STATE OF DELAWARE

DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201707005.01

FEDERAL AID PROJECT NO. EBHOS-2018(36)

CFDA NO. 20.205

Statewide Movable Bridge Preventative Maintenance

Statewide

ADVERTISEMENT DATE: November 5, 2018

COMPLETION TIME: 730 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2016

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time **December 4, 2018**

Contract No.T201707005.01
Federal Aid Project No. EBHOS-2018(36)

Statewide Movable Bridge Preventative Maintenance
Statewide

GENERAL DESCRIPTION

LOCATION

These improvements are located statewide more specifically shown on the Location Map(s) of the enclosed Plans.

DESCRIPTION

The improvements consist of furnishing all labor and materials for this contract. This project involves the implementation of preventative maintenance measures on movable bridges statewide and other incidental construction in accordance with the location, notes and details shown on the plans and as directed by the Engineer.

COMPLETION TIME

All work on this contract must be complete within 730 Calendar Days. It is the Department's intent to issue a Notice to Proceed such that work starts on or about March 18, 2019.

PROSPECTIVE BIDDERS NOTES:

1. BIDDERS MUST BE REGISTERED with DelDOT and request a cd of the official plans and specifications in order to submit a bid. Contact DelDOT at dot-ask@state.de.us, or (302) 760-2031. Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware prior to 2:00 P.M. local time December 4, 2018 unless changed via addendum.
2. QUESTIONS regarding this project are to be e-mailed to dot-ask@state.de.us no less than six business days prior to the bid opening date in order to receive a response. Please include T201707005.01 in the subject line. Responses to inquiries are posted on-line at http://www.bids.delaware.gov.
3. THE BID PROPOSAL incorporates a cd containing **Expedite**, **version 5.9a** and its installation file. Bidders are to use the cd provided to enter their bid amounts into the Expedite file. The Expedite bid file must be printed and submitted in paper form along with the cd and other required documents prior to the Bid due date and time.
4. SURETY BOND - Each proposal must be accompanied by a deposit of either surety bond or security for a sum equal to at least 10% of the bid.
5. DRUG TESTING - Regulation 4104; The state Office of Management and Budget has developed regulations that require Contractors and Subcontractors to implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds pursuant to 29 Del.C. §6908(a)(6). **Refer to the full REVISED requirements at the following link:** http://regulations.delaware.gov/register/december2017/final/21 DE Reg 503 12-01-17.htm
   Note a few of the requirements;
   * At bid submission - Each bidder must submit with the bid a signed affidavit certifying that the bidder and its subcontractors has in place or will implement during the entire term of the contract a Mandatory Drug Testing Program that complies with the regulation, *form is attached*;
   * At least Two business days prior to contract execution - The awarded Contractor shall provide to DelDOT copies of the Employee Drug Testing Program for the Contractor, each participating DBE firm, and all other listed Subcontractors;
   * Subcontractors - Contractors that employ Subcontractors on the job site may do so only after submitting a copy of the Subcontractor's Employee Drug Testing Program along with the standard required subcontractor information. A Subcontractor shall not commence work until **DelDOT** has approved the subcontractor in writing.
6. DBE PROGRAM REQUIREMENTS (49CFR §26.53(b)(3)(i)(B)) require submission of DBE participation information from the apparent low bidder no later than five (5) calendar days **after bid opening**,
7. No RETAINAGE will be withheld on this contract.

8. EXTERNAL COMPLAINT PROCEDURE can be viewed on DelDOT's Website at; http://regulations.delaware.gov/AdminCode/title2/2000/2500/2501.shtml or you may request a copy by calling (302) 760-2555.
9. AUGUST 2016 STANDARD SPECIFICATIONS apply to this contract. The Contractor shall make himself aware of any revisions and corrections (Supplemental Specifications, if any) and apply them to the applicable item(s) of this contract. The 2016 Standard Specifications can be viewed here.

9a. FLATWORK CONCRETE TECHNICIAN CERTIFICATION TRAINING:
Section 501.03, 503.03, 505.03, 610.03, 701.03 and 702.03 of the 2016 Standard Specifications require contractor's to provide an American Concrete Institute (ACI) or National Ready Mix Concrete Association (NRMCA) certified concrete flatwork technician to supervise all finishing of flatwork concrete. Concrete flatwork certification will be effective starting on June 1, 2018.

10. BREAKOUT SHEETS MUST be submitted either with your bid documents; or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Refer to instructions adjacent to the Breakout Sheets in this document.
11. This project incorporates **Appendix A, B and C**, which is a part of this contract and contains additional specifications required for this project.
12. An optional open house for the bridges will be held during which the operator's house for each bridge will be open for inspection by prospective bidders. Bridges 1-687, 1-688 and 1-693 will be held on November 13, 2018 and will start at 10:00am at Bridge 1-693, then proceed to BR 1-687, followed by 1-688. Each bridge will be open for approximately 30 minutes before proceeding to the next bridge. Open houses for bridges 2-021A, 3-164 and 3-151 will be held on November 15, 2018 and will start at 10:00am at BR2-021A, followed by 3-164, and ending at 3-151.

    No questions will be answered during the Open-House. QUESTIONS regarding this project are to be e-mailed to dot-ask@state.de.us.
13. The Department owns and maintains two additional moveable bridges. BR 3-153 on Rehoboth Avenue and BR 3-154 on Savannah Road, both over the Lewes-Rehoboth Canal. These bridges will be under construction for the first two years of this contract and have therefore been excluded. The Department plans to negotiate to add these two bridges to the contract once construction is complete.
14. Operation and Maintenance Manuals for each bridge has been posted on the Bid Solicitation Directory. Bidders should utilize these manuals in developing their bid. The Department has also posted the Maintenance Checklist and the Contractor Experience Questionnaire Forms for this project.
15. **Contract Term:**

    Vendor's contract shall be valid for two (2) calendar years from contract execution. The contract may be extended for three (3) additional, one-year term through negotiation between the contractor and the Department of Transportation. Negotiation should be initiated no later than ninety (90) days prior to the termination of the current agreement.
16. **Price Adjustment:**

    Upon expiration of the initial Contract term, each one-year Contract extension may adjust pricing by mutual written agreement. The pricing must cover the full term of the Contract extension period. If the price difference for any extension period exceeds the previous one year period, approval of the price adjustment shall be at the discretion of the Department. The Department retains the right to reject a request for future year extensions at any time.
17. **Qualifications:**

    To be considered for award, the Contractor Experience Questionnaire Forms (all 9 pages) must be included in your bid package and submitted at time of bid. Also, all qualifications and requirements listed in Special Provision 615649-Project Scope of Work, **must** be met. The Department of Transportation reserves the right to decide who does and does not meet the qualifications and requirements.

English Code	English Description	Multiply By	Metric Code	Metric Description	Suggested CEC Metric Code
ACRE	Acre	0.4047	ha	Hectare	HECTARE
BAG	Bag	N/A	Bag	Bag	BAG
C.F.	Cubic Foot	0.02832	m^3	Cubic Meter	M3
C.Y.	Cubic Yard	0.7646	m^3	Cubic Meter	M3
EA-DY	Each Day	N/A	EA-DY	Each Day	EA-DY
EA-MO	Each Month	N/A	EA-MO	Each Month	EA-MO
EA/NT	Each Night	N/A	EA-NT	Each Night	EA/NT
EACH	Each	N/A	EA	Each	EACH
GAL	Gallon	3.785	L	Liter	L
HOUR	Hour	N/A	h	Hour	HOUR
INCH	Inch	25.4	mm	Millimeter	MM
L.F.	Linear Foot	0.3048	m	Linear Meter	L.M.
L.S.	Lump Sum	N/A	L.S.	Lump Sum	L.S.
LA-MI	Lane Mile	1.609	LA-km	Lane-Kilometer	LA-KM
LB	Pound	0.4536	kg	Kilogram	KG
MFBM	Thousand Feet of Board Measure	2.3597	m^3	Cubic Meter	M3
MGAL	Thousand Gallons	3.785	kL	Kiloliter	KL
MILE	Mile	1.609	km	Kilometer	KM
S.F.	Square Foot	0.0929	m^2	Square Meter	M2
S.Y.	Square Yard	0.8361	m^2	Square Meter	M2
SY-IN	Square Yard-Inch	0.8495	m^2-25 mm	Square Meter-25 Millimeter	M2-25 MM
TON	Ton	.9072	t	Metric Ton (1000kg)	TON
N.A.*	Kip	4.448	kN	Kilonewton	N.A.*
N.A.*	Thousand Pounds per Square Inch	6.895	MPa	Megapascal	N.A.*

*Not used for units of measurement for payment.

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GENERAL NOTICES

SPECIFICATIONS:

The specifications entitled "Delaware Standard Specifications for Road and Bridge Construction, August, 2016", hereinafter referred to as the Standard Specifications; Supplemental Standard Specifications; the Special Provisions; notes on the Plans; this Bid Proposal; and any addenda thereto, shall govern the work to be performed under this contract.

