



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

May 17, 2019

N.C. Department of Environmental Quality
Division of Coastal Management
400 Commerce Avenue
Morehead City, NC 28557

Attn: Mr. Stephen Lane
NCDOT Coordinator

Dear Sir:

Subject: **Application for a CAMA General Permit** for utility work associated with the Isabel Holmes Memorial Bridge Preservation project on US 74/NC 133 over the Northeast Cape Fear River, New Hanover County. Debit \$200.00 from WBS 15BPR.14.

Please find enclosed the North Carolina Division of Coastal Management Major Permit Form (MP-1) and utility plans for the above referenced project. The North Carolina Department of Transportation (NCDOT), Division of Highways proposes to complete bridge preservation activities on the Isabel Holmes drawbridge over the Northeast Cape Fear River on US 74/NC 133 in Wilmington, NC. These activities include the replacement of electrical cable and a sewer line that service certain operations associated with the moveable span (operator house, traffic signals and gates), as well as the installation of a concrete electrical generator pad and gravel access road. All work will occur within NCDOT right-of-way (ROW) or previously acquired easements.

Approximately 1,080 ft. of the proposed sewer line will be buried and installed by open trench methods on land; the remaining 950 ft. will be attached to the bridge in approximately the same location as the existing. The electrical cables will also be attached to the bridge in approximately the same location as the existing. Neither utility will hang below the low chord elevation of the bridge. The 24' x 28' generator pad will be located east of the bridge and accessed by a 300 ft. long, 12 ft. wide gravel access road. No impacts to jurisdictional streams or wetlands are anticipated.

This project was let to construction on February 19, 2019.

Regulatory Approvals

NCDOT requests that the proposed utility work associated with this project be authorized under a Coastal Area Management Act General Permit. The adjacent riparian landowner return receipts will be provided once they are received. Authorization to debit the \$200 Permit Application Fee from WBS Element 15BPR.14 is hereby given.

Section 404 and 401 permit approvals are not required for this work.

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENT ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH NC 27699-1598

Telephone: (919) 707-6000
Fax: (919) 212-5785
Customer Service: 1-877-368-4968
Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH NC 27610

A copy of this permit application will be posted on the NCDOT Website at:
<https://xfer.services.ncdot.gov/pdea/PermApps/>. Thank you for your assistance with this project. If you
have any questions or need additional information, please contact Chris Rivenbark at
crivenbark@ncdot.gov or (919) 707-6152.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Marris III', with a horizontal line extending to the right.

Philip S. Marris III, P.E., C.P.M.
Environmental Analysis Unit Head

APPLICATION for Major Development Permit

(last revised 12/27/06)



North Carolina DIVISION OF COASTAL MANAGEMENT

1. Primary Applicant/ Landowner Information			
Business Name North Carolina Department Of Transportation (NCDOT)		Project Name (if applicable) Isabel Holmes Memorial Bridge Preservation (15BPR.14)	
Applicant 1: First Name Philip	MI S	Last Name Harris	
Applicant 2: First Name	MI	Last Name	
<i>If additional applicants, please attach an additional page(s) with names listed.</i>			
Mailing Address 1548 Mail Service Center		PO Box	State NC
ZIP 27699 1548	Country USA	Phone No. 919 - 707 - 6000 ext.	FAX No. 919 - 212 - 5785
Street Address (if different from above) 1000 Birch Ridge Dr.		City Raleigh	State NC
Email pharris@ncdot.gov		ZIP 27610- 4328	

2. Agent/Contractor Information			
Business Name			
Agent/ Contractor 1: First Name	MI	Last Name	
Agent/ Contractor 2: First Name	MI	Last Name	
Mailing Address		PO Box	State
ZIP		Phone No. 1 - - ext.	Phone No. 2 - - ext.
FAX No.	Contractor #		
Street Address (if different from above)		City	State
Email		ZIP	-

<Form continues on back>

3. Project Location			
County (can be multiple) New Hanover	Street Address Martin Luther King Jr. Parkway/US 74/NC 133	State Rd. #	
Subdivision Name N/A	City Wilmington	State NC	Zip -
Phone No. N/A - - ext.		Lot No.(s) (if many, attach additional page with list) N/A, , ,	
a. In which NC river basin is the project located? Cape Fear		b. Name of body of water nearest to proposed project Northeast Cape Fear River	
c. Is the water body identified in (b) above, natural or manmade? <input checked="" type="checkbox"/> Natural <input type="checkbox"/> Manmade <input type="checkbox"/> Unknown		d. Name the closest major water body to the proposed project site. Northeast Cape Fear River	
e. Is proposed work within city limits or planning jurisdiction? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		f. If applicable, list the planning jurisdiction or city limit the proposed work falls within. All work will be completed within NCDOT right-of-way or easements	

4. Site Description	
a. Total length of shoreline on the tract (ft.) Northeast Cape Fear River: 500 ft.	b. Size of entire tract (sq.ft.) 363,300 sq ft. (approximately 8.4 acres)
c. Size of individual lot(s) N/A, , , (If many lot sizes, please attach additional page with a list)	d. Approximate elevation of tract above NHW (normal high water) or NWL (normal water level) <input type="checkbox"/> NHW or <input type="checkbox"/> NWL
e. Vegetation on tract Maintained grass, shrub-scrub, tidal marsh.	
f. Man-made features and uses now on tract Transportation facility and right-of-way.	
g. Identify and describe the existing land uses <u>adjacent</u> to the proposed project site. This section of US 74 is adjacent to residential, commercial, and industrial development associated with downtown Wilmington.	
h. How does local government zone the tract? All work will be completed within NCDOT right-of-way/easements or attached to existing bridges.	i. Is the proposed project consistent with the applicable zoning? (Attach zoning compliance certificate, if applicable) <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA
j. Is the proposed activity part of an urban waterfront redevelopment proposal? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
k. Has a professional archaeological assessment been done for the tract? If yes, attach a copy. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA If yes, by whom?	
l. Is the proposed project located in a National Registered Historic District or does it involve a National Register listed or eligible property? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	

<Form continues on next page>

m. (i) Are there wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(ii) Are there coastal wetlands on the site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
(iii) If yes to either (i) or (ii) above, has a delineation been conducted? (Attach documentation, if available)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

n. Describe existing wastewater treatment facilities. None
o. Describe existing drinking water supply source. None
p. Describe existing storm water management or treatment systems. Various transportation-related storm water management facilities (grassed swales, bridge deck drainage systems, etc.)

5. Activities and Impacts	
a. Will the project be for commercial, public, or private use?	<input type="checkbox"/> Commercial <input checked="" type="checkbox"/> Public/Government <input type="checkbox"/> Private/Community
b. Give a brief description of purpose, use, and daily operations of the project when complete. The purpose of the project is to replace existing electrical cables and a sewer line that service certain operations associated with the bridge's moveable span (operator house, traffic signals and gates) and to install a generator pad to support the electrical system. The use and daily operations of the transportation facility will remain unchanged once the project is complete.	
c. Describe the proposed construction methodology, types of construction equipment to be used during construction, the number of each type of equipment and where it is to be stored. Electrical cables and the sewer line will be attached to bridge as shown on the plans. To connect with the sanitary sewer outfall, part of the sewer line will also be installed on land via open trench methods.	
d. List all development activities you propose. Installation of a 24x28 electrical concrete generator pad and associated 300 ft. gravel access road; installation of a 2,030 ft. long sewer line (1,080 ft. buried, 950 ft. attached to bridge) and attachment of electrical cables to the bridge.	
e. Are the proposed activities maintenance of an existing project, new work, or both?	Both
f. What is the approximate total disturbed land area resulting from the proposed project?	9,672 <input checked="" type="checkbox"/> Sq.Ft or <input type="checkbox"/> Acres
g. Will the proposed project encroach on any public easement, public accessway or other area that the public has established use of?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
h. Describe location and type of existing and proposed discharges to waters of the state. All work will be completed within NCDOT right-of-way. No discharges to streams or wetlands are anticipated	
i. Will wastewater or stormwater be discharged into a wetland?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
If yes, will this discharged water be of the same salinity as the receiving water?	
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
j. Is there any mitigation proposed?	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
If yes, attach a mitigation proposal.	

<Form continues on back>

6. Additional Information	
<i>In addition to this completed application form, (MP-1) the following items below, if applicable, must be submitted in order for the application package to be complete. Items (a) – (f) are always applicable to any major development application. Please consult the application instruction booklet on how to properly prepare the required items below.</i>	
a. A project narrative.	
b. An accurate, dated work plat (including plan view and cross-sectional drawings) drawn to scale. Please give the present status of the proposed project. Is any portion already complete? If previously authorized work, clearly indicate on maps, plats, drawings to distinguish between work completed and proposed.	
c. A site or location map that is sufficiently detailed to guide agency personnel unfamiliar with the area to the site.	

d. A copy of the deed (with state application only) or other instrument under which the applicant claims title to the affected properties.
e. The appropriate application fee. Check or money order made payable to DENR.
f. A list of the names and complete addresses of the adjacent waterfront (riparian) landowners and signed return receipts as proof that such owners have received a copy of the application and plats by certified mail. Such landowners must be advised that they have 30 days in which to submit comments on the proposed project to the Division of Coastal Management. Name see attached letters Phone No. Address Name Phone No. Address Name Phone No. Address
g. A list of previous state or federal permits issued for work on the project tract. Include permit numbers, permittee, and issuing dates. N/A
h. Signed consultant or agent authorization form, if applicable.
i. Wetland delineation, if necessary.
j. A signed AEC hazard notice for projects in oceanfront and inlet areas. <i>(Must be signed by property owner)</i>
k. A statement of compliance with the N.C. Environmental Policy Act (N.C.G.S. 113A 1-10), if necessary. If the project involves expenditure of public funds or use of public lands, attach a statement documenting compliance with the North Carolina Environmental Policy Act.

7. Certification and Permission to Enter on Land

I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit.

I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project.

I further certify that the information provided in this application is truthful to the best of my knowledge.

Date 5/17/19

Print Name Philip S. Harris III, P.E., C.P.M.

Signature 

Please indicate application attachments pertaining to your proposed project.

- DCM MP-2 Excavation and Fill Information
- DCM MP-3 Upland Development
- DCM MP-4 Structures Information
- DCM MP-5 Bridges and Culverts

5/17/19

PROJECT: 15BPR.14

CONTRACT:



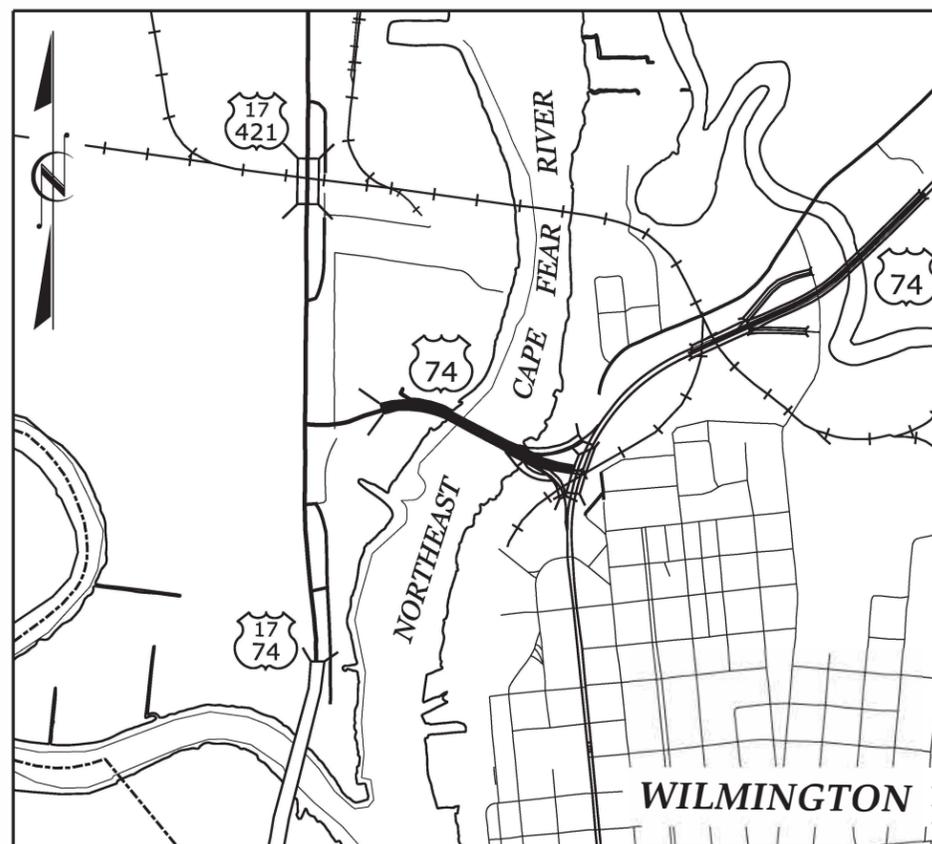
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NEW HANOVER COUNTY

LOCATION: ISABEL HOLMES BASCULE BRIDGE
ON US 74, NC 133 OVER
NORTHEAST CAPE FEAR RIVER

TYPE OF WORK: BRIDGE PRESERVATION

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	15BPR.14	1	213
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
15BPR.14		CONSTRUCTION	



VICINITY MAP



DESIGN DATA

DESIGN DATA

LENGTH OF STRUCTURE = 0.437 MI

2018 STANDARD SPECIFICATIONS
LETTING DATE:
FEBRUARY 19, 2019

Prepared for the Office of:

DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DR., RALEIGH, N.C. 27610

Prepared in the Office of:



