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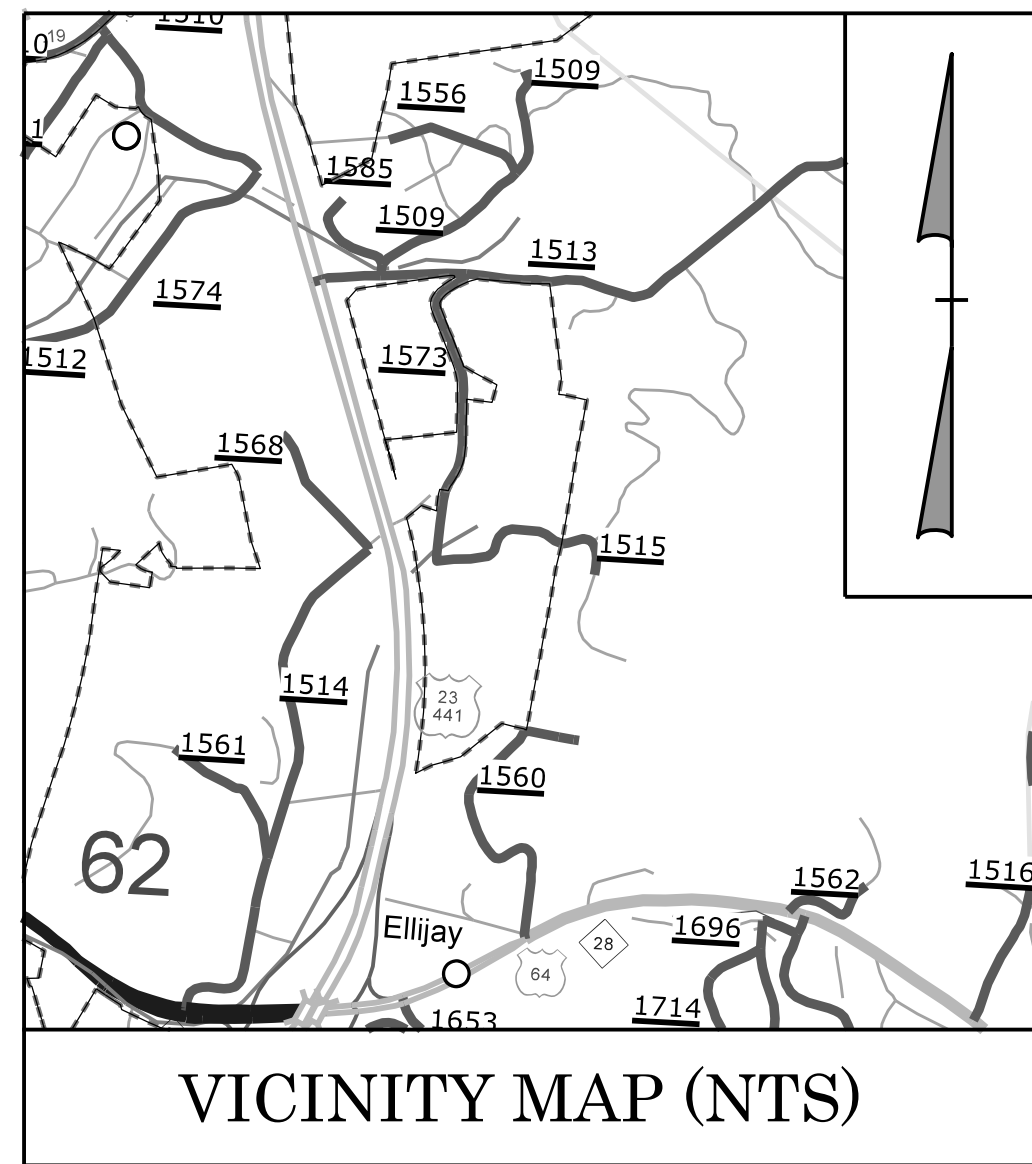
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08/12/2021

TIP PROJECT: HA-0004

CONTRACT: DN00765

See Sheet 1A For Index of Sheets



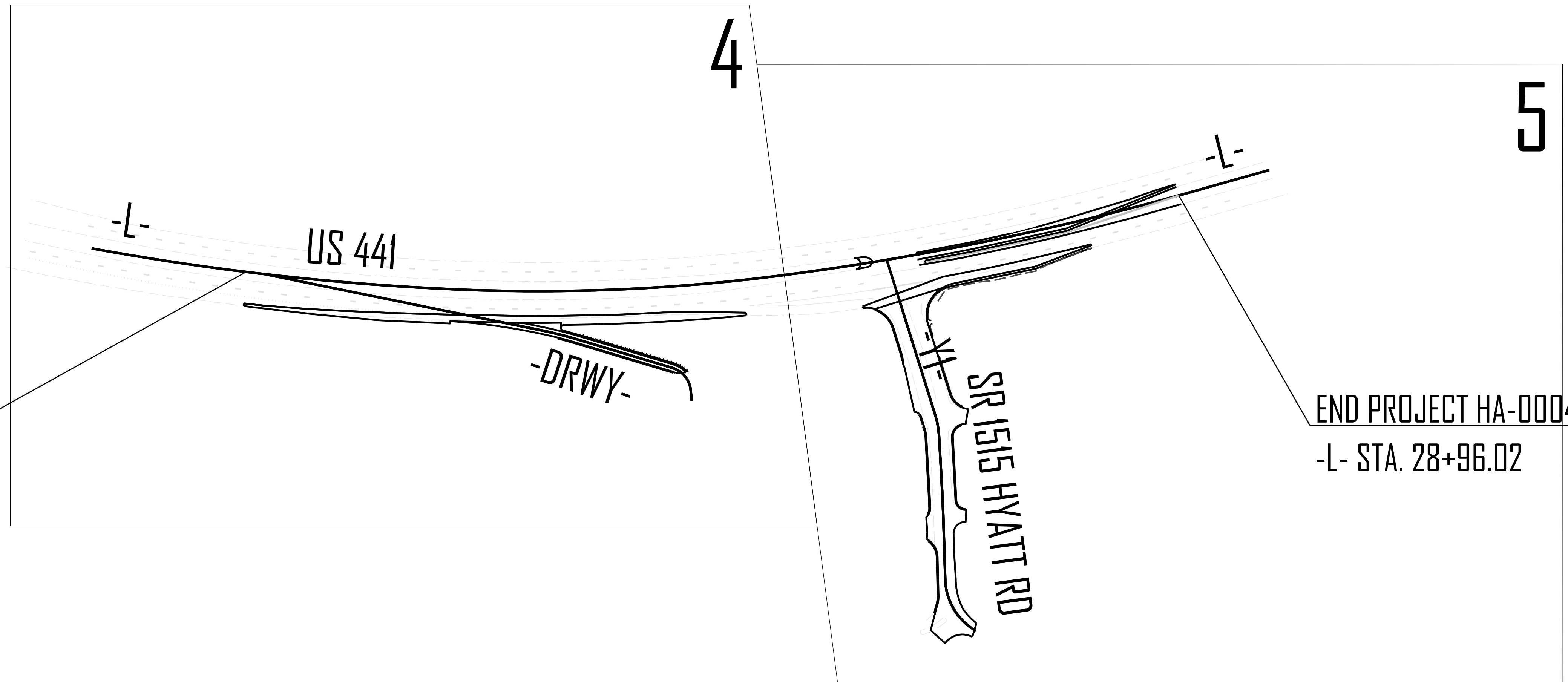
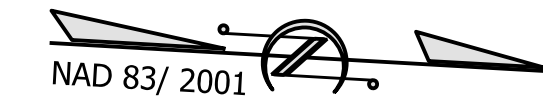
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

MACON COUNTY

LOCATION: *US 441 / SR 1515 (HYATT RD)
INTERSECTION*

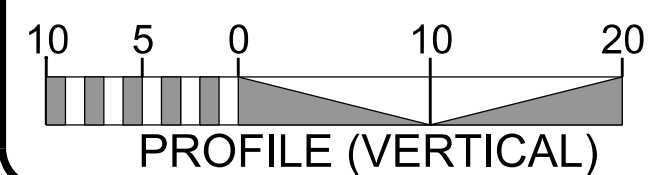
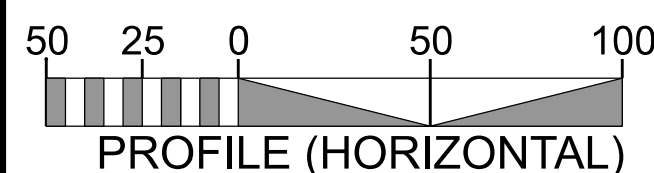
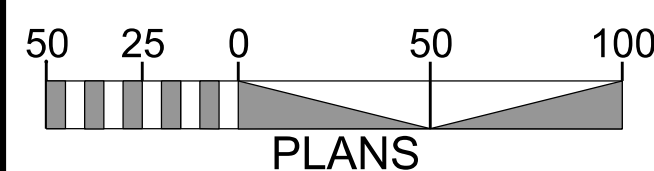
TYPE OF WORK: *GRADING, PAVING, DRAINAGE
SIGNALS*

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HA-0004	1	52
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
49761.1.1	0441017	PE	
49761.3.1	0441017	CONSTRUCTION	



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



PROJECT LENGTH

0.5 MILES

Prepared in the Office of:

DIVISION OF HIGHWAYS

253 Webster Rd., Sylva NC, 28779

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

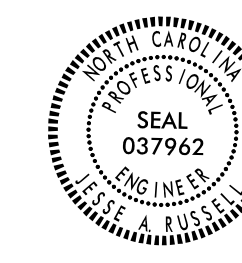
ANDY RUSSELL, P.E.
PROJECT ENGINEER

LETTING DATE:
FEBRUARY 22, 2022

GARRETT B. HIGDON, EI
PROJECT DESIGN ENGINEER

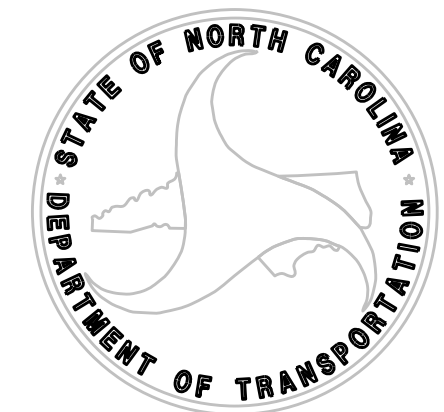
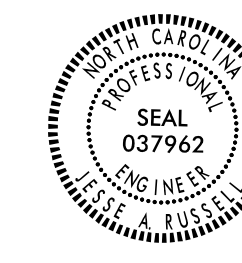
HYDRAULICS ENGINEER

DocuSigned by:
Andy Russell
E9017A5E468143D P.E.



ROADWAY DESIGN ENGINEER

DocuSigned by:
Andy Russell
E9017A5E468143D P.E.



GENERAL NOTES: 2018 SPECIFICATIONS

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. 225.05 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. 560.02

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.

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 USING 3 FOOT RADII OR RADII AS SHOWN ON THE PLANS. LOCATIONS OF DRIVES WILL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

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

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE TOWN OF FRANKLIN,
BALSAM WEST, DUKE ENERGY, AND TOCCOA NATURAL GAS

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B	ROADWAY SUMMARIES
3D	DRAINAGE SUMMARIES
4 THRU 7	PLAN AND PROFILE SHEET
TMP-1 THRU TMP-3	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
SIG.1.1 THRU SIG.2.2	SIGNAL PLANS
X-1 THRU X-22	CROSS-SECTIONS

2018 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, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.03	Deceleration and Acceleration Lanes
225.05	Method of Obtaining Superelevation - Divided Highways
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.02	Parallel Pipe End Section - Precast Concrete Section for 15" to 24" Pipe
310.04	Parallel Pipe End Section - Prefabricated Steel Section for 15" to 24" Pipe
310.05	Cross Pipe End Section - Prefabricated Steel Section for 18" to 30" Pipe
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.03	Concrete Contol of Access Marker
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
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
840.34	Traffic Bearing Junction Box - for Use with Pipes 42" and Under
840.36	Traffic Bearing Grated Drop Inlet - for Steel (840.37) Double Frame and Grates
840.37	Steel Grate and Frame
840.54	Manhole Frame and Cover
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
850.01	Concrete Paved Ditches
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

Note: Not to Scale

CONVENTIONAL PLAN SHEET SYMBOLS

*S.U.E. = Subsurface Utility Engineering

BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin	○ EIP
Computed Property Corner	----->
Property Monument	□ ECM
Parcel / Sequence Number	⑫③
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	-wlb-
Proposed Wetland Boundary	wlb
Existing Endangered Animal Boundary	-EAB-
Existing Endangered Plant Boundary	-EPB-
Existing Historic Property Boundary	-HPB-
Known Contamination Area: Soil	☠ s ☠
Potential Contamination Area: Soil	? s ?
Known Contamination Area: Water	☠ w ☠
Potential Contamination Area: Water	? w ?
Contaminated Site: Known or Potential	☠ ?

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○ MILEPOST 35
Switch	□ SWITCH
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent 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	----- (R/W)
New Right of Way Line with Pin and Cap	----- (R/W) ▲
New Right of Way Line with Concrete or Granite R/W Marker	----- (R/W) ●
New Control of Access Line with Iron Pin and Cap Marker	----- (C/A) ●
New Control of Access Line with Concrete C/A Marker	----- (C/A) ●
Existing Control of Access	----- (C/A)
New Control of Access	----- (C/A)
Existing Easement Line	----- E
New Temporary Construction Easement	----- E
New Temporary Drainage Easement	----- TDE
New Permanent Drainage Easement	----- PDE
New Permanent Drainage / Utility Easement	----- DUE
New Permanent Utility Easement	----- PUE
New Temporary Utility Easement	----- TUE
New Aerial Utility Easement	----- AUE

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	☼
Single Shrub	☼

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

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	----- CONC
Bridge Wing Wall, Head Wall and End Wall	----- CONC.WW
MINOR:	
Head and End Wall	----- CONC.HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	□ CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	----- S

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.*)	----- 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	⊕
Telephone Pedestal	⊠
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.*)	----- TFO
U/G Fiber Optics Cable LOS C (S.U.E.*)	----- TFO
U/G Fiber Optics Cable LOS D (S.U.E.*)	----- TFO

WATER:

Water Manhole	⊕
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	⊠
TV Tower	⊗
U/G TV Cable Hand Hole	-----
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:

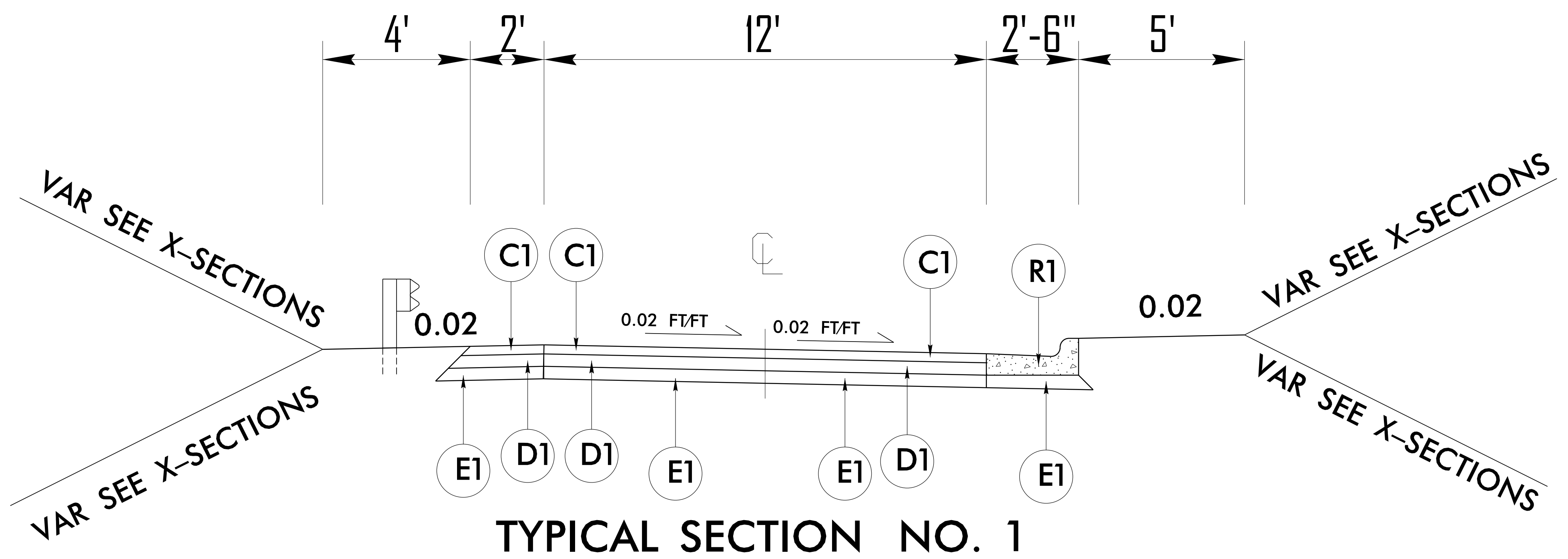
Gas Valve	◇
Gas Meter	⊕
U/G Gas Line LOS B (S.U.E.*)	----- G
U/G Gas Line LOS C (S.U.E.*)	----- G
U/G Gas Line LOS D (S.U.E.*)	----- G
Above Ground Gas Line	----- A/G Gas

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

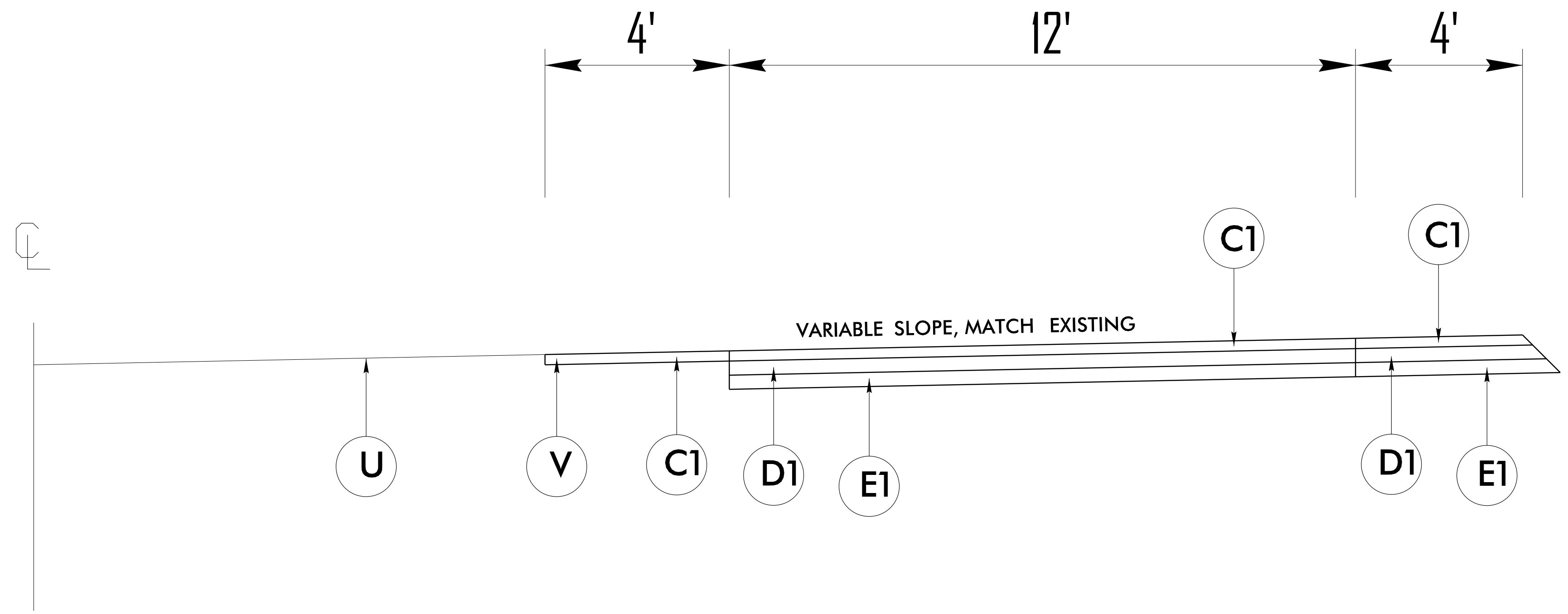
MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	○
Utility Traffic Signal Box	⊠
Utility Unknown U/G Line LOS B (S.U.E.*)	----- TULL
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.