CLARIFICATIONS:

Under any Section or Item included in the Contract, the Contractor shall be aware that when requirements, responsibilities, and furnishing of materials are outlined in the details and notes on the Plans and in the paragraphs preceding the " Basis of Payment" paragraph in the Standard Specifications or Special Provisions, no interpretation shall be made that such stipulations are excluded because reiteration is not made in the "Basis of Payment" paragraph.

ATTESTING TO NON-COLLUSION:

The Department requires as a condition precedent to acceptance of bids a sworn statement executed by, or on behalf of, the person, firm, association, or corporation to whom such contract is to be awarded, certifying that such person, firm, association, or corporation has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with such contract. The form for this sworn statement is included in the proposal and must be properly executed in order to have the bid considered.

QUANTITIES:

The quantities shown are for comparison of bids only. The Department may increase or decrease any quantity or quantities without penalty or change in the bid price.

EQUALITY OF EMPLOYMENT OPPORTUNITY ON PUBLIC WORKS:

Delaware Code, Title 29, Chapter 69, Section 6962, Paragraph (d), Subsection (7) states;

a. As a condition of the awarding of any contract for public works financed in whole or in part by State appropriation, such contracts shall include the following provisions:

   During the performance of this contract, the contractor agrees as follows:

   1. The contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, gender identity or national origin. The contractor will take positive steps to ensure that applicants are employed and that employees are treated during employment without regard to their race, creed, color, sex, sexual orientation, gender identity or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by the contracting agency setting forth this nondiscrimination clause.

   2. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, gender identity or national origin.

   3. The contractor will ensure employees receive equal pay for equal work, without regard to sex. Employee pay differential is acceptable if pursuant to a seniority system, a merit system, a system which measures earnings by quantity or quality of production, or if the differential is based on any other factor other than sex.

TAX CLEARANCE:

As payments to each vendor or contractor aggregate $2,000, the Division of Accounting will report such vendor or contractor to the Division of Revenue, who will then check the vendor or contractor's compliance with tax requirements and take such further action as may be necessary to insure compliance.

LICENSE:

A person desiring to engage in business in this State as a contractor on a project designated to include federal funds, shall obtain a Delaware business license upon making application to the Division of Revenue. Proof of said license compliance to be made prior to, or in conjunction with, the execution of a contract to which he has been named.

SUBCONTRACTOR LICENSE: 29 DEL. C. §6967:

(c) Any contractor that enters a public works contract must provide to the agency to which it is contracting, within 30 days of entering such public works contract, copies of all occupational and business licenses of subcontractors and/or independent contractors that will perform work for such public works contract. However, if a subcontractor or independent contractor is hired or contracted more than 20 days after the contractor entered the public works contract the occupational or business license of such subcontractor or independent contractor shall be provided to the agency within 10 days of being contracted or hired.

DIFFERING SITE CONDITIONS,

SUSPENSIONS OF WORK and SIGNIFICANT CHANGES IN THE CHARACTER OF WORK:

Differing site conditions: During the progress of the work, if subsurface or latent physical conditions are encountered at the site differing materially from those indicated in the contract of if unknown physical conditions of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the work provided for in the contract are encountered at the site, the party discovering such conditions shall promptly notify the other party in writing of the specific differing conditions before they are disturbed and before the affected work is performed.

Upon written notification, the engineer will investigate the conditions, and if he/she determines that the conditions materially differ and cause an increase or decrease in the cost or time required for the performance of any work under the contract, an adjustment, excluding loss of anticipated profits, will be made and the contract modified in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment which results in a benefit to the contractor will be allowed unless the contractor has provided the required written notice.

No contract adjustment will be allowed under their clause for any effects caused on unchanged work.

Suspensions of work ordered by the engineer: If the performance of all or any portion of the work is suspended or delayed by the engineer in writing for an unreasonable period of time (not originally anticipated, customary or inherent to the construction industry) and the contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the contractor shall submit to the engineer in writing a request for adjustment within 7 calendar days of receipt of the notice to resume work. The request shall set fourth the reasons and support for such adjustment.

Upon receipt, the engineer will evaluate the contractor's request. If the engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The engineer will notify the contractor of his/her determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

Significant changes in the character of work: The engineer reserves the right to make, in writing, at any time during the work, such changes in quantities and such alterations in the work as are necessary to satisfactorily complete the project. Such changes in quantities and alterations shall not invalidate the contract nor release the surety, and the contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether or not changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the contractor in such amount as the engineer may determine to be fair and equitable.

The term "significant change" shall be construed to apply only to the following circumstances:

(A) When the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or

(B) When a major item of work, as defined elsewhere in the contract, is increased in excess of 125 percent or decreased below 75 percent of the original contract quantity. Any allowance for an increase in quantity shall apply only to that portion in excess of 125 percent of original contract item quantity, or in case of a decrease below 75 percent, to the actual amount of work performed.

CONFLICT WITH FEDERAL STATUTES OR REGULATIONS:

Delaware Code, Title 29, Chapter 69, Section 6904, Paragraph (a):

"If any provision of this subchapter conflicts or is inconsistent with any statute, rule or regulation of the federal government applicable to a project or activity, the cost of which is to be paid or reimbursed in whole or in part by the federal government, and due to such conflict or inconsistency the availability of federal funds may be jeopardized, such provision shall not apply to such project or activity."

FEDERAL LABOR AND EMPLOYMENT REQUIREMENTS

Federal Regulation 23 CFR § 635.117(b) Labor and employment, states:

"No procedures or requirement shall be imposed by any State which will operate to discriminate against the employment of labor from any other State, possession or territory of the United States, in the construction of a Federal-aid project."

CONVICT PRODUCED MATERIALS:

(a) Materials produced after July 1, 1991, by convict labor may only be incorporated in a Federal-aid highway construction project if such materials have been:

(1) Produced by convicts who are on parole, supervised release, or probation from a prison or

(2) Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987.

(b) Qualified prison facility means any prison facility in which convicts, during the 12-month period ending July 1, 1987, produced materials for use in Federal-aid highway construction projects.

TO REPORT BID RIGGING ACTIVITIES:

The U. S. Department of Transportation (DOT) operates the below toll-free "hotline" Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the "hotline" to report such activities.

The "hotline" is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse and is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

TO REPORT BID RIGGING ACTIVITIES
CALL 1-800-424-9071

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(EXECUTIVE ORDER 11246)

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

Goals for Minority Participation In Each Trade	Goals for Female Participation In Each Trade
12.3% (New Castle County) 14.5% (Kent & Sussex Counties)	6.9% (Entire State)

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the Executive Order and the regulations in CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is Statewide.

REV. 11-3-80

STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.
   d. "Minority" includes:
      i. Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      ii. Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
      iii. Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      iv. American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered Construction contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Program Office or from the Federal procurement contracting offices. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.
   b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
   c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.
   d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
   e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.
   f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
   g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with on-site supervisory personnel such as Superintendents, General Foreman, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.
   h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
   i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.
   j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's work force.
   k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontractors from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participating, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is under utilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Order of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate

of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

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TRAINING SPECIAL PROVISIONS

This Training Special Provision supersedes subparagraph 7b of the Special Provision entitled "Specific Equal Employment Opportunity Responsibilities", (Attachment 1), and is in implementation of 23 U.S.C. 140(a). As part of the contractor's equal employment opportunity affirmative action program, training shall be provided as follows:

The contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade or job classification involved.

The number of trainees to be trained under the special provision will be **0**. In the event the contractor subcontracts a portion of the contract work, he shall determine how many, if any, of the trainees are to be trained by the subcontractor, provided however, that the contractor shall retain the primary responsibility for meeting the training requirements imposed by this special provision. The contractor shall also insure that this Training Special Provision is made applicable to such subcontract. Where feasible, 25 percent of apprentices or trainees in each occupation shall be in their first year apprenticeship or training.

The number of trainees shall be distributed among the work classification on the basis of the contractor's needs and the availability of journeymen in the various classifications within a reasonable area of recruitment. Prior to commencing construction, the contractor shall submit to the Department of Highways and Transportation for approval the number of trainees to be trained in each selected classification and training program to be used. Furthermore, the contractor shall specify the starting time for training in each of the classifications. The contractor will be credited for each trainee employed by him on the contract work who is currently enrolled or becomes enrolled in an approved program and will be reimbursed for such trainees as provided hereinafter.

Training and upgrading of minorities and women toward journeyman status is a primary objective of this Training Special Provision. Accordingly, the contractor shall make every effort to enroll minority trainees and women (e.g., by conducting systematic and direct recruitment through public and private sources likely to yield minority and women trainees) to the extent that such persons are available within a reasonable area of recruitment. The contractor will be responsible for demonstrating the steps that he has taken in pursuance thereof, prior to a determination as to whether the contractor is in compliance with this Training Special Provision. This training commitment is not intended, and not be used, to discriminate against any applicant for training, whether a member of a minority group or not.

No employee shall be employed as a trainee in any classification in which he has successfully completed a training course leading to journeyman status or in which he has been employed as a journeyman. The contractor should satisfy this requirement by including appropriate questions in the employee application or by other suitable means. Regardless of the method used the contractor's records should document the findings in each case.

