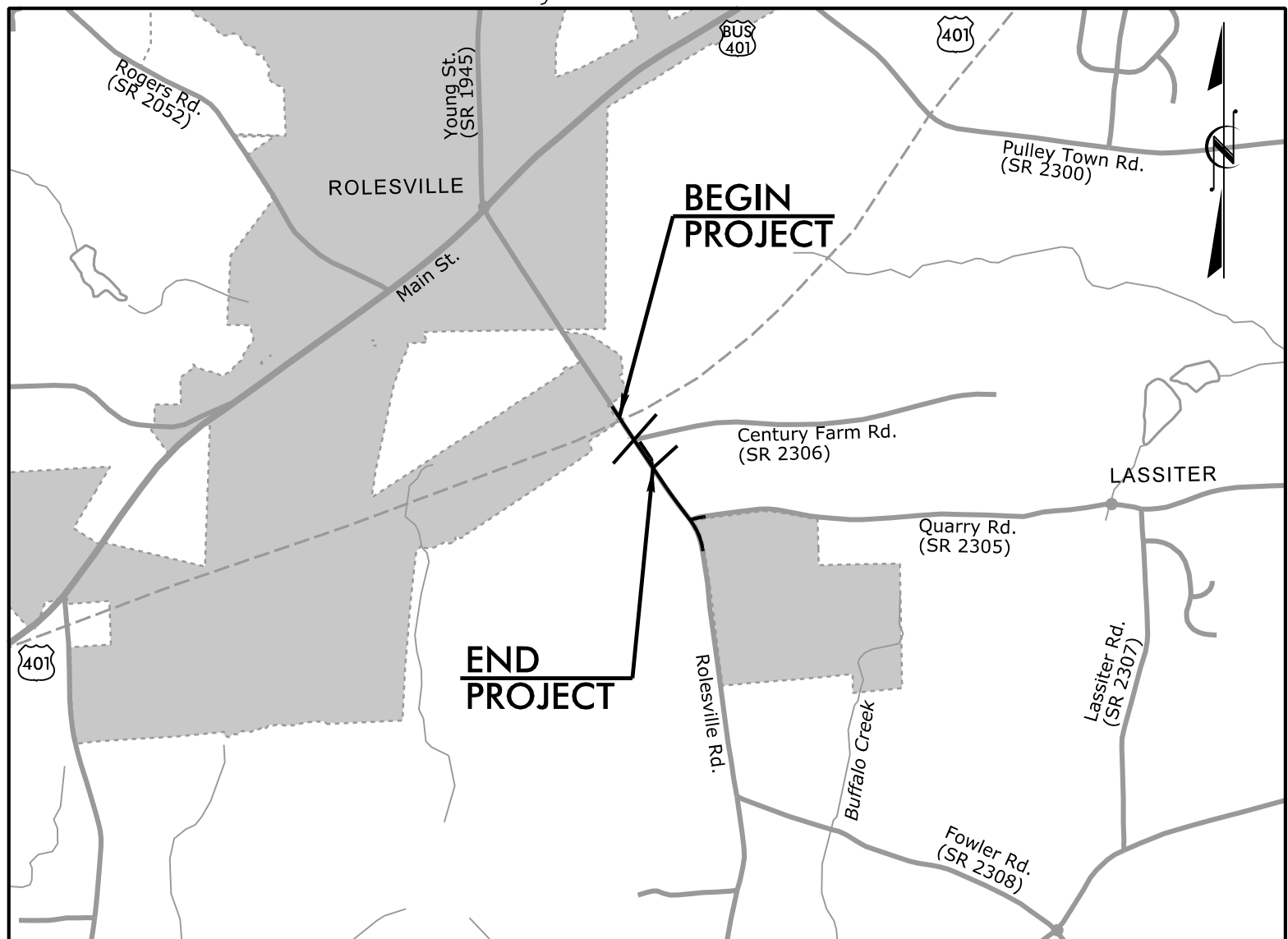


See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



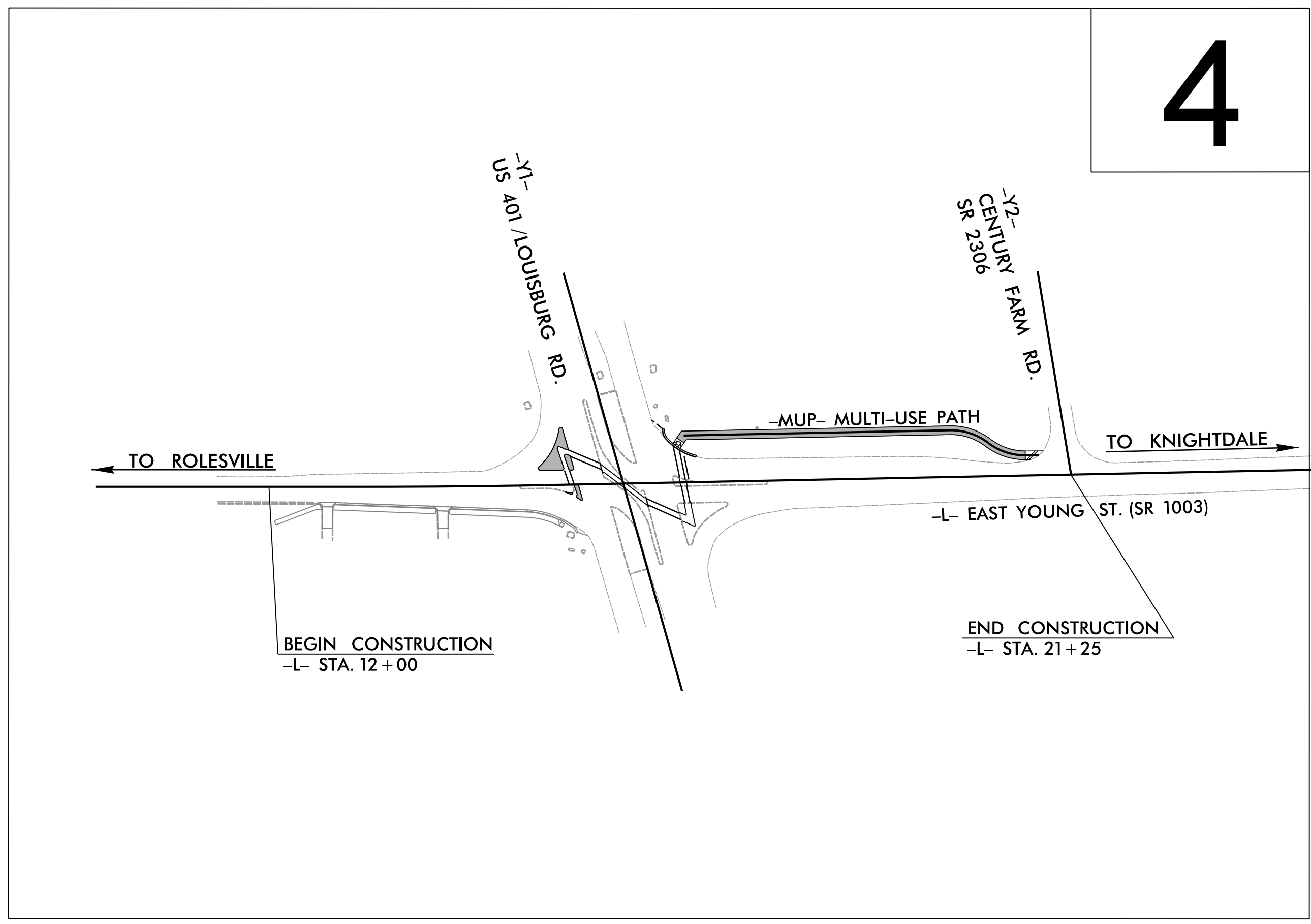
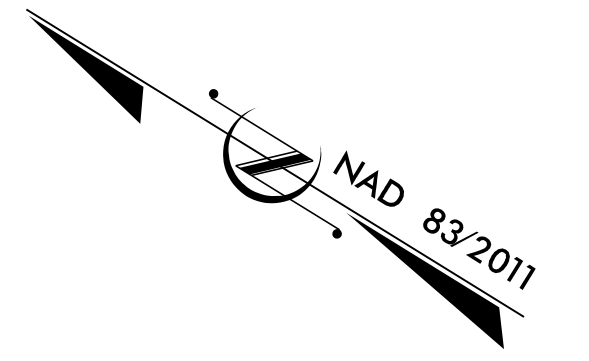
VICINITY MAP (NTS)

TOWN OF ROLESVILLE
WAKE COUNTY

TOWN OF ROLESVILLE

LOCATION: EAST YOUNG STREET (PHASE B)
TYPE OF WORK: GRADING, DRAINAGE, SIDEWALK, MULTI-USE PATH, AND PAVEMENT MARKINGS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	E. YOUNG ST. PH. II	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

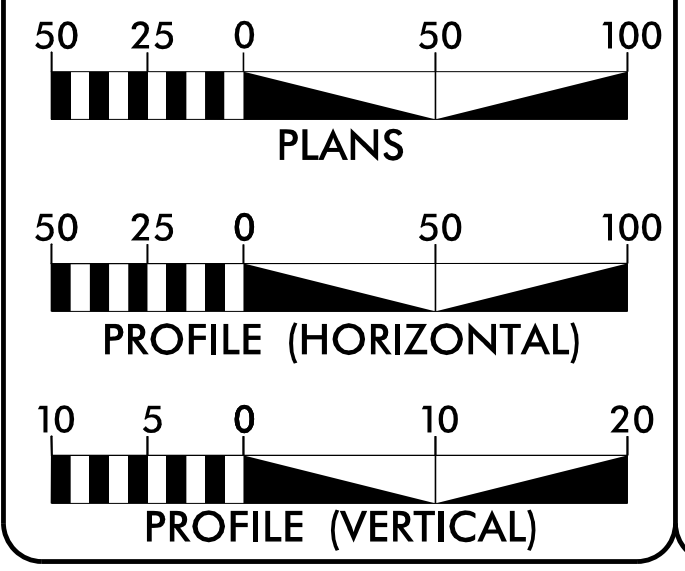


NOTE:
1. CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TOWN OF ROLESVILLE

GRAPHIC SCALES



PROJECT LENGTH

LENGTH OF PROJECT = 0.175 MI.



Prepared for the North Carolina Department of Transportation in the Office of:
A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 106 • RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
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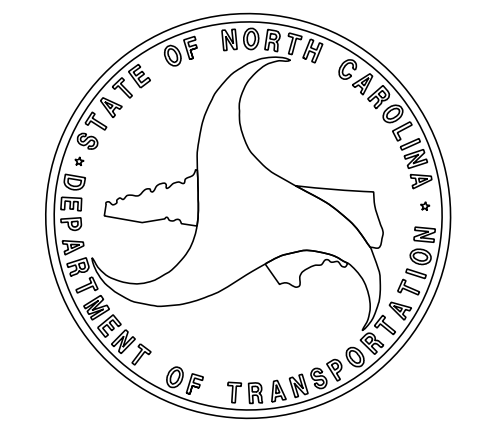
RIGHT OF WAY DATE:
APRIL 1, 2019

LETTING DATE:
MAY 15, 2020

DAVID A. SHINBARA, PE
PROJECT ENGINEER
NICK RAMIREZ, PE
PROJECT DESIGN ENGINEER
RAYMOND J. HAYES, PE
NCDOT CONTACT
AMY STEVENS
TOWN OF ROLESVILLE CONTACT

HYDRAULICS ENGINEER

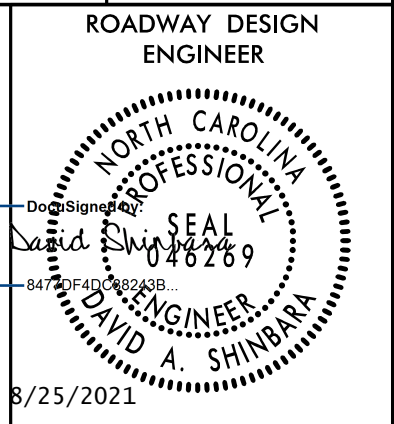
DAVID A. MACDONALD
8/25/2021
P.E.
SIGNATURE:
ROADWAY DESIGN ENGINEER
DAVID A. SHINBARA
8/25/2021
P.E.
SIGNATURE:



8/20/2021 X:\Raleigh\16-0940.001 - Rolesville E Young St Side\05-CAD\16-0940.001\Roadway\Proj\10 ft.Path Revision\16-0940.001.Rdy_tsh.dgn

8/17/99
8/20/2021
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lbsaughtone

PROJECT REFERENCE NO. <i>E.YOUNG ST.PH II</i>	SHEET NO. <i>IA</i>
--	------------------------



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

**GENERAL NOTES:
2018 SPECIFICATIONS**

GRADING AND SURFACING OR RESURFACING AND WIDENING:

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

CLEARING:

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

SIDE ROADS:

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

DRIVEWAYS:

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

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE:

CITY OF RALEIGH
DUKE ENERGY PROGRESS
AT&T
SPECTRUM
PSNC

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

CURB RAMPS

CURB RAMPS ARE SHOWN ON THE PLANS AT APPROXIMATE LOCATIONS. CONSTRUCT ALL CURB RAMPS ACCORDANCE WITH STD 848.05 and/or 848.06.

NOTES:

UTILITIES (I.E. POWER POLES, LIGHT POLES, TELEPHONE AND CABLE PEDESTALS, ETC.) LOCATED WITHIN NEW SIDEWALK LIMITS TO BE RELOCATED BY RESPECTIVE UTILITY COMPANIES PRIOR TO SIDEWALK INSTALLATION UNLESS SHOWN OTHERWISE. COORDINATE WITH LOCAL UTILITY COMPANIES TO VERIFY UTILITY REALIGNMENT/RELOCATION WORK IS COMPLETE PRIOR TO START OF CONSTRUCTION.

ALL INDIVIDUAL TREES TO REMAIN UNLESS NOTED OTHERWISE ON PLAN OR AS DIRECTED BY ENGINEER AND APPROVED BY OWNER. SHRUBS IN PERMANENT EASEMENT TO BE REMOVED. SHRUBS IN TEMPORARY EASEMENT TO BE REMOVED ONLY AS NECESSARY FOR CONSTRUCTION. SHRUBS IN R/W TO BE REMOVED AS NEEDED AND COORDINATED WITH ENGINEER/OWNER.

TEMPORARILY REMOVE MINOR ITEMS AS REQUIRED FOR CONSTRUCTION. MINOR ITEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO: EXISTING SIGNS, MAIL BOXES, AND STORM SEWER PIPES. REINSTALL ITEMS TO THEIR ORIGINAL CONDITION AT A LOCATION AS CLOSE TO ORIGINAL LOCATION AS PRACTICABLE.

APPROXIMATE LOCATION OF EXISTING UTILITIES ARE SHOWN ON DRAWINGS. NOTIFY UTILITY LOCATING SERVICE TO MARK LOCATION OF EXISTING UTILITIES AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION ACTIVITY. CONTRACTOR RESPONSIBLE FOR VERIFYING EXACT LOCATION OF THESE EXISTING UTILITIES. THE COST TO REPAIR THESE FACILITIES, IF DAMAGED, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO DISTURB EXISTING PROPERTY CORNER MARKERS. ALL DISTURBED PROPERTY CORNER MARKERS SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT CONTRACTOR'S EXPENSE.

SIDEWALK TRANSITIONS SHALL NOT EXCEED 12:1 SLOPE PER ADA.

STAGING AREA SHALL BE DELINEATED WITH TREE PROTECTION FENCING AROUND EXISTING TREES.

SIDEWALK TO JOIN FLUSH W/ EXISTING OR PROPOSED CONCRETE DRIVES.

MAINTAIN ACCESS TO DRIVEWAYS AT ALL TIMES DURING CONSTRUCTION. DRIVEWAY IMPACTS ARE ANTICIPATED WITH THIS PROJECT AND ACCESS DURING CONSTRUCTION SHALL BE COORDINATED WITH THE OWNER.

TRANSITION AROUND WATER METERS, AS NECESSARY TO AVOID PLACING METER IN SIDEWALK.

METER TRANSITION LENGTH SHALL BE APPROXIMATELY 10'.

ADJUST WATER VALVES AS NECESSARY TO COORDINATE WITH SIDEWALK OR GRADE CHANGES.

GAS VALVES THAT REQUIRE ADJUSTMENT TO COORDINATE WITH SIDEWALK OR GRADE CHANGES MUST BE COORDINATED WITH GAS COMPANY DURING CONSTRUCTION.

LAND DISTURBANCE FOR PROJECT GREATER THAN 1 (ONE) ACRE. EROSION CONTROL PLAN APPROVAL IS REQUIRED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLY WITH THE EROSION CONTROL REQUIREMENTS, DEVICES, MAINTENANCE, ETC. AS INDICATED ON THE PLANS.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch -N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
840.19	Concrete Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.24	Frames and Narrow Slot Sag Grates
840.28	Brick Grated Drop Inlet Type 'D' - 12" thru 36" Pipe
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.45	Precast Drainage Structure
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.66	Drainage Structure Steps
840.72	Pipe Collar
846.01	Concrete Curb, Gutter and Curb & Gutter
848.04	Street Turnout
848.05	Curb Ramp - Proposed Curb & Gutter
852.01	Concrete Islands
1101.01	Work Zone Warning Signs
1101.02	Temporary Lane Closures
1110.01	Stationary Work Zone Signs
1110.02	Portable Work Zone Signs
1130.01	Drums
1150.01	Flagging Devices
1205.00	Pavement Markings
1205.07	Pavement Markings - Pedestrian Crosswalks

SHEET NUMBER	INDEX OF SHEETS SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2B-1	ROADWAY DETAILS
2C-1	SPECIAL DETAILS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
4	PLAN SHEET
5	PROFILE SHEET
EC-1 THRU EC-5	EROSION CONTROL PLANS
PMP-1 THRU PMP-3	PAVEMENT MARKING PLANS
TMP-1 THRU TMP-2	TRAFFIC MANAGEMENT PLANS
UD-1	UTILITIES BY OTHERS PLANS
X-1 THRU X-5	CROSS-SECTIONS

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

BOUNDARIES AND PROPERTY:

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

BUILDINGS AND OTHER CULTURE:

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

HYDROLOGY:

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

RAILROADS:

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

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	◆
Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	◆
Exist Permanent Easement Pin and Cap	◇
New Permanent Easement Pin and Cap	◆
Vertical Benchmark	▲
Existing Right of Way Marker	△
Existing Right of Way Line	-----
New Right of Way Line	-----
New Right of Way Line with Pin and Cap	-----
New Right of Way Line with Concrete or Granite R/W Marker	-----
New Control of Access Line with Concrete C/A Marker	-----
Existing Control of Access	-----
New Control of Access	-----
Existing Easement Line	-----
New Temporary Construction Easement	-----
New Temporary Drainage Easement	-----
New Permanent Drainage Easement	-----
New Permanent Drainage / Utility Easement	-----
New Permanent Utility Easement	-----
New Temporary Utility Easement	-----
New Aerial Utility Easement	-----

ROADS AND RELATED FEATURES:

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

VEGETATION:

Single Tree	○
Single Shrub	○

Note: Not to Scale

*S.U.E. = Subsurface Utility Engineering

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:

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

TELEPHONE:

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

WATER:

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

TV:

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

GAS:

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

SANITARY SEWER:

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

MISCELLANEOUS:

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

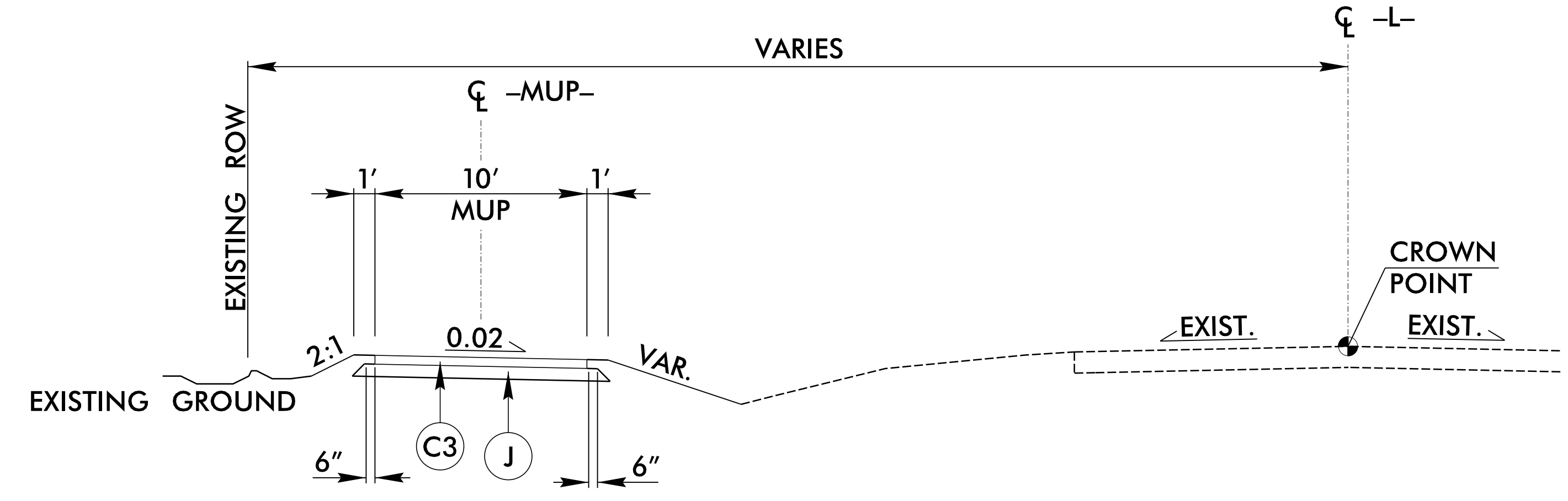
PAVEMENT SCHEDULE

(PRELIMINARY PAVEMENT DESIGN)

C1	PROP. APPROX. 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C3	PROP. APPROX. 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 5" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 570 LBS. PER SQ. YD.
J	PROP. 6" AGGREGATE BASE COURSE
R1	2'-6" CONCRETE CURB AND GUTTER
T	EARTH MATERIAL
U	EXISTING PAVEMENT
V	MILLING

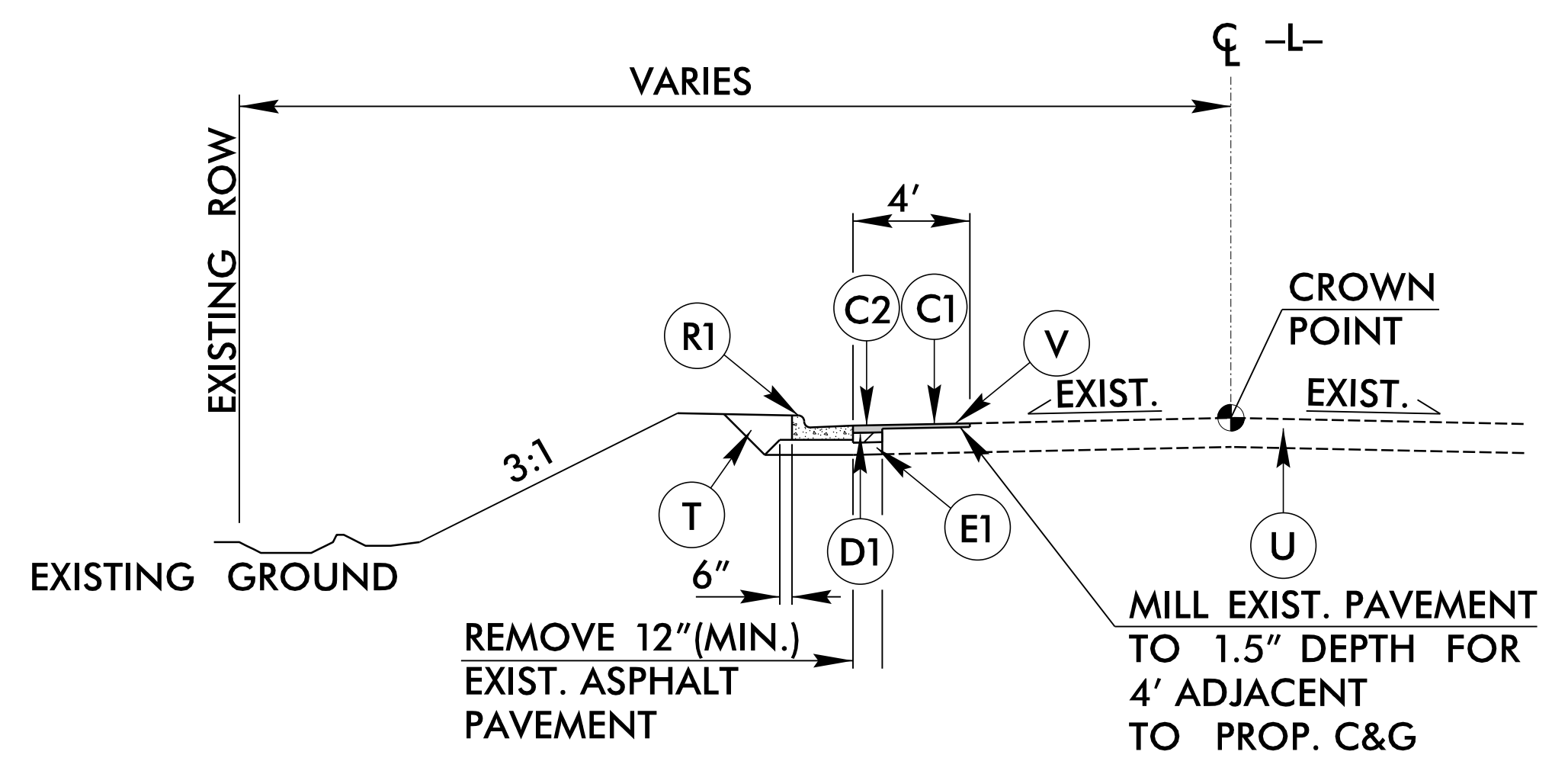
PROJECT REFERENCE NO. <i>E. YOUNG ST. PH. II</i>	SHEET NO. <i>2A-1</i>
ROADWAY DESIGN ENGINEER <i>David S. Swartz</i>	PAVEMENT DESIGN ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

-L- STA. 16+82.05 TO 20+94.15
-MUP- STA. 10+00.00 TO 14+23.41



TYPICAL SECTION NO. 2

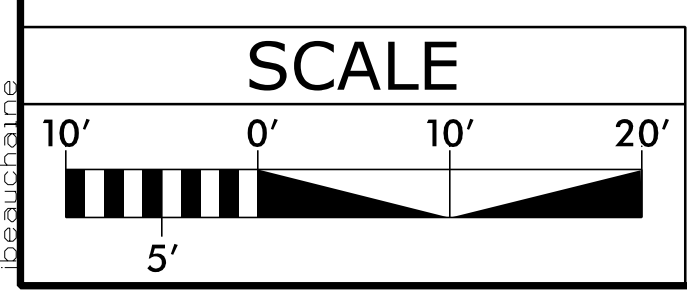
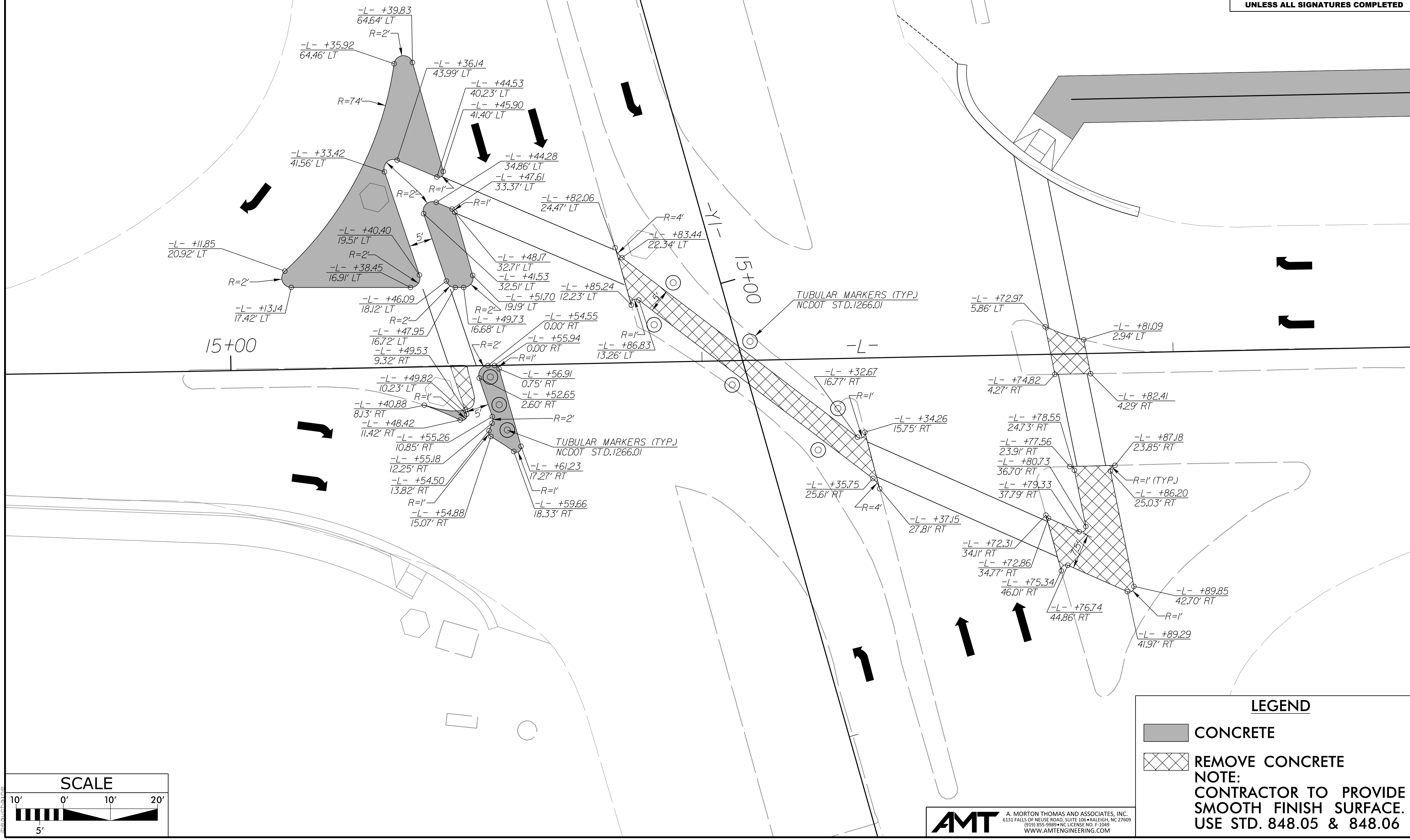
-L- STA. 16+55.51 TO 16+93.06

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INTERSECTION LAYOUT

PROJECT REFERENCE NO. <i>E.YOUNG ST.PH.II</i>	SHEET NO. 2B-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



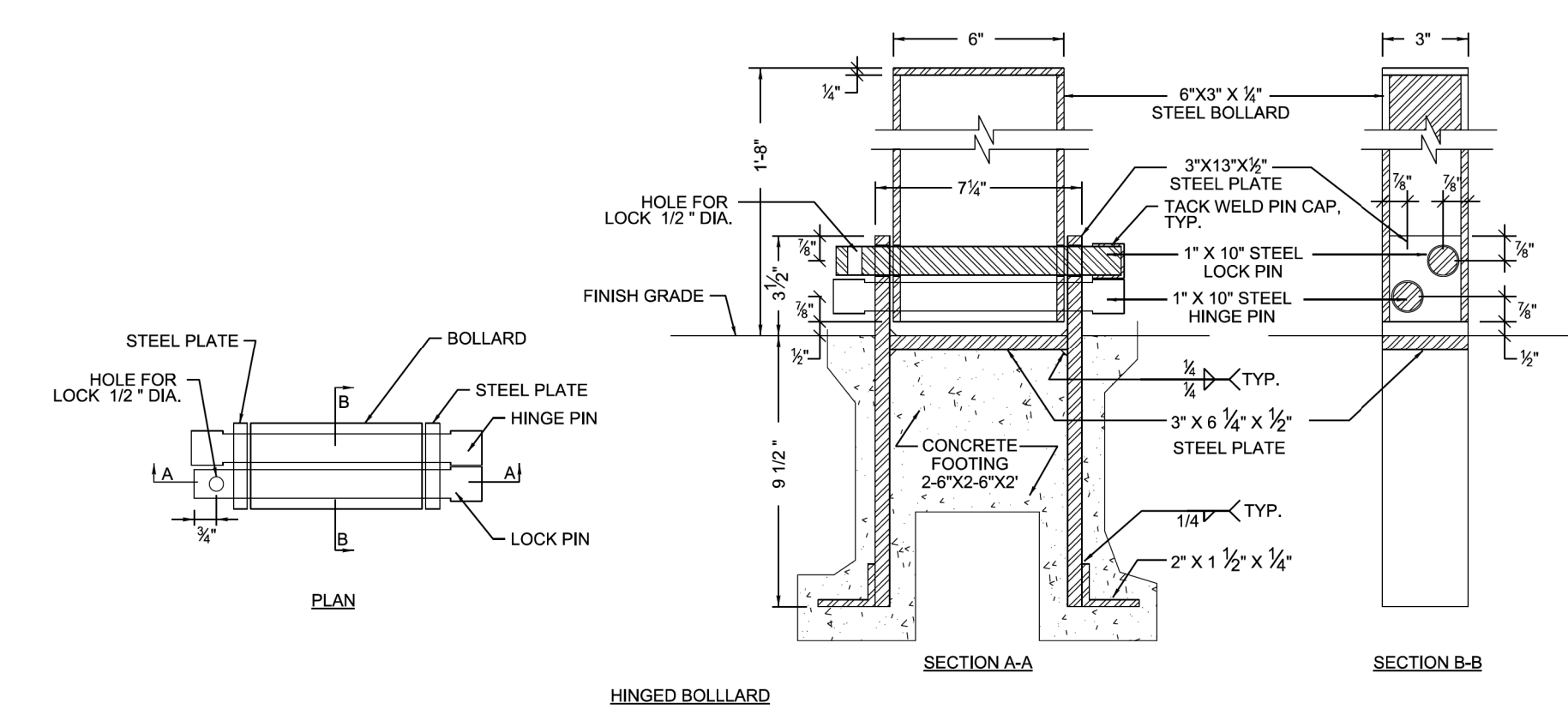
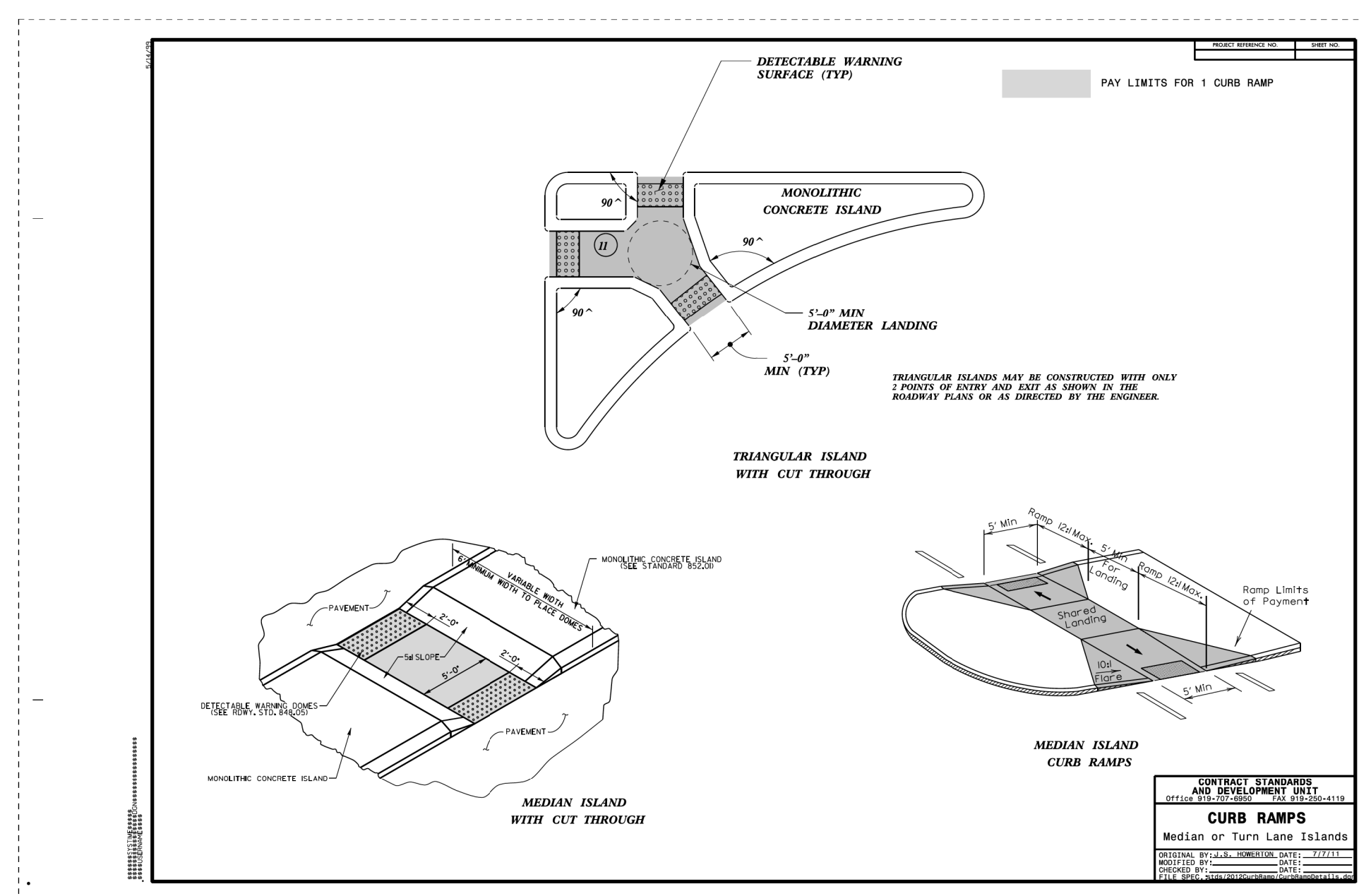
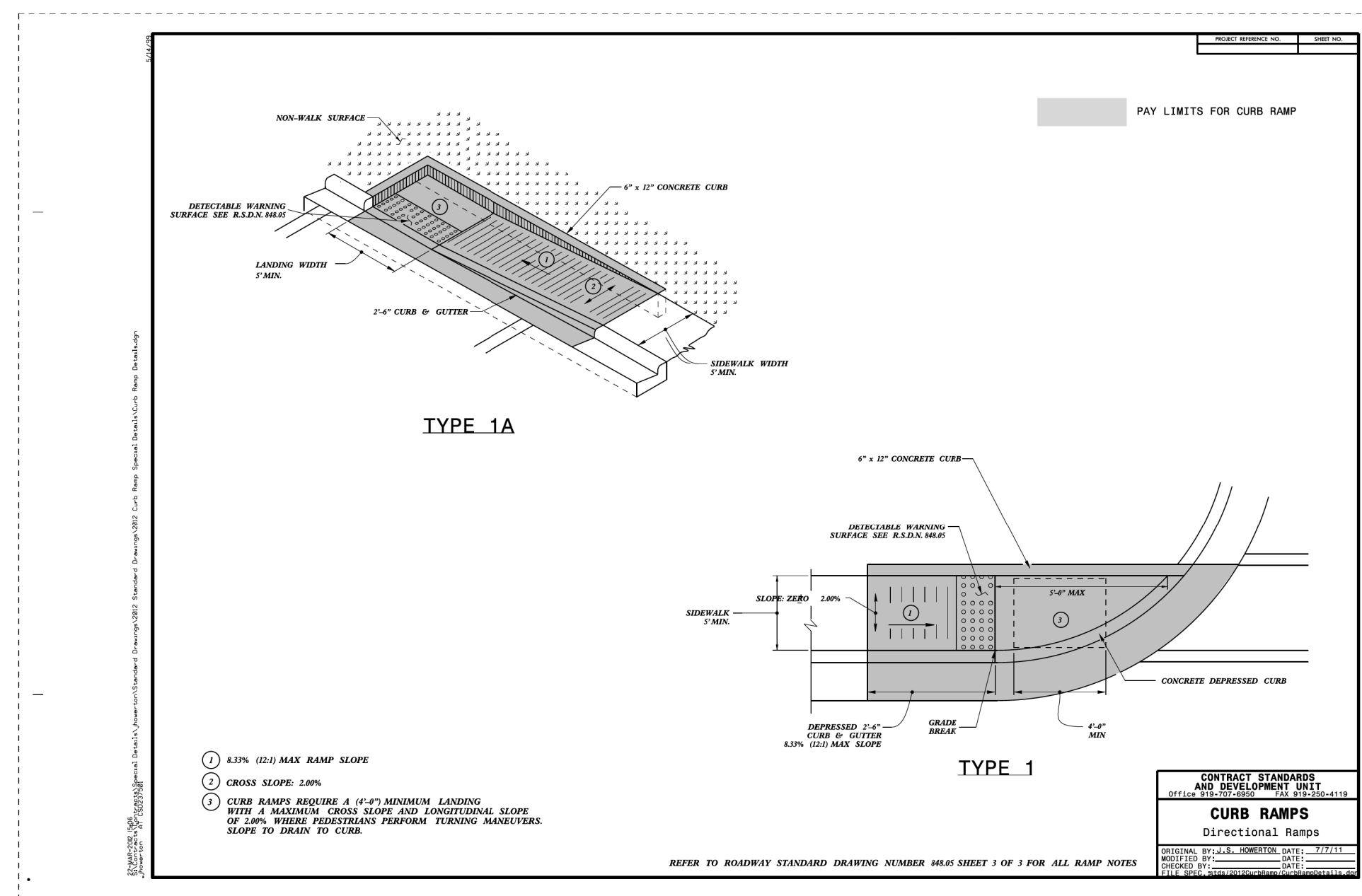
LEGEND

