

THE STATE OF DELAWARE

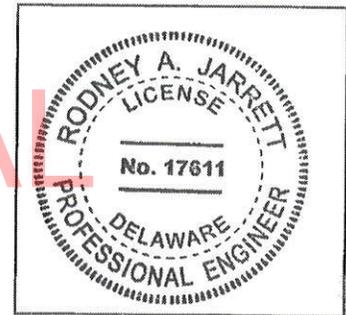


DEPARTMENT OF TRANSPORTATION
OFFICE OF TRANSPORTATION SOLUTIONS
PLANS AND SPECIFICATIONS FOR

CONTRACT NUMBER - T201347203 SOUTH MAINTENANCE
FEDERAL AID NUMBER - NA PRIMAVERA ID - 13-03013
CONTRACT TITLE - BR 3-151 AND 3-164 EMERGENCY REPAIRS PAGE 1 OF 19

PLANS PREPARED BY THE CONSULTING FIRM OF HARDESTY AND HANOVER

DATE RECOMMENDED: Feb. 22, 2013



Rodney A. Jarrett

HARDESTY AND HANOVER

RECOMMENDED:

SQUAD MANAGER CONSTRUCTION: [Signature] DATE: 2/27/13

GROUP ENGINEER CONSTRUCTION: [Signature] DATE: 2/27/2013

RECOMMENDED:



Stephen D. Richter
PROJECT MANAGER

DATE: 2/27/2013

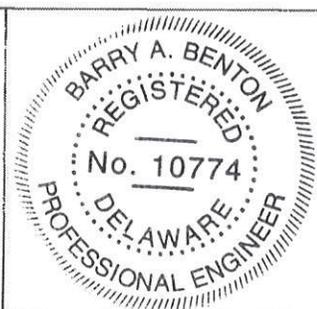
RECOMMENDED:



Douglas A. Robb
BRIDGE DESIGN ENG

DATE: 2/27/2013

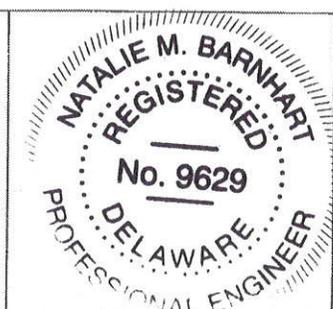
RECOMMENDED:



B. A. B.
ASST DIRECTOR, BRIDGE

DATE: 2/28/2013

APPROVED:



Natalie M. Barnhart
CHIEF ENGINEER

DATE: 2/28/13

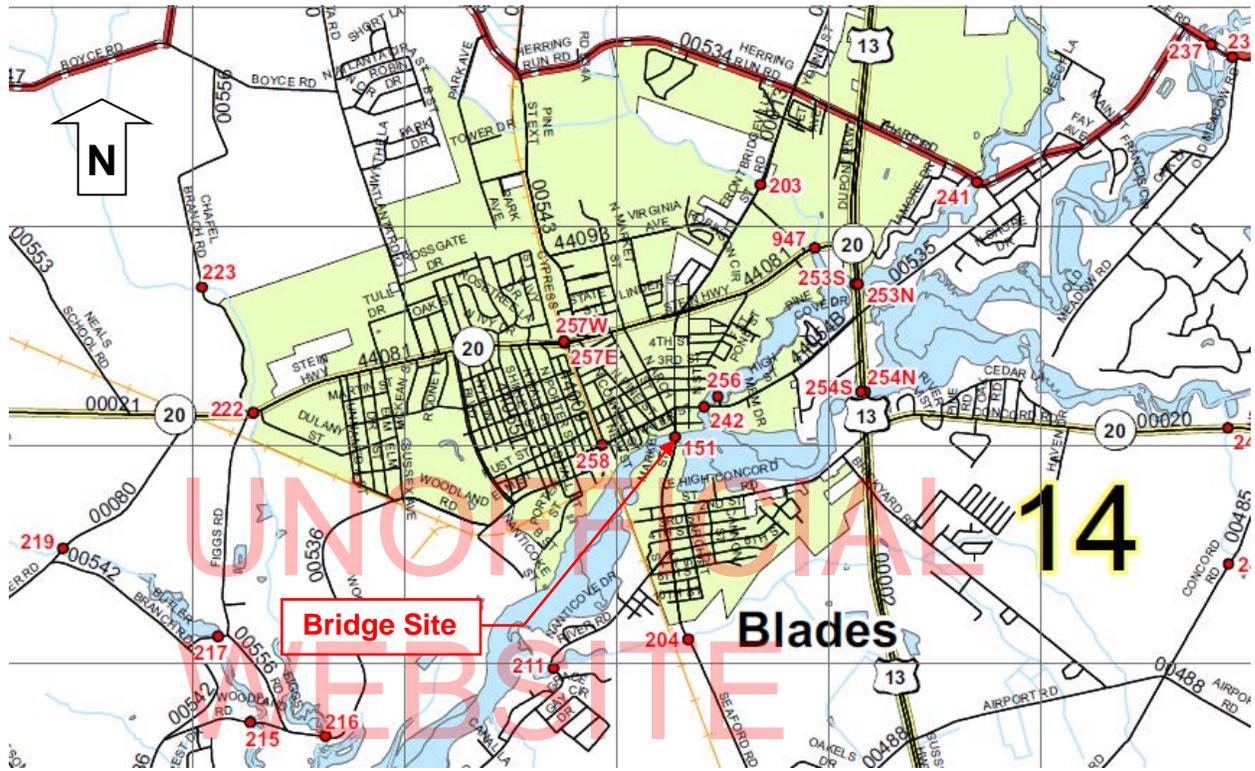
THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
Specification and Construction Plans

Contract No.: T201347203
F.A.P. No.: NA

Title: BR 3-151 AND 3-164 EMERGENCY REPAIRS
County: Sussex

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13-15	Drawings for Mechanical Repair of Movable Bridge – Seaford Bridge 3-151
16-19	Drawings for Mechanical Repair of Movable Bridge – Cedar Creek Bridge 3-164

