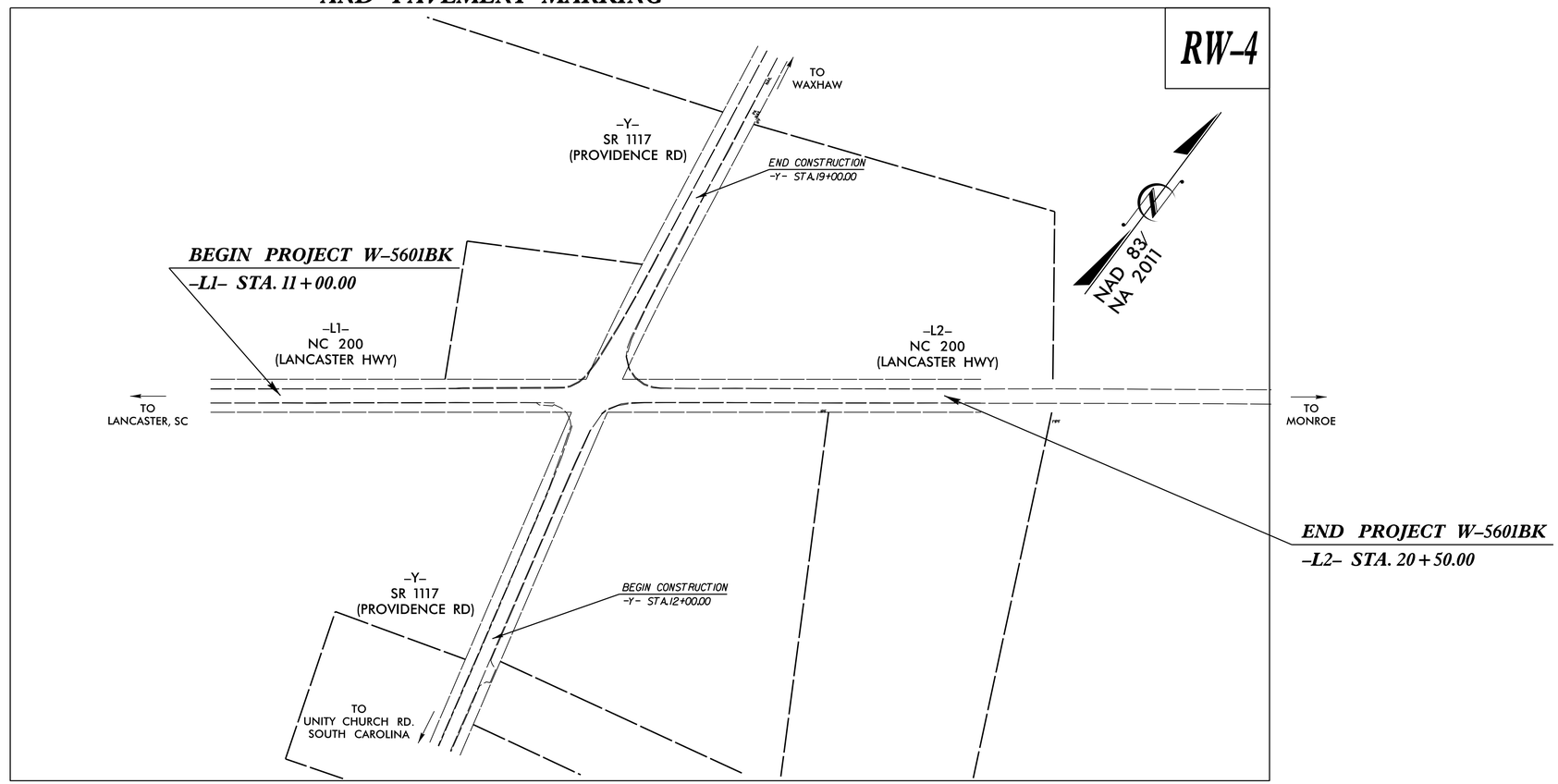
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR NEW RIGHT OF WAY, EASEMENTS, AND PROPERTY TIES

UNION COUNTY

LOCATION: INTERSECTION OF NC 200 (LANCASTER HIGHWAY) AND SR 1117 (PROVIDENCE ROAD)
TYPE OF WORK: GRADING, PAVING, DRAINAGE, CONCRETE CURB AND GUTTER, MONOLITHIC ISLANDS, AND PAVEMENT MARKING



DESIGN DATA

-L- ADT 2013 = 3900
-Y- ADT 2013 = 1700

FUNCT. CLASS = RURAL COLLECTOR

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT W-5601BK	=	0.180 MILES
TOTAL LENGTH OF STATE PROJECT W-5601BK	=	0.180 MILES

Prepared for:
DIVISION OF HIGHWAYS
DIVISION 10
By:
M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

2012 STANDARD SPECIFICATIONS

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4493 LAND SURVEYOR STEVEN C. BAILEY

11/27/2017

DocuSigned by:
Steven C Bailey
0618A94C169843A...

SIGNATURE: P.L.S.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

11/27/2017
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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	RW-4

Location and Surveys

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4493 LAND SURVEYOR STEVEN C BAILEY

I, Steven C Bailey, a Professional Land Surveyor in the state of North Carolina hereby certify to the best of my knowledge and belief that the following work item(s) (Base map Compilation, Property) performed under my responsible charge meet NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures.

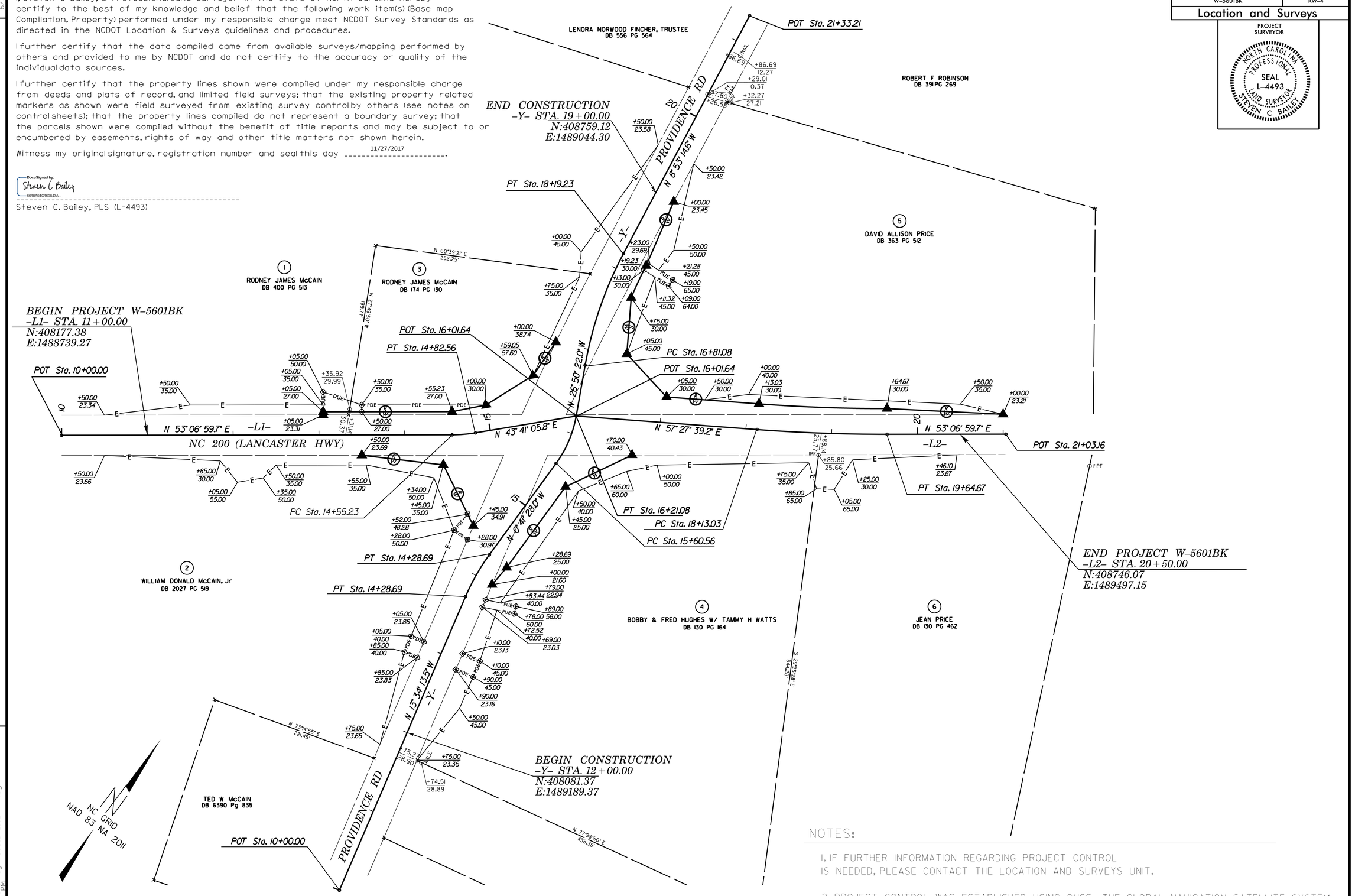
I further certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

I further certify that the property lines shown were compiled under my responsible charge from deeds and plats of record, and limited field surveys; that the existing property related markers as shown were field surveyed from existing survey control by others (see notes on control sheets); that the property lines compiled do not represent a boundary survey; that the parcels shown were compiled without the benefit of title reports and may be subject to or encumbered by easements, rights of way and other title matters not shown herein.

Witness my original signature, registration number and seal this day 11/27/2017.

DocuSigned by: Steven C Bailey
5618A94C169843A...

Steven C. Bailey, PLS (L-4493)



NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.

REVISIONS

6/2/99

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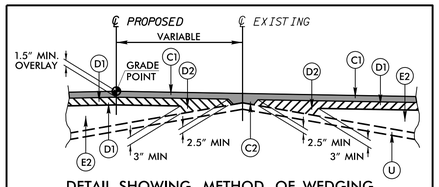
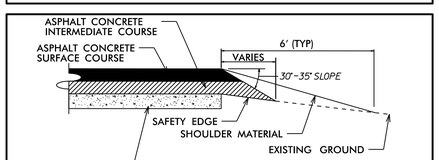
7/2/99

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YARD IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE,TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH, TO BE PLACED IN LAYERS NOT LESS THAT 2.5" IN DEPTH OR GREATER THAN 4" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YARD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5.5" IN DEPTH.
R1	2'-6" CONCRETE CURB & GUTTER
R2	1'-6" CONCRETE CURB & GUTTER, CLASS AA CONCRETE
R3	1'-6" CONCRETE CURB & GUTTER W/ BLACK TINT, CLASS AA CONCRETE
R4	7" TRUCK MOUNTABLE CONCRETE APRON, CLASS AA CONCRETE
R5	7" TRUCK MOUNTABLE CONCRETE APRON W/ BLACK TINT, CLASS AA CONCRETE
R6	PROPOSED 5" MONOLITHIC CONCRETE ISLAND (SURFACE MOUNTED)
R7	PROPOSED 8" x 18" CHANNELIZATION CURB
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING (SEE WEDGING DETAIL)

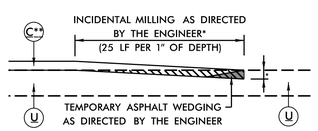


DETAIL SHOWING METHOD OF WEDGING



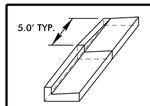
SHOULDER WEDGE DETAIL

MILLED BUTT JOINT TIE-IN DETAIL



* MILL DEPTH AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER

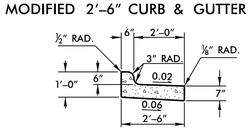
** SEE TYPICALS FOR MIX TYPE

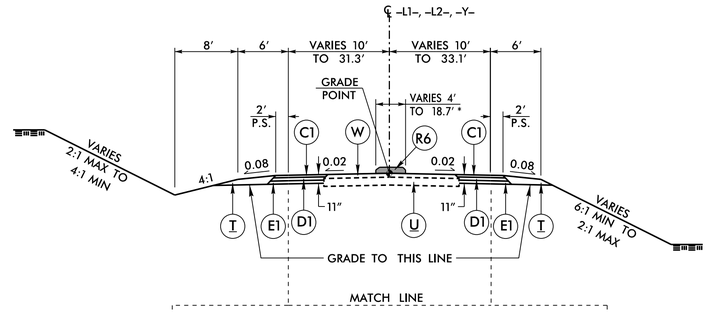


DETAIL FOR NOSE DOWN TRANSITION FOR 2'-6" CURB & GUTTER

TO BE USED AT BEGIN OR END OF 2'-6" CURB & GUTTER AS DIRECTED BY THE ENGINEER.

MODIFIED 2'-6" CURB & GUTTER DETAIL





TYPICAL SECTION #1

USE TYPICAL SECTION NO. 1:

FROM -L1- STA. 11+00 TO STA. 15+41.64
FROM -L2- STA. 16+01.64 TO STA. 20+50

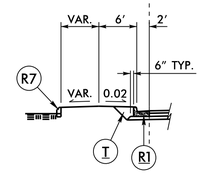
FROM -Y- STA. 12+00 TO STA. 15+60.56
FROM -Y- STA. 16+81.08 TO STA. 19+00

USE TYPICAL SECTION #1 WITH FULL DEPTH NEW PAVEMENT IN LIEU OF WEDGING & WIDENING:

-L2- STA. 16+70 +/- TO 17+60 +/- (GRADE POINT UNDERCUT)
-Y- STA. 13+00 +/- TO 15+60.56

* - SEE PLANS AND DETAILS FOR MONOLITHIC CONCRETE ISLAND LOCATIONS AND PLACEMENT.

