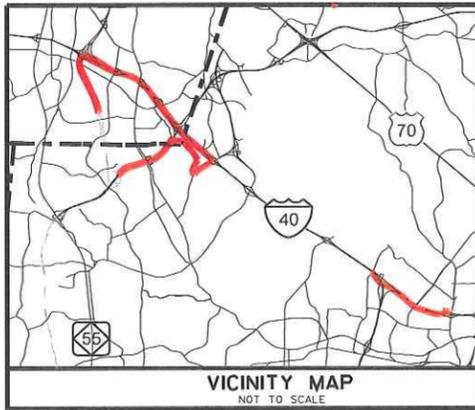


Attachment 17

TriEx As-Built ITS Design Plans

CONTRACT: C202250 **TIP PROJECTS: R-2635, R-2000AD AND U-4763B**



NORTH CAROLINA TURNPIKE AUTHORITY

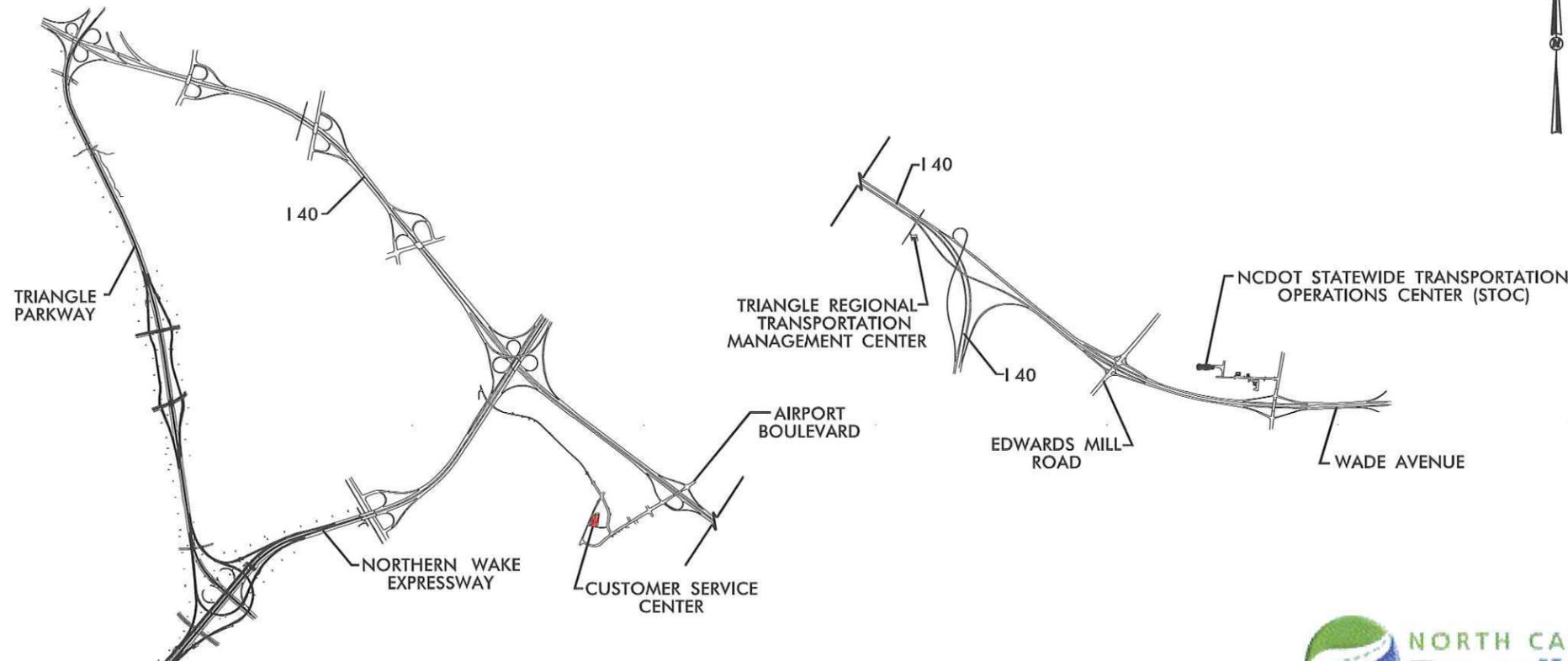
WAKE // DURHAM COUNTIES

**LOCATION: TRIANGLE PARKWAY, NORTHERN WAKE EXPRESSWAY,
I-40 AND WADE AVENUE**

**TYPE OF WORK: FIBER-OPTIC COMMUNICATIONS CABLE ROUTING
PLAN OF RECORD MINI-PLAN SET**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	C202250	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
39942.1.TA1	NHS-54(7)	CONST.	
35520.5.TA1	NHS-540(7)	CONST.	

**PLAN OF
RECORD**



PHASE I

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NUMBER	DESCRIPTION
1715.01	UNDERGROUND CONDUIT
1716.01	JUNCTION BOXES
1730.01	FIBER OPTIC SPARE CABLE STORAGE

INDEX OF PLANS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	CONSTRUCTION NOTES
1B	CABLE ROUTING PLAN KEY
2-2B	DETAILS
3-28	CABLE ROUTING PLANS
29-33	SPLICE PLANS

DESIGN-BUILD TEAM

TRAFFIC CONTROL DEVICES, INC.
P.O. BOX 1028
1110 WILSON STREET, DURHAM, NC 27602
(919) 286-1100

Kimley-Horn and Associates, Inc.
N.C. License #F-002
P.O. Box 33068
Raleigh, NC 27636

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

2006 STANDARD SPECIFICATIONS
RIGHT OF WAY DATE:
LETTING DATE:

S. Privette, P.E.
PROJECT ENGINEER

 J. Cross
PROJECT DESIGN ENGINEER

PROJECT LENGTH

PROJECT LENGTH = 12.2 MI

SEAL

SIGNATURE 9.9.13
DATE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

 _____ P.E.
STATE DESIGN ENGINEER

 DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

 APPROVED _____
DIVISION ADMINISTRATOR DATE

taylor.honeycutt
7/29/2013
\$FILE.ABBREV\$

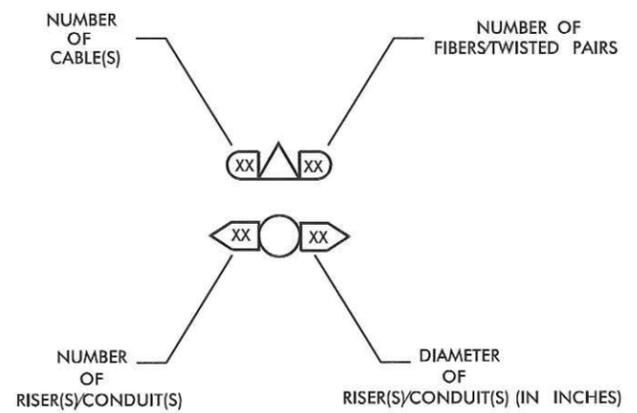
PLAN OF RECORD



- LEGEND**
- NEW CONDUIT
 - DD — NEW DIRECTIONAL DRILLED CONDUIT
 - EXISTING CONDUIT
 - EXISTING CONDUIT (NOT USED)
 - NEW OVERSIZED, HEAVY-DUTY JUNCTION BOX
 - EXISTING OVERSIZED, HEAVY-DUTY JUNCTION BOX
 - ⊠ NEW SPECIAL SIZED, HEAVY-DUTY JUNCTION BOX
 - ⊡ EXISTING SPECIAL SIZED, HEAVY-DUTY JUNCTION BOX
 - ⊙ NEW UNDERGROUND SPLICE ENCLOSURE
 - ⊞ NEW SPLICE CABINET
 - ▶ EXISTING CCTV ASSEMBLY
 - |— EXISTING OR NEW (BY OTHERS) OVERHEAD SIGN STRUCTURE
 - |— NEW OVERHEAD DMS AND SIGN STRUCTURE
 - |— EXISTING OVERHEAD DMS AND SIGN STRUCTURE
 - ⊞ EXISTING CONTROLLER AND CABINET
 - ⊞ STATIC GROUND MOUNTED SIGN
- ABBREVIATIONS**
- CSC CUSTOMER SERVICE CENTER
 - ITS INTELLIGENT TRANSPORTATION SYSTEMS

CONSTRUCTION NOTE SYMBOLOGY KEY

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



- 1 INSTALL UNIFIED CABLE
- 2 REUSE EXISTING SMFO CABLE
- 3 INSTALL PLENUM RATED SMFO CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL ETHERNET CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH OR FLOW
- 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 STUB-OUTS
- 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 NOT USED
- 27 NOT USED
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 INSTALL AERIAL SPLICE ENCLOSURE
- 31 MODIFY EXISTING SPLICE ENCLOSURE
- 32 NOT USED
- 33 NOT USED

- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL MVDS ASSEMBLY
- 38 INSTALL EQUIPMENT CABINET
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED, HEAVY-DUTY JUNCTION BOX
- 41 INSTALL SPECIAL-SIZED, HEAVY DUTY JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 INSTALL CCTV CAMERA LOWERING DEVICE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 INSTALL MVDS POLE
- 49 INSTALL CCTV POLE
- 50 INSTALL DMS ASSEMBLY
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54 STORE 100 FEET OF EACH COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO SIGNAL/COMMUNICATIONS CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL ETHERNET EDGE SWITCH
- 60 INSTALL GIGABIT ETHERNET SWITCH
- 61 INSTALL VIDEO ENCODER
- 62 BOND TRACER WIRE TO CABINET GROUND
- 63 INSTALL SOLAR POWER ASSEMBLY

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Kimley-Horn and Associates, Inc.

SUMMIT CONSULTING

NORTH CAROLINA Turnpike Authority

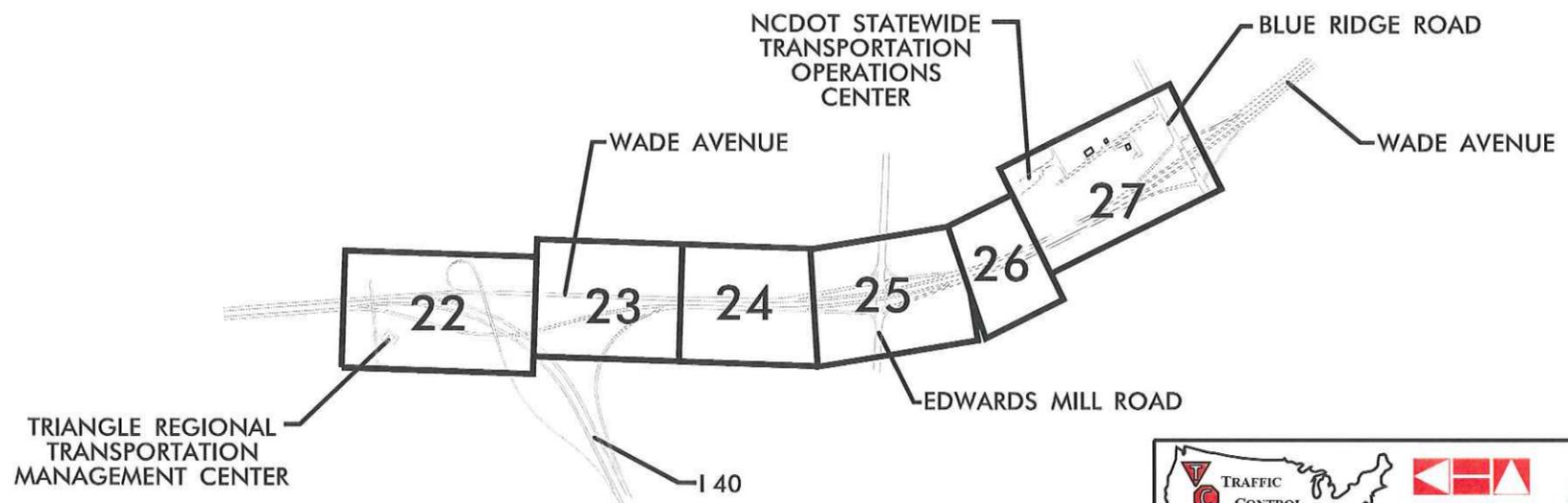
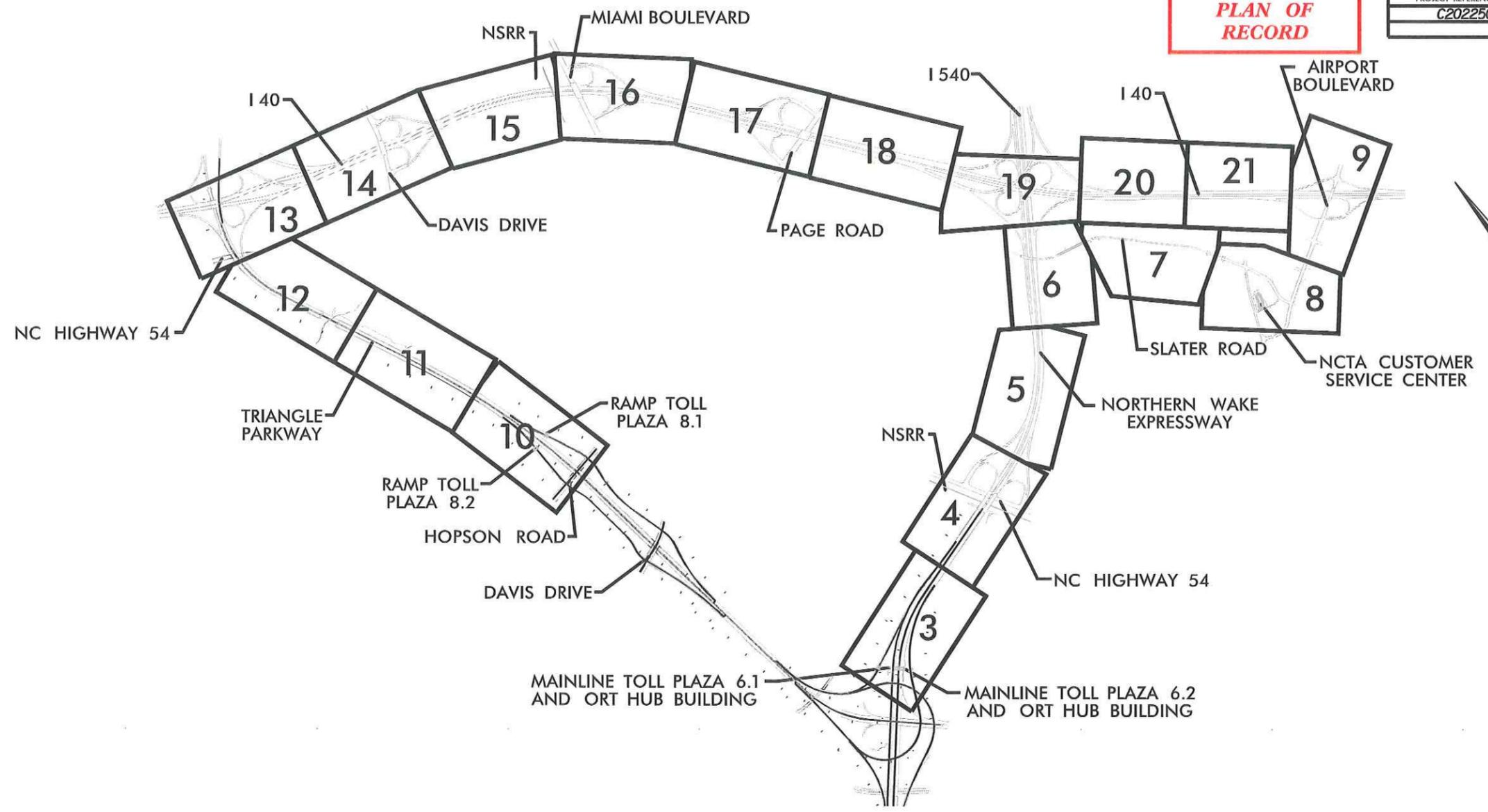
ITS PLANS CONSTRUCTION NOTES AND LEGEND

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 1B
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ITS ENGINEER

 9.9.13



7/29/2013 REVISIONS V:\Phase N_sht 01B.dgn



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 NC License #E-0012
 P.O. Box 33058
 Raleigh, NC 27635
 919.877.2000

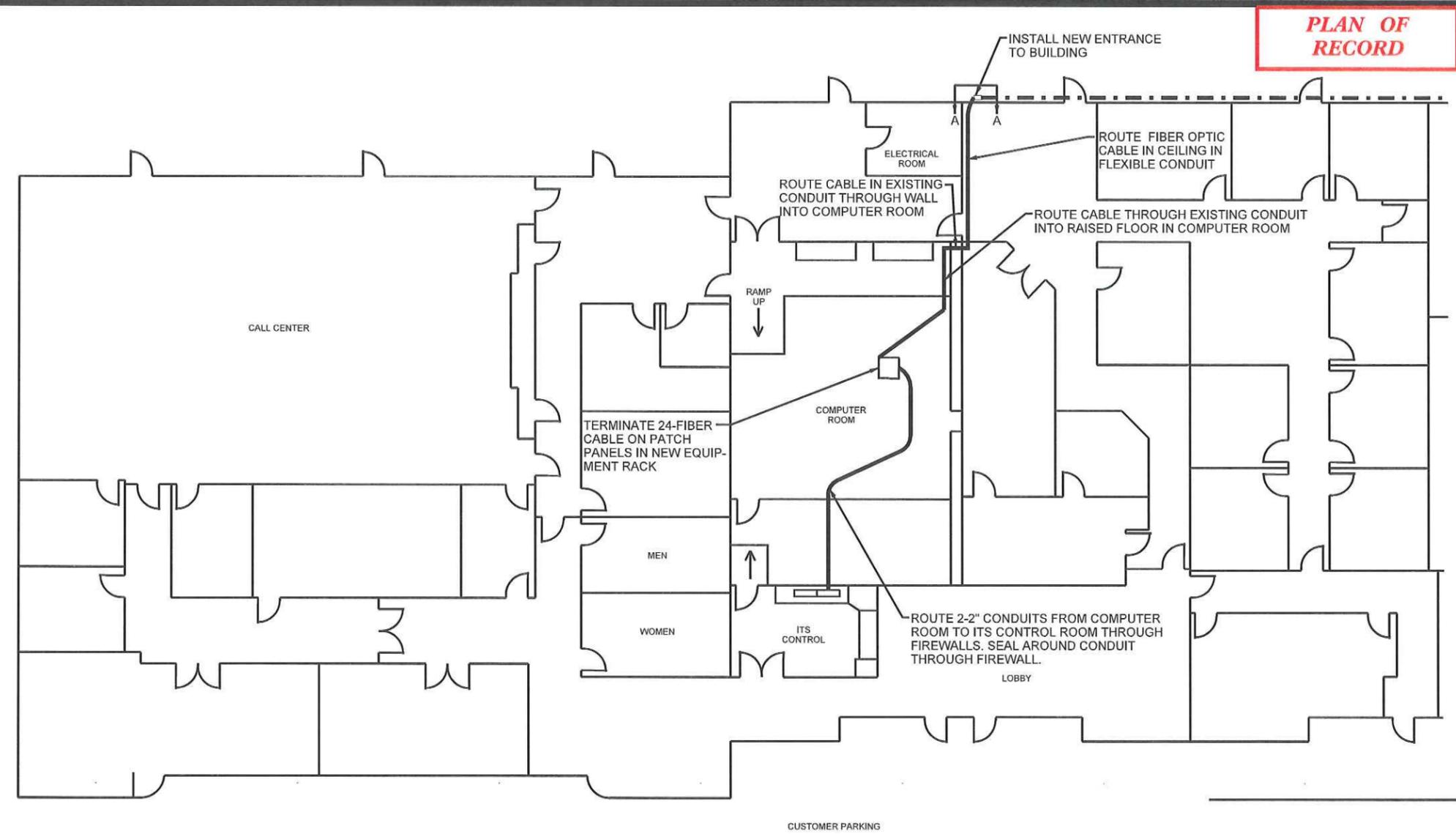


ITS PLANS
 CABLE ROUTING PLAN
 SHEET KEY

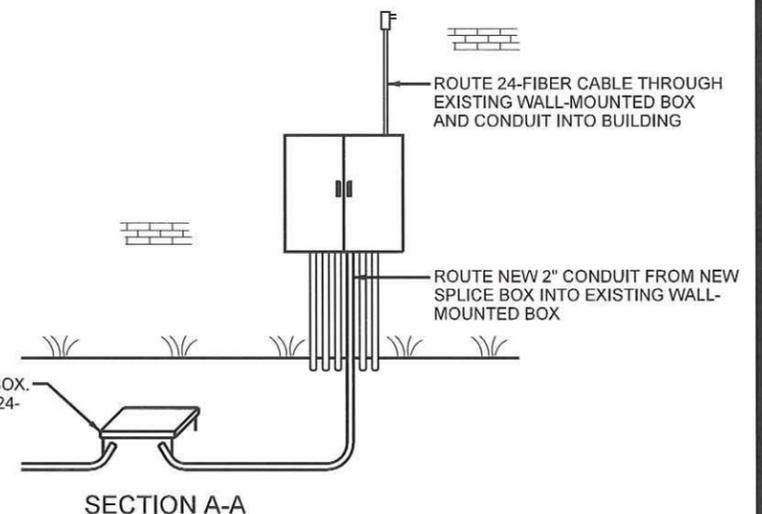
PLAN OF RECORD

ITS ENGINEER

 S. B. PRIVETTE
 9.1.13



NCTA CUSTOMER SERVICE CENTER
 200 SORRELL GROVE CHURCH ROAD
 MORRISVILLE, NC



INSTALL NEW OVERSIZED JUNCTION BOX. SPLICE 2-24-FIBER SMFO CABLE TO 1-24-FIBER CABLE.

SECTION A-A

- EQUIPMENT TO BE INSTALLED AT CUSTOMER SERVICE CENTER FOR ITS SYSTEM IN FUTURE INCLUDES (BUT NOT LIMITED TO):
- LAYER 3 GIGABIT ETHERNET SWITCH IN EQUIPMENT RACK IN COMPUTER ROOM
 - 2-32" LCD MONITORS IN ITS CONTROL ROOM
 - 1 COMPUTER WORKSTATION IN ITS CONTROL ROOM
 - PORT SERVER
 - VIDEO DECODERS



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 P.E. AND ENGINEER
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 NC License #1-0002
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 Raleigh, NC 27635
 (919) 877-2000

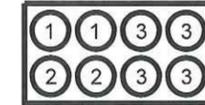


ITS PLANS
 CUSTOMER SERVICE CENTER BUILDING
 DETAIL

7/29/2013

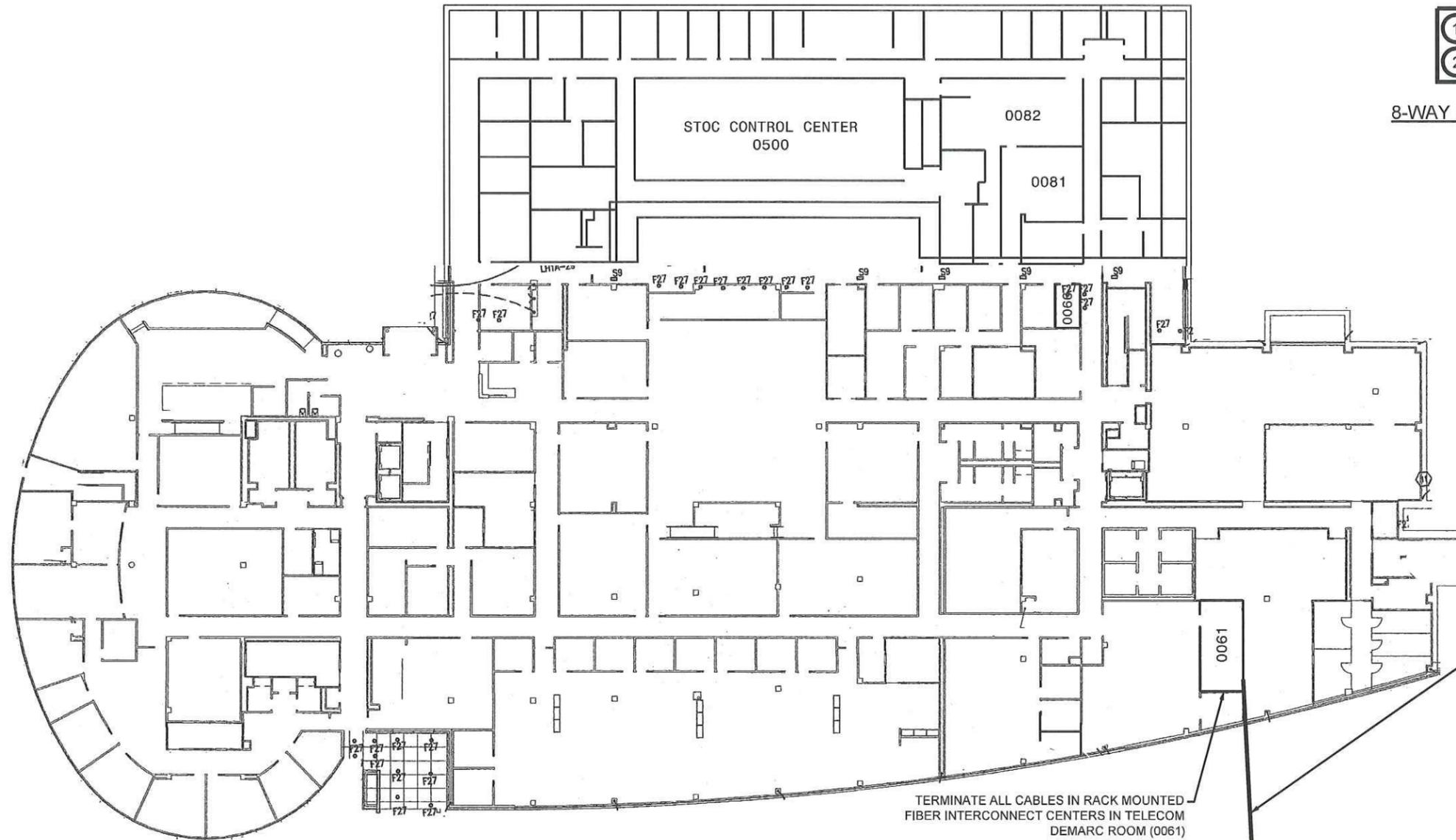
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- 1: 2-4" CONDUITS FOR NCDOT
- 2: 2-4" CONDUITS FOR NCSHP
- 3: 4-4" CONDUITS FOR OTHERS

8-WAY DUCT BANK DETAIL



GROUND FLOOR PLAN

TERMINATE ALL CABLES IN RACK MOUNTED FIBER INTERCONNECT CENTERS IN TELECOM DEMARC ROOM (0061)

EXISTING MANHOLE AT DISTRICT DRIVE

ROUTE 1-72 FIBER SHP CABLE, 1-72 FIBER NCDOT CABLE AND 3-144 FIBER NCDOT CABLES IN 8 WAY DUCT (BY OTHERS) ROUTE CABLES IN CONDUIT BY OWNER. SEE DETAIL THIS SHEET.

7/29/2013 REVISIONS -VPhase N_sst 02A.dgn

NOTE:
NEXT PHASE OF ITS COMMUNICATIONS PROJECT WILL ROUTE FIBER OPTIC CABLE FROM DEMARC ROOM (0061) TO SERVER ROOM (0082) AND CONTROL CENTER VIA ROOMS 0066 AND 0081 IN EXISTING CONDUITS, RISERS AND CABLE RACEWAYS.

RALEIGH ARMED FORCES RESERVE CENTER,
JOINT FORCES HEADQUARTERS
DISTRICT DRIVE
RALEIGH, NC

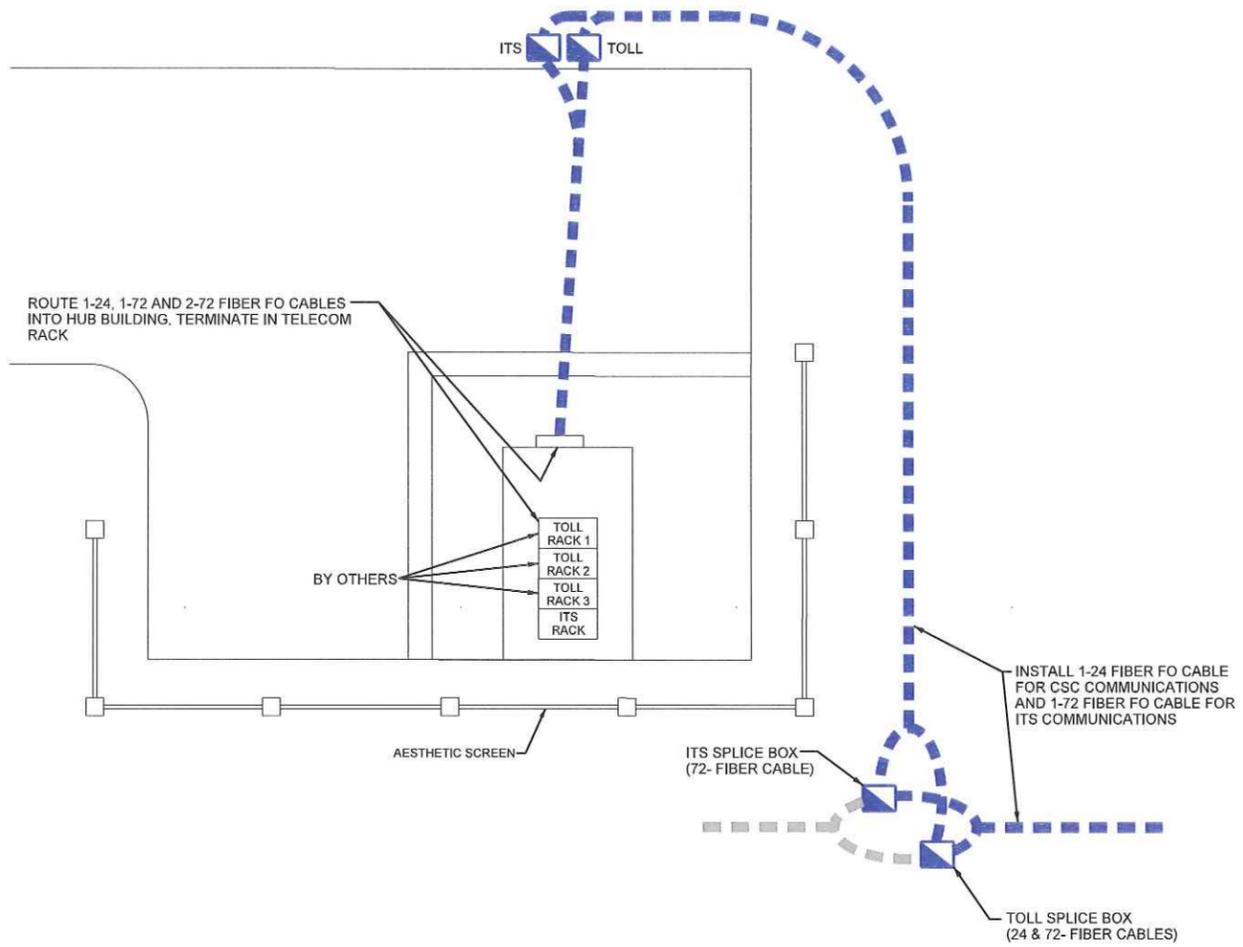


ITS PLANS BUILDING DETAIL

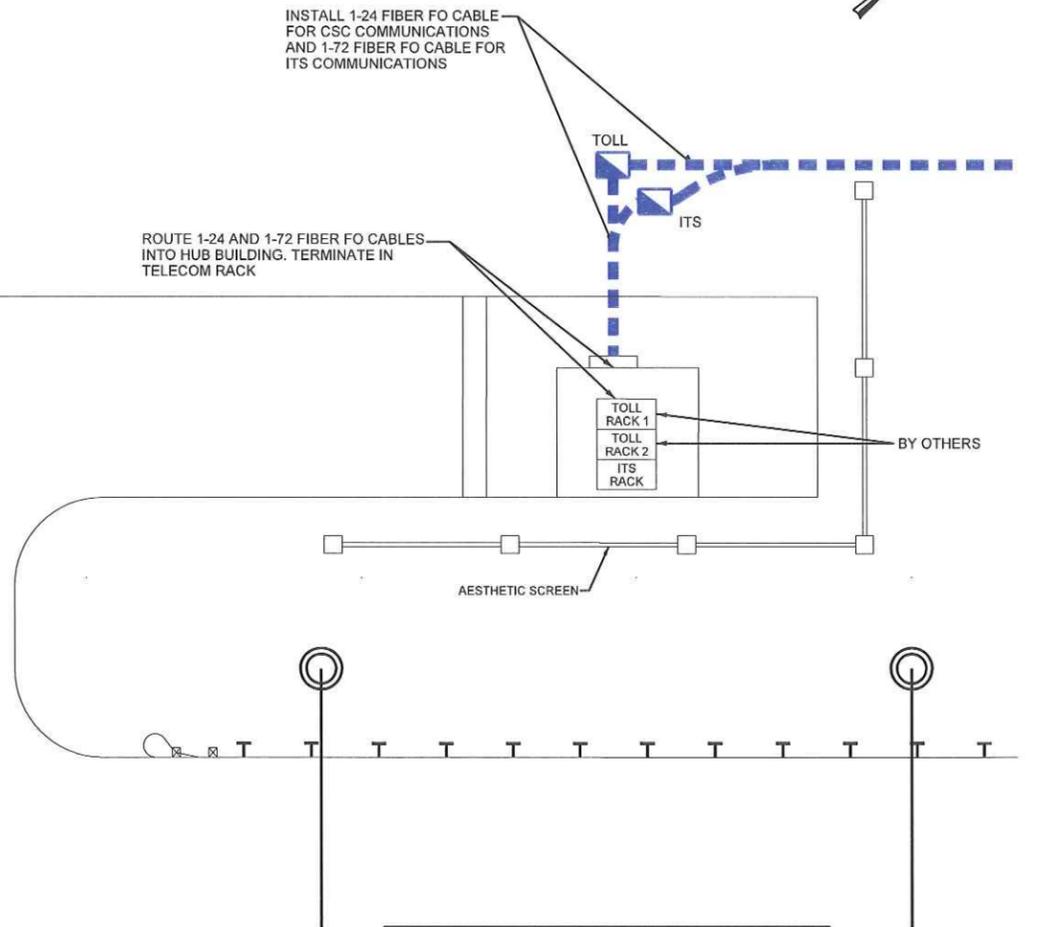
PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2B

ITS ENGINEER



HUB BUILDING AT TOLL PLAZA 6.1



RAMP HUB BUILDING AT TOLL PLAZA 8.2

7/29/2013 _VPhase N_sht 02B.dgn REVISIONS



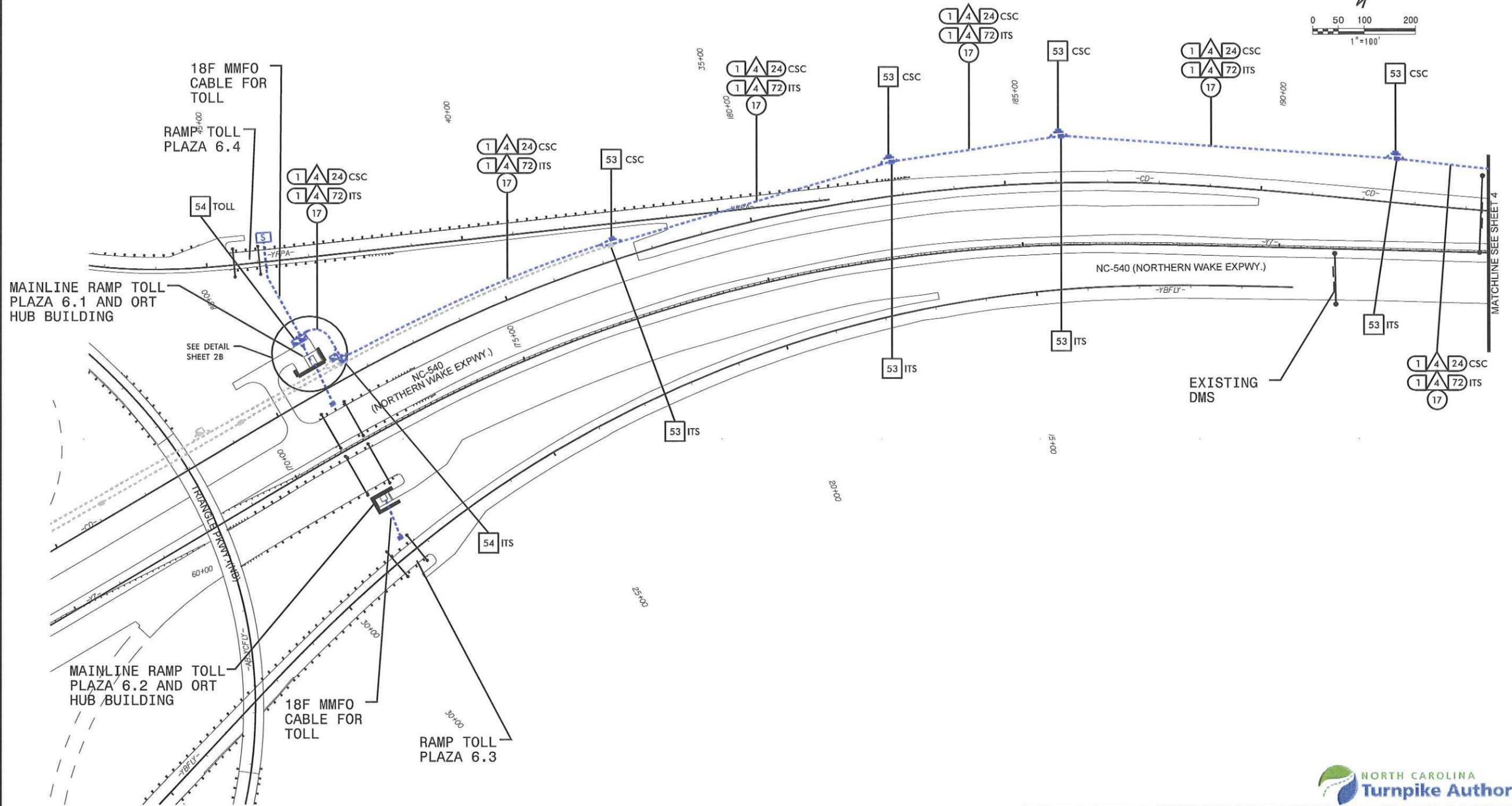
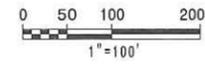
Kimley-Horn and Associates, Inc.
P.A. REG. ENGINEER
 ALL STATES: ENGINEERING, PLANNING, DESIGN, PROGRAM MANAGEMENT
 NC License #E-0002
 P.O. Box 33058
 Raleigh, NC 27635
 (919) 877-2000



ITS PLANS
 HUB BUILDING
 DETAIL

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 3



- NOTES:
1. INSTALL 24-FIBER FIBER OPTIC CABLE IN ORANGE CONDUIT.
 2. CONDUIT INSTALLED BY OTHERS. ENSURE CONDUIT AVAILABLE FOR USE.

TRAFFIC CONTROL DEVICES, INC.

Kimley-Horn and Associates, Inc.

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ITS PLANS
CABLE ROUTING PLAN

7/29/2013 -Vs_BullisPhase N_sht 03.dgn

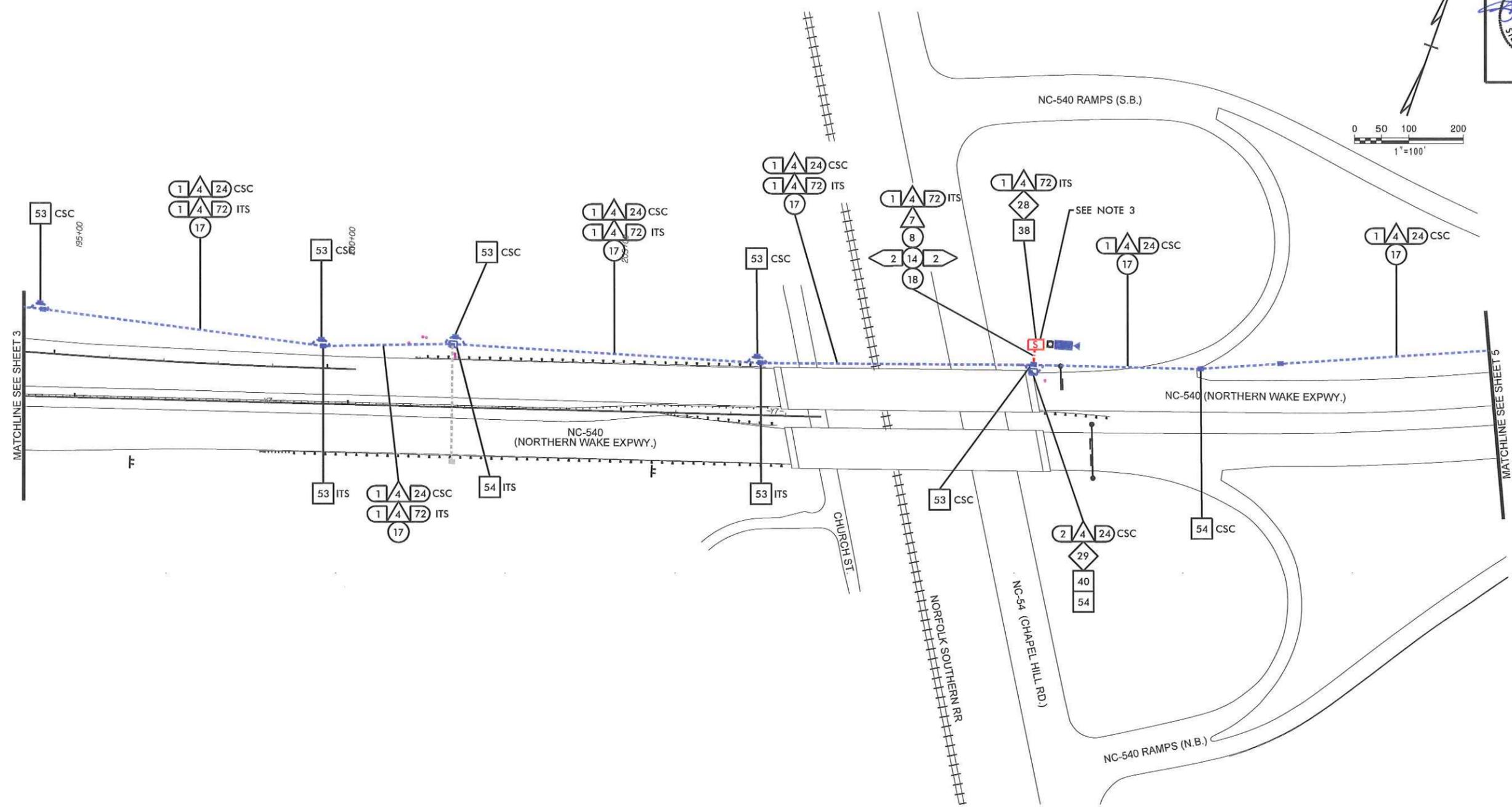
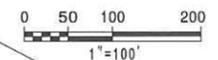
REVISIONS

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 4

ITS ENGINEER

 9.9.13



- NOTES:
1. INSTALL 24-FIBER FIBER OPTIC CABLE IN ORANGE CONDUIT.
 2. CONDUIT INSTALLED BY OTHERS. ENSURE CONDUIT AVAILABLE FOR USE.
 3. CAP AND SEAL NEW 72-FIBER CABLE IN NEW SPLICE CABINET.



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INCORPORATED 1921
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 919.877.2800



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ITS PLANS
 CABLE ROUTING PLAN

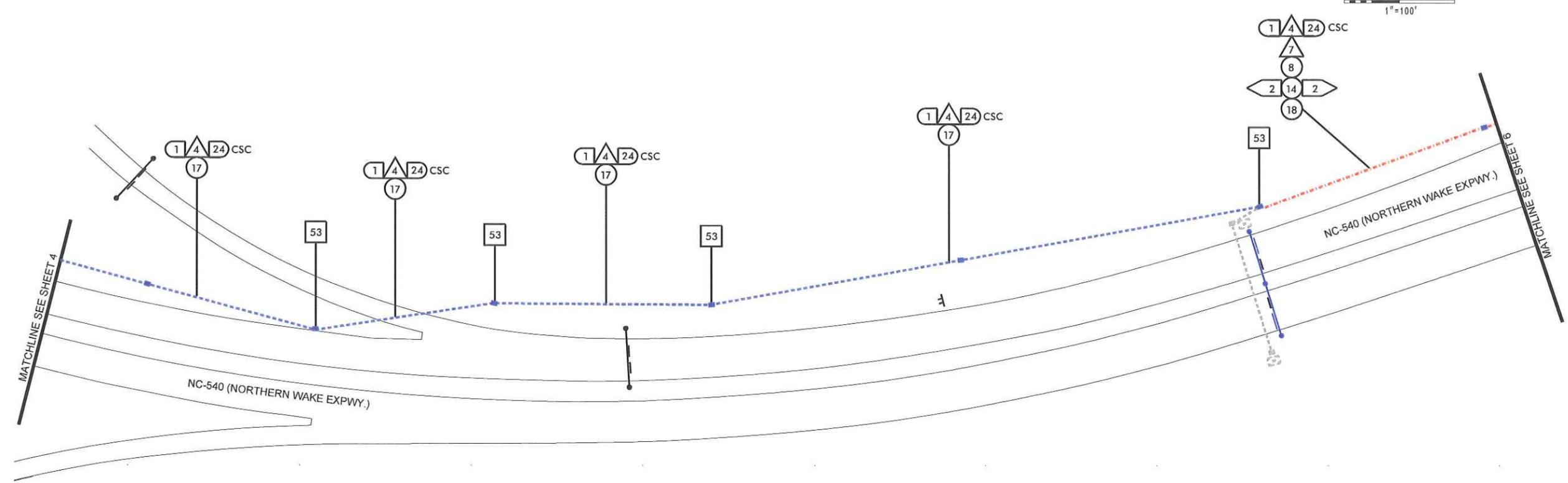
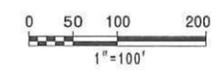
7/29/2013 -Vs_Bullis\Phase N_sht 04.dgn

REVISIONS

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 5

ITS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 24432
STEPHANIE B. PRIVETTE
9.9.13



7/29/2013
-As_Bullis\Phase N_sst 05.dgn

REVISIONS

- NOTES:
1. INSTALL 24-FIBER FIBER OPTIC CABLE IN ORANGE CONDUIT.
 2. CONDUIT INSTALLED BY OTHERS. ENSURE CONDUIT AVAILABLE FOR USE.



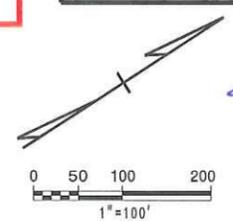
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P.O. Box 33068
Raleigh, NC 27636
(919) 877-2000



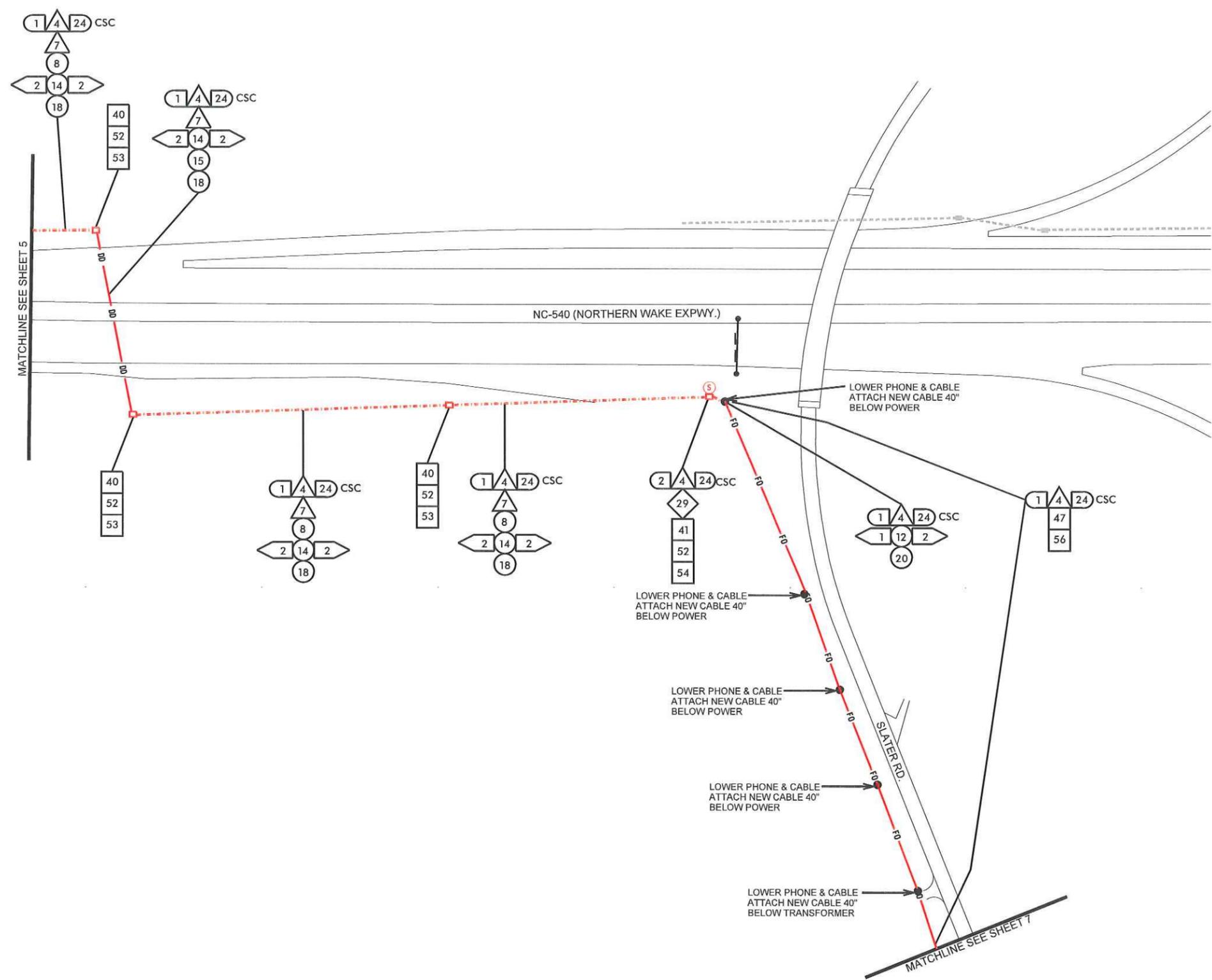
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 6



ITS ENGINEER
 NORTH CAROLINA PROFESSIONAL SEAL
 24432
 ENGINEER
 STEPHANIE B. PRIVETTE
 9.4.13



- NOTES:
1. INSTALL 24-FIBER CABLE IN ORANGE CONDUIT.
 2. CONDUIT INSTALLED BY OTHERS. ENSURE CONDUIT AVAILABLE FOR USE.
 3. UTILITY ADJUSTMENTS TO BE PERFORMED BY OTHERS. CONTRACTOR COORDINATE WITH UTILITY OWNERS.

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 P.O. Box 33068
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ITS PLANS
 CABLE ROUTING PLAN

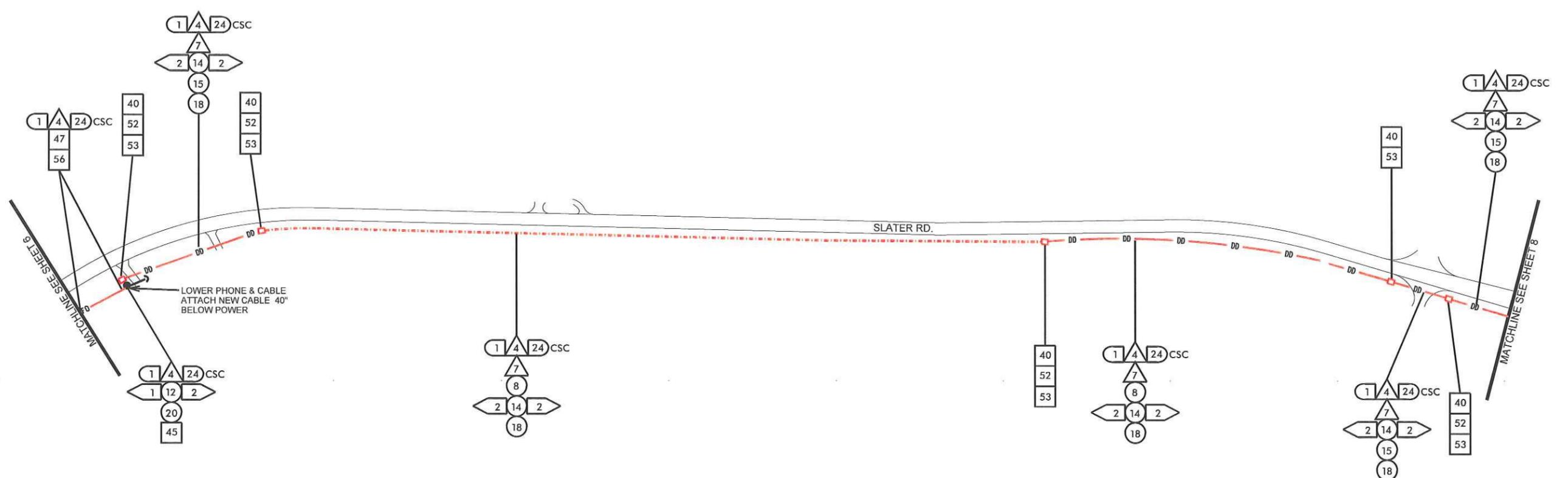
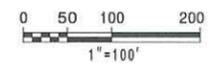
7/29/2013

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\\As_Bullis\Phase N_sht 06.dgn

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 7



7/29/2013 \As_Bullis\Phase N_sht 07.dgn

REVISIONS

NOTES:
1. LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.

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Raleigh, NC 27635
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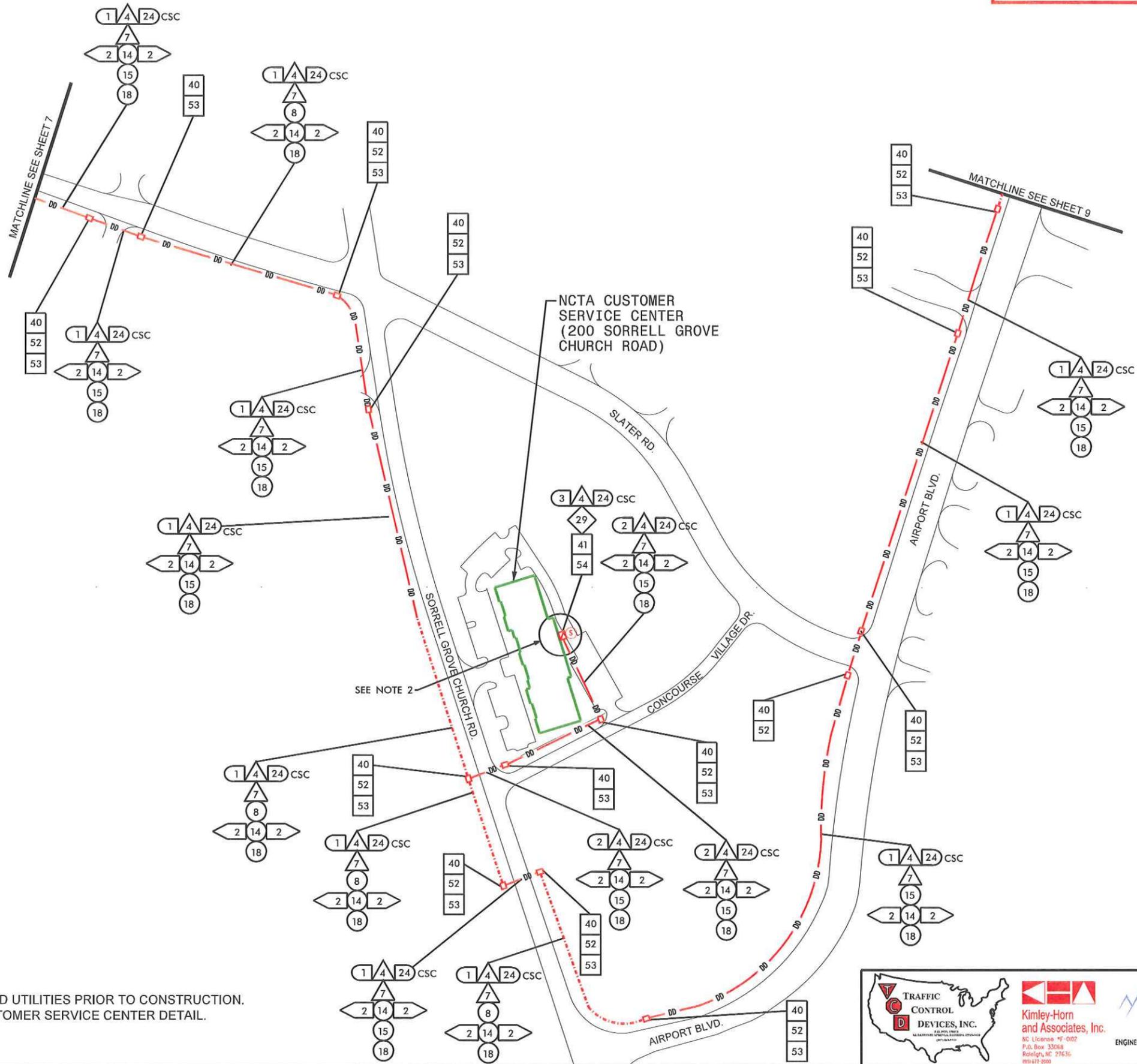
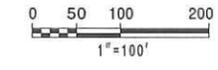
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

NORTH CAROLINA Turnpike Authority

ITS PLANS CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 8



- NOTES:
 1. LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
 2. SEE SHEET 2 FOR CUSTOMER SERVICE CENTER DETAIL.



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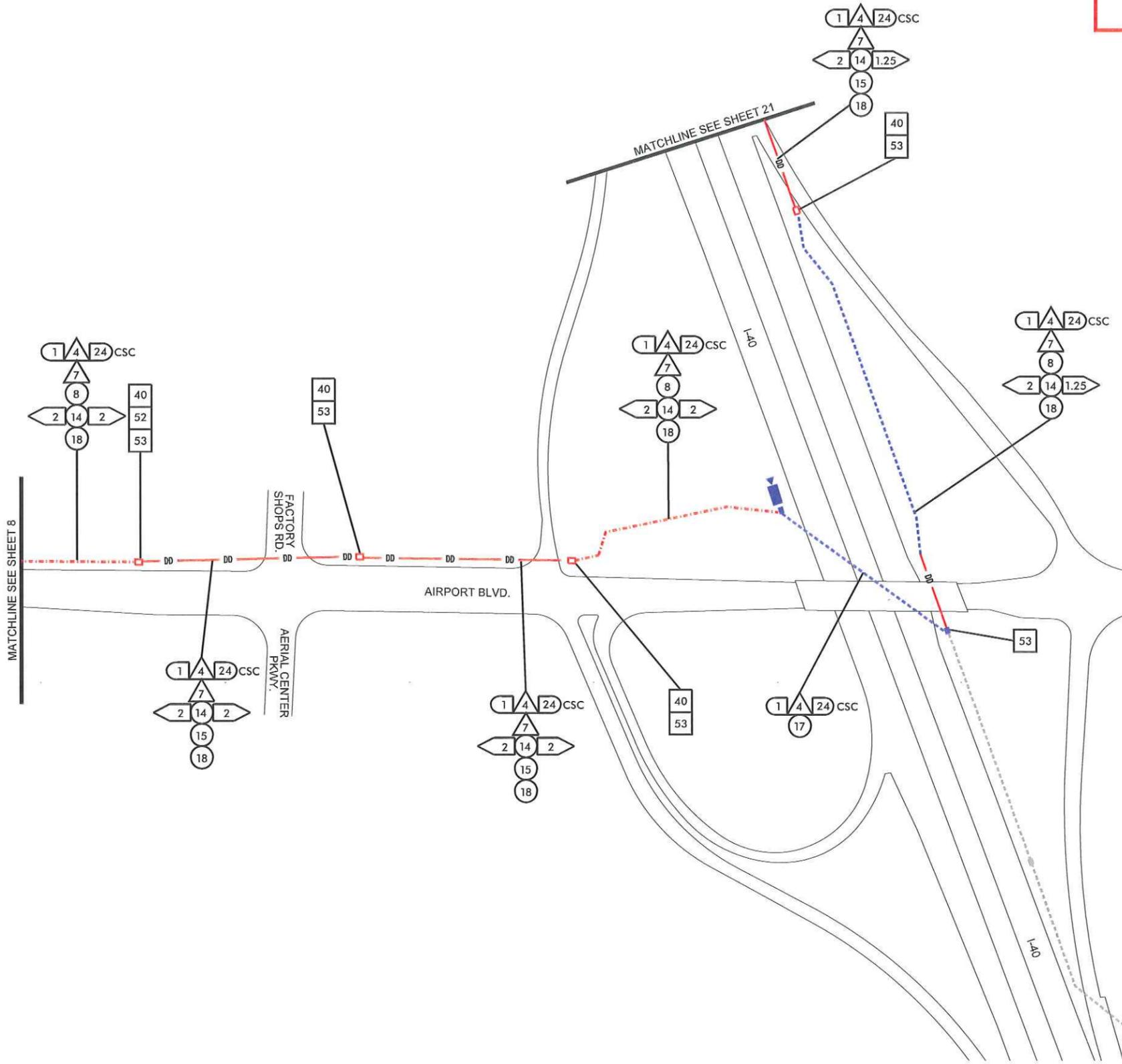
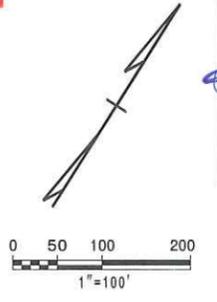
ITS PLANS
 CABLE ROUTING PLAN

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REVISIONS

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	9



7/29/2013 -\As_Bullis\Phase N_sht 09.dgn

REVISIONS

NOTES:
1. LOCATE UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.



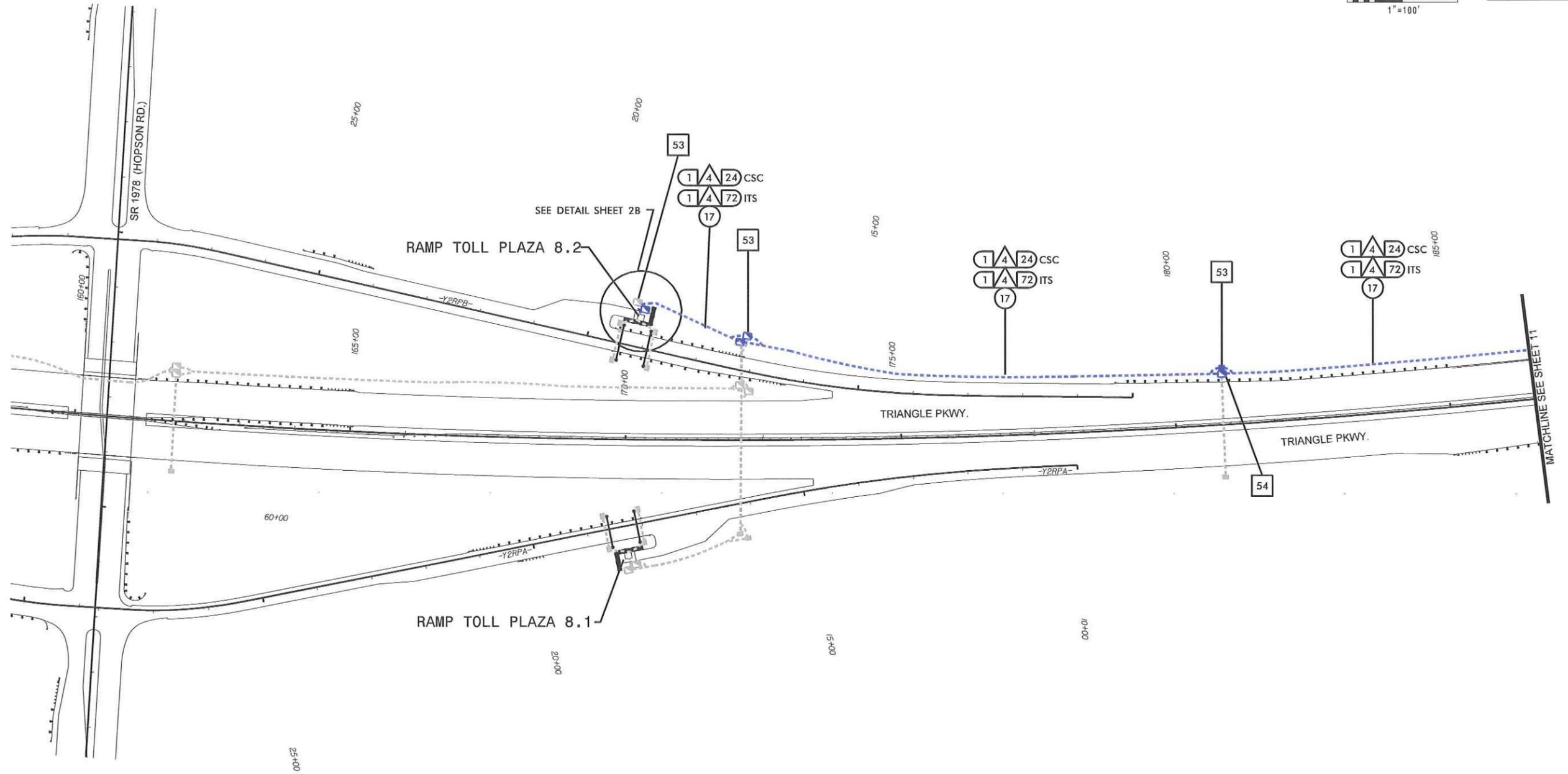
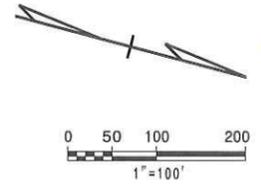
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Raleigh, NC 27636



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	10



7/29/2013
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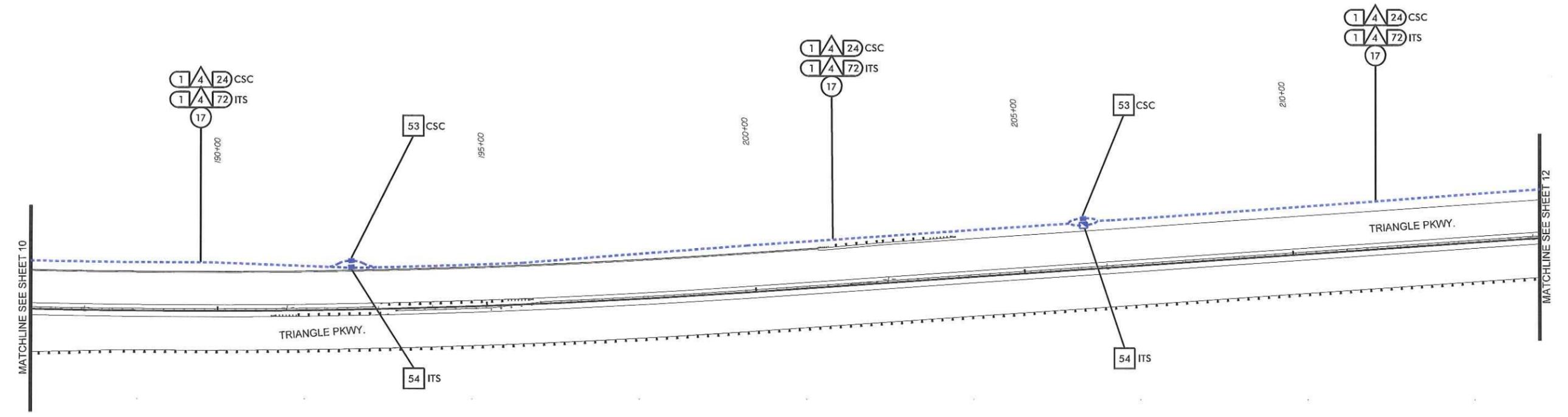
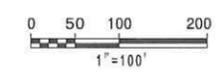
- NOTE:
1. INSTALL CSC CABLE IN ORANGE CONDUIT.
 2. INSTALL ITS CABLE IN BLUE CONDUIT.



ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	II



7/29/2013

REVISIONS

NOTE:
 1. INSTALL CSC CABLE IN ORANGE CONDUIT.
 2. INSTALL ITS CABLE IN BLUE CONDUIT.



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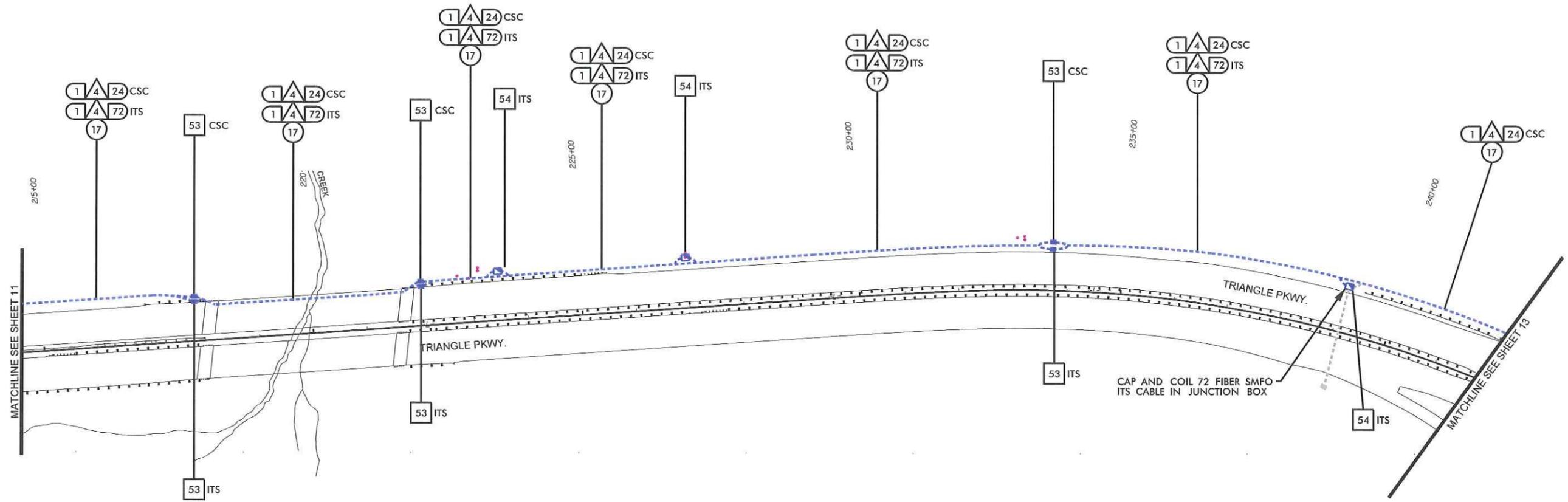
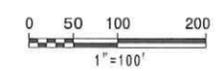
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 12

ITS ENGINEER

 9.9.13



7/29/2013
 _Vs_BuiltitsPhase N_sht 12.dgn

REVISIONS

- NOTE:
1. INSTALL CSC CABLE IN ORANGE CONDUIT.
 2. INSTALL ITS CABLE IN BLUE CONDUIT.



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 P.E. License #F 0002
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 (919) 477-7000

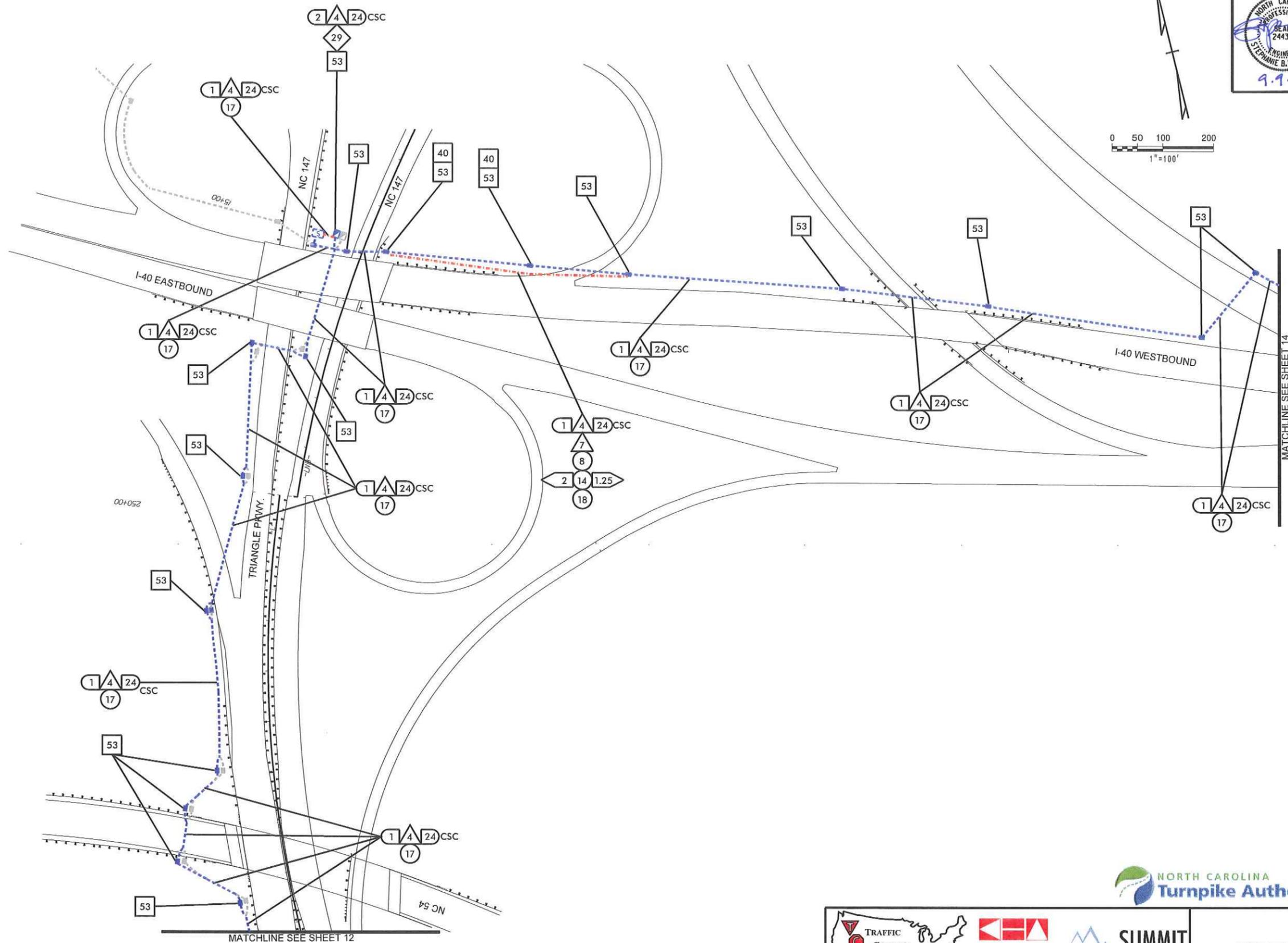
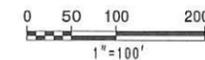


ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 13

ITS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL
24432
ENGINEER
FRANNE B. PRIVEY
9.9.13



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\\s_Bullis\Phase N_sht 13.dgn

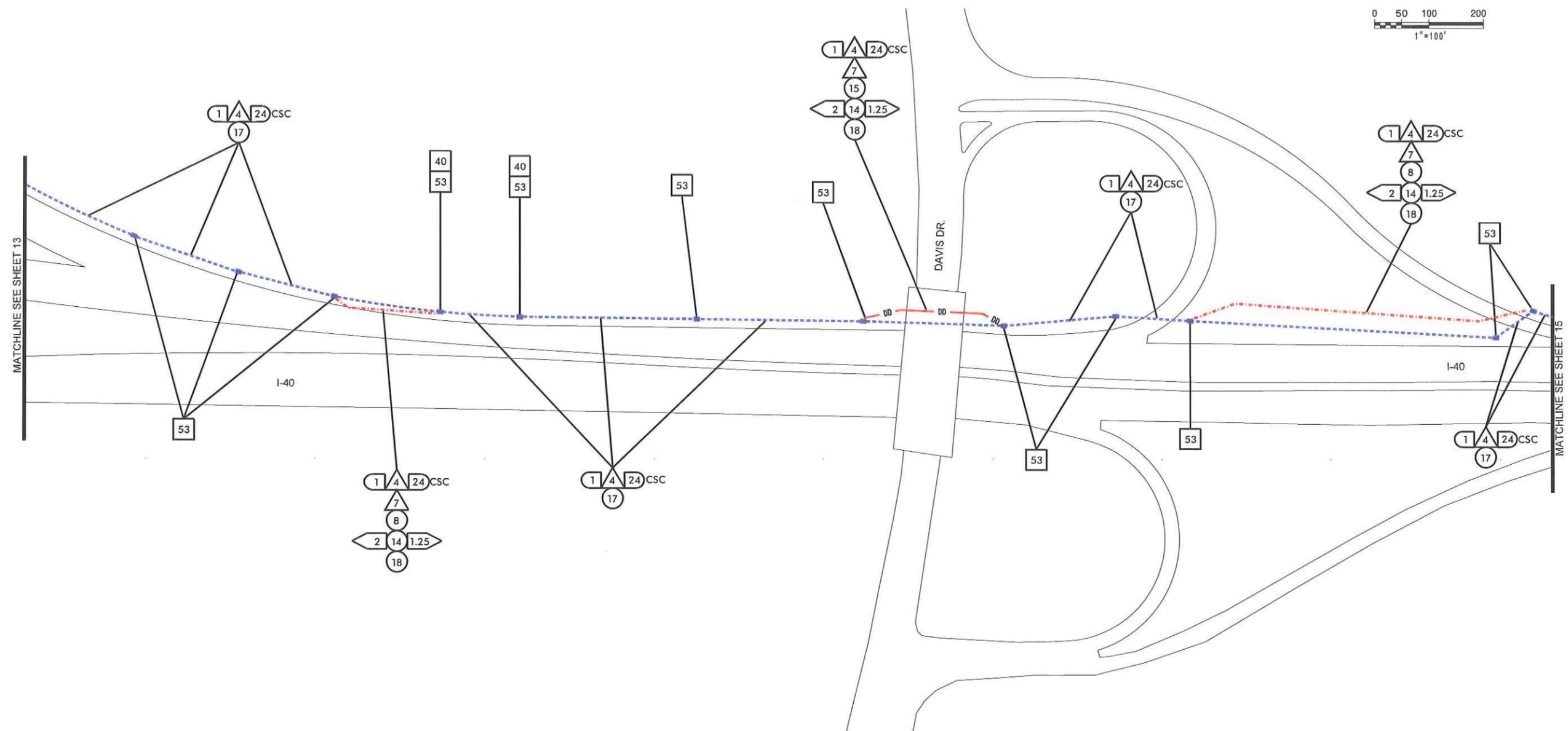
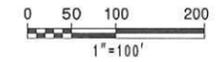
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ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 14



7/29/2013
\\As_Bullis\Phase N_sht 14.dgn

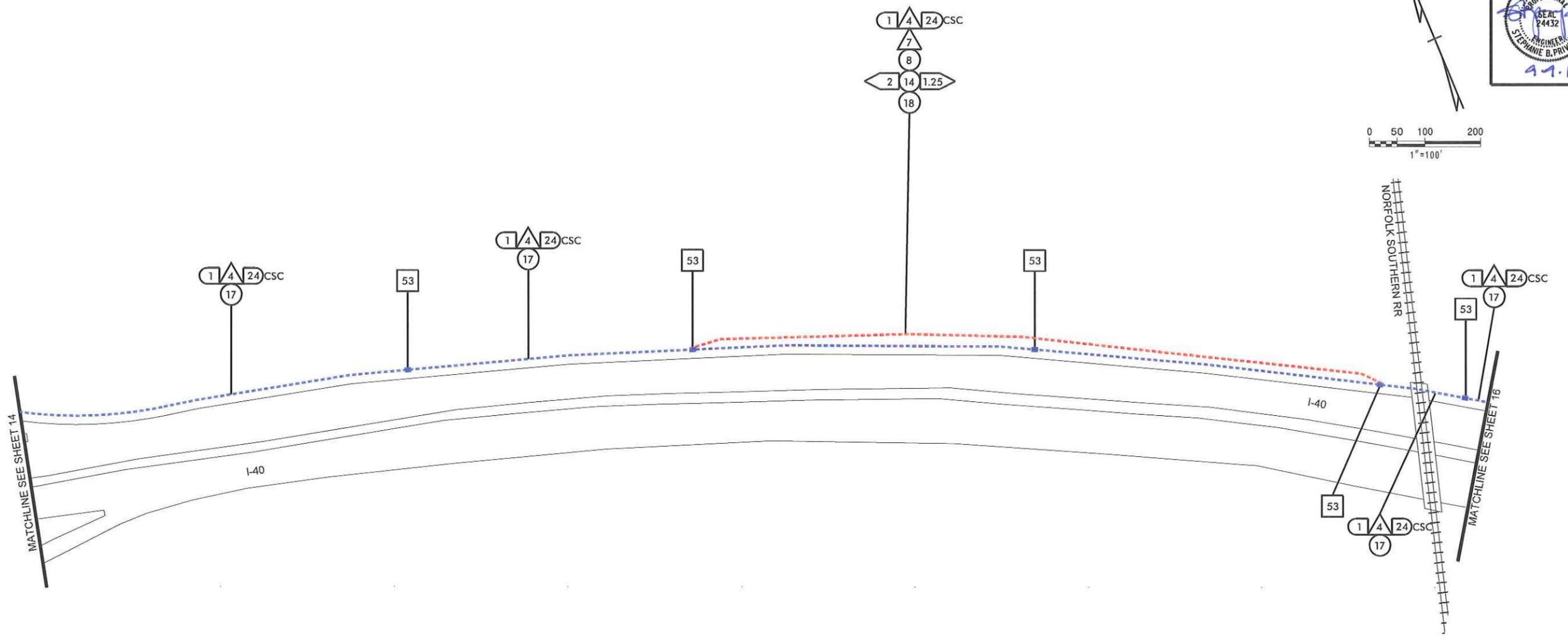
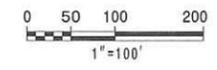
REVISIONS



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 15
----------------------------------	-----------------



7/29/2013
 REVISIONS
 -Vs-Bullis\Phase N_sst 15.dgn



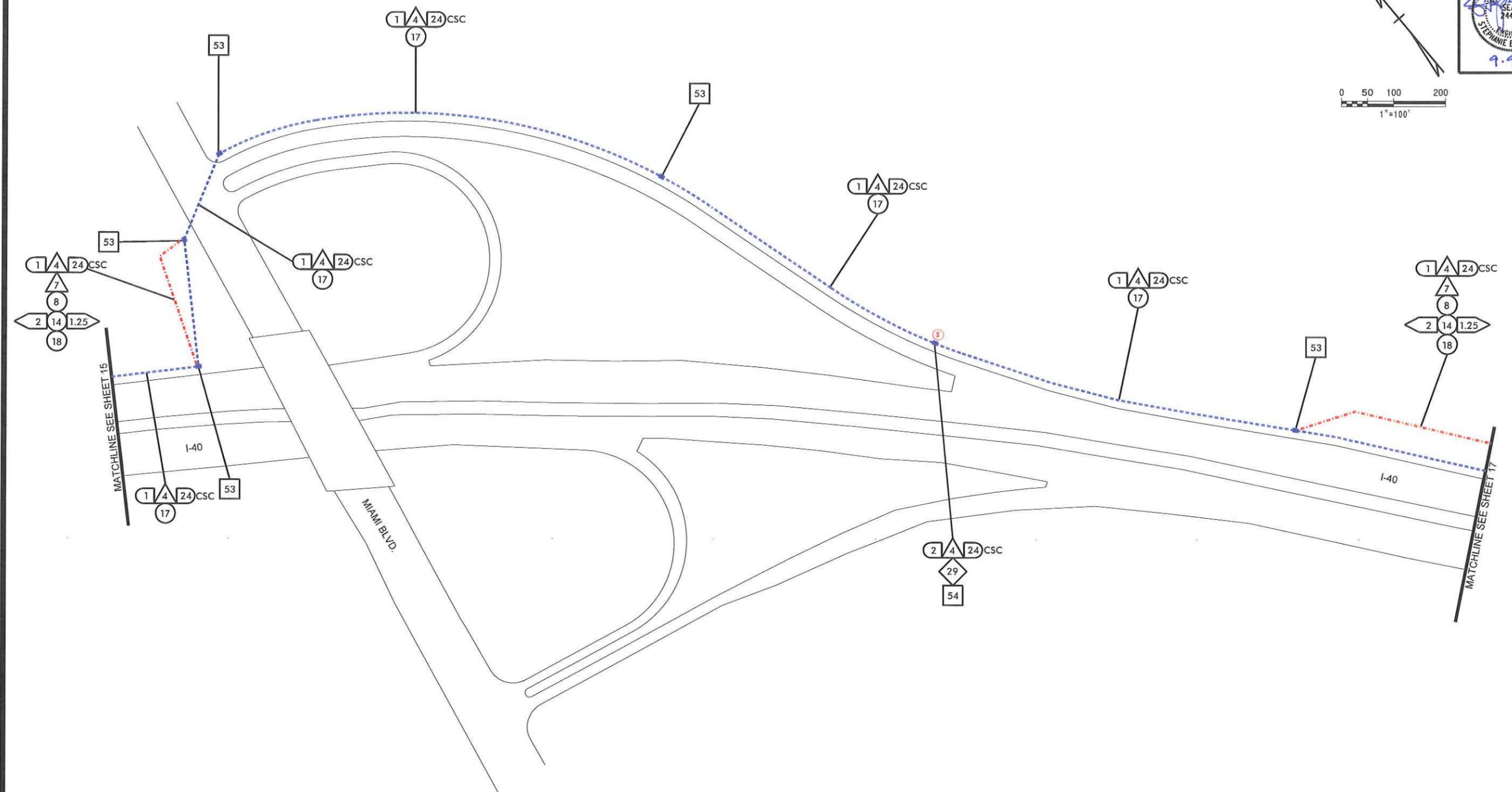
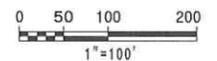
<p>TRAFFIC CONTROL DEVICES, INC. <small>TRAFFIC CONTROL DEVICES, INC. IS AN EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION EMPLOYER.</small></p>	<p>Kimley-Horn and Associates, Inc. <small>NC License #F-002 P.O. Box 33068 Raleigh, NC 27636 (919) 477-2000</small></p>	<p>SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small></p>	<p>ITS PLANS CABLE ROUTING PLAN</p>
---	--	---	--

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	16

ITS ENGINEER

STEPHANIE B. PRIVE
9.9.13



7/29/2013
_Vs_Bullis\Phase N_sht 16.dgn

REVISIONS



**Kimley-Horn
and Associates, Inc.**
P.O. Box 33068
Raleigh, NC 27635
(919) 877-2000



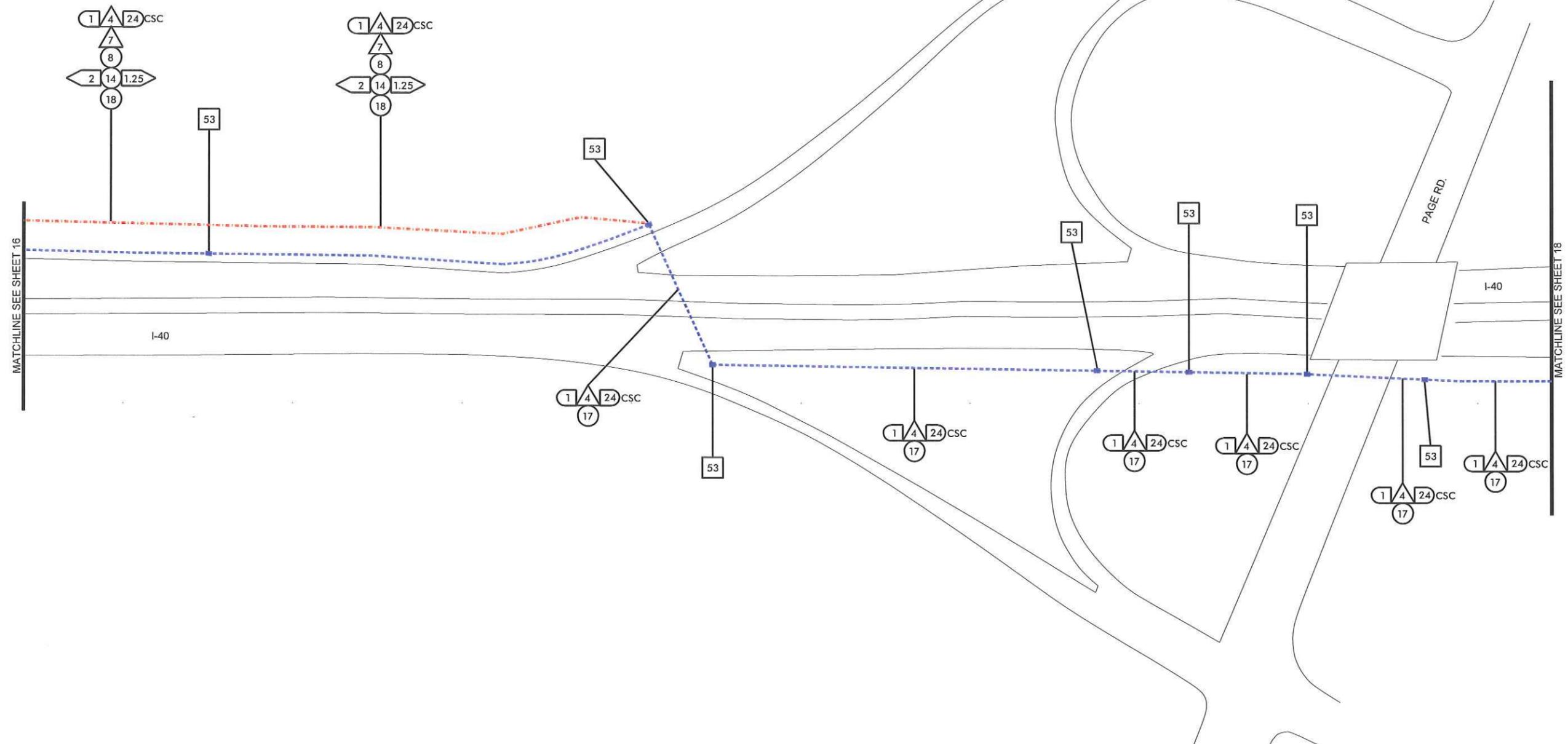
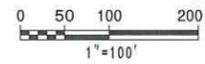
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	17

