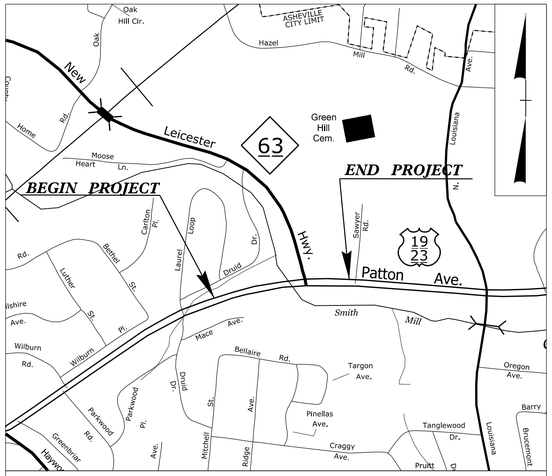
09/08/99

TIP PROJECT: U-5971A

CONTRACT: DM00274

See Sheet 1A For Index of Sheets
See Sheet 1-B For Conventional Plan Sheet Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

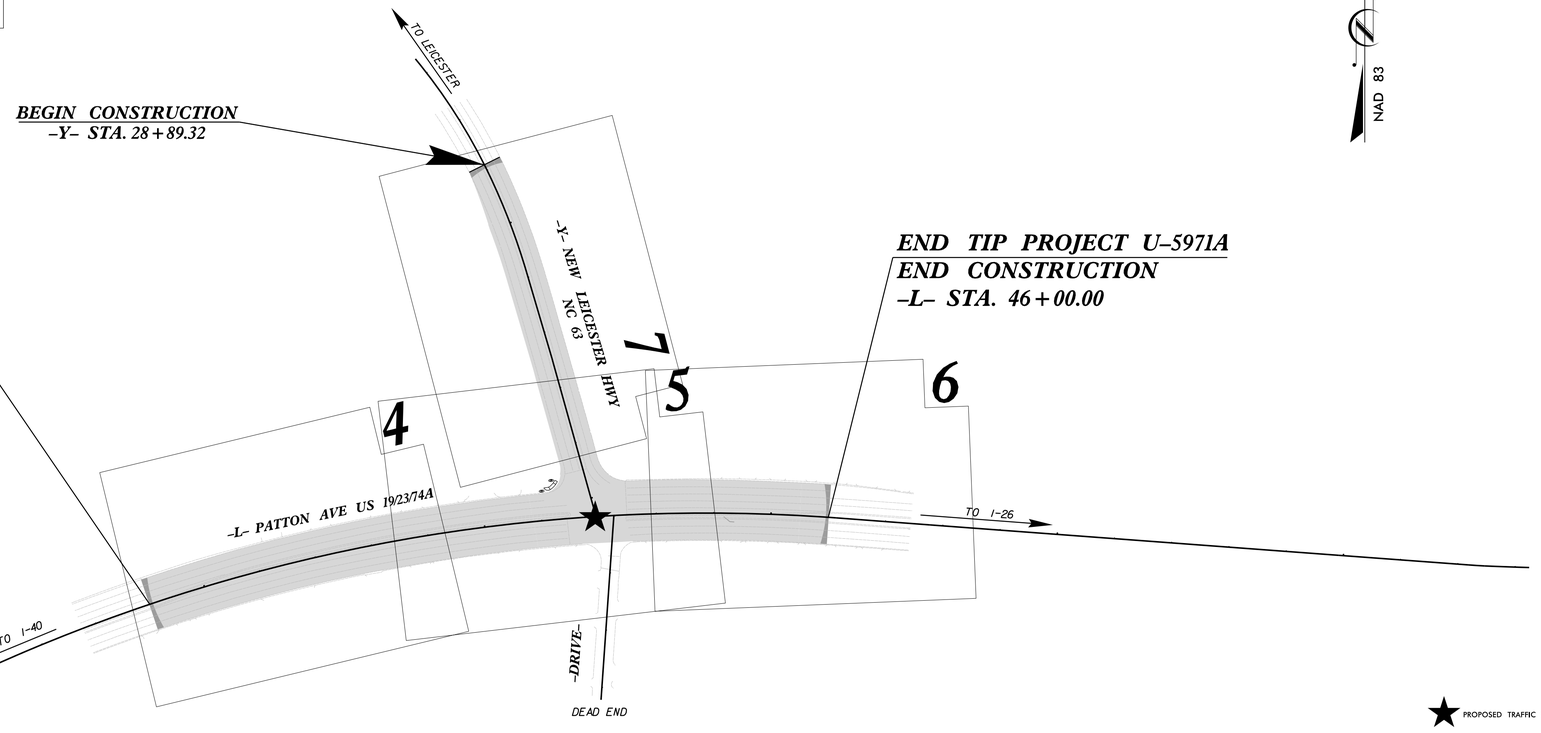
BUNCOMBE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5971A	1	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
U-5971A	N/A	PE
45959.3.2	N/A	CONST.

LOCATION: US 19/23/74A (PATTON AVE) /NC 63 (NEW LEICESTER HWY) INTERSECTION IMPROVEMENTS

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL



NAD 83

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

5 2.5 0 4 8
PROFILE (VERTICAL)

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT U-5971A	=	0.227 MI.
LENGTH OF STRUCTURE PROJECT U-5971A	=	0.000 MI
TOTAL LENGTH OF PROJECT U-5971A	=	0.227 MI

NCDOT CONTACT: **Brendan Merithew, PE**
NCDOT DIVISION 13 TRANSPORTATION MANAGER

Prepared In The Offices of:
Stantec
Stantec Consulting Services Inc.
801 Jones Franklin Road
Suite 300
Raleigh, NC 27606
Tel. (919) 851-6866 Fax. (919) 851-7024
www.stantec.com License No. F-0672

SUNGATE DESIGN GROUP, P.A.
905 JONES FRANKLIN ROAD
RALEIGH, NORTH CAROLINA 27606
TEL (919) 859-2243
ENG FIRM LICENSE NO. C-890

for the North Carolina Department of Transportation

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:
JANUARY 2, 2019

STANTEC CONTACTS

MICHAEL D. LINDGREN, PE
PROJECT ENGINEER

JEANIE TYSON
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

11/30/2018

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DILLON

SIGNATURE:

ROADWAY DESIGN ENGINEER

12/3/2018

NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D. LINDGREN

SIGNATURE:

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

11/30/2018
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cmozingo

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D LINDGREN

DocuSigned by: Michael Lindgren A4E47383A471492...

3/2/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1 TO 1C-5	SURVEY CONTROL SHEET
2A-1	PAVEMENT SCHEDULE, TYPICAL SECTIONS, AND WEDGING DETAILS
2C-1	CURB RAMPS, DIRECTIONAL RAMPS DETAIL
3B-1	SUMMARY OF ROADWAY QUANTITIES EARTHWORK SUMMARY, ASPHALT PAVEMENT REMOVAL SUMMARY,
3D-1	DRAINAGE SUMMARY
4 THRU 9	PLAN & PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MAINTENANCE PLANS
PMP-1 THRU PMP-8	PAVEMENT MARKING PLANS
SIGN-1 THRU SIGN-6	SIGNING PLANS
SIG. 1.0 THRU SCP-4	SIGNAL/CABLE/ITS PLANS
X-1 THRU X-11	CROSS-SECTIONS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SUPERELEVATION:

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

SIDE ROADS:

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

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.03 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

TEMPORARY SHORING:

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

SUBSURFACE PLANS:

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

CURB RAMPS

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

ROADWAY STANDARD DRAWINGS

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	
200.02	Method of Clearing - Method II
225.04	Method of Obtaining Superelevation - Two Lane Pavement
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 8 - INCIDENTALS	
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.14	Concrete Drop Inlet - 12" thru 30" Pipe
840.15	Brick Drop Inlet - 12" thru 30" Pipe
840.16	Drop Inlet Frame and Grates - for use with Std. Dwg 840.14 and 840.15
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
840.71	Concrete and Brick Pipe Plug
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
846.02	Drop Inlet Installation in Expressway Gutter
848.01	Concrete Sidewalk
848.03	Driveway Turnout - Drop Curb Type
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
852.06	Method for Placement of Drop Inlets in Concrete Islands

5/2/2018
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cmcginn

12/2/2016

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	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

EXISTING STRUCTURES:

MAJOR:

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

MINOR:

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

UTILITIES:

POWER:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

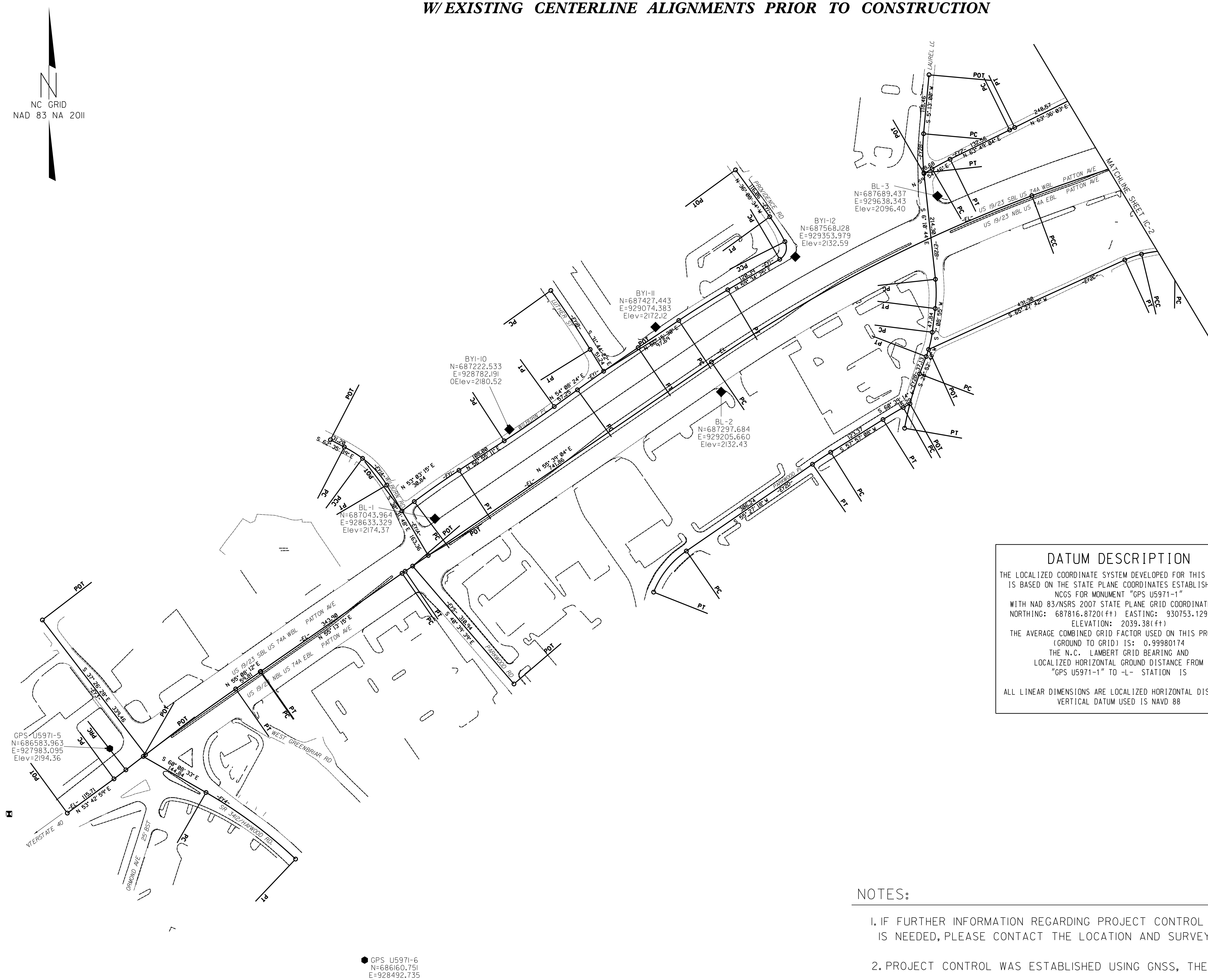
MISCELLANEOUS:

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

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-1
Location and Surveys	

SURVEY CONTROL SHEET U5971

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS U5971-1"
WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 687816.8720(ft) EASTING: 930753.1290(ft)
ELEVATION: 2039.38(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99980174
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS U5971-1" TO -L- STATION IS

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

NOTES:

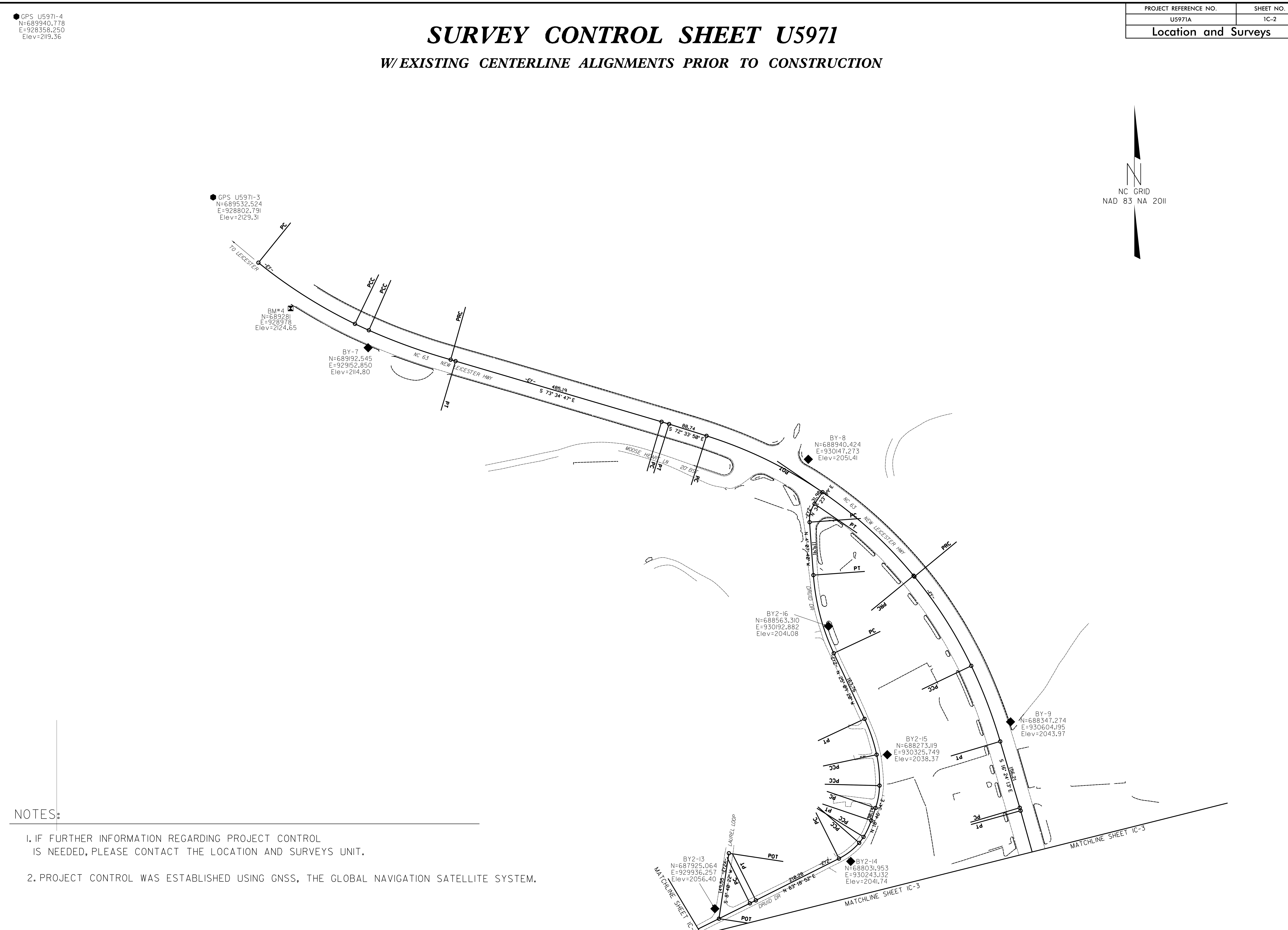
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-2
Location and Surveys	

SURVEY CONTROL SHEET U5971

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION


GPS U5971-4
N=689940.778
E=928358.250
Elev=2119.36
GPS U5971-3
N=689532.524
E=928802.791
Elev=2129.31
BM#4
N=689281
E=928978
Elev=2124.65
BY-7
N=689192.545
E=929152.850
Elev=2114.80
BY-8
N=688940.424
E=930147.273
Elev=2051.41
BY2-16
N=688563.310
E=930192.882
Elev=2041.08
BY-9
N=688347.274
E=930604.195
Elev=2043.97
BY2-15
N=688273.119
E=930325.749
Elev=2038.37
BY2-14
N=688031.953
E=930243.132
Elev=2041.74
BY2-13
N=687925.064
E=929936.257
Elev=2056.40
NC GRID
NAD 83 NA 2011
TO LEICESTER
NC 63 NEW LEICESTER HWY
485.19
S 73° 34' 47" E
88.74
S 72° 33' 58" E
MOOSE HEAD LN
DRUID DR
LAUREL LOOP
S 16° 24' 13" E
218.28
N 63° 18' 52" E
MATCHLINE SHEET 1C-3
MATCHLINE SHEET 1C-1

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.

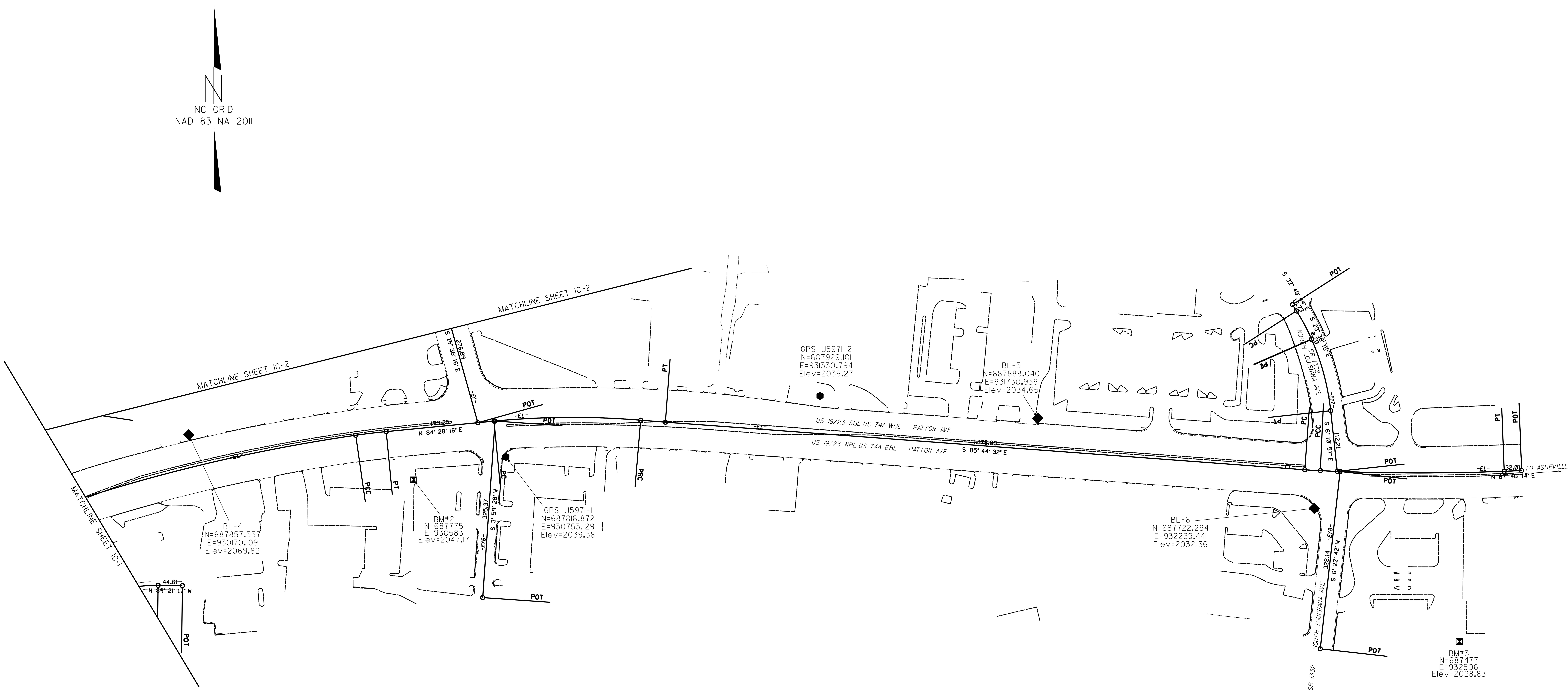
6/2/99

4/12/2018
U:\LocationSurveys\U5971_ls_1c-2.dgn

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-3
Location and Surveys	

SURVEY CONTROL SHEET U5971

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



NOTES:

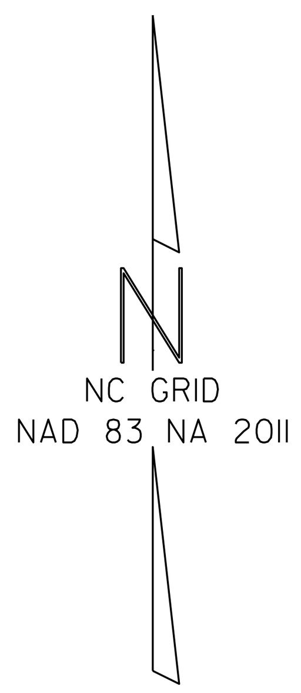
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

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

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-4
Location and Surveys	

SURVEY CONTROL SHEET U5971

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION



BASELINE

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1		687043.964	928633.329	2174.37
2		687297.684	929205.660	2132.43
3		687689.437	929638.343	2096.40
4		687857.557	930170.109	2069.82
GPS1		687816.872	930753.129	2039.38
GPS2		687929.101	931330.794	2039.27
5		687888.040	931730.939	2034.65
6		687722.294	932239.441	2032.36

BY

POINT	DESC.	NORTH	EAST	ELEVATION
7		689192.545	929152.850	2114.80
8		688940.424	930147.273	2051.41
9		688347.274	930604.195	2043.97

BY1

POINT	DESC.	NORTH	EAST	ELEVATION
10		687222.533	928782.191	2180.52
11		687427.443	929074.383	2172.12
12		687568.128	929353.979	2132.59

BY2

POINT	DESC.	NORTH	EAST	ELEVATION
13		687925.064	929936.257	2056.40
14		688031.953	930243.132	2041.74
15		688273.119	930325.749	2038.37
16		688563.310	930192.882	2041.08

BM1 ELEVATION = 2205.35
N 686453 E 927782
RAILROAD SPIKE SET IN 32 INCH OAK

BM2 ELEVATION = 2047.17
N 687775 E 930583
PK NAIL IN CONC

BM3 ELEVATION = 2028.83
N 687477 E 932506
RAILROAD SPIKE SET IN 14 INCH CATALPA

BM4 ELEVATION = 2124.65
N 689281 E 928978
EXISTING BOLT IN SOUTHEAST WW OF RAILROAD BRIDGE

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.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
U5971A	1C-5
Location and Surveys	

SURVEY CONTROL SHEET U5971

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

EL

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	686454.895	927898.173							
LINE			N 53°42'58.7" E	115.71					
PC	686523.372	927991.448							
CURVE			N 52°51'44.1" E	29.81	01°42'29.2"(LT)	05°43'46.5"	29.81	14.91	1000.00
PCC	686541.370	928015.213							
CURVE			N 53°34'20.7" E	272.97	03°07'42.3"(RT)	01°08'45.3"	273.01	136.54	5000.00
PT	686703.463	928234.850							
LINE			N 55°08'11.9" E	59.81					
PC	686737.652	928283.925							
CURVE			N 55°10'43.4" E	1.47	00°05'03.1"(RT)	05°43'46.5"	1.47	0.73	1000.00
PT	686738.491	928285.132							
LINE			N 55°13'14.9" E	343.90					
PC	686934.659	928567.599							
CURVE			N 55°26'09.7" E	7.51	00°25'49.4"(RT)	05°43'46.5"	7.51	3.76	1000.00
PT	686938.921	928573.785							
LINE			N 55°39'04.4" E	741.86					
PC	687357.501	929186.281							
CURVE			N 62°33'44.9" E	721.99	13°49'21.0"(RT)	01°54'35.5"	723.74	363.64	3000.00
PCC	687690.181	929827.057							
CURVE			N 75°37'32.6" E	671.07	12°18'14.5"(RT)	01°49'48.0"	672.36	337.48	3130.94
PCC	687856.776	930477.114							
CURVE			N 83°07'28.2" E	56.41	02°41'36.6"(RT)	04°46'28.7"	56.41	28.21	1200.00
PT	687863.529	930533.116							
LINE			N 84°28'16.5" E	199.25					
PC	687882.726	930731.443							
CURVE			N 89°37'34.1" E	269.55	10°18'35.2"(RT)	03°49'11.0"	269.91	135.32	1500.00
PCC	687884.485	931000.983							
CURVE			S 85°28'50.4" E	45.67	00°31'24.1"(LT)	01°08'45.3"	45.67	22.84	5000.00
PT	687880.886	931046.514							
LINE			S 85°44'32.4" E	1178.83					
PC	687793.368	932222.092							
CURVE			S 86°33'48.4" E	28.66	01°38'32.0"(LT)	05°43'46.5"	28.66	14.33	1000.00
PCC	687791.650	932250.702							
CURVE			S 89°48'25.0" E	338.13	04°50'41.2"(LT)	01°25'56.6"	338.23	169.22	4000.00
PT	687790.510	932588.828							
LINE			N 87°46'14.4" E	32.01					
POT	687791.756	932620.818							

EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	689384.661	928904.964							
CURVE			S 57°39'02.5" E	258.20	13°10'25.3"(LT)	05°05'27.4"	258.77	129.96	1125.44
PCC	689246.505	929123.089							
CURVE			S 65°13'42.1" E	34.58	01°58'53.9"(LT)	05°43'46.5"	34.59	17.29	1000.00
PCC	689232.014	929154.491							
CURVE			S 70°13'43.3" E	196.48	08°01'08.5"(LT)	04°04'40.8"	196.64	98.48	1405.00
PCC	689165.551	929339.390							
CURVE			S 73°54'32.5" E	11.49	00°39'30.3"(RT)	05°43'46.5"	11.49	5.75	1000.00
PT	689162.366	929350.431							
LINE			S 73°34'47.3" E	485.19					
PC	689025.212	929815.833							
CURVE			S 73°04'18.8" E	17.73	01°00'57.1"(RT)	05°43'46.5"	17.73	8.87	1000.00
PT	689020.050	929832.795							
LINE			S 72°33'50.2" E	88.74					
PC	688993.459	929917.461							
CURVE			S 55°58'10.0" E	564.47	33°11'20.5"(RT)	05°47'52.3"	572.43	294.50	988.22
PCC	688677.564	930385.255							
CURVE			S 39°27'16.7" E	2.82	00°09'34.0"(LT)	05°39'41.9"	2.82	1.41	1012.00
PCC	688675.390	930387.045							
CURVE			S 32°31'50.2" E	238.99	14°00'27.1"(RT)	05°50'47.4"	239.59	120.39	980.00
PCC	688473.894	930515.563							
CURVE			S 20°57'54.9" E	182.93	09°07'23.4"(RT)	04°58'54.6"	183.13	91.76	1150.09
PT	688303.070	930581.017							
LINE			S 16°24'13.2" E	156.21					
PC	688153.221	930625.131							
CURVE			S 16°00'14.6" E	6.97	00°47'57.3"(RT)	11°27'33.0"	6.97	3.49	500.00
PT	688146.517	930627.054							
LINE			S 15°36'15.9" E	276.89					
POT	687879.831	930701.536							

EY1

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687059.593	928567.349							
LINE			N 53°03'15.0" E	30.84					
PC	687078.130	928591.997							
CURVE			N 54°59'13.0" E	109.15	03°51'56.1"(RT)	03°32'26.8"	109.17	54.61	1618.16
PT	687140.758	928681.395							
LINE			N 56°55'11.1" E	108.00					
PC	687199.703	928771.885							
CURVE			N 55°31'47.7" E	121.27	02°46'46.7"(LT)	02°17'30.6"	121.28	60.65	2500.00
PT	687268.340	928871.865							
LINE			N 54°08'24.4" E	57.25					
PC	687301.875	928918.259							
CURVE			N 55°11'57.1" E	147.87	02°07'05.5"(RT)	01°25'56.6"	147.88	73.95	4000.00
PT	687386.267	929039.681							
LINE			N 56°15'29.9" E	97.69					
PC	687440.531	929120.918							
CURVE			N 57°54'57.4" E	115.71	03°18'55.0"(RT)	02°51'53.2"	115.73	57.88	2000.00
PT	687501.992	929218.955							
LINE			N 59°34'24.9" E	120.39					
PC	687562.961	929322.765							
CURVE			N 16°29'58.4" E	36.88	86°08'53.0"(LT)	212°12'23.7"	40.60	25.24	27.00
PCC	687598.321	929333.239							
CURVE			N 31°21'31.2" W	58.36	09°34'06.2"(LT)	16°22'36.0"	58.43	29.28	349.86
PT	687648.156	929302.869							
LINE			N 36°08'34.3" W	116.06					
POT	687741.882	929234.416							

