STATE	STATE PROJECT REFERENCE NO.	SHEET NO.
N.C.	R-5797	ITS-1
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
44997.3.1	NHPP-0074(215)	CONST.

TIP PROJECT: R-5797

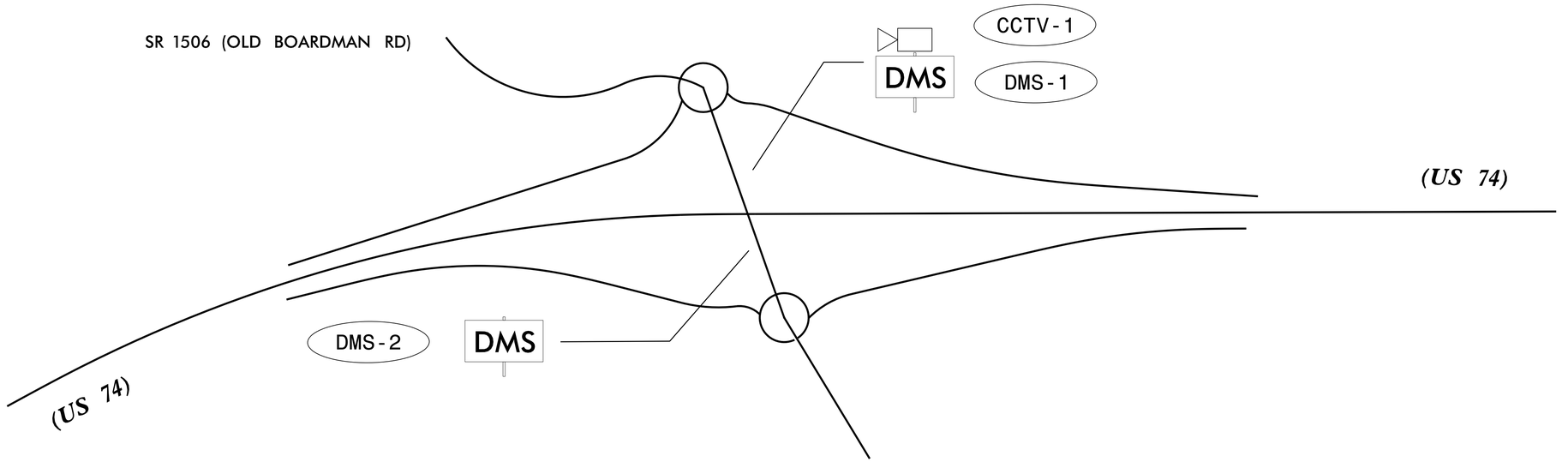
CONTRACT: C204571

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

COLUMBUS COUNTY

LOCATION: *US 74 AT SR 1506 (OLD BOARDMAN ROAD–MACEDONIA ROAD)*

TYPE OF WORK: *INSTALL DYNAMIC MESSAGE SIGNS AND CCTV*



2018 STANDARD SPECIFICATIONS

PROJECT LENGTH

PROJECT LENGTH = 0.1 MILES

LETTING DATE:

APRIL 20, 2021

INDEX OF SHEETS

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 JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1700.01	ELECTRICAL SERVICE OPTIONS
1700.02	ELECTRICAL SERVICE GROUNDING
1715.01	UNDERGROUND CONDUIT-TRENCHING
1716.01	JUNCTION BOXES
1720.01	WOOD POLES
1751.01	CONTROLLER AND CABINETS
1751.02	CONTROLLER AND CABINETS

2018 STANDARD SPECIFICATION

NCDOT CONTACT:
TRANSPORTATION MOBILITY AND SAFETY

M.A. ASLAMI, P.E
STATE ITS & SIGNALS
MANAGEMENT ENGINEER

Prepared in the Offices of:

750 N. Greenfield Pkwy., Garner, NC 27529

ALL DIMENSIONS IN THESE PLANS ARE IN FEET UNLESS OTHERWISE NOTED

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D262B88C8B5C464...

