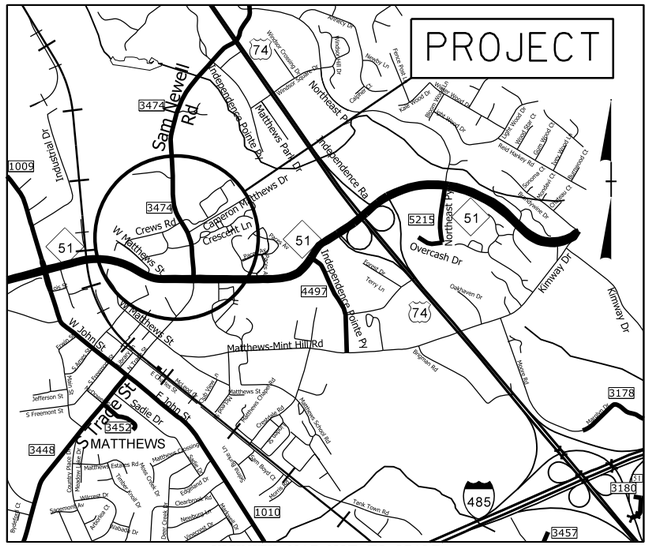
TIP:C-5613D

PROJECT: 43735.3.4



VICINITY MAP NOT TO SCALE

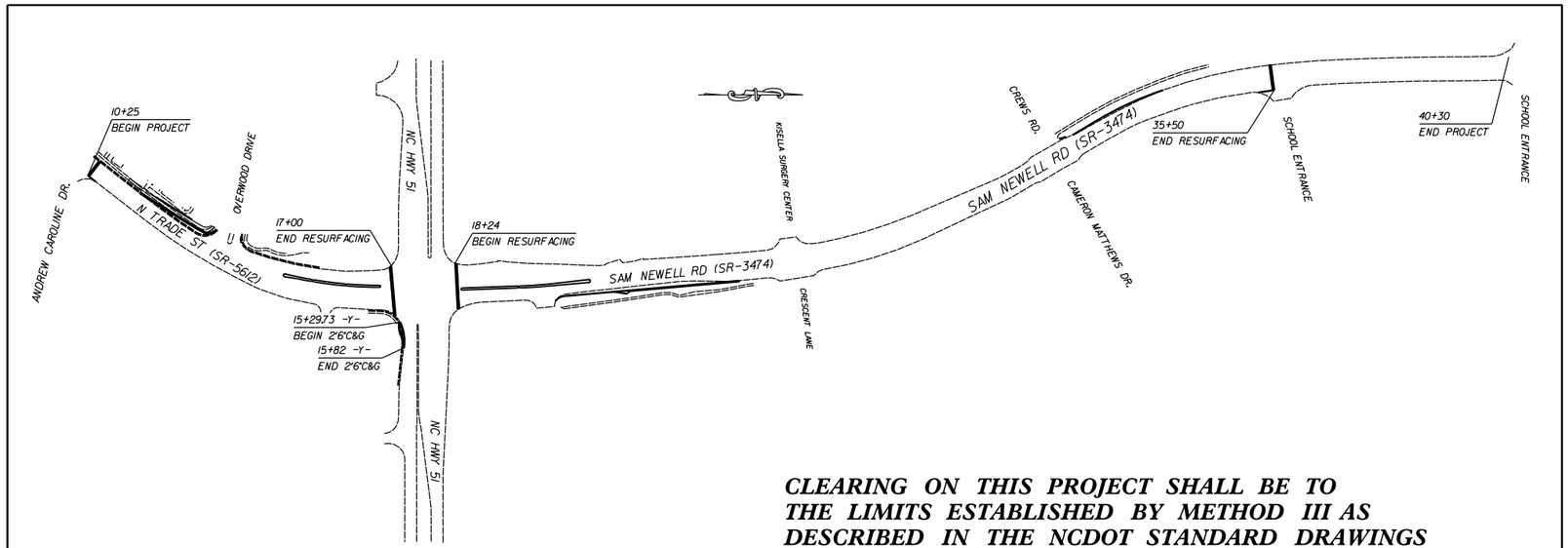
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
MECKLENBURG COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	43735.3.4	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
43735.1.4	CMAQ-0051(035)	*P.E.*
43735.2.4	CMAQ-0051(035)	*R/W*
43735.3.4	CMAQ-0051(035)	*CONST.*

LOCATION: *NC 51 AT SAM NEWELL RD. (SR-3474) AND NORTH TRADE ST. (SR-5612)*

TYPE OF WORK: *GRADING, DRAINAGE, MILLING, PAVING, MONOLITHIC CONCRETE ISLANDS, CURB AND GUTTER, THEROMPLASTIC PAVEMENT MARKINGS, AND TRAFFIC SIGNAL*



CLEARING ON THIS PROJECT SHALL BE TO THE LIMITS ESTABLISHED BY METHOD III AS DESCRIBED IN THE NCDOT STANDARD DRAWINGS

GRAPHIC SCALES

PLANS 0 50 100

PROFILE (HORIZONTAL) 0 50 100

PROFILE (VERTICAL) 0 5 10

DESIGN DATA

ADT N/A =
ADT N/A =
DHV = N/A %
D = N/A %
T = N/A %
V = N/A MPH

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 43735.3.4 = *0.73* *MILES*

TOTAL LENGTH OF STATE PROJECT 43735.3.4 = *0.73* *MILES*

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

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

DONALD HARWARD
PROJECT ENGINEER

TRAVIS LOWDER
PROJECT DESIGN ENGINEER

ROADWAY DESIGN ENGINEER

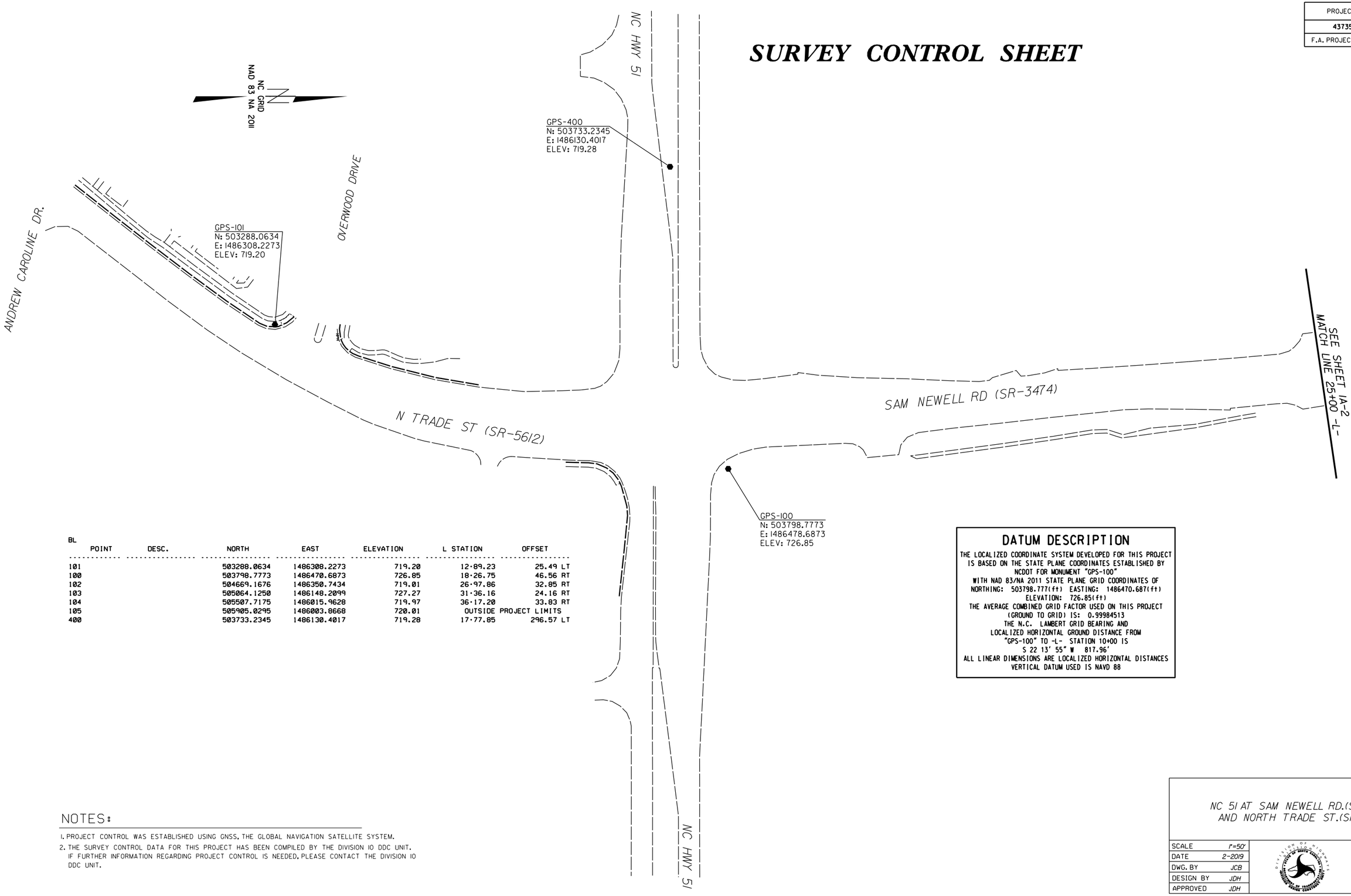
SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

DocuSigned by:
A92E75CC0FFB43B...
SIGNATURE

04-JAN-2021 12:10
S:\EDC\ADT\Mecklenburg\C-5613D_NC 51_Sam
jcbrooks AT DIV10-318330L

PROJECT NO.	SHEET NO.
43735.3.4	IA-1
F.A. PROJECT NO. CMAQ-005(035)	

SURVEY CONTROL SHEET



BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101		503288.0634	1486308.2273	719.20	12+89.23	25.49 LT
100		503798.7773	1486470.6873	726.85	18+26.75	46.56 RT
102		504669.1676	1486350.7434	719.01	26+97.86	32.85 RT
103		505064.1250	1486148.2099	727.27	31+36.16	24.16 RT
104		505507.7175	1486015.9628	719.97	36+17.20	33.83 RT
105		505905.0295	1486003.8668	720.01	OUTSIDE PROJECT LIMITS	
400		503733.2345	1486130.4017	719.28	17+77.85	296.57 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-100"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 503798.777(ft) EASTING: 1486470.687(ft)
ELEVATION: 726.85(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984513
THE N.C. LAMBERT GRID BEARING AND
LOCALIZED HORIZONTAL GROUND DISTANCE FROM
"GPS-100" TO -L- STATION 10+00 IS
S 22 13' 55" W 817.96'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

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 10 DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION 10 DDC UNIT.

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	2-2019
DWG. BY	JCB
DESIGN BY	JDH
APPROVED	JDH

REVISIONS	

SURVEY CONTROL SHEET

PROJECT NO.	SHEET NO.
43735.3.4	1A-2
F.A. PROJECT NO. CMAQ-005(035)	

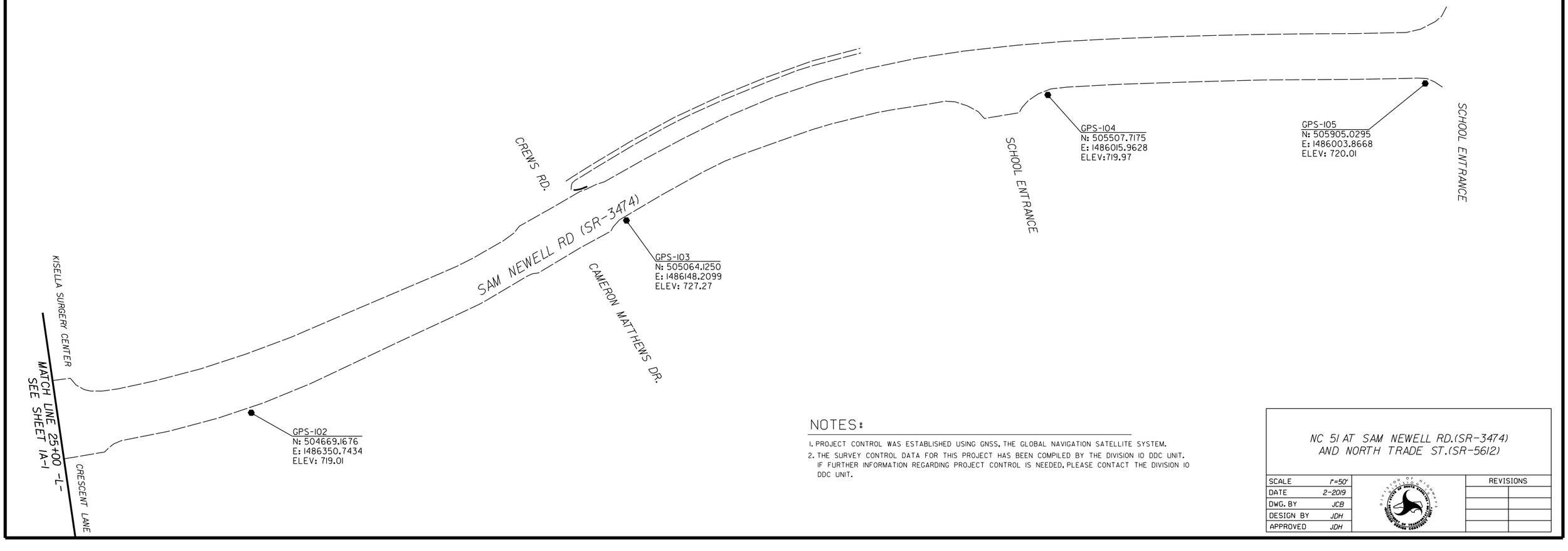
NC GRID
NAD 83 NA 2011

BL

POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
101		503288.0634	1486308.2273	719.20	12+89.23	25.49 LT
100		503798.7773	1486470.6873	726.85	18+26.75	46.56 RT
102		504669.1676	1486350.7434	719.01	26+97.86	32.85 RT
103		505064.1250	1486148.2099	727.27	31+36.16	24.16 RT
104		505507.7175	1486015.9628	719.97	36+17.20	33.83 RT
105		505905.0295	1486003.8668	720.01	OUTSIDE PROJECT LIMITS	
400		503733.2345	1486130.4017	719.28	17+77.85	296.57 LT

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-100"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF
NORTHING: 503798.777(ft) EASTING: 1486470.687(ft)
ELEVATION: 726.85(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99984513
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-100" TO -L- STATION 10+00 IS
S 22 13' 55" W 817.96'
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88



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 10 DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION 10 DDC UNIT.

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	2-2019
DWG. BY	JCB
DESIGN BY	JDH
APPROVED	JDH

REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	1B
F.A. PROJECT NO. CMAQ-005(035)	

RIGHT OF WAY, EASEMENT AND PROPOSED ALIGNMENT SHEET

PERMANENT UTILITY EASEMENT

ALIGN	STATION	OFFSET	NORTH	EAST
L	12+17.90	-38.15	503236.3339	1486261.6428
L	12+78.00	-58.00	503294.7314	1486274.6752
L	12+79.14	-62.00	503297.6302	1486271.7220
L	12+86.00	-58.00	503301.1869	1486278.3252
L	12+86.33	-60.00	503302.4330	1486276.7248
L	13+04.95	-58.85	503317.0162	1486285.9547

L

TYPE	STATION	NORTH	EAST
POT	10+00.00	503041.6271	1486161.2086
PC	11+67.91	503174.4563	1486263.9159
PT	17+28.74	503698.3334	1486428.9781
PC	17+98.14	503767.6495	1486425.6666
PT	19+76.58	503945.6337	1486413.1797
PC	24+34.81	504401.9111	1486370.9235
PT	29+76.81	504914.1847	1486207.3089
PC	31+67.87	505079.4181	1486111.3925
PT	36+60.55	505548.9084	1485980.4520
POT	40+94.19	505982.4714	1485972.6360

Y

TYPE	STATION	NORTH	EAST
POT	10+00.00	503727.2210	1485956.4971
POT	19+73.32	503728.1181	1486929.8180

I, Barry D. Davis, a Professional Land Surveyor in the sate of North Carolina hereby certify to the best of my knowledge and belief that the following work item, R/W and Easement Staking, was performed under my responsible charge meeting NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures as of 2017. Those standards can be found at https://connect.ncdot.gov/resources/Location/Pages/.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from survey control established under my supervision; that the depicted property data shown herein were surveyed under my supervision; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (see deeds for final determination)

Witness my signature, registration number and seal this 11th day of Dec 2019

Barry D. Davis, Professional Land Surveyor — Docu Signed by: Barry Davis 0E2AAE4F48174DC... PLS# L-4384

NORTH CAROLINA PROFESSIONAL SEAL L-4384 LAND SURVEYOR BARRY D. DAVIS

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 10 DDC UNIT. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE DIVISION 10 DDC UNIT.

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	1"=50'		
DATE	2-2019		
DWG. BY	JCB		
DESIGN BY	JDH		
APPROVED	DCG		

PROJECT NO.	SHEET NO.
43735.3.4	IC-1
F.A. PROJECT NO. CMAQ-005(035)	

POT Sta. 10+00.00 -L-

POT Sta. 10+00.00 -Y-

1

CHARLOTTE METRO CREDIT UNION
DB 29265 PG 516
MB 59 PG 954
LOT 2

PC Sta. 11+67.91 -L-

EXISTING R/W

11+38-L-
32'LT &
39'LT

12+17.90-L-
38.15'LT GPS-101

PUE

ANDREW CAROLINE DR.

N 37° 42' 43.9" E

OVERWOOD DRIVE

EXISTING R/W

12+78-L-
58'LT

12+79.14 -L-
62'LT

12+86.33 -L-
60'LT

12+86-L-
58'LT

13+04.95-L-
58.85'LT

EXISTING DUKE ENERGY EASEMENT

WALTRUST PROPERTIES, INC.
DB 23185 PG 488
MB 43 PG 737
LOT 1

POT Sta. 17+58.10 -L-
POT Sta. 14+71.08 -Y-
PT Sta. 17+28.74 -L-

NC HWY 51

GPS-400

N 89° 56' 49.9" E

PC Sta. 17+98.14 -L-

PT Sta. 19+76.58 -L-

PC Sta. 24+34.81 -L-

SEE SHEET IC-2
MATCH LINE 25+00 -L-

SAM NEWELL RD (SR-3474)

N 5° 17' 28.0" W

N TRADE ST (SR-5612)

N 2° 44' 06.7" W

GPS-100

POT Sta. 19+73.32 -Y-

PI Sta 14+60.58 -L-
Δ = 40° 26' 50.6" (LT)
D = 7° 12' 43.0"
L = 560.84'
T = 292.68'
R = 794.46'

FIRST CITIZENS BANK
& TRUST COMPANY
DB 6427 PG 312

PI Sta 18+87.37 -L-
Δ = 2° 33' 21.3" (LT)
D = 1° 25' 56.6"
L = 178.44'
T = 89.23'
R = 4,000.00'

I, Barry D. Davis, a Professional Land Surveyor in the sate of North Carolina hereby certify to the best of my knowledge and belief that the following work item, R/W and Easement Staking, was performed under my responsible charge meeting NCDOT Survey Standards as directed in the NCDOT Location & Surveys guidelines and procedures as of 2017. Those standards can be found at https://connect.ncdot.gov/resources/Location/Pages/.

I further certify that the right of way and permanent easement points shown herein and outlined in the tables shown hereon (localized coordinates, station/offset) have been checked and are accurate representations of the right of way and permanent easement points depicted on the corresponding highway plans. I also certify that the right of way and permanent easement points shown herein have been field monumented under my supervision from survey control established under my supervision; that the depicted property data shown herein were surveyed under my supervision; and these monuments denote the right of way and easement boundaries at the time of staking which may be subject to change due to right of way revisions (see deeds for final determination)

Witness my signature, registration number and seal this 11th day of Dec 2019

Barry D. Davis, Professional Land Surveyor

DocuSigned by:
Barry Davis
0E2AAE4F48174DC...

