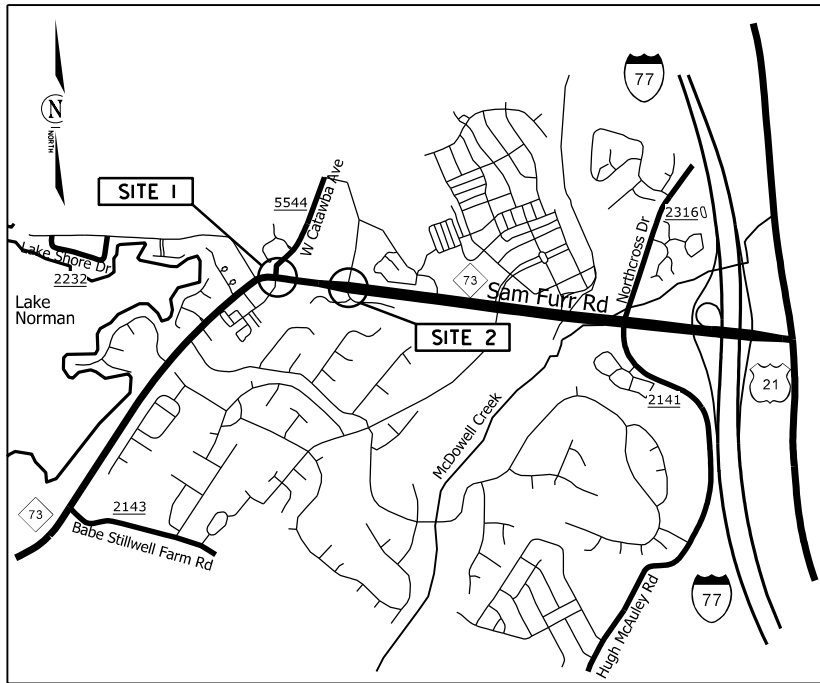


TIP: HS-2010J

PROJECT: 49291.3.10



VICINITY MAP NOT TO SCALE

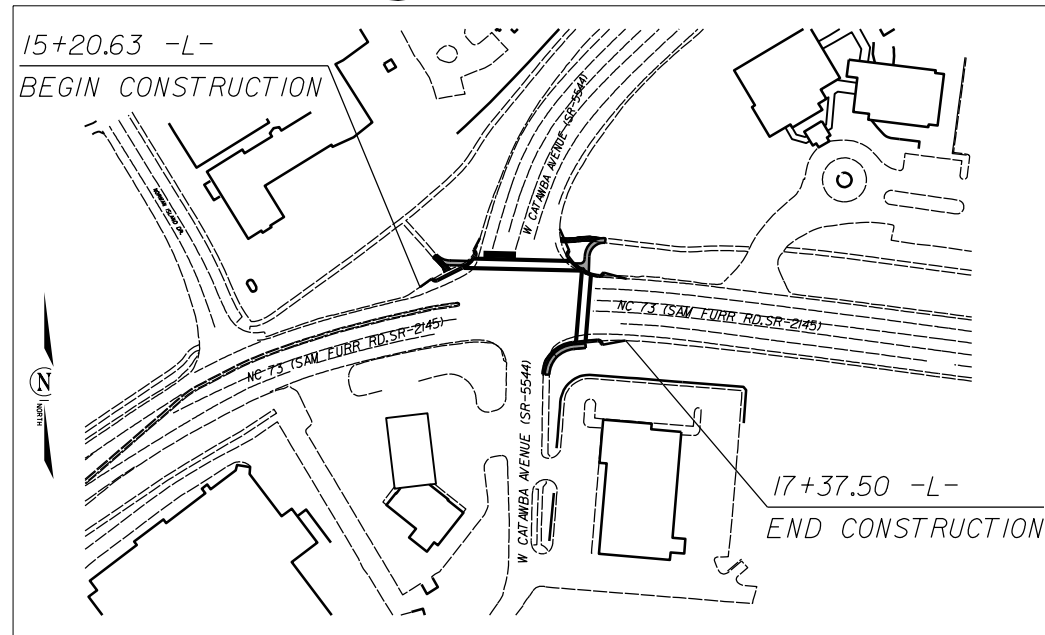
STATE OF NORTH CAROLINA
 DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

LOCATION: NC 73 PEDESTRIAN CROSSINGS AT W. CATAWBA AVENUE AND KENTON DRIVE

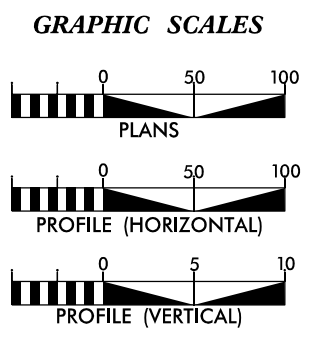
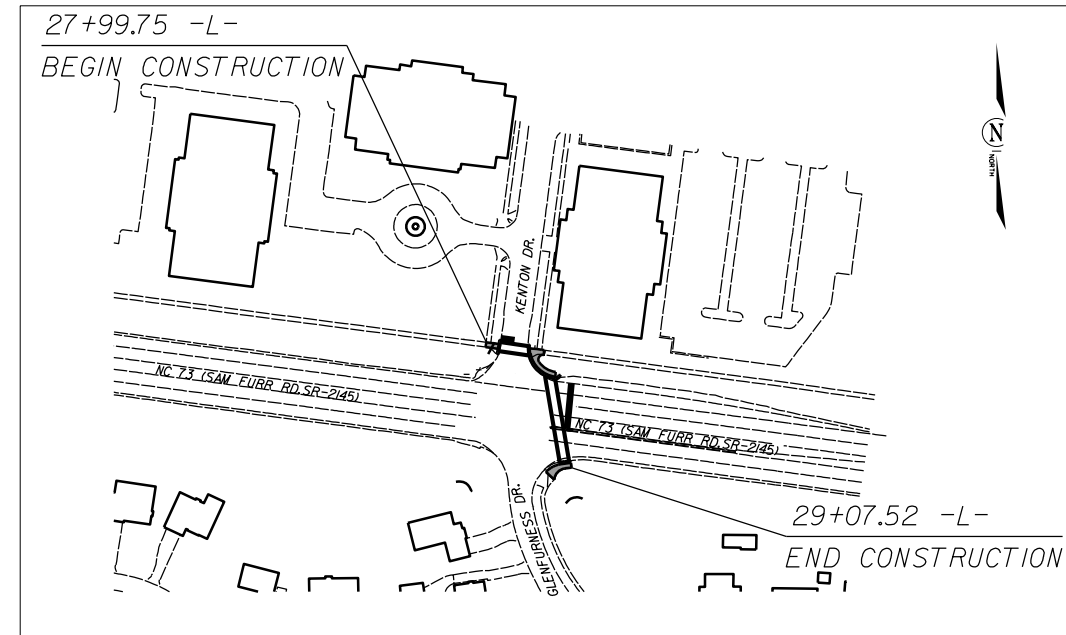
TYPE OF WORK: GRADING, DRAINAGE, CONCRETE CURB AND GUTTER, PAVING, CONCRETE SIDEWALK, MONOLITHIC CONCRETE ISLAND, SIGNALS, AND THERMOPLASTIC PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	49291.3.10	1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	
49291.1.10	4929103	P.E.	
49291.3.10	4929103	CONST.	

SITE 1



SITE 2



DESIGN DATA

ADT	=	
ADT	=	
DHV	=	%
D	=	%
T	=	%
V	=	MPH

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 49291.3.10	=	0.06	MILES
TOTAL LENGTH OF STATE PROJECT 49291.3.10	=	0.06	MILES

Prepared in the Office of:
DIVISION OF HIGHWAYS
 DIVISION TEN
 DIVISION DESIGN / CONSTRUCT UNIT

2024 STANDARD SPECIFICATIONS	
RIGHT OF WAY DATE: N/A	DONALD HARWARD PROJECT ENGINEER
LETTING DATE: JUNE 19, 2024	CHAD BURRIS PROJECT DESIGN ENGINEER



DIVISION OF HIGHWAYS
 STATE OF NORTH CAROLINA
 05/03/2024

DocuSigned by:
Travis Preslar
 APPROVED: 05/03/2024 10:17:11 AM EDT
 DIVISION PROJECT TEAM LEAD

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

Note: Not to Scale

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	⊙
Well	⊙
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	-----
False Sump	-----

RAILROADS:

Standard Gauge	-----
RR Signal Milepost	⊙
Switch	⊠
RR Abandoned	-----
RR Dismantled	-----

RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	⊙
Primary Horiz and Vert Control Point	⊙
Secondary Horiz and Vert Control Point	⊙
Vertical Benchmark	⊙
Existing Right of Way Monument	⊙
Proposed Right of Way Monument (Rebar and Cap)	⊙
Proposed Right of Way Monument (Concrete)	⊙
Existing Permanent Easement Monument	⊙
Proposed Permanent Easement Monument (Rebar and Cap)	⊙
Existing C/A Monument	⊙
Proposed C/A Monument (Rebar and Cap)	⊙
Proposed C/A Monument (Concrete)	⊙
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	-----
Proposed Temporary Drainage Easement	-----
Proposed Permanent Drainage Easement	-----
Proposed Permanent Drainage/Utility Easement	-----
Proposed Permanent Utility Easement	-----
Proposed Temporary Utility Easement	-----
Proposed Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	-----
Proposed Slope Stakes Fill	-----
Proposed Curb Ramp	-----
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊙
Pavement Removal	-----
VEGETATION:	
Single Tree	⊙
Single Shrub	⊙
Hedge	-----

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

EXISTING STRUCTURES:

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

UTILITIES:

* SUE - Subsurface Utility Engineering
LOS - Level of Service - A, B, C or D (Accuracy)

POWER:	
Existing Power Pole	⊙
Proposed Power Pole	⊙
Existing Joint Use Pole	⊙
Proposed Joint Use Pole	⊙
Power Manhole	⊙
Power Line Tower	⊙
Power Transformer	⊙
U/G Power Cable Hand Hole	⊙
H-Frame Pole	⊙
U/G Power Line Test Hole (SUE - LOS A)*	⊙
U/G Power Line (SUE - LOS B)*	-----
U/G Power Line (SUE - LOS C)*	-----
U/G Power Line (SUE - LOS D)*	-----
TELEPHONE:	
Existing Telephone Pole	⊙
Proposed Telephone Pole	⊙
Telephone Manhole	⊙
Telephone Pedestal	⊙
Telephone Cell Tower	⊙
U/G Telephone Cable Hand Hole	⊙
U/G Telephone Test Hole (SUE - LOS A)*	⊙
U/G Telephone Cable (SUE - LOS B)*	-----
U/G Telephone Cable (SUE - LOS C)*	-----
U/G Telephone Cable (SUE - LOS D)*	-----
U/G Telephone Conduit (SUE - LOS B)*	-----
U/G Telephone Conduit (SUE - LOS C)*	-----
U/G Telephone Conduit (SUE - LOS D)*	-----
U/G Fiber Optics Cable (SUE - LOS B)*	-----
U/G Fiber Optics Cable (SUE - LOS C)*	-----
U/G Fiber Optics Cable (SUE - LOS D)*	-----

WATER:

Water Manhole	⊙
Water Meter	⊙
Water Valve	⊙
Water Hydrant	⊙
U/G Water Line Test Hole (SUE - LOS A)*	⊙
U/G Water Line (SUE - LOS B)*	-----
U/G Water Line (SUE - LOS C)*	-----
U/G Water Line (SUE - LOS D)*	-----
Above Ground Water Line	-----

TV:

TV Pedestal	⊙
TV Tower	⊙
U/G TV Cable Hand Hole	⊙
U/G TV Test Hole (SUE - LOS A)*	⊙
U/G TV Cable (SUE - LOS B)*	-----
U/G TV Cable (SUE - LOS C)*	-----
U/G TV Cable (SUE - LOS D)*	-----
U/G Fiber Optic Cable (SUE - LOS B)*	-----
U/G Fiber Optic Cable (SUE - LOS C)*	-----
U/G Fiber Optic Cable (SUE - LOS D)*	-----

GAS:

Gas Valve	⊙
Gas Meter	⊙
U/G Gas Line Test Hole (SUE - LOS A)*	⊙
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	-----

SANITARY SEWER:

Sanitary Sewer Manhole	⊙
Sanitary Sewer Cleanout	⊙
U/G Sanitary Sewer Line	-----
Above Ground Sanitary Sewer	-----
SS Force Main Line Test Hole (SUE - LOS A)*	⊙
SS Force Main Line (SUE - LOS B)*	-----
SS Force Main Line (SUE - LOS C)*	-----
SS Force Main Line (SUE - LOS D)*	-----

MISCELLANEOUS:

Utility Pole	⊙
Utility Pole with Base	⊙
Utility Located Object	⊙
Utility Traffic Signal Box	⊙
Utility Unknown U/G Line (SUE - LOS B)*	-----
U/G Tank; Water, Gas, Oil	⊙
Underground Storage Tank, Approx. Loc.	⊙
A/G Tank; Water, Gas, Oil	⊙
Geoenvironmental Boring	⊙
Abandoned According to Utility Records	⊙
End of Information	⊙

SURVEY CONTROL SHEET

PROJECT NO.	SHEET NO.
49291.3JO	1B-1
F.A. PROJECT NO.	4929103

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	55	4020	621849.8040	1435157.9380	791.40
	56	4020	622197.5300	1435870.1110	788.80
	57	4020	622065.6290	1436727.2470	761.08
	58	4020	621949.4230	1437623.8800	769.03

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED BY THE DIVISION IO DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION IO DDC UNIT.

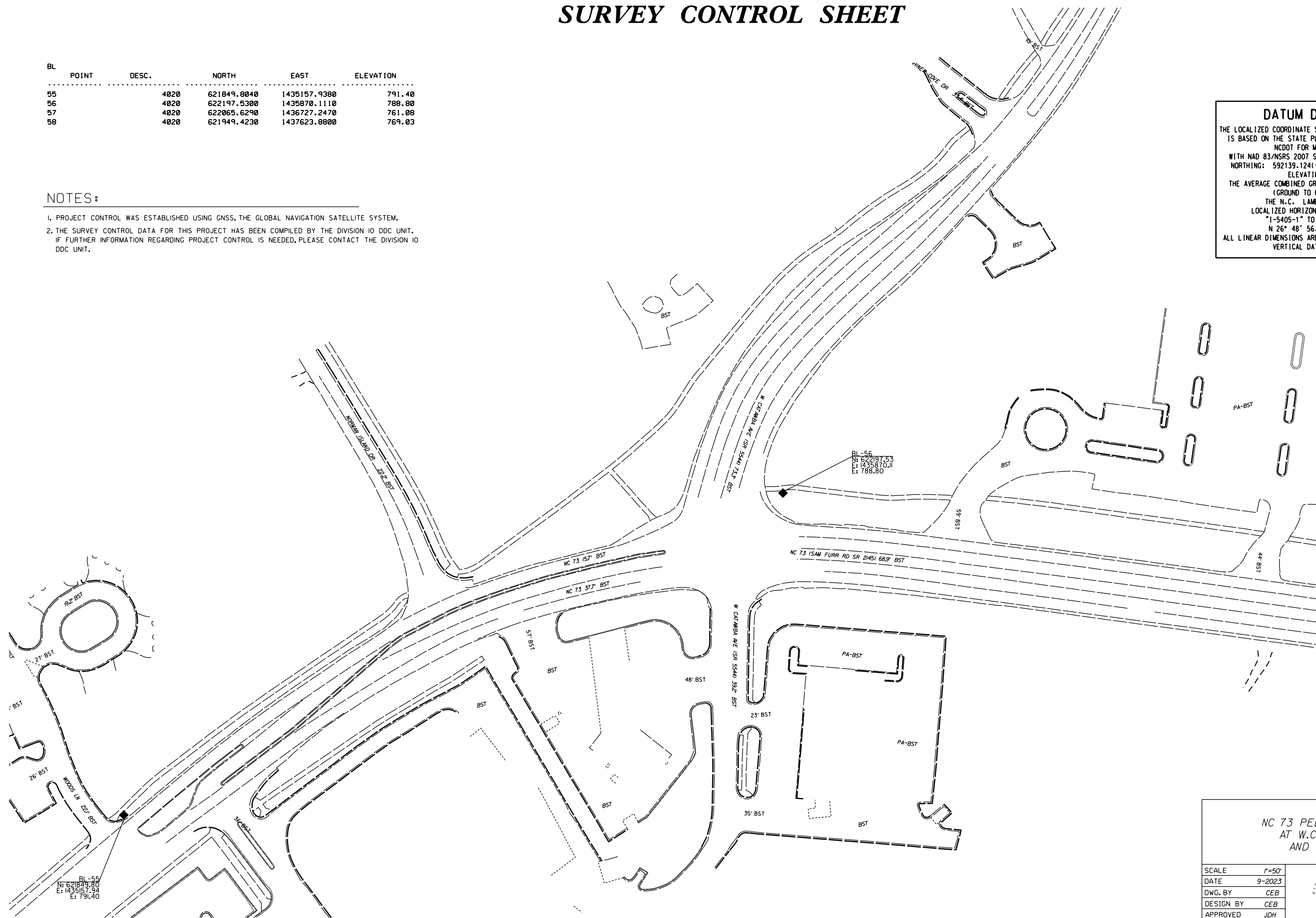
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "1-5405-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 592139.124(ft) EASTING: 1450285.308(ft) ELEVATION: 806.95(ft)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999844

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "1-5405-1" TO -L- STATION 10+00 IS
 N 26° 48' 56.65" W 33330.58 FT

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



NC 73 PEDESTRIAN CROSSING
 AT W.CATAMBA AVENUE
 AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	9-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

SURVEY CONTROL SHEET

PROJECT NO.	SHEET NO.
4929L3J0	IB-2
F.A. PROJECT NO.	4929I03

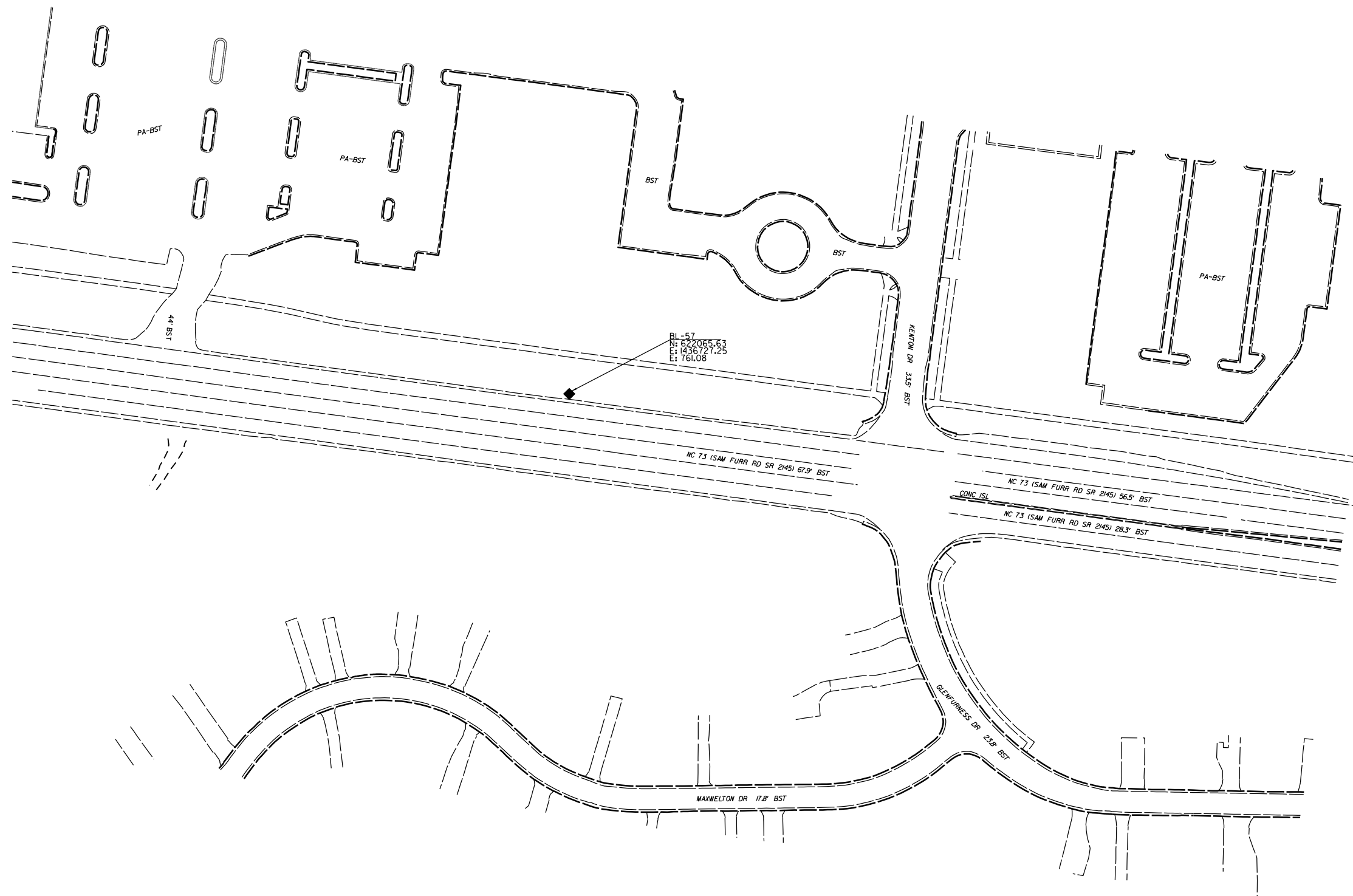
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "I-5405-1" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 592139.124(FT) EASTING: 1450285.308(FT) ELEVATION: 806.95(FT)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.999844

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "I-5405-1" TO -L- STATION 10+00 IS N 26° 48' 56.65" W 33330.58 FT

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



BL	POINT	DESC.	NORTH	EAST	ELEVATION
	55	4020	621849.8040	1435157.9380	791.40
	56	4020	622197.5300	1435870.1110	788.80
	57	4020	622065.6290	1436727.2470	761.08
	58	4020	621949.4230	1437623.8800	769.03

- NOTES:**
- PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
 - THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED BY THE DIVISION IO DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION IO DDC UNIT.

NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	9-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

PROJECT NO.	SHEET NO.
4929L3J0	IC
F.A. PROJECT NO.	4929I03

PROPOSED ALIGNMENT SHEET

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	621885.4031	1435249.1262
PC	10+81.38	621936.8010	1435312.2195
PT	17+94.11	622126.6445	1435979.1350
POT	32+17.53	621939.2486	1437390.1695

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	622495.7528	1436033.6819
PC	11+62.22	622385.7573	1435914.4469
PT	13+48.08	622230.1479	1435816.8507
POT	14+52.63	622130.1011	1435786.4872

Y1

TYPE	STATION	NORTH	EAST
POT	10+00.00	622132.0758	1435812.0125
POT	12+76.99	621855.1232	1435807.5030

Y2

TYPE	STATION	NORTH	EAST
POT	10+00.00	622148.7812	1437026.4349
POT	11+59.82	621990.2990	1437005.7753

Y3

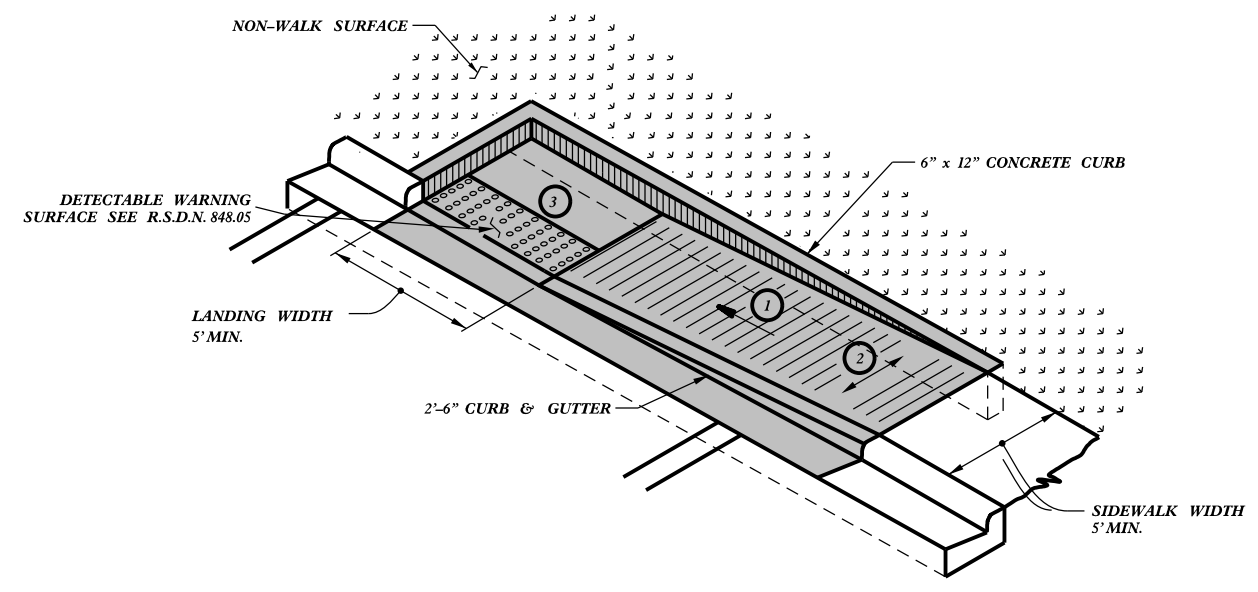
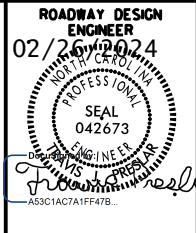
TYPE	STATION	NORTH	EAST
POT	10+00.00	621986.9953	1437030.6508
PC	10+55.15	621932.3218	1437023.3897
PT	11+27.46	621861.1412	1437031.1776
POT	11+44.62	621845.0188	1437037.0625

NOTES :

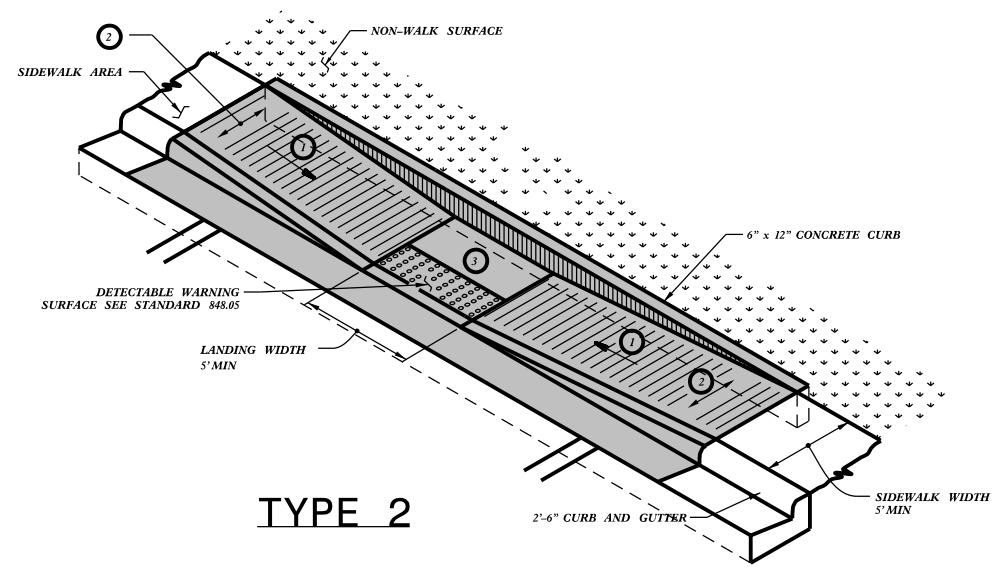
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED BY THE DIVISION IO DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION IO DDC UNIT.

NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	N/A		REVISIONS
DATE	9-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		



TYPE 1A

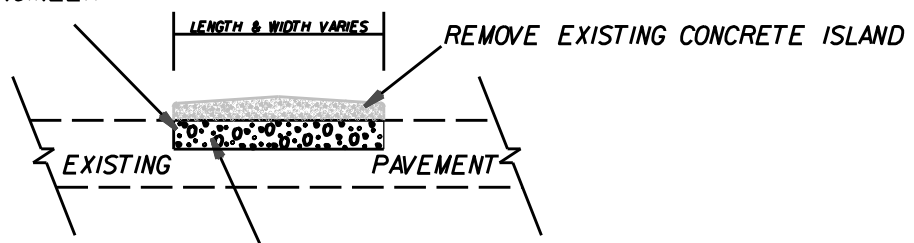


TYPE 2

- 1 8.33% (12:1) MAX RAMP SLOPE
- 2 CROSS SLOPE: 2.00%
- 3 CURB RAMP 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.

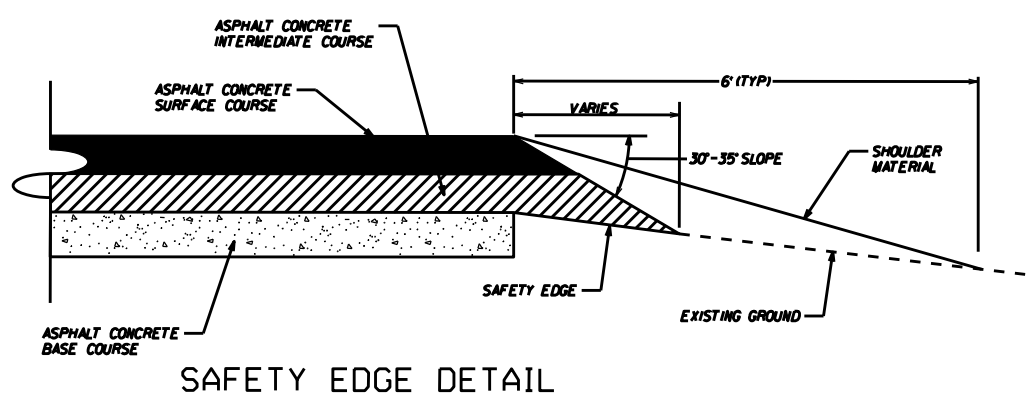
REFER TO ROADWAY STANDARD DRAWING NUMBER 848.05 SHEET 3 OF 3 FOR ALL RAMP NOTES

INCIDENTAL MILL TO LIMITS AS DIRECTED BY ENGINEER



RATE IS VARIABLE AND SHALL BE AS DIRECTED BY THE ENGINEER. ASPHALT TYPE S9.5C SHALL BE PLACED. MAXIMUM DEPTH OF 2 INCHES PER LIFT

ISLAND PATCHING DETAIL



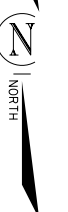
SAFETY EDGE DETAIL

NC 73 PEDESTRIAN CROSSING AT W.CATAWBA AVENUE AND KENTON DRIVE

SCALE	N/A
DATE	9-2023
DWG. BY	VSC
DESIGN BY	CEB
APPROVED	JDH

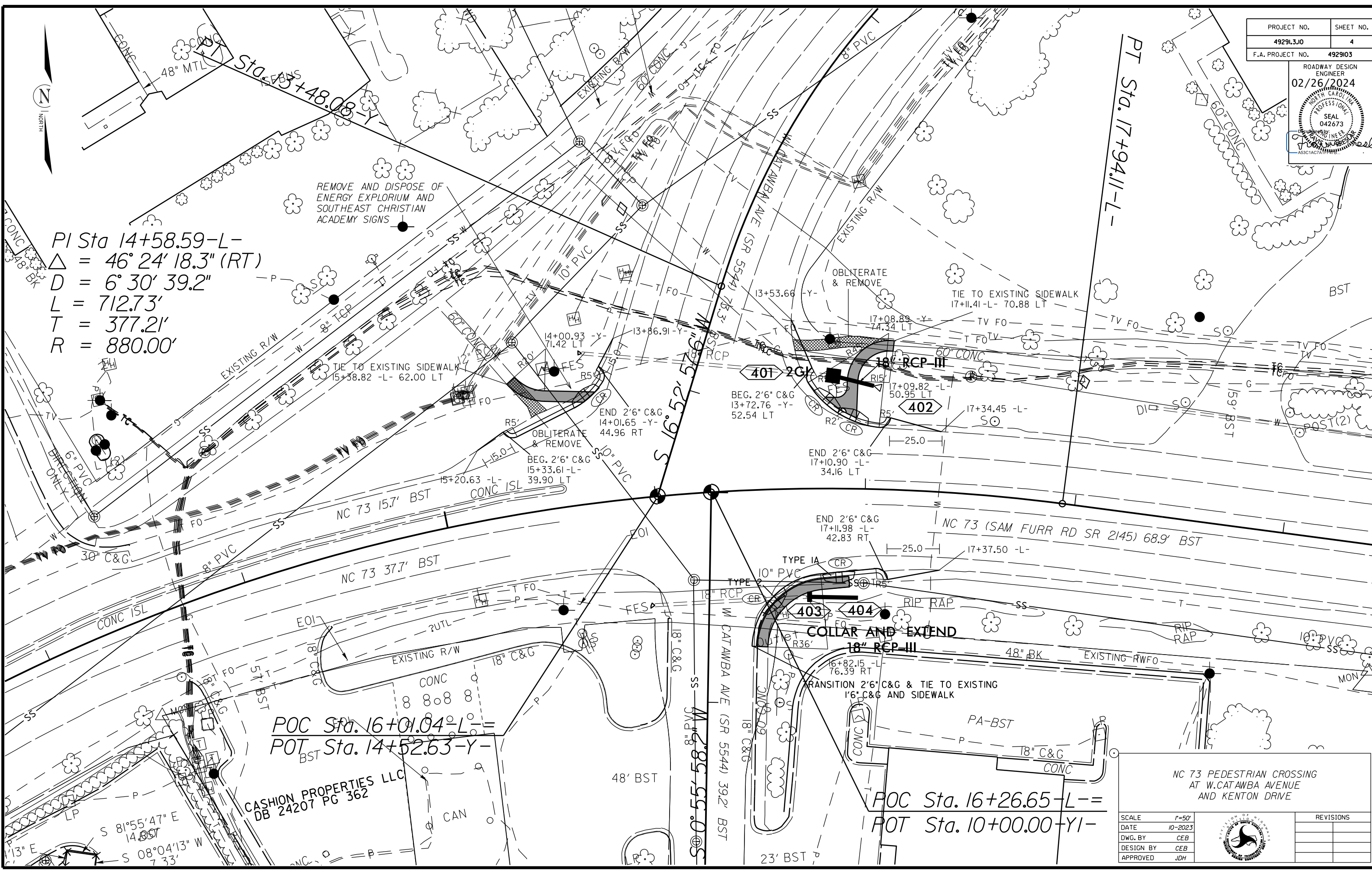


REVISIONS	



PI Sta 14+58.59-L-
 $\Delta = 46^\circ 24' 18.3''$ (RT)
 $D = 6^\circ 30' 39.2''$
 $L = 712.73'$
 $T = 377.21'$
 $R = 880.00'$

REMOVE AND DISPOSE OF ENERGY EXPLORIUM AND SOUTHEAST CHRISTIAN ACADEMY SIGNS



POC Sta. 16+01.04-L-
 POT Sta. 14+52.63-Y-

CASHION PROPERTIES LLC
 DB 24207 PG 362

COLLAR AND EXTEND
 18" RCP-III

POC Sta. 16+26.65-L-
 POT Sta. 10+00.00-Y-

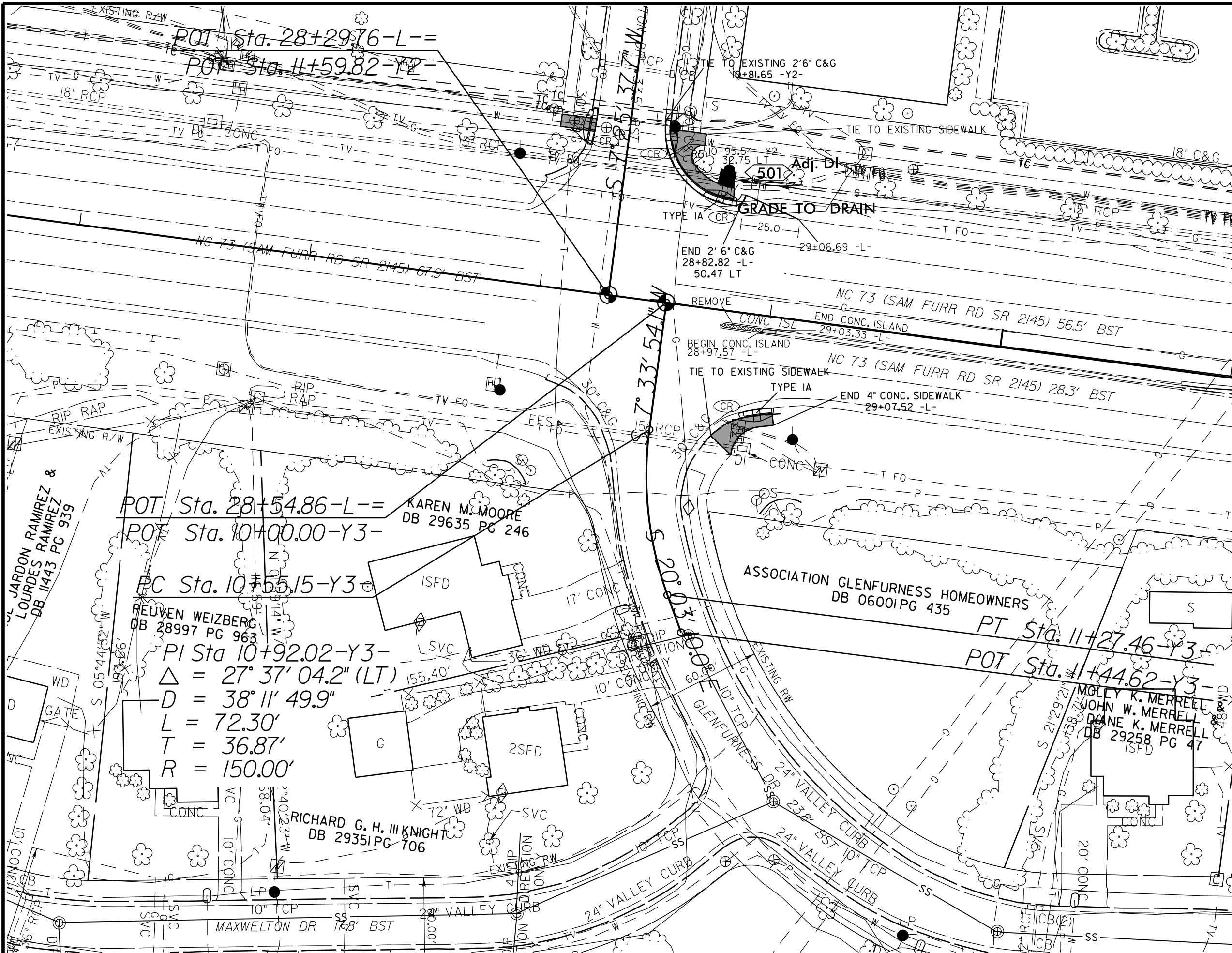
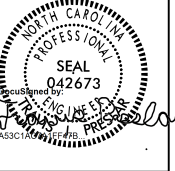
NC 73 PEDESTRIAN CROSSING AT W. CATAWBA AVENUE AND KENTON DRIVE

SCALE	1"=50'
DATE	10-2023
DWG. BY	CEB
DESIGN BY	CEB
APPROVED	JDH


REVISIONS

PROJECT NO.	SHEET NO.
49291.310	5
F.A. PROJECT NO. 4929103	

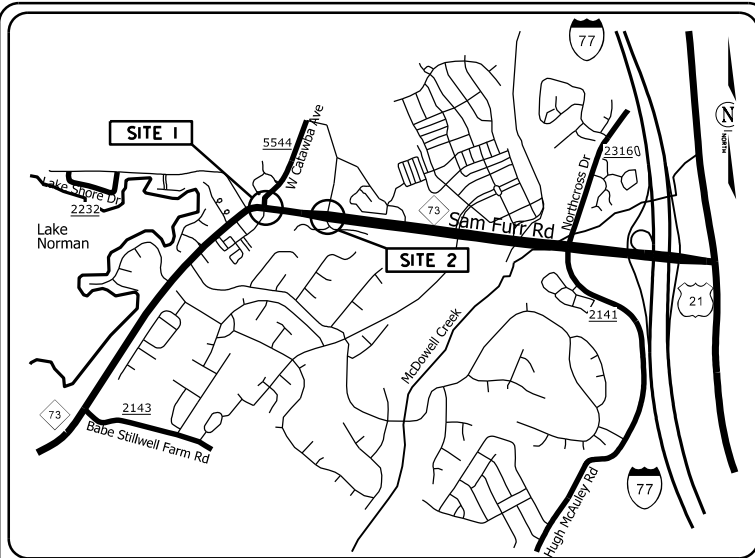
ROADWAY DESIGN
ENGINEER
02/26/2024



NC 73 PEDESTRIAN CROSSING
AT W. CATAMBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	10-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

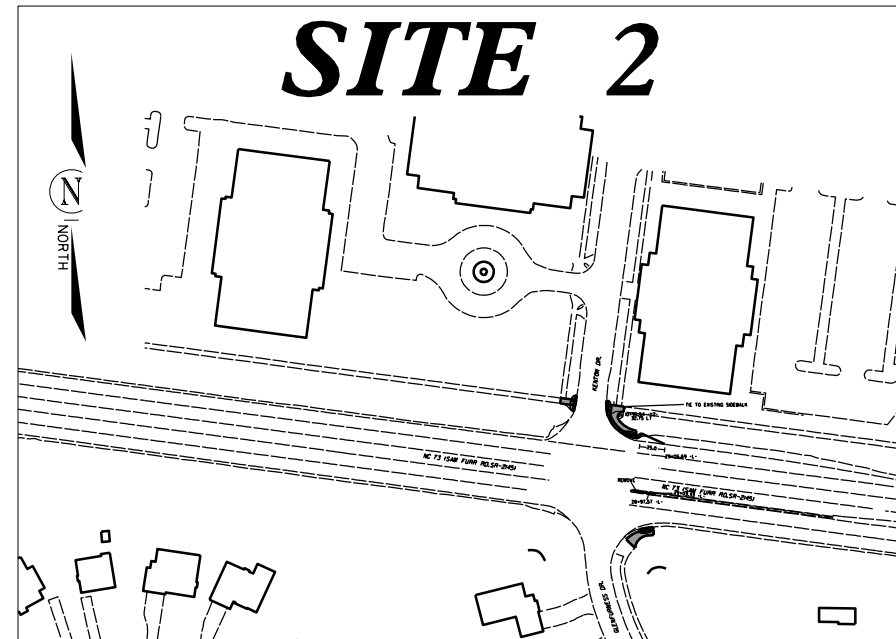
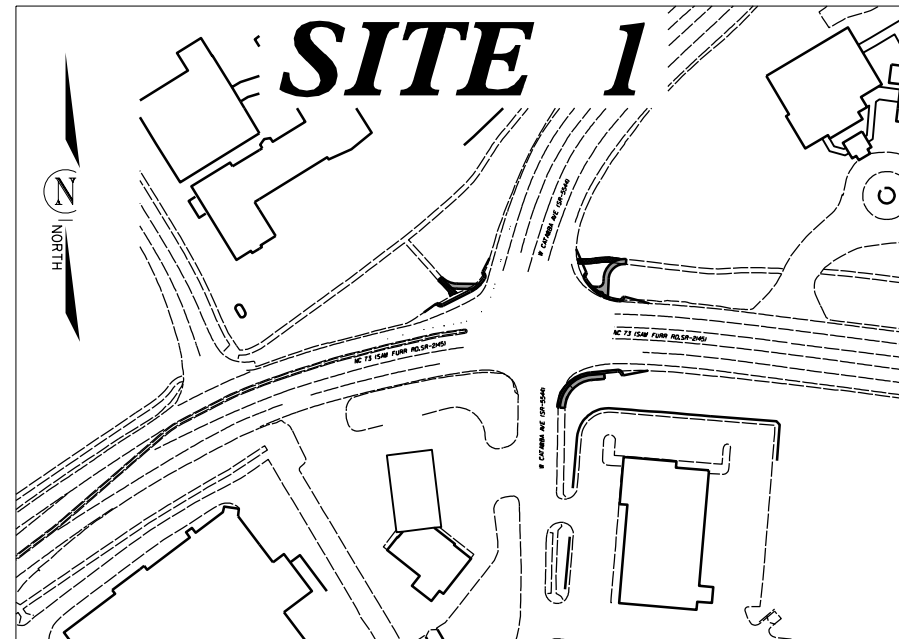
TIP PROJECT: HS-2010J



VICINITY MAP
NOT TO SCALE

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

LOCATION: NC 73 PEDESTRIAN CROSSING AT W. CATAWBA AVENUE AND KENTON DRIVE

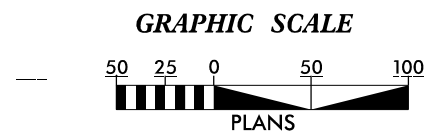


STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2010J	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49291.1.10	4929103	P.E.	
49291.2.10	4929103	R/W	
49291.3.10	4929103	CONST.	

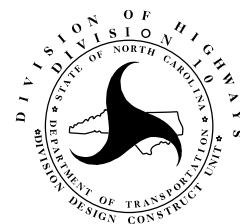
EROSION AND SEDIMENT CONTROL MEASURES

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

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



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



Prepared in the Office of:
DDC UNIT DIVISION 10
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

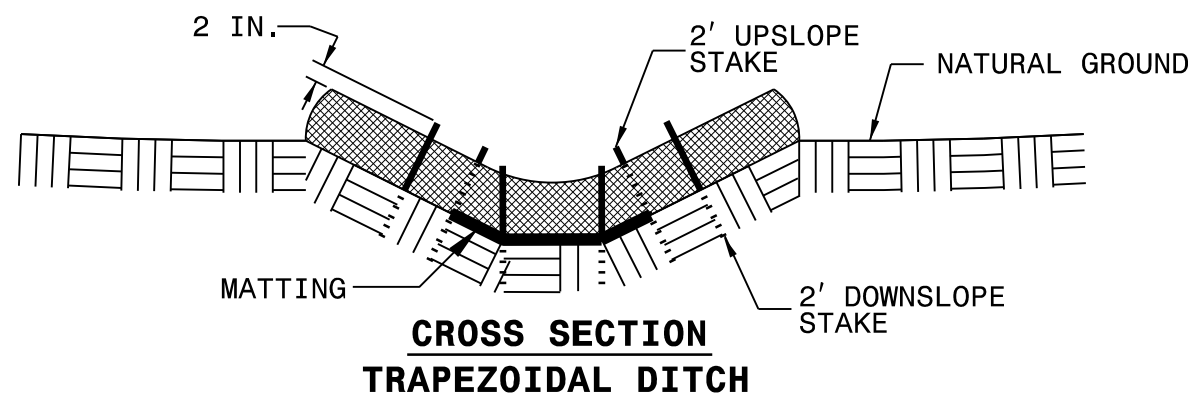
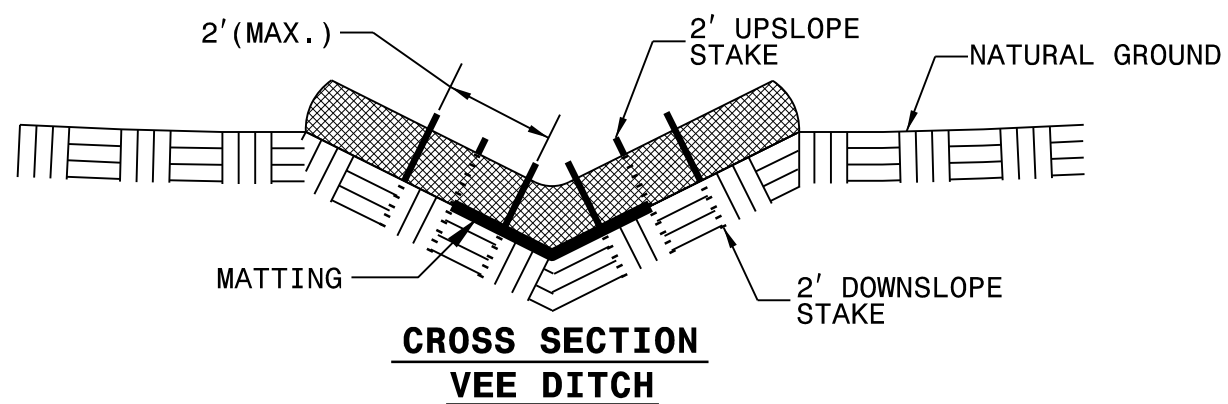
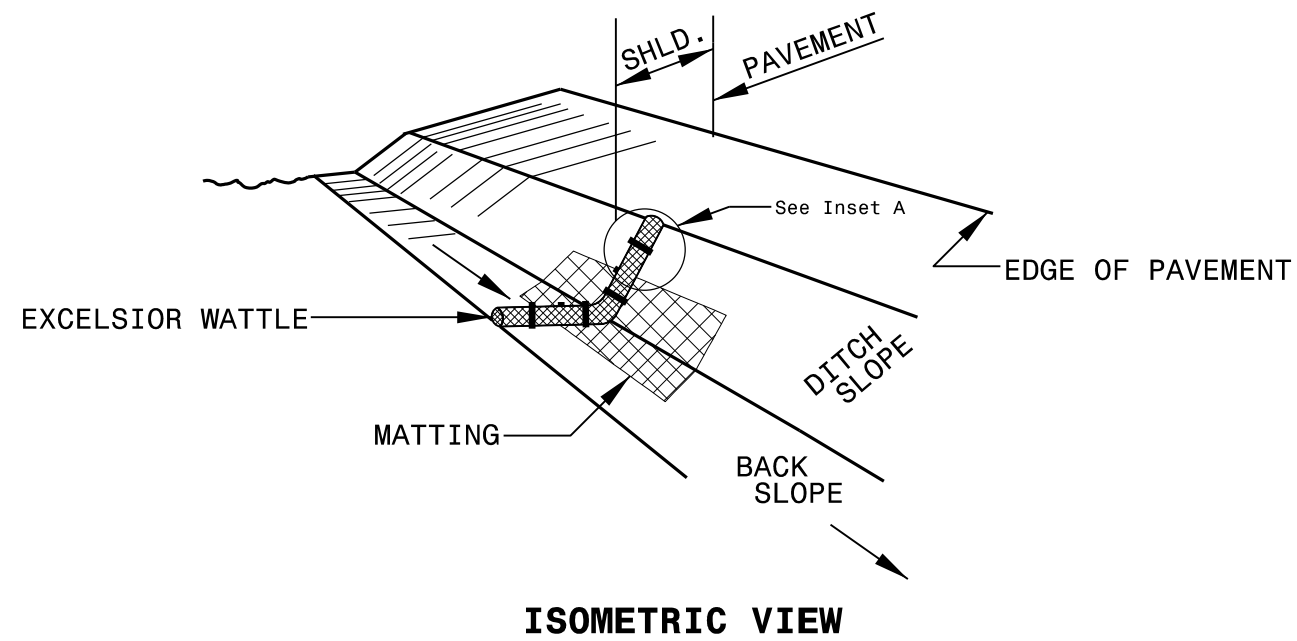
Designed by:
CHAD BURRIS **4159**
NAME LEVEL III CERTIFICATION NO.