TYPICAL SECTION NO. 1

-DRWY- STA. 13 + 29.64 THRU 17 + 52.90

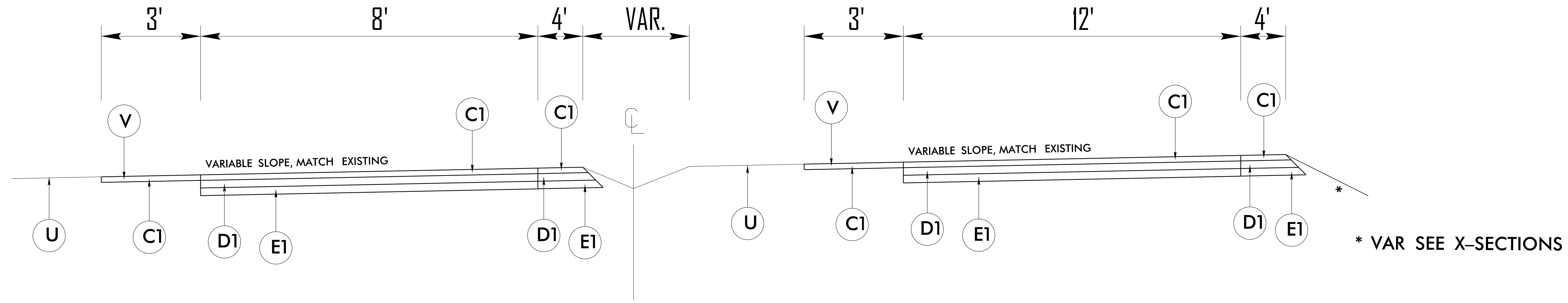


TYPICAL SECTION NO. 2

-L- STA. 12 + 71.47 THRU 24 + 32.41

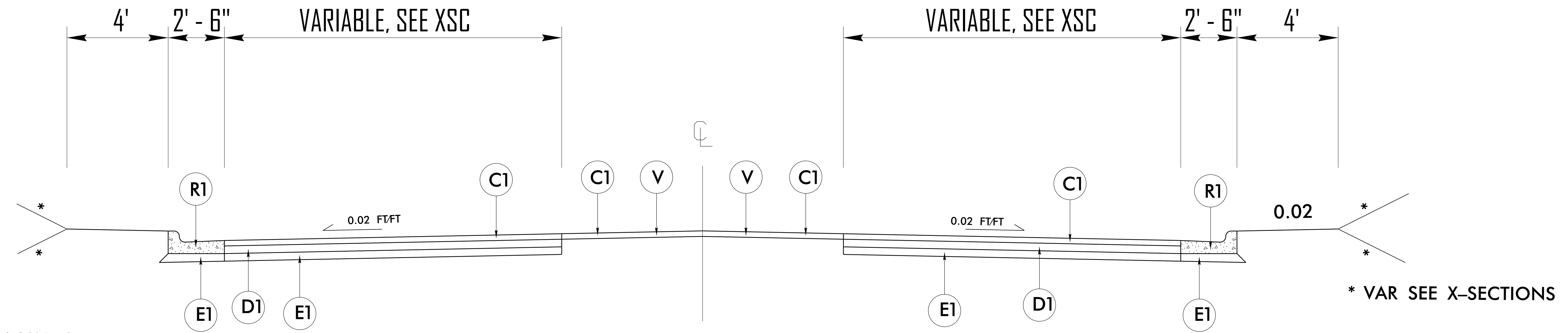
PAVEMENT SCHEDULE	
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT TO EXCEED 1.5" IN DEPTH.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E2	PROP. VAR. DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH.
R1	2'-6" CONCRETE CURB AND GUTTER.
U	EXISTING PAVEMENT
V	3" MILLING

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



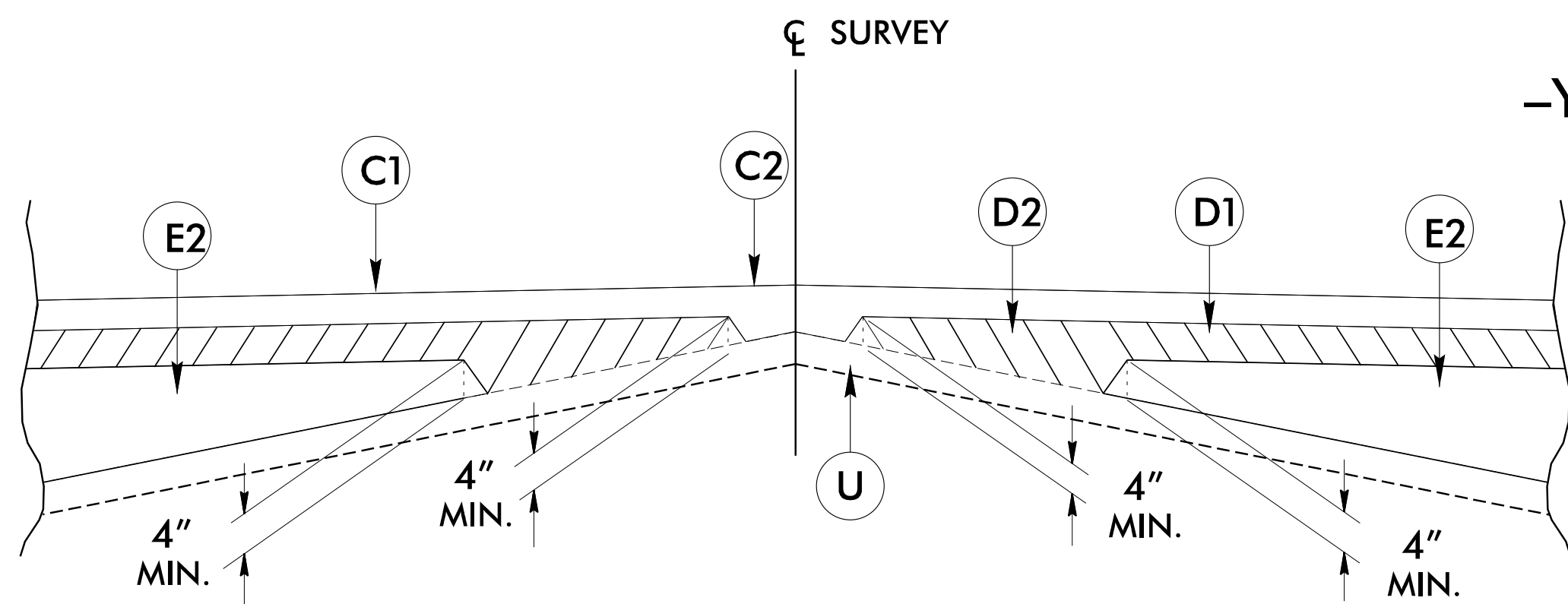
TYPICAL SECTION NO. 3

-L- STA. 24+32.41 THRU 28+96.02



TYPICAL SECTION NO. 4

-Y1- STA. 10+75.05 THRU 16+74.00

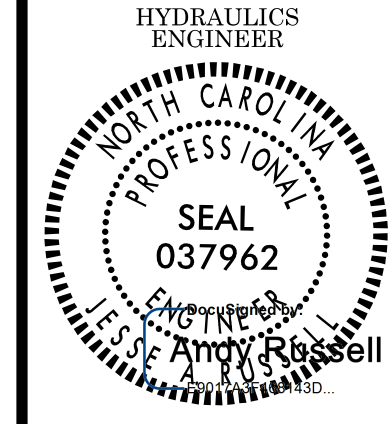
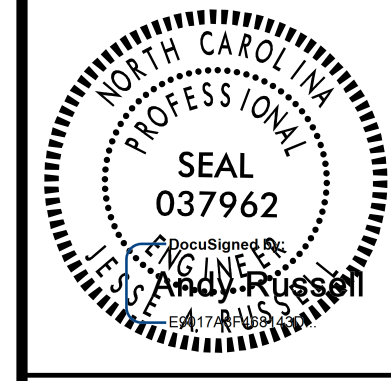
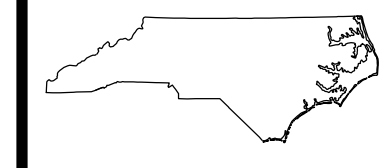


Detail Showing Method of Wedging

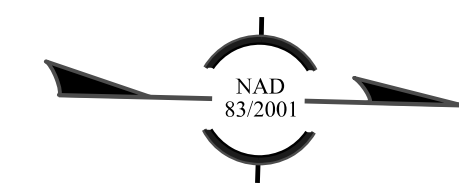
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R1	2'-6" CONCRETE CURB AND GUTTER.
U	EXISTING PAVEMENT
V	3" MILLING

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



<u>CUR DATA -L-</u> Plc 13+14.16 $\Delta c = 07^{\circ}44'43.1''$ (LT) $D = 01^{\circ}14'04.5''$ Lc = 627.36 Tc = 314.16 R = 4,640.86	<u>CUR DATA -L-</u> Plc 19+10.73 $\Delta c = 09^{\circ}54'56.5''$ (LT) $D = 01^{\circ}45'14.2''$ Lc = 565.34 Tc = 283.38 R = 3,266.69	<u>CUR DATA -DRWY-</u> Plc 15+17.32 $\Delta c = 05^{\circ}12'20.7''$ (RT) $D = 07^{\circ}50'44.6''$ Lc = 66.35 Tc = 33.20 R = 730.28	<u>CUR DATA -DRWY-</u> Plc 17+52.38 $\Delta c = 68^{\circ}20'44.1''$ (RT) $D = 126^{\circ}18'36.9''$ Lc = 54.11 Tc = 30.80 R = 45.36
---	---	--	--



-L- START 10+00.00

20

-L- PCC 21+92.69

RELOCATE SIGNS AS NEEDED AS DIRECTED BY THE ENGINEER

L- STA. 10+00.00
-DRWY- STA. 10+00.00

BEGIN PROJECT
POT STA 12+71.47

APPROXIMATE RW

US 441

-DRWY-
 $N08^{\circ}13'22.8''E$

4' PAVED SHOULDER

5 TONS CLASS B RIP RAP
14 SY GEOTEXTILE

-DRWY- PC 14+84.12

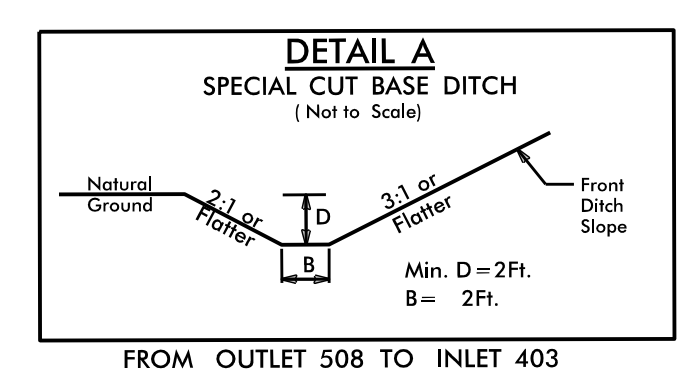
-DRWY- PT 15+50.47

-DRWY- PT 17+75.70
-DRWY- END 17+93.09

-DRWY- PC 17+21.59

-DRWY-
E.S. 17+16.75

MATCH LINE -L- STA 22+00.00 SEE SHEET 5



REVISIONS

CUR DATA -L-	CUR DATA -Y1-	CUR DATA -Y1-	CUR DATA -Y1-
Plc 25+58.38	Plc 12+99.28	Plc 14+35.82	Plc 16+19.67
$\Delta c = 08^{\circ}20'19.8''$ (LT)	$\Delta c = 14^{\circ}01'59.7''$ (RT)	$\Delta c = 01^{\circ}35'46.6''$ (RT)	$\Delta c = 53^{\circ}42'37.3''$ (LT)
D = $01^{\circ}08'31.8''$	D = $36^{\circ}05'01.9''$	D = $01^{\circ}33'23.7''$	D = $53^{\circ}44'55.4''$
Lc = 730.09	Lc = 38.89	Lc = 102.55	Lc = 99.93
Tc = 365.69	Tc = 19.54	Tc = 51.28	Tc = 53.98
R = 5,016.42	R = 158.79	R = 3,680.84	R = 106.6

HA-8004
5

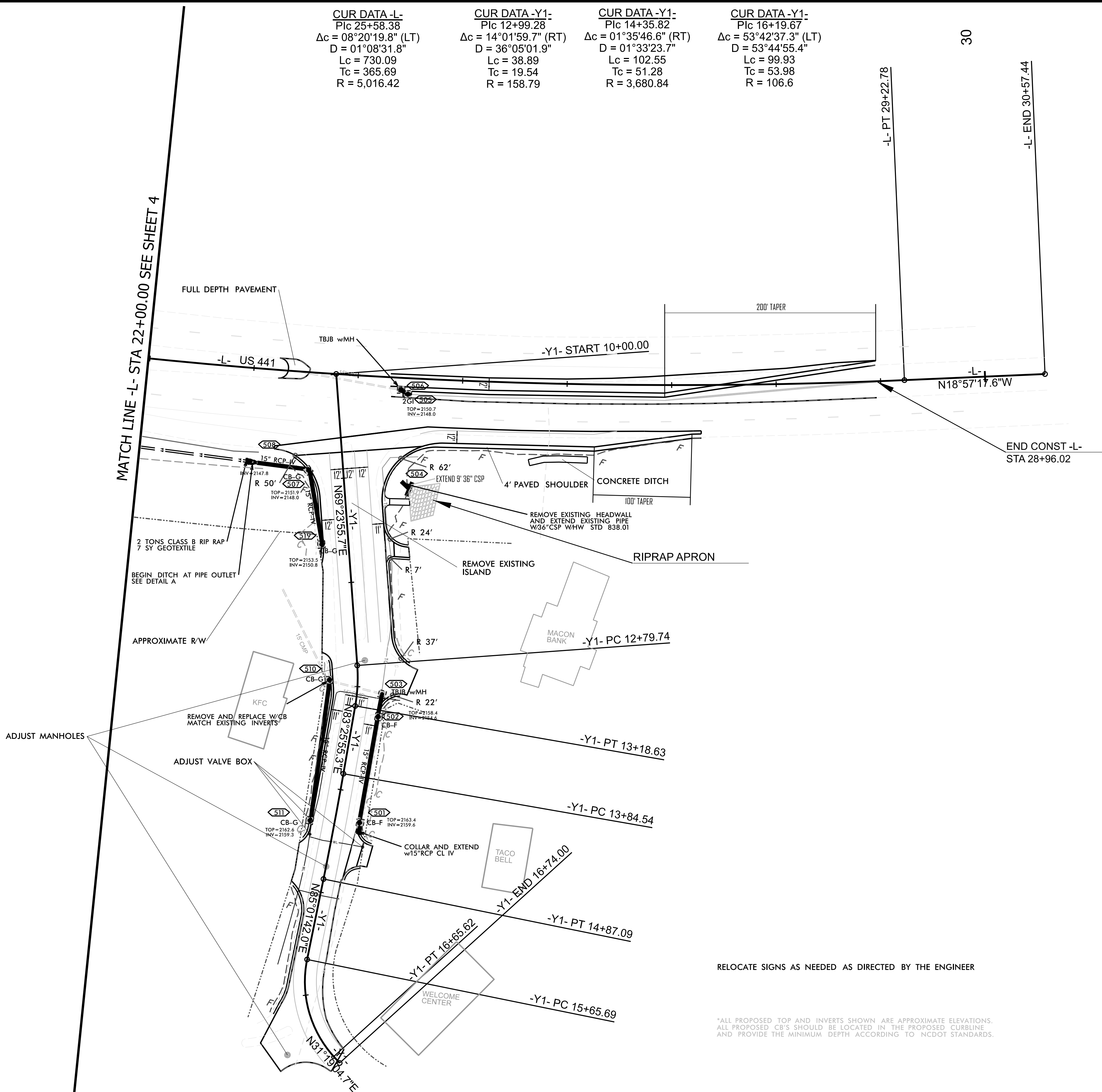
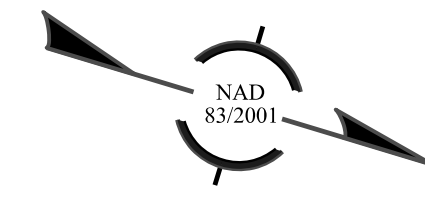
NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WAKE COUNTY

ROADWAY DESIGN UNIT
ROADWAY DESIGN
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
037962
Kerry Russell

HYDRAULICS
ENGINEER

NORTH CAROLINA
PROFESSIONAL
SEAL
037962
Kerry Russell



MATCH LINE -L- STA 22+00.00 SEE SHEET 4

30

-L- END 30+57.44

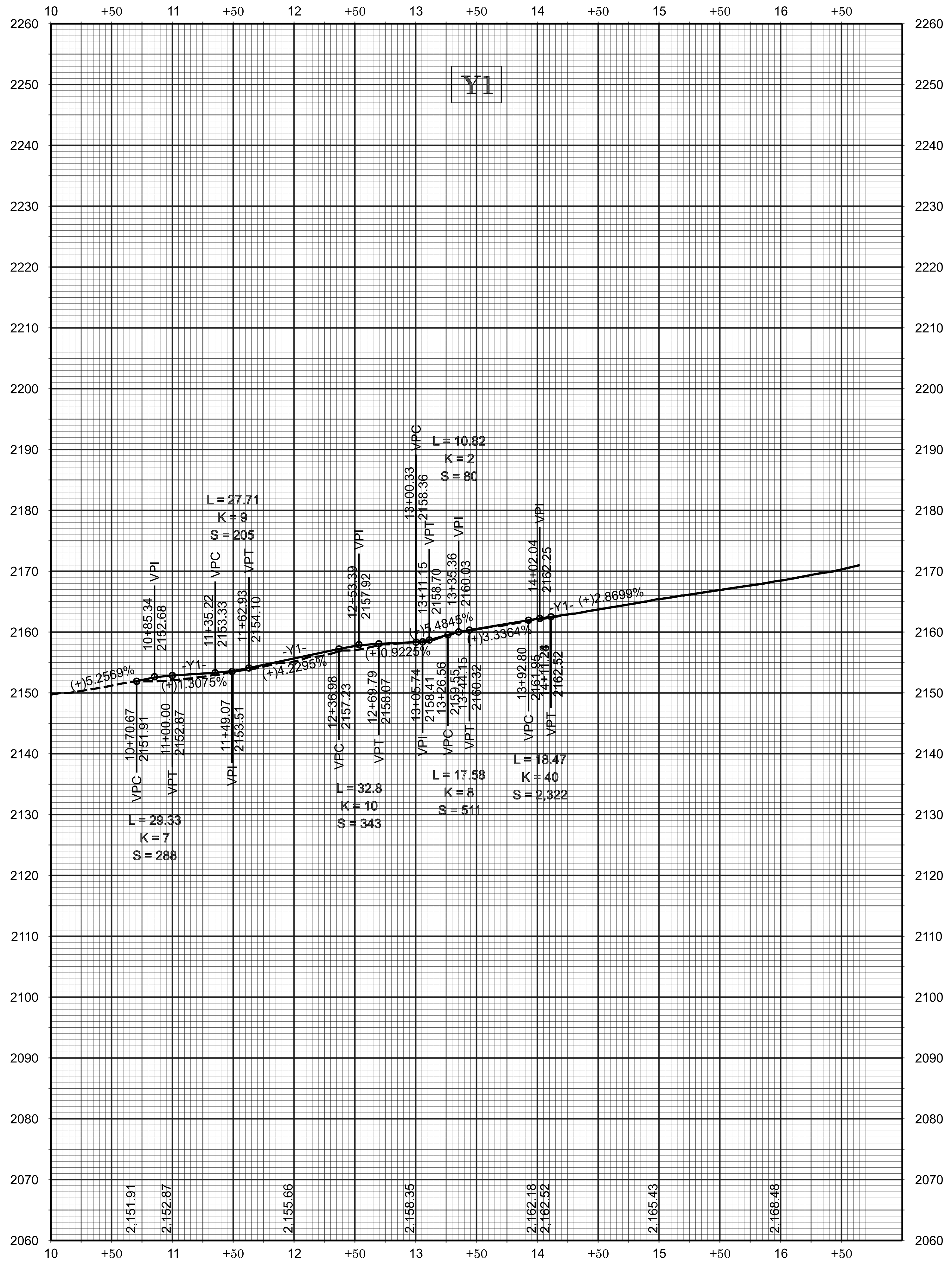
-L- PT 29+22.78

END CONST -L-
STA 28+96.02

RELOCATE SIGNS AS NEEDED AS DIRECTED BY THE ENGINEER

*ALL PROPOSED TOP AND INVERTS SHOWN ARE APPROXIMATE ELEVATIONS.
ALL PROPOSED CB'S SHOULD BE LOCATED IN THE PROPOSED CURBLINE
AND PROVIDE THE MINIMUM DEPTH ACCORDING TO NCDOT STANDARDS.

REVISIONS



ROADWAY DESIGN ENGINEER



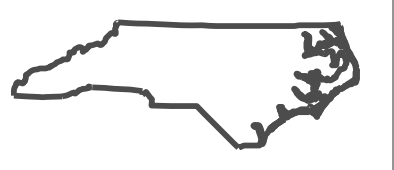
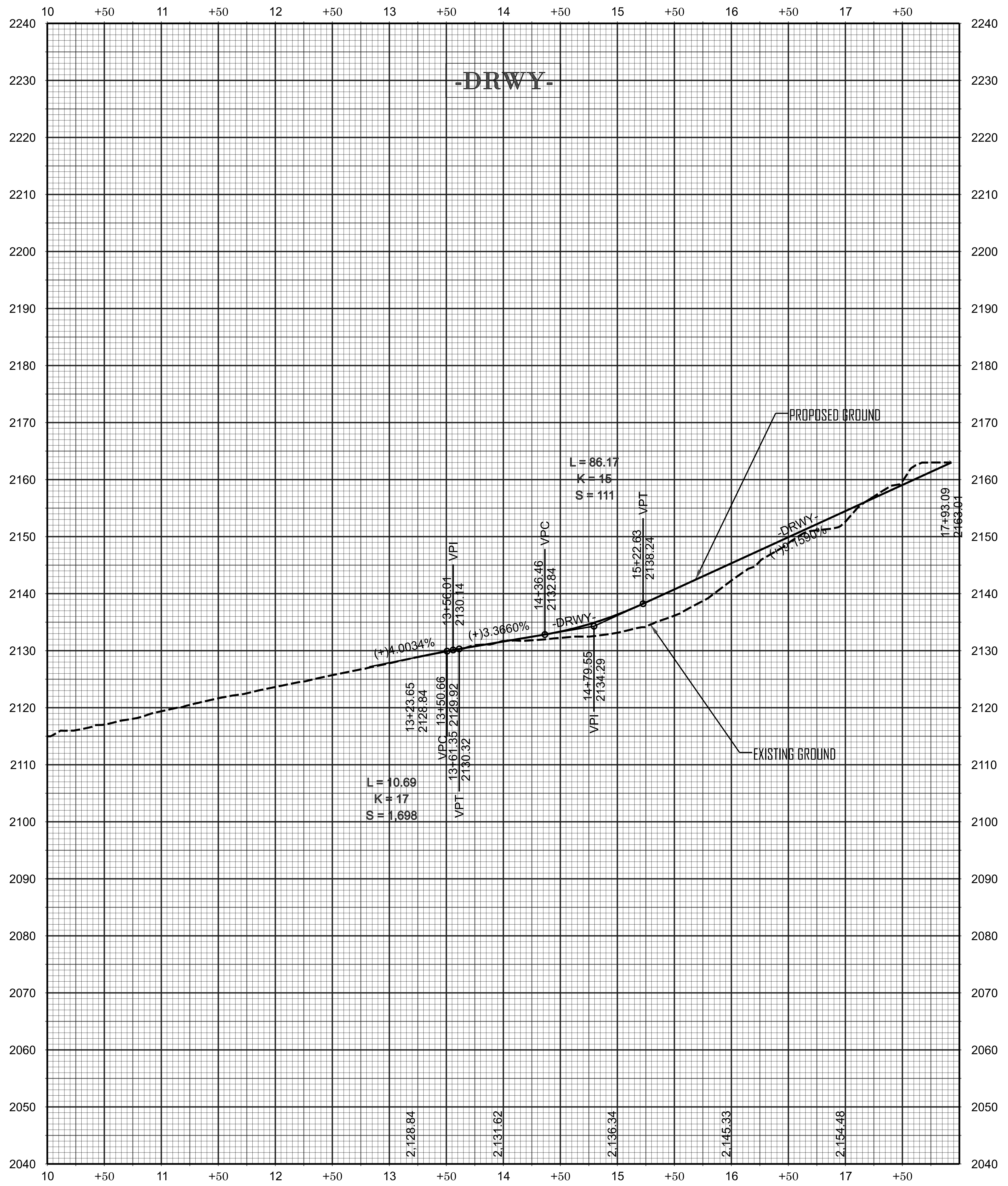
12/29/2021

HYDRAULICS ENGINEER

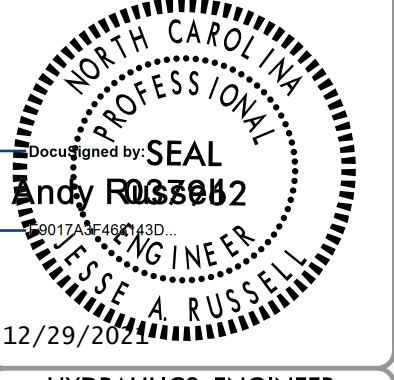


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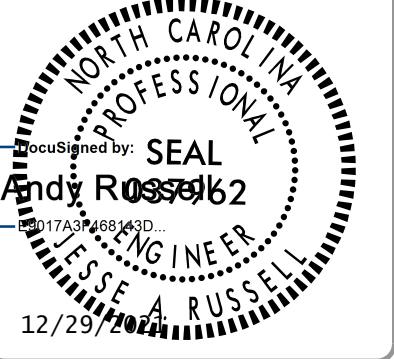
REVISIONS