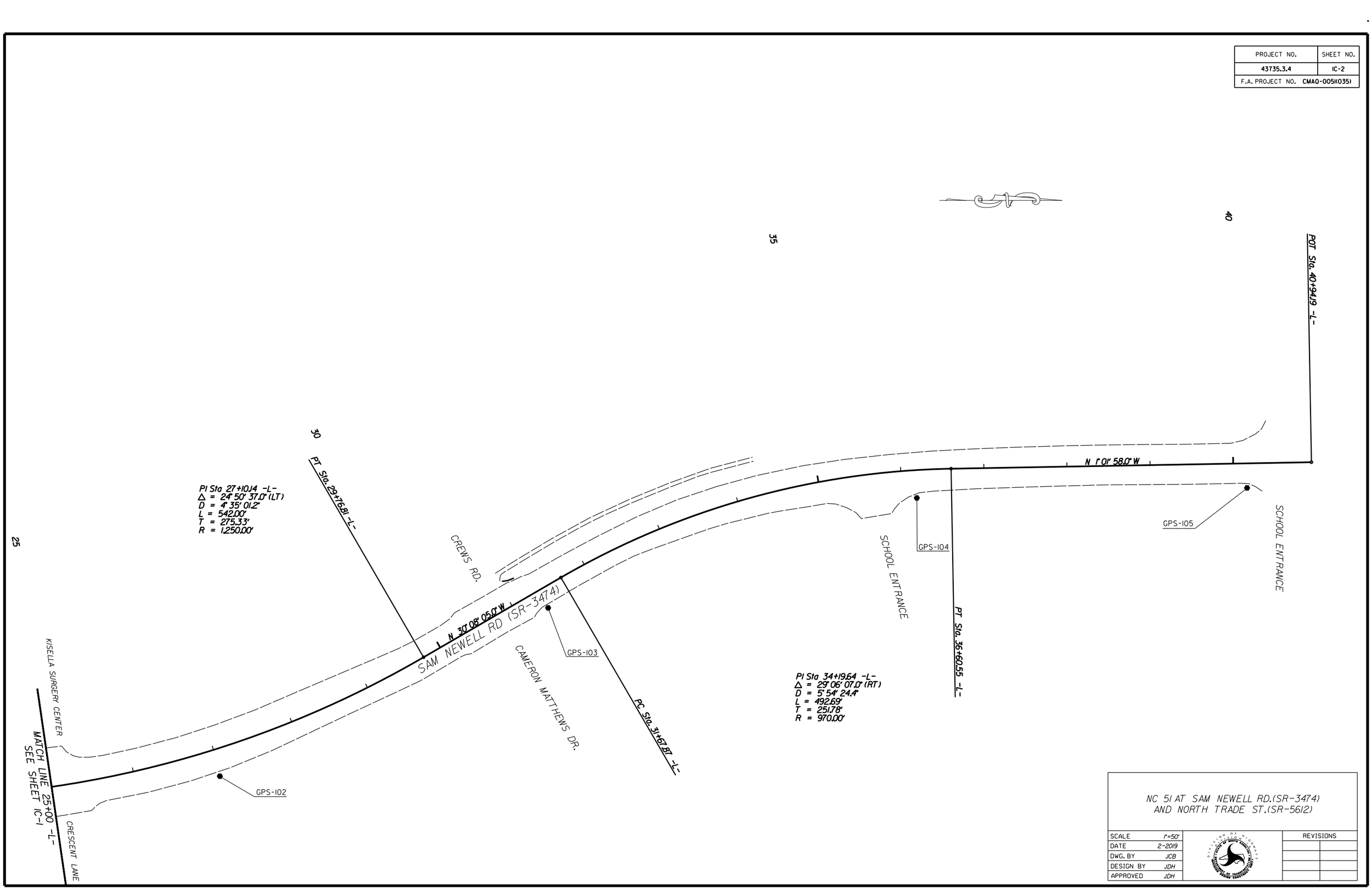
PLS® L-4384

NORTH CAROLINA PROFESSIONAL SEAL L-4384 LAND SURVEYOR BARRY D DAVIS

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	1"=50'		
DATE	2-2019		
DWG. BY	JCB		
DESIGN BY	JDH		
APPROVED	JDH		

PROJECT NO.	SHEET NO.
43735.3.4	IC-2
F.A. PROJECT NO. CMAQ-005(035)	



NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	1"=50'		
DATE	2-2019		
DWG. BY	JCB		
DESIGN BY	JDH		
APPROVED	JDH		

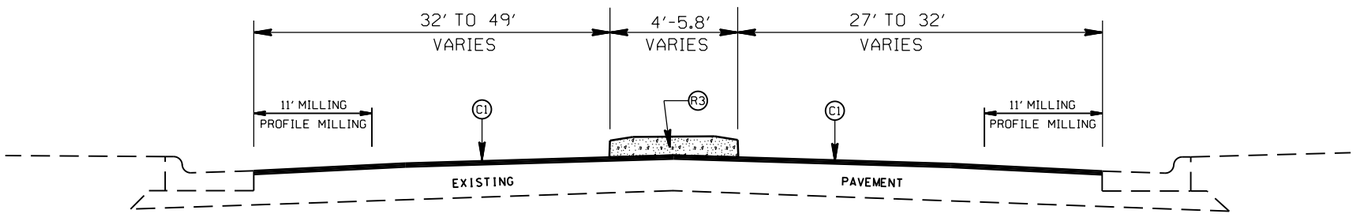
PROJECT NO.	SHEET NO.
43735.3.4	2
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

Docusigned by:

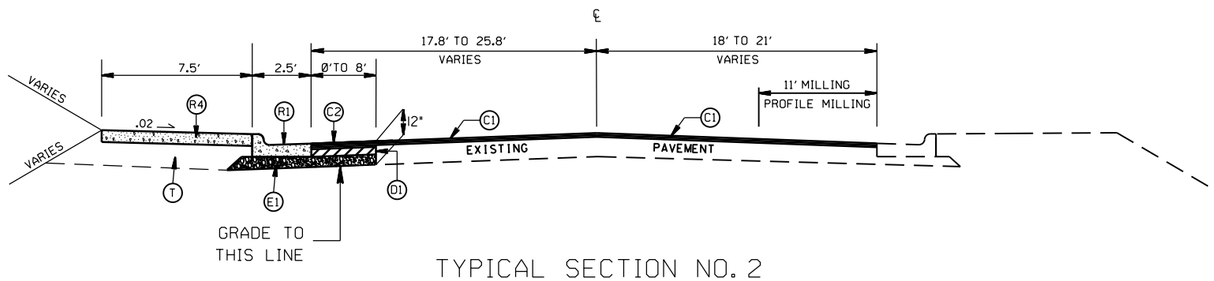
A92E75CC0FFB43B...



TYPICAL SECTION NO. 3

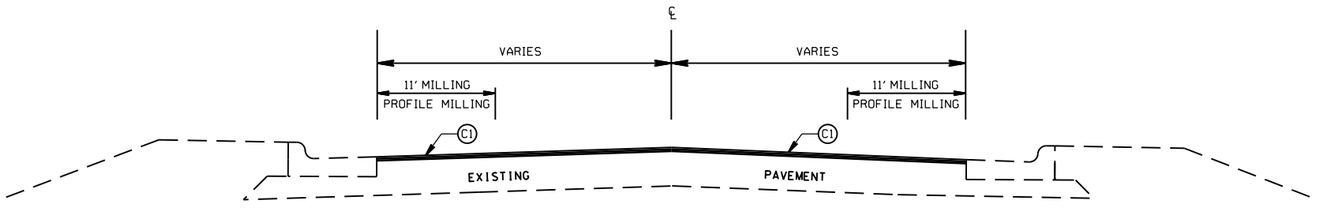
STA.14+70.01 TO 16+70.84 -L-

STA.18+33.96 TO 19+12.07 -L-



TYPICAL SECTION NO. 2

STA.11+29.00 TO 13+07.50 -L-



TYPICAL SECTION NO. 1

STA.10+25.00 TO 11+29.00 -L-

STA.13+07.50 TO 14+70.01 -L-

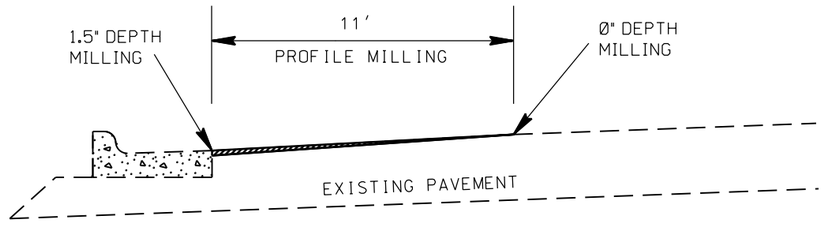
STA.16+70.84 TO 16+97.59 -L-

STA.18+24.70 TO 18+33.96 -L-

STA.23+94.62 TO 31+31.00 -L-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	PROP. 2'-6" CONC. CURB & GUTTER
R2	PROP. 1'-6" CURB & GUTTER
R3	PROP. 5" MONOLITHIC CONC. ISLAND (SURFACE MOUNTED)
R4	PROP 4" CONC. SIDEWALK
T	EARTH MATERIAL



PROFILE MILLING CURB AND GUTTER DETAIL

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	N/A		
DATE	11-2020		
DWG. BY	TBL		
DESIGN BY	TBL		
APPROVED	JDH		

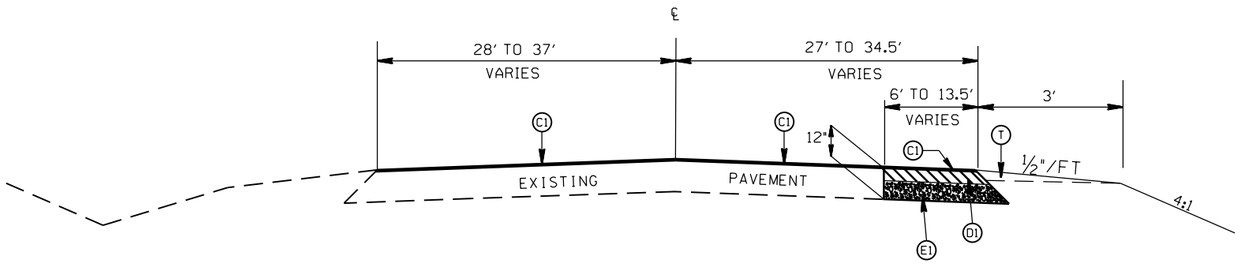
PROJECT NO.	SHEET NO.
43735.3.4	2A
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

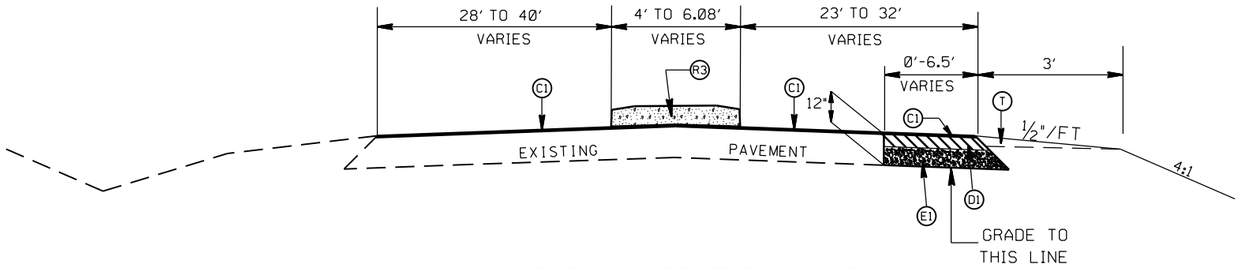
Docusigned by:

A92E75CC0FFB43B...



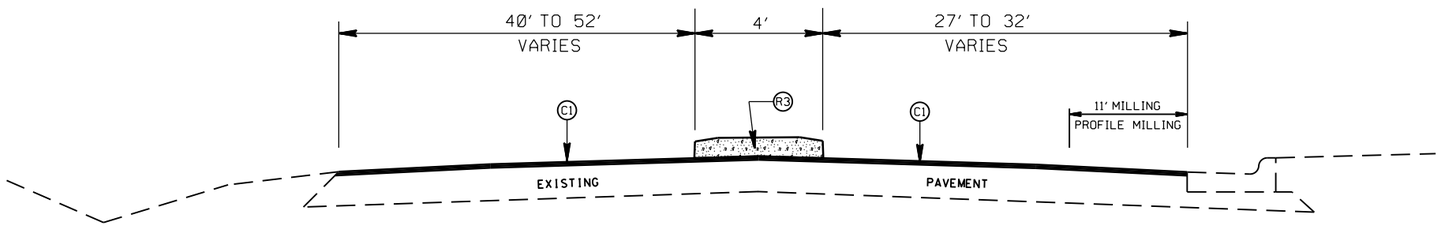
TYPICAL SECTION NO. 6

STA. 20+95 TO 21+66.63 -L-



TYPICAL SECTION NO. 5

STA. 20+21.21 TO 20+95 -L-



TYPICAL SECTION NO. 4

STA. 19+12.07 TO 20+21.21 -L-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	PROP. 2'-6" CONC. CURB & GUTTER
R2	PROP. 1'-6" CURB & GUTTER
R3	PROP. 5" MONOLITHIC CONC. ISLAND (SURFACE MOUNTED)
R4	PROP 4" CONC. SIDEWALK
T	EARTH MATERIAL

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

SCALE	N/A
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

DIVISION OF HIGHWAYS

REVISIONS	

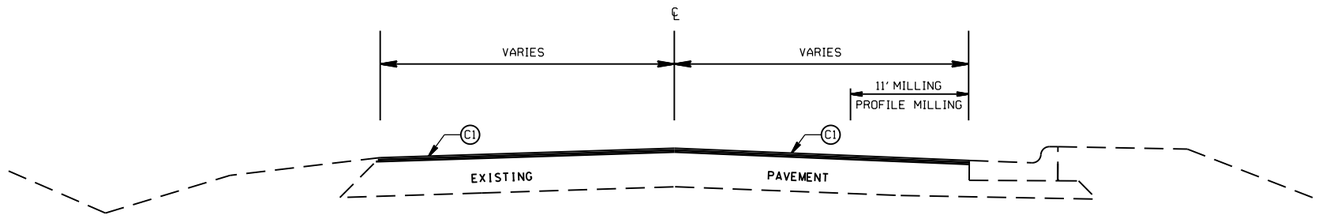
PROJECT NO.	SHEET NO.
43735.3.4	2B
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

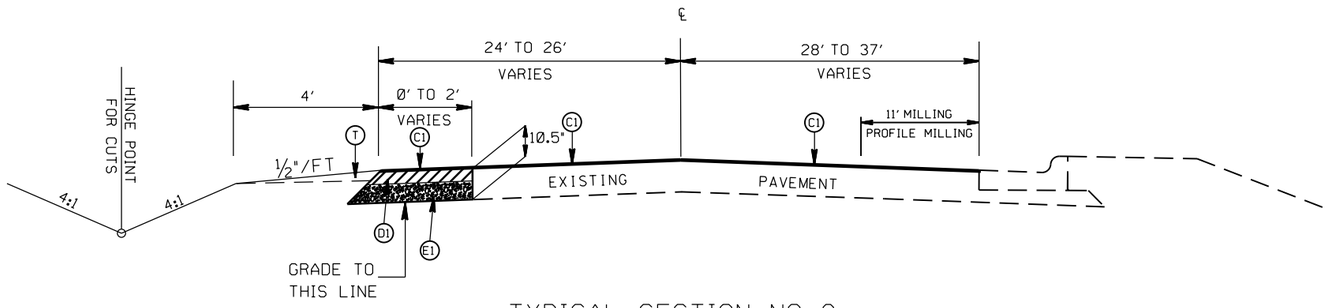
Docusigned by:

A92E75CC0FFB43B...



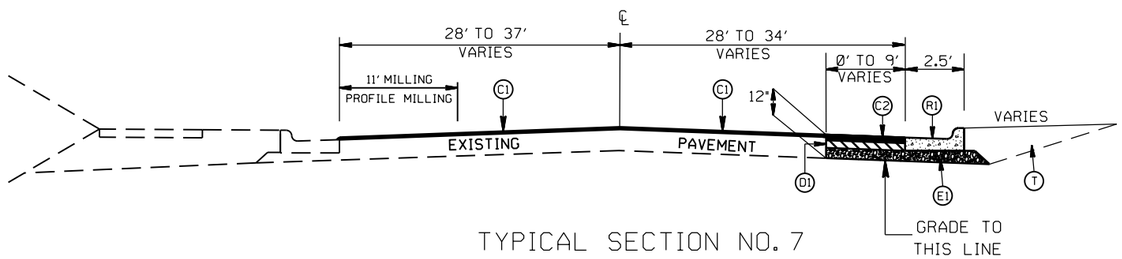
TYPICAL SECTION NO. 9

STA. 33+31.00 TO 35+50 -L-



TYPICAL SECTION NO. 8

STA. 31+31.00 TO 33+31.00 -L-



TYPICAL SECTION NO. 7

STA. 21+66.63 TO 23+94.62 -L-

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	PROP. 2'-6" CONC. CURB & GUTTER
R2	PROP. 1'-6" CURB & GUTTER
R3	PROP. 5" MONOLITHIC CONC. ISLAND (SURFACE MOUNTED)
R4	PROP 4" CONC. SIDEWALK
T	EARTH MATERIAL

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	N/A
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

DIVISION OF HIGHWAYS

REVISIONS	

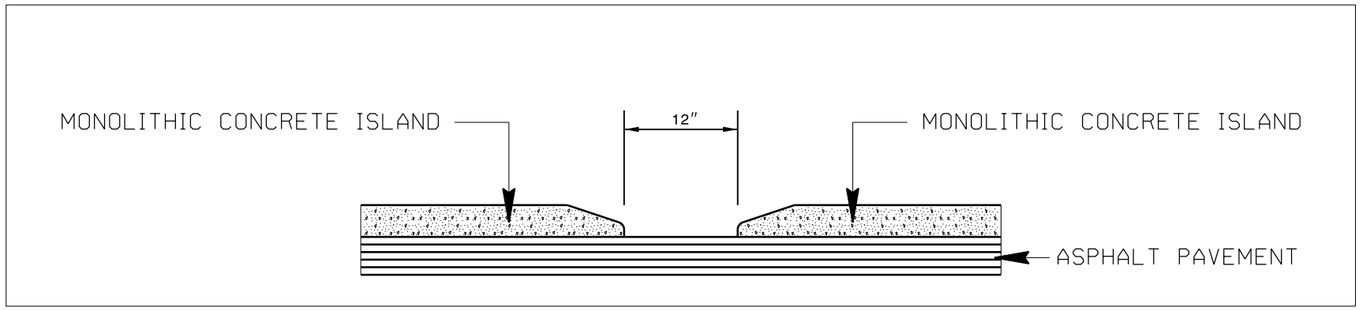
PROJECT NO.	SHEET NO.
43735.3.4	2C
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

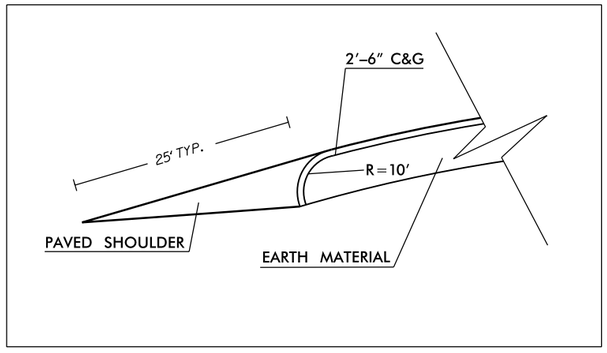
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

Docusigned by:

A92E75CC0FFB43B...