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

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

WATTLE DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

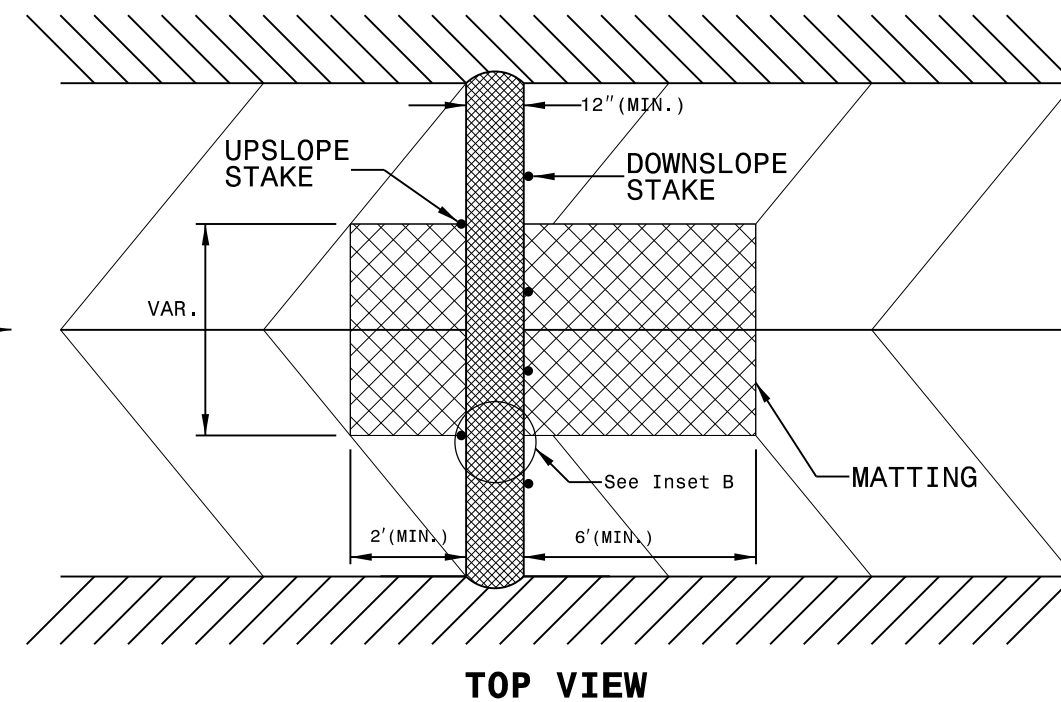
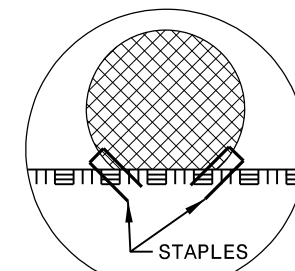
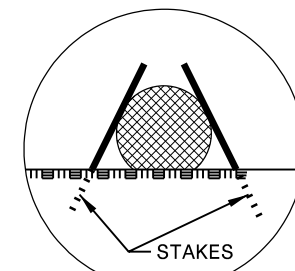
ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

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

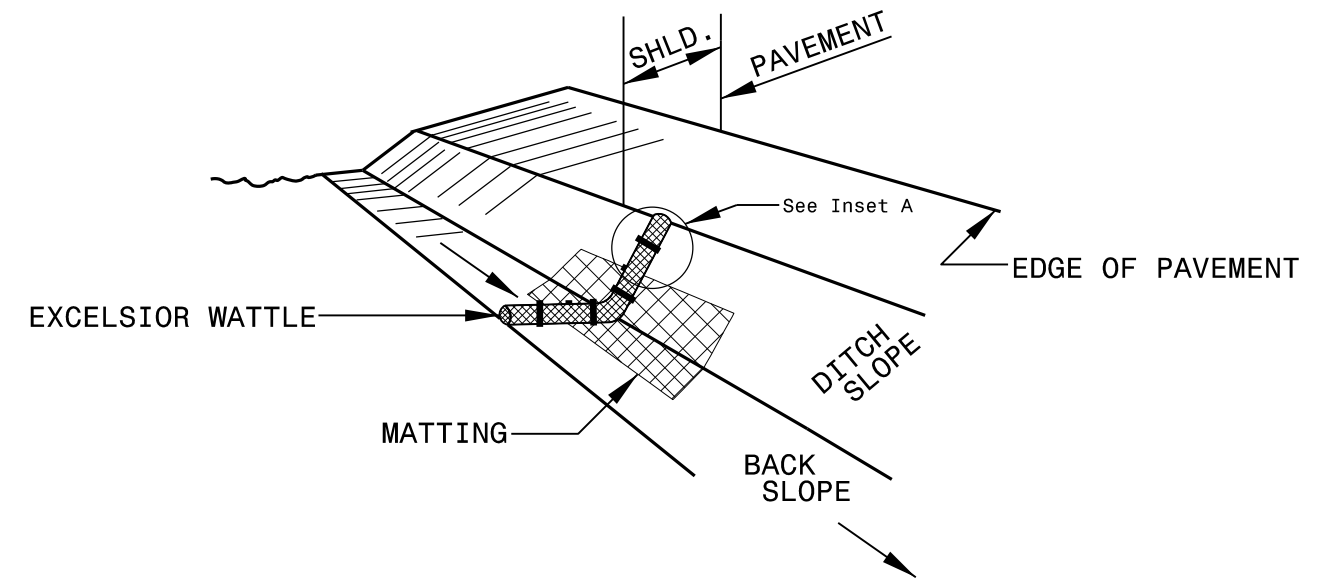
INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

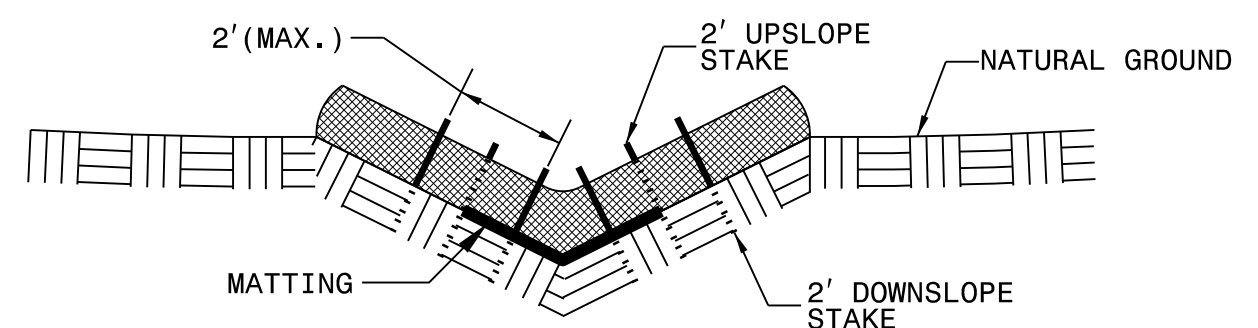


WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL

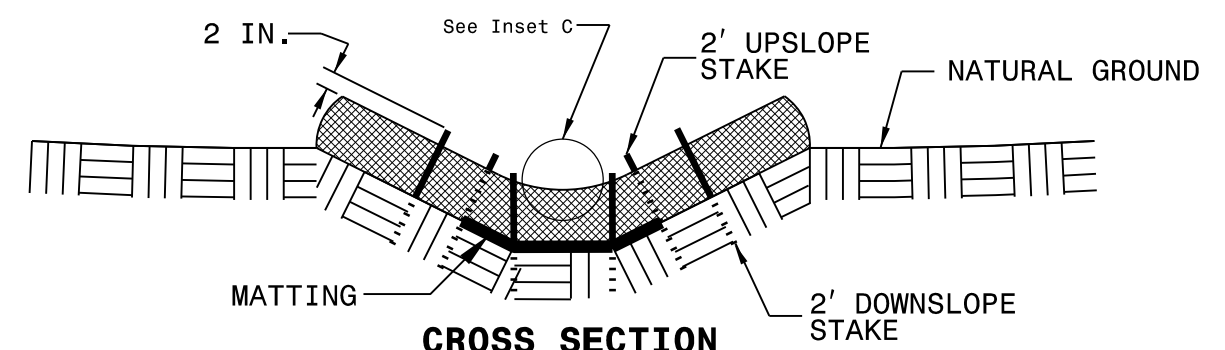
PROJECT NO.	SHEET NO.
4929L3J0	EC-2A
F.A. PROJECT NO. 4929103	



ISOMETRIC VIEW

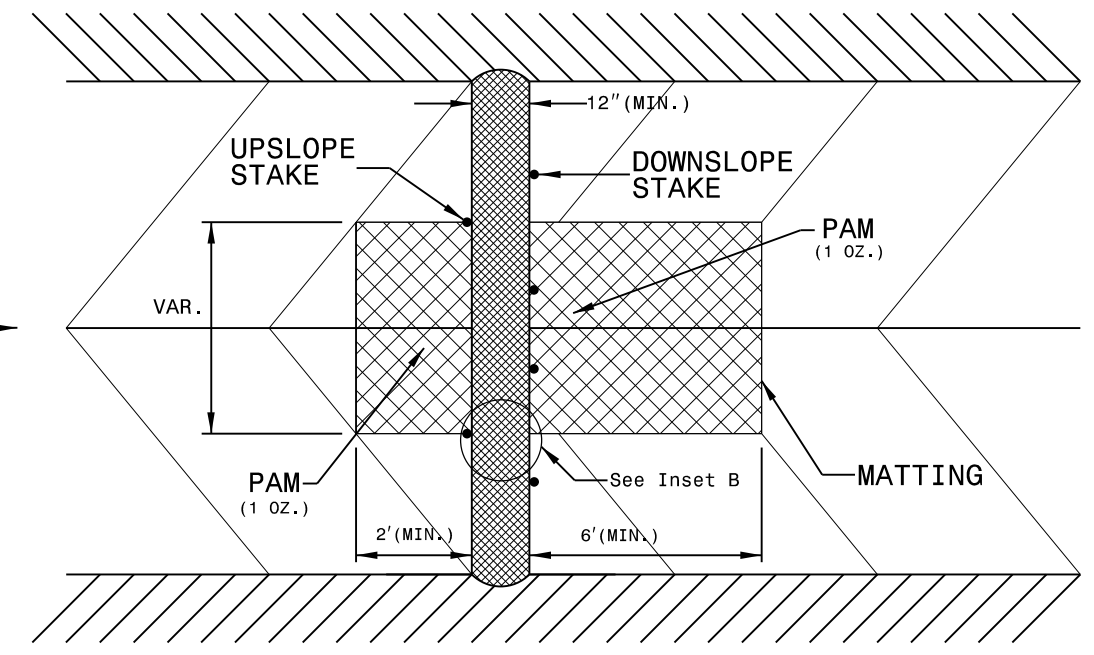
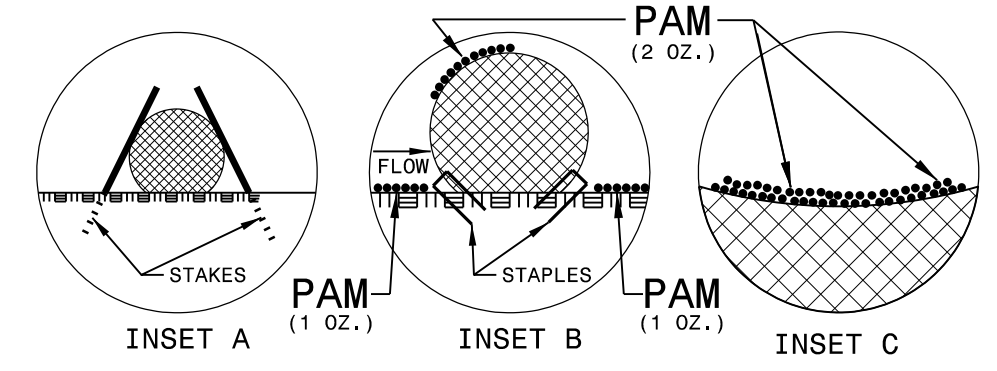


CROSS SECTION VEE DITCH



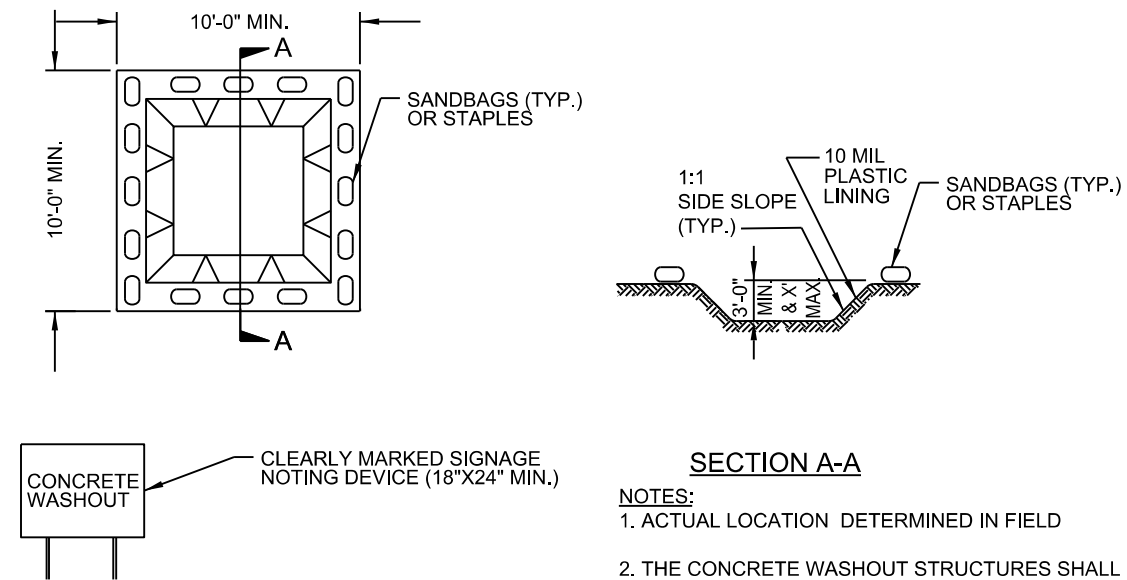
CROSS SECTION TRAPEZOIDAL DITCH

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



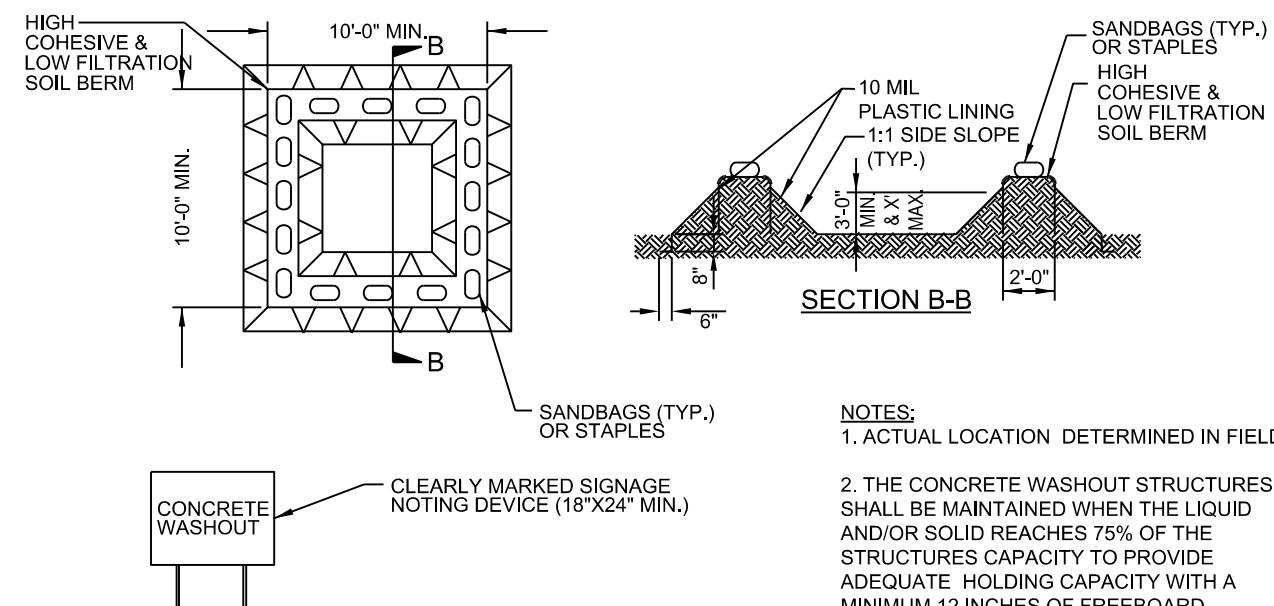
TOP VIEW

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



- NOTES:**
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE NOT TO SCALE



- NOTES:**
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARLY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

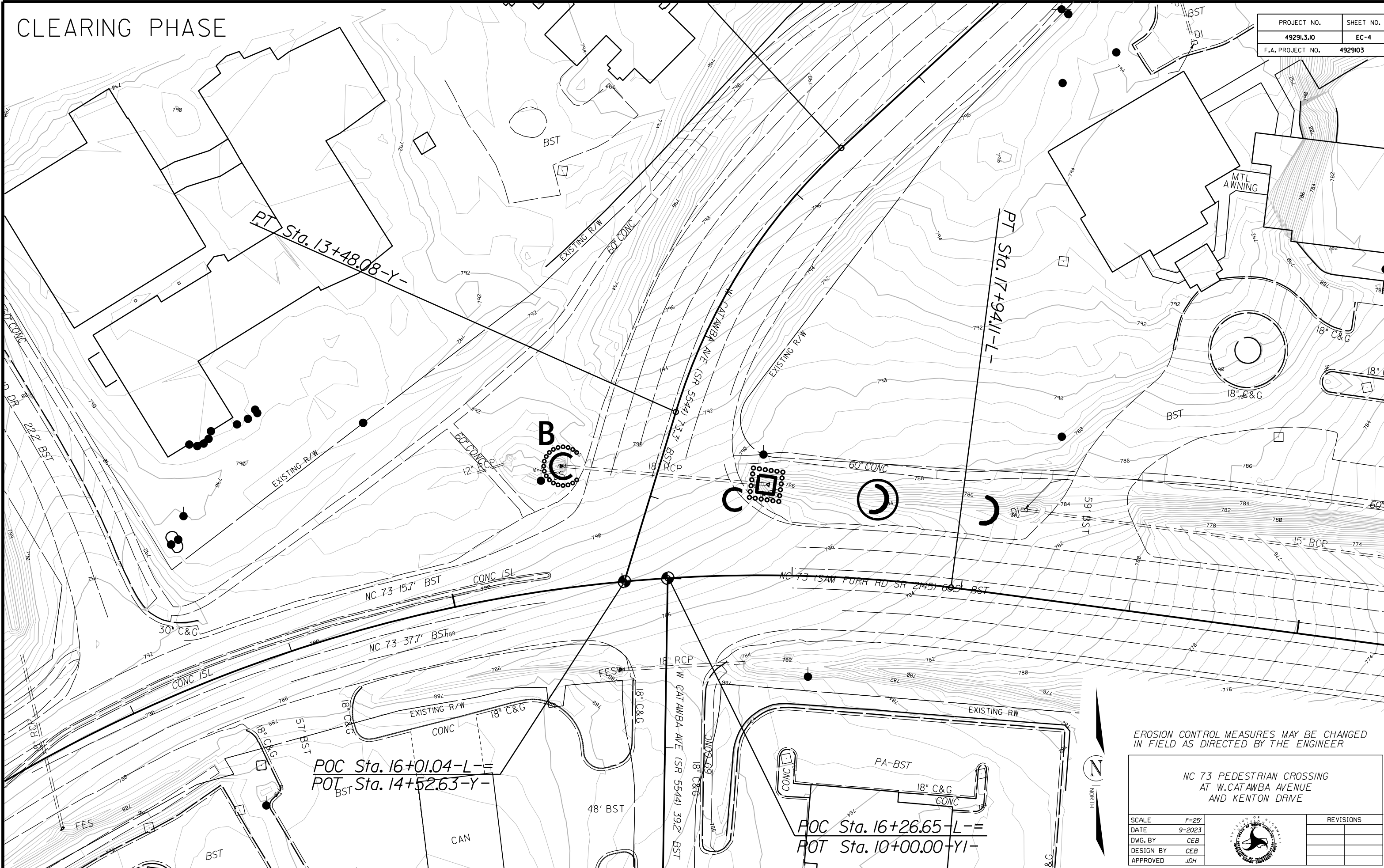
PROJECT NO.	SHEET NO.
49291.310	EC-3
F.A. PROJECT NO.	4929103

