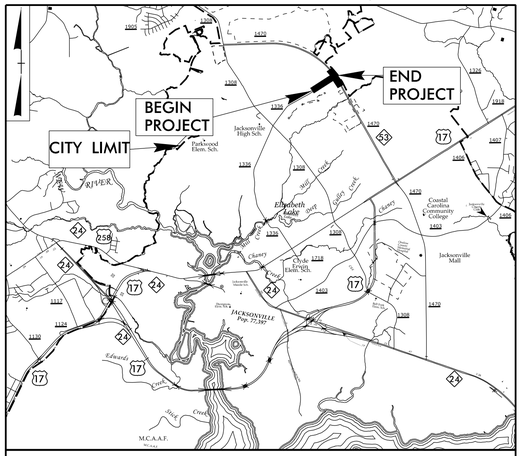
09/08/99

TIP PROJECT: W-5203U

CONTRACT: DC00422

See Sheet 1B For Conventional Symbols



VICINITY MAP
(NOT TO SCALE)

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

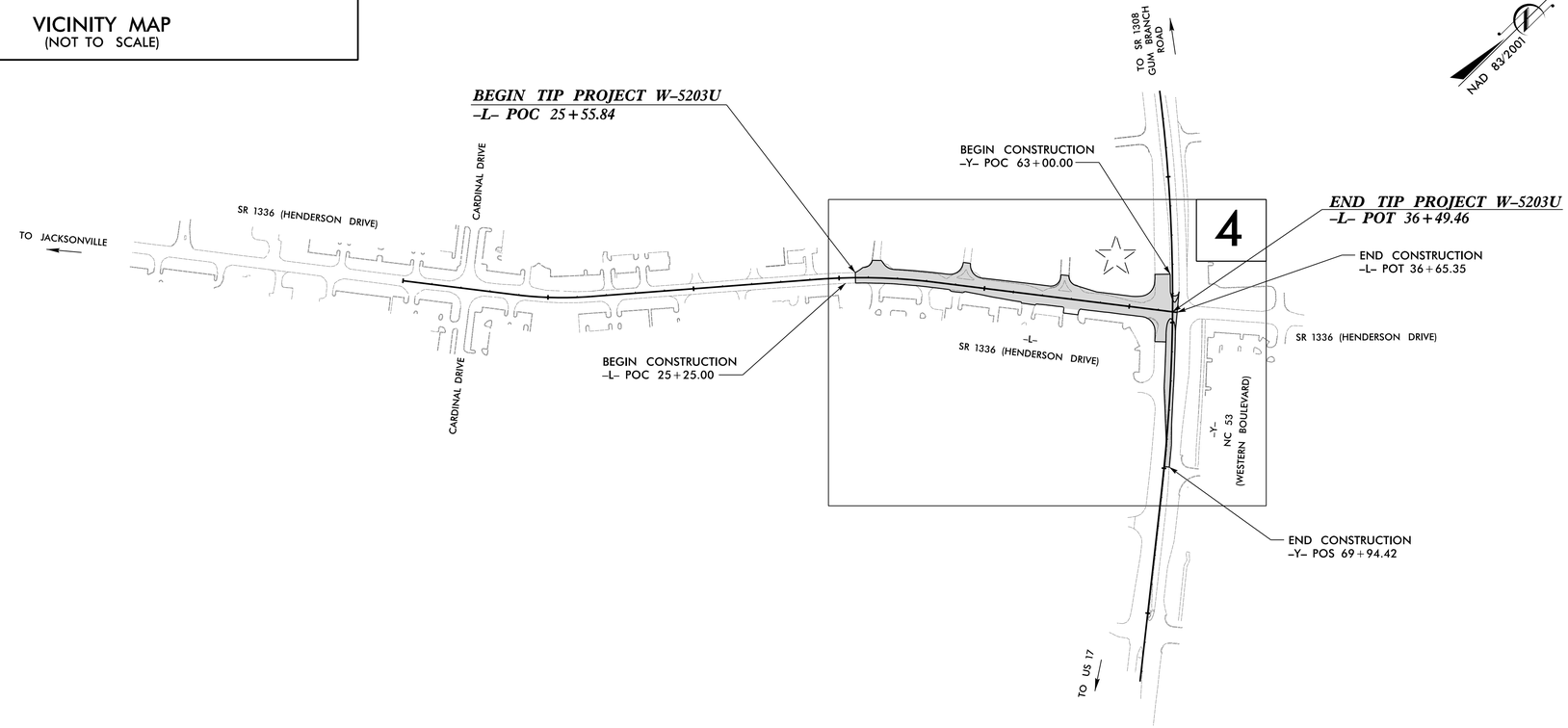
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5203U	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
45333.1.FR21	HSIP-0053(15)	PE
45333.2.21	HSIP-0053(15)_	R/W
45333.3.21	HSIP-0053(15)_	CONST

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

TYPE OF WORK: GRADING, DRAINAGE, PAVING AND SIGNAL

☆ EXISTING SIGNAL TO BE MODIFIED



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2023 = 17,900
ADT 2043 = 21,900
K = 8 %
D = 55%
T = 4 % *
V = 40 MPH
* TTST =1% DUAL =3%
FUNC CLASS =
MINOR-ARTERIAL
SUB-REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT W-5203U = 0.207

TOTAL LENGTH OF TIP PROJECT W-5203U = 0.207

Prepared for NCDOT In the Office of:
moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: MAY 31, 2022

LETTING DATE: JULY 13, 2023

NCDOT CONTACT ERIC MURRAY

TRENT HUFFMAN, PE
PROJECT ENGINEER

ZITONG LIU, EI
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

moffatt & nichol

NORTH CAROLINA PROFESSIONAL SEAL 034333 ENGINEER CAMERON M. LONG

DocuSigned by: Cameron M. Long
SIGNATURE P.E. 6/8/2023

ROADWAY DESIGN ENGINEER

moffatt & nichol

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

DocuSigned by: Trent E Huffman
SIGNATURE P.E. 6/8/2023

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

6/8/2023
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THuffman

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	1A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN
6/20/2023

INDEX OF SHEETS

EFF. 01-16-2018
REV.

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	
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.18	Concrete Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.20	Frames and Wide Slot Flat Grates
840.22	Frames and Wide Slot Sag Grates
840.27	Brick Grated Drop Inlet Type 'B' - 12" thru 36" Pipe
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.45	Precast Drainage Structure
840.46	Traffic Bearing Precast Drainage Structure
852.01	Concrete Islands
876.02	Guide for Rip Rap at Pipe Outlets

GENERAL NOTES:

2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING OR RESURFACING AND WIDENING:

NO GRADE LINES ARE SHOWN. THE PROFILES SHOWN DENOTE THE TOP ELEVATION OF THE EXISITNG 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 MODIFIED METHOD III.

SHOULDER CONSTRUCTION:

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

SUBSURFACE 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

CENTURYLINK

CROWN CASTLE

DUKE ENERGY

PIEDMONT NATURAL GAS

SPECTRUM

CITY OF JACKSONVILLE

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS, EXCEPT AS SHOWN ON THE PLANS.

RIGHT-OF-WAY MARKERS:

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

6/20/2023
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THuffman

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

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

ROADS AND RELATED FEATURES:

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

VEGETATION:

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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

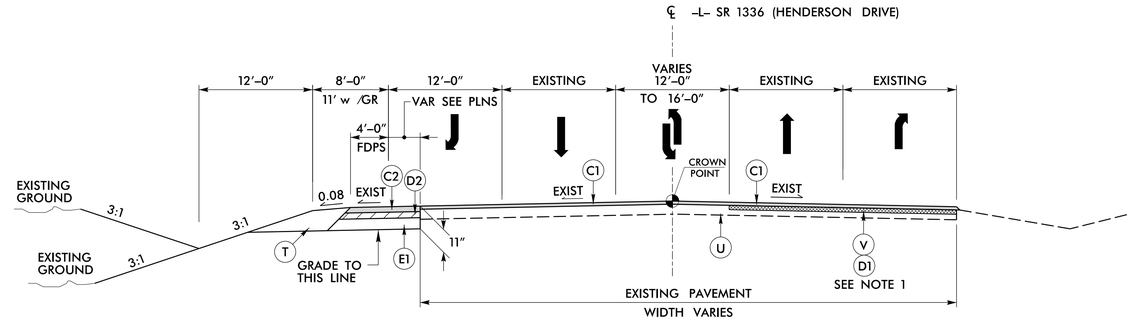
- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line LOS B (S.U.E.*) — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole LOS A (S.U.E.*)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

8/17/99

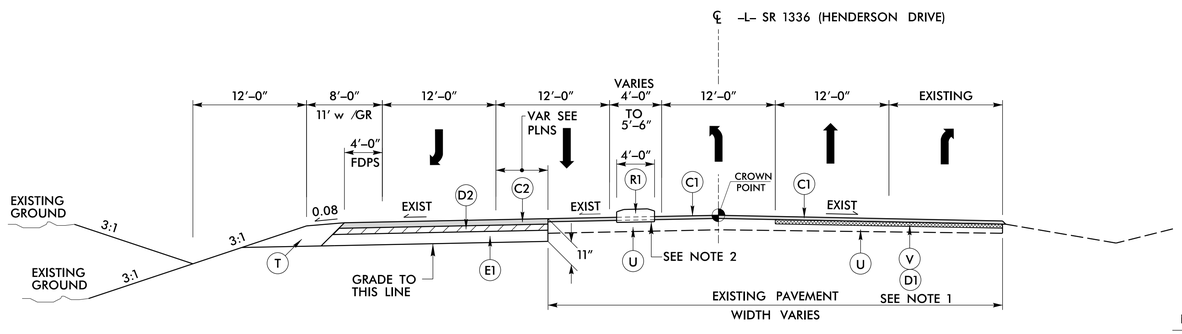
P A V E M E N T S C H E D U L E

C1	PROP. APPROX. 1½″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 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. TO BE PLACED IN LAYERS NOT LESS THAN 3″ IN DEPTH OR GREATER THAN 5½″ IN DEPTH.
C2	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R1	5″ MONOLITHIC CONCRETE ISLAND, (KEYED-IN)
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.	R2	2′-6″ CONCRETE CURB AND GUTTER
D1	PROP. APPROX. 2½″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 285 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. APPROX. 4″ ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	U	EXISTING PAVEMENT
D3	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH, TO BE PLACED IN LAYERS NOT LESS THAN 2½″ IN DEPTH OR GREATER THAN 4″ IN DEPTH.	V	MILLING BITUMINOUS PAVEMENT. 2½″ DEPTH.
E1	PROP. APPROX. 4″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	W	WEDGING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.
NEW PAVEMENT DESIGN LETTER HAS BEEN REQUESTED



TYPICAL SECTION NO. 1



TYPICAL SECTION NO. 2

USE TYPICAL SECTION NO. 1
–L– STA 25+55.84 TO 29+80.00

USE TYPICAL SECTION NO. 2
–L– STA 29+80.00 TO 31+41.32

NOTES:

1. REPAIR EXISTING PAVEMENT ALONG BOTH THE THRU LANE AND THE RIGHT TURN LANE ALONG HENDERSON DRIVE FROM –L– STA 29+36.18 TO –L– STA 35+50.00 PRIOR TO OVERLAYING. PAVEMENT REPAIR SHALL CONSIST OF MILLING THE EXISTING PAVEMENT 2½″ AND THEN REPLACING WITH 2½″ OF CONCRETE INTERMEDIATE COURSE TYPE I19.0C.
2. SEE PLANS FOR RAISED CONCRETE ISLAND LOCATIONS.

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2A-1
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

DocuSigned by: TRENT E. HUFFMAN
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

12/9/2022
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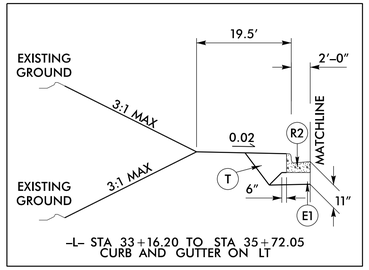
thuffman

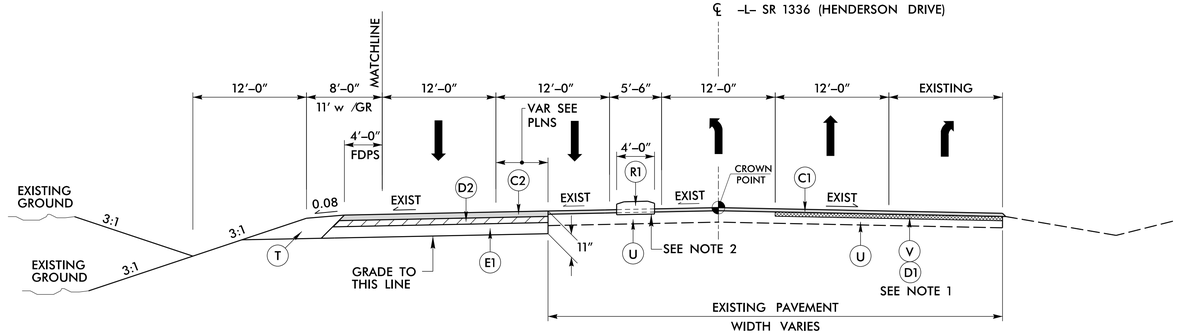
PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	1½" S9.5C
C2	3" S9.5C
C3	VAR. S9.5C
D1	2½" I19.0C
D2	4" I19.0C
D3	VAR. I19.0C
E1	4" B25.0C
E2	VAR. B25.0C
R1	5" CONC ISL
R2	2'–6" C&G
T	EARTH
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

INSET A

USE INSET A IN CONJUCTION WITH TYPICAL NO. 3



–L– STA 33+16.20 TO STA 35+72.05
CURB AND GUTTER ON LT



TYPICAL SECTION NO. 3

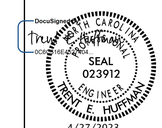
USE TYPICAL SECTION NO. 3
–L– STA 31+41.32 TO 35+75.00

NOTES:

1. REPAIR EXISTING PAVEMENT ALONG BOTH THE THRU LANE AND THE RIGHT TURN LANE ALONG HENDERSON DRIVE FROM –L– STA 29+36.18 TO –L– STA 35+50.00 PRIOR TO OVERLAYING. PAVEMENT REPAIR SHALL CONSIST OF MILLING THE EXISTING PAVEMENT 2½" AND THEN REPLACING WITH 2½" OF CONCRETE INTERMEDIATE COURSE TYPE I19.0C.
2. SEE PLANS FOR RAISED CONCRETE ISLAND LOCATIONS.

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2A-2
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER



DocuSigned by: Troy E. Huffman

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TYPICAL SECTION NO. 4

INSET B

USE INSET B IN CONJUCTION WITH TYPICAL NO. 4

–Y– STA 63+62.89 TO STA 64+09.00
CURB AND GUTTER ON RT

USE TYPICAL SECTION NO. 4
–Y– STA 63+33.78 TO 64+08.54

TYPICAL SECTION NO. 5

INSET C

USE INSET C IN CONJUCTION WITH TYPICAL NO. 5

–Y– STA 64+30.45 TO STA 64+86.53

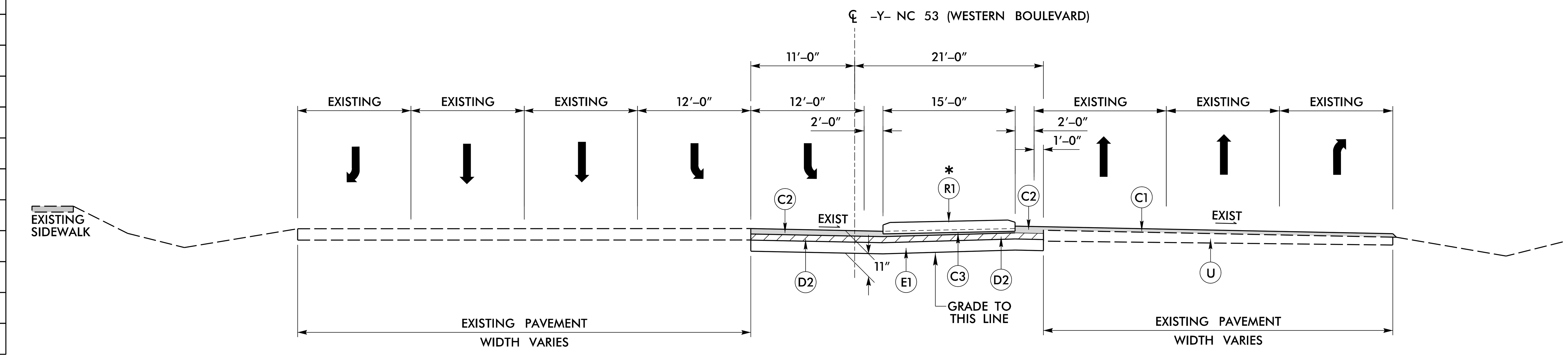
USE TYPICAL SECTION NO. 5
–Y– STA 64+08.54 to 64+30.45
–Y– STA 64+86.53 to 65+28.94

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2A-3
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	

SEAL 023912 – NORTH CAROLINA PROFESSIONAL ENGINEER – TRENT E. HUFFMAN – 4/27/2023

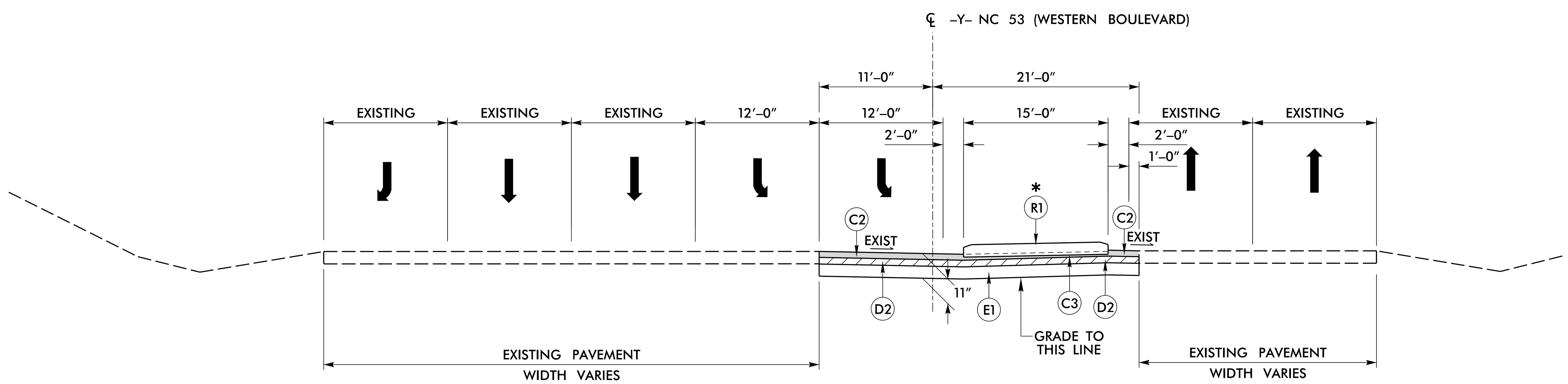
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	1½″ S9.5C
C2	3″ S9.5C
C3	VAR. S9.5C
D1	2½″ I19.0C
D2	4″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	5″ CONC ISL
R2	2′-6″ C&G
T	EARTH
U	EXIST PAVEMENT
V	MILLING
W	WEDGING



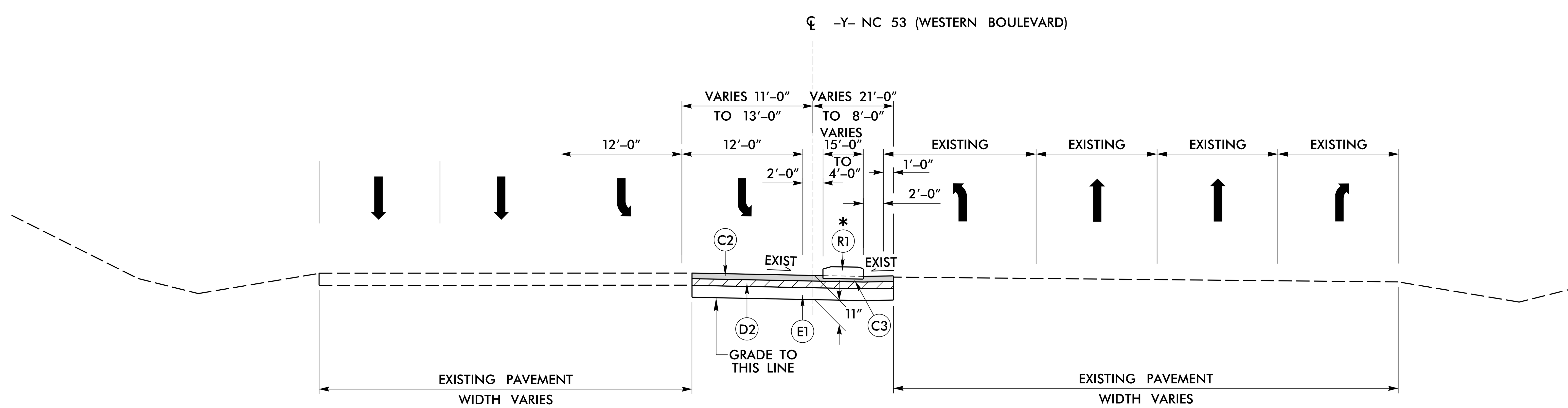
TYPICAL SECTION NO. 6

USE TYPICAL SECTION NO. 6
-Y- STA 65+28.94 to 65+66.77



TYPICAL SECTION NO. 7

USE TYPICAL SECTION NO. 7
-Y- STA 65+66.77 to 67+22.64



TYPICAL SECTION NO. 8

USE TYPICAL SECTION NO. 8
-Y- STA 67+22.64 TO 68+47.35

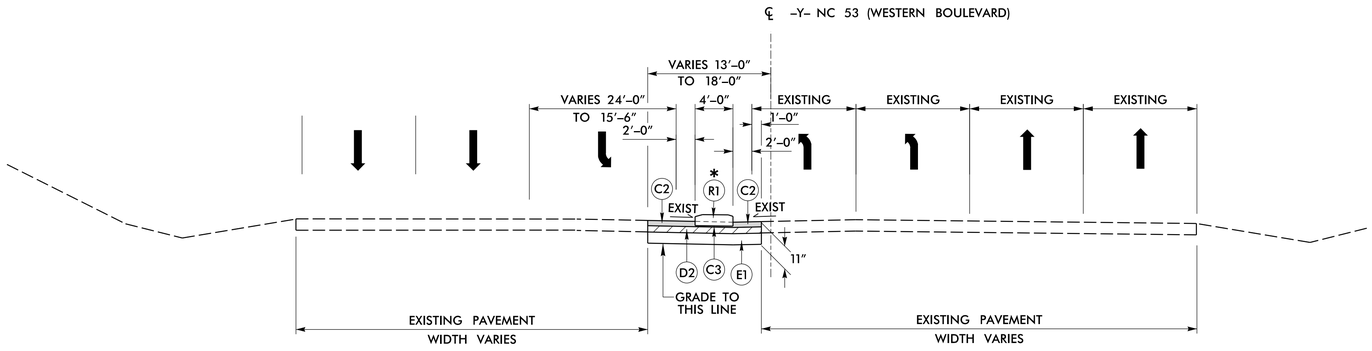
NOTE:
* SEE PLANS FOR RAISED CONCRETE ISLAND LOCATIONS.

PAVEMENT SCHEDULE	
CODE	DESCRIPTION
C1	1½″ S9.5C
C2	3″ S9.5C
C3	VAR. S9.5C
D1	2½″ I19.0C
D2	4″ I19.0C
D3	VAR. I19.0C
E1	4″ B25.0C
E2	VAR. B25.0C
R1	5″ CONC ISL
R2	2′–6″ C&G
T	EARTH
U	EXIST PAVEMENT
V	MILLING
W	WEDGING

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2A-4
R/W SHEET NO.	

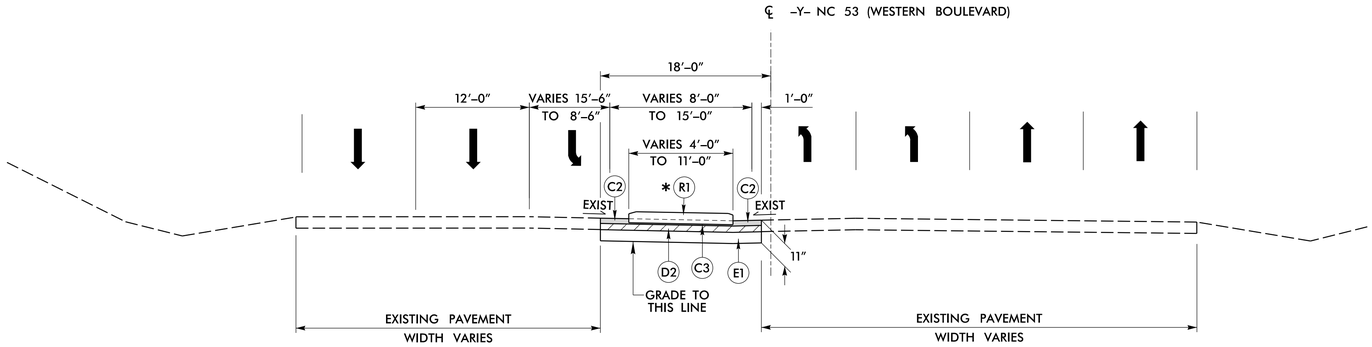
ROADWAY DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 9

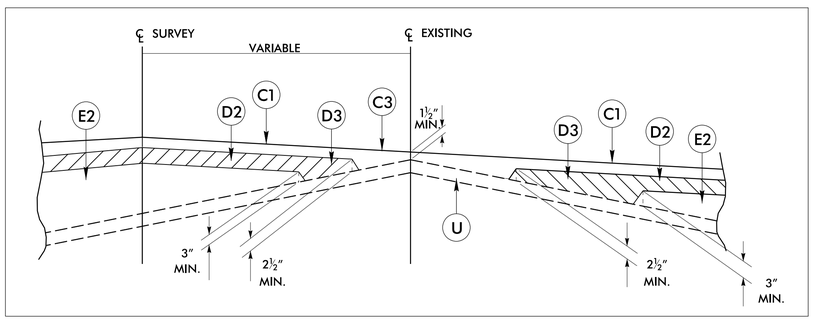
USE TYPICAL SECTION NO. 9
–Y– STA 68+47.35 TO 69+21.72



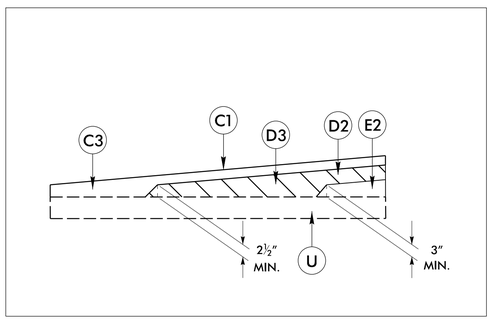
TYPICAL SECTION NO. 10

USE TYPICAL SECTION NO. 10
–Y– STA 69+21.72 TO 69+94.42

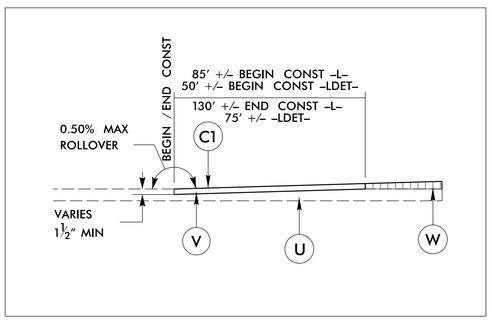
NOTE:
* SEE PLANS FOR RAISED CONCRETE ISLAND LOCATIONS.



WEDGING DETAIL



WEDGING DETAIL FOR RESURFACING



INCIDENTAL MILLING DETAIL

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2C-1

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

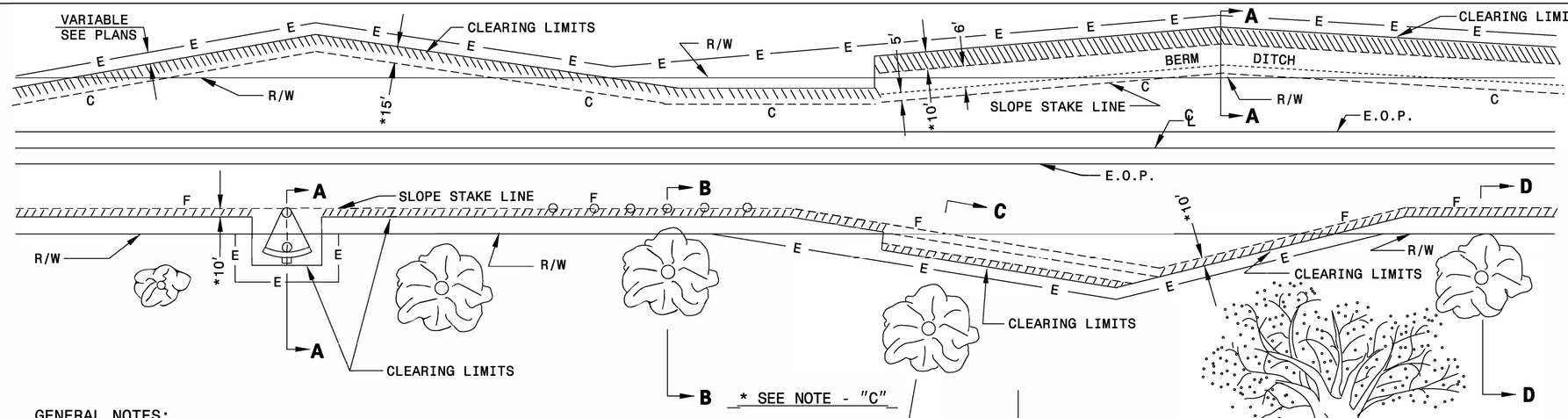
ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03



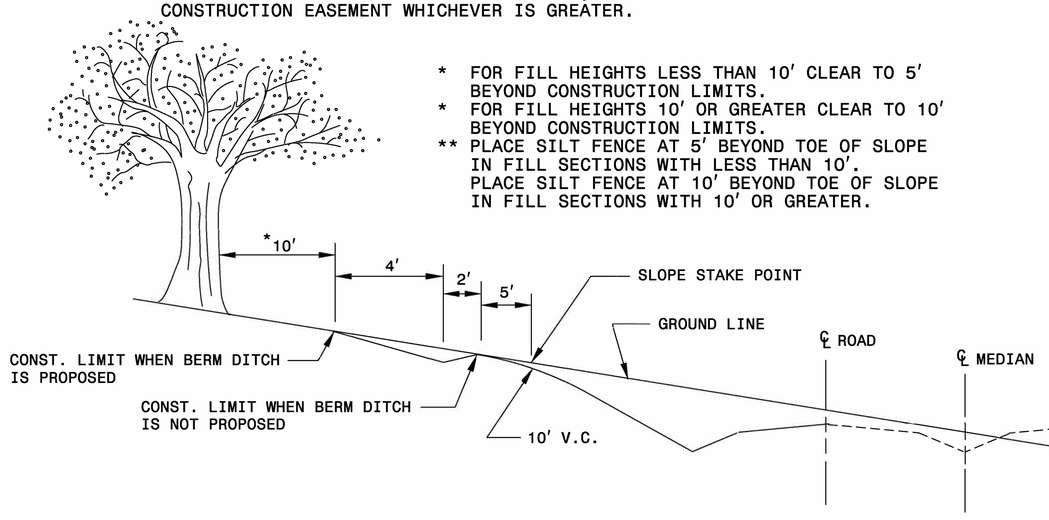
GENERAL NOTES:

1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

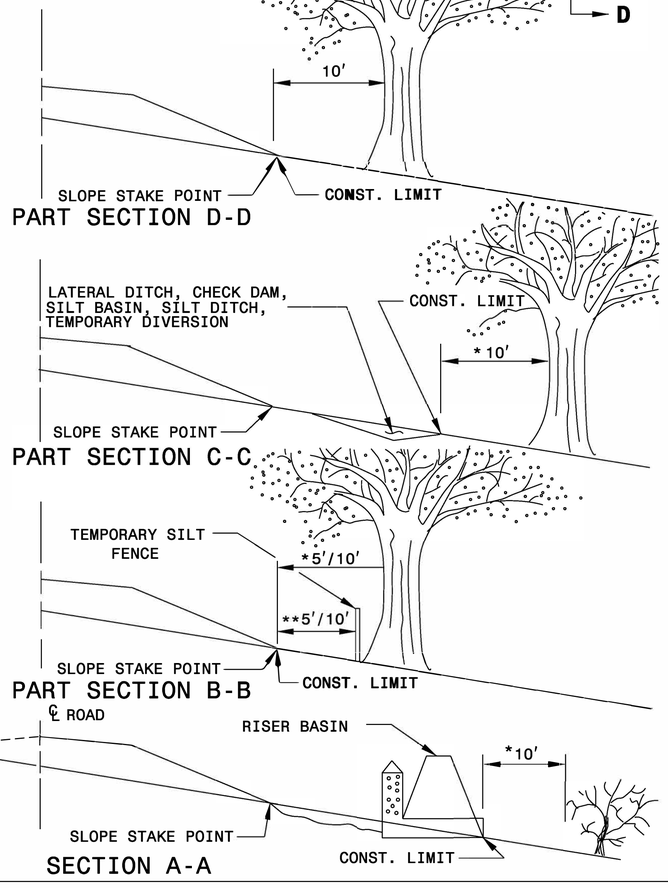
METHOD III CLEARING LIMITS

(A) CUTS -- CLEAR TO CONSTRUCTION LIMITS.
(B) FILLS - CLEAR TO 5′/10′ * BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
(C) CUTS AND FILLS - WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

* FOR FILL HEIGHTS LESS THAN 10′ CLEAR TO 5′ BEYOND CONSTRUCTION LIMITS.
* FOR FILL HEIGHTS 10′ OR GREATER CLEAR TO 10′ BEYOND CONSTRUCTION LIMITS.
** PLACE SILT FENCE AT 5′ BEYOND TOE OF SLOPE IN FILL SECTIONS WITH LESS THAN 10′. PLACE SILT FENCE AT 10′ BEYOND TOE OF SLOPE IN FILL SECTIONS WITH 10′ OR GREATER.