SIGNATURE

2/4/2021

DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5797	ITS-2

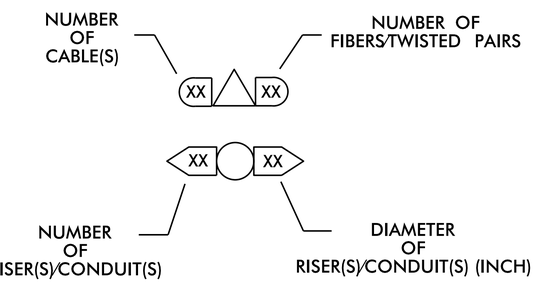
1. INSTALL 3–WIRE COPPER SERVICE ENTRANCE CONDUCTORS
2. INSTALL 4–WIRE COPPER FEEDER CONDUCTORS
3. INSTALL 3–WIRE COPPER FEEDER CONDUCTORS
4. INSTALL SMFO CABLE
5. REUSE EXISTING SMFO CABLE
6. INSTALL FIBER OPTIC DROP CABLE
7. INSTALL TRACER WIRE
8. TRENCH
9. INSTALL PVC CONDUIT
10. INSTALL RIGID, GALVANIZED STEEL CONDUIT
11. INSTALL RIGID, GALVANIZED STEEL RISER WITH WEATHERHEAD
12. INSTALL RIGID, GALVANIZED STEEL RISER WITH FIBER OPTIC CABLE SEAL
13. INSTALL POLYETHYLENE CONDUIT IN EXISTING OUTERDUCT
14. INSTALL POLYETHYLENE CONDUIT
15. DIRECTIONAL DRILL CONDUIT
16. BORE AND JACK CONDUIT
17. INSTALL CABLE(S) IN EXISTING CONDUIT
18. INSTALL CABLE(S) IN NEW CONDUIT
19. INSTALL CABLE(S) IN EXISTING RISER
20. INSTALL CABLE(S) IN NEW RISER
21. INSTALL CABLE(S) IN EXISTING CONDUIT STUBOUTS
22. INSTALL NEW CONDUIT INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)
23. INSTALL NEW RISER INTO EXISTING CABINET BASE (USE EXISTING CONDUIT STUB–OUTS WHEN AVAILABLE)
24. INSTALL NEW CONDUIT INTO NEW POLE MOUNTED CABINET
25. INSTALL NEW RISER INTO NEW POLE MOUNTED CABINET
26. TERMINATE COMMUNICATIONS CABLE ON EXISTING TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
27. INSTALL NEW TELEMETRY INTERFACE PANEL IN TRAFFIC SIGNAL CONTROLLER CABINET
28. INSTALL INTERCONNECT CENTER, PATCH PANEL, JUMPERS, AND FUSION SPLICE CABLE IN CABINET
29. INSTALL UNDERGROUND SPLICE ENCLOSURE
30. MODIFY EXISTING UNDERGROUND SPLICE ENCLOSURE
31. MODIFY EXISTING BASE MOUNTED SPLICE CABINET
32. INSTALL BASE MOUNTED SPLICE CABINET
33. REMOVE EXISTING SPLICE CABINET
34. INSTALL CABINET FOUNDATION
35. REMOVE EXISTING CABINET FOUNDATION
36. INSTALL CCTV CAMERA ASSEMBLY
37. INSTALL CCTV CAMERA METAL POLE WITH LOWERING DEVICE AND FOUNDATION
38. INSTALL CCTV WOOD POLE
39. INSTALL STANDARD JUNCTION BOX
40. INSTALL OVERSIZED JUNCTION BOX
41. INSTALL SPECIAL OVERSIZED JUNCTION BOX
42. INSTALL WOOD POLE
43. INSTALL 6" x 6" WOOD PEDESTAL
44. INSTALL AERIAL GUY ASSEMBLY
45. INSTALL STANDARD GUY ASSEMBLY
46. INSTALL SIDEWALK GUY ASSEMBLY
47. INSTALL MESSENGER CABLE
48. REMOVE EXISTING COMMUNICATIONS CABLE AND MESSENGER CABLE
49. REMOVE EXISTING COMMUNICATIONS CABLE
50. INSTALL TELEPHONE SERVICE
51. INSTALL CABLE STORAGE RACKS (SNOW SHOES) AND STORE 100 FEET OF CABLE
52. INSTALL DELINEATOR MARKER
53. STORE 50 FEET OF COMMUNICATIONS CABLE
54. LASH CABLE(S) TO NEW MESSENGER CABLE
55. INSTALL 10KVA SINGLE PHASE TRANSFORMER
56. INSTALL NEW EQUIPMENT CABINET DISCONNECT
57. MODIFY EXISTING ELECTRICAL SERVICE
58. INSTALL NEW ELECTRICAL SERVICE
59. INSTALL NEW POLE MOUNTED CABINET
60. INSTALL FIELD ETHERNET SWITCH
61. INSTALL SOLAR POWER ASSEMBLY
62. INSTALL DMS ASSEMBLY
63. INSTALL CCTV EXTENSION POLE
64. INSTALL NCDOT SUPPLIED MODEM

