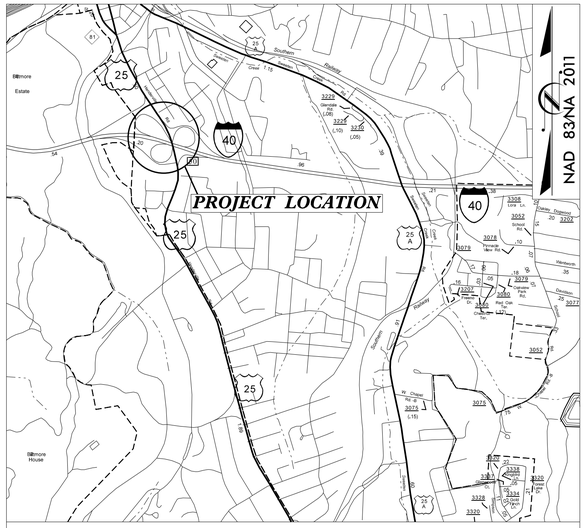
DocuSign Envelope ID: 41F38AF8-8DBE-42BC-AA94-E64FD4BA0597

09/08/99

TIP PROJECT: I-5885

CONTRACT: DM00228

See Sheet 1A For Index of Sheets



VICINITY MAP (N.T.S.)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

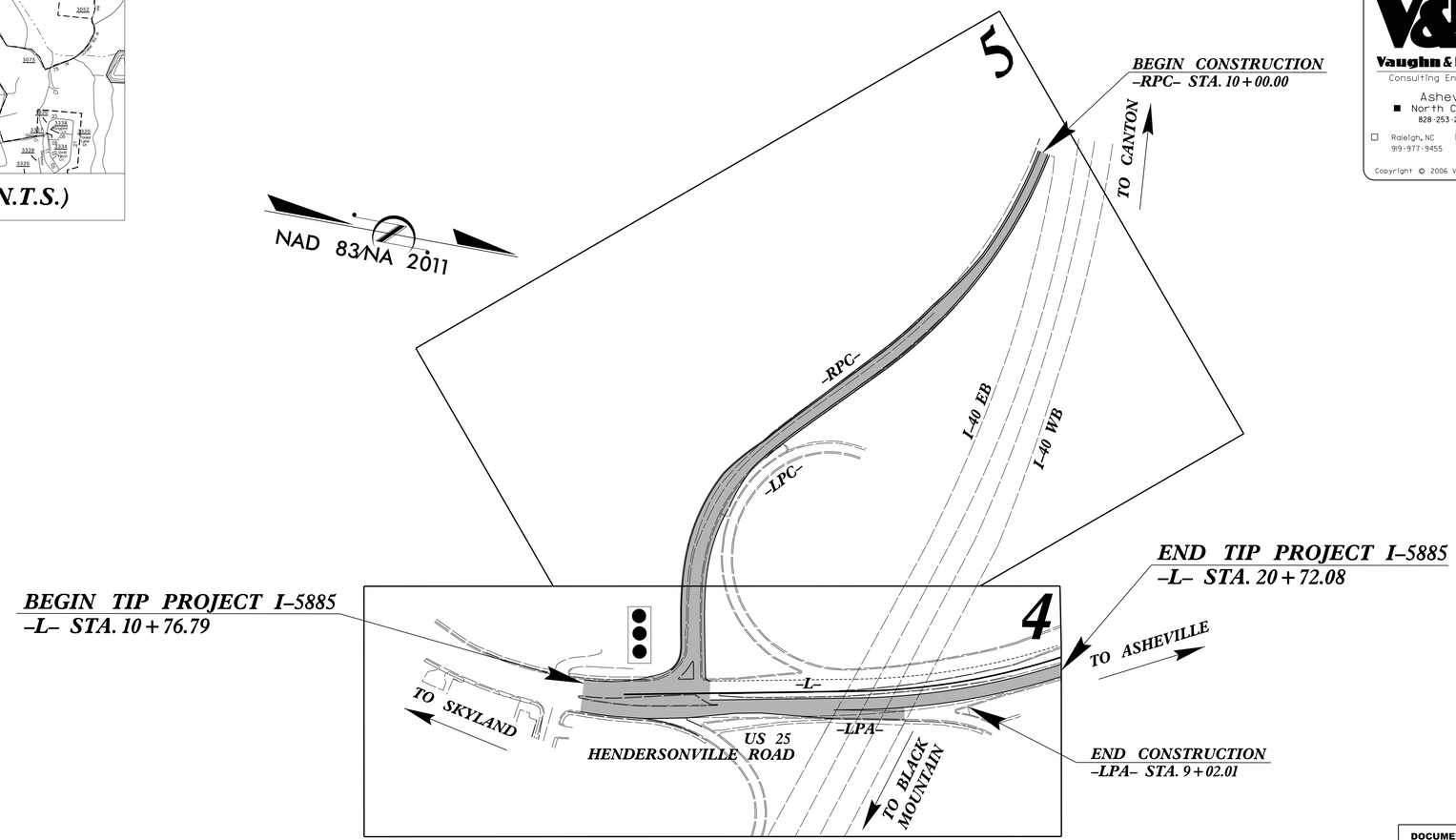
LOCATION: I-40 (EXIT 50) AT US25 (HENDERSONVILLE ROAD)

TYPE OF WORK: GRADING, PAVING, AND SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-5885	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
53084.1 FD1	NHP-0025(035)	PE,RW
53084.3.1	NHP-0025(035)	CONST.

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina
828-253-2796
Boone, NC 828-355-9933
Tri-Cities, TN 423-467-8401
Knoxville, TN 865-546-5800
Spartanburg, SC 864-574-4775
Charleston, SC 843-974-5650
Middlesboro, KY 606-248-6600
Atlanta, GA 770-627-3509
Raleigh, NC 919-977-9455
Charlotte, NC 704-357-0488
Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved



SIGNALIZED INTERSECTION

THIS IS A PARTIAL CONTROL OF ACCESS PROJECT WITH FULL CONTROL BEING LIMITED TO THE INTERCHANGE AT US 25 & I-40.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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 2015 = 39,200
ADT 2040 = 46,400
K = 10 %
D = 55 %
T = 3 % *
V = 45 MPH
* TTST = 3% DUAL 8%
FUNC CLASS =
PRINCIPAL ARTERIAL
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT I-5885 (-L-) = 0.189 MILES
TOTAL LENGTH TIP PROJECT I-5885 = 0.189 MILES

Prepared in the Office of:
VAUGHN & MELTON, INC.
1318-F PATTON AVENUE ASHEVILLE, NC 28806 PHONE (828)253-2796

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DEC. 20, 2016

LETTING DATE:
SEPTEMBER 12, 2017

REECE SCHULER, PE
PROJECT ENGINEER

ALEX FITZPATRICK
PROJECT DESIGN ENGINEER

NCDOT CONTACT: COLE HOOD, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

HYDRAULICS ENGINEER
DocuSigned by: Bradley Rudnour 7/14/2017
SIGNATURE: P.E.
NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER BRADLEY S. RIDNOUR

ROADWAY DESIGN ENGINEER
DocuSigned by: Reece M. Schuler 7/14/2017
SIGNATURE: P.E.
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

7/13/2017
S:\Transportation\3535-02 I-5885\Roadway\Proj\I-5885_rdy_title.dgn
User:jddaves

PROJECT REFERENCE NO.	SHEET NO.
I-5885	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER GEORGE M. SCHULER

DocuSigned by: George M. Schuler
166340247824FC...
7/14/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C	SURVEY CONTROL SHEET
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 7	PLAN AND PROFILE SHEETS
TMP-1 THRU TMP-7	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-7	EROSION CONTROL PLANS
SIG-1 THRU SIG.P3	SIGNAL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS PLANS
X-0 THRU X-16	CROSS-SECTIONS

GENERAL NOTES:

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

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 AND 225.05 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 AND 560.02.

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE Duke Energy, AT&T,

PSNC, Charter Communications, MSD and City of Asheville

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

EFF. 01-17-2012
REV. 02-29-2016

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
225.01	Guide for Grading Subgrade - Interstate and Freeway
225.02	Guide for Grading Subgrade - Secondary and Local
225.03	Deceleration and Acceleration Lanes
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.05	Method of Obtaining Superelevation - Divided Highways
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
560.02	Method of Shoulder Construction - High Side of Superelevated Curve - Method II (Sheet 2 of 3 is no longer applicable)
665.01	Asphalt Shoulders - Milled Rumble Strips
DIVISION 8 - INCIDENTALS	
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.80	Precast Endwalls - 12" thru 72" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	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
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
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
846.02	Drop Inlet Installation in Expressway Gutter
848.01	Concrete Sidewalk
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands
852.10	Median Construction - with Curb and Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation

8/17/99
7/7/2017
S:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885_rdy_title.dgn
User:dgaves

04/06/15

PROJECT REFERENCE NO.	SHEET NO.
I-5885	IB

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- 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:

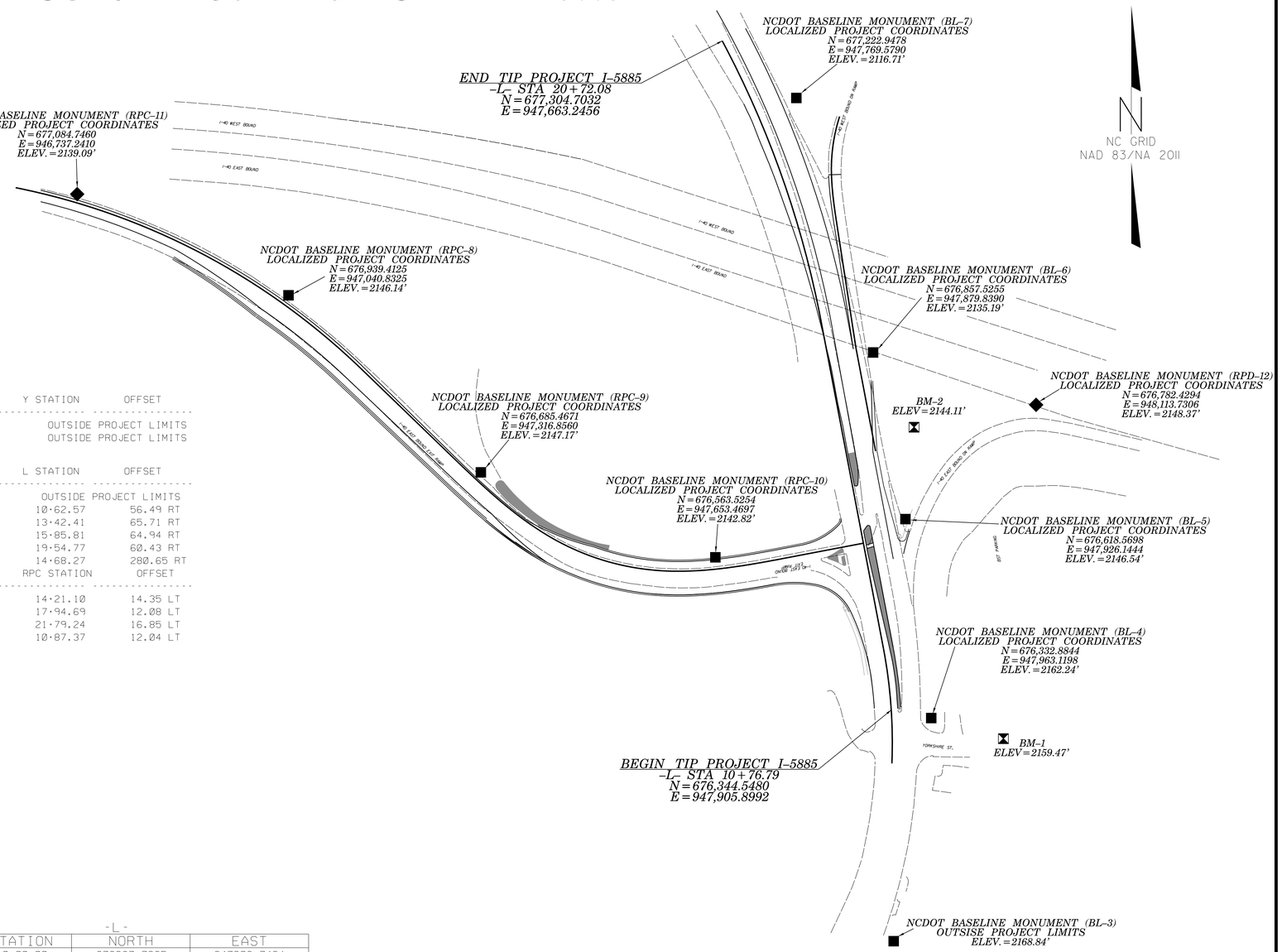
- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Forced Main Line LOS B (S.U.E.*) — FSS
- SS Forced Main Line LOS C (S.U.E.*) — FSS
- SS Forced Main Line LOS D (S.U.E.*) — FSS

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.
I-5885	1C-1
Location and Surveys	

SURVEY CONTROL SHEET I-5885



BM1 ELEVATION = 2159.47
N 676303.4069 E 948066.8775
-L- STATION 10+34.69 159.49' LEFT
CHISELED 'X' IN CONC. CURB

BM2 ELEVATION = 2144.11'
N 676750.3609 E 947938.6354
-L- STATION 14+69.53 102.64' LEFT
NAIL IN ROOT OF 15" MAPLE

GPS

POINT	DESC.	NORTH	EAST	ELEVATION	Y STATION	OFFSET
1	GPS-1	675074.6090	947600.7120	2178.27	OUTSIDE PROJECT LIMITS	
2	GPS-2	675773.1431	947700.5870	2173.49	OUTSIDE PROJECT LIMITS	

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
3	BL-3	676012.6815	947909.3493	2168.84	OUTSIDE PROJECT LIMITS	
4	BL-4	676332.8844	947963.1198	2162.24	10+62.57	56.49 RT
5	BL-5	676618.5698	947926.1444	2146.54	13+42.41	65.71 RT
6	BL-6	676857.5255	947879.8390	2135.19	15+85.81	64.94 RT
7	BL-7	677222.9478	947769.5790	2116.71	19+54.77	60.43 RT
12	RPD-12	676782.4294	948113.7306	2148.37	14+68.27	280.65 RT

POINT	DESC.	NORTH	EAST	ELEVATION	RPC STATION	OFFSET
8	RPC-8	676939.4125	947040.8325	2146.14	14+21.10	14.35 LT
9	RPC-9	676685.4671	947316.8560	2147.17	17+94.69	12.08 LT
10	RPC-10	676563.5254	947653.4697	2142.82	21+79.24	16.85 LT
11	RPC-11	677084.7460	946737.2410	2139.09	10+87.37	12.04 LT

-L-

TYPE	STATION	NORTH	EAST
PC	10+00.00	676267.7995	947906.7424
PT	11+65.27	676432.2666	947894.7378
PC	16+43.05	676901.6063	947805.3297
PT	20+72.08	677304.7032	947663.2456

-RPC-

TYPE	STATION	NORTH	EAST
PC	10+00.00	677094.1126	946649.0488
PT	15+67.26	676834.3367	947144.7317
TS	17+46.32	676710.0280	947273.6070
SC	19+46.32	676585.5839	947429.2900
CS	20+88.82	676545.2203	947564.9752
ST	22+88.82	676564.3353	947763.3642
POT	23+93.15	676607.9272	948005.0015

-LPA-

TYPE	STATION	NORTH	EAST
PT	9+86.75	677196.2115	947831.7880
SC	9+24.75	677135.4515	947820.3570
POC	9+02.01	677112.7180	947820.0823
TS	8+24.75	677035.9944	947828.6858
PI	6+50.19	676863.4840	947855.3472
POT	5+00.00	676715.9438	947883.4532

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-1"
WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 675074.6090(ft) EASTING: 947600.7120(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999799472
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
THE VERTICAL DATUM IS BASED ON NCDOT MONUMENT "GPS 1" (ELEV. 2178.27 FT.) (NAVD 1988).

NOTE: DRAWING NOT TO SCALE

6/2/99
7/7/2017
Interagency Transportation\31535-02 I-5885\Roadway\Proj\I5885_ls_01-C.dgn
User:dbowers

PROJECT REFERENCE NO.	SHEET NO.
I-5885	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER RICHARD M. SCHULER

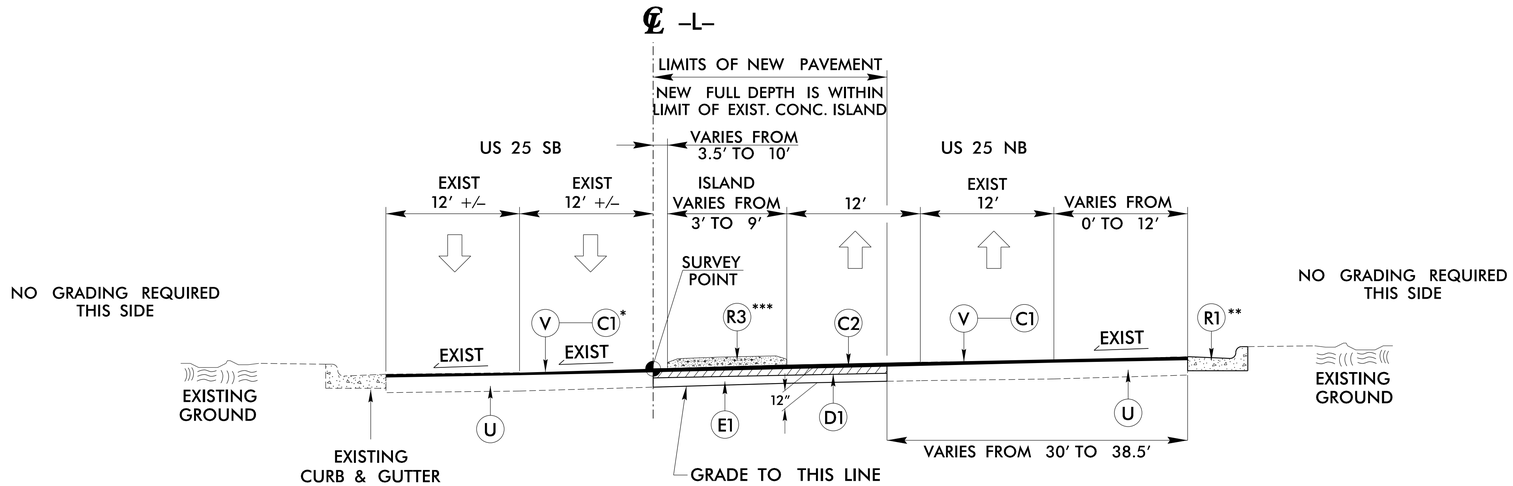
DocuSigned by: Rich M. Schuler 7/14/2017
16634024C7824FC...

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER RICHARD M. SCHULER

DocuSigned by: Rich M. Schuler 7/14/2017
16634024C7824FC...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

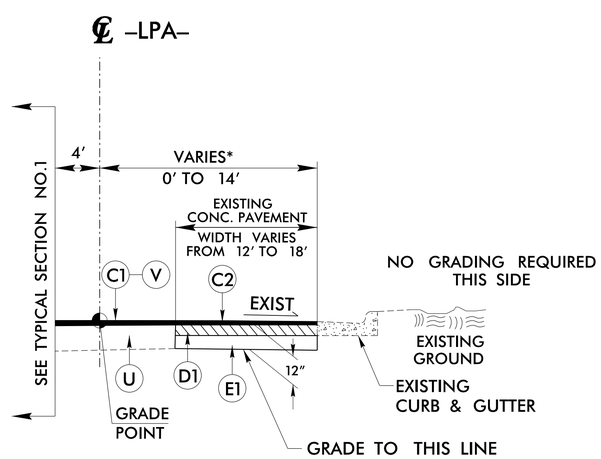
–L– STA. 10+76.79 TO STA. 20+72.08

*NOTE: MILL AND RESURFACE FROM –L– STA 10+70.00 TO 14+50.00 SOUTHBOUND LANES (LEFT SIDE)

**NOTE: NEW CURB & GUTTER FROM –L– STA. 13+10.00 TO 15+46.00 RT SIDE ONLY AND NEW CURB & GUTTER FROM –L– STA. 11+31.72 TO 12+27.75 LT SIDE

REMOVE EXISTING CURB AND GUTTER FROM
–L– STA. 11+32 LT. TO –L– STA. 12+15 LT.
–L– STA. 13+28 RT. TO –L– STA. 15+46 RT.

***NOTE: SAWCUT AND REMOVE EXISTING CONCRETE ISLAND FROM –L– STA 10+80 RT. TO 13+57 RT.



TYPICAL SECTION NO. 2

–LPA– STA. 5+00 TO 9+02.01

*NOTE: PAVEMENT TAPERS FROM 0′ AT –LPA– STA. 5+00 TO 12.5′ AT –LPA– STA. 6+00 AND 12.5′ AT –LPA– STA. 6+00 TO 14′ AT STA. 6+64

PAVEMENT STRUCTURE	
C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	2′-6″ CURB & GUTTER
R2	EXPRESSWAY GUTTER
R3	5″ MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	1½″ MILLING

6/2/99
7/13/2017
R:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885-rdy-typ.dgn
bkerrigan

PROJECT REFERENCE NO.	SHEET NO.
I-5885	2A-2

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULLER

DocuSigned by: Reece M. Schuller 16634024C7824FC... 7/14/2017

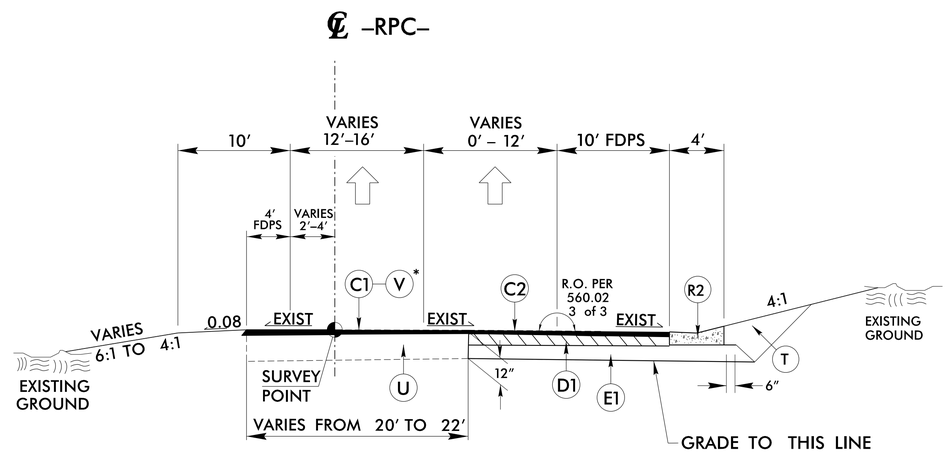
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE M. SCHULLER

DocuSigned by: Reece M. Schuller 16634024C7824FC... 7/14/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT STRUCTURE	
C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	2'-6" CURB & GUTTER
R2	EXPRESSWAY GUTTER
R3	5" MONOLITHIC ISLAND (KEYED IN)
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
V	1½" MILLING

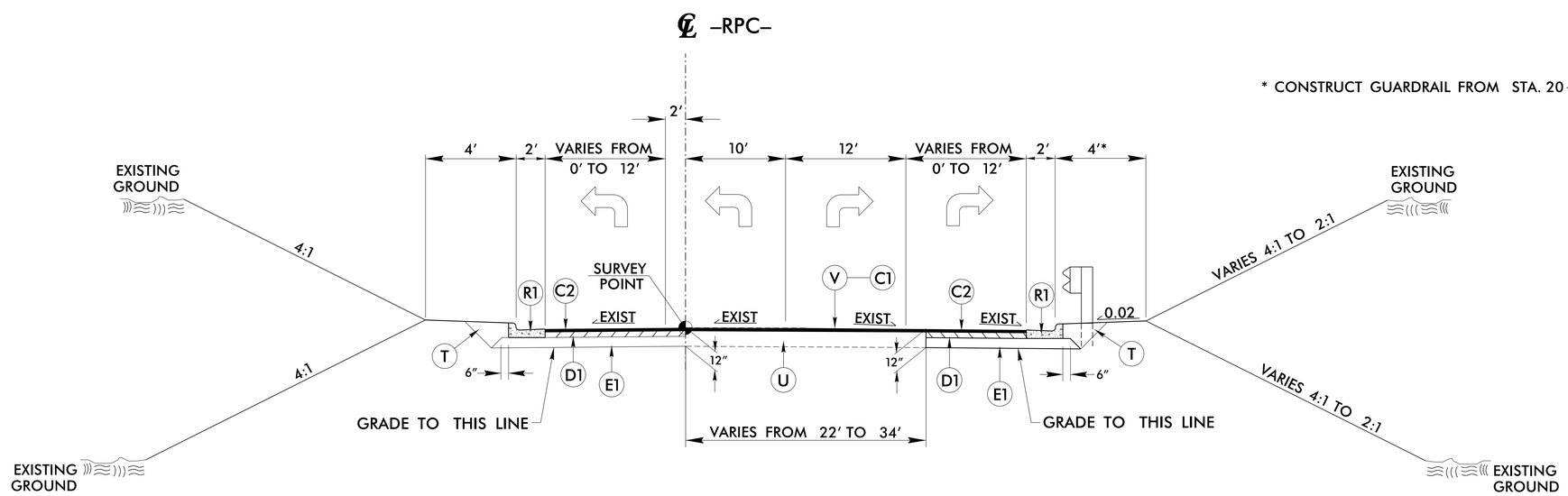


TYPICAL SECTION NO. 3

–RPC– STA. 10+00 TO 18+44.50

*NOTE: ONLY MILL AND RESURFACE FROM –RPC– STA. 10+00 TO 12+50

* CONSTRUCT GUARDRAIL FROM STA. 20+26.33 TO STA. 21+77.99.



TYPICAL SECTION NO. 4

–RPC– STA. 18+44.50 TO STA. 23+69.15

SAWCUT AND REMOVE EXISTING CURB AND GUTTER FROM –RPC– STA. 19+07 RT. TO –RPC– STA. 23+69.15 RT.

7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885-rdy-typ.dgn
User:ldavis

SUMMARY OF EARTHWORK

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
-L- STA. 10+00 TO STA. 18+00	570		29		541
SUBTOTAL SUMMARY NO.1	570		29		541
SUMMARY NO.2					
-RPC- STA. 12+50 TO STA. 23+75	1430	2000	3517	2087	2000
SUBTOTAL SUMMARY NO.2	1430	2000	3517	2087	2000
PROJECT SUBTOTAL	2000	2000	3546	2087	2541
LOSS DUE TO CLEARING AND GRUBBING	-250			250	
ADDITIONAL UNDERCUT		250	288	288	250
WASTE IN LIEU OF BORROW				-541	-541
PROJECT TOTAL	1750	2250	3834	2015	2250
EST. 5% FOR REPLACING TOP SOIL ON BORROW PITS				101	
GRAND TOTAL	1750	2250	3834	2116	2250
SAY	1800			2150	

Approximate quantities only. Unclassified excavation, borrow excavation, fine grading, and clearing and grubbing will be paid for at the contract lump sum price for "grading".

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

CONTINGENCY ITEMS:
INCIDENTAL STONE = 25 TONS
SHALLOW UNDERCUT = 100 CY
SELECT GRANULAR MATERIAL = 25 CY
GEOTEXTILE FOR SOIL STABILIZATION = 200 SY
CLASS IV SUBGRADE STABILIZATION = 100 TONS

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS					
LINE	LOCATION	ASPHALT REMOVAL	ASPHALT BREAK-UP	CONCRETE REMOVAL	CONCRETE BREAK-UP
-L-	13+06 TO 15+38	190			
-L-	13+09 TO 14+00			73	
-LPA-	5+87 TO 9+02			480	
	TOTAL	190		553	
	SAY	190		560	

"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	GRAU 350 TL-2		TYPE III	TYPE III SHOP CURVED	B-77	CAT-1	EA	G	NG				
-RPC-	20+26.33	21+77.99	RT	156.25			20+26.33				50		1				1						1					163.5		
			SUBTOTAL	156.25																										
		LESS DEDUCTIONS FOR ANCHORS																												
			GRAU-350 TL 3 1 @ 50'=	-50																										
			CAT-1 1 @ 6.25'=	-6.25																										
			PROJECT TOTALS:	100.00													1						1					163.5		
		ADDITIONAL GUARDRAIL POSTS=5 EA.																												

6/21/00
7/13/2017
Transportation\31535-02 I-5885\Roadway\Proj\I-5885_sum_PSH_03.dgn
User:ldavis

COMPUTED BY: A.M.F.	DATE: 4-27-17
CHECKED BY: R.M.S.	DATE: 4-27-17

PROJECT REFERENCE NO.	SHEET NO.
I-5885	3D-1

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".

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

| STATION | LOCATION (LT,RT, OR CL) | STRUCTURE NO. FROM | STRUCTURE NO. TO | TOP ELEVATION | INVERT ELEVATION | INVERT ELEVATION | SLOPE CRITICAL | DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12" | 15" | 18" | 24" | 30" | 36" | 42" | 48" | DO NOT USE RCP | DO NOT USE CSP | DO NOT USE CAAP | DO NOT USE HDPE | C.S. PIPE 12" | 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" | *** 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 | HEADWALLS 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") LIN. FT. PER EACH (0' THRU 5.0') | 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 | D.I. STD. 840.14 AND 840.15 | D.I. FRAME AND GRATES STD. 840.16 | G.D.I. TYPE "B" STD. 840.18 OR 840.27 | G.D.I. FRAME WITH TWO GRATES STD. 840.20 | CONVERT EXISTING C.B. TO J.B. WITH M.H. COVER | M.H. FRAME AND COVER | MODIFIED CONCRETE FLUME | CORR. STEEL ELBOWS NO. & SIZE | CONC. COLLARS CL. "B" C.Y. STD 840.72 | PIPE REMOVAL LIN.FT. | REMARKS |
|---|---|---

COMPUTED BY: DMB DATE: 10-7-16	(4-21-15)	PROJECT NO.	SHEET NO.
CHECKED BY: MJW DATE:10-7-16		I-5885	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	
				TOTAL LF:	0

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

SUMMARY OF BRIDGE WAITING PERIODS

Bridge Description	End Bent/ Bent No.	MONTHS

SUMMARY OF SETTLEMENT GAUGES

Gauge No.	LINE	Approx. Station	Approx. Offset
		TOTAL GAUGES (EACH):	

SUMMARY OF ROCK PLATING

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	Rock Plating Detail No. 1/2/3/4	Riprap Class* 1/2/B	SY
							TOTAL SY:	0

*Use Class 1, 2 or B riprap if riprap class is not shown for rock plating location.

SUMMARY OF EMBANKMENT WAITING PERIODS

LINE	Station	Station	MONTHS

SUMMARY OF SURCHARGES AND SURCHARGE WAITING PERIODS

LINE	Station	Station	Surcharge Height FT	MONTHS

SUMMARY OF REINFORCED SOIL SLOPES (RSS)

LINE	Beginning Slope	Approx. Station	Ending Slope	Approx. Station	Location LT/RT	SY
					TOTAL SY:	0

SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	Station	Station	SY
CONTINGENCY			
		TOTAL SY:	0

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type ASU/AST	Aggregate Thickness INCHES	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Soil Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
CONTINGENCY			ASU	18	100	100	200		
			TOTAL CY/TONS/SY:		100	100	200*	0	0

ASU = Aggregate Subgrade, AST = Aggregate Stabilization
*Total square yards of Geotextile for Soil Stabilization is only the estimated quantity for ASU/AST and may only represent a portion of the geotextile quantity shown in the Item Sheets of the Proposal.

DocuSign Envelope ID: 41F38AF8-8DBE-42BC-AA94-E64FD4BA0597

PROJECT REFERENCE NO.	SHEET NO.
I-5885	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER — 7/14/2017

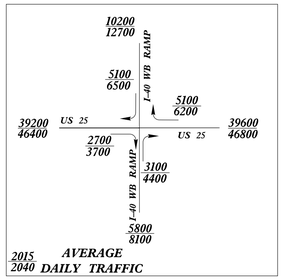
HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER — 7/14/2017

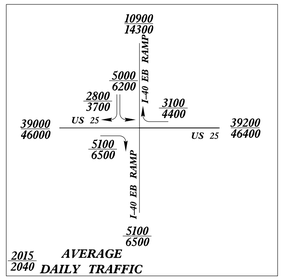
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NAD 83 /NA 2011

REVISIONS

8/17/99





-LPA-

PIs Sta 8+91.57
Θs = 12° 00' 00.4"
Ls = 100.00'
LT = 66.82'
ST = 33.47'

PI Sta 9+55.93
△ = 14° 52' 48.5" (RT)
D = 24° 00' 00.9"
L = 62.00'
T = 31.18'
R = 238.73'
SE = EXIST

-RPC-

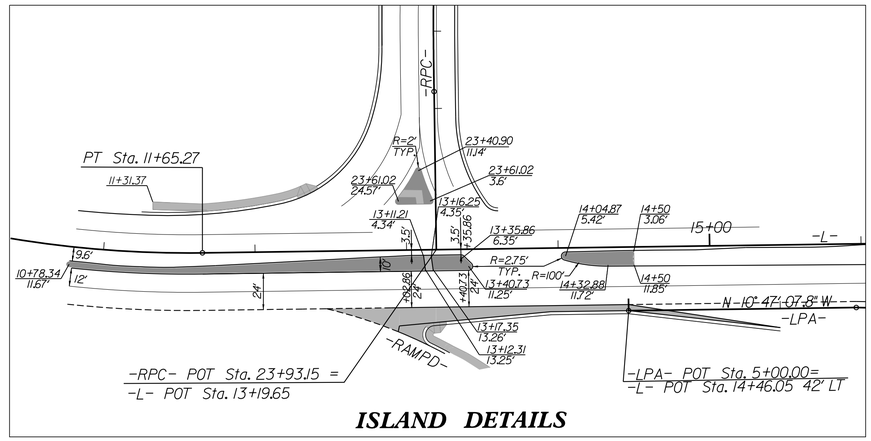
PI Sta 20+18.52
△ = 22° 48' 00.0" (LT)
D = 16° 00' 00.0"
L = 142.50'
T = 72.21'
R = 358.10'
SE = EXIST

PIs Sta 21+55.98
Θs = 16° 00' 00.0"
Ls = 200.00'
LT = 133.88'
ST = 67.17'

-L-

PI Sta 10+83.01
△ = 13° 14' 38.1" (LT)
D = 8° 00' 48.2"
L = 165.27'
T = 83.01'
R = 715.00'
SE = EXIST

PI Sta 18+59.20
△ = 17° 15' 43.9" (LT)
D = 4° 01' 24.9"
L = 429.03'
T = 216.15'
R = 1,424.00'
SE = EXIST



ISLAND DETAILS

BEGIN TIP PROJECT I-5885
-L- STA. 10+76.79

END TIP PROJECT I-5885
-L- PT Sta. 20+72.08

-L- PC Sta. 16+43.05

ONE VANDERBILT PARK CONDOMINIUM ASSOC., INC. DB 2563 PG 275

CAROLINA CONFERENCE ASSOC., INC. OF SEVENTH DAY ADVENTISTS DB 920 PG 603

MATCH LINE -RPC- STA. 22+00 SEE SHEET 5

-RPC- ST Sta. 22+88.82

N79°10'54"E

NCDOT

1 PT Sta. 11+65.27

INSTALL 10 LF OF 8"x18" CURB TIE TO EXIST.

-RPC- +30.00 EX. R/W 112.18

R=80' 4°07'51"

+03.73

+59.31 R=160'

+05.73 R=100'

TIE PROPOSED CONCRETE ISLAND TO EXISTING & MILL AND RESURFACE LIMIT FOR SB LANES

R=10'

TIE TO EXIST CURB -L- +60.77

-L- +40.00 EX. R/W 50.00

2'-6" C&G

15" CSP W/ ELBOWS

15" RCP Conv. CB To TBJB

RETAIN

R=2' TYP.

R=2.75'

Conv. CB To TBJB w/MH

R=100'

15+00

-L-

N 10° 47' 07.8" W

R=2.75' TYP.