333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979

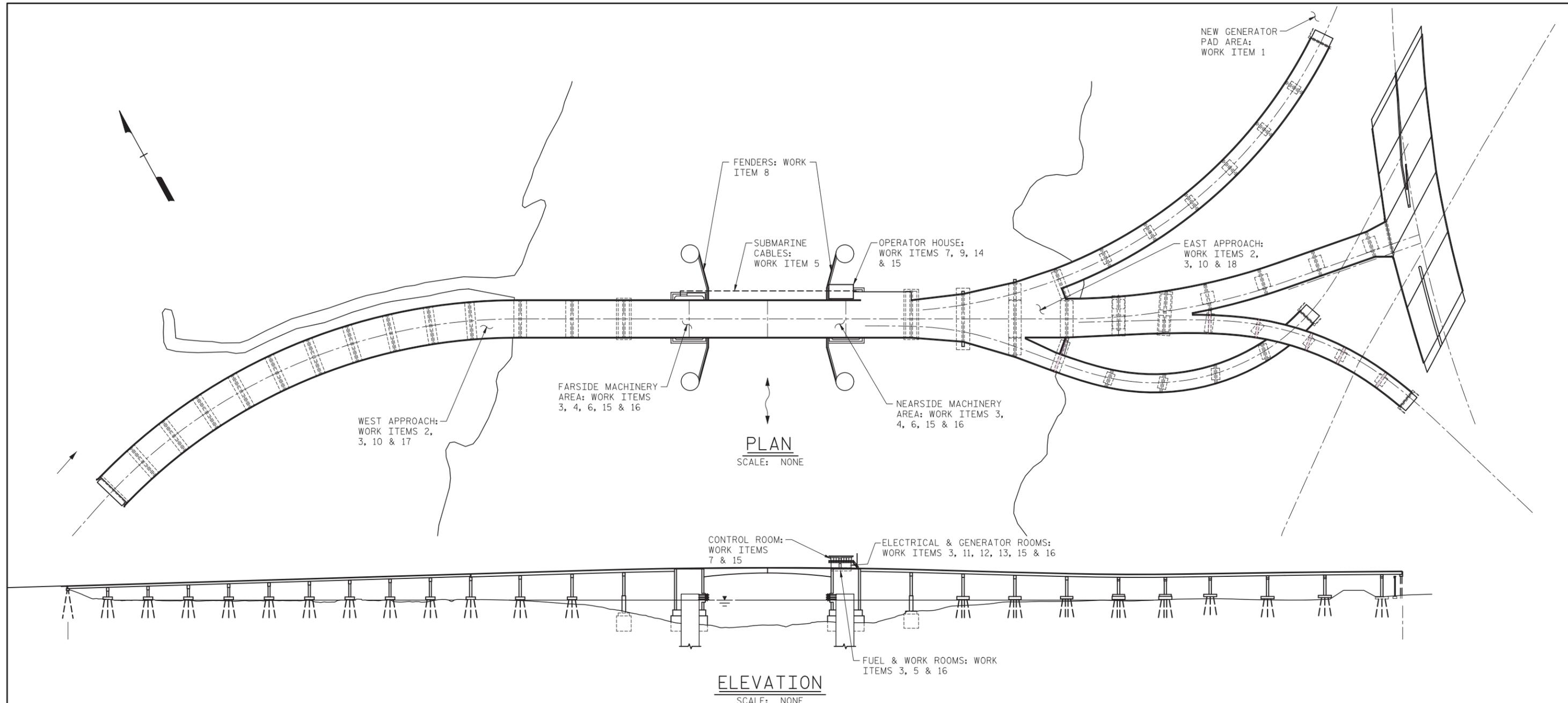
JASON R. DOUGHTY, PE
DESIGN ENGINEER OF RECORD



DocuSigned by:
Jason R. Doughty
11/15/2018

DOCUMENT NOT CONSIDERED
FINAL UNLESS ALL
SIGNATURES COMPLETED

5/17/19



ELECTRICAL WORK ITEMS:

1. PROVIDE NEW CONCRETE GENERATOR PAD WITH NEW BACKUP GENERATOR, ATS, LOAD BANK, SECURITY FENCE, CRUSHED STONE ACCESS DRIVEWAY, AND RELATED COMPONENTS.
2. REMOVE EXISTING TRAFFIC GATES AND INSTALL NEW TRAFFIC GATES AT SAME LOCATION (6 LOCATIONS). REMOVE EXISTING RAMP A AND RAMP B TRAFFIC GATES AND INSTALL NEW TRAFFIC GATES AT NEW LOCATIONS (2 LOCATIONS). INSTALL NEW NEAR SIDE OFFGOING TRAFFIC GATE AT NEW LOCATION (1 LOCATION).
3. REMOVE EXISTING EXPOSED CONDUIT AND CONDUCTORS ON THE BASCULE PIERS AND APPROACH SPANS AND REPLACE WITH NEW CONDUIT AND WIRING.
4. REROUTE CONDUITS AND CONDUCTORS FROM SUBMARINE CABLE TERMINAL CABINETS TO THE MACHINERY AREAS TO ELIMINATE USE OF EXISTING PULL BOXES IN COUNTERWEIGHT PITS.
5. INSTALL NEW SUBMARINE CABLES AND RELATED TERMINAL CABINETS.
6. REMOVE EXISTING FLEXIBLE CABLES TO MOVEABLE SPAN. PROVIDE AND INSTALL NEW FLEXIBLE CABLES AND RELATED HARDWARE BETWEEN EXISTING JUNCTION BOXES.
7. INSTALL NEW ANALOG CCTV CAMERAS. PROVIDE ADDITIONAL CAMERAS AND A SECOND VIEWING MONITOR IN CONTROL ROOM FOR ADDITIONAL CAMERA VIEWS.
8. REMOVE EXISTING PIER NAVIGATION LIGHTS AND WARNING HORN. PROVIDE AND INSTALL NEW PIER NAVIGATION LIGHTS, WARNING HORN, AND CHANNEL FLOODLIGHTS BENEATH MOVABLE SPAN.
9. INSTALL NEW SECURITY FENCE WITH RFID LOCK AROUND CONTROL HOUSE.
10. REMOVE EXISTING HPS ROADWAY LIGHTING CONDUCTORS. INSTALL NEW CONDUCTORS AND CONNECT NEW WIRING TO EXISTING POLES AND FIXTURES.
11. IN CONJUNCTION WITH MAIN MOTOR REPLACEMENT, PROVIDE AND INSTALL NEW AC FLUX VECTOR DRIVES, CABINETS, AND RELATED COMPONENTS.
12. REMOVE EXISTING PANEL BOARDS PNB-1 AND PNB-2, TRANSFORMER, GENERATORS, AND AUTOMATIC TRANSFER SWITCHES. PROVIDE AND INSTALL A NEW 208/120V PANEL BOARD, TRANSFORMER, AND TELEPHONE BOARD, INSTALL NEW HEAT PUMP SYSTEM TO SERVE ELECTRICAL ROOMS BELOW CONTROL ROOM.
13. REMOVE EXISTING CONTROL CABINETS IN ELECTRICAL ROOM. INSTALL NEW MOTOR CONTROL CENTER WITH MOTOR STARTERS AND RELATED COMPONENTS FOR POWER DISTRIBUTION.
14. PROVIDE NEW PUBLIC ADDRESS SYSTEM.
15. INSTALL NEW PLC BASED CONTROL SYSTEM INCLUDING CONTROL CABINETS AND COMPONENTS, NEW/REFURBISHED CONTROL CONSOLE, AND VARIOUS LIMIT SWITCHES/SENSORS.
16. REMOVE EXISTING SERVICE LIGHTS IN MACHINERY AREAS, ELECTRICAL ROOMS, AND STAIRWAYS. INSTALL NEW LED SERVICE LIGHTING FIXTURES IN SIMILAR LOCATIONS.
17. REMOVE EXISTING WEST TRAFFIC SIGNAL HEADS. INSTALL NEW STANDARD TRAFFIC SIGNAL HEADS WITH VISORS.
18. INSTALL NEW 120VAC POWER FOR EAST INTERSECTION TRAFFIC SIGNALS WITH PROVISIONS FOR A PORTABLE GENERATOR CONNECTION.
19. PROVIDE AND INSTALL TEMPORARY CONTROLS AS REQUIRED TO MAINTAIN BRIDGE OPERATIONS DURING CONSTRUCTION.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

ELECTRICAL
 ELECTRICAL SCOPE
 OF WORK

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

SHEET NO. E-1
 TOTAL SHEETS 213

MODJESKI & MASTERS
 Experience great bridges.

333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979

Seal of a North Carolina Professional Engineer, Seal No. 044780, signed by Joe Strunkoski, dated 5/2018.

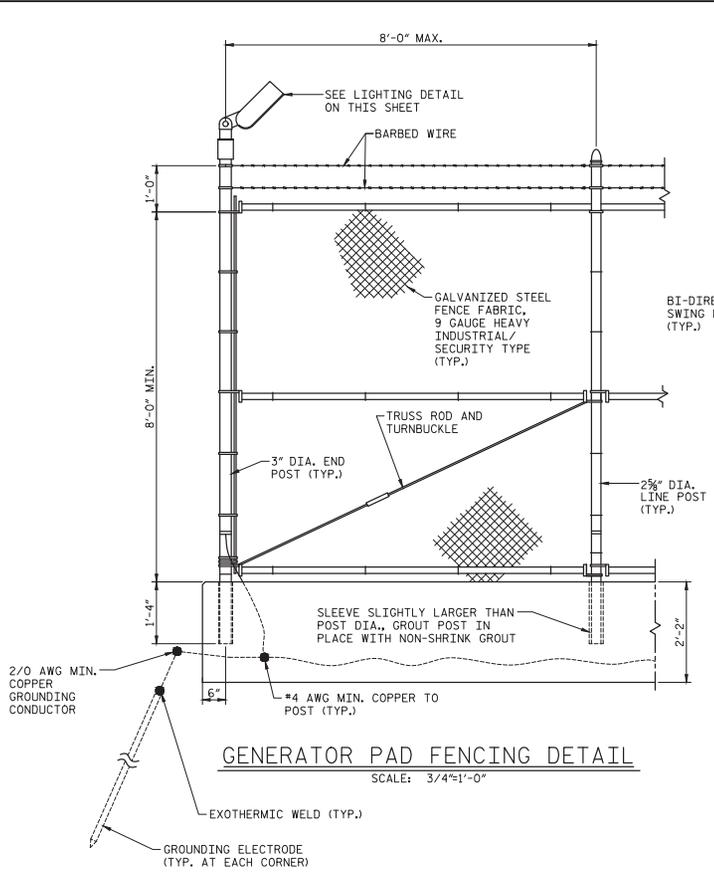
DESIGNED BY:	J. C. RINEHART	DATE:	03/09/18
DRAWN BY:	R. L. REED	DATE:	03/09/18
CHECKED BY:	L. V. BORDEN	DATE:	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/15/18

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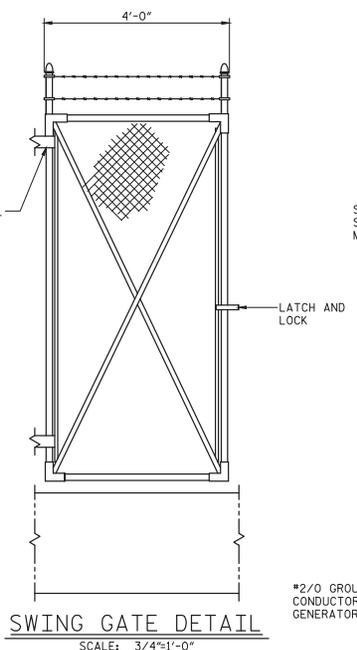
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5/17/19

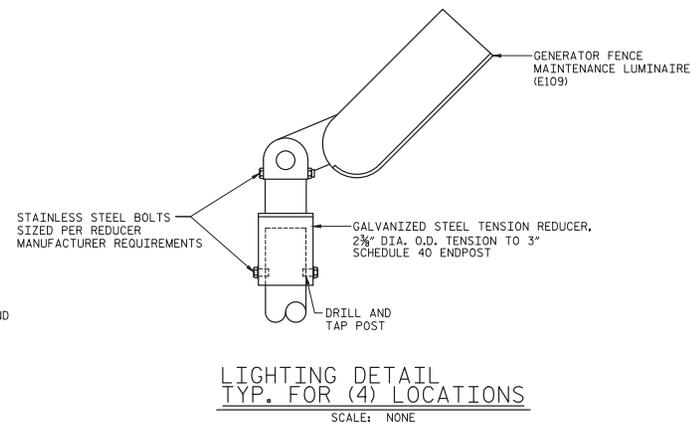
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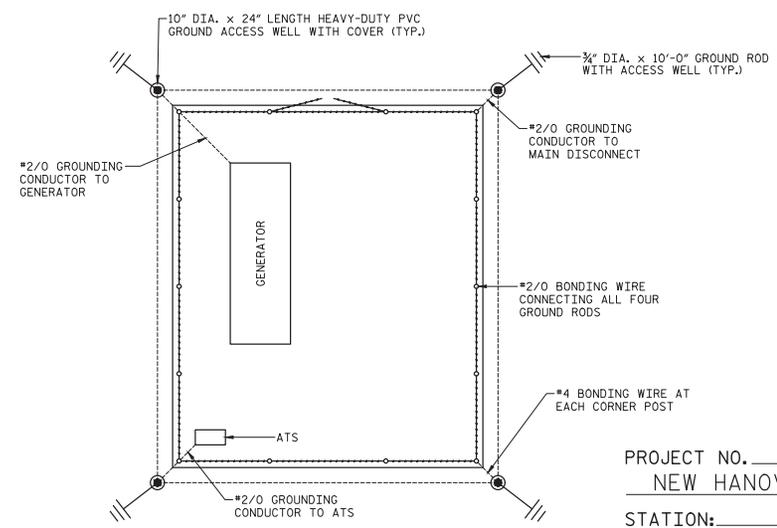
GENERATOR PAD FENCING DETAIL
SCALE: 3/4"=1'-0"



SWING GATE DETAIL
SCALE: 3/4"=1'-0"



LIGHTING DETAIL
TYP. FOR (4) LOCATIONS
SCALE: NONE



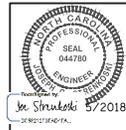
GROUNDING DETAIL
SCALE: NONE

NOTES:

- CHAIN LINK FABRIC, POSTS, RAILS, GATES, AND OTHER ASSOCIATED HARDWARE SHALL BE GALVANIZED STEEL, A MOISTURE-EXCLUDING CAP IS REQUIRED FOR ALL POSTS.
- POSTS SHALL BE HIGH STRENGTH SCHEDULE 40 PIPE, TOP RAIL BRACE RAIL, AND BOTTOM RAIL SHALL BE 1 1/2" DIA. TRUSS ROD ADJUSTING UNITS SHALL BE 3/4" DIA. MIN.
- THE SWING GATE SHALL HAVE LOCKABLE TYPE HARDWARE WITH CORROSION RESISTANT LOCK. LOCK TYPE AND KEYING SHALL BE AS SPECIFIED BY THE DEPARTMENT.
- BONDING CONNECTIONS TO POSTS, FABRIC, AND BARBED WIRE SHALL BE MADE WITH UL LISTED GROUND CLAMPS, COMPRESSION TYPE CONNECTORS SHALL BE SUITABLE FOR USE WITH COPPER.
- PROVIDE AND INSTALL FOUR GROUNDING ELECTRODES, ONE AT EACH CORNER OF THE GENERATOR PAD, GROUNDING ELECTRODES SHALL BE DRIVEN TO A DEPTH OF AT LEAST 12 INCHES BELOW FINISHED GRADE. INSTALL A GROUNDING RING AROUND THE PERIMETER OF THE PAD AT A SIMILAR DEPTH BELOW GRADE.
- GROUNDING CONDUCTORS FOR FENCE GROUNDING SHALL BE AWG SOLID COPPER WITH TIN PLATING, GATES SHALL BE BONDED WITH AWG 2 FLEXIBLE STRANDED COPPER CONDUCTORS.
- PROVIDE GROUNDING CONNECTIONS TO THE GROUNDING RING FOR THE GENERATOR AND LOAD PANEL AS SHOWN IN THE PLANS.
- FENCING SHALL COMPLY WITH NCDOT SECTION 866.
- PROVIDE TEST WELLS FOR ALL GROUND RODS, TEST WELLS SHALL PROVIDE ACCESS TO GROUND ROD CONNECTIONS.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

DESIGNED BY:	R. I. PETERS	DATE:	04/11/18
DRAWN BY:	R. L. REED	DATE:	04/11/18
CHECKED BY:	L. V. BORDEN	DATE:	11/13/18
DESIGN ENGINEER OF RECORD:	J. G. STENKOSKI	DATE:	11/15/18

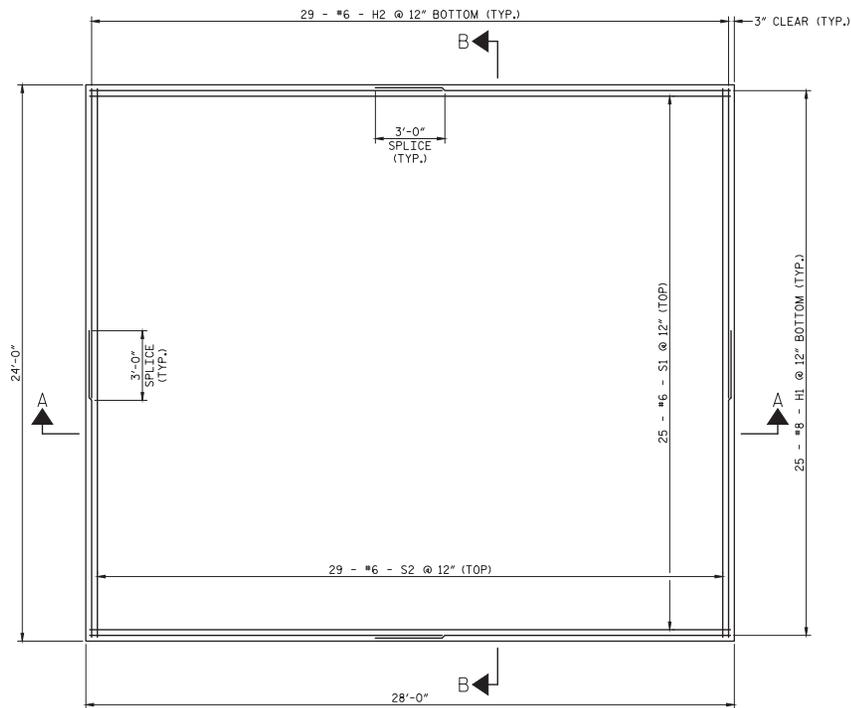


STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
ELECTRICAL GENERATOR PAD DETAILS - 1

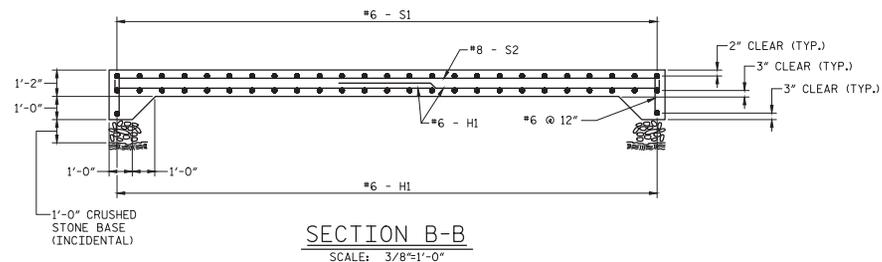
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	DATE:	TOTAL SHEETS
1			3		213
2			4		

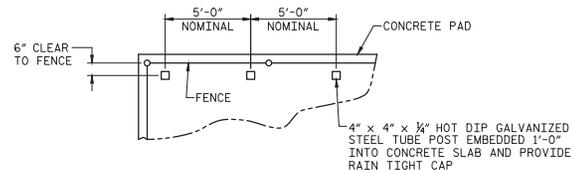
5/17/19



PLAN
SCALE: 3/8"=1'-0"



SECTION B-B
SCALE: 3/8"=1'-0"

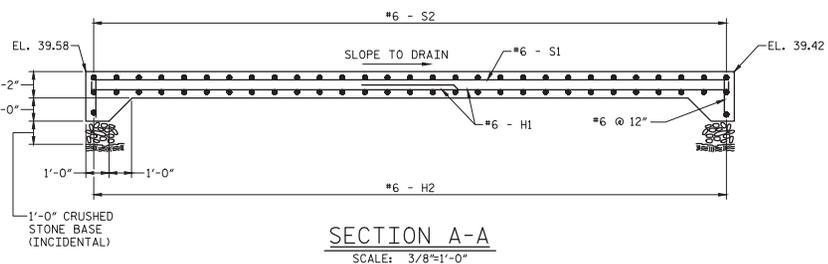


PLAN EQUIPMENT FRAME POSTS DETAIL
SCALE: NONE

NOTES:

1. CONSTRUCT GENERATOR PAD IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS, SECTION 420.
2. USE CLASS A CONCRETE, REINFORCING STEEL TO BE UNCOATED.
3. REFER TO DRAWING E-17 FOR ADDITIONAL DETAILS.
4. ALL WORK SHOWN ON THIS SHEET SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR BRIDGE BACKUP GENERATOR, UNLESS OTHERWISE NOTED.

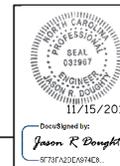
PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



SECTION A-A
SCALE: 3/8"=1'-0"

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DESIGNED BY:	N. K. BHINGE	DATE:	04/11/18
DRAWN BY:	R. V. REED	DATE:	04/11/18
CHECKED BY:	L. V. BORDEN	DATE:	11/13/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE:	11/13/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL GENERATOR
 PAD DETAILS - 2**

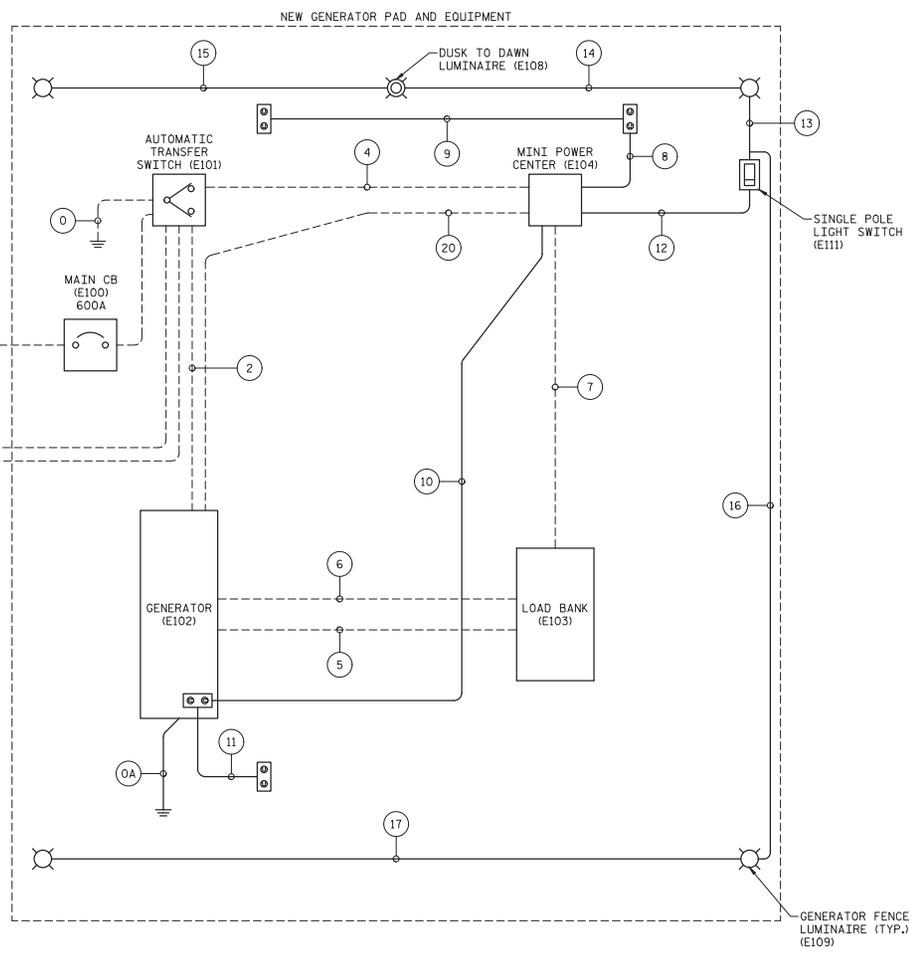
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

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

E-13
TOTAL SHEETS
213

5/17/19

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 LAST PLOTTED 11/15/2018 12:43 PM
 FILE \\mmodj\p\proj\15BPR14\DWG\Electrical\15BPR14_SML14_6001



LEGEND:
 - A --- A - AERIAL CONDUCTORS
 - - - - - CONDUIT EMBEDDED IN GENERATOR PAD
 - U --- U - UNDERGROUND CONDUIT
 - - - - - EXPOSED CONDUIT

NOTES:
 1. UNDERGROUND CONDUIT FROM NEW ELECTRICAL HANDHOLE SHALL TERMINATE IN EXISTING JUNCTION BOX ALONG EAST APPROACH, RAMP A AND TRANSITION TO AERIAL CABLES. SEE SHEET E-123 FOR MESSENGER CABLE DETAILS

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	N. K. BHINGE	DATE :	04/17/18
DRAWN BY:	R. V. REED	DATE :	04/17/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL GENERATOR
 PAD DETAILS - 3**

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

REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	DATE:	TOTAL SHEETS
1			3		213
2			4		213

CONDUIT SCHEDULE

CONDUIT NO.	SIZE	FROM	TO	WIRE	GND	NOTES
0	1	ATS	GROUNDING ELECTRODE/GROUNDING RING	-	#2/0	GROUNDING ELECTRODE CONDUCTOR
0A	1	GENERATOR	GROUNDING ELECTRODE/GROUNDING RING	-	#2/0	GROUNDING ELECTRODE CONDUCTOR
1	5	EXISTING SERVICE POLE	ATS	(8) 400 MCM	400 MCM	BURIED CONDUIT, EMBEDDED IN GENERATOR PAD, COORDINATE WITH UTILITY
2	5	GENERATOR	ATS	(8) 400 MCM	400 MCM	EMBEDDED IN GENERATOR PAD
3	5	ATS	NEW ELECTRIC HANDHOLE	(8) 500 MCM	500 MCM	EMBEDDED IN GENERATOR PAD
4	1	ATS	MINI POWER CENTER	(2) #6 AWG	#6 AWG	EMBEDDED IN GENERATOR PAD
5	2½	GENERATOR	LOAD BANK	(3) #3/0 AWG	#3/0 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK POWER WIRING)
6	¾	GENERATOR	LOAD BANK	(4) #14 AWG	#14 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK CURRENT SENSING)
7	¾	MINI POWER CENTER	LOAD BANK	(2) #10 AWG	#10 AWG	EMBEDDED IN GENERATOR PAD (LOAD BANK CONTROL WIRING)
8	¾	MINI POWER CENTER	RECEPTACLE 1	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
9	¾	RECEPTACLE 1	RECEPTACLE 2	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
10	¾	MINI POWER CENTER	RECEPTACLE 3	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
11	¾	RECEPTACLE 3	RECEPTACLE 4	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
12	¾	MINI POWER CENTER	LIGHT SWITCH	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
13	¾	LIGHT SWITCH	LIGHT 1	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
14	¾	LIGHT 1	DUSK TO DAWN LIGHT	(3) #10 AWG	#10 AWG	EXPOSED CONDUIT
15	¾	DUSK TO DAWN LIGHT	LIGHT 2	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
16	¾	LIGHT SWITCH	LIGHT 3	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
17	¾	LIGHT 3	LIGHT 4	(2) #10 AWG	#10 AWG	EXPOSED CONDUIT
18	-	EXISTING UTILITY SERVICE POLE	EXISTING SERVICE POLE	(8) 400 MCM	400 MCM	AERIAL SERVICE CONDUCTORS, COORDINATE WITH UTILITY
19	5	NEW ELECTRIC HANDHOLE	EXISTING JUNCTION BOX	(8) 500 MCM	500 MCM	UNDERGROUND CONDUIT
20	1	MINI POWER CENTER	GENERATOR	(6) #10 AWG	#10 AWG	GEN. BATTERY CHARGER, GEN. COOLANT HEATER, ALTERNATOR HEATER
21	5	ATS	NEW ELECTRICAL HANDHOLE	(8) 500 MCM	500 MCM	EMBEDDED IN GENERATOR PAD
22	5	NEW ELECTRICAL HANDHOLE	EXISTING JUNCTION BOX	(8) 500 MCM	500 MCM	UNDERGROUND CONDUIT

NOTES:

- SEE SHEET E-14 FOR GENERATOR PAD CONDUIT LAYOUT.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**ELECTRICAL GENERATOR
 PAD DETAILS - 4**



DESIGNED BY: N. K. BHINGE DATE: 04/11/18
 DRAWN BY: R. L. REED DATE: 04/11/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOWSKI DATE: 11/15/18

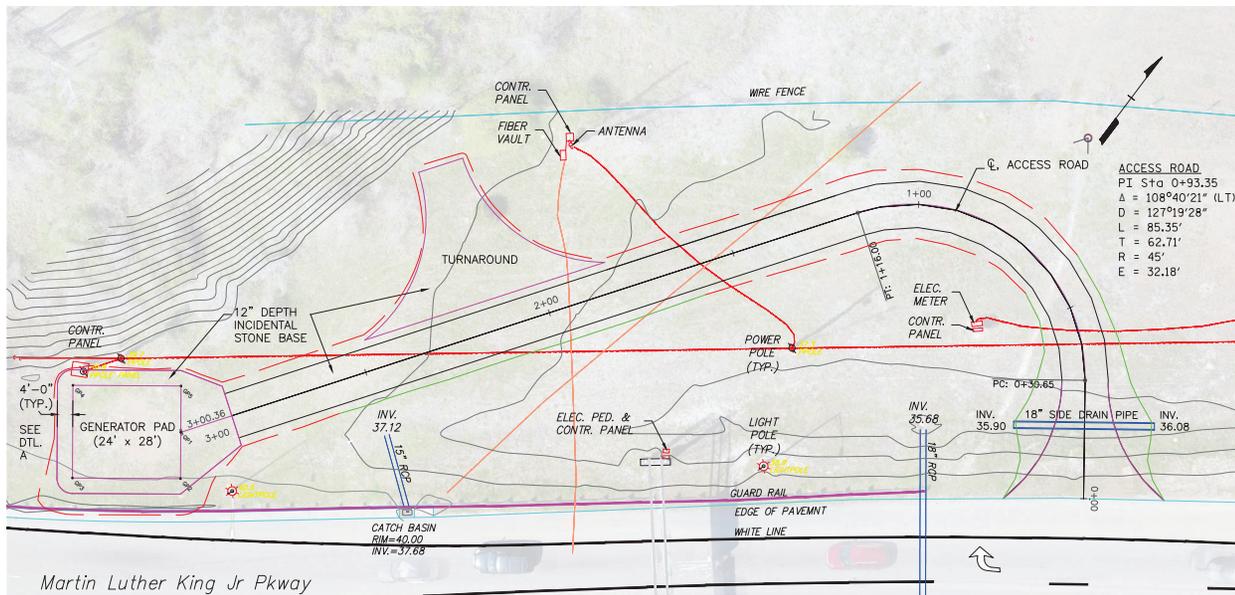
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			E-15
2			4			213

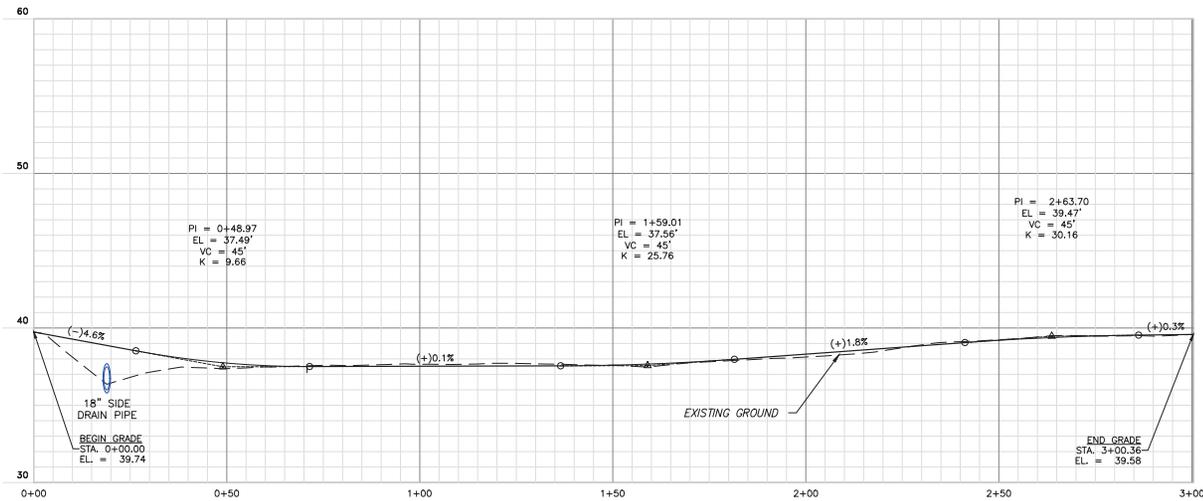
5/17/19

LAST SAVED: 11/15/2018 11:45 AM BY: JORDENHART, LAST PLOTTED: 11/15/2018 12:43 PM, FILE: \\mmodj01\proj\15BPR.14\DWG\Electrical\15BPR14_04A.DWG, 15BPR14_SMU.LTS, 64001

5/17/19



PLAN

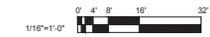


PROFILE

SUMMARY OF ACCESS ROAD COORDINATES				
Station	POINT	COORDINATES		BEARING
		NORTH	EAST	
0+00.00	BEGIN	184694.8285	2318450.2636	
0+30.65	PC	184713.5758	2318426.0210	N 52° 17' 03.75" W
0+93.35	PI	184751.9368	2318376.4156	N 52° 17' 03.75" W
1+16.00	PT	184692.6609	2318355.9553	S 19° 02' 35.45" W
2+86.46	BEGIN TAPER	184531.5268	2318300.3365	S 19° 02' 35.45" W
3+00.36	BEGIN PAD	184518.3849	2318295.8003	S 19° 02' 35.45" W

SUMMARY OF GENERATOR PAD COORDINATES				
Station	POINT	COORDINATES		BEARING
		NORTH	EAST	
3+00.36	GP1	184518.3849	2318295.8003	
--	GP2	184511.1047	2318305.3397	S 52° 39' 01" E
--	GP3	184488.8462	2318288.3527	S 37° 20' 59" W
--	GP4	184503.4065	2318269.2739	N 52° 39' 01" W
--	GP5	184525.6650	2318286.2609	N 19° 02' 35.45" E

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



LAST SAVED 11/13/2018 9:03 AM BY: RUREED... FILE: \\mmod01\p\proj\15BPR\15BPR.dwg

DESIGNED BY: J. T. MCILHENNY DATE: 08/23/18
 DRAWN BY: J. T. MCILHENNY DATE: 08/23/18
 CHECKED BY: M. D. HOUSE DATE: 10/18/18
 DESIGN ENGINEER OF RECORD: J. R. DOUGHTY DATE: 11/12/18

MODJESKI-MASTERS
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2879



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**GENERATOR PAD
 ACCESS ROAD
 PLAN & PROFILE**

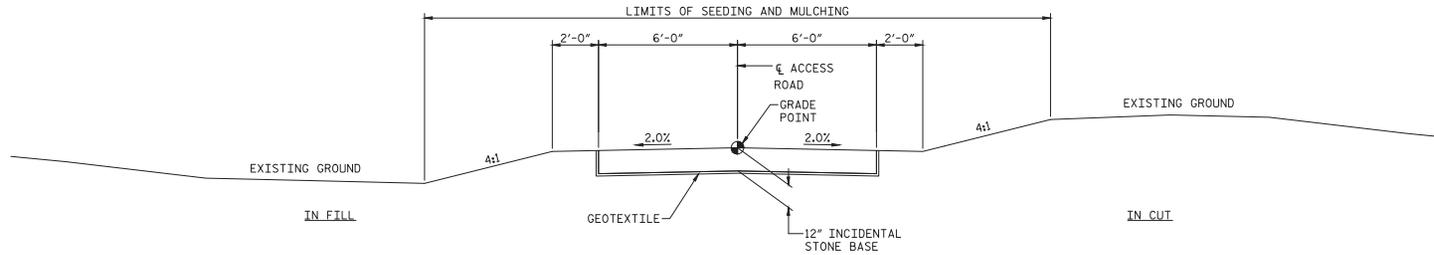
**DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO. E-16
NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			

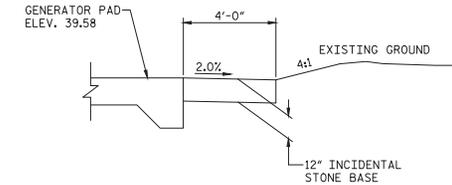
5/17/19

NOTES:

1. CONSTRUCT ACCESS ROAD IN ACCORDANCE WITH NCDOT STANDARD SPECIFICATIONS USING ITEMS NOTED ON THIS DRAWING.
2. UNCLASSIFIED EXCAVATION, UNDERCUT EXCAVATION, EMBANKMENT, SELECT GRANULAR MATERIAL-CLASS III, GEOTEXTILE FOR SOIL STABILIZATION, 18" SIDE DRAIN PIPE, AND SEEDING AND MULCHING ARE ROADWAY PAY ITEMS.



TYPICAL SECTION
SCALE: NONE



DETAIL A
SCALE: NONE

SUMMARY OF EARTHWORK (CY) - SEE NOTES					
LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT + 5%	BORROW	WASTE
SUMMARY NO.1					
ACCESS ROAD / GENERATOR PAD	303	9	23		290
GRAND TOTAL	303	9	23		290

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

ROADWAY PAY ITEMS - SEE NOTES				
ITEM NO.	DESCRIPTION	QTY.	UNIT	
0043000000-N	GRADING	LUMP SUM	LUMP SUM	
0194000000-E	SELECT GRANULAR MATERIAL, CLASS III	7	CY	
0196000000-E	GEOTEXTILE FOR SOIL STABILIZATION	711	SY	
0344000000-E	18" SIDE DRAIN PIPE	37	LF	
6084000000-E	SEEDING AND MULCHING	0.06	ACRE	



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**GENERATOR PAD
 ACCESS ROAD
 TYPICAL SECTION**

DESIGNED BY: J. T. MCILHENNY DATE: 08/23/18
 DRAWN BY: J. T. MCILHENNY DATE: 08/23/18
 CHECKED BY: M. D. HOUSE DATE: 10/18/18
 DESIGN ENGINEER OF RECORD: J. R. DOUGHTY DATE: 11/12/18

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

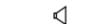
DocuSign by:
 Jason R. Doughty
 5778425187468..

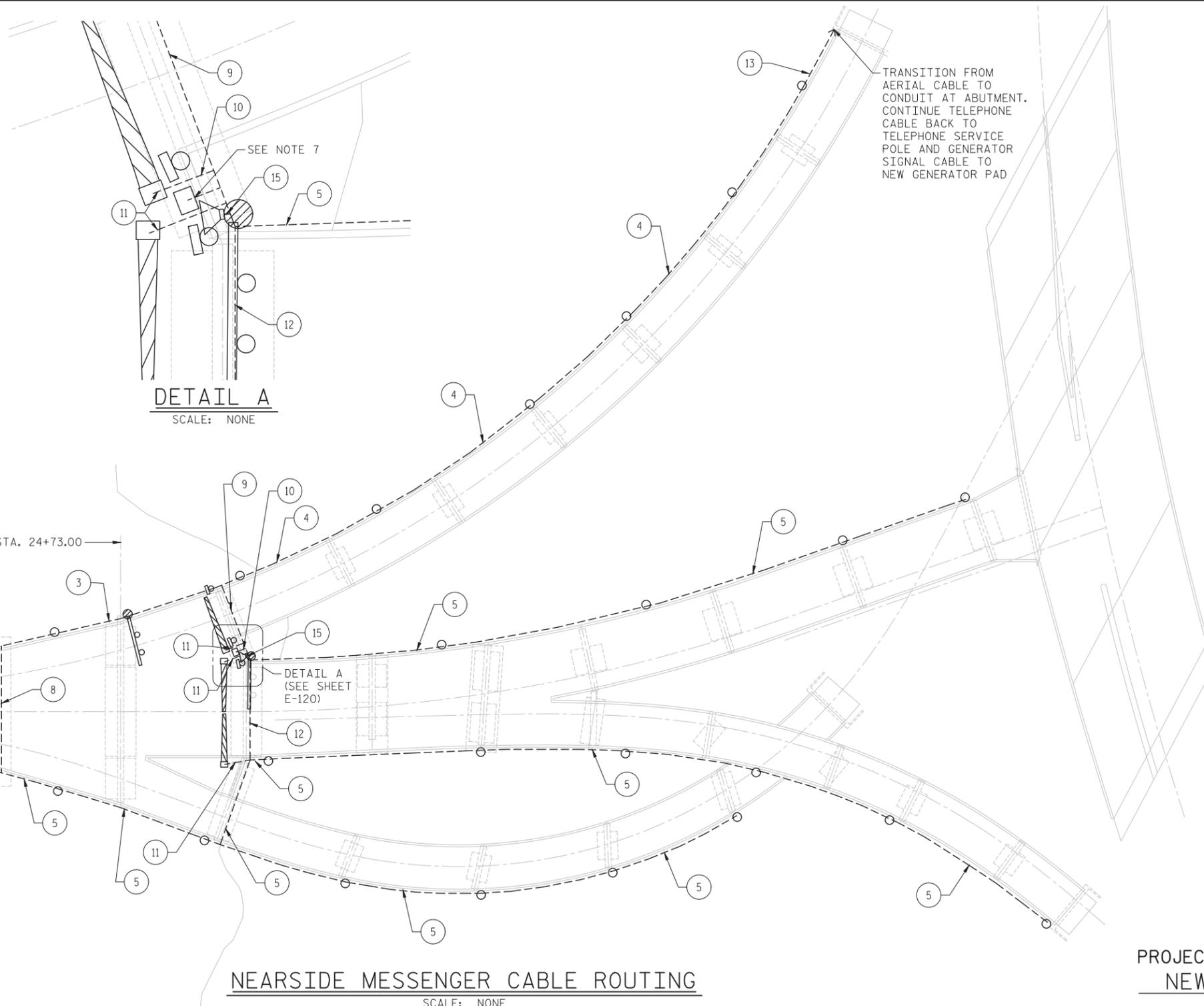
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	DATE:	TOTAL SHEETS
1			3		213
2			4		213

LAST SAVED: 1/16/2019 2:56 PM BY: RL REED. LAST PLOTTED: 1/17/2019 8:14 AM.
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5/17/19

LEGEND:

-  OVERHEAD TRAFFIC SIGNAL
-  WARNING OR BARRIER GATE
-  PA SYSTEM SPEAKER
-  ROADWAY LIGHTING POLE AND FIXTURE
-  TRAFFIC SIGNAL OR OVERHEAD SIGN POLE
-  NEW CCTV CAMERA
-  POLE MOUNTED TRAFFIC SIGNAL
-  SUBMARINE CABLES
-  NEW MESSENGER CABLE AND POWER CABLE BUNDLE



TRANSITION FROM AERIAL CABLE TO CONDUIT AT ABUTMENT. CONTINUE TELEPHONE SERVICE CABLE BACK TO TELEPHONE SERVICE POLE AND GENERATOR SIGNAL CABLE TO NEW GENERATOR PAD

DETAIL A
SCALE: NONE

NEARSIDE MESSENGER CABLE ROUTING
SCALE: NONE

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING GENERAL WIRING MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND MULTIPLE CONDUCTOR POWER CABLES FOR: TRAFFIC GATES, TRAFFIC SIGNALS, ROADWAY LIGHTS, AND TELEPHONE. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR BUNDLE WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. REFER TO SHEET E-121 FOR FAR SIDE MESSENGER CABLE DETAILS.
4. NUMBERS IN CIRCLES CORRESPOND TO CABLE BUNDLE NO. IN THE NEARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE ON SHEET E-122.
5. NEW MESSENGER CABLES TO ORIGINATE IN NEW NEARSIDE MESSENGER CABLE TERMINAL CABINET, MCTC-1. CABLES SHALL EXIT BOX IN 2 BUNDLES, USE (2) 3" CORD GRIPS AND FILLER AS NECESSARY FOR CABLE OPENINGS IN MCTC-1 ENCLOSURE. FOLLOW EXISTING MESSENGER CABLE ROUTING TO APPROACH FROM WORK ROOM HALLWAY. REMOVE EXISTING CABLES AND CONDUCTORS FOR TRAFFIC GATES, TRAFFIC SIGNALS, TELEPHONE, AND ROADWAY LIGHTS FROM EXISTING WORK ROOM HALLWAY JUNCTION BOXES AFTER NEW SYSTEM IS INSTALLED AND FUNCTIONAL.
6. NEARSIDE TRAFFIC SIGNAL MULTI-CONDUCTOR POWER CABLE TO TERMINATE IN CITY OWNED TRAFFIC SIGNAL CONTROL CABINET.

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

LAST SAVED 11/15/2018 1:46 PM BY JCRINEHART. LAST PLOTTED 11/15/2018 1:53 PM.
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DESIGNED BY: E. N. CLAY DATE: 09/19/18
 DRAWN BY: E. N. CLAY DATE: 09/19/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18


MODJESKI and MASTERS
 Experience great bridges.
 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



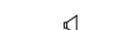
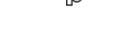
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**MESSENGER CABLE
 DETAILS - 1**

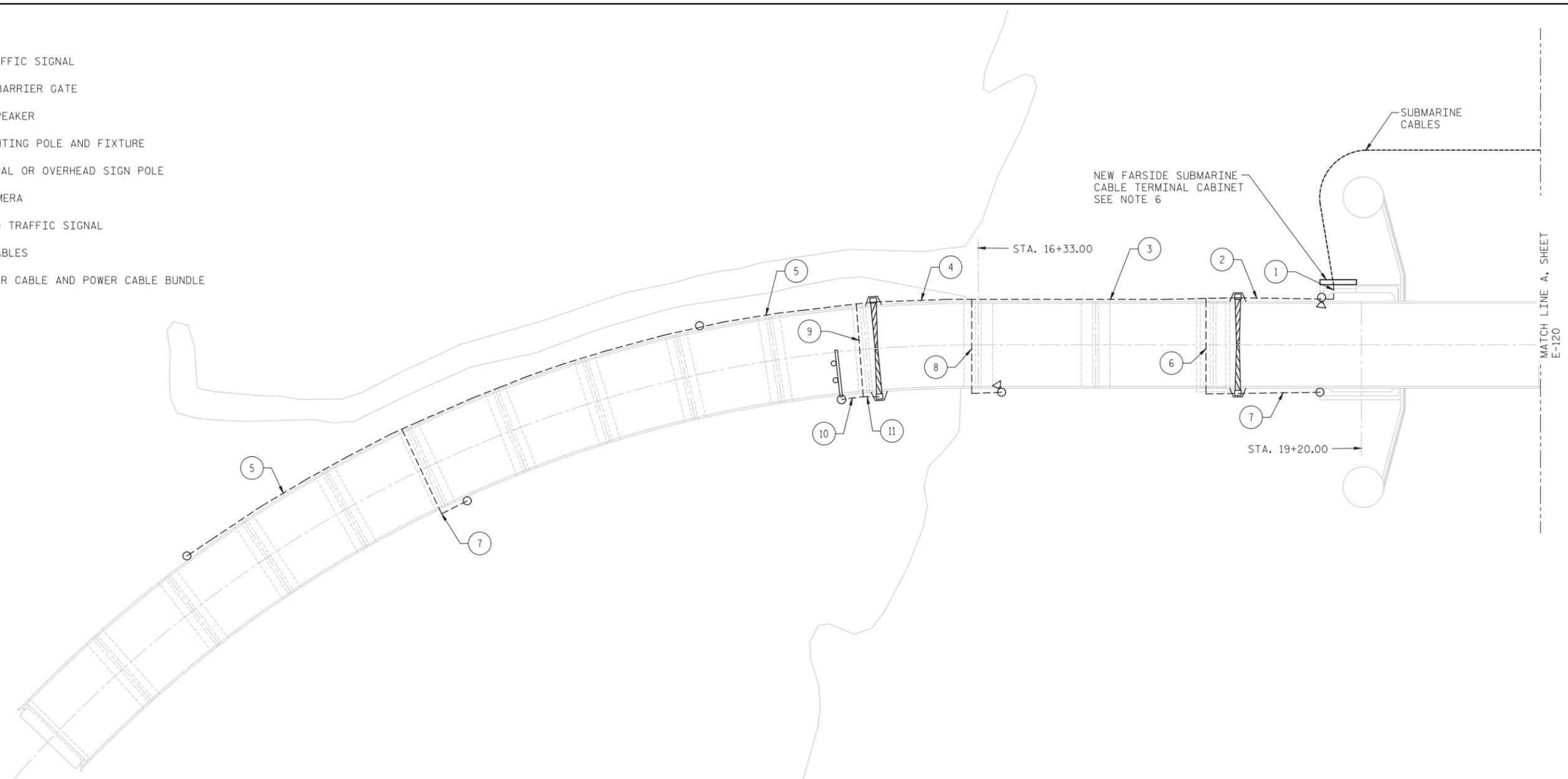
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-120
1			3			TOTAL SHEETS
2			4			213

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 UNLESS ALL SIGNATURES COMPLETED**

5/17/19

LEGEND:

-  OVERHEAD TRAFFIC SIGNAL
-  WARNING OR BARRIER GATE
-  PA SYSTEM SPEAKER
-  ROADWAY LIGHTING POLE AND FIXTURE
-  TRAFFIC SIGNAL OR OVERHEAD SIGN POLE
-  NEW CCTV CAMERA
-  POLE MOUNTED TRAFFIC SIGNAL
-  SUBMARINE CABLES
-  NEW MESSENGER CABLE AND POWER CABLE BUNDLE

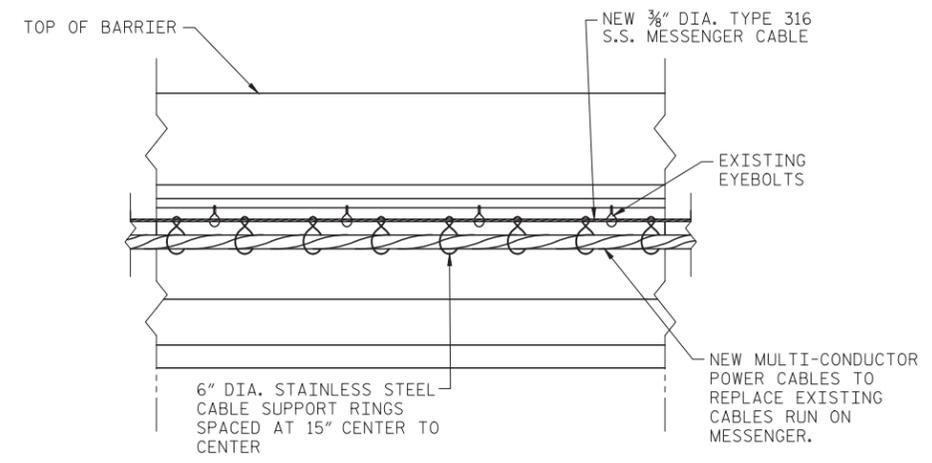


FARSIDE MESSENGER CABLE ROUTING

SCALE: NONE

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING GENERAL WIRING MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND MULTIPLE CONDUCTOR POWER CABLES FOR: TRAFFIC GATES, TRAFFIC SIGNALS, ROADWAY LIGHTS, AND TELEPHONE. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR BUNDLE WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. REFER TO SHEET E-120 FOR NEARSIDE MESSENGER CABLE DETAILS.
4. NUMBERS IN CIRCLES CORRESPOND TO CABLE BUNDLE NO. IN THE FARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE ON SHEET E-122.
5. NEW MESSENGER CABLES TO ORIGINATE AT NEW FARSIDE SUBMARINE CABLE TERMINAL CABINET. FOLLOW EXISTING ROUTING THROUGH THE COUNTERWEIGHT PIT WALL, ALONG THE INTERIOR STAIRWAY WALL AND UP TO THE APPROACH USING EXISTING EYEBOLT SUPPORTS.



GENERAL WIRING MESSENGER CABLE TYPICAL MOUNTING DETAIL

SCALE: NONE

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 MESSENGER CABLE
 DETAILS - 2



333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



DESIGNED BY: E. N. CLAY DATE: 09/19/18
 DRAWN BY: E. N. CLAY DATE: 09/19/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

DOCUMENT NOT CONSIDERED FINAL
 UNLESS ALL SIGNATURES COMPLETED

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-121
1			3			TOTAL SHEETS
2			4			213

LAST SAVED 11/15/2018 1:51 PM BY JCRINEHART. LAST PLOTTED 11/15/2018 1:53 PM.
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5/17/19

NEARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE

CABLE BUNDLE NO.	NO. OF CABLES	CABLE CONDUCTOR SIZE	NO. OF CONDUCTORS PER CABLE	DESCRIPTION
1	5	10 AWG	20	TRAFFIC GATES POWER
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	2	10 AWG	3	CCTV CAMERA POWER
	2	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
2	3	10 AWG	20	TRAFFIC GATES
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
3	3	10 AWG	20	TRAFFIC GATES
	4	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
4	1	10 AWG	4	ROADWAY LIGHTS
	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
5	1	10 AWG	4	ROADWAY LIGHTS
6	1	10 AWG	20	TRAFFIC GATES
	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	2	SEE NOTE 2	8	PA SYSTEM SPEAKERS
7	1	10 AWG	3	CCTV CAMERA POWER
	1	18 AWG	COAX	CCTV CAMERA CONTROL
	1	10 AWG	4	ROADWAY LIGHTS
8	1	10 AWG	3	CCTV CAMERA POWER
	1	14 AWG	COAX	CCTV CAMERA CONTROL
	1	18 AWG	2 TSP	PTZ CAMERA CONTROL
9	3	10 AWG	20	TRAFFIC GATES POWER
	3	10 AWG	4	ROADWAY LIGHTS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	20	TRAFFIC SIGNALS
10	1	10 AWG	20	TRAFFIC SIGNALS
11	1	10 AWG	20	TRAFFIC GATES
12	1	10 AWG	20	TRAFFIC GATES
	2	10 AWG	4	ROADWAY LIGHTS
13	1	18 AWG	4 TSP	TELEPHONE
	1	18 AWG	2 TSP	GENERATOR SIGNAL
	1	12 AWG	9	GENERATOR CONTROL POWER
14	2	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	1	10 AWG	4	ROADWAY LIGHTS
15	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS

FARSIDE GENERAL WIRING MESSENGER CABLE SCHEDULE

CABLE BUNDLE NO.	NO. OF CABLES	CABLE CONDUCTOR SIZE	NO. OF CONDUCTORS PER CABLE	DESCRIPTION
1	4	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
2	4	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
3	2	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	7	TRAFFIC SIGNALS
4	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
	2	10 AWG	20	TRAFFIC GATES
	1	10 AWG	4	ROADWAY LIGHTS
5	1	10 AWG	4	ROADWAY LIGHTS
	1	10 AWG	20	TRAFFIC GATES
	2	10 AWG	4	ROADWAY LIGHTS
6	1	10 AWG	20	TRAFFIC GATES
	2	10 AWG	4	ROADWAY LIGHTS
	2	10 AWG	4	ROADWAY LIGHTS
7	2	10 AWG	4	ROADWAY LIGHTS
	2	10 AWG	4	ROADWAY LIGHTS
	1	SEE NOTE 2	8	PA SYSTEM SPEAKERS
8	1	10 AWG	20	TRAFFIC GATES
	1	10 AWG	7	TRAFFIC SIGNALS
9	1	10 AWG	7	TRAFFIC SIGNALS
10	1	10 AWG	7	TRAFFIC SIGNALS
11	1	10 AWG	20	TRAFFIC GATES

NOTES:

1. CABLE BUNDLE NO. CORRESPOND TO CALLOUTS ON SHEET E-120 FOR NEARSIDE MESSENGER CABLE DETAILS AND SHEET E-121 FOR FARSIDE MESSENGER CABLE DETAILS.
2. CABLE SHALL BE SYSTEM CABLE AS LISTED IN PUBLIC ADDRESS SYSTEM PARTS LIST ON SHEET E-116 ITEM NUMBER E408F.
3. TSP: TWISTED SHIELDED PAIR.

LAST SAVED 11/15/2018 11:57 AM BY AMBRODOKY... LAST PLOTTED 11/15/2018 10:02 PM
 DRAWN BY: E. N. CLAY DATE: 09/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

DESIGNED BY: E. N. CLAY DATE: 09/18/18
 DRAWN BY: E. N. CLAY DATE: 09/18/18
 CHECKED BY: L. V. BORDEN DATE: 11/15/18
 DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI DATE: 11/15/18

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____



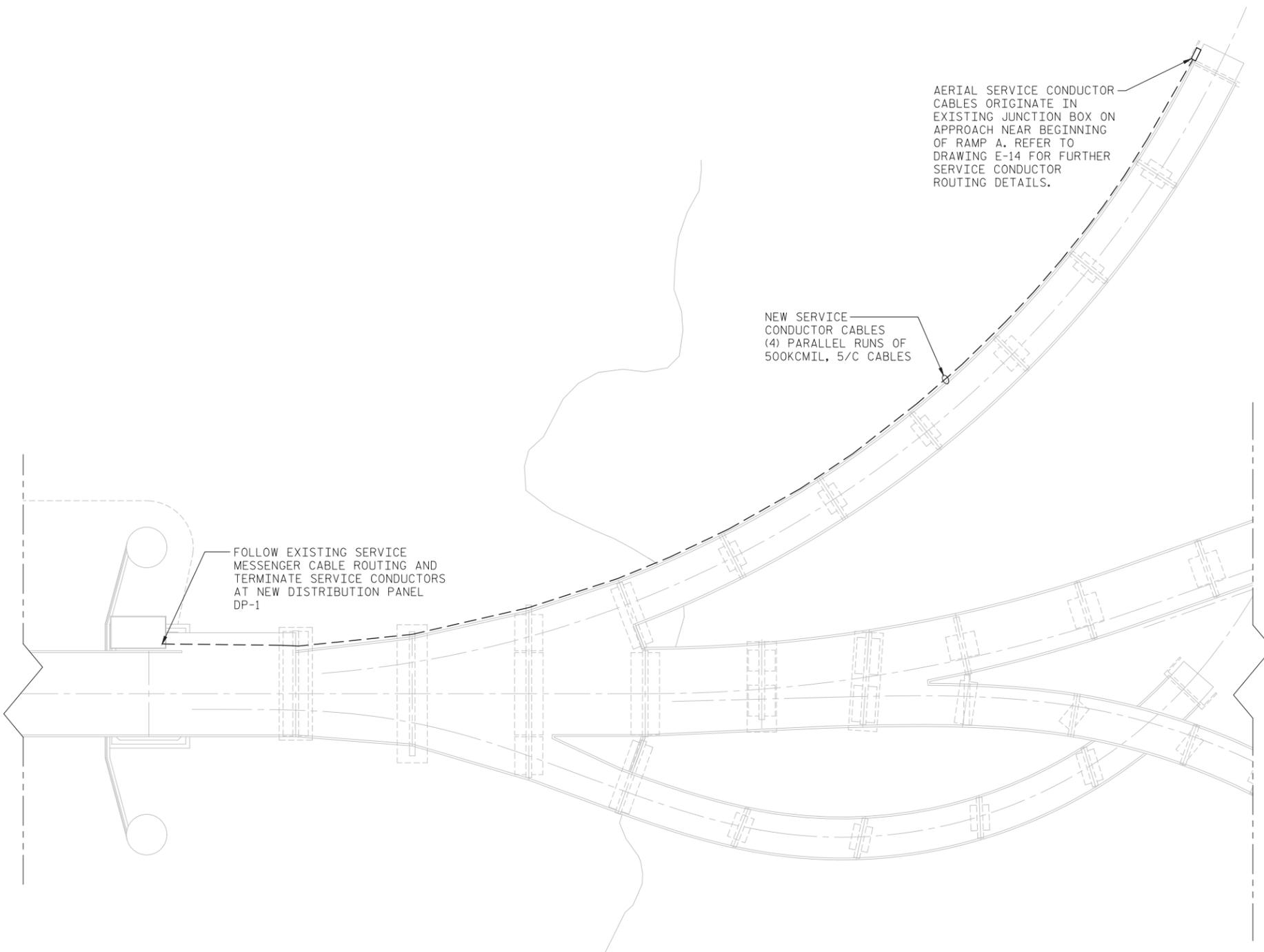
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
**MESSENGER CABLE
 DETAILS - 3**

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

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-122
1			3			TOTAL SHEETS 213
2			4			

5/17/19

LAST SAVED 11/15/2018 11:57 AM BY AMBRORSKY, LAST PLOTTED 11/15/2018 10:2 PM, FILE: \\mmdg101\projects\3682\3\CADD\Electrical\404_245_15BPR14_SML123_64001

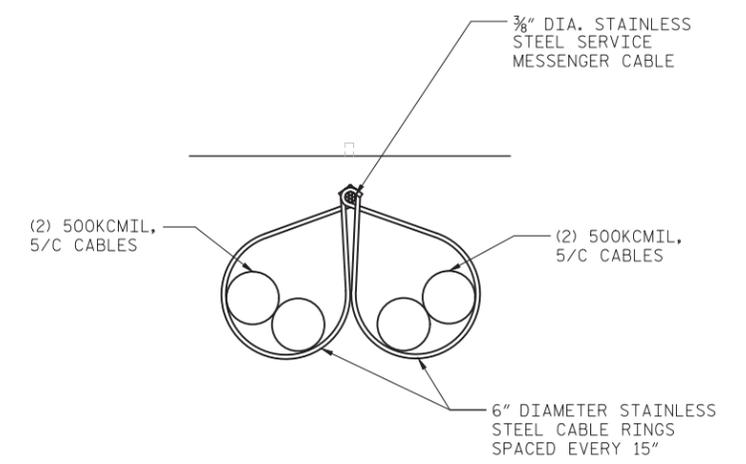


SERVICE MESSENGER CABLE ROUTING
SCALE: NONE

NOTES:

1. CONTRACTOR SHALL REMOVE EXISTING SERVICE MESSENGER CABLES INCLUDING THE MESSENGER CABLE, CABLE RINGS, AND SERVICE CONDUCTOR POWER CABLES. ALL EXISTING EYEBOLTS TO REMAIN IN PLACE TO BE REUSED FOR THE NEW MESSENGER CABLE AND CONDUCTOR CABLES WHEREVER APPLICABLE.
2. AT LOCATIONS WHERE USE OF EXISTING EYEBOLTS IS NOT FEASIBLE TO SUPPORT NEW MESSENGER CABLE, NEW EYEBOLTS SHALL BE INSTALLED. ALL NEW MESSENGER CABLE EQUIPMENT SHALL BE INSTALLED TO MATCH INSTALLATION OF EXISTING MESSENGER CABLE SYSTEM. REFER TO SHEETS E-124 AND E-125 FOR EXISTING MESSENGER CABLE SYSTEM DETAILS.
3. FOLLOW EXISTING MESSENGER CABLE ROUTING.

DESIGNED BY:	E. N. CLAY	DATE :	10/31/18
DRAWN BY:	E. N. CLAY	DATE :	10/31/18
CHECKED BY:	L. V. BORDEN	DATE :	11/15/18
DESIGN ENGINEER OF RECORD:	J. G. STRENKOSKI	DATE :	11/15/18



SERVICE CABLES SUPPORT
SCALE: 3"=1'-0"
SERVICE CONDUCTOR POWER CABLES

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
STATION: _____

MODJESKI and MASTERS
Experience great bridges.
333 FAYETTEVILLE STREET, SUITE 505
RALEIGH, NC 27601
NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
ELECTRICAL
**MESSENGER CABLE
DETAILS - 4**

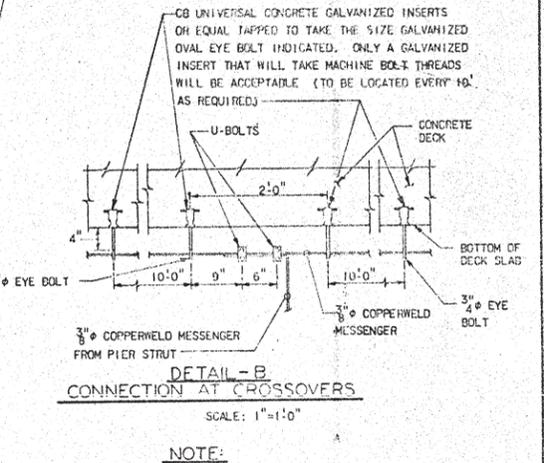
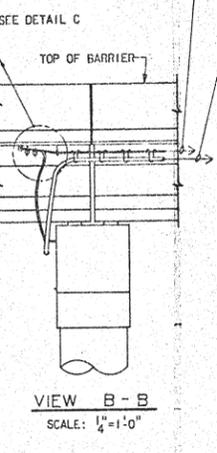
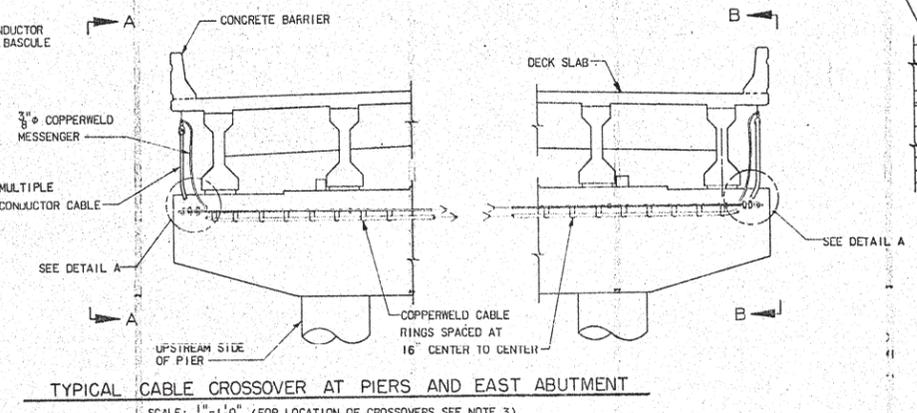
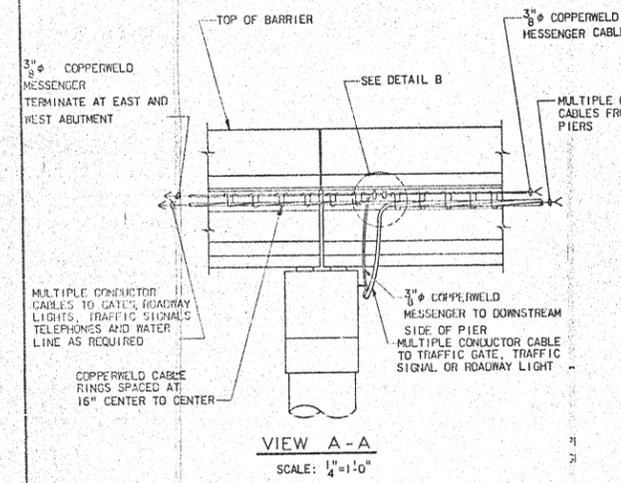
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UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	E-123
1			3			TOTAL SHEETS
2			4			213

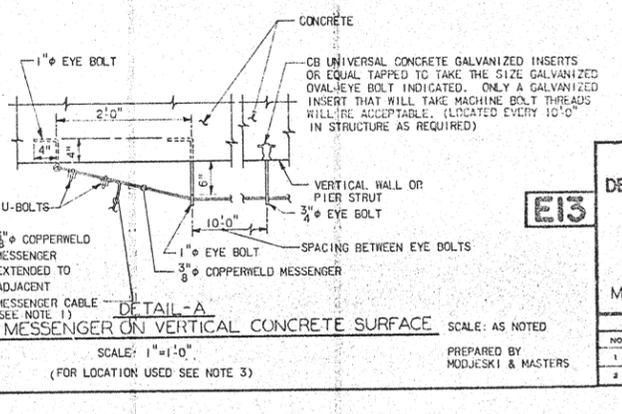
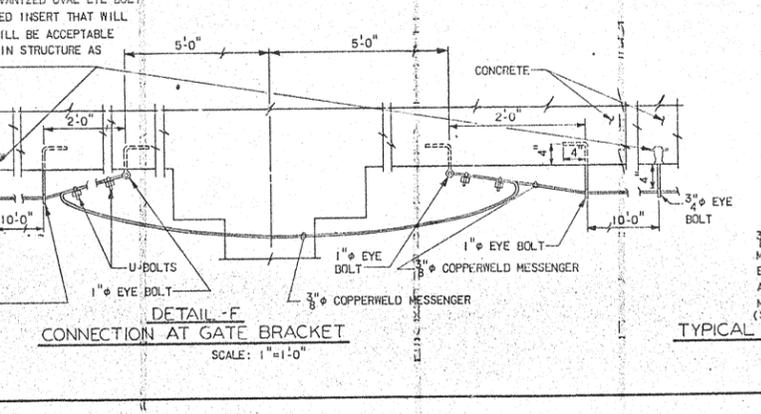
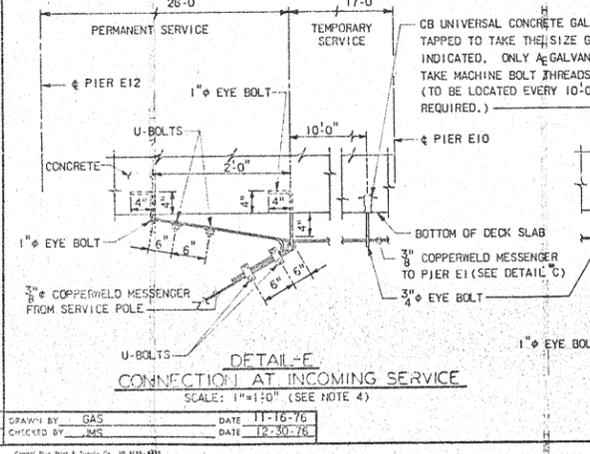
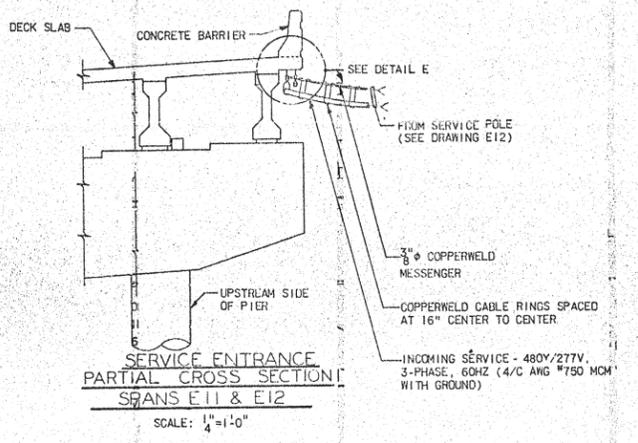
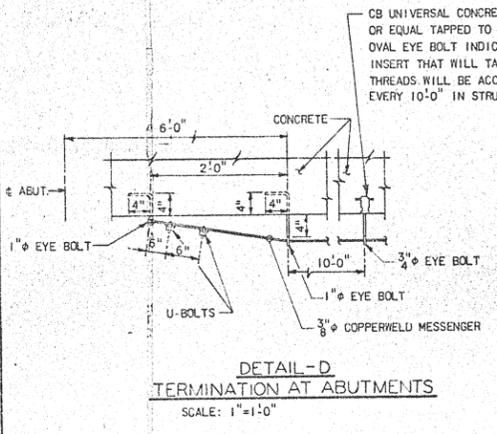
5/17/19

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FED. ROAD DIST. NO.	STATE	PROJECT NO.
4	N.C.	8.1355402
P.A. PROJECT		



- NOTE:**
1. IN PIER W1 3/8" COPPERWELD MESSENGER CABLE IS RUN THRU 5" CONDUIT IN WALL VIA S/C/T-C-2 AND BONDED TO SUBMARINE CABLE SUPPORT. (SEE DRAWING E19)
 2. CONTRACTOR SHALL LOCATE APPROVED TURN BUCKLES IN MESSENGER CABLE AS REQUIRED TO OBTAIN PROPER TENSION
 3. CABLE CROSSOVERS ARE REQUIRED AT PIER W1, W2, W5, W10, W14, E1, E2, E3, E6, E8 AND EAST ABUTMENT.
 4. AT PIER E11 CONNECTION DETAIL FOR INCOMING TEMPORARY SERVICE SHALL BE SIMILAR TO DETAIL B EXCEPT MESSENGER CABLE FROM SERVICE POLE SHALL LOOP THRU 1" EYE BOLT.
 5. FOR FURTHER NOTES SEE DRAWING E1.
 6. ALL HARDWARE SHOWN ON THIS SHEET SHALL BE HOT DIP GALVANIZED.



PROJECT No. 8.1355402
 NEW HANOVER COUNTY
 STATION: 20+53

E13

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 NORTHEAST CAPE FEAR RIVER BRIDGE
 US117 - NC133 AT WILMINGTON, N.C.
 ELECTRICAL SYSTEM
 MESSENGER CABLE DETAILS

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

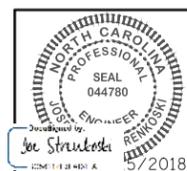
PREPARED BY: MODJESKI & MASTERS

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION:

DESIGNED BY: E. N. CLAY	DATE: 10/24/18
DRAWN BY: R. L. REED	DATE: 10/24/18
CHECKED BY: L. V. BORDEN	DATE: 11/15/18
DESIGN ENGINEER OF RECORD: J. G. STRENKOSKI	DATE: 11/15/18

FOR INFORMATION ONLY

MODJESKI & MASTERS
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 333 FAYETTEVILLE STREET, SUITE 505
 RALEIGH, NC 27601
 NC LICENSE NO. C-2979



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 ELECTRICAL
 MESSENGER CABLE
 DETAILS - 5

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

SHEET NO. E-124
 TOTAL SHEETS 213

5/17/19



NOTES:
 THE INFORMATION SHOWN IS FROM THE BEST DATA AVAILABLE. CONTRACTOR SHOULD CONDUCT THEIR INVESTIGATION PRIOR TO BIDDING. CONTRACTOR SHALL HAVE NO CLAIM AGAINST NCDOT OR THE ENGINEER.
 MAKE INVESTIGATIONS FOR DETERMINING THE EXACT LOCATION, SIZE AND TYPE MATERIAL FOR THE EXISTING FACILITIES AS NECESSARY FOR THE CONSTRUCTION OF THE PROPOSED UTILITIES AND FOR AVOIDING DAMAGE TO EXISTING FACILITIES. REPAIR ANY DAMAGE INCURRED TO EXISTING FACILITIES AT NO ADDITIONAL COST TO THE DEPARTMENT.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 PROJECT
**BRIDGE TENDER HOUSE
 SEWER LINE
 REPLACEMENT**

BCSC
 BATEMAN CIVIL SURVEY COMPANY
 2524 RELIANCE AVENUE
 APEX, NC 27539
 NC LICENSE NO. C-2378

Thomas S. Sprague
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 20234
 ENGINEER
 THOMAS S. SPRAGUE

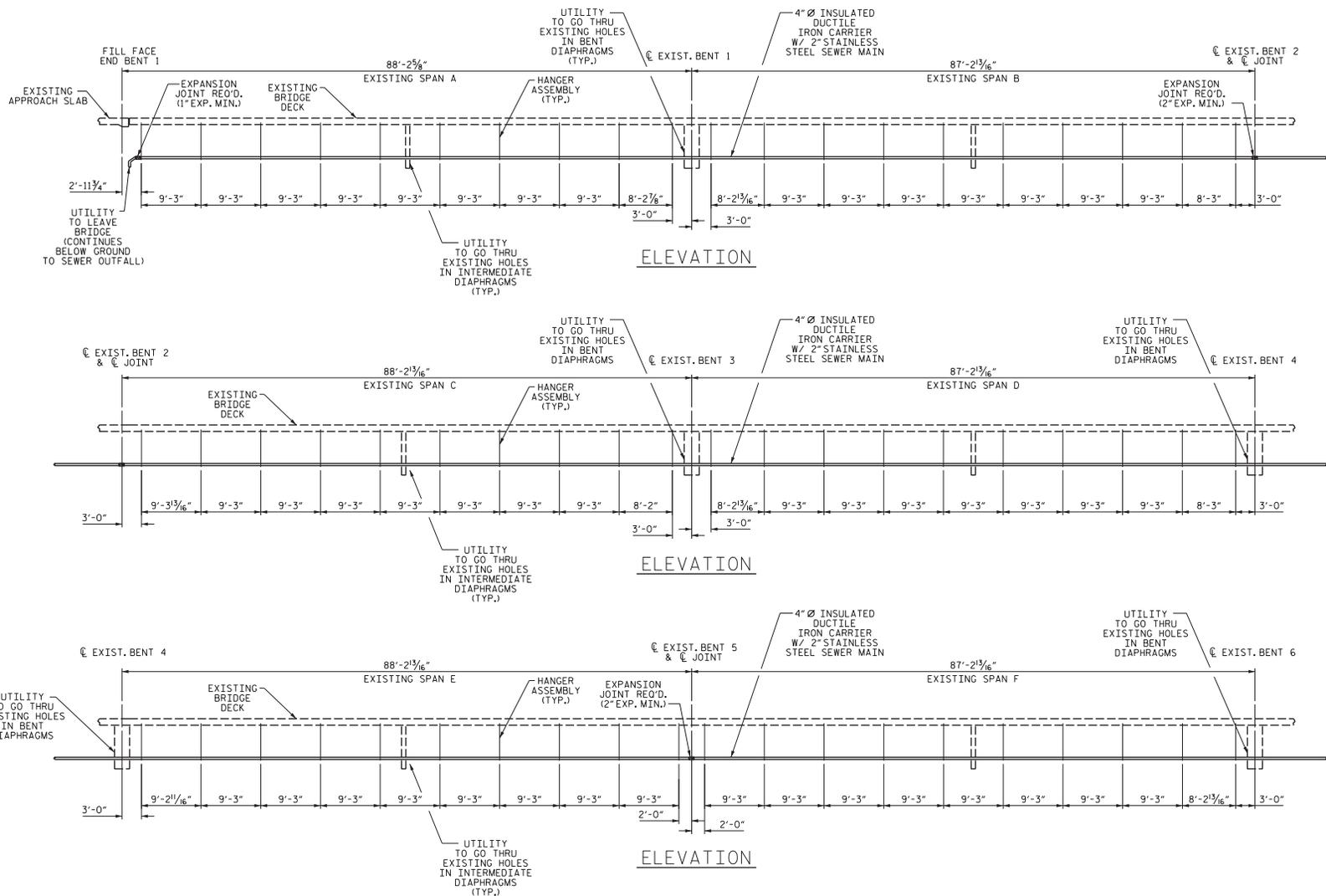
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DRAWN BY:	JTU	DATE:	11-9-18
CHECKED BY:	SC	DATE:	11-9-18
DESIGN ENGINEER OF RECORD:	TSS	DATE:	11-9-18

REVISIONS				SHEET NO.
NO.	BY:	DATE:	NO.	TOTAL SHEETS
1			3	213
2			4	213

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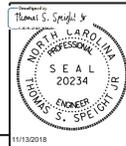
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PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____
 SHEET 1 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE TENDER HOUSE
 SEWER LINE
 HANGER SPACING**



