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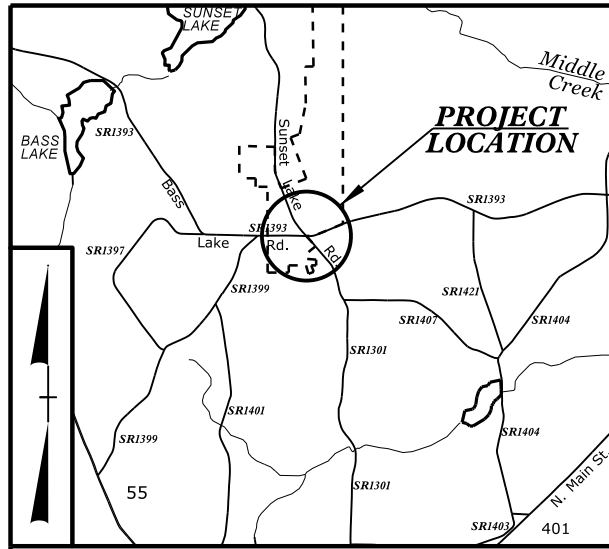
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09/08/99

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols  
See Sheet 1C-1 For Survey Control Sheet

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS WAKE COUNTY

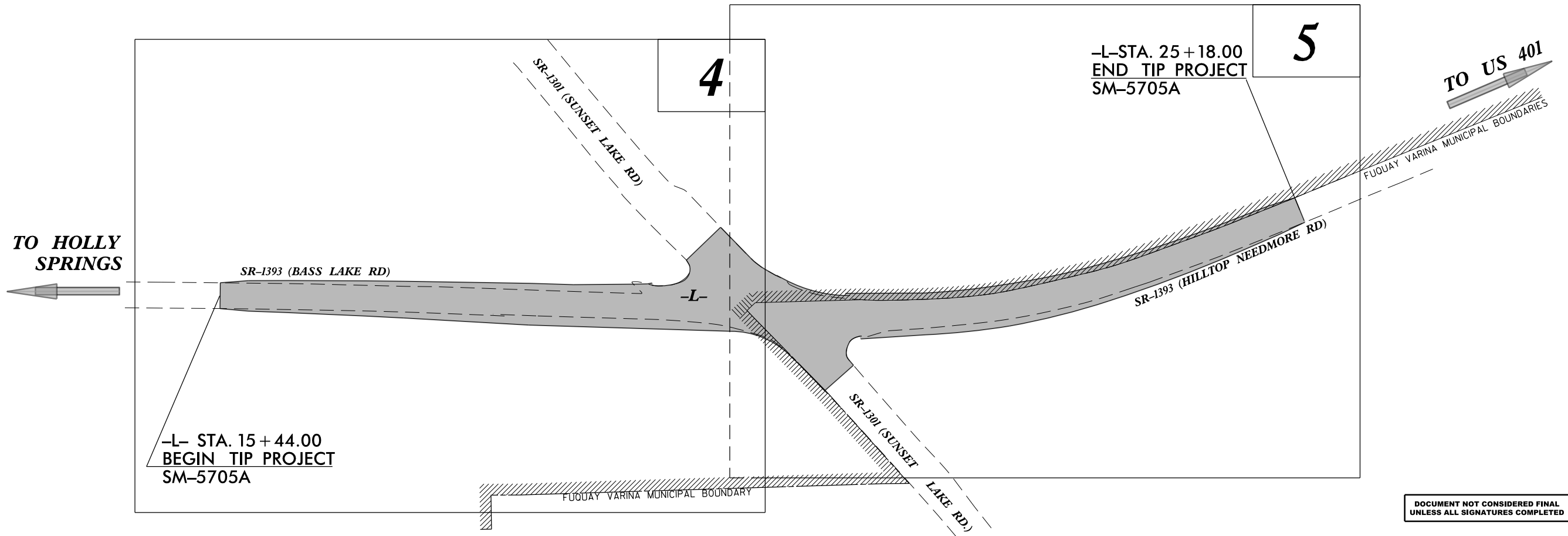
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SM-5705A	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.94	HSIP-1301(008)	PE	
50138.2.94	HSIP-1301(008)	RW	
47649.3.1		CONST	
2018CPT.05.24.20921.1		CONST	



VICINITY MAP SHOWING LOCATION OF PROJECT SM-5705A

LOCATION: SR 1393 (BASS LAKE ROAD/HILLTOP NEEDMORE ROAD) AT SR 1301 (SUNSET LAKE ROAD)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND SIGNALS

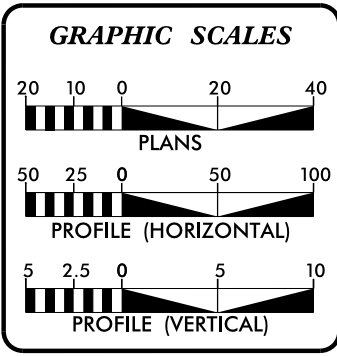
NAD 83  
NSRS 2011



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

27-MAR-2018 14:25  
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\$\$\$\$\$USERNAME\$\$\$\$\$

TIP PROJECT: SM-5705A  
CONTRACT: DE00234



**DESIGN DATA**

ADT 2015 = 8,700  
V = 50 MPH  
FUNC CLASS = MAJOR COLLECTOR  
SUBREGIONAL TIER

**PROJECT LENGTH**

Length Roadway Project W-5601CO = 0.184 Miles

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**  
2612 N. DUKE ST, DURHAM, NC 27704

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MARCH, 2017  
LETTING DATE: APRIL 25, 2018

ROGER C. KLUCKMAN, PE  
PROJECT ENGINEER

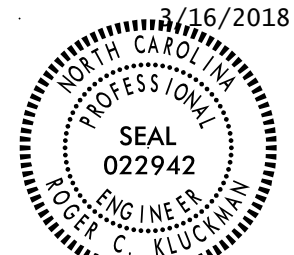
SUNIL PATEL  
PROJECT DESIGN ENGINEER

DIVISION DESIGN ENGINEER  
3/27/2018

DocuSigned by:  
*Roger Kluckman*  
SIGNATURE  
A47FB0E0B26E420...

DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

FIFTH DIVISION  
JOSEPH R. HOPKINS, P.E.  
DIVISION ENGINEER

PROJECT REFERENCE NO. SM-5705A	SHEET NO. 1A
DIVISION FIVE DESIGN 3/16/2018  DocuSigned By <i>Roger Kluckman</i> P.E. A47FB0E0B28E420	

## INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	SHOULDER WEDGE DETAIL
2C-1	MINIMUM DEPTH CONCRETE CATCH BASIN
3B-1	DRAINAGE & EARTHWORK SUMMARY
4 AND 5	PLAN SHEETS
6	PROFILE SHEET
TMP-1 THRU TMP-2	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
EC-2G THRU EC-5	EROSION CONTROL PLANS
SIG-1.0 TH' SIG-1.2	SIGNAL PLANS
X-1 THRU X-4	CROSS-SECTIONS

## GENERAL NOTES:

2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
REVISED:

### GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

### CLEARING:

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

### SHOULDER CONSTRUCTION:

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

### SIDE ROADS:

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

### SUBSURFACE DRAINS:

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

### 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 CENTURY LINK, TIME WARNER CABLE, PSNC, AND TOWN OF FUQUAY-VARINA.  
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

## 2018 ROADWAY ENGLISH STANDARD DRAWINGS

EFF. 01-16-18  
REV.

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

STD.NO.	TITLE
<b>DIVISION 2 - EARTHWORK</b>	
200.03	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
<b>DIVISION 3 - PIPE CULVERTS</b>	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
<b>DIVISION 5 - SUBGRADE, BASES AND SHOULDERS</b>	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
<b>DIVISION 8 - INCIDENTALS</b>	
815.02	Subsurface Drain
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
846.01	Concrete Curb, Gutter and Curb & Gutter
848.04	Street Turnout
876.02	Guide for Rip Rap at Pipe Outlets
876.04	Drainage Ditches with Class 'B' Rip Rap

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SS:SUBSURFACE

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS CONVENTIONAL PLAN SHEET SYMBOLS

## BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○
Computed Property Corner	-----
Property Monument	□
Parcel/Sequence Number	⑫
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-----
Proposed Wetland Boundary	-----
Existing Endangered Animal Boundary	-----
Existing Endangered Plant Boundary	-----
Existing Historic Property Boundary	-----
Known Contamination Area: Soil	☠-s-☠
Potential Contamination Area: Soil	☠-s-☠
Known Contamination Area: Water	☠-w-☠
Potential Contamination Area: Water	☠-w-☠
Contaminated Site: Known or Potential	☠☠

## BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	✕
Foundation	□
Area Outline	□
Cemetery	□
Building	□
School	□
Church	□
Dam	-----

## HYDROLOGY:

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

## RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

## RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	⊠
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite RW Marker	-----
New Control of Access Line with Concrete CA Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

## ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

## VEGETATION:

Single Tree	☼
Single Shrub	☼

Note: Not to Scale

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

Hedge	-----
Woods Line	-----
Orchard	-----
Vineyard	-----

## EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	-----
Bridge Wing Wall, Head Wall and End Wall	-----
MINOR:	
Head and End Wall	-----
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	-----
Paved Ditch Gutter	-----
Storm Sewer Manhole	-----
Storm Sewer	-----

## UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊠
Power Transformer	⊠
U/G Power Cable Hand Hole	-----
H-Frame Pole	-----
U/G Power Line LOS B (S.U.E.*)	-----
U/G Power Line LOS C (S.U.E.*)	-----
U/G Power Line LOS D (S.U.E.*)	-----

## TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	□
Telephone Cell Tower	⊠
U/G Telephone Cable Hand Hole	-----
U/G Telephone Cable LOS B (S.U.E.*)	-----
U/G Telephone Cable LOS C (S.U.E.*)	-----
U/G Telephone Cable LOS D (S.U.E.*)	-----
U/G Telephone Conduit LOS B (S.U.E.*)	-----
U/G Telephone Conduit LOS C (S.U.E.*)	-----
U/G Telephone Conduit LOS D (S.U.E.*)	-----
U/G Fiber Optics Cable LOS B (S.U.E.*)	-----
U/G Fiber Optics Cable LOS C (S.U.E.*)	-----
U/G Fiber Optics Cable LOS D (S.U.E.*)	-----

## WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line LOS B (S.U.E.*)	-----
U/G Water Line LOS C (S.U.E.*)	-----
U/G Water Line LOS D (S.U.E.*)	-----
Above Ground Water Line	-----

## TV:

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

## GAS:

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

## SANITARY SEWER:

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

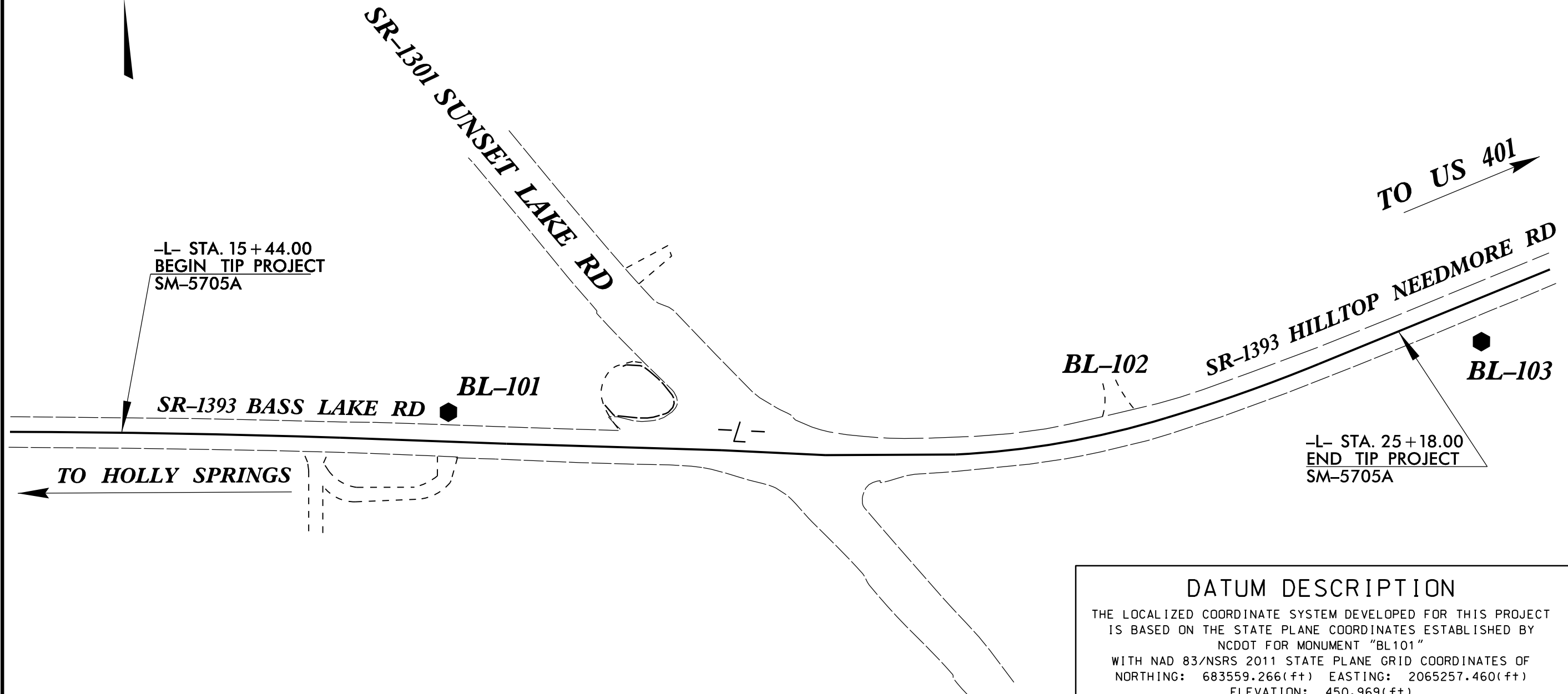
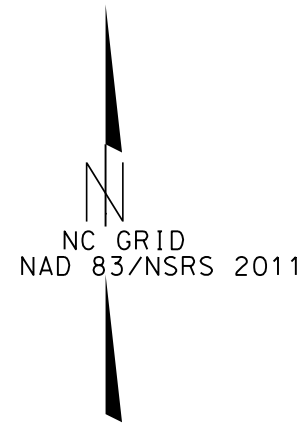
## MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	□
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	-----
U/G Tank; Water, Gas, Oil	-----
Underground Storage Tank, Approx. Loc.	-----
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.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SM-5705A	1C-1	

# SURVEY CONTROL SHEET



BL POINT	DESC.	NORTH	EAST	ELEVATION
BL101	BL101	683559.266	2065257.460	450.969
BL102	BL102	683578.141	2065798.148	454.081
BL103	BL103	683612.293	2066033.416	451.968

**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "BL101"

WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF  
 NORTHING: 683559.266(ft) EASTING: 2065257.460(ft)  
 ELEVATION: 450.969(ft)

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

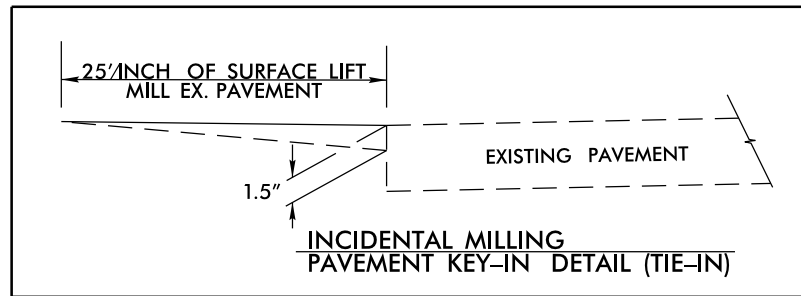
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "BL101" TO -L- STATION 10+00 IS  
 S88°55'42"W 789.60

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

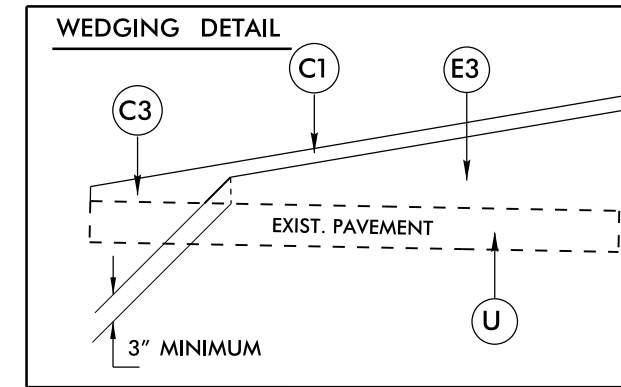
NOTE: DRAWING NOT TO SCALE

PAVEMENT SCHEDULE	
C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD, IN EACH OF TWO LAYERS.
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 2" IN DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. APPROX. 8" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E3	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 3" IN DEPTH OR GREATER THAN 5 1/2" IN DEPTH.
R1	2'-6" CURB AND GUTTER
T	EARTH MATERIAL.
U	EXISTING PAVEMENT.
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL).

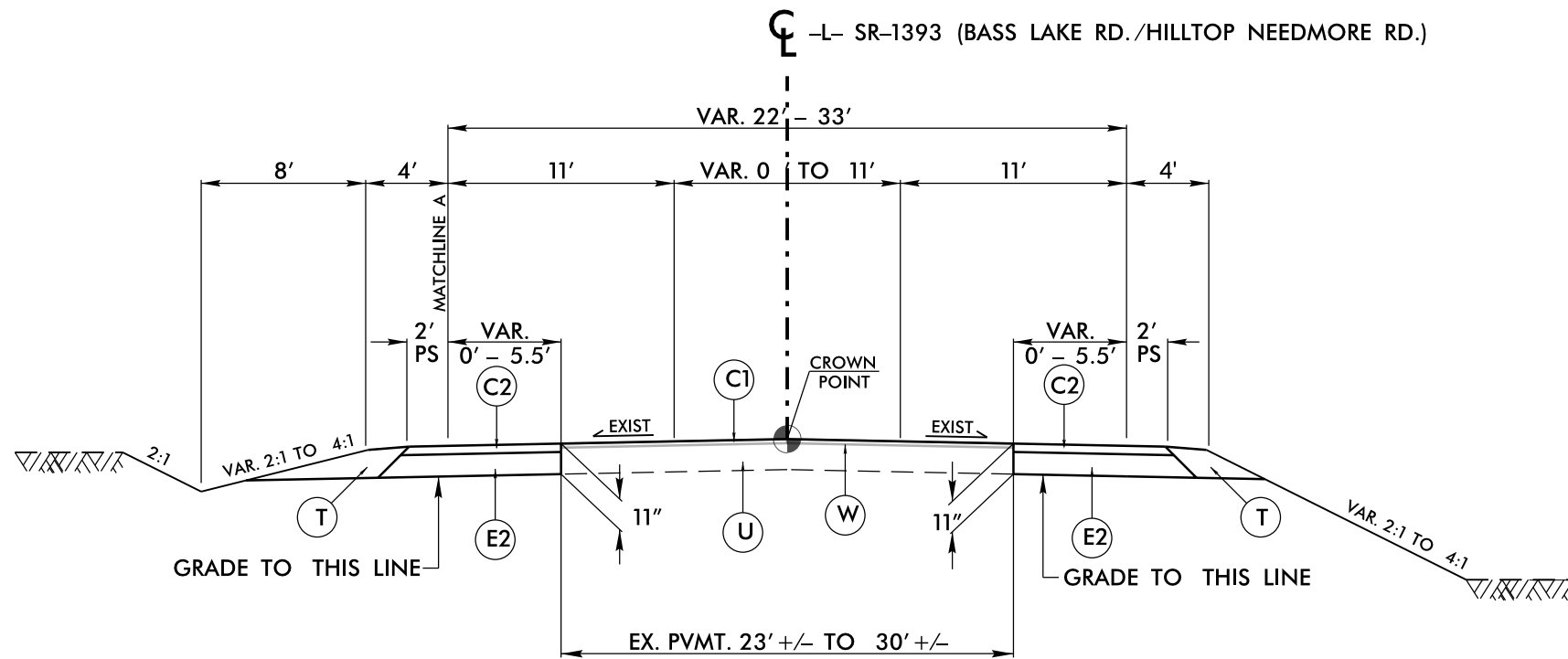
NOTES:  
 1). THE PORTION OF EACH EXISTING PAVED SHOULDER THAT IS NOT FULL DEPTH IS TO BE REMOVED AND PAVED TO FULL DEPTH.  
 2). PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.  
 3). OVERLAY EXISTING PAVEMENT WITH 1.5" OF S9.5C. SEE CROSS SECTIONS.