100' TAPER

15" RCP

N 10° 47' 07.8" W

-LPA-

N 8° 47' 07.8" W

24.25'

R=325'

-RAMPD-

R=8'

2'-6" C&G

TIE TO EXIST. CURB -L- +47.13

125' TAPER

100' TAPER

-RPC- POT Sta. 23+93.15 =
-L- POT Sta. 13+19.65

TIE TO EXIST. CURB

-LPA- POT Sta. 5+00.00=
-L- POT Sta. 14+46.05 42' LT

-LPA- PI Sta. 6+50.19
△ = 2°
=-L- POT Sta. 15+96.24 42' LT

-LPA- TS Sta. 8+24.75

-LPA- SC Sta. 9+24.75

-LPA- PT Sta. 9+86.75

END CONSTRUCTION
-LPA- POS Sta. 9+02.01

NCDOT

20+00

RETAIN PC CONCRETE IN THIS AREA

BUTEL, LLC DB 4938 PG 1071

BILTMORE OIL COMPANY DB 1075 PG 13

GRACE PARTNERS, LLC DB 2590 PG 28

TRUSTEES OF BILTMORE METHODIST CHURCH DB 717 PG 39

PC Sta. 10+00.00

BM #1 ELEV.= 2159.47'
-BL- STA 8+12.80 107.21' RT.
CHISELED 'X' IN CONC CURB

BM #2 ELEV.= 2144.11'
-BL- STA. 12+39.76 37.34' RT.
NAIL IN ROOT OF 15" MAPLE

SEE SHEET 6 & 7 FOR PROFILES

7/13/2017
§13:35:02 I:\Projects\Transportation\31535-02 I-5885\Roadway\Proj\I-5885-rdy_PSH_04.dgn
User: dgaines

DocuSign Envelope ID: 41F38AF8-8DBE-42BC-AA94-E64FD4BA0597

PROJECT REFERENCE NO.	SHEET NO.
I-5885	5
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER RICHARD M. SCHULER
DocuSigned by: Richard M. Schuler
166340240C7824FC...
7/14/2017

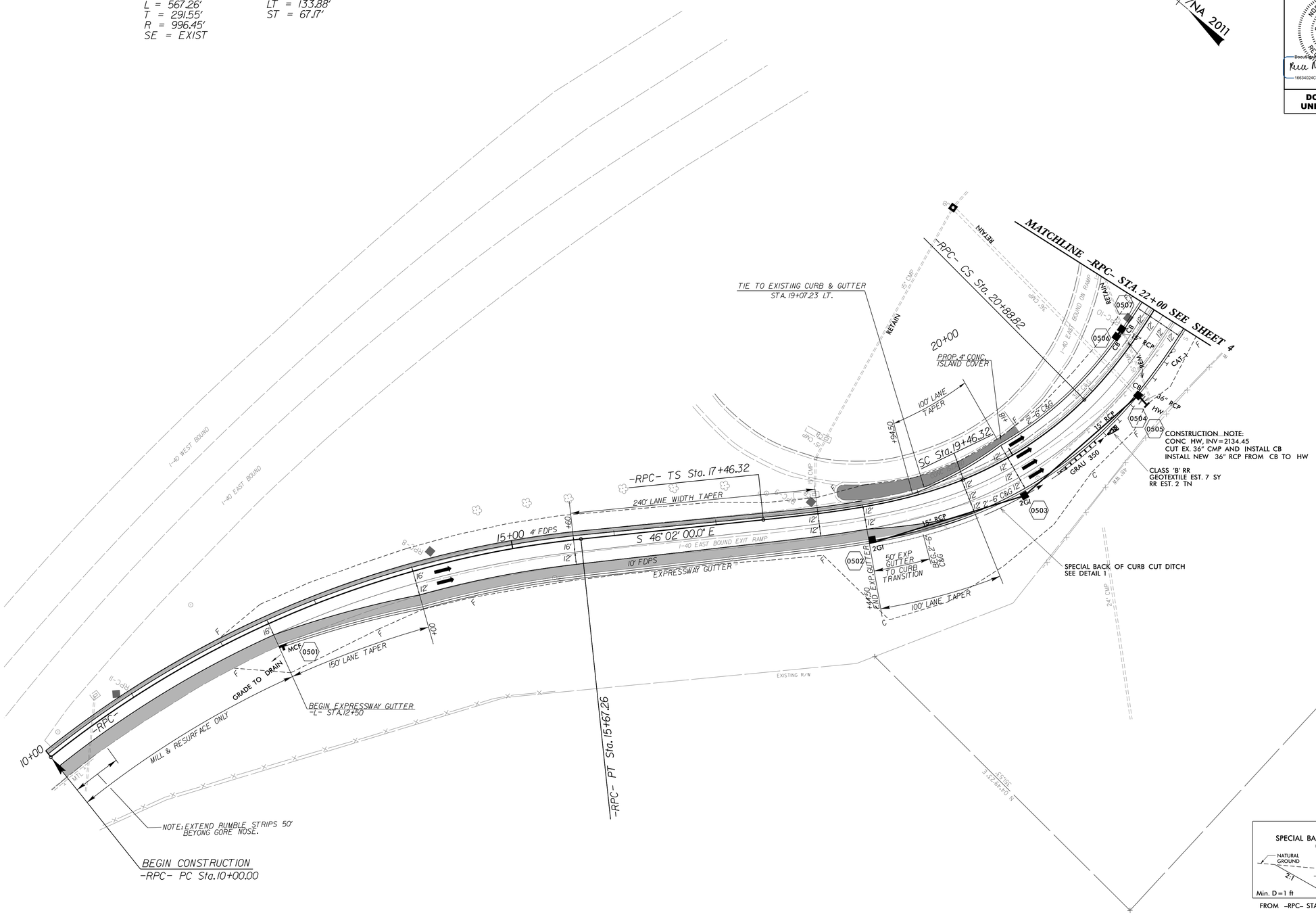
HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER BRADLEY RAMONDO
DocuSigned by: Bradley Ramondo
73D4121120A3145A...
7/14/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

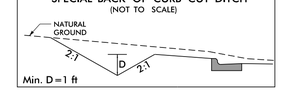
-RPC-

PI Sta 12+91.55	PIs Sta 18+80.20
△ = 32° 37' 02.5" (RT)	Θs = 16° 00' 00.0"
D = 5° 45' 00.0"	Ls = 200.00'
L = 567.26'	LT = 133.88'
T = 291.55'	ST = 67.17'
R = 996.45'	
SE = EXIST	

NAD 83 /NA 2011



DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM -RPC- STA. 18+50 TO STA. 20+80 RT.

SEE SHEET 7 FOR PROFILES

REVISIONS

8/17/99

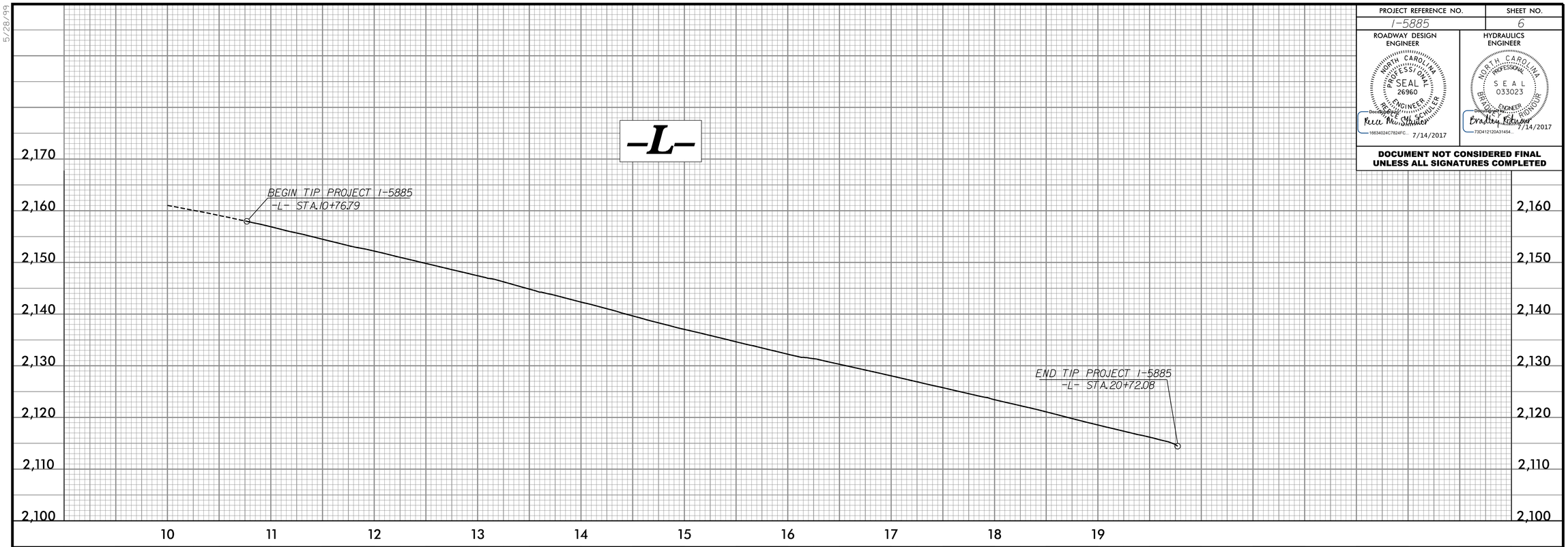
7/13/2017
$$USER$$
S:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885_rdy_PSH_05.dgn
Hesp_Bryan

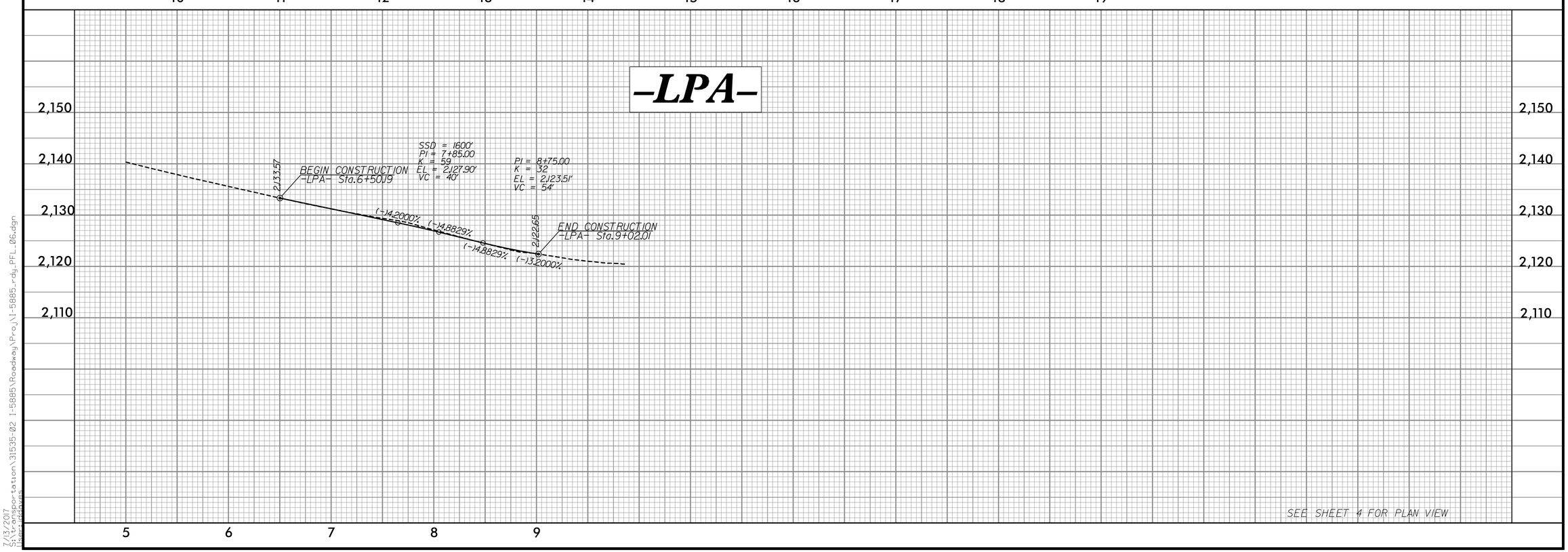
DocuSign Envelope ID: 41F38AF8-8DBE-42BC-AA94-E64FD4BA0597

PROJECT REFERENCE NO.	SHEET NO.
I-5885	6

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER REECE WO. SCHULER	NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER BRADLEY K. ROBINSON
DocuSigned by: Reece Wo. Schuler 16834024C7824FC... 7/14/2017	DocuSigned by: Bradley K. Robinson 73D412120A31454... 7/14/2017

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





5/28/99

7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885_rdy_PFL_06.dgn
USER: rwoods

DocuSign Envelope ID: 41F38AF8-8DBE-42BC-AA94-E64FD4BA0597

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
I-5885	7

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26960 ENGINEER RECEIVED CHRISTOPHER SCHULER

DocuSigned by: Rece Nic. Shuler 7/14/2017

166340240C7824FC...

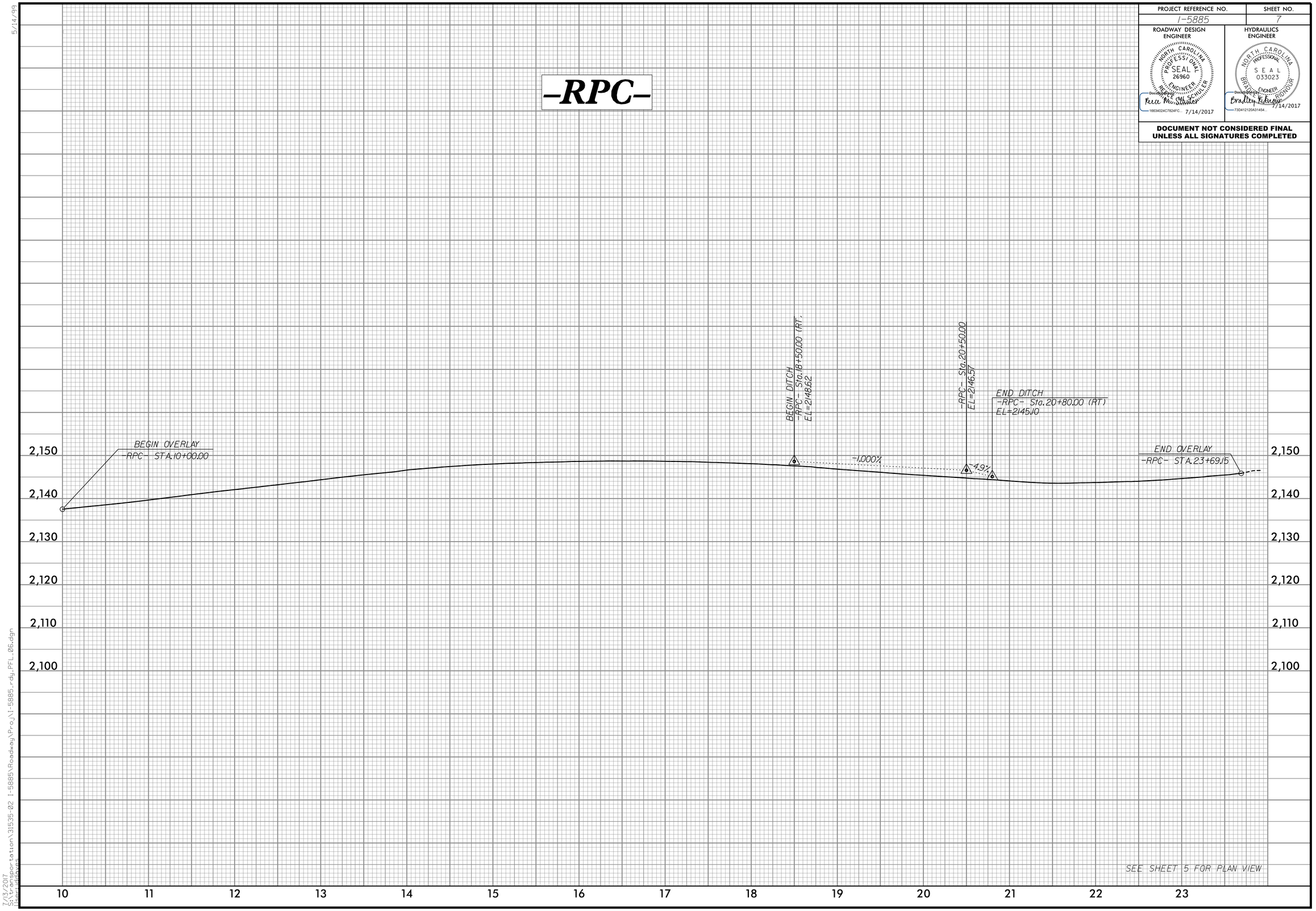
HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 033023 ENGINEER BRADLEY R. KIRKMAN

DocuSigned by: Bradley R. Kirkman 7/14/2017

73D412120A31454...

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Proj\I-5885_rdy_PFL_06.dgn
User:ryoung

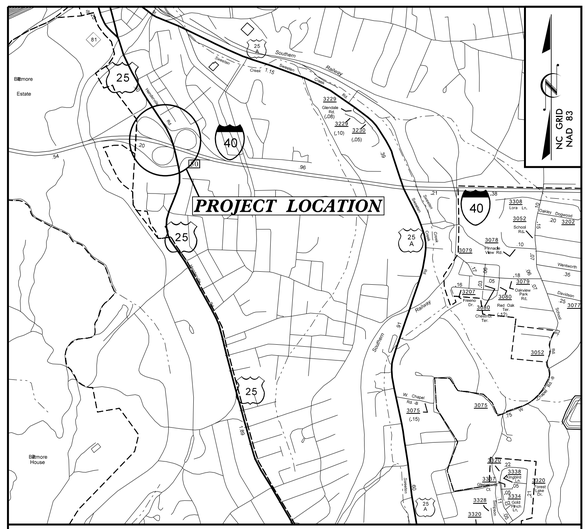
DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY

DIVISION 13



VICINITY MAP (N.T.S.)

LOCATION: I–40 (EXIT 50) AT US25 (HENDERSONVILLE ROAD)

INDEX OF SHEETS

SHEET NO.	TITLE
TMP-1	TITLE SHEET, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, LEGEND, AND TEMPORARY PAVEMENT MARKING
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-2	TEMPORARY TRAFFIC CONTROL PHASING
TMP-3 THRU TMP-4	TEMPORARY TRAFFIC CONTROL PHASE I DETAIL
TMP-5 THRU TMP-6	TEMPORARY TRAFFIC CONTROL PHASE II DETAIL
TMP-7	TEMPORARY WORK ZONE ADVANCE WARNING SIGNING DETAIL

SHEET NO.
TMP–1

TIP PROJECT: I–5885

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

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1580 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699–1580
1020 BIRCH RIDGE DRIVE, RALEIGH, NC 27610 (DELIVERY)
PHONE: (919) 250–4094 FAX: (919) 250–4098

J. S. BOURNE, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
LLOYD D.BROWN, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
REECE SCHULER, P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
C. GONZALEZ-MARTELL	TRAFFIC CONTROL DESIGN ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

V&M Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Charlotte, North Carolina 704-357-0488

Copyright © 2006 Vaughn & Melton, Inc.
All Rights Reserved

PROJECT ENGINEER LLOYD D. BROWN, P.E.
DESIGN ENGINEER C. GONZALEZ-MARTELL

APPROVED: Lloyd DeWayne Brown
DocuSigned by: 33B04DF17F574BB...
DATE: 7/14/2017

SEAL

7/7/2017
S:\transportation\31535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-1.dgn
User:jjdoves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE 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
1205.03	PAVEMENT MARKINGS - EXITS AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
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
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- PAVEMENT REMOVAL

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 MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

SIGNALS

- EXISTING
- PROPOSED
- TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

PAVEMENT MARKERS

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

TEMPORARY PAVEMENT MARKING

SYMBOL	DESCRIPTION
	PAINT
P2	WHITE STOPBAR (24")
P8	2FT. - 6FT./SP WHITE MINISKIP (4")
PA	WHITE EDGELINE (4")
PB	YELLOW EDGELINE (4")
PC	10 FT. WHITE SKIP (4")
PD	3 FT. - 9 FT./SP WHITE MINISKIP (4")
PE	WHITE SOLID LANE LINE (4")
PQ	WHITE CROSSWALK LINE (8")
	PAINT SYMBOL
QA	LEFT TURN ARROW
QB	RIGHT TURN ARROW

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: DocuSigned by: Lloyd DeWayne Brown 33954DF17F5746B...

DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

ROADWAY STANDARD DRAWINGS & LEGEND

7/7/2017
S:\Transportation\3535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-1A.dgn
User:jdaves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

PROJ. REFERENCE NO.	SHEET NO.
I-5885	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.

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
US 25	MONDAY-SUNDAY, 7:00AM-8:00PM
I-40 & RAMPS	
YORKSHIRE STREET	

B) DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

ROAD NAME

US 25
I-40 & RAMPS
YORKSHIRE STREET

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 7:00 A.M. DECEMBER 31st TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3. FOR EASTER, BETWEEN THE HOURS OF 7:00 A.M. THURSDAY AND 8:00 P.M. MONDAY.

4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY TO 8:00 P.M. TUESDAY.

5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 7:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 7:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

6. FOR LABOR DAY, BETWEEN THE HOURS OF 7:00 A.M. FRIDAY AND 8:00 P.M. TUESDAY.

7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 7:00 A.M. TUESDAY TO 8:00 P.M. MONDAY.

8. FOR CHRISTMAS, BETWEEN THE HOURS OF 7:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS	DURATION AND OPERATION
US 25 I-40 RAMPS	MONDAY-SUNDAY, 7:00AM-8:00PM	15 MIN., TIE-INS, MARKING PLACEMENT, TRAFFIC SHIFTS

D) DO NOT CONDUCT MULTI-VEHICLE HAULING AS FOLLOWS; INGRESS AND EGRESS FROM RAMPS WILL NOT BE ALLOWED:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 25 & RAMPS	MONDAY-SUNDAY, 7:00AM TO 8:00PM

E) 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

F) 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.

G) 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.

H) 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.

I) 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.

J) DO NOT INSTALL MORE THAN ONE LANE CLOSURE IN ANY ONE DIRECTION ON US 25.

PAVEMENT EDGE DROP OFF REQUIREMENTS

K) 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.

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

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

N) 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.

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

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

TRAFFIC CONTROL DEVICES

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.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
US 25	PAINT	TEMP. RAISED
I-40 EB EXIT RAMP	PAINT	TEMP. RAISED
I-40 EB ON RAMP	PAINT	TEMP. RAISED
I-40 WB ON RAMP	PAINT	TEMP. RAISED

T) 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.

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

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

W) TRACE THE EXISTING AND PROPOSED MONOLITHIC ISLAND LOCATIONS WITH PROPER COLOR PAVEMENT MARKINGS PRIOR TO REMOVAL AND INSTALLATION. PLACE DRUMS TO DELINEATE ANY EXISTING AND PROPOSED MONOLITHIC ISLANDS AFTER REMOVAL AND BEFORE INSTALLATION

MISCELLANEOUS

X) LAW ENFORCEMENT MAY BE USED TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND/OR INTERSECTIONS AS DIRECTED BY THE ENGINEER.

Y) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

LOCAL NOTES:

1) EMERGENCY VEHICLE ACCESS MUST BE MAINTAINED AT ALL TIMES.

2) NOTIFY THE BUNCOMBE COUNTY SCHOOL BOARD 30 DAYS BEFORE ANY LANE CLOSURES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Lloyd DWayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

TRANSPORTATION OPERATIONS PLAN

7/7/2017
S:\Transportation\3535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-1B.dgn
User:tdgaves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-2

PROJECT PHASING

PHASE I

STEP 1

ERECT WORK ZONE ADVANCE WARNING SIGNS ON -L- US 25 (HENDERSONVILLE ROAD), I-40 AND YORKSHIRE STREET. SEE RDWY STD 1101.01 AND TMP-7.

USING RDWY STD 1101.02 (SHEET 3 OF 15), INSTALL TEMPORARY SIGNALS NEEDED FOR CONSTRUCTION IN PHASES I & II. SEE SIGNAL PLANS FOR EXISTING AND PROPOSED SIGNAL SYSTEM.

STEP 2

ACTIVATE TEMPORARY SIGNALS AND DEACTIVATE EXISTING SIGNALS.

USING RDWY STD 1101.02 (SHEET 3 OF 15), BEGIN UTILITY AND DRAINAGE CONSTRUCTION. SEE CONSTRUCTION PLANS.

WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK REQUIRED IN PHASE I, STEP 3, FROM 8:00PM TO 7:00AM (11 CONSECUTIVE HOURS) AS DIRECTED BY THE ENGINEER. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES. HOLIDAY AND SPECIAL EVENTS LANE CLOSURE TIME RESTRICTIONS APPLY DURING THIS ICT.

STEP 3

USING RDWY STD 1101.02 (SHEET 3 OF 15), AND FLAGGERS AS NECESSARY, REMOVE EXISTING MEDIAN RAISED ISLANDS ON -L- AND DELINEATE REMOVED ISLANDS. SEE SHEET TMP-3.

STEP 4

USING RDWY STD 1101.02 (SHEETS 3 & 10 OF 15), CONSTRUCT PROPOSED -RPC- UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, AS FOLLOWS:
SEE SHEETS TMP-3 THRU TMP-4.

-RPC- STA. 10+00 ± TO -RPC- STA. 23+69 ± (LEFT SIDE ONLY)

STEP 5

USING RDWY STD 1101.02 (SHEETS 3 & 10 OF 15), CONSTRUCT PROPOSED -RPC- UP TO, BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE, AS FOLLOWS:
SEE SHEETS TMP-3 THRU TMP-4.

-RPC- STA. 10+00 ± TO -RPC- STA. 23+69 ± (RIGHT SIDE ONLY)

STEP 6

USING RDWY STD 1101.02 (SHEET 3 OF 15), AND FLAGGERS AS NECESSARY, CONSTRUCT PROPOSED -L- UP TO, BUT NOT INCLUDING THE FINAL LAYER, AS FOLLOWS:
SEE CONSTRUCTION PLANS.

- MILL AND RESURFACE FROM -L- STA. 10+77 ± TO -L- STA. 14+50 ± (LEFT SIDE ONLY)

STEP 7

USING RDWY STD 1101.02 (SHEET 3 OF 15), AND FLAGGERS AS NECESSARY, CONSTRUCT PROPOSED -L- UP TO, BUT NOT INCLUDING THE FINAL LAYER, AS FOLLOWS:
SEE CONSTRUCTION PLANS.

- -L- STA. 10+77 ± TO -L- STA. 20+72 ± (RIGHT SIDE ONLY)
- PROPOSED CURB & GUTTER FROM -L- STA. 13+10 ± TO -L- STA. 15+46 ± (RIGHT SIDE ONLY)

WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK REQUIRED IN PHASE I, STEP 8, FROM 8:00PM TO 7:00AM (11 CONSECUTIVE HOURS) AS DIRECTED BY THE ENGINEER. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES. HOLIDAY AND SPECIAL EVENTS LANE CLOSURE TIME RESTRICTIONS APPLY DURING THIS ICT.

ONE WEEK PRIOR TO CLOSURE OF -LPA- (WB I-40 ON RAMP) IN PHASE I, STEP 8, INSTALL AND ACTIVATE PORTABLE CHANGEABLE MESSAGE SIGN (C.M.S) ON -L- US 25 (NB HENDERSONVILLE ROAD) WITH MESSAGE ADVISING MOTORISTS OF UPCOMING CLOSURE. SEE SHEET TMP-3 FOR PORTABLE C.M.S. LOCATION AND MESSAGES.

STEP 8

CLOSE -LPA- WITH BARRICADES AND DRUMS, CONSTRUCT PROPOSED -LPA- UP TO FROM -LPA- STA. 5+00 ± TO -LPA- STA. 9+87 ±. SEE SHEET TMP-3.

ONCE THE WORK IS COMPLETED, REMOVE BARRICADES, DEACTIVATE PORTABLE C.M.S. AND OPEN -LPA- (WB I-40 ON RAMP).

PHASE II

WORK IN A CONTINUOUS MANNER TO COMPLETE THE WORK REQUIRED IN PHASE II, STEP 1, FROM 8:00PM TO 7:00AM (11 CONSECUTIVE HOURS) AS DIRECTED BY THE ENGINEER. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES. HOLIDAY AND SPECIAL EVENTS LANE CLOSURE TIME RESTRICTIONS APPLY DURING THIS ICT.

STEP 1

USING RDWY STD 1101.02 (SHEET 3 OF 15), AND FLAGGERS AS NECESSARY, COMPLETE THE FOLLOWING:
SEE SHEETS TMP-5 THRU TMP-6

- ACTIVATE FINAL PROPOSED SIGNALS AND DEACTIVATE AND REMOVE TEMPORARY SIGNALS
- REMOVE EXISTING CONFLICTING PAVEMENT MARKINGS AND MARKERS, AND PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS ON -L- US 25 (HENDERSONVILLE ROAD), -RPC- (EB I-40 EXIT RAMP), AND -LPA- (WB I-40 ON RAMP)
- DELINEATE PROPOSED ISLANDS

STEP 2

USING RDWY STD 1101.02 (SHEET 3 & 10 OF 15), AND FLAGGERS AS NECESSARY, PERFORM THE FOLLOWING:

- COMPLETE PROPOSED SIDEWALK, UTILITY AND DRAINAGE CONSTRUCTION BEGUN IN PHASE I
- CONSTRUCT PROPOSED FROM -L- STA. 13+10 ± TO -L- STA. 15+46 ±

STEP 3

USING RDWY STD 1101.02 (SHEETS 3 & 10 OF 15), AND FLAGGERS AS NECESSARY, PERFORM THE FOLLOWING ON -L- US 25 (HENDERSONVILLE ROAD) AND -RPC- (EB I-40 EXIT RAMP), AND -LPA- (WB I-40 ON RAMP):

- CONSTRUCT TIE-INS
- CONSTRUCT PROPOSED MONOLITHIC ISLANDS
- PLACE FINAL LAYER OF SURFACE COURSE
- PLACE FINAL PAVEMENT MARKINGS AND MARKERS ON THE ENTIRE PROJECT (SEE PAVEMENT MARKING PLANS)

STEP 4

USING RDWY STD 1101.02 (SHEET 3 OF 15), AND FLAGGERS AS NECESSARY, REMOVE ALL TRAFFIC CONTROL DEVICES.

OPEN ALL ROADS TO THEIR FINAL TRAFFIC PATTERN.

OPEN ALL SIDEWALKS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED Lloyd DeWayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

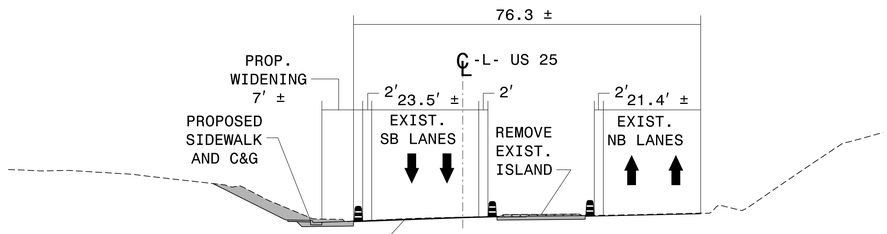
PHASING

7/7/2017
S:\Transportation\31535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-2.dgn
User:jdgaves

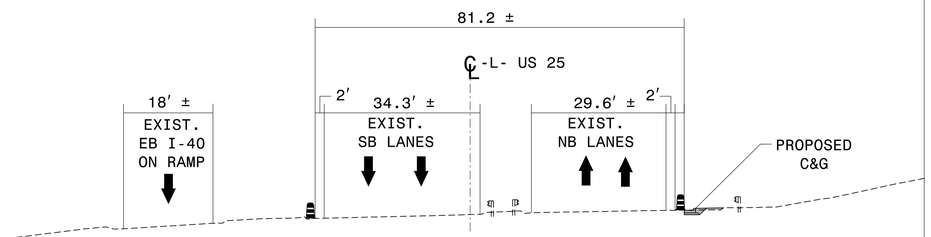
DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

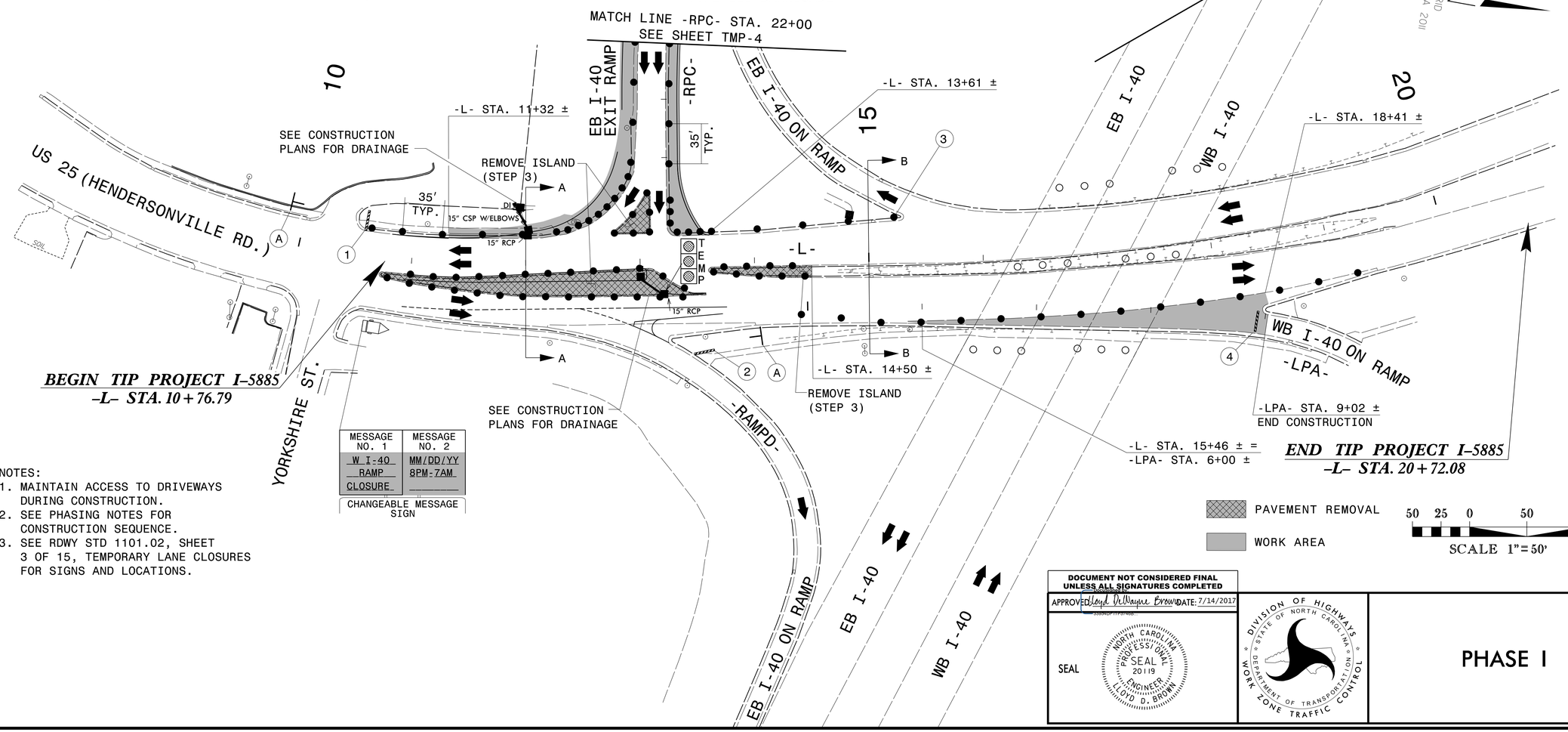
PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-3

SECTION A-A



SECTION B-B





MESSAGE NO. 1	MESSAGE NO. 2
W I-40 RAMP CLOSURE	MM/DD/YY 8PM-7AM

CHANGEABLE MESSAGE SIGN

NOTES:
1. MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION.
2. SEE PHASING NOTES FOR CONSTRUCTION SEQUENCE.
3. SEE RDWY STD 1101.02, SHEET 3 OF 15, TEMPORARY LANE CLOSURES FOR SIGNS AND LOCATIONS.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Lloyd Wayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

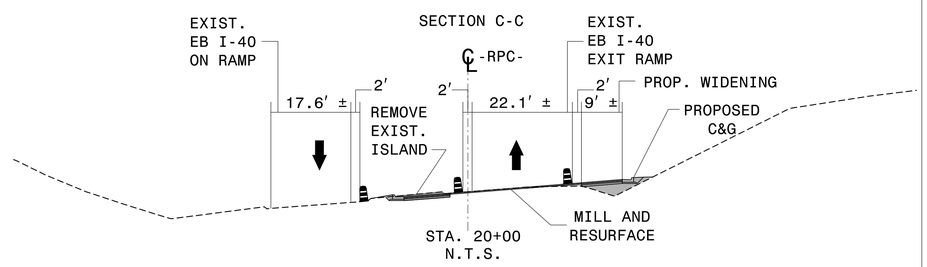
PHASE I

7/10/2017
S:\Transportation\36535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-3.dgn
User:jdgaves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

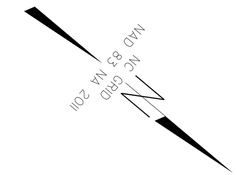
PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-4

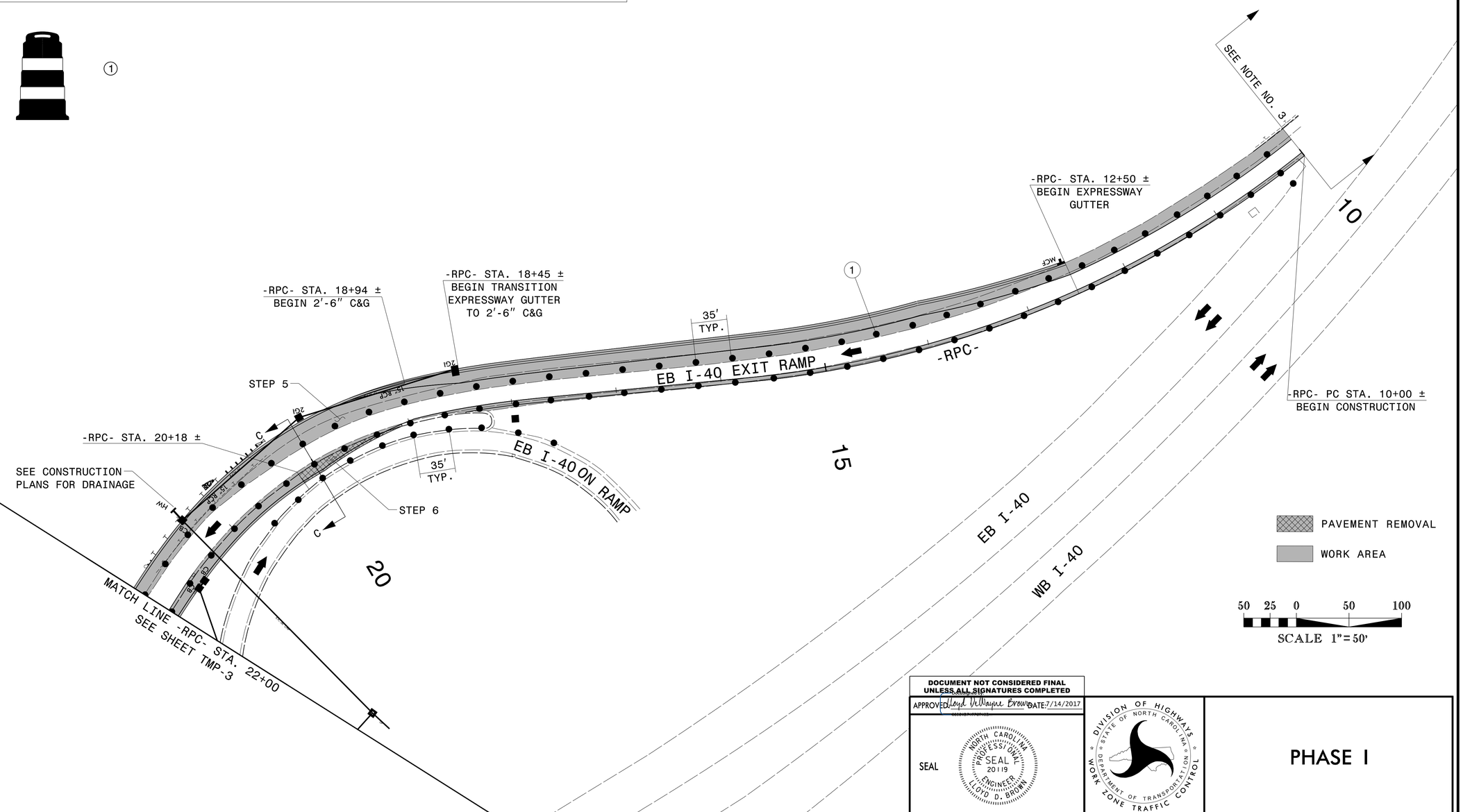
SECTION C-C



1

NOTES:
1. MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION.
2. SEE PROJECT PHASING NOTES FOR CONSTRUCTION SEQUENCE ON SHEET TMP-2.
3. SEE RDWY STD 1101.02, SHEET 10 OF 15, TEMPORARY LANE CLOSURES FOR SIGNS AND LOCATIONS.