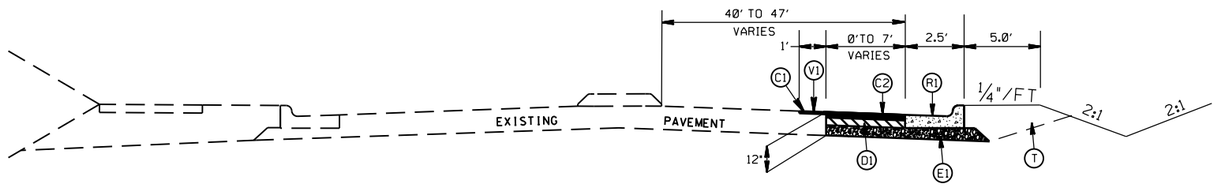
12" TROUGH DETAIL



CURB DETAIL

PAVEMENT SCHEDULE

C1	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
C2	PROP. APPROX. 3" ASPHALT CONC. SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
R1	PROP. 2'-6" CONC. CURB & GUTTER
R2	PROP. 1'-6" CURB & GUTTER
R3	PROP. 5" MONOLITHIC CONC. ISLAND (SURFACE MOUNTED)
R4	PROP 4" CONC. SIDEWALK
T	EARTH MATERIAL



TYPICAL SECTION NO. 10

STA. 15+29.73 TO 15+82.00 -Y-

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	N/A
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

DIVISION OF HIGHWAYS

REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	2D
F.A. PROJECT NO. CMAQ-005(035)	

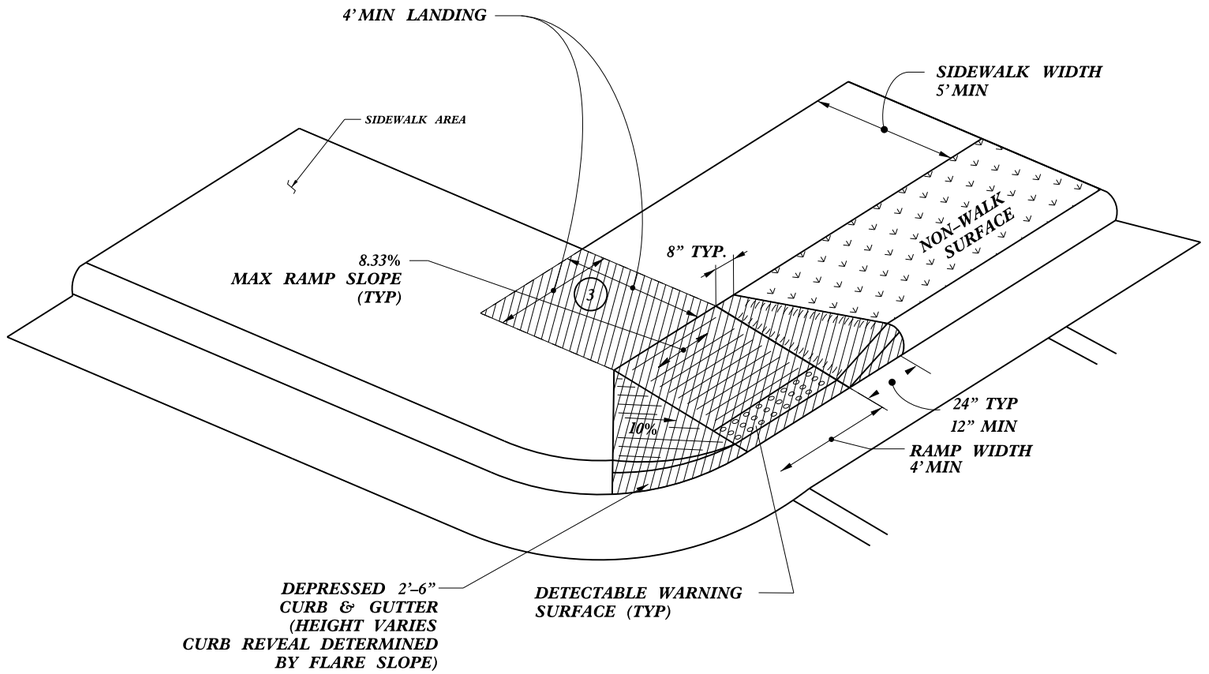
ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

Docusigned by:

A92E75CC0FFB43B...

PAY LIMITS FOR 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

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	N/A		
DATE	11-2020		
DWG. BY	TBL		
DESIGN BY	TBL		
APPROVED	JDH		

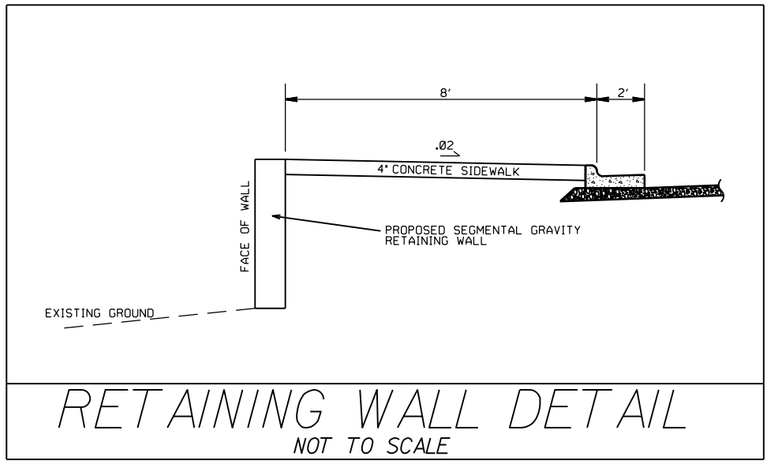
PROJECT NO.	SHEET NO.
43735.3.4	2E
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034357 JENNY MICHELE EPPERSON

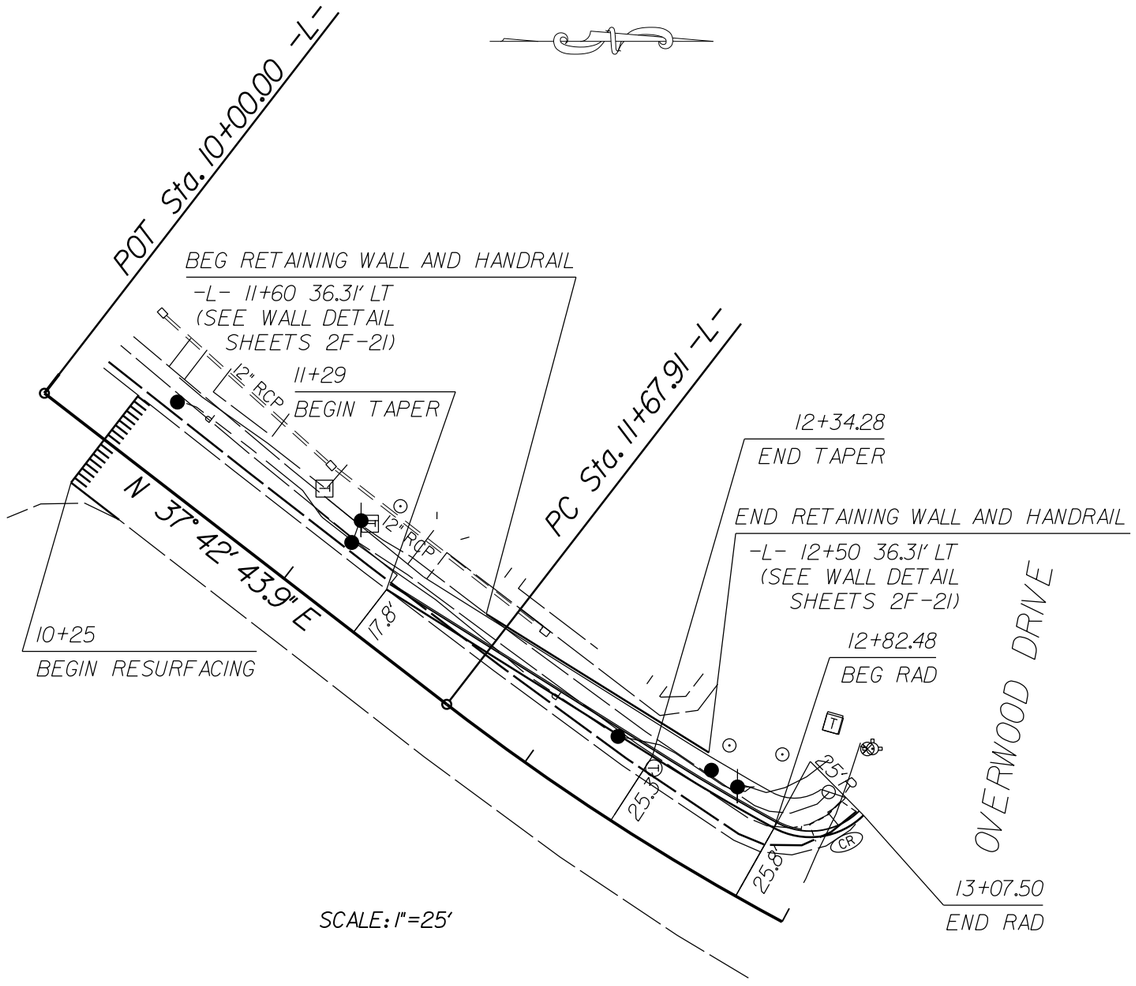
Documents signed by:

A92E75CC0FFB43B...



RETAINING WALL DETAIL

NOT TO SCALE



SCALE: 1"=25'

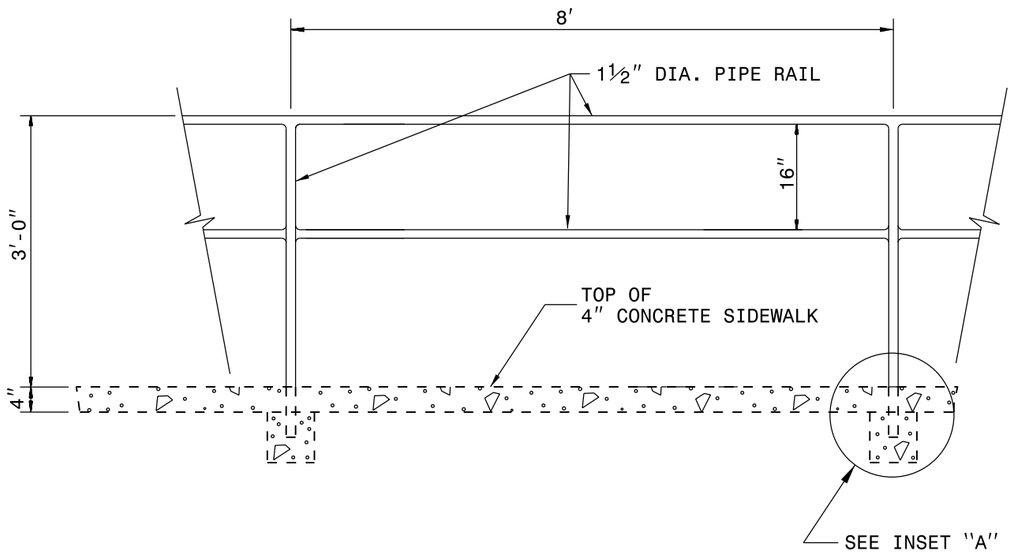
NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	N/A
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

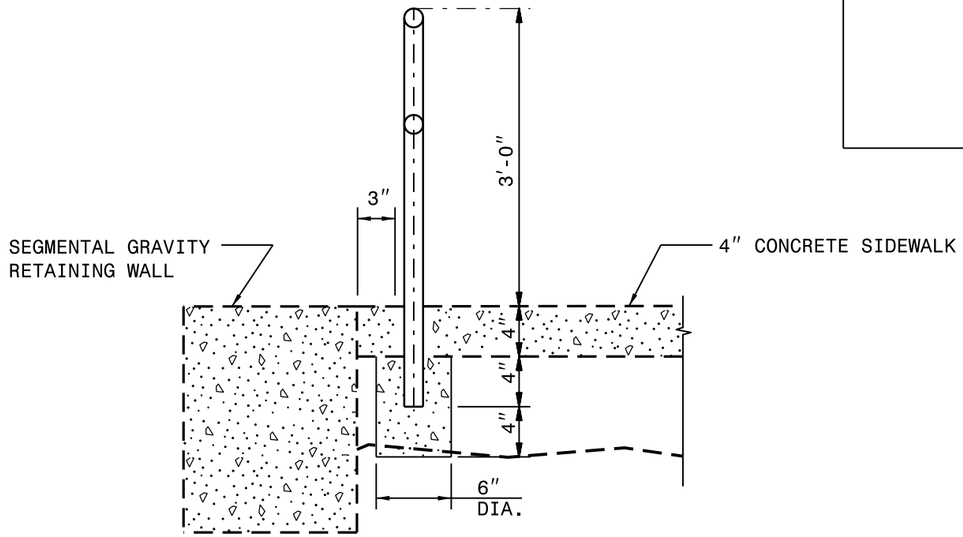
REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	2F
F.A. PROJECT NO. CMAQ-005(035)	

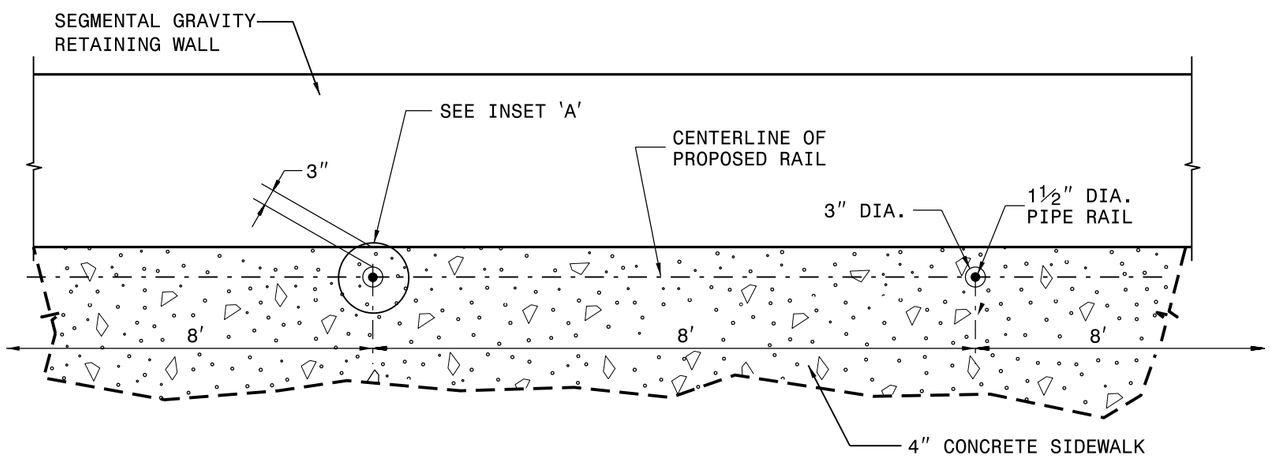
ROADWAY DESIGN ENGINEER



ELEVATION OF PROPOSED PEDESTRIAN SAFETY RAIL



INSET 'A'



PLAN VIEW

NOTES:

CONSTRUCT PROPOSED STEEL PIPE RAIL OF 1½″ DIAMETER SCHEDULE 40 PLAIN END GALVANIZED STEEL PIPE MEETING THE REQUIREMENTS OF ASTM A53.

REPAIR GALVANIZING IN ACCORDANCE WITH SECTION 1076 OF THE NCDOT STANDARD SPECIFICATIONS.

PAINT, IF REQUIRED BY THE ENGINEER, IN ACCORDANCE WITH SECTION 1080 OF THE STANDARD SPECIFICATIONS.

WELD IN ACCORDANCE WITH ARTICLE 1072-20 OF THE STANDARD SPECIFICATIONS.

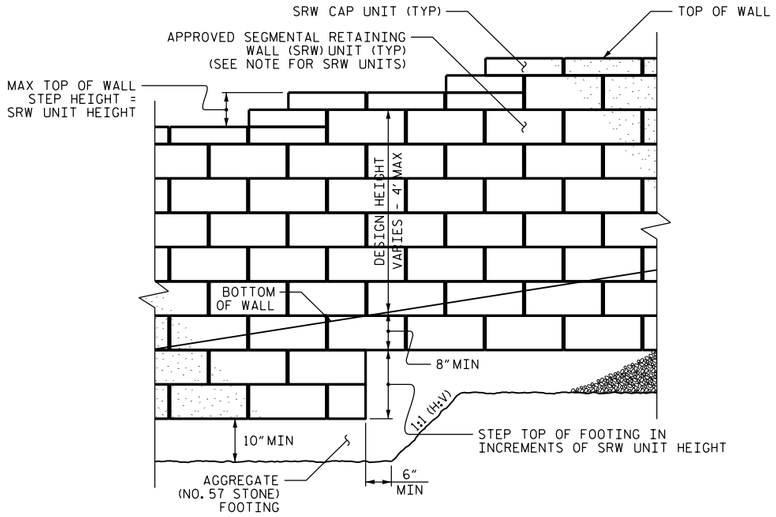
ALTERNATE DESIGNS TO ATTACH THE HANDRAIL TO THE WALL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	N/A		
DATE	11-2020		
DWG. BY	TBL		
DESIGN BY	JSH		
APPROVED	JSH		

PROJECT NO.	SHEET NO.
43735.3.4	2G
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER



STANDARD SEGMENTAL GRAVITY WALL - PARTIAL ELEVATION

NOTES:

FOR STANDARD SEGMENTAL GRAVITY RETAINING WALLS, SEE SECTION 454 OF THE STANDARD SPECIFICATIONS.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

DO NOT ATTACH FENCES OR HANDRAILS TO STANDARD SEGMENTAL GRAVITY WALLS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS FOR INTERSTATE HIGHWAY OR RAILROAD PROJECTS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN SURCHARGE LOADS WILL BE WITHIN 5'-6" OF THE BACK OF SRW CAP UNITS.

DO NOT USE STANDARD SEGMENTAL GRAVITY WALLS WHEN VERY LOOSE OR SOFT SOIL OR MUCK IS BELOW WALLS.

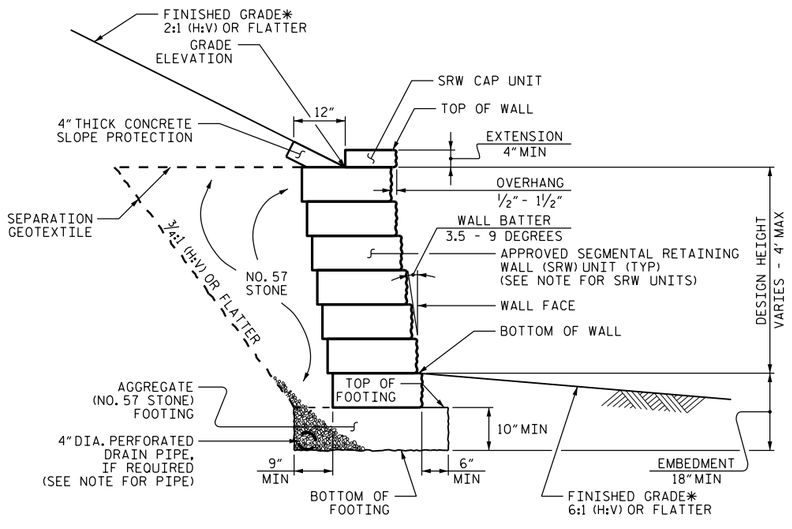
SEGMENTAL RETAINING WALL (SRW) UNITS ARE APPROVED FOR EITHER 2' OR 4' MAXIMUM DESIGN HEIGHTS. FOR DETAILS AND DIMENSIONS OF APPROVED SRW UNITS AND MAXIMUM DESIGN HEIGHTS, SEE connect.ncdot.gov/resources/Geological/Pages/Products.aspx

DO NOT MIX APPROVED SRW UNITS FROM DIFFERENT VENDORS ON THE SAME STANDARD SEGMENTAL GRAVITY WALL. USE THE SAME SIZE APPROVED SRW UNITS FOR EACH WALL SECTION.

BEFORE BEGINNING STANDARD SEGMENTAL GRAVITY WALL CONSTRUCTION, SURVEY WALL LOCATIONS AND SUBMIT WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. FOR WALL ENVELOPES, INCLUDE BOTTOM OF WALL, EXISTING GROUND AND GRADE ELEVATIONS AND OTHER ELEVATIONS AS NEEDED AT INTERVALS OF 25' OR LESS ALONG WALLS. DO NOT START WALL CONSTRUCTION UNTIL WALL ENVELOPES ARE ACCEPTED.