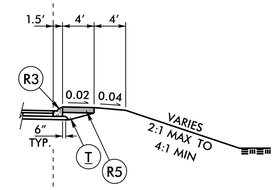
MATCH LINE



TYPICAL SECTION #1-A

USE TYPICAL SECTION NO. 1-A IN CONJUNCTION WITH TYPICAL SECTIONS #1 & #2:

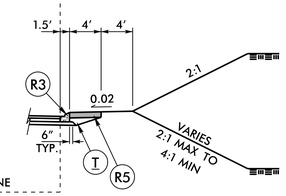
FROM -L1- STA. 13+35.00 TO STA. 15+68.21 LT
FROM -Y- STA. 16+56.90 TO STA. 17+86.00 LT



TYPICAL SECTION #1-B

USE TYPICAL SECTION NO. 1-B IN CONJUNCTION WITH TYPICAL SECTIONS #1 & #2:

FROM -L2- STA. 16+31.95 TO STA. 16+68.11 RT
FROM -Y- STA. 15+55.08 TO STA. 15+83.78 RT

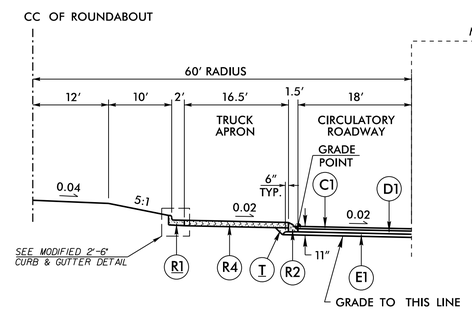


TYPICAL SECTION #1-C

USE TYPICAL SECTION NO. 1-C IN CONJUNCTION WITH TYPICAL SECTIONS #1 & #2:

FROM -L2- STA. 16+48.00 TO STA. 17+98.00 LT
FROM -Y- STA. 16+65.45 TO STA. 18+20.00 RT

MATCH LINE



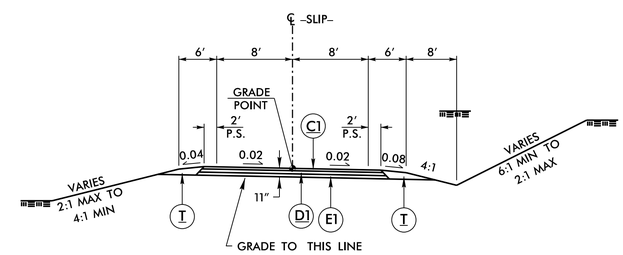
TYPICAL SECTION #2

ROUNDABOUT

USE TYPICAL SECTION NO. 2:

WITH GRADE POINT ELEVATION = 635.36'

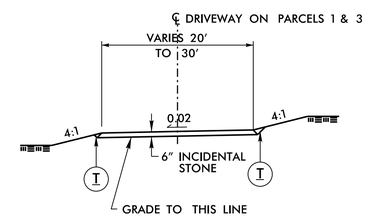
NOTE: SEE TYPICAL SECTIONS #1, #1-A, #1-B, & #1-C FOR METHOD OF CURB/SHOULDER & SLOPE CONSTRUCTION.



TYPICAL SECTION #3

USE TYPICAL SECTION NO. 3:

FROM -SLIP- STA. 12+30.06 TO STA. 13+36.72



TYPICAL SECTION #4

CONSTRUCT DRIVEWAY AS SHOWN ON PLANS AND AS DIRECTED BY ENGINEER TO FOLLOW EXISTING GRADE AS CLOSE AS POSSIBLE WHILE MAINTAINING EXISTING DRAINAGE PATTERNS.

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 39283 ENGINEER
DocuSigned by: Kevin S. Hutchens
1/30/2018

PAVEMENT DESIGN ENGINEER

PAVEMENT DESIGN FOR THIS PROJECT WAS PROVIDED BY THE DIVISION OFFICE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

1/30/2018
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FHWA

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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	2B-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039283 ENGINEER MARK SHUMATE CHENG

DocuSigned by: 793A6A6A6E4E444...

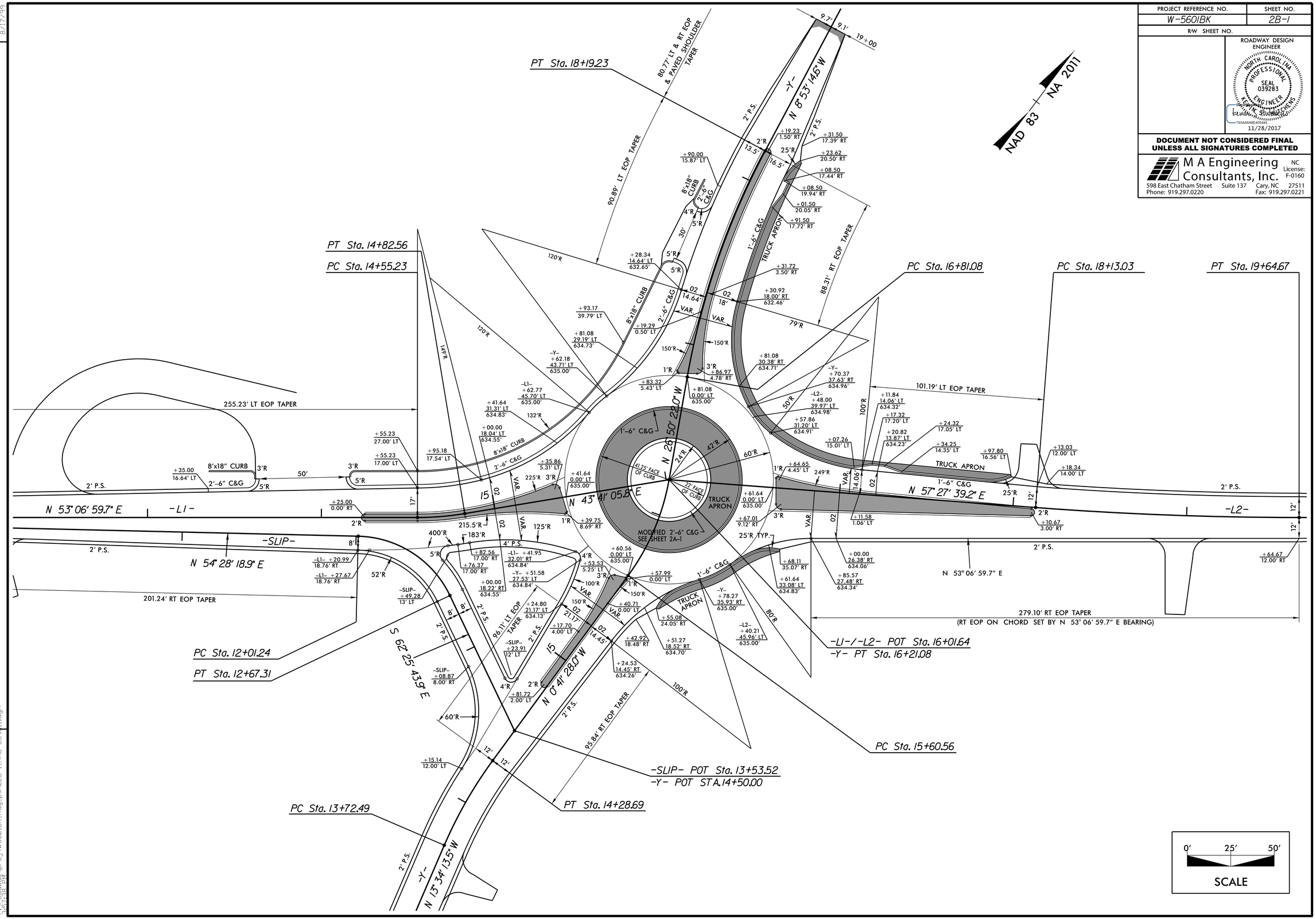
11/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

REVISIONS

8/17/99



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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	2B-2
R/W SHEET NO.	

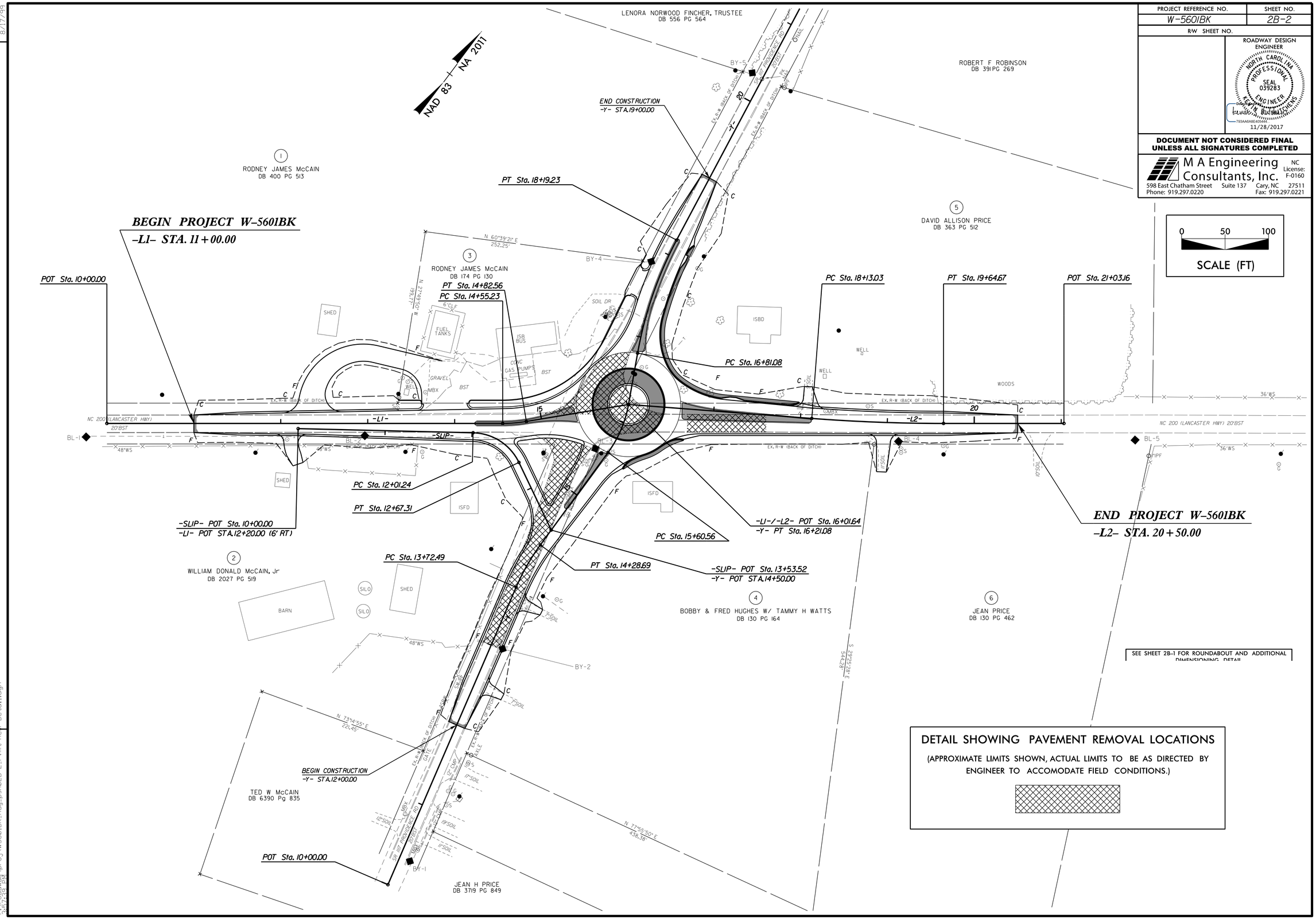
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 039283 ENGINEER

DocuSigned by: Kevin B. Matthews
793A6A8B4E8B4AB...
11/28/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221



DETAIL SHOWING PAVEMENT REMOVAL LOCATIONS

(APPROXIMATE LIMITS SHOWN, ACTUAL LIMITS TO BE AS DIRECTED BY ENGINEER TO ACCOMODATE FIELD CONDITIONS.)

8/17/99
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12/05/07

COMPUTED BY: KSH	DATE: 02-22-17
CHECKED BY: RWP	DATE: 10-20-17

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	3B-1

SUMMARY OF EARTHWORK

STATION TO STATION	UNCLASS. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-L1- STA. 11+00.00 TO 16+01.64	308		375	129	62
-L2- STA. 16+01.64 TO 20+50.00	275		399	179	55
ROUNDABOUT ISLAND (ESTIMATED)			354	354	
-Y- 12+00.00 TO 15+51.27	73		1,647	1,589	15
-Y- STA. 16+81.08 TO 19+00.00	370		56		314
-SLIP- STA. 12+30.06 TO 13+36.72	53		209	167	11
SUBTOTALS:	1,079		3,040	2,418	457
WASTE TO REPLACE BORROW:				-240	-240
EST. LOSS DUE TO CLEARING & GRUBBING	-30			30	
EST. SHOULDER MATERIAL			420	420	
PROJECT TOTALS:	1,049		3,460	2,628	217
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT:				132	
GRAND TOTALS:	1,049		3,460	2,760	217
SAY:	1,100			2,800	

EST. DRAINAGE DITCH EXCAVATION = 85 CY

THE FOLLOWING QUANTITIES ARE PER THE "ROADWAY SUBSURFACE INVESTIGATION – RECOMMENDATIONS" LETTER DATED MAY 2, 2017:

ESTIMATED SHALLOW UNDERCUT = 400 CY (CONTIGENCY, AS DIRECTED BY THE ENGINEER)

ESTIMATED CLASS IV SUBGRADE STABILIZATION = 800 TONS (CONTINGENCY, FOR SHALLOW UNDERCUT AREAS, AS DIRECTED BY THE ENGINEER)

ESTIMATED GEOTEXTILE FOR SOIL STABILIZATION = 1,200 SY (CONTINGENCY, AS DIRECTED BY THE ENGINEER)

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.

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

RIGHT OF WAY AREA DATA

PARCEL NUMBER	PROPERTY OWNERS NAMES	TOTAL ACREAGE	AREA TAKEN	AREA REMAINING RIGHT	AREA REMAINING LEFT	TEMPORARY CONSTRUCTION EASEMENT (E)	PERMANENT DRAINAGE EASEMENT (PDE)	PERMANENT UTILITY EASEMENT (PUE)	PERMANENT DRAINAGE / UTILITY EASEMENT (DUE)
1	RODNEY JAMES McCAIN	13.17 AC	112 SF		13.17 AC	4,327 SF			559 SF
2	WILLIAM DONALD McCAIN, Jr	19.57 AC (GIS)	3629 SF	19.49 AC		0.20 AC	654 SF		
3	RODNEY JAMES McCAIN	42,253 SF	2343 SF		39,910 SF	910 SF	984 SF		140 SF
4	BOBBY & FRED HUGHES W/TAMMY H WATTS	4.18 AC (GIS)	0.11 AC	4.07 AC		0.21 AC	437 SF	330 SF	
5	DAVID ALLISON PRICE	4.28 AC (GIS)	0.27 AC		4.01 AC	0.13 AC		315 SF	
6	JEAN PRICE	4.15 AC				1682 SF			

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	SY
-Y-	13+00	15+53	CL /LT	672
-Y-	16+09	16+81	LT	440
-L1- /-L2-	15+59	16+43	RT	172
-L2-	16+70	17+60	RT	208
			TOTAL:	1,492
			SAY:	1,500

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

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) SIZE 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | C.S. PIPE (UNLESS NOTED OTHRWISE) THICKNESS OR GAUGE 12" .064 | 15" .064 | 18" .064 | 24" .064 | 30" .079 | 36" .079 | 42" .109 | 48" .109 | CLASS III R.C. PIPE (UNLESS OTHERWISE NOTED) 15" * CLASS-IV | 15" * CLASS-IV | 18" * CLASS-IV | 18" * CLASS-IV | | | | 15" SIDE DRAIN PIPE | 18" SIDE DRAIN PIPE | 24" 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. 5.0' THRU 10.0' A | 10.0' AND ABOVE B | STD. 840.02 OR STD. 840.01 C.B. STD. 840.01 | FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E | F | G | | STD. 840.15 D.I. STD. 840.14 OR | STD. 840.16 D.I. FRAME & GRATE STD. 840.16 | STD. 840.17 OR 840.26 G.D.I. TYPE "A" STD. 840.17 OR | STD. 840.18 OR 840.27 G.D.I. TYPE "B" STD. 840.18 OR | STD. 840.19 OR 840.28 G.D.I. TYPE "D" STD. 840.19 OR | STD. 840.22 G.D.I. FRAME WITH GRATE STD. 840.22 | STD. 840.22 G.D.I. FRAME WITH TWO GRATES STD. 840.22 | STD. 840.24 G.D.I. FRAME WITH GRATE STD. 840.24 | STD. 840.24 G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24 | STD. 840.29 G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.29 | | 840.32 J.B. STD. 840.31 OR 840.32 | T.B.J.B. STD. 840.34 | T.B.D.I. STD.840.35 | STD. 840.54 MANHOLE FRAME AND COVER STD. 840.54 | | | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD. 840.72 | CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---|---|---|---|---|---|---|---