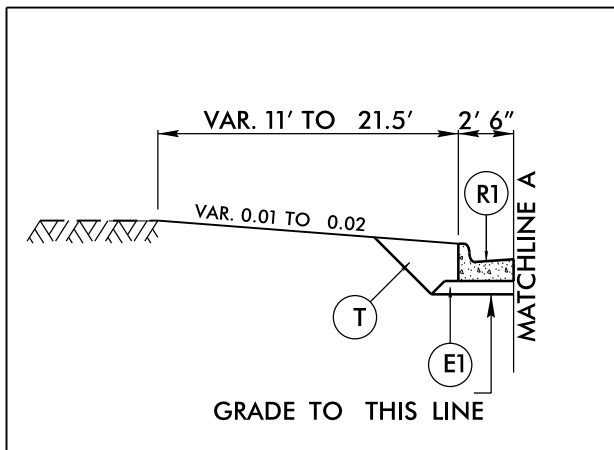
NOTE: A TEMPORARY ASPHALT WEDGE WILL BE REQUIRED IMMEDIATELY AFTER MILLING TO ENSURE SMOOTH TRAVEL IF THE FINAL LAYER OF SURFACE COURSE IS NOT PLACED ON THE SAME DAY AS MILLING



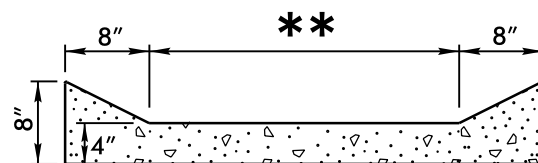
PROJECT REFERENCE NO. SM-5705A SHEET NO. 2A-1  
 DIVISION FIVE DESIGN 3/16/2018  
 NORTH CAROLINA PROFESSIONAL SEAL 022942  
 ROGER C. KLUCKMAN ENGINEER  
 Roger Kluckman P.E.  
 SIGNATURE 447E8D1E826E420  
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION 1  
 -L- STA. 15+44.00 TO STA. 25+18.00  
 SEE NOTE 3



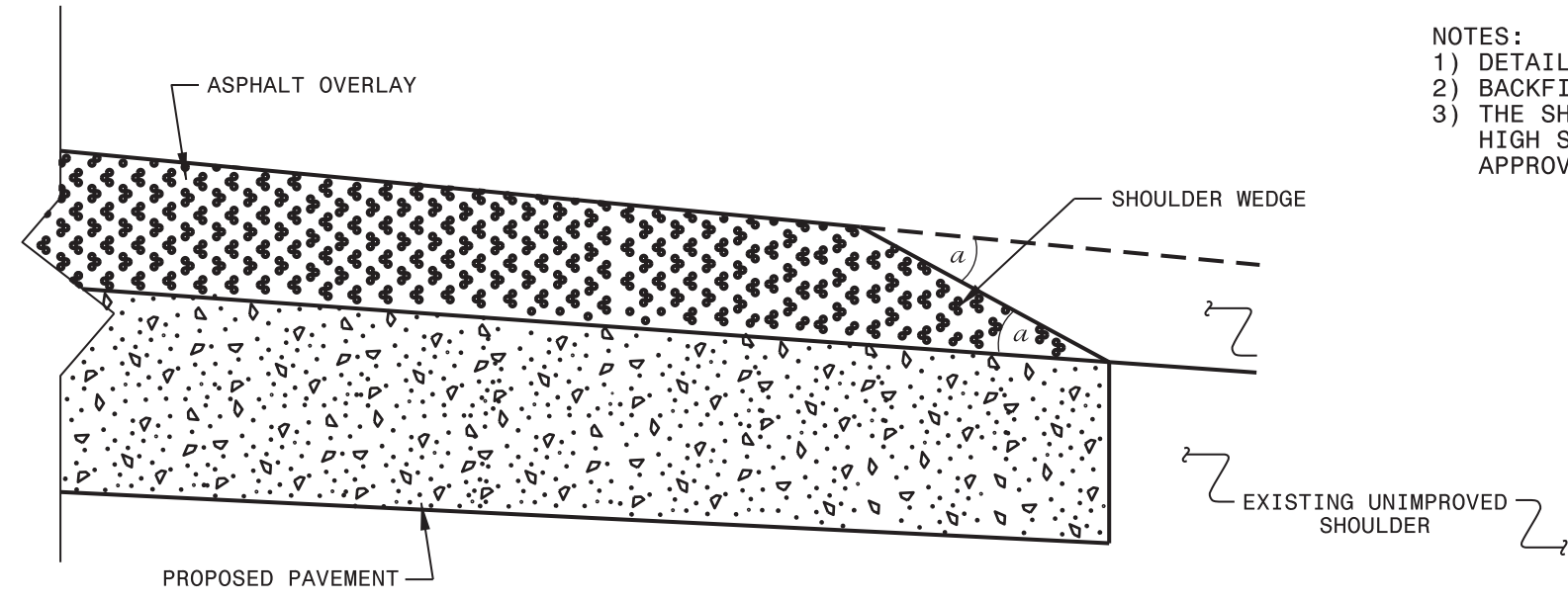
PARTIAL TYPICAL SECTION 1A  
 -L- STA. 19+27.09 TO STA. 19+57.54 LT  
 -L- STA. 20+37.01 TO STA. 21+00.00 LT



MODIFIED 4" CONCRETE PAVED DITCH  
 -L- STA. 17+34+/- TO STA. 17+41+/-  
 \*\* MATCH EXISTING

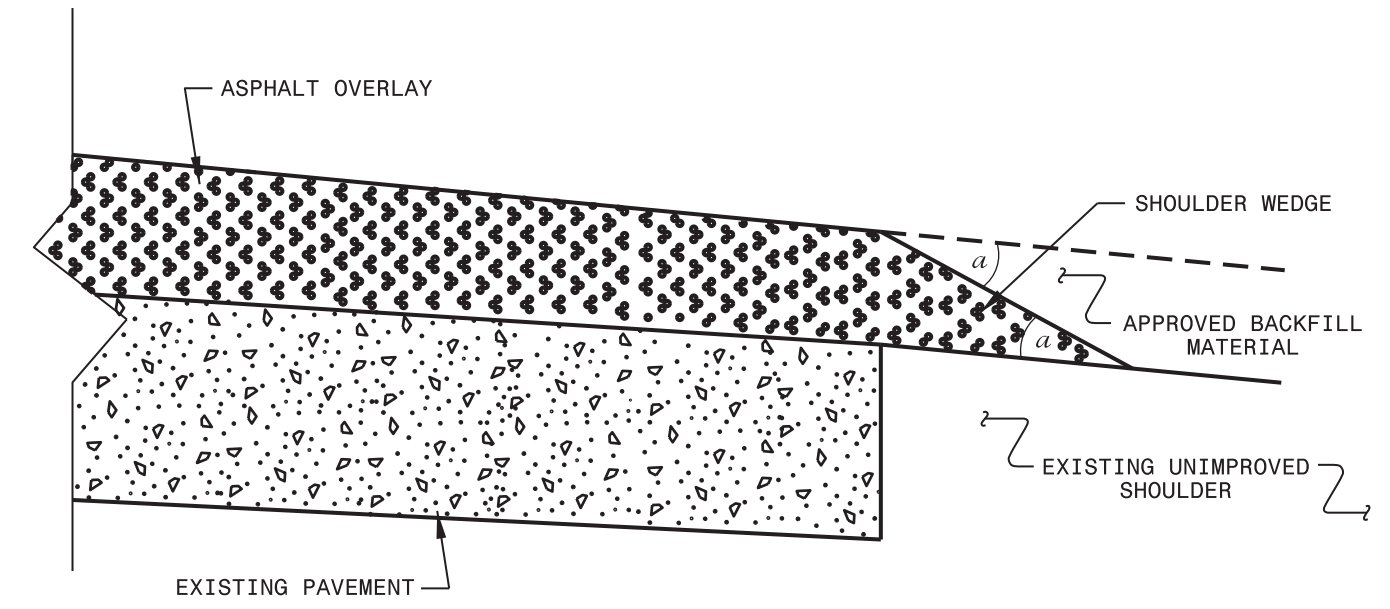
15-MAR-2018 15:53 R:\Roadway\Projects\SM5705A-Rdy-typ.dgn

- NOTES:
- 1) DETAIL DOES NOT APPLY TO OGAFC AND ULTRA-THIN BONDED WEARING COURSE.
  - 2) BACKFILL SHOULDER WITH APPROVED MATERIAL.
  - 3) THE SHOULDER WEDGE DEVICE MAY BE DISENGAGED AT PAVED DRIVEWAYS, SIDE STREETS, HIGH SHOULDERS, AND OTHER LOCATIONS NOT FEASIBLE TO CONSTRUCT AS APPROVED BY THE ENGINEER.



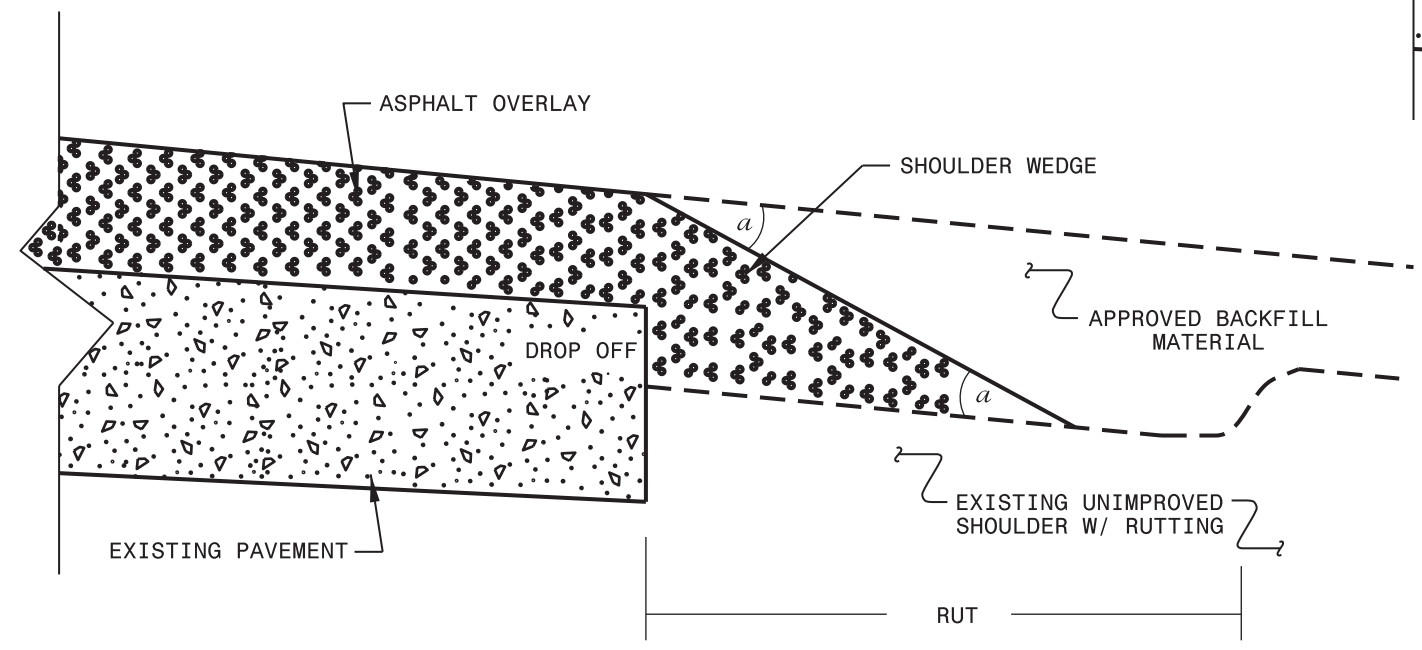
**SHOULDER WEDGE DETAIL**

(Resurfacing Projects w/ Widening or with Existing Paved Shoulder having no dropoffs)



**SHOULDER WEDGE DETAIL**

(Resurfacing Projects w/ NO Widening)



**SHOULDER WEDGE DETAIL**

(Resurfacing Adjacent to Rutted Shoulder)

- SHOULDER WEDGE ANGLE = 30°

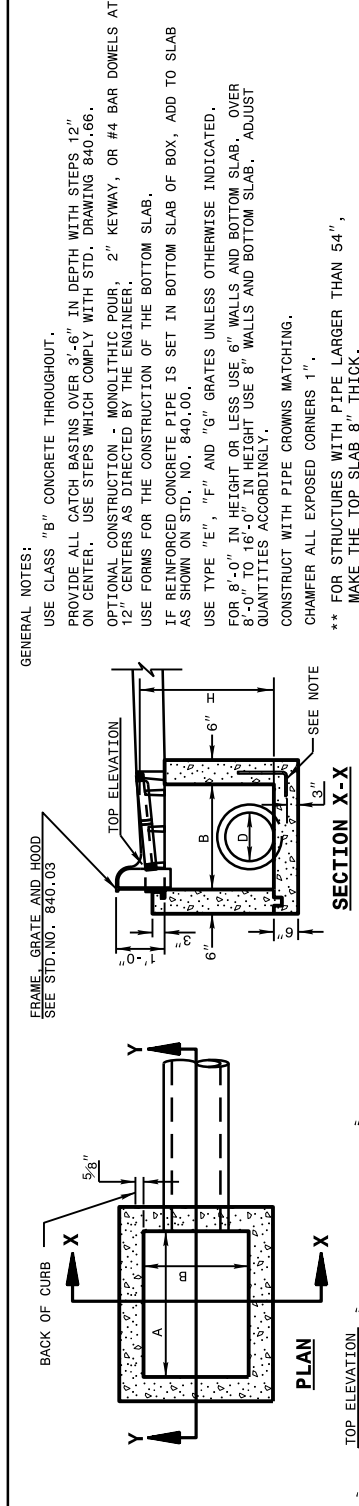
CONTRACT STANDARDS AND DEVELOPMENT UNIT			
Office 919-707-6950 FAX 919-250-4119			
<b>SHOULDER WEDGE DETAILS</b>			
ORIGINAL BY:	T.SPELL	DATE:	7-19-11
MODIFIED BY:		DATE:	2/2/16
CHECKED BY:		DATE:	
FILE SPEC.:	s:\usr\details\stand\shoulderwedgedetail.dgn		

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 NUMBER\$\$\$\$\$  
 OF\$\$\$\$\$  
 SHEETS\$\$\$\$\$

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

ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 1 OF 2  
**840D02**



GENERAL NOTES:

- USE CLASS "B" CONCRETE THROUGHOUT.
- PROVIDE ALL CATCH BASINS OVER 3'-6" IN DEPTH WITH STEPS, 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.
- OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
- USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
- IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
- USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
- FOR 8'-0" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 8'-0" TO 16'-0" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
- CONSTRUCT WITH PIPE CROWNS MATCHING.
- CHAMFER ALL EXPOSED CORNERS 1".
- \*\* FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

STATE OF  
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 RALEIGH, N.C.

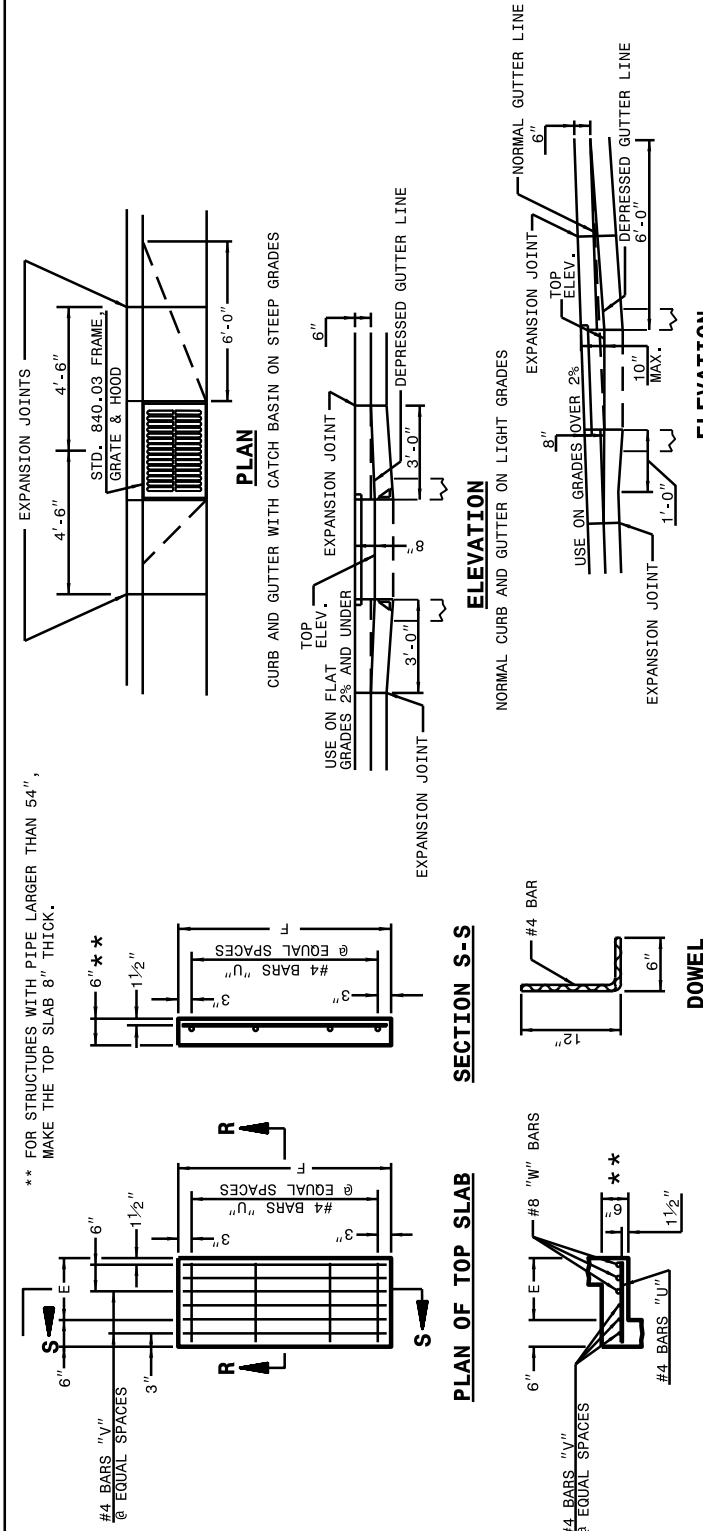
ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 1 OF 2  
**840D02**

STATE OF  
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 RALEIGH, N.C.

ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 2 OF 2  
**840D02**



\*\* FOR STRUCTURES WITH PIPE LARGER THAN 54", MAKE THE TOP SLAB 8" THICK.

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

ENGLISH DETAIL DRAWING FOR  
**MINIMUM DEPTH  
 CONCRETE CATCH BASIN**  
 12" THRU 84" PIPE

SHEET 2 OF 2  
**840D02**

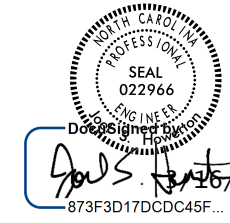
\* RISER HAS .228 CUBIC YARDS OF CONCRETE PER FOOT HEIGHT

DIMENSIONS OF BOX AND PIPE		COVER DIMENSION		MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE CATCH BASIN (BASED ON MIN. HEIGHT, H, WITH NO RISER) *		DEDUCTIONS	
PIPE DIA.	SPAN	WIDTH	DEPTH	MIN. HEIGHT	MAX. HEIGHT	TOTAL LBS.	CU. YDS. CONC.
12"	3'-0"	2'-2"	2'-0"	2'-0"	2'-0"	39	0.123
15"	3'-0"	2'-2"	2'-3"	2'-3"	2'-3"	43	0.161
18"	3'-0"	2'-2"	2'-6"	2'-6"	2'-6"	47	0.200
24"	3'-0"	2'-2"	3'-1"	3'-1"	3'-1"	51	0.235
30"	3'-0"	2'-2"	3'-4"	3'-4"	3'-4"	56	0.289
36"	3'-0"	2'-2"	3'-10"	3'-10"	3'-10"	61	0.340
42"	3'-0"	2'-2"	4'-5"	4'-5"	4'-5"	66	0.391
48"	3'-0"	2'-2"	5'-0"	5'-0"	5'-0"	72	0.442
54"	3'-0"	2'-2"	5'-7"	5'-7"	5'-7"	78	0.493
60"	3'-0"	2'-2"	6'-3"	6'-3"	6'-3"	84	0.544
66"	3'-0"	2'-2"	6'-11"	6'-11"	6'-11"	90	0.595
72"	3'-0"	2'-2"	7'-6"	7'-6"	7'-6"	96	0.646
78"	3'-0"	2'-2"	8'-1"	8'-1"	8'-1"	102	0.697
84"	3'-0"	2'-2"	8'-9"	8'-9"	8'-9"	108	0.748

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

SEE PLATE FOR TITLE

ORIGINAL BY: 2002 Std.840.01 DATE: 3-1-02  
 MODIFIED BY: E.E. WARD DATE: 3-1-02  
 CHECKED BY: DATE: 3-1-02  
 FILE SPEC.: s:\Special\_Details\jhowerton\840d02.dgn



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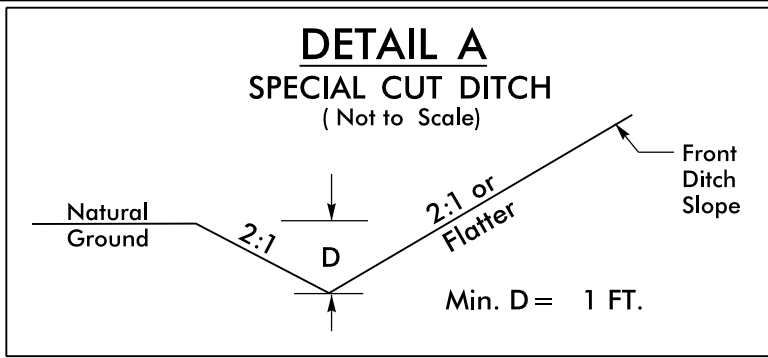


8/17/99



-L-  
PI Sta 15+84.18  
Δ = 1° 42' 16.8" (RT)  
D = 0° 4' 13.8"  
L = 248.07'  
T = 124.04'  
R = 8,337.96'

STEPHENSON FAMILY LTD PARTNERSHIP  
C/O NANCY STEPHENSON YOUNG  
DB 8091 PG 1119  
BM 2008 PG 1395

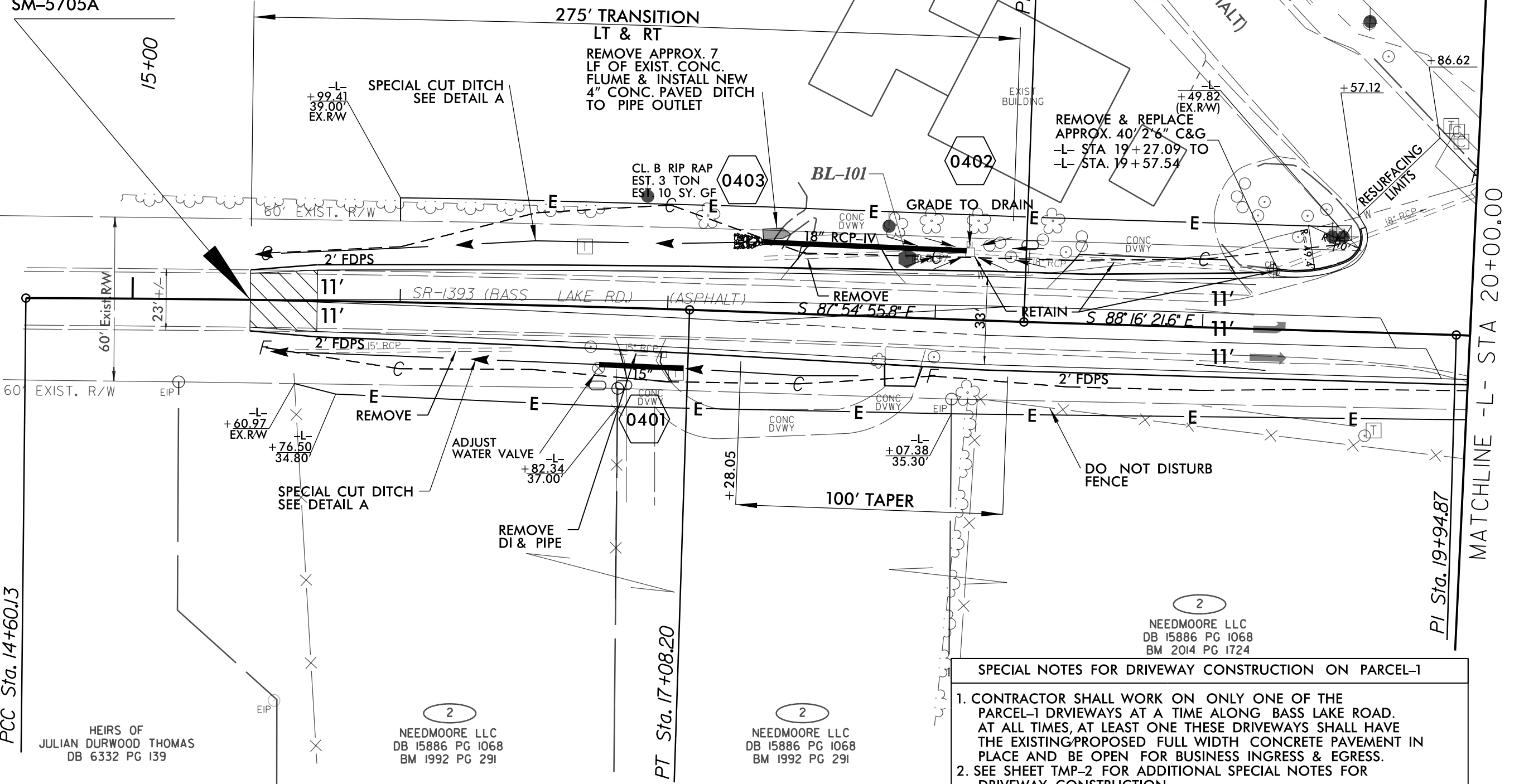


STA. -L- 15+50 TO 17+35 LT.  
STA. -L- 21+25 TO 22+75 LT.  
STA. -L- 15+70 TO 17+82 RT.  
STA. -L- 22+95 TO 23+40 RT.  
STA. -L- 23+80 TO 25+18 RT.

BREENAN WAY LLC  
DB 14298 PG 1337

PROJECT REFERENCE NO.	SHEET NO.
SM-5705A	4
DIVISION FIVE DESIGN	
3/27/2018	
NORTH CAROLINA PROFESSIONAL SEAL 022942	
ROGER C. KLUCKMAN ENGINEER	
DocuSigned by Roger Kluckman P.E.	
SIGNATURE 04/17/2018 09:26:42	
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SEE SHEET 6 FOR PROFILE	

-L- STA. 15+44.00  
BEGIN TIP PROJECT  
SM-5705A



PCC Sta. 14+60.13

HEIRS OF  
JULIAN DURWOOD THOMAS  
DB 6332 PG 139

NEEDMOORE LLC  
DB 15886 PG 1068  
BM 1992 PG 291

NEEDMOORE LLC  
DB 15886 PG 1068  
BM 1992 PG 291

NEEDMOORE LLC  
DB 15886 PG 1068  
BM 2014 PG 1724

SPECIAL NOTES FOR DRIVEWAY CONSTRUCTION ON PARCEL-1

1. CONTRACTOR SHALL WORK ON ONLY ONE OF THE PARCEL-1 DRIVEWAYS AT A TIME ALONG BASS LAKE ROAD. AT ALL TIMES, AT LEAST ONE THESE DRIVEWAYS SHALL HAVE THE EXISTING/PROPOSED FULL WIDTH CONCRETE PAVEMENT IN PLACE AND BE OPEN FOR BUSINESS INGRESS & EGRESS.
2. SEE SHEET TMP-2 FOR ADDITIONAL SPECIAL NOTES FOR DRIVEWAY CONSTRUCTION.

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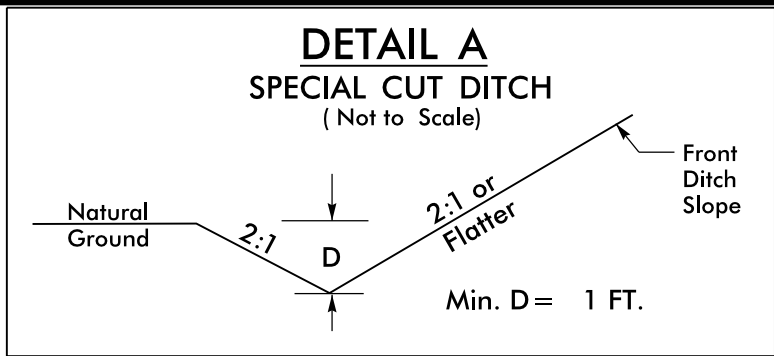


8/17/99

NAD 83/  
NSRS 2011

3  
TONY A &  
JOHANNA P CURRIN  
DB 9048 PG 1704

5  
WILLIAM G &  
ANNE P RANDELL  
DB 15564 PG 331



STA. -L- 15+50 TO 17+35 LT.  
 STA. -L- 21+25 TO 22+75 LT.  
 STA. -L- 15+70 TO 17+82 RT.  
 STA. -L- 22+95 TO 23+40 RT.  
 STA. -L- 23+80 TO 25+18 RT.

25+57

PROJECT REFERENCE NO. SM-5705A SHEET NO. 5

DIVISION FIVE DESIGN

3/16/2018

NORTH CAROLINA PROFESSIONAL SEAL 022942 ENGINEER ROGER C. KLUCKMAN

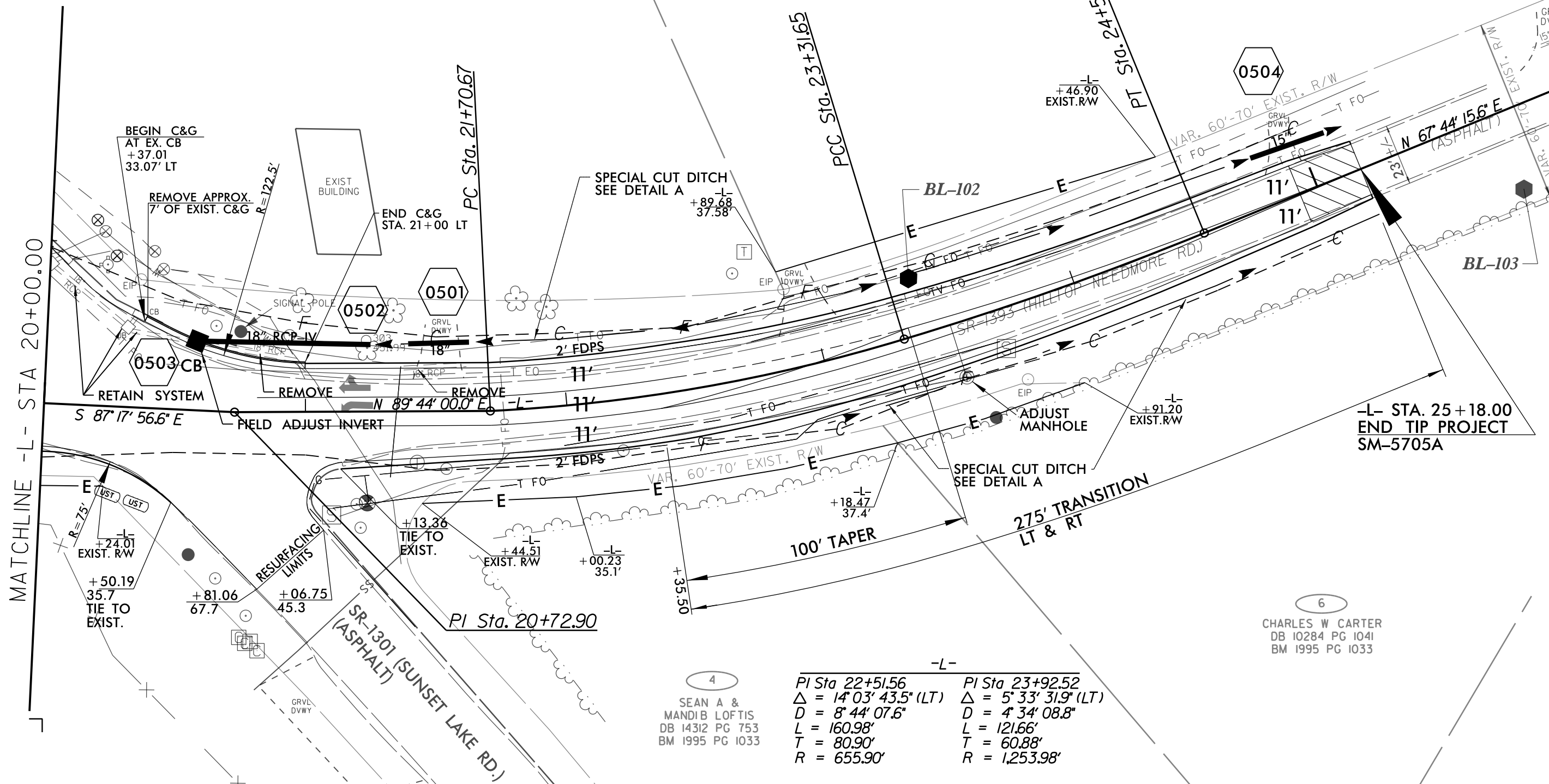
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Roger Kluckman P.E.

SIGNATURE

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SEE SHEET 6 FOR PROFILE

MATCHLINE -L- STA 20+00.00



4  
SEAN A &  
MANDIB LOFTIS  
DB 14312 PG 753  
BM 1995 PG 1033

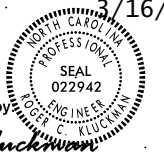
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	$D = 8^{\circ} 44' 07.6''$	$D = 4^{\circ} 34' 08.8''$
	$L = 160.98'$	$L = 121.66'$
	$T = 80.90'$	$T = 60.88'$
	$R = 655.90'$	$R = 1,253.98'$

6  
CHARLES W CARTER  
DB 10284 PG 1041  
BM 1995 PG 1033

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*Roger Kluckman*

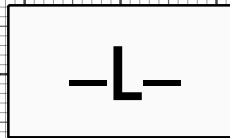
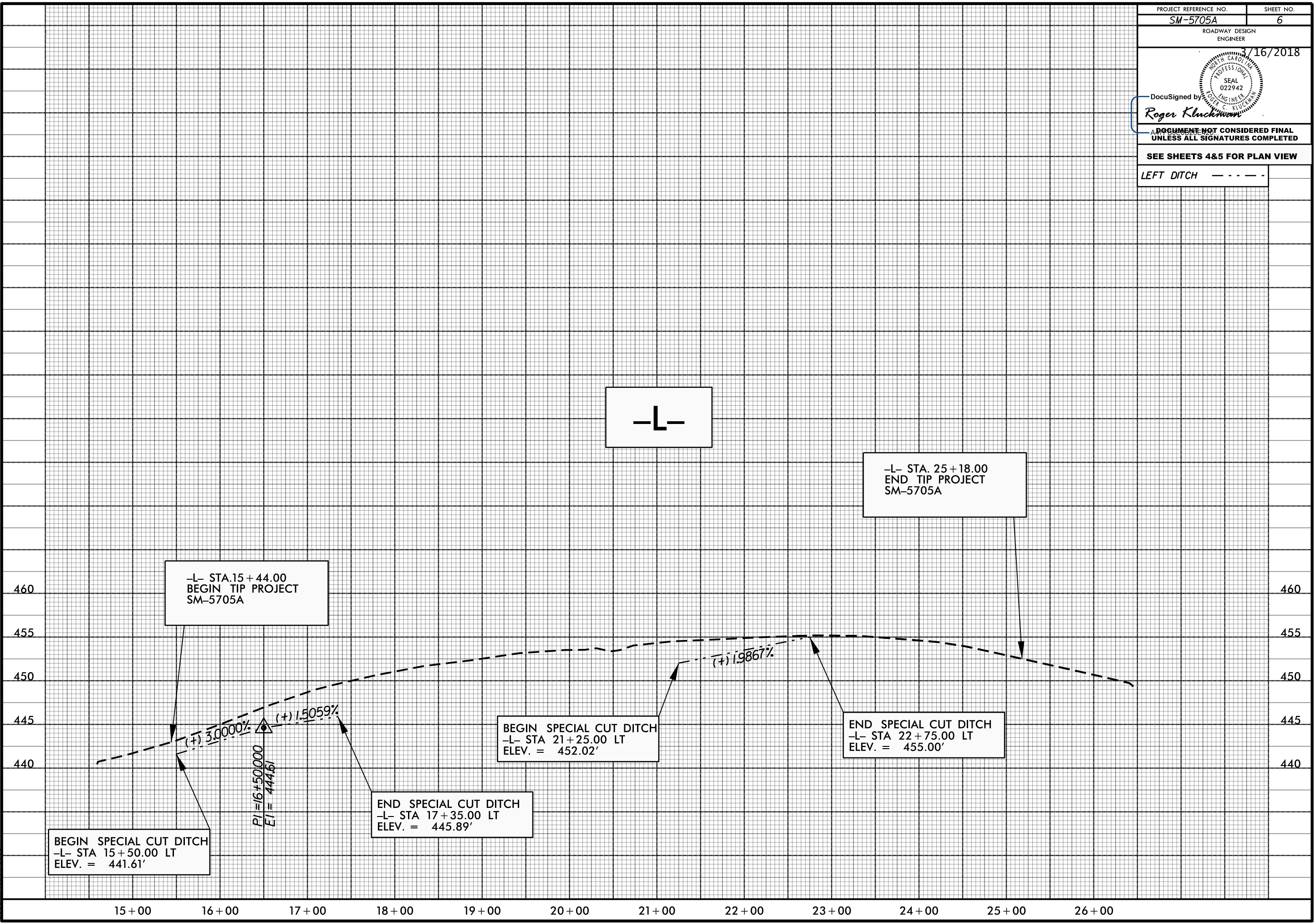