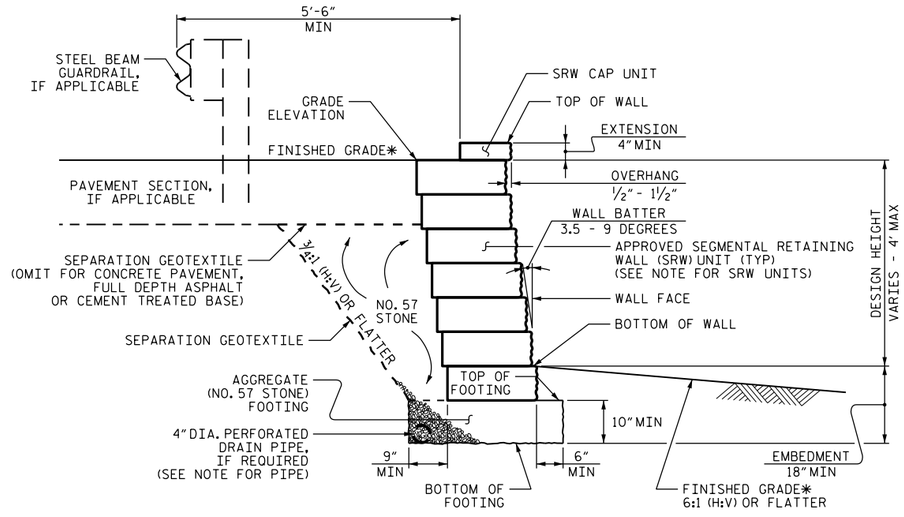
A DRAIN PIPE IS REQUIRED IF GROUNDWATER IS ABOVE BOTTOM OF FOOTINGS.

DO NOT PLACE NO. 57 STONE FOR FOOTINGS UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.



STANDARD SEGMENTAL GRAVITY WALL WITH SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.



STANDARD SEGMENTAL GRAVITY WALL WITHOUT SLOPE

*SEE ROADWAY PLANS FOR FINISHED GRADE DETAILS.

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

SCALE	N/A
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

REVISIONS	

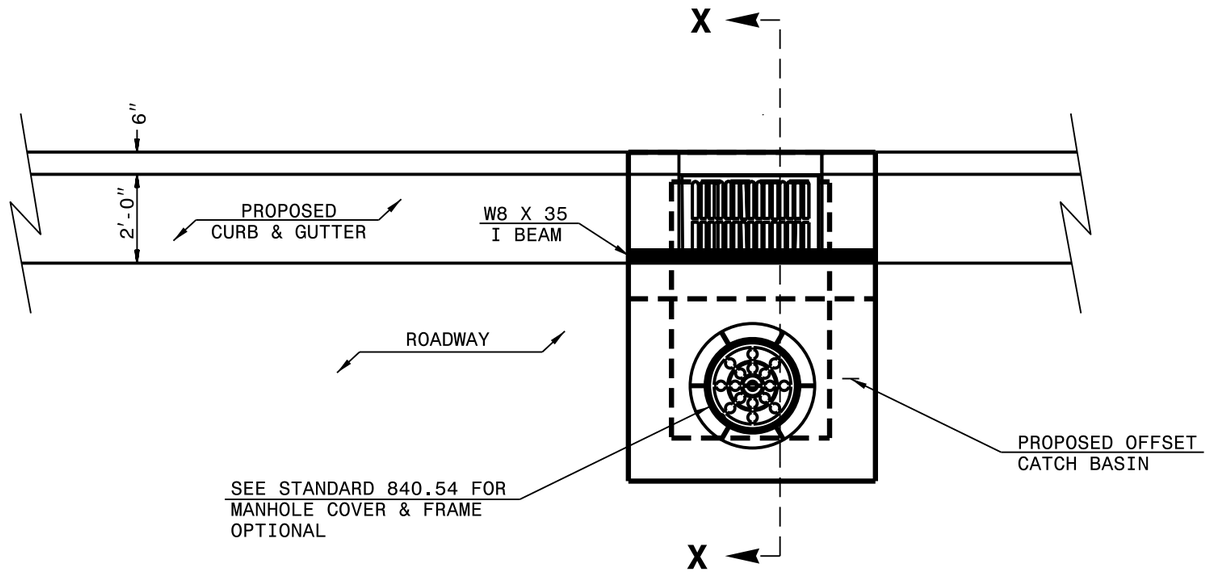
PROJECT NO.	SHEET NO.
43735.3.4	2H
F.A. PROJECT NO. CMAQ-0051(035)	

ROADWAY DESIGN ENGINEER

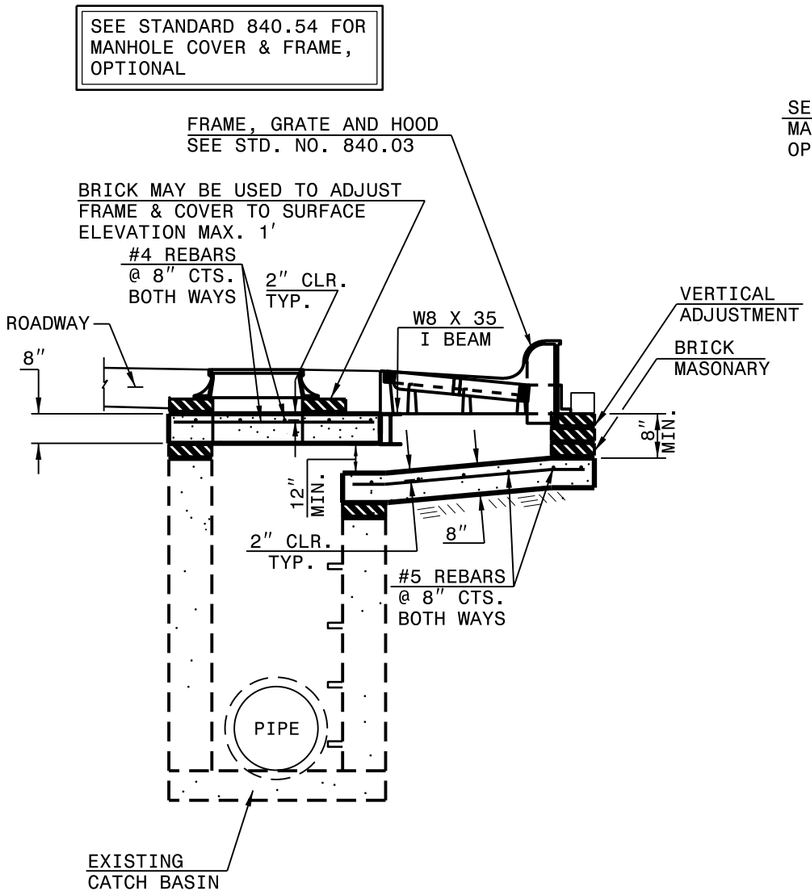
NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER JOHN MICHAEL EPPERSON

Docusigned by:

A92E75CC0FFB43B...



PLAN



SECTION X-X

NOTES:

MORTAR JOINTS ½" TO ¼" THICK.

USE CLASS "B" CONCRETE THROUGHOUT.

USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.

USE BRICK OR CONCRETE BLOCK WHICH COMPLIES WITH THE REQUIREMENTS OF SECTION 840 OF THE STANDARD SPECIFICATIONS.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.

ALL CONVERSIONS SHALL BE ACCORDANCE WITH SECTION 859 OF THE STANDARD SPECIFICATIONS.

DIMENSIONS MAY BE ADJUSTED BY THE ENGINEER.

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

		REVISIONS	
SCALE	N/A		
DATE	11-2020		
DWG. BY	TBL		
DESIGN BY	TBL		
APPROVED	JDH		

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

ENGLISH DETAIL DRAWING FOR

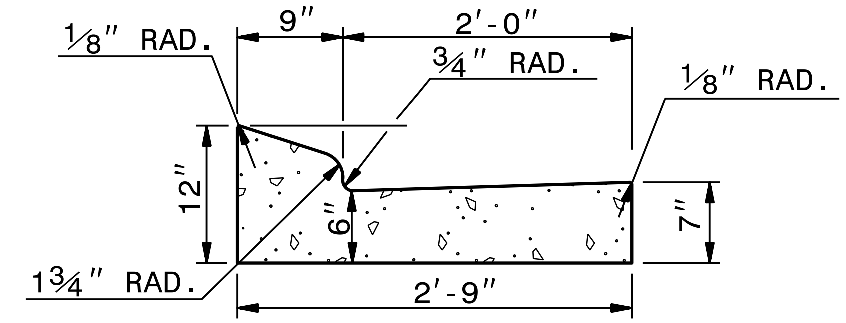
2'-9" CONCRETE CURB & GUTTER

SHEET 1 OF 1

846D01

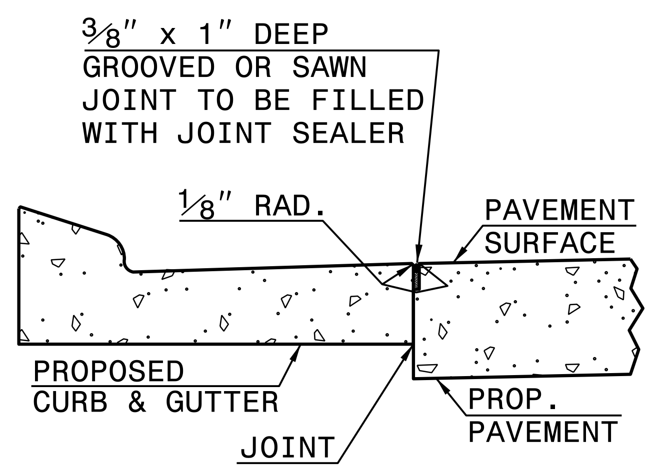
GENERAL NOTES:

- PLACE CONTRACTION JOINTS AT 10' INTERVALS, EXCEPT THAT A 15' SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10' INTERVALS.
- JOINT SPACING MAY BE ALTERED IF REQUIRED BY THE ENGINEER.
- CONTRACTION JOINTS MAY BE INSTALLED WITH THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. MAKE NON-TEMPLATE FORMED JOINTS A MIN. OF 1½" DEEP.
- FILL ALL CONSTRUCTION JOINTS WITH JOINT FILLER AND SEALER.
- SPACE EXPANSION JOINTS AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.
- SEE RDWY. STD. DWG. NO. 846.01, SHEET 2 OF 3 FOR PLACEMENT IN SUPERELEVATIONS. (USE 2'-6" CURB AND GUTTER RATES)

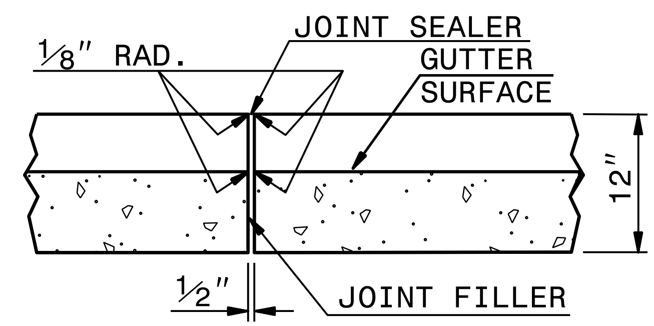


2'-9" CURB AND GUTTER

SECTION VIEW OF CURB AND GUTTER

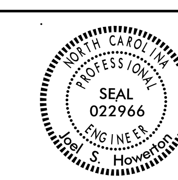


LONGITUDINAL JOINT



TRANSVERSE EXPANSION JOINT IN CURB AND GUTTER

SECTION VIEW OF JOINTS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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

SEE PLATE FOR TITLE

ORIGINAL BY: STD. 846.01 DATE:
MODIFIED BY: E.E. WARD DATE: 8-15-00
CHECKED BY: DATE:
FILE SPEC.: /usr/details/stand/c&g2'-9".dgn

PROJECT NO.	SHEET NO.
43735.3.4	4
F.A. PROJECT NO. CMAQ-005(1035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EMERSON

Docusigned by:

A92E75CC0FFB43B...

POT Sta. 10+00.00 -Y-

POT Sta. 10+00.00 -L-

1

CHARLOTTE METRO CREDIT UNION
DB 29265 PG 516
MB 59 PG 954
LOT 2

11+29
BEGIN TAPER
BEGIN 2'-6" CURB & GUTTER

10+95.27
BEGIN SIDEWALK

11+38 -L-
32'LT &
39'LT

BEG RETAINING WALL AND HANDRAIL
-L- 11+60 38.31' LT
(SEE WALL DETAIL-SHEETS 2E-2G)

12+17.90 -L-
38.15'LT

12+34.28
END TAPER
END RETAINING WALL AND HANDRAIL
-L- 12+50 36.31' LT
(SEE WALL DETAIL SHEETS 2E-2G)

12+82.48
BEG RAD

13+07.50
END RAD
END 2'-6"C&G
END SIDEWALK

12+78 -L-
58'LT

12+79.14 -L-
62'LT

12+86.33 -L-
60'LT

12+86 -L-
58'LT

13+04.95 -L-
58.85'LT

PC Sta. 11+67.91 -L-

N 37° 42' 43.9" E

ANDREW CAROLINE DR.

10+25
BEGIN RESURFACING

EXISTING R/W

OVERWOOD DRIVE

WALTRUST PROPERTIES, INC.
DB 2385 PG 488
MB 43 PG 737
LOT 1

EXISTING DUKE ENERGY EASEMENT

RELOCATE EXISTING BANNER POLE TO STA 12+55 -L- 41' LT.

SEE CURB RAMP DETAIL (SHEET 2D)

14+70
BEG 5' MONOLITHIC ISLAND

16+93
END RESURFACING

16+70.84 -L-
END ISLAND

N TRADE ST (SR-5612)

N 2° 44' 06.7" W

17+00
END RESURFACING

15+29.73 -Y-
48.38' RT
BEGIN 2'-6"C&G

15+32.28
48.15' RT

15+55.67
45.08' RT

15+82 -Y-
40.83' RT
END 2'-6"C&G

5'R
40'R
15" RCP
Conv. CB To Off Set CB
5'CB

SEE OFFSET CATCH BASIN DETAIL (SHEET 2H)

12" TROUGH PLACEMENT AS DIRECTED BY ENGINEER (SEE DETAIL SHEET 2C)

FIRST CITIZENS BANK & TRUST COMPANY
DB 6427 PG 312

PI Sta 14+60.58 -L-
Δ = 40° 26' 50.6" (LT)
D = 7° 12' 43.0"
L = 560.84'
T = 292.68'
R = 794.46'

NC HWY 51

POT Sta. 17+58.10 -L-
POT Sta. 14+71.08 -Y-
PT Sta. 17+28.74 -L-

N 89° 56' 49.9" E

PC Sta. 17+98.14 -L-

PT Sta. 19+76.58 -L-

18+24
BEGIN RESURFACING

18+33.96 -L-
BEGIN ISLAND

20+95 -L-
END ISLAND

18+24
BEGIN RESURFACING

20+21.21
BEGIN WIDENING

12" TROUGH PLACEMENT AS DIRECTED BY ENGINEER (SEE DETAIL SHEET 2C)

PI Sta 18+87.37 -L-
Δ = 2° 33' 21.3" (LT)
D = 1° 25' 56.6"
L = 178.44'
T = 89.23'
R = 4,000.00'

POT Sta. 19+73.32 -Y-

PC Sta. 24+34.81 -L-

SEE SHEET 5
MATCH LINE 25+00 -L-

N 5° 17' 28.0" W

SAM NEWELL RD (SR-3474)

23+94.62
END 2'-6"
CURB & GUTTER

21+66.63
BEGIN 2'-6"
CURB & GUTTER
(SEE SHEET 2C)

15" RCP

18" RCP

24" RCP

NOTE: INCIDENTAL MILL APPROX. 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

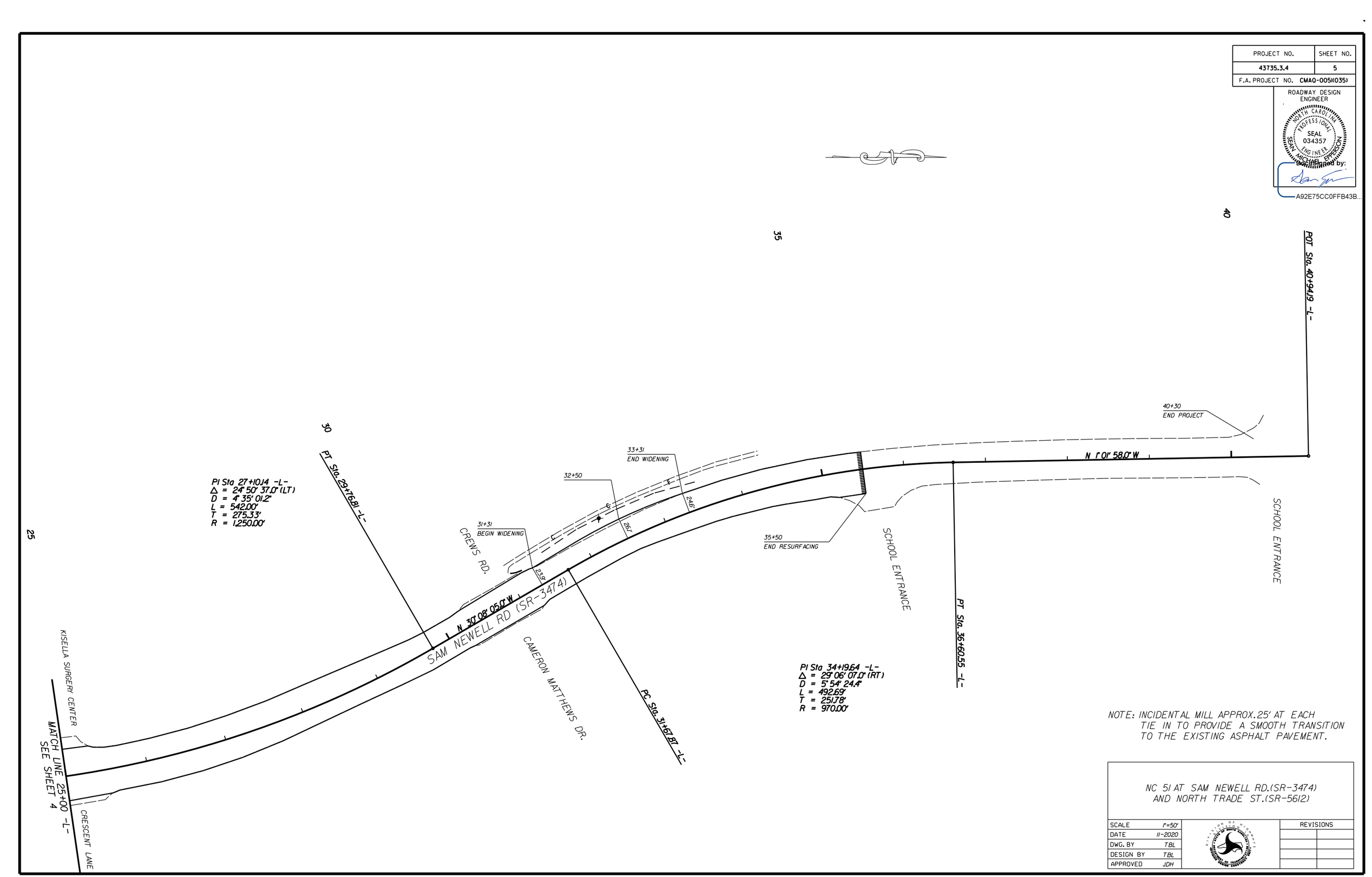
		REVISIONS	
SCALE	1"=50'		
DATE	1-2019		
DWG. BY	TBL		
DESIGN BY	TBL		
APPROVED	JDH		

PROJECT NO.	SHEET NO.
43735.3.4	5
F.A. PROJECT NO. CMAQ-005I(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAL AND SIGNATURE SUPERVISION

Docusigned by:
A92E75CC0FFB43B...



NOTE: INCIDENTAL MILL APPROX. 25' AT EACH TIE IN TO PROVIDE A SMOOTH TRANSITION TO THE EXISTING ASPHALT PAVEMENT.