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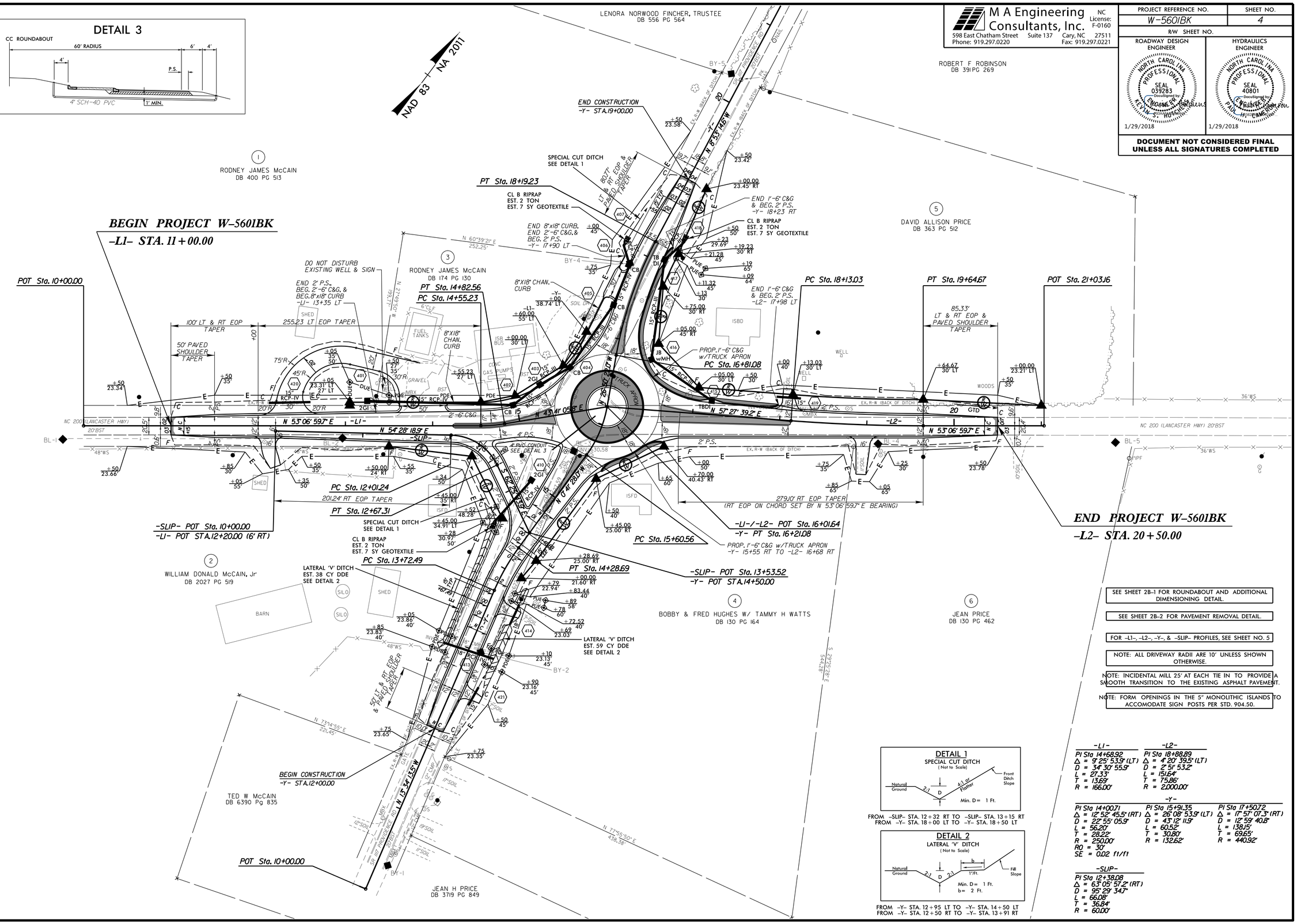
M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 039283 — DocuSigned by: Kevin S. Hudson — 1/29/2018

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 40801 — DocuSigned by: Paul M. Cameron — 1/29/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



FROM -SLIP- STA. 12+32 RT TO -SLIP- STA. 13+15 RT
FROM -Y- STA. 18+00 LT TO -Y- STA. 18+50 LT

FROM -Y- STA. 12+95 LT TO -Y- STA. 14+50 LT
FROM -Y- STA. 12+50 RT TO -Y- STA. 13+91 RT

SEE SHEET 2B-1 FOR ROUNDABOUT AND ADDITIONAL DIMENSIONING DETAIL.

SEE SHEET 2B-2 FOR PAVEMENT REMOVAL DETAIL.

FOR -L1-, -L2-, -Y-, & -SLIP- PROFILES, SEE SHEET NO. 5

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS SHOWN OTHERWISE.

NOTE: INCIDENTAL MILL 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

NOTE: FORM OPENINGS IN THE 5" MONOLITHIC ISLANDS TO ACCOMODATE SIGN POSTS PER STD. 904.50.

-L1-
PI Sta 14+68.92
Δ = 9° 25' 53.9" (LT)
D = 34° 30' 55.9"
L = 27.33'
T = 13.69'
R = 166.00'

-L2-
PI Sta 18+88.89
Δ = 4° 20' 39.5" (LT)
D = 2° 51' 53.2"
L = 151.64'
T = 75.86'
R = 2,000.00'

-Y-
PI Sta 14+00.71
Δ = 12° 52' 45.5" (RT)
D = 22° 55' 05.9"
L = 56.20'
T = 28.22'
R = 250.00'
R0 = 30'
SE = 0.02 ft/ft

PI Sta 15+91.35
Δ = 26° 08' 53.9" (LT)
D = 43° 12' 11.9"
L = 60.52'
T = 30.80'
R = 132.62'

PI Sta 17+50.72
Δ = 17° 57' 07.3" (RT)
D = 12° 59' 40.8"
L = 138.15'
T = 69.65'
R = 440.92'

-SLIP-
PI Sta 12+38.08
Δ = 6.3° 05' 57.2" (RT)
D = 95° 29' 34.7"
L = 66.08'
T = 36.84'
R = 60.00'

REVISIONS

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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	5

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 039283 ENGINEER
DocuSigned by: Kevin W. Buchanan
793AA6AA5E407444...
11/28/2017

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER
DocuSigned by: Paul R. Cameron
838209B58C932406...
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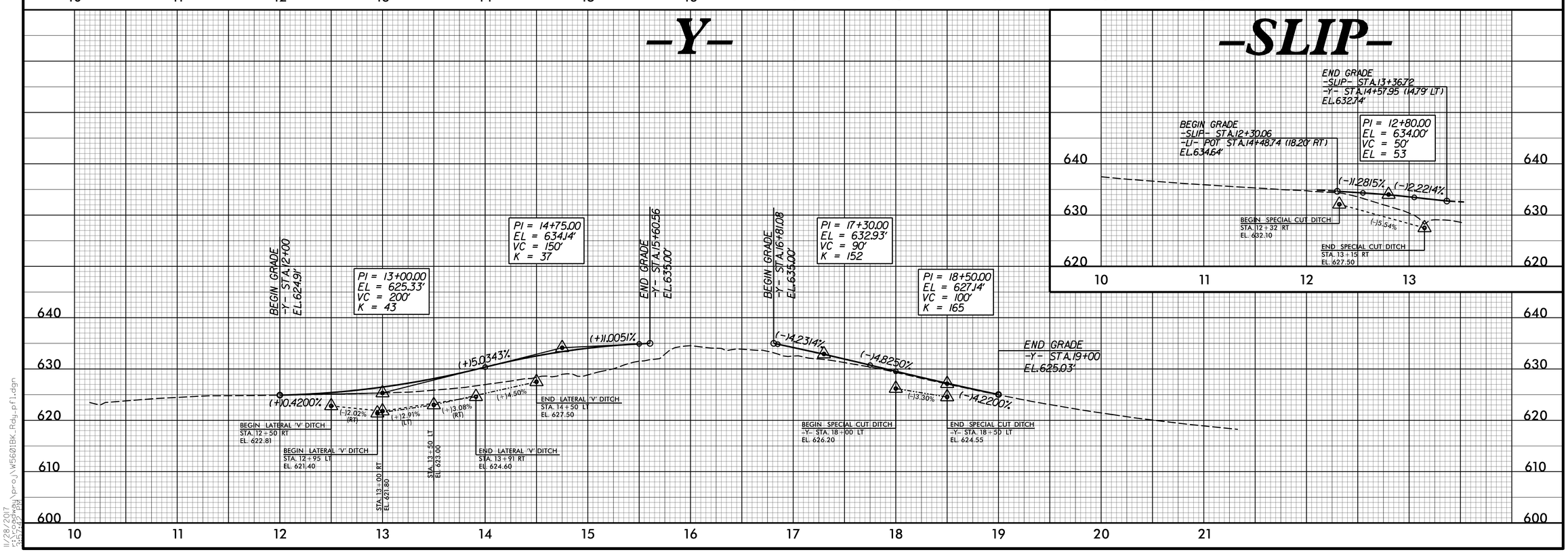

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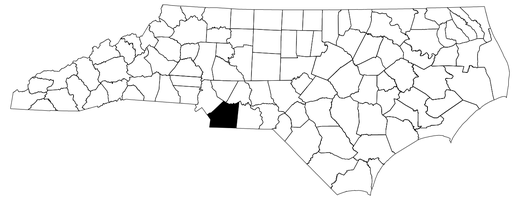
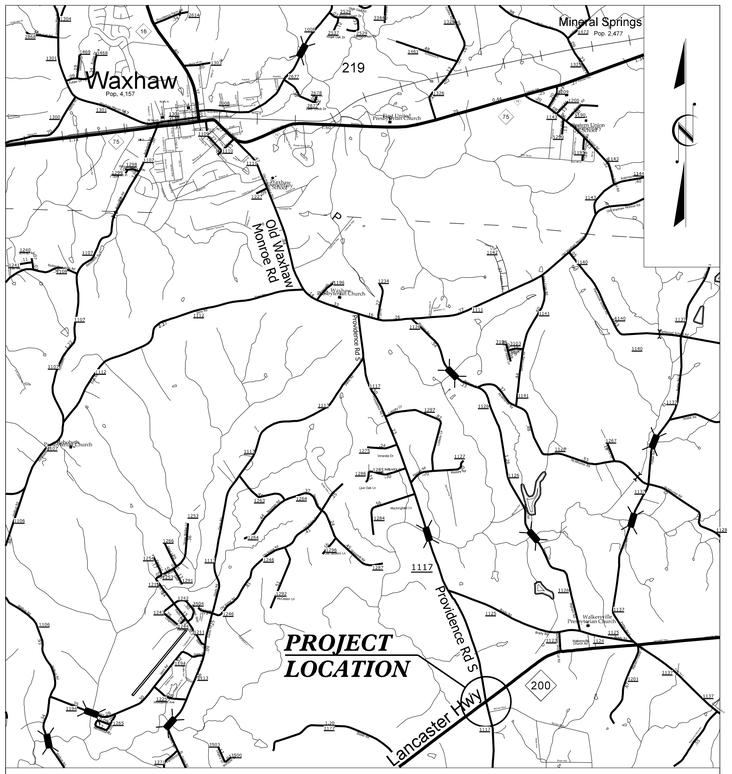
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

UNION COUNTY

LOCATION: INTERSECTION OF NC 200 (LANCASTER HIGHWAY) AND SR 1117 (PROVIDENCE ROAD)





VICINITY MAP
(NOT TO SCALE)

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	ROADWAY STANDARD DRAWINGS/LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN
TMP-2	TEMPORARY TRAFFIC CONTROL PHASE I
TMP-3	TEMPORARY TRAFFIC CONTROL PHASE II

SHEET NO.
TMP-1

W-5601BK

TIP PROJECT:

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

NCDOT CONTACT:

DONALD GRIFFITH
DIVISION 10 DDC ENGINEER
(704) 983-4400

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

PLAN PREPARED FOR N.C.D.O.T. BY:

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
919-872-5115 Tel. 919-878-5416 Fax.
www.rameykemp.com

W. Jason Hamilton, P.E.
TRAFFIC CONTROL PROJECT MANAGER

NICK E. BURNS
TRAFFIC CONTROL PROJECT ENGINEER

APPROVED: DocuSigned by: William J. Hamilton A0660D704648484...
DATE: 12/4/2017

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

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PROJ. REFERENCE NO.	SHEET NO.
W-5601BK	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1180.01	SKINNY-DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

LEGEND

GENERAL

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

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

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www.rameykemp.com

APPROVED: DocuSigned by: William J. Hamilton A0560D706B6B4B4...

DATE: 12/4/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS & LEGEND

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W-5601BK	TMP-1B

GENERAL NOTES

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

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

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

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

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

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

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

F) DO NOT INSTALL MORE THAN ONE SIMULTANEOUS LANE CLOSURES IN ANY ONE DIRECTION ON Lancaster Highway.

PAVEMENT EDGE DROP OFF REQUIREMENTS

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

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

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

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

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

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

K) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 200 FT IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

PAVEMENT MARKINGS AND MARKERS

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

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

N) TRACE THE PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO INSTALLATION. PLACE DRUMS TO DELINEATE ANY PROPOSED MONOLITHIC ISLANDS BEFORE INSTALLATION

PHASING NOTES

PHASE I (SEE SHEET TMP-2)

1) PRIOR TO ANY CONSTRUCTION OPERATIONS, ENSURE THAT OFF-SITE DETOUR SIGNING FOR -Y- SR 1117 (PROVIDENCE ROAD) IS INSTALLED BY OTHERS.

2) USING NCDOT ROADWAY STANDARD DRAWING 1101.01, INSTALL ADVANCE WARNING SIGNS ON -L- AND ALL -Y- LINES.

3) USING NCDOT ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 OF 15, AS NECESSARY. BEGIN PROPOSED CONSTRUCTION, INCLUDING DRAINAGE, UP TO BUT NOT INCLUDING FINAL LAYER OR SURFACE COURSE AT THE FOLLOWING LOCATIONS:

-Y- STA. 12+00+/- TO SOUTH OF NC 200 (LANCASTER HIGHWAY)
-Y- STA. 19+00+/- TO NORTH OF NC 200 (LANCASTER HIGHWAY)
(WORK CAN BE DONE CONCURRENTLY ON BOTH SIDES OF -L2 IN THIS PHASE)

PHASE II (SEE SHEET TMP-3)

NOTE: COMPLETE THE WORK IN PHASE II DURING A 3 WEEK DETOUR. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

1) PRIOR TO ANY CONSTRUCTION OPERATIONS, ENSURE THAT OFF-SITE DETOUR SIGNING FOR -L1- & -L2- NC 200 (LANCASTER HIGHWAY) IS INSTALLED BY OTHERS.