The minimum length and type of training for each classification will be as established in the training program selected by the contractor and approved by the Department of Highways and Transportation and the Federal Highway Administration. The Department of Highways and Transportation and the Federal Highway Administration shall approve a program if it is reasonably calculated to meet the equal employment opportunity obligations of the contractor and to qualify the average trainee for journeyman status in the classification concerned by the end of the training period. Furthermore, apprenticeship programs registered with the U.S. Department of Labor, Bureau of Apprenticeship and Training, or with a State apprenticeship agency recognized by the Bureau and training programs approved but not necessarily sponsored by the U.S. Department of Labor, Manpower Administration, Bureau of Apprenticeship and Training shall also be considered acceptable provided it is being administered in a manner consistent with the equal employment

obligations of Federal-aid highway construction contracts. Approval or acceptance of a training program shall be obtained from the State prior to commencing work the classification covered by the program. It is the intention of these provisions that the training is to be provided in the construction crafts rather than clerk-typists or secretarial-type positions. Training is permissible in lower level management positions such as office engineers, estimators, timekeepers, etc., where the training is oriented toward construction applications. Training in the laborer classification may be permitted provided that significant and meaningful training is provided and approved by the division office. Some off-site training is permissible as long as the training is an integral part of an approved training program and does not comprise a significant part of the overall training.

Except as otherwise noted below, the contractor will be reimbursed 80 cents per hour of training given an employee on this contract in accordance with an approved training program. As approved by the engineer, reimbursement will be made for training persons in excess of the number specified herein. This reimbursement will be made even though the contractor receives additional training program funds from other sources, provided such other sources does not specifically prohibit the contractor from receiving other reimbursement. Reimbursement for off-site training indicated above may only be made to the contractor where he does one or more of the following and the trainees are concurrently employed on a Federal-aid project; contributes to the cost of the training; provides the instruction of the trainee; or pays the trainee's wages during the off-site training period.

No payment shall be made to the contractor if either the failure to provide the required training, or the failure to hire the trainees as a journeyman, is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this Training Special Provision. It is normally expected that a trainee will begin his training on the project as soon as feasible after start of work utilizing the skill involved and remain on the project as long as training opportunities exist in his work classification or until he has completed his training program. It is not required that all trainees be on board for the entire length of the contract. A contractor will have fulfilled his responsibilities under this Training Special Provision if he has provided acceptable training to the number of trainees specified. The number trained shall be determined on the basis of the total number enrolled on the contract for a significant period.

Trainees will be paid a least 60 percent of the appropriate minimum journeymen's rate specified in the contract for the first half of the of the training period, 75 percent for the third quarter of the training period, and 90 percent for the last quarter of the training period, unless apprentices or trainees is an approved existing program are enrolled as trainees on this project. In fact case, the appropriate rates approved by the Department of Labor or Transportation in connection with the existing program shall apply to all trainees being trained for the same classification who are covered by this Training Special Provisions.

The contractor shall furnish the trainee a copy of the program he will follow in providing the training.

The contractor shall provide each trainee with a certification showing the type and length of training satisfactorily completed.

The contractor will provide for the maintenance of records and furnish periodic reports documenting his performance under this Training Special Provision.

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INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT & TRANSPORTATION EQUITY ACT

Recipients of Federal-aid highway funds authorized under Titles I (other than Part B) and V of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), or Titles I, III, and V of the Transportation Equity Act for the 21st Century (TEA-21) are required to comply with the regulations of 49 Code of Federal Regulations (CFR) Part 26 - Participation by Disadvantaged Business Enterprises in Department of Transportation Financial Assistance Programs.

DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM SPECIFICATION

The U.S. Department of Transportation (DOT) requires that the Delaware Department of Transportation continue the established Disadvantaged Business Enterprise (DBE) Program for participation in U.S. DOT programs and that the program follow the final rules as stated in 49 CFR Part 26 and the Department's approved DBE Program plan.

The following definitions apply to this subpart:

Disadvantaged Business Enterprise or DBE means a for-profit small business concern (1) that is at least 51 percent owned by one or more individuals who are both socially and economically disadvantaged or, in the case of a corporation, in which 51 percent of the stock is owned by one or more such individuals; and, (2) whose management and daily business operations are controlled by one or more of the socially and economically disadvantaged individuals who own it.

DOT-assisted contract means any contract between a recipient and a contractor (at any tier) funded in whole or in part with DOT financial assistance, including letters of credit or loan guarantees, except a contract solely for the purchase of land.

Good Faith Efforts means efforts to achieve a DBE goal or other requirement of this part which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to fulfill the program requirement.

Joint Venture means an association of a DBE firm and one or more other firms to carry out a single, for-profit business enterprise, for which the parties combine their property, capital, efforts, skills and knowledge, and in which the DBE is responsible for a distinct, clearly defined portion of the work of the contract and whose share in the capital contribution, control, management, risks, and profits of the joint venture are commensurate with its ownership interest.

Race-conscious measure or program is one that is focused specifically on assisting only DBEs, including women-owned DBEs.

Race-neutral measure or program is one that is, or can be, used to assist all small businesses. For the purposes of this part, race-neutral includes gender neutrality.

Small Business concern means, with respect to firms seeking to participate as DBEs in DOT-assisted contracts, a small business concern as defined pursuant to section 3 of the Small Business Act and Small Business Administration regulations implementing it (13 CFR part 121) that also does not exceed the cap on average annual gross receipts specified in 49 CFR §26.65(b).

Socially and economically disadvantaged individuals means any individual who is a citizen (or lawfully admitted permanent resident) of the United States and who is - (1) any individual who a recipient finds to be a socially and economically disadvantaged individual on a case-by-case basis; (2) any individual in the following groups, members of which are rebuttably presumed to be socially and economically disadvantaged:

(i) Black Americans which includes persons having origins in any of the Black racial groups of Africa;
(ii) Hispanic Americans which includes persons of Mexican, Puerto Rican, Cuban, Dominican, Central or South American, or other Spanish or Portuguese culture or origin, regardless of race;
(iii) Native Americans which includes persons who are American Indians, Eskimos, Aluets, or Native Hawaiians;
(iv) Asian-Pacific Americans which includes persons whose origins are from Japan, China, Taiwan, Korea, Burma (Myanmar), Vietnam, Laos, Cambodia (Kampuchea), Thailand, Malaysia, Indonesia, the Philippines, Brunei, Samoa, Guam, the U.S. Trust Territories of the Pacific Islands (Republic of Palau), the Commonwealth of the Northern Marianas Islands, Macao, Fiji, Tonga, Kirbati, Juvalu, Nauru, Federated States of Micronesia, or Hong Kong;
(v) Subcontinent Asian Americans which includes persons whose origins are from India, Pakistan, Bangladesh, Bhutan, the Maldives Islands, Nepal or Sri Lanka;
(vi) Women;
(vii) Any additional groups whose members are designated as socially and economically disadvantaged by the SBA, at such time as the SBA designation becomes effective.

DelDOT will establish specific goals for each particular DOT-assisted project which will be expressed as a percentage of the total dollar amount of contract bid. The specific contract goals for this contract are:

Disadvantaged Business Enterprise 0 % Percent

DelDOT continues to reserve the right to approve DBE subcontractors and all substitutions of DBE subcontractors prior to award and during the time of the contract.

Bidders are required to submit with their bids the completed DBE Program Assurance portion of the Certification document which will state the bidders intent of meeting the goals established for this contract; or in the instance where a contractor cannot meet the assigned DBE Goals for this contract, he/she shall at the time of bid submit documentation required to verify that he/she has made a Good Faith Effort to meet the DBE Goals. Guidance for submitting a Good Faith Effort is identified in the next section and in the DBE

Program Plan. Further, the apparent low bidder must submit to DelDOT within five (5) calendar days after the bid opening, executed originals of each and every DBE subcontract to satisfy contract goals consistent with the DBE Program Assurance submitted as part of the bid package.

No contract work shall be performed by a DBE subcontractor until the executed DBE subcontract is approved in writing by DelDOT and the Department has issued the required Notice to Proceed. Any DBE subcontract relating to work to be performed pursuant to this contract, which is submitted to DelDOT for approval, must contain all DBE subcontractor information, the requirements contained in this contract, and must be fully executed by the contractor and DBE subcontractor.

Each contract between the prime contractor and each DBE subcontractor shall at the minimum include the following:

1. All pertinent provisions and requirements of the prime contract.
2. Description of the work to be performed by the DBE subcontractor.
3. The dollar value of each item of work to be completed by the DBE subcontractor and the bid price of each item of work to be completed by the DBE subcontractor.