ROADWAY DESIGN ENGINEER



HYDRAULICS ENGINEER

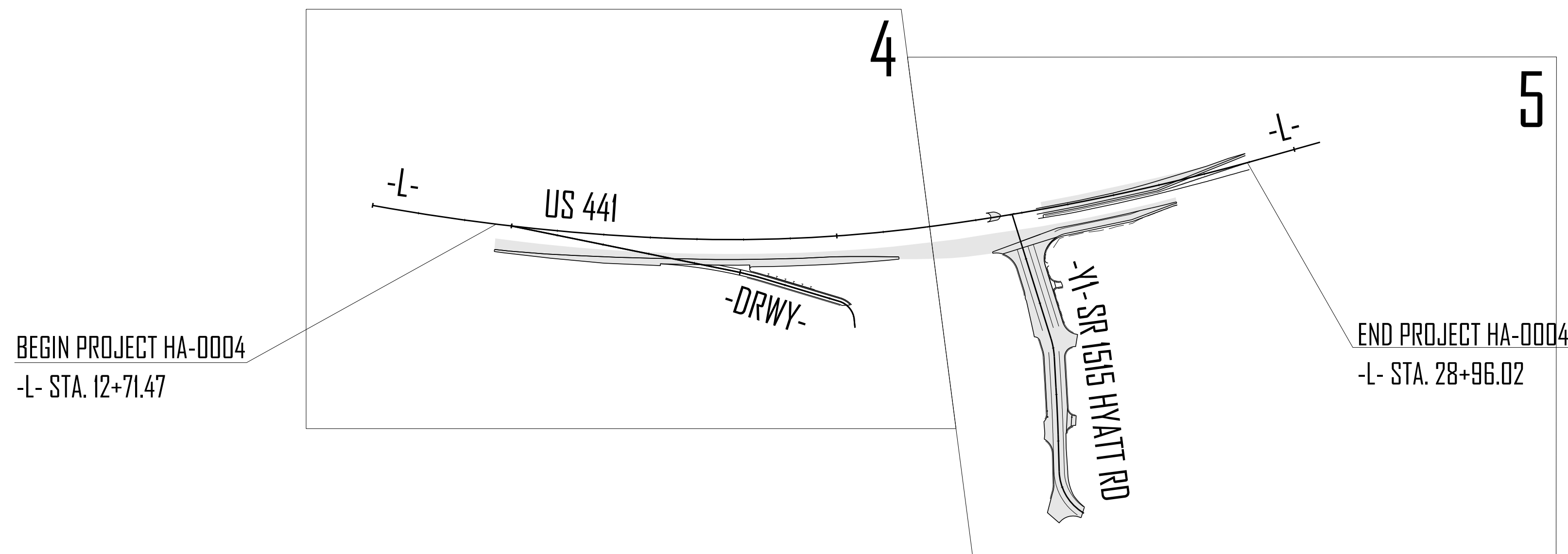
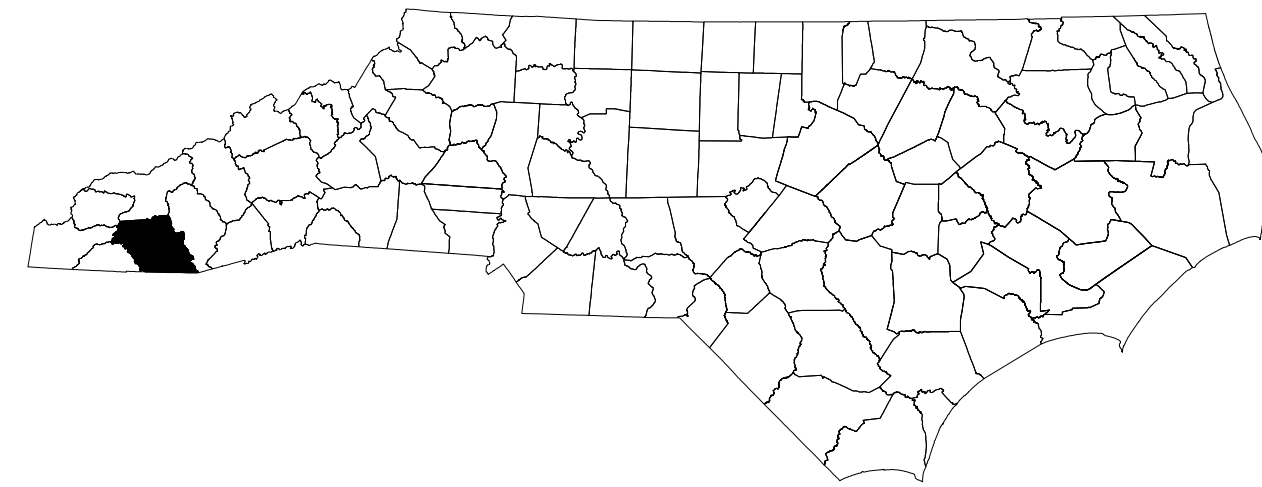


REVISIONS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

MACON COUNTY



INDEX OF SHEETS

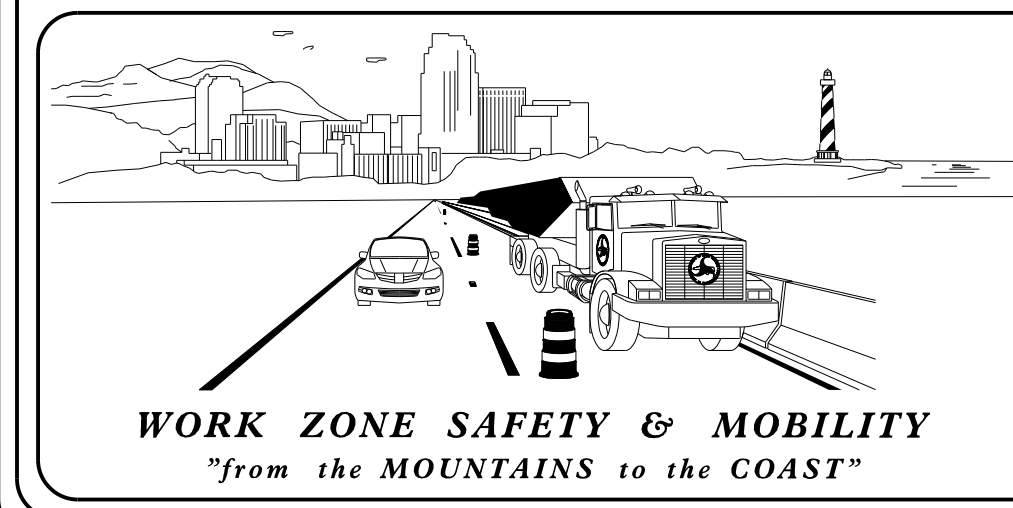
SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP, AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-2 THRU 3	TRAFFIC CONTROL PLAN SHEETS

SHEET NO.
TMP-1

HA-0004

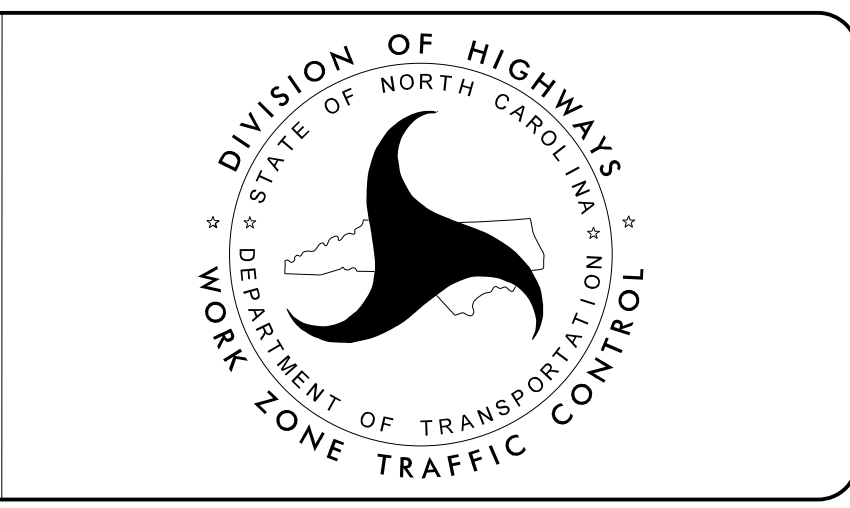
TIP PROJECT:

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



PLANS PREPARED BY:
DREW C. RIVENBARK, E.I.

NCDOT CONTACTS:
ANDY RUSSELL, P.E.
PROJECT ENGINEER
GARRETT B. HIGDON, E.I.
PROJECT DESIGN ENGINEER



APPROVED: _____
DATE: 12/29/2021

APPROVED: Andy Russell
DATE: 12/29/2021
SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 037962 JESSE A. RUSSELL

12/28/2021 C:\Users\text-dcr\IvenbarK\Documents\Franklin Ingles ARC\Standards\Traffic\Ingles.RDY_TMP.dgn User: text-dcr\IvenbarK

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN 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:

<u>STD. NO.</u>	<u>TITLE</u>
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
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
1160.01	TEMPORARY CRASH CUSHION
1165.01	WORK VEHICLE LIGHTING SYSTEMS AND TMA DELINEATION
1170.01	POSITIVE PROTECTION
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
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.07	PAVEMENT MARKINGS - PEDESTRIAN CROSSWALKS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1205.10	PAVEMENT MARKINGS - SCHOOL AREAS
1205.11	PAVEMENT MARKINGS - RAILROAD CROSSINGS
1205.12	PAVEMENT MARKINGS - BRIDGES
1205.13	PAVEMENT MARKINGS - LANE REDUCTIONS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

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

SIGNALS

- EXISTING
- PROPOSED
- TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

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

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

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

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

TEMPORARY PAVEMENT MARKING

I2/28/2021 C:\Users\jext-dcr\Documents\Traffic\Inglis\RDY_TMP.dgn User: jext-dcr

<p>APPROVED: </p> <p>DATE: 12/29/2021</p> <p style="text-align: center;">SEAL</p>			<h2>ROADWAY STANDARD DRAWINGS & LEGEND</h2>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

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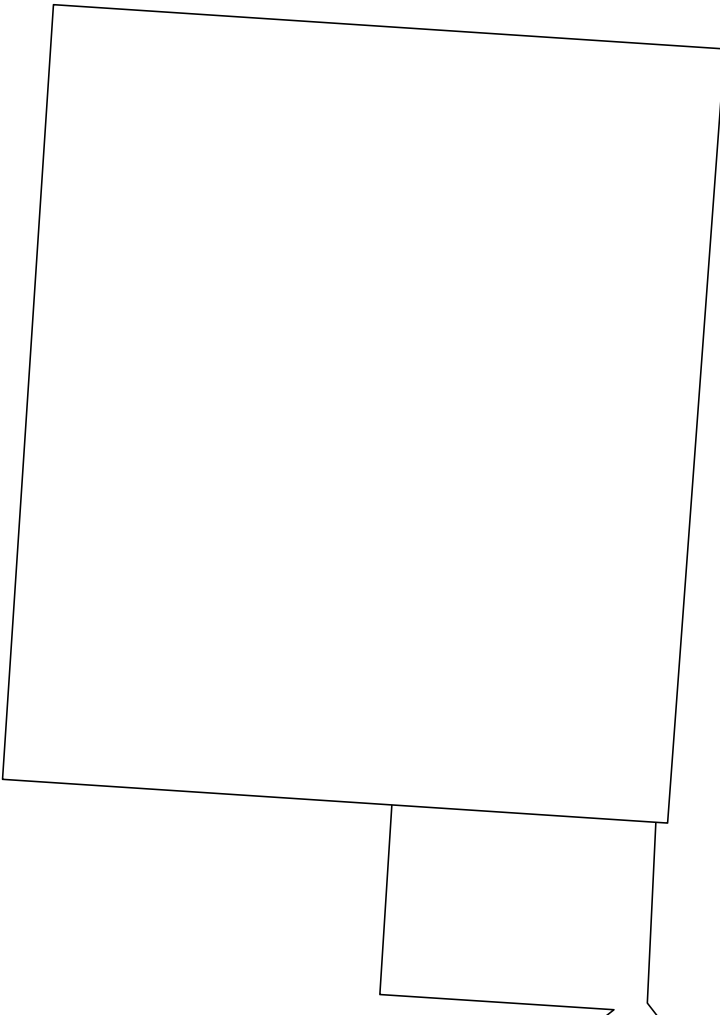
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INSTALL TRAFFIC CONTROL SIGNAGE AND TEMPORARY LANE CLOSURES
 PER NCDOT ROADWAY STANDARD DRAWINGS STD 101.01 SHEET 2 OF 3
 AND 101.02 SHEET 3 OF 14



MATCH LINE -L- STA. 22+00 SEE SHEET TMP-3

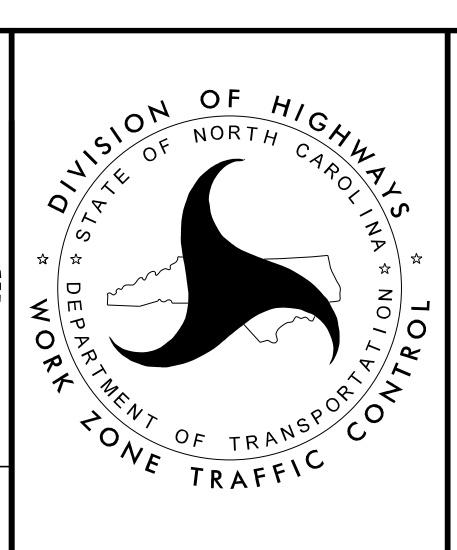
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APPROVED: Andy Russell
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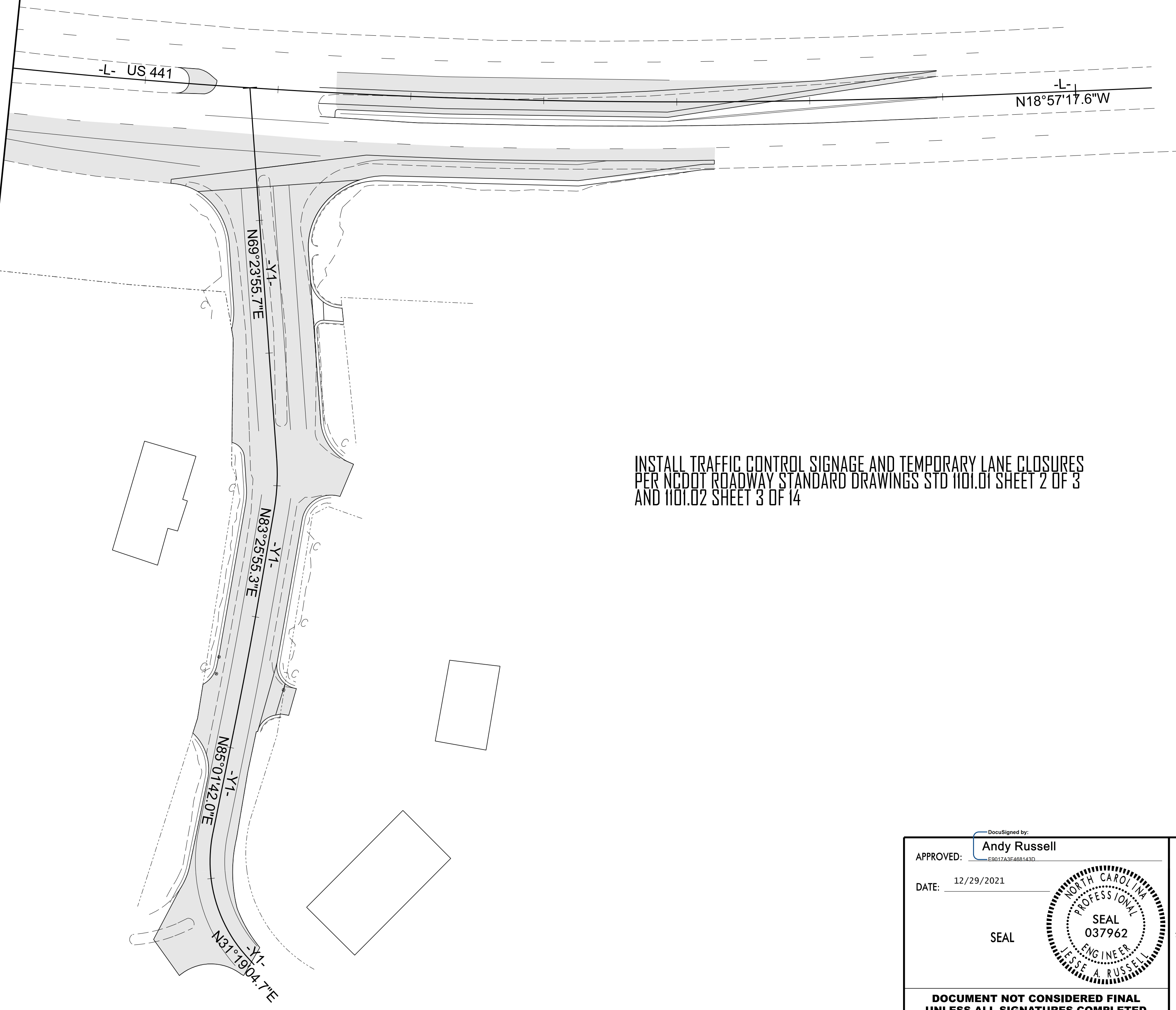
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**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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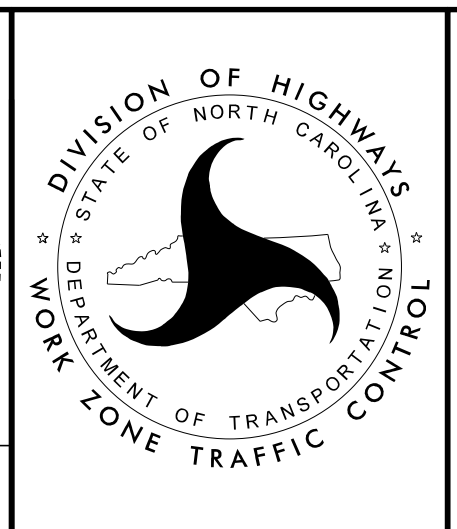
INSTALL TRAFFIC CONTROL SIGNAGE AND TEMPORARY LANE CLOSURES PER NCDOT ROADWAY STANDARD DRAWINGS STD 1101.01 SHEET 2 OF 3 AND 1101.02 SHEET 3 OF 14

12/28/2021
 User: jrd...
 User: jrd...
 User: jrd...

APPROVED: **Andy Russell**
E9027A3E468143D

DATE: 12/29/2021

SEAL



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

PROJECT: HA-0004

CONTRACT: DN00765

STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
 PAVEMENT MARKING PLAN
MACON COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HA-0004	PMP1	3
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49761.1.1	0441017	PE	
49761.3.1	0441017	CONSTRUCTION	

INDEX OF SHEETS

SHEET NUMBER	SHEET
PMP-1	TITLE SHEET
PMP-2 THRU PMP-3	PROPOSED PAVEMENT MARKINGS

ROADWAY STANDARD DRAWINGS

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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

GENERAL NOTES: 2018 SPECIFICATIONS

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.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	NON CAST IRON SNOWPLOWABLE

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

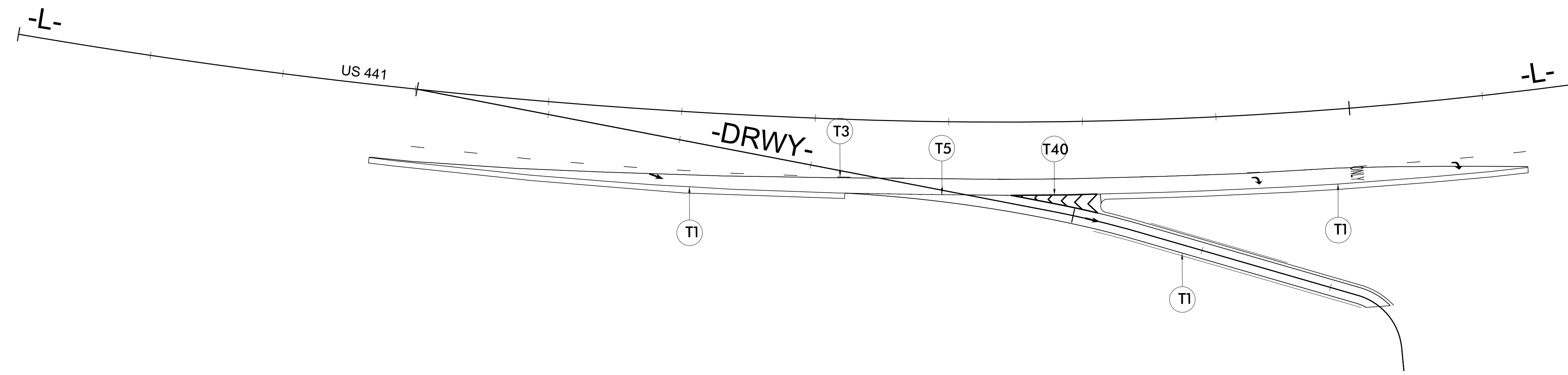
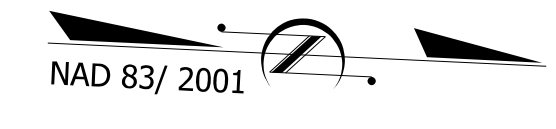
C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS BY THE END OF EACH DAY'S OPERATION.