SECTION A-A



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

ENGLISH DETAIL DRAWING FOR

METHOD OF CLEARING

MODIFIED METHOD - III

SHEET 1 OF 1

200D03

NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M HACKLER
4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE TITLE BLOCK

ORIGINAL BY:	T.S.S.	DATE:	FEB.2000
MODIFIED BY:	K.A.K.	DATE:	AUG.2016
CHECKED BY:		DATE:	
FILE SPEC.:	kkempf/english/0200d301.dgn		

05-DEC-2017 10:31
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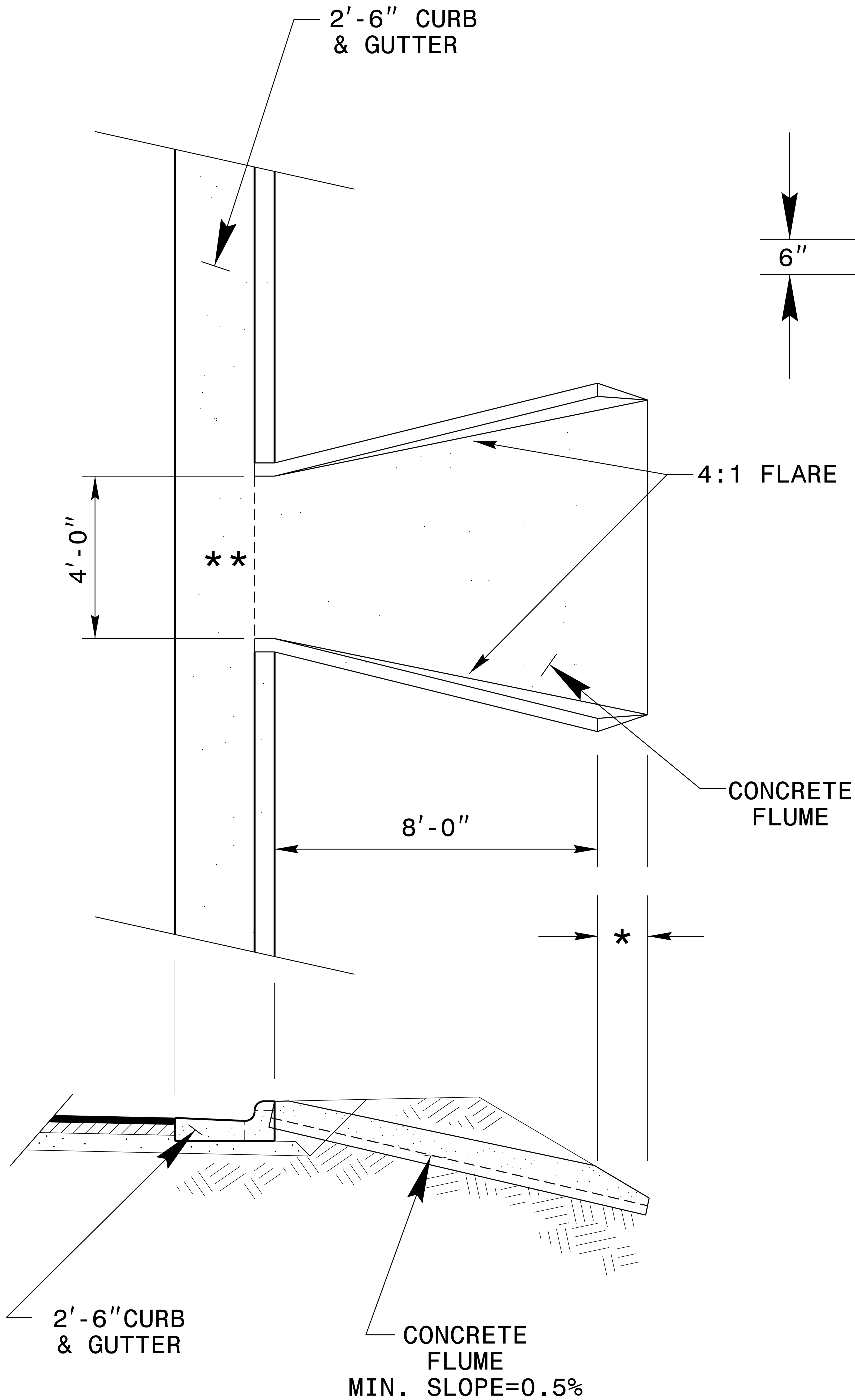
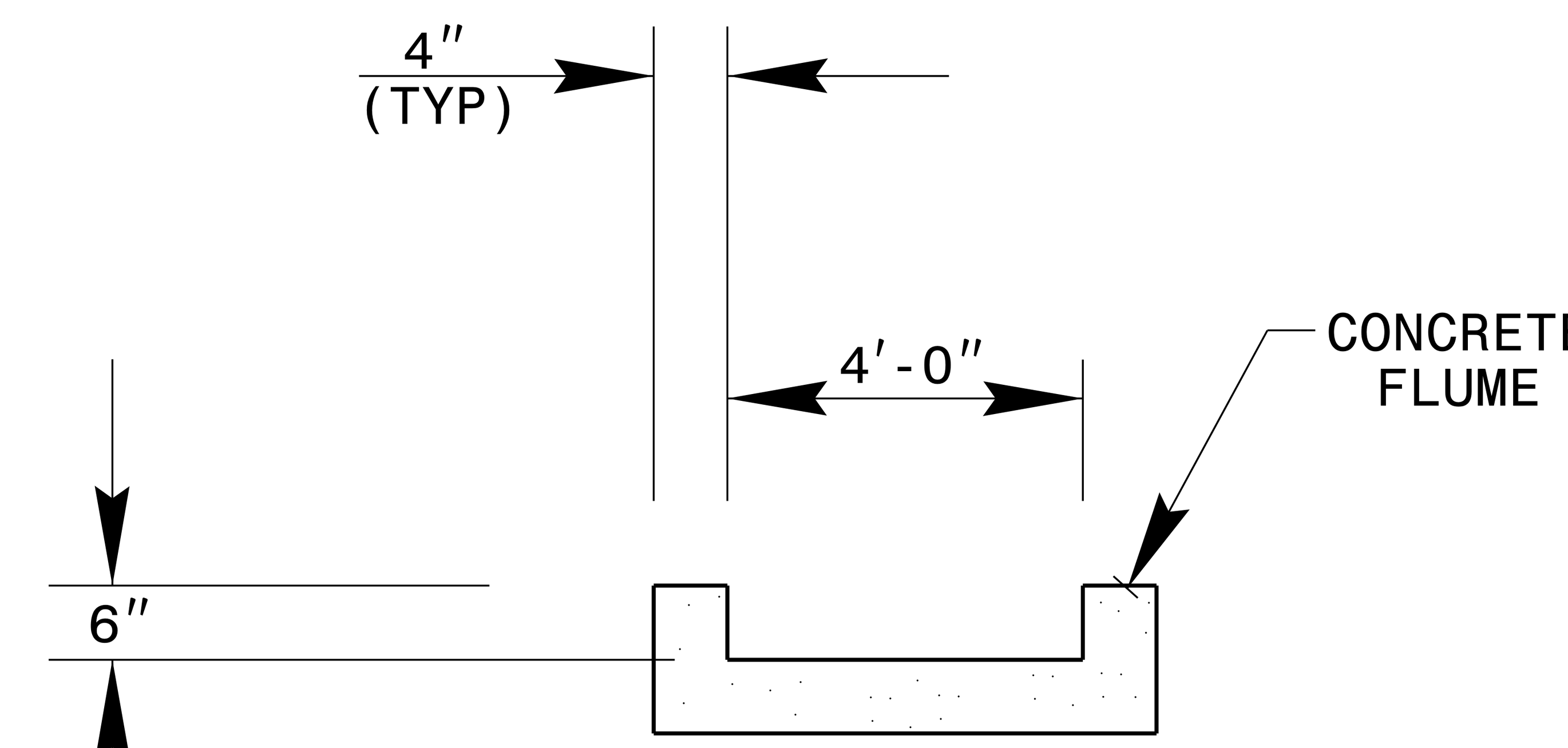
jhowerton
AT CSD-292595

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	2C-2

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

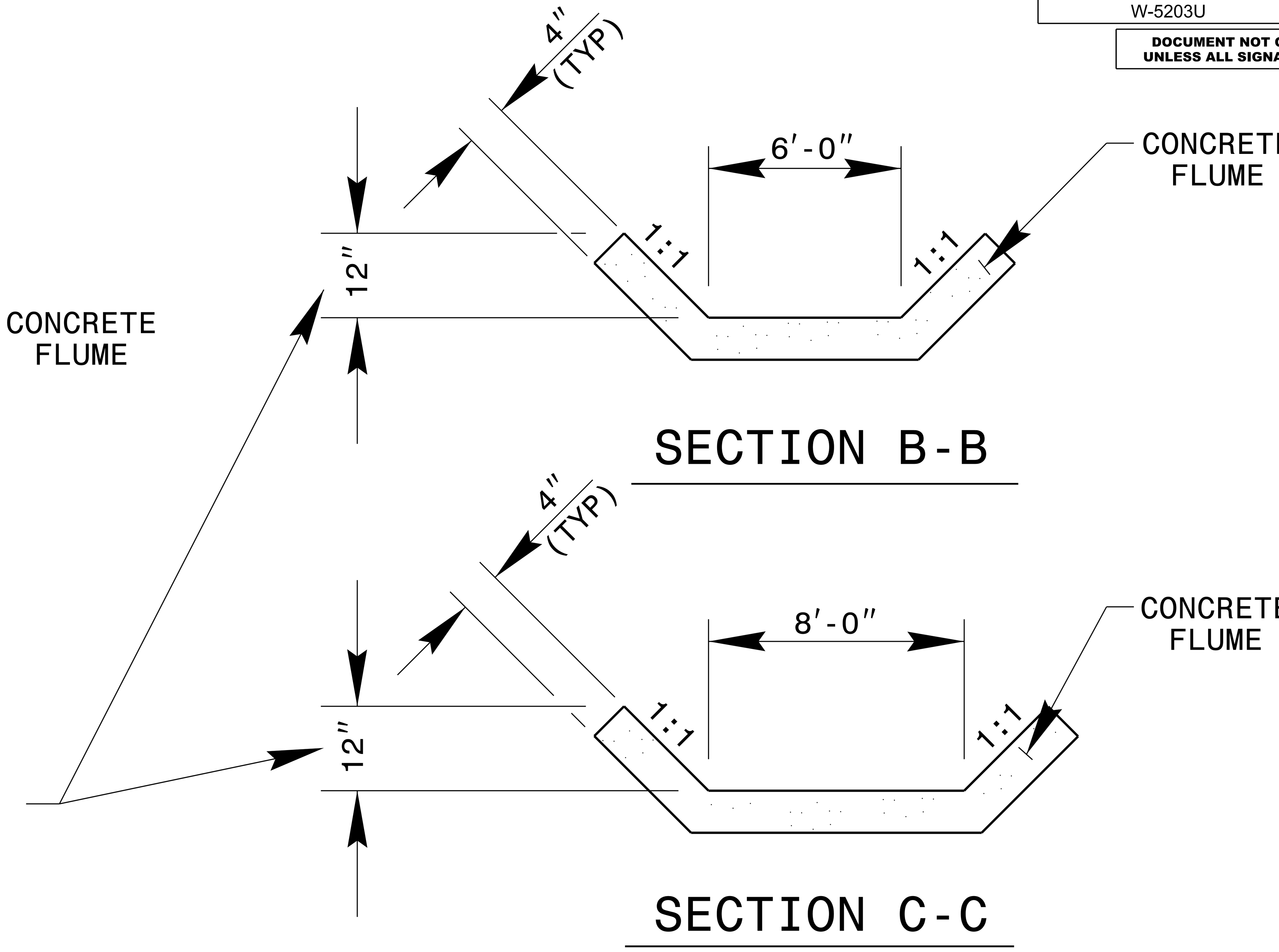


ELEVATION

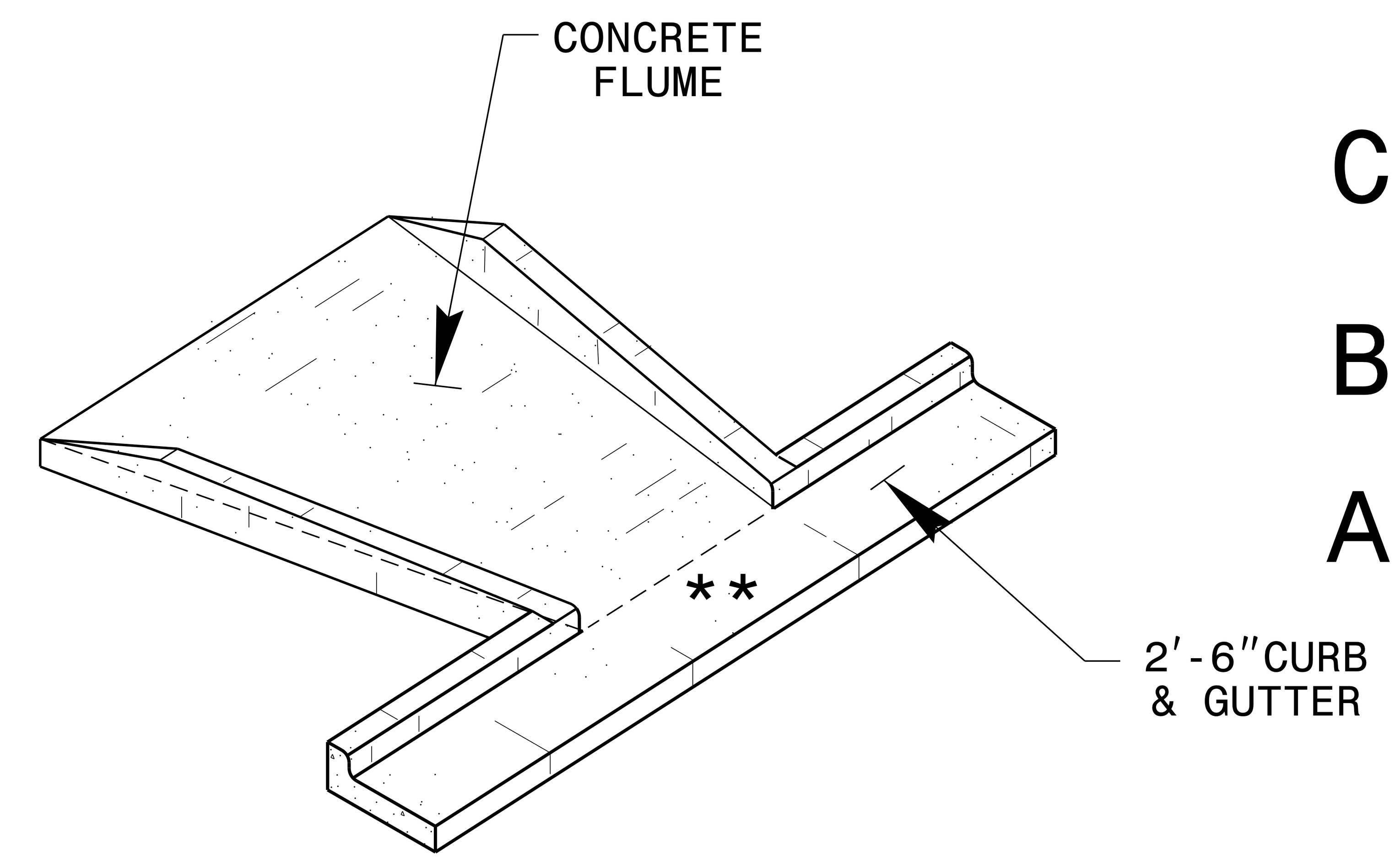


SECTION A-A

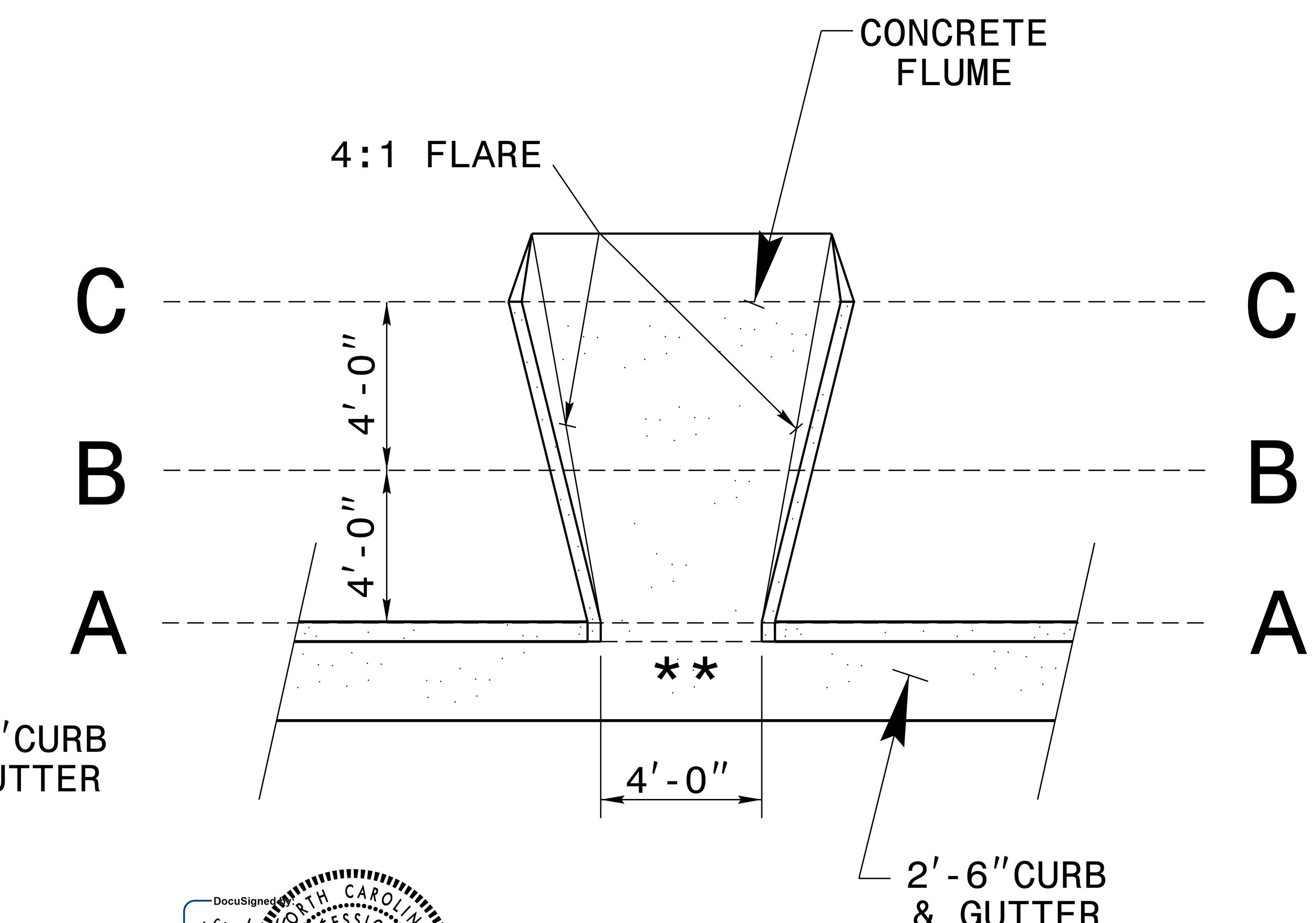
FLUME SIDES SHOULD BE FLUSH WITH ADJACENT GROUND LINE TO A MAX. HEIGHT OF 12"



SECTION C-C



PERSPECTIVE



NORTH CAROLINA PROFESSIONAL SEAL 33144 ENGINEER NICOLE M. HACKLER
4/27/2023

PLAN

* LENGTH VARIABLE WITH DITCH SLOPE

** DEPRESS THE GUTTER IN THIS AREA TO PREVENT BYPASS

NOTES:

- CONSTRUCT CONCRETE FLUME IN ACCORDANCE WITH THIS DETAIL.
- MODIFICATIONS MAY BE MADE AS DIRECTED BY THE ENGINEER.

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

CONCRETE FLUME IN 2'-6" C&G

ORIGINAL BY: ______ DATE: ______
MODIFIED BY: nbritt DATE: 05-11-04
CHECKED BY: ______ DATE: ______
FILE SPEC.: details\nbritt\metric\r2201modifiedflume.dgn

05-DEC-2019 07:10
S:\Contracts\Contracts\Special Details\nbritt\english\rural\r2201special modified flume.dgn
jhowerton AT CSD-320965

12/06/07

COMPUTED BY: Z. LIU DATE: 9/26/2022
CHECKED BY: G. MODLIN DATE: 9/26/2022

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	3B-1

SUMMARY OF EARTHWORK

IN CUBIC YARDS

STATION	STATION	UNCL. EXCAV.	UNDERCUT	EMBANK. +%	BORROW	WASTE
-L-						
25+55.84	35+65	952		876		76
SUBTOTALS:		952		876		76
-Y-						
63+33.78	69+64.42	273		336	63	
SUBTOTALS:		273		336	63	
SUBTOTALS:		1,225		1,212	63	76
TOTAL:		1,225		1,212	63	76
MATERIAL FOR SHOULDER CONSTRUCTION				150	150	
LOSS DUE TO CLEARING AND GRUBBING						
ADDITIONAL UNDERCUT						
WASTE IN LIEU OF BORROW					-76	-76
PROJECT TOTALS:		1,225		1,362	137	
EST 5% TO REPLACE TOP SOIL ON BORROW PIT					7	
WASTE IN LIEU OF BORROW						
GRAND TOTALS:		1,225		1,362	143	
SAY:		1,300			170	

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

12/6/2022
Q:\RA\8731-04\CADD\W5203U\Roadway\Proj\W5203U_rdy_psh_3B-1.dgn
Huffman

COMPUTED BY: JD	**DATE:** 12/6/2022	**PROJECT NO.** W-5203U	**SHEET NO.** 3D-1
CHECKED BY: CL	**DATE:** 12/6/2022		

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout. See "Standard Specifications For Roads and Structures, Section 300-5".

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

LINE & STATION / SIZE / THICKNESS OR GAUGE	OFFSET	STRUCTURE NUMBER FROM	TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS V 12	15	18	24	30	36	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES (NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)) 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.
L 26+13	50 LT	0401			43.5	43.3											100								
L 29+29	66 LT	0402			43.8	43.8										104									
L 31+22	7 LT	0404		48.0																			1		
		0404	0403		44.8	44.3									60										
L 32+70	70 LT	0405			46.3	45.6											80								
L 33+22	48 LT	0406																							
L 33+91	38 LT	0407																							
L 35+30	41 LT	0408																							
L 35+57	19 LT	0409			46.4	45.9					164														
Y 65+40	5 RT	0410		51.7																			1		
		0410	0411		47.4	47.1			48																
Y 65+90	5 RT	0411		51.6																			1		
		0411	0412		47.1	46.8			76																
Y 66+67	5 RT	0412		51.3																			1		
		0412	0414		46.8	46.4			64																
Y 67+28	87 LT	0413			44.7	44.0					84														
Y 67+33	5 RT	0414		51.3																			1		
		0414	0415		46.4	46.1			64																
Y 68+00	4 RT	0415		50.9																			1		
		0415	0416		46.1	45.9			36																
Y 68+40	4 RT	0416		50.6																			1		
		0416	0418		45.6	45.1				144															
Y 69+85	6 LT	0417		51.2																			1		
		0417	0418		46.6	46.5			8																
Y 69+85	13 LT	0418		50.8																			1	0.7	
		0418	0419		45.1	44.7				76															
Y 70+61	12 LT	0419		49.4																			1	0.5	
		0419	0420		43.9	43.5				72															
L 26+28	42 LT	0000																							
L 29+31	42 LT	0000																							
L 32+84	40 LT	0000																							
L 35+62	2 LT	0000																							
Y 69+14	3 LT	0000																							
Y 70+60	48 LT	0000																							
SHEET TOTALS									296	292	248				60	104	180						10	1.2	
PROJECT TOTALS									296	292	248				60	104	180						10	1.2	

LINE & STATION	STRUCTURE NUMBER FROM	TO	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	CONCRETE TRANSITIONAL SECTION D.I. STD. 852.04 OR STD. 852.06	CONCRETE TRANSITIONAL SECTION C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR STD. 840.26	G.D.I. TYPE "B" STD. 840.18 OR STD. 840.27	G.D.I. TYPE "D" STD. 840.19 OR STD. 840.28	G.D.I. (W.S. FLAT) FRAME WITH GRATE STD. 840.20	G.D.I. (W.S. FLAT) FRAME W/ 2 GRATES STD. 840.20	G.D.I. (W.S. SAG) FRAME W/ GRATE STD. 840.22	G.D.I. (W.S. SAG) FRAME W/ 2 GRATES STD. 840.22	G.D.I. (N.S. SAG) FRAME W/ GRATE STD. 840.24	G.D.I. (N.S. SAG) FRAME W/ 2 GRATES STD. 840.24	G.D.I. (N.S. FLAT) FRAME W/ GRATE STD. 840.29	G.D.I. (N.S. FLAT) FRAME W/ 2 GRATES STD. 840.29	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	T.B.J.B. STD. 840.34	T.B.D.I. STD. 840.35	T.B.D.I. FOR STEEL GRATES STD. 840.36	STEEL FRAME WITH TWO GRATES STD. 840.37	TEMP STEEL PLATE COVER MASONRY DRAINAGE
L 26+13	0401																															
L 29+29	0402																															
L 31+22	0404																1												1			
	0404	0403																														
L 32+70	0405																															
L 33+22	0406																															
L 33+91	0407																															
L 35+30	0408																															
L 35+57	0409																															
Y 65+40	0410																1												1			
	0410	0411																														
Y 65+90	0411																		1										1			
	0411	0412																														
Y 66+67	0412																		1										1			
	0412	0414																														
Y 67+28	0413																															
Y 67+33	0414																1												1			
	0414	0415																														
Y 68+00	0415																1												1			
	0415	0416																														
Y 68+40	0416																		1										1			
	0416	0418																														
Y 69+85	0417																1												1			
	0417	0418																														
Y 69+85	0418																		1										1			
	0418	0419																														
Y 70+61	0419												1			1																
	0419	0420																														
L 26+28	0000																															
L 29+31	0000																															
L 32+84	0000																															
L 35+62	0000																															
Y 69+14	0000																															
Y 70+60	0000																															
SHEET TOTALS														1			6		4										9			
PROJECT TOTALS														1			6		4										9			

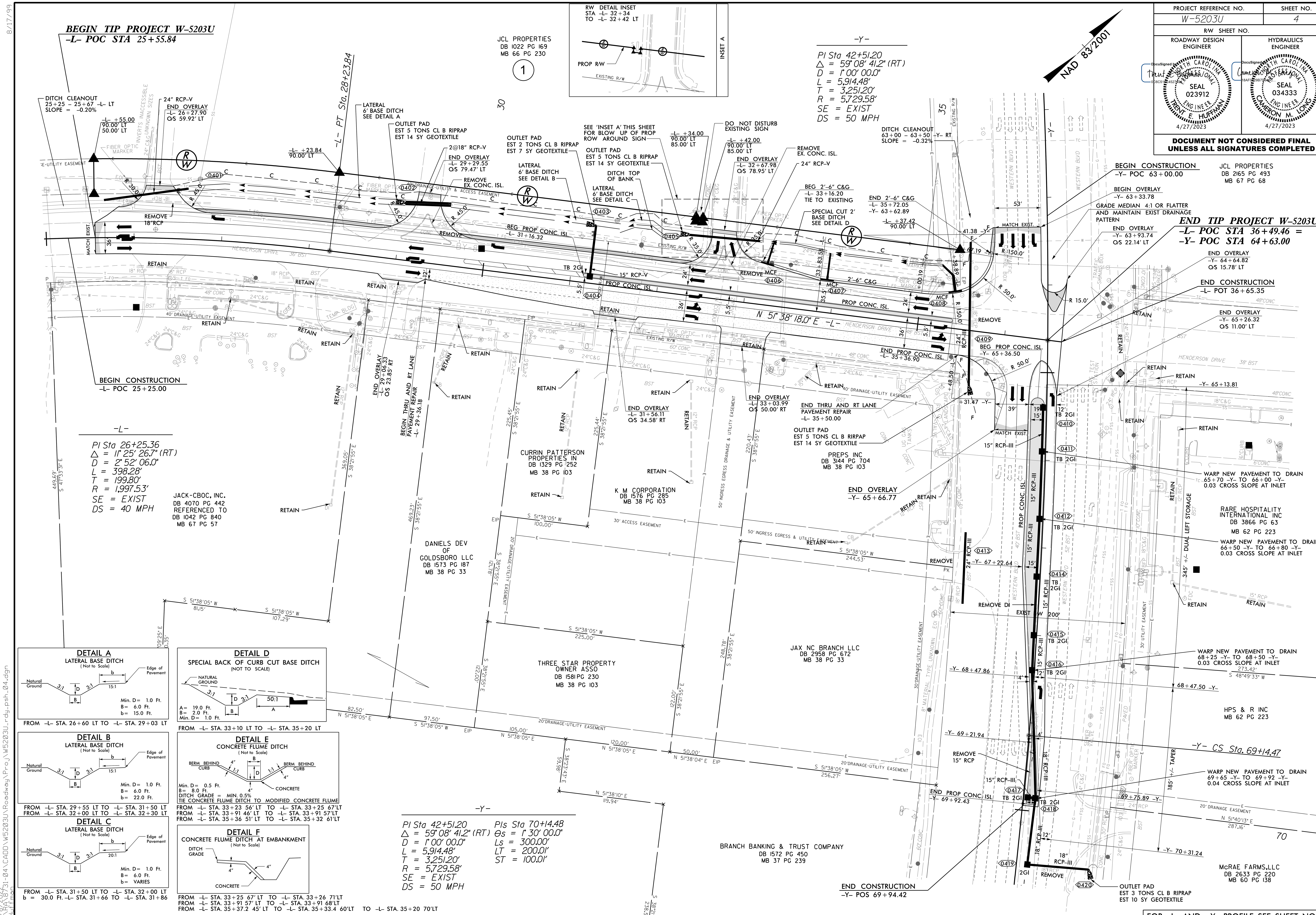
LINE & STATION	STRUCTURE NUMBER FROM	TO	##" SPRING BOX PIPE	SPRING BOX STD. 840.41	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	CONVERT EXISTING C.B. TO D.I.	CONVERT EXISTING D.I. TO J.B.	CONVERT EXISTING J.B. TO D.I.	ADJUST C.B.	ADJUST D.I.	##" DRAINAGE PIPE ELBOW	##" DRAINAGE PIPE ELBOW	##" DRAINAGE PIPE ELBOW	##" R.C. ELBOW	15" C.S. ELBOW	18" C.S. ELBOW	24" C.S. ELBOW	30" C.S. ELBOW	36" C.S. ELBOW	MODIFIED CONC. FLUME	PREFORMED SCOUR HOLE (PER EACH)	ENERGY DISSIPATION BASIN	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
L 26+13	0401																												
L 29+29	0402																												2 @ 52' 18" RCP-V
L 31+22	0404																												
	0404	0403																											
L 32+70	0405																												
L 33+22	0406																					1							Special Detail Sheet 2C-1 for MCF
L 33+91	0407																					1							Special Detail Sheet 2C-1 for MCF
L 35+30	0408																					1							Special Detail Sheet 2C-1 for MCF
L 35+57	0409																												
Y 65+40	0410																												
	0410	0411																											
Y 65+90	0411																												
	0411	0412																											
Y 66+67	0412																												
	0412	0414																											
Y 67+28	0413																												
Y 67+33	0414																												
	0414	0415																											
Y 68+00	0415																												
	0415	0416																											
Y 68+40	0416																												
	0416	0418																											
Y 69+85	0417																												
	0417	0418																											
Y 69+85	0418																												
	0418	0419																											
Y 70+61	0419																												
	0419	0420																											
L 26+28	0000																											120	
L 29+31	0000																											120	
L 32+84	0000																											145	
L 35+62	0000																											105	
Y 69+14	0000																											292	
Y 70+60	0000																											69	
SHEET TOTALS																						3						851	
PROJECT TOTALS																						3						851	

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
SEAL 023912 TRENT E. HUFFMAN 4/27/2023	SEAL 034333 CAMERON M. LONG 4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



BEGIN TIP PROJECT W-5203U
-L- POC STA 25+55.84
END TIP PROJECT W-5203U
-L- POC STA 36+49.46 =
-Y- POC STA 64+63.00
BEGIN CONSTRUCTION
-L- POC 25+25.00
BEGIN CONSTRUCTION
-Y- POC 63+00.00
END CONSTRUCTION
-L- POT 36+65.35
END CONSTRUCTION
-Y- POS 69+94.42
-L- PT Sta. 28+23.84
-Y- CS Sta. 69+14.47
N 51° 38' 18.0" E -L-
NAD 83/2001
HENDERSON DRIVE
WESTERN BLVD
RW DETAIL INSET
STA -L- 32+34
TO -L- 32+42 LT
PROP RW
EXISTING R/W
INSET A
JCL PROPERTIES
DB 1022 PG 169
MB 66 PG 230
JCL PROPERTIES
DB 2165 PG 493
MB 67 PG 68
JACK-CBOC, INC.
DB 4070 PG 442
REFERENCED TO
DB 1042 PG 840
MB 67 PG 57
DANIELS DEV OF GOLDSBORO LLC
DB 1573 PG 187
MB 38 PG 33
CURRIN PATTERSON PROPERTIES IN
DB 1329 PG 252
MB 38 PG 103
K M CORPORATION
DB 1576 PG 285
MB 38 PG 103
THREE STAR PROPERTY OWNER ASSO
DB 1581 PG 230
MB 38 PG 103
PREPS INC
DB 3144 PG 704
MB 38 PG 103
JAX NC BRANCH LLC
DB 2958 PG 672
MB 38 PG 33
BRANCH BANKING & TRUST COMPANY
DB 1572 PG 450
MB 37 PG 239
RARE HOSPITALITY INTERNATIONAL INC
DB 3866 PG 63
MB 62 PG 223
HPS & R INC
MB 62 PG 223
McRAE FARMS,LLC
DB 2633 PG 220
MB 60 PG 138
DITCH CLEANOUT
25+25 - 25+67 -L- LT
SLOPE = -0.20%
DITCH CLEANOUT
63+00 - 63+50 -Y- RT
SLOPE = -0.32%
OUTLET PAD
EST 5 TONS CL B RIPRAP
EST 14 SY GEOTEXTILE
OUTLET PAD
EST 2 TONS CL B RIPRAP
EST 7 SY GEOTEXTILE
OUTLET PAD
EST 3 TONS CL B RIPRAP
EST 10 SY GEOTEXTILE
LATERAL 6' BASE DITCH SEE DETAIL A
LATERAL 6' BASE DITCH SEE DETAIL B
LATERAL 6' BASE DITCH SEE DETAIL C
SPECIAL CUT 2' BASE DITCH SEE DETAIL D
SEE 'INSET A' THIS SHEET FOR BLOW UP OF PROP ROW AROUND SIGN
DO NOT DISTURB EXISTING SIGN
BEG PROP CONC. ISL. -L- 31+16.32
BEG 2'-6" C&G -L- 33+16.20 TIE TO EXISTING
END 2'-6" C&G -L- 35+72.05 -Y- 63+62.89
BEGIN OVERLAY -Y- 63+33.78
GRADE MEDIAN 4:1 OR FLATTER AND MAINTAIN EXIST DRAINAGE PATTERN
END OVERLAY -Y- 63+93.74 O/S 22.14' LT
END OVERLAY -Y- 64+64.82 O/S 15.78' LT
END OVERLAY -Y- 65+26.32 O/S 11.00' LT
END OVERLAY -L- 29+06.33 O/S 23.85' RT
END OVERLAY -L- 31+56.11 O/S 34.58' RT
END OVERLAY -L- 33+03.99 O/S 50.00' RT
END OVERLAY -Y- 65+66.77
BEGIN THRU AND RT LANE PAVEMENT REPAIR -L- 29+36.18
END THRU AND RT LANE PAVEMENT REPAIR -L- 35+50.00
BEG PROP CONC. ISL. -Y- 65+36.50
END PROP CONC. ISL. -L- 35+36.90
END PROP CONC. ISL. -Y- 69+92.43
WARP NEW PAVEMENT TO DRAIN 65+70 -Y- TO 66+00 -Y- 0.03 CROSS SLOPE AT INLET
WARP NEW PAVEMENT TO DRAIN 66+50 -Y- TO 66+80 -Y- 0.03 CROSS SLOPE AT INLET
WARP NEW PAVEMENT TO DRAIN 68+25 -Y- TO 68+50 -Y- 0.03 CROSS SLOPE AT INLET
WARP NEW PAVEMENT TO DRAIN 69+65 -Y- TO 69+92 -Y- 0.04 CROSS SLOPE AT INLET
345' +/- DUAL LEFT STORAGE
185' +/- TAPER
REMOVE 15" RCP
REMOVE 18"RCP
RETAIN
REMOVE

-L-

PI Sta 26+25.36
Δ = 11° 25' 26.7" (RT)
D = 2° 52' 06.0"
L = 398.28'
T = 199.80'
R = 1,997.53'
SE = EXIST
DS = 40 MPH

-Y-

PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

-Y-

PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

PIs Sta 70+14.48
θs = 1° 30' 00.0"
Ls = 300.00'
LT = 200.01'
ST = 100.01'

DETAIL A
LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. b= 6.0 Ft. B= 15.0 Ft.
FROM -L- STA. 26+60 LT TO -L- STA. 29+03 LT

DETAIL B
LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. B= 6.0 Ft. b= 22.0 Ft.
FROM -L- STA. 29+55 LT TO -L- STA. 31+50 LT
FROM -L- STA. 32+00 LT TO -L- STA. 32+30 LT

DETAIL C
LATERAL BASE DITCH (Not to Scale)
Min. D= 1.0 Ft. B= 6.0 Ft. b= VARIES
FROM -L- STA. 31+50 LT TO -L- STA. 32+00 LT
b = 30.0 Ft. -L- STA. 31+66 TO -L- STA. 31+86

DETAIL D
SPECIAL BACK OF CURB CUT BASE DITCH (NOT TO SCALE)
A= 19.0 Ft. B= 2.0 Ft. Min. D= 1.0 Ft.
FROM -L- STA. 33+10 LT TO -L- STA. 35+20 LT

DETAIL E
CONCRETE FLUME DITCH (Not to Scale)
Min. D= 0.5 Ft. B= 6.0 Ft.
DITCH GRADE = MIN. 0.5%
TIE CONCRETE FLUME DITCH TO MODIFIED CONCRETE FLUME
FROM -L- STA. 33+23 56' LT TO -L- STA. 33+25 67' LT
FROM -L- STA. 33+91 46' LT TO -L- STA. 33+91 57' LT
FROM -L- STA. 35+36 51' LT TO -L- STA. 35+32 61' LT

DETAIL F
CONCRETE FLUME DITCH AT EMBANKMENT (Not to Scale)
FROM -L- STA. 33+25 67' LT TO -L- STA. 33+26 71' LT
FROM -L- STA. 33+91 57' LT TO -L- STA. 33+91 68' LT
FROM -L- STA. 35+37.2 45' LT TO -L- STA. 35+33.4 60' LT TO -L- STA. 35+20 70' LT

FOR -L- AND -Y- PROFILE SEE SHEET NO. 5

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	5

ROADWAY DESIGN ENGINEER — SEAL 023912, TRENT E. HUFFMAN, 4/27/2023

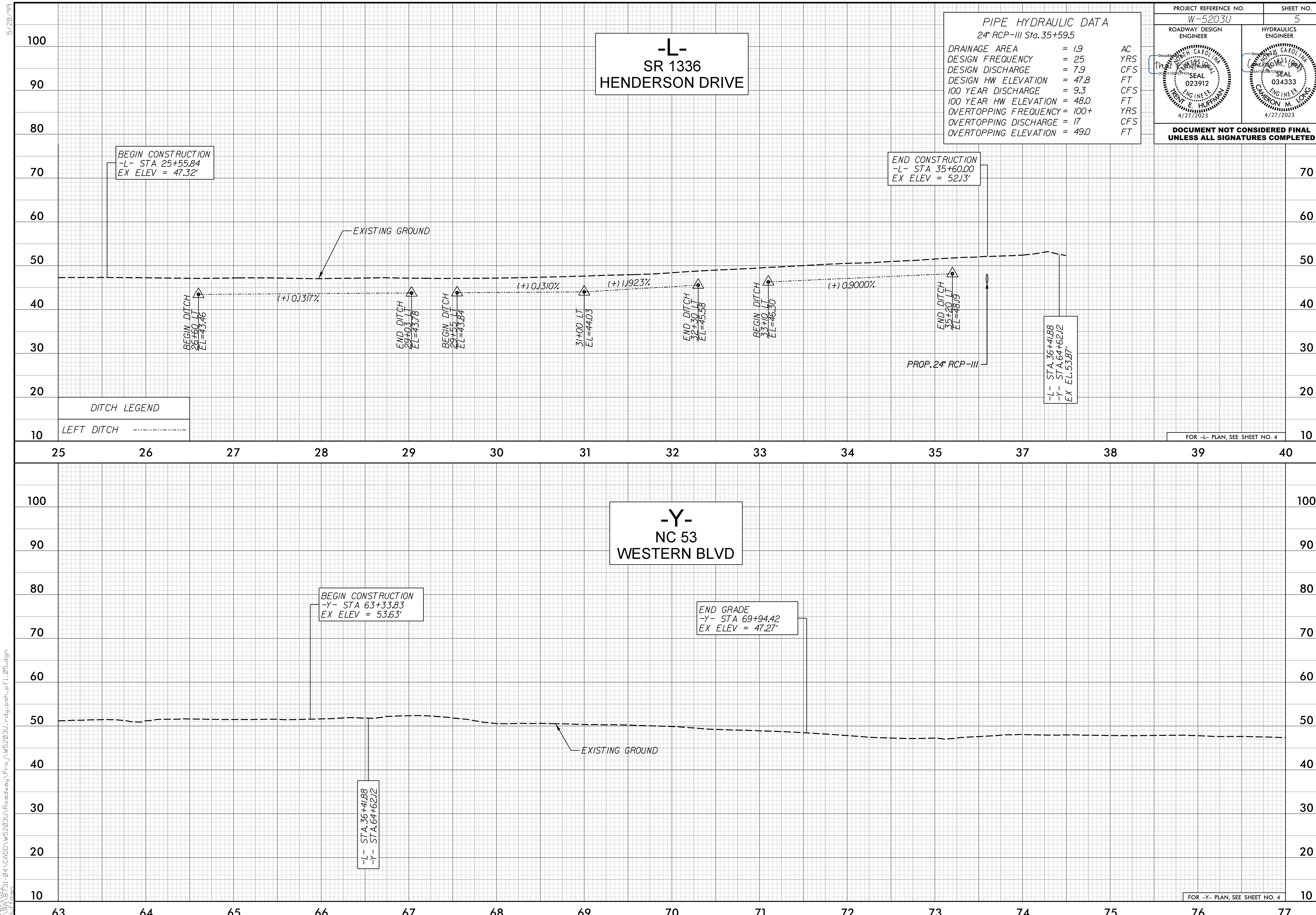
HYDRAULICS ENGINEER — SEAL 034333, CAMERON M. LONG, 4/27/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PIPE HYDRAULIC DATA

24" RCP-III Sta. 35+59.5

DRAINAGE AREA	=	1.9	AC
DESIGN FREQUENCY	=	25	YRS
DESIGN DISCHARGE	=	7.9	CFS
DESIGN HW ELEVATION	=	47.8	FT
100 YEAR DISCHARGE	=	9.3	CFS
100 YEAR HW ELEVATION	=	48.0	FT
OVERTOPPING FREQUENCY	=	100+	YRS
OVERTOPPING DISCHARGE	=	17	CFS
OVERTOPPING ELEVATION	=	49.0	FT



-L-
SR 1336
HENDERSON DRIVE
BEGIN CONSTRUCTION
-L- STA 25+55.84
EX ELEV = 47.32'
END CONSTRUCTION
-L- STA 35+60.00
EX ELEV = 52.13'
EXISTING GROUND
(+) 0.1317%
(+) 0.1310%
(+) 1.1923%
(+) 0.9000%
BEGIN DITCH 26+60 LT EL=43.46
END DITCH 29+03 LT EL=43.78
BEGIN DITCH 29+55 LT EL=43.84
31+00 LT EL=44.03
END DITCH 32+30 LT EL=45.58
BEGIN DITCH 33+10 LT EL=46.30
END DITCH 35+20 LT EL=48.19
PROP. 24" RCP-III
-L- STA.36+41.88
-Y- STA.64+62.12
EX EL.53.87'
DITCH LEGEND
LEFT DITCH
FOR -L- PLAN, SEE SHEET NO. 4
-Y-
NC 53
WESTERN BLVD
BEGIN CONSTRUCTION
-Y- STA 63+33.83
EX ELEV = 53.63'
END GRADE
-Y- STA 69+94.42
EX ELEV = 47.27'
EXISTING GROUND
-L- STA.36+41.88
-Y- STA.64+62.12
FOR -Y- PLAN, SEE SHEET NO. 4