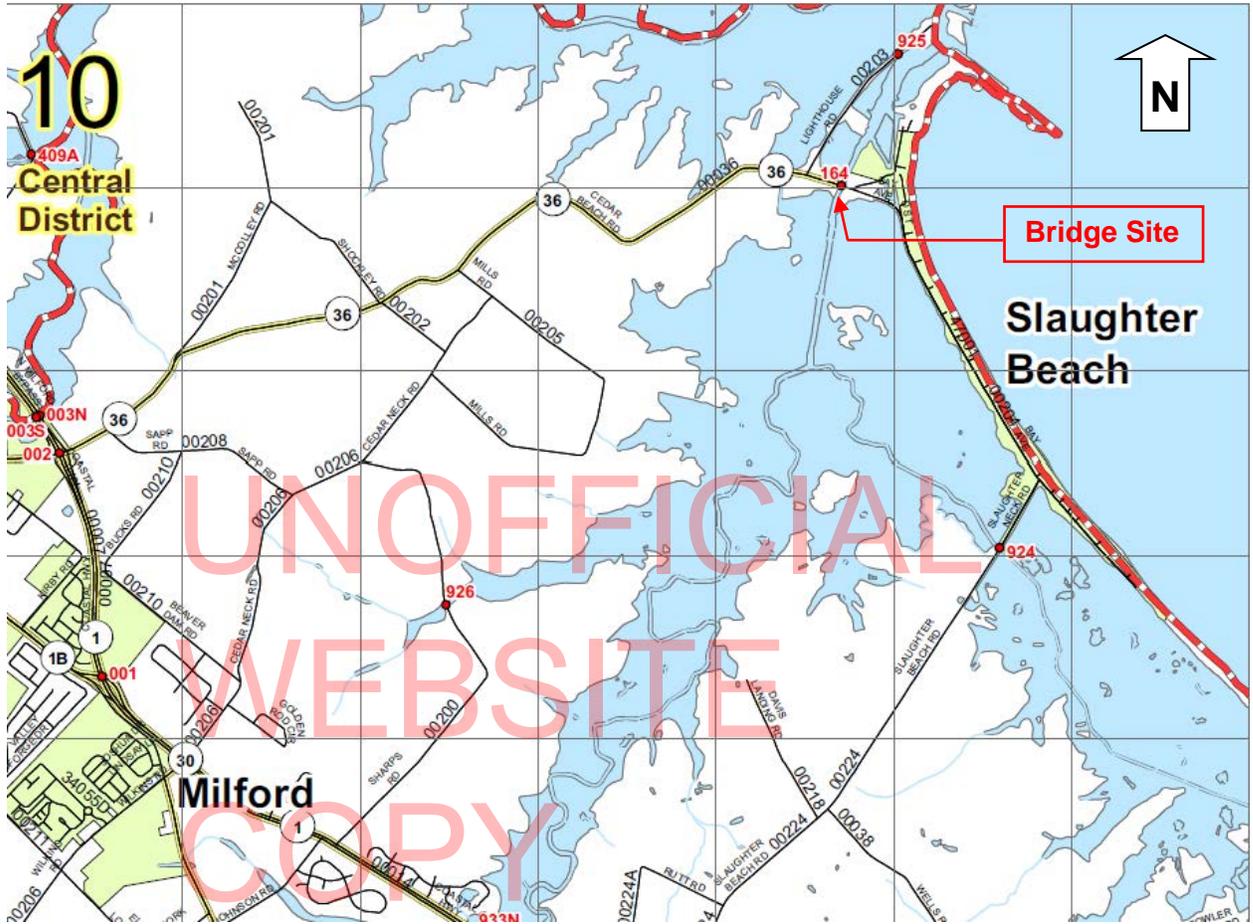
LOCATION MAP



LOCATION MAP FOR BR 3-151

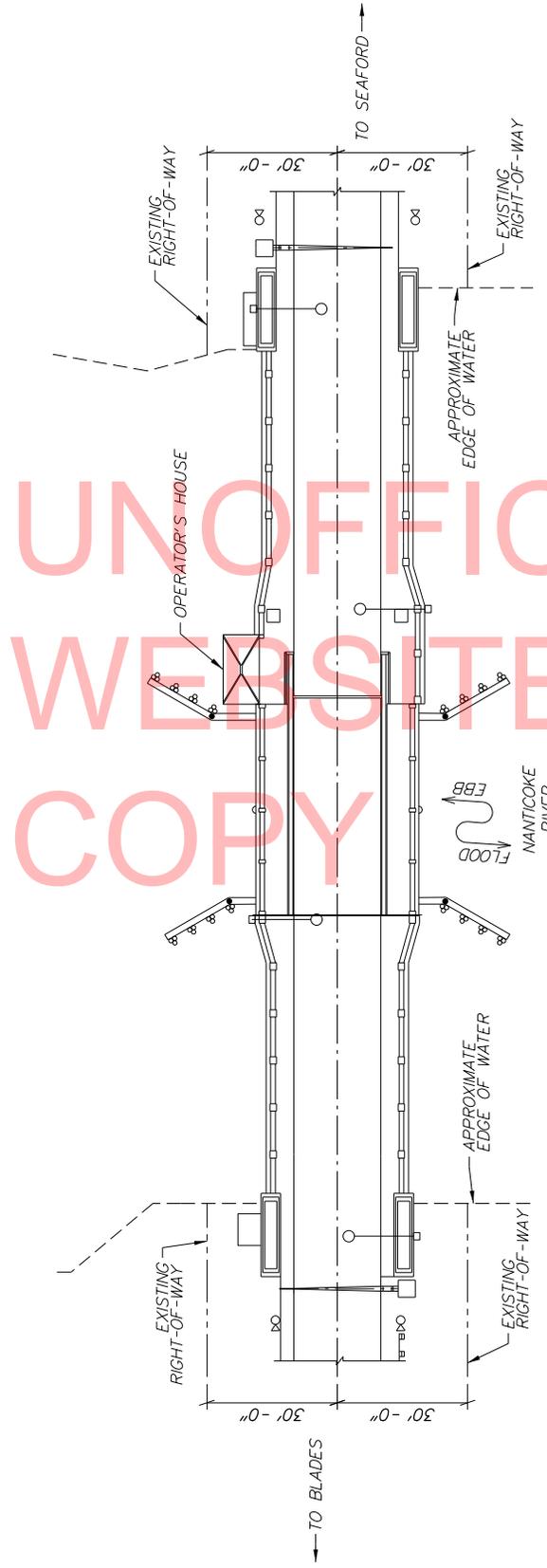
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LOCATION MAP



LOCATION MAP FOR BR 3-164

BR 3-151



RIGHTS-OF-WAY - PLAN

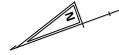
SCALE: NTS

T201347203 SHEET NO. 5

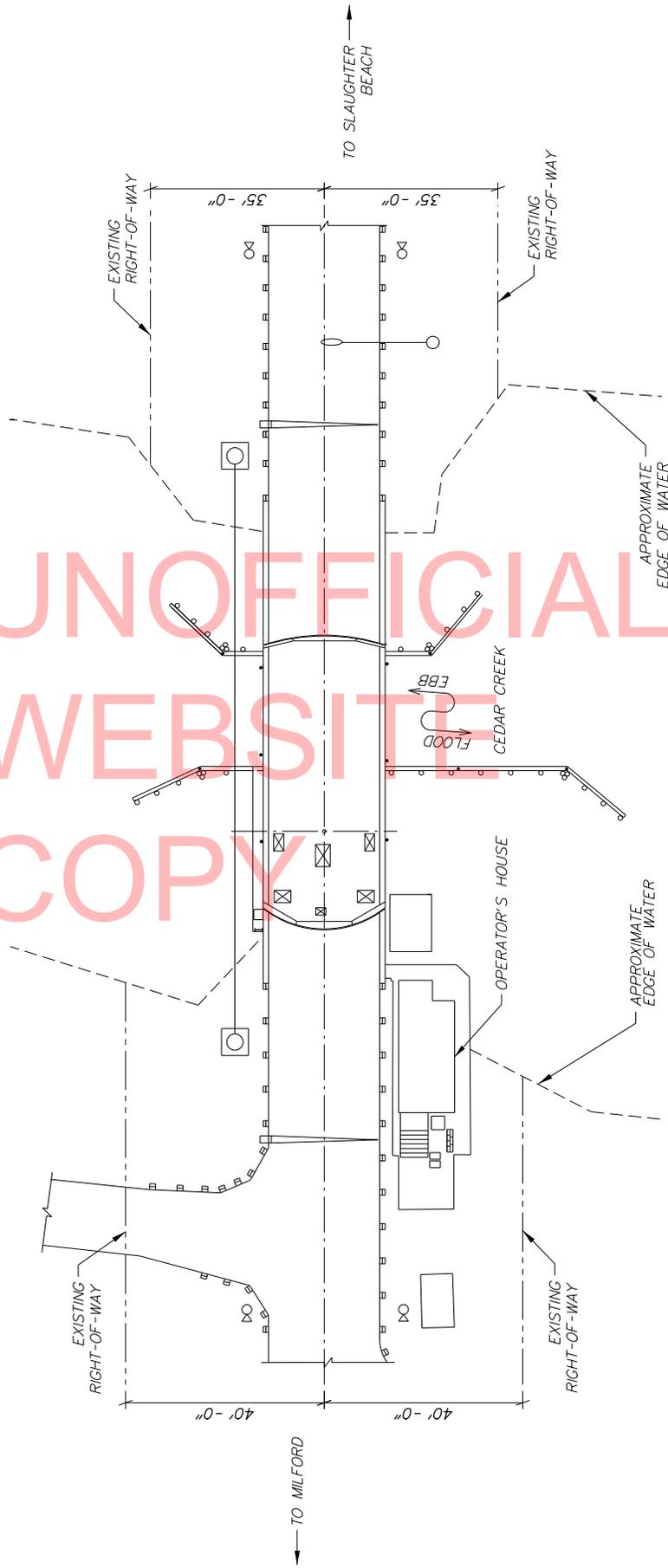
BRIDGES 3-151 & 3-164

RIGHTS-OF-WAY

BR 3-164



UNOFFICIAL
WEBSITE
COPY



RIGHTS-OF-WAY - PLAN

SCALE: NTS

T201347203 | SHEET NO. 6

BRIDGES 3-151 & 3-164

RIGHTS-OF-WAY

General Notes

1. This project is to be constructed in accordance with the Delaware Department of Transportation "Standard Specifications", dated August 2001 and the Delaware Department of Transportation "Standard Construction Details", dated 2001, including all revisions up to the date of advertisement.
2. Any damage to items noted to be relocated or reset by the contractor, at the discretion of the engineer, shall be repaired and/or replaced in kind at the contractor's expense.
3. The contractor shall contact Michael Eller, the Chief of Scheduling for DART First State, 14 days prior to the start of construction at 302-576-6061.
4. Proper disposal of construction related waste shall be the sole responsibility of the Contractor.

UNOFFICIAL
WEBSITE
COPY

PROJECT NOTES

Location and Description

The work on bridges 3-151 (Seaford Bridge) and 3-164 (Cedar Creek Bridge) involves emergency repairs to the bridge mechanical system and electrical system.

The Contractor should be aware that Bridge 3-151 is eligible for the National Register of Historic Places. Any additional work beyond the current project scope shall require consultation with Mike Hahn of DelDOT Environmental Studies (302-760-2131 MichaelC.Hahn@state.de.us) and the Delaware State Historic Preservation Office (302-736-7400). Bridge 3-164 is not a historic bridge eligible for the National Register of Historic Places, and therefore, additional work is discretionary beyond other typical permit or local approval needs that may be required.