PAVEMENT MARKINGS

SYMBOL	DESCRIPTION
T1	WHITE EDGELINE (4", 60 MIL)
T2	WHITE SOLID LANE LINE (4", 60 MIL)
T3	10 FT. WHITE SKIP (4", 60 MIL)
T5	2 FT. - 6 FT./SP WHITE MINISKIP (4", 60 MIL)
T13	YELLOW DOUBLE CENTER (4", 60 MIL)
T40	WHITE GORELINE (8", 90 MIL)
T61	WHITE STOP BAR (24", 90 MIL)

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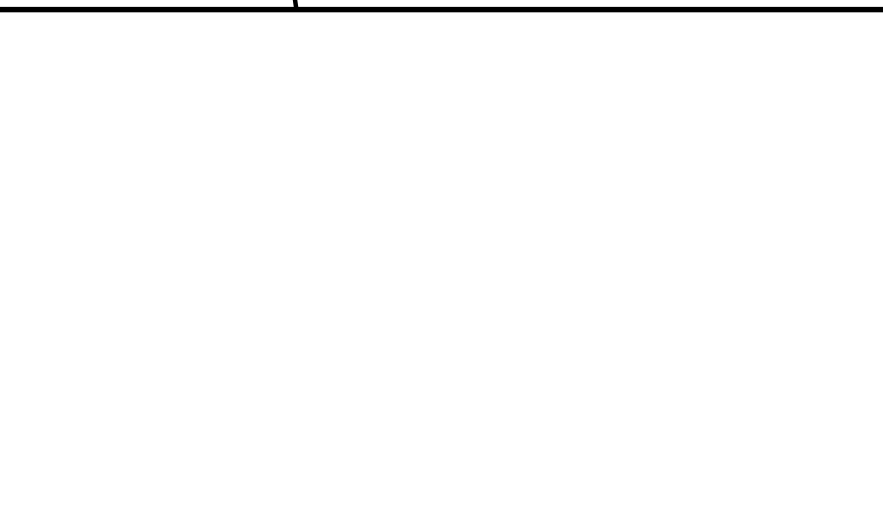
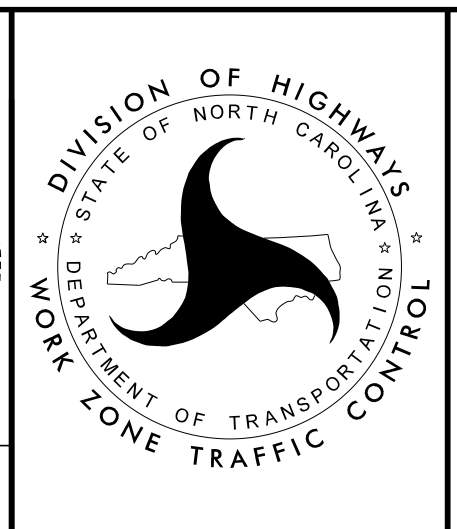
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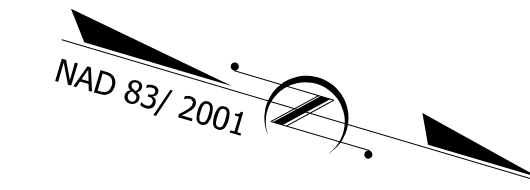
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DocuSigned by:
Andy Russell
 APPROVED: E9017A3F466143D
 DATE: 12/29/2021

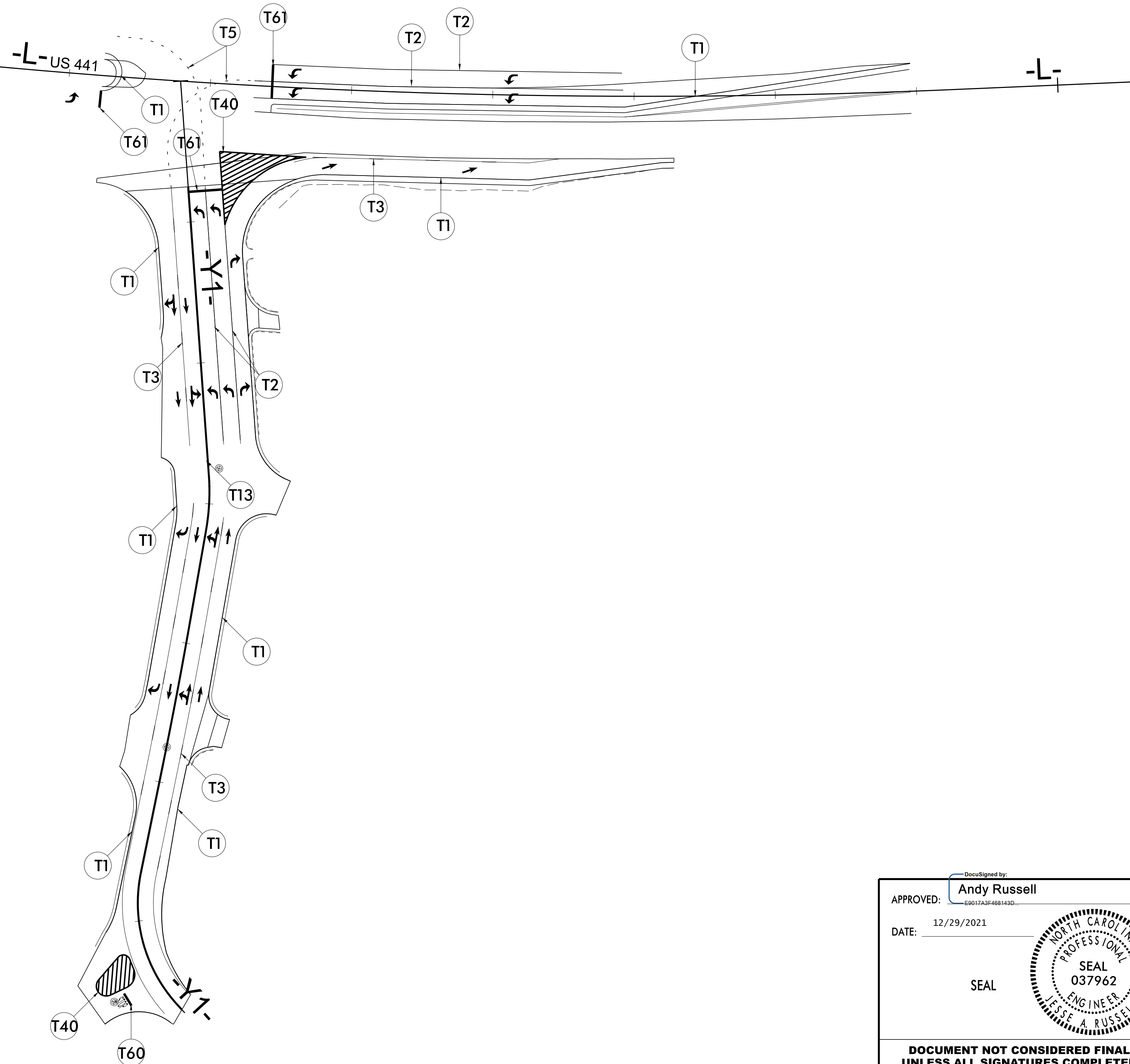
SEAL

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





MATCH LINE -L- STA 22+00 SEE SHEET PMP-2



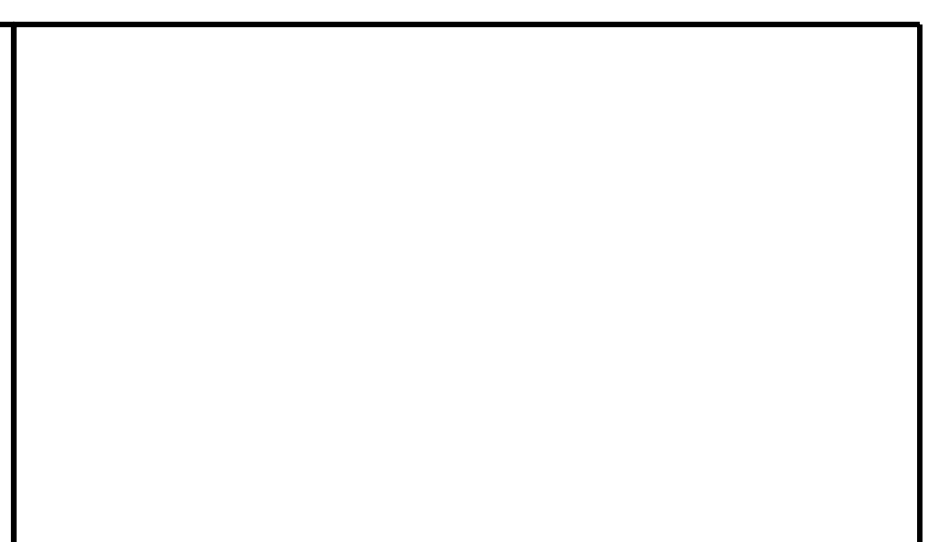
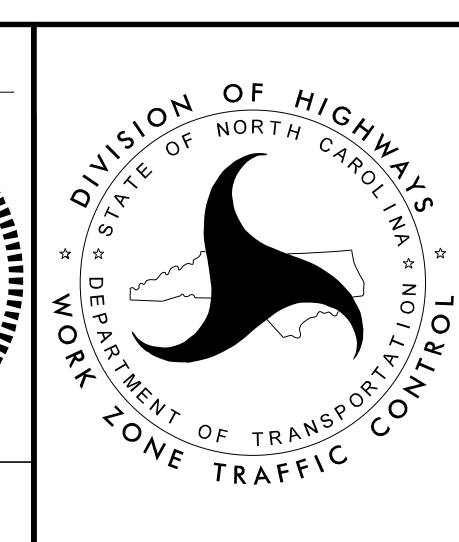
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APPROVED: Andy Russell
DocuSigned by:
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DATE: 12/29/2021

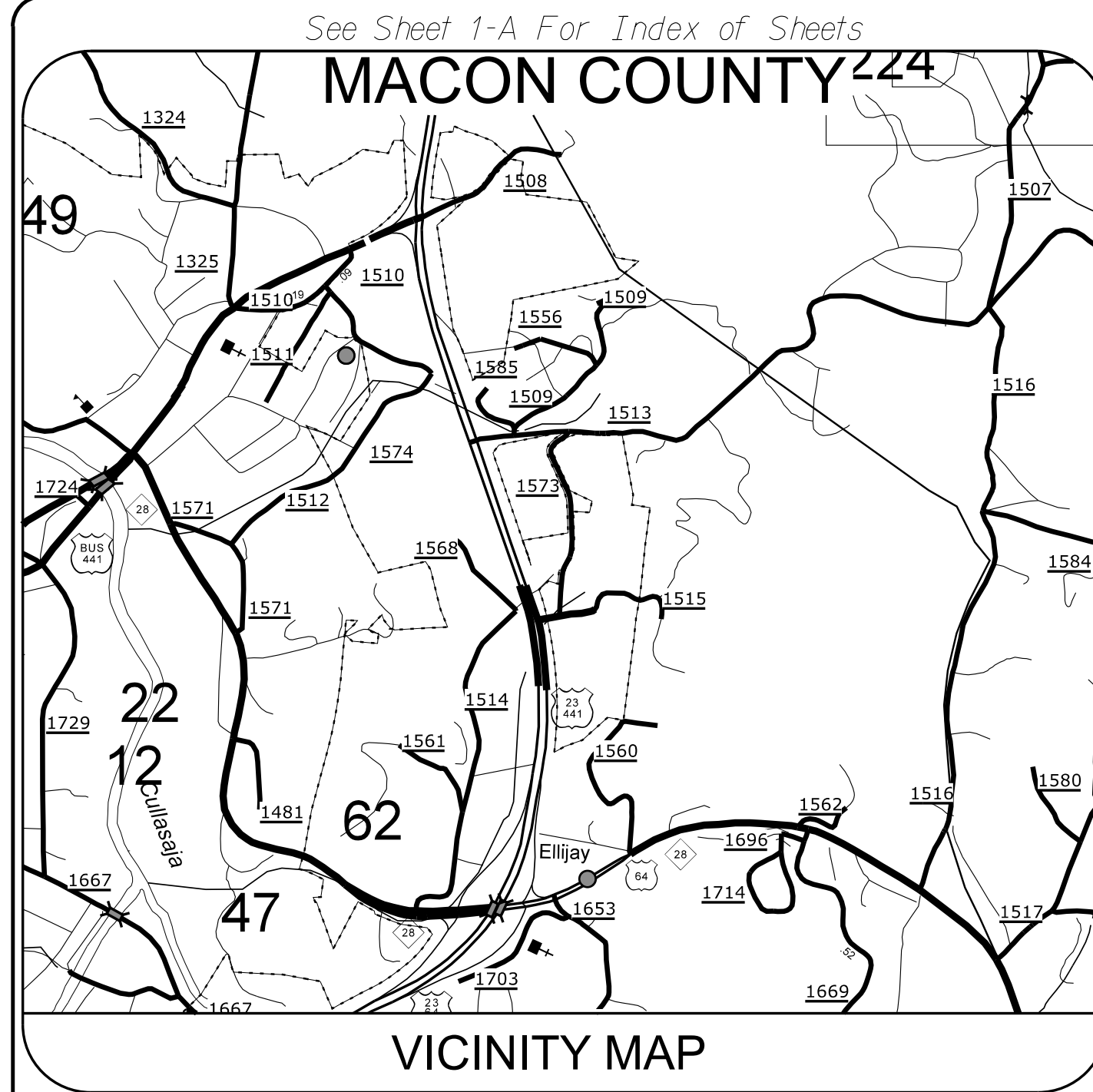
SEAL

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



TIP PROJECT: HA-0004

CONTRACT: DN00765



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

MACON COUNTY

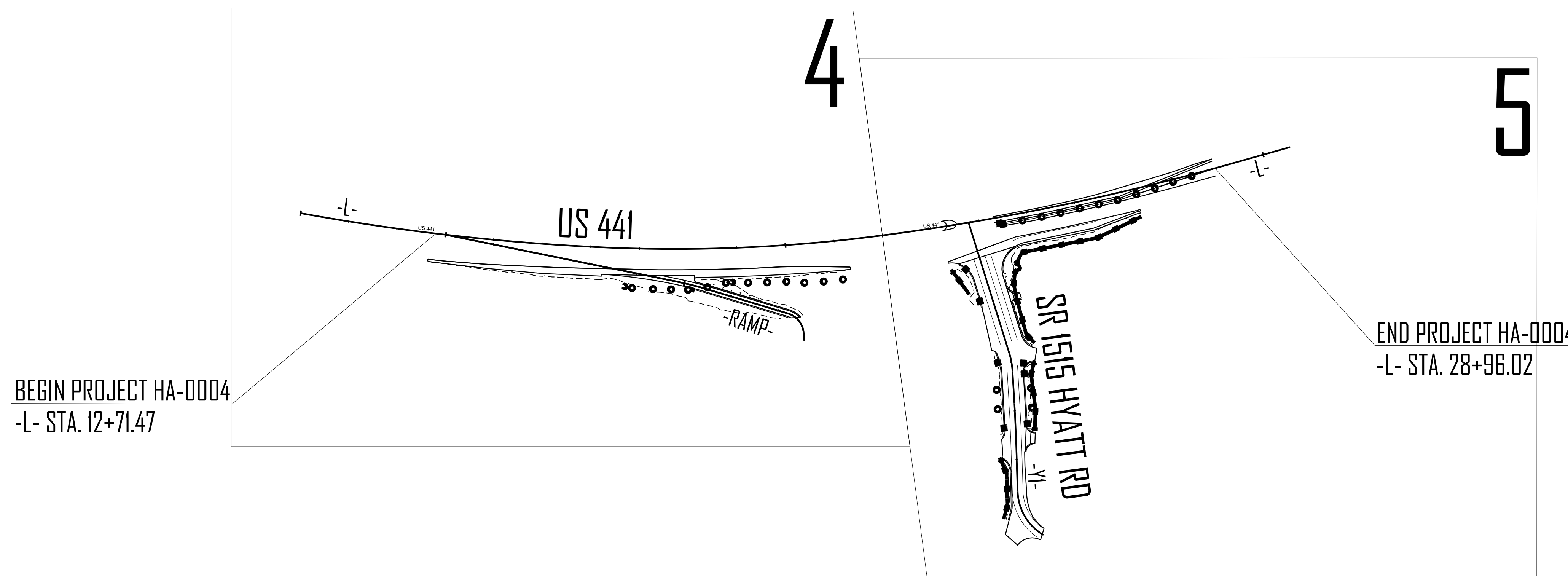
LOCATION: US 441 / SR 1515 (HYATT ROAD) INTERSECTION

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HA-0004	EC-1	6
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49761.1.1	0441017	PE	
49761.3.1	0441017	CONSTRUCTION	

EROSION AND SEDIMENT CONTROL MEASURES

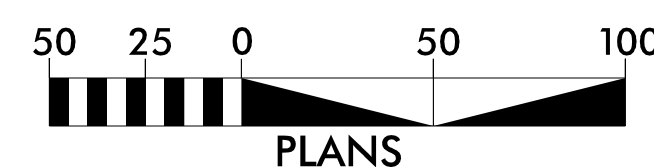
Std. #	Description	Symbol
	Streambank Reforestation	
1630.03	Temporary Silt Ditch	
1630.05	Temporary Diversion	
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.01	Riser Basin	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	
1632.02	Type B	
1632.03	Type C	
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	



DREW C RIVENBARK, E.I.
LEVEL IIIA NAME

4342
LEVEL IIIA CERTIFICATION NO.

GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:
DIVISION OF HIGHWAYS
253 WEBSTER RD., SYLVA NC, 28779

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

ANDY RUSSELL, PE
PROJECT ENGINEER

LETTING DATE:

02/22/2022

GARRETT B HIGDON, EI
PROJECT DESIGN ENGINEER

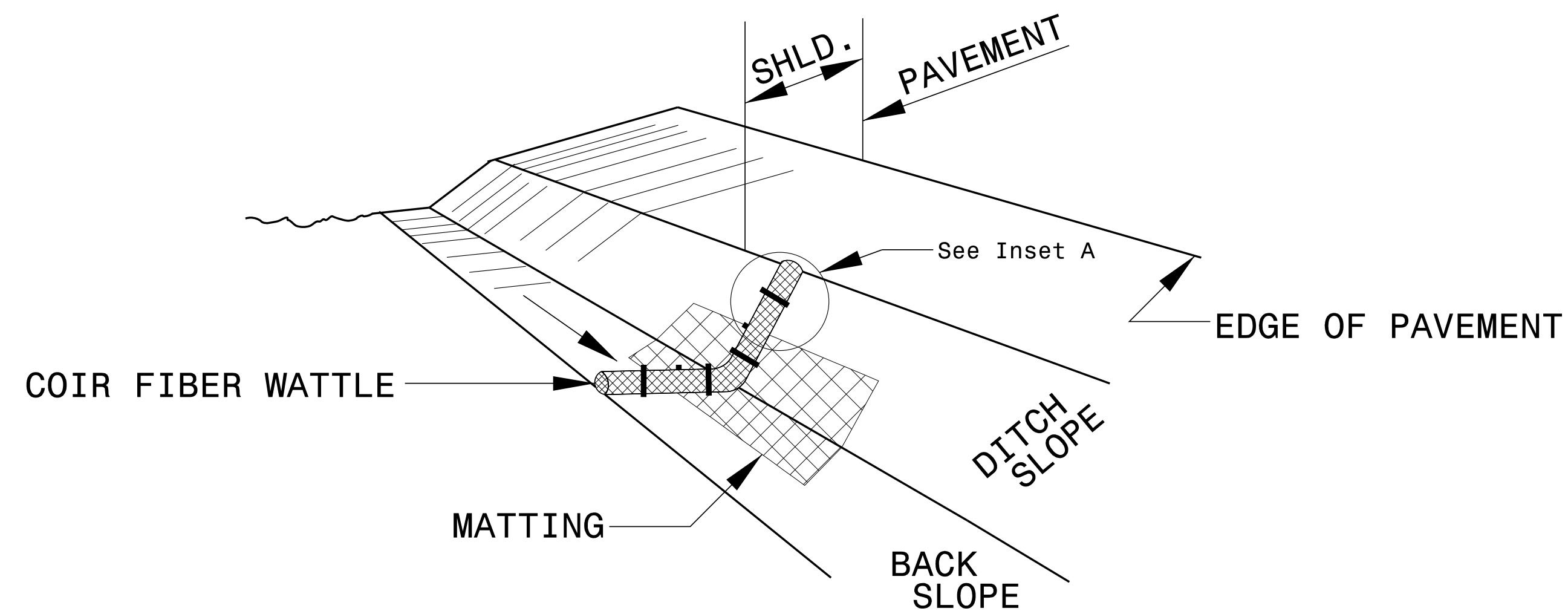
Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

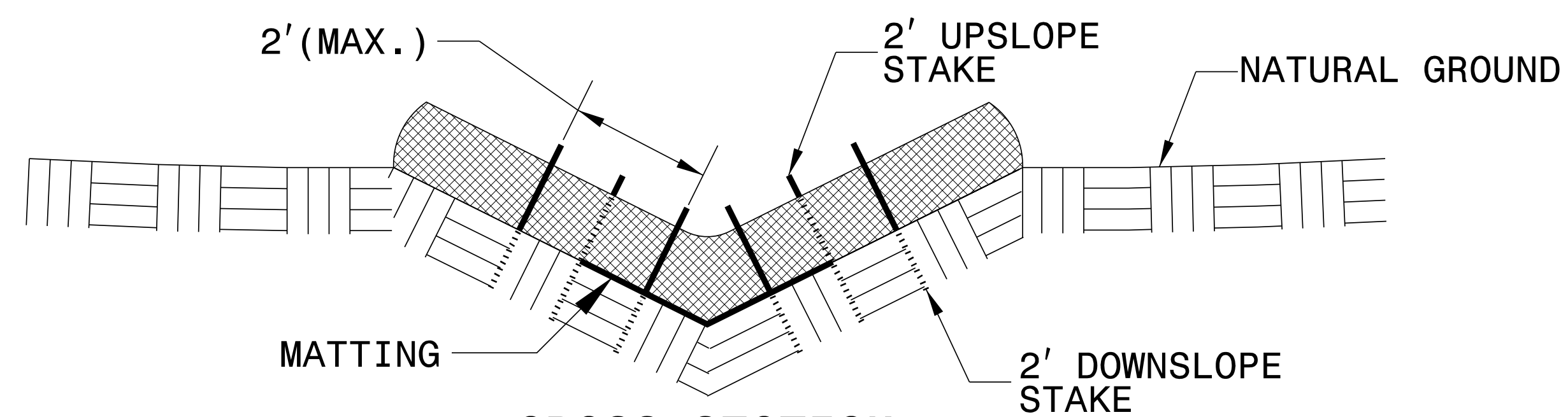
1604.01 Railroad Erosion Control Detail	1632.01 Rock Inlet Sediment Trap Type A
1605.01 Temporary Silt Fence	1632.02 Rock Inlet Sediment Trap Type B
1606.01 Special Sediment Control Fence	1632.03 Rock Inlet Sediment Trap Type C
1607.01 Gravel Construction Entrance	1633.01 Temporary Rock Silt Check Type A
1622.01 Temporary Berms and Slope Drains	1633.02 Temporary Rock Silt Check Type B
1630.01 Riser Basin	1634.01 Temporary Rock Sediment Dam Type A
1630.02 Silt Basin Type B	1634.02 Temporary Rock Sediment Dam Type B
1630.03 Temporary Silt Ditch	1635.01 Rock Pipe Inlet Sediment Trap Type A
1630.04 Stilling Basin	1635.02 Rock Pipe Inlet Sediment Trap Type B
1630.05 Temporary Diversion	1640.01 Coir Fiber Jaffle
1630.06 Special Stilling Basin	1645.01 Temporary Stream Crossing
1631.01 Matting Installation	

PROJECT REFERENCE NO. HA-0004	SHEET NO. EC-2
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

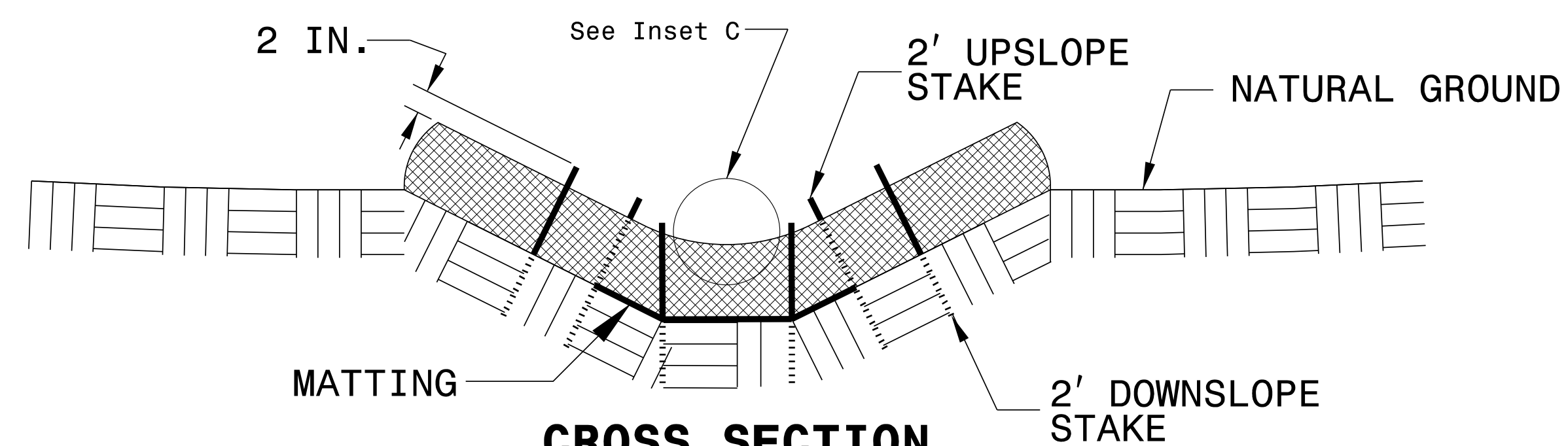
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW

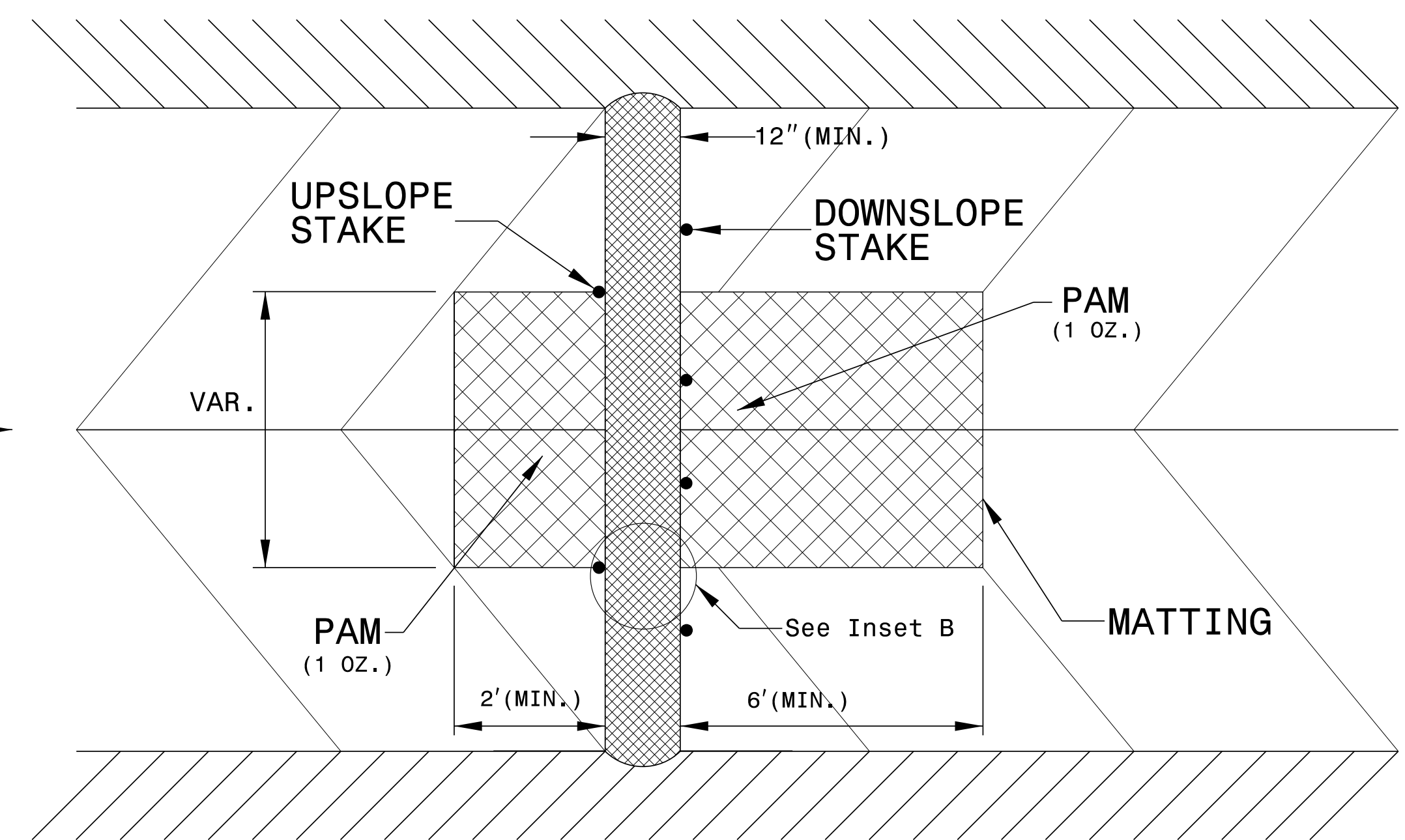
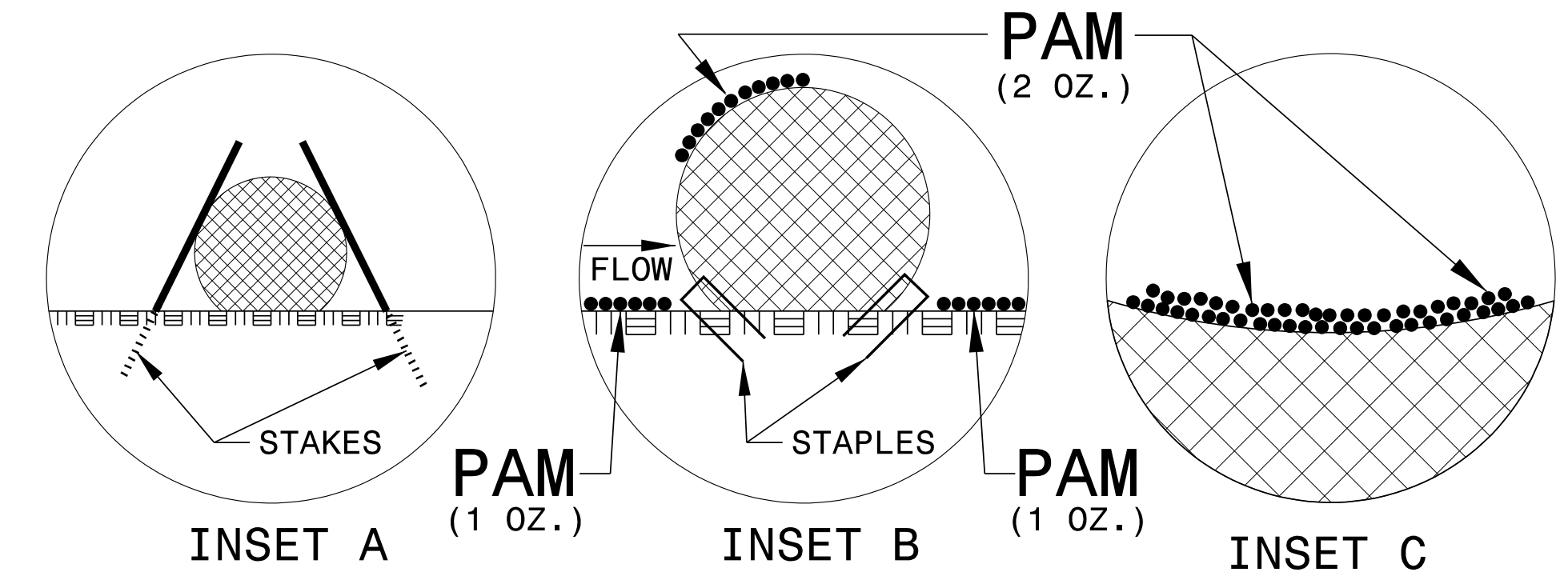


CROSS SECTION VEE DITCH



CROSS SECTION TRAPEZOIDAL DITCH

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



TOP VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO. <i>HA-0004</i>	SHEET NO. <i>EC-3A</i>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.

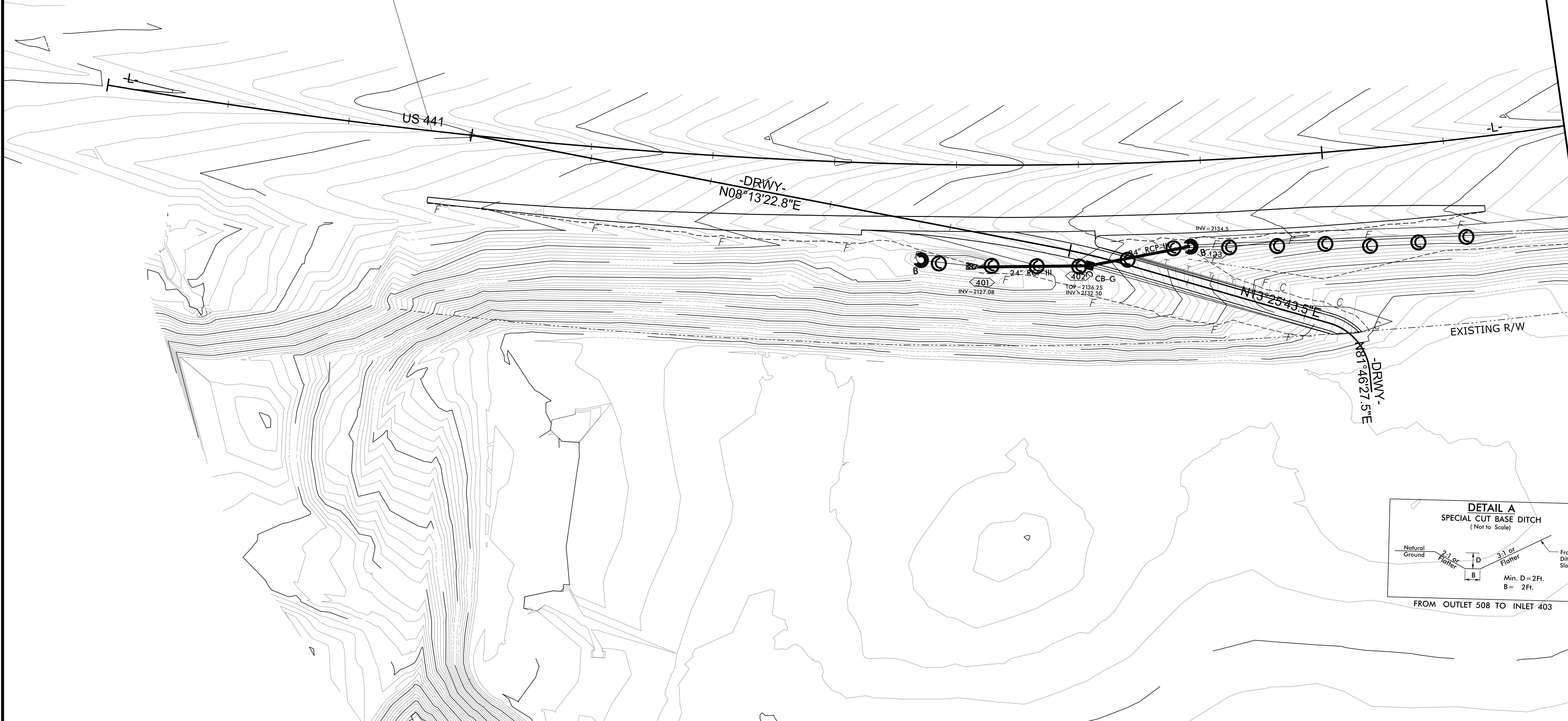
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PROJECT REFERENCE NO.		SHEET NO.	
HA-0004		EC-4/CONST.4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	

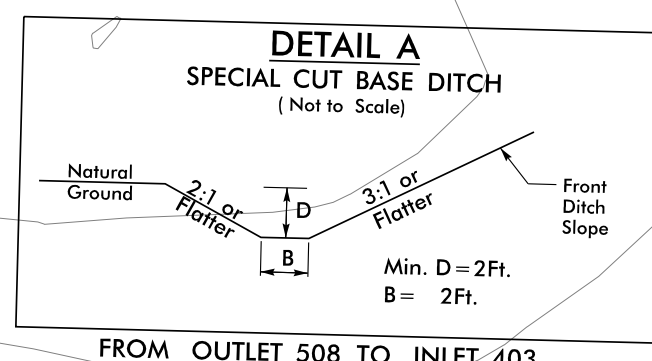
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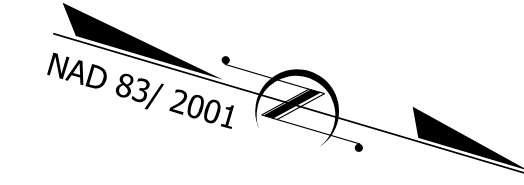
BEGIN PROJECT HA-0004
 -L- STA. 12+71.47



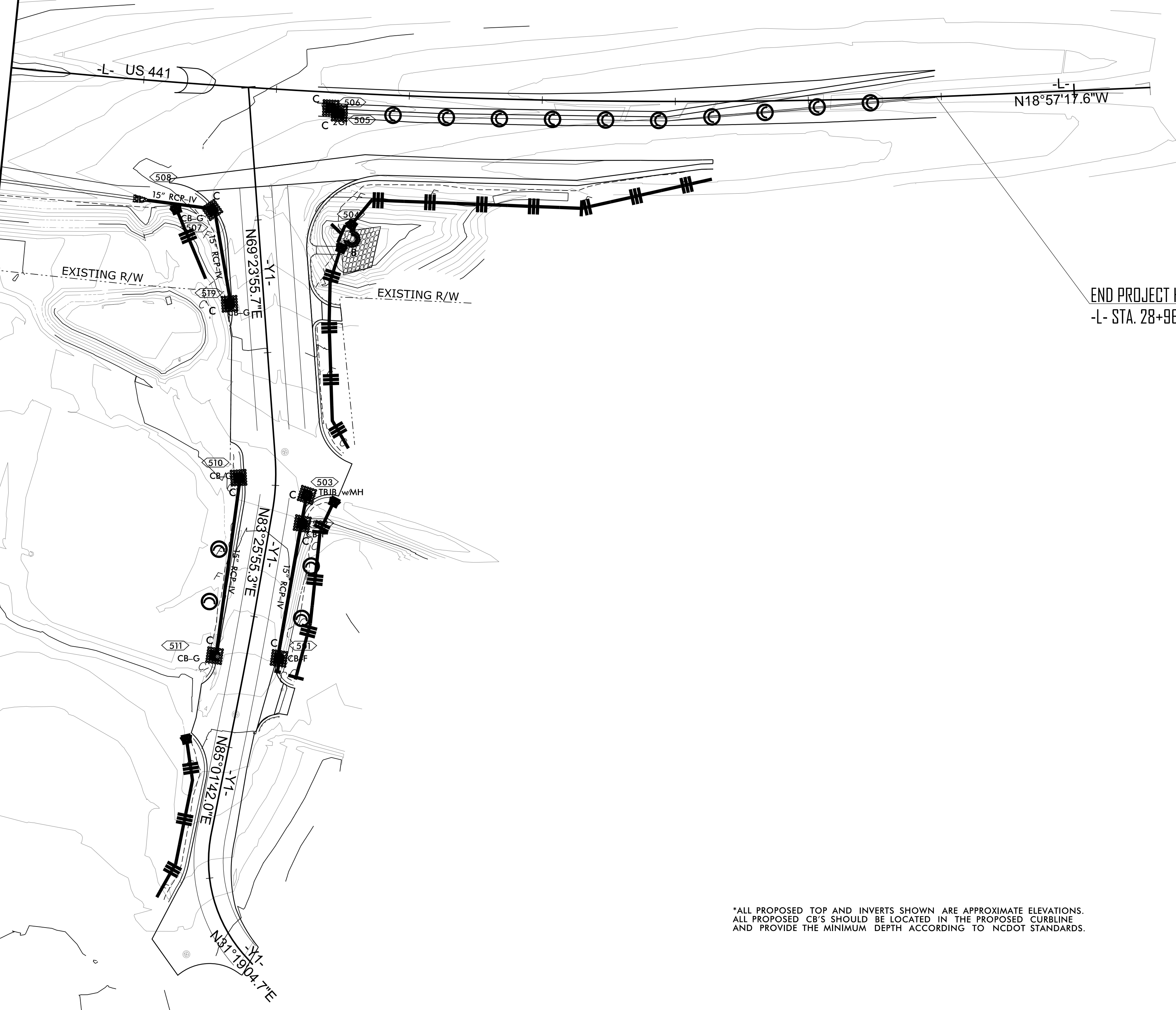
MATCH LINE -L- STA. 22+00 SEE SHEET 5



PROJECT REFERENCE NO. <i>HA-0004</i>	SHEET NO. <i>EC-5/CONST.5</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



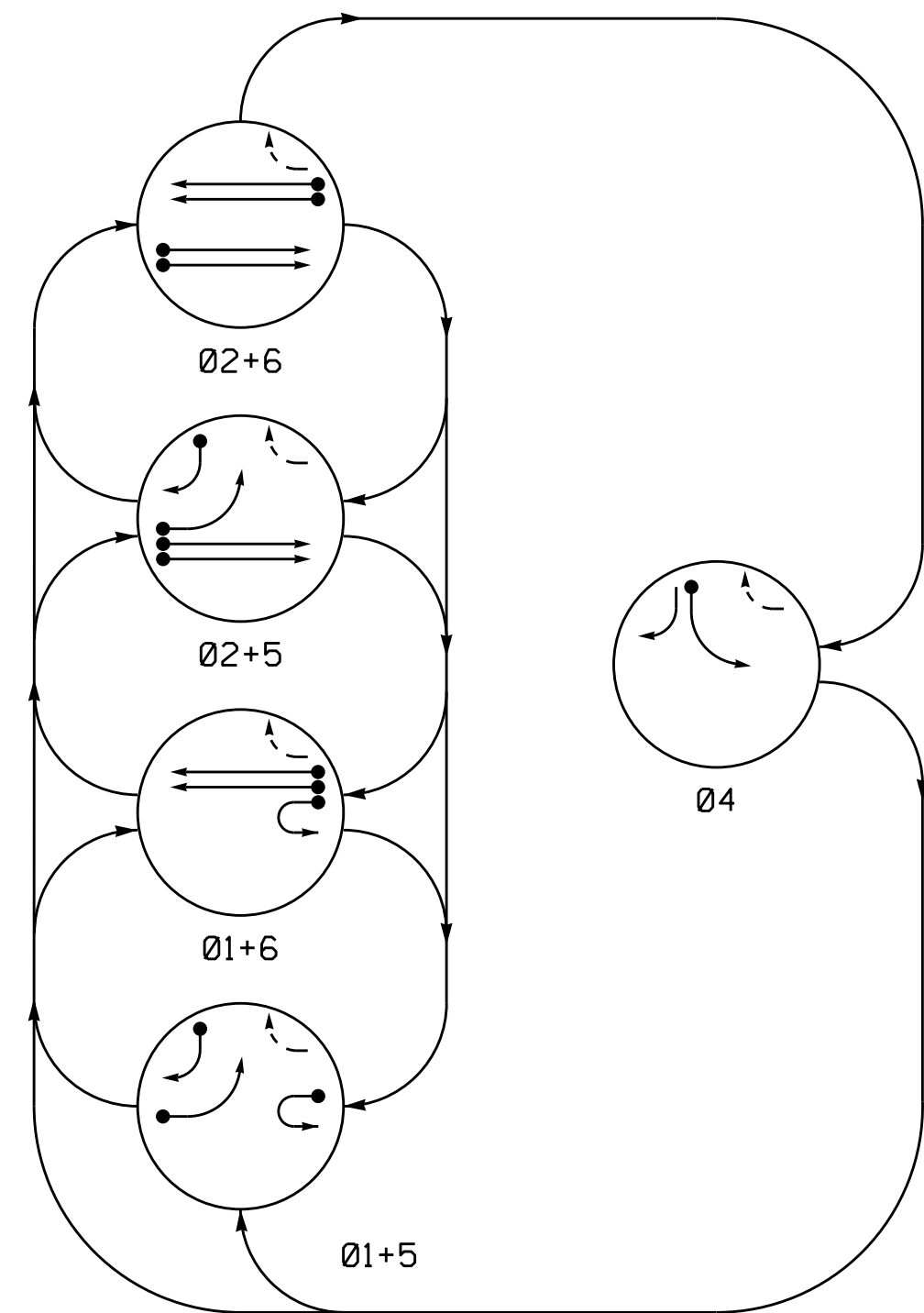
MATCH LINE -L- STA 22+00 SEE SHEET 4



END PROJECT HA-0004
-L- STA. 28+96.02

*ALL PROPOSED TOP AND INVERTS SHOWN ARE APPROXIMATE ELEVATIONS.
ALL PROPOSED CB'S SHOULD BE LOCATED IN THE PROPOSED CURBLINE
AND PROVIDE THE MINIMUM DEPTH ACCORDING TO NCDOT STANDARDS.

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

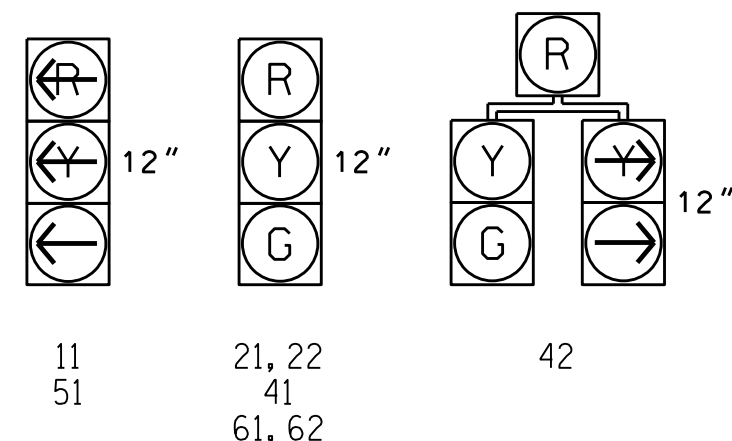
EV PREEMPT PHASES (Medium Priority)



PRE 3 (04)

SIGNAL FACE I.D.

All Heads L.E.D.