LEGEND

- NEW FIBER OPTIC COMMUNICATIONS CABLE
- NEW CONDUIT
- EXISTING CONDUIT
- NEW DIRECTIONAL DRILLED CONDUIT
- NEW BORED AND JACKED CONDUIT
- NEW GUARDRAIL
- EXISTING GUARDRAIL
- EXISTING CONTROLLED ACCESS FENCE
- NEW JUNCTION BOX
- EXISTING JUNCTION BOX
- NEW WOOD POLE
- EXISTING WOOD POLE
- NEW SPLICE ENCLOSURE
- EXISTING SPLICE ENCLOSURE
- NEW METAL POLE
- NEW CCTV CAMERA ASSEMBLY
- PROPOSED PEDESTAL–MOUNTED DMS STRUCTURE
- EXISTING PEDESTAL–MOUNTED DMS STRUCTURE
- NEW STANDARD GUY ASSEMBLY
- NEW ELECTRICAL SERVICE
- XX–XXXX NEW ITS DEVICE NUMBER

CONSTRUCTION NOTE SYMBOLOGY KEY

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



Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

750 N. Greenfield Pkwy., Garner, NC 27529

CONSTRUCTION NOTES AND LEGEND

DIVISION 06 COLUMBUS CO BOARDMAN

PLAN DATE: JANUARY 2021 REVIEWED BY: A.J. SKUCE

PREPARED BY: L.E. NEAL REVIEWED BY:

SCALE 0 N/A

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D2628BBC8B5C464...