- CONCRETE
- REMOVE CONCRETE

NOTE:
CONTRACTOR TO PROVIDE SMOOTH FINISH SURFACE.
USE STD. 848.05 & 848.06

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 106 • RALEIGH, NC 27609
(919) 855-9889 • NC LICENSE NO. F-1049
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8/17/99



4 BOLLARDS

8/20/2021 X:\Projects\16-0940\16-0940\001 - Roadway\Proj\10 ft. Path Revision\16-0940\001_Rdy_psh02C.dgn

SUMMARY OF EARTHWORK

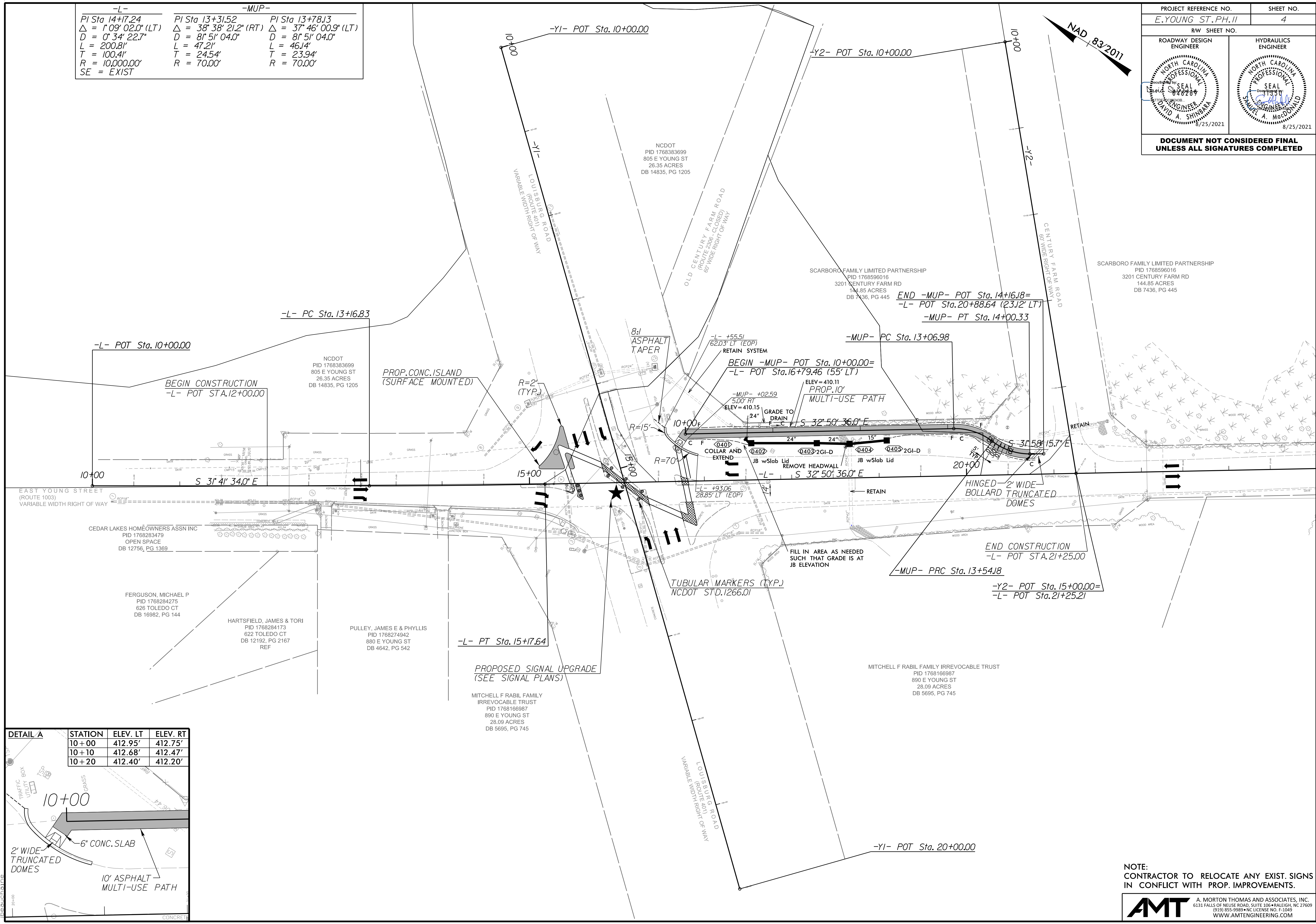
IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 20%	BORROW	WASTE
-MUP- STA 10+00.00 TO -MPU- STA 14+10.00	22		192	178	
PROJECT TOTAL	22		192	178	
SAY	25		195	180	

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 8/20/2021
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 lea@amte.com

-L-	-MUP-	
PI Sta. 14+17.24	PI Sta. 13+31.52	PI Sta. 13+78.13
$\Delta = 1^{\circ}09'02.0" (LT)$	$\Delta = 38^{\circ}38'21.2" (RT)$	$\Delta = 37^{\circ}46'00.9" (LT)$
$D = 0^{\circ}34'22.7"$	$D = 81^{\circ}51'04.0"$	$D = 81^{\circ}51'04.0"$
$L = 200.81'$	$L = 47.21'$	$L = 46.14'$
$T = 100.41'$	$T = 24.54'$	$T = 23.94'$
$R = 10,000.00'$	$R = 70.00'$	$R = 70.00'$
SE = EXIST		

PROJECT REFERENCE NO. E. YOUNG ST. PH. II	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



DETAIL A

STATION	ELEV. LT	ELEV. RT
10+00	412.95'	412.75'
10+10	412.68'	412.47'
10+20	412.40'	412.20'

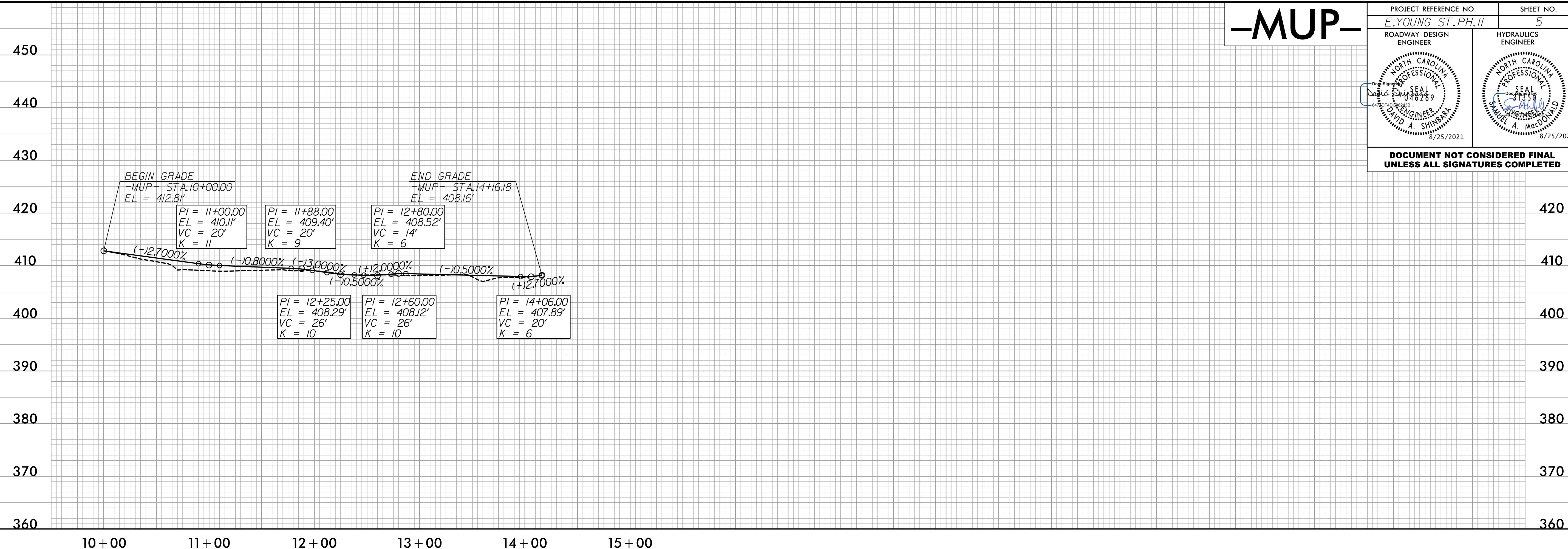
NOTE:
CONTRACTOR TO RELOCATE ANY EXIST. SIGNS
IN CONFLICT WITH PROP. IMPROVEMENTS.

8/20/2021
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 beauchamp

5/28/21

-MUP-

PROJECT REFERENCE NO. <i>E. YOUNG ST. PH. II</i>	SHEET NO. 5
ROADWAY DESIGN ENGINEER <i>[Signature]</i>	HYDRAULICS ENGINEER <i>[Signature]</i>
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



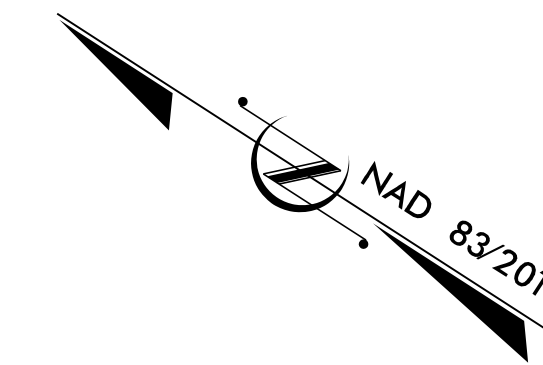
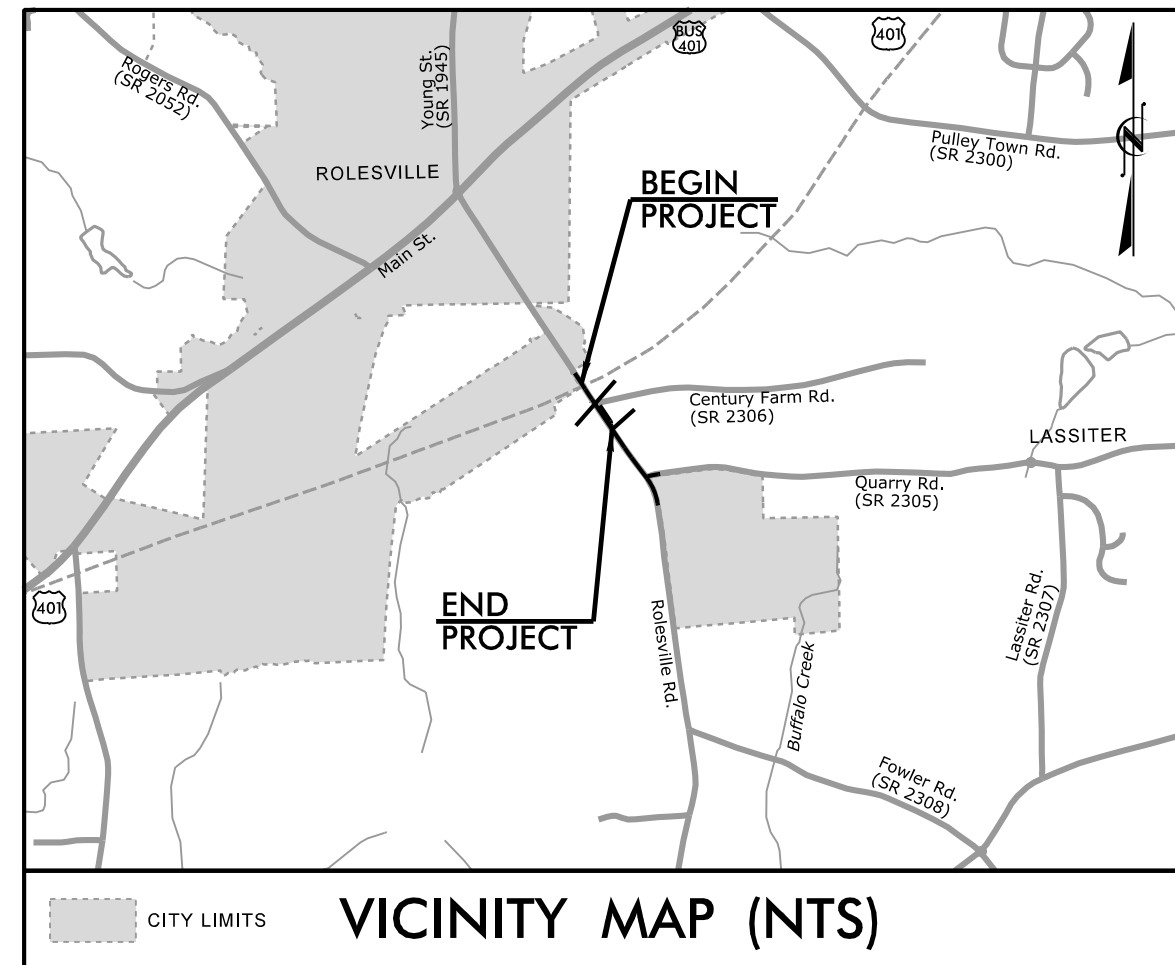
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	E. YOUNG ST. PH. II	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	

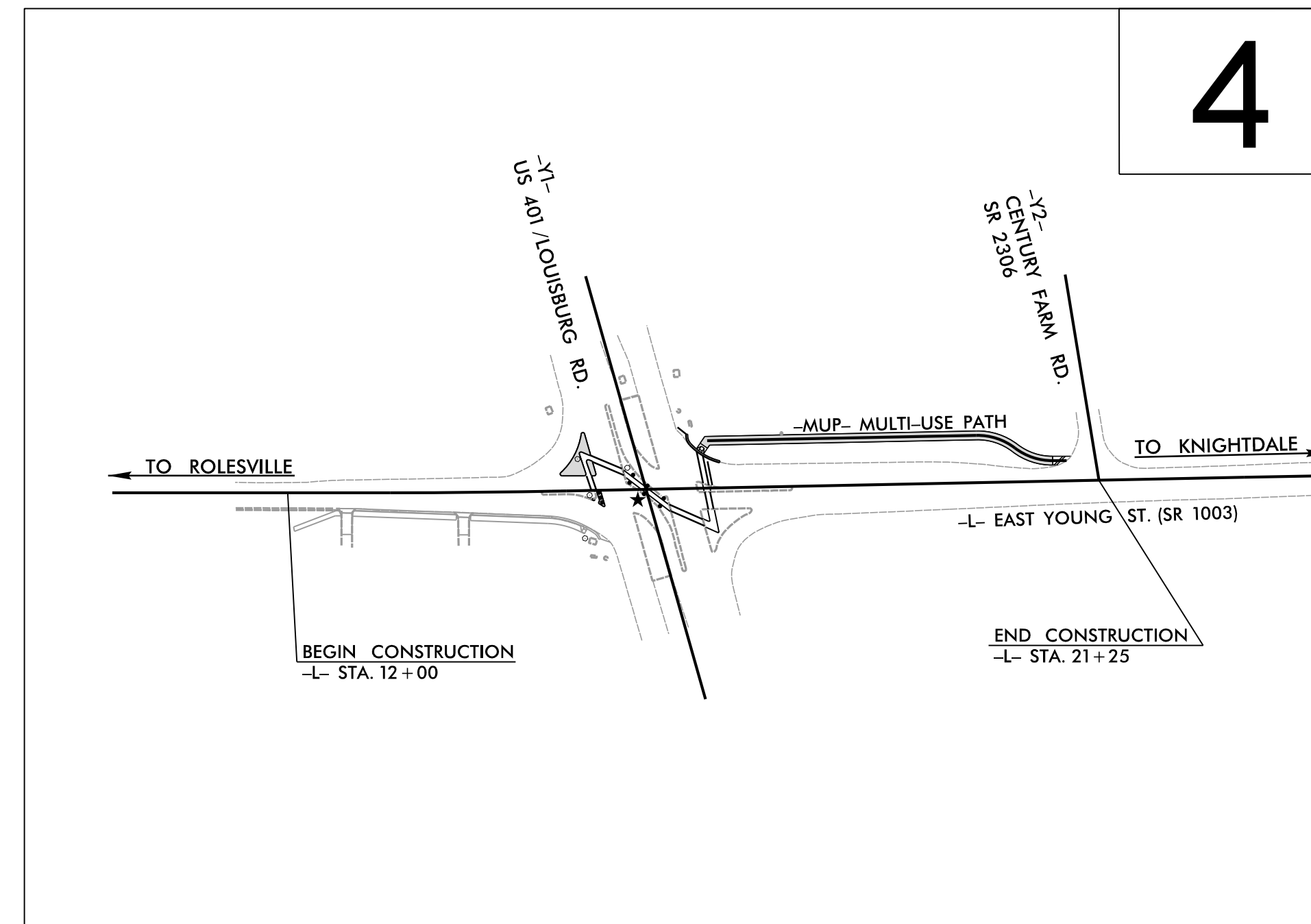
STATE OF NORTH CAROLINA

TOWN OF ROLESVILLE

PLAN FOR PROPOSED EROSION CONTROL



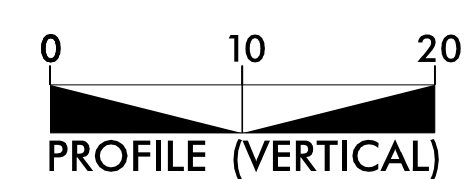
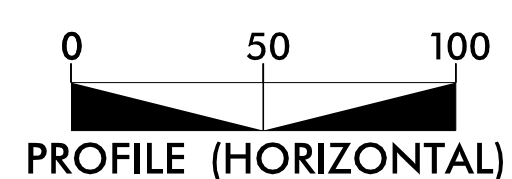
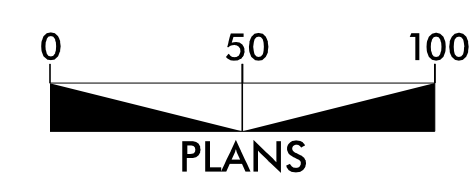
THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.



DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

TOWN OF ROLESVILLE

GRAPHIC SCALE



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

Prepared In the Office of:

AMT A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 106 • RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
WWW.AMTENGINEERING.COM

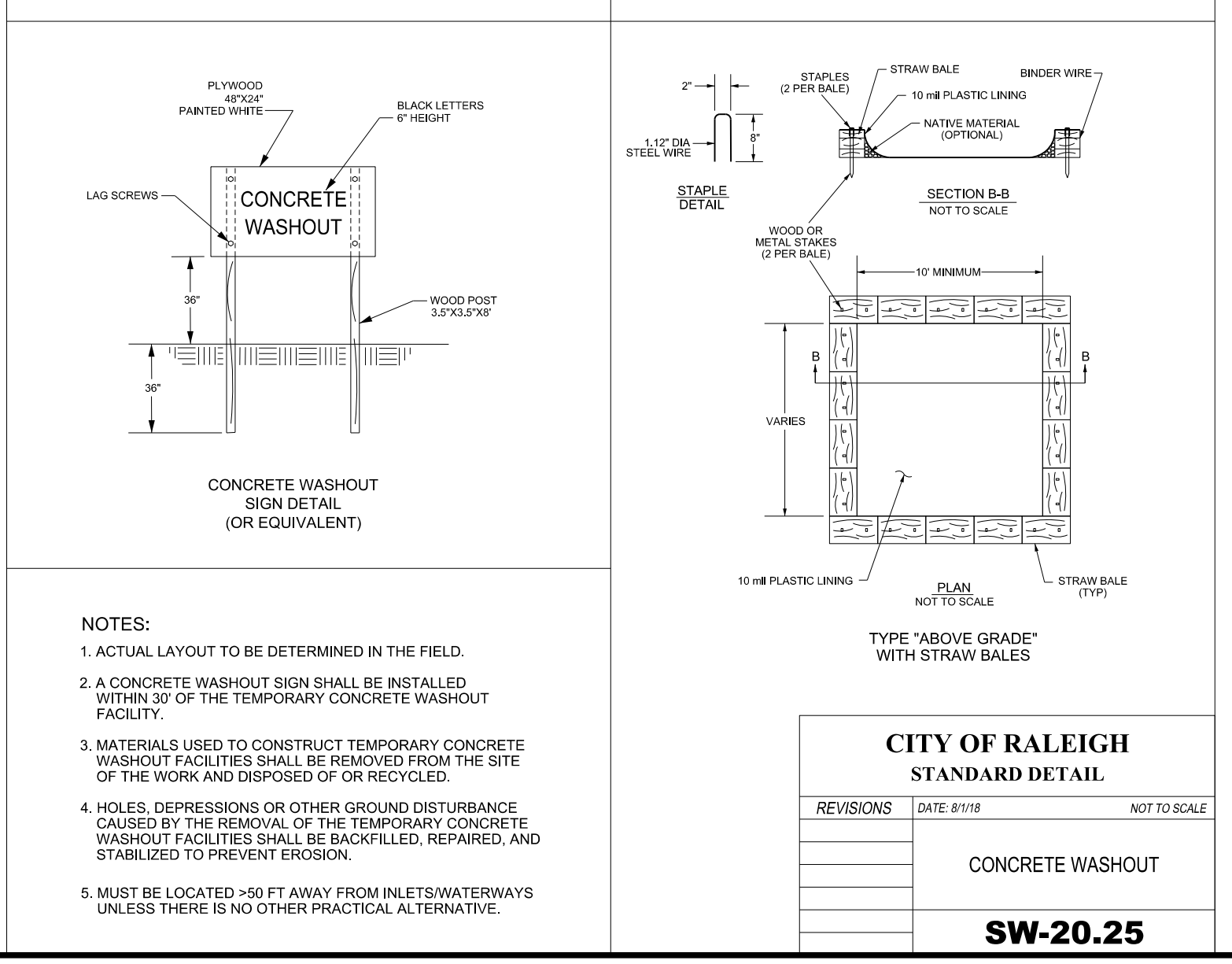
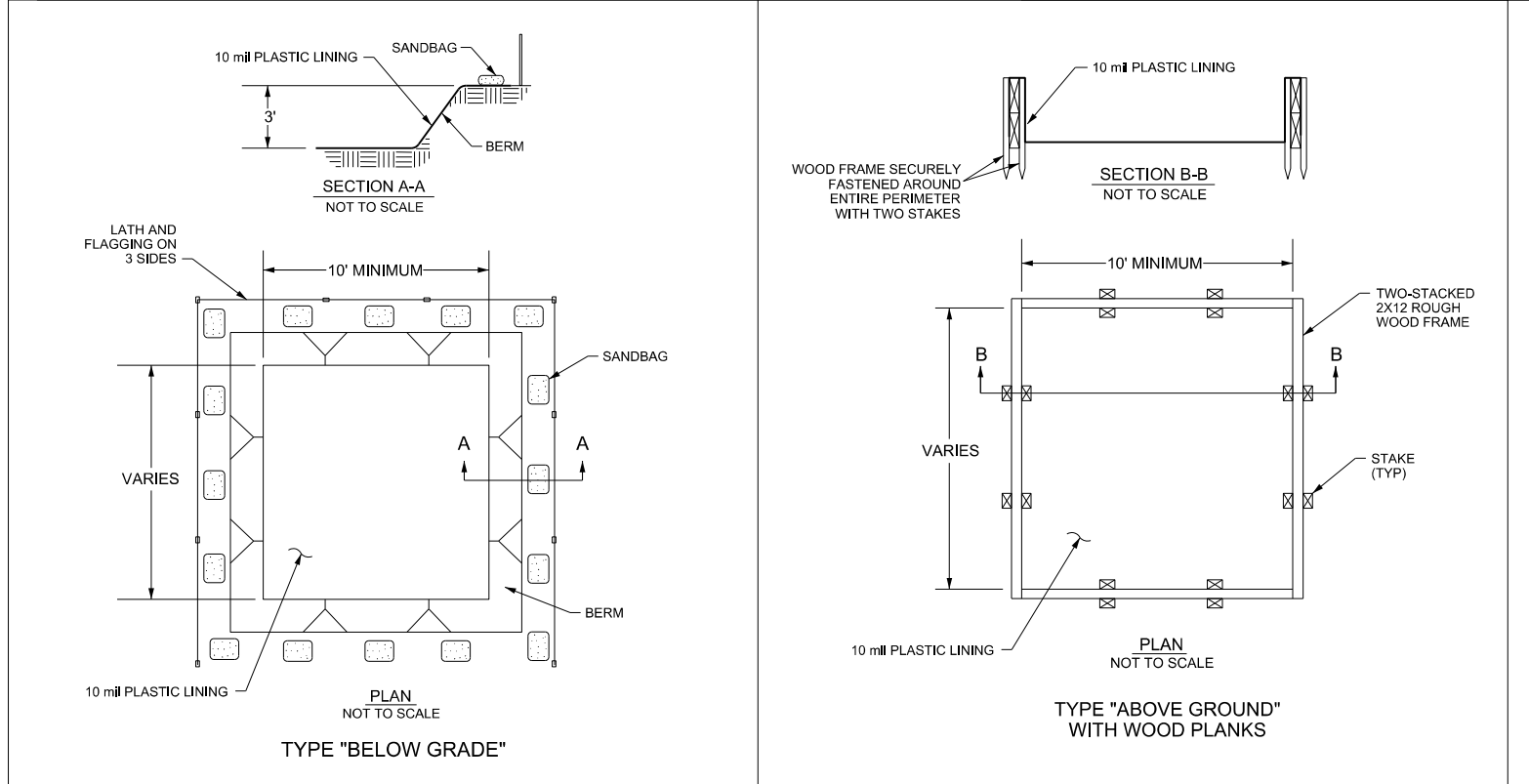
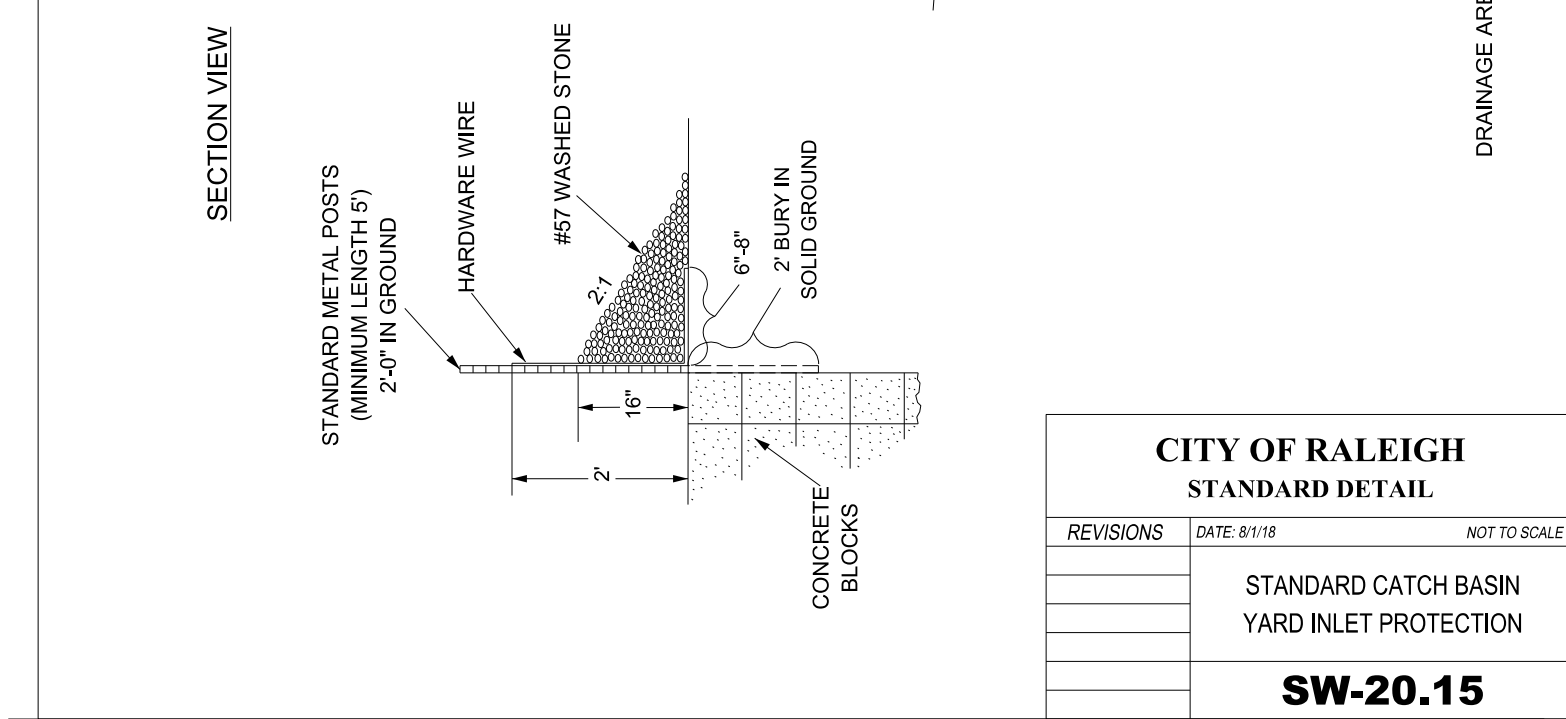
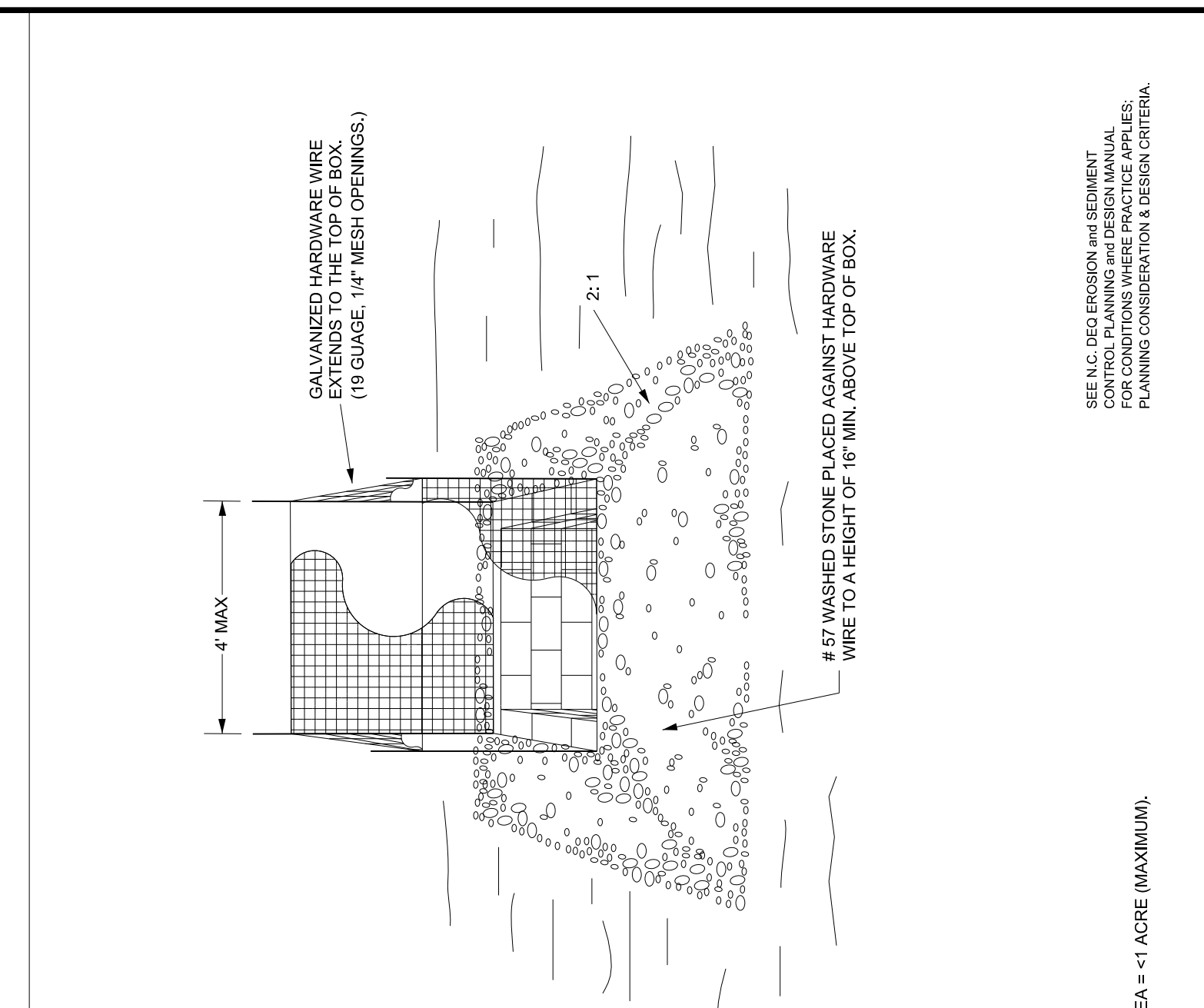
Rana Stansell, PE, CFM 3597
NAME LEVEL III CERTIFICATION NO.