SIGNAL FACE	PHASE							
	01+5	01+6	02+5	02+6	04	EV P	EV S	EV H
11	---	---	---	---	---	---	---	---
21, 22	R	R	G	G	R	R	Y	
41	R	R	R	R	G	G	R	
42	R	R	R	R	G	G	R	
51	---	---	---	---	---	---	---	---
61, 62	R	G	R	G	R	Y		

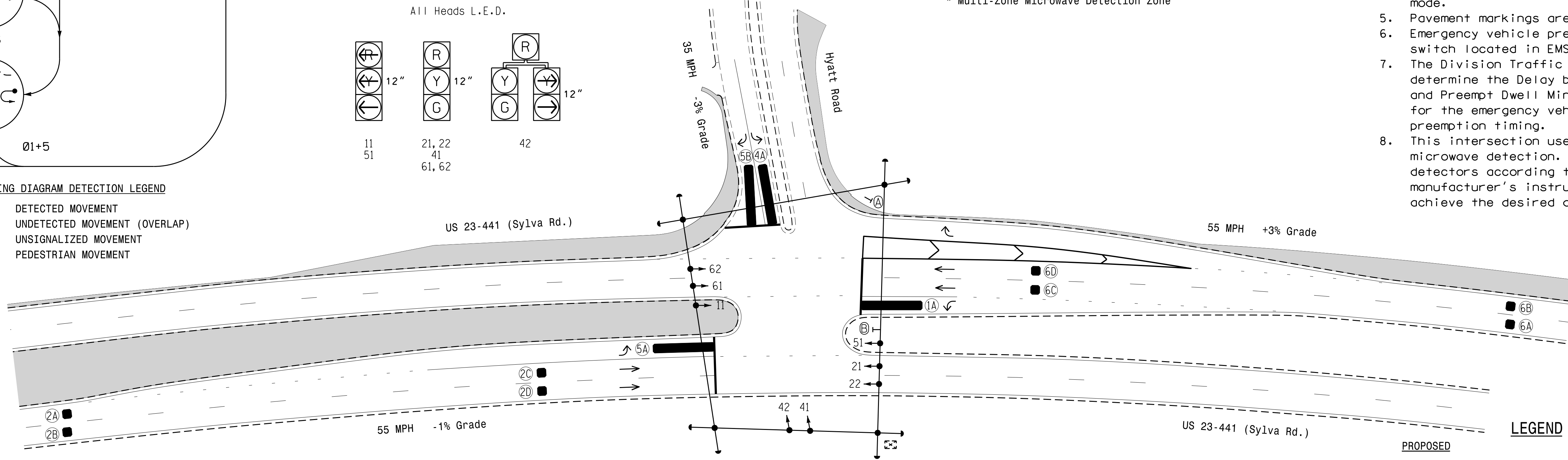
LOOP	INDUCTIVE LOOPS				DETECTOR PROGRAMMING							
	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A*	6X40	0	*	Y	1	Y	Y	-	-	-	-	-
2A*	6X6	420	*	Y	2	Y	Y	-	2.2	-	-	-
2B*	6X6	420	*	Y	2	Y	Y	-	-	-	-	-
2C*	6X6	110	*	Y	2	Y	Y	-	-	-	-	-
2D*	6X6	110	*	Y	2	Y	Y	-	-	-	-	-
4A*	6X40	0	*	Y	4	Y	Y	-	-	-	-	-
5A*	6X40	0	*	Y	5	Y	Y	-	-	-	-	-
5B*	6X40	0	*	Y	5	Y	Y	-	-	20	-	-
6A*	6X6	420	*	Y	6	Y	Y	-	2.2	-	-	-
6B*	6X6	420	*	Y	6	Y	Y	-	2.2	-	-	-
6C*	6X6	110	*	Y	6	Y	Y	-	-	-	-	-
6D*	6X6	110	*	Y	6	Y	Y	-	-	-	-	-

* Multi-Zone Microwave Detection Zone

5 Phase Fully Actuated w/ Emergency Vehicle Preemption 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.
- Set all detector units to presence mode.
- Pavement markings are existing.
- Emergency vehicle preemption switch located in EMS Station.
- The Division Traffic Engineer will determine the Delay before Preempt and Preempt Dwell Min Green time for the emergency vehicle preemption timing.
- This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.

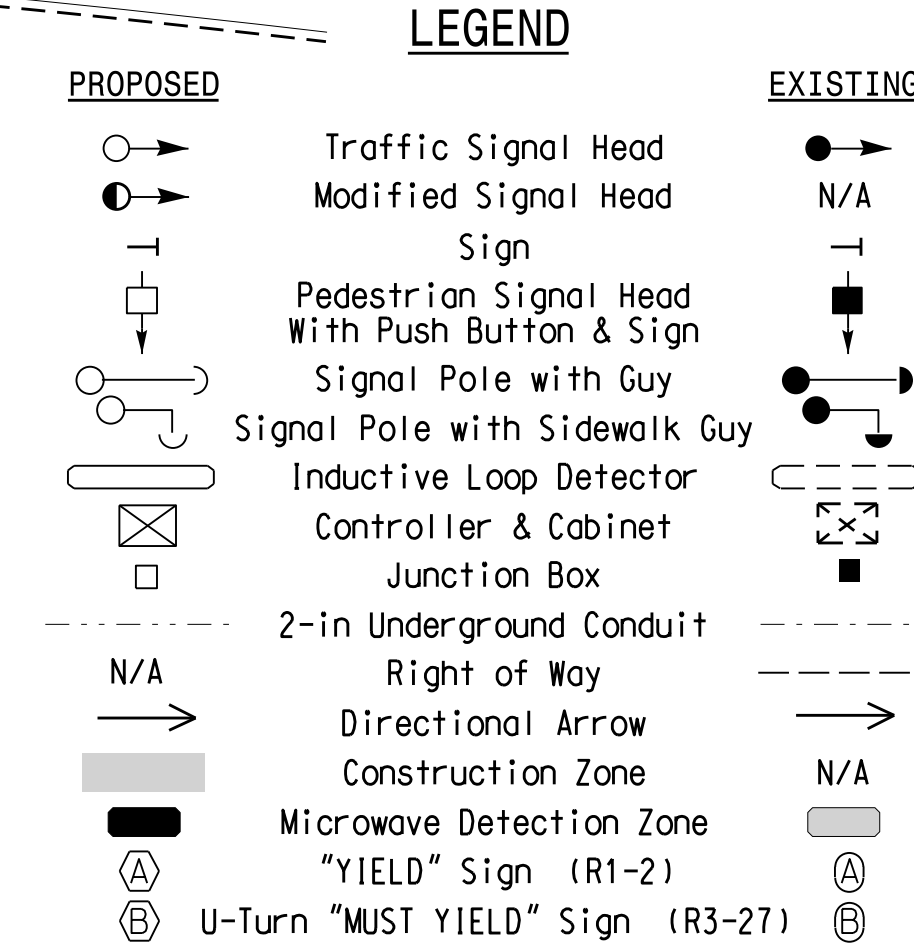


FEATURE	PHASE				
	1	2	4	5	6
Min Green 1*	7	14	7	7	14
Extension 1*	2.0	2.0	2.0	2.0	2.0
Max Green 1*	25	90	30	35	90
Yellow Clearance	3.0	5.3	3.0	3.0	5.3
Red Clearance	3.5	1.2	3.3	3.1	1.2
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1*	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation*	-	-	-	-	-
Max Variable Initial*	-	-	-	-	-
Time Before Reduction*	-	-	-	-	-
Time To Reduce*	-	-	-	-	-
Minimum Gap	-	-	-	-	-
Recall Mode	-	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	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.

FUNCTION	PRE 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	2, 6
Priority	MEDIUM
Delay Time	#
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	#
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit
See Note 7



Signal Upgrade - Temporary Design

US 23-441 (Sylva Rd.) at Hyatt Road

Division 14 Macon County Franklin

PLAN DATE: November 2021 REVIEWED BY: T.J. Williams

PREPARED BY: R.N. Zinser REVIEWED BY:

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 1" = 40'

REVISIONS: INIT. DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043914 RICHARD N. ZINSER

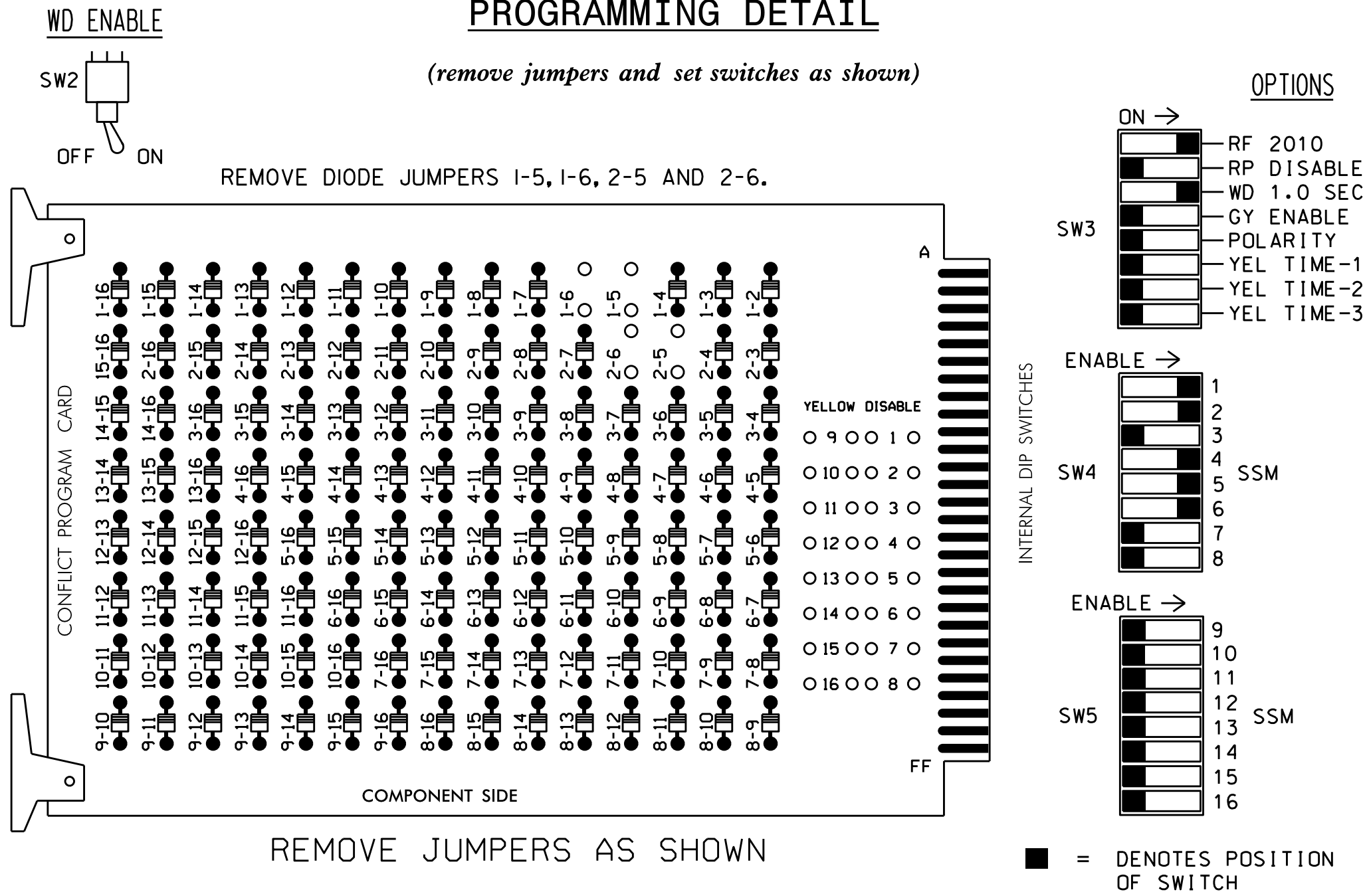
Dec 15, 2021

SIG. INVENTORY NO. 14-09551

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EDI MODEL 2010ECL CONFLICT MONITOR

PROGRAMMING DETAIL



- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - Make sure jumpers SEL2-SEL5 are present on the monitor board.

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.
- To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Startup In Green.
- Program phases 2 and 6 for Yellow Flash.
- If this signal will be monitored by an ATMS software, enable controller and detector logging for all detectors used at this location.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22	NU	NU	41,42	NU	42	51	61,62	NU	NU	NU
RED		128			101				134			
YELLOW		129			102				135			
GREEN		130			103				136			
RED ARROW	125							131				
YELLOW ARROW	126						132	132				
GREEN ARROW	127						133	133				

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S4,S5,S6
 PHASES USED.....1,2,4,5,6
 OVERLAPS.....NONE

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

PREEMPTION #	INTERVAL/TIMING	GRN	YEL	RED	SETTINGS (NEXT:1-10)	CLEAR/DWELL PHASES
1	255 0.0 0.0					12345678910111213141516
2	0 0.0 0.0					X
3	0 0.0 0.0					
4	0 0.0 0.0					
5	1 0.0 0.0				X X	

EXIT CALLS

OPTIONS

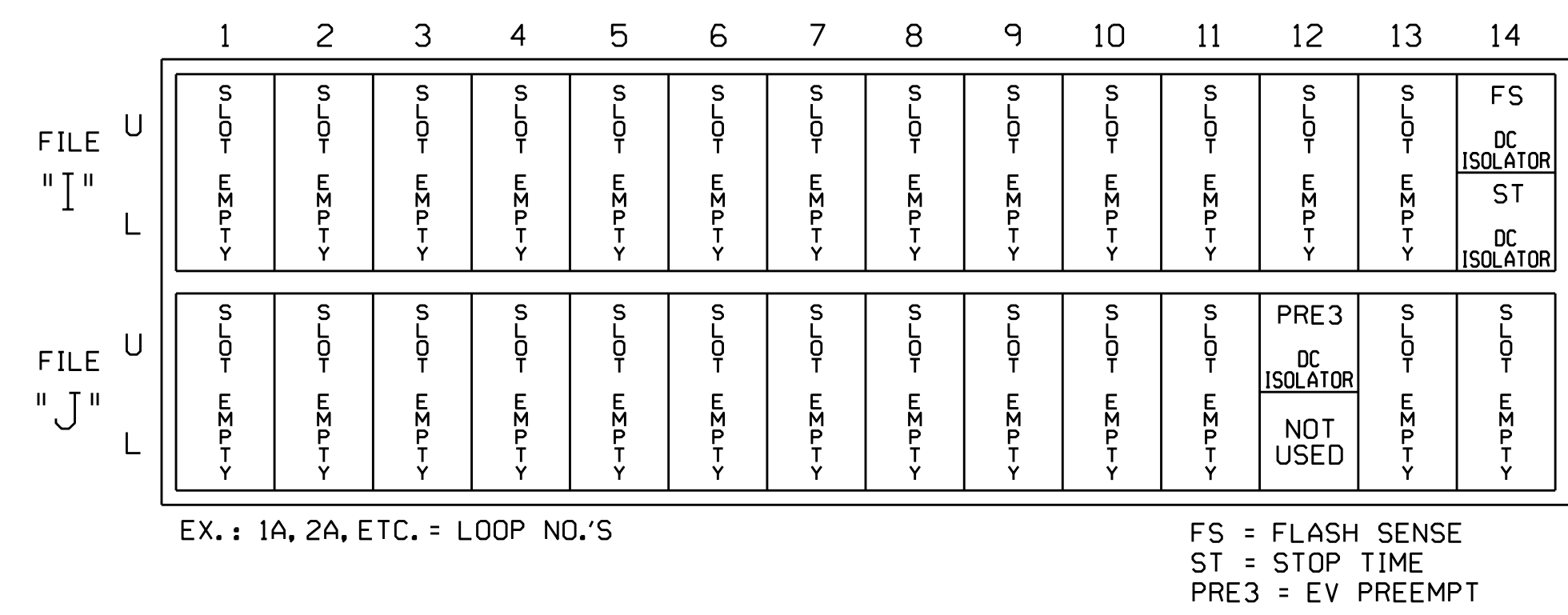
PRIORITY (Y/N TO SELECT)MED
 DELAY TIMER (0-255 SEC)*
 MIN GREEN BEFORE PRE (0= DEFAULT)...1
 PED CLEAR BEFORE PRE (0= DEFAULT)...0
 YELLOW CLEAR BEFORE PRE (0= DEFAULT)...0.0
 RED CLEAR BEFORE PRE (0= DEFAULT)...0.0
 DWELL MIN TIMER (0-255 SEC)*
 DWELL MAX TIMER (0=OFF,1-255MIN)0
 DWELL HOLD-OVER TIMER (0-255)0
 LATCH CALL?Y
 LINK TO NEXT PREEMPT?N
 ENABLE BACKUP PROTECTION?N
 HOLD CLEAR 1 PHASES DURING DELAY? ...Y
 FAST GREEN FLASH DWELL PHASES?N
 PED CLEARANCE THROUGH YELLOW?N
 INHIBIT OVERLAP GREEN EXTENSION? ...N
 SERVICE DURING SOFTWARE FLASH?N
 REST IN RED DURING DWELL INTERVAL? ..N
 FLASH DWELL INTERVAL?N
 ALLOW PEDS IN DWELL INTERVAL?N
 RE-TIME DWELL INTERVAL?Y
 OVERLAPS: ABCDEFGHIJKLMNPO
 DWELL INT FLASH YELLOWY
 OMIT OVERLAPS:

* Denotes timing to be determined in field.

Program 2.0 sec Extend Time on Optical Detection Unit.

INPUT FILE POSITION LAYOUT

(front view)

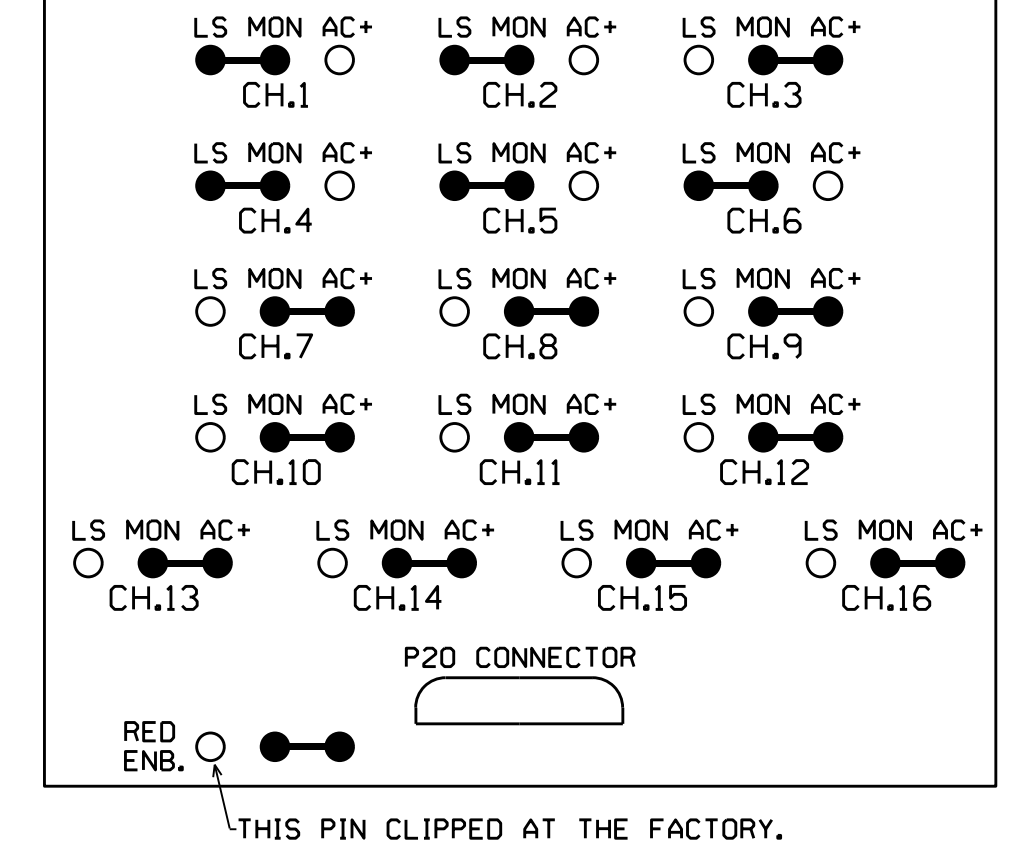


SPECIAL DETECTOR NOTE

Install a multizone microwave detection system for vehicle detection. Perform installation according to manufacturer's directions and NCDOT engineer approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

RED MONITOR BOARD PROGRAMMING

(position jumpers as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0955T
 DESIGNED: November 2021
 SEALED: 12/15/2021
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

Electrical AND PROGRAMMING DETAILS FOR: US 23-441 (Sylva Rd.) at Hyatt Road

Prepared In the Offices of: G.L. Transportation, Mobility and Safety Division, NORTH CAROLINA DEPARTMENT OF TRANSPORTATION, Signal Management Section, 750 N. Greenfield Pkwy, Garner, NC 27529

Division 14 Macon County Franklin

PLAN DATE: December 2021 REVIEWED BY:

PREPARED BY: S. Armstrong REVIEWED BY:

REVISIONS INIT. DATE

DocuSigned by: Ryan W. Hough Dec 15, 2021

SIG. INVENTORY NO. 14-0955T

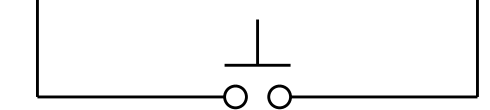
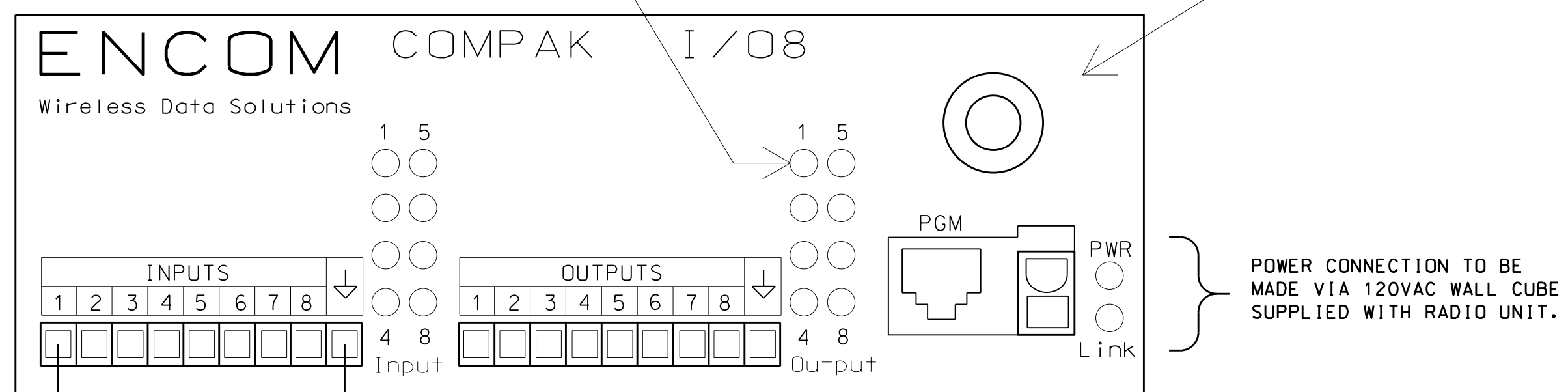
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: RYAN W. HOUGH, PROFESSIONAL ENGINEER, SEAL 036833

14-0955-2021 1P13 S:\IT\SAS\14-0955\Sig\Monitor\Projects\14-0955.dwg Project:14-0955_sml.ele_xxx.dgn somstrong

EMS STATION

OUTPUT 1 INDICATOR IS USED TO CONFIRM THAT THE PREEMPT ACTIVATION SIGNAL FROM THE FIRE STATION WAS RECEIVED BY THE CABINET UNIT AND WILL REMAIN ILLUMINATED FOR THE DURATION OF THE PREEMPTION SEQUENCE.

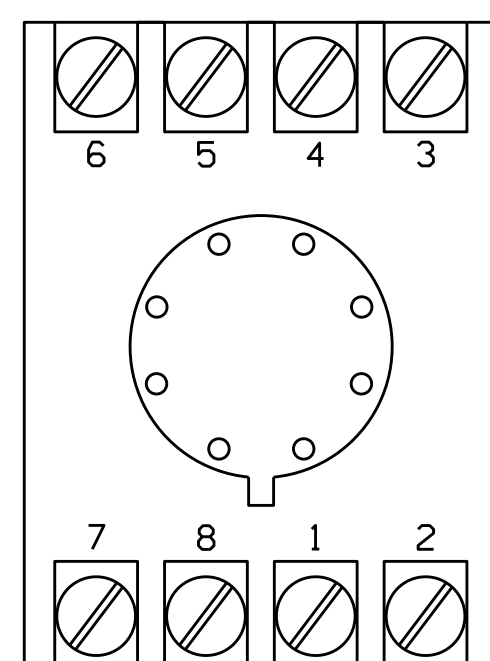


Preempt push button in fire station (momentary, N.O.)