EY1A

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687201.763	928424.369							
LINE			S 62°35'39.0" E	31.20					
PC	687187.402	928452.267							
CURVE			S 58°08'01.1" E	42.92	08°55'15.9"(RT)	20°45'46.4"	42.97	21.53	275.95
PCC	687164.741	928488.521							
CURVE			S 42°06'05.5" E	72.21	23°08'35.2"(RT)	31°49'51.6"	72.71	36.86	180.00
PT	687111.162	928536.935							
LINE			S 30°31'47.9" E	163.36					
POT	686970.450	928619.921							

EY1B

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	687500.522	928865.142							
CURVE			S 33°41'46.1" E	141.62	03°54'47.6"(RT)	02°45'45.5"	141.65	70.85	2073.95
PT	687382.695	928943.711							
LINE			S 31°44'22.3" E	51.24					
POT	687339.118	928970.667							

EY2

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687734.626	929611.347							
LINE			N 59°54'46.0" E	18.68					
PC	687743.991	929627.511							
CURVE			N 61°51'55.2" E	40.89	03°54'18.5"(RT)	09°32'57.5"	40.89	20.46	600.00
PT	687763.270	929663.566							
LINE			N 63°49'04.5" E	132.56					
PC	687821.759	929782.524							
CURVE			N 63°42'33.5" E	11.37	00°13'01.9"(LT)	01°54'35.5"	11.37	5.69	3000.00
PT	687826.796	929792.720							
LINE			N 63°36'02.6" E	248.57					
PC	687937.317	930015.371							
CURVE			N 63°27'27.3" E	14.99	00°17'10.5"(LT)	01°54'35.5"	14.99	7.49	3000.00
PT	687944.014	930028.779							
LINE			N 63°18'52.1" E	210.28					
PC	688038.449	930216.658							
CURVE			N 52°12'39.7" E	57.77	22°12'24.8"(LT)	38°11'49.9"	58.14	29.44	150.00
PCC	688073.850	930262.316							
CURVE			N 36°19'04.6" E	16.70	09°34'45.4"(LT)	57°17'44.8"	16.72	8.38	100.00
PCC	688087.306	930272.206							
CURVE			N 25°09'08.1" E	40.80	12°45'07.8"(LT)	31°11'20.4"	40.89	20.53	183.71
PT	688124.239	930289.548							
LINE			N 18°46'34.2" E	30.14					
PC	688152.774	930299.249							
CURVE			N 10°05'53.0" E	51.30	17°21'22.3"(LT)	33°42'12.2"	51.50	25.95	170.00
PCC	688203.280	930308.244							
CURVE			N 05°18'00.8" W	70.21	13°26'25.2"(LT)	19°05'54.9"	70.37	35.35	300.00
PCC	688273.192	930301.758							
CURVE			N 18°35'16.7" W	85.28	13°08'06.7"(LT)	15°22'08.8"	85.46	42.92	372.80
PT	688354.021	930274.575							
LINE			N 25°09'20.0" W	163.76					
PC	688502.248	930204.965							
CURVE			N 14°38'29.8" W	182.47	21°01'40.4"(RT)	11°27'33.0"	183.50	92.80	500.00
PT	688678.797	930158.840							
LINE			N 04°07'39.6" W	119.91					
PC	688798.399	930150.209							
CURVE			N 15°07'44.6" E	42.87	38°30'48.4"(RT)	88°08'50.5"	43.69	22.71	65.00
PT	688839.787	930161.399							
LINE			N 34°23'08.8" E	31.98					
POT	688866.177	930179.459							

EY2A

POINT	N	E	BEARING	DIST
POT	688050.426	929967.954		
LINE			S 08°40'21.7" W	149.55
POT	687902.586	929945.404		

EY2B

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687932.186	929621.317							
LINE			S 05°13'00.2" W	118.46					
PC	687814.217	929610.546							
CURVE			S 00°28'51.7" E	78.26	11°23'43.7"(LT)	14°32'12.3"	78.39	39.33	394.14
PT	687735.958	929611.203							
LINE			S 06°10'43.5" E	214.30					
PC	687522.905	929634.268							
CURVE			S 00°29'05.8" W	58.42	13°19'38.7"(RT)	22°45'46.8"	58.55	29.41	251.71
PT	687464.491	929633.774							
LINE			S 07°08'55.2" W	47.84					
PC	687417.018	929627.820							
CURVE			S 14°00'47.6" W	50.11	13°43'44.8"(RT)	27°19'58.8"	50.23	25.24	209.62
PT	687368.400	929615.686							
LINE			S 20°52'40.0" W	37.13					
PC	687333.711	929602.455							
CURVE			S 15°22'01.4" W	112.80	11°01'17.3"(LT)	09°45'20.9"	112.97	56.66	587.30
PT	687333.711	929602.455							

EY2C

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687580.273	930158.306							
LINE			N 89°21'16.7" W	44.61					
PC	687580.775	930113.701							
CURVE			S 83°35'19.3" W	67.79	14°06'48.0"(LT)	20°45'58.3"	67.96	34.15	275.91
PCC	687573.206	930046.333							
CURVE			S 70°59'48.5" W	35.41	11°04'13.6"(LT)	31°13'07.7"	35.46	17.79	183.53
PT	687561.677	930012.857							
LINE			S 65°27'41.7" W	431.30					
POT	687382.558	929620.515							

EY2D

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	687273.922	929583.244							
LINE			S 60°39'14.4" W	15.29					
PC	687266.428	929569.915							
CURVE			S 59°18'11.3" W	47.15	02°42'26.3"(LT)	05°43'46.5"	47.15	23.58	1000.00
PT	687242.358	929529.372							
LINE			S 57°57'08.2" W	123.37					
PC	687176.895	929424.802							
CURVE			S 56°42'13.2" W	43.58	02°29'49.9"(LT)	05°43'46.5"	43.58	21.80	1000.00
PT	687152.970	929388.375							
LINE			S 55°27'18.3" W	306.24					
PC	686979.314	929136.128							
CURVE			S 38°32'20.3" W	105.13	33°49'56.0"(LT)	31°42'56.1"	106.67	54.94	180.66
PT	686979.314	929136.128							

EY3

POINT	N	E	BEARING	DIST
POT	686841.346	927848.230		
LINE			S 37°26'28.1" E	339.46
POT	686571.822	928054.604		

EY4

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	686568.258	928049.952							
LINE			S 60°08'33.2" E	144.84					
PC	686496.151	928175.566							
CURVE			S 53°20'24.9" E	223.16	13°36'16.6"(RT)	06°04'55.1"	223.69	112.37	942.06
PT	686496.151	928175.566							

EY5

POINT	N	E	BEARING	DIST
POT	686949.169	928588.781		
LINE			S 40°39'38.7" E	310.94
POT	686713.294	928791.384		

EY6

POINT	N	E	BEARING	DIST
POT	687882.901	930733.258		
LINE			S 03°59'27.8" W	325.37
POT	687558.319	930710.612		

EY7

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	688096.886	932199.436							
LINE			S 32°40'43.7" E	13.73					
PC	688085.331	932206.849							
CURVE			S 28°09'29.4" E	58.64	09°02'28.6"(RT)	15°24'07.5"	58.70	29.41	372.00
PT	688033.630	932234.522							
LINE			S 23°38'15.1" E	0.70					
PC	688032.991	932234.801							
CURVE			S 14°54'36.1" E	135.65	17°27'18.0"(RT)	12°49'04.3"	136.18	68.62	447.00
PT	687901.907	932269.705							
LINE			S 06°10'57.1" E	112.21					
POT	687790.351	932281.789							

EY8

POINT	N	E	BEARING	DIST
POT	687790.155	932287.035		
LINE			S 06°22'41.9" W	328.14
POT	687464.045	932250.581		

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.

4/12/2018
U:\LocationSurveys\U5971\ls_ic-5.dgn
Default

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER

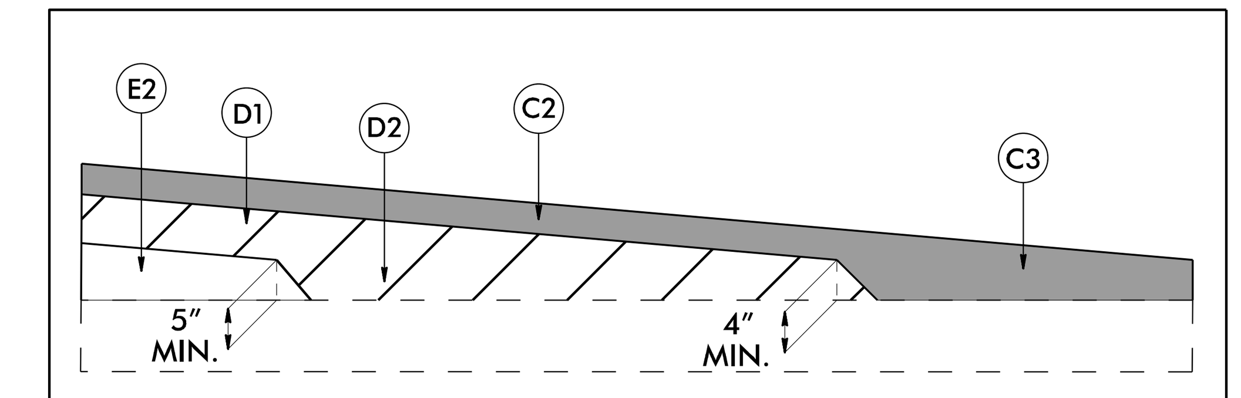
12/3/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

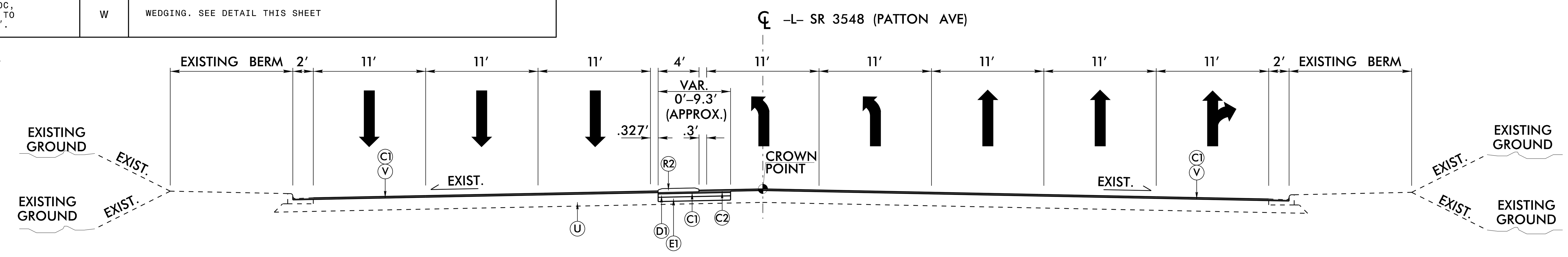
PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN	R1	2'-6" CONCRETE CURB & GUTTER
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE TYPE S9.5D, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.	R2	5" CONCRETE MONOLITHIC ISLAND (KEYED-IN)
C3	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5D, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" OR GREATER THAN 2.0".	R3	8" CONCRETE CURB
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.	T	EARTH MATERIAL
D2	PROP. VAR. DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 2.5" OR GREATER THAN 4".	U	EXISTING PAVEMENT
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.	V	MILLING BITUMINOUS PAVEMENT. 1.5" DEPTH.
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" OR GREATER THAN 5.5".	W	WEDGING. SEE DETAIL THIS SHEET

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



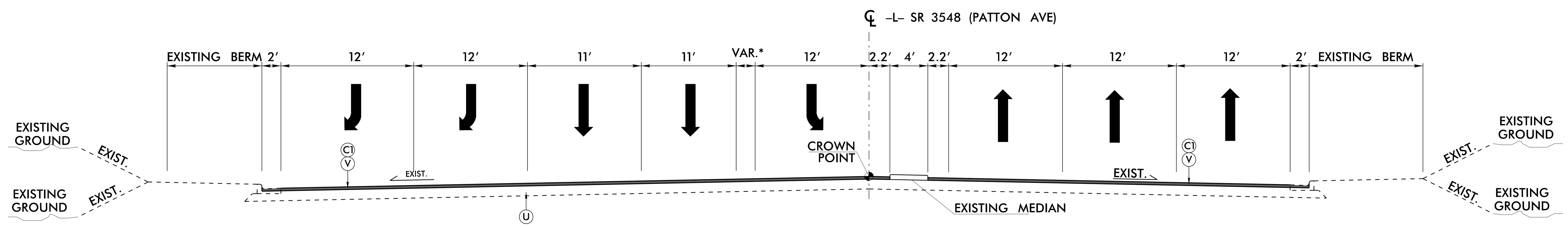
W : WEDGING DETAIL



TYPICAL SECTION NO. 1

-L- STA. 34+00.00 TO STA. 41+95.04

* NOTE: THRU LANE TAPER TO 11' TO HELP WITH ALIGNMENT ACROSS INTERSECTION

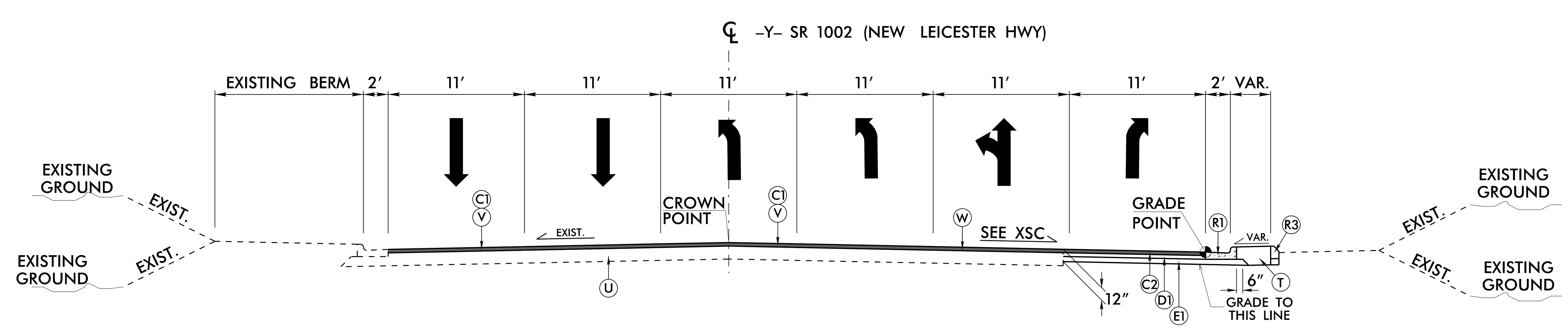


TYPICAL SECTION NO. 2

-L- STA. 41+95.04 TO STA. 46+00.00

* SEE PLANS FOR TAPER AND PAINT STRIPING

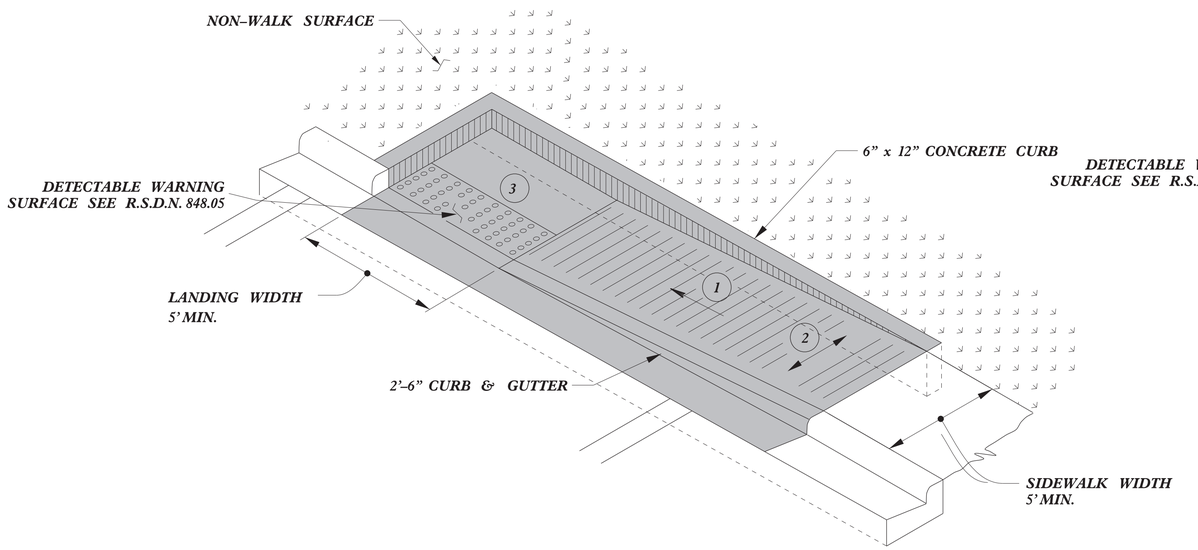
** SEE PLANS FOR MEDIAN REMOVAL SECTION



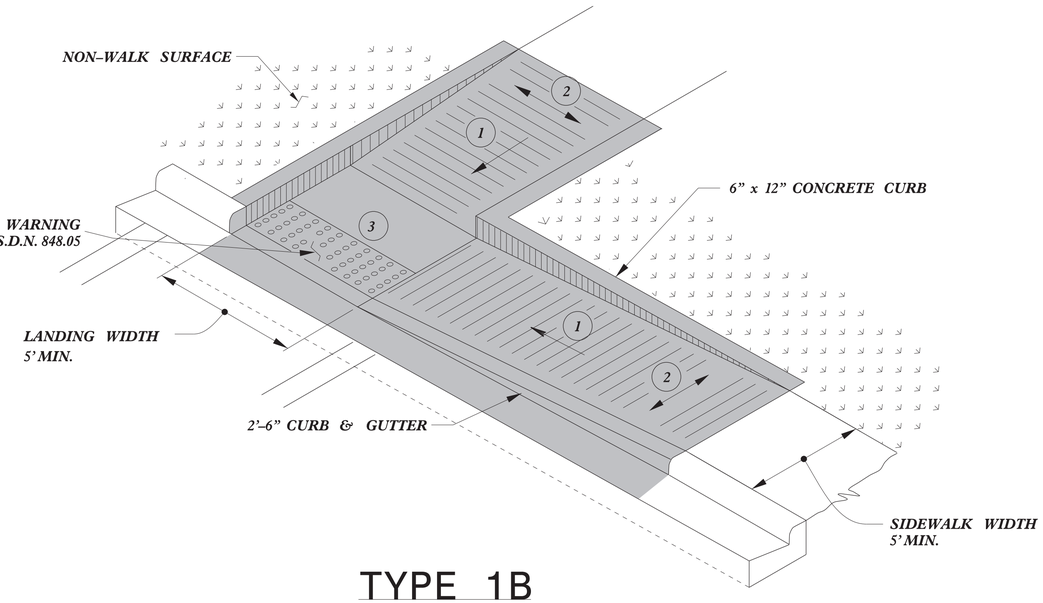
TYPICAL SECTION NO. 3

-Y- STA. 28+89.32 TO STA. 34+85.00

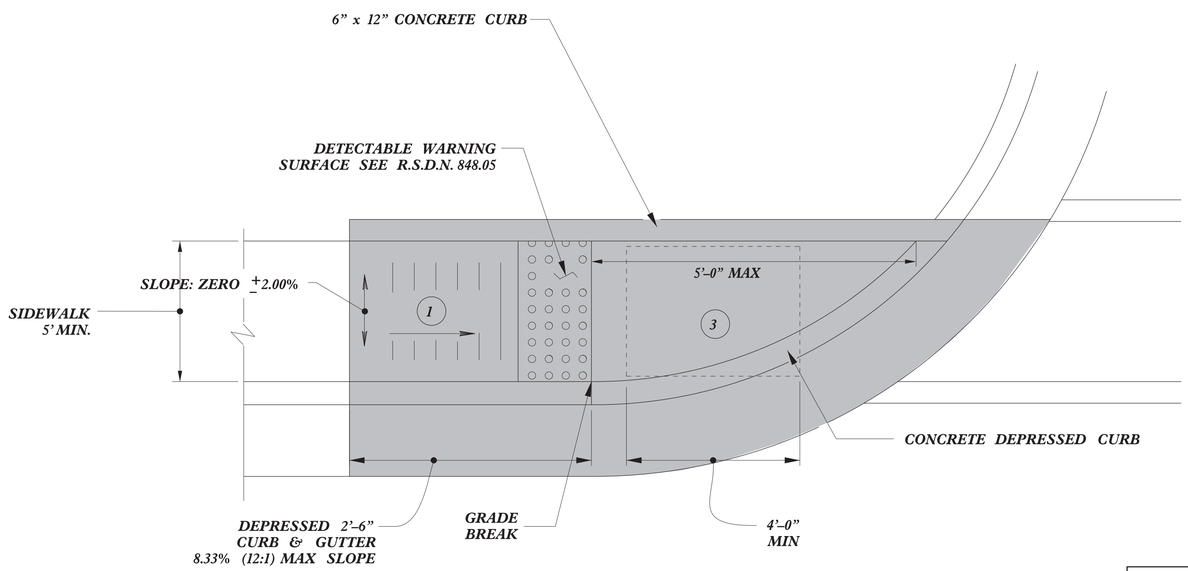
PROJECT REFERENCE NO.	SHEET NO.
U-5971A	2C-1



TYPE 1A



TYPE 1B



TYPE 1

▨ PAY LIMITS FOR 1 CURB RAMP

① *8.33% (12:1) MAX RAMP SLOPE*

② *CROSS SLOPE: 2.00%*

③ *CURB RAMPS REQUIRE A (4’–0”) MINIMUM LANDING WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS. SLOPE TO DRAIN TO CURB.*

REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

SEAL 022966
Joel S. Howerton
DocuSigned by:
Joel S Howerton
873F3D17DCDC45F...
4/17/2018

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

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

CURB RAMPS

Directional Ramps

ORIGINAL BY: J.S. HOWERTON DATE: 7/7/11
MODIFIED BY: ______ DATE: ______
CHECKED BY: ______ DATE: ______
FILE SPEC.: stds/2012CurbRamp/CurbRampDetails.dgn

COMPUTED BY:	ZAM	DATE:	03-19-18
CHECKED BY:	TSJ	DATE:	04-11-18

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	3B-1

EARTHWORK SUMMARY (CY)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
SUMMARY NO. 1					
STATION	STATION				
-L- 34+00.00	-L- 41+00.00	235*	0	0	
SUB TOTAL SUMMARY NO. 1		235*	0	0	
SUMMARY NO. 2					
STATION	STATION				
-Y- 29+00.00	-Y- 34+50.00	228	0	0	
SUB TOTAL SUMMARY NO. 2		228	0	0	
PROJECT TOTAL		463*	0	0	
ESTIMATE 5% FOR BORROW PIT TOP SOIL					
GRAND TOTALS:		463*	0	0	
SAY:		500*	0	0	

*This quantity includes both earth material and island removal along -L-

Earthwork quantities are calculated by the Roadway Design Unit.

REMOVAL OF EXISTING ASPHALT PAVEMENT

SURVEY LINE	STATION	STATION	LOCATION	AREA (SF)	AREA (SY)
-L-	34+00.00	41+45.00	CENTER	5783	643
-Y-	28+89.00	34+34.00	RIGHT	3769	419
				TOTAL:	1062
				SAY:	1070

JOSHHP-NEW

COMPUTED BY:	Joshua G. Dalton, PE	**DATE:**	5/3/2018
CHECKED BY:	Randal Howard, PE	**DATE:**	5/3/2018

PROJECT NO.	SHEET NO.
U-5971	3D-1

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	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	48	54	60	66	72	78	84	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC
L 34+15	4	RT	0401		2081.3																						
			0401	0402		2078.1	2078.0																				
L 34+23	3	RT	0402		2080.9																						
L 35+25	5	LT	0403		2076.7																						
			0403	0405		2073.5	2067.0																				
L 37+42	12	LT	0404		2064.8																						
L 36+50	12	LT	0405		2070.2																						
			0405	0404		2067.0	2061.3																				
L 39+05	12	LT	0501		2054.2																						
			0501	0504		2051.0	2042.6																				
L 41+32	12	LT	0502		2042.4																						
			0502	0503		2039.2	2039.1																				
L 41+40	6	LT	0503		2042.2																						
L 40+50	12	LT	0504		2045.8																						
			0504	0502		2042.6	2039.2																				
Y 33+89	38	RT	0505		2041.8																						
			0505	0506		2039.0	2038.9																				
Y 33+89	29	RT	0506		2038.9																						
Y 29+55	36	RT	0701		2041.2																						
			0701	0702		2036.3	2036.0																				
Y 29+99	36	RT	0702		2040.9																						
			0702	0705		2036.0	2035.7	0.4																			
Y 30+33	31	RT	0704		2041.6																						
Y 30+34	38	RT	0705		2041.2																						
Y 33+13	29	RT	0706																								
			0706	0707		2038.8	2038.7																				
Y 33+13	38	RT	0707		2041.8																						
Y 29+75	33	RT																									
Y 30+11	31	RT																									
Y 29+95	36	RT																									
SHEET TOTALS																											
PROJECT TOTALS																											

LINE & STATION	FROM	TO	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	48	54	60	66	72	78	84	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	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.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G
L 34+15	0401																						1						
	0401	0402		8																									
L 34+23	0402																						1						
L 35+25	0403																						1						
	0403	0405		128																									
L 37+42	0404																						1						
L 36+50	0405																						1						
	0405	0404		92																									
L 39+05	0501																						1						
	0501	0504		148																									
L 41+32	0502																						1						
	0502	0503		12																									
L 41+40	0503																												
L 40+50	0504																						1						
	0504	0502		84																									
Y 33+89	0505																						1			1	1		
	0505	0506		12																									
Y 33+89	0506																												
Y 29+55	0701																						1			1		1	
	0701	0702				28																							
Y 29+99	0702																						1						
	0702	0705				40																							
Y 30+33	0704																												
Y 30+34	0705																						1	0.9		1			1
Y 33+13	0706																												
	0706	0707			12																								
Y 33+13	0707																						1			1	1		
Y 29+75																													
Y 30+11																													
Y 29+95																													
SHEET TOTALS				484	12	68																	13	0.9		4	2	1	1
PROJECT TOTALS				484	12	68																	13	0.9		4	2	1	1

LINE & STATION	FROM	TO	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. (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	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.	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 34+15	0401						1	1																		
	0401	0402																								
L 34+23	0402						1	1																		REMOVE EXIST. DI AND CLEAN OUT PIPE
L 35+25	0403						1	1																		
	0403	0405																								
L 37+42	0404						1	1																	6	REMOVE EXIST. DI AND CLEAN OUT PIPE
L 36+50	0405						1	1																		
	0405	0404																								
L 39+05	0501						1	1																		
	0501	0504																								
L 41+32	0502						1	1																		
	0502	0503																								
L 41+40	0503															1			1							CONVERT DI TO JB W/MH, CLEAN OUT PIPE
L 40+50	0504						1	1																		
	0504	0502																								
Y 33+89	0505																									
	0505	0506																								REMOVE CB; COLLAR AND EXTEND
Y 33+89	0506																						0.3990			
Y 29+55	0701																									
	0701	0702																								
Y 29+99	0702								1						1											
	0702	0705																								
Y 30+33	0704															1	1									
Y 30+34	0705																									
Y 33+13	0706																						0.4465			
	0706	0707																								REMOVE CB; COLLAR AND EXTEND
Y 33+13	0707																									
Y 29+75																									30	REMOVE CB AND 30 LF EXIST. 18" RCP
Y 30+11																						3				
Y 29+95																									12	REMOVE DI AND 12 LF EXIST. 15" RCP
SHEET TOTALS							8	8	1						1	2	1		1			3	0.8455		48	
PROJECT TOTALS							8	8	1						1	2	1		1			3	0.8455		48	

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.
U-5971A	04
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D. LINDGREN 4/12/2018	NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON 4/12/2018