ITS ENGINEER

STEPHANIE B. PRIVETTE
9.1.13



7/29/2013
\\As_Bullis\Phase N_sht 17.dgn

REVISIONS

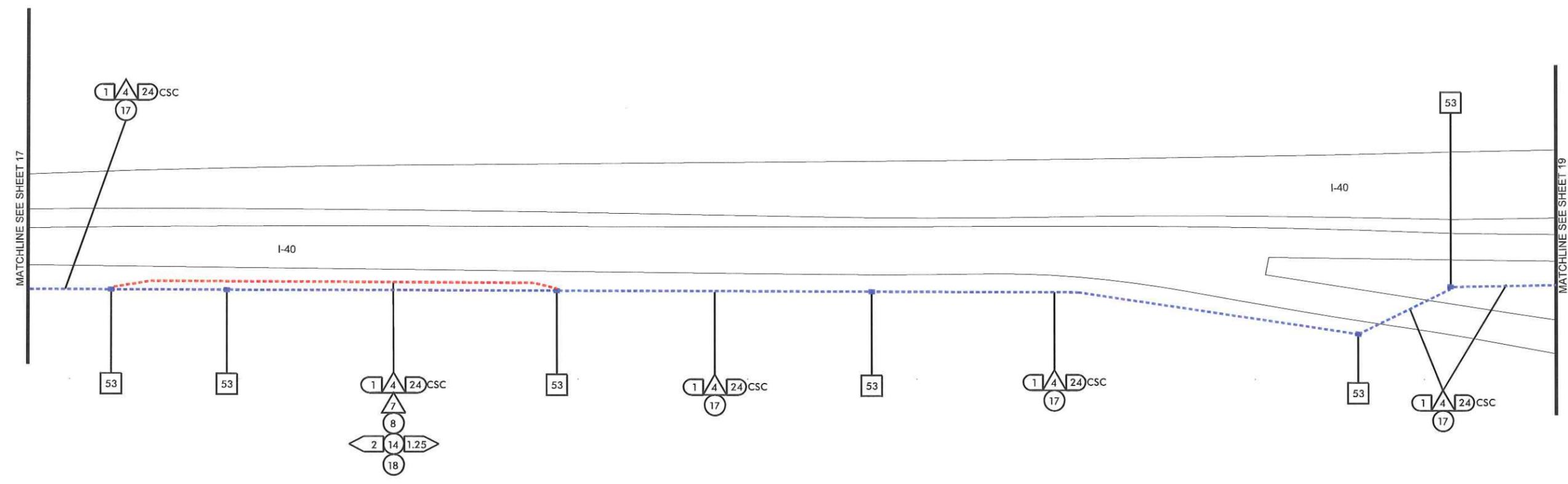
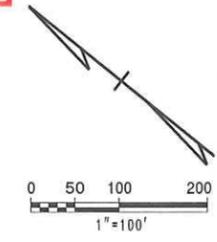


ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 18

ITS ENGINEER
STEPHANIE B. PRIVETTE
9.9.13



7/29/2013
_Vs_Bullis\Phase N_sht 18.dgn

REVISIONS



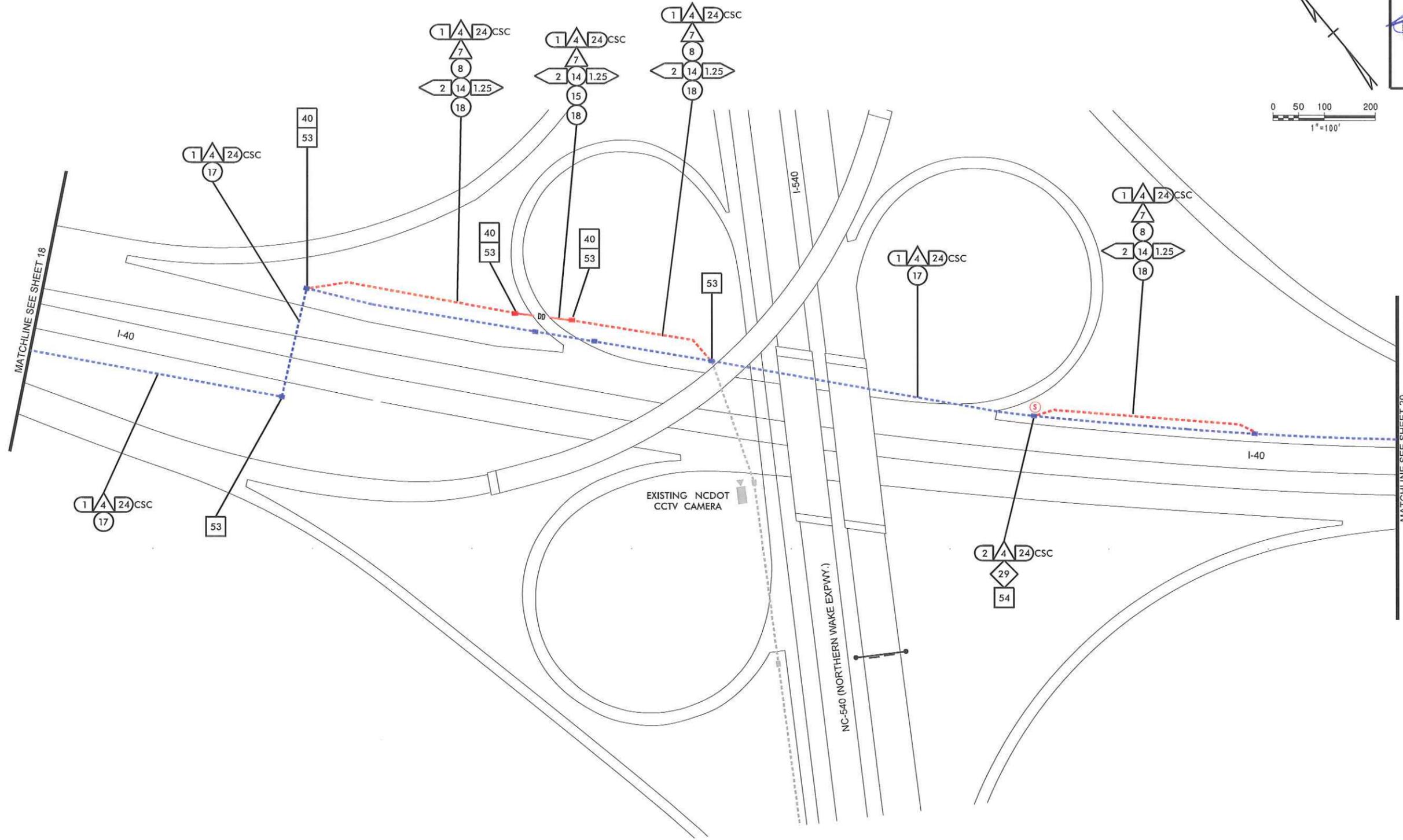
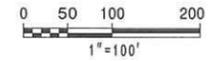
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 19
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ITS ENGINEER

9.9.13



MATCHLINE SEE SHEET 18

MATCHLINE SEE SHEET 20

7/29/2013
-\\s_bullis\Phase N_sht 19.dgn

REVISIONS



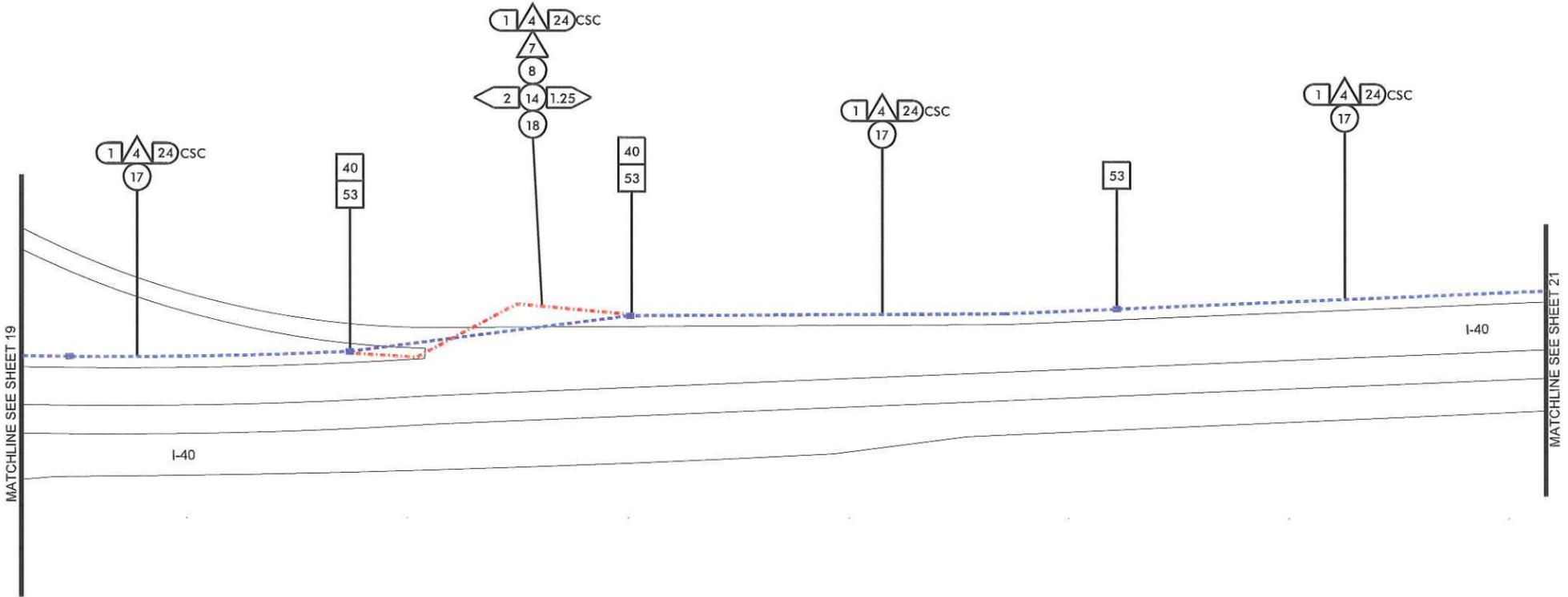
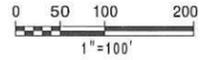
Kimley-Horn and Associates, Inc.
FOR ALL STATES
 NC License #F-0102
 P.O. Box 33068
 Raleigh, NC 27635
 (919) 677-8900



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	20



7/29/2013

REVISIONS

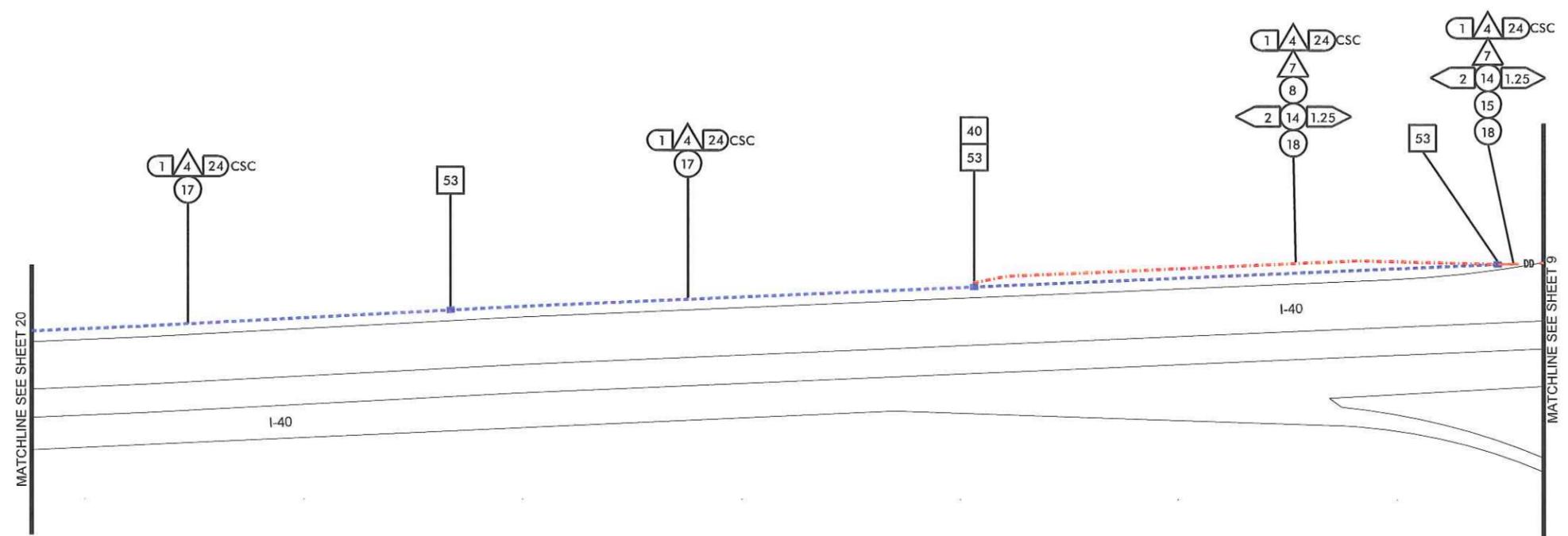
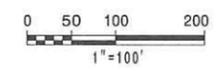


ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	21

ITS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL
ENGINEER
D. PRINCE, B. PRIVATE
9.9.13



7/29/2013
-\\s-Bullis\Phase N_sht 21.dgn

REVISIONS



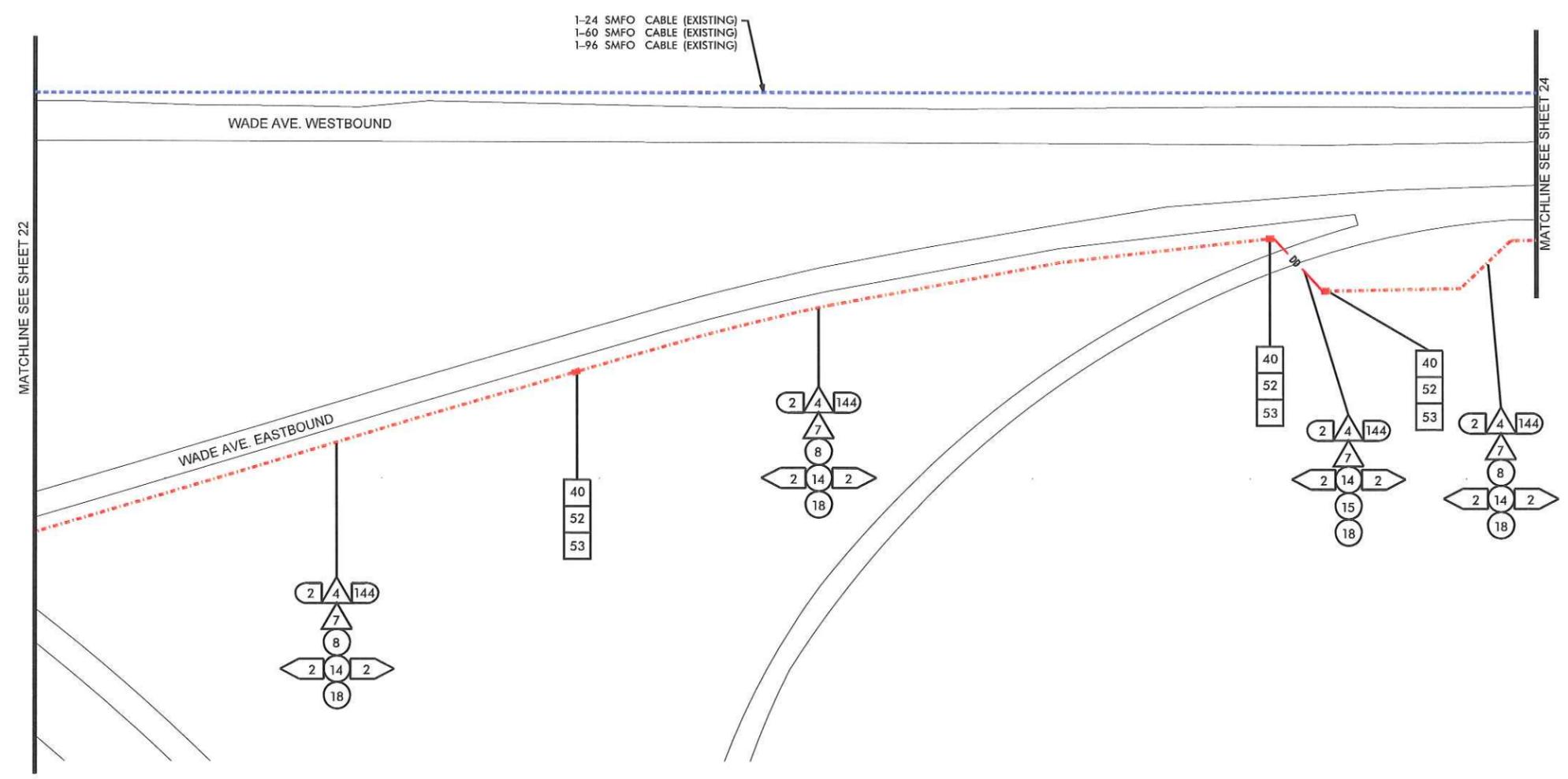
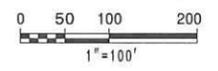
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **23**

ITS ENGINEER

9.9.13



7/29/2013
 _Vs_Bullis\Phase N_sht 23.dgn
 REVISIONS



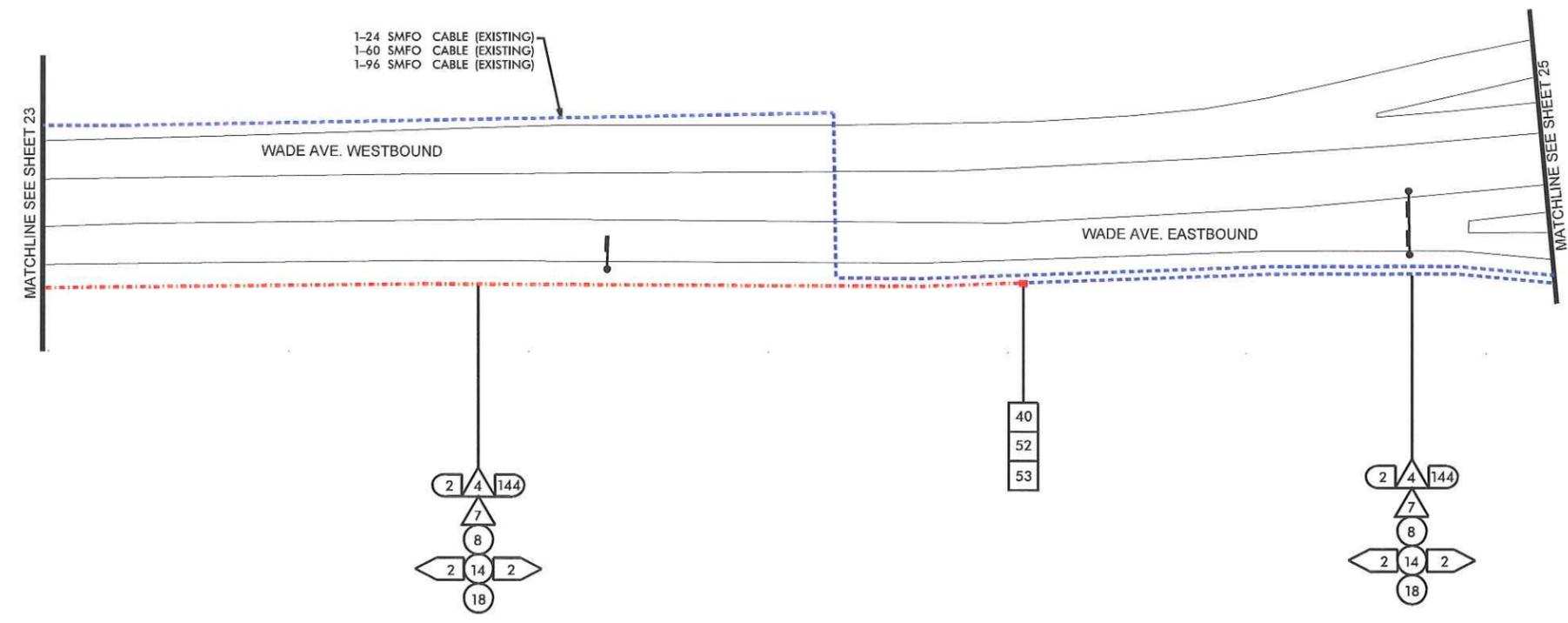
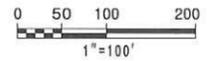
Kimley-Horn and Associates, Inc.
 NC License #F-002
 P.O. Box 33068
 Raleigh, NC 27635
 (919) 877-2000



ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	24



7/29/2013
_Vs_Bullis\Phase N_sht 24.dgn

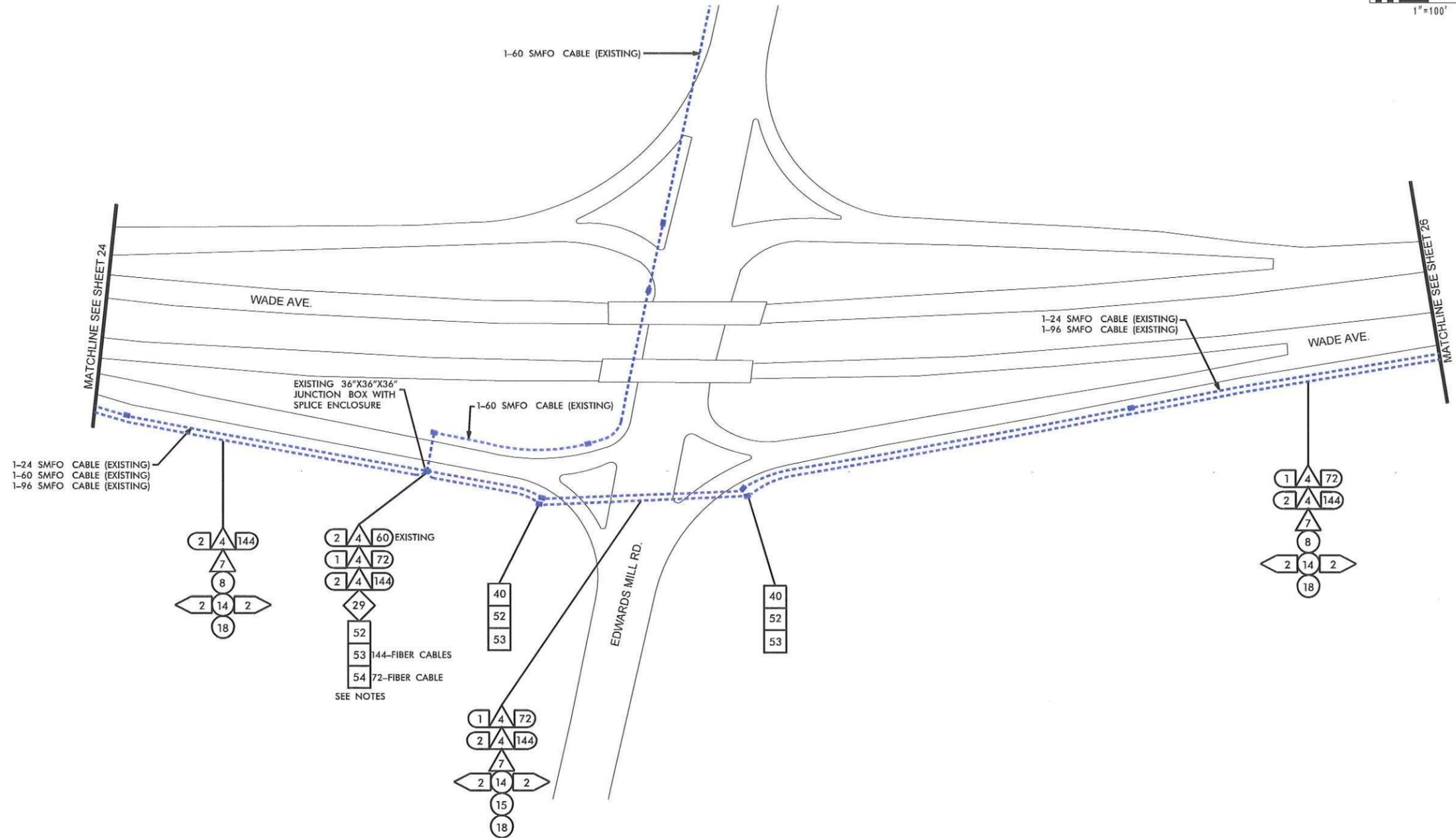
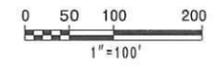
REVISIONS



ITS PLANS
CABLE ROUTING PLAN

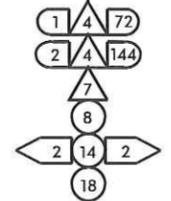
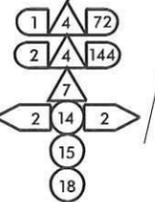
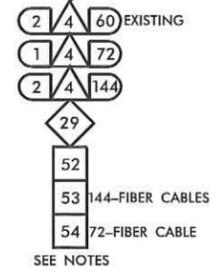
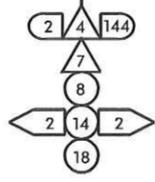
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **25**



1-24 SMFO CABLE (EXISTING)
1-60 SMFO CABLE (EXISTING)
1-96 SMFO CABLE (EXISTING)

EXISTING 36"X36"X36"
JUNCTION BOX WITH
SPLICE ENCLOSURE



NOTES:

1. 144-FIBER CABLES NOT SPLICED IN BOX. STORE 50' OF EACH 144-FIBER CABLE.
2. TERMINATE 72-FIBER CABLE IN NEW UNDERGROUND SPLICE ENCLOSURE. DO NOT SPLICE EXISTING 60-FIBER CABLES AT THIS TIME.

7/29/2013 -Vs_Bullis\Phase N_sht 25.dgn

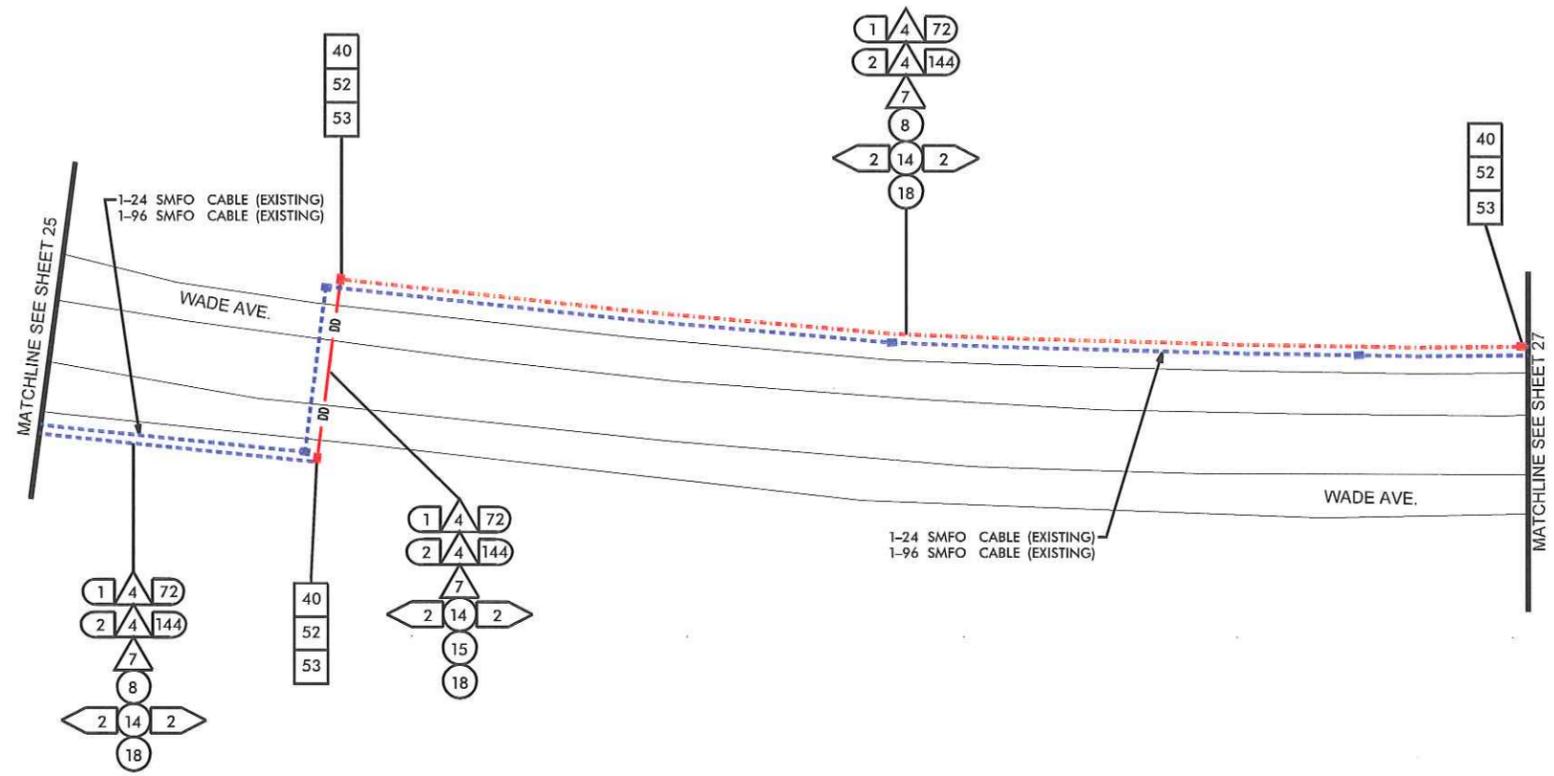
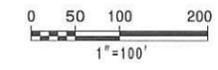
REVISIONS



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	26



7/29/2013

REVISIONS



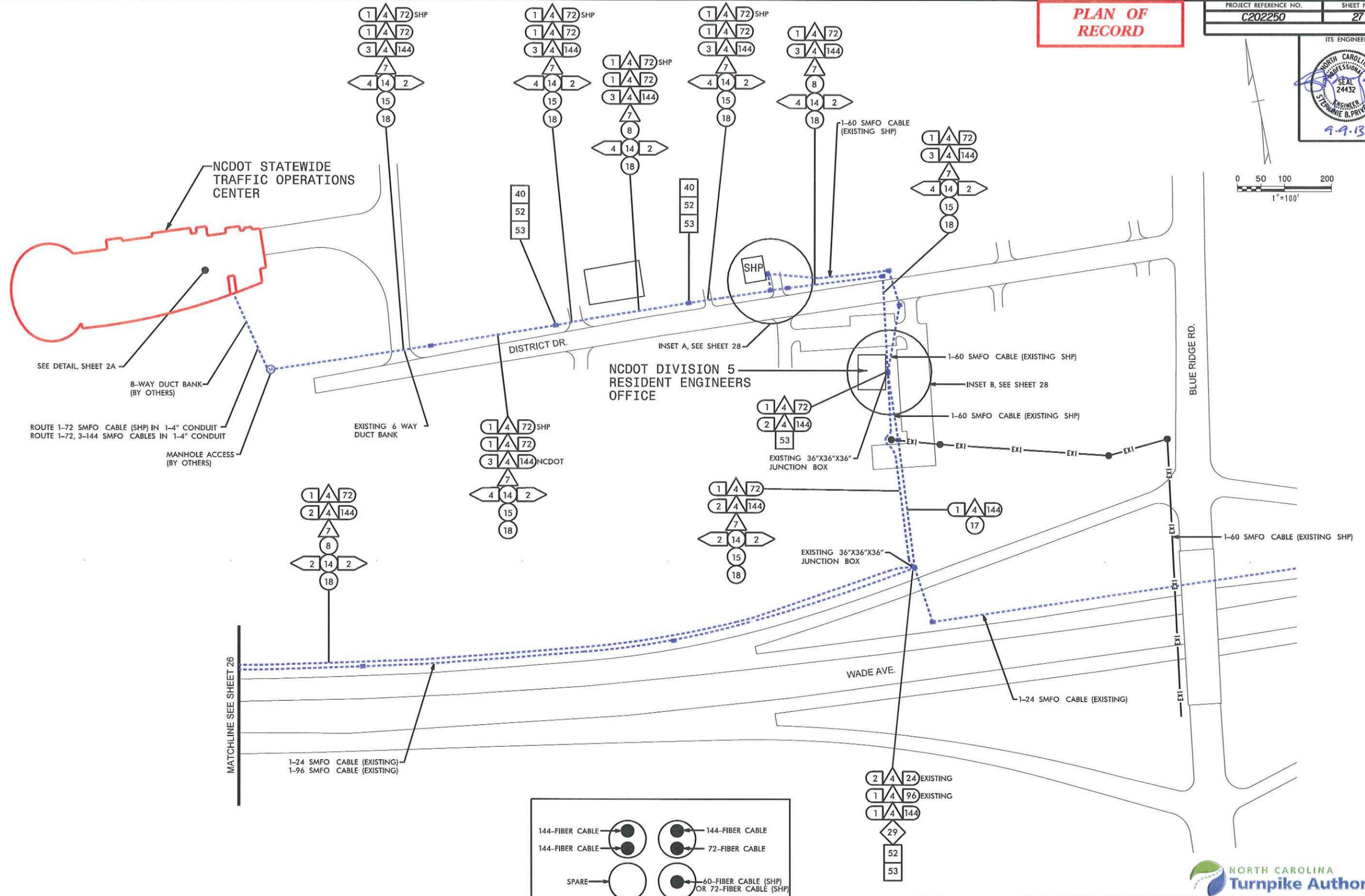
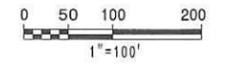
Kimley-Horn and Associates, Inc.
 P.E. 00117822
 NC License #1-0022
 P.O. Box 33068
 Raleigh, NC 27636
 919 671-2000



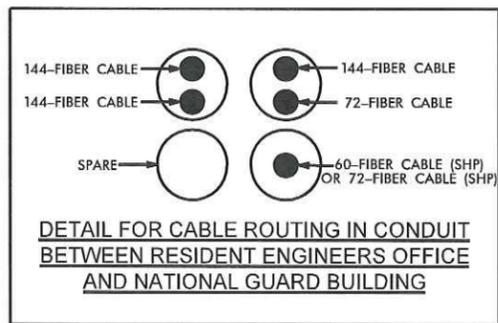
ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 27



NOTE:
1. DO NOT RESPLICE CABLES ON THIS SHEET UNTIL APPROVED BY REGIONAL ITS ENGINEER.



TRAFFIC CONTROL DEVICES, INC. (Logo with USA map)

Kimley-Horn and Associates, Inc. (Logo with red and white flag)

SUMMIT CONSULTING (Logo with blue and green mountain)

ITS PLANS CABLE ROUTING PLAN

7/29/2013 REVISIONS

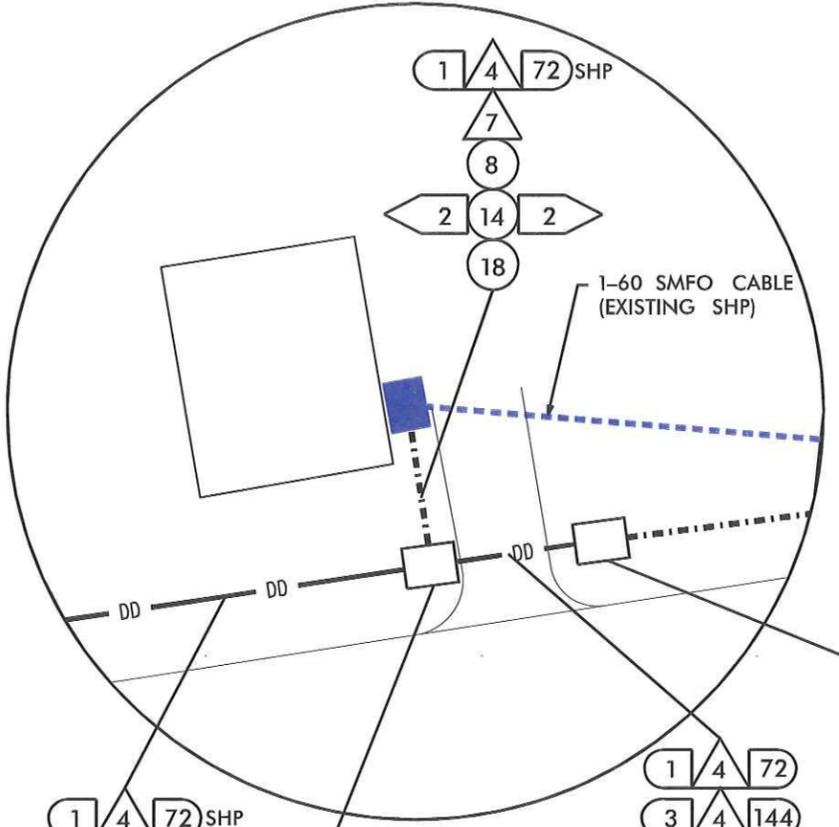
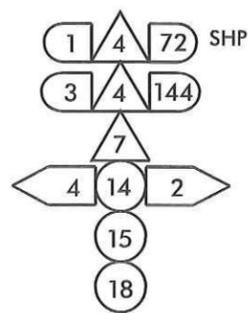
\\nas_buflits\Phase N_sht 27.dgn

PLAN OF RECORD

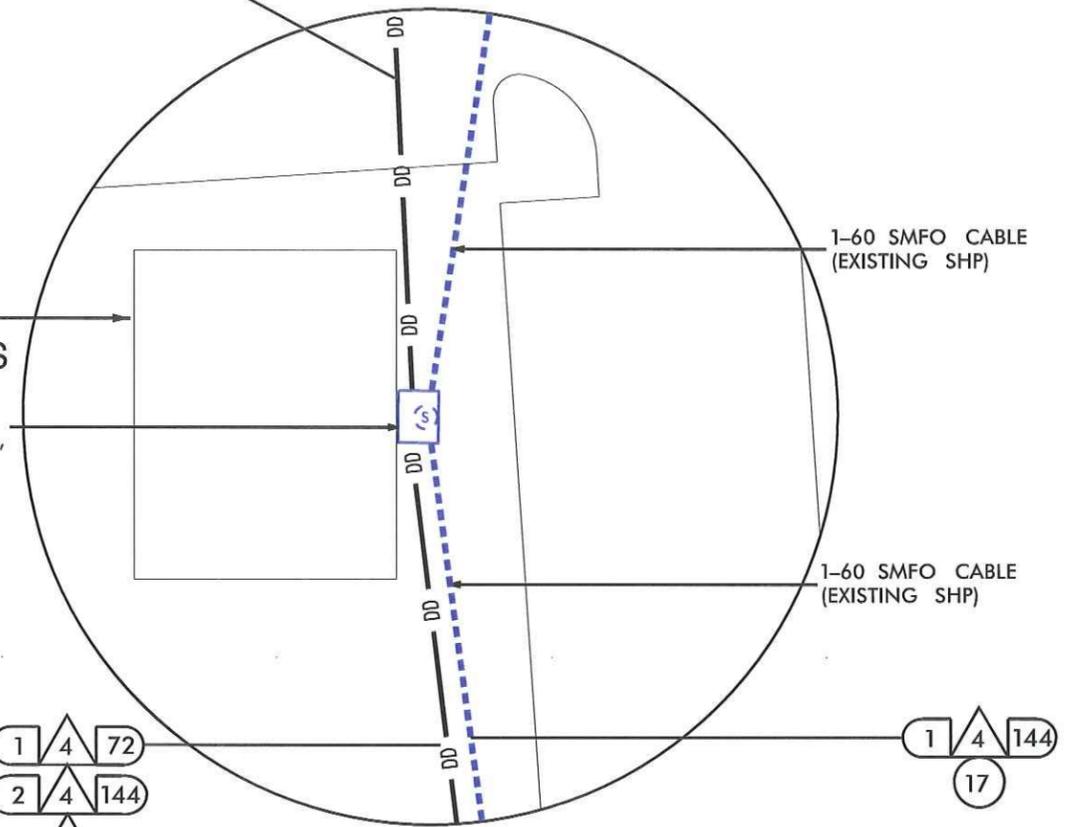
PROJECT REFERENCE NO. **C202250** SHEET NO. **28**



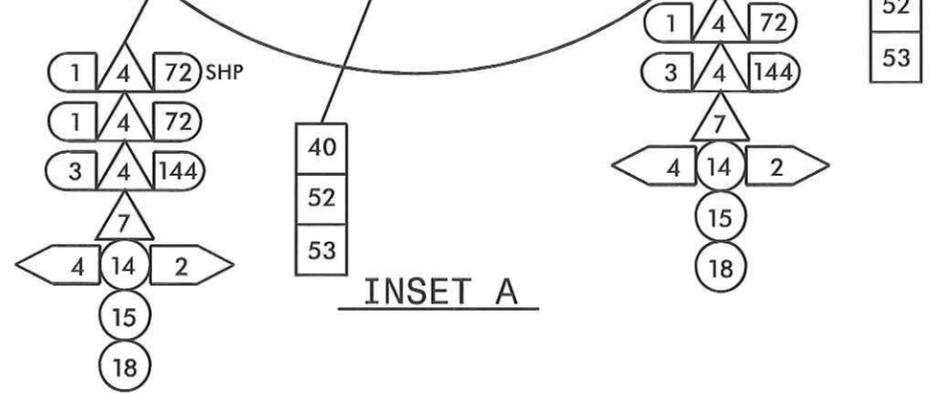
NOT TO SCALE



**NCDOT DIVISION 5
RESIDENT ENGINEERS
OFFICE**
COIL 20' EACH OF NON-SPLICED
CABLES IN EXISTING 36"X36"X36"
JUNCTION BOX



INSET B



INSET A

REVISIONS
7/29/2013
_Vs_Bullis\Phase N_sht 28.dgn

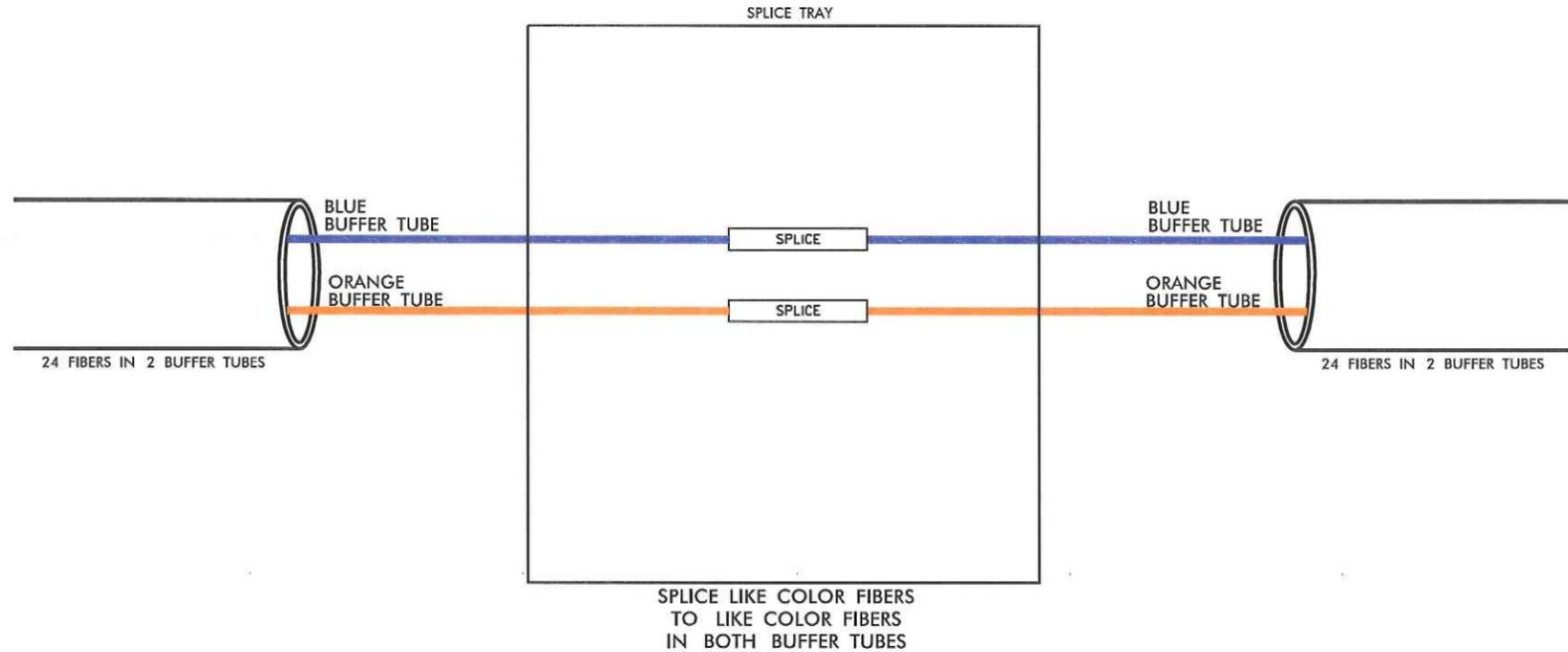


ITS PLANS
CABLE ROUTING PLAN

**FULL CABLE SPLICE
TYPICAL**
(SPLICE ENCLOSURES ON
SHEETS 4, 6, 13, 16 & 19)



- LEGEND**
X = FUSION SPLICE
- | | |
|------------------------------------|-------------|
| COLOR CODE
TIA/EIA 598-C | |
| (1) BLUE | (7) RED |
| (2) ORANGE | (8) BLACK |
| (3) GREEN | (9) YELLOW |
| (4) BROWN | (10) VIOLET |
| (5) SLATE | (11) ROSE |
| (6) WHITE | (12) AQUA |



\$DATE\$

\$FILE\$

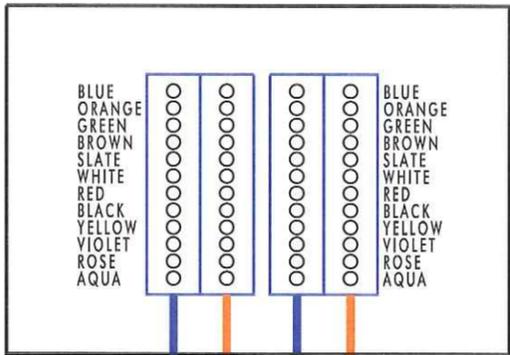
REVISIONS



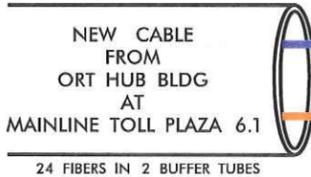
ITS PLANS
SPLICE PLANS

PLAN OF RECORD

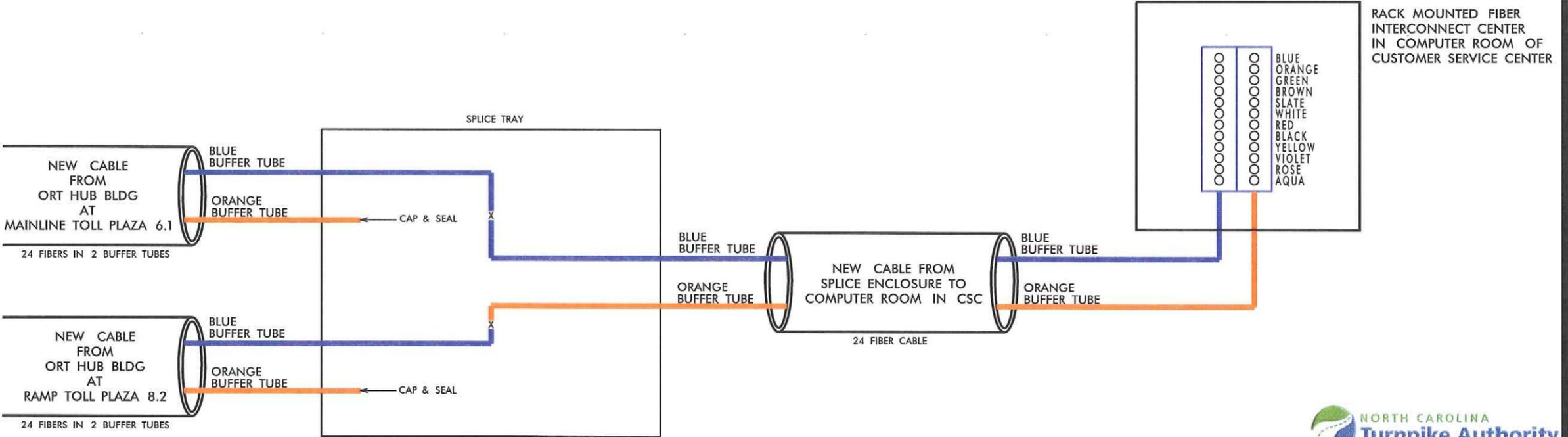
FIBER OPTIC CABLE SPLICE AND TERMINATION AT NCTA CUSTOMER SERVICE CENTER



RACK MOUNTED FIBER INTERCONNECT CENTER IN EQUIPMENT RACK BY OTHERS



- LEGEND**
- X = FUSION SPLICE
- | COLOR CODE TIA/EIA 598-C | |
|--------------------------|-------------|
| (1) BLUE | (7) RED |
| (2) ORANGE | (8) BLACK |
| (3) GREEN | (9) YELLOW |
| (4) BROWN | (10) VIOLET |
| (5) SLATE | (11) ROSE |
| (6) WHITE | (12) AQUA |



REVISIONS
 \$FILES
 \$DATES



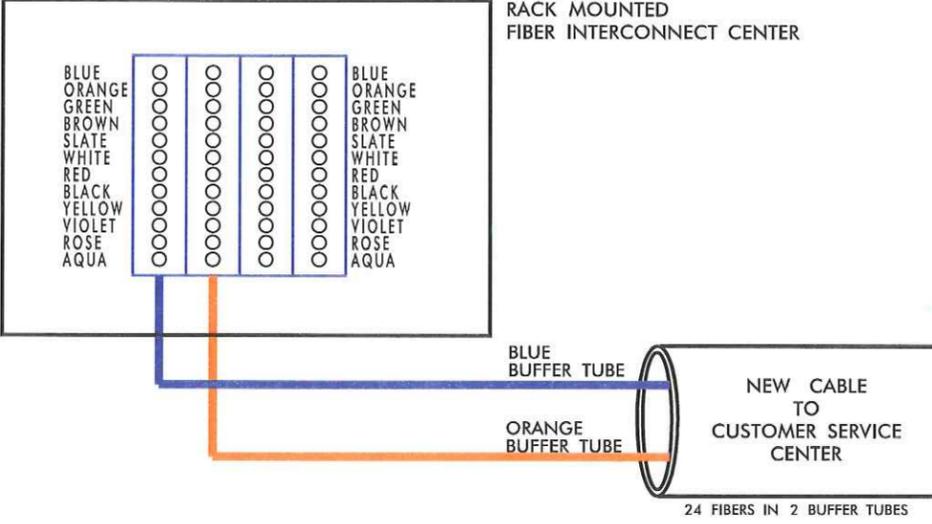
ITS PLANS SPLICE PLANS

PLAN OF RECORD

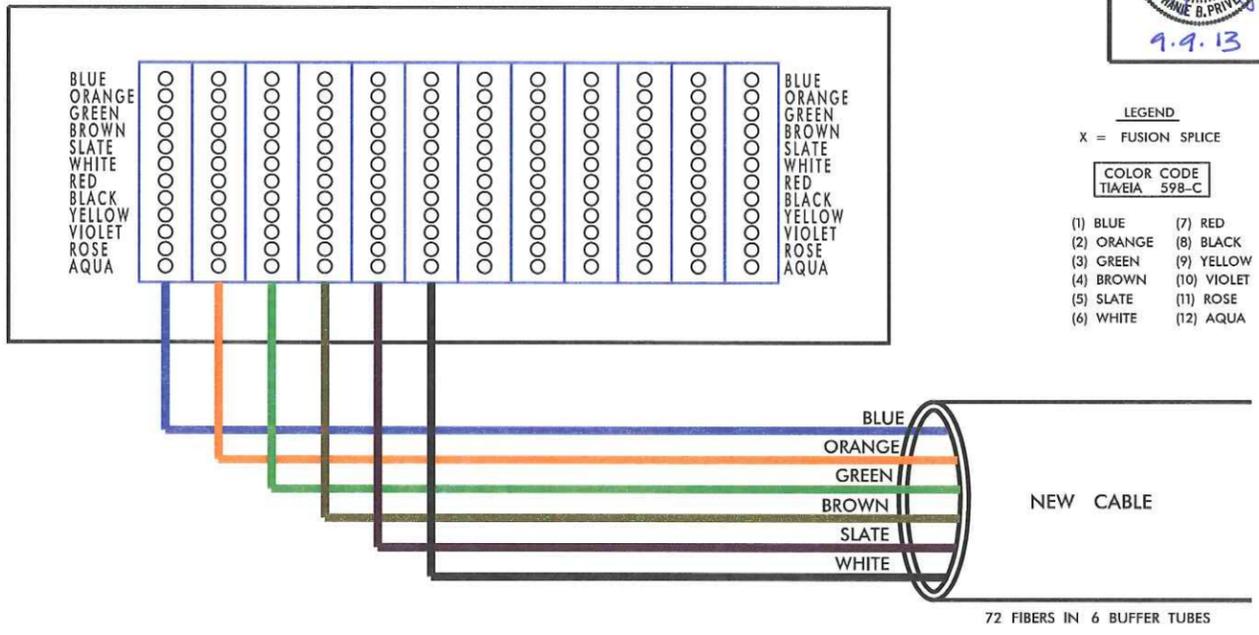
PROJECT REFERENCE NO. C202250 SHEET NO. 31



ORT HUB BUILDING FOR MAINLINE TOLL PLAZA 6.1

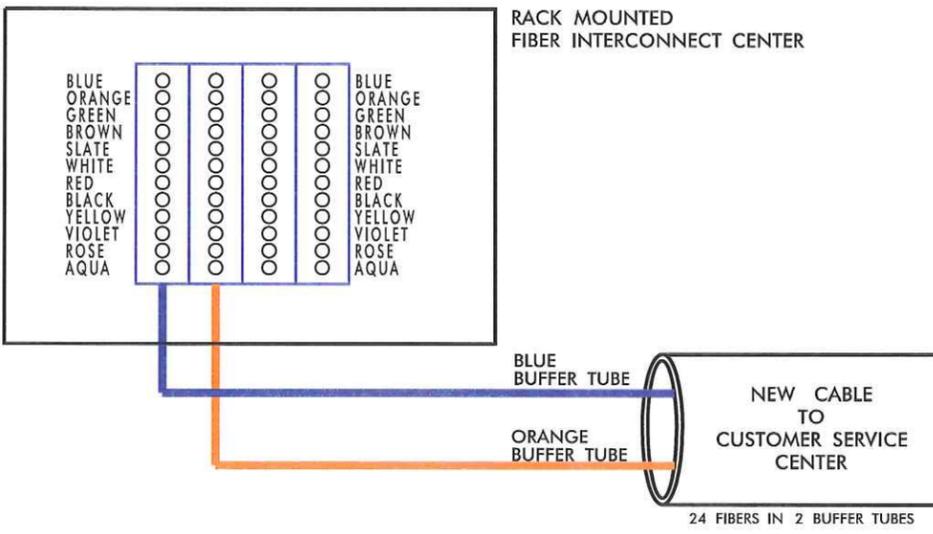


RACK MOUNTED FIBER INTERCONNECT CENTER

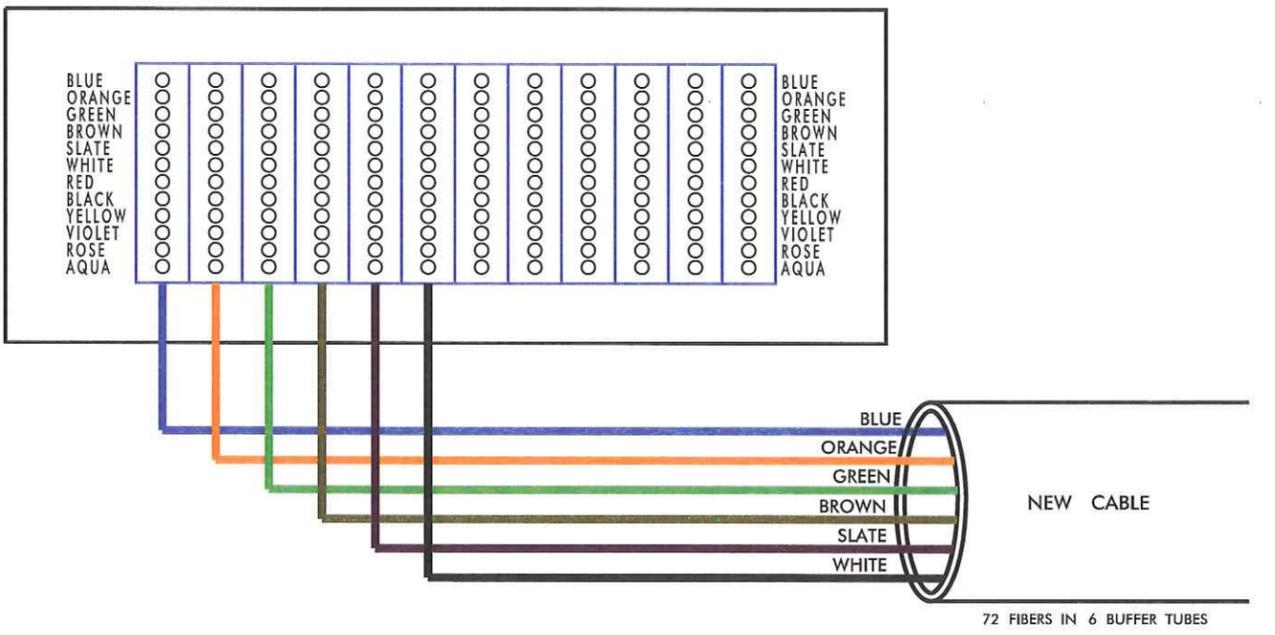


- LEGEND
- X = FUSION SPLICE
- COLOR CODE TIA/EIA 598-C
- | | |
|------------|-------------|
| (1) BLUE | (7) RED |
| (2) ORANGE | (8) BLACK |
| (3) GREEN | (9) YELLOW |
| (4) BROWN | (10) VIOLET |
| (5) SLATE | (11) ROSE |
| (6) WHITE | (12) AQUA |

ORT HUB BUILDING FOR RAMP TOLL PLAZA 8.2



RACK MOUNTED FIBER INTERCONNECT CENTER



REVISIONS \$FILES \$DATES

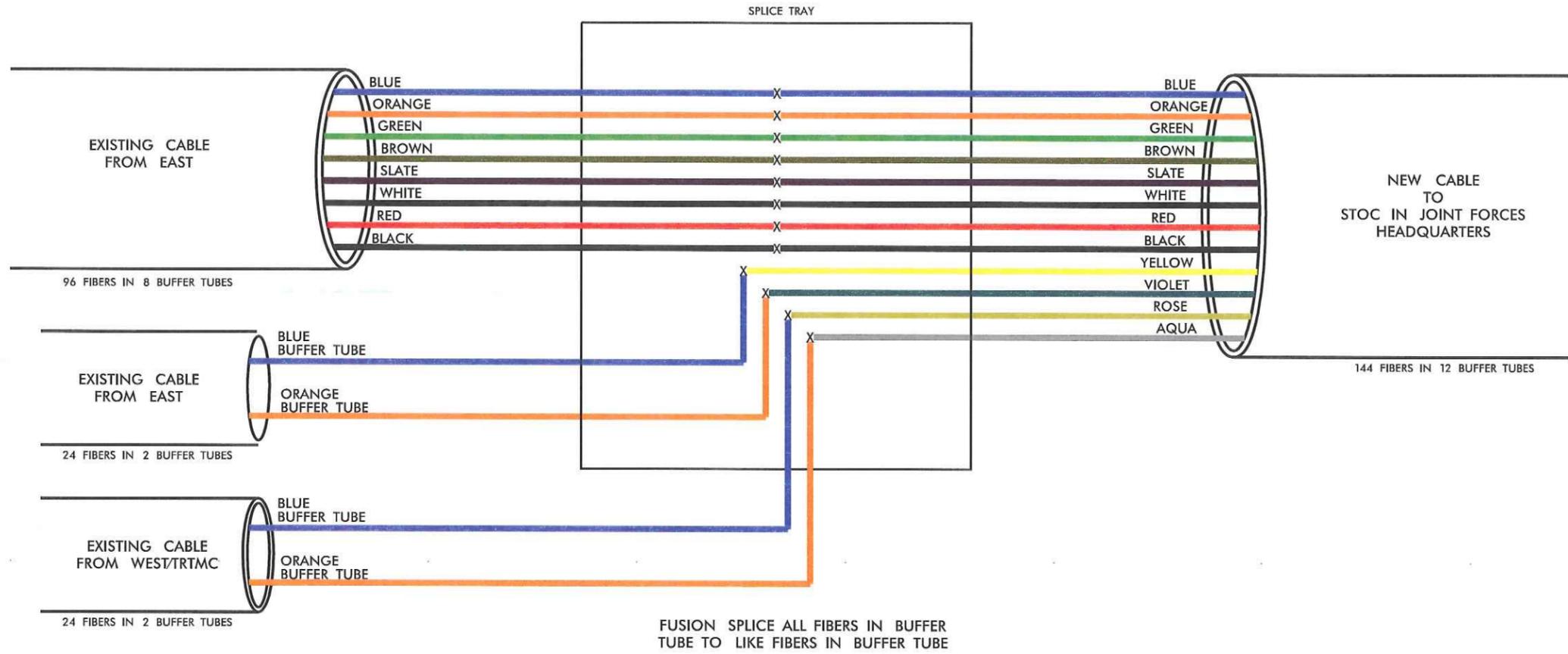
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **32**

NEW SPLICE ENCLOSURE AT RAMP SHOULDER ON WADE AVENUE AT BLUE RIDGE ROAD

ITS ENGINEER

 1.4.13



- LEGEND**
 X = FUSION SPLICE
- COLOR CODE TIA/EIA 598-C**
- | | |
|------------|-------------|
| (1) BLUE | (7) RED |
| (2) ORANGE | (8) BLACK |
| (3) GREEN | (9) YELLOW |
| (4) BROWN | (10) VIOLET |
| (5) SLATE | (11) ROSE |
| (6) WHITE | (12) AQUA |

REVISIONS
 \$FILES\$
 \$DATES\$

NOTE:
 SCHEDULE ALL SPLICES ON THIS SHEET WITH NCDOT REGIONAL ITS ENGINEER.



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 NC License #1-002
 P.O. Box 33068
 Raleigh, NC 27636
 (919) 877-2000



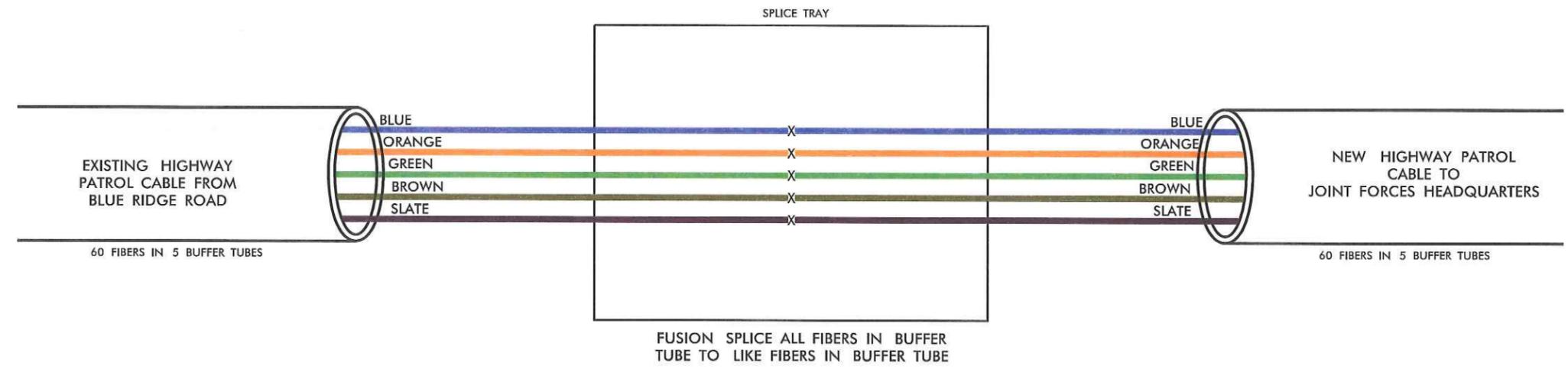
SUMMIT CONSULTING
 ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS
 SPLICE PLANS

MODIFY EXISTING SPLICE ENCLOSURE AT RESIDENT ENGINEER'S OFFICE



- LEGEND**
X = FUSION SPLICE
- | COLOR CODE | |
|------------|-------|
| TIA/EIA | 598-C |
- (1) BLUE (7) RED
 - (2) ORANGE (8) BLACK
 - (3) GREEN (9) YELLOW
 - (4) BROWN (10) VIOLET
 - (5) SLATE (11) ROSE
 - (6) WHITE (12) AQUA



REVISIONS
 \$FILES
 \$DATES

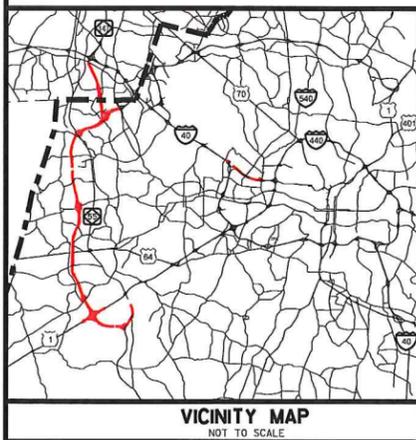
NOTE:
SCHEDULE ALL SPLICES ON THIS SHEET WITH NCDOT REGIONAL ITS ENGINEER.



 TRAFFIC CONTROL DEVICES, INC. <small>ALL SALES AND SERVICE ARE LIMITED TO NORTH CAROLINA</small>	 Kimley-Horn and Associates, Inc. <small>NC License # 14-0102 P.O. Box 33068 Raleigh, NC 27636 (919) 877-7000</small>	 SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small>
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ITS PLANS SPLICE PLANS

CONTRACT: C202250 **TIP PROJECTS: R-2635, R-2000AD AND U-4763B**



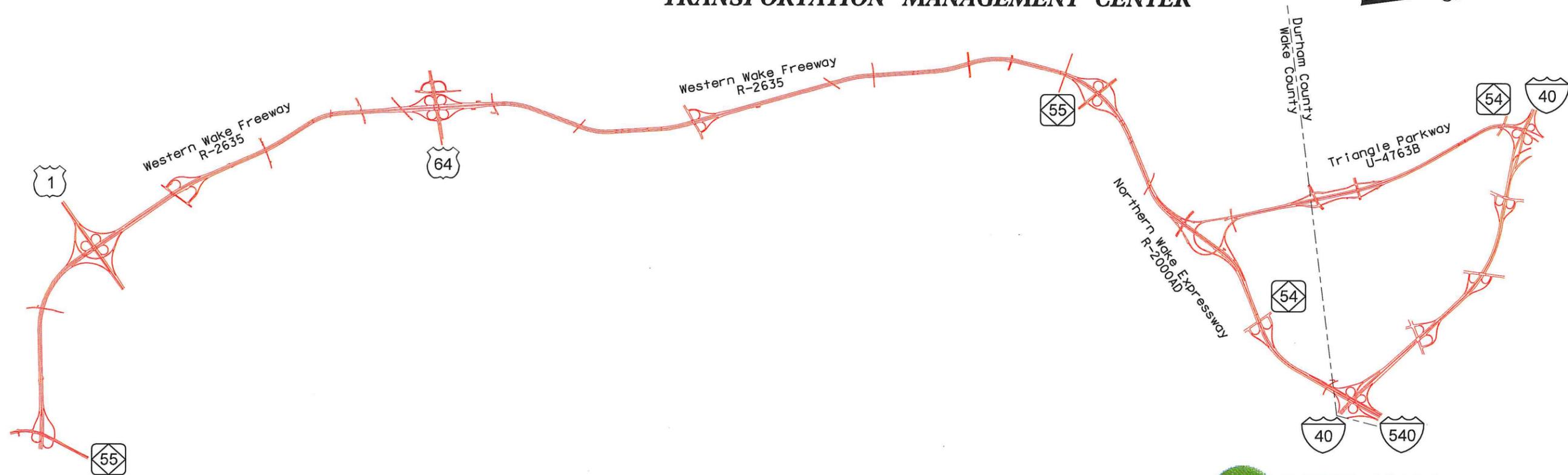
NORTH CAROLINA TURNPIKE AUTHORITY

WAKE // DURHAM COUNTIES

**LOCATION: TRIANGLE PARKWAY, WESTERN WAKE FREEWAY
AND NORTHERN WAKE EXPRESSWAY**
**TYPE OF WORK: FIBER-OPTIC COMMUNICATIONS, ITS DEVICES,
ETHERNET SWITCHES, AND RELOCATION OF REGIONAL
TRANSPORTATION MANAGEMENT CENTER**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.		1	
STATE PROJ. NO.	P.A. PROJ. NO.	DESCRIPTION	

**PLAN OF
RECORD**



PLAN OF RECORD SUBMITTAL



ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS"-ROADWAY DESIGN UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JULY 2006 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NUMBER	DESCRIPTION
1700.01	ELECTRICAL SERVICE GROUNDING
1700.02	ELECTRICAL SERVICE DETAILS
1715.01	UNDERGROUND CONDUIT
1716.01	JUNCTION BOXES
1720.01	WOOD POLES
1721.01	GUY ASSEMBLIES
1730.01	FIBER OPTIC SPARE CABLE STORAGE

INDEX OF PLANS

SHEET NUMBER	DESCRIPTION
1	TITLE SHEET
1A	CONSTRUCTION NOTES
1B-1E	CABLE ROUTING PLAN KEY
2-2AM	DETAILS
3-44	CABLE ROUTING PLANS
SPL 01-SPL 28	SPlicing DETAILS



2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

STEPHANIE PRIVETTE, P.E.
PROJECT ENGINEER

JERRY CROSS
PROJECT DESIGN ENGINEER

PROJECT LENGTH

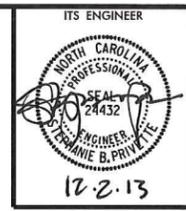
PROJECT LENGTH = 18.8 MI

SEAL



12.2.13
 DATE

PLAN OF RECORD



LEGEND

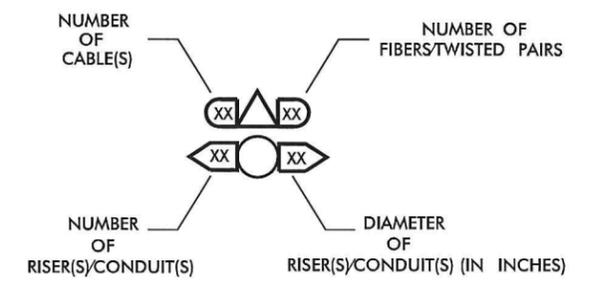
- NEW CONDUIT
- DD --- NEW DIRECTIONAL DRILLED CONDUIT
- EXISTING CONDUIT
- NEW OVERSIZED, HEAVY-DUTY JUNCTION BOX
- EXISTING OVERSIZED, HEAVY-DUTY JUNCTION BOX
- ⊠ NEW SPECIAL SIZED, HEAVY-DUTY JUNCTION BOX
- ⊡ EXISTING SPECIAL SIZED, HEAVY-DUTY JUNCTION BOX
- Ⓢ NEW SPLICE CABINET
- NEW WOOD POLE
- EXISTING WOOD POLE
- NEW METAL POLE
- EXISTING METAL POLE
- ▶ NEW CCTV ASSEMBLY
- ◀ EXISTING CCTV ASSEMBLY
- ((())) NEW MICROWAVE DETECTOR (MVD) ASSEMBLY
- EXISTING OR NEW (BY OTHERS) OVERHEAD SIGN STRUCTURE
- NEW OVERHEAD DMS ON SIGN STRUCTURE (BY OTHERS)
- EXISTING OVERHEAD DMS AND SIGN STRUCTURE
- ⊕ PEDASTAL MOUNTED DMS SIGN
- ⊖ EXISTING EQUIPMENT CABINET
- ⊥ STATIC GROUND MOUNTED SIGN
- △ OVERHEAD TRANSFORMER
- ⊞ PAD-MOUNTED TRANSFORMER
- Ⓜ POWER METER
- Ⓜ ELECTRICAL JUNCTION BOX
- Ⓜ ELECTRICAL SERVICE
- Ⓜ POWER DISCONNECT
- Ⓜ SPLICE ID

ABBREVIATIONS

- CCTV CLOSED-CIRCUIT TELEVISION
- CSC CUSTOMER SERVICE CENTER
- ITS INTELLIGENT TRANSPORTATION SYSTEMS
- MVD MICROWAVE VEHICLE DETECTION
- STOC STATEWIDE TRAFFIC OPERATIONS CENTER
- 05-XXXX EQUIPMENT ASSET NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

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



- 1 INSTALL UNIFIED CABLE
- 2 REUSE EXISTING SMFO CABLE
- 3 INSTALL MMFO CABLE
- 4 INSTALL SMFO CABLE
- 5 INSTALL ETHERNET CABLE
- 6 INSTALL FIBER OPTIC DROP CABLE
- 7 INSTALL TRACER WIRE
- 8 TRENCH OR PLOW
- 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 STUB-OUTS
- 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 NOT USED
- 27 NOT USED
- 28 INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS AND FUSION SPLICE CABLE IN CABINET
- 29 INSTALL UNDERGROUND SPLICE ENCLOSURE
- 30 INSTALL AERIAL SPLICE ENCLOSURE
- 31 MODIFY EXISTING SPLICE ENCLOSURE
- 32 NOT USED
- 33 NOT USED

- 34 INSTALL CABINET FOUNDATION
- 35 REMOVE EXISTING CABINET FOUNDATION
- 36 INSTALL CCTV CAMERA ASSEMBLY
- 37 INSTALL MVD ASSEMBLY
- 38 INSTALL EQUIPMENT CABINET
- 39 INSTALL JUNCTION BOX
- 40 INSTALL OVERSIZED, HEAVY-DUTY JUNCTION BOX
- 41 INSTALL SPECIAL-SIZED, HEAVY DUTY JUNCTION BOX
- 42 INSTALL WOOD POLE
- 43 INSTALL CCTV CAMERA LOWERING DEVICE
- 44 INSTALL AERIAL GUY ASSEMBLY
- 45 INSTALL STANDARD GUY ASSEMBLY
- 46 INSTALL SIDEWALK GUY ASSEMBLY
- 47 INSTALL MESSENGER CABLE
- 48 INSTALL MVD POLE
- 49 INSTALL CCTV POLE
- 50 INSTALL DMS ASSEMBLY
- 51 INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
- 52 INSTALL DELINEATOR MARKER
- 53 STORE 50 FEET OF EACH COMMUNICATIONS CABLE
- 54 STORE 100 FEET OF EACH COMMUNICATIONS CABLE
- 55 LASH CABLE(S) TO SIGNAL/COMMUNICATIONS CABLE
- 56 LASH CABLE(S) TO NEW MESSENGER CABLE
- 57 MODIFY EXISTING ELECTRICAL SERVICE
- 58 INSTALL NEW ELECTRICAL SERVICE
- 59 INSTALL ETHERNET EDGE SWITCH
- 60 INSTALL GIGABIT ETHERNET SWITCH
- 61 INSTALL VIDEO ENCODER
- 62 BOND TRACER WIRE TO CABINET GROUND
- 63 INSTALL SOLAR POWER ASSEMBLY

CONTRACTOR UTILIZE CONDUITS INSTALLED BY OTHERS IN EXISTING INSTALLATION:

CONDUIT	USE
BLUE	TOLL FOC
WHITE	TOLL SPARE
BLACK	ITS FOC
ORANGE	ITS SPARE

REVISIONS \$DATE\$ \$FILE\$



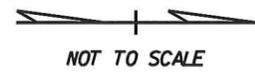
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 P.O. Box 33068
 Raleigh, NC 27636
 919 877-2000



ITS PLANS CONSTRUCTION NOTES AND LEGEND

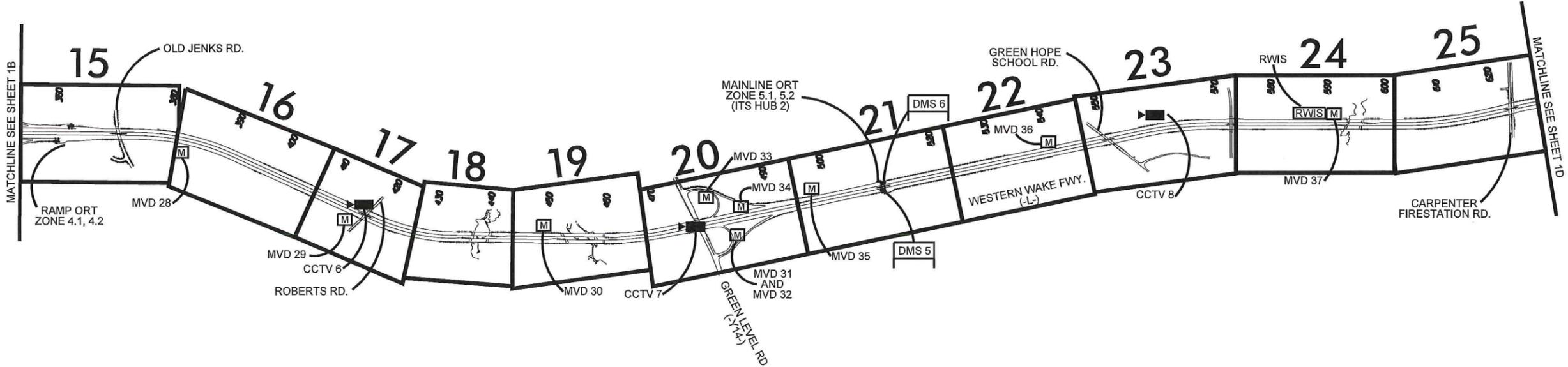
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 1C
----------------------------------	-----------------



ITS ENGINEER

 SHANE B. PRIDDY
 12.2.13



LEGEND

	SHEET #
	CCTV
	MVD
	DMS

REVISIONS
 12/31/2013
 _\As_Bullits\phase 2\str OIC.dgn



 TRAFFIC CONTROL DEVICES, INC. <small>TRAFFIC CONTROL DEVICES, INC. 1215411 1015 W. GARDNER STREET, RALEIGH, NC 27604</small>	 Kimley-Horn and Associates, Inc. <small>NC License #F-002 P.O. Box 33068 Raleigh, NC 27636 919 877-2000</small>	 SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small>	ITS PLANS CABLE ROUTING PLAN KEY
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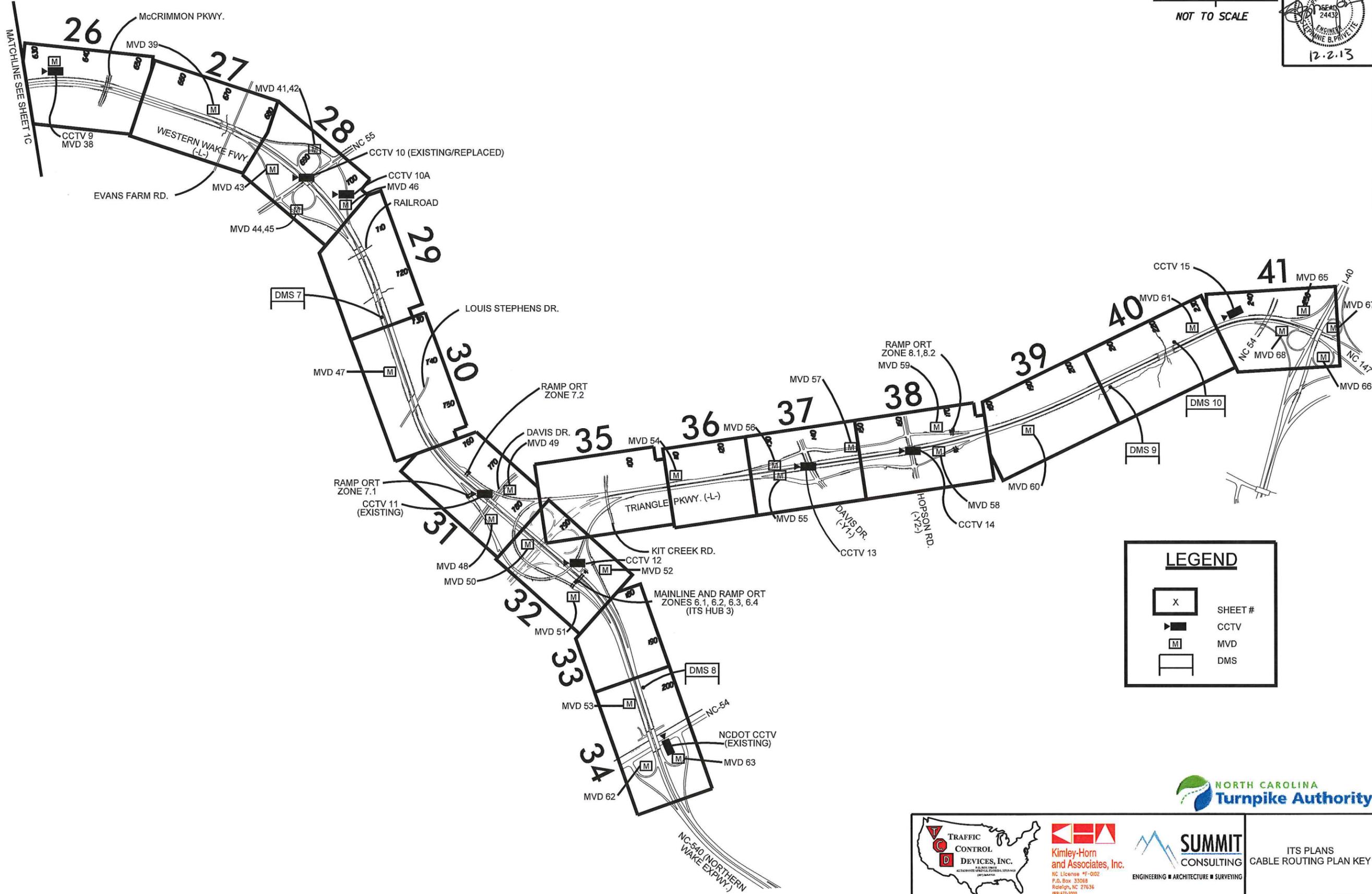
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. ID
---	------------------------

ITS ENGINEER

12.2.13

NOT TO SCALE



LEGEND

X	SHEET #
▶	CCTV
M	MVD
□	DMS

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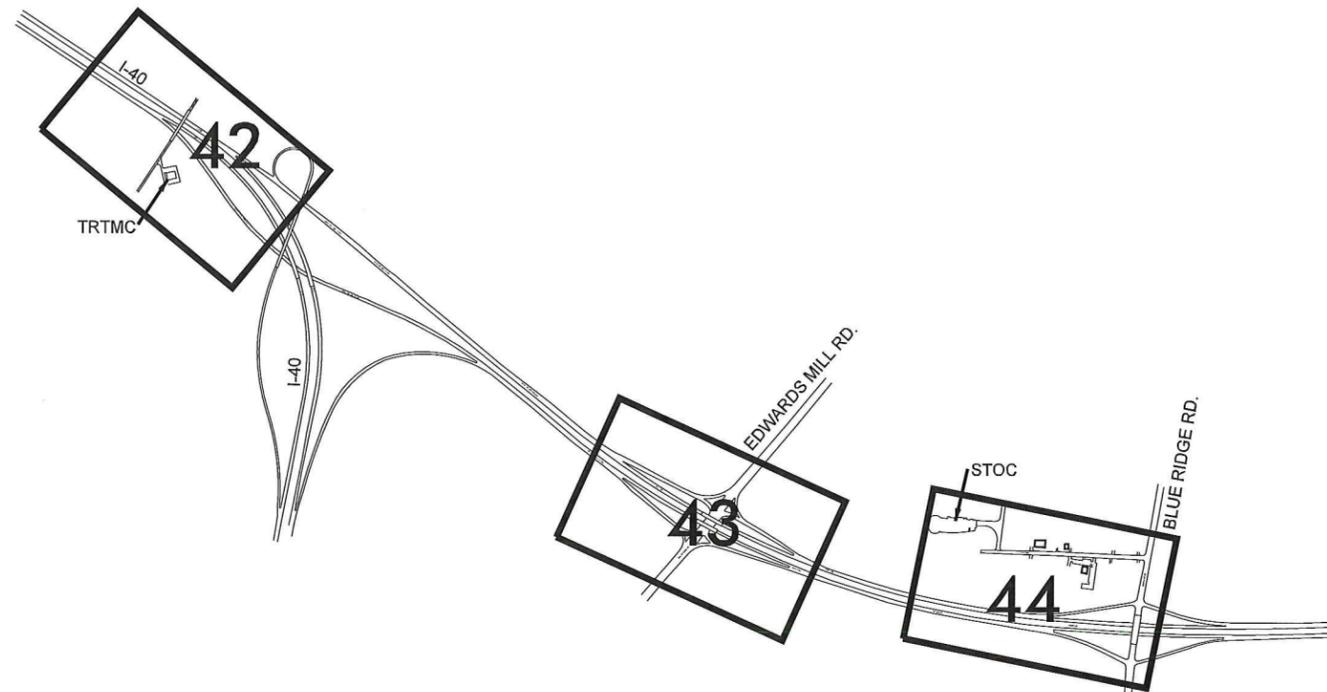
ITS PLANS CABLE ROUTING PLAN KEY

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	1E

ITS ENGINEER

12.2.13



11/21/2013

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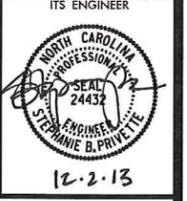


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 (919) 877-2000



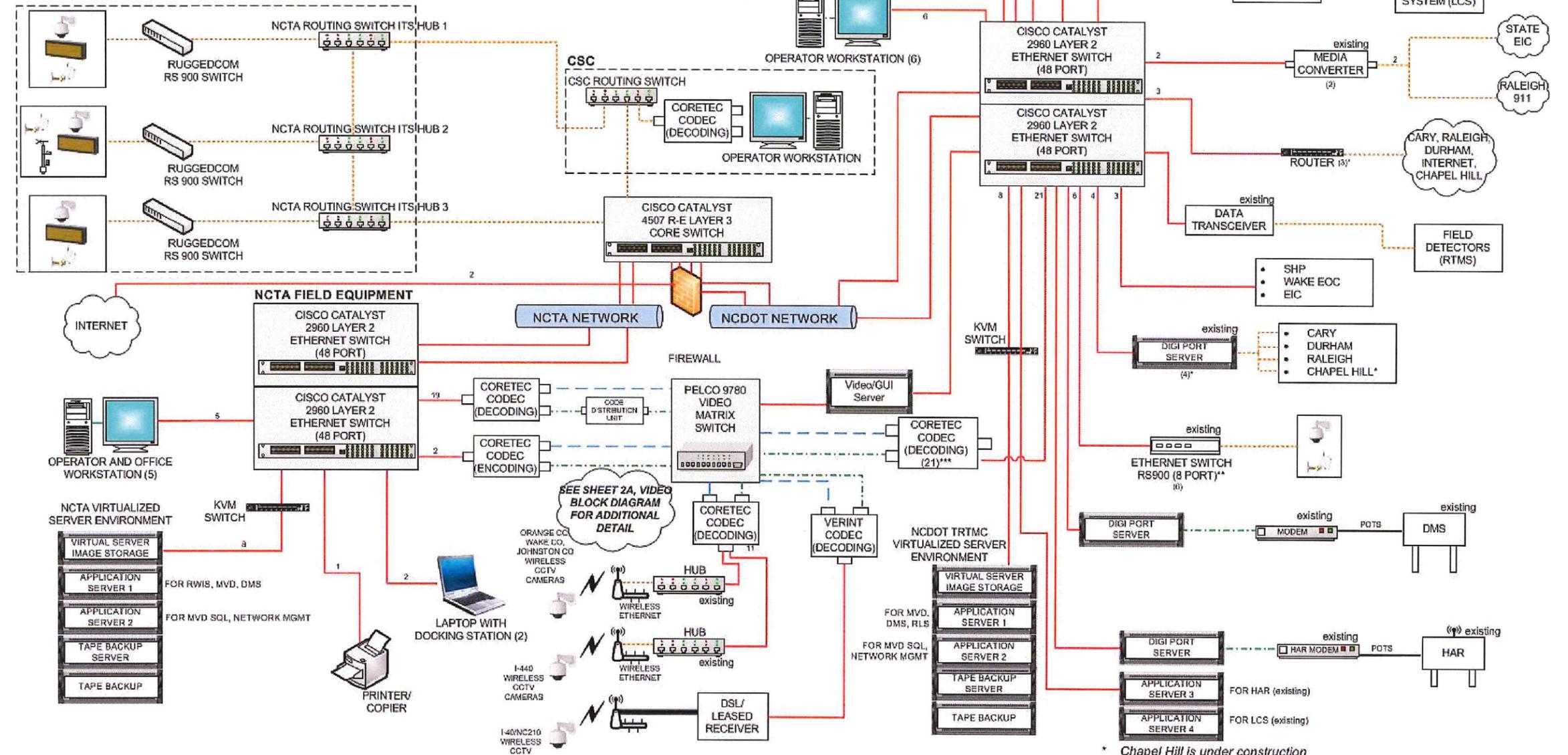
ITS PLANS
 CABLE ROUTING PLAN KEY

PLAN OF RECORD



NETWORK BLOCK DIAGRAM

LEGEND	
—	ETHERNET COPPER
- - -	ANALOG VIDEO
- - -	RS 232/422/485
- - -	ETHERNET FIBER
—	LEASED LINE
	WIRELESS COMMUNICATION
	HAR HIGHWAY ADVISORY RADIO
	CODEC ENCODER-DECODER
	CSC CUSTOMER SERVICE CENTER
	POTS PLAIN OLD TELEPHONE SERVICE
	MUX MULTIPLEXER
	SQL STRUCTURED QUERY LANGUAGE
	RLS REVERSIBLE LANE SYSTEM
	CLOSED CIRCUIT TELEVISION (CCTV)
	DYNAMIC MESSAGE SIGN (DMS)
	MICROWAVE VEHICLE DETECTION SYSTEM (MVDS)
	ROAD WEATHER INFORMATION SYSTEM (RWIS)
	NETWORK



* Chapel Hill is under construction
 ** Head-end switches support under-construction projects or near-term projects
 *** CCTV for "under-construction" projects will utilize IP/Ethernet

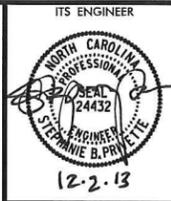
11/21/2013 -Vs_Built phase 2.sst 02.dgn REVISIONS



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PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **2A**