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5203U	RW01	5

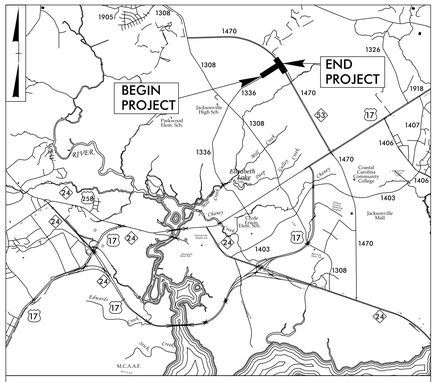
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SURVEY CONTROL, EXISTING CENTERLINES, RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

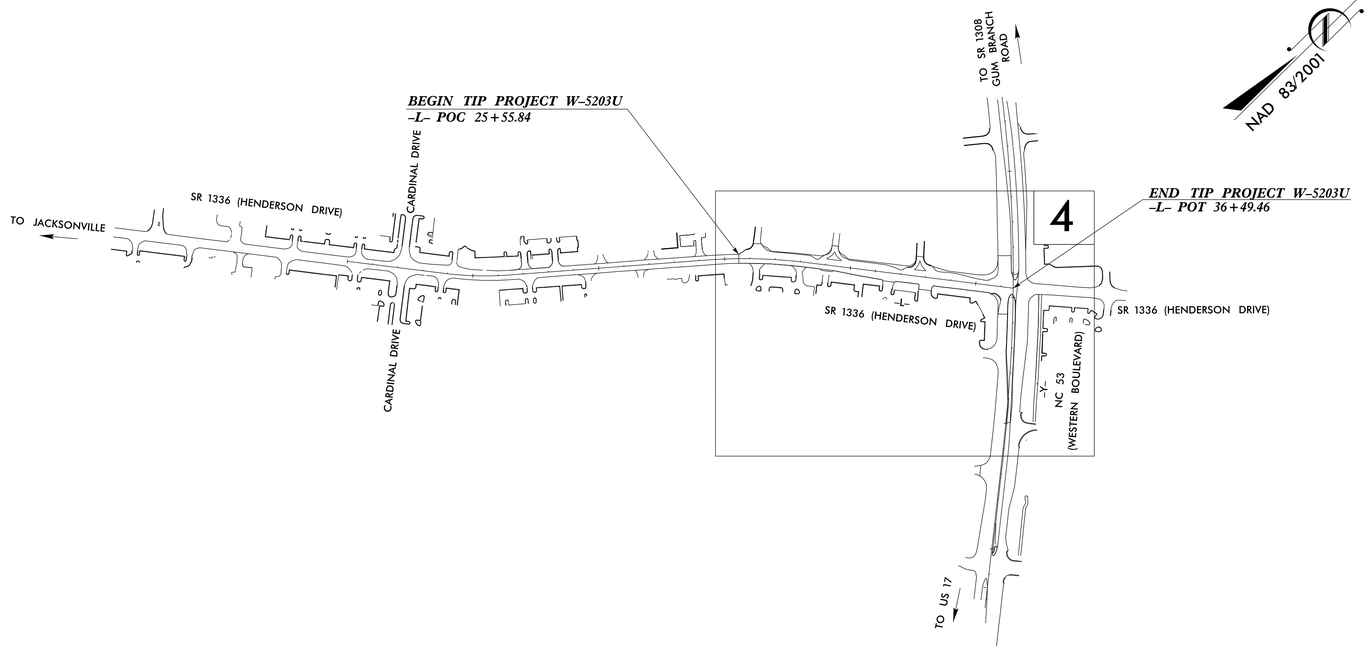
ONSLOW COUNTY

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

TIP PROJECT: W-5203U



VICINITY MAP
(NOT TO SCALE)



GRAPHIC SCALE
FOR SHEET RW04

50 25 0 50 100
PLANS

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "U4007-3" WITH NAD 83/NSRS 2001 STATE PLANE GRID COORDINATES OF NORTHING: 376224.375(ft) EASTING: 2480992.509(ft) ELEVATION: 38.81(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999911272
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "U4007-3" TO -L- STATION 10+00.00 IS N 41-44'13.5" W 8,942.07(ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

Prepared In the Office of:

LOCATION AND SURVEYS UNIT
DIVISION 3
5310 BARBADOS BLVD., SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:	*LETTING DATE:*
MAY 31, 2022	*JULY 13, 2023*

PROFESSIONAL LAND SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DocuSigned by:
05/04/2023
SIGNATURE *Date:*

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

09/08/99

03-MAY-2023 15:26
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mjduval AT LS-32872SL

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	RW02C-1

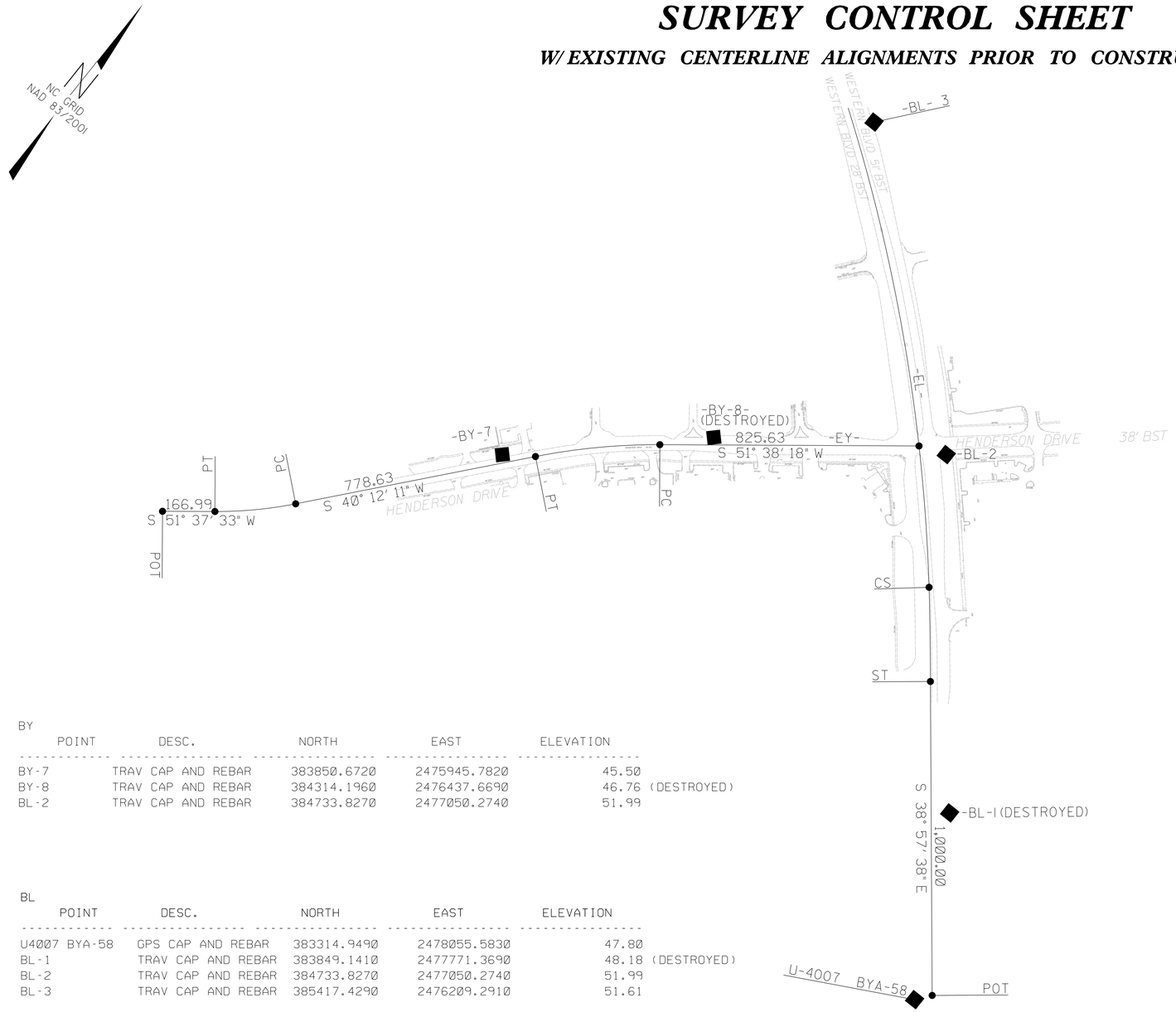
Location and Surveys

LOCATION AND SURVEYS UNIT
DIVISION 3
5310 BARBADOS BLVD, SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



I, Christopher J. Sawyer, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: JANUARY 19, 2023
Datum/Epoch: NAD83/2001

Published/Fixed-control use: N/A FOR RTN
Localized around: U4007-3
Northing: 376224.375
Easting: 2480992.509
Combined grid factor: 0.999911272
Geoid model: 03
Units: SURVEY FEET

I also certify that the Baseline Control for this project was verified under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed from January 19, 2023, and all coordinates are based on NAD 83/2001 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 22ND day of FEBRUARY, 2023.

DocuSigned by:
Christopher J Sawyer
9700CB2E1D21467...

Professional Land Surveyor L-4526

BY

POINT	DESC.	NORTH	EAST	ELEVATION
BY-7	TRAV CAP AND REBAR	383850.6720	2475945.7820	45.50
BY-8	TRAV CAP AND REBAR	384314.1960	2476437.6690	46.76 (DESTROYED)
BL-2	TRAV CAP AND REBAR	384733.8270	2477050.2740	51.99

BL

POINT	DESC.	NORTH	EAST	ELEVATION
U4007 BYA-58	GPS CAP AND REBAR	383314.9490	2478055.5830	47.80
BL-1	TRAV CAP AND REBAR	383849.1410	2477771.3690	48.18 (DESTROYED)
BL-2	TRAV CAP AND REBAR	384733.8270	2477050.2740	51.99
BL-3	TRAV CAP AND REBAR	385417.4290	2476209.2910	51.61

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R	DELTA S	Ls	LT	ST
PC	386300.812	2471956.144											
CURVE			S 70°01'58.1" E	5655.35	59°08'40.8"(RT)	01°00'00.0"	5914.47	3251.20	5729.58				
CS	384369.611	2477271.539											
SPIRAL			S 39°27'37.6" E	299.99						01°30'00.0"(RT)	300.00	200.01	100.01
ST	384137.999	2477462.196											
LINE			S 38°57'37.6" E	1000.00									
POT	383360.420	2478090.979											

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	384701.222	2476965.345							
LINE			S 51°38'18.0" W	825.63					
PC	384188.819	2476317.964							
CURVE			S 45°55'14.5" W	398.01	11°26'07.0"(LT)	02°52'06.0"	398.67	200.00	1997.53
PT	383911.940	2476032.041							
LINE			S 40°12'11.0" W	778.63					
PC	383317.250	2475529.434							
CURVE			S 45°54'52.0" W	258.42	11°25'22.0"(RT)	04°24'46.2"	258.85	129.86	1298.39
PT	383137.456	2475343.807							
LINE			S 51°37'33.0" W	166.99					
POT	383033.792	2475212.895							

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

6/2/99

07-MAR-2023 15:20
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mjduval AT LS-328725L

PROPOSED ALIGNMENT CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	RW02D-1

Location and Surveys

LOCATION AND SURVEYS UNIT
DIVISION 3
5310 BARBADOS BLVD, SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

This 3rd day of February, 2023.

DocuSigned by:

Professional Land Surveyor L-4526

REVISIONS

6/2/99

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	382897.0150	2475039.6507
PC	13+87.71	383137.6294	2475343.6694
PT	16+46.64	383317.4337	2475529.3899
PC	24+25.55	383912.2382	2476032.2923
PT	28+23.84	384188.8189	2476317.9637
POT	36+49.46	384701.2223	2476965.3453

Y

TYPE	STATION	NORTH	EAST
PC	10+00.00	386300.8117	2471956.1438
CS	69+14.47	384369.6099	2477271.5392
ST	72+14.47	384137.9979	2477462.1970
POT	82+14.47	383360.4199	2478090.9792

NOTES:

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

2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

RIGHT OF WAY CONTROL SHEET

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	RW03E-1

Location and Surveys

LOCATIONS AND SURVEY'S UNIT
DIVISION 3
5310 BARBADOS BLVD, SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

PROJECT SURVEYOR

NORTH CAROLINA PROFESSIONAL SEAL L-4526 LAND SURVEYOR CHRISTOPHER J. SAWYER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I , Christopher J. Sawyer, PE , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed January 19, 2023, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 3rd day of February, 2023.

DocuSigned by:
Christopher J Sawyer
Professional Land Surveyor L-4526

ROW MARKER IRON PIN AND CAP

ALIGN	STATION	OFFSET	NORTH	EAST
L	25+55.00	-90.00	384070.7485	2476054.1921
L	25+55.00	-50.00	384042.9987	2476083.0010
L	28+23.84	-90.00	384259.3887	2476262.1076
L	32+34.00	-85.00	384510.0245	2476586.8227
L	32+34.00	-90.00	384513.9450	2476583.7195
L	32+42.00	-90.00	384518.9100	2476589.9924
L	32+42.00	-85.00	384514.9894	2476593.0955
L	35+37.42	-90.00	384702.2571	2476821.6371

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED TO JANUARY 19, 2023 .

REVISIONS

6/2/99

01-FEB-2023 14:36
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mjduval AT LS-328725L

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	RW04

Location and Surveys

LOCATION AND SURVEY'S UNIT
DIVISION 3
5310 BARBADOS BLVD, SUITE 102
CASTLE HAYNE, NORTH CAROLINA 28429

PROJECT SURVEYOR

SEAL L-4526 NORTH CAROLINA PROFESSIONAL LAND SURVEYOR CHRISTOPHER J. SAWYER

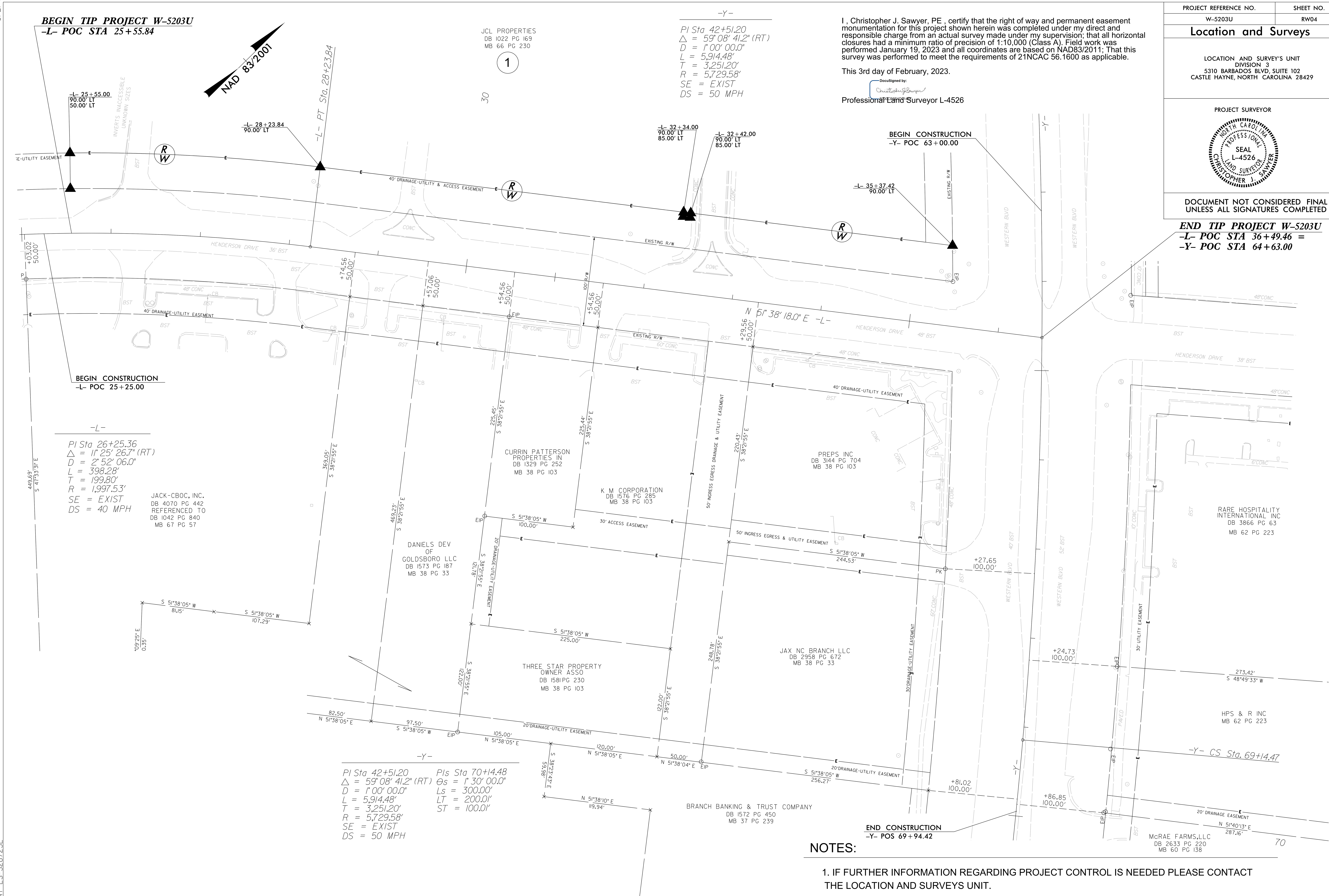
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

I , Christopher J. Sawyer, PE , certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed January 19, 2023 and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 3rd day of February, 2023.

DocuSigned by:

Professional Land Surveyor L-4526



BEGIN TIP PROJECT W-5203U
-L- POC STA 25+55.84
NAD 83/2001
JCL PROPERTIES
DB 1022 PG 169
MB 66 PG 230
-Y-
PI Sta 42+51.20
△ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH
-L- 25+55.00 90.00' LT 50.00' LT
-L- 28+23.84 90.00' LT
-L- PT Sta. 28+23.84
-L- 32+34.00 90.00' LT 85.00' LT
-L- 32+42.00 90.00' LT 85.00' LT
BEGIN CONSTRUCTION
-Y- POC 63+00.00
-L- 35+37.42 90.00' LT
END TIP PROJECT W-5203U
-L- POC STA 36+49.46 =
-Y- POC STA 64+63.00
40' DRAINAGE-UTILITY & ACCESS EASEMENT
EXISTING R/W
HENDERSON DRIVE
N 61° 38' 18.0" E -L-
40' DRAINAGE-UTILITY EASEMENT
BEGIN CONSTRUCTION
-L- POC 25+25.00
-L-
PI Sta 26+25.36
△ = 11° 25' 26.7" (RT)
D = 2° 52' 06.0"
L = 398.28'
T = 199.80'
R = 1,997.53'
SE = EXIST
DS = 40 MPH
JACK-CBOC, INC.
DB 4070 PG 442
REFERENCED TO
DB 1042 PG 840
MB 67 PG 57
DANIELS DEV OF GOLDSBORO LLC
DB 1573 PG 187
MB 38 PG 33
CURRIN PATTERSON PROPERTIES IN
DB 1329 PG 252
MB 38 PG 103
K M CORPORATION
DB 1576 PG 285
MB 38 PG 103
PREPS INC
DB 3144 PG 704
MB 38 PG 103
RARE HOSPITALITY INTERNATIONAL INC
DB 3866 PG 63
MB 62 PG 223
THREE STAR PROPERTY OWNER ASSO
DB 1581 PG 230
MB 38 PG 103
JAX NC BRANCH LLC
DB 2958 PG 672
MB 38 PG 33
HPS & R INC
MB 62 PG 223
BRANCH BANKING & TRUST COMPANY
DB 1572 PG 450
MB 37 PG 239
McRAE FARMS,LLC
DB 2633 PG 220
MB 60 PG 138
30' ACCESS EASEMENT
50' INGRESS EGRESS & UTILITY EASEMENT
20' DRAINAGE-UTILITY EASEMENT
30' UTILITY EASEMENT
WESTERN BLVD
-Y- CS Sta. 69+14.47
-Y-
PI Sta 42+51.20
△ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH
PIs Sta 70+14.48
θs = 1° 30' 00.0"
Ls = 300.00'
LT = 200.01'
ST = 100.01'
END CONSTRUCTION
-Y- POS 69+94.42

NOTES:

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED JANUARY 19, 2023.

6/2/99

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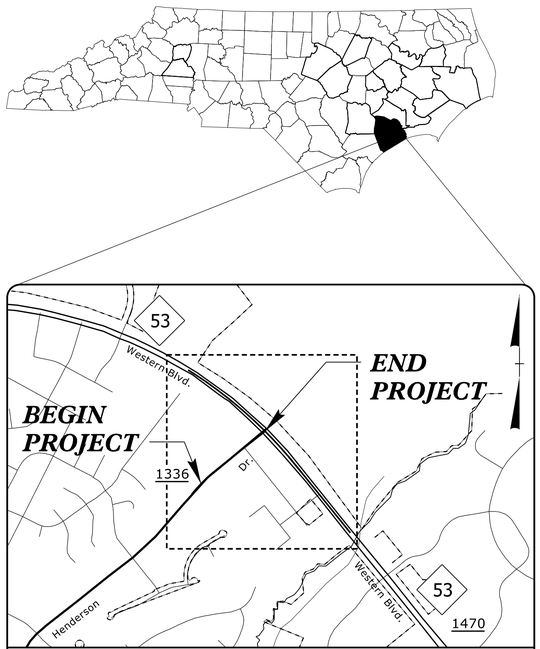
mjduval AT LS-328725L

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

ONSLOW COUNTY

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)



VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

W-5203U

TIP PROJECT:

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

PLANS PREPARED BY:

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

NCDOT CONTACTS:

DON PARKER, PE
PROJECT ENGINEER

ALLA LYUDMIRSKAYA
PROJECT DESIGN ENGINEER

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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

APPROVED: DocuSigned by: Trent E Huffman 0C6C516E4527404...

DATE: 6/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

6/8/2023
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THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-1A

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUMS
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1165.01	TRUCK MOUNTED ATTENUATOR
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.05	PAVEMENT MARKINGS - TURN LANES
1264.01	OBJECT MARKERS - TYPES
1264.02	OBJECT MARKERS - INSTALLATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- PAVEMENT OVERLAY
- EXISTING SIGNAL
- MODIFIED SIGNAL

TEMPORARY PAVEMENT MARKING

P1 WHITE EDGELINE (PAINT 4")
P10 YELLOW EDGELINE (PAINT 4")

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- DRUM
- FLASHING ARROW BOARD
- CHANGEABLE MESSAGE SIGN
- TRUCK MOUNTED ATTENUATOR

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC MANAGEMENT STRATEGY

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
LANE SHIFTS OR CLOSURES
SHOULDER CLOSURES

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

APPROVED: DocuSigned by: Trent E Huffman 0C8C516E4527404...
DATE: 4/27/2023
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

ROADWAY STANDARD DRAWINGS, LEGEND & TRAFFIC MANAGEMENT STRATEGY

12/6/2022
04\RAL873I-04\CADD\W5203U\Traffic\TrafficControl\TCP\W5203U_tc_tmp_02.dgn
tHuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-2A

GENERAL NOTES / LOCAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
SR 1336 HENDERSON DRIVE (-L-)	MON. THRU SUN. 5:30 A.M. - 8:00 P.M.
NC 53 WESTERN BOULEVARD (-Y-)	MON. THRU SUN. 5:30 A.M. - 8:00 P.M.

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

ROAD NAME

SR 1336 HENDERSON DRIVE (-L-)
NC 53 WESTERN BOULEVARD (-Y-)

HOLIDAY

1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 5:30 A.M. DECEMBER 31st TO 8:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 8:00 P.M. THE FOLLOWING TUESDAY.
3. FOR EASTER, BETWEEN THE HOURS OF 5:30 A.M. THURSDAY AND 8:00 P.M. MONDAY.
4. FOR MEMORIAL DAY, BETWEEN THE HOURS OF 5:30 A.M. FRIDAY TO 8:00 P.M. TUESDAY.
5. FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 5:30 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

   IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY THEN BETWEEN THE HOURS OF 5:30 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 8:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.
6. FOR LABOR DAY, BETWEEN THE HOURS OF 5:30 A.M. FRIDAY AND 8:00 P.M. TUESDAY.
7. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 5:30 A.M. TUESDAY TO 8:00 P.M. MONDAY.
8. FOR CHRISTMAS, BETWEEN THE HOURS OF 5:30 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 8:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

C) DO NOT STOP TRAFFIC AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS MONDAY THRU SUNDAY	DURATION AND OPERATION
SR 1336 HENDERSON DRIVE (-L-)	6:00 A.M. - 11:00 P.M.	15 MINUTES FOR TRAFFIC SHIFT
NC 53 WESTERN BOULEVARD (-Y-)	6:00 A.M. - 11:00 P.M.	15 MINUTES FOR TRAFFIC SHIFT

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

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

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

I) BACKFILL AT 6:1 SLOPE UP TO THE EDGE OF 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.

J) DO NOT EXCEED A DIFFERENCE OF 2 INCHES IN ELEVATION BETWEEN OPEN LANES OF TRAFFIC FOR NOMINAL LIFTS OF 1.5 INCHES. INSTALL ADVANCE WARNING "UNEVEN LANES" SIGNS (W8-11) 500 IN ADVANCE AND A MINIMUM OF EVERY HALF MILE THROUGHOUT THE UNEVEN AREA.

TRAFFIC PATTERN ALTERATIONS

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

SIGNING

L) 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.

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

N) INSTALL BLACK ON ORANGE "DIP" SIGNS (W8-2) AND/OR "BUMP" SIGNS (W8-1) 500 IN ADVANCE OF THE UNEVEN AREA, OR AS DIRECTED BY THE ENGINEER.

TRAFFIC BARRIER

O) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.

INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

P) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT
55	25 FT
60 MPH OR HIGHER	30 FT

TRAFFIC CONTROL DEVICES

Q) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT, 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

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

S) PLACE ADDITIONAL SETS OF THREE CHANNELIZING DEVICES DRUMS PERPENDICULAR TO THE EDGE OF TRAVELWAY ON 500 FT CENTERS WHEN UNOPENED LANES ARE CLOSED TO TRAFFIC.

PAVEMENT MARKINGS AND MARKERS

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

ROAD NAME	MARKING	MARKER
-L- (SR 1366 HENDERSON DRIVE)	PAINT	NONE
-Y- (NC 53 WESTERN BLVD)	PAINT	NONE

U) PLACE ONE APPLICATION OF PAINT FOR TEMPORARY TRAFFIC PATTERNS. PLACE A SECOND APPLICATION OF PAINT SIX (6) MONTHS AFTER THE INITIAL APPLICATION AND EVERY SIX MONTHS AS DIRECTED BY THE ENGINEER.

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

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

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

PORTABLE CONSTRUCTION LIGHTING

Y) WHEN PERFORMING NIGHTTIME WORK, FOLLOW STANDARD SPECIFICATIONS IN ACCORDANCE WITH SECTION 1413 (PORTABLE CONSTRUCTION LIGHTING).

MISCELLANEOUS

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

AA) IN THE EVENT A TIE-IN CANNOT BE MADE IN ONE DAY'S TIME, BRING THE TIE-IN AREA TO AN APPROPRIATE ROADWAY ELEVATION AS DETERMINED BY THE ENGINEER. PLACE BLACK ON ORANGE "LOOSE GRAVEL" SIGNS (W8-7) AND BLACK ON ORANGE "PAVEMENT ENDS" SIGNS (W8-3) 500 AND 100 RESPECTIVELY IN ADVANCE OF THE UNEVEN AREAS. USE DRUMS TO DELINEATE THE EDGE OF ROADWAY ALONG UNPAVED AREAS.

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APPROVED: DocuSigned by: Trent E Huffman 0C6C516E4527404...

DATE: 6/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

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DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · NO. 1 · WORK ZONE TRAFFIC CONTROL

GENERAL NOTES AND LOCAL NOTES

6/8/2023
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THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-3

TRAFFIC CONTROL PHASING

PHASE I

USING RSD 1101.01 (3 OF 3) INSTALL WORK ZONE ADVANCE
WARNING SIGNS ON -L- (SR 1336 HENDERSON DRIVE).
USING RSD 1101.01 (2 OF 3) INSTALL WORK ZONE ADVANCE
WARNING SIGNS ON -Y- (NC 53 WESTERN BOULEVARD).
USING RSD 1101.04 CLOSE WESTBOUND SHOULDER AND OUTSIDE
TURN LANE ON -L- (SR 1336 HENDERSON DRIVE), CLOSE
SOUTHBOUND RIGHT TURN LANE ON -Y- (NC 53 WESTERN BOULEVARD).
USE TYPE III BARRICADES TO CLOSE COMMERCIAL ENTRANCES ON
THE LEFT SIDE OF -L-. DO NOT CLOSE MORE THAN TWO ENTRANCES
AT A TIME.
CONSTRUCT FROM -L- STA 25+55.84 +/- TO -L- STA 35+76.40 +/-.
CONSTRUCT FROM -Y- STA 64+86.92 +/- (-L- 35+67.64 +/-) TO
-Y- STA 65+66.77 +/-(-L- 36+01.74 +/-).
INSTALL NEW PAVEMENT UP TO FINAL PAVEMENT LAYER.

PHASE II

SHIFT WESTBOUND TRAFFIC TO NEWLY CONSTRUCTED -L- OUTSIDE LANE.
USING RSD 1101.02 (2 OF 14) CLOSE TWO-WAY TURN LANE
CLOSE WESTBOUND AND EASTBOUND INSIDE LANES ON -L-.
MAINTAIN TRAFFIC IN TWO WAY TWO LANE PATTERN ON -L-.
USING RSD 1101.02 (3 OF 14) CLOSE INSIDE LANES ON -Y-.
CONSTRUCT MEDIAN FROM -L- STA 25+55.84 +/- TO -L- STA 35+76.40 +/-.
CONSTRUCT MEDIAN FROM -Y- STA 64+86.53 +/- TO -Y- STA 69+94.42 +/-
CONSTRUCT MEDIAN FROM -Y- STA 63+93.74 +/- TO -Y- STA 64+30.46 +/-
INSTALL NEW PAVEMENT UP TO FINAL PAVEMENT LAYER.

PHASE III

INSTALL MODIFIED SIGNAL AT INTERSECTION.
CONSTRUCT FROM -L- STA 25+55.84 +/- TO -L- STA 35+74.22 +/-
CONSTRUCT FROM -Y- STA 63+33.78 +/- TO -Y- STA 65+66.77 +/-
INSTALL FINAL LAYER OF PAVEMENT AND FINAL PAVEMENT MARKINGS,
PLACE TRAFFIC IN FINAL PATTERN.
REMOVE ALL REMAINING TRAFFIC CONTROL DEVICES AND SIGNING.

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

TEMPORARY
TRAFFIC CONTROL
PHASING

12/6/2022
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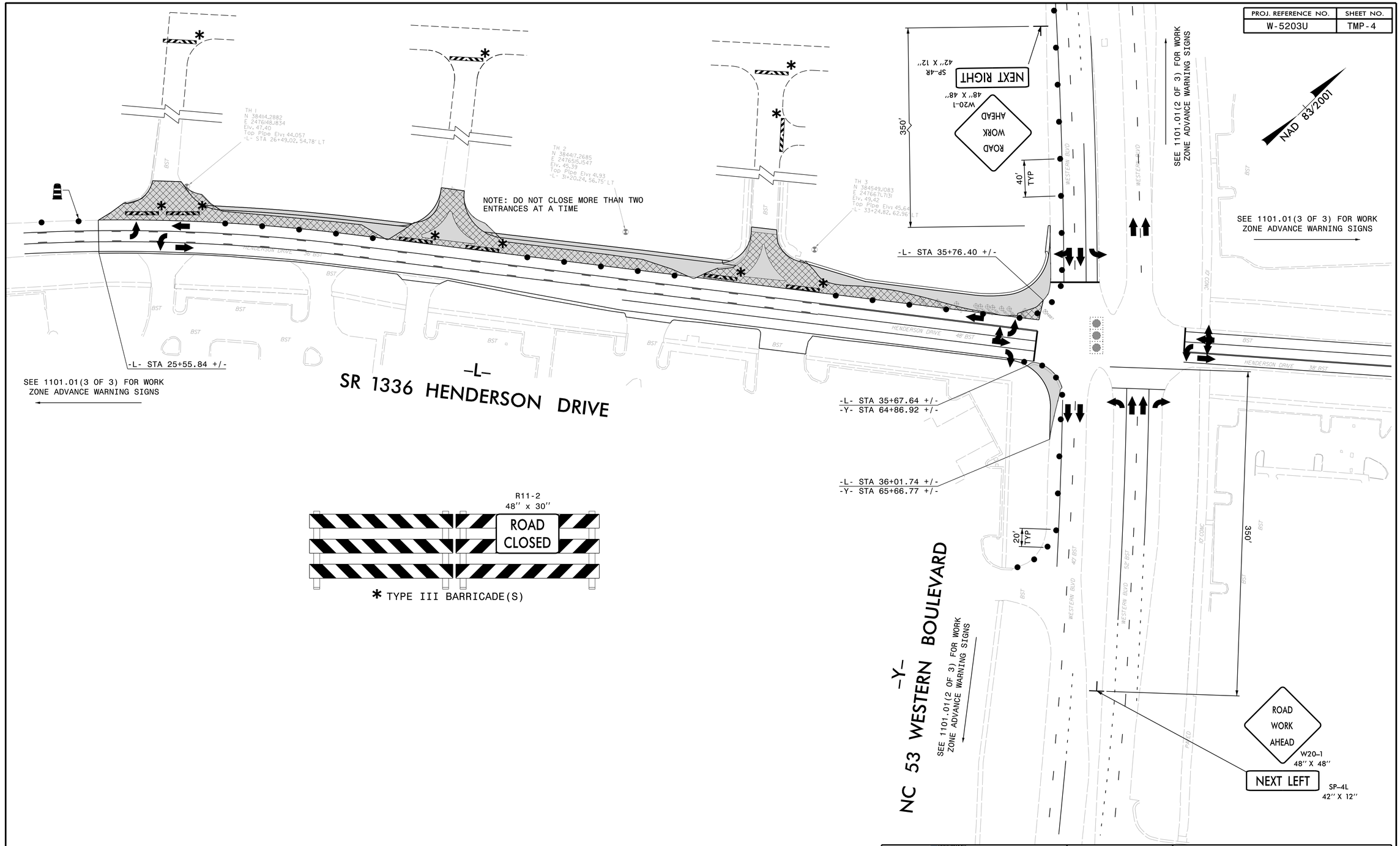
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-4



R11-2
48" x 30"

ROAD CLOSED

* TYPE III BARRICADE(S)

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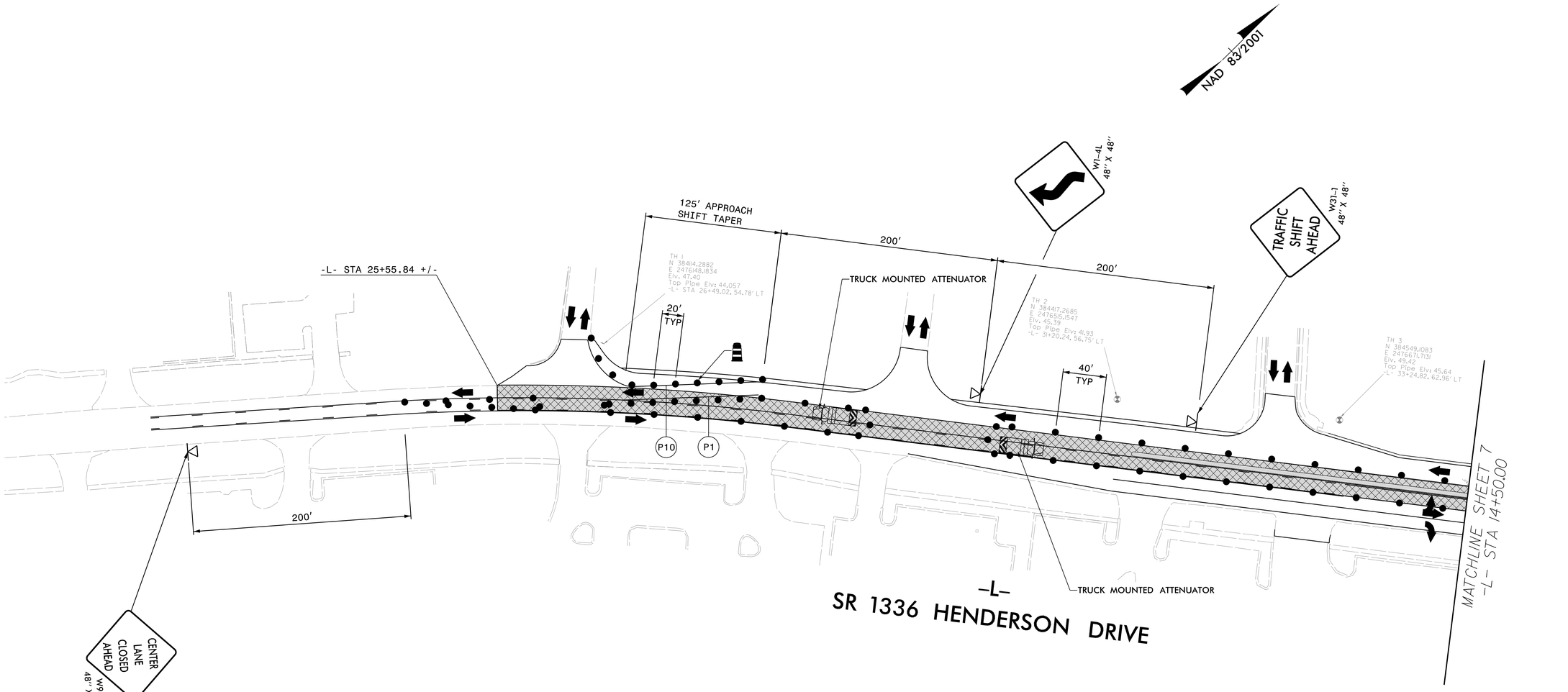
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE 1
-L-

12/6/2022
G:\RAL\873-04\CADD\W5203U\Traffic\TrafficControl\TCP\W5203U_tc_tmp_04.dgn
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-5