Designed by:

Reviewed In the Office of:

NCDEQ
3800 Barrett Drive
Raleigh, NC 276091

Reviewed by:

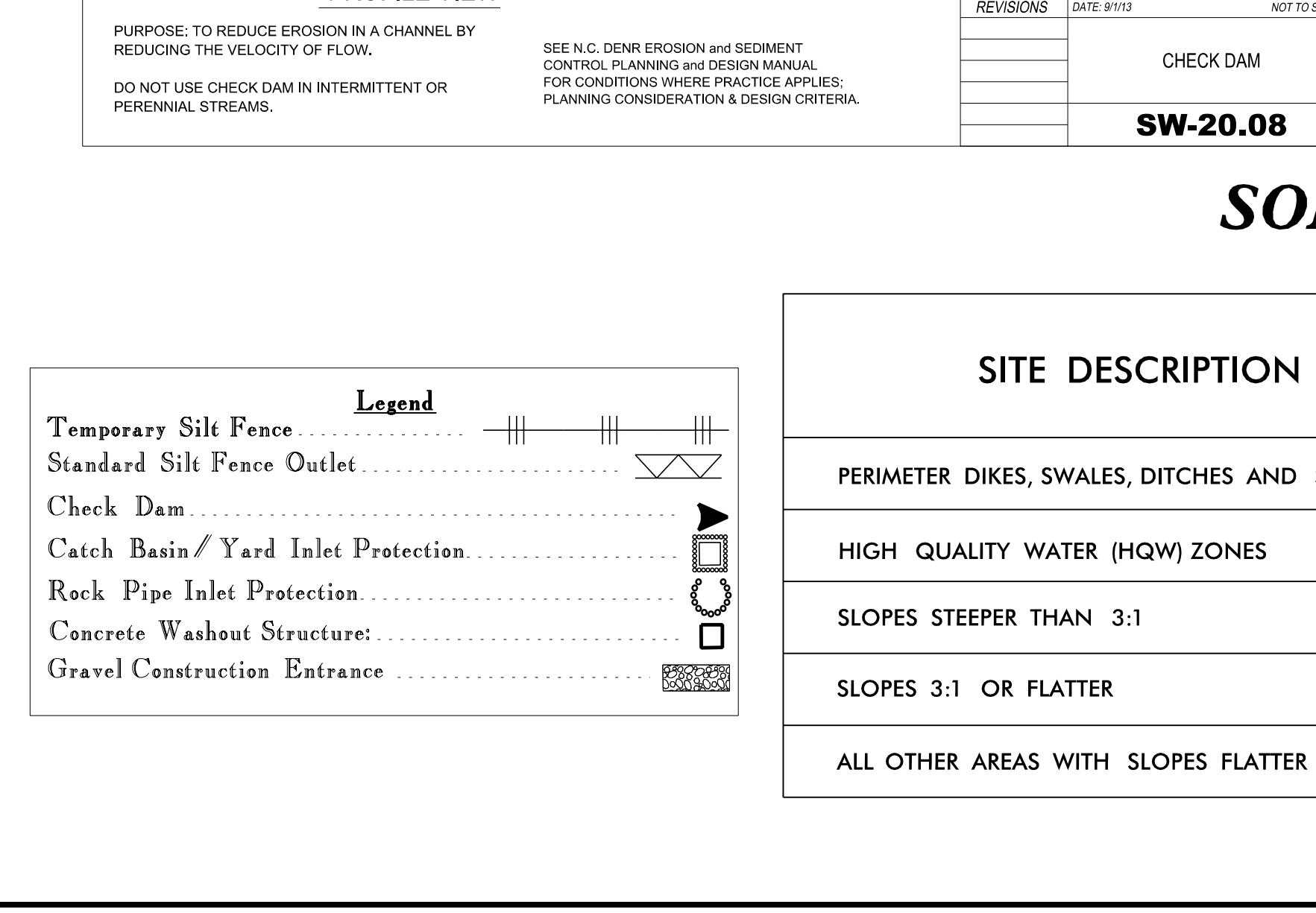
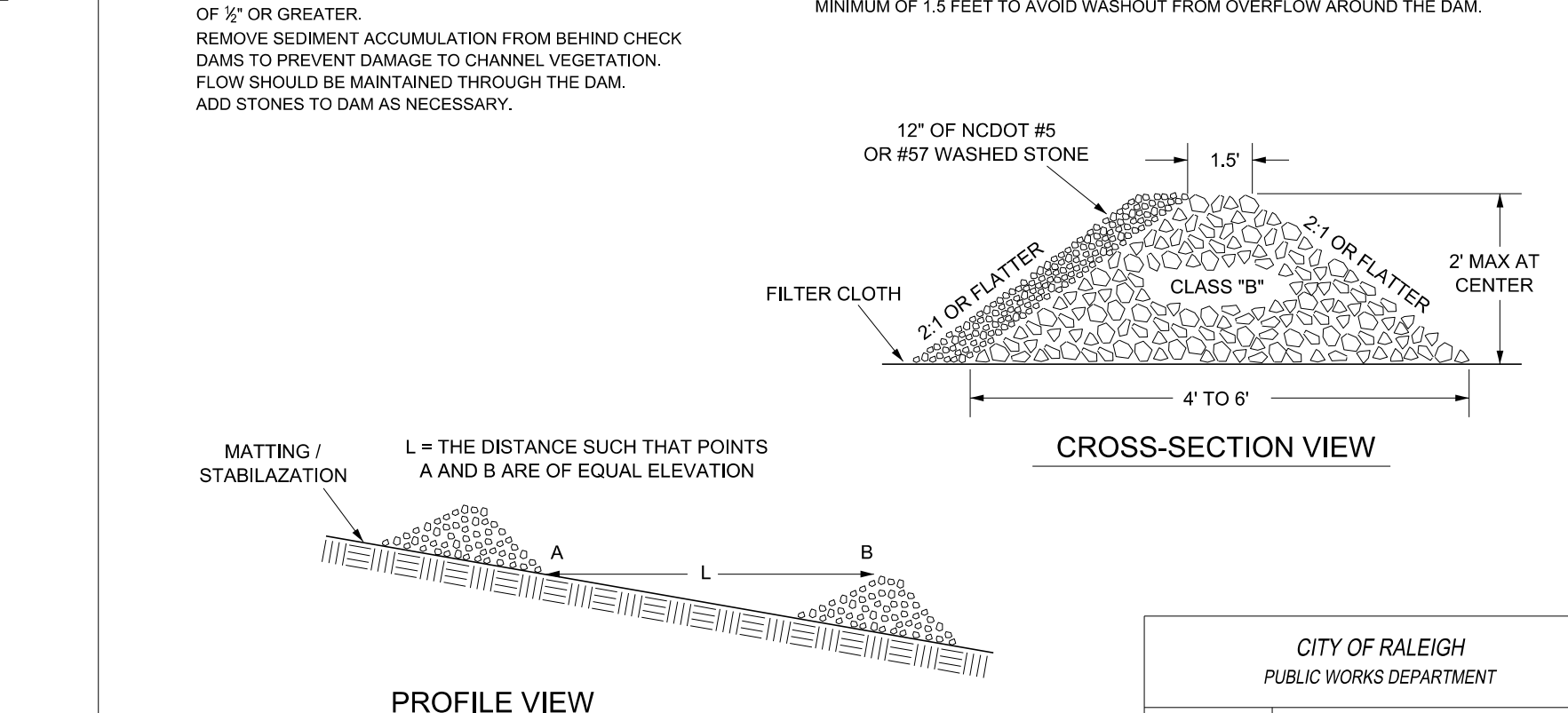
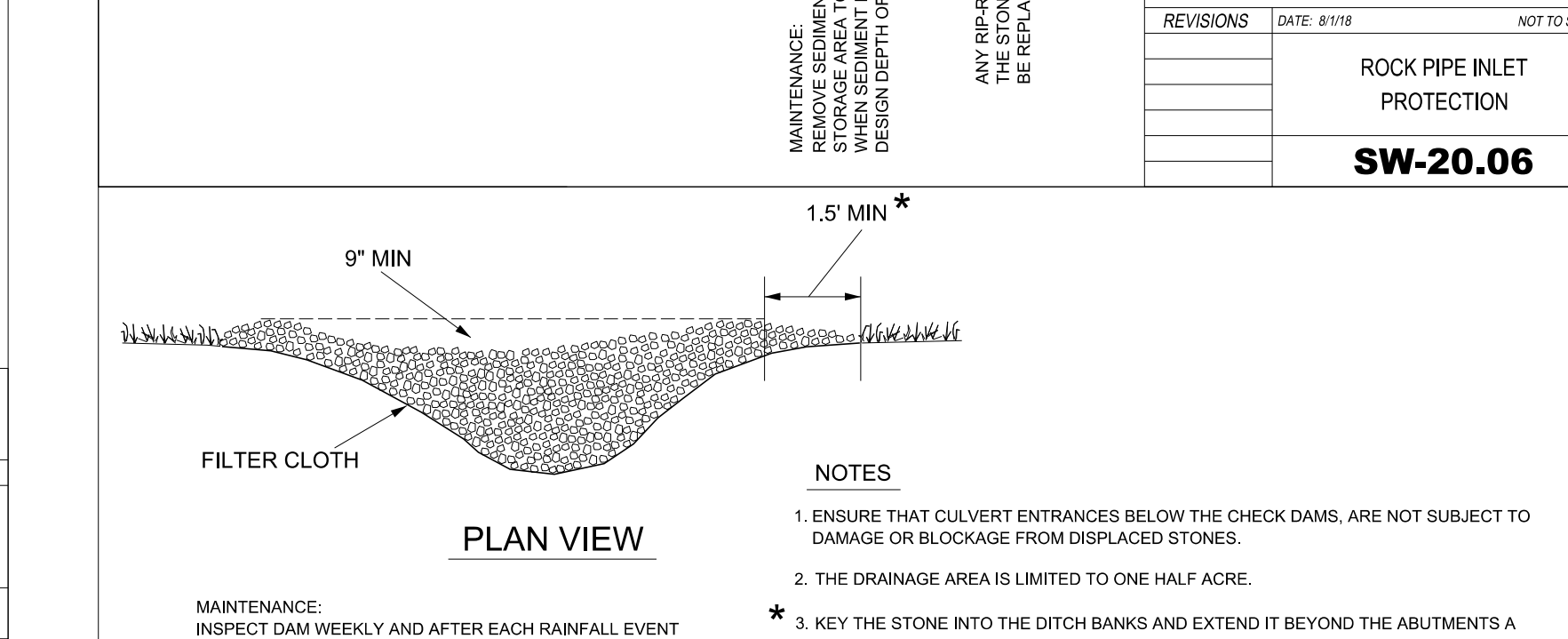
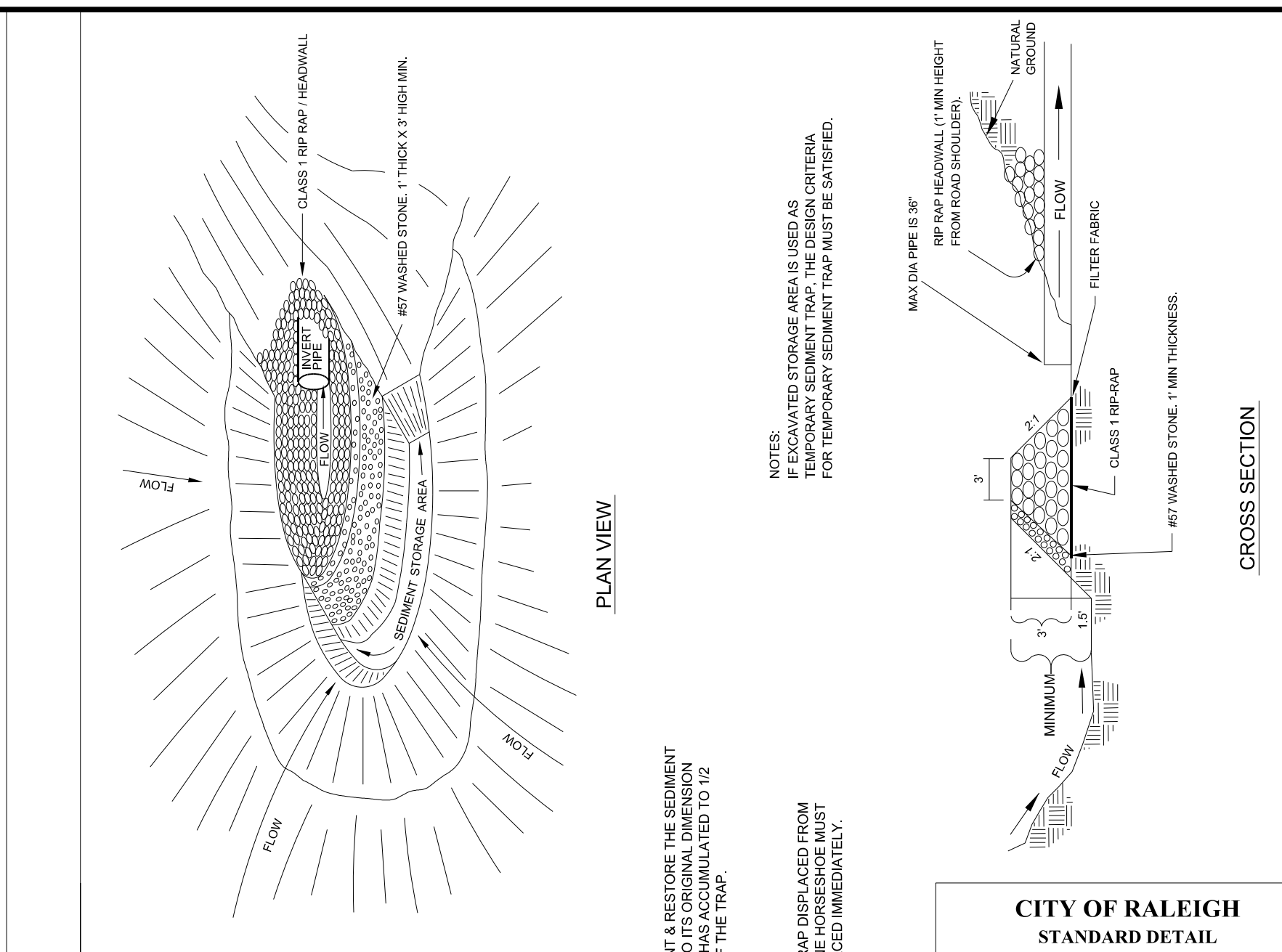


REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
STANDARD DETAIL**

CONCRETE WASHOUT

SW-20.25

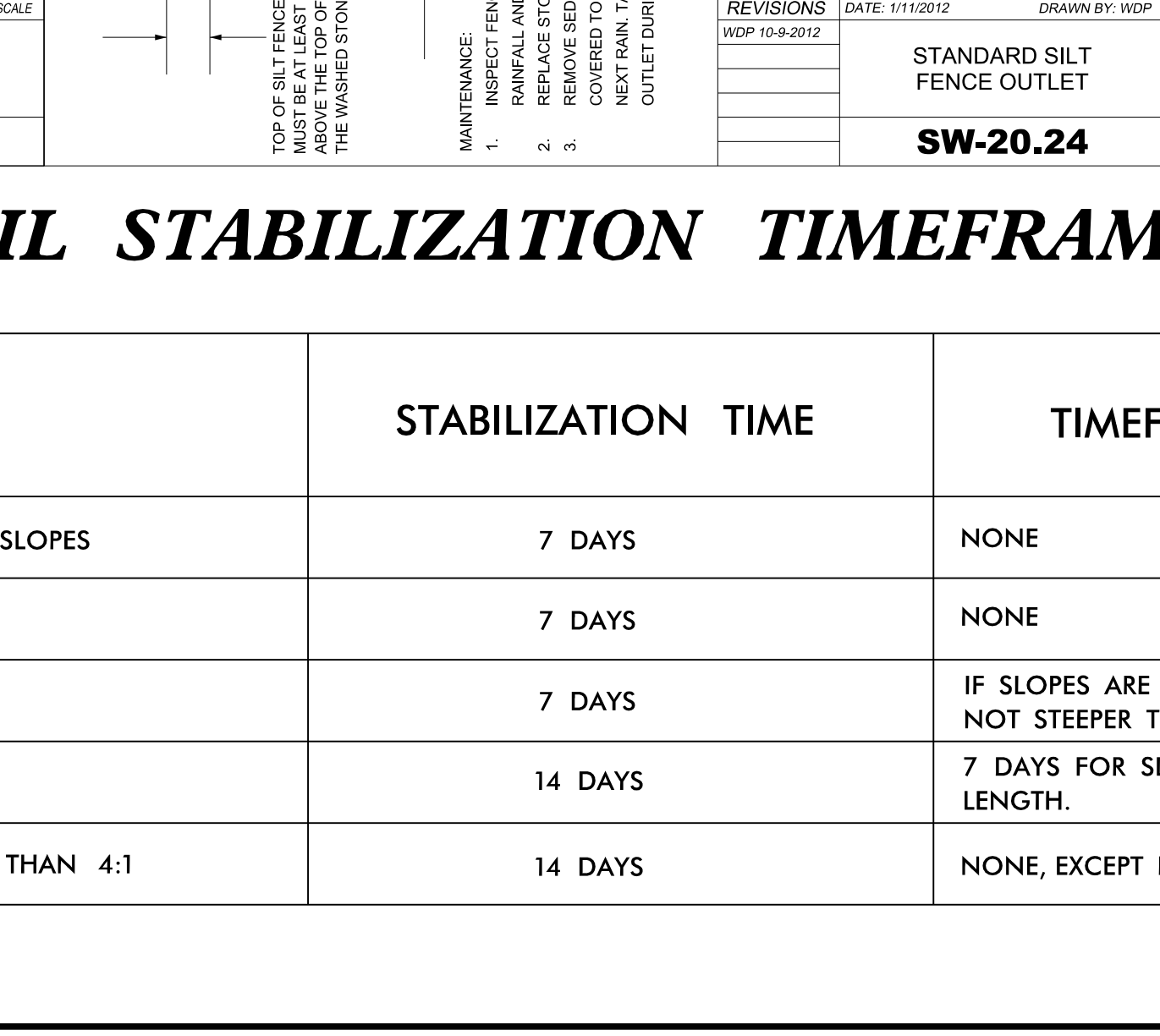
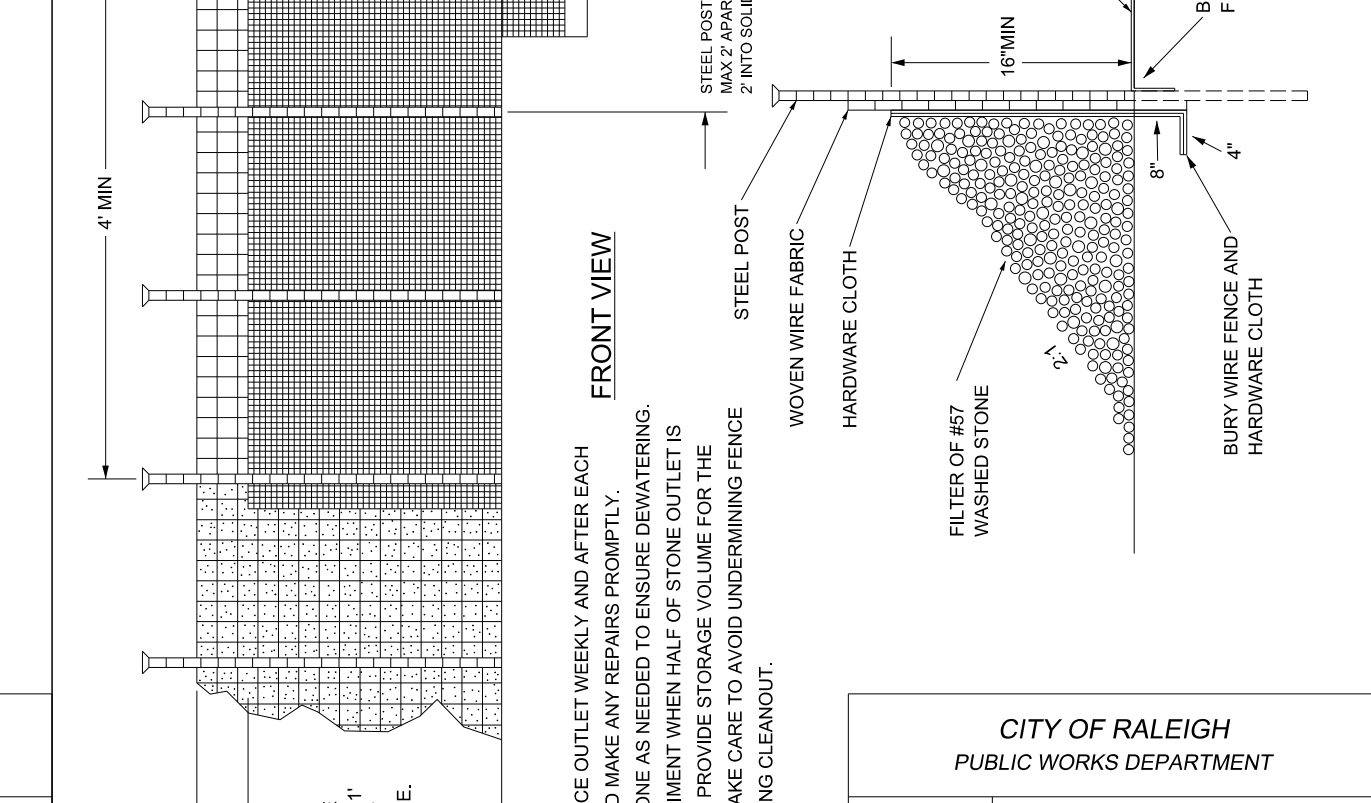
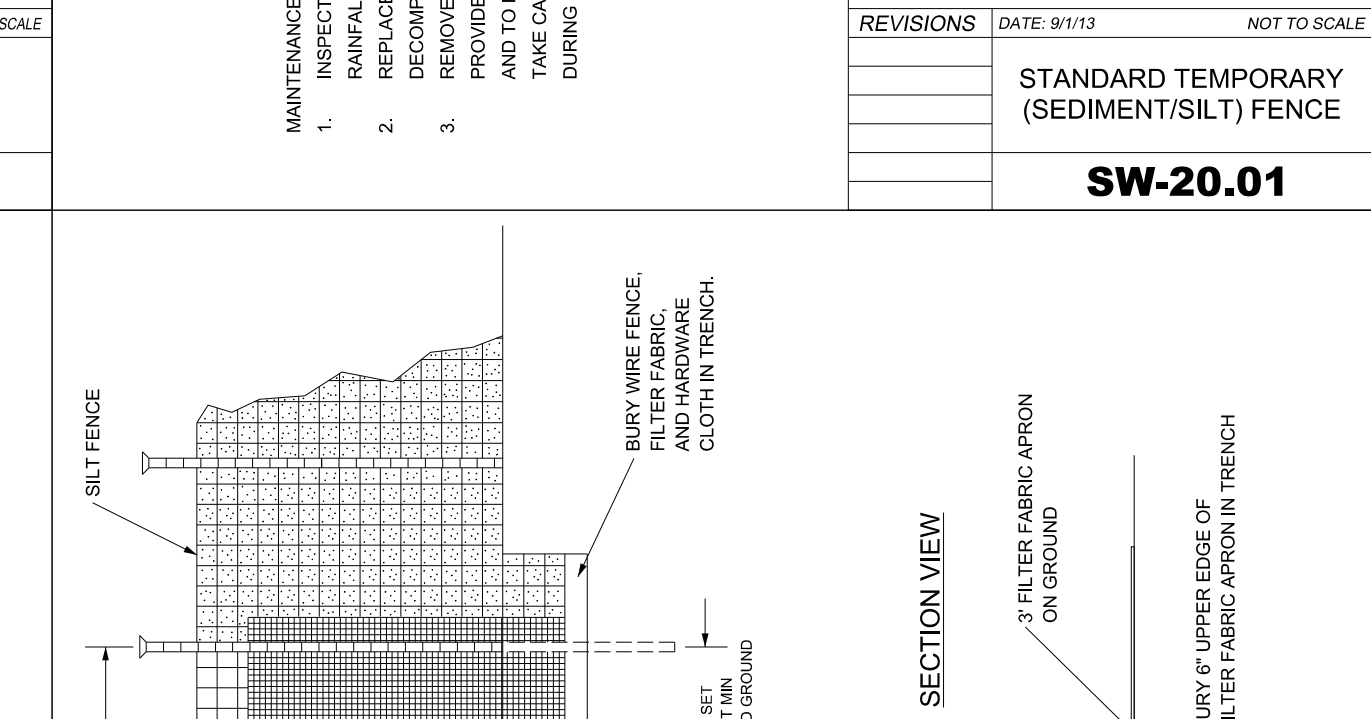
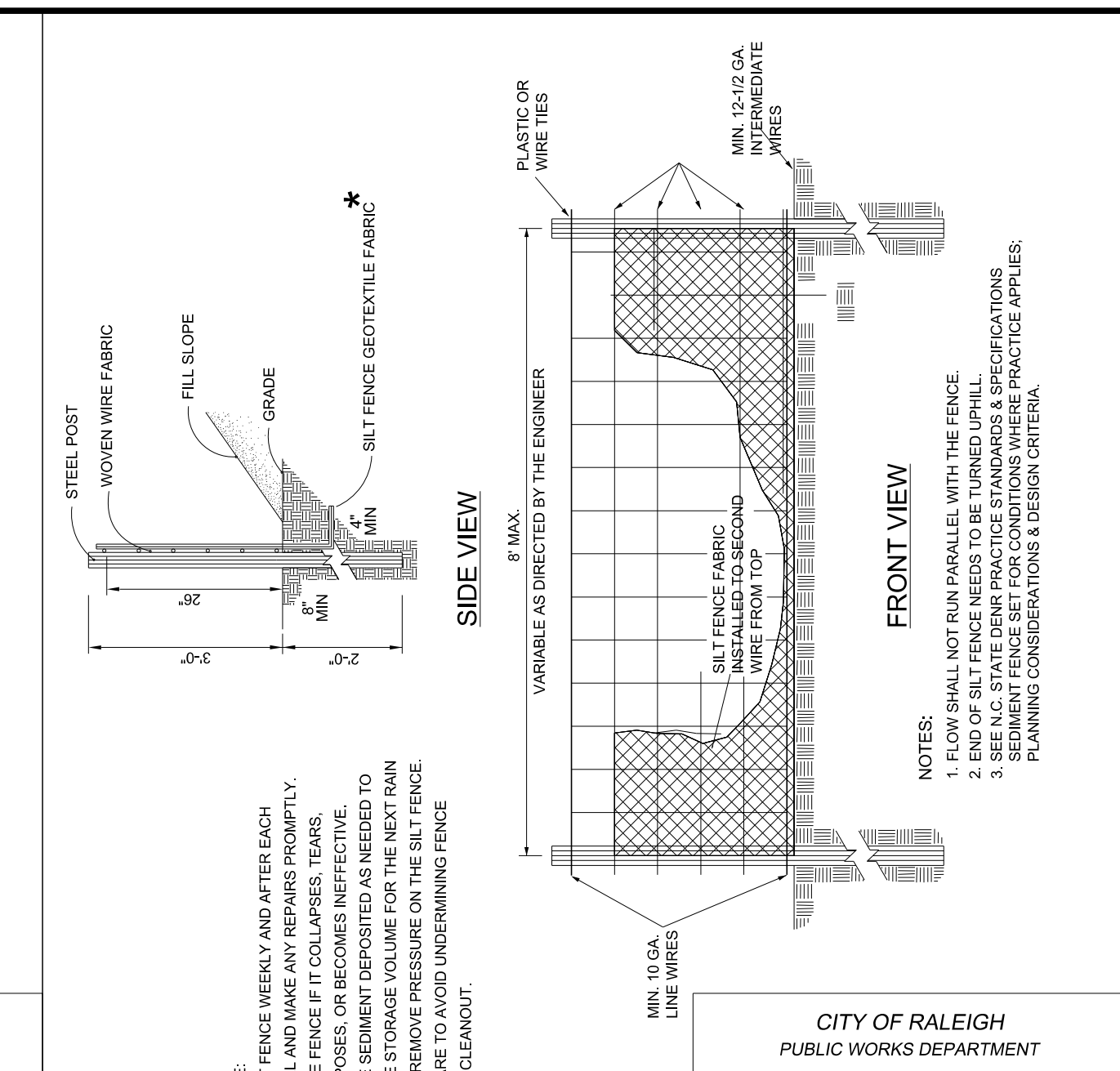


REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
PUBLIC WORKS DEPARTMENT**

CHECK DAM

SW-20.08



REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
PUBLIC WORKS DEPARTMENT**

CONSTRUCTION ENTRANCE

SW-20.09

REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
STANDARD DETAIL**

ROCK PIPE INLET PROTECTION

SW-20.06

REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
PUBLIC WORKS DEPARTMENT**