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Lloyd DeWayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

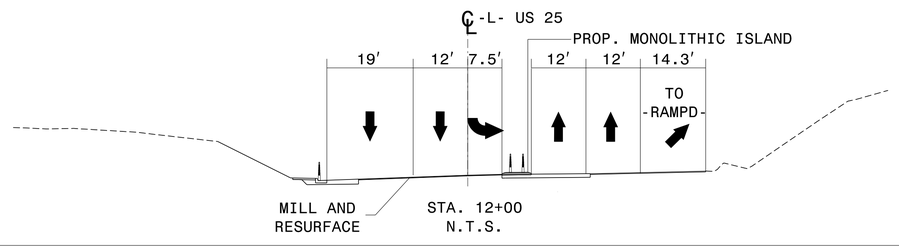
PHASE I

7/7/2017
S:\Transportation\3\535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-4.dgn
User:jgsaves

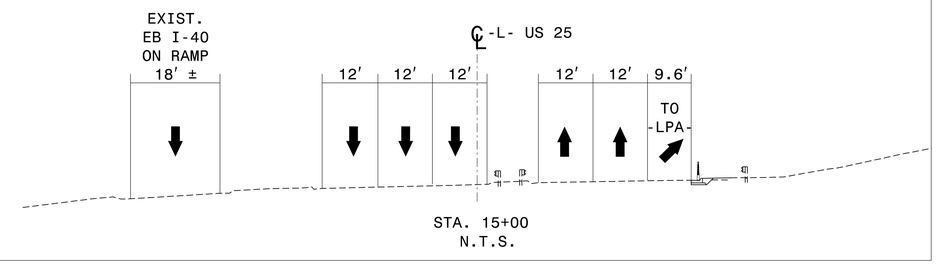
DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

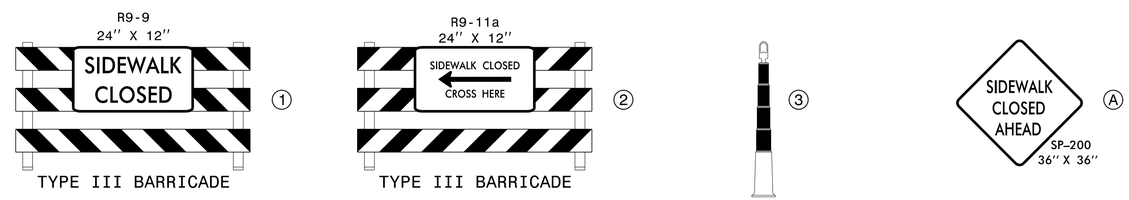
PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-5

SECTION A-A



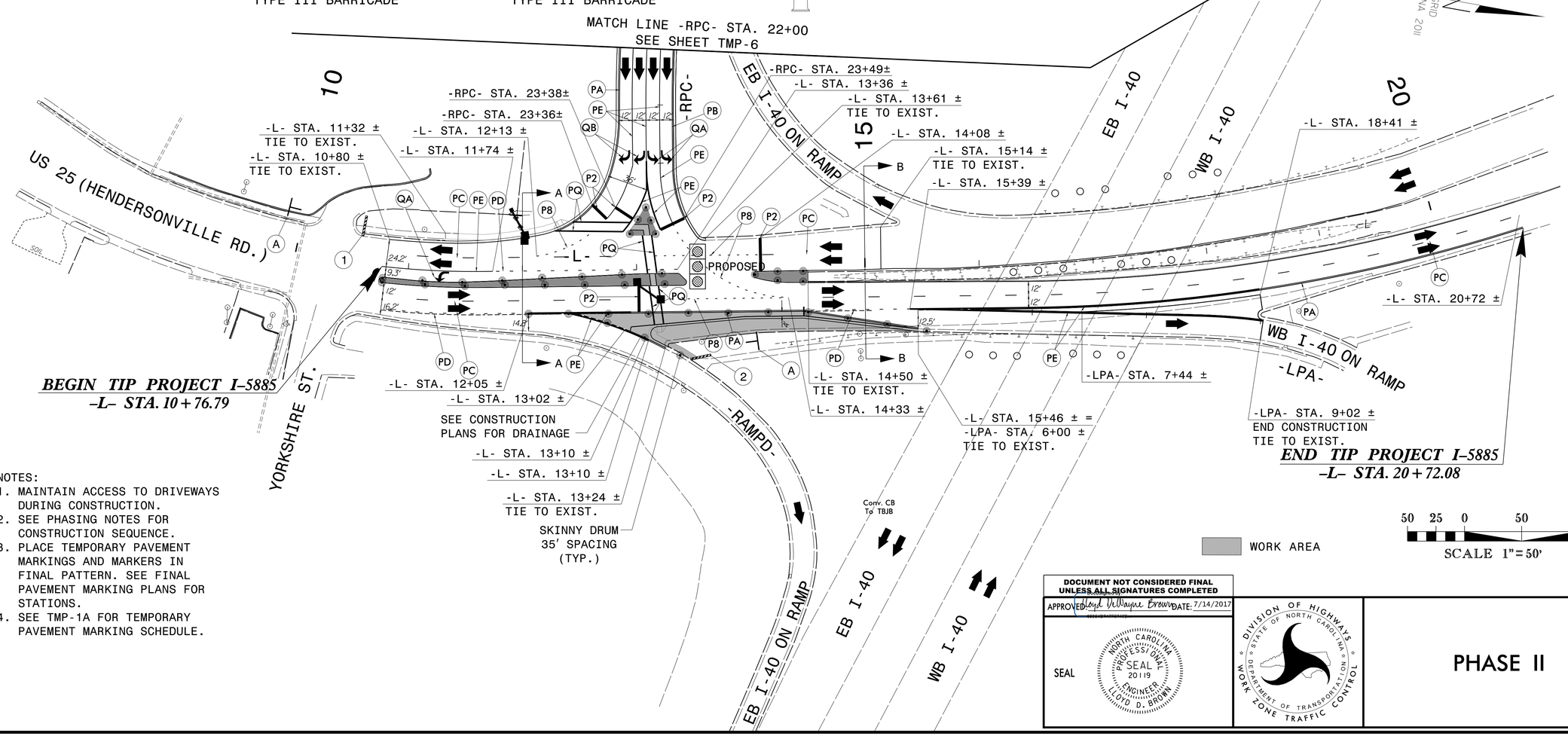
SECTION B-B





TYPE III BARRICADE

TYPE III BARRICADE



NOTES:
1. MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION.
2. SEE PHASING NOTES FOR CONSTRUCTION SEQUENCE.
3. PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS IN FINAL PATTERN. SEE FINAL PAVEMENT MARKING PLANS FOR STATIONS.
4. SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: Lloyd Vellayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

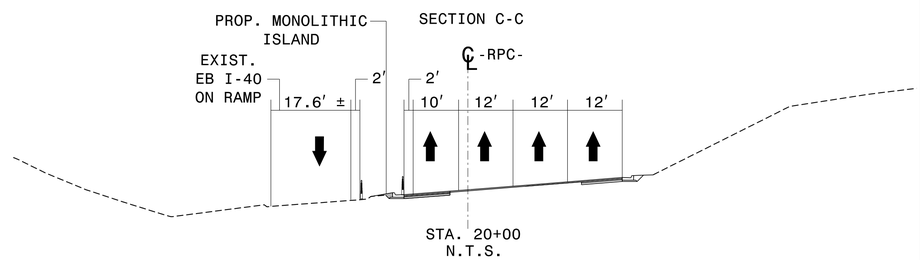
PHASE II

7/10/2017
S:\Transportation\36535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-5.dgn
User:jdgaves

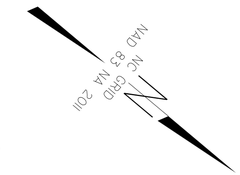
DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

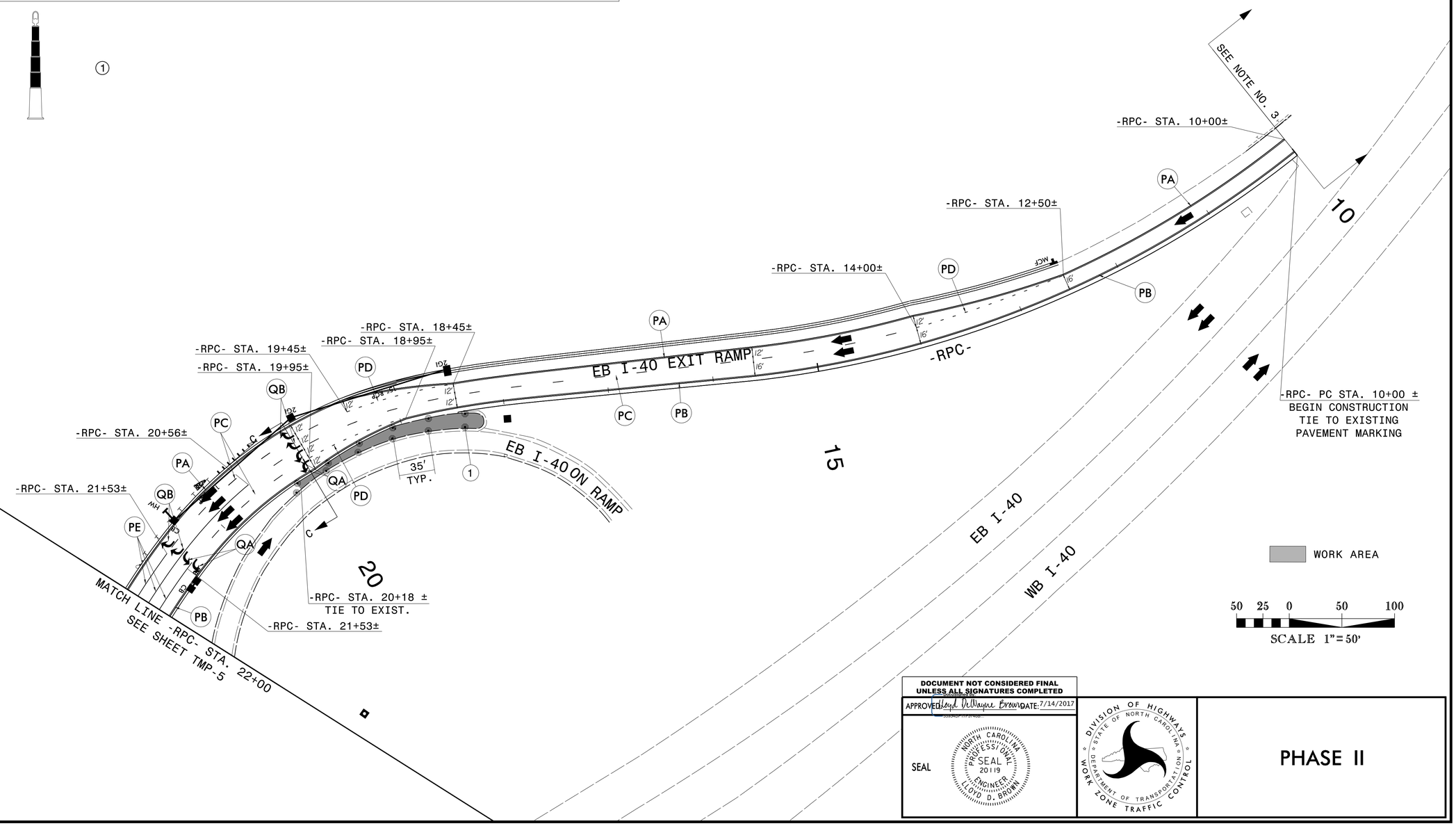
PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-6

SECTION C-C



NOTES:
1. MAINTAIN ACCESS TO DRIVEWAYS DURING CONSTRUCTION.
2. SEE PHASING NOTES FOR CONSTRUCTION SEQUENCE.
3. SEE RDWY STD 1101.02, SHEET 10 OF 15, TEMPORARY LANE CLOSURES FOR SIGNS AND LOCATIONS.
4. PLACE TEMPORARY PAVEMENT MARKINGS AND MARKERS IN FINAL PATTERN. SEE FINAL PAVEMENT MARKING PLANS FOR STATIONS.
5. SEE TMP-1A FOR TEMPORARY PAVEMENT MARKING SCHEDULE





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED Lloyd DWayne Brown DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

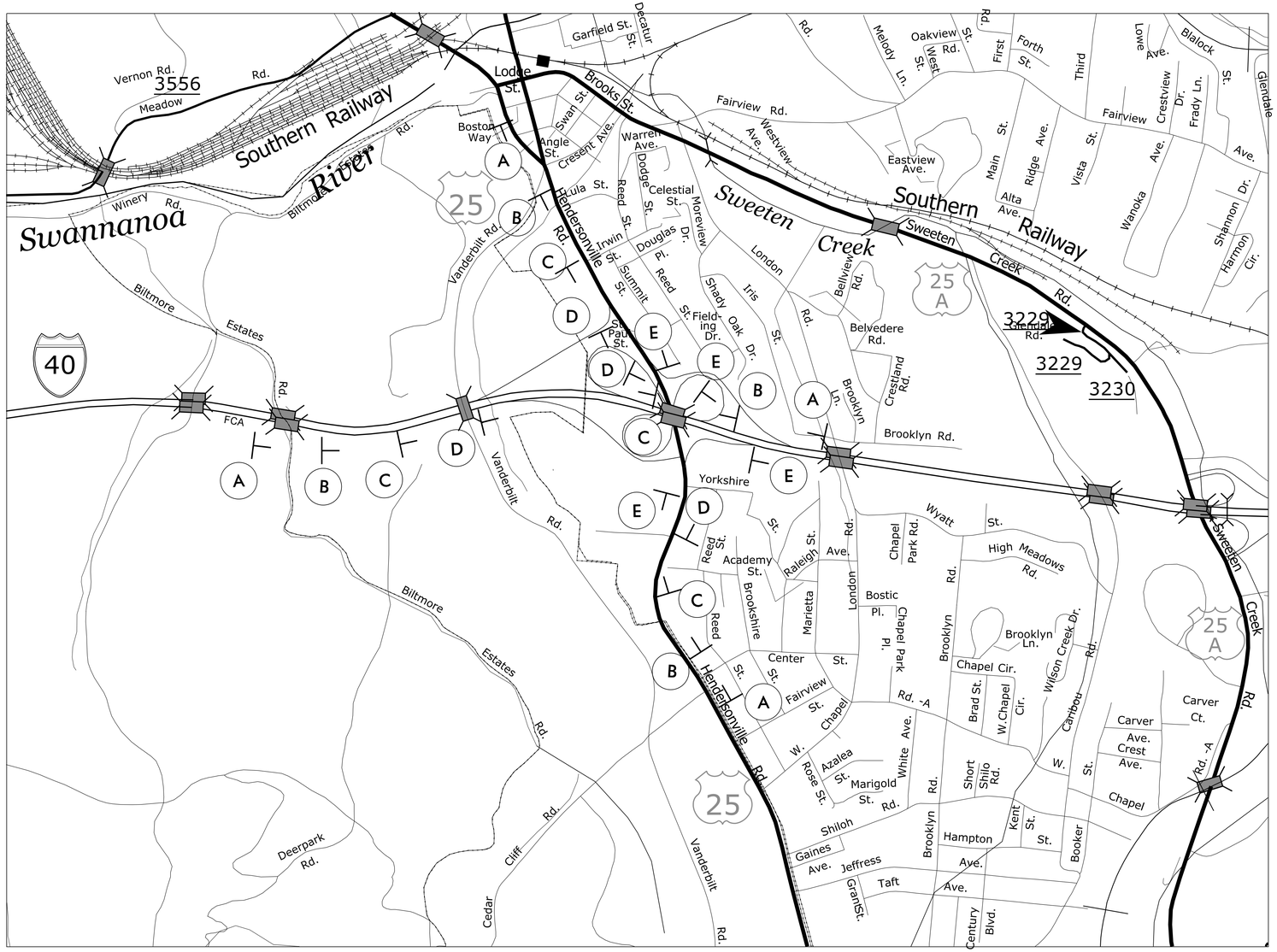
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE II

7/14/2017
S:\Transportation\3\535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-6.dgn
User:jdgaves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

PROJ. REFERENCE NO.	SHEET NO.
I-5885	TMP-7



SIGN (A)

ROAD WORK AHEAD

W20–1
48'' X 48''

SIGN (B)

ROAD WORK 1000 FT

W20–1
48'' X 48''

SIGN (C)

ROAD WORK 500 FT

W20–1
48'' X 48''

SIGN (D)

BEGIN WORK ZONE

W20–1 E
48'' X 48''

SIGN (E)

END ROAD WORK

G20–2 A
48'' X 24''

NC GRID
NAD 83 NA 2011

NOTES:

- ALL WORK ZONE SIGN LOCATIONS ARE APPROXIMATE.
- ALL WORK ZONE SIGNS ARE BLACK ON ORANGE UNLESS OTHERWISE NOTED.
- TRAFFIC CONTROL DEVICES (A) THRU (E) SHALL BE INSTALLED ACCORDING TO NCDOT ROADWAY STANDARD DRAWINGS 1101.01
- SEE NCDOT ROADWAY STANDARD DRAWING NO. 1101.02 FOR ADDITIONAL WORK ZONE TRAFFIC CONTROL DEVICES.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DocuSigned by: Lloyd DWayne Brown DATE: 7/14/2017

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

TEMPORARY WORK ZONE ADVANCE WARNING SIGNING DETAIL

7/7/2017
S:\transportation\3i535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_TMP-7.dgn
User:jddaves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

TIP NO.	SHEET NO.
I-5885	PMP-1

APPROVED: DocuSigned by: Lloyd DeWayne Brown 33954DF17F5746B...

DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BUNCOMBE COUNTY

INDEX

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN COVER SHEET
PMP-2	PAVEMENT MARKING PLAN
PMP-3	PAVEMENT MARKING PLAN

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
1205.03	PAVEMENT MARKINGS - EXIT AND ENTRANCE RAMPS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

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
US 25	THERMOPLASTIC	PERMANENT
I-40 EB EXIT RAMP	THERMOPLASTIC	PERMANENT
I-40 EB ON RAMP	THERMOPLASTIC	PERMANENT
I-40 WB ON RAMP	THERMOPLASTIC	PERMANENT

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.

F) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF COLD APPLIED PLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS ON ASPHALT OR CONCRETE ROADWAYS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE COLD APPLIED PAY ITEM.

TIP PROJECT : I-5885

$$$$$$$$$$SYSTIME$$$$$$$$$$
$$$$$$$$$$SYSTEMWE$$$$$$$$$$

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

BYRON ENGLE, P.E. DIVISION TRAFFIC ENGINEER

SIGNING & DELINEATION PROJECT DESIGN ENGINEER

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

PLAN PREPARED BY: Vaughn & Melton Consulting Engineers

LLOYD DEWAYNE BROWN, P.E. PROJECT ENGINEER

REECE SCHULER, P.E. PROJECT DESIGN ENGINEER

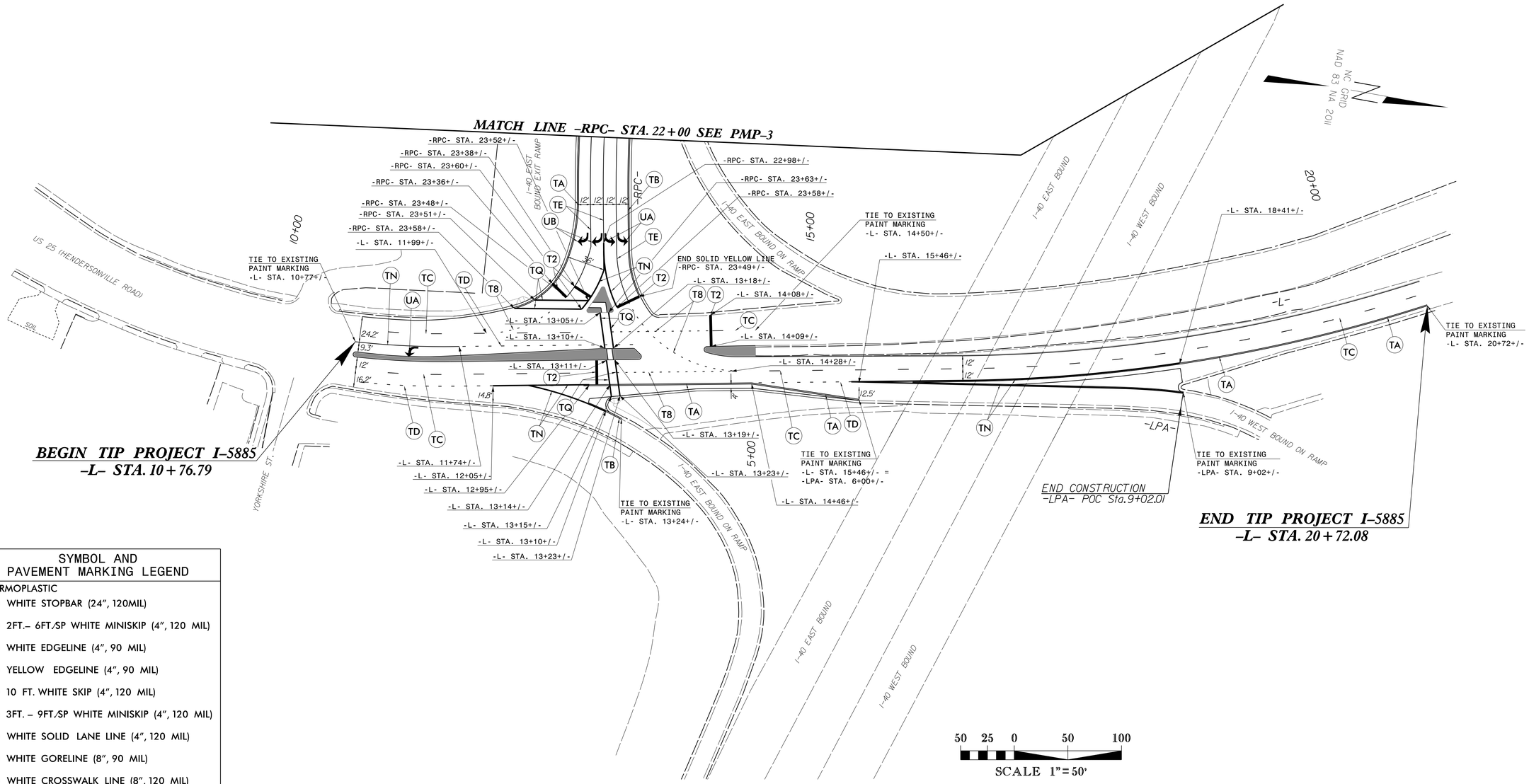
V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina
828-253-2796

Raleigh, NC 919-977-9455 | Charlotte, NC 704-357-0488 | Boone, NC 828-355-9933
Tri-Cities, TN 423-467-8401 | Tri-Cities, TN 423-467-8401 | Knoxville, TN 865-546-5800
Charleston, SC 843-974-5650 | Middlesboro, KY 606-248-6600 | Atlanta, GA 770-627-3509
Spartanburg, SC 864-574-4775

Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

PROJ. REFERENCE NO.	SHEET NO.
I-5885	PMP-2



SYMBOL AND PAVEMENT MARKING LEGEND

THERMOPLASTIC

- (T2) WHITE STOPBAR (24", 120MIL)
- (T8) 2FT.– 6FT./SP WHITE MINISKIP (4", 120 MIL)
- (TA) WHITE EDGELINE (4", 90 MIL)
- (TB) YELLOW EDGELINE (4", 90 MIL)
- (TC) 10 FT. WHITE SKIP (4", 120 MIL)
- (TD) 3FT. – 9FT./SP WHITE MINISKIP (4", 120 MIL)
- (TE) WHITE SOLID LANE LINE (4", 120 MIL)
- (TN) WHITE GORELINE (8", 90 MIL)
- (TQ) WHITE CROSSWALK LINE (8", 120 MIL)

- (UA) LEFT TURN ARROW (90 MIL)
- (UB) RIGHT TURN ARROW (90 MIL)

APPROVED: Lloyd DeWayne Brown (Docusign envelope ID: 33954DF17F5746B...)

DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT MARKING PLAN

7/7/2017
S:\Transportation\3535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_PMP-2.dgn
User:jdgoves

DocuSign Envelope ID: 218E7D7B-010C-4B2B-A86F-47B0DBF0ABF0

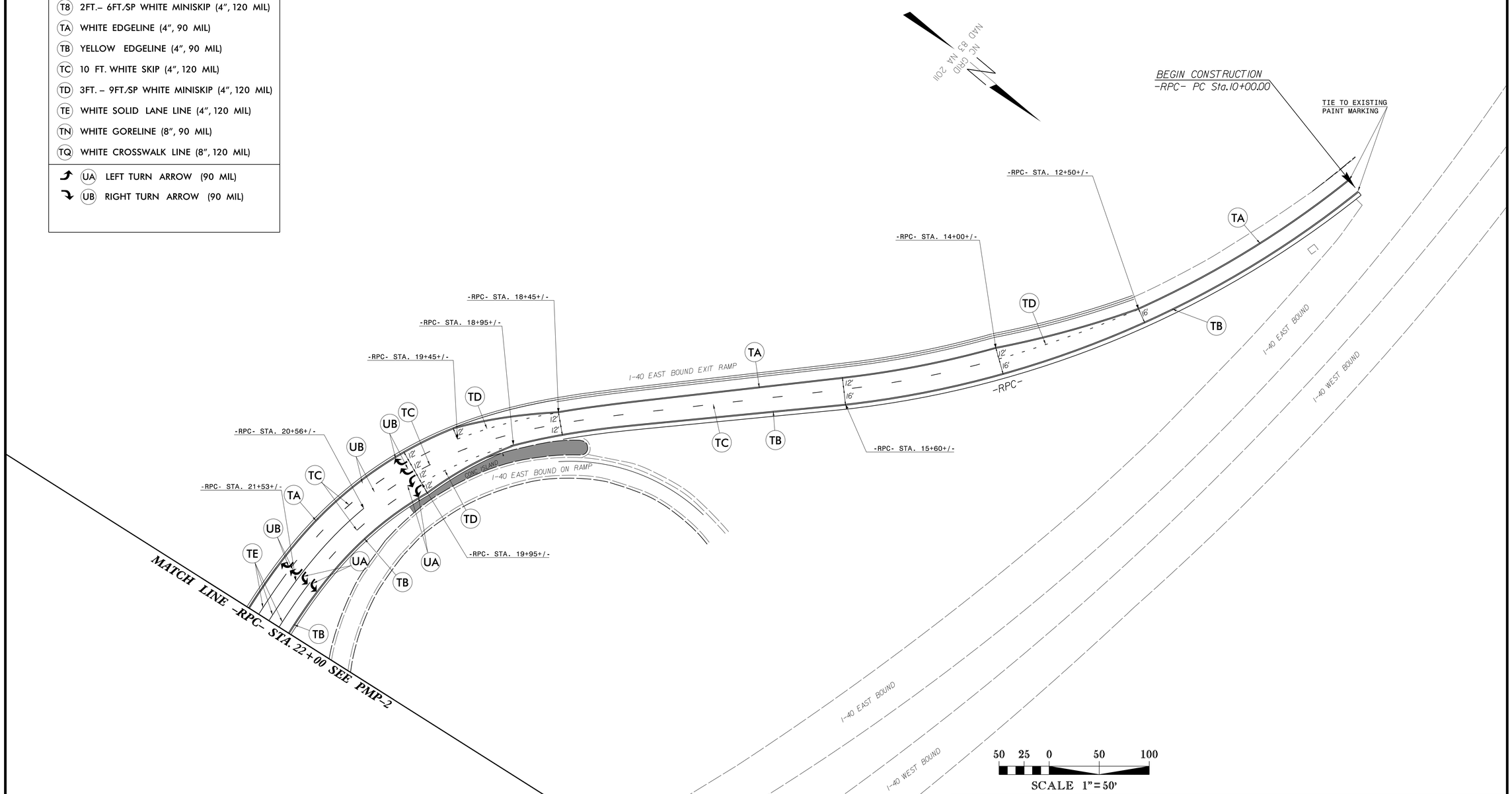
PROJ. REFERENCE NO.	SHEET NO.
I-5885	PMP-3

SYMBOL AND PAVEMENT MARKING LEGEND

THERMOPLASTIC

- (T2) WHITE STOPBAR (24", 120MIL)
- (T8) 2FT.– 6FT./SP WHITE MINISKIP (4", 120 MIL)
- (TA) WHITE EDGELINE (4", 90 MIL)
- (TB) YELLOW EDGELINE (4", 90 MIL)
- (TC) 10 FT. WHITE SKIP (4", 120 MIL)
- (TD) 3FT. – 9FT./SP WHITE MINISKIP (4", 120 MIL)
- (TE) WHITE SOLID LANE LINE (4", 120 MIL)
- (TN) WHITE GORELINE (8", 90 MIL)
- (TQ) WHITE CROSSWALK LINE (8", 120 MIL)

- (UA) LEFT TURN ARROW (90 MIL)
- (UB) RIGHT TURN ARROW (90 MIL)



50 25 0 50 100

SCALE 1"=50'

APPROVED: Lloyd DeWayne Brown

DATE: 7/14/2017

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 20119 ENGINEER LLOYD D. BROWN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

PAVEMENT MARKING PLAN

7/7/2017
S:\transportation\31535-02 I-5885\Traffic\TrafficControl\TCP\I-5885_PMP-3.dgn
User:jgdaves

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-1/CONS-4

EROSION CONTROL PLAN

V&M
Vaughn & Melton
Consulting Engineers
Asheville, North Carolina
828-253-2796

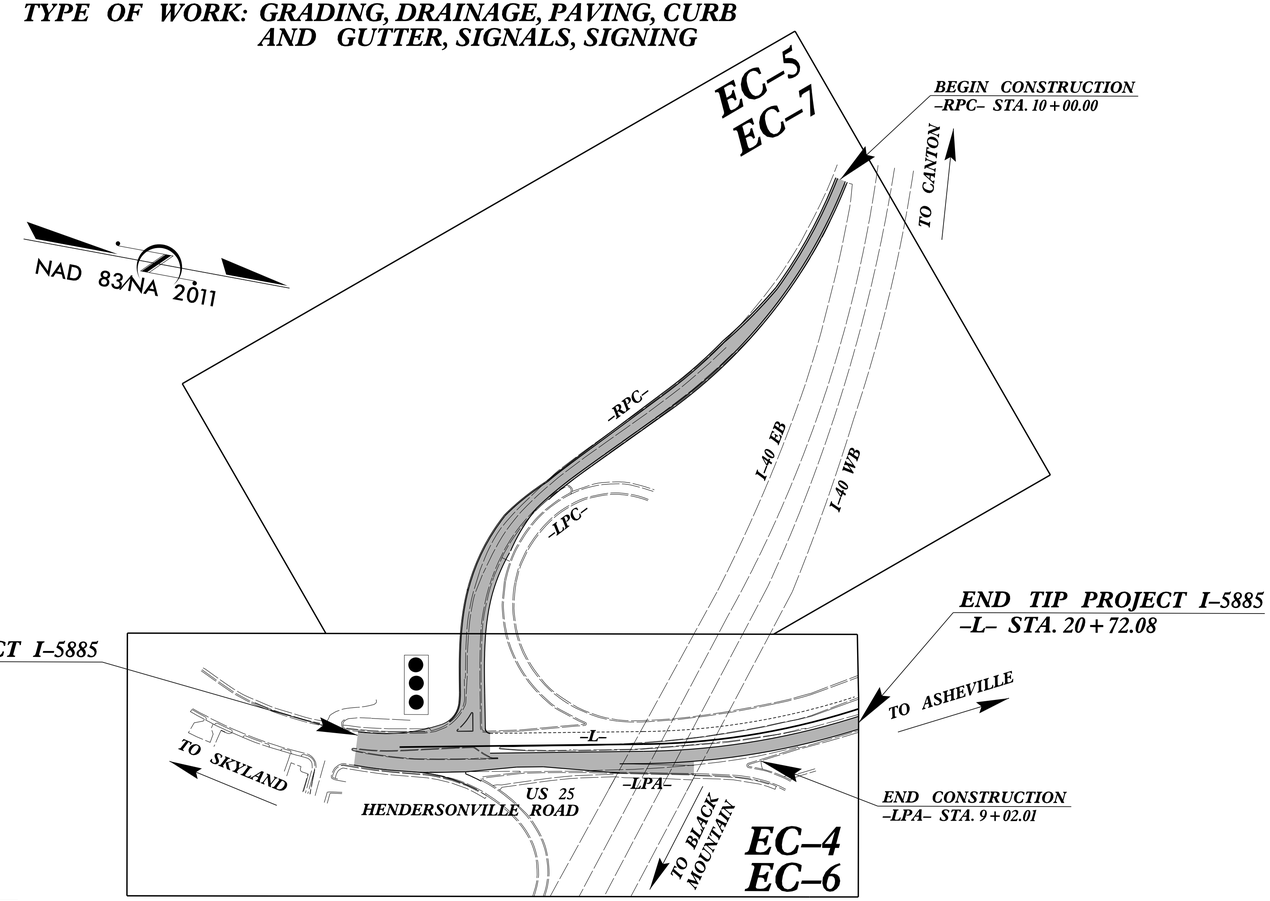
- Boone, NC 828-355-9933
- Tri-Cities, TN 423-467-8401
- Knoxville, TN 865-546-5800
- Spartanburg, SC 864-574-4175
- Charleston, SC 843-974-5650
- Middlesboro, KY 606-248-6600
- Atlanta, GA 770-627-3509
- Raleigh, NC 919-977-9455
- Charlotte, NC 704-357-0488

Copyright © 2006 Vaughn & Melton, Inc. All Rights Reserved

Place Matting for Erosion Control on Slope as Work Allows.