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CRITICAL DBE REQUIREMENTS

A bid may be held to be non-responsive and not considered if the required DBE information is not provided. In addition, the bidder may lose its bidding capability on Department projects and such other sanctions as the Department may impose. It is critical that the bidder understands:

1. In the event that the bidder cannot meet the DBE goal as set forth in this specification, he/she shall at the time of bid submit to the Department that percentage of the DBE Goal that will be met, if any, on the written and notarized assurance made a part of this contract. The contractor shall also at the time of bid submit all documentation that the contractor wishes to have the Department consider in determining that the contractor made a Good Faith Effort to meet contract DBE Goals. The Department will not accept Good Faith Effort documentation other than on the scheduled date and time of the bid opening. However, the Department may ask for clarification of information submitted should the need arise.
2. A bid which does not contain either a completely executed DBE Program Assurance and/or Good Faith Effort documentation, where appropriate, shall be declared non-responsive and shall not be considered by the Department.
3. Failure of the apparent low bidder to present originals of all DBE subcontracts to substantiate the volume of work to be performed by DBE's as indicated in the bid within five (5) calendar days after the bid opening shall create a rebuttable presumption that the bid is not responsive.
4. Bidders are advised that failure to meet DBE Goals during the term of the contract may subject them to Department sanctions as identified in the DBE Program Plan.
5. In the execution of this contract, the successful bidder agrees to comply with the following contract clauses:

   Prompt Payment: The prime contractor/consultant receiving payments shall, within 30 days of receipt of any payment, file a statement with the Department on a form to be determined by the Department that all subcontractors furnishing labor or material have been paid the full sum due them at the stage of the contract, except any funds withheld under the terms of the contract as required by Chapter 8, Title 17 of the Delaware Code, annotated and as amended. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of DelDOT. This clause applies to both DBE and non-DBE subcontractors.

   Retainage: The prime contractor agrees to return retainage to each subcontractor within 15 calendar days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of DelDOT. This clause covers both DBE and non-DBE subcontractors. As guidance, once a subcontractor has satisfactorily completed the physical work, and has given to the prime contractor a certified statement that all laborers, lower tier contractors, and materialmen who have furnished labor and materials to the subcontractor have been paid all monies due them, the prime contractor shall return retainage to the subcontractor within 15 calendar days.

6. In the execution of this contract, the successful bidder agrees to comply with the following contract assurance and will include this same language in each subcontractor contract:

   "The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such remedy as the recipient deems appropriate." 49 CFR Section 26.13

7. In addition to this specification, bidders must comply with all provisions of the rules and regulations adopted by the U.S. Department of Transportation for DBE participation in U.S. DOT and DelDOT Programs (49 CFR Part 26) and the Delaware Department of Transportation Disadvantaged Business Enterprise Program Plan; each of which is hereby incorporated and made part of this specification. Bidders are also reminded that they must be responsible and responsive bidders in all other aspects aside from the DBE Program in order to be awarded the contract.

8. In accordance with 49 CFR 26.53(f)(1), DelDOT requires that a prime contractor not terminate a DBE subcontractor without prior written consent from the DelDOT Civil Rights Office. This includes, but is not limited to, instances in which a prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

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GUIDANCE FOR GOOD FAITH EFFORT

When the DBE Goals established for a contract by DelDOT are not met, the contractor shall demonstrate good faith efforts to meet the DBE contract goals. The contractor shall demonstrate that the efforts made were those that a contractor actively and aggressively seeking to meet the goals established by DelDOT would make, given all relevant circumstances. Evidence of this good faith effort will be submitted with the bid at the time of the bid opening.

The contractor is expected to demonstrate good faith efforts by actively and aggressively seeking out DBE participation in the project to the maximum extent, given all relevant circumstances. Following are the kinds of efforts that may be taken but are not deemed to be exclusive or exhaustive and DelDOT will consider other factors and types of efforts that may be relevant:

1. Efforts made to select portions of the work proposed to be performed by DBEs in order to increase the likelihood of achieving the stated goal. Selection of portions of work are required to at least equal the goal for DBE utilization specified in this contract.
2. Written notification at least ten (10) calendar days prior to the opening of a bid soliciting DBE interest in participating in the contract as a subcontractor or supplier and for specific items of work.
3. Efforts made to obtain and negotiate with DBE firms for specific items of work:
   a. Description of the means by which firms were solicited (i.e. by telephone, e-mail, written notice, advertisement).
   b. The names, addresses, telephone numbers of DBE's contacted, the dates of initial contact; and whether initial solicitations of interest were followed-up by contacting the DBEs to determine with certainty whether the DBEs were interested.
   c. A description of the information provided to DBE firms regarding the plans, specifications and estimated quantities for portions of the work to be performed.
   d. A statement of why additional agreements with DBE's were not reached in order to meet the projected goal.
   e. Listing of each DBE contacted but not contracted and the reasons for not entering a contract.
4. Efforts made to assist DBEs that need assistance in obtaining bonding, insurance, or lines of credit required by the contractor.
5. Reasons why certified DBEs are not available or not interested.
6. Efforts to effectively use the services of available disadvantaged community organizations; disadvantaged contractor's groups; local, state and federal DBE assistance offices; and other organizations that provide assistance in recruitment and placement of DBEs.

The following are examples of actions that may not be used as justification by the contractor for failure to meet DBE contract goals:

1. Failure to contract with a DBE solely because the DBE was unable to provide performance and/or payment bonds.
2. Rejection of a DBE bid or quotation based on price alone.
3. Rejection of a DBE because of its union or non-union status.
4. Failure to contract with a DBE because the contractor normally would perform all or most of the work in the contract.

Administrative reconsideration:

Within five (5) days of being informed by DelDOT that it is not responsive because it has not documented sufficient good faith efforts, a bidder may request administrative reconsideration. Bidder should make this request in writing to the following reconsideration official: Director of Finance, DelDOT,800 Bay Road, Dover, Delaware 19901, and Email a copy to dot-ask@state.de.us. The reconsideration official will not have played any role in the original determination that the bidder did not document sufficient good faith efforts.

As part of this reconsideration, the bidder will have the opportunity to provide written documentation or argument concerning the issue of whether it met the goal or made adequate good faith efforts to do so. The bidder will have the opportunity to meet in person with the reconsideration official, explaining the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so. The final decision made by the reconsideration official will be communicated to the bidder in writing. The result of the reconsideration process is not administratively appealable to the U.S. Department of Transportation.

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REQUIRED CONTRACT PROVISIONS - FEDERAL-AID CONSTRUCTION CONTRACTS
(Exclusive of Appalachian Contracts)

FHWA-1273 -- Revised May 1, 2012 http://www.fhwa.dot.gov/programadmin/contracts/1273/1273.docx

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).

   The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

   Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

    a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

    b. The contractor will accept as its operating policy the following statement:
    "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

    a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.

    b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

    c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

   a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

   b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

   c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:

   a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
   b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

   c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

   d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

   a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

   b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

   a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

   b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.

   c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

   d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

   a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.

   b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurance Required by 49 CFR 26.13(b):

    a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.

    b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

    a. The records kept by the contractor shall document the following:

        (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

        (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

        (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;

    b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

    a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH–1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

(ii) The classification is utilized in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding

The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and basic records

a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g. , the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at http://www.dol.gov/esa/whd/forms/wh347instr.htm or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH–347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.

(4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.

c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

4. Apprentices and trainees

a. Apprentices (programs of the USDOL).

Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.

The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.

Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.

In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

b. Trainees (programs of the USDOL).

Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.

The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.

Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.

In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

d. Apprentices and Trainees (programs of the U.S. DOT).
Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of eligibility.

    a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).

    c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.

3. Withholding for unpaid wages and liquidated damages. The FHWA or the contacting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.

4. Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price,

excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

   (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;

   (2) the prime contractor remains responsible for the quality of the work of the leased employees;

   (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

   (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.

2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.

5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. **Instructions for Certification – First Tier Participants:**

   a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

   b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.

   c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.

   d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

   e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

   f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.

   g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

   h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

* * * * *

2. **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants**:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200)

a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction

(such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (https://www.epls.gov/), which is compiled by the General Services Administration.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

* * * * *

Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.

2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

* * * * *

XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000 (49 CFR 20).

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

   a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.
3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

* * * * *

CARGO PREFERENCE ACT
Requirements in the Federal-aid Highway Program

(a) Agreement Clauses. "Use of United States-flag vessels:
(1) Pursuant to Pub. L. 664 (43 U.S.C. 1241(b)) at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds granted, guaranteed, loaned, or advanced by the U.S. Government under this agreement, and which may be transported by ocean vessel, shall be transported on privately owned United States-flag commercial vessels, if available.

(2) Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (a)(1) of this section shall be furnished to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(b) Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees—
(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract.

NOTE:
This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

* * * * *

BUY AMERICA
Requirements in the Federal-aid Highway Program

By signing and submitting this proposal, the bidder certifies that:

In accordance with 23 U.S.C, 313 and 23 CFR 635.410, all iron and steel materials permanently incorporated into this project will be produced in the United States and that all manufacturing processes involving these materials will occur in the U.S, except that a minimal amount of foreign steel or iron materials may be used, provided the cost of the foreign materials does not exceed 0.1 percent of the total Contract cost or $2,500.00, whichever is greater. If such minimal amount of foreign steel is used, the Contractor shall maintain a record of the costs to ensure that the allowable limit is not exceeded. This documentation shall be presented to the Department upon request.