SOIL STABILIZATION TIMEFRAMES

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

CLEARING PHASE

PROJECT NO.	SHEET NO.
49291.310	EC-4
F.A. PROJECT NO.	4929103



EROSION CONTROL MEASURES MAY BE CHANGED IN FIELD AS DIRECTED BY THE ENGINEER

NC 73 PEDESTRIAN CROSSING AT W.CATAWBA AVENUE AND KENTON DRIVE

SCALE	1"=25'
DATE	9-2023
DWG. BY	CEB
DESIGN BY	CEB
APPROVED	JDH

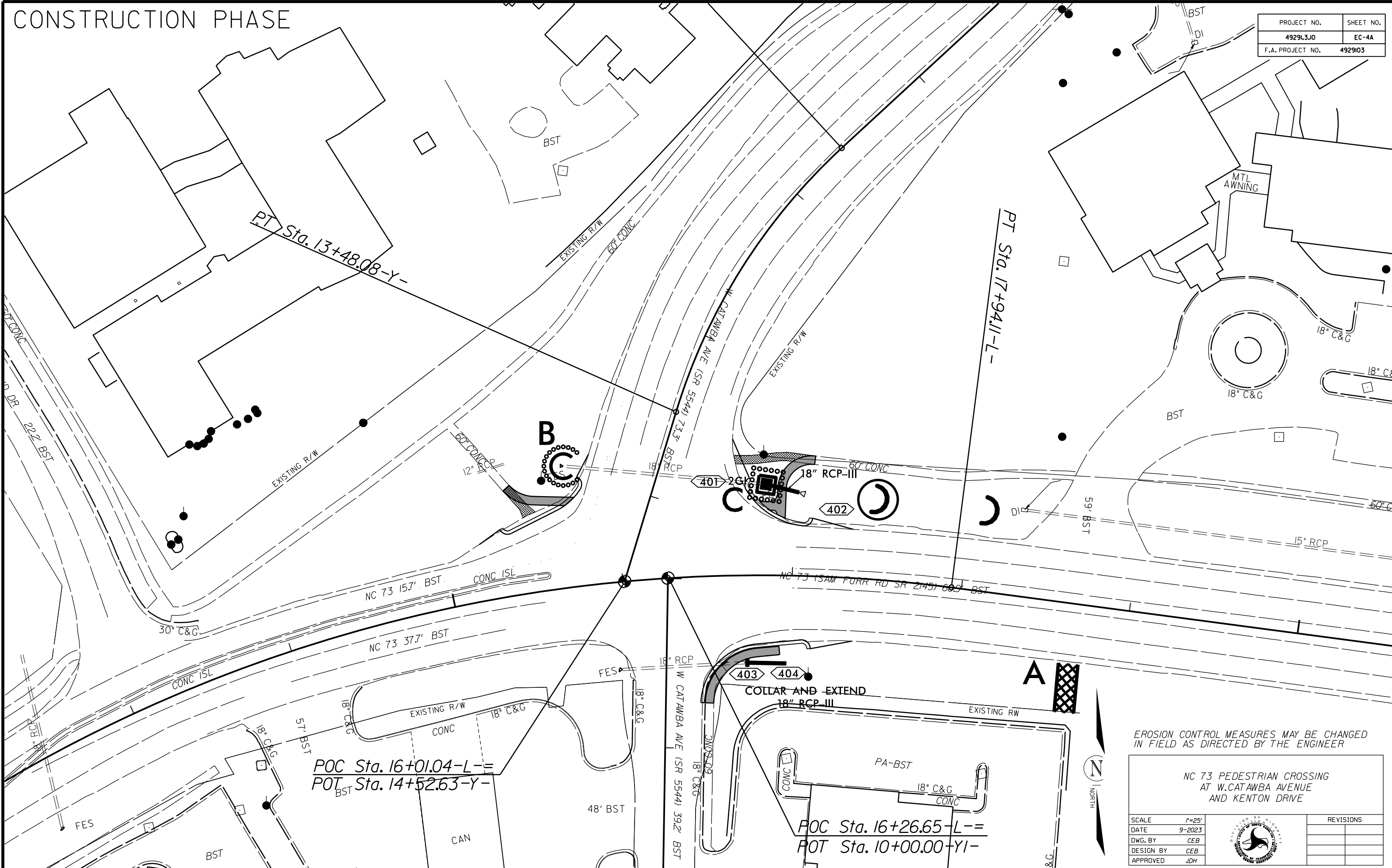


REVISIONS



CONSTRUCTION PHASE

PROJECT NO.	SHEET NO.
49291.310	EC-4A
F.A. PROJECT NO.	4929103



EROSION CONTROL MEASURES MAY BE CHANGED
IN FIELD AS DIRECTED BY THE ENGINEER

NC 73 PEDESTRIAN CROSSING
AT W. CATAWBA AVENUE
AND KENTON DRIVE

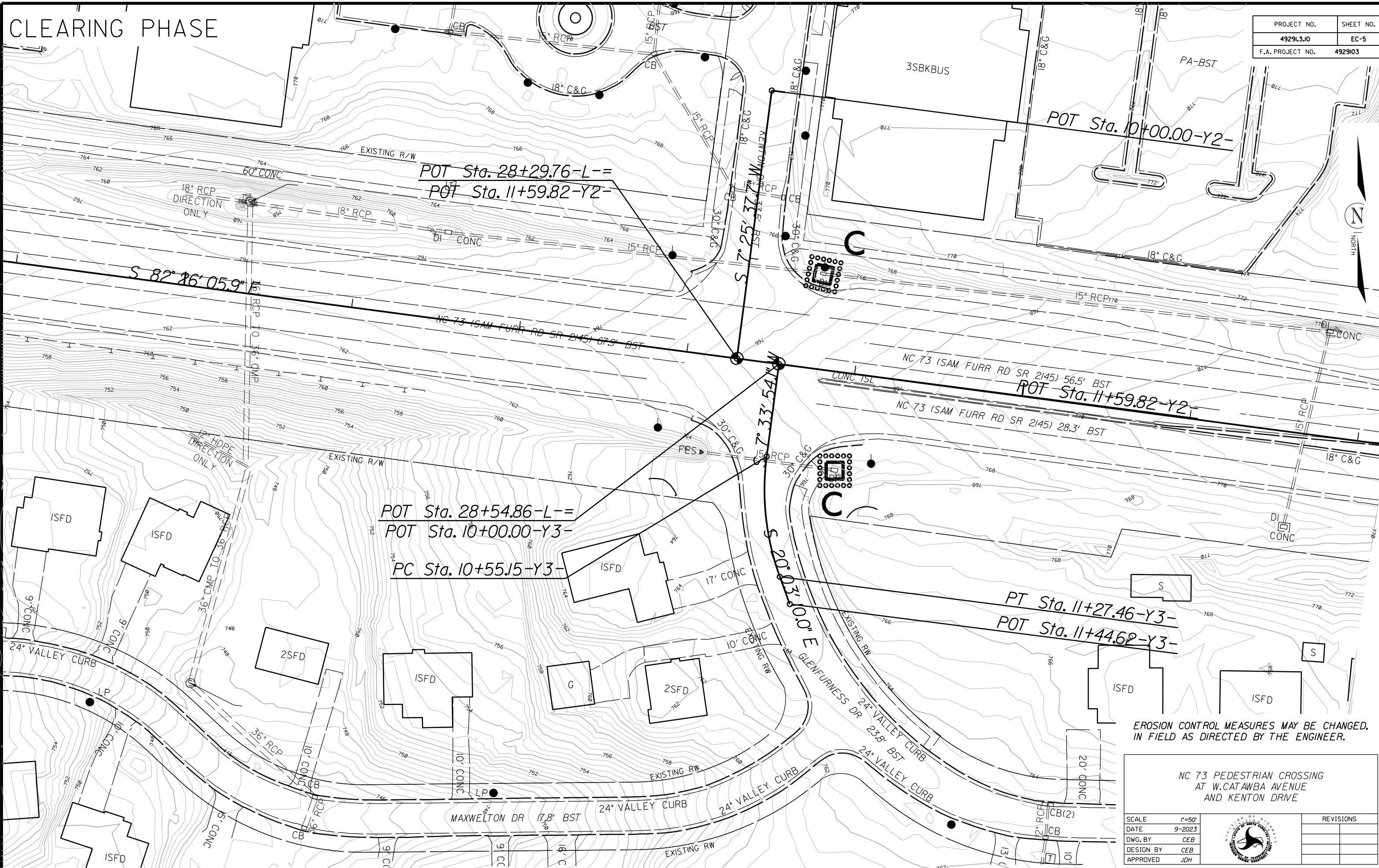
SCALE	1"=25'
DATE	9-2023
DWG. BY	CEB
DESIGN BY	CEB
APPROVED	JDH



REVISIONS

CLEARING PHASE

PROJECT NO.	SHEET NO.
49291.310	EC-5
F.A. PROJECT NO.	4929103



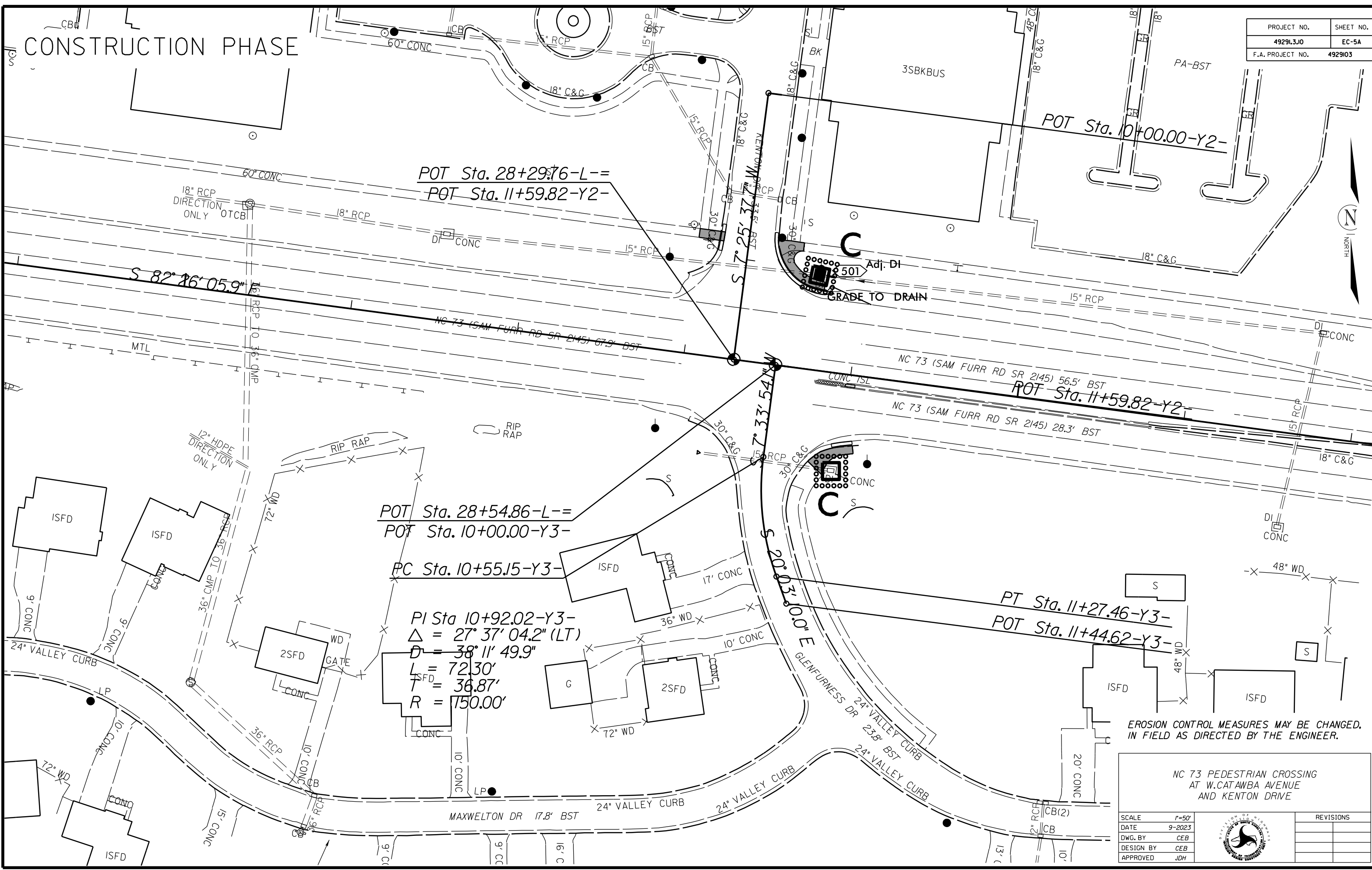
EROSION CONTROL MEASURES MAY BE CHANGED, IN FIELD AS DIRECTED BY THE ENGINEER.

NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	9-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

CONSTRUCTION PHASE

PROJECT NO.	SHEET NO.
49291.310	EC-5A
F.A. PROJECT NO.	4929103



EROSION CONTROL MEASURES MAY BE CHANGED, IN FIELD AS DIRECTED BY THE ENGINEER.

NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	9-2023		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

PROJECT NO.	SHEET NO.
49291.310	PMP-1
F.A. PROJECT NO.	4929103

ROADWAY DESIGN
ENGINEER
02/26/2024

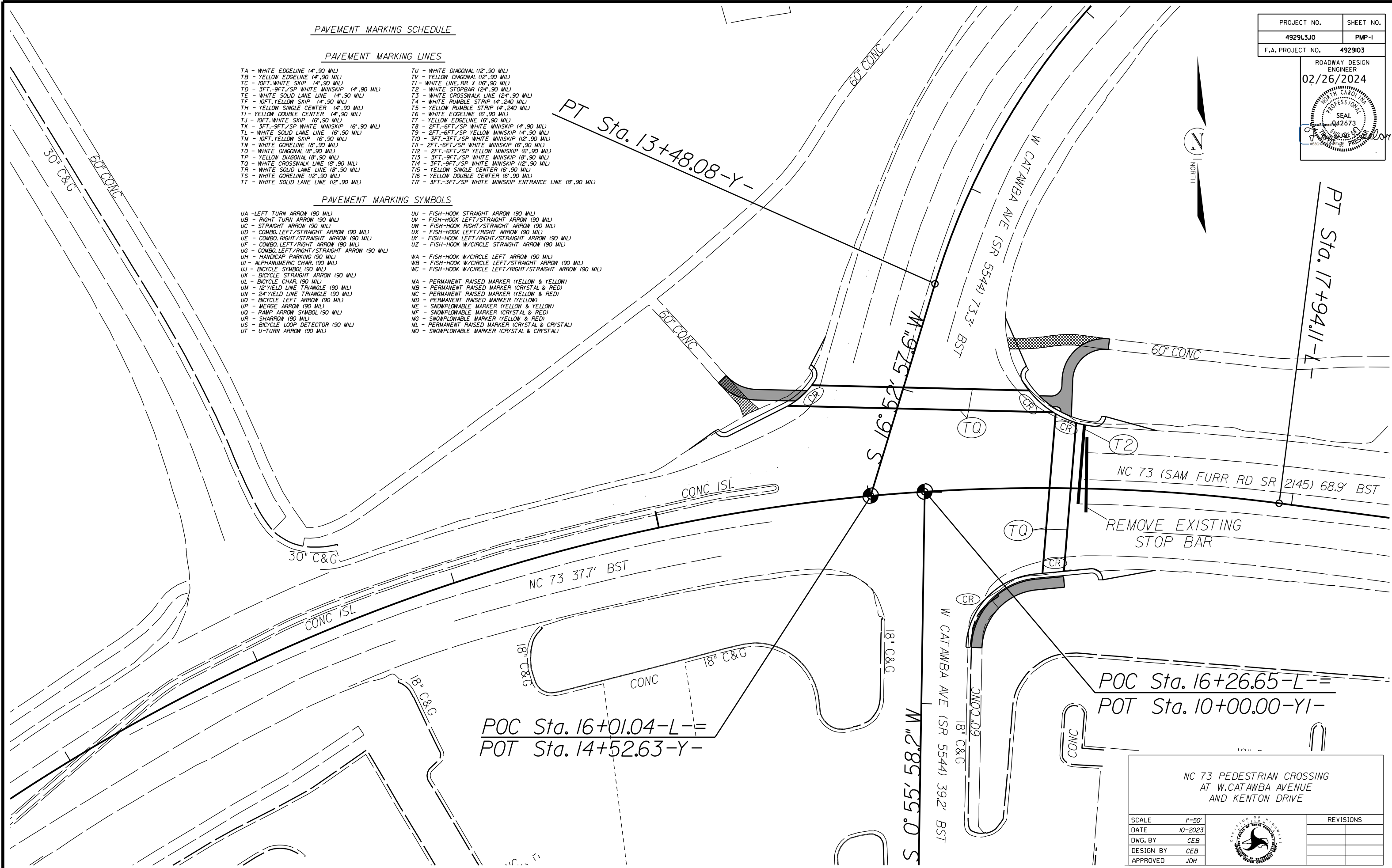
PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

- | | |
|---|--|
| TA - WHITE EDGELINE (4',90 MIL) | TU - WHITE DIAGONAL (12',90 MIL) |
| TB - YELLOW EDGELINE (4',90 MIL) | TV - YELLOW DIAGONAL (12',90 MIL) |
| TC - 10FT. WHITE SKIP (4',90 MIL) | T1 - WHITE LINE, RR X (16',90 MIL) |
| TD - 3FT.-9FT./SP WHITE MINISKIP (4',90 MIL) | T2 - WHITE STOPBAR (24',90 MIL) |
| TE - WHITE SOLID LANE LINE (4',90 MIL) | T3 - WHITE CROSSWALK LINE (24',90 MIL) |
| TF - 10FT. YELLOW SKIP (4',90 MIL) | T4 - WHITE RUMBLE STRIP (14',240 MIL) |
| TH - YELLOW SINGLE CENTER (4',90 MIL) | T5 - YELLOW RUMBLE STRIP (14',240 MIL) |
| TI - YELLOW DOUBLE CENTER (4',90 MIL) | T6 - WHITE EDGELINE (16',90 MIL) |
| TJ - 10FT. WHITE SKIP (16',90 MIL) | TT - YELLOW EDGELINE (16',90 MIL) |
| TK - 3FT.-9FT./SP WHITE MINISKIP (16',90 MIL) | T8 - 2FT.-6FT./SP WHITE MINISKIP (4',90 MIL) |
| TL - WHITE SOLID LANE LINE (16',90 MIL) | T9 - 2FT.-6FT./SP YELLOW MINISKIP (4',90 MIL) |
| TM - 10FT. YELLOW SKIP (16',90 MIL) | T10 - 3FT.-3FT./SP WHITE MINISKIP (12',90 MIL) |
| TN - WHITE GORELINE (8',90 MIL) | T11 - 2FT.-6FT./SP WHITE MINISKIP (16',90 MIL) |
| TO - WHITE DIAGONAL (8',90 MIL) | T12 - 2FT.-6FT./SP YELLOW MINISKIP (16',90 MIL) |
| TP - YELLOW DIAGONAL (8',90 MIL) | T13 - 3FT.-9FT./SP WHITE MINISKIP (18',90 MIL) |
| TQ - WHITE CROSSWALK LINE (8',90 MIL) | T14 - 3FT.-9FT./SP WHITE MINISKIP (12',90 MIL) |
| TR - WHITE SOLID LANE LINE (8',90 MIL) | T15 - YELLOW SINGLE CENTER (16',90 MIL) |
| TS - WHITE GORELINE (12',90 MIL) | T16 - YELLOW DOUBLE CENTER (16',90 MIL) |
| TT - WHITE SOLID LANE LINE (12',90 MIL) | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (18',90 MIL) |

PAVEMENT MARKING SYMBOLS

- | | |
|--|--|
| UA - LEFT TURN ARROW (90 MIL) | UU - FISH-HOOK STRAIGHT ARROW (90 MIL) |
| UB - RIGHT TURN ARROW (90 MIL) | UV - FISH-HOOK LEFT/STRAIGHT ARROW (90 MIL) |
| UC - STRAIGHT ARROW (90 MIL) | UW - FISH-HOOK RIGHT/STRAIGHT ARROW (90 MIL) |
| UD - COMBO. LEFT/STRAIGHT ARROW (90 MIL) | UX - FISH-HOOK LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UE - COMBO. RIGHT/STRAIGHT ARROW (90 MIL) | UY - FISH-HOOK LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UF - COMBO. LEFT/RIGHT ARROW (90 MIL) | UZ - FISH-HOOK W/CIRCLE STRAIGHT ARROW (90 MIL) |
| UG - COMBO. LEFT/RIGHT/STRAIGHT ARROW (90 MIL) | WA - FISH-HOOK W/CIRCLE LEFT ARROW (90 MIL) |
| UH - HANDICAP PARKING (90 MIL) | WB - FISH-HOOK W/CIRCLE LEFT/STRAIGHT ARROW (90 MIL) |
| UI - ALPHANUMERIC CHAR. (90 MIL) | WC - FISH-HOOK W/CIRCLE LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UJ - BICYCLE SYMBOL (90 MIL) | MA - PERMANENT RAISED MARKER (YELLOW & YELLOW) |
| UK - BICYCLE STRAIGHT ARROW (90 MIL) | MB - PERMANENT RAISED MARKER (CRYSTAL & RED) |
| UL - BICYCLE CHAR. (90 MIL) | MC - PERMANENT RAISED MARKER (YELLOW & RED) |
| UM - 12" YIELD LINE TRIANGLE (90 MIL) | MD - PERMANENT RAISED MARKER (YELLOW) |
| UN - 24" YIELD LINE TRIANGLE (90 MIL) | ME - SNOWPLOWABLE MARKER (YELLOW & YELLOW) |
| UO - BICYCLE LEFT ARROW (90 MIL) | MF - SNOWPLOWABLE MARKER (CRYSTAL & RED) |
| UP - MERGE ARROW (90 MIL) | MG - SNOWPLOWABLE MARKER (YELLOW & RED) |
| UQ - RAMP ARROW SYMBOL (90 MIL) | ML - PERMANENT RAISED MARKER (CRYSTAL & CRYSTAL) |
| UR - SHARROW (90 MIL) | MO - SNOWPLOWABLE MARKER (CRYSTAL & CRYSTAL) |
| US - BICYCLE LOOP DETECTOR (90 MIL) | |
| UT - U-TURN ARROW (90 MIL) | |



REMOVE EXISTING STOP BAR

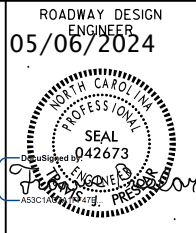
POC Sta. 16+26.65-L
POT Sta. 10+00.00-Y

NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'
DATE	10-2023
DWG. BY	CEB
DESIGN BY	CEB
APPROVED	JDH



REVISIONS



REMOVE EXISTING PAVEMENT
MARKINGS BETWEEN PROPOSED
STOP BAR AND INTERSECTION

POT Sta. 28+29.76-L-=-
POT Sta. 11+59.82-Y2-=-

REMOVE EXISTING PAVEMENT
MARKINGS BETWEEN PROPOSED
STOP BAR AND INTERSECTION

POT Sta. 28+54.86-L-=-
POT Sta. 10+00.00-Y3-=-

PC Sta. 10+55.15-Y3-=-

PT Sta. 11+27.46-Y3-=-

POT Sta. 11+44.62-Y3-=-

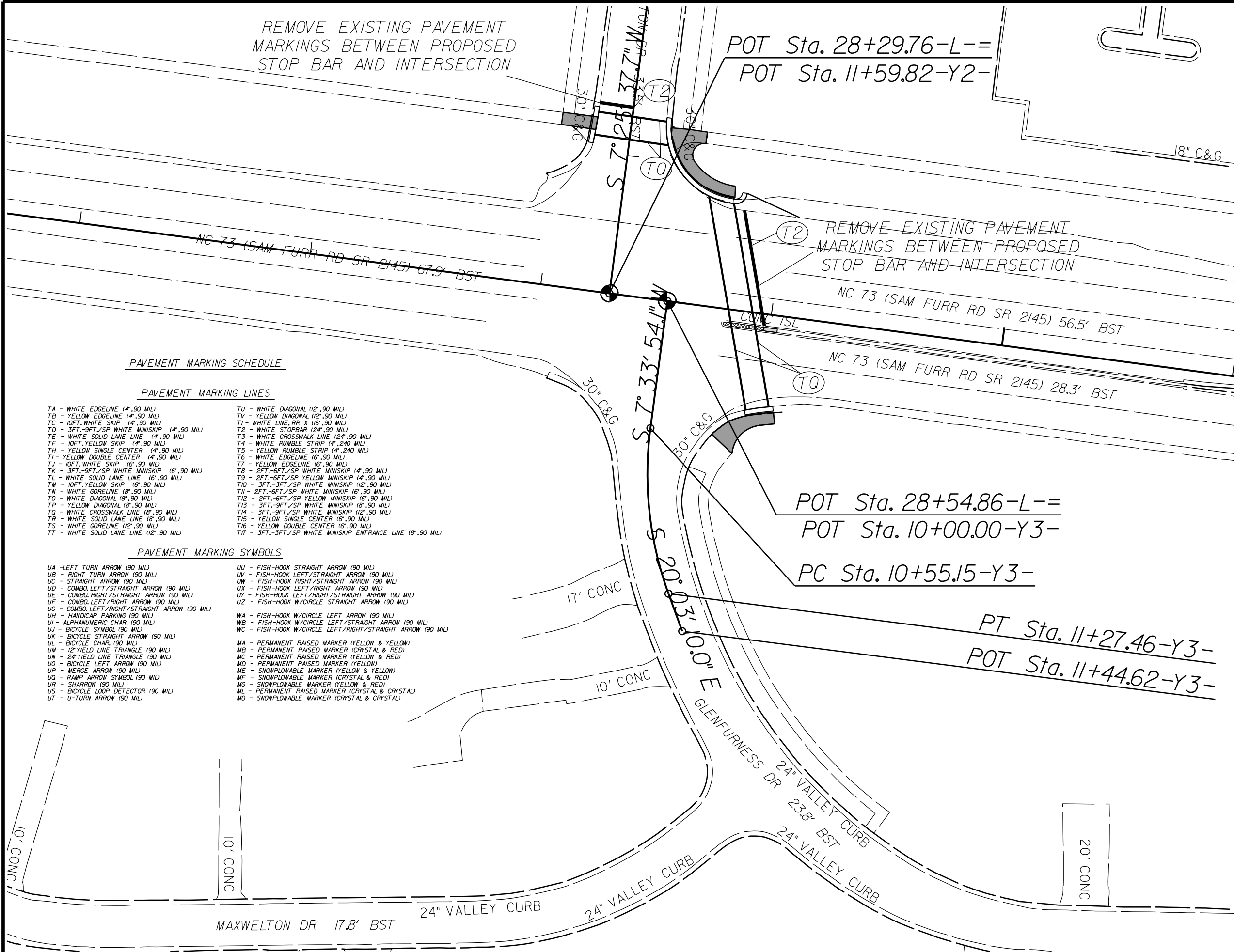
PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