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.

TYPE OF WORK: GRADING, DRAINAGE, PAVING, CURB AND GUTTER, SIGNALS, SIGNING



Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1632.03	Rock Inlet Sediment TrapType C	
1633.01	Temporary Rock Silt Check Type-A	
1634.01	Temporary Rock Sediment Dam-Type A with Polyacrylamide (PAM)	

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

2012 STANDARD SPECIFICATIONS

Level III-A: Designer of Erosion and Sediment Control Plans

CONNOR BOYLE
Date Issued: December 2016
Date Expires: December 2019
Certification Number: 3469

2012 STANDARD DRAWINGS

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		

PROJECT NO. I-5885
COUNTY BUNCOMBE

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

I-40 (EXIT 50) AT US25
(HENDERSONVILLE ROAD)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	EC-1
1			3			TOTAL SHEETS
2			4			

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

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.
I-5885	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

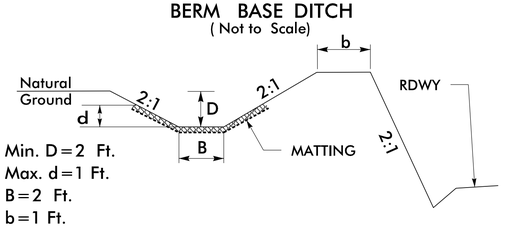
CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					5,625
				TOTAL	5,625
				SAY	
	**EROSION CONTROL MATTING TO BE PLACED ON ALL DISTURBED SLOPES				

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
			SUBTOTAL		
		ADDITIONAL PSRM TO BE INSTALLED			
				TOTAL	
				SAY	

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-4/CONS-4

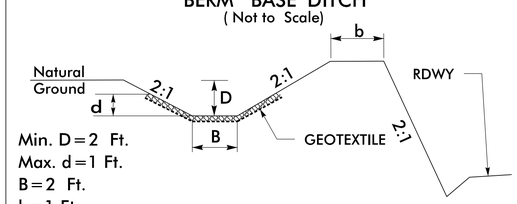
DETAIL A
BERM BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 1 Ft.
Type of Liner = MATTING

RPC: FROM STA. 22 + 95 TO STA. 22 + 44

TEMPORARY DIVERSON DITCH
BERM BASE DITCH
(Not to Scale)



Min. D = 2 Ft.
Max. d = 1 Ft.
B = 2 Ft.
b = 1 Ft.
Type of Liner = CLASS B RIPRAP

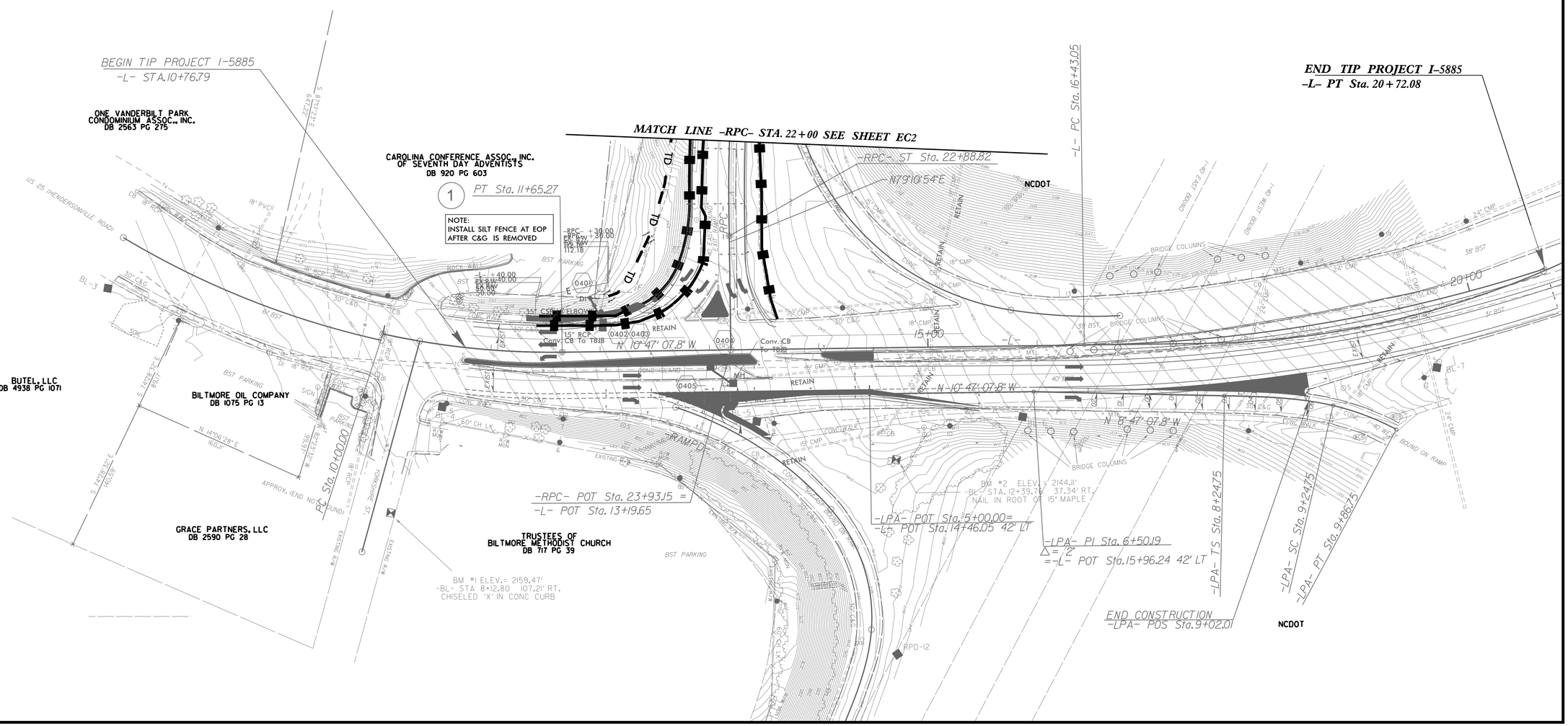
RPC: FROM STA. 22 + 44 TO STA. 21 + 66

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NAD 83 / NA 2011

Level III–A: Designer of Erosion and Sediment Control Plans

CONNOR BOYLE
Date Issued: December 2016
Date Expires: December 2019
Certification Number: 3469



REVISIONS

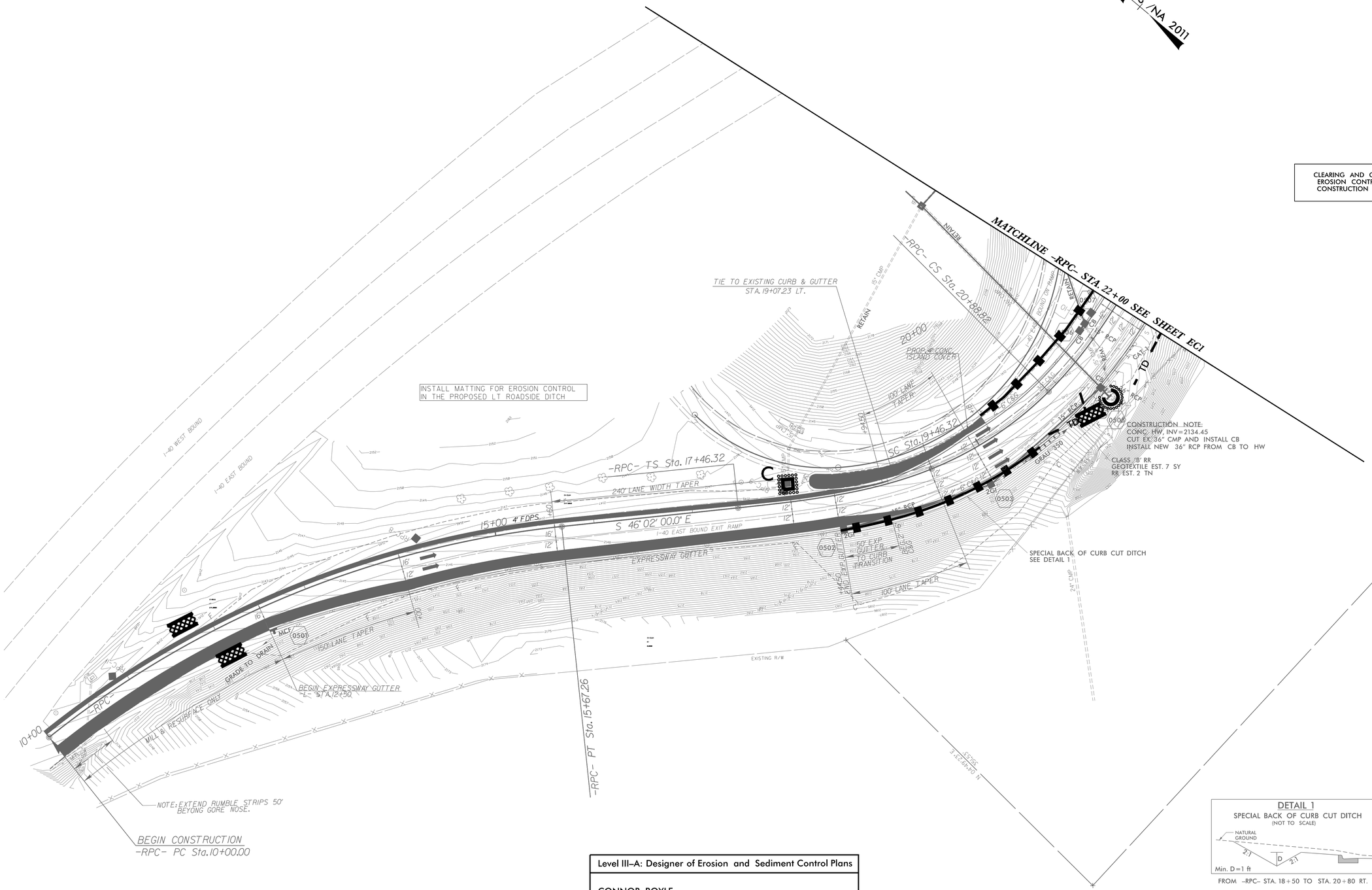
8/17/99

7/13/2017
S:\Transportation\31535_02 I-5885\Environmental\I-5885_env_EC4.dgn
User: dfavors

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-5

NAD 83 /NA 2011

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5



DETAIL 1

SPECIAL BACK OF CURB CUT DITCH

(NOT TO SCALE)

FROM -RPC- STA. 18+50 TO STA. 20+80 RT.

Level III-A: Designer of Erosion and Sediment Control Plans

CONNOR BOYLE
Date Issued: December 2016
Date Expires: December 2019
Certification Number: 3469

REVISIONS

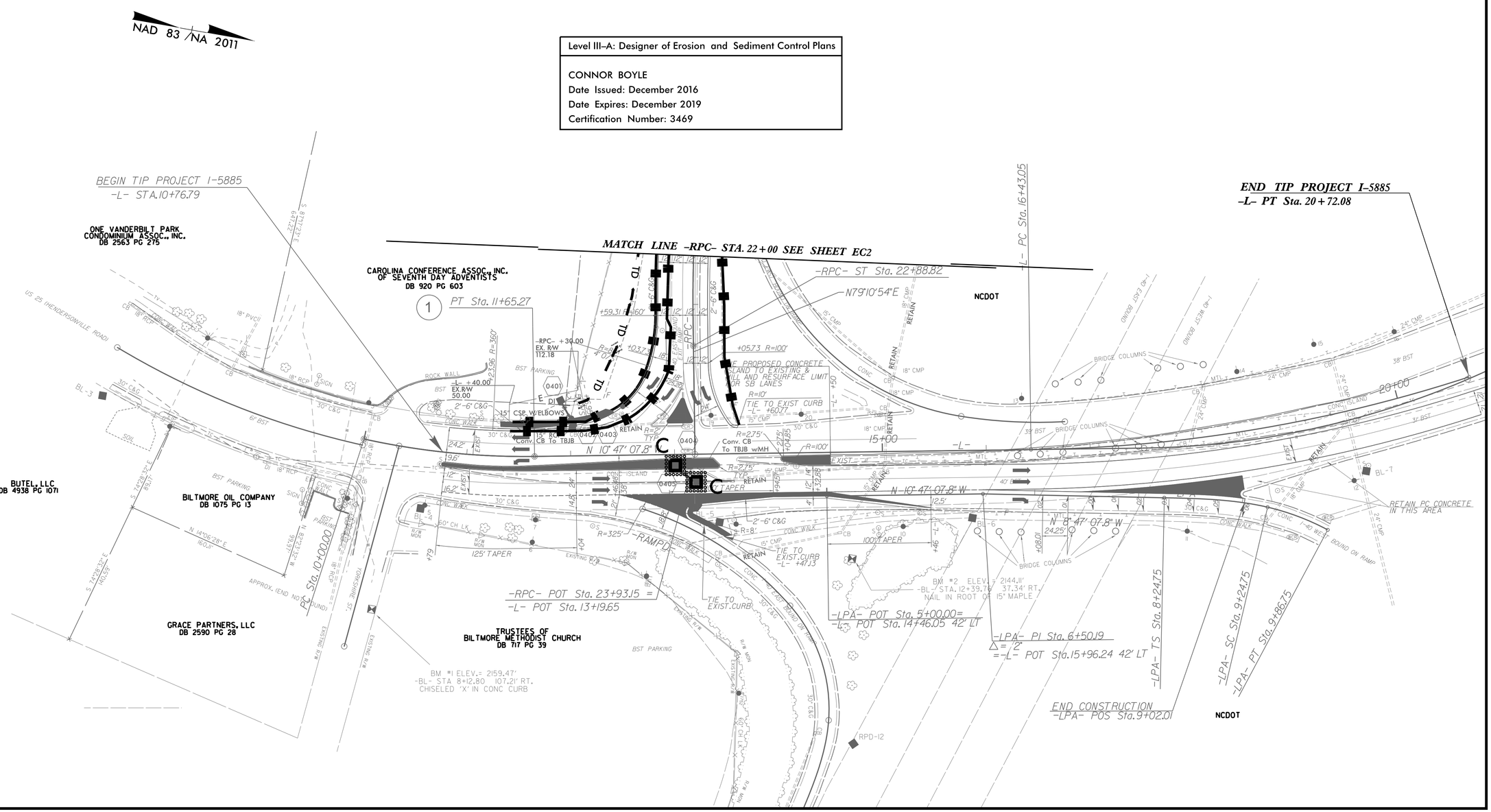
8/17/99

7/13/2017
S:\Transportation\31535-02 I-5885\Environmental\I-5885_env_EC5.dgn
jsergent/jsyers

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-6/CONS-4

Level III–A: Designer of Erosion and Sediment Control Plans

CONNOR BOYLE
Date Issued: December 2016
Date Expires: December 2019
Certification Number: 3469



REVISIONS

8/17/99

7/14/2017
S:\Transportation\31535.02 I-5885\Environmental\I-5885_env_EC6.dgn
User: jdavis

PROJECT REFERENCE NO.	SHEET NO.
I-5885	EC-7

NAD 83 /NA 2011

MATCHLINE -RPC- STA. 22+00 SEE SHEET EC1

TIE TO EXISTING CURB & GUTTER
STA. 19+07.23 LT.

-RPC- CS Sta. 20+88.82

20+00

PROP. 4" CONC. ISLAND COVER

100' LANE TAPER

SC Sta. 19+46.32

-RPC- TS Sta. 17+46.32

240' LANE WIDTH TAPER

15+00 4" FDPS

S 46° 02' 00.0" E

I-40 EAST BOUND EXIT RAMP

EXPRESSWAY GUTTER

50' EXP GUTTER TO CURB TRANSITION

100' LANE TAPER

150' LANE TAPER

GRADE TO DRAIN

BEGIN EXPRESSWAY GUTTER
-L- STA. 12+50

MILL & RESURFACE ONLY

NOTE: EXTEND RUMBLE STRIPS 50' BEYONG GORE NOSE.

BEGIN CONSTRUCTION
-RPC- PC Sta. 10+00.00

-RPC- PT Sta. 15+67.26

10+00

I-40 WEST BOUND

I-40 EAST BOUND

INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED LT ROADSIDE DITCH

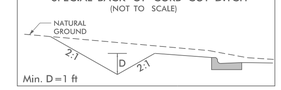
EXISTING R/W

CONSTRUCTION NOTE:
CONC HW, INV=2134.45
CUT EX. 36" CMP AND INSTALL CB
INSTALL NEW 36" RCP FROM CB TO HW

CLASS 'B' RR
GEOTEXTILE EST. 7 SY
RR EST. 2 TN

SPECIAL BACK OF CURB CUT DITCH
SEE DETAIL 1

DETAIL 1
SPECIAL BACK OF CURB CUT DITCH
(NOT TO SCALE)



FROM -RPC- STA. 18+50 TO STA. 20+80 RT.

Level III-A: Designer of Erosion and Sediment Control Plans

CONNOR BOYLE
Date Issued: December 2016
Date Expires: December 2019
Certification Number: 3469

REVISIONS

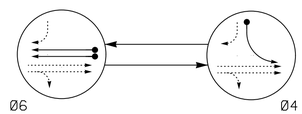
8/17/99

7/13/2017
S:\Transportation\31535-02 I-5885\Environmental\I-5885_env_EC7.dgn
jeerickson

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-1

NORMAL PHASING DIAGRAM



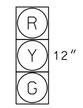
PHASING DIAGRAM DETECTION LEGEND

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

NORMAL PHASING TABLE OF OPERATION			
SIGNAL FACE	PHASE		
	Ø6	Ø4	FLASH
41,42	R	G	R
61,62	G	R	Y

SIGNAL FACE I.D.

All Heads L.E.D.



41, 42
61, 62

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART												
INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
4A	6X60	+5	2-4-2	Y	4/12	Y	Y	-	-	-	-	Y
6A,6B	6X6	70	EXIST	-	6/14	Y	Y	-	-	-	-	Y
S9	6X6	✳	EXIST	-	-	Y	Y	-	-	-	Y	Y
S10	6X6	✳	EXIST	-	-	Y	Y	-	-	-	Y	Y
S11	6X6	+200	4	Y	-	Y	Y	-	-	-	Y	Y
S12	6X6	+200	4	Y	-	Y	Y	-	-	-	Y	Y

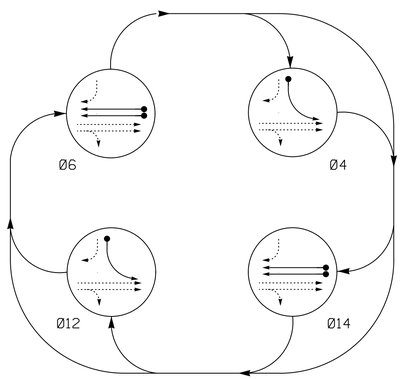
✳ As shown on plans.

2 Phase
Fully Actuated
(Asheville Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Set all detector units to presence mode.
4. Pavement markings are existing.
5. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
6. The Division Traffic Engineer will determine the hours of operation for each phasing plan.
7. Coordination may be required with U-4715B (Asheville Signal System Upgrade) project.
8. Closed loop system data: Controller Asset # 0291.

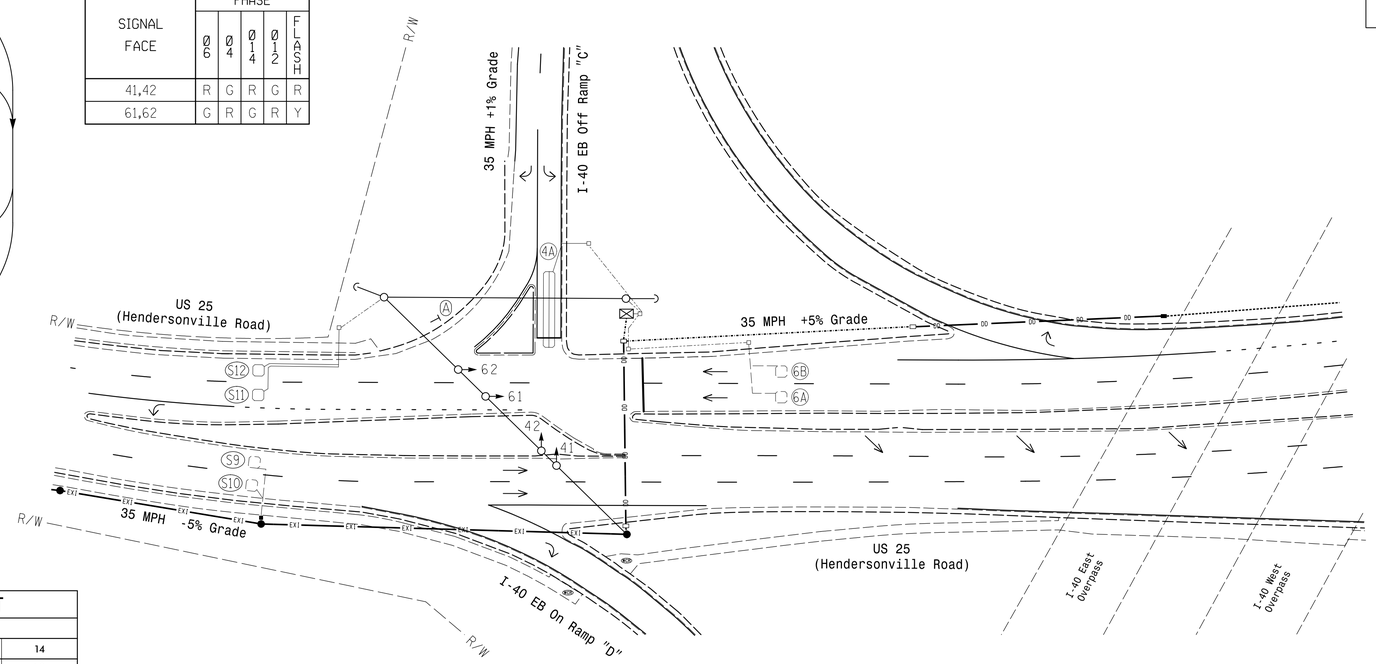
ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

ALTERNATE PHASING TABLE OF OPERATION					
SIGNAL FACE	PHASE				
	Ø6	Ø4	Ø14	Ø12	FLASH
41,42	R	G	R	G	R
61,62	G	R	G	R	Y



LEGEND

PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Over-sized Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
N/A	Wheelchair Ramp	WCR
	Underground Conduit (Fiber)	
N/A	Fiber Optic Communications Cable	EXI
N/A	"YIELD" Sign (R1-2)	A

OASIS 2070 TIMING CHART

FEATURE	PHASE 4	PHASE 6	PHASE 12	PHASE 14
Min Green 1 *	7	10	7	10
Extension 1 *	2.0	3.0	2.0	3.0
Max Green 1 *	15	40	30	40
Yellow Clearance	3.0	3.6	3.0	3.6
Red Clearance	2.3	1.2	2.3	1.2
Red Revert	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-
Don't Walk 1	-	-	-	-
Seconds Per Actuation *	-	-	-	-
Max Variable Initial *	-	-	-	-
Time Before Reduction *	-	-	-	-
Time To Reduce *	-	-	-	-
Minimum Gap	-	-	-	-
Recall Mode	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	YELLOW
Dual Entry	-	-	-	-
Simultaneous Gap	ON	ON	ON	ON

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

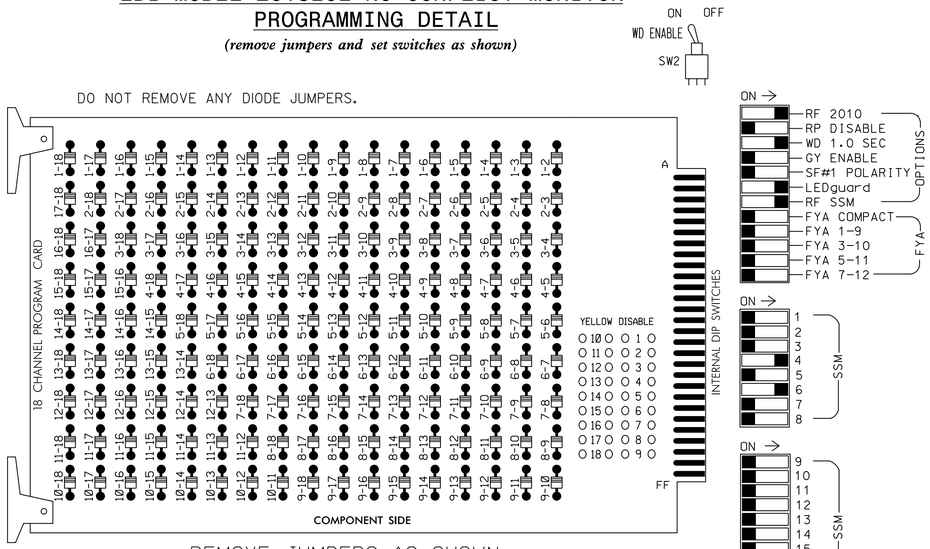
$$$

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-2

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



■ = DENOTES POSITION OF SWITCH

NOTES:

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

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phase 6 for Start Up In Green.
4. Program phase 6 for Yellow Flash.
5. The cabinet and controller are part of the Asheville (Hendersonville Road) Closed Loop Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	OLH	4 PED	5	OLJ	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	NU	NU	NU	41,42	NU	NU	61,62	NU	NU	NU	NU
RED					101			134				
YELLOW					102			135				
GREEN					103			136				
RED ARROW												
YELLOW ARROW												
GREEN ARROW												

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS..12
LOAD SWITCHES USED.....S5,S8
PHASES USED.....4,6,12*,14*
OVERLAP H.....4+12
OVERLAP J.....6+14

* Used only in ALT Phasing.

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' SEVEN TIMES

```
PAGE 1: VEHICLE OVERLAP 'H' SETTINGS
PHASE:          ¦123456789101112131415 16
VEH OVL PARENTS:¦   X           X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+' TWICE

```
PAGE 1: VEHICLE OVERLAP 'J' SETTINGS
PHASE:          ¦123456789101112131415 16
VEH OVL PARENTS:¦      X           X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT	SLOT	SLOT	SLOT	SLOT	Ø4/12	SLOT	SLOT	SYS. DET. S9	SLOT	SLOT	SLOT	SLOT	FS
							4A								DC ISOLATOR
	L	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	NOT USED	EMPTY	EMPTY	SYS. DET. S10	EMPTY	EMPTY	EMPTY	EMPTY	ST
															DC ISOLATOR
FILE "J"	U	SLOT	Ø6/14	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SYS. DET. S11	SLOT	SLOT	SLOT	SLOT	SLOT
			6A,6B												
	L	EMPTY	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	SYS. DET. S12	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	I6U	41	3	4	4/12	Y	Y			
* S9	TB6-9,10	I9U	60	22	11	SYS					
* S10	TB6-11,12	I9L	62	24	13	SYS					
6A,6B	TB3-5,6	J2U	40	2	6	6/14	Y	Y			
* S11	TB7-9,10	J9U	59	21	15	SYS					
* S12	TB7-11,12	J9L	61	23	17	SYS					

* System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

ALT PHASING PROGRAMMING DETAIL SEQUENCE PAGE 2

(program controller as shown below)

FROM MAIN MENU PRESS '4' (PHASE SEQUENCE), THEN PRESS 'NEXT' TO GO TO PAGE 2.

```
PHASE SEQUENCE: PAGE 2  NEXT: PAGE3)
RNG¦LEAD   BARRIER 1   X-LAG¦LEAD   BARRIER 2   X-LAG¦LEAD   BARRIER 3   X-LAG¦LEAD   BARRIER 4   X-LAG
1  ¦0     0     0     0   ¦0     4     0     0   ¦0     0     0     0   ¦0     12    0     0
2  ¦0     6     0     0   ¦0     0     0     0   ¦0     14    0     0   ¦0     0     0     0
3  ¦0     0     0     0   ¦0     0     0     0   ¦0     0     0     0   ¦0     0     0     0
4  ¦0     0     0     0   ¦0     0     0     0   ¦0     0     0     0   ¦0     0     0     0
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0291T1
DESIGNED: MAR 2017
SEALED: 7/11/2017
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
(704) 372-1885
NC License Number F-0991

SIGNAL UPGRADE - TEMPORARY ELECTRICAL DETAIL SHEET 1 OF 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 25 (Hendersonville Road)
at
I-40 EB Off Ramp "C"

Division 13 Buncombe County Asheville

PLAN DATE: March 2017	REVIEWED BY: R. Dubnicka
PREPARED BY: J. Trueblood	REVIEWED BY: J. Carroll

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030005 ENGINEER JUSTIN T. CARROLL

DocuSigned by: Justin T. Carroll
ENGINEER'S SIGNATURE 7/11/2017
DATE

SIG. INVENTORY NO. 13-0291T1

$$$$$SYSTIME$$$$$
$$$$$SYSDATE$$$$$
$$$$$USERNAME$$$$$

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-3

OVERLAP "H"
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 3, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:4   VEHICLE PHASE
OUTPUT ASSIGNMENT #................3
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:4   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:4   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................3
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

PRESS "+" KEY FOR OUTPUT 4

```
PAGE:1  C1 PIN:5   VEHICLE PHASE
OUTPUT ASSIGNMENT #................4
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:5   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:5   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................4
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

PRESS "+" KEY FOR OUTPUT 5

```
PAGE:1  C1 PIN:6   VEHICLE PHASE
OUTPUT ASSIGNMENT #................5
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:6   VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)...8
SELECT COLOR (0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:6   VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................5
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

OVERLAP "J"
OUTPUT ASSIGNMENT PROGRAMMING DETAIL

(program controller as shown below)

1. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
2. WITH CURSOR IN "OUTPUT ASSIGNMENT #" FIELD, USE + KEY TO FIND THE OUTPUT ASSIGNMENT NUMBER 27, AS SHOWN BELOW.
3. PROGRAM CONTROLLER AS SHOWN:

```
PAGE:1  C1 PIN:29  VEHICLE PHASE
OUTPUT ASSIGNMENT #................27
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:29  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)..10
SELECT COLOR (0=RED,1=YEL,2=GRN).....0
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:29  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................27
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

PRESS "+" KEY FOR OUTPUT 28

```
PAGE:1  C1 PIN:30  VEHICLE PHASE
OUTPUT ASSIGNMENT #................28
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:30  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)..10
SELECT COLOR (0=RED,1=YEL,2=GRN).....1
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:30  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................28
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

PRESS "+" KEY FOR OUTPUT 29

```
PAGE:1  C1 PIN:31  VEHICLE PHASE
OUTPUT ASSIGNMENT #................29
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................
VEHICLE PHASE......................Y
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ENTRY IS EXISTING BY DEFAULT

SCROLL DOWN TO VIEW ALL DATA

```
PAGE:1  C1 PIN:31  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1, P=16)..10
SELECT COLOR (0=RED,1=YEL,2=GRN).....2
```

WHEN A 'Y' IS ENTERED FOR 'VEHICLE OVERLAP' THE SCREEN SHOWN ABOVE WILL APPEAR. ENTER DATA AS SHOWN.

PRESS ENTER AFTER ENTERING DATA. THEN ESC.

DISPLAY WILL NOW SHOW THE SPECIFIED OUTPUT ASSIGNED AS 'VEHICLE OVERLAP' AS SHOWN BELOW:

```
PAGE:1  C1 PIN:31  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #................29
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH).............0
SELECT ASSIGNMENT:
NOT ENABLED........................_
VEHICLE PHASE......................
PEDESTRIAN PHASE...................
VEHICLE OVERLAP....................Y
PEDESTRIAN OVERLAP.................
WATCHDOG...........................
DETECTOR RESET.....................
ADVANCE BEACON.....................
OUT OF PHASE FLASHER...............
CONTROLLER FLASH...................
RUN FREE...........................
RESERVED...........................
PREEMPT............................
SOFT PREEMPT.......................
ANY PREEMPT........................
COORDINATION PLAN..................
OFFSET.............................
PHASE CHECK........................
PHASE ON...........................
PHASE NEXT.........................
```

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0291T1
DESIGNED: MAR 2017
SEALED: 7/11/2017
REVISED:

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
_____
ITS & Signals Unit

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
(704) 372-1885
NC License Number F-0991

SIGNAL UPGRADE - TEMPORARY ELECTRICAL DETAIL SHEET 2 OF 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: Transportation Mobility and Safety Division, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
I-40 EB Off Ramp "C"

Division 13 Buncombe County Asheville

PLAN DATE:	March 2017	REVIEWED BY:	R. Dubnicka
PREPARED BY:	J. Trueblood	REVIEWED BY:	J. Carroll

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030005 ENGINEER JUSTIN T. CARROLL

DocuSigned by: Justin T. Carroll 7/11/2017
ENGINEER'S SIGNATURE DATE

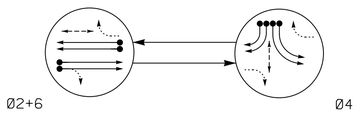
SIG. INVENTORY NO. 13-0291T1

$$$$$SYSTIME$$$$$
$$$$$SYSTIME$$$$$
$$$$$USERNAME$$$$$

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-4

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

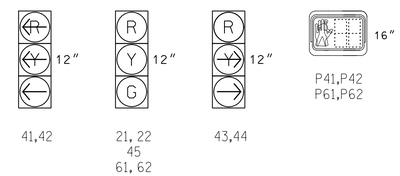
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø2+6	PHASE Ø4	FLASH
21,22	G	R	Y
41,42	←R	←	←R
43,44	R	→	R
45	R	G	R
61,62	G	R	Y
P41,P42	DW	W	DRK
P61,P62	W	DW	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



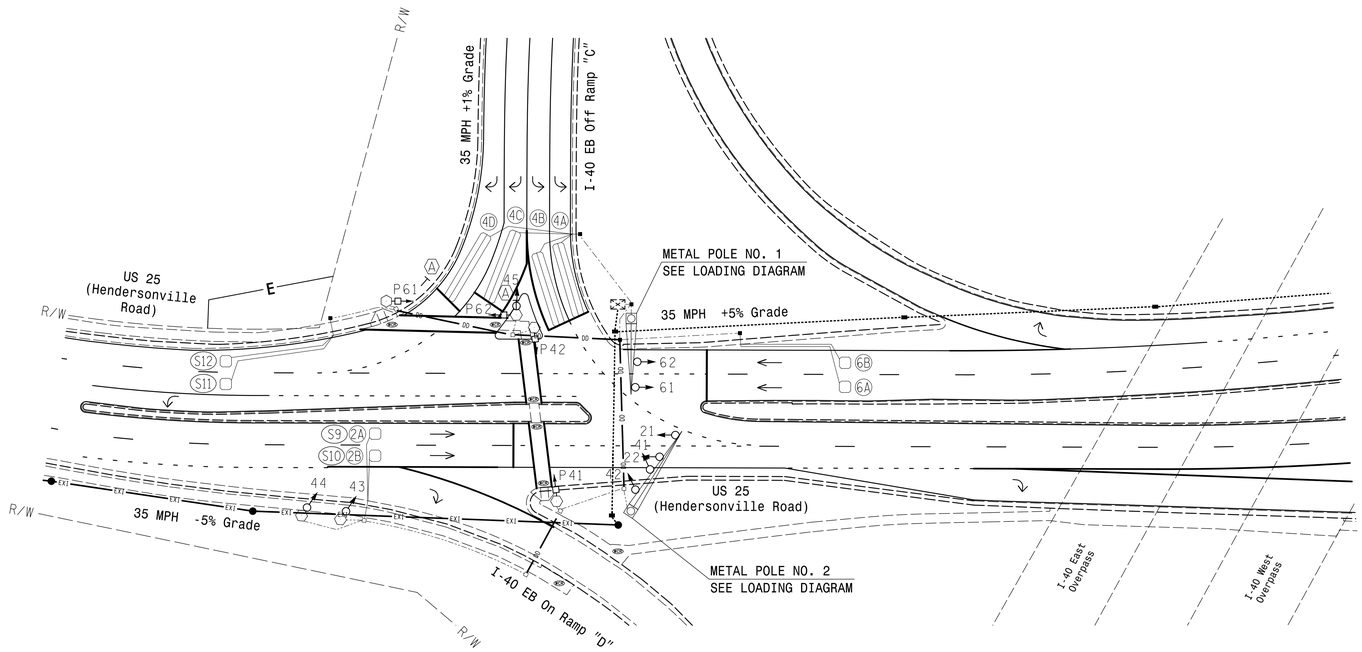
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
2A/S9	6X6	70	4	Y	2	Y	Y	-	-	-	Y	Y
2B/S10	6X6	70	4	Y	2	Y	Y	-	-	-	Y	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4C	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
4D	6X40	0	2-4-2	Y	4	Y	Y	-	-	15	-	Y
6A,6B	6X6	70	3	Y	6	Y	Y	-	-	-	-	Y
S11	6X6	+250	3	Y	-	-	-	-	-	-	Y	Y
S12	6X6	+250	3	Y	-	-	-	-	-	-	Y	Y

2 Phase
Fully Actuated
(Asheville Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2012 and "Standard Specifications for Roads and Structures" dated January 2012.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Abandon all existing loops.
4. Set all detector units to presence mode.
5. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
6. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
7. Pedestrian pedestals are conceptual and shown for reference only. See sheets P1-P3 for pushbutton location details.
8. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
9. Coordination may be required with U-4715B (Asheville Signal System Upgrade) project.
10. Closed loop system data: Controller Asset # 0291.