STANDARD TEMPORARY (SEDIMENT/SILT) FENCE

SW-20.01

REVISIONS	DATE	BY	NOT TO SCALE

**CITY OF RALEIGH
PUBLIC WORKS DEPARTMENT**

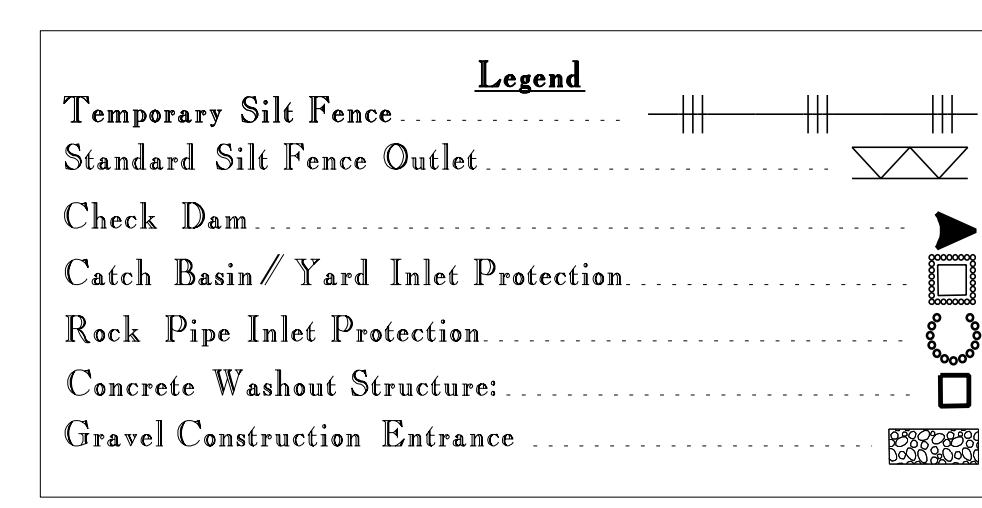
STANDARD SILT FENCE OUTLET

SW-20.24

PROJECT REFERENCE NO.	SHEET NO.
E.YOUNG ST.PH.II	EC-2

SOIL STABILIZATION TIMEFRAMES

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

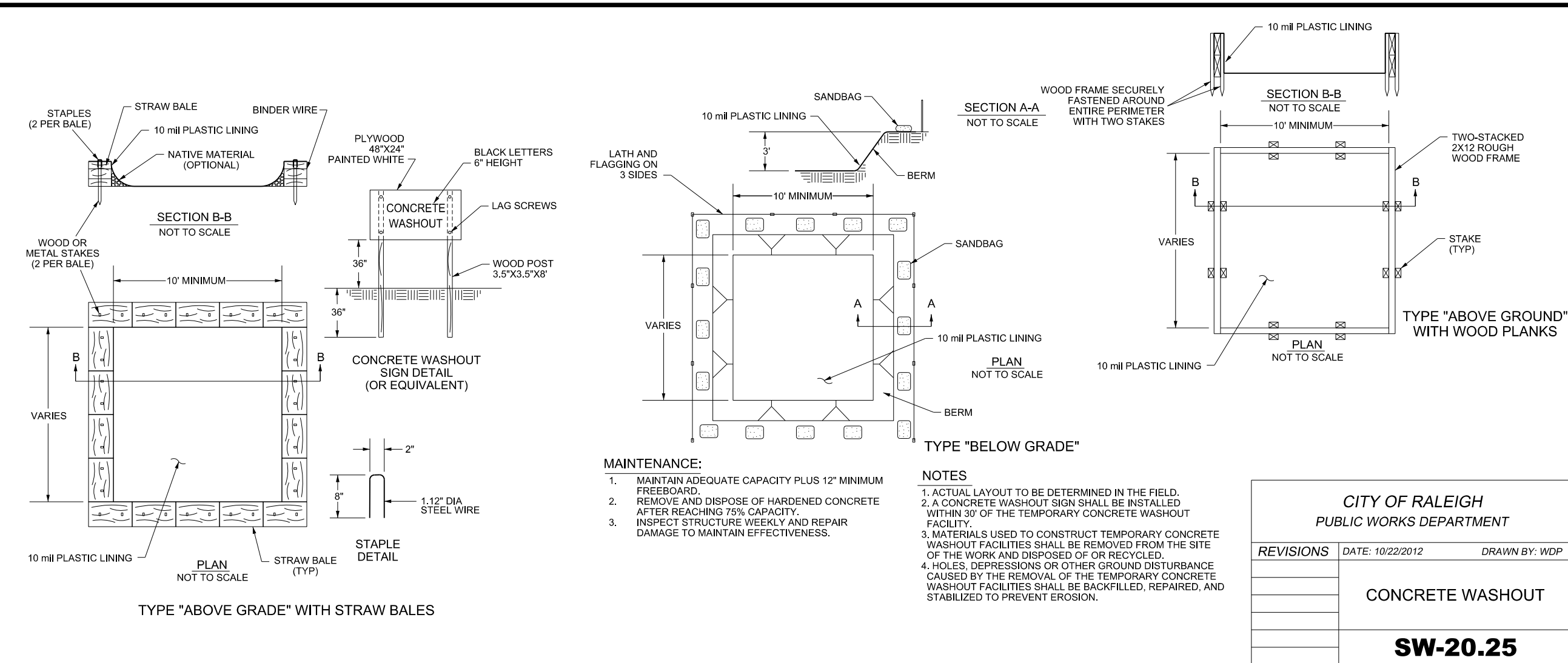


REVISIONS	DATE	BY	NOT TO SCALE

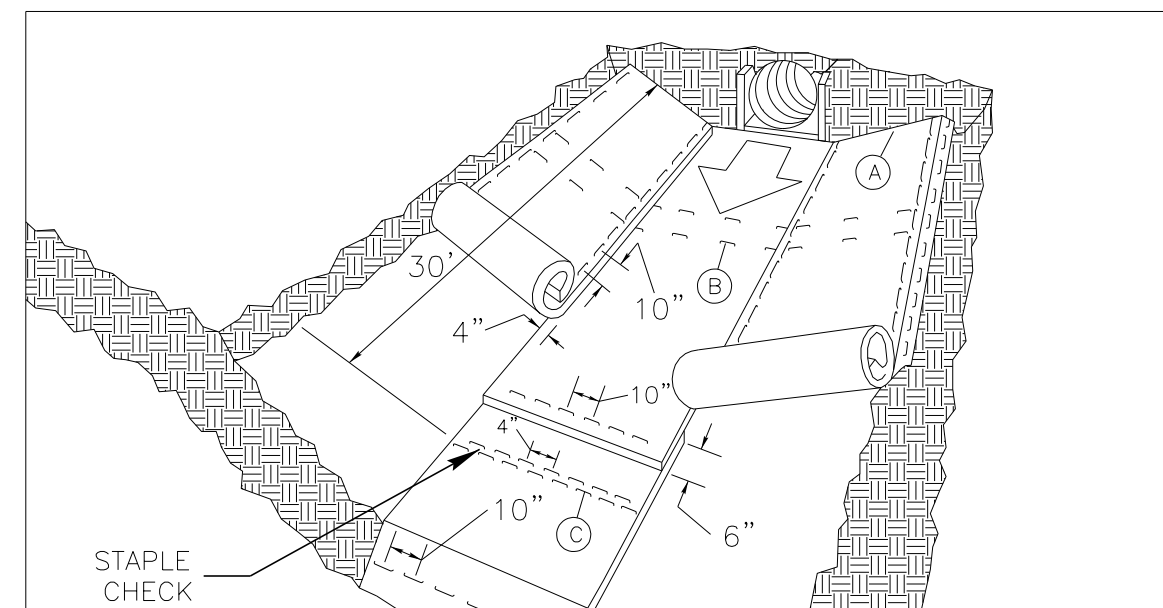
**CITY OF RALEIGH
STANDARD DETAIL**

CONCRETE WASHOUT

SW-20.25



MATTING INSTALLATION DETAIL



MATTING IN DITCHES

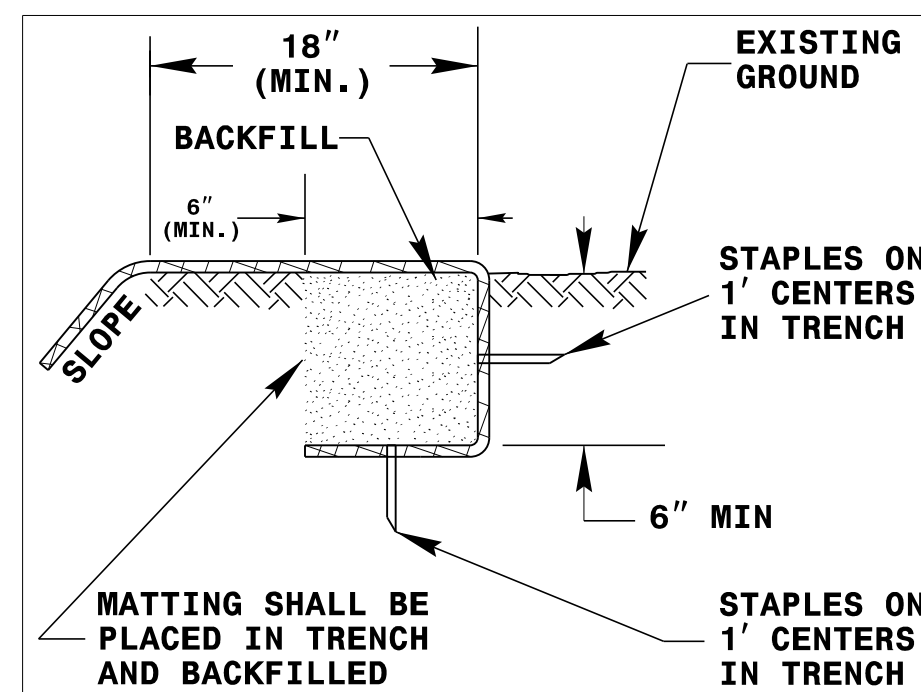
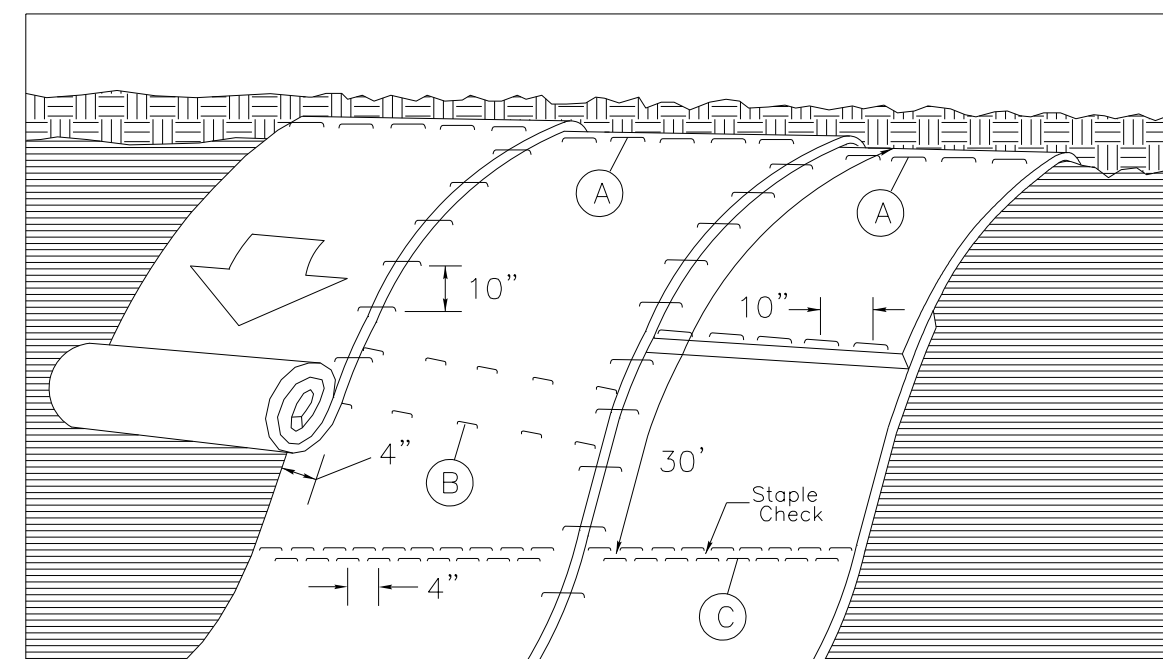


Diagram A



MATTING ON SLOPES

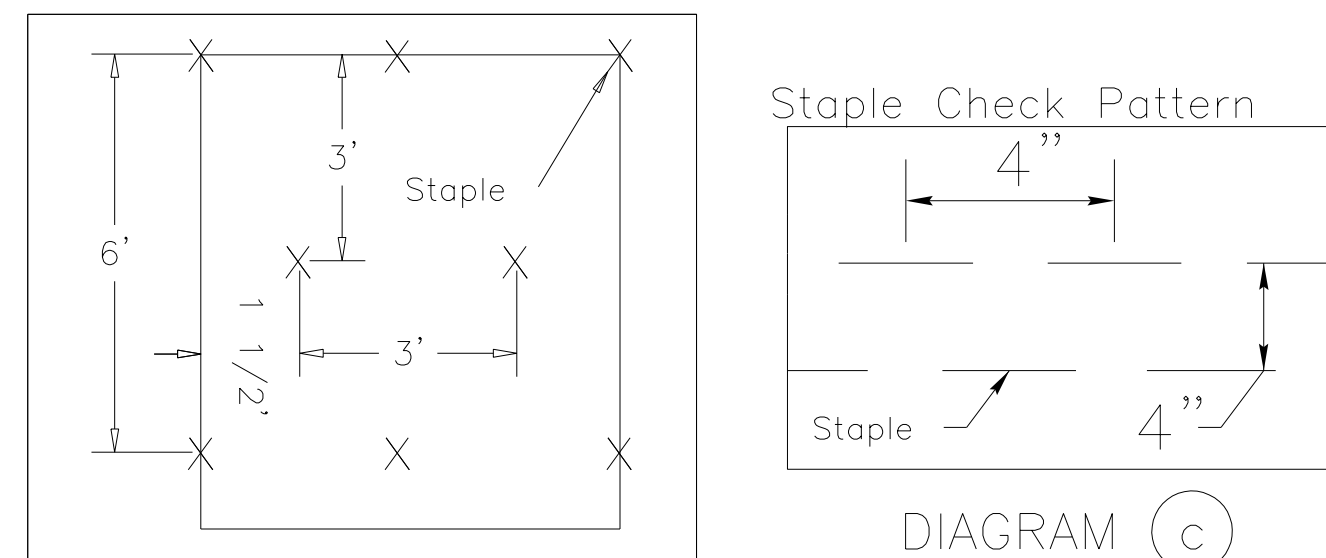


Diagram B

Diagram C

NOT TO SCALE

NOTES:

THIS DETAIL APPLIES TO STRAW, EXCELSIOR, AND PERMANENT SOIL REINFORCEMENT MAT (PSRM) INSTALLATION. AREAS OF MATTING THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH GROUND SHALL BE REPAIRED AND STAPLED. STAPLES SHALL BE NO. 11 GAUGE STEEL WIRE FORMED INTO A "U" SHAPE WITH A MINIMUM THROAT WIDTH OF 1/2" AND EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE. FIX PROBLEM AND PROTECT ERODED AREA. MONITOR AND REPAIR MATTING AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.

SEQUENCE OF CONSTRUCTION

1. SUBMIT DOCUMENTATION REQUIRED UNDER THE NPDES STORMWATER PERMIT FOR CONSTRUCTION ACTIVITIES (NCG010000).
2. CONTACT NCDEQ LQS AT THE RALEIGH REGIONAL OFFICE AT 919-791-4200 TO SCHEDULE A PRE-CONSTRUCTION MEETING AT LEAST 48 HOURS PRIOR TO PROJECT ACTIVATION.
3. INSTALL TEMPORARY EROSION CONTROL MEASURES AS SHOWN ON THE CLEARING AND GRUBBING PLAN SHEETS. CLEAR ONLY THE AREAS NECESSARY FOR INSTALLATION OF THE EROSION CONTROL MEASURES. CONTACT NCDEQ LQS AT THE RALEIGH REGIONAL OFFICE AT 919-791-4200 ONCE MEASURES ARE IN PLACE.
4. LAND DISTURBANCE AND CONSTRUCTION MAY BEGIN ONCE CLEARING AND GRUBBING EROSION CONTROL MEASURES ARE IN PLACE.
5. RETAIN A COPY OF THE EROSION AND SEDIMENT CONTROL (E&S) PERMIT AND EROSION CONTROL PLANS ON SITE, PREFERABLY IN A PERMITS BOX, AND ACCESSIBLE DURING INSPECTION.

6. SELF-INSPECTIONS FOR EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE PERFORMED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS OF EVERY RAIN EVENT OF GREATER THAN 1 INCH. ANY NEEDED REPAIRS SHALL BE MADE IMMEDIATELY TO MAINTAIN MEASURES AS DESIGNED. ALL ESC MEASURES SHALL BE MAINTAINED AS SPECIFIED IN THE CONSTRUCTION DETAILS ON THIS PLAN. A RAIN GAUGE SHALL BE INSTALLED AT THE PROJECT SITE FOR MONITORING. COPIES OF THE INSPECTION REPORTS MUST BE KEPT ON SITE.
7. PREFORM GRADING OPERATIONS AND INSTALL PROPOSED DRAINAGE NETWORKS. ENSURE THAT EXISTING DRAINAGE SYSTEMS CONTINUE TO FUNCTION UNTIL THE PROPOSED SYSTEM IS INSTALLED. INSTALL FINAL EROSION CONTROL MEASURES PER THE FINAL EROSION CONTROL PLANS AS THE AREA IS CONSTRUCTED AND FINAL DRAINAGE AND GRADING IS IN PLACE.
8. PERMANENTLY STABILIZE ALL DISTURBED AREAS PAYING PARTICULAR ATTENTION TO THE FILL SLOPE ADJACENT TO THE WETLANDS. SITE STABILIZATION IS REQUIRED PRIOR TO FINAL APPROVAL. STABILIZE AREA IN ACCORDANCE WITH TIMEFRAMES INCLUDED IN THE EROSION CONTROL PLANS.
9. FINAL EROSION CONTROL MEASURES MAY NOT BE REMOVED UNTIL PERMANENT GROUND COVER HAS BEEN ESTABLISHED THROUGHOUT THE SITE.
10. WHEN THE PROJECT IS COMPLETE AND PERMANENT GROUND COVER IS ESTABLISHED, CONTACT NCDEQ LQS TO CLOSE OUT THE E&S PLAN. AFTER NCDEQ LQS INFORMS THE PERMITEE OF THE PROJECT CLOSE OUT, VIA INSPECTION REPORT, THE PERMITEE SHALL VISIT DEQ.NC.GOV/NC601 TO SUBMIT AN ELECTRONIC NOTICE OF TERMINATION (E-NOT).

GENERAL EROSION CONTROL NOTES

1. EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AT ANY AREA USED FOR CONTRACTOR EQUIPMENT STAGING, MATERIALS LAYDOWN, AND SPOIL OR WASTE AREAS.
2. ALL SEDIMENT CONTAINMENT DEVICES MUST BE MAINTAINED UNTIL ALL UPGRADE DRAINAGE AREAS HAVE BEEN STABILIZED WITH THE ESTABLISHMENT OF PERMANENT VEGETATION.
3. ANY DEWATERING OF SEDIMENT CONTAINMENT DEVICES FOR MAINTENANCE, REMOVAL, OR CONVERSION PURPOSES IS TO BE DONE THROUGH A SILT BAG. TURBID WATER FROM EXCAVATIONS CANNOT BE PUMPED DIRECTLY TO THE STORM DRAIN SYSTEM BUT MUST BE FILTERED THROUGH A SILT BAG.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING AND MAINTAINING NEW GRASS DURING THIS PROJECT UNTIL THE NOTICE OF TERMINATION IS FILLED
5. ANY ACCIDENTAL RELEASE OF SEDIMENT FROM THE SITE SHALL BE CLEANED BY THE CONTRACTOR.
6. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO KEEP CLEAN ALL STREETS DURING CONSTRUCTION. SEDIMENT TRACKED ONTO THE ROAD MUST BE CLEANED USING A DRY METHOD (E.G. NO WATER TRUCKS OR HOSES).
7. THE CONTRACTOR MUST INSPECT THE PROJECT AND DOCUMENT THE INSPECTION AFTER INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROL MEASURES. CLEARING AND GRUBBING OF EXISTING GROUND COVER, COMPLETION OF ANY PHASE OF GRADING OF SLOPES OR FILLS, INSTALLATION OF STORM DRAINAGE FACILITIES, COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION.
8. ANY LAND CLEARING, CONSTRUCTION OR DEVELOPMENT INVOLVING THE MOVEMENT OF EARTH SHALL BE IN ACCORDANCE WITH THE APPROVED ESC PLAN AND THAT THE SUPERINTENDENT IN-CHARGE OR CONTRACTOR SHALL BE ON SITE ON ALL DAYS WHEN CONSTRUCTION OR GRADING ACTIVITY TAKES PLACE.
9. ROLLED EROSION CONTROL PRODUCTS (NETS, BLANKETS OR MATS) MUST BE FREE OF PLASTIC OR SYNTHETIC MATERIALS, EVEN IF LABELED 'BIODEGRADABLE' OR 'PHOTODEGRADABLE' THESE PRODUCTS MUST BE MADE WITH NATURAL FIBERS SUCH AS JUTE (NOT POLY JUTE) STRAW, SISAL OR COIR.
10. GARBAGE IS TO BE DISPOSED OF PROPERLY. SPILLS GENERATED FROM EQUIPMENT ARE TO BE CLEANED UP IMMEDIATELY.
11. TRENCH EXCAVATION MATERIAL TO BE PLACED ON HIGH SIDE OF TRENCH. ANY EXCESS EXCAVATED MATERIAL TO BE HAULED IMMEDIATELY OFF SITE AND DISPOSED OF AT APPROVED LOCATIONS. NO MATERIAL WILL BE STOCKPILED ON-SITE.
12. THE CONTRACTOR SHALL ONLY EXCAVATE THAT AMOUNT OF UTILITY AS CAN BE REMOVED AND REPLACED IN A SINGLE WORKING DAY AND SHALL BACKFILL OR COVER WITH STEEL PLATE ALL EXCAVATION AT THE END OF EACH WORKING DAY. NO OPEN UNCOVERED EXCAVATION WILL BE ALLOWED AFTER WORKING HOURS.
13. LOCATION OF CONCRETE WASHOUT TO BE SUBMITTED BY CONTRACTOR 14 DAYS PRIOR TO START OF CONSTRUCTION FOR APPROVAL BY ENGINEER AND INSPECTOR.
20. EQUIPMENT AND TIRE WASHING IS PROHIBITED ON THE CONSTRUCTION SITE.
21. ANY EQUIPMENT OR MATERIALS BEING BROUGHT TO THE CONSTRUCTION SITE MUST BE KEPT WITHIN THE PROJECT LIMITS.
22. ALL MILLINGS SHALL BE REMOVED FROM THE PROJECT SITE AND DISPOSED OF AT A NCDENR APPROVED LOCATION.

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes		
Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> Temporary grass seed covered with straw or other mulches and tackifiers Hydroseeding Rolled erosion control products with or without temporary grass seed Appropriately applied straw or other mulch Plastic sheeting 	<ul style="list-style-type: none"> Permanent grass seed covered with straw or other mulches and tackifiers Geotextile fabrics such as permanent soil reinforcement matting Hydroseeding Shrubs or other permanent plantings covered with mulch Uniform and evenly distributed ground cover sufficient to restrain erosion Structural methods such as concrete, asphalt or retaining walls Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
- Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
- Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
- Provide ponding area for containment of treated Stormwater before discharging offsite.
- Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

- Maintain vehicles and equipment to prevent discharge of fluids.
- Provide drip pans under any stored equipment.
- Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
- Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
- Remove leaking vehicles and construction equipment from service until the problem has been corrected.
- Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

- Never bury or burn waste. Place litter and debris in approved waste containers.
- Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
- Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
- Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
- Anchor all lightweight items in waste containers during times of high winds.
- Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
- Dispose waste off-site at an approved disposal facility.
- On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

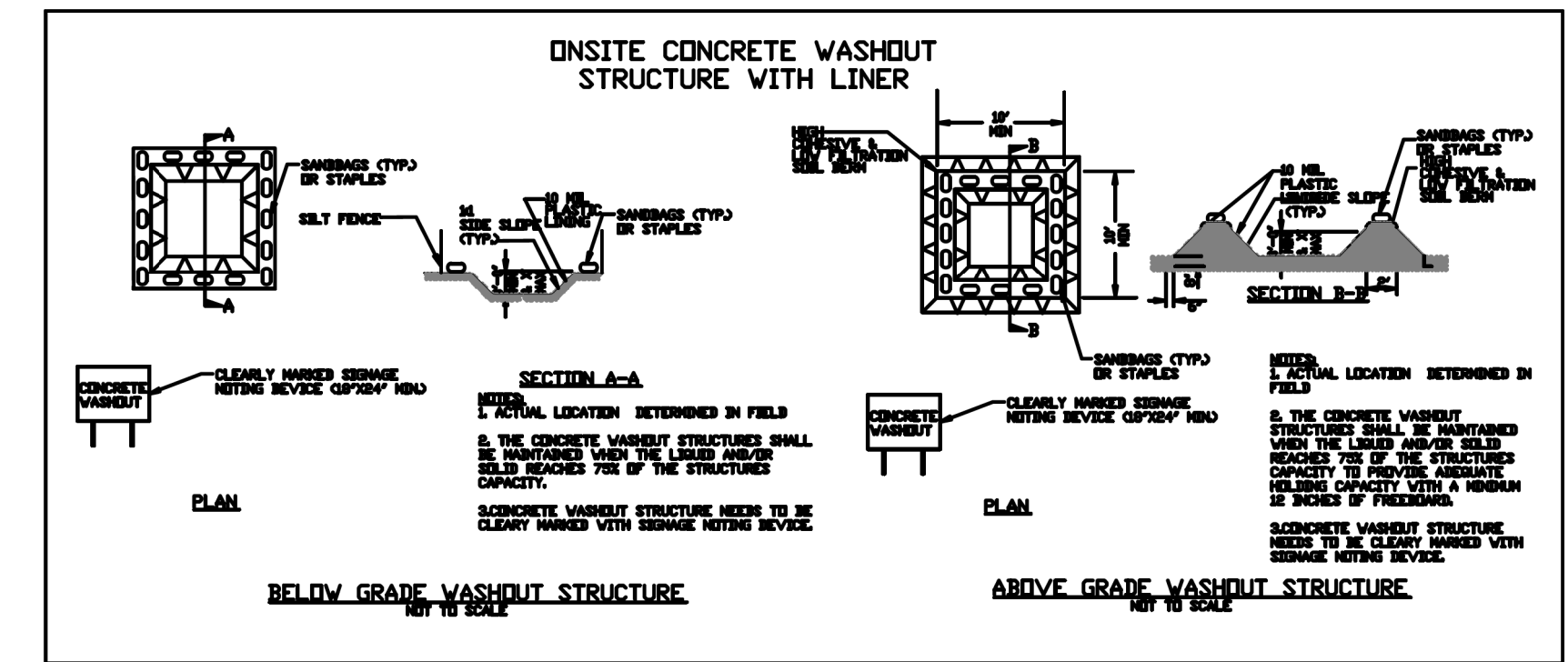
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
- Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
- Contain liquid wastes in a controlled area.
- Containment must be labeled, sized and placed appropriately for the needs of site.
- Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
- Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
- Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
- Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
- Provide stable stone access point when feasible.
- Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

- Do not discharge concrete or cement slurry from the site.
- Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
- Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
- Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
- Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
- Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
- Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
- Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
- Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
- At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

- Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
- Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
- Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
- Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

- Create designated hazardous waste collection areas on-site.
- Place hazardous waste containers under cover or in secondary containment.
- Do not store hazardous chemicals, drums or bagged materials directly on the ground.

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the site limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.



**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&SC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC Plan.	Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC Plan.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC Measures.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation

In addition to the E&SC Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- (a) This general permit as well as the certificate of coverage, after it is received.
- (b) Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- (c) All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

**PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING**

SECTION C: REPORTING

1. Occurrences that must be reported

- Permittees shall report the following occurrences:
- (a) Visible sediment deposition in a stream or wetland.
 - (b) Oil spills if:
 - They are 25 gallons or more,
 - They are less than 25 gallons but cannot be cleaned up within 24 hours,
 - They cause sheen on surface waters (regardless of volume), or
 - They are within 100 feet of surface waters (regardless of volume).
 - (a) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.
 - (b) Anticipated bypasses and unanticipated bypasses.
 - (c) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

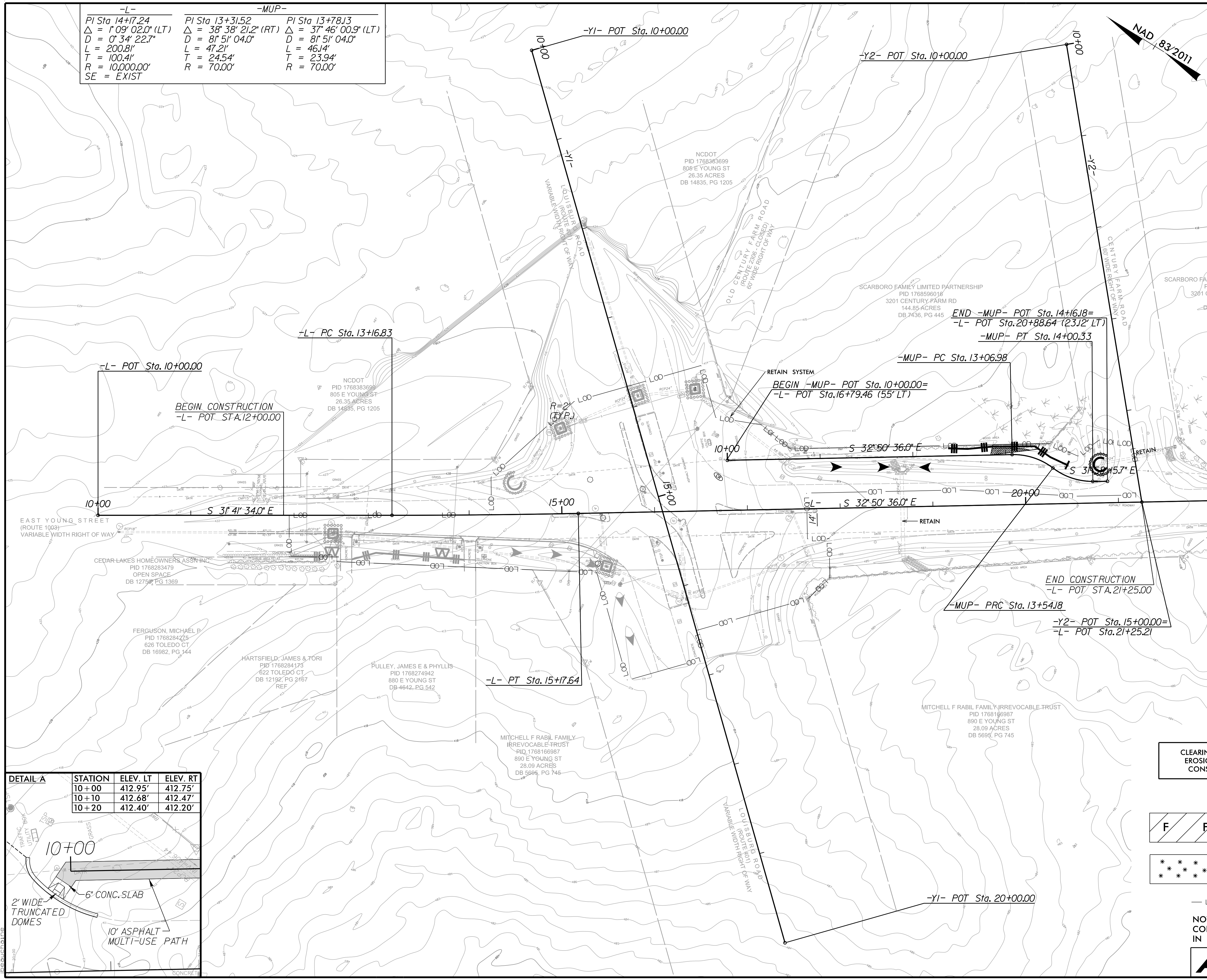
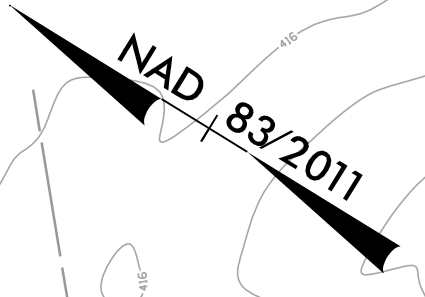
After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • A report at least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment [40 CFR 122.41(l)(7)]	<ul style="list-style-type: none"> • Within 24 hours, an oral or electronic notification. • Within 7 calendar days, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6). • Division staff may waive the requirement for a written report on a case-by-case basis.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

-L-	-MUP-	
PI Sta. 14+17.24	PI Sta. 13+31.52	PI Sta. 13+78.13
$\Delta = 1^{\circ}09'02.0''$ (LT)	$\Delta = 38^{\circ}38'21.2''$ (RT)	$\Delta = 37^{\circ}46'00.9''$ (LT)
D = 0' 34' 22.7"	D = 8' 51' 04.0"	D = 8' 51' 04.0"
L = 200.81'	L = 47.21'	L = 46.14'
T = 100.41'	T = 24.54'	T = 23.94'
R = 10,000.00'	R = 70.00'	R = 70.00'
SE = EXIST		



DETAIL A

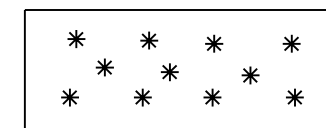
STATION	ELEV. LT	ELEV. RT
10+00	412.95'	412.75'
10+10	412.68'	412.47'
10+20	412.40'	412.20'

10+00
2' WIDE TRUNCATED DOMES
6" CONC. SLAB
10' ASPHALT MULTI-USE PATH

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET



**DENOTES FILL IN
WETLAND**



**DENOTES MECHANIZED
CLEARING**

— LOD — LIMITS OF DISTURBANCE

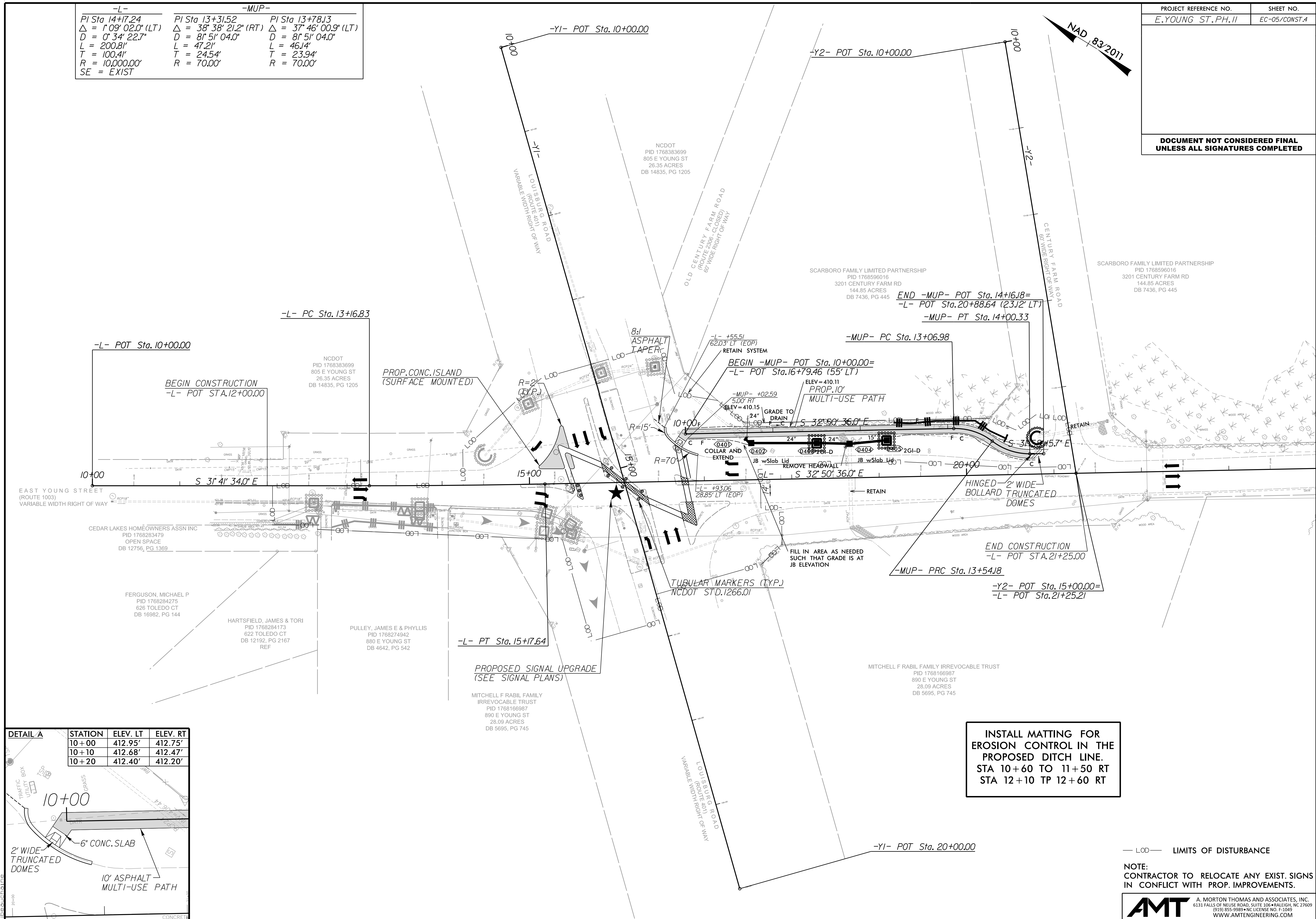
NOTE:
CONTRACTOR TO RELOCATE ANY EXIST. SIGNS
IN CONFLICT WITH PROP. IMPROVEMENTS.

8/20/2021 X:\Projects\16-0940\001 - Rolesville E Young St.Side\05-CAD\16-0940\001-Hydraulics\EROSION CONTROL\10ft.MUP\16-0940_EC_PSH_04.dgn

-L-	-MUP-	
PI Sta. 14+17.24	PI Sta. 13+31.52	PI Sta. 13+78.13
$\Delta = 1^{\circ}09'02.0"$ (LT)	$\Delta = 38^{\circ}38'21.2"$ (RT)	$\Delta = 37^{\circ}46'00.9"$ (LT)
$D = 0^{\circ}34'22.7"$	$D = 81^{\circ}51'04.0"$	$D = 81^{\circ}51'04.0"$
$L = 200.81'$	$L = 47.21'$	$L = 46.14'$
$T = 100.41'$	$T = 24.54'$	$T = 23.94'$
$R = 10,000.00'$	$R = 70.00'$	$R = 70.00'$
SE = EXIST		

PROJECT REFERENCE NO.	SHEET NO.
E. YOUNG ST. PH. II	EC-05/CONST. 4

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



DETAIL A

STATION	ELEV. LT	ELEV. RT
10+00	412.95'	412.75'
10+10	412.68'	412.47'
10+20	412.40'	412.20'

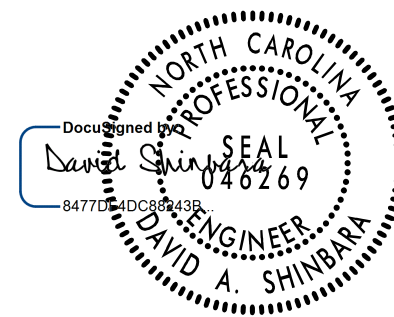
DETAIL A shows a cross-section of the proposed path. It includes a 6" CONC. SLAB, a 10' ASPHALT MULTI-USE PATH, and 2' WIDE TRUNCATED DOMES. The diagram also shows a utility box and a traffic sign.

**INSTALL MATTING FOR EROSION CONTROL IN THE PROPOSED DITCH LINE.
STA 10+60 TO 11+50 RT
STA 12+10 TP 12+60 RT**

X:\Projects\16-0940\001 - Rolesville E Young St. Side\05-CAD\16-0940\001-Hydraulics\EROSION CONTROL\10ft_MUP_16-0940_EC_PSH_05.dgn
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING AND SIGNING PLAN
WAKE COUNTY

TIP NO.	SHEET NO.
E. YOUNG ST. PH. II	PMP-1
APPROVED: _____	
DATE: _____	
SEAL	
	
8/25/2021	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

INDEX	
SHEET NO.	DESCRIPTION
PMP-1	PAVEMENT MARKING PLAN TITLE AND SCHEDULE SHEET
PMP-2	CROSSWALK PAVEMENT MARKING GUIDANCE DETAIL
PMP-3	PAVEMENT MARKING DETAIL

PAVEMENT MARKING SCHEDULE	
SYMBOL	DESCRIPTION
	FINAL PAVEMENT MARKINGS
	THERMOPLASTIC (24", 120 MILS)
T2	WHITE STOPBAR
	THERMOPLASTIC (4", 120 MILS)
T8	WHITE 2' - 6'/SP MINI-SKIP
TC	WHITE 10' SKIP
TD	WHITE 3' - 9'/SP MINI-SKIP
TE	WHITE SOLID LANE LINE
TH	YELLOW SINGLE CENTER
TI	YELLOW DOUBLE CENTER
	THERMOPLASTIC (4", 90 MILS)
TA	WHITE EDGE LINE
	THERMOPLASTIC (8", 120 MILS)
TP	YELLOW DIAGONAL
TQ	WHITE CROSSWALK LINE
	THERMOPLASTIC PAVEMENT MARKING SYMBOLS (90 MILS)
UA	LEFT TURN ARROW
UB	RIGHT TURN ARROW
UC	STRAIGHT ARROW
UE	COMBO STRAIGHT/ RIGHT
UJ	HELMETED BICYCLE SYMBOL
UK	STRAIGHT ARROW, BIKE LANE

GENERAL NOTES

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

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

ROAD NAME	MARKING	MARKER
EAST YOUNG STREET	THERMOPLASTIC	N/A
- B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.
- C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.
- D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.
- E) STOP BAR LOCATION AT NON-SIGNALIZED INTERSECTIONS MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER.
- F) REMOVE ALL RESIDUE AND SURFACE LAITANCE BY ACCEPTABLE METHODS ON CONCRETE BRIDGE DECKS PRIOR TO PLACING (insert marking material) PAVEMENT MARKING MATERIAL.
- G) UNLESS OTHERWISE SPECIFIED, HEATED-IN-PLACE THERMOPLASTIC MAY BE USED IN LIEU OF EXTRUDED THERMOPLASTIC FOR STOP BARS, SYMBOLS, CHARACTERS AND DIAGONALS. IF HEATED-IN-PLACE IS USED, IT SHALL BE PAID FOR USING THE EXTRUDED THERMOPLASTIC PAY ITEM.
- H) ALL BICYCLE LANE SYMBOLS SHALL BE HEATED-IN-PLACE THERMOPLASTIC. SYMBOLS SHALL BE PAID FOR USING THE HEATED-IN-PLACE PAY ITEM.
- I) SEE ROADWAY PLANS FOR ALTERNATE CURB RAMP DESIGNS WHEN INDICATED ON PAVEMENT MARKING DETAIL SHEETS.