- | | |
|---|--|
| TA - WHITE EDGELINE (4', 90 MIL) | TU - WHITE DIAGONAL (12', 90 MIL) |
| TB - YELLOW EDGELINE (4', 90 MIL) | TV - YELLOW DIAGONAL (12', 90 MIL) |
| TC - 10FT. WHITE SKIP (4', 90 MIL) | TI - WHITE LINE, RR X (16', 90 MIL) |
| TD - 3FT.-9FT./SP WHITE MINISKIP (4', 90 MIL) | T2 - WHITE STOPBAR (24', 90 MIL) |
| TE - WHITE SOLID LANE LINE (4', 90 MIL) | T3 - WHITE CROSSWALK LINE (24', 90 MIL) |
| TF - 10FT. YELLOW SKIP (4', 90 MIL) | T4 - WHITE RUMBLE STRIP (4", 240 MIL) |
| TH - YELLOW SINGLE CENTER (4', 90 MIL) | T5 - YELLOW RUMBLE STRIP (4", 240 MIL) |
| TI - YELLOW DOUBLE CENTER (4', 90 MIL) | T6 - WHITE EDGELINE (6', 90 MIL) |
| TJ - 10FT. WHITE SKIP (6', 90 MIL) | T7 - YELLOW EDGELINE (6', 90 MIL) |
| TK - 3FT.-9FT./SP WHITE MINISKIP (6', 90 MIL) | T8 - 2FT.-6FT./SP WHITE MINISKIP (4', 90 MIL) |
| TL - WHITE SOLID LANE LINE (6', 90 MIL) | T9 - 2FT.-6FT./SP YELLOW MINISKIP (4', 90 MIL) |
| TM - 10FT. YELLOW SKIP (6', 90 MIL) | T10 - 3FT.-3FT./SP WHITE MINISKIP (12', 90 MIL) |
| TN - WHITE GORELINE (8', 90 MIL) | T11 - 2FT.-6FT./SP WHITE MINISKIP (6', 90 MIL) |
| TO - WHITE DIAGONAL (8', 90 MIL) | T12 - 2FT.-6FT./SP YELLOW MINISKIP (6', 90 MIL) |
| TP - YELLOW DIAGONAL (8', 90 MIL) | T13 - 3FT.-9FT./SP WHITE MINISKIP (8', 90 MIL) |
| TQ - WHITE CROSSWALK LINE (8', 90 MIL) | T14 - 3FT.-9FT./SP WHITE MINISKIP (12', 90 MIL) |
| TR - WHITE SOLID LANE LINE (8', 90 MIL) | T15 - YELLOW SINGLE CENTER (6', 90 MIL) |
| TS - WHITE GORELINE (12', 90 MIL) | T16 - YELLOW DOUBLE CENTER (6', 90 MIL) |
| TT - WHITE SOLID LANE LINE (12', 90 MIL) | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8', 90 MIL) |

PAVEMENT MARKING SYMBOLS

- | | |
|--|--|
| UA - LEFT TURN ARROW (90 MIL) | UU - FISH-HOOK STRAIGHT ARROW (90 MIL) |
| UB - RIGHT TURN ARROW (90 MIL) | UV - FISH-HOOK LEFT/STRAIGHT ARROW (90 MIL) |
| UC - STRAIGHT ARROW (90 MIL) | UW - FISH-HOOK RIGHT/STRAIGHT ARROW (90 MIL) |
| UD - COMBO. LEFT/STRAIGHT ARROW (90 MIL) | UX - FISH-HOOK LEFT/RIGHT ARROW (90 MIL) |
| UE - COMBO. RIGHT/STRAIGHT ARROW (90 MIL) | UY - FISH-HOOK LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UF - COMBO. LEFT/RIGHT ARROW (90 MIL) | UZ - FISH-HOOK W/CIRCLE STRAIGHT ARROW (90 MIL) |
| UG - COMBO. LEFT/RIGHT/STRAIGHT ARROW (90 MIL) | WA - FISH-HOOK W/CIRCLE LEFT ARROW (90 MIL) |
| UH - HANDICAP PARKING (90 MIL) | WB - FISH-HOOK W/CIRCLE LEFT/STRAIGHT ARROW (90 MIL) |
| UI - ALPHANUMERIC CHAR. (90 MIL) | WC - FISH-HOOK W/CIRCLE LEFT/RIGHT/STRAIGHT ARROW (90 MIL) |
| UJ - BICYCLE SYMBOL (90 MIL) | MA - PERMANENT RAISED MARKER (YELLOW & YELLOW) |
| UK - BICYCLE STRAIGHT ARROW (90 MIL) | MB - PERMANENT RAISED MARKER (CRYSTAL & RED) |
| UL - BICYCLE CHAR. (90 MIL) | MC - PERMANENT RAISED MARKER (YELLOW & RED) |
| UM - 12" YIELD LINE TRIANGLE (90 MIL) | MD - PERMANENT RAISED MARKER (YELLOW) |
| UN - 24" YIELD LINE TRIANGLE (90 MIL) | ME - SNOWPLOWABLE MARKER (YELLOW & YELLOW) |
| UP - BICYCLE LEFT ARROW (90 MIL) | MF - SNOWPLOWABLE MARKER (CRYSTAL & RED) |
| UQ - MERGE ARROW (90 MIL) | MG - SNOWPLOWABLE MARKER (YELLOW & RED) |
| UR - RAMP ARROW SYMBOL (90 MIL) | ML - PERMANENT RAISED MARKER (CRYSTAL & CRYSTAL) |
| US - SHARROW (90 MIL) | MO - SNOWPLOWABLE MARKER (CRYSTAL & CRYSTAL) |
| UT - BICYCLE LOOP DETECTOR (90 MIL) | |
| UV - U-TURN ARROW (90 MIL) | |

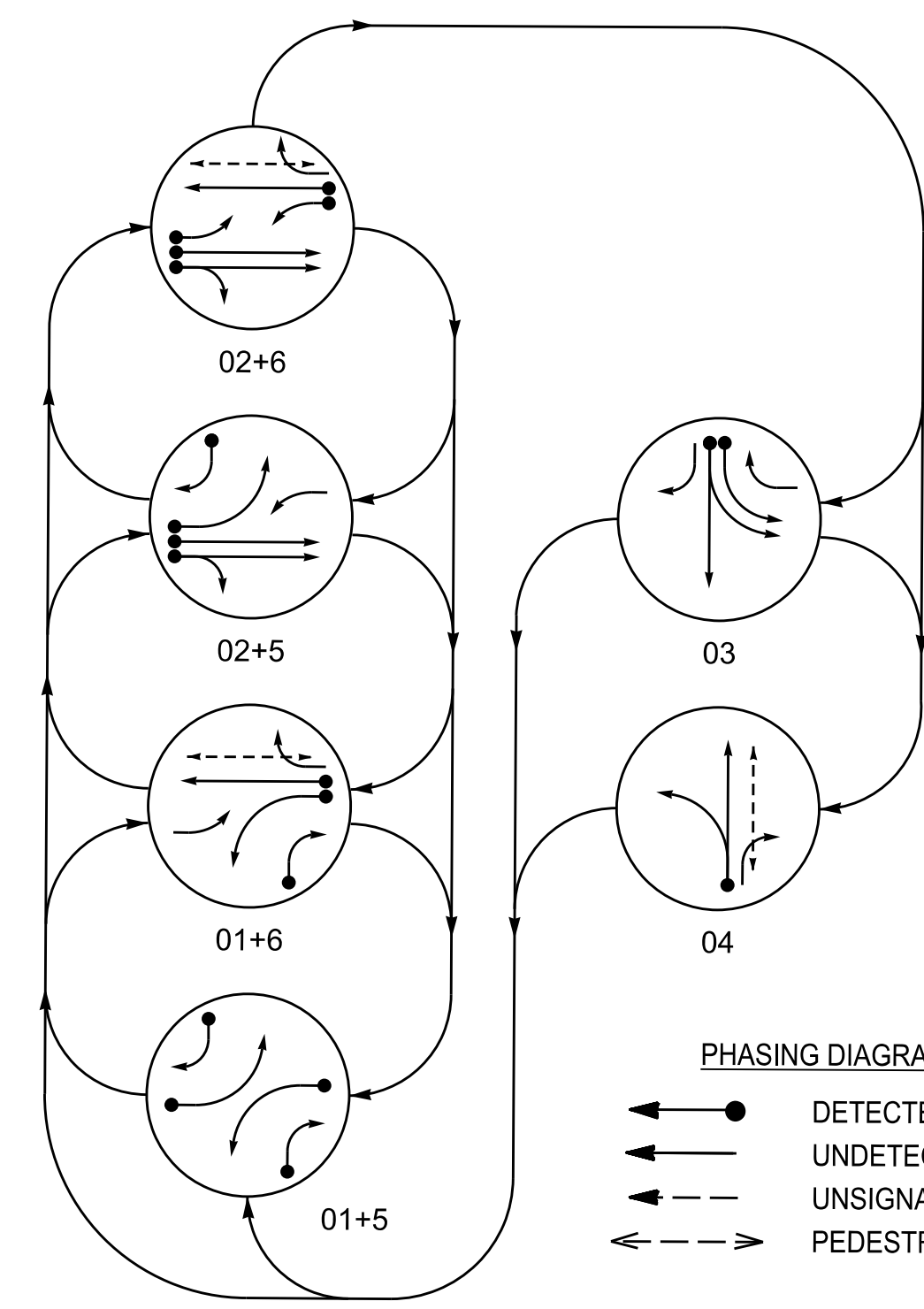
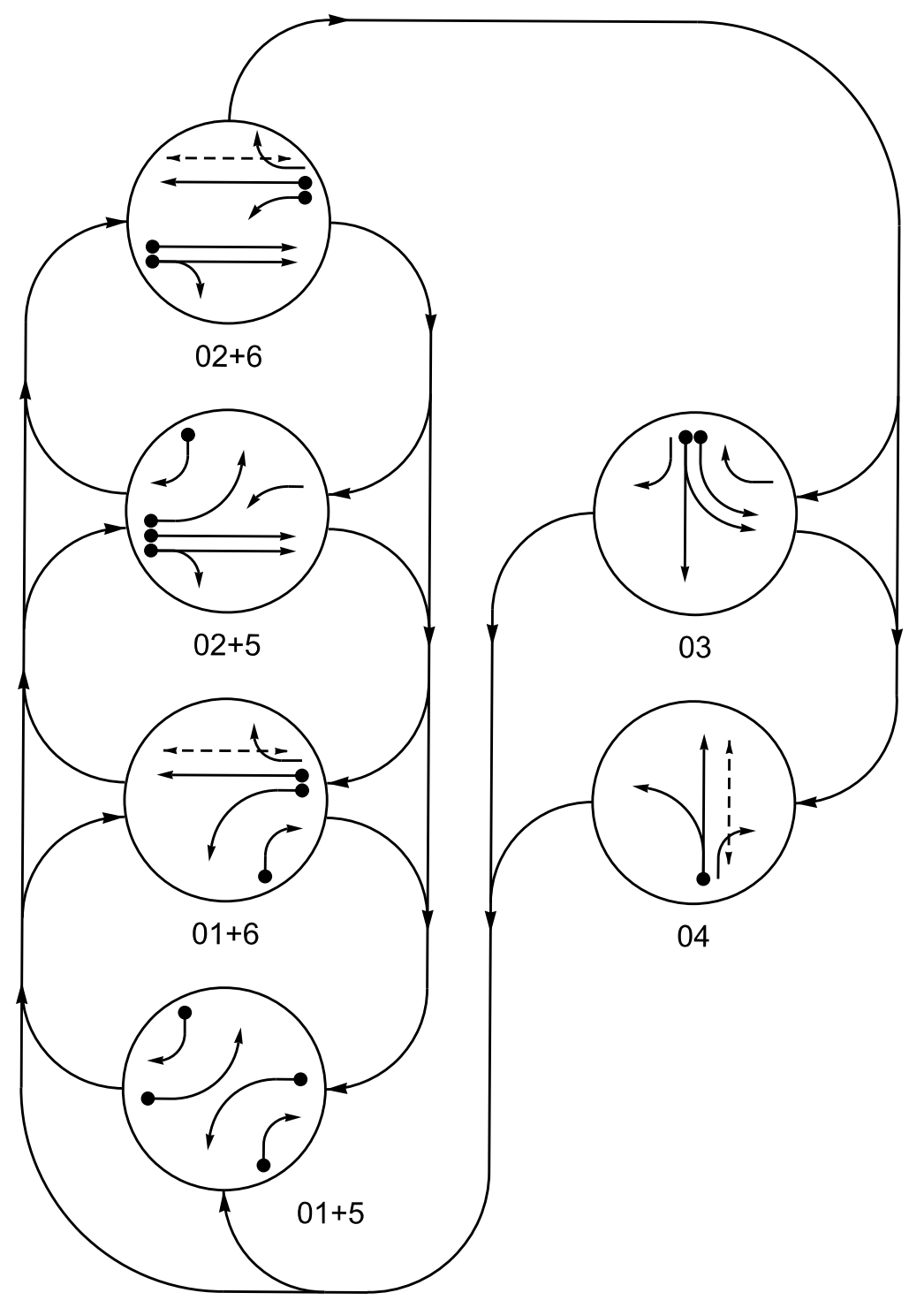


NC 73 PEDESTRIAN CROSSING
AT W.CATAWBA AVENUE
AND KENTON DRIVE

SCALE	1"=50'		REVISIONS
DATE	04-2024		
DWG. BY	CEB		
DESIGN BY	CEB		
APPROVED	JDH		

DEFAULT PHASING DIAGRAM

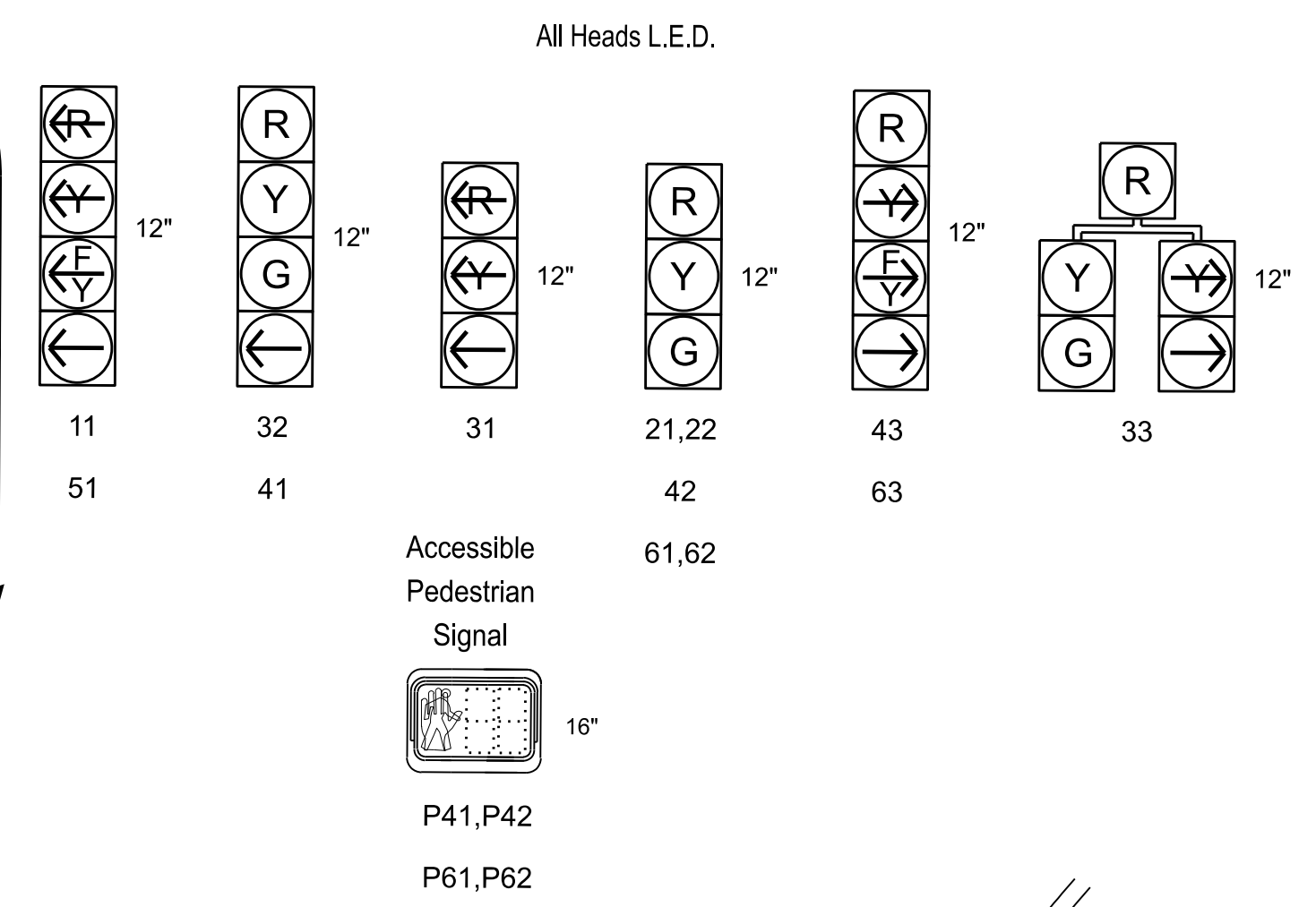
ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

SIGNAL FACE I.D.



MAXTIME DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	PROGRAMMING							
					CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD	
1A	6X40	0	2-4-2	-	1	15.0	-	X	-	X	X	-
1B	6X25	0	2-4-2	-	6	3.0	-	X	-	X	X	-
2A	6X6	300	5	-	2	-	-	X	X	X	X	-
2B	6X6	300	5	-	2	-	-	X	X	X	X	-
3A	6X40	0	2-4-2	-	3	3.0	-	X	-	X	X	-
3B	6X40	0	2-4-2	-	3	-	-	X	-	X	X	-
4A	6X25	0	2-4-2	-	4	10.0	-	X	-	X	X	-
5A	6X40	0	2-4-2	-	5	15.0*	-	X	-	X	X	-
5B	6X40	0	2-4-2	-	5	3.0	-	X	-	X	X	-
6A	6X6	300	5	-	6	-	-	X	X	X	X	-

* Disable Delay During Normal Phasing Operation.
 ** Disable Phase 2 Call for Loop 5A During Normal Phasing Operation.

6-Phase Fully Actuated w/ Alternate Phasing Operation NC 73 (Sam Furr Road) CLS

NOTES

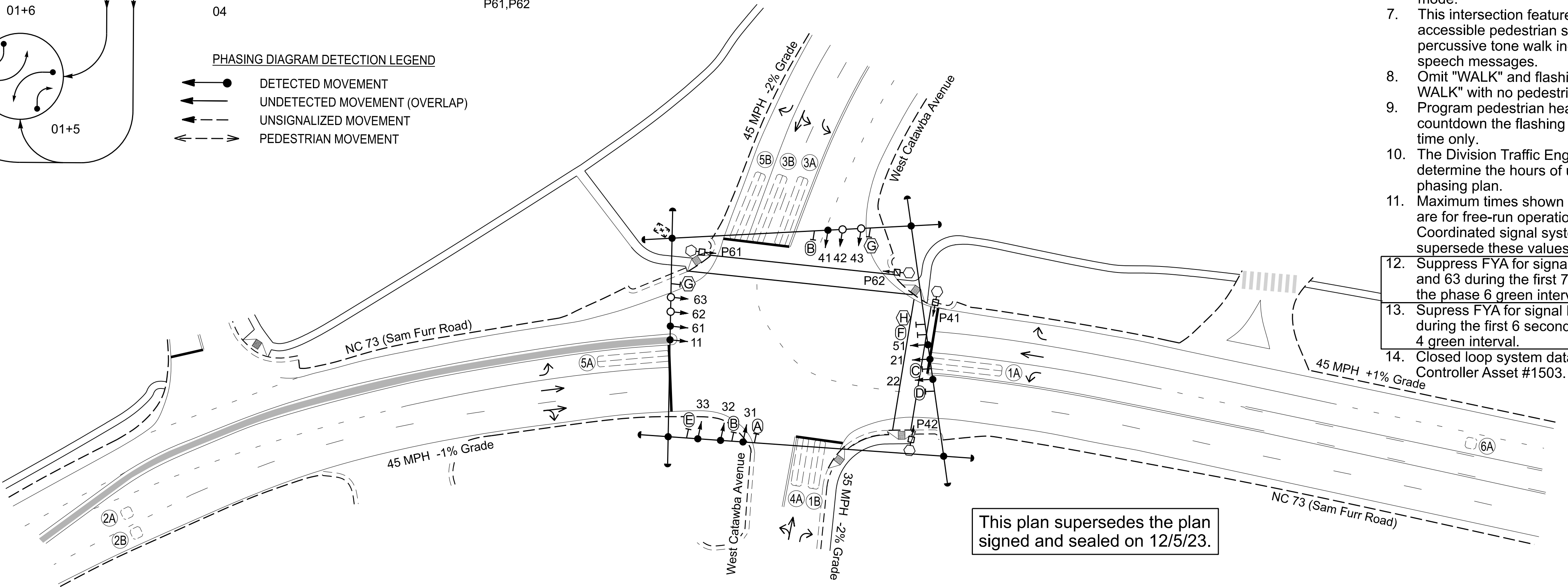
- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Phase 1 and/or phase 5 may be lagged.
- The order of phase 3 and phase 4 may be reversed.
- Reposition existing signal heads numbered 11, 41 and 61.
- Set all detector units to presence mode.
- This intersection features accessible pedestrian signals utilizing percussive tone walk indications and/or speech messages.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- The Division Traffic Engineer will determine the hours of use for each phasing plan.
- Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.
- Suppress FYA for signal heads 51 and 63 during the first 7 seconds of the phase 6 green interval.
- Suppress FYA for signal head 43 during the first 6 seconds of the phase 4 green interval.
- Closed loop system data: Controller Asset #1503.

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	03	04
11	←	←	←	←	←	←
21,22	R	R	G	G	R	R
31	R	R	R	R	←	R
32	R	R	R	R	←	R
33	R	R	R	R	←	R
41	R	R	R	R	←	R
42	R	R	R	R	←	R
43	←	←	←	←	←	←
51	←	←	←	←	←	←
61,62	R	G	R	G	R	R
63	R	G	R	G	R	R
P41,P42	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	01+5	01+6	02+5	02+6	03	04
11	←	←	←	←	←	←
21,22	R	R	G	G	R	R
31	R	R	R	R	←	R
32	R	R	R	R	←	R
33	R	R	R	R	←	R
41	R	R	R	R	←	R
42	R	R	R	R	←	R
43	←	←	←	←	←	←
51	←	←	←	←	←	←
61,62	R	G	R	G	R	R
63	R	G	R	G	R	R
P41,P42	DW	DW	DW	DW	W	DRK
P61,P62	DW	W	DW	W	DW	DRK



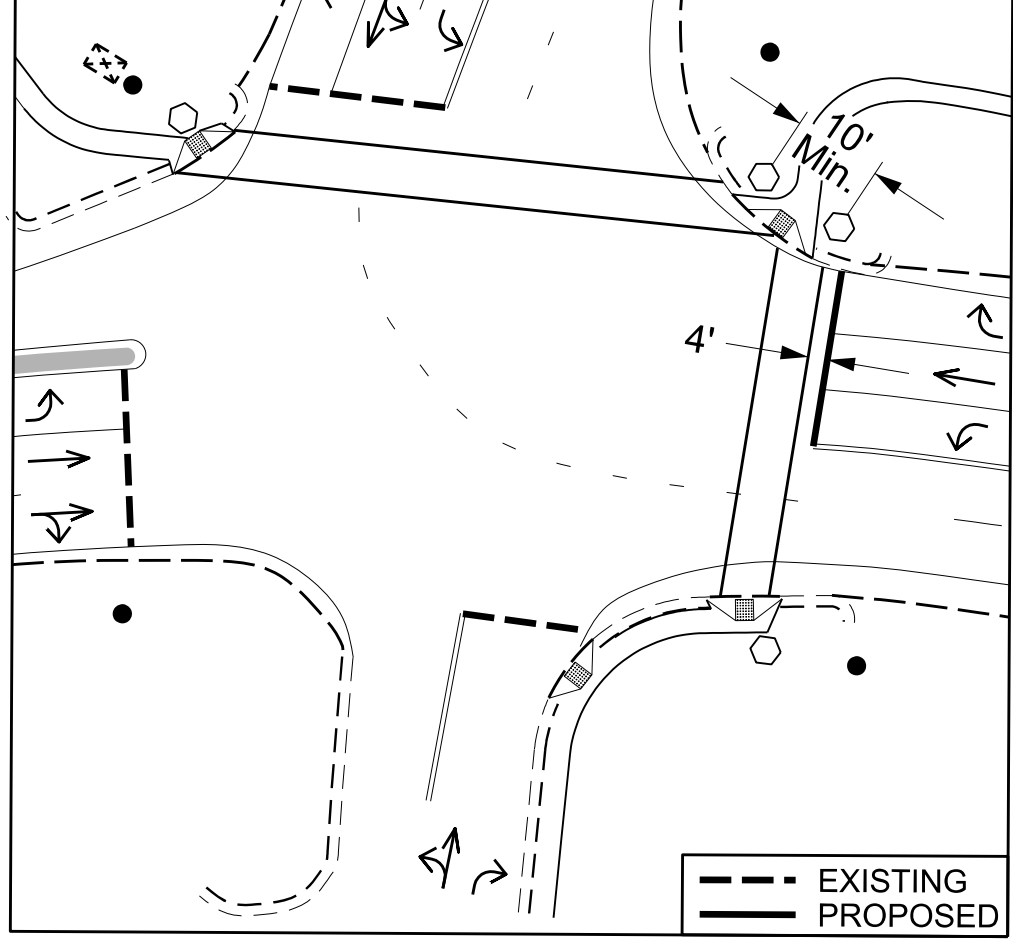
This plan supersedes the plan signed and sealed on 12/5/23.