2) CLOSE -L1- & -L2- NC 200 (LANCASTER HIGHWAY) PER PLANS PREPARED BY OTHERS.

3) USING NCDOT ROADWAY STANDARD DRAWING 1101.02, SHEETS 3 OF 15, AS NECESSARY. BEGIN PROPOSED CONSTRUCTION, INCLUDING DRAINAGE, UP TO AND INCLUDING FINAL LAYER OR SURFACE COURSE AT THE FOLLOWING LOCATIONS:

-L1- STA. 11+00+/- TO -L2- STA. 20+50+/-
-Y- STA. 12+00+/- TO STA. 19+00+/-

PHASE III

UPON COMPLETION OF FINAL SURFACE COURSE, PLACE FINAL PAVEMENT MARKINGS AS SHOWN IN PAVEMENT MARKING PLANS, REMOVE ALL TRAFFIC CONTROL DEVICES INCLUDING DETOURS AND PLACE TRAFFIC INTO FINAL TRAFFIC PATTERN.

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www.rameykemp.com

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DATE: 12/4/2017
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

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

TRANSPORTATION OPERATIONS PLAN

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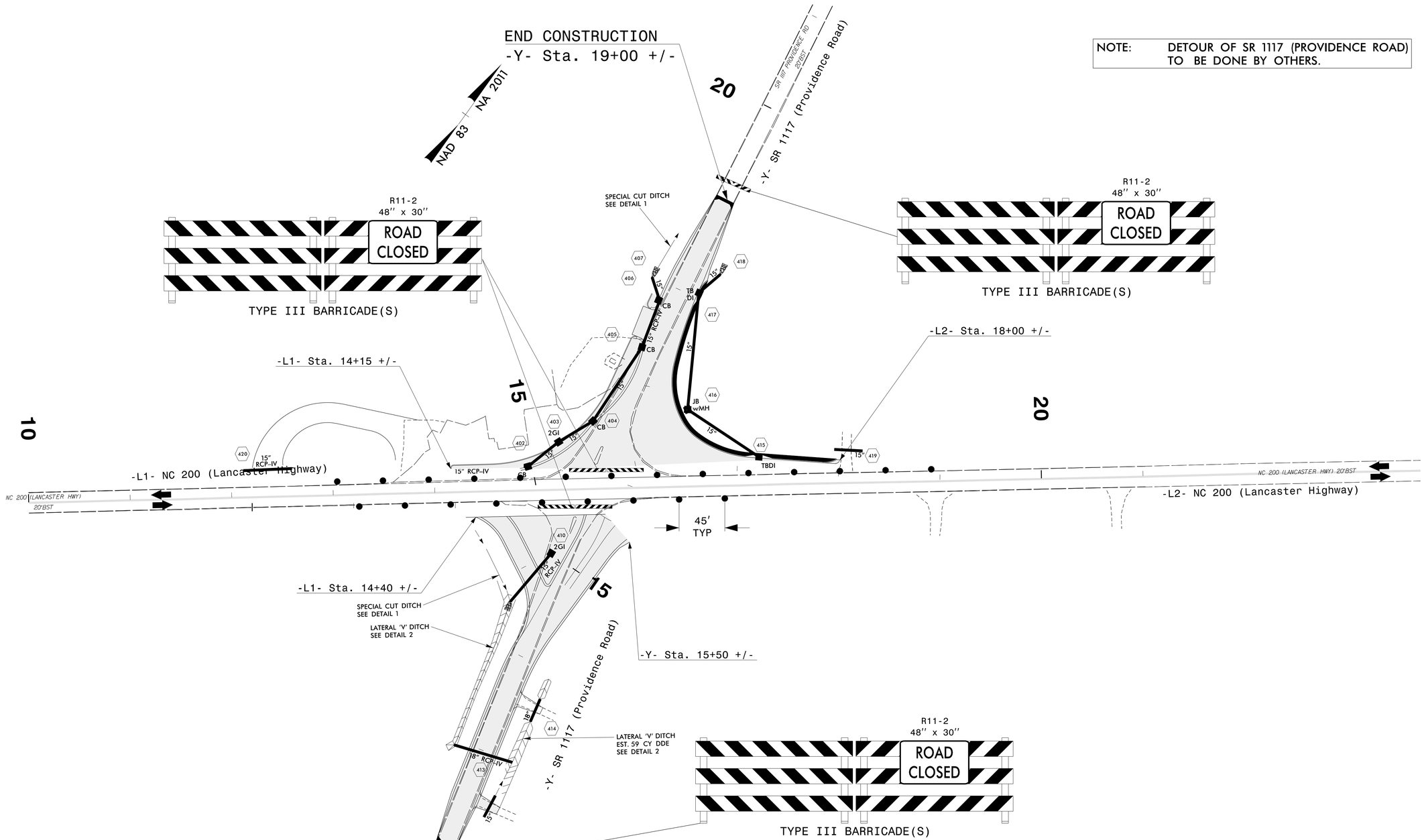
PROJ. REFERENCE NO.	SHEET NO.
W-5601BK	TMP-2

NOTE: DETOUR OF SR 1117 (PROVIDENCE ROAD) TO BE DONE BY OTHERS.



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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

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

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PHASE I

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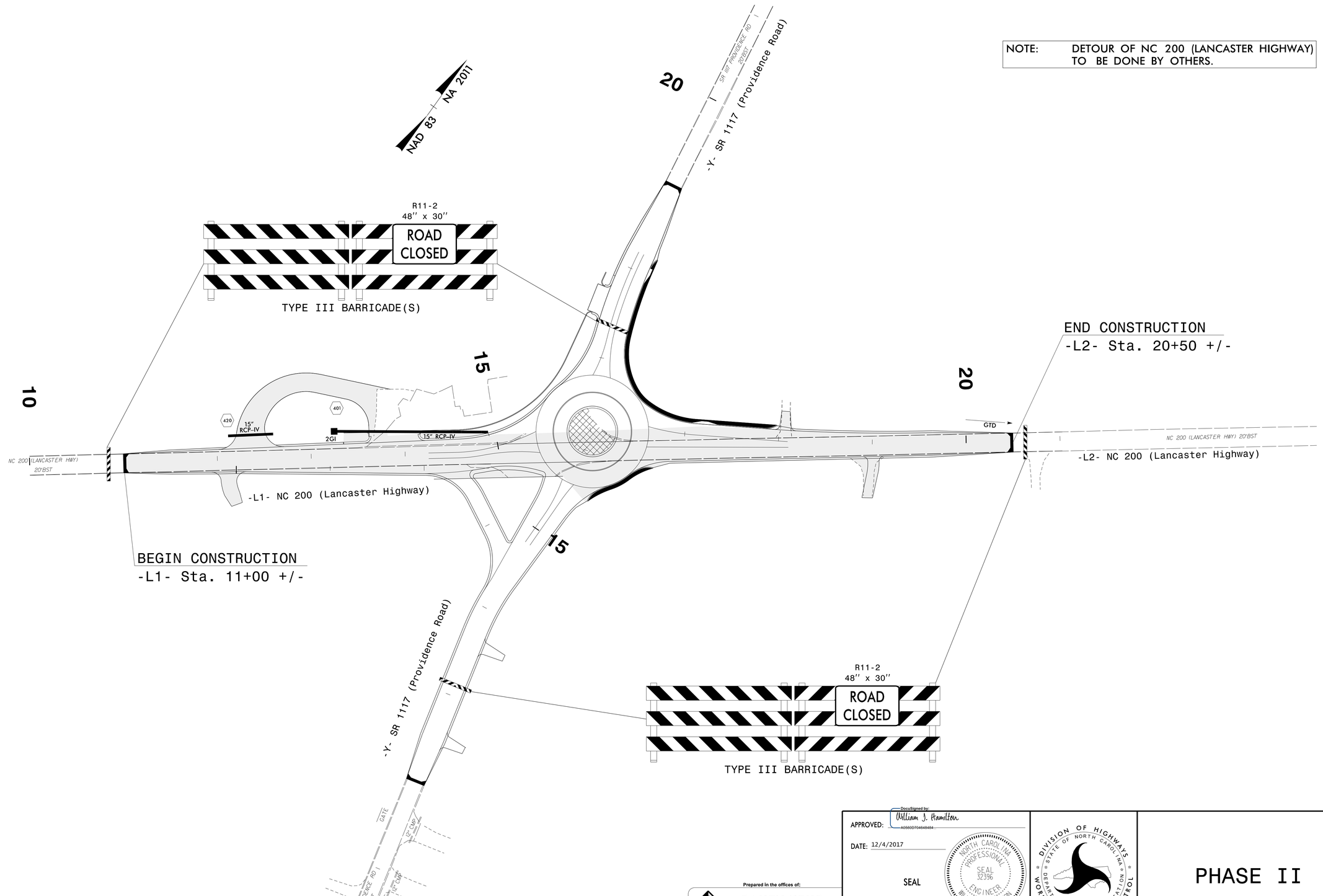
PROJ. REFERENCE NO.	SHEET NO.
W-5601BK	TMP-3

NOTE: DETOUR OF NC 200 (LANCASTER HIGHWAY) TO BE DONE BY OTHERS.



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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

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

PHASE II

DocuSign Envelope ID: 5A52E6F3-A711-436C-AD16-E9AF577D669C

W-5601BK

T.I.P. PROJECT:

TIP NO.	SHEET NO.
W-5601BK	PMP-1

APPROVED: DocuSigned by: William J. Hamilton A0560D704648484...

DATE: 12/4/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN

UNION COUNTY

LOCATION: NC 200 (LANCASTER HIGHWAY) AND SR 1117 (PROVIDENCE ROAD)

ROADWAY STANDARD DRAWING

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN COVER SHEET AND PAVEMENT MARKING SCHEDULE
PMP-2	PAVEMENT MARKING DETAILS

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
ASPHALT SURFACE	THERMOPLASTIC	RAISED MARKERS

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

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

D) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.

E) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.

PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
THERMOPLASTIC(4", 90 MILS)	
TA	WHITE EDGELINE
TB	YELLOW EDGELINE
THERMOPLASTIC(4", 120 MILS)	
TI	YELLOW DOUBLE CENTER
T8	2 FT. - 6 FT./SP WHITE MINISKIP
THERMOPLASTIC(8", 90 MILS)	
TN	WHITE GORELINE
THERMOPLASTIC(8", 120 MILS)	
T10	3 FT. - 3 FT./SP WHITE MINISKIP
THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)	
UN	24" YIELD LINE TRIANGLE

NCDOT CONTACT:

DONALD GRIFFITH
DIVISION 10 DDC ENGINEER
(704) 983-4400

PLAN PREPARED BY: Ramey Kemp & Associates

W.JASON HAMILTON, P.E., PTOE — PROJECT MANAGER

NICHOLAS E. BURNS, EI — PROJECT ENGINEER

RAMEY KEMP & ASSOCIATES, INC.
Transportation Engineers
5808 Faringdon Place, Suite 100
Raleigh, North Carolina 27609
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DocuSign Envelope ID: 5A52E6F3-A711-436C-AD16-E9AF577D669C

TIP NO.	SHEET NO.
W-5601BK	PMP-2

APPROVED: William J. Hamilton

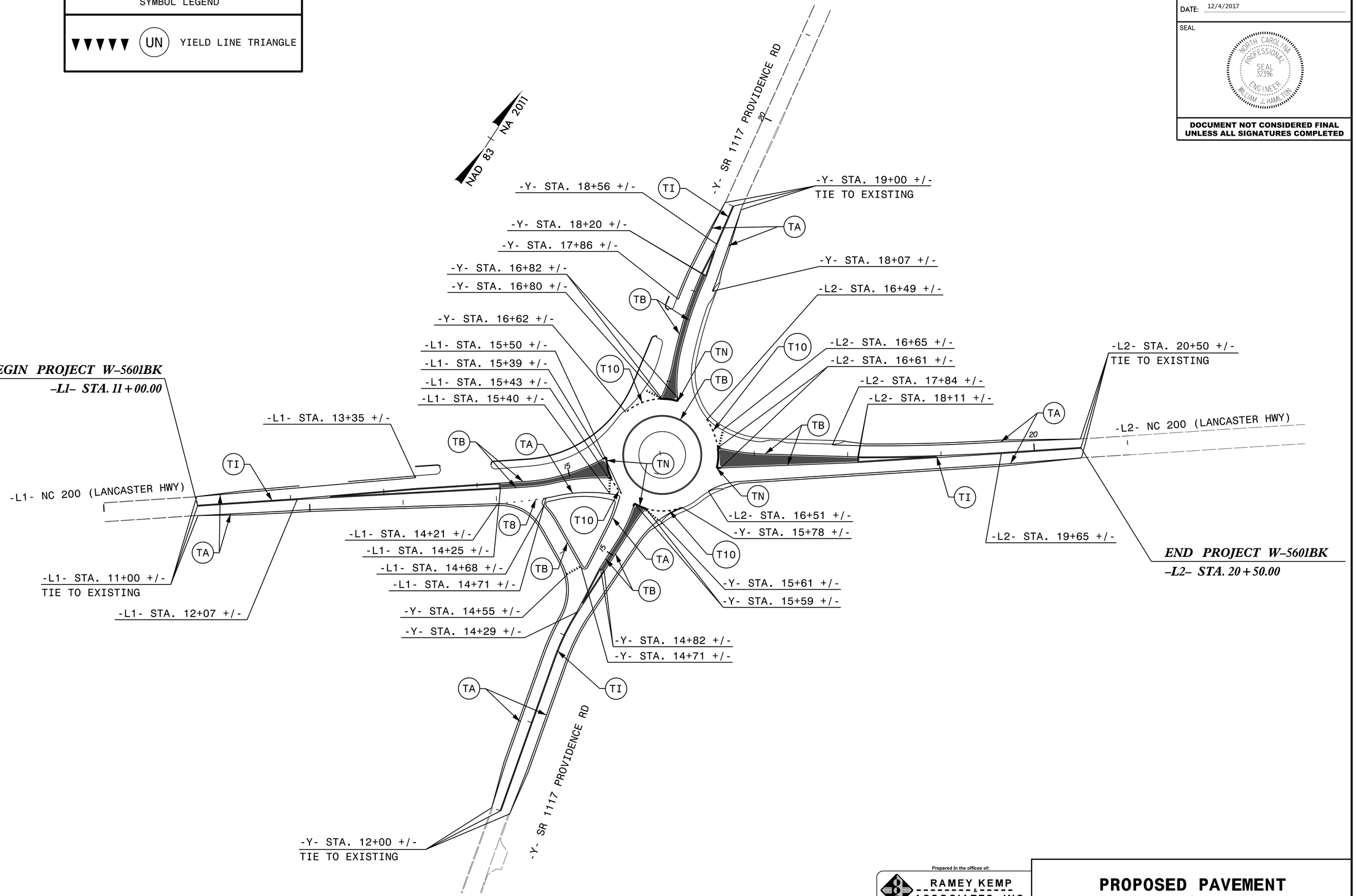
DATE: 12/4/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SYMBOL LEGEND	
▼▼▼▼▼ (UN)	YIELD LINE TRIANGLE



Prepared in the offices of:

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PROPOSED PAVEMENT MARKING DETAIL