Contract Duration and Notice To Proceed

Some of the components for the mechanical repairs require significant lead time for fabrication. In order to accelerate the schedule of these emergency repairs, DelDOT will purchase and supply the Contractor with the replacement motor and brake thrusters for the Seaford bridge. It is anticipated that the Contractor will be able to obtain these components from DelDOT within 1 month of receiving Notice to Proceed. The Contractor shall plan and execute his work so that all of the project work, including the work on long lead time items, are completed within the duration of the Contract.

The Contractor is expected to work during normal daytime hours.

Limits of Construction

All work shall be conducted within the boundaries of the legal right-of-way for each bridge. As directed by the Engineer, all areas disturbed by the Contractor's operation outside the limits of construction shall be reconstructed at the Contractor's expense. The Contractor shall coordinate with the Delaware Department of Transportation regarding the staging area at the Cedar Creek bridge site for the completion of work. Contractor shall determine and procure their staging area at the Seaford bridge site.

Unless otherwise approved by DelDOT, once the Contractor begins work at the bridge site, the Contractor must maintain a presence on that site and continue with the work until completed. Once completed and accepted, the Contractor may move operations to the other bridge site.

All construction is to take place outside the traveled portion of the roadway or from float equipment on the respective waterways. The waterways are used for commercial and recreational purposes. The Contractor is to provide safe passage through the work areas for the roadway and waterway users and is to have the passageway clearly marked.

There are no environmental restrictions associated with this project, as such an environmental compliance sheet was not prepared.

Utilities

Public utility relocations are not anticipated as part of this project. All potentially involved utilities shall be located and protected by the Contractor during construction. Utility locations shall be verified in the areas of potential conflict prior to construction. Contractor shall contact Miss Utilities in advance of construction to determine location of buried utilities in the vicinity of the construction activities.

Maintenance of Traffic

No detour route has been established for this project. Total road closures shall not be permitted at any time during construction. When required, short term, single lane closures may be permitted. Any travel lane closures for the Seaford bridge shall be performed Monday through Friday between 9:00 AM and 2:00 PM. There shall be no lane restrictions on weekends, unless directed otherwise by the Engineer. No lane closures will be permitted on holidays or holiday weekdays, unless approved by the Engineer.

Maintenance of traffic and flagging operations during these temporary closures shall be in accordance with the Delaware MUTCD requirements. Contractor must notify DeIDOT TMC and Public Affairs at least 10 working days prior to any planned disruptions to traffic.

The Contractor shall submit a Traffic Control Plan that follows the Delaware Manual on Uniform Traffic Control Devices guidelines for approval ten working days before any planned traffic disruption at each bridge site location. DeIDOT reserves the right to modify the traffic control as field conditions dictate. Payment for short term single lane closures shall be included in pay item 763643, "Maintenance of Traffic, All Inclusive".

At the Seaford bridge, one sidewalk must remain open for pedestrians at all times during the duration of the construction. The Contractor shall provide acceptable means of protecting pedestrians from any hazards and obstructions that may be encountered while passing through the project site. Pedestrian diversion detour plan shall be submitted and approved by DeIDOT Traffic Safety ten working days before any planned pedestrian disruption at each bridge site location.

Two portable, changeable message signs shall be placed at the bridge site two weeks prior to and five days after any planned traffic disruptions. Message board locations and message shall be approved by the District Traffic Safety Officer. The message boards shall be solar powered. Payment shall be made under pay item 743004, "Furnish and Maintain Portable Changeable Message Sign"

Existing Conditions

The Contractor is to field verify all existing relevant information and dimensions, prior to preparing shop drawings. Drawings showing portions of the existing bridges are included for informational purposes only. It is the Contractor's responsibility to field verify the accuracy of this information and submit any necessary adjustments for the Engineer's approval. Payment incidental to the contract.

Specific manufacturer's model and catalog numbers, when shown, form a basis of this design. Alternate products may be substituted provided they satisfy the requirements of the Contract Documents and are approved by the Engineer. Substitutes shall meet the minimum design specifications of the component identified in the Special Provisions.

Waterway Restriction

Seaford Bridge is presently closed to marine traffic and open to vehicular traffic. The bridge may only be opened during emergencies, as determined by DeIDOT, with 24 hours of advanced notice. The Cedar Creek Bridge is presently operational and open to both marine and vehicular traffic.

During construction, no disruption of water traffic shall be permitted, without written consent from the U. S. Coast Guard. The Contractor is responsible for coordination with the U. S. Coast Guard and shall obtain any required permits and approvals of all Departments or Agencies having jurisdiction, including the U. S. Coast Guard. All permits must be in place before construction begins. See Special Provision "763522 – Coast Guard Specific Conditions".

The work within the water shall be limited to barge placement only. Barge placement must be coordinated with the U. S. Coast Guard prior to beginning work and be in conformance with item "763522 - Coast Guard Specific Conditions". Any work barges used by the Contractor in the vicinity of the bridge shall be limited to day time hours and shall be removed from the navigation channel for passage of waterway traffic unless otherwise approved.

If scope of in water work changes, the Environmental Studies Office must be contacted immediately at (302) 760-2264 to determine permit authorization needs.

Bridge Operations

Contractor shall have a qualified person on site that is responsible for assisting the DeIDOT bridge operator for all bridge operations during the project. The Seaford bridge will only be opened during construction in the event of an emergency as determined by DeIDOT. The Contractor is responsible for safe operations of the bridges throughout the period that the Contractor has personnel, materials or equipment on site. This work is incidental to and paid for under Bid item 746662, Repair Bridge Electrical System.

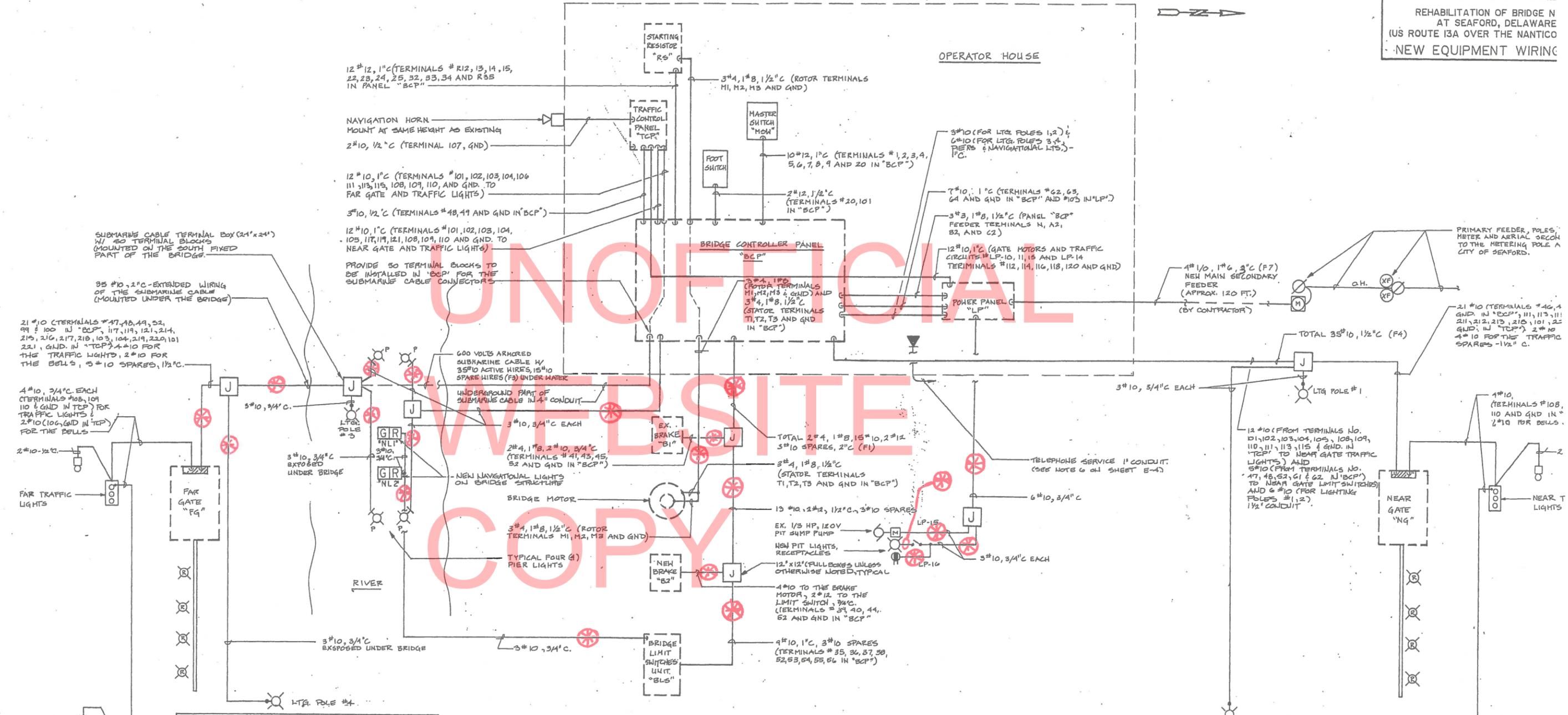
During construction, the Contractor representative shall be available for emergency on site repairs with a maximum response time of 60 minutes, 24 hours per day, 7 days per week.