At the Department's request, I/we will provide manufacturer's/supplier's documentation verifying domestic origin as defined in the Specifications. All Materials accepted on the basis of such Certificate of Compliance may be sampled by the Department and tested at any time. Use of Material on the basis of Certificate of Compliance shall not relieve the Contractor of responsibility for incorporating Material in the Project conforming to the requirements of the Contract. Any Material not conforming to such requirements will be subject to rejection whether in place or not. The Department reserves the right to refuse to permit the use of Material on the basis of Certificate of Compliance.

* * * * *

APPENDICES TO THE TITLE VI ASSURANCE

APPENDIX A

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

1. Compliance with Regulations: The contractor (hereinafter includes consultants) will comply with the Acts and the Regulations relative to Non-discrimination in Federally-assisted programs of the U.S. Department of Transportation, (Federal Highway Administration (FHWA), or Federal Transit Authority (FTA), as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. Non-discrimination: The contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR Part 21.
3. Solicitations for Subcontracts, Including Procurements of Materials and Equipment: In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor's obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color, or national origin.
4. Information and Reports: The contractor will provide all information and reports required by the Acts and the Regulations, and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Recipient or the Federal Highway Administration (FHWA), or Federal Transit Authority (FTA) to be pertinent to ascertain compliance with such Acts, Regulations, and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the contractor will so certify to the Recipient or the Federal Highway Administration (FHWA), or Federal Transit Authority (FTA), as appropriate, and will set forth what efforts ithas made to obtain the information.
5. Sanctions for Noncompliance: In the event of a contractor's noncompliance with the Non-discrimination provisions of this contract, the Recipient will impose such contract sanctions as it or the Federal Highway Administration (FHWA), or Federal Transit Authority (FTA) may determine to be appropriate, including, but not limited to:
   withholding payments to the contractor under the contract until the contractor complies;
   and/or cancelling, terminating, or suspending a contract, in whole or in part.
6. Incorporation of Provisions: The contractor will include the provisions of paragraphs one through five in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts and the Regulations . The contractor will take action with respect to any subcontract or procurement as the Recipient or the Federal Highway Administration (FHWA), or Federal Transit Authority (FTA) may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the contractor may request the Recipient to enter into any litigation to protect the interests of the Recipient. In addition, the contractor may request the United States to enter into the litigation to protect the interests of the United States.

APPENDIX E

During the performance of this contract, the contractor or consultant, for itself, its assignees, and successors in interest (hereinafter referred to as the "contractor") agrees to comply with the following nondiscrimination statutes and authorities; including but not limited to:

Pertinent Non-Discrimination Authorities:

Title VI of the Civil Rights Act of 1964 (42 U.S.C. $ 2000d et seq., 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.

The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970,(42 U.S.C. $ 460 I), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);

Federal-Aid Highway Act of 1973, (23 U.S.C. $ 324 et seq.), (prohibits discrimination on the basis of sex);

Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. $ 794 et seq.), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part27;

The Age Discrimination Act of 1975, as amended, (42 U.S.C. $ 6101 et seq.), (prohibits discrimination on the basis of age);

Airport and Airway Improvement Act of 1982,(49 USC $471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);

The Civil Rights Restoration Act of 1987,(PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of l964,The AgeDiscrimination Act of 1975and Section 504 of the Rehabilitation Act of l973,by expanding the defrnition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);

Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. $$ 12131 - 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;

The Federal Aviation Administration's Non-discrimination statute (49 U.S.C. S 41123) (prohibits discrimination on the basis of race, color, national origin, and sex);

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs; policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).

* * * * *

PREVAILING WAGES

Included in this proposal are the minimum wages to be paid various classes of laborers and mechanics as determined by the Department of Labor of the State of Delaware in accordance with Title 29 Del.C. §6960, relating to wages and the regulations implementing that Section.

REQUIREMENT BY DEPARTMENT OF LABOR FOR SWORN PAYROLL INFORMATION

Title 29 Del.C. §6960 stipulates;

> (b) Every contract based upon these specifications shall contain a stipulation that the employer shall pay all mechanics and laborers employed directly upon the site of the work, unconditionally and not less often than once a week and without subsequent deduction or rebate on any account, the full amounts accrued at time of payment, computed at wage rates not less than those stated in the specifications, regardless of any contractual relationship which may be alleged to exist between the employer and such laborers and mechanics. The specifications shall further stipulate that the scale of wages to be paid shall be posted by the employer in a prominent and easily accessible place at the site of the work, and that there may be withheld from the employer so much of accrued payments as may be considered necessary by the Department of Labor to pay to laborers and mechanics employed by the employer the difference between the rates of wages required by the contract to be paid laborers and mechanics on the work and rates of wages received by such laborers and mechanics to be remitted to the Department of Labor for distribution upon resolution of any claims.
>
> (c) Every contract based upon these specifications shall contain a stipulation that sworn payroll information, as required by the Department of Labor, be furnished weekly. The Department of Labor shall keep and maintain the sworn payroll information for a period of 6 months from the last day of the work week covered by the payroll.

Bidders are specifically directed to note the Department of Labor's prevailing wage regulations implementing §6960 relating to the effective date of the wage rates, at Part VI., Section C., which in relevant part states:

> "Public agencies (covered by the provisions of 29 Del.C. §6960) are required to use the rates which are in effect on the date of the publication of specifications for a given project. In the event that a contract is not executed within one hundred twenty (120) days from the date the specifications were published, the rates in effect at the time of the execution of the contract shall be the applicable rates for the project."

PREVAILING WAGE REQUIREMENTS

It is DelDOT's understanding that the Davis-Bacon Act is not a preemptive statute in the broad sense, and does not preempt or displace State of Delaware prevailing wage requirements.

When a contract for a project contains both Federal Davis-Bacon and State of Delaware prevailing wage standards because of concurrent Federal and State coverage, the employer's minimum wage obligations are determined by whichever standards are higher.

STATE OF DELAWARE
DEPARTMENT OF LABOR
DIVISION OF INDUSTRIAL AFFAIRS
OFFICE OF LABOR LAW ENFORCEMENT
PHONE: (302) 761-8200

Mailing Address:
4425 North Market Street
3rd Floor
Wilmington, DE 19802

Located at:
4425 North Market Streer
3rd Floor
Wilmington, DE 19802

PREVAILING WAGES FOR **HIGHWAY CONSTRUCTION** EFFECTIVE MARCH 15, 2018

CLASSIFICATION	NEW CASTLE	KENT	SUSSEX
BRICKLAYERS	53.89	53.89	53.89
CARPENTERS	54.62	54.81	43.57
CEMENT FINISHERS	34.63	34.85	27.71
ELECTRICAL LINE WORKERS	24.02	46.36	22.69
ELECTRICIANS	68.70	68.70	68.70
IRON WORKERS	63.68	25.48	27.06
LABORERS	43.30	40.70	39.95
MILLWRIGHTS	17.20	16.69	14.41
PAINTERS	68.79	68.79	68.79
PILEDRIVERS	70.92	25.36	28.77
POWER EQUIPMENT OPERATORS	45.46	42.29	38.73
SHEET METAL WORKERS	24.30	21.68	19.64
TRUCK DRIVERS	36.49	30.14	36.72

CERTIFIED: 09/18/2018 BY: Fred Lee on Behalf of Julie Petit
ADMINISTRATOR, OFFICE OF LABOR LAW ENFORCEMENT

NOTE: THESE RATES ARE PROMULGATED AND ENFORCED PURSUANT TO THE PREVAILING WAGE REGULATIONS ADOPTED BY THE DEPARTMENT OF LABOR ON APRIL 3, 1992.

CLASSIFICATIONS OF WORKERS ARE DETERMINED BY THE DEPARTMENT OF LABOR. FOR ASSISTANCE IN CLASSIFYING WORKERS, OR FOR A COPY OF THE REGULATIONS OR CLASSIFICATIONS, PHONE 3027618200

NON-REGISTERED APPRENTICES MUST BE PAID THE MECHANIC'S RATE.

PROJECT: T201707005.01 Statewide Movable Bridge Preventative Maintenance , Multiple Counties

GENERAL DECISION: DE180005 07/27/2018 DE5

State: DELAWARE

Construction Type: HIGHWAY

COUNTY: New Castle County in Delaware

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rates listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2018. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1 (a) (2) - (60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	07/27/2018

SUDE2018-002 03/15/2018

	Rates	Fringes
Bricklayer	53.89	
Carpenter	54.62	
Cement Mason/Concrete Finisher	34.63	
ELECTRICIAN		
Electrician	68.70	
Line Worker	24.02	
Ironworker	63.68	
Laborer	43.30	
Millwright	17.20	
Painter	68.79	
Power Equipment Operator:		
Piledriver	70.92	
Power Equipment Operator	45.46	
Sheet Metal Worker	24.30	
Truck Driver	36.49	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

GENERAL DECISION: DE180006 07/27/2018 DE6

State: DELAWARE

Construction Type: HIGHWAY

COUNTY: Kent County in Delaware

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rates listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1 (a) (2) - (60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	07/27/2018

SUDE2018-003 03/15/2018

	Rates	Fringes
Bricklayer	53.89	
Carpenter	54.81	
Cement Mason/Concrete Finisher	34.85	
ELECTRICIAN		
Electrician	68.70	
Line Workers	46.36	
Ironworker	25.48	
Laborer	40.70	
Millwright	16.69	
Painter	68.79	
Power Equipment Operator:		
Piledriver	25.36	
Power Equipment Operators	42.29	
Sheet Metal Worker	21.68	
Truck Driver	30.14	

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

General Decision Number: DE180004 07/27/2018 DE4

STATE: Delaware

Construction Type: Highway

COUNTY: Sussex County in Delaware

HIGHWAY CONSTRUCTION PROJECTS

Note: Under Executive Order (EO) 13658, an hourly minimum wage of $10.35 for calendar year 2018 applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2015. If this contract is covered by the EO, the contractor must pay all workers in any classification listed on this wage determination at least $10.35 per hour (or the applicable wage rates listed on this wage determination, if it is higher) for all hours spent performing on the contract in calendar year 2017. The EO minimum wage rate will be adjusted annually. Please note that this EO applies to the above-mentioned types of contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but it does not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1 (a) (2) - (60). Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts.