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**SEE SHEETS 4&5 FOR PLAN VIEW**

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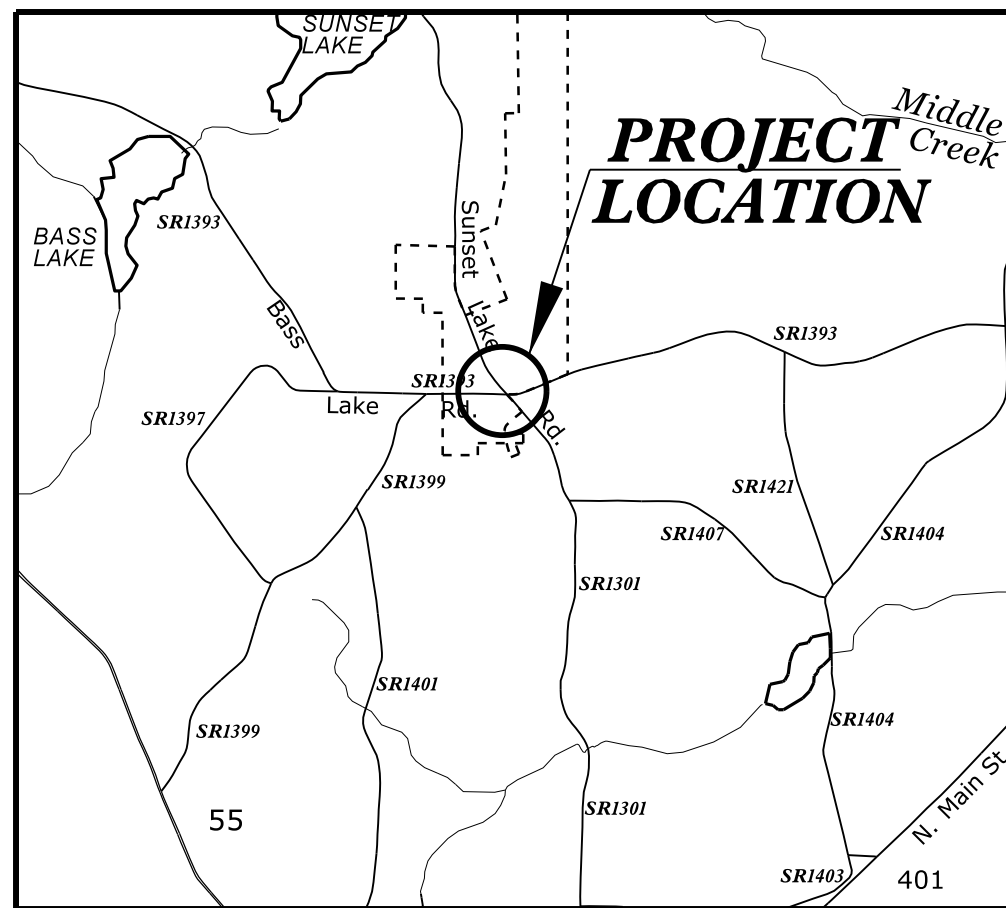
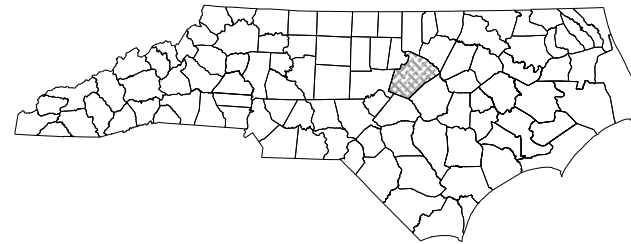
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STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

**TRANSPORTATION MANAGEMENT PLAN**

**WAKE COUNTY**



SHEET NO.

TMP-1

**INDEX OF SHEETS**

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, INDEX OF SHEETS, AND LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS
TMP-2	GENERAL NOTES AND LEGEND

**ROADWAY STANDARD DRAWINGS**

REV. OCTOBER 2017

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

STD.NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	PAVEMENT MARKERS - (PERMANENT AND TEMPORARY)

**TIP PROJECT: SM-5705A**

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 \$\$\$\$\$\$SERNAME\$\$\$\$\$



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

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

- \_\_\_\_\_ STATE TRAFFIC MANAGEMENT ENGINEER
- \_\_\_\_\_ TRAFFIC CONTROL PROJECT ENGINEER
- \_\_\_\_\_ TRAFFIC CONTROL PROJECT DESIGN ENGINEER
- \_\_\_\_\_ TRAFFIC CONTROL DESIGN ENGINEER



DocuSigned by:  
**Roger Kluckman**  
 APPROVED: \_\_\_\_\_  
 DATE: 3/16/2018  
 SEAL  
 022942  
 ROGER C. KLUCKMAN  
 ENGINEER



## LEGEND

### GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)

- WORK AREA
- REMOVAL

### SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

### PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

### TRAFFIC CONTROL DEVICES

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

### TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

### PAVEMENT MARKERS

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

### PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

## 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 UNDESIRABLE 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                      |
|-----------|--|
| ALL ROADS | MONDAY THRU FRIDAY 6 AM TO 9 AM & 4 PM TO 7 PM |

- B) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
- D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

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.

- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.
- F) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP, OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.
- G) PROVIDE TRAFFIC CONTROL FOR APPROPRIATE LANE CLOSURES FOR SURVEYING DONE BY THE DEPARTMENT.

#### PAVEMENT EDGE DROP OFF REQUIREMENTS

- H) 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.

- I) 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 (WB-11) 50 FT IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

#### TRAFFIC PATTERN ALTERATIONS

- J) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

#### SIGNING

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

#### TRAFFIC CONTROL DEVICES

- M) 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.

#### PAVEMENT MARKINGS AND MARKERS

- N) INSTALL TEMPORARY PAVEMENT MARKINGS AND TEMPORARY PAVEMENT MARKERS ON INTERIM LAYERS OF PAVEMENT AS FOLLOWS:
- | ROAD NAME | MARKING PAINT | MARKER           |
|-----------|---------------|------------------|
| ALL ROADS |               | TEMPORARY RAISED |
- O) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- P) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

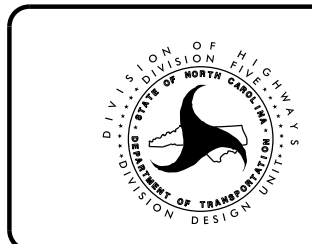
### SPECIAL NOTES FOR DRIVEWAY CONSTRUCTION ON PARCEL-1

1. CONTRACTOR SHALL WORK ON ONLY ONE OF THE PARCEL-1 DRIVEWAYS AT A TIME ALONG BASS LAKE ROAD. AT ALL TIMES, AT LEAST ONE THESE DRIVEWAYS SHALL HAVE THE EXISTING /PROPOSED FULL WIDTH CONCRETE PAVEMENT IN PLACE AND BE OPEN FOR BUSINESS INGRESS & EGRESS.
2. CONTRACTOR SHALL CONTACT THE OWNER OF PARCEL-1, 96 HOURS PRIOR TO CLOSING ANY OF THE DRIVEWAYS ALONG BASS LAKE ROAD.

**PARCEL-1 CONTACT:**  
 Mark Smith | Director, Retail Operations  
 Breeze Thru Markets, LLC  
 8021 Chapel Hill Road | Cary, NC | 27513  
 Direct 984-333-0420 | Main 984-333-0400 | Mobile 919-616-2862  
 Email: msmith@caryoil.com | caryoil.com

3. SEE ICT FOR DRIVEWAY CLOSURE RESTRICTIONS FOR THE PARCEL-1 DRIVEWAYS.

**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



APPROVED: *Roger Kluckman*  
 DATE: 3/16/2018

SEAL  
 NORTH CAROLINA PROFESSIONAL ENGINEER  
 SEAL 022942  
 ROGER C. KLUCKMAN

09/20/08.099

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SM-5705A	PMP-1	

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UNLESS ALL SIGNATURES COMPLETED

**INDEX**

SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN COVER SHEET, SCHEDULE, NOTES, AND STANDARD DRAWINGS
PMP-2 THRU PMP-3	PAVEMENT MARKING PLANS

**SIGNING & PAVEMENT MARKING PLAN**  
**WAKE COUNTY**

LOCATION: SR 1393 (BASS LAKE ROAD/HILLTOP NEEDMORE ROAD) AT SR 1301 (SUNSET LAKE ROAD)

**PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION
<u>THERMOPLASTIC(4", 90 MILS)</u>	
TA	WHITE EDGELINE
<u>THERMOPLASTIC(4", 120 MILS)</u>	
TD	3 FT. - 9 FT./SP WHITE MINISKIP
TE	WHITE SOLID LANE LINE
TI	YELLOW DOUBLE CENTER
<u>THERMOPLASTIC(12", 90 MILS)</u>	
TV	YELLOW DIAGONAL
<u>THERMOPLASTIC(24", 120 MILS)</u>	
T2	WHITE STOPBAR
<u>THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)</u>	
UA	LEFT TURN ARROW
UE	COMBO STRAIGHT/RIGHT ARROW
<u>MARKERS</u>	
PERMANENT RAISED PAVEMENT MARKERS	
MA	YELLOW & YELLOW
MB	CRYSTAL & RED

**GENERAL NOTES  
PAVEMENT MARKING**

- THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.
- A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:
 

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	PERMANENT RAISED
  - B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
  - C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
  - D) 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.
  - E) REFER TO THE TRAFFIC SIGNAL DESIGN PLANS FOR STOP BAR INFORMATION.

**GENERAL NOTES  
SIGNING**

- A) SIGNING FURNISHED BY THE STATE.
- B) WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
- C) WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.
- D) ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.
- E) THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

**ROADWAY STANDARD DRAWINGS**

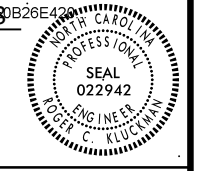

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTION
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY

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*Roger Kluckman*

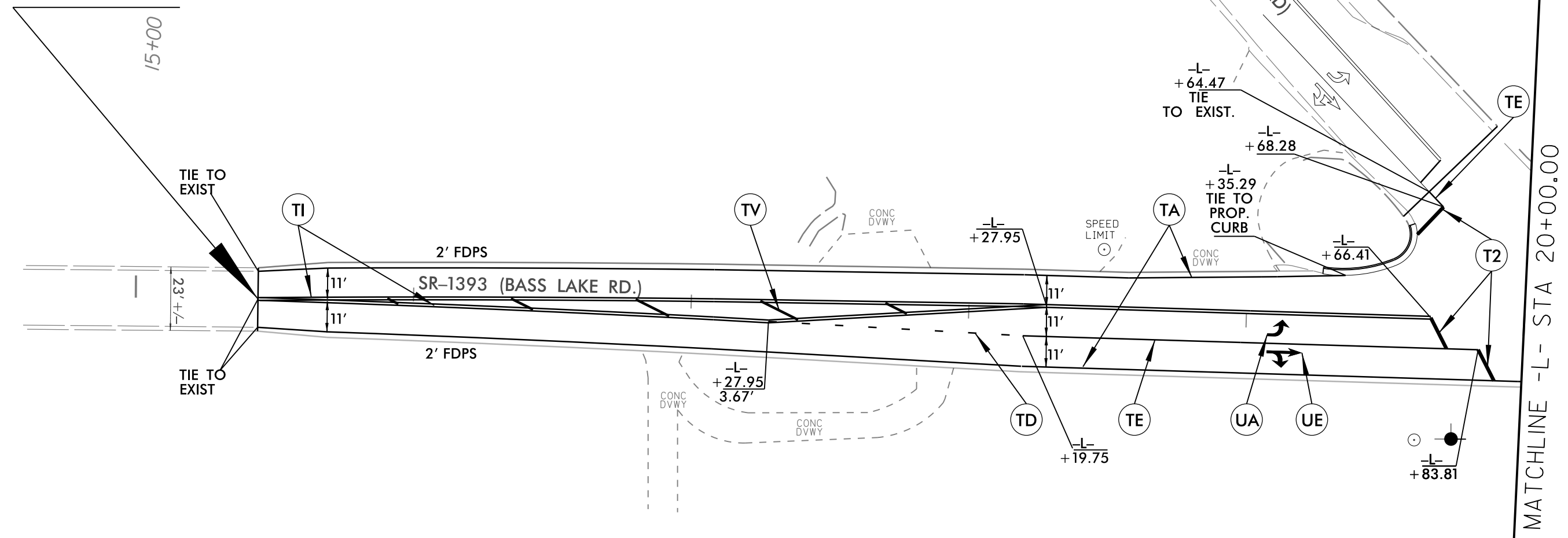
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THERMOPLASTIC PAVEMENT MARKING LEGEND	
T2 WHITE STOPBAR (24")	TV YELLOW DIAGONAL (12")
TA WHITE EDGELINE (4")	UA ← LEFT TURN ARROW
TD 3 FT - 9 FT/SP WHITE MINISKIP (4")	UE ↗ COMBO STRAIGHT/RIGHT ARROW
TE WHITE SOLID LANE LINE (4")	
TI YELLOW DOUBLE CENTER (4")	

-L- STA. 15+44.00  
BEGIN TIP PROJECT  
SM-5705A

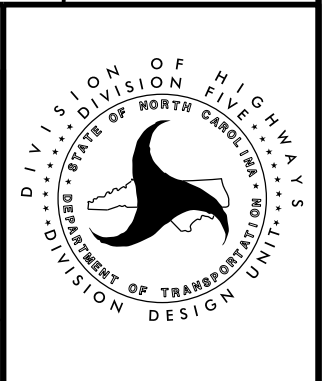


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*Roger Kluckman*  
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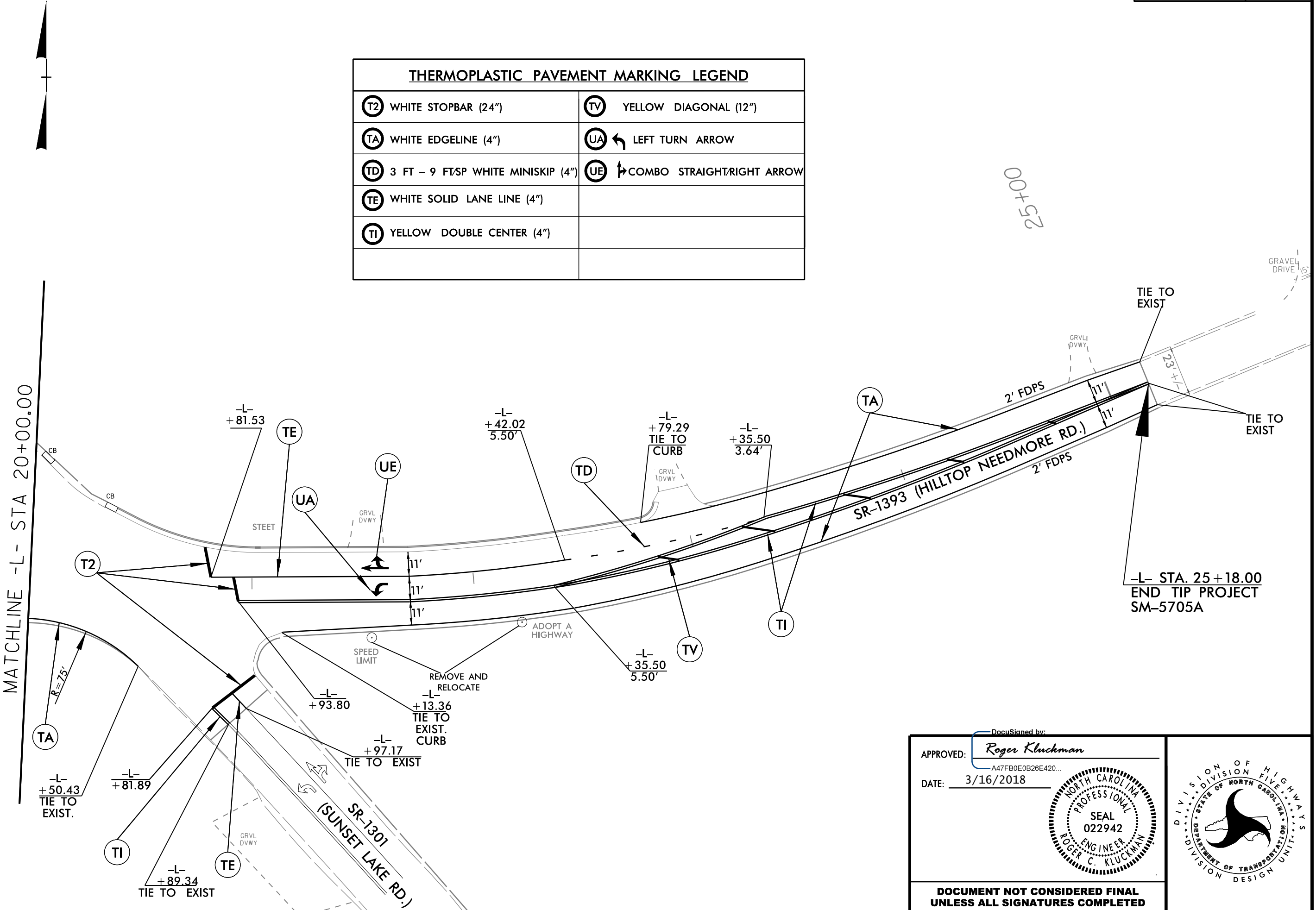
Professional Engineer Seal:  
NORTH CAROLINA PROFESSIONAL ENGINEER  
SEAL 022942  
ROGER C. KLUCKMAN

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UNLESS ALL SIGNATURES COMPLETED





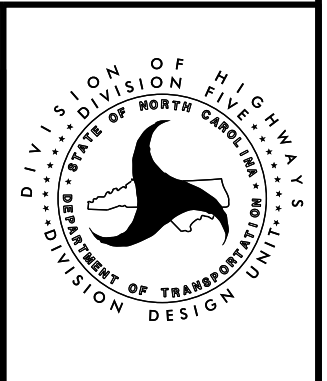
THERMOPLASTIC PAVEMENT MARKING LEGEND	
<b>T2</b> WHITE STOPBAR (24")	<b>TV</b> YELLOW DIAGONAL (12")
<b>TA</b> WHITE EDGELINE (4")	<b>UA</b> LEFT TURN ARROW
<b>TD</b> 3 FT - 9 FT/SP WHITE MINISKIP (4")	<b>UE</b> COMBO STRAIGHT/RIGHT ARROW
<b>TE</b> WHITE SOLID LANE LINE (4")	
<b>TI</b> YELLOW DOUBLE CENTER (4")	