At the Seaford Bridge, the Contractor is not permitted to remove or release the brakes on the bascule span when working on the machinery without first installing temporary steel props or binding suitable to prevent the span from opening. This work is incidental to and paid for under Bid item 763539, Mechanical Repair of Movable Bridge.

The Seaford bridge shall be fully open to pedestrian and vehicular traffic as well as operable for vessels during the Seaford Riverfest scheduled for July 12th and 13th, 2013.

COPY

REVISIONS
 Added Item 763512 and Motor
 Conditioning Notes - M.T.C. - 02/07/92
 PREL. TRACING
 DESIGN
 H.K.D.



- ITEM - 763512, ELECTRICAL SERVICE SYSTEM NOTES**
- ▲ a. The contractor shall provide strain relief for submarine cable per manufacturer's recommendations. Submarine cable shall be installed in appropriate size conduits to one foot below low water level. Conduit and the junction box for submarine cable shall be installed on the pier and secured in place to the satisfaction of the Engineer. Junction boxes to be stainless steel, NEMA 4X enclosure, marine grade, corrosion resistant, 24" X 24" X 8".
 - ▲ b. The contractor is required to verify the conduit layout as shown on plan sheet 37 of 41. If any conduit is missing or unfit for reuse, the contractor will be required to furnish and install new conduit without additional compensation.
 - ▲ c. Grounding counterpoise shall be located on land as directed by the Engineer and shall be connected to the grounding bar in the main panel.
 - ▲ d. Lightning protection system shall be grounded as directed by the Engineer.

NEW BRIDGE SYSTEMS WIRING
NO SCALE

- ▲ e. Provide lockable breakers in the panel in the operator's house.
- ▲ f. Provide #1/0 common grounding wire for lightning protection and service grounding.

- NOTES**
1. EXCEPT FOR THE UNDER WATER SUBMARINE CABLE, PIER LIGHTS WIRING, AND UNDERGROUND WIRING TO THE NEW ELECTRIC SERVICE WETER, GATES, LIGHTING POLES AND TRAFFIC LIGHTS, ALL OUTDOOR WIRING BOXES AND CONDUITS WILL BE MOUNTED EXPOSED ON BOTH SIDES AND/OR AT THE BOTTOM OF THE BRIDGE STRUCTURE. COORDINATE WITH OTHER DIVISION BRIDGE CONTRACTOR FOR THE NEW WIRING INSTALLATION.
 2. WHERE PRACTICAL EXISTING UNDERGROUND SOUND CONDUITS MAY BE REUSED WITH ALL NEW WIRES.

- MOTOR RECONDITIONING:**
- ▲ 1. Motor shall be dismantled, inspected, parts cleaned, lubricated, windings dried, varnished and baked. All mechanical and electrical tolerances checked to meet EASA specifications, slip rings turned and new brushes installed, balanced, reassembled, tested, and painted. Payment shall be incidental to Item 605590.
 - ▲ 2. Any machine work, bearing replacement, slip ring repair or replacement, winding or lead replacement, if needed, would require approval by the Engineer. Payment for such work shall be negotiated.

CONTRACTOR TO FIELD VERIFY EXISTING AS-BUILT DRAWING. LEGEND TO NEW WORK:
 (Symbol) INDICATES THE COMPLETE RUN OF CONDUIT WHERE THE EXISTING ELECTRICAL CONDUIT AND FITTINGS ARE TO BE REFURBISHED UNDER CONTRACT T201347203. SEE SPECIAL PROVISIONS FOR REPAIR BRIDGE ELECTRICAL SYSTEM FOR DETAILS.