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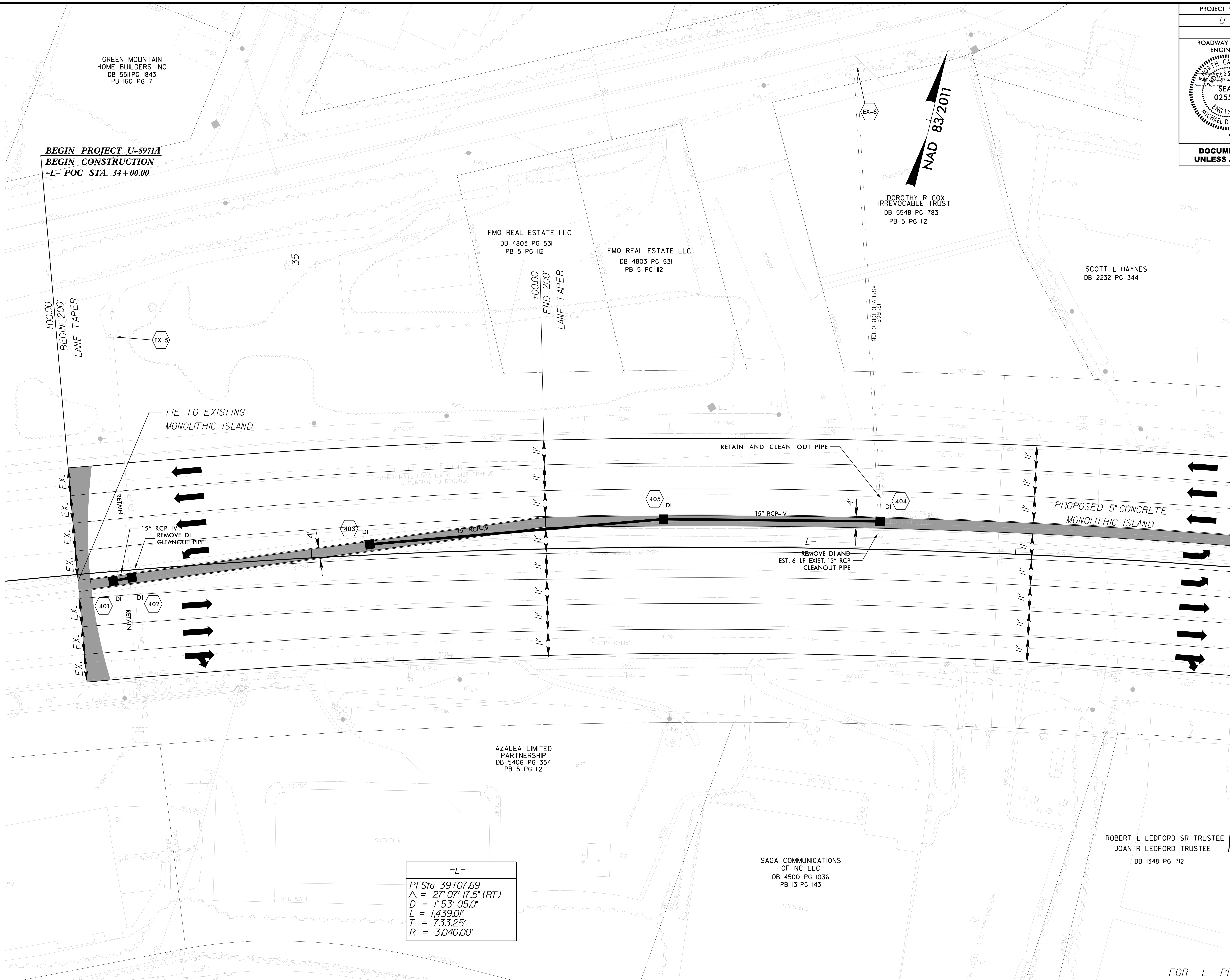
GREEN MOUNTAIN HOME BUILDERS INC DB 5511 PG 1843 PB 160 PG 7
BEGIN PROJECT U-5971A
BEGIN CONSTRUCTION
-L- POC STA. 34+00.00
+00.00 BEGIN 200' LANE TAPER
EX-5
35
FMO REAL ESTATE LLC DB 4803 PG 531 PB 5 PG 112
FMO REAL ESTATE LLC DB 4803 PG 531 PB 5 PG 112
+00.00 END 200' LANE TAPER
EX-6
NAD 83/2011
DOROTHY R COX IRREVOCABLE TRUST DB 5548 PG 783 PB 5 PG 112
ASSUMED DIRECTION
SCOTT L HAYNES DB 2232 PG 344
TIE TO EXISTING MONOLITHIC ISLAND
RETAIN AND CLEAN OUT PIPE
405 DI
404 DI
403 DI
401 DI
402 DI
15" RCP-IV
15" RCP-IV REMOVE DI CLEANOUT PIPE
REMOVE DI AND EST. 6 LF EXIST. 15" RCP CLEANOUT PIPE
-L-
RETAIN
PROPOSED 5" CONCRETE MONOLITHIC ISLAND
EX.
11'
4'
MATCHLINE -L- STA 39+00.00 SEE SHEET 5
AZALEA LIMITED PARTNERSHIP DB 5406 PG 354 PB 5 PG 112
SAGA COMMUNICATIONS OF NC LLC DB 4500 PG 1036 PB 131 PG 143
ROBERT L LEDFORD SR TRUSTEE JOAN R LEDFORD TRUSTEE DB 1348 PG 712

-L-
PI Sta 39+07.69
Δ = 27° 07' 17.5" (RT)
D = 1° 53' 05.0"
L = 1,439.01'
T = 733.25'
R = 3,040.00'

FOR -L- PROFILE SEE SHEET 8

4/12/2018
U:\Roadway\Proj\U-5971A_Rdy_psh04.dgn
8/17/99

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	05
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D. LINDGREN

DocuSigned by: Mike Lindgren EO74CF30FFFF4E7... 4/17/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

DocuSigned by: Joshua Dalton 1089AD8C149946C3... 4/17/2018

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www.stantec.com
License No. F-0672

NAD 83/2011

30700 / 37400	New Leicester Hwy	ADT 2018 / 2040
3940 / 4800		11320 / 13900
33560 / 41600		48530 / 60200
Patton Ave		
400 / 500		510 / 700
2200 / 2600	Driveway	

MATCHLINE -Y- STA 33+50.00 SEE SHEET 7

MATCHLINE -L- STA 39+00.00 SEE SHEET 4

MATCHLINE -L- STA 43+50.00 SEE SHEET 6

INGLES MARKETS INC
DB 1714 PG 746

VIA LLC
DB 4006 PG 255

SCOTT L HAYNES
DB 2232 PG 344

-L- POC Sta. 41+95.04
-Y- POT Sta. 35+33.41

-L- POT Sta. 42+25.98
-DRIVE- POT Sta. 10+00.00

TIE TO EXISTING

REMOVE CB COLLAR AND EXTEND W/15" RCP-IV

SEE SHEET 2C-1 FIELD ADJUST AS NEEDED

SIDEWALK LIMITS DO NOT DISTURB EXISTING R/W

PROPOSED 5" CONCRETE MONOLITHIC ISLAND

15" RCP-IV

CONVERT DI TO JB W/MH CLEAN OUT BOX AND PIPES RETAIN

REMOVE 50' OF EXISTING MEDIAN ISLAND

RETAIN

-Y-

PI Sta 27+88.80	PI Sta 29+99.75	PI Sta 32+50.81
△ = 14° 00' 27.1" (RT)	△ = 9° 07' 23.4" (RT)	△ = 0° 47' 57.3" (RT)
D = 5° 50' 47.4"	D = 4° 58' 54.6"	D = 11° 27' 33.0"
L = 239.59'	L = 183.13'	L = 6.97'
T = 120.39'	T = 91.76'	T = 3.49'
R = 980.00'	R = 1,150.09'	R = 500.00'

-L-

PI Sta 39+07.69
△ = 27° 07' 17.5" (RT)
D = 1° 53' 05.0"
L = 1,439.01'
T = 733.25'
R = 3,040.00'

ROBERT L LEDFORD SR TRUSTEE
JOAN R LEDFORD TRUSTEE
DB 1348 PG 712

BM2
ELEVATION - 2047.17
N 687775
E 930583
BC STATION 41+44.00 54 RIGHT
PK NAIL IN CONC

S 3° 59' 27.8" W -DRIVE-

FOR -L- PROFILE SEE SHEET 8
FOR -Y- PROFILE SEE SHEET 9

★ UPGRADE EXISTING SIGNAL

4/17/2018
U:\Roadway\Proj\U-5971A_Rdy_psh05.dgn

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	06
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025513 ENGINEER MICHAEL D. LINDGREN
4/12/2018

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 ENGINEER JOSHUA G. DALTON
4/12/2018

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NAD 83/2011

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INGLES MARKETS INC
DB 1714 PG 746

INGLES MARKETS INC
DB 1076 PG 486
PB 11PG 63

INGLES MARKETS INC
DB 5533 PG 1365
PB 137 PG 18

-L-
PI Sta 39+07.69
△ = 27° 07' 17.5" (RT)
D = 1° 53' 05.0"
L = 1,439.01'
T = 733.25'
R = 3,040.00'
SE = EXIST.

+00.00 BEGIN 200' LANE TAPER

+00.00 END 200' LANE TAPER

END PROJECT U-5971A
END CONSTRUCTION
-L- POC STA. 46+00.00

-L- PT Sta. 46+13.45

MATCHLINE -L- STA 43+50.00 SEE SHEET 5

RETAIN EXISTING ISLAND

-L- S 85° 44' 32.4" E

RALPH L BUCKNER
VIRGINIA P BUCKNER
DB 1528 PG 61
PB 198 PG 177

JACKSON HOLDING GROUP LLC
DB 4626 PG 908
PB 141PG 146

ROBERT L LEDFORD SR
TRUSTEE
JOAN R LEDFORD
TRUSTEE
DB 1348 PG 712

FREDERICK E BAYLOR
GAIL G BAYLOR
DB 1906 PG 50

RAY BEBBER
PROPERTIES LLC
DB 4993 PG 796

METPRO INC
DB 1416 PG 402

FOR -L- PROFILE SEE SHEET 8 & 9

4/12/2018
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zachary.rad

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PROJECT REFERENCE NO.	SHEET NO.
U-5971A	07
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D. LINDGREN	NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON
Mike Lindgren 5/7/2018	Joshua G. Dalton 5/7/2018

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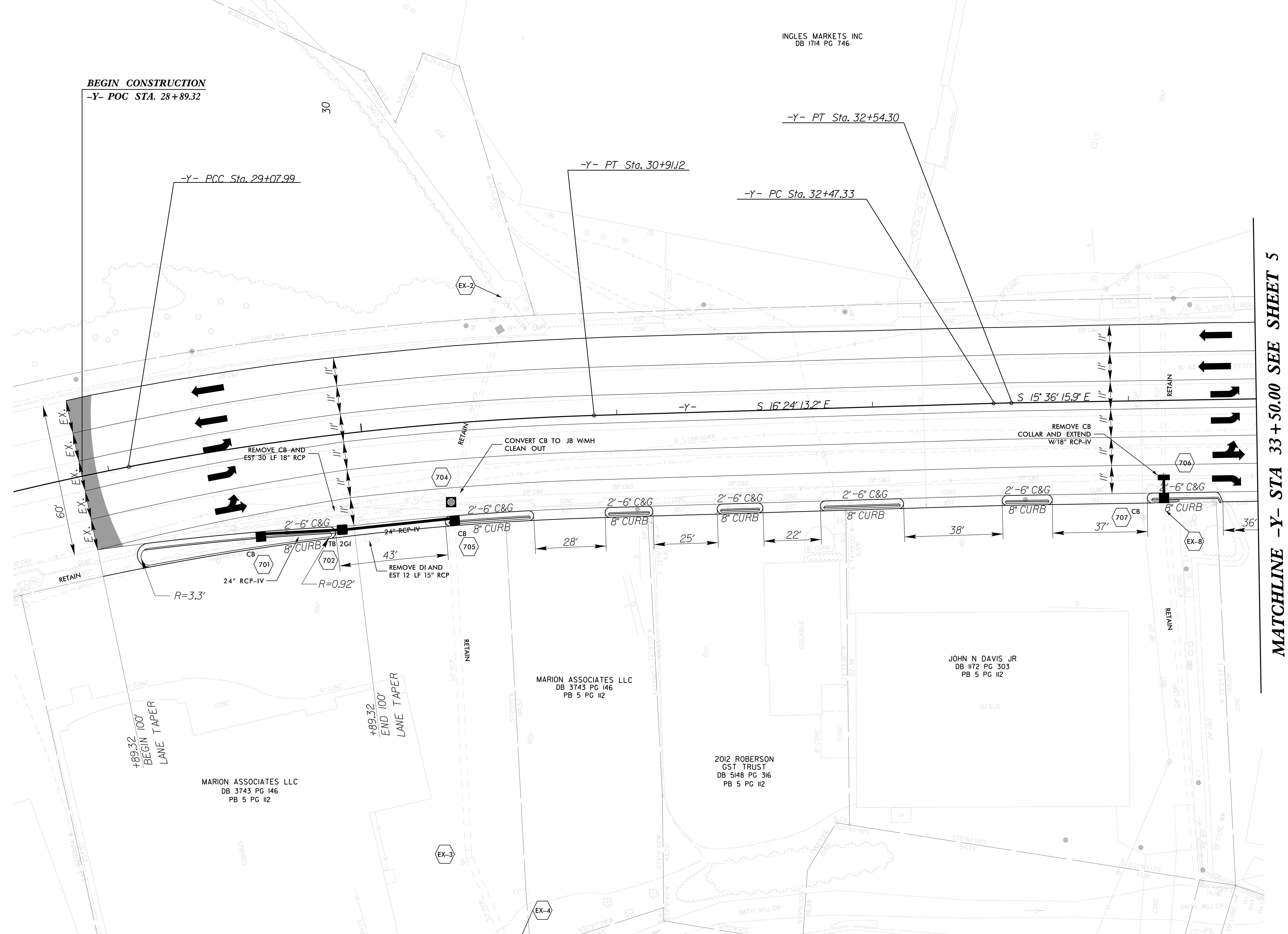
-Y-

PI Sta 27+88.80	PI Sta 29+99.75	PI Sta 32+50.81
Δ = 14° 00' 27.1" (RT)	Δ = 9° 07' 23.4" (RT)	Δ = 0° 47' 57.3" (RT)
D = 5° 50' 47.4"	D = 4° 58' 54.6"	D = 11° 27' 33.0"
L = 239.59'	L = 183.13'	L = 6.97'
T = 120.39'	T = 91.76'	T = 3.49'
R = 980.00'	R = 1,150.09'	R = 500.00'
SE = SEE XSC	SE = SEE XSC	SE = SEE XSC



FOR -Y- PROFILE SEE SHEET 9

5/7/2018
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PROJECT REFERENCE NO.	SHEET NO.
U-5971A	08

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 025513 MICHAEL D. LINDGREN	NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 26971 JOSHUA G. DALTON
DocuSigned by: Mike Lindgren A4E47383A471492...	DocuSigned by: Joshua G. Dalton 1089AD8C14994C3...
4/12/2018	4/12/2018

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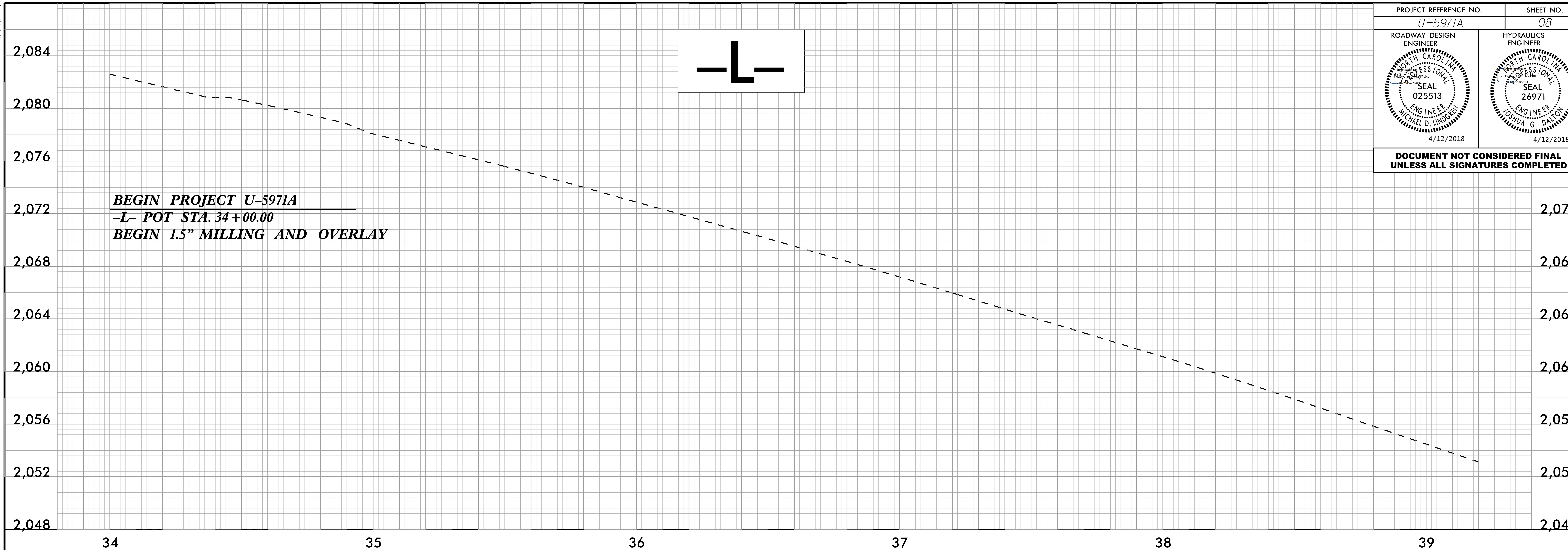

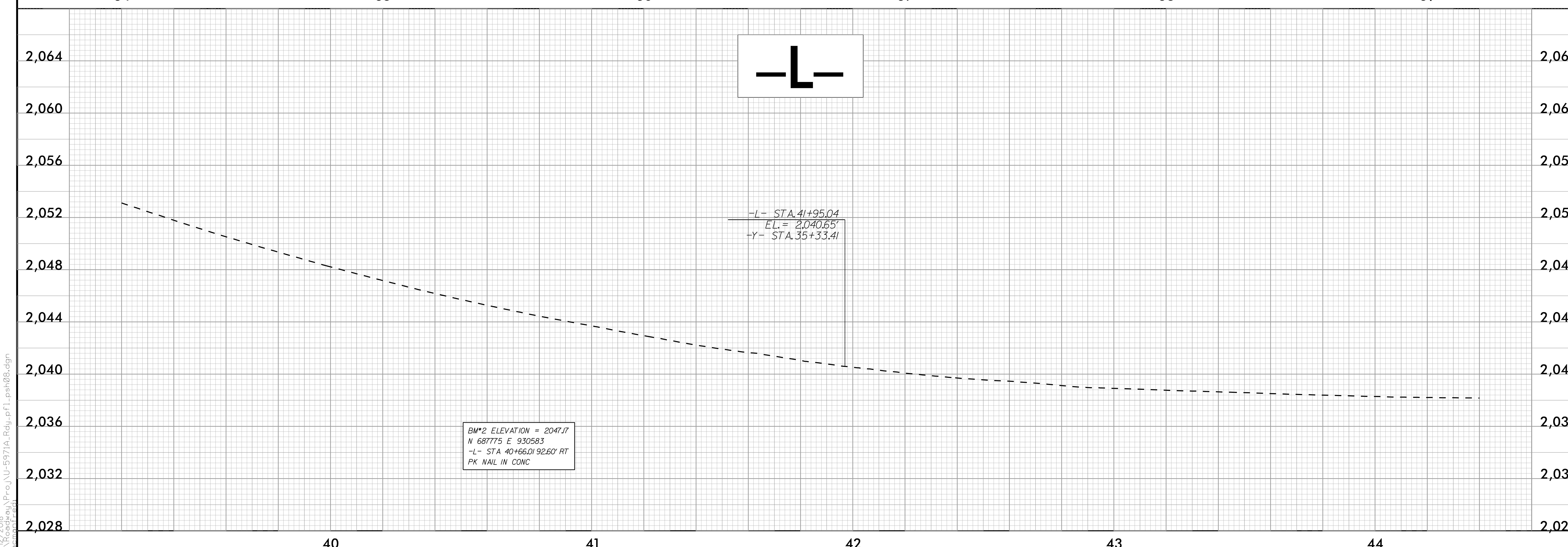

5/28/99

4/12/2018
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5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	09

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 025513 ENGINEER MICHAEL D. LINDGREN

4/12/2018

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 26971 ENGINEER JOSHUA G. DALTON

4/12/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

-L-

END PROJECT U-5971A
-L- POT STA. 46+00.00
END 1.5" MILLING AND OVERLAY

2,060 2,056 2,052 2,048 2,044 2,040 2,036 2,032 2,028 2,024

45 46 47 48 49

-Y-

BEGIN CONSTRUCTION U-5971A
-Y- POT STA. 28+89.32, ELEV. 2041.72'
(PROFILE ALONG PROPOSED EOT RT)

PI = 30+00.00
EL = 2,041.15'

PI = 30+80.00
EL = 2,041.87'

PI = 31+25.00
EL = 2,042.09'

PI = 31+65.00
EL = 2,042.26'

PI = 32+25.00
EL = 2,042.24'

PI = 33+00.00
EL = 2,041.98'

PI = 33+50.00
EL = 2,042.28'

(-)0.5712%

(+)0.9030%

(+)0.4771%

(+)0.4253%

(-)0.0295%

(-)0.3453%

(+)0.5966%

(-)0.7719%

BEGIN EOP GRADE

EXISTING GROUNDLINE AT CENTERLINE

END EOP GRADE
-Y- STA. 34+20.00, ELEV. 2041.74'

2,066 2,062 2,058 2,054 2,050 2,046 2,042 2,038 2,034 2,030

29 30 31 32 33 34

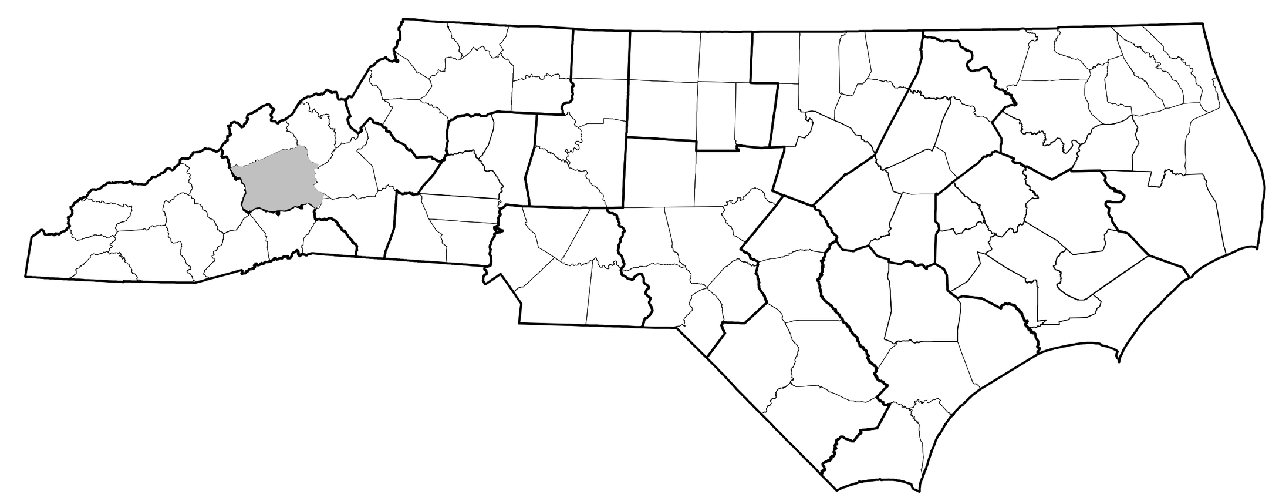
4/12/2018
U:\Projects\Proj\U-5971A_Rdy_pfl_psh09.dgn
jmcgrath

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

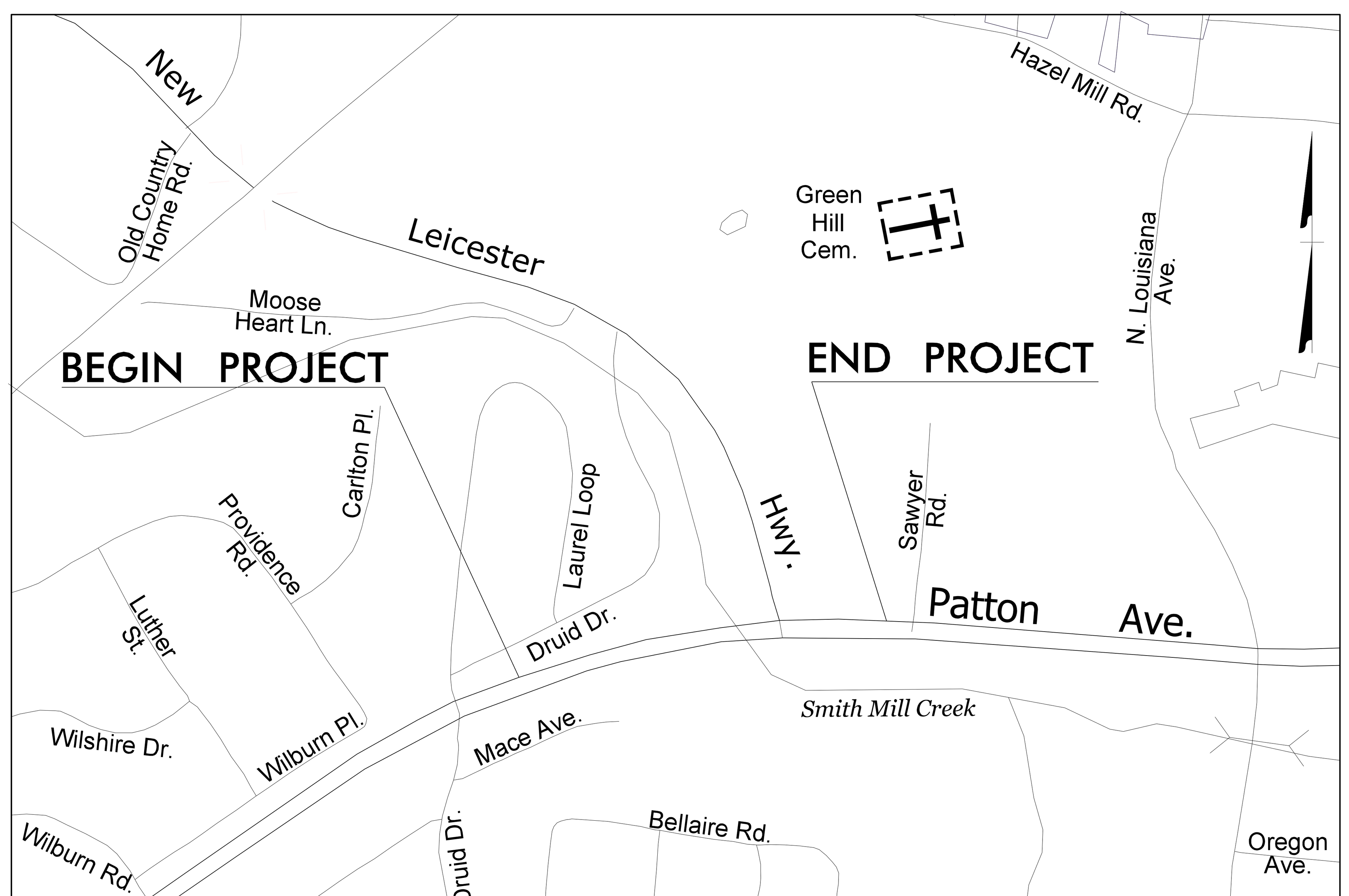
TRANSPORTATION MANAGEMENT PLAN

BUNCOMBE COUNTY

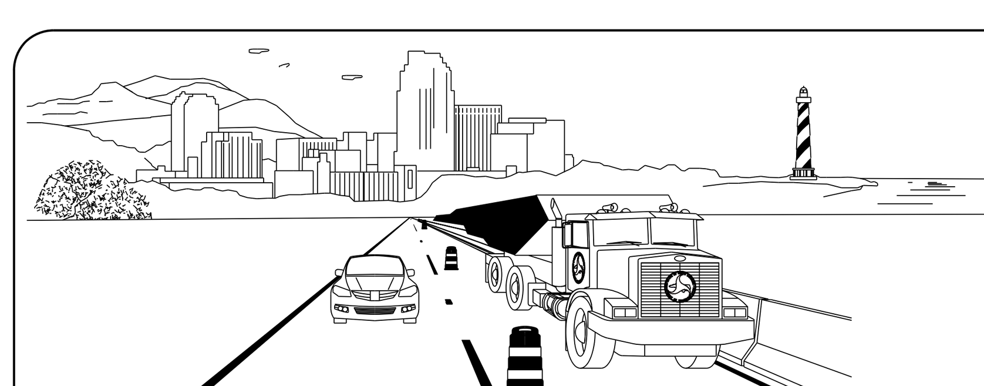
DIVISION 13



LOCATION: SR 3548 (PATTON AVE.) / SR 1002 (NEW LEICESTER HWY) INTERSECTION IMPROVEMENTS
TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNAL



VICINITY MAP



N.C.D.O.T. DIVISION 13

BRENDAN MERITHEW, P.E. — NC DIVISION 13 TRANSPORTATION MANAGER

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

SHEET NO. TMP-1

INDEX OF SHEETS

ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGERS

MANAGEMENT STRATEGIES

- WORK HOUR RESTRICTIONS NIGHT WORK ONLY FOR LANE RESTRICTIONS OR NARROWINGS
- USE OF LANE CLOSURES TO PERFORM CONSTRUCTION ON -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY.)

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Fax. 919.851.7024
www.stantec.com
License No. F-0672

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19862 J. W. WOOLARD, JR.
DocuSigned by: J.W. Woolard, Jr.
12/3/2018

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TIP PROJECT: U-5971A

12/3/2018
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argood

PROJ. REFERENCE NO.	SHEET NO.
U-5971A	TMP-2

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
-L- PATTON AVE.	6:00 A.M.- 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)
-Y- NEW LEICESTER HWY	6:00 A.M.- 7:00 P.M. MONDAY THRU SUNDAY (EVERYDAY)

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

ROAD NAME
-L- PATTON AVE.
-Y- NEW LEICESTER HWY

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 6:00 A.M. DECEMBER 31ST TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.

3) FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.

4) FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.

5) FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY. IF INDEPENDENCE DAY IS ON A FRIDAY, SATURDAY, SUNDAY OR MONDAY; THEN BETWEEN THE HOURS OF 6:00 A.M. THE THURSDAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE TUESDAY AFTER INDEPENDENCE DAY.

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

7) FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.

8) FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

C) 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.

D) 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.

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

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRANSPORTATION MANAGEMENT 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.

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

MISCELLANEOUS

H) USE LAW ENFORCEMENT TO MAINTAIN TRAFFIC THROUGH THE WORK AREA AND OR INTERSECTIONS AS SHOWN IN PLANS OR DIRECTED BY THE ENGINEER.

I) CONTRACTOR SHALL MAINTAIN SIDEWALK ACCESS AT ALL TIMES AS STATED IN THE PHASING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TEMPORARY SIDEWALKS (CONCRETE, ASPHALT, OR OTHER SUITABLE MATERIAL AS APPROVED BY THE ENGINEER) AT ALL LOCATIONS WHERE THE OPEN PEDESTRIAN TRAVELWAY HAS BEEN REMOVED FOR CONSTRUCTION OPERATIONS (UTILITIES, DRAINAGE, ETC.).

J) MAINTAIN VEHICULAR ACCESS TO ALL DRIVEWAYS DURING THE LIFE OF THE CONTRACT, UNLESS OTHERWISE NOTED IN THE PHASING OR DIRECTED BY THE ENGINEER. USE INCIDENTAL STONE WHEN NECESSARY.

K) ALL DIMENSIONS AND STATIONS IN THE TRANSPORTATION MANAGEMENT PLAN AND PHASING ARE APPROXIMATE (+/-); FIELD ADJUST AS NECESSARY OR AS DIRECTED BY THE ENGINEER.

L) ENSURE THE OVERSIZE/OVERWEIGHT PERMIT UNIT (919) 814-3700 HAS BEEN ADVISED OF THE ONGOING TRAFFIC OPERATIONS THROUGH THE DIVISION OFFICE.

PAVEMENT MARKINGS

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

ROAD NAME	MARKING	MARKER
ALL ROADS	PAINT	NONE

N) 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.

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

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

Q) TRACE THE EXISTING AND/OR PROPOSED MONOLITHIC ISLAND LOCATIONS WITH THE PROPER COLOR PAVEMENT MARKING PRIOR TO REMOVAL AND/OR INSTALLATION.

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- PROPOSED PVMT.
- NORTH ARROW
- WORK AREA
- PAVEMENT REMOVAL

SIGNALS

- EXISTING
- PROPOSED
- TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES

PAVEMENT MARKING SYMBOLS

- EXISTING PAVEMENT MARKING SYMBOLS (HOLLOW)

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

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DocuSigned by: J.W. Woolard
BBC02F49E9...

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J. W. WOOLARD JR.

5/1/2018

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

GENERAL NOTES AND LEGEND

5/1/2018
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TRAFFIC CONTROL PHASING

PRIOR TO ANY WORK OPERATIONS, INSTALL WORK ZONE ADVANCE WARNING SIGNS ON -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY), PER ROADWAY STANDARD DRAWING 1101.01, SHEET 3 OF 3.

STEP 1 USING TEMPORARY LANE CLOSURES, PER ROADWAY STANDARD RSD 1101.02 (SHEET 3 OF 14), COMPLETE THE FOLLOWING IN NO PARTICULAR ORDER, BUT NOT CONCURRENTLY (SEE TMP-3):

1A. CONSTRUCT RIGHT SIDE WIDENING ON -Y- (NEW LEICESTER HWY) FROM -Y- STA. 28+89± TO -Y- STA. 35+33± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. MILL EXISTING PAVEMENT AND RESURFACE -Y- FROM STA. 28+89± TO 35+33± UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE. PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN AS SHOWN IN THE PAVEMENT MARKING PLAN.

1B. REMOVE EXISTING MEDIAN ISLANDS ON -L- (PATTON AVE) AT -L- STA. 34+00± TO -L- STA. 41+48±, AND -L- STA. 42+48± TO -L- STA. 43+00±, AND CONSTRUCT MONOLITHIC ISLANDS ON -L- (PATTON AVE) AS SHOWN IN THE ROADWAY CONSTRUCTION PLANS. MILL EXISTING PAVEMENT AND RESURFACE UP TO BUT NOT INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA. 34+00± TO -L- STA. 46+00± AS SHOWN IN THE CONSTRUCTION PLANS. PLACE TEMPORARY PAVEMENT MARKINGS IN THE FINAL PATTERN AS SHOWN ON THE PAVEMENT MARKING PLAN.

STEP 2 USING TEMPORARY LANE CLOSURES PER ROADWAY STANDARD RSD 1101.02 (SHEET 3 OF 14), PLACE FINAL LAYER OF SURFACE COURSE AND FINAL PAVEMENT MARKINGS IN ACCORDANCE TO THE FINAL PAVEMENT MARKING PLAN, ACTIVATE FINAL SIGNAL, REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN -L- (PATTON AVE.) AND -Y- (NEW LEICESTER HWY) TO TRAFFIC.

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19862 J. W. WOOLARD, JR.
4/12/2018

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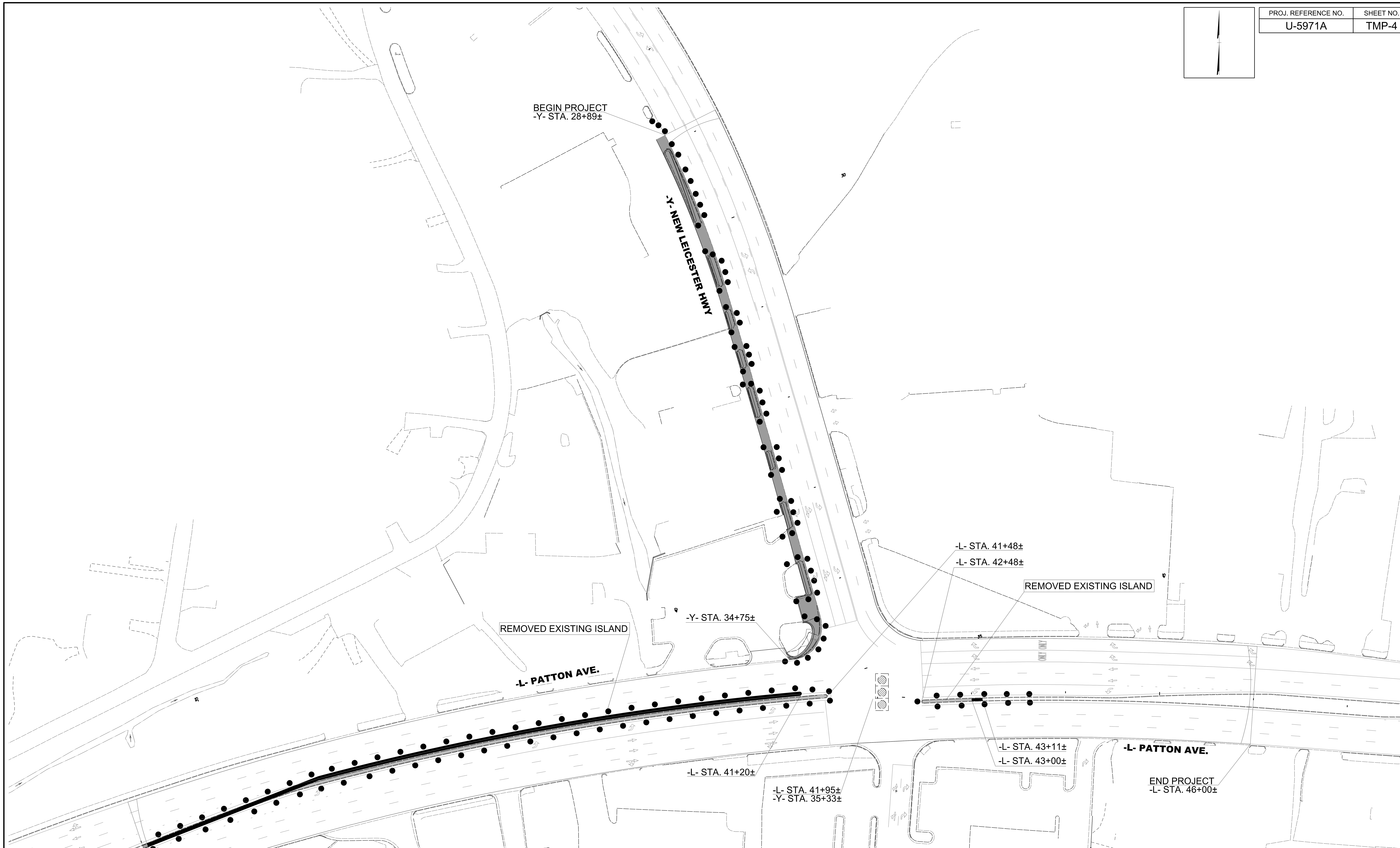
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRAFFIC CONTROL PHASING

PROJ. REFERENCE NO.	SHEET NO.
U-5971A	TMP-4



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DocuSigned by: J.W. Woolard

NORTH CAROLINA PROFESSIONAL SEAL 19862 ENGINEER J.W. WOOLARD JR.

4/12/2018

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

PATTON AVE -L-
AT
NEW LEICESTER HWY -Y-
DETAIL

4/12/2018
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CONTRACT NO.: DM00274 T.I.P.: U-5971A

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING PLAN
BUNCOMBE COUNTY

LOCATION: US 19/23/74A (PATTON AVE) /NC 63 (NEW LEICESTER HWY)
INTERSECTION IMPROVEMENTS

TIP NO.	SHEET NO.
U-5971A	PMP-1

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F

DATE: 12/3/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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ROADWAY STANDARD DRAWINGS

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

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES & OFFSETS
1205.02	PAVEMENT MARKINGS - 2 LANE & MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROP
1205.08	PAVEMENT MARKINGS - SYMBOLS & WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
ALL ROADS	THERMOPLASTIC	SNOWPLOWABLE

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

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

D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED 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.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION	PAY ITEM	
T2	WHITE STOPBAR	(24", 120 MIL)	THERMOPLASTIC
T8	2 FT-6FT/SP WHITE MINISKIP	(4", 120 MIL)	THERMOPLASTIC
T9	2 FT-6FT/SP YELLOW MINISKIP	(4", 120 MIL)	THERMOPLASTIC
T13	3 FT-9 FT/SP WHITE MINISKIP	(8", 120 MIL)	THERMOPLASTIC
TA	WHITE EDGELINE	(4", 90 MIL)	THERMOPLASTIC
TB	YELLOW EDGELINE	(4", 90 MIL)	THERMOPLASTIC
TC	10 FT WHITE SKIP	(4", 120 MIL)	THERMOPLASTIC
TD	3 FT-9 FT/SP WHITE MINISKIP	(4". 120 MIL)	THERMOPLASTIC
TE	WHITE SOLID LANE LINE	(4", 120 MIL)	THERMOPLASTIC
TI	YELLOW DOUBLE CENTER	(4", 120 MIL)	THERMOPLASTIC
TN	WHITE GORELINE	(8", 90 MIL)	THERMOPLASTIC
TR	WHITE SOLID LANE LINE	(8", 120 MIL)	THERMOPLASTIC
TV	YELLOW DIAGONAL	(12", 90 MIL)	THERMOPLASTIC
UA	LEFT TURN ARROW	(90 MIL)	THERMOPLASTIC
UB	RIGHT TURN ARROW	(90 MIL)	THERMOPLASTIC
UC	STRAIGHT ARROW	(90 MIL)	THERMOPLASTIC
UD	COMBO LEFT/STRAIGHT	(90 MIL)	THERMOPLASTIC
UE	COMBO STRAIGHT/RIGHT	(90 MIL)	THERMOPLASTIC
UI	ALPHANUMERIC CHAR	(120 MIL)	THERMOPLASTIC

PLAN PREPARED BY:

BETSY L. WATSON, P.E. SENIOR TRANSPORTATION ENGINEER

ROSI R. HENNEIN TRANSPORTATION DESIGNER

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INDEX

TIP NO.	SHEET NO.
U-5971A	PMP-2

APPROVED: Betsy L. Watson
DATE: 4/12/2018

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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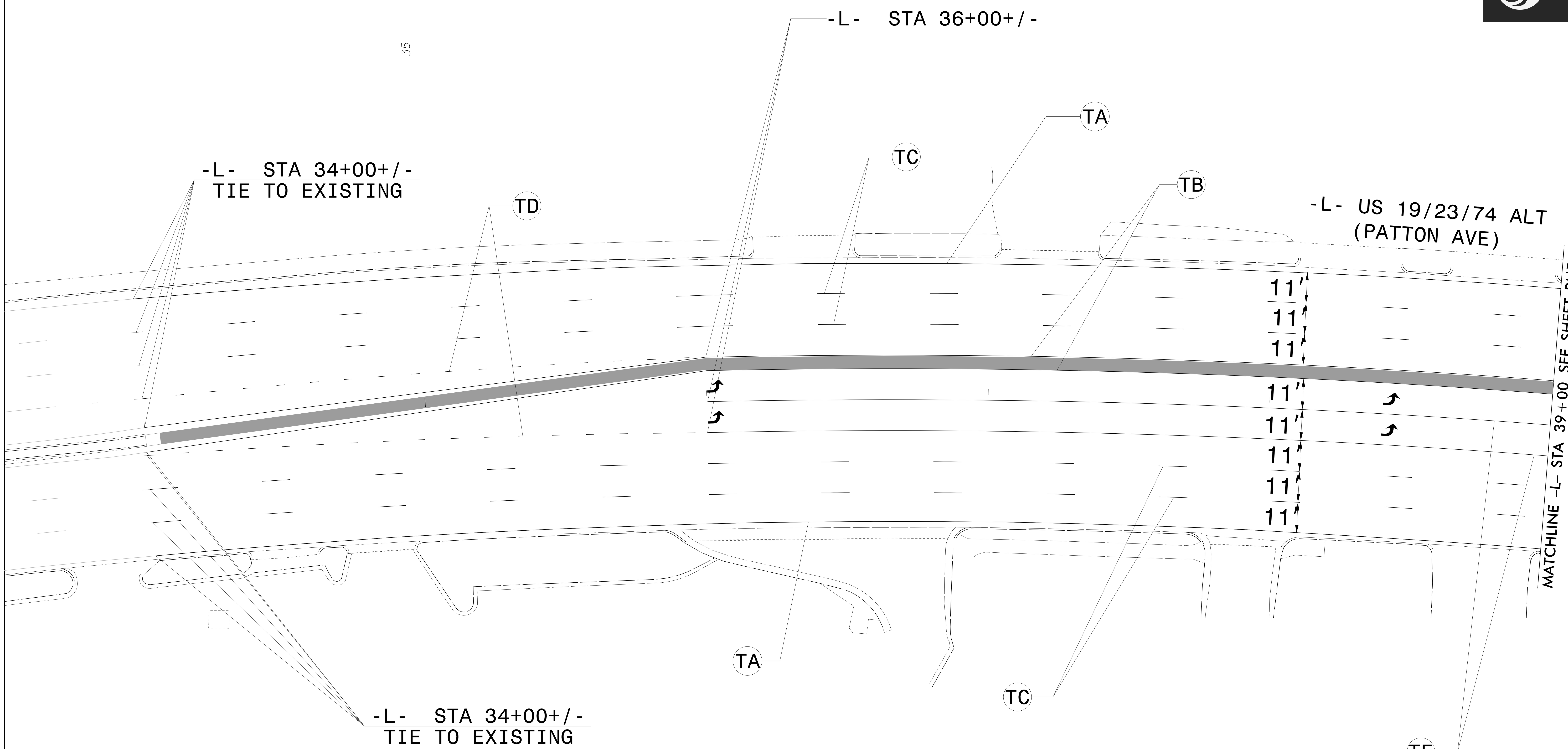
THERMOPLASTIC PAVEMENT MARKING LEGEND

(UA) LEFT TURN ARROW	(TA) WHITE EDGELINE (4")
	(TB) YELLOW EDGELINE (4")
	(TC) 10 FT WHITE SKIP (4")
	(TD) 3 FT-9 FT/SP WHITE MINISKIP (4")
	(TE) WHITE SOLID LANE LINE (4")



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

PAVEMENT MARKING DETAIL

TIP NO.	SHEET NO.
U-5971A	PMP-3

APPROVED: Betsy L. Watson

DATE: 4/17/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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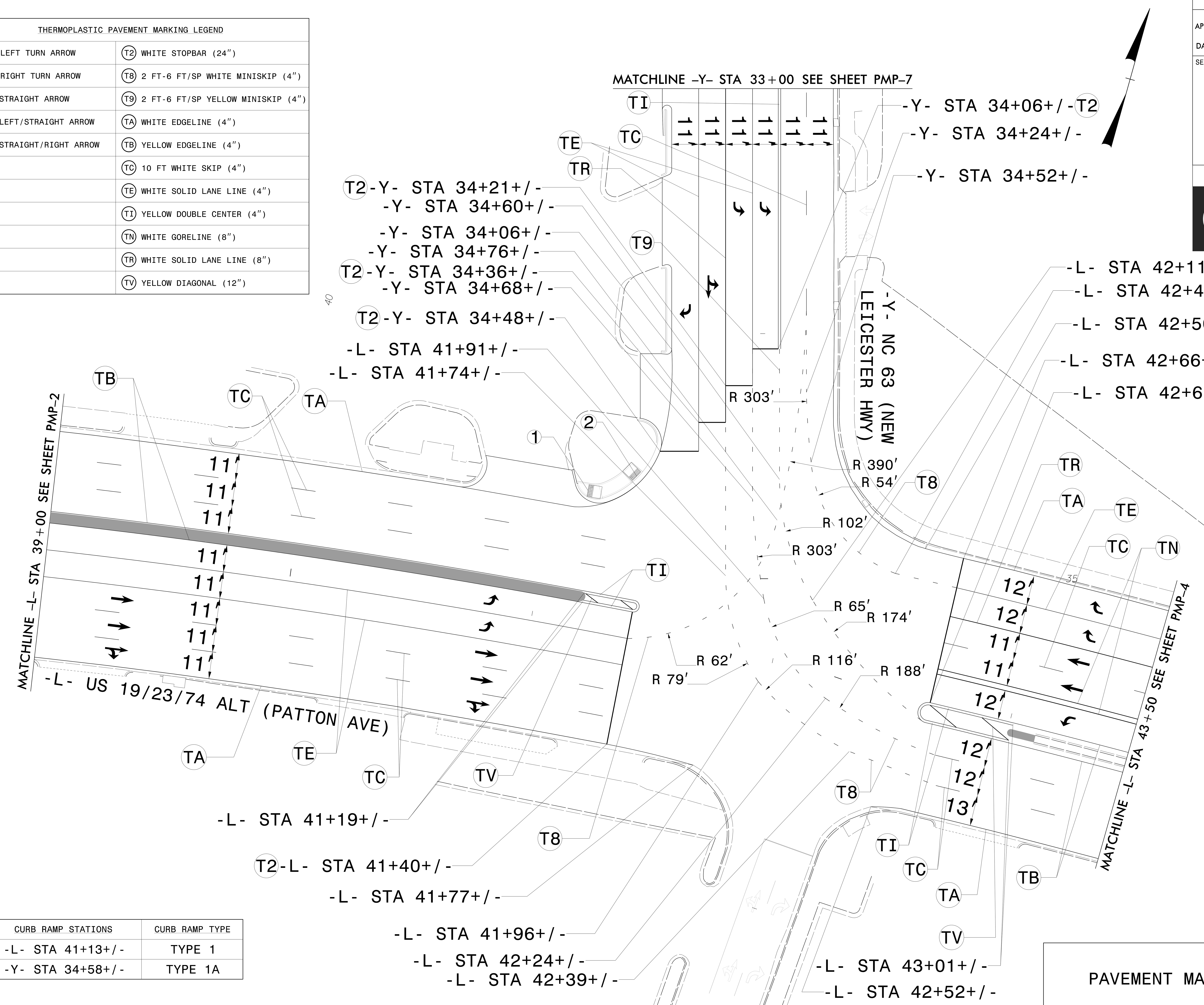
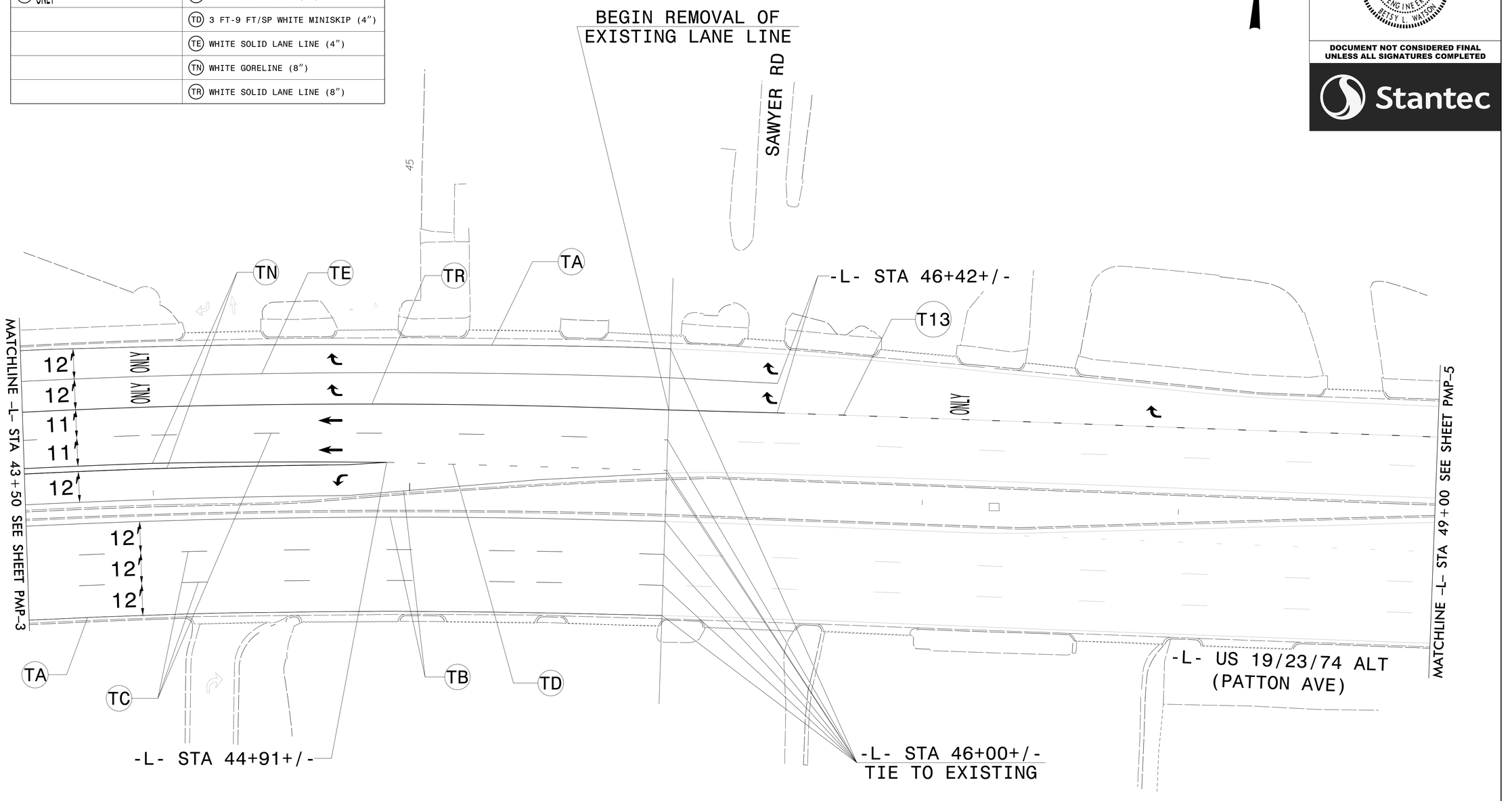
THERMOPLASTIC PAVEMENT MARKING LEGEND	
UA LEFT TURN ARROW	T2 WHITE STOPBAR (24")
UB RIGHT TURN ARROW	T8 2 FT-6 FT/SP WHITE MINISKIP (4")
UC STRAIGHT ARROW	T9 2 FT-6 FT/SP YELLOW MINISKIP (4")
UD LEFT/STRAIGHT ARROW	TA WHITE EDGELINE (4")
UE STRAIGHT/RIGHT ARROW	TB YELLOW EDGELINE (4")
	TC 10 FT WHITE SKIP (4")
	TE WHITE SOLID LANE LINE (4")
	TI YELLOW DOUBLE CENTER (4")
	TN WHITE GORELINE (8")
	TR WHITE SOLID LANE LINE (8")
	TV YELLOW DIAGONAL (12")



	CURB RAMP STATIONS	CURB RAMP TYPE
1	-L- STA 41+13+/-	TYPE 1
2	-Y- STA 34+58+/-	TYPE 1A

PAVEMENT MARKING DETAIL

THERMOPLASTIC PAVEMENT MARKING LEGEND	
(UA) ↰ LEFT TURN ARROW	(T13) 3 FT-9 FT/SP WHITE MINISKIP (8″)
(UB) ↱ RIGHT TURN ARROW	(TA) WHITE EDGELINE (4″)
(UC) ↑ STRAIGHT ARROW	(TB) YELLOW EDGELINE (4″)
(UI) ONLY ALPHANUMERIC CHARACTERS	(TC) 10 FT WHITE SKIP (4″)
	(TD) 3 FT-9 FT/SP WHITE MINISKIP (4″)
	(TE) WHITE SOLID LANE LINE (4″)
	(TN) WHITE GORELINE (8″)
	(TR) WHITE SOLID LANE LINE (8″)



TIP NO.	SHEET NO.
U-5971A	PMP-4

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F

DATE: 4/12/2018

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NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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PAVEMENT MARKING DETAIL

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

THERMOPLASTIC PAVEMENT MARKING LEGEND
T13 3 FT-9 FT/SP WHITE MINISKIP (8")

TIP NO.	SHEET NO.
U-5971A	PMP-5

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F

DATE: 4/12/2018

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NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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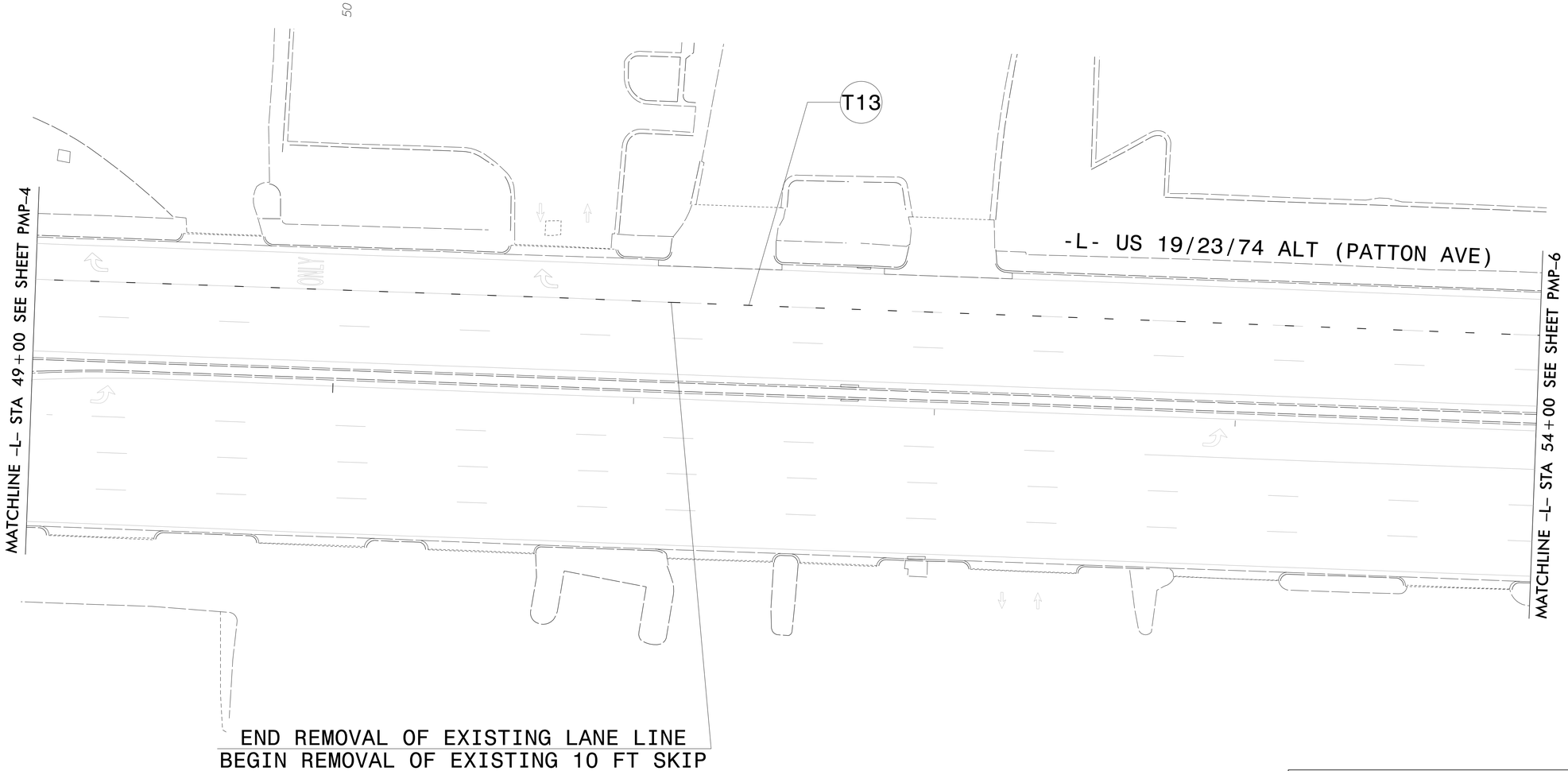

PAVEMENT MARKING DETAIL

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

TIP NO.	SHEET NO.
U-5971A	PMP-6

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F...

DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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THERMOPLASTIC PAVEMENT MARKING LEGEND
T13 3 FT-9 FT/SP WHITE MINISKIP (8")

SR 1332 (LOUISIANA AVE)

55

T13

-L- US 19/23/74 ALT (PATTON AVE)

MATCHLINE -L- STA 54+00 SEE SHEET PMP-5

END REMOVAL OF EXISTING 10 FT SKIP

ONLY

PAVEMENT MARKING DETAIL

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

THERMOPLASTIC PAVEMENT MARKING LEGEND	
(UA) LEFT TURN ARROW	(T13) 3 FT-9 FT/SP WHITE MINISKIP (8″)
(UB) RIGHT TURN ARROW	(TC) 10 FT WHITE SKIP (4″)
(UD) LEFT/STRAIGHT ARROW	(TD) 3 FT-9 FT/SP WHITE MINISKIP (4″)
(UI) ONLY ALPHANUMERIC CHARACTERS	(TE) WHITE SOLID LANE LINE (4″)
	(TI) YELLOW DOUBLE CENTER (4″)
	(TR) WHITE SOLID LANE LINE (8″)

TIP NO.	SHEET NO.
U-5971A	PMP-7

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DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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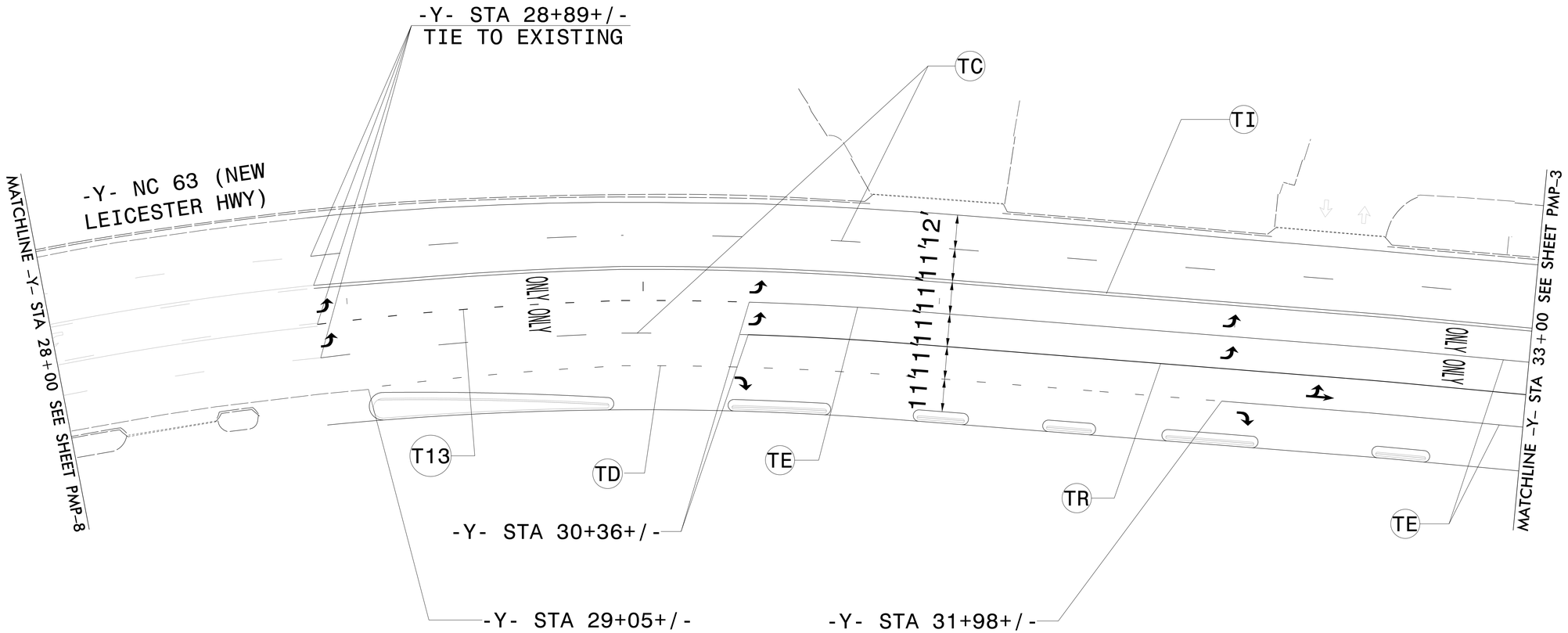

PAVEMENT MARKING DETAIL

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

THERMOPLASTIC PAVEMENT MARKING LEGEND	
(UA)	LEFT TURN ARROW
(UI)	ONLY ALPHANUMERIC CHARACTERS

TIP NO.	SHEET NO.
U-5971A	PMP-8

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F...

DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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25

-Y- NC 63 (NEW LEICESTER HWY)

ONLY

DRUID DR

MATCHLINE -Y- STA 28+00 SEE SHEET PMP-7

PAVEMENT MARKING DETAIL

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

T.I.P.: U-5971A

CONTRACT NO.: DM00274

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

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

SIGNING PLAN
BUNCOMBE COUNTY

LOCATION: US 19/23/74A (PATTON AVE) /NC 63 (NEW LEICESTER HWY)
INTERSECTION IMPROVEMENTS

TIP NO.	SHEET NO.
U-5971A	SIGN-1

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F...

DATE: 12/3/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GENERAL NOTES

. SIGNS FURNISHED BY STATE.

. CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.

. ALL TYPE 'D' SIGNS SHALL BE MOUNTED ON TWO U-CHANNEL POSTS UNLESS OTHERWISE INDICATED ON THE PLANS.

. 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.

ROADWAY STANDARD DRAWINGS

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

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

SUMMARY OF QUANTITIES

ITEM NO. DESC. NO.	ITEM NO. SECT. NO.	ITEM DESCRIPTION	QUANTITY	UNIT
4072000000	903	SUPPORTS, 3-LB STEEL U-CHANNEL	150	LF
4360000000	SP	SIGN ERECTION, TYPE D	1	EA
4360000000	SP	SIGN ERECTION, TYPE E	3	EA
4360000000	SP	SIGN ERECTION, TYPE F	1	EA
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	1	EA

PLAN PREPARED BY:

BETSY L. WATSON, P.E. SENIOR TRANSPORTATION ENGINEER

ROSI R. HENNEIN TRANSPORTATION DESIGNER

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INDEX

SIGN NUMBER: 301
TYPE: D
QUANTITY: 1

SIGN WIDTH: 42″
HEIGHT: 60″
TOTAL AREA: 17.5 Sq.Ft.

BORDER TYPE: RECESSED
RADII: 2.25″
WIDTH: 0.88″
RECESS: 0.63″

NO. Z BARS: 2
LENGTH: 34.0

BACKG COLOR: White
COPY COLOR: Black

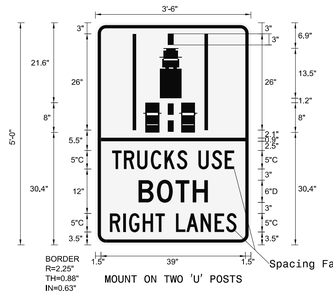
SYMBOL	X	Y	WID	HT
TRUCK	17.4	39.6	6	13.5
CAR	13	30.4	4.8	8
CAR	22.6	30.4	4.8	8

MAT'L: 0.125″ (3.2MM) ALUMINUM

USE NOTES

1. Legend and border shall be direct applied black non-reflective sheeting.
2. Background shall be Grade C reflective sheeting.

DESIGN BY: RRH
PROJECT ID: U-5971A
CHECKED BY: BLW
DIV: 13
DATE: Mar 20, 2018



MOUNT ON TWO 'U' POSTS

Spacing Factor is 1 unless specified otherwise

LETTER POSITIONS

Letter spacings are to start of next letter

																						Series/Size Text Length
	T	R	U	C	K	S		U	S	E												C 2000
4.5	3.2	3.6	3.7	3.7	3.3	2.8	3	3.6	3.6	2.6	4.5											33
	B	O	T	H																		D 2000
11.6	5	5	4.6	4.1	11.6																	18.7
	R	I	G	H	T		L	A	N	E	S											C 2000
3.9	3.6	1.6	3.7	3.4	2.6	3	2.8	3.8	3.8	3.1	2.8	3.9										34.2

401 QUANTITY REQ'D 1

LEFT LANE
MUST
TURN LEFT

36 X 36
R3-7L

ONE "U" POST PER SIGN

402 QUANTITY REQ'D 2

RIGHT LANE
MUST
TURN RIGHT

36 X 36
R3-7R

ONE "U" POST PER SIGN

501

NORTH	SOUTH	2 - 24 X 12
19	19	2 - 24 X 24
23	23	2 - 24 X 24
←	→	2 - 21 X 15
EAST	WEST	2 - 24 X 12
74-A	74-A	2 - 30 X 24
←	→	2 - 21 X 15

TWO "U" POSTS PER SIGN

TIP NO.	SHEET NO.
U-5971A	SIGN-2

APPROVED: Docusigned by: Betsy L. Watson 35E67B834F8743F...

DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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Stantec

TYPE 'D', 'E', & 'F' SIGNS

TIP NO.	SHEET NO.
U-5971A	SIGN-3

APPROVED: DocuSigned by: Betsy L. Watson 35E67BB34F8743F...

DATE: 4/12/2018

SEAL

SEAL 29449 BETSY L. WATSON

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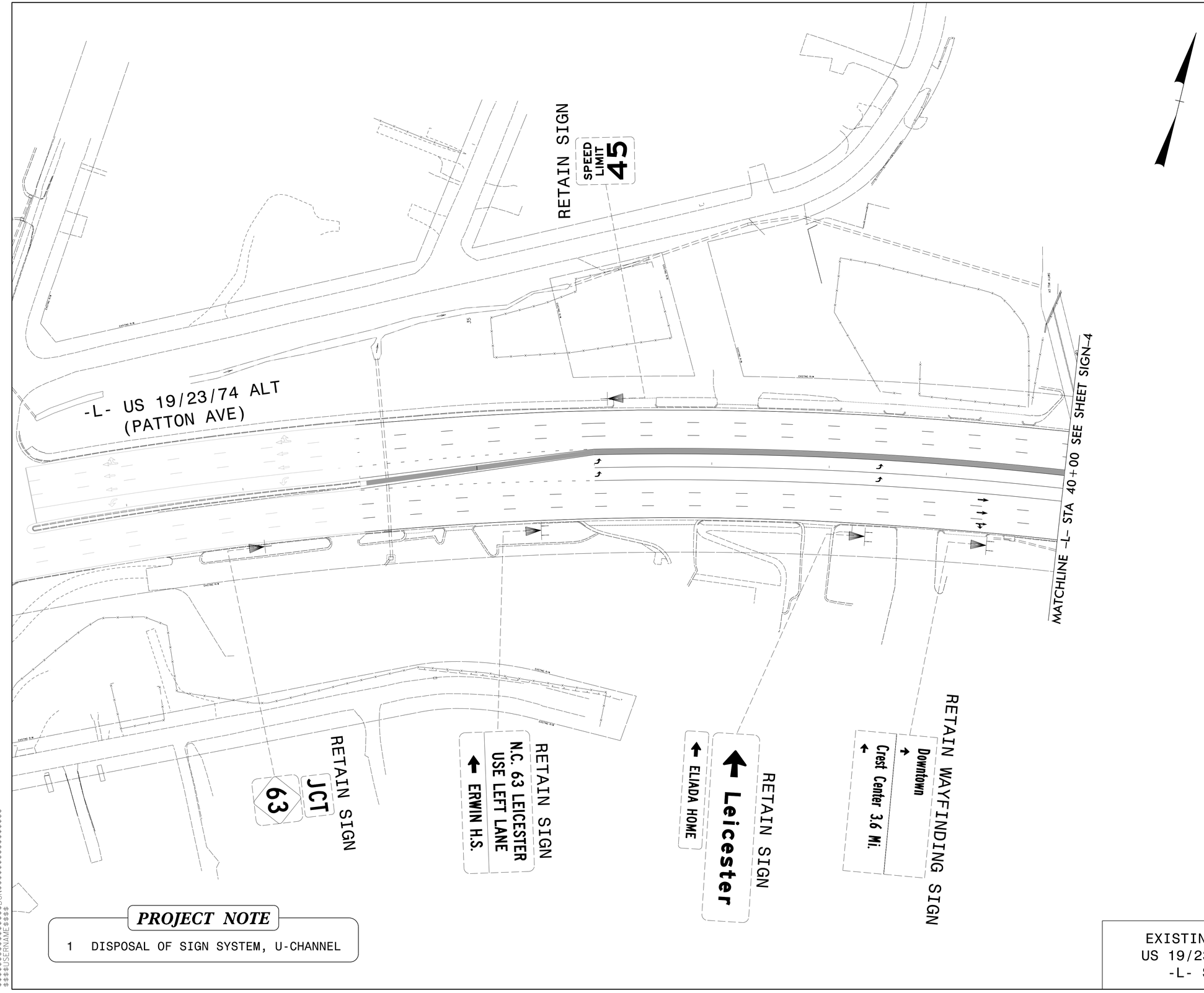

PROJECT NOTE

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING
US 19/23/74 ALT (PATTON AVE)
-L- STA 31+00 TO 40+00

TIP NO.	SHEET NO.
U-5971A	SIGN-4

APPROVED: DocuSigned by: Betsy L. Watson 35E67B834F8743F...

DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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PROJECT NOTE

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING
US 19/23/74 ALT (PATTON AVE)
-L- STA 40+00 TO 50+00

TIP NO.	SHEET NO.
U-5971A	SIGN-5

APPROVED: Betsy L. Watson

DATE: 4/12/2018

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 29449 ENGINEER BETSY L. WATSON

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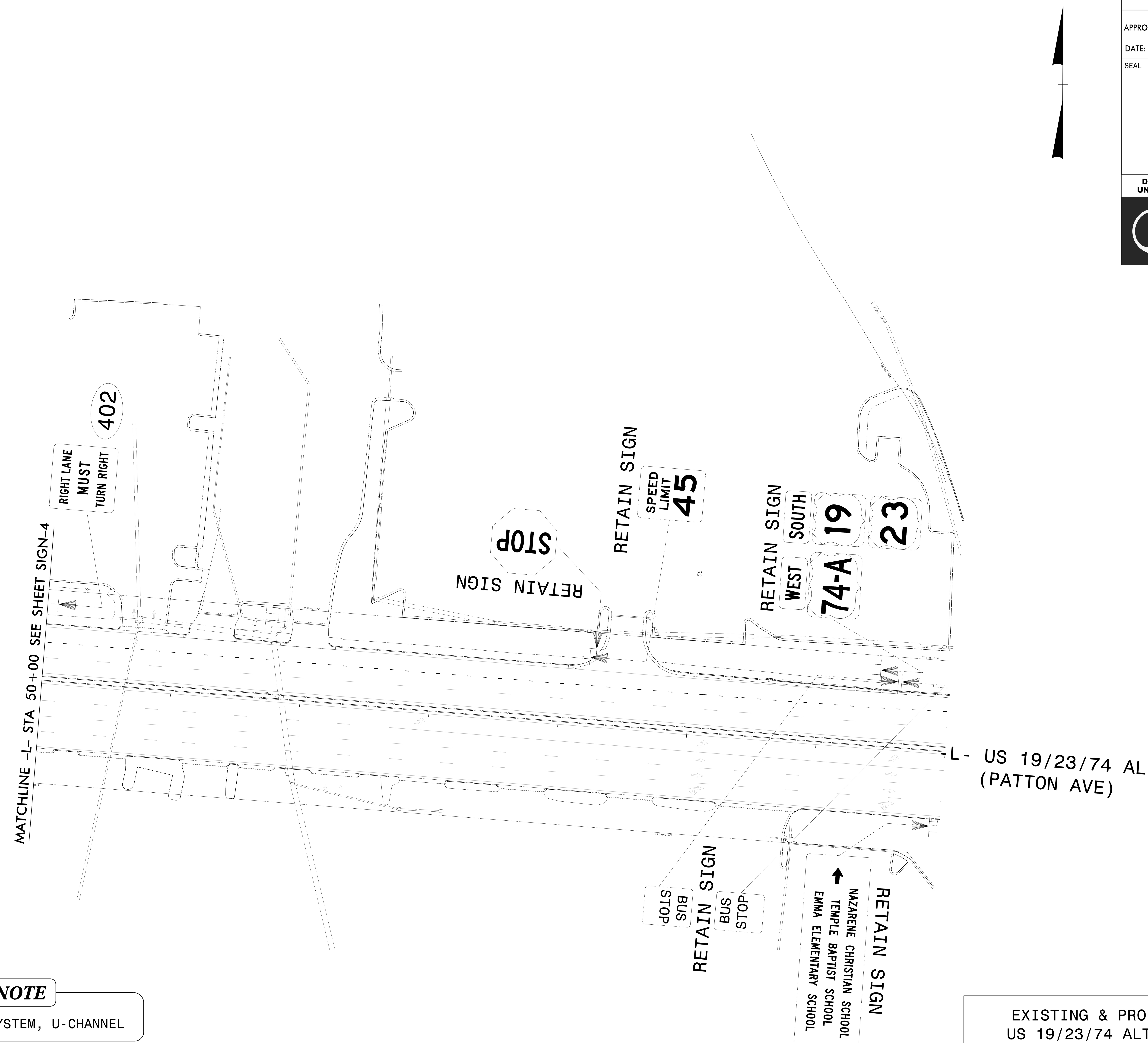


PROJECT NOTE

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING
US 19/23/74 ALT (PATTON AVE)
-L- STA 50+00 TO 57+00

TIP NO.	SHEET NO.
U-5971A	SIGN-6

DocuSigned by:
APPROVED: Betsy L. Watson
35E67BB34F8743F...

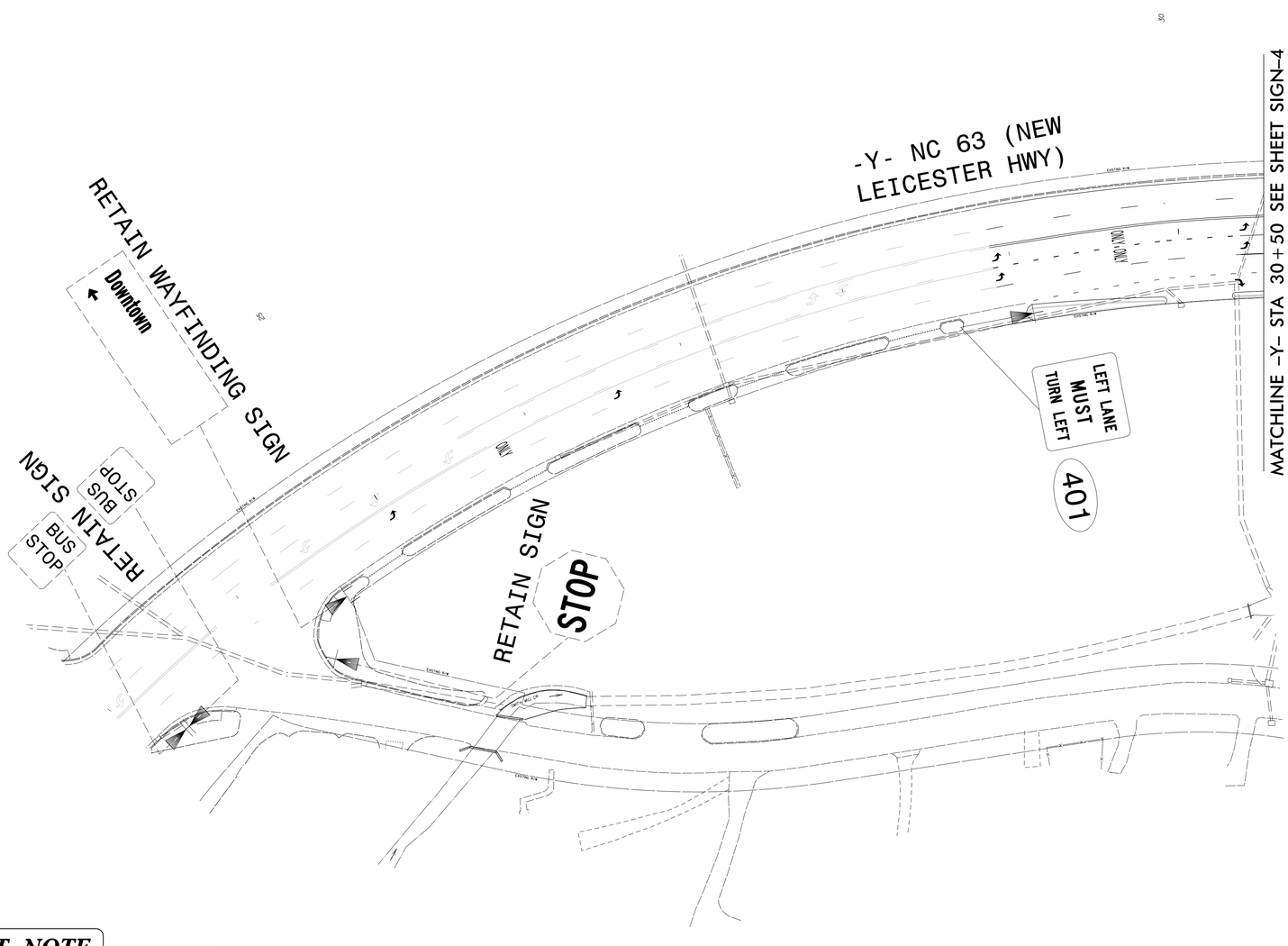
DATE: 4/12/2018

SEAL

SEAL
29449
BETSY L. WATSON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Stantec



PROJECT NOTE

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

EXISTING & PROPOSED SIGNING
NC 63 (NEW LEICESTER HWY)
-Y- STA 23+00 TO 30+50

TIP PROJECT: U–5971A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

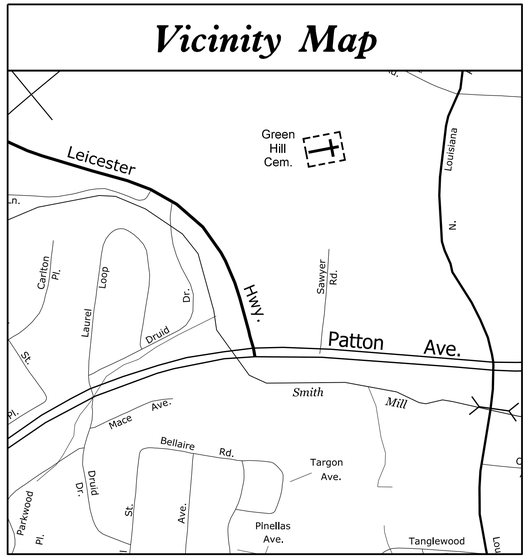
Project No.	Sheet No.
U–5971A	Sig. 1.0

BUNCOMBE COUNTY

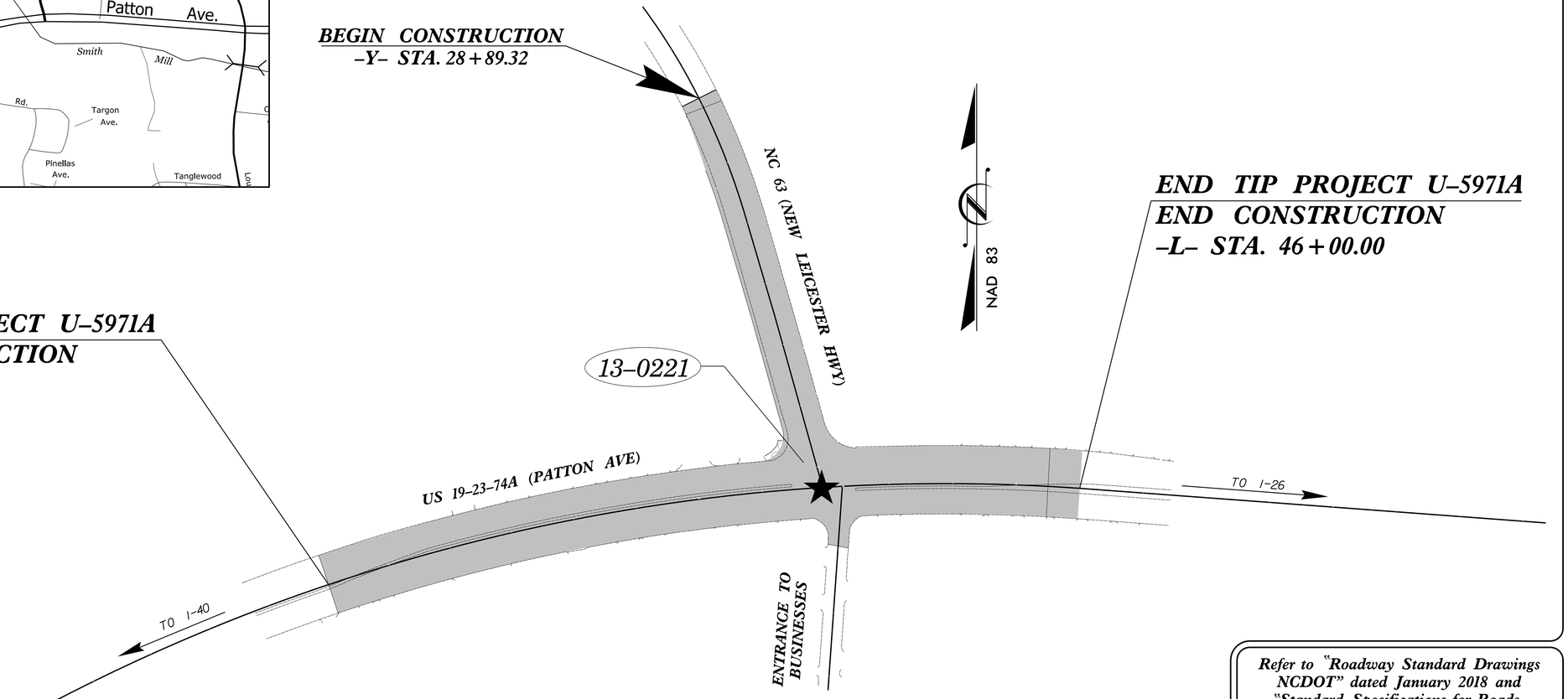
LOCATION: US 19–23–74A (PATTON AVE) /NC 63 (NEW LEICESTER HWY) / ENTRANCE TO BUSINESSES INTERSECTION IMPROVEMENTS

TYPE OF WORK: TRAFFIC SIGNALS AND SIGNAL COMMUNICATIONS

Vicinity Map



BEGIN CONSTRUCTION
–Y– STA. 28+89.32



BEGIN TIP PROJECT U–5971A
BEGIN CONSTRUCTION
–L– STA. 34+00.00

END TIP PROJECT U–5971A
END CONSTRUCTION
–L– STA. 46+00.00

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

INDEX OF PLANS

SHEET NO.	INVENTORY NO.	DESCRIPTION
SIG 1.0		TITLE SHEET
SIG 2.0 – 3.3	13–0221	US 19–23–74A (PATTON AVENUE) AT NC 63 (LEICESTER HIGHWAY) AND ENTRANCE TO BUSINESSES
SIG 4.0		REVISED STANDARD PLATE SHEET
SCP–1 – SCP–4		SIGNAL COMMUNICATION PLANS

LEGEND

(XX-XXXX) – SIGNAL INVENTORY NUMBER

INTELLIGENT TRANSPORTATION AND SIGNALS UNIT
Contacts:

Tim Williams, PE
Signals Engineer, Western Region

Todd Joyce, PE
Signal Equipment Design Review Engineer

I. Neil Avery, PE
Signal Communication Project Engineer

Plans Prepared for:
DIVISION OF HIGHWAYS
TRANSPORTATION MOBILITY AND SAFETY DIVISION
ITS and Signals Unit
750 N. Greenfield Parkway, Garner, NC 27529

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www.stantec.com
License No. F-0672