APPROVED: *Roger Kluckman*  
A47FB0E0B26E420...  
 DATE: 3/16/2018

**SEAL**  
 022942  
 ENGINEER  
 ROGER C. KLUCKMAN

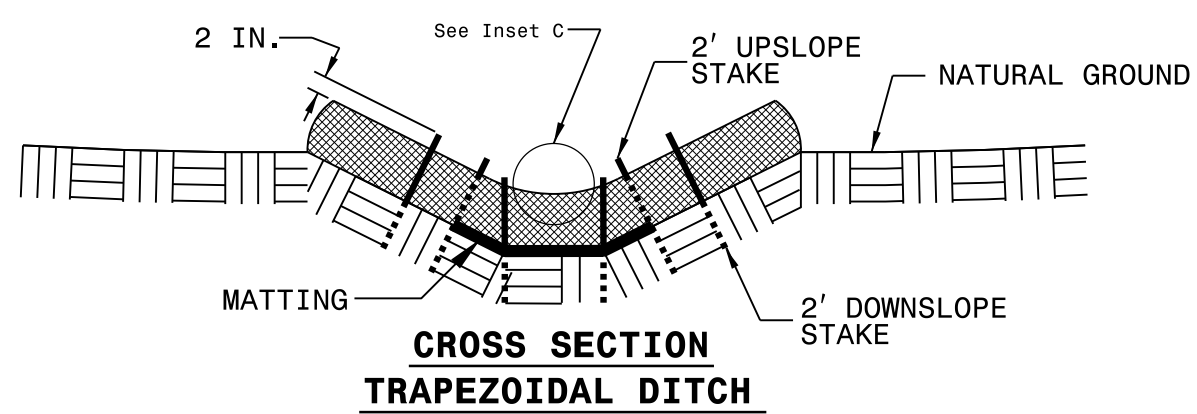
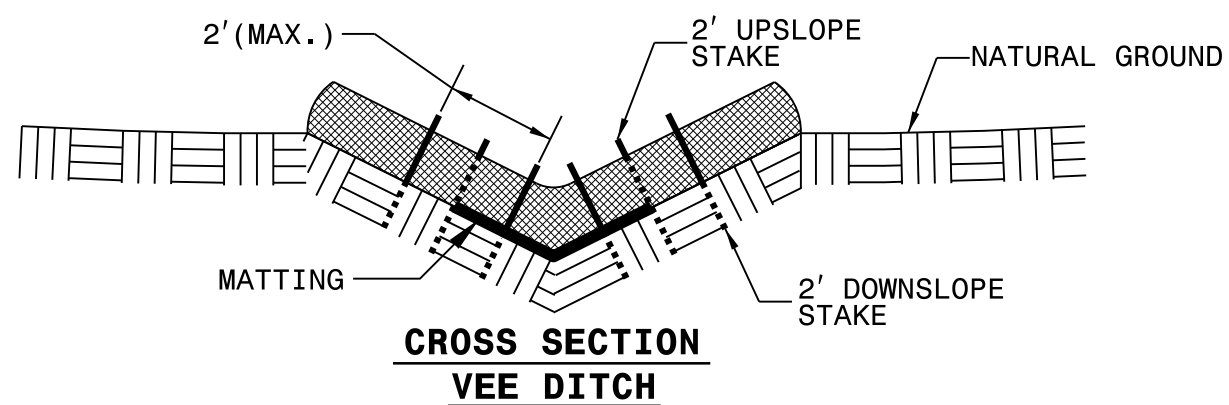
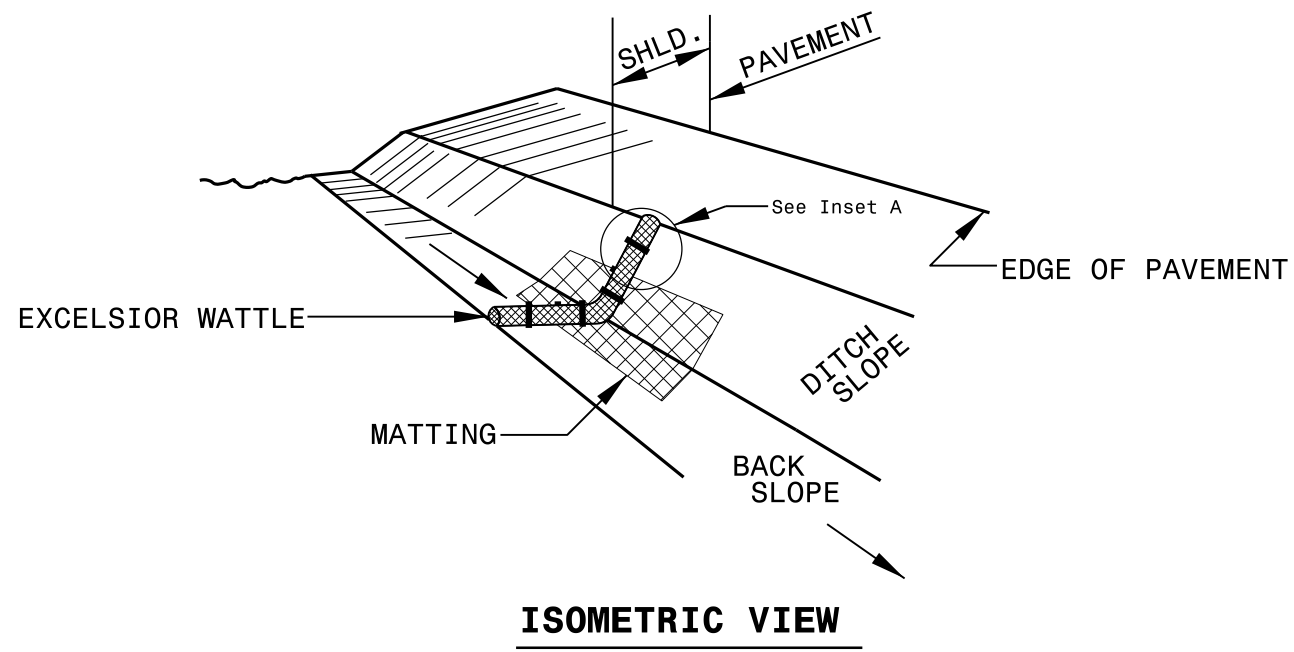
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 UNLESS ALL SIGNATURES COMPLETED**



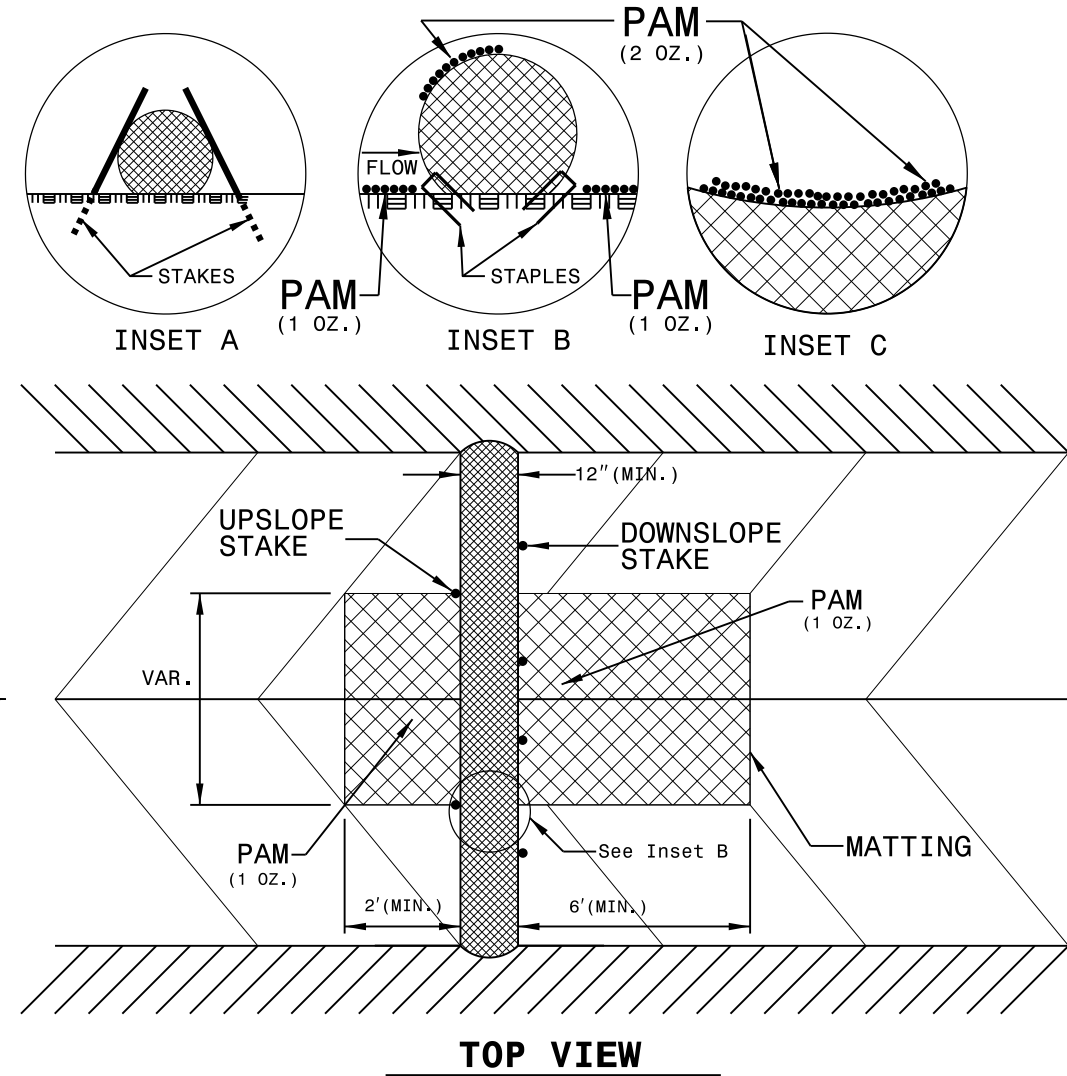
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PROJECT REFERENCE NO. <b>SM-5705A</b>	SHEET NO. <b>EC-26</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

# WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



- NOTES:
- USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.
  - USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
  - ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.
  - INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.
  - PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
  - INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
  - INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.
  - PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.
  - INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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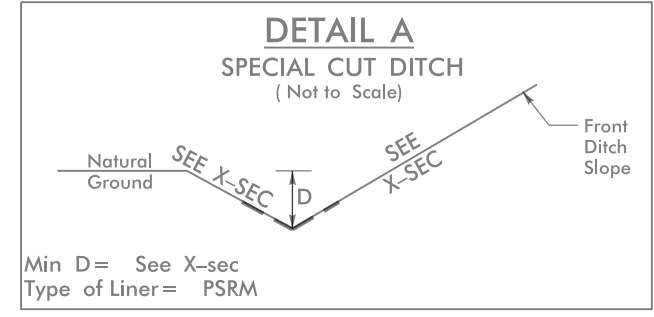


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## ***SOIL STABILIZATION TIMEFRAMES***

<i>SITE DESCRIPTION</i>	<i>STABILIZATION TIME</i>	<i>TIMEFRAME EXCEPTIONS</i>
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.

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	▲▲▲▲▲▲▲▲
1622.01	Temporary Berms and Slope Drains	— T —
1630.02	Silt Basin Type B	▨
1630.03	Temporary Silt Ditch	— T —
1630.05	Temporary Diversion	— T —
1630.06	Special Stilling Basin	— T —
1632.03	Rock Inlet Sediment Trap Type C	□
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▶
	Wattle	⌒
	Wattle with Polyacrylamide (PAM)	⌒
1634.02	Temporary Rock Sediment Dam Type-B	⊖
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊖



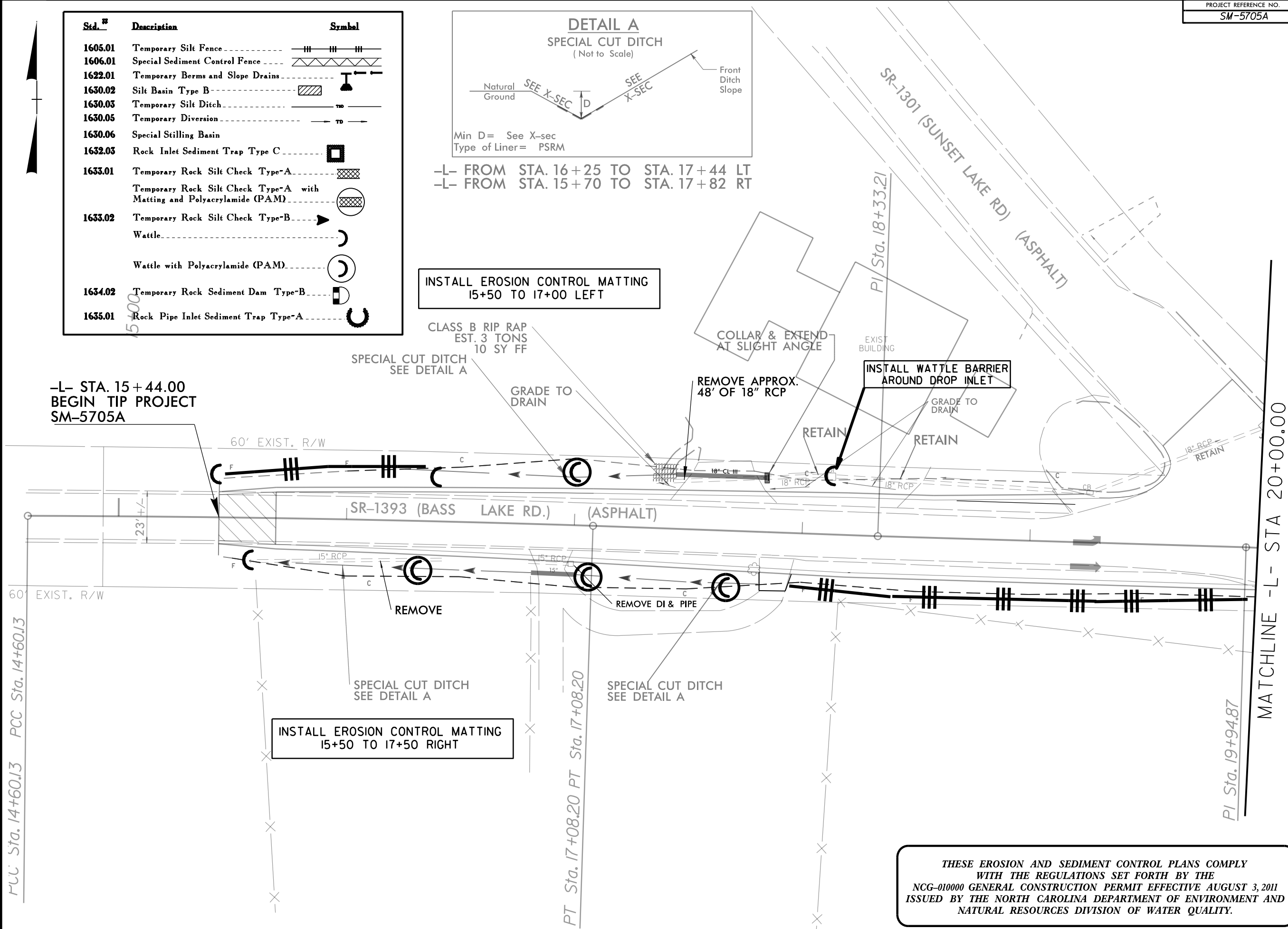
-L- FROM STA. 16+25 TO STA. 17+44 LT  
 -L- FROM STA. 15+70 TO STA. 17+82 RT

INSTALL EROSION CONTROL MATTING  
 15+50 TO 17+00 LEFT

CLASS B RIP RAP  
 EST. 3 TONS  
 10 SY FF

INSTALL WATTLE BARRIER  
 AROUND DROP INLET

-L- STA. 15+44.00  
 BEGIN TIP PROJECT  
 SM-5705A

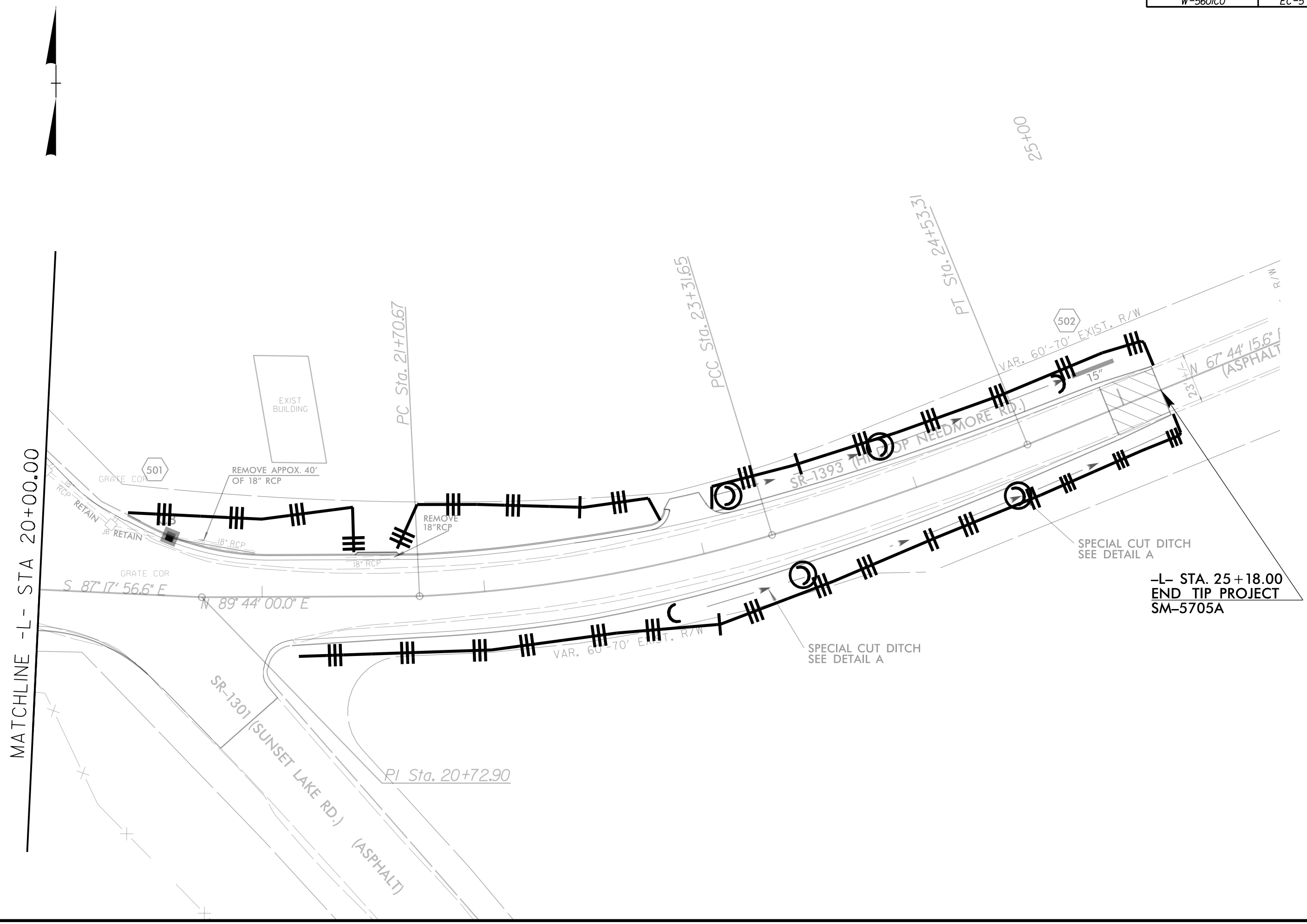


INSTALL EROSION CONTROL MATTING  
 15+50 TO 17+50 RIGHT

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.