MAXTIME TIMING CHART

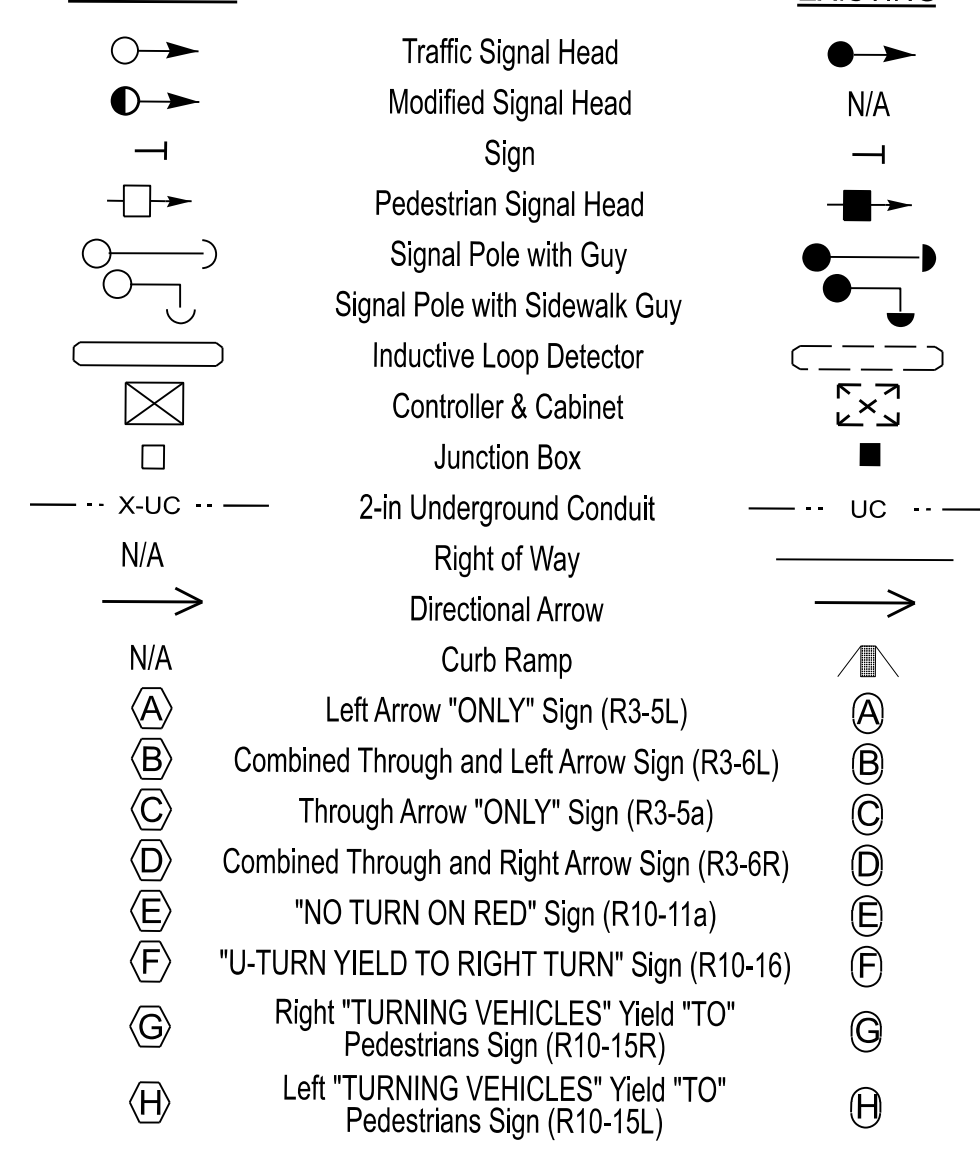
FEATURE	PHASE					
	1	2	3	4	5	6
Walk *	-	-	-	7	-	7
Ped Clear	-	-	-	17	-	29
Min Green *	7	12	7	7	7	12
Passage *	2.0	6.0	2.0	2.0	2.0	6.0
Max 1 *	20	90	30	12	20	90
Yellow Change	3.0	4.6	4.7	4.0	3.0	4.6
Red Clear	2.9	2.1	1.9	2.2	2.8	2.1
Added Initial *	-	1.8	-	-	-	2.5
Maximum Initial *	-	34	-	-	-	34
Time Before Reduction *	-	15	-	-	-	15
Time To Reduce *	-	30	-	-	-	30
Minimum Gap	-	3.0	-	-	-	3.0
Advance Walk	-	-	-	-	-	-
Non Lock Detector	X	-	X	X	X	-
Vehicle Recall	-	MIN RECALL	-	-	-	MIN RECALL
Dual Entry	-	-	-	-	-	-

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

PROPOSED STOP LINE LOCATIONS



LEGEND



ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

SIGNAL FACE	VOICE	TONES	INTERVAL	SPEECH MESSAGE
P41	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross NC 73.
P42	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross NC 73
P61	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross Catawba.
P62	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross Catawba.

Signal Upgrade

Prepared in the Offices of:
 Transportation Mobility and Safety Division
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 Signal Design Section

NC 73 (Sam Furr Road) at West Catawba Avenue

Division 10 Mecklenburg County Huntersville
 PLAN DATE: January 2024 REVIEWED BY: R.N. Zinser
 PREPARED BY: T.A. Kenion REVIEWED BY:

750 N. Greenfield Pkwy, Garner, NC 27529
 SCALE: 1"=40'

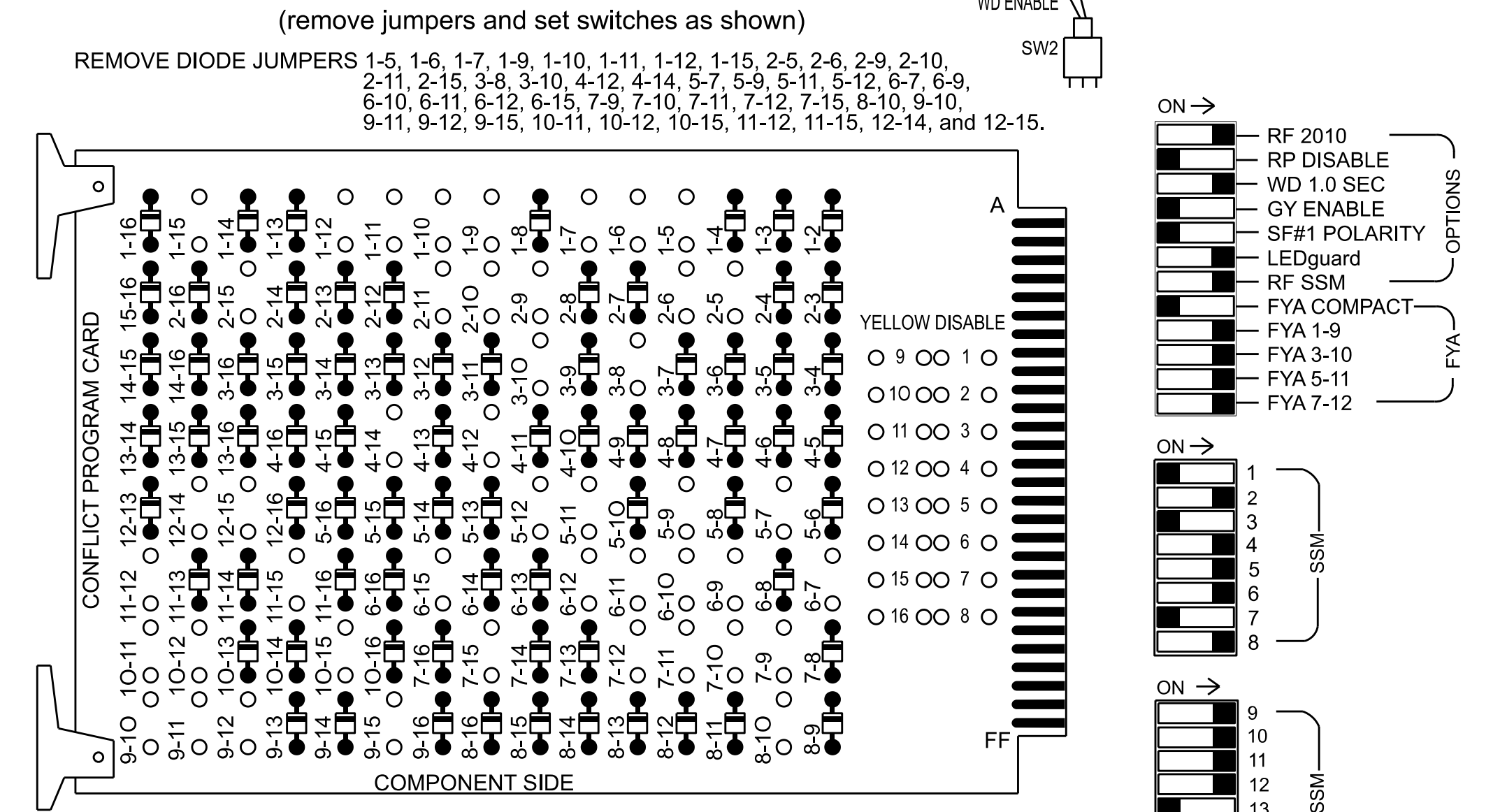
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

Discussed by: R. Nicholas Zinser 02/01/2024
 DATE: 02/01/2024
 SIG. INVENTORY NO. 10-1503

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 10-1503-01-01-1503-Signal Design Section\Division_10\10-1503\Signal Design\2024-01-01\1503_sig_4a_20240101.dgn

16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL



- 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.

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 plan.
- 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 1,3,7,13,14,15, & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- 3. Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- 4. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- 5. The cabinet and controller are part of the NC 73 (Sam Furr Road) Closed Loop System.

EQUIPMENT INFORMATION

Controller.....2070LX
 Cabinet.....332 w/ Aux
 Software.....Q-Free MAXTIME
 Cabinet Mount.....18 With Aux. Output File
 Load Switches Used.....S1, S2, S4, S5, S6, S7, S8, S9, S10, S11, AUX S1, AUX S2, AUX S4, AUX S5,
 Phases Used.....1, 2, 3, 4, 4PED, 5, 6, 6PED
 Overlap "1".....* Overlap "4".....*
 Overlap "2".....* Overlap "7".....*
 Overlap "3".....* Overlap "8".....*

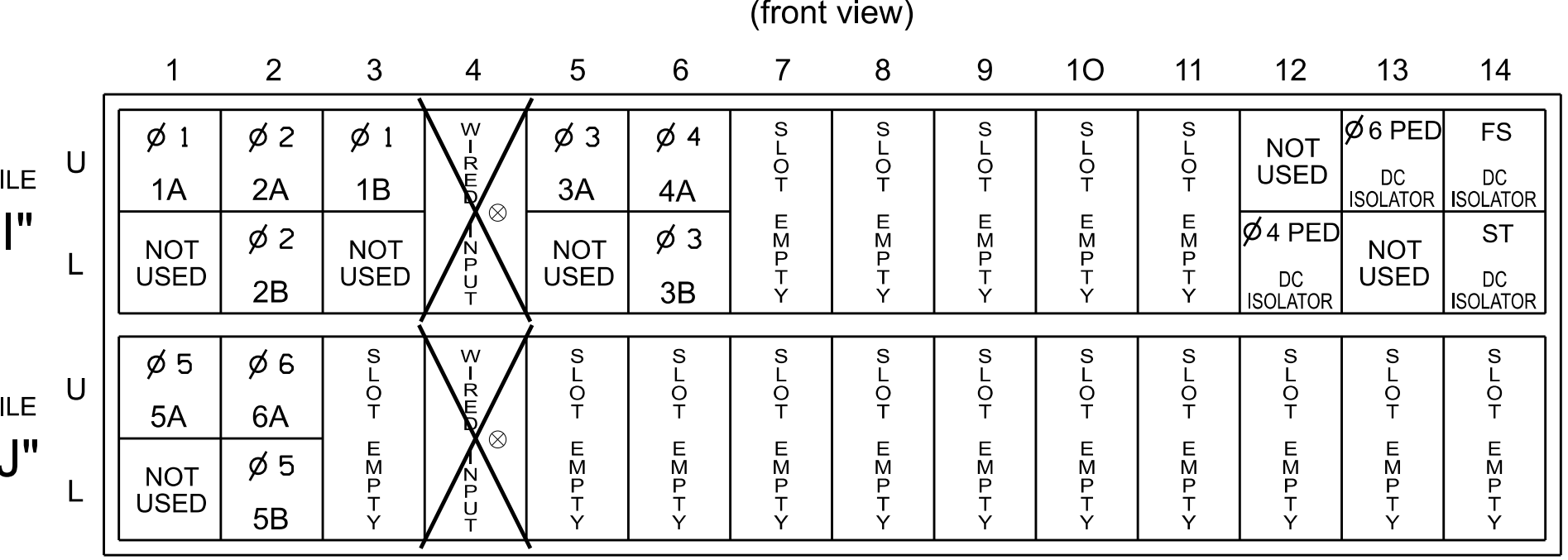
*See overlap programming detail on Sheet 2.

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	AUX S1	AUX S2	AUX S3	AUX S4	AUX S5	AUX S6					
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18					
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	OL7	OL8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE					
SIGNAL HEAD NO.	11	21,22	NU	63	41	42	P41, P42	33	51	61,62	P61, P62	43	31	32	33	NU	11	63	NU	51	43	NU	
RED		128			101	101			*	134									A124				A101
YELLOW	*	129		*	102	102				135		*		108	108								
GREEN		130			103	103					136												
RED ARROW																							
YELLOW ARROW																							
FLASHING YELLOW ARROW																							
GREEN ARROW	127			118	103				133	133			124	109	109								
Hand Icon																							
Walking Person Icon																							

* Denotes install load resistor. See load resistor installation detail this sheet. NU = Not Used
 *See pictorial of head wiring in detail this sheet. NOTE: Loadswitches S10 & S11 have been reassigned. See Sheet 2 for programming details.

INPUT FILE POSITION LAYOUT



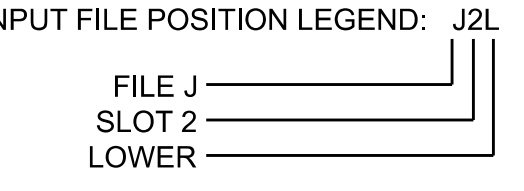
EX.: 1A, 2A, ETC. = LOOP NO.'S FS = FLASH SENSE ST = STOP TIME

NOTE: REMOVE EXISTING JUMPERS ASSOCIATED WITH LOOPS 1A AND 5A FROM REAR OF INPUT FILE.

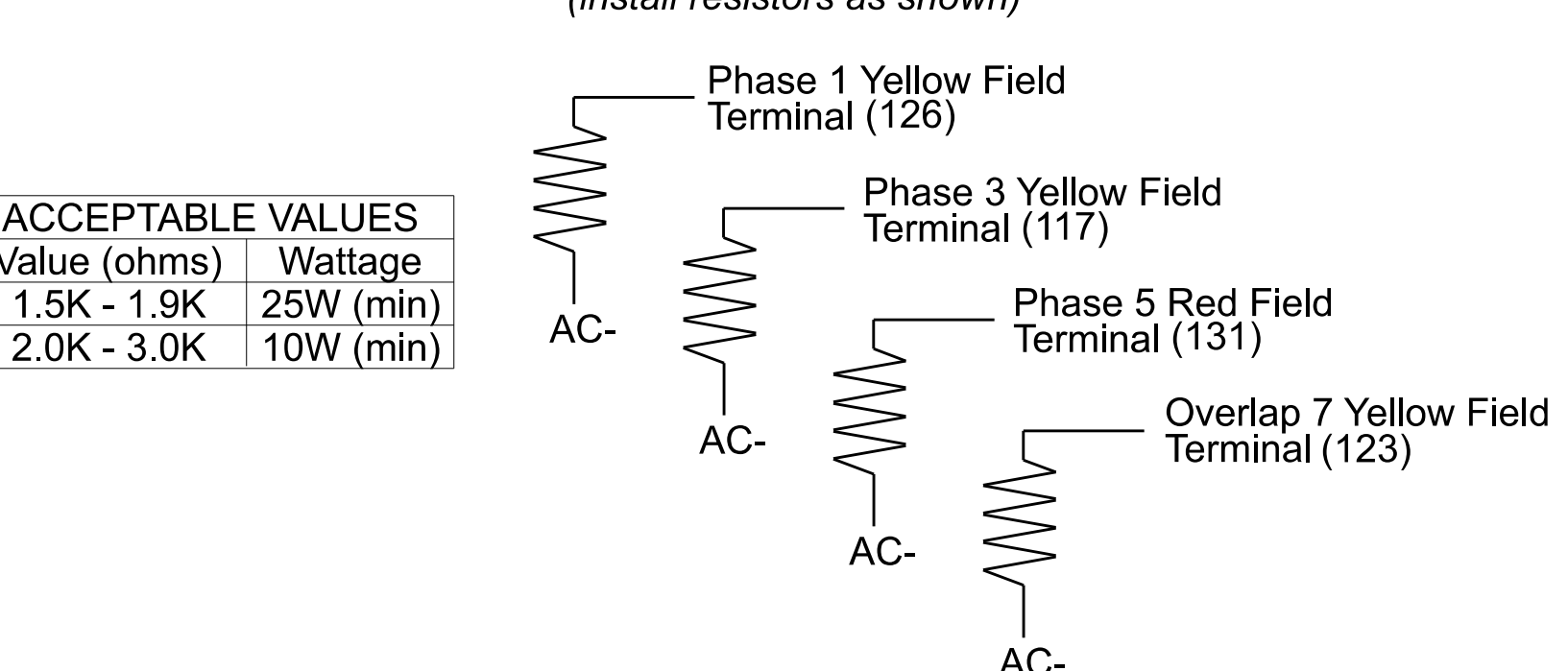
INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1A	TB2-1,2	I1U	56	18	1	1	15	-	X	-	X	-
1B	TB2-9,10	I3U	63	29	4	1	15	-	X	-	X	X
2A	TB2-5,6	I2U	39	1	2	2	-	-	X	X	X	-
2B	TB2-7,8	I2L	43	5	3	2	-	-	X	X	X	-
3A	TB4-5,6	I6U	58	20	7	3	3	-	X	-	X	-
3B	TB4-11,12	I6L	45	7	9	3	-	-	X	-	X	-
4A	TB4-9,10	I6U	41	3	8	4	10	-	X	-	X	-
5A	TB3-1,2	J1U	55	17	15*	5	-	-	X	-	X	-
5B	TB3-7,8	J2L	44	6	17	5	15	-	X	-	X	-
6A	TB3-5,6	J2U	40	2	16	6	-	-	X	X	X	-
PED PUSH BUTTONS												
P41,P42	TB8-5,6	I12L	69	35	4	PED 4	-	-				
P61,P62	TB8-7,9	I13U	68	34	6	PED 6	-	-				

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.
 * For the detectors to work as shown on the signal plan see the Detector Programming Detail for Alternate Phasing on Sheet 2 of this plan.



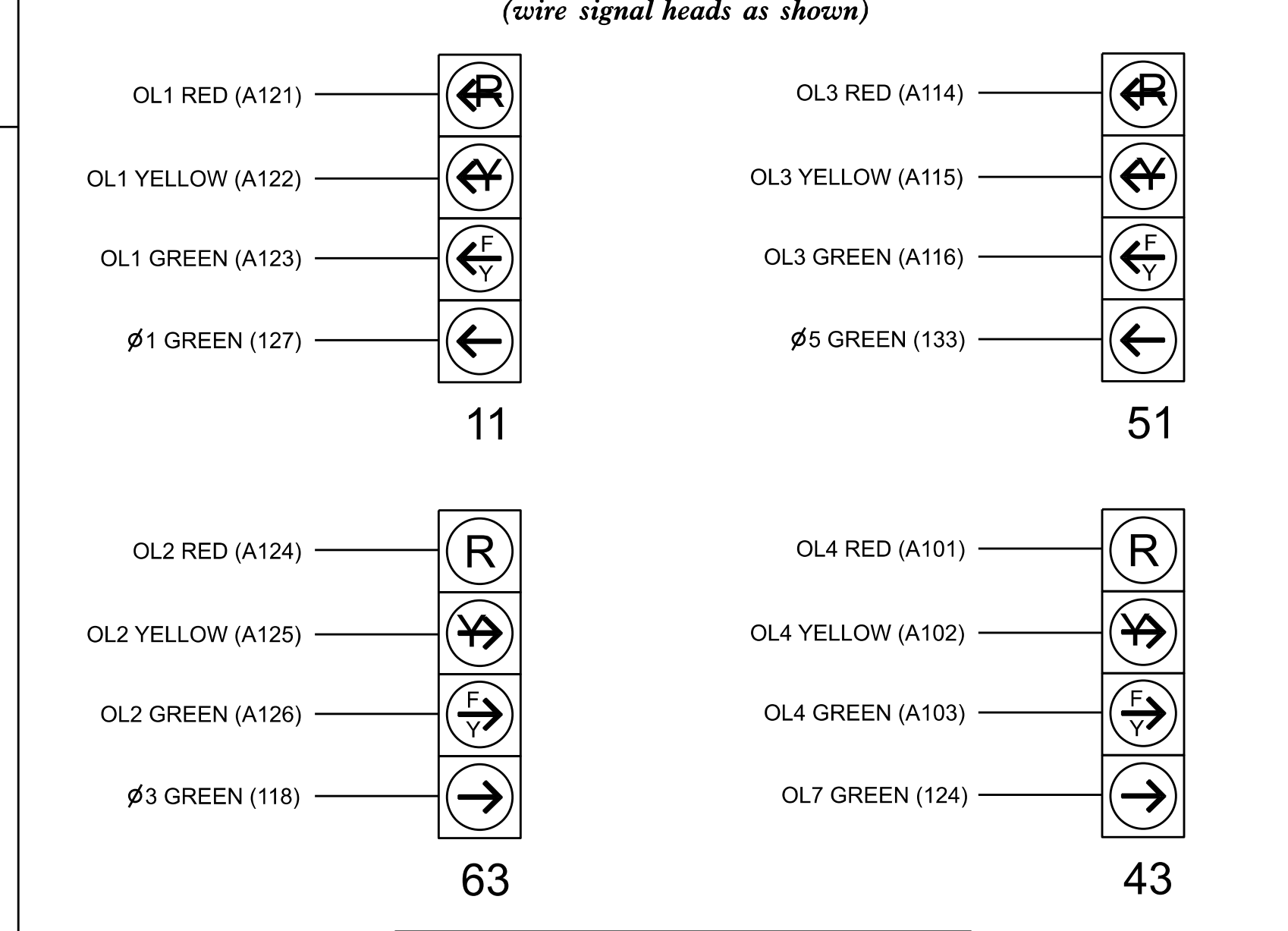
LOAD RESISTOR INSTALLATION DETAIL



FLASHER CIRCUIT MODIFICATION DETAIL

- IN ORDER TO INSURE THAT SIGNALS FLASH CONCURRENTLY ON THE SAME APPROACH, MAKE THE FOLLOWING FLASHER CIRCUIT CHANGES:
- 1. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-4 AND TERMINATE ON T2-2.
 - 2. ON REAR OF PDA - REMOVE WIRE FROM TERM. T2-5 AND TERMINATE ON T2-3.
 - 3. REMOVE FLASHER UNIT 2.
- THE CHANGES LISTED ABOVE TIES ALL PHASES AND OVERLAPS TO FLASHER UNIT 1.

FYA SIGNAL WIRING DETAIL



This plan supersedes the plan signed and sealed on 12/6/2023.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1503
 DESIGNED: January 2024
 SEALED: 2/1/2024
 REVISED: _____

Electrical Detail - Sheet 1 of 2

Prepared in the Offices of:

TRANSPORTATION MOBILITY AND SAFETY DIVISION
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 STATE DIVISION OF SIGNALS MANAGEMENT SECTION

750 N. Greenfield Pkwy. Garner, NC 27529

NC 73 (Sam Furr Road) at West Catawba Avenue

Division 10 Mecklenburg County Huntersville

PLAN DATE: January 2024 REVIEWED BY: D.T.J.
 PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS	INIT.	DATE

SEALED SEAL 031001
 D. Todd Joyce
 02/01/2024
 DATE
 SIG. INVENTORY NO. 10-1503

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MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

*The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2. A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO RUN DEFAULT PHASING	1	1
ACTIVE PLAN REQUIRED TO RUN ALTERNATE PHASING	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phase for head 51 to run protected / permissive turns.