LEGEND

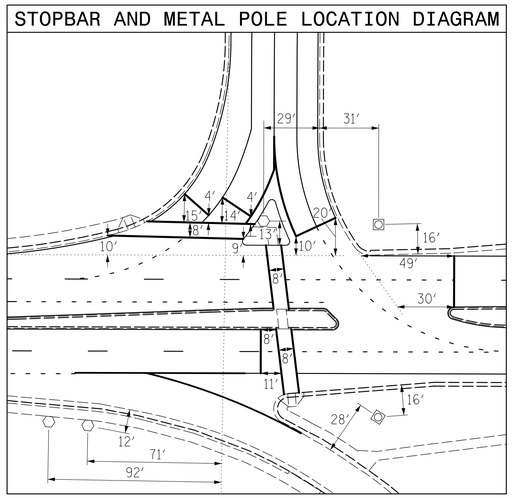
PROPOSED		EXISTING
	Traffic Signal Head	
	Modified Signal Head	N/A
	Sign	
	Pedestrian Signal Head With Push Button & Sign	
	Signal Pole with Guy	
	Signal Pole with Sidewalk Guy	
	Inductive Loop Detector	
	Controller & Cabinet	
	Junction Box	
	Over-sized Junction Box	
	2-in Underground Conduit	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
	Metal Pole with Mastarm	
N/A	Wheelchair Ramp	WCR
	Type II Signal Pedestal	
	Underground Conduit (Fiber)	
N/A	Fiber Optic Communications Cable	EXI
A	Turning Vehicles Yield to Pedestrians Sign (R10-15)	N/A

OASIS 2070 TIMING CHART

FEATURE	PHASE 2	PHASE 4	PHASE 6
Min Green 1 *	10	7	10
Extension 1 *	3.0	2.0	3.0
Max Green 1 *	90	30	90
Yellow Clearance	4.2	3.0	3.6
Red Clearance	1.9	2.8	2.9
Red Revert	2.0	2.0	2.0
Walk 1 *	-	7	7
Don't Walk 1	-	20	14
Seconds Per Actuation *	-	-	-
Max Variable Initial *	-	-	-
Time Before Reduction *	-	-	-
Time To Reduce *	-	-	-
Minimum Gap	-	-	-
Recall Mode	MIN RECALL	-	MIN RECALL
Vehicle Call Memory	YELLOW	-	YELLOW
Dual Entry	-	-	-
Simultaneous Gap	ON	ON	ON

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

STOPBAR AND METAL POLE LOCATION DIAGRAM



NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
(704) 372-1885
NC License Number F-0991

Signal Upgrade

Prepared for: Transportation Mobility and Safety Division, Signal Design Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road) at I-40 EB Off Ramp "C"

Division 13 Buncombe County Asheville

PLAN DATE:	March 2017	REVIEWED BY:	R. Dubnicka
PREPARED BY:	J. Trueblood	REVIEWED BY:	J. Carroll

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030005 ENGINEER JUSTIN T. CARROLL

DocuSigned by: Justin T. Carroll 7/11/2017
ENGINEER SIGNATURE DATE

SIG. INVENTORY NO. 13-0291

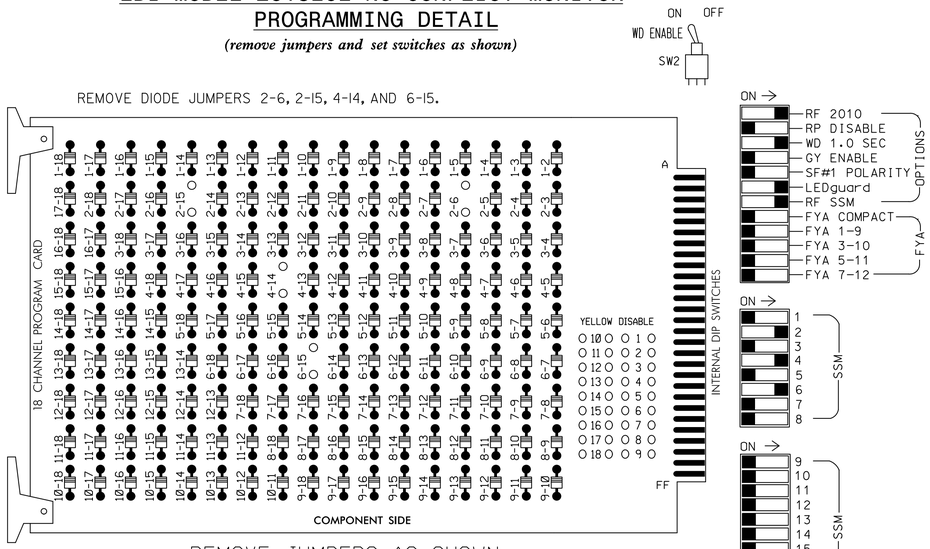
$$$$$$SYSTIME$$$$$$
$$$$$$SYSTIME$$$$$$
$$$$$$DGN$$$$$$
$$$$$$USERNAME$$$$$$

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-5

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. Enable Simultaneous Gap-Out for all phases.
3. Program phases 2 and 6 for Start Up In Green.
4. Program phases 4 and 6 for 'STARTUP PED CALL'.
5. Program phases 2 and 6 for Yellow Flash.
6. The cabinet and controller are part of the Asheville (Hendersonville Road) Closed Loop Signal System.

EQUIPMENT INFORMATION

CONTROLLER.....2070L
CABINET.....332
SOFTWARE.....ECONOLITE OASIS
CABINET MOUNT.....BASE
OUTPUT FILE POSITIONS..12
LOAD SWITCHES USED.....S2,S5,S6,S8,S9
PHASES USED.....2,4,4 PED,6,6 PED
OVERLAPS.....NONE

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5			S6	S7	S8	S9	S10	S11	S12
CMU CHANNEL NO.	1	2	13	3	4			14	5	6	15	7	8	16
PHASE	1	2	2 PED	3	4			4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	NU	21,22	NU	NU	41,42	43,44	45	P41, P42	NU	61,62	P61, P62	NU	NU	NU
RED		128				101	101			134				
YELLOW		129					102			135				
GREEN		130					103			136				
RED ARROW					101									
YELLOW ARROW					102	102								
GREEN ARROW					103	103								
✋								104			119			
🚶								106			121			

NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT	Ø2/SYS	SLOT	SLOT	SLOT	Ø 4	Ø 4	SLOT	SLOT	SLOT	SLOT	NOT USED	Ø6 PED DC ISOLATOR	FS DC ISOLATOR
			2A/S9				4A	4C							
	L	EMPTY	Ø2/SYS	EMPTY	EMPTY	EMPTY	Ø 4	Ø 4	EMPTY	EMPTY	EMPTY	EMPTY	Ø4 PED DC ISOLATOR	NOT USED	ST DC ISOLATOR
			2B/S10				4B	4D							
FILE "J"	U	SLOT	Ø 6	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SYS. DET. S11	SLOT	SLOT	SLOT	SLOT	SLOT
			6A,6B												
	L	EMPTY	NOT USED	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	SYS. DET. S12	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY

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

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
2A/S9	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S10	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			15
4D	TB6-3,4	I7L	78	40	44	4	Y	Y			15
6A,6B	TB3-5,6	J2U	40	2	6	6	Y	Y			
✱ S11	TB7-9,10	J9U	59	21	15	SYS					
✱ S12	TB7-11,12	J9L	61	23	17	SYS					
PED PUSH BUTTONS											
P41,P42	TB8-5,6	I12L	69	31	PED 4	4 PED					
P61,P62	TB8-7,9	I13U	68	30	PED 6	6 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

✱ System detector only. Remove the vehicle phase assigned to this detector in the default programming.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0291
DESIGNED: MAR 2017
SEALED: 7/11/2017
REVISED:

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
(704) 372-1885
NC License Number F-0991

SIGNAL UPGRADE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: Transportation Mobility and Safety Division, Traffic Engineering Branch, Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
I-40 EB Off Ramp "C"

Division 13 Buncombe County Asheville

PLAN DATE: March 2017	REVIEWED BY: R. Dubnicka		
PREPARED BY: J. Trueblood	REVIEWED BY: J. Carroll		
REVISIONS		INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030005 ENGINEER JUSTIN T. CARROLL

Docusigned by: Justin T. Carroll 7/11/2017
SIGNATURE DATE

SIG. INVENTORY NO. 13-0291

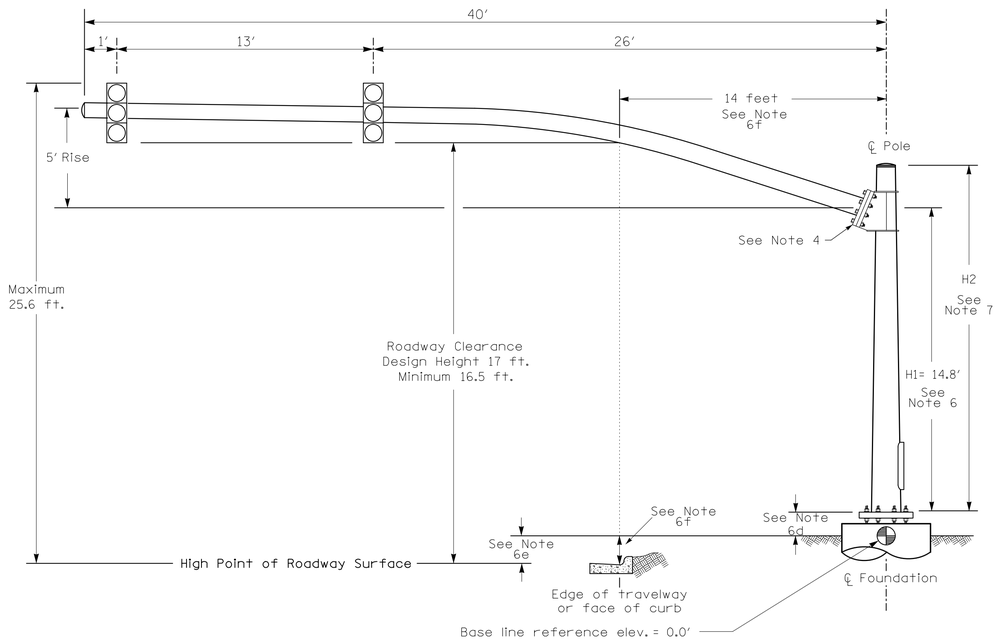
$$$$SYSTIME$$$$
$$$$SYSTIME$$$$
$$$$SYSTIME$$$$

DocuSign Envelope ID: 0D15D30A-7AE7-4BBF-BF26-42FCF7AAF812

METAL POLE No. 1 and 2

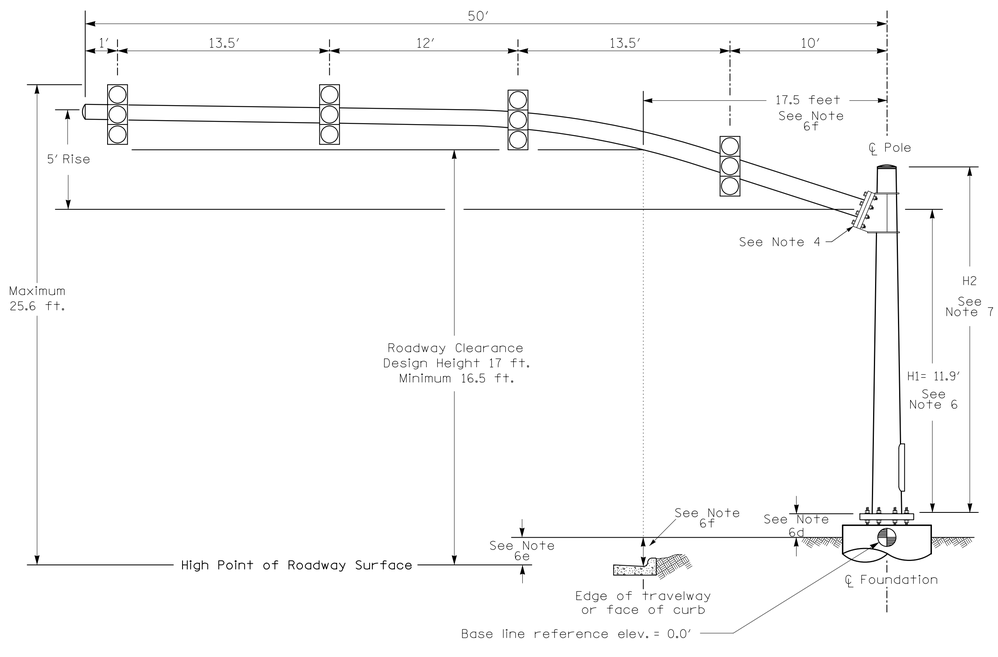
PROJECT REFERENCE NO.	SHEET NO.
I-5885	SIG-6

Design Loading for METAL POLE NO. 1



Elevation View

Design Loading for METAL POLE NO. 2



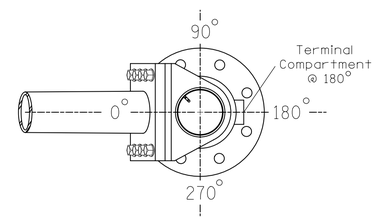
Elevation View

SPECIAL NOTE

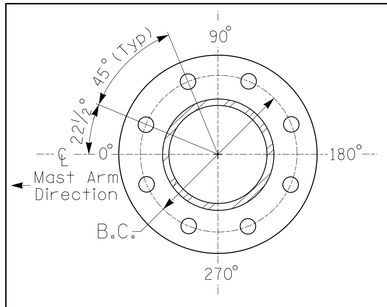
The contractor is responsible for verifying that the mast arm attachment height (H1) will provide the "Design Height" clearance from the roadway before submitting final shop drawings for approval. Verify elevation data below which was obtained by field measurement or from available project survey data.

Elevation Data for Mast Arm Attachment (H1)

Elevation Differences for:	Pole 1	Pole 2
Baseline reference point at ℄ Foundation @ ground level	0.0 ft.	0.0 ft.
Elevation difference at High point of roadway surface	+1.7 ft.	-1.2 ft.
Elevation difference at Edge of travelway or face of curb	+0.6 ft.	-1.2 ft.

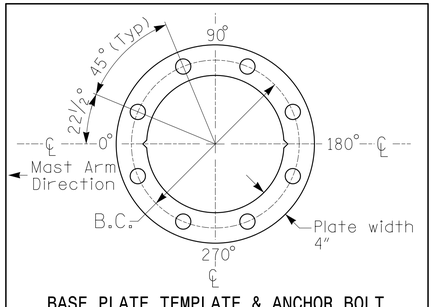


POLE RADIAL ORIENTATION



8 BOLT BASE PLATE DETAIL

See Note 5



BASE PLATE TEMPLATE & ANCHOR BOLT LOCK PLATE DETAIL

For 8 Bolt Base Plate

MAST ARM LOADING SCHEDULE

LOADING SYMBOL	DESCRIPTION	AREA	SIZE	WEIGHT
	POLYCARBONATE RIGID MOUNTED SIGNAL HEAD 12"-3 SECTION-NO BACKPLATE	4.2 S.F.	14.0"W X 43.0"L	38 LBS

NOTES

DESIGN REFERENCE MATERIAL

1. Design the traffic signal structure and foundation in accordance with:
   - The 6th Edition 2013 AASHTO "Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, including all of the latest interim revisions.
   - The 2012 NCDOT "Standard Specifications for Roads and Structures." The latest addenda to the specifications can be found in the traffic signal project special provisions.
   - The 2012 NCDOT Roadway Standard Drawings.
   - The traffic signal project plans and special provisions.
   - The NCDOT "Metal Pole Standards" located at the following NCDOT website: https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

DESIGN REQUIREMENTS

2. Design the traffic signal structure using the loading conditions shown in the elevation views. These are anticipated worst case "design loads" and may not represent the actual loads that will be applied at the time of the installation. The contractor should refer to the traffic signal plans for the actual loads that will be applied at the time of the installation.
3. Design all signal supports using stress ratios that do not exceed 0.9.
4. A clamp-type bolted mast arm-to-pole connection may be used instead of the welded ring stiffened box connection shown as long as the connection meets all of the design requirements.
5. Design base plate with 8 anchor bolt holes. Provide 2 inch x 60 inch anchor bolts.
6. The mast arm attachment height (H1) shown is based on the following design assumptions:
   a. Nominal vertical rise in mast arm is 5 feet as measured from the centerline of the arm base to the centerline of the free end of the arm.
   b. Signal heads are rigidly mounted and vertically centered on the mast arm.
   c. The roadway clearance height for design is as shown in the elevation views.
   d. The top of the pole base plate is 0.75 feet above the ground elevation.
   e. Refer to the Elevation Data Chart for the elevation differences between the proposed foundation ground level and the high point of the roadway.
   f. Provide horizontal distance from the proposed centerline of the foundation to the edge of travelway. Refer to the Elevation Data Chart for elevation difference between the proposed foundation ground level and the edge of travelway. This information is necessary to ensure that the roadway clearance is maintained at the edge of the travelway and to aid in the camber design of the arm.
7. The pole manufacturer will determine the total height (H2) of each pole using the greater of the following:
   - Mast arm attachment height (H1) plus 2 feet, or
   - H1 plus 1/2 of the total height of the mast arm attachment assembly plus 1 foot.
8. If pole location adjustments are required, the contractor must gain approval from the Engineer as this may affect the mast arm lengths and arm attachment heights. The contractor may contact the Signal Design Section Senior Structural Engineer for assistance at (919) 773-2800.
9. The contractor is responsible for verifying that the mast arm length shown will allow proper positioning of the signal heads over the roadway.
10. The contractor is responsible for providing soil penetration testing data (SPT) to the pole manufacturer so site specific foundations can be designed.

NC Dept of Transportation
Division of Highways
Final Drawing Date: _____
ITS & Signals Unit

STV 100 Years
STV Engineers, Inc.
900 West Trade St., Suite 715
Charlotte, NC 28202
(704) 372-1885
NC License Number F-0991

NCDOT Wind Zone 4 (90 mph)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

US 25 (Hendersonville Road)
at
I-40 EB Off Ramp "C"

Division 13 Buncombe County Asheville

PLAN DATE:	March 2017	REVIEWED BY:	R. Dubnicka
PREPARED BY:	J. Trueblood	REVIEWED BY:	J. Carroll

SCALE 0 N/A N/A

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 030005 ENGINEER JUSTIN T. CARROLL

DocuSigned by: Justin T. Carroll 7/11/2017
SIGNATURE DATE
SIG. INVENTORY NO. 13-0291

$$$$$$SITENAME$$$$
$$$$$$DGNNAME$$$$
$$$$$$USERNAME$$$$

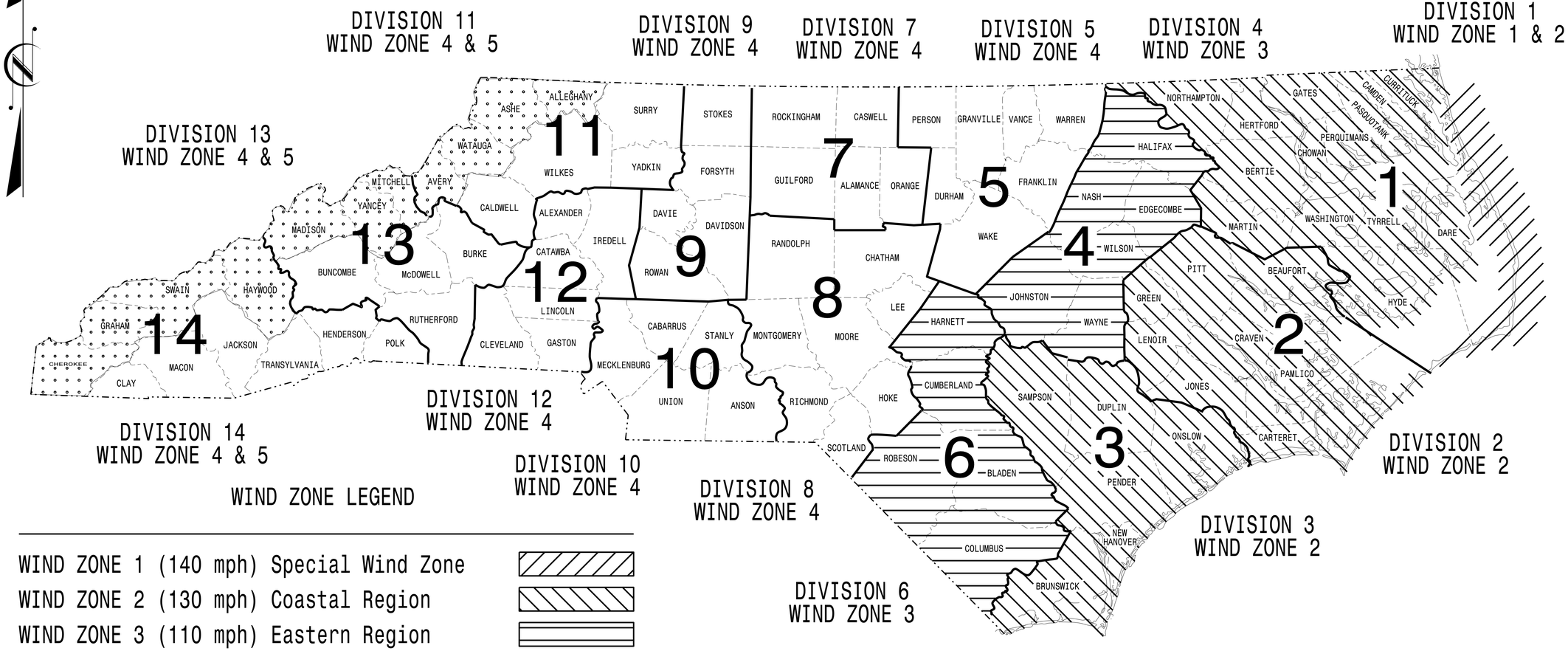
PROJECT I.D. NO.	SHEET NO.
I-5885	Sig.M1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

STANDARD DRAWINGS FOR ALL METAL POLES

POLE STANDARDS

NCDOT METAL



WIND ZONE LEGEND

WIND ZONE 1 (140 mph)	Special Wind Zone
WIND ZONE 2 (130 mph)	Coastal Region
WIND ZONE 3 (110 mph)	Eastern Region
WIND ZONE 4 (90 mph)	Central & Mtn. Region
WIND ZONE 5 (120 mph)	Special Wind Zone

https://connect.ncdot.gov/resources/safety/Pages/ITS-Design-Resources.aspx

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
Signal Design Section

750 N.Greenfield Pkwy.
Garner,NC 27529

Designed in conformance with the latest 2015 Interim to the 6th Edition 2013

AASHTO

Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals

INDEX OF PLANS

DRAWING NUMBER	DESCRIPTION
Sig. M 1	Statewide Wind Zone Map
Sig. M 2	Typical Fabrication Details–All Metal Poles
Sig. M 3	Typical Fabrication Details–Strain Poles
Sig. M 4	Typical Fabrication Details–Mast Arm Poles
Sig. M 5	Typical Fabrication Details–Mast Arm Connection
Sig. M 6	Typical Fabrication Details–Strain Pole Attachments
Sig. M 7	Construction Details–Foundations
Sig. M 8	Standard Strain Pole Foundation–All Soil Conditions

NCDOT CONTACTS:

MOBILITY AND SAFETY DIVISION – ITS AND SIGNALS UNIT

G. A. FULLER, P.E. – STATE ITS AND SIGNALS ENGINEER

G. G. MURR, JR., P.E. – STATE SIGNALS ENGINEER

D.C. SARKAR, P.E. – ITS AND SIGNALS SENIOR STRUCTURAL ENGINEER

C.F. ANDREWS – ITS AND SIGNALS JOURNEY STRUCTURAL ENGINEER

SEAL

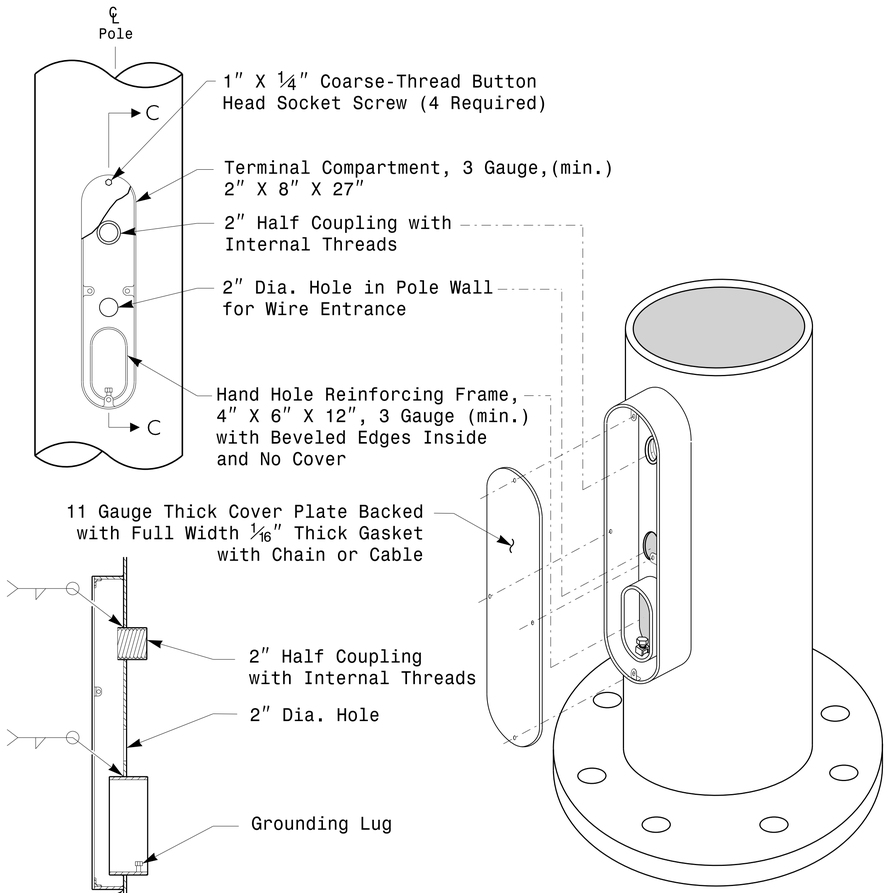
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar
44E8E32E7476AC4...
SIGNATURE

2/17/2016
DATE

PROJECT ID. NO.	SHEET NO.
I-5885	Sig.M2

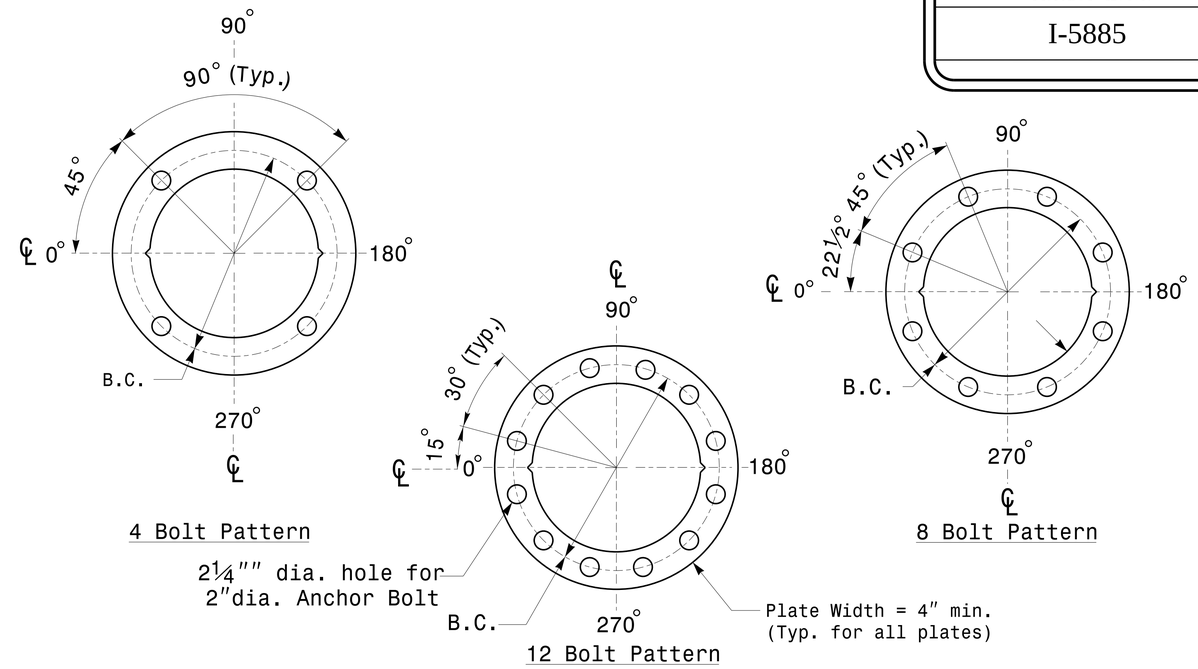
Fabrication Details – All Metal Poles



Section C-C

Note: Unless otherwise specified, locate Terminal Compartment 1 foot above the pole base plate at 180 degrees on the pole's radial index.

Terminal Compartment Detail



Construct Templates and Plates from ¼″ min. thick Steel. Galvanizing is not required.

Base Plate Template and Anchor Bolt Lock Plate Details

MFG _____ MFG. DATE: MM/YY
SHAFT D/T/L/Y ----/----/----/----
ARM-A D/T/L/Y ----/----/----/----
----/----/----/----
ARM-B D/T/L/Y ----/----/----/----
----/----/----/----
A.B. DIA./B.C./L/Y ----/----/----/----
NCDOT SIG. INV. NO. _____
NCDOT POLE NO. _____

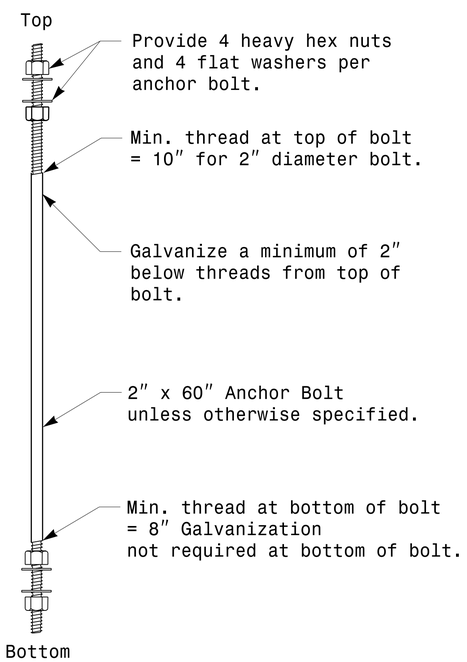
Shaft I.D. Tag
(Provide on Shaft of Strain Poles and Mast Arm Poles Shaft)

MFG _____ MFG. DATE: MM/YY
SECTION D/T/L/Y ----/----/----/----
NCDOT SIG. INV. NO. _____
NCDOT POLE NO. _____

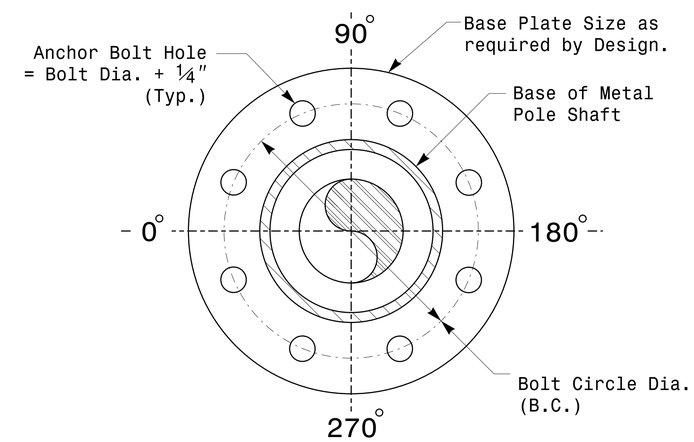
Arm I.D. Tag
(Provide on each section of a multi-section mast arm.)

Notes:
1) D= Diameter, T= Thickness, L= Length, Y= Yield Strength
2) A.B. = Anchor Bolt
3) B.C. = Bolt Circle of Anchor Bolts
4) If Custom Design, use "NCDOT STANDARD" line for Signal Inv. Number and pole I.D. number
5) See drawing M3 and M4 for mounting positions of I.D. tags.

Identification Tag Details



Anchor Bolt Detail



Note: Base plate may be circular,octagonal,square or rectangular in shape.

Typical Base Plate Detail

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 NA NONE

Typical Fabrication Details For All Metal Poles

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

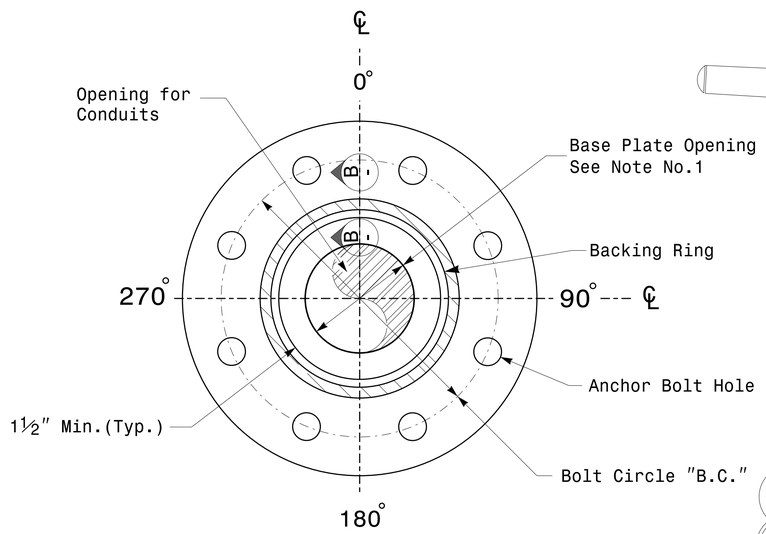
DocuSigned by:
Debesh C. Sarkar
SIGNATURE
44E8E32E147E4C4...
2/17/2016
DATE

17-FEB-2016 16:02
S:*ITS&SU*ITS Signals*Signal Design Section*Eastern Region*M Sheets*2016*2014 Sig.M2 Std. Fabrication Details-All Poles..dgn
jpollowy

PROJECT ID. NO.	SHEET NO.
I-5885	Sig.M4

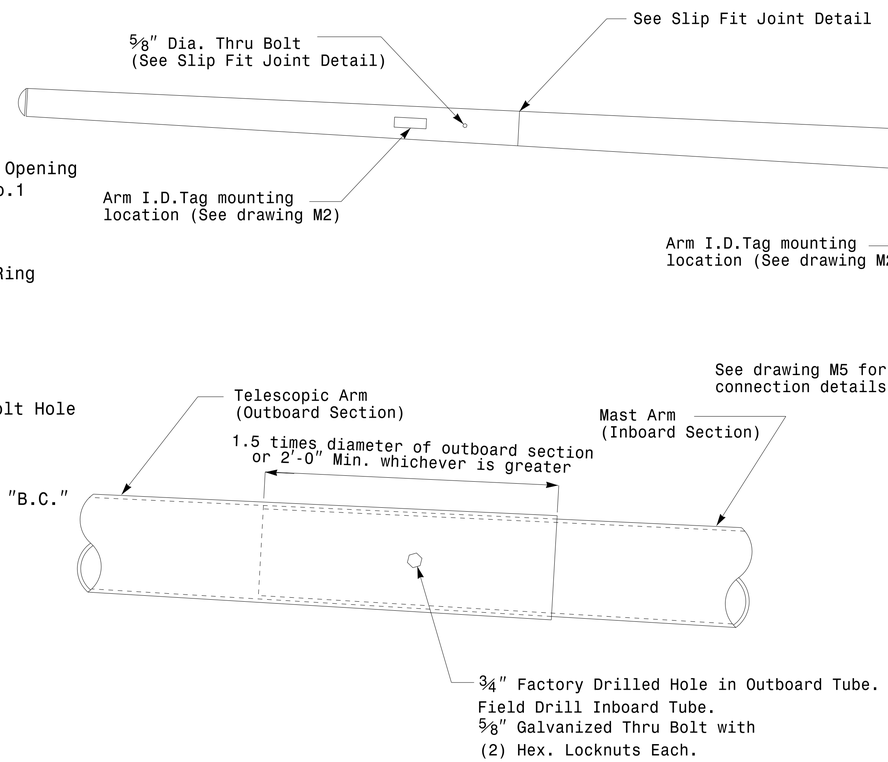
Fabrication Details – Mast Arm Poles

Note:
1. Opening in pole base plate shall be equal to pole base inside diameter minus 3½″ but shall not be less than 8½″.