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

REVISIONS	

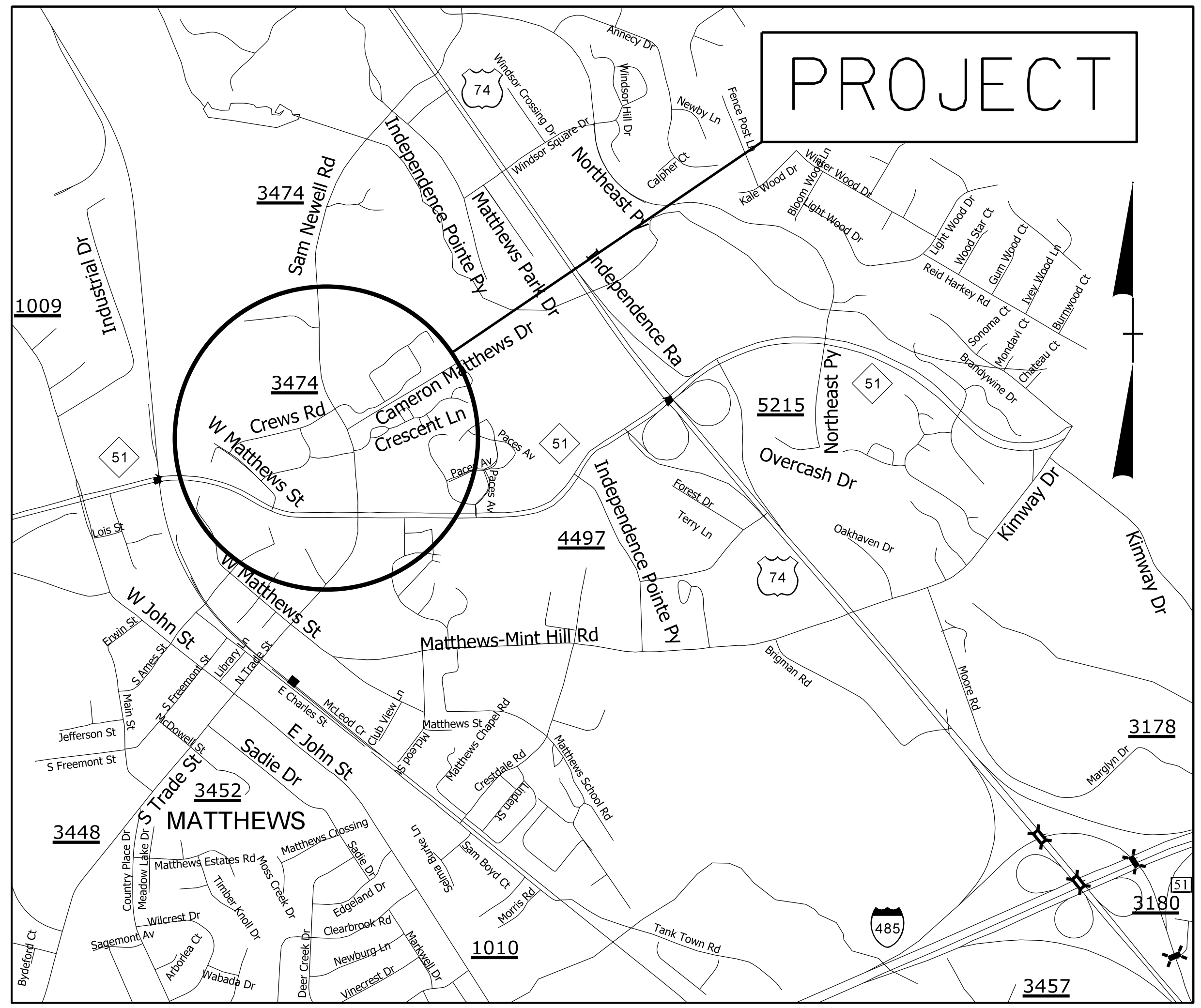
TIP PROJECT: C-5613D

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	43735.3.4	EC-1	___

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
43735.1.4	CMAQ-0051(035)	P.E.
43735.2.4	CMAQ-0051(035)	R/W
43735.3.4	CMAQ-0051(035)	CONST.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL



VICINITY MAP NOT TO SCALE

EROSION AND SEDIMENT CONTROL MEASURES

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

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

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

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

Prepared in the Office of:

DDC UNIT DIVISION 10

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

2018 STANDARD SPECIFICATIONS

Designed by:

TRAVIS LOWDER — *3742*
NAME — *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

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

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

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owder AT DIV10-2997361

PROJECT NO.	SHEET NO.
43735.3.4	EC-2
F.A. PROJECT NO. CMAQ-005(035)	

POT Sta. 10+00.00 -L-

POT Sta. 10+00.00 -Y-

1

CHARLOTTE METRO CREDIT UNION
DB 29265 PG 516
MB 59 PG 954
LOT 2

PC Sta. 11+67.91 -L-

EXISTING R/W

11+38-L-
32'LT &
39'LT

12"RCP

12+17.90-L-
38.15'LT

12"RCP

ANDREW CAROLINE DR.

N 37° 42' 43.9" E

10+25
BEGIN PROJECT

PUE

TEMPORARY MATTING FOR
SLOPE STABILIZATION
(1505 SQ FT)

EXISTING R/W

OVERWOOD DRIVE

EXISTING R/W

12+78-L-
58'LT

12+79.14 -L-
62'LT

12+86.33 -L-
60'LT

12+86-L-
58'LT

13+04.95-L-
58.85'LT

EXISTING DUKE ENERGY EASEMENT

EXISTING R/W

WALTRUST PROPERTIES, INC.
DB 2385 PG 488
MB 43 PG 737
LOT 1

10+75
BEGIN PROJECT

NC HWY 51

EXISTING R/W

POT Sta. 17+58.10 -L-
POT Sta. 14+71.08 -Y-
PT Sta. 17+28.74 -L-

N 89° 56' 49.9" E

PC Sta. 17+98.14 -L-

PT Sta. 19+76.58 -L-

13+65
BEGIN RESURFACING

PC Sta. 24+34.81 -L-

SEE SHEET EC-3
MATCH LINE 25+00 -L-

SAM NEWELL RD (SR-3474)

N 5° 17' 28.0" W

N TRADE ST (SR-5612)

N 2° 44' 06.7" W

EXISTING R/W

Conv. CB To Off Set CB

PI Sta 14+60.58 -L-
Δ = 40° 26' 50.6" (LT)
D = 7° 12' 43.0"
L = 560.84'
T = 292.68'
R = 794.46'

15+87
END RESURFACING

FIRST CITIZENS BANK
& TRUST COMPANY
DB 6427 PG 312

EXISTING R/W

PI Sta 18+87.37 -L-
Δ = 2° 33' 21.3" (LT)
D = 1° 25' 56.6"
L = 178.44'
T = 89.23'
R = 4,000.00'

19+05
END PROJECT

NC HWY 51

POT Sta. 19+73.32 -Y-

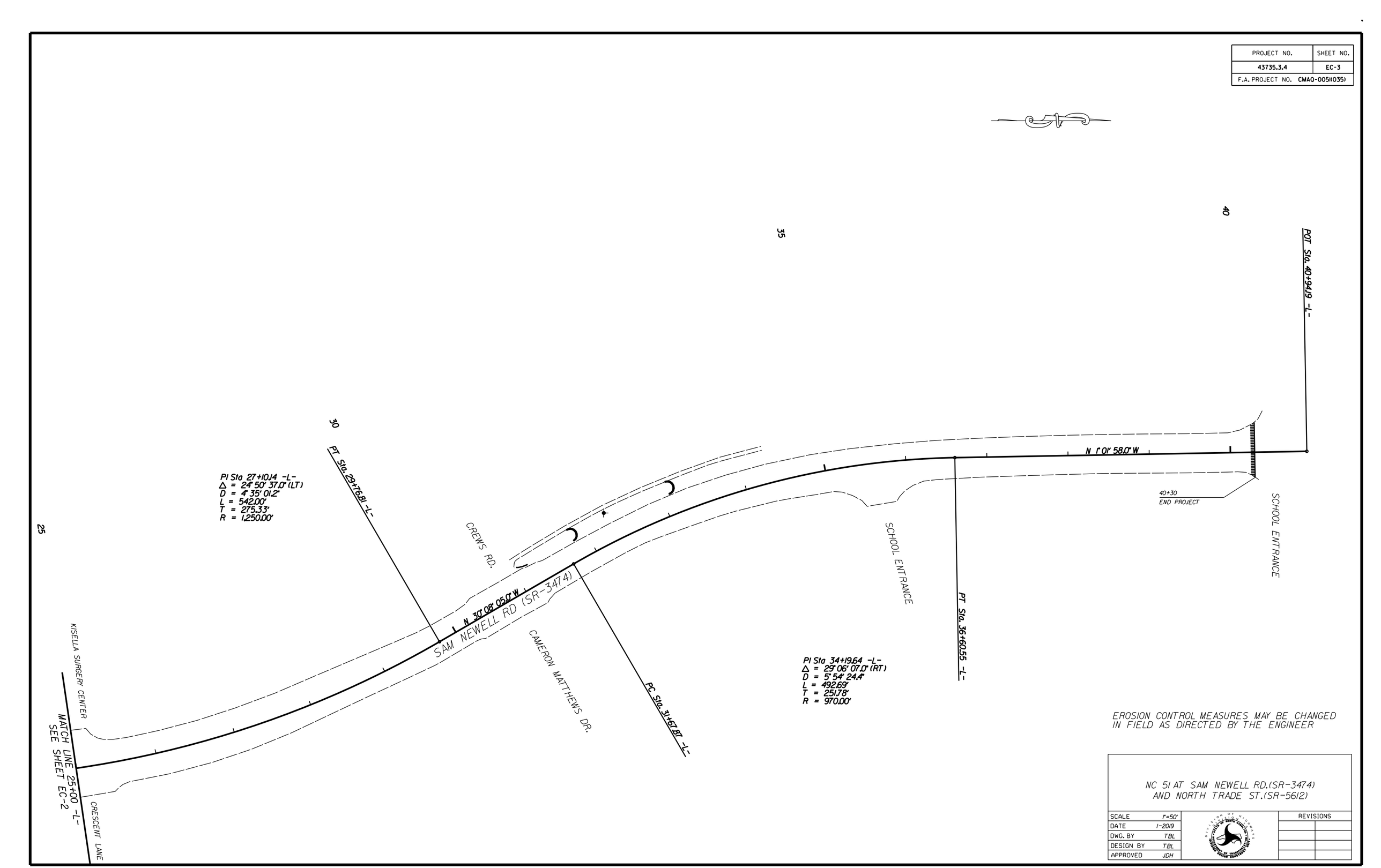
EROSION CONTROL MEASURES MAY BE CHANGED
IN FIELD AS DIRECTED BY THE ENGINEER

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	3-2019
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	EC-3
F.A. PROJECT NO. CMAQ-005(035)	



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

NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	1-2019
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	PMP-1
F.A. PROJECT NO. CMAQ-005(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034357 SEAN MICHAEL EPPERSON

Docusigned by:

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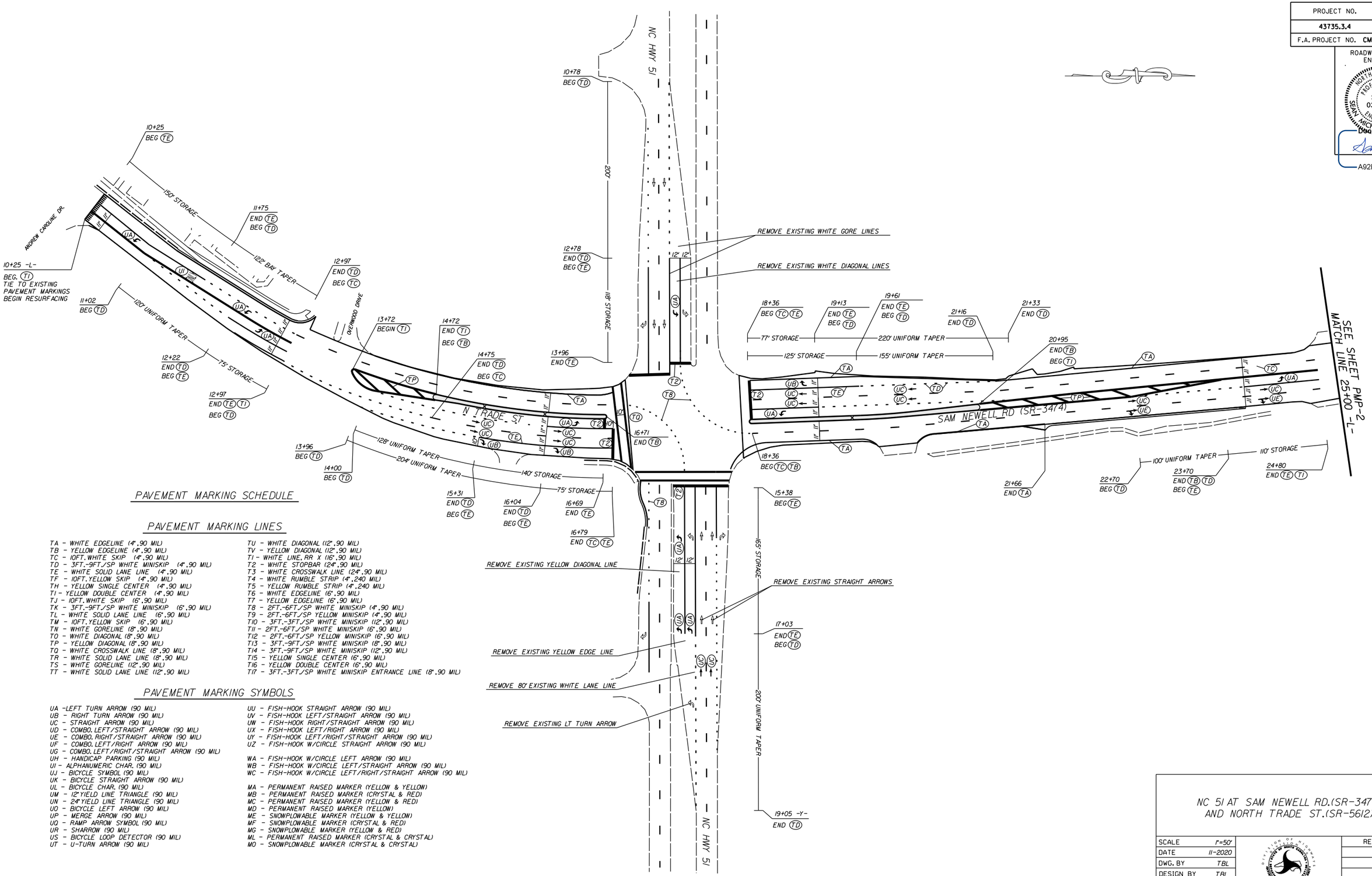

PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

TA - WHITE EDGELINE (4",90 MIL)
TB - YELLOW EDGELINE (4",90 MIL)
TC - 10FT.WHITE SKIP (4",90 MIL)
TD - 3FT.-9FT./SP WHITE MINISKIP (4",90 MIL)
TE - WHITE SOLID LANE LINE (4",90 MIL)
TF - 10FT.YELLOW SKIP (4",90 MIL)
TH - YELLOW SINGLE CENTER (4",90 MIL)
TI - YELLOW DOUBLE CENTER (4",90 MIL)
TJ - 10FT.WHITE SKIP (6",90 MIL)
TK - 3FT.-9FT./SP WHITE MINISKIP (6",90 MIL)
TL - WHITE SOLID LANE LINE (6",90 MIL)
TM - 10FT.YELLOW SKIP (6",90 MIL)
TN - WHITE GORELINE (8",90 MIL)
TO - WHITE DIAGONAL (8",90 MIL)
TP - YELLOW DIAGONAL (8",90 MIL)
TQ - WHITE CROSSWALK LINE (8",90 MIL)
TR - WHITE SOLID LANE LINE (8",90 MIL)
TS - WHITE GORELINE (12",90 MIL)
TT - WHITE SOLID LANE LINE (12",90 MIL)
TU - WHITE DIAGONAL (12",90 MIL)
TV - YELLOW DIAGONAL (12",90 MIL)
T1 - WHITE LINE,RR X (16",90 MIL)
T2 - WHITE STOPBAR (24",90 MIL)
T3 - WHITE CROSSWALK LINE (24",90 MIL)
T4 - WHITE RUMBLE STRIP (4",240 MIL)
T5 - YELLOW RUMBLE STRIP (4",240 MIL)
T6 - WHITE EDGELINE (6",90 MIL)
T7 - YELLOW EDGELINE (6",90 MIL)
T8 - 2FT.-6FT./SP WHITE MINISKIP (4",90 MIL)
T9 - 2FT.-6FT./SP YELLOW MINISKIP (4",90 MIL)
T10 - 3FT.-3FT./SP WHITE MINISKIP (12",90 MIL)
T11 - 2FT.-6FT./SP WHITE MINISKIP (6",90 MIL)
T12 - 2FT.-6FT./SP YELLOW MINISKIP (6",90 MIL)
T13 - 3FT.-9FT./SP WHITE MINISKIP (8",90 MIL)
T14 - 3FT.-9FT./SP WHITE MINISKIP (12",90 MIL)
T15 - YELLOW SINGLE CENTER (6",90 MIL)
T16 - YELLOW DOUBLE CENTER (6",90 MIL)
T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8",90 MIL)

PAVEMENT MARKING SYMBOLS

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

NC 51 AT SAM NEWELL RD.(SR-3474) AND NORTH TRADE ST.(SR-5612)

SCALE	1"=50'
DATE	11-2020
DWG. BY	TBL
DESIGN BY	TBL
APPROVED	JDH

DIVISION OF HIGHWAYS

REVISIONS	

PROJECT NO.	SHEET NO.
43735.3.4	PMP-2
F.A. PROJECT NO. CMAQ-0051(035)	

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 034357 ENGINEER SEAN MICHAEL EPPERSON

DocuSigned by:

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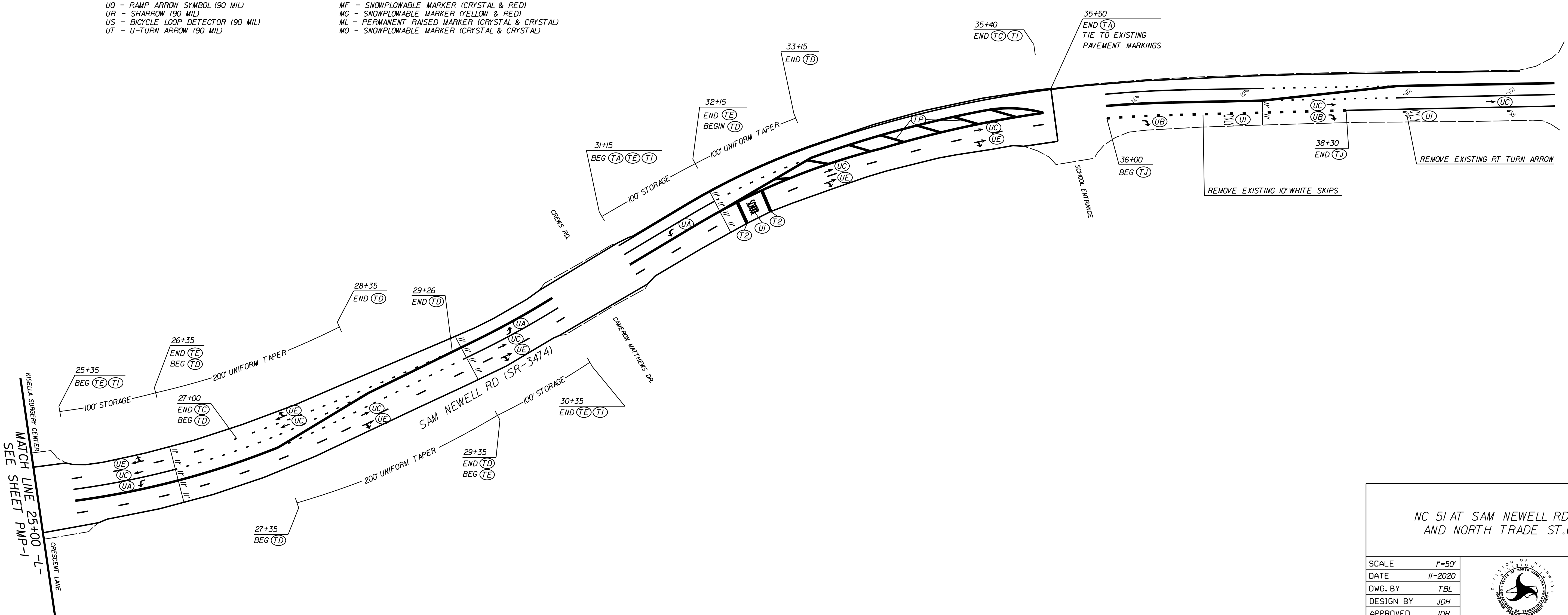


NC 51 AT SAM NEWELL RD.(SR-3474)
AND NORTH TRADE ST.(SR-5612)