Regina M. Muncey, PE
Transportation Engineer

Dean Harris
Senior Transportation Designer

Grayson B. Spell, EI
Transportation Designer

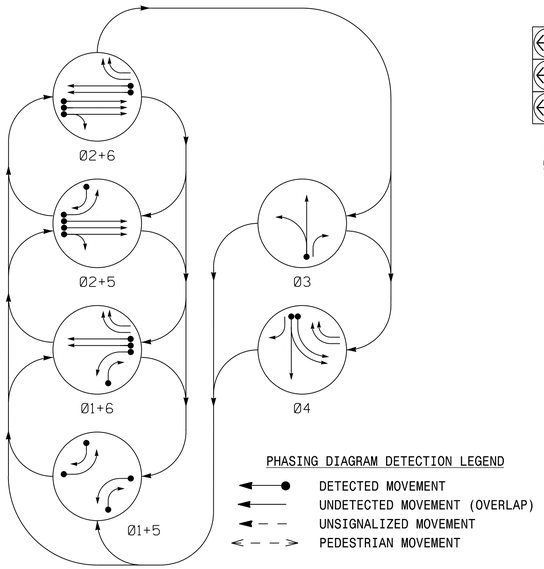
APPROVED: DocuSigned by: Regina M. Muncey C7FE51B522454FA...
DATE: 4/6/2018

NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

8:35:04 AM
U:\Traffic\Signals\Design\Titlesheet\U5971A_sig_Titlesheet.dgn
User:rspell

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SIG-2.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

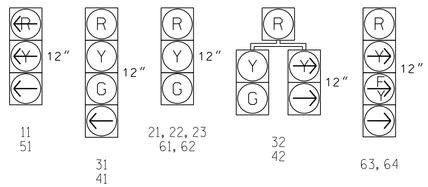


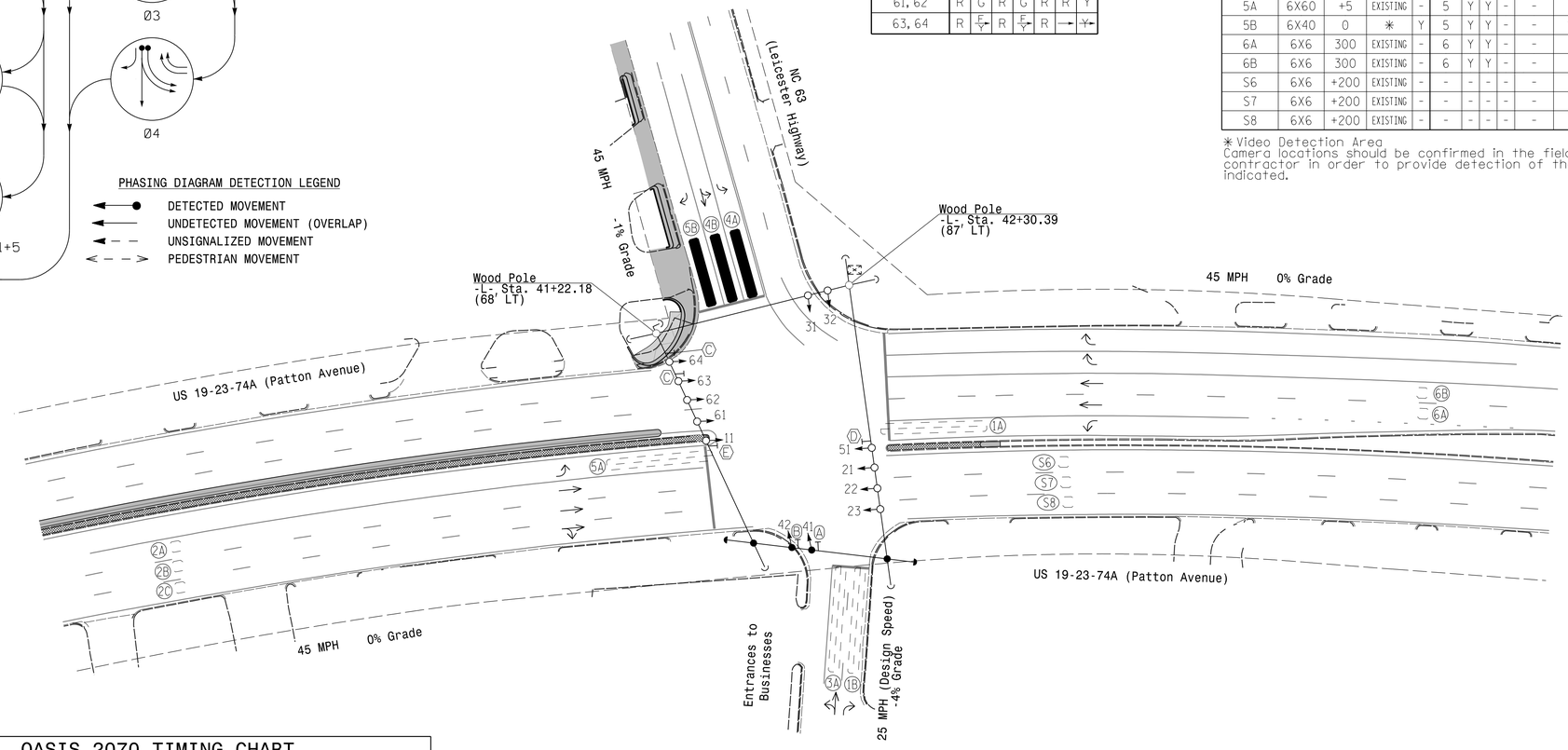
TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	FLASH
11	←	←	~~R~~	~~R~~	~~R~~	~~R~~	~~R~~
21, 22, 23	R	R	G	G	R	R	Y
31	R	R	R	R	G ←	R	R
32	R / →	R / →	R	R	G	R	R
41	R	R	R	R	G ←	R	R
42	R / →	R	R / →	R	R	G	R
51	←	~~R~~	←	~~R~~	~~R~~	~~R~~	~~R~~
61, 62	R	G	R	G	R	R	Y
63, 64	R	~~F~~ →	R	~~F~~ →	R	→	~~Y~~

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

INDUCTIVE LOOPS					DETECTOR PROGRAMMING							
LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
1A	6X60	+5	EXISTING	-	1	Y	Y	-	-	-	-	-
1B	6X60	0	EXISTING	-	1	Y	Y	-	-	15	-	-
2A	6X6	300	EXISTING	-	2	Y	Y	-	-	-	-	-
2B	6X6	300	EXISTING	-	2	Y	Y	-	-	-	-	-
2C	6X6	300	EXISTING	-	2	Y	Y	-	-	-	-	-
3A	6X60	0	EXISTING	-	3	Y	Y	-	-	3	-	-
4A	6X40	0	*	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	*	Y	4	Y	Y	-	-	-	-	-
5A	6X60	+5	EXISTING	-	5	Y	Y	-	-	-	-	-
5B	6X40	0	*	Y	5	Y	Y	-	-	15	-	-
6A	6X6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
6B	6X6	300	EXISTING	-	6	Y	Y	-	-	-	-	-
S6	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-
S7	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-
S8	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-

* Video Detection Area
Camera locations should be confirmed in the field by the contractor in order to provide detection of the areas indicated.



OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6
Min Green 1 *	7	12	7	7	7	12
Extension 1	1.0	6.0	1.0	2.0	1.0	6.0
Max Green 1 *	20	90	15	30	20	90
Yellow Clearance	3.0	4.5	3.4	4.6	3.0	4.5
Red Clearance	2.3	1.5	3.4	2.2	2.9	1.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.2	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	30	-	-	-	30
Time To Reduce *	-	30	-	-	-	30
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.

6 Phase
Fully Actuated
Patton Avenue CLS

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. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
8. Closed loop system data: Controller Asset #0221.

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	→
▬	Video Detection Area	N/A
▭	Construction Zone	▭
Ⓐ	Left Arrow "ONLY" Sign (R3-5L)	Ⓐ
Ⓑ	Combined Through and Left Arrow Sign (R3-6L)	Ⓑ
Ⓒ	Right Arrow "ONLY" Sign (R3-5R)	Ⓒ
Ⓓ	U-Turn "MUST YIELD" Sign	Ⓓ
Ⓔ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓔ

Signal Upgrade
Temporary Design - TMP Phase I

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Stantec Consulting Services Inc.
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Fax. (919) 851-7024
www.stantec.com
License No. F-0672

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

US 19-23-74A (Patton Avenue)
at
NC 63 (New Leicester Highway)/
Entrance to Businesses

Division 13 Buncombe County Asheville

PLAN DATE: April 2018 REVIEWED BY: E. D. Harris
PREPARED BY: G. B. Spell REVIEWED BY: R. M. Muncey

SCALE 0 40 1" = 40'

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

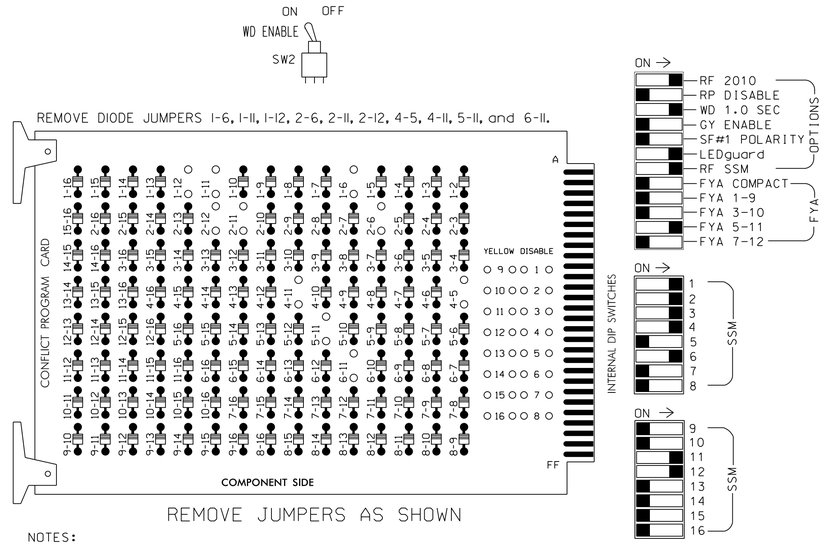
DocuSigned by: Regina M. Muncey 4/6/2018
CERTIFICATE OF COMPLETION DATE

SIG. INVENTORY NO. 13-0221T

8:33:06 AM
U:\Projects\Signals\Design\Signals\Plansheets\U5971A_sig_dsn_13-0221T1.dgn
User:gspell

EDI MODEL 2010ECL-NC 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.
3. IMPORTANT! 2010ECL-NC conflict monitor required for FYA operation.

■ = 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	ø1 1A	ø2 2A	ø2 2C	ø3 3A	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S6	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
FILE "I" L		ø1 1B	ø2 2B	NOT USED	NOT USED				SYS. DET. S7					ST DC ISOLATOR
FILE "J" U	SLOT EMPTY	ø5 5A	NOT USED	ø6 6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S8	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
FILE "J" L		NOT USED	ø6 6A	NOT USED					NOT USED					

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

FS = FLASH SENSE
ST = STOP TIME

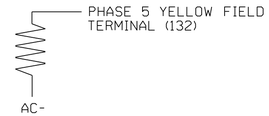
SPECIAL DETECTOR NOTE

Install a video detection system for vehicle detection for loops 4A, 4B, and 5B. Perform installation according to manufacturer's directions and NCDOT engineer-approved mounting locations to accomplish the detection schemes shown on the Signal Design Plans.

LOAD RESISTOR INSTALLATION DETAIL

(install resistor as shown below)

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



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. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 5,7,8,9,10,13,14, 15 & 16 to load switch AC+ per the 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 overlap 3 as Wag Overlaps.
7. The cabinet and controller are part of the Patton Avenue CLS.

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, S12,S13
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....4+6
OVERLAP "D".....5

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	TB2-5,6	I2U	39	1	2	1	Y	Y			
1B	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			
2C	TB4-1,2	I4U	47	9	22	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
✳ S6	TB6-9,10	I9U	60	22	11	SYS					
✳ S7	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
6A	TB3-11,12	J3L	77	39	46	6	Y	Y			
6B	TB5-1,2	J4U	48	10	26	6	Y	Y			
✳ S8	TB7-9,10	J9U	59	21	15	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

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	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	1		2	2 PED	3		4		4 PED	4	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD		SPARE
SIGNAL HEAD NO.	11	32	21,22, 23	NU	31	32	41	42	NU	63,64 ★	61,62	NU	NU	NU	NU	NU	NU	NU	63,64 ★	42	51	NU
RED			128		116	116	101	101			134								A114			
YELLOW			129		117	117	102	102		✳	135											
GREEN			130		118	118	103	103			136											
RED ARROW	125																				A101	
YELLOW ARROW	126	126																	A115	A102	A102	
FLASHING YELLOW ARROW																			A116			
GREEN ARROW	127	127			118		103			133										A103	A103	

NU = Not Used

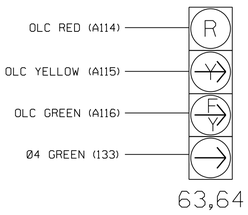
✳ Denotes install load resistor.

★ See pictorial of head wiring in detail below.

Note: Load switch S5 outputs have been remapped. See sheet 3 for programming details.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 63 and 64 requires special logic programming. See sheet 2 for programming instructions.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0221T
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

Electrical Detail - Sheet 1 of 3
Temporary Design - TMP Phase I

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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Raleigh, NC 27606
Tel. (919) 851-6866
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www.stantec.com
License No. F-0672

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)/ Entrance to Businesses
Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 4/6/2018
CERTIFICATE OF COMPLETION DATE

SIG. INVENTORY NO. 13-0221T

DATE
User:gspell
I:\Traffic\Signals\Designs\Signals\Electrical\U5971A_sig_ele_13-0221T1.dgn

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, AND 3.

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

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE       #4  IS ON
AND RED CLEAR ON PHASE #4  IS ON

SCROLL DOWN

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

NOTE: LOGIC FOR RED CLEAR WHEN TRANSITIONING FROM PHASE 4 (HEAD 63,64).

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE       #4  IS ON

SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #44 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 4 (HEAD 63,64).

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE    #4  IS ON

SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #43 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 4 (HEAD 63,64).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' 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  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 '+' ONCE

```
 PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
 PHASE:          |12345678910111213141516
VEH OVL PARENTS:|    X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED   _ YELLOW  _ GREEN
FLASH COLORS:  _ RED   _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:    (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0221T
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

Electrical Detail - Sheet 2 of 3
Temporary Design - TMP Phase I

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 19-23-74A (Patton Avenue)
at
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PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 43239 REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 4/6/2018
C7FE51B52494FA... SIGNATURE DATE

SIG. INVENTORY NO. 13-0221T

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SIG-2.3

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL FOR LOAD SWITCH 5

IT IS NECESSARY TO REMAP LOAD SWITCH 5 TO VEHICLE PHASE 4 SO THE PROTECTED RIGHT TURNS (HEADS 63, 64) RUN DURING PHASE 4, AND THE REQUIRED CONFLICT MONITOR RELATIONSHIP FOR FYA OPERATION BETWEEN MONITOR CHANNELS 5 AND 11 IS MAINTAINED.

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................30
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......................_
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..........................._
```

LOAD SWITCH 5 RED

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

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

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

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

```
PAGE:1  C1 PIN32  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................30
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......................_
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 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
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......................_
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..........................._
```

LOAD SWITCH 5 YELLOW

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

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

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
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......................_
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 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
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......................_
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..........................._
```

LOAD SWITCH 5 GREEN

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

PRESS THE 'ENT' KEY AFTER INPUTTING DATA, THEN 'ESC'.

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

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
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......................_
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 LOADSWITCH COMPLETE

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-0221T
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

Electrical Detail - Sheet 3 of 3
Temporary Design - TMP Phase I

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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Division 13 Buncombe County Asheville

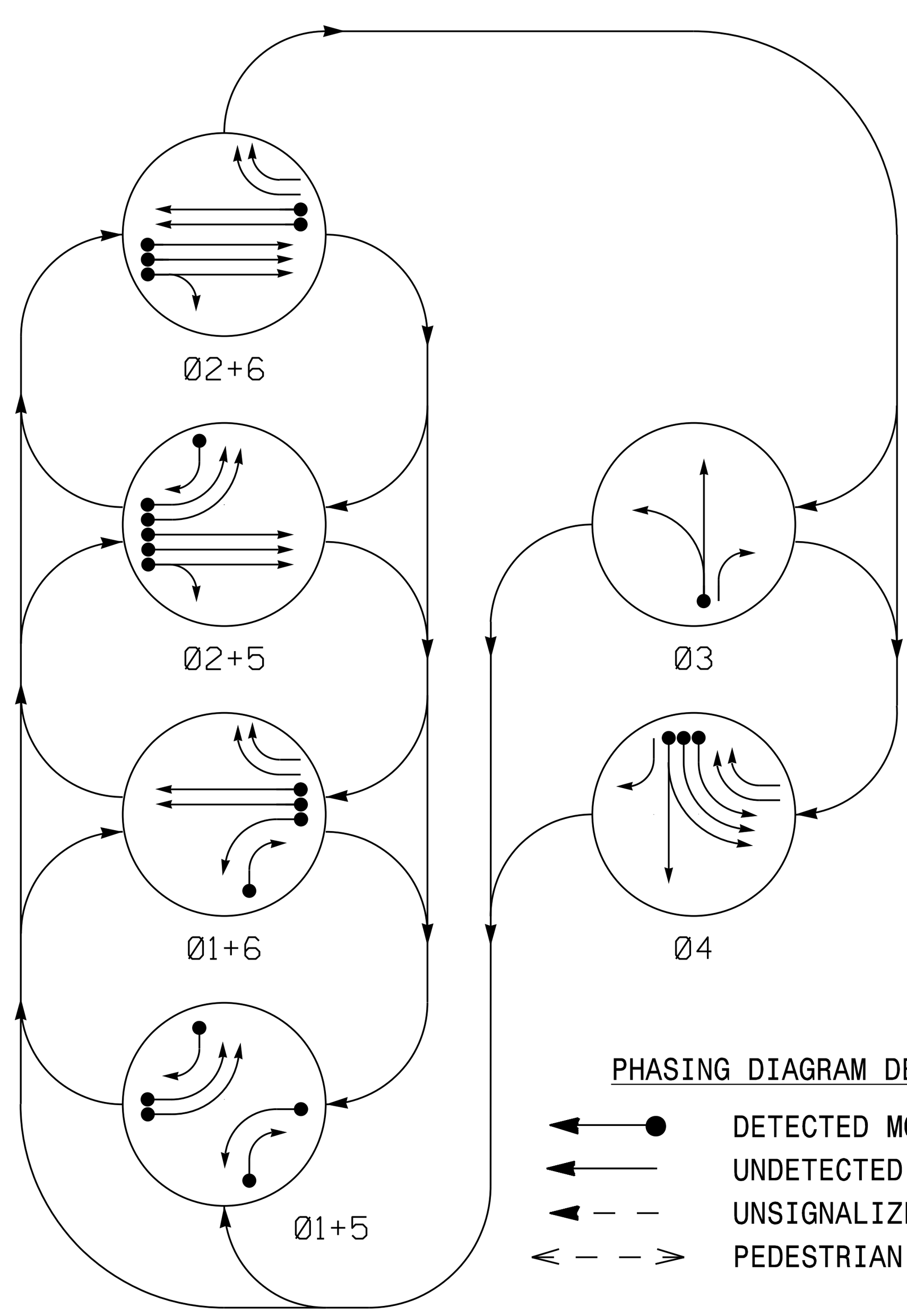
PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

SEAL — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 43239 REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 4/6/2018
SIGNATURE DATE
SIG. INVENTORY NO. 13-0221T

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.

All Heads L.E.D.

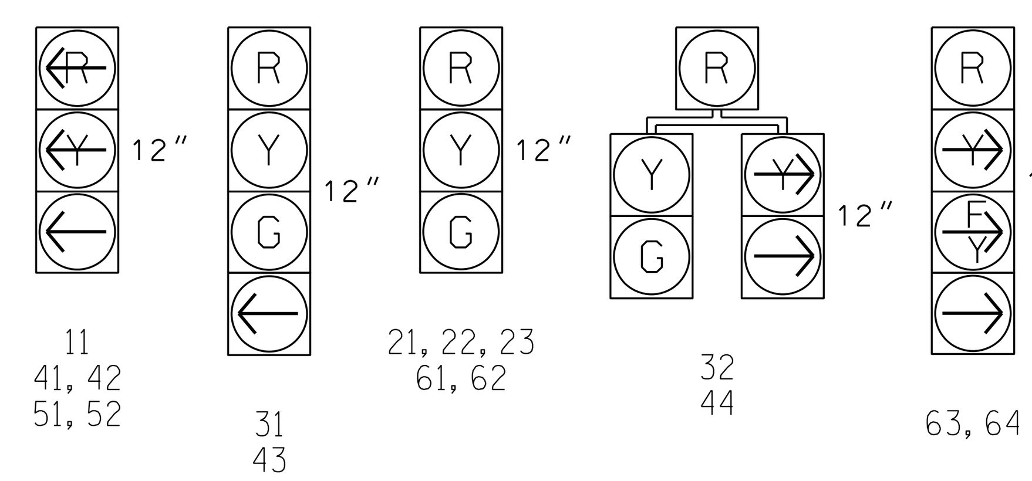


TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+5	Ø1+6	Ø2+5	Ø2+6	Ø3	Ø4	FLASH
11	←	←	←R	←R	←R	←R	←R
21, 22, 23	R	R	G	G	R	R	Y
31	R	R	R	R	G←	R	R
32	R/→	R/→	R	R	G	R	R
41, 42	R	R	R	R	R	←	R
43	R	R	R	R	R	G←	R
44	R/→	R	R/→	R	R	G	R
51, 52	←	←R	←	←R	←R	←R	←R
61, 62	R	G	R	G	R	R	Y
63, 64	R	F/Y→	R	F/Y→	R	→	Y→

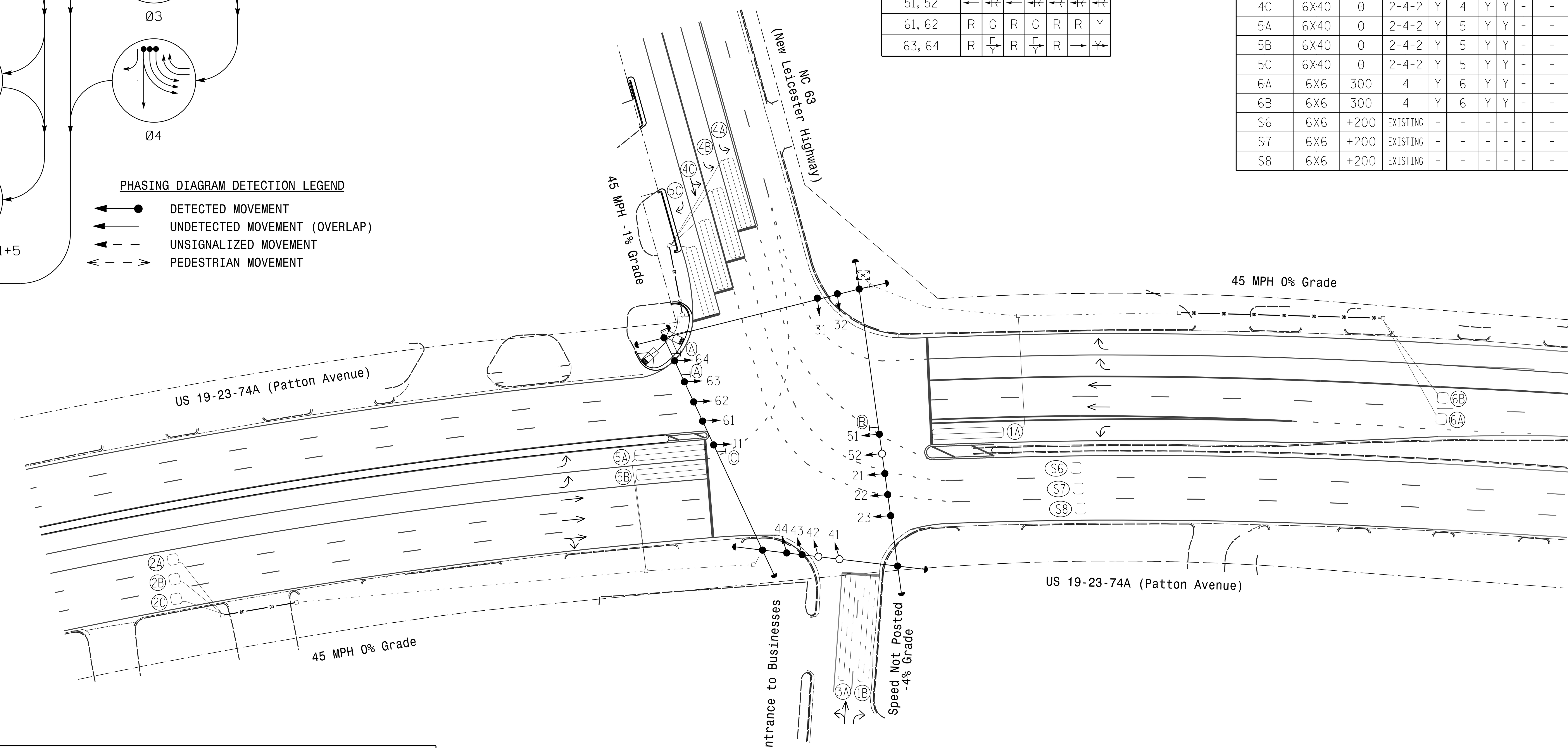
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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	6X60	0	EXISTING	-	1	Y	Y	-	-	15	-	-
2A	6X6	300	6	Y	2	Y	Y	-	-	-	-	-
2B	6X6	300	6	Y	2	Y	Y	-	-	-	-	-
2C	6X6	300	6	Y	2	Y	Y	-	-	-	-	-
3A	6X60	0	EXISTING	-	3	Y	Y	-	-	3	-	-
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	3	-	-
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	-
4C	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	-
5B	6X40	0	2-4-2	Y	5	Y	Y	-	-	-	-	Y
5C	6X40	0	2-4-2	Y	5	Y	Y	-	-	15	-	Y
6A	6X6	300	4	Y	6	Y	Y	-	-	-	-	-
6B	6X6	300	4	Y	6	Y	Y	-	-	-	-	-
S6	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-
S7	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-
S8	6X6	+200	EXISTING	-	-	-	-	-	-	-	Y	-

6 Phase
Fully Actuated
Patton Avenue CLS

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. See Pavement Marking Plan (PMP) for final markings.
6. Renumber existing signal heads 41 & 42 to 43 & 44 respectively.
7. Reposition existing signal heads numbered #11, 43, 44, 51, 61, 62, 63, 64 and corresponding signs A, B, and C.
8. Set all detector units to presence mode.
9. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
10. Closed loop system data: Controller Asset #0221.



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	
DD	Directional Drill	N/A
N/A	Right of Way	
	Directional Arrow	
Ⓐ	Right Arrow "ONLY" Sign (R3-5R)	Ⓐ
Ⓑ	U-Turn "MUST YIELD" Sign	Ⓑ
Ⓒ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓒ

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	1.0	2.0	2.0	6.0
Max Green 1 *	20	90	15	30	20	90
Yellow Clearance	3.0	4.5	3.4	4.6	3.0	4.5
Red Clearance	2.6	1.6	3.4	2.6	3.3	1.9
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	-	-	-	-	-
Don't Walk 1	-	-	-	-	-	-
Seconds Per Actuation *	-	1.2	-	-	-	1.5
Max Variable Initial *	-	34	-	-	-	34
Time Before Reduction *	-	30	-	-	-	30
Time To Reduce *	-	30	-	-	-	30
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.

Signal Upgrade - Final Design

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Prepared in the Offices of:
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750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40
1" = 40'

US 19-23-74A (Patton Avenue)
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Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
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SEAL
NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

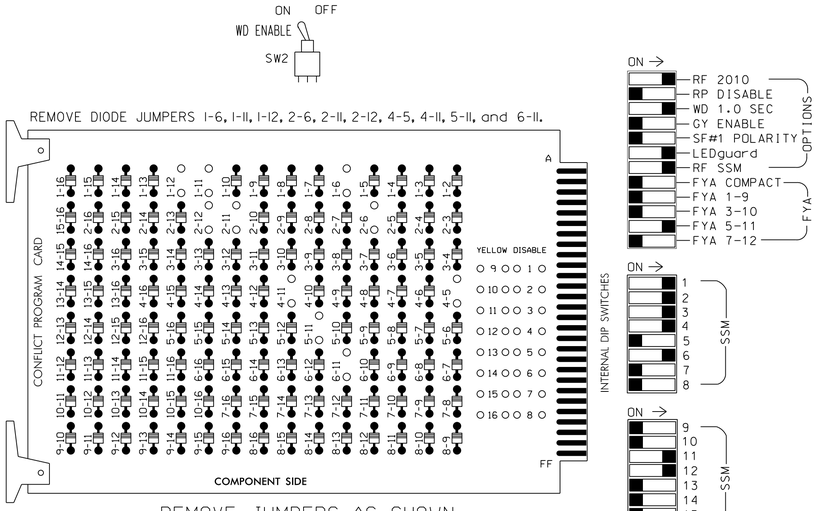
DocuSigned by:
Regina M. Muncey
C7FE51B52A94F4...
SIGNATURE 4/6/2018 DATE

SIG. INVENTORY NO. 13-0221

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SIG-3.1

EDI MODEL 2010ECL-NC 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.
3. IMPORTANT! 2010ECL-NC conflict monitor required for FYA operation.

■ = 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. Ensure that Red Enable is active at all times during normal operation. To prevent Red Failures on unused monitor channels, tie unused red monitor inputs 5,7,8,9,10,13,14, 15 & 16 to load switch AC+ per the 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 overlap 3 as Wag Overlaps.
7. The cabinet and controller are part of the Patton Avenue CLS.

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, S12,S13
PHASES USED.....1,2,3,4,5,6
OVERLAP "A".....NOT USED
OVERLAP "B".....NOT USED
OVERLAP "C".....4+6
OVERLAP "D".....5

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	4	6	6 PED	7	8	8 PED	OLA	OLB	SPARE	OLC	OLD		SPARE
SIGNAL HEAD NO.	11	32	21,22, 23	NU	31	32	41,42	43	44	NU	63,64 ★	61,62	NU	NU	NU	NU	NU	NU	NU	63,64 ★	44	51,52	NU
RED			128		116	116		101	101			134								A114			
YELLOW			129		117	117		102	102		✳	135											
GREEN			130		118	118		103	103			136											
RED ARROW	125						101															A101	
YELLOW ARROW	126	126					102													A115	A102	A102	
FLASHING YELLOW ARROW																				A116			
GREEN ARROW	127	127			118		103	103			133										A103	A103	

NU = Not Used

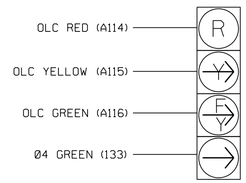
✳ Denotes install load resistor.

See pictorial of head wiring in detail below.

Note: Load switch S5 outputs have been remapped. See sheet 3 for programming details.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 63 and 64 requires special logic programming. See sheet 2 for programming instructions.

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	Ø1 1A	Ø2 2A	Ø2 2C	Ø3 3A	Ø4 4A	Ø4 4C	SLOT EMPTY	SYS. DET. S6	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	FS DC ISOLATOR
	L		Ø1 1B	Ø2 2B	NOT USED	NOT USED	Ø4 4B	NOT USED		SYS. DET. S7					ST DC ISOLATOR
FILE "J"	U	SLOT EMPTY	Ø5 5A	Ø5 5C	Ø6 6B	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SYS. DET. S8	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
	L		Ø5 5B	Ø6 6A	NOT USED					NOT USED					

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

FS = FLASH SENSE
ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-5,6	I2U	39	1	2	1	Y	Y			
1B	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			
2C	TB4-1,2	I4U	47	9	22	2	Y	Y			
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			3
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
4C	TB6-1,2	I7U	65	27	34	4	Y	Y			
✳ S6	TB6-9,10	I9U	60	22	11	SYS					
✳ S7	TB6-11,12	I9L	62	24	13	SYS					
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			
5C	TB3-9,10	J3U	64	26	36	5	Y	Y			15
6A	TB3-11,12	J3L	77	39	46	6	Y	Y			
6B	TB5-1,2	J4U	48	10	26	6	Y	Y			
✳ S8	TB7-9,10	J9U	59	21	15	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

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 13-0221
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

Electrical Detail - Sheet 1 of 3

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www.stantec.com
License No. F-0672

ELECTRICAL AND PROGRAMMING DETAILS FOR:

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

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)/ Entrance to Businesses
Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 5/6/2018
SIGNATURE DATE

SIG. INVENTORY NO. 13-0221

DATE
User:rgspell
I:\Traffic\Signals\Design\Signals\Electricals\U5971A_sig_ele_13-0221.dgn

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

```
  LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE         #4  IS ON
AND RED CLEAR ON PHASE #4  IS ON

              SCROLL DOWN

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

NOTE: LOGIC FOR RED CLEAR WHEN TRANSITIONING FROM PHASE 4 (HEAD 63,64).