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
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS
1205.05	PAVEMENT MARKINGS - TURN LANES
1205.06	PAVEMENT MARKINGS - LANE DROPS
1205.08	PAVEMENT MARKINGS - SYMBOLS AND WORD MESSAGES
1205.09	PAVEMENT MARKINGS - PAINTED ISLANDS
1250.01	RAISED PAVEMENT MARKERS - INSTALLATION SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1253.01	RAISED PAVEMENT MARKERS - SNOWPLOWABLE

PLAN PREPARED BY: A.MORTON THOMAS & ASSOCIATES

David A. Shinbara, P.E. PROJECT ENGINEER

Mohammed Fallaha, P.E. DESIGN ENGINEER

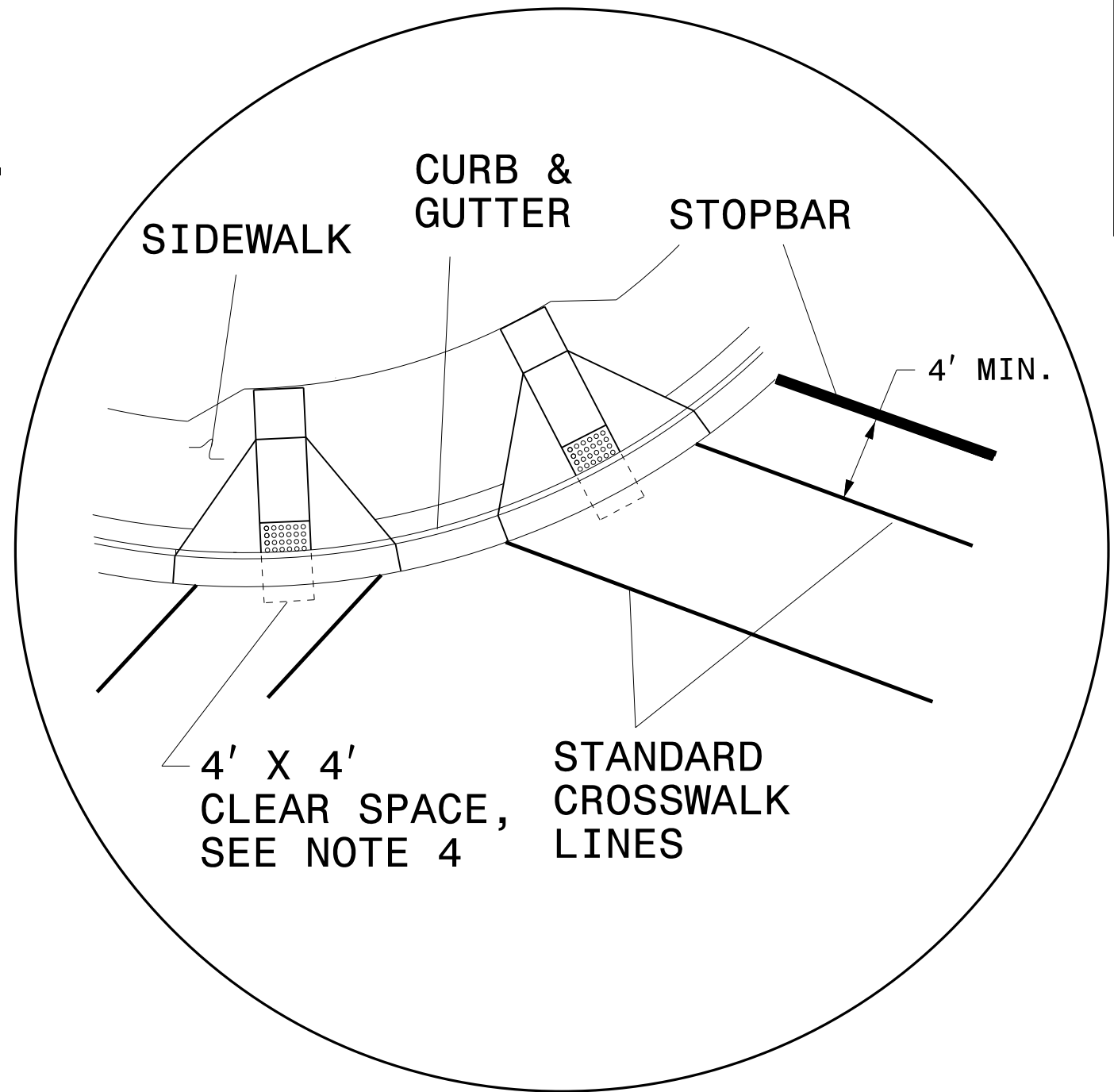
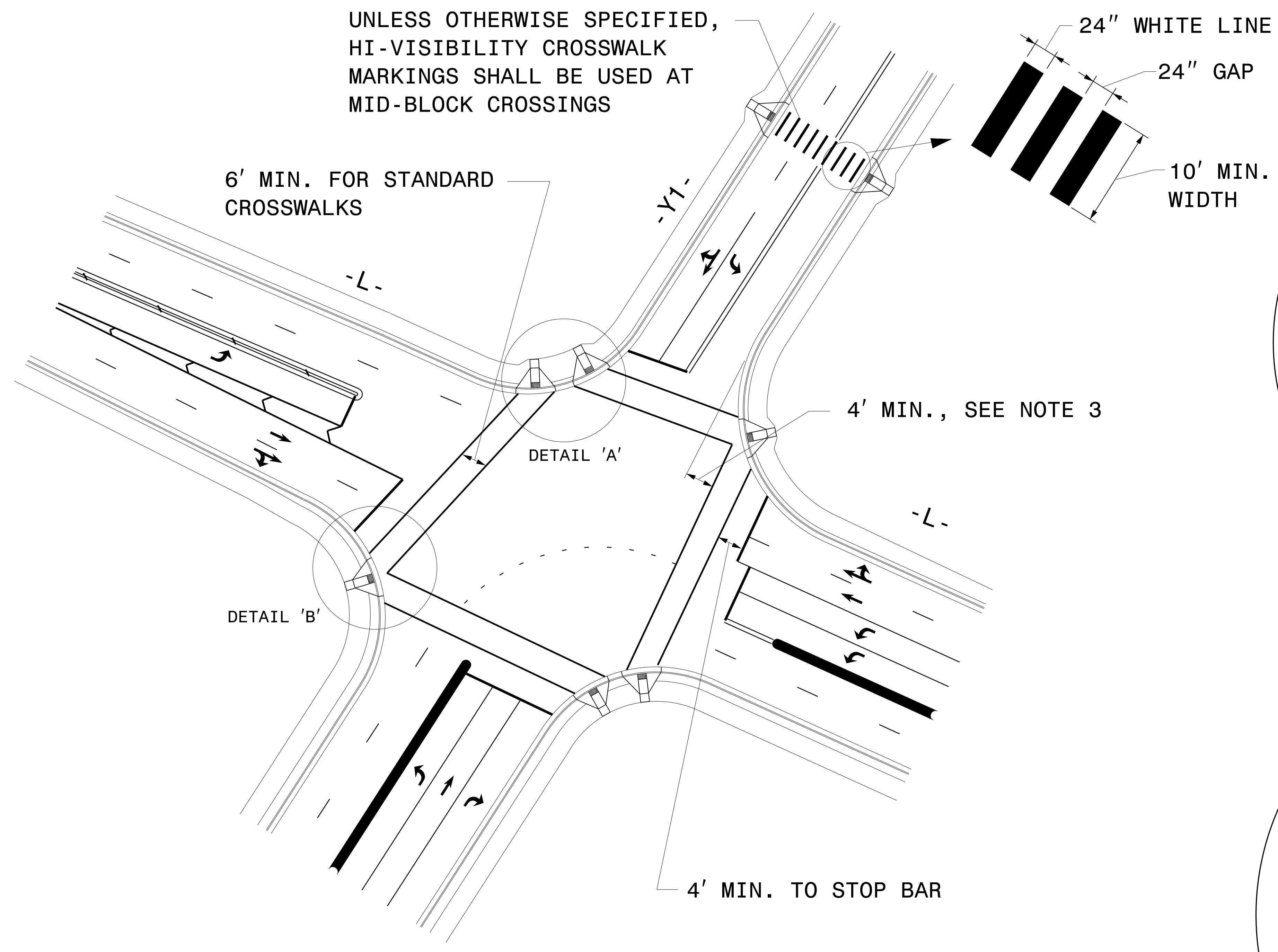
AMT

A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 100 RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
WWW.AMTENGINEERING.COM

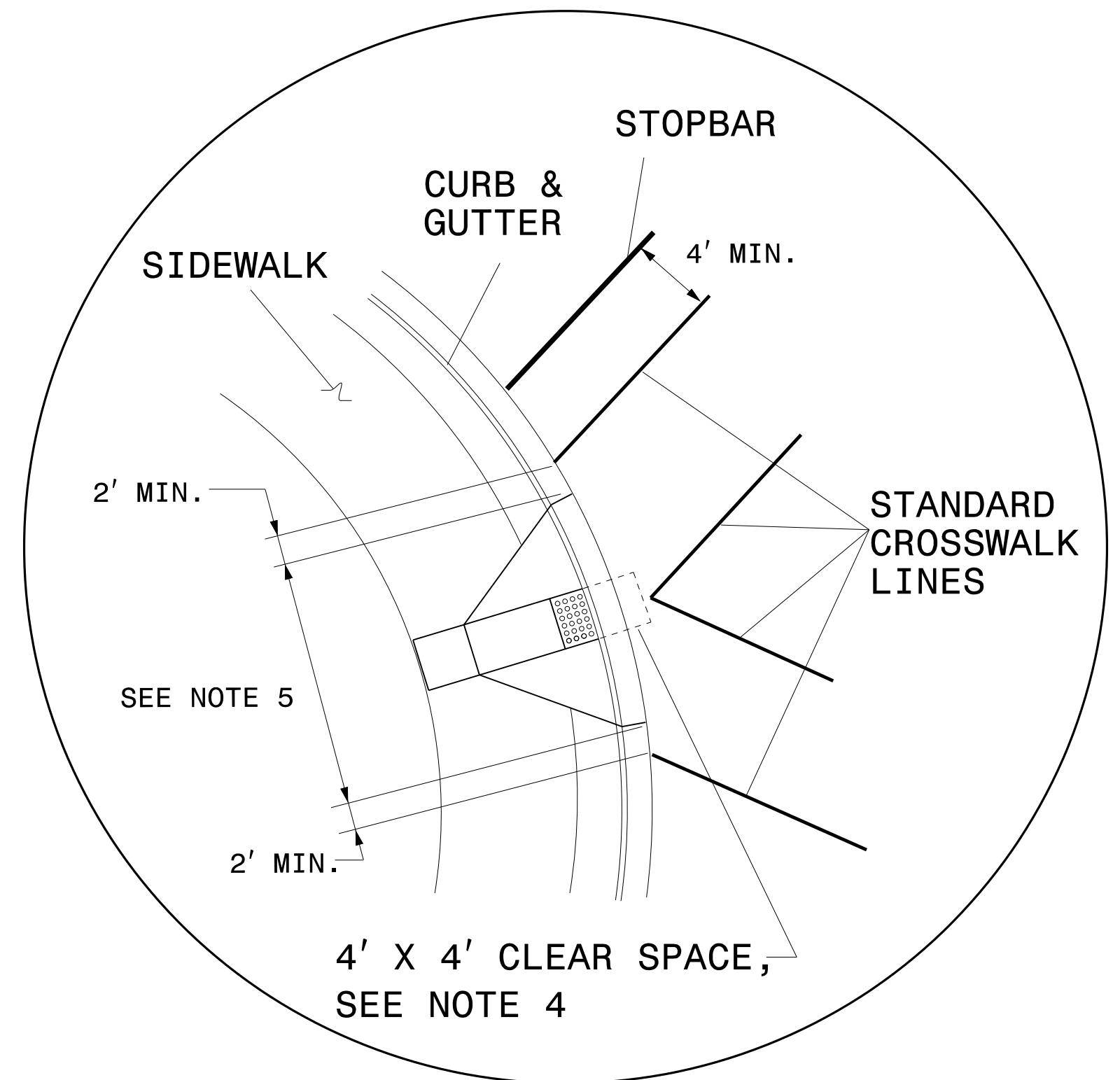
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TOWN OF ROLESVILLE

TIP NO.	SHEET NO.
E. YOUNG ST., PH. II	PMP-2
APPROVED: _____	
DATE: _____	
SEAL	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



DETAIL 'A'- DUAL CURB RAMPS



DETAIL 'B'- SINGLE DIAGONAL CURB RAMP

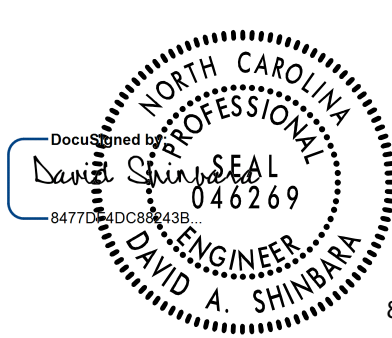
GUIDANCE DETAIL FOR CROSSWALK MARKINGS

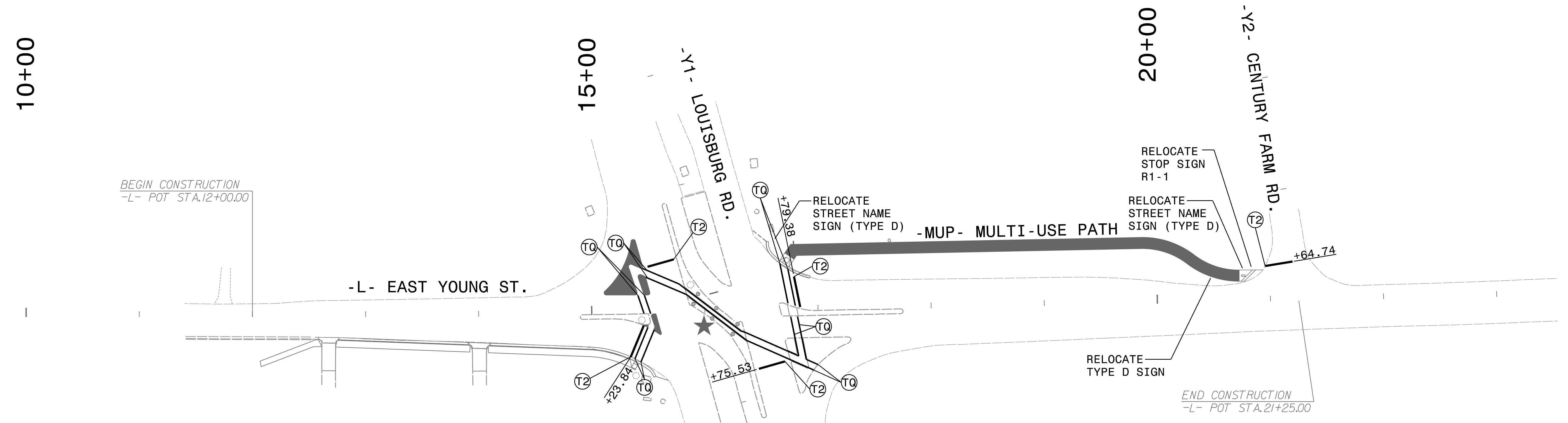
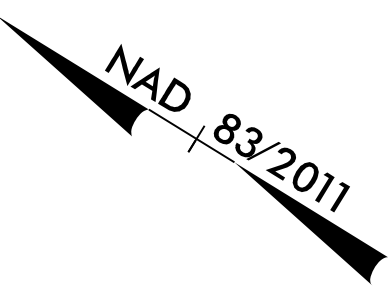
NOTES:

1. USE THE DETAILS ABOVE AND THE FOLLOWING NOTES FOR GUIDANCE IN PLACING CROSSWALK MARKINGS NOT STATIONED ON THE DETAIL SHEETS OR WHEN FIELD ADJUSTMENTS REQUIRED MOVING STATIONED MARKINGS AS DIRECTED BY THE ENGINEER. REFER TO NCDOT ROADWAY STANDARD DRAWINGS, MUTCD AND ADA STANDARDS FOR ADDITIONAL GUIDANCE.
2. THE CROSSWALK MARKINGS SHOWN ON THE ABOVE DETAILS ARE FOR REFERENCE ONLY. ONLY INSTALL CROSSWALK MARKINGS WHERE SHOWN ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER. THE CROSSWALK MARKING TYPE, STANDARD OR HI-VISIBILITY, SHALL BE INSTALL AS SPECIFIED ON THE DETAIL SHEETS OR AS DIRECTED BY THE ENGINEER.
3. SET BACK DISTANCE FROM INSIDE CROSSWALK MARKING TO NEAREST EDGE OF TRAVEL IS 4' MIN.
4. BEYOND THE BOTTOM GRADE BRAKE, A CLEAR SPACE OF 4' X 4' MINIMUM SHALL BE PROVIDED WITHIN THE MARKINGS.
5. SINGLE DIAGONAL CURB RAMPS WITH FLARED SIDES SHALL HAVE A SEGMENT OF CURB 2 FEET LONG MINIMUM LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING, SEE DETAIL 'B'.
6. CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE TO THE LATEST NCDOT ROADWAY STANDARD DRAWINGS.

**CROSSWALK PAVEMENT MARKING
GUIDANCE DETAIL**

8/20/2021
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 David A. Shinbuka
 Professional Engineer
 State of North Carolina
 License No. 048269
 8/25/2021

TIP NO.	SHEET NO.
E. YOUNG ST. PH. II	PMP-3
APPROVED:	_____
DATE:	_____
SEAL	 8/25/2021
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



8/20/2021
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 jbeauchaine

NOTE:
 CONTRACTOR TO MAINTAIN EXIST. PAVEMENT MARKINGS, EXCEPT WHERE THEY CONFLICT WITH PROPOSED MARKINGS AS SHOWN ABOVE. CONFLICTING EXIST. PAVEMENT MARKINGS TO BE REMOVED BY METHOD LEAST DAMAGING TO PAVEMENT.



**PAVEMENT MARKING
DETAIL**

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME
US 401, EAST YOUNG STREET

DAY AND TIME RESTRICTIONS
MONDAY - FRIDAY 6:00 A.M. TO 9:00 A.M. AND 4:00 P.M. TO 7:00 P.M.

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

ROAD NAME
US 401
EAST YOUNG STREET

HOLIDAY

- FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 7:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- FOR MEMORIAL DAY, BETWEEN THE HOURS OF 6:00 A.M. FRIDAY TO 7:00 P.M. TUESDAY.
- FOR INDEPENDENCE DAY, BETWEEN THE HOURS OF 6:00 A.M. THE DAY BEFORE INDEPENDENCE DAY AND 7:00 P.M. THE DAY AFTER INDEPENDENCE DAY.

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

C) DO NOT CLOSE ROADS AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
US 401	ANYTIME
EAST YOUNG STREET	ANYTIME

D) DO NOT CONDUCT ANY HAULING OPERATIONS AGAINST THE FLOW OF TRAFFIC OF AN OPEN TRAVELWAY UNLESS THE HAULING OPERATION IS PROTECTED BY BARRIER OR GUARDRAIL OR AS DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

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

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

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

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO A DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

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

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

PAVEMENT EDGE DROP OFF REQUIREMENTS

J) BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS AN EDGE OF PAVEMENT DROP-OFF AS FOLLOWS:

BACKFILL DROP-OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

BACKFILL DROP-OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

BACKFILL WITH SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER, AT NO EXPENSE TO THE DEPARTMENT.

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

TRAFFIC PATTERN ALTERATIONS

L) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

M) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

N) PROVIDE SIGNING AND DEVICES REQUIRED TO CLOSE THE ROAD ACCORDING TO THE ROADWAY STANDARD DRAWINGS AND TRAFFIC CONTROL PLANS.

PROVIDE SIGNING REQUIRED FOR THE OFF-SITE DETOUR ROUTE AS SHOWN IN THE TRAFFIC CONTROL PLANS.

O) COVER OR REMOVE ALL SIGNS AND DEVICES REQUIRED TO CLOSE THE ROAD WHEN ROAD CLOSURE IS NOT IN OPERATION.

COVER OR REMOVE ALL SIGNS REQUIRED FOR THE OFF-SITE DETOUR WHEN THE DETOUR IS NOT IN OPERATION

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

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

TRAFFIC CONTROL DEVICES

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

S) SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH), EXCEPT 10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY, WHEN LANE CLOSURES ARE NOT IN EFFECT. WHEN SKINNY DRUMS ARE ALLOWED, REFER TO SECTION 1180 OF STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES OR AS SHOWN IN THE PLANS.

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

MISCELLANEOUS

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

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

W) ALL CURB RAMP LOCATIONS SHALL BE DERIVED FROM STATIONING SHOWN ON PAVEMENT MARKING PLANS OR AS DIRECTED BY THE ENGINEER IN COORDINATION WITH THE SIGNING AND DELINEATION UNIT.

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

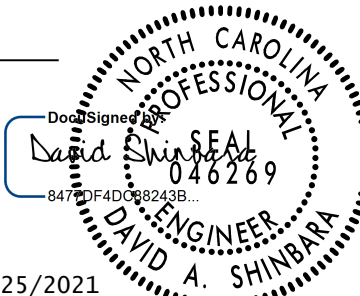
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ibeuchaine



A. MORTON THOMAS AND ASSOCIATES, INC.
6131 FALLS OF NEUSE ROAD, SUITE 104 RALEIGH, NC 27609
(919) 855-9989 • NC LICENSE NO. F-1049
WWW.AMTENGINEERING.COM

APPROVED: _____

DATE: _____



8/25/2021

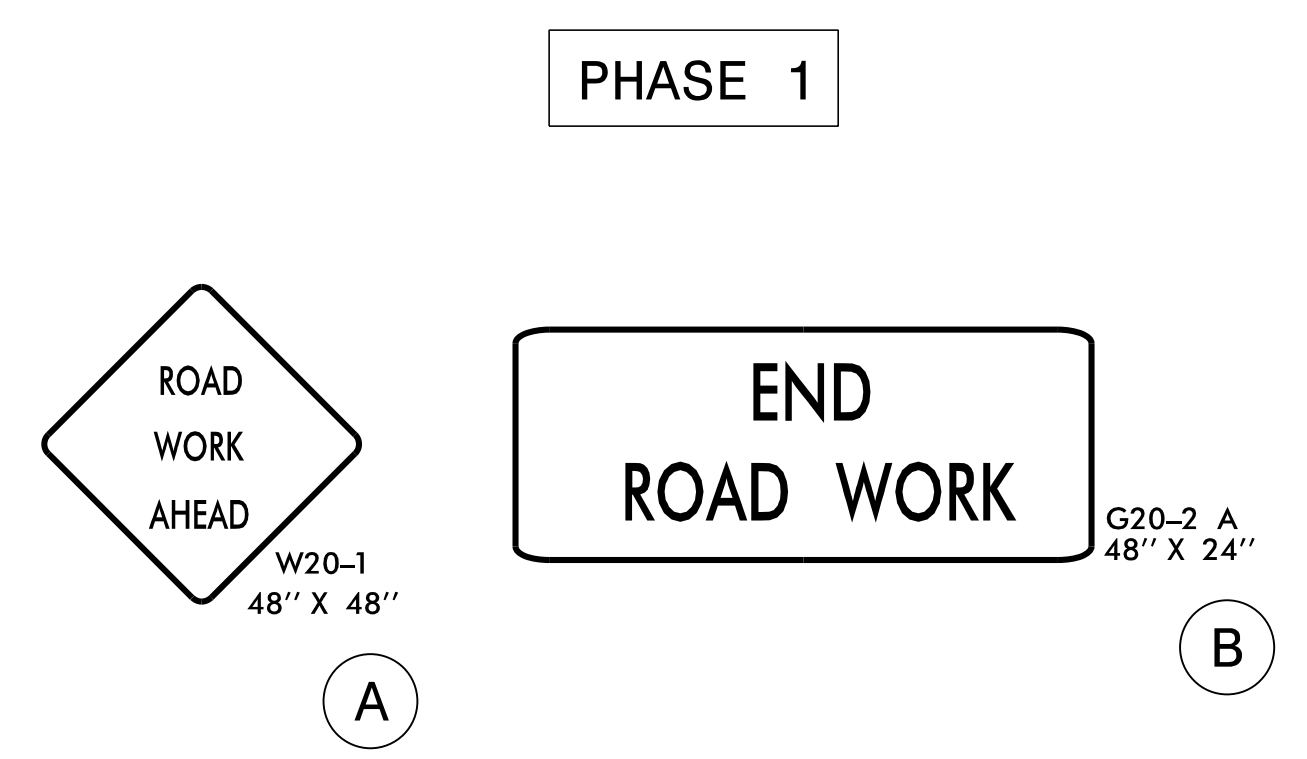
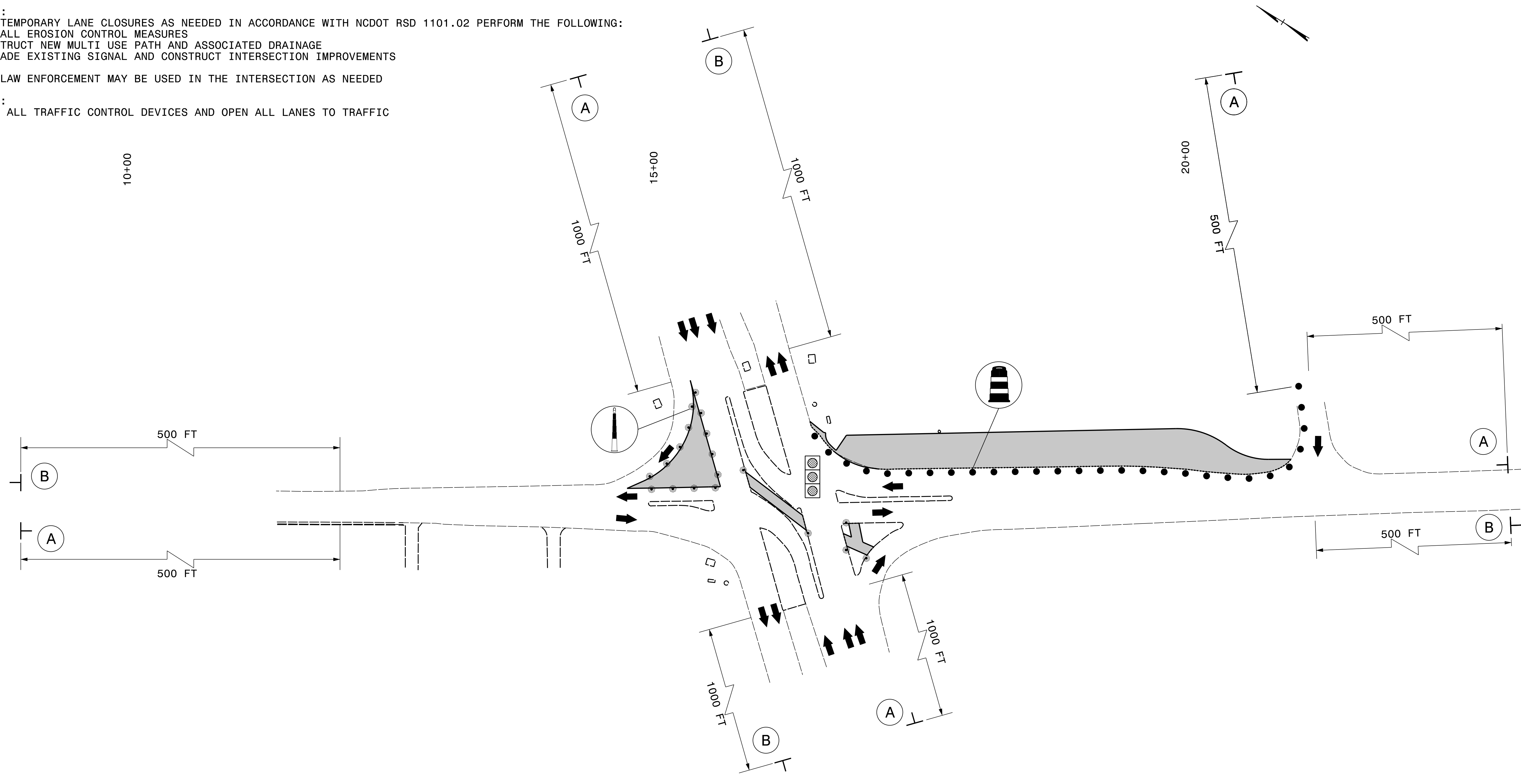
**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

PHASE 1
STEP 1:
 INSTALL ADVANCE WARNING SIGNS IN ACCORDANCE WITH THE PLANS AND NCDOT RSD 1101.01

STEP 2:
 USING TEMPORARY LANE CLOSURES AS NEEDED IN ACCORDANCE WITH NCDOT RSD 1101.02 PERFORM THE FOLLOWING:
 - INSTALL EROSION CONTROL MEASURES
 - CONSTRUCT NEW MULTI USE PATH AND ASSOCIATED DRAINAGE
 - UPGRADE EXISTING SIGNAL AND CONSTRUCT INTERSECTION IMPROVEMENTS

NOTE: LAW ENFORCEMENT MAY BE USED IN THE INTERSECTION AS NEEDED

STEP 3:
 REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN ALL LANES TO TRAFFIC



LEGEND

- DIRECTION OF TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- WORK AREA
- DRUM
- STATIONARY SIGN

APPROVED: _____
 DATE: _____

8/25/2021

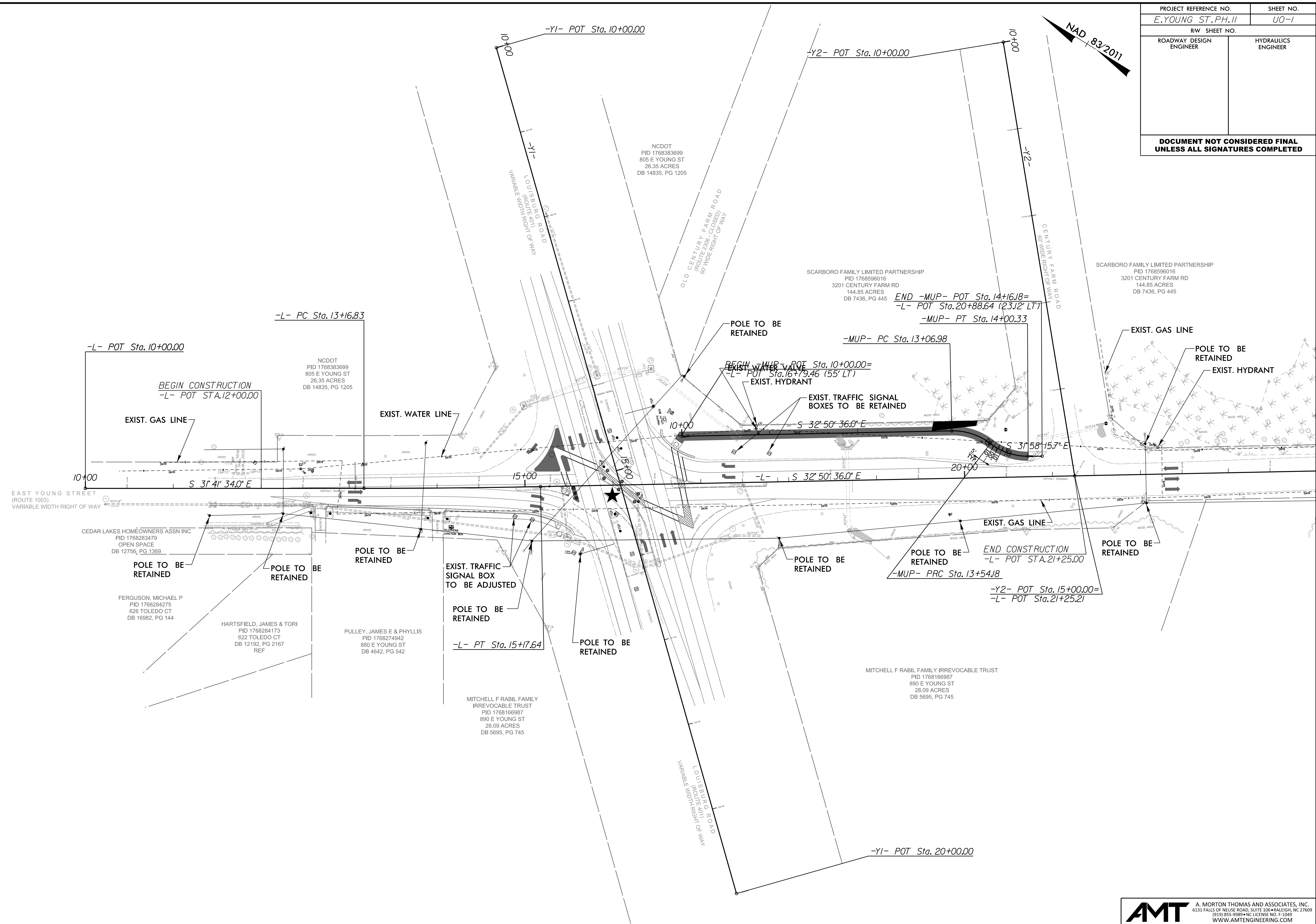
AMT A. MORTON THOMAS AND ASSOCIATES, INC.
 6131 FALLS OF NEUSE ROAD, SUITE 104 RALEIGH, NC 27609
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 UNLESS ALL SIGNATURES COMPLETED**

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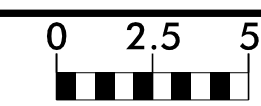
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PROJECT REFERENCE NO. <i>E. YOUNG ST. PH. II</i>	SHEET NO. <i>U0-1</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