NOTES:

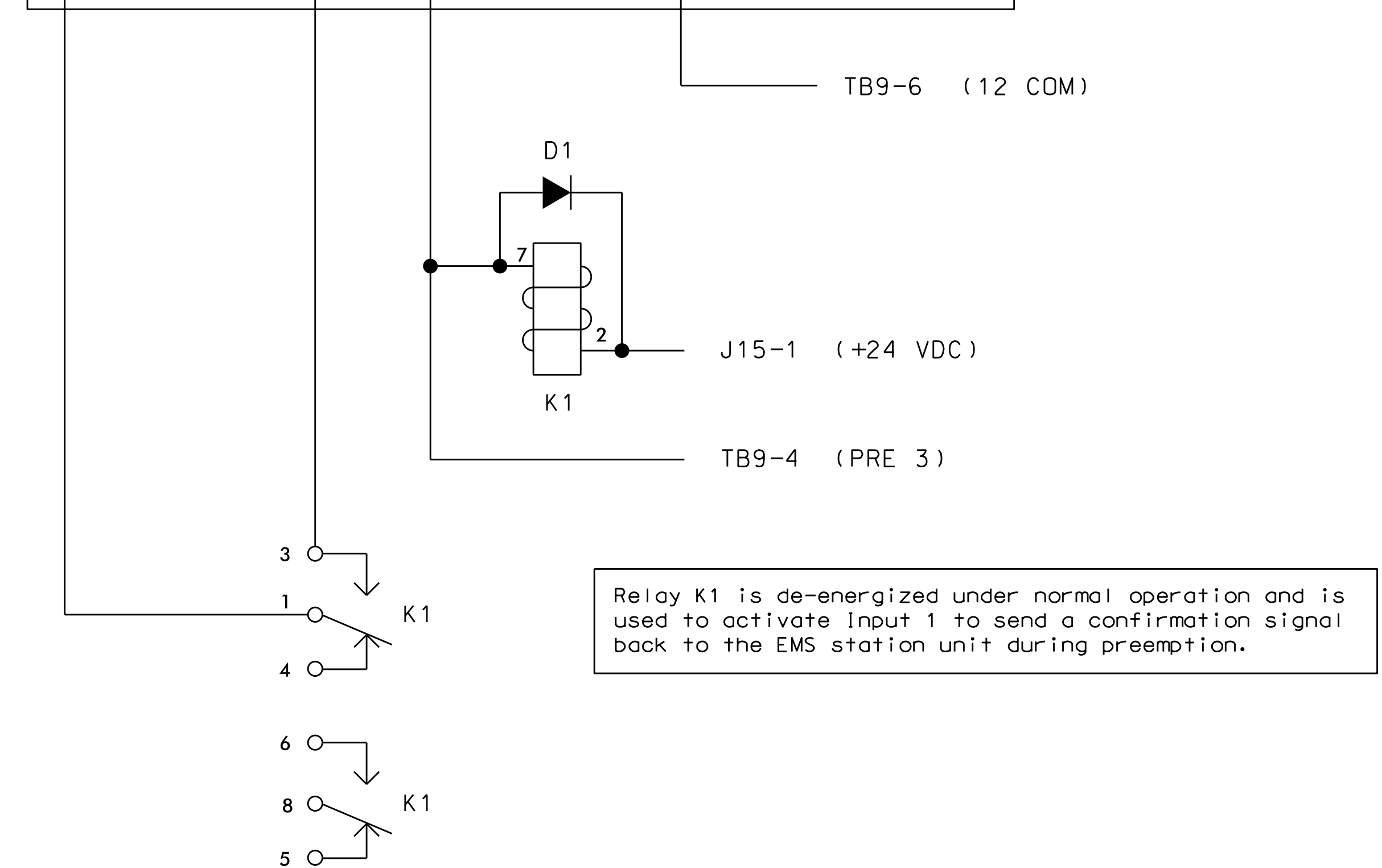
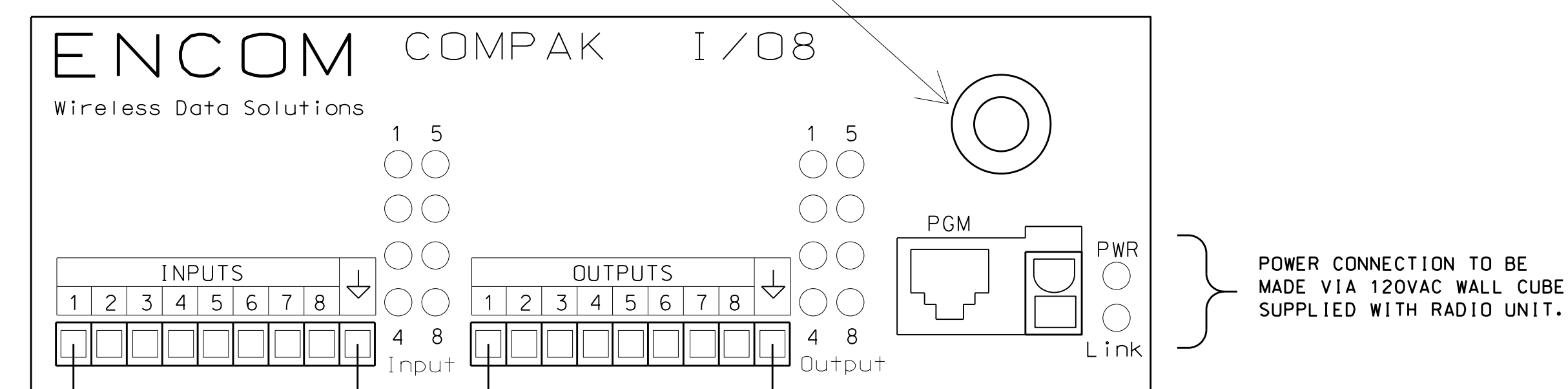
1. Relay K1 is an enclosed DPDT general purpose relay with 24VDC coil, P&B NO. KRPA11DG-24, (DOT MATERIAL NO. 625028605). Use 8 pin base, P&B NO. 27E122, (DOT NO. 625028630).
2. Diode D1 is rated at 600piv, 1 amp (minimum), recommended part no. 1N 4005.
3. Add a jumper from TB9-6 (12 COM) to T3-4 (DC GND).
4. Unless otherwise programmed, all output LED indications will only stay "ON" for as long as the button is being pressed. If longer "ON" time is desired, see the ENCOM user manual Advanced I/O Configuration section for 'Output Hold Delay' programming instructions.

RELAY OCTAL BASE TERMINAL LOCATIONS



CABINET

DO NOT OPERATE RADIO WITHOUT AN ANTENNA CONNECTED AS DAMAGE TO THE TRANSMITTER MAY RESULT.



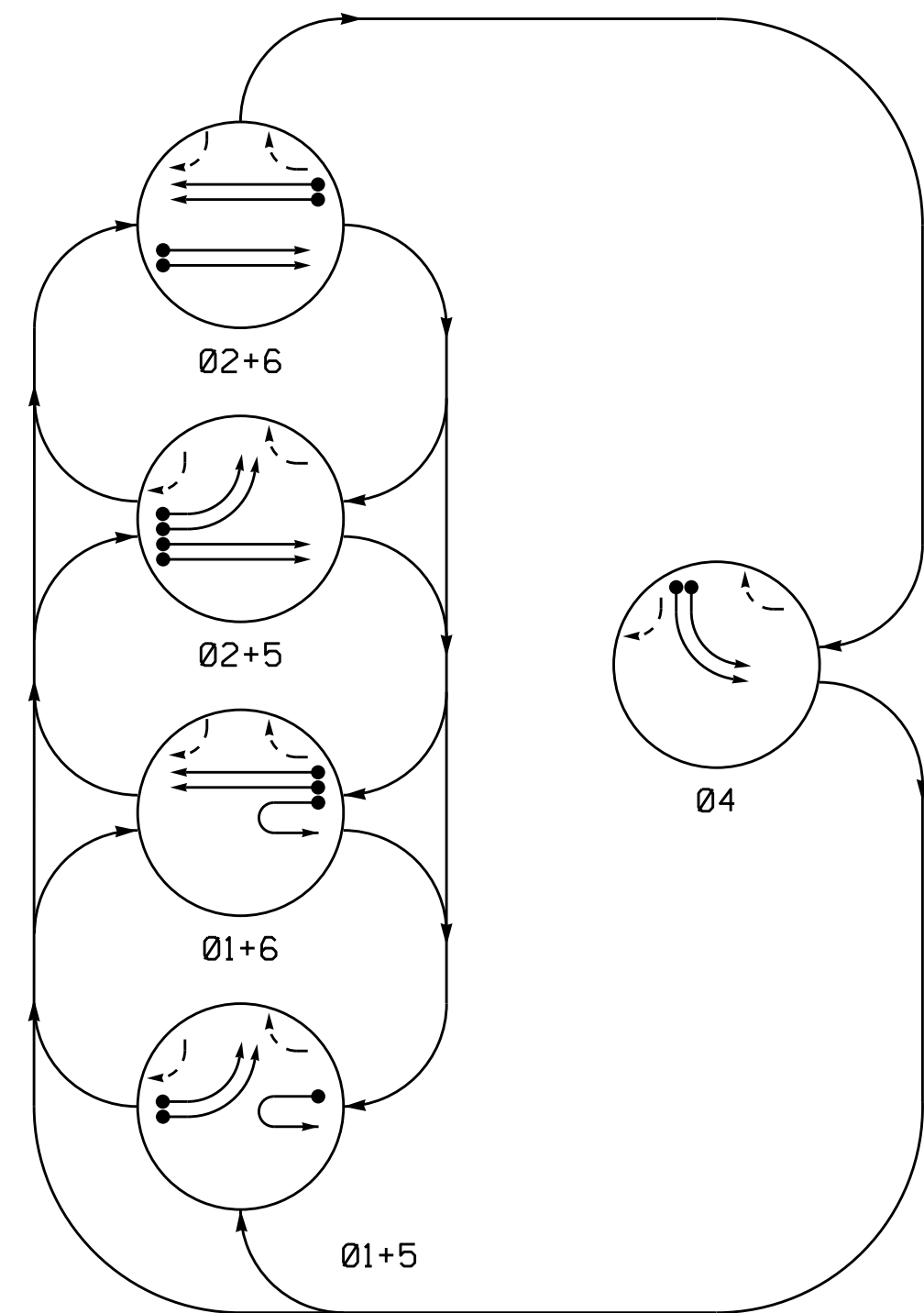
Relay K1 is de-energized under normal operation and is used to activate Input 1 to send a confirmation signal back to the EMS station unit during preemption.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0955T
 DESIGNED: November 2021
 SEALED: 12/15/2021
 REVISED: N/A

Electrical Detail - Sheet 2 of 2		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared In the Offices of: 750 N. Greenfield Pkwy, Garner, NC 27529		US 23-441 (Sylva Rd.) at Hyatt Road	
Division 14 PLAN DATE: December 2021 PREPARED BY: S. Armstrong		Macon County REVIEWED BY: REVIEWED BY:	
REVISIONS	INIT.	DATE	
DocuSigned by: Ryan W. Hough 430320FAA385403		SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036833 RYAN W. HOUGH Dec 15, 2021 DATE SIG. INVENTORY NO. 14-0955T	

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 sarmstr.dwg

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

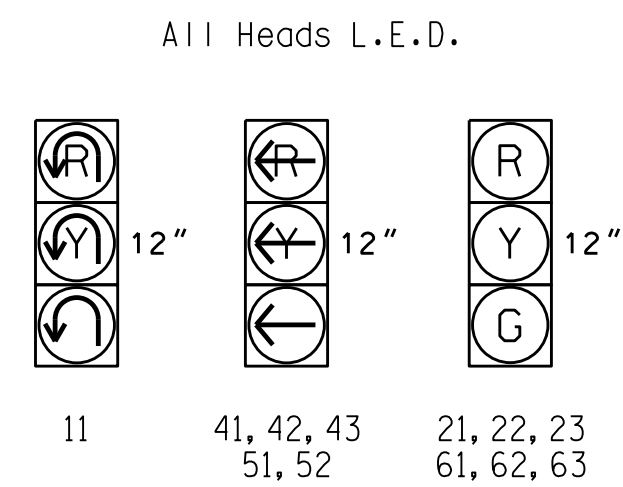
- ←●→ DETECTED MOVEMENT
- ←○→ UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- ←- - -> PEDESTRIAN MOVEMENT

EV PREEMPT PHASE
(Medium Priority)



SIGNAL FACE	PHASE					
	Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø4	PRE 3
11	R	R	G	G	R	R
21, 22, 23	R	R	G	G	R	R
41, 42, 43	R	R	G	G	R	R
51, 52	R	R	G	G	R	R
61, 62, 63	R	R	G	G	R	R

SIGNAL FACE I.D.

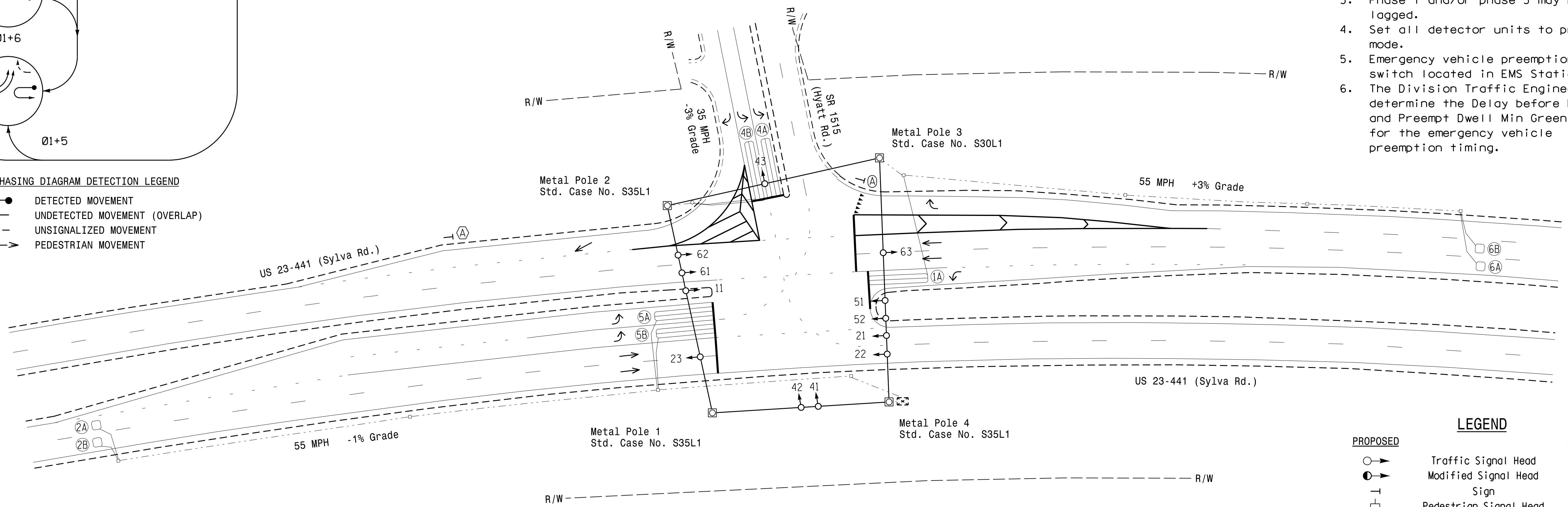


LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING							
					PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	-
2A	6X6	420	5	Y	2	Y	Y	-	-	-	-	-
2B	6X6	420	5	Y	2	Y	Y	-	-	-	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	-
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	-
6A	6X6	420	6	Y	6	Y	Y	-	-	-	-	-
6B	6X6	420	6	Y	6	Y	Y	-	-	-	-	-

5 Phase Fully Actuated w/ Emergency Vehicle Preemption 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.
- Set all detector units to presence mode.
- Emergency vehicle preemption switch located in EMS Station.
- The Division Traffic Engineer will determine the Delay before Preempt and Preempt Dwell Min Green time for the emergency vehicle preemption timing.

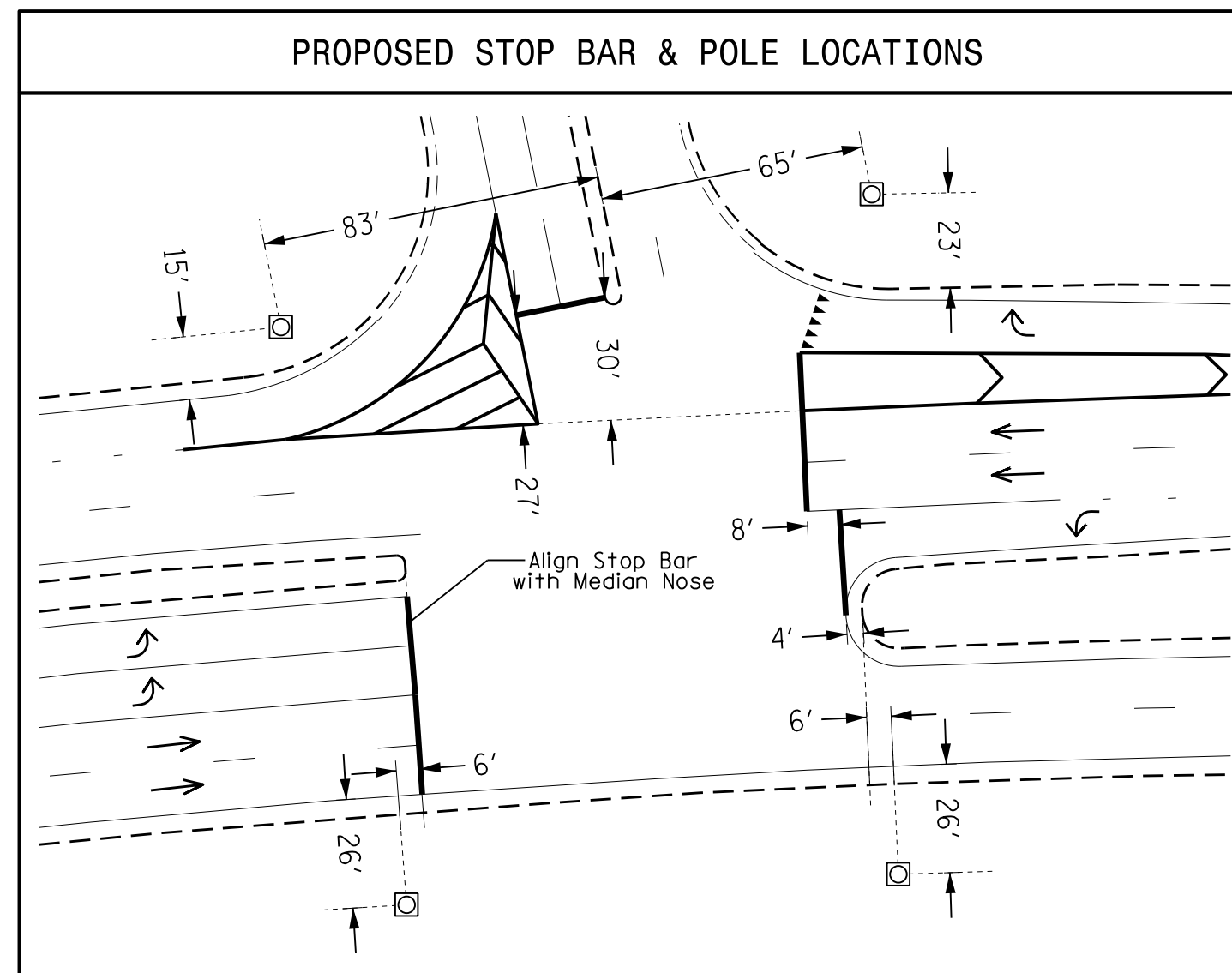


FEATURE	PHASE				
	1	2	4	5	6
Min Green 1*	7	14	7	7	14
Extension 1*	2.0	6.0	2.0	2.0	6.0
Max Green 1*	20	90	25	30	90
Yellow Clearance	3.0	5.3	3.0	3.0	5.3
Red Clearance	3.9	1.3	3.7	3.3	1.3
Red Revert	2.0	2.0	2.0	2.0	2.0
Walk 1*	-	-	-	-	-
Don't Walk 1	-	-	-	-	-
Seconds Per Actuation*	-	1.5	-	-	1.5
Max Variable Initial*	-	46	-	-	46
Time Before Reduction*	-	15	-	-	15
Time To Reduce*	-	30	-	-	30
Minimum Gap	-	3.4	-	-	3.4
Recall Mode	-	MIN RECALL	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	YELLOW
Dual Entry	-	-	-	-	-
Simultaneous Gap	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.