09/08/99

TIP PROJECT: W-5601BK

PROJECT: 50138.3.64

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	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED HIGHWAY EROSION CONTROL

UNION COUNTY

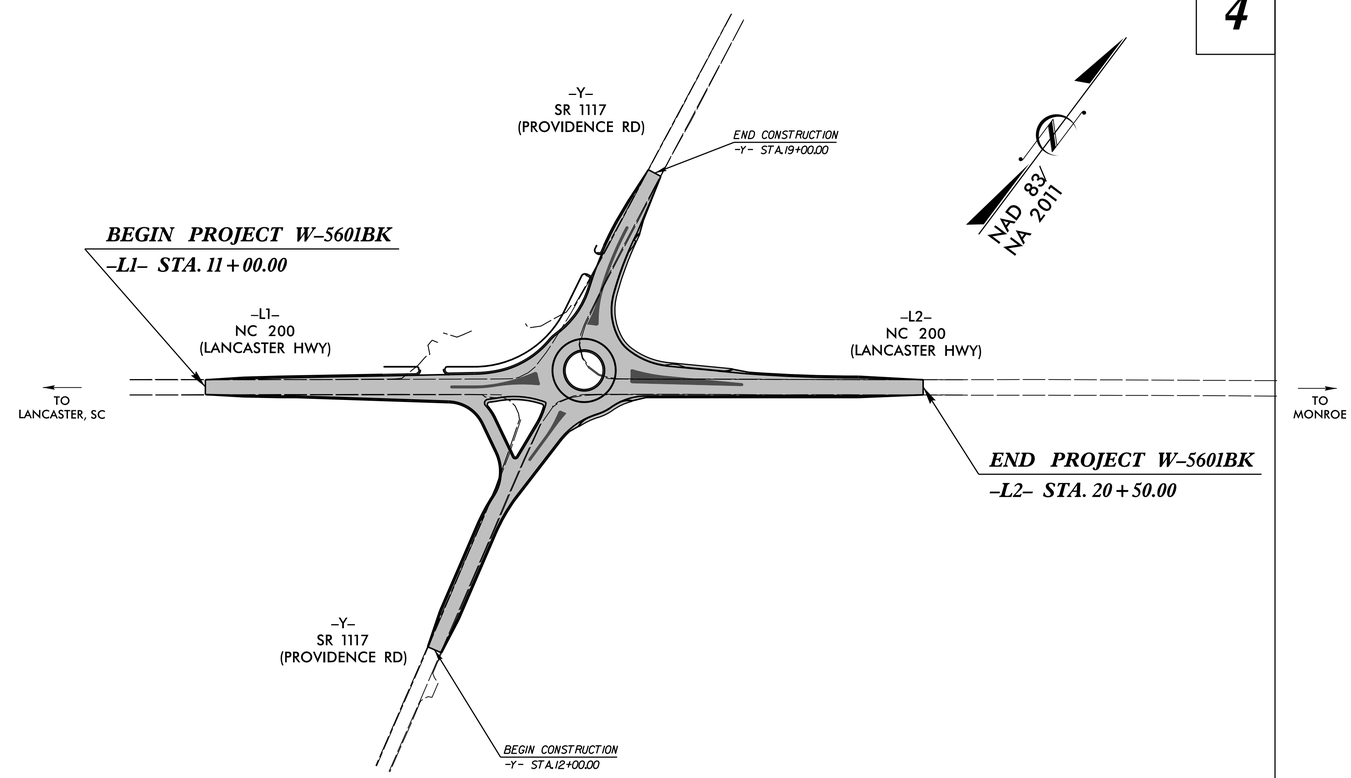
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5601BK	EC-1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50138.1.64		P.E.
50138.2.64		R/W, UTILITIES
50138.3.64		CONSTRUCTION

LOCATION: *INTERSECTION OF NC 200 (LANCASTER HIGHWAY) AND SR 1117 (PROVIDENCE ROAD)*

TYPE OF WORK: *GRADING, PAVING, DRAINAGE, CONCRETE CURB AND GUTTER, MONOLITHIC ISLANDS, AND PAVEMENT MARKING*

4



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

CLEARING ON THIS PROJECT SHALL BE TO THE LIMITS ESTABLISHED BY METHOD II AS DESCRIBED IN THE NCDOT STANDARD DRAWINGS.

GRAPHIC SCALES

50 25 0 50 100

PLANS

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.

2018 STANDARD SPECIFICATIONS

Prepared In the Office of:

M A Engineering Consultants, Inc.
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Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

for:

NCDOT DIVISION 10

NCDOT CONTACT: DONALD GRIFFITH
DIVISION 10 DDC ENGINEER

Designed by:

PAUL H. CAMERON, PE — ***3624***
NAME — *LEVEL IIIA CERTIFICATION NO.*

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest 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.
W-5601BK	EC-2

M A Engineering Consultants, Inc.
NC License: F-0160
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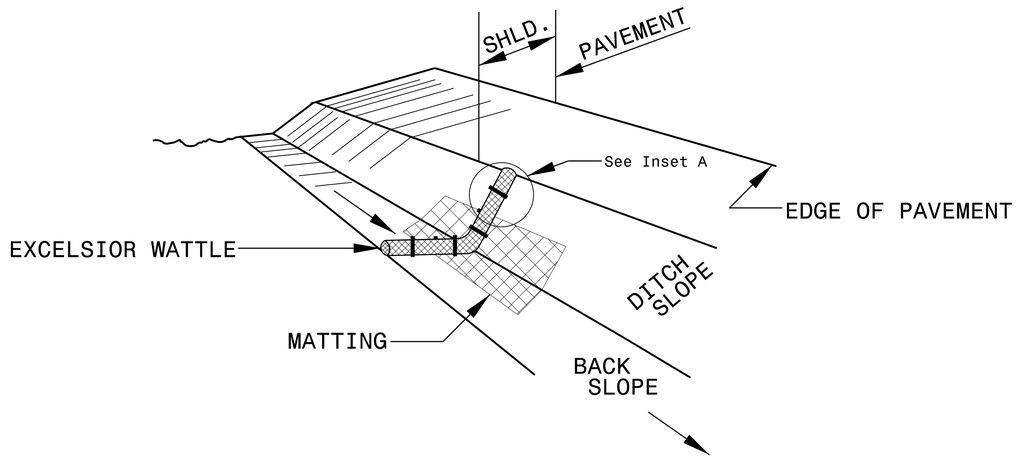
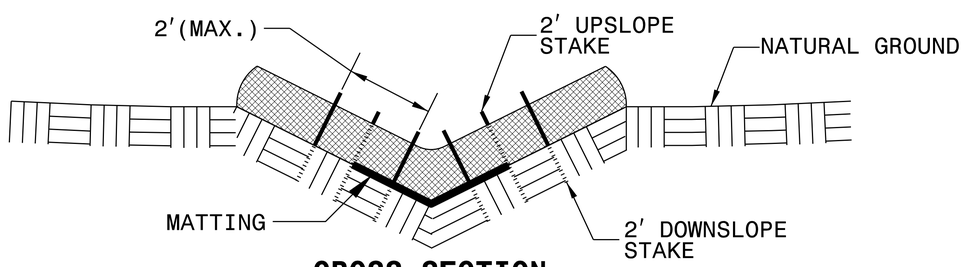
Phone: 919.297.0220 Fax: 919.297.0221

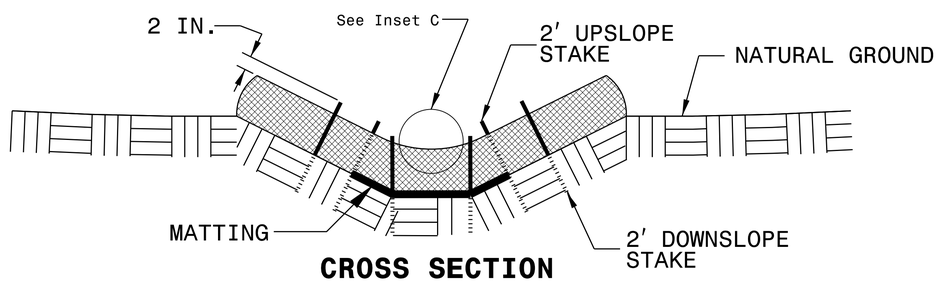
WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

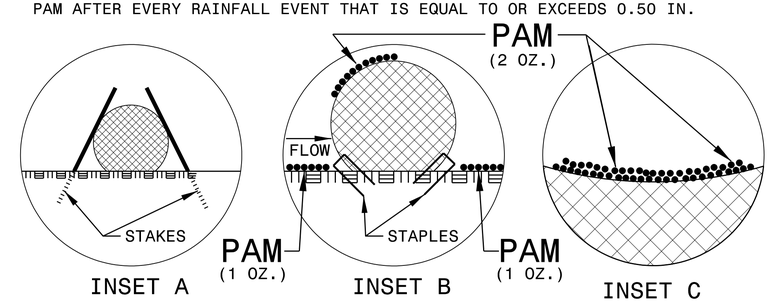
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

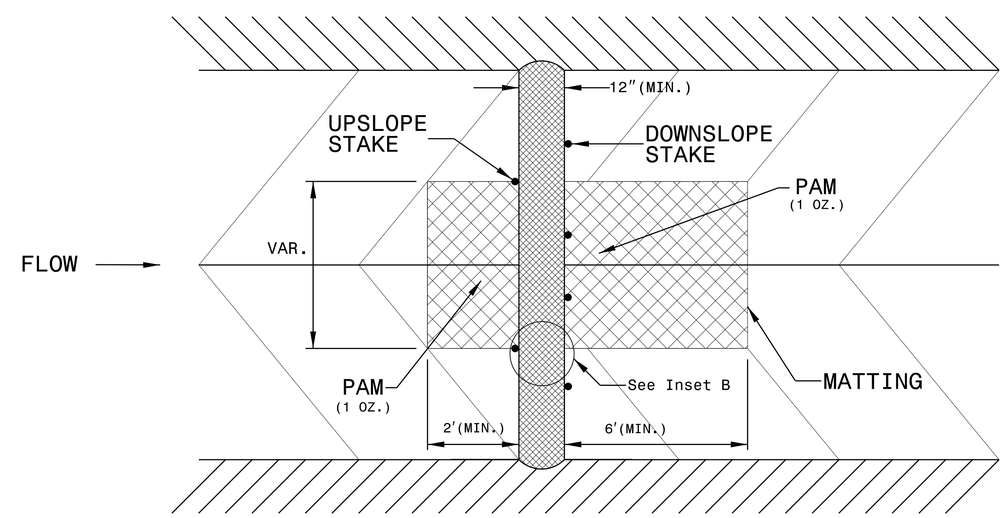
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

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PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	EC-3

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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	Y	1300	1391	RT	70
4	Y	1295	1450	LT	120
4	Y	1800	1850	LT	55
4	SLIP	1232	1315	RT	80
			SUBTOTAL		325
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1650
				TOTAL	1975
				SAY	2000

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		0
	ADDITIONAL COIR FIBER MAT TO BE INSTALLED				0
				TOTAL	0
				SAY	0

SOIL STABILIZATION TIME FRAMES

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.

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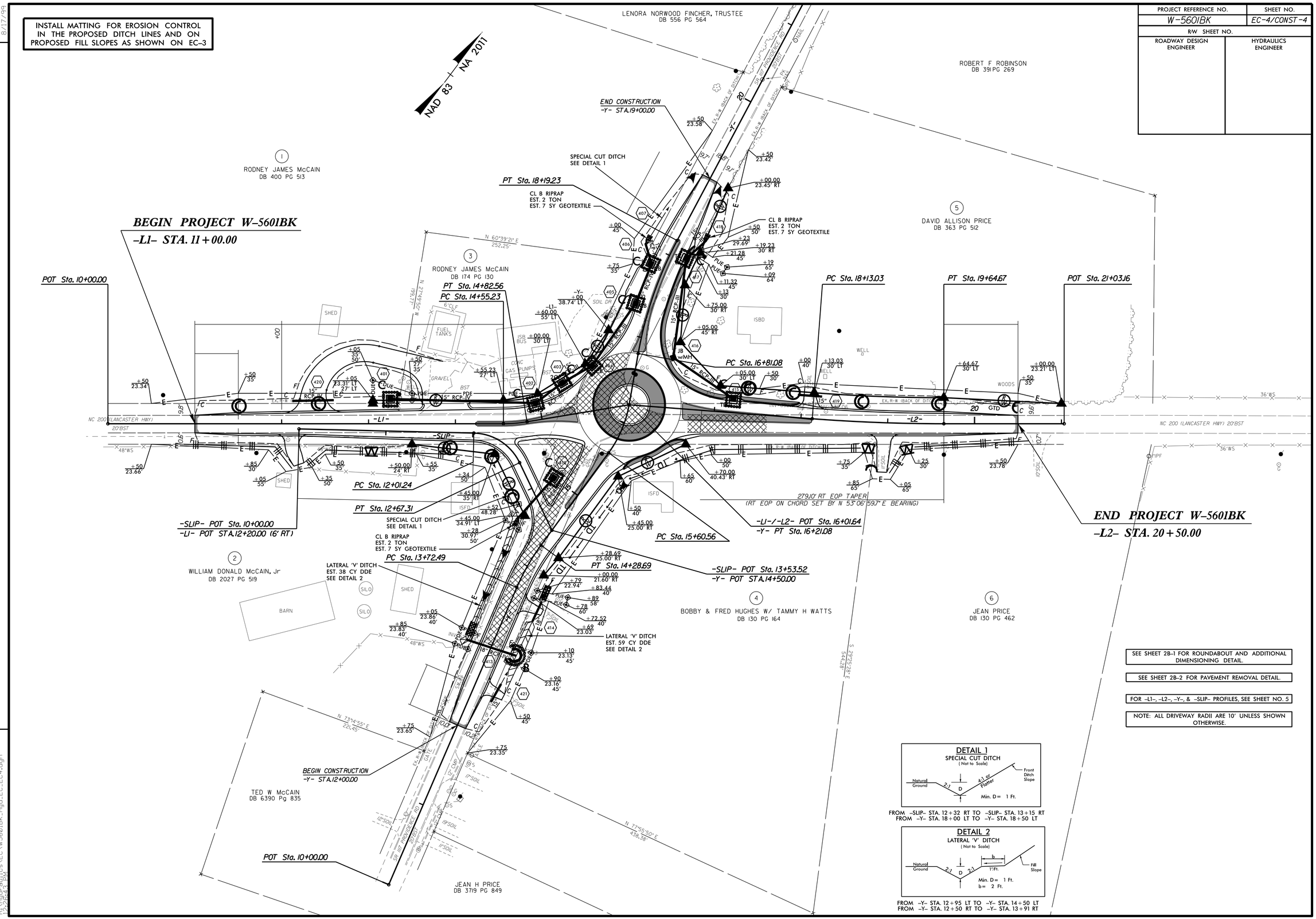
PROJECT REFERENCE NO.	SHEET NO.
W-5601BK	EC-4/CONST-4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINES AND ON PROPOSED FILL SLOPES AS SHOWN ON EC-3



SEE SHEET 2B-1 FOR ROUNDABOUT AND ADDITIONAL DIMENSIONING DETAIL.