1/29/2021 DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5797	ITS-3

DRAWING 1

NEW ELECTRICAL SERVICE EQUIPMENT

NEW METER BASE/ DISCONNECT COMBO PANEL

100

INSTALL NEW SERVICE DISCONNECT WITH A DOUBLE POLE, 100 AMP CIRCUIT BREAKER

INSTALL ONE 1.5" CONDUIT WITH FOUR #3 AWG COPPER FEEDER CONDUCTORS TO EQUIPMENT CABINET DISCONNECT AT DMS–2

DRAWING 2

NEW EQUIPMENT CABINET DISCONNECT

NEW EQUIPMENT CABINET DISCONNECT

50 50

INSTALL TWO (2) 50 AMP CIRCUIT BREAKERS FOR DMS–1 AND DMS–2

INSTALL ONE 1.5" CONDUIT FROM METER BASE/DISCONNECT COMBO PANEL

INSTALL ONE 1" CONDUIT WITH FOUR #8 COPPER FEEDER CONDUCTORS TO POLE MOUNTED DMS–2 CABINET

INSTALL ONE 1.5" CONDUIT WITH FOUR #4 COPPER FEEDER CONDUCTORS TO DMS–1 EQUIPMENT CABINET DISCONNECT

DRAWING 3

NEW EQUIPMENT CABINET DISCONNECT

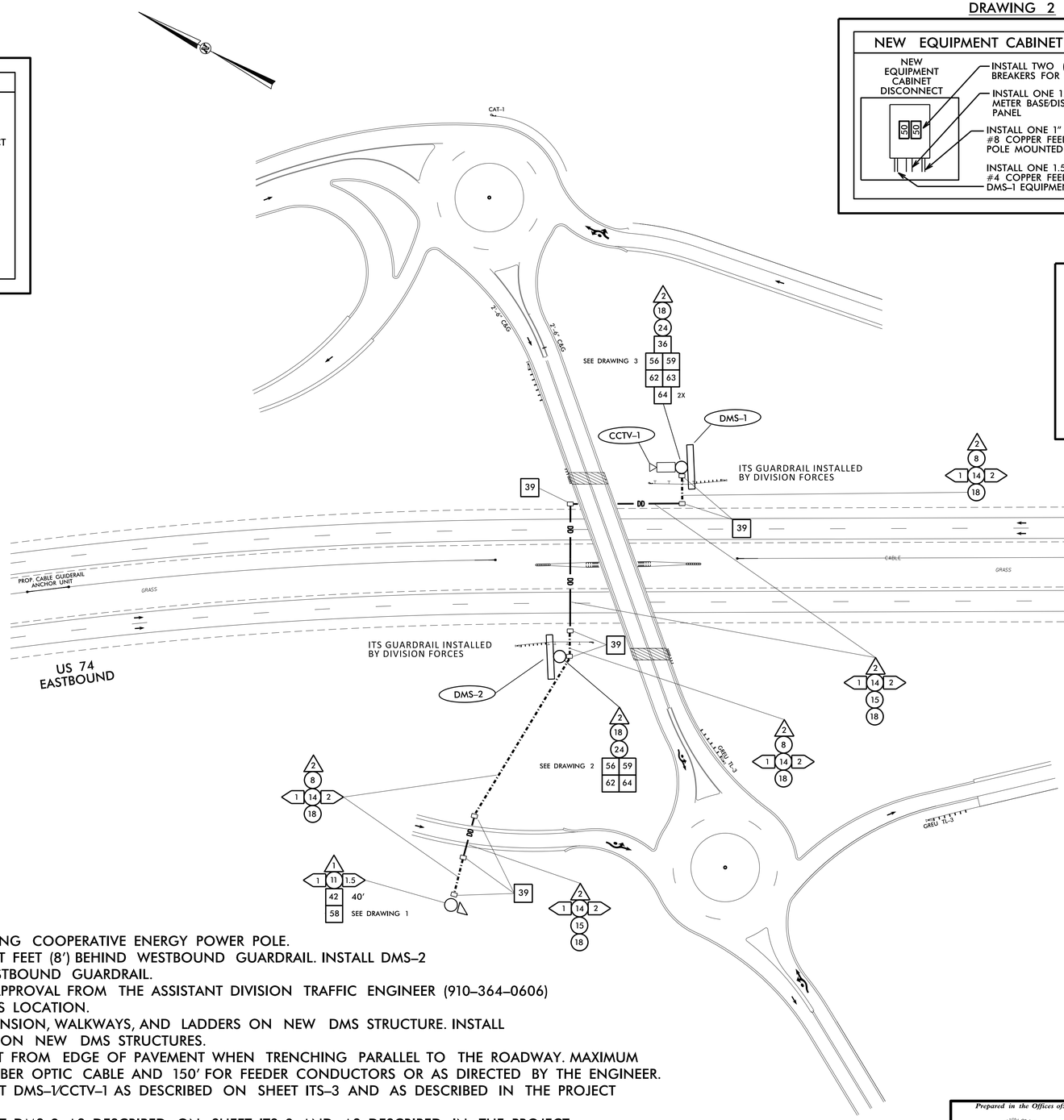
NEW EQUIPMENT CABINET DISCONNECT

50

INSTALL 50 AMP CIRCUIT BREAKER FOR DMS–1

INSTALL ONE 1.5" CONDUIT FROM DMS–2 EQUIPMENT CABINET DISCONNECT

INSTALL ONE 1" CONDUIT WITH FOUR #8 COPPER FEEDER CONDUCTORS TO POLE MOUNTED DMS–1 CABINET



NOTES