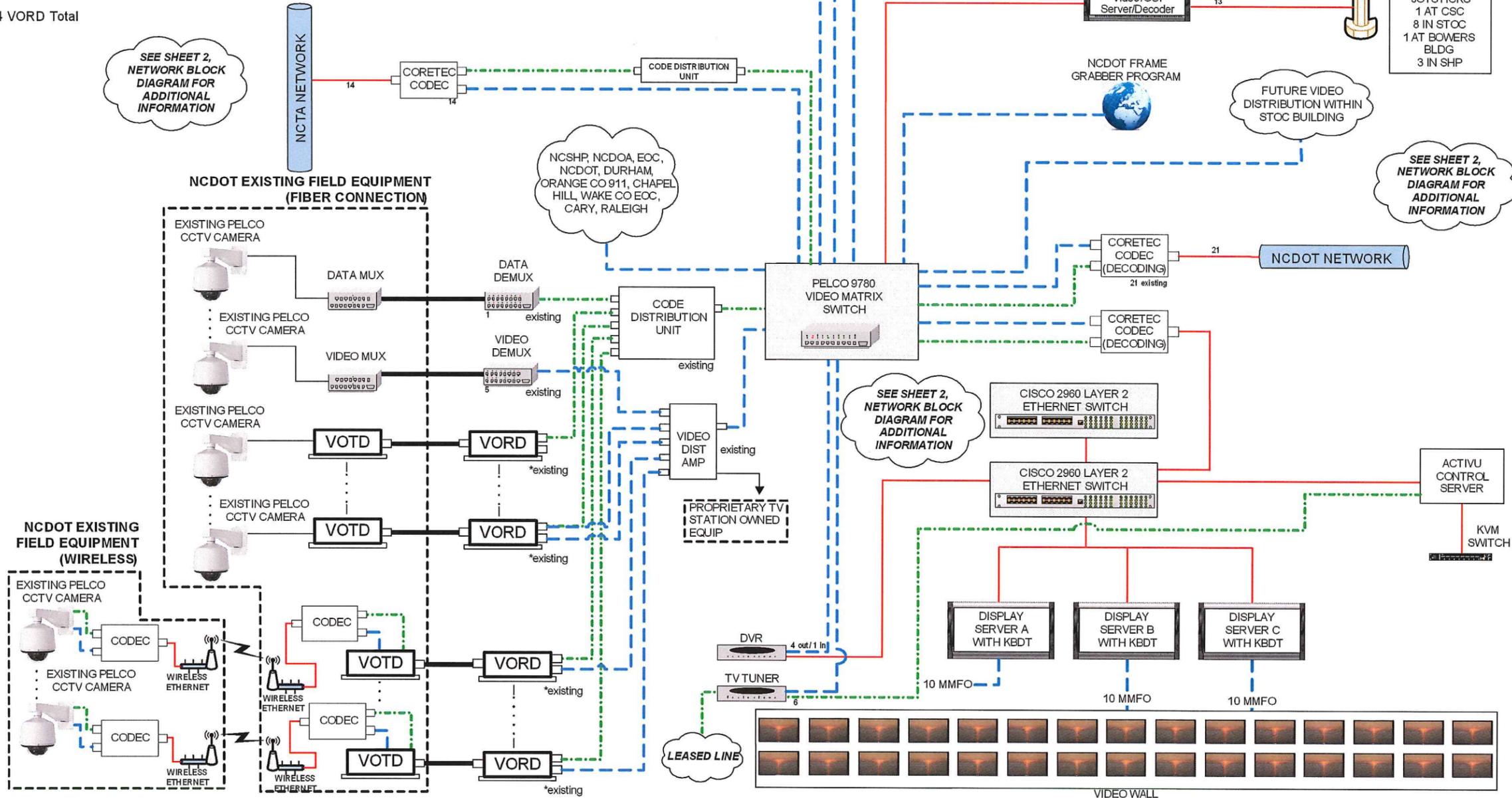


VIDEO BLOCK DIAGRAM

LEGEND			
	ETHERNET COPPER		WIRELESS COMMUNICATION
	ANALOG VIDEO		CODEC CODER-DECODER
	RS 232/422/485		VOTD VIDEO OPTIC TRANSMITTER WITH DATA
	ETHERNET FIBER		VORD VIDEO OPTIC RECEIVER WITH DATA
	LEASED LINE		MUX MULTIPLEXER

*34 VORD Total

SEE SHEET 2, NETWORK BLOCK DIAGRAM FOR ADDITIONAL INFORMATION



SEE SHEET 2, NETWORK BLOCK DIAGRAM FOR ADDITIONAL INFORMATION

REVISIONS

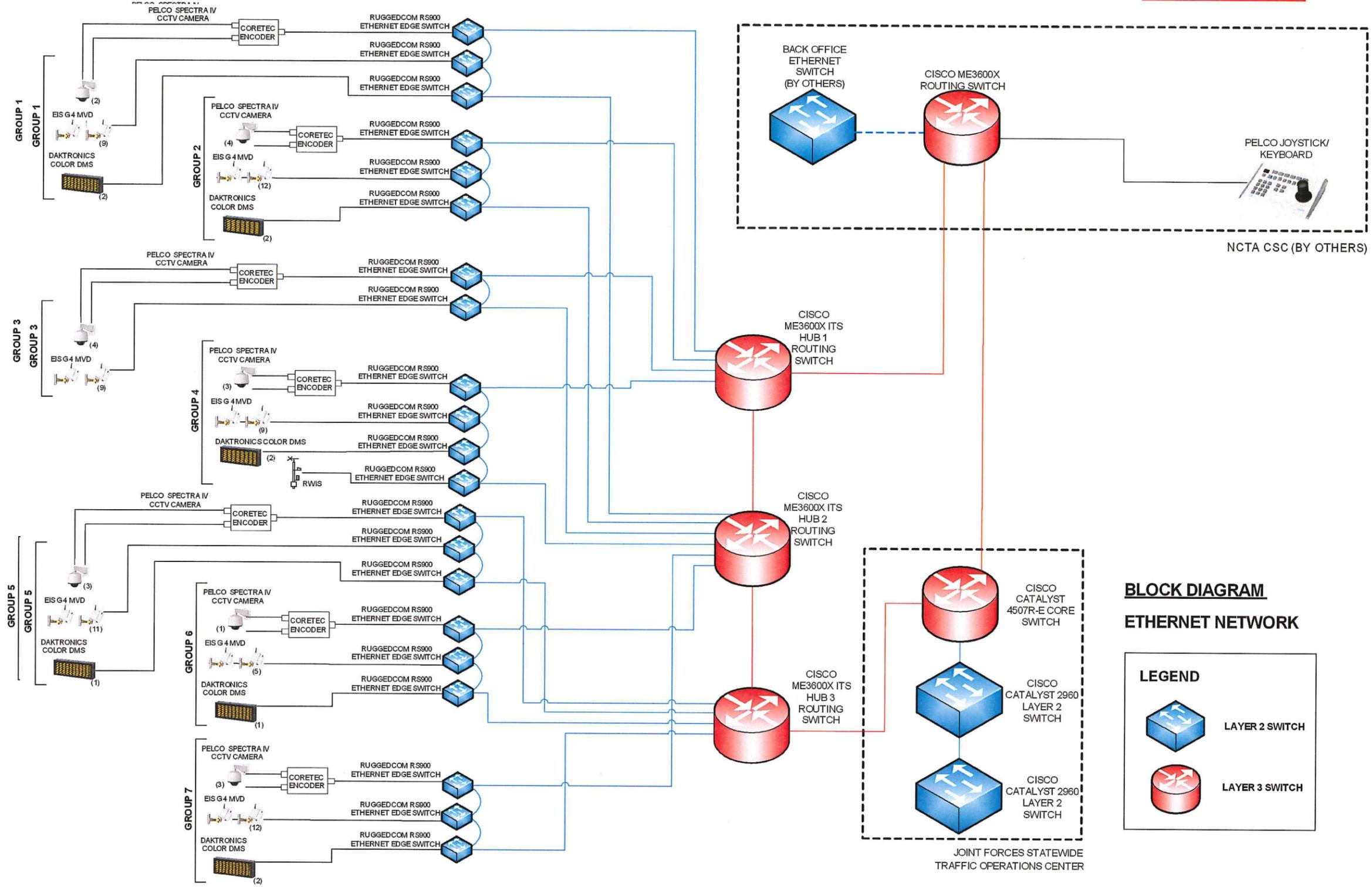
_Vs_Built/phase 2.sst 02A.dgn

11/21/2013



ITS PLANS BLOCK DIAGRAM

PLAN OF RECORD



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11/21/2013

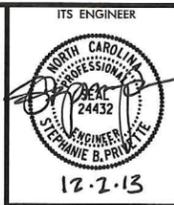


ITS PLANS
ROUTER CONFIGURATION/
FIELD COMMUNICATIONS

GROUP 1 MVD 1 - 9 CCTV 1,1A DMS 1,2	GROUP 2 MVD 10 - 21 CCTV 2,3,4,4A DMS 3,4	GROUP 3 MVD 22-30 CCTV 5,5A,5B,6	GROUP 4 MVD 31-39 CCTV 7,8,9 DMS 5,6; RWIS	GROUP 5 MVD 40-50 CCTV 10,10A,11 DMS 7	GROUP 6 MVD 51-53,62,63 CCTV 12 DMS 8	GROUP 7 MVD 54-61,64-67 CCTV 13,14,15 DMS 9,10
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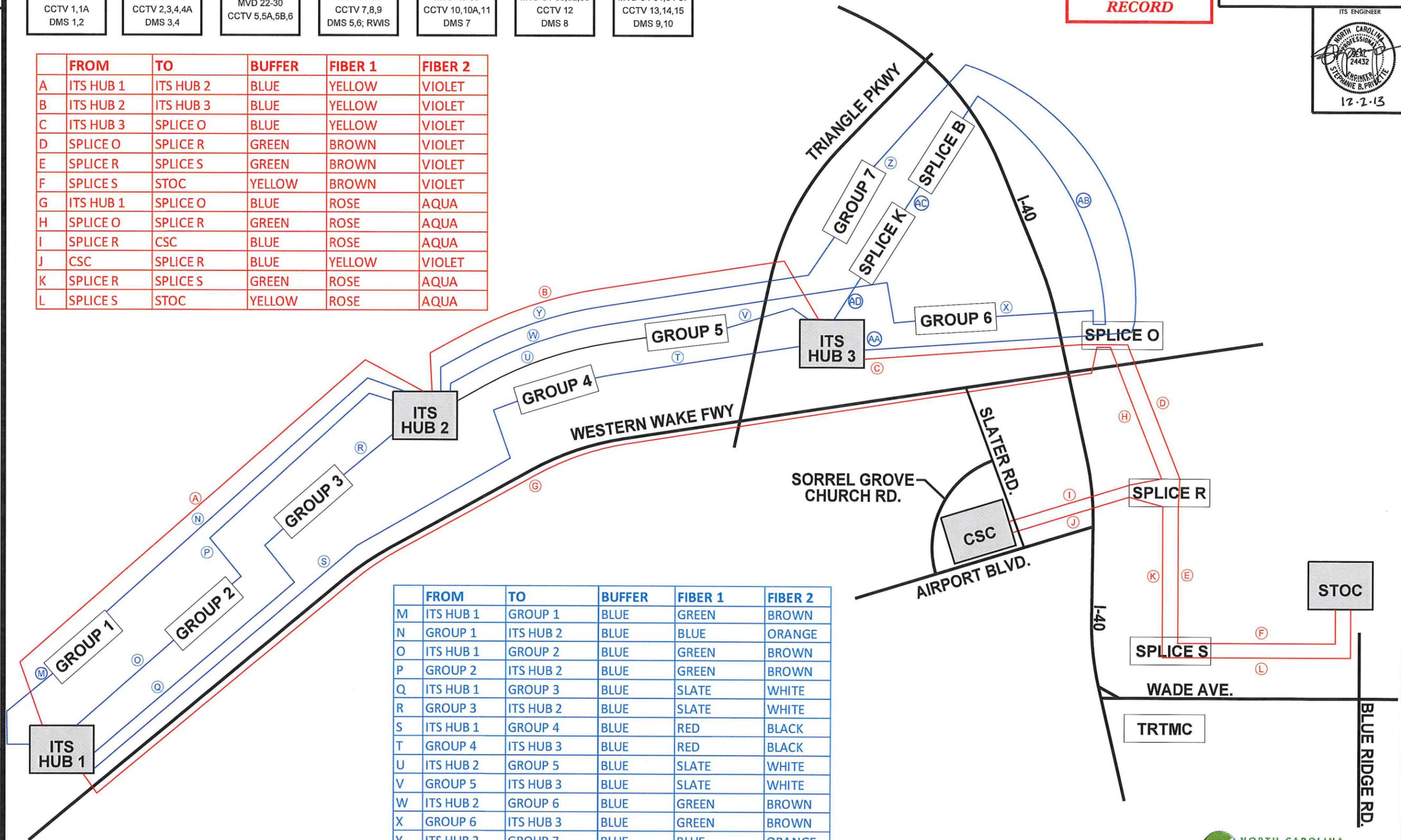
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **2C**



	FROM	TO	BUFFER	FIBER 1	FIBER 2
A	ITS HUB 1	ITS HUB 2	BLUE	YELLOW	VIOLET
B	ITS HUB 2	ITS HUB 3	BLUE	YELLOW	VIOLET
C	ITS HUB 3	SPLICE O	BLUE	YELLOW	VIOLET
D	SPLICE O	SPLICE R	GREEN	BROWN	VIOLET
E	SPLICE R	SPLICE S	GREEN	BROWN	VIOLET
F	SPLICE S	STOC	YELLOW	BROWN	VIOLET
G	ITS HUB 1	SPLICE O	BLUE	ROSE	AQUA
H	SPLICE O	SPLICE R	GREEN	ROSE	AQUA
I	SPLICE R	CSC	BLUE	ROSE	AQUA
J	CSC	SPLICE R	BLUE	YELLOW	VIOLET
K	SPLICE R	SPLICE S	GREEN	ROSE	AQUA
L	SPLICE S	STOC	YELLOW	ROSE	AQUA

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	FROM	TO	BUFFER	FIBER 1	FIBER 2
M	ITS HUB 1	GROUP 1	BLUE	GREEN	BROWN
N	GROUP 1	ITS HUB 2	BLUE	BLUE	ORANGE
O	ITS HUB 1	GROUP 2	BLUE	GREEN	BROWN
P	GROUP 2	ITS HUB 2	BLUE	GREEN	BROWN
Q	ITS HUB 1	GROUP 3	BLUE	SLATE	WHITE
R	GROUP 3	ITS HUB 2	BLUE	SLATE	WHITE
S	ITS HUB 1	GROUP 4	BLUE	RED	BLACK
T	GROUP 4	ITS HUB 3	BLUE	RED	BLACK
U	ITS HUB 2	GROUP 5	BLUE	SLATE	WHITE
V	GROUP 5	ITS HUB 3	BLUE	SLATE	WHITE
W	ITS HUB 2	GROUP 6	BLUE	GREEN	BROWN
X	GROUP 6	ITS HUB 3	BLUE	GREEN	BROWN
Y	ITS HUB 2	GROUP 7	BLUE	BLUE	ORANGE
Z	GROUP 7	ITS HUB 3	BLUE	SLATE	WHITE
AA	SPLICE O	ITS HUB 3	BLUE	BLUE	ORANGE
AB	SPLICE O	ITS HUB 3	BLUE	RED	BLACK
AC	SPLICE B	SPLICE K	BLUE	GREEN	BROWN
AD	SPLICE K	ITS HUB 3	BLUE	BLUE	ORANGE



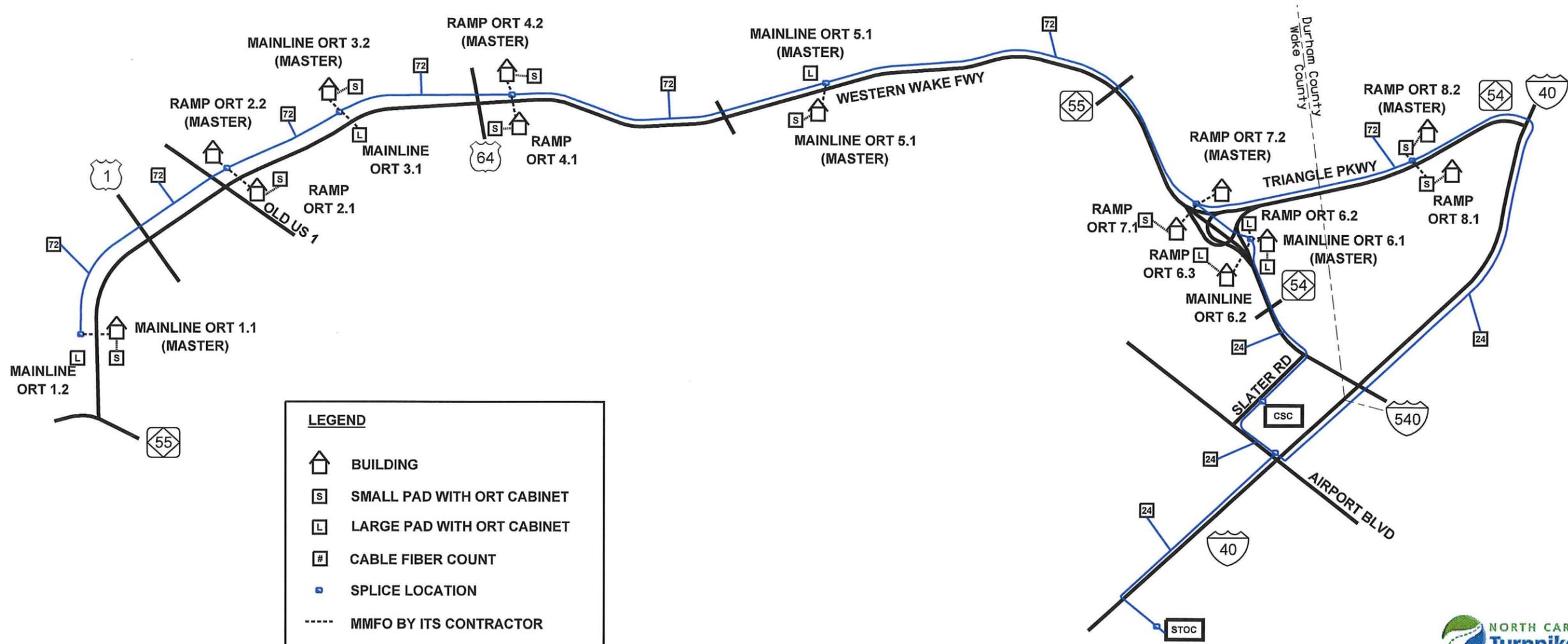
ITS PLANS
ETHERNET FIELD ITS
NETWORK DIAGRAM

PLAN OF RECORD



Hub	Primary	Secondary	Buffer Tube	Fibers
Toll Hub 1.1	N/A	Toll Hub 6.1	Blue	Blue
				Orange
				Green
				Brown
Toll Hub 8.2	Toll Hub 1.1	Toll Hub 6.1	Blue	Slate
				White
				Red
				Black
Toll Hub 7.2	Toll Hub 1.1	Toll Hub 6.1	Blue	Yellow
				Violet
				Rose
				Aqua
Toll Hub 5.1	Toll Hub 1.1	Toll Hub 6.1	Orange	Blue
				Orange
				Green
				Brown
Toll Hub 4.1	Toll Hub 1.1	Toll Hub 6.1	Orange	Slate
				White
				Red
				Black
Toll Hub 3.1	Toll Hub 1.1	Toll Hub 6.1	Orange	Yellow
				Violet
				Rose
				Aqua

Hub	Primary	Secondary	Buffer Tube	Fibers
Toll Hub 2.2	Toll Hub 1.1	Toll Hub 6.1	Green	Blue
				Orange
				Green
				Brown
Future Toll Hub V.1	Toll Hub 1.1	Toll Hub 6.1	Green	Slate
				White
				Red
				Black
Toll Hub 1.1	Toll Hub 6.1	N/A	Green	Yellow
				Violet
				Rose
				Aqua
Toll Hub 1.1	10 Gb Connection with Toll Hub 6.1	N/A	White	Blue
				Orange
				Green
				Brown
Toll Hub 8.2	10 Gb Connection with Toll Hub 6.1	N/A	White	Slate
				White
				Red
				Black



LEGEND

- BUILDING
- SMALL PAD WITH ORT CABINET
- LARGE PAD WITH ORT CABINET
- CABLE FIBER COUNT
- SPLICE LOCATION
- MMFO BY ITS CONTRACTOR
- MMFO BY TOLL CONTRACTOR
- SMFO

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 11/21/2013
 -Vs_Bullis\phase 2\ort 02D.dgn

TRAFFIC CONTROL DEVICES, INC.

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SUMMIT CONSULTING

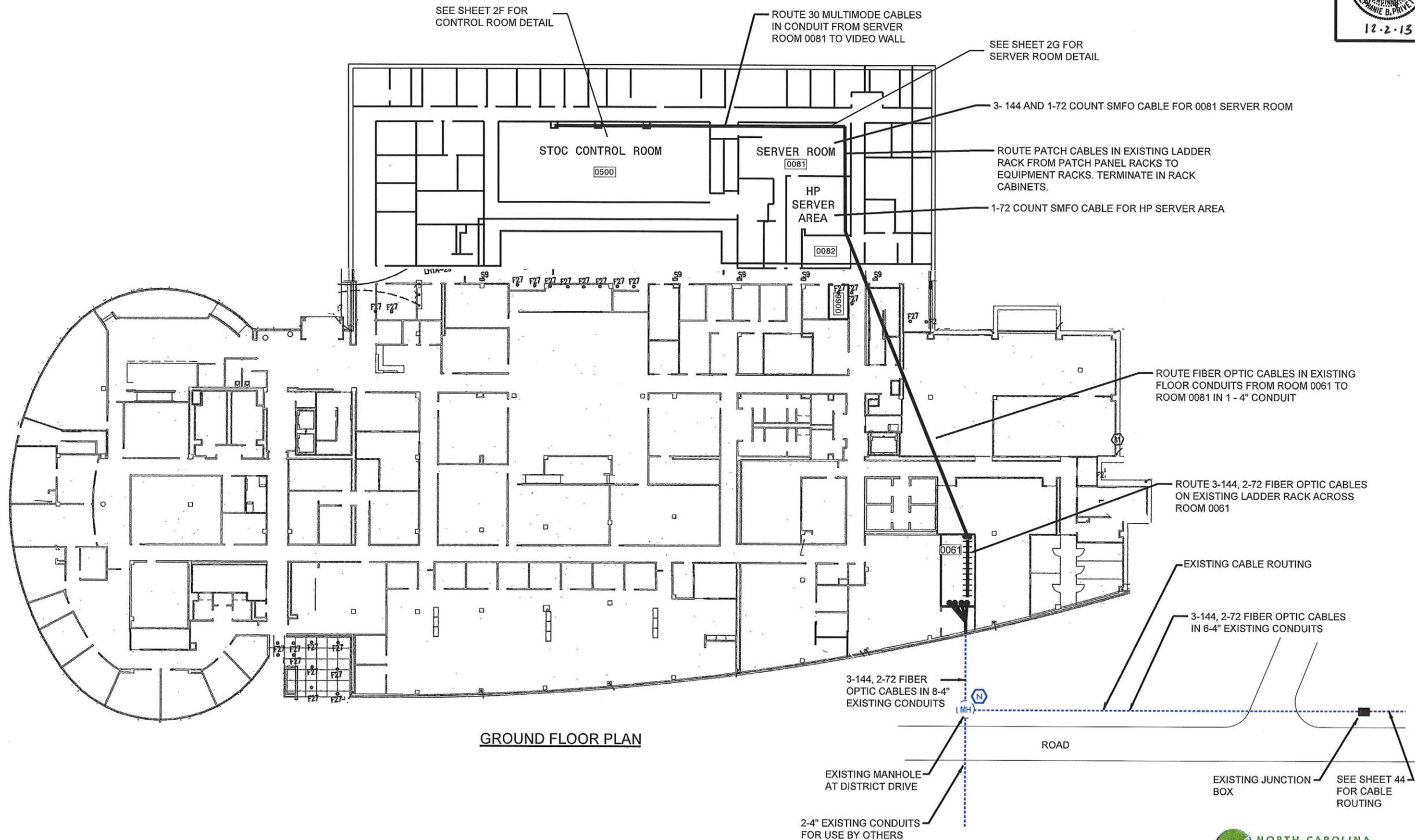
ITS PLANS TOLL FIELD NETWORK DIAGRAM



PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2E

ITS ENGINEER



GROUND FLOOR PLAN

RALEIGH ARMED FORCES RESERVE CENTER,
JOINT FORCES HEADQUARTERS
DISTRICT DRIVE
RALEIGH, NC

TRAFFIC CONTROL DEVICES, INC.
TRAFFIC CONTROL DEVICES, INC.
ALLIANCE OF NORTH CAROLINA UTILITIES
10101 WOODHURST
RALEIGH, NC 27615
919 877-2000

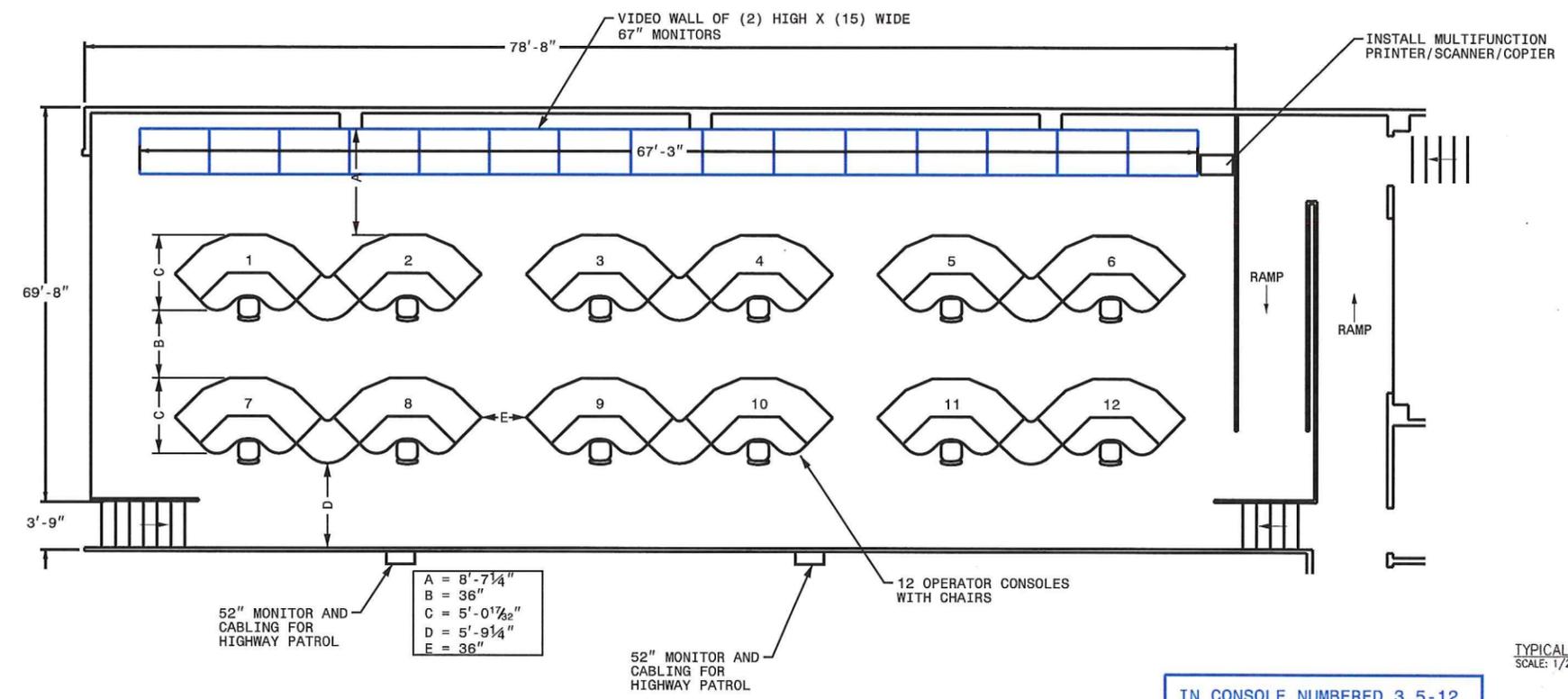
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919 877-2000

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS BUILDING DETAIL

11/21/2013
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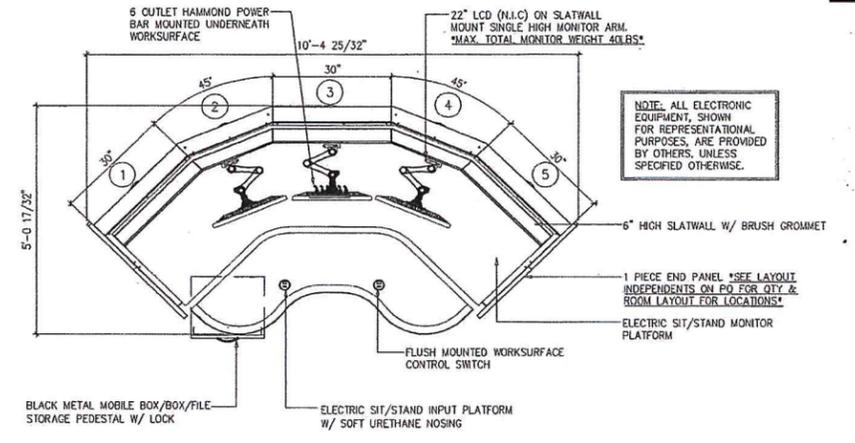
PLAN OF RECORD



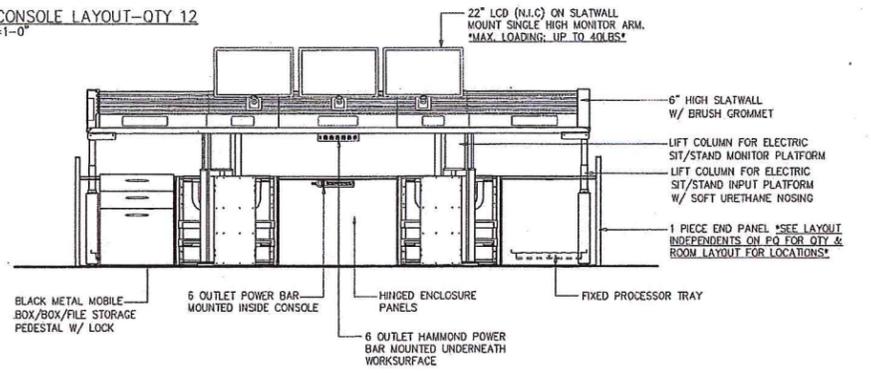
A = 8'-7 1/4"
 B = 36"
 C = 5'-0 1/32"
 D = 5'-9 1/4"
 E = 36"

**STOC CONTROL CENTER (ROOM 0500)
 ROOM LAYOUT**

IN CONSOLE NUMBERED 3,5-12
 INSTALL 2 MONITORS, 1 CPU,
 BATTERY BACK UP, KVM SWITCH,
 KEYBOARD AND MOUSE

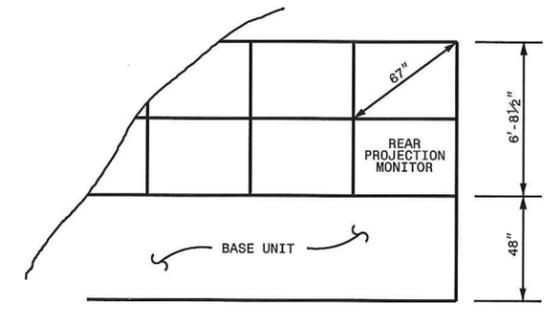


TYPICAL CONSOLE LAYOUT-QTY 12
 SCALE: 1/2"=1'-0"

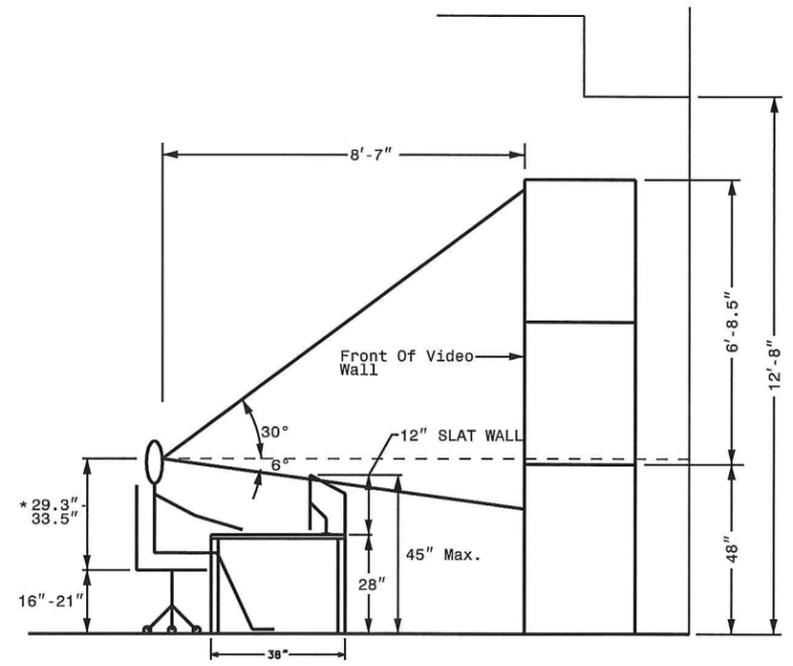


TYPICAL CONSOLE ELEVATION-QTY 12
 SCALE: 1/2"=1'-0"

OPERATOR'S CONSOLE

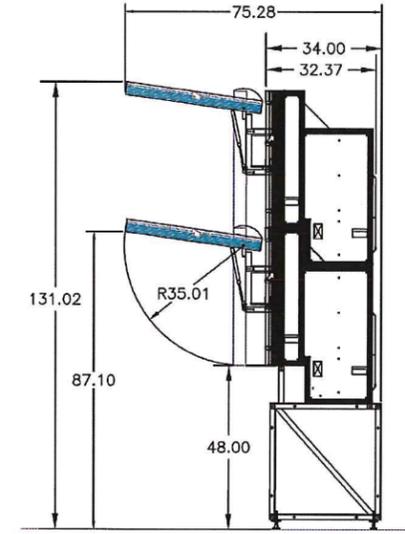


ELEVATION OF VIDEO WALL SECTION



VERTICAL VIEWING ANGLE FROM OPERATORS EYE LEVEL

* FHWA Human Factors Guidelines For TMC, Dated July 1999 (Most Recent Publication)
 29.3"-50th Percentile Female - 33.5"-45 th Percentile Male



② DISPLAY WALL - SIDE ELEVATION
 SCALE: 1/2"=1'-0"

SIDE ELEVATION OF VIDEO WALL



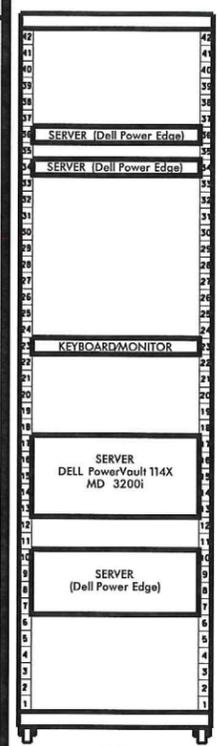
ITS PLANS
 STOC DETAIL

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 11/21/2013
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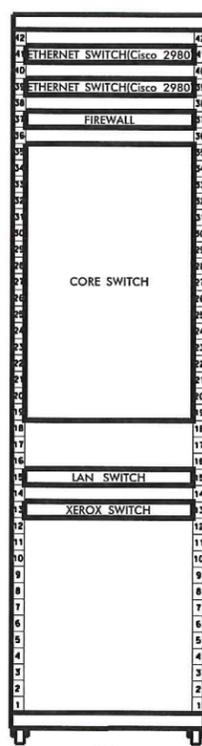
PLAN OF RECORD

ITS ENGINEER

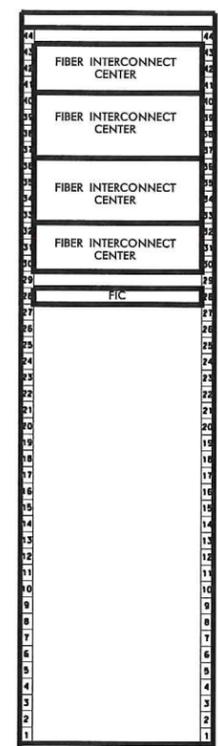
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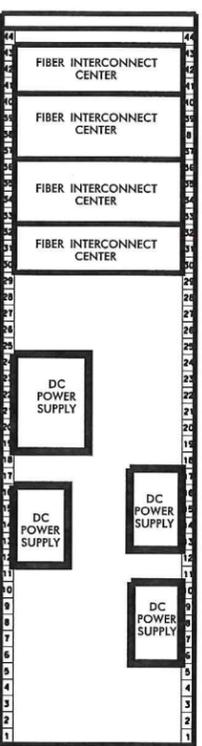
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NCTA
SERVER



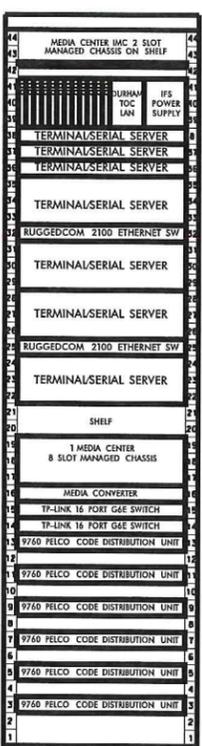
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NCTA
LAN



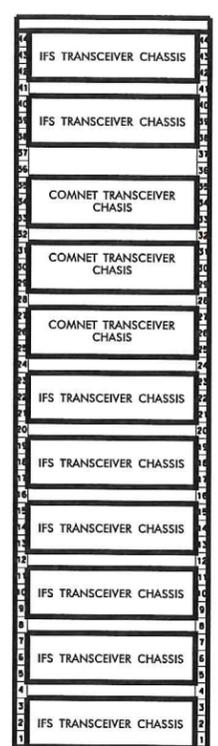
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SPLICE RACK



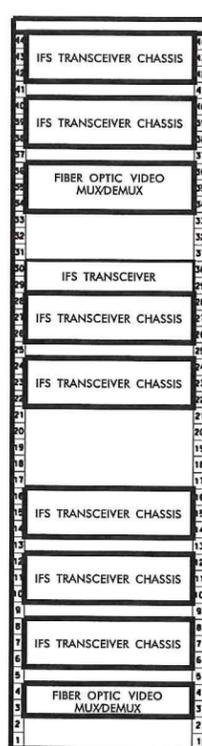
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SPLICE RACK



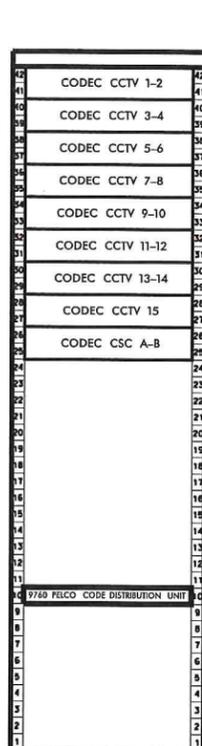
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CCTV EQUIPMENT



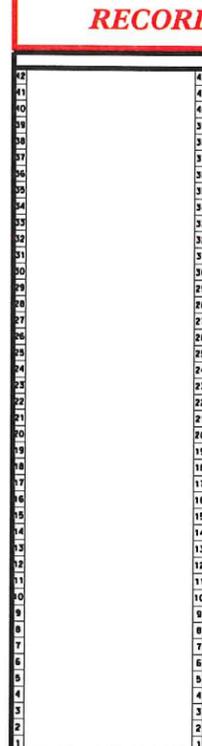
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TRANSCEIVERS



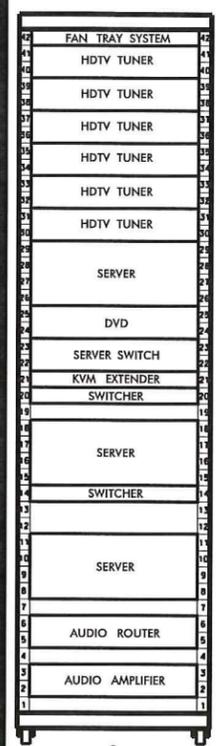
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TRANSCEIVERS



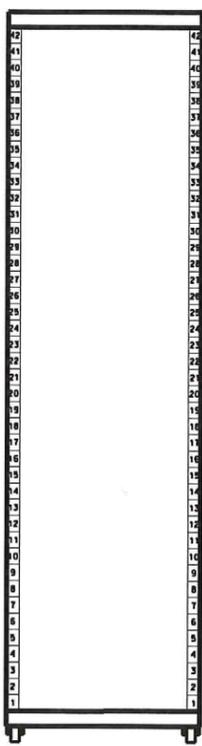
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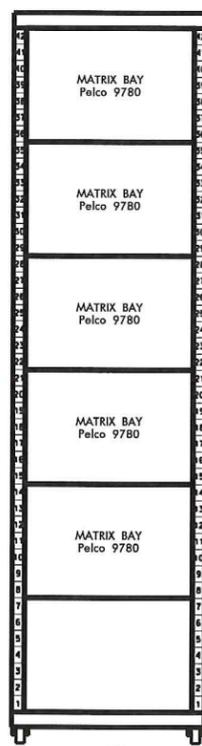
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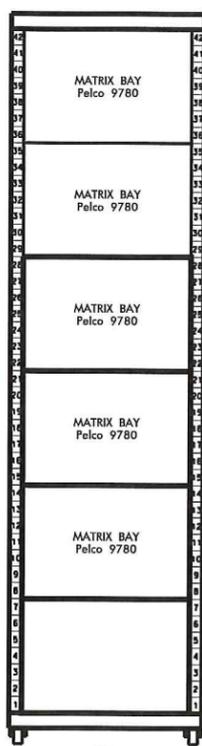
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VIDEO WALL



9



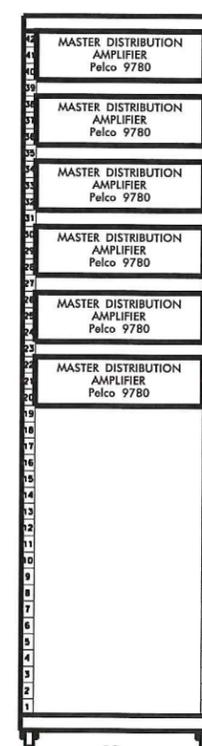
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MATRIX BAY



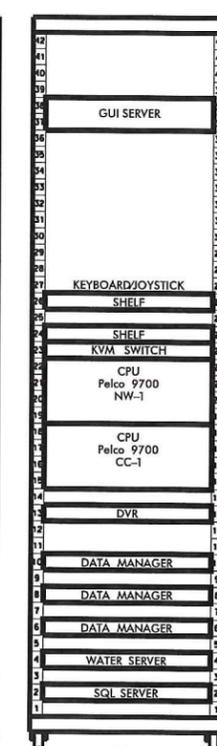
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MATRIX BAY



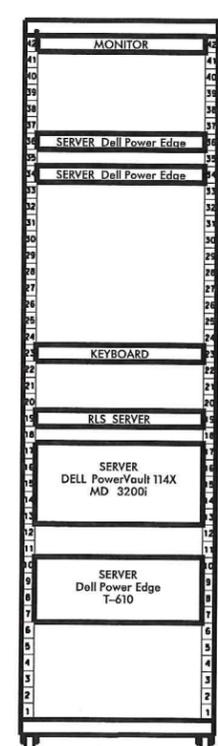
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DISTRIBUTION AMPLIFIERS



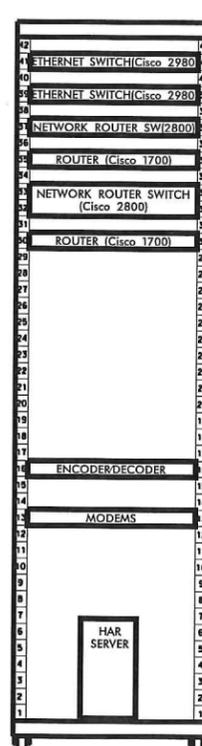
13
DISTRIBUTION AMPLIFIERS



14
DISTRIBUTION AMPLIFIERS



15
NCDOT SERVER



16
NCDOT LAN

REVISIONS

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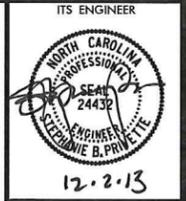
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ITS PLANS
STOC DETAIL

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2H



ACCESS POWER THROUGH RAISED FLOOR UNDER RACKS

LIEBERT UNIT LIEBERT UNIT

ROUTE FIBER OPTIC CABLES RACK TO NORTH WALL OF CONTROL ROOM FOR VIDEO WALL

STOC CONTROL ROOM 0500

RAMP

RAMP

8 9 10 11 12 13 14

15 16

7 6 5 4 3 2 1

18 17

INSTALL 18 EQUIPMENT RACKS (19"X78"H) IN TWO ROWS. TERMINATE FIBER OPTIC CABLE IN RACKS. MAINTAIN ADEQUATE CLEARANCE ON BOTH FRONT AND BACK SIDES OF RACKS. (SEE SHEET 2F FOR RACK DETAILS)

LADDER RACKS

EXISTING PATCH PANEL RACKS

STOC/ITS SERVER ROOM 0081

HIGHWAY PATROL SERVER AREA

ROUTE 3-144 AND 2-72 FIBER SMFO CABLES FROM ROOM 0061 TO ROOM 0081 IN EXISTING FLOOR CONDUIT.

MEDIA ROOM

PATCH PANEL ROOM 0082

4" FLOOR CONDUIT TO ROOM 0061

REVISIONS

Ms_Builds\phase 2\st 02H.dgn

11/21/2013

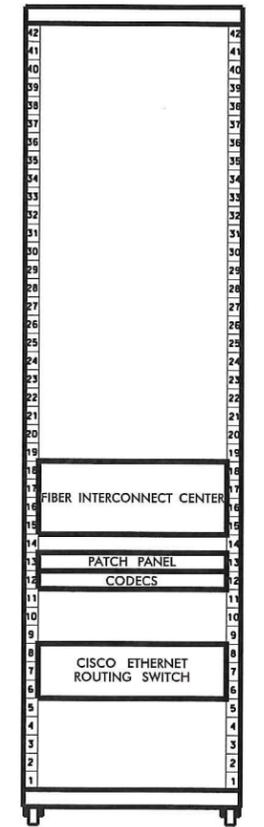
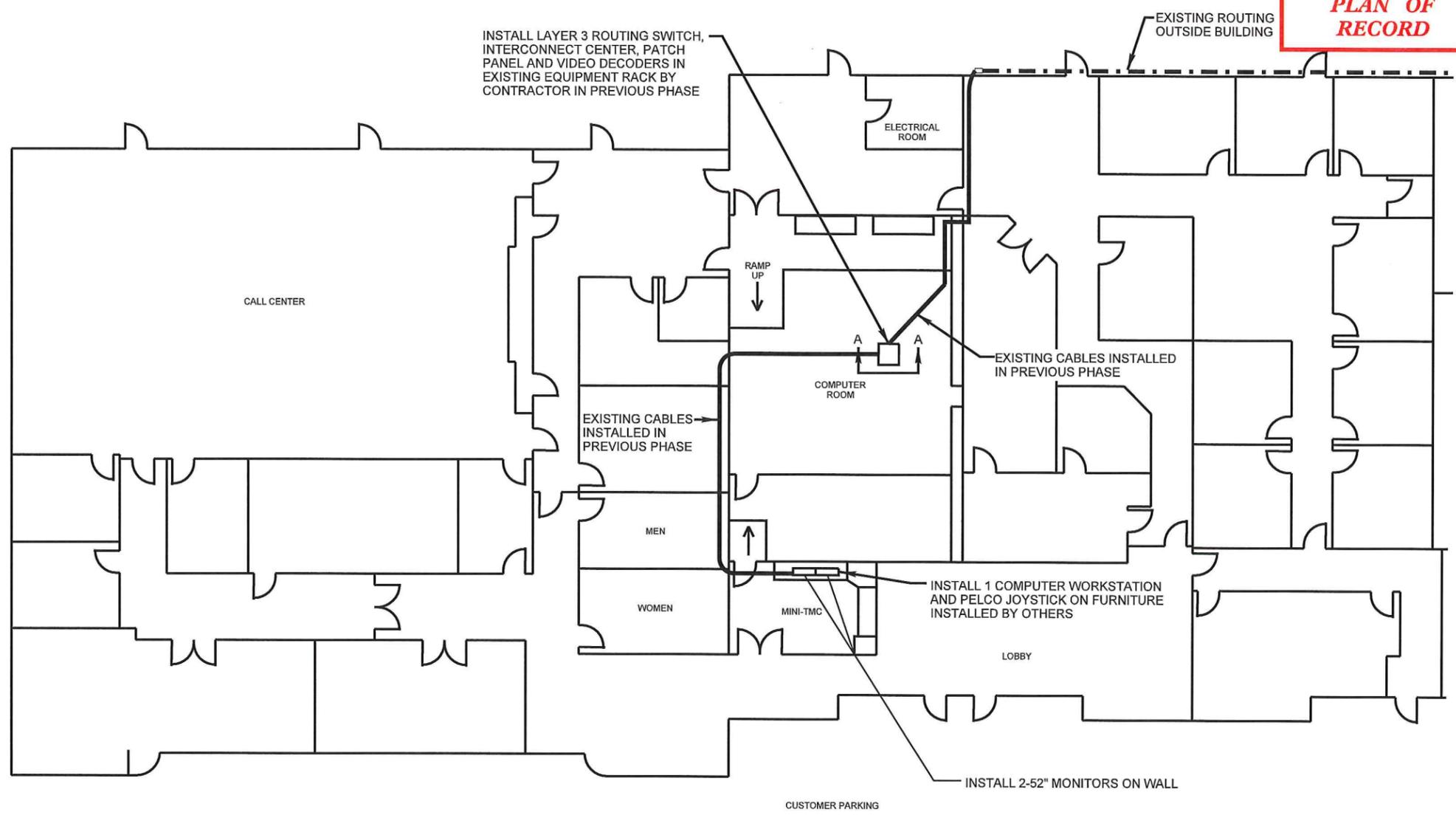


ITS PLANS STOC DETAIL

PLAN OF RECORD

ITS ENGINEER

12.2.13



SECTION A-A

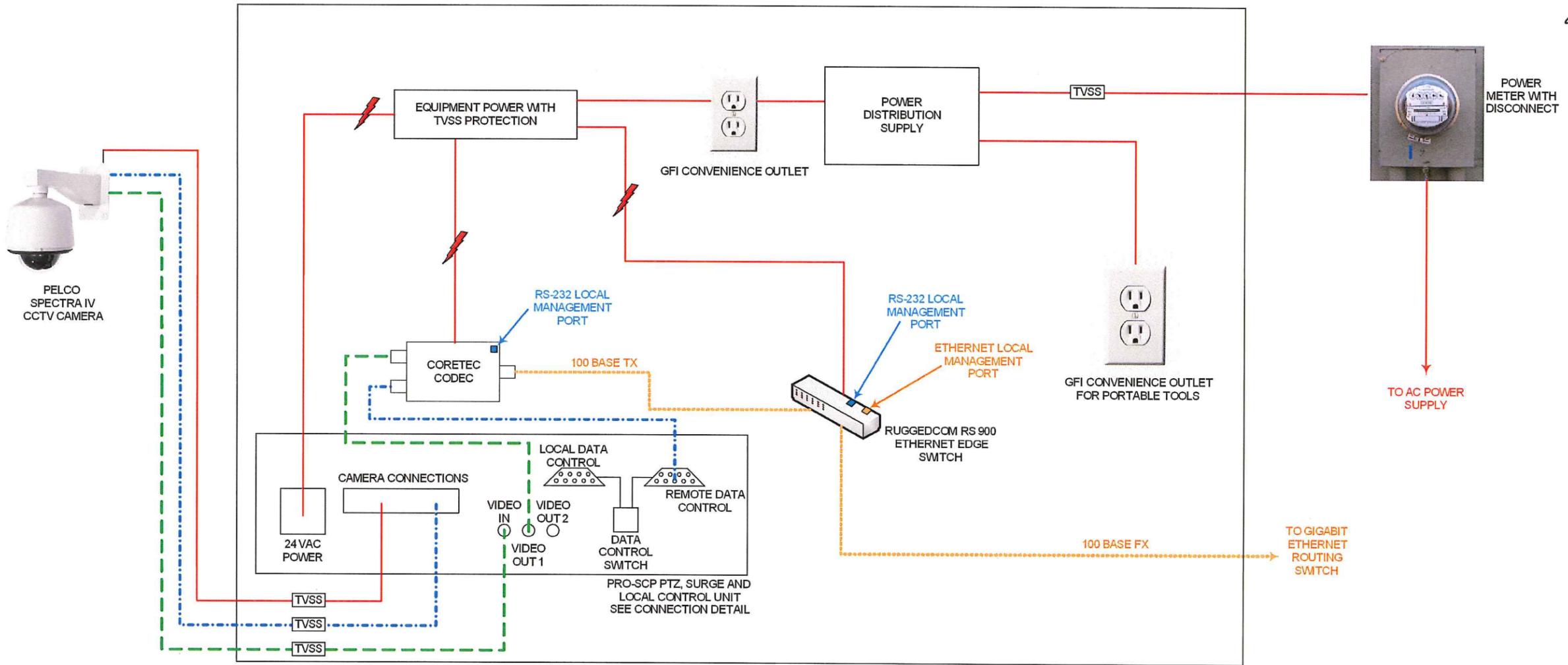
NCTA CUSTOMER SERVICE CENTER
200 SORRELL GROVE CHURCH ROAD
MORRISVILLE, NC

11/21/2013
-Vas_Builditsphase 2.rvt 02.dgn
REVISIONS



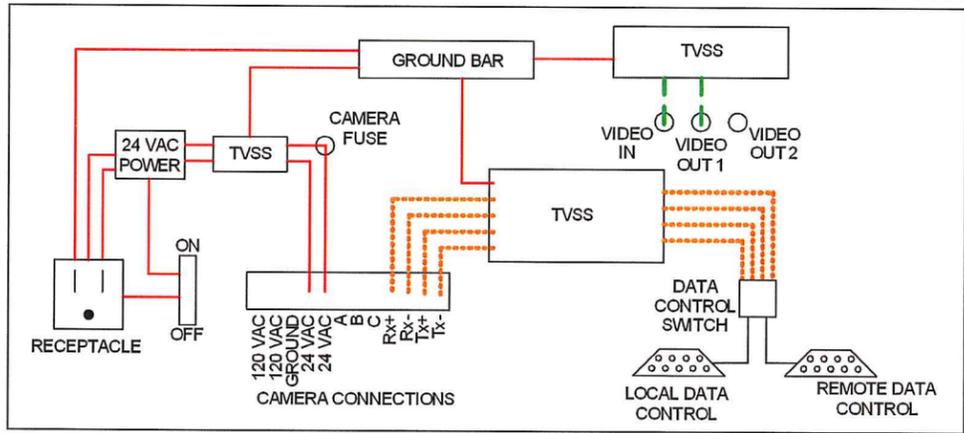
ITS PLANS
CUSTOMER SERVICE CENTER BUILDING
DETAIL

PLAN OF RECORD



CCTV

PRO-SCP CONNECTION DETAIL



LEGEND

- TVSS TRANSIENT VOLTAGE SURGE SUPPRESSION
- OPTIONAL POWER SUPPLY
- POWER
- RS 232/422/485
- ANALOG VIDEO
- ETHERNET

REVISIONS

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11/21/2013



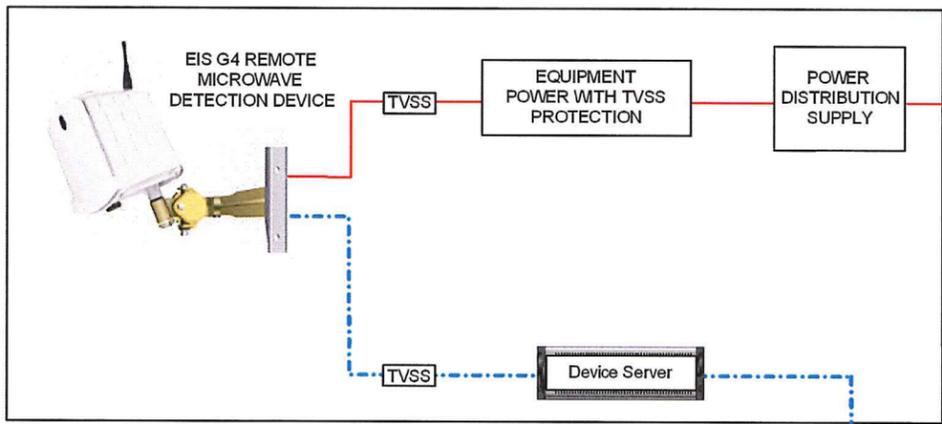
ITS PLANS
CCTV BLOCK DIAGRAM

PLAN OF RECORD

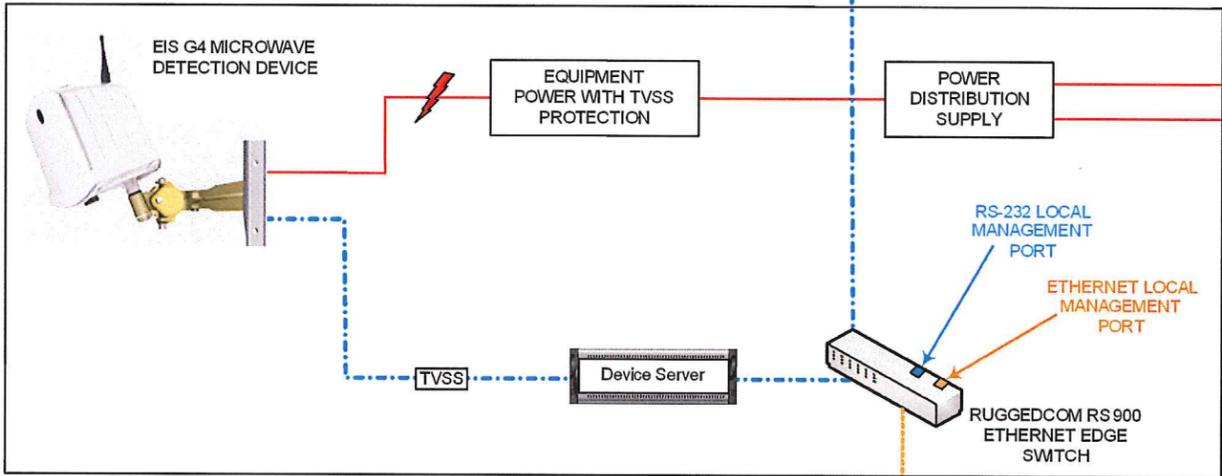
PROJECT REFERENCE NO. **C202250** SHEET NO. **2L**

ITS ENGINEER

 12.2.13



SLAVE UNIT

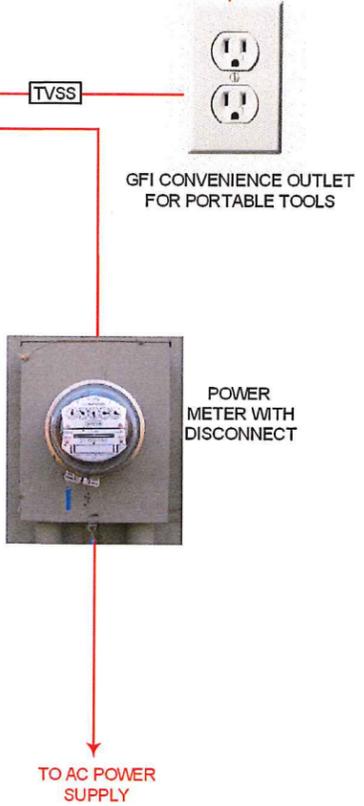


MASTER UNIT

LEGEND

-  TRANSIENT VOLTAGE SURGE SUPPRESSION
-  OPTIONAL POWER SUPPLY
-  POWER
-  RS 232/422/485
-  ETHERNET

100 BASE FX → TO GIGABIT ETHERNET ROUTING SWITCH



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 (919) 677-2000



ITS PLANS
 MVD BLOCK DIAGRAM

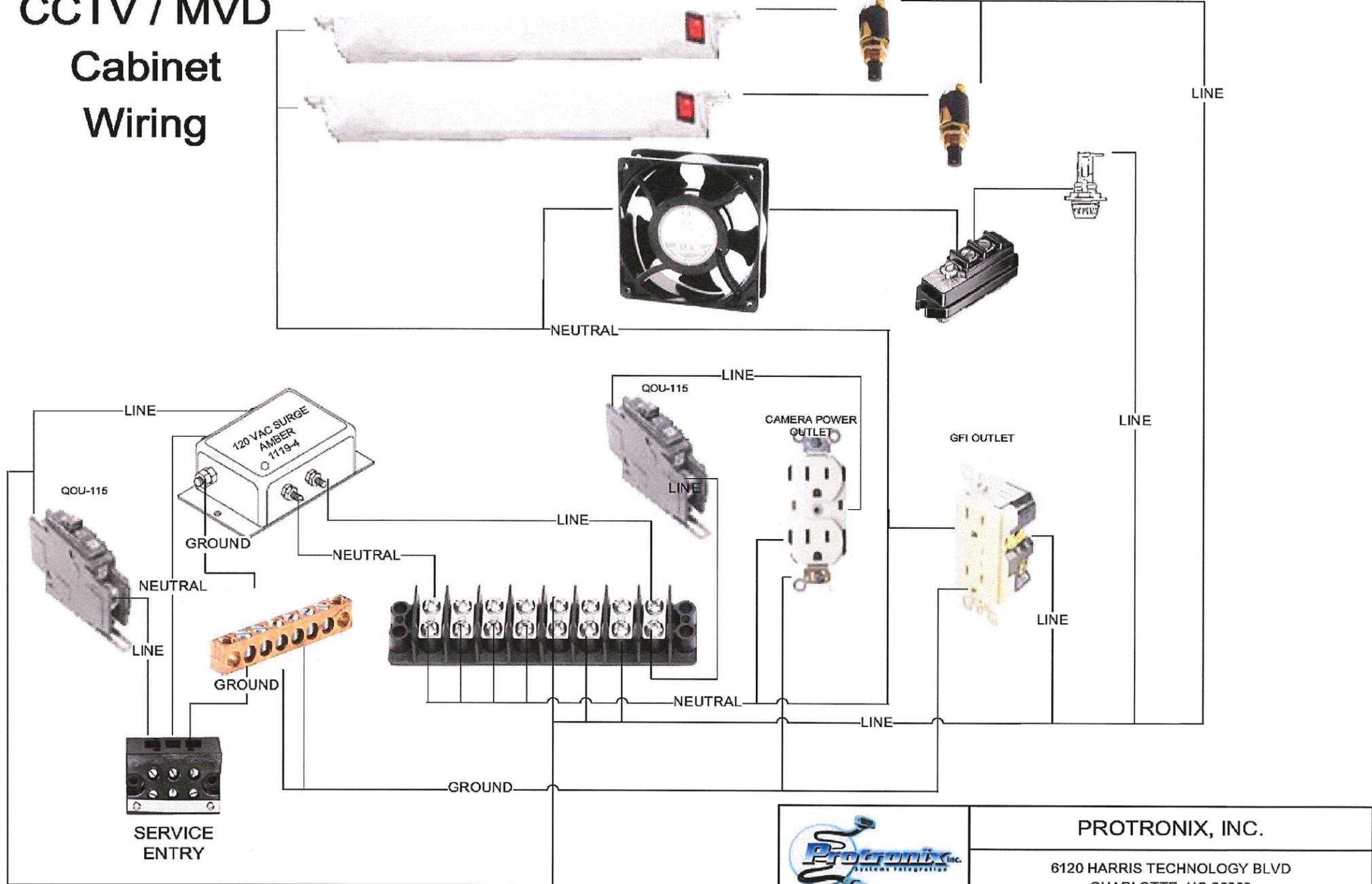
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **2M**

ITS ENGINEER

 12.2.13

CCTV / MVD Cabinet Wiring



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				PROTRONIX, INC.			
				6120 HARRIS TECHNOLOGY BLVD CHARLOTTE, NC 28269			
SIZE	FSCM NO	DWG NO	REV				
na		336 WIRING					
SCALE	1 : 1	SHEET	1 OF 1				



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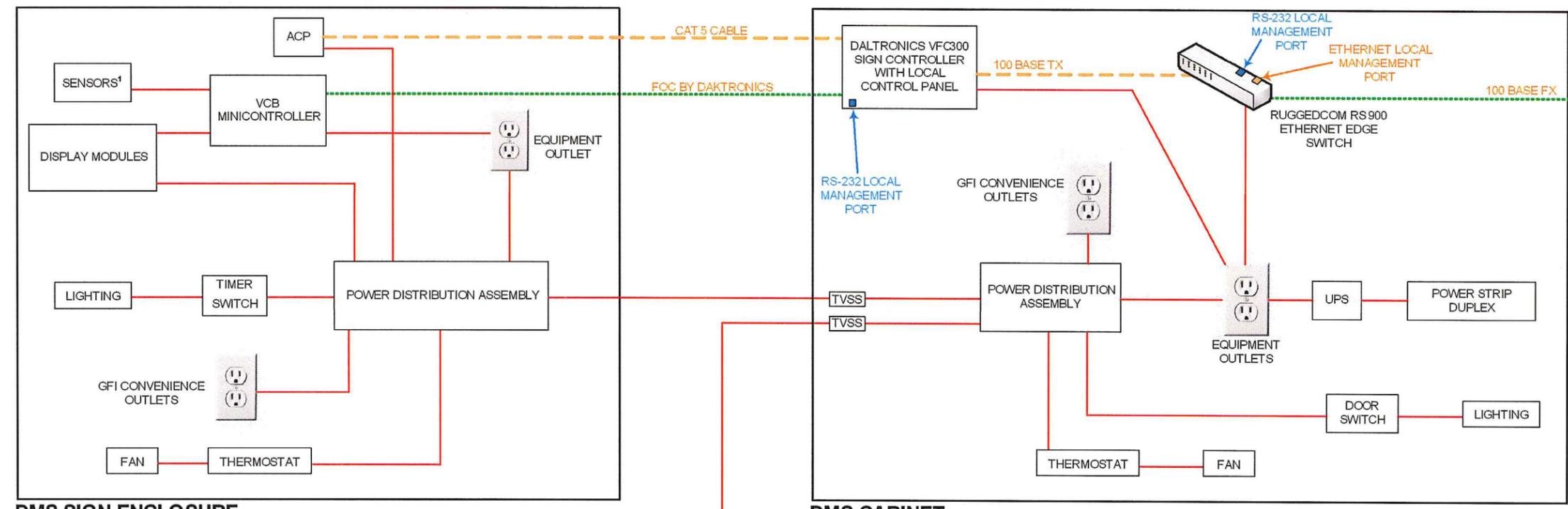
ITS PLANS
 CCTV BLOCK DIAGRAM

PLAN OF RECORD

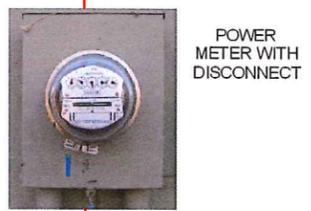
PROJECT REFERENCE NO. **C202250** SHEET NO. **2N**

ITS ENGINEER

 12-2-13



TO GIGABIT ETHERNET ROUTING SWITCH



TO AC POWER SUPPLY

1. Sensors for door, light, temperature, and humidity
 Note: TVSS on all power connections as necessary.

LEGEND

- TRANSIENT VOLTAGE SURGE SUPPRESSION
- POWER
- RS 232/422/485
- ETHERNET COPPER
- ETHERNET FIBER

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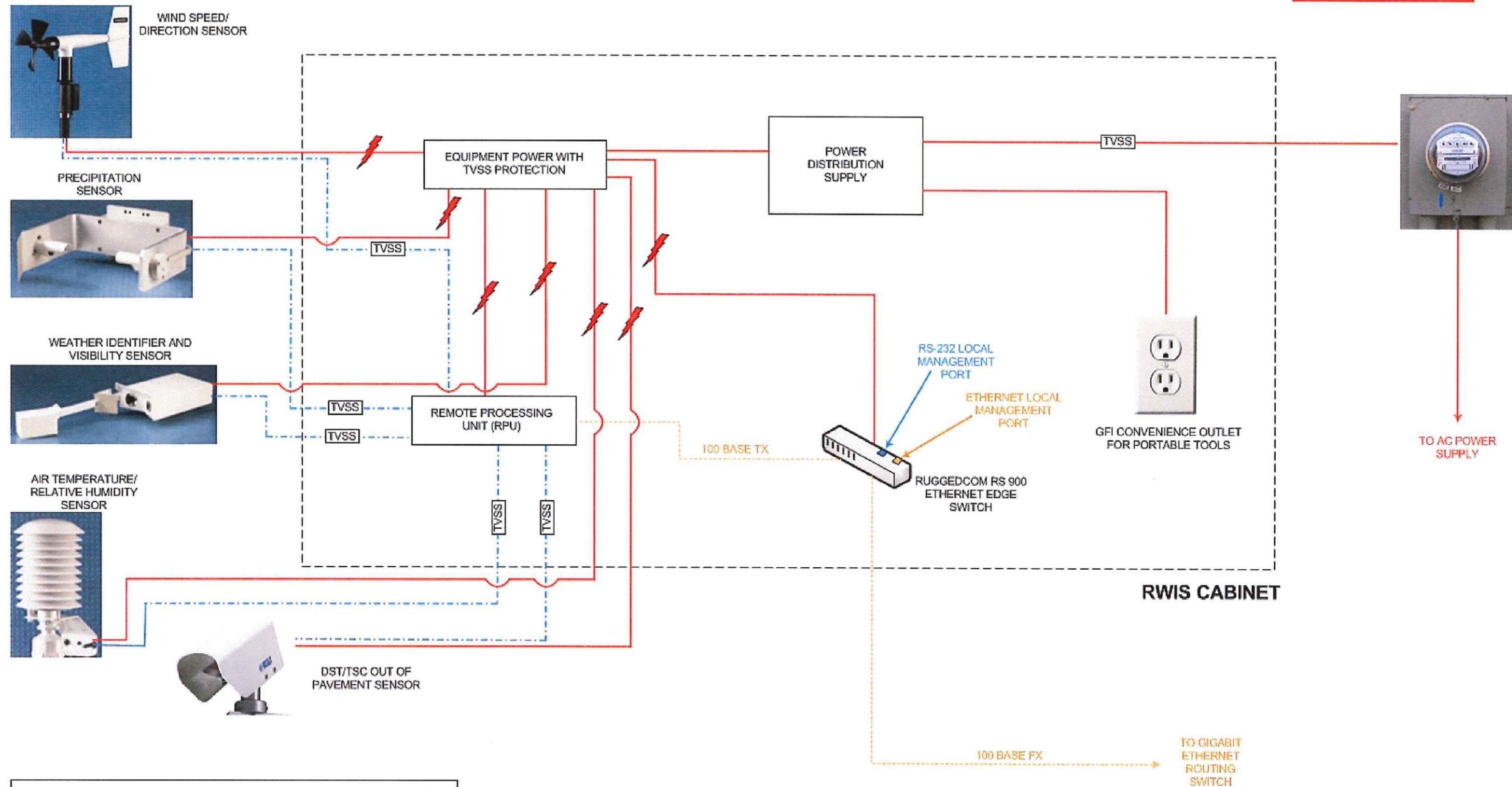
ITS PLANS
 DMS BLOCK DIAGRAM

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **2P**

ITS ENGINEER

 12.2.13



LEGEND

-  TRANSIENT VOLTAGE SURGE SUPPRESSION
-  OPTIONAL POWER SUPPLY
-  POWER
-  RS 232/422/485
-  ETHERNET

RWIS BLOCK DIAGRAM

REVISIONS

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11/21/2013

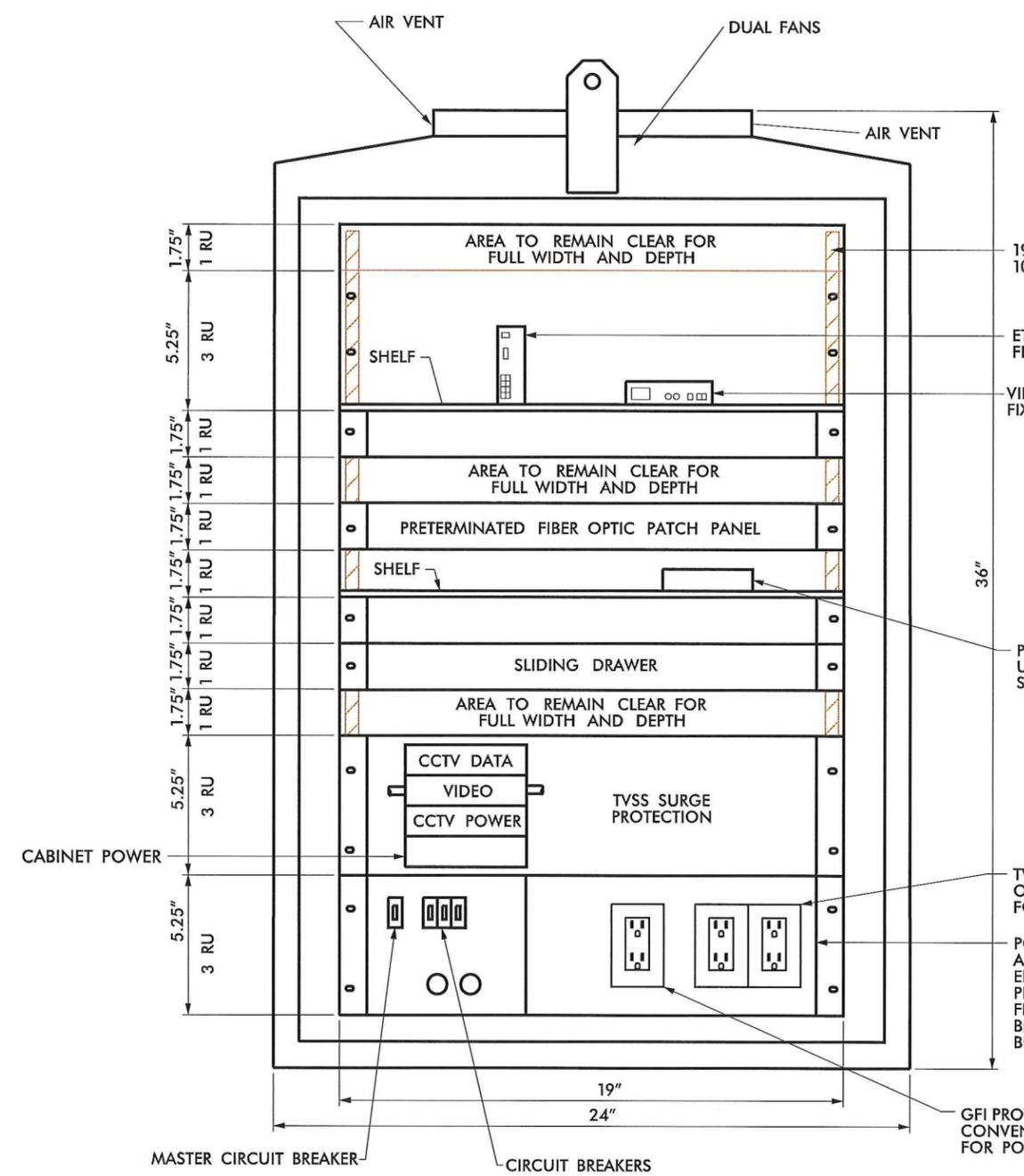


ITS PLANS
RWIS BLOCK DIAGRAM

PLAN OF RECORD

ITS ENGINEER

 12-2-13



FRONT VIEW

19" EIA RACK WITH TAPPED 10-32 THREADED HOLES

ETHERNET EDGE SWITCH SECURELY FIXED TO SHELF OR DIN RAIL

VIDEO ENCODER SECURELY FIXED TO SHELF OR DIN RAIL

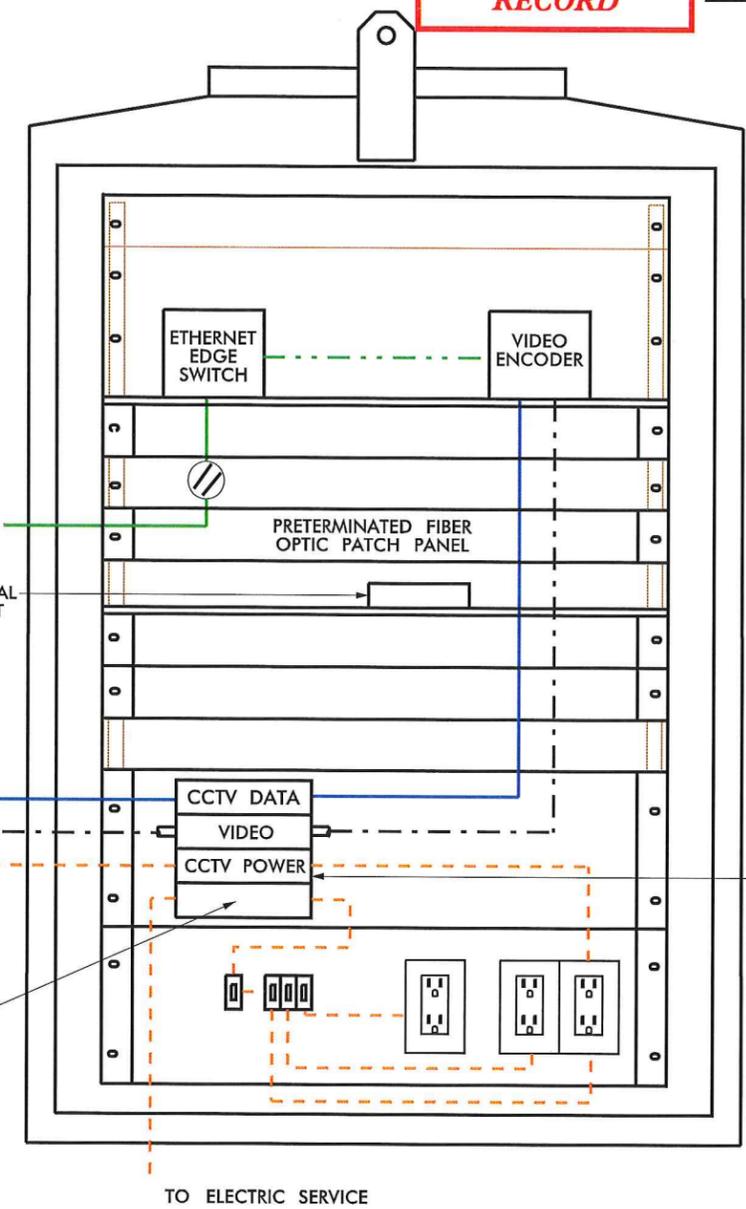
PTZ AND LOCAL CONTROL UNIT

PTZ AND LOCAL CONTROL UNIT SECURELY FIXED TO SHELF OR DIN RAIL

TVSS PROTECTED OUTLETS (2) FOR EQUIPMENT

POWER DISTRIBUTION ASSEMBLY SERVICE ENTRANCE, BREAKER, PRIMARY AC POWER FILTER, TERMINAL BLOCKS, GROUND BUS BAR

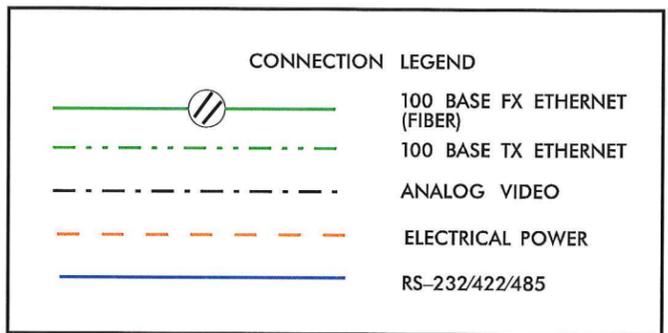
GFI PROTECTED CONVENIENCE OUTLET (1) FOR PORTABLE TOOLS



CABINET WIRING VIEW

NOTES

1. SEE RFP REQUIREMENTS FOR CABINET TYPE.
2. ALL DIMENSIONS AND SCALE ARE APPROXIMATE.
3. THE MINIMUM CCTV CABINET DIMENSIONS SHALL BE 36"H X 24"W X 22"D.
4. CONDUIT ENTRANCES ARE IN BOTTOM OF CABINET.
5. MINIMUM NUMBER OF OUTLETS IS THREE: (2) TVSS PROTECTED AND (1) GFI PROTECTED.
6. THERE SHALL BE FRONT AND REAR DOORS. BOTH DOORS SHALL HAVE THE HINGE SIDE NEXT TO THE POLE WHEN POLE MOUNTED.
7. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.

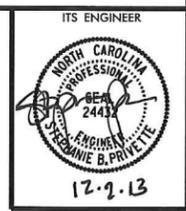


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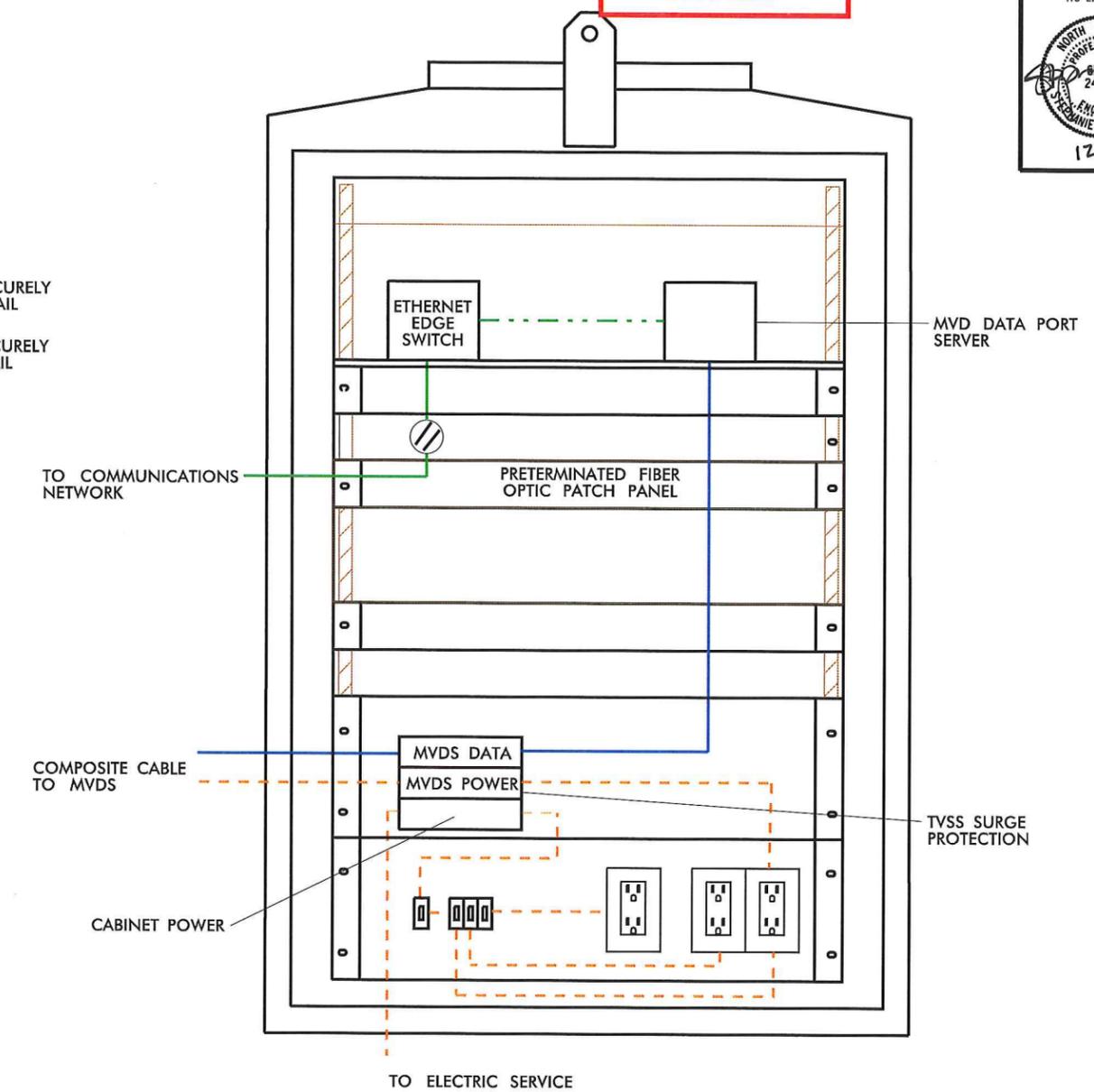
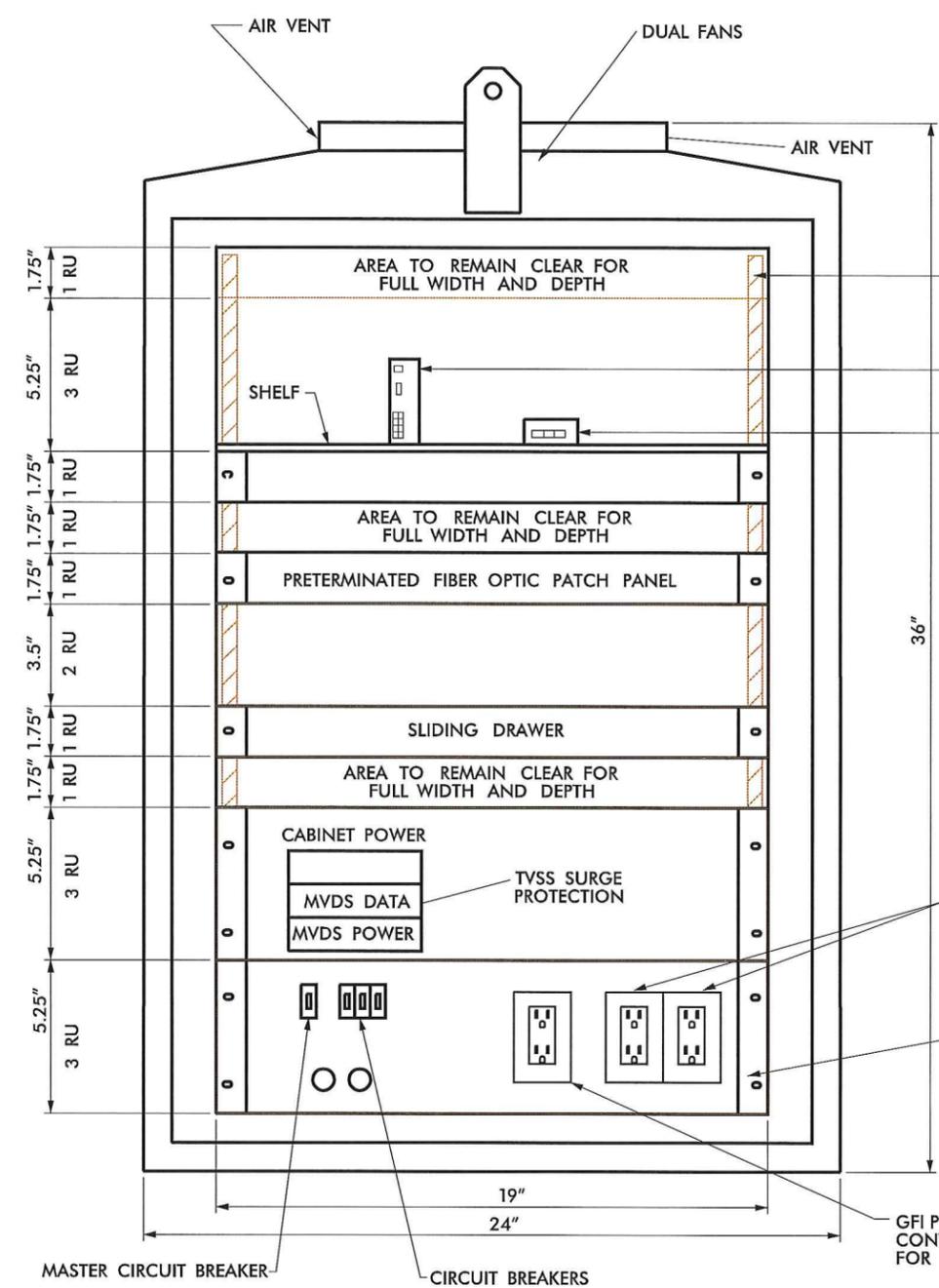


ITS PLANS
 CCTV CABINET (TYPE A)
 LAYOUT DETAIL

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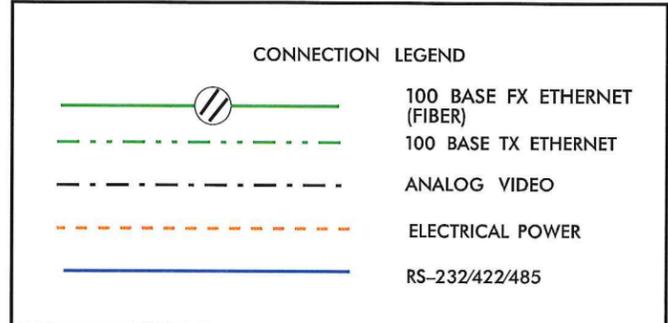


PLAN OF RECORD



NOTES

1. ALL DIMENSIONS AND SCALE ARE APPROXIMATE.
2. ALL EQUIPMENT RACKS SHALL HAVE A MINIMUM OF ONE RACK UNIT SPACE IN BETWEEN THEM FOR VENTILATION
3. SEE RFP REQUIREMENTS FOR CABINET SIZE AND TYPE.
4. CONDUIT ENTRANCES ARE IN BOTTOM OF CABINET.
5. MINIMUM NUMBER OF OUTLETS IS THREE, (2) TVSS PROTECTED AND (1) GFI PROTECTED.
6. TVSS PROTECTION SHALL FULLY PROTECT ALL DATA COMMUNICATIONS BETWEEN DETECTOR AND CABINET.