PRESS '+'

```
  LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE         #4  IS ON

              SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #44 OFF
```

NOTE: LOGIC FOR SWITCHING FLASHING YELLOW ARROW "OFF" DURING PHASE 4 (HEAD 63,64).

PRESS '+'

```
  LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE      #4  IS ON

              SCROLL DOWN

THEN:
SET OUTPUT  ASSIGNMENT #43 ON
```

NOTE: LOGIC FOR YELLOW ARROW CLEARANCE FROM PHASE 4 (HEAD 63,64).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 42 = Overlap C Red
OUTPUT 43 = Overlap C Yellow
OUTPUT 44 = Overlap C Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' TWICE

```
 PAGE 1: VEHICLE OVERLAP 'C' 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  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 '+' ONCE

```
 PAGE 1: VEHICLE OVERLAP 'D' SETTINGS
 PHASE:           |12345678910111213141516
VEH OVL PARENTS:|     X
VEH OVL NOT VEH:|
VEH OVL NOT PED:|
VEH OVL GRN EXT:|
STARTUP COLOR: _ RED  _ YELLOW  _ GREEN
FLASH COLORS:  _ RED  _ YELLOW  _ GREEN
SELECT VEHICLE OVERLAP OPTIONS:   (Y/N)
FLASH YELLOW IN CONTROLLER FLASH?...N
GREEN EXTENSION (0-255 SEC).........0
YELLOW CLEAR (0=PARENT,3-25.5 SEC)..0.0
RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0
OUTPUT AS PHASE # (0=NONE, 1-16)....0
```

OVERLAP PROGRAMMING COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0221
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Electrical Detail - Sheet 2 of 3

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

Transportation Mobility and Safety Division — State of North Carolina Department of Transportation — ITS & Signals Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

US 19-23-74A (Patton Avenue)
at
NC 63 (New Leicester Highway)/
Entrance to Businesses

Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 4/6/2018
C7FE51B5224S4FA... SIGNATURE DATE

SIG. INVENTORY NO. 13-0221

FYA SIGNAL OUTPUT REMAPPING ASSIGNMENT PROGRAMMING DETAIL
FOR LOAD SWITCH 5

IT IS NECESSARY TO REMAP LOAD SWITCH 5 TO VEHICLE PHASE 4 SO THE PROTECTED RIGHT TURNS (HEADS 63, 64) RUN DURING PHASE 4, AND THE REQUIRED CONFLICT MONITOR RELATIONSHIP FOR FYA OPERATION BETWEEN MONITOR CHANNELS 5 AND 11 IS MAINTAINED.

(program controller as shown below)

STEP 1

FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS).
WITH CURSOR IN "OUTPUT ASSIGNMENT#" POSITION, ENTER "30"

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................30
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......................_
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..........................._
```

LOAD SWITCH 5 RED

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:32  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....0
```

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

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

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

```
PAGE:1  C1 PIN32  VEHICLE PHASE
OUTPUT ASSIGNMENT #..................30
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......................_
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 31

STEP 2

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
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......................_
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..........................._
```

LOAD SWITCH 5 YELLOW

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....1
```

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

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

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

```
PAGE:1  C1 PIN:33  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................31
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......................_
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 32

STEP 3

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
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......................_
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..........................._
```

LOAD SWITCH 5 GREEN

THE OUTPUT IS ALREADY SET AS A VEHICLE PHASE BY DEFAULT, BUT GO AHEAD AND ENTER A 'Y' IN THIS FIELD ANYWAY.

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
SELECT VEHICLE PHASE (1-16).........4
SELECT COLOR(0=RED,1=YEL,2=GRN).....2
```

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

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

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

```
PAGE:1  C1 PIN:34  VEHICLE PHASE
OUTPUT ASSIGNMENT #.................32
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......................_
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 LOADSWITCH COMPLETE

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 13-0221
DESIGNED: April 2018
SEALED: 04-06-18
REVISED: N/A

Electrical Detail - Sheet 3 of 3

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

US 19-23-74A (Patton Avenue)
at
NC 63 (New Leicester Highway)/
Entrance to Businesses

Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E. D. Harris
PREPARED BY:	G. B. Spell	REVIEWED BY:	R. M. Muncey

REVISIONS	INIT.	DATE

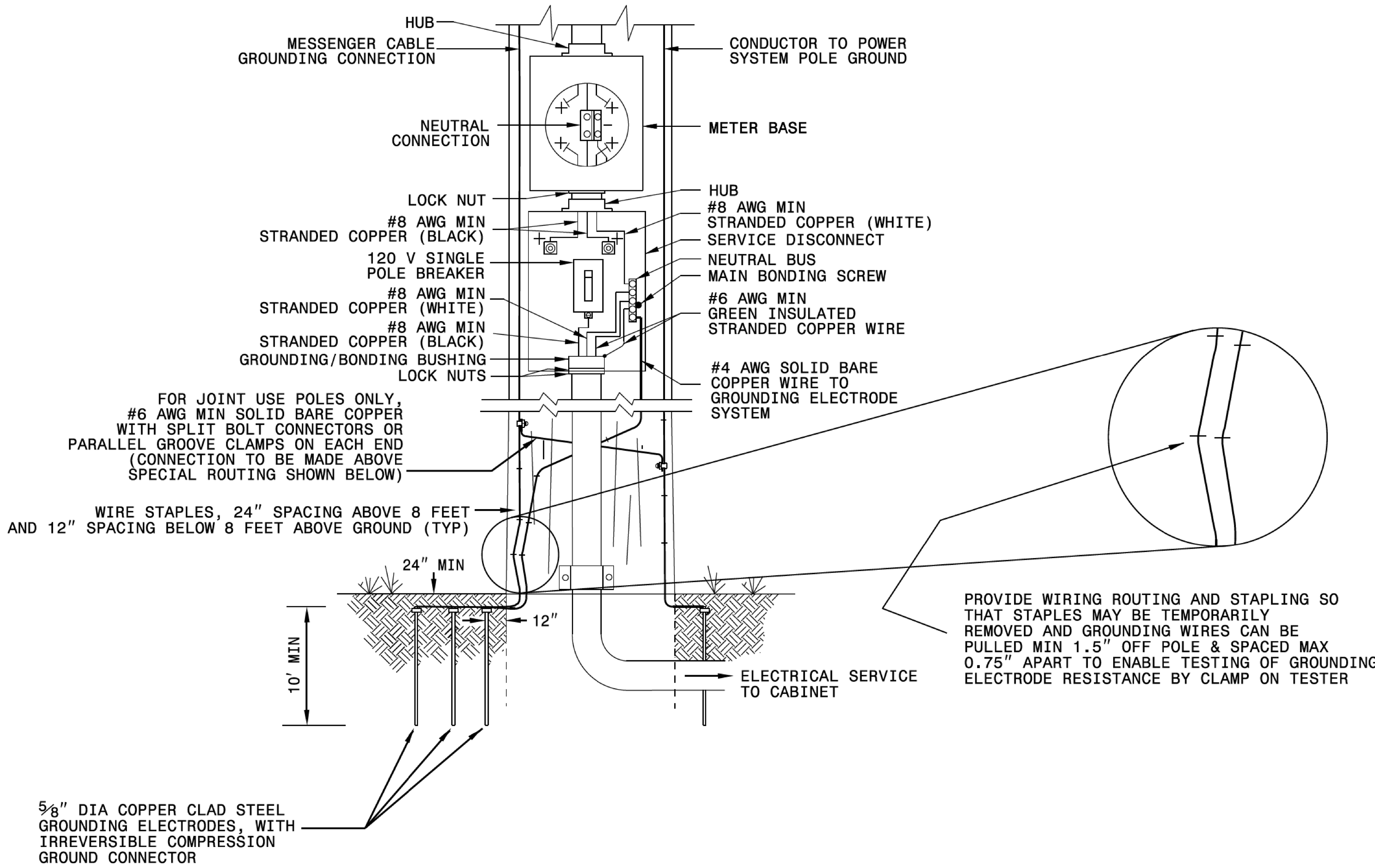
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 43239 ENGINEER REGINA M. MUNCEY

DocuSigned by: Regina M. Muncey 4/6/2018
C7FE51B52434F4... SIGNATURE DATE

SIG. INVENTORY NO. 13-0221

DATE:
u:\Traffic\Signals\Design\Signals\Electricals\U5971A_sig_ele_13-0221.dgn
User:gspell

PROJECT NO.	SHEET NO.
U-5971A	Sig.4.0



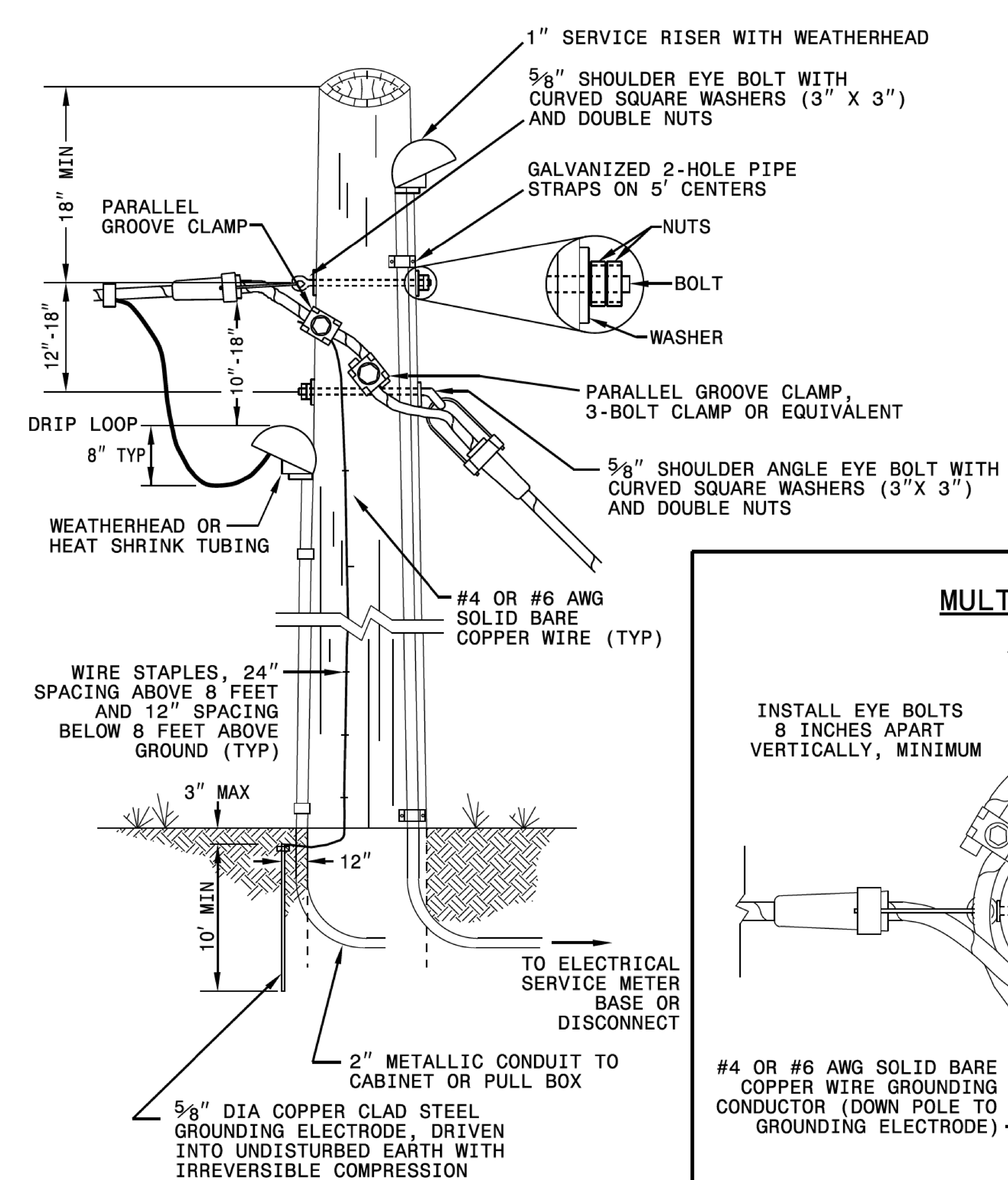
STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

1-18

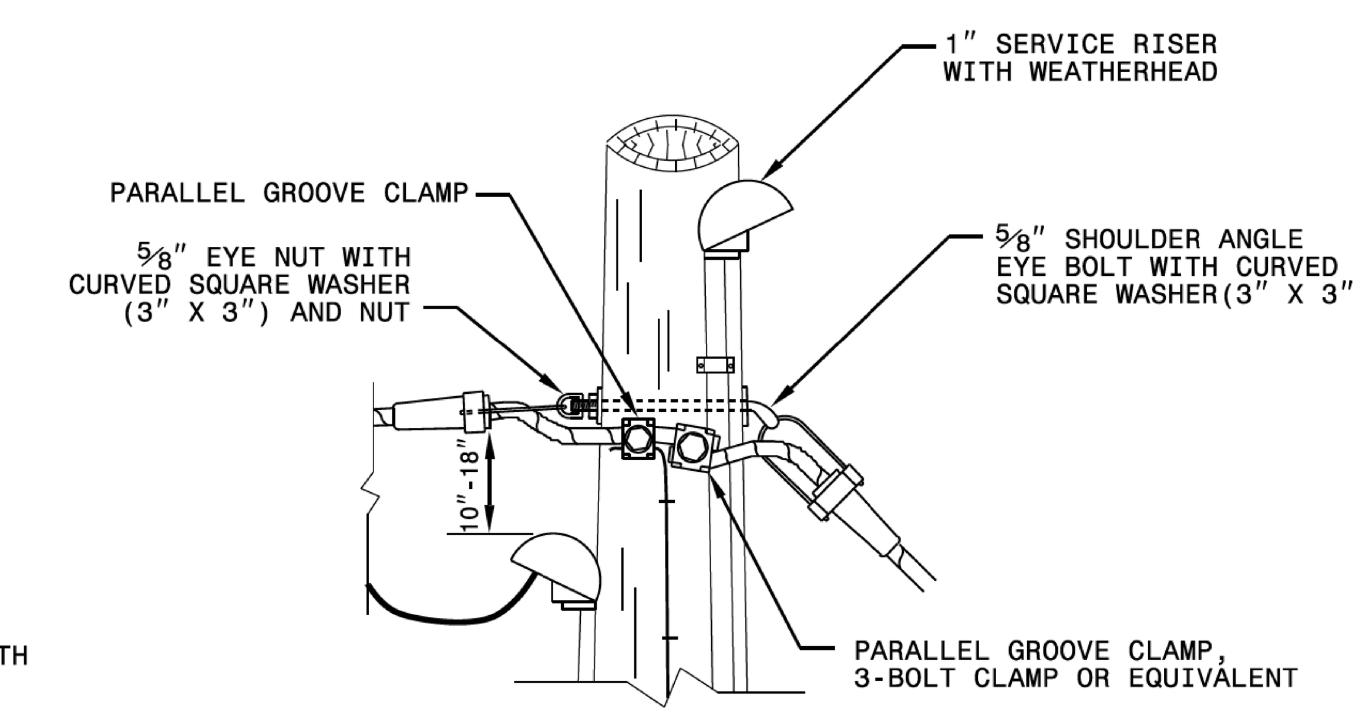
ENGLISH STANDARD DRAWING FOR
ELECTRICAL SERVICE GROUNDING
GROUNDING AND BONDING

SHEET 1 OF 1
1700D01

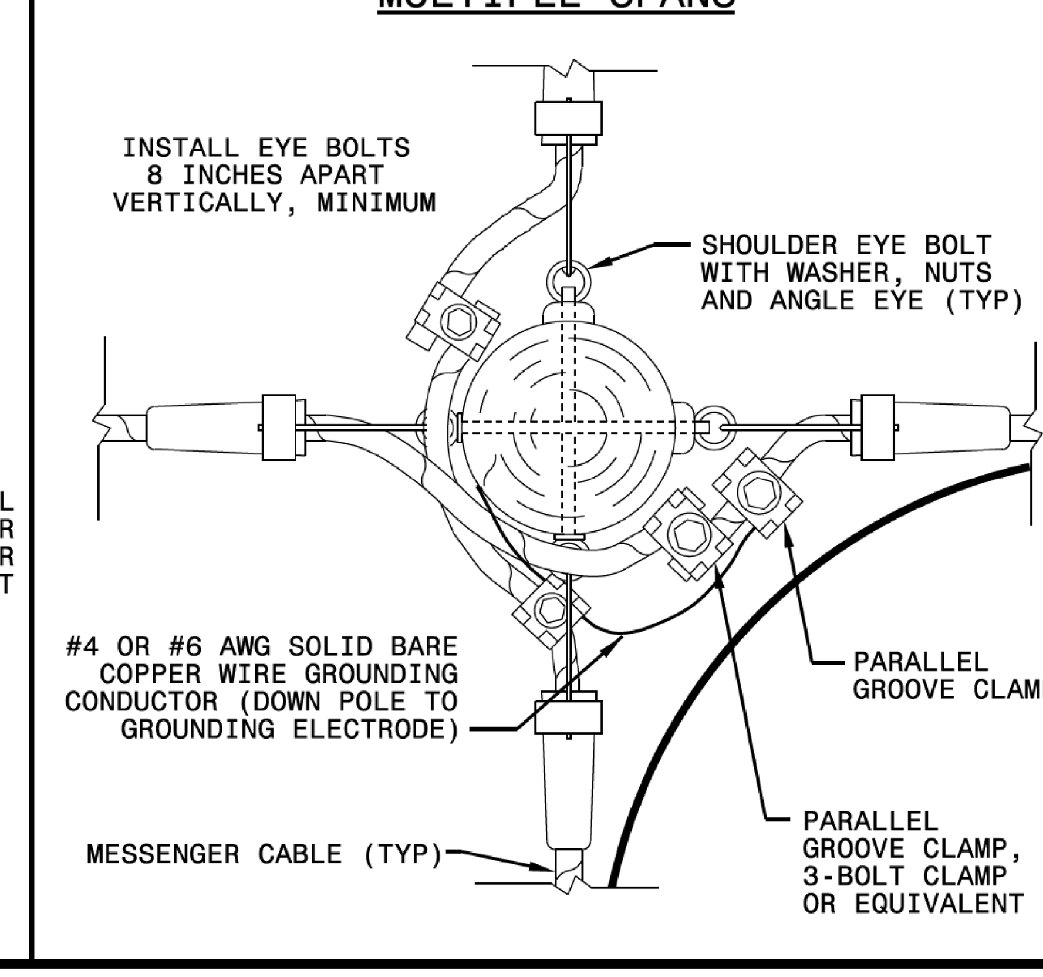
TWO-BOLT METHOD (PREFERRED)



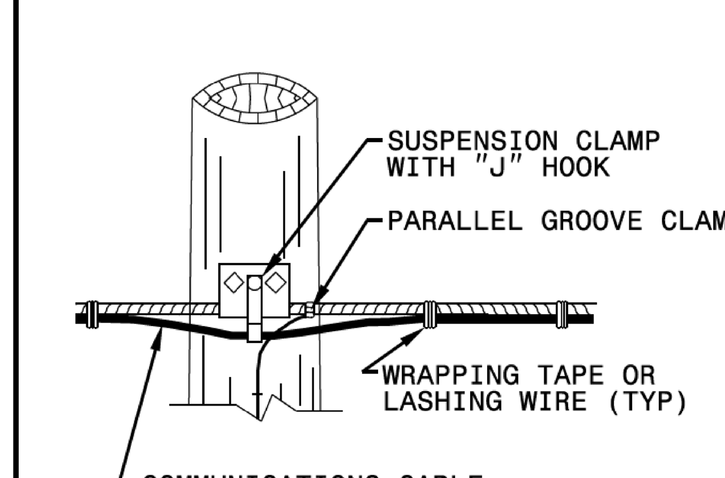
ONE-BOLT METHOD



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.

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

1-18

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
ITS & Signals Unit
DEPARTMENT OF TRANSPORTATION · STATE OF NORTH CAROLINA

750 N. Greenfield Parkway
Garner, NC 27529

SEAL

NORTH CAROLINA
PROFESSIONAL
SEAL
032108
ENGINEER
MOHD A. ASLAMI

DocuSigned by:
Mohd Aslami
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10/11/2017
DATE

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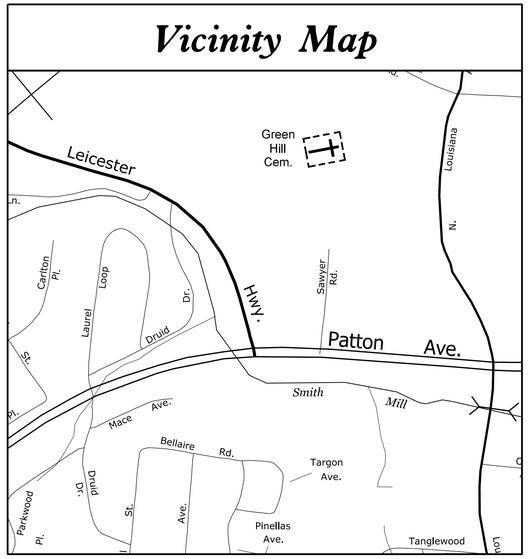
TIP PROJECT: U-5971A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

BUNCOMBE COUNTY

Project No.	Sheet No.
U-5971A	SCP-1

Vicinity Map



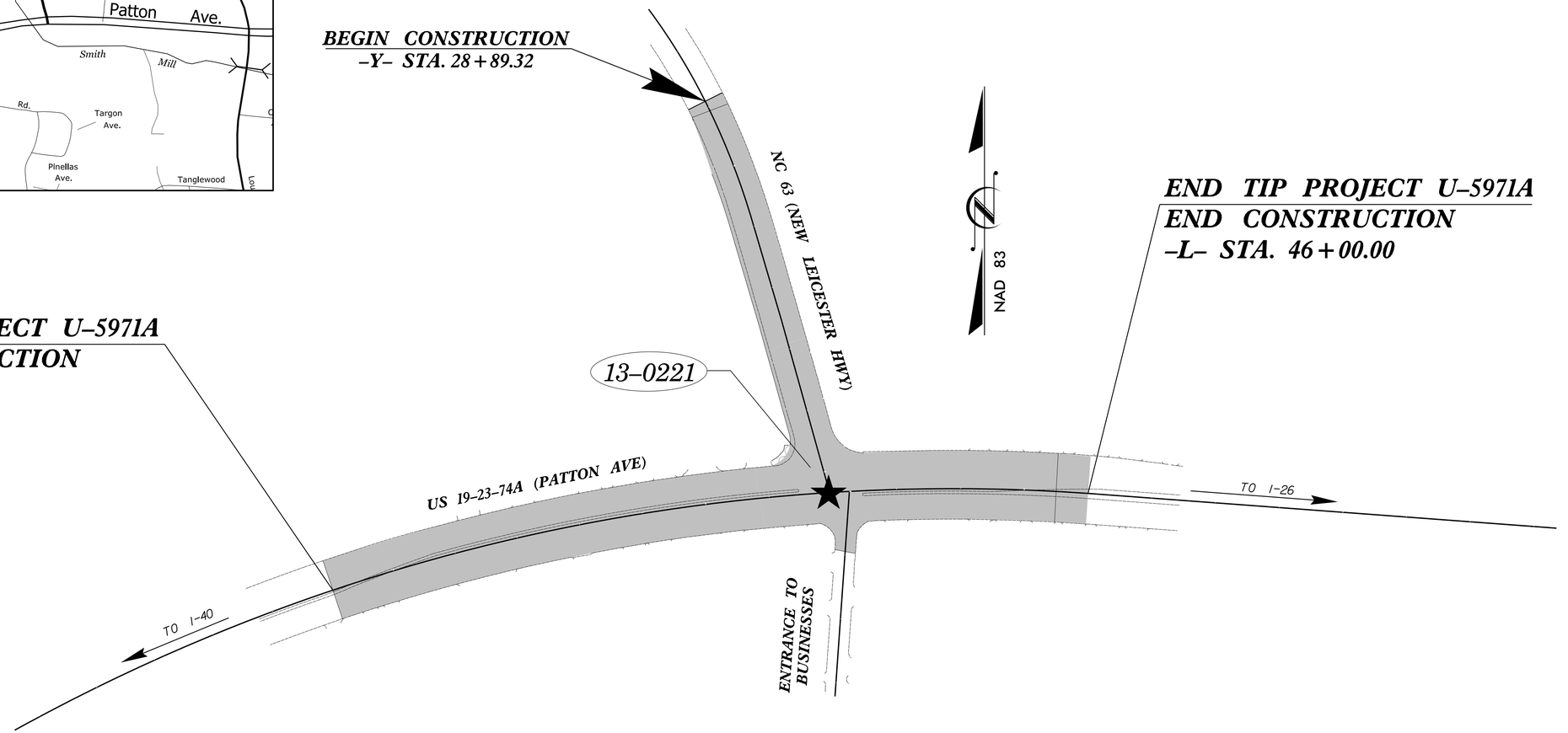
LOCATION: US 19–23–74A (PATTON AVE)/NC 63 (NEW LEICESTER HWY)/ ENTRANCE TO BUSINESSES INTERSECTION IMPROVEMENTS

TYPE OF WORK: SIGNAL COMMUNICATIONS

BEGIN CONSTRUCTION
–Y– STA. 28+89.32

BEGIN TIP PROJECT U–5971A
BEGIN CONSTRUCTION
–L– STA. 34+00.00

END TIP PROJECT U–5971A
END CONSTRUCTION
–L– STA. 46+00.00



INDEX OF PLANS

SHEET NO.	DESCRIPTION
SCP–1	Title Sheet
SCP–2	Construction Notes and Legend
SCP–3	Signal Communication Plans – Cable Routing Plans
SCP–4	Signal Communication Plans – Fiber Optic Splice Detail

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" ROADWAY DESIGN 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.