1. INSTALL SERVICE POLE 20' FROM EXISTING COOPERATIVE ENERGY POWER POLE.
2. INSTALL DMS–1/CCTV–1 STRUCTURE EIGHT FEET (8') BEHIND WESTBOUND GUARDRAIL. INSTALL DMS–2 STRUCTURE EIGHT FEET (8') BEHIND EASTBOUND GUARDRAIL.
3. OBTAIN FINAL DMS/CCTV LOCATION APPROVAL FROM THE ASSISTANT DIVISION TRAFFIC ENGINEER (910–364–0606) BEFORE INITIATING ANY WORK AT THIS LOCATION.
4. INSTALL NEW DMS, CCTV & POLE EXTENSION, WALKWAYS, AND LADDERS ON NEW DMS STRUCTURE. INSTALL NEW DMS POLE MOUNTED CABINETS ON NEW DMS STRUCTURES.
5. MAINTAIN A MINIMUM OF SIX (6) FEET FROM EDGE OF PAVEMENT WHEN TRENCHING PARALLEL TO THE ROADWAY. MAXIMUM JUNCTION BOX SPACING 1000' FOR FIBER OPTIC CABLE AND 150' FOR FEEDER CONDUCTORS OR AS DIRECTED BY THE ENGINEER.
6. INSTALL NEW GROUNDING SYSTEM AT DMS–1/CCTV–1 AS DESCRIBED ON SHEET ITS–3 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
7. INSTALL NEW GROUNDING SYSTEM AT DMS–2 AS DESCRIBED ON SHEET ITS–3 AND AS DESCRIBED IN THE PROJECT SPECIAL PROVISIONS.
8. SEE ROADWAY PLANS FOR GUARDRAIL DETAILS.
9. CONTACT ENGINEER TO REQUEST NCDOT SUPPLIED MODEMS AT LEAST EIGHT (8) WEEKS PRIOR TO INSTALLATION.