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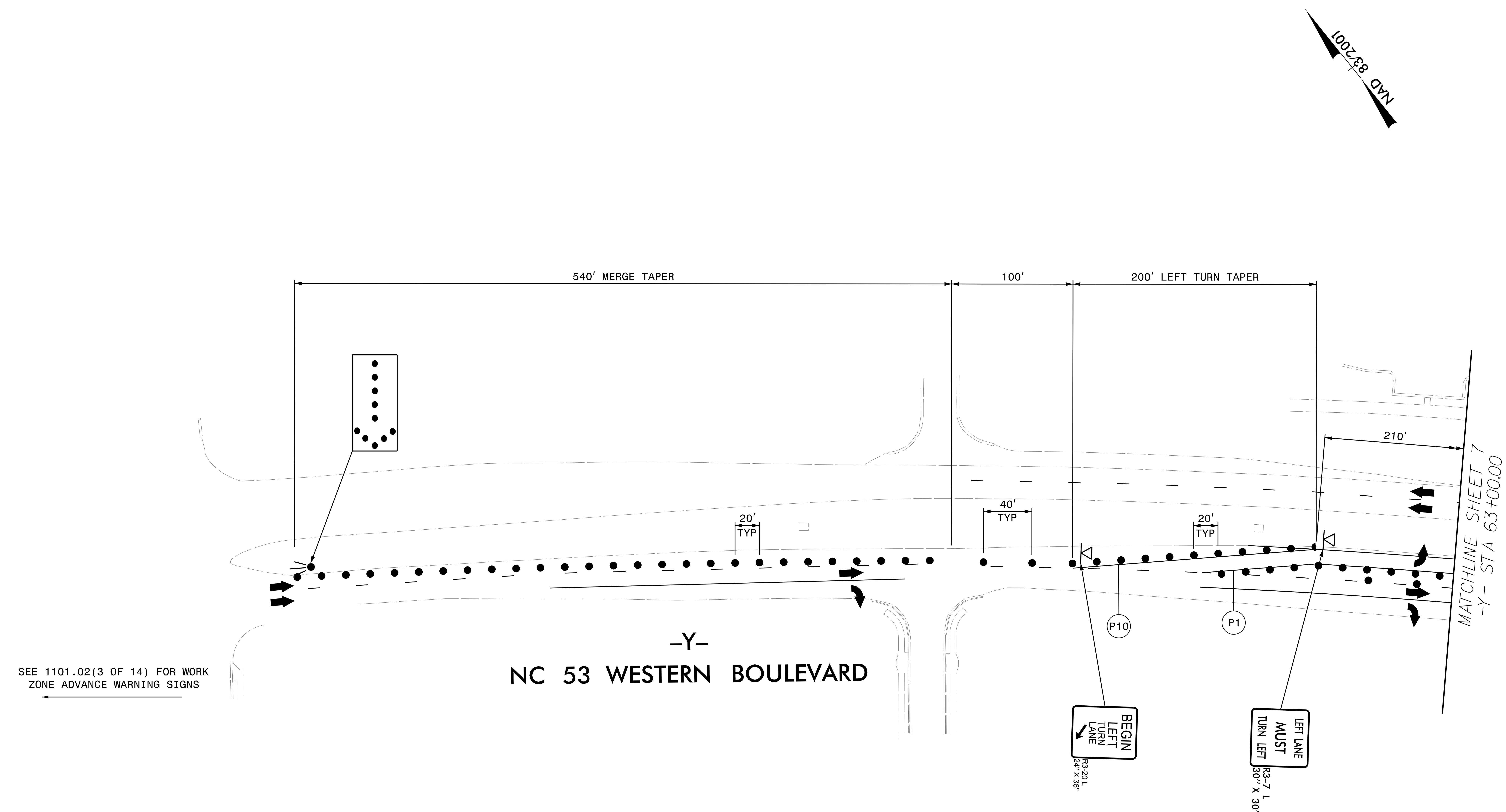
PHASE 2
-L-

12/6/2022
G:\RAL\873\04\CADD\W5203U\Traffic\TrafficControl\TCP\W5203U_tc_tmp_05.dgn
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-6



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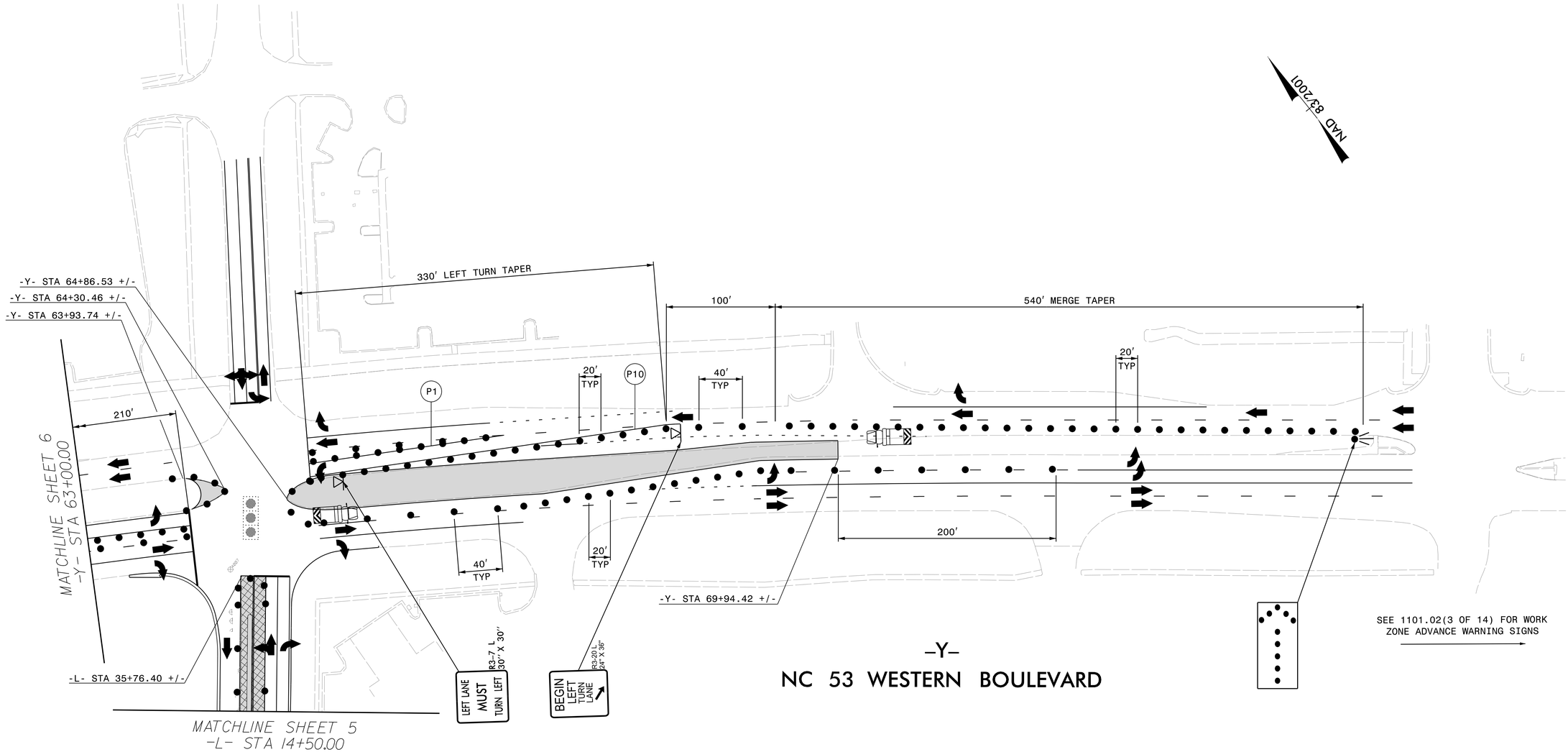
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PHASE 2
-Y-

12/6/2022
Q:\RA\8731-04\CADD\W5203U\Traffic\TrafficControl\TCP\W5203U_tc_tmp_06.dgn
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-7



-Y-
NC 53 WESTERN BOULEVARD

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PHASE 2
-Y-

12/6/2022
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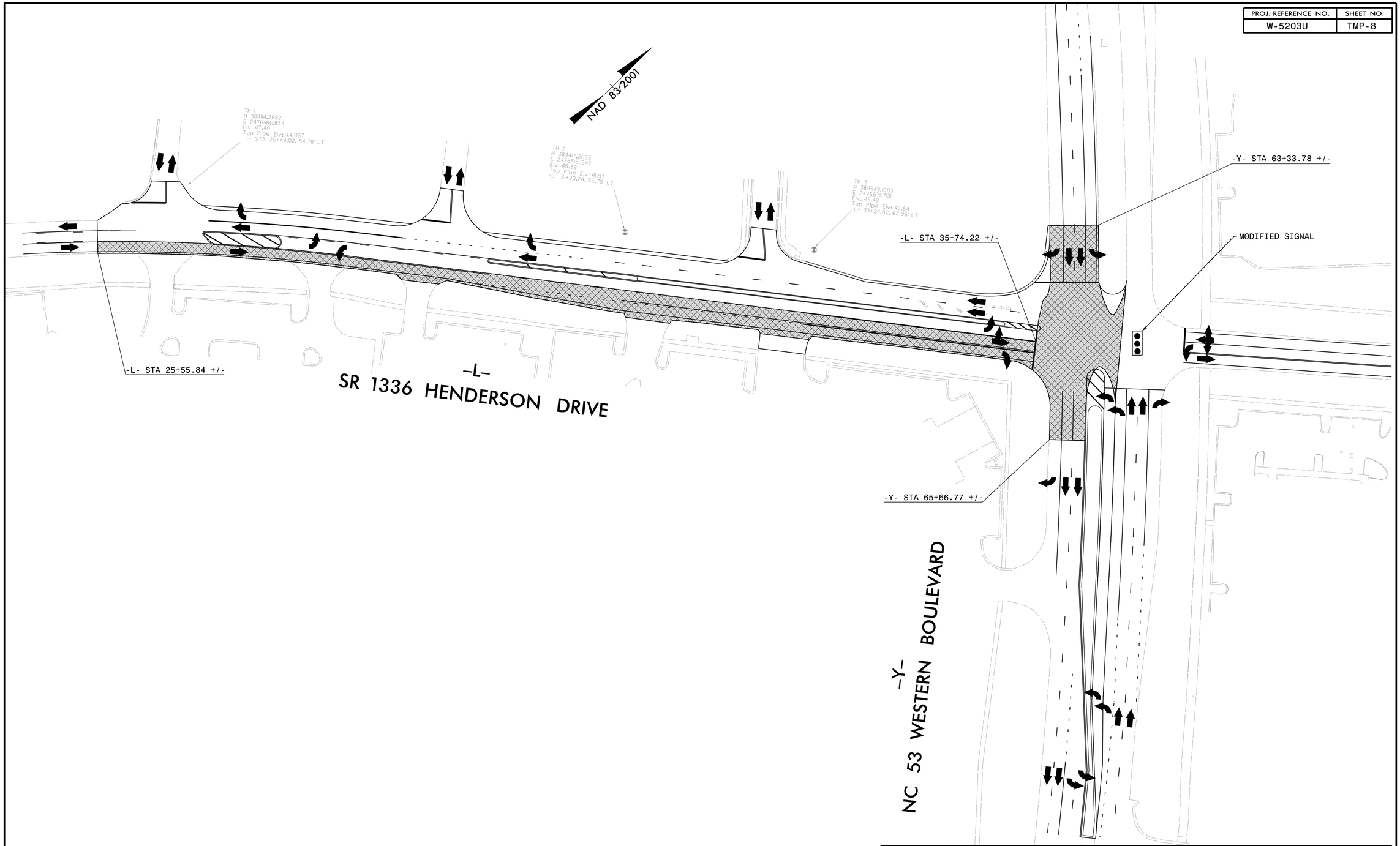
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	TMP-8



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

PHASE 3
-L- AND -Y-

8/17/99

PROJECT: W-5203U

CONTRACT: DC00422

PROJECT REFERENCE NO.	SHEET NO.
W5203U	PMP-1

APPROVED: Trent E. Huffman

DATE: 6/13/2023

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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLANS

ONSLOW COUNTY

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTION
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
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

INDEX

GENERAL NOTES

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

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
-L- (SR 1336 HENDERSON DRIVE)	THERMOPLASTIC	SNOWPLOWABLE
-Y- (NC 53 WESTERN BOULEVARD)	THERMOPLASTIC	SNOWPLOWABLE

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

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

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

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

PLAN REVIEWED BY: NCDOT SIGNING AND DELINEATION UNIT

A.ALQUDWAH, PE	SIGNING & DELINEATION REGIONAL ENGINEER
S.JOHNS	SIGNING & DELINEATION PROJECT DESIGN ENGINEER

PLAN PREPARED BY: MOFFATT & NICHOL

TRENT HUFFMAN, PE	PROJECT ENGINEER
ZITONG LIU, EI	PROJECT DESIGN

PROJ. REFERENCE NO.	SHEET NO.
W5203U	PMP-2

FINAL PAVEMENT MARKING SCHEDULE

MATERIAL	SYMBOL	DESCRIPTION
THERMOPLASTIC (4″, 90 MILS)		
	T1	WHITE EDGE LINE
	T2	WHITE SOLID LANE LINE
	T3	10 FT. WHITE SKIP
	T4	3 FT.-9 FT./SP WHITE MINISKIP
	T5	2 FT.-6 FT./SP WHITE MINISKIP
	T10	YELLOW EDGELINE
	T11	YELLOW SINGLE CENTER
	T12	10 FT. YELLOW SKIP
	T13	YELLOW DOUBLE CENTER
THERMOPLASTIC (8″, 90 MILS)		
	T41	WHITE DIAGONAL
	T42	YELLOW DIAGONAL
	T43	WHITE SOLID LANE LINE
	T44	3 FT.-9 FT./SP WHITE MINISKIP
THERMOPLASTIC (24″, 90 MILS)		
	T61	WHITE STOPBAR
THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)		
	T70	LEFT TURN ARROW
	T71	RIGHT TURN ARROW
	T72	STRAIGHT ARROW
	T73	COMBO. LEFT/STRAIGHT ARROW
	T100	ALPHANUMERIC CHAR.
PAVEMENT MARKER SYMBOLS		
	ME	SNOWPLOWABLE MARKER YELLOW & YELLOW
	MF	SNOWPLOWABLE MARKER CRYSTAL & RED

LEGEND

GENERAL

- PROPOSED PAVEMENT
- EXISTING PAVEMENT
- NORTH ARROW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKER YELLOW/YELLOW
- PAVEMENT MARKER CRYSTAL/RED

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX (F-0105)

APPROVED: Trent E Huffman
DocuSigned by: 0C6C516E4527404...
DATE: 4/27/2023

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023912 TRENT E. HUFFMAN

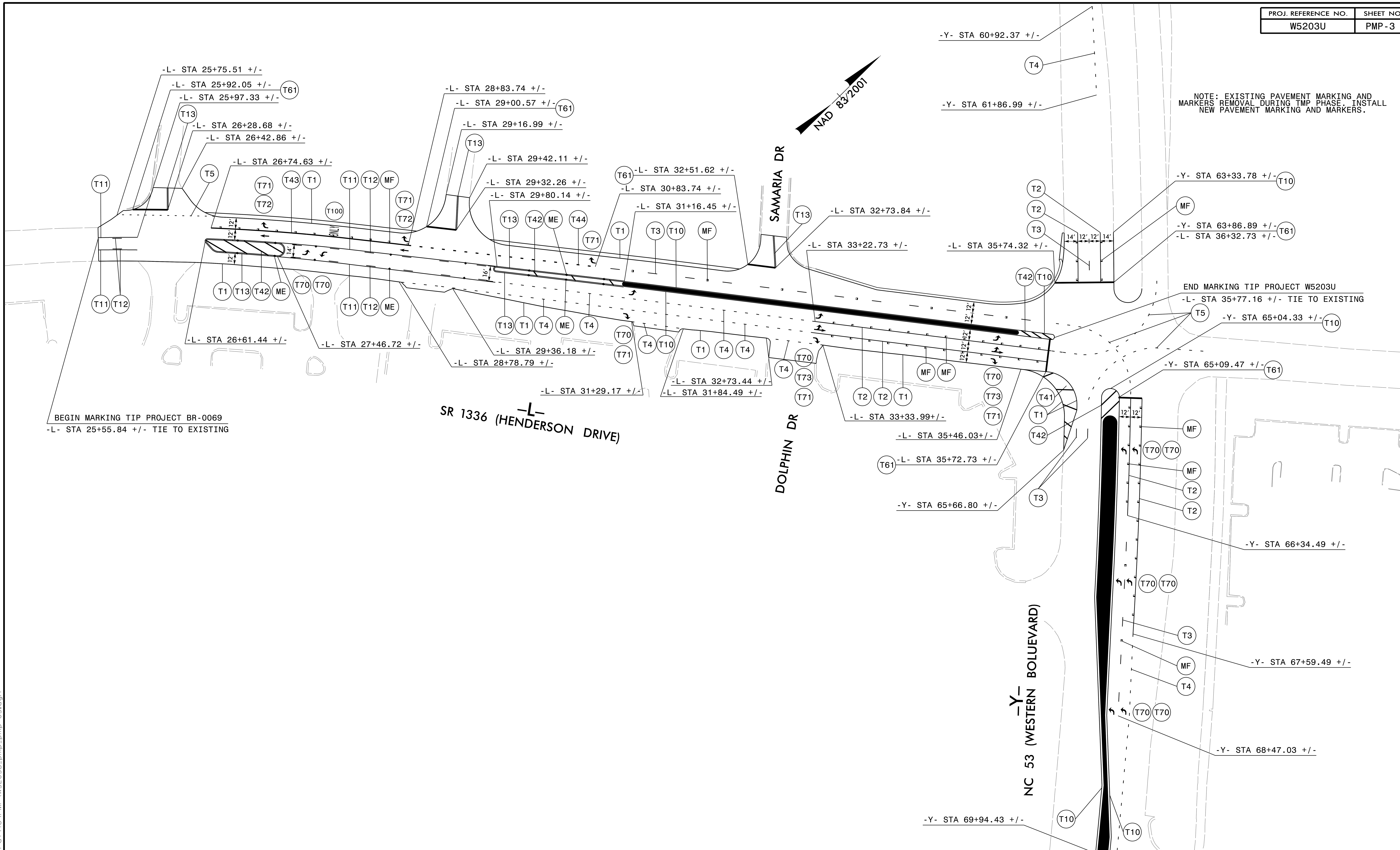
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

FINAL PAVEMENT MARKING PLANS

12/6/2022
C:\RAL873J-04\CADD\W5203U\Traffic\PMP\W5203U_pmp_pmp-02.dgn
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W5203U	PMP-3



NOTE: EXISTING PAVEMENT MARKING AND MARKERS REMOVAL DURING TMP PHASE. INSTALL NEW PAVEMENT MARKING AND MARKERS.
NAD 83/2001
SR 1336 (HENDERSON DRIVE)
-L-
NC 53 (WESTERN BOLUEVARD)
-Y-
SAMARIA DR
DOLPHIN DR
BEGIN MARKING TIP PROJECT BR-0069
-L- STA 25+55.84 +/- TIE TO EXISTING
END MARKING TIP PROJECT W5203U
-L- STA 35+77.16 +/- TIE TO EXISTING
-L- STA 25+75.51 +/-
-L- STA 25+92.05 +/-
-L- STA 25+97.33 +/-
-L- STA 26+28.68 +/-
-L- STA 26+42.86 +/-
-L- STA 26+74.63 +/-
-L- STA 26+61.44 +/-
-L- STA 27+46.72 +/-
-L- STA 28+83.74 +/-
-L- STA 29+00.57 +/-
-L- STA 29+16.99 +/-
-L- STA 29+42.11 +/-
-L- STA 29+32.26 +/-
-L- STA 29+80.14 +/-
-L- STA 29+36.18 +/-
-L- STA 28+78.79 +/-
-L- STA 32+51.62 +/-
-L- STA 30+83.74 +/-
-L- STA 31+16.45 +/-
-L- STA 32+73.84 +/-
-L- STA 33+22.73 +/-
-L- STA 35+74.32 +/-
-L- STA 31+29.17 +/-
-L- STA 32+73.44 +/-
-L- STA 31+84.49 +/-
-L- STA 33+33.99+/-
-L- STA 35+46.03+/-
-L- STA 35+72.73 +/-
-Y- STA 60+92.37 +/-
-Y- STA 61+86.99 +/-
-Y- STA 63+33.78 +/-
-Y- STA 63+86.89 +/-
-L- STA 36+32.73 +/-
-Y- STA 65+04.33 +/-
-Y- STA 65+09.47 +/-
-Y- STA 65+66.80 +/-
-Y- STA 66+34.49 +/-
-Y- STA 67+59.49 +/-
-Y- STA 68+47.03 +/-
-Y- STA 69+94.43 +/-
T1 T2 T3 T4 T5 T10 T11 T12 T13 T41 T42 T43 T44 T61 T70 T71 T72 T73 T100 MF ME

APPROVED: Trent E. Huffman

DATE: 4/27/2023

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 023912 TRENT E. HUFFMAN

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX
NC License NO.: F-0105

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

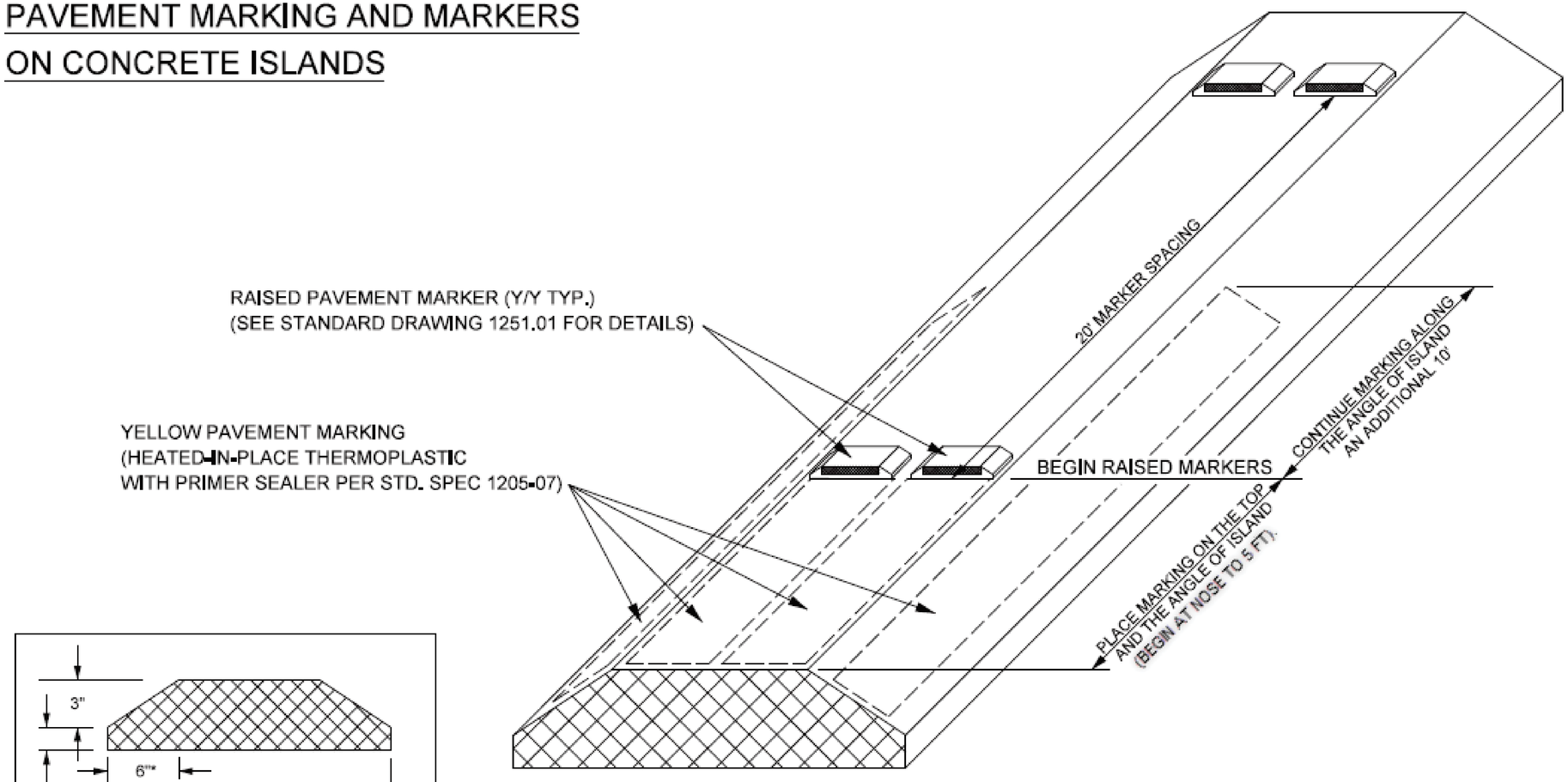
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

FINAL PAVEMENT MARKING PLANS

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	PMP-4

PAVEMENT MARKING DETAIL

PAVEMENT MARKING AND MARKERS ON CONCRETE ISLANDS



MONOLITHIC CONCRETE ISLAND

(SEE STANDARD DRAWINGS 852.01, 852.02, & 852.06 FOR DETAILS.)

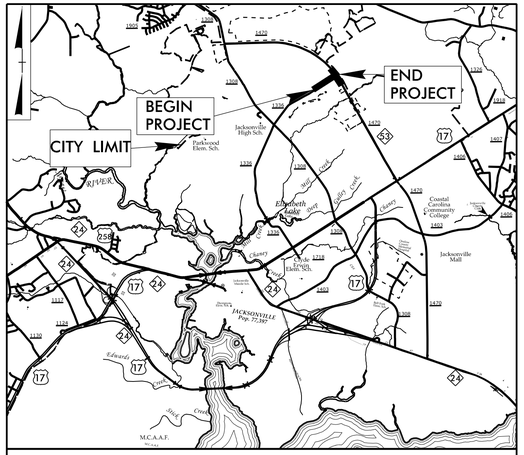
(DRAWING NOT TO SCALE)

09/08/99

TIP PROJECT: W-5203U

CONTRACT:

See Sheet 1B For Conventional Symbols



VICINITY MAP
(NOT TO SCALE)

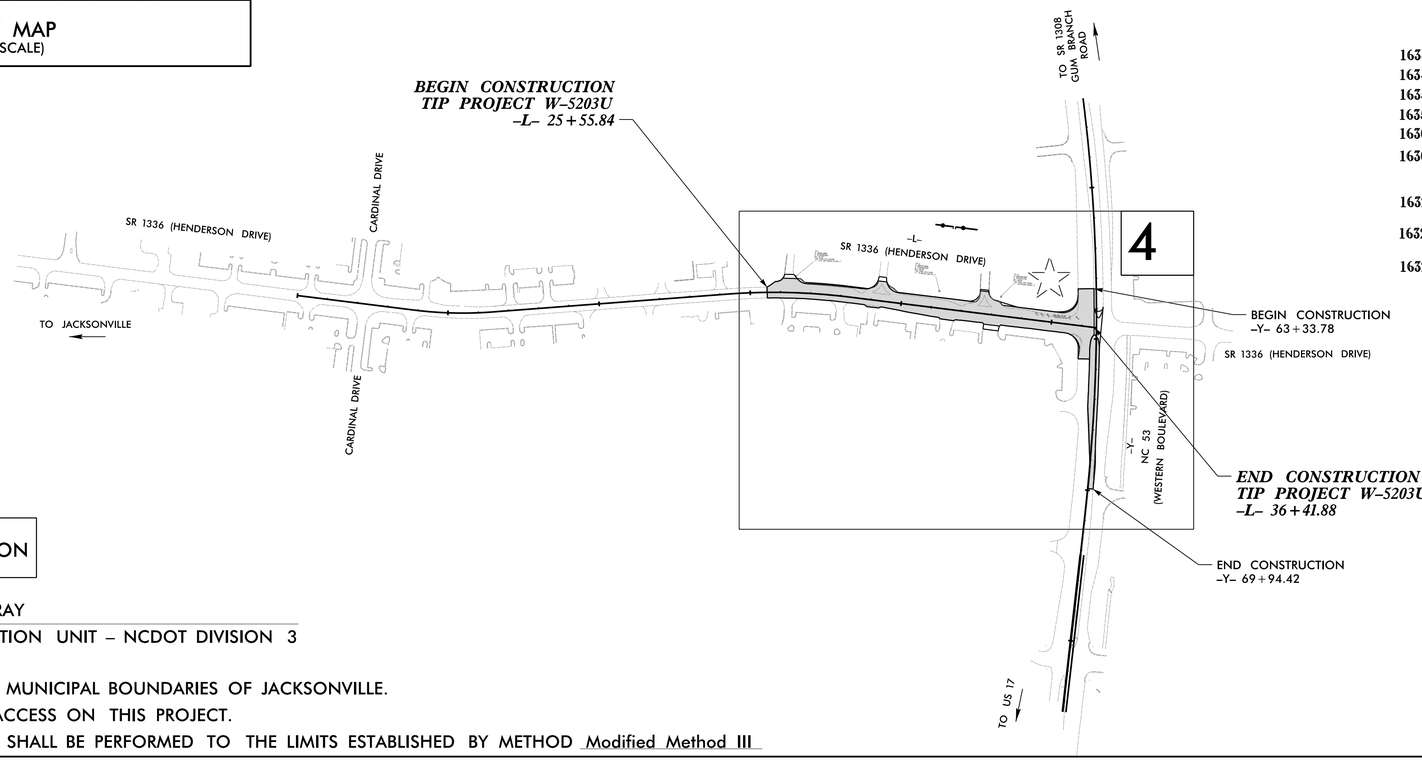
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

ONSLOW COUNTY

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

TYPE OF WORK: GRADING, DRAINAGE, PAVING



SIGNAL MODIFICATION

NCDOT CONTACT: ERIC MURRAY
DIVISON DESIGN CONSTRUCTION UNIT – NCDOT DIVISION 3

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF JACKSONVILLE.
THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD Modified Method III

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	W-5203U	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
45333.1.FR21	HSIP-0053(15)	PE	

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	EW CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

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

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

Prepared in the Office of:

MOFFATT & NICHOL
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919)781-4626 PHONE (919)781-4869 FAX

Designed by:

JUSTIN DAVENPORT ***#3989***
NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

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

12/6/2022
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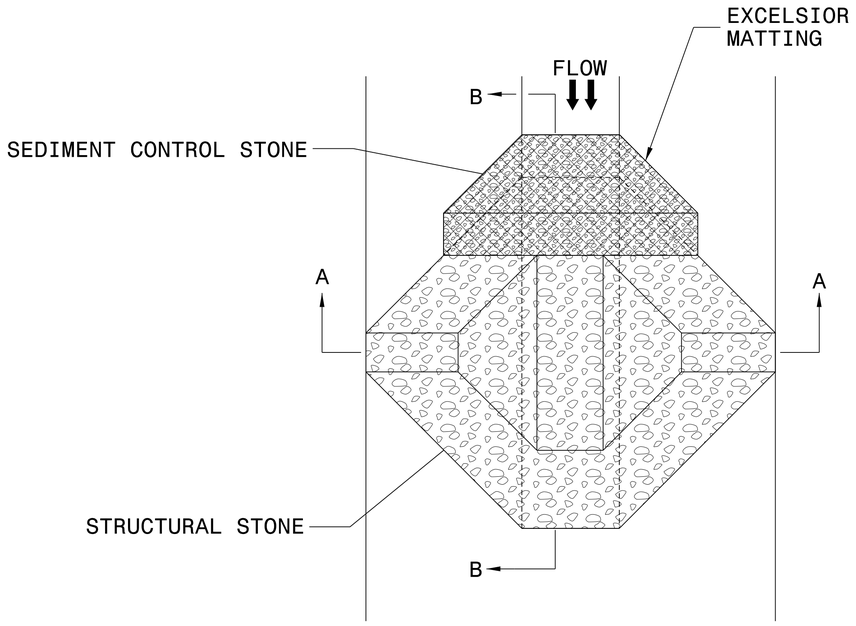
THuffman

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-2

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



PLAN

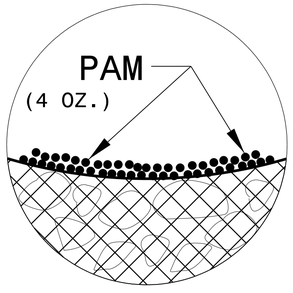
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

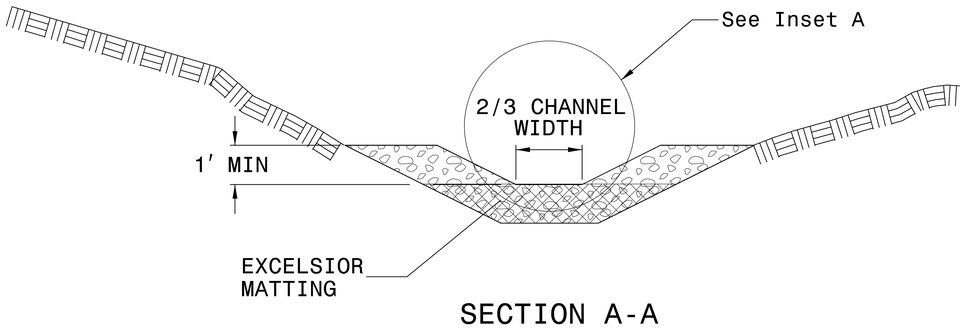
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

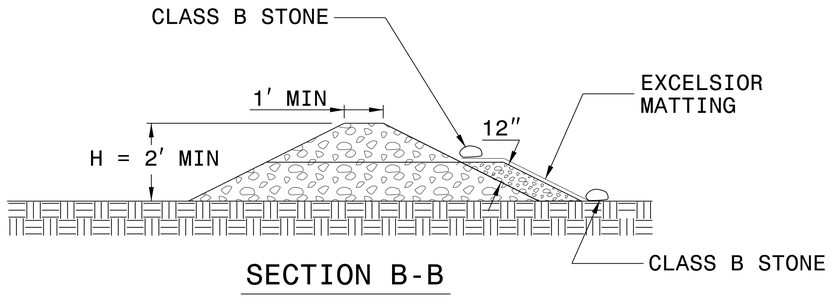
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A

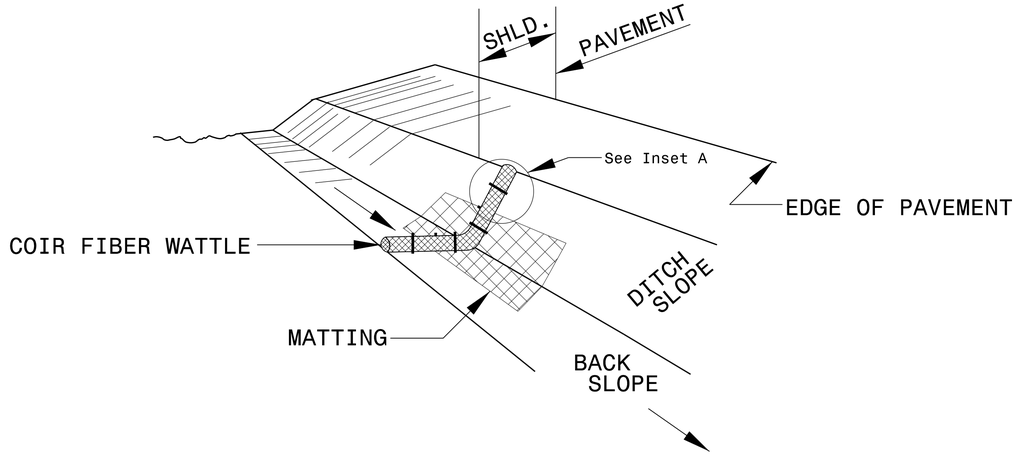


SECTION B-B

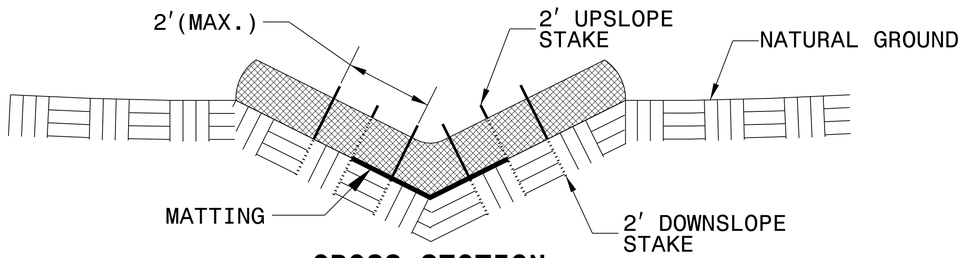
NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-2A

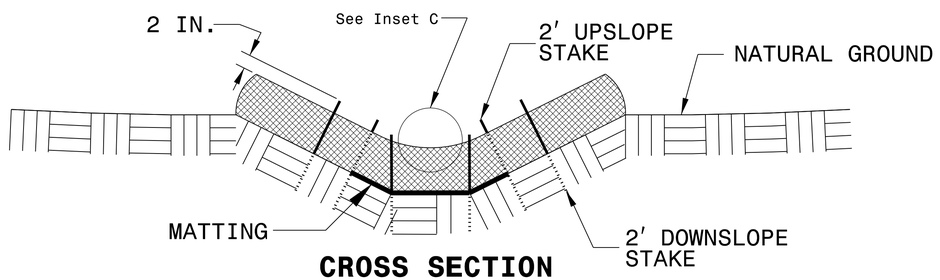
COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



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.

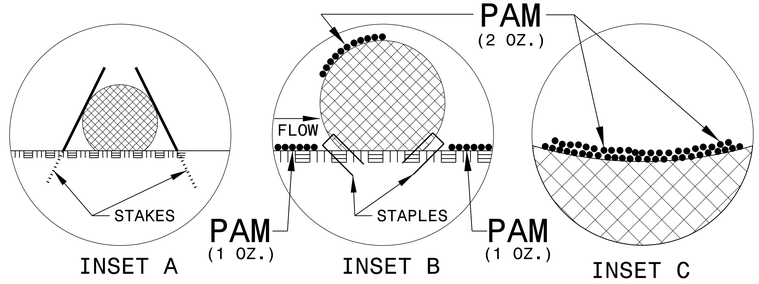
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12″ IN LENGTH.

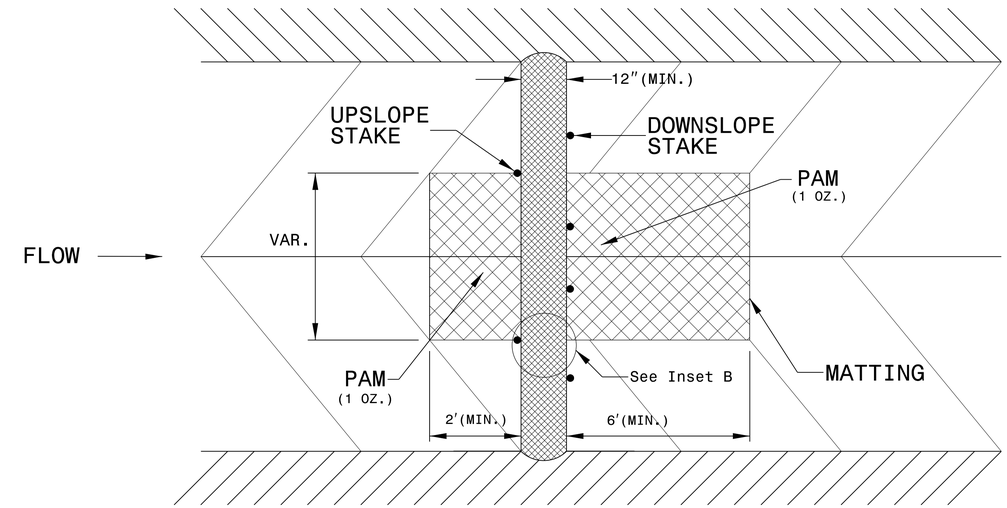
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

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

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-3

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	-L-	31+00	32+30	LT	225
4	-L-	33+10	35+20	LT	340
			SUBTOTAL	565 SY
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1600 SY
				TOTAL	2165 SY
				SAY	2200 SY

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

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8/17/99

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-3A

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

12/6/2022
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THuffman

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-4/CONST.4

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

REVISIONS

8/17/99

MATCHLINE INSET "A"
-L- STA 25+00

BEGIN CONSTRUCTION
TIP PROJECT W-5203U
-L- POT STA 25+55.84

DITCH CLEANOUT
-L- 25+25 – 25+67 LT
SLOPE = –0.20%

24" RCP–V

OUTLET PAD
EST 5 TONS CL I
EST 14 SY GEOTEXTILE

LATERAL
6' BASE DITCH
SEE DETAIL A

2@18" RCP–V

-L- PT Sta. 28+23.84

REMOVE CONCRETE ISLANDS

LATERAL
6' BASE DITCH
SEE DETAIL B

BEGIN CONCRETE ISLAND
-L- STA 31+16.32

OUTLET PAD
EST 2 TONS CL B RIPRAP
EST 7 SY GEOTEXTILE

OUTLET PAD
EST 5 TONS CL B RIPRAP
EST 14 SY GEOTEXTILE

LATERAL
6' BASE DITCH
SEE DETAIL C

DO NOT DISTURB
EXISTING SIGN

REMOVE CONCRETE ISLANDS
24" RCP–V

TIE TO EXISTING CURB & GUTTER
SPECIAL CUT
2' BASE DITCH
SEE DETAIL D

END CURB & GUTTER
-L- STA 35+72.05
-Y- STA 63+62.89

DITCH TOP OF BANK

END CONCRETE ISLAND
-L- STA 35+36.90

4' CONCRETE ISLAND

DITCH CLEANOUT
-Y- 63+00 – 63+50 RT
SLOPE = –0.32%

REMOVE 18"RCP

REMOVE MCF

MCF

MATCH EXIST.