STANDARD NO.	DESCRIPTION
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURE
1101.03	TEMPORARY SHOULDER CLOSURE
1715.01	UNDERGROUND CONDUIT
1716.01	JUNCTION BOXES
1722.01	RISER ASSEMBLY
1730.01	FIBER OPTIC CABLE
1731.01	SPLICE ENCLOSURE

Prepared for the Offices of:

ITS & Signals Management Section, Transportation Mobility and Safety Division, State of North Carolina, Department of Transportation

750 N.Greenfield Pkwy.Garner,NC 27529

NCDOT CONTACT:
TRANSPORTATION SAFETY AND MOBILITY
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Larry Overn, PE
Senior Transportation Engineer

Dean Harris
Senior Transportation Designer

Grayson Spell, EI
Transportation Designer

APPROVED: DocuSigned by: 4/6/2018
DATE:

NORTH CAROLINA PROFESSIONAL SEAL 045933 ENGINEER LAWRENCE E. OVERN II

8:34:43 AM
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PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SCP-2

1 INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE

2 INSTALL REA, PE – 38, (FIGURE – 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE

3 INSTALL CATEGORY 5E CABLE

4 INSTALL SMFO CABLE

5 INSTALL COAXIAL ANTENNA CABLE

6 INSTALL FIBER OPTIC DROP CABLE ASSEMBLY

7 INSTALL TRACER WIRE

8 INSTALL CONDUIT UNDERGROUND

9 INSTALL PVC CONDUIT

10 INSTALL RIGID, GALVANIZED STEEL CONDUIT

11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD

12 INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING

13 REMOVE EXISTING RISER SEAL /WEATHERHEAD AND APPLY HEAT SHRINK TUBING

14 INSTALL POLYETHYLENE CONDUIT

15 DIRECTIONAL DRILL CONDUIT

16 BORE AND JACK CONDUIT

17 INSTALL CABLE(S) IN EXISTING CONDUIT

18 INSTALL CABLE(S) IN NEW CONDUIT

19 INSTALL CABLE(S) IN EXISTING RISER(S)

20 INSTALL CABLE(S) IN NEW RISER(S)

21 INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS

22 INSTALL NEW CONDUIT INTO CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)

23 INSTALL NEW RISER INTO CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)

24 INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET

25 INSTALL NEW RISER INTO POLE MOUNTED CABINET

26 INSTALL DIGITAL VIDEO ENCODER DEVICE SERVER

27 INSTALL NEW ETHERNET EDGE SWITCH IN CABINET

28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET

29 INSTALL UNDERGROUND SPLICE ENCLOSURE

30 INSTALL AERIAL SPLICE ENCLOSURE

31 INSTALL POLE MOUNTED SPLICE CABINET

32 MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER

33 REMOVE EXISTING SPLICE CABINET

34 INSTALL CABINET FOUNDATION

35 REMOVE EXISTING CABINET FOUNDATION

36 INSTALL CCTV CAMERA ASSEMBLY

37 INSTALL CCTV CAMERA WOOD POLE

38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION

39 INSTALL SPECIAL–SIZED JUNCTION BOX

40 INSTALL OVERSIZED JUNCTION BOX

41 REMOVE EXISTING JUNCTION BOX

42 INSTALL WOOD POLE

43 REMOVE EXISTING WOOD POLE

44 INSTALL AERIAL GUY ASSEMBLY

45 INSTALL STANDARD GUY ASSEMBLY

46 INSTALL SIDEWALK GUY ASSEMBLY

47 INSTALL MESSENGER CABLE

48 REMOVE EXISTING (OLD) MESSENGER CABLE

49 BACK–PULL EXISTING COMMUNICATIONS CABLE

50 REMOVE EXISTING COMMUNICATIONS CABLE MOUNTING HARDWARE FROM WOOD POLE

51 INSTALL CABLE STORAGE RACK(S) [SNOW SHOE(S)] AND STORE 100 FEET OF CABLE

52 INSTALL DELINEATOR MARKER

53 STORE 30 FEET OF COMMUNICATIONS CABLE (EACH CABLE)

54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE

55 LASH CABLE(S) TO EXISTING MESSENGER CABLE

56 DELASH EXISTING FIBER OPTIC CABLE AND RELOCATE/LASH TO NEW MESSENGER CABLE

57 MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV / HUB

58 INSTALL NEW ELECTRICAL SERVICE FOR CCTV

59 INSTALL NEW POLE MOUNTED CCTV CABINET

60 INSTALL BASE–MOUNTED HUB CABINET

61 INSTALL UNI–DIRECTIONAL ANTENNA

62 INSTALL OMNI–DIRECTIONAL ANTENNA

63 INSTALL ETHERNET RADIO

64 INTERCEPT AND REROUTE EXISTING CONDUITS

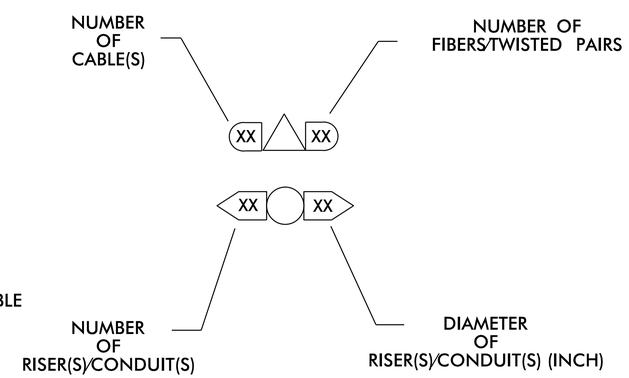
CONSTRUCTION NOTE SYMBOLOGY KEY

(XX) INDICATES NUMBER OF CABLES, LOOPS, ETC.

XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.

XX INDICATES NUMBER OF RISER(S) /CONDUIT(S)

XX INDICATES DIAMETER OF RISER(S) /CONDUIT(S) (INCH)



LEGEND

- FO — FO — NEW FIBER OPTIC COMMUNICATIONS CABLE
- TWIST PR — NEW TWISTED PAIR COMMUNICATIONS CABLE
- EXI — EXISTING COMMUNICATIONS CABLE
- REM — EXISTING COMMUNICATIONS CABLE TO BE REMOVED
- NEW AERIAL GUY ASSEMBLY
- NEW CONDUIT
- EXISTING CONDUIT
- DD — DD — NEW DIRECTIONAL DRILLED CONDUIT
- B&J — B&J — NEW BORED AND JACKED CONDUIT
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- (S) NEW AERIAL SPLICE ENCLOSURE
- NEW METAL POLE
- EXISTING METAL POLE
- NEW CCTV CAMERA ASSEMBLY
- NEW STANDARD GUY ASSEMBLY
- NEW STANDARD GUY USING EXISTING ANCHOR
- NEW SIDEWALK GUY ASSEMBLY
- NEW CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CABLE STORAGE RACKS (SNOW SHOES)
- EXISTING CONTROLLER AND CABINET
- S EXISTING SPLICE CABINET
- S NEW SPLICE CABINET
- SP SIGNAL POLE
- XX–XXXX SIGNAL INVENTORY NUMBER

ATTACHMENT POINT:

- XXX / YYY DISTANCE ABOVE INCHES REFERENCE POINT
- YYY / XXX REFERENCE POINT DISTANCE BELOW INCHES

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

SCALE N.T.S.

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)

Construction Notes and Legend

Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E D Harris
PREPARED BY:	G B Spell	REVIEWED BY:	L Overn

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL NORTH CAROLINA PROFESSIONAL SEAL 045933 ENGINEER LAWRENCE E. OVERN II

DocuSigned by: Lawrence Overn II 4/6/2018

DATE

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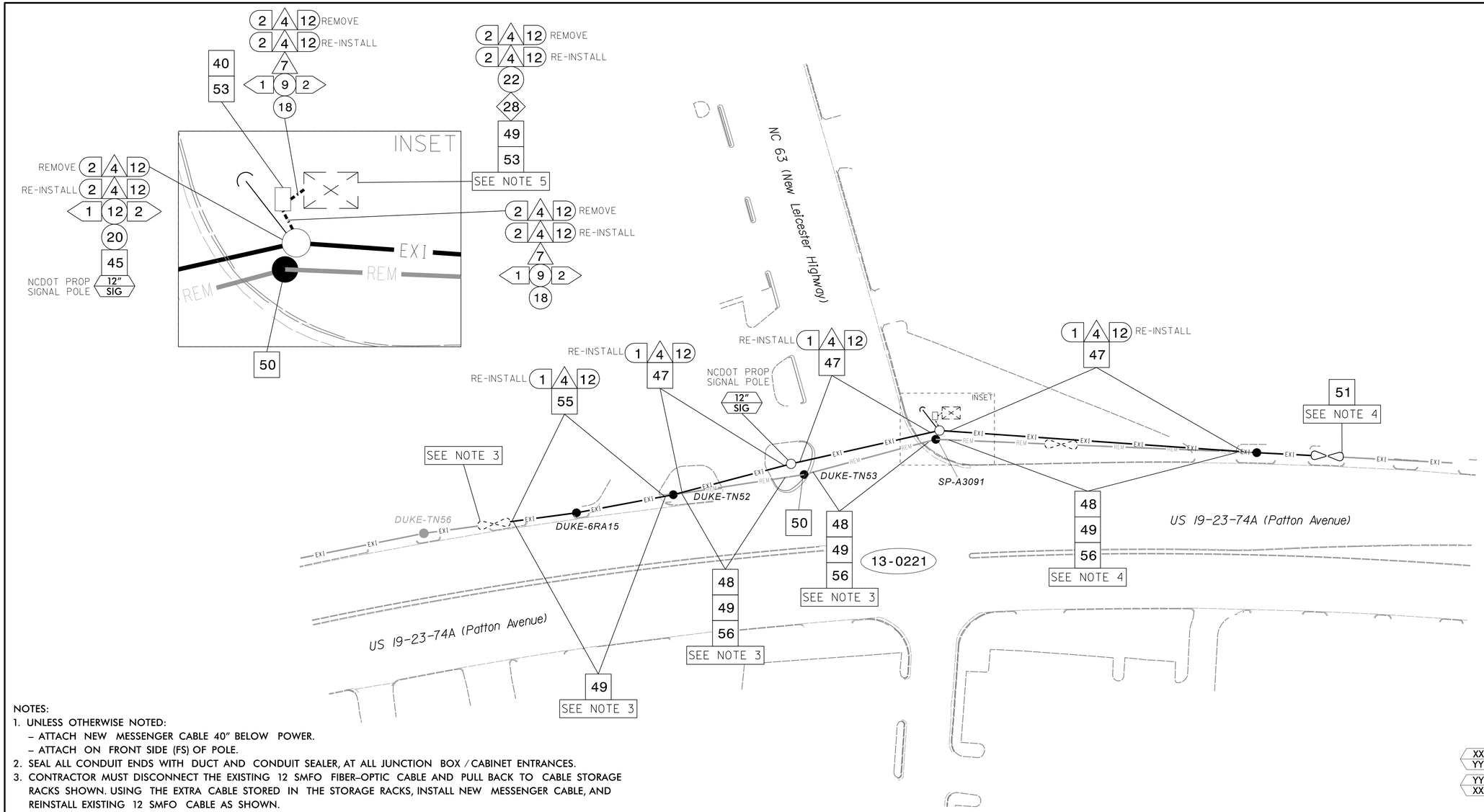
PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SCP-3



NOTES:

1. UNLESS OTHERWISE NOTED:
   – ATTACH NEW MESSENGER CABLE 40" BELOW POWER.
   – ATTACH ON FRONT SIDE (FS) OF POLE.
2. SEAL ALL CONDUIT ENDS WITH DUCT AND CONDUIT SEALER, AT ALL JUNCTION BOX / CABINET ENTRANCES.
3. CONTRACTOR MUST DISCONNECT THE EXISTING 12 SMFO FIBER–OPTIC CABLE AND PULL BACK TO CABLE STORAGE RACKS SHOWN. USING THE EXTRA CABLE STORED IN THE STORAGE RACKS, INSTALL NEW MESSENGER CABLE, AND REINSTALL EXISTING 12 SMFO CABLE AS SHOWN.
4. CONTRACTOR MUST DISCONNECT THE EXISTING 12 SMFO FIBER–OPTIC CABLE AND PULL BACK TO NEW CABLE STORAGE RACKS AS SHOWN. USING THE EXTRA CABLE STORED IN THE STORAGE RACKS, INSTALL NEW MESSENGER CABLE, AND REINSTALL EXISTING 12 SMFO CABLE AS SHOWN.
5. CONTRACTOR MUST DISCONNECT EXISTING 12 SMFO FIBER–OPTIC CABLE FROM SPLICE TRAY IN SIGNAL CABINET AND PULL BACK TO CABLE STORAGE RACKS AS SHOWN BEFORE REINSTALLING AND RESPLICING THE CABLE.

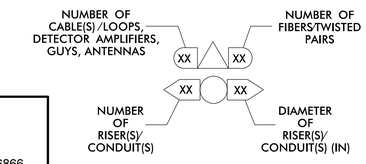
1	INSTALL REA,PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE	13	REMOVE EXISTING RISER SEAL/WEATHERHEAD AND APPLY HEAT SHRINK TUBING	25	INSTALL NEW RISER INTO POLE MOUNTED CABINET	37	INSTALL CCTV WOOD POLE
2	INSTALL REA, PE – 38, (FIGURE – 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE	14	INSTALL POLYETHYLENE CONDUIT	26	INSTALL DIGITAL VIDEO ENCODER DEVICE SERVER	38	INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
3	INSTALL CATEGORY 5E CABLE	15	DIRECTIONAL DRILL CONDUIT	27	INSTALL NEW ETHERNET EDGE SWITCH IN CABINET	39	INSTALL SPECIAL–SIZED JUNCTION BOX
4	INSTALL SMFO CABLE	16	BORE AND JACK CONDUIT	28	INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET	40	INSTALL OVER–SIZED JUNCTION BOX
5	INSTALL COAXIAL ANTENNA CABLE	17	INSTALL CABLE(S) IN EXISTING CONDUIT	29	INSTALL UNDERGROUND SPLICE ENCLOSURE	41	REMOVE EXISTING JUNCTION BOX
6	INSTALL FIBER–OPTIC DROP CABLE ASSEMBLY	18	INSTALL CABLE(S) IN NEW CONDUIT	30	INSTALL AERIAL SPLICE ENCLOSURE	42	INSTALL WOOD POLE
7	INSTALL TRACER WIRE	19	INSTALL CABLE(S) IN EXISTING RISER(S)	31	INSTALL POLE MOUNTED SPLICE CABINET	43	REMOVE EXISTING WOOD POLE
8	INSTALL CONDUIT UNDERGROUND	20	INSTALL CABLE(S) IN NEW RISER(S)	32	MODIFY EXISTING SPLICE ENCLOSURE OR INTERCONNECT CENTER	44	INSTALL AERIAL GUY ASSEMBLY
9	INSTALL PVC CONDUIT	21	INSTALL CABLE(S) IN EXISTING CABINET ENTRANCE	33	REMOVE EXISTING SPLICE CABINET	45	INSTALL STANDARD GUY ASSEMBLY
10	INSTALL RIGID, GALVANIZED STEEL CONDUIT	22	INSTALL NEW CONDUIT INTO CABINET BASE (USE EXISTING CABINET ENTRANCE WHEN AVAILABLE)	34	INSTALL CABINET FOUNDATION	46	INSTALL SIDEWALK GUY ASSEMBLY
11	INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD	23	INSTALL NEW RISER INTO CABINET BASE (USE EXISTING CABINET ENTRANCE WHEN AVAILABLE)	35	REMOVE EXISTING CABINET FOUNDATION	47	INSTALL MESSENGER CABLE
12	INSTALL RIGID, GALVANIZED STEEL RISER WITH HEAT SHRINK TUBING	24	INSTALL NEW CONDUIT INTO POLE MOUNTED CABINET	36	INSTALL CCTV CAMERA ASSEMBLY	48	REMOVE EXISTING (OLD) MESSENGER CABLE

49	BACK–PULL EXISTING COMMUNICATIONS CABLE	61	INSTALL UNI–DIRECTIONAL ANTENNA				
50	REMOVE EXISTING COMMUNICATIONS CABLE MOUNTING HARDWARE FROM WOOD POLE	62	INSTALL OMNI–DIRECTIONAL ANTENNA				
51	INSTALL CABLE STORAGE GUIDE(S) [SNOW SHOE(S)] AND STORE 100 FEET OF EACH CABLE	63	INSTALL ETHERNET RADIO				
52	INSTALL DELINEATOR MARKER	64	INTERCEPT AND REROUTE EXISTING CONDUITS				
53	STORE 30 FEET OF COMMUNICATIONS CABLE (EACH CABLE)						
54	LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE						
55	LASH CABLE(S) TO EXISTING MESSENGER CABLE						
56	DELASH EXISTING FIBER OPTIC CABLE AND RELOCATE/LASH TO NEW MESSENGER CABLE						
57	MODIFY EXISTING ELECTRICAL SERVICE FOR CCTV/HUB						
58	INSTALL NEW ELECTRICAL SERVICE FOR CCTV						
59	INSTALL NEW POLE MOUNTED CCTV CABINET						
60	INSTALL BASE–MOUNTED HUB CABINET						

ATTACHMENT POINT:

- XXX / YYY — DISTANCE ABOVE INCHES REFERENCE POINT
- YYY / XXX — REFERENCE POINT DISTANCE BELOW INCHES

CONSTRUCTION NOTE SYMBOLOGY KEY



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Prepared for the Offices of:

Transportation Mobility and Safety Division — NC Department of Transportation — Traffic Engineering Branch — Signal Management Section

750 N.Greenfield Pkwy,Garner,NC 27529

SCALE 0 40 1"=40'

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)

Cable Routing Plans

Division 13 — Buncombe County — Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E D Harris
PREPARED BY:	G B Spell	REVIEWED BY:	L Overn

REVISIONS	INIT.	DATE

SEAL — NORTH CAROLINA — PROFESSIONAL — SEAL 045933 — ENGINEER — LAWRENCE E. OVERN, II

DocuSigned by: 4/6/2018 — SIGNATURE — DATE

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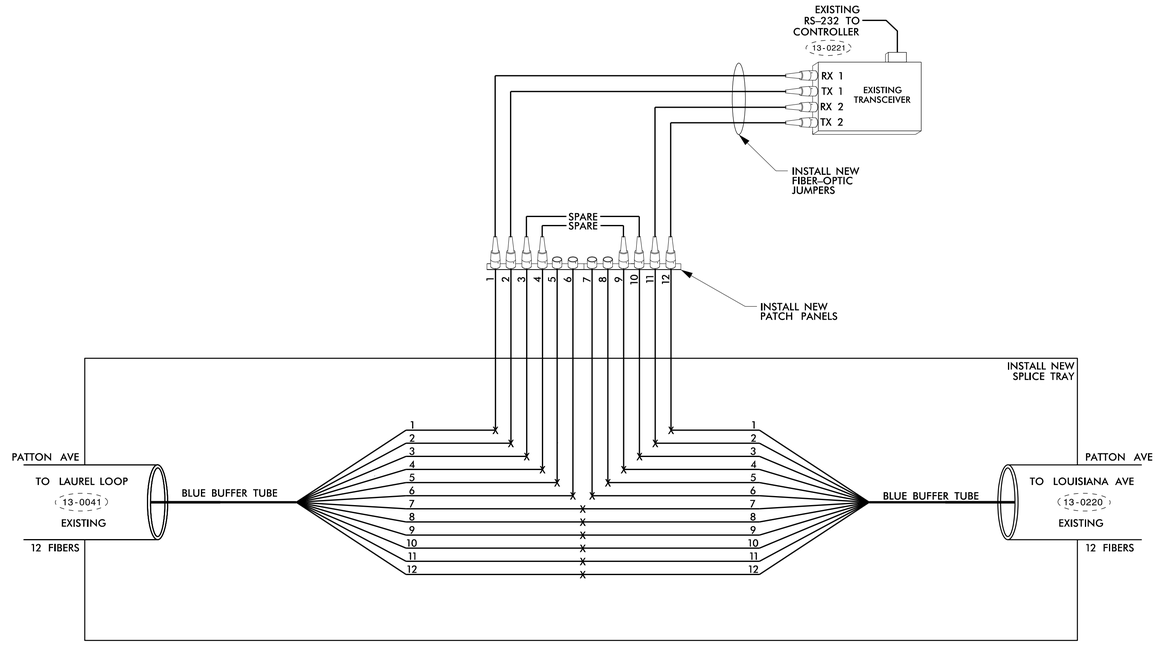
PROJECT REFERENCE NO.	SHEET NO.
U-5971A	SCP-4

SIGNAL INVENTORY NO.

13-0221

US 19–23–74A (PATTON AVENUE)
AT NC 63 (NEW LEICESTER HIGHWAY)

EXISTING CONTROLLER CABINET



LEGEND

COLOR CODE TIA/EIA 598–B

(1) BLUE	(7) RED
(2) ORANGE	(8) BLACK
(3) GREEN	(9) YELLOW
(4) BROWN	(10) VIOLET
(5) SLATE	(11) ROSE
(6) WHITE	(12) AQUA

(13-XXXX) = EXISTING CABINET/ CONTROLLER

E = EXISTING FUSION SPLICE INDIVIDUAL FIBER TO REMAIN

X = FUSION SPLICE INDIVIDUAL FIBER

C = CAP AND SEAL

EXPRESS = EXPRESS ENTIRE BUFFER TUBE/FIBERS THROUGH WITHOUT CUTTING

BUFFER SPLICE = SPLICE ALL FIBERS IN BUFFER TUBE COLOR TO COLOR

= SM FIBER PATCH CORD WITH CONNECTORS

NOTES

1. UNUSED FIBERS LEFT COILED AND STORED IN SPLICE TRAY.
2. UNUSED BUFFER TUBES LEFT COILED AND STORED IN SLICE TRAY.
3. EDGE SWITCH CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING/ENSURING THE PROPER TERMINATIONS.
4. NOTIFY THE NCDOT DEPUTY DIVISON TRAFFIC ENGINEER AT 828–298–0094 FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE SIGNAL ARRANGE FOR NCDOT TO REPROGRAM THE EXISTING FIELD ETHERNET SWITCH WITH THE NECESSARY NEWTORK CONFIGURATION DATA IN THE EVENT THAT THE PROGRAMMING IS LOST DURING CONSTRUCTION. NOTIFY THE DEPUTY DIVISION TRAFFIC ENGINEER AFTER ALL WORK IS PERFORMED TO ENSURE THAT ALL FIBER CIRCUITS ARE FUNCTIONING PROPERLY. WORK IS NOT COMPLETE UNTIL THE CLOSED LOOP SYSTEM IS BACK UP AND OPERATIONAL.
5. CONTRACTOR TO RECORD EXISTING SPLICE ARRANGEMENT FOR COMPARIOS TO THE SUPPLIED SPLICE DETAILS. IF DISCREPANCIES EXIST, CONTACT THE ENGINEER TO DETERMINE HOW TO PROCEED WITH RESPLICING. PROVIDE AS–BUILT PLANS TO THE ENGINEER IF FINAL SPLICE ARRANGEMENT DIFFERS FROM THE SUPPLIED SPLICE DETAILS.
6. INCLUDE ON THE COVER OF SPLICE TRAY THE FOLLOWING INFORMTION (REFERENCE STANDARD SPECIFICATIONS SECTION 1731):
   A. SPLICE LOCATION
   B. DATE
   C. COMPANY NAME
   D. NAME OF INDIVIDUAL PERFORMING THE SPLICE

PRIOR TO INSTALLING THE COVER ON THE SPLICE TRAY, TAKE A DIGITAL PHOTOGRAPH SHOWING THE SPLICE TRAY AND INFORMATION SHOWN ABOVE (ITEMS A–D) AND SUBMIT PHOTOGRAPH ALONG WITH OTDR TEST RESULTS

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

SCALE: N.T.S.

US 19-23-74A (Patton Avenue) at NC 63 (New Leicester Highway)

Fiber Optic Splice Details

Division 13 Buncombe County Asheville

PLAN DATE:	April 2018	REVIEWED BY:	E D Harris
PREPARED BY:	G B Spell	REVIEWED BY:	L Overn

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 045933 LAWRENCE E. OVERN II

DocuSigned by: SIGNATURE 4/27/2018 DATE

CADD Filename: U-5971A-scp4.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	X-1

CROSS SECTION INDEX

ROADWAY	STATION	TO	STATION	SHEET NO.
CROSS SECTION INDEX				X–1
CROSS SECTION SUMMARY				X–1A
–L– PATTON AVE	34 + 00.00		46 + 00.00	X–2 – X–6
–Y– NEW LIECESTER HWY	28 + 89.32		35 + 00.00	X–7 – X–11

PROJECT REFERENCE NO.	SHEET NO.
U-5971A	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN INCLUDES BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
34+00.00	0	0
34+50.00	11	0
35+00.00	11	0
35+50.00	11	0
36+00.00	14	0
36+50.00	18	0
37+00.00	19	0
37+50.00	19	0
38+00.00	19	0
38+50.00	19	0
39+00.00	19	0
39+50.00	19	0
40+00.00	19	0
40+50.00	19	0
41+00.00	18	0

Station Y	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
29+00.00	0	0
29+50.00	17	0
30+00.00	22	0
30+50.00	21	0
30+80.00	12	0
31+00.00	8	0
31+25.00	10	0
31+50.00	10	0
31+65.00	6	0
32+00.00	13	0
32+25.00	9	0
32+50.00	9	0
33+00.00	19	0
33+50.00	16	0
34+00.00	25	0
34+20.00	13	0
34+50.00	18	0

Approximate quantities only.

Earthwork quantities are calculated by the Roadway Design Unit.

***This quantity includes both the earth material and island removal along -L-.**

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-2

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

2075 2070 2065 2080 2075 2070 2065 2080 2075 2070 2080 2075 2070 2080 2090 2085 2080 2090 2085 2080 2075

2070.12
36+50.00

2072.90
36+00.00

2075.61
35+50.00

2078.08
35+00.00

2080.67
34+50.00

2082.63
34+00.00

—L—

4/12/2018
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-3

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

2055 2050 2045 2060 2055 2050 2060 2055 2050

2051.17
39+50.00

2054.50
39+00.00

2057.91
38+50.00

2065 2060 2055 2070 2065 2060 2075 2070 2065 2060

2061.15
38+00.00

2064.15
37+50.00

2067.21
37+00.00

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

4/12/2018
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-4

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2050
2045
2040
2035

2040.55
42+00.00

2050
2045
2040
2035

2041.93
41+50.00

2050
2045
2040
2035

2043.72
41+00.00

2045
2040
2055
2050

2045.74
40+50.00

2045
2040
2055
2050

2048.24
40+00.00

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2045
2040
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2040

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

4/12/2018
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-5

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

2050
2045
2040
2035
2030

2038.31
44+00.00

2038.60
43+50.00

2038.93
43+00.00

2039.58
42+50.00

—℄—

4/12/2018
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-6

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

2040
2035
2030
2050
2045
2040
2035
2030

2037.97

45+50.00

2040
2035
2030
2050
2045
2040
2035
2030

2037.75

45+00.00

2040
2035
2030
2045
2040
2035
2030

2038.13

44+50.00

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

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PROJ. REFERENCE NO.	SHEET NO.
U-5971A	X-7

0 2.5 5

6/23/16

4/12/2018
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-8

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

2055 2050 2045 2040 2035

PROP. SUPER .021

GP = 2042.20

2042.97

31+50.00

2055 2050 2045 2040 2035

PROP. SUPER .025

GP = 2042.09

2042.98

31+25.00

2055 2050 2045 2040 2035

PROP. SUPER .027

GP = 2041.97

2042.95

31+00.00

2055 2050 2045 2040 2035

PROP. SUPER .028

GP = 2041.87

2042.89

30+80.00

—Y—

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

4/12/2018
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zacmartredi

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-9

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

2055 2050 2045 2040 2035

PROP. SUPER .026

GP=2042.15

2042.95

32+50.00

2055 2050 2045 2040 2035

PROP. SUPER .021

GP=2042.24

2042.99

32+25.00

2055 2050 2045 2040 2035

PROP. SUPER .021

GP=2042.25

2042.98

32+00.00

2055 2050 2045 2040 2035

PROP. SUPER .019

GP=2042.26

2042.95

31+65.00

—Y—

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

4/2/2018
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zacmanfredi

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-10

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

2055 2050 2045 2040 2035

PROP. SUPER .015

GP=2041.74

9%

2042.14
34+20.00

2055 2050 2045 2040 2035

PROP. SUPER .013

GP=2041.89

2.1

2042.35
34+00.00

2055 2050 2045 2040 2035

PROP. SUPER .010

GP=2042.28

2042.67
33+50.00

2055 2050 2045 2040 2035

EXIST. SUPER .026

GP=2041.98

2042.93
33+00.00

—Y—

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

4/12/2018
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zacmanfredi

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-5971A	X-11

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

2045
2040
2035
2050
2045
2040
2035

2041.50
35+00.00

EXIST. SUPER .020

GP=2042.09

2042.12
34+50.00

—Y—

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

4/12/2018
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