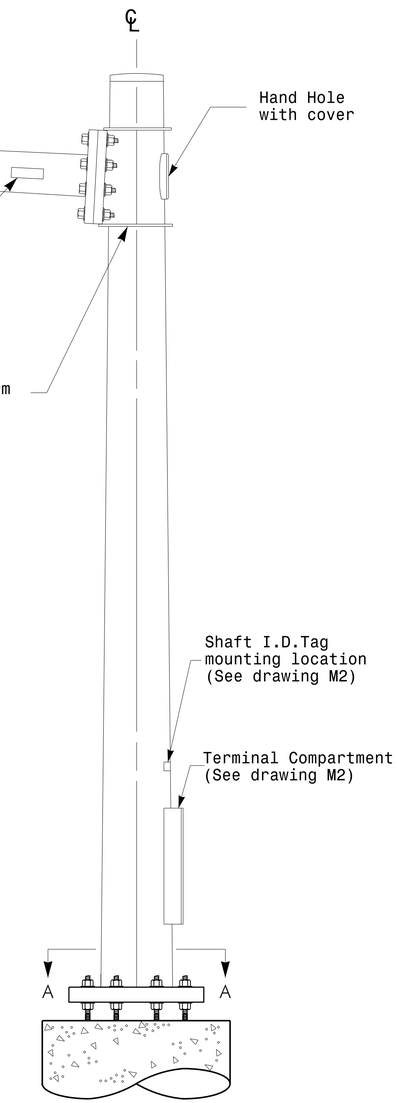


Section A-A

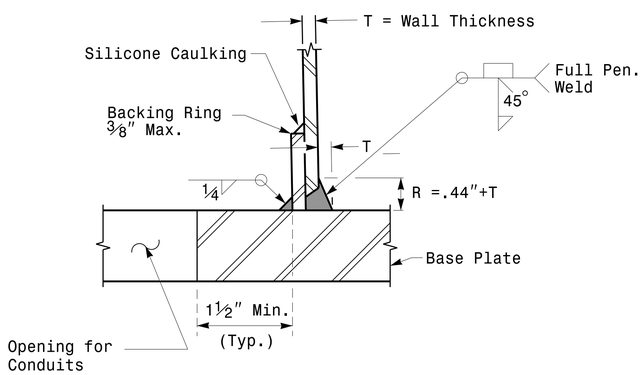
Pole Base Plate Details



Slip Fit Joint Detail for Mast Arm



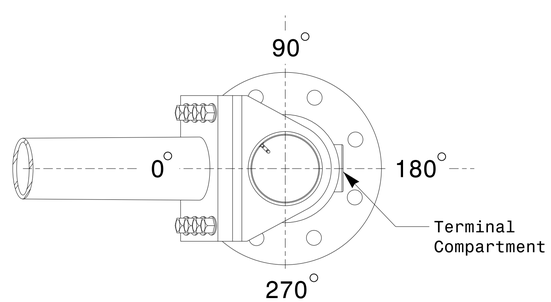
Mast Arm Pole



Section B-B

(Pole Attachment to Base Plate)

Full-Penetration Groove Weld Detail



Mast Arm Radial Orientation

Prepared In the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 NA
NONE

Typical Fabrication Details
For
Mast Arm Poles

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	K.C.DURIGON
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

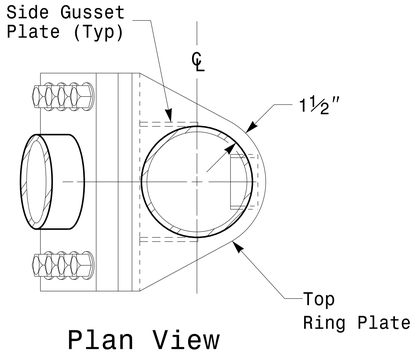
DocuSigned by:
Debesh C. Sarkar
SIGNATURE
44E8E32E147E4C4...

2/17/2016
DATE

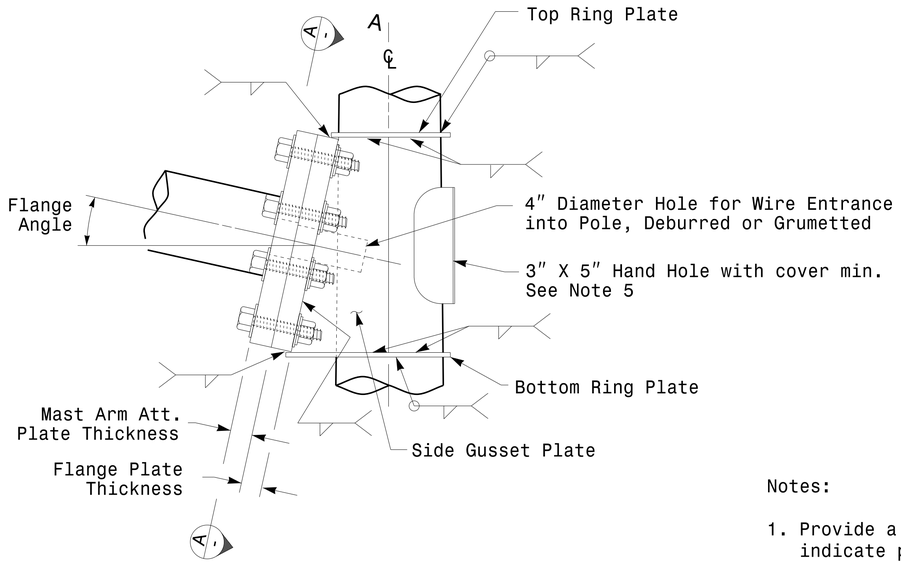
17-FEB-2016 16:05
S:\MTS&SU\ITS Signals\Signal Design Section\Eastern Region\M Sheets\2016\2014 Sig.M4 Std. Fabrication Details-Mast Arm Poles.dgn
jsullivan

Welded Ring Stiffened Mast Arm Connection

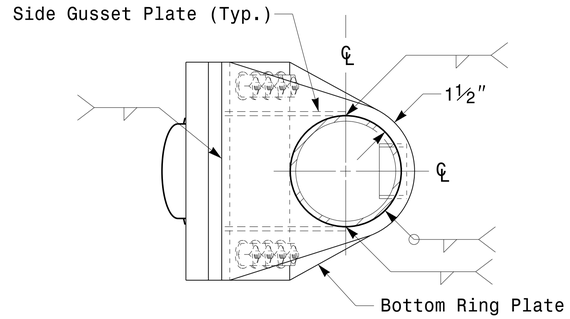
PROJECT ID. NO.	SHEET NO.
I-5885	Sig.M5



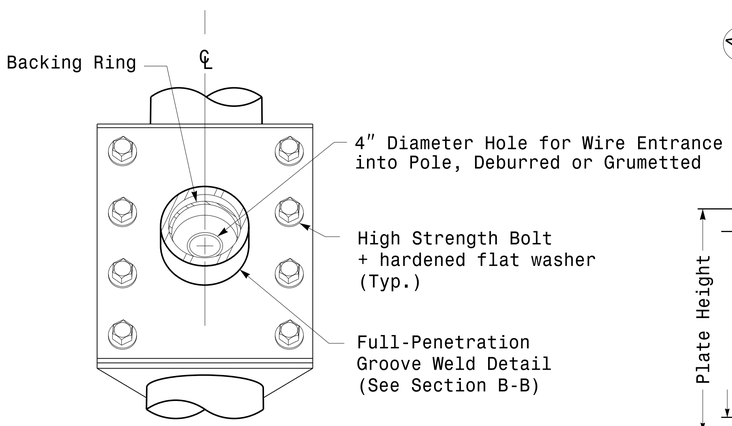
Plan View



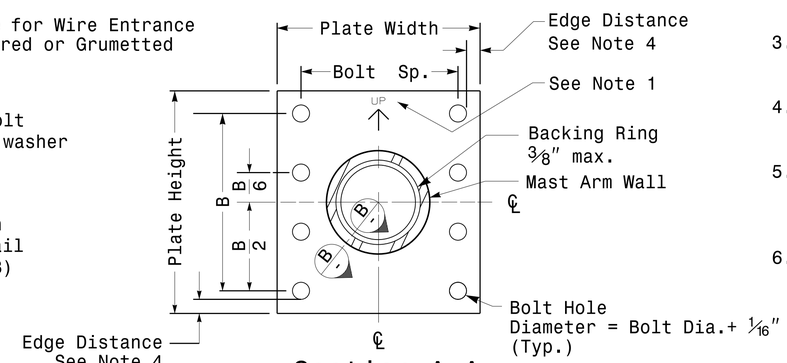
Side Elevation View



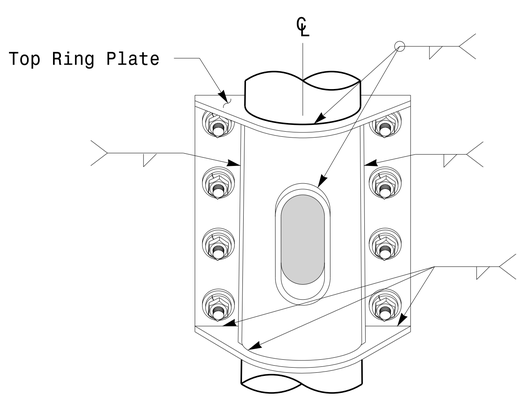
Bottom View



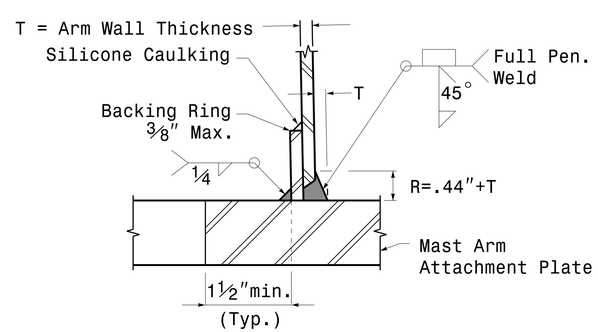
Front Elevation View



Section A-A
Mast Arm Attachment Plate



Back Elevation View



Section B-B
Full-Penetration Groove Weld Detail

Notes:

1. Provide a permanent means of identification above the mast arm to indicate proper attachment orientation of the mast arm.
2. Designer will determine the size of all structural components, plates, fasteners, and welds shown unless they are already specified.
3. Fabricator is responsible for providing appropriate holes at drainage points to drain galvanizing materials.
4. For minimum edge distance follow AISC Table J3.4 and J3.5. For nominal bolt hole size use Table J3.3.
5. Provide upper handhole as necessary when shaft extensions are reguired for luminaire arms or camera. For poles without luminaires/camera, wiring can be done through the top of pole.
6. Allowable range of flange tilt angle will vary from 0° to as required.

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

SCALE
0 NA
NONE

Typical Fabrication Details
For
Mast Arm Connection To Pole

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.F.ANDREWS
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REVISIONS	INIT.	DATE

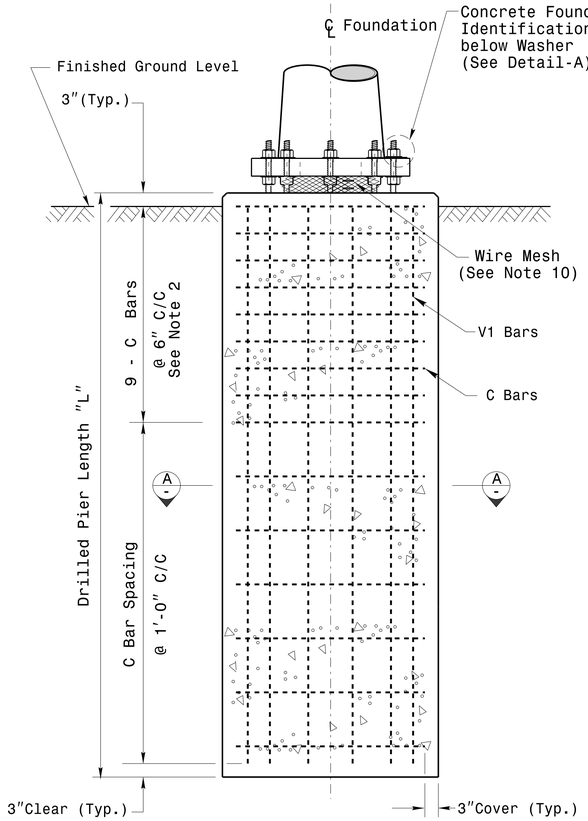
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by:
Debesh C. Sarkar
SIGNATURE
44E8E32E147E4C4...
2/17/2016
DATE

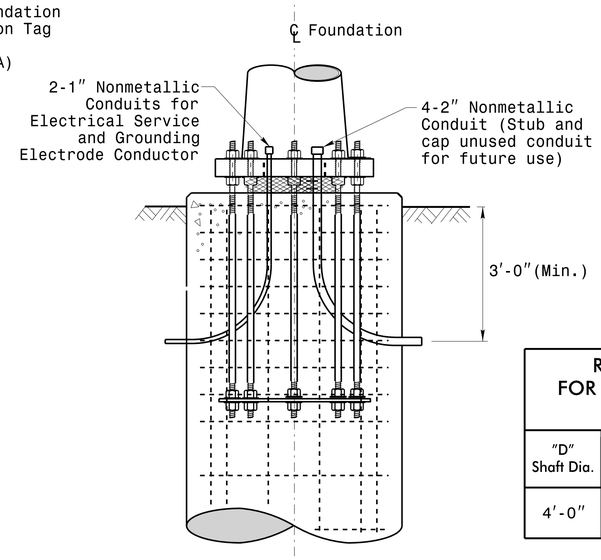
Fabrication Details – Mast Arm Connection

17-FEB-2016 16:06
S:\TSAS\TS Signals\Signal Design Section\Eastern Region\M Sheets\2016\2014 Sig.M5 Std. Connection Fabrication Details-Mast Arm Poles.dgn
jsullivan

PROJECT ID. NO.	SHEET NO.
I-5885	Sig.M7



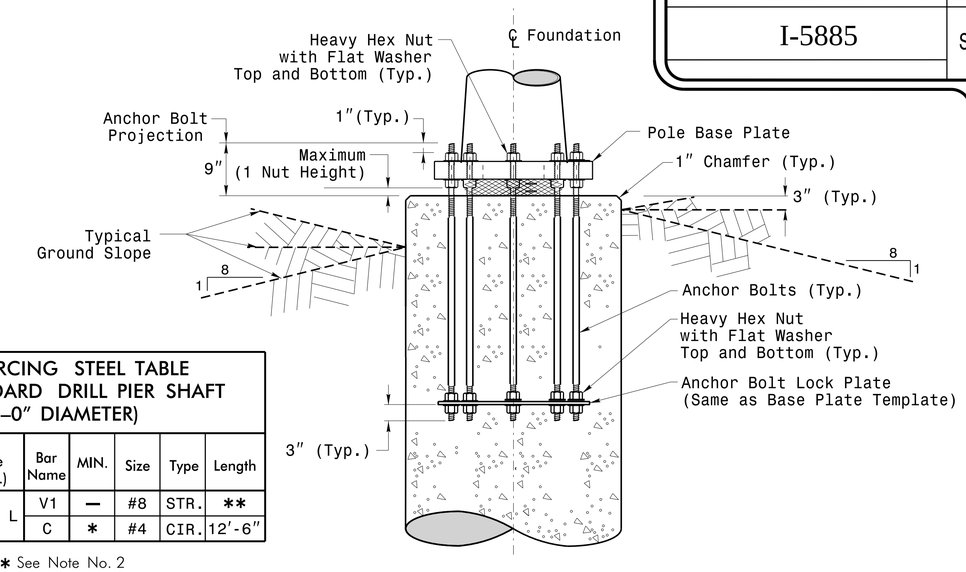
Concrete Shaft Elevation



Typical Foundation Conduit Details

REINFORCING STEEL TABLE FOR STANDARD DRILL PIER SHAFT (4′–0″ DIAMETER)						
"D" Shaft Dia.	Conc. Volume (cu. yds.)	Bar Name	MIN.	Size	Type	Length
4′-0″	.465 x L	V1	—	#8	STR.	**
		C	*	#4	CIR.	12′-6″

* See Note No. 2
** See Note No. 3



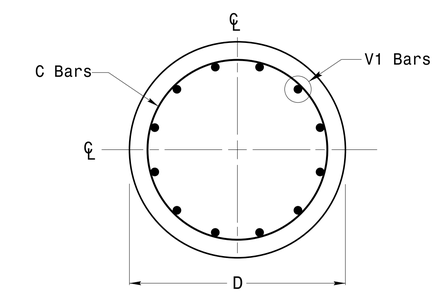
Typical Foundation Anchor Bolt Details

(Reinforcing Cage Not Shown for Clarity)

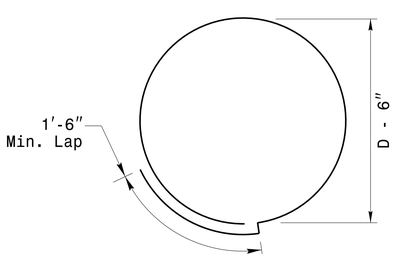
General Notes:

1. If actual subsurface conditions differ significantly from boring data contact the Engineer before excavating or placing concrete.
2. Circular tie reinforcing rings may be vertically adjusted by +/-3″ at a depth between 2′-0″ and 3′-0″ to facilitate the installation of electrical conduit entering in the cage.
3. For standard foundations, see sheet Sig. M8 for details. Vertical reinforcing bars (V1) may be horizontally adjusted by +/-3″ to facilitate the installation of electrical conduit entering into the cage.
4. Provide 2″ to 5″ foundation projection above ground level depending on the ground slope.
5. Unless otherwise shown, foundation designs are based on non-sloping level ground surfaces with slope ratios of 8:1 (H:V) or flatter. If actual ground line slopes are steeper contact the Engineer before excavating or placing concrete.
6. Construct foundations in accordance with NCDOT Standard Provisions SP09 R005- Foundations and Anchor Rod Assemblies for Metal Poles. All applicable 2012 NCDOT Standard Specifications are referenced in this provision. Refer to the NCDOT Resources/Specifications page located on the Connect NCDOT website.

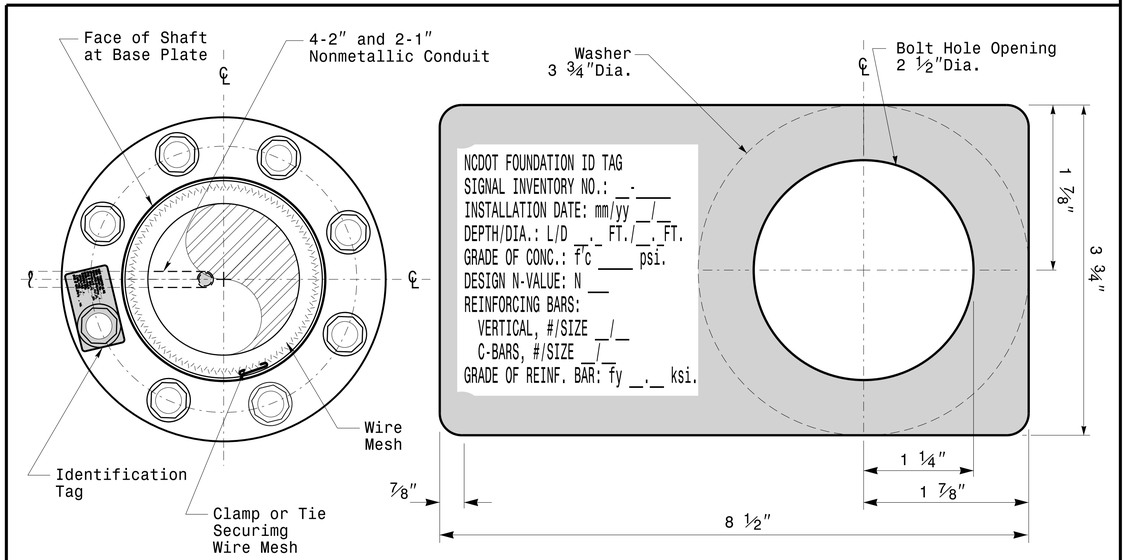
   https://connect.ncdot.gov/resources/Specifications and Special Provisions.aspx
7. Use air entrained AA concrete mix with a compression strength of f′c=4500 psi.(min.) after 28 days.
8. Use ASTM A615 grade 60 deformed bars for all reinforcing steel. Maintain at least 3″ cover on all reinforcement.
9. Locate the Identification Tag on the top of the base plate, directly above the conduit's entry point.
10. Provide two layers of galvanized welded 23 gauge (0.25) 6″ wide 4 mesh wire around pipes under the base plate and secure it with ties if necessary.
11. Preferred location for the I.D. Tag is as shown in Detail-A; directly above the conduit entering the foundation.



Section A-A



Typical "C" Bar Detail



D = Diameter
L = Length/Depth
mm = Month
yy = Year

Detail-A

Concrete Foundation Identification Tag Details

Construction Details – Foundations

Prepared in the Offices of:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner,NC 27529

SCALE 0 NA NONE

Construction Details For Foundations

PLAN DATE:	FEBRUARY 2016	DESIGNED BY:	C.B.COGDELL
PREPARED BY:	N. BITTING	REVIEWED BY:	D.C. SARKAR

REV. NO.	COMMENTS	INIT.	DATE
1	Revised Foundation Tag Details	N.B.	5/11/2015

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 028094 ENGINEER DEBESH C. SARKAR

DocuSigned by: Debesh C. Sarkar
SIGNATURE 44E8E32E147E4C4...
2/17/2016
DATE

17-FEB-2016 16:10
S:*ITS&SU*ITS Signals*Signal Design Section*Eastern Region*MS Sheets*2016*2014 Sig.M7 Std. Construction Details-Strain Poles.dgn
jpullaway

PROJECT NO.	SHEET NO.
I-5885	Sig. P1

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

06-14

ENGLISH DETAIL DRAWING FOR

PEDESTRIAN PUSHBUTTON LOCATIONS

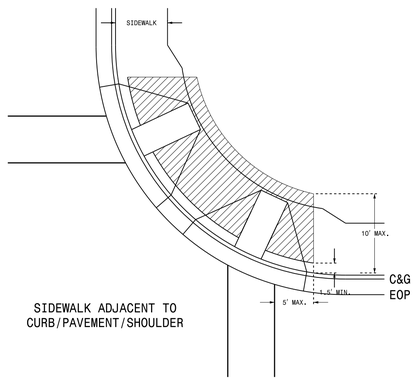
PLACEMENT DETAIL

SHEET 1 OF 3

1705D01

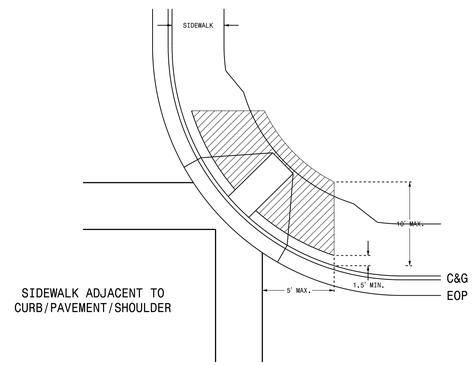
PUSHBUTTON PLACEMENT

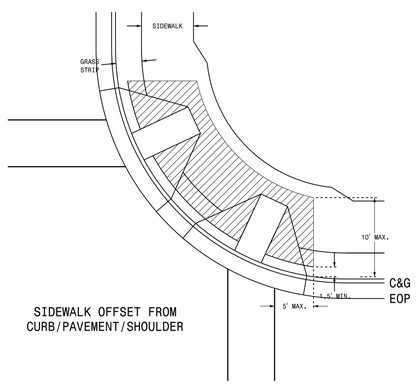
SEPARATE CURB RAMPS

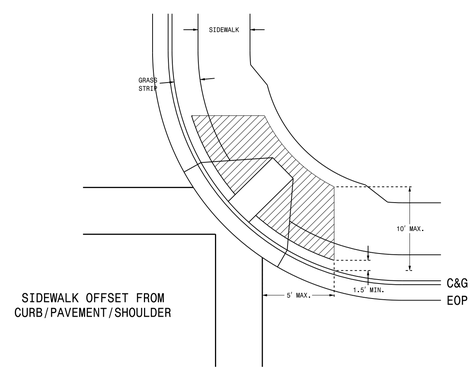


PUSHBUTTON PLACEMENT

SHARED CURB RAMP







NOTES

1. Pushbutton pedestals should not be located further than 10 feet from the edge of curb, shoulder, or pavement.
2. The face of the pushbutton should be parallel to the applicable crosswalk.
3. Separate pushbuttons used on the same corner should be separated by a distance of at least 10 feet.
4. Pushbuttons shall be installed adjacent to a level surface with a maximum reach distance of 10 inches.
5. Maintain 4 feet of clearance around pedestal if located in sidewalk.
6. Refer to section 1705 of the 2012 NCDOT Roadway Standard Drawings for Pushbutton Assembly details.
7. Refer to section 1743 of the 2012 NCDOT Roadway Standard Drawings for Pedestal details.
8. Contact Division Traffic Engineer for pushbutton location approval prior to installation.
9. Curb ramps are for symbolic use only and may not reflect actual design or field conditions.

LEGEND

PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

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

06-14

ENGLISH DETAIL DRAWING FOR

PEDESTRIAN PUSHBUTTON LOCATIONS

PLACEMENT DETAIL

SHEET 1 OF 3

1705D01

See Plate for Title

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: 1B9B4B9B27A4494 SIGNATURE

6/17/2014 DATE

36-AUG-2014 15:37
S:\TSGUM115\Signals\Signal Design Section\Central Region\Rob's Files\Ped Stds\Pushbutton Drawings\Pushbutton Plate Drawings.20140617.dgn
rziemba

PROJECT NO.	SHEET NO.
I-5885	Sig. P2

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

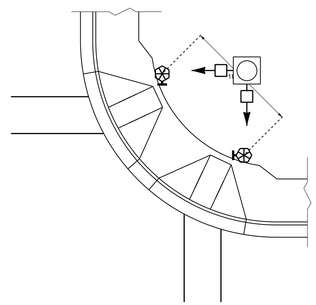
06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

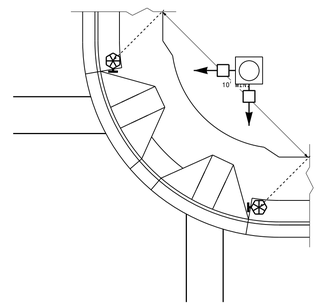
SHEET 2 OF 3
1705D01

TYPICAL PUSHBUTTON LOCATIONS (CASE I)

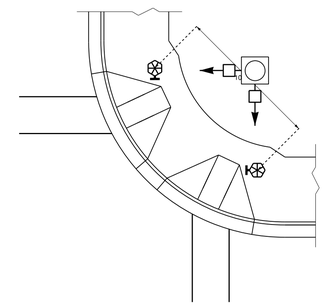
SEPARATE CURB RAMPS W/ TYPE I PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'
OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK
OF SIDEWALK EXCEEDS 10' FROM
CURB OR PAVEMENT/SHOUDLER



PUSHBUTTON PLACEMENT
IN WIDE SIDEWALK

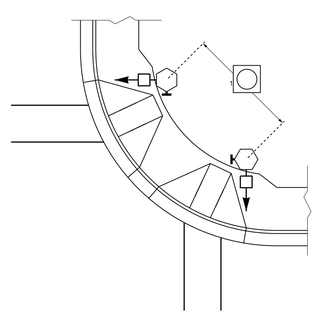
PROPOSED

LEGEND

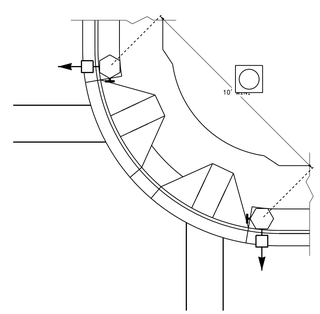
- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

TYPICAL PUSHBUTTON LOCATIONS (CASE II)

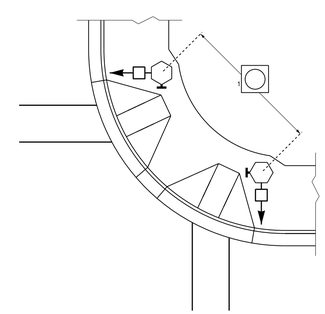
SEPARATE CURB RAMPS W/ TYPE II PEDESTALS



BACK OF SIDEWALK IS WITHIN 10'
OF CURB OR PAVEMENT/SHOULDER



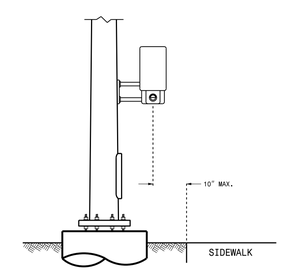
GRASS STRIP PLACEMENT IF BACK
OF SIDEWALK EXCEEDS 10' FROM
CURB OR PAVEMENT/SHOULDER



PUSHBUTTON PLACEMENT
IN WIDE SIDEWALK

OPTIONAL PUSHBUTTON EXTENSION

FACE OF PUSHBUTTON PARALLEL TO
APPLICABLE CROSSWALK



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

06-14

ENGLISH DETAIL DRAWING FOR
PEDESTRIAN PUSHBUTTON LOCATIONS
PLACEMENT DETAIL

SHEET 2 OF 3
1705D01

See Plate for Title

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signal Design Section

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by: 1B9D4B6274A4B4...
SIGNATURE

6/17/2014
DATE

26-AUG-2014 16:38
S:\TIS\GOV\ITS\Signals\Signal Design Section\Central Region\Rob's Files\Ped Stds\Pushbutton Drawings\Pushbutton Plate Drawings_20140617.dgn
rziemba

PROJECT NO.	SHEET NO.
I-5885	Sig. P3

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

06-14

ENGLISH DETAIL DRAWING FOR

PEDESTRIAN PUSHBUTTON LOCATIONS

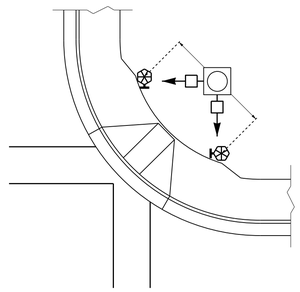
PLACEMENT DETAIL

SHEET 3 OF 3

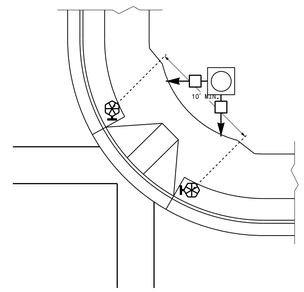
1705D01

TYPICAL PUSHBUTTON LOCATIONS (CASE III)

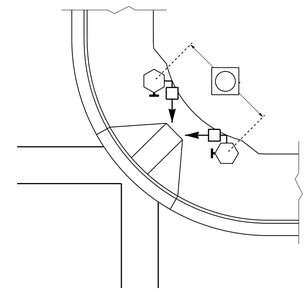
SHARED CURB RAMPS



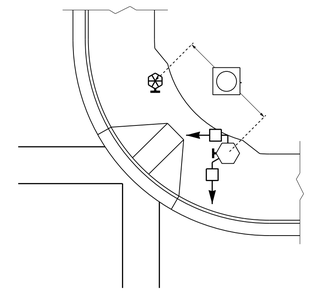
BACK OF SIDEWALK IS WITHIN 10′
OF CURB OR PAVEMENT/SHOULDER



GRASS STRIP PLACEMENT IF BACK
OF SIDEWALK EXCEEDS 10′ FROM
CURB OR PAVEMENT/SHOULDER

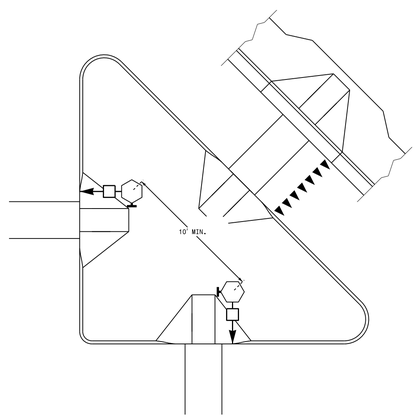


PUSHBUTTON PLACEMENT IN WIDE SIDEWALK
(CORRESPONDING PUSHBUTTONS AND SIGNAL
HEADS ON DIFFERENT PEDESTALS)

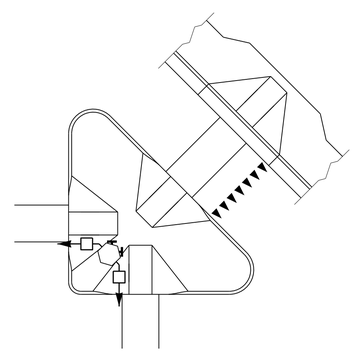


PUSHBUTTON PLACEMENT WITH SHARED
TYPE II SIGNAL PEDESTAL AND TYPE I
PUSHBUTTON POST

TRAFFIC ISLAND PUSHBUTTON LOCATIONS

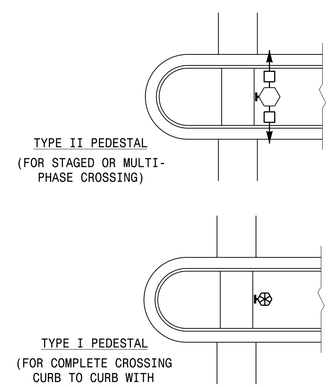


PUSHBUTTON PLACEMENT IN LARGE "PORK
CHOP ISLAND" WITH SEPARATE PEDESTALS



PUSHBUTTON PLACEMENT IN SMALL "PORK
CHOP ISLAND" WITH SHARED PEDESTAL

PUSHBUTTON PLACEMENT IN MEDIAN



TYPE II PEDESTAL
(FOR STAGED OR MULTI-
PHASE CROSSING)

TYPE I PEDESTAL
(FOR COMPLETE CROSSING
CURB TO CURB WITH
OPTIONAL REFUGE)

LEGEND

PROPOSED

- Signal Pole
- Type I Pushbutton Post
- Type II Signal Pedestal
- Pushbutton & Sign
- Pedestrian Signal Head
- Curb Ramp
- Pushbutton Location Area

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

06-14

ENGLISH DETAIL DRAWING FOR

PEDESTRIAN PUSHBUTTON LOCATIONS

PLACEMENT DETAIL

SHEET 3 OF 3

1705D01

See Plate for Title

Prepared in the Offices of:

Transportation Mobility and Safety Division
Signal Design Section
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 026486 ENGINEER ROBERT J. ZIEMBA

DocuSigned by:
1B9B4B9D274A4b8...
SIGNATURE

6/17/2014
DATE

26-AUG-2014 15:39
S:\TSGU\ITS\Signals\Signal Design Section\Central Region\Rob's Files\Ped Srds\Pushbutton Drawings\Pushbutton Plate Drawings.20140617.dgn
rziemba

09/08/99

TIP PROJECT: I-5885

CONTRACT:

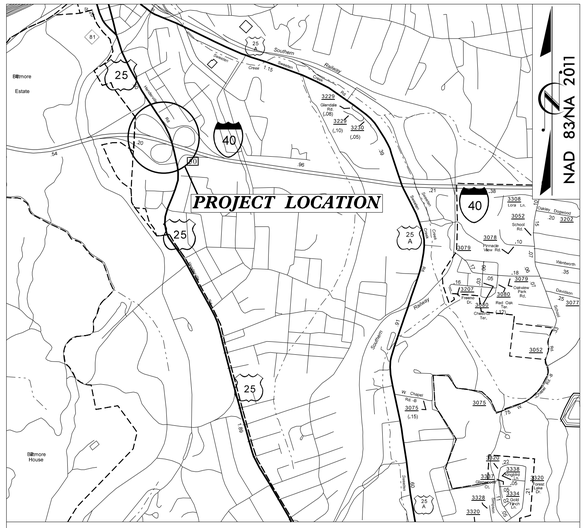
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
I-5885	UO-1

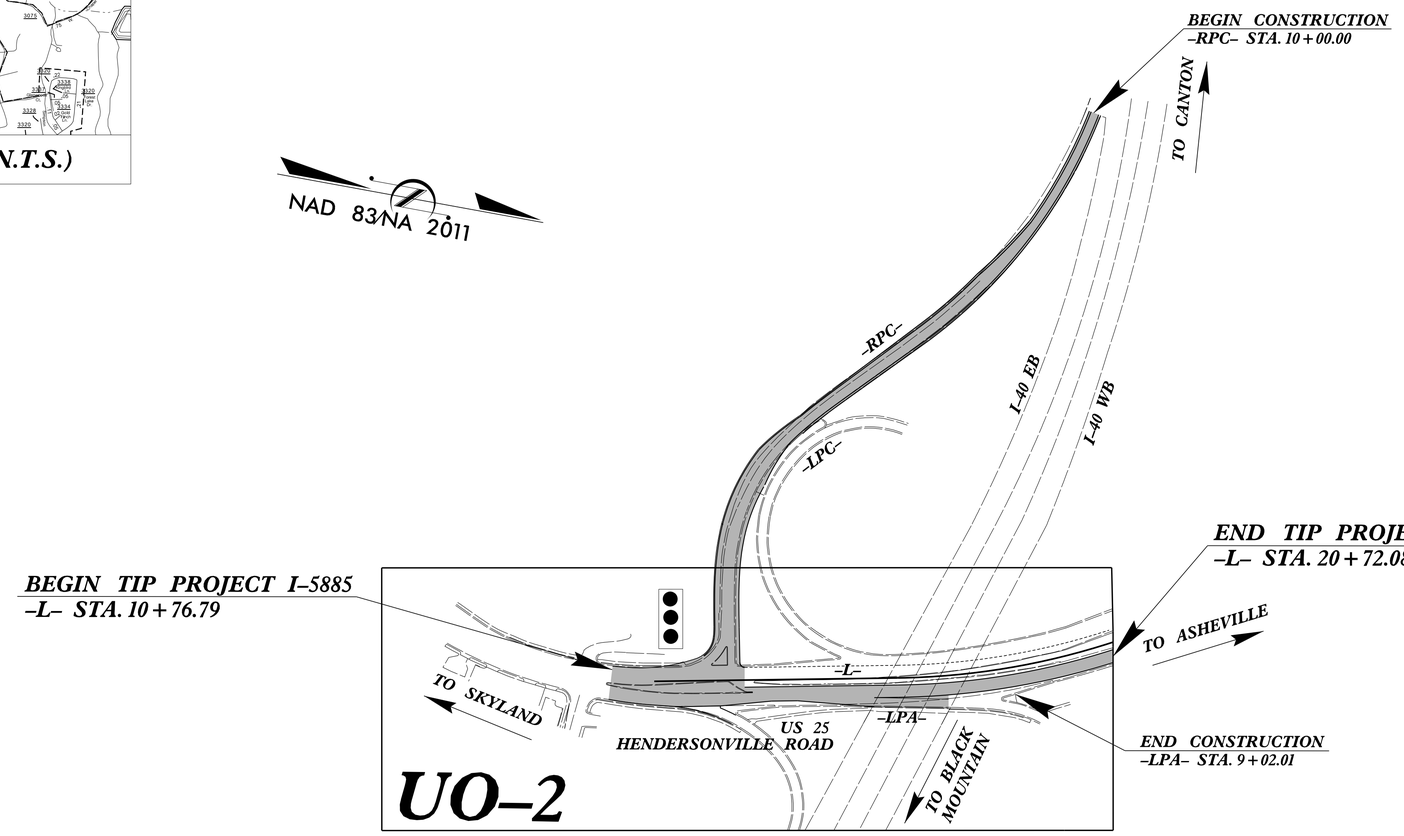
UTILITIES BY OTHERS
BUNCOMBE COUNTY

LOCATION: I-40 (EXIT 50) AT US25 (HENDERSONVILLE ROAD)

TYPE OF WORK: AERIAL POWER, TELEPHONE, AND CABLE



VICINITY MAP (N.T.S.)