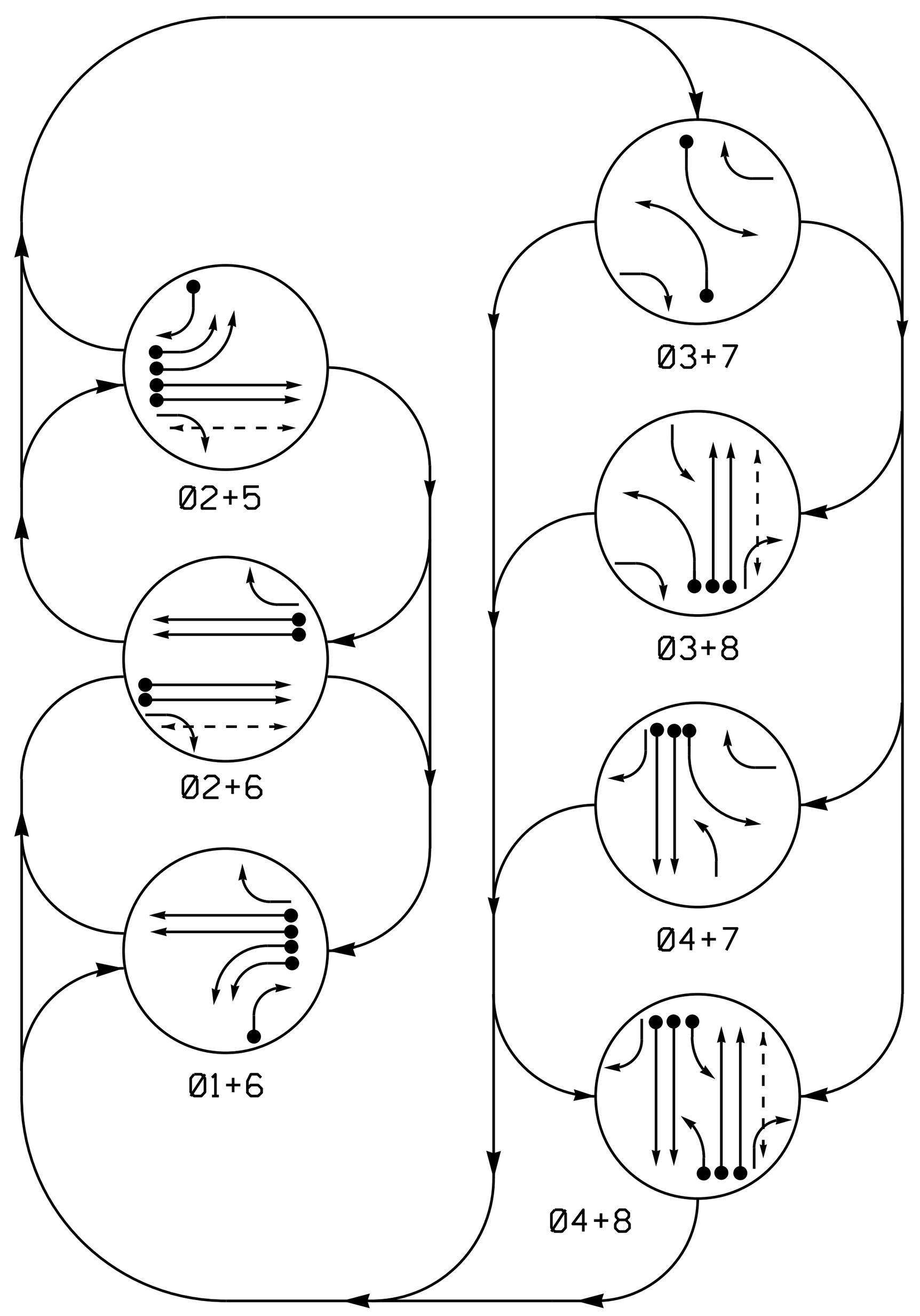
SCALE	1"=50'
DATE	11-2020
DWG. BY	TBL
DESIGN BY	JDH
APPROVED	JDH

DIVISION OF HIGHWAYS DIVISION 10 STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION DESIGN CONSTRUCT UNIT

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	Sig. 1.0

PHASING DIAGRAM



PHASING DIAGRAM DETECTION LEGEND

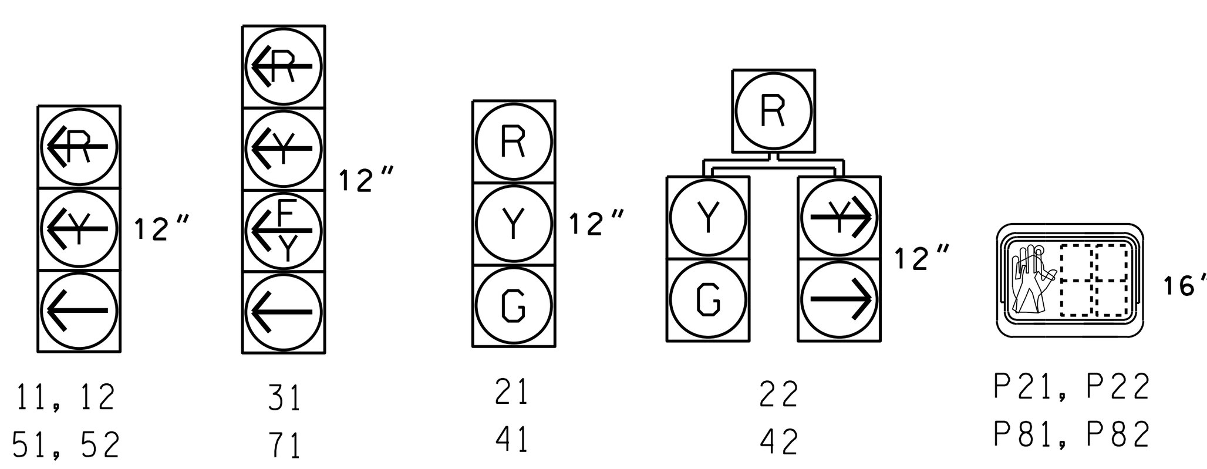
- DETECTED MOVEMENT
- UNDETECTED MOVEMENT (OVERLAP)
- UNSIGNALIZED MOVEMENT
- PEDESTRIAN MOVEMENT

TABLE OF OPERATION

SIGNAL FACE	PHASE Ø1+6	Ø2+6	Ø2+5	Ø3+7	Ø3+8	Ø4+7	Ø4+8	FLASH
11,12	←	←R	←R	←R	←R	←R	←R	←R
21	R	G	G	R	R	R	R	Y
22	R	G	G	R / →	R / →	R	R	Y
31	←R	←R	←R	←	←	←FY	←FY	←R
41	R	R	R	R	R	G	G	R
42	R	R	R / →	R	R	G	G	R
51,52	←R	←R	←	←R	←R	←R	←R	←R
61	G	G	R	R	R	R	R	Y
62	G	G	R	R / →	R	R / →	R	Y
71	←R	←R	←R	←	←FY	←	←FY	←R
81	R	R	R	R	G	R	G	R
82	R / →	R	R	R	G	R	G	R
P21,P22	DW	W	W	DW	DW	DW	DW	DRK
P81,P82	DW	DW	DW	DW	W	DW	W	DRK

SIGNAL FACE I.D.

All Heads L.E.D.



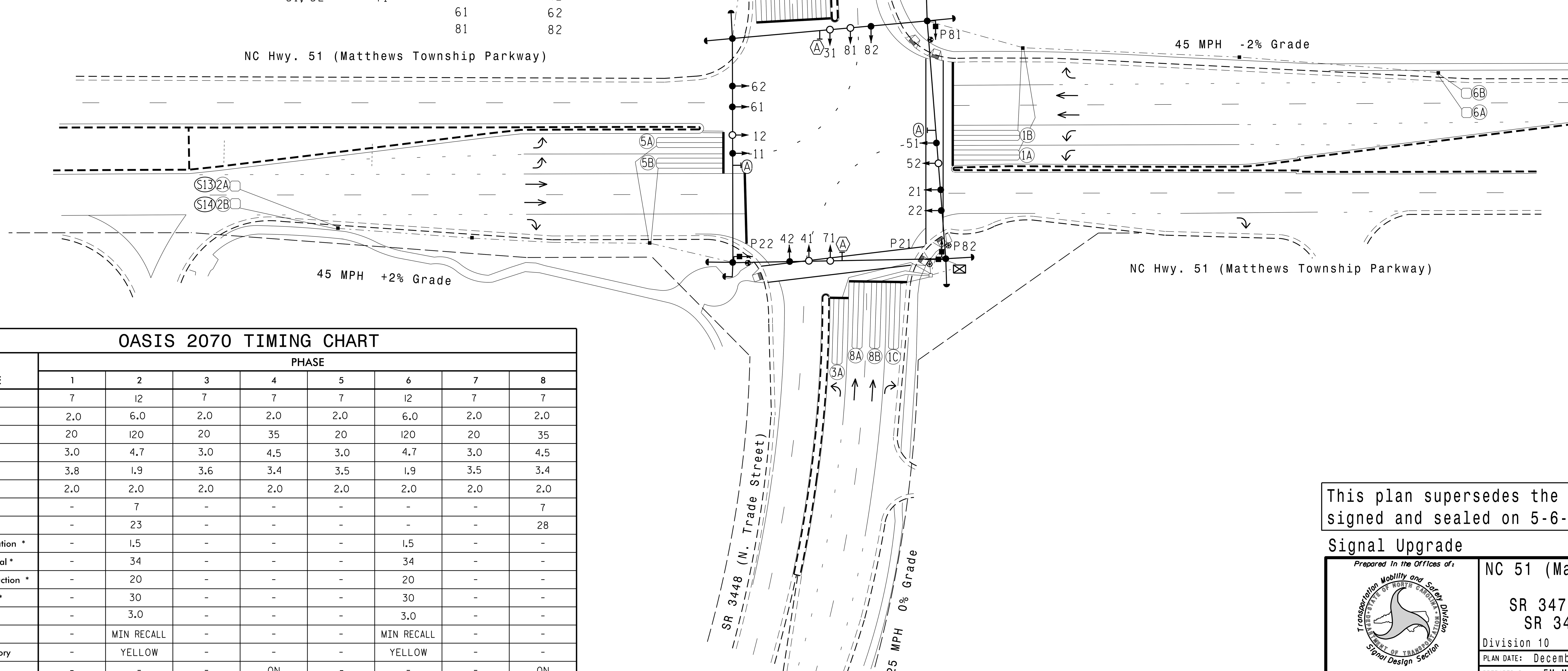
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

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	-	-	-	-	Y
1B	6X40	0	2-4-2	Y	1	Y	Y	-	-	-	-	Y
1C	6X40	0	2-4-2	Y	1	Y	Y	-	-	15	-	Y
2A/S13	6X6	300	4	Y	2	Y	Y	-	-	-	Y	Y
2B/S14	6X6	300	4	Y	2	Y	Y	-	-	-	Y	Y
3A	6X40	0	2-4-2	Y	3	Y	Y	-	-	15	-	Y
					8	Y	Y	-	-	3	-	Y
4A	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
4B	6X40	0	2-4-2	Y	4	Y	Y	-	-	-	-	Y
5A	6X40	0	2-4-2	Y	5	Y	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	-	-	-	-	Y
6B	6X6	300	4	Y	6	Y	Y	-	-	-	-	Y
7A	6X40	0	2-4-2	Y	7	Y	Y	-	-	15	-	Y
					4	Y	Y	-	-	3	-	Y
8A	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y
8B	6X40	0	2-4-2	Y	8	Y	Y	-	-	-	-	Y

7 Phase
Fully Actuated
D10-05_Matthews

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. Phase 3 and/or phase 7 may be lagged.
5. Reposition existing signal heads 42 and 82.
6. Set all detector units to presence mode.
7. Locate new cabinet so as not to obstruct sight distance of vehicles turning right on red.
8. Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
9. Program pedestrian heads to countdown the flashing "Don't Walk" time only.
10. Reposition existing U-Turn "Must Yield" signs (R3-27).
11. See Pavement Marking Plans for proposed stop bar and crosswalk locations.
12. Maximum times shown in timing chart are for free-run operation only. Coordinated signal system timing values supersede these values.



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	
N/A	Curb Ramp	
	Type I Pushbutton Post	
Ⓐ	"U-TURN YIELD TO RIGHT TURN" Sign (R10-16)	Ⓐ

OASIS 2070 TIMING CHART

FEATURE	PHASE 1	2	3	4	5	6	7	8
Min Green 1 *	7	12	7	7	7	12	7	7
Extension 1 *	2.0	6.0	2.0	2.0	2.0	6.0	2.0	2.0
Max Green 1 *	20	120	20	35	20	120	20	35
Yellow Clearance	3.0	4.7	3.0	4.5	3.0	4.7	3.0	4.5
Red Clearance	3.8	1.9	3.6	3.4	3.5	1.9	3.5	3.4
Red Revert	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Walk 1 *	-	7	-	-	-	-	-	7
Don't Walk 1	-	23	-	-	-	-	-	28
Seconds Per Actuation *	-	1.5	-	-	-	1.5	-	-
Max Variable Initial *	-	34	-	-	-	34	-	-
Time Before Reduction *	-	20	-	-	-	20	-	-
Time To Reduce *	-	30	-	-	-	30	-	-
Minimum Gap	-	3.0	-	-	-	3.0	-	-
Recall Mode	-	MIN RECALL	-	-	-	MIN RECALL	-	-
Vehicle Call Memory	-	YELLOW	-	-	-	YELLOW	-	-
Dual Entry	-	-	-	ON	-	-	-	ON
Simultaneous Gap	ON	ON	ON	ON	ON	ON	ON	ON

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

This plan supersedes the one signed and sealed on 5-6-2019

Signal Upgrade

Prepared in the Offices of: Transportation Mobility and Safety Division, Signal Design Section
750 N.Greenfield Pkwy,Garner,NC 27529

NC 51 (Matthews Township Pkwy) at SR 3474 (Sam Newell Rd) / SR 3448 (N. Trade St.)

Division 10 Mecklenburg County Matthews

PLAN DATE: December 2020 REVIEWED BY: R.N. Zinser
PREPARED BY: EM Minshew REVIEWED BY:

SCALE 0 40 1"=40'

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 043914 ENGINEER RICHARD N. ZINSER

DocuSigned by: R. N. Zinser 12/29/2020 DATE

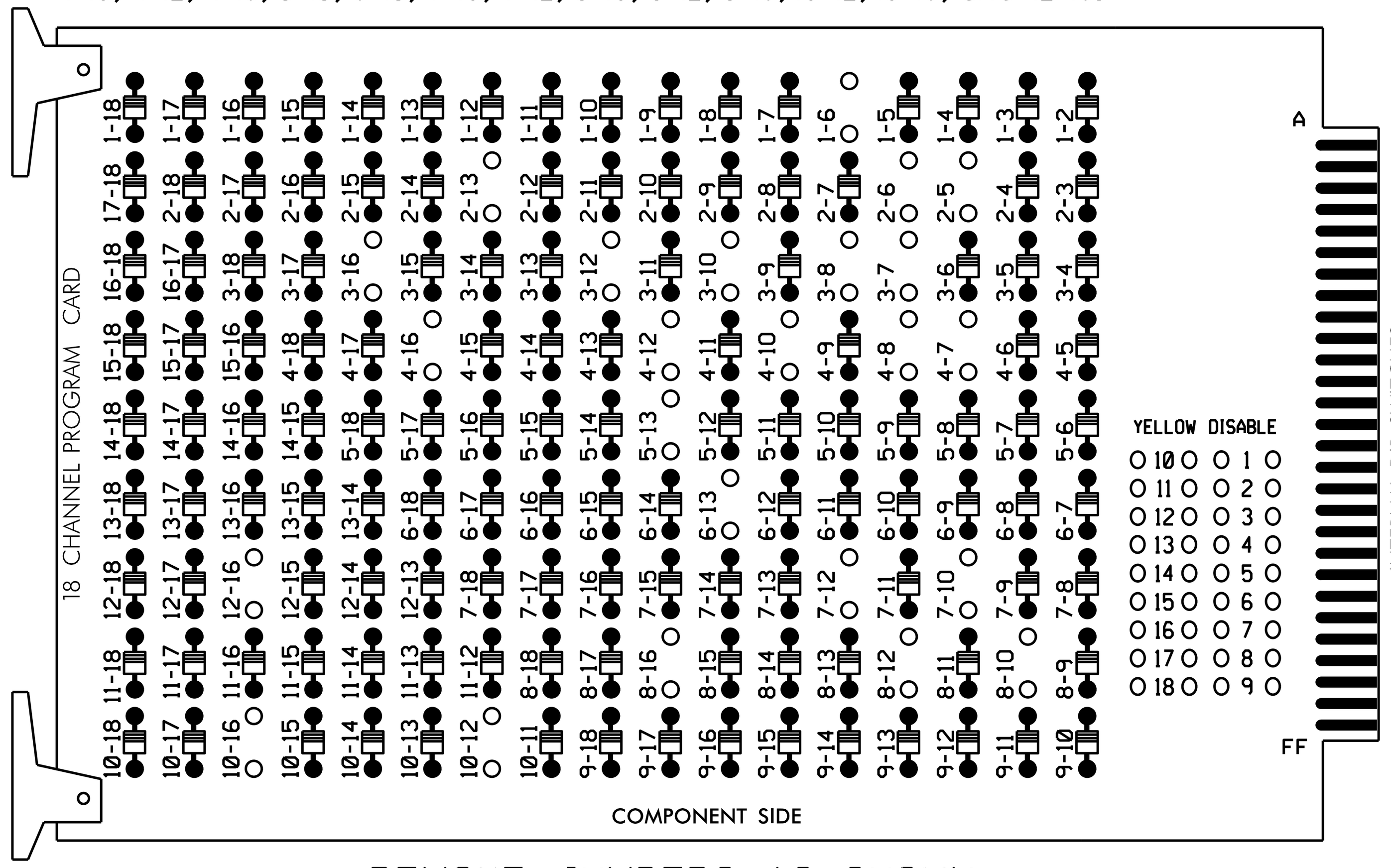
SIG. INVENTORY NO. 10-1148

22-DEC-2020 11:00
S:\ITS&SU\ITS Signals\Signal Design Section\Western Region\Div-10\10-1148\2020-11 - TIP Construction Revision\101148_sig_dsn_2020mmdd.dgn
emminshew

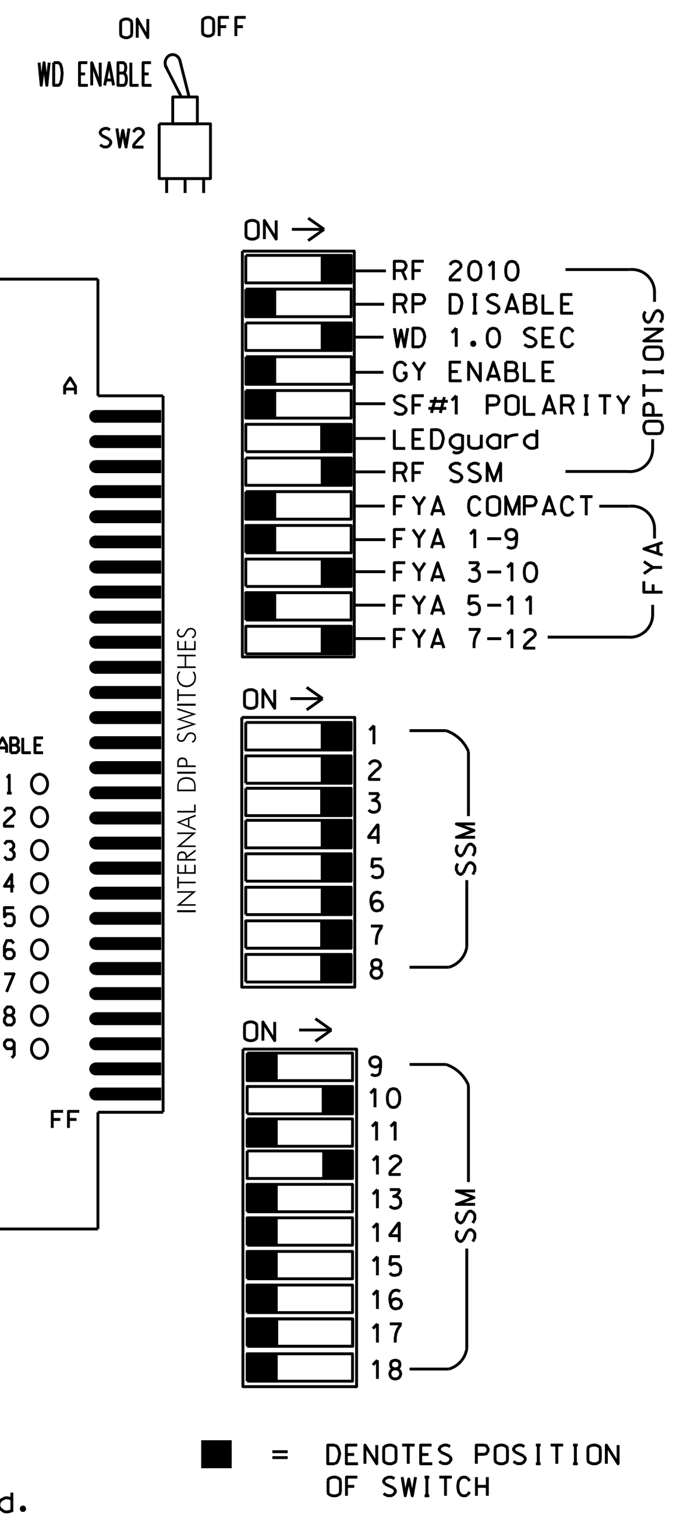
EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches as shown)

REMOVE DIODE JUMPERS 1-6, 2-5, 2-6, 2-13, 3-7, 3-8, 3-10, 3-12, 3-16, 4-7, 4-8, 4-10, 4-12, 4-16, 5-13, 6-13, 7-10, 7-12, 8-10, 8-12, 8-16, 10-12, 10-16, and 12-16.



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. Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
3. Ensure that Red Enable is active at all times during normal operation.
4. Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

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. Program phases 4 and 8 for Dual Entry.
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 8 for 'STARTUP PED CALL'.
7. Program phases 2 and 6 for Yellow Flash, and overlap 2 as Wag Overlaps.
8. If this signal will be managed by an ATMS software, enable controller and detector logging for all detectors used at this location.
9. The cabinet and controller are part of D10-05 Matthews.

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,S7,S8,S10,S11, S12,AUX S2,AUX S5
PHASES USED.............1,2,2PED,3,4,5,6,7,8,8PED
OVERLAP "A".............NOT USED
OVERLAP "B".............3+4
OVERLAP "C".............NOT USED
OVERLAP "D".............7+8

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	Sig. 1.1

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	7		8	8 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	11,12	82	21,22	P21, P22	22	31★	41,42	NU	42	51,52	61,62	NU	62	71★	81,82	P81, P82	NU	31★	NU	NU	71★	NU
RED			128		✳		101				134		✳		107							
YELLOW			129				102				135				108							
GREEN			130				103				136				109							
RED ARROW	125									131								A124			A101	
YELLOW ARROW	126	126			117				132	132			123					A125			A102	
FLASHING YELLOW ARROW																		A126			A103	
GREEN ARROW	127	127			118	118			133	133			124	124								
(DON'T WALK hand)				113												110						
(WALK pedestrian)				115												112						

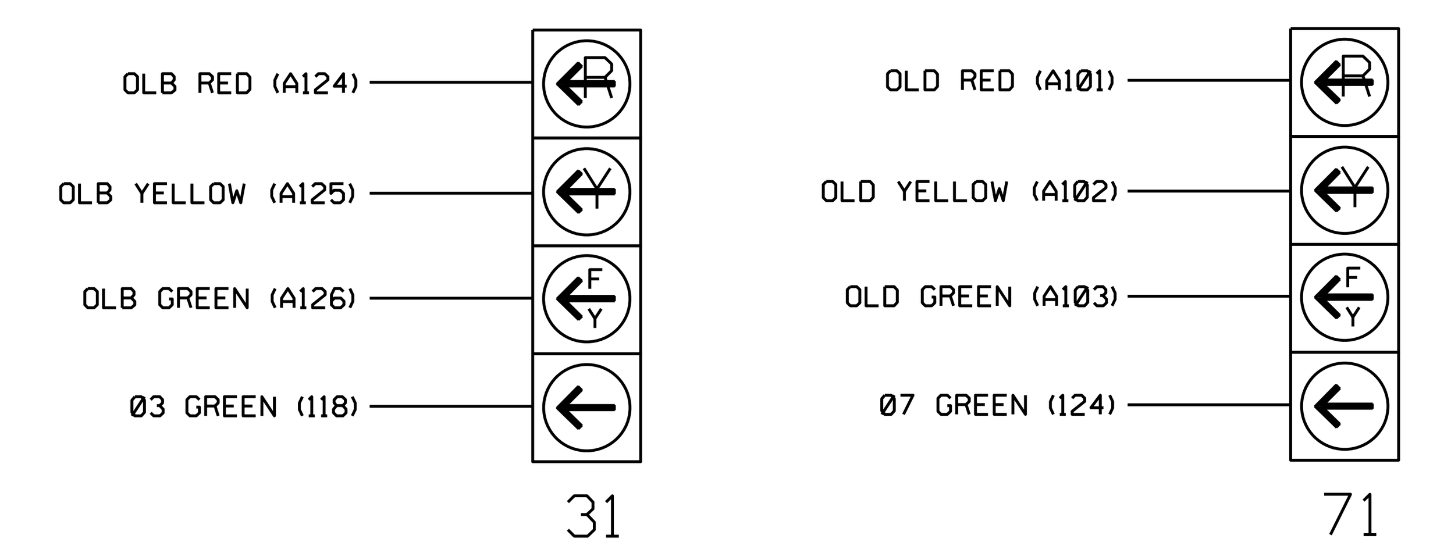
NU = Not Used

✳ Denotes install load resistor. See load resistor installation detail this sheet.

★ See pictorial of head wiring in detail below.

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



NOTE

The sequence display for signal heads 31 and 71 requires special logic programming. See sheet 2 for programming instructions.

INPUT FILE POSITION LAYOUT

(front view)

FILE		1	2	3	4	5	6	7	8	9	10	11	12	13	14
"I"	U	Ø 1 1C	Ø 1 1A	Ø2/SYS 2A/S13	SLOT EMPTY	Ø 3 3A	Ø 4 4A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	Ø2 PED DC ISOLATOR	NOT USED	FS DC ISOLATOR
"I"	L	NOT USED	Ø 1 1B	Ø2/SYS 2B/S14	SLOT EMPTY	NOT USED	Ø 4 4B	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	NOT USED	Ø8 PED DC ISOLATOR	ST DC ISOLATOR
"J"	U	Ø 5 5C	Ø 5 5A	Ø 6 6A	SLOT EMPTY	Ø 7 7A	Ø 8 8A	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY
"J"	L	NOT USED	Ø 5 5B	Ø 6 6B	SLOT EMPTY	NOT USED	Ø 8 8B	SLOT EMPTY	WIRED INPUT ⊗	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY	SLOT EMPTY

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

FS = FLASH SENSE
ST = STOP TIME

⊗ Wired Input - Do not populate slot with detector card

INPUT FILE CONNECTION & PROGRAMMING CHART

LOOP NO.	LOOP TERMINAL	INPUT FILE POS.	PIN NO.	INPUT ASSIGNMENT NO.	DETECTOR NO.	NEMA PHASE	CALL	EXTEND	FULL TIME DELAY	STRETCH TIME	DELAY TIME
1A	TB2-5,6	I2U	39	1	2	1	Y	Y			
1B	TB2-7,8	I2L	43	5	12	1	Y	Y			
1C	TB2-1,2	I1U	56	18	1	1	Y	Y			15
2A/S13	TB2-9,10	I3U	63	25	32	2/SYS	Y	Y			
2B/S14	TB2-11,12	I3L	76	38	42	2/SYS	Y	Y			
3A[1]	TB4-5,6	I5U	58	20	3	3	Y	Y			15
	-	J8U	50	12	28	8	Y	Y			3
4A	TB4-9,10	I6U	41	3	4	4	Y	Y			
4B	TB4-11,12	I6L	45	7	14	4	Y	Y			
5A	TB3-5,6	J2U	40	2	6	5	Y	Y			
5B	TB3-7,8	J2L	44	6	16	5	Y	Y			
5C	TB3-1,2	J1U	55	17	5	5	Y	Y			15
6A	TB3-9,10	J3U	64	26	36	6	Y	Y			
6B	TB3-11,12	J3L	77	39	46	6	Y	Y			
7A[2]	TB5-5,6	J5U	57	19	7	7	Y	Y			15
	-	I8U	49	11	24	4	Y	Y			3
8A	TB5-9,10	J6U	42	4	8	8	Y	Y			
8B	TB5-11,12	J6L	46	8	18	8	Y	Y			
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29	PED 2	2 PED					
P81,P82	TB8-8,9	I13L	70	32	PED 8	8 PED					

NOTE:
INSTALL DC ISOLATORS IN INPUT FILE SLOTS I12 AND I13.

[1] Add jumper from I5-W to J8-W, on rear of input file.

[2] Add jumper from J5-W to I8-W, on rear of input file.

INPUT FILE POSITION LEGEND: J2L
FILE J
SLOT 2
LOWER

PHASE SEQUENCE PROGRAMMING DETAIL

(program controller as shown below)

FROM OASIS LOCAL CONTROLLER MAIN MENU
SELECT: 4 PHASE SEQUENCE

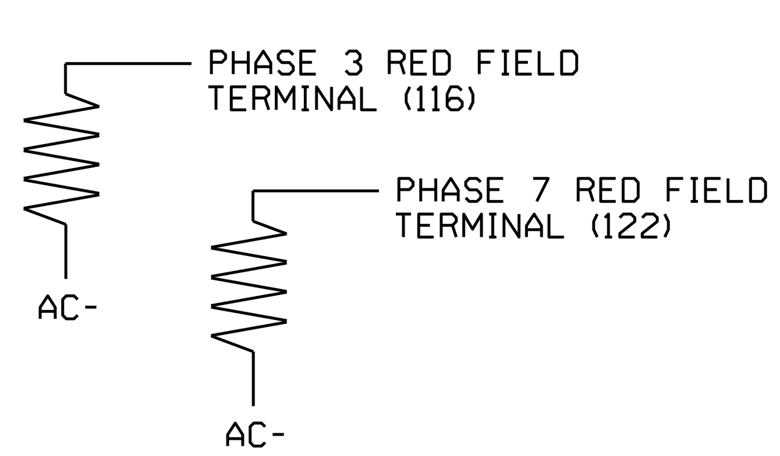
```
PHASE SEQUENCE: PAGE 1  NEXT: PAGES)    ↘
RNG¦LEAD   BARRIER 1   X-LAG¦LEAD   BARRIER 2   X-LAG
1  ¦1      2      0      0  ¦3      4      0      0
2  ¦0      6      0      5  ¦7      8      0      0
3  ¦0      0      0      0  ¦0      0      0      0
4  ¦0      0      0      0  ¦0      0      0      0
```

LOAD RESISTOR INSTALLATION DETAIL

(install resistors as shown below)

ACCEPTABLE VALUES

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



THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 05/07/19

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-1148
DESIGNED: December 2020
SEALED: 12-29-20
REVISED: N/A

Electrical Detail - Sheet 1 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

NC 51 (Matthews Township Pkwy)
at
SR 3473 (Sam Newell Rd)/
SR 3448 (N. Trade St.)

Division 10 Mecklenburg County Matthews

PLAN DATE: December 2020 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:

REVISIONS	INIT.	DATE

Prepared In 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

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 430320FAA2654C3...
12/31/2020
DATE

SIG. INVENTORY NO. 10-1148

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

(program controller as shown below)

1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2, 3, 4, 5 AND 6.

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

```
LOGICAL I/O COMMAND #1  (+/-COMMAND#)
IF  ACTIVE PHASE        #3  IS ON
AND RED CLEAR ON PHASE #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #47 ON
SET OUTPUT  ASSIGNMENT #48 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #2  (+/-COMMAND#)
IF  ACTIVE PHASE        #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #49 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #3  (+/-COMMAND#)
IF  YELLOW ON PHASE     #3  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #48 ON
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #4  (+/-COMMAND#)
IF  ACTIVE PHASE        #7  IS ON
AND RED CLEAR ON PHASE #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #39 ON
SET OUTPUT  ASSIGNMENT #40 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #5  (+/-COMMAND#)
IF  ACTIVE PHASE        #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #41 OFF
```

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

PRESS '+'

```
LOGICAL I/O COMMAND #6  (+/-COMMAND#)
IF  YELLOW ON PHASE     #7  IS ON
        SCROLL DOWN
THEN:
SET OUTPUT  ASSIGNMENT #40 ON
```

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

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE

OUTPUT 47 = Overlap B Red
OUTPUT 48 = Overlap B Yellow
OUTPUT 49 = Overlap B Green
OUTPUT 39 = Overlap D Red
OUTPUT 40 = Overlap D Yellow
OUTPUT 41 = Overlap D Green

OVERLAP PROGRAMMING DETAIL

(program controller as shown below)

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

PRESS '+' ONCE

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

NOTICE GREEN FLASH

PRESS '+' TWICE

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

NOTICE GREEN FLASH

OVERLAP PROGRAMMING COMPLETE

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.

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.

THIS ELECTRICAL DETAIL SUPERSEDES THE DETAIL SEALED ON 05/07/19

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 10-1148
DESIGNED: December 2020
SEALED: 12-29-20
REVISED: N/A

Electrical Detail - Sheet 2 of 2

ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared In 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

NC 51 (Matthews Township Pkwy)
at
SR 3473 (Sam Newell Rd)/
SR 3448 (N. Trade St.)

Division 10 Mecklenburg County Matthews

PLAN DATE: December 2020 REVIEWED BY:
PREPARED BY: James Peterson REVIEWED BY:

REVISIONS	INIT.	DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 036833 ENGINEER RYAN W. HOUGH

DocuSigned by: Ryan W. Hough 12/31/2020
430320FAA2654C3...
DATE

SIG. INVENTORY NO. 10-1148

30-DEC-2020 08:03
.*101148_sm_ele_20190507.dgn
jtpeterson

T.I.P.: C-5613D

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	SIGN-1

APPROVED: DocuSigned by: Ashley K. Matthews 4017AA1BCB34CD...

DATE: 9/15/2020 | 5:20 PM EDT

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048105 ASHLEY K. MATTHEWS

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SIGNING PLAN

MECKLENBURG COUNTY

LOCATION: DUAL LEFT TURN LANES ON NC 51 AT SAM NEWELL ROAD

ROADWAY STANDARD DRAWING

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
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
910.20	SCHOOL MARKED AND UNMARKED CROSSWALKS /SPEED REDUCTION REQUIREMENTS

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.

. SEE ROADWAY PLANS FOR GUARD/GUIDE RAIL DETAILS.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	291	L.F.
4102000000	904	SIGN ERECTION, TYPE E	19	EA.
4108000000	904	SIGN ERECTION, TYPE F	3	EA.
4155000000	907	DISPOSAL OF SIGN SYSTEM, U-CHANNEL	3	EA.

INDEX

PLAN PREPARED BY: N.C.D.O.T. SIGNING AND DELINEATION UNIT

Kelvin Jordan SIGNING & DELINEATION REGIONAL ENGINEER

Ashley Matthews, PE SIGNING & DELINEATION PROJECT DESIGN ENGINEER

STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION

09/15/20
S:\S&D\Western Region\Div 10\C-5613D\Signing\Engseed.dgn
User:kmatthews

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	SIGN-2

APPROVED: DocuSigned by: Ashley K. Matthews 40171AA1BC834CD...

DATE: 9/15/2020 | 5:20 PM EDT

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 048105 ENGINEER ASHLEY K MATTHEWS

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(401) QUANTITY REQ'D 2

36 X 36
R3-7

ONE "U" POST PER SIGN

(402) QUANTITY REQ'D 2

36 X 36
R3-7

ONE "U" POST PER SIGN

(403) QUANTITY REQ'D 5

24 X 30
R4-7

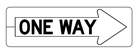
ONE "U" POST PER SIGN

(404) QUANTITY REQ'D 5

18 X 18
OM1-3

MOUNT BELOW SIGN 403
IN 5 INSTALLATIONS

(405) QUANTITY REQ'D 2



54 X 18
R6-1

TWO "U" POSTS PER SIGN

(406) QUANTITY REQ'D 1

36 X 36
R1-1

ONE "U" POST PER SIGN

(407) QUANTITY REQ'D 1

36 X 36
S1-1

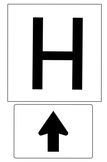
ONE "U" POST PER SIGN

(408) QUANTITY REQ'D 1

24 X 8
S4-3P

MOUNT BELOW SIGN 407
IN 1 INSTALLATIONS

(501)



1- 24 X 24

1- 21 X 15

ONE "U" POST PER ASSEMBLY

(502)

2- 24 X 12

2- 24 X 24

2- 21 X 15

TWO "U" POSTS PER ASSEMBLY

(503)

2- 24 X 12

2- 24 X 24

2- 21 X 15

TWO "U" POSTS PER ASSEMBLY

TYPE "E" & "F" SIGNS

09/15/20
S:\S&D\Western Region\Div 10\C-5613D\Signing\Engseed.dgn
User:kmatthews

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	SIGN-3

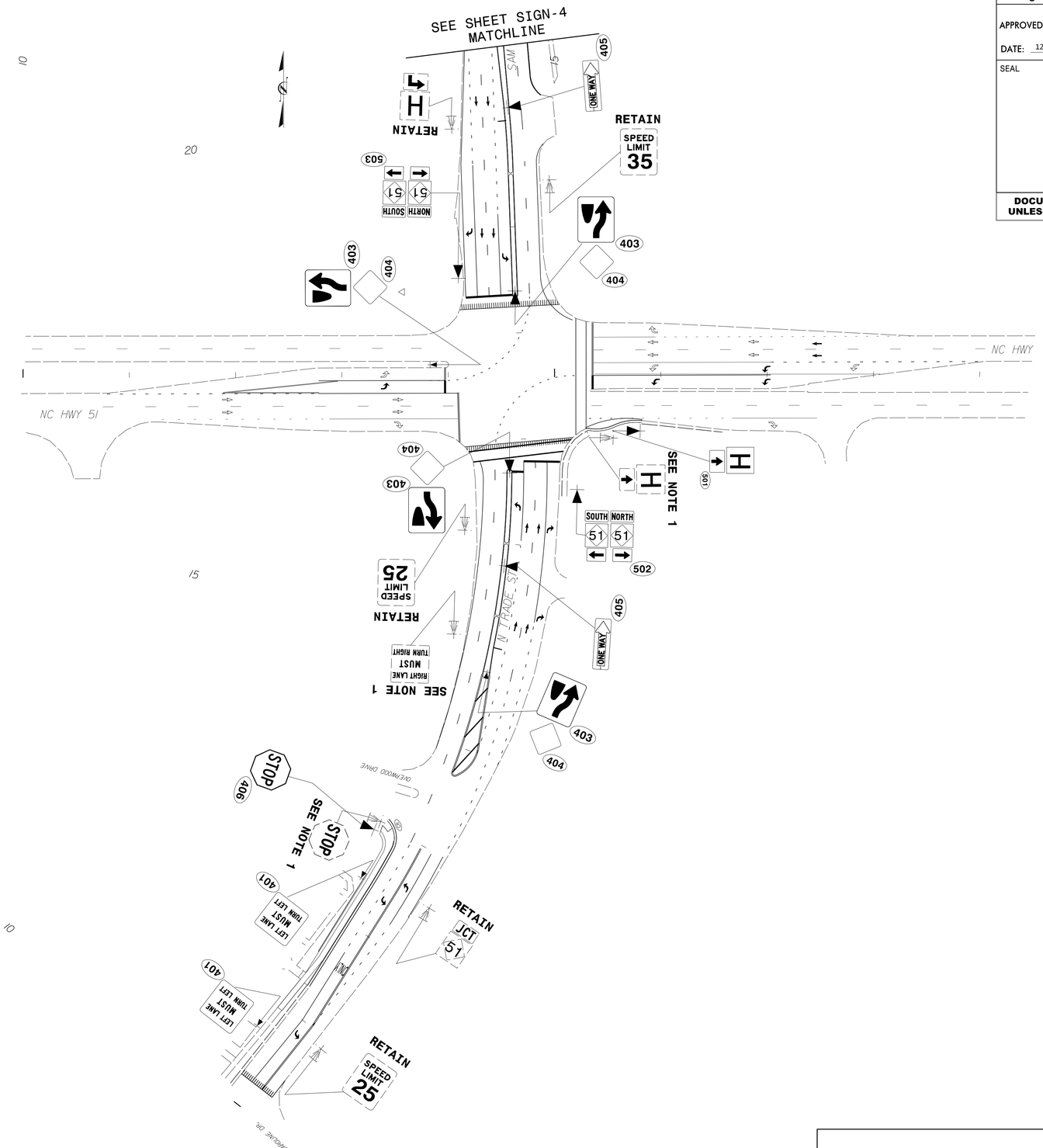
APPROVED: DocuSigned by: Ashley K. Matthews 4017FAA1BCB34CD...

DATE: 12/18/2020 | 8:12 AM EST

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 048105 ENGINEER ASHLEY K. MATTHEWS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

SIGNING PLAN SHEET

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	SIGN-4

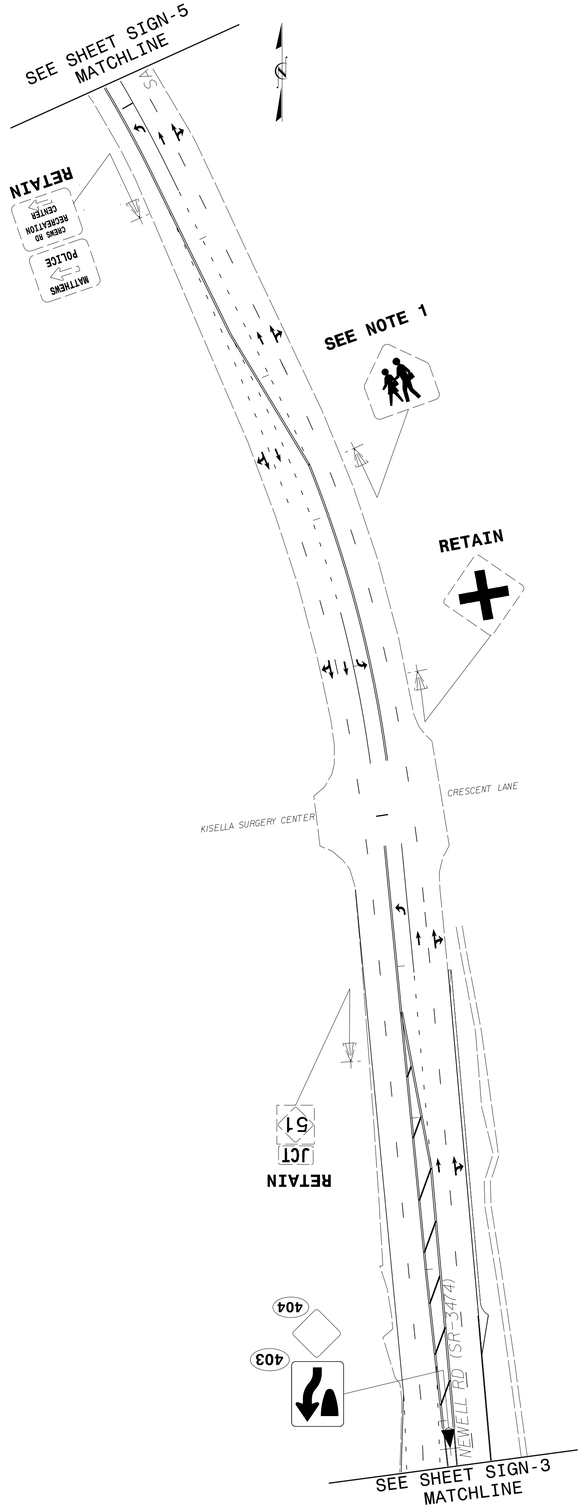
APPROVED: DocuSigned by: Ashley K. Matthews 4017FAA7BC834CD...

DATE: 12/18/2020 | 8:12 AM EST

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 048105 ENGINEER ASHLEY K. MATTHEWS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

SIGNING PLAN SHEET

12/01/20
S:\S&DU\Western Region\Div 10\C-5613D\Signing\Engseed.dgn
ashleymatthews

PROJECT REFERENCE NO.	SHEET NO.
C-5613D	SIGN-5

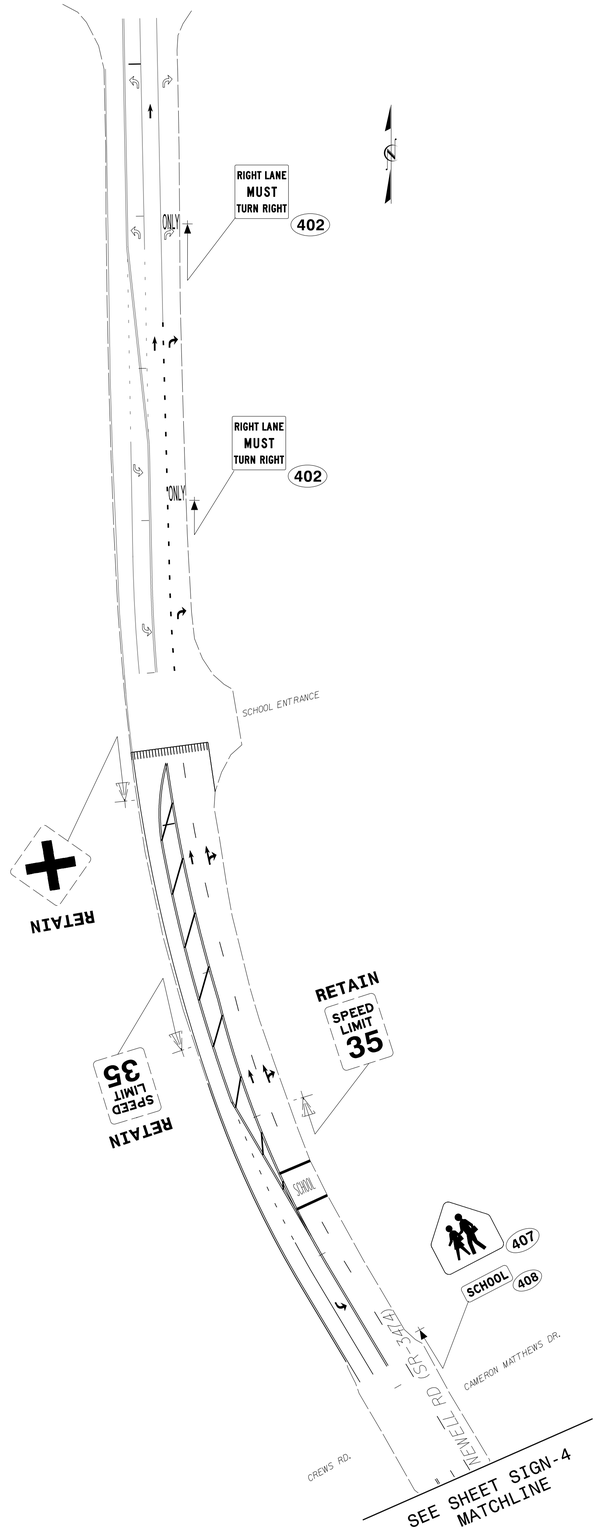
APPROVED: DocuSigned by: Ashley K. Matthews 4D171AA1BC834CD...

DATE: 12/18/2020 | 8:12 AM EST

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 048105 ENGINEER ASHLEY K. MATTHEWS

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT NOTES

1 DISPOSAL OF SIGN SYSTEM, U-CHANNEL

SIGNING PLAN SHEET

12/01/20
S:\S&DU\Western Region\Div 10\C-5613D\Signing\Engseed.dgn
User:kmatthews

PROJ. REFERENCE NO.	SHEET NO.
43735.3.4	X-1

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	43735.3.4	X-2

14+00.00

13+50.00

S.S. 719.41

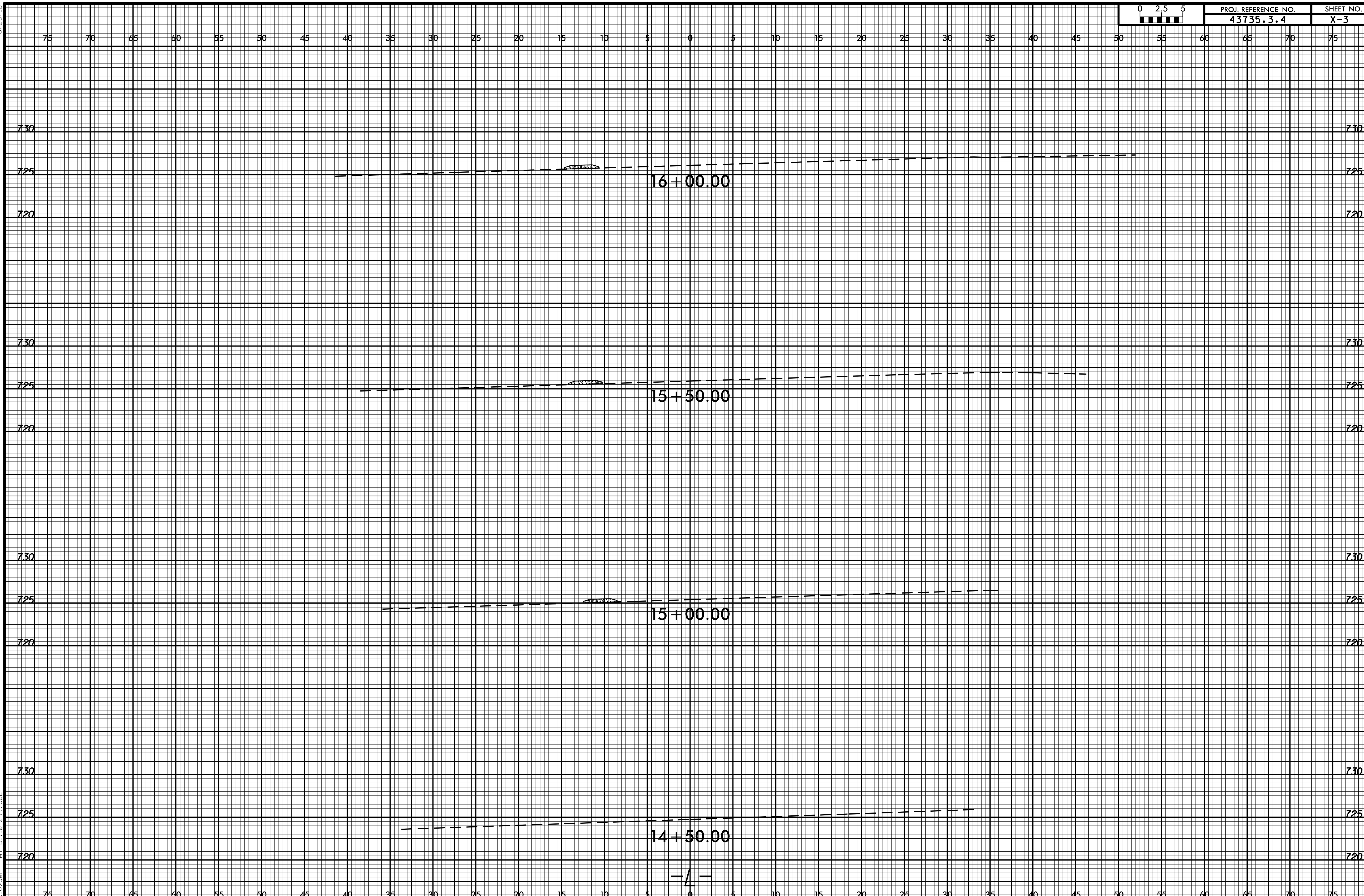
13+00.00

S.S. 718.08

12+50.00

19-NOV-2020 10:31
S:\DOC\RDY\Mark Lenahan\C-56130_NC 51_Sam Newell_Trade\XSC\NC 51_Sam Newell_Trade_ME7.xpLL_10.12_20.dgn
Bblowder
41 DIV0-2497-36L

PROJ. REFERENCE NO.	SHEET NO.
43735.3.4	X-3



6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	43735.3.4	X-4

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

730
725
720

18+00.00

730
725
720

17+50.00

730
725
720

17+00.00

730
725
720

16+50.00

730
725
720

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

19-NOV-2020 10:35
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tblowder
41 DIV0-2497361

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	43735.3.4	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

730
725
720

20+00.00

730
725
720

19+50.00

730
725
720

19+00.00

730
725
720

18+50.00

730
725
720

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

19-NOV-2020 10:38
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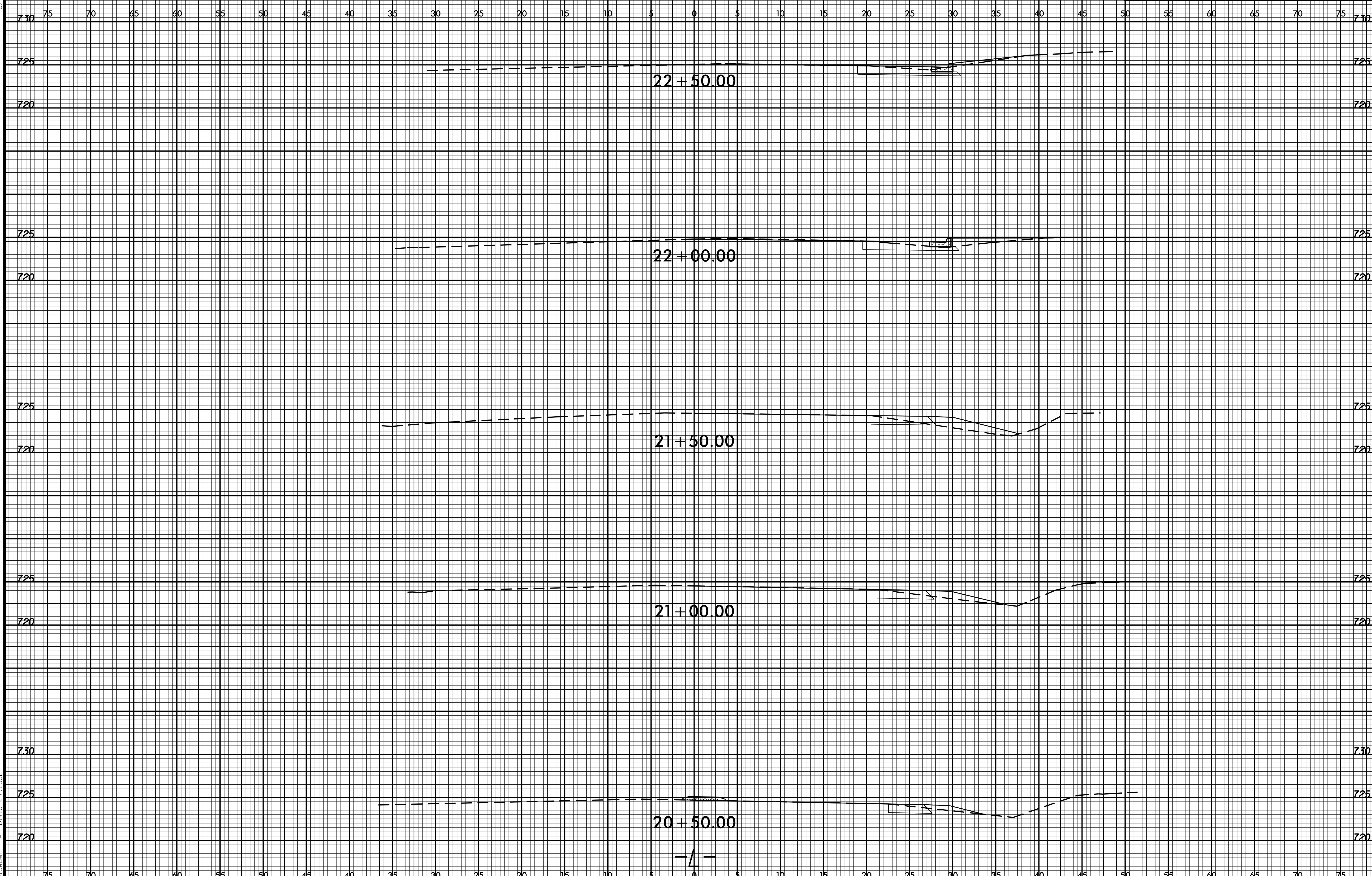

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PROJ. REFERENCE NO.	SHEET NO.
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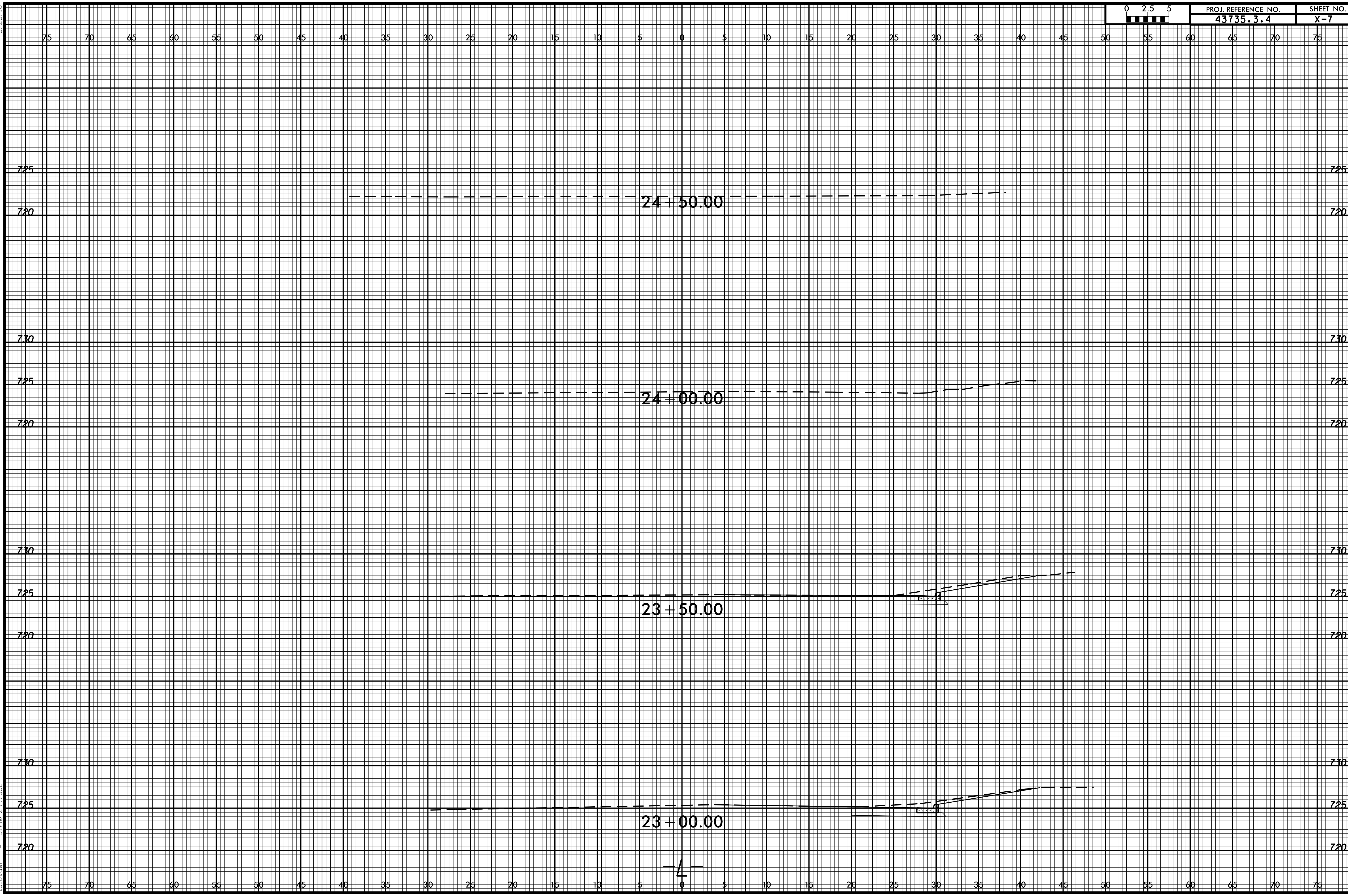

6/23/16

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730 725 720

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724.61

32+00.00

730 725 720

S.S. 726.41 4:1 4:1
725.90

31+50.00

730 725

31+00.00

730 725

30+50.00

730 725

30+00.00

6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	43735.3.4	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

725
720

34+00.00

730
725
720

S.S. 722.14 A:1

33+50.00

730
725
720

S.S. 723.22 4:1 A:1
722.69

33+00.00

730
725
720

S.S. 724.25 4:1 A:1
723.68

32+50.00

730
725
720

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

19-NOV-2020 11:18
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41 DIV/0-24/36L