CONTRACT	COUNTY	FEDERAL AID PROJECT No	SHEET No	TOTAL SHEETS
94-076-01	SUSSEX	EBHOS-2036(1)	41	52

REHABILITATION OF SR 36 OVER CEDAR CREEK BRIDGE NO. 3-164

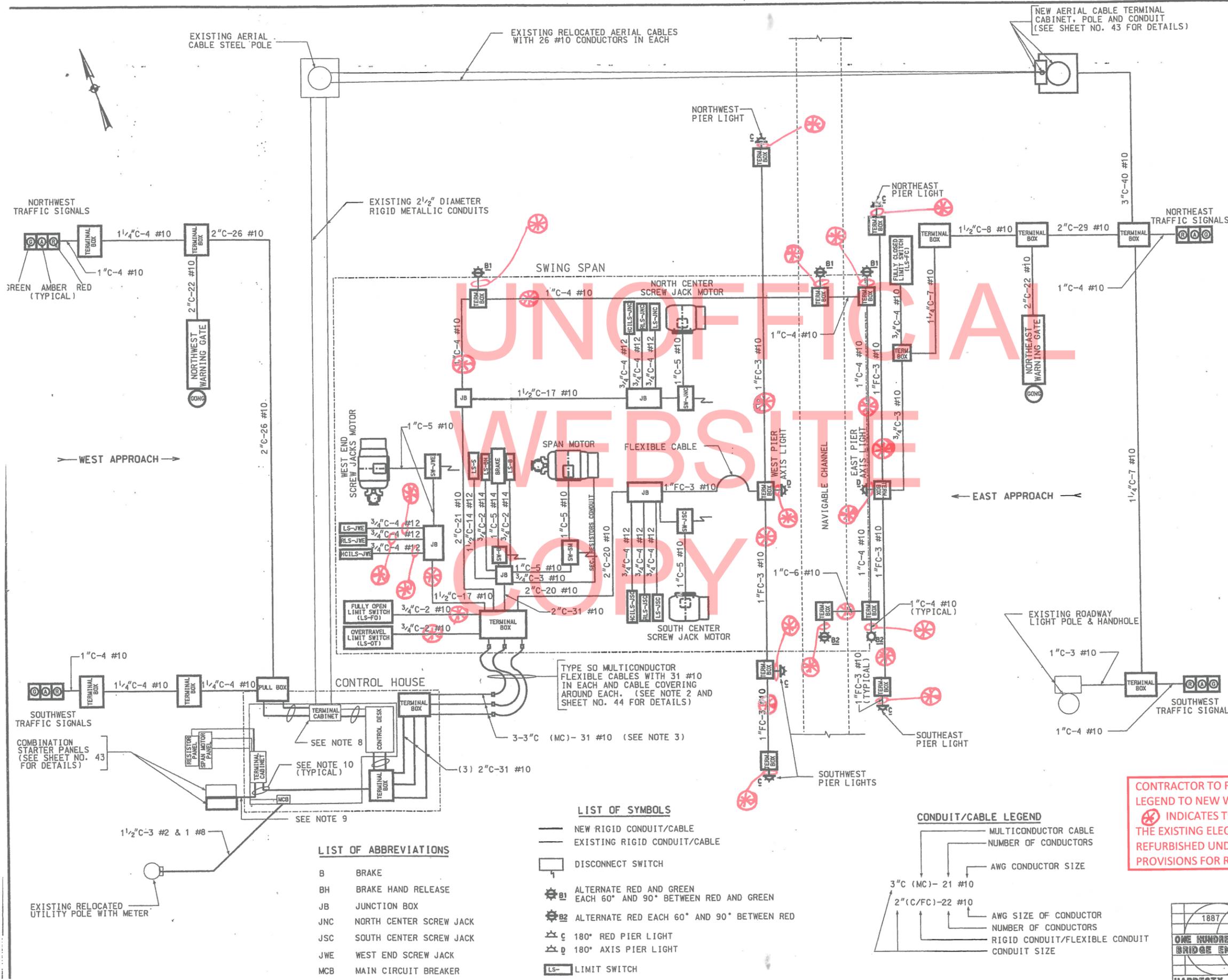
SCHEMATIC CONDUIT DIAGRAM

NOTES FOR SCHEMATIC CONDUIT DIAGRAM

1. THE NUMBER OF WIRES AND SIZES OF CONDUCTORS SHOWN IN CONDUITS AND CABLES ARE BASED ON THE CONTRACT WIRING DIAGRAMS. THE CONTRACTOR SHALL PROVIDE CONDUCTORS OF SUFFICIENT NUMBER AND SIZE, INCLUDING TEN PERCENT SPARES, AS MAY BE REQUIRED FOR THE INSTALLATION IN ACCORDANCE WITH THE FINAL WIRING DIAGRAMS ON HIS APPROVED WORKING DRAWINGS.
2. ADEQUATE SLACK SHALL BE PROVIDED FOR THE FLEXIBLE CABLES TO PERMIT SWING SPAN TO TURN 90 DEGREES. FLEXIBLE CABLE COVERING SHALL BE FURNISHED AND INSTALLED AROUND EACH FLEXIBLE CABLE FOR PROTECTION AGAINST RUBBING.
3. CONDUITS WITH FITTINGS AT END SHALL BE FURNISHED AND INSTALLED TO FIT THE TYPE SO MULTICONDUCTOR CABLES.
4. THE SCHEMATIC CONDUIT DIAGRAMS DO NOT PURPORT TO SHOW ALL PULL AND TERMINAL BOXES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL FURNISH AND INSTALL ANY ADDITIONAL BOXES REQUIRED TO CONFORM WITH SPECIFIED REQUIREMENTS GOVERNING THE ALLOWABLE NUMBER OF CONDUIT BENDS BETWEEN BOXES AND CABINETS. THE RADIUS OF CURVATURE OF CONDUIT BENDS SHALL NOT BE LESS THAN 8 TIMES THE INSIDE DIAMETER OF SAID CONDUIT.
5. THE SCHEMATIC CONDUIT DIAGRAMS ONLY SHOW THE CIRCUITS CONCERNED WITH OPERATION OF THE BRIDGE AND ITS AUXILIARIES. OTHER CIRCUITS REQUIRED TO BE INSTALLED ARE NOT SHOWN.
6. SECTIONS OF FLEXIBLE CONDUIT REQUIRED FOR CONNECTIONS TO MOTORS AND LIMIT SWITCHES ARE NOT INDICATED.
7. QUANTITY OF CONDUCTORS AS REQUIRED PER MANUFACTURER ARE NOT INCLUDED IN THE TOTAL NUMBER OF CONDUCTORS IN THE TERMINAL CABINET.
8. THE EXISTING TERMINAL CABINET BELOW THE CONTROL ROOM SHALL BE RECONDITIONED TO FIT ALL NEW AND EXISTING CONDUITS. TERMINAL BLOCKS SHALL BE CLEARLY RENUMBERED AND WIRES RELABELLED.
9. CONTRACTOR SHALL DETERMINE THE SIZE OF CONDUIT REQUIRED TO FIT THE NUMBER OF CONDUCTORS NEEDED FROM AUXILIARY STARTER PANELS TO EXISTING TERMINAL CABINET BELOW THE CONTROL ROOM.
10. CONTRACTOR SHALL DETERMINE THE NUMBER OF CONDUCTORS, SIZE OF CONDUITS REQUIRED FROM ALL OUTDOOR TERMINAL BOXES OR CABINETS TO INDOOR TERMINAL CABINETS, AND FROM INDOOR TERMINAL CABINETS TO THE CONTROL DESK AS REQUIRED TO MEET ALL SPECIFICATIONS AS WELL AS THE INTENT OF THE DESIGN CONCERNING REDUNDANT SYSTEMS.
11. EAST APPROACH ROADWAY LIGHT AND DIESEL ENGINE GENERATOR CONDUITS ARE NOT SHOWN ON THIS DRAWING. HOWEVER, THEY SHALL NOT BE REMOVED, AND SHALL REMAIN CONNECTED TO THE FIXTURE AND/OR EQUIPMENT.

CONTRACTOR TO FIELD VERIFY EXISTING AS-BUILT DRAWING. LEGEND TO NEW WORK:

⊗ INDICATES THE COMPLETE RUN OF CONDUIT WHERE THE EXISTING ELECTRICAL CONDUIT AND FITTINGS ARE TO BE REFURNISHED UNDER CONTRACT T201347203. SEE SPECIAL PROVISIONS FOR REPAIR BRIDGE ELECTRICAL SYSTEM FOR DETAILS.



LIST OF ABBREVIATIONS

- B BRAKE
- BH BRAKE HAND RELEASE
- JB JUNCTION BOX
- JNC NORTH CENTER SCREW JACK
- JSC SOUTH CENTER SCREW JACK
- JWE WEST END SCREW JACK
- MCB MAIN CIRCUIT BREAKER

LIST OF SYMBOLS

- NEW RIGID CONDUIT/CABLE
- - - EXISTING RIGID CONDUIT/CABLE
- DISCONNECT SWITCH
- ⊗ B1 ALTERNATE RED AND GREEN EACH 60° AND 90° BETWEEN RED AND GREEN
- ⊗ B2 ALTERNATE RED EACH 60° AND 90° BETWEEN RED
- ⊗ C 180° RED PIER LIGHT
- ⊗ D 180° AXIS PIER LIGHT
- LS- LIMIT SWITCH

CONDUIT/CABLE LEGEND

- 3" C (MC) - 21 #10
- 2" (C/FC) - 22 #10
- MULTICONDUCTOR CABLE NUMBER OF CONDUCTORS
- AWG CONDUCTOR SIZE
- AWG SIZE OF CONDUCTOR NUMBER OF CONDUCTORS
- RIGID CONDUIT/FLEXIBLE CONDUIT CONDUIT SIZE