V&M Vaughn & Melton Consulting Engineers
Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4175
Charlotte, North Carolina 704-357-0488

Copyright © 2017 Vaughn & Melton, Inc.
All Rights Reserved

GRAPHIC SCALES

50 25 0 50 100
PLANS

INDEX OF SHEETS

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

UTILITY OWNERS ON PROJECT

(1) POWER - DUKE ENERGY
(2) TELEPHONE - AT&T
(3) CABLE - CHARTER
(4) FIBER - EDUCATION & RESEARCH CONSORTIUM (ERC)

PLANS PREPARED BY:

V&M Vaughn & Melton Consulting Engineers
1800 Associates Lane, Suite E
Charlotte, NC 28269
704 357 0488

PREPARED FOR THE OFFICE OF:
DIVISION OF HIGHWAYS
UTILITIES ENGINEERING SECTION
1591 MAIL SERVICES CENTER
RALEIGH NC 27699-1591
PHONE (919) 250-4128
FAX (919) 250-4119

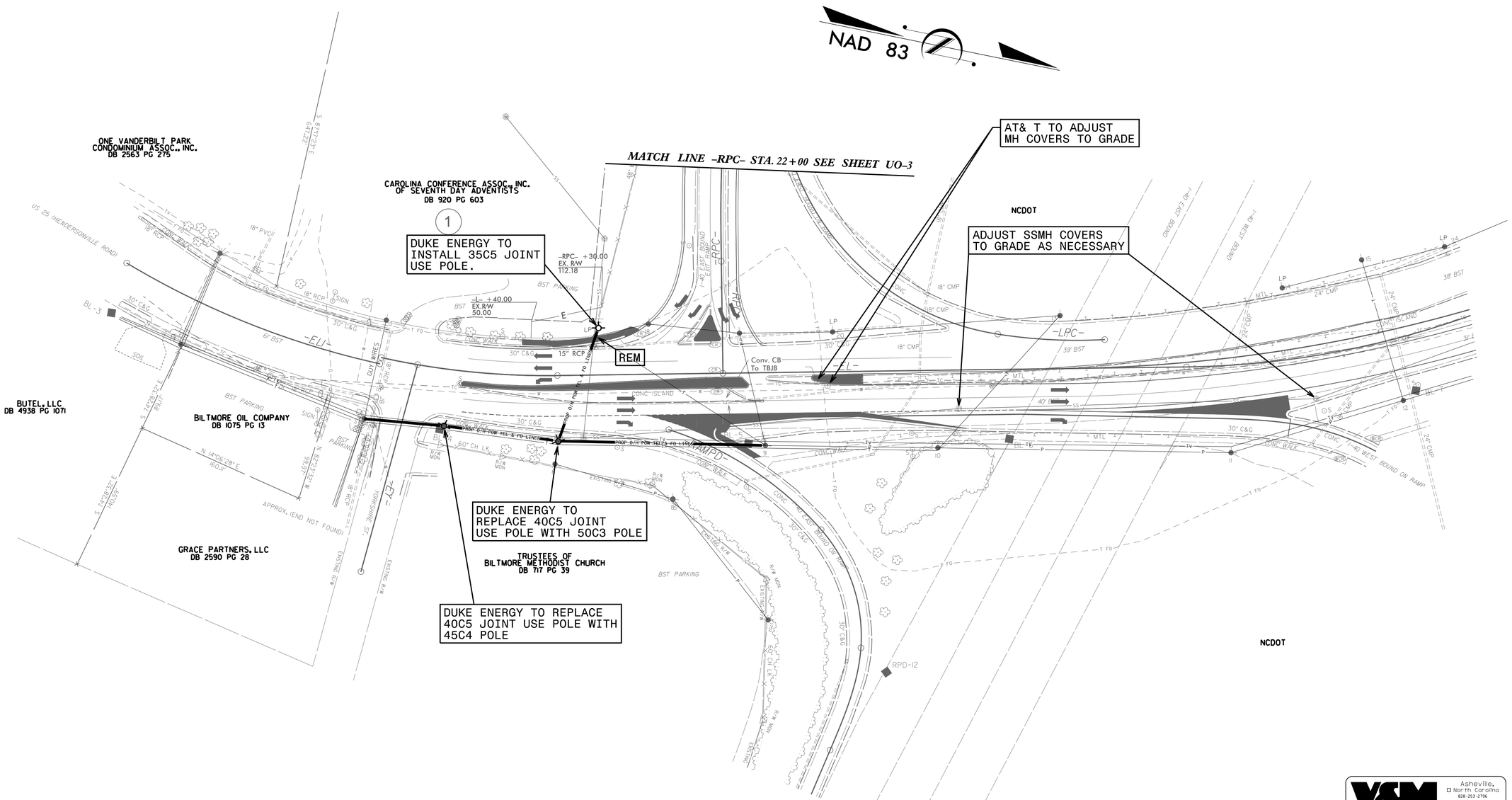
Roger Worthington, P.E. — UTILITIES SECTION ENGINEER
Wm. Lee Johnson, Jr. — D-B CONTRACT UTILITY COORDINATOR
Nicholas V. Asaro, PLS — UTILITIES PROJECT COORDINATOR

7/13/2017
V:\Asheville\transportation\3535-02 I-5885\Utilities\I-5885 UO-1.dgn
User:jddaves

PROJECT REFERENCE NO.	SHEET NO.
I-5885	UO-2

UTILITIES BY OTHERS

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



CONTRACT: TIP PROJECT: I-5885

Vaughn & Melton
Consulting Engineers
Asheville, North Carolina 828-253-2796
Tri-Cities, Tennessee 423-467-8401
Knoxville, Tennessee 865-546-5800
Charlotte, North Carolina 704-357-0488
Middlesboro, Kentucky 606-248-6600
Spartanburg, South Carolina 864-574-4775

Copyright © 2017 Vaughn & Melton, Inc. All Rights Reserved

TRANSPORTATION\3535-02\UTILITIES\I-5885UO-2.DGN
V&M PROJECT #3535-02
1/11/16

PROJ. REFERENCE NO.	SHEET NO.
I-5885	X-0

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

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

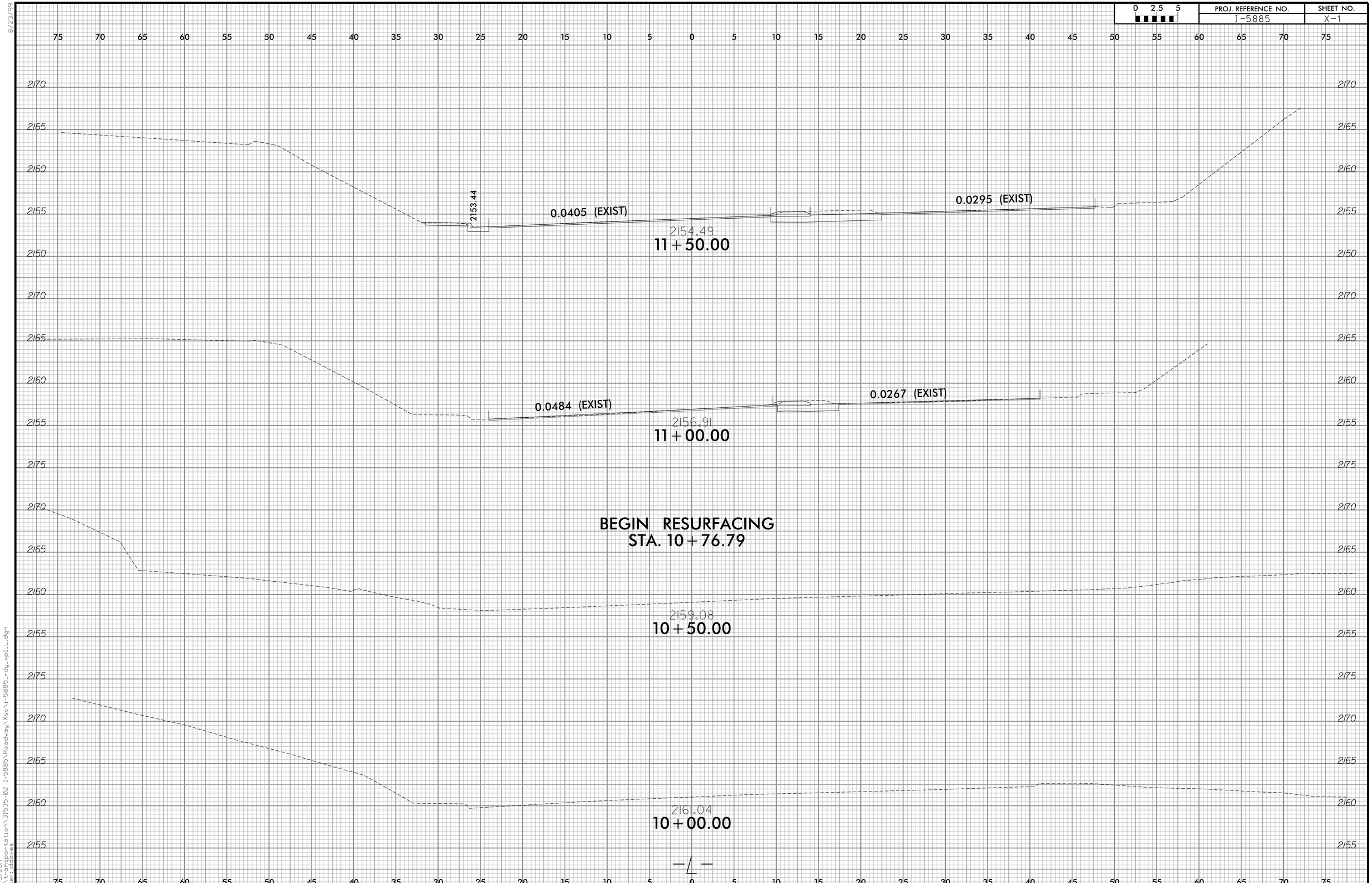
CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
11+00.00	0	0
11+50.00	31	0
12+00.00	108	0
12+50.00	107	0
13+00.00	50	0
13+50.00	38	5
14+00.00	27	8
14+50.00	33	6
15+00.00	21	4
15+50.00	8	2
16+50.00	38	0
17+00.00	35	0
17+50.00	39	0
18+00.00	35	0

Station Rpc	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
12+50.00	0	0
13+00.00	5	97
13+50.00	3	50
14+00.00	7	28
14+50.00	12	30
15+00.00	13	35
15+50.00	13	35
16+00.00	11	30
16+50.00	10	23
17+00.00	11	16
17+50.00	11	10
18+00.00	8	9
18+50.00	61	10
19+00.00	166	28
19+50.00	228	42
20+00.00	234	37
20+50.00	173	29
21+00.00	71	112
21+50.00	25	213
22+00.00	27	155
22+50.00	61	48
23+00.00	123	13
23+50.00	157	8

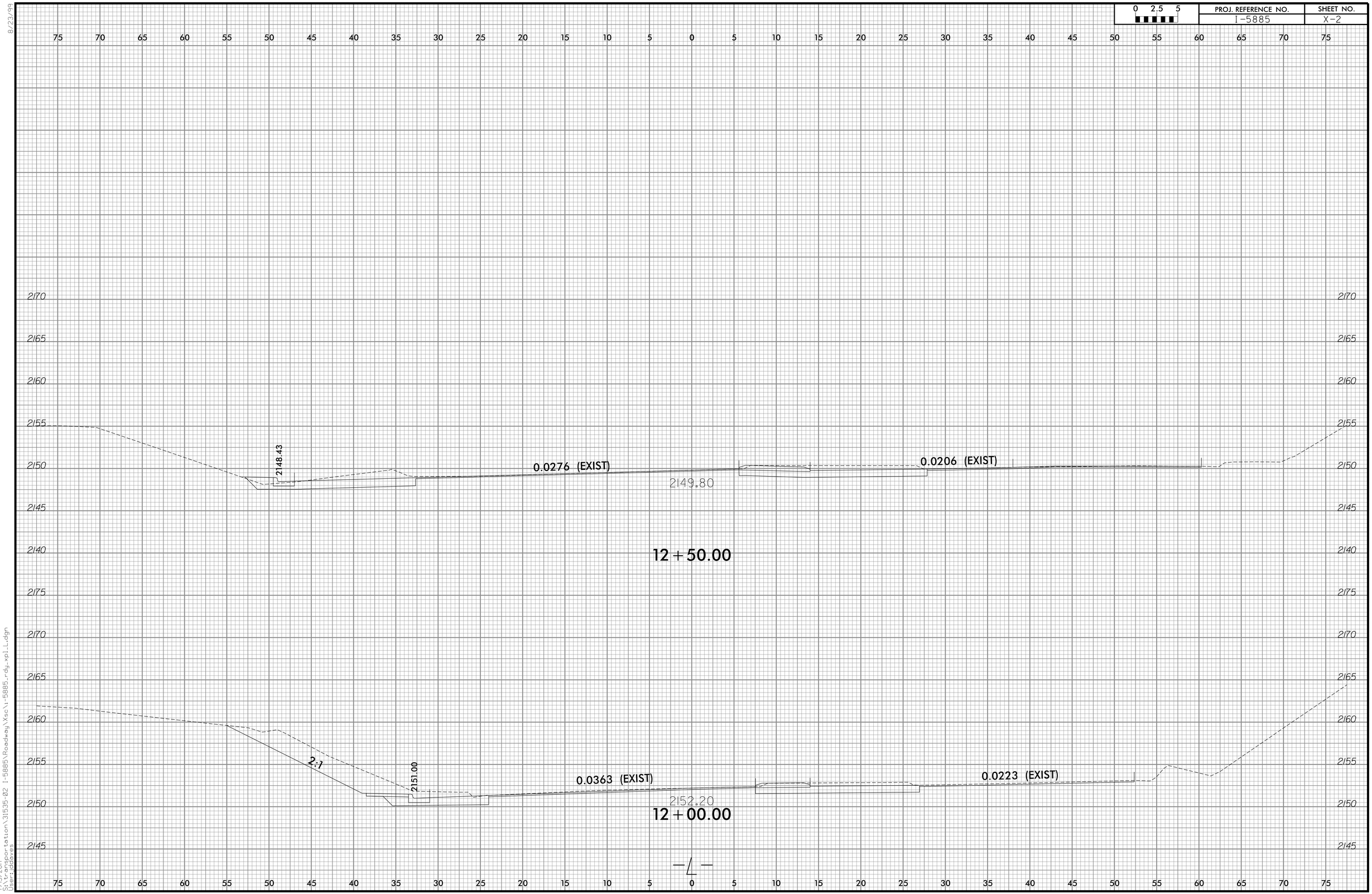
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-1



7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Xsc\i-5885_rdy_xpl_L.dgn
User:dbves

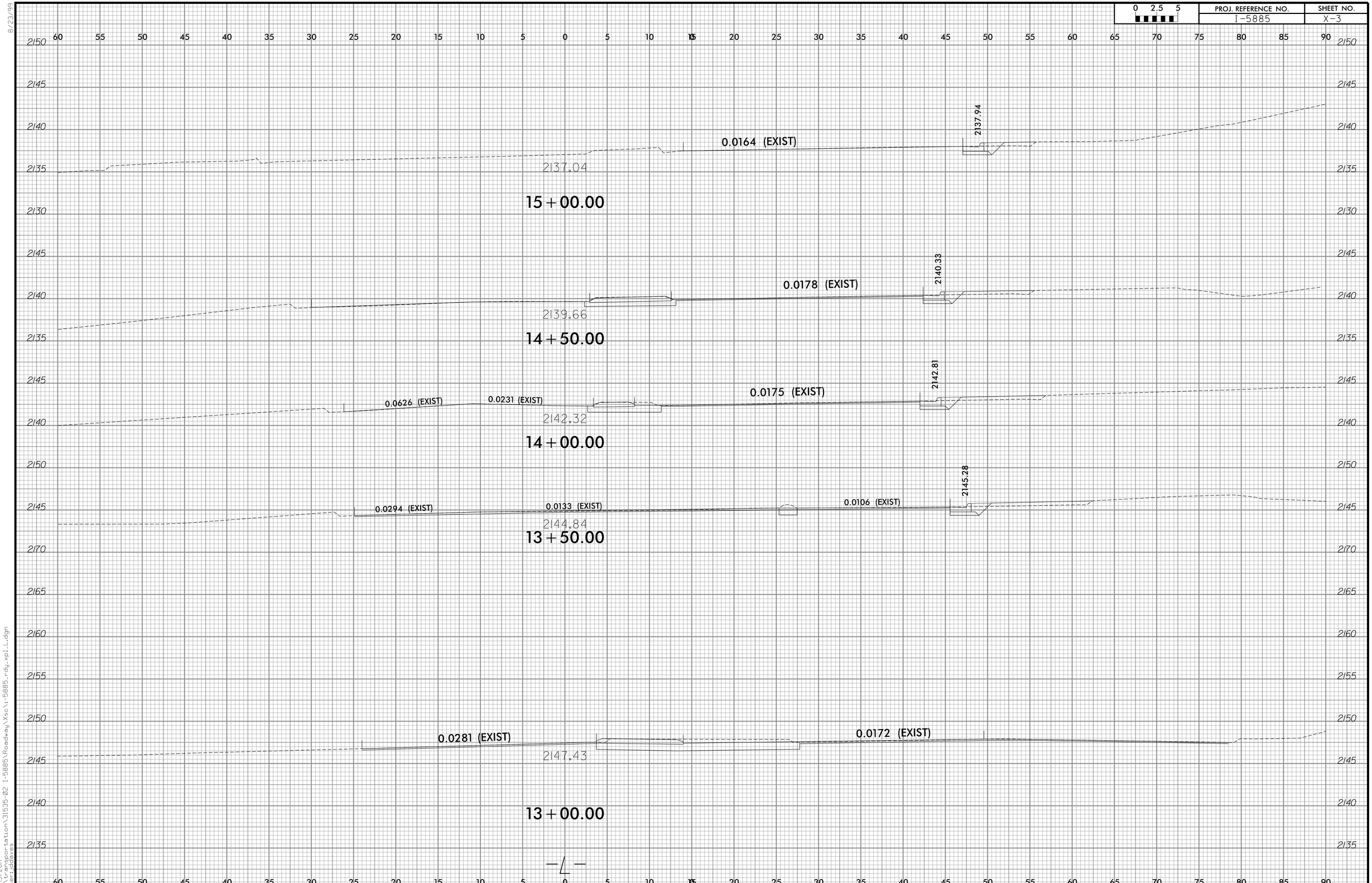
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-2



8/23/99

7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_L.dgn
User: pdaves

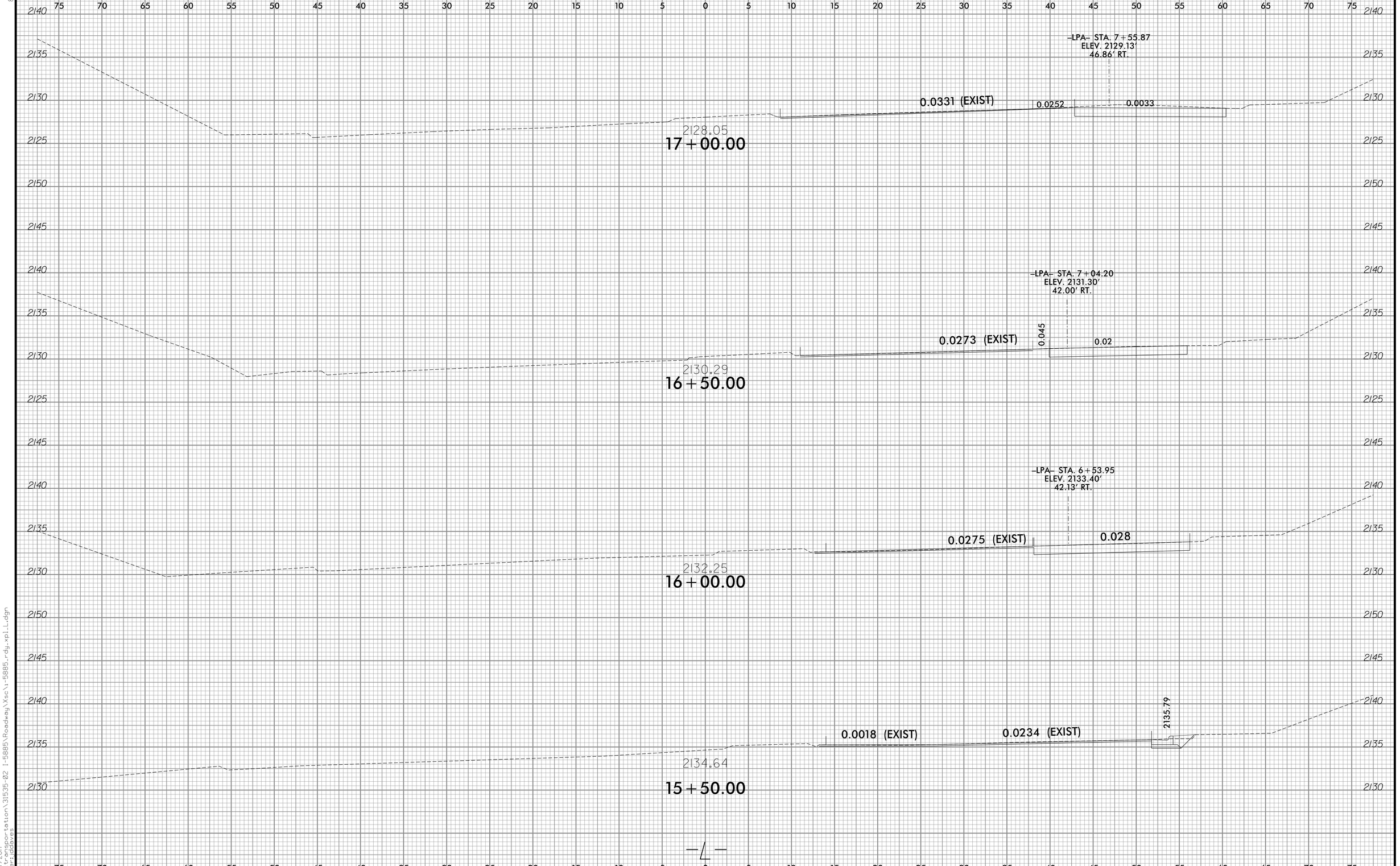
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-3



8/23/99

7/13/2017
S:\Transportation\31535-02 I-5885\Roadway\Xsc\i-5885_rdy_xpl_L.dgn
User:dbves

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-4

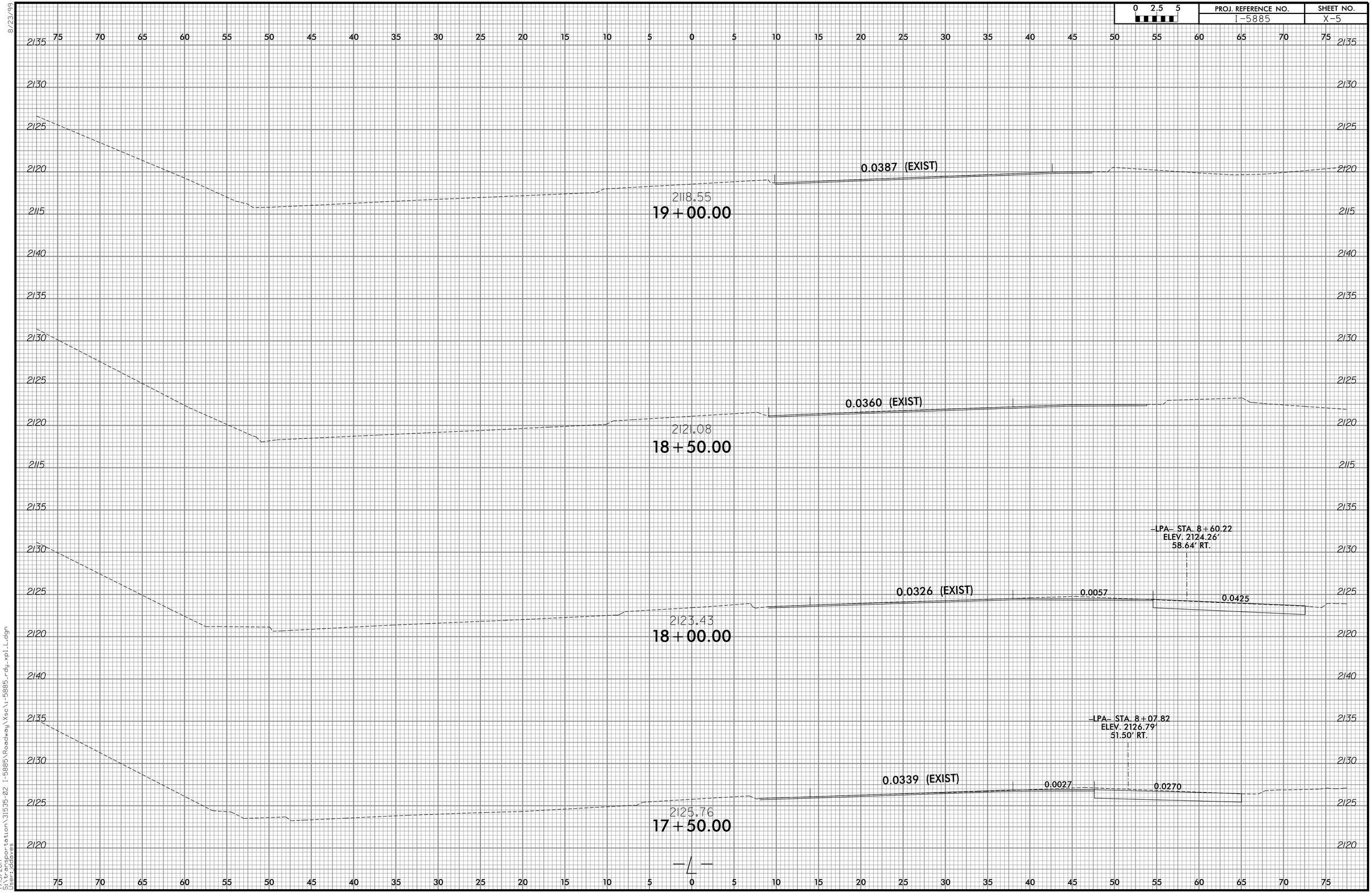


8/23/99

7/7/2017
G:\Transportation\31535-02 I-5885\Roadway\Xsc\i-5885_rdy_xpl_L.dgn
User:dbaves

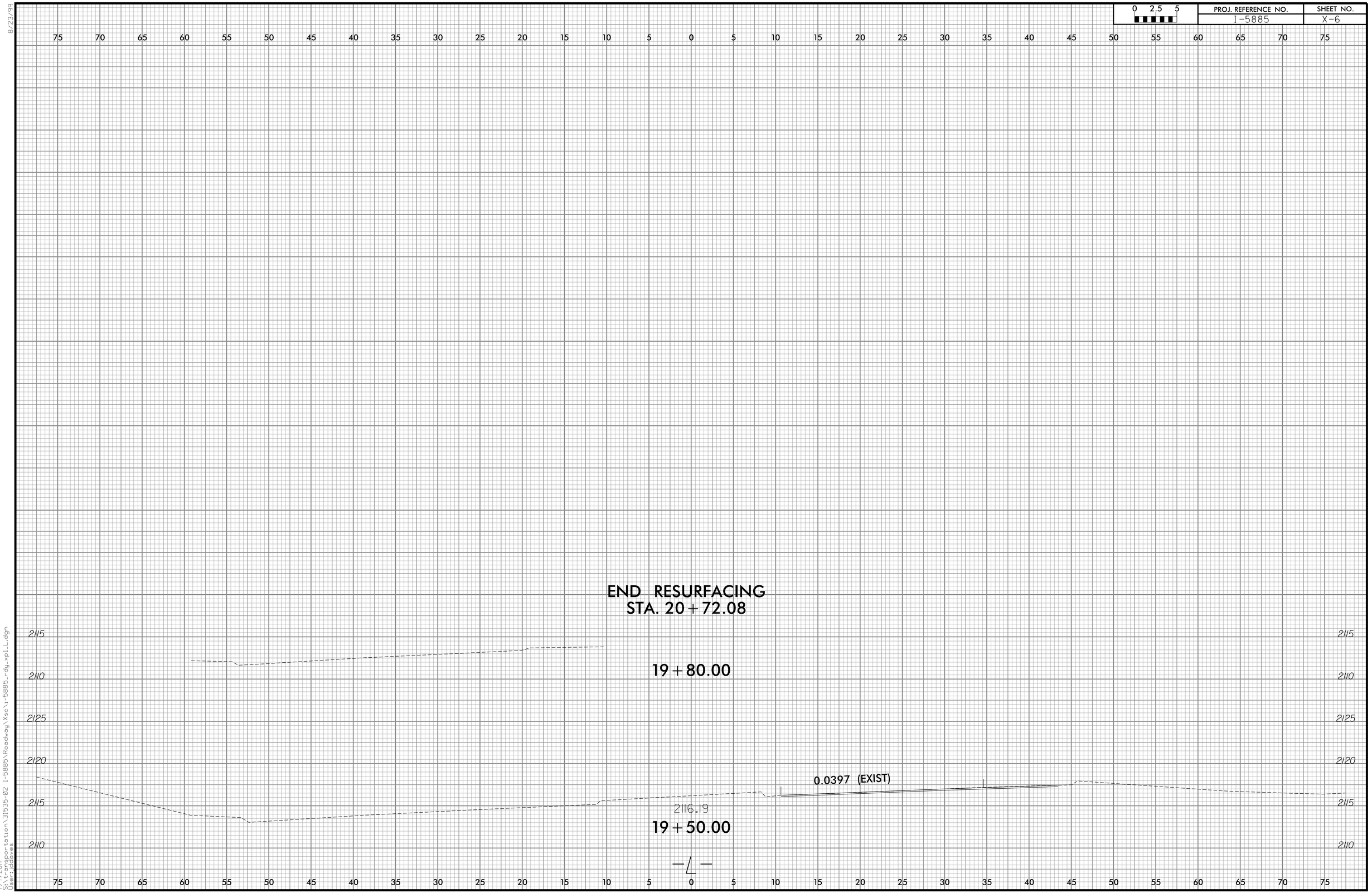
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-5



7/13/2017
Standard
User: adaves

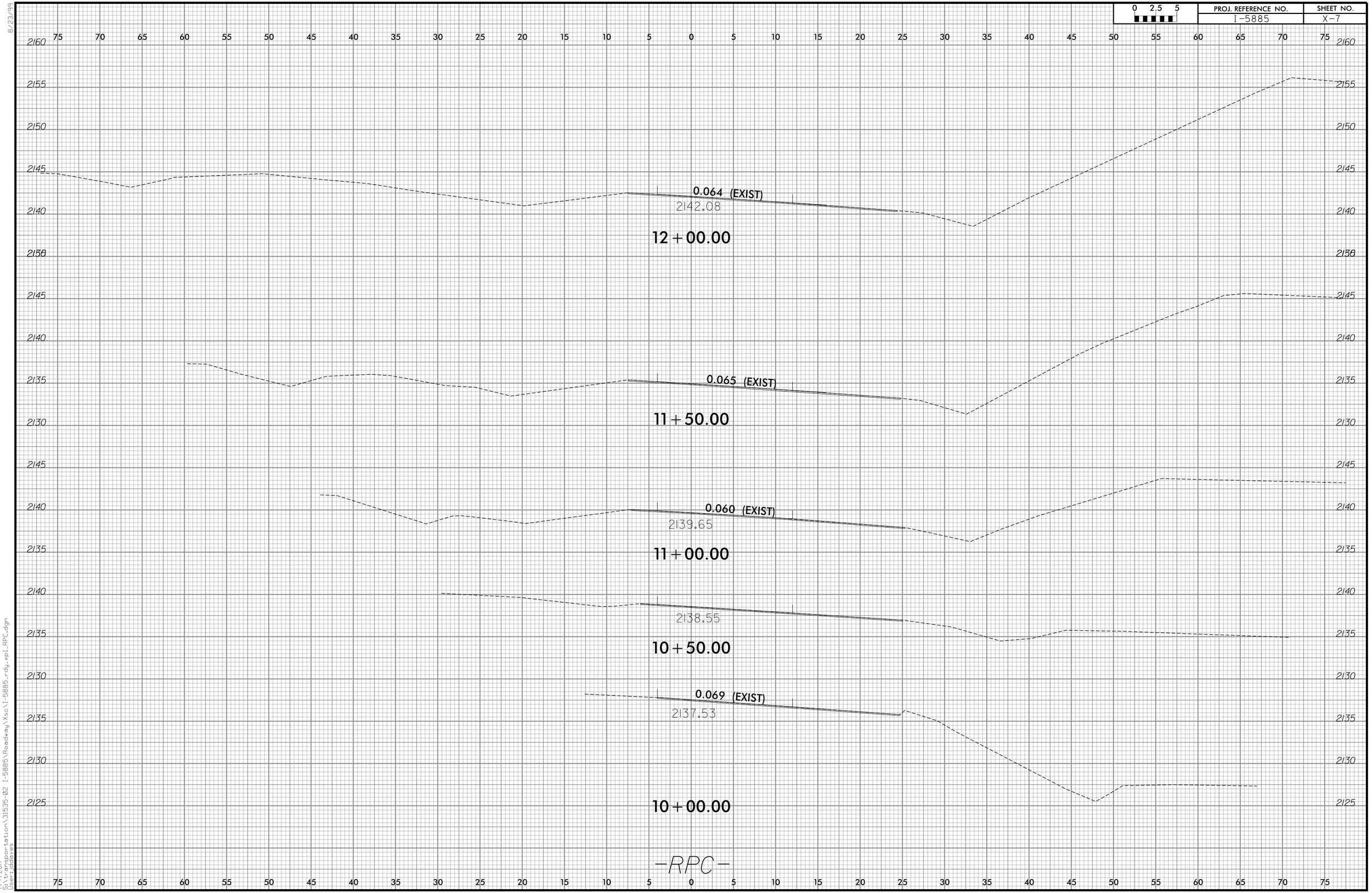
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-6