SEE SHEET 2B-2 FOR PAVEMENT REMOVAL DETAIL.

FOR -L1-, -L2-, -Y-, & -SLIP- PROFILES, SEE SHEET NO. 5

NOTE: ALL DRIVEWAY RADII ARE 10' UNLESS SHOWN OTHERWISE.

FROM -SLIP- STA. 12+32 RT TO -SLIP- STA. 13+15 RT
FROM -Y- STA. 18+00 LT TO -Y- STA. 18+50 LT

FROM -Y- STA. 12+95 LT TO -Y- STA. 14+50 LT
FROM -Y- STA. 12+50 RT TO -Y- STA. 13+91 RT

REVISIONS

8/17/99

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PXY

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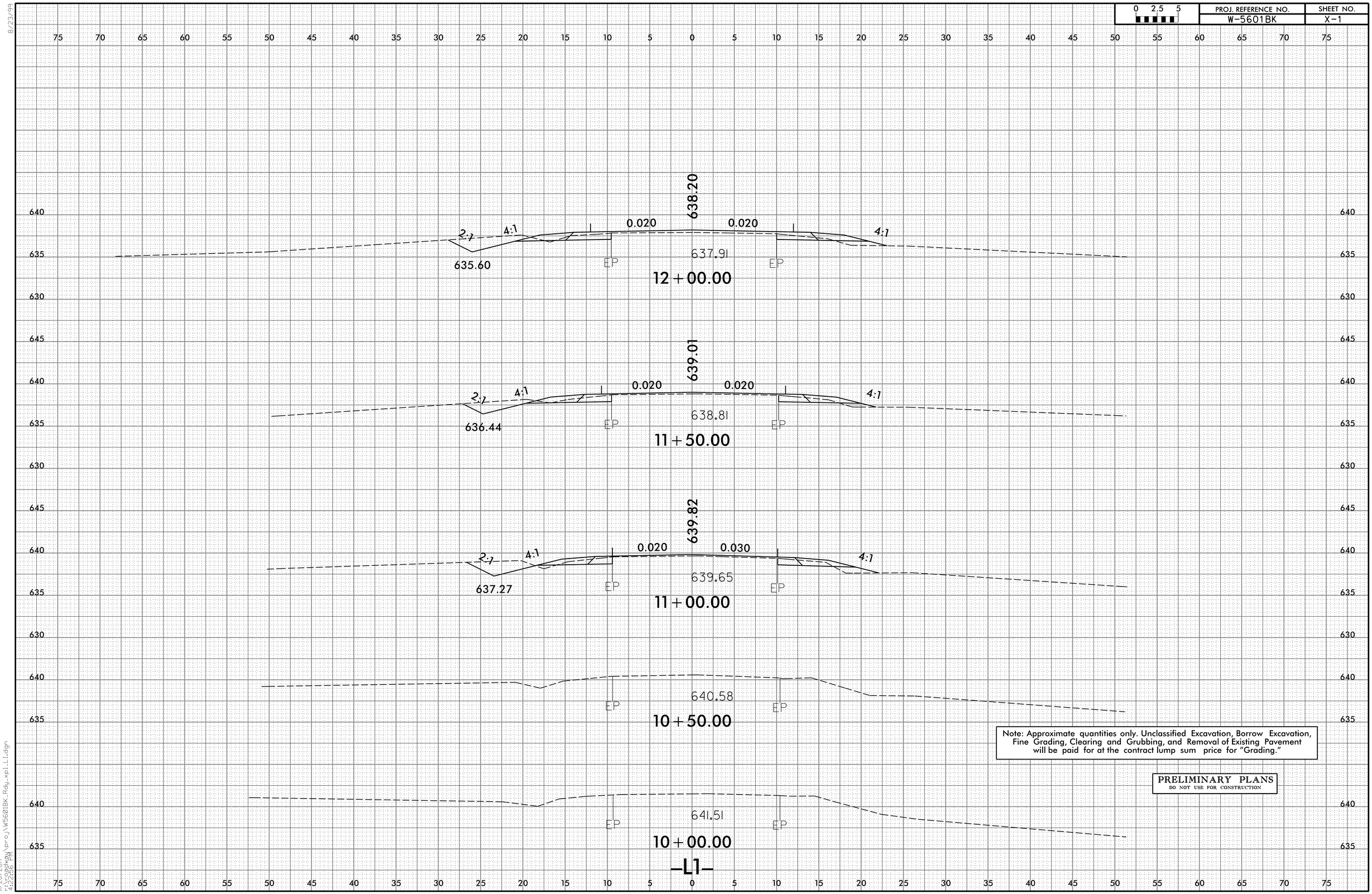

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/23/99

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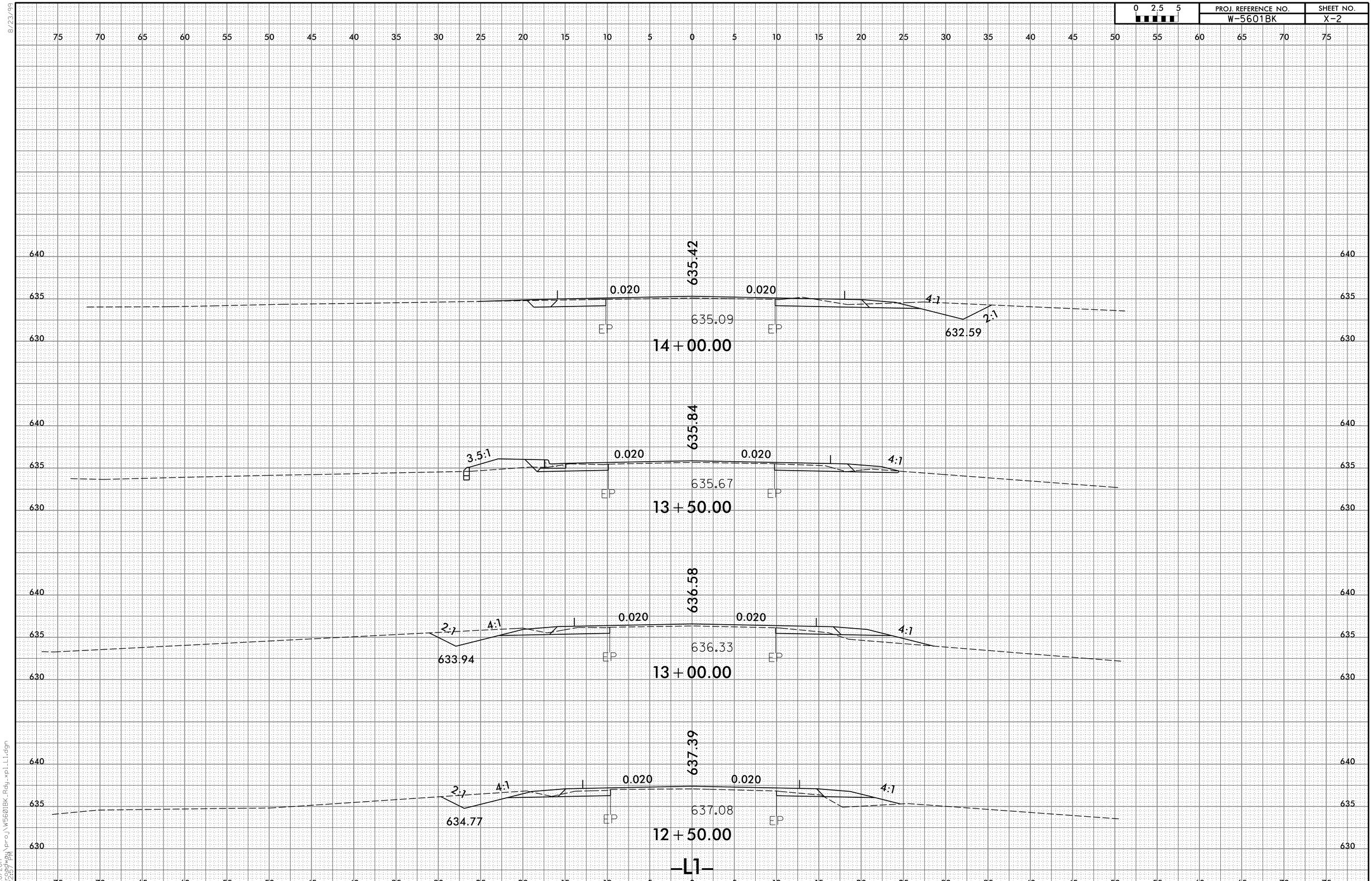

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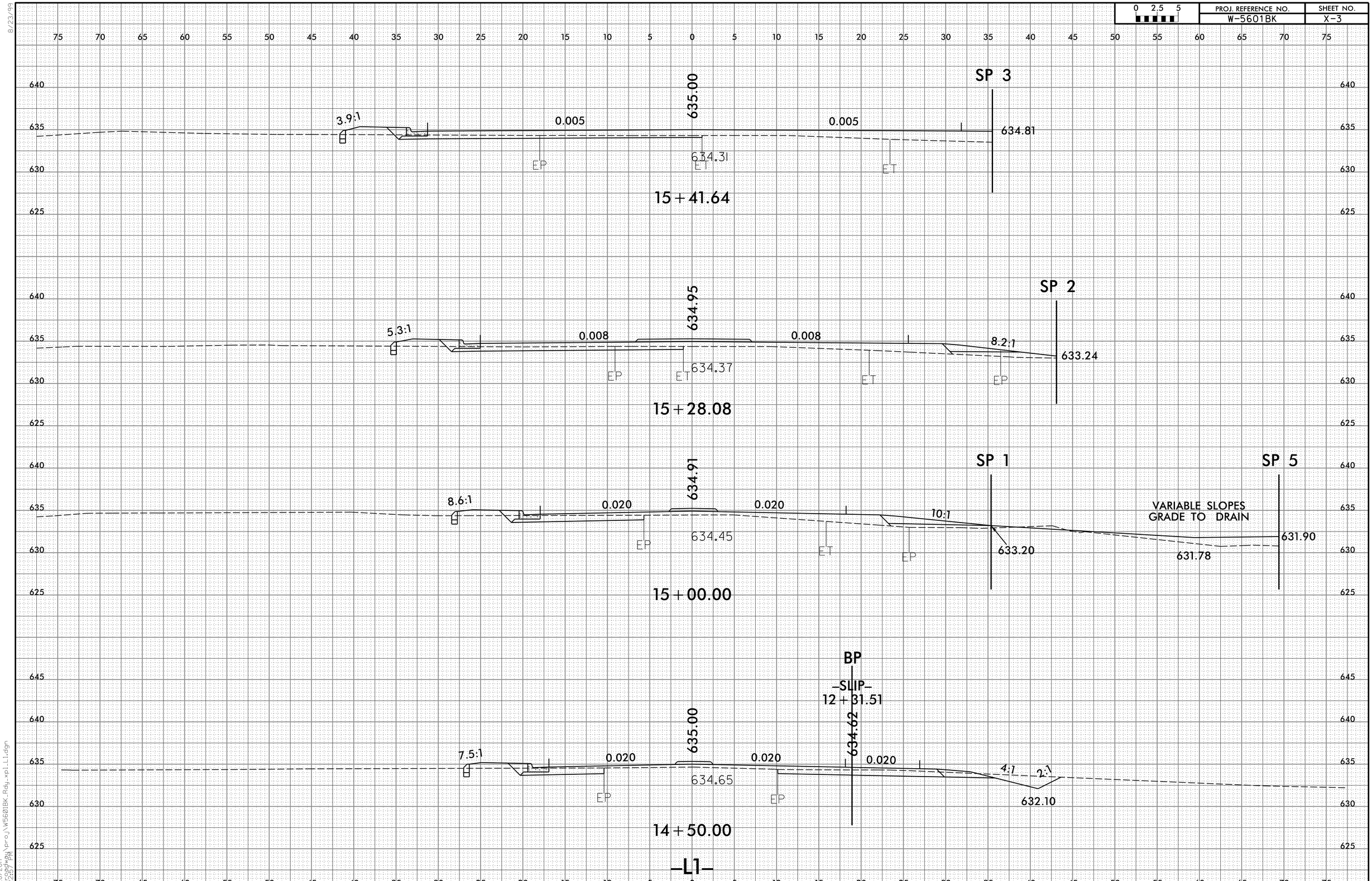

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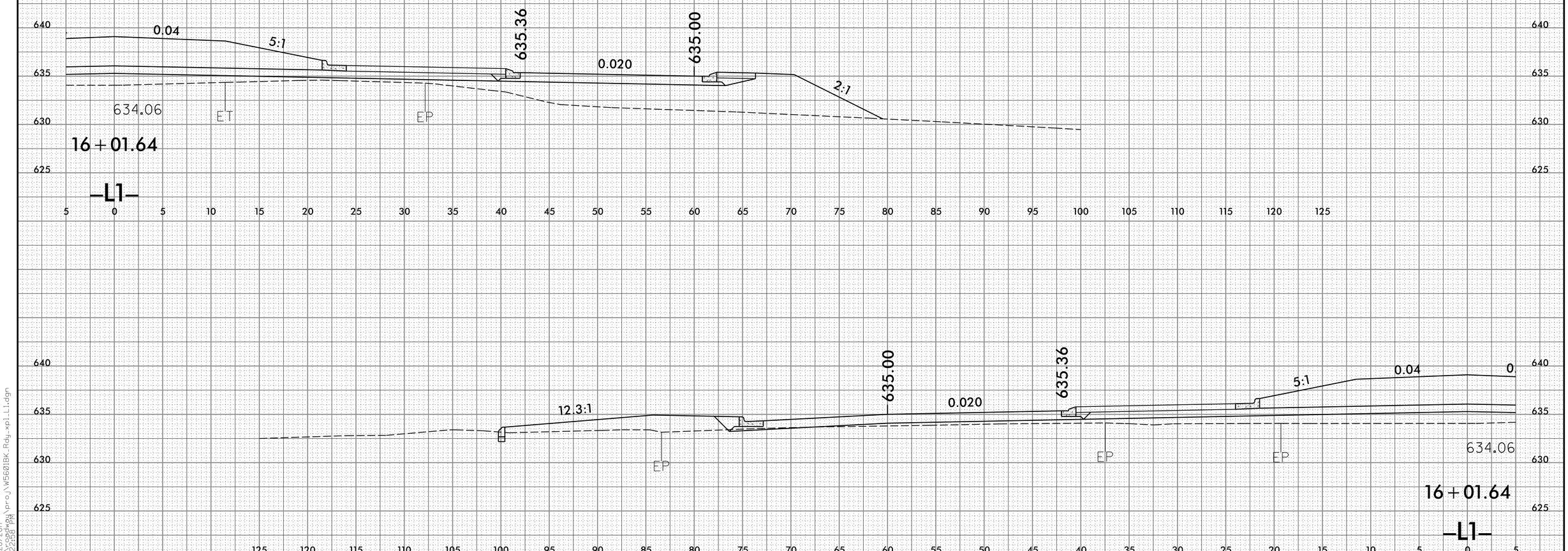