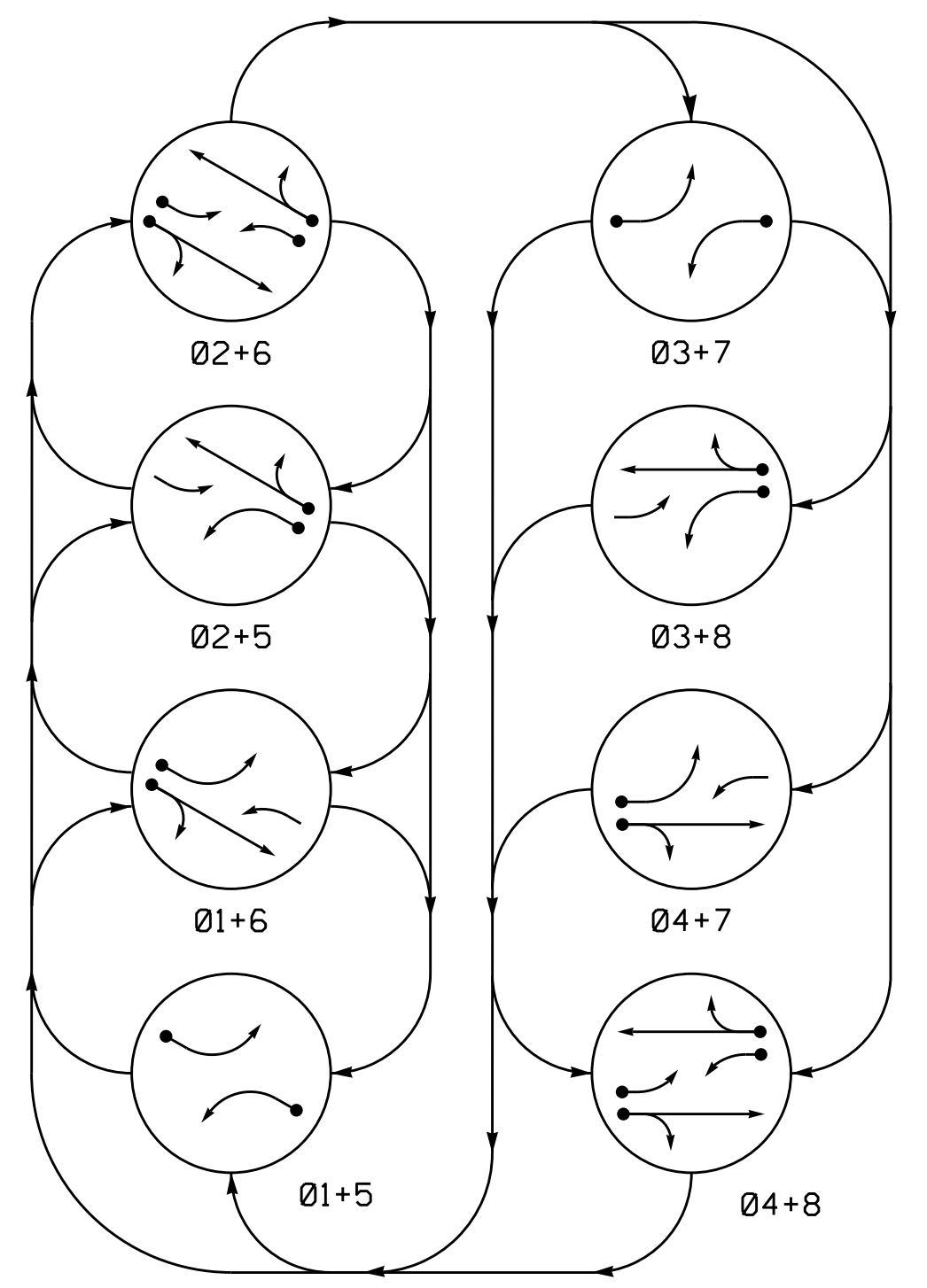
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 PCC Sta. 14+60.13  
 PT Sta. 17+08.20 PT Sta. 17+08.20  
 PI Sta. 18+33.21  
 PI Sta. 19+94.87  
 MATCHLINE -L- STA 20+00.00

8/17/99  
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PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

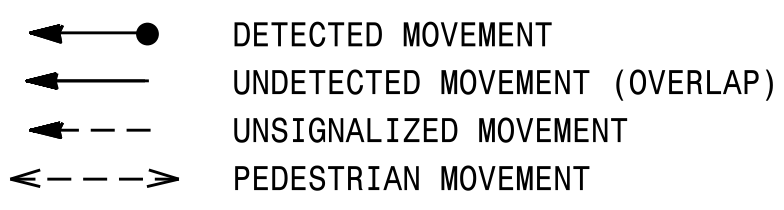
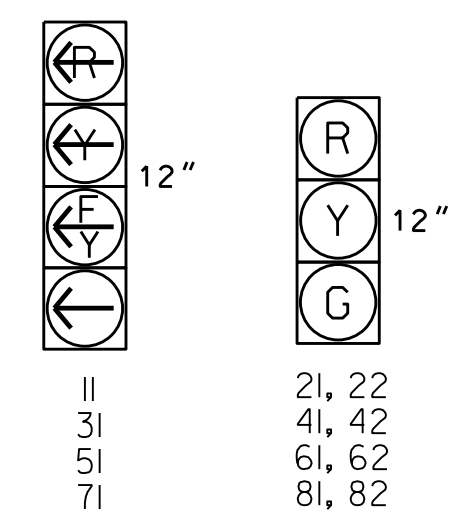


TABLE OF OPERATION

SIGNAL FACE	PHASE								L	R	Y	G
	01+5	01+6	02+5	02+6	03+7	03+8	04+7	04+8				
II	←	←	←	←	←	←	←	←	←	←	←	←
21, 22	R	R	G	G	R	R	R	R	R	R	Y	Y
31	R	R	R	R	←	←	←	←	←	←	←	←
41, 42	R	R	R	R	R	R	G	G	R			
51	←	←	←	←	←	←	←	←	←	←	←	←
61, 62	R	G	R	G	R	R	R	R	R	R	Y	Y
71	R	R	R	R	←	←	←	←	←	←	←	←
81, 82	R	R	R	R	R	G	R	G	R			

SIGNAL FACE I.D.

All Heads L.E.D.



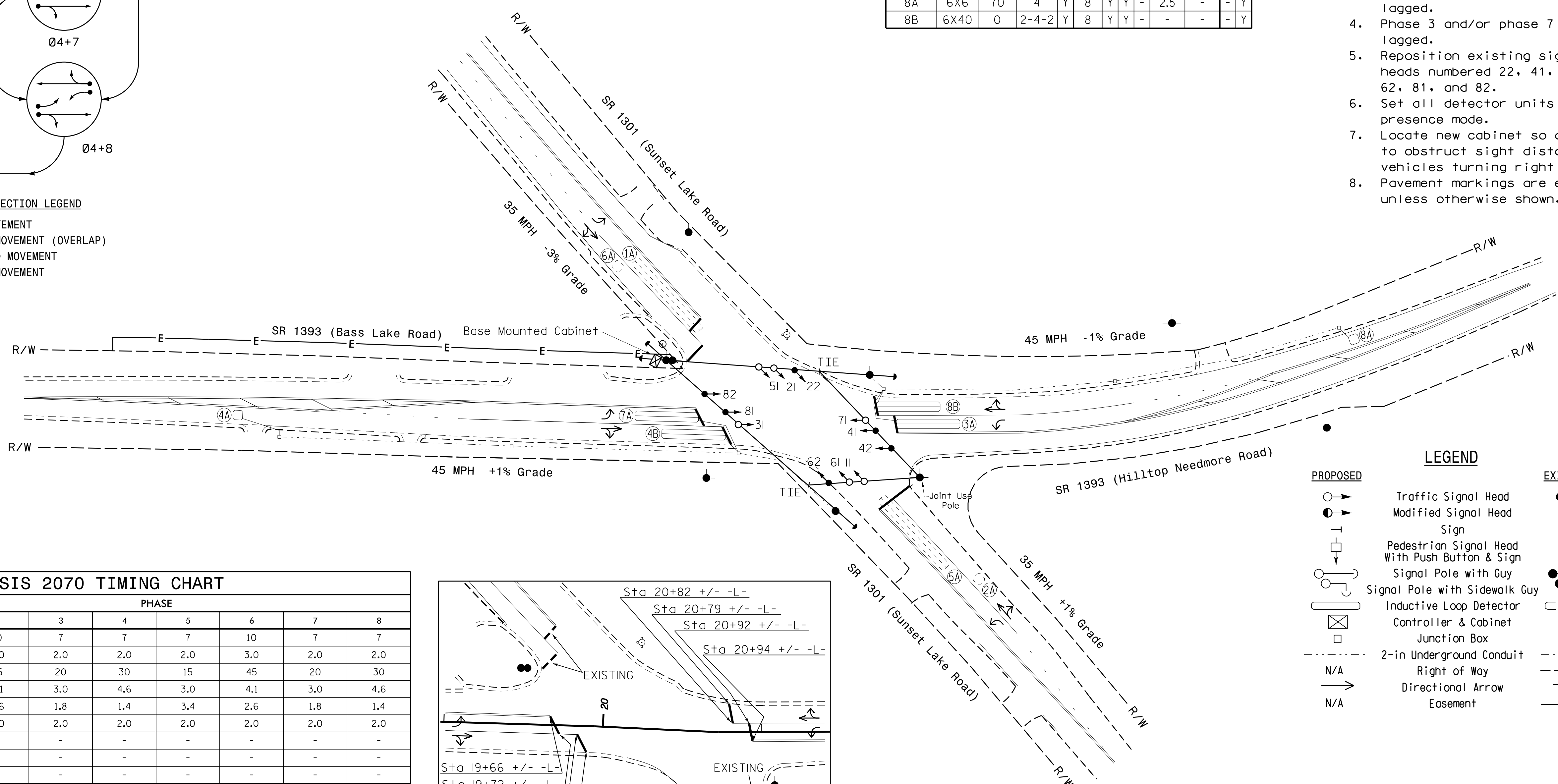
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	STRETCH TIME			DELAY TIME
1A	6X60	0	2-4-2	-	1	Y	Y	-	15	-	Y
2A	6X6	70	EXISTING	-	2	Y	Y	-	-	-	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	15	-	Y
4A	6X6	70	4	Y	4	Y	Y	-	2.5	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	Y
5A	6X60	0	2-4-2	-	5	Y	Y	-	15	-	Y
6A	6X6	70	EXISTING	-	6	Y	Y	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	15	-	Y
8A	6X6	70	4	Y	8	Y	Y	-	2.5	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	Y

8 Phase Fully Actuated (Isolated)

NOTES

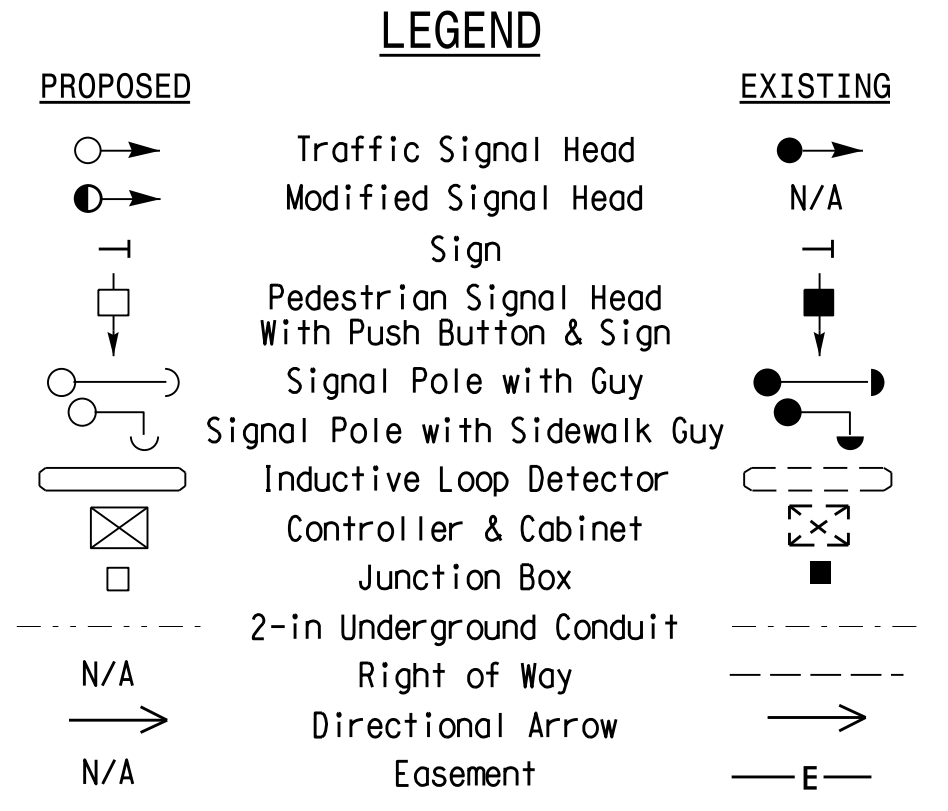
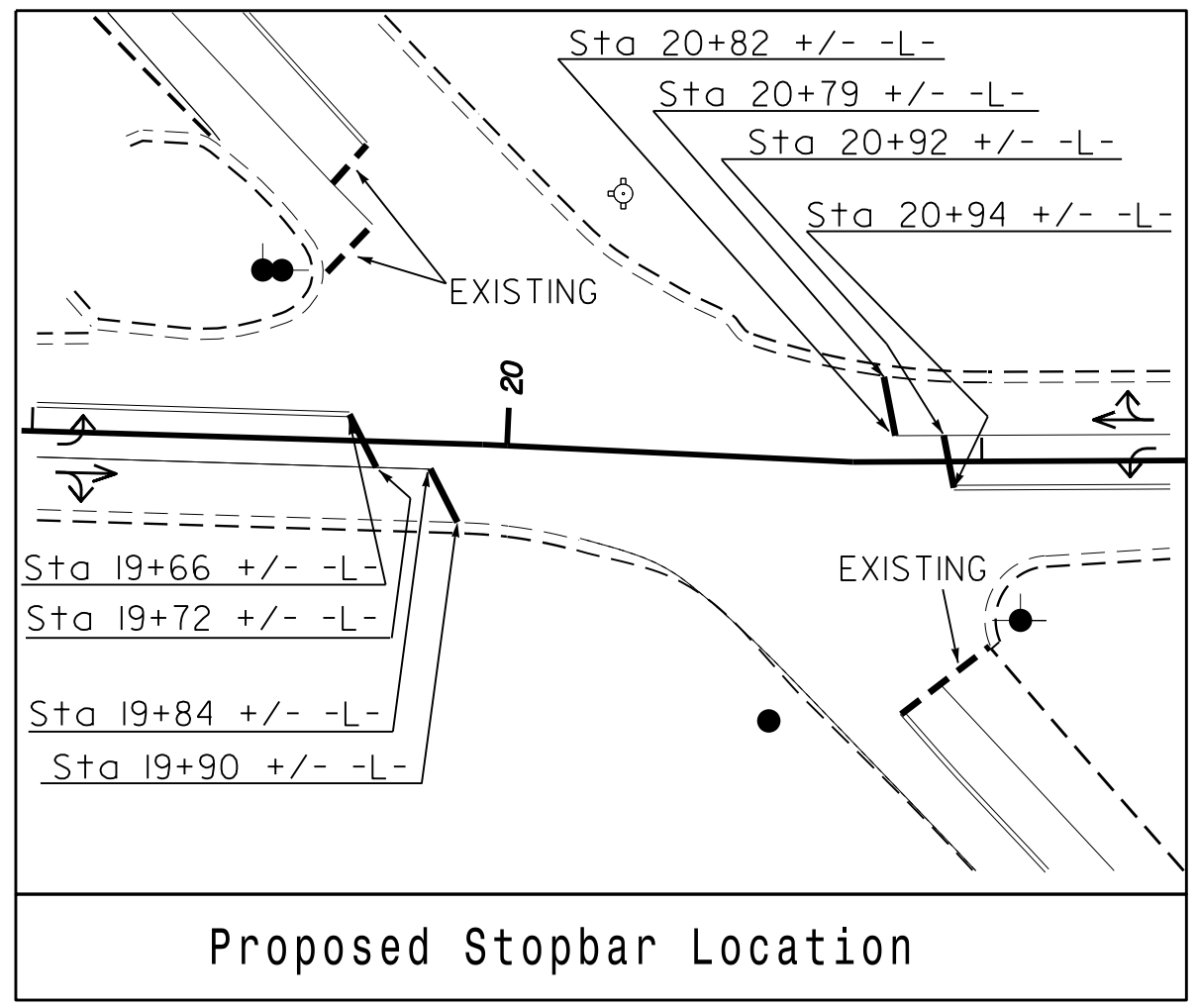
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- Phase 3 and/or phase 7 may be lagged.
- Reposition existing signal heads numbered 22, 41, 42, 62, 81, and 82.
- Set all detector units to presence mode.
- Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
- Pavement markings are existing unless otherwise shown.



OASIS 2070 TIMING CHART

FEATURE	PHASE							
	1	2	3	4	5	6	7	8
Min Green 1 *	7	10	7	7	7	10	7	7
Extension 1 *	2.0	3.0	2.0	2.0	2.0	3.0	2.0	2.0
Max Green 1 *	15	45	20	30	15	45	20	30
Yellow Clearance	3.0	4.1	3.0	4.6	3.0	4.1	3.0	4.6
Red Clearance	3.7	2.6	1.8	1.4	3.4	2.6	1.8	1.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	-	-	-	-	-	-	-
Max Variable Initial *	-	-	-	-	-	-	-	-
Time Before Reduction *	-	-	-	-	-	-	-	-
Time To Reduce *	-	-	-	-	-	-	-	-
Minimum Gap	-	-	-	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	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.