8/23/99
7/7/2017
C:\Pwworkingdir\oregon\transportation\31535-02 I-5885\Roadway\Xsc\i-5885_rdy_xpl_L.dgn
User:dgaves

8/23/99

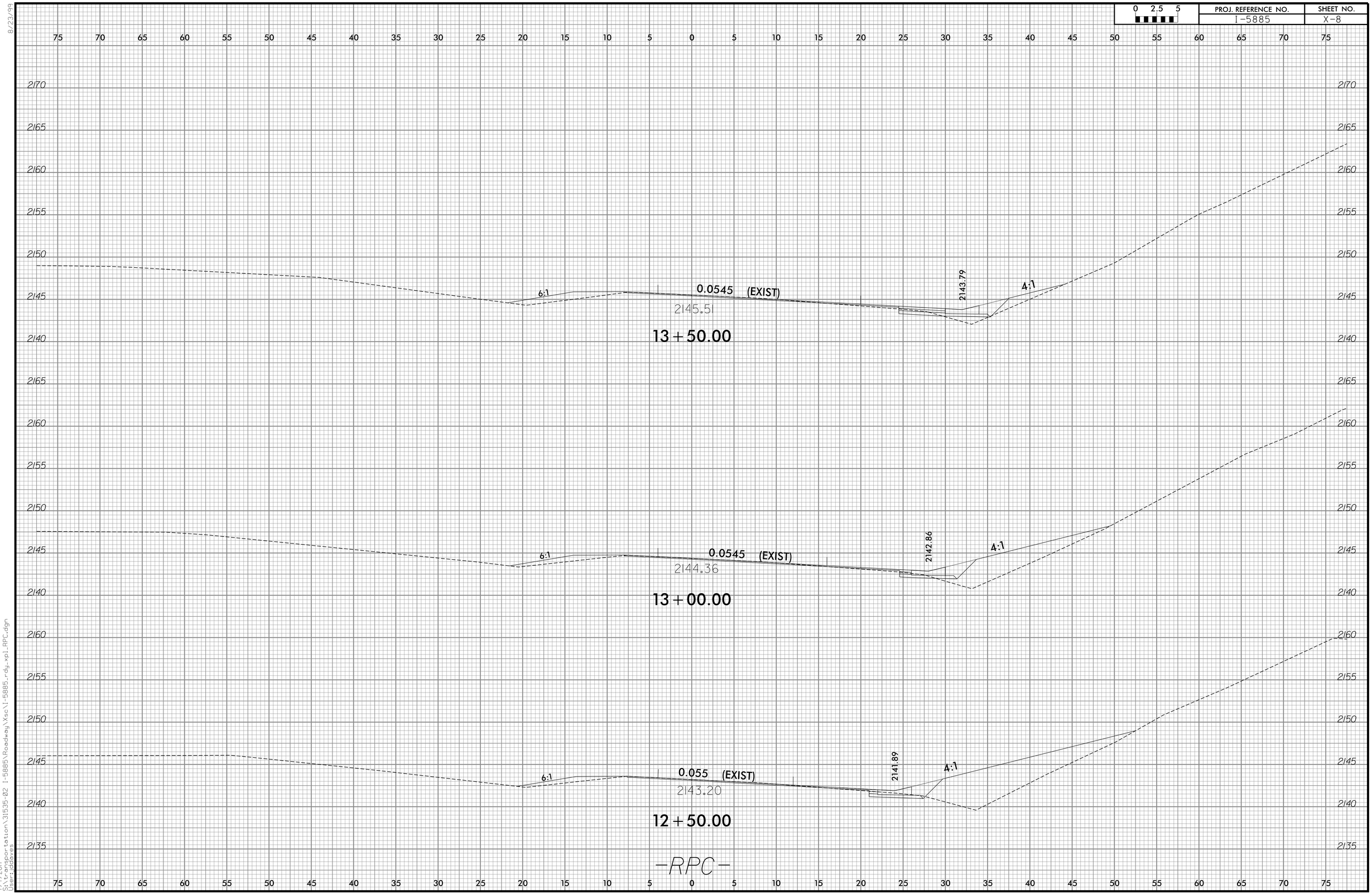
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-7



7/7/2017
C:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:dgaves

8/23/99

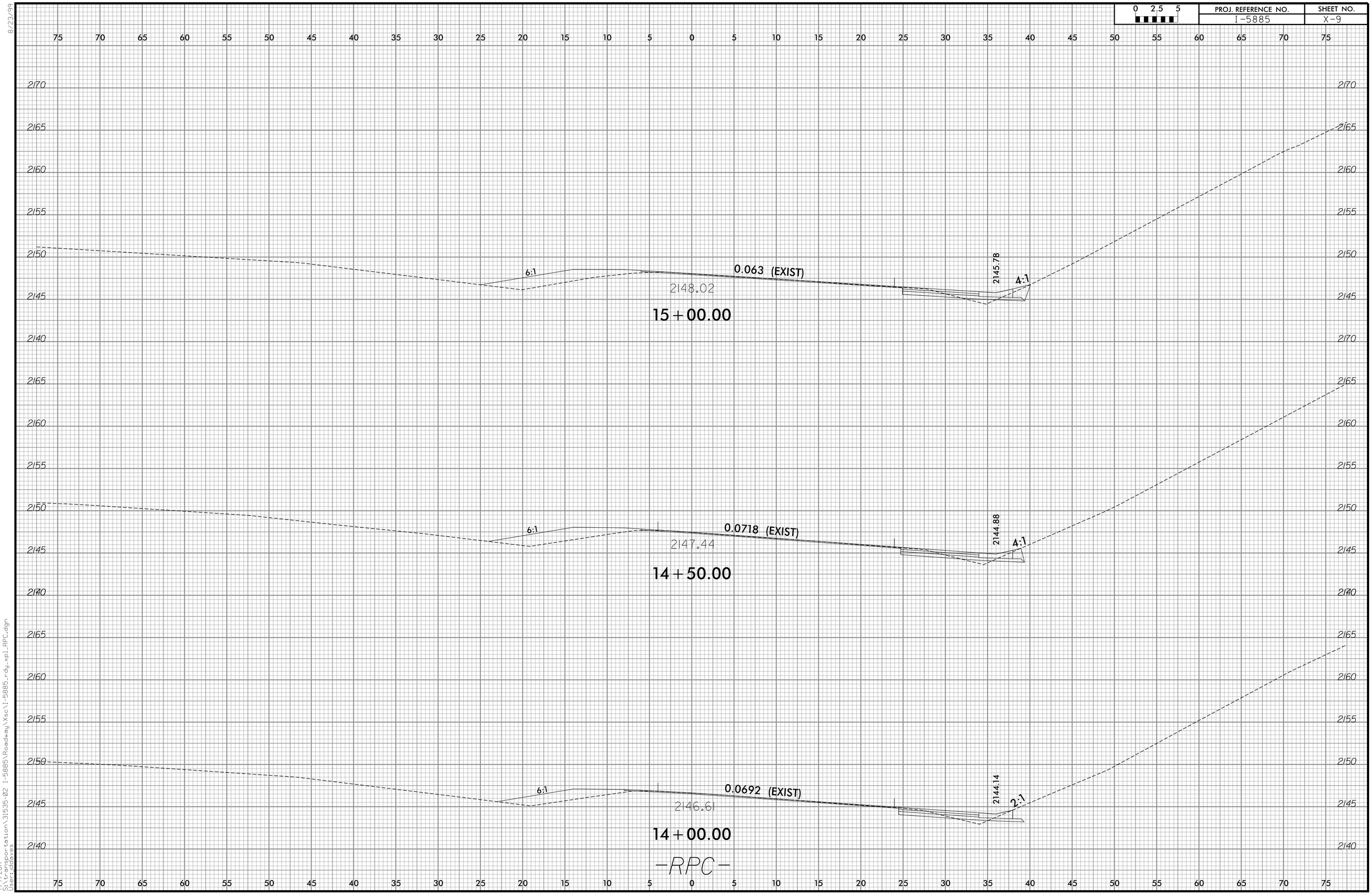
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-8



7/7/2011
S:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:pdaves

8/23/99

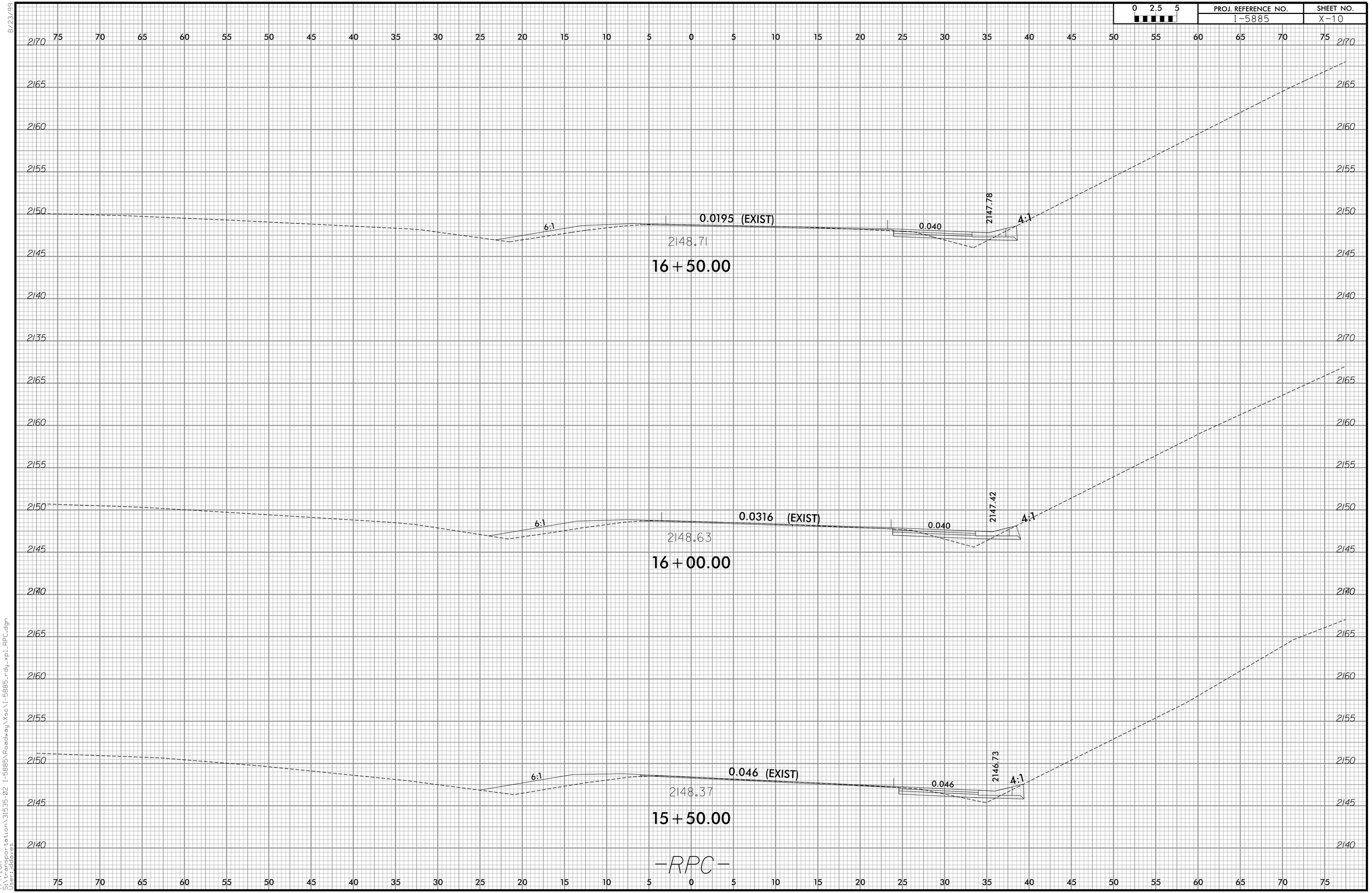
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-9



7/7/2011
S:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:pdaves

8/23/99

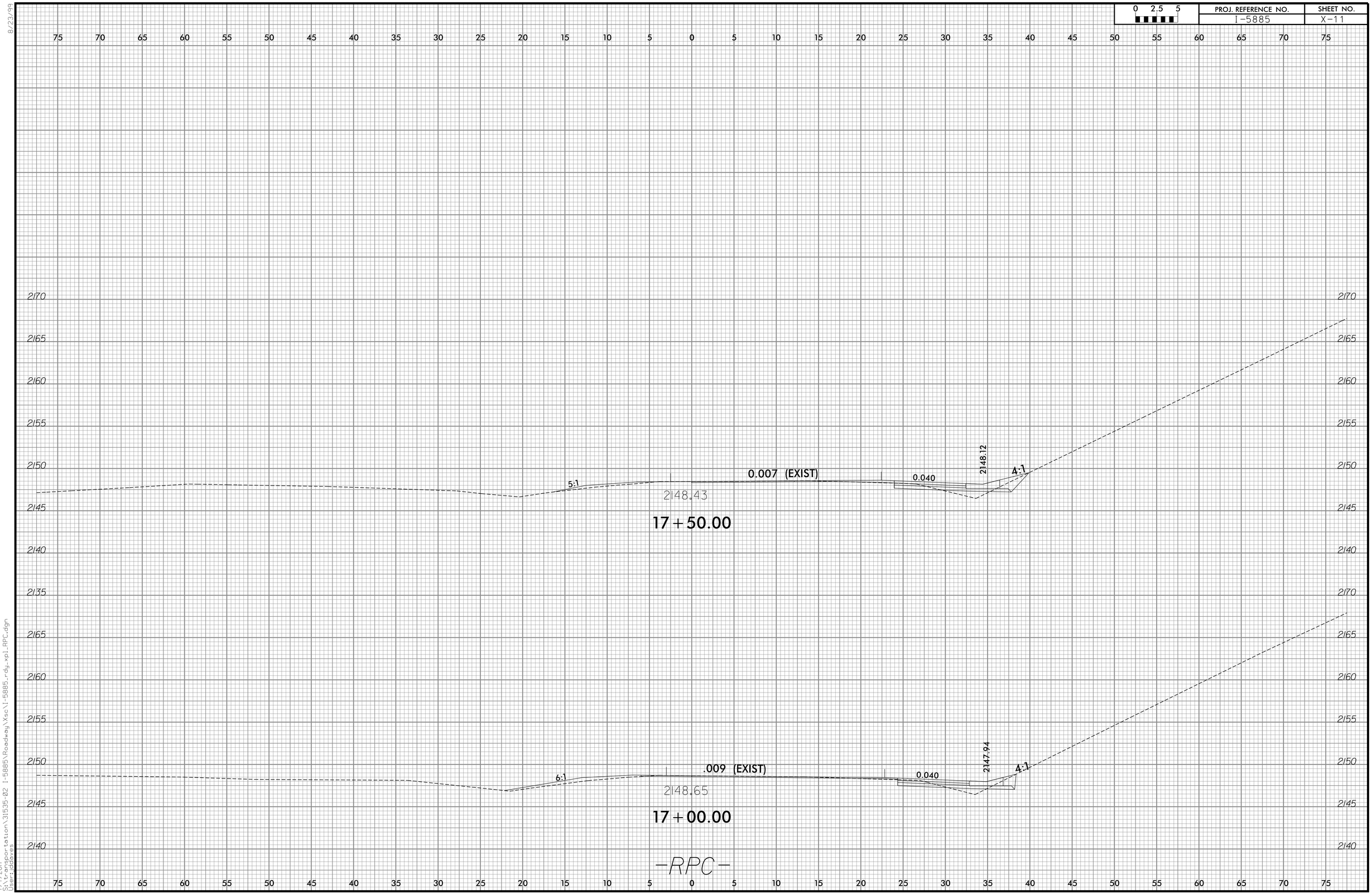
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-10



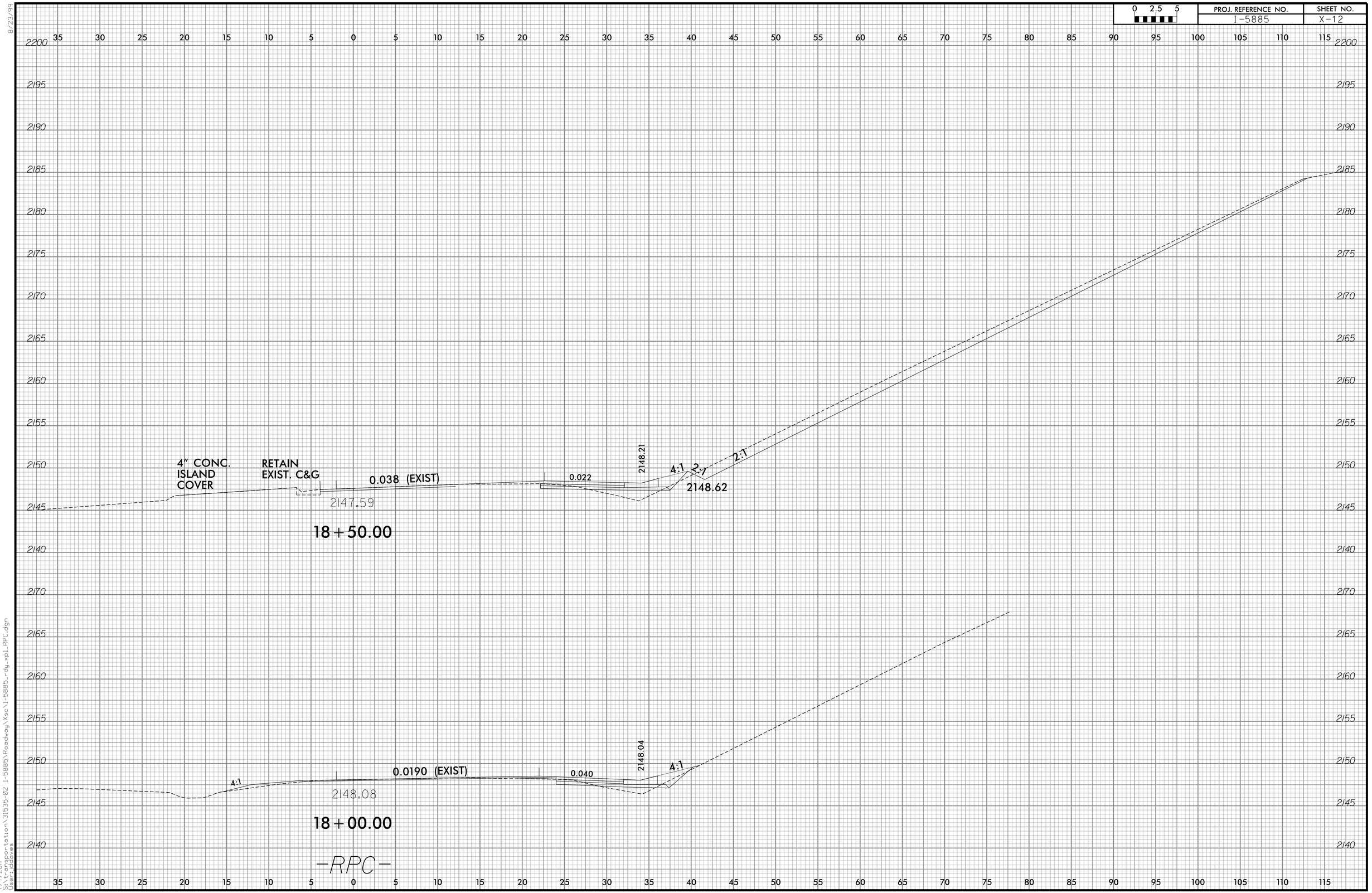
7/7/2017
G:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:dbaves

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-11



7/7/2017
S:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:pdaves

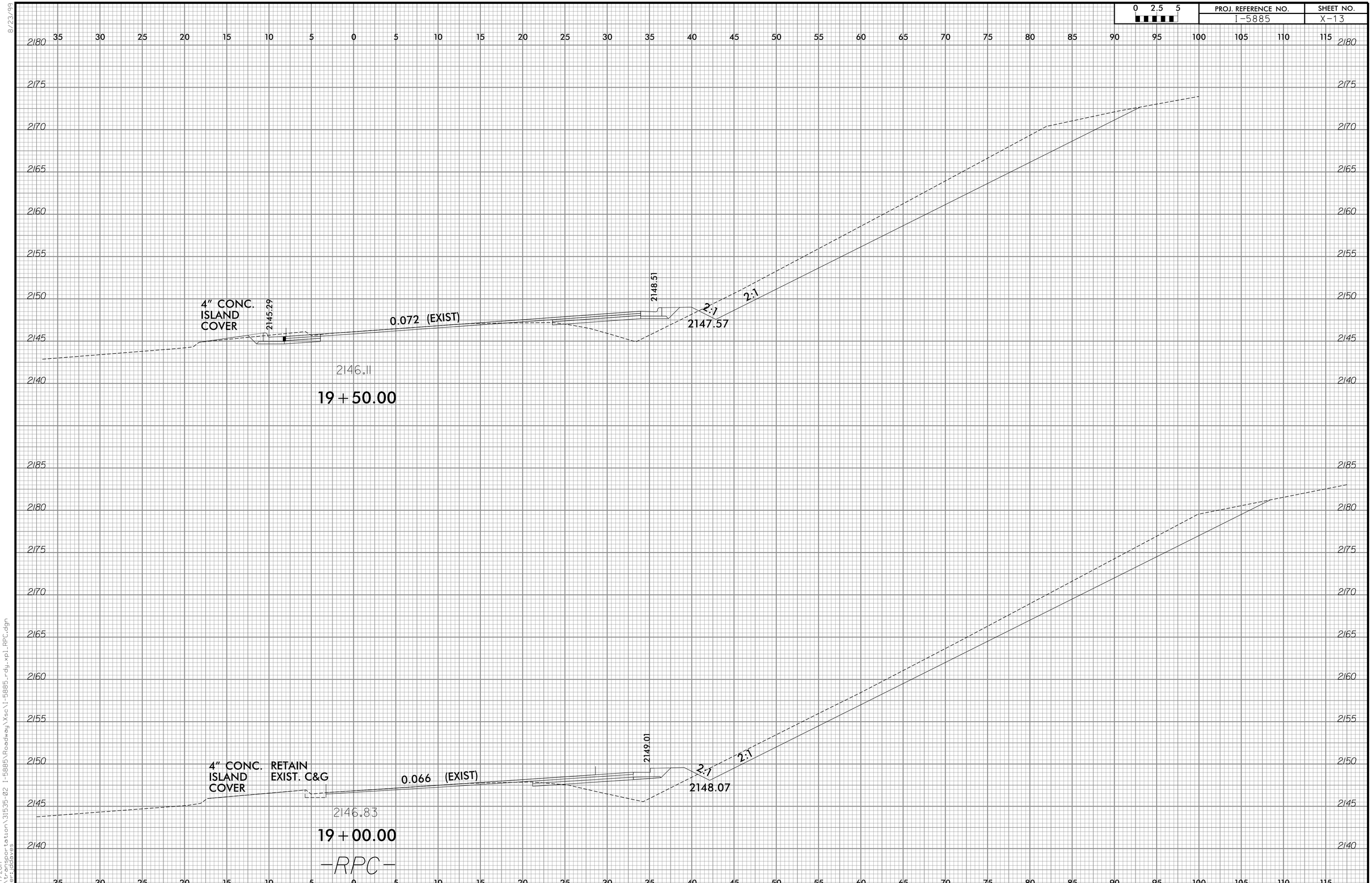


8/23/99

7/7/2017
C:\Program Files\Bentley\Navigator\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:dbaves

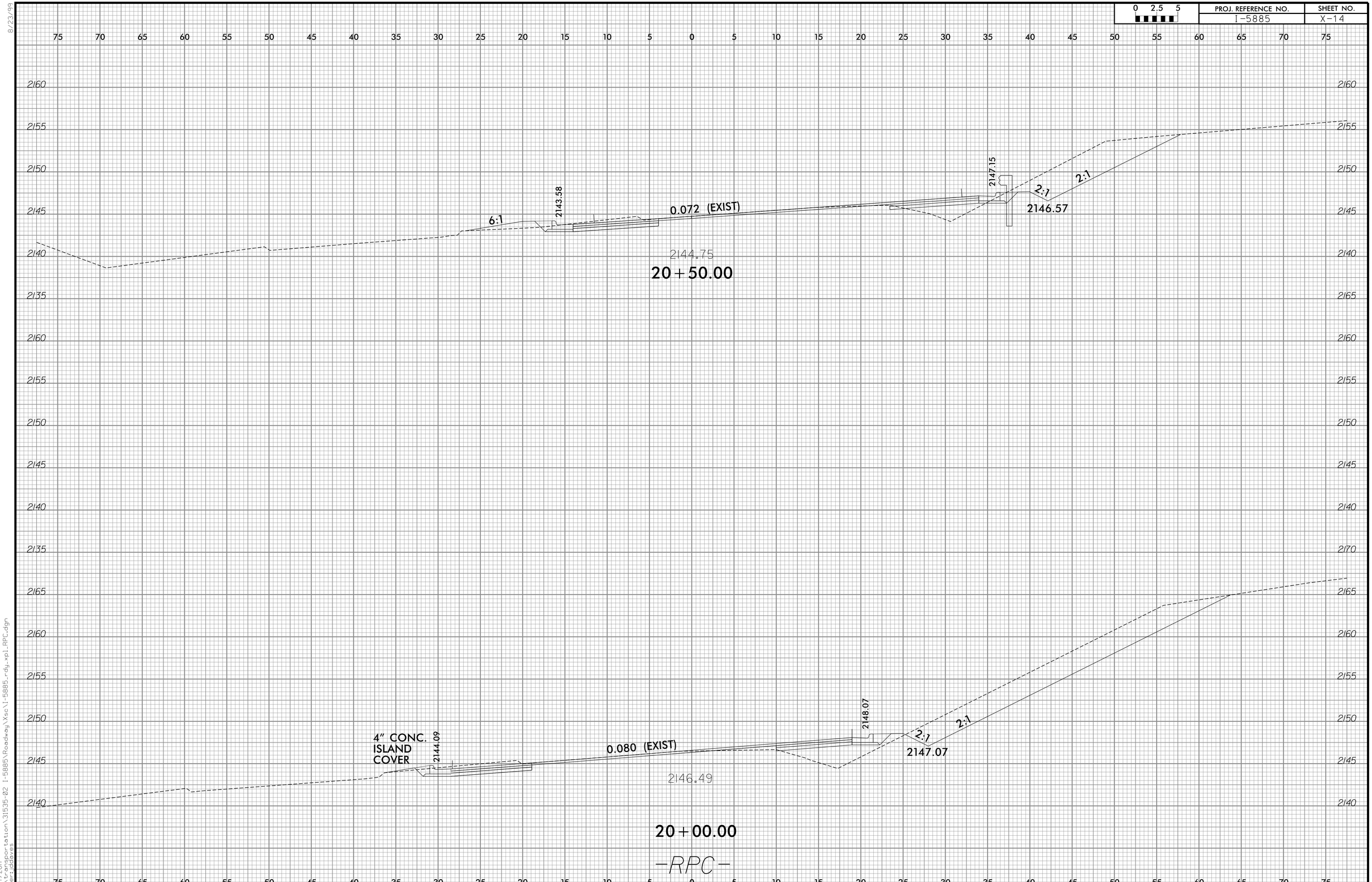
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-13



7/7/2017
c:\pwworkingdir\transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:dgaves

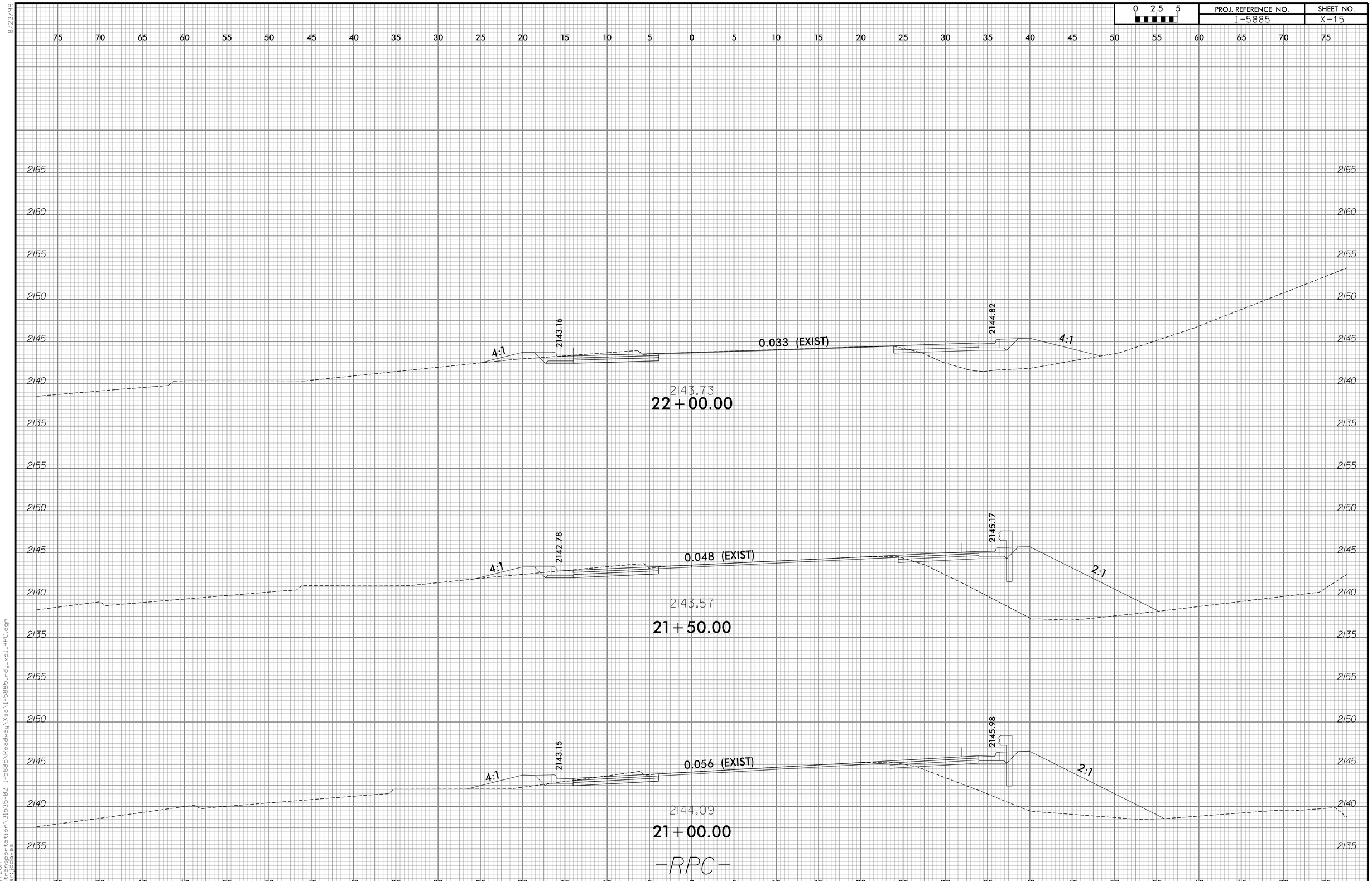
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-14



8/23/99

7/7/2017
c:\pwworkingdir\oregon\transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xp1_RPC.dgn
User:gdaves

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-15

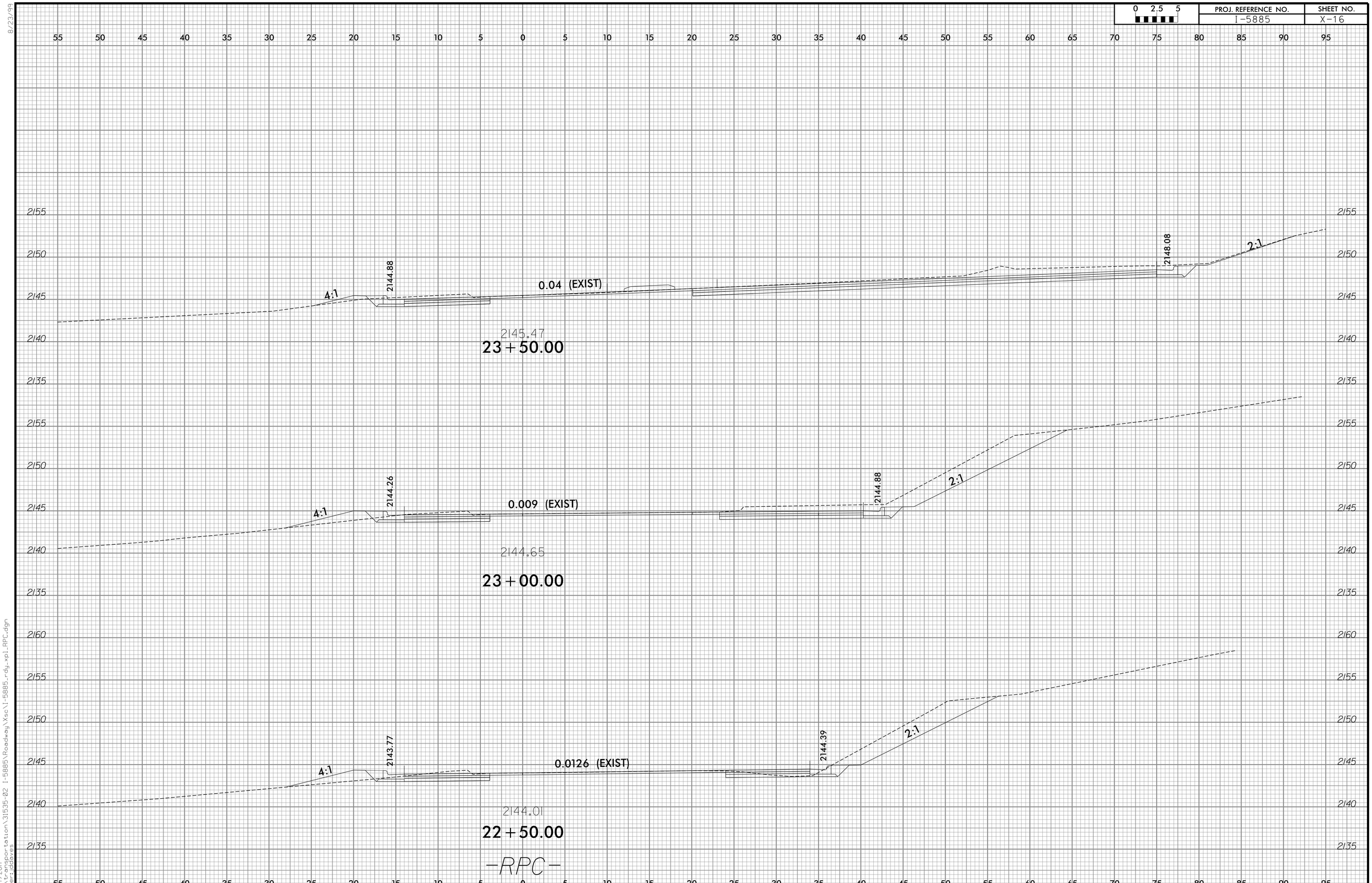


8/23/99

7/7/2017
C:\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:dbaves

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	I-5885	X-16



7/7/2017
C:\Pwworkingdir\oregon\client\Transportation\31535-02 I-5885\Roadway\Xsc\I-5885_rdy_xpl_RPC.dgn
User:ddaves