Modification Number	Publication Date
0	07/27/2018

SUDE2018-001 03/15/2018

	Rates	Fringes
Bricklayer	53.89	
Carpenter	43.57	
Cement Mason/Concrete Finisher	27.71	
ELECTRICIAN		
Electrician	68.70	
Line Worker	22.69	
Ironworker	27.06	
Laborer	39.95	
Millwright	14.41	
Painter	68.79	
Power Equipment Operator:		
Piledriver	28.77	
Power Equipment Operators	38.73	
Sheet Metal Worker	19.64	
Truck Driver	36.72	

WELDERS: Receive rate prescribed for craft performing operation to which welding is incidental.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any soliticitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year.

Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at www.dol.gov/whd/govcontracts. Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of "identifiers" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than "SU" or "UAVG" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under an "SU" identifier indicated that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

APPLICABILITY OF DAVIS-BACON LABOR STANDARD PROVISIONS TO FLAGGERS

The U.S. Department of Labor has established that the duties of flaggers working on contracts covered by the Davis-Bacon Act, are manual and physical in nature. Accordingly, all employees performing the work of flaggers on Davis-Bacon covered contracts shall be entitled to receive applicable prevailing wage rates.

* * * * *

ALL AGENCY MEMORANDUM NO. 130
U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON, DC 20210

GUIDELINES

HIGHWAY CONSTRUCTION

Highway projects include the construction, alteration, or repair of roads, streets, highways, runways, taxiways, alleys, trails, paths, parking areas, and other similar projects not incidental to building or heavy construction.

EXAMPLES: Alleys, Base Courses, Bituminous treatments, Bridle Paths, Concrete pavement, Curbs, Excavation and embankment (for road construction), Fencing (highway), Grade crossing elimination (overpasses and underpasses), Guard rails on highway, Highway signs, Highway bridges (overpasses, underpasses, grade separation), Medians, Parking lots, Parkways, Resurfacing streets and highways, Roadbeds, Roadways, Runways, Shoulders, Stabilizing courses, Storm sewers incidental to road construction, Street paving, Surface courses, Taxiways, and Trails.

ANY QUESTIONS REGARDING THE APPLICATION OF THE GUIDELINES ABOVE TO A PARTICULAR PROJECT OR ANY DISPUTES REGARDING THE APPLICATION OF THE WAGE SCHEDULES ARE TO BE REFERRED TO THE WAGE AND HOUR DIVISION, U.S. DEPARTMENT OF LABOR FOR RESOLUTION, AND THE INSTRUCTIONS OF THE WAGE AND HOUR DIVISION ARE TO BE OBSERVED IN ALL INSTANCES.

* ALL AGENCY MEMORANDUM NO. 130
U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON, DC 20210

SPECIAL PROVISIONS

401502 - ASPHALT CEMENT COST ADJUSTMENT

For Sections 401, 402 and 403, payments to the Contractor shall be adjusted to reflect increases or decreases in the Delaware Posted Asphalt Cement Price when compared to the Project Asphalt Cement Base Price, as defined in these Special Provisions.

The Delaware Posted Asphalt Cement Price will be issued monthly by the Department and will be the industry posted price for Asphalt Cement, F.O.B. Philadelphia, Pennsylvania. The link for the posting is http://www.deldot.gov/information/business/bids/asphalt_cement_english.shtml.

The Project Asphalt Cement Base Price will be the Delaware Posted Asphalt Cement Price in effect on the date of advertisement.

All deviations of the Delaware Posted Asphalt Cement Price from the Project Asphalt Cement Base Price are eligible for cost adjustment. No minimum increases or decreases or corresponding percentages are required to qualify for cost adjustment.

Actual quantity of asphalt cement qualifying for any Asphalt Cement Cost Adjustment will be computed using the weight of eligible asphalt that is shown on the QA/QC pay sheets as a percentage for the delivered material.

If the mix was not inspected and no QA/QC pay sheet was generated, then the asphalt percentage will be obtained from the job mix formula for that mix ID.

The asphalt percentage eligible for cost adjustment shall only be the virgin asphalt cement added to the mix.

There shall be no separate payment per ton cost of asphalt cement. That cost shall be included in the various unit prices bid per ton for those bid items that contain asphalt cement (mentioned above).

The Asphalt cement cost adjustment will be calculated on grade PG 64-22 asphalt regardless of the actual grade of asphalt used. The Project Asphalt Cement Base Price per ton for the project will be the Delaware Posted Asphalt Cement Price in effect on the date of project advertisement.

If the Contractor exceeds the authorized allotted completion time, the price of asphalt cement on the last authorized allotted work day, shall be the prices used for cost adjustment during the time liquidated damages are assessed. However, if the industry posted price for asphalt cement goes down, the asphalt-cement cost shall be adjusted downward accordingly.

NOTE:

Application of Asphalt Cement Cost Adjustment requirements as indicated above shall apply only to those contracts involving items related to bituminous base and pavements, and with bitumen, having a total of 1,000 tons or more of hot-mix bid quantity in case of Sections 401, 402 and 403.

5/05/15

615600 - INITIAL REPAIRS AT BRIDGE 1-687

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

S1 Replace the railing and posts in the counterweight pits and bascule pier walkways.

The work under this item shall include the following:

A. Removal of the specified defective handrails and posts in the north and south counterweight pit stairwells.
B. Installation of new handrails, posts, and baseplates.
C. Priming and painting the new handrails, new posts, existing base plate and connection bolts to match existing railing.

M1 Replace span drive machinery coupling seals.

The work under this item shall include the following:

A. Temporarily disassemble span drive machinery couplings as needed to field verify existing coupling models prior to ordering seal, gasket, and bolt kits from the coupling manufacturer(s).
B. Schedule a temporary outage to navigation with DelDOT and the USCG.
C. Install temporary support for shafts.
D. Disassemble couplings. Furnish and replace seals, gaskets, fasteners, and lubricant.
E. Reassemble couplings with new bolts and fill with new lubricant. Torque bolts per manufacturer's specifications.
F. Spot paint new fasteners.

M2 Clean accumulation of debris from all trunnion bearing assemblies.

The work under this item shall include the following:

A. Clean debris, old grease, and bird waste from all trunnion bearing assemblies using rags, solvent, etc. and dispose of all waste.

E1 Replace the conduit tee at the near axis (navigation) light. Adjust the northwest and southeast pier lights

The work under this item shall include the following:

A. Remove existing damaged conduit and fittings.
B. Disconnect wiring as required.
C. Furnish and install new conduit, fittings and conduit bodies to repair damaged conduit body located on the south fender.

D. Clean each section of new and existing conduit prior to installation of wire.
E. Reconnect and splice existing wires.
F. Provide proper sized conduit as required.
G. Properly adjust the pier lights to align with the navigational channel in accordance with USCG requirements.

E2 Install missing fasteners throughout the span.

The work under this item shall include the following:

A. Furnish and install fasteners on the cover of the span motor housing.
B. Install fasteners on the existing cover of the tachometer and overspeed assembly.
C. Torque loose reducer mounting fasteners at the northwest warning gate.
D. Furnish and install missing fasteners throughout the bridge.

E3 Install ground conductors in the span motor disconnect switches.

The work under this item shall include the following:

A. Furnish and install ground conductors in accordance with NEC requirements and as noted herein in each span motor disconnect switch (4) and each electric motor (4).
B. Furnish and install No. 4 AWG ground conductor in existing conduit from the motor control cabinets to the span motor disconnect switches.
C. Install new bond lugs in each enclosure as required.
D. Furnish and install No. 4 AWG ground conductor from the span motor disconnect switches to each span motor.

E4 Spot clean and paint small areas of corrosion at motor disconnects, junction boxes, control panels, and conduit.

The work under this item shall include the following:

A. Clean and paint corrosion on the motor disconnect switches.
B. Clean and paint base of control enclosures.
C. Clean and paint corrosion on the junction, pull and terminal boxes.
D. Clean and paint corrosion on sections of the existing steel conduit, fittings and conduit bodies.
E. Clean and paint areas where paint is peeling on sections of the existing steel conduit, fittings, conduit bodies and boxes.

E5 Repair and adjust motor brushes.

The work under this item shall include the following:

A. Without removing the motor, clean the motor brushes. Adjust/replace springs, brush holders and brushes as required.
B. Adjust all motor brushes to achieve 90% minimum contact area.

E6 Replace the north and south rotary cam limit switches.

The work under this item shall include the following:

A. Perform test openings to document and verify existing limit switch settings.
B. Schedule a temporary outage to navigation with DelDOT and the USCG.
C. Disconnect all wiring and remove existing span control rotary cam limit switch.
D. Mechanically disconnect the Selsyn transmitter.
E. Furnish and install the rotary cam limit switch as specified.
F. Furnish and install new coupling hubs, keys, and coupling inserts for the new rotary cam limit switch. Furnish and install new stainless steel shim packs for the rotary cam limit switch and the existing Selsyn transmitter.
G. Align the rotary cam limit switch input shaft to the existing sprocket shaft.
H. Align the existing Selsyn transmitter to the new rotary cam limit switch.

I. Reconnect all wiring and adjust cams per as-built drawings and/or the settings noted during step A prior to testing being performed.
J. Perform test openings and re-adjust cams as necessary.
K. Modify existing as-built drawings to reflect any changes in the cam settings.

E7 Correct the color coding inside the span motor disconnect switches.

The work under this item shall include the following:

A. Adjust the phase sequence in each motor disconnect switch, span motor and drive cabinet to be consistent.
B. Check motor phase rotation in each span motor and adjust any feeders in the motor junction box only.
C. Disassemble the motor coupling to allow the motor to spin without opening the bridge and test that the rotation is correct.
D. Reassemble the motor coupling and replace motor coupling lubricant and gasket (coordinate with repair M1).
E. Once phase rotation is verified to be correct, perform multiple test openings to confirm that a raise operation will operate the motor in the raise direction and a lower operation will operate the motor in the lower direction.

E8 Clean and paint corroded conduit installed through the floor of the North machinery room near leaf Motor 1 and the Motor 2 disconnect.

The work under this item shall include the following:

A. Dry any damp areas near the conduit.
B. With a wire brush, clean corrosion and loose debris from the conduit making sure not to penetrate the inner conduit wall.
C. Apply paint to conduit and fittings.

E9 Clean and paint the conduit installed near the droop cable boxes. Install pigeon spike strips in these areas.

The work under this item shall include the following:

A. Dry any damp area on the conduit.
B. Clean all pigeon waste and dirt from the surface of the conduit, fittings and boxes.
C. With a wire brush, clean corrosion and loose debris from the conduit making sure not to penetrate the inner conduit wall.
D. Apply paint to conduit and fittings.
E. Install bird spikes to horizontal landing spots.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Handrail Repairs.

The new handrails and posts shall be steel and shall match the existing 2-rail system and existing height. The post locations shall correspond to existing base plate locations. The handrails and posts shall be at least 2 in. diameter sections. Paint and primer shall be chosen to be compatible with each other and preferably made by same manufacturer. Finish coats shall match the color of the remaining existing railing.

Rotary Cam Limit Switches.

A straight drive combination rotary cam limit switch shall be furnished and installed in the North and South machinery rooms as shown on the Plans. Gearing furnished with the operating machinery, which shall rotate the input shaft, shall drive the combination unit. A straight drive integral speed reducer with a 200:1 reduction ratio shall be provided with the unit.

The unit shall have 8 circuits. The rotary limit switches shall be individually micro-adjustable and have provisions for internal vernier adjustments. The limit switch shall allow for a one-quarter (¼) degree contact operation repeatability. Each contact of the limit switch shall be single-pole, double-throw, precision-type, snap-action switch.

The unit shall be installed within a NEMA 4X stainless steel enclosure and shall be Gemco Series 1980 or approved equal. The switch contacts shall have a minimum AC inductive continuous current carrying rating of 15A and a minimum DC resistive continuous current carrying rating of 15A.

The span limit switches shall be provided as required with a shaft extension for connection of the existing Selsyn transmitter. Each switch shall be preset to the settings shown on the Contract Plans. It shall be the Contractor's responsibility to determine the proper direction of rotation of each switch and to advise the manufacturer accordingly.

Rotary Cam Limit Switch Couplings.

Each rotary cam limit switch shall have a Lovejoy L095 jaw coupling hub installed on the input shaft to match the existing coupling type and size on the existing sprocket shaft. Each rotary cam limit switch shall also have a Lovejoy L070 jaw coupling hub installed on the output shaft to match the existing coupling type and size on the existing Selsyn transmitter shaft. The contractor shall include new keys and coupling inserts for each rotary cam limit switch jaw coupling hub.
The coupling hubs shall be bored concentric with the outside of couplings. All rotary cam limit switch coupling hubs shall have an ANSI / ASME Class LC1 fit on the shafts.

Rotary Cam Limit Switch Keys.

Keys and keyways shall conform to the dimensions and tolerances for square and flat keys of ASME Standard B17.1, 'Keys and Keyseats', or B17.2 'Woodruff Keys and Keyseats', unless otherwise specified. All keys shall be effectively held in place, preferably by setting them into closed-end keyways milled into the shaft, or a threaded set screw through the hub against the top of the key. The ends of all such keys shall be rounded to a half circle equal to the width of the key. Keyways shall not extend into any bearing.

The fit between the key and keyways shall be ANSI LC3 fit.

New keys shall be standard woodruff keys made of alloy steel.

Stainless Bird Spikes.

Furnish and install U.V stabilized polycarbonate, heat and weather resistant marine grade 316 stainless steel spikes. The contractor shall examine the installation area for any detrimental or hazardous work conditions prior to installation. The surface shall be thoroughly cleaned and free of bird droppings, nesting materials, corrosion, peeling paint and other debris. Remove or repair components that may damage stainless steel spikes after installation, including loose parts. The contractor shall refer to the manufacturer for proper mounting systems. Visually inspect the bird spikes for any signs of poor installation including loose screws, fasteners and un-removed debris.

Span Motor Repair.

Each existing wound rotor span motors shall be repaired as specified herein and shown on the Plans. Existing span motor information:

Manufacturer	General Electric
Horsepower	60HP
Nominal Voltage	440 VAC, 3 Phase
Duty	30 minutes
Speed	700 RPM
Frame Size	6323Z
Primary Current	109 A
Secondary Current	133 A
Secondary Voltage	214 VAC

The Contractor shall adjust and clean the motor interiors including springs, brush holders, slip rings, connections and wiring. All work shall be performed in place, without removal of the motors from the bridge.

Brush contact on all brushes with the slip rings shall be adjusted to 90% contact or other industry standards.

All work shall be performable by a reputable motor repair facility with experience in adjustment and maintenance of wound rotor motors.

A final report of all completed repairs and any other recommended repairs shall be submitted to DelDOT for review.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Handrail Repairs.

A. Installation of New Handrail System.

Install the new steel handrails and posts as specified above. The post locations shall match the existing base plate locations. Connection of the new posts to the existing base plates can be made using field welds or threading. Severely damaged areas of the base plate or anchor bolts should be brought to the attention of the Engineer and replaced.

B. Painting.

Handrails, posts, base plates and connection bolts that have been replaced shall be painted with a minimum of one primer coat and two finish coats

Method of Measurement:

Item 615600 - Initial Repairs at Bridge 1-687 will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615600 - Initial Repairs at Bridge 1-687. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615600 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

9/13/2018

615601 - MONTHLY MAINTENANCE AT BRIDGE 1-687
615602 - QUARTERLY MAINTENANCE AT BRIDGE 1-687
615603 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-687
615604 - ANNUAL MAINTENANCE AT BRIDGE 1-687
615605 - 5 YEAR MAINTENANCE AT BRIDGE 1-687
615607 - MONTHLY MAINTENANCE AT BRIDGE 1-688
615608 - QUARTERLY MAINTENANCE AT BRIDGE 1-688
615609 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-688
615610 - ANNUAL MAINTENANCE AT BRIDGE 1-688
615611 - 2 YEAR MAINTENANCE AT BRIDGE 1-688
615612 - 5 YEAR MAINTENANCE AT BRIDGE 1-688
615614 - MONTHLY MAINTENANCE AT BRIDGE 1-693
615615 - QUARTERLY MAINTENANCE AT BRIDGE 1-693
615616 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-693
615617 - ANNUAL MAINTENANCE AT BRIDGE 1-693
615618 - 5 YEAR MAINTENANCE AT BRIDGE 1-693
615620 - MONTHLY MAINTENANCE AT BRIDGE 2-021A
615621 - QUARTERLY MAINTENANCE AT BRIDGE 2-021A
615622 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 2-021A
615623 - ANNUAL MAINTENANCE AT BRIDGE 2-021A
615624 - 5 YEAR MAINTENANCE AT BRIDGE 2-021A
615626 - MONTHLY MAINTENANCE AT BRIDGE 3-151
615627 - QUARTERLY MAINTENANCE AT BRIDGE 3-151
615628 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-151
615629 - ANNUAL MAINTENANCE AT BRIDGE 3-151
615630 - 2 YEAR MAINTENANCE AT BRIDGE 3-151
615631 - 5 YEAR MAINTENANCE AT BRIDGE 3-151
615632 - MONTHLY MAINTENANCE AT BRIDGE 3-153
615633 - QUARTERLY MAINTENANCE AT BRIDGE 3-153
615634 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-153
615635 - ANNUAL MAINTENANCE AT BRIDGE 3-153
615636 - 2 YEAR MAINTENANCE AT BRIDGE 3-153
615637 - MONTHLY MAINTENANCE AT BRIDGE 3-154
615638 - QUARTERLY MAINTENANCE AT BRIDGE 3-154
615639 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-154
615640 - ANNUAL MAINTENANCE AT BRIDGE 3-154
615642 - MONTHLY MAINTENANCE AT BRIDGE 3-164
615643 - QUARTERLY MAINTENANCE AT BRIDGE 3-164
615644 - SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-164
615645 - ANNUAL MAINTENANCE AT BRIDGE 3-164
615646 - 5 YEAR MAINTENANCE AT BRIDGE 3-164

Description:

Common Provisions for Bridge Maintenance.