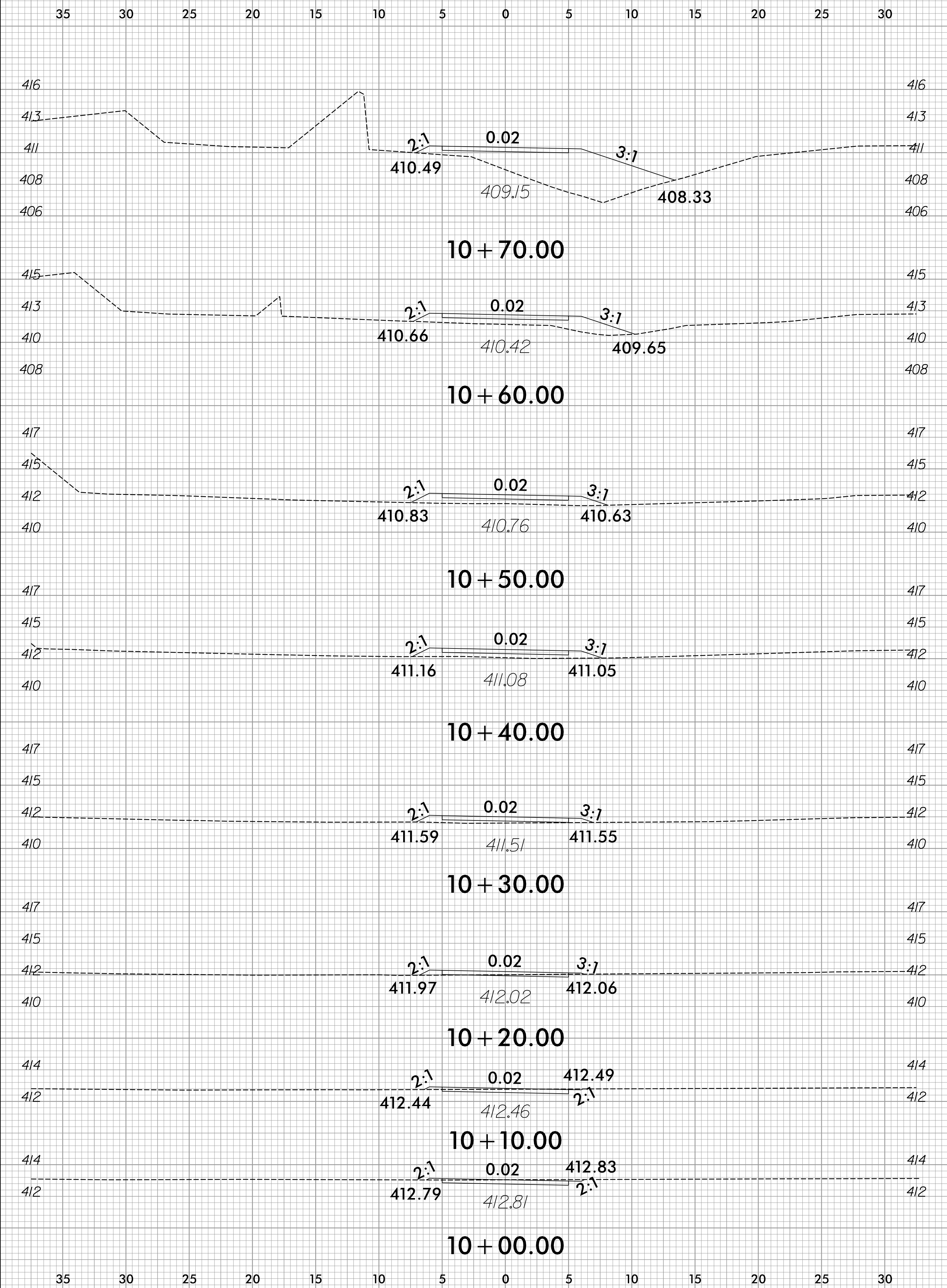


8/20/2021
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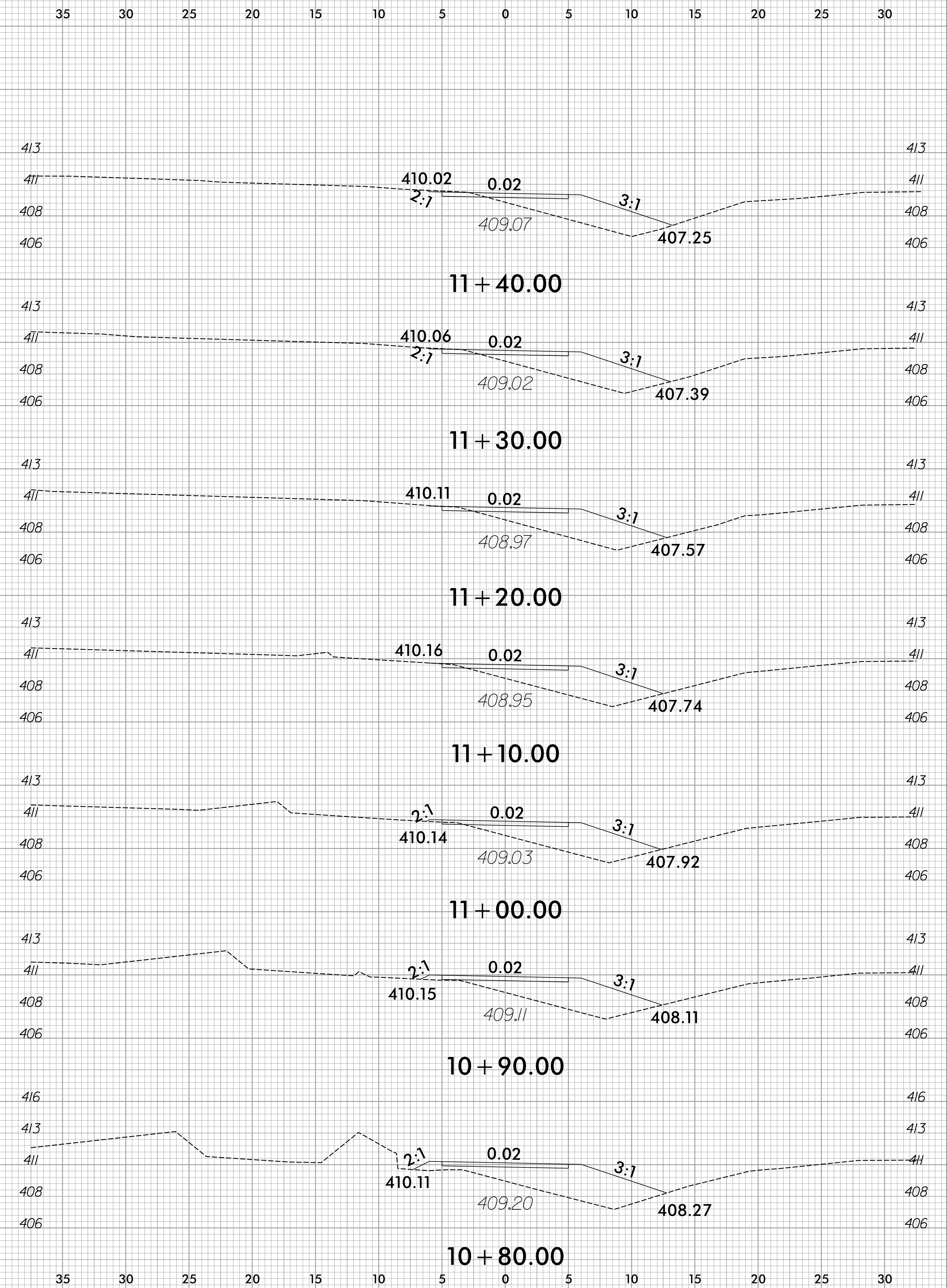
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
E. YOUNG ST. PH. II	X-1



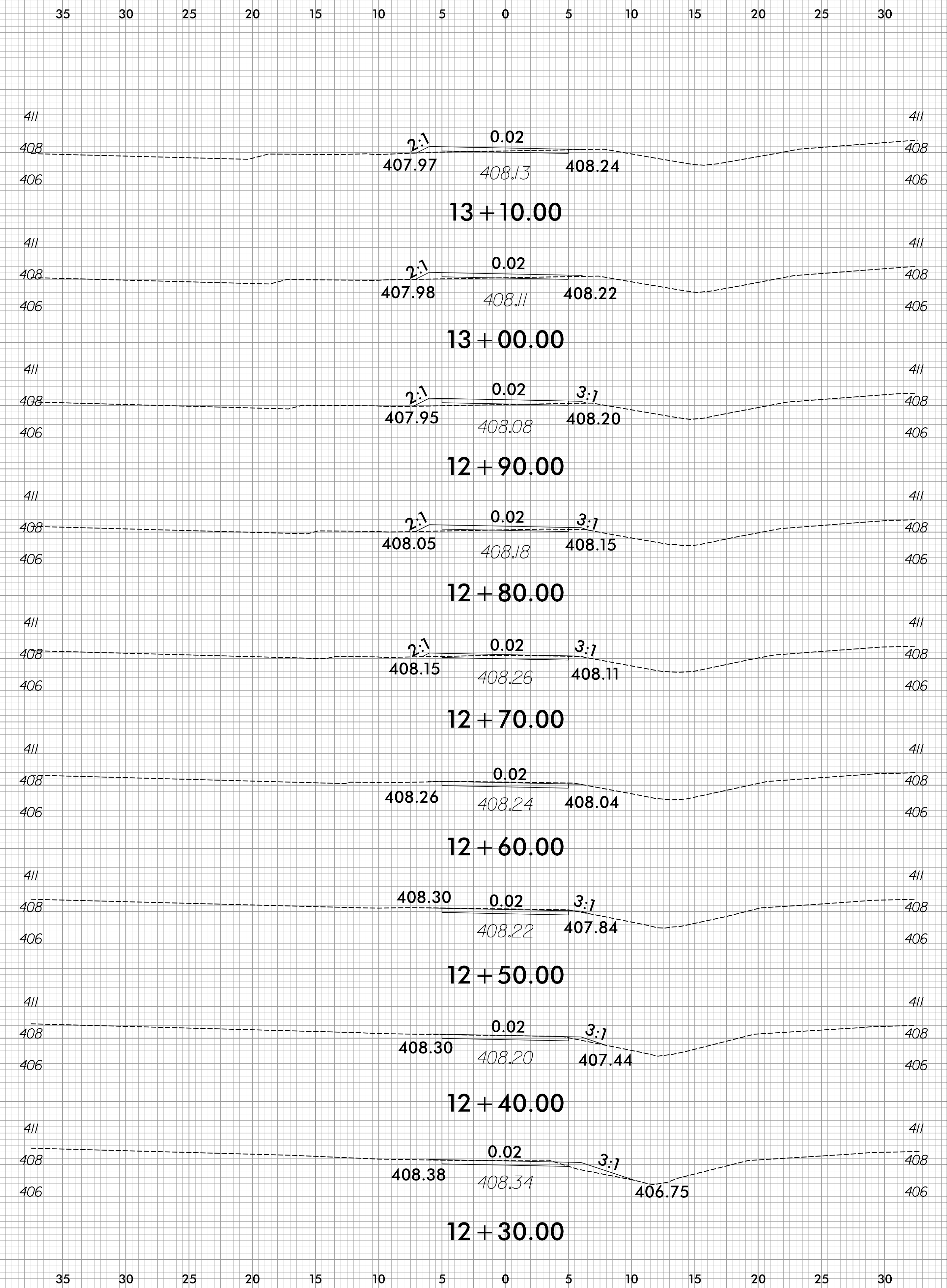
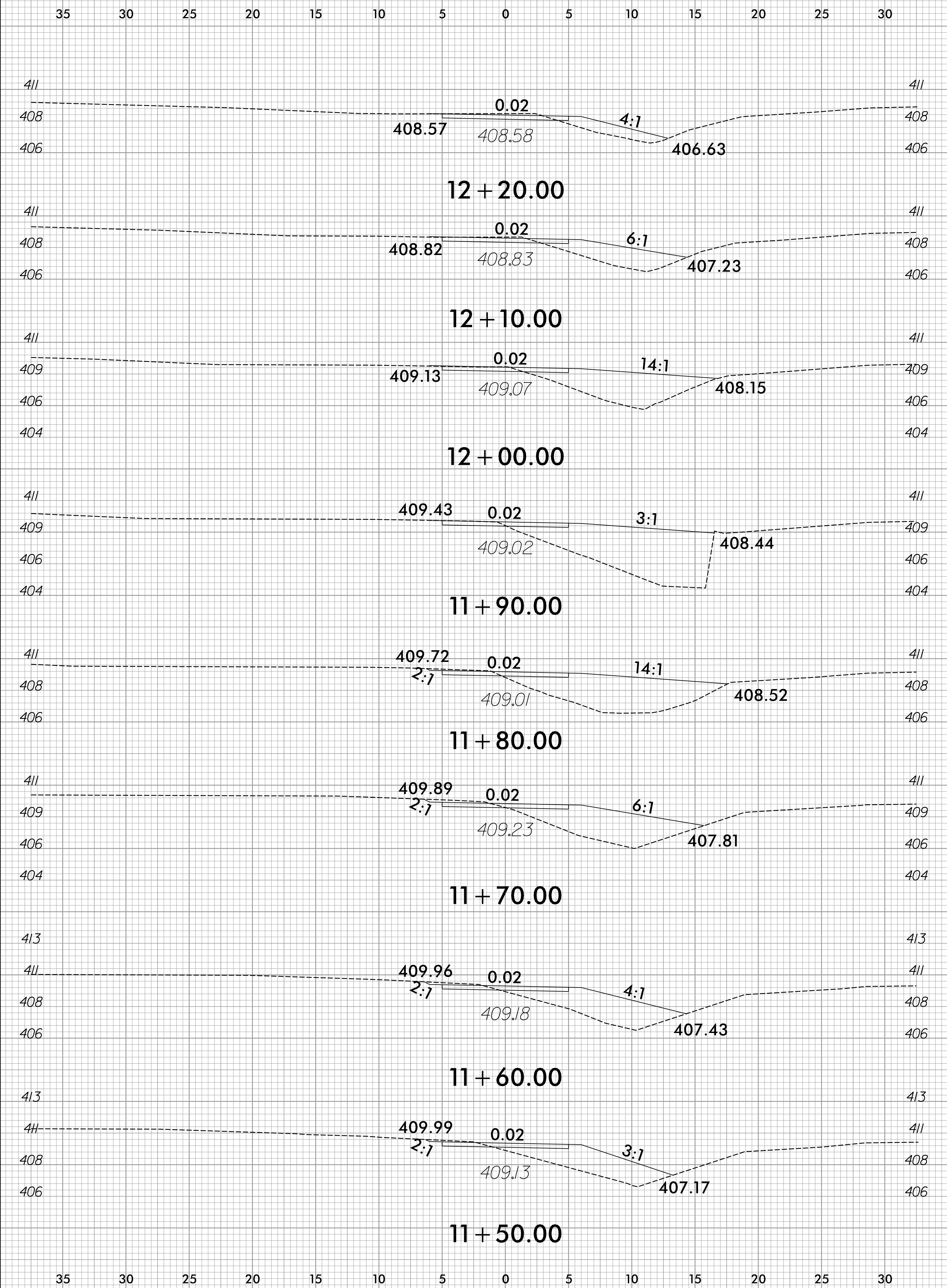
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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
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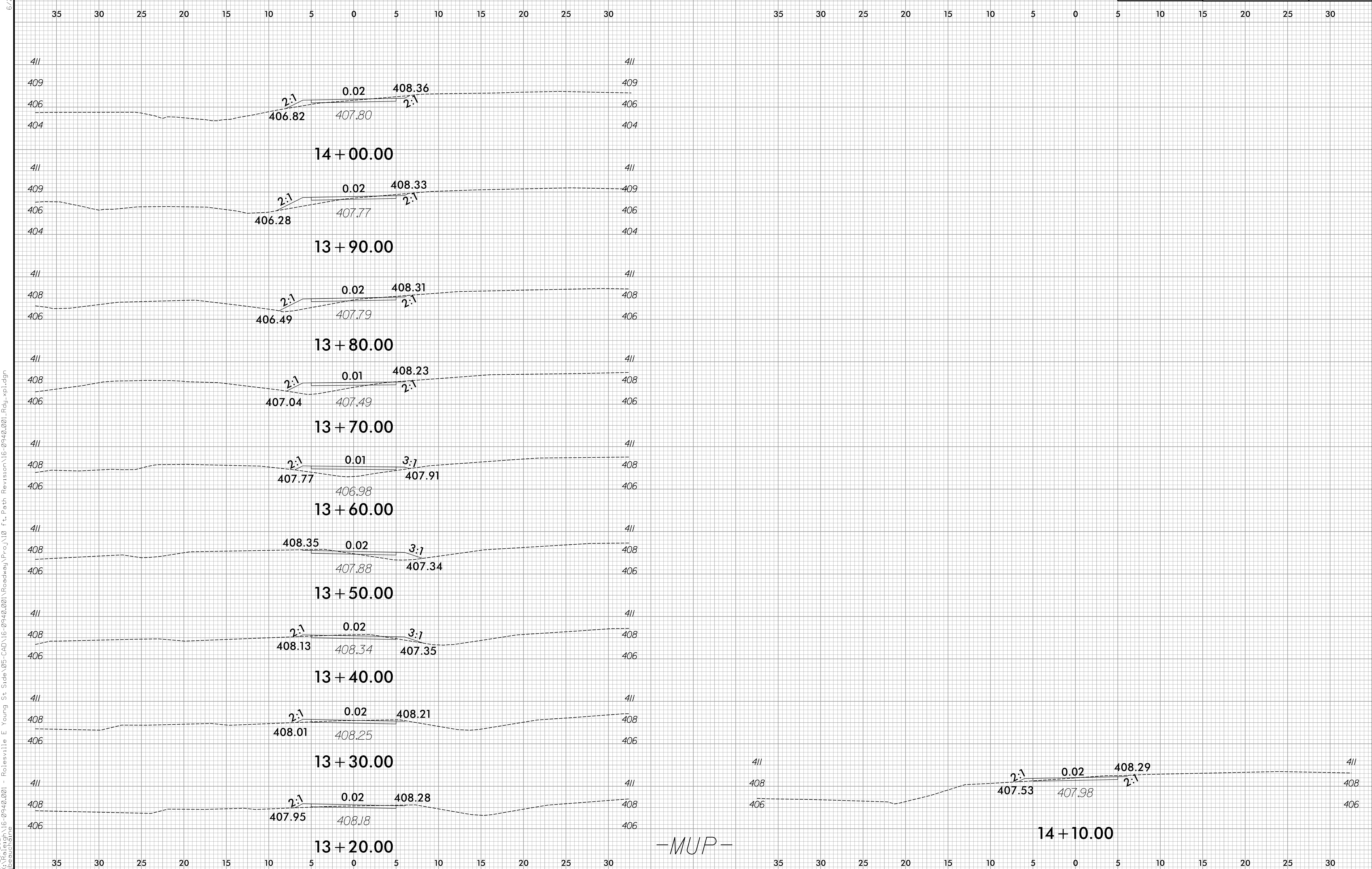


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6/23/16

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	E. YOUNG ST. PH. 11	X-3

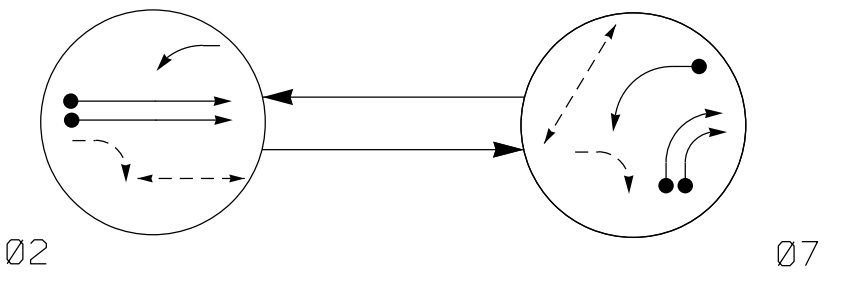


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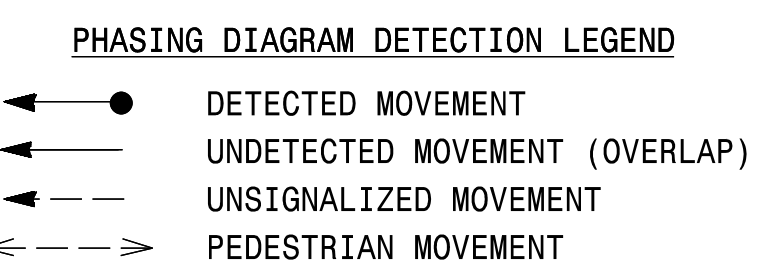
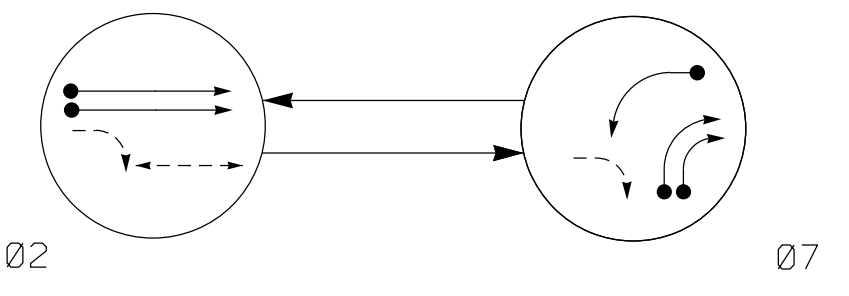
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2 Phase Fully Actuated w/ EV Preemption
US 401 Bypass (Rolesville) CLS
Signal System #: 10552

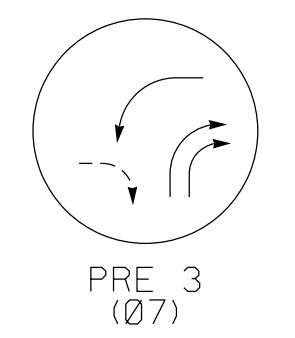
DEFAULT PHASING DIAGRAM



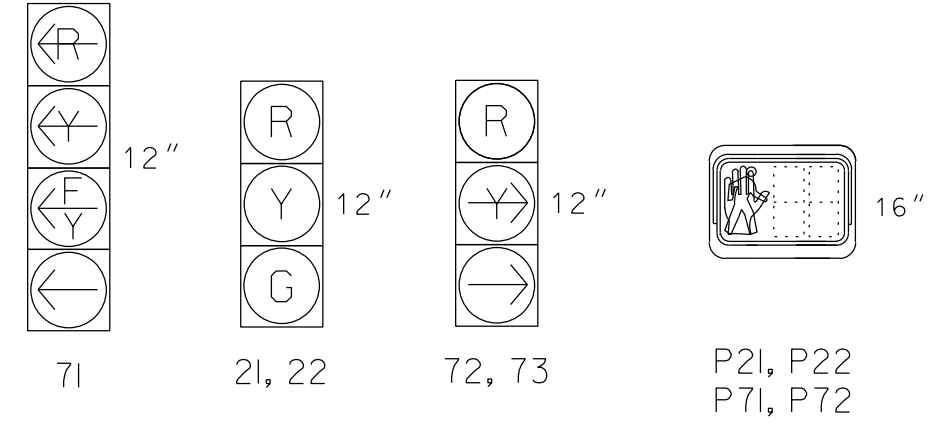
ALTERNATE PHASING DIAGRAM



EV PREEMPT PHASES
(Medium Priority)



SIGNAL FACE I.D.
All Heads L.E.D.



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02	07	PRE 3	FLASH
21, 22	G	R	R	Y
71	←	→	←	→
72, 73	R	←	→	R
P21, P22	W	DW	DW	DRK
P71, P72	DW	W	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	02	07	PRE 3	FLASH
21, 22	G	R	R	Y
71	←	→	←	→
72, 73	R	←	→	R
P21, P22	W	DW	DW	DRK
P71, P72	DW	W	DW	DRK

W - Walk
 DW - Don't Walk
 DRK - Dark

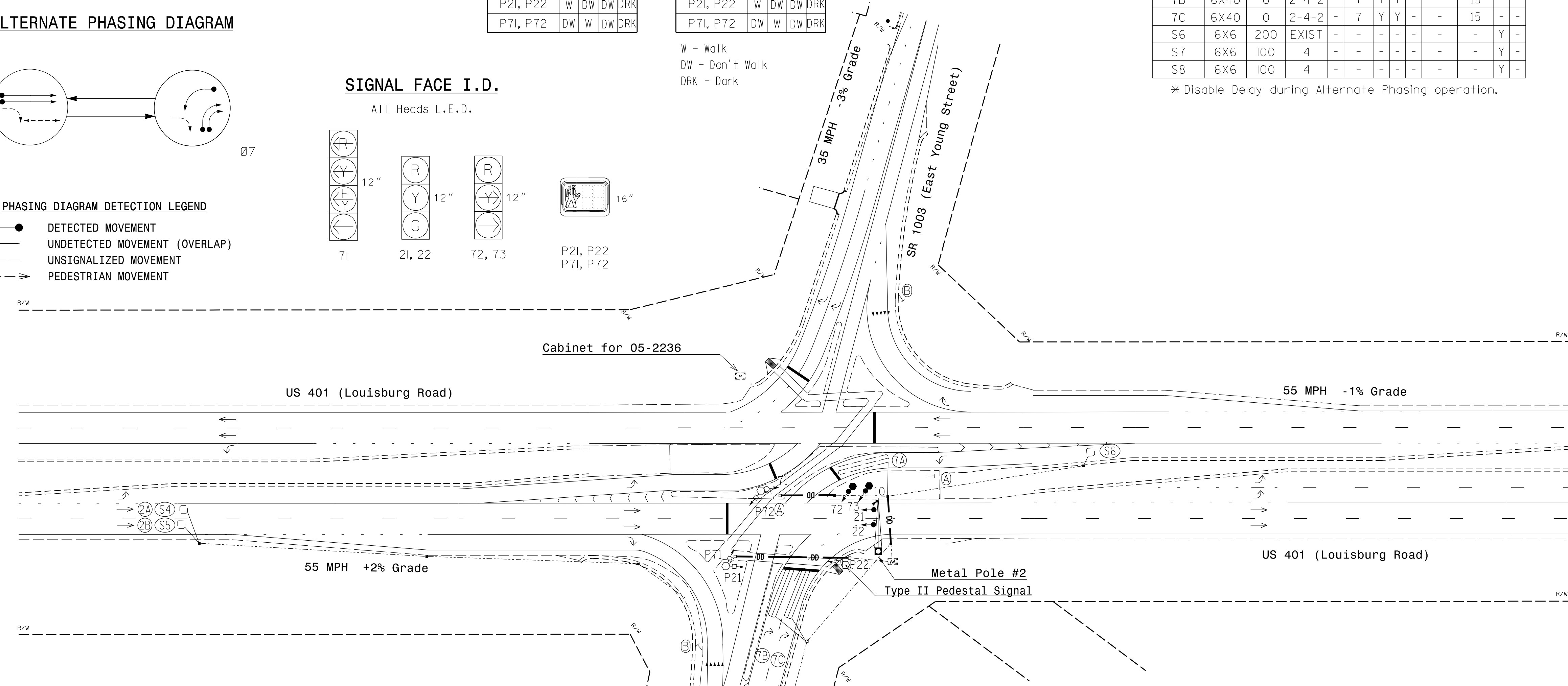
OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	NEW LOOP	DETECTOR PROGRAMMING				SYSTEM LOOP	NEW CARD	
					PHASE	CALLING	EXTENSION	FULL TIME DELAY			
2A/S4	6X6	420	EXIST	-	2	Y	Y	-	-	Y	-
2B/S5	6X6	420	EXIST	-	2	Y	Y	-	-	Y	-
7A	6X40	0	2-4-2	-	7	Y	Y	-	-	15*	-
7B	6X40	0	2-4-2	-	7	Y	Y	-	-	15	-
7C	6X40	0	2-4-2	-	7	Y	Y	-	-	15	-
S6	6X6	200	EXIST	-	-	-	-	-	-	Y	-
S7	6X6	100	4	-	-	-	-	-	-	Y	-
S8	6X6	100	4	-	-	-	-	-	-	Y	-

* Disable Delay during Alternate Phasing operation.

NOTES

- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "DON'T WALK" time only.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls PRE 3.
- 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.
- Closed loop system data:
 Master Asset #: 10552,
 Controller Asset #: 2290.



OASIS 2070 TIMING CHART

FEATURE	PHASE	
	2	7
Min Green 1 *	14	7
Extension 1 *	6.0	2.0
Max Green 1 *	90	25
Yellow Clearance	5.0	3.0
Red Clearance	1.0	2.8
Red Revert	2.0	2.0
Walk 1 *	7	7
Don't Walk 1	13	10
Seconds Per Actuation *	1.5	-
Max Variable Initial *	46	-
Time Before Reduction *	15	-
Time To Reduce *	45	-
Minimum Gap	3.4	-
Recall Mode	MIN RECALL	-
Vehicle Call Memory	YELLOW	-
Dual Entry	-	-
Simultaneous Gap	ON	ON

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

OASIS 2070 EV PREEMPT

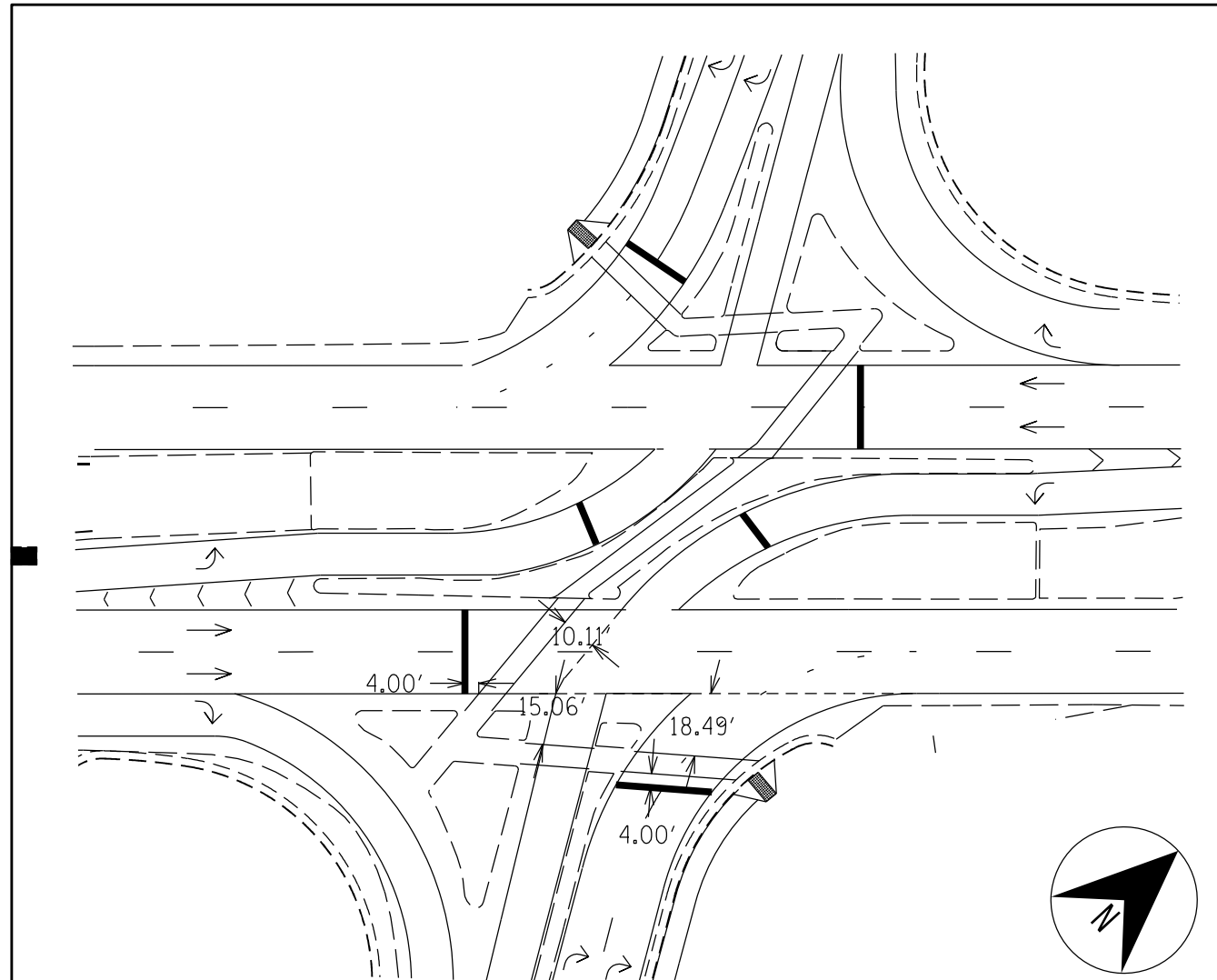
FUNCTION	PRE 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	2
Priority	MED
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	7
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Dwell Max Time (Minutes)	2
Enable Backup Protection	N
Ped Clear Through Yellow	Y
Omit Overlaps	-
Preempt Extend**	2

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

LEGEND

PROPOSED	EXISTING
○ → Traffic Signal Head	● → N/A
○ → Modified Signal Head	○ → N/A
○ → Pedestrian Signal Head	○ → N/A
○ → Signal Pole with Mastarm	○ → N/A
○ → Type II Signal Pedestal	○ → N/A
○ → Directional Drill	○ → N/A
○ → Optical Detector	○ → N/A
□ → Master Controller & Cabinet	□ → N/A
□ → No U-Turn Sign (R3-4)	□ → N/A
□ → "YIELD" Sign (R1-2)	□ → N/A
□ → Curb Ramp	□ → N/A

NC Dept of Transportation
 Division of Highways
 Final Drawing Date: 1/16/2020
 ITS & Signals Unit



Stopbar Locations For:
 US 401 NB (Louisburg Road) at SR 1003 (East Young Street)

Signal Upgrade

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

US 401 NB (Louisburg Road) at SR 1003 (East Young Street)
 Division 5 Wake County Rolesville
 PLAN DATE: November 2019 REVIEWED BY: T. Kirk
 PREPARED BY: T. Wells REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

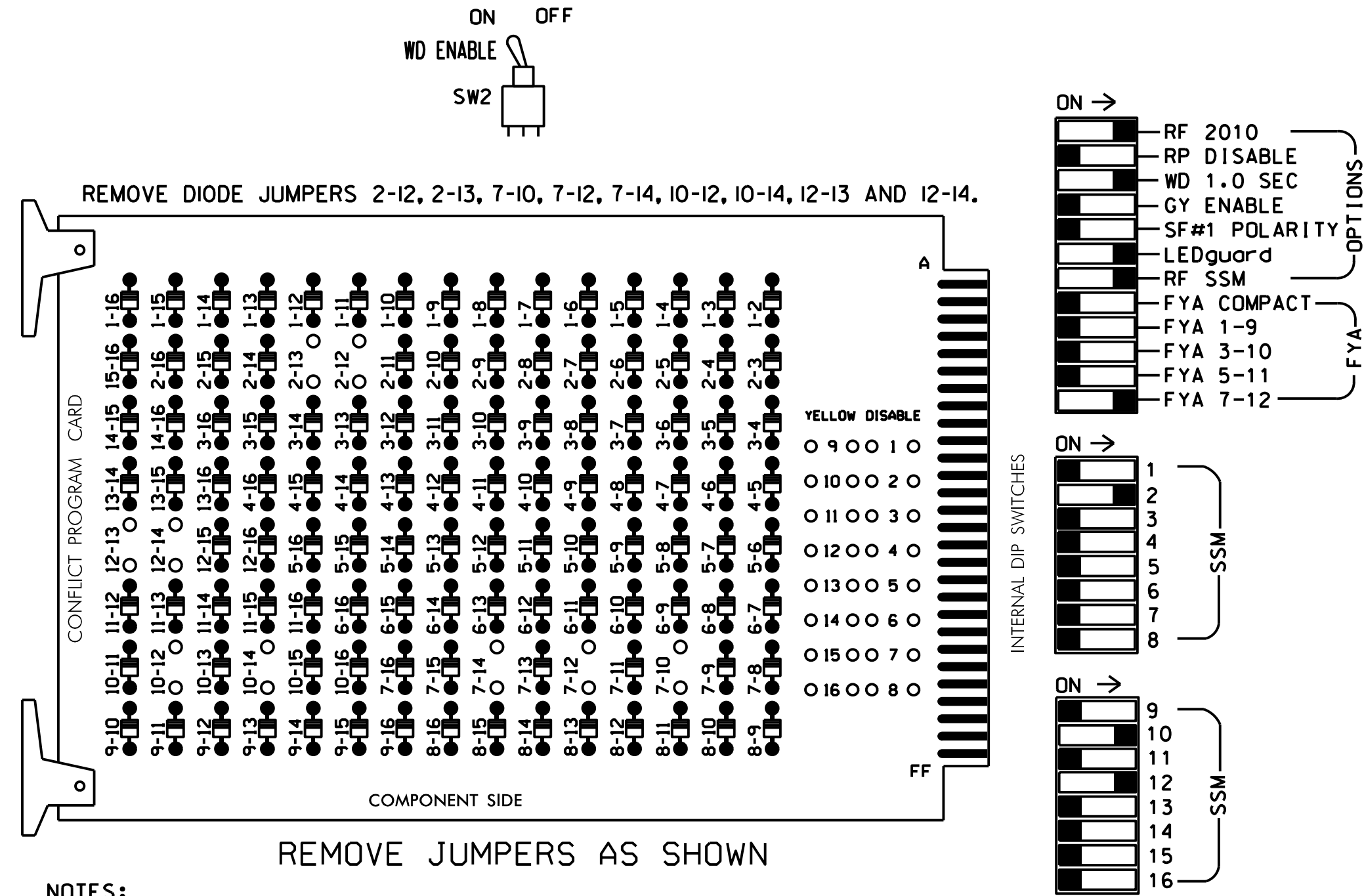
SEAL
 043930
 ENGINEER
 TIMOTHY S. KIRK
 11/20/2019
 DATE

REVISIONS	INIT.	DATE

44823/US401/2019/11/16/2020/10552/01/1.0/US401 NB (Louisburg Road) at SR 1003 (East Young Street) Signal Upgrade

EDI MODEL 2010ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL

(remove jumpers and set switches 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 Plans.
- 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, 4,5,6,7,8,9,11,13,14,15 & 16 to load switch AC+ per the cabinet manufacturer's instructions.
- Enable Simultaneous Gap-Out for all Phases.
- Program phase 2 for Variable Initial and Gap Reduction.
- Program phase 2 for Startup In Green.
- Program phases 2 and 7 for Startup Ped Call.
- Program phase 2 for Yellow Flash.
- The cabinet and controller are part of the US 401 Bypass (Rolesville) Closed Loop System.

EQUIPMENT INFORMATION

CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX, OUTPUT FILE LOAD SWITCHES USED.....S2,S2P,S4P,S7,S10,S13
 PHASES USED.....2,7,2PED,7PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....7
 OVERLAP "C".....NOT USED
 OVERLAP "D".....2+7

SIGNAL HEAD HOOK-UP CHART

LOAD SWITCH NO.	S1	S2	S2P	S3	S4	S4P	S5	S6	S6P	S7	S8	S8P	S9	S10	S11	S12	S13	S14
PHASE	1	2	2 PED	3	4	7 PED	5	6	6 PED	7	8	8 PED	9	10	11	12	13	14
SIGNAL HEAD NO.	NU	21,22	P21, P22	NU	NU	P71, P72	NU	NU	NU	71*	NU	NU	NU	72,73	NU	NU	71*	NU
RED		128													A124			
YELLOW		129								*								
GREEN		130																
RED ARROW																		A101
YELLOW ARROW															A125			A102
FLASHING YELLOW ARROW																		A103
GREEN ARROW										124					A126			
Hand																		113
Person																		115

NU = Not Used

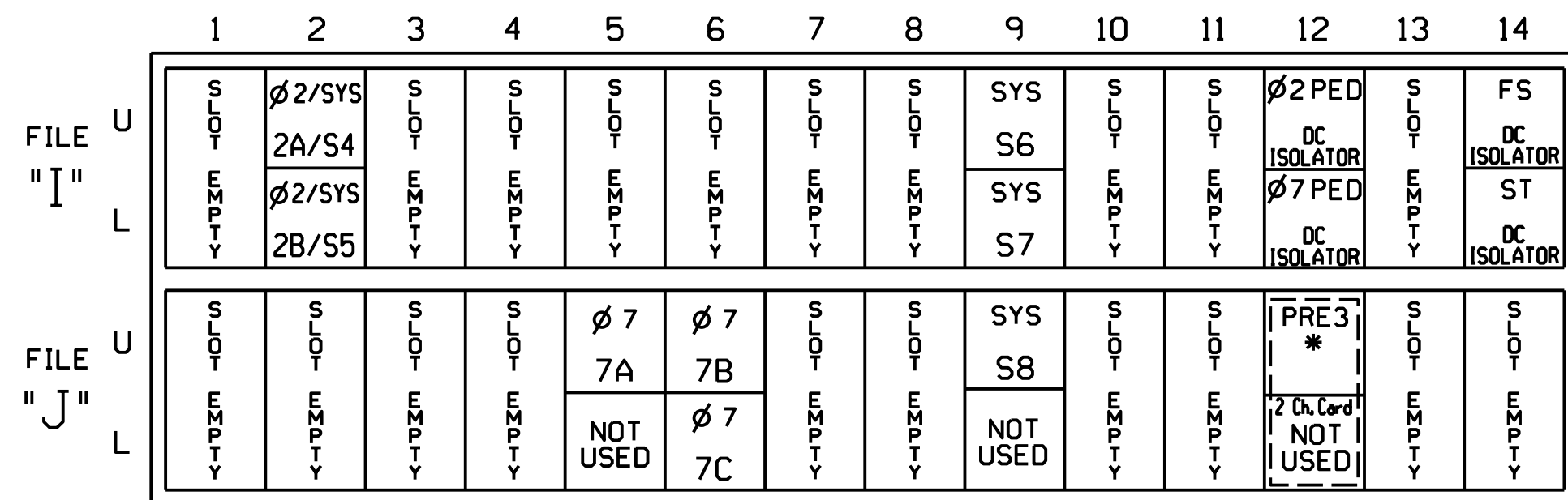
* Denotes install load resistor. See load resistor installation detail this sheet.

See Phase 7 PED output programming detail on Sheet 2.

★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT

(front view)



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

FS = FLASH SENSE
 ST = STOP TIME
 PRE = PREEMPT

* INSTALL OPTICAL PREEMPTION SYSTEM ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND ENGINEER'S APPROVED MOUNTING LOCATION.

INPUT FILE POSITION LEGEND: J2L



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
2A/S4	TB2-5,6	I2U	39	1	2	2/SYS	Y	Y			
2B/S5	TB2-7,8	I2L	43	5	12	2/SYS	Y	Y			
* S6	TB6-9,10	I9U	60	22	11	SYS					
* S7	TB6-11,12	I9L	62	24	13	SYS					
7A	TB5-5,6	J5U	57	19	7	7	Y	Y			15
		J5U	57	19	★	47	7	Y	Y		
7B	TB5-9,10	J6U	42	4	8	7	Y	Y			15
7C	TB5-11,12	J6L	46	8	18	7	Y	Y			15
* S8	TB7-9,10	J9U	59	21	15	SYS					
PED PUSH BUTTONS											
P21,P22	TB8-4,6	I12U	67	29		PED 2			2 PED		
P71,P72	TB8-5,6	I12L	69	31		PED 4			7 PED		

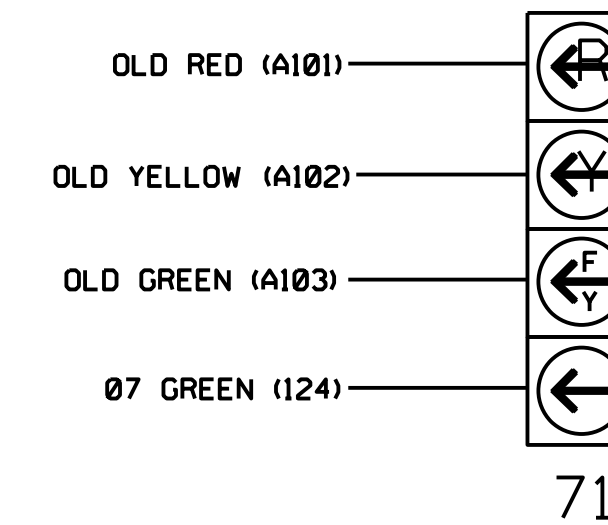
NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOT I12.

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

★ See Input Page Assignment programming details on Sheet 3.

FYA SIGNAL WIRING DETAIL

(wire signal head as shown)



NOTE

The sequence display for signal head 71 requires special logic programming. See sheet 2 for programming instructions.

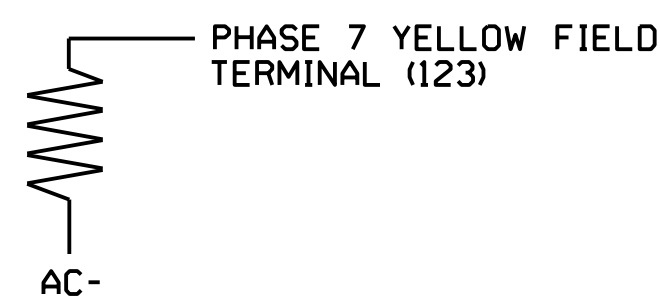
COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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 resistor as shown below)

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



NC Dept of Transportation
 Division of Highways
 Final Drawing Date: 1/16/2020
 DocuSigned by:
 ITS & Signal Systems

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2390
 DESIGNED: November 2019
 SEALED: November 20, 2019
 REVISED:

Prepared By: **AMT**
A. MORTON THOMAS AND ASSOCIATES, INC.
 CONSULTING ENGINEERS
 6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609
 TEL (919) 855-9989 FAX (919) 855-5687
 E-MAIL MSURASKY@AMTENGINEERING.COM
 NCBELS LICENSE No. F-1049

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ELECTRICAL AND PROGRAMMING DETAILS FOR:
 Prepared for the Offices of:
 US 401 NB (Louisburg Road) at SR 1003 (East Young Street)
 Division 5 Wake County Rolesville
 PLAN DATE: November 2019 REVIEWED BY: J O Deaton
 PREPARED BY: M W Valch REVIEWED BY:
 REVISIONS INIT. DATE
 DocuSigned by: James O. Deaton 12/18/2019
 SEAL NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 07438 JAMES O. DEATON
 SIGNATURE DATE
 SIG. INVENTORY NO. 05-2390

44823/ST/11/18/2019 11:15:30 AM
 44823/ST/11/18/2019 11:15:30 AM
 44823/ST/11/18/2019 11:15:30 AM

OVERLAP PROGRAMMING DETAILS

OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW - GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...N GREEN EXTENSION (0-255 SEC)...0.0 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

PRESS '+' TWICE

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

OVERLAP PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS). PRESS 'NEXT' TO ADVANCE TO PAGE 2.

PRESS '+' ONE TIME

PAGE 2: VEHICLE OVERLAP 'B' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW - GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...N GREEN EXTENSION (0-255 SEC)...0.0 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

PRESS '+' TWICE

PAGE 2: VEHICLE OVERLAP 'D' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW - GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...Y GREEN EXTENSION (0-255 SEC)...0.0 YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0 RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0 OUTPUT AS PHASE # (0=NONE, 1-16)...0

OVERLAP PROGRAMMING COMPLETE

PED 7 PROGRAMMING DETAIL

(program controller as shown below)

CHANGING OUTPUT ASSIGNMENTS

- 1. FROM MAIN MENU SELECT '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS) 2. ENTER 1 (PHASE 4 DW) FOR OUTPUT ASSIGNMENT #. 3. SCROLL DOWN TO 'PEDESTRIAN PHASE' AND ENTER 'Y' REGARDLESS OF DEFAULT PROGRAMMING 4. ENTER '7' FOR 'SELECT PEDESTRIAN PHASE'. NO CHANGE NEEDED FOR 'SELECT COLOR' 5. BACKUP TO 'OUTPUT ASSIGNMENTS AND SETTINGS MENU:' BY PRESSING THE 'ESC' BUTTON ON KEYBOARD. 6. SELECT '1' (OUTPUT ASSIGNMENTS) 7. ENTER 2 (PHASE 4 W) FOR OUTPUT ASSIGNMENT #. 8. REPEAT STEPS # 3 AND # 4.

CHANGING INPUT ASSIGNMENTS

- 1. FROM MAIN MENU SELECT '7' (DETECTORS), THEN '2' (PEDESTRIAN DETECTOR ASSIGNMENTS) 2. CYCLE TO PED DETECTOR #4 BY REPEATEDLY DEPRESSING '+' KEY 3. MODIFY PHASE ASSIGNED TO PED DETECTOR # 4 FROM PHASE 4 TO PHASE 7

PROGRAMMING COMPLETE

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

(program controller as shown below)

- 1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS), SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1.2 AND 3. 2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

LOGICAL I/O COMMAND #1 (+/-COMMAND#) IF ACTIVE PHASE #7 IS ON AND RED CLEAR ON PHASE #7 IS ON 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).

LOGICAL I/O COMMAND #2 (+/-COMMAND#) IF ACTIVE PHASE #7 IS ON THEN: SET OUTPUT ASSIGNMENT #41 OFF

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

LOGICAL I/O COMMAND #3 (+/-COMMAND#) IF YELLOW ON PHASE #7 IS ON 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

USE TO INTERPRET LOGIC PROCESSOR

- OUTPUT 39 = Overlap D Red OUTPUT 40 = Overlap D Yellow OUTPUT 41 = Overlap D Green

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

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

Table with 3 columns: PREEMPTION #1, INTERVAL/TIMING, SETTINGS (NEXT:1-10). Rows include data for various preemption settings like DELAY TIMER, MIN GREEN BEFORE PRE, etc.

Program Extend time on optical detector unit for 2.0 seconds.

NC Dept of Transportation Division of Highways Final Drawing Date: 1/16/2020 DocuSigned by: James O. Deaton ITS & Signals Unit

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2390 DESIGNED: November 2019 SEALED: November 20, 2019 REVISED:

Electrical Detail - Sheet 2 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

AMT CONSULTING ENGINEERS 6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609

ELECTRICAL AND PROGRAMMING DETAILS FOR: US 401 NB (Louisburg Road) at SR 1003 (East Young Street)

Division 5 Wake County Rolesville PLAN DATE: November 2019 REVIEWED BY: J O Deaton PREPARED BY: M W Valch

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES O. DEATON 07438 SIGNATURE DATE 12/18/2019

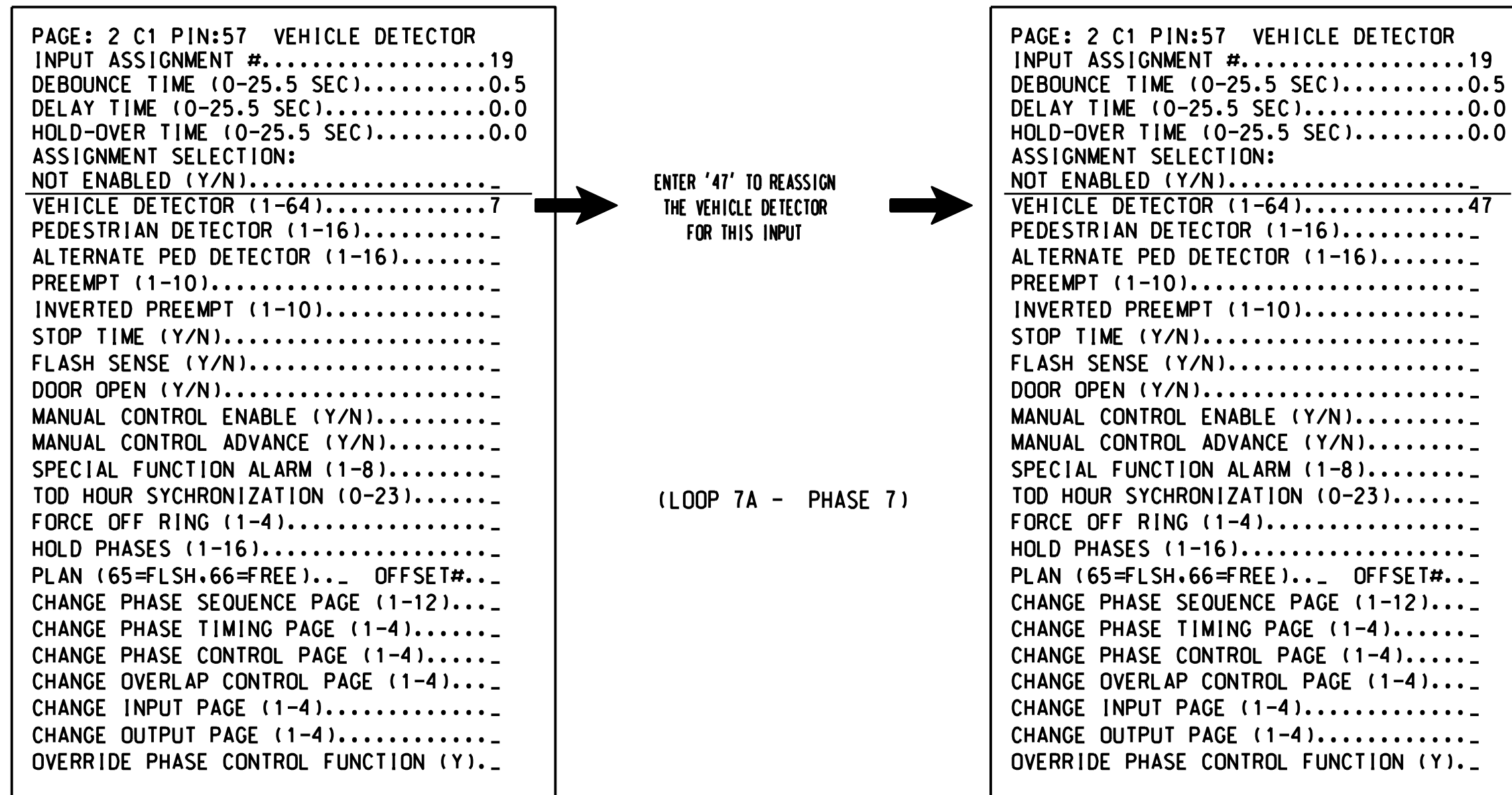
Vertical text string: 4482351315 4482351315 4482351315 4482351315 4482351315

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 7A

(program controller as shown below)

- NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.
2. THIS PROGRAMMING REASSIGNS DETECTOR 47 TO INPUT #19 SO THAT THE DELAY ON LOOP 7A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 19 IS REACHED.

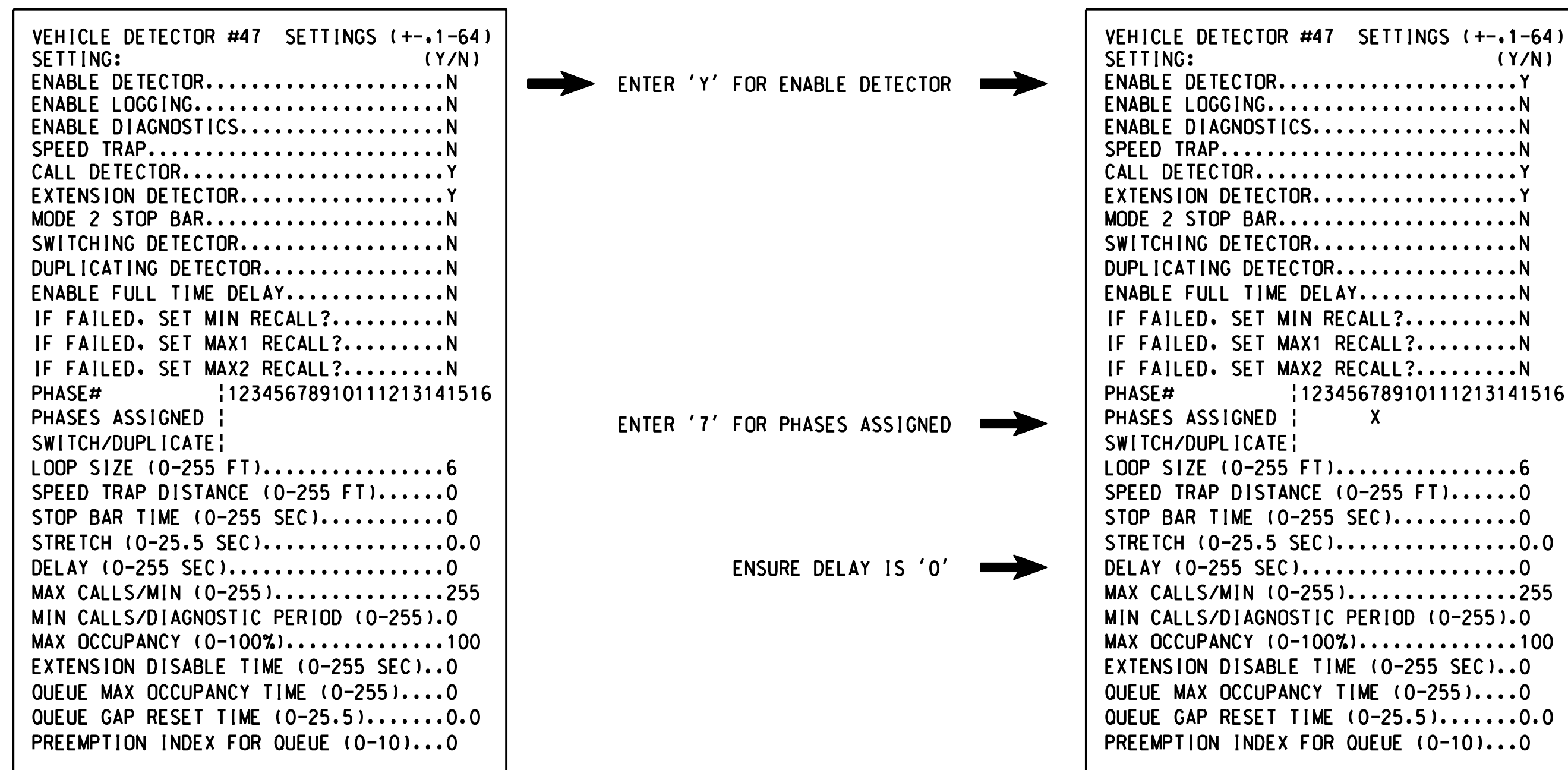


PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 7A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #47.



DETECTOR PROGRAMMING COMPLETE

NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

NC Dept of Transportation Division of Highways. Final Drawing Date: 1/16/2020. Signature: James O. Deaton. THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2390. DESIGNED: November 2019. SEALED: November 20, 2019. REVISED:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Prepared By: AMT CONSULTING ENGINEERS. 6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609. US 401 NB (Louisburg Road) at SR 1003 (East Young Street). Division 5 Wake County Rolesville. PLAN DATE: November 2019. REVIEWED BY: J O Deaton. PREPARED BY: M W Valch. REVIEWED BY: James O. Deaton 12/18/2019.

Vertical text on the left margin: 44823/05/ST/10/01/11/23/14/15/16

ALTERNATE PHASING ACTIVATION DETAIL

TO RUN ALT. PHASING DURING COORDINATION - SELECT ALL PAGE CHANGES (AS SHOWN BELOW) WITHIN COORDINATION PLAN PROGRAMMING.

TO RUN ALT. PHASING DURING FREE RUN - PROGRAM PAGE CHANGES (SHOWN BELOW) IN SEPARATE TIME OF DAY EVENTS. IF PAGE 1 IS USED, NO EVENT PROGRAMMING IS NECESSARY FOR THAT PARTICULAR PAGE.

<u>PHASING</u>	<u>INPUTS PAGE</u>	<u>OVERLAPS PAGE</u>
ACTIVE PAGES REQUIRED TO RUN <u>DEFAULT PHASING</u>	1	1
ACTIVE PAGES REQUIRED TO RUN <u>ALTERNATE PHASING</u>	2	2

NOTE: PAGES NOT SHOWN (i.e. sequence, phase control, etc.) SHOULD REMAIN AS '1', OR AS DEFINED BY TIMING ENGINEER.

IMPORTANT: IF ALT. PHASING IS USED DURING FREE RUN AND COORDINATION, DO NOT OPERATE TIME OF DAY PAGE CHANGE EVENTS CONCURRENTLY WITH COORDINATION PLAN EVENTS IN THE EVENT SCHEDULER. (EX. FREE RUN PAGE CHANGE EVENT SHOULD END BEFORE COORDINATION PLAN EVENT STARTS AND VICE-VERSA).

ALTERNATE PHASING PAGE CHANGE SUMMARY

THE FOLLOWING IS A SUMMARY OF WHAT TAKES PLACE WHEN THESE OVERLAP/INPUT PAGE CHANGES ACTIVATE TO CALL THE "ALTERNATE PHASING":

OVERLAPS PAGE 2: Modifies overlap parent phases for head 71 to run protected turns only.

INPUTS PAGE 2: Reassigns an input and reduces delay time on loop 7A to 0 seconds.

NC Dept of Transportation
Division of Highways
Final Drawing Date: 1/16/2020
DocuSigned by:
James O. Deaton
ITS & Signals, Inc.

THIS ELECTRICAL DETAIL IS FOR
THE SIGNAL DESIGN: 05-2390
DESIGNED: November 2019
SEALED: November 20, 2019
REVISED:

Electrical Detail - Sheet 4 of 4

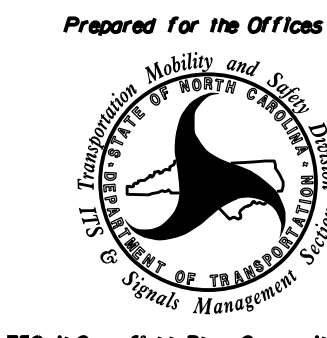
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Prepared By:



A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609
TEL (919) 855-9989 FAX (919) 855-5687
E-MAIL MSURASKY@AMTENGINEERING.COM
NCBELS LICENSE No. F-1049

ELECTRICAL AND PROGRAMMING
DETAILS FOR:

Prepared for the Offices of:

 750 N. Greenfield Pkwy, Garner, NC 27529

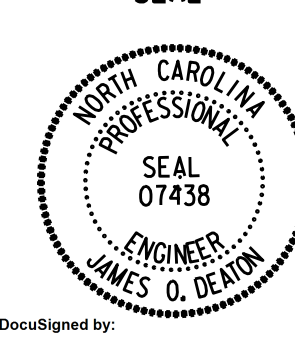
US 401 NB (Louisburg Road)
at
SR 1003 (East Young Street)

Division 5 Wake County Rolesville

PLAN DATE: November 2019	REVIEWED BY: J O Deaton
PREPARED BY: M W Valch	REVIEWED BY:

REVISIONS	INIT.	DATE

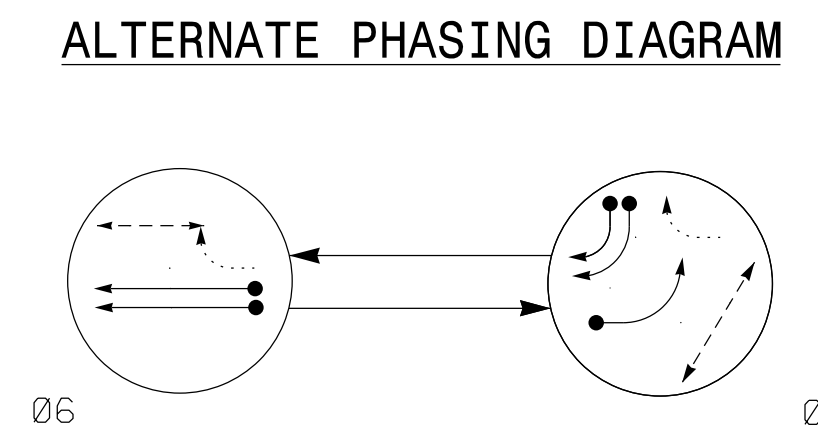
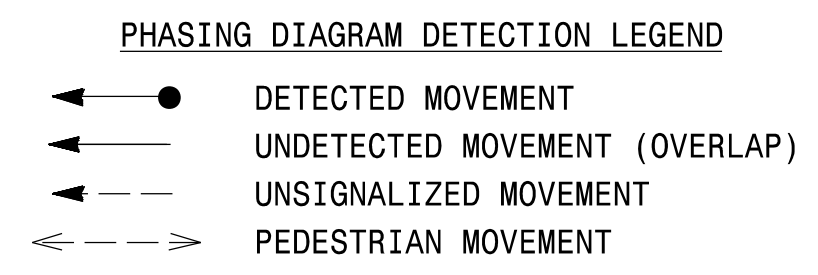
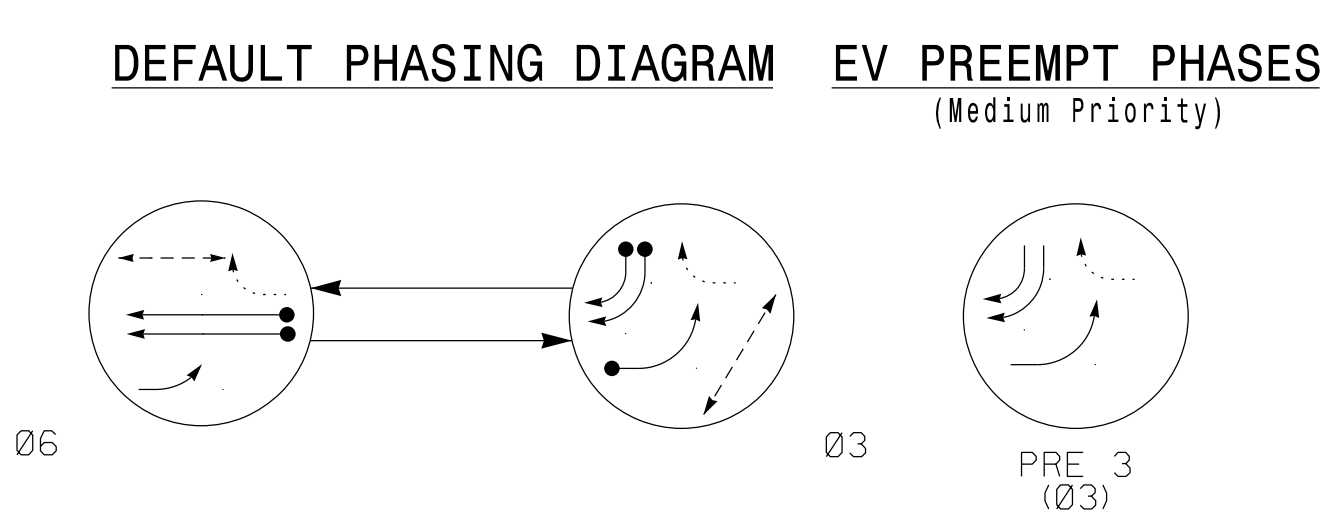
SEAL



DocuSigned by:
James O. Deaton 12/18/2019

SIGNATURE DATE
SIG. INVENTORY NO. 05-2390

\$\$\$\$\$\$SYTIME\$\$\$\$\$\$
 \$\$\$\$\$\$DOCSIGN\$\$\$\$\$\$
 \$\$\$\$\$\$FORMNAME\$\$\$\$\$\$



DEFAULT PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	06	03	03	03
31	←	→	←	→
32, 33	R	→	→	R
61, 62	G	R	R	Y
P31, P32	DW	W	DW	DRK
P61, P62 P63, P64	W	DW	DW	DRK

ALTERNATE PHASING TABLE OF OPERATION

SIGNAL FACE	PHASE			
	06	03	03	03
31	←	→	←	→
32, 33	R	→	→	R
61, 62	G	R	R	Y
P31, P32	DW	W	DW	DRK
P61, P62 P63, P64	W	DW	DW	DRK

OASIS 2070 LOOP & DETECTOR INSTALLATION CHART

LOOP	SIZE (FT)	DISTANCE FROM STOPBAR (FT)	TURNS	DETECTOR PROGRAMMING								
				NEW LOOP	PHASE	CALLING	EXTENSION	FULL TIME DELAY	STRETCH TIME	DELAY TIME	SYSTEM LOOP	NEW CARD
3A	6X40	0	2-4-2	-	3	Y	Y	-	-	15*	-	-
3B	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
3C	6X40	0	2-4-2	-	3	Y	Y	-	-	15	-	-
6A/S9	6X6	420	EXIST	-	6	Y	Y	-	-	-	Y	-
6B/S10	6X6	420	EXIST	-	6	Y	Y	-	-	-	Y	-
S11	6X6	200	EXIST	-	-	-	-	-	-	-	Y	-
S12	6X6	100	4	-	-	-	-	-	-	-	Y	-
S13	6X6	100	4	-	-	-	-	-	-	-	Y	-

*Disable Delay during Alternate Phasing operation.

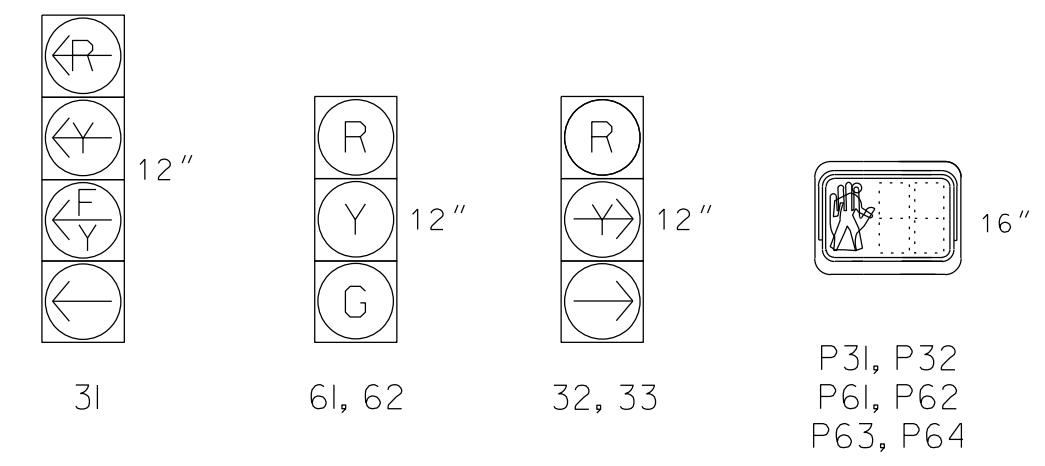
2 Phase Fully Actuated w/ EV Preemption
US 401 Bypass (Rolesville) CLS
Signal System #: 10552

NOTES

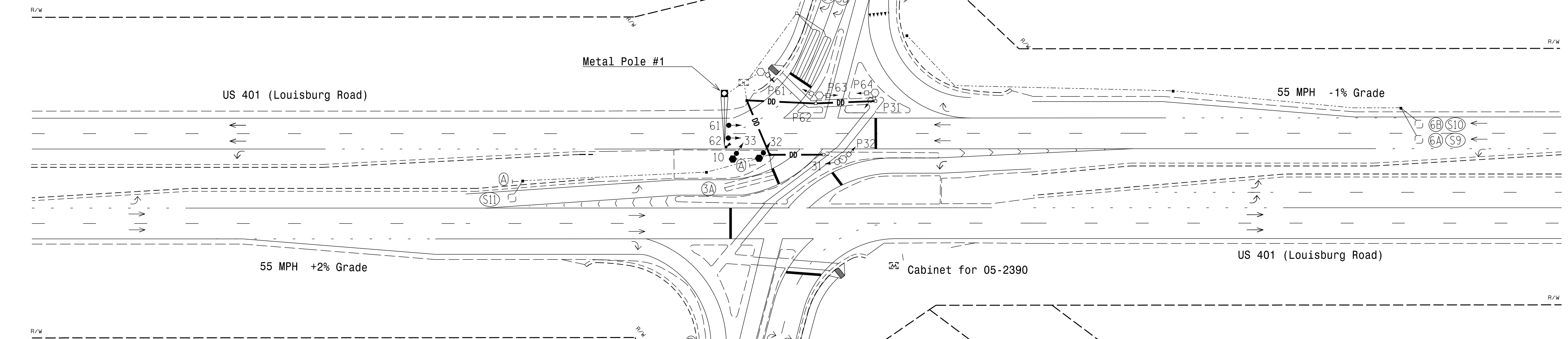
- Refer to "Roadway Standard Drawings NCDOT" dated January 2018 and "Standard Specifications for Roads and Structures" dated January 2018.
- Do not program signal for late night flashing operation unless otherwise directed by the Engineer.
- Set all detector units to presence mode.
- Omit "WALK" and flashing "DON'T WALK" with no pedestrian calls.
- Program pedestrian heads to countdown flashing "DON'T WALK" time only.
- This intersection features an optical preemption system. Shown locations of optical detectors are conceptual only.
- Optical detector 10 calls PRE 3.
- 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.
- Closed loop system data:
Controller Asset #: 2236.

SIGNAL FACE I.D.

All Heads L.E.D.