94-076-01 1724706

1887 1987

ONE HUNDRED YEARS OF BRIDGE ENGINEERING

KCI

HARDESTY & HANOVER TECHNOLOGIES

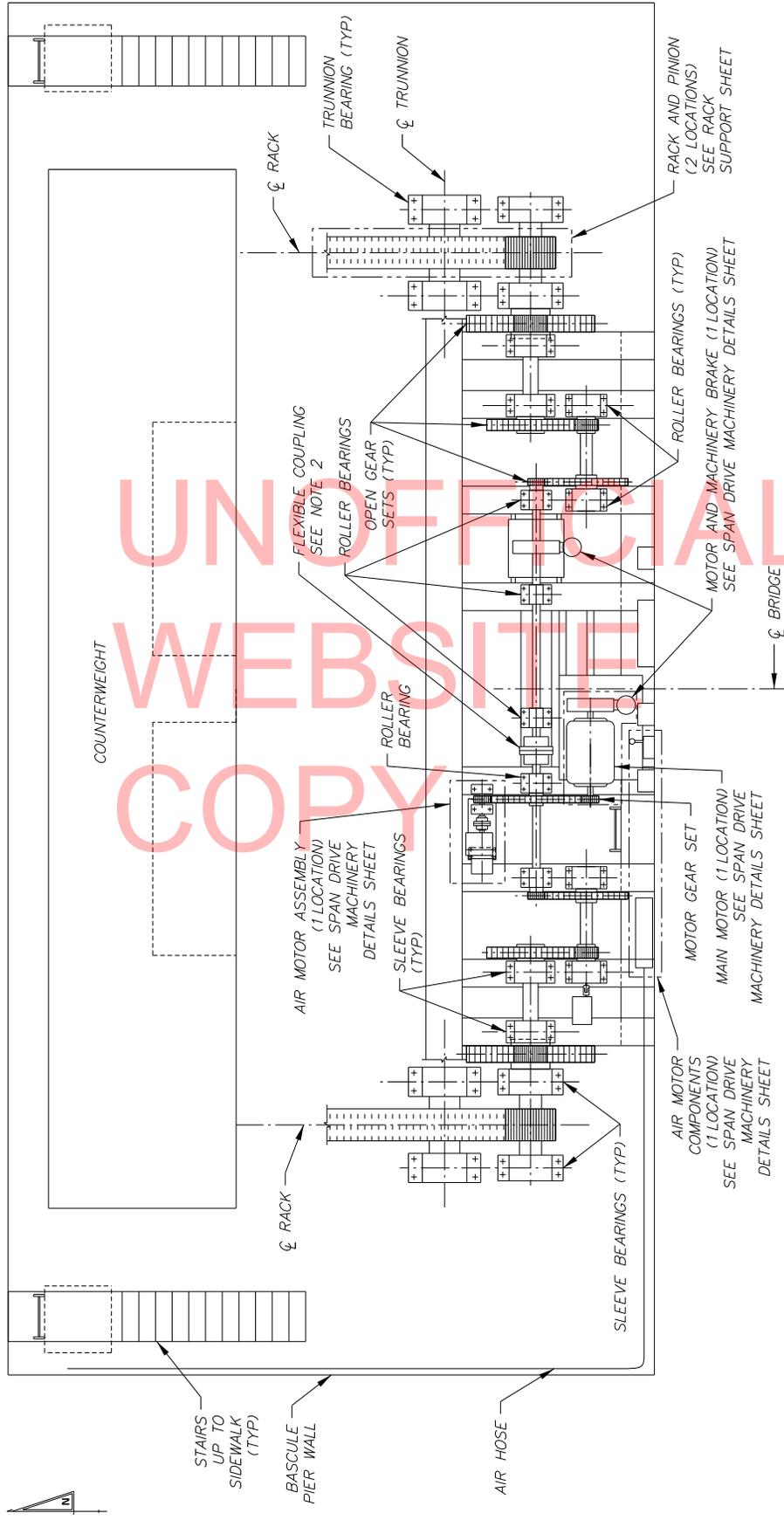
ENGINEERS AND PLANNERS

10 NORTH PARK DRIVE

HUNT VALLEY, MD. 21030-1888

(410) 316-7800

BR 3-151



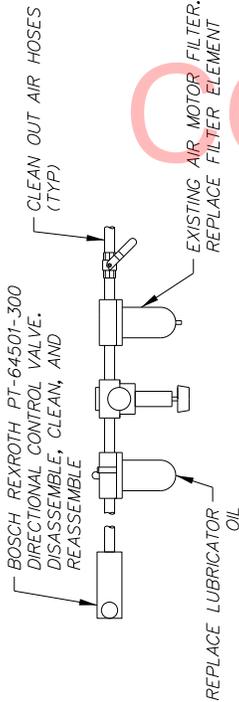
SPAN DRIVE MACHINERY REPAIRS - PLAN

SCALE: NTS

AIR MOTOR HOSES NOT SHOWN BETWEEN LUBRICATOR, DIRECTIONAL CONTROL VALVE, AND AIR MOTOR FOR CLARITY

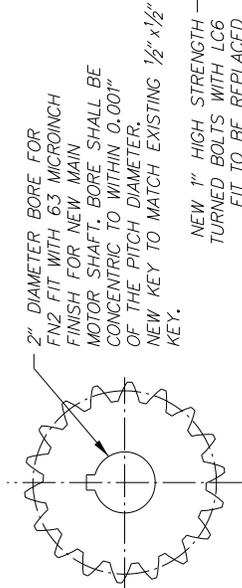
- NOTES:
1. ALL ITEMS SHALL BE PAID UNDER SECTION 7635.39 "MECHANICAL REPAIR OF MOVABLE BRIDGE." REFER TO THE SPECIAL PROVISIONS FOR REQUIREMENTS.
 2. CONTRACTOR TO VERIFY FLEXIBLE COUPLING MANUFACTURER AND MODEL PRIOR TO ORDERING PARTS. CONTRACTOR TO DISASSEMBLE COUPLING, CLEAN COMPONENTS, REPLACE GREASE, REPLACE GASKETS AND O-RING/SEAL AND REASSEMBLE COUPLING.

T201347203	SHEET NO. 13
BRIDGES 3-151 & 3-164	
SPAN DRIVE MACHINERY LAYOUT	



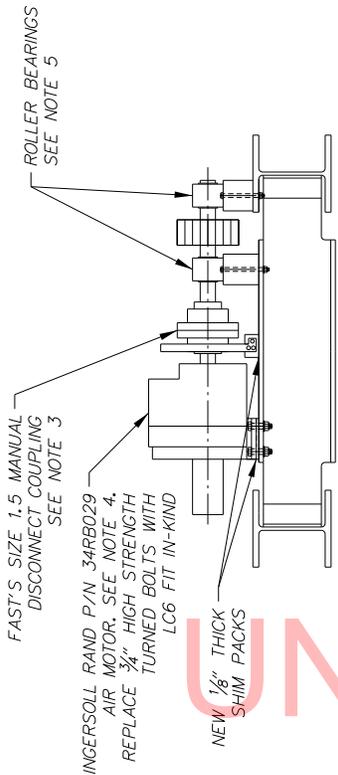
AIR MOTOR COMPONENT DETAILS

SCALE: NTS
1 LOCATION



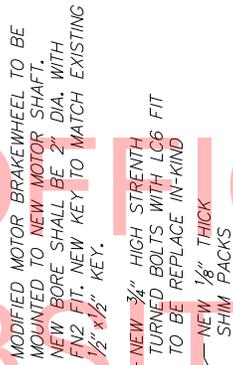
EXISTING MOTOR PINION DETAIL

SCALE: NTS
1 LOCATION
MOTOR BRAKEWHEEL MODIFICATIONS SIMILAR



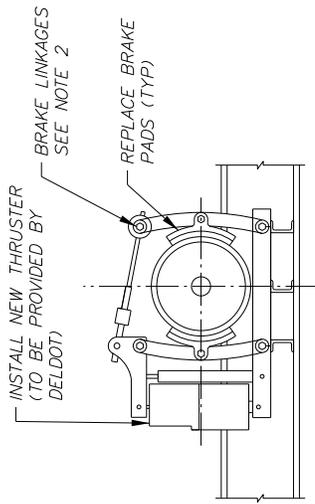
AIR MOTOR ASSEMBLY DETAILS

SCALE: NTS
1 LOCATION



MAIN MOTOR DETAIL

SCALE: NTS
1 LOCATION



MOTOR AND MACHINERY BRAKE DETAILS

SCALE: NTS

EXISTING MOTOR BRAKE P/N MONDEL 10MBTE-ED23/5S
EXISTING MACHINERY BRAKE P/N MONDEL 13MST/E-ED80/6S

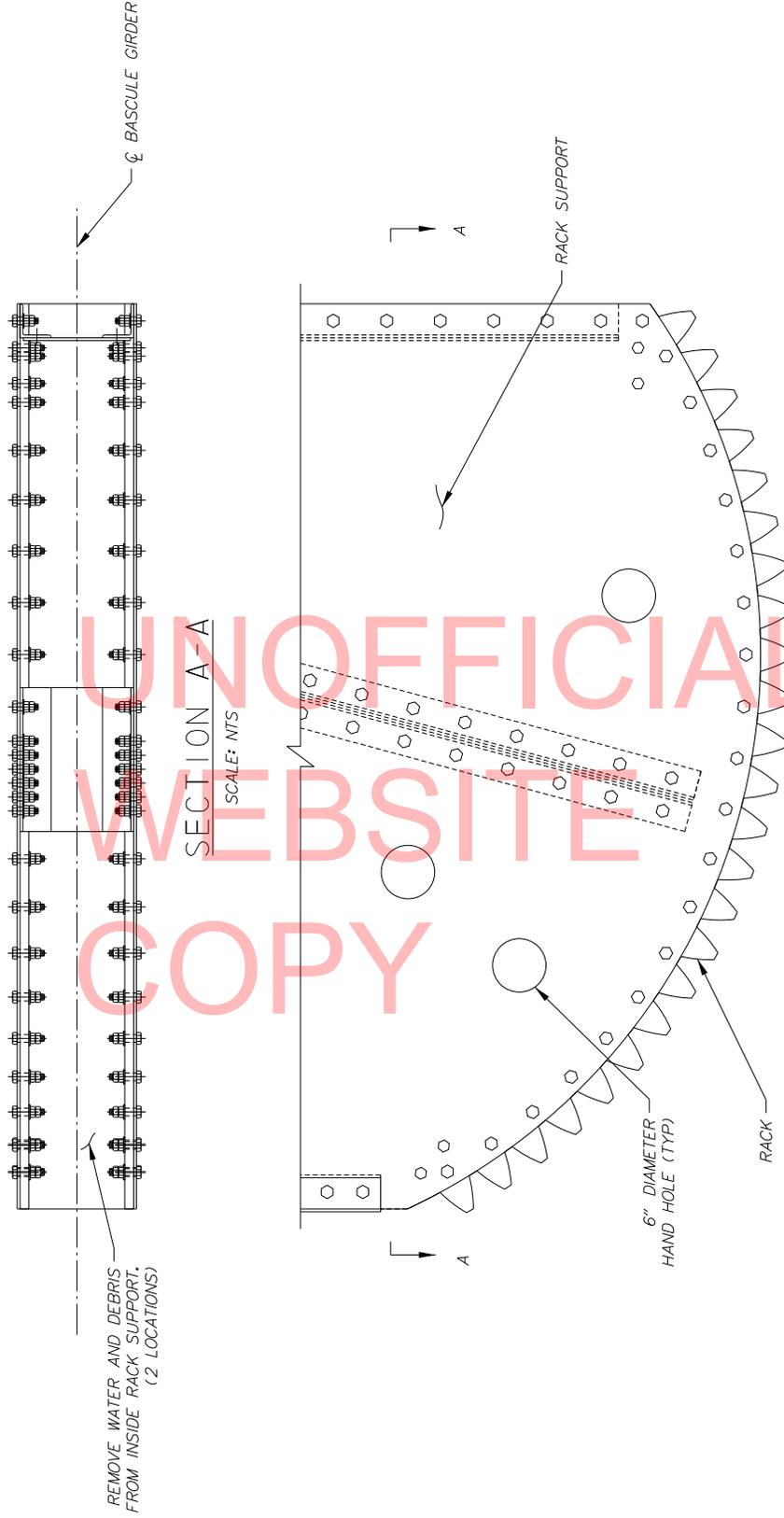
NOTES:
1. THE NEW MAIN MOTOR TO BE PROVIDED BY DELDOT. THE REMOVAL OF THE EXISTING MAIN MOTOR, REMOVAL OF EXISTING MOTOR PINION AND BRAKEWHEEL, INSTALLATION OF THE MODIFIED PINION AND MODIFIED BRAKEWHEEL ONTO THE NEW MOTOR, AND INSTALLING, ALIGNING, ADJUSTING, AND FIELD TESTING OF THE NEW MOTOR SHALL BE PAID FOR UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE". ALL REMAINING ITEMS SHALL BE PAID UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE." REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.