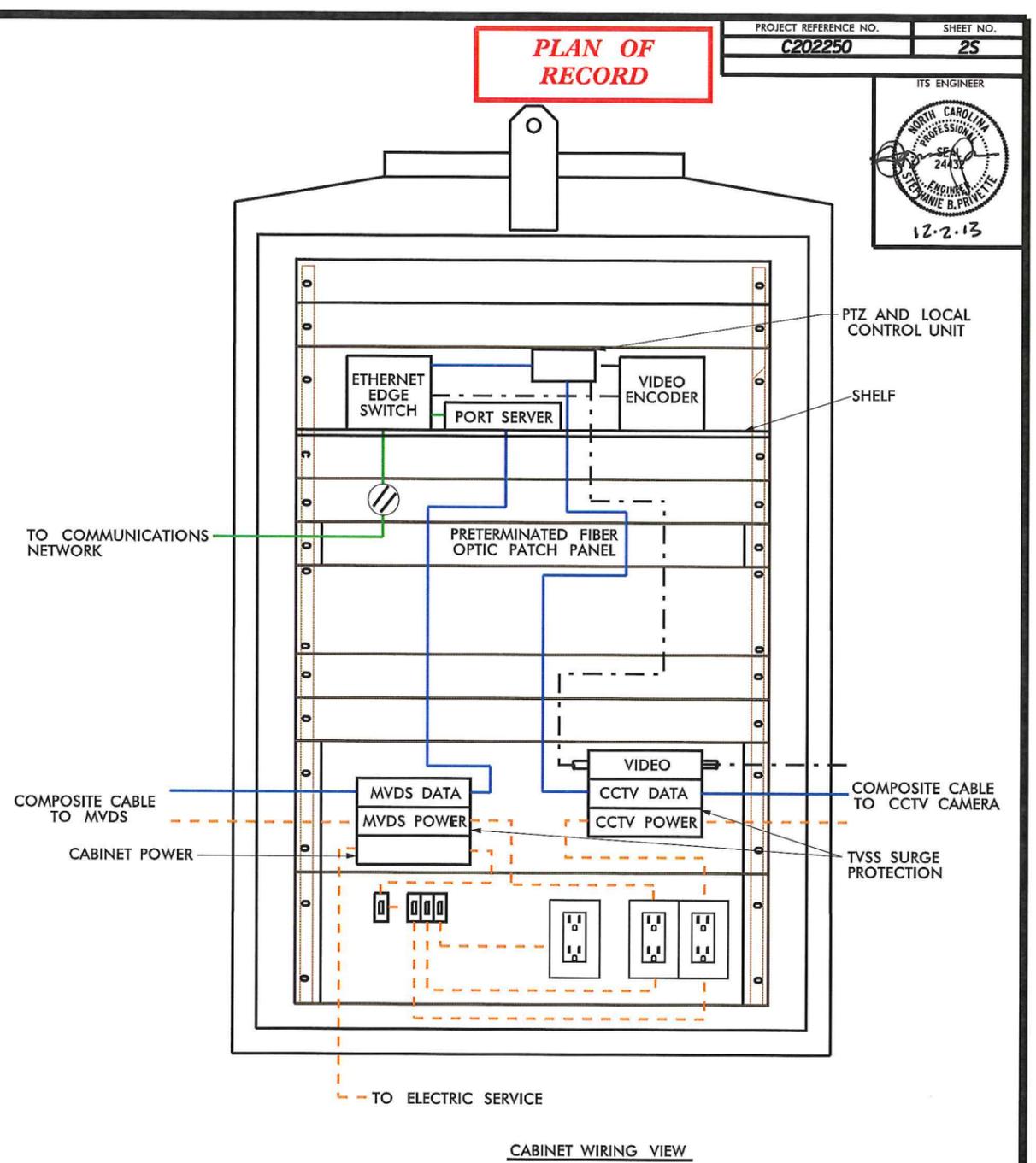
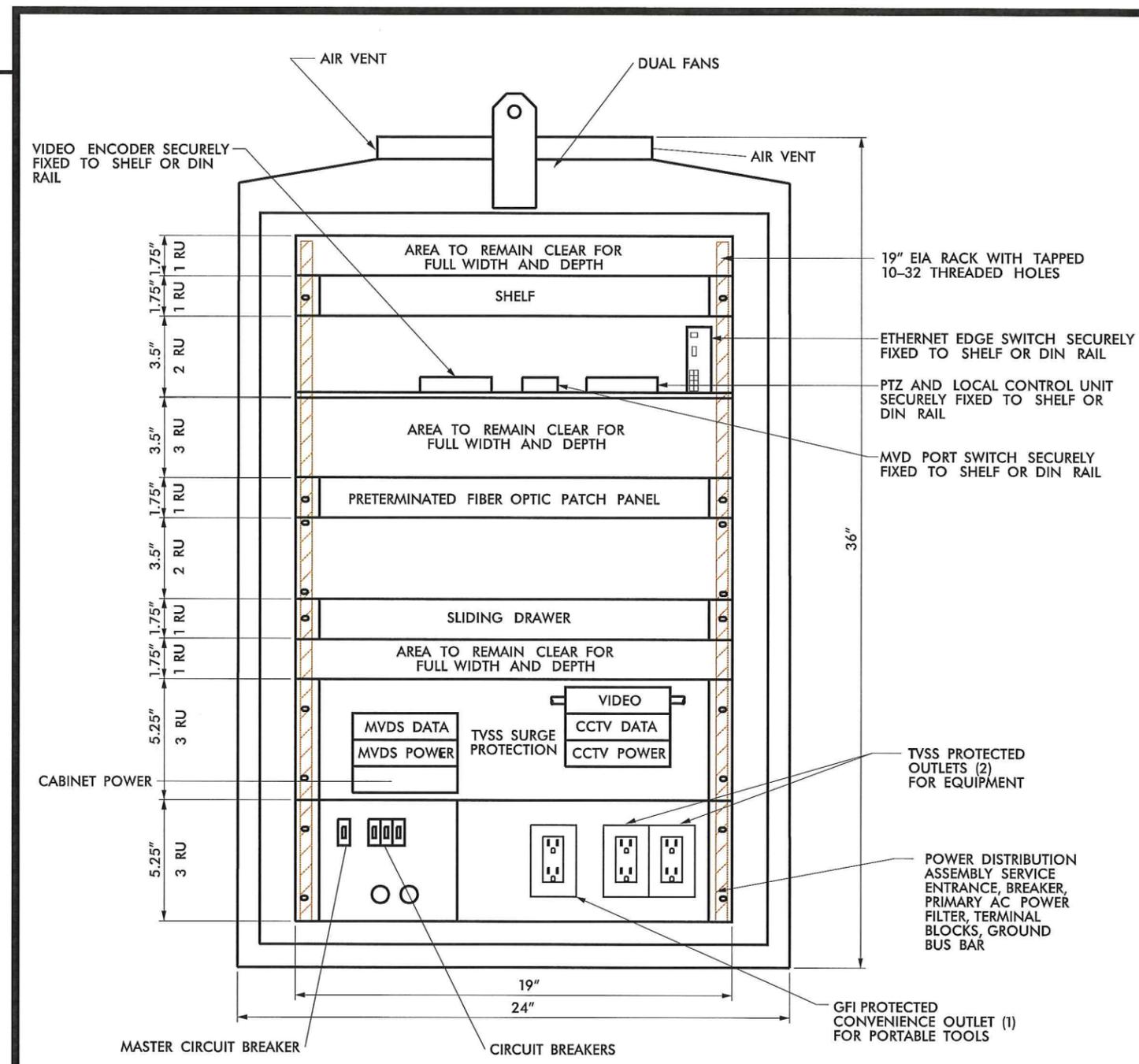
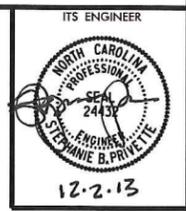


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TRAFFIC CONTROL DEVICES, INC.
Kimley-Horn and Associates, Inc.
SUMMIT CONSULTING
NORTH CAROLINA Turnpike Authority

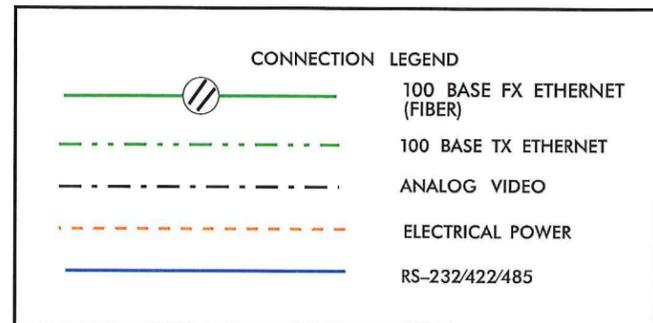
ITS PLANS MICROWAVE DETECTION CABINET (TYPE A) LAYOUT

PLAN OF RECORD



NOTES

1. ALL DIMENSIONS AND SCALE ARE APPROXIMATE.
2. ALL EQUIPMENT RACKS SHALL HAVE A MINIMUM OF ONE RACK UNIT SPACE IN BETWEEN THEM FOR VENTILATION
3. SEE RFP REQUIREMENTS FOR CABINET SIZE AND TYPE.
4. CONDUIT ENTRANCES ARE IN BOTTOM OF CABINET.
5. MINIMUM NUMBER OF OUTLETS IS THREE, (2) TVSS PROTECTED AND (1) GFI PROTECTED.
6. TVSS PROTECTION SHALL FULLY PROTECT ALL DATA COMMUNICATIONS BETWEEN DETECTOR AND CABINET.
7. THERE SHALL BE FRONT AND REAR DOORS. BOTH DOORS SHALL HAVE THE HINGE SIDE NEXT TO THE POLE WHEN POLE MOUNTED.

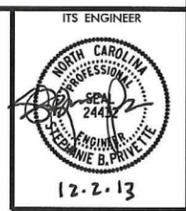


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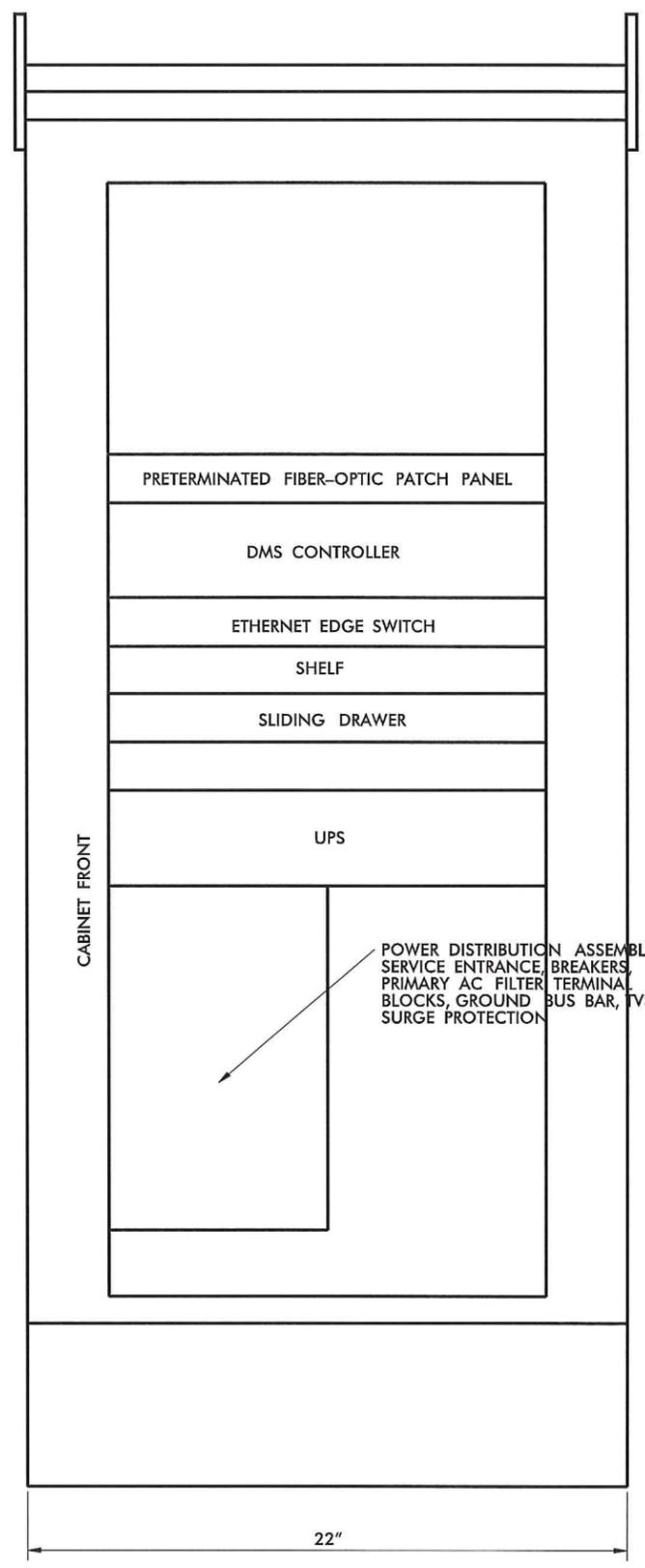
ITS PLANS
CCTV CABINET (TYPE A)
WITH MICROWAVE
DETECTION EQUIPMENT

PLAN OF RECORD

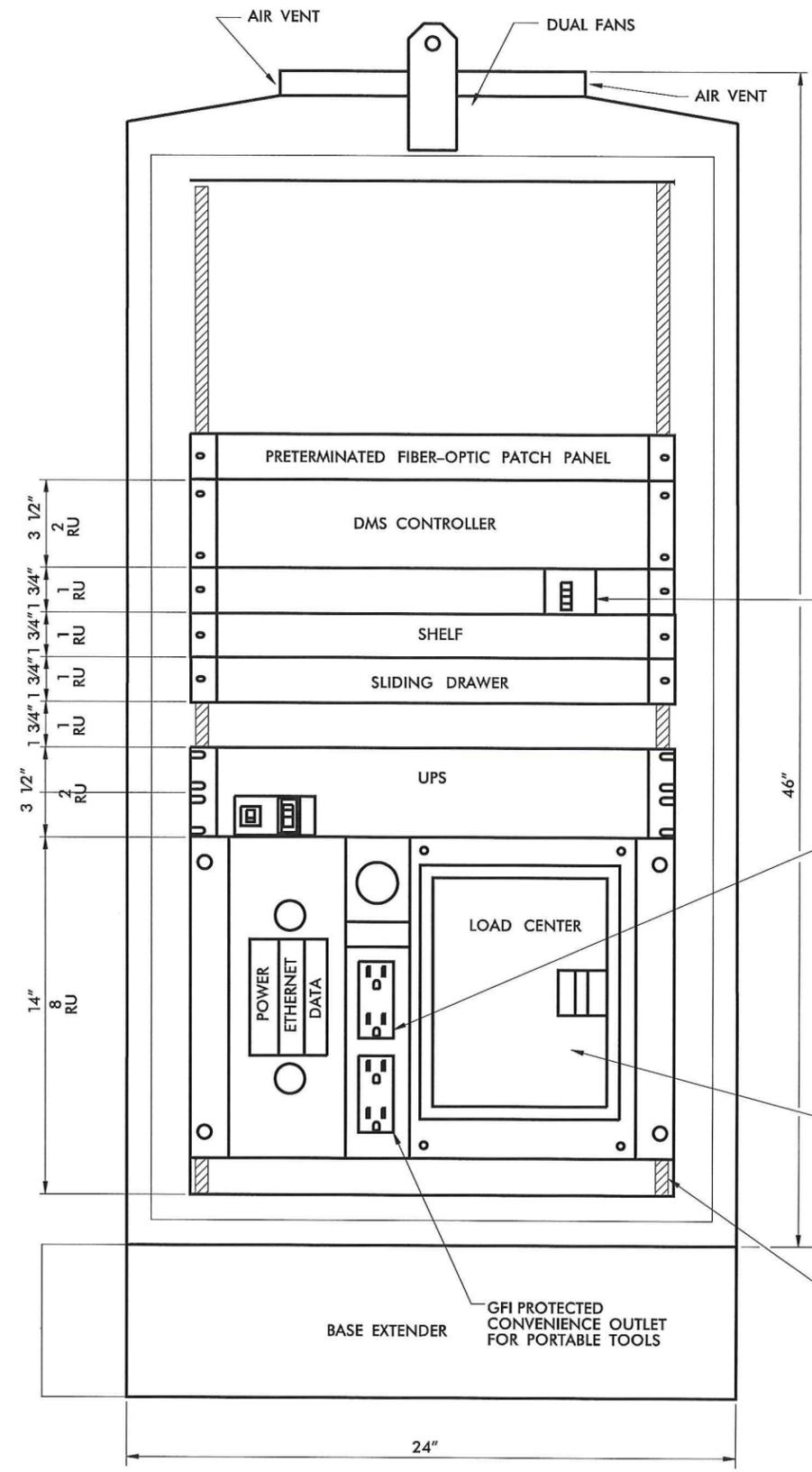


GENERAL NOTES:

1. CABINET LAYOUT IS FOR BASE MOUNTED INSTALLATIONS.
2. ALL DIMENSIONS ARE APPROXIMATE.
3. SEE RFP REQUIREMENTS FOR CABINET TYPE AND SIZE.
4. THE MINIMUM DMS CABINET DIMENSIONS SHALL BE 46"H X 24"W X 22"D.
5. CONDUIT ENTRANCES ARE AT BOTTOM OF CABINET.
6. MINIMUM NUMBER OF DUPLEX OUTLETS IS TWO, (1) TVSS PROTECTED AND (1) GFI PROTECTED.
7. PROVIDE SIGN CONTROLLER IN GROUND CABINET TO PROVIDE FULL ACCESS TO DMS SIGN FOR CONTROL,



SIDE VIEW



FRONT VIEW

ETHERNET SWITCH AFFIXED TO SHELF OR DIN RAIL

TVSS PROTECTED OUTLETS FOR COMMUNICATIONS HARDWARE

LOAD CENTER INCLUDING POWER DISTRIBUTION ASSEMBLY SERVICE ENTRANCE, POWER FILTER, MAIN BREAKER, SEPARATE CIRCUIT BREAKERS FOR EQUIPMENT POWER AND CONVENIENCE OUTLETS, GROUND BLOCKS, GROUND BUS BAR AND TERMINAL BLOCKS FOR DIRECT CONNECTION TO PROTECTED POWER OUTLETS

19" EIA RACK WITH TAPPED 10-32 THREADED HOLES

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ITS PLANS
DMS
CABINET LAYOUT

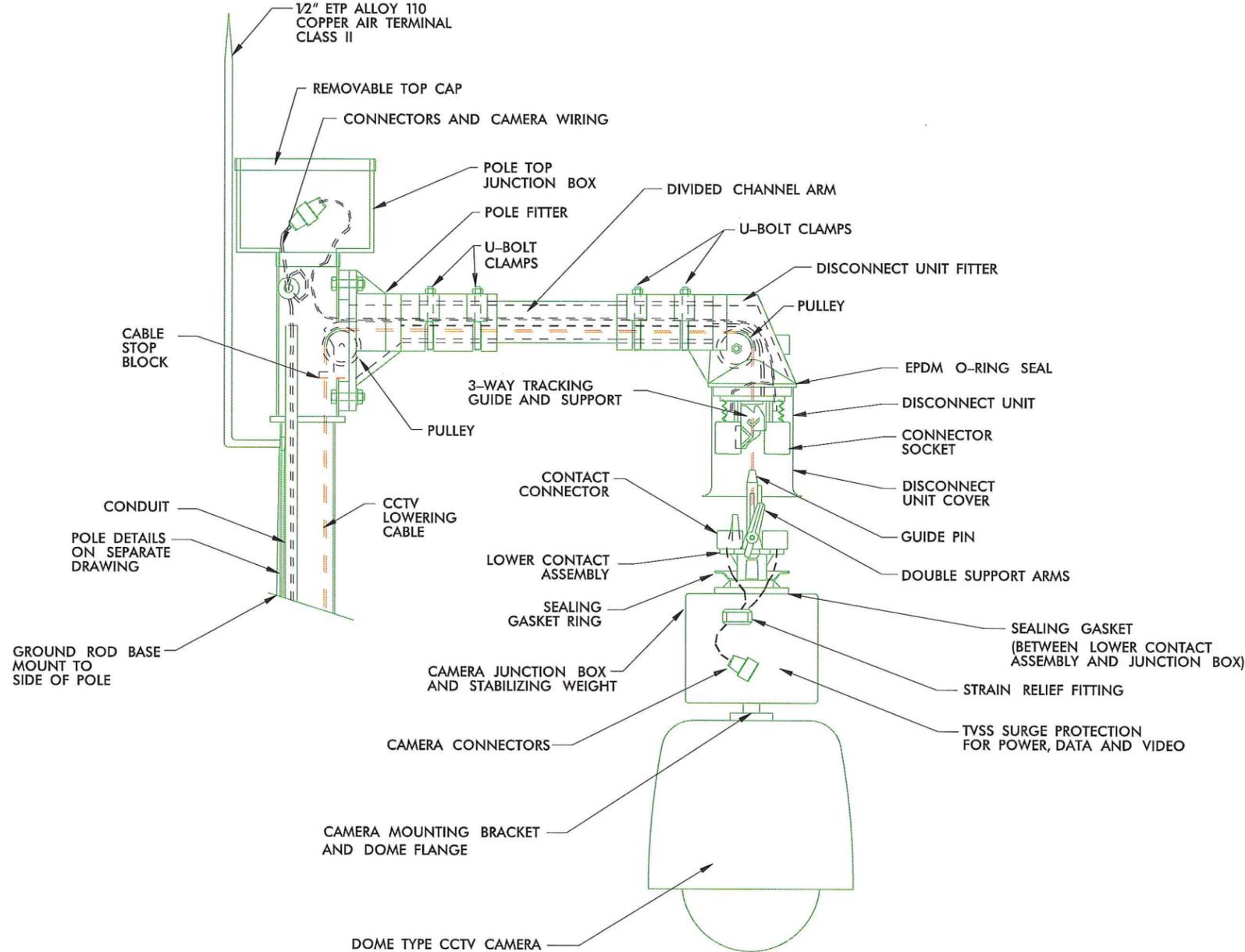
PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	21



GENERAL NOTES:

1. LOWERING DEVICE TO BE SHIPPED READY FOR POLE ATTACHMENT TO INCLUDE 100 FT. OF COMPOSITE POWER AND SIGNAL CABLE PREWIRED TO LOWERING DEVICE AT THE FACTORY.
2. THE LOWERING DEVICE MANUFACTURER SHALL SUPPLY BOTH A PORTABLE LOWERING TOOL WITH A MANUAL HAND CRANK AND A PORTABLE ELECTRIC DRILL MOTOR WITH CUSTOM CLUTCH ADAPTER. ONE LOWERING TOOL PER EVERY 10 LOWERING DEVICES IS REQUIRED.
3. THE LOWERING DEVICE MANUFACTURER SHALL PROVIDE AN ON-SITE INSTALLATION INSPECTION AND OPERATOR INSTRUCTION AND CERTIFICATION. THIS ENSURES THE PRODUCT IS ASSEMBLED CORRECTLY AND, MORE IMPORTANTLY, THAT ALL NECESSARY PERSONS ARE TRAINED IN THE PROPER, SAFE OPERATION OF THE SYSTEM. BEFORE ERECTING THE FIRST POLE THE CONTRACTOR MUST CONTACT THE LOWERING DEVICE SUPPLIER AND SCHEDULE A FACTORY REPRESENTATIVE TO BE ON-SITE.
4. LOWERING DEVICE CONNECTION TO TOP OF POLE SHALL BE CAPABLE OF SERVICE TENSION AND SHEAR OF 1 KIP MINIMUM. THE CONTRACTOR SHALL PROVIDE PRODUCT CUT SHEET AND CAPACITY DATA FOR THE ENGINEER'S REVIEW AND APPROVAL PRIOR TO INSTALLATION.
5. CAMERA TO BE MOUNTED TO CAMERA JUNCTION BOX AND STABILIZING WEIGHT VIA 1 1/2" STANDARD NPT PIPE THREAD.
6. USE AIR TERMINAL EXTENSION WHEN THE POLE TOP JUNCTION BOX IS WIDER THAN TOP OF POLE.
7. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.



REVISIONS

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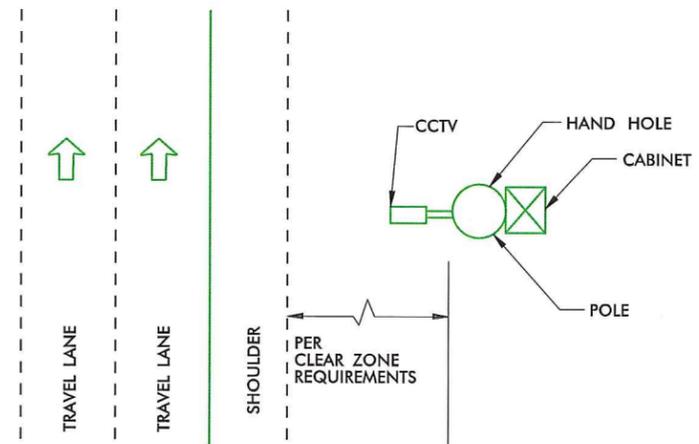
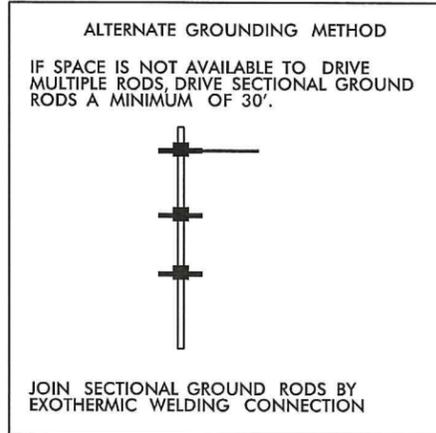
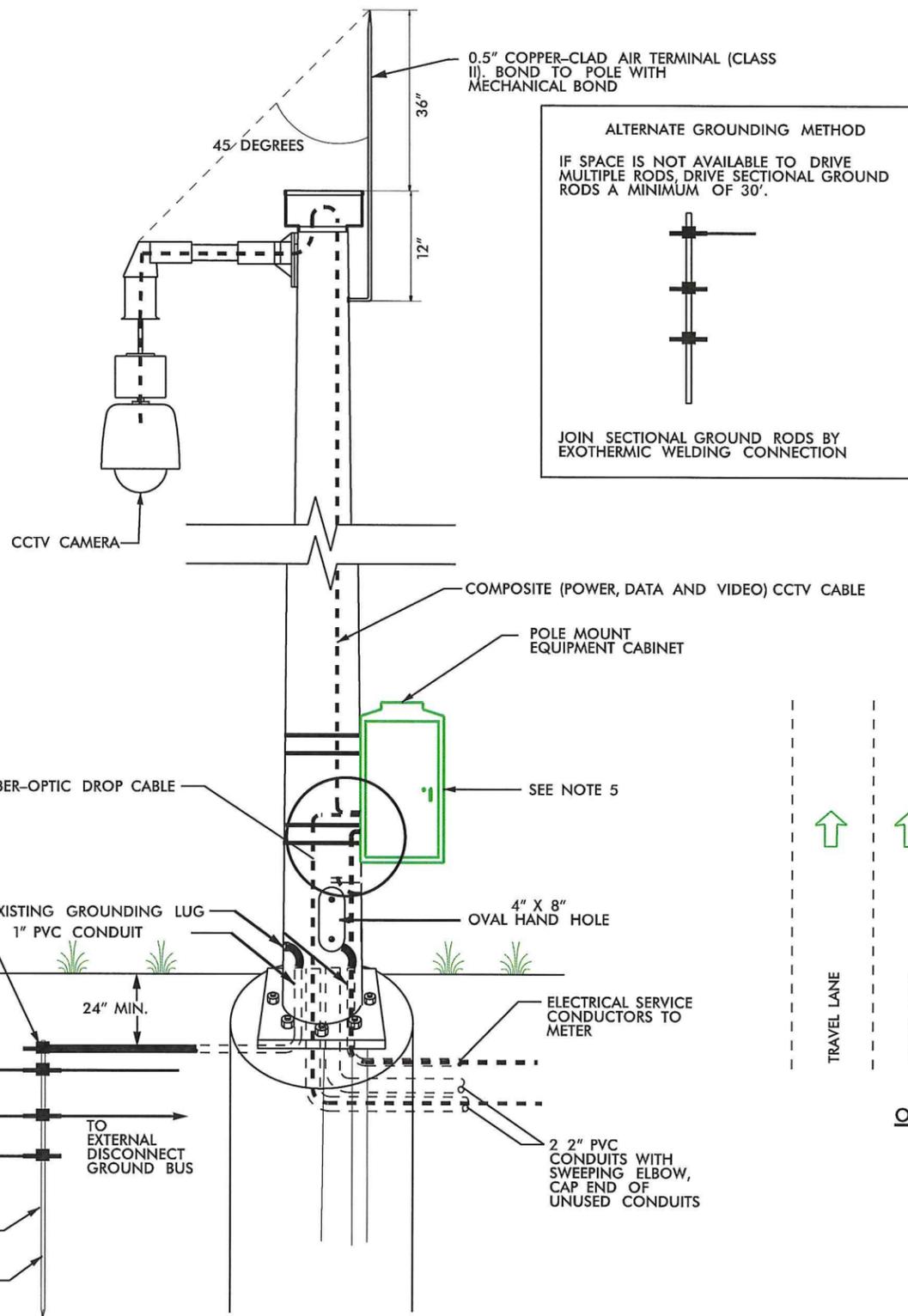
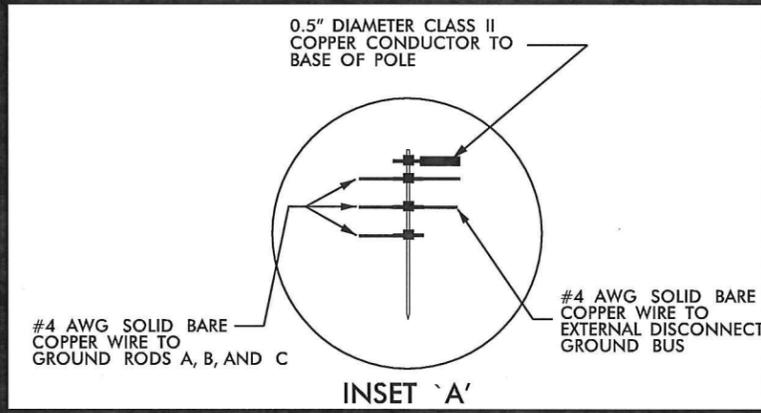
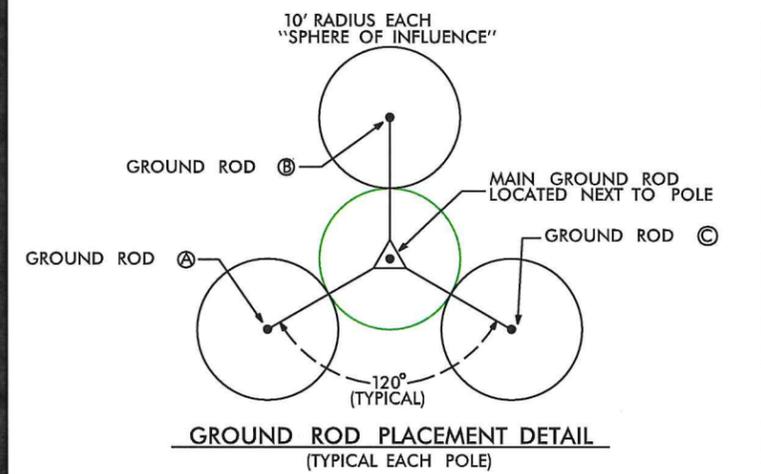
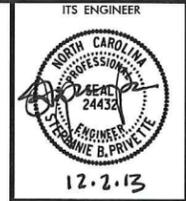
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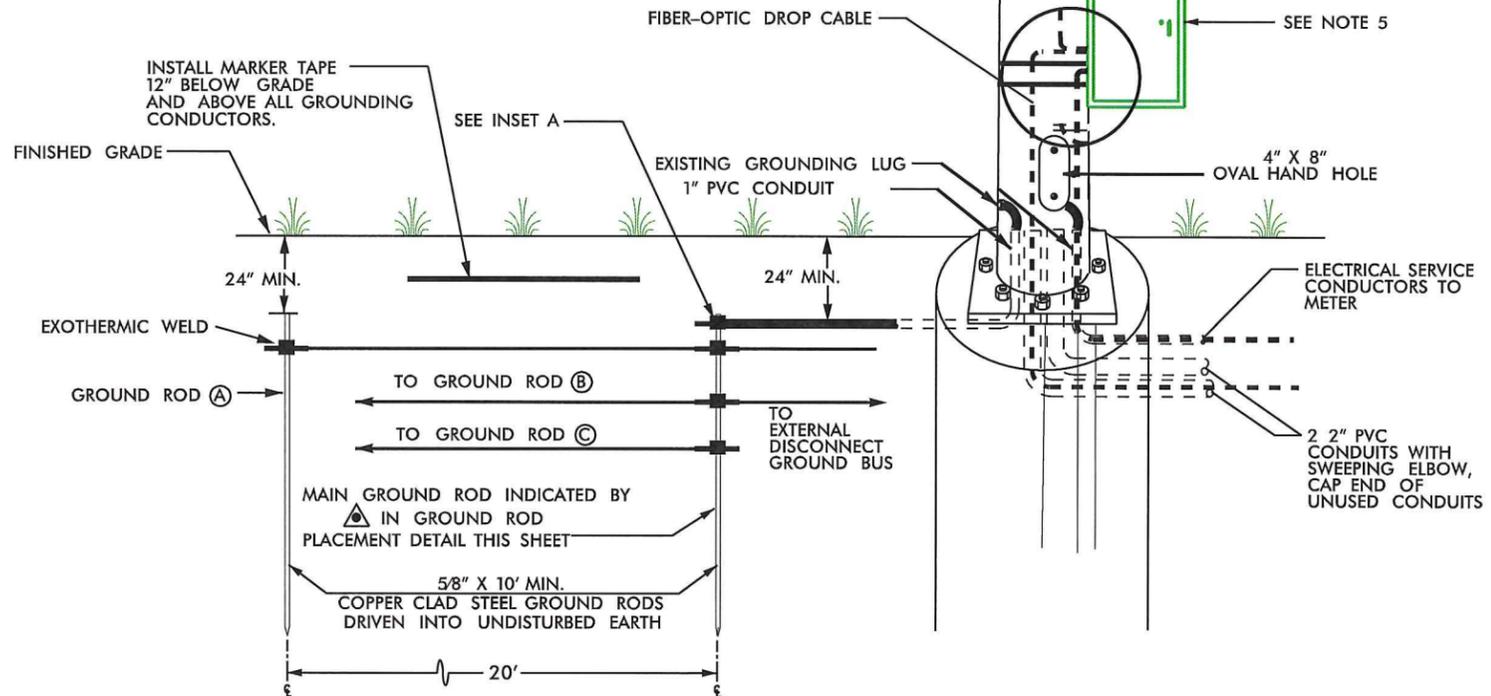


ITS PLANS
CCTV CAMERA
LOWERING DEVICE

PLAN OF RECORD



- NOTES**
1. BOND 0.5" DIAMETER, 28 STRAND (MINIMUM) CLASS II COPPER CONDUCTOR TO THE MAIN GROUND ROD BY AN EXOTHERMIC WELD METHOD.
 2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
 3. ENSURE CAMERA HOUSING, CAMERA, AND PAN-TILT UNIT ARE BONDED TO POLE.
 4. REMOVE BONDING JUMPER BETWEEN EQUIPMENT CABINET GROUND BUS AND NEUTRAL BUS.
 5. THE CONTRACTOR MAY, UPON APPROVAL OF THE ENGINEER, INSTALL A 30-FOOT SECTIONAL GROUND ROD WHEN CONDITIONS WILL NOT ALLOW FOR THE INSTALLATION OF THE 3 - RADIAL GROUND RODS.
 6. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12".
 7. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.



NOT TO SCALE



ITS PLANS
CCTV POLE GROUNDING
DETAIL

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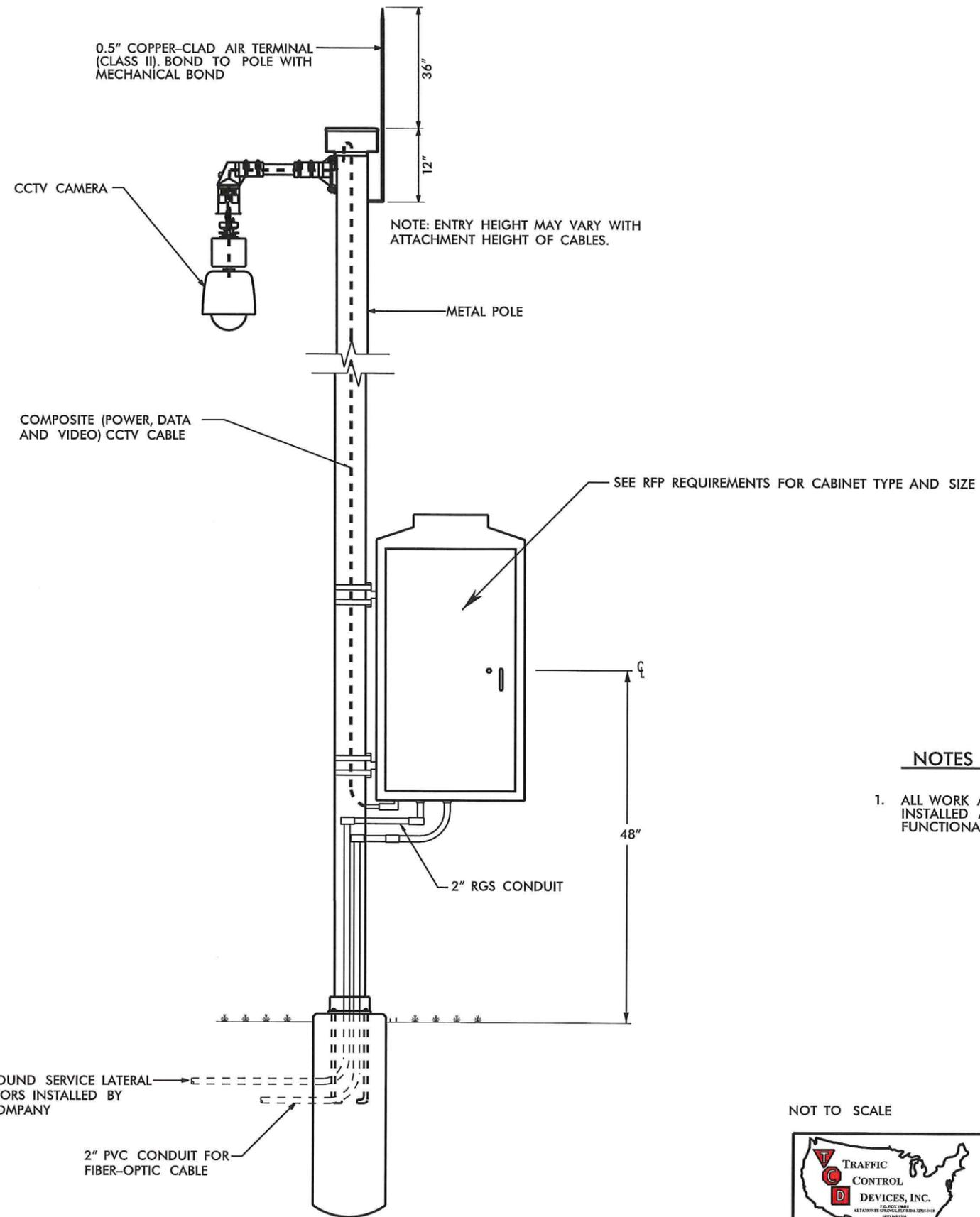
POLE MOUNTED CCTV CABINET DETAIL

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 2X
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ITS ENGINEER

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NOTES

1. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.

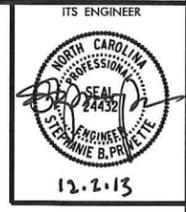
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ITS PLANS
CCTV POLE-MOUNTED
CABINET DETAIL

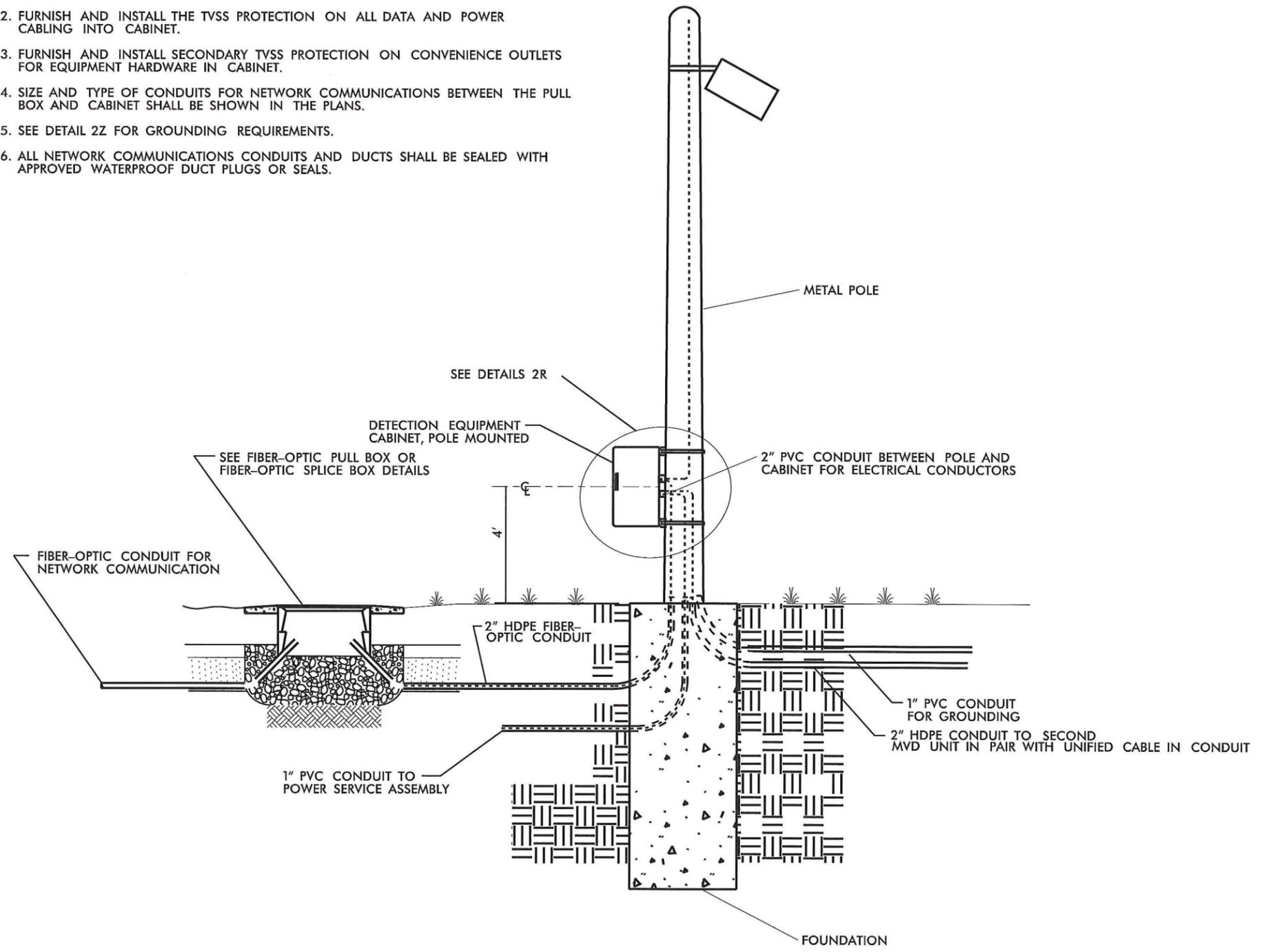
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PLAN OF RECORD



NOTES:

1. CONTRACTOR SHALL TERMINATE FIBER-OPTIC CABLES IN CABINET WITH PRETERMINATED PATCH PANEL.
2. FURNISH AND INSTALL THE TVSS PROTECTION ON ALL DATA AND POWER CABLING INTO CABINET.
3. FURNISH AND INSTALL SECONDARY TVSS PROTECTION ON CONVENIENCE OUTLETS FOR EQUIPMENT HARDWARE IN CABINET.
4. SIZE AND TYPE OF CONDUITS FOR NETWORK COMMUNICATIONS BETWEEN THE PULL BOX AND CABINET SHALL BE SHOWN IN THE PLANS.
5. SEE DETAIL 2Z FOR GROUNDING REQUIREMENTS.
6. ALL NETWORK COMMUNICATIONS CONDUITS AND DUCTS SHALL BE SEALED WITH APPROVED WATERPROOF DUCT PLUGS OR SEALS.



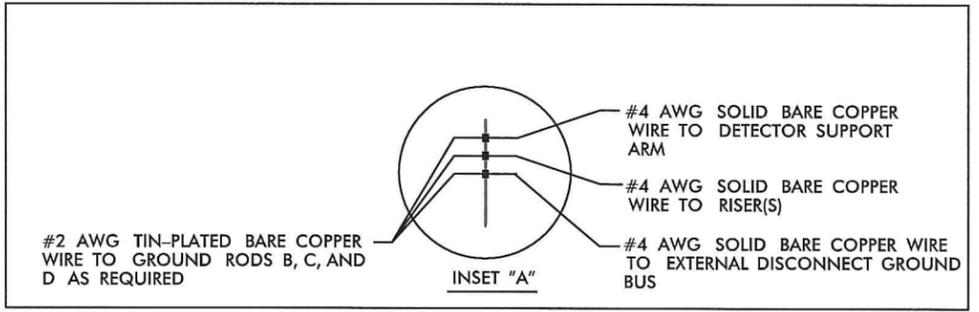
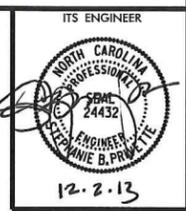
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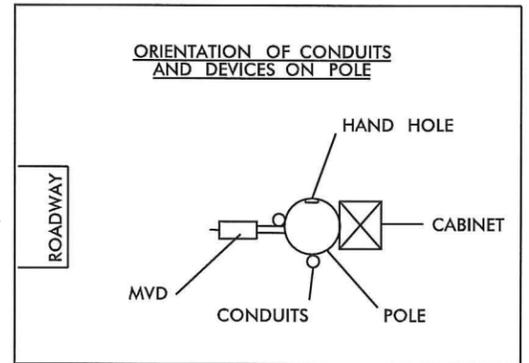
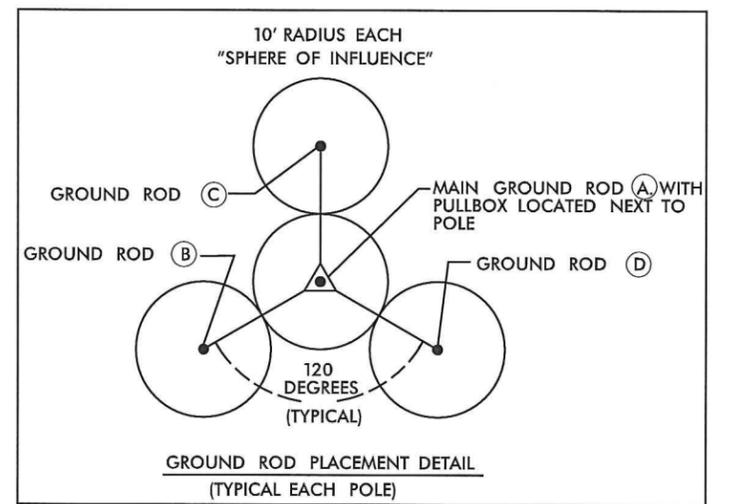
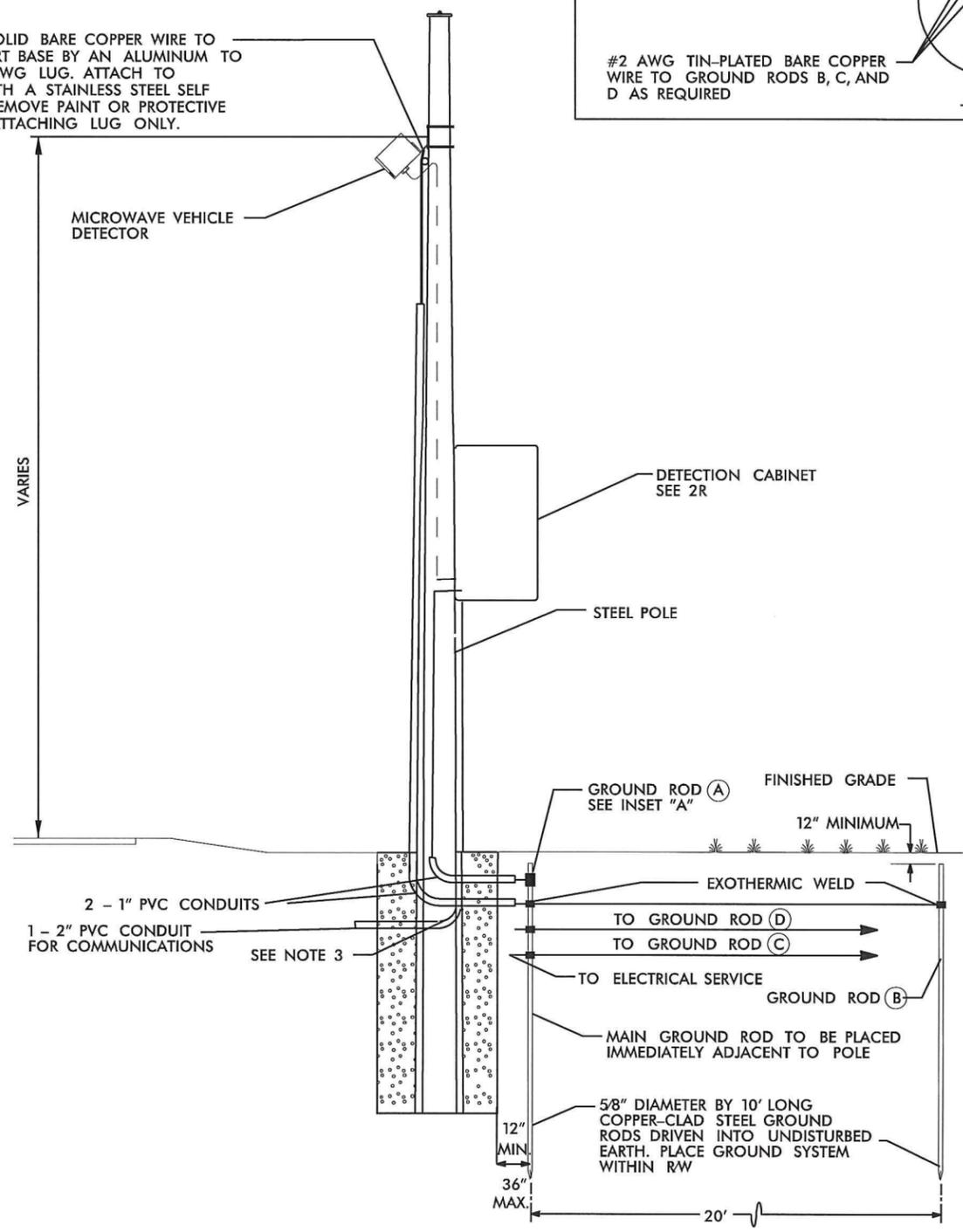


ITS PLANS
MICROWAVE DETECTION
CABINET DETAIL

PLAN OF RECORD



BOND #4 AWG SOLID BARE COPPER WIRE TO DETECTION SUPPORT BASE BY AN ALUMINUM TO COPPER #2 - #4 AWG LUG. ATTACH TO DETECTOR BASE WITH A STAINLESS STEEL SELF TAPPING SCREW. REMOVE PAINT OR PROTECTIVE COATING WHERE ATTACHING LUG ONLY.



GROUNDING NOTES

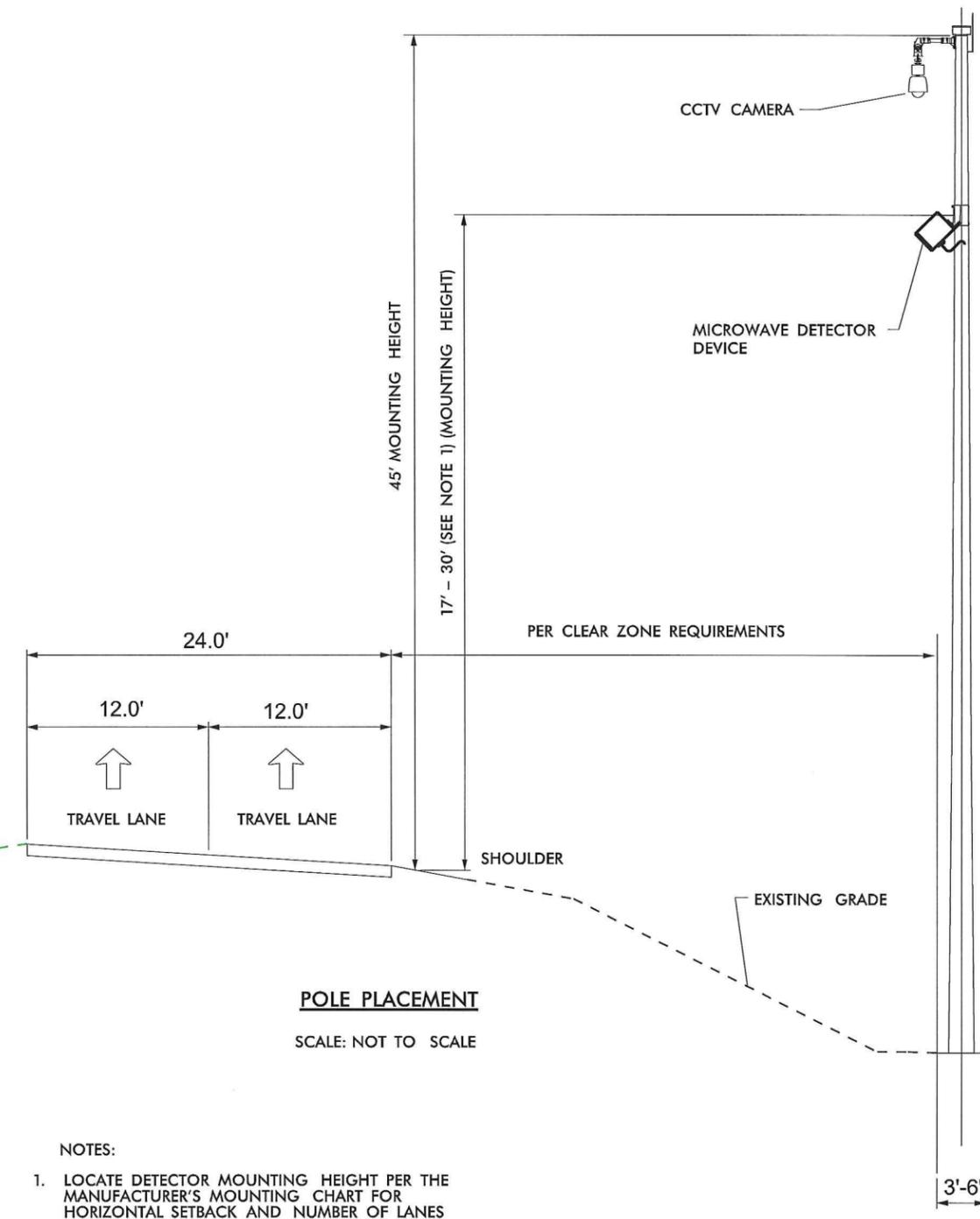
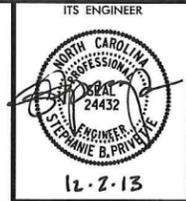
1. ALL GROUNDING MATERIALS SHALL MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
2. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
3. BOND #4 AWG SOLID BARE COPPER WIRE TO THE RIGID GALVANIZED STEEL RISERS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12".
5. ALL CABLES TO THE DETECTOR SHALL BE COMPLETELY CONCEALED.
6. GROUND ROD A IS REQUIRED. GROUND RODS B, C AND D WILL BE REQUIRED AS NECESSARY TO MEET THE GROUND RESISTANCE REQUIREMENTS IN THE CONTRACT DOCUMENTS.
7. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.

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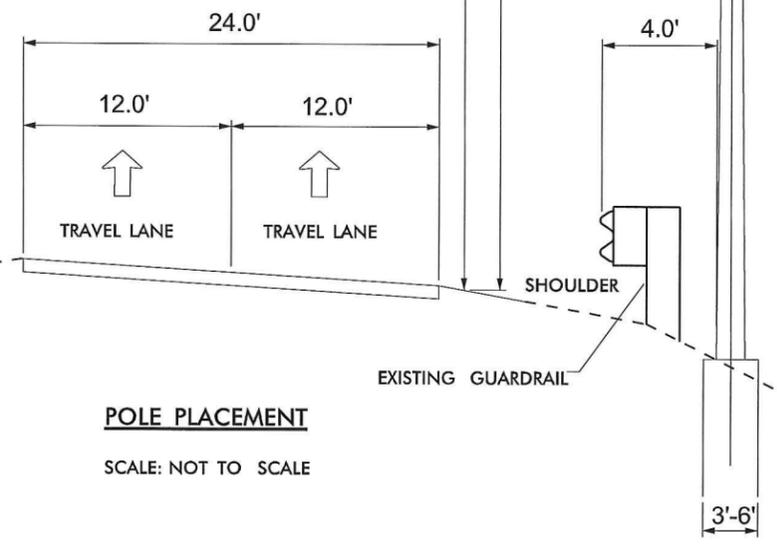


ITS PLANS
MICROWAVE DETECTION
GROUNDING DETAILS

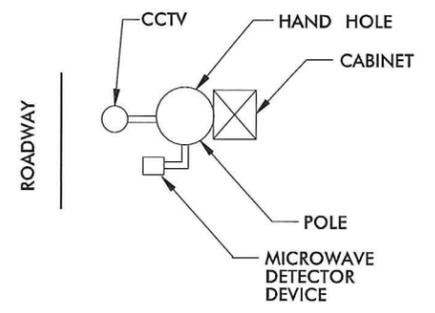
PLAN OF RECORD



POLE PLACEMENT
SCALE: NOT TO SCALE



POLE PLACEMENT
SCALE: NOT TO SCALE



TOP VIEW OF DEVICES ON POLE

NOTES:

1. LOCATE DETECTOR MOUNTING HEIGHT PER THE MANUFACTURER'S MOUNTING CHART FOR HORIZONTAL SETBACK AND NUMBER OF LANES TO BE DETECTED.
2. ALIGN SENSOR MOUNTING ANGLE PER MANUFACTURER'S INSTALLATION GUIDE WITH RESPECT TO HEIGHT, HORIZONTAL SETBACK AND NUMBER OF LANES.
3. MOUNT DETECTOR ON SIDE OF POLE, 90 DEGREES TO CAMERA ARM SO THE DETECTOR DOESN'T INTERFERE WITH CAMERA LOWERING DEVICE.
4. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.

REVISIONS

11/21/2013 -\yphose 2\csh 02zAAAdgn



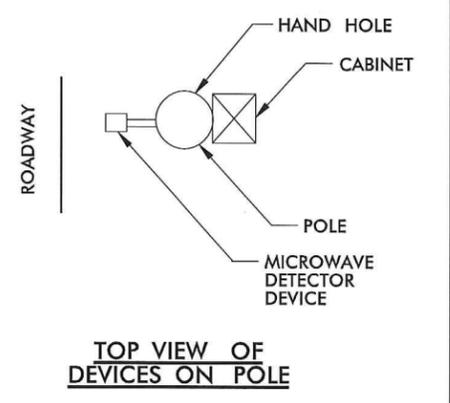
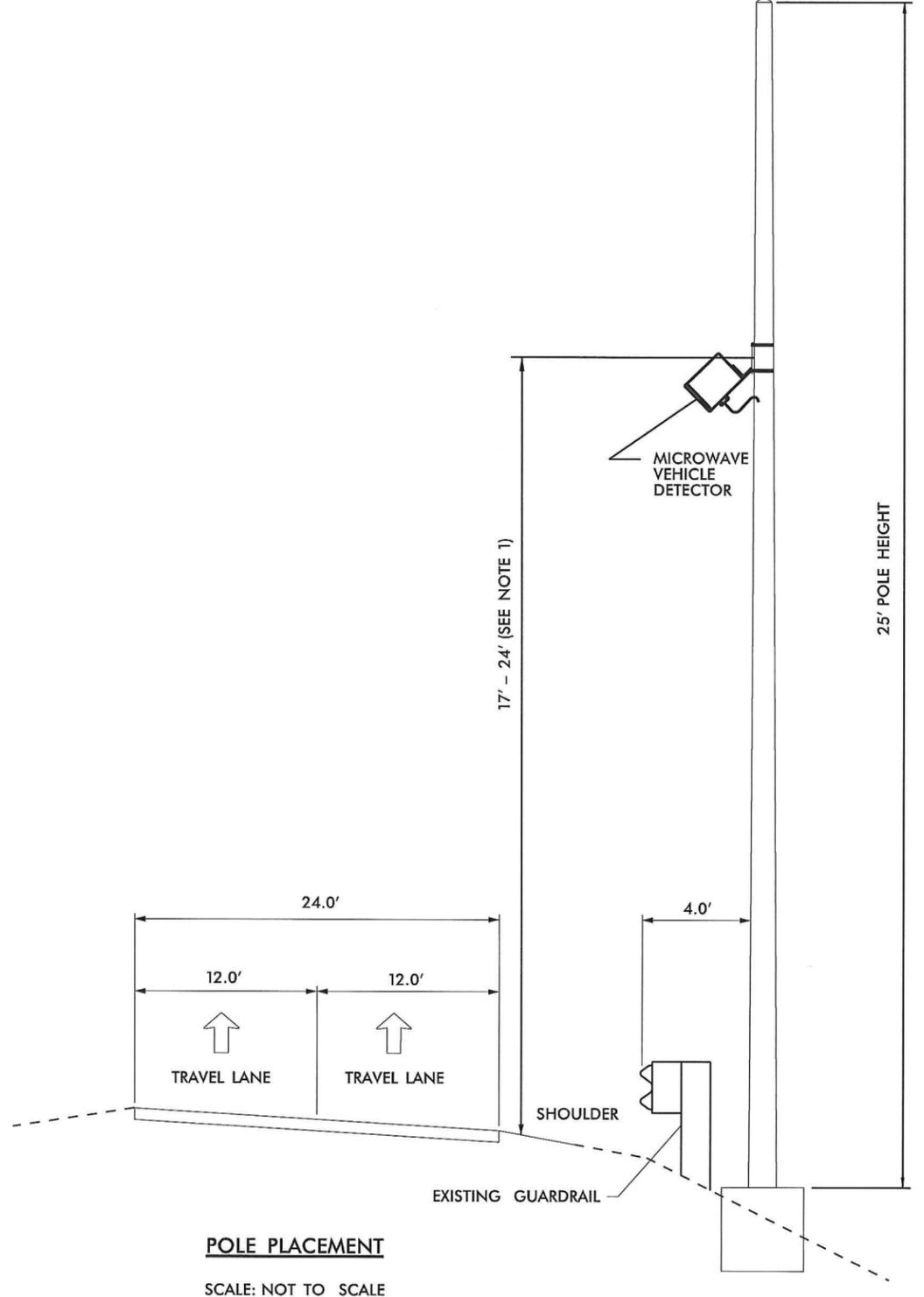
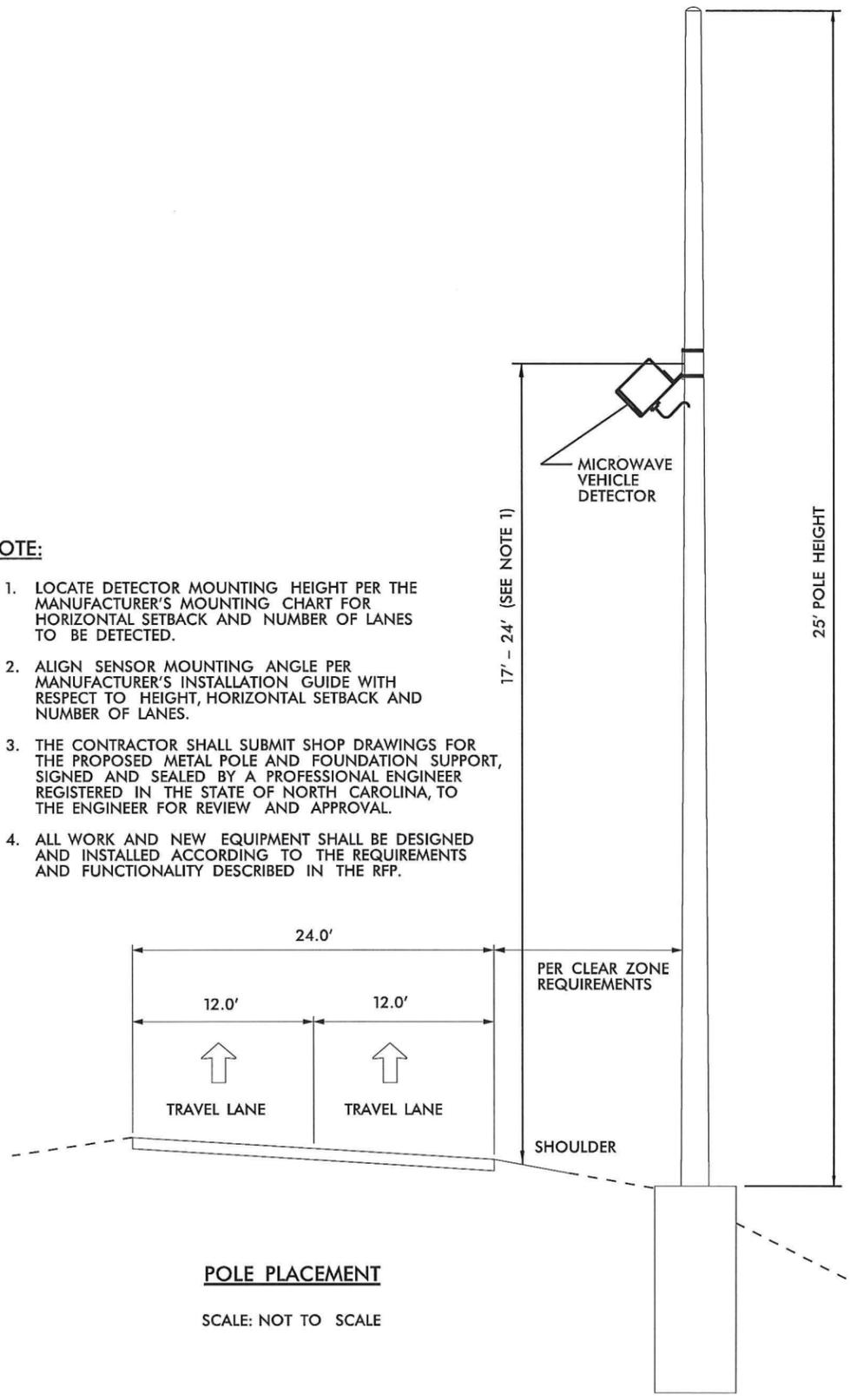
PLAN OF RECORD

ITS ENGINEER

12.2.13

NOTE:

1. LOCATE DETECTOR MOUNTING HEIGHT PER THE MANUFACTURER'S MOUNTING CHART FOR HORIZONTAL SETBACK AND NUMBER OF LANES TO BE DETECTED.
2. ALIGN SENSOR MOUNTING ANGLE PER MANUFACTURER'S INSTALLATION GUIDE WITH RESPECT TO HEIGHT, HORIZONTAL SETBACK AND NUMBER OF LANES.
3. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE PROPOSED METAL POLE AND FOUNDATION SUPPORT, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA, TO THE ENGINEER FOR REVIEW AND APPROVAL.
4. ALL WORK AND NEW EQUIPMENT SHALL BE DESIGNED AND INSTALLED ACCORDING TO THE REQUIREMENTS AND FUNCTIONALITY DESCRIBED IN THE RFP.



REVISIONS

11/21/2013

-Vpbase 2.vst 02zAB.dgn



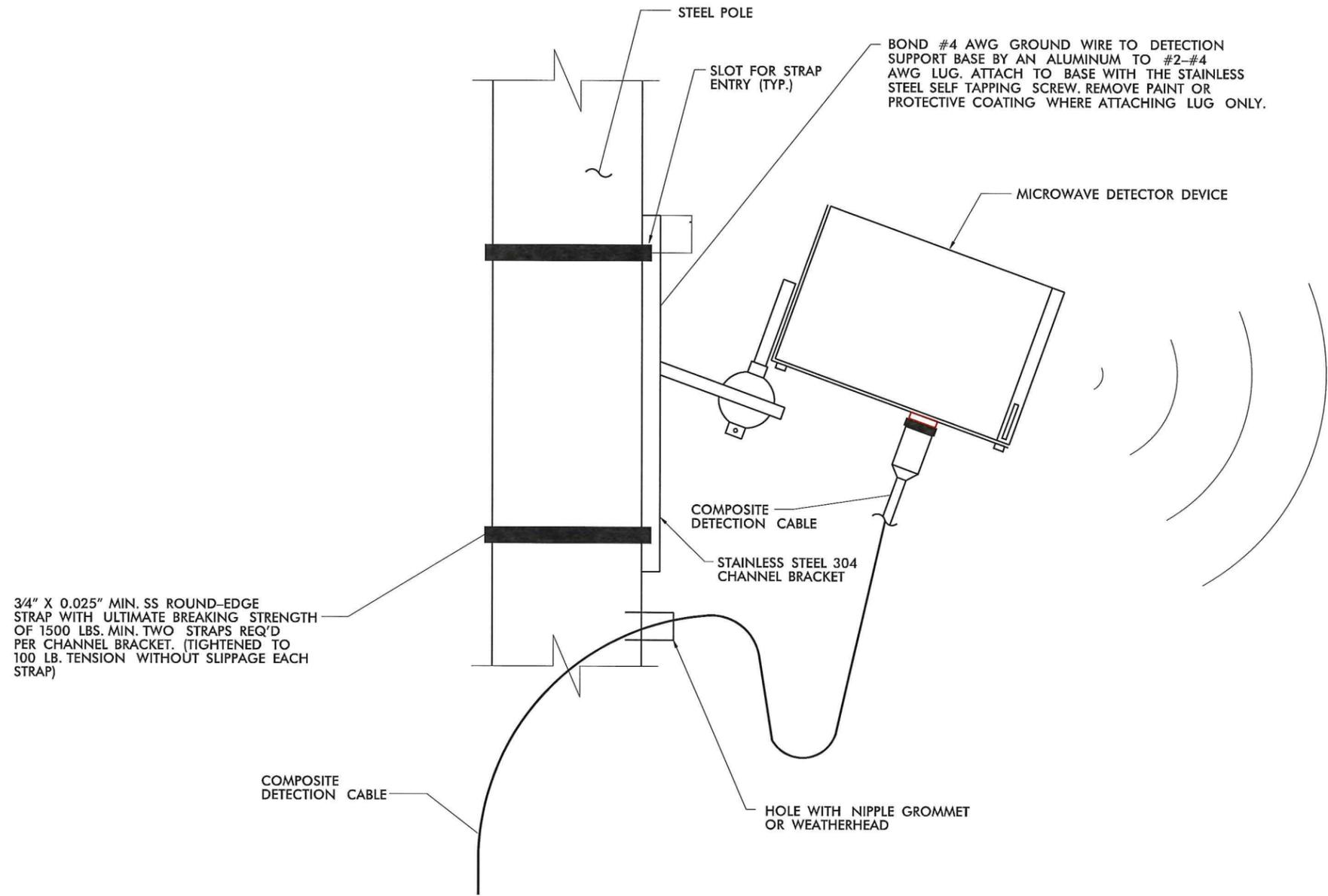
ITS PLANS
MICROWAVE DETECTION
POLE PLACEMENT
(2 OF 2)

NOTES:

1. NO FIELD WELDING SHALL BE PERMITTED.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE PROPOSED SUPPORT, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NORTH CAROLINA, TO THE ENGINEER FOR REVIEW AND APPROVAL.
3. MOUNTING BRACKET CONNECTION TO POLE SHALL ALLOW ADJUSTMENT OF TILT ANGLE.

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2AC



MICROWAVE DETECTOR HOUSING ELEVATION VIEW

NOT TO SCALE

REVISIONS
11/21/2013
_Vohase 2'sht 022AC.dgn



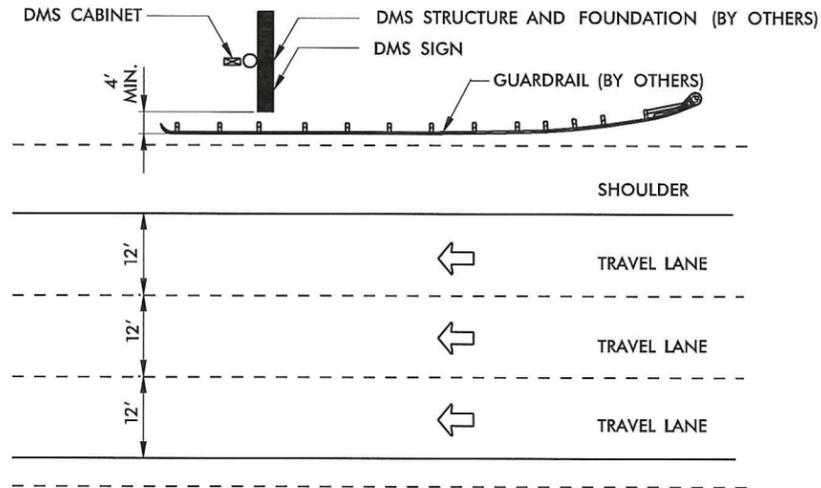
ITS PLANS
MICROWAVE DETECTION
MOUNTING

GENERAL NOTES:

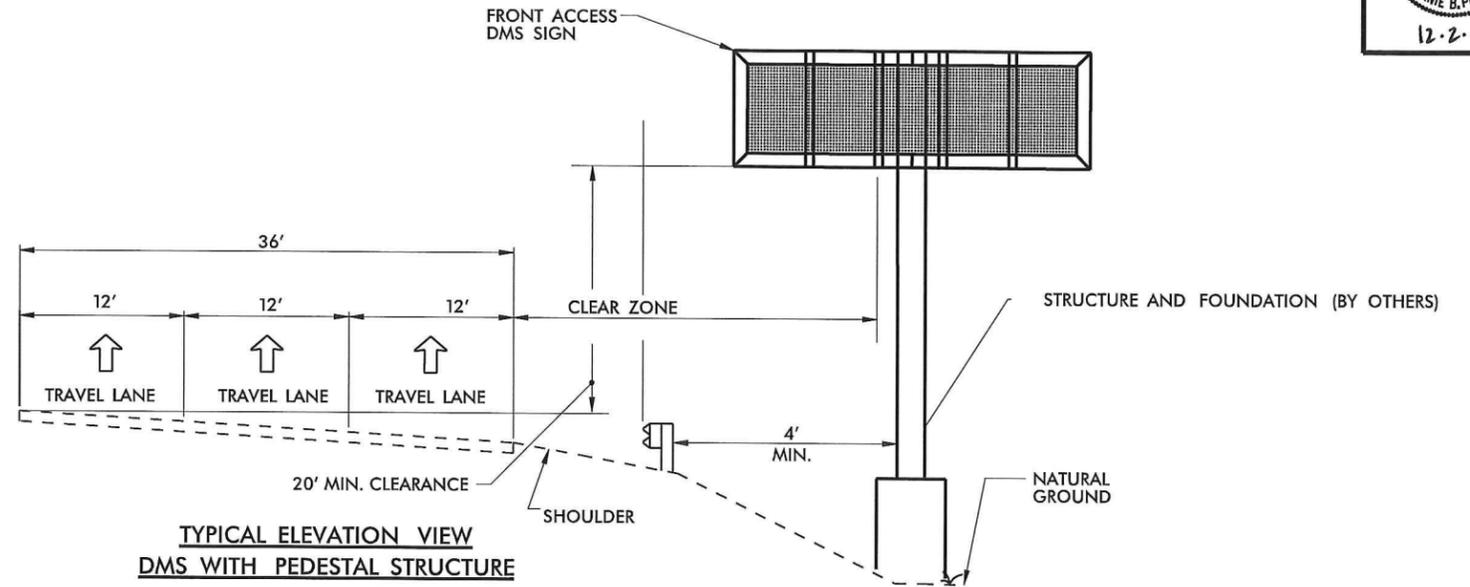
1. DMS CABINETS SHALL BE GROUND MOUNTED AND LOCATED DOWNSTREAM OF SUPPORT COLUMN.

PLAN OF RECORD

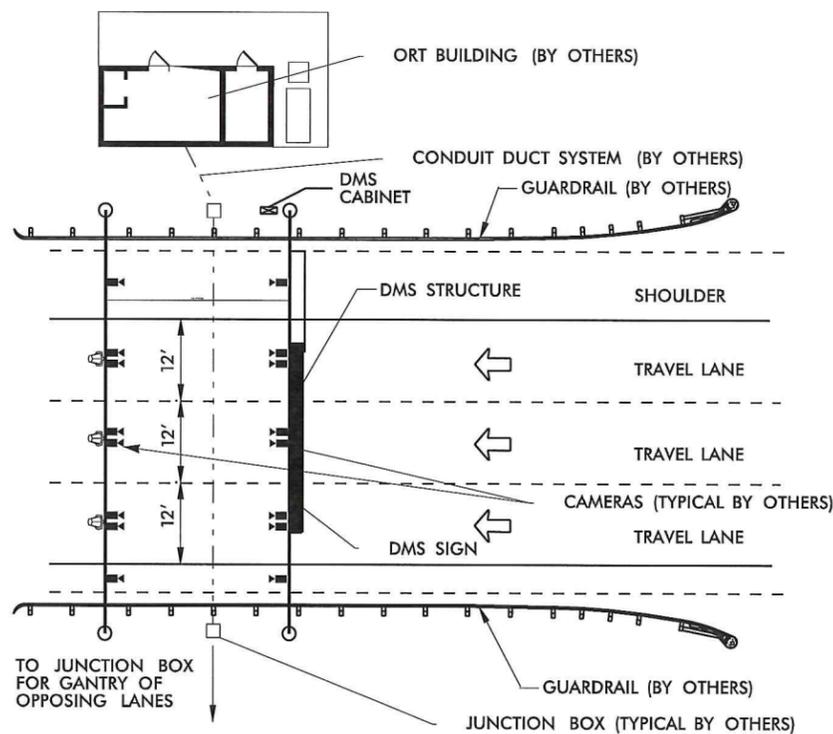
PROJECT REFERENCE NO. C202250	SHEET NO. 2AD
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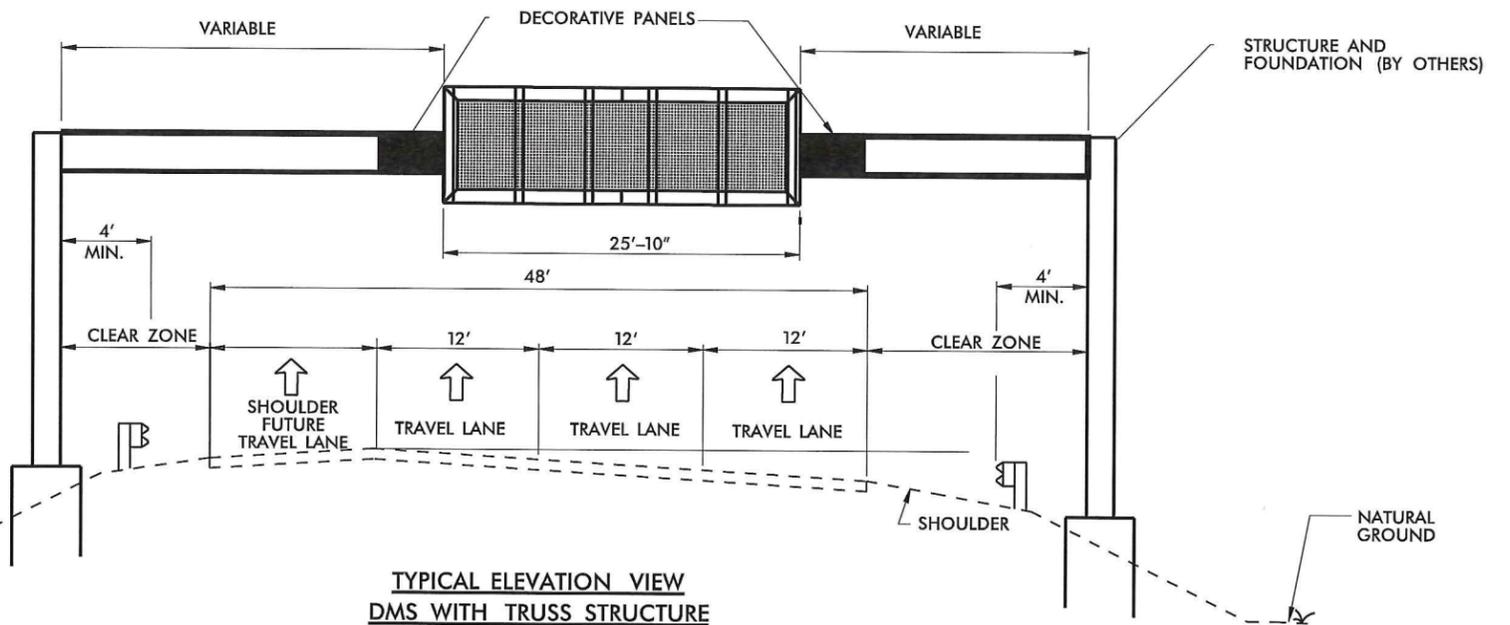
**TYPICAL PLAN VIEW
DMS PEDESTAL STRUCTURE**



**TYPICAL ELEVATION VIEW
DMS WITH PEDESTAL STRUCTURE**



**TYPICAL PLAN VIEW
DMS TRUSS STRUCTURE**



**TYPICAL ELEVATION VIEW
DMS WITH TRUSS STRUCTURE**

REVISIONS
11/21/2013
Phase 2 with 027AD.dgn

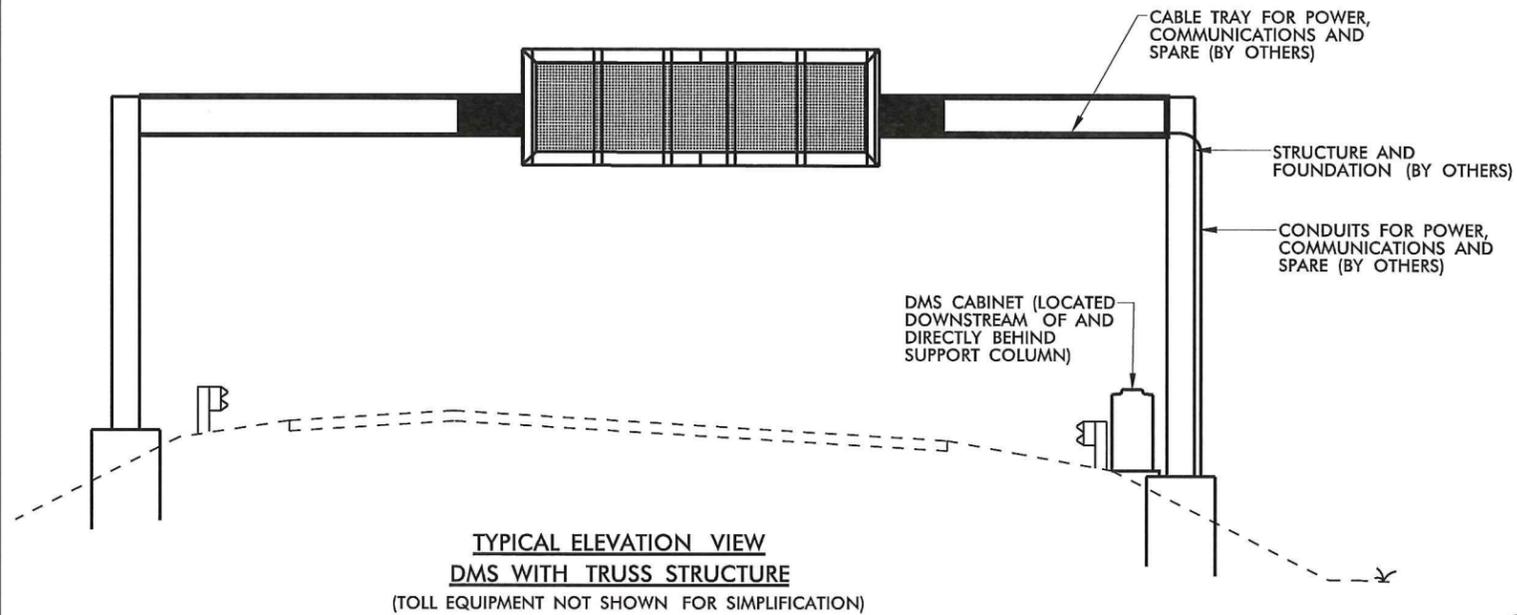


ITS PLANS
DMS TYPICAL MOUNTING
(1 OF 2)

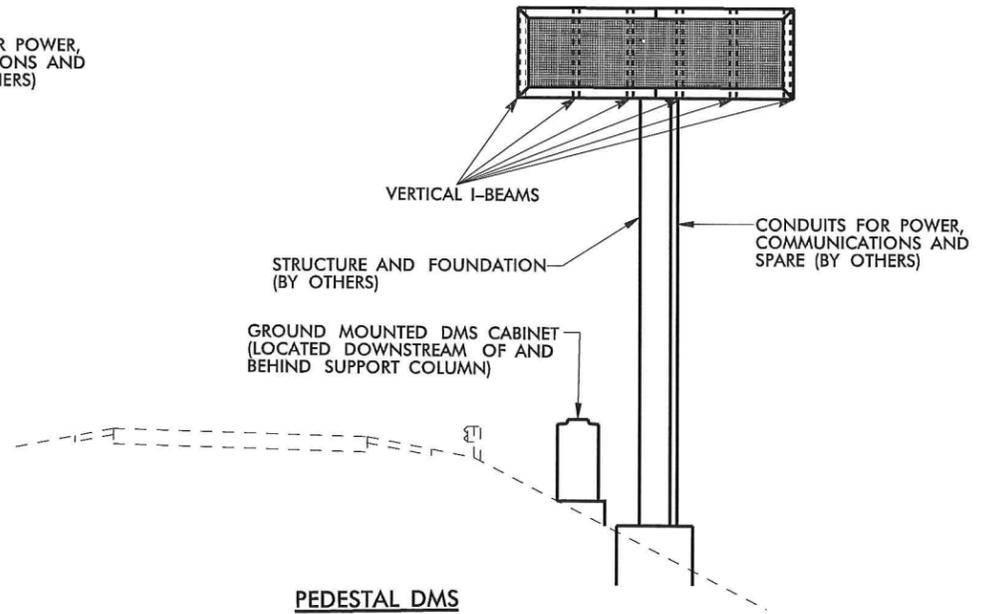
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 2AE
---	-------------------------

ITS ENGINEER



**TYPICAL ELEVATION VIEW
DMS WITH TRUSS STRUCTURE**
(TOLL EQUIPMENT NOT SHOWN FOR SIMPLIFICATION)



PEDESTAL DMS

REVISIONS

Phase 2a.dwg

11/21/2013

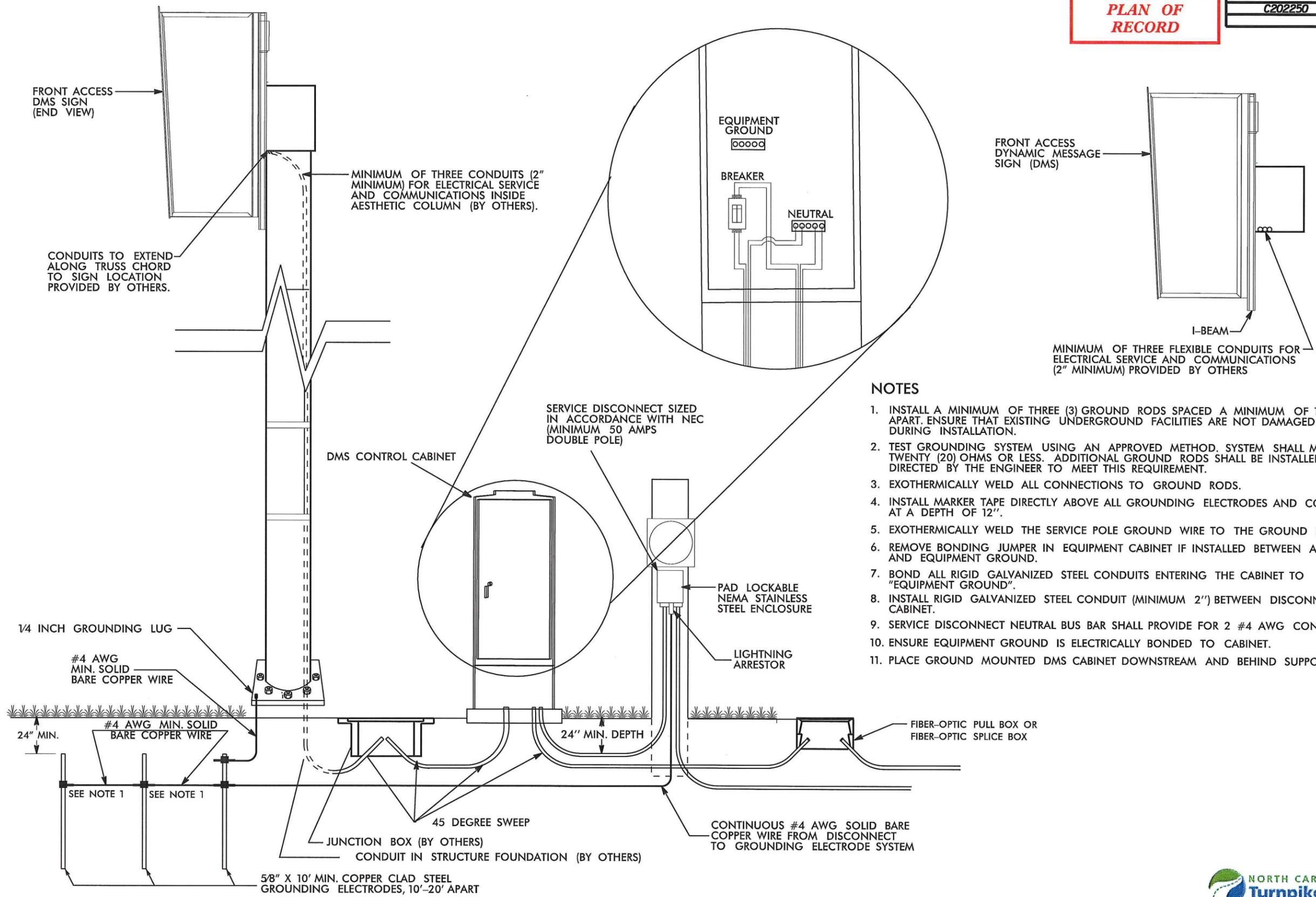
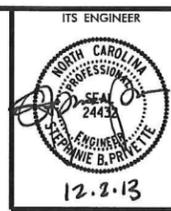
GENERAL NOTES:

1. BENDS IN THE CONDUIT WITH DMS COMMUNICATIONS CABLE SHALL NOT EXCEED THE MANUFACTURER'S MINIMUM RADIUS FOR FIBER-OPTIC CABLE.
2. ALL DATA AND POWER CABLE FOR THE DMS SHALL BE COMPLETELY CONCEALED.
3. STRUCTURAL ATTACHMENT OF DMS TO STRUCTURE IS RESPONSIBILITY OF CONTRACTOR.
4. DMS CABINETS SHALL BE GROUND MOUNTED AND LOCATED DOWNSTREAM OF AND DIRECTLY BEHIND SUPPORT COLUMN.



ITS PLANS
DMS TYPICAL MOUNTING
(2 OF 2)

PLAN OF RECORD



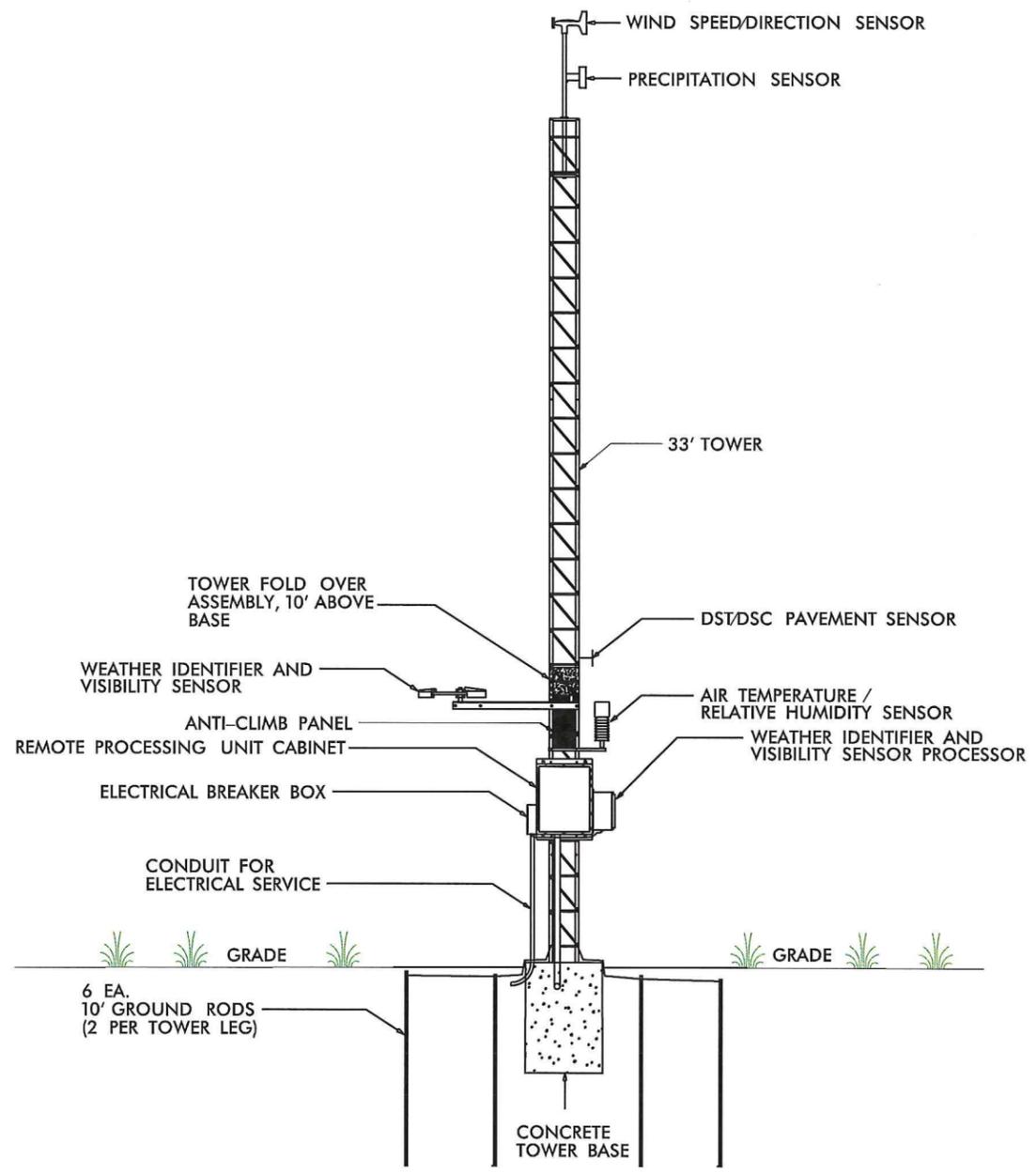
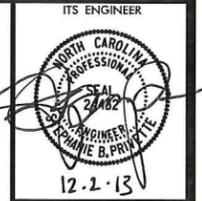
NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUND RODS SPACED A MINIMUM OF 10 FEET APART. ENSURE THAT EXISTING UNDERGROUND FACILITIES ARE NOT DAMAGED DURING INSTALLATION.
2. TEST GROUNDING SYSTEM USING AN APPROVED METHOD. SYSTEM SHALL MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUND RODS SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. EXOTHERMICALLY WELD ALL CONNECTIONS TO GROUND RODS.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12".
5. EXOTHERMICALLY WELD THE SERVICE POLE GROUND WIRE TO THE GROUND ROD SYSTEM.
6. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
7. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
8. INSTALL RIGID GALVANIZED STEEL CONDUIT (MINIMUM 2") BETWEEN DISCONNECT AND CABINET.
9. SERVICE DISCONNECT NEUTRAL BUS BAR SHALL PROVIDE FOR 2 #4 AWG CONNECTIONS.
10. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO CABINET.
11. PLACE GROUND MOUNTED DMS CABINET DOWNSTREAM AND BEHIND SUPPORT COLUMN.

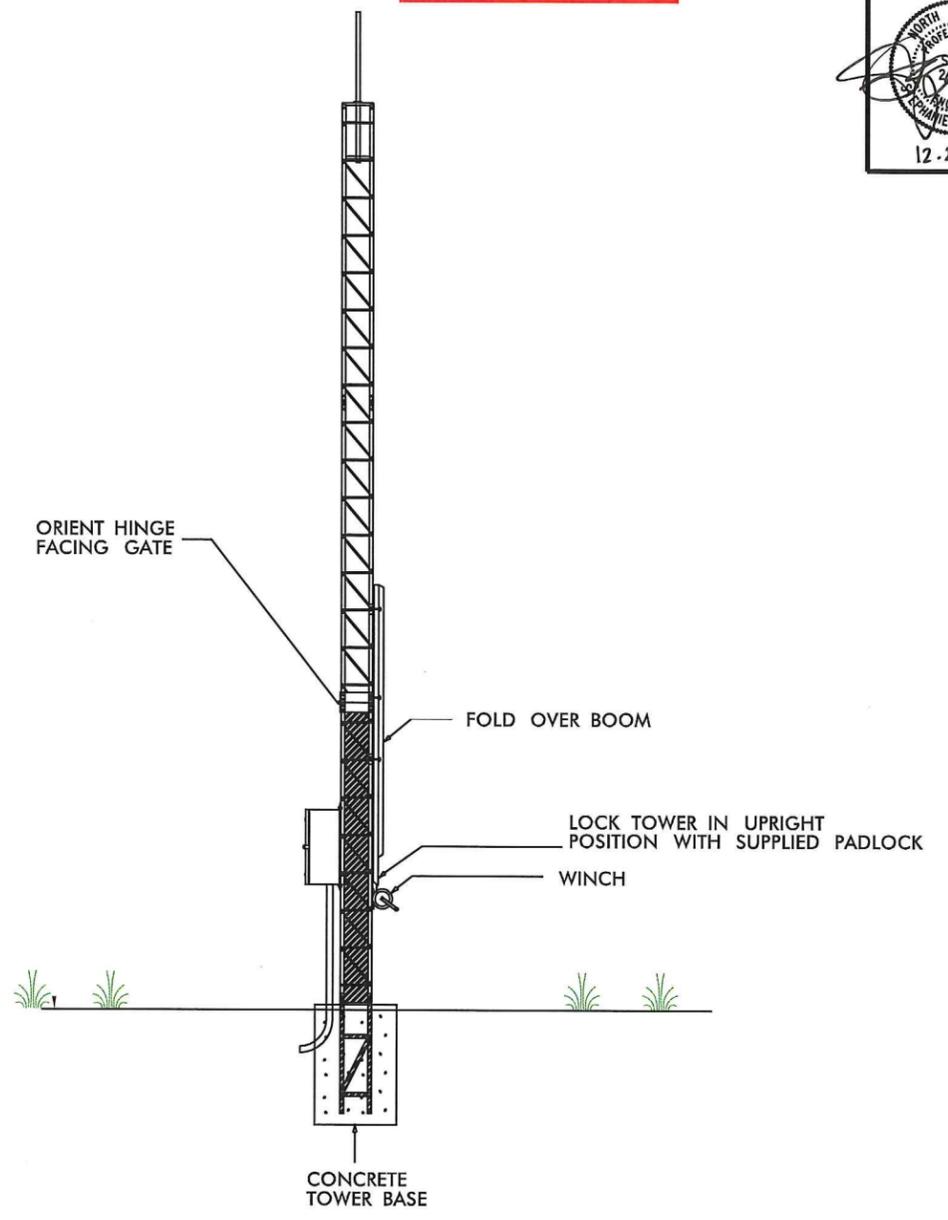
 TRAFFIC CONTROL DEVICES, INC. <small>FULL SERVICE PROVIDER</small> <small>ALTAIRWAYE SPECIALTY EQUIPMENT SUPPLY</small> <small>1979-84-1000</small>	 Kimley-Horn and Associates, Inc. <small>Full Service</small> <small>NC License #F-0102</small> <small>P.O. Box 33068</small> <small>Raleigh, NC 27635</small> <small>919 877-2000</small>	 SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small>	ITS PLANS DMS ELECTRICAL SERVICE AND GROUNDING
--	--	--	--



PLAN OF RECORD



FRONT VIEW



SIDE VIEW

REVISIONS

11/21/2013 - Update 2 with 022AG.dgn

11/21/2013

- NOTES:
- ITEMS NOT SHOWN: CONCRETE SERVICE PAD, IN-GROUND POWER, SENSOR CABLES AND CONDUIT.



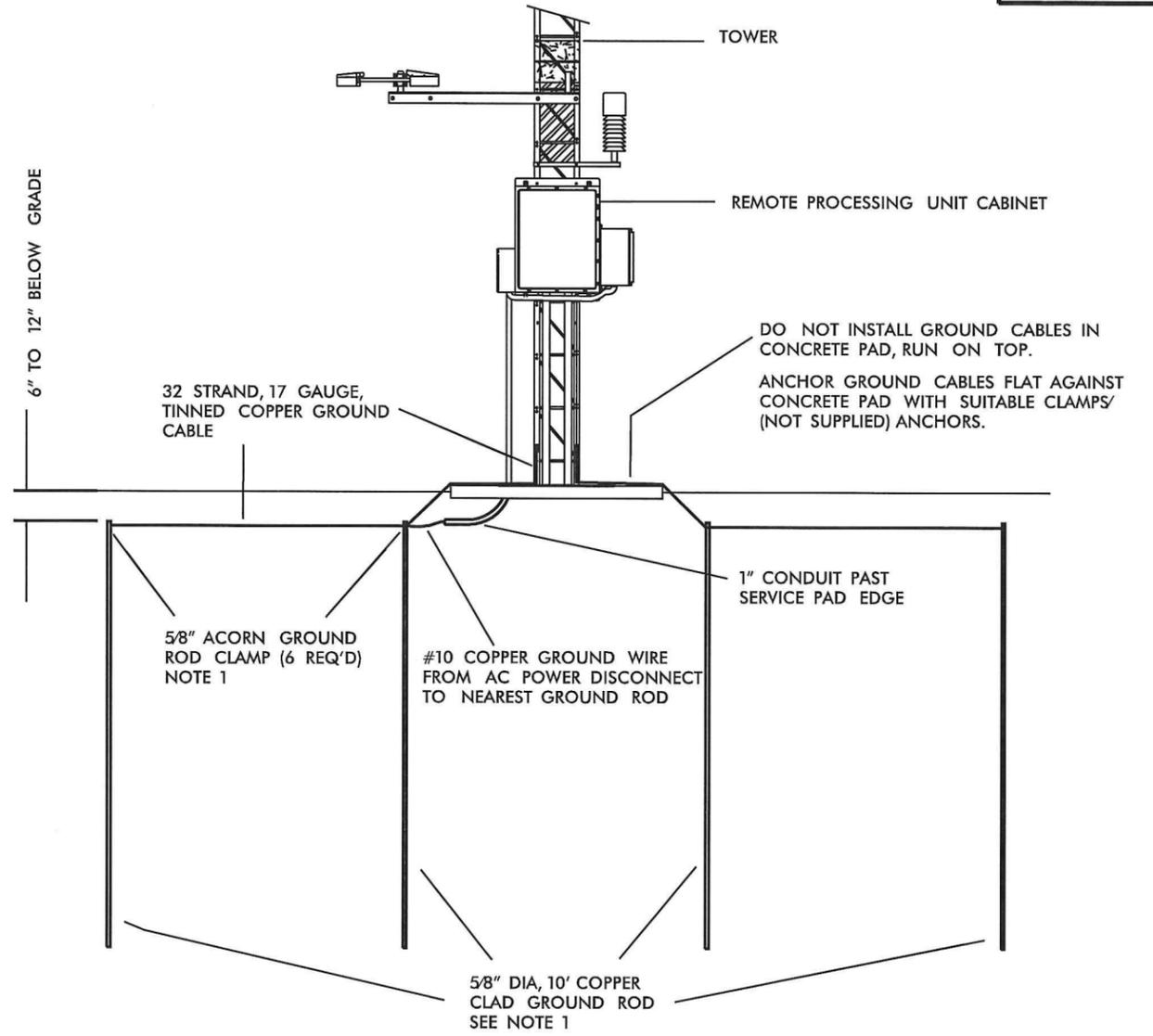
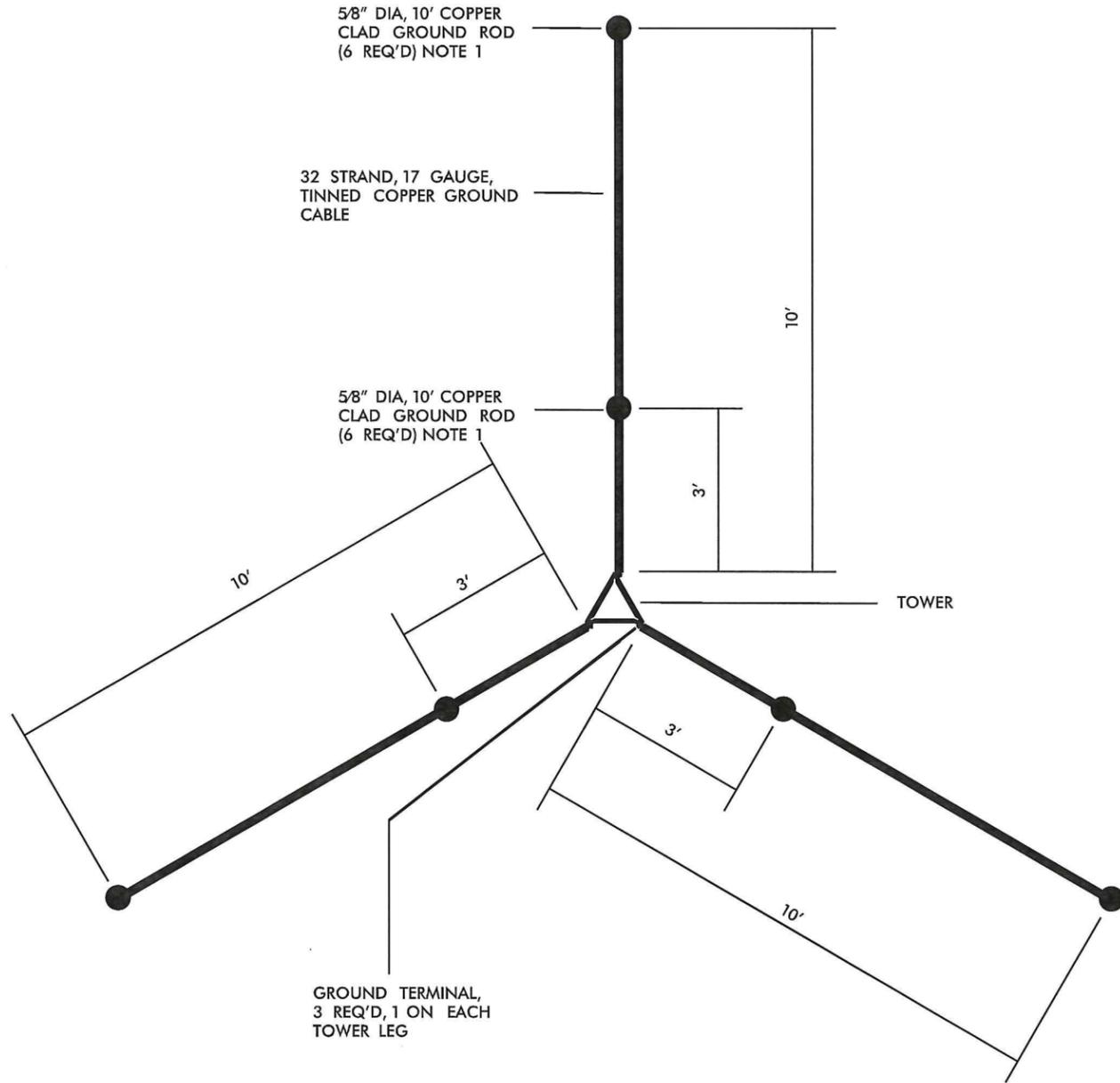
ITS PLANS
RWIS
ELEVATION VIEW

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2AH

ITS ENGINEER

12-2-13



- NOTES:
1. 6 EA. 5/8" DIA, 10' COPPER CLAD GROUND RODS AND 5/8" ACORN GROUND ROD CLAMPS ARE NOT SUPPLIED. INSTALLATION CONTRACTOR RESPONSIBLE FOR PROVIDING.

11/21/2013 -Phase 2.sht 02zAH.dgn REVISIONS



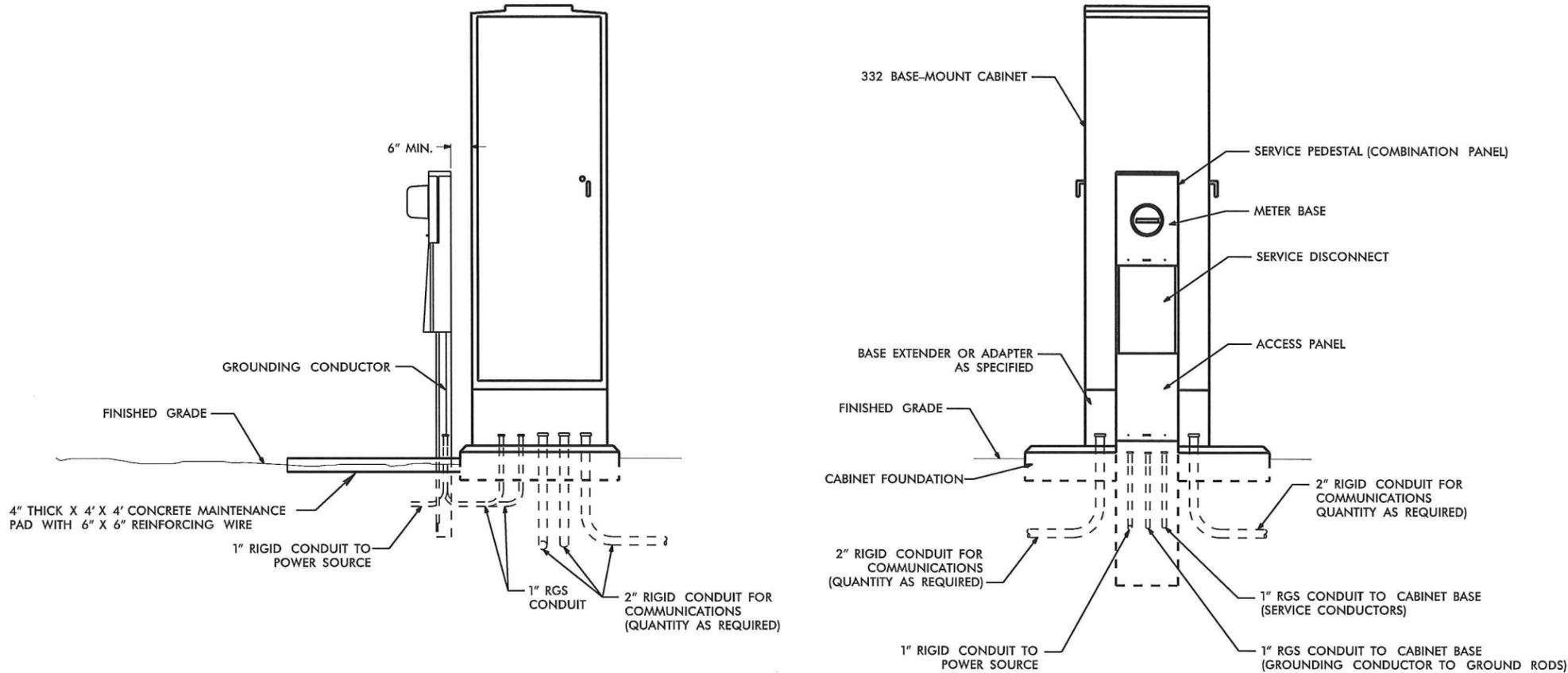
ITS PLANS
RWIS
GROUNDING

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	2AJ

ITS ENGINEER

12-2-13



NOTES

1. TEST GROUNDING SYSTEM USING AN APPROVED METHOD IN ACCORDANCE WITH SPECIAL PROVISIONS. INSTALL GROUND RODS AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
2. REMOVE ANY EXISTING GROUND RODS IN CONCRETE CABINET FOUNDATION BY CUTTING OFF FLUSH WITH FOUNDATION SURFACE.
3. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
4. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
5. INSTALL RIGID GALVANIZED STEEL CONDUIT (MINIMUM 1") BETWEEN DISCONNECT AND CABINET.
6. SERVICE DISCONNECT GROUND BUS BAR SHALL PROVIDE FOR 2 #4 AWG CONNECTIONS.
7. IF CONDITIONS REQUIRE SERVICE PEDESTAL TO BE INSTALLED IN FRONT OR REAR OF CABINET, MAINTAIN SUFFICIENT CLEARANCE FOR DOOR TO FULLY OPEN.

REVISIONS
11/21/2013 -Phase 2-sht 02z-Alzgn



ITS PLANS
POWER SERVICE DETAILS
GROUND MOUNT CABINET
DETAILS

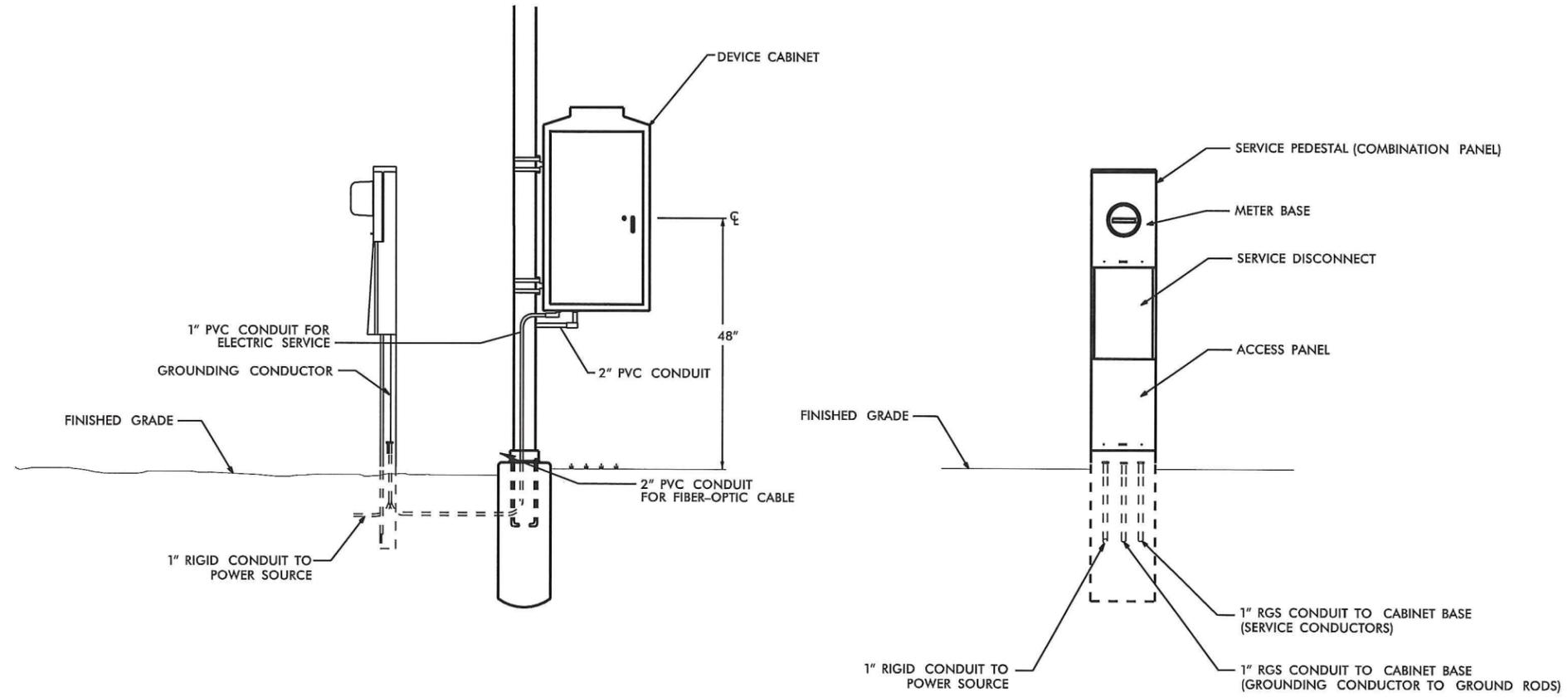
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 2AK
---	-------------------------

ITS ENGINEER



12.2.13



NOTES

1. TEST GROUNDING SYSTEM USING AN APPROVED METHOD IN ACCORDANCE WITH SPECIAL PROVISIONS. INSTALL GROUND RODS AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
2. REMOVE ANY EXISTING GROUND RODS IN CONCRETE CABINET FOUNDATION BY CUTTING OFF FLUSH WITH FOUNDATION SURFACE.
3. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
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6. SERVICE DISCONNECT GROUND BUS BAR SHALL PROVIDE FOR 2 #4 AWG CONNECTIONS.
7. IF CONDITIONS REQUIRE SERVICE PEDESTAL TO BE INSTALLED IN FRONT OR REAR OF CABINET, MAINTAIN SUFFICIENT CLEARANCE FOR DOOR TO FULLY OPEN.

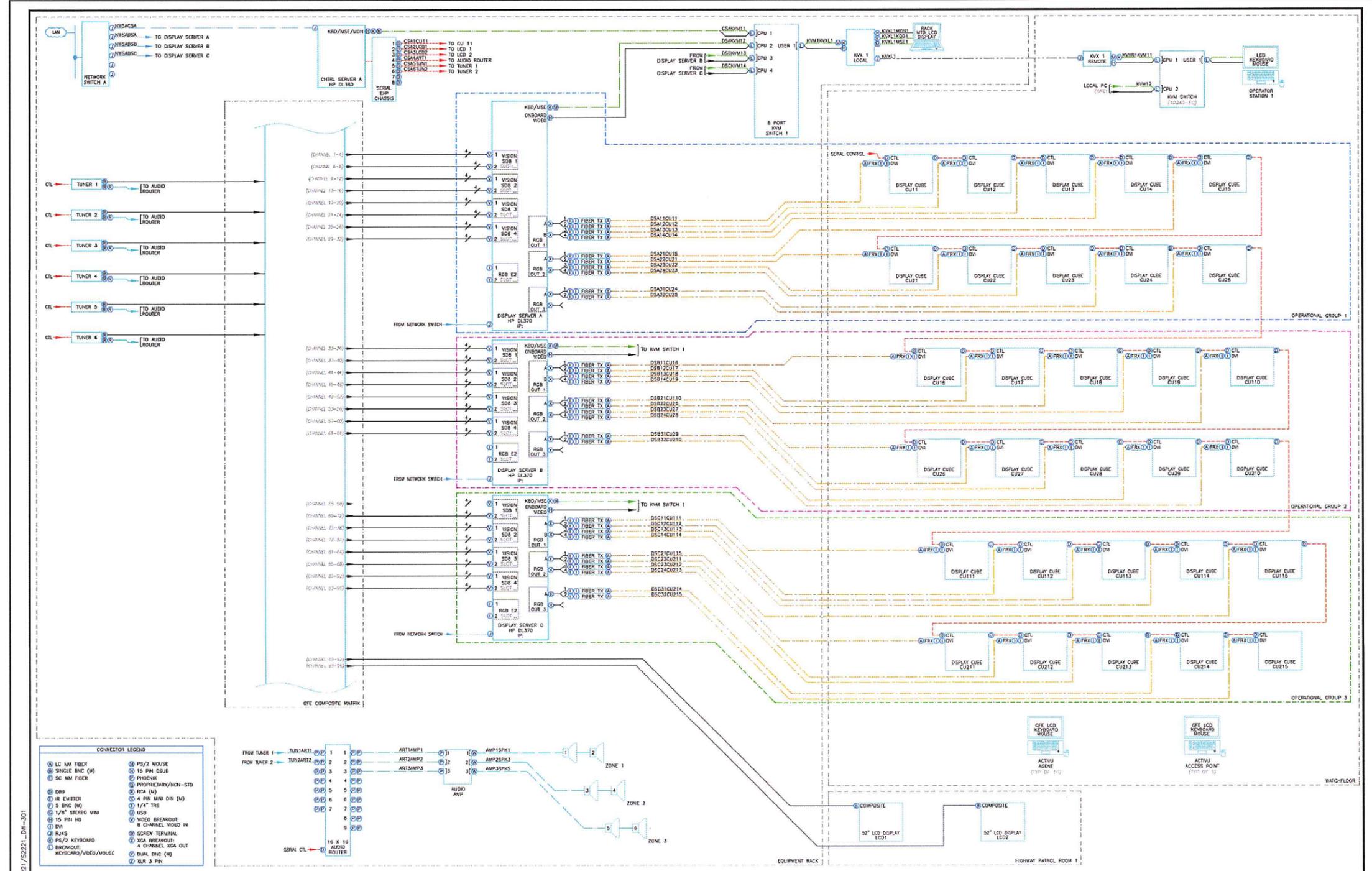
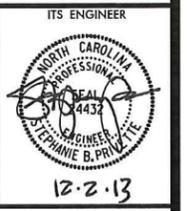
REVISIONS
 IV/21/2013
 -Vphase 2.csh 02zAK.dgn



ITS PLANS
POWER SERVICE DETAIL
POLE MOUNT CABINET
DETAILS

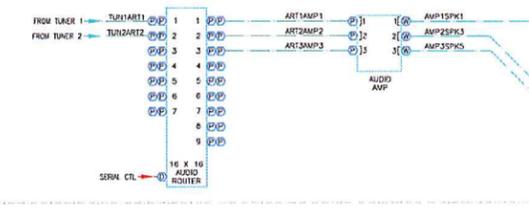
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **2AL**



CONNECTOR LEGEND

LC MM FIBER	PS/2 MOUSE
SINGLE BNC (M)	15 PIN DSUB
SC MM FIBER	PHOENIX
PROPRIETARY/NON-STD	RCA (M)
DB9	4 PIN MINI DIN (M)
DB Emitter	1/4" TRS
S BNC (M)	USB
1/8" STEREO VMI	VIDEO BREAKOUT: 8 CHANNEL VIDEO IN
15 PIN HD	VIDEO BREAKOUT: 4 CHANNEL XGA OUT
DM	DUAL BNC (M)
RJ45	SCREW TERMINAL
PS/2 KEYBOARD	NCA BREAKOUT
BREAKOUT: KEYBOARD/VIDEO/MOUSE	4 CHANNEL XGA OUT
	DUAL BNC (M)
	XLN 3 PIN



T:\TECH\INC DOT S2221\52221-DW-301



LEGEND

VIDEO	---
AUDIO	---
SPECIAL	---
ETHERNET	---
DVI	---
COMM	---
CATS	---

NORTH CAROLINA TURNPIKE AUTHORITY

DRAWING TITLE: SYSTEM WIRING DIAGRAM

PROJECT NO.: S2221 **DRAWN BY:** TD

DATE: 05.05.2011 **APPROVED:** [Signature]

SCALE: NTS **DATE:** [Signature]

REV	DATE	DESCRIPTION

DRAWING NUMBER: DW-301

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9/3/2013 -_phase 2.vst 02zAL.dgn REVISIONS



ITS PLANS VIDEO WALL WIRING DETAIL

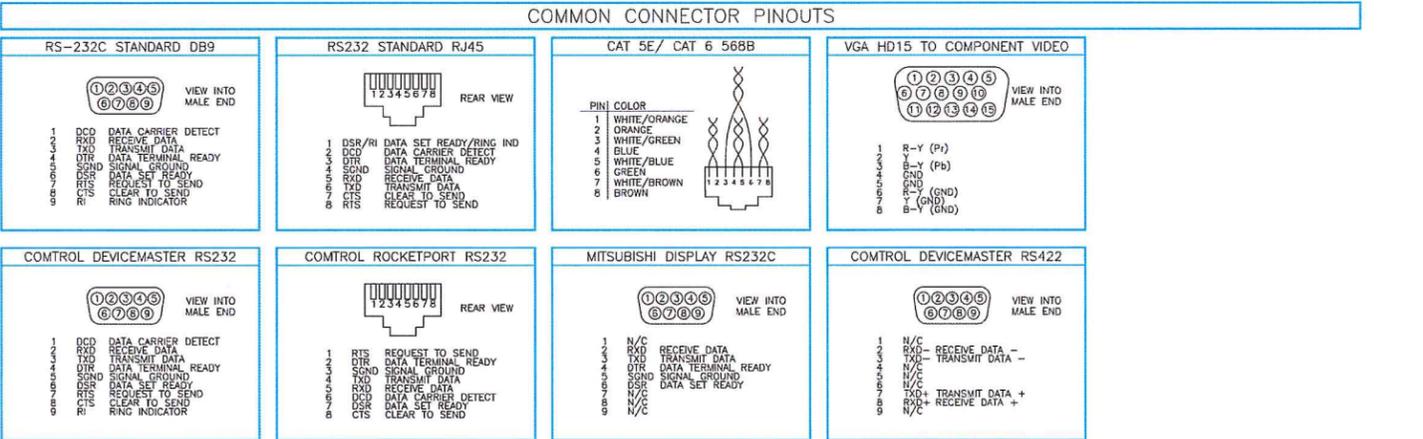
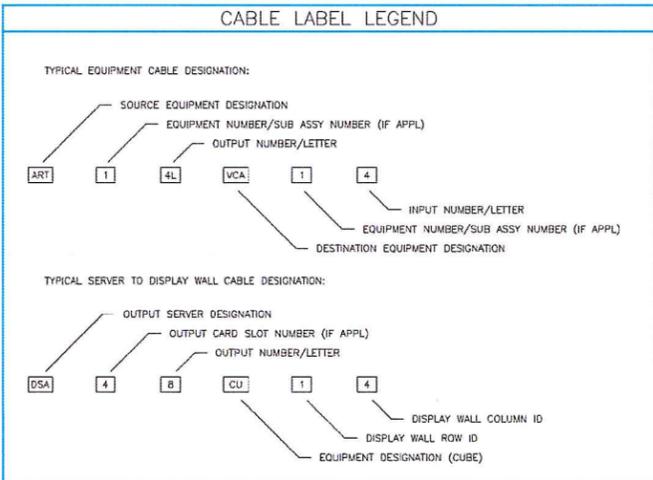
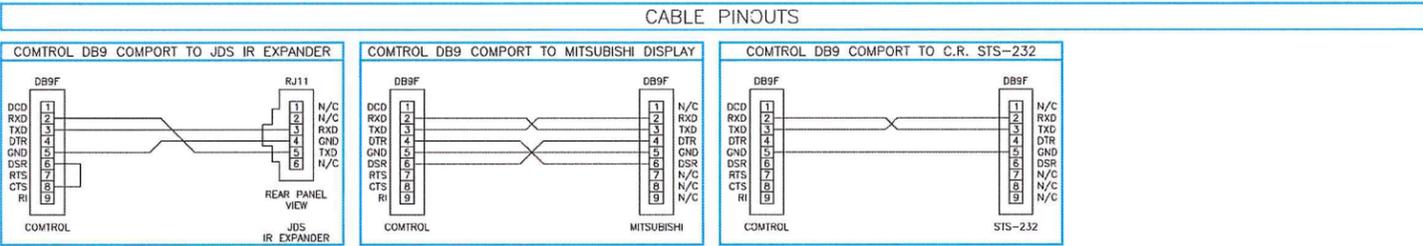
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250**
SHEET NO.

ITS ENGINEER

 12.2.13

ELECTRICAL SYMBOLS	EQUIPMENT DESIGNATIONS	
	LABEL	DEVICE
	ART	AUDIO ROUTER
	CS	CONTROL SERVER
	COM	SERIAL COM PORT EXPANSION
	CU	DISPLAY CUBE
	DS	DISPLAY SERVER
	KBD	KEYBOARD
	KVM	KVM SWITCH
	KVXL	KVM EXTENDER (LOCAL)
	KVXR	KVM EXTENDER (REMOTE)
	MIX	AUDIO MIXER
	MON	MONITOR
	MSE	MOUSE
	NWS	NETWORK SWITCH
	SPK	SPEAKER
	TUN	CABLE TV TUNER



REVISIONS
9/3/2013 -Phase 2.sht 02zAM.dgn

T:\TECH\ENC DOT S2221\S2221_DW-101

Activu Corporation
 2 Stewart Court, Denville, NJ 07834
 t: 973.366.5550 f: 973.366.1770

LEGEND
VIDEO
AUDIO
SPECIAL
ETHERNET
DVI
COMM
CATS

NORTH CAROLINA
TURNPIKE AUTHORITY

DRAWING TITLE:	
NOTES & SYMBOLS	
PROJECT NO. S2221	DRAWN BY: TD
DATE: 01.20.2011	APPROVED:
SCALE: N/A	DATE:

DRAWING NUMBER:	
DW-01	

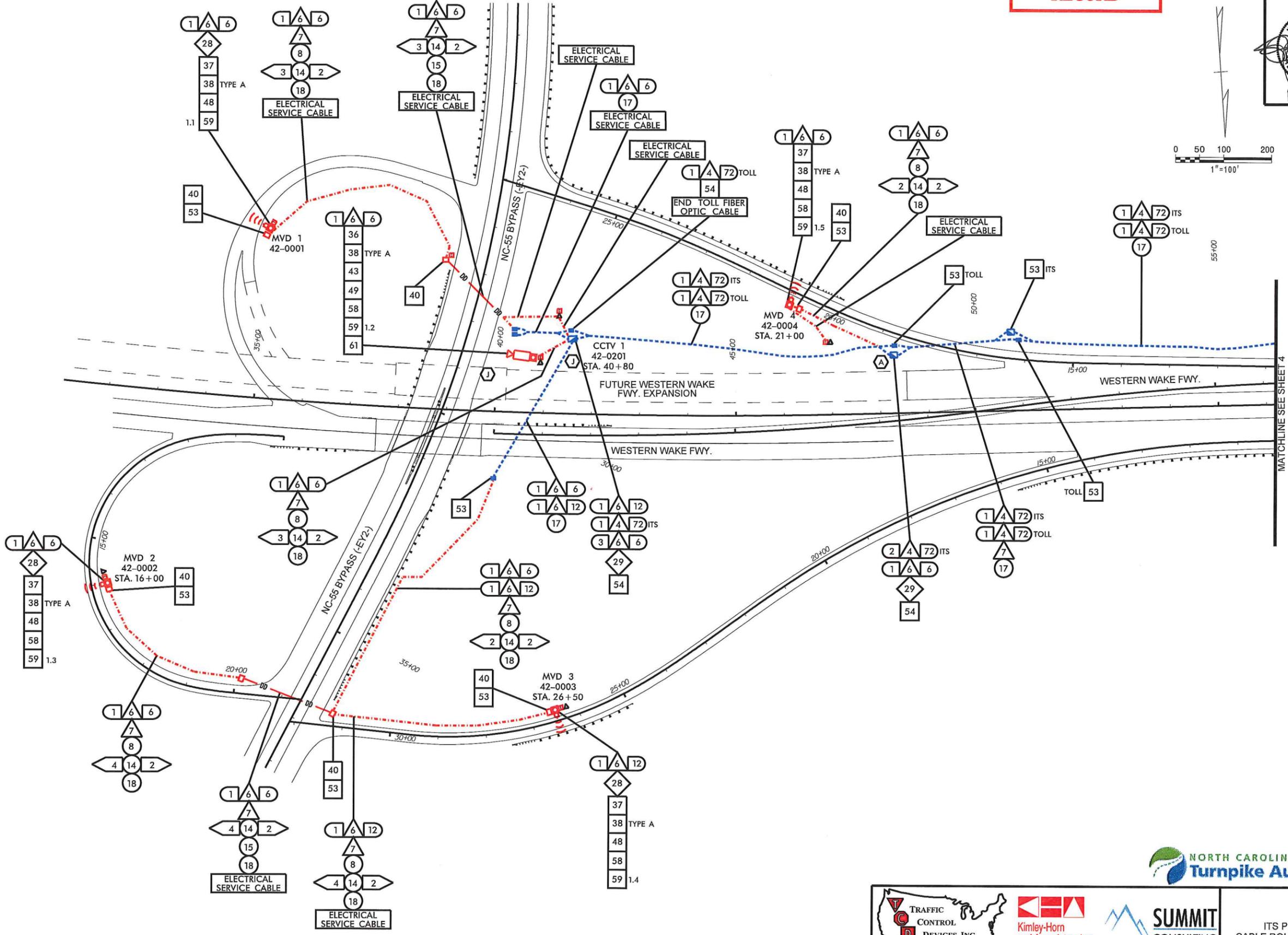
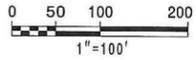


ITS PLANS
VIDEO WALL
WIRING DETAIL

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	3

ITS ENGINEER



MATCHLINE SEE SHEET 4

REVISIONS
11/21/2013
-As_Built's phase 2.cir 03.dgn



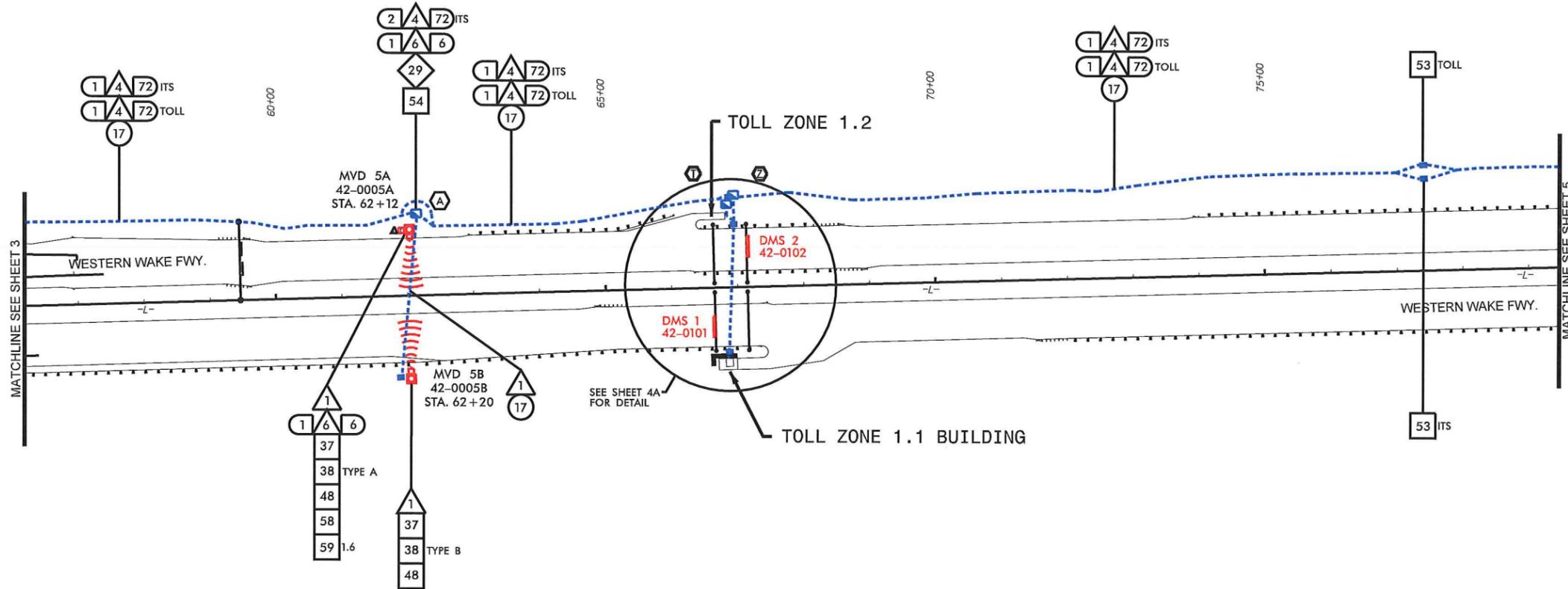
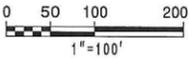
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **4**

ITS ENGINEER

 12-2-13



11/21/2013 -\As_Built\phase 2\crt 04.dgn REVISIONS

- NOTES**
1. SEE SHEET E23 IN ACS DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 2. SEE NCTA STANDARD DRAWINGS SHEET TF-7 FOR TOLL ZONE 1.1.
 3. SEE NCTA STANDARD DRAWINGS SHEET TF-8 FOR TOLL ZONE 1.2.

TRAFFIC CONTROL DEVICES, INC.
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ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS
 CABLE ROUTING PLAN

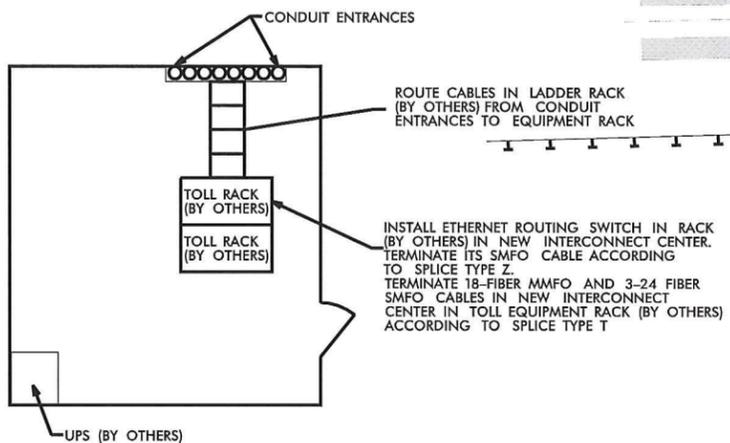
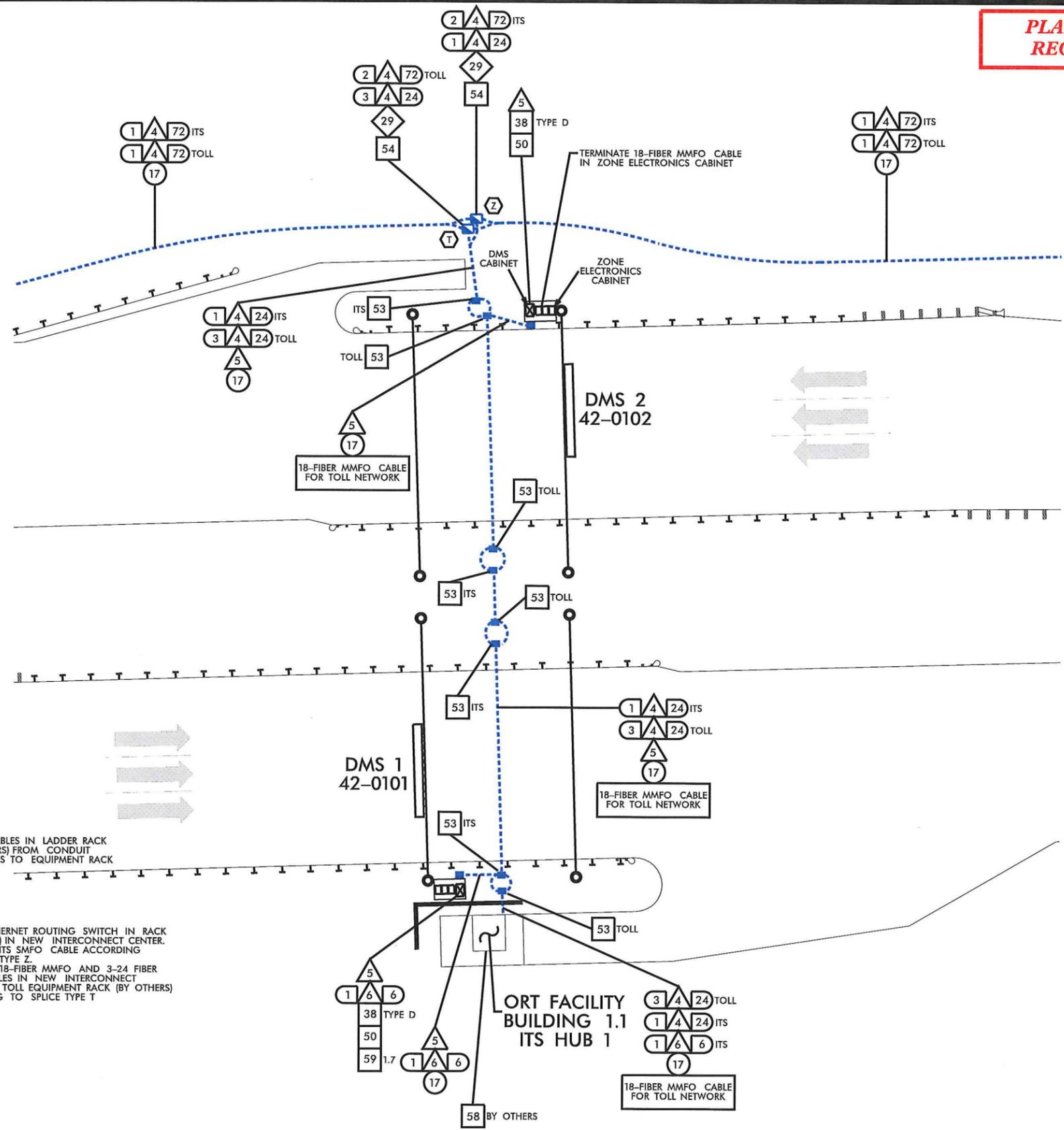
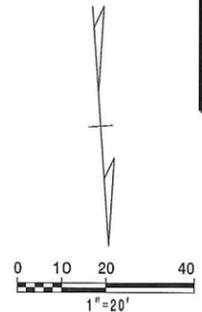


PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	4A

ITS ENGINEER

12.2.13



ORT FACILITY 1.1
(SEE NCTA STD. DRAWING TF-11)

- NOTES
1. SEE SHEET E23 IN ACS DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 2. SEE NCTA STANDARD DRAWINGS SHEET TF-7 FOR TOLL ZONE 1.1.
 3. SEE NCTA STANDARD DRAWINGS SHEET TF-8 FOR TOLL ZONE 1.2.

11/21/2013 -Vs_Bull/its/phase 2/vst 04A.dgn REVISIONS

TRAFFIC CONTROL DEVICES, INC.

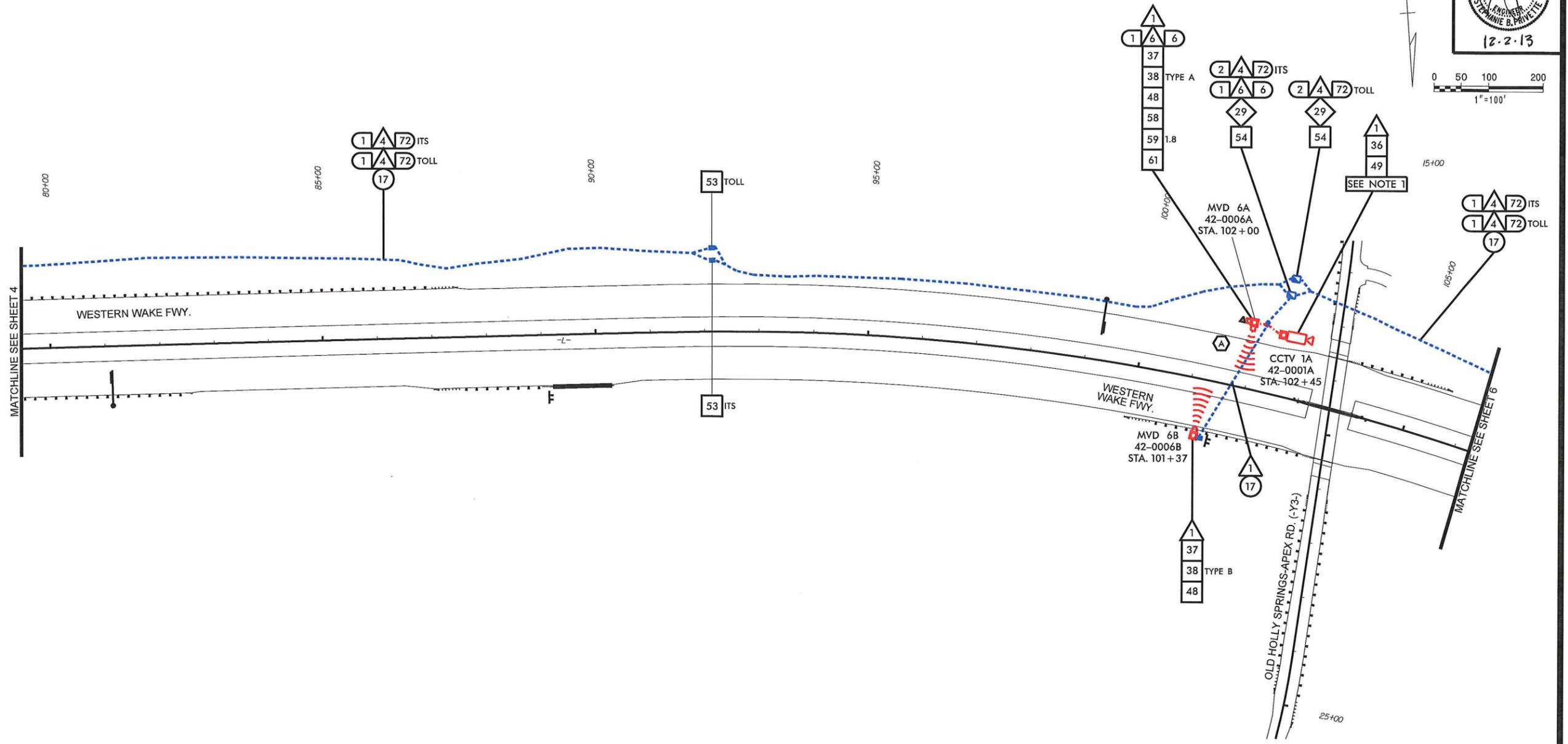
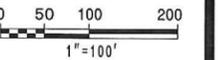
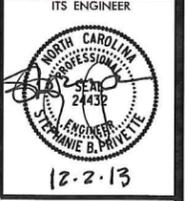
Kimley-Horn and Associates, Inc.

SUMMIT CONSULTING

ITS PLANS CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	5



11/21/2013

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NOTES
1. THIS CAMERA IS NOT EQUIPPED WITH A LOWERING DEVICE.



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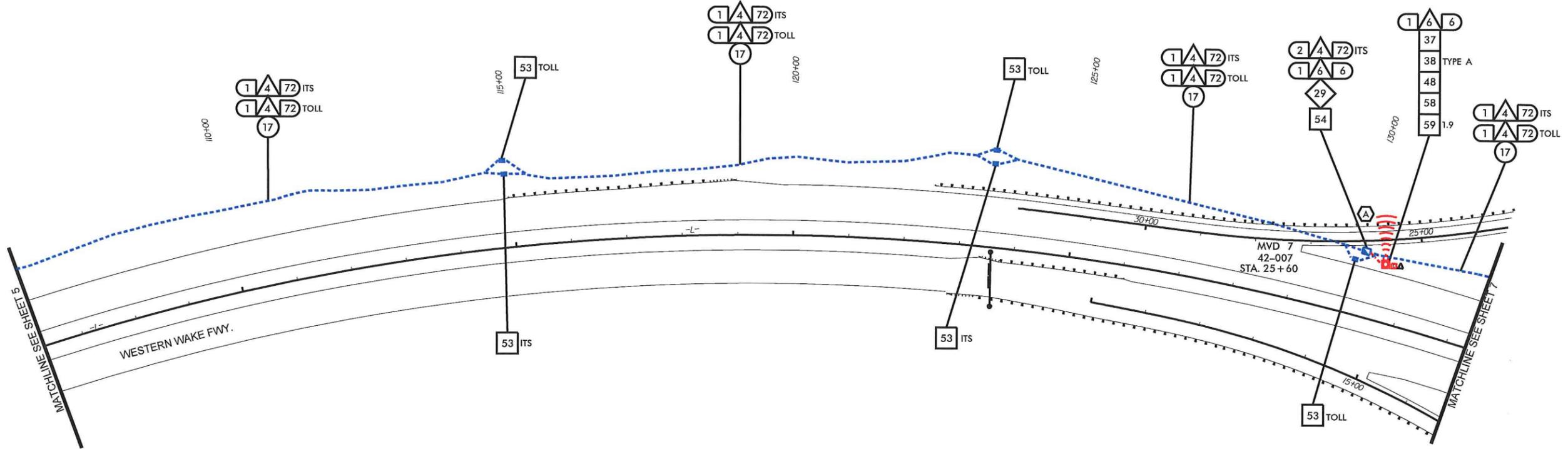
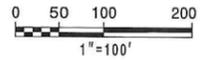
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 6
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ITS ENGINEER

 12.2.13



Ms_Bullis\phase 2\st 06.dgn

11/21/2013

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 Raleigh, NC 27636
 919 877-2000



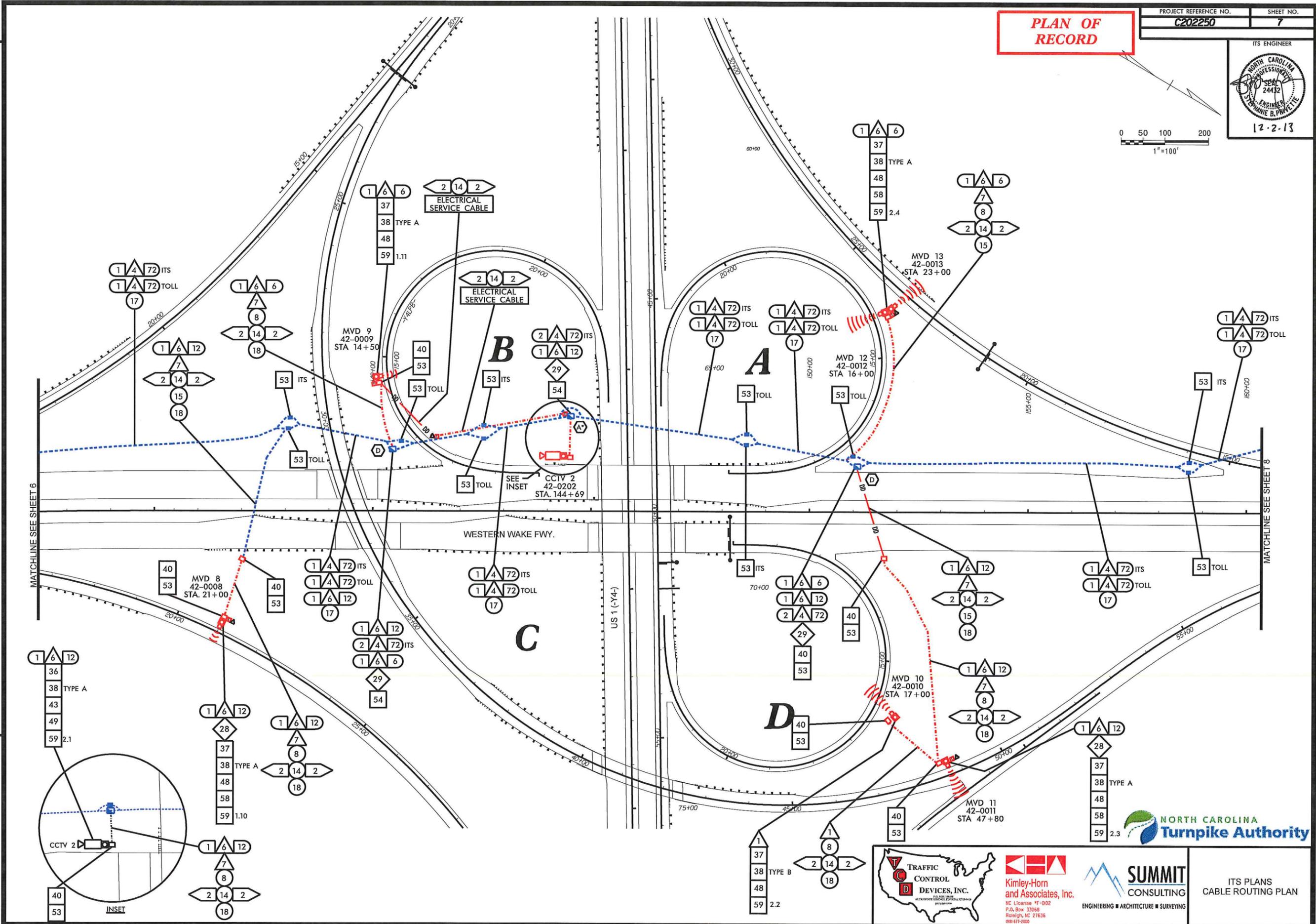
ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **7**

ITS ENGINEER
J. PRINCE B. PRYETT
12-2-13

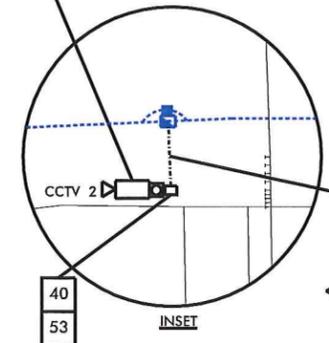
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REVISIONS
11/21/2013
-Ms_Bullis\phase 2\st 07.dgn

MATCHLINE SEE SHEET 6

MATCHLINE SEE SHEET 8



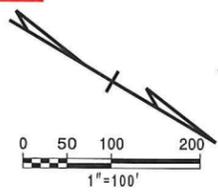
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888 677-0020



ITS PLANS
CABLE ROUTING PLAN

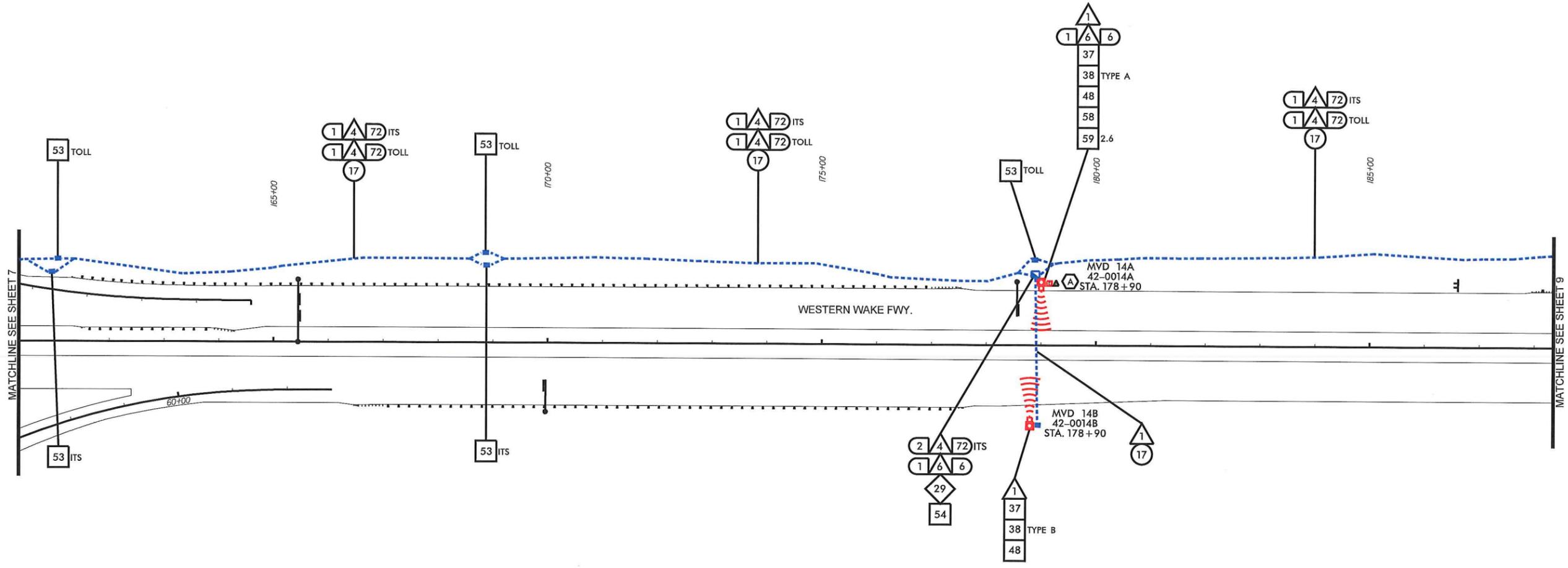
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **8**



ITS ENGINEER

 12.2.13



11/21/2013 -\As_Bullis\chase 2\cst 08.dgn REVISIONS

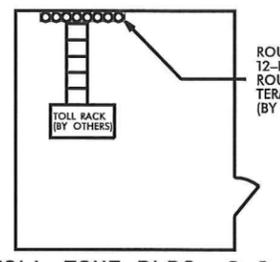
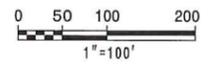


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ITS PLANS
 CABLE ROUTING PLAN

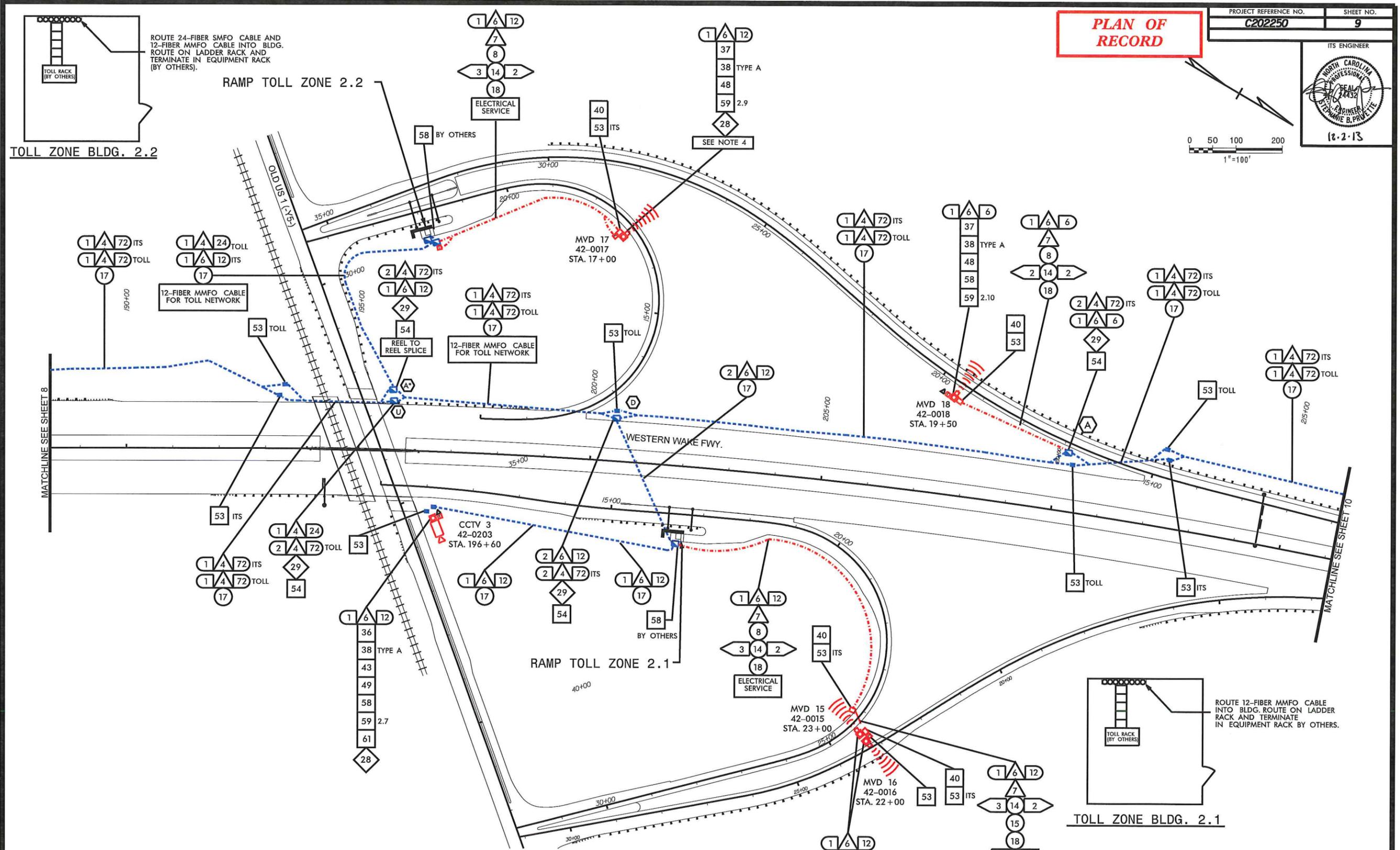
PLAN OF RECORD



TOLL ZONE BLDG. 2.2



TOLL ZONE BLDG. 2.1



- NOTES**
- COORDINATE INSTALLATION OF JUNCTION BOXES AND CCTV EQUIPMENT TO AVOID RAILROAD RIGHT-OF-WAY.
 - SEE SHEET E24 ASC DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 - SEE NCTA STANDARD DRAWINGS SHEET TF-9 FOR TOLL PLAZA'S 2.1 AND 2.2.
 - THIS MVD HAS AN EXTERNAL DISCONNECT.



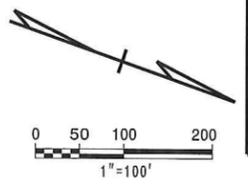
ITS PLANS CABLE ROUTING PLAN

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REVISIONS

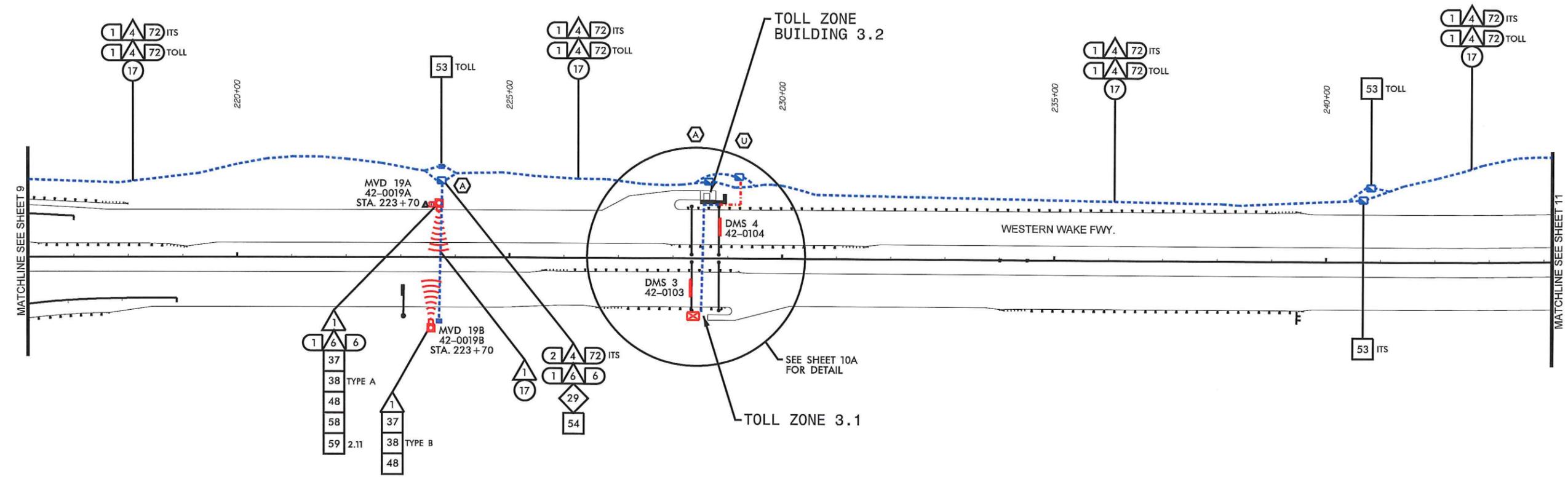
PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	10



ITS ENGINEER

12.2.13



11/21/2013 _Bul\\its\\phase 2\\sht 10.dgn REVISIONS

- NOTES**
1. SEE NCTA STANDARD DRAWINGS SHEET TF-7 FOR TOLL ZONE 3.2.
 2. SEE NCTA STANDARD DRAWINGS SHEET TF-8 FOR TOLL ZONE 3.1.



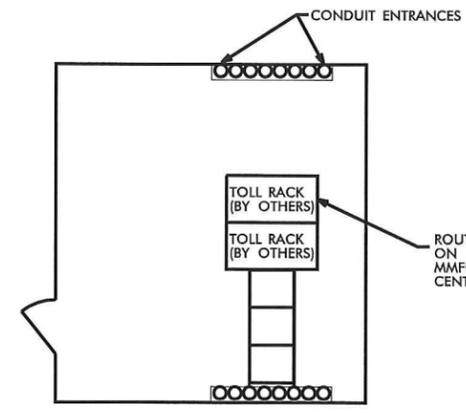
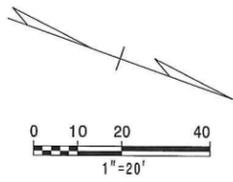
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 10A
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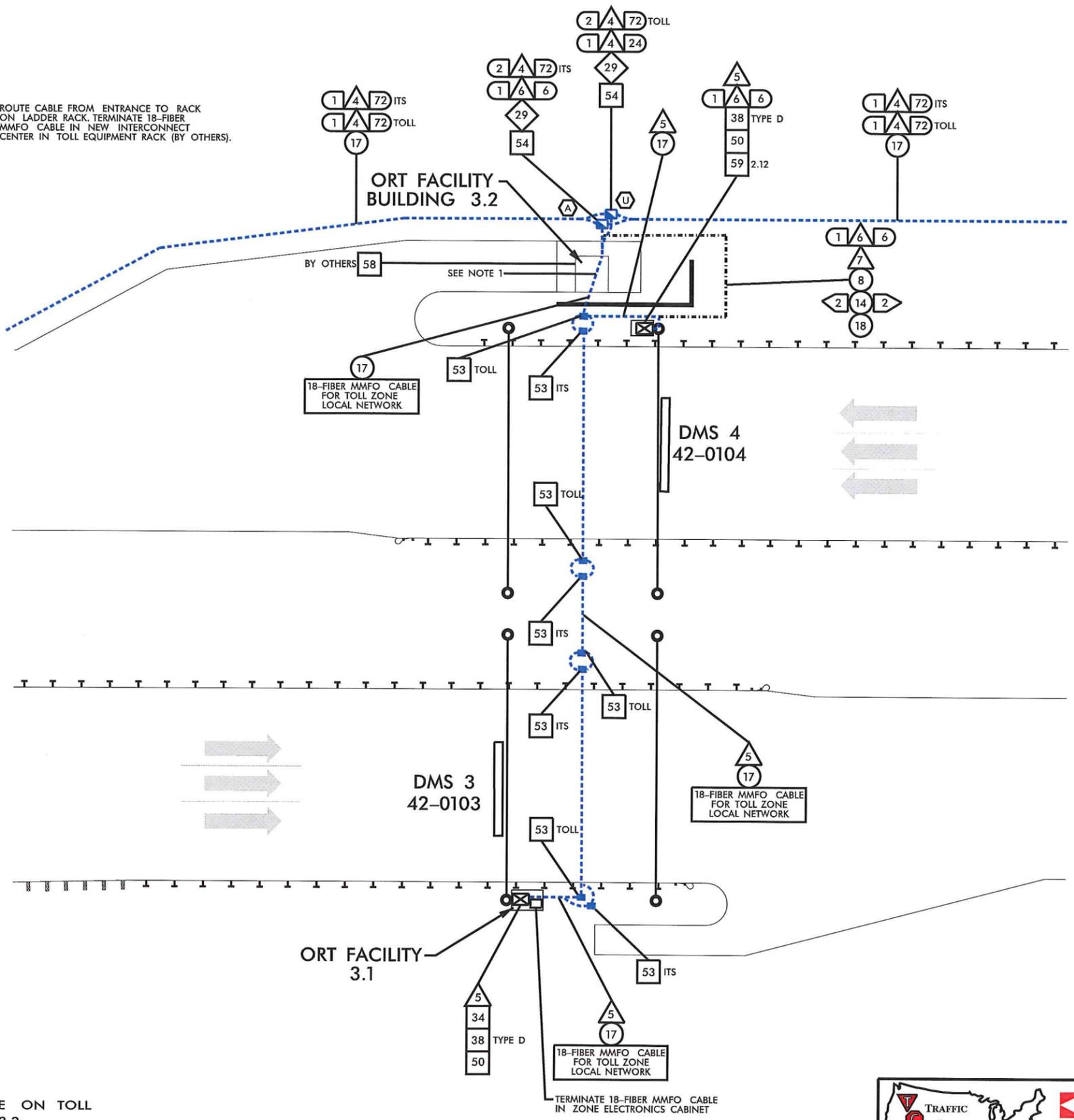
ITS ENGINEER

12.2.13



ROUTE CABLE FROM ENTRANCE TO RACK ON LADDER RACK. TERMINATE 18-FIBER MMFO CABLE IN NEW INTERCONNECT CENTER IN TOLL EQUIPMENT RACK (BY OTHERS).

ORT FACILITY 3.2
(SEE NCTA STD. DRAWING TF-11)



- NOTES:**
1. TERMINATE 24-FIBER SMFO TOLL CABLE ON TOLL RACK (BY OTHERS) IN ORT BUILDING 3.2
 2. SEE NCTA STANDARD DRAWING TF-7 FOR TOLL ZONE 3.2.
 3. SEE NCTA STANDARD DRAWING TF-8 FOR TOLL ZONE 3.1.



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ITS PLANS
CABLE ROUTING PLAN

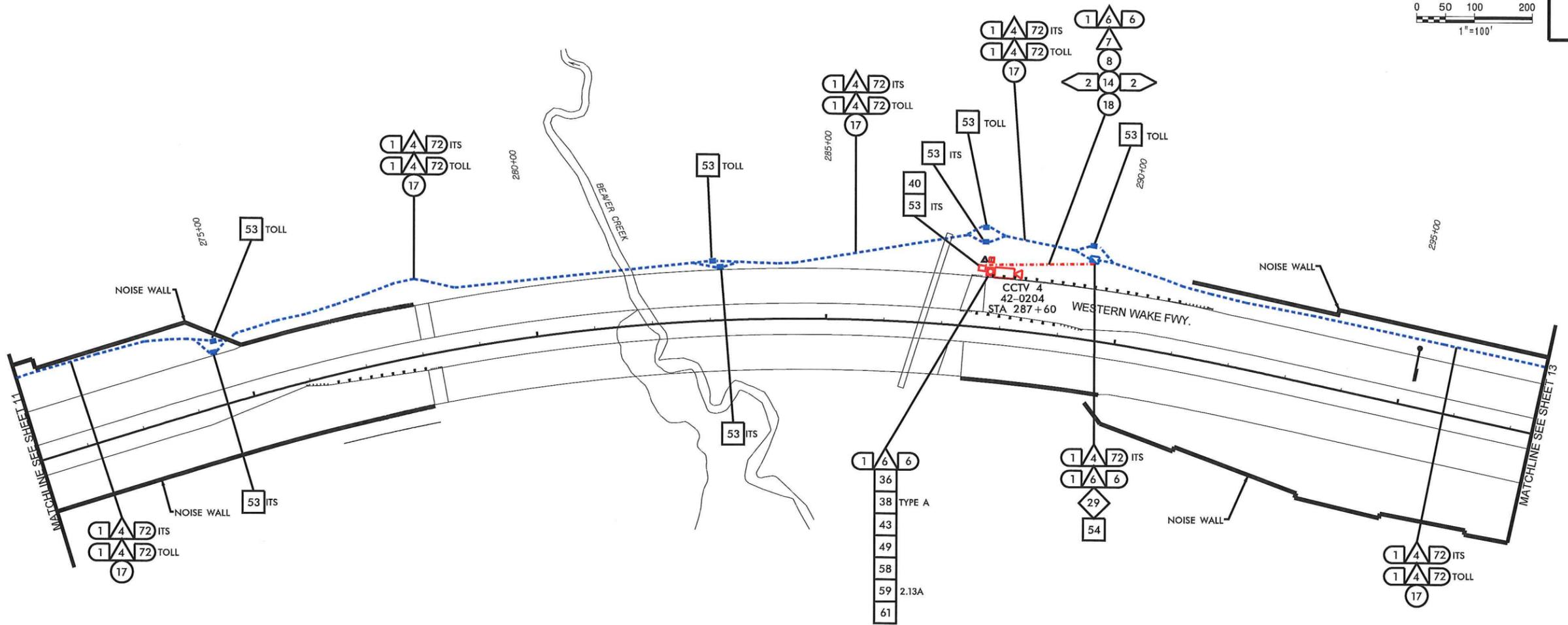
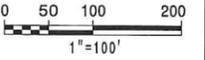
REVISIONS
11/21/2013
\\as-Build\phase 2\set 10A.dgn

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **12**

ITS ENGINEER

 12.2.13



11/21/2013
 -\As_Built\phase 2\st 12.dgn
 REVISIONS



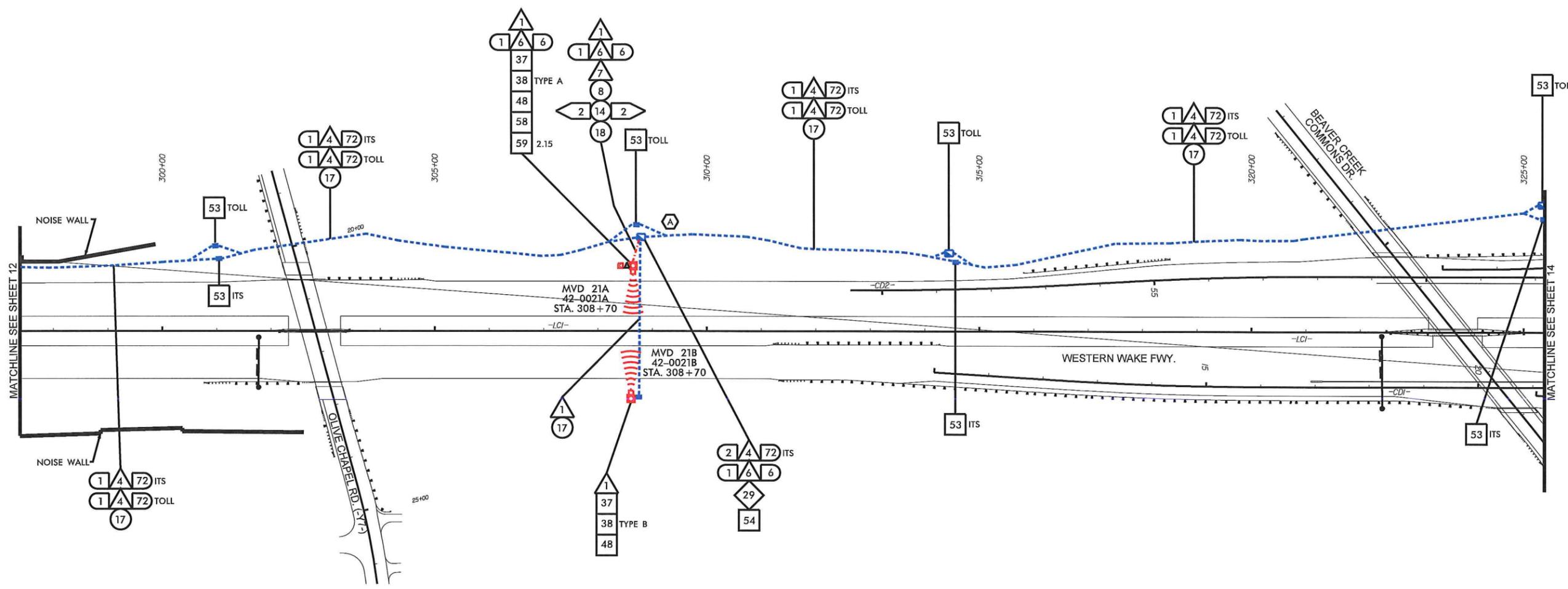
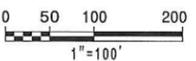
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 (919) 684-1000

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 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **13**



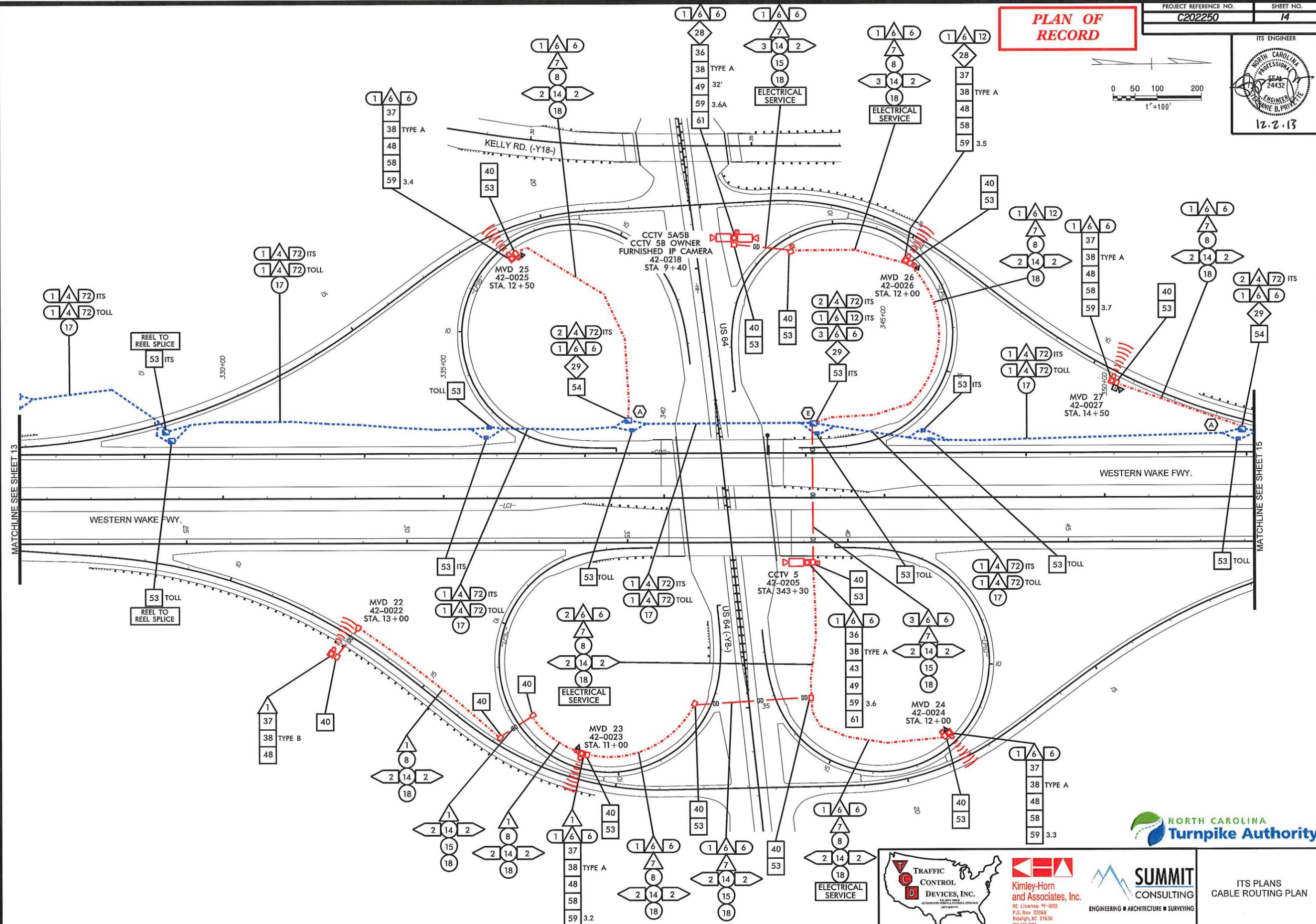
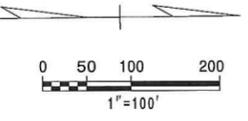
11/21/2013

REVISIONS



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PLAN OF RECORD



REVISIONS
12/3/2013
_Las_BuiltPhase 2.dgn



TRAFFIC CONTROL DEVICES, INC.
ALL PATENTED SPECIAL FEATURES ARE TRADEMARKS OF TRAFFIC CONTROL DEVICES, INC.

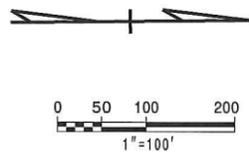
Kimley-Horn and Associates, Inc.
NC License #F-0002
P.O. Box 33068
Raleigh, NC 27636
919.877.2000

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

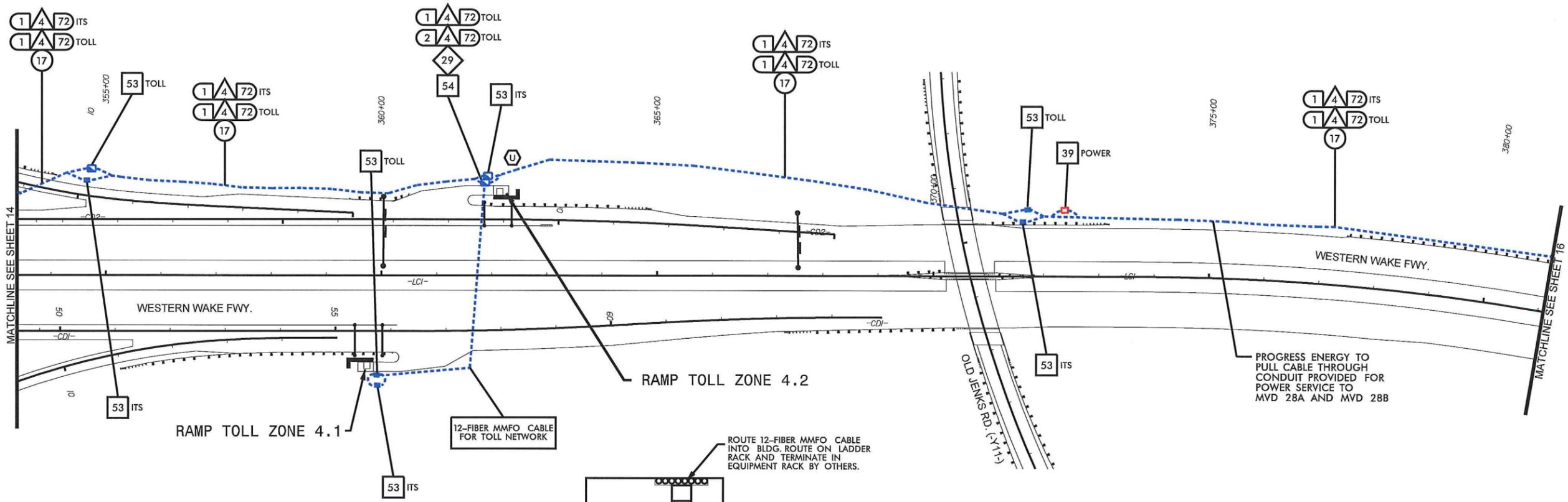
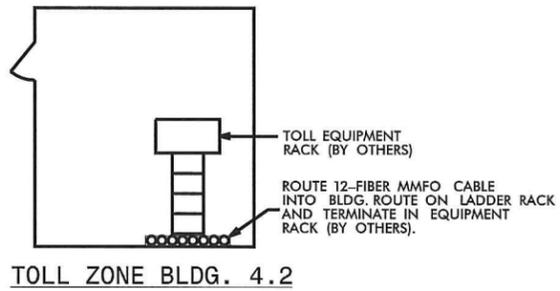
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **15**



12.2.13



11/21/2013 \\\Ms_Bullits\phase 2\str 15.dgn REVISIONS

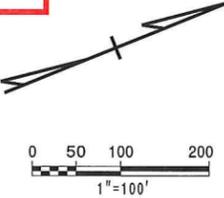
NOTES
1. SEE NCTA STANDARD DRAWINGS SHEET TF-9 FOR TOLL ZONE'S 4.1 AND 4.2.



