

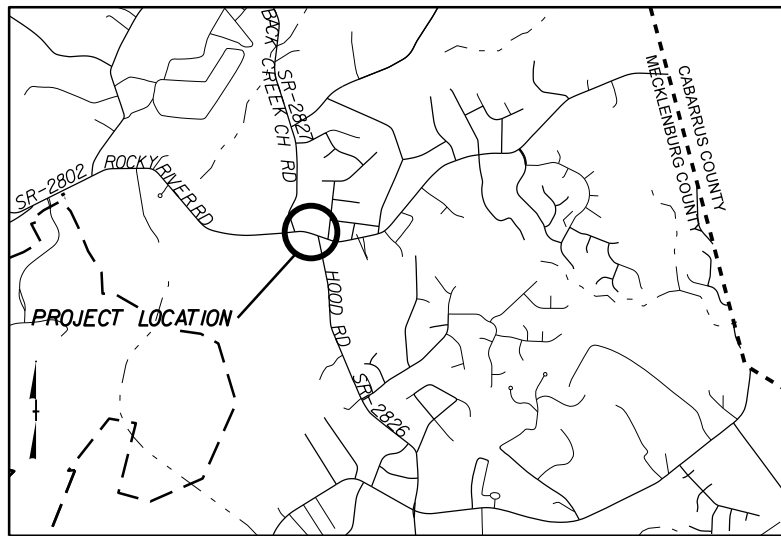
**PROJECT: 50138.3.168 TIP:W-5601FK**

STATE OF NORTH CAROLINA

DIVISION OF HIGHWAYS

**MECKLENBURG COUNTY**

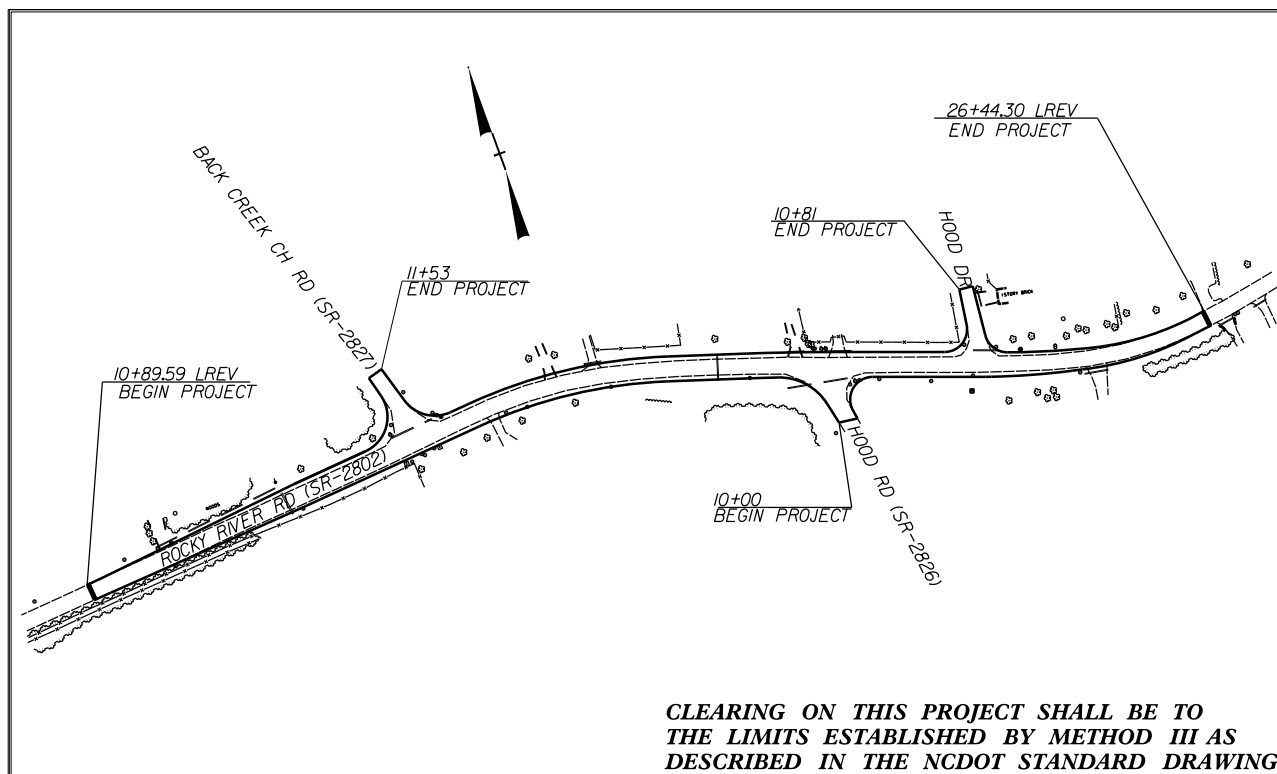
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	50138.3.168	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.168	HSIP-2802(001)	P.E.	
50138.2.168	HSIP-2802(001)	RW	
50138.3.168	HSIP-2802(001)	CONST.	



VICINITY MAP NOT TO SCALE

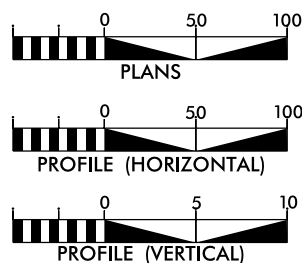
**LOCATION:** ROCKY RIVER RD. (SR-2802) FROM 450' WEST OF BACK CREEK CH. RD. (SR-2827) TO 270' EAST OF HOOD DR.

**TYPE OF WORK:** GRADING, PAVING, DRAINAGE, THERMOPLASTIC PAVEMENT MARKERS & TRAFFIC SIGNALS



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

GRAPHIC SCALES



DESIGN DATA

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

PROJECT LENGTH

LENGTH OF ROADWAY PROJECT 50138.3.168 = 0.348 MILES  
 TOTAL LENGTH OF STATE PROJECT 50138.3.168 = 0.348 MILES

Prepared in the Office of:  
**DIVISION OF HIGHWAYS**

DIVISION TEN  
 DIVISION DESIGN / CONSTRUCT UNIT

RIGHT OF WAY DATE:

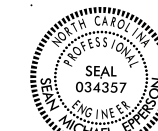
DONALD HARWARD  
 PROJECT ENGINEER

LETTING DATE:

DONALD HARWARD  
 PROJECT DESIGN ENGINEER



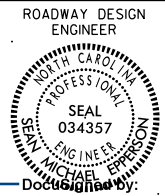
ROADWAY DESIGN ENGINEER



DocuSigned by:

*Michael E. Spivey*

SIGNATURE A92E75CC0FFB43B

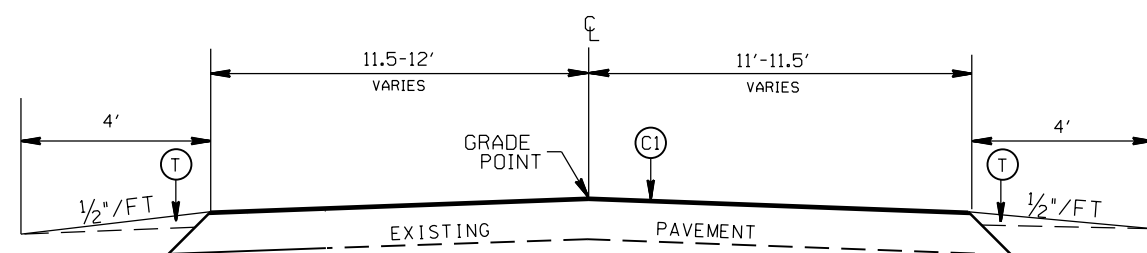
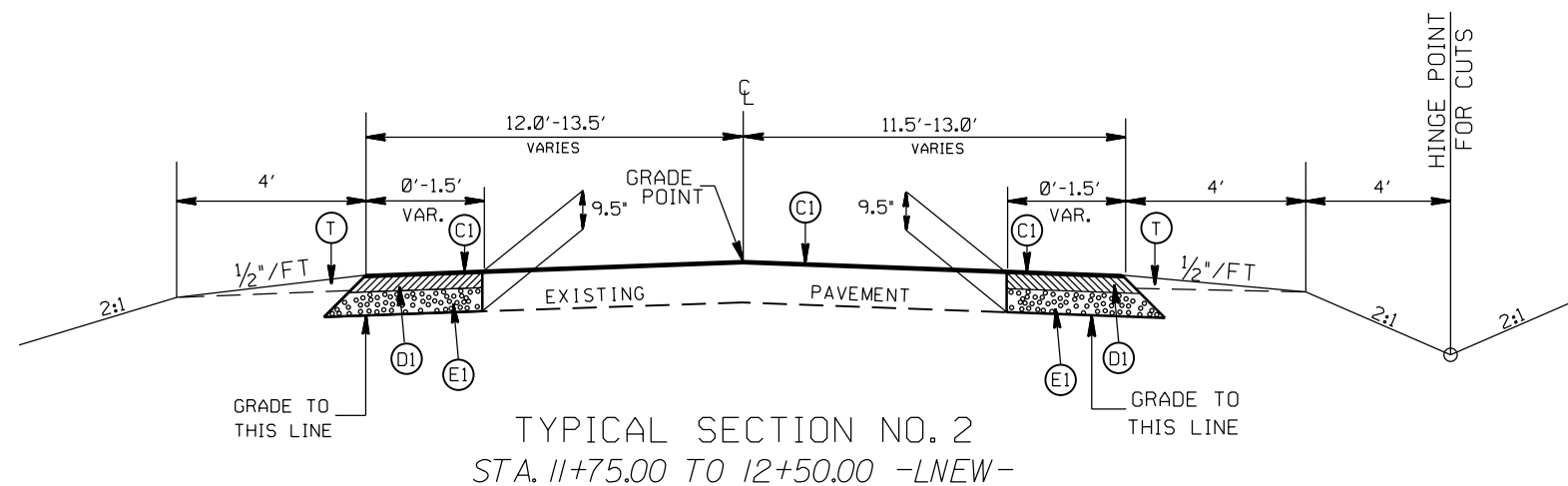
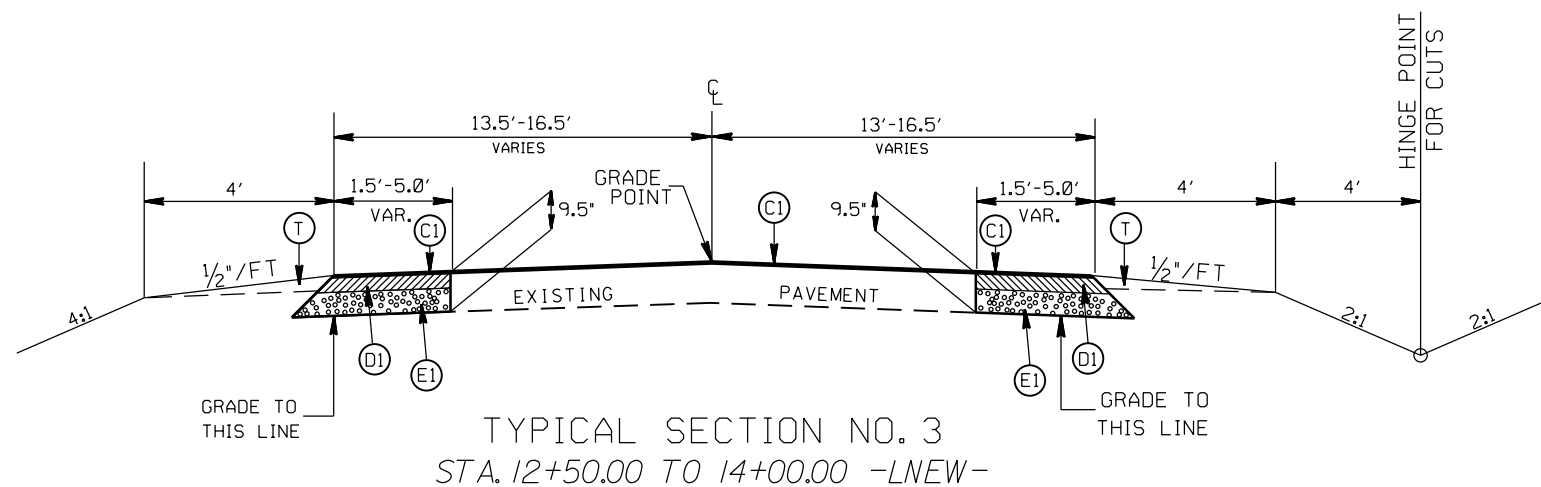


Document by: *Michael J. Johnson*

A92E75CC0FFB43B...

## PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(C3)	PROP. APPROX. 2.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(D1)	PROP. APPROX. 4.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E2)	PROP. VARIABLE DEPTH ASPHALT CONC. BASE COURSE.
(R1)	PROP. 2'-6" CONCRETE CURB & GUTTER
(R2)	PROP. 4.0" THICK CONCRETE SIDE WALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V2)	MILLING ASPHALT PAVEMENT, 3.0" IN DEPTH

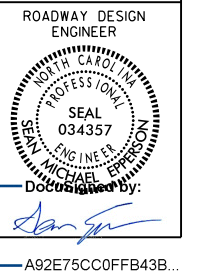


LEFT TURN LANES ON  
ROCKY RIVER RD.(SR-2802)  
AT BACK CREEK CHURCH RD.(SR-2827)  
AND HOOD RD.(SR-2826)

SCALE	1"=50'
DATE	3-2018
DWG. BY	CEB
DESIGN BY	JDH
APPROVED	JDH



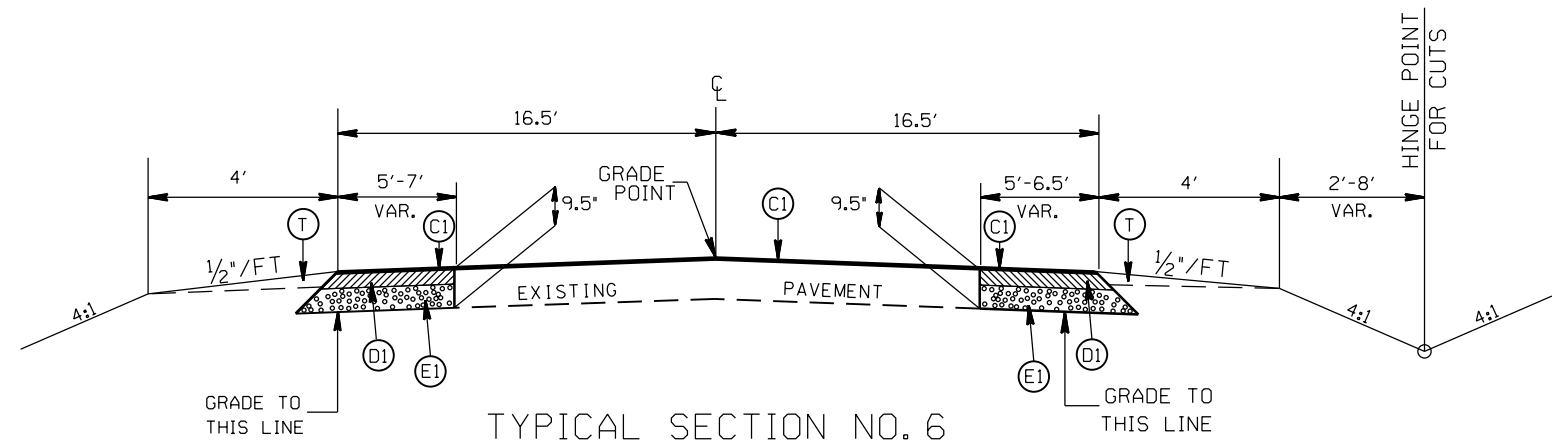
REVISIONS	



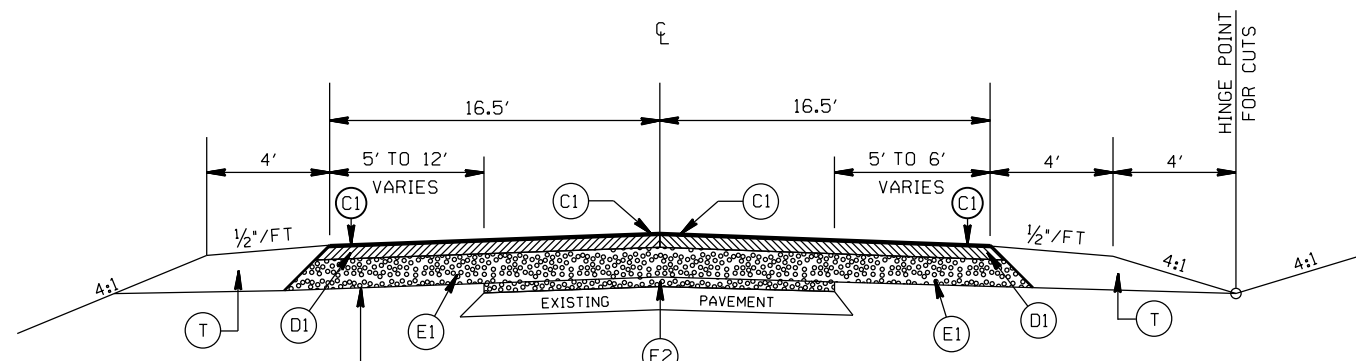
A92E75CC0FFB43B...

### PAVEMENT SCHEDULE

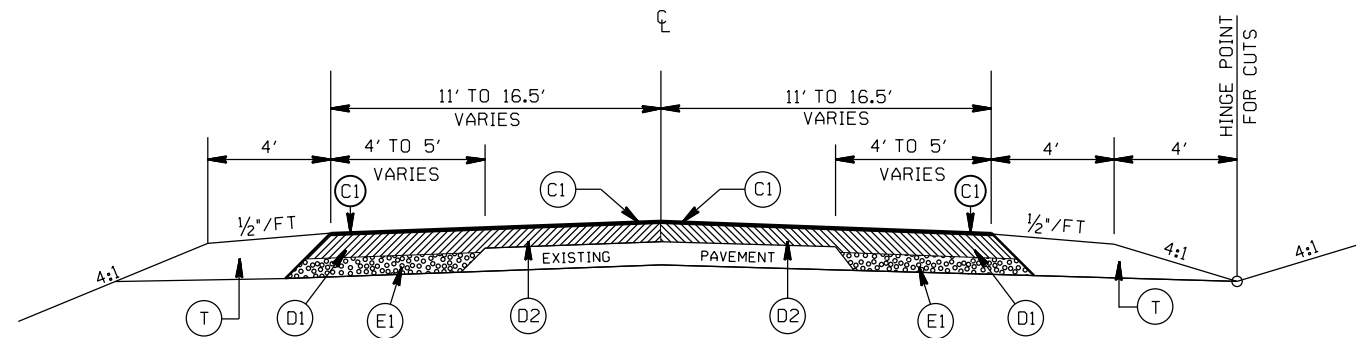
(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(C3)	PROP. APPROX. 2.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(D1)	PROP. APPROX. 4.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E2)	PROP. VARIABLE DEPTH ASPHALT CONC. BASE COURSE.
(R1)	PROP. 2'-6" CONCRETE CURB & GUTTER
(R2)	PROP. 4.0" THICK CONCRETE SIDE WALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V2)	MILLING ASPHALT PAVEMENT, 3.0" IN DEPTH



TYPICAL SECTION NO. 6  
STA. 16+00.00 TO 19+00.00 -LNEW-



TYPICAL SECTION NO. 5  
STA. 14+50.00 TO 16+00.00 -LNEW-  
STA. 19+00.00 TO 21+00.00 -LNEW-



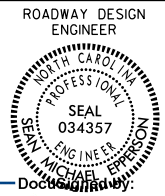
TYPICAL SECTION NO. 4  
STA. 14+00.00 TO 14+50.00 -LNEW-  
STA. 18+50.00 TO 19+00.00 -LNEW-

LEFT TURN LANES ON  
ROCKY RIVER RD.(SR-2802)  
AT BACK CREEK CHURCH RD.(SR-2827)  
AND HOOD RD.(SR-2826)

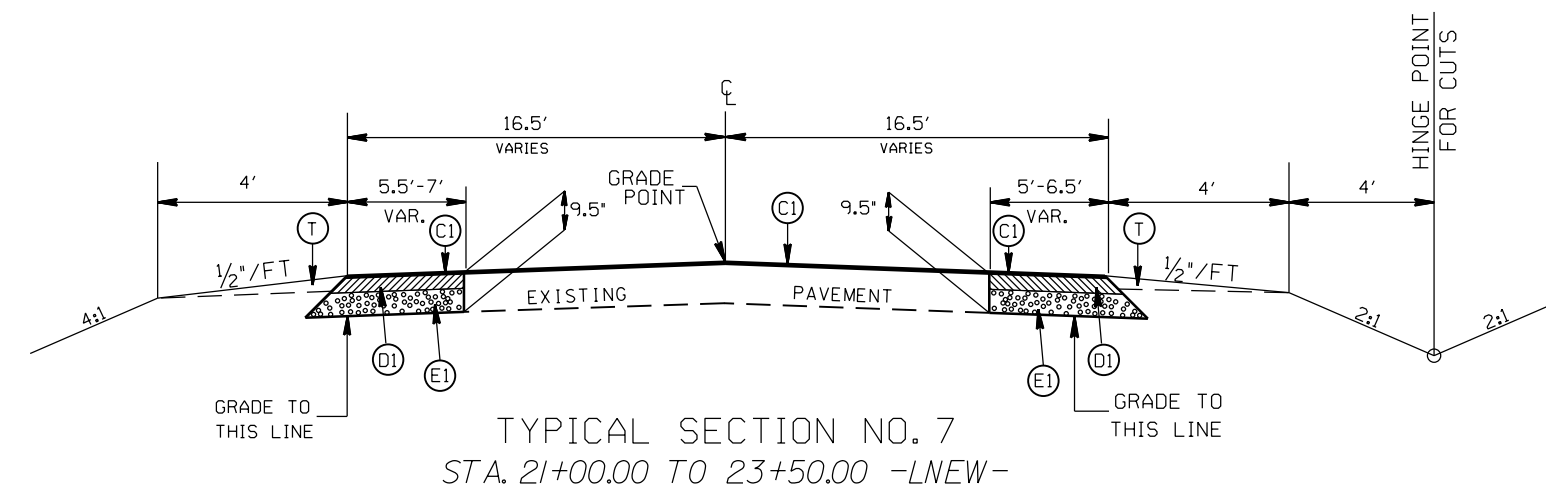
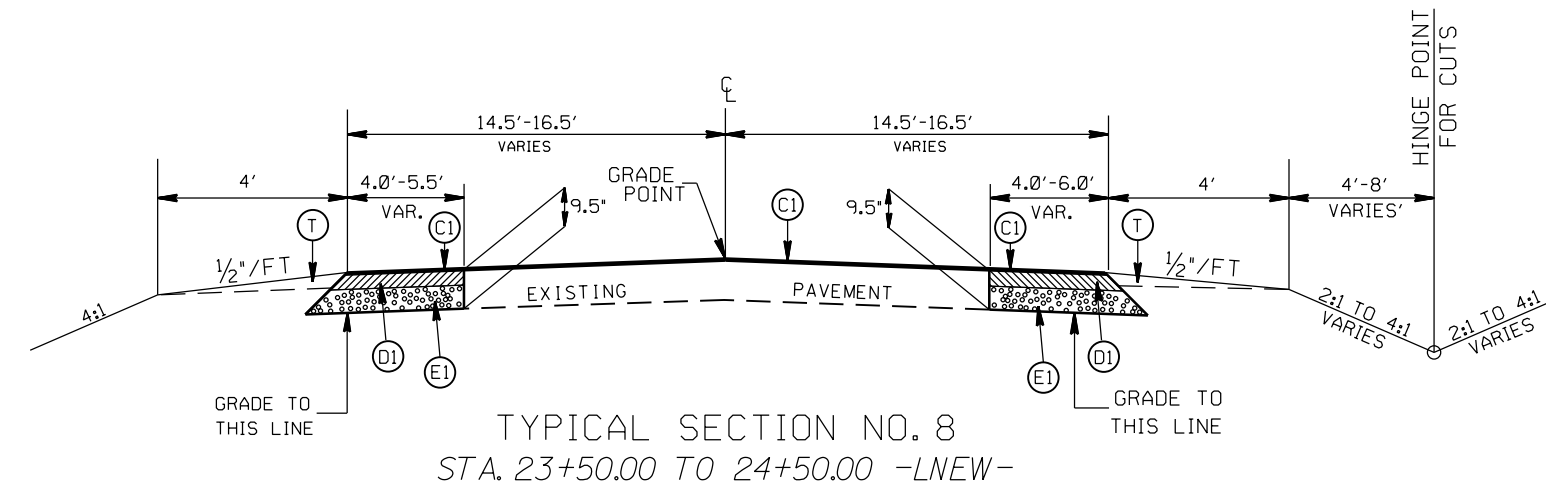
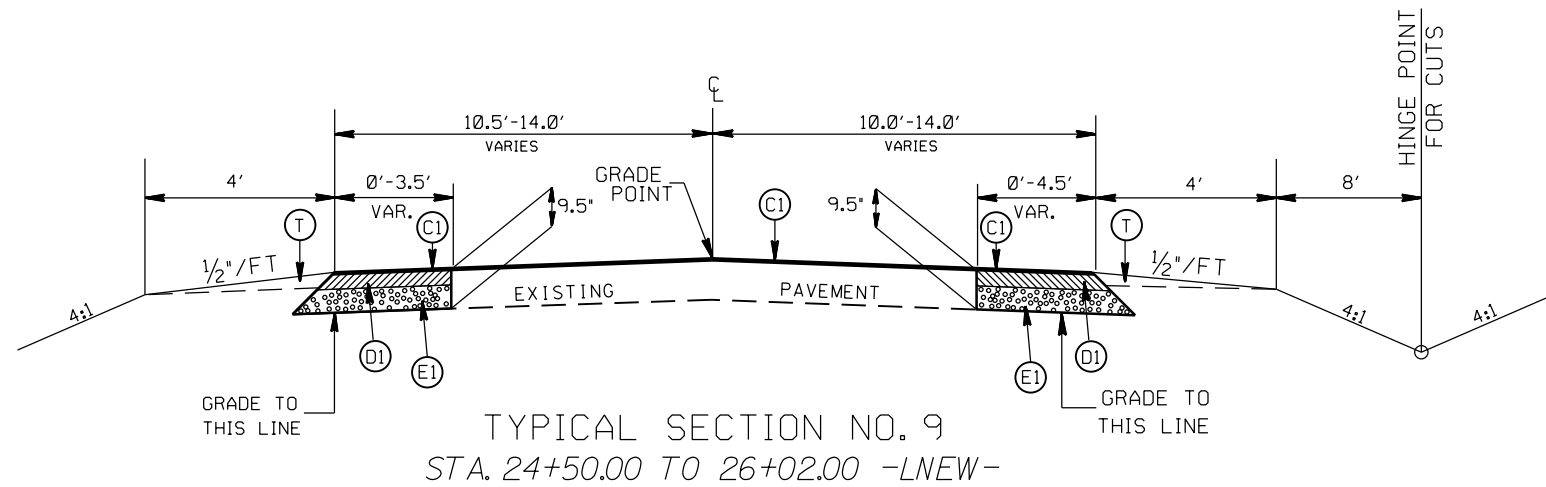
SCALE	1"=50'
DATE	3-2018
DWG. BY	CEB
DESIGN BY	JDH
APPROVED	JDH



REVISIONS	

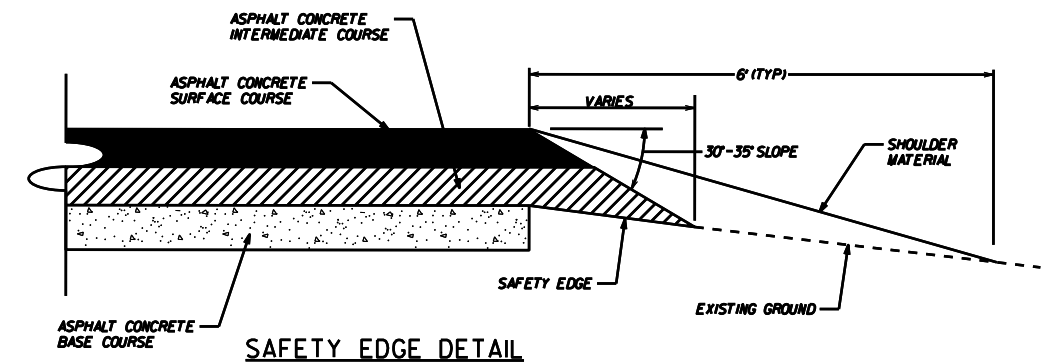


DocuSign  
A92E75CC0FFB43B...



### PAVEMENT SCHEDULE

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(C3)	PROP. APPROX. 2.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(D1)	PROP. APPROX. 4.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E2)	PROP. VARIABLE DEPTH ASPHALT CONC. BASE COURSE.
(R1)	PROP. 2'-6" CONCRETE CURB & GUTTER
(R2)	PROP. 4.0" THICK CONCRETE SIDE WALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V2)	MILLING ASPHALT PAVEMENT, 3.0" IN DEPTH

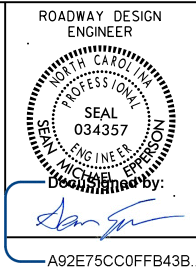


LEFT TURN LANES ON  
ROCKY RIVER RD.(SR-2802)  
AT BACK CREEK CHURCH RD.(SR-2827)  
AND HOOD RD.(SR-2826)

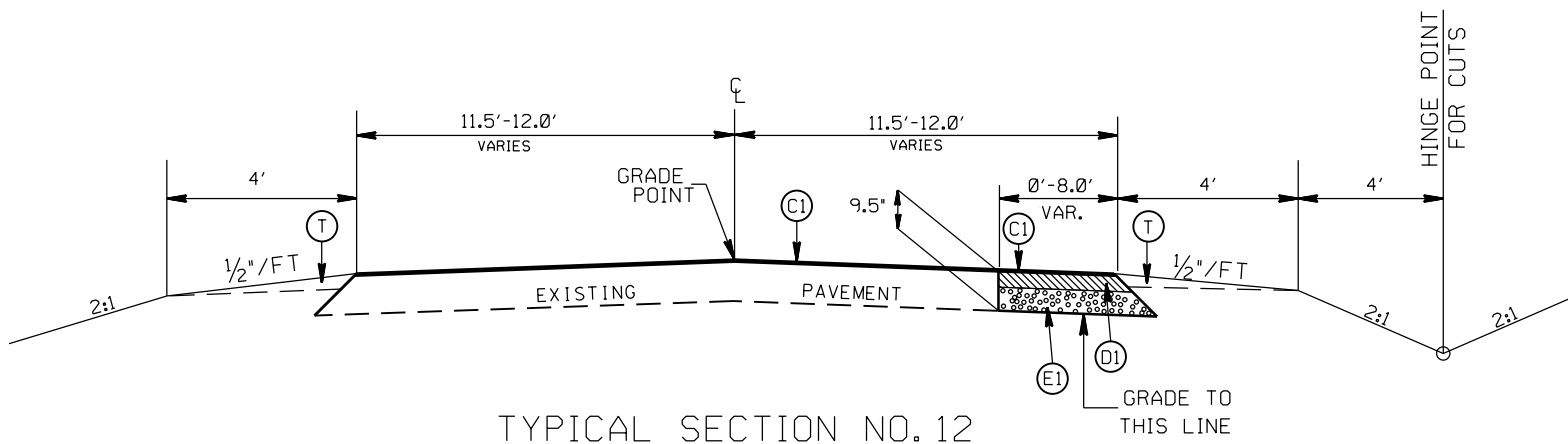
SCALE r=50'  
DATE 3-2018  
DWG. BY CEB  
DESIGN BY JDH  
APPROVED JDH



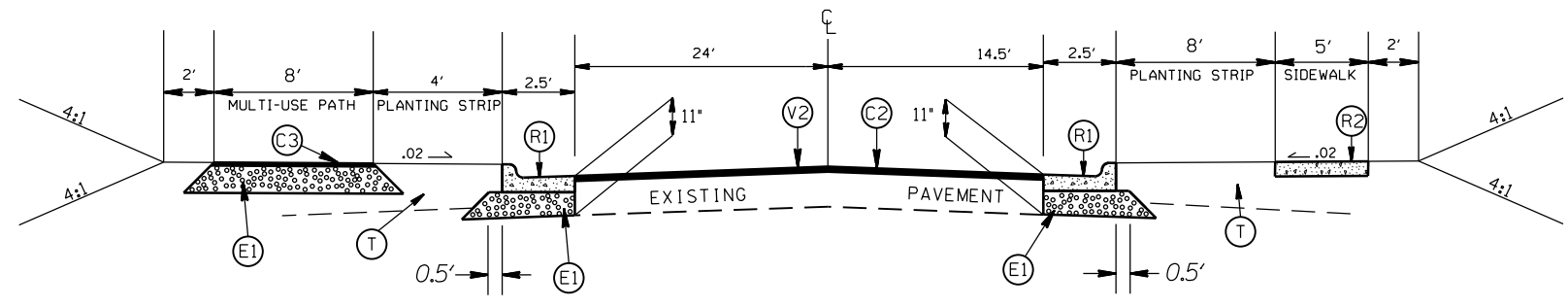
REVISIONS

### PAVEMENT SCHEDULE

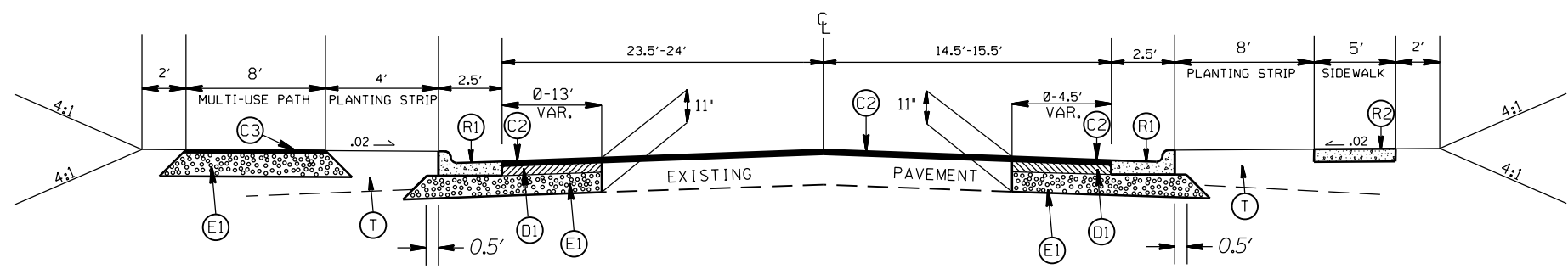


TYPICAL SECTION NO. 12  
STA. 10+19.33 TO 10+78.00 -Y2NEW-

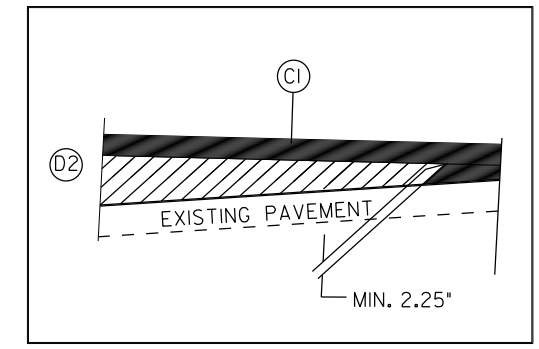


TYPICAL SECTION NO. 11  
STA. 11+23.00 TO 11+53.00 -Y1NEW-

(C1)	PROP. APPROX. 1.5" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD.
(C2)	PROP. APPROX. 3.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
(C3)	PROP. APPROX. 2.0" ASPHALT CONC. SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD.
(D1)	PROP. APPROX. 4.0" ASPHALT CONC. INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(D2)	PROP. VARIABLE DEPTH ASPHALT CONC. INTERMEDIATE COURSE.
(E1)	PROP. APPROX. 4.0" ASPHALT CONC. BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
(E2)	PROP. VARIABLE DEPTH ASPHALT CONC. BASE COURSE.
(R1)	PROP. 2'-6" CONCRETE CURB & GUTTER
(R2)	PROP. 4.0" THICK CONCRETE SIDE WALK (5' IN WIDTH)
(T)	EARTH MATERIAL
(V2)	MILLING ASPHALT PAVEMENT, 3.0" IN DEPTH



TYPICAL SECTION NO. 10  
STA. 10+17.00 TO 11+23.00 -Y1NEW-

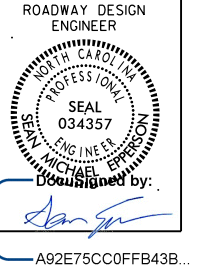


WEDGING DETAIL

LEFT TURN LANES ON  
ROCKY RIVER RD.(SR-2802)  
AT BACK CREEK CHURCH RD.(SR-2827)  
AND HOOD RD.(SR-2826)

SCALE	r=50'		REVISIONS
DATE	3-2018		
DWG. BY	CEB		
DESIGN BY	JDH		
APPROVED	JDH		





A92E75C0FFB43B...

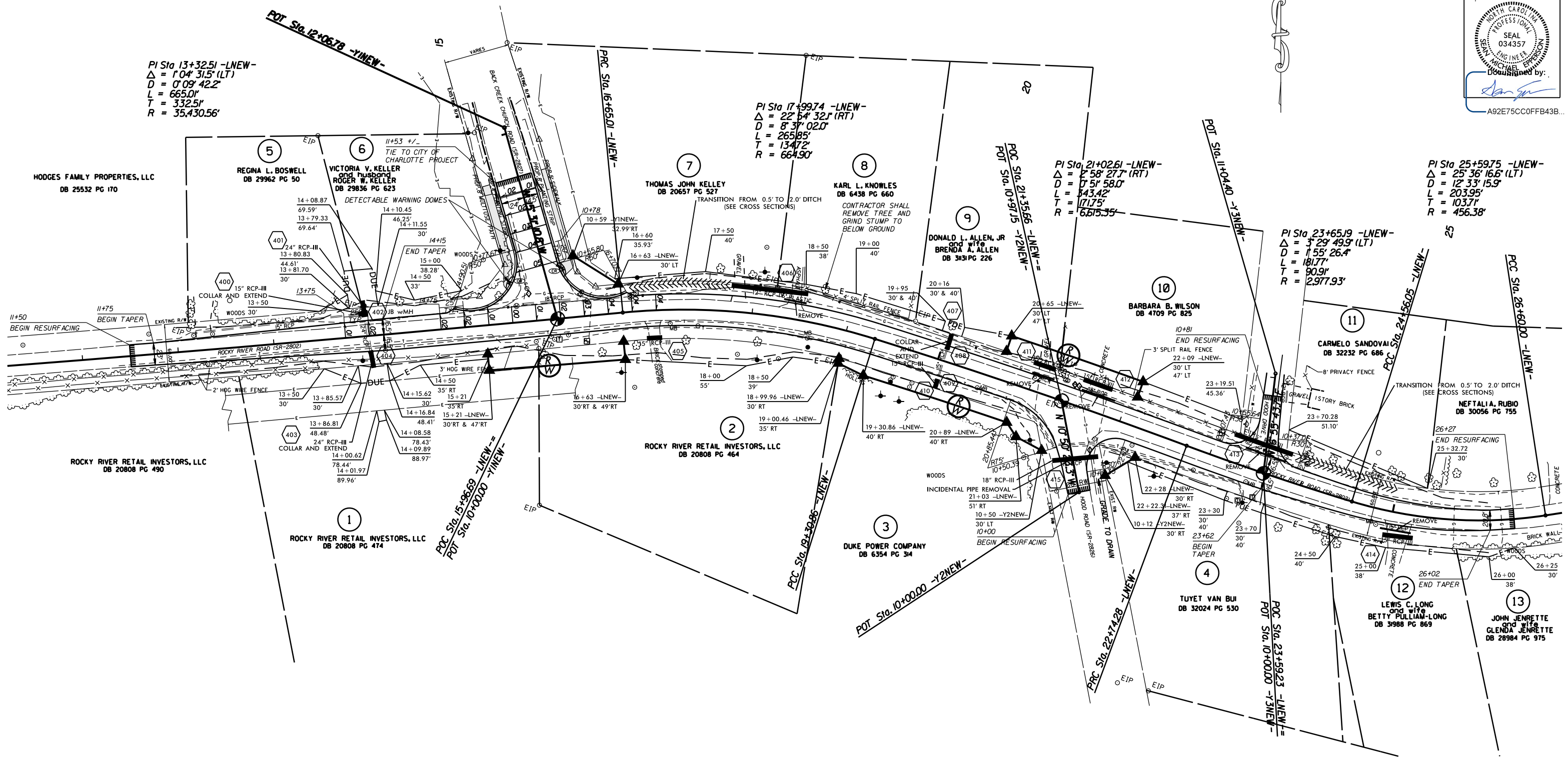
PI Sta 13+32.51 -LNEW-  
 $\Delta = 1^{\circ}04'31.5''$  (LT)  
 $D = 0^{\circ}09'42.2''$   
 $L = 665.01'$   
 $T = 332.51'$   
 $R = 35,430.56'$

PI Sta 17+99.74 -LNEW-  
 $\Delta = 22^{\circ}54'32.1''$  (RT)  
 $D = 8^{\circ}31'02.0''$   
 $L = 265.85'$   
 $T = 134.72'$   
 $R = 664.90'$

PI Sta 21+02.61 -LNEW-  
 $\Delta = 2^{\circ}58'27.7''$  (RT)  
 $D = 7^{\circ}51'58.0''$   
 $L = 343.42'$   
 $T = 171.75'$   
 $R = 6,615.35'$

PI Sta 25+59.75 -LNEW-  
 $\Delta = 25^{\circ}36'16.6''$  (LT)  
 $D = 12^{\circ}33'15.9''$   
 $L = 203.95'$   
 $T = 103.71'$   
 $R = 456.38'$

PI Sta 23+65.19 -LNEW-  
 $\Delta = 3^{\circ}29'49.9''$  (LT)  
 $D = 11^{\circ}55'26.4''$   
 $L = 181.77'$   
 $T = 90.91'$   
 $R = 2,977.93'$



LEFT TURN LANES ON  
 ROCKY RIVER RD.(SR-2802)  
 AT BACK CREEK CHURCH RD.(SR-2827)  
 AND HOOD RD.(SR-2826)

SCALE	1"=50'		REVISIONS
DATE	3-2018		
DWG. BY	TBL		
DESIGN BY	JDH		
APPROVED	JDH		

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

HODGES FAMILY PROPERTIES, LLC  
 DB 25532 PG 170

REGINA L. BOSWELL  
 DB 29962 PG 50

VICTORIA V. KELLER  
 and husband  
 ROGER W. KELLER  
 DB 29836 PG 623

THOMAS JOHN KELLEY  
 DB 20657 PG 527

KARL L. KNOWLES  
 DB 6438 PG 660

DONALD L. ALLEN, JR  
 and wife  
 BRENDA A. ALLEN  
 DB 3131 PG 226

BARBARA B. WILSON  
 DB 4709 PG 825

CARMELO SANDOVAI  
 DB 32232 PG 686

NEFTALIA A. RUBIO  
 DB 30056 PG 755

ROCKY RIVER RETAIL INVESTORS, LLC  
 DB 20808 PG 464

DUKE POWER COMPANY  
 DB 6354 PG 314

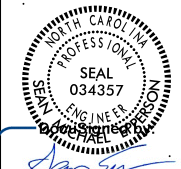
TUYET VAN BUI  
 DB 32024 PG 530

LEWIS C. LONG  
 and wife  
 BETTY PULLIAM-LONG  
 DB 31988 PG 869

JOHN JENRETTE  
 and wife  
 GLENDA JENRETTE  
 DB 28984 PG 975

ROCKY RIVER RETAIL INVESTORS, LLC  
 DB 20808 PG 490

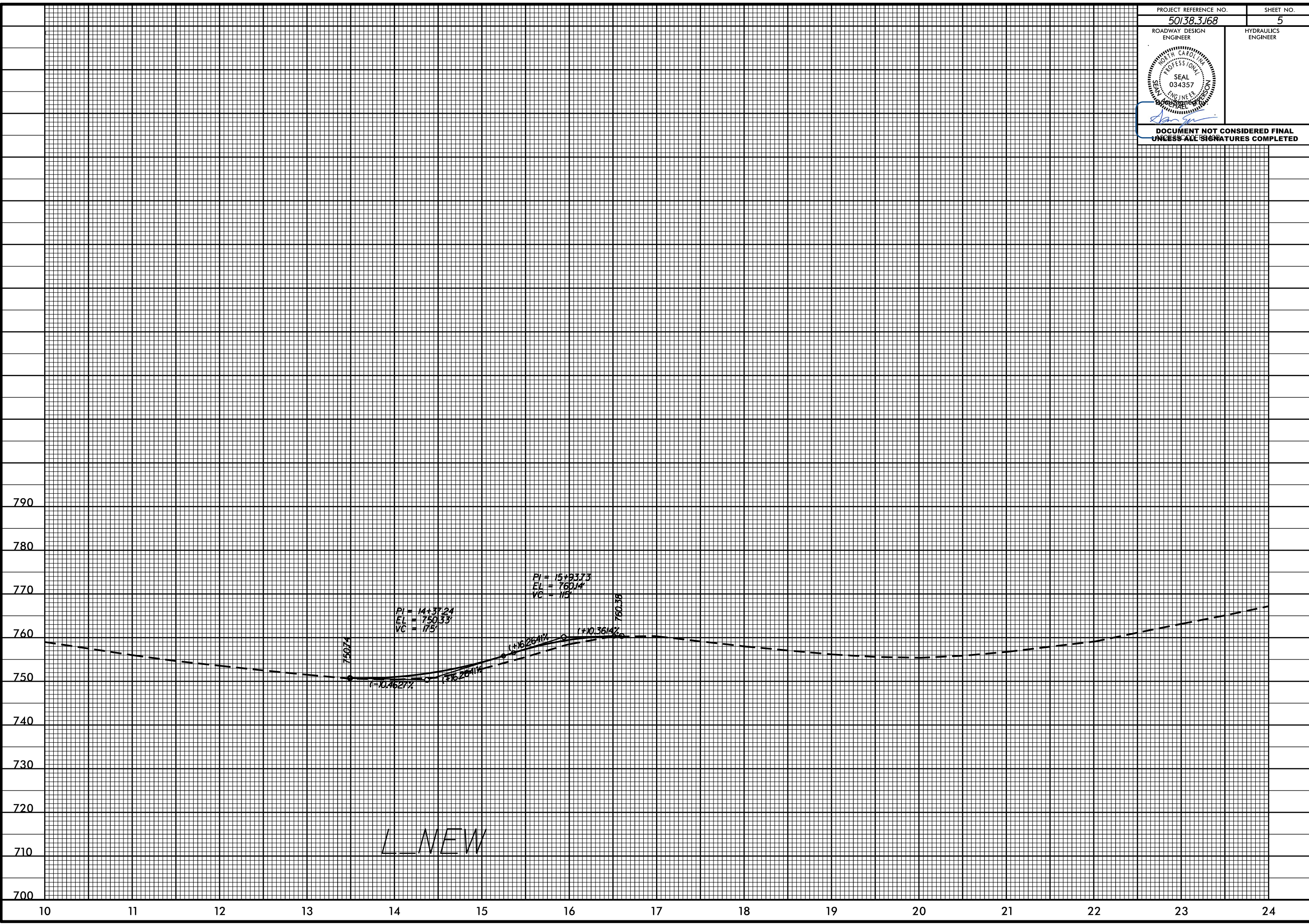
ROCKY RIVER RETAIL INVESTORS, LLC  
 DB 20808 PG 474



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

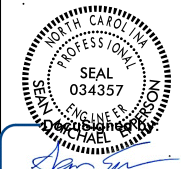
5/14/99

26-MAR-2019 10:42 S:\DDC\RDY\Mech\erbyrg\Back Creek\_Rocky River\_mel.pfl.dgn



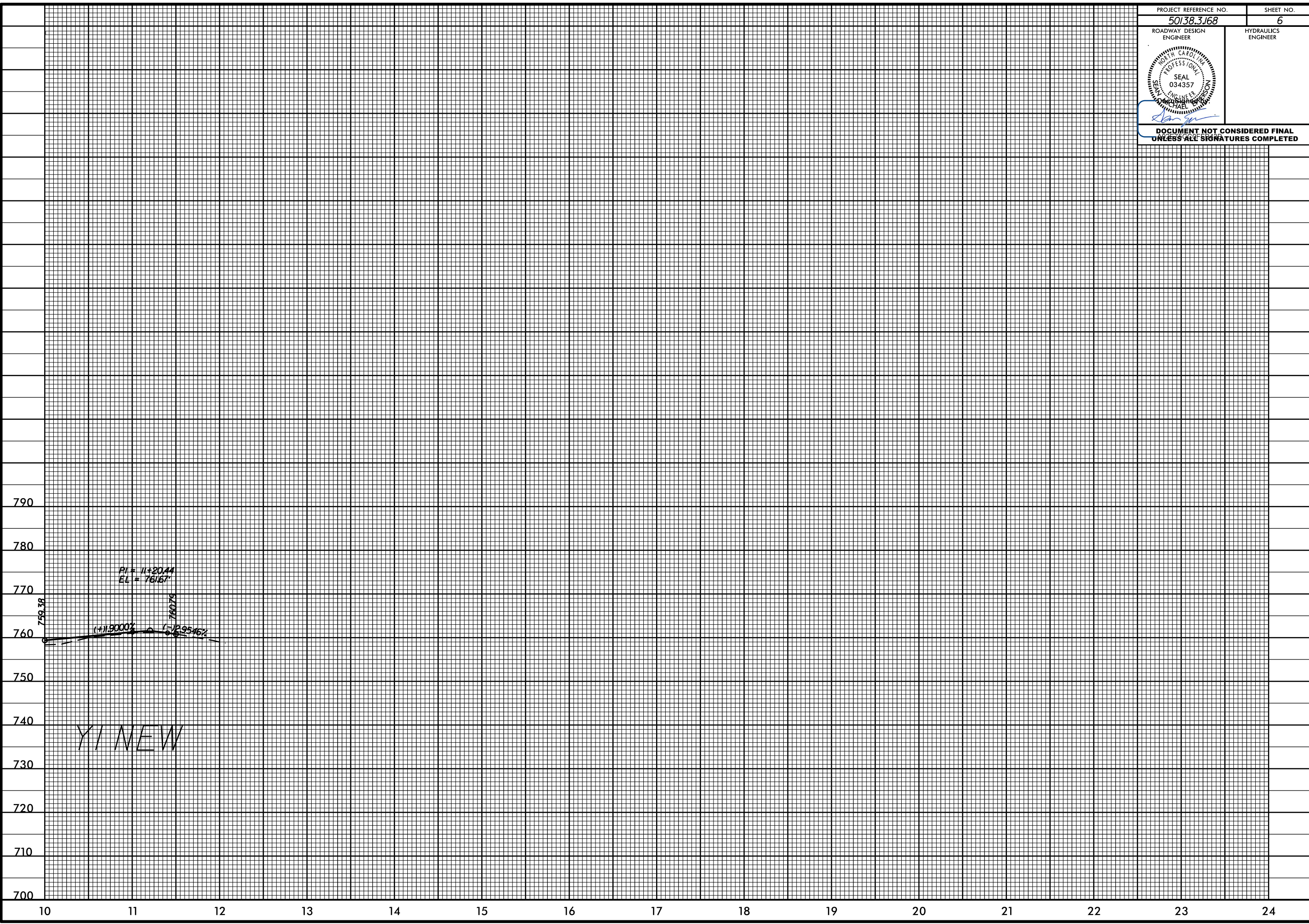
L\_NEW





DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99  
26-MAR-2019 11:40  
S:\DDC\RDY\Mecklenburg\Back Creek\Rocky River\_mel.p1.dgn  
Back Creek Ch @ Rocky River and Hood Rd\Roadway\Proj\Back Creek\Rocky River\_mel.p1.dgn  
11/11/12



790  
780  
770  
760  
750  
740  
730  
720  
710  
700

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

PI = 11+20.44  
EL = 761.67'

759.38

(+1) 1.9000%

(-1) 2.9546%

YI NEW

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	50138.3.168	EC-1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
50138.1.168	HSIP-2802(001)	P.E.	
50138.2.168	HSIP-2802(001)	RW	
50138.3.168	HSIP-2802(001)	CONST.	

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS  

---

---

**PLAN FOR PROPOSED  
HIGHWAY EROSION CONTROL**

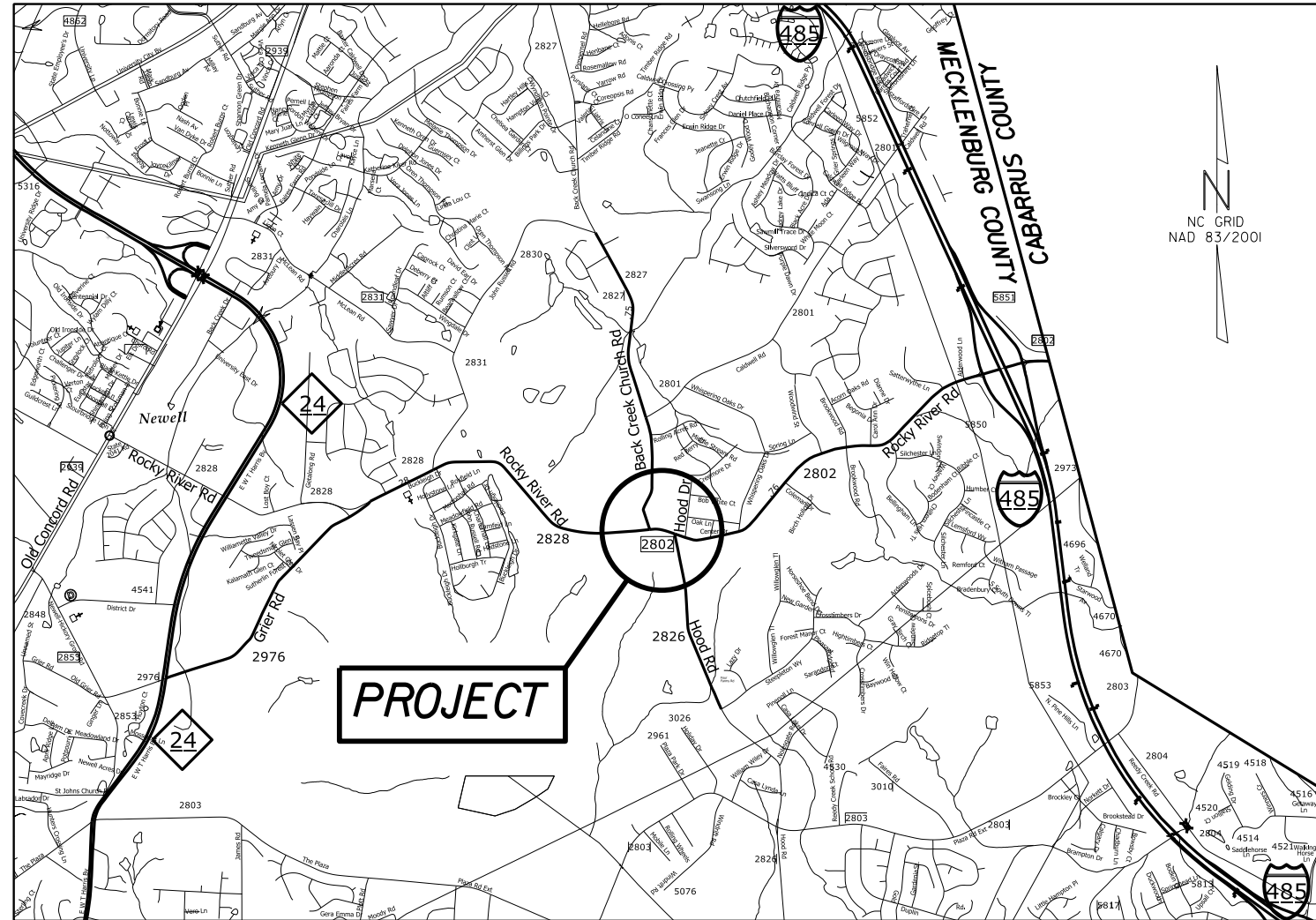
---

---

**EROSION AND SEDIMENT CONTROL MEASURES**

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	III III III
1606.01	Special Sediment Control Fence	III III III
1622.01	Temporary Berms and Slope Drains	T
1630.02	Silt Basin Type B	▧
1633.01	Temporary Rock Silt Check Type-A	▨
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	▨
1633.02	Temporary Rock Silt Check Type-B	▨
	Wattle/Coir Fiber Wattle	W
	Wattle/Coir Fiber Wattle with Polyacrylamide (PAM)	W
1634.01	Temporary Rock Sediment Dam Type-A	▭
1634.02	Temporary Rock Sediment Dam Type-B	▭
1635.01	Rock Pipe Inlet Sediment Trap Type-A	⊂
1635.02	Rock Pipe Inlet Sediment Trap Type-B	⊂
1630.04	Stilling Basin	▭
1630.06	Special Stilling Basin	▭
	Rock Inlet Sediment Trap:	
1632.01	Type A	A □
1632.02	Type B	B □
1632.05	Type C	C □
	Skimmer Basin	▭
	Tiered Skimmer Basin	▭
	Infiltration Basin	▭

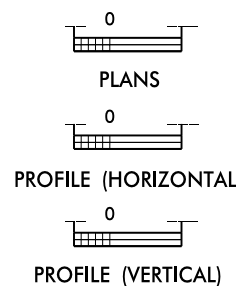
**PROJECT: 50138.3.168 TIP : W-5601FK**



VICINITY MAP NOT TO SCALE

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

**GRAPHIC SCALE**



ROADSIDE ENVIRONMENTAL UNIT  
DIVISION OF HIGHWAYS  
STATE OF NORTH CAROLINA

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

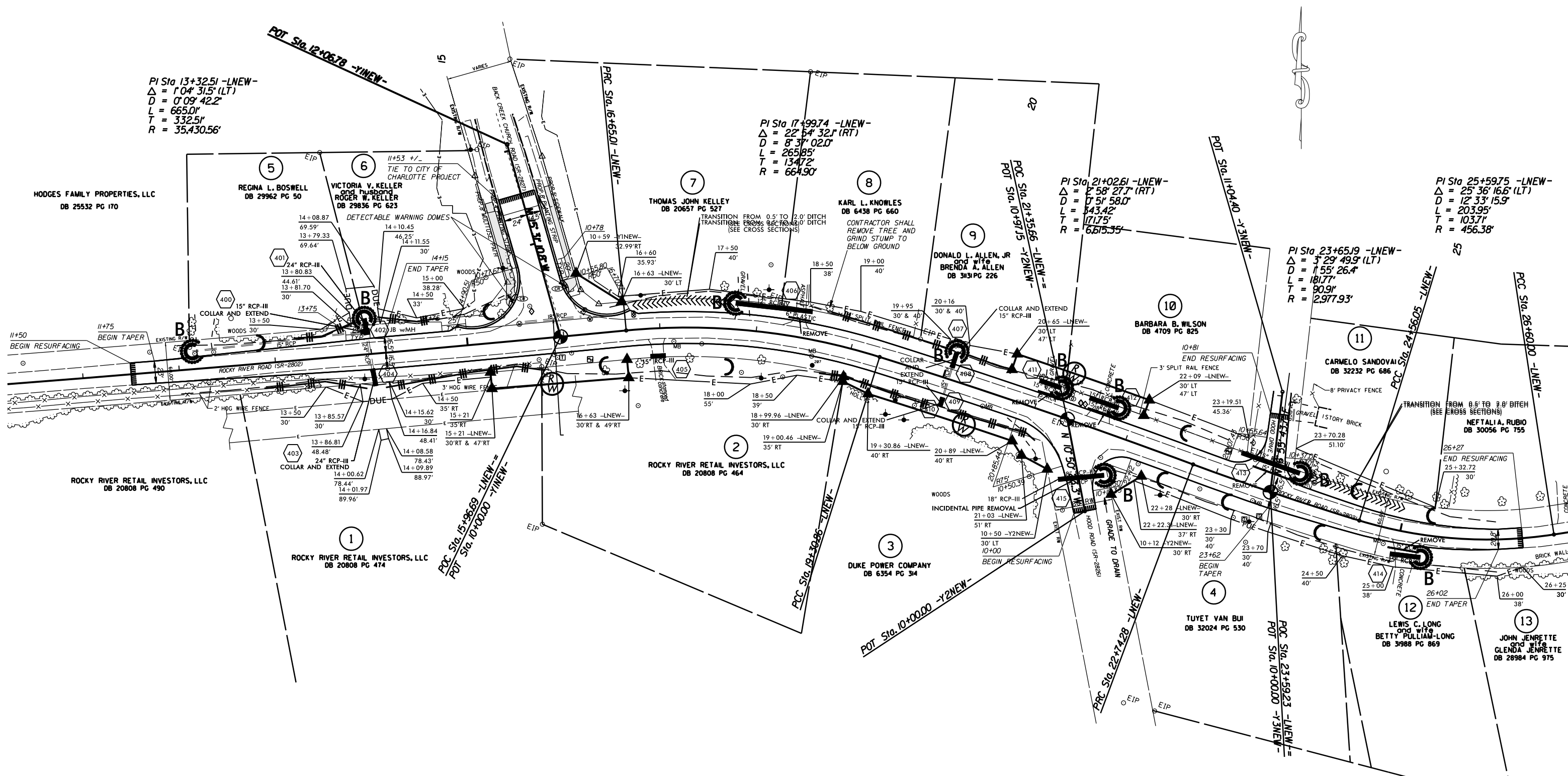
Prepared in the Office of:  
**DDC UNIT DIVISION 10**  
DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**2018 STANDARD SPECIFICATIONS**

Designed by:  
**TRAVIS LOWDER** 3742  
NAME LEVEL III CERTIFICATION NO.

**Roadway Standard Drawings**

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

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



PI Sta 13+32.51 -LNEW-  
 $\Delta = 1^{\circ}04'31.5"$  (LT)  
 $D = 0^{\circ}09'42.2"$   
 $L = 665.0'$   
 $T = 332.5'$   
 $R = 35,430.56'$

PI Sta 17+99.74 -LNEW-  
 $\Delta = 22^{\circ}54'32.1"$  (RT)  
 $D = 8^{\circ}3'02.0"$   
 $L = 265.85'$   
 $T = 134.72'$   
 $R = 664.90'$

PI Sta 21+02.61 -LNEW-  
 $\Delta = 2^{\circ}58'27.7"$  (RT)  
 $D = 7^{\circ}5'58.0"$   
 $L = 343.42'$   
 $T = 171.75'$   
 $R = 6,615.35'$

PI Sta 25+59.75 -LNEW-  
 $\Delta = 25^{\circ}36'16.6"$  (LT)  
 $D = 12^{\circ}33'15.9"$   
 $L = 203.95'$   
 $T = 103.7'$   
 $R = 456.38'$

PI Sta 23+65.19 -LNEW-  
 $\Delta = 3^{\circ}29'49.9"$  (LT)  
 $D = 1^{\circ}55'26.4"$   
 $L = 181.77'$   
 $T = 90.9'$   
 $R = 2,977.93'$

POT Sta. 10+97.15 -Y2NEW-  
 PCC Sta. 21+35.66 -LNEW-  
 DONALD L. ALLEN, JR  
 and wife  
 BRENDA A. ALLEN  
 DB 3131 PG 226

PI Sta. 24+56.05 -LNEW-  
 PCC Sta. 26+60.00 -LNEW-  
 CARMELO SANDOVAL  
 DB 32232 PG 686

PI Sta. 25+32.72 -LNEW-  
 PCC Sta. 26+60.00 -LNEW-  
 NEFTALIA, RUBIO  
 DB 30056 PG 755

POT Sta. 23+59.23 -LNEW-  
 PCC Sta. 10+00.00 -Y3NEW-  
 TUYET VAN BUI  
 DB 32024 PG 530

POT Sta. 26+25.30 -LNEW-  
 PCC Sta. 26+60.00 -LNEW-  
 JOHN JENRETTE  
 and wife  
 GLENDA JENRETTE  
 DB 28984 PG 975

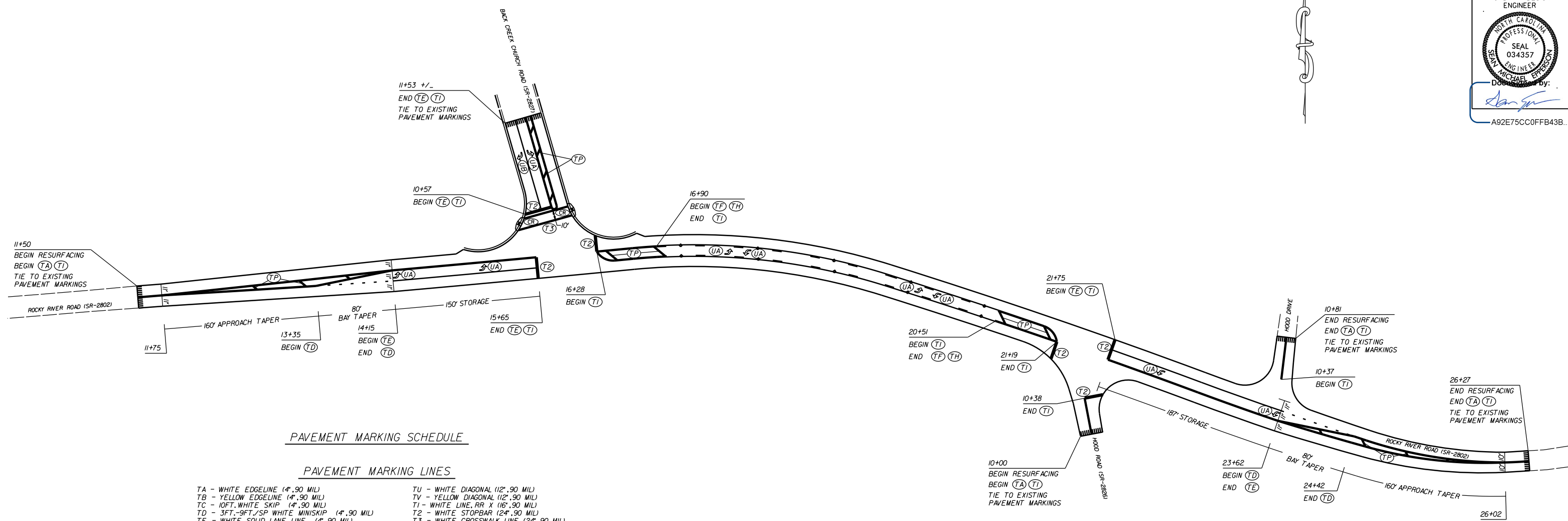
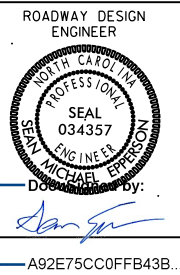
LEFT TURN LANES ON  
 ROCKY RIVER RD.(SR-2802)  
 AT BACK CREEK CHURCH RD.(SR-2827)  
 AND HOOD RD.(SR-2826)

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

SCALE	1"=50'
DATE	3-2018
DWG. BY	TBL
DESIGN BY	JDH
APPROVED	JDH



REVISIONS	



PAVEMENT MARKING SCHEDULE

PAVEMENT MARKING LINES

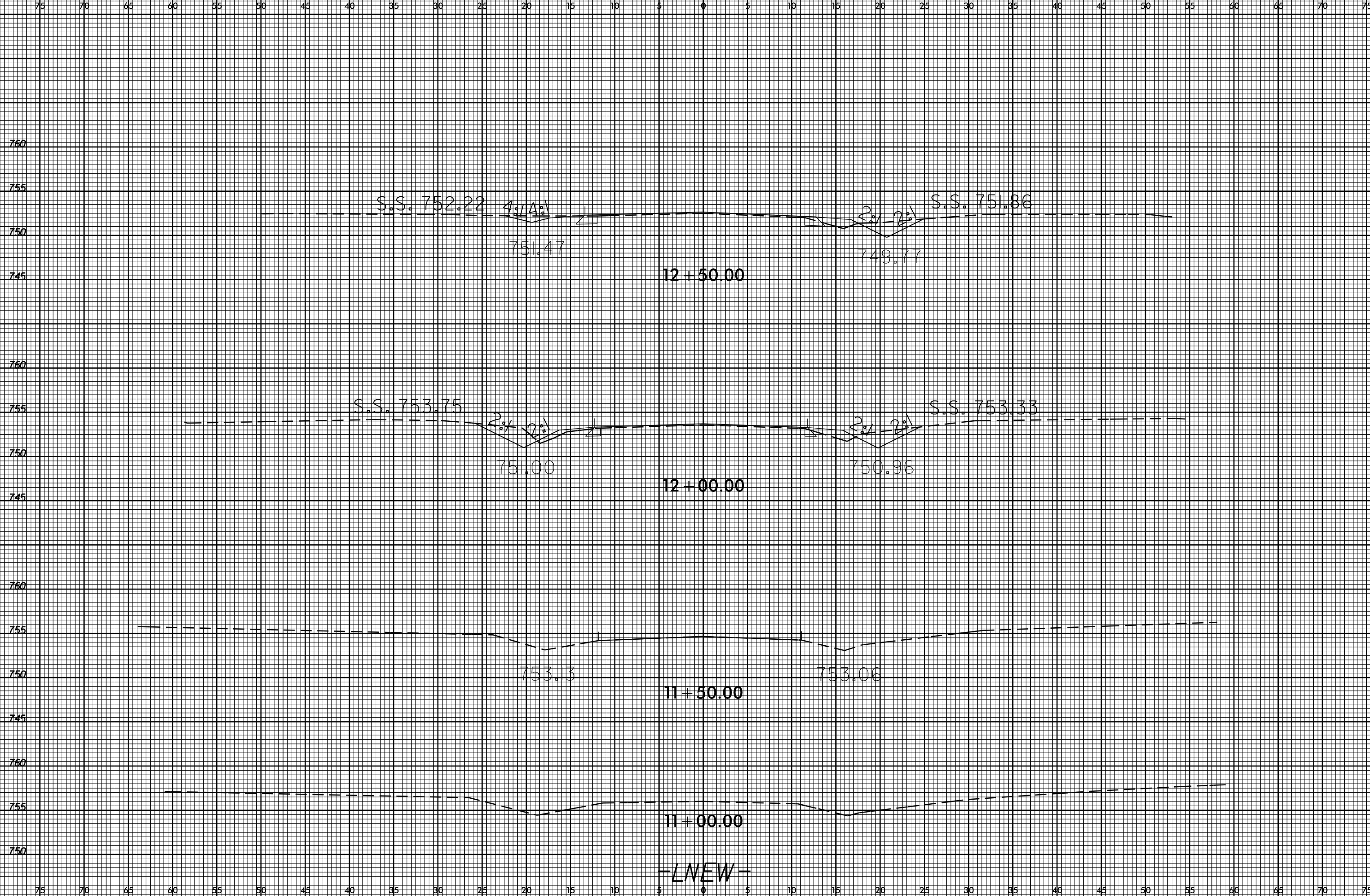
- |   |  |
|---|--|
| TA - WHITE EDGELINE (4',.90 MIL)              | TU - WHITE DIAGONAL (12',.90 MIL)                            |
| TB - YELLOW EDGELINE (4',.90 MIL)             | TV - YELLOW DIAGONAL (12',.90 MIL)                           |
| TC - 10FT. WHITE SKIP (4',.90 MIL)            | T1 - WHITE LINE, RR 'X' (16',.90 MIL)                        |
| TD - 3FT.-9FT./SP WHITE MINISKIP (4',.90 MIL) | T2 - WHITE STOPBAR (24',.90 MIL)                             |
| TE - WHITE SOLID LANE LINE (4',.90 MIL)       | T3 - WHITE CROSSWALK LINE (24',.90 MIL)                      |
| TF - 10FT. YELLOW SKIP (4',.90 MIL)           | T4 - WHITE RUMBLE STRIP (4',.240 MIL)                        |
| TH - YELLOW SINGLE CENTER (4',.90 MIL)        | T5 - YELLOW RUMBLE STRIP (4',.240 MIL)                       |
| TI - YELLOW DOUBLE CENTER (4',.90 MIL)        | T6 - WHITE EDGELINE (6',.90 MIL)                             |
| TJ - 10FT. WHITE SKIP (6',.90 MIL)            | T7 - YELLOW EDGELINE (6',.90 MIL)                            |
| TK - 3FT.-9FT./SP WHITE MINISKIP (6',.90 MIL) | T8 - 2FT.-6FT./SP WHITE MINISKIP (4',.90 MIL)                |
| TL - WHITE SOLID LANE LINE (6',.90 MIL)       | T9 - 2FT.-6FT./SP YELLOW MINISKIP (4',.90 MIL)               |
| TM - 10FT. YELLOW SKIP (6',.90 MIL)           | T10 - 3FT.-3FT./SP WHITE MINISKIP (12',.90 MIL)              |
| TN - WHITE GORELINE (18',.90 MIL)             | T11 - 2FT.-6FT./SP WHITE MINISKIP (6',.90 MIL)               |
| TO - WHITE DIAGONAL (8',.90 MIL)              | T12 - 2FT.-6FT./SP YELLOW MINISKIP (6',.90 MIL)              |
| TP - YELLOW DIAGONAL (8',.90 MIL)             | T13 - 3FT.-9FT./SP WHITE MINISKIP (8',.90 MIL)               |
| TQ - WHITE CROSSWALK LINE (8',.90 MIL)        | T14 - 3FT.-9FT./SP WHITE MINISKIP (12',.90 MIL)              |
| TR - WHITE SOLID LANE LINE (8',.90 MIL)       | T15 - YELLOW SINGLE CENTER (6',.90 MIL)                      |
| TS - WHITE GORELINE (12',.90 MIL)             | T16 - YELLOW DOUBLE CENTER (6',.90 MIL)                      |
| TT - WHITE SOLID LANE LINE (12',.90 MIL)      | T17 - 3FT.-3FT./SP WHITE MINISKIP ENTRANCE LINE (8',.90 MIL) |

PAVEMENT MARKING SYMBOLS

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

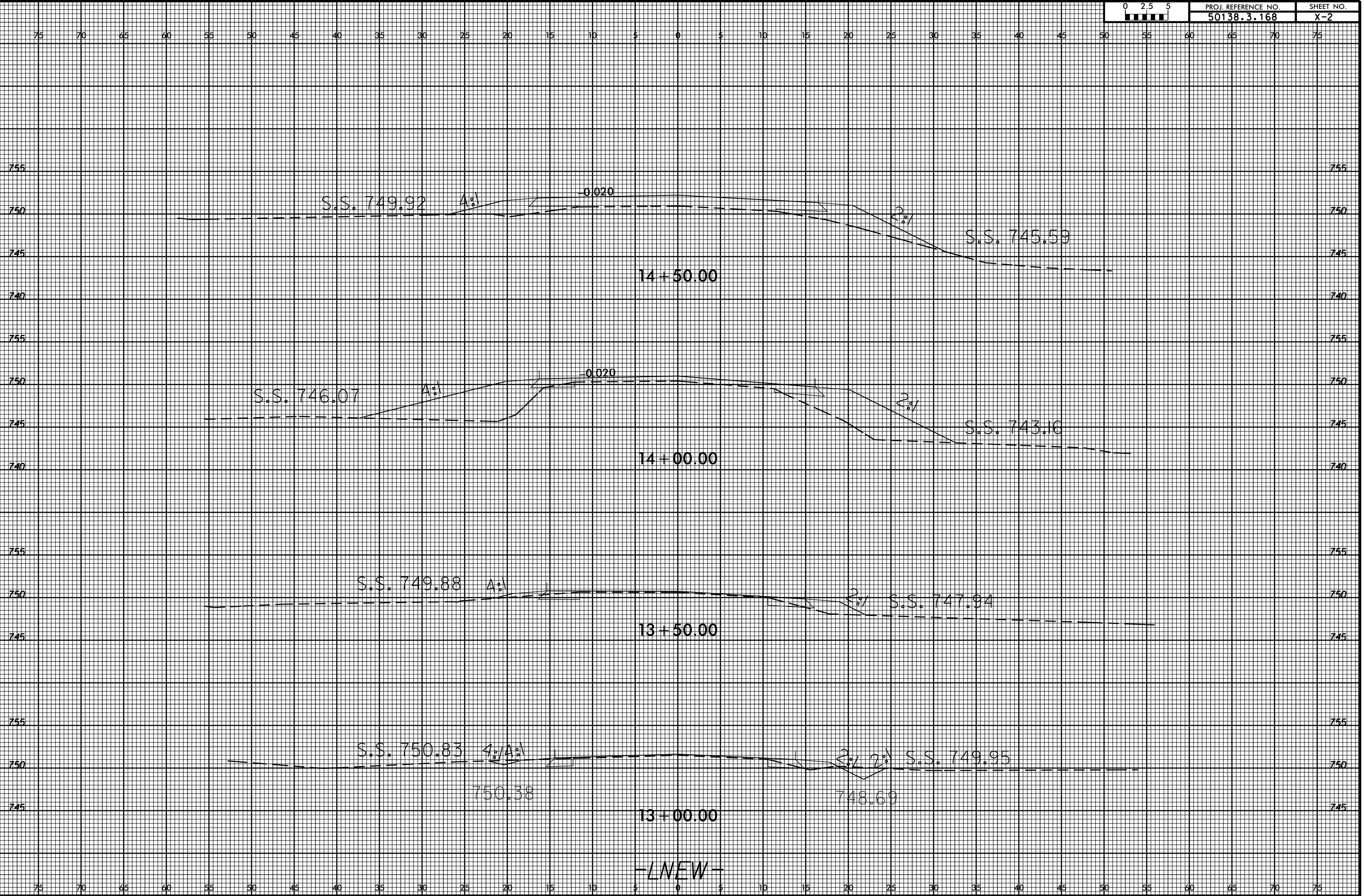
LEFT TURN LANES ON  
ROCKY RIVER RD.(SR-2802)  
AT BACK CREEK CHURCH RD.(SR-2827)  
AND HOOD RD.(SR-2826)

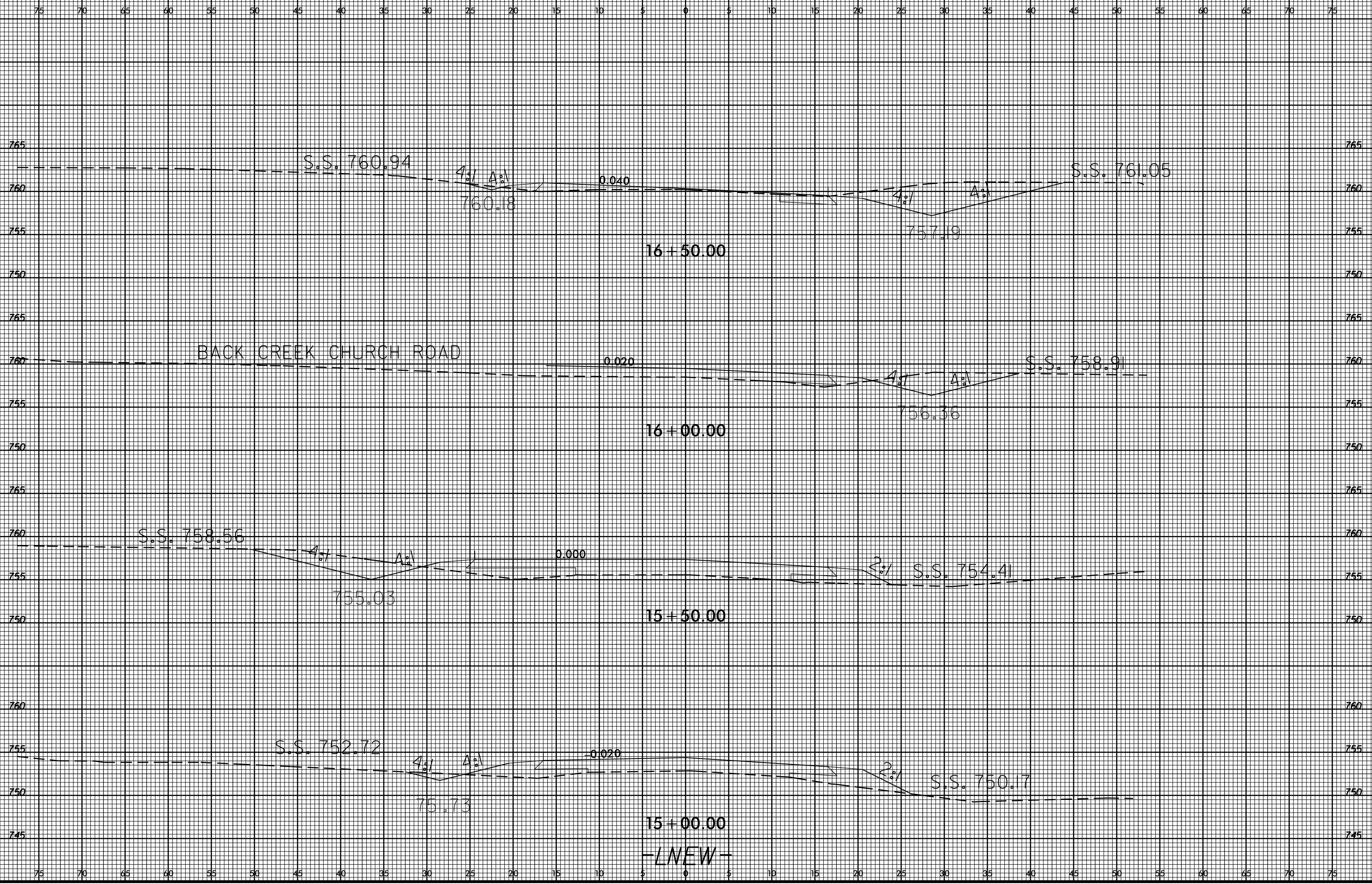
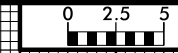
SCALE	1"=50'		REVISIONS
DATE	3-2018		
DWG. BY	TBL		
DESIGN BY	JDH		
APPROVED	JDH		



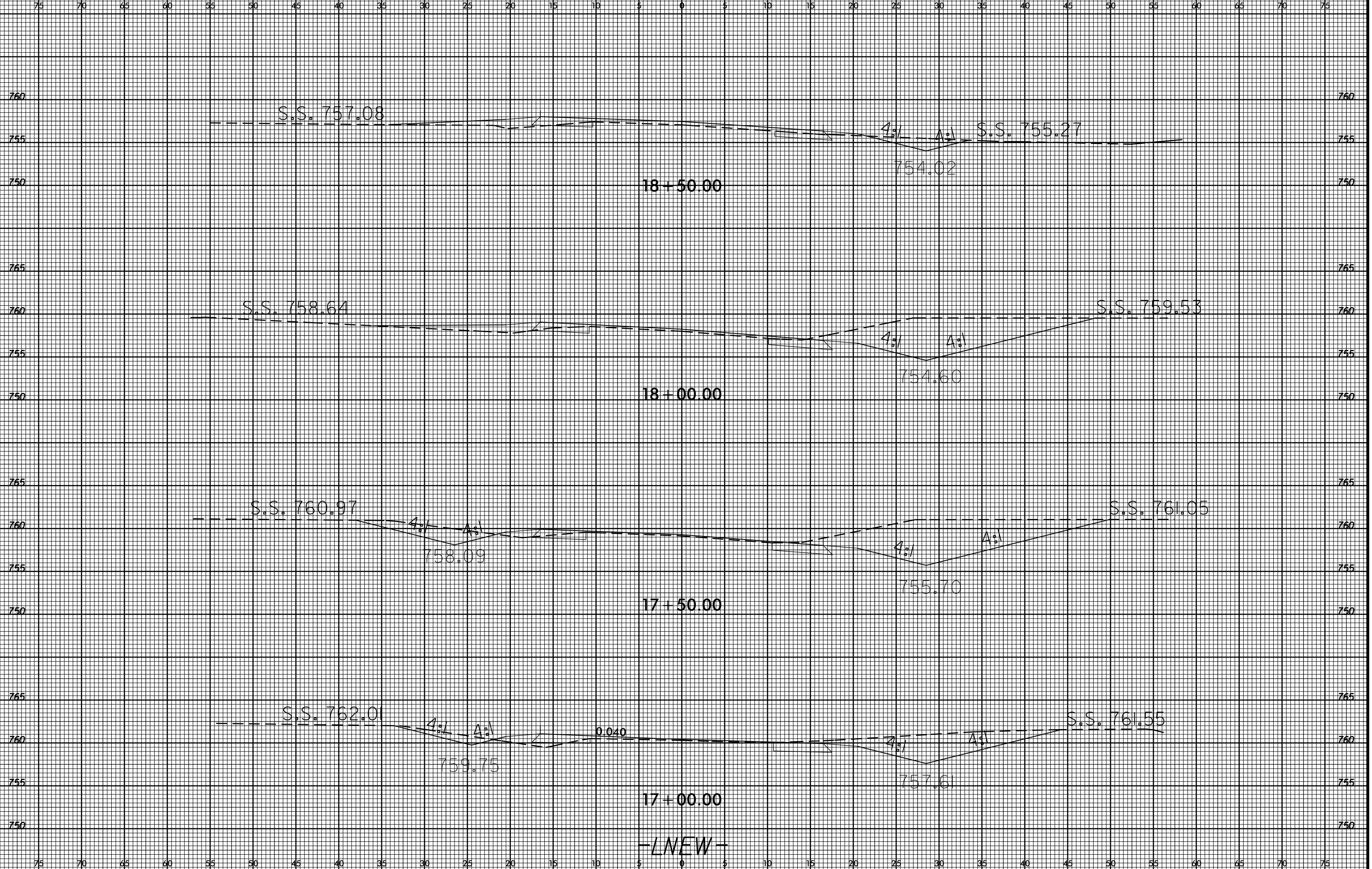
26-MAR-2019 11:55 S:\DOC\RD\Y\Rock\lenburg\Back Creek Ch @ Rocky River and Hood Rd\Roadway\Xac\Back Creek\_Rocky\_River\_me1\_xpl\_LNEW.dgn

-LNEW-





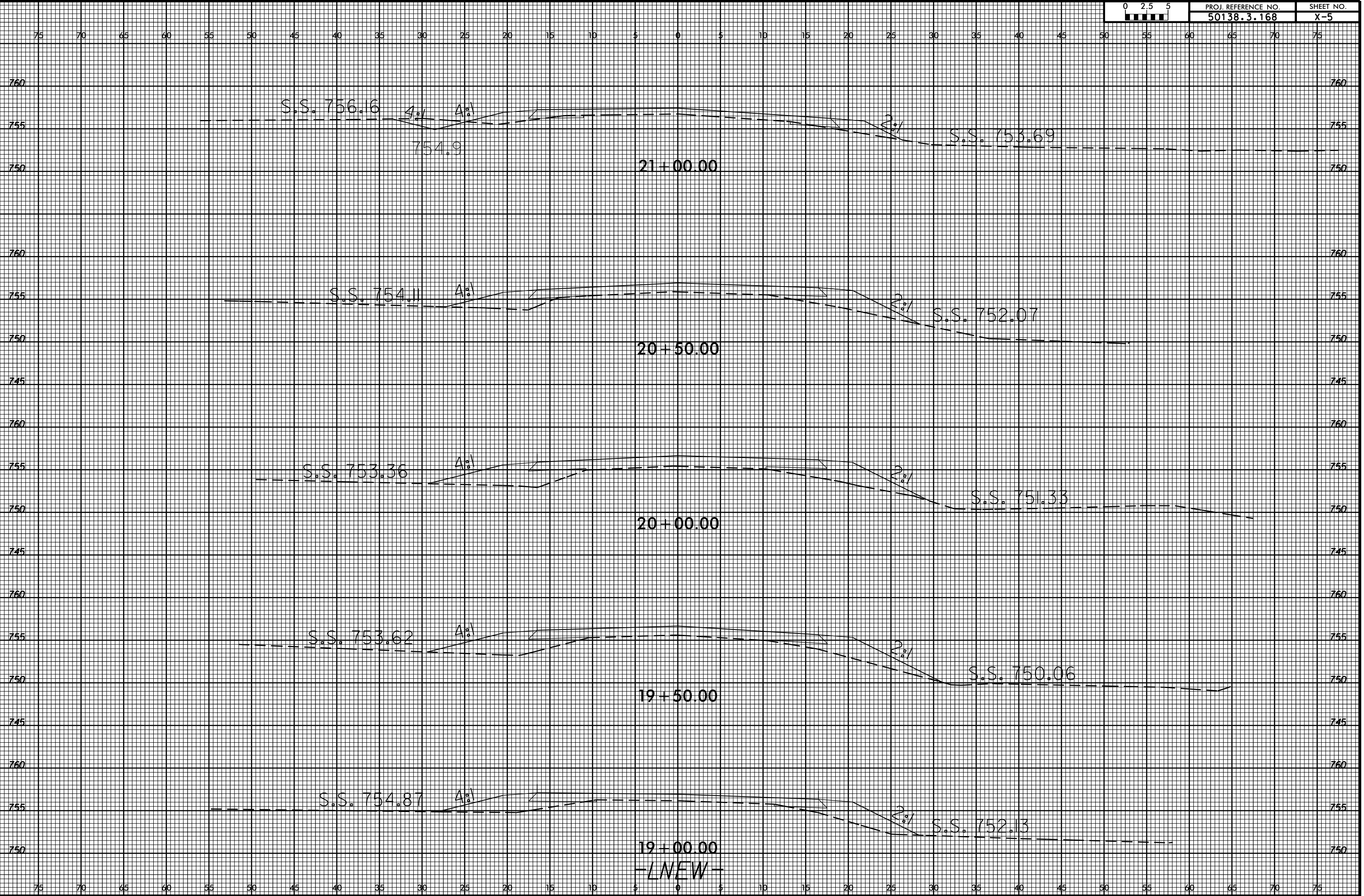
-LNEW-

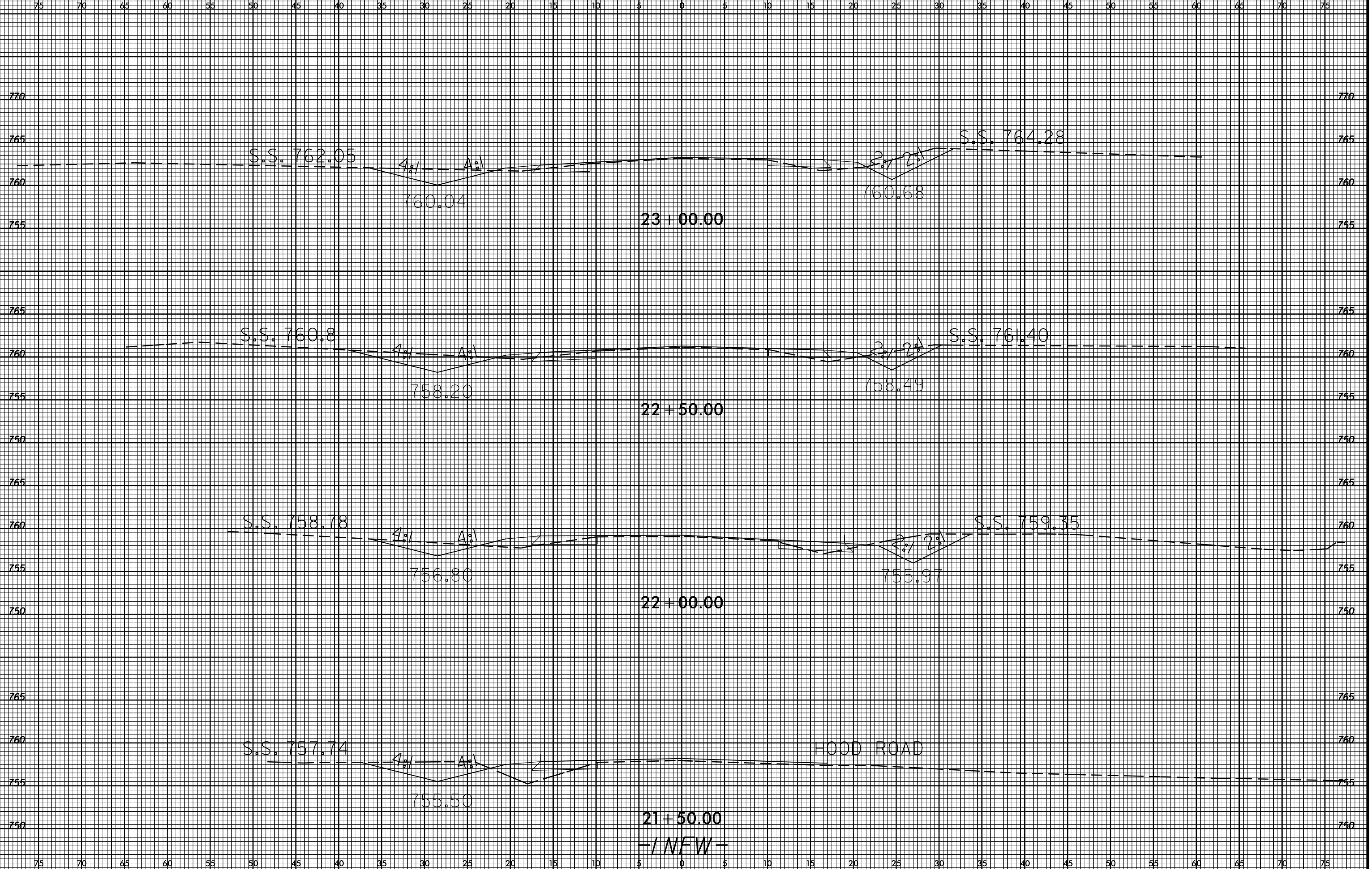


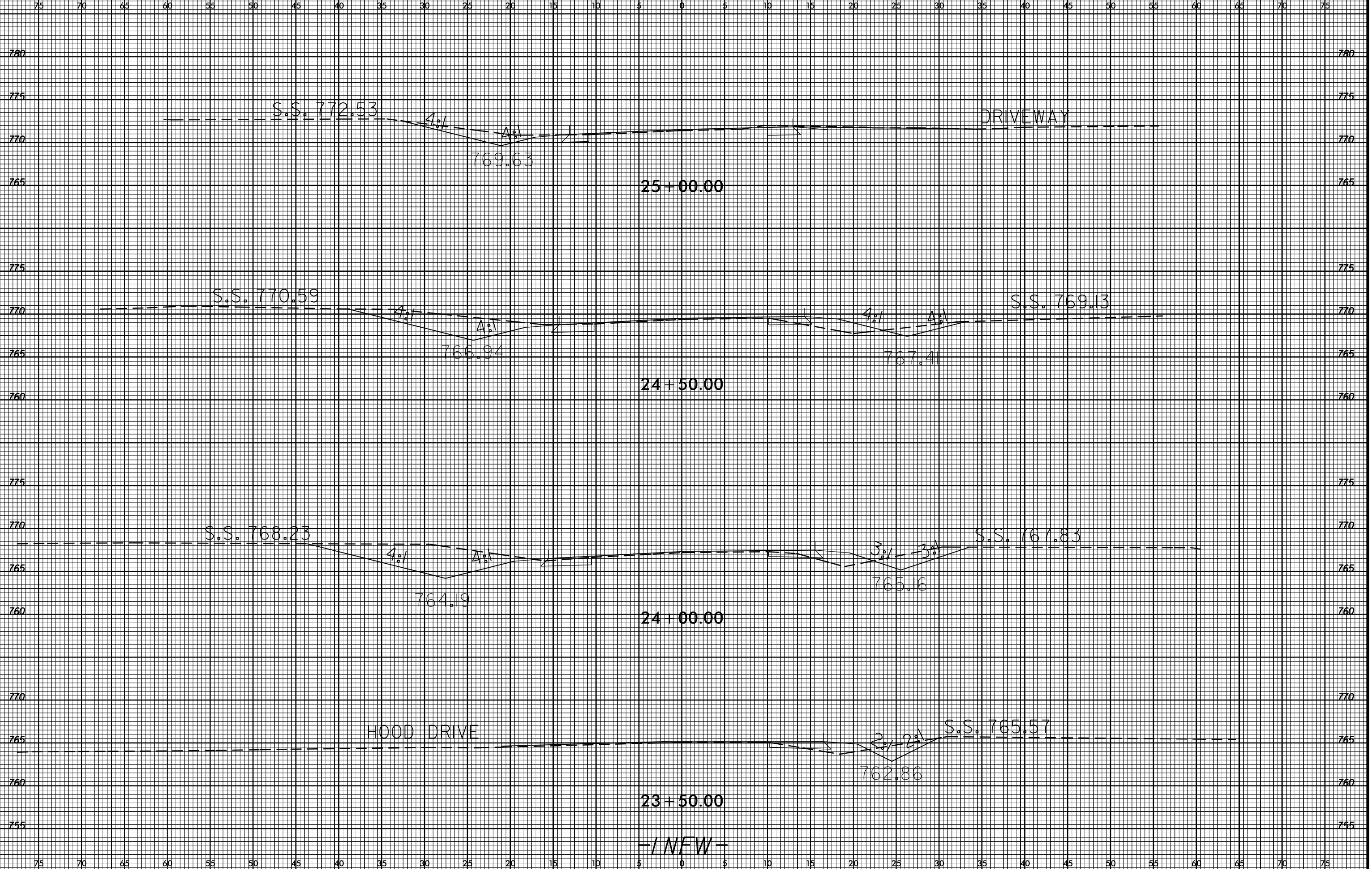
26-MAR-2019 11:59 S:\DOC\RD\Y\Rock\enburb\Back Creek Ch @ Rocky River and Hood Rd\Roadway\Xac\Back Creek\_Rocky River\_me1\_xpl\_LNE.wgn  
tblowder AT DIV10-31.132

-LNEW-









26-MAR-2019 12:02 S:\DOC\RD\Y\Rock\enburgh\Back Creek Ch @ Rocky River and Hood Rd\Roadway\Xac\Back Creek\_Rocky River\_me1\_xpl\_LNE.wgn  
tblower At DIV10-31.132

-LNEW-

6/23/16



PROJ. REFERENCE NO.  
50138.3.168

SHEET NO.  
X-8

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

780

780

775

775

785

785

780

780

775

775

770

770

765

765

780

780

775

775

770

770

765

765

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

26+50.00

26+00.00

25+50.00

-LNEW-

S.S. 774.38

S.S. 776.62

S.S. 772.82

S.S. 773.11

4:1 A:1

4:1 A:1

4:1 A:1

4:1 A:1

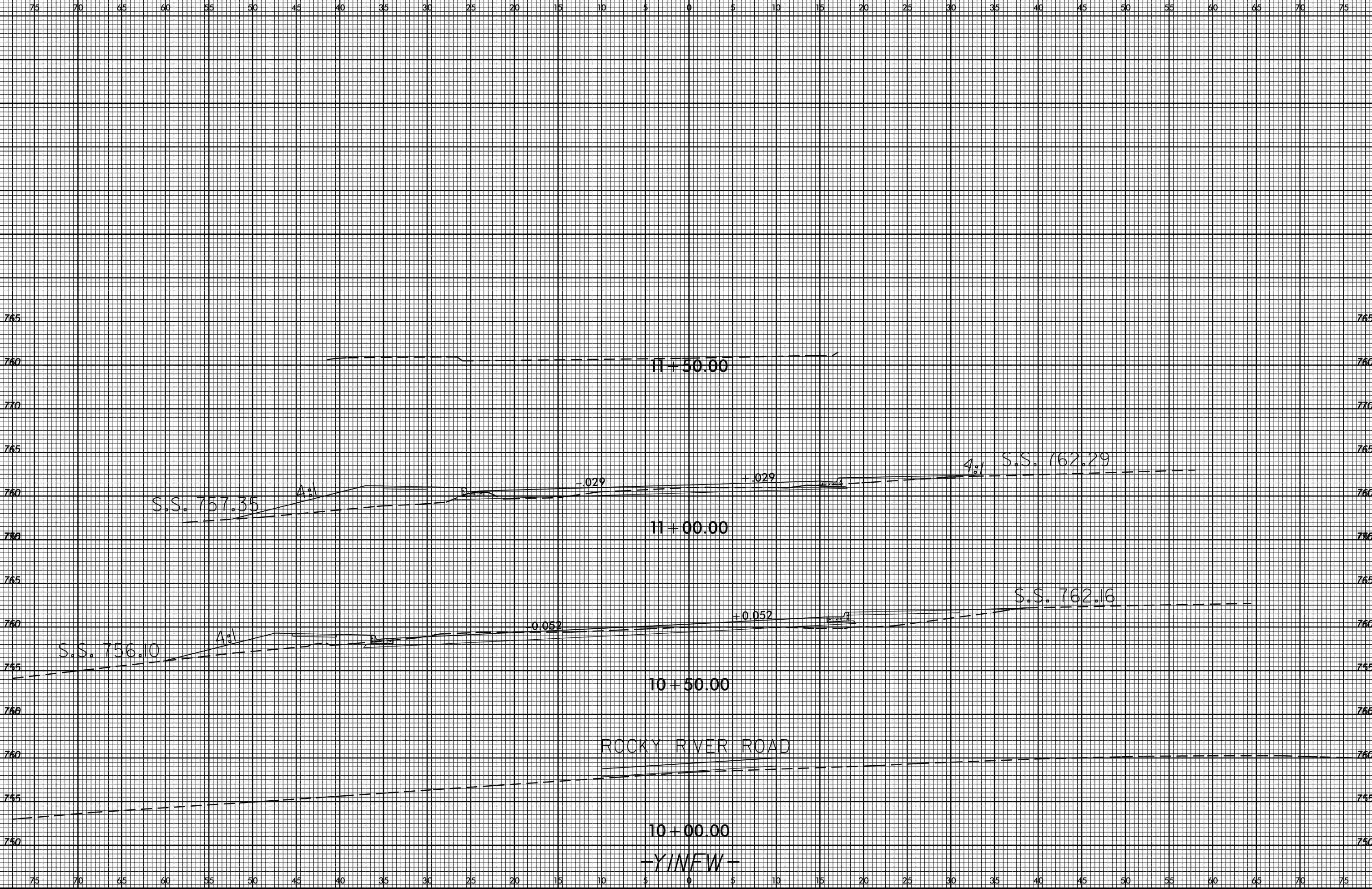
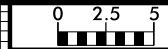
773.98

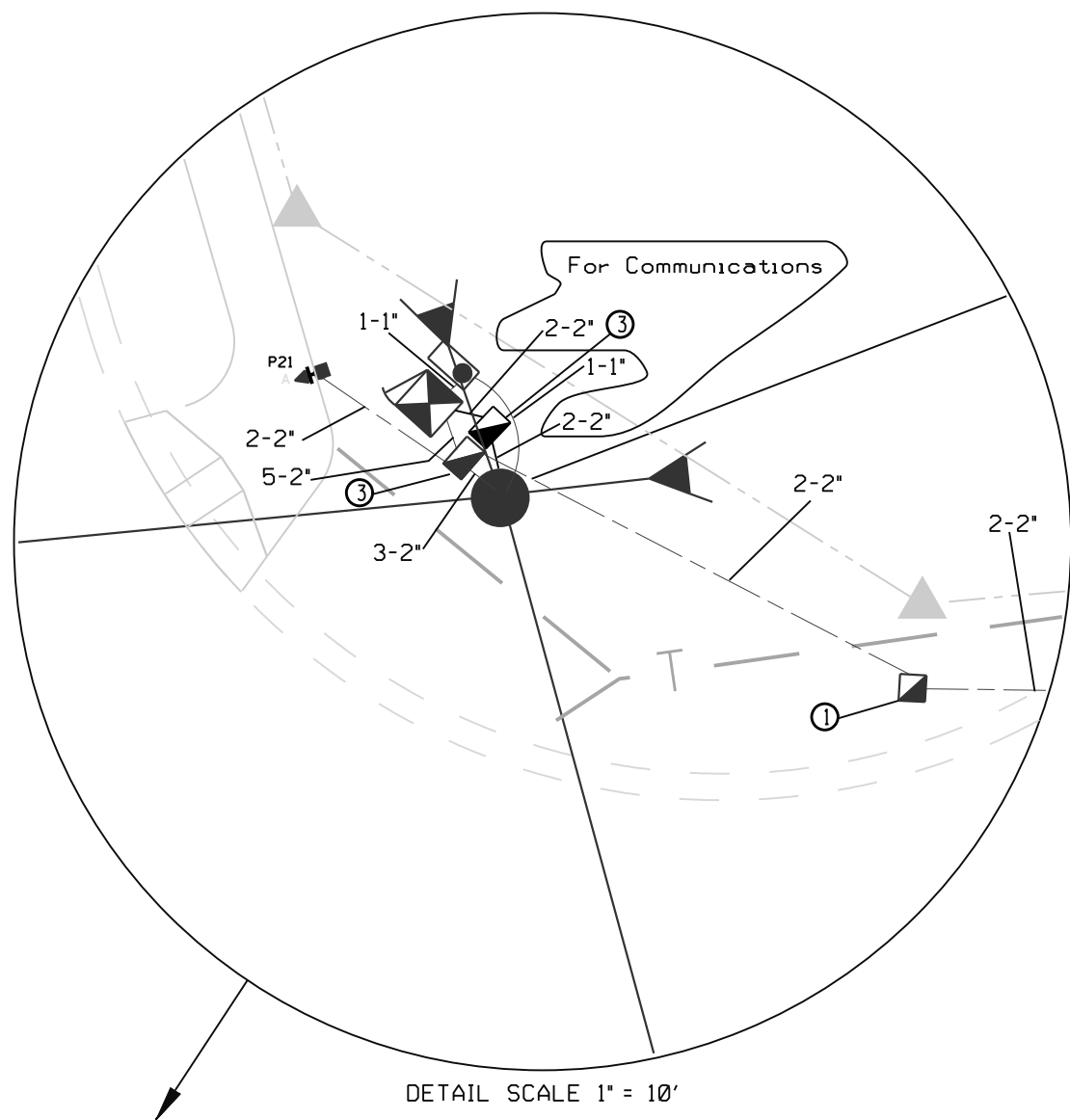
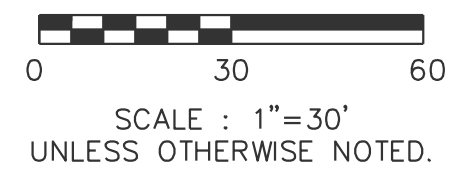
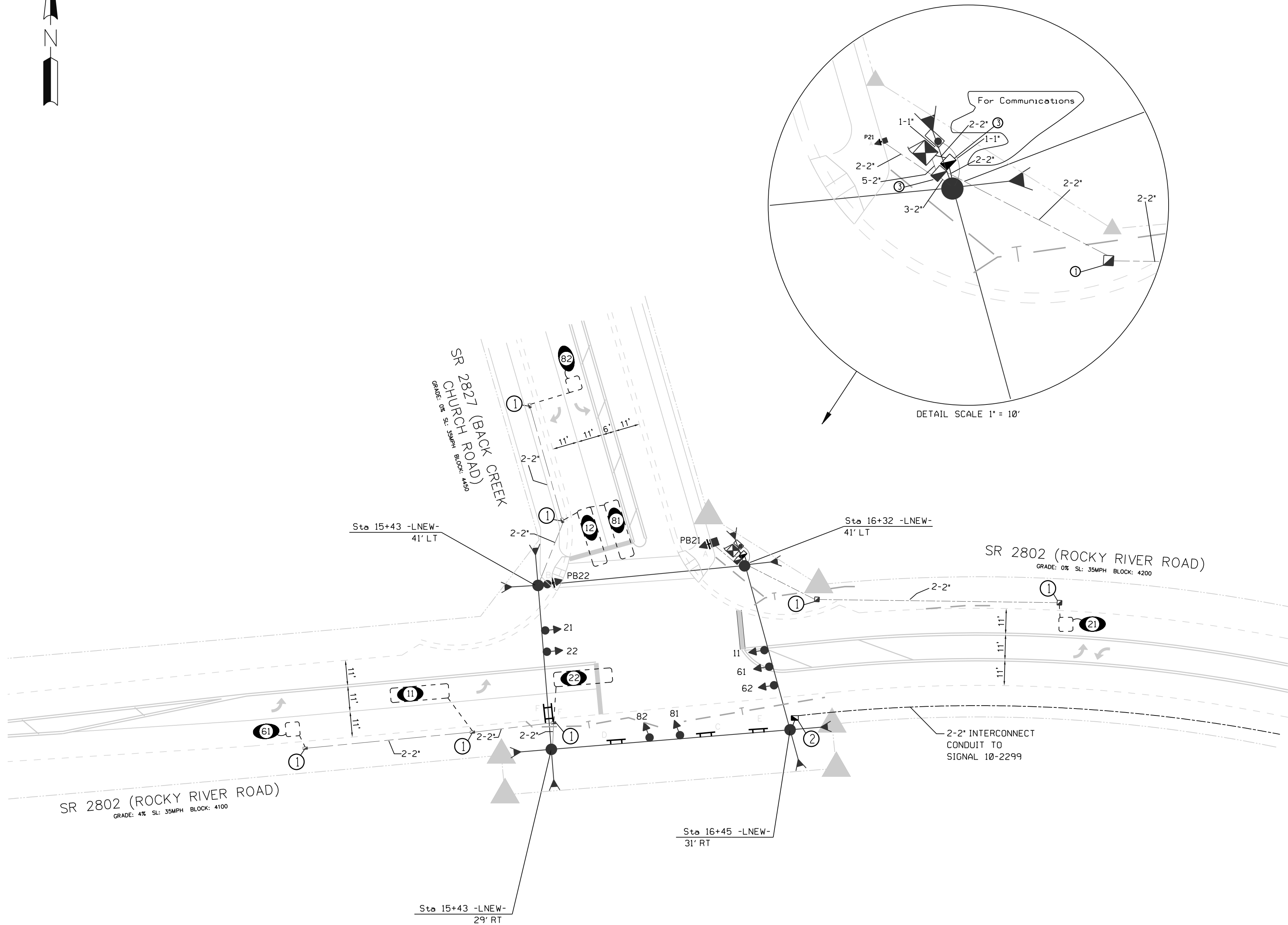
773.74

771.77

771.52

26-MAR-2019 12:05 S:\DOC\RD\Y\Rock\enburb\Back Creek Ch @ Rocky River and Hood Rd\Roadway\Xac\Back Creek\_Rocky\_River\_me1\_xpl\_LNE.wgn





**SIGNAL PHASING**

Ring Configuration: 1,2,3,4,5,6,7,8

CONTROLLER TYPE: 2070 EOS

1	5	NOT USED
2	6	→
3	7	NOT USED
4	8	↻

MIN RECALL

**SIGNAL SEQUENCE**

RING 1	PHASE 1	PHASE 2	PHASE 3	PHASE 4	FLASH				
SIGNAL ID NUMBER	R/W	OTH	R/W	OTH	R/W	OTH	R/W	OTH	FLASH
11	←	←							Y
21,22			G	Y					
82a	→	→							
PB21-PB22			W	DW					DARK

RING 2	PHASE 5	PHASE 6	PHASE 7	PHASE 8	FLASH				
SIGNAL ID NUMBER	R/W	OTH	R/W	OTH	R/W	OTH	R/W	OTH	FLASH
61,62			G	Y					Y
81,82					G	Y			R

**OVERLAP - PHASE**

OVERLAP - PHASE	OL-A/1+2	OL-B/-+--	OL-C/-+--	OL-D/-+--	FLASH				
SIGNAL ID NUMBER	R/W	OTH	R/W	OTH	R/W	OTH	R/W	OTH	FLASH
11a	↔	←							Y

**CLEARANCE INTERVALS**

Phase	1	2	3	4	5	6	7	8
% Grade	4.0%	0.0%				4.0%		0.0%
Distance	57	56				52		62
Assignment Speed (mph)	25	35				35		35
<b>Yellow</b>	<b>3.0</b>	<b>3.8</b>				<b>3.6</b>		<b>3.8</b>
<b>All Red</b>	<b>1.6</b>	<b>1.1</b>				<b>1.1</b>		<b>1.3</b>
Total Clearance	4.6	4.9				4.7		5.1

**TRAFFIC VOLUMES**

Phase	1	2	3	4	5	6	7	8
Signal ID								

**DETECTOR INFORMATION**

DETECTOR NUMBER	AMP NO.	SIZE / ZONE	#	AMP TYPE	DELAY	COMMENTS
11	1	6'x25'	1	D	1	65'± FROM STOPBAR
12	2	6'x25'	1	D	1	STOPBAR
21	3	6'x6'	2	N		130'± FROM STOPBAR
22	4	6'x25'	2	N		STOPBAR
61	5	6'x25'	6	N		130'± FROM STOPBAR
81	6	6'x25'	8	N		STOPBAR
82	7	6'x6'	8	S		70'± FROM STOPBAR

NOTE: ALL STOPBAR LOOPS EXTEND 5' BEYOND THE STOPBAR UNLESS OTHERWISE NOTED. ALL LOOPS RECEIVE THREE TURNS.

**PULLBOX ID**

SIZE	PULLBOX TYPE
13"x24"x12"	LOOP
17"x30"x24"	FIBER OPTIC
24"x36"x24"	CONTROLLER / FIBER
30"x48"x36"	CONTROLLER
24"x24"x12"	CONTROLLER
36"x36"x12"	CONTROLLER

NOTE: PULLBOX MATERIAL MUST MEET OR EXCEED 2018 NCDOT STANDARD SPECIFICATIONS.

**SIGNAL HEAD ID**

21,22	11a	←	←	←	←	←	←	←	←
61,62	11a	←	←	←	←	←	←	←	←
81	11	←	←	←	←	←	←	←	←

**SIGN ID**

A	R10-3b	←	←	←	←	←	←	←	←
B	R10-3b	←	←	←	←	←	←	←	←
C	R3-5L	↻	↻	↻	↻	↻	↻	↻	↻
D	R3-5R	↻	↻	↻	↻	↻	↻	↻	↻

**LEGEND**

PROPOSED	DESCRIPTION	EXISTING
	CONTROL BOX	
	METER PEDESTAL	
	PULL BOX	
	STEEL POLE	
	MAST ARM	
	PED PEDESTAL	
	UTILITY POLE	
	ANCHOR	
	SIGNAL HEAD	
	VIDEO CAMERA	
	OPTICOM	
	OBSERVATION CAM	
	DETECTOR CONDUIT	
	INTERCONNECT	
	EDGE OF PMT.	
	CURB & GUTTER	
	TUBULAR MARKER	
	GROUND SIGN	
	OVERHEAD SIGN	
	DOUBLE YELLOW	
	STOP BAR	
	WHITE SKIP	
	WHITE MINI	
	PAVEMENT ARROW	
	PROPERTY LINE	
	ROW	

**PLAN NOTES**

- ALL PAVEMENT MARKING DIMENSIONS ARE APPROXIMATE.
- SIGNAL WILL BE INSTALLED IN ACCORDANCE WITH THE 2018 NCDOT STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
- PED SIGNALS WITH PUSHBUTTONS WILL BE LABELED "PB" (FOR EXAMPLE PB21, PB22).
- COUNTDOWN PEDESTRIAN SIGNALS SHOULD COUNT DOWN FLASHING DON'T WALK ONLY.
- STREET NAME SIGNS WILL BE PROVIDED BY CDOT.
- COMMUNICATIONS SHOWN HERE FOR INFORMATION ONLY. TO BE CONSTRUCTED AND PAID FOR PER COMMUNICATIONS PLANS.



Plans Prepared For:  
**City of Charlotte**  
 Department of Transportation  
 600 East Fourth Street  
 Charlotte, North Carolina 28202  
 Phone: (704) 336-4119

**REVISIONS**

NO.	DATE	DESCRIPTION
1	8/29/2018	DRMP

**DRMP**  
 Design Review Meeting Process  
 8000 Regency Park, Suite 175  
 Charlotte, NC 28226  
 NC License No. 022516  
 DRMP No. 175-18-001

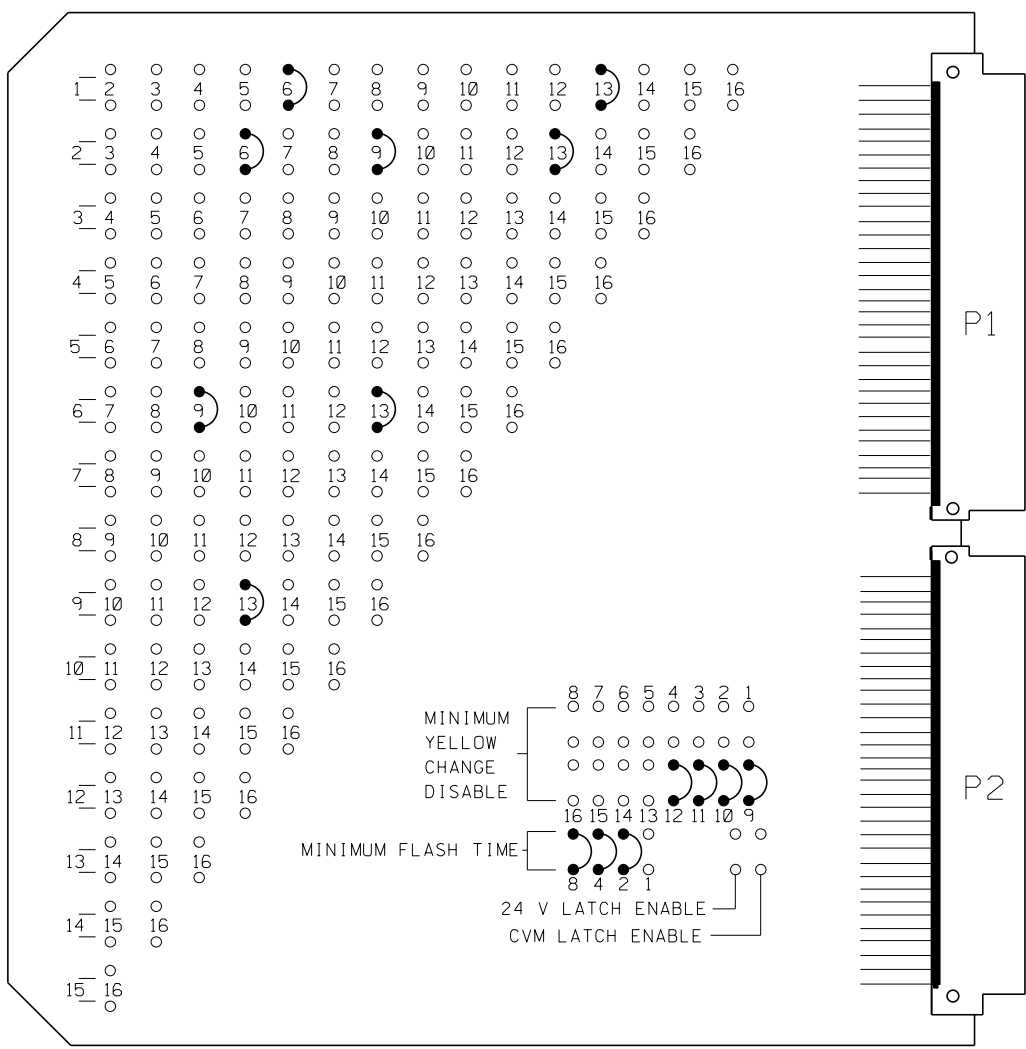
1" = 30' SCALE

W-580/FFK	JOB NO.	01785	SIGNAL ID	D. White	PREPARED BY	L. Moon	APPROVED BY	DATE	JULY 2018
-----------	---------	-------	-----------	----------	-------------	---------	-------------	------	-----------

**SHEET 1.0 OF 10**

**SR 2802 (ROCKY RIVER ROAD) AND SR 2827 (BACK CREEK CHURCH ROAD)**

### EDI MODEL MMU2-16LEip MALFUNCTION MANAGEMENT UNIT PROGRAMMING DETAIL (program card and tables as shown)



MMU PROGRAMMING CARD

CHANNEL NUMBER	ENABLE/DISABLE
1	ENABLE
2	ENABLE
3	DISABLE
4	DISABLE
5	DISABLE
6	ENABLE
7	DISABLE
8	ENABLE
9	ENABLE
10	DISABLE
11	DISABLE
12	DISABLE
13	ENABLE
14	DISABLE
15	DISABLE
16	DISABLE

UNIT OPTIONS	
OPTION	SETTING
RECURRENT PULSE	ON
WALK DISABLE	OFF
LOG CVM FAULTS	ON
EXTERN WATCHDOG	OFF
24V-2-12VDC	OFF
PGM CARD MEMORY	ON
LEDGuard	ON
FORCE TYPE 16	OFF
TYPE12-SDLC	OFF
VM 3x/Day Latch	ON

FLASHING YELLOW ARROW	
CONFIG MODE	B
ENABLE CHANNEL PAIR, FYA	
CH 1-13	ON
CH 3-14	OFF
CH 5-15	OFF
CH 7-16	OFF
RED/YEL INPUT ENABLE	
CH 1	ON
CH 3	OFF
CH 5	OFF
CH 7	OFF
FLASH RATE FAULT	ON
FYA TRAP DETECT	ON

MMU PROGRAMMING NOTE  
ENSURE YELLOW CHANGE PLUS RED CLEARANCE MONITORING IS ENABLED FOR ALL CHANNELS.

### LOAD SWITCH ASSIGNMENT DETAIL (program controller according to schedule in chart below)

LOAD SWITCH NUMBER	FUNCTION
1	Ø 1
2	Ø 2
3	Ø 3
4	Ø 4
5	Ø 5
6	Ø 6
7	Ø 7
8	Ø 8
9	Ø 2 PED
10	Ø 4 PED
11	Ø 6 PED
12	Ø 8 PED
13	OLA
14	OLB
15	OLC
16	OLD

### SIGNAL HEAD HOOK-UP CHART

PHASE	1	2	3	4	5	6	7	8	2 PED	4 PED	6 PED	8 PED	OLA	OLB	OLC	OLD	
SIGNAL HEAD NO.	11★	82	21,22	NU	NU	NU	61,62	NU	81,82	PB21, PB22	NU	NU	NU	11★	NU	NU	NU
RED	*	2R				6R		8R									
YELLOW		2Y				6Y		8Y									
GREEN		2G				6G		8G									
RED ARROW													13R				
YELLOW ARROW		1Y											13Y				
FLASHING YELLOW ARROW													13G				
GREEN ARROW	1G	1G															
													9R				
													9G				

NU = Not Used  
\* Denotes install load resistor. See Load Resistor Installation Detail on sheet 3.  
★ See pictorial of head wiring detail this sheet.

### DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

RACK #1	BIU	CH1	CH1	CH1	CH1	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT	SLOT
		L3	L1	L7	L5							
		Ø 2	Ø 1	Ø 8	Ø 6							
RACK #2	BIU	CH2	CH2	CH2	CH2	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY	EMPTY
		L4	L2	L8	L6							
		Ø 2	Ø 1	NOT USED	Ø 8							

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

LOOP NO.	LOOP PANEL TERMINALS
11	L1A, L1B
12	L2A, L2B
21	L3A, L3B
22	L4A, L4B
61	L5A, L5B
81	L6A, L6B
82	L7A, L7B
NU	L8A, L8B
NU	L9A, L9B
NU	L10A, L10B
NU	L11A, L11B
NU	L12A, L12B
NU	L13A, L13B
NU	L14A, L14B
NU	L15A, L15B
NU	L16A, L16B

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

CONTROLLER DETECTOR NO.	FUNCTION	TIMING	
		FEATURE	TIME (SEC)
1	Ø 1	DELAY	3
2	Ø 1	DELAY	15
3	Ø 2		
4	Ø 2		
5	Ø 6		
6	Ø 8		
7	Ø 8	EXTEND	2
8	NU		
9	NU		
10	NU		
11	NU		
12	NU		
13	NU		
14	NU		
15	NU		
16	NU		

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

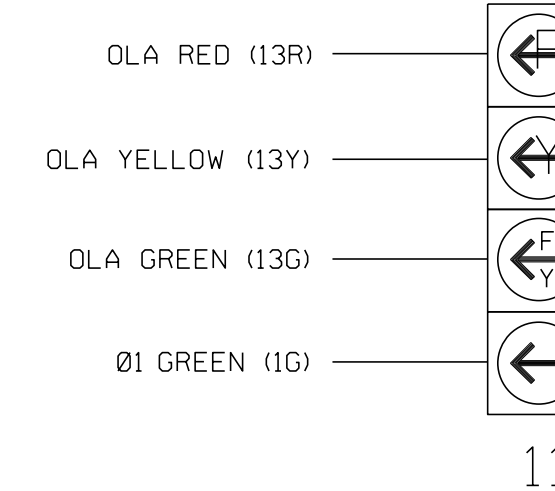
LOOP NO.	LOOP PANEL TERMINALS
NU	L17A, L17B
NU	L18A, L18B
NU	L19A, L19B
NU	L20A, L20B
NU	L21A, L21B
NU	L22A, L22B
NU	L23A, L23B
NU	L24A, L24B
NU	L25A, L25B
NU	L26A, L26B
NU	L27A, L27B
NU	L28A, L28B
NU	L29A, L29B
NU	L30A, L30B
NU	L31A, L31B
NU	L32A, L32B

### EQUIPMENT INFORMATION

CONTROLLER.....2070LN2  
CABINET.....TS-2  
SOFTWARE.....ECONOLITE EOS-2070  
CABINET MOUNT.....BASE  
LOADBAY POSITIONS.....16  
LOAD SWITCHES USED.....1,2,6,8,9,13  
PHASES USED.....1,2,2 PED,6,8  
OLA.....\*  
OLB.....NOT USED  
OLC.....NOT USED  
OLD.....NOT USED

\* See overlap programming detail on sheet 2

### FYA SIGNAL WIRING DETAIL (wire signal heads as shown)




THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2298  
DESIGNED: JULY 2018  
SEALED: 08-29-2018  
REVISED: N/A

### NOTES


- To prevent "flash-conflict" problems, wire all unused load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
- To prevent red failures on unused monitor channels, tie unused load switch red outputs 3, 4, 5, 7, 10, 11, 12, 14, 15 and 16 to load switch AC+ by inserting a jumper plug in the unused load switch socket from pin 1 (LS AC+) to pin 3 (RED out). Make sure all flash transfer relays are in place.
- Program controller to start up in phase 2 Green and 6 Green.
- Set power-up flash time to 12 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 22 seconds.
- Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
- Program detector call delay and extension timing on the controller, unless otherwise specified.
- Set all detector card unit channels to "presence" mode.
- The cabinet and controller are a part of the Charlotte Signal System.

Software and Programming by CDOT



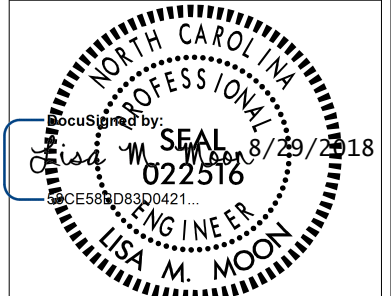
**CHARLOTTE**

City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119



Plans Prepared For:

REVISIONS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:  
**DRMP**  
8000 Republic Park Drive, Suite 175  
Charlotte, NC 28213 (919) 650-1038

N/A	SCALE	N/A
10-2298	NC DOT SIGNAL ID	
K. Anderson	CHECKED BY	DATE
JULY 2018		

W-5601FK	JOB NO.	
01765	Signal ID	
D. White	PREPARED BY	
L. Moon	APPROVED BY	

SR 2802 (ROCKY RIVER ROAD)  
AND  
SR 2827 (BACK CREEK CHURCH ROAD)

SHEET 1.1 OF 10

## ◆ ECONOLITE EOS-2070 OVERLAP PROGRAMMING DETAIL

*(program controller as shown)*

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS

*OVERLAP A*

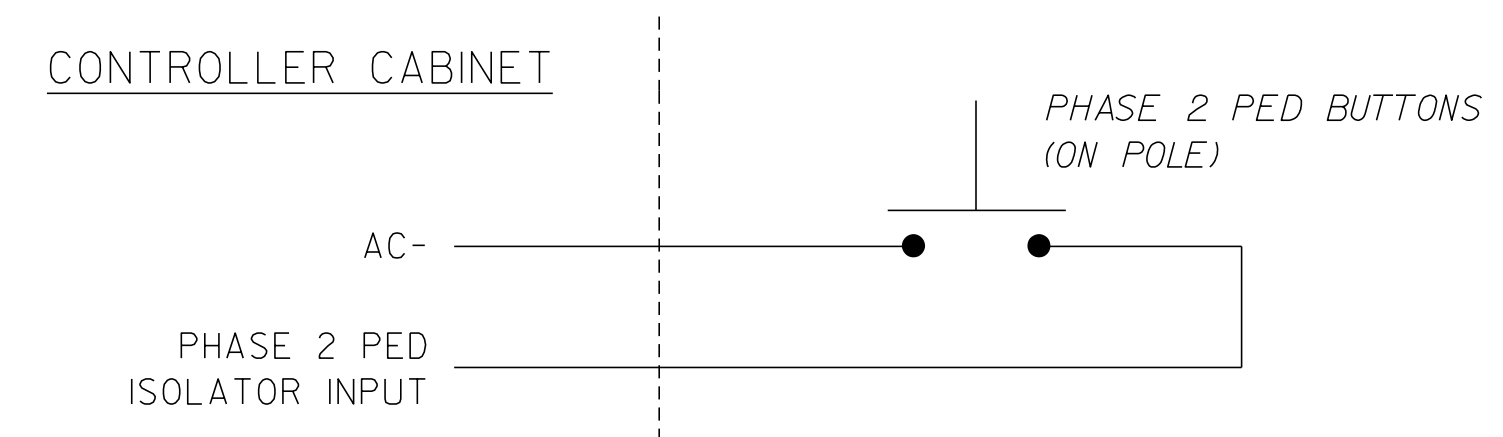
Select TMG VEH OVLP [A] and 'OTHER/ECONOLITE'

OVERLAP [A]	TYPE [PPLT/FYA]
LEFT TURN PHASE	12345678 90123456
OPPOSING THROUGH PHS	1.....
INHIBIT WITH PHASE	.2.....
FLASHING ARROW OUTPUT	CH13 ISOLATE
EARLY FYA ENABLE	YES
PED PROTECTED ENABLE	YES
EVENT PLAN SF BIT DISABLE	0

END PROGRAMMING

## PEDESTRIAN PUSH BUTTON WIRING DETAIL

*(wire push buttons as shown)*



## ◆ COUNTDOWN PEDESTRIAN SIGNAL OPERATION

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

## LOAD RESISTOR INSTALLATION DETAIL

*(install resistors as shown)*

PHASE 1 RED FIELD  
TERMINAL (1R)

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

AC-

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 10-2298  
DESIGNED: JULY 2018  
SEALED: 08-29-2018  
REVISED: N/A

## ◆ Software and Programming by CDOT

City of Charlotte Department of Transportation (CDOT) to provide EOS Software and do all Programming of the controller database. Contractor to provide CDOT with controller for programming a minimum of two weeks prior to installation. CDOT will return controller, fully programmed for contractor to install and integrate into the controller cabinet.

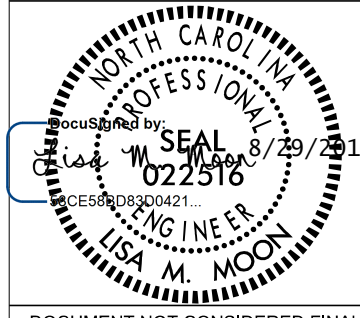
Electrical Detail - Sheet 2 of 2



City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119



### REVISIONS



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:  
**DRMP**  
8000 Republic Park Drive, Suite 175  
Charlotte, NC 28213 (919) 650-1038  
NC License No. 000000000

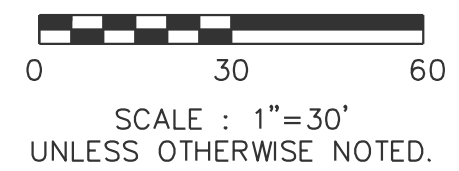
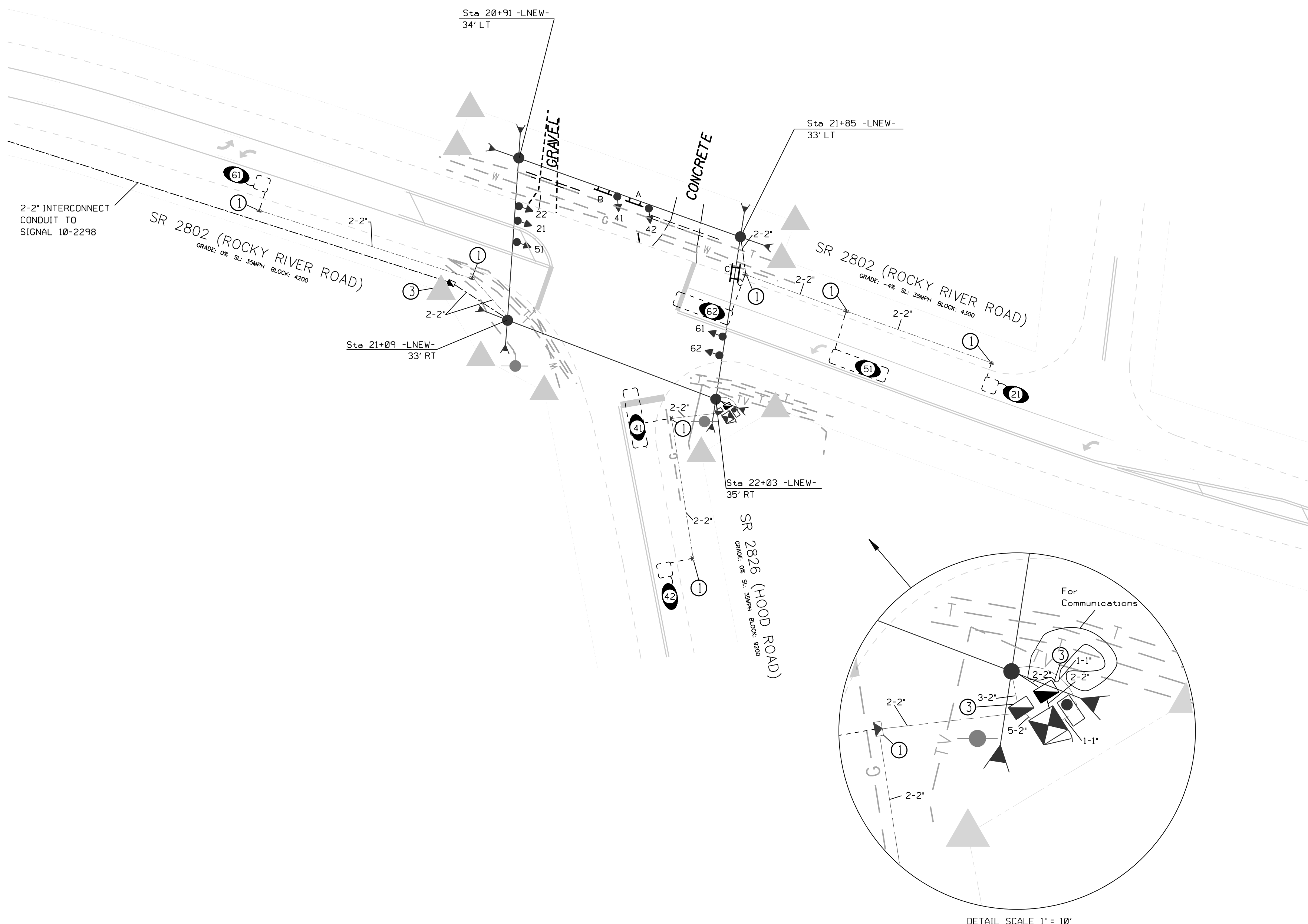
W-5601FK JOB NO.	N/A HANSEN	NCDOT SIGNAL ID	DATE
01765 Signal ID	10-2298	K. Anderson	JULY 2018
D. White PREPARED BY	L. Moon APPROVED BY	CHECKED BY	

SR 2802  
ROCKY RIVER ROAD)  
AND  
SR 2827 (BACK CREEK  
CHURCH ROAD)

SHEET  
**1.2**  
OF  
**10**

\$\$\$\$\$SYTIME\$\$\$\$\$  
\$\$\$\$\$\$\$\$\$\$DOCS\$\$\$\$\$  
\$\$\$\$\$FILENAME\$\$\$\$\$





**SIGNAL PHASING**

Ring Configuration: 1,2,3,4,5,6,7,8  
CONTROLLER TYPE: 2070 EOS

1 NOT USED	5
2	6
3 NOT USED	7 NOT USED
4	8 NOT USED

MIN RECALL

**PULLBOX ID**

SIZE	PULLBOX TYPE
1 13"x24"x12"	LOOP
2 17"x30"x24"	FIBER OPTIC
3 24"x36"x24"	CONTROLLER / FIBER
4 30"x48"x36"	CONTROLLER
5 24"x24"x12"	CONTROLLER
6 36"x36"x12"	CONTROLLER

NOTES:  
PULLBOX MATERIAL MUST MEET OR EXCEED 2018 NCDOT STANDARD SPECIFICATIONS.

**SIGNAL SEQUENCE**

RING	PHASE 1	PHASE 2	PHASE 3	PHASE 4	FLASH
RING 1	R/W	OTH	R/W	OTH	
SIGNAL ID NUMBER		G	Y		Y
21,22					
41,42				G	Y
51					
61,62		G	Y		

**OVERLAP - PHASE**

RING	PHASE 5	PHASE 6	PHASE 7	PHASE 8	FLASH
RING 2	R/W	OTH	R/W	OTH	
SIGNAL ID NUMBER					
51					
61,62					

OVERLAP - PHASE: OL-A/-+ OL-B/-+ OL-C/5+6 OL-D/-+

NOTES:  
RED ARROW < YELLOW ARROW  
GREEN ARROW \* FLASHING YELLOW ARROW

**CLEARANCE INTERVALS**

Phase	1	2	3	4	5	6	7	8
% Grade	-3.0%		3.0%	-3.0%	0.0%			
Distance	66		78	37				
Approach Speed (mph)	35		35	25	35			
Yellow	4.1		3.7	3.3	3.8			
All Red	1.3		1.6	1.1	1.0			
Total Clearance	5.4		5.3	4.4	4.8			

**TRAFFIC VOLUMES**

DETECTOR NUMBER	AMP NO.	SIZE / ZONE	φ	AMP TYPE	DELAY	COMMENTS
21	1	6'x6'	2	N		130'± FROM STOPBAR
41	2	6'x25'	4	N		STOPBAR
42	3	6'x25'	4	S		70'± FROM STOPBAR
51	4	6'x25'	5	D	5	65'± FROM STOPBAR
61	5	6'x6'	6	N		130'± FROM STOPBAR
62	6	6'x25'	6	N		STOPBAR

**DETECTOR INFORMATION**

NOTE: ALL STOPBAR LOOPS EXTEND 5' BEYOND THE STOPBAR UNLESS OTHERWISE NOTED. ALL LOOPS RECEIVE THREE TURNS.

**SIGNAL HEAD ID**

21, 22	51a
41, 42	51a
61, 62	51

**SIGN ID**

	Rocky River	RD 4300	C
	Hood	RD 9200	D

**LEGEND**

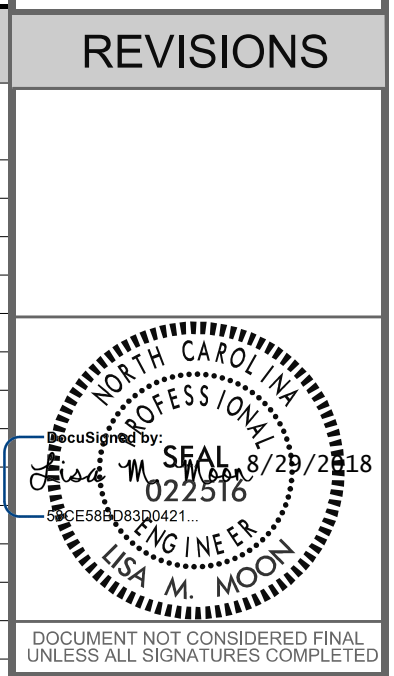
PROPOSED	DESCRIPTION	EXISTING
	CONTROL BOX	
	METER PEDESTAL	
	PULL BOX	
	STEEL POLE	
	MAST ARM	
	PED PEDESTAL	
	UTILITY POLE	
	ANCHOR	
	SIGNAL HEAD	
	VIDEO CAMERA	
	OPTICOM	
	OBSERVATION CAM	
	DETECTOR CONDUIT	
	INTERCONNECT	
	EDGE OF P.W.M.	
	CURB & GUTTER	
	TUBULAR MARKER	
	GROUND SIGN	
	OVERHEAD SIGN	
	DOUBLE YELLOW	
	STOP BAR	
	WHITE SKIP	
	WHITE MINI	
	PAVEMENT ARROW	
	PROPERTY LINE	
	ROW	

**PLAN NOTES**

- ALL PAVEMENT MARKING DIMENSIONS ARE APPROXIMATE.
- SIGNAL WILL BE INSTALLED IN ACCORDANCE WITH THE 2018 NCDOT STANDARD SPECIFICATIONS AND THE PROJECT SPECIAL PROVISIONS.
- PED SIGNALS WITH PUSHBUTTONS WILL BE LABELED "PB" (FOR EXAMPLE PB21, PB22).
- COUNTDOWN PEDESTRIAN SIGNALS SHOULD COUNT DOWN FLASHING DON'T WALK ONLY.
- STREET NAME SIGNS WILL BE PROVIDED BY CDOT.
- COMMUNICATIONS SHOWN HERE FOR INFORMATION ONLY. TO BE CONSTRUCTED AND PAID FOR PER COMMUNICATIONS PLANS.



Plans Prepared For:  
City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119

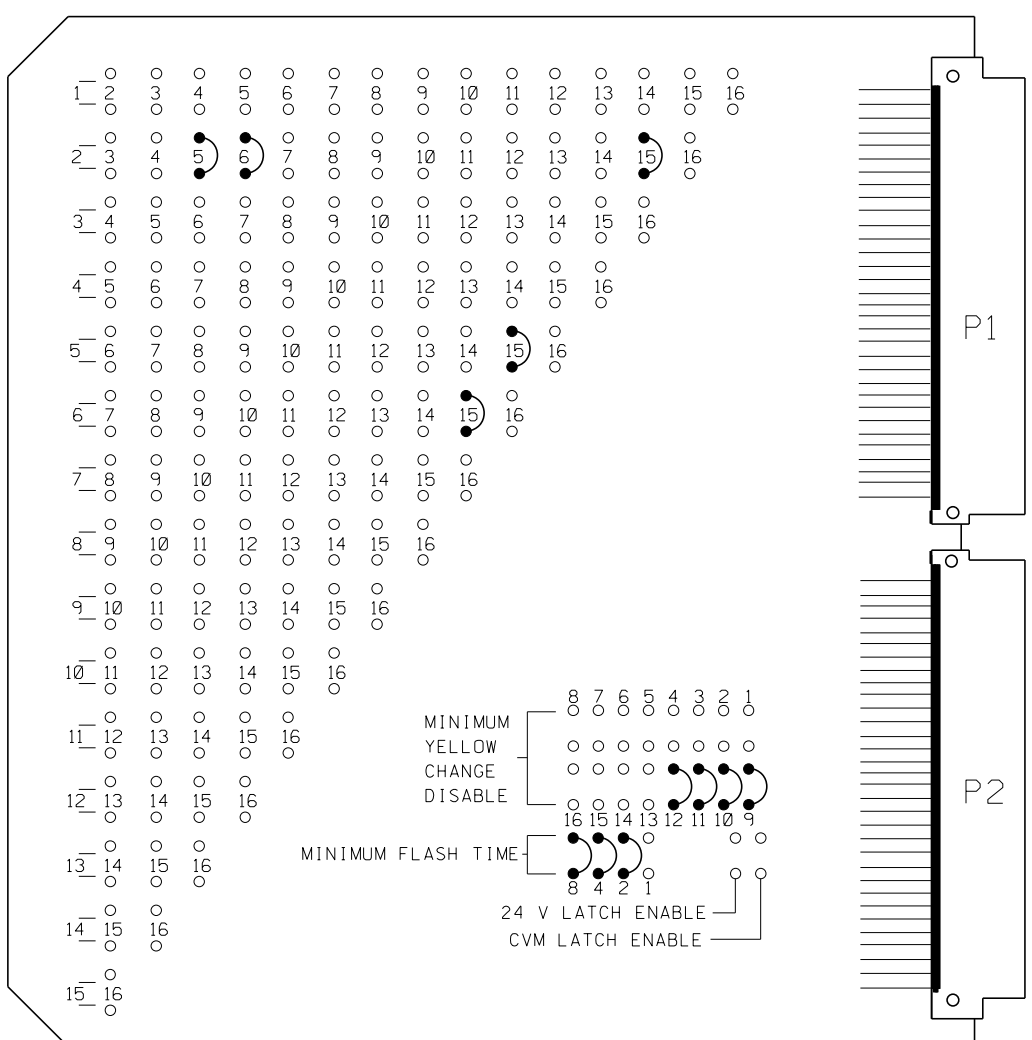


DRMP  
8000 Republic Blvd, Suite 175  
Charlotte, NC 28216  
NC License No. 022516 (p) 950-038

###	SCALE	DATE
10-2298	1"=30'	JULY 2018
W-5601FK	JOB NO.	APPROVED BY
01784	Signal ID	L. Moon
D. White	PREPARED BY	
K. Anderson	CHECKED BY	

SR 2802 (ROCKY RIVER ROAD) AND SR 2826 (HOOD ROAD)

EDI MODEL MMU2-16LEip  
MALFUNCTION MANAGEMENT UNIT  
PROGRAMMING DETAIL  
(program card and tables as shown)



MMU PROGRAMMING CARD

FIELD CHECK ENABLE  
DUAL IND ENABLE  
RED FAIL ENABLE

Table with 2 columns: CHANNEL NUMBER, ENABLE/DISABLE. Lists channels 1-16 and their status.

UNIT OPTIONS table with 2 columns: OPTION, SETTING. Lists various settings like RECURRENT PULSE, WALK DISABLE, etc.

FLASHING YELLOW ARROW table with 2 columns: CONFIG MODE, ENABLE CHANNEL PAIR, FYA. Lists various channel configurations.

MMU PROGRAMMING NOTE

ENSURE YELLOW CHANGE PLUS RED CLEARANCE MONITORING IS ENABLED FOR ALL CHANNELS.

DETECTOR RACK SET-UP DETAIL

INSERT DETECTOR CARDS IN RACK ACCORDING TO THE DETAIL SHOWN BELOW. PARTICULAR DETECTOR CHANNELS WILL CALL PHASES INDICATED.

RACK #1

Diagram showing detector rack #1 with BIU cards and their channel configurations.

RACK #2

Diagram showing detector rack #2 with BIU cards and their channel configurations.

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

Table with 2 columns: LOOP NO., LOOP PANEL TERMINALS. Lists wire connections for loops 21-16.

PROGRAM CONTROLLER DETECTORS ACCORDING TO THE SCHEDULE SHOWN IN THE CHART BELOW

Table with 4 columns: CONTROLLER DETECTOR NO., FUNCTION, FEATURE, TIMING TIME(SEC). Lists detector settings.

WIRE LOOPS TO TERMINALS ON LOOP PANEL AS SHOWN IN THE CHART BELOW

Table with 2 columns: LOOP NO., LOOP PANEL TERMINALS. Lists wire connections for loops NU-32.

LOAD SWITCH ASSIGNMENT DETAIL

(program controller according to schedule in chart below)

Table with 2 columns: LOAD SWITCH NUMBER, FUNCTION. Lists load switch assignments for channels 1-16.

SIGNAL HEAD HOOK-UP CHART

Large table mapping PHASE, SIGNAL HEAD NO., and various load switch options (RED, YELLOW, GREEN, etc.) to specific configurations.

NU = Not Used

\* Denotes install load resistor. See Load Resistor Installation Detail on sheet 2.

★ See pictorial of head wiring detail this sheet.

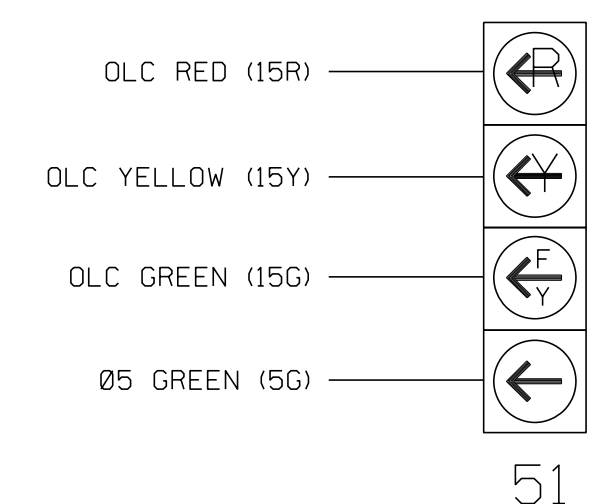
EQUIPMENT INFORMATION

CONTROLLER.....2070LN2  
CABINET .....[TS-2]  
SOFTWARE .....ECONOLITE EOS-2070  
CABINET MOUNT.....BASE  
LOADBAY POSITIONS.....16  
LOAD SWITCHES USED.....2,4,5,6,15  
PHASES USED.....2,4,5,6  
OLA.....NOT USED  
OLB.....NOT USED  
OLC.....\*  
OLD.....NOT USED

★ \* See overlap programming detail on sheet 2

FYA SIGNAL WIRING DETAIL

(wire signal heads as shown)



THIS ELECTRICAL DETAIL IS FOR THE SIGNAL DESIGN: 10-2299  
DESIGNED: JULY 2018  
SEALED: 08-29-2018  
REVISED: N/A

NOTE

CDOT TO PROGRAM DETECTOR TYPES AND TIMERS (EXTEND AND DELAY) AS SHOWN BELOW

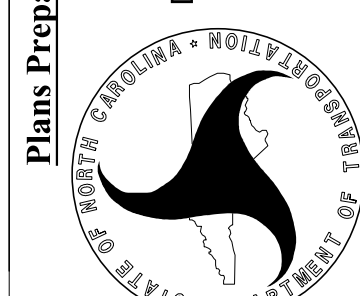
NOTES

- 1. To prevent "flash-conflict" problems, wire all unused load switches to flash red. Verify that signal heads flash in accordance with the signal plans.
- 2. To prevent red failures on unused monitor channels, tie unused load switch red outputs 1, 3, 7, 8, 9, 10, 11, 12, 13, 14 and 16 to load switch AC+ by inserting a jumper plug in the unused load switch socket from pin 1 (LS AC+) to pin 3 (RED out). Make sure all flash transfer relays are in place.
- 3. Program controller to start up in phase 2 Green and 6 Green.
- 4. Set power-up flash time to 12 seconds and implement on the Malfunction Management Unit. Set controller power-up flash time to 22 seconds.
- 5. Program detectors in accordance with the manufacturer's instructions to accomplish the detection schemes shown on the signal design plans.
- 6. Program detector call delay and extension timing on the controller, unless otherwise specified.
- 7. Set all detector card unit channels to "presence" mode.
- 8. The cabinet and controller are a part of the Charlotte Signal System.

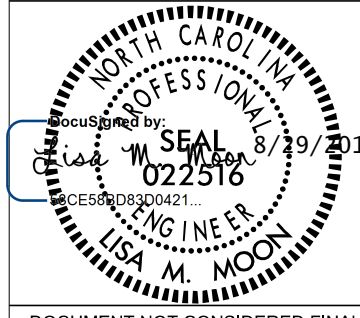
Software and Programming by CDOT



City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119



REVISIONS



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



Table with 2 columns: N/A, SCALE, 10-2299, NCDOT SIGNAL ID, K. Anderson, CHECKED BY, JULY 2018, DATE

Table with 2 columns: W-5807FK, JOB NO., 01764, Signal ID, D. White, PREPARED BY, L. Moon, APPROVED BY

SHEET  
2.1 OF 10  
SR 2802 (ROCKY RIVER ROAD) AND SR 2826 (HOOD ROAD)

Vertical text on the left edge of the page.

## ◆ ECONOLITE EOS-2070 OVERLAP PROGRAMMING DETAIL (program controller as shown)

1. From Main Menu select 2. CONTROLLER
2. From CONTROLLER Submenu select 2. VEHICLE OVERLAPS

```

OVERLAP C
Select TMG VEH OVLP [C] and 'OTHER/ECONOLITE'

OVERLAP [C]  TYPE[PPLT/FYA]

                12345678 90123456
LEFT TURN PHASE  ....5....
OPPOSING THROUGH PHS .....6..
INHIBIT WITH PHASE .....

FLASHING ARROW OUTPUT  CH15 ISOLATE

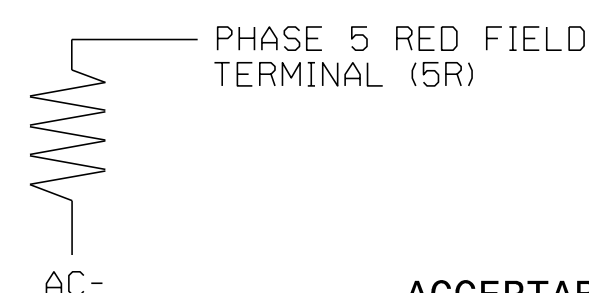
EARLY FYA ENABLE          YES
PED PROTECTED ENABLE      NO
EVENT PLAN SF BIT DISABLE  0

                END PROGRAMMING
    
```

◆ Software and Programming by CDOT

City of Charlotte Department of Transportation (CDOT) to provide EOS Software and do all Programming of the controller database. Contractor to provide CDOT with controller for programming a minimum of two weeks prior to installation. CDOT will return controller, fully programmed for contractor to install and integrate into the controller cabinet.

## LOAD RESISTOR INSTALLATION DETAIL (install resistors as shown)



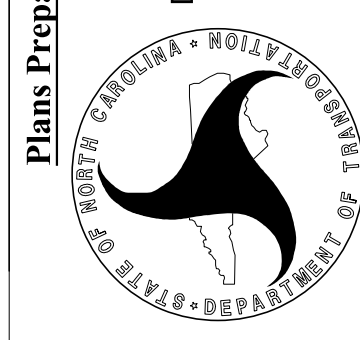
ACCEPTABLE VALUES	
VALUE (ohms)	WATTAGE
1.5K - 1.9K	25W (min)
2.0K - 3.0K	10W (min)

THIS ELECTRICAL DETAIL IS FOR  
THE SIGNAL DESIGN: 10-2299  
DESIGNED: JULY 2018  
SEALED: 08-29-2018  
REVISED: N/A

\$\$\$SYTIME\$\$\$\$  
 \$\$\$\$\$\$DOCS\$\$\$  
 \$\$\$\$\$\$NAME\$\$\$

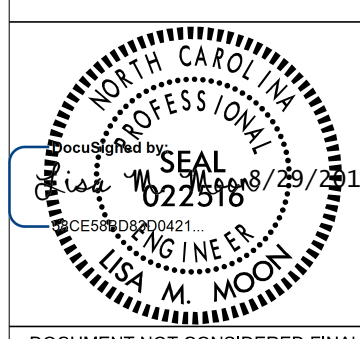


**Plans Prepared For:**  
 City of Charlotte  
 Department of Transportation  
 600 East Fourth Street  
 Charlotte, North Carolina 28202  
 Phone: (704) 336-4119



**REVISIONS**

NO.	DESCRIPTION



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

**DRMP**  
 8000 Republic Park Drive, Suite 175  
 Charlotte, NC 28213 (919) 650-1038  
 NC License No. 22013

W-5607FK JOB NO.	N/A SCALE	10-2299 NCDOT SIGNAL ID	DATE
01785 Signal ID			
D. White PREPARED BY	K. Anderson CHECKED BY		
L. Moon APPROVED BY			

**SR 2802**  
**(ROCKY RIVER ROAD)**  
**AND**  
**SR 2826 (HOOD ROAD)**

- 1 INSTALL REA, PE – 22, SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 2 INSTALL REA, PE – 38, (FIGURE – 8) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 3 INSTALL REA, PE – 39, (UNDERGROUND) SHIELDED, TWISTED PAIR COMMUNICATIONS CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL MMFO CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH
- 9 INSTALL PVC CONDUIT
- 10 INSTALL RIGID, GALVANIZED STEEL CONDUIT
- 11 INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
- 12 INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
- 13 INSTALL OUTER-DUCT POLYETHYLENE CONDUIT
- 14 INSTALL POLYETHYLENE CONDUIT
- 15 DIRECTIONAL DRILL CONDUIT
- 16 BORE AND JACK CONDUIT
- 17 INSTALL CABLE(S) IN EXISTING CONDUIT
- 18 INSTALL CABLE(S) IN NEW CONDUIT
- 19 INSTALL CABLE(S) IN EXISTING RISER
- 20 INSTALL CABLE(S) IN NEW RISER
- 21 INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS
- 22 INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 23 INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB-OUTS WHEN AVAILABLE)
- 24 INSTALL NEW CONDUIT INTO EXISTING POLE MOUNTED CABINET
- 25 INSTALL NEW RISER INTO EXISTING POLE MOUNTED CABINET
- 26 TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
- 27 INSTALL NEW ETHERNET EDGE SWITCH IN TRAFFIC SIGNAL CONTROLLER CABINET
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 INSTALL AERIAL SPLICE ENCLOSURE
- 31 INSTALL POLE MOUNTED SPLICE CABINET
- 32 INSTALL BASE MOUNTED SPLICE CABINET
- 33 REMOVE EXISTING SPLICE CABINET
- 34 INSTALL CABINET FOUNDATION

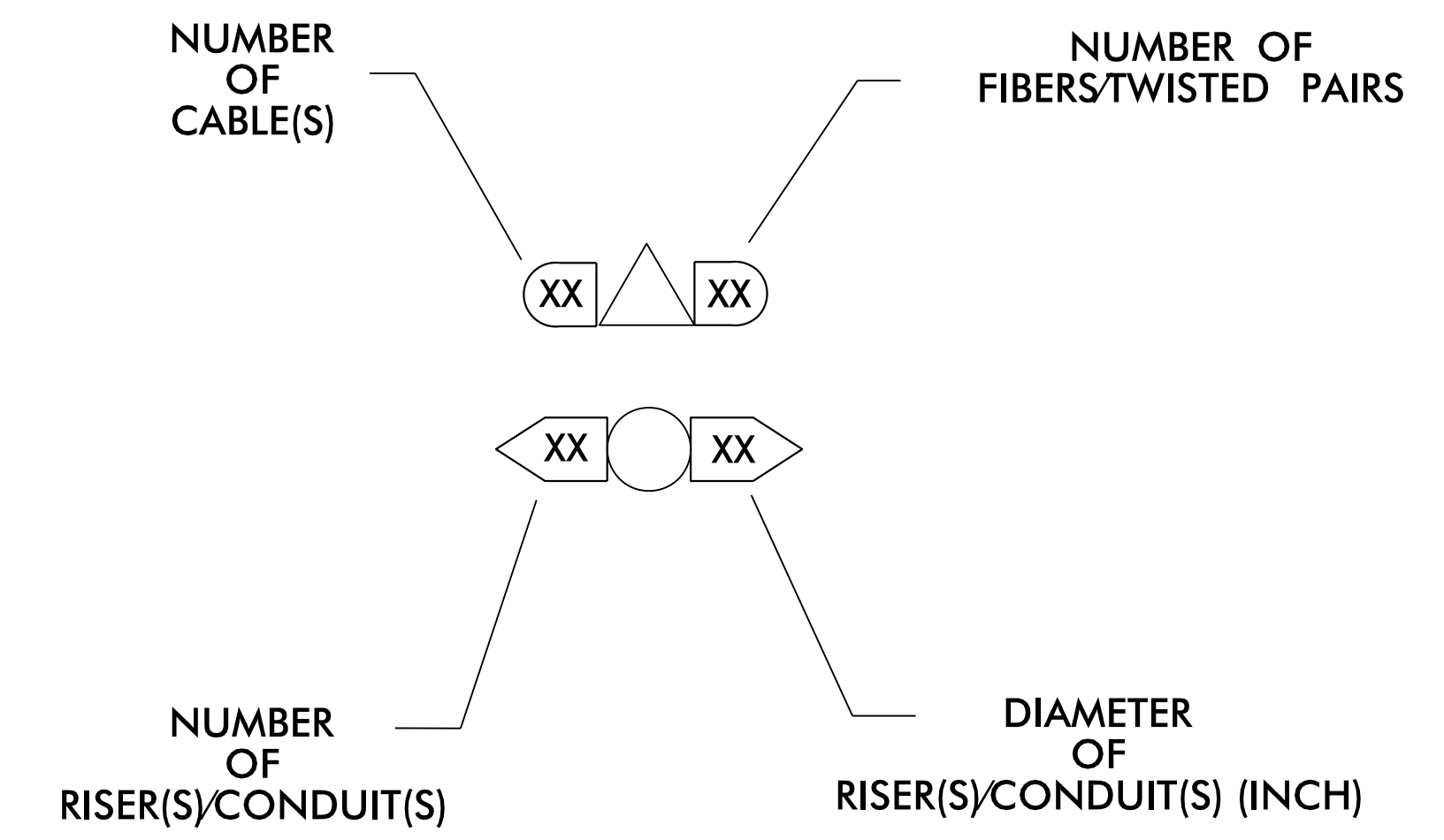
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL CCTV CAMERA WOOD POLE
- 38 INSTALL CCTV CAMERA METAL POLE AND FOUNDATION
- 39 INSTALL JUNCTION BOX
- 40 INSTALL CDOT TYPE 2 JUNCTION BOX
- 40A INSTALL CDOT TYPE 3 JUNCTION BOX
- 41 REMOVE EXISTING JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 REMOVE EXISTING WOOD POLE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
- 49 REMOVE EXISTING COMMUNICATIONS CABLE
- 50 INSTALL TELEPHONE SERVICE
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 30 FEET OF EACH COMMUNICATIONS CABLE
- 54 LASH CABLE(S) TO EXISTING SIGNAL/COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO EXISTING MESSENGER CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 BOND RISER AND MESSENGER CABLE TO POLE GROUND


**LEGEND**

—FO—FO—	NEW FIBER OPTIC COMMUNICATIONS CABLE
—EXI—EXI—	EXISTING COMMUNICATIONS CABLE
—REM—REM—	EXISTING COMMUNICATIONS CABLE TO BE REMOVED
—————	NEW AERIAL GUY ASSEMBLY
— — — — —	NEW CONDUIT
— — — — —	EXISTING CONDUIT
— DD — DD —	NEW DIRECTIONAL DRILLED CONDUIT
—————	NEW BORED AND JACKED CONDUIT
■	NEW JUNCTION BOX
■	EXISTING JUNCTION BOX
●	NEW WOOD POLE
●	EXISTING WOOD POLE
⊙	NEW AERIAL SPLICE ENCLOSURE
⊙	NEW METAL POLE
⊙	EXISTING METAL POLE
▶	NEW CCTV CAMERA ASSEMBLY
▶	NEW STANDARD GUY ASSEMBLY
▶	NEW SIDEWALK GUY ASSEMBLY
▶	NEW CABLE STORAGE RACKS (SNOW SHOES)
⊠	EXISTING CONTROLLER AND CABINET
⊠	EXISTING SPLICE CABINET
⊠	NEW SPLICE CABINET
SP	SIGNAL POLE
XX-XXXX	NCDOT SIGNAL INVENTORY NUMBER
XXXXX	CDOT SIGNAL INVENTORY NUMBER

**CONSTRUCTION NOTE SYMBOLOGY KEY**

- XX INDICATES NUMBER OF CABLES, LOOPS, ETC.
- XX INDICATES NUMBER OF FIBERS PER CABLE, TWISTED PAIRS PER CABLE, ETC.
- XX INDICATES NUMBER OF RISER(S)/CONDUIT(S)
- XX INDICATES DIAMETER OF RISER(S)/CONDUIT(S) (INCH)

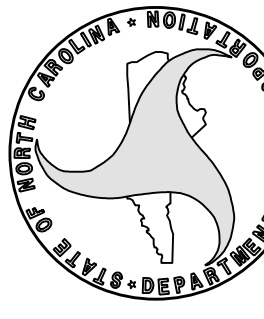




**City of Charlotte**  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119

---

Plans Prepared For:



**DRMP**  
8000 Research Triangle Park, Suite 175  
Raleigh, NC 27615 (919) 696-1088  
NC License No. 0225168

---

REVISIONS

---

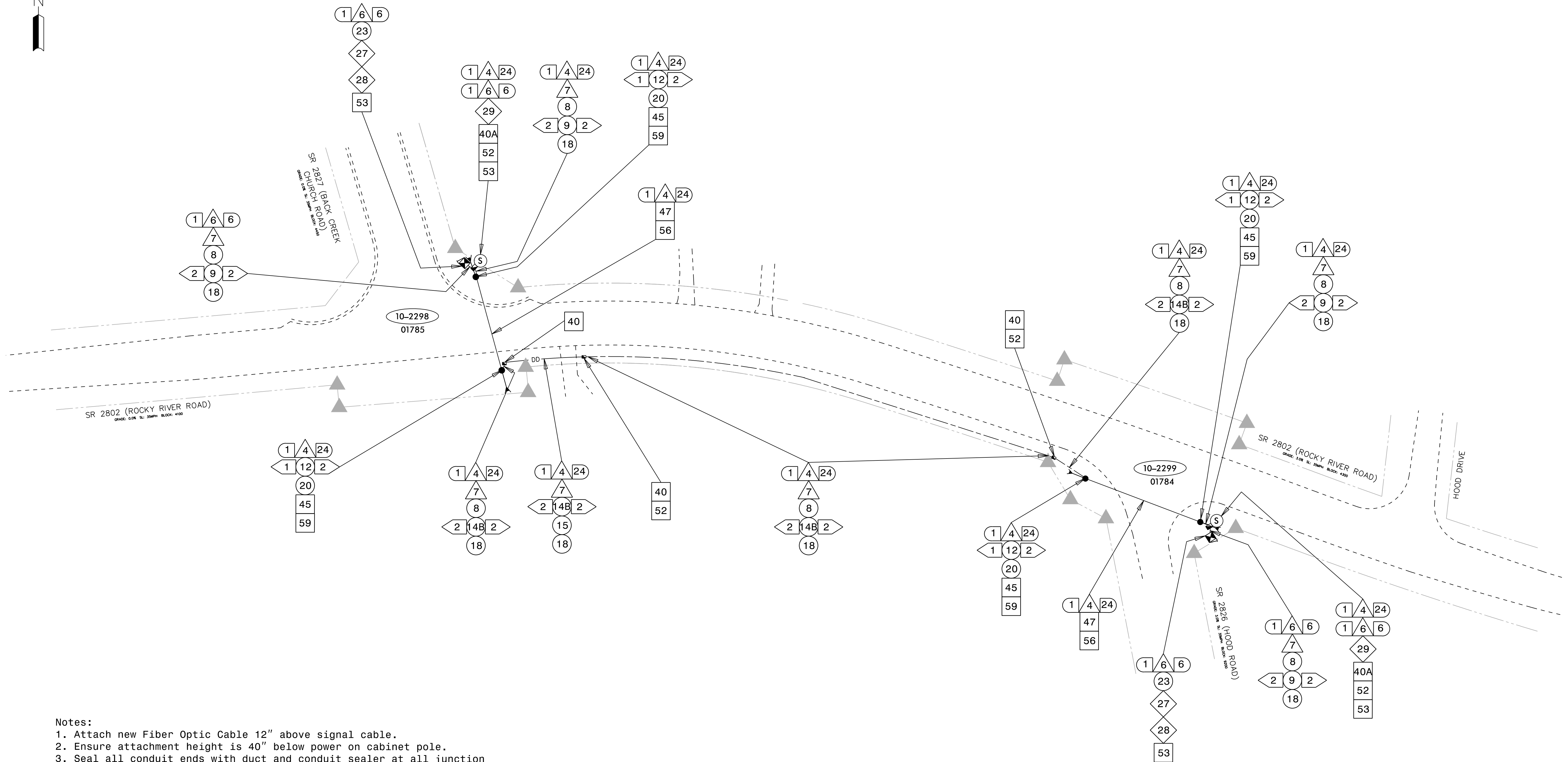
SCALE	10-2298 & 10-2289 NCDOT SIGNAL ID	CHECKED BY K. Anderson	DATE JULY 2018
W-560/FK JOB NO.	01784 & 01785 Signal ID	PREPARED BY R. Lawton	APPROVED BY L. Macen

---

**COMMUNICATION ROUTE CONSTRUCTION NOTES**

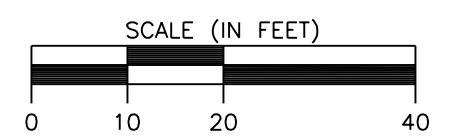
---

SHEET **3.0** OF **10**



**Notes:**

1. Attach new Fiber Optic Cable 12" above signal cable.
2. Ensure attachment height is 40" below power on cabinet pole.
3. Seal all conduit ends with duct and conduit sealer at all junction boxes and cabinet entrances.
4. Cap and seal unused conduit at base of pole for future use.



City of Charlotte  
 Department of Transportation  
 600 East Fourth Street  
 Charlotte, North Carolina 28202  
 Phone: (704) 336-4119



**REVISIONS**

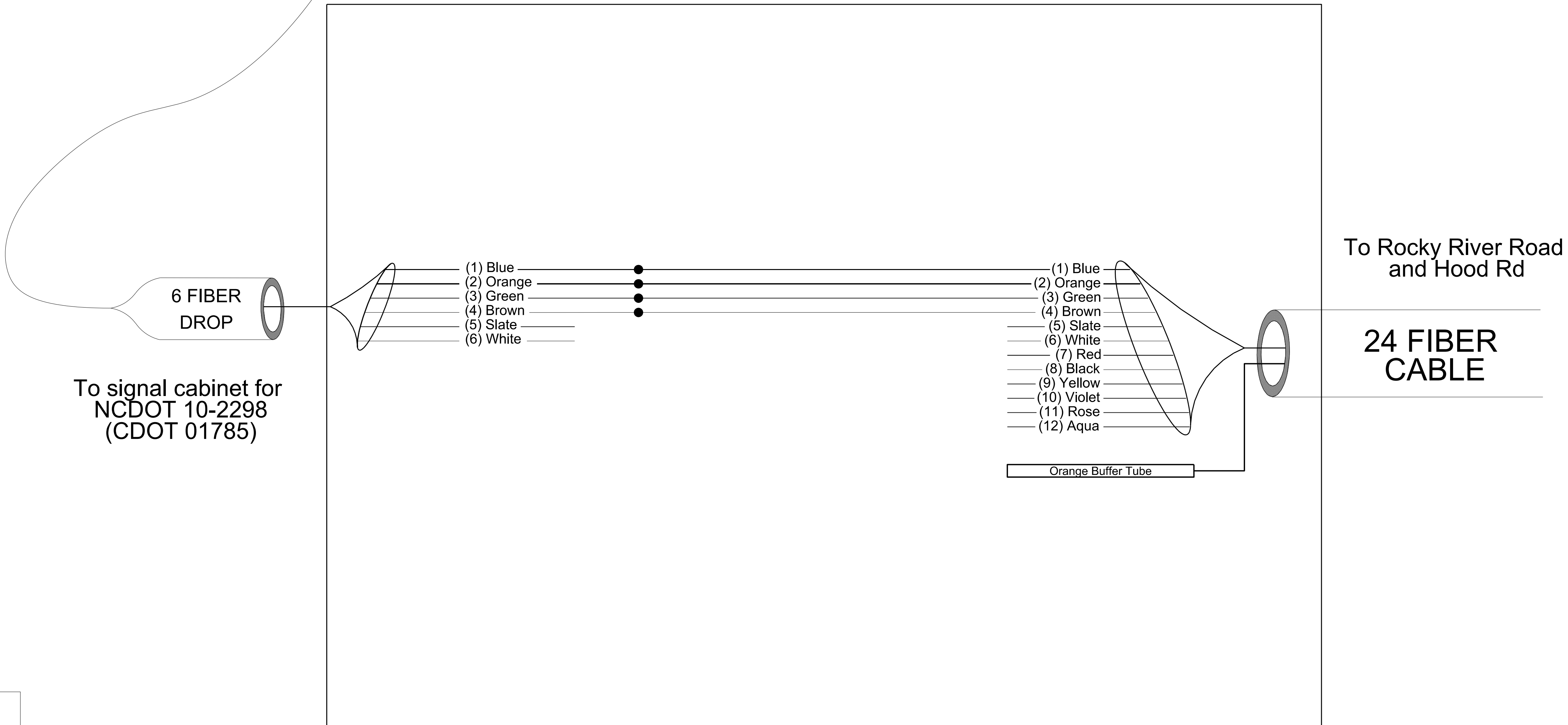
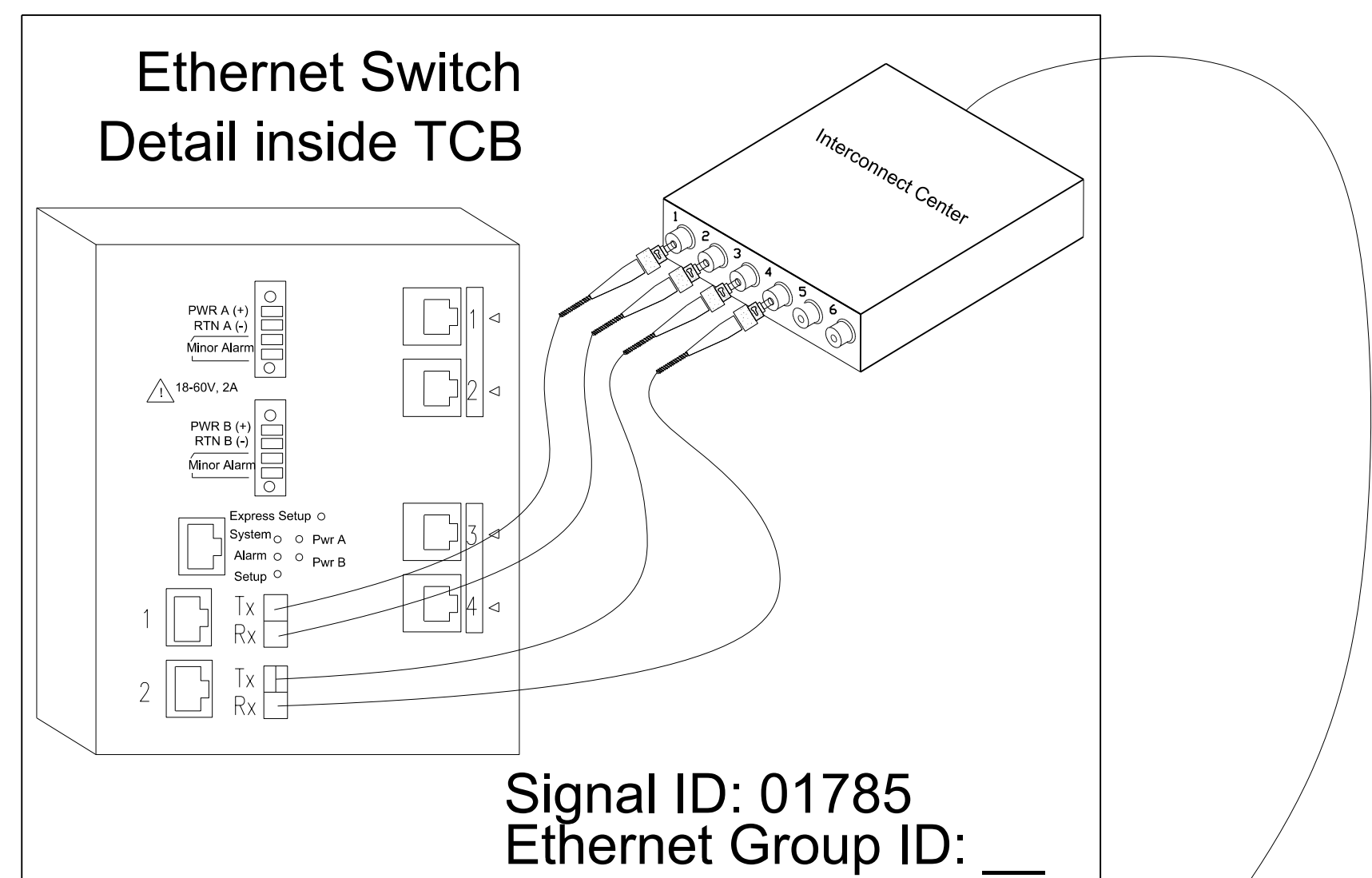
DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:  
**DRMP**  
 Design & Construction  
 8000 Research Park Drive, Suite 175  
 Charlotte, NC 28226  
 NC License No. 222516 (P) 910-690-038

W-5601FK JOB NO.	SCALE
01784 & 01785	10-2298 & 10-2299
Signal ID	NC DOT SIGNAL ID
R. Landon	K. Anderson
PREPARED BY	CHECKED BY
L. Moon	JULY 2018
APPROVED BY	DATE

**COMMUNICATIONS ROUTE  
 ALONG  
 ROCKY RIVER ROAD**

# Rocky River Road at Back Creek Church Road



Splice closure in CDOT Type 3 Junction Box next to signal cabinet

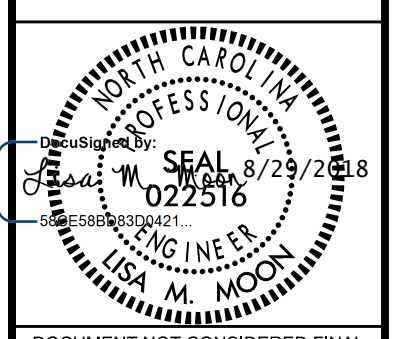
LEGEND	
○	Existing Splice
●	New Splice
X	Break Splice
/	Fiber Cut Point



City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119



REVISIONS



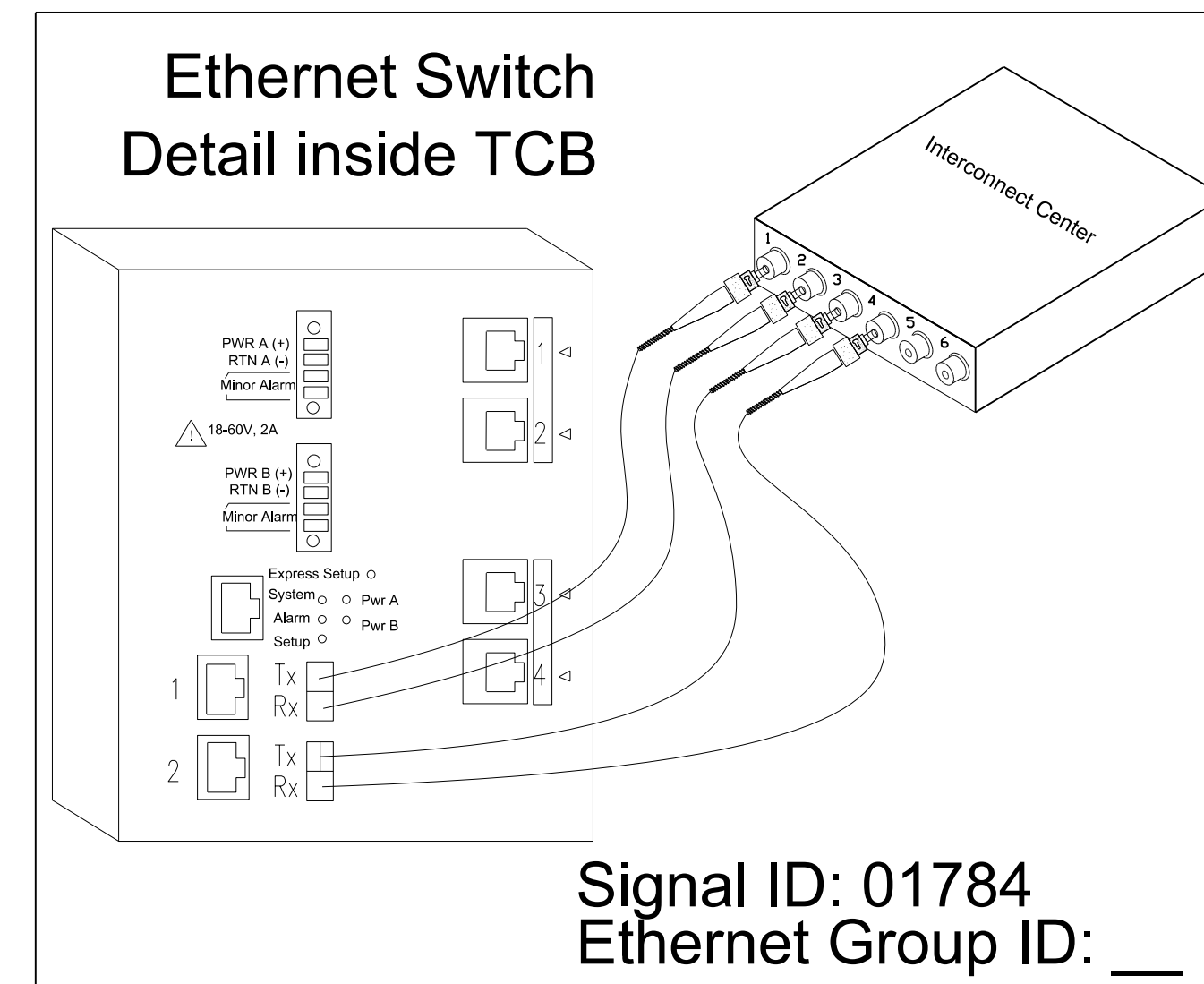
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:  
**DRMP**  
DRMP Engineering, Inc.  
8000 Research Triangle Park, Suite 175  
Raleigh, NC 27616 (919) 950-0388  
NC License No. 022516

W-5601FK JOB NO.	SCALE
01785 Signal ID	10-2298 NCDOT SIGNAL ID
D. White PREPARED BY	CHECKED BY
L. Moon APPROVED BY	JULY 2018 DATE

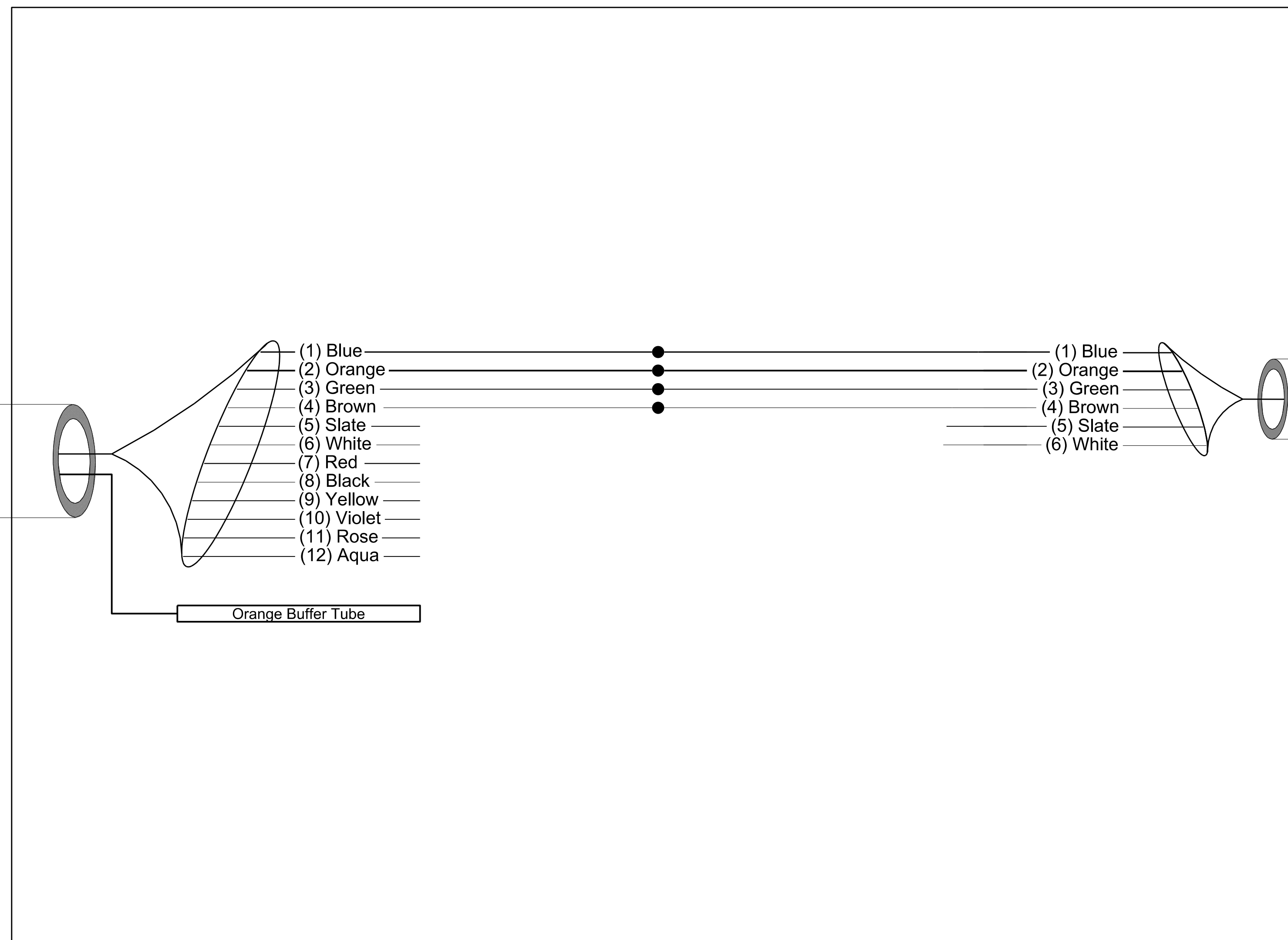
SPLICE DIAGRAM  
FOR SR 2802  
(ROCKY RIVER ROAD)  
AND  
SR 2827 (BACK CREEK  
CHURCH ROAD)

# Rocky River Road at Hood Road



To Rocky River Road  
and Back Creek  
Church Rd

24 FIBER  
CABLE



To signal cabinet for  
NCDOT 10-2299  
(CDOT 01784)

Splice closure in CDOT Type 3 Junction Box next to signal cabinet

### LEGEND

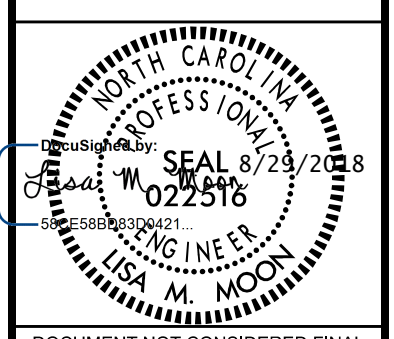
- Existing Splice
- New Splice
- X Break Splice
- / Fiber Cut Point



City of Charlotte  
Department of Transportation  
600 East Fourth Street  
Charlotte, North Carolina 28202  
Phone: (704) 336-4119



REVISIONS



DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:  
**DRMP**  
8000 Research Triangle Park, Suite 175  
Raleigh, NC 27615 (919) 690-1088  
NC License No. 022516

W-5601FK JOB NO.	SCALE
01784 Signal ID	10-2299 NCDOT SIGNAL ID
D. White PREPARED BY	CHECKED BY
L. Moon APPROVED BY	JULY 2018 DATE

SPICE DIAGRAM  
FOR SR 2802  
(ROCKY RIVER ROAD)  
AND  
SR 2826 (HOOD ROAD)