VEH DET PLAN 2: Enables phase 2 call on loop 5A and adds delay time to phase 5 call on loop 5A of 15 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	2	6	-	4	1	3
Modifier Phases	1	3	5	-	-	-
Modifier Overlaps	-	-	-	7	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA Ped Delay	0.0	7.0	0.0	6.0	0.0	0.0

↑
NOTICE: INCLUDED PHASE

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOP 5A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

Detector	Call Phase	Delay	Delay During Green
15	5	15	-
31	2	3	X

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	4	7	8
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Normal	Normal
Included Phases	2	6	6	4	1	3
Modifier Phases	1	3	5	-	-	-
Modifier Overlaps	-	-	-	7	-	-
Trail Green	0	0	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0	0.0	0.0
FYA Ped Delay	0.0	7.0	7.0	6.0	0.0	0.0

↑
NOTICE: INCLUDED PHASE & FYA PED DELAY TIME

OUTPUT CHANNEL CONFIGURATION

Front Panel
Main Menu >Controller >More>Channels>Channels Config

Web Interface
Home >Controller >Advanced IO>Channels>Channel Configuration

Channel Configuration

Channel	Control Type	Control Source	Flash Yellow	Flash Red	Flash Alt	MMU Channel
1	Phase Vehicle	1	-	X	X	1
2	Phase Vehicle	2	X	-	-	2
3	Phase Vehicle	3	-	X	X	3
4	Phase Vehicle	4	-	X	-	4
5	Phase Vehicle	5	-	X	-	5
6	Phase Vehicle	6	X	-	X	6
7	Overlap	7	-	X	-	7
8	Overlap	8	-	X	X	8
9	Overlap	1	X	-	X	9
10	Overlap	2	X	-	X	10
11	Overlap	3	-	X	-	11
12	Overlap	4	-	X	-	12
13	Phase Ped	2	-	-	-	13
14	Phase Ped	4	-	-	-	14
15	Phase Ped	6	-	-	-	15
16	Phase Ped	8	-	-	-	16
17	Overlap	5	-	X	X	17
18	Overlap	6	-	X	-	18

← NOTICE: CHANNEL CONTROL TYPE

← NOTICE: FLASH

COUNTDOWN PEDESTRIAN SIGNAL OPERATION


Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

ACCESSIBLE PEDESTRIAN SIGNAL (APS) INSTALLATION NOTES

1. Install push buttons and APS equipment per manufacturer's instructions.
2. Provide a dedicated cable to each push button per manufacturer's instructions.
3. If APS equipment is mounted in cabinet, use filtered power (i.e., Controller Receptacle) to power APS equipment. Do not use Equipment Receptacle, which is a GFCI outlet.
4. Never attempt to operate a standard contact closure push button with the APS system unless cabinet is re-wired for standard button operation or unless explicitly allowed by the manufacturer.
5. Place manufacturer's instructions in cabinet with cabinet prints, signal plans, and electrical details.

Electrical Detail - Sheet 2 of 2

Prepared in the Offices of:



750 N. Greenfield Pkwy, Garner, NC 27529

NC 73 (Sam Furr Road) at West Catawba Avenue

Division 10 Mecklenburg County Huntersville

PLAN DATE: January 2024 REVIEWED BY: D.T.J.

PREPARED BY: D.J. Craddock REVIEWED BY:

REVISIONS	INIT.	DATE

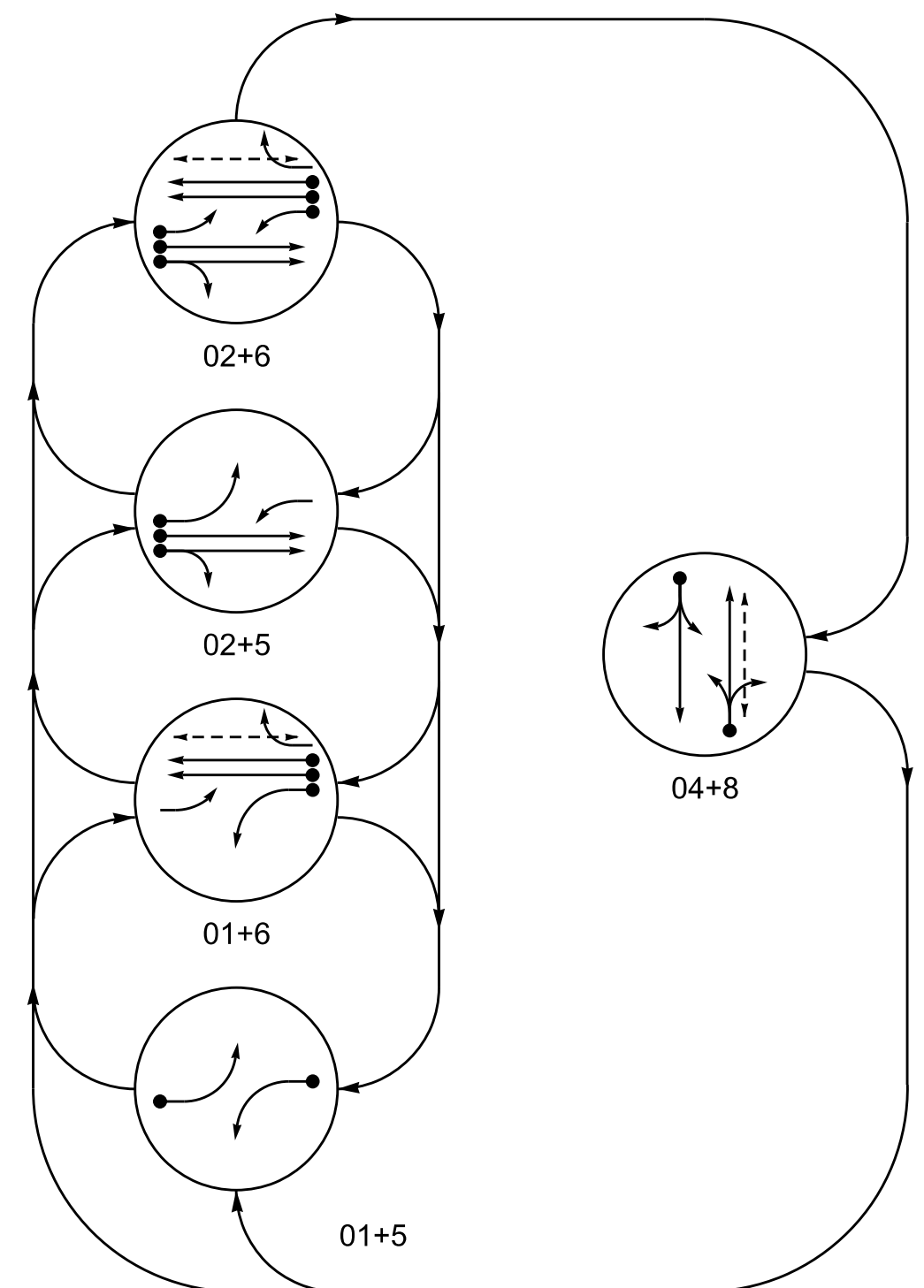
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SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 031001
D. TODD JOYCE
02/01/2024
SIG. INVENTORY NO. 10-1503

This plan supersedes the plan signed and sealed on 12/6/2023.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1503
DESIGNED: January 2024
SEALED: 2/1/2024
REVISED: _____

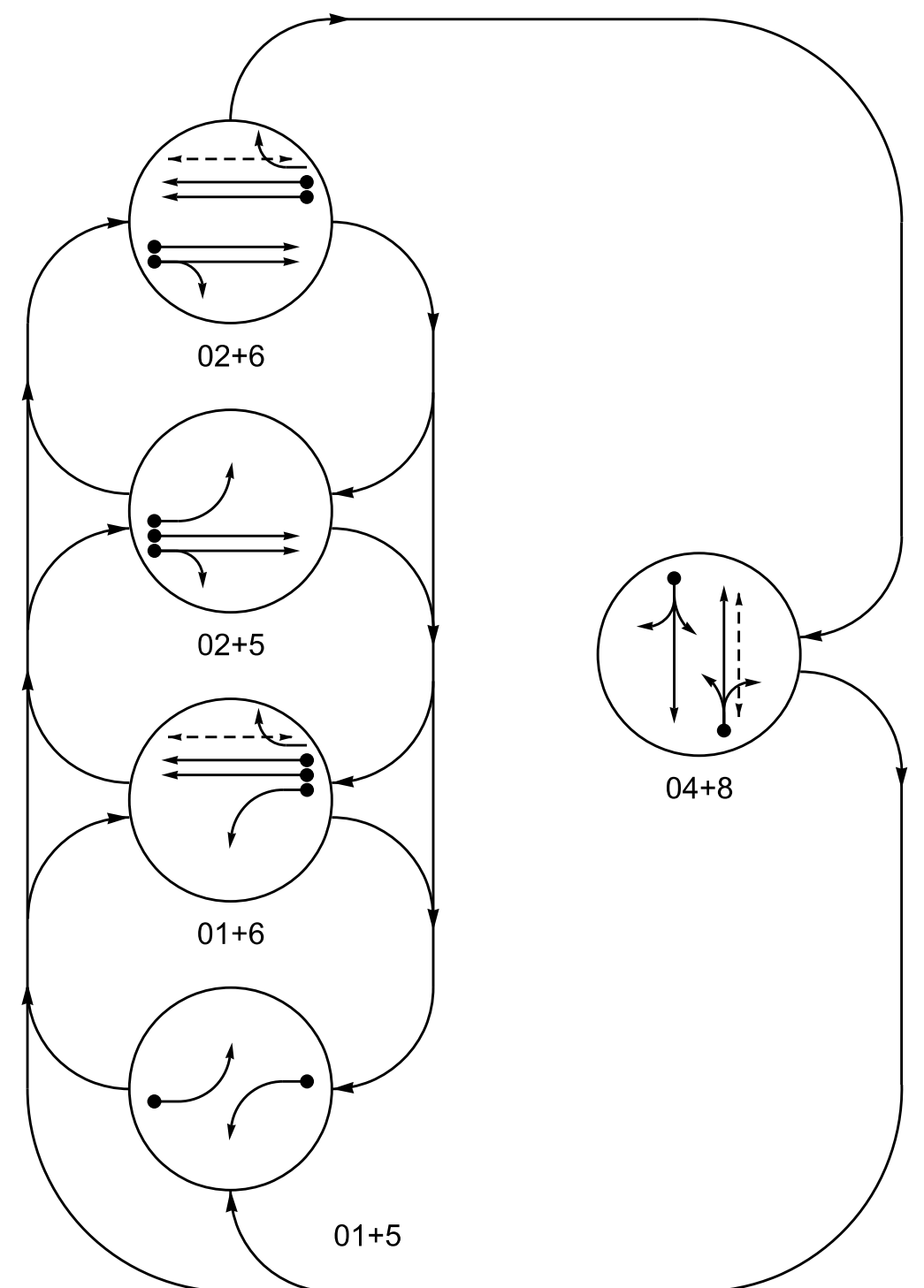
DEFAULT PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

ALTERNATE PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

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

DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE					
	0+1	0+2	0+3	0+4	0+5	0+6
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
63	R	←	R	←	R	←
81,82	R	R	R	R	G	R
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

ALTERNATE PHASING TABLE OF OPERATION

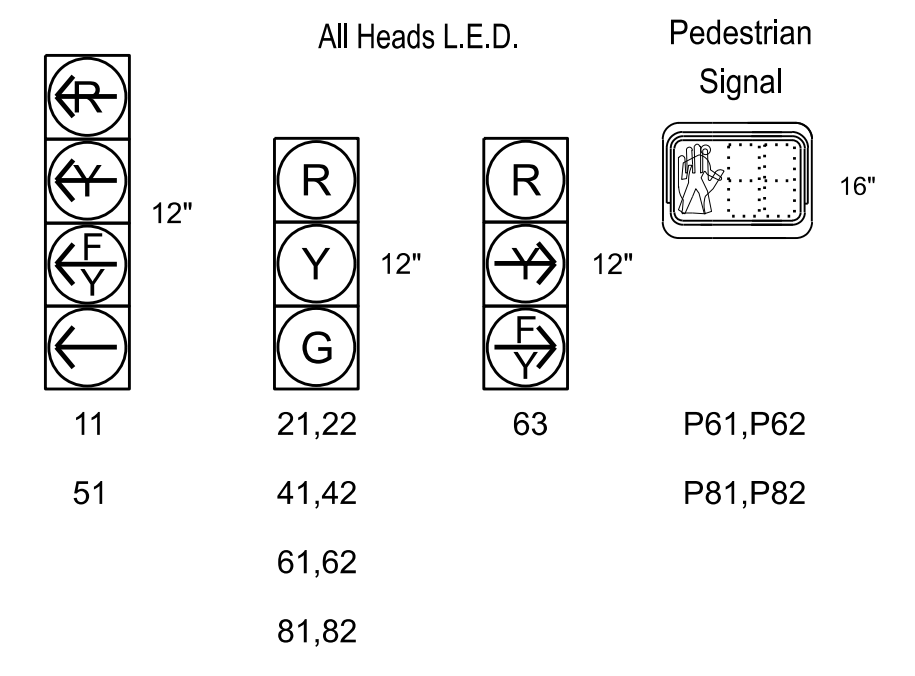
SIGNAL FACE	PHASE					
	0+1	0+2	0+3	0+4	0+5	0+6
11	←	←	←	←	←	←
21,22	R	R	G	G	R	Y
41,42	R	R	R	R	G	R
51	←	←	←	←	←	←
61,62	R	G	R	G	R	Y
63	R	←	R	←	R	←
81,82	R	R	R	R	G	R
P61,P62	DW	W	DW	W	DW	DRK
P81,P82	DW	DW	DW	DW	W	DRK

MAXTIME DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOP LINE (FT)	TURNS	NEW LOOP	PROGRAMMING							
					CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL DELAY DURING GREEN	NEW CARD	
1A	6X40	+15	2-4-2	-	1	15.0*	-	X	-	X	-	X
2A	6X6	300	5	-	2	-	-	X	X	X	-	-
2B	6X6	300	5	-	2	-	-	X	X	X	-	-
4A	6X40	0	2-4-2	X	4	3.0	-	X	-	X	-	-
4B	6X15	+40	3	X	4	3.0	-	X	-	X	-	-
5A	6X40	0	2-4-2	-	2**	3.0	-	X	-	X	X	-
6A	6X6	290	5	-	6	-	-	X	X	X	-	-
6B	6X6	290	5	-	6	-	-	X	X	X	-	-
8A	6X40	0	2-4-2	-	8	10.0	-	X	-	X	-	-
8B	6X6	0	3	-	8	15.0	-	X	-	X	-	-

* Reduce Delay to 3 Seconds During Alternate Phasing Operation.
 ** Disable Phase Call for Loop(s) During Alternate Phasing Operation.

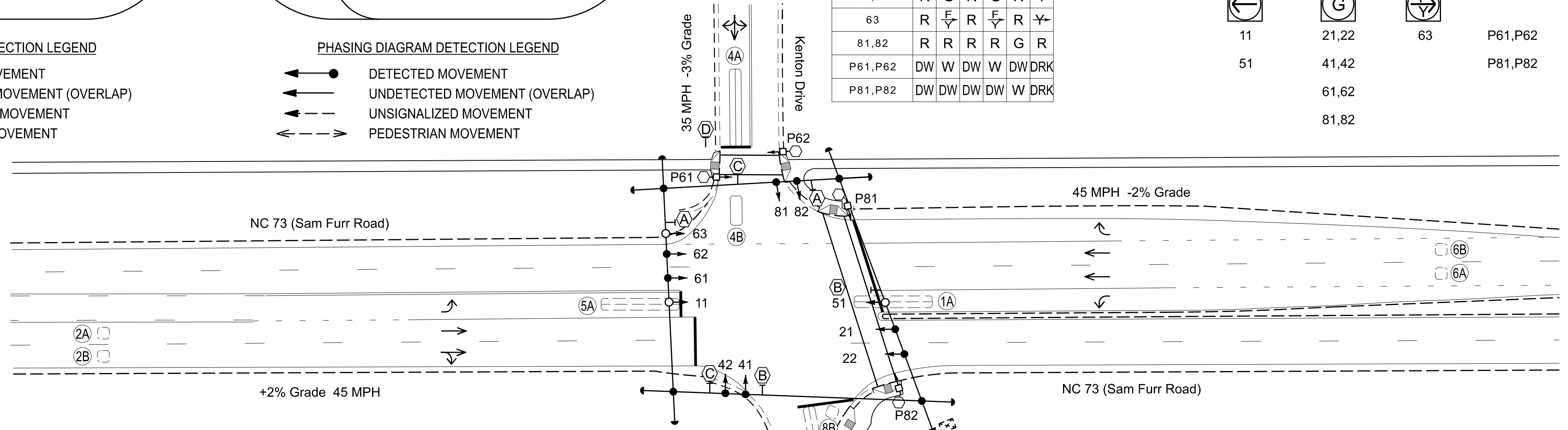
SIGNAL FACE I.D.



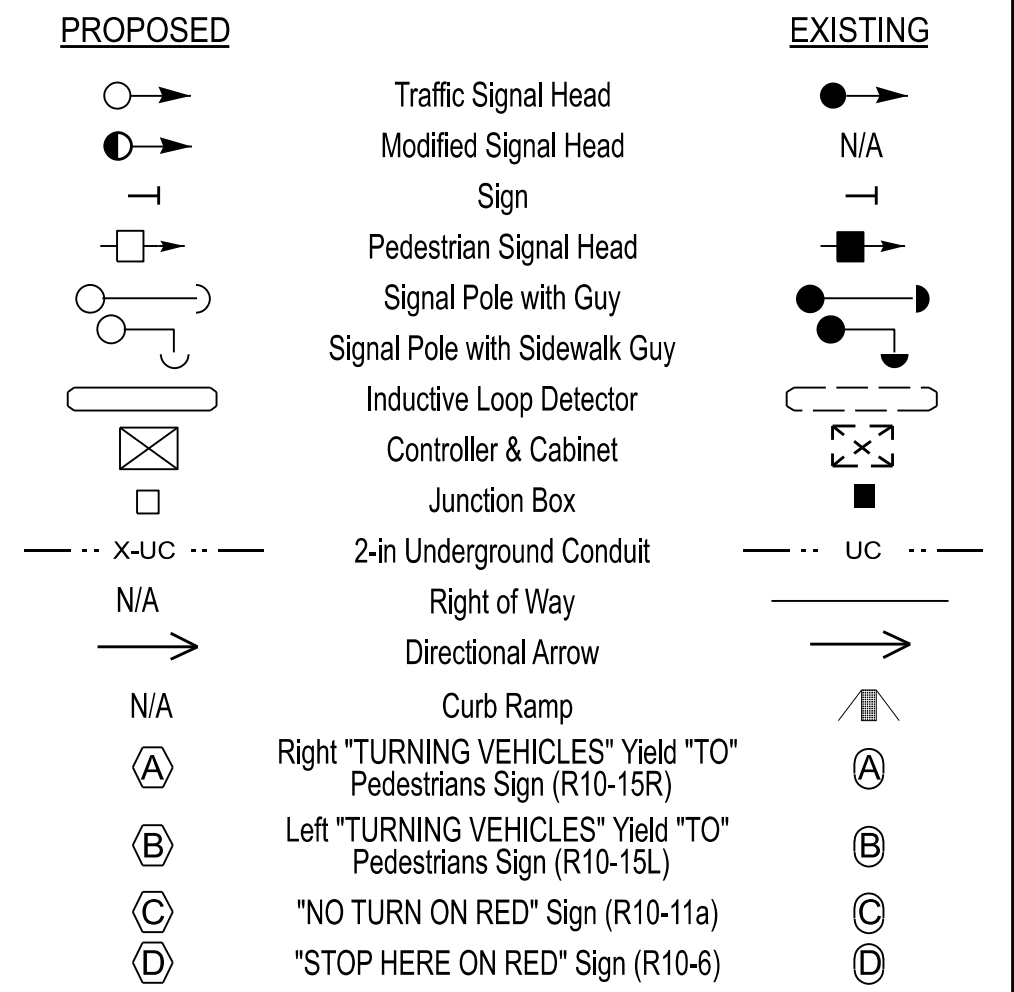
5 Phase Fully Actuated w/ Alternate Phasing Operation NC 73 (Sam Furr Road) CLS

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2024 and "Standard Specifications for Roads and Structures" dated January 2024.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- This intersection features accessible pedestrian signals utilizing percussive tone walk indications and/or speech messages.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown the flashing "Don't Walk" time only.
- Renumber existing signal heads numbered 62 and 63 to 61 and 62, respectively.
- Renumber existing signal heads numbered 22 and 23 to 21 and 22, respectively.
- Renumber existing loops numbered 2C and 6C to 5A and 1A, respectively. Suppress FYA for signal heads 51 and 63 for the first 5 seconds of phase 6 ped.
- Closed loop system data: Controller Asset #1939.



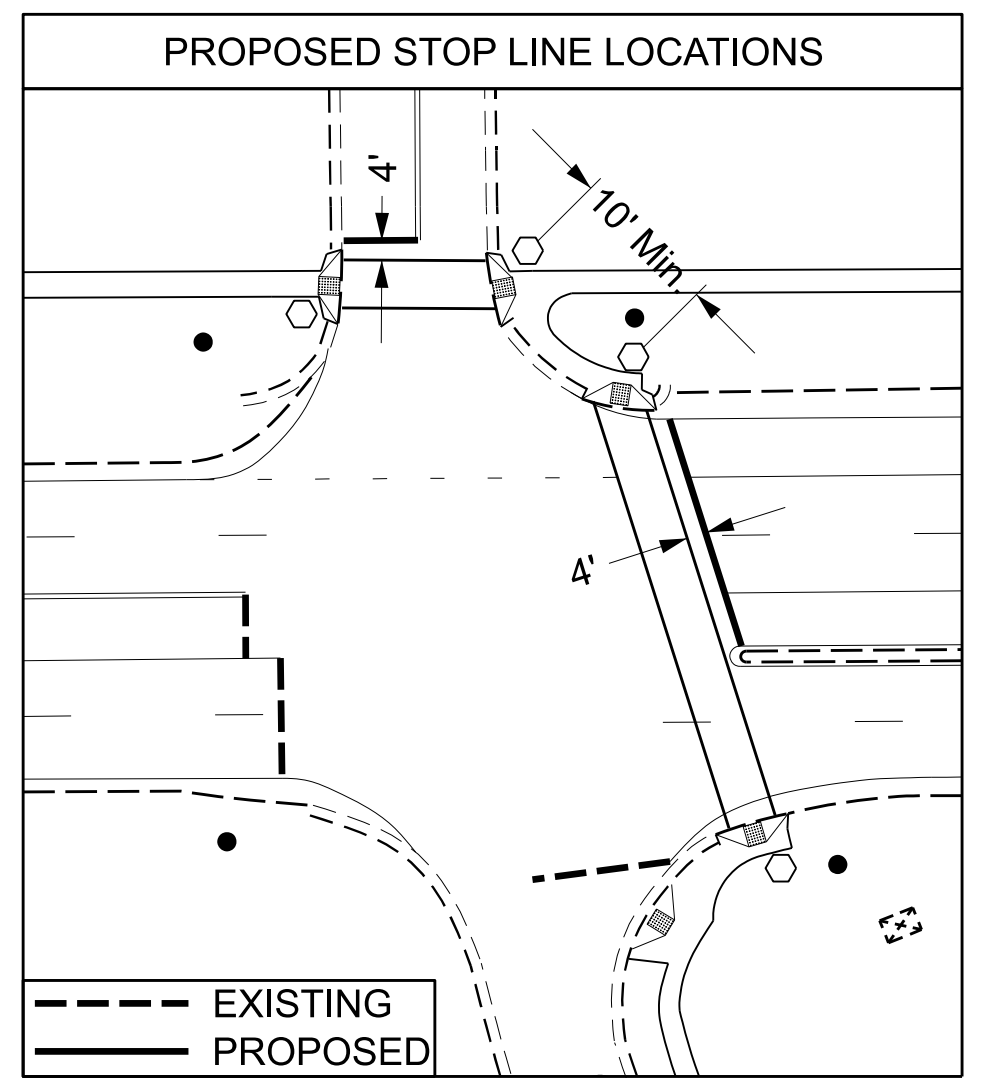
LEGEND



MAXTIME TIMING CHART

FEATURE	PHASE							
	1	2	4	5	6	8		
Walk *	-	-	-	-	7	7		
Ped Clear	-	-	-	-	5	24		
Min Green *	7	12	7	7	12	7		
Passage *	2.0	6.0	2.0	2.0	6.0	2.0		
Max 1 *	25	90	25	25	90	25		
Yellow Change	3.0	4.7	4.1	3.0	4.7	4.1		
Red Clear	2.1	1.6	3.2	2.9	1.6	3.2		
Added Initial *	-	1.5	-	-	1.5	-		
Maximum Initial *	-	34	-	-	33	-		
Time Before Reduction *	-	15	-	-	15	-		
Time To Reduce *	-	30	-	-	30	-		
Minimum Gap	-	3.0	-	-	3.0	-		
Advance Walk	-	-	-	-	-	7		
Non Lock Detector	X	-	X	X	-	X		
Vehicle Recall	-	MIN RECALL	-	-	MIN RECALL	-		
Dual Entry	-	-	X	-	-	X		
Simultaneous Start	-	-	X	-	-	X		

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



ACCESSIBLE PEDESTRIAN SIGNAL OPERATION

SIGNAL FACE	VOICE	TONES	INTERVAL	SPEECH MESSAGE
P61	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross Kenton.
P62	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross Kenton.
P81	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross NC 73.
P82	-	X	Walk	(Percussive Tone)
	X	-	Flashing Don't Walk/Don't Walk	Wait, wait to cross NC 73.