ITS PLANS CABLE ROUTING PLAN

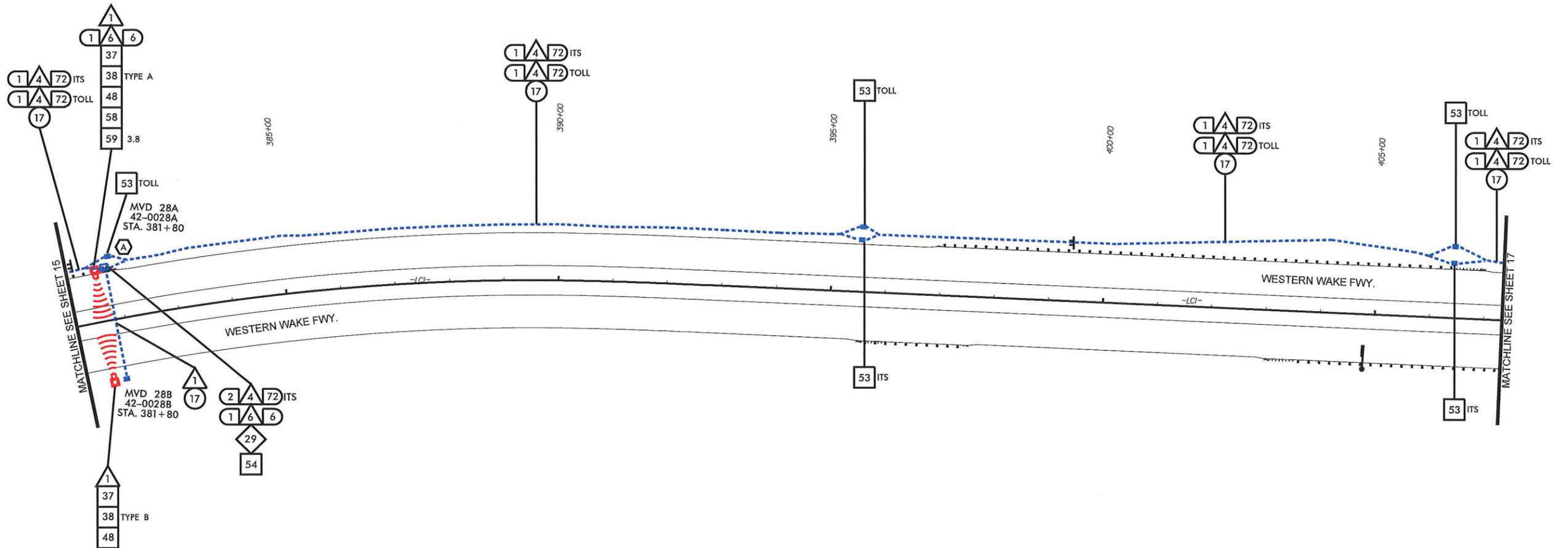
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **16**



ITS ENGINEER

 12.2.13



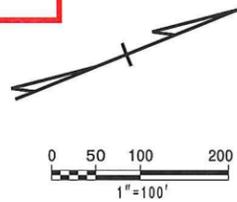
REVISIONS
 11/21/2013
 Ms_Bullis phase 2 vtr 16.dgn



ITS PLANS
 CABLE ROUTING PLAN

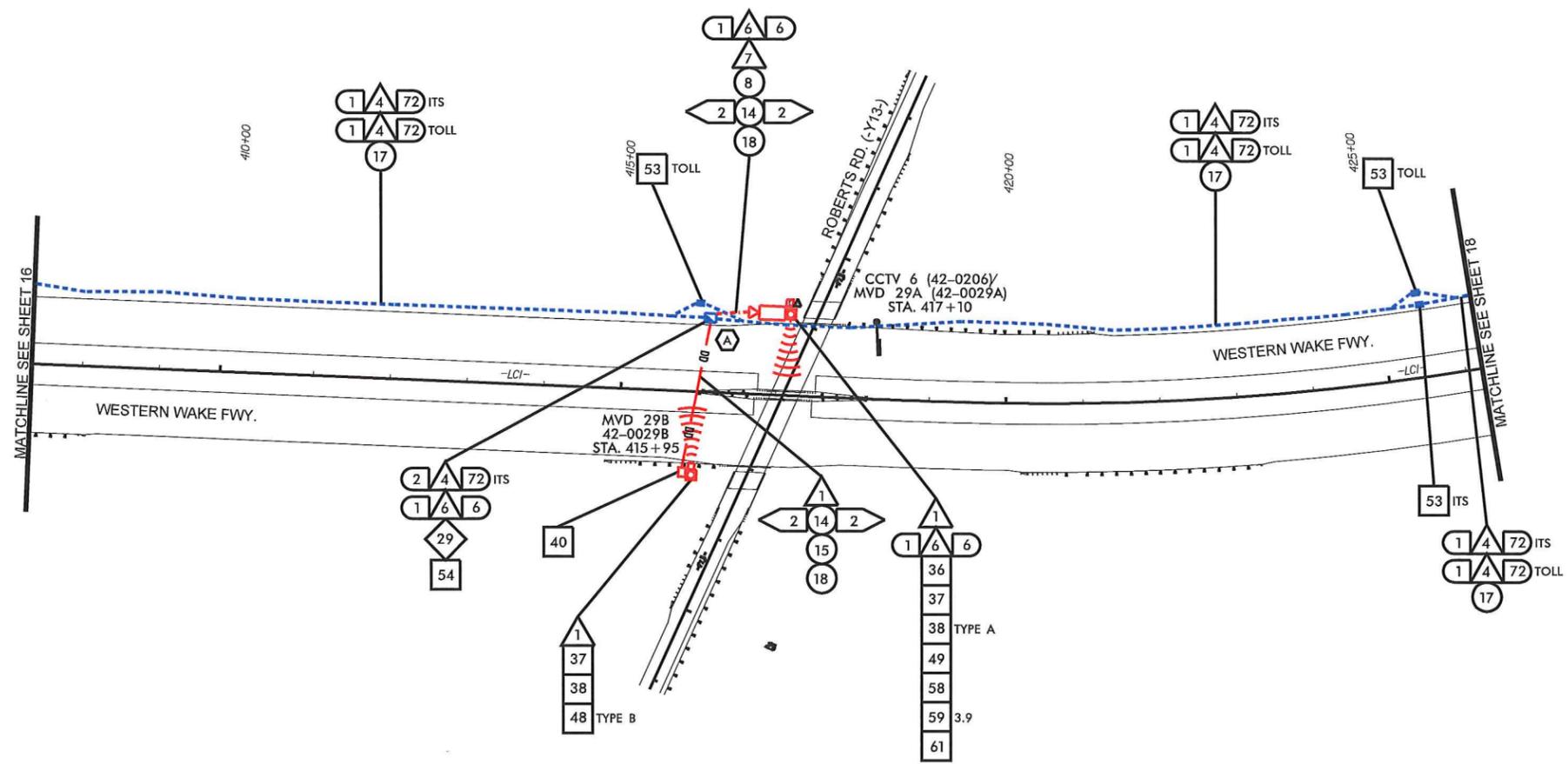
PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	17



ITS ENGINEER

12.2.13



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\\s. Bulitts\phase 2\st 17.dgn

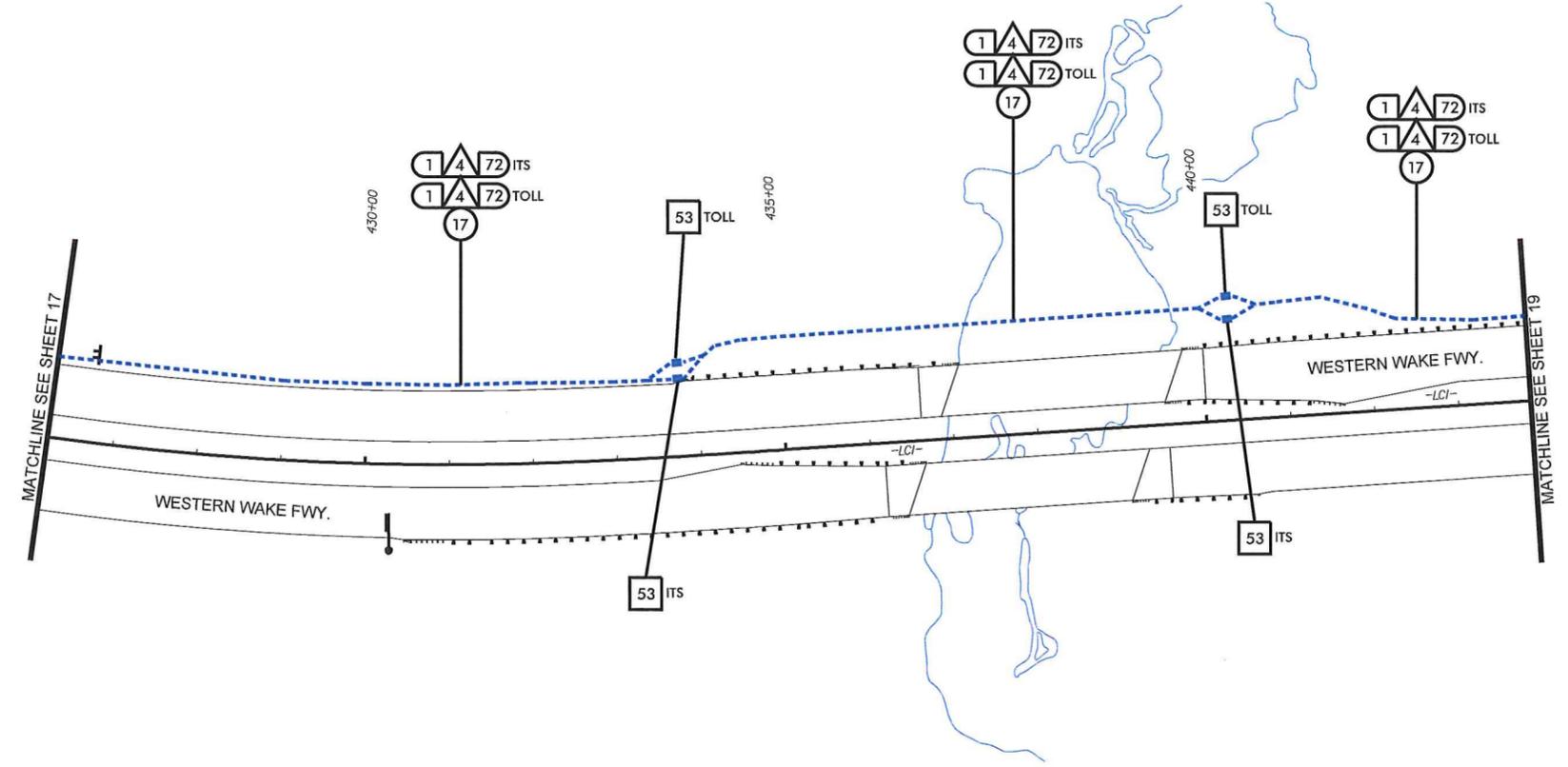
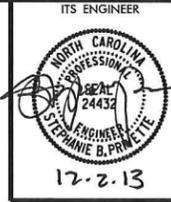
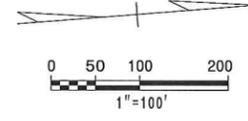
11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **18**



11/21/2013
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 REVISIONS



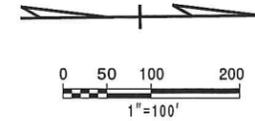
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 Raleigh, NC 27636
 919 671-2000



ITS PLANS
 CABLE ROUTING PLAN

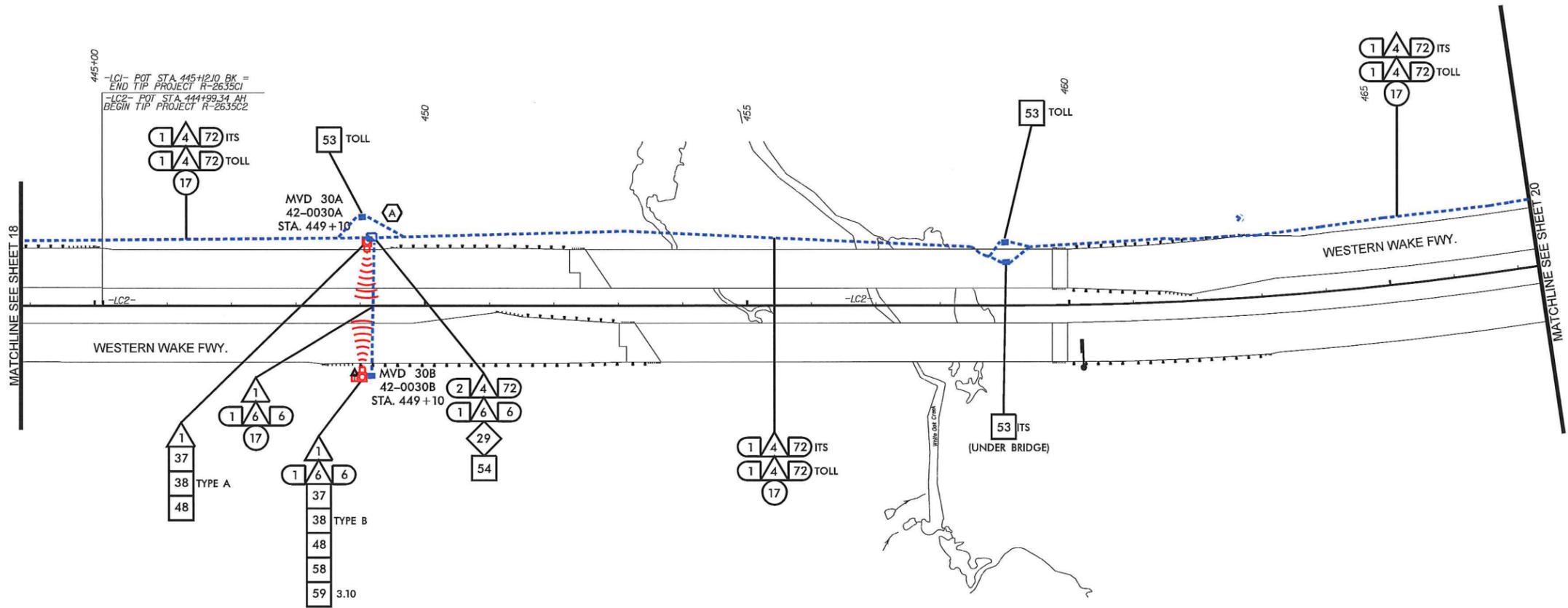
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **19**



ITS ENGINEER

 12.2.13



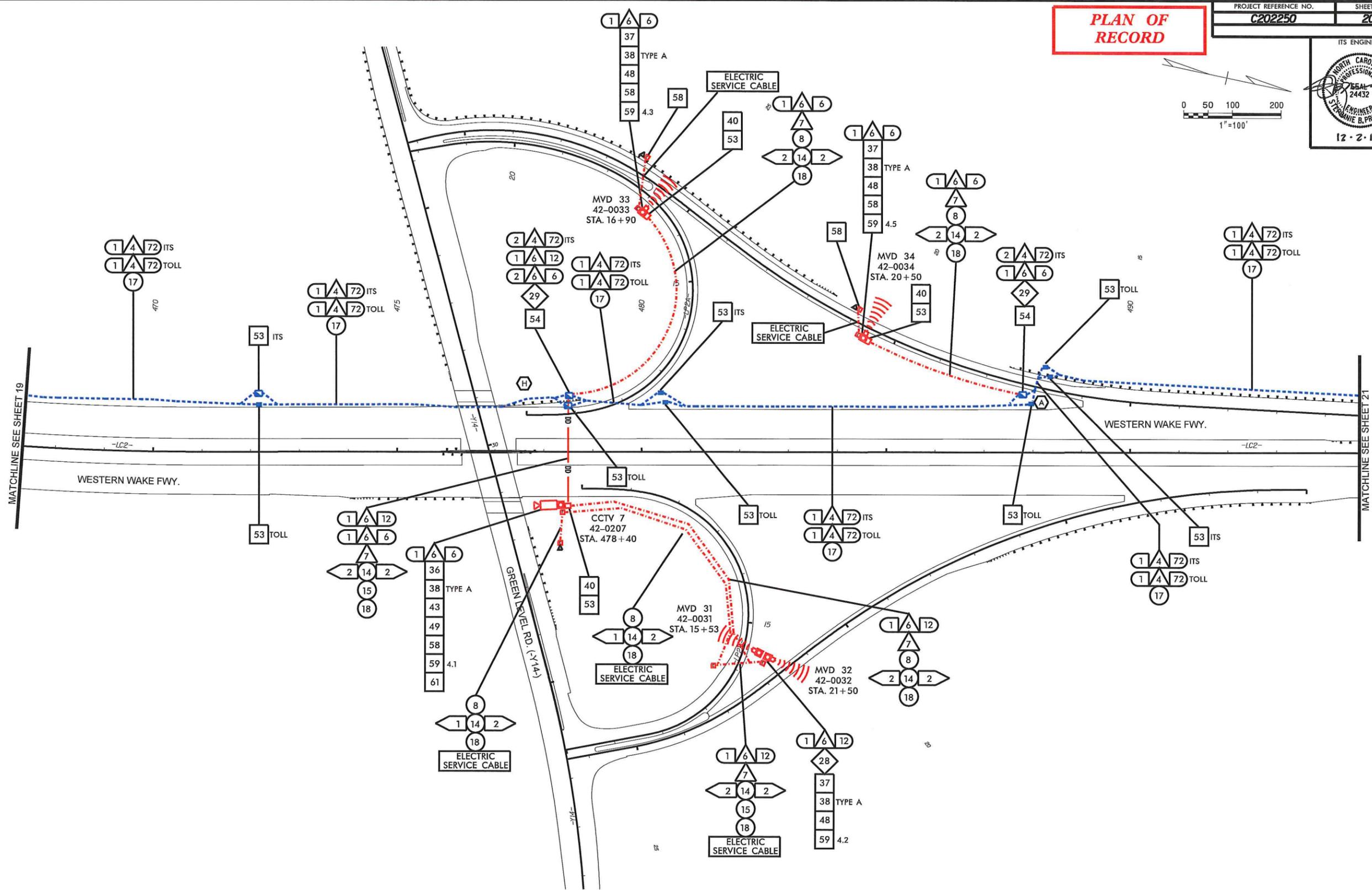
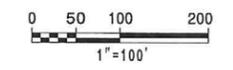
12/3/2013 -Vs_Bullis\phase 2\str 19.dgn REVISIONS



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **20**



REVISIONS
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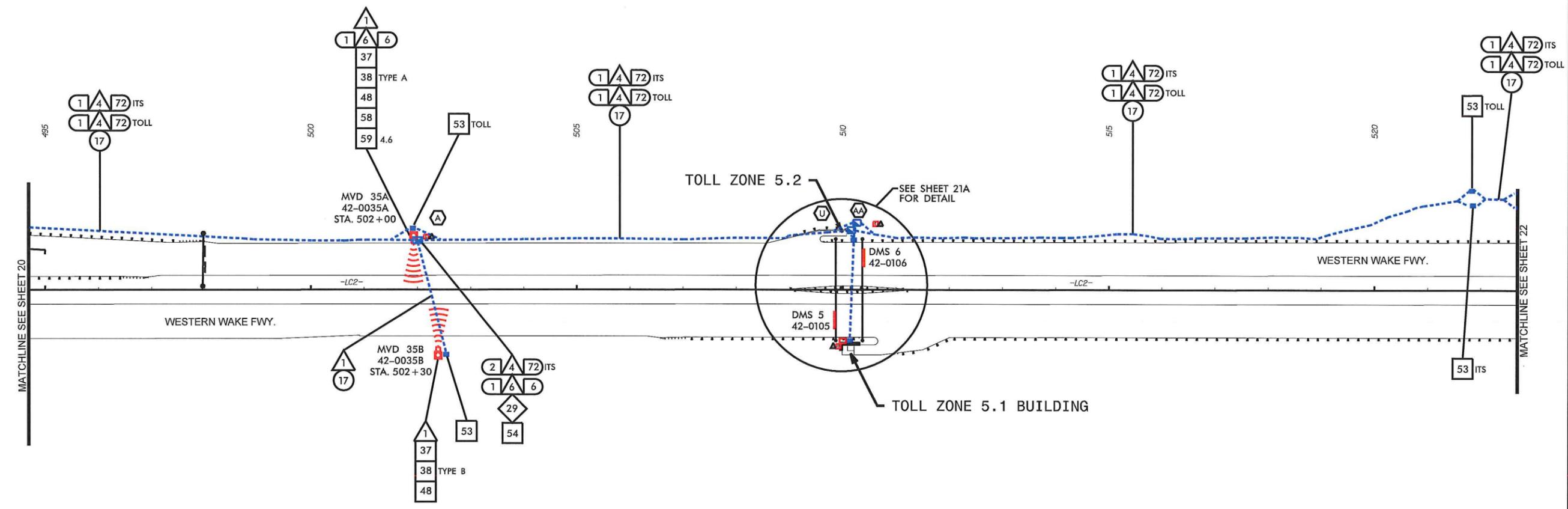
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 21
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ITS ENGINEER

12-2-13



REVISIONS
 11/21/2013
 -As_Built/As-Proposed Part 2/ldgn

- NOTES**
- SEE SHEET E23 IN ASC DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 - SEE NCTA STANDARD DRAWINGS SHEET TF-7 FOR TOLL ZONE 5.1.
 - SEE NCTA STANDARD DRAWINGS SHEET TF-8 FOR TOLL ZONE 5.2.

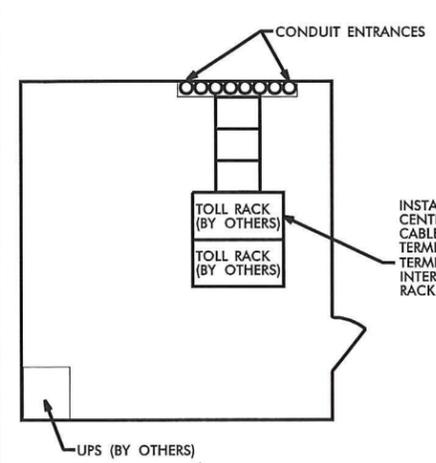
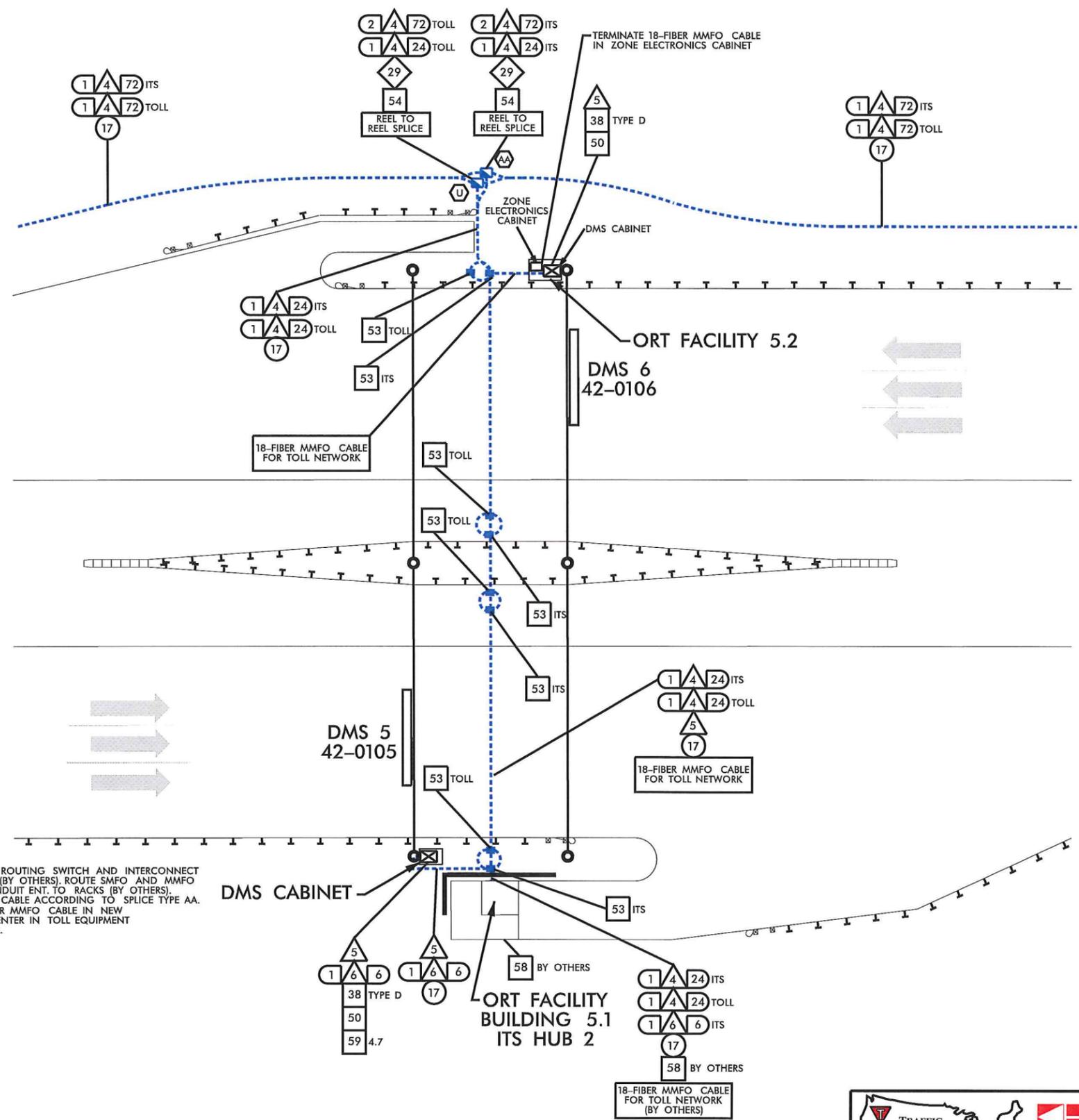
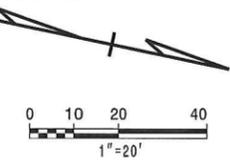
TRAFFIC CONTROL DEVICES, INC.
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 SUMMIT CONSULTING
 NORTH CAROLINA Turnpike Authority
 ITS PLANS CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 21A
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ITS ENGINEER

12-2-13



INSTALL ETHERNET ROUTING SWITCH AND INTERCONNECT CENTER IN RACK (BY OTHERS). ROUTE SMFO AND MMFO CABLE FROM CONDUIT ENT. TO RACKS (BY OTHERS). TERMINATE SMFO CABLE ACCORDING TO SPLICE TYPE AA. TERMINATE 18-FIBER MMFO CABLE IN NEW INTERCONNECT CENTER IN TOLL EQUIPMENT RACK (BY OTHERS).

ORT FACILITY 5.1
(SEE NCTA STD. DRAWING TF-11)

- NOTES:
1. SEE SHEET E23 IN ACS DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 2. SEE NCTA STANDARD DRAWING TF-7 FOR TOLL PLAZA 5.1.
 3. SEE NCTA STANDARD DRAWING TF-8 FOR TOLL PLAZA 5.2.

REVISIONS

11/21/2013

_Vs_Built/phase 2/est 21A.dgn

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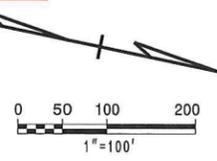
Kimley-Horn and Associates, Inc.

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ITS PLANS CABLE ROUTING PLAN

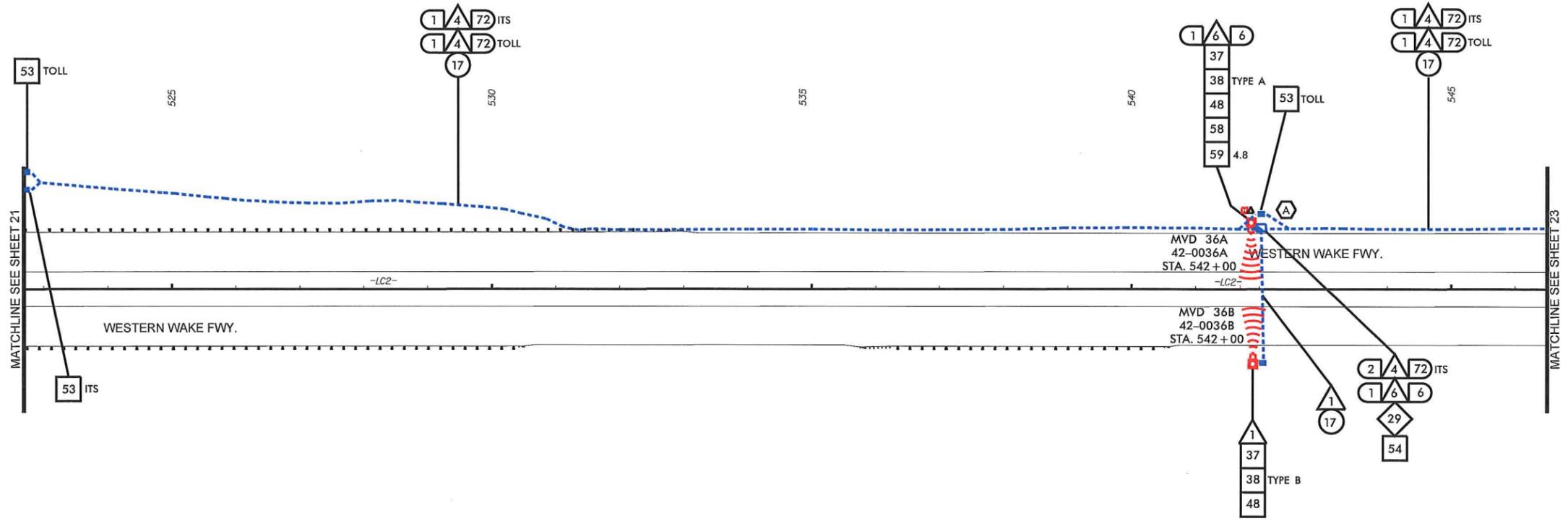
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 22
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ITS ENGINEER

12.2.13



REVISIONS

As_Built\sbase\2013 22.dgn

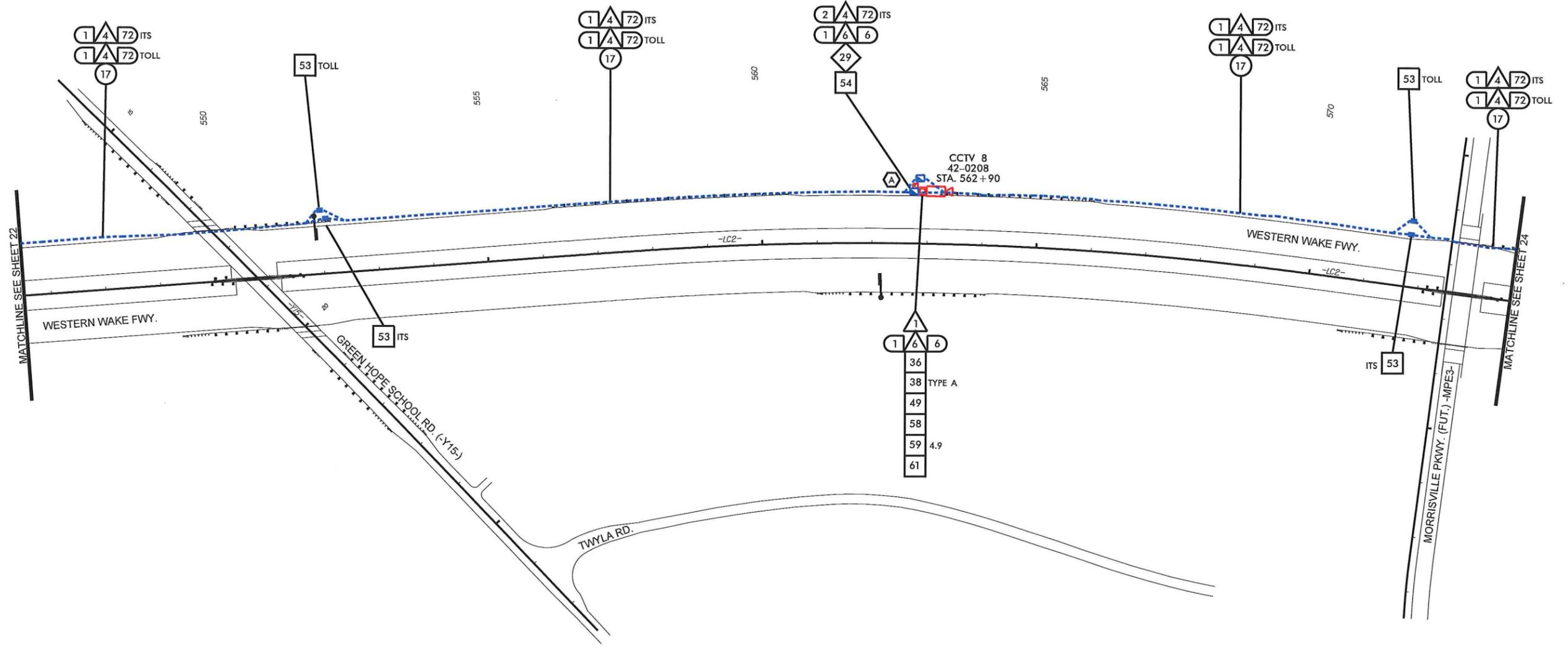
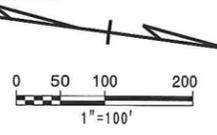
11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **23**



11/21/2013 -\As_Built\phase 2\sh 23.dgn

REVISIONS

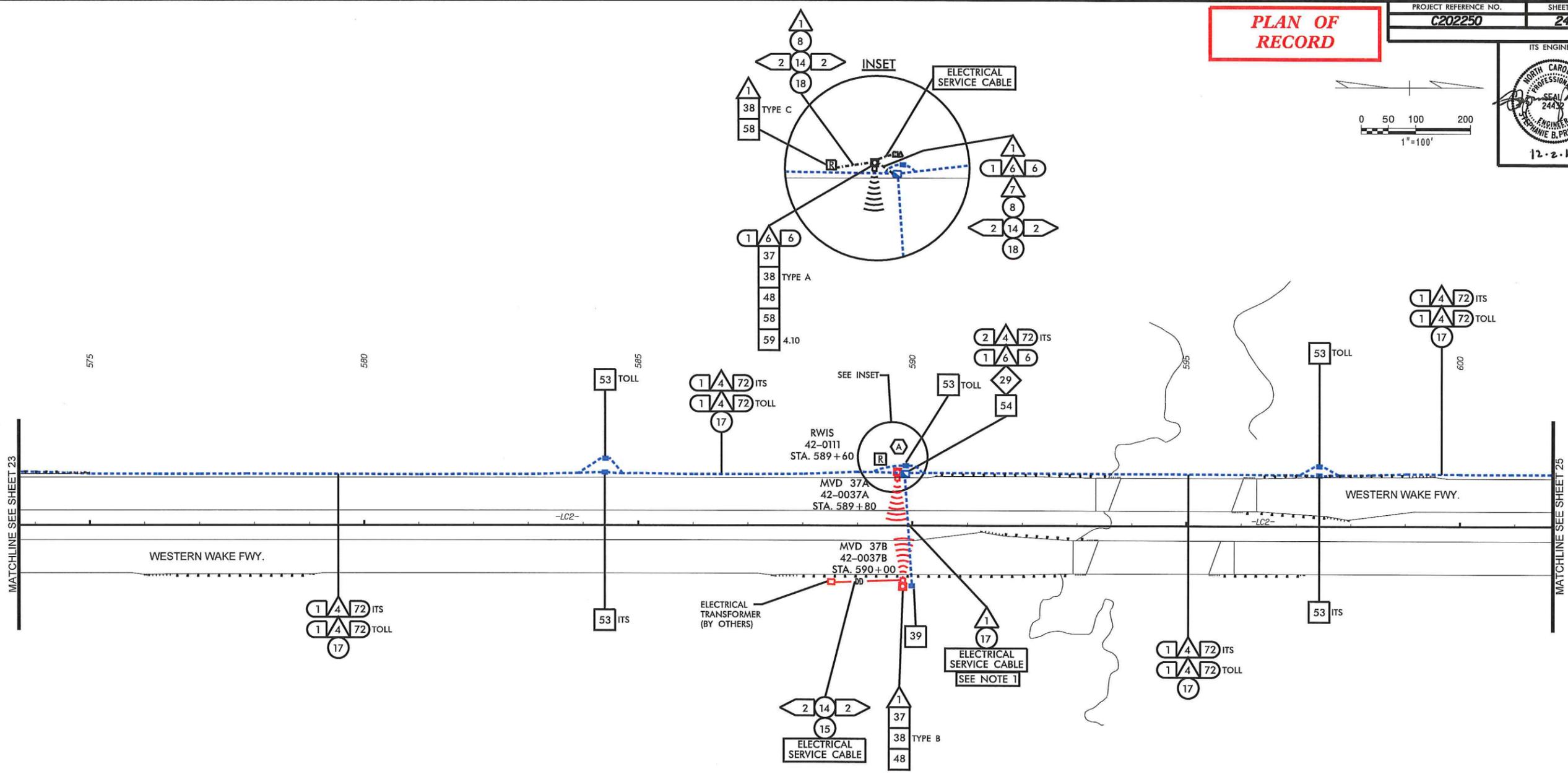
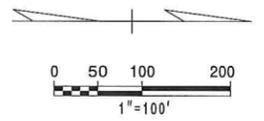


<p>TRAFFIC CONTROL DEVICES, INC.</p>	<p>Kimley-Horn and Associates, Inc.</p> <p>NC License #F-002 P.O. Box 33068 Raleigh, NC 27635 919 877-2000</p>	<p>SUMMIT CONSULTING</p> <p>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</p>	<p>ITS PLANS CABLE ROUTING PLAN</p>
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PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	24

ITS ENGINEER



- NOTES**
1. MAIN ELECTRIC SERVICE WIRE IN SAME CONDUIT AND JUNCTION BOX AS FIBER OPTIC CABLE
 2. INSTALL ROADWAY WEATHER INFORMATION SYSTEM IN COMPLIANCE WITH NCTA AESTHETIC GUIDELINES.

11/21/2013 \As_Built\phase 2\cvt 24.dgn

REVISIONS

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KIMLEY-HORN AND ASSOCIATES, INC.
SUMMIT CONSULTING

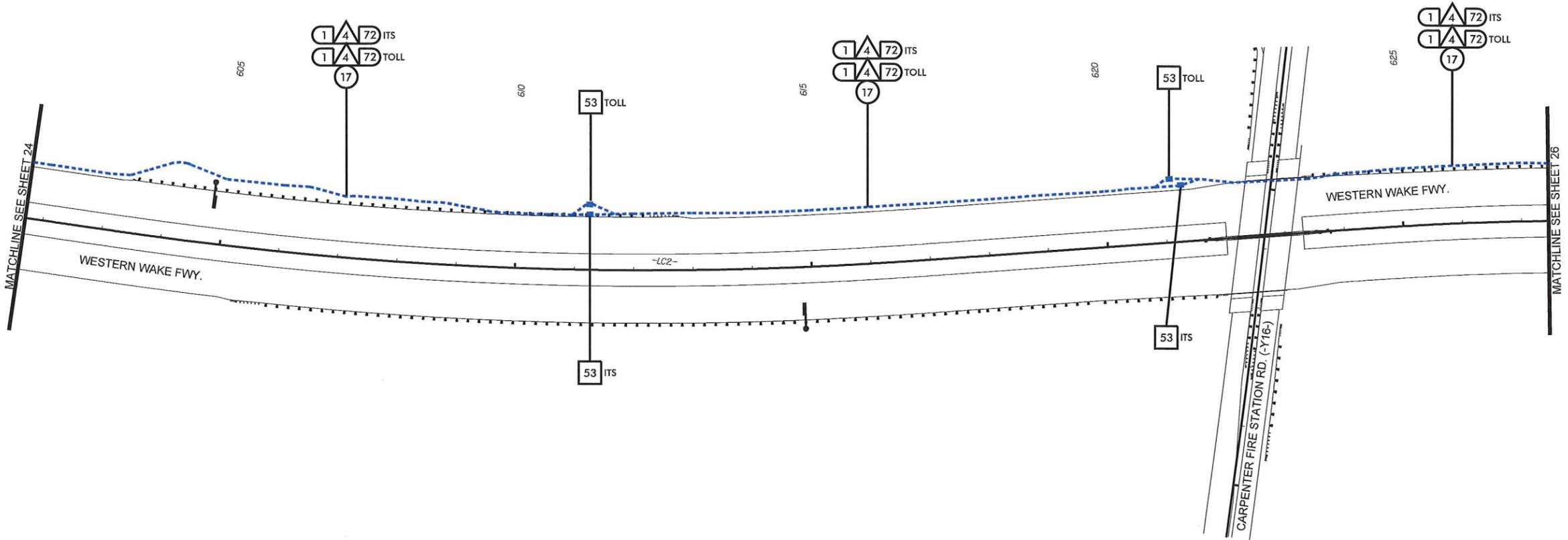
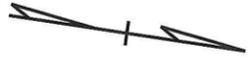
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	25

ITS ENGINEER

12-3-13



11/21/2013

REVISIONS



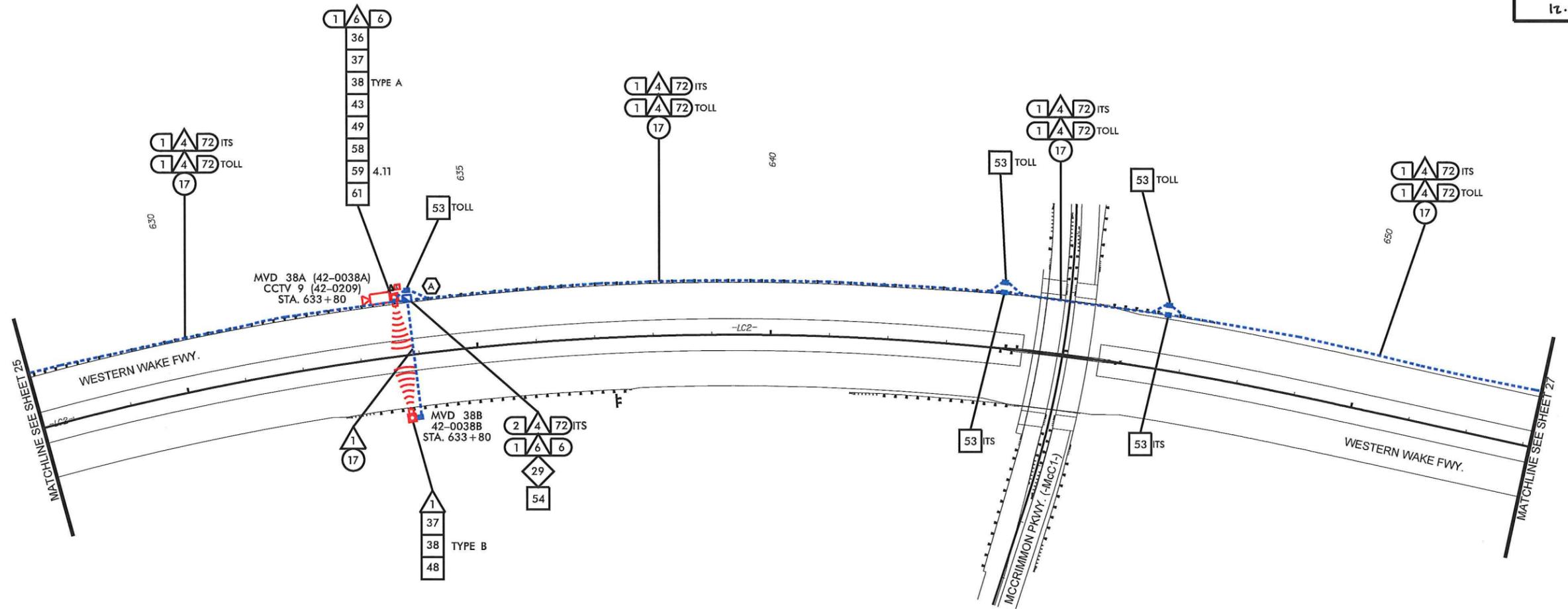
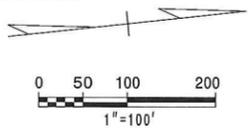
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 919 877-0000



ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **26**



11/21/2013
 -Vs_Built/phase 2.vst 26.dgn

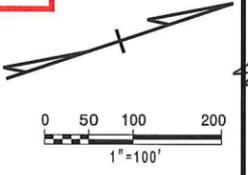
REVISIONS



ITS PLANS
 CABLE ROUTING PLAN

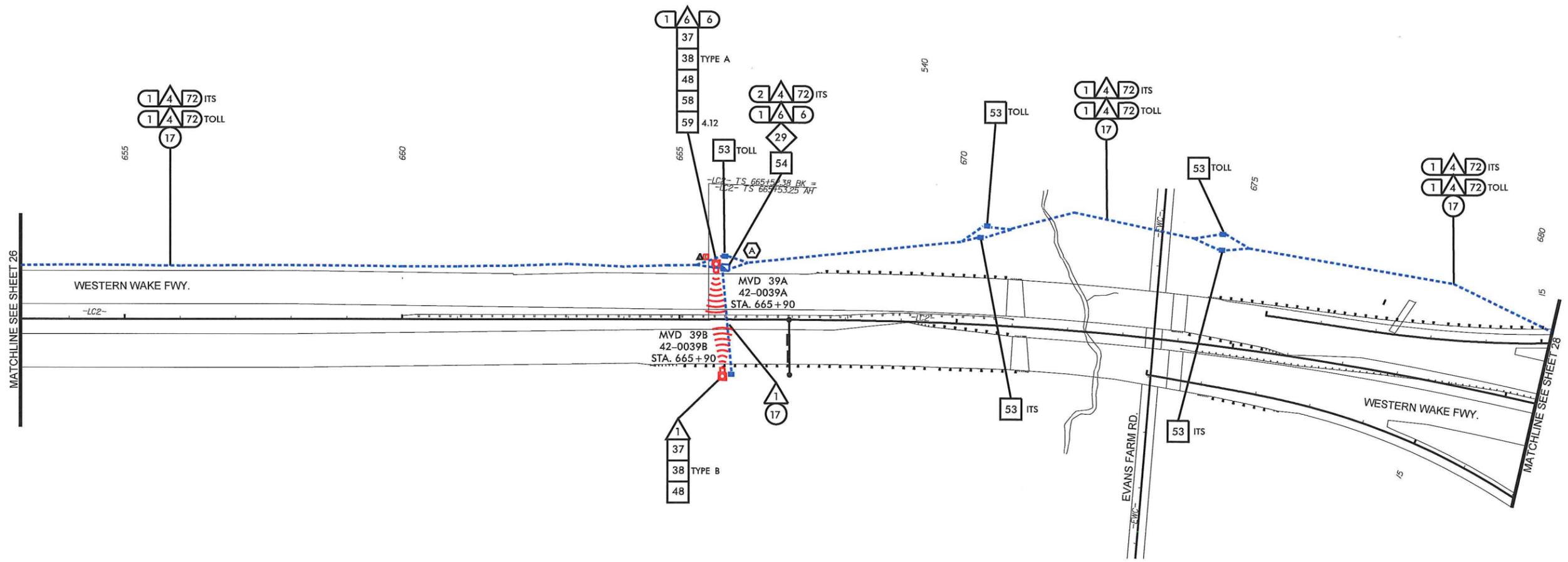
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 27
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ITS ENGINEER

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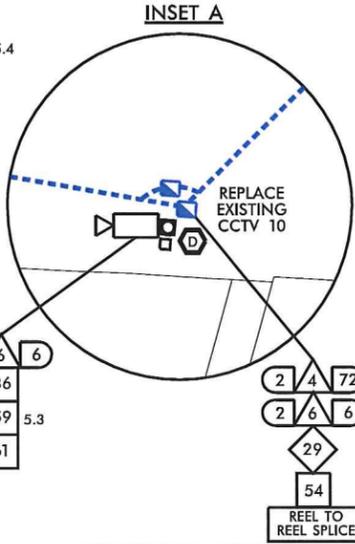
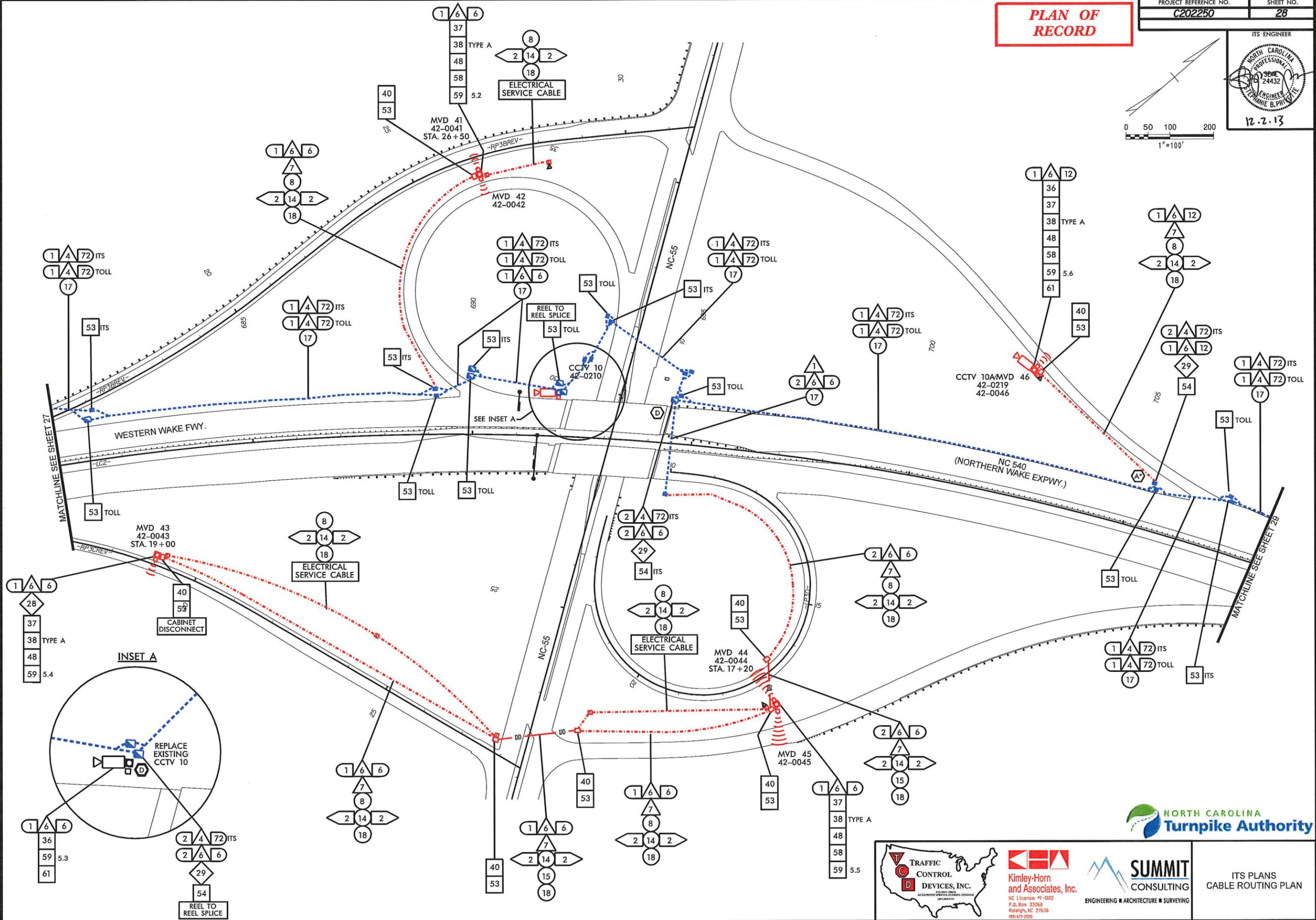
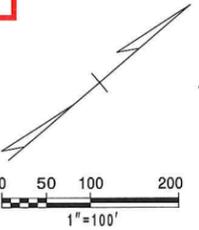
11/21/2013 -As_Bullis phase 2 of 27.dgn



<p>TRAFFIC CONTROL DEVICES, INC. P.O. BOX 1000 ALEXANDRIA, VIRGINIA 22304-1000 (703) 839-1200</p>	<p>Kimley-Horn and Associates, Inc. NC License #F-0002 P.O. Box 35069 Raleigh, NC 27635 (919) 677-2000</p>	<p>SUMMIT CONSULTING ENGINEERING ■ ARCHITECTURE ■ SURVEYING</p>	<p>ITS PLANS CABLE ROUTING PLAN</p>
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PLAN OF RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. 28



REVISIONS
12/3/2013
As_Built/phase 2'sht 28.dgn



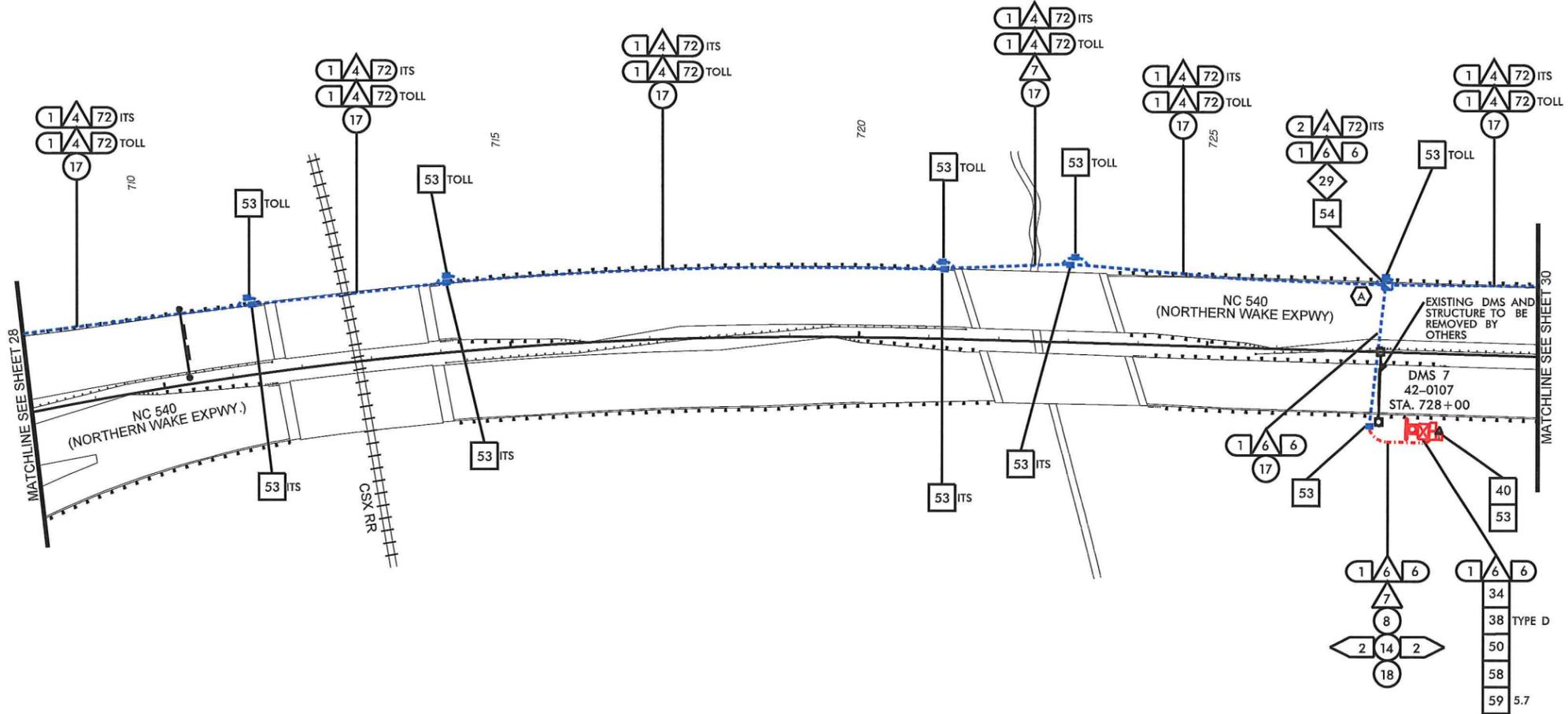
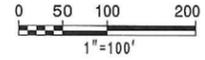
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **29**

ITS ENGINEER

 12.2.13



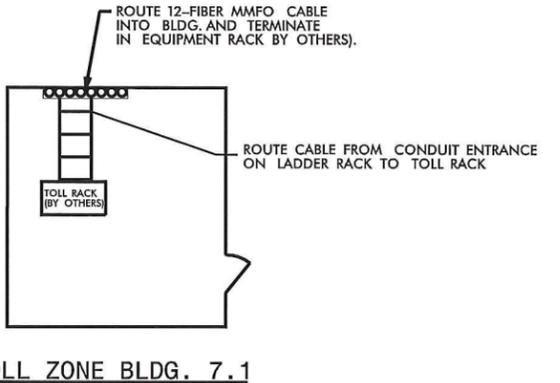
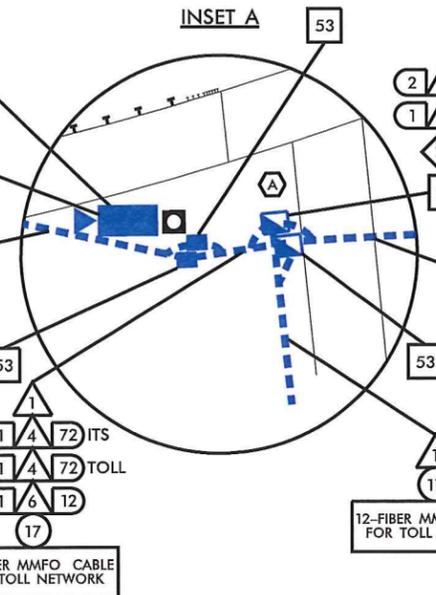
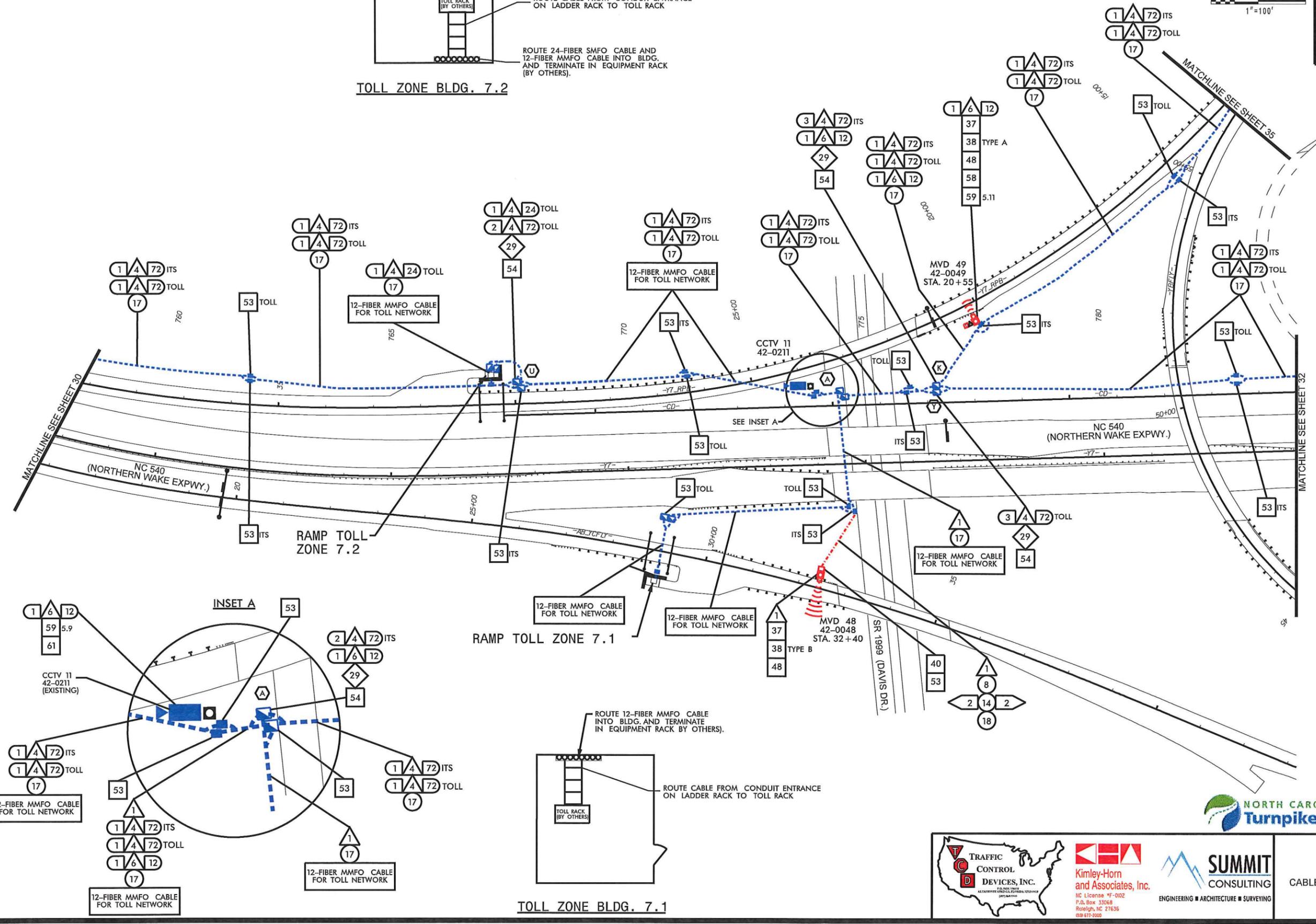
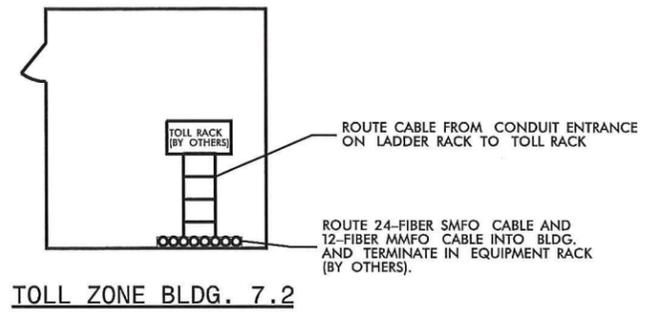
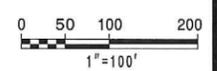
11/21/2013 -\As_Built\its\phase 2\sh 29.dgn REVISIONS



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

ITS ENGINEER



REVISIONS

11/21/2013

As-Built/Phase 2/str 31.dgn

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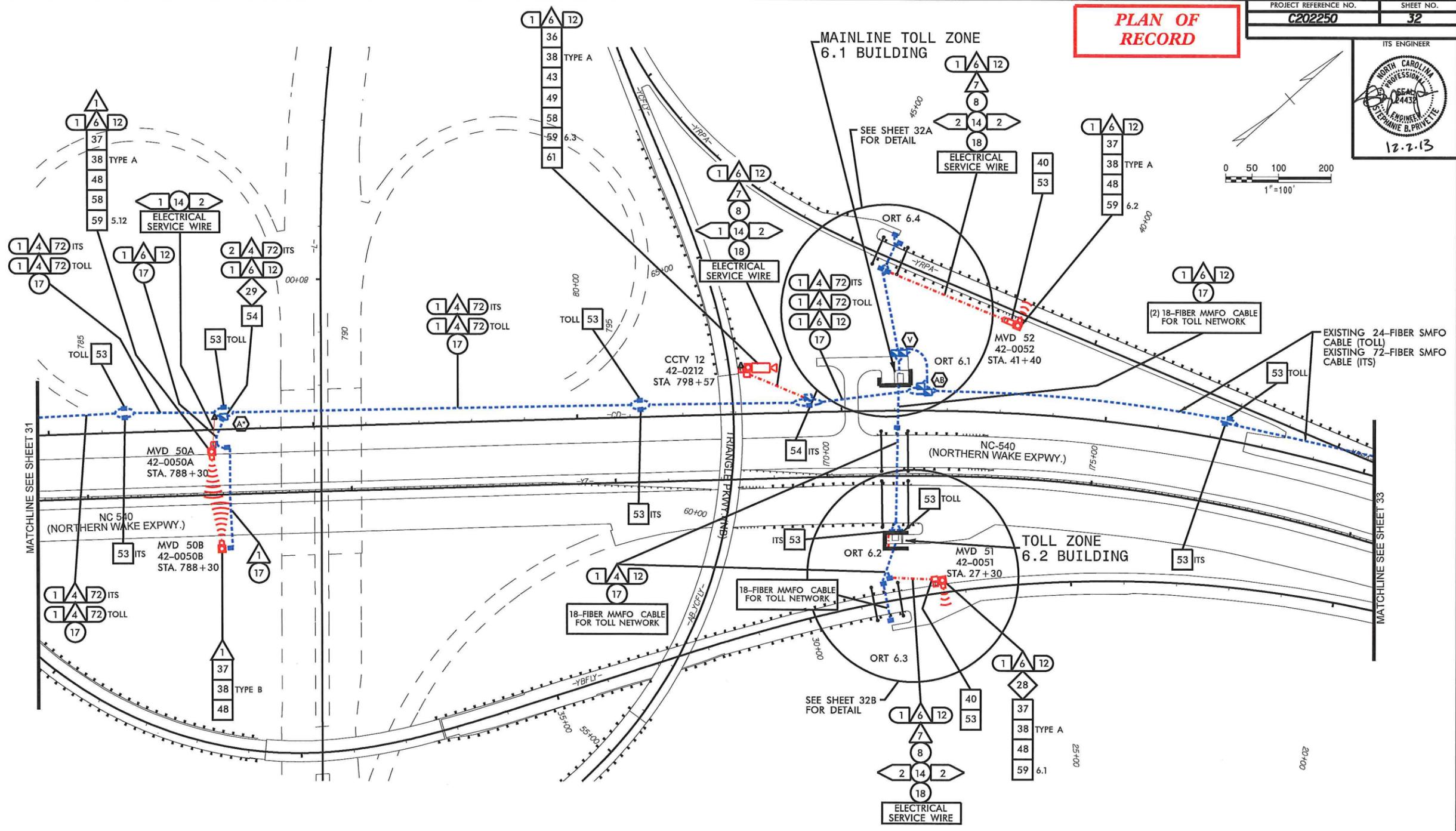
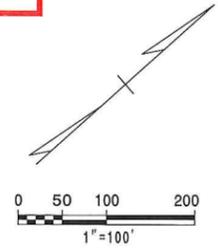
Kimley-Horn and Associates, Inc.

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ITS PLANS CABLE ROUTING PLAN



PLAN OF RECORD



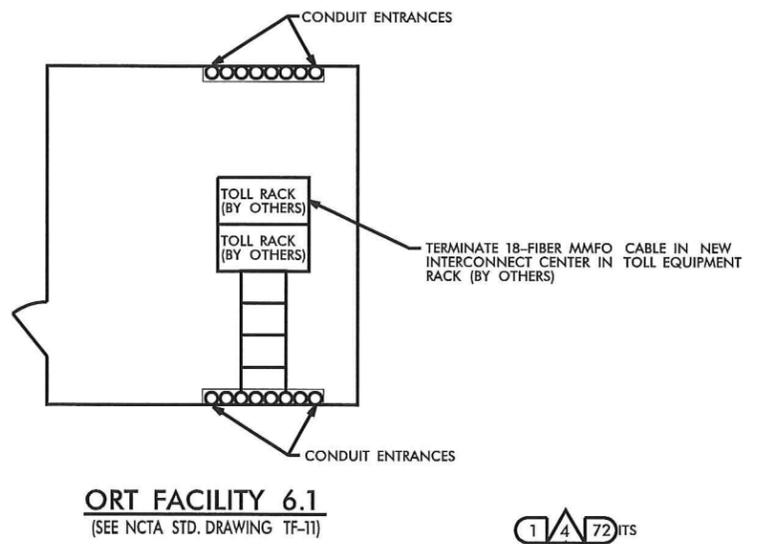
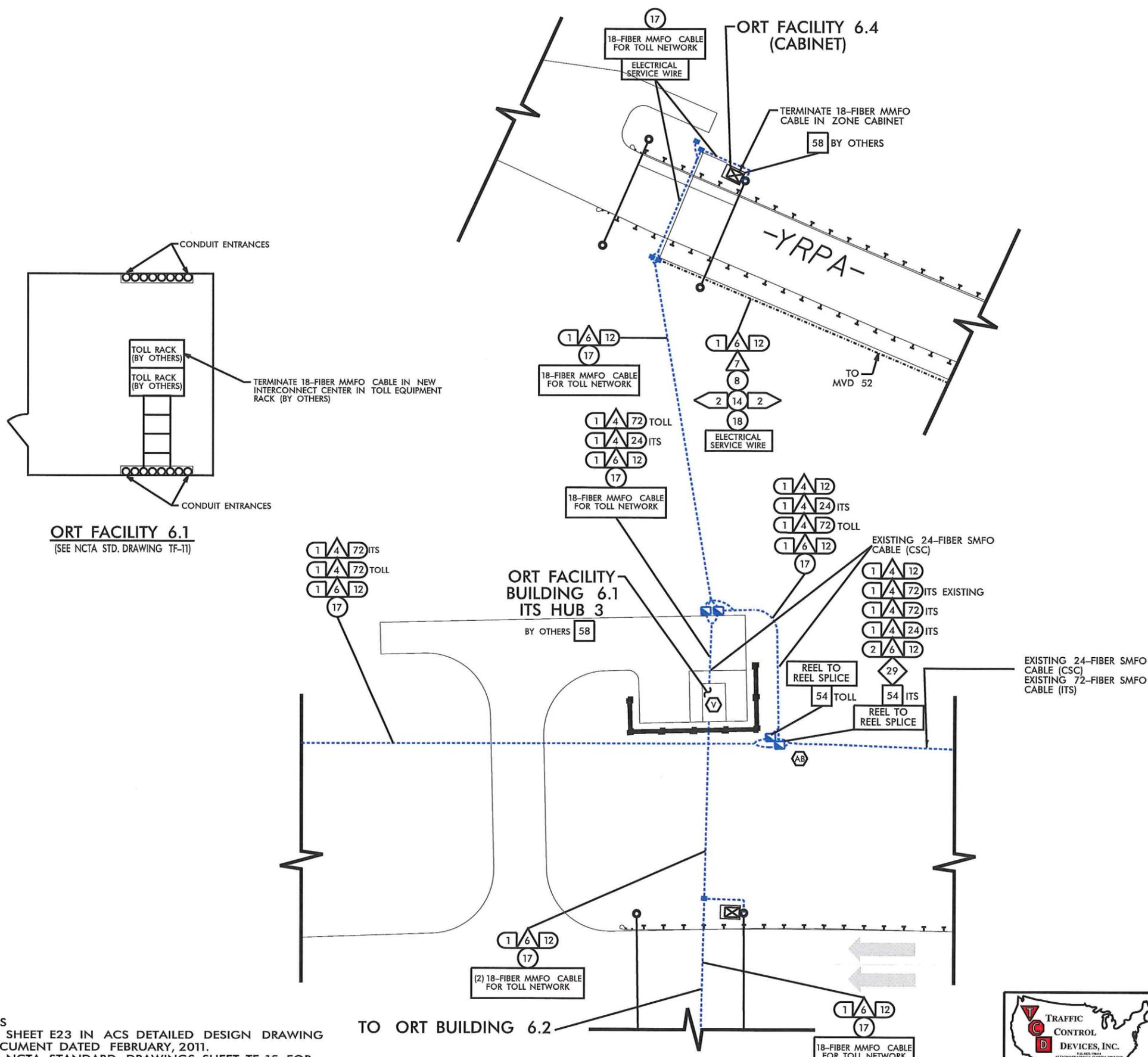
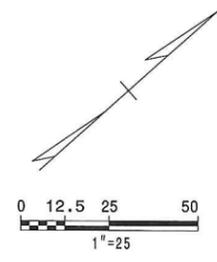
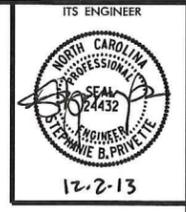
REVISIONS
 11/21/2013 Ms_Bullis\phase 2\str 32.dgn

- NOTES**
- SEE SHEET E23 IN ACS DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 - SEE NCTA STANDARD DRAWINGS SHEET TF-15 FOR TOLL ZONE 1.1 AND 1.2.



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD



- NOTES**
1. SEE SHEET E23 IN ACS DETAILED DESIGN DRAWING DOCUMENT DATED FEBRUARY, 2011.
 2. SEE NCTA STANDARD DRAWINGS SHEET TF-15 FOR TOLL ZONE 1.1 AND 1.2.

REVISIONS
 11/21/2013
 -Las_Bullits\phase 2\set 32A.dgn



ITS PLANS
CABLE ROUTING PLAN

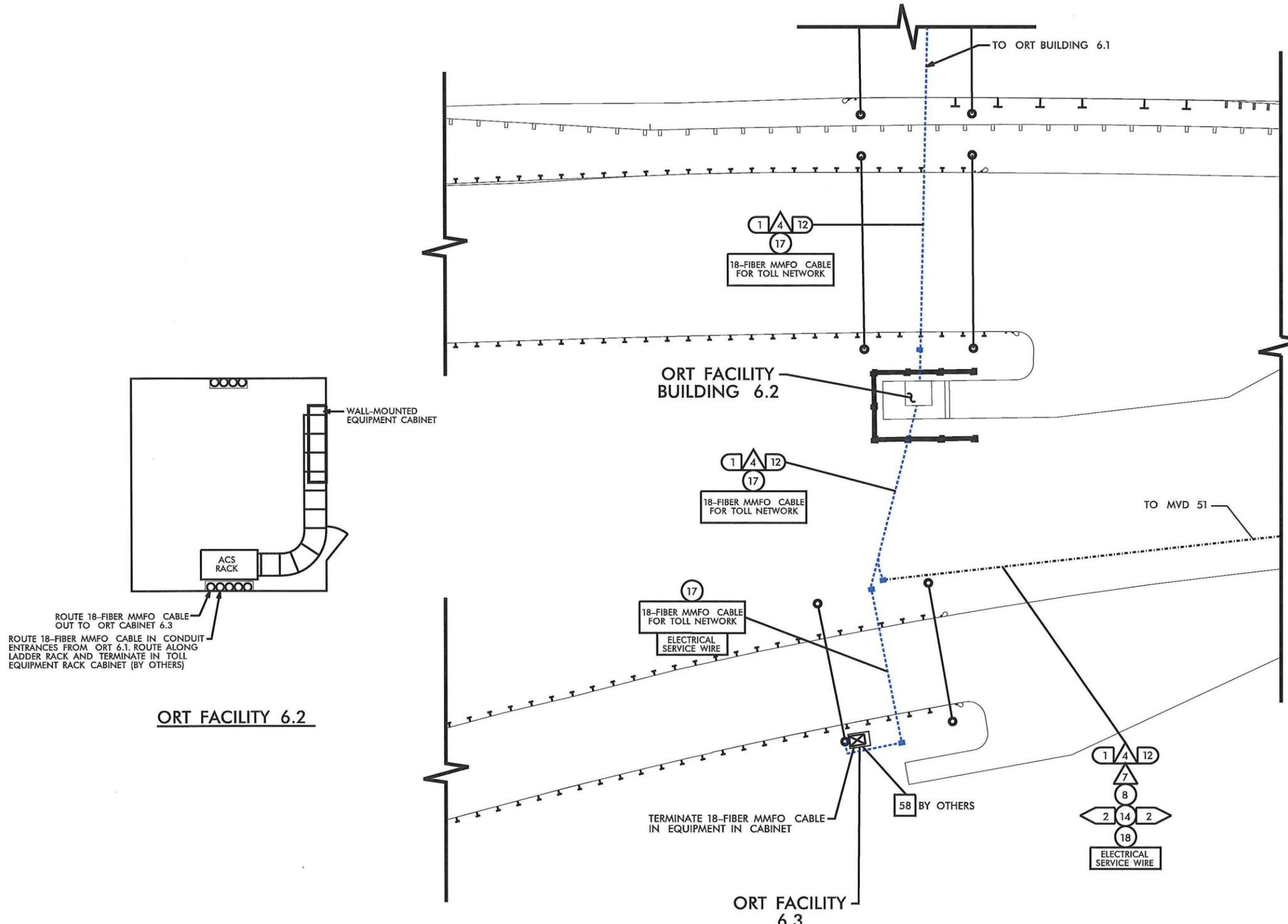
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **32B**

ITS ENGINEER

 12.2.13

0 12.5 25 50
 1"=25'



REVISIONS
 11/21/2013
 _\As_Built\phase 2\st 32B.dgn



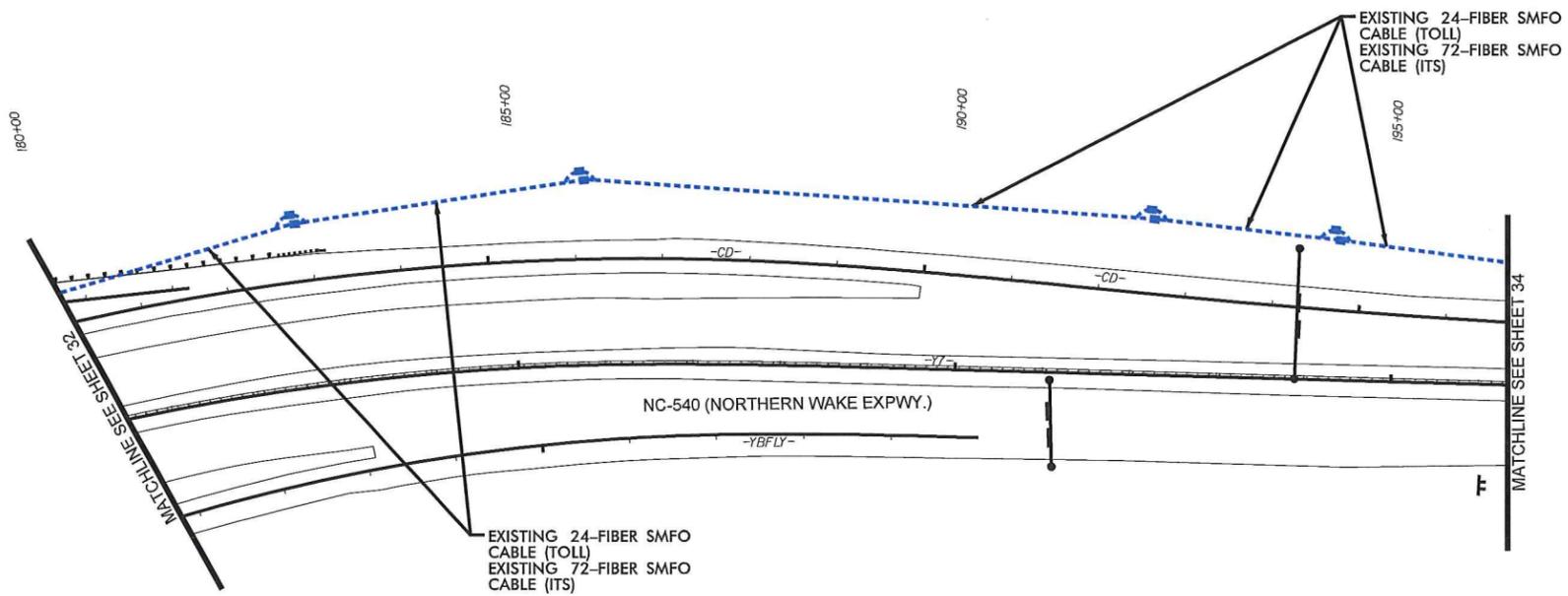
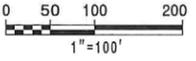
ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **33**

ITS ENGINEER

 12.2.13



11/21/2013
 _Vs_Bullisphase 2'sht 33.dgn

REVISIONS

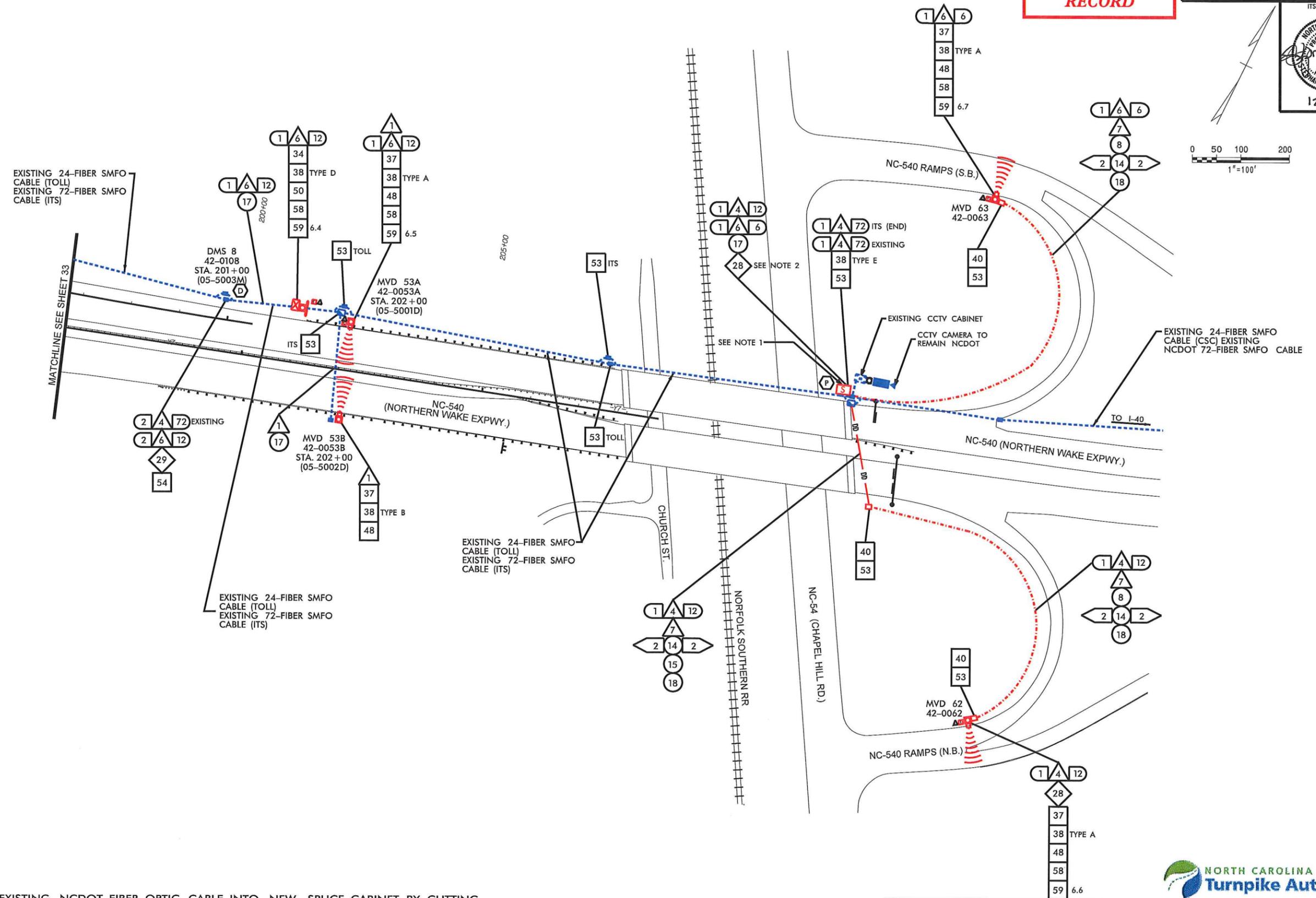
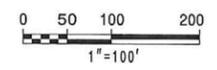


ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

ITS ENGINEER

12.2.13



- NOTES**
- ROUTE EXISTING NCDOT FIBER OPTIC CABLE INTO NEW SPLICE CABINET, BY CUTTING CABLE SOUTHWEST OF JUNCTION BOX AND ROUTING SLACK INTO SPLICE CABINET. ABANDON EXISTING NCDOT 72-FIBER SMFO CABLE SOUTHWEST OF 6 AND 12 FIBER DROP CABLE CUT.
 - TERMINATE BLUE, ORANGE, GREEN, BROWN FIBER OF EACH 6 AND 12 FIBER DROP CABLE IN NEW INTERCONNECT CENTER. USE JUMPERS TO PATCH IN TO EXISTING ETHERNET RING #6.

TRAFFIC CONTROL DEVICES, INC.
P.O. Box 33068
Raleigh, NC 27635
(919) 877-2000

Kimley-Horn and Associates, Inc.
N.C. License #F-002
P.O. Box 33068
Raleigh, NC 27635
(919) 877-2000

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS
CABLE ROUTING PLAN

REVISIONS
 11/21/2013
 -Vs_Bullis\phase 2\cstf 34.dgn

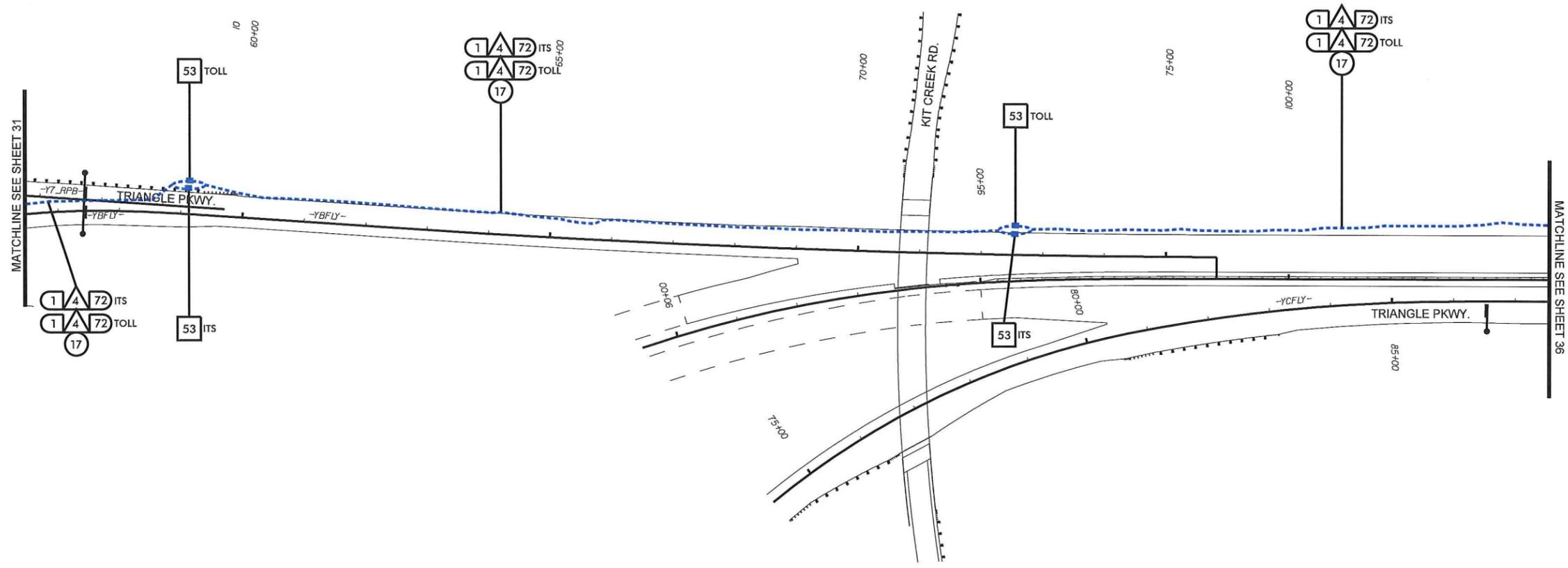
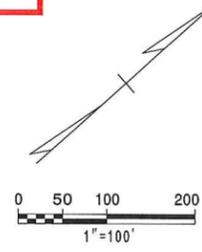
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **35**

ITS ENGINEER



12.2.13



11/21/2013
 _\vs_Bullits\phase 2\st 35.dgn

REVISIONS



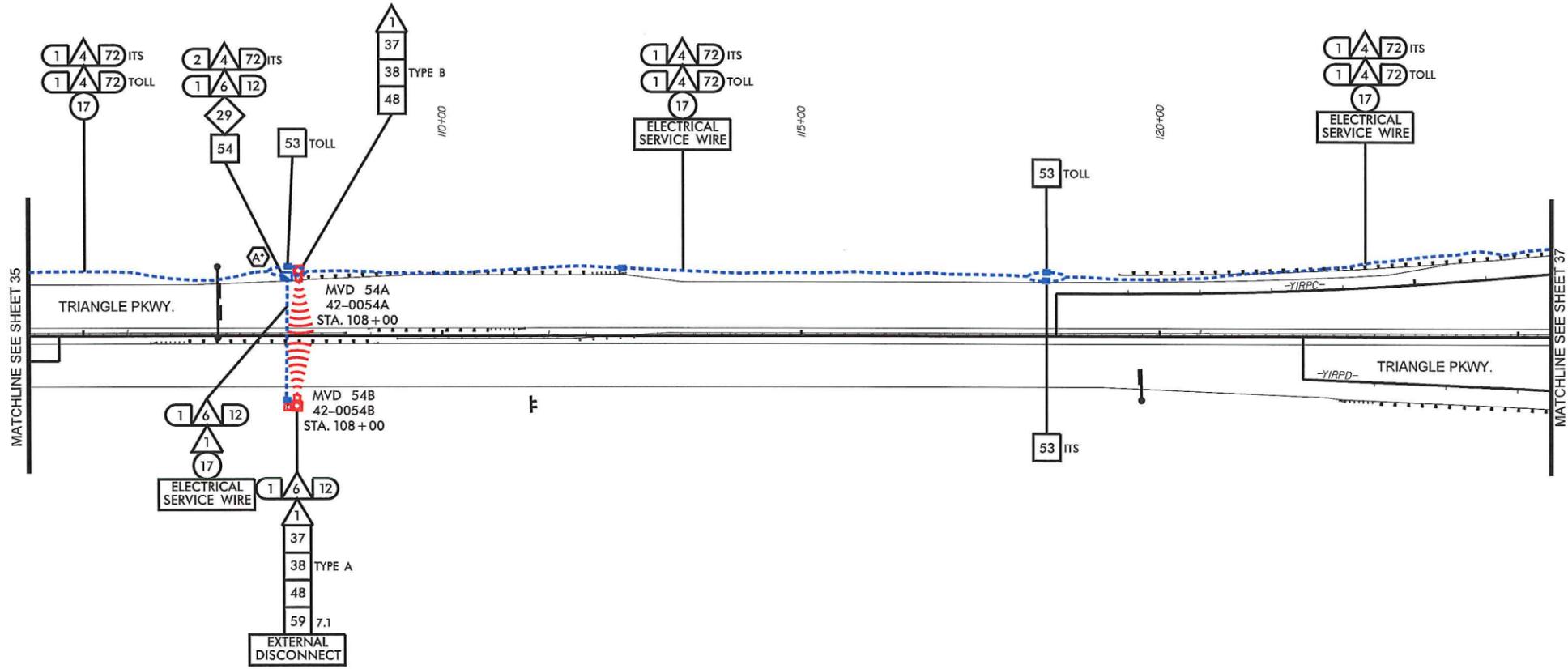
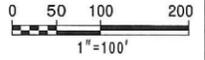
Kimley-Horn and Associates, Inc.
 NC License #F-0102
 P.O. Box 33068
 Raleigh, NC 27636
 919 677-2029



ITS PLANS
 CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 36
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REVISIONS

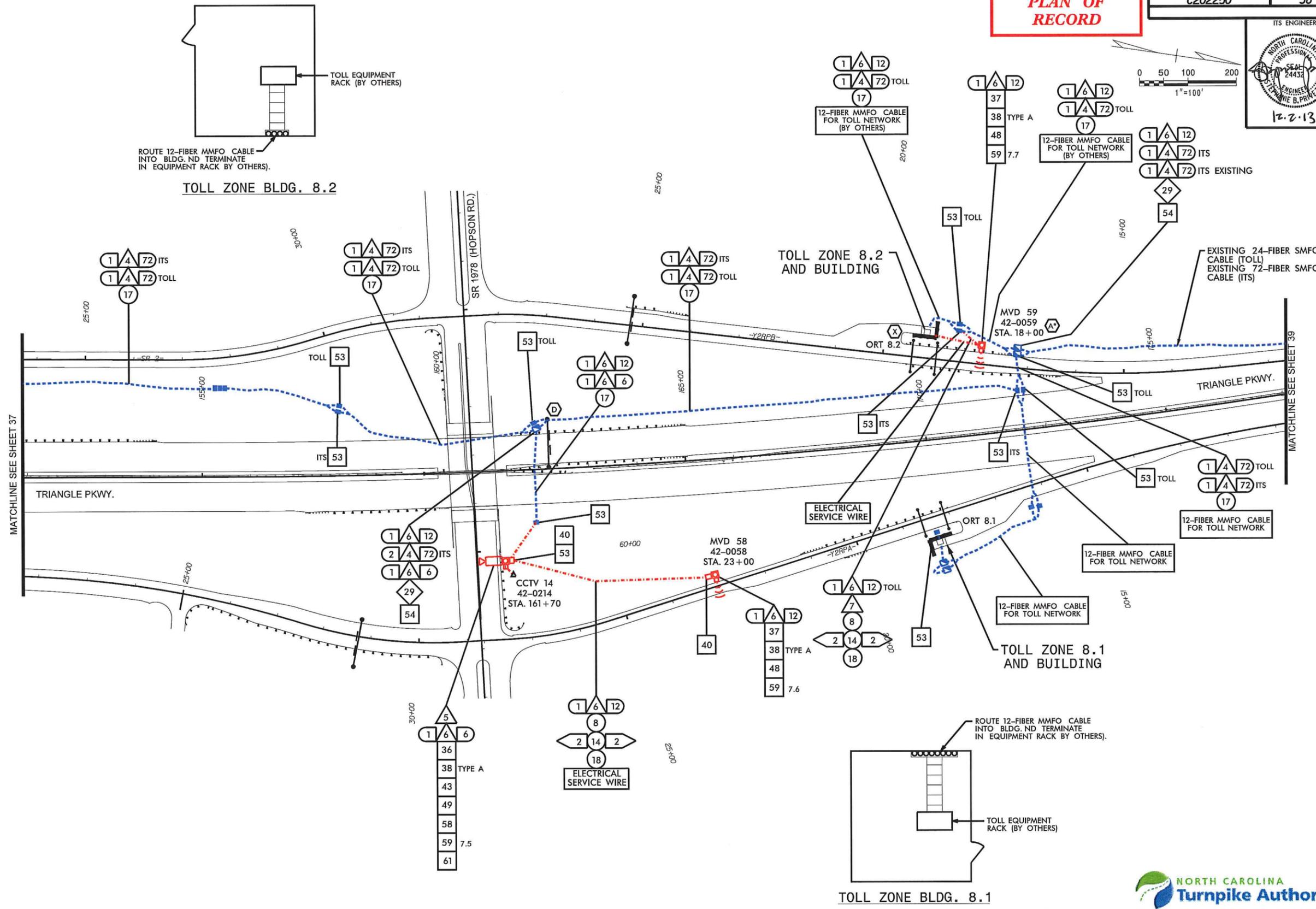
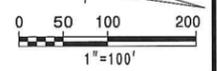
As_Bullits phase 2.vst 36.dgn

11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD



- NOTES
1. SEE NCTA STANDARD DRAWINGS SHEET TF-9 FOR TOLL ZONE'S 8.1 AND 8.2.
 2. SPLICE ALL FIBERS IN ALL BUFFER TUBES TO LIKE COLORED FIBERS IN LIKE COLORED BUFFER TUBES.