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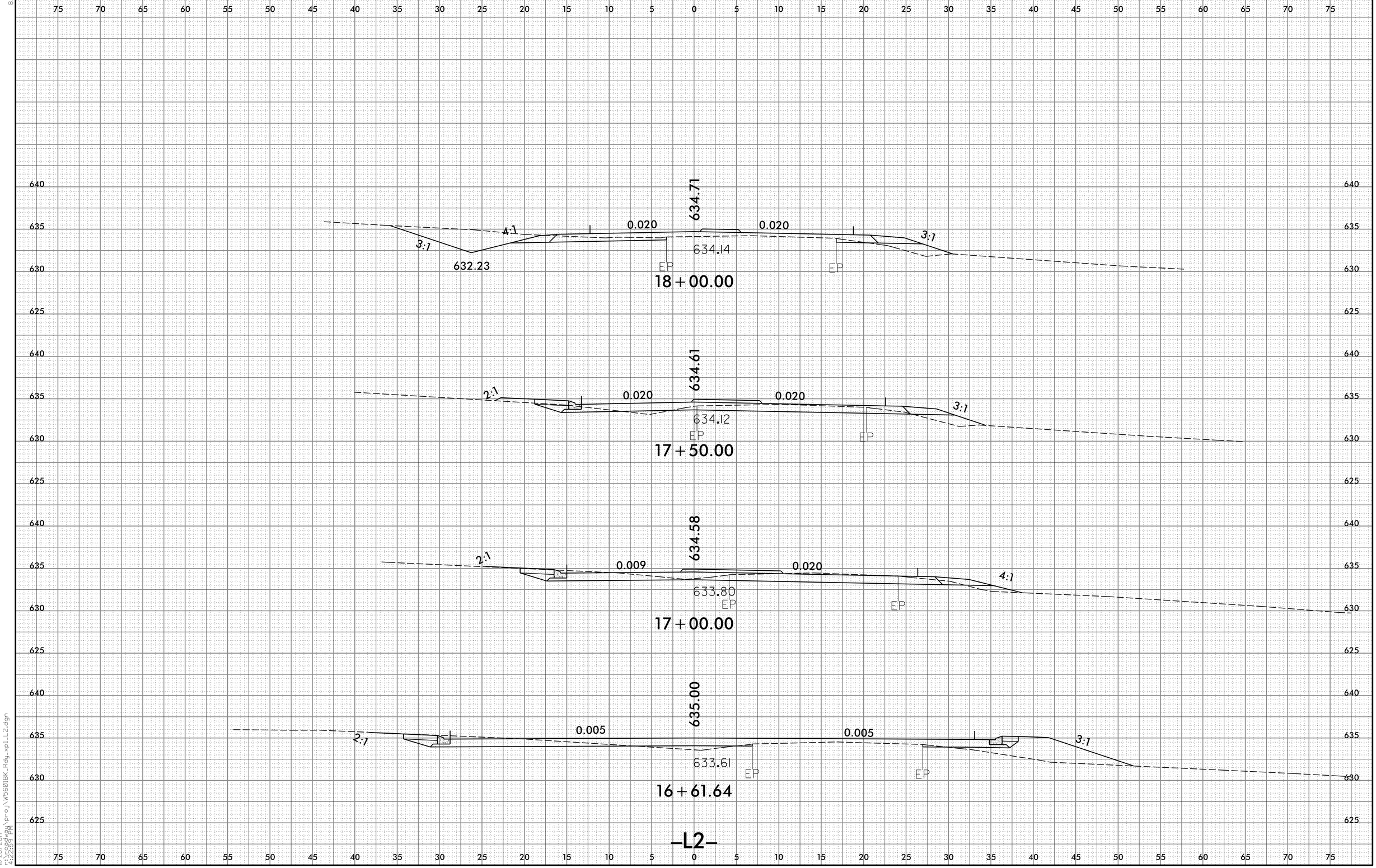

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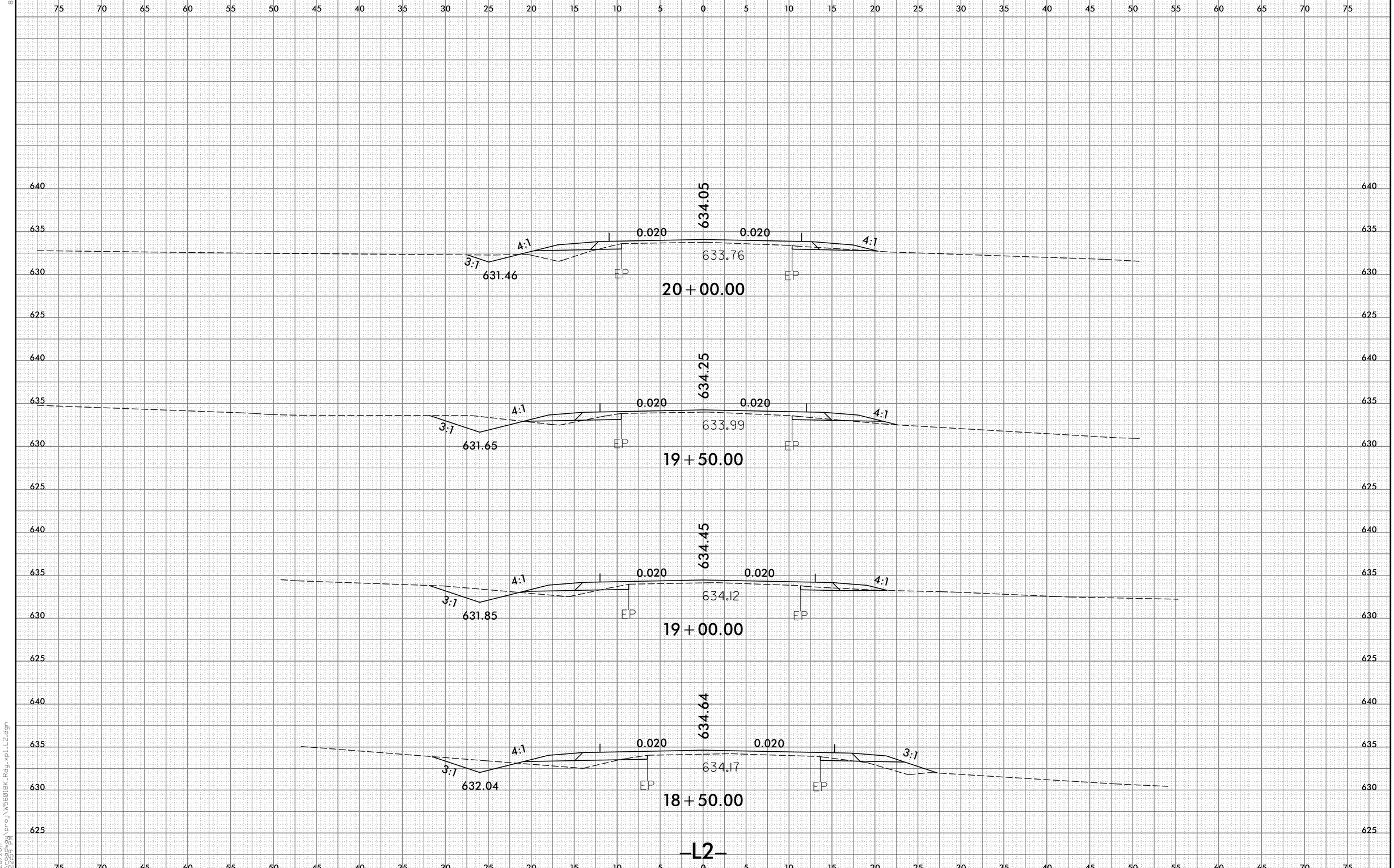

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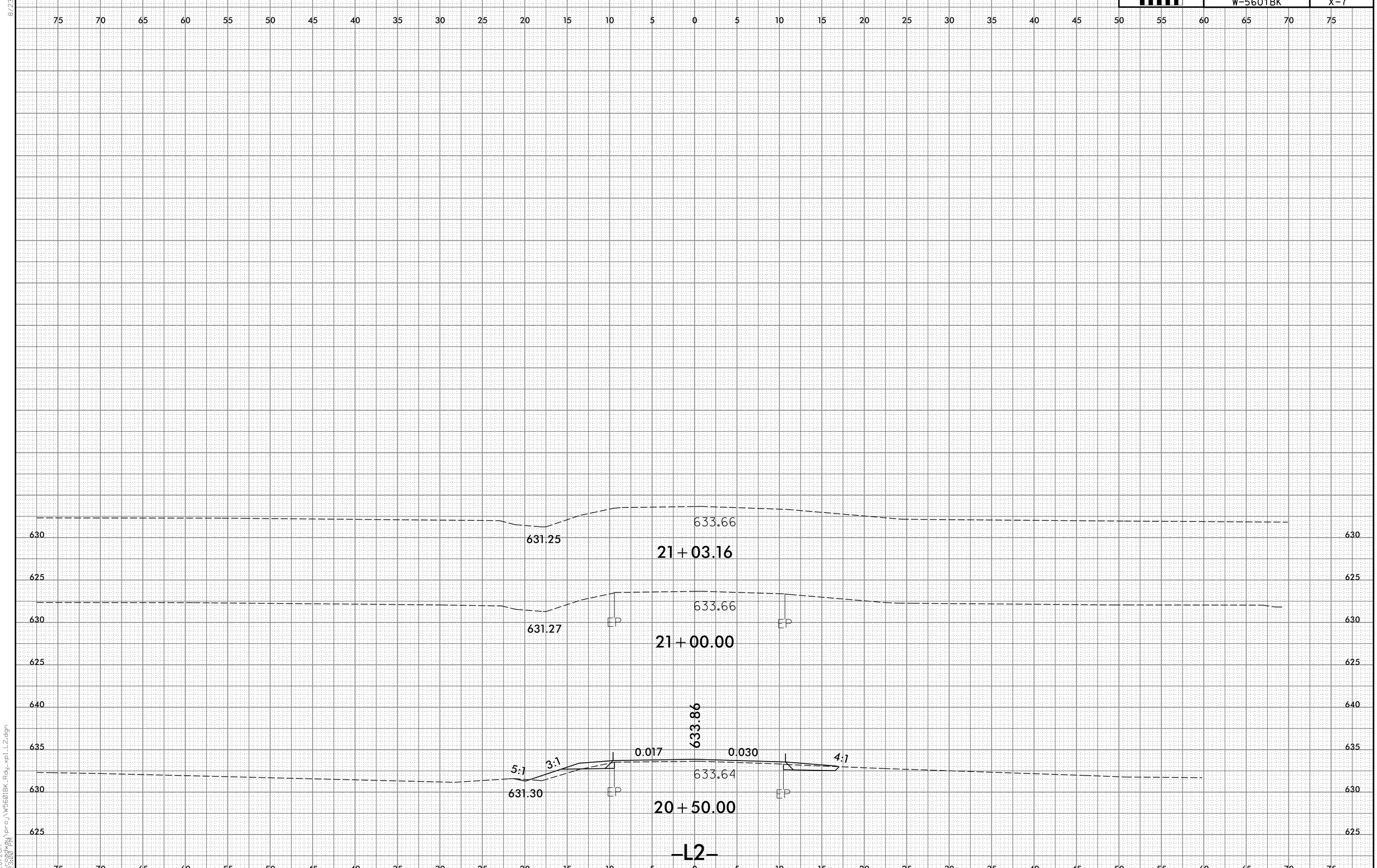

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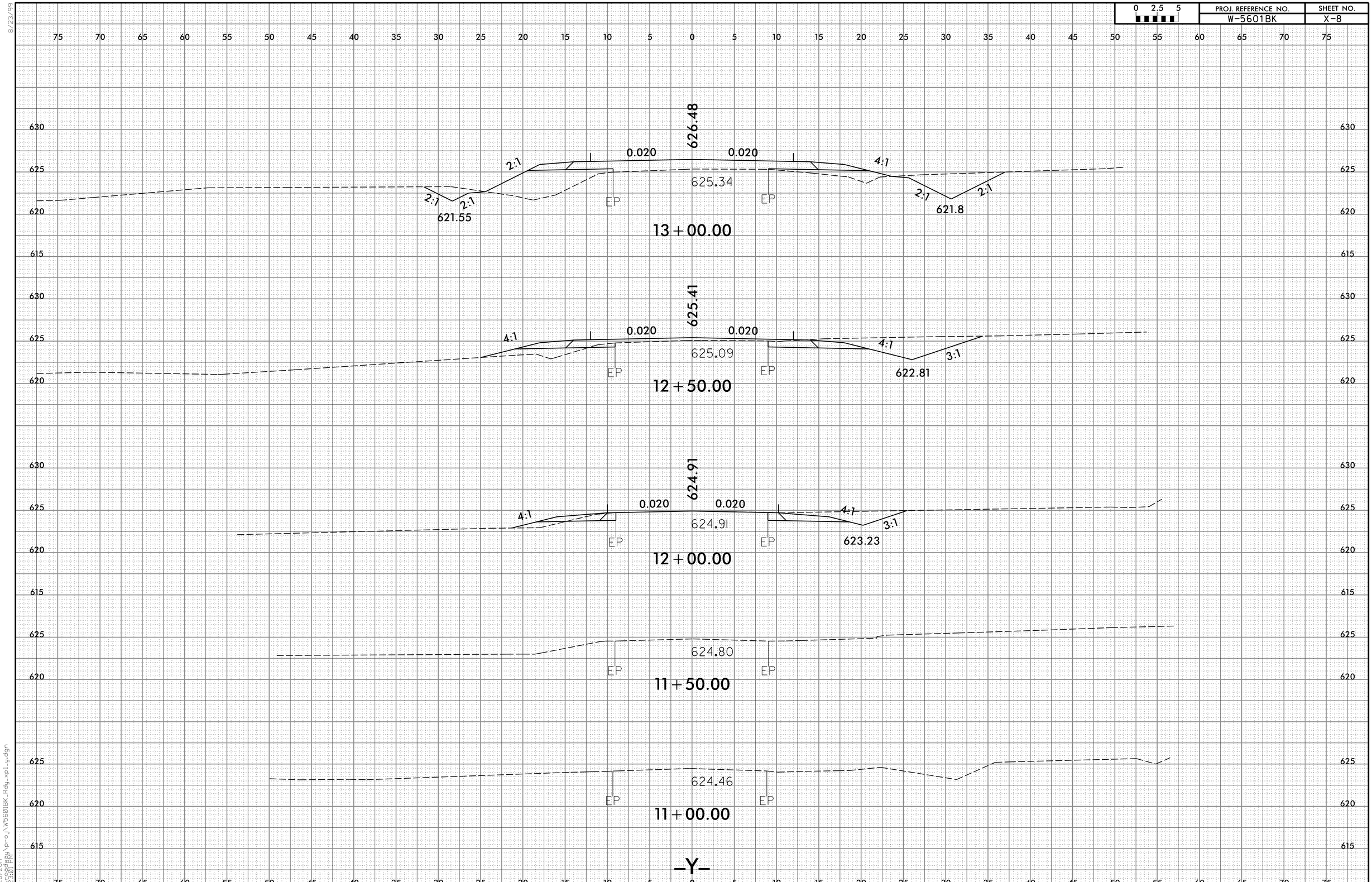