This plan supersedes the plan signed and sealed on 12/5/23.

Signal Upgrade

Prepared in the Offices of:
 Transportation Mobility and Safety Division
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 Signal Design Section

NC 73 (Sam Furr Road) at Kenton Drive / Glenfurness Drive

Division 10 Mecklenburg County Huntersville

PLAN DATE: January 2024 REVIEWED BY: R.N. Zinser

PREPARED BY: T.A. Kenion REVIEWED BY:

REVISIONS: INIT. DATE

750 N. Greenfield Pkwy, Garner, NC 27529

SCALE: 1"=40'

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 043914

DocuSigned by: R. Nicholas Zinser 02/01/2024

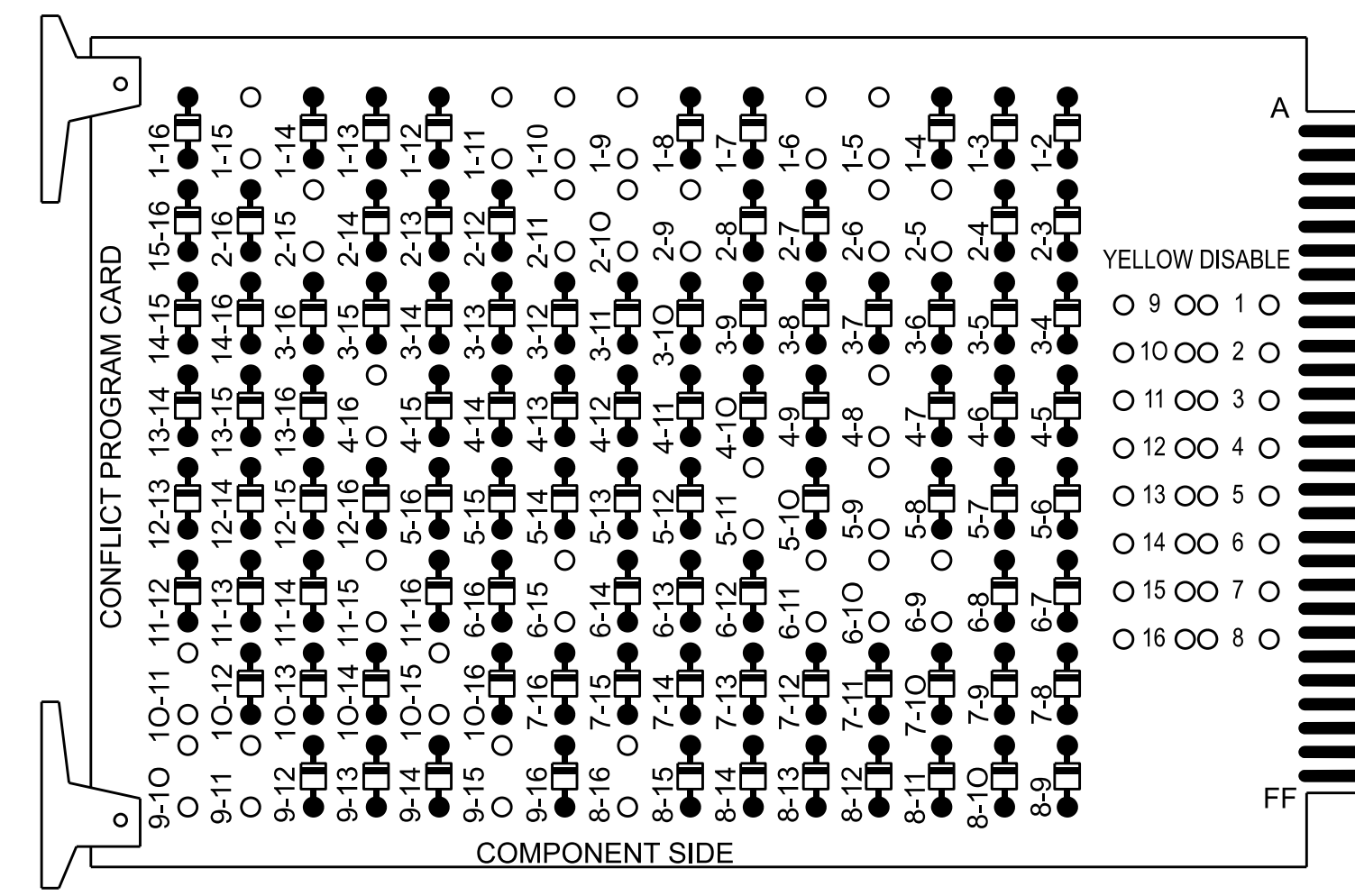
SIG. INVENTORY NO. 10-1939

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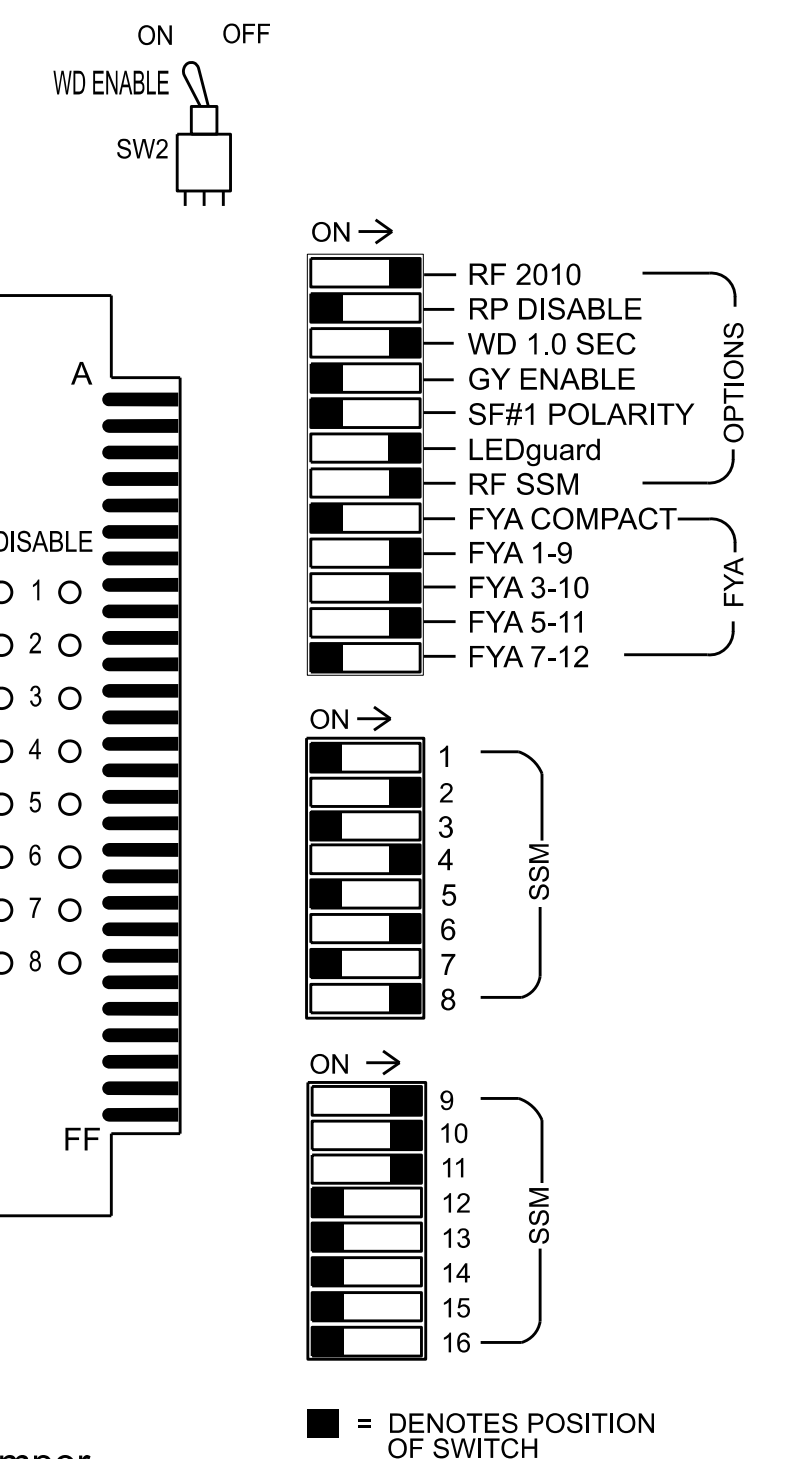
16 CHANNEL CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-5, 1-6, 1-9, 1-10, 1-11, 1-15, 2-5, 2-6, 2-9, 2-10, 2-11, 2-15, 4-8, 4-16, 5-9, 5-11, 6-9, 6-10, 6-11, 6-15, 8-16, 9-10, 9-11, 9-15, 10-11, 10-15, and 11-15.



REMOVE JUMPERS AS SHOWN



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

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the signal plan.
- 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 1,3,5,7,12,13,14,15, & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Program phases 4 and 8 for Dual Entry and Simultaneous Start.
- Program controller to start up in phase 2 Green No Walk and 6 Green No Walk.
- If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
- The cabinet and controller are part of the NC 73 (Sam Furr Road) Closed Loop System.

EQUIPMENT INFORMATION

Controller.....2070LX
 Cabinet.....332 w/ Aux
 Software.....Q-Free MAXTIME
 Cabinet Mount.....18 With Aux. Output File
 Load Switches Used.....S1, S2, S4, S5, S6, S6P, S8, S8P, S9, S10, S12,
 Phases Used.....1, 2, 4, 5, 6, 6PED,8, 8PED
 Overlap "1".....*
 Overlap "2".....*
 Overlap "3".....*
 Overlap "4".....NOT USED

*See overlap programming detail on Sheet 2.

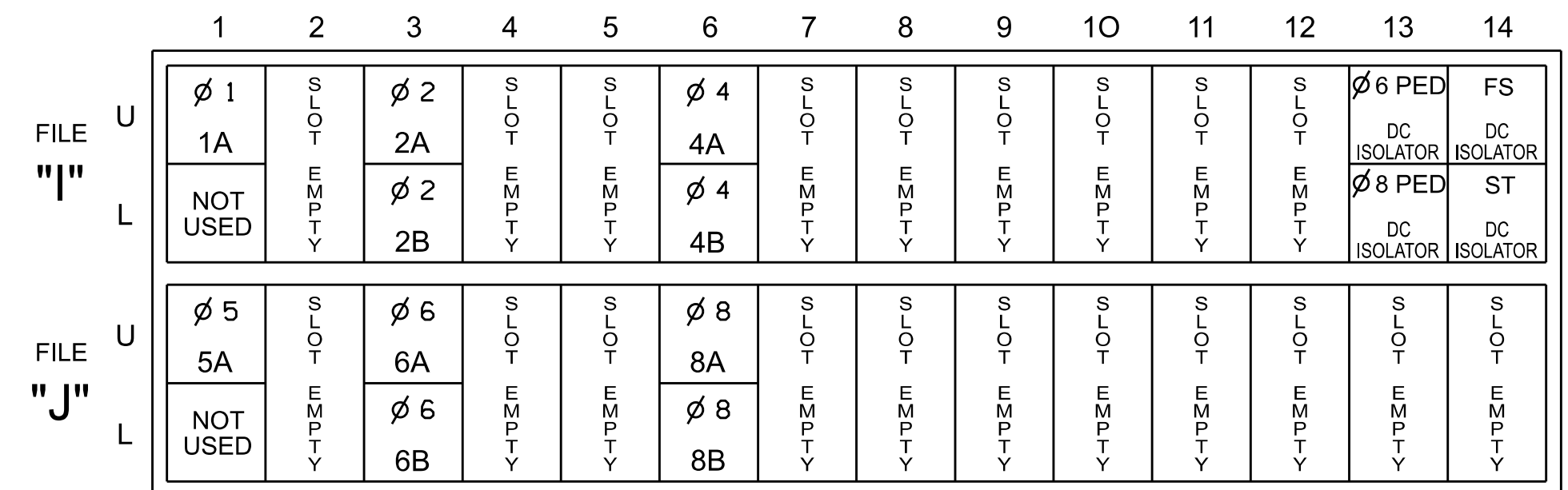
SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
CMU CHANNEL NO.	1	2	13	3	4	14	5	6	15	7	8	16	9	10	17	11	12	18
PHASE	1	2	2 PED	3	4	4 PED	5	6	6 PED	7	8	8 PED	OL1	OL2	SPARE	OL3	OL4	SPARE
SIGNAL HEAD NO.	11*	21,22	NU	NU	41,42	NU	51*	61,62	P61, P62	NU	81,82	P81, P82	11*	63*	NU	51*	NU	NU
RED		128			101			134			107			A124				
YELLOW	*	129			102		*	135			108							
GREEN		130			103			136			109							
RED ARROW														A121			A114	
YELLOW ARROW														A122	A125		A115	
FLASHING YELLOW ARROW														A123	A126		A116	
GREEN ARROW	127							133										
Hand									119			110						
Walking										121								

* Denotes install load resistor. See load resistor installation detail this sheet.
 *See pictorial of head wiring in detail this sheet.
 NU = Not Used

INPUT FILE POSITION LAYOUT

(front view)

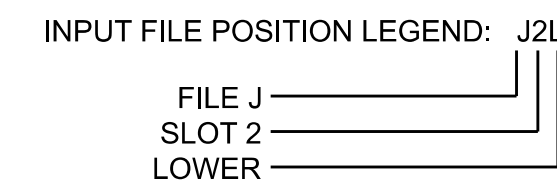


EX. : 1A, 2A, ETC. = LOOP NO.'S
 FS = FLASH SENSE
 ST = STOP TIME

INPUT FILE CONNECTION & PROGRAMMING CHART

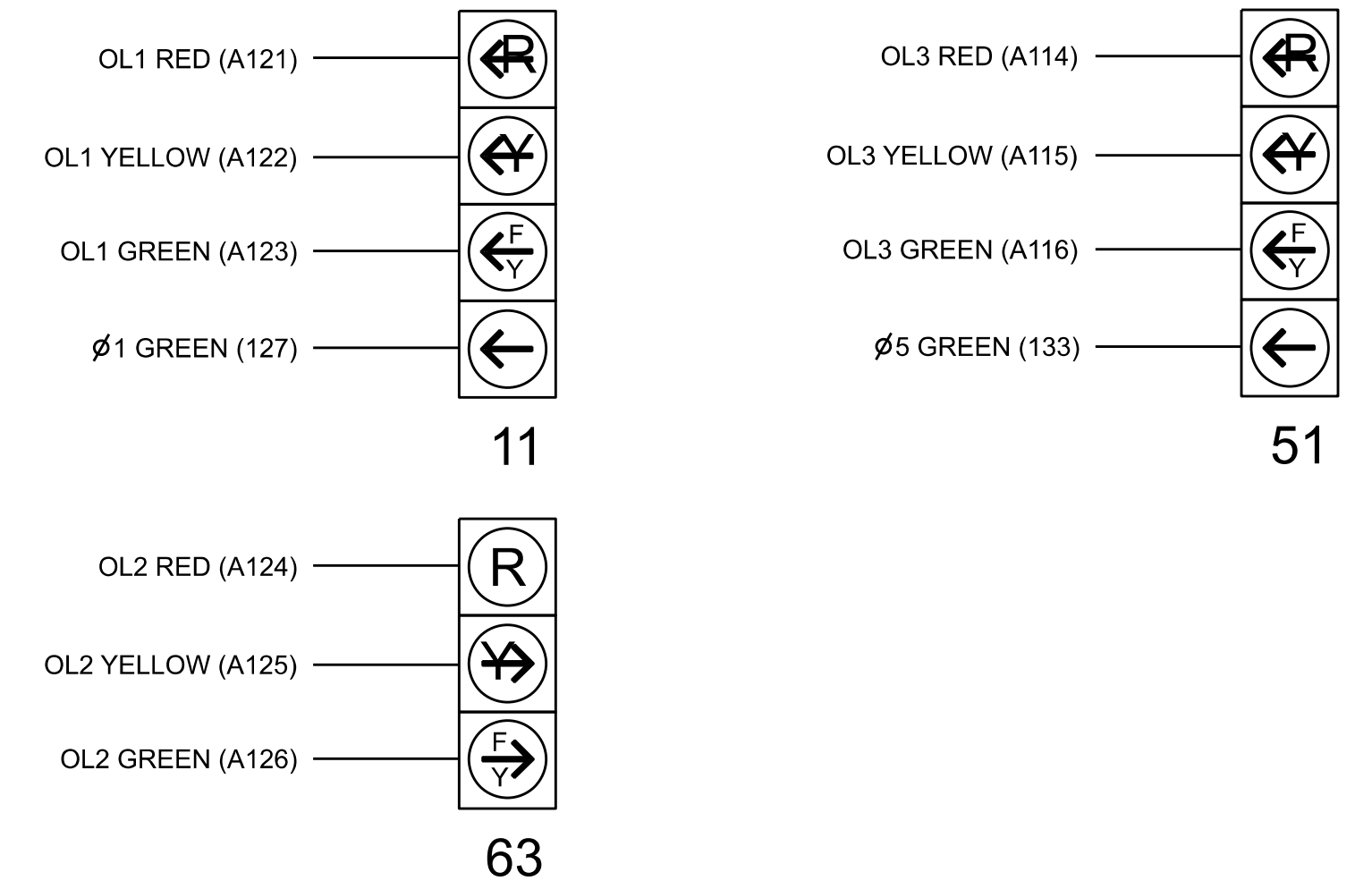
LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT POINT	DETECTOR NO.	CALL PHASE	DELAY TIME	EXTEND TIME	EXTEND	ADDED INITIAL	CALL	DELAY DURING GREEN
1A	TB2-1,2	I1U	56	18	1*	1	15	---	X	---	X	---
2A	TB2-9,10	I3U	63	29	4	2	---	---	X	X	X	---
2B	TB2-11,12	I3L	76	42	5	2	---	---	X	X	X	---
4A	TB4-9,10	I6U	41	3	8	4	3	---	X	---	X	---
4B	TB4-11,12	I6L	45	7	9	4	3	---	X	---	X	---
5A	TB3-1,2	J1U	55	17	15*	5	15	---	X	---	X	---
6A	TB3-9,10	J3U	64	30	18	6	---	---	X	X	X	---
6B	TB3-11,12	J3L	77	43	19	6	---	---	X	X	X	---
8A	TB5-9,10	J6U	42	4	22	8	10	---	X	---	X	---
8B	TB5-11,12	J6L	46	8	23	8	15	---	X	---	X	---

* For the detectors to work as shown on the signal plan see the Detector Programming Detail for Alternate Phasing on Sheet 2 of this plan.



FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



This plan supersedes the plan signed and sealed on 12/6/2023.

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1939
 DESIGNED: January 2024
 SEALED: 2/1/2024
 REVISED: _____

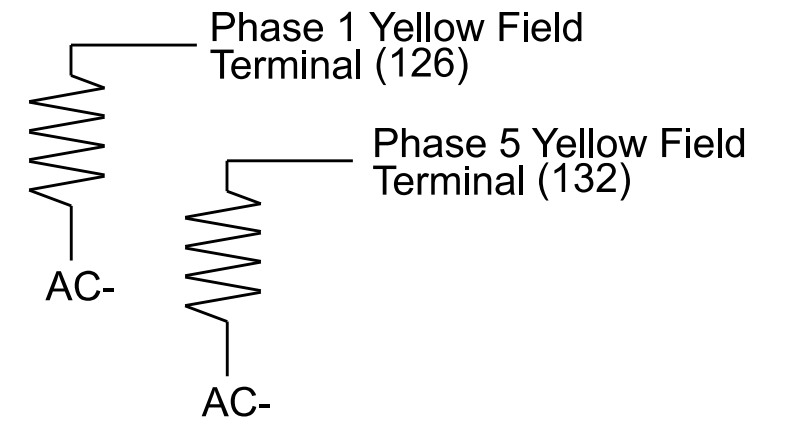
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

Countdown Ped Signals are required to display timing only during Ped Clearance Interval. Consult Ped Signal Module user's manual for instructions on selecting this feature.

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown)

ACCEPTABLE VALUES	
Value (ohms)	Wattage
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)



ACCESSIBLE PEDESTRIAN SIGNAL (APS) INSTALLATION NOTES

- Install push buttons and APS equipment per manufacturer's instructions.
- Provide a dedicated cable to each push button per manufacturer's instructions.
- If APS equipment is mounted in cabinet, use filtered power (i.e., Controller Receptacle) to power APS equipment. Do not use Equipment Receptacle, which is a GFCI outlet.
- Never attempt to operate a standard contact closure push button with the APS system unless cabinet is re-wired for standard button operation or unless explicitly allowed by the manufacturer.
- Place manufacturer's instructions in cabinet with cabinet prints, signal plans, and electrical details.

Electrical Detail - Sheet 1 of 2

Prepared in the Offices of:

 NC 73 (Sam Furr Road) at Kenton Drive / Glenfurness Drive
 Division 10 Mecklenburg County Huntersville
 PLAN DATE: January 2024 REVIEWED BY: D.T.J.
 PREPARED BY: D.J. Craddock REVIEWED BY: _____
 REVISIONS: _____ INIT. DATE _____
 750 N. Greenfield Pkwy, Garner, NC 27529
 DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER D. TODD JOYCE 02/02/2024
 SIG. INVENTORY NO. 10-1939

MAXTIME ALTERNATE PHASING ACTIVATION DETAIL

To run alternate phasing, select a Pattern that is programmed to run Overlap Plan 2 and Detector Plan 2.
A Pattern can be selected through the scheduler or manually by changing the Operational Mode.

PHASING	OVERLAP PLAN	VEH DET PLAN
ACTIVE PLAN REQUIRED TO <u>RUN DEFAULT PHASING</u>	1	1
ACTIVE PLAN REQUIRED TO <u>RUN ALTERNATE PHASING</u>	2	2

ALTERNATE PHASING CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN OVERLAP PLAN 2 AND VEHICLE DETECTOR PLAN 2 ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAP PLAN 2: Modifies overlap included phases for heads 11 and 51 to run protected turns only.

VEH DET PLAN 2: Disables phase 6 call on loop 1A and reduces delay time for phase 1 call on loop 1A to 3 seconds.

Disables phase 2 call on loop 5A and reduces delay time for phase 5 call on loop 5A to 3 seconds.

MAXTIME OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

Overlap Plan 1

Overlap	1	2	3	4
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Off
Included Phases	2	6	6	-
Modifier Phases	1	-	5	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0
FYA Ped Delay	0.0	5.0	5.0	0.0

MAXTIME OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

Front Panel
Main Menu >Controller >Overlap >Overlap Parameters/Overlap Timings

Web Interface
Home >Controller >Overlap Configuration >Overlaps

In the table view of the web interface, right click on "Overlap" in the top left corner of the table. Copy the entire contents of Overlap Plan 1. Paste Overlap Plan 1 into Overlap Plan 2. Modify Overlap Plan 2 as shown below and save changes.

Overlap Plan 2

Overlap	1	2	3	4
Type	FYA 4 - Section	FYA 4 - Section	FYA 4 - Section	Off
Included Phases	-	6	-	-
Modifier Phases	1	-	5	-
Trail Green	0	0	0	0
Trail Yellow	0.0	0.0	0.0	0.0
Trail Red	0.0	0.0	0.0	0.0
FYA Ped Delay	0.0	5.0	0.0	0.0

← NOTICE:
INCLUDED PHASES

← NOTICE:
FYA Ped
Delay times

This plan supersedes the plan signed and sealed on 12/6/2023.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-1939
DESIGNED: January 2024
SEALED: 2/1/2024
REVISED: _____

MAXTIME ALTERNATE PHASING PATTERN PROGRAMMING DETAIL

Front Panel
Main Menu >Controller >Coordination >Patterns

Web Interface
Home >Controller >Coordination >Patterns

Pattern Parameters

Pattern	Veh Det Plan	Overlap Plan
*	2	2

* The Pattern number(s) are to be determined by the Division and/or City Traffic Engineer.

MAXTIME DETECTOR PROGRAMMING DETAIL FOR ALTERNATE PHASING LOOPS 1A & 5A

Front Panel
Main Menu >Controller >Detector >Veh Det Plans

Web Interface
Home >Controller >Detector Configuration >Vehicle Detectors

In the table view of web interface right click on "Detector" in the top left corner of the table. Copy the entire contents of Detector Plan 1. Paste Detector Plan 1 into Detector Plan 2. Modify Detector Plan 2 as shown below and save changes.

Plan 2

Detector	Call Phase	Delay
1A	1	3
	29	0

Plan 2

Detector	Call Phase	Delay
5A	5	3
	31	0

Electrical Detail - Sheet 2 of 2

Prepared in the Offices of:

750 N. Greenfield Pkwy, Garner, NC 27529

**NC 73 (Sam Furr Road)
at
Kenton Drive / Glenfurness Drive**

Division 10 Mecklenburg County Huntersville

PLAN DATE: January 2024 REVIEWED BY: D.T.J.

PREPARED BY: D.J. Craddock REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL 031001
D. TODD JOYE
ENGINEER

02/02/2024

SIG. INVENTORY NO. 10-1939