NOTE:
ELECTRICAL SERVICE DETAILS AND CONSTRUCTION METHODS DEPICT FIELD CONDITIONS AT THE TIME OF DESIGN. CONTRACTOR TO VERIFY ACTUAL CONDITIONS AT THE TIME OF CONSTRUCTION AND OBTAIN APPROVAL FROM ENGINEER PRIOR TO MAKING ANY CHANGES.

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Traffic Engineering Branch — Traffic Signal Section

750 N. Greenfield Pkwy., Garner, NC 27529

DMS-1 & CCTV-1 AND DMS-2

DIVISION 06 COLUMBUS CO BOARDMAN

PLAN DATE:	APRIL 2021	REVIEWED BY:	A.J. SKUCE
PREPARED BY:	L.E. NEAL	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE 0 N/A

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce 4/12/2021

SIGNATURE DATE

CADD Filename:

PROJECT REFERENCE NO.	SHEET NO.
R-5797	ITS-4

NOTES

1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM FOR THE DMS AS INDICATED IN THE PROJECT SPECIAL PROVISIONS.

2. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER–TO–CENTER TYPICAL SPACING.

3. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.

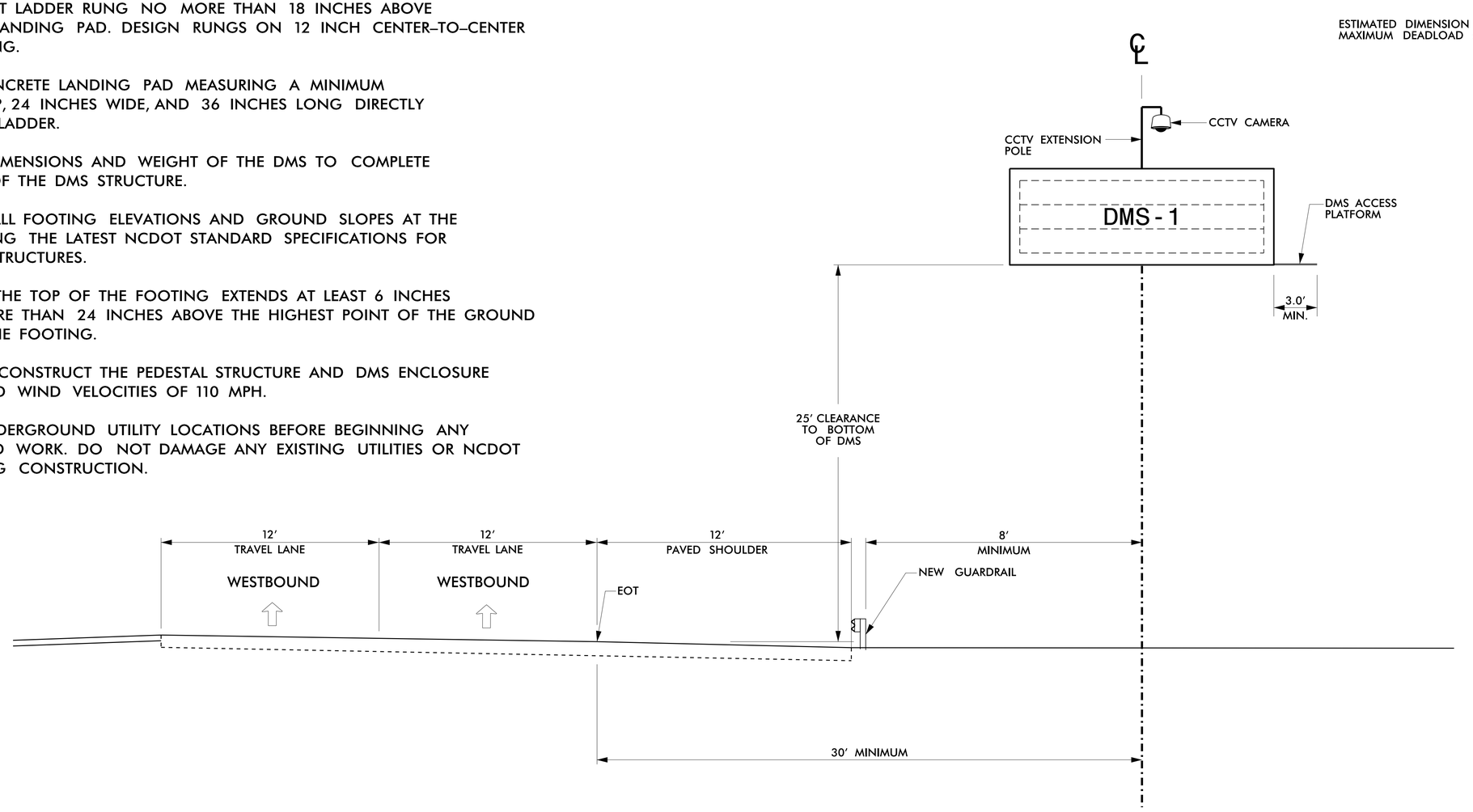
4. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.

5. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

6. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.

7. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 110 MPH.

8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.



Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Intelligent Transportation Systems Section

750 N. Greenfield Pkwy., Garner, NC 27529

DMS ELEVATION

DIVISION 06 COLUMBUS CO. BOARDMAN

PLAN DATE:	JAN. 2021	REVIEWED BY:	A.J. SKUCE
PREPARED BY:	L.E. NEAL	REVIEWED BY:	

SCALE: 0 — N/A

REVISIONS	INIT.	DATE

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D262B8BC8B5C464...

1/29/2021
DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5797	ITS-5

NOTES

1. PROVIDE A FIXED LADDER LEADING TO THE ACCESS PLATFORM FOR THE DMS AS INDICATED IN THE PROJECT SPECIAL PROVISIONS.

2. EQUIP THE LADDER WITH A SECURITY COVER (LADDER GUARD). START THE FIRST LADDER RUNG NO MORE THAN 18 INCHES ABOVE A CONCRETE LANDING PAD. DESIGN RUNGS ON 12 INCH CENTER–TO–CENTER TYPICAL SPACING.

3. INSTALL A CONCRETE LANDING PAD MEASURING A MINIMUM 4 INCHES DEEP, 24 INCHES WIDE, AND 36 INCHES LONG DIRECTLY BENEATH THE LADDER.

4. USE ACTUAL DIMENSIONS AND WEIGHT OF THE DMS TO COMPLETE THE DESIGN OF THE DMS STRUCTURE.

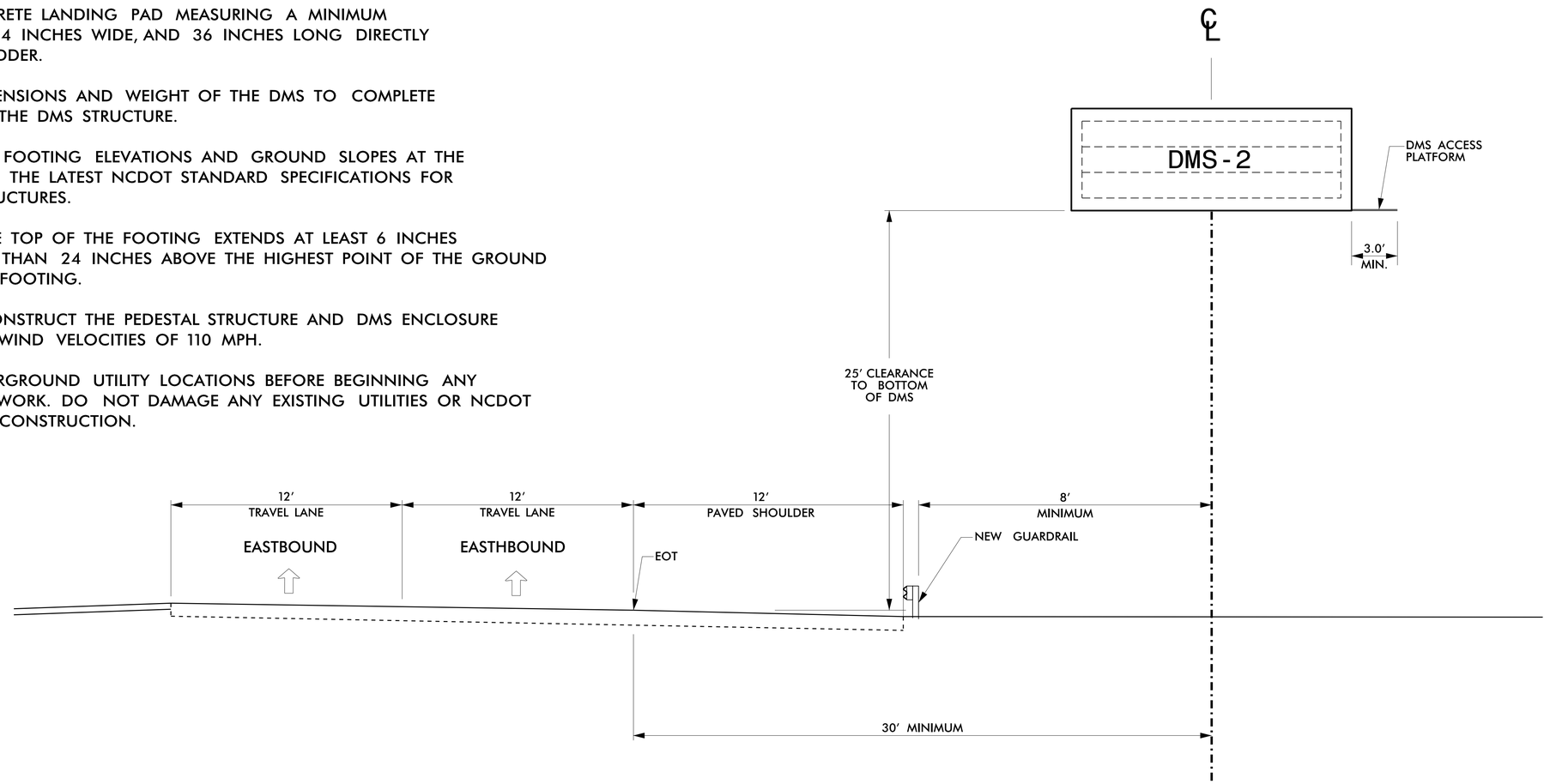
5. FIELD VERIFY ALL FOOTING ELEVATIONS AND GROUND SLOPES AT THE FOOTING USING THE LATEST NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