RETAIN

TB 2GI

15" RCP–V

N 51°38'18.0" E -L-

HENDERSON DRIVE

40' DRAINAGE-UTILITY EASEMENT

24"C&G

48" CONC

Duke Energy Progress

-L-

PI Sta 26+25.36
Δ = 11° 25' 26.7" (RT)
D = 2° 52' 06.0"
L = 398.28'
T = 199.80'
R = 1,997.53'
SE = EXIST
DS = 40 MPH

BEGIN MILL AND FILL OPERATION
OUTSIDE THRU/RIGHT LANE AND
RIGHT TURN LANE STA 29+35 +/–

JCL PROPERTIES
DB 1022 PG 169
MB 66 PG 230

JACK-CBOC, INC.
DB 4070 PG 442
REFERENCED TO
DB 1042 PG 840
MB 67 PG 57

CURRIN PATTERSON
PROPERTIES IN
DB 1329 PG 252
MB 38 PG 103

K M CORPORATION
DB 1576 PG 285
MB 38 PG 103

DANIELS DEV
OF
GOLDSBORO LLC
DB 1573 PG 187
MB 38 PG 33

THREE STAR PROPERTY
OWNER ASSO
DB 1581 PG 230
MB 38 PG 103

JAX NC BRANCH LLC
DB 2958 PG 672
MB 38 PG 33

BRANCH BANKING & TRUST COMPANY
DB 1572 PG 450
MB 37 PG 239

PREPS INC
DB 3144 PG 704
MB 38 PG 103

-Y-

PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

SR 1002 (US 70)
NCDOT R/W PROJ.
8.2010201

END OVERLAY
-Y- POC Sta. 65+66.77

CONCRETE ISLAND

REMOVE PK

REMOVE DI

EXIST. 200'

-Y- STA 67+22.64

-Y- STA 68+47.86

-Y- STA 69+21.94

CONCRETE ISLAND

REMOVE 15" RCP

END CONCRETE ISLAND
-Y- STA 69+92.43

OUTLET PAD
EST 3 TONS CL B RIPRAP
EST 10 SY GEOTEXTILE

END CONSTRUCTION
-Y- POC Sta. 69+94.42

END MILL AND FILL OPERATION
OUTSIDE THRU/RIGHT LANE AND
RIGHT TURN LANE STA 35+70 +/–

OUTLET PAD
EST 5 TONS CL B RIPRAP
EST 14 SY GEOTEXTILE

-Y-

PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

PIs Sta 70+14.48
Θs = 1° 30' 00.0"
Ls = 300.00'
LT = 200.01'
ST = 100.01'

JCL PROPERTIES
DB 2165 PG 493
MB 67 PG 68

BEGIN CONSTRUCTION
-Y- POC Sta. 63+33.78

END CONSTRUCTION TIP
PROJECT W-5203U
-L- POT Sta. 36+49.46
-Y- POT Sta. 64+63.00

END PAVING
-Y- STA 63+98.74
OFFSET 22.14' LT

150' R
-L- 74.80 F

250' R
67.19'

MATCH EXIST.

53'

RETAIN BEGIN CONCRETE ISLAND
-Y- STA 65+36.50

+13.80

+47.50

WARP NEW PAVEMENT TO DRAIN
-Y- 65+70 TO -Y- 66+00
0.03 CROSS SLOPE AT INLET

WARP NEW PAVEMENT TO DRAIN
-Y- 66+50 TO -Y- 66+80
0.03 CROSS SLOPE AT INLET

WARP NEW PAVEMENT TO DRAIN
-Y- 68+25 TO -Y- 68+50
0.03 CROSS SLOPE AT INLET

273.42'
S 48°49'33" W

WARP NEW PAVEMENT TO DRAIN
-Y- 69+65 TO -Y- 69+92
0.04 CROSS SLOPE AT INLET

-Y- CS Sta. 69+14.47

185' +/– TAPER

345' +/– DUAL LEFT STORAGE

RARE HOSPITALITY
INTERNATIONAL INC
DB 3866 PG 63
MB 62 PG 223

HPS & R INC
MB 62 PG 223

McRAE FARMS,LLC
DB 2633 PG 220
MB 60 PG 138

INSET "A"

MATCHLINE INSET "A"
-L- STA 25+00

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

FOR –L– AND –Y– PROFILE SEE SHEET NO. 5

12/6/2022
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thuffman

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	EC-5/CONST.4

REVISIONS

8/17/99

BEGIN CONSTRUCTION
TIP PROJECT W-5203U
-L- POT STA 25+55.84

DITCH CLEANOUT
-L- 25+25 – 25+67 LT
SLOPE = –0.20%

24" RCP–V

OUTLET PAD
EST 5 TONS CL I
EST 14 SY GEOTEXTILE

LATERAL
6' BASE DITCH
SEE DETAIL A

2@18" RCP–V

-L- PT Sta. 28+23.84

REMOVE CONCRETE ISLANDS

LATERAL
6' BASE DITCH
SEE DETAIL B

BEGIN CONCRETE ISLAND
-L- STA 31+16.32

OUTLET PAD
EST 2 TONS CL B RIPRAP
EST 7 SY GEOTEXTILE

OUTLET PAD
EST 5 TONS CL B RIPRAP
EST 14 SY GEOTEXTILE

LATERAL
6' BASE DITCH
SEE DETAIL C

DO NOT DISTURB
EXISTING SIGN

REMOVE CONCRETE ISLANDS
24" RCP–V

TIE TO EXISTING
CURB & GUTTER
SPECIAL CUT
2' BASE DITCH
SEE DETAIL D

END CURB & GUTTER
-L- STA 35+72.05
-Y- STA 63+62.89

DITCH CLEANOUT
-Y- 63+00 – 63+50 RT
SLOPE = –0.32%

END CONCRETE ISLAND
-L- STA 35+36.90

4' CONCRETE ISLAND

DITCH TOP
OF BANK

-Y-
PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

MATCHLINE INSET "A"
-L- STA 25+00

MATCHLINE INSET "A"
-L- STA 25+00

-L-
PI Sta 26+25.36
Δ = 11° 25' 26.7" (RT)
D = 2° 52' 06.0"
L = 398.28'
T = 199.80'
R = 1,997.53'
SE = EXIST
DS = 40 MPH

BEGIN MILL AND FILL OPERATION
OUTSIDE THRU/RIGHT LANE AND
RIGHT TURN LANE STA 29+35 +/–

JCL PROPERTIES
DB 1022 PG 169
MB 66 PG 230

JCL PROPERTIES
DB 2165 PG 493
MB 67 PG 68

BEGIN CONSTRUCTION
-Y- POC Sta. 63+33.78

END CONSTRUCTION TIP
PROJECT W-5203U
-L- POT Sta. 36+49.46
-Y- POT Sta. 64+63.00

END PAVING
-Y- STA 63+98.74
OFFSET 22.14' LT

BEGIN CONCRETE ISLAND
-Y- STA 65+36.50

END MILL AND FILL OPERATION
OUTSIDE THRU/RIGHT LANE AND
RIGHT TURN LANE STA 35+70 +/–

OUTLET PAD
EST 5 TONS CL B RIPRAP
EST 14 SY GEOTEXTILE

PREPS INC
DB 3144 PG 704
MB 38 PG 103

END OVERLAY
-Y- POC Sta. 65+66.77

CONCRETE ISLAND

WARP NEW PAVEMENT TO DRAIN
-Y- 65+70 TO -Y- 66+00
0.03 CROSS SLOPE AT INLET

WARP NEW PAVEMENT TO DRAIN
-Y- 66+50 TO -Y- 66+80
0.03 CROSS SLOPE AT INLET

RARE HOSPITALITY
INTERNATIONAL INC
DB 3866 PG 63
MB 62 PG 223

345' +/– DUAL LEFT STORAGE

-Y- STA 67+22.64

-Y- STA 68+47.86

WARP NEW PAVEMENT TO DRAIN
-Y- 68+25 TO -Y- 68+50
0.03 CROSS SLOPE AT INLET

-Y- STA 69+21.94

HPS & R INC
MB 62 PG 223

-Y- CS Sta. 69+14.47

WARP NEW PAVEMENT TO DRAIN
-Y- 69+65 TO -Y- 69+92
0.04 CROSS SLOPE AT INLET

CONCRETE ISLAND
-Y- STA 69+92.43

McRAE FARMS,LLC
DB 2633 PG 220
MB 60 PG 138

END CONSTRUCTION
-Y- POC Sta. 69+94.42

OUTLET PAD
EST 3 TONS CL B RIPRAP
EST 10 SY GEOTEXTILE

CURRIN PATTERSON
PROPERTIES IN
DB 1329 PG 252
MB 38 PG 103

K M CORPORATION
DB 1576 PG 285
MB 38 PG 103

DANIELS DEV
OF
GOLDSBORO LLC
DB 1573 PG 187
MB 38 PG 33

THREE STAR PROPERTY
OWNER ASSO
DB 1581 PG 230
MB 38 PG 103

JAX NC BRANCH LLC
DB 2958 PG 672
MB 38 PG 33

BRANCH BANKING & TRUST COMPANY
DB 1572 PG 450
MB 37 PG 239

JACK-CBOC, INC.
DB 4070 PG 442
REFERENCED TO
DB 1042 PG 840
MB 67 PG 57

INSET "A"

-Y-
PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH

PIs Sta 70+14.48
Θs = 1° 30' 00.0"
Ls = 300.00'
LT = 200.01'
ST = 100.01'

UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN LIEU OF TEMPORARY ROCK INLET SEDIMENT TRAPS TYPE–C WHERE PONDING MAY OCCUR ON ROADWAY OPEN TO TRAFFIC.

FOR –L– AND –Y– PROFILE SEE SHEET NO. 5

12/6/2022
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thuff.map

8/17/99

PROJECT: W-5203U

CONTRACT: DC00422

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
ONSLOW COUNTY
LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	SIGN-1

APPROVED: DocuSigned by: Trent E Huffman C20C516E4527404...
DATE: 6/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

moffatt & nichol
4700 FALLS OF NEUSE ROAD, SUITE 300
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX (F-0105)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2 SIGN ERECTION, RELOCATE SIGN TYPE D

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4025000000	901	CONTRACTOR FURNISHED, TYPE E SIGN	108	S.F.
4025000000	901	CONTRACTOR FURNISHED, TYPE F SIGN	6	S.F.
4072000000	903	SUPPORTS, 3LB STEEL U-CHANNEL	200	L.F.
4102000000	904	SIGN ERECTION, TYPE E	14	EA.
4108000000	904	SIGN ERECTION, TYPE F	1	EA.
4116100000	904	SIGN ERECTION, RELOCATE TYPE D	3	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	13	EA.
4940000000	1267	FLEXIBLE DELINEATORS (YELLOW)	4	EA.
4957000000	1264	OBJECT MARKERS (TYPE 3)	4	EA.

INDEX

GENERAL NOTES

. IF REMOVAL OR RELOCATION OF SIGNS ON PRIVATE STREET (NON-STATE MAINTAINED) IS REQUIRED DUE TO CONSTRUCTION, THE CONTRACTOR SHALL INFORM THE ENGINEER. THE WORK WILL BE COMPLETED BY OTHERS.

. WHEN NOT STATIONED OR DIMENSIONED ON PLANS, ALL 'E' AND 'F' SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.

. ALL EXISTING SIGNS ON "U" CHANNEL POST WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND DISPOSED OF UNLESS OTHERWISE NOTED ON PLANS.

. WHEN EXISTING SIGNS ARE REMOVED AND INSTALLED ON NEW SUPPORTS, THE RE-ERECTION SHALL IMMEDIATELY FOLLOW THE REMOVAL.

. THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
903.10	GROUND MOUNTED SIGN SUPPORTS
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS

PLAN PREPARED BY: MOFFATT & NICHOL

TRENT HUFFMAN, PE	PROJECT ENGINEER
ZITONG LIU	PROJECT DESIGN

PLAN REVIEWED BY: NCDOT SIGNING AND DELINEATION UNIT

A. ALQUDWAH, P.E.	SIGNING & DELINEATION REGIONAL ENGINEER
S. JOHNS	SIGNING & DELINEATION PROJECT DESIGN ENGINEER

6/8/2023
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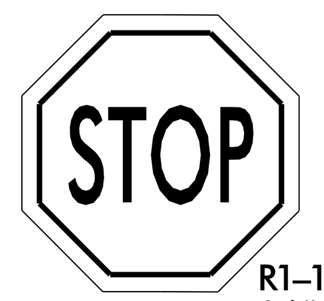
TeuTman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	SIGN-2

TYPE "E" SIGNS

401 QUANTITIY REQ'D 8



R1-1
36" X 36"

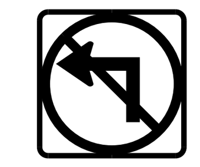
ONE "U" POST PER SIGN

402 QUANTITIY REQ'D 1

R2-1
24" X 30"

ONE "U" POST PER SIGN

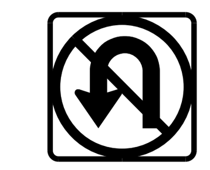
403 QUANTITIY REQ'D 1



R3-2
24" X 24"

ONE "U" POST PER SIGN

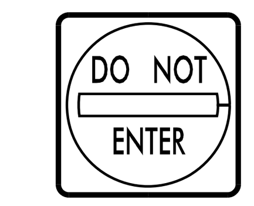
404 QUANTITIY REQ'D 1



R3-4
24" X 24"

ONE "U" POST PER SIGN

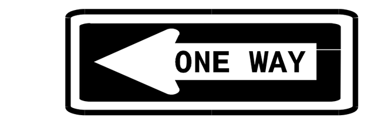
405 QUANTITIY REQ'D 1



R5-1
36" X 36"

ONE "U" POST PER SIGN

406 QUANTITIY REQ'D 1



R6-1 L
54" X 18"

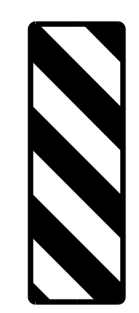
TWO "U" POST PER SIGN

407 QUANTITIY REQ'D 1

R6-1 R
54" X 18'

TWO "U" POST PER SIGN

408 QUANTITIY REQ'D 4



OM3-L
12" X 36"

ONE FLEXIBLE DELINEATOR POST PER SIGN

TYPE "F" SIGNS

501

M3-2
24" X 12"
M1-5
24" X 24"

ONE "U" POST PER SIGN

APPROVED: DATE:

DocuSigned by: Trent E Huffman

NORTH CAROLINA PROFESSIONAL SEAL 023912 ENGINEER TRENT E. HUFFMAN

4/27/2023

TYPE "E" SIGNS AND TYPE "F" SIGNS

SCALE: NTS
DATE: AUGUST 15, 2022
DWG.BY:
DESIGN BY: Z LIU
REVIEW BY: G MODLIN

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

REVISIONS

CAD FILE

12/6/2022
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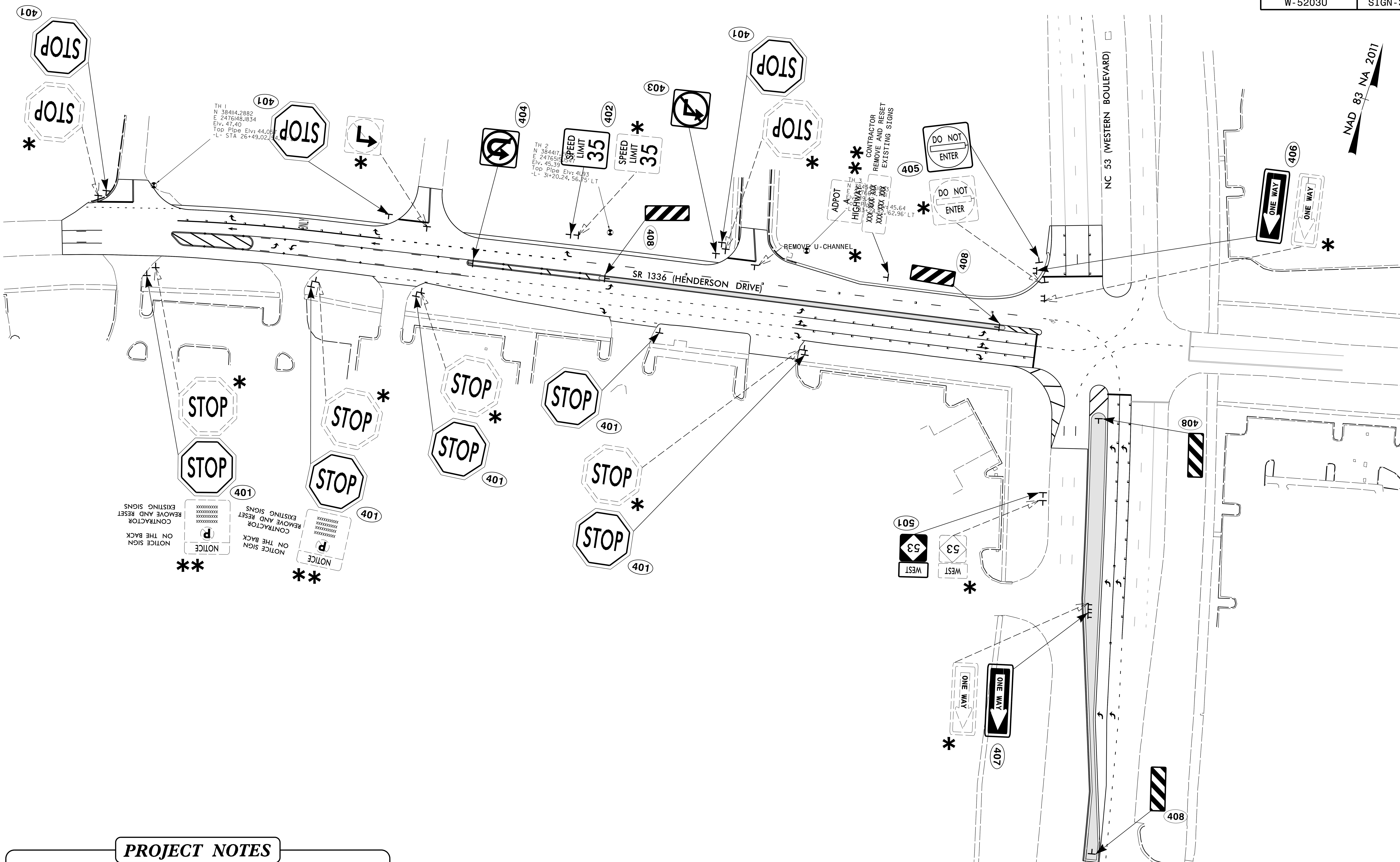
THuffman

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	SIGN-3



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL
2 RELOCATE SIGN SPECIAL

* SEE NOTE 1
** SEE NOTE 2

APPROVED: DATE:

SEAL 023912 ENGINEER TRENT E. HUFFMAN 4/27/2023

EXISTING & PROPOSED SIGN
SR 1336 (HENDERSON DRIVE) AND
NC 53 (WESTERN BOULEVARD)

SCALE: NTS
DATE: AUGUST 15, 2022
DWG.BY:
DESIGN BY: Z LIU
REVIEW BY: G MODLIN

REVISIONS

CAD FILE

12/6/2022
Q:\RA\8731-04\CADD\W5203U\Traffic\Signing\CADD\Sign Designs\W-5203U_sign-03.dgn
THuffman

TIP PROJECT: W-5203U

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

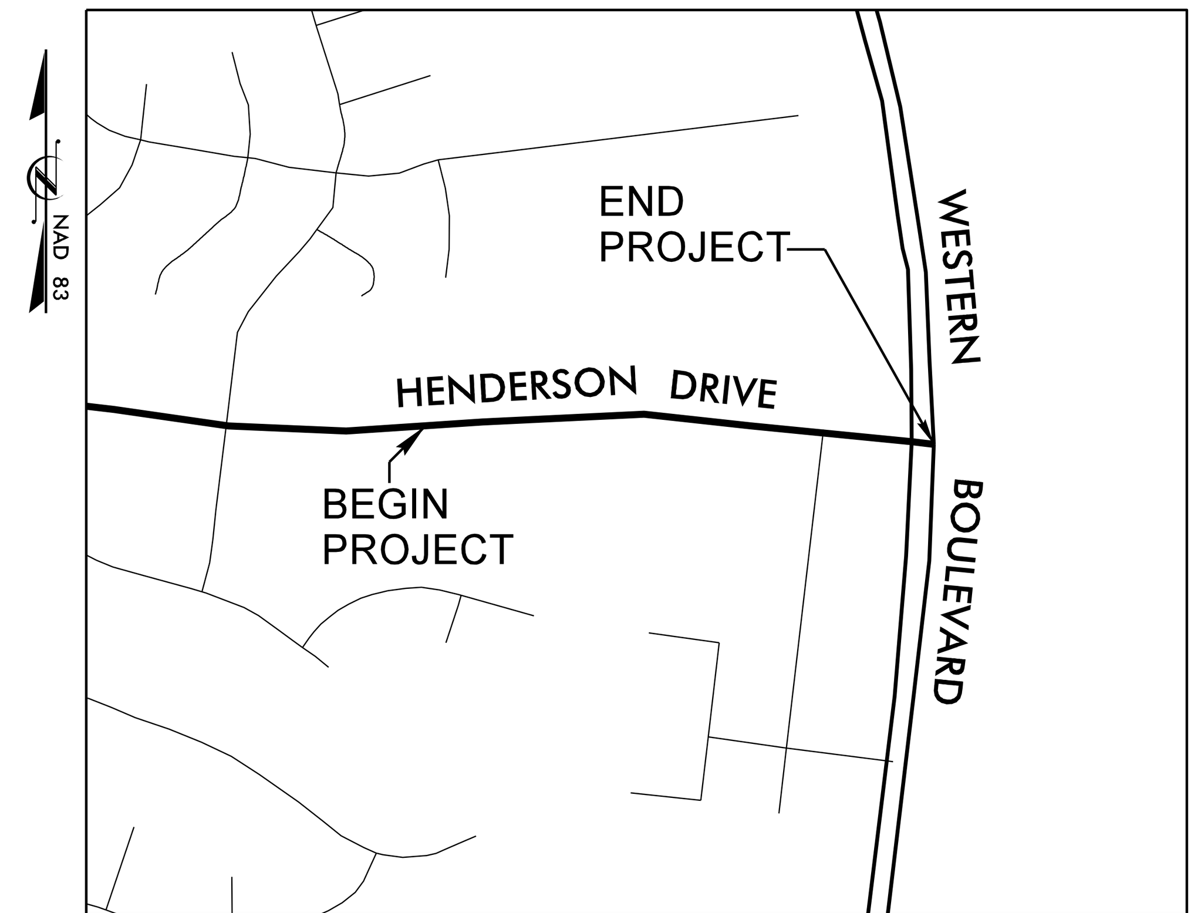
TYPE OF WORK: TRAFFIC SIGNALS

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig 1.0

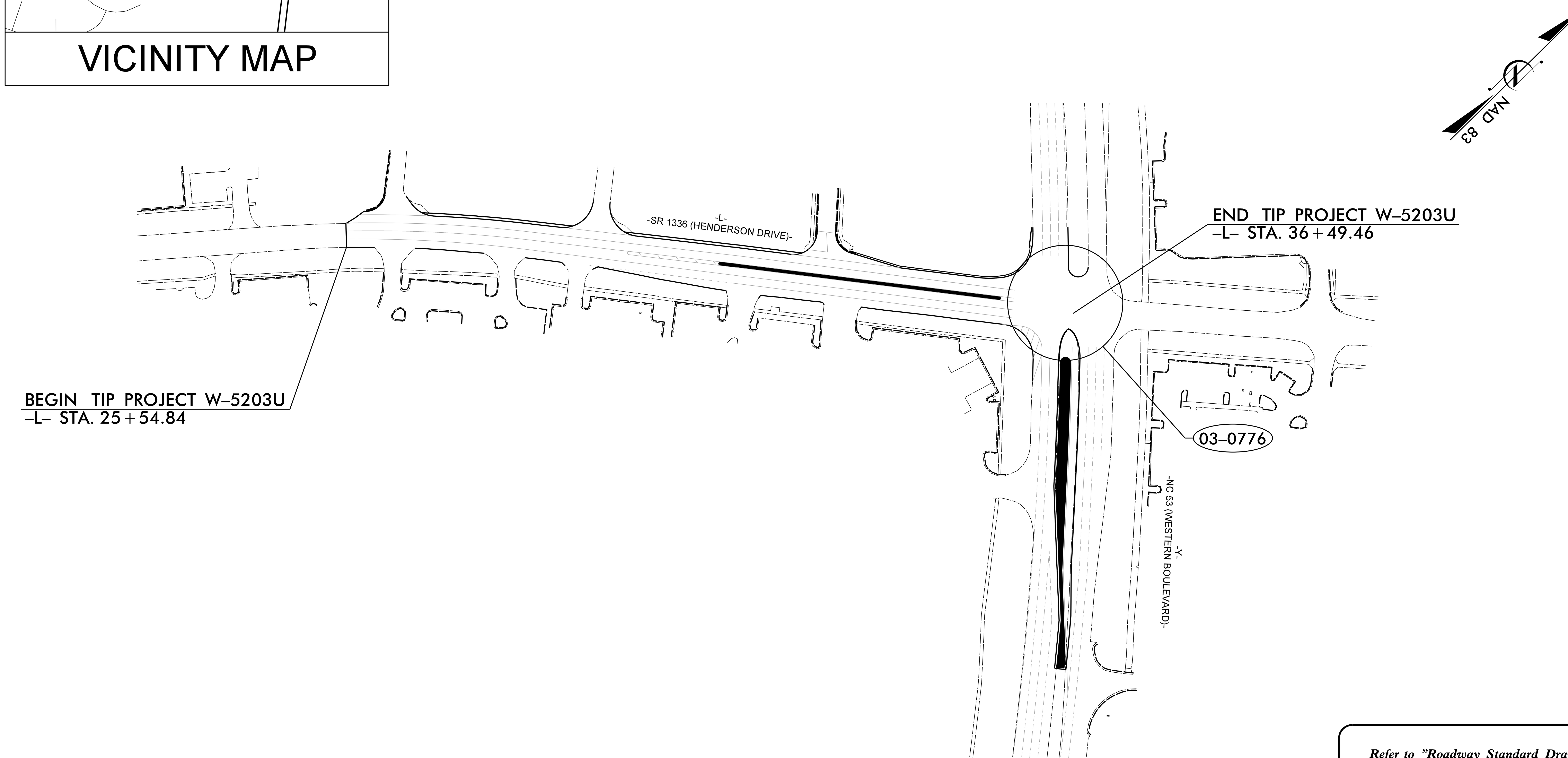
DocuSigned by:
APPROVED: William J. Hamilton
A0560D704648484...
DATE: 12/1/2022

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



VICINITY MAP



Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.

Infrastructure Consulting Services, Inc.
dba
RAMEY KEMP ASSOCIATES
8210 University Executive Park Drive Suite 220 Charlotte, North Carolina 28262
Phone: 704-549-4260 | www.rameykemp.com | NC License No. F-1489

PLANS PREPARED BY:

W. Jason Hamilton, P.E., PTOE – Project Manager

Zachary M. Esposito, P.E., TCDS – Project Engineer

INDEX OF PLANS

Sheet Number	SIN	Location/ Description
Sig. 1.0	–	Project Title Sheet
Sig. 1.1	–	2018 Standard Plate Sheets
Sig. 2.0–2.4	03–0776T1	NC 53 (Western Boulevard) at SR 1336 (Henderson Drive)
Sig. 2.5–2.8	03–0776T2	NC 53 (Western Boulevard) at SR 1336 (Henderson Drive)
Sig. 2.9–2.12	03–0776	NC 53 (Western Boulevard) at SR 1336 (Henderson Drive)

LEGEND

(XX-XXXX) TRAFFIC SIGNAL

TRANSPORTATION SYSTEMS MANAGEMENT & OPERATIONS

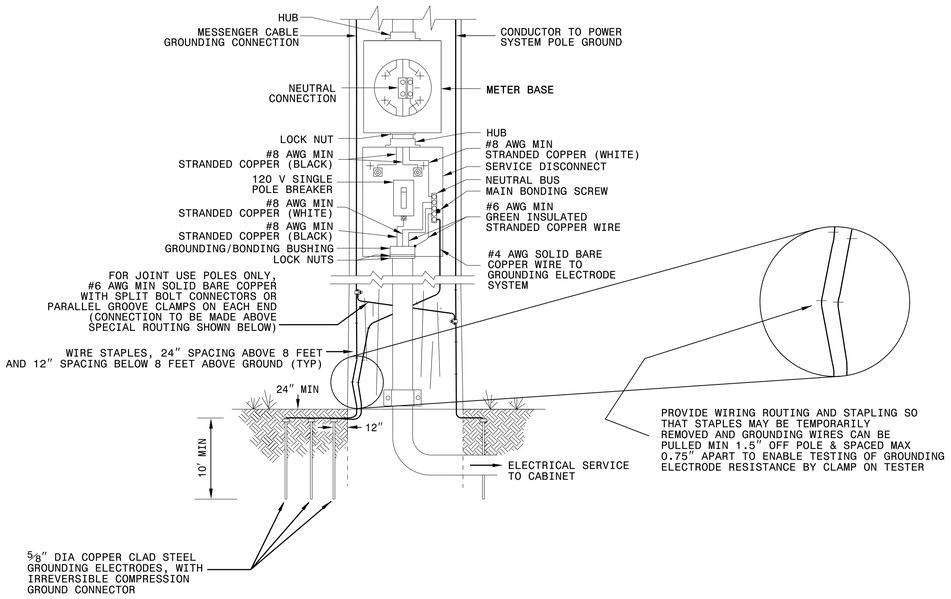
Contacts:

Zachary Little, P.E. – Eastern Region Signals Engineer

D. Todd Joyce, P.E. – Signal Equipment Design Review Engineer

Gregory A. Green – Signal Communications Project Engineer

PROJECT NO.	SHEET NO.
W-5203U	Sig-1.1



1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

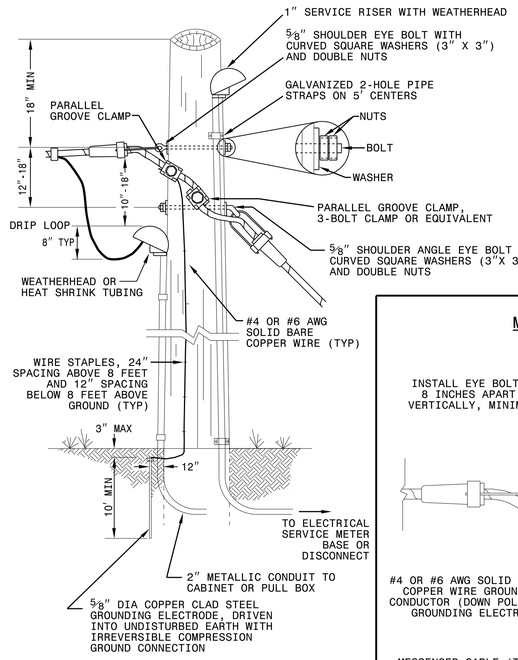
ELECTRICAL SERVICE GROUNDING

GROUNDING AND BONDING

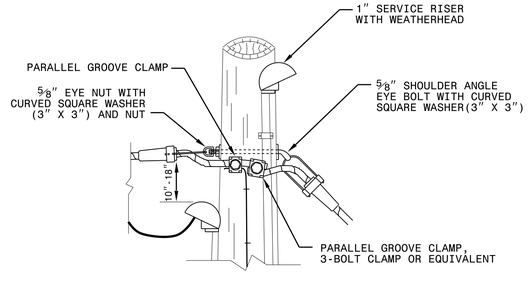
SHEET 1 OF 1

1700D01

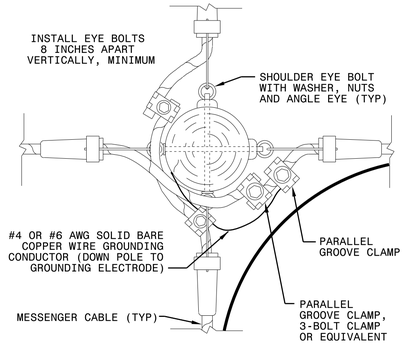
TWO-BOLT METHOD (PREFERRED)



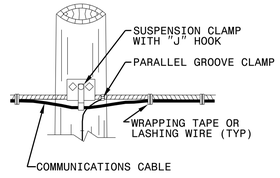
ONE-BOLT METHOD



MULTIPLE SPANS



COMMUNICATIONS CABLE AT INTERMEDIATE POLE



NOTE

FOR CONNECTING MESSENGER TO MESSENGER, USE PARALLEL GROOVE CLAMP, 3-BOLT CLAMP OR EQUIVALENT. FOR CONNECTING COPPER WIRE TO MESSENGER, USE PARALLEL GROOVE CLAMP.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR

WOOD POLES

METHODS OF ATTACHMENT AND GROUNDING

SHEET 1 OF 1

1720D01

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

See Plate for Title

Prepared in the Offices of:

Transportation Mobility and Safety Division
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
ITS & Signals Unit

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 032108 ENGINEER MOHD A. ASLAMI

DocuSigned by: Mohd Aslami
5D90B0BA6DBB6495...
10/11/2017
DATE

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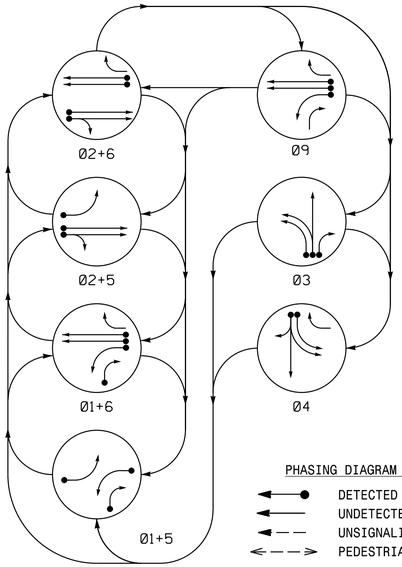

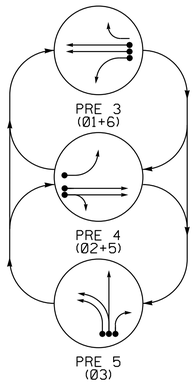

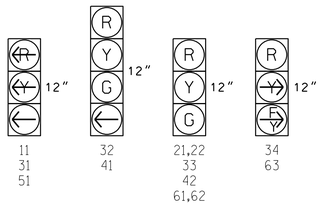

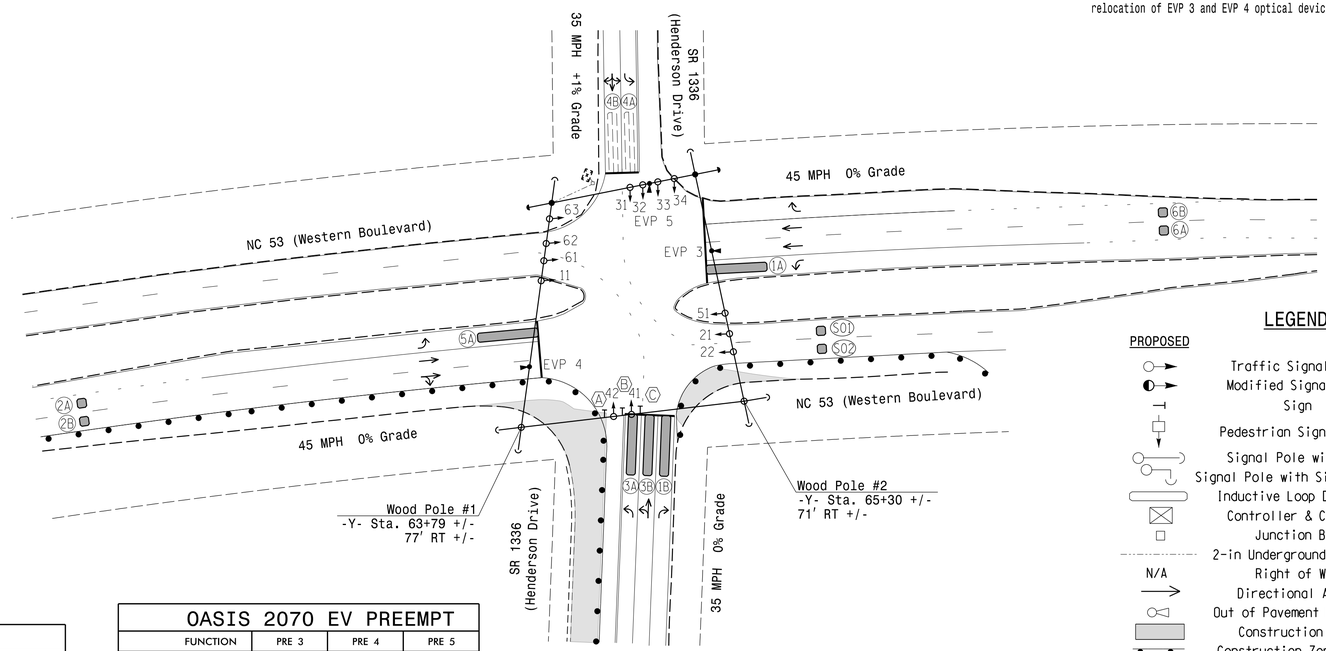

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.0

PHASING DIAGRAM

EV PREEMPT PHASES

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø9	Ø3	Ø4	PRE 3	PRE 4	PRE 5	FLASH
11	←	←	←R	←R	←	←R	←R	←	←R	←R	←R
21,22	R	R	G	G	R	R	R	R	G	R	Y
31	←R	←R	←R	←R	←R	←	←R	←R	←R	←	←R
32	←R	←R	←R	←R	←R	G ←	←R	←R	←R	G ←	←R
33	R	R	R	R	R	G	R	R	R	G	R
34	F/Y→	F/Y→	R	R	F/Y→	F/Y→	R	R	R	F/Y→	R
41	R	R	R	R	R	R	G ←	R	R	R	R
42	R	R	R	R	R	R	G	R	R	R	R
51	←	←R	←	←R	←R	←R	←R	←R	←	←R	←R
61,62	R	G	R	G	G	R	R	G	R	R	Y
63	R	F/Y→	R	F/Y→	F/Y→	R	F/Y→	F/Y→	R	R	Y→

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
ZONE / LOOP	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	⁑	⁑	1/9	Y	Y	-	-	-	-	⁑
1B	6X40	0	⁑	⁑	1	Y	Y	-	-	15	-	⁑
2A	6X6	300	⁑	⁑	2	Y	Y	-	-	-	-	⁑
2B	6X6	300	⁑	⁑	2	Y	Y	-	-	-	-	⁑
3A	6X40	0	⁑	⁑	3	Y	Y	-	-	3	-	⁑
3B	6X40	0	⁑	⁑	3	Y	Y	-	-	-	-	⁑
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X40	0	⁑	⁑	5	Y	Y	-	-	-	-	⁑
6A	6X6	300	⁑	⁑	6	Y	Y	-	-	-	-	⁑
6B	6X6	300	⁑	⁑	6	Y	Y	-	-	-	-	⁑
S01	6X6	+175	⁑	⁑	-	-	-	-	-	-	Y	⁑
S02	6X6	+175	⁑	⁑	-	-	-	-	-	-	Y	⁑

⁑ Multizone Microwave Detection

6 Phase
Fully Actuated
w/ EV Preempt
(Jacksonville Signal System)

NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Set all detector units to presence mode.
6. Pavement markings are existing.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. This intersection features a GPS preemption system.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. Contractor shall coordinate with City of Jacksonville on relocation of EVP 3 and EVP 4 optical devices.