Signal Upgrade

Prepared In the Offices of:  
  
 SR 1301 (Sunset Lake Road) at SR 1393 (Hilltop Needmore Road) / (Bass Lake Road)  
 Division 5 Wake County Fuquay-Varina  
 PLAN DATE: February 2016 REVIEWED BY:  
 PREPARED BY: C.E. Carter REVIEWED BY:  
 REVISIONS: INIT. DATE  
 SCALE: 1"=40'  
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED  
 SEAL  
 Ryan W. Hough  
 4/29/2016  
 SIG. INVENTORY NO. 05-0719

2016-02-29 09:42  
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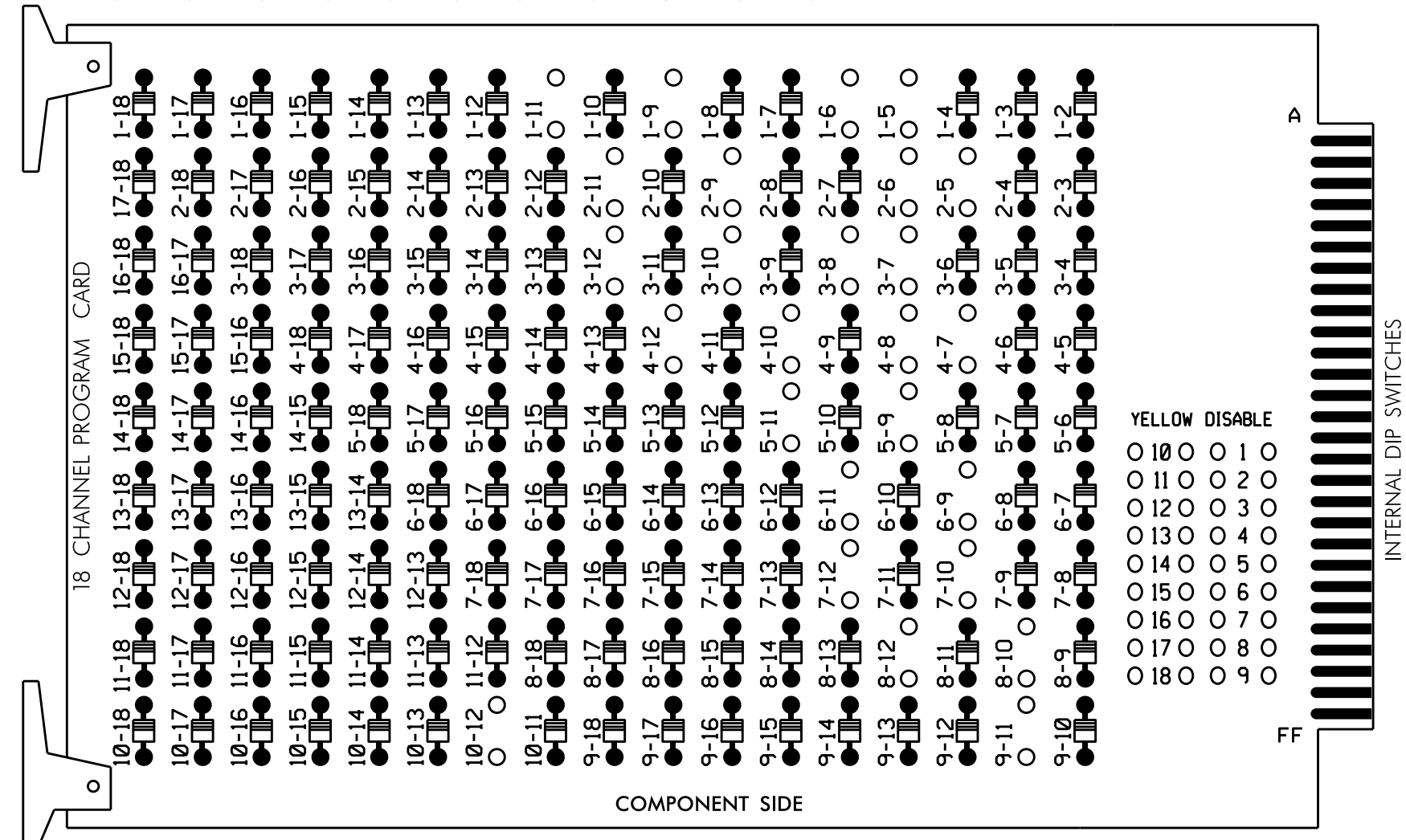


EDI MODEL 2018ECL-NC CONFLICT MONITOR

PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

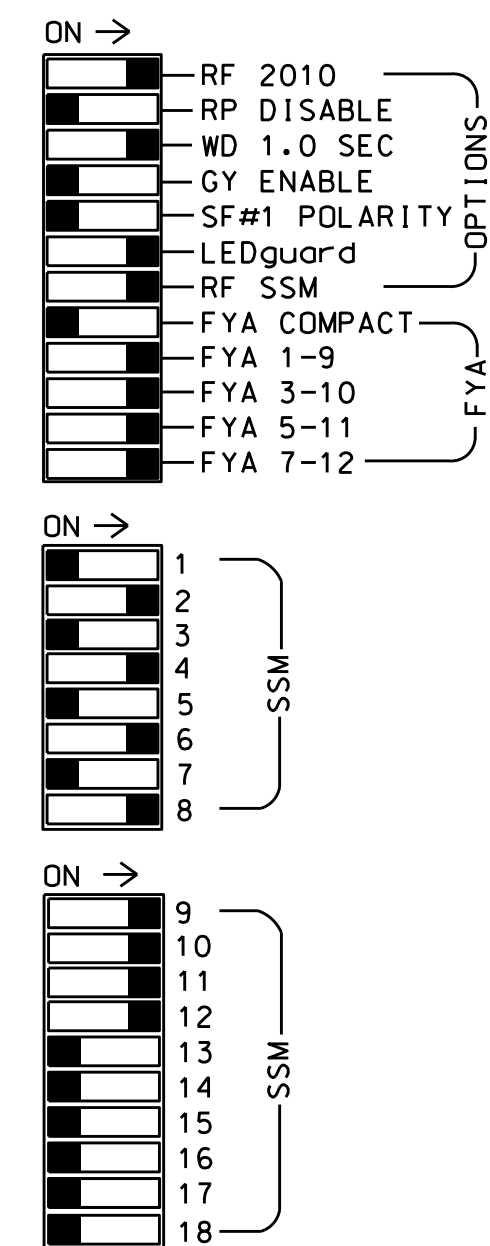
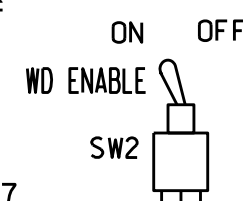
REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-11, 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-10, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 5-11, 6-9, 6-11, 7-10, 7-12, 8-10, 8-12, 9-11 and 10-12.



REMOVE JUMPERS AS SHOWN

NOTES:

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



■ = DENOTES POSITION OF SWITCH

NOTES

- 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.
- Program phases 4 and 8 for Dual Entry.
- Enable Simultaneous Gap-Out for all phases.
- Program phases 2 and 6 for Start Up In Green.
- Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag Overlaps.

EQUIPMENT INFORMATION

CONTROLLER.....2070  
 CABINET.....332 /W/ AUX  
 SOFTWARE.....ECONOLITE OASIS  
 CABINET MOUNT.....BASE  
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE  
 LOAD SWITCHES USED.....S1,S2,S4,S5,S7,S8,S10,S11,AUX S1,  
 AUX S2,AUX S4,AUX S5  
 PHASES USED.....1,2,3,4,5,6,7,8  
 OVERLAP "A".....1+2  
 OVERLAP "B".....3+4  
 OVERLAP "C".....5+6  
 OVERLAP "D".....7+8

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6
CHU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11★	21,22	NU	31★	41,42	NU	51★	61,62	NU	71★	81,82	NU	11★	31★	NU	51★	71★	NU
RED		128			101			134			107							
YELLOW	*	129		*	102		*	135		*	108							
GREEN		130			103			136			109							
RED ARROW													A121	A124		A114	A101	
YELLOW ARROW													A122	A125		A115	A102	
FLASHING YELLOW ARROW													A123	A126		A116	A103	
GREEN ARROW	127			118				133			124							

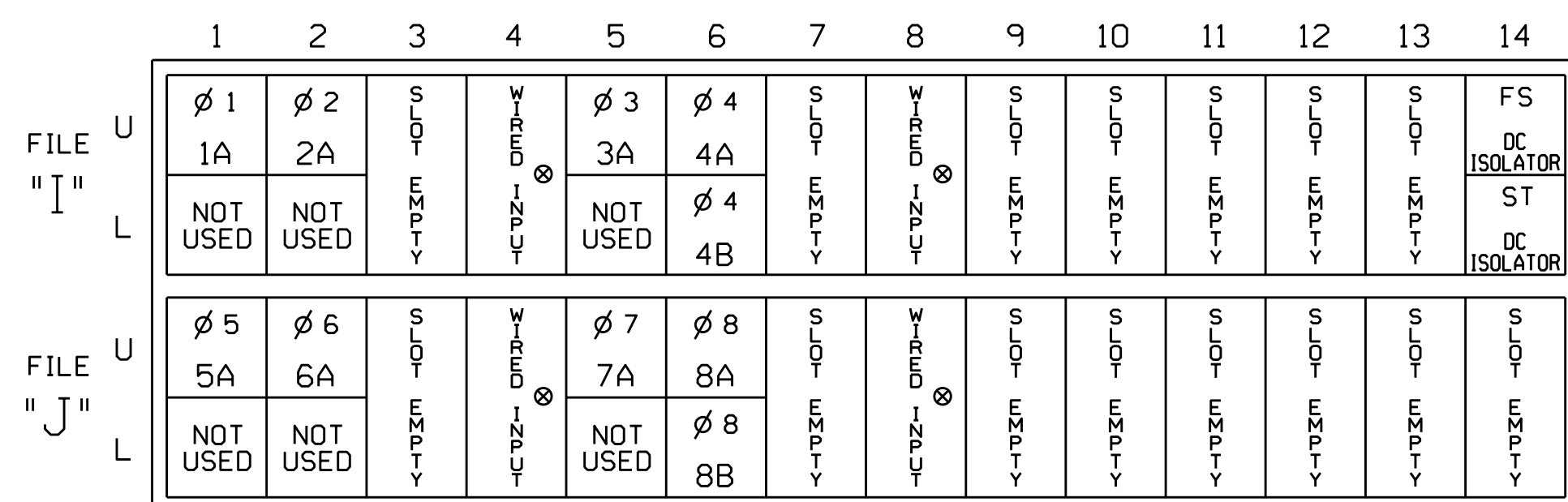
NU = Not Used

\* Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE  
 ST = STOP TIME

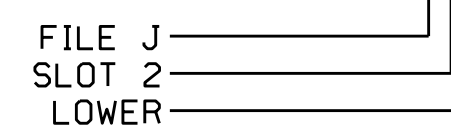
⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A <sup>1</sup>	TB2-1,2	I1U	56	18	1	1	Y	Y			15
	-	J4U	48	10	26	6	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3A <sup>2</sup>	-	J8U	50	12	28	8	Y	Y			3
	4A	TB4-9,10	I6U	41	3	4	Y	Y		2.5	
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
	5A <sup>3</sup>	TB3-1,2	J1U	55	17	5	Y	Y			15
6A	-	I4U	47	9	22	2	Y	Y			3
	7A <sup>4</sup>	TB3-5,6	J2U	40	2	6	Y	Y			
8A	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			3
8B	TB5-9,10	J6U	42	4	8	8	Y	Y		2.5	
	TB5-11,12	J6L	46	8	18	8	Y	Y			

- Add jumper from I1-W to J4-W, on rear of input file.
- Add jumper from I5-W to J8-W, on rear of input file.
- Add jumper from J1-W to I4-W, on rear of input file.
- Add jumper from J5-W to I8-W, on rear of input file.

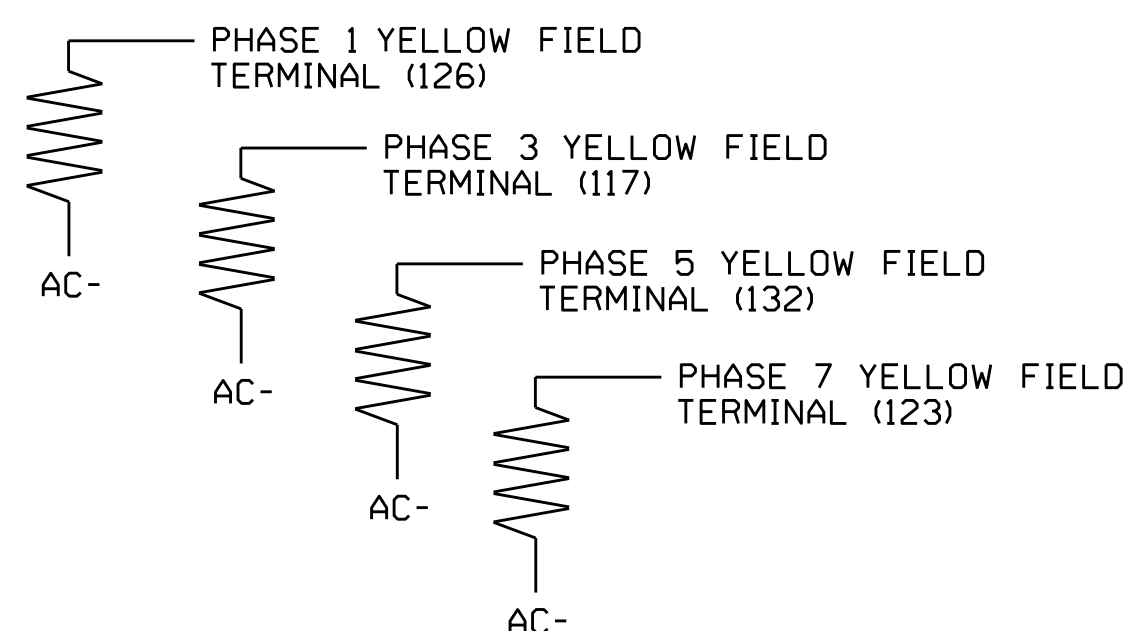
INPUT FILE POSITION LEGEND: J2L



LOAD RESISTOR INSTALLATION DETAIL

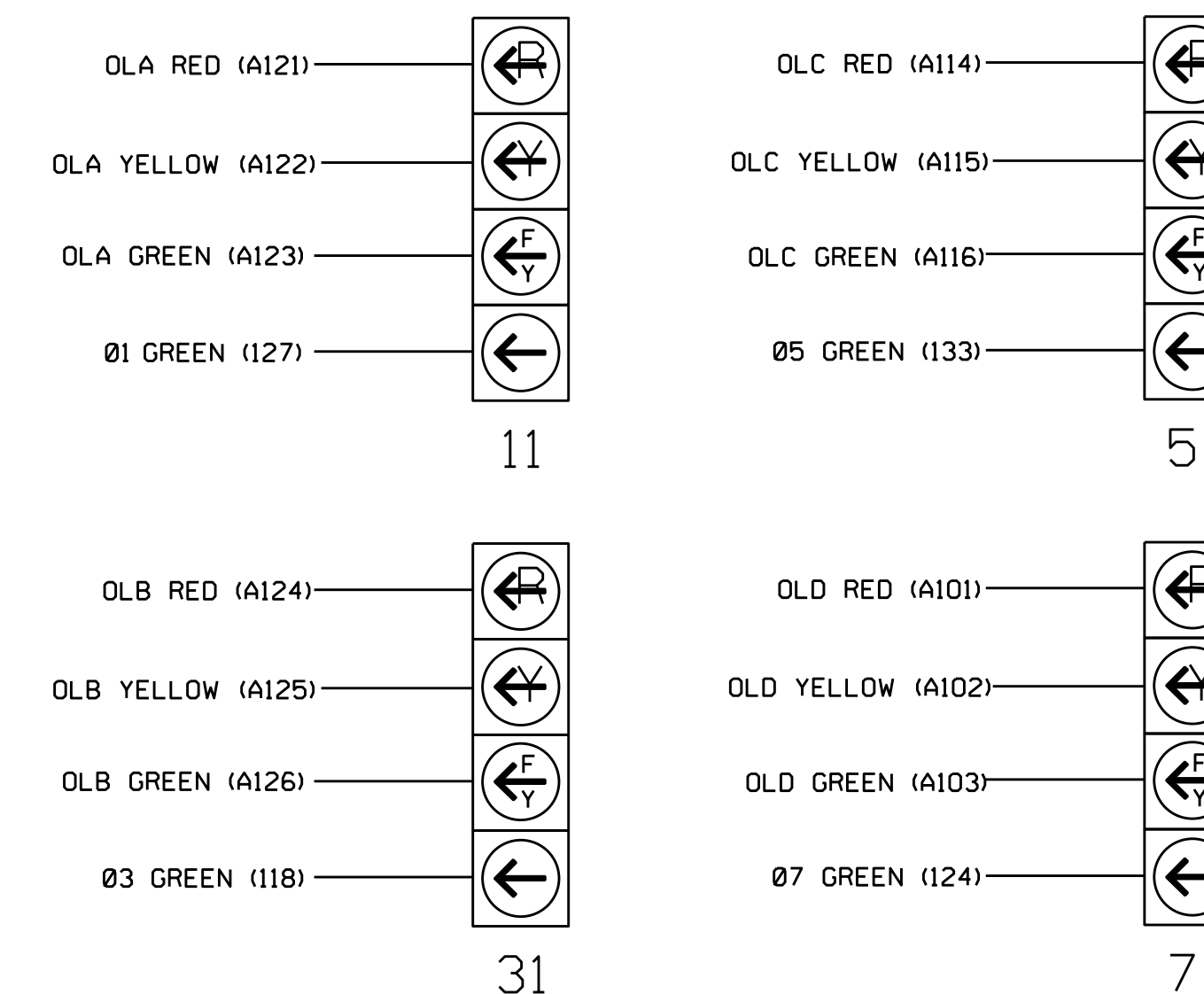
(install resistors as shown below)

VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



4 SECTION FYA PPLT SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

- The sequence display for these signals require special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0719  
 DESIGNED: February 2016  
 SEALED: 4/29/2016  
 REVISED:

Electrical Detail - Sheet 1 of 2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical and Programming Details for: SR 1301 (Sunset Lake Road) at SR 1393 (Hilltop Needmore Road) / (Bass Lake Road)

Prepared In the Offices of: [Logo]

Division 5 Wake County Fuquay-Varina

PLAN DATE: April 2016 REVIEWED BY:

PREPARED BY: C. Strickland REVIEWED BY:

REVISIONS INIT. DATE

Seal: D. Todd Joyce, Engineer, No. 031001, Date: 2/28/2018

SIG. INVENTORY NO. 05-0719



## LOGICAL I/O PROCESSOR PROGRAMMING DETAIL TO PRODUCE SPECIAL FYA-PPLT SIGNAL SEQUENCE

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, AND 12.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)  
IF ACTIVE PHASE #1 IS ON  
AND RED CLEAR ON PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #50 ON  
SET OUTPUT ASSIGNMENT #51 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 1 RED CLEAR WHEN TRANSITIONING FROM PHASE 1 TO PHASE 2 (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)  
IF ACTIVE PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #52 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)  
IF YELLOW ON PHASE #1 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #51 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 (HEAD 11).

LOGICAL I/O COMMAND #4 (+/-COMMAND#)  
IF ACTIVE PHASE #5 IS ON  
AND RED CLEAR ON PHASE #5 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #42 ON  
SET OUTPUT ASSIGNMENT #43 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 5 RED CLEAR WHEN TRANSITIONING FROM PHASE 5 TO PHASE 6 (HEAD 51).

LOGICAL I/O COMMAND #5 (+/-COMMAND#)  
IF ACTIVE PHASE #5 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #44 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #6 (+/-COMMAND#)  
IF YELLOW ON PHASE #5 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #43 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 5 (HEAD 51).

LOGICAL I/O COMMAND #7 (+/-COMMAND#)  
IF ACTIVE PHASE #3 IS ON  
AND RED CLEAR ON PHASE #3 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #47 ON  
SET OUTPUT ASSIGNMENT #48 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 4 (HEAD 31).

LOGICAL I/O COMMAND #8 (+/-COMMAND#)  
IF ACTIVE PHASE #3 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #49 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #9 (+/-COMMAND#)  
IF YELLOW ON PHASE #3 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #48 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 3 (HEAD 31).

LOGICAL I/O COMMAND #10 (+/-COMMAND#)  
IF ACTIVE PHASE #7 IS ON  
AND RED CLEAR ON PHASE #7 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #39 ON  
SET OUTPUT ASSIGNMENT #40 OFF

PRESS '+'

NOTE: LOGIC FOR PHASE 7 RED CLEAR WHEN TRANSITIONING FROM PHASE 7 TO PHASE 8 (HEAD 71).

LOGICAL I/O COMMAND #11 (+/-COMMAND#)  
IF ACTIVE PHASE #7 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #41 OFF

PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 7 (HEAD 71).