2. MOTOR BRAKE AND MACHINERY BRAKE LINKAGES TO BE DISASSEMBLED, CLEANED, LUBRICATED, AND REASSEMBLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

3. DISASSEMBLE DISCONNECT COUPLING, REMOVE GREASE, CLEAN, REPLACE GASKET, LUBRICATE AND REASSEMBLE COUPLING.

4. DISASSEMBLE AIR MOTOR, REMOVE EXISTING LUBRICANT, CLEAN, LUBRICATE, AND REASSEMBLE EXISTING AIR MOTOR.

5. PURGE EXISTING LUBRICANT FROM ROLLER BEARINGS.



RACK SUPPORT DETAIL - ELEVATION

SCALE: NTS

NOTE: HAND HOLES LOCATED ON OUTBOARD SIDE OF RACK SUPPORTS ONLY

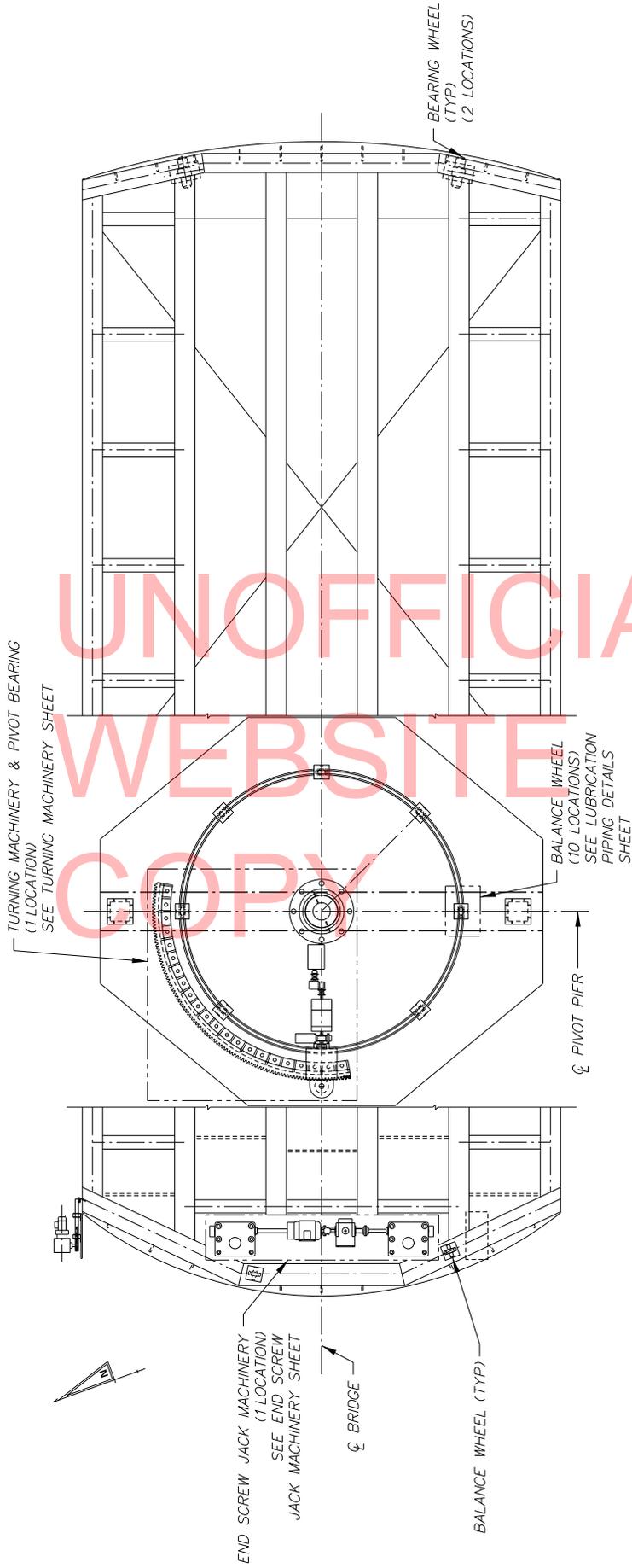
NOTES:
1. ALL ITEMS SHALL BE PAID UNDER SECTION 7635.39
"MECHANICAL REPAIR OF MOVABLE BRIDGE". REFER TO
THE SPECIAL PROVISIONS FOR ADDITIONAL DETAILS.

T201347203 SHEET NO. 15

BRIDGES 3-151 & 3-164

RACK SUPPORT

BR 3-164

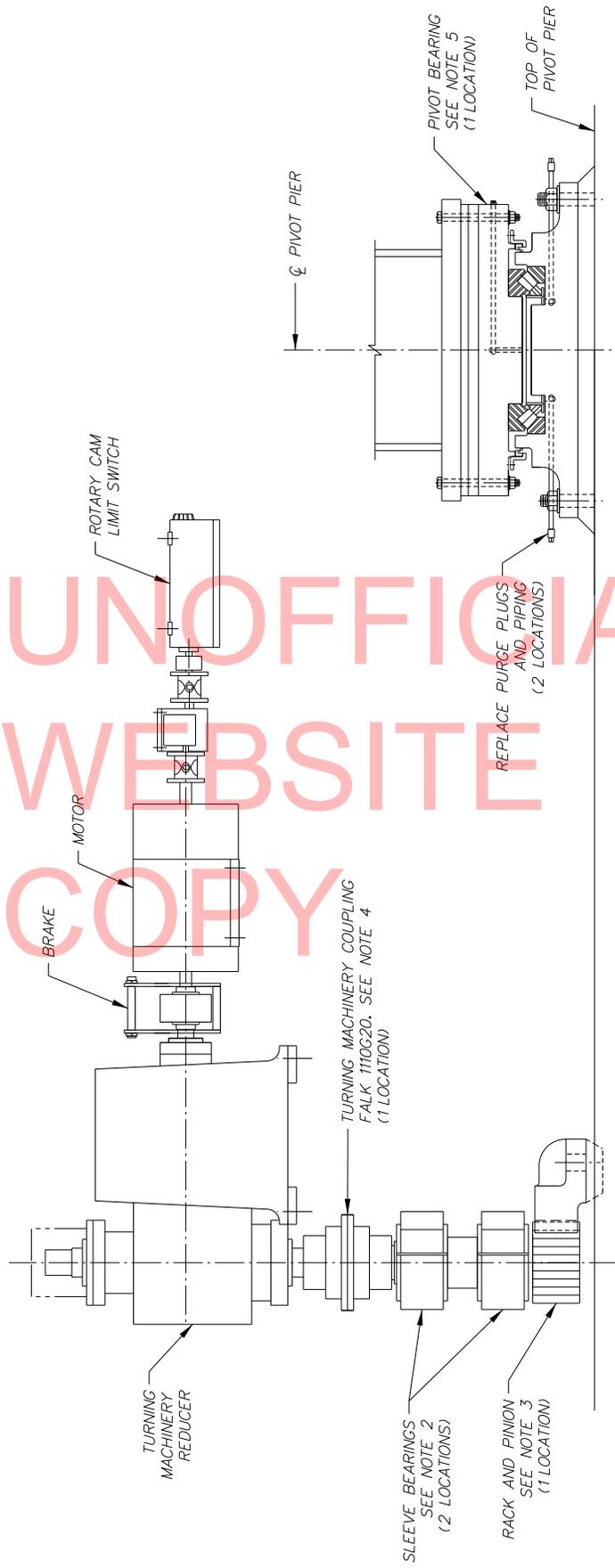


BRIDGE MACHINERY LAYOUT - PLAN

SCALE: NTS

T201347203	SHEET NO. 16
BRIDGES 3-151 & 3-164	
BRIDGE MACHINERY LAYOUT	

- NOTES:
1. ALL ITEMS SHALL BE PAID UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE."
 2. REFER TO THE SPECIAL PROVISIONS FOR REQUIREMENTS.