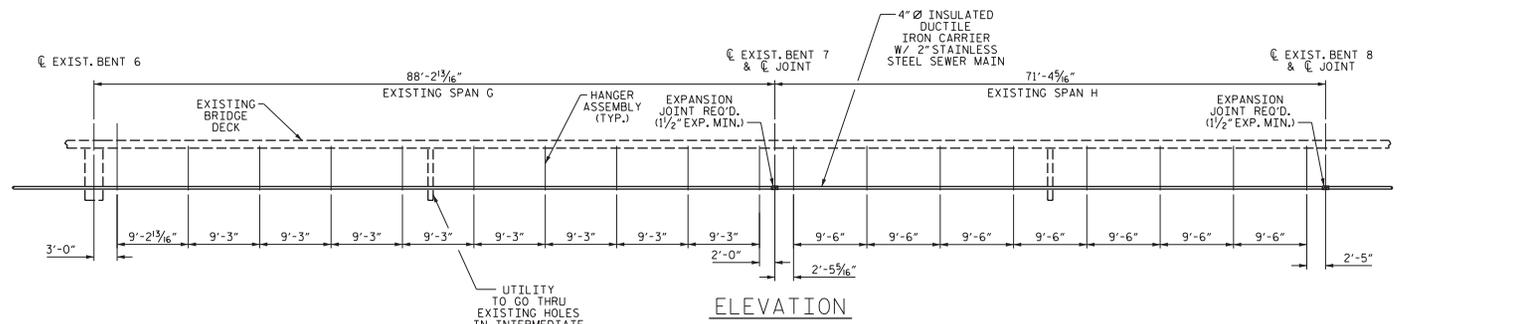
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DRAWN BY:	RCH	DATE:	11-9-18
CHECKED BY:	SC	DATE:	11-9-18
DESIGN ENGINEER OF RECORD:	TSS	DATE:	11-9-18

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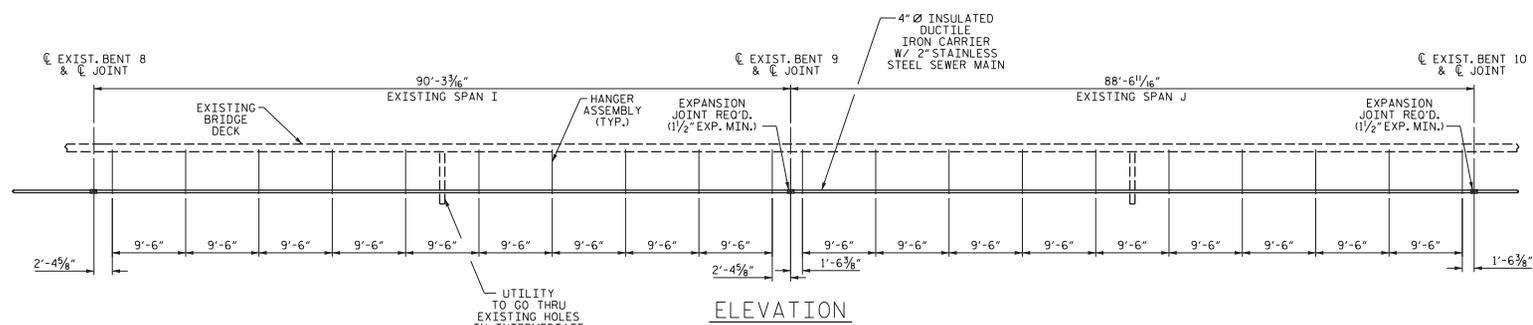
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			213
2			4			

NOTES:

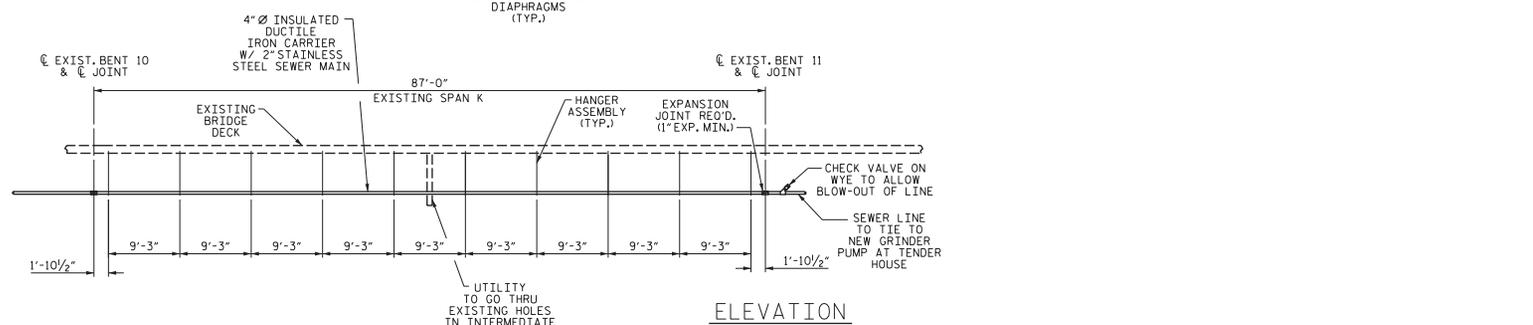
1. PROVIDE EXPANSION JOINTS AT LOCATIONS SHOWN. CONTRACTOR CAN PROVIDE ADDITIONAL EXPANSION JOINTS AS DEEMED NECESSARY. INDICATED EXPANSION JOINTS SHALL BE STAINLESS STEEL AND PROVIDE FOR THE AMOUNT OF MOVEMENT SHOWN (MIN.).



ELEVATION



ELEVATION



ELEVATION

PROJECT NO. 15BPR.14
NEW HANOVER COUNTY
 STATION: _____
 SHEET 2 OF 2

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE TENDER HOUSE
 SEWER LINE
 HANGER SPACING**

BCSC
 BATEMAN CIVIL SURVEY COMPANY
 2524 RELIANCE AVENUE
 APEX, NC 27539
 NC LICENSE NO. C-2378

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

TOTAL SHEETS: 213

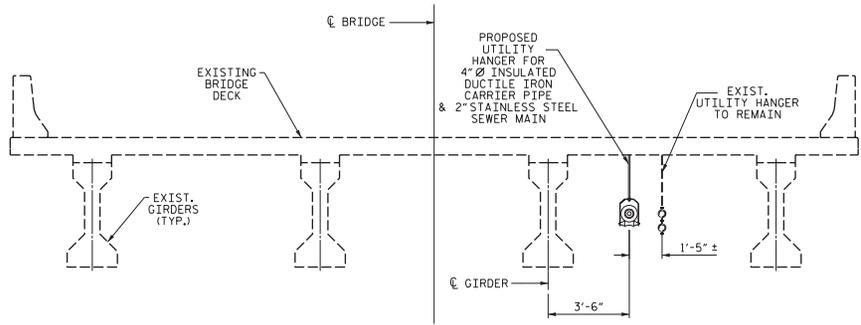
**DOCUMENT NOT CONSIDERED FINAL
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5/17/19

DESIGNED BY:	TSS	DATE:	11-9-18
DRAWN BY:	RCH	DATE:	11-9-18
CHECKED BY:	SC	DATE:	11-9-18
DESIGN ENGINEER OF RECORD:	TSS	DATE:	11-9-18

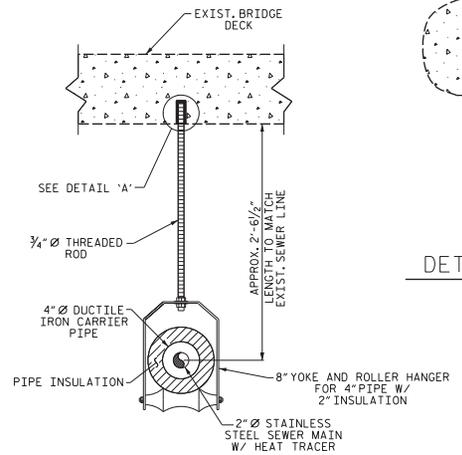
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5/17/19



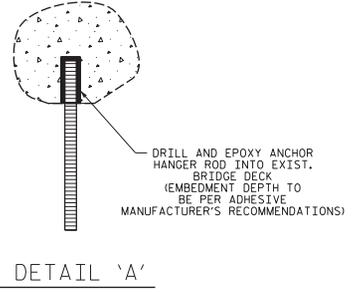
EXISTING TYPICAL SECTION

LOOKING TOWARDS TENDER HOUSE
SPANS A THRU F SHOWN
OTHER SPANS SIMILAR

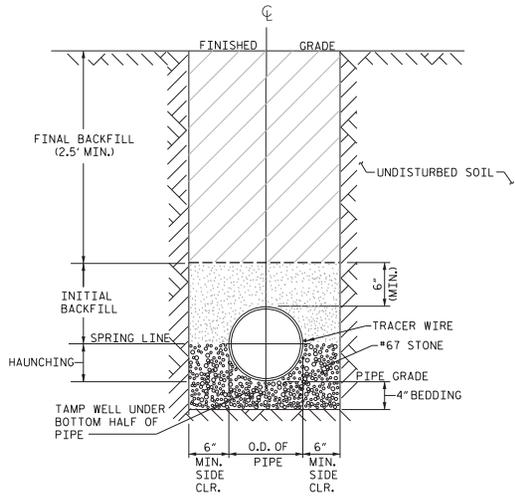


TYPICAL HANGER ASSEMBLY DETAIL

ALL HANGER MATERIAL SHALL BE STAINLESS STEEL



DETAIL 'A'



SEWER LINE TRENCH DETAIL

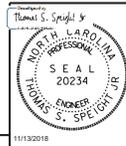
- NOTES:
1. FOR TRENCHES REQUIRING SHORING AND BRACING, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SHORING AND BRACING.
 2. NO ROCKS OR BOULDERS 4" OR LARGER TO BE USED IN INITIAL BACKFILL.
 3. ALL BACKFILL MATERIAL SHALL BE SUITABLE NATIVE MATERIAL.
 4. BACKFILL SHALL BE TAMPED IN 6" LIFTS IN TRAFFIC AREAS, 12" IN NON-TRAFFIC AREAS.
 5. CONTRACTOR WILL FURNISH AND INSTALL METALLIC WIRING TAPE 24-INCHES ABOVE THE PIPE AND COPPER TRACING WIRE.
 6. PROVIDE SILT FENCE ON DOWN SLOPE SIDE OF TRENCH. (CONTRACTOR SHALL COMPLY WITH ALL NC DEQ EROSION AND SEDIMENT CONTROL RULES AND REGULATIONS.)

NOTES:

1. THE PROPOSED UTILITY CONSTRUCTION SHALL MEET THE APPLICABLE REQUIREMENTS OF THE NC DEPARTMENT OF TRANSPORTATION'S "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" DATED JANUARY 2018.
2. SEWER LINES TO BE INSTALLED WITHIN COMPLIANCE OF THE RULES AND REGULATIONS OF THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY, DIVISION OF WATER RESOURCES, WATER QUALITY SECTION, PERFORM ALL WORK IN ACCORDANCE WITH THE APPLICABLE PLUMBING CODES.
3. CONTRACTOR SHALL PROVIDE FINAL DETAILED PIPING SCHEMATICS FOR SHOP DRAWING APPROVAL PRIOR TO INSTALLATION.
4. ALL UTILITY MATERIALS SHALL BE APPROVED PRIOR TO DELIVERY TO THE PROJECT. SEE 1500-7, "SUBMITTALS AND RECORDS" IN SECTION 1500 OF THE STANDARD SPECIFICATIONS.
5. JOINTS IN DUCTILE IRON CARRIER PIPE SHALL BE MEGALUG, SERIES 1100 BY EBAA IRON OR APPROVED EQUAL.
6. MAXIMUM PIPE BEND SHALL BE 45° UNLESS APPROVED BY THE ENGINEER.
7. BURIED SECTION OF SEWER LINE SHALL BE 2" DIAMETER SCHEDULE 40 PVC PIPE AND FITTINGS MEETING THE REQUIREMENTS OF ASTM D2665.
8. A HEAT TRACING HEATING CABLE SHALL BE PROVIDED ALONG THE BRIDGE ATTACHED PORTION OF THE SEWER LINE. HEAT CABLE SHALL BE INDUSTRIAL SERIES (IN BY DELTA-THERM OR APPROVED EQUAL). HEAT TRACING CABLE ACCESSORIES, INCLUDING CONTROL BOX, SHALL BE BY SAME MANUFACTURER AS TRACING CABLE UNLESS OTHERWISE APPROVED.
9. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING SEWER PIPING.
10. ALL WORK SHOWN ON SHEETS U-1 THROUGH U-4 SHALL BE PAID FOR UNDER THE LUMP SUM PRICE BID FOR 'BRIDGE TENDER HOUSE SEWER LINE REPLACEMENT', SEE PROJECT SPECIAL PROVISION.
11. HEAT CONDUIT MAY BE OMITTED IF ENOUGH ELECTRICAL INSULATION PROVIDED TO COMPLY WITH NATIONAL ELECTRICAL CODE, AND AS APPROVED BY THE ENGINEER.
12. ANY OTHER IMPROVEMENTS SHALL BE MADE AS APPROVED BY ENGINEER.

PROJECT NO. 15BPR.14
 NEW HANOVER COUNTY
 STATION: _____

DESIGNED BY:	TSS	DATE:	11-9-18
DRAWN BY:	BCH	DATE:	11-9-18
CHECKED BY:	SC	DATE:	11-9-18
DESIGN ENGINEER OF RECORD:	TSS	DATE:	11-9-18



STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**BRIDGE TENDER HOUSE
 SEWER LINE
 DETAILS**

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 UNLESS ALL SIGNATURES COMPLETED**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	U-4
1			3			TOTAL SHEETS
2			4			213