FUNCTION	PRE 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	2, 6
Priority	Medium
Delay Time	#
Min Green Before Pre	1
Ped Clear Before Pre	0
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	#
Enable Backup Protection	N
Ped Clear Through Yellow	N
Omit Overlaps	-
Preempt Extend**	2

* Time defaults to time used for phase during normal operation
** Program Timing on Optical Detection Unit
See Note 6



PROPOSED		EXISTING	
○	Traffic Signal Head	●	N/A
○	Modified Signal Head	○	N/A
⊥	Sign	⊥	N/A
⊥	Pedestrian Signal Head With Push Button & Sign	⊥	N/A
⊥	Signal Pole with Guy	⊥	N/A
⊥	Signal Pole with Sidewalk Guy	⊥	N/A
⊗	Inductive Loop Detector	⊗	N/A
⊗	Controller & Cabinet Junction Box	⊗	N/A
- - -	2-in Underground Conduit	- - -	N/A
- - -	Right of Way	- - -	N/A
→	Directional Arrow	→	N/A
⊗	Metal Strain Pole	⊗	N/A
⊗	"YIELD" Sign (R1-2)	⊗	N/A

Signal Upgrade - Final Design

750 N. Greenfield Pkwy, Garner, NC 27529

US 23-441 (Sylva Rd.)
at
Hyatt Road

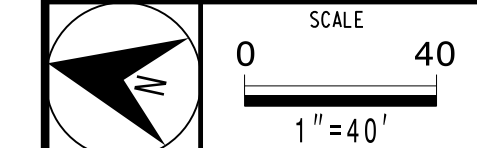
Division 14 Macon County Franklin

PLAN DATE: November 2021 REVIEWED BY: T.J. Williams

PREPARED BY: R.N. Zinser REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

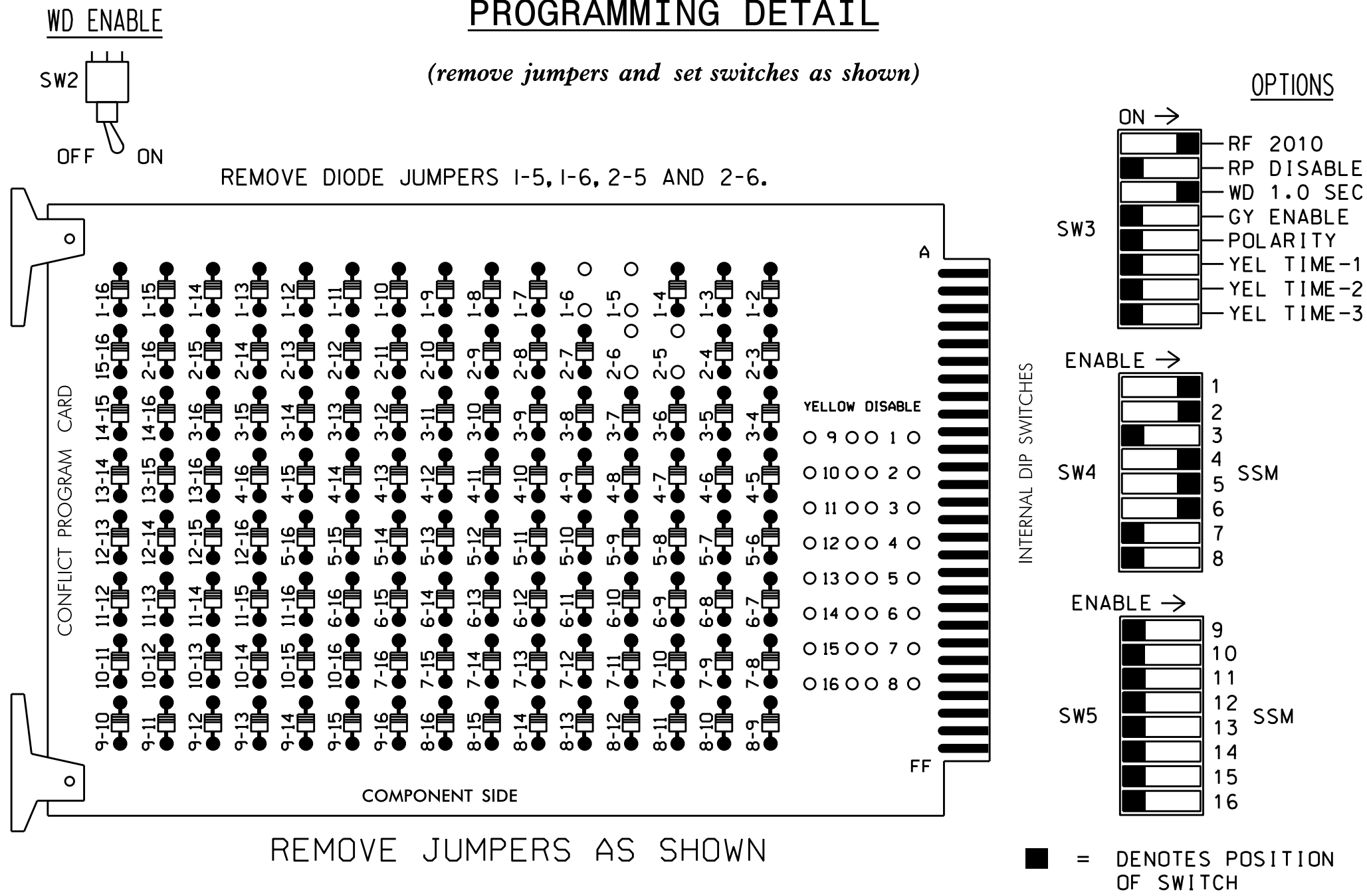
Dec 15, 2021



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EDI MODEL 2010ECL CONFLICT MONITOR

PROGRAMMING DETAIL



- NOTES:
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - Make sure jumpers SEL2-SEL5 are present on the monitor board.

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.
- To prevent red failures on unused monitor channels, see Red Monitor Board Programming Detail this sheet.
- Enable Simultaneous Gap-Out for all Phases.
- Program phases 2 and 6 for Variable Initial and Gap Reduction.
- Program phases 2 and 6 for Startup In Green.
- Program phases 2 and 6 for Yellow Flash.
- If this signal will be monitored by an ATMS software, enable controller and detector logging for all detectors used at this location.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED
SIGNAL HEAD NO.	11	21,22 23	NU	NU	41,42 43	NU	51,52	61,62 63	NU	NU	NU	NU
RED		128						134				
YELLOW		129						135				
GREEN		130						136				
RED ARROW	125				101		131					
YELLOW ARROW	126				102		132					
GREEN ARROW	127				103		133					

NU = Not Used

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...12
 LOAD SWITCHES USED.....S1,S2,S4,S5,S6
 PHASES USED.....1,2,4,5,6
 OVERLAPS.....NONE

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' to advance to Preemption #3.

PREEMPTION #3	INTERVAL/TIMING	CLEAR/DWELL PHASES	SETTINGS (NEXT:1-10)
1	255 0.0 0.0	X	12345678910111213141516
2	0 0.0 0.0		
3	0 0.0 0.0		
4	0 0.0 0.0		
5	1 0.0 0.0	X X	

EXIT CALLS

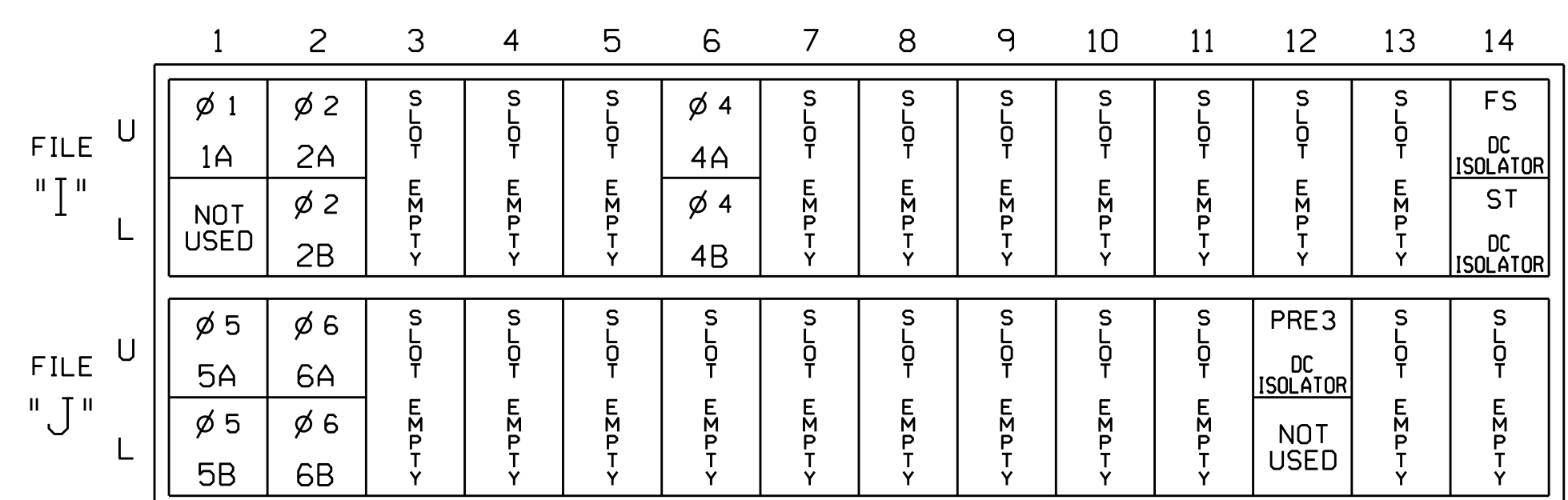
PRIORITY (Y/N TO SELECT)MED
 DELAY TIMER (0-255 SEC)*
 MIN GREEN BEFORE PRE (0= DEFAULT)...1
 PED CLEAR BEFORE PRE (0= DEFAULT)...0
 YELLOW CLEAR BEFORE PRE (0= DEFAULT)...0.0
 RED CLEAR BEFORE PRE (0= DEFAULT)...0.0
 DWELL MIN TIMER (0-255 SEC)*
 DWELL MAX TIMER (0=OFF,1-255MIN)0
 DWELL HOLD-OVER TIMER (0-255)0
 LATCH CALL?Y
 LINK TO NEXT PREEMPT?N
 ENABLE BACKUP PROTECTION?N
 HOLD CLEAR 1 PHASES DURING DELAY? ...Y
 FAST GREEN FLASH DWELL PHASES?N
 PED CLEARANCE THROUGH YELLOW?N
 INHIBIT OVERLAP GREEN EXTENSION? ...N
 SERVICE DURING SOFTWARE FLASH?N
 REST IN RED DURING DWELL INTERVAL? ..N
 FLASH DWELL INTERVAL?N
 ALLOW PEDS IN DWELL INTERVAL?N
 RE-TIME DWELL INTERVAL?Y
 OVERLAPS: ABCDEFGHIJKLMNOP
 DWELL INT FLASH YELLOW
 OMIT OVERLAPS:

* Denotes timing to be determined in field.

Program 2.0 sec Extend Time on Optical Detection Unit.

INPUT FILE POSITION LAYOUT

(front view)

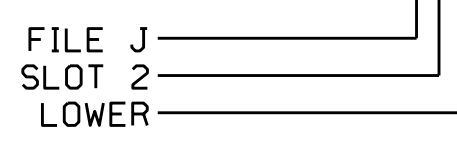


INPUT FILE CONNECTION & PROGRAMMING CHART

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	TB2-1,2	I1U	56	18	1	1	Y	Y			
2A	TB2-5,6	I2U	39	1	2	2	Y	Y			
2B	TB2-7,8	I2L	43	5	12	2	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-1,2	J1U	55	17	5	5	Y	Y			
5B	TB3-3,4	J1L	55	17	5	5	Y	Y			
6A	TB3-5,6	J2U	40	2	6	6	Y	Y			
6B	TB3-7,8	J2L	44	6	16	6	Y	Y			

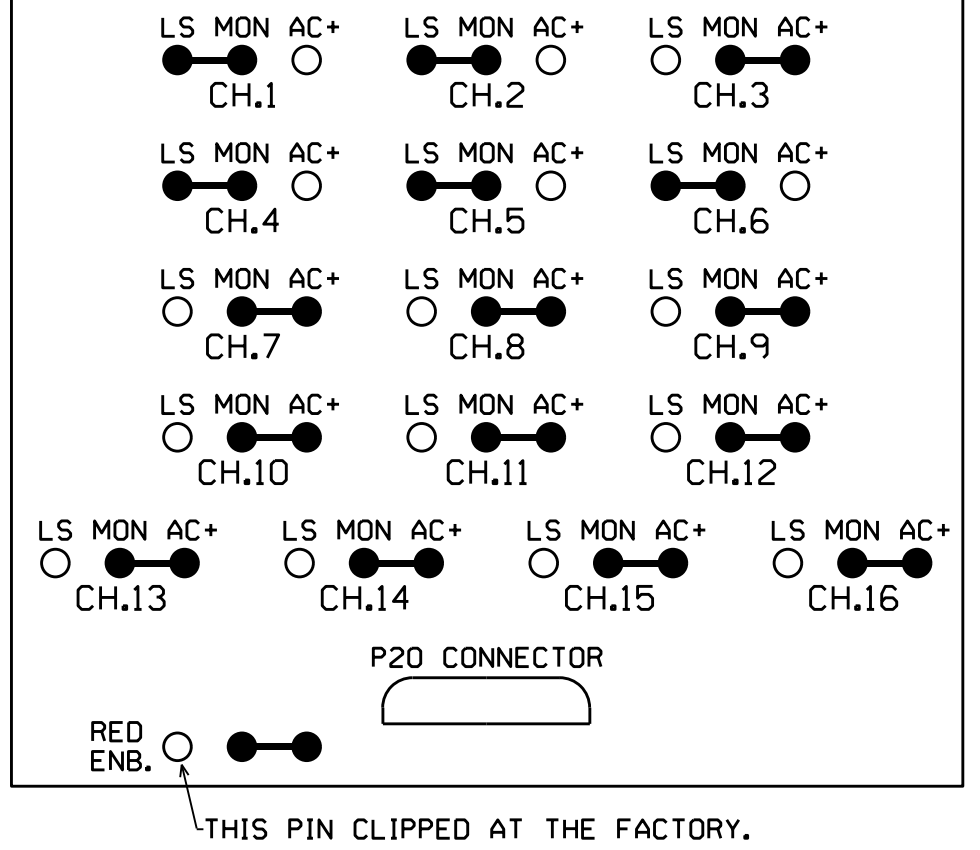
IMPORTANT! Remove any multizone microwave equipment, if present.

INPUT FILE POSITION LEGEND: J2L



RED MONITOR BOARD PROGRAMMING

(position jumpers as shown below)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0955
 DESIGNED: November 2021
 SEALED: 12/15/2021
 REVISED: N/A

Electrical Detail - Sheet 1 of 2

US 23-441 (Syiva Rd.) at Hyatt Road

Prepared In the Offices of: [Logo]

Division 14 Macon County Franklin

PLAN DATE: December 2021 REVIEWED BY: [Signature]

PREPARED BY: S. Armstrong REVIEWED BY: [Signature]

REVISIONS: [Table]

DocuSigned by: Ryan W. Hough Dec 15, 2021

SIG. INVENTORY NO. 14-0955

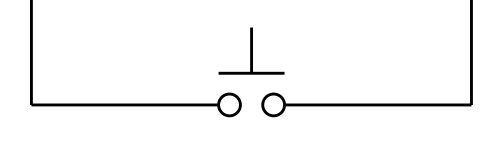
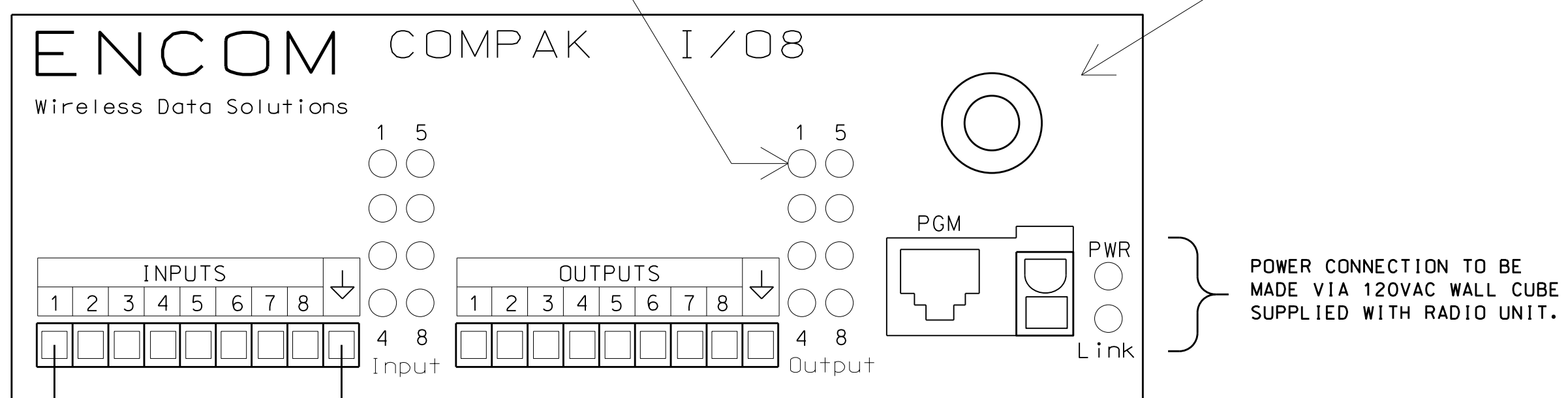
15-DEC-2021 12:18
 *140955.dwg
 sarmstrong

EMS STATION

CABINET

OUTPUT 1 INDICATOR IS USED TO CONFIRM THAT THE PREEMPT ACTIVATION SIGNAL FROM THE FIRE STATION WAS RECEIVED BY THE CABINET UNIT AND WILL REMAIN ILLUMINATED FOR THE DURATION OF THE PREEMPTION SEQUENCE.

DO NOT OPERATE RADIO WITHOUT AN ANTENNA CONNECTED AS DAMAGE TO THE TRANSMITTER MAY RESULT.

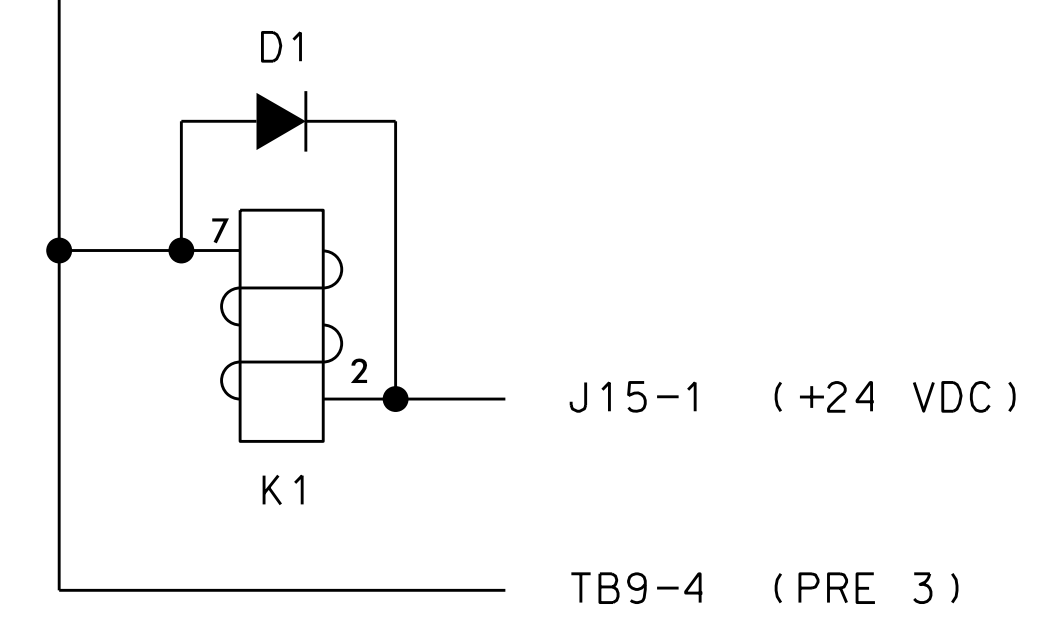
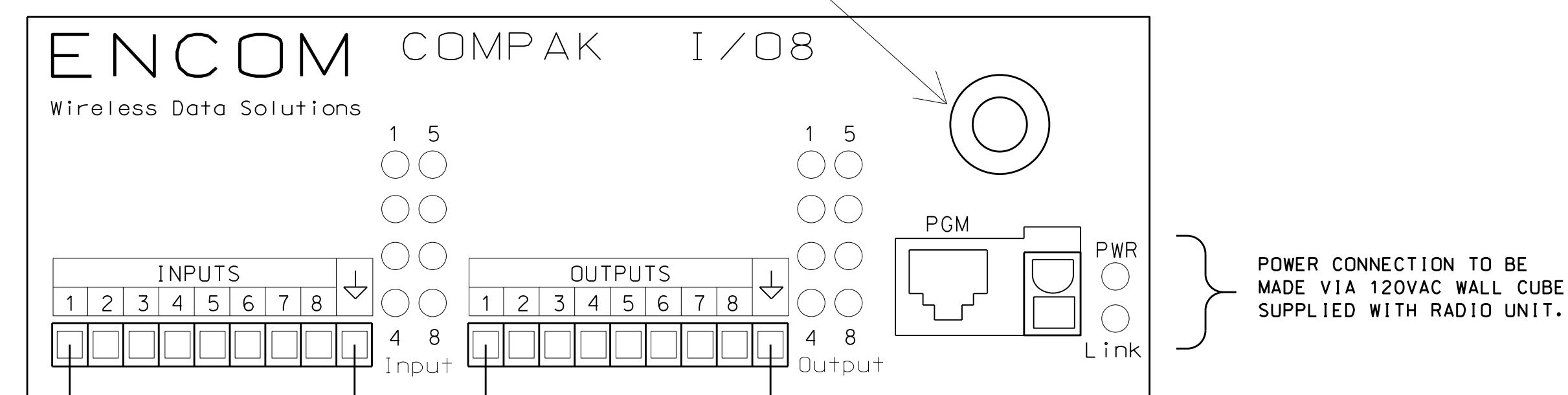
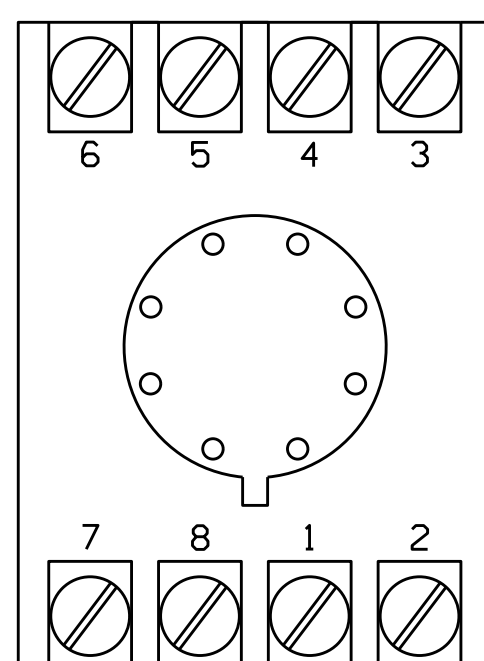


Preempt push button in fire station (momentary, N.O.)

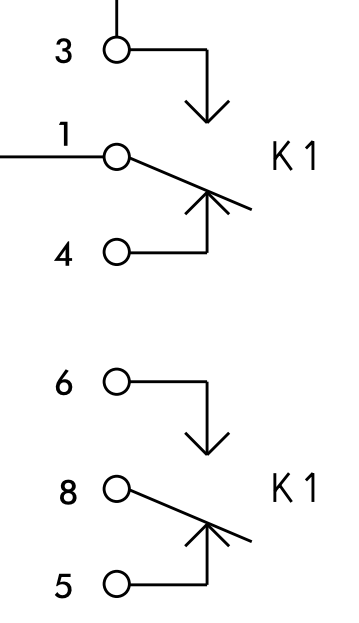
NOTES:

1. Relay K1 is an enclosed DPDT general purpose relay with 24VDC coil, P&B NO. KRPA11DG-24, (DOT MATERIAL NO. 625028605). Use 8 pin base, P&B NO. 27E122, (DOT NO. 625028630).
2. Diode D1 is rated at 600piv, 1 amp (minimum), recommended part no. 1N 4005.
3. Add a jumper from TB9-6 (12 COM) to T3-4 (DC GND).
4. Unless otherwise programmed, all output LED indications will only stay "ON" for as long as the button is being pressed. If longer "ON" time is desired, see the ENCOM user manual Advanced I/O Configuration section for 'Output Hold Delay' programming instructions.

RELAY OCTAL BASE TERMINAL LOCATIONS



Relay K1 is de-energized under normal operation and is used to activate Input 1 to send a confirmation signal back to the EMS station unit during preemption.



15-1000-2021, 12:18
*100555:em.enr.ecr.wx.cgm
sarmstr01g

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 14-0955
DESIGNED: November 2021
SEALED: 12/15/2021
REVISED: N/A

Electrical Detail - Sheet 2 of 2		DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
<p>Prepared In the Offices of:</p> <p>750 N. Greenfield Pkwy, Garner, NC 27529</p>	<p>US 23-441 (Sylva Rd.) at Hyatt Road</p>		<p>SEAL</p>
<p>Division 14 Macon County Franklin</p> <p>PLAN DATE: December 2021 REVIEWED BY:</p> <p>PREPARED BY: S. Armstrong REVIEWED BY:</p>	<p>REVISIONS</p> <p>INIT. DATE</p>	<p>DocuSigned by: Ryan W. Hough Dec 15, 2021</p>	<p>SIG. INVENTORY NO. 14-0955</p>