6. ENSURE THAT THE TOP OF THE FOOTING EXTENDS AT LEAST 6 INCHES AND NOT MORE THAN 24 INCHES ABOVE THE HIGHEST POINT OF THE GROUND SURFACE AT THE FOOTING.

7. DESIGN AND CONSTRUCT THE PEDESTAL STRUCTURE AND DMS ENCLOSURE TO WITHSTAND WIND VELOCITIES OF 110 MPH.

8. VERIFY ALL UNDERGROUND UTILITY LOCATIONS BEFORE BEGINNING ANY UNDERGROUND WORK. DO NOT DAMAGE ANY EXISTING UTILITIES OR NCDOT CABLES DURING CONSTRUCTION.

ESTIMATED DIMENSION : 27′ X 10′
MAXIMUM DEADLOAD : 5200 LBS



Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — Transportation Mobility and Safety Division — Traffic Engineering Branch

750 N. Greenfield Pkwy., Garner, NC 27529

SCALE: 0 — N/A

DMS ELEVATION

DIVISION 06 COLUMBUS CO. BOARDMAN

PLAN DATE:	JAN. 2021	REVIEWED BY:	A.J. SKUCE
PREPARED BY:	L.E. NEAL	REVIEWED BY:	

REVISIONS	INIT.	DATE

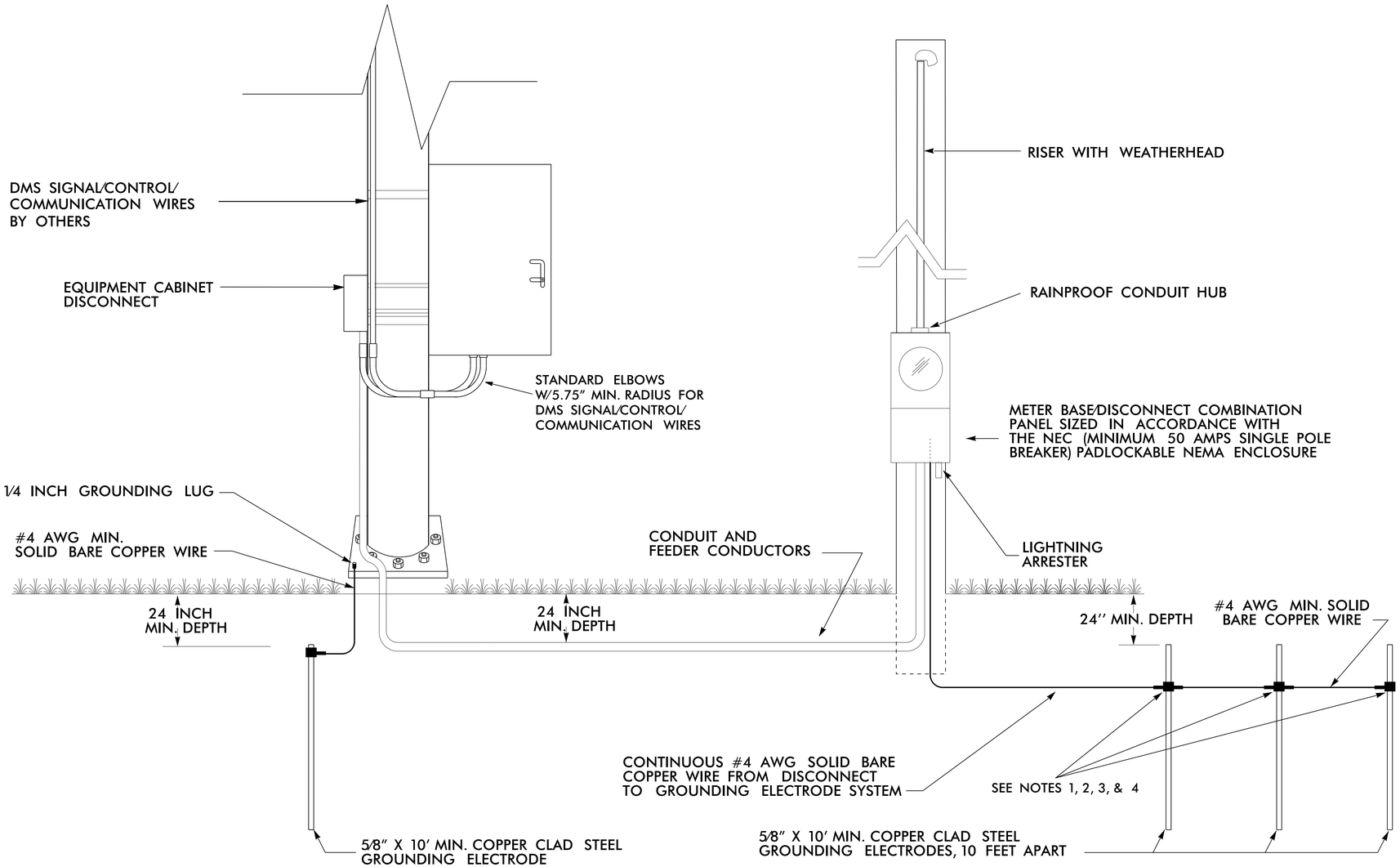
SEAL

NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by: Andrew J. Skuce D26288BDC8B5C464...

1/29/2021
DATE

PROJECT REFERENCE NO.	SHEET NO.
R-5797	ITS-6



NOTES

1. INSTALL A MINIMUM OF THREE (3) GROUNDING ELECTRODES 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 SHOULD MEASURE TWENTY (20) OHMS OR LESS. ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER TO MEET THIS REQUIREMENT.
3. MECHANICALLY CRIMP ALL CONNECTIONS TO GROUND RODS USING AN IRREVERSIBLE COMPRESSION TOOL.
4. INSTALL MARKER TAPE DIRECTLY ABOVE ALL GROUNDING ELECTRODES AND CONDUCTORS AT A DEPTH OF 12 INCHES.
5. REMOVE BONDING JUMPER IN EQUIPMENT CABINET IF INSTALLED BETWEEN AC NEUTRAL AND EQUIPMENT GROUND.
6. BOND ALL RIGID GALVANIZED STEEL CONDUITS ENTERING THE CABINET TO "EQUIPMENT GROUND".
7. INSTALL CONDUIT BETWEEN DISCONNECT AND CABINET.
8. ENSURE EQUIPMENT GROUND IS ELECTRICALLY BONDED TO CABINET.

Prepared in the Offices of:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION Transportation Mobility and Safety Division Intelligent Transportation Systems

750 N. Greenfield Pkwy., Garner, NC 27529

DYNAMIC MESSAGE SIGN
WITH AERIAL ELECTRICAL SERVICE
TYPICAL DETAIL

DIVISION 06	COLUMBUS CO.		BOARDMAN
PLAN DATE:	JANUARY 2021	REVIEWED BY:	A.J. SKUCE
PREPARED BY:	L.E. NEAL	REVIEWED BY:	

REVISIONS	INIT.	DATE

SCALE: 0 — N/A

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 050152 ENGINEER ANDREW J. SKUCE

DocuSigned by:
Andrew J. Skuce
D262B8BC8B5C464...
SIGNATURE

1/29/2021
DATE

CADD Filename: