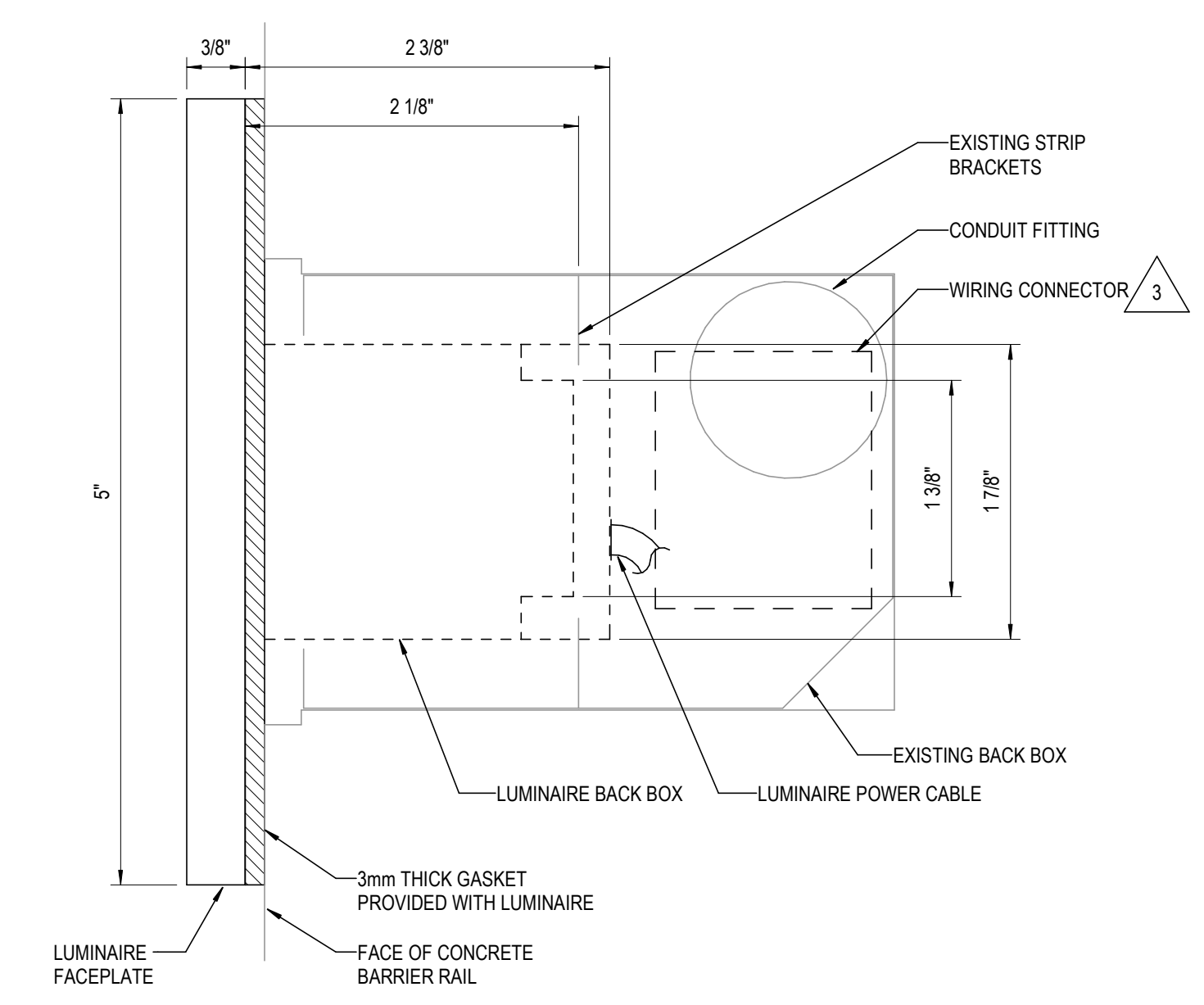
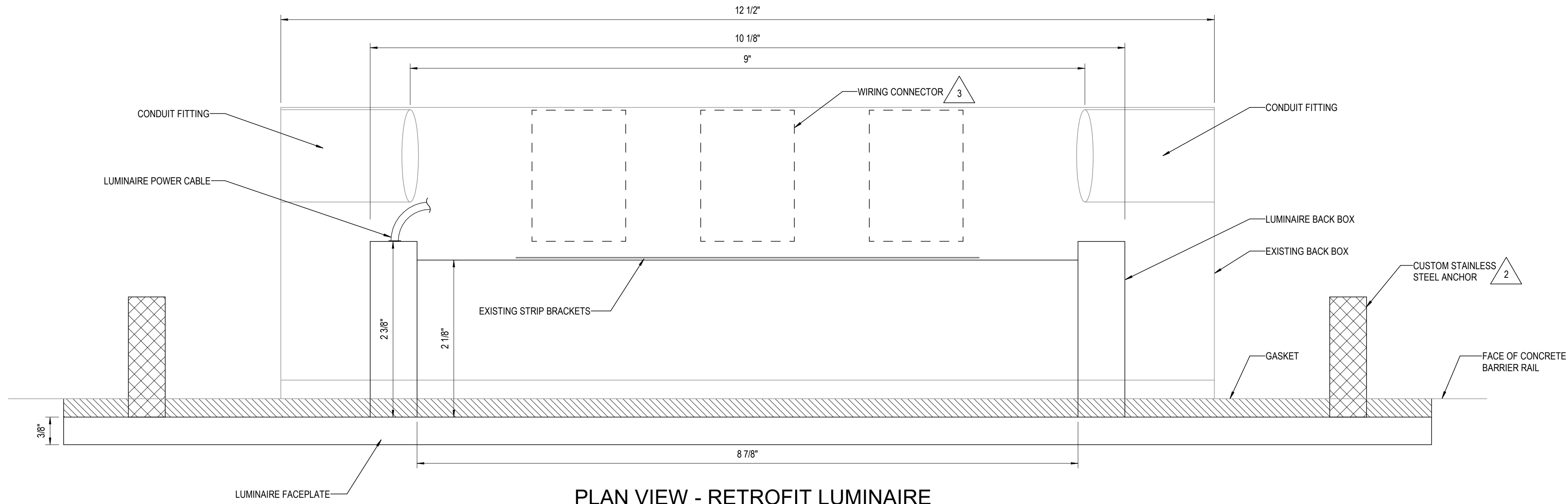


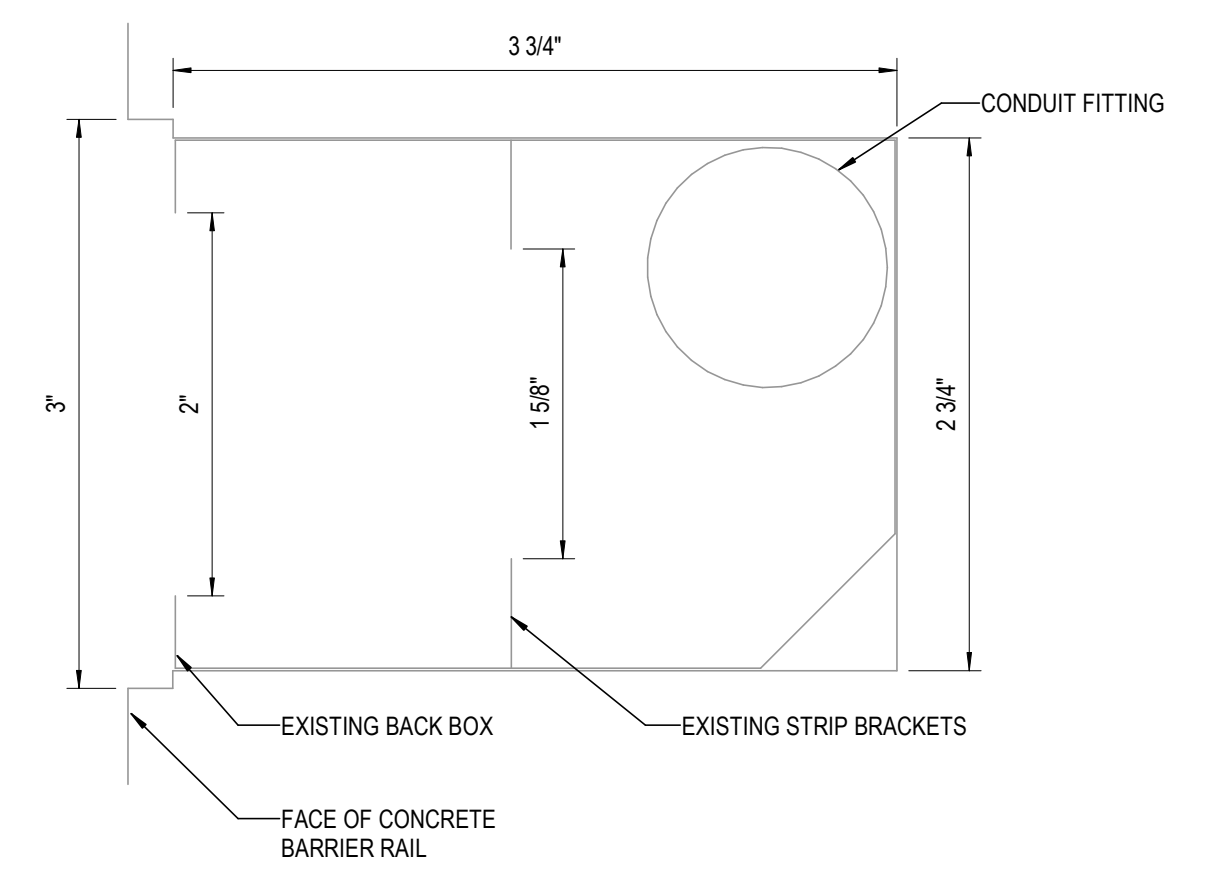
FRONT VIEW - RETROFIT LUMINAIRE 1
 12" = 1'-0"



SIDE VIEW - RETROFIT LUMINAIRE
 12" = 1'-0"



PLAN VIEW - RETROFIT LUMINAIRE
 12" = 1'-0"



SIDE VIEW - EXISTING BACK BOX
 12" = 1'-0"

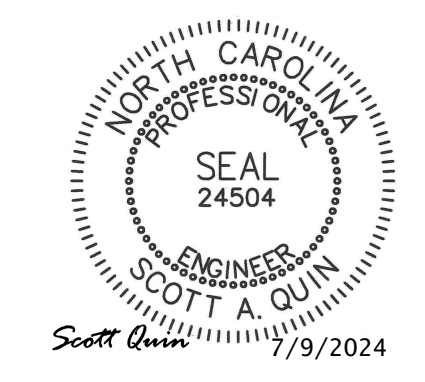
- NOTES:
- 1 LUMINAIRE BASIS OF DESIGN IS MP LIGHTING, MODEL NO. L771. REQUIRED FEATURES:
 - LED LIFE IS 50,000 HOURS (NOMINAL)
 - LUMEN OUTPUT IS 410LM (NOMINAL)
 - 120V, 8W
 - STAINLESS STEEL FACEPLATE
 - BACK BOX MADE OF MARINE GRADE ALUMINUM
 - IP66 RATED
 - LED ENGINE IS REPLACEABLE
 - LED DRIVER IS REPLACEABLE
 - 2 ANCHOR PROVIDED BY LUMINAIRE MANUFACTURER. DETERMINE THE LUMINAIRE ANCHOR LOCATIONS UTILIZING THE TEMPLATE PROVIDED WITH THE LUMINAIRE. DRILL ANCHOR LOCATIONS AND INSTALL THE ANCHORS WITH EPOXY PER MANUFACTURERS INSTRUCTIONS.
 - 3 SEE DETAIL 1 ON SHEET E-4.
 - 4 INSTALL BEAD OF CAULK ALONG THREE SIDES BEHIND FACEPLATE AS SHOWN.

PROJECT NO. 15BPR.138.3
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 BRIDGE 700016

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

REPAIR OF PEDESTRIAN LIGHTING SYSTEM

LUMINAIRE REPLACEMENT



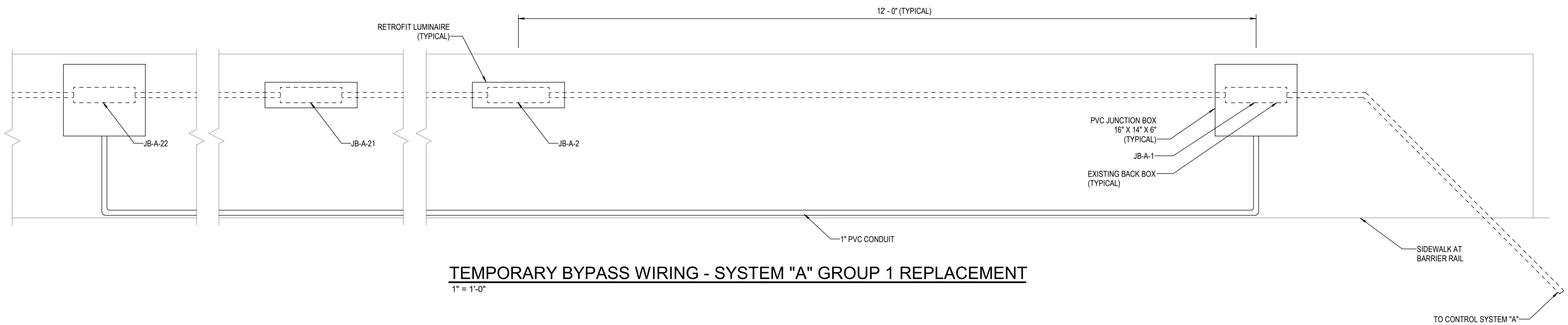
REVISIONS						SHEET NO. E-5	
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS 10	
1			3				
2			4				

HR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

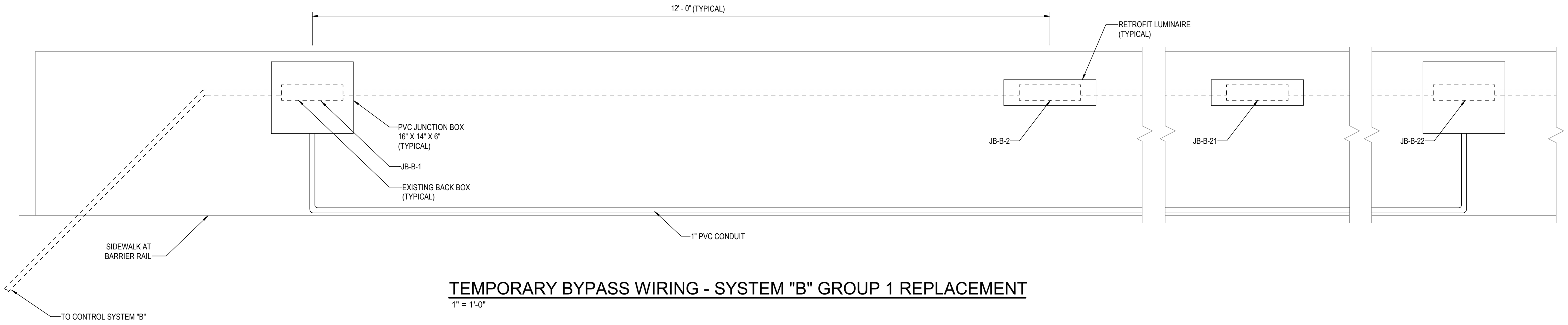
DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

PLOT DRIVER: NCD07.pdft_color_eng_50.ppt_bak
 USER: DATE:
 FILE:

DES BY: <u>M.THEOLOGIDY</u>	DATE: <u>03/24</u>	DWG BY: <u>M.THEOLOGIDY</u>	DATE: <u>03/24</u>
DES CHK: <u>S.QUIN</u>	DATE: <u>03/24</u>	CHK BY: <u>S.QUIN</u>	DATE: <u>03/24</u>



TEMPORARY BYPASS WIRING - SYSTEM "A" GROUP 1 REPLACEMENT
1" = 1'-0"



TEMPORARY BYPASS WIRING - SYSTEM "B" GROUP 1 REPLACEMENT
1" = 1'-0"

NOTES:

- 1 REPLACEMENT OF THE LUMINAIRES WILL BE PHASED IN ORDER TO LIMIT DISRUPTION OF ILLUMINATION PROVIDED BY BARRIER RAIL LIGHTING.
 - 2 OPERATION OF THE EXISTING LUMINAIRES WILL BE MAINTAINED BY PROVIDING TEMPORARY WIRING TO BYPASS EACH GROUP OF LUMINAIRES BEING REPLACED.
 - 3 FOR EACH GROUP REPLACEMENT, A MAXIMUM OF 20 LUMINAIRES MAY BE REPLACED.
 - 4 MOUNT TEMPORARY BYPASS JUNCTION BOX TO THE CONCRETE BARRIER RAIL UTILIZING THE ANCHORS SUPPLIED WITH THE NEW RETROFIT LUMINAIRES.
 - 5 ATTACH TEMPORARY BYPASS CONDUIT TO THE CONCRETE BARRIER RAIL WITH ONE-HOLE STRAPS. REPAIR THE CONCRETE WHEN THE ONE-HOLE STRAPS ARE REMOVED.
- FOR GROUT FOR STRUCTURE, SEE SPECIAL PROVISIONS.

LIGHTING QUANTITIES	
REPLACE EXISTING LIGHTING AND WIRING *	LUMP SUM
SPARE BARRIER RAIL LUMINAIRE (EA)	34

* REPLACE 334 EXISTING LUMINAIRES. SEE SPECIAL PROVISION.

STEPS FOR GROUP 1 REPLACEMENT:

1. REMOVE EXISTING LUMINAIRES A-1.
2. REMOVE EXISTING WIRING FROM CONTROL STATION "A" TO JB-A-1.
3. PREPARE JB-A-1. SEE NOTES 1, 2, 3 ON SHEET E-1, AND NOTE 2 ON SHEET E-5.
4. INSTALL NEW CIRCUIT WIRING FROM CONTROL STATION "A" TO JB-A-1. SEE NOTE 2 ON SHEET E-2.
5. REMOVE EXISTING LUMINAIRE A-22.
6. AT JB-A-22, INSTALL ANCHORS FOR NEW RETROFIT LUMINAIRE. SEE NOTE 2 ON SHEET E-5.
7. INSTALL TEMPORARY BYPASS WIRING FROM JB-A-1 TO JB-A-22. PROVIDE #8 THWN WIRE.
8. REMOVE EXISTING LUMINAIRES A-2 THROUGH A-21.
9. REMOVE EXISTING WIRING FROM JB-A-1 TO JB-A-22.
10. PREPARE JB-A-2 THROUGH JB-A-21. SEE NOTES 1, 2, 3 ON SHEET E-1, AND NOTE 2 ON SHEET E-5.
11. INSTALL NEW CIRCUIT WIRING FROM JB-A-1 THROUGH JB-A-21. SEE SHEETS E-3 AND E-4 FOR CIRCUIT WIRING.
12. INSTALL NEW RETROFIT LUMINAIRES A-2 THROUGH A-20.
13. REMOVE TEMPORARY WIRING.
14. INSTALL NEW RETROFIT LUMINAIRE A-1.
15. INSTALL TEMPORARY BYPASS JUNCTION BOX AT JB-A-21.

STEPS FOR GROUP 2 REPLACEMENT (TYPICAL FOR GROUPS 3 AND ABOVE):

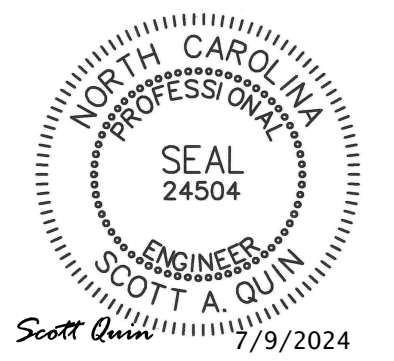
1. REMOVE EXISTING LUMINAIRES A-42.
2. AT JB-A-42, INSTALL ANCHORS FOR NEW RETROFIT LUMINAIRE. SEE NOTE 2 ON SHEET E-5.
3. INSTALL TEMPORARY BYPASS WIRING FROM JB-A-21 TO JB-A-42.
4. REMOVE EXISTING LUMINAIRES JB-A-21 TO JB-A-42.
5. REMOVE EXISTING WIRING FROM JB-A-21 TO JB-A-42.
6. PREPARE JB-A-22 THROUGH JB-A-41. SEE NOTES 1, 2, 3 ON SHEET E-1, AND NOTE 2 ON SHEET E-5.
7. INSTALL NEW CIRCUIT WIRING FROM JB-A-21 THROUGH JB-A-41. SEE SHEETS E-3 AND E-4 FOR CIRCUIT WIRING.
8. INSTALL NEW RETROFIT LUMINAIRES A-22 THROUGH A-40.
9. REMOVE TEMPORARY WIRING.
10. INSTALL NEW RETROFIT LUMINAIRE A-21.
11. INSTALL TEMPORARY BYPASS JUNCTION BOX AT JB-A-41.

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 RALEIGH

REPAIR OF PEDESTRIAN LIGHTING SYSTEM

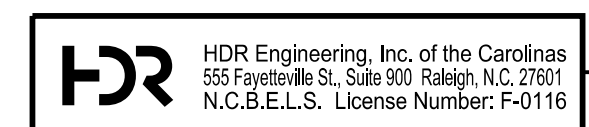
PHASED INSTALLATION



REVISIONS						SHEET NO. E-6
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 10
2			4			

PLOT DRIVER: NCD0T.pdf_color_eng_50.ppt_bak
 USER: S. QUIN
 FILE: NCD0T.pdf_color_eng_50.ppt_bak
 DATE: 03/24
 TIME: 10:00 AM

DES BY: M. THEOLOGIDY	DATE: 03/24	DWG BY: M. THEOLOGIDY	DATE: 03/24
DES CHK: S. QUIN	DATE: 03/24	CHK BY: S. QUIN	DATE: 03/24



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MANAGEMENT STRATEGIES

- 1) DURING PEDESTRIAN LIGHTING INSTALLATION USE FLAGGERS AND PEDESTRIAN CHANNELIZING DEVICES TO DIRECT PEDESTRIAN TRAFFIC THROUGH THE WORK AREA.
- 2) USE ROADWAY STANDARD DRAWING 1101.02 SHEET 1 OF 19, AS NECESSARY, FOR VEHICULAR TRAFFIC ON NC 210/NC 50.
- 3) USE ROADWAY STANDARD DRAWING 1101.02 SHEET 18 OF 19, AS NECESSARY, FOR VEHICULAR TRAFFIC ON NC 210/ S TOPSAIL DR ROUNDABOUT.

GENERAL NOTES

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

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

TIME RESTRICTIONS

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

ROAD NAME	DAY AND TIME RESTRICTIONS
NC 210	MONDAY THRU FRIDAY
NC 50	6:00 A.M. TO 9:00 A.M. 4:00 P.M. TO 7:00 P.M.
	AND
	12:00 A.M. SATURDAY TO 12:00 A.M. MONDAY

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

ROAD NAME
NC 210
NC 50

HOLIDAY AND PEAK SEASON

- 1. FOR ANY UNEXPECTED OCCURRENCE THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.
- 2. FOR NEW YEAR'S, BETWEEN THE HOURS OF 6:00 A.M. DECEMBER 31st TO 9:00 P.M. JANUARY 2ND. IF NEW YEAR'S DAY IS ON A FRIDAY, SATURDAY, SUNDAY, OR MONDAY THEN UNTIL 7:00 P.M. THE FOLLOWING TUESDAY.
- 3. FOR EASTER, BETWEEN THE HOURS OF 6:00 A.M. THURSDAY AND 7:00 P.M. MONDAY.
- 4. FOR PEAK SEASON, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE MEMORIAL DAY AND 9:00 P.M. THE TUESDAY AFTER LABOR DAY.
- 5. FOR THANKSGIVING DAY, BETWEEN THE HOURS OF 6:00 A.M. TUESDAY TO 7:00 P.M. MONDAY.
- 6. FOR CHRISTMAS, BETWEEN THE HOURS OF 6:00 A.M. THE FRIDAY BEFORE THE WEEK OF CHRISTMAS DAY AND 7:00 P.M. THE FOLLOWING TUESDAY AFTER THE WEEK OF CHRISTMAS.

GENERAL NOTES (CONT.)

C) DO NOT CLOSE OR NARROW THE MULTI-USE PATH OR SIDEWALK DURING THE PEAK SEASON (FROM 6:00 A.M. THE FRIDAY BEFORE MEMORIAL DAY TO 9:00 P.M. TUESDAY AFTER LABOR DAY) AS FOLLOWS:

ROAD NAME	DAY AND TIME RESTRICTIONS
MULTI-USE PATH	FRIDAY 6:00 A.M. TO THE FOLLOWING SUNDAY 9:00 P.M.
SIDEWALKS	(NO NARROWING OR CLOSURE ALLOWED FRIDAY, SATURDAY, AND SUNDAY)

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.
- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

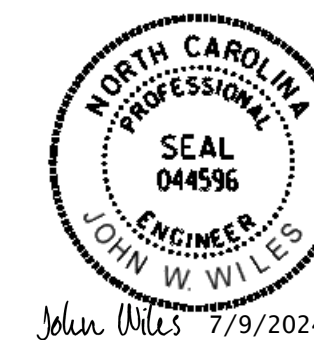
TRAFFIC PATTERN ALTERATIONS

F) NOTIFY THE ENGINEER THIRTY (30) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

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

PROJECT NO. 15BPR.138.3
PENDER COUNTY
 BRIDGE 700016



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

REPAIR OF PEDESTRIAN LIGHTING SYSTEM

REVISIONS						SHEET NO. TMP-1
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 10
2			4			

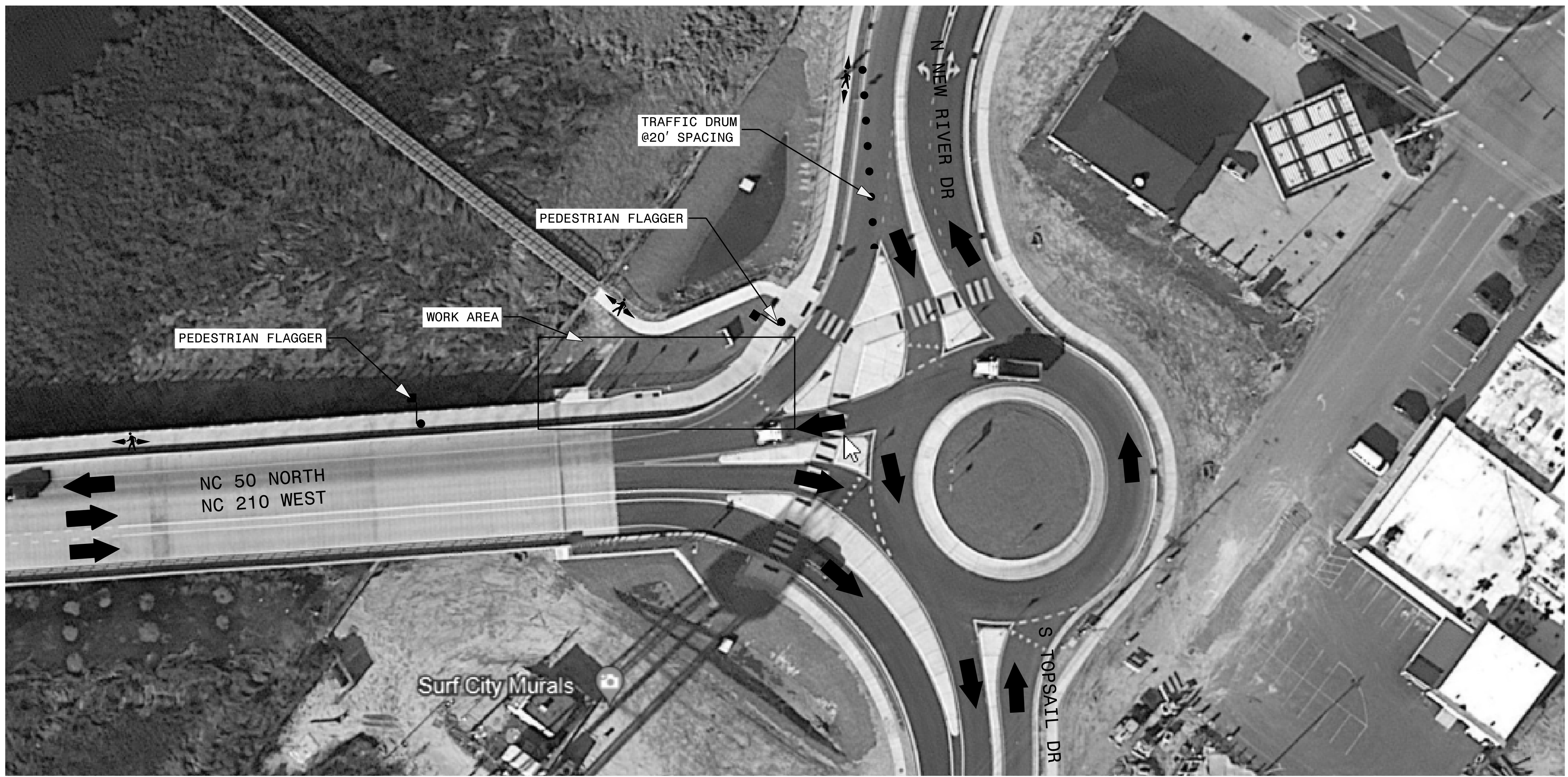


DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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DES BY: J. WILES	DATE: 03/24	DWG BY: J. WILES	DATE: 03/24
DES CHK: B. SCHOENBAUER	DATE: 03/24	CHK BY: B. SCHOENBAUER	DATE: 03/24

MESSAGE NO. 1	MESSAGE NO. 2
NC 50 N	USE
NC 210 W	TRAFFIC CIRCLE
CHANGEABLE MESSAGE SIGN	

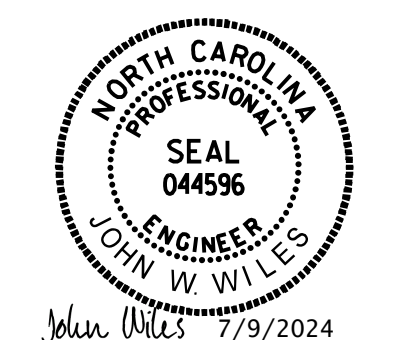


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PROJECT NO. 15BPR.138.3
PENDER COUNTY
 BRIDGE 700016

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

 REPAIR OF PEDESTRIAN
 LIGHTING SYSTEM

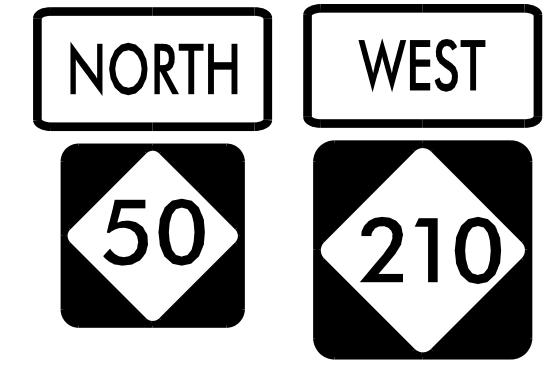
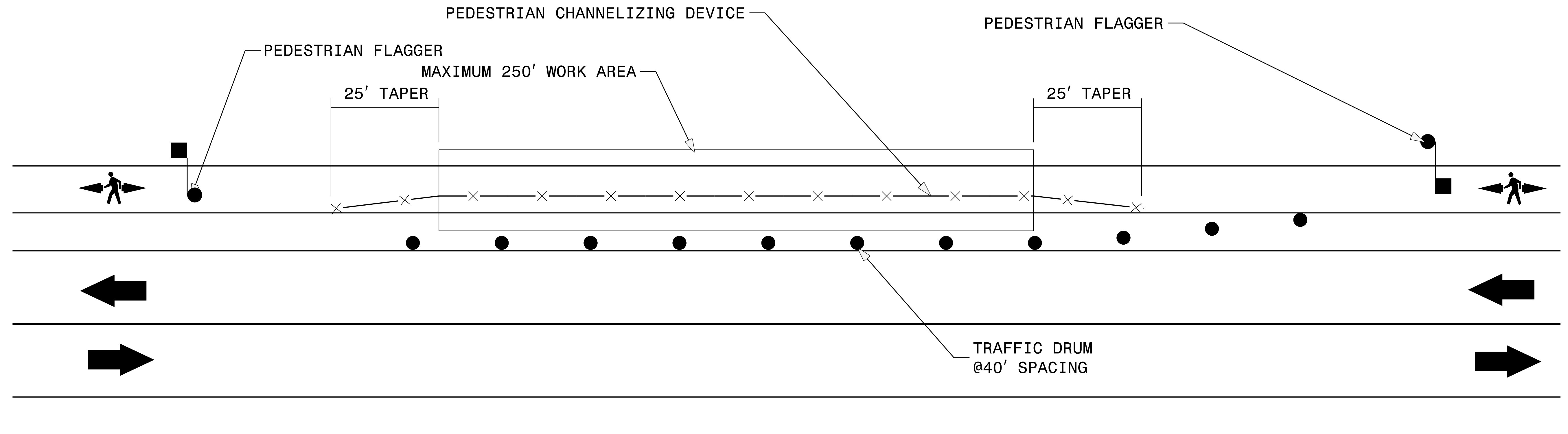


DES BY: <u>J. WILES</u>	DATE: <u>03/24</u>	DWG BY: <u>J. WILES</u>	DATE: <u>03/24</u>
DES CHK: <u>B. SCHOENBAUER</u>	DATE: <u>03/24</u>	CHK BY: <u>B. SCHOENBAUER</u>	DATE: <u>03/24</u>

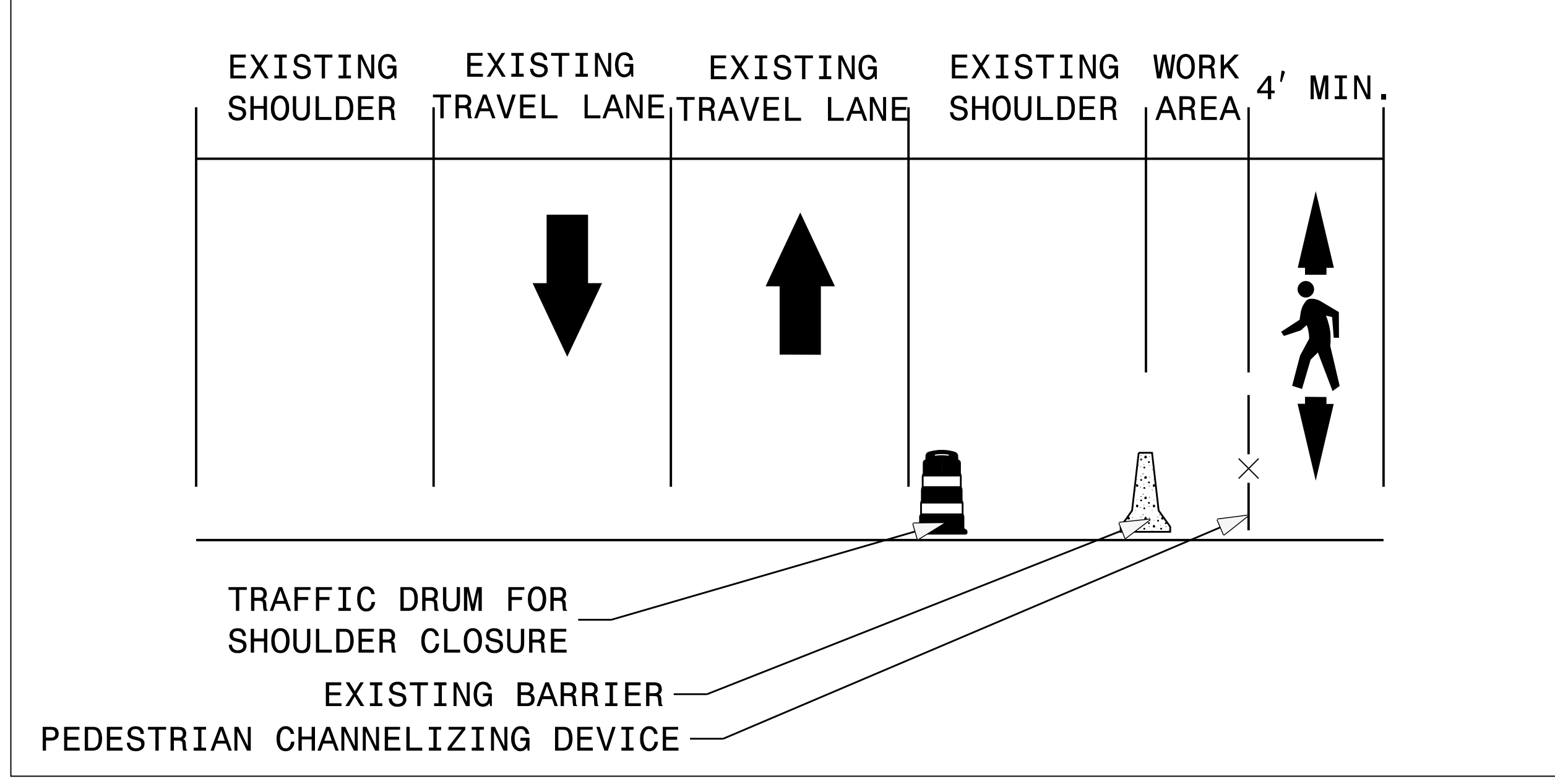
HDR HDR Engineering, Inc. of the Carolinas
 555 Fayetteville St., Suite 900 Raleigh, N.C. 27601
 N.C.B.E.L.S. License Number: F-0116

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UNLESS ALL SIGNATURES COMPLETED

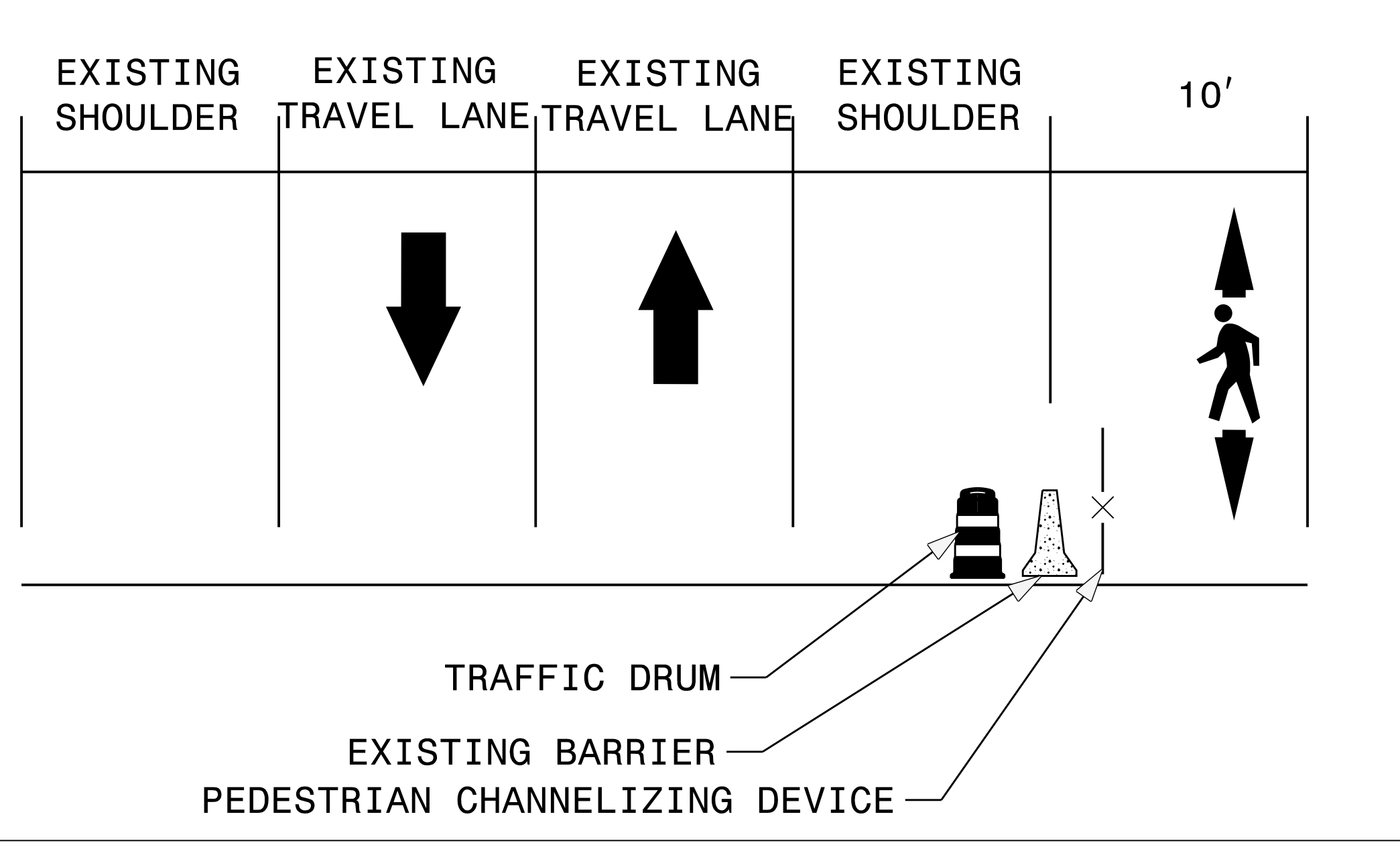
REVISIONS						SHEET NO. TMP-2
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 10
2			4			



WORK PERIOD



NON WORK PERIOD



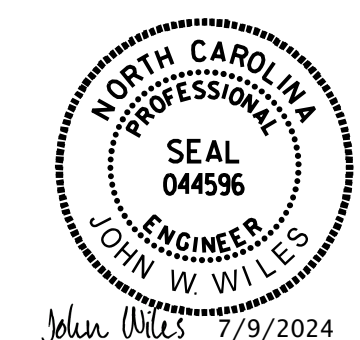
PROJECT NO. 15BPR.138.3

PENDER COUNTY

BRIDGE 700016

NOTE:

- SEE ROADWAY STANDARD DRAWING 1101.04 SHEET 1 OF 2 FOR ADDITIONAL SHOULDER CLOSURE DETAILS
- USE PEDESTRIAN FLAGGERS DURING PEDESTRIAN CHANNELIZING DEVICE INSTALLATION
- SEE NCDOT APPROVED PRODUCTS LIST FOR ADDITIONAL INFORMATION REGARDING PLASTIC STRONGWALL LONGITUDNAL CHANNELIZING DEVICE (PRODUCT ID NP22-9122) OR APPROVED EQUAL FROM PRODUCTS LIST



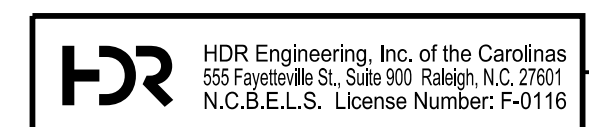
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

REPAIR OF PEDESTRIAN LIGHTING SYSTEM

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. TMP-3
TOTAL SHEETS 10

DES BY: J. WILES	DATE: 03/24	DWG BY: J. WILES	DATE: 03/24
DES CHK: B. SCHOENBAUER	DATE: 03/24	CHK BY: B. SCHOENBAUER	DATE: 03/24



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	AASHTO (CURRENT)
LIVE LOAD	SEE PLANS
IMPACT ALLOWANCE	SEE AASHTO
STRESS IN EXTREME FIBER OF STRUCTURAL STEEL - AASHTO M270 GRADE 36	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W ...	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION - GRADE 60	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	SEE AASHTO
STRUCTURAL TIMBER - TREATED OR UNTREATED EXTREME FIBER STRESS	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2024 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED $\frac{3}{4}$ " WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO $1\frac{1}{2}$ " RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A $\frac{1}{4}$ " FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A $\frac{1}{4}$ " RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE.

ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER.

IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS.

WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE $\frac{7}{8}$ " \emptyset SHEAR STUDS FOR THE $\frac{3}{4}$ " \emptyset STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF $\frac{7}{8}$ " \emptyset STUDS ALONG THE BEAM AS SHOWN FOR $\frac{3}{4}$ " \emptyset STUDS BASED ON THE RATIO OF 3 - $\frac{7}{8}$ " \emptyset STUDS FOR 4 - $\frac{3}{4}$ " \emptyset STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0".

EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST $\frac{5}{16}$ " IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED.

WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY $\frac{1}{16}$ " OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB.

METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.