LOGICAL I/O COMMAND #12 (+/-COMMAND#)  
IF YELLOW ON PHASE #7 IS ON

↓  
SCROLL DOWN

THEN:  
SET OUTPUT ASSIGNMENT #40 ON

PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 7 (HEAD 71).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

## OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'A' SETTINGS  
PHASE: 12345678910111213141516  
VEH OVL PARENTS: XX  
VEH OVL NOT VEH: XX  
VEH OVL NOT PED: XX  
VEH OVL GRN EXT: XX  
STARTUP COLOR: - RED - YELLOW - GREEN  
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...Y  
GREEN EXTENSION (0=255 SEC)...0.0  
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 '+'

NOTICE GREEN FLASH

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS  
PHASE: 12345678910111213141516  
VEH OVL PARENTS: XX  
VEH OVL NOT VEH: XX  
VEH OVL NOT PED: XX  
VEH OVL GRN EXT: XX  
STARTUP COLOR: - RED - YELLOW - GREEN  
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...N  
GREEN EXTENSION (0=255 SEC)...0.0  
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 '+'

NOTICE GREEN FLASH

PAGE 1: VEHICLE OVERLAP 'C' SETTINGS  
PHASE: 12345678910111213141516  
VEH OVL PARENTS: XX  
VEH OVL NOT VEH: XX  
VEH OVL NOT PED: XX  
VEH OVL GRN EXT: XX  
STARTUP COLOR: - RED - YELLOW - GREEN  
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...Y  
GREEN EXTENSION (0=255 SEC)...0.0  
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 '+'

NOTICE GREEN FLASH

PAGE 1: VEHICLE OVERLAP 'D' SETTINGS  
PHASE: 12345678910111213141516  
VEH OVL PARENTS: XX  
VEH OVL NOT VEH: XX  
VEH OVL NOT PED: XX  
VEH OVL GRN EXT: XX  
STARTUP COLOR: - RED - YELLOW - GREEN  
FLASH COLORS: - RED - YELLOW X GREEN

SELECT VEHICLE OVERLAP OPTIONS: (Y/N)  
FLASH YELLOW IN CONTROLLER FLASH?...N  
GREEN EXTENSION (0=255 SEC)...0.0  
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 '+'

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

## FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:

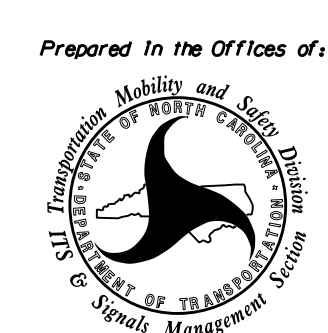
1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
3. REMOVE FLASHER UNIT 2.

THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

OUTPUT REFERENCE SCHEDULE	
USE TO INTERPRET LOGIC PROCESSOR	
OUTPUT 39 =	Overlap D Red
OUTPUT 40 =	Overlap D Yellow
OUTPUT 41 =	Overlap D Green
OUTPUT 42 =	Overlap C Red
OUTPUT 43 =	Overlap C Yellow
OUTPUT 44 =	Overlap C Green
OUTPUT 47 =	Overlap B Red
OUTPUT 48 =	Overlap B Yellow
OUTPUT 49 =	Overlap B Green
OUTPUT 50 =	Overlap A Red
OUTPUT 51 =	Overlap A Yellow
OUTPUT 52 =	Overlap A Green

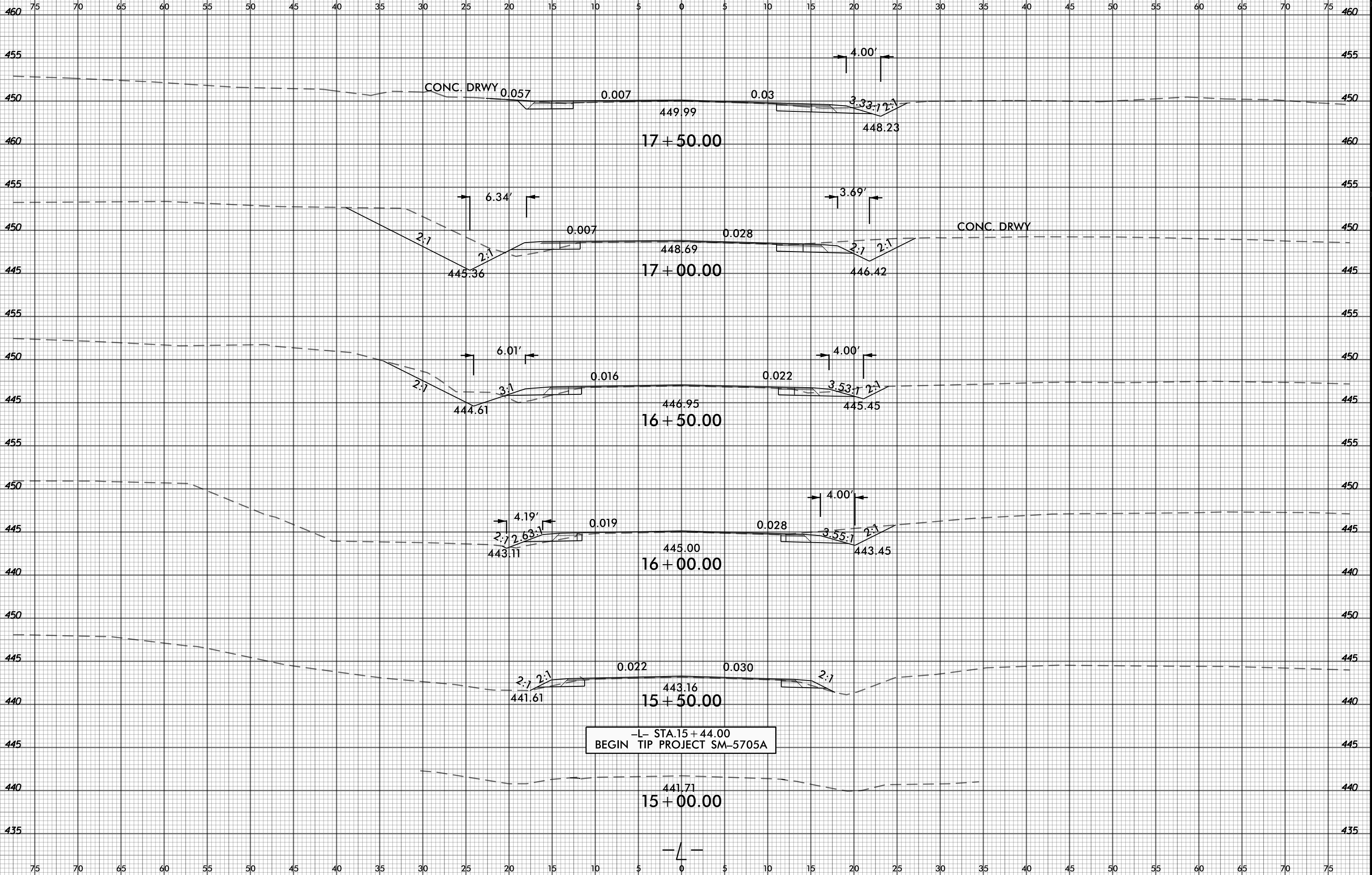
THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-0719  
DESIGNED: February 2016  
SEALED: 4/29/2016  
REVISED:

Electrical Detail - Sheet 2 of 2

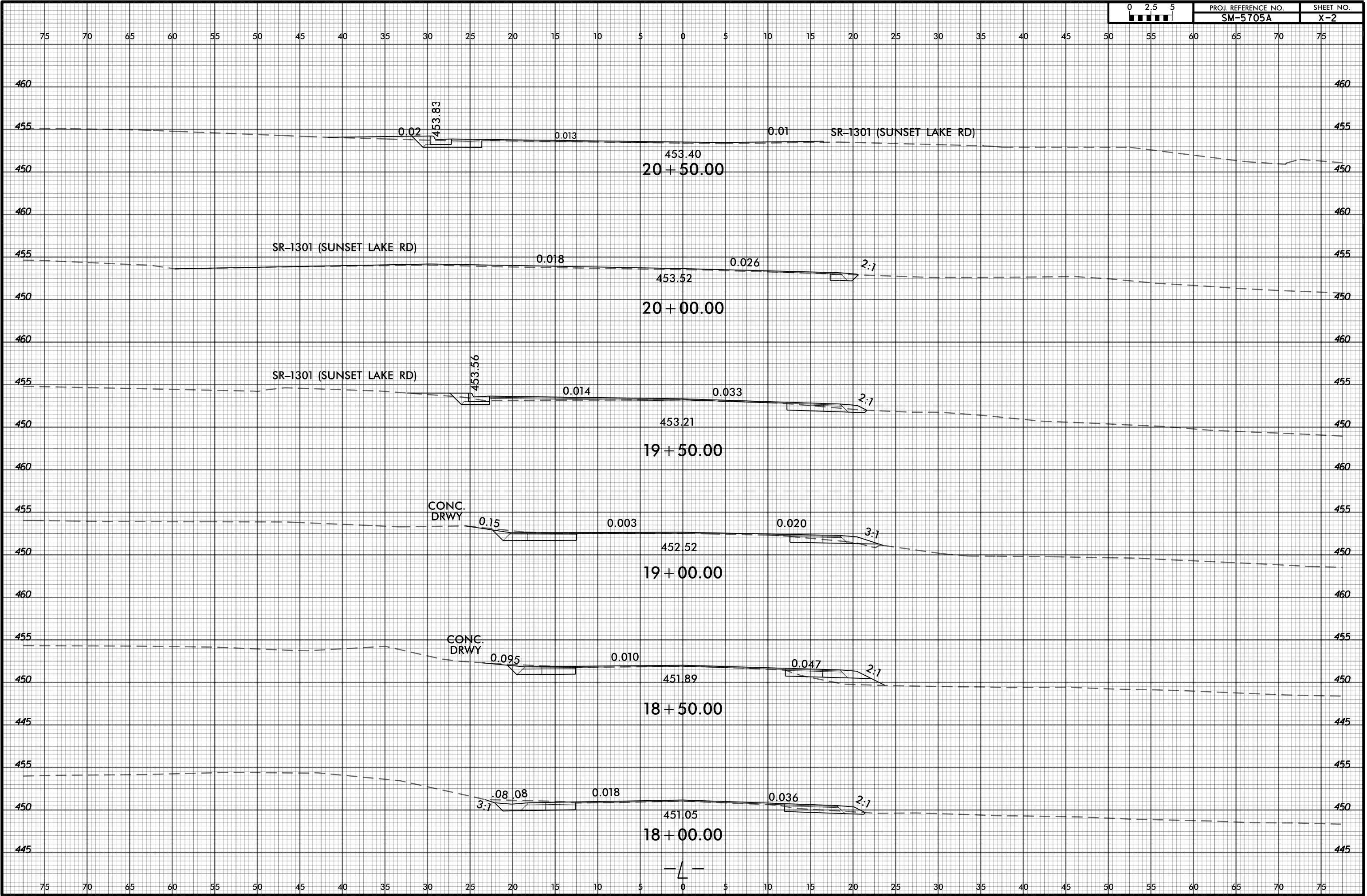
Prepared In the Offices of:  750 N. Greenfield Pkwy, Garner, NC 27529	<b>SR 1301 (Sunset Lake Road)</b> at <b>SR 1393 (Hilltop Needmore Road) / (Bass Lake Road)</b>	SEAL PROFESSIONAL ENGINEER D. TODD JOYCE 031001
Division 5 Wake County Fuquay-Varina PLAN DATE: April 2016 REVIEWED BY: PREPARED BY: C. Strickland REVIEWED BY:		
REVISIONS: _____ INIT. DATE _____ _____ INIT. DATE _____ _____ INIT. DATE _____		
DocuSigned by: D. Todd Joyce 2/28/2018 ASOCADPDR02410 DATE: _____ SIG. INVENTORY NO. 05-0719		

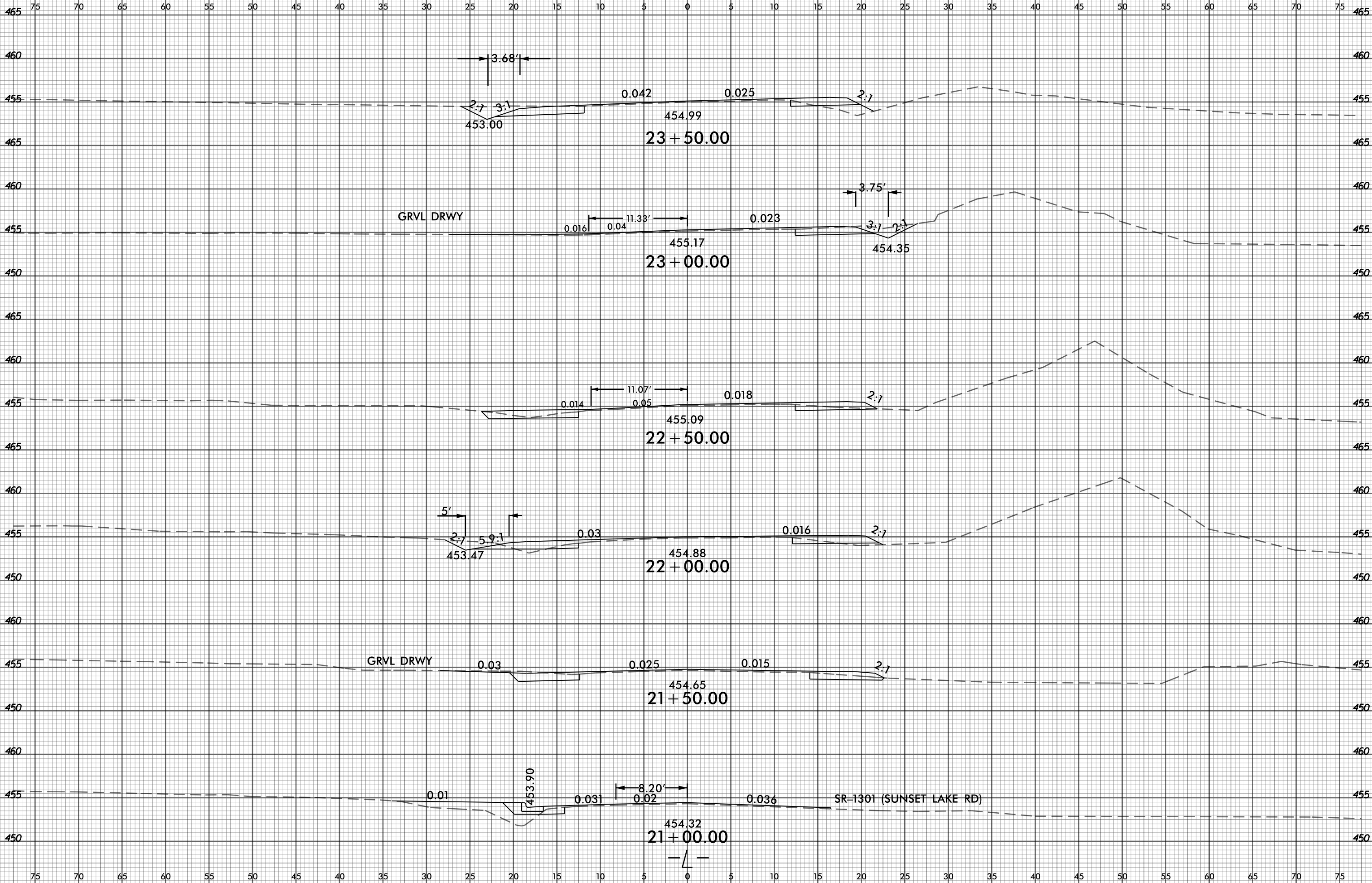
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 C:\EST\EST1.dwg

6/23/16



I:\MAP\_2018\647\15-570500\Roadway\CorridorModeling\W5601C0\_Rdy\_.xpl.dgn

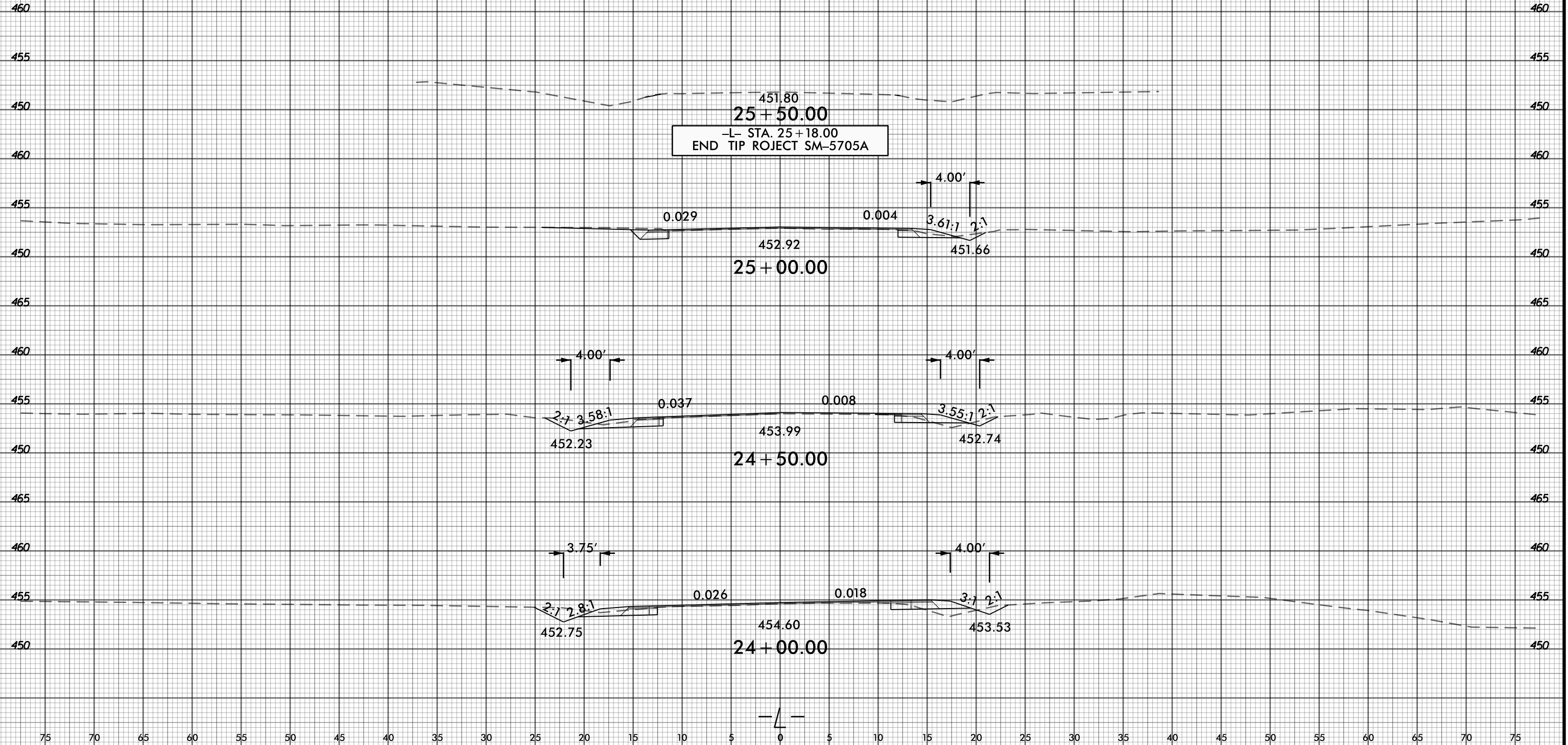








75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



-L- STA. 25+18.00  
END TIP ROJECT SM-5705A

-L-

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75