SIGNAL FACE I.D.

All Heads L.E.D.

LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○—)	Signal Pole with Guy	●—◗
○—◡	Signal Pole with Sidewalk Guy	●—◒
▭	Inductive Loop Detector	┅
☒	Controller & Cabinet	⊠
□	Junction Box	■
- - - -	2-in Underground Conduit	— - — -
N/A	Right of Way	— — —
→	Directional Arrow	→
○◁	Out of Pavement Detector	●◀
▨	Construction Zone	N/A
•—•	Construction Zone Drums	•—•
▨	Microwave Detection Zone	N/A
Ⓐ	"RIGHT TURN ON RED MUST YIELD TO U-TURN" Sign (R10-30)	Ⓐ
Ⓑ	Dual Turn and Through Arrows Sign	Ⓑ
Ⓒ	Left Turn Arrow "ONLY" Sign (R3-5)	Ⓒ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	9	OLE (1+9)	OLF (6+9)
Min Green 1 *	7	12	7	7	7	12	7	0	0
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	0	-	-
Max Green 1 *	30	90	30	30	30	90	30	-	-
Yellow Clearance	3.0	4.5	3.8	3.8	3.0	4.5	4.5	3.0	4.5
Red Clearance	3.3	1.4	2.8	2.9	3.6	1.1	1.1	3.3	1.1
Walk 1 *	-	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	1.8	-	-	-	1.8	-	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-	-
Time Before Reduction *	-	30	-	-	-	30	-	-	-
Time To Reduce *	-	45	-	-	-	45	-	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-	-
Dual Entry	-	-	-	-	-	-	-	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2,6	2,6	3
Priority	Medium	Medium	Medium
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	B	-	-
Preempt Extend**	2	2	2

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

Signal Upgrade
Temporary Design I - (TMP Phase I)

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO.:	22424 (040)

REVISIONS	INIT.	DATE

SCALE
0 50
1"=50'

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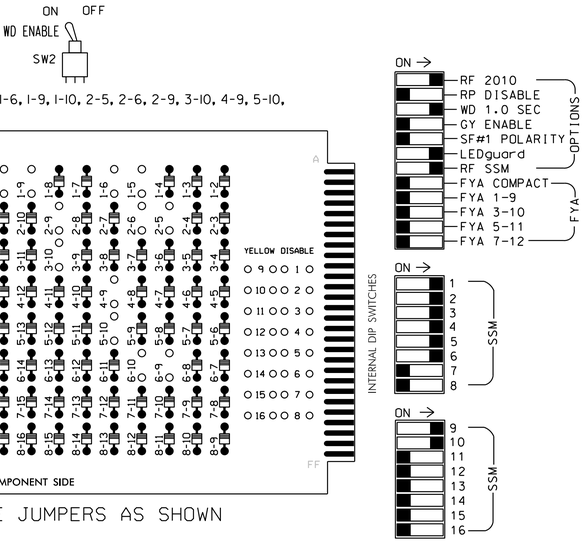
SEAL
SEAL 32396
WILLIAM J. HAMILTON

DocuSigned by:
William J. Hamilton
A0560D704648484...
SIGNATURE
12/1/2022
DATE

SIG. INVENTORY NO. 03-0776TI

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

INPUT FILE POSITION LAYOUT

(front view)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L						Ø 4 4B								ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	GPS EVP		SLOT EMPTY
	L														

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

FS = FLASH SENSE
ST = STOP TIME

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

PHASE SEQUENCE: PAGE 1 NEXT: PAGES)

RNG	LEAD	BARRIER 1			X-LAG	LEAD	BARRIER 2			X-LAG	LEAD	BARRIER 3			X-LAG
1	1	2	0	0		9	0	0	0		3	4	0	0	
2	5	6	0	0		0	0	0	0		0	0	0	0	
3	0	0	0	0		0	0	0	0		0	0	0	0	
4	0	0	0	0		0	0	0	0		0	0	0	0	

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels 7,8 11,12,13,14,15,16. The unused load switch red outputs to load switch AC+ per cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag overlaps.
7. The cabinet and controller are part of the Jacksonville Signal System.

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,S3,S4,S5,S6,S9,S10
PHASES USED.....1,2,3,4,5,6,9*
OVERLAP "A".....4+6+9
OVERLAP "B".....1+3+9
OVERLAP "C".....NOT USED
OVERLAP "D".....NOT USED
OVERLAP "E".....1+9
OVERLAP "F".....6+9

* Phase 9 is used for phase 1 reservice, as required

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	16U	41	3	4	4	Y	Y			3
4B	TB4-11,12	16L	45	7	14	4	Y	Y			10

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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.

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.1

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3			S4		S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	OLE	2	2 PED	3			4		4 PED	5	OLF	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	32	33	41	42	NU	51	61,62	NU	NU	NU	NU	63★	34★	NU	NU	NU	NU
RED		128			116	116	101	101			134					A121	A124				
YELLOW		129			117	117	102	102			135										
GREEN		130			118	118	103	103			136										
RED ARROW	125			116						131											
YELLOW ARROW	126			117						132						A122	A125				
FLASHING YELLOW ARROW																A123	A126				
GREEN ARROW	127			118	118		103			133											

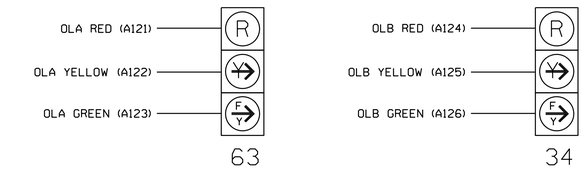
NU = Not Used

★ See pictorial of head wiring in detail below.

NOTE: Output assignments for load switches S1 and S6 have been remapped. See sheet 4 for programming details.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



SPECIAL DETECTOR NOTE

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

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776T1
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design I - (TMP Phase I)
Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

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

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PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER William J. Hamilton
Digitally signed by William J. Hamilton
A05E0D7046464B4...
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776T1

REMOVE

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, AND 6.

2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#)
IF ACTIVE OVERLAP #5 IS ON
AND RED CLEAR ON OVL #5 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 OR PHASE 9. (HEAD 11).

LOGICAL I/O COMMAND #2 (+/-COMMAND#)
IF ACTIVE OVERLAP #5 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #52 OFF
PRESS '+'

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 1 OR PHASE 9 (HEAD 11).

LOGICAL I/O COMMAND #3 (+/-COMMAND#)
IF YELLOW ON OVERLAP #5 IS ON
SCROLL DOWN
THEN:
SET OUTPUT ASSIGNMENT #51 ON
PRESS '+'

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 1 OR PHASE 9 (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

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

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

USE TO INTERPRET LOGIC PROCESSOR

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green
OUTPUT 50 = Overlap A Red
OUTPUT 51 = Overlap A Yellow
OUTPUT 52 = Overlap A Green

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0776T1
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design I - (TMP Phase I)
Electrical Detail - Sheet 2 of 4

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for:
ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

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REVISIONS	INIT.	DATE

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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

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A0560D704648484...
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776T1

CHANGE OVERLAPS TO DEFAULT SETTINGS PRIOR TO PROGRAMMING NEW OVERLAPS

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:  |   X X  X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
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
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
```

← NOTICE GREEN FLASH

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:  |X X     X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
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
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
```

← NOTICE GREEN FLASH

PRESS '+' THREE TIMES

```
 PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:  |X       X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
--------------------------------------
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...3.3
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'F' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:  |     X  X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
--------------------------------------
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..4.5
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.1
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

REMOVE ALTERNATE PHASING SETTINGS

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
  PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |X    X
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      |
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                 | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW    |
OMIT OVERLAPS:            |  X
```

PRESS 'NEXT'

```
  PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 | X  X
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      |
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                 | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW    |
OMIT OVERLAPS:            |
```

PRESS 'NEXT'

```
  PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING |  CLEAR/DWELL PHASES
  GRN YEL  RED  |12345678910111213141516
1 255  0.0  0.0 |  X
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
-----------------------------------------
EXIT CALLS      |
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                 | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW    |
OMIT OVERLAPS:            |
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds for PRE3, PRE4, and PRE 5.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776T1
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design I - (TMP Phase I)
Electrical Detail - Sheet 3 of 4

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

NC 53 (Western Boulevard)
at
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PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton
A0560D704648484...
SIGNATURE | DATE 12/1/2022

SIG. INVENTORY NO. 03-0776TI

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.4

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S1 TO OVERLAP 'E'
(FOR SIGNAL HEAD 11)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

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

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 15

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY TO ADVANCE TO OUTPUT 16

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S6 TO OVERLAP 'F'
(FOR SIGNAL HEADS 61,62)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "27"

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

OVERLAP 'F' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:29  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY FOR OUTPUT 28

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

OVERLAP 'F' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:30  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY TO ADVANCE TO OUTPUT 29

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

OVERLAP 'F' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:31  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

OUTPUT PROGRAMMING FOR HEADS 61 AND 62 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776T1
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design I - (TMP Phase I)
Electrical Detail - Sheet 4 of 4

Infrastructure Consulting Services, Inc.
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3	Onslow County	Jacksonville	
PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

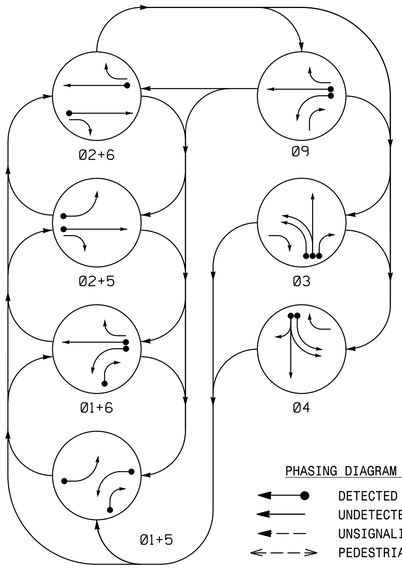
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton
A0560D704648484...
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776T1

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.5

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

- ●— DETECTED MOVEMENT
- ←— UNDETECTED MOVEMENT (OVERLAP)
- ←– – UNSIGNALIZED MOVEMENT
- ←– – → PEDESTRIAN MOVEMENT

EV PREEMPT PHASES

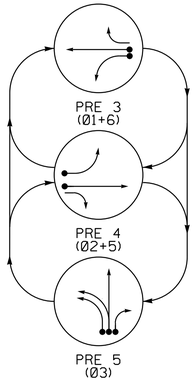


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø9	Ø3	Ø4	PRE 3	PRE 4	PRE 5	FLASH
11	←	←	←R	←R	←	←R	←R	←	←R	←R	←R
21,22	R	R	G	G	R	R	R	R	G	R	Y
23	R	R	F/Y→	F/Y→	R	F/Y→	R	R	F/Y→	R	Y→
31	←R	←R	←R	←R	←R	←	←R	←R	←R	←	←R
32	←R	←R	←R	←R	←R	G ←	←R	←R	←R	G ←	←R
33	R	R	R	R	R	G	R	R	R	G	R
34	F/Y→	F/Y→	R	R	F/Y→	F/Y→	R	R	R	F/Y→	R
41	R	R	R	R	R	R	G ←	R	R	R	R
42	R	R	R	R	R	R	G	R	R	R	R
51	←	←R	←	←R	←R	←R	←R	←R	←	←R	←R
61,62	R	G	R	G	G	R	R	G	R	R	Y
63	R	F/Y→	R	F/Y→	F/Y→	R	F/Y→	F/Y→	R	R	Y→

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS: ZONE / 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	✳✳	✳✳	1/9	Y	Y	-	-	-	-	✳✳
1B	6X40	0	✳✳	✳✳	1	Y	Y	-	-	15	-	✳✳
2B	6X6	300	✳✳	✳✳	2	Y	Y	-	-	-	-	✳✳
3B	6X40	0	✳✳	✳✳	3	Y	Y	-	-	-	-	✳✳
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X40	0	✳✳	✳✳	5	Y	Y	-	-	-	-	✳✳
6B	6X6	300	✳✳	✳✳	6	Y	Y	-	-	-	-	✳✳
S02	6X6	+175	✳✳	✳✳	-	-	-	-	-	-	Y	✳✳

✳✳ Multizone Microwave Detection

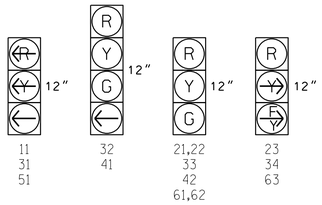
6 Phase
Fully Actuated
w/ EV Preempt
(Jacksonville Signal System)

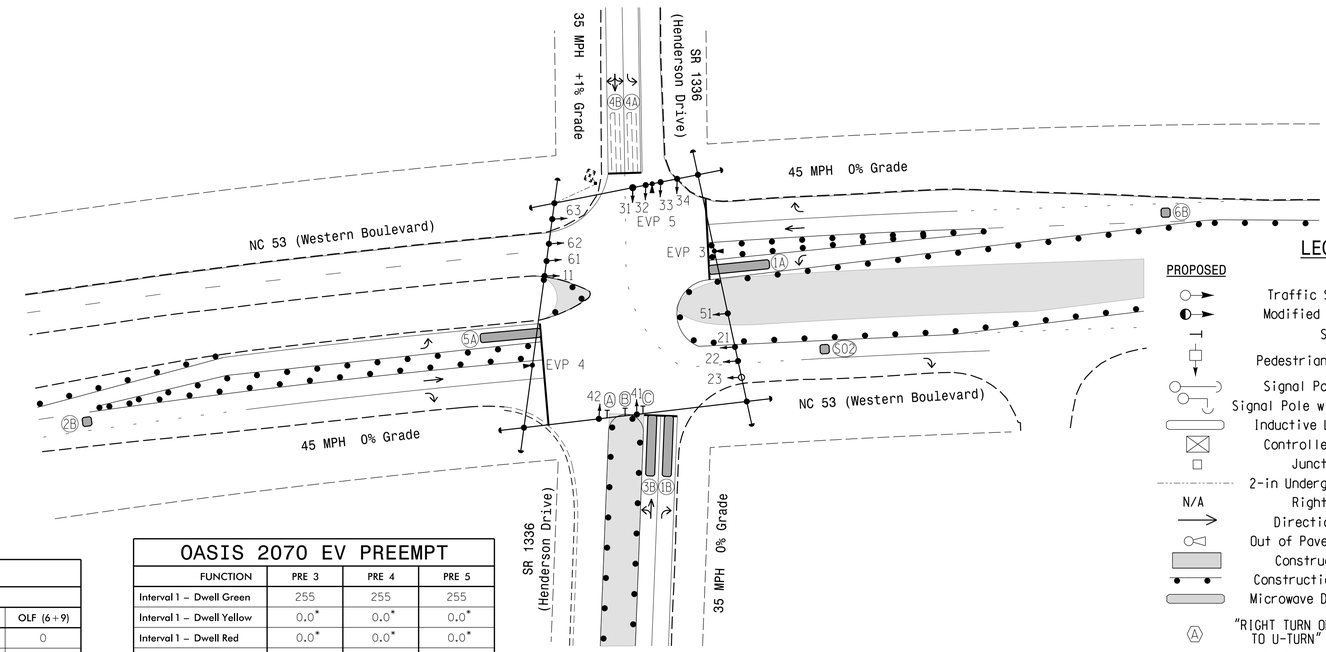
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal heads 21, 22 and 42.
6. Set all detector units to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. This intersection features a GPS preemption system.
9. This intersection uses multi-zone microwave detection. Install detectors according to the manufacturer's instructions to achieve the desired detection.
10. Cover and bag signal head #31 for the duration of this phase.

SIGNAL FACE I.D.

All Heads L.E.D.





LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○—	Signal Pole with Guy	●—
○—	Signal Pole with Sidewalk Guy	●—
▭	Inductive Loop Detector	▭
⊠	Controller & Cabinet	⊠
□	Junction Box	■
-·-·-	2-in Underground Conduit	-·-·-
N/A	Right of Way	– – –
→	Directional Arrow	→
○◁	Out of Pavement Detector	●◀
▨	Construction Zone	N/A
•—•	Construction Zone Drums	•—•
▨	Microwave Detection Zone	N/A
Ⓐ	"RIGHT TURN ON RED MUST YIELD TO U-TURN" Sign (R10-30)	Ⓐ
Ⓑ	Dual Turn and Through Arrows Sign	Ⓑ
Ⓒ	Left Turn Arrow "ONLY" Sign (R3-5)	Ⓒ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	9	OLE (1+9)	OLF (6+9)
Min Green 1 *	7	12	7	7	7	12	7	0	0
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	0	-	-
Max Green 1 *	30	90	30	30	30	90	30	-	-
Yellow Clearance	3.0	4.5	3.8	3.8	3.0	4.5	4.5	3.0	4.5
Red Clearance	3.7	1.4	2.9	3.1	3.6	1.2	1.2	3.7	1.2
Walk 1 *	-	-	-	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-	-	-	-
Seconds Per Actuation *	-	2.5	-	-	-	2.5	-	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-	-
Time Before Reduction *	-	30	-	-	-	30	-	-	-
Time To Reduce *	-	45	-	-	-	45	-	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-	-
Dual Entry	-	-	-	-	-	-	-	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2,6	2,6	3
Priority	Medium	Medium	Medium
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	B	-	C
Preempt Extend**	2	2	2

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

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Signal Upgrade
Temporary Design II - (TMP Phase II)

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared for:
Transportation Mobility and Safety Division
Signal Design Section
750 N.Greenfield Pkwy.Garner.NC 27529

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO.:	22424 (040)

REVISIONS	INIT.	DATE

N

SCALE
0 50
1"=50'

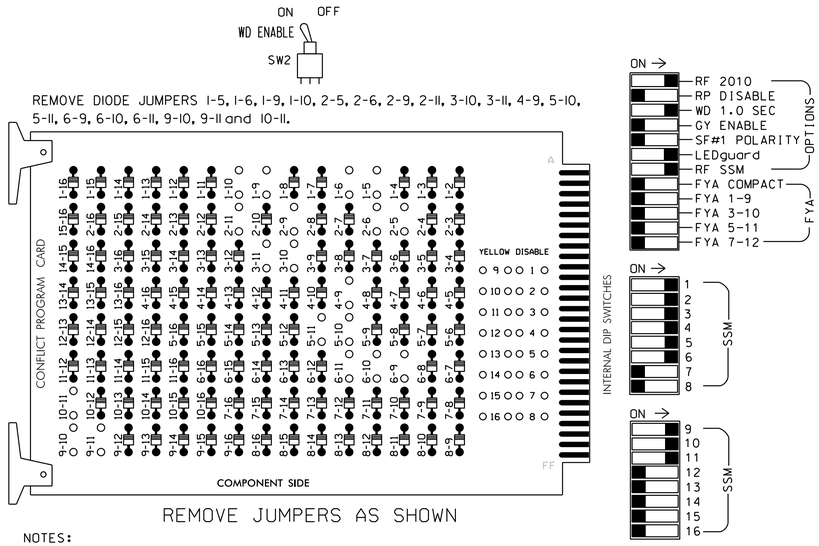
SEAL
SEAL 32396
WILLIAM J. HAMILTON

DocuSigned by:
William J. Hamilton
A0560D704648484...
SIGNATURE
12/1/2022
DATE

SIG. INVENTORY NO. 03-0776T2

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)



REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

INPUT FILE POSITION LAYOUT

(front view)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I" U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L						Ø4 4B								ST DC ISOLATOR
FILE "J" U	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	GPS EVP		SLOT EMPTY
FILE "J" L														

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

FS = FLASH SENSE
ST = STOP TIME

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

PHASE SEQUENCE: PAGE 1 NEXT: PAGES)

RNG	LEAD	BARRIER 1		X-LAG	LEAD	BARRIER 2		X-LAG	LEAD	BARRIER 3		X-LAG
1	1	2	0	0	9	0	0	0	3	4	0	0
2	5	6	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels 7,8 12,13,14,15,16. The unused load switch red outputs to load switch AC+ per cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag overlaps.
7. The cabinet and controller are part of the Jacksonville Signal System.

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,S3,S4,S5,S6,S9,S10,S12
PHASES USED.....1,2,3,4,5,6,9*
OVERLAP "A".....4+6+9
OVERLAP "B".....1+3+9
OVERLAP "C".....2+3
OVERLAP "D".....NOT USED
OVERLAP "E".....1+9
OVERLAP "F".....6+9

* Phase 9 is used for phase 1 reservice, as required

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
4A	TB4-9,10	16U	41	3	4	4	Y	Y			3
4B	TB4-11,12	16L	45	7	14	4	Y	Y			10

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

SPECIAL DETECTOR NOTE

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

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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.

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PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.6

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3			S4		S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	OLE	2	2 PED	3			4		4 PED	5	OLF	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11	21,22	NU	31	32	33	41	42	NU	51	61,62	NU	NU	NU	NU	63★	34★	NU	23★	NU	NU
RED		128			116	116	101	101			134					A121	A124		A114		
YELLOW		129			117	117	102	102			135										
GREEN		130			118	118	103	103			136										
RED ARROW	125			116						131											
YELLOW ARROW	126			117						132						A122	A125		A115		
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	118		103			133											

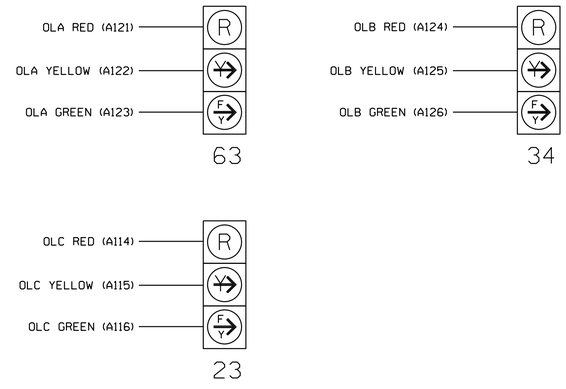
NU = Not Used

★ See pictorial of head wiring in detail below.

NOTE: Output assignments for load switches S1 and S6 have been remapped. See sheet 3 for programming details.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776T2
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design II - (TMP Phase II)
Electrical Detail - Sheet 1 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 | Onslow County | Jacksonville

Prepared for: NCDOT Transportation Mobility and Safety Division, Traffic Engineering Branch, Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

William J. Hamilton 12/1/2022
SIGNATURE DATE

SIG. INVENTORY NO. 03-0776T2

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:¦    X X  X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
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
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
```

NOTICE GREEN FLASH

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
 PHASE:            ¦12345678910111213141516
VEH OVL PARENTS:¦X X     X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
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
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
```

NOTICE GREEN FLASH

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
 PHASE:            ¦12345678910111213141516
VEH OVL PARENTS:¦ XX
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
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
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
```

NOTICE GREEN FLASH

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
 PHASE:            ¦12345678910111213141516
VEH OVL PARENTS:¦X       X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:  _ RED   _ YELLOW   _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...3.7
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'F' SETTINGS
 PHASE:            ¦12345678910111213141516
VEH OVL PARENTS:¦      X  X
VEH OVL NOT VEH:¦
VEH OVL NOT PED:¦
VEH OVL GRN EXT:¦
STARTUP COLOR: _ RED   _ YELLOW   _ GREEN
FLASH COLORS:  _ RED   _ YELLOW   _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..4.5
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.2
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
  PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING ¦  CLEAR/DWELL PHASES
  GRN YEL  RED  ¦12345678910111213141516
1 255  0.0  0.0 ¦X     X
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      ¦
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                  ¦ ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW     ¦
OMIT OVERLAPS:             ¦  X
```

PRESS 'NEXT'

```
  PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING ¦  CLEAR/DWELL PHASES
  GRN YEL  RED  ¦12345678910111213141516
1 255  0.0  0.0 ¦ X   X
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      ¦
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                  ¦ ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW     ¦
OMIT OVERLAPS:             ¦
```

PRESS 'NEXT'

```
  PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING ¦  CLEAR/DWELL PHASES
  GRN YEL  RED  ¦12345678910111213141516
1 255  0.0  0.0 ¦ X
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
EXIT CALLS      ¦
              OPTIONS
PRIORITY (Y/N TO SELECT) ............MED
DELAY TIMER (0-255 SEC) .............0
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) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                  ¦ ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW     ¦
OMIT OVERLAPS:             ¦   X
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds for PRE3, PRE4, and PRE 5.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0776T2
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design II - (TMP Phase II)
Electrical Detail - Sheet 2 of 3

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

NC 53 (Western Boulevard) at SR 1336 (Henderson Drive)

Division 3 | Onslow County | Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton
A0560D704648484
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776T2

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.8

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S1 TO OVERLAP 'E'
(FOR SIGNAL HEAD 11)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

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

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY FOR OUTPUT 15

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

PRESS "+" KEY TO ADVANCE TO OUTPUT 16

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE.......................Y
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OVERLAP 'E' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED........................._
VEHICLE PHASE......................._
PEDESTRIAN PHASE...................._
VEHICLE OVERLAP.....................Y
PEDESTRIAN OVERLAP.................._
WATCHDOG............................_
DETECTOR RESET......................_
ADVANCE BEACON......................_
OUT OF PHASE FLASHER................_
CONTROLLER FLASH...................._
RUN FREE............................_
RESERVED............................_
PREEMPT............................._
SOFT PREEMPT........................_
ANY PREEMPT........................._
COORDINATION PLAN..................._
OFFSET.............................._
PHASE CHECK........................._
PHASE ON............................_
PHASE NEXT.........................._
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S6 TO OVERLAP 'F'
(FOR SIGNAL HEADS 61,62)

(program controller as shown below)

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "27"

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

OVERLAP 'F' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:29  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY FOR OUTPUT 28

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

OVERLAP 'F' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:30  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY TO ADVANCE TO OUTPUT 29

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

OVERLAP 'F' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:31  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

OUTPUT PROGRAMMING FOR HEADS 61 AND 62 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776T2
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Temporary Design II - (TMP Phase II)
Electrical Detail - Sheet 3 of 3

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: Transportation Mobility and Safety Division, ITS & Signals Management Section, State of North Carolina Department of Transportation
750 N.Greenfield Pkwy,Garner,NC 27529

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

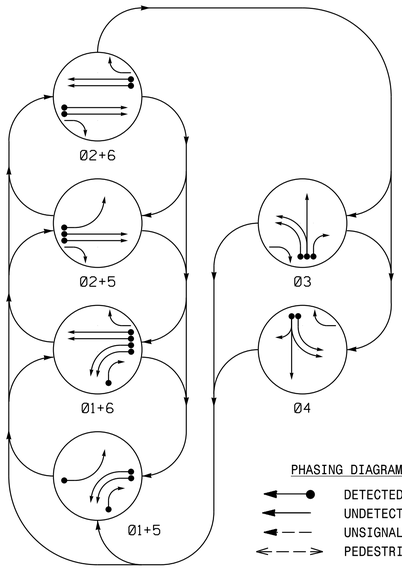
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton
A0560D704648484...
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776T2

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.9

PHASING DIAGRAM



EV PREEMPT PHASES

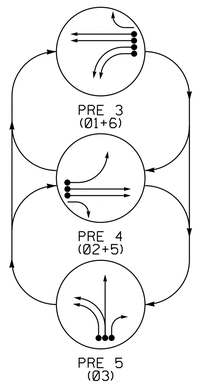


TABLE OF OPERATION

SIGNAL FACE	PHASE 01+5	01+6	02+5	02+6	03	04	PRE 3	PRE 4	PRE 5	FLASH
11,12	←	←	←R	←R	←R	←R	←	←R	←R	←R
21,22	R	R	G	G	R	R	R	G	R	Y
23	R	R	F/Y→	F/Y→	F/Y→	R	R	F/Y→	R	Y→
31	←R	←R	←R	←R	←	←R	←R	←R	←	←R
32	←R	←R	←R	←R	G ←	←R	←R	←R	G ←	←R
33	R	R	R	R	G	R	R	R	G	R
34	F/Y→	F/Y→	R	R	F/Y→	R	R	R	F/Y→	R
41	R	R	R	R	R	G ←	R	R	R	R
42	R	R	R	R	R	G	R	R	R	R
51	←	←R	←	←R	←R	←R	←R	←	←R	←R
61,62	R	G	R	G	R	R	G	R	R	Y
63	R	F/Y→	R	F/Y→	R	F/Y→	F/Y→	R	R	Y→

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS: 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	-	-	-	-	-
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
1C	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
2B	6X6	300	5	Y	2	Y	Y	-	-	-	-	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	3	-	Y
3B	6X40	0	2-4-2	Y	3	Y	Y	-	-	-	-	Y
4A	6X40	0	2-4-2	-	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	-	4	Y	Y	-	-	10	-	-
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	-
6A	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y
6B	6X6	300	5	Y	6	Y	Y	-	-	-	-	Y
S01	6X6	+175	3	Y	-	-	-	-	-	-	Y	Y
S02	6X6	+175	3	Y	-	-	-	-	-	-	Y	Y

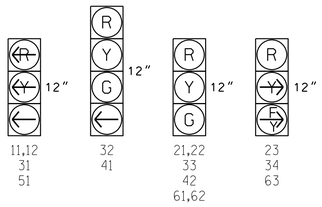
6 Phase
Fully Actuated
w/ EV Preempt
(Jacksonville Signal System)

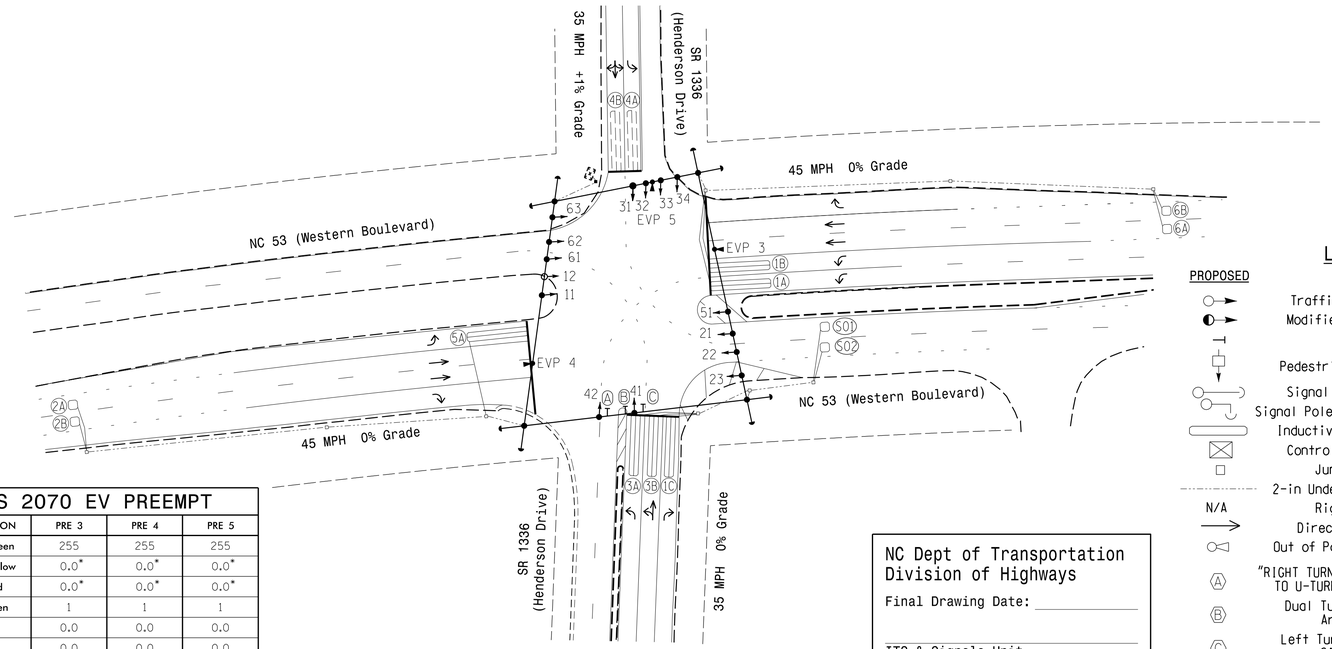
NOTES

1. Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
2. Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
3. Phase 1 and/or phase 5 may be lagged.
4. The order of phase 3 and phase 4 may be reversed.
5. Reposition existing signal heads numbered 11, 21, 22, 31 and 32.
6. Set all detector units to presence mode.
7. This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
8. This intersection features a GPS preemption system.

SIGNAL FACE I.D.

All Heads L.E.D.





LEGEND

PROPOSED		EXISTING
○→	Traffic Signal Head	●→
◐→	Modified Signal Head	N/A
⊣	Sign	⊣
□	Pedestrian Signal Head	■
○—)	Signal Pole with Guy	●—◗
○—◡	Signal Pole with Sidewalk Guy	●—◒
▭	Inductive Loop Detector	⌷
☒	Controller & Cabinet	⛝
□	Junction Box	■
-·-·-·-	2-in Underground Conduit	—·—·—
N/A	Right of Way	— — —
→	Directional Arrow	→
○◁	Out of Pavement Detector	●◀
Ⓐ	"RIGHT TURN ON RED MUST YIELD TO U-TURN" Sign (R10-30)	Ⓐ
Ⓑ	Dual Turn and Through Arrows Sign	Ⓑ
Ⓒ	Left Turn Arrow "ONLY" Sign (R3-5)	Ⓒ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1	2.0	6.0	2.0	2.0	2.0	6.0
Max Green 1 *	30	90	30	30	30	90
Yellow Clearance	3.0	4.5	3.8	3.8	3.0	4.5
Red Clearance	3.6	1.6	2.9	3.0	3.6	1.3
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.5	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	30	-	-	-	30
Time To Reduce *	-	45	-	-	-	45
Minimum Gap	-	3.0	-	-	-	3.0
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW
Dual Entry	-	-	-	-	-	-
Simultaneous Gap	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.

OASIS 2070 EV PREEMPT

FUNCTION	PRE 3	PRE 4	PRE 5
Interval 1 – Dwell Green	255	255	255
Interval 1 – Dwell Yellow	0.0*	0.0*	0.0*
Interval 1 – Dwell Red	0.0*	0.0*	0.0*
Interval 5 – Exit Green	1	1	1
Interval 5 – Yellow	0.0	0.0	0.0
Interval 5 – Red	0.0	0.0	0.0
Exit Phase(s)	2,6	2,6	3
Priority	Medium	Medium	Medium
Delay Time	0.0	0.0	0.0
Min Green Before Pre	1	1	1
Ped Clear Before Pre	0	0	0
Yellow Clear Before Pre	0.0*	0.0*	0.0*
Red Clear Before Pre	0.0*	0.0*	0.0*
Dwell Min Time	12	12	7
Enable Backup Protection	N	N	N
Ped Clear Through Yellow	N	N	N
Omit Overlaps	B	-	C
Preempt Extend**	2	2	2

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

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

Signal Upgrade - Final Design

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

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

SCALE
0 50
1"=50'

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO.:	22424 (040)

REVISIONS	INIT.	DATE

SEAL
SEAL 32396
WILLIAM J. HAMILTON

DocuSigned by:
William J. Hamilton
A0560D704648484...
SIGNATURE
12/1/2022
DATE

SIG. INVENTORY NO. 03-0776

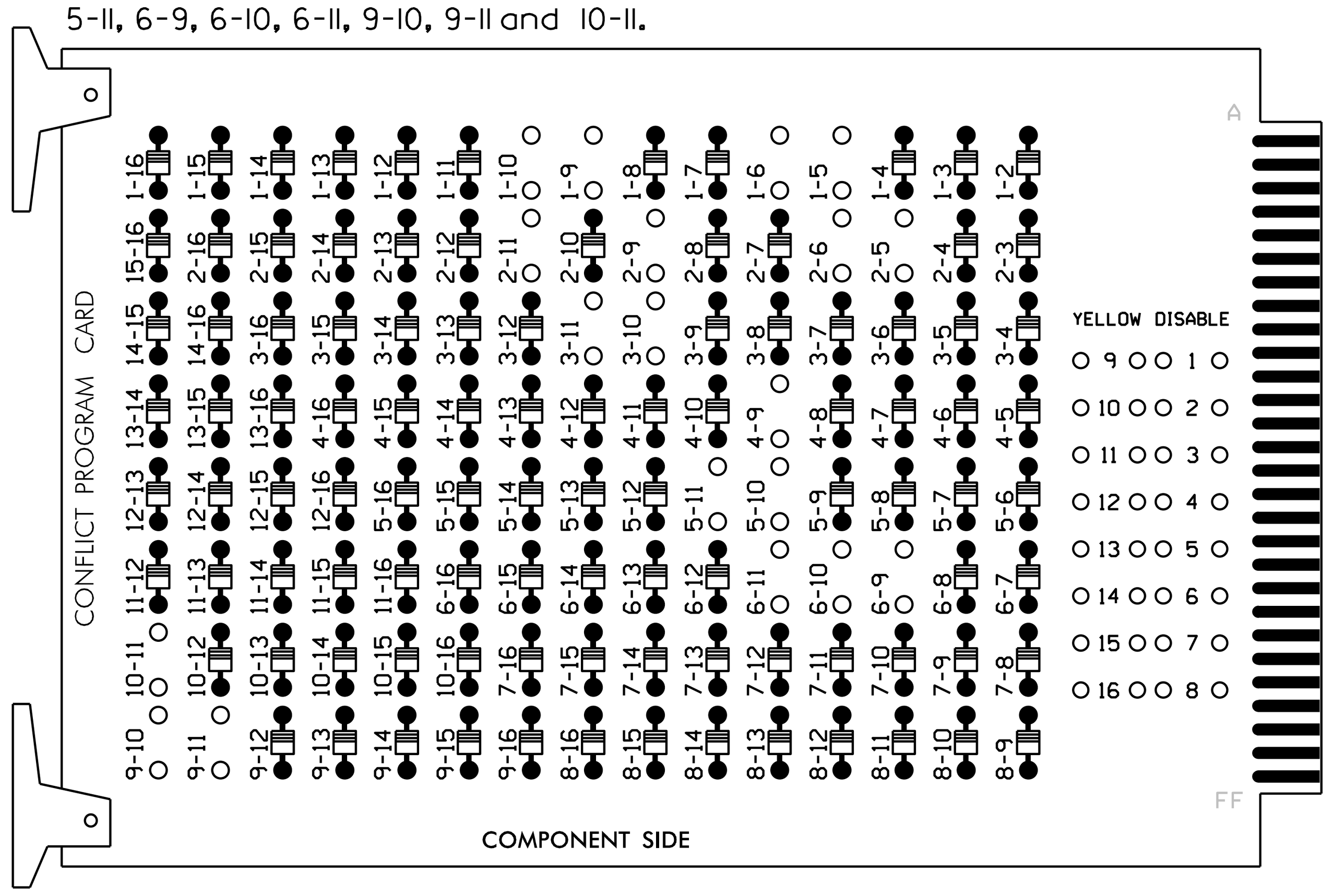
PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.10

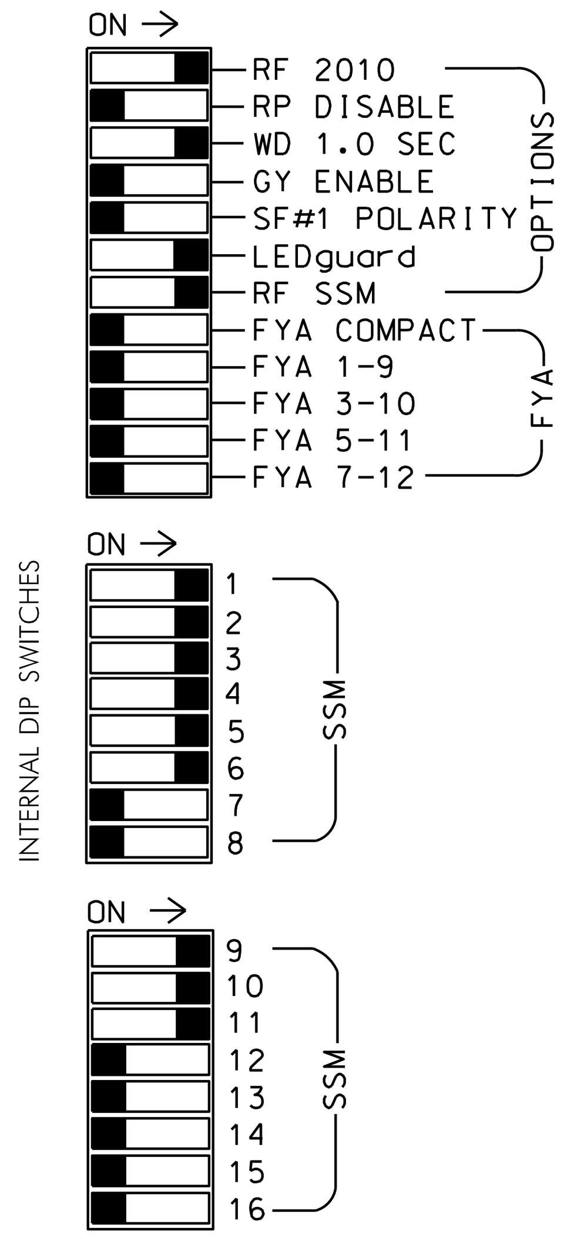
16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

ON OFF
WD ENABLE
SW2

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





REMOVE JUMPERS AS SHOWN

NOTES:

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

■ = DENOTES POSITION OF SWITCH

NOTES

1. To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
2. To prevent red failures on unused monitor channels 7,8 12,13,14,15,16. The unused load switch red outputs to load switch AC+ per cabinet manufacturer's instructions.
3. Enable Simultaneous Gap-Out for all phases.
4. Program phases 2 and 6 for Variable Initial and Gap Reduction.
5. Program phases 2 and 6 for Start Up In Green.
6. Program phases 2 and 6 for Yellow Flash and overlaps 1 and 2 as Wag overlaps.
7. The cabinet and controller are part of the Jacksonville Signal System.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3			S4		S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
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.	11,12	21,22	NU	31	32	33	41	42	NU	51	61,62	NU	NU	NU	NU	63★	34★	NU	23★	NU	NU
RED		128			116	116	101	101			134					A121	A124		A114		
YELLOW		129			117	117	102	102			135										
GREEN		130			118	118	103	103			136										
RED ARROW	125			116						131											
YELLOW ARROW	126			117						132						A122	A125		A115		
FLASHING YELLOW ARROW																A123	A126		A116		
GREEN ARROW	127			118	118		103			133											

NU = Not Used

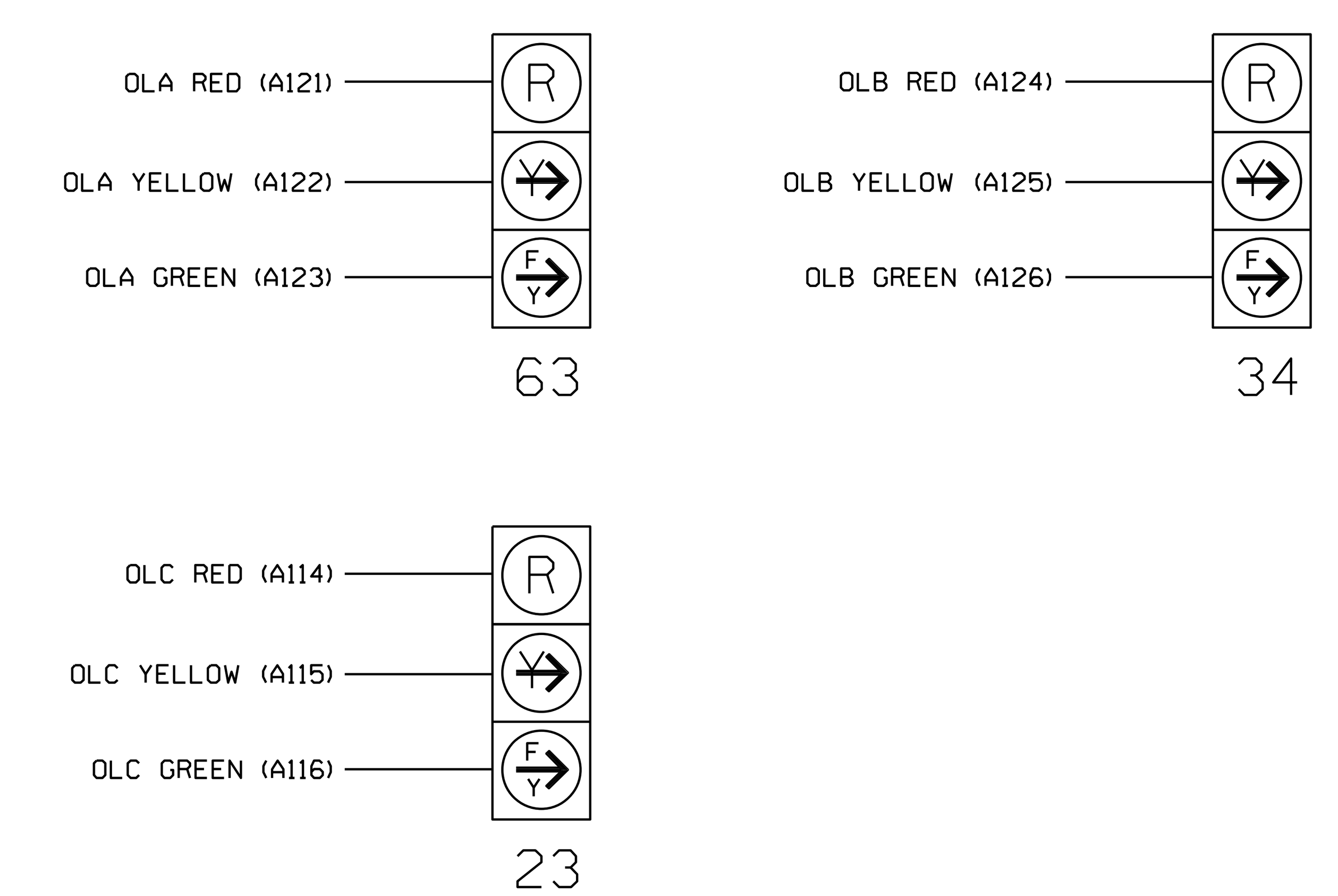
★ See pictorial of head wiring in detail below.

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,S3,S4,S5,S6,S9,S10,S12
PHASES USED............1,2,3,4,5,6
OVERLAP "A"............4+6
OVERLAP "B"............1+3
OVERLAP "C"............2+3
OVERLAP "D"............NOT USED

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
FILE "I"	U	Ø 1 1A	Ø 1 1B	Ø 2 2A	SLOT EMPTY	SLOT EMPTY	Ø 4 4A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L	NOT USED	Ø 1 1C	Ø 2 2B			Ø 4 4B								ST DC ISOLATOR
FILE "J"	U	Ø 5 5A	Ø 6 6A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø 3 3A	SLOT EMPTY	SLOT EMPTY	SYS. DET. S01	SLOT EMPTY	SLOT EMPTY	GPS EVP		SLOT EMPTY
	L	NOT USED	Ø 6 6B				Ø 3 3B			SYS. DET. S02					

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	TB2-1,2	I1U	56	18	1	1	Y	Y			
1B	TB2-5,6	I2U	39	1	2	1	Y	Y			
1C	TB2-7,8	I2L	43	5	12	1	Y	Y			15
2A	TB2-9,10	I3U	63	25	32	2	Y	Y			
2B	TB2-11,12	I3L	76	38	42	2	Y	Y			
3A	TB5-9,10	J6U	42	4	8	3	Y	Y			3
3B	TB5-11,12	J6L	46	8	18	3	Y	Y			
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			10
5A	TB3-1,2	J1U	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			
*S01	TB7-9,10	J9U	59	21	15	SYS					
*S02	TB7-11,12	J9L	61	23	17	SYS					

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

INPUT FILE POSITION LEGEND: J2L

FILE J
SLOT 2
LOWER

REMOVE

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

```
PHASE SEQUENCE: PAGE 1  NEXT: PAGES)
RNG¦LEAD   BARRIER 1  X-LAG¦LEAD   BARRIER 2  X-LAG¦LEAD   BARRIER 3  X-LAG
1  ¦1      2      0      0 ¦0      0      0      0 ¦3      4      0      0
2  ¦5      6      0      0 ¦0      0      0      0 ¦0      0      0      0
3  ¦0      0      0      0 ¦0      0      0      0 ¦0      0      0      0
4  ¦0      0      0      0 ¦0      0      0      0 ¦0      0      0      0
```

REMOVE PHASE 9

FLASHER CIRCUIT MODIFICATION DETAIL

IN ORDER TO ENSURE 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.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 03-0776
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Final Design
Electrical Detail - Sheet 1 of 3

Infrastructure Consulting Services, Inc.
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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for:
Transportation Mobility and Safety Division — State of North Carolina Department of Transportation — ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 Onslow County Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by:
William J. Hamilton
A0560D704648484...
SIGNATURE 12/1/2022 DATE

SIG. INVENTORY NO. 03-0776

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.11

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:          |1234567891011121314151 6
VEH OVL PARENTS:  |   X X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'B' SETTINGS
  PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:  |X X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  X GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

← NOTICE GREEN FLASH

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'C' SETTINGS
  PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:  | XX
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
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
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
```

← NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

REMOVE

```
 PAGE 1: VEHICLE OVERLAP 'E' SETTINGS
  PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:  |X       X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..3.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...3.3
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

PRESS '+'

```
 PAGE 1: VEHICLE OVERLAP 'F' SETTINGS
  PHASE:          |1234567891011121314151 6
VEH OVL PARENTS:  |     X  X
VEH OVL NOT VEH:  |
VEH OVL NOT PED:  |
VEH OVL GRN EXT:  |
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...Y
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..4.5
RED CLEAR (0=PARENT,0.1-25.5 SEC)...1.8
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

From Main Menu press 'A' (Preemption), then '1' (Standard Preemptions). Press 'NEXT' as needed to advance to Preempts 3, 4 and 5.

```
   PREEMPTION  #3  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |X    X
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       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ...........MED
DELAY TIMER (0-255 SEC) ............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |  X
```

PRESS 'NEXT'

```
   PREEMPTION  #4  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |X  X
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       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ...........MED
DELAY TIMER (0-255 SEC) ............0
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) .........12
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |
```

PRESS 'NEXT'

```
   PREEMPTION  #5  SETTINGS (NEXT:1-10)
INTERVAL/TIMING  |  CLEAR/DWELL PHASES
  GRN YEL  RED   |1234567891011121314151 6
1 255  0.0  0.0  |X
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
EXIT CALLS       |
          OPTIONS
PRIORITY (Y/N TO SELECT) ...........MED
DELAY TIMER (0-255 SEC) ............0
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) .........7
DWELL MAX TIMER (0=OFF,1-255MIN) ....0
DWELL HOLD-OVER TIMER (0-255) .......0
LATCH CALL? .........................N
LINK TO NEXT PREEMPT? ...............N
ENABLE BACKUP PROTECTION? ...........N
HOLD CLEAR 1 PHASES DURING DELAY? ...N
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? .............N
OVERLAPS:                | ABCDEFGHIJKLMNOP
DWELL INT FLASH YELLOW   |
OMIT OVERLAPS:           |  X
```

PROGRAMMING COMPLETE

Program extend time on detector unit for 2.0 seconds for PRE3, PRE4, and PRE 5.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Final Design
Electrical Detail - Sheet 2 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: NCDOT Transportation Mobility and Safety Division Traffic Engineering Branch 08 Traffic & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3 | Onslow County | Jacksonville

PLAN DATE:	December 2022	REVIEWED BY:	WJ Hamilton
PREPARED BY:	ZM Esposito	RKA PROJ. NO:	22424 (040)

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton A0560D7064B484... 12/1/2022

SIGNATURE DATE

SIG. INVENTORY NO. 03-0776

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PROJECT REFERENCE NO.	SHEET NO.
W-5203U	Sig-2.12

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S1 TO OVERLAP 'E'
(FOR SIGNAL HEAD 11)

(program controller as shown below)

REMOVE

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "14"

```
PAGE:1  C1 PIN:16  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................Y
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

OVERLAP 'E' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

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

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:16  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................14
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................_
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

PRESS "+" KEY FOR OUTPUT 15

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................Y
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

OVERLAP 'E' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:17  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:17  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................15
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................_
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

PRESS "+" KEY TO ADVANCE TO OUTPUT 16

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................Y
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

OVERLAP 'E' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:18  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...5
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

```
PAGE:1  C1 PIN:18  VEHICLE OVERLAP
OUTPUT ASSIGNMENT #.................16
FREQUENCY (0=DEFAULT) (0-25.5 HZ)...0.0
DUTY CYCLE (0=DEFAULT) (0 - 100%)...0
MODE (0=SOLID,1=FLASH)..............0
SELECT ASSIGNMENT:
NOT ENABLED.........................._
VEHICLE PHASE........................_
PEDESTRIAN PHASE....................._
VEHICLE OVERLAP......................Y
PEDESTRIAN OVERLAP..................._
WATCHDOG............................._
DETECTOR RESET......................._
ADVANCE BEACON......................._
OUT OF PHASE FLASHER................._
CONTROLLER FLASH....................._
RUN FREE............................._
RESERVED............................._
PREEMPT.............................._
SOFT PREEMPT........................._
ANY PREEMPT.........................._
COORDINATION PLAN...................._
OFFSET..............................._
PHASE CHECK.........................._
PHASE ON............................._
PHASE NEXT..........................._
```

OUTPUT PROGRAMMING FOR HEAD 11 COMPLETE

OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
TO ASSIGN LOADSWITCH S6 TO OVERLAP 'F'
(FOR SIGNAL HEADS 61,62)

(program controller as shown below)

REMOVE

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS). WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "27"

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

OVERLAP 'F' RED

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:29  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY FOR OUTPUT 28

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

OVERLAP 'F' YELLOW

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:30  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

PRESS "+" KEY TO ADVANCE TO OUTPUT 29

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

OVERLAP 'F' GREEN

THE OUTPUT IS SET AS VEHICLE PHASE BY DEFAULT. THIS "Y" WILL REMAIN UNTIL THE OUTPUT IS CHANGED.

ENTER A "Y" FOR VEHICLE OVERLAP.

```
PAGE:1  C1 PIN:31  VEHICLE PHASE
SELECT VEHICLE OVERLAP (A=1,P=16)...6
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER ENTERING DATA. THEN 'ESC'.

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

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

OUTPUT PROGRAMMING FOR HEADS 61 AND 62 COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 03-0776
DESIGNED: Dec 2022
SEALED: 12/1/2022
REVISED: N/A

Final Design
Electrical Detail - Sheet 3 of 3

Infrastructure Consulting Services, Inc. dba RKA
RAMEY KEMP ASSOCIATES
8210 University Executive Park Drive, Suite 220
Charlotte, NC 28262
NC License No. F-1489
www.rameykemp.com

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for: Transportation Mobility and Safety Division, State of North Carolina Department of Transportation, ITS & Signals Management Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 53 (Western Boulevard)
at
SR 1336 (Henderson Drive)

Division 3	Onslow County	Jacksonville	
PLAN DATE: December 2022		REVIEWED BY: WJ Hamilton	
PREPARED BY: ZM Esposito		RKA PROJ. NO: 22424 (040)	
REVISIONS		INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 32396 ENGINEER WILLIAM J. HAMILTON

DocuSigned by: William J. Hamilton
A0560D704648484...

SIGNATURE	DATE
	12/1/2022

SIG. INVENTORY NO. 03-0776

09/08/99

TIP PROJECT: W–5203U

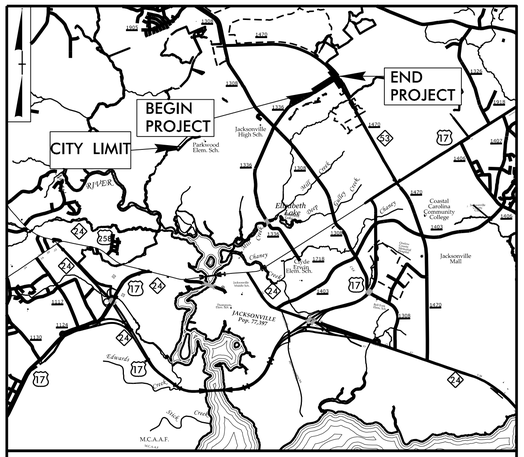
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

T.I.P. NO.	SHEET NO.
W–5203U	UC–1

UTILITY CONSTRUCTION PLANS
ONSLOW COUNTY

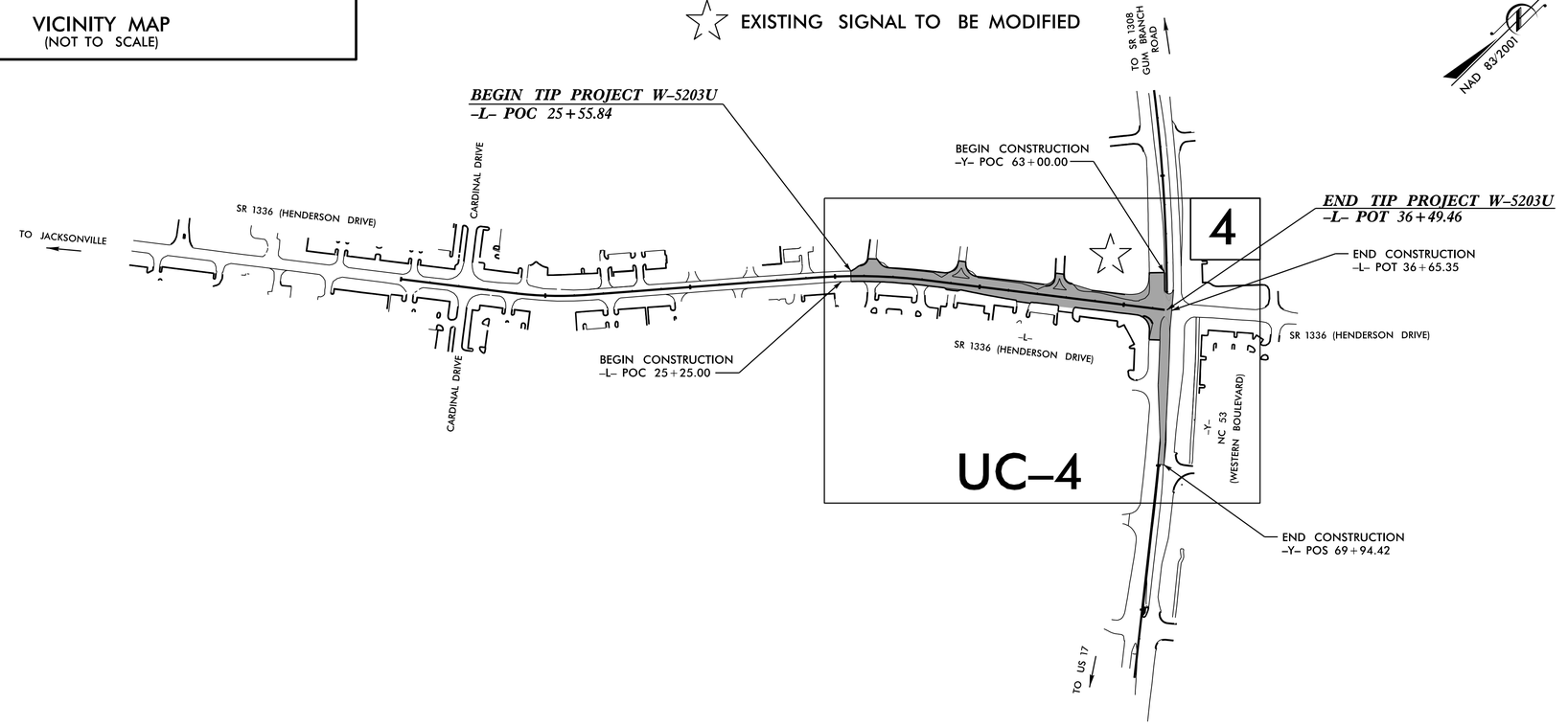
LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

TYPE OF WORK: UTILITY CONSTRUCTION



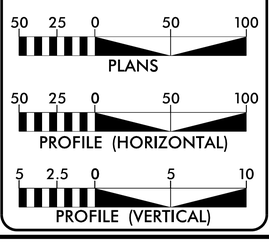
VICINITY MAP
(NOT TO SCALE)

☆ EXISTING SIGNAL TO BE MODIFIED



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES



INDEX OF SHEETS

WATER AND SEWER OWNERS ON PROJECT

A) WATER – CITY OF JACKSONVILLE
B) SEWER – CITY OF JACKSONVILLE

PREPARED IN THE OFFICE OF:
DAVIS • MARTIN • POWELL dmp
ENGINEERS & SURVEYORS
6415 OLD PLANK RD. HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

Andy Larrick, P.E.	CONSULTANT CONTACT #1
Steve McKee, P.E.	CONSULTANT CONTACT #2
Kelly Hayes, P.E.	CONSULTANT CONTACT #3

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 26457 ENGINEER ANDREW P. LARRICK
DocuSigned by: Andrew P. Larrick
4/18/2023

DIVISION OF HIGHWAYS
DIVISION 3
5501 BARBADOS BLVD.
CASTLE HAYNE, NC 28429
PHONE (910) 341–2001
FAX (910) 675–0143

Lonny Sleeper	DIVISION UTILITY ENGINEER
Chris Sutton	DIVISION UTILITY COORDINATOR

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

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	UC-2

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES PLAN SHEET SYMBOLS

PROPOSED WATER SYMBOLS

- Water Line (Sized as Shown) — 12" WL
- 11¼ Degree Bend
- 22½ Degree Bend
- 45 Degree Bend
- 90 Degree Bend
- Plug
- Tee
- Cross
- Reducer
- Gate Valve — GV
- Butterfly Valve — BV
- Tapping Valve — TGV
- Line Stop — LS
- Line Stop with Bypass — LS/BP
- Blow Off — BO
- Fire Hydrant — PFH
- Relocate Fire Hydrant — RFH
- Remove Fire Hydrant — REM FH
- Water Meter — PWM
- Relocate Water Meter — RWM
- Remove Water Meter — REM WM
- Water Pump Station — PS(W)
- RPZ Backflow Preventer — PRPZ
- DCV Backflow Preventer — PRFP
- Relocate RPZ Backflow Preventer — RRPZ
- Relocate DCV Backflow Preventer — RRFP

PROPOSED SEWER SYMBOLS

- Gravity Sewer Line (Sized as Shown) — 12" SS
- Force Main Sewer Line (Sized as Shown) — 12" FSS
- Manhole (Sized per Note)
- Sewer Pump Station — PS(SS)

PROPOSED MISCELLANOUS UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Telephone Pedestal — TEL PED
- Utility Line by Others (Type as Shown) — PROP O/H POW LINES
- Trenchless Installation — 12" TL INSTALL
- Encasement by Open Cut — 24" ENCAS BY OC
- Encasement — 24" ENCASEMENT

- Thrust Block
- Air Release Valve — AR
- Utility Vault — UV
- Concrete Pier — CP
- Steel Pier — SP
- Plan Note — NOTE
- Pay Item Note — PAY ITEM

EXISTING UTILITIES SYMBOLS

- Power Pole
- Telephone Pole
- Joint Use Pole
- Utility Pole
- Utility Pole with Base
- H-Frame Pole
- Power Transmission Line Tower
- Water Manhole — W
- Power Manhole — P
- Telephone Manhole — T
- Sanitary Sewer Manhole — S
- Hand Hole for Cable — H
- Power Transformer — X
- Telephone Pedestal — T
- CATV Pedestal — C
- Gas Valve
- Gas Meter — G
- Located Miscellaneous Utility Object
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

- *Underground Power Line — P
- *Underground Telephone Cable — T
- *Underground Telephone Conduit — TC
- *Underground Fiber Optics Telephone Cable — T FO
- *Underground TV Cable — TV
- *Underground Fiber Optics TV Cable — TV FO
- *Underground Gas Pipeline — G
- Aboveground Gas Pipeline — A/G Gas
- *Underground Water Line — W
- Aboveground Water Line — A/G Water
- *Underground Gravity Sanitary Sewer Line — SS
- Aboveground Gravity Sanitary Sewer Line — A/G Sanitary Sewer
- *Underground SS Forced Main Line — FSS
- Underground Unknown Utility Line — ?UTL
- SUE Test Hole
- Water Meter
- Water Valve
- Fire Hydrant
- Sanitary Sewer Cleanout

*For Existing Utilities

- Utility Line Drawn from Record (Type as Shown) — W
- Designated Utility Line (Type as Shown) — W

REV: 2/1/2012

5/14/99

REVISIONS

UTILITY CONSTRUCTION NOTES

GENERAL NOTES:

1. THE PROPOSED WATER UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.

2. THE EXISTING WATER AND SEWER UTILITIES BELONG TO THE CITY OF JACKSONVILLE.

3. ALL WATER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, PUBLIC WATER SUPPLY SECTION.

4. THE UTILITY OWNERS OWN THE EXISTING UTILITY FACILITIES AND WILL OWN THE NEW UTILITY FACILITIES AFTER ACCEPTANCE BY THE DEPARTMENT. THE DEPARTMENT OWNS THE CONSTRUCTION CONTRACT AND HAS ADMINISTRATIVE AUTHORITY. COMMUNICATIONS AND DECISIONS BETWEEN THE CONTRACTOR AND UTILITY OWNERS ARE NOT BINDING UPON THE DEPARTMENT OR THIS CONTRACT UNLESS AUTHORIZED BY THE ENGINEER. AGREEMENTS BETWEEN THE UTILITY OWNERS AND CONTRACTOR FOR THE WORK THAT IS NOT PART OF THIS CONTRACT OR IS SECONDARY TO THIS CONTRACT ARE ALLOWED, BUT ARE NOT BINDING UPON THE DEPARTMENT.

5. PROVIDE ACCESS FOR THE DEPARTMENT PERSONNEL AND THE OWNERS' REPRESENTATIVES TO ALL PHASES OF CONSTRUCTION. NOTIFY DEPARTMENT PERSONNEL AND THE UTILITY OWNERS TWO WEEKS PRIOR TO COMMENCEMENT OF ANY WORK AND ONE WEEK PRIOR TO SERVICE INTERRUPTION. KEEP UTILITY OWNERS' REPRESENTATIVES INFORMED OF WORK PROGRESS AND PROVIDE OPPORTUNITY FOR INSPECTION OF CONSTRUCTION AND TESTING.

6. THE PLANS DEPICT THE BEST AVAILABLE INFORMATION FOR THE LOCATION, SIZE, AND TYPE OF MATERIAL FOR ALL EXISTING UTILITIES. MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE, AND TYPE MATERIAL OF THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES TO THE ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE DEPARTMENT.

7. MAKE FINAL CONNECTIONS OF THE NEW WORK TO THE EXISTING SYSTEM WHERE INDICATED ON THE PLANS, AS REQUIRED TO FIT THE ACTUAL CONDITIONS, OR AS DIRECTED.

8. MAKE CONNECTIONS BETWEEN EXISTING AND PROPOSED UTILITIES AT TIMES MOST CONVENIENT TO THE PUBLIC, WITHOUT ENDANGERING THE UTILITY SERVICE, AND IN ACCORDANCE WITH THE UTILITY OWNER'S REQUIREMENTS. MAKE CONNECTIONS ON WEEKENDS, AT NIGHT, AND ON HOLIDAYS IF NECESSARY.

9. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, " SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.

PROJECT SPECIFIC NOTES:

1. UNLESS OTHERWISE NOTED, FOR PROPOSED 6" THRU 12" DIAMETER WATER MAINS, PIPE SHALL BE DUCTILE IRON, PC 350, WITH RESTRAINED JOINTS.

2. CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER CONCERNING THE TIMING AND SCHEDULE OF REQUIRED SHUT-DOWNS OF ANY EXISTING WATER MAINS.

LIST OF STANDARD DRAWINGS

1515.01 WATER METER

1515.02 FIRE HYDRANT

1520.01 SEWER CLEAN OUT

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	UC-3
DESIGNED BY: JSM	
DRAWN BY: APL	
CHECKED BY: APL	
APPROVED BY:	
REVISED:	
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION	
UTILITIES ENGINEERING SEC. PHONE:(919)707-6690 FAX:(919)250-4151	UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 26457 ENGINEER ANDREW P. LARRICK
DocuSigned by: Andrew P. Larrick
4/18/2023

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION PLANS PREPARED BY:
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

5/14/99

REVISIONS

UTILITY CONSTRUCTION DETAILS

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	UC-3A

DESIGNED BY: JSM
DRAWN BY: APL
CHECKED BY: APL
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

UTILITIES ENGINEERING SEC.
PHONE: (919)707-6690
FAX: (919)250-4151

UTILITY CONSTRUCTION PLANS ONLY

NORTH CAROLINA PROFESSIONAL SEAL 26457 ENGINEER ANDREW P. LARRICK
4/18/2023

UTILITY CONSTRUCTION

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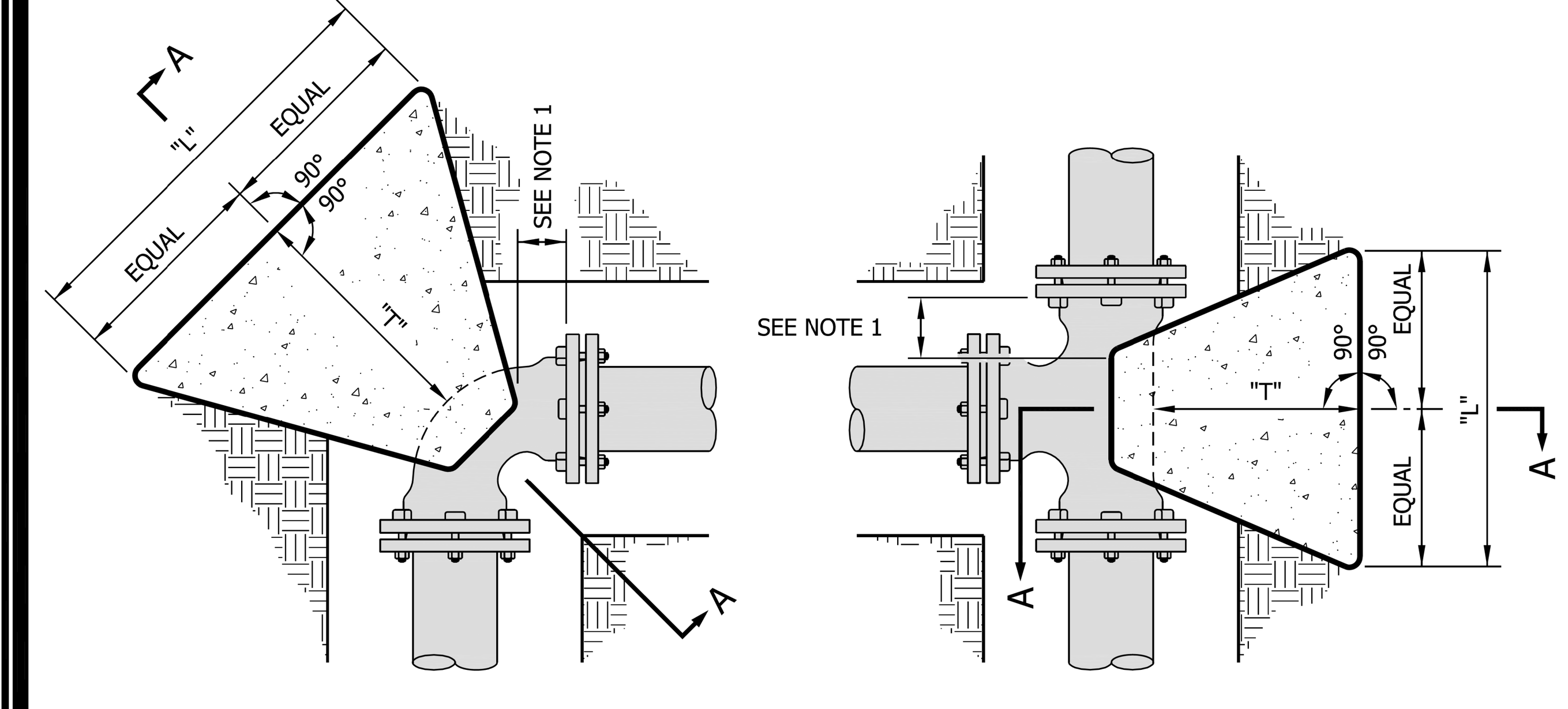
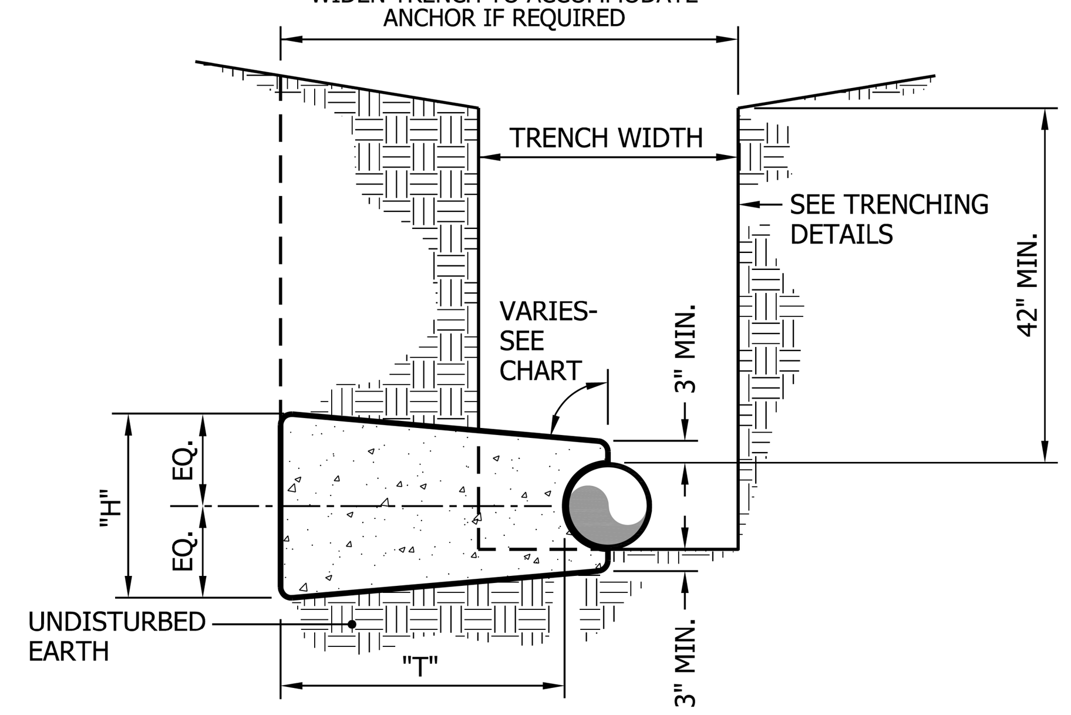


FOR ALL BEND FITTINGS

FOR TEE FITTING



SECTION A-A

NOTES:

1. CONCRETE BLOCKING IS TO BE FORMED TO ENSURE ACCESSIBILITY TO FITTINGS AND POURED AGAINST UNDISTURBED EARTH.
2. FITTINGS ARE TO BE COMPLETELY WRAPPED WITH PLASTIC, PRIOR TO POURING CONCRETE.
3. CONCRETE TO BE MINIMUM 3,000 PSI. @ 28 DAYS.
4. WHEN A BAG MIX IS TO BE USED, IT SHALL BE PROPERLY MIXED PER MANUFACTURER SPECIFICATIONS.

Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY
http://www.jacksonvillenc.gov

BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

SCALE: Not To Scale | DETAIL # 512.01 | REVISION DATE: Jan, 2016 | SHEET #: 1 of 2

TEST PRESSURE = 150 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME. CONCRETE CU. YD.
<4 INCHES	11 1/4°	---	---	---	---
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.00	1.00	2.50	0.09
	TEE	1.00	1.00	2.00	0.07
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.00	1.00	2.50	0.09
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.00	2.00	3.00	0.28
	TEE	2.00	2.00	2.50	0.23
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.75	0.25
	90°	3.00	2.00	3.00	0.39
	TEE	3.00	2.00	2.50	0.32
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	2.00	2.00	3.00	0.28
	45°	3.00	2.50	3.00	0.47
	90°	4.50	3.00	3.50	0.94
	TEE	4.50	3.00	3.00	0.81
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	3.00	3.50	0.84
	90°	6.50	3.50	3.50	1.54
	TEE	6.50	3.50	3.00	1.32

TEST PRESSURE = 200 P.S.I.

PIPE SIZE	TYPE FITTING	DIMENSIONS (Ft.) "L"	"H"	"T"	VOLUME. CONCRETE CU. YD.
<4 INCHES	11 1/4°	1.00	1.00	1.00	0.04
	22 1/2°	1.00	1.00	1.50	0.06
	45°	1.00	1.00	1.50	0.06
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
4 INCHES	11 1/4°	1.00	1.00	2.50	0.09
	22 1/2°	1.00	1.00	2.50	0.09
	45°	1.50	1.50	2.50	0.15
	90°	1.50	1.50	2.50	0.15
	TEE	1.50	1.50	2.00	0.12
6 INCHES	11 1/4°	1.50	1.50	2.50	0.15
	22 1/2°	1.50	1.50	2.50	0.15
	45°	1.50	1.50	2.50	0.15
	90°	2.50	2.00	3.00	0.33
	TEE	2.50	2.00	2.50	0.28
8 INCHES	11 1/4°	2.00	2.00	2.50	0.23
	22 1/2°	2.00	2.00	2.50	0.23
	45°	2.00	2.00	2.50	0.23
	90°	4.00	2.00	3.00	0.50
	TEE	4.00	2.00	2.50	0.42
12 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	3.00	2.00	3.00	0.39
	45°	4.00	2.50	3.00	0.61
	90°	5.50	3.00	3.50	1.13
	TEE	5.50	3.00	3.00	0.97
16 INCHES	11 1/4°	2.00	2.00	3.00	0.28
	22 1/2°	4.00	2.00	3.00	0.50
	45°	5.50	3.00	3.50	1.13
	90°	7.50	4.00	3.50	2.01
	TEE	7.50	4.00	3.00	1.72

CHART NOTES:

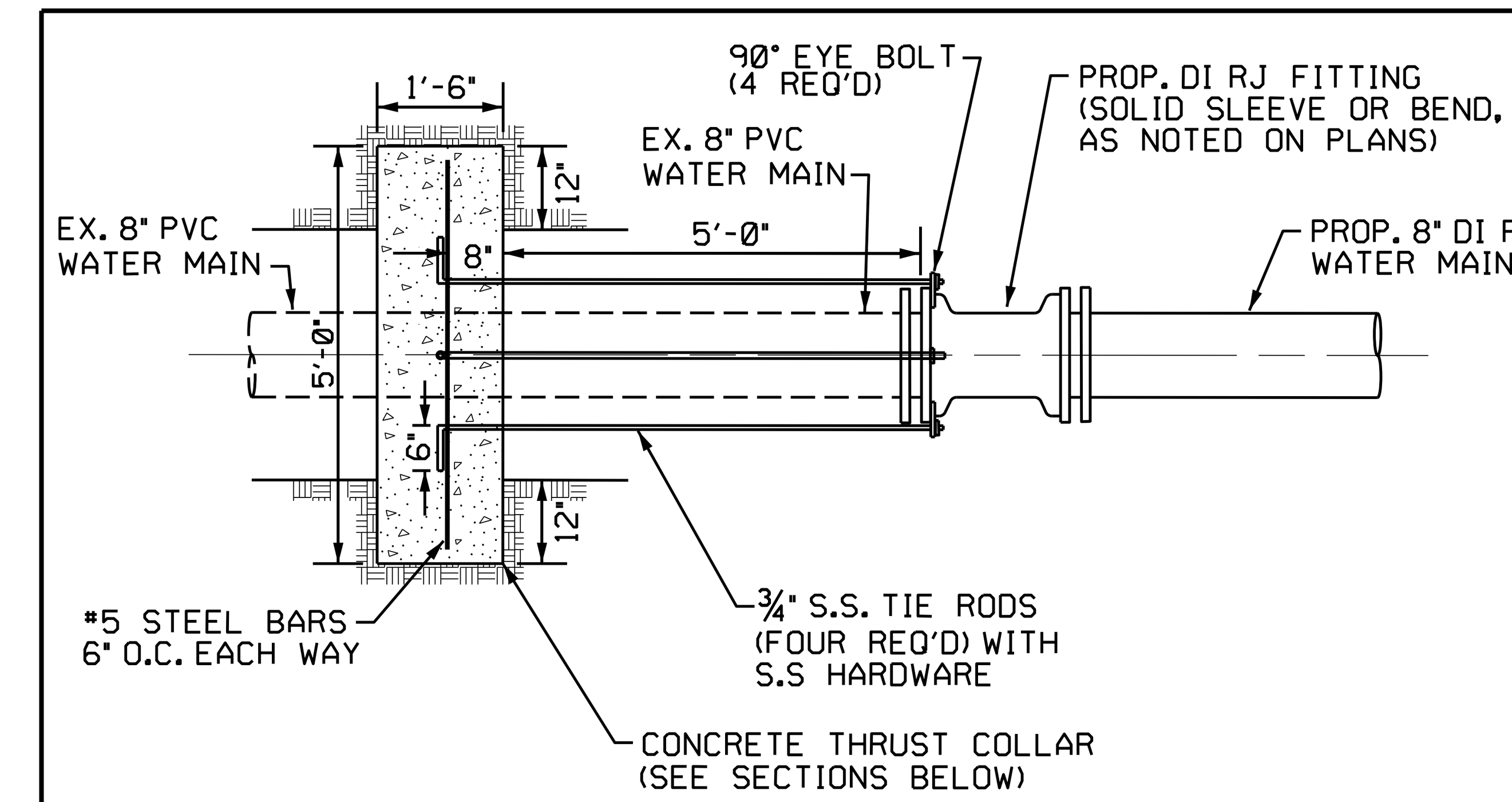
1. IF BLOCKING EXCAVATION IS IN LIGHTLY COMPACTED FILL AREAS, OR IN AREAS WHERE BOULDERS OR STUMPS HAVE BEEN REMOVED, BLOCKING SIZE MUST BE RE-SIZED FOR THE SPECIFIC LOCATION/CIRCUMSTANCE BY A NC LICENSED PROFESSIONAL ENGINEER.
2. BLOCKING SIZES SHOWN IN THESE TABLES ASSUME THE FOLLOWING:
   A. BLOCKING IS CONSTRUCTED IN RESIDUAL SOILS AS SHOWN IN DETAIL
   B. SOIL BEARING PRESSURE = 2000 PSF
   C. VELOCITY OF FLOW = 15 FPS
3. THIS DETAIL NOT APPLICABLE TO REDUCING BENDS.
4. NEITHER THE WEIGHT OF THE CONCRETE BLOCKING NOR FRICTION BETWEEN CONCRETE BLOCKING AND SOIL WAS ADDED INTO BLOCKING SIZES COMPUTATION. THEREFORE, BLOCKING SIZE IS CONSERVATIVE.

Public Services Department
P.O. Box 128
Jacksonville, N.C. 28541

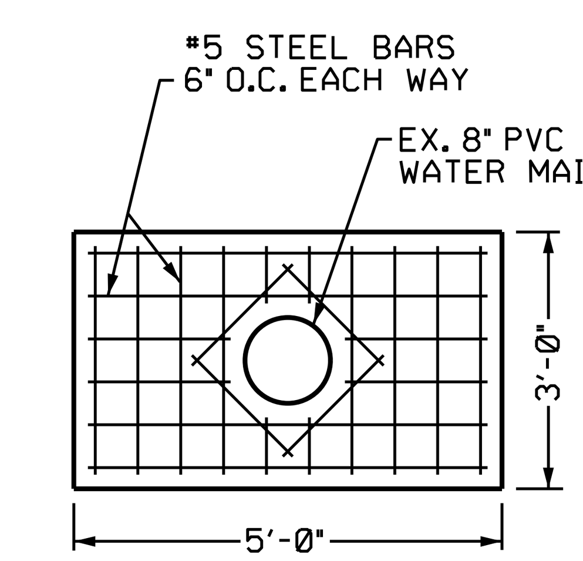
CITY of JACKSONVILLE
USE WITH THE JACKSONVILLE STANDARD SPECIFICATIONS ONLY
http://www.jacksonvillenc.gov

BLOCKING DETAIL for HORIZONTAL BENDS AND TEE

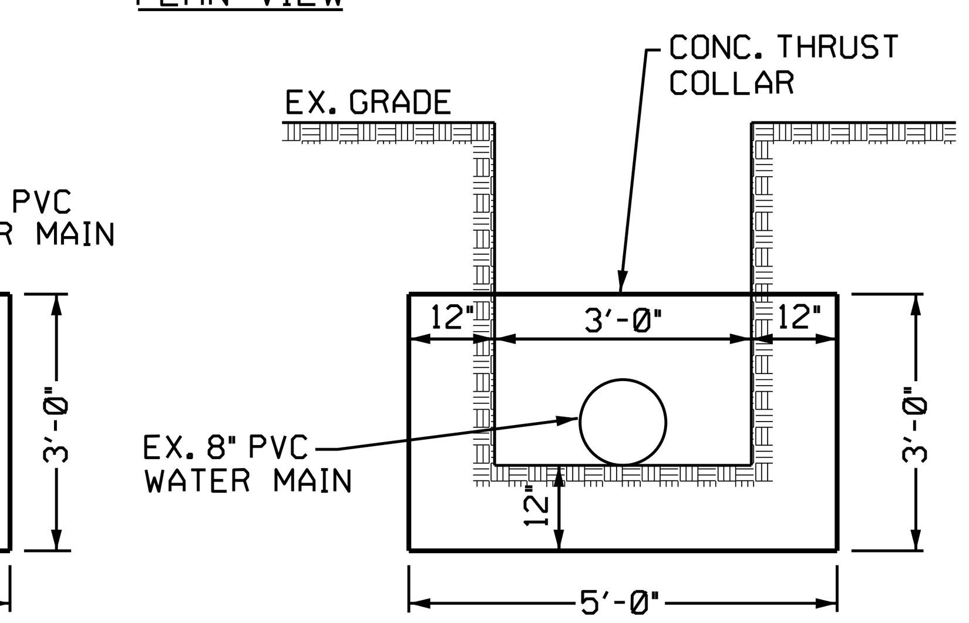
SCALE: Not To Scale | DETAIL # 512.01 | REVISION DATE: Jan, 2016 | SHEET #: 2 of 2



PLAN VIEW



SECTION - STEEL REINFORCING



TRENCH CROSS SECTION

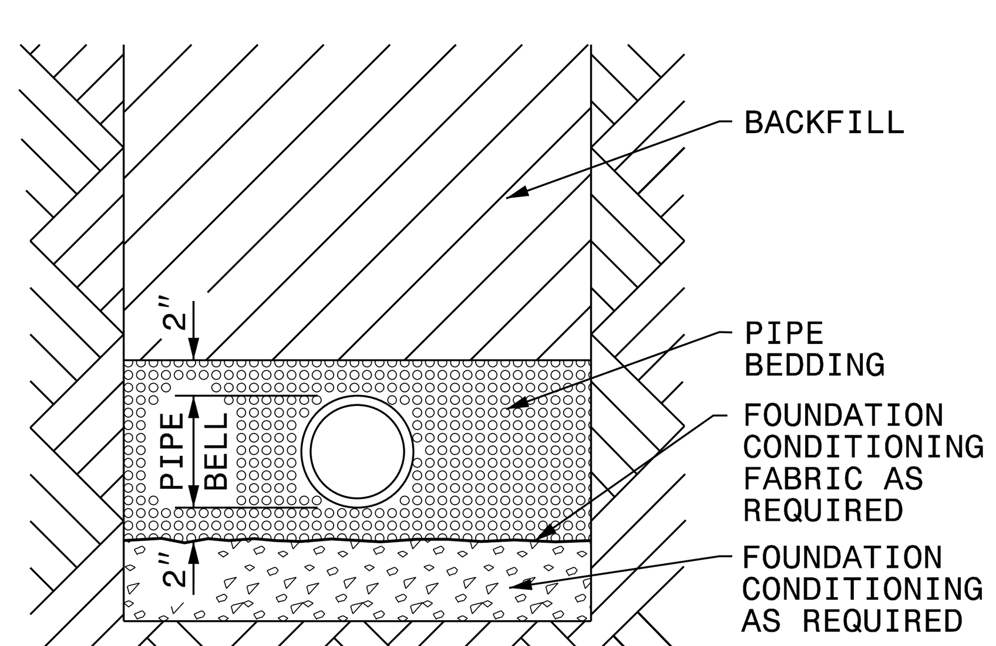
NOTES:

1. FITTINGS SHALL BE RESTRAINED BY USING S.S. TIE RODS, RESTRAINED RETAINER GLANDS (MEGA-LUGS), OR OTHER METHOD AS APPROVED BY THE ENGINEER.
2. CONCRETE THRUST COLLAR SHALL BE PLACED AND CURED THREE DAYS PRIOR TO CUTTING EXISTING PIPE.
3. INSTALL POLYETHYLENE WRAP AROUND EX. PIPE PRIOR TO POURING CONCRETE.

•NOT TO SCALE

THRUST RESTAINT FOR TYING PROPOSED D.I. WATER MAIN TO EXISTING PVC WATER MAIN

TRENCH DETAIL



PLACE FOUNDATION CONDITIONING MATERIAL BELOW BEDDING IF REQUIRED, AS DIRECTED BY ENGINEER. PIPE BEDDED IN SELECT MATERIAL, CLASS II (TYPE 1) OR CLASS III. TRENCH BACKFILLED IN LOOSE 6" LAYERS COMPACTED TO TOP OF TRENCH USING LOCAL EXCAVATED MATERIAL IF APPROVED BY THE ENGINEER, OR SELECT MATERIAL. ALL MATERIAL SHALL BE FREE OF ROCKS, FOREIGN MATERIAL, AND FROZEN EARTH. COMPACTION SHALL BE TO APPROXIMATELY 95% DENSITY IN ACCORDANCE WITH AASHTO T-99 AS MODIFIED BY THE DEPARTMENT OF TRANSPORTATION.

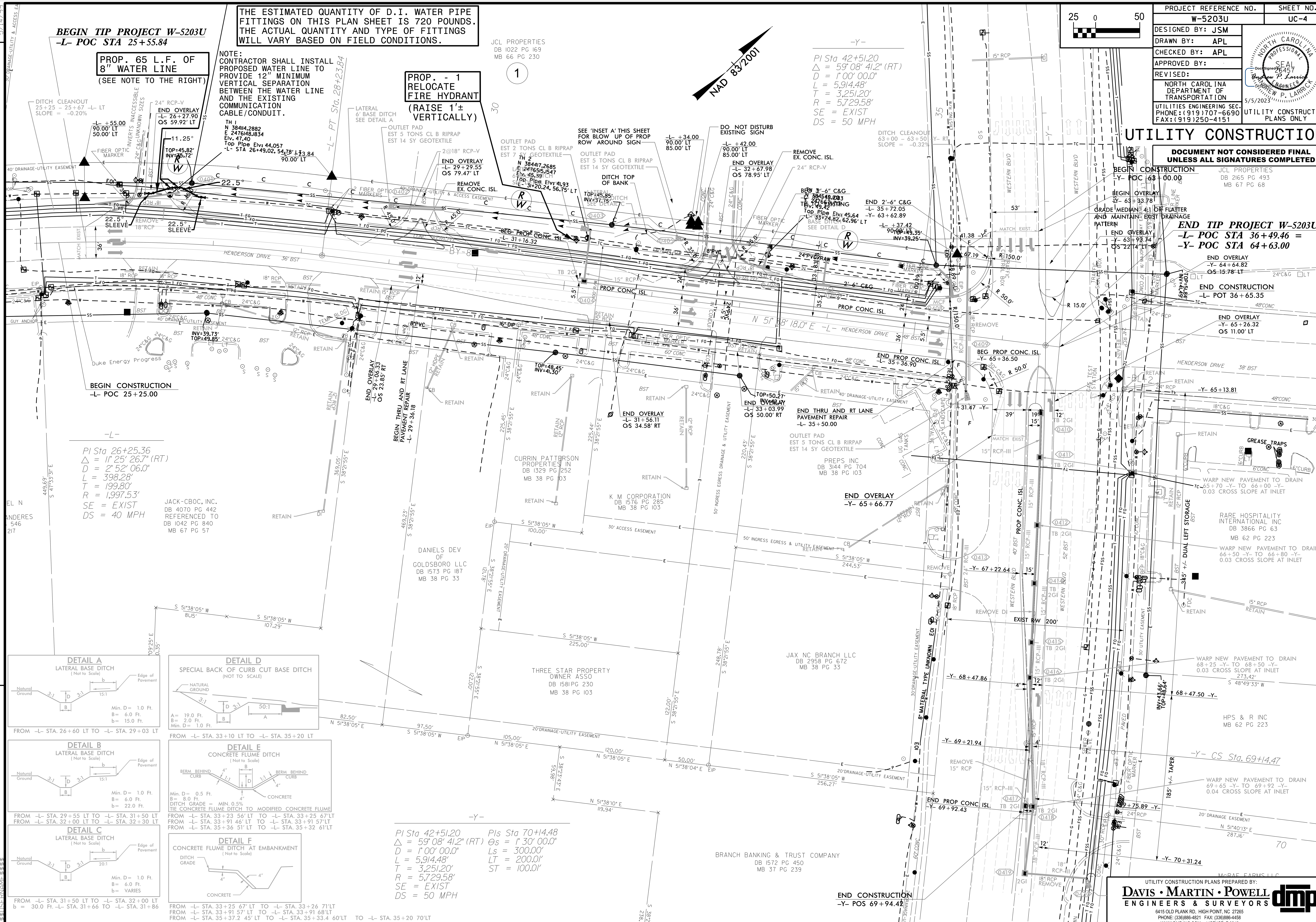
MAXIMUM TRENCH WIDTH AT TOP OF PIPE

NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)	NOMINAL PIPE SIZE (INCHES)	TRENCH WIDTH (INCHES)
4	28	20	44
6	30	24	48
8	32	30	54
10	34	36	60
12	36	42	66
14	38	48	72
16	40	54	78
18	42		

UTILITY CONSTRUCTION PLANS PREPARED BY:

DAVIS • MARTIN • POWELL
ENGINEERS & SURVEYORS
6415 OLD PLANK RD, HIGH POINT, NC 27265
PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

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


BEGIN TIP PROJECT W-5203U
-L- POC STA 25+55.84
PROP. 65 L.F. OF 8" WATER LINE
(SEE NOTE TO THE RIGHT)
THE ESTIMATED QUANTITY OF D.I. WATER PIPE FITTINGS ON THIS PLAN SHEET IS 720 POUNDS. THE ACTUAL QUANTITY AND TYPE OF FITTINGS WILL VARY BASED ON FIELD CONDITIONS.
NOTE: CONTRACTOR SHALL INSTALL PROPOSED WATER LINE TO PROVIDE 12" MINIMUM VERTICAL SEPARATION BETWEEN THE WATER LINE AND THE EXISTING COMMUNICATION CABLE/CONDUIT.
PROP. - 1 RELOCATE FIRE HYDRANT
(RAISE 1'± VERTICALLY)
JCL PROPERTIES
DB 1022 PG 169
MB 66 PG 230
NAD 83/2001
-Y-
PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH
DITCH CLEANOUT 25+25 - 25+67 -L- LT SLOPE = -0.20%
DITCH CLEANOUT 63+00 - 63+50 -Y- RT SLOPE = -0.32%
HENDERSON DRIVE
WESTERN BLVD
BEGIN CONSTRUCTION -L- POC 25+25.00
BEGIN CONSTRUCTION -Y- POC 63+00.00
BEGIN OVERLAY -Y- 63+33.78
GRADE MEDIAN 4:1 OR FLATTER AND MAINTAIN EXIST DRAINAGE PATTERN
END TIP PROJECT W-5203U
-L- POC STA 36+49.46 =
-Y- POC STA 64+63.00
END CONSTRUCTION -L- POT 36+65.35
END CONSTRUCTION -Y- POS 69+94.42
END OVERLAY -Y- 65+66.77
JCL PROPERTIES DB 2165 PG 493 MB 67 PG 68
-L-
PI Sta 26+25.36
Δ = 11° 25' 26.7" (RT)
D = 2° 52' 06.0"
L = 398.28'
T = 199.80'
R = 1,997.53'
SE = EXIST
DS = 40 MPH
JACK-CBOC, INC. DB 4070 PG 442 REFERENCED TO DB 1042 PG 840 MB 67 PG 57
CURRIN PATTERSON PROPERTIES IN DB 1329 PG 252 MB 38 PG 103
K M CORPORATION DB 1576 PG 285 MB 38 PG 103
PREPS INC DB 3144 PG 704 MB 38 PG 33
DANIELS DEV OF GOLDSBORO LLC DB 1573 PG 187 MB 38 PG 33
THREE STAR PROPERTY OWNER ASSO DB 1581 PG 230 MB 38 PG 103
JAX NC BRANCH LLC DB 2958 PG 672 MB 38 PG 33
BRANCH BANKING & TRUST COMPANY DB 1572 PG 450 MB 37 PG 239
RARE HOSPITALITY INTERNATIONAL INC DB 3866 PG 63 MB 62 PG 223
HPS & R INC MB 62 PG 223
Duke Energy Progress
DETAIL A — LATERAL BASE DITCH (Not to Scale) — Min. D= 1.0 Ft. B= 6.0 Ft. b= 15.0 Ft. — FROM -L- STA. 26+60 LT TO -L- STA. 29+03 LT
DETAIL B — LATERAL BASE DITCH (Not to Scale) — Min. D= 1.0 Ft. B= 6.0 Ft. b= 22.0 Ft. — FROM -L- STA. 29+55 LT TO -L- STA. 31+50 LT; FROM -L- STA. 32+00 LT TO -L- STA. 32+30 LT
DETAIL C — LATERAL BASE DITCH (Not to Scale) — Min. D= 1.0 Ft. B= 6.0 Ft. b= VARIES — FROM -L- STA. 31+50 LT TO -L- STA. 32+00 LT; b = 30.0 Ft. -L- STA. 31+66 TO -L- STA. 31+86
DETAIL D — SPECIAL BACK OF CURB CUT BASE DITCH (NOT TO SCALE) — A= 19.0 Ft. B= 2.0 Ft. Min. D= 1.0 Ft. — FROM -L- STA. 33+10 LT TO -L- STA. 35+20 LT
DETAIL E — CONCRETE FLUME DITCH (Not to Scale) — Min. D= 0.5 Ft. B= 8.0 Ft. DITCH GRADE = MIN. 0.5% TIE CONCRETE FLUME DITCH TO MODIFIED CONCRETE FLUME — FROM -L- STA. 33+23 56' LT TO -L- STA. 33+25 67' LT; FROM -L- STA. 33+91 46' LT TO -L- STA. 33+91 57' LT; FROM -L- STA. 35+36 51' LT TO -L- STA. 35+32 61' LT
DETAIL F — CONCRETE FLUME DITCH AT EMBANKMENT (Not to Scale) — FROM -L- STA. 33+25 67' LT TO -L- STA. 33+26 71' LT; FROM -L- STA. 33+91 57' LT TO -L- STA. 33+91 68' LT; FROM -L- STA. 35+37.2 45' LT TO -L- STA. 35+33.4 60' LT TO -L- STA. 35+20 70' LT
-Y-
PI Sta 42+51.20
Δ = 59° 08' 41.2" (RT)
D = 1° 00' 00.0"
L = 5,914.48'
T = 3,251.20'
R = 5,729.58'
SE = EXIST
DS = 50 MPH
PIs Sta 70+14.48
θs = 1° 30' 00.0"
Ls = 300.00'
LT = 200.01'
ST = 100.01'
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	UC-4

DESIGNED BY: JSM
DRAWN BY: APL
CHECKED BY: APL
APPROVED BY:
REVISED:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
UTILITIES ENGINEERING SEC.
PHONE:(919)707-6690
FAX:(919)250-4151

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26457 ANDREW P. LARRICK
DocuSigned by: Andrew P. Larrick
5/5/2023
UTILITY CONSTRUCTION PLANS ONLY

UTILITY CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

UTILITY CONSTRUCTION PLANS PREPARED BY:
DAVIS · MARTIN · POWELL
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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

09/08/99

TIP PROJECT: W-5203U

T.I.P. NO.	SHEET NO.
W-5203U	UO-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

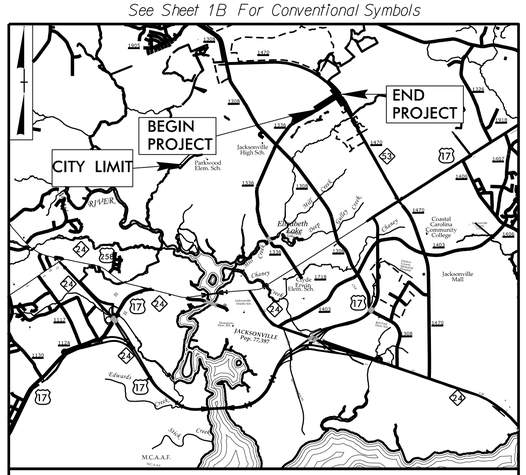
UTILITIES BY OTHERS PLANS
ONSLOW COUNTY

NOTE:
ALL UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET.

LOCATION: NC 53 (WESTERN BOULEVARD) AT SR 1336 (HENDERSON DRIVE)

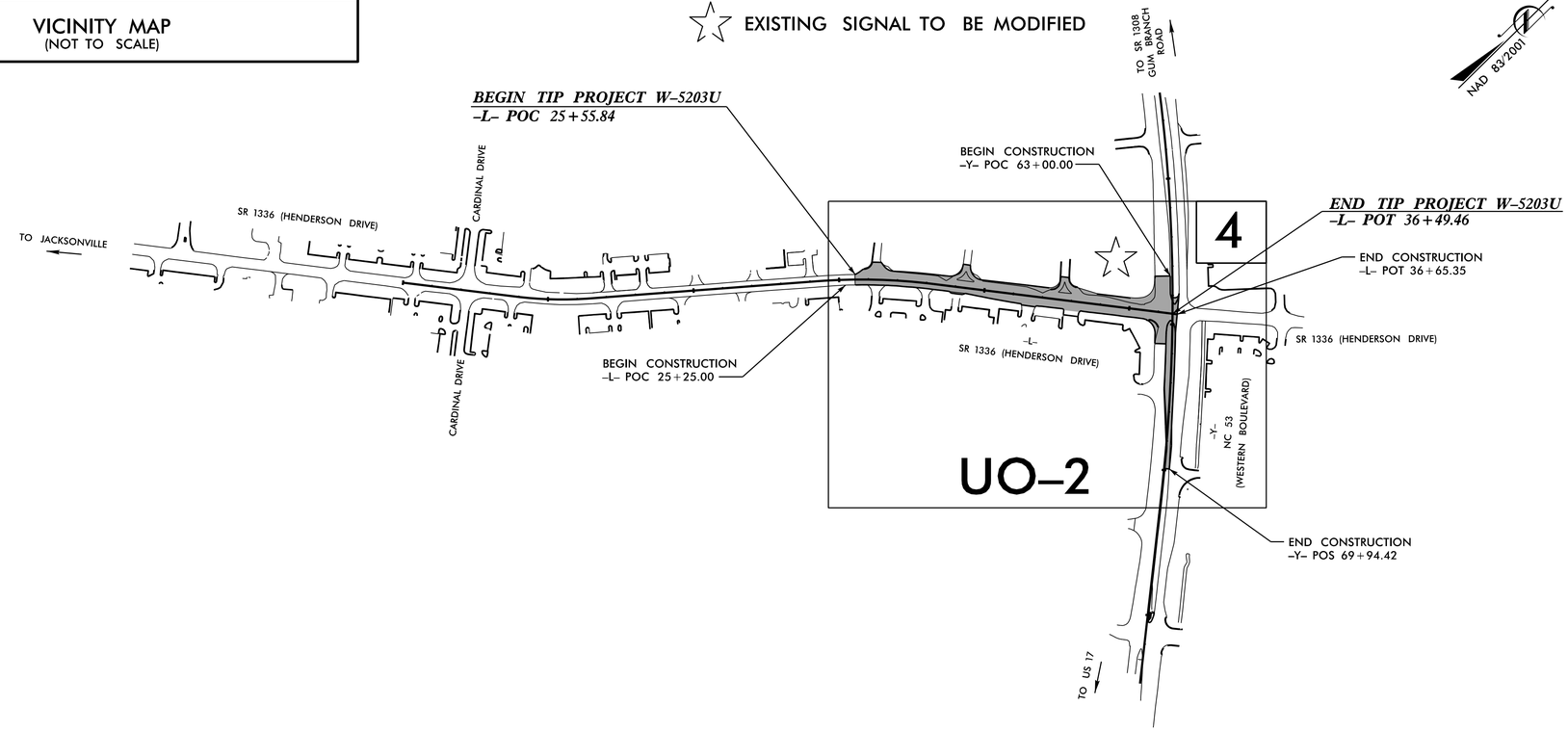
TYPE OF WORK: UTILITIES BY OTHERS

See Sheet 1B For Conventional Symbols

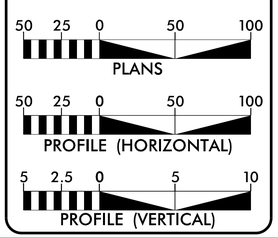


VICINITY MAP
(NOT TO SCALE)

☆ EXISTING SIGNAL TO BE MODIFIED



GRAPHIC SCALES



INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO-1	TITLE SHEET
UO-2	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) COMMUNICATIONS - CENTURYLINK
(B) COMMUNICATIONS - CROWN CASTLE
(C) POWER (DISTRIBUTION) - DUKE ENERGY
(D) GAS (DISTRIBUTION) - PIEDMONT NATURAL GAS
(E) COMMUNICATIONS - SPECTRUM

PREPARED IN THE OFFICE OF:

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PHONE: (336)886-4821 FAX: (336)886-4458
WWW.DMP-INC.COM LICENSE: F-0245

Andy Larrick, P.E.	UTILITY PROJECT MANAGER
Kelly Hayes, P.E.	PROJECT UTILITY COORDINATOR
Steve McKee, P.E.	PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION 3
5501 BARBADOS BLVD.
CASTLE HAYNE, NC 28429
PHONE (910) 341-2001
FAX (910) 675-0143

Lonny Sleeper	DIVISION UTILITY ENGINEER
Chris Sutton	DIVISION UTILITY COORDINATOR

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

PROJECT REFERENCE NO.	SHEET NO.
W-5203U	UO-2

THIS SHEET CORRESPONDS TO RDY-4

UTILITIES BY OTHERS

ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS. NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR PROPOSED UTILITY WORK SHOWN ON THIS SHEET.

NOTE:
DUKE ENERGY HAS INSTALLED NEW JOINT-USE POLES NEAR THE OLD EX. POLES ALONG HENDERSON DRIVE, AND REMOVED THE OLD POLES.

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
25+55.84	0	0
26+00.00	0	0
26+50.00	0	0
27+00.00	0	0
27+50.00	63	39
28+00.00	54	34
28+50.00	59	22
29+00.00	72	8
30+00.00	128	35
30+50.00	49	31
31+00.00	50	29
31+50.00	44	31
32+00.00	57	25
33+50.00	228	50
34+00.00	62	44
34+50.00	39	82
35+00.00	25	107
35+50.00	19	125
35+65.00	3	39

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
63+33.78	0	0
63+50.00	2	8
64+00.00	8	84
64+50.00	5	77
65+00.00	26	15
65+50.00	36	28
65+66.77	6	7
66+00.00	10	7
66+50.00	14	13
67+00.00	14	14
67+50.00	18	11
68+00.00	25	5
68+50.00	38	0
69+00.00	34	0
69+50.00	21	0
69+94.42	16	0

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-1

OVERLAY

3:1 43.64 3:1

28+00.00

OVERLAY

3:1 3:1 43.58

27+50.00

OVERLAY

3:1 3:1 43.51

27+00.00

OVERLAY

26+50.00

OVERLAY

26+00.00

OVERLAY

25+55.84

BEGIN PROJECT –L– STA 25+55.84

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

12/6/2022
Q:\RA\B731-04\CADD\W5203U\Roadway\XSC\W5203U_xp1_L.dgn
THuffman

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-2

OVERLAY

3:1 44.03 3:1

31+00.00

OVERLAY

3:1 43.96 3:1

30+50.00

OVERLAY

3:1 43.90 3:1

30+00.00

OVERLAY

29+50.00

OVERLAY

3:1 43.78 3:1

29+00.00

OVERLAY

3:1 43.71 3:1

28+50.00

12/6/2022
G:\RA\8731-04\CADD\W5203U\Roadway\XSC\W5203U_xplL.dgn
ThuFman

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-3

OVERLAY

49.64

3:1 3:1 3:1

47.11

34+00.00

OVERLAY

48.82

3:1 3:1

46.66

33+50.00

OVERLAY

33+00.00

OVERLAY

32+50.00

OVERLAY

SECTION AT STA 31+86

3:1 3:1

45.22

32+00.00

OVERLAY

SECTION AT STA 31+66

3:1 3:1

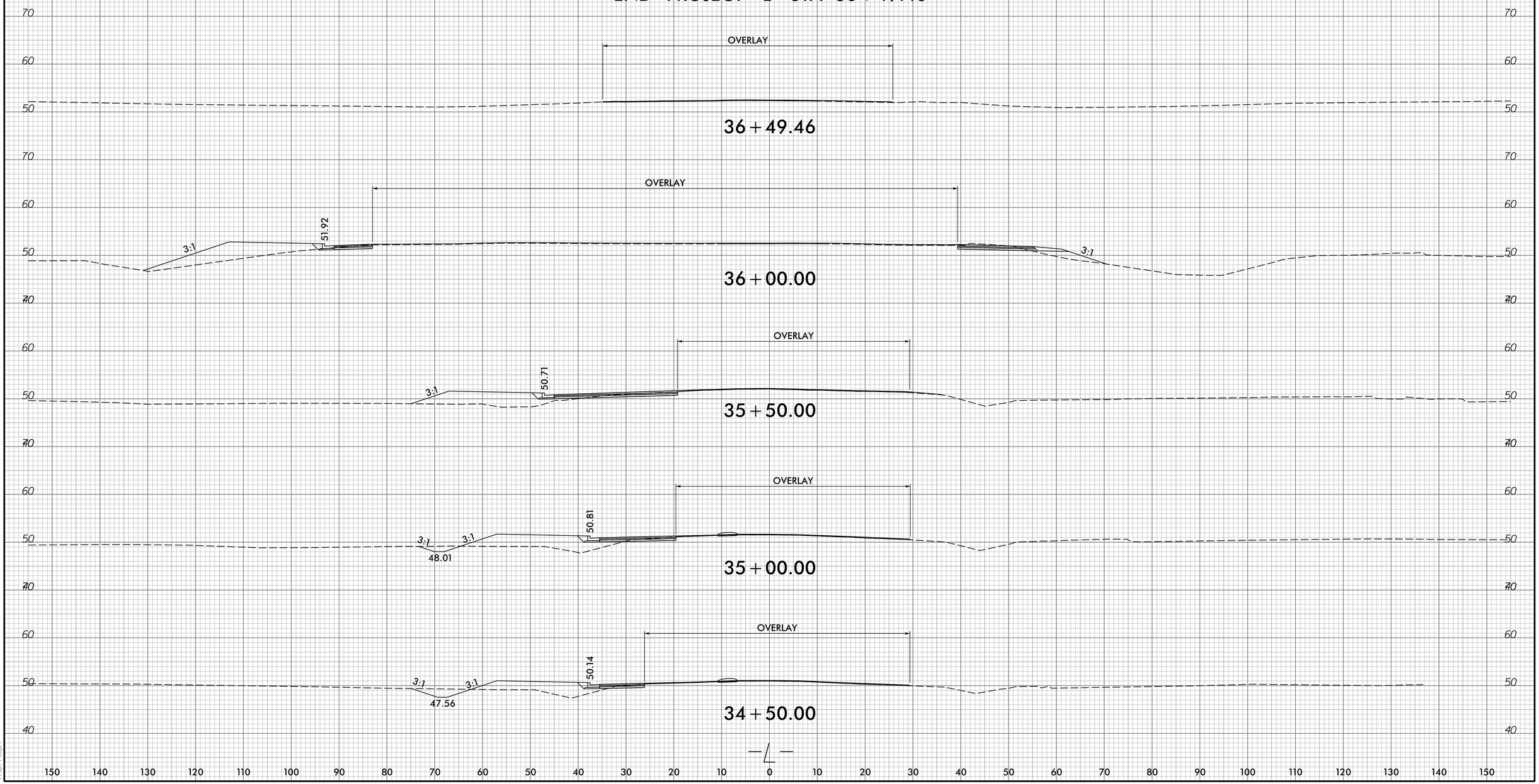
44.63

31+50.00

12/6/2022
G:\RA\8731-04\CADD\W5203U\Roadway\XSC\W5203U_xplL.dgn
Huffman

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-4

END PROJECT –L– STA 36+49.46



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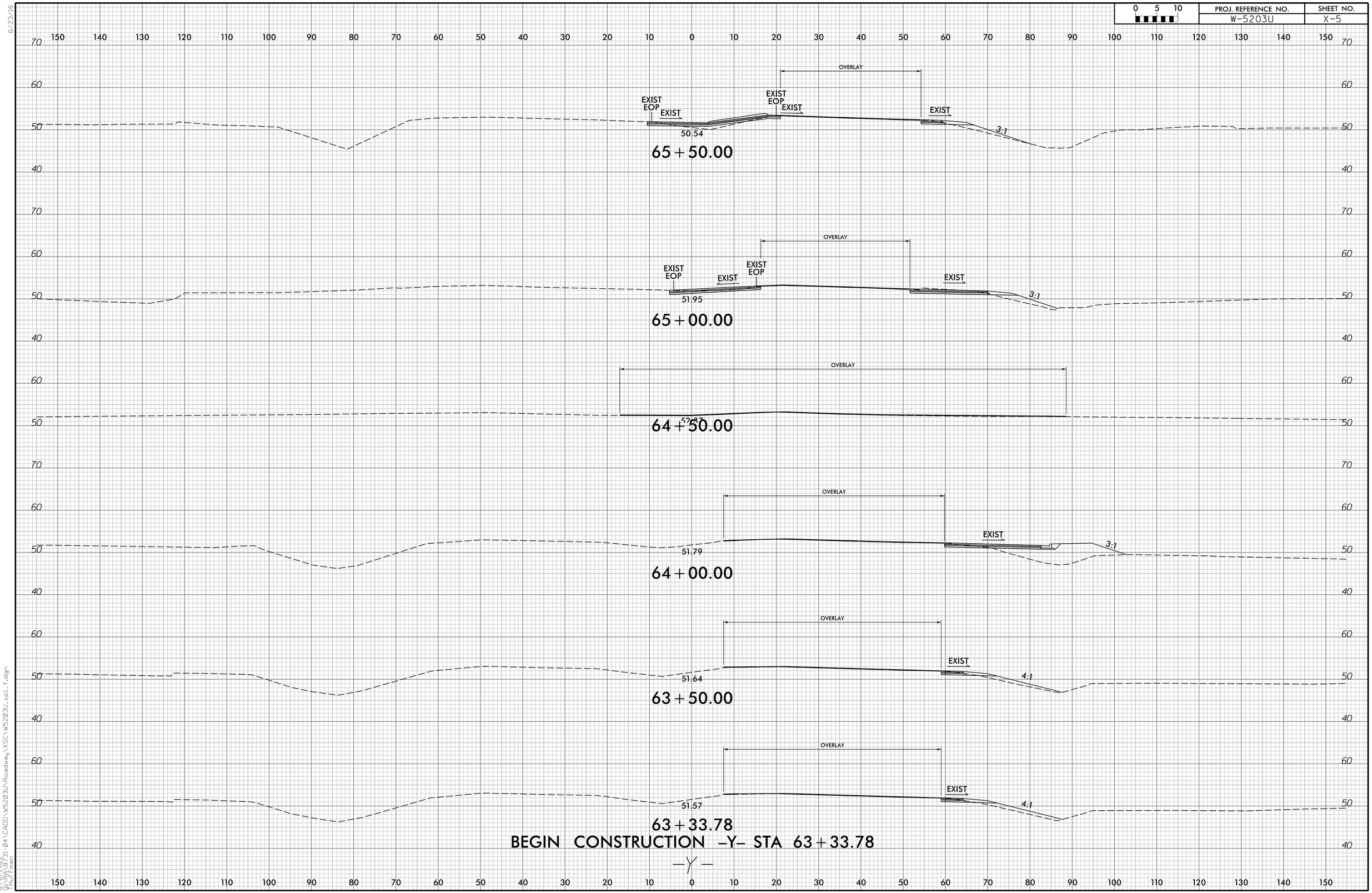
Huffman

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-5



0 5 10

PROJ. REFERENCE NO.	SHEET NO.
W-5203U	X-6

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

60 50 40

EXIST EOP
EXIST
EXIST
50.38

68+00.00

EXIST EOP
EXIST
EXIST
50.16

67+50.00

EXIST EOP
EXIST
EXIST EOP
EXIST
50.46

67+00.00

EXIST EOP
EXIST
EXIST EOP
EXIST
50.32

66+50.00

EXIST EOP
EXIST
EXIST EOP
EXIST
50.59

66+00.00

70

OVERLAY

EXIST EOP
EXIST
EXIST EOP
EXIST
50.58

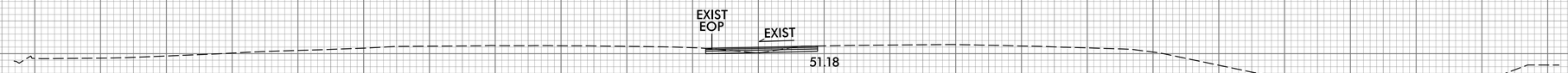
65+66.77

—Y—

6/23/16

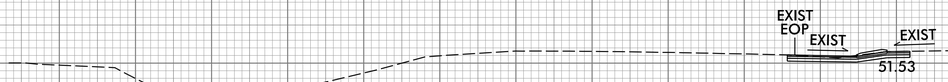
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	W-5203U	X-7

END CONSTRUCTION –Y– STA 69+94.42

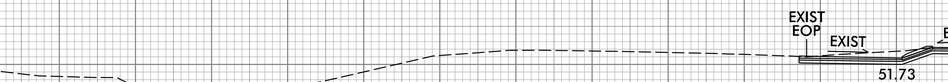


69+94.42

69+50.00



69+00.00



68+50.00

–Y–

12/6/2022
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THuffman