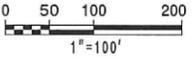
ITS PLANS
CABLE ROUTING PLAN

12/3/2013 ...As_Built\phase 2\str 38.dgn

REVISIONS

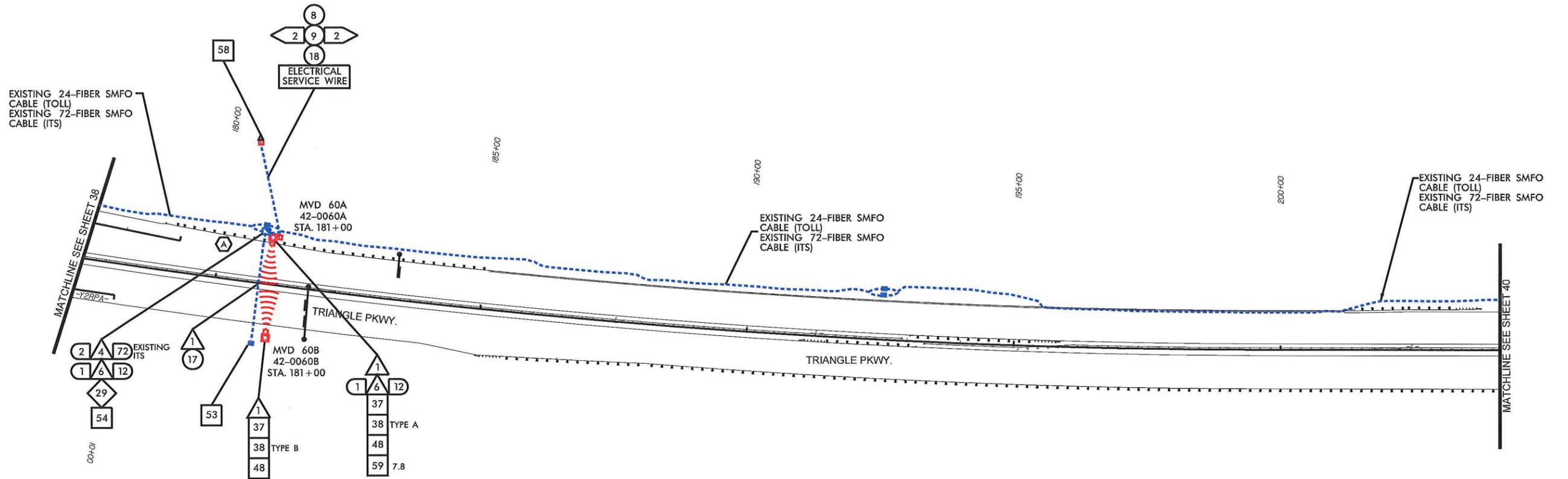
PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 39
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ITS ENGINEER

12.2.13



11/21/2013 \\As_Bullis\phase 2\str 39.dgn

REVISIONS



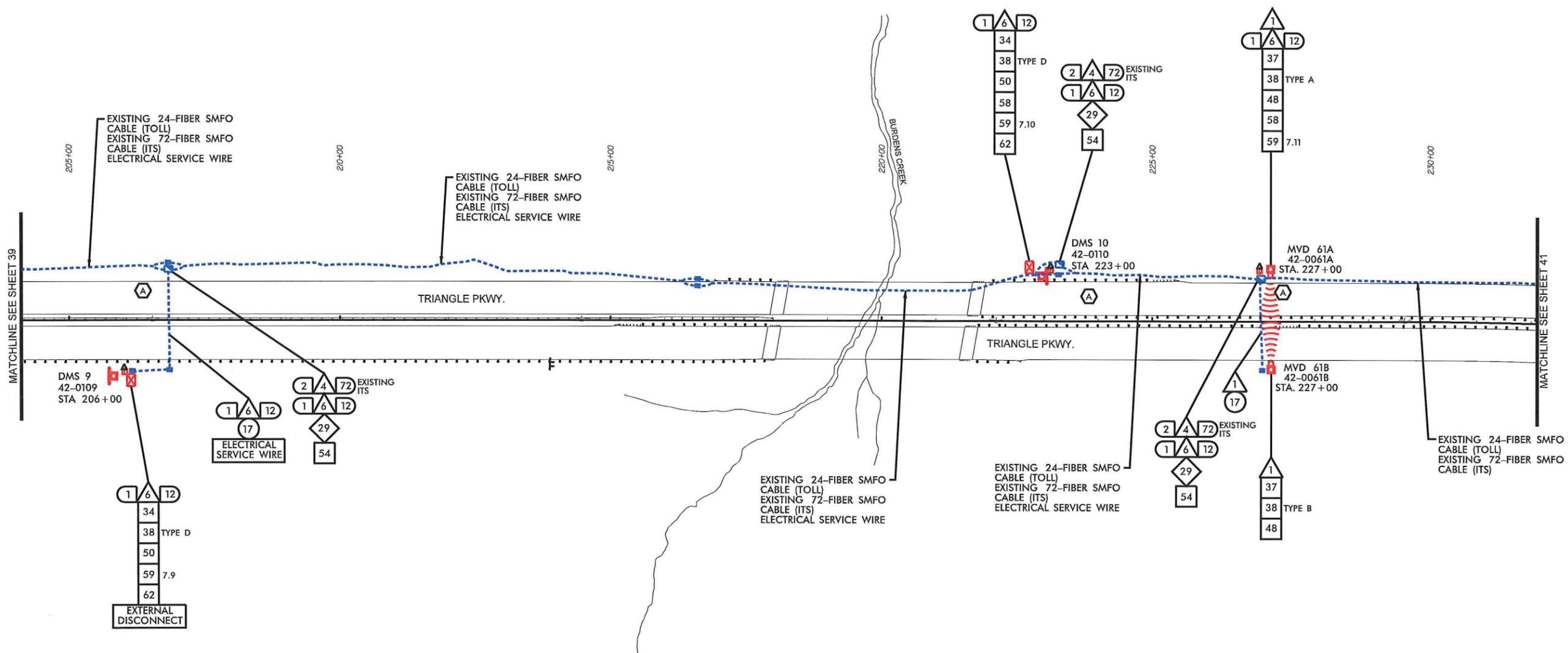
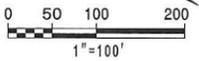
ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO. C202250	SHEET NO. 40
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ITS ENGINEER

12.2.13



11/21/2013 -As_Bullishouse 2-sht 40.dgn



ITS PLANS
CABLE ROUTING PLAN

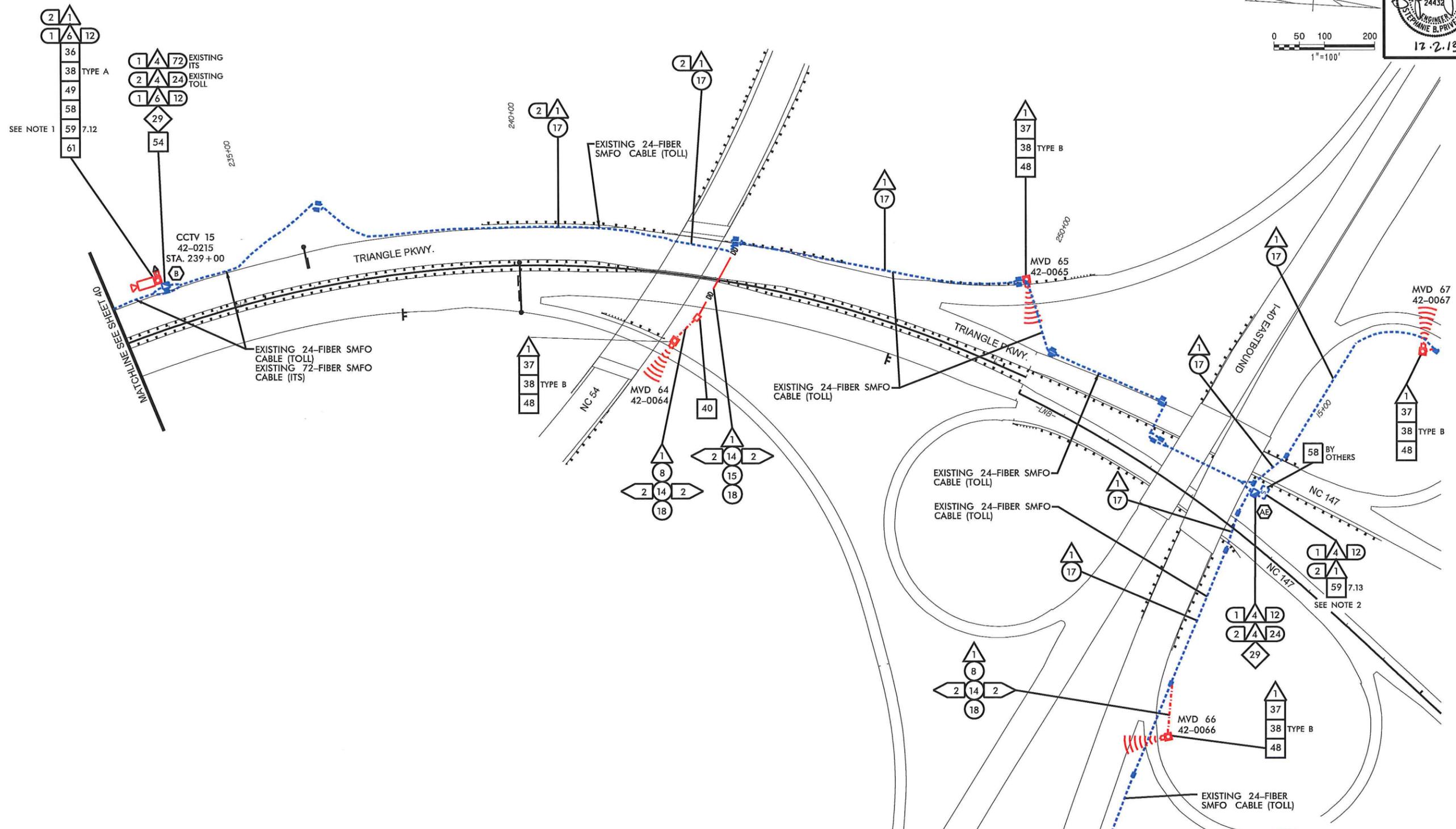
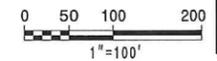
PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **41**

ITS ENGINEER



12.2.13



- NOTES**
1. TERMINATE MVD 64/65 IN CCTV 15 CABINET.
 2. TERMINATE MVD 66/67 IN EXISTING SPLICE CABINET. INSTALL ETHERNET SWITCH.

REVISIONS

\\as_Bullis\phase 2\st 41.dgn

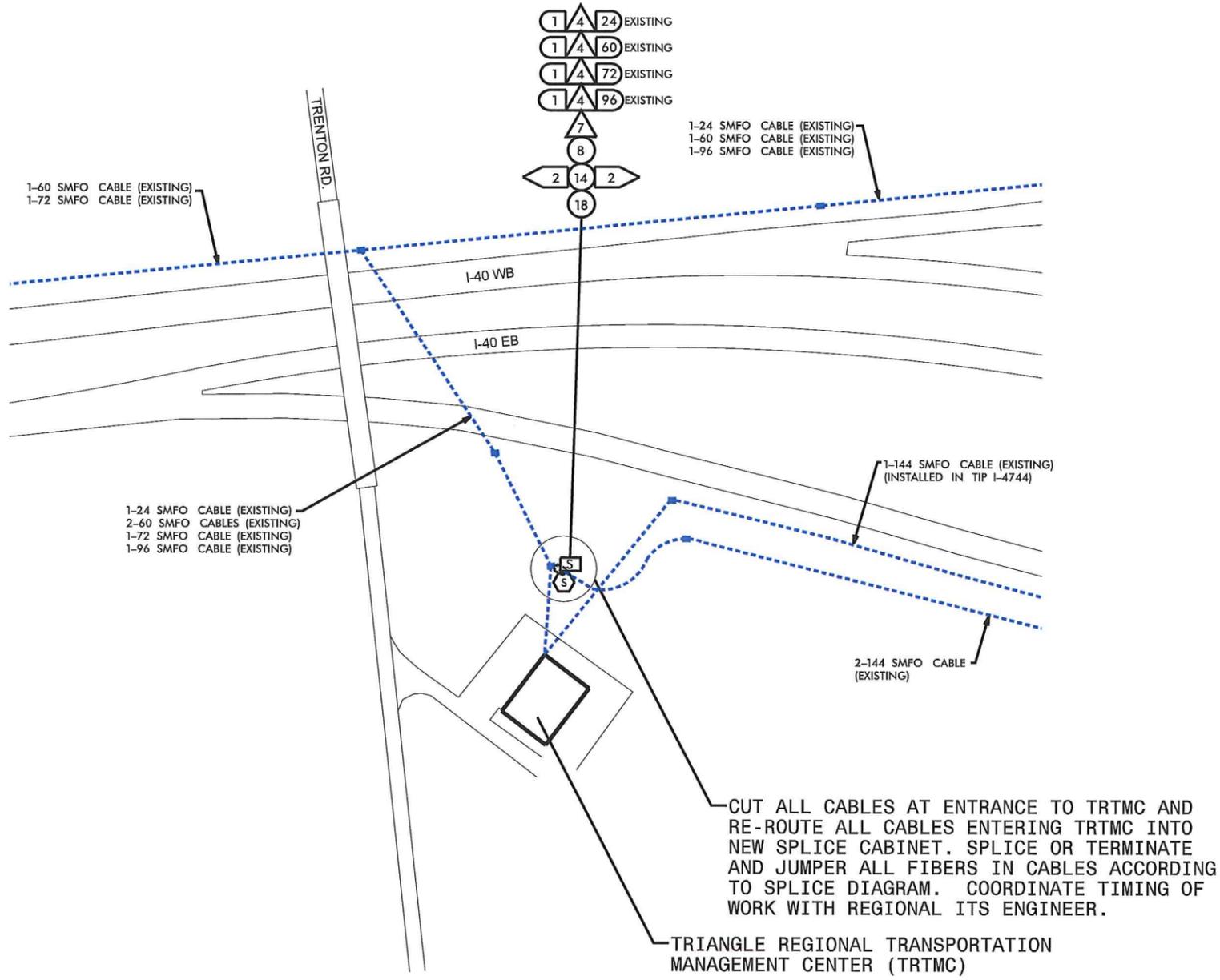
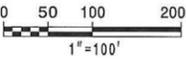
11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	42



REVISIONS

\\As_Built\phase 2\str 42.dgn

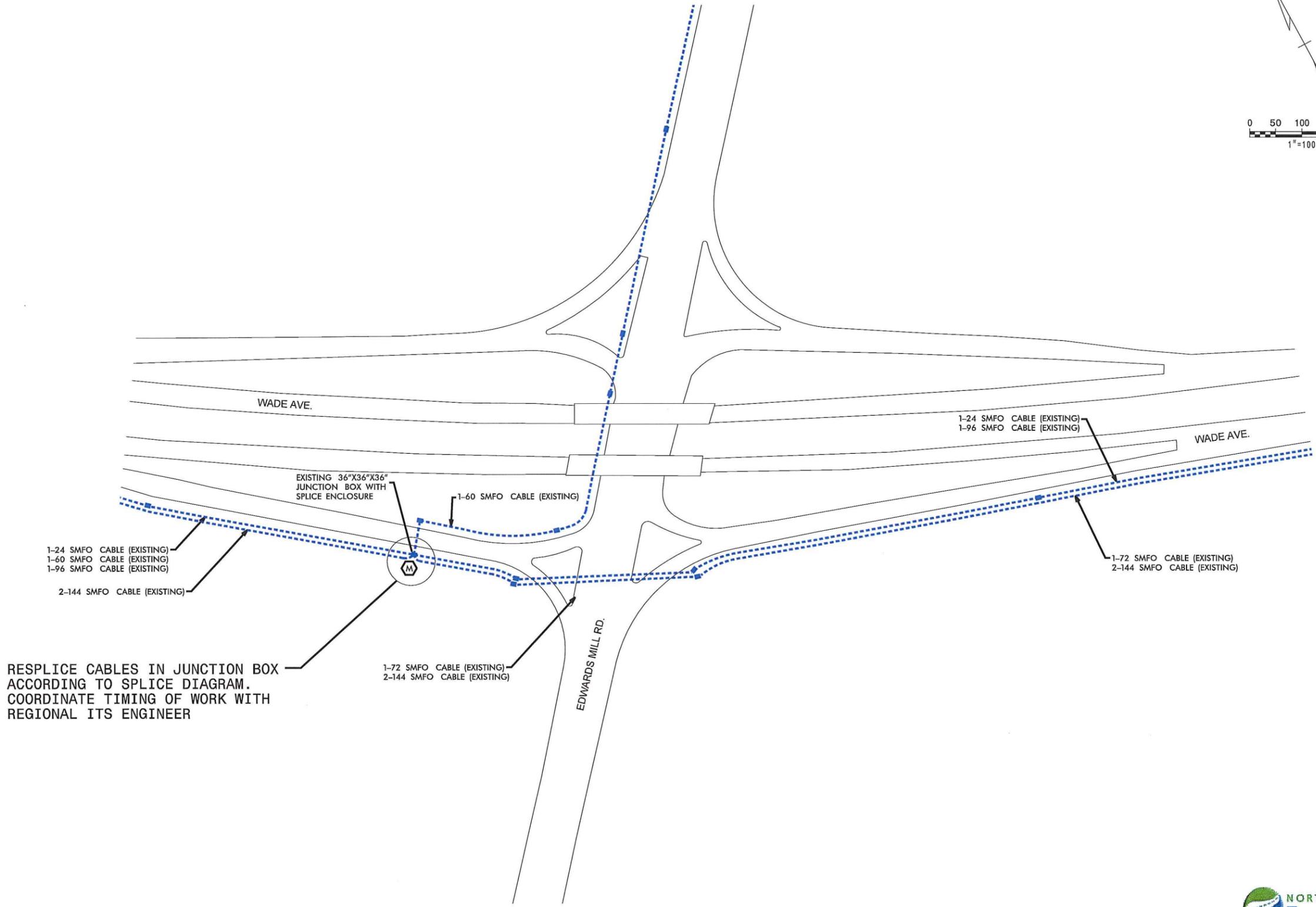
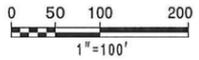
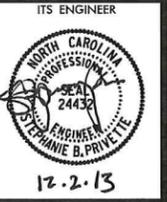
11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD

PROJECT REFERENCE NO.	SHEET NO.
C202250	43



RESPLICE CABLES IN JUNCTION BOX
ACCORDING TO SPLICE DIAGRAM.
COORDINATE TIMING OF WORK WITH
REGIONAL ITS ENGINEER

REVISIONS

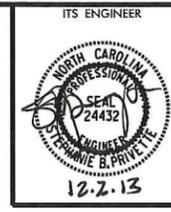
_Ms_Bullis\phase 2\st 43.dgn

11/21/2013



ITS PLANS
CABLE ROUTING PLAN

PLAN OF RECORD



Splice Reference				
Plan Sheet Reference	Switch	Devices	Splice Type	Splice Sheet Reference
3	1.1	MVD 1	J	SPL 07
	1.2	CCTV 1		
	1.3	MVD 2		
	1.4	MVD 3		
	1.5	MVD 4	A	
4	1.6	MVD 5	A	SPL 02
4A	Toll Building 1.1		T	SPL 16
	ITS Hub 1		Z	SPL 21
	1.7	DMS 1		
		DMS 2		
5	1.8	MVD 6 CCTV 1A	A	
6	1.9	MVD 7	A	SPL 02
7	1.10	MVD 8	D	SPL 04
	1.11	MVD 9		
	2.1	CCTV 2	A*	
	2.3	MVD 10	D	
		MVD 11		
	2.4	MVD 12		
MVD 13				
8	2.6	MVD 14	A	SPL 02
9	2.7	CCTV 3	D	SPL 06
	2.8	MVD 15		
		MVD 16		
	2.9	MVD 17	A*	
	2.10	MVD 18	A	
Toll Building 2.2		U	SPL 17	
10	2.11	MVD 19	A	SPL 02
10A	2.12	DMS 3	A	SPL 02
		DMS 4		
	Toll Building 3.2		U	

Splice Reference						
Plan Sheet Reference	Switch	Devices	Splice Type	Splice Sheet Reference		
11	2.13	CCTV 4A	A	SPL 02		
	2.14	MVD 20	A	SPL 02		
12	2.13A	CCTV 4	A	SPL 02		
13	2.15	MVD 21	A	SPL 02		
14	3.2	MVD 22	E	SPL 05		
		MVD 23				
	3.3	MVD 24				
	3.5	MVD 26				
	3.6	CCTV 5				
		CCTV 5A				
	3.6A	CCTV 5B				
		3.4			MVD 25	A
	3.7	MVD 27			A	SPL 02
	15	Toll Building 4.2			U	SPL 17
16	3.8	MVD 28	A	SPL 02		
17	3.9	CCTV 6	A	SPL 02		
		MVD 29				
19	3.10	MVD 30	A	SPL 02		
20	4.1	CCTV 7	H	SPL 06		
		MVD 31				
	4.2	MVD 32				
	4.3	MVD 33				
	4.5	MVD 34			A	SPL 02
21	4.6	MVD 35	A	SPL 02		
21A	ITS Hub 2		AA	SPL 22		
	4.7	DMS 5				
		DMS 6				
	Toll Building 5.1				U	SPL 17

Splice Reference						
Plan Sheet Reference	Switch	Devices	Splice Type	Splice Sheet Reference		
22	4.8	MVD 36	A	SPL 02		
23	4.9	CCTV 8	A	SPL 02		
24	4.10	MVD 37	A	SPL 02		
		RWIS				
26	4.11	CCTV 9	A	SPL 02		
		MVD 38				
27	4.12	MVD 39	A	SPL 02		
28	5.2	MVD 41	D	SPL 04		
		MVD 42				
	5.3	CCTV 10				
	5.4	MVD 43				
	5.5	MVD 44				
		MVD 45				
5.6	MVD 46	A*	SPL 02			
	CCTV 10A					
29	5.7	DMS 7	A	SPL 02		
30	5.8	MVD 47	A	SPL 02		
31	5.9	CCTV 11	A	SPL 04		
		MVD 48				
	5.11	MVD 49			K	SPL 08
	Toll Building 7.2				U	SPL 17
NC 540 and Triangle Pkwy Toll Splice		Y	SPL 20			
32	5.12	MVD 50	A*	SPL 02		
	Toll Building 6.1		V	SPL 18		
32A	ITS Hub 3		AB	SPL 23		
	6.1	MVD 51				
	6.2	MVD 52				
	6.3	CCTV 12				

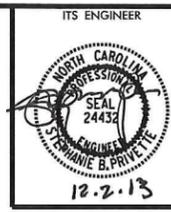
Splice Reference					
Plan Sheet Reference	Switch	Devices	Splice Type	Splice Sheet Reference	
34	6.4	DMS 8	D	SPL 04	
	6.5	MVD 53			
	NC 540 and NC 54 Splice		P		
	6.6	MVD 62			
36	7.1	MVD 54	A*	SPL 02	
		MVD 63			
37	7.2	MVD 55	A*	SPL 02	
		MVD 56			
	7.3	CCTV 13			
	7.4	MVD 57			
38	7.5	CCTV 14	D	SPL 04	
	7.6	MVD 58			
	7.7	MVD 59	A*		SPL 02
	Toll Building 8.2		X		SPL 19
	39	7.8	MVD 60		A
40	7.9	DMS 9	A	SPL 02	
	7.10	DMS 10	A	SPL 02	
	7.11	MVD 61	A	SPL 02	
41	7.12	CCTV 15	B	SPL 03	
		MVD 65			
		MVD 64			
41	7.13	MVD 66	AE	SPL 26	
		MVD 67			
42	TRTMC		S	SPL 15	
43	Wade Ave. at Edward Mills Rd.		M	SPL 09	
44	STOC		N	SPL 10	
	Wade Ave. at Blue Ridge Rd.		AC	SPL 24	
	Resident Engineer's Office		AD	SPL 25	
N/A	I-540 and I-40		O	SPL 11	
N/A	CSC		Q	SPL 13	
N/A	I-40 and Airport Blvd.		R	SPL 14	

11/21/2013 -phase 2 Splicing Spt Dlgdn REVISIONS

*INDICATES A 12F DROP INSTEAD OF A 6F GATOR PATCH

TRAFFIC CONTROL DEVICES, INC.
 Kimley-Horn and Associates, Inc.
 SUMMIT CONSULTING
 NORTH CAROLINA Turnpike Authority
 ITS PLANS SPLICE PLANS

PLAN OF RECORD



**ITS SPLICE TYPE A
MVD, DMS,
AND/OR CCTV**

COLOR CODE
TIA/EIA 598-C

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

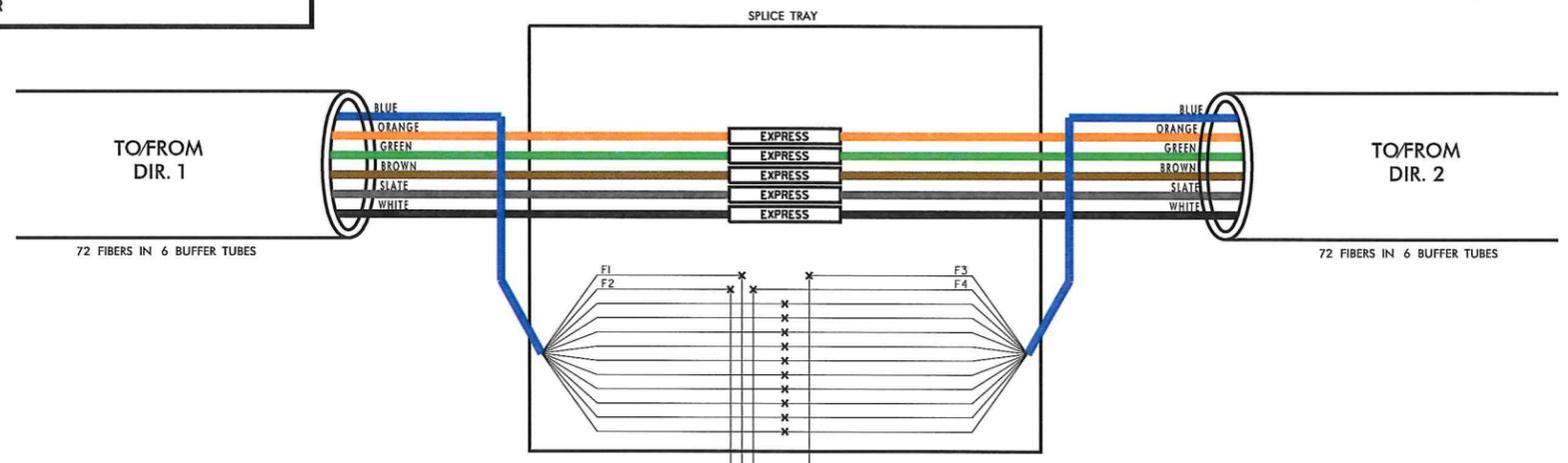
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

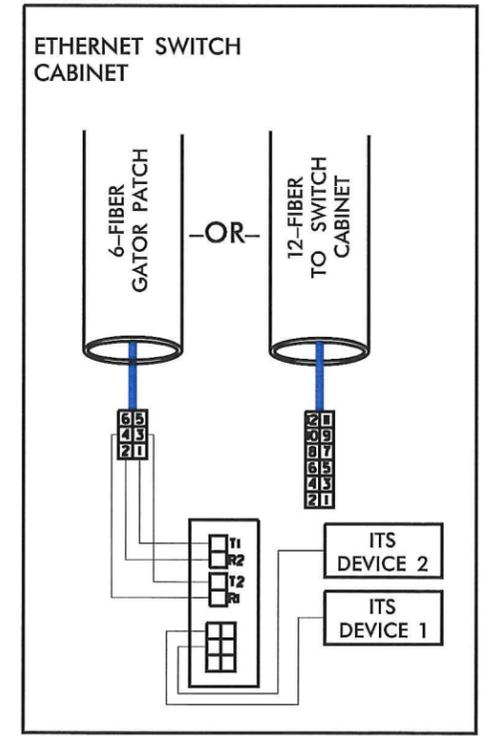
○ UNUSED FIBER
● USED (LIT) FIBER



Splice Type A						
Plan Sheet Reference	Location	Switch	Devices	Splice for Switch(es)	Fibers Occupied in Blue Buffer Tube	To
3	1.5	MVD 4	1.1, 1.2, 1.3, and 1.4	f1	blue	1.6
				f2	orange	
4	1.6	MVD 5	1.5	f1	blue	1.7
				f2	orange	
5	1.8	MVD 6 CCTV 1A	1.7	f1	blue	1.9
				f2	orange	
6	1.9	MVD 7	1.8	f1	blue	1.10 and 1.11
				f2	orange	
7	2.1*	CCTV 2	1.11	f1	blue	2.2
				f2	orange	
8	2.6	MVD 14	2.4	f1	green	2.7, 2.8, and 2.9
				f2	brown	
9	2.10	MVD 18	2.7, 2.8, and 2.9	f1	green	2.11
				f2	brown	
9	2.9*	MVD 17	2.8	f1	green	2.10
				f2	brown	
10	2.11	MVD 19	2.10	f1	green	2.12
				f2	brown	
10	2.12	DMS 3 DMS 4	2.11	f1	green	2.13
				f2	brown	
11	2.13	CCTV 4A	2.12	f1	green	2.14
				f2	brown	
11	2.14	MVD 20	2.13	f1	green	2.13A
				f2	brown	
12	2.13A	CCTV 4	2.14	f1	green	2.15
				f2	brown	
13	2.15	MVD 21	2.13A	f1	green	3.1, 3.2, 3.3, and 3.4
				f2	brown	
14	3.4	MVD 25	3.3	f1	green	3.5 and 3.6
				f2	brown	
14	3.7	MVD 27	3.5 and 3.6	f1	slate	3.8
				f2	white	
16	3.8	MVD 28	3.7	f1	slate	3.9
				f2	white	
17	3.9	MVD 29 CCTV 6	3.8	f1	slate	3.10
				f2	white	
19	3.10	MVD 30	3.9	f1	slate	4.1, 4.2, and 4.3
				f2	white	
20	4.5	MVD 34	4.1, 4.2, and 4.3	f1	red	4.6
				f2	black	
21	4.6	MVD 35	4.4 and 4.5	f1	red	4.7
				f2	black	

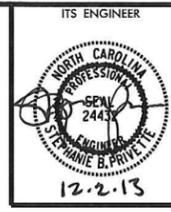
*INDICATES A 12F DROP INSTEAD OF A 6F GATOR PATCH

Splice Type A						
Plan Sheet Reference	Location	Switch	Devices	Splice for Switch(es)	Fibers Occupied in Blue Buffer Tube	To
22	4.8	MVD 36	4.7	f1	red	4.9
				f2	black	
23	4.9	CCTV 8	4.8	f1	red	4.10
				f2	black	
24	4.10	MVD 37 RWIS	4.9	f1	red	4.11
				f2	black	
25	4.11	CCTV 9 MVD 38	4.10	f1	red	4.12
				f2	black	
27	4.12	MVD 39	4.11	f1	red	5.2 and 5.3
				f2	black	
28	5.6*	MVD 46 CCTV 10A	5.4 and 5.5	f1	slate	5.7
				f2	white	
29	5.7	DMS 7	5.6	f1	slate	5.8
				f2	white	
30	5.8	MVD 47	5.7	f1	slate	5.9
				f2	white	
31	5.9	CCTV 11 MVD 48	5.8	f1	slate	5.11
				f2	white	
32	5.12*	MVD 50	5.11	f1	slate	6.1, 6.2, and 6.3
				f2	white	
36	7.1*	MVD 54	5.11	f1	blue	7.2
				f2	orange	
37	7.2*	MVD 55 MVD 56	7.1	f1	blue	7.3
				f2	orange	
37	7.3*	CCTV 13	7.2	f1	blue	7.4
				f2	orange	
37	7.4*	MVD 57	7.3	f1	blue	7.5, 7.6, and 7.7
				f2	orange	
39	7.8*	MVD 60	7.5, 7.6, and 7.7	f1	blue	7.9
				f2	orange	
40	7.9*	DMS 9	7.8	f1	blue	7.10
				f2	orange	
40	7.10*	DMS 10	7.9	f1	blue	7.11
				f2	orange	
40	7.11*	MVD 61	7.10	f1	blue	7.12
				f2	orange	



11/21/2013 -Phase 2 Splicing Spl 02.dgn REVISIONS

PLAN OF RECORD



**ITS SPLICE TYPE B
NEAR CCTV 15
(SWITCH 7.12)**

COLOR CODE TIA/EIA 598-C		LEGEND
(1) BLUE	(7) RED	
(2) ORANGE	(8) BLACK	
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

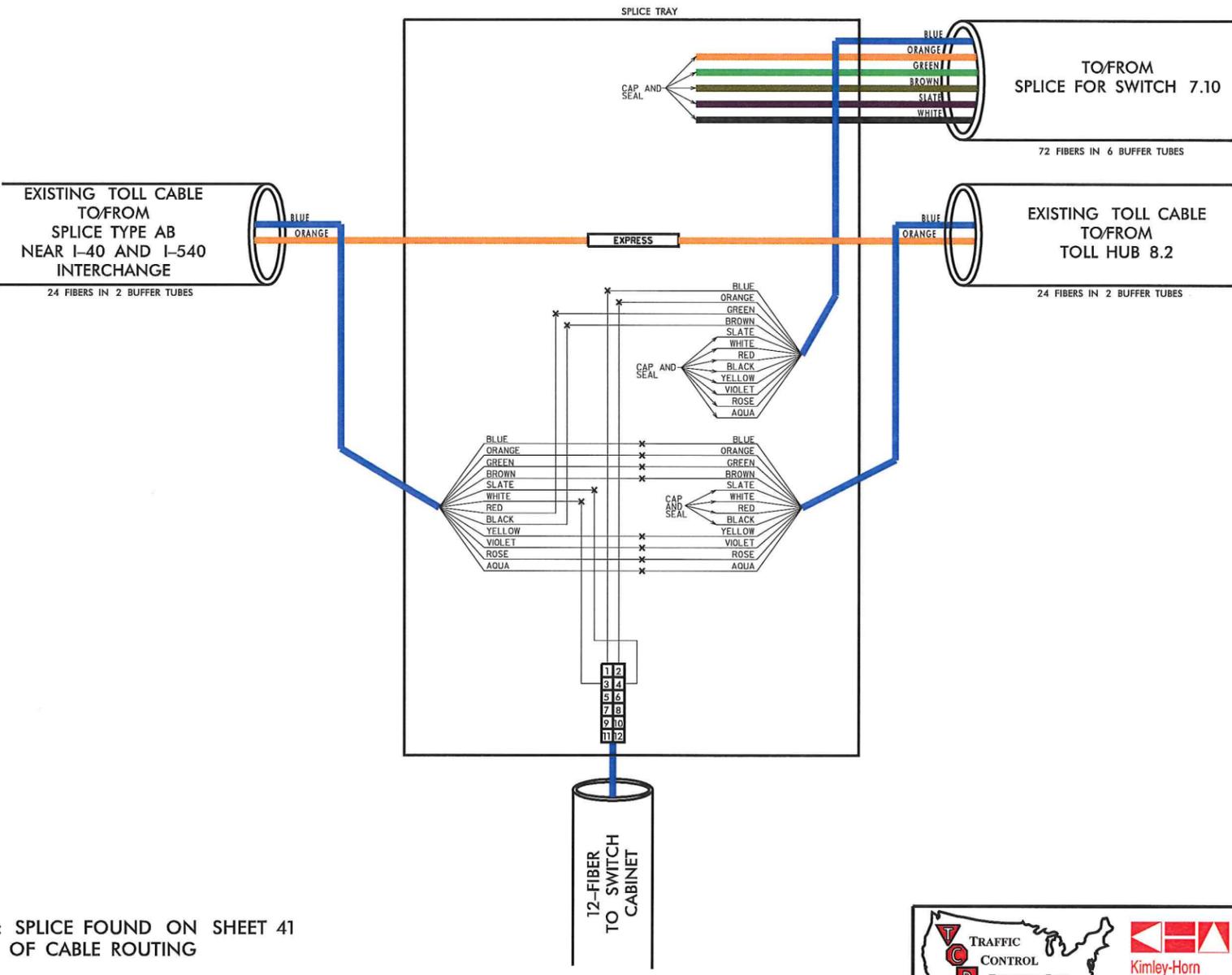
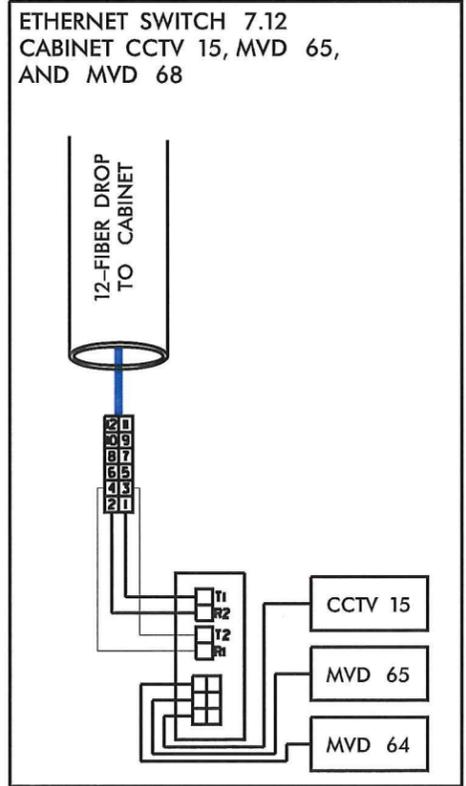
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER

REVISIONS
11/21/2013 -Vprouse 2 SplicingSpl 03.dgn



*NOTE: SPLICE FOUND ON SHEET 41 OF CABLE ROUTING

TRAFFIC CONTROL DEVICES, INC.
ALTA WYNNE SPRING, TEXAS 75244-4410
(972) 847-7100

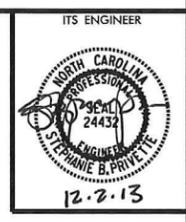
Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27636
(919) 877-2000

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

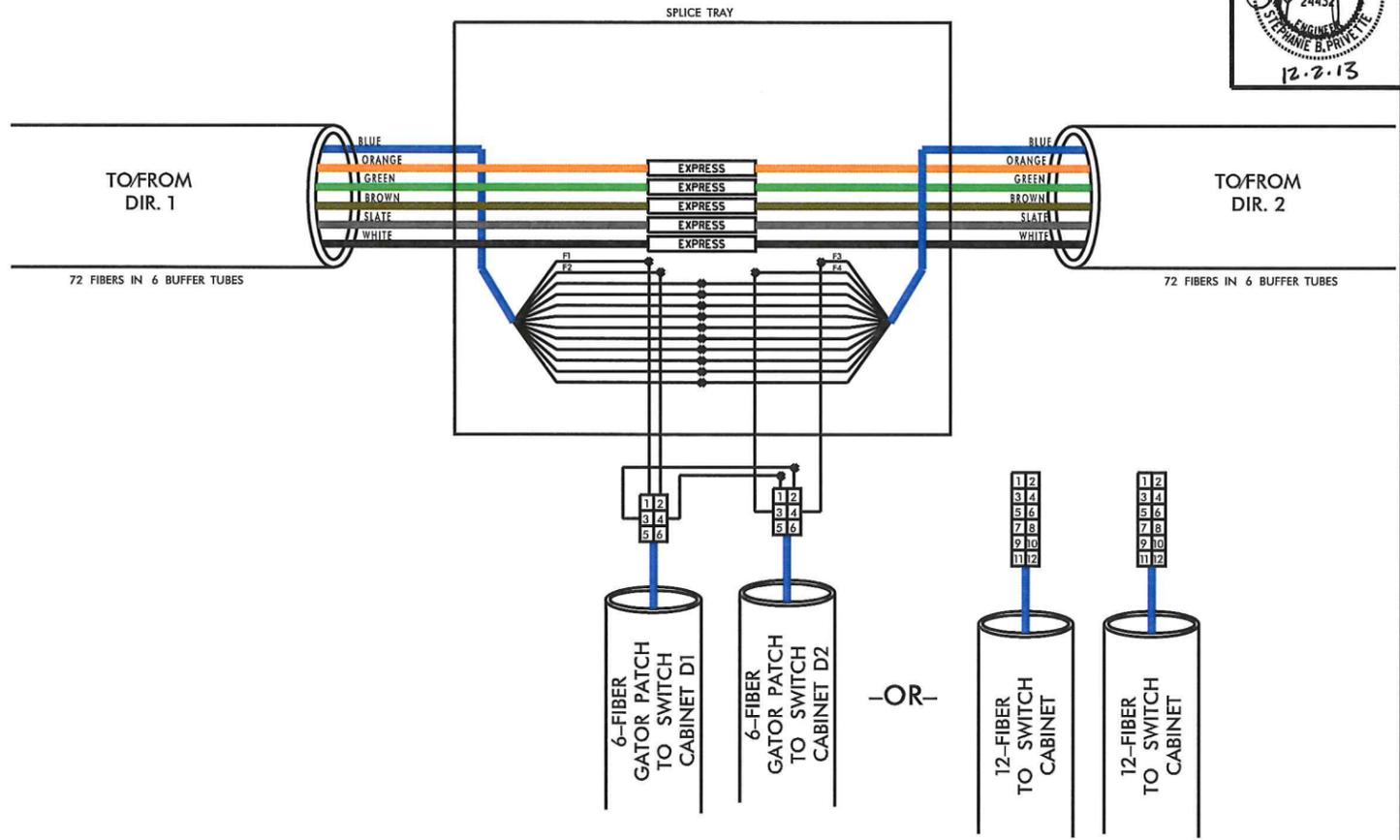
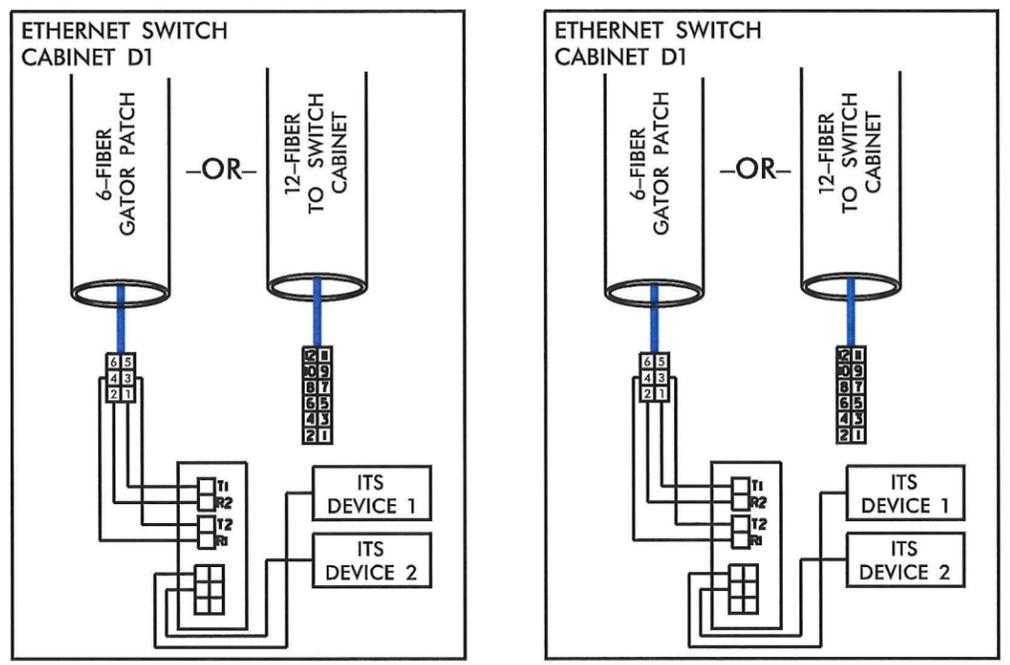
NORTH CAROLINA Turnpike Authority

ITS PLANS
SPLICE PLANS

PLAN OF RECORD



**ITS SPLICE TYPE D
MVD, DMS AND/OR CCTV
(MULTIPLE CABINETS)**



Splice Type D						
Plan Sheet Reference	Location		From		To	
	Switch	Devices	Splice for Switch(es)	Fibers Occupied in Blue Buffer Tube	Splice for Switch(es)	Fibers Occupied in Blue Buffer Tube
7	1.10*	MVD 8	1.9	f1 blue	2.1, 2.3, and 2.4	f3 blue
	1.11	MVD 9		f2 orange		f4 orange
7	2.3*	MVD 10	2.1	f1 blue	2.5	f3 blue
	2.4	MVD 11		f2 orange		f4 orange
9	2.7*	CCTV 3	2.6	f1 blue	2.9	f3 blue
	2.8*	MVD 15* MVD 16*		f2 orange		f4 orange
14	3.5	MVD 26	3.2, 3.3, 3.4, and 3.6	f1 slate	3.7	f3 slate
	3.6A	CCTV 5A CCTV 5B		f2 white		f4 white
28	5.2	MVD 41 MVD 42	4.12	f1 slate	5.4 and 5.5	f3 slate
	5.3	CCTV 10		f2 white		f4 white
28	5.4	MVD 43	5.2 and 5.3	f1 slate	5.6	f3 slate
	5.5	MVD 44 MVD 45		f2 white		f4 white
34	6.4*	DMS 8	6.1, 6.2, and 6.3	f1 blue	Splice Type P	f3 blue
	6.5*	MVD 53		f2 orange		f4 orange
38	7.5	CCTV 14	7.4	f1 blue	7.7	f3 blue
	7.6*	MVD 58		f2 orange		f4 orange

*INDICATES A 12F DROP INSTEAD OF A 6F GATOR PATCH

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	X - FUSION SPLICE INDIVIDUAL FIBER	
(2) ORANGE	(8) BLACK	EXPRESS - EXPRESS ENTIRE BUFFER TUBE	
(3) GREEN	(9) YELLOW	SPLICE - SPLICE ENTIRE BUFFER TUBE	
(4) BROWN	(10) VIOLET	○ UNUSED FIBER	
(5) SLATE	(11) ROSE	● USED (LIT) FIBER	
(6) WHITE	(12) AQUA		

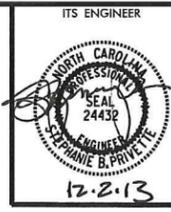
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

11/21/2013 -Phase 2-Splitting-Spl 04.dgn REVISIONS

TRAFFIC CONTROL DEVICES, INC.
KIMLEY-HORN AND ASSOCIATES, INC.
SUMMIT CONSULTING

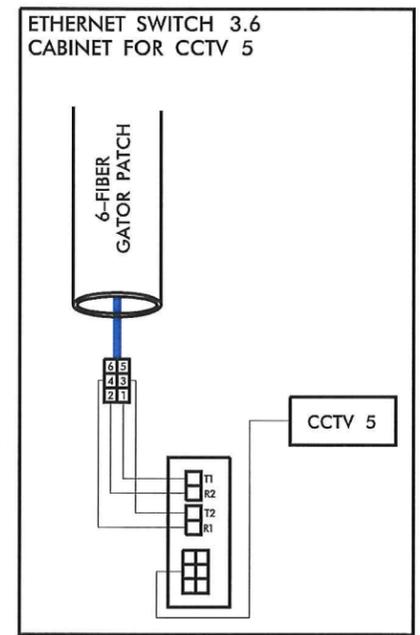
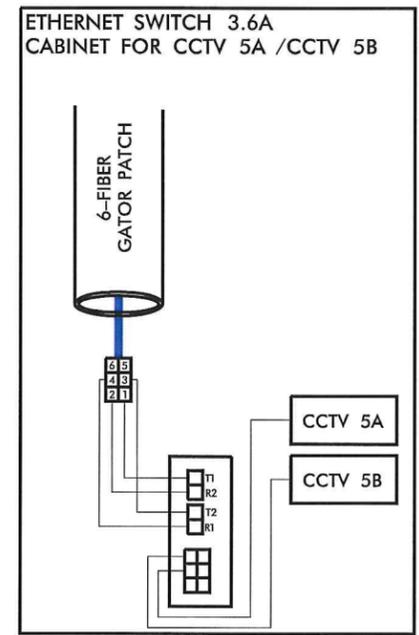
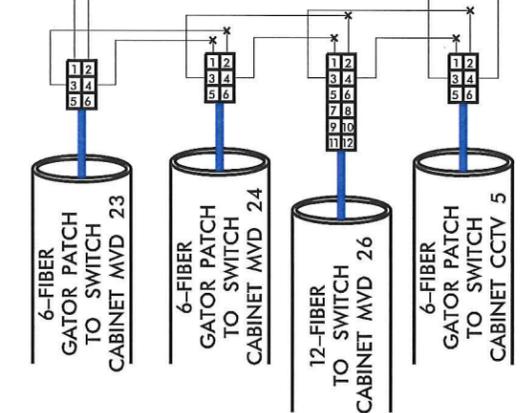
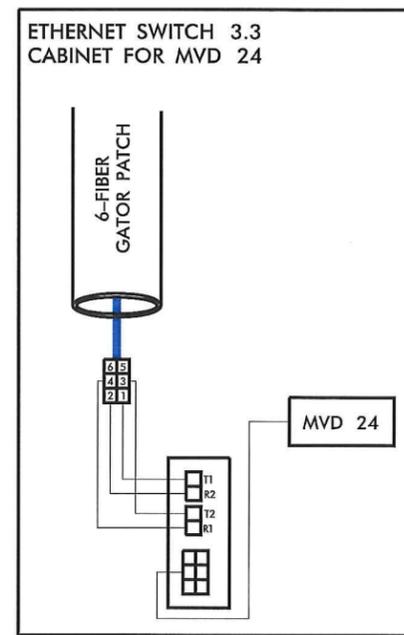
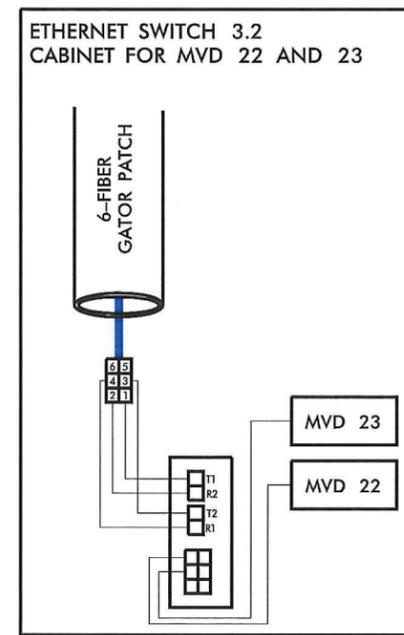
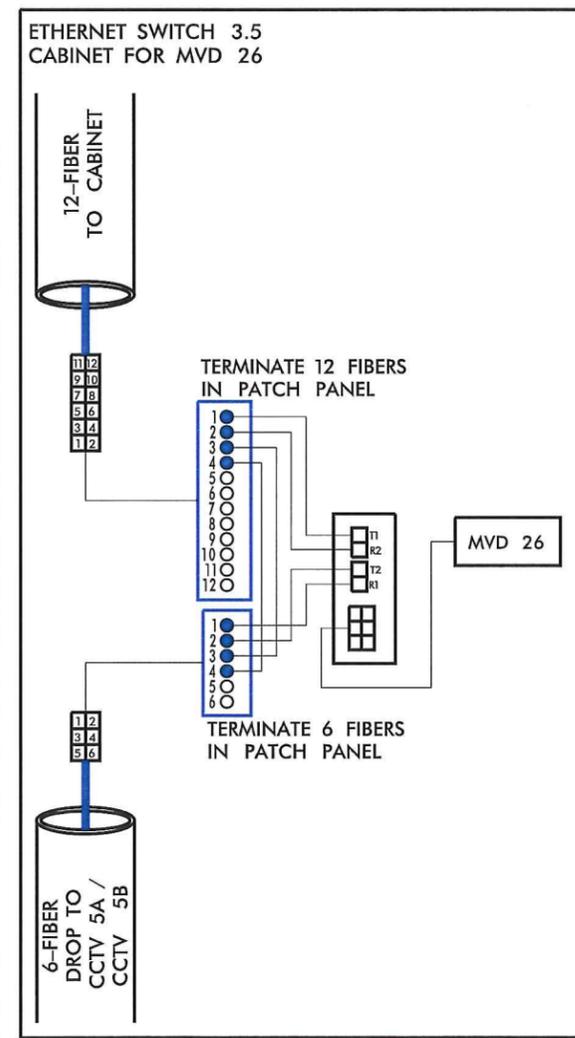
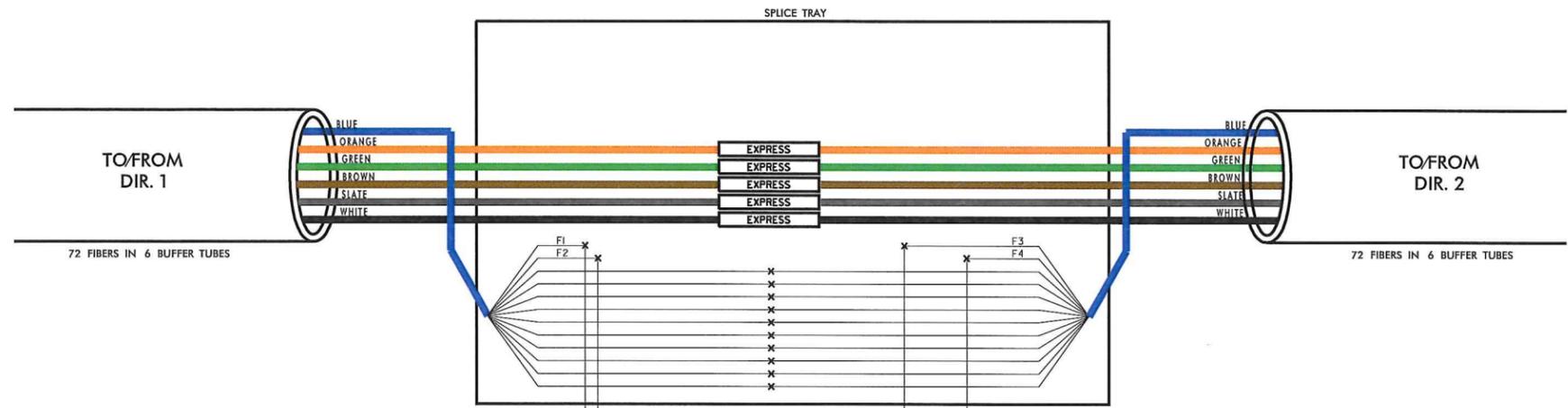
ITS PLANS SPLICE PLANS

PLAN OF RECORD



**ITS SPLICE TYPE E
AT US 64
MVD 22, 23, 24, 26 AND
CCTV 5 (SWITCHES
3.2, 3.3, 3.5, 3.6)**

COLOR CODE TIA/EIA 598-C		LEGEND
(1) BLUE	(7) RED	
(2) ORANGE	(8) BLACK	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.
(3) GREEN	(9) YELLOW	X - FUSION SPLICE INDIVIDUAL FIBER
(4) BROWN	(10) VIOLET	EXPRESS - EXPRESS ENTIRE BUFFER TUBE
(5) SLATE	(11) ROSE	SPLICE - SPLICE ENTIRE BUFFER TUBE
(6) WHITE	(12) AQUA	○ UNUSED FIBER
		● USED (LIT) FIBER



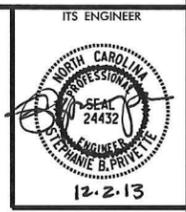
*NOTE: SPLICE FOUND ON SHEET 14 OF CABLE ROUTING



REVISIONS
11/21/2013 - Update 2 Splicing Splice Design

<p>TRAFFIC CONTROL DEVICES, INC. ALTAIR DRIVE, ORANGE, VIRGINIA 22954 (540) 861-1100</p>	<p>Kimley-Horn and Associates, Inc. N.C. License #F-002 P.O. Box 33068 Raleigh, NC 27635 (919) 877-2000</p>	<p>SUMMIT CONSULTING ENGINEERING ■ ARCHITECTURE ■ SURVEYING</p>	<p>ITS PLANS SPLICE PLANS</p>
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PLAN OF RECORD



ITS SPLICE TYPE H FOR CCTV 7 AND MVD 31, 32, AND 33 (SWITCHES 4.1, 4.2, AND 4.3)

COLOR CODE TIA/EIA 598-C		LEGEND
(1) BLUE	(7) RED	
(2) ORANGE	(8) BLACK	
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

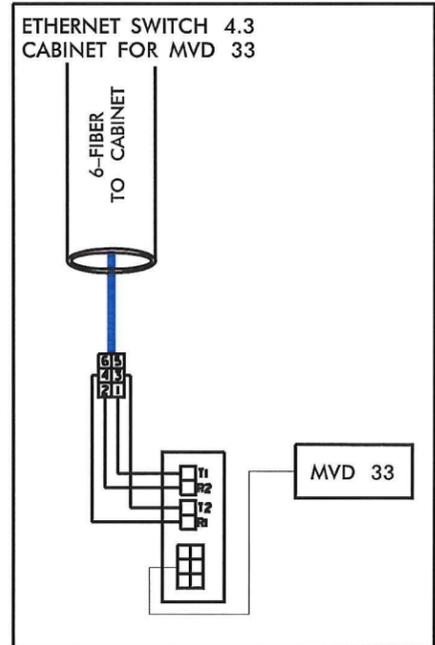
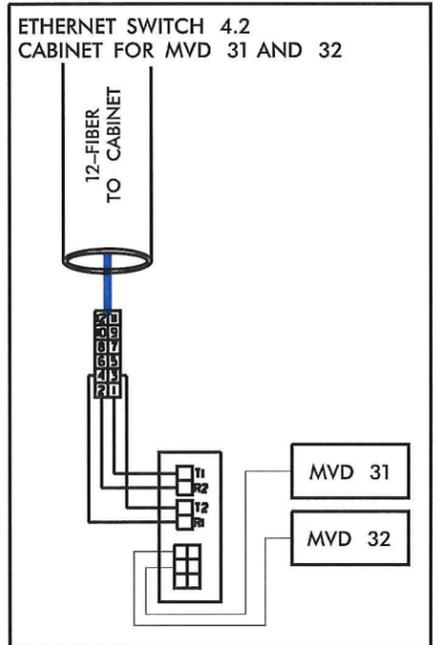
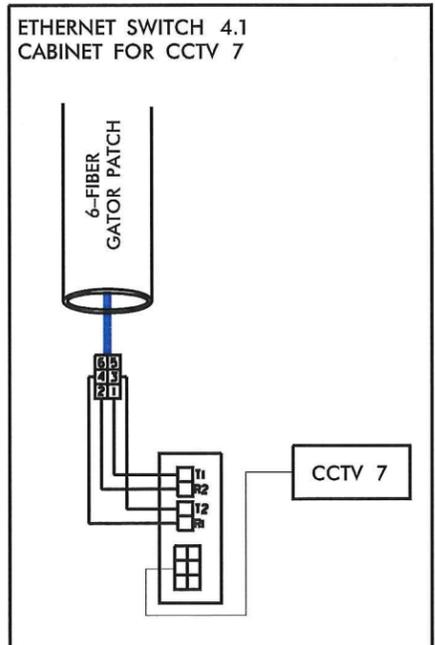
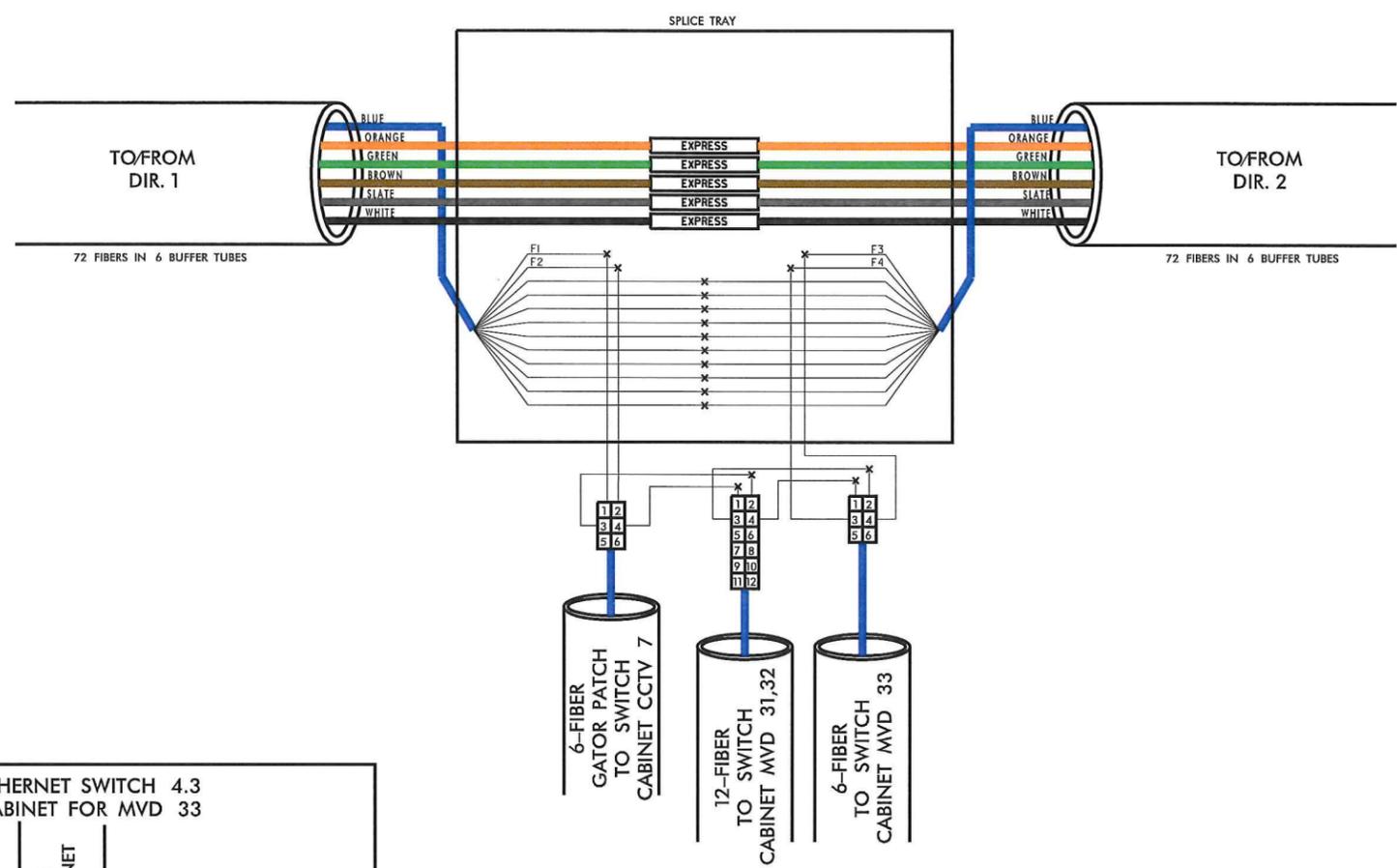
X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS ENTIRE BUFFER TUBE

SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER

● USED (LIT) FIBER



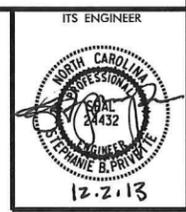
*NOTE: SPLICE FOUND ON SHEET 20 OF CABLE ROUTING



ITS PLANS SPLICE PLANS

11/21/2013 -\phase 2\Splicing\Spl 06.dgn REVISIONS

PLAN OF RECORD



**ITS SPLICE TYPE J
NEAR NC 55 BYPASS
INTERCHANGE
CCTV 1, MVD 1,
MVD 2 AND MVD 3
(SWITCHES 1.1, 1.2,
1.3, AND 1.4)**

COLOR CODE
TIA/EIA 598-C

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

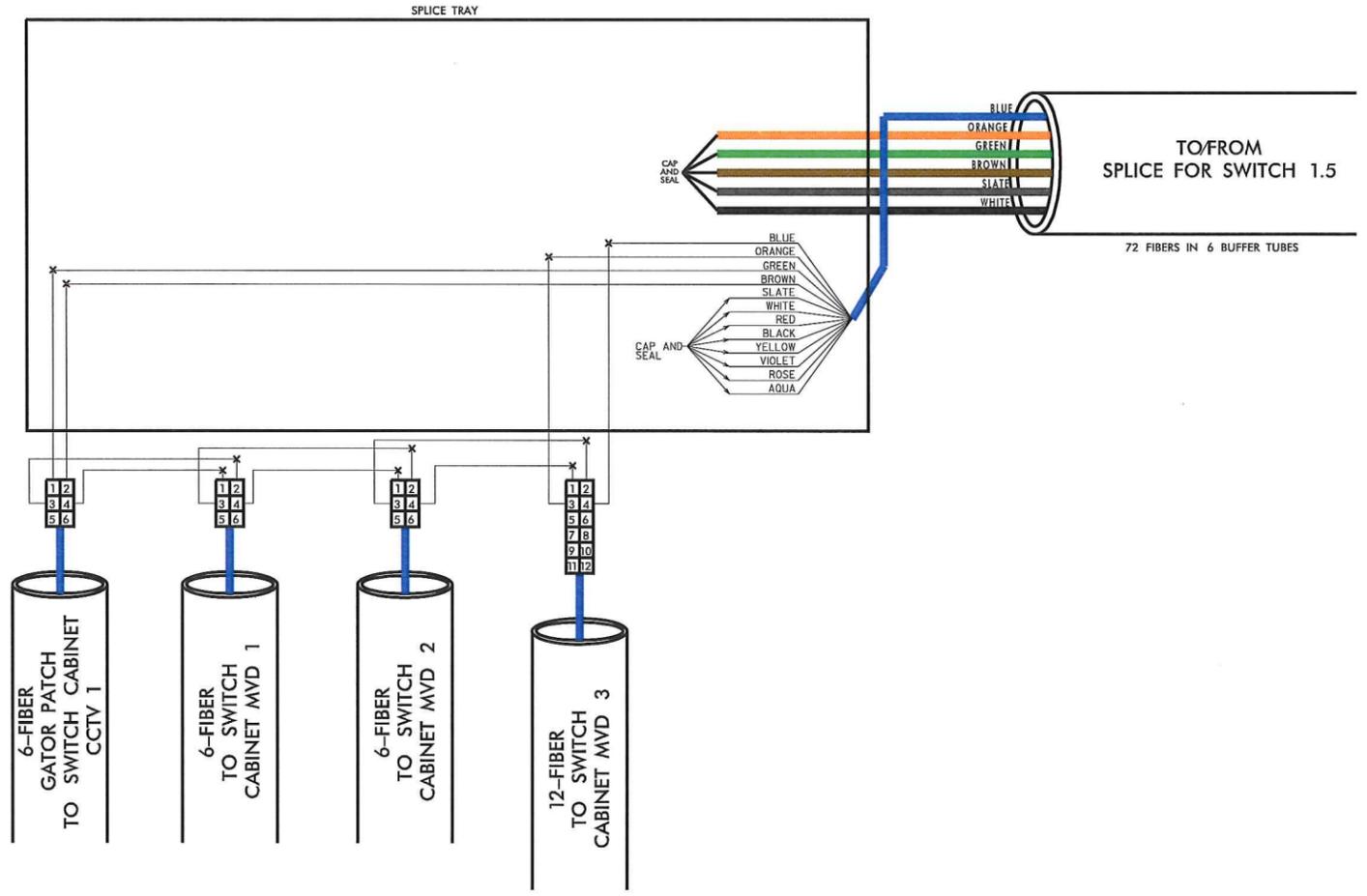
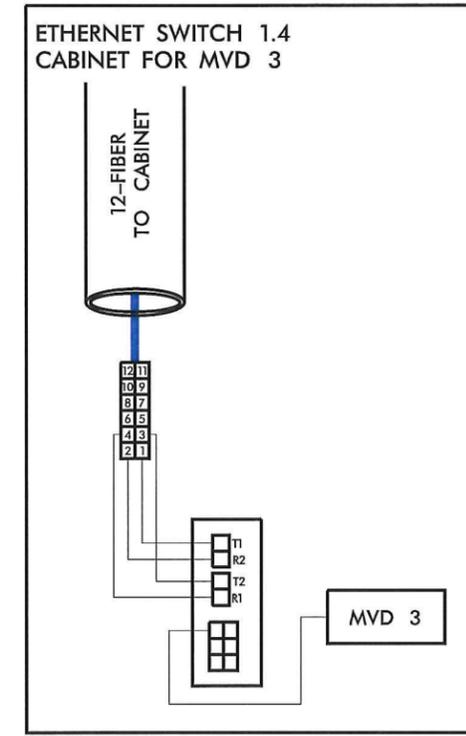
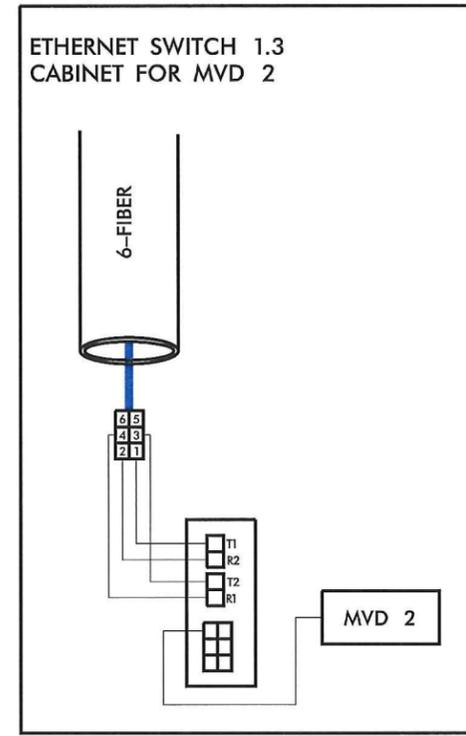
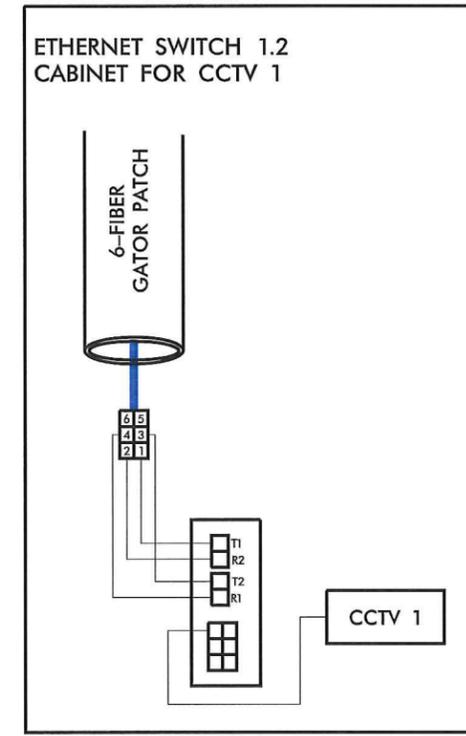
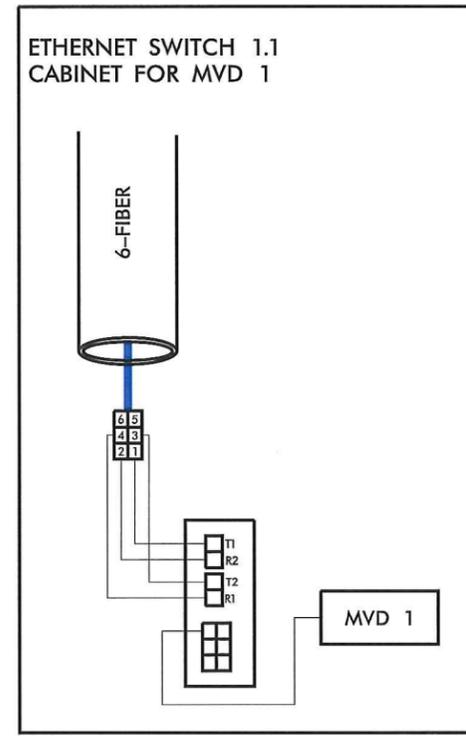
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS EXPRESS ENTIRE BUFFER TUBE
SPLICE SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



11/21/2013 -Phase 2\SplittingSpl 07.dgn REVISIONS

*NOTE: SPLICE FOUND ON SHEET 3 OF CABLE ROUTING

TRAFFIC CONTROL DEVICES, INC.
KIMLEY-HORN AND ASSOCIATES, INC.
SUMMIT CONSULTING
NORTH CAROLINA Turnpike Authority

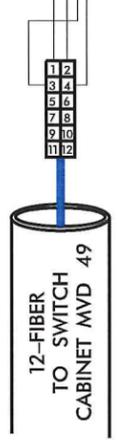
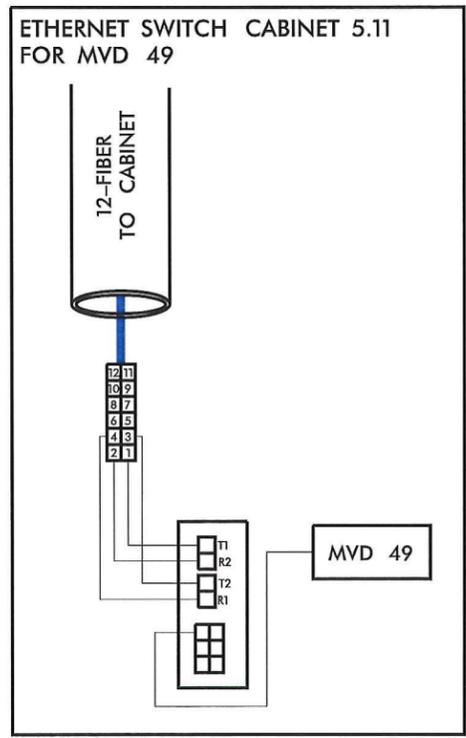
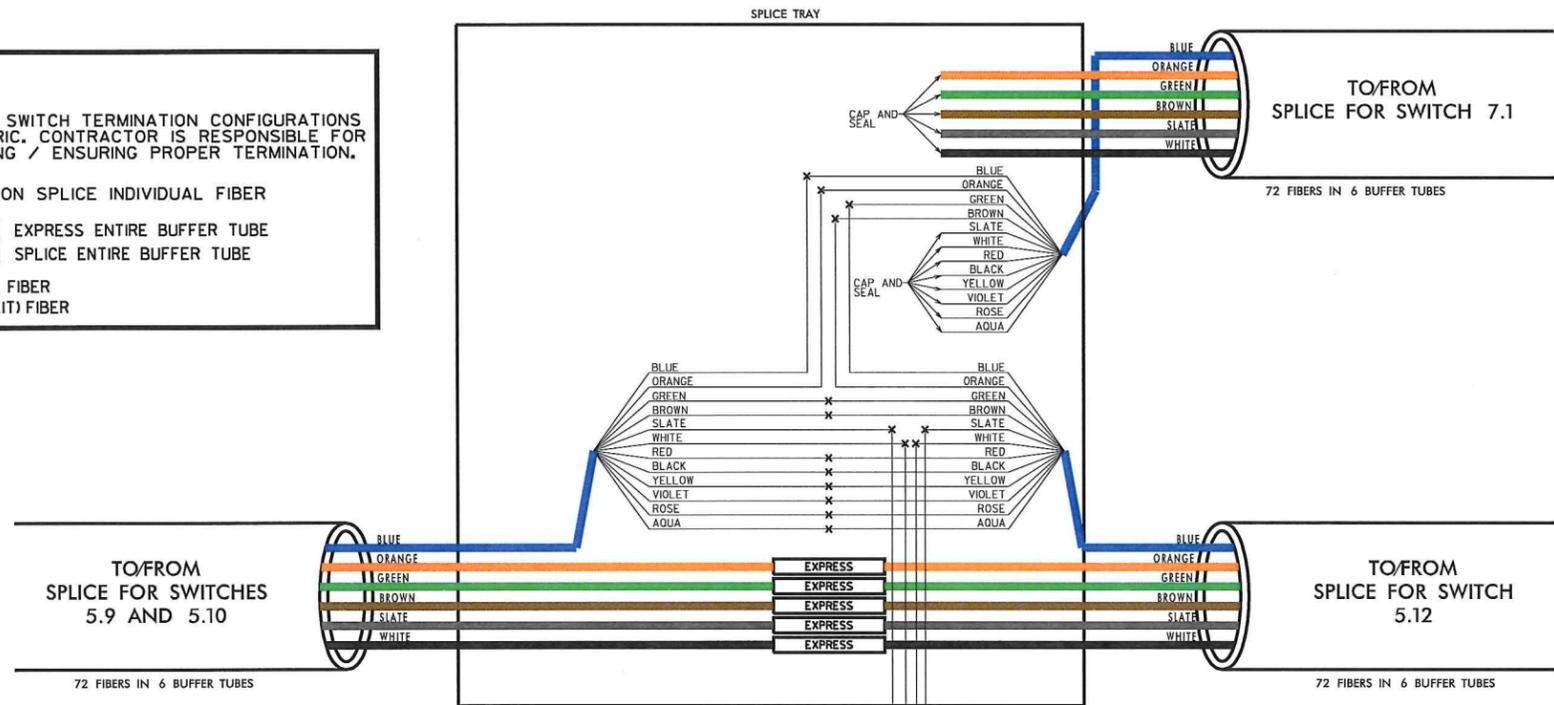
ITS PLANS SPLICE PLANS

PLAN OF RECORD



**ITS SPLICE TYPE K
(NEAR NC-540 AND
TRIANGLE PARKWAY
INTERCHANGE)**

COLOR CODE TIA/EIA 598-C		LEGEND
(1) BLUE	(7) RED	
(2) ORANGE	(8) BLACK	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.
(3) GREEN	(9) YELLOW	X - FUSION SPLICE INDIVIDUAL FIBER
(4) BROWN	(10) VIOLET	EXPRESS EXPRESS ENTIRE BUFFER TUBE
(5) SLATE	(11) ROSE	SPLICE SPLICE ENTIRE BUFFER TUBE
(6) WHITE	(12) AQUA	○ UNUSED FIBER
		● USED (LIT) FIBER



REVISIONS
11/21/2013
-phase 2\Splicing\Spl 08.dgn

*NOTE: SPLICE FOUND ON SHEET 31 OF CABLE ROUTING



ITS PLANS
SPLICE PLANS

PLAN OF RECORD



**ITSTOLL SPLICE TYPE M
AT
WADE AVENUE AND
EDWARDS MILL ROAD**

COLOR CODE
TIA/EIA 598-C

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

LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

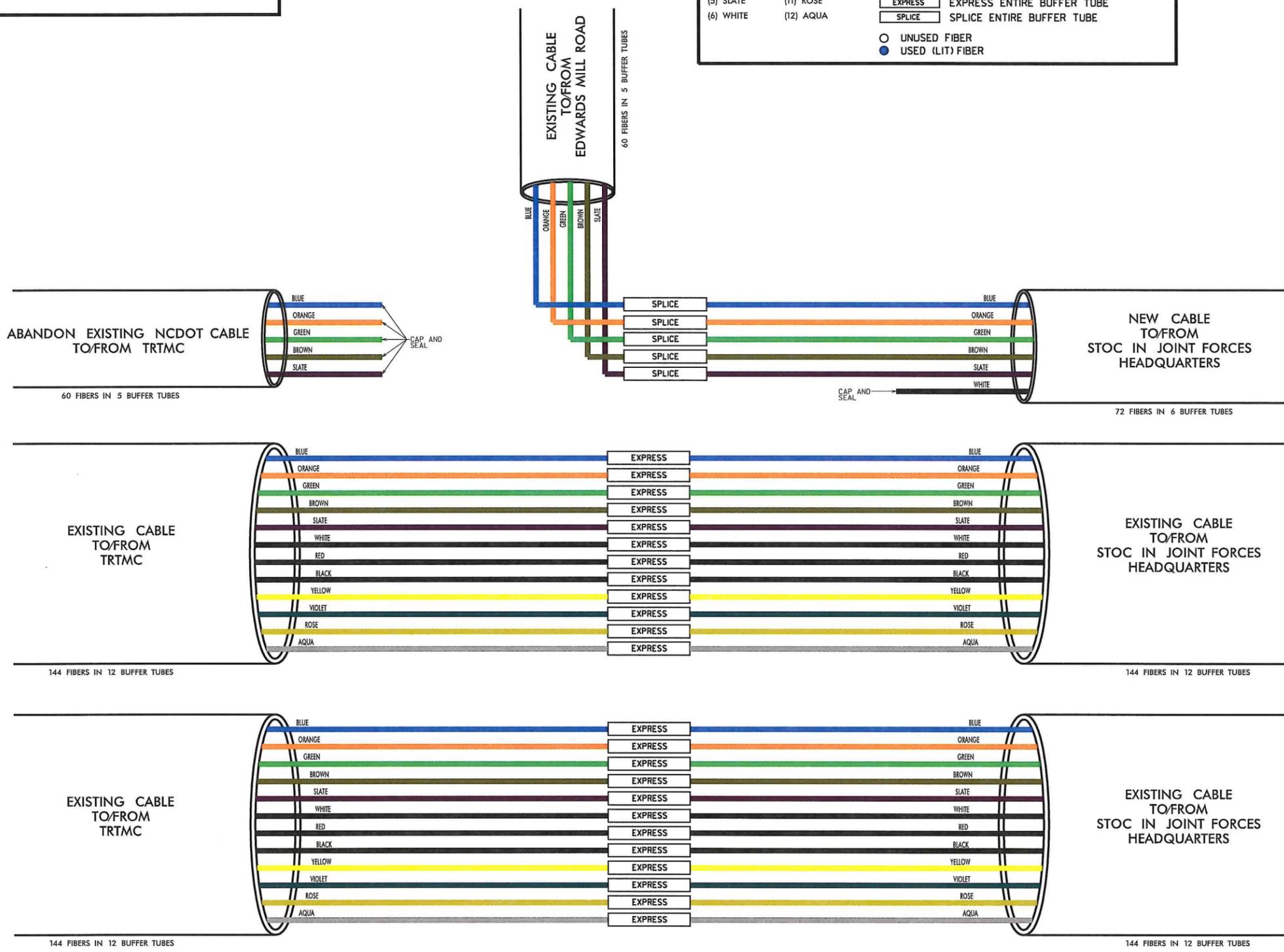
X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE

SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER

● USED (LIT) FIBER



NOTE:
1. SCHEDULE ALL SPLICES ON THIS SHEET WITH NCDOT REGIONAL ITS ENGINEER.
2. SPLICE FOUND ON SHEET 43 OF CABLE ROUTING.

REVISIONS
11/21/2013 -Phase 2 Splicing Spl 09.dgn

TRAFFIC CONTROL DEVICES, INC.
KIMLEY-HORN AND ASSOCIATES, INC.
SUMMIT CONSULTING
NORTH CAROLINA Turnpike Authority

ITS PLANS
SPLICE PLANS

PLAN OF RECORD

ITSTOLL SPLICE TYPE N (STOC)

COLOR CODE TIA/EIA 598-C

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

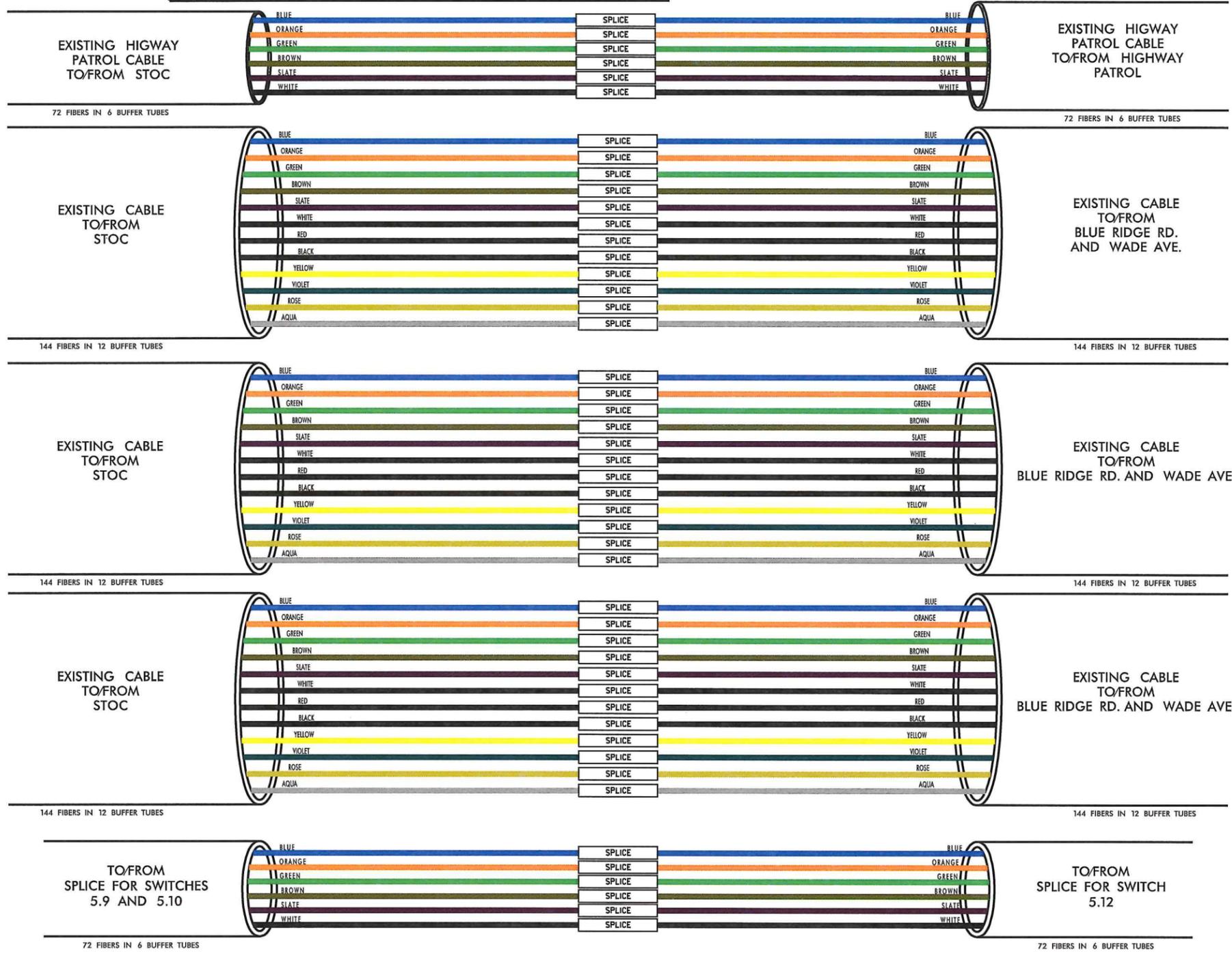
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



NOTE:
 1. SCHEDULE ALL SPLICES ON THIS SHEET WITH NCDOT REGIONAL ITS ENGINEER.
 2. SPLICE FOUND ON SHEET 44 OF CABLE ROUTING.