W - Walk
DW - Don't Walk
DRK - Dark



OASIS 2070 TIMING CHART

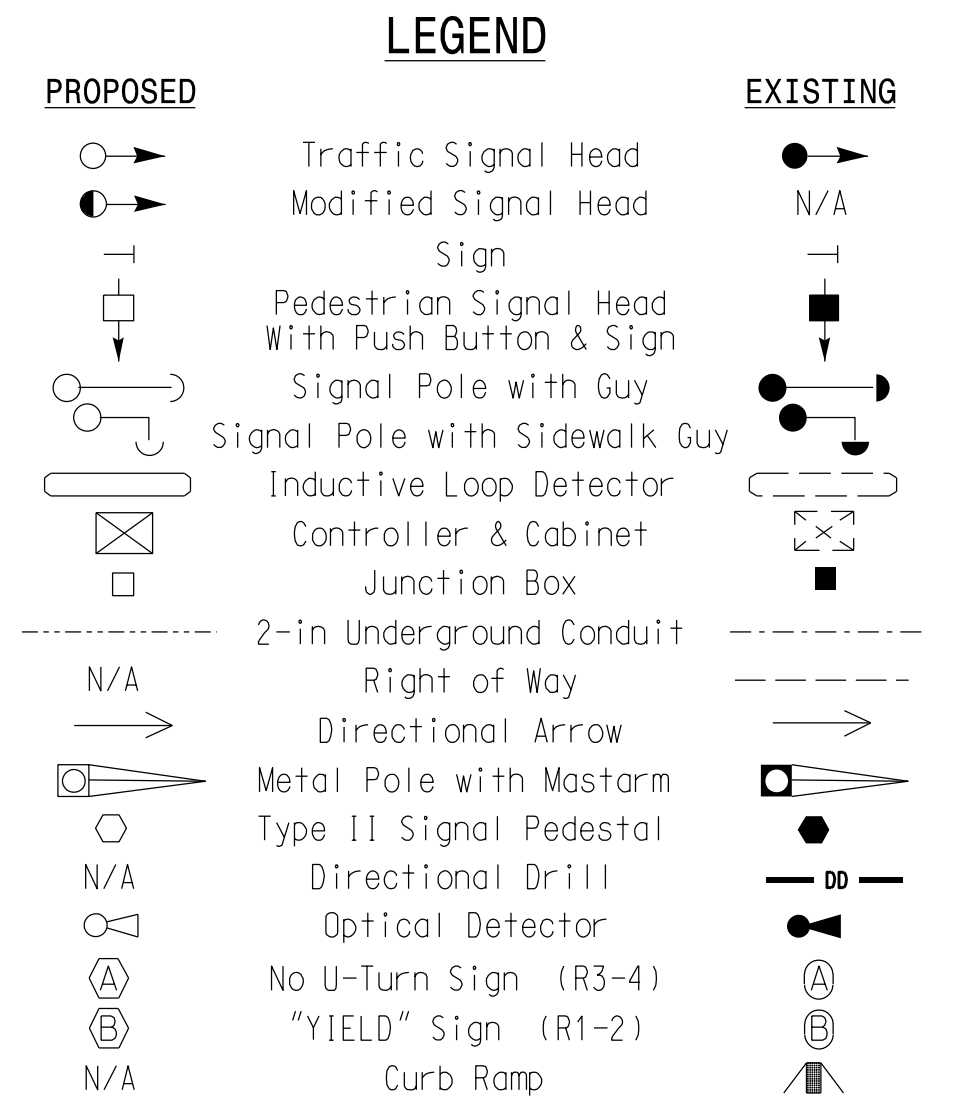
FEATURE	PHASE	
	3	6
Min Green 1 *	7	14
Extension 1 *	2.0	6.0
Max Green 1 *	25	90
Yellow Clearance	3.0	5.3
Red Clearance	2.6	1.1
Red Revert	2.0	2.0
Walk 1 *	7	7
Don't Walk 1	10	12
Seconds Per Actuation *	-	1.5
Max Variable Initial *	-	46
Time Before Reduction *	-	15
Time To Reduce *	-	45
Minimum Gap	-	3.4
Recall Mode	-	MIN RECALL
Vehicle Call Memory	-	YELLOW
Dual Entry	-	-
Simultaneous Gap	ON	ON

OASIS 2070 EV PREEMPT

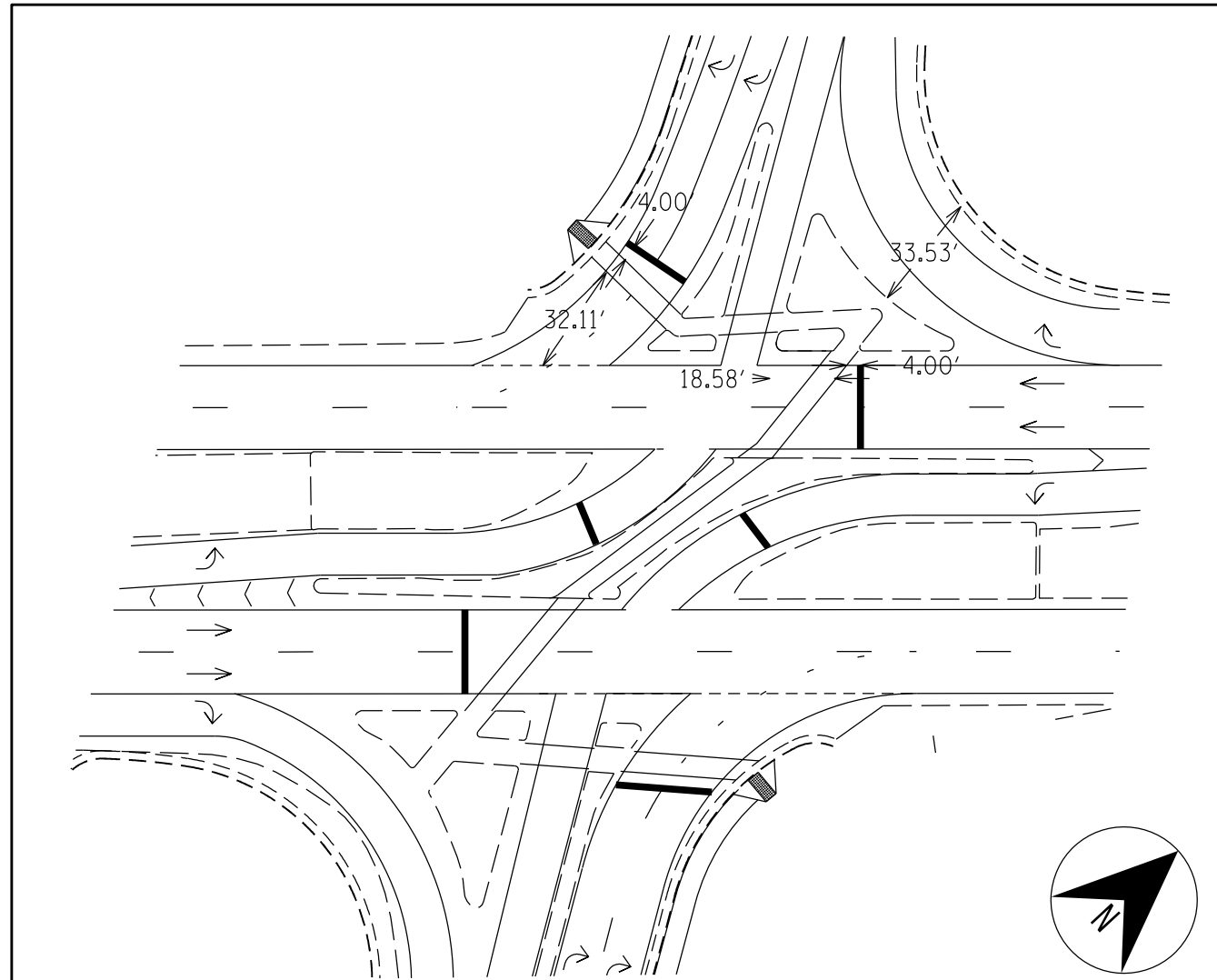
FUNCTION	PRE 3
Interval 1 - Dwell Green	255
Interval 1 - Dwell Yellow	0.0*
Interval 1 - Dwell Red	0.0*
Interval 5 - Exit Green	1
Interval 5 - Yellow	0.0
Interval 5 - Red	0.0
Exit Phase(s)	6
Priority	MED
Delay Time	0
Min Green Before Pre	1
Ped Clear Before Pre	7
Yellow Clear Before Pre	0.0*
Red Clear Before Pre	0.0*
Dwell Min Time	10
Dwell Max Time (Minutes)	2
Enable Backup Protection	N
Ped Clear Through Yellow	Y
Omit Overlaps	-
Preempt Extend**	2

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

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

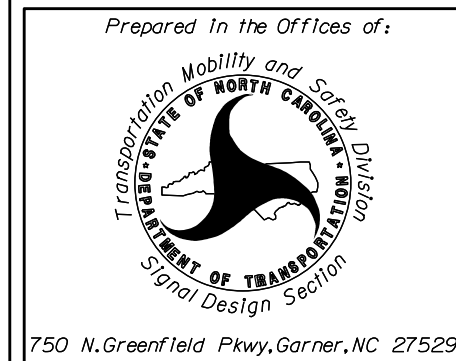


NC Dept of Transportation
Division of Highways
Final Drawing Date: 1/16/2020
ITS & Signals Unit



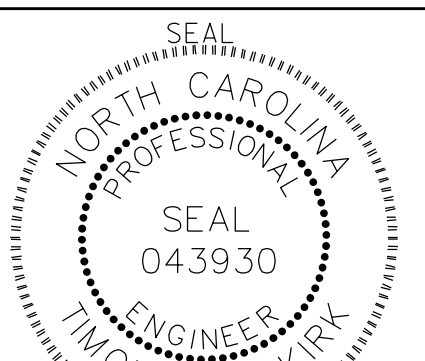
Stopbar Locations For:
US 401 SB (Louisburg Road) at SR 1003 (East Young Street)

Signal Upgrade



US 401 SB (Louisburg Road)
at
SR 1003 (East Young Street)
Division 5 Wake County Rolesville
PLAN DATE: November 2019 REVIEWED BY: T. Kirk
PREPARED BY: T. Wells REVIEWED BY:

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

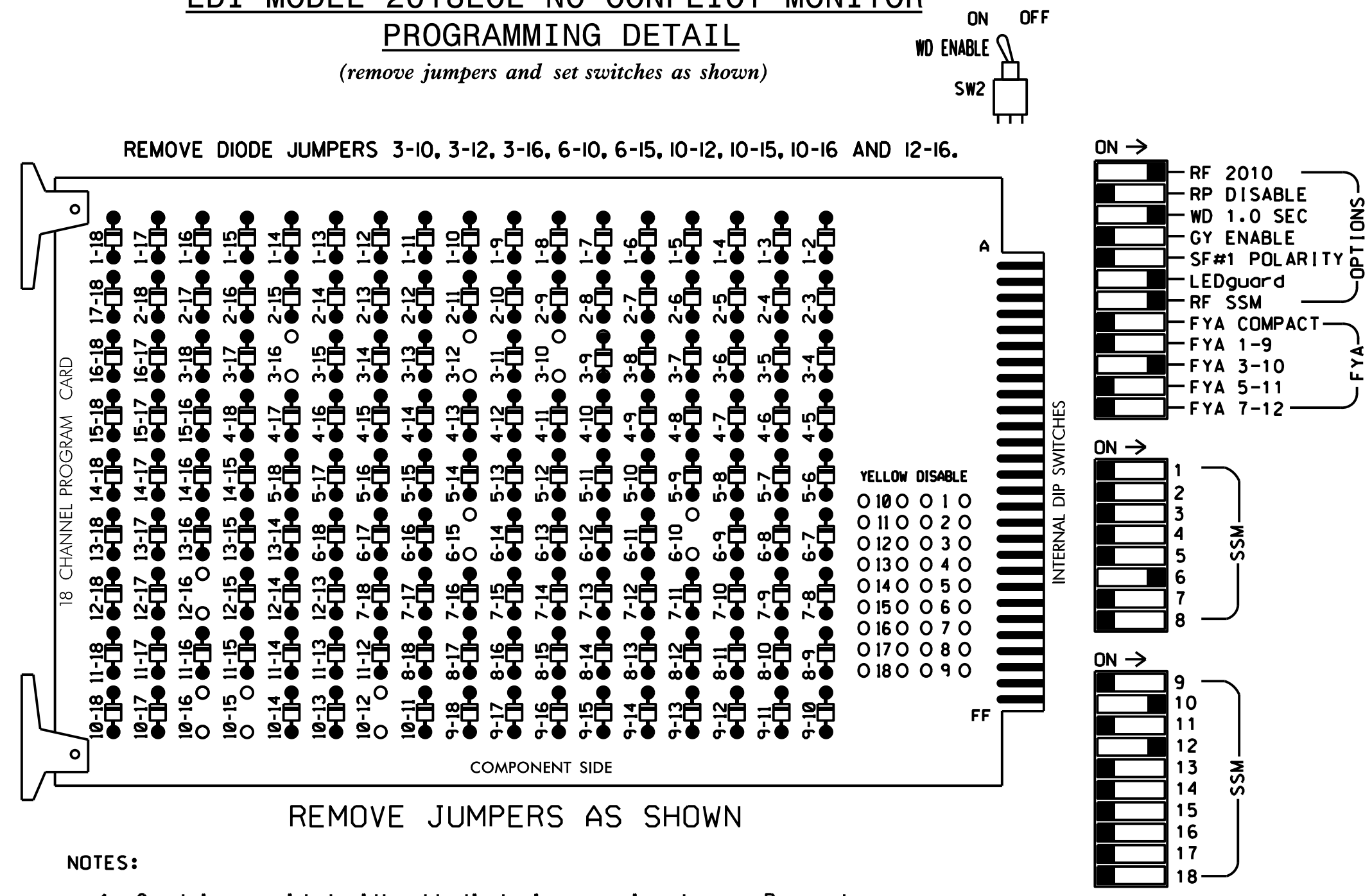


REVISIONS	REVISIONS	INIT.	DATE

11/20/2019
SIC. INVENTORY NO. 05-2236

*****SYSTEMS*****
 *****USER*****
 *****SERIAL*****
 *****DATE*****

EDI MODEL 2018ECL-NC CONFLICT MONITOR PROGRAMMING DETAIL
(remove jumpers and set switches as shown)



- NOTES:**
- Card is provided with all diode jumpers in place. Removal of any jumper allows its channels to run concurrently.
 - Ensure jumpers SEL2-SEL5 and SEL9 are present on the monitor board.
 - Ensure that Red Enable is active at all times during normal operation.
 - Connect serial cable from conflict monitor to comm. port 1 of 2070 controller. Ensure conflict monitor communicates with 2070.

NOTES

- To prevent "flash-conflict" problems, insert red flash program blocks for all unused vehicle load switches in the output file. The installer shall verify that signal heads flash in accordance with the Signal Plans.
- Enable Simultaneous Gap-Out for all Phases.
- Program phase 6 for Variable Initial and Gap Reduction.
- Program phase 6 for Startup In Green.
- Program phases 3 and 6 for Startup Ped Call.
- Program phase 6 for Yellow Flash.
- The cabinet and controller are part of the US 401 Bypass (Rolesville) Closed Loop System.

EQUIPMENT INFORMATION

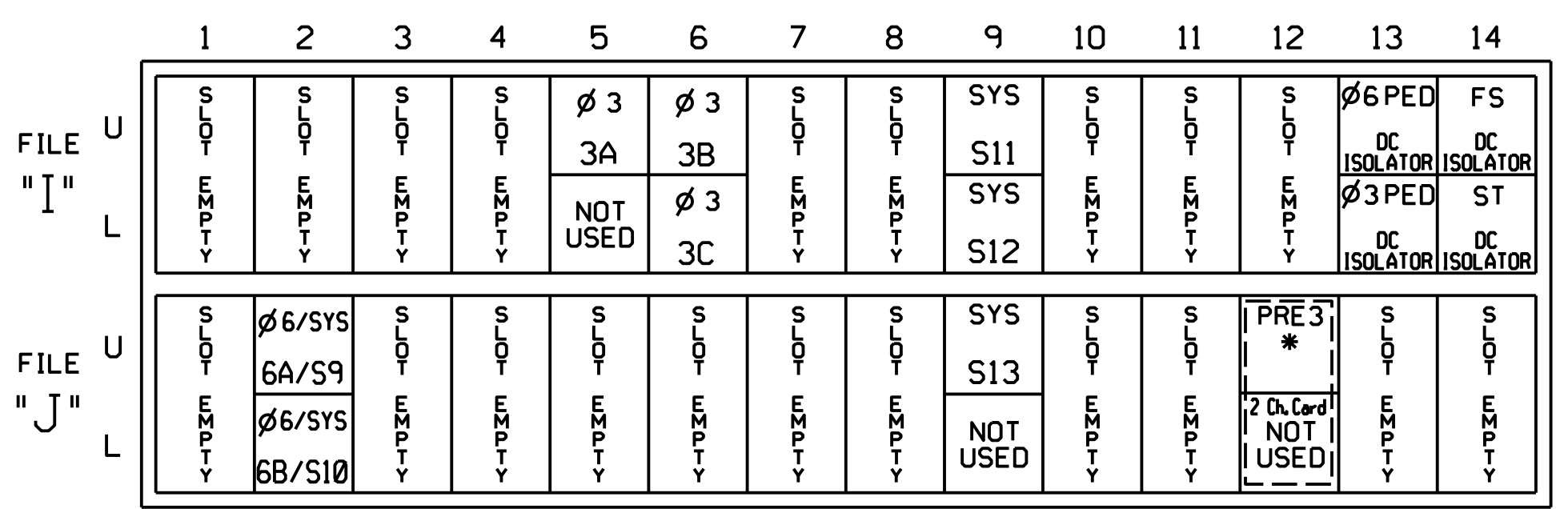
CONTROLLER.....2070
 CABINET.....332 W/ AUX
 SOFTWARE.....ECONOLITE OASIS
 CABINET MOUNT.....BASE
 OUTPUT FILE POSITIONS...18 WITH AUX. OUTPUT FILE
 LOAD SWITCHES USED.....S4,S8,S9,S12,AUX S2,AUX S5
 PHASES USED.....3,6,3PED,6PED
 OVERLAP "A".....NOT USED
 OVERLAP "B".....3+6
 OVERLAP "C".....NOT USED
 OVERLAP "D".....3

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	3 PED	OLA	OLB	SPARE	OLC	OLD	SPARE
SIGNAL HEAD NO.	NU	NU	NU	31	NU	NU	NU	61,62	P61,P62, P63,P64	NU	NU	P31, P32	NU	31	NU	NU	32,33	NU
RED								134										A101
YELLOW				*				135										
GREEN								136										
RED ARROW														A124				
YELLOW ARROW														A125			A102	
FLASHING YELLOW ARROW														A126				
GREEN ARROW					118													A103
Hand icon								119			110							
Person icon								121			112							

NU = Not Used
 * Denotes install load resistor. See load resistor installation detail this sheet.
 # See Phase 3 PED output programming detail on Sheet 2.
 ★ See pictorial of head wiring in detail this sheet.

INPUT FILE POSITION LAYOUT
(front view)



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

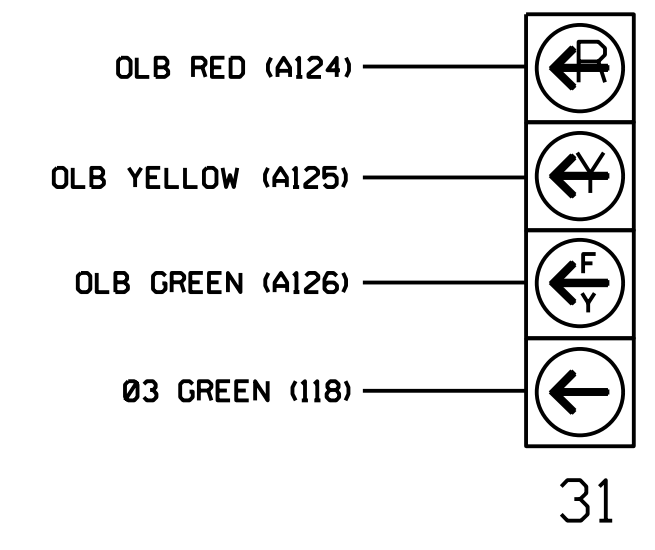
* INSTALL OPTICAL PREEMPTION SYSTEM ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND ENGINEER'S APPROVED MOUNTING LOCATION.

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
3A	TB4-5,6	I5U	58	20	3	3	Y	Y			15
3B	TB4-9,10	I6U	41	3	4	3	Y	Y			15
3C	TB4-11,12	I6L	45	7	14	3	Y	Y			15
* S11	TB6-9,10	I9U	60	22	11	SYS					
* S12	TB6-11,12	I9L	62	24	13	SYS					
6A/S9	TB3-5,6	J2U	40	2	6	6/SYS	Y	Y			
6B/S10	TB3-7,8	J2L	44	6	16	6/SYS	Y	Y			
* S13	TB7-9,10	J9U	59	21	15	SYS					
PED PUSH BUTTONS											
P61,P62,P63,P64	TB8-7,9	I13U	68	30	PED 6	6 PED					
P31,P32	TB8-8,9	I13L	70	32	PED 8	3 PED					

NOTE: INSTALL DC ISOLATORS IN INPUT FILE SLOT 113.
 * System detector only. Remove the vehicle phase assigned to this detector in the default programming.
 ★ See Input Page Assignment programming details on Sheet 3.

FYA SIGNAL WIRING DETAIL
(wire signal head as shown)



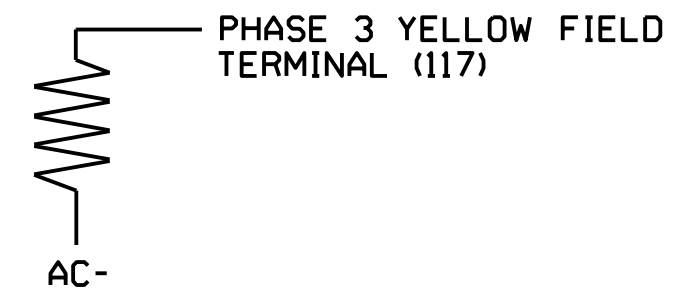
NOTE: The sequence display for signal head 31 requires special logic programming. See sheet 2 for programming instructions.

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 resistor as shown below)

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



NC Dept of Transportation
 Division of Highways
 Final Drawing Date: 1/16/2020
 DocuSigned by: [Signature]
 ITS & SIGNALS UNIT

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2236
 DESIGNED: November 2019
 SEALED: November 20, 2019
 REVISED:

Prepared By: **AMT**
A. MORTON THOMAS AND ASSOCIATES, INC.
 CONSULTING ENGINEERS
 6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609
 TEL (919) 855-9989 FAX (919) 855-5687
 E-MAIL MSURASKY@AMTENGINEERING.COM
 NCBELS LICENSE No. F-1049

Electrical Detail - Sheet 1 of 4

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

US 401 SB (Louisburg Road) at SR 1003 (East Young Street)
 Division 5 Wake County Rolesville
 PLAN DATE: November 2019 REVIEWED BY: J O Deaton
 PREPARED BY: M W Yalch REVIEWED BY:
 REVISIONS: INIT. DATE
 SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER JAMES O. DEATON SEAL 07438
 DocuSigned by: James O. Deaton 12/18/2019
 SIGNATURE DATE
 SIG. INVENTORY NO. 05-2236

44823\SYSTEM\44823
 44823\SYSTEM\44823\DRAWINGS\44823\44823\44823
 44823\SYSTEM\44823

OVERLAP PROGRAMMING DETAILS

OVERLAP PROGRAMMING DETAIL FOR DEFAULT PHASING

(program controller as shown below)

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

PAGE 1: VEHICLE OVERLAP 'B' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW X GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...Y GREEN EXTENSION (0-255 SEC)...0.0 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

PRESS '+' TWO TIMES

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

OVERLAP PROGRAMMING COMPLETE

OVERLAP PROGRAMMING DETAIL FOR ALTERNATE PHASING

(program controller as shown below)

FROM MAIN MENU PRESS '8' (OVERLAPS), THEN '1' (VEHICLE OVERLAP SETTINGS). PRESS 'NEXT' TO ADVANCE TO PAGE 2. PRESS '+' ONE TIME

PAGE 2: VEHICLE OVERLAP 'B' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW - GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...Y GREEN EXTENSION (0-255 SEC)...0.0 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

PRESS '+' TWO TIMES

PAGE 2: VEHICLE OVERLAP 'D' SETTINGS PHASE: 12345678910111213141516 VEH OVL PARENTS: X VEH OVL NOT VEH: VEH OVL NOT PED: VEH OVL GRN EXT: STARTUP COLOR: - RED - YELLOW - GREEN FLASH COLORS: - RED - YELLOW - GREEN SELECT VEHICLE OVERLAP OPTIONS: (Y/N) FLASH YELLOW IN CONTROLLER FLASH?...N GREEN EXTENSION (0-255 SEC)...0.0 YELLOW CLEAR (0=PARENT,3-25.5 SEC)...0.0 RED CLEAR (0=PARENT,0.1-25.5 SEC)...0.0 OUTPUT AS PHASE # (0=NONE, 1-16)...0

OVERLAP PROGRAMMING COMPLETE

PED 3 PROGRAMMING DETAIL

(program controller as shown below)

CHANGING OUTPUT ASSIGNMENTS

- 1. FROM MAIN MENU SELECT '6' (OUTPUTS), THEN '1' (OUTPUT ASSIGNMENTS)
2. ENTER 17 (PHASE 8 DW) FOR OUTPUT ASSIGNMENT #.
3. SCROLL DOWN TO 'PEDESTRIAN PHASE' AND ENTER 'Y' REGARDLESS OF DEFAULT PROGRAMMING
4. ENTER '3' FOR 'SELECT PEDESTRIAN PHASE'. NO CHANGE NEEDED FOR 'SELECT COLOR'
5. BACKUP TO 'OUTPUT ASSIGNMENTS AND SETTINGS MENU:' BY PRESSING THE 'ESC' BUTTON ON KEYBOARD.
6. SELECT '1' (OUTPUT ASSIGNMENTS)
7. ENTER 18 (PHASE 8 W) FOR OUTPUT ASSIGNMENT #.
8. REPEAT STEPS # 3 AND # 4.

CHANGING INPUT ASSIGNMENTS

- 1. FROM MAIN MENU SELECT '7' (DETECTORS), THEN '2' (PEDESTRIAN DETECTOR ASSIGNMENTS)
2. CYCLE TO PED DETECTOR #8 BY REPEATEDLY DEPRESSING '+' KEY
3. MODIFY PHASE ASSIGNED TO PED DETECTOR # 8 FROM PHASE 8 TO PHASE 3

PROGRAMMING COMPLETE

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

(program controller as shown below)

- 1. FROM MAIN MENU PRESS '2' (PHASE CONTROL), THEN '1' (PHASE CONTROL FUNCTIONS). SCROLL TO THE BOTTOM OF THE MENU AND ENABLE ACT LOGIC COMMANDS 1, 2 AND 3.
2. FROM MAIN MENU PRESS '6' (OUTPUTS), THEN '3' (LOGICAL I/O PROCESSOR).

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

NOTE: LOGIC FOR PHASE 3 RED CLEAR WHEN TRANSITIONING FROM PHASE 3 TO PHASE 6 (HEAD 31).

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

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

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).

LOGIC I/O PROCESSOR PROGRAMMING COMPLETE

OUTPUT REFERENCE SCHEDULE USE TO INTERPRET LOGIC PROCESSOR OUTPUT 47 = Overlap B Red OUTPUT 48 = Overlap B Yellow OUTPUT 49 = Overlap B Green

EMERGENCY VEHICLE PREEMPTION PROGRAMMING DETAIL

(program controller as shown below)

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

Table with columns: PREEMPTION #1, SETTINGS (NEXT:1-10), INTERVAL/TIMING, CLEAR/DWELL PHASES. Includes rows for 1-5 and EXIT CALLS with various timing and phase settings.

Program Extend time on optical detector unit for 2.0 seconds.

NC Dept of Transportation Division of Highways Final Drawing Date: 1/16/2020

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2236 DESIGNED: November 2019 SEALED: November 20, 2019 REVISED:

Prepared By: AMT A. MORTON THOMAS AND ASSOCIATES, INC. CONSULTING ENGINEERS 6131 FALLS OF NEUSE ROAD, SUITE 106, RALEIGH, NC 27609

ELECTRICAL AND PROGRAMMING DETAILS FOR: Prepared for the Offices of: North Carolina Department of Transportation

US 401 SB (Louisburg Road) at SR 1003 (East Young Street) Division 5 Wake County Rolesville PLAN DATE: November 2019 REVIEWED BY: J O Deaton PREPARED BY: M W Valch REVIEWED BY:

SEAL NORTH CAROLINA PROFESSIONAL ENGINEER JAMES O. DEATON 07438 DocuSigned by: James O. Deaton 12/18/2019 SIGNATURE DATE SIG. INVENTORY NO. 05-2236

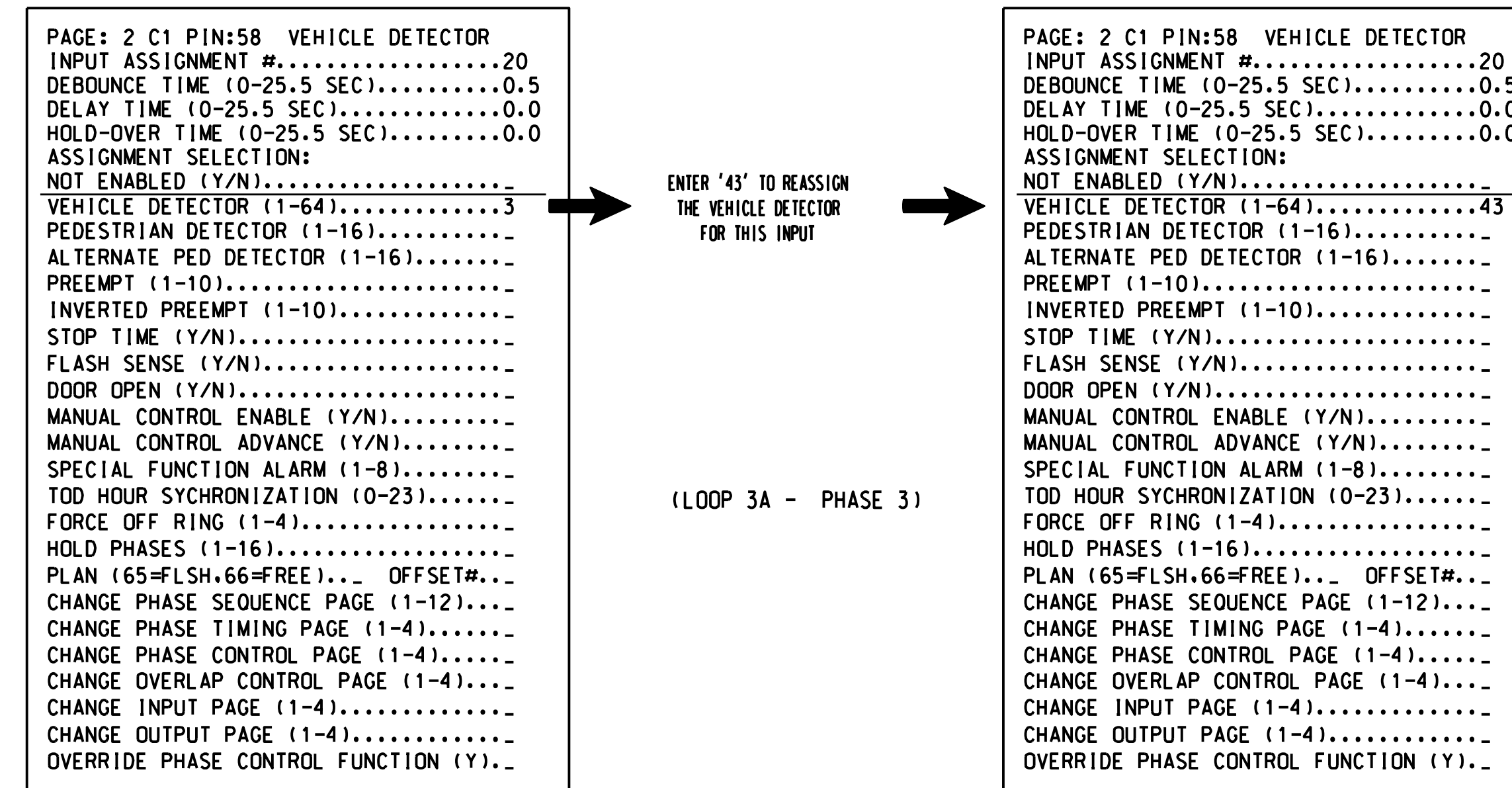
Vertical text on the left margin: 44823/2019/11/20/05-2236

INPUT PAGE 2 ASSIGNMENT PROGRAMMING DETAIL FOR ALTERNATE PHASING - LOOP 3A

(program controller as shown below)

- NOTES: 1. THIS PROGRAMMING APPLIES FOR INPUT PAGE 2 ONLY. INPUT PAGE 1 WILL USE STANDARD DEFAULT SETTINGS. THIS PROGRAMMING IS NECESSARY FOR PROPER DETECTOR OPERATION DURING ALTERNATE PHASING OPERATION.
2. THIS PROGRAMMING REASSIGNS DETECTOR 43 TO INPUT #20 SO THAT THE DELAY ON LOOP 3A CAN BE REDUCED FROM 15 SECONDS TO 0 SECONDS.

FROM MAIN MENU PRESS '5' (INPUTS), THEN PRESS 'NEXT' TO GET TO INPUT PAGE '2'. PRESS THE '+' KEY UNTIL INPUT 20 IS REACHED.

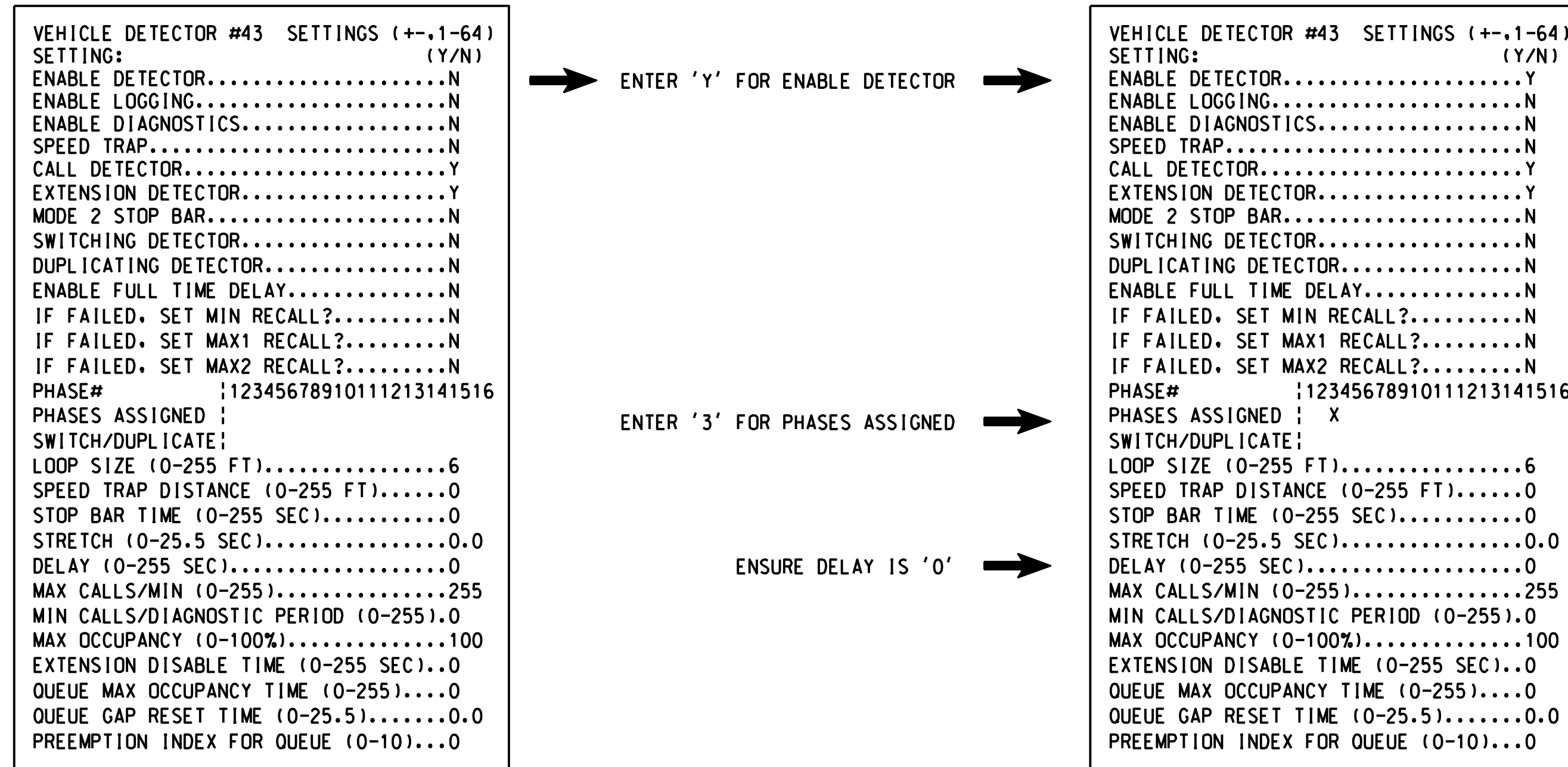


PROGRAMMING COMPLETE

SPECIAL DETECTOR PROGRAMMING DETAIL - LOOP 3A (ALT.)

(program controller as shown below)

FROM MAIN MENU PRESS '7' (DETECTORS), THEN PRESS '1' FOR VEHICLE DETECTORS. PRESS THE '-' KEY TO GET TO VEHICLE DETECTOR #43.



NOTE: DETECTOR IS PROGRAMMED PER THE INPUT FILE CONNECTION AND PROGRAMMING CHART SHOWN ON SHEET 1.

DETECTOR PROGRAMMING COMPLETE

NC Dept of Transportation
Division of Highways
Final Drawing Date: 1/16/2020
Designed by: *James O. Deaton*
ITS & Signals Unit

THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 05-2236
DESIGNED: November 2019
SEALED: November 20, 2019
REVISED:

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Prepared By:

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ELECTRICAL AND PROGRAMMING DETAILS FOR:

Prepared for the Offices of:

750 N. Greenfield Phwy, Garner, NC 27529

Electrical Detail - Sheet 3 of 4

US 401 SB (Louisburg Road) at SR 1003 (East Young Street)

Division 5 Wake County Rolesville

PLAN DATE: November 2019	REVIEWED BY: J O Deaton
PREPARED BY: M W Valch	REVIEWED BY:

REVISIONS

REVISIONS	INIT.	DATE

SEAL

James O. Deaton 12/18/2019
SIGNATURE DATE
SIG. INVENTORY NO. 05-2236

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