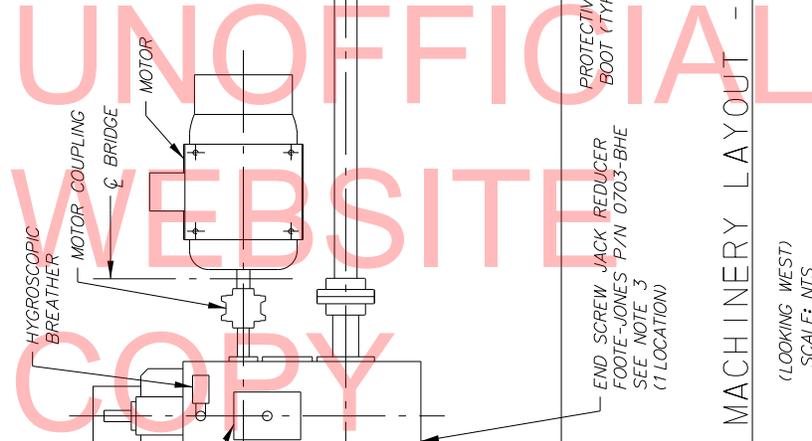


TURNING MACHINERY & PIVOT BEARING ELEVATION

(LOOKING NORTH)
SCALE: NTS

NOTES:

1. ALL ITEMS SHALL BE PAID UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE." REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
2. PURGE EXISTING LUBRICANT FROM BOTH SLEEVE BEARINGS.
3. CLEAN ALL GEAR TEETH OF DEBRIS. APPLY GREASE TO THE GEAR TEETH.
4. PURGE ALL EXISTING GREASE FROM TURNING MACHINERY COUPLING AND RELUBRICATE COUPLING.
5. PURGE GREASE FROM THE PIVOT BEARING. COLLECT GREASE SAMPLES FROM BOTH PURGE PLUGS FOR TESTING. THE FOLLOWING ARE APPROVED TESTING COMPANIES: ANALYSTS INC., ALS TRIBOLOGY, AND ANA LABORATORIES.



END SCREW JACK COUPLINGS (TYP)
FALK P/N 1015G51, SEE NOTE 4
(4 LOCATIONS)

INSPECTION HATCH

HYGROSCOPIC BREATHER

MOTOR COUPLING

CL BRIDGE

MOTOR

END SCREW JACK REDUCER
FOOTE-JONES P/N 0703-BHE
SEE NOTE 3
(1 LOCATION)

PROTECTIVE BOOT (TYP)

END SCREW JACK (TYP)
DUFF-NORTON P/N M-9099
SEE NOTE 2
(2 LOCATIONS)

TOP OF WEST ABUTMENT

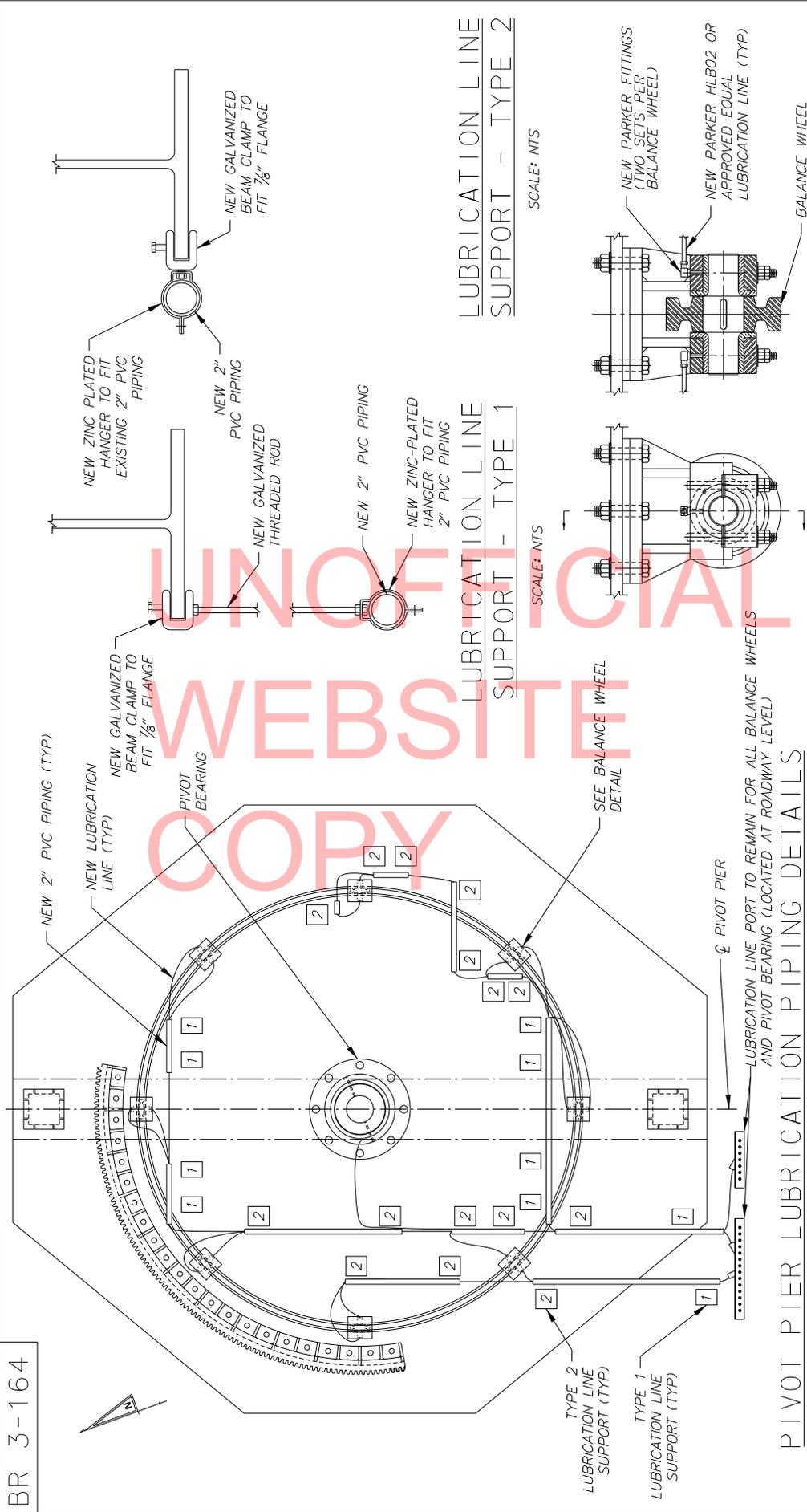
END SCREW JACK MACHINERY LAYOUT - ELEVATION

(LOOKING WEST)
SCALE: NTS

- NOTES:
1. ALL ITEMS SHALL BE PAID UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE." REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
 2. REPLACE END SCREW JACK LUBRICANT.
 3. REPLACE END SCREW JACK REDUCER LUBRICANT, INSPECTION HATCH GASKET, AND HYGROSCOPIC BREATHER.
 4. PURGE ALL EXISTING GREASE FROM THE COUPLINGS AND RELUBRICATE COUPLINGS. CHECK PURGED GREASE FOR WATER CONTAMINATION. PROVIDE RESULTS TO THE ENGINEER FOR DIRECTION.

T201347203	SHEET NO. 18
BRIDGES 3-151 & 3-164	
END SCREW JACK MACHINERY	

BR 3-164

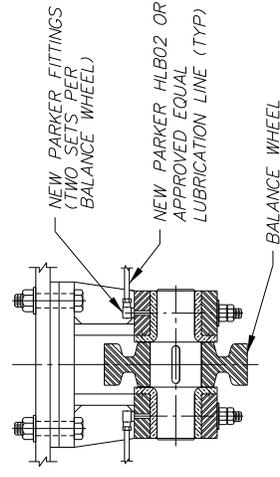


LUBRICATION LINE SUPPORT - TYPE 2

SCALE: NTS

LUBRICATION LINE SUPPORT - TYPE 1

SCALE: NTS



BALANCE WHEEL DETAIL

SCALE: NTS

PIVOT PIER LUBRICATION PIPING DETAILS

SCALE: NTS

NOTES: TURNING MACHINERY NOT SHOWN FOR CLARITY

1. ALL ITEMS SHALL BE PAID UNDER SECTION 763539 "MECHANICAL REPAIR OF MOVABLE BRIDGE." REFER TO THE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
2. REMOVE THE PIPE AND FITTING AT THE BALANCE WHEEL AND INSTALL A TEMPORARY GREASE FITTING TO PURGE BALANCE WHEEL BEARING. PURGE BEARING AT THE BALANCE WHEEL. INSTALL NEW PIPING AND FITTING.
3. REPLACE ALL EXISTING LUBRICATION LINES, ADAPTERS, AND SUPPORTS CONNECTED TO THE PIVOT BEARING AND ALL PIVOT PIER BALANCE WHEELS.
4. ALL NEW FITTINGS AND PIPING SHALL BE CLEAN AND FREE OF CONTAMINATION PRIOR TO FILLING WITH GREASE. CARE SHALL BE TAKEN TO ASSURE CONTAMINATION DOES NOT ENTER THE COMPONENTS DURING THE COURSE OF THE WORK.
5. ALL LUBRICATION LINE SUPPORT HARDWARE TO BE ZINC PLATED OR GALVANIZED. EXISTING PVC PIPING MAY BE REUSED.

T201347203	SHEET NO. 19
BRIDGES 3-151 & 3-164	
LUBRICATION PIPING DETAILS	