11/21/2013 - Phase 2 Splicing Spl 10.dgn REVISIONS

TRAFFIC CONTROL DEVICES, INC.
 7400 W. STATE ST. SUITE 200
 RALEIGH, NC 27615
 919.877.2000

Kimley-Horn and Associates, Inc.
 NC License #F-0102
 P.O. Box 33068
 Raleigh, NC 27635
 919.877.2000

SUMMIT CONSULTING
 ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS SPLICE PLANS

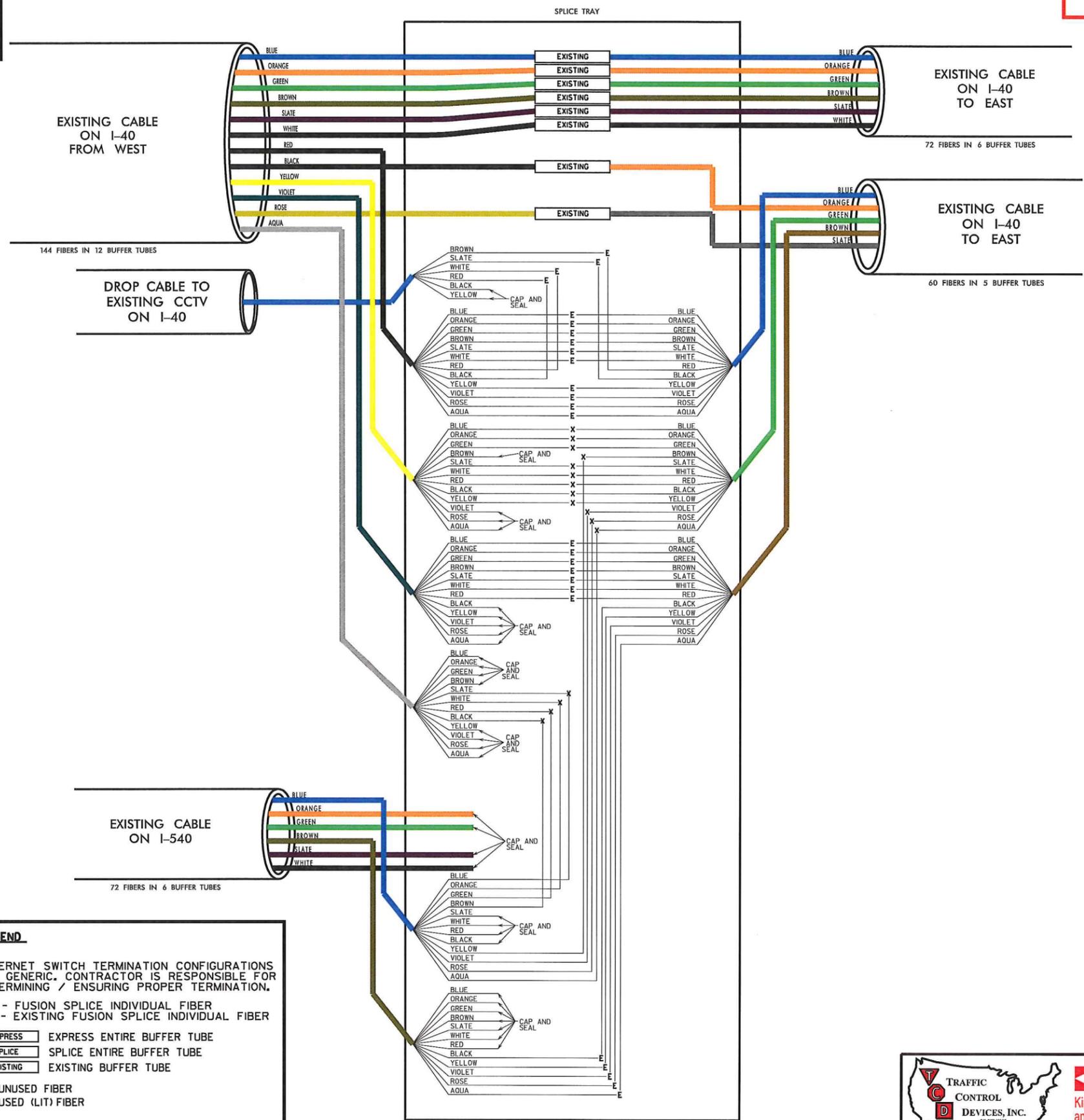


PLAN OF RECORD

PROJECT REFERENCE NO. **C202250** SHEET NO. **SPL II**



ITS SPLICE TYPE O I-540 AND I-40



EXISTING CABLE ON I-40 FROM WEST

144 FIBERS IN 12 BUFFER TUBES

DROP CABLE TO EXISTING CCTV ON I-40

EXISTING CABLE ON I-540

72 FIBERS IN 6 BUFFER TUBES

EXISTING CABLE ON I-40 TO EAST

72 FIBERS IN 6 BUFFER TUBES

EXISTING CABLE ON I-40 TO EAST

60 FIBERS IN 5 BUFFER TUBES

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.	
(2) ORANGE	(8) BLACK	X - FUSION SPLICE INDIVIDUAL FIBER	E - EXISTING FUSION SPLICE INDIVIDUAL FIBER
(3) GREEN	(9) YELLOW	EXPRESS - EXPRESS ENTIRE BUFFER TUBE	SPLICE - SPLICE ENTIRE BUFFER TUBE
(4) BROWN	(10) VIOLET	EXISTING - EXISTING BUFFER TUBE	○ UNUSED FIBER
(5) SLATE	(11) ROSE	● USED (LIT) FIBER	
(6) WHITE	(12) AQUA		

*NOTE: LOCATION NOT SHOWN IN CABLE ROUTING

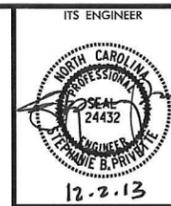
*NOTE: EXISTING SPLICING TO REMAIN AS IS.

REVISIONS
11/21/2013 - Update Splicing Spl II.dgn

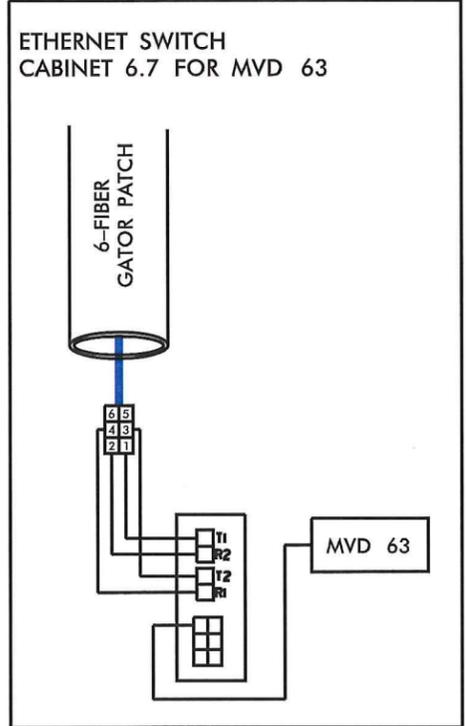
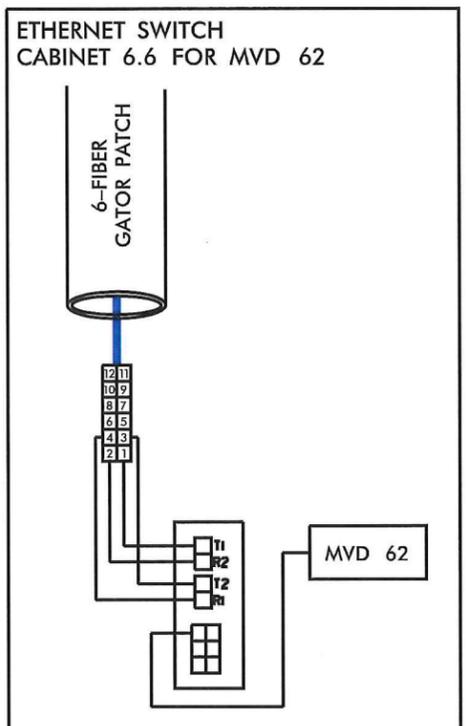


ITS PLANS SPLICE PLANS

PLAN OF RECORD



**ITS SPLICE TYPE P
NC-540 AND NC 54**



COLOR CODE
TIA/EIA 598-C

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

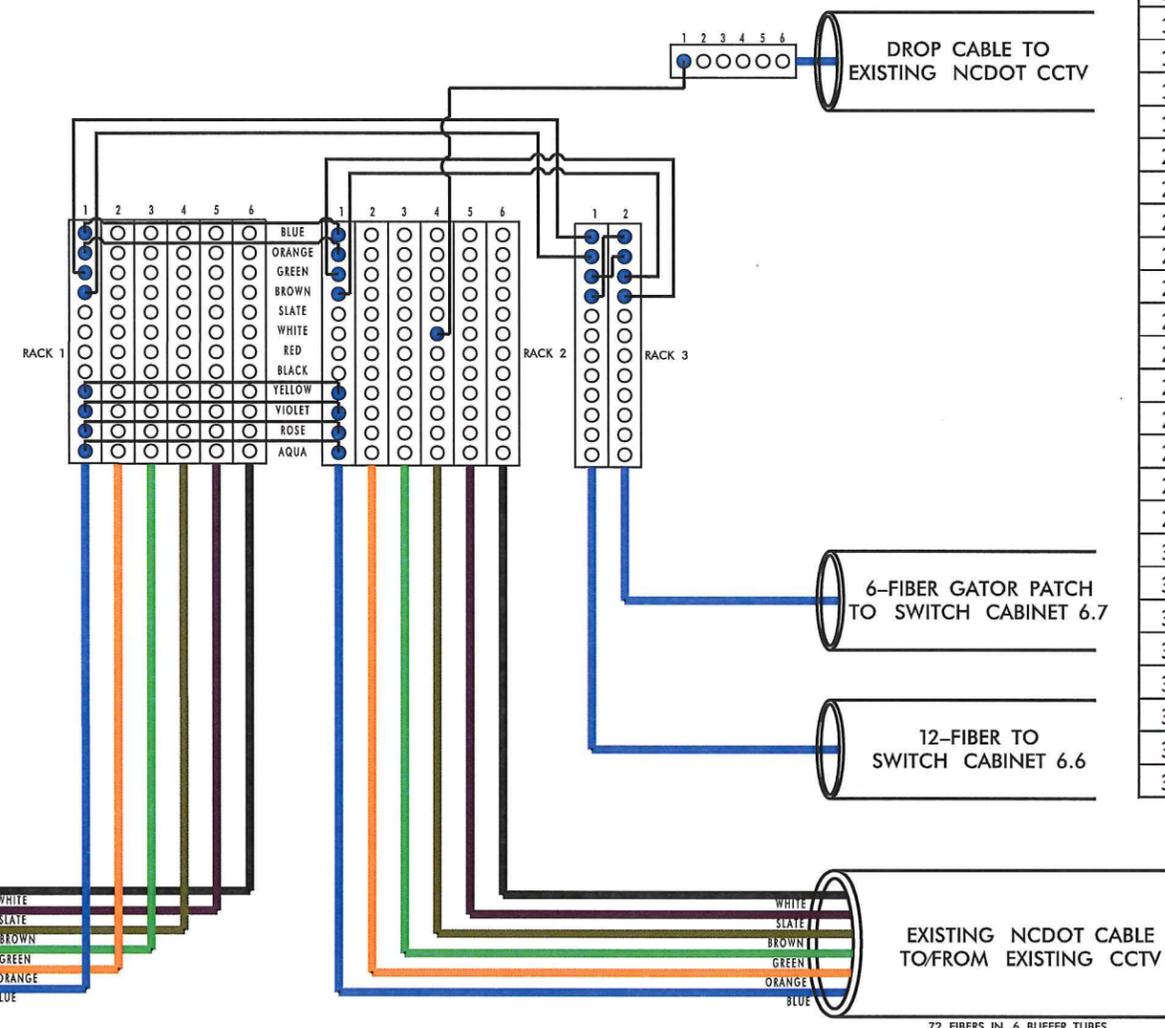
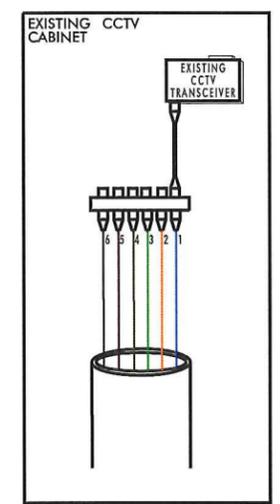
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

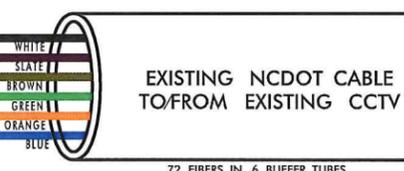
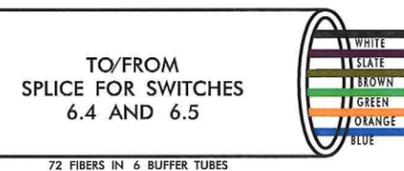
EXPRESS EXPRESS ENTIRE BUFFER TUBE
SPLICE SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



Fiber Use Table

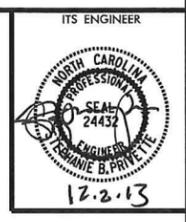
Rack	Panel	Fiber Color	To/From Hub or Group
1	1	Blue	ITS Hub 3
1	1	Orange	ITS Hub 3
1	1	Green	ITS Hub 6
1	1	Brown	ITS Hub 6
1	1	Yellow	ITS Hub 3
1	1	Violet	ITS Hub 3
1	1	Rose	ITS Hub 1
1	1	Aqua	ITS Hub 1
2	1	Blue	ITS Group 7
2	1	Orange	ITS Group 7
2	1	Green	ITS Hub 3
2	1	Brown	ITS Hub 3
2	1	Yellow	STOC
2	1	Violet	STOC
2	1	Rose	CSC
2	1	Aqua	CSC
2	4	White	CCTV
2	4	Violet	CCTV
2	4	Rose	DMS
2	4	Aqua	DMS
3	1	Blue	ITS Group 6
3	1	Orange	ITS Group 6
3	1	Green	ITS Group 6
3	1	Brown	ITS Group 6
3	2	Blue	ITS Group 6
3	2	Orange	ITS Group 6
3	2	Green	ITS Group 6
3	2	Brown	ITS Group 6



REVISIONS
11/21/2013 -Phase 2 Splicing Spl 12.dgn

*NOTES:
1. SPLICE FOUND ON SHEET 34 OF CABLE ROUTING.

PLAN OF RECORD



**ITSTOLL SPLICE TYPE Q
(CUSTOMER SERVICE CENTER)**

COLOR CODE
TIA/EIA 598-C

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

LEGEND

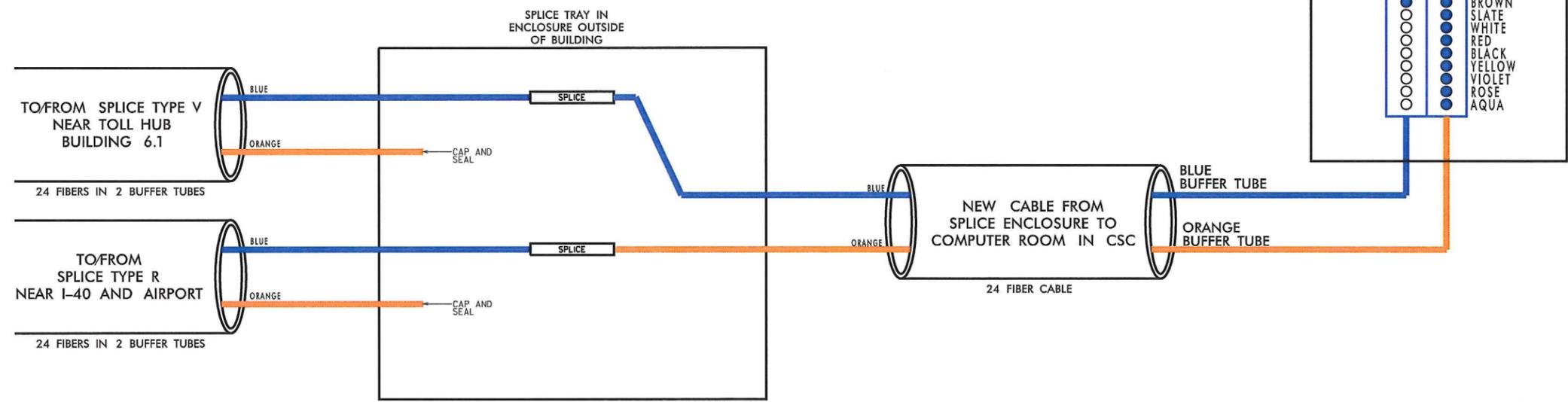
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER

Fiber Use Table			
Rack	Panel	Fiber Color	To/From Hub or Group
1	1	Blue	Toll Hub 6.1
1	1	Orange	Toll Hub 6.1
1	1	Green	Toll Hub 6.1
1	1	Brown	Toll Hub 6.1
1	2	Blue	Toll Hub 8.2
1	2	Orange	Toll Hub 8.2
1	2	Green	Toll Hub 8.2
1	2	Brown	Toll Hub 8.2
1	2	Slate	STOC (Toll)
1	2	White	STOC (Toll)
1	2	Red	STOC (Toll)
1	2	Black	STOC (Toll)
1	2	Yellow	ITS Hub 1
1	2	Violet	ITS Hub 1
1	2	Rose	STOC (ITS)
1	2	Aqua	STOC (ITS)



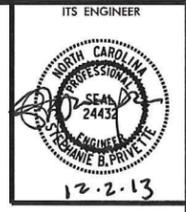
REVISIONS
11/21/2013 - Yhose 2_SplittingSpl 13.dgn

*NOTE: LOCATION NOT SHOWN IN CABLE ROUTING

TRAFFIC CONTROL DEVICES, INC.
KIMLEY-HORN AND ASSOCIATES, INC.
SUMMIT CONSULTING

ITS PLANS SPLICE PLANS

PLAN OF RECORD



**ITS/TOLL SPlice TYPE R
I-40 AND AIRPORT BLVD.**

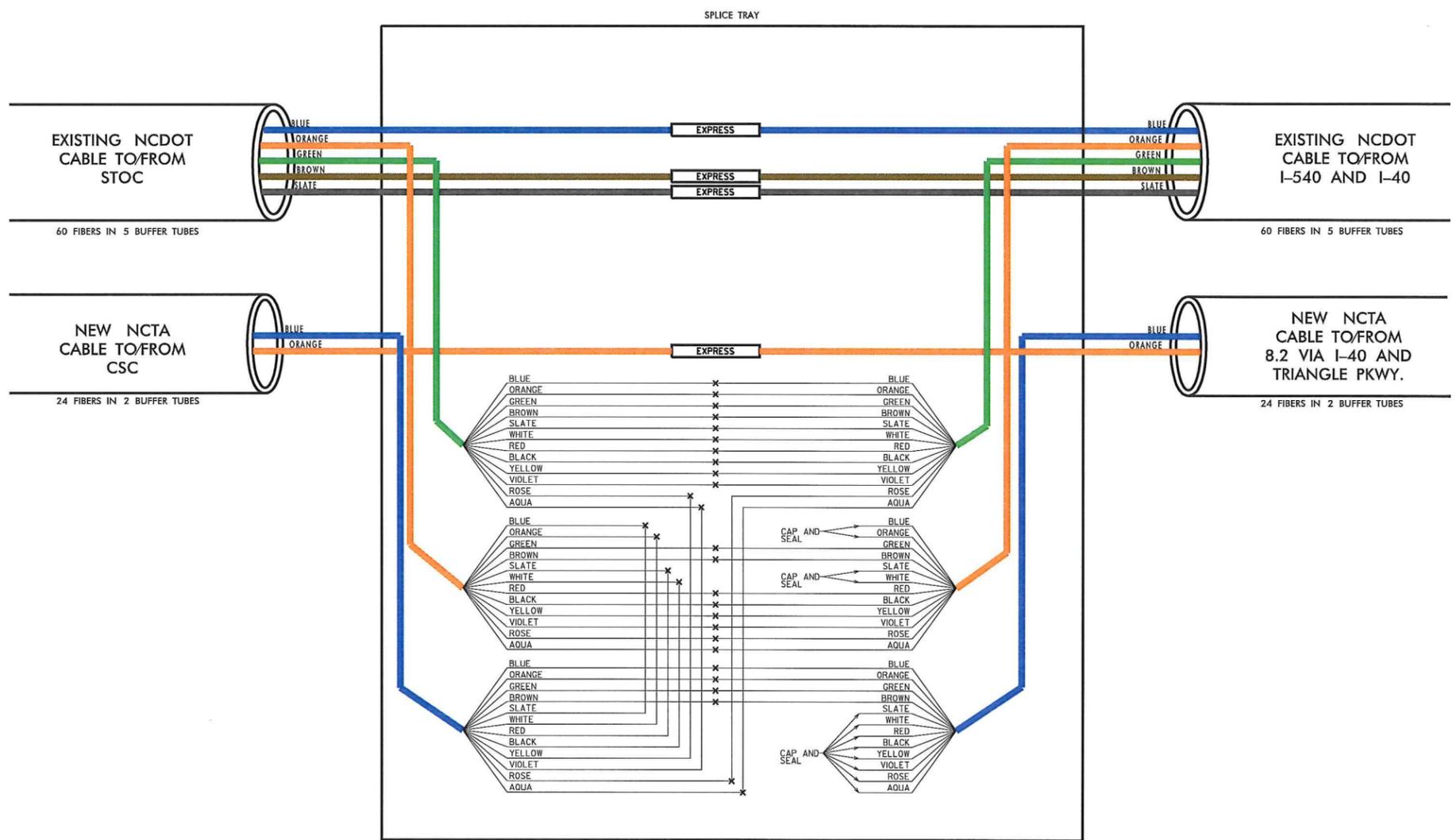
COLOR CODE TIA/EIA 598-C		LEGEND
(1) BLUE	(7) RED	
(2) ORANGE	(8) BLACK	
(3) GREEN	(9) YELLOW	
(4) BROWN	(10) VIOLET	
(5) SLATE	(11) ROSE	
(6) WHITE	(12) AQUA	

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPlice INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPlice - SPlice ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



*NOTE: EXISTING SPlicing TO REMAIN AS IS ITS SPlicing NOT SHOWN

*NOTE: LOCATION NOT SHOWN IN CABLE ROUTING

REVISIONS
11/21/2013 -Phase 2 Splicing Spl 14.dgn

 TRAFFIC CONTROL DEVICES, INC. <small>TRAFFIC CONTROL DEVICES, INC. 27001 STATE ST. RALEIGH, NC 27613 (919) 887-4100</small>	 Kimley-Horn and Associates, Inc. <small>NC License #F-0002 P.O. Box 33068 Raleigh, NC 27635 (919) 671-2000</small>	 SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small>	<p>ITS PLANS SPlicing PLANS</p>
---	--	---	-------------------------------------



PLAN OF RECORD



ITS/TOLL SPLICE TYPE S (TRTMC)

COLOR CODE TIA/EIA 598-C

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

LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

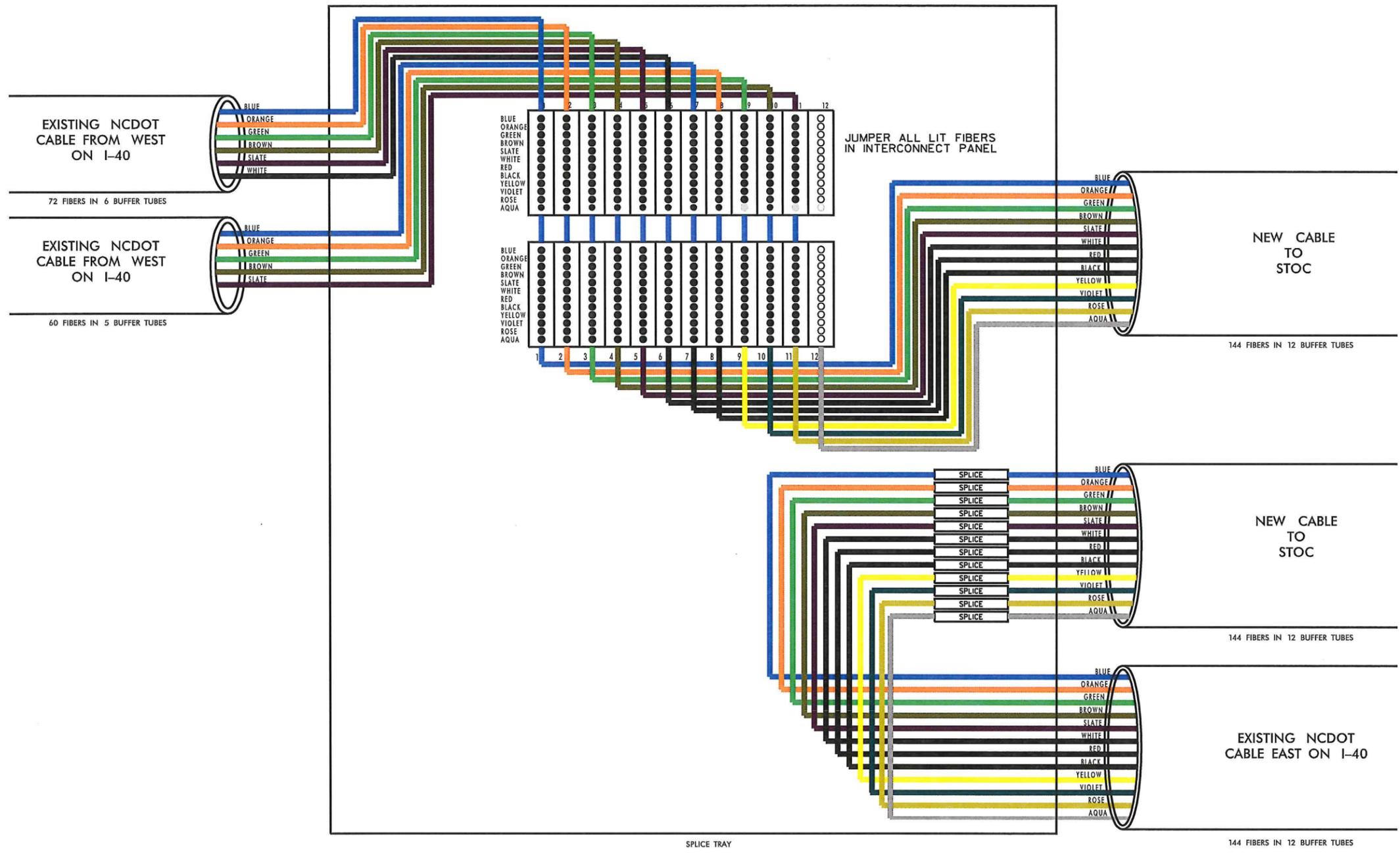
X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE

SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER

● USED (LIT) FIBER



REVISIONS

-Vphase 2\Splicing\Spl 15.dgn

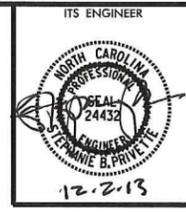
11/21/2013

*NOTE: SPLICE FOUND ON SHEET 42 OF CABLE ROUTING



ITS PLANS SPLICE PLANS

PLAN OF RECORD



TOLL SPLICE TYPE T NEAR TOLL HUB 1.1

COLOR CODE
TIA/EIA 598-C

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

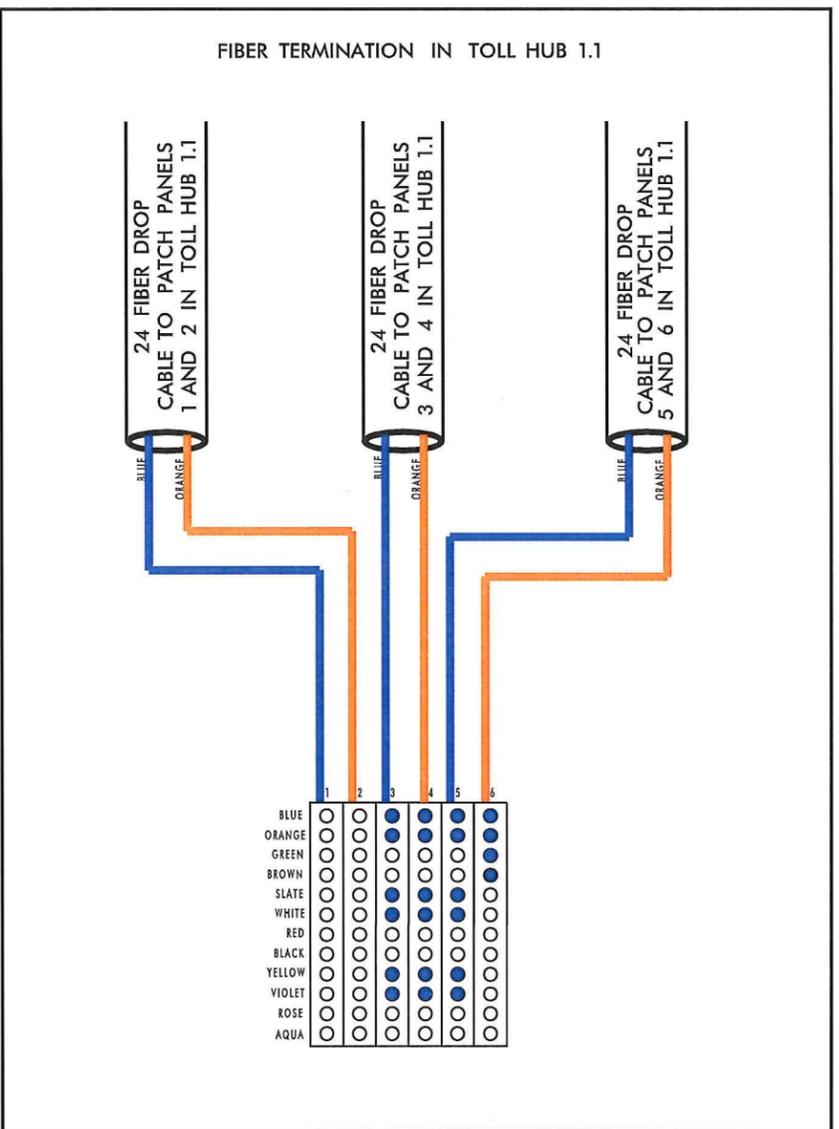
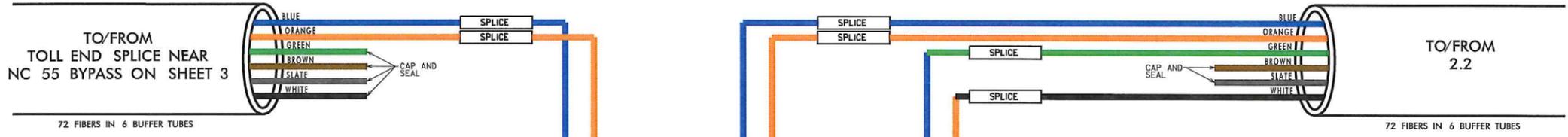
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS EXPRESS ENTIRE BUFFER TUBE
SPLICE SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



Fiber Use Table

Rack	Panel	Fiber Color	To/From Hub or Group
1	3	Blue	Toll Hub 6.1 Secondary
1	3	Orange	Toll Hub 6.1 Secondary
1	3	Green	Toll Hub 6.1 Secondary (Spare)
1	3	Brown	Toll Hub 6.1 Secondary (Spare)
1	3	Slate	Toll Hub 8.2
1	3	White	Toll Hub 8.2
1	3	Red	Toll Hub 8.2 (Spare)
1	3	Black	Toll Hub 8.2 (Spare)
1	3	Yellow	Toll Hub 7.2
1	3	Violet	Toll Hub 7.2
1	3	Rose	Toll Hub 7.2 (Spare)
1	3	Aqua	Toll Hub 7.2 (Spare)
1	4	Blue	Toll Hub 5.1
1	4	Orange	Toll Hub 5.1
1	4	Green	Toll Hub 5.1 (Spare)
1	4	Brown	Toll Hub 5.1 (Spare)
1	4	Slate	Toll Hub 4.2
1	4	White	Toll Hub 4.2
1	4	Red	Toll Hub 4.2 (Spare)
1	4	Black	Toll Hub 4.2 (Spare)
1	4	Yellow	Toll Hub 3.2
1	4	Violet	Toll Hub 3.2
1	4	Rose	Toll Hub 3.2 (Spare)
1	4	Aqua	Toll Hub 3.2 (Spare)

Fiber Use Table

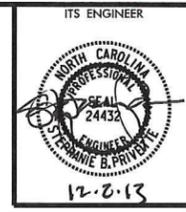
Rack	Panel	Fiber Color	To/From Hub or Group
1	5	Blue	Toll Hub 2.2
1	5	Orange	Toll Hub 2.2
1	5	Green	Toll Hub 2.2 (Spare)
1	5	Brown	Toll Hub 2.2 (Spare)
1	5	Slate	Toll Hub V.1
1	5	White	Toll Hub V.1
1	5	Red	Toll Hub V.1 (Spare)
1	5	Black	Toll Hub V.1 (Spare)
1	5	Yellow	Toll Hub 6.1 Primary
1	5	Violet	Toll Hub 6.1 Primary
1	5	Rose	Toll Hub 6.1 Primary (Spare)
1	5	Aqua	Toll Hub 6.1 Primary (Spare)
1	6	Blue	Toll Hub 6.1 (10 Gb)
1	6	Orange	Toll Hub 6.1 (10 Gb)
1	6	Green	Toll Hub 6.1 (10 Gb)
1	6	Brown	Toll Hub 6.1 (10 Gb)

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*NOTE: SPLICE FOUND ON SHEET 4A OF CABLE ROUTING

ITS PLANS
SPLICE PLANS

PLAN OF RECORD



**TOLL SPLICE TYPE U
NEAR VARIOUS TOLL HUBS**

COLOR CODE
TIA/EIA 598-C

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

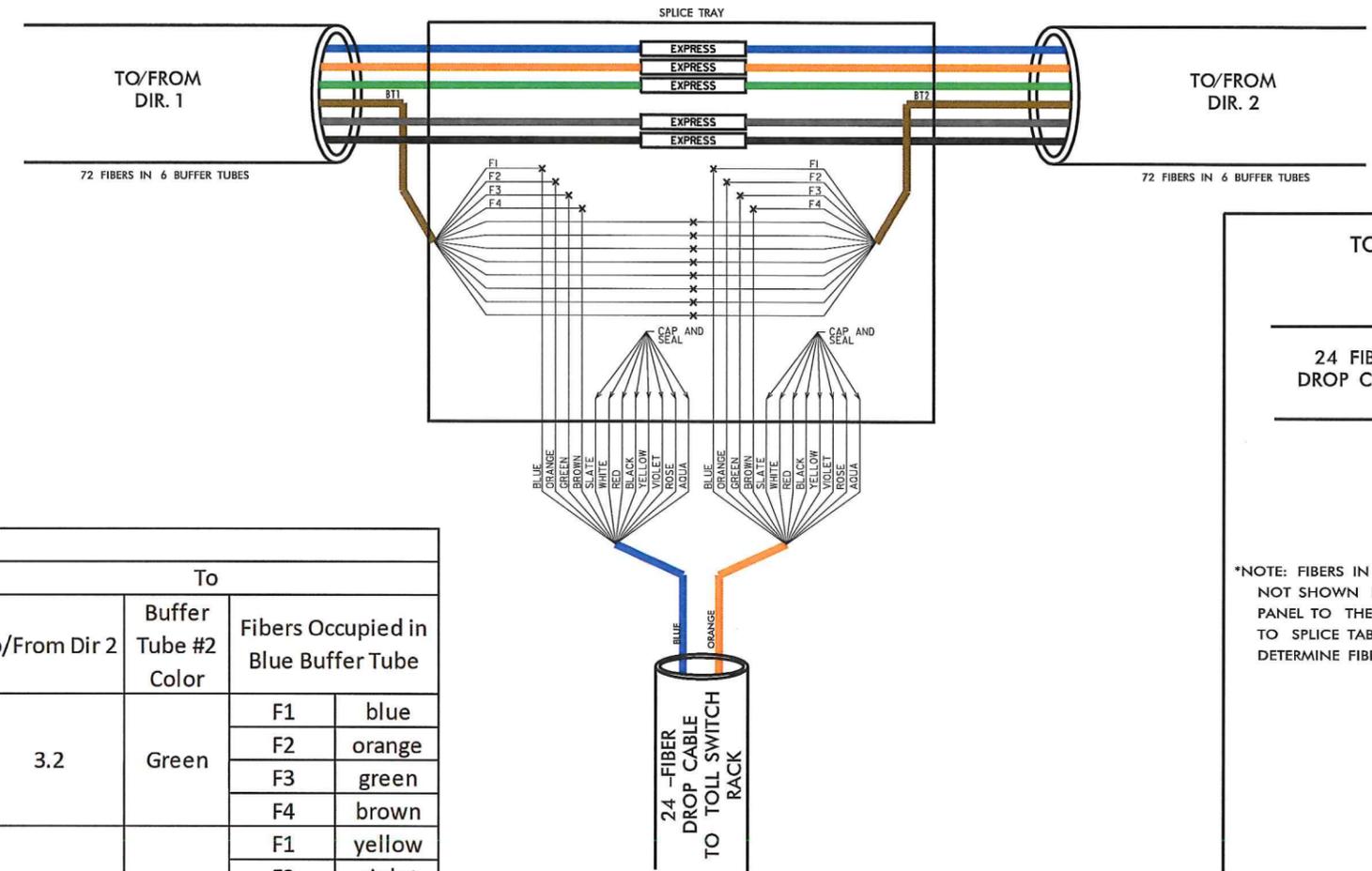
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



TOLL SWITCH RACK

*NOTE: FIBERS IN USE ARE NOT SHOWN IN THE PATCH PANEL TO THE RIGHT. REFER TO SPLICE TABLE TO DETERMINE FIBERS IN USE.

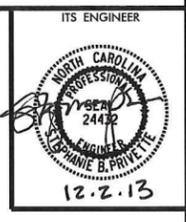
BLUE	●
ORANGE	●
GREEN	○
BROWN	○
SLATE	○
WHITE	○
RED	○
BLACK	○
YELLOW	○
VIOLET	○
ROSE	○
AQUA	○

Splice Type U									
Location		From				To			
Plan Sheet Reference	Toll Hub	To/From Dir 1	Buffer Tube #1 Color	Fibers Occupied in Blue Buffer Tube		To/From Dir 2	Buffer Tube #2 Color	Fibers Occupied in Blue Buffer Tube	
9	2.2	1.1	Green	F1	blue	3.2	Green	F1	blue
				F2	orange			F2	orange
				F3	green			F3	green
				F4	brown			F4	brown
10	3.2	2.2	Orange	F1	yellow	4.2	Orange	F1	yellow
				F2	violet			F2	violet
				F3	rose			F3	rose
				F4	aqua			F4	aqua
15	4.2	3.2	Orange	F1	slate	5.1	Orange	F1	slate
				F2	white			F2	white
				F3	red			F3	red
				F4	black			F4	black
21	5.1	4.2	Orange	F1	blue	7.2	Orange	F1	blue
				F2	orange			F2	orange
				F3	green			F3	green
				F4	brown			F4	brown
31	7.2	4.2	Blue	F1	yellow	Toll Splice "Y" Near SR 1999 (Davis Dr.)	Blue	F1	yellow
				F2	violet			F2	violet
				F3	rose			F3	rose
				F4	aqua			F4	aqua

Fiber Use Table			
Rack	Panel	Fiber Color	To/From Hub or Group
1	1	Blue	Toll Hub 1.1
1	1	Orange	Toll Hub 1.1
1	1	Green	Toll Hub 1.1 (spare)
1	1	Brown	Toll Hub 1.1 (spare)
1	2	Blue	Toll Hub 6.1
1	2	Orange	Toll Hub 6.1
1	2	Green	Toll Hub 6.1 (spare)
1	2	Brown	Toll Hub 6.1 (spare)

REVISIONS
11/21/2013 -phase 2SplicingSpl 17.dgn

PLAN OF RECORD



**TOLL SPLICE TYPE V
TOLL HUB 6.1**

COLOR CODE
TIA/EIA 598-C

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

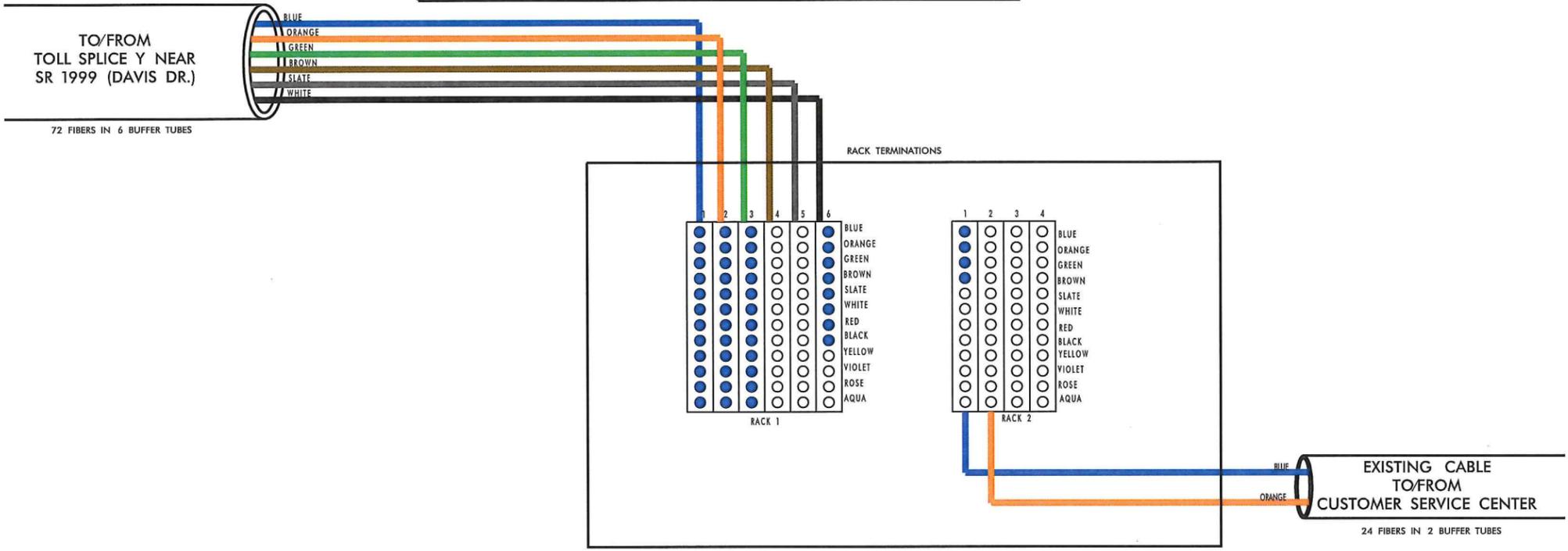
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER



Fiber Use Table			
Rack	Panel	Fiber Color	To/From Hub or Group
1	1	Blue	Toll Hub 1.1 Secondary
1	1	Orange	Toll Hub 1.1 Secondary
1	1	Green	Toll Hub 1.1 Secondary (Spare)
1	1	Brown	Toll Hub 1.1 Secondary(Spare)
1	1	Slate	Toll Hub 8.2
1	1	White	Toll Hub 8.2
1	1	Red	Toll Hub 8.2 (Spare)
1	1	Black	Toll Hub 8.2 (Spare)
1	1	Yellow	Toll Hub 7.2
1	1	Violet	Toll Hub 7.2
1	1	Rose	Toll Hub 7.2 (Spare)
1	1	Aqua	Toll Hub 7.2 (Spare)
1	2	Blue	Toll Hub 5.1
1	2	Orange	Toll Hub 5.1
1	2	Green	Toll Hub 5.1 (Spare)
1	2	Brown	Toll Hub 5.1 (Spare)
1	2	Slate	Toll Hub 4.1
1	2	White	Toll Hub 4.1
1	2	Red	Toll Hub 4.1 (Spare)
1	2	Black	Toll Hub 4.1 (Spare)
1	2	Yellow	Toll Hub 3.1
1	2	Violet	Toll Hub 3.1
1	2	Rose	Toll Hub 3.1 (Spare)
1	2	Aqua	Toll Hub 3.1 (Spare)

Fiber Use Table			
Rack	Panel	Fiber Color	To/From Hub or Group
1	3	Blue	Toll Hub 2.2
1	3	Orange	Toll Hub 2.2
1	3	Green	Toll Hub 2.2 (Spare)
1	3	Brown	Toll Hub 2.2 (Spare)
1	3	Slate	Toll Hub V.1
1	3	White	Toll Hub V.1
1	3	Red	Toll Hub V.1 (Spare)
1	3	Black	Toll Hub V.1 (Spare)
1	3	Yellow	Toll Hub 1.1 Primary
1	3	Violet	Toll Hub 1.1 Primary
1	3	Rose	Toll Hub 1.1 Primary (Spare)
1	3	Aqua	Toll Hub 1.1 Primary (Spare)
1	6	Blue	Toll Hub 1.1 (10 Gb)
1	6	Orange	Toll Hub 1.1 (10 Gb)
1	6	Green	Toll Hub 1.1 (10 Gb)
1	6	Brown	Toll Hub 1.1 (10 Gb)
1	6	Slate	Toll Hub 8.2 (10 Gb)
1	6	White	Toll Hub 8.2 (10 Gb)
1	6	Red	Toll Hub 8.2 (10 Gb)
1	6	Black	Toll Hub 8.2 (10 Gb)
2	1	Blue	CSC
2	1	Orange	CSC
2	1	Green	CSC
2	1	Brown	CSC

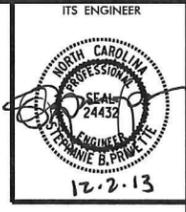
*NOTE: SPLICE FOUND ON SHEET 32 OF CABLE ROUTING

REVISIONS
11/21/2013 -_phase 2 Splicing Spl 18.dgn



ITS PLANS
SPLICE PLANS

PLAN OF RECORD



COLOR CODE TIA/EIA 598-C

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

LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

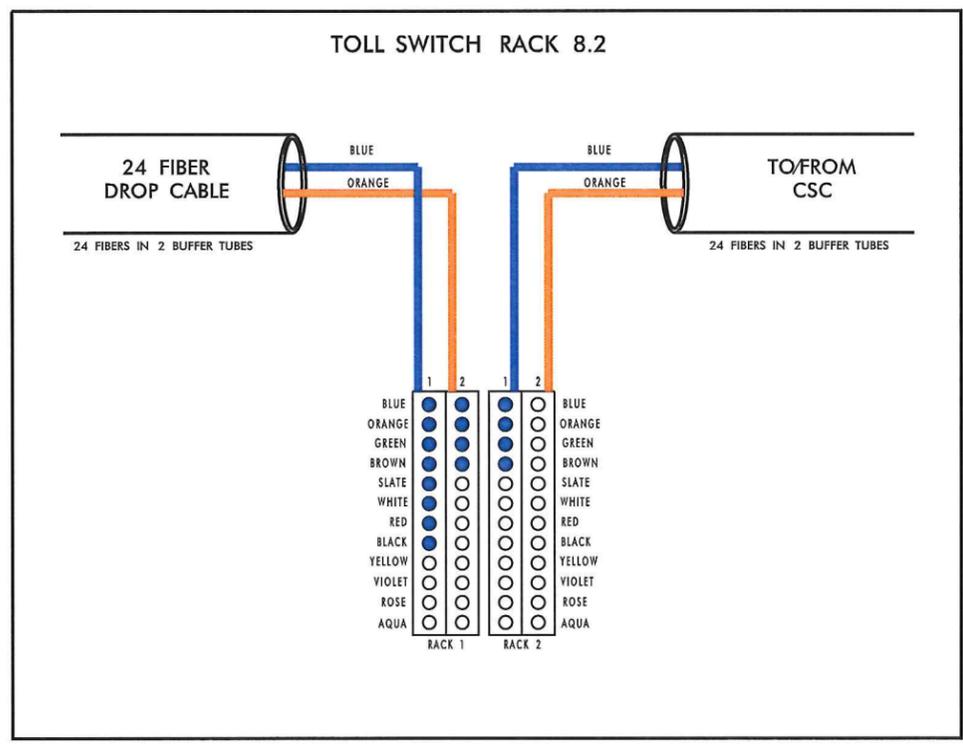
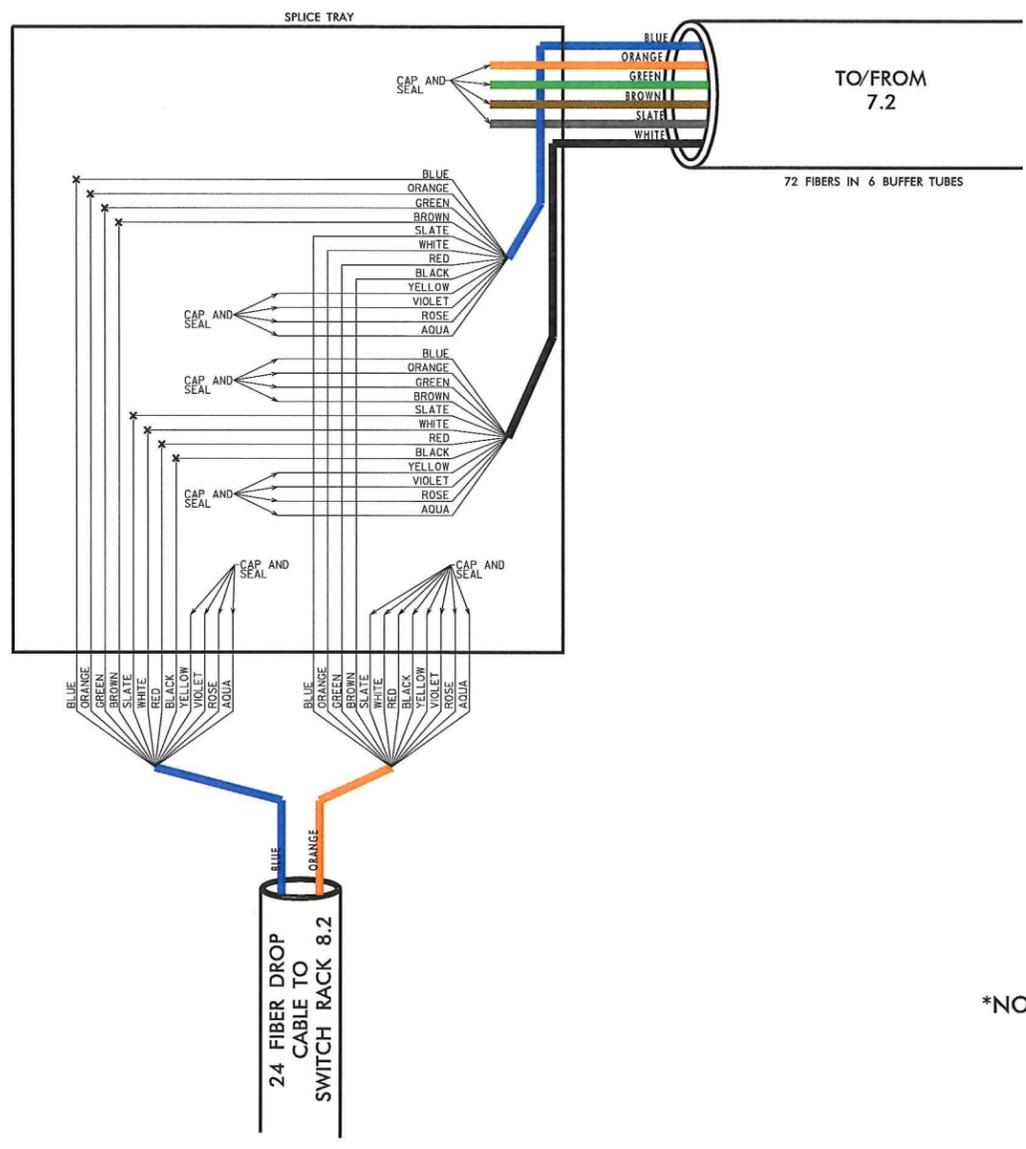
EXPRESS - EXPRESS ENTIRE BUFFER TUBE
 SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
 ● USED (LIT) FIBER

TOLL SPLICE TYPE X NEAR TOLL HUB 8.2

Fiber Use Table			
Rack	Panel	Fiber Color	To/From Hub or Group
1	1	Blue	Toll Hub 6.1
1	1	Orange	Toll Hub 6.1
1	1	Green	Toll Hub 6.1 (Spare)
1	1	Brown	Toll Hub 6.1 (Spare)
1	1	Slate	Toll Hub 1.1 (10 Gb)
1	1	White	Toll Hub 1.1 (10 Gb)
1	1	Red	Toll Hub 1.1 (10 Gb)
1	1	Black	Toll Hub 1.1 (10 Gb)
1	2	Yellow	Toll Hub 1.1
1	2	Violet	Toll Hub 1.1
1	2	Rose	Toll Hub 1.1 (Spare)
1	2	Aqua	Toll Hub 1.1 (Spare)
2	1	Blue	CSC
2	1	Orange	CSC
2	1	Green	CSC
2	1	Brown	CSC

Mislabeled... these actually go to 6.1



REVISIONS
11/21/2013 -Phase 2 Splicing Spl 19.dgn

*NOTE: SPLICE FOUND ON SHEET 38 OF CABLE ROUTING



 TRAFFIC CONTROL DEVICES, INC. <small>P.O. BOX 12486 ALTA VISTA, NC 27511 (919) 847-1100</small>	 Kimley-Horn and Associates, Inc. <small>NC License #F-0102 P.O. Box 33506 Raleigh, NC 27635 (919) 477-7000</small>	 SUMMIT CONSULTING <small>ENGINEERING ■ ARCHITECTURE ■ SURVEYING</small>	ITS PLANS SPLICE PLANS
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PLAN OF RECORD

ITS ENGINEER

 12.2.13

**TOLL SPLICE TYPE Y
 TOLL SPLICE AT NC-540
 AND TRIANGLE PARKWAY**

COLOR CODE
 TIA/EIA 598-C

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

LEGEND

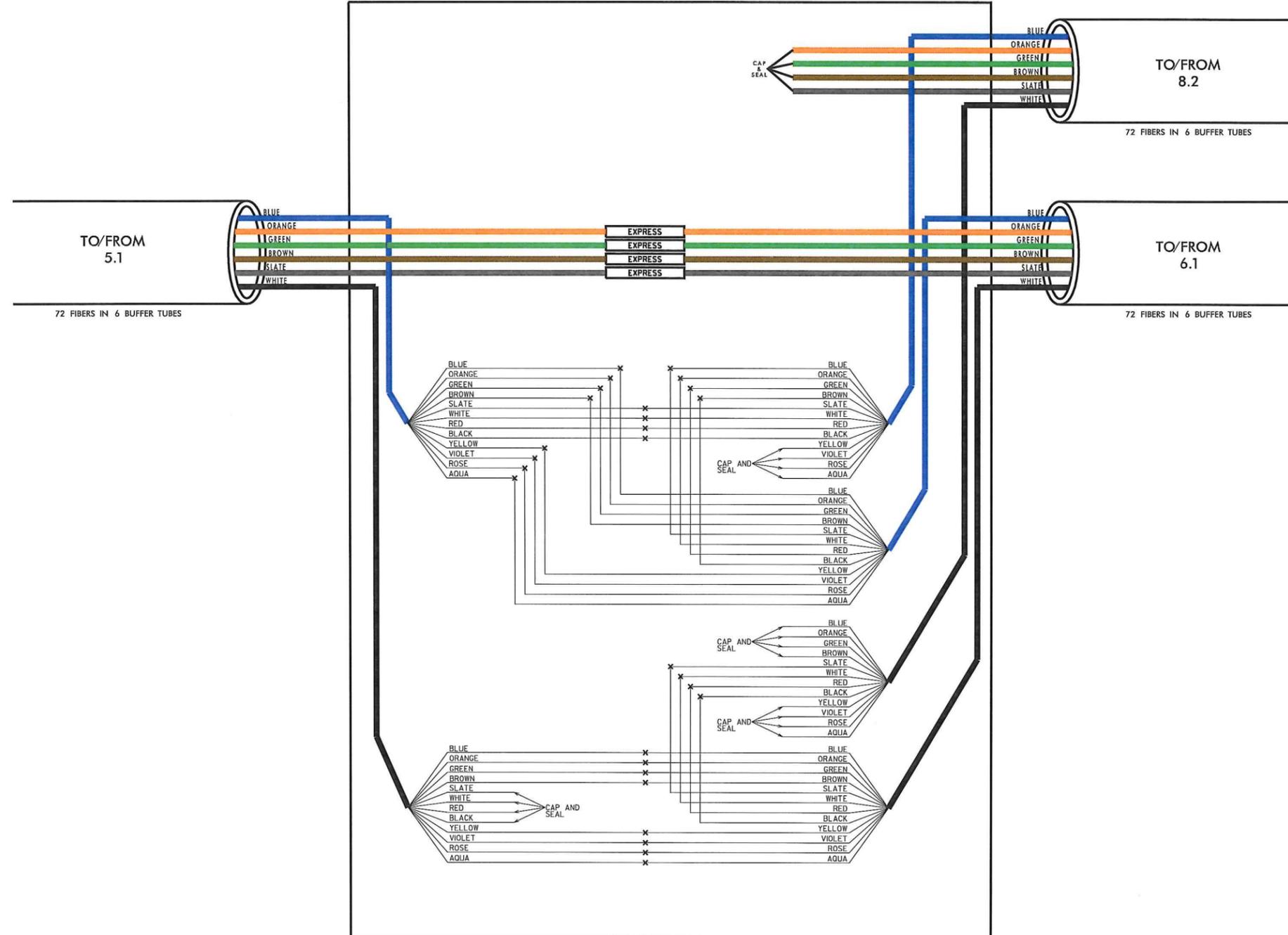
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS ENTIRE BUFFER TUBE
 SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
 ● USED (LIT) FIBER

SPLICE TRAY



REVISIONS
 11/21/2013 -_phase 2 Splicing Spl 20.dgn

*NOTE: SPLICE FOUND ON SHEET 31 OF CABLE ROUTING

TRAFFIC CONTROL DEVICES, INC.
 KIMLEY-HORN AND ASSOCIATES, INC.
 SUMMIT CONSULTING
 NORTH CAROLINA Turnpike Authority

ITS PLANS SPLICE PLANS

PLAN OF RECORD



ITS SPLICE TYPE Z
NEAR ITS HUB 1, DMS 1
AND DMS 2
(ORT BUILDING 1.1,
SWITCH 1.7)

COLOR CODE TIA/EIA 598-C

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

LEGEND

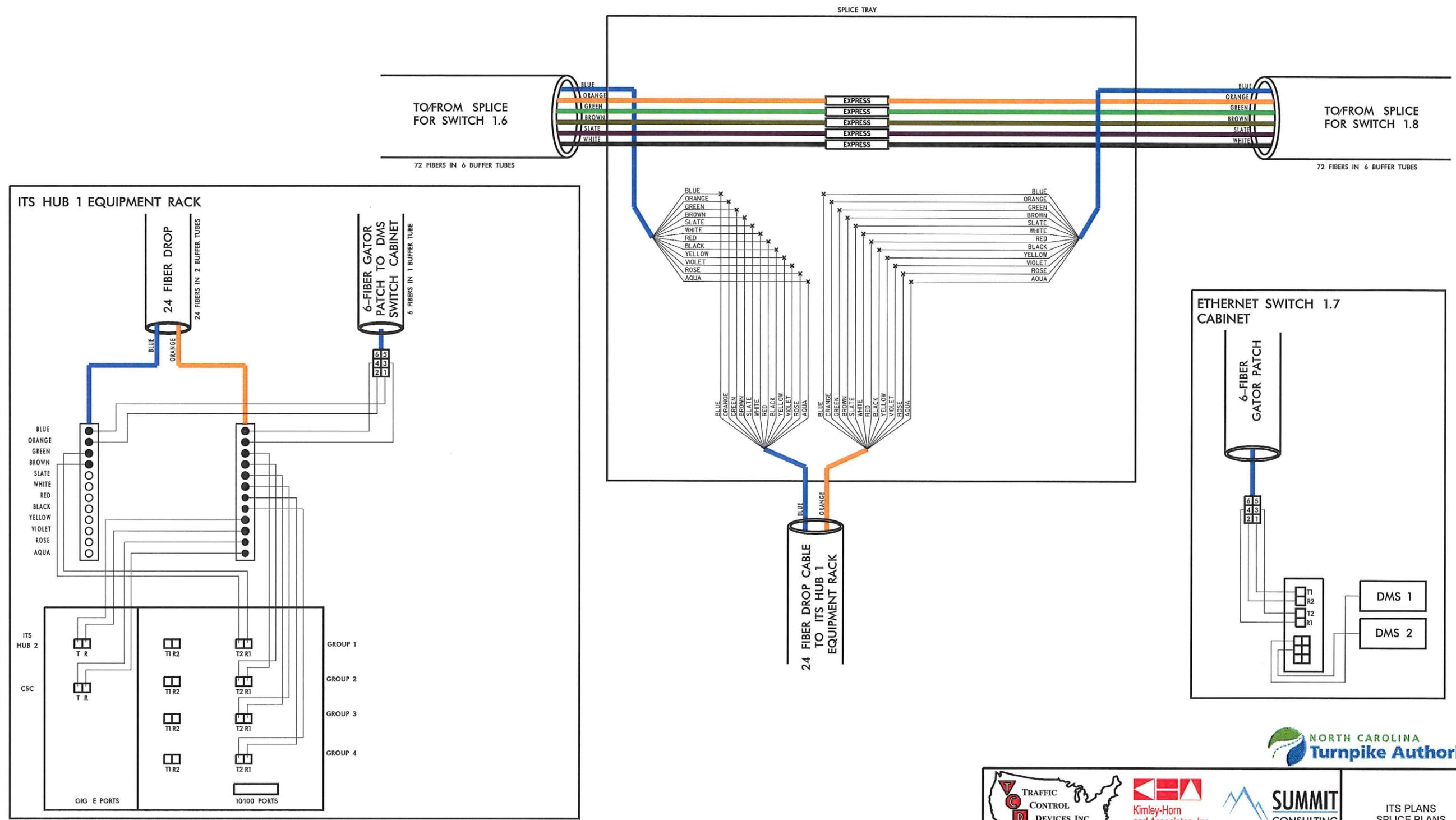
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

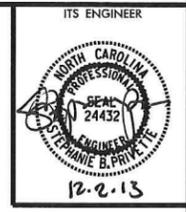
○ UNUSED FIBER
● USED (LIT) FIBER

REVISIONS
11/21/2013 -Phase 2\Splicing\Sp1 21.dgn



*NOTE: SPLICE FOUND ON SHEET 4A OF CABLE ROUTING

PLAN OF RECORD



ITS SPLICE TYPE AA NEAR ITS HUB 2, DMS 5 AND DMS 6 (ORT BUILDING 5.1 AND SWITCH 4.7)

COLOR CODE
TIA/EIA 598-C

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

LEGEND

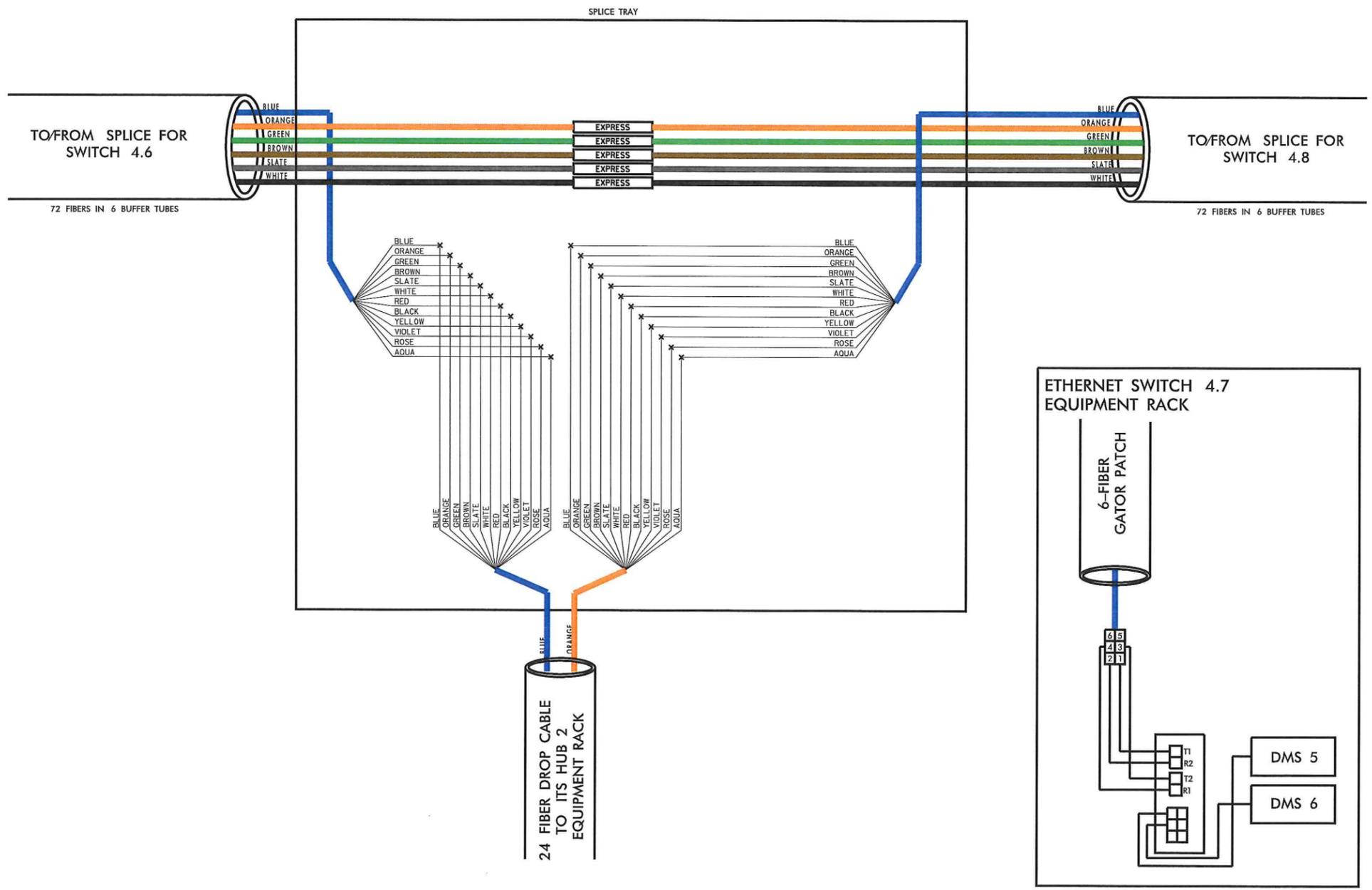
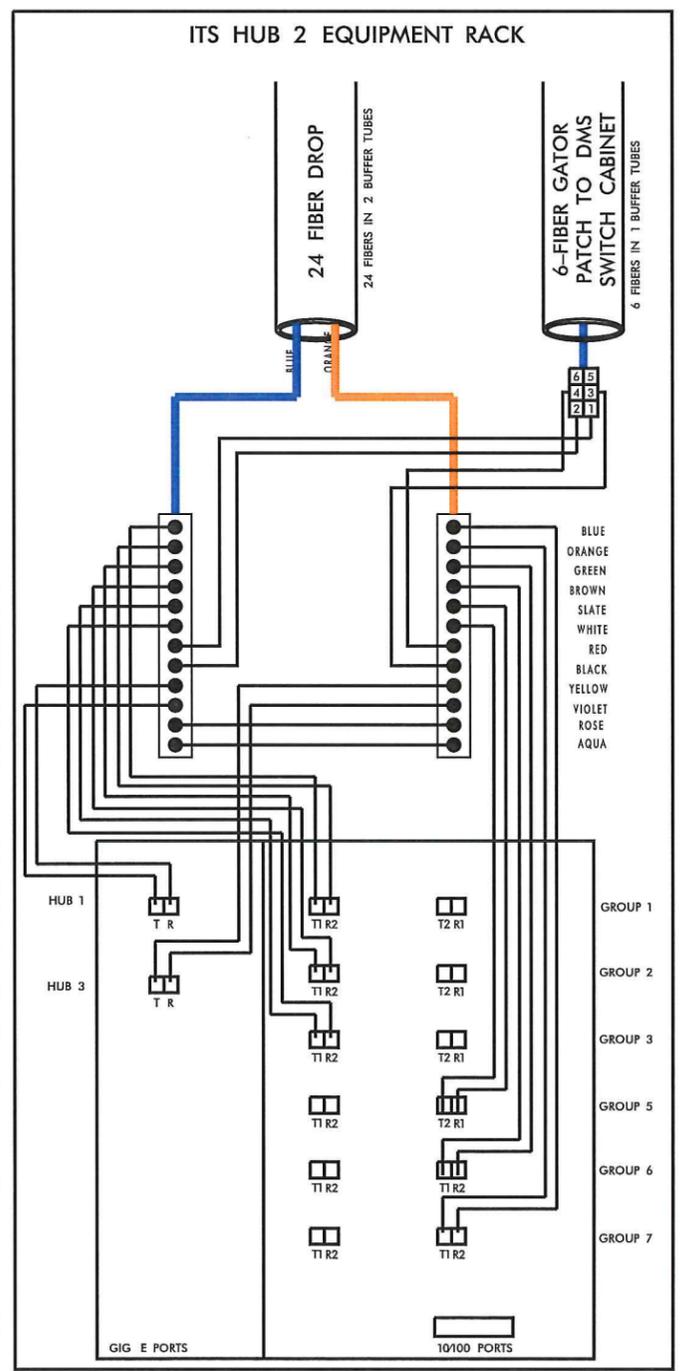
ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

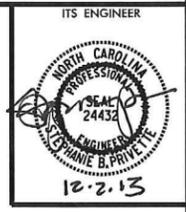
○ UNUSED FIBER
● USED (LIT) FIBER

REVISIONS
11/21/2013 -Phase 2 Splicing Spl 22.dgn

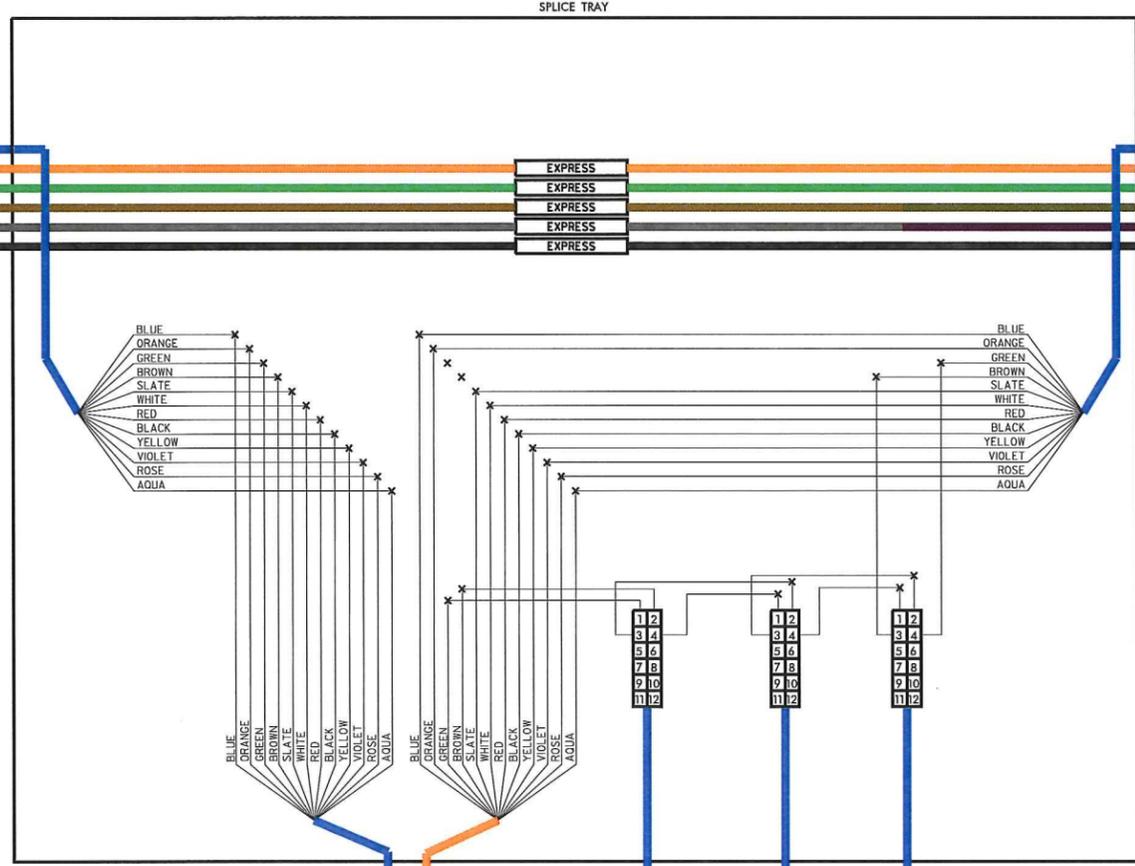
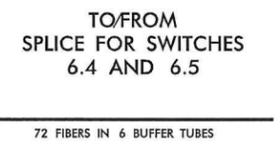
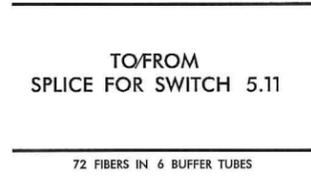


*NOTE: SPLICE FOUND ON SHEET 21 OF CABLE ROUTING

PLAN OF RECORD



ITS SPLICE TYPE AB
NEAR ITS HUB 3
MVD 51, MVD 52,
AND CCTV 2
(SWITCHES 6.1, 6.2
AND 6.3)



COLOR CODE
TIA/EIA 598-C

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

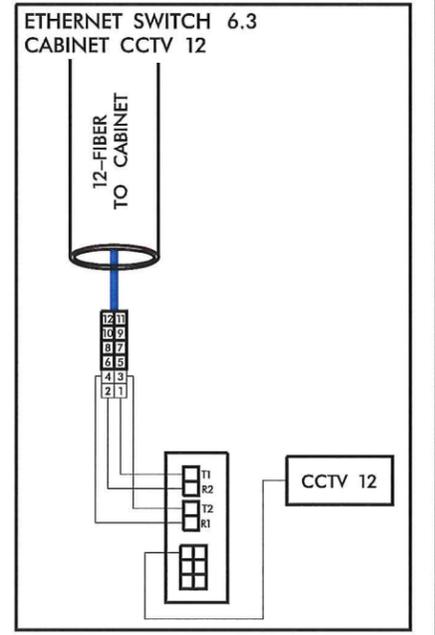
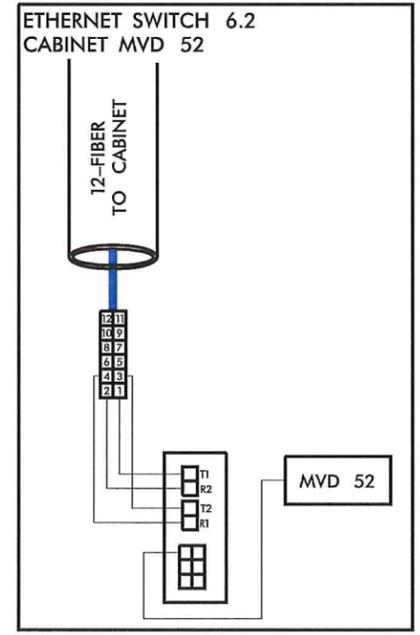
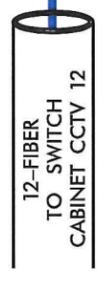
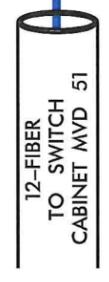
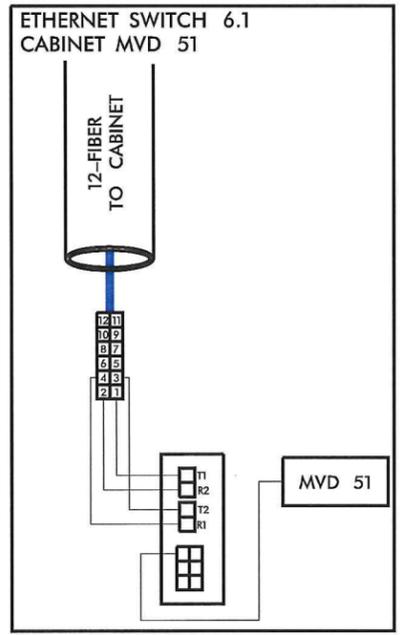
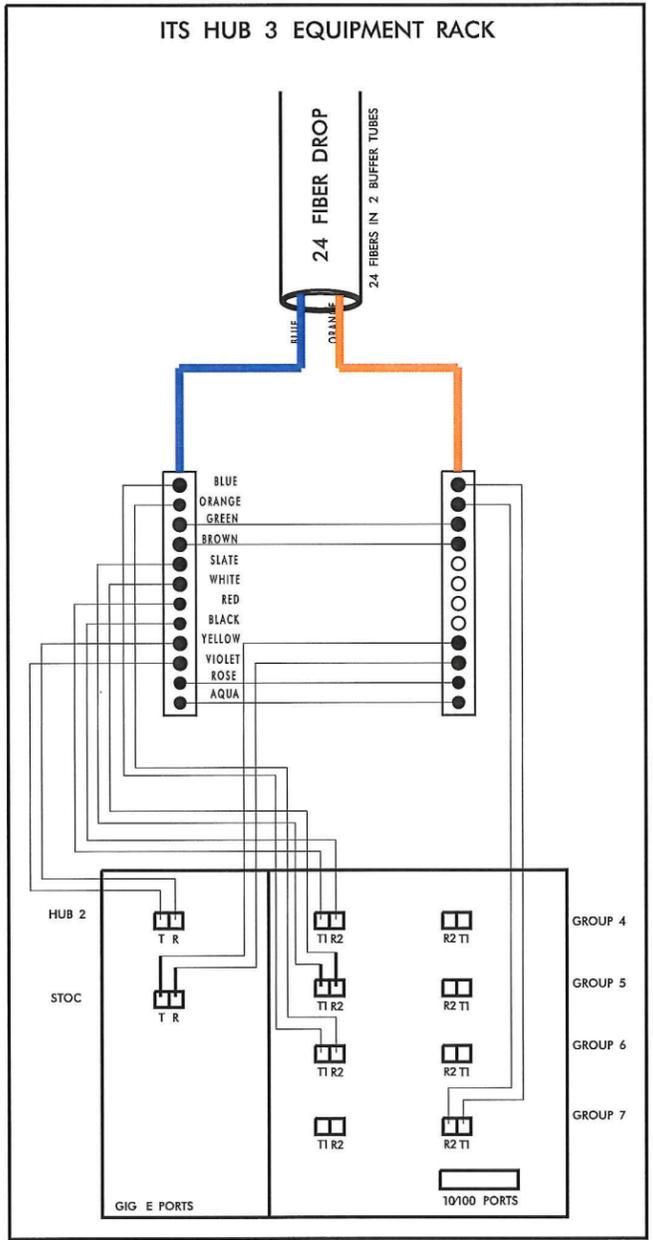
LEGEND

ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.

X - FUSION SPLICE INDIVIDUAL FIBER

EXPRESS - EXPRESS ENTIRE BUFFER TUBE
SPLICE - SPLICE ENTIRE BUFFER TUBE

○ UNUSED FIBER
● USED (LIT) FIBER

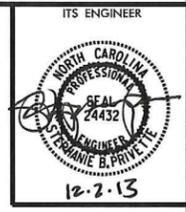


REVISIONS
11/21/2013 -Phase 2 Splicing Spl 23.dgn

*NOTE: SPLICE FOUND ON SHEET 32 OF CABLE ROUTING

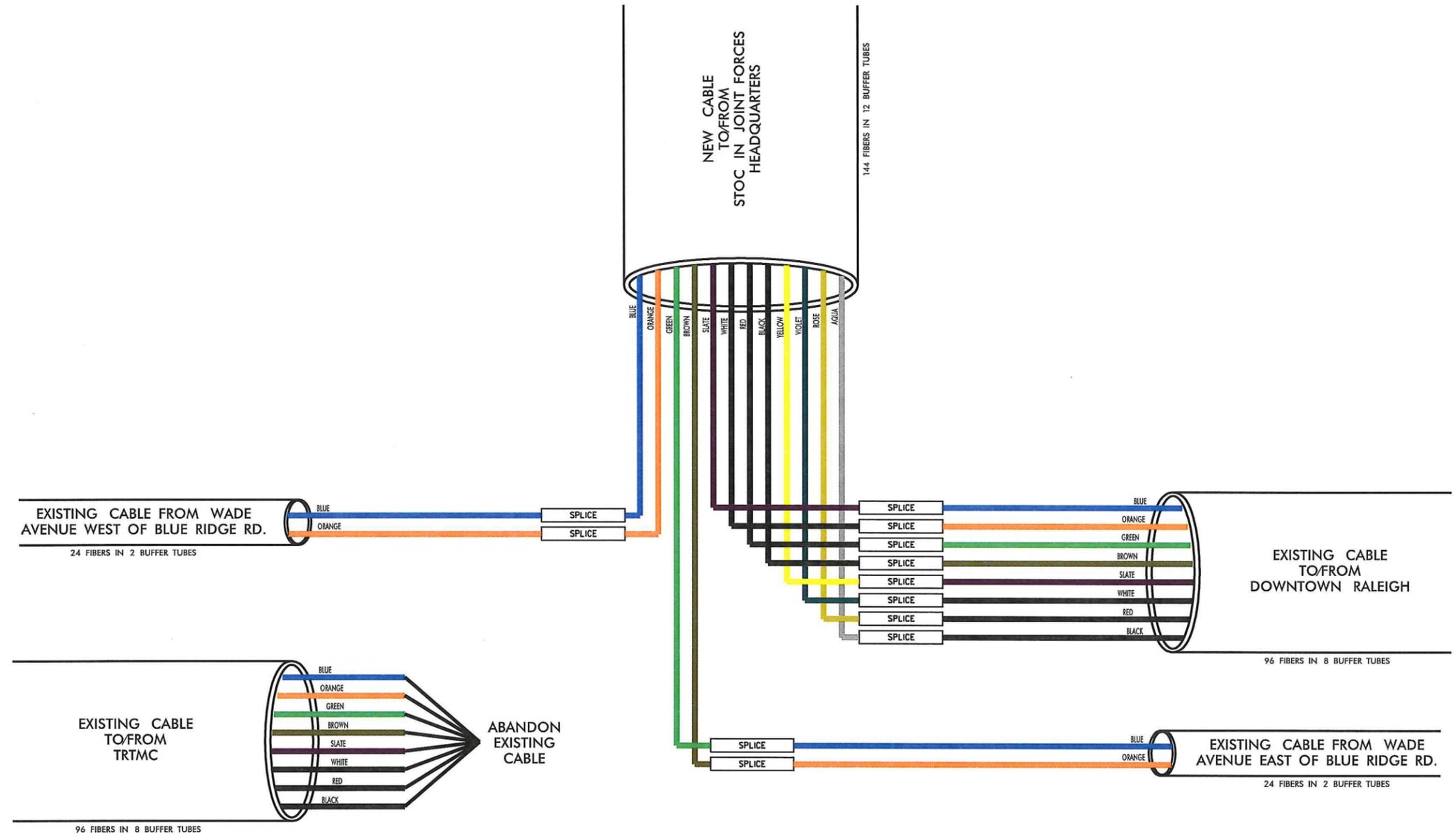
ITS PLANS
SPLICE PLANS

PLAN OF RECORD



**ITS/TOLL SPlice TYPE AC
AT
RAMP SHOULDER ON
WADE AVENUE AT
BLUE RIDGE ROAD**

COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.	
(2) ORANGE	(8) BLACK	X - FUSION SPlice INDIVIDUAL FIBER	
(3) GREEN	(9) YELLOW	EXPRESS - EXPRESS ENTIRE BUFFER TUBE	
(4) BROWN	(10) VIOLET	SPLICE - SPLICE ENTIRE BUFFER TUBE	
(5) SLATE	(11) ROSE	○ UNUSED FIBER	
(6) WHITE	(12) AQUA	● USED (LIT) FIBER	



11/21/2013 -phase 2\Splicing\Spl 24.dgn REVISIONS

NOTE:
SCHEDULE ALL SPLICES ON THIS SHEET
WITH NCDOT REGIONAL ITS ENGINEER.

TRAFFIC CONTROL DEVICES, INC.
P.O. Box 33068
Raleigh, NC 27635
(919) 877-7000

Kimley-Horn and Associates, Inc.
NC License #F-0102
P.O. Box 33068
Raleigh, NC 27635
(919) 877-7000

SUMMIT CONSULTING
ENGINEERING ■ ARCHITECTURE ■ SURVEYING

ITS PLANS
SPlice PLANS

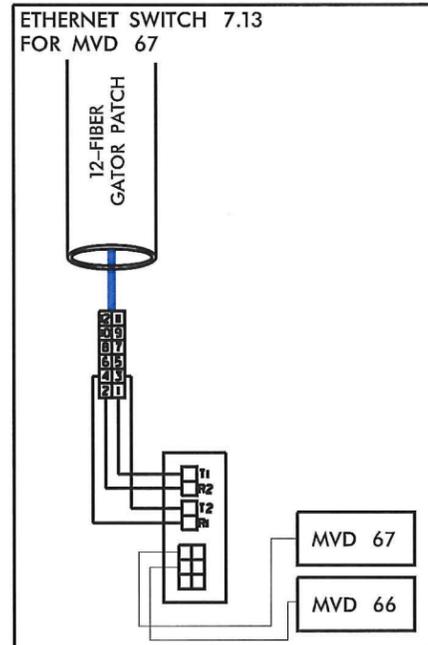
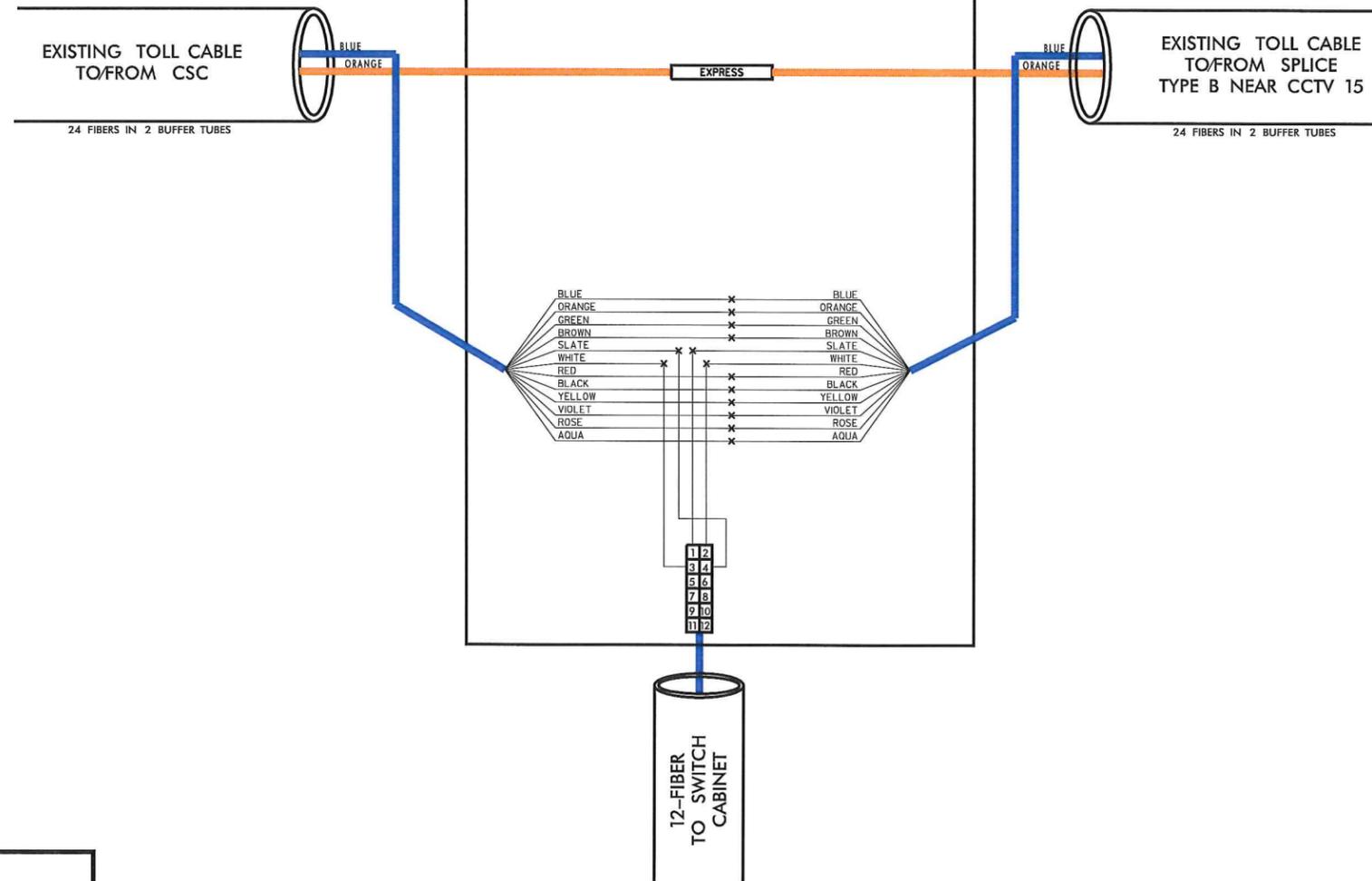


ITS SPLICE TYPE AE
TRIANGLE PKWY. AND I-40

PLAN OF
RECORD

PROJECT REFERENCE NO. C202250 SHEET NO. SPL 26

ITS ENGINEER



COLOR CODE TIA/EIA 598-C		LEGEND	
(1) BLUE	(7) RED	ETHERNET SWITCH TERMINATION CONFIGURATIONS ARE GENERIC. CONTRACTOR IS RESPONSIBLE FOR DETERMINING / ENSURING PROPER TERMINATION.	
(2) ORANGE	(8) BLACK	X - FUSION SPLICE INDIVIDUAL FIBER	E - EXISTING FUSION SPLICE INDIVIDUAL FIBER
(3) GREEN	(9) YELLOW	EXPRESS - EXPRESS ENTIRE BUFFER TUBE	
(4) BROWN	(10) VIOLET	SPLICE - SPLICE ENTIRE BUFFER TUBE	
(5) SLATE	(11) ROSE	○ UNUSED FIBER	
(6) WHITE	(12) AQUA	● USED (LIT) FIBER	

*NOTE: SPLICE SHOWN ON SHEET 41 IN CABLE ROUTING PLANS



ITS PLANS
SPLICE PLANS

11/21/2013 - Phase 2 Splicing Spl II Adgn REVISIONS