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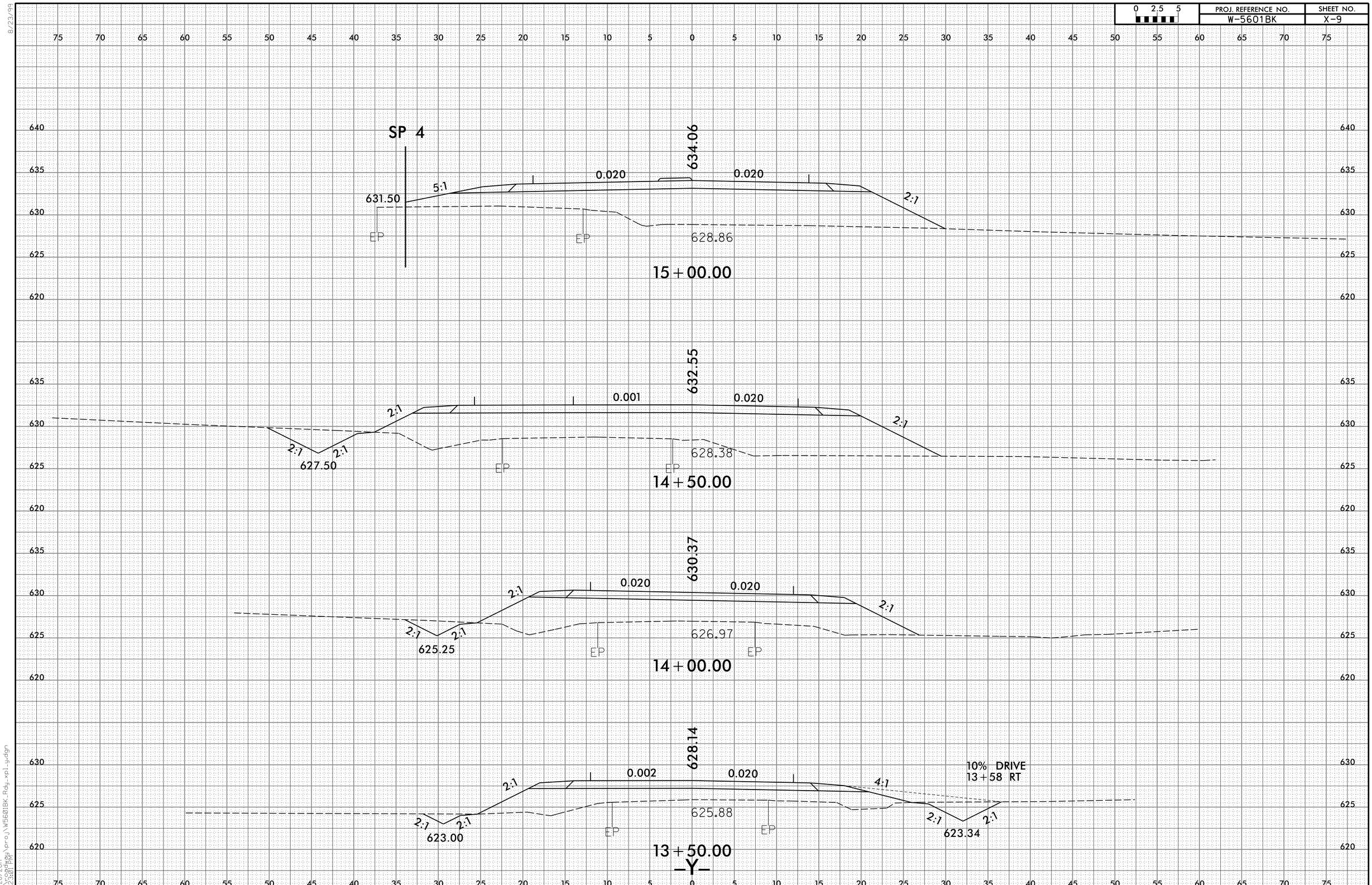

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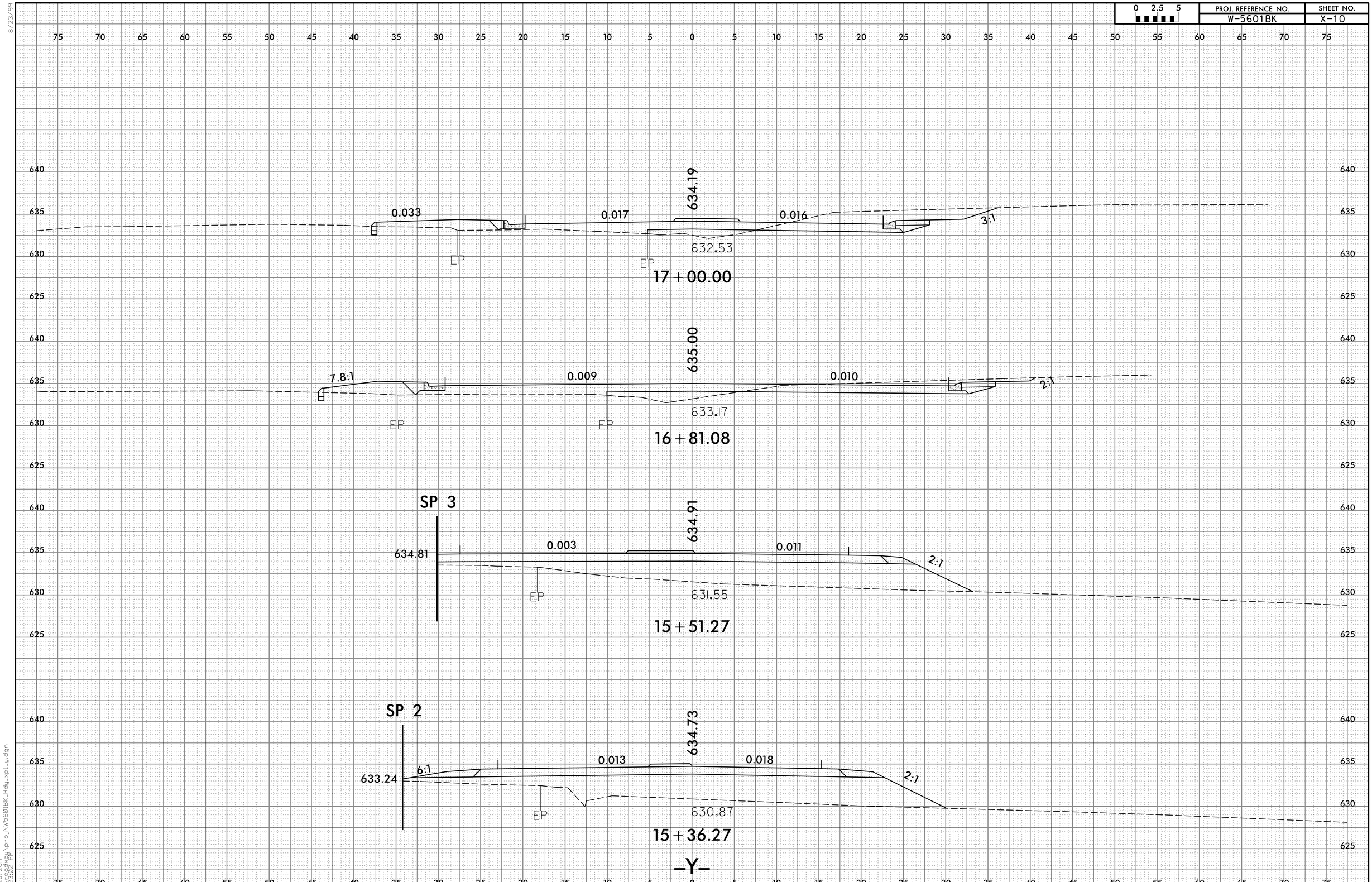

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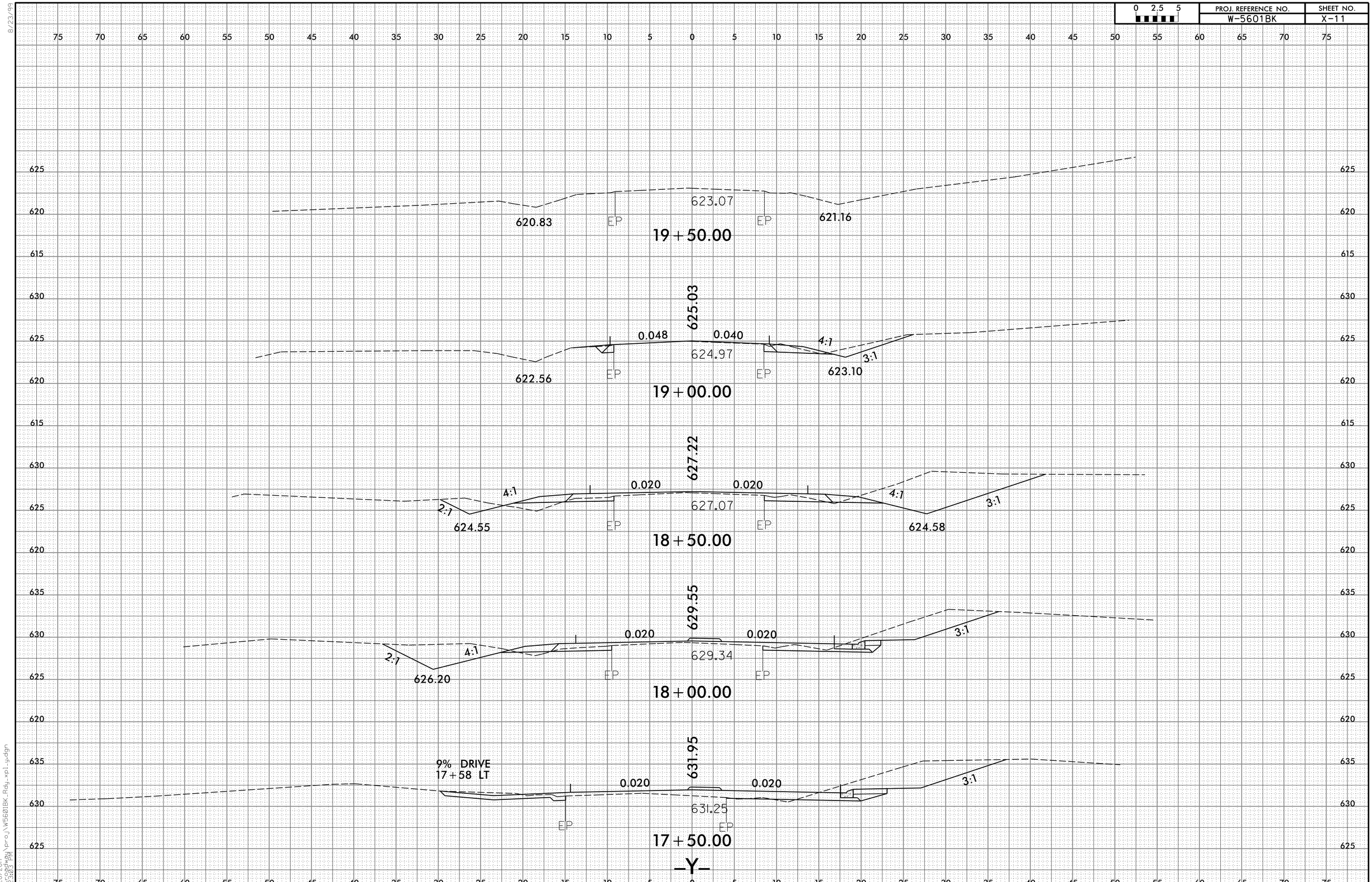

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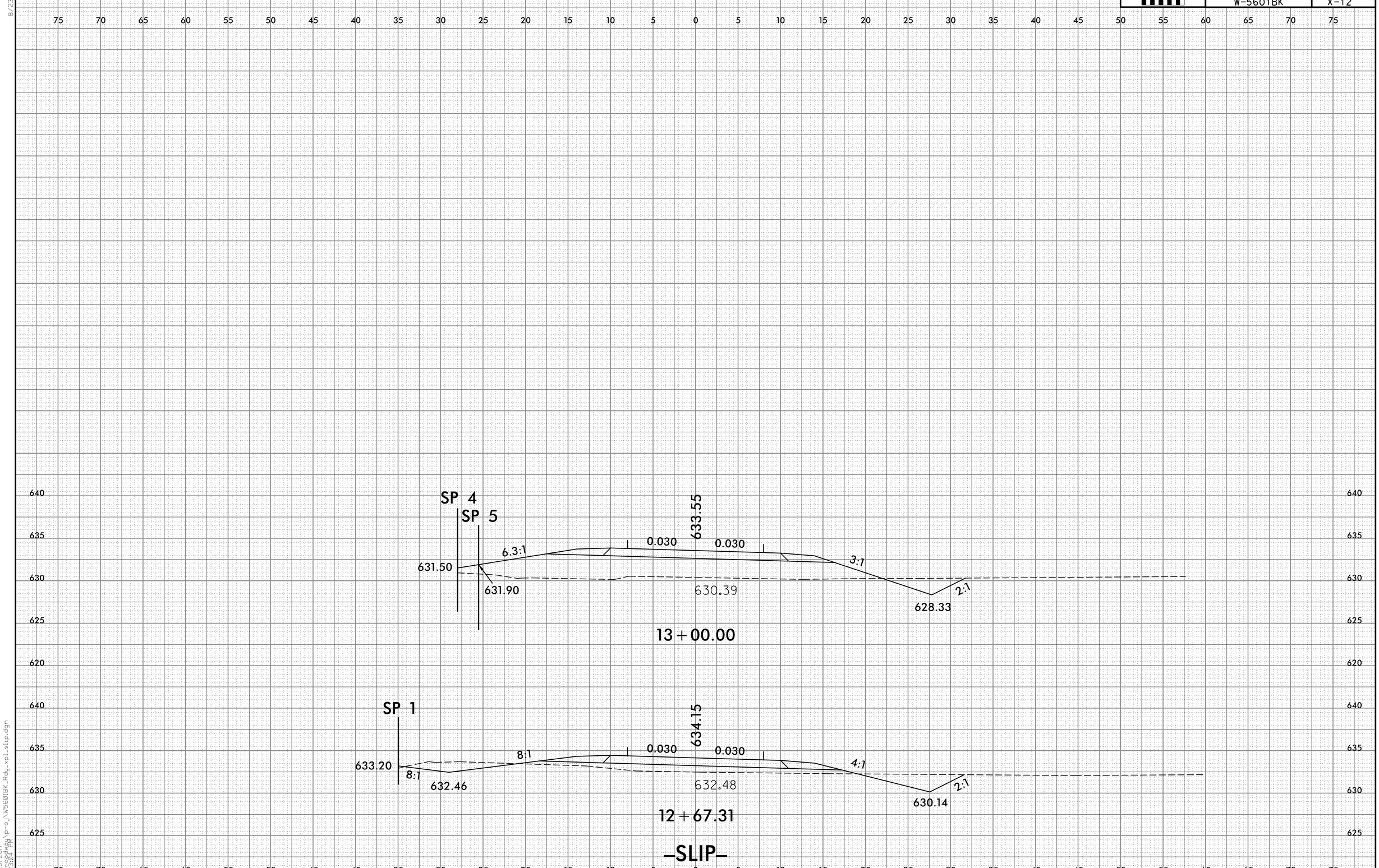

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