This section shall give the general requirements which apply to all bridge cyclical maintenance work. Applicable sections of this Special Provision, including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair and any additional repair work.

Operations and Maintenance Manuals.

The required maintenance (including tasks, frequencies, and materials) for each bridge shall be as specified in the latest edition of Volume 2 of each bridge specific Operations and Maintenance Manual (O&M Manual) with the 2018 updates to Chapter 8.

The checklists located in Chapter 10 of the O&M Manuals shall not be used for this Contract. Updated Maintenance Checklists, which must be completed and submitted by the Contractor as work is completed, are located in Appendix B of the Contract. The maintenance tasks described within the Maintenance

Checklists are meant to summarize the work to be performed. In the event of a discrepancy between the O&M Manuals and the Maintenance Checklists, the Contractor shall notify the Engineer, however all maintenance shall be as specified within Chapter 8 (and supplemented by Chapter 11) of the O&M Manuals.

Submissions.

Expected submittals for the bridge maintenance work includes (but is not limited to) maintenance schedule, safety procedures, material catalog cut sheets, and completed Maintenance Checklists.

A. Catalog Cuts.

The Contractor shall submit catalog cuts of materials for approval prior to purchasing and performing maintenance. The following list of materials is not all encompassing and any material purchased for this Contract shall be submitted for review prior to purchasing.

1. Machinery Lubricants
2. Light Bulbs
3. Grease Fittings
4. Hygroscopic Breathers
5. Air Filters
6. Gaskets and Sealants
7. Electrical Components (i.e. fuses, etc.)
8. Paint
9. Replacement Parts

B. Maintenance Schedule.

The Contractor shall submit a schedule for all on-site work (including maintenance and all repair work) for the next calendar month to the Engineer by the 15th of each month. The schedule shall identify:

1. The dates and times at each work location.
2. Maintenance tasks to be completed and personnel to be on-site.
3. Whether any work shall require the bridge to be out of service. Identify the Lockout/Tagout Procedure and equipment to be temporarily placed out of service.
4. Equipment to be brought on site.
5. Identify the expected number of bridge openings or equipment operations to verify proper equipment operation as part of maintenance work.
6. If any shoulder or lane closures will be needed for the work, the Contractor is required to submit lane closure requests, for acceptance to the Engineer, by the 15th of each month for the next month in accordance with DelDOT's policies.
7. The Contractor shall notify and receive approval from DelDOT and the United States Coast Guard (USCG) at least 30 days in advance prior to working within the navigable channel, working from an under-bridge inspection vehicle or crane which affects the navigable channel, or performing work that will require a temporary deviation from the USCG bridge specified opening schedule.
8. Any required maintenance work that is not successfully completed within the month of the assigned intervals (monthly, quarterly, etc.) will not be accepted for payment. Liquidated damages, in accordance with Sections 108.08 and 108.09 of the DelDOT Standard Specifications for Road and Bridge Construction, may be assigned to the Contractor by DelDOT until the work is successfully completed.

Bridge Maintenance Schedule							
Month	**Maintenance Interval for Year 1 of Maintenance Contract**						
	Initial Repairs	**Monthly**	**Quarterly**	**Semi-Annual**	**Annual**	**2 Year**	**5 Year**

NTP January	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
February	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A				
March	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164	3-151 & 3-164	3-151 & 3-164	3-151	3-151 & 3-164
April	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688	1-687 & 1-688	1-688	1-687 & 1-688
May	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A	1-693 & 2-021A	1-693 & 2-021A		1-693 & 2-021A
June	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164				
July	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
August	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A				
September	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164	3-151 & 3-164			
October	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688			

November	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A	1-693 & 2-021A			
December	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164				

Bridge Maintenance Schedule							
Month	**Maintenance Interval for Year 2 of Maintenance Contract**						
	Initial Repairs	**Monthly**	**Quarterly**	**Semi-Anual**	**Annual**	**2 year**	**5 year**
January		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
February		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A				
March		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164	3-151 & 3-164	3-151 & 3-164		
April		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688	1-687 & 1-688		
May		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A	1-693 & 2-021A	1-693 & 2-021A		
June		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164				
July		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
August		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A				
September		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164	3-151 & 3-164			
October		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688			

November		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693 & 2-021A	1-693 & 2-021A			
December		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-151 & 3-164				

Bridge Maintenance Schedule							
Month	Maintenance Interval for Year 3 of Maintenance Contract						
	Initial Repairs	Monthly	Quarterly	Semi-Annual	Annual	2 Year	5 Year
January		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
February		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151	3-151	
March		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164	3-153	
April		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688	1-687 & 1-688	1-688	
May		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				
June		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				
July		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
August		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151			
September		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164			
October		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688			
November		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				

December		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				

Bridge Maintenance Schedule							
Month	Maintenance Interval for Year 4 of Maintenance Contract						
	Initial Repairs	Monthly	Quarterly	Semi-Annual	Annual	2 Year	5 Year
January		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
February		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151		
March		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164		
April		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688	1-687 & 1-688		
May		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				
June		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				
July		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
August		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151			
September		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164			
October		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688			
November		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				
December		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				

Bridge Maintenance Schedule							
Month	Maintenance Interval for Year 5 of Maintenance Contract						
	Initial Repairs	Monthly	Quarterly	Semi-Annual	Annual	2 Year	5 Year
January		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
February		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151	3-151	
March		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164	3-153	
April		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688	1-687 & 1-688	1-688	
May		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				
June		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				
July		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688				
August		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151	1-693, 2-021A & 3-151			
September		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164	3-153, 3-154 & 3-164			
October		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-687 & 1-688	1-687 & 1-688			
November		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	1-693, 2-021A & 3-151				
December		1-687, 1-688, 1-693, 2-021A, 3-151 & 3-164	3-153, 3-154 & 3-164				

C. Safety Procedures.

The Contractor shall submit a safety procedure for review that shall incorporate DelDOT's safety procedures while performing the work of this Contract.

1. The Contractor shall submit a lockout/tagout procedure that complies with NFPA 70E National Electric Code, OSHA requirements, and other applicable Codes and Specifications.
2. It is not the responsibility of DelDOT to upgrade the bridge(s) to meet the Contractor's safety policies. If the Contractor requires modifications to the current bridge access, the Contractor shall submit shop drawings of their modifications for review and comment. Any accepted modifications shall be at no cost to DelDOT.
3. The Contractor is responsible for providing the necessary access equipment for safely accessing components to perform all maintenance and repair tasks. The cost of the access equipment and personal protective equipment shall be at no additional cost to DelDOT. Refer to "Description" section of "Project Scope of Work" Special Provision regarding MOT for bridge maintenance and repair work.

D. Maintenance Checklist (as they are completed).

The Maintenance Checklists included in Appendix B shall be completed and submitted at the end of each month. The cost of completing and submitting all checklists will not be measured and paid, but are incidental to other items in this Contract.

Field Verification & Revisions to Maintenance Items.

In the event the Contractor determines a discrepancy in the quantity or location of maintenance items or requires clarification for maintenance activities, the Contractor shall perform the following:

A. Notify the Engineer in writing within 5 days of identifying a discrepancy or request for verification. Provide the quantity, location, equipment access, etc. to clearly identify the component.
B. The Engineer will provide direction to the Contractor within 10 days of receiving the written request.

Bridge Information & Access.

The following information is provided to the Contractor to establish the bridge orientation, bridge access options, and procedure for bridge openings.

A. Bridge Orientation.

For the maintenance check lists, the following orientations shall be used to document the location completed tasks:
1. Bridge 1-687 - North/South bridge orientation and the control house is located at the southeast corner of the movable span.
2. Bridge 1-688 - North/South bridge orientation and the control house is located at the northwest corner of the movable span.
3. Bridge 1-693 - North/South bridge orientation and the control house is located at the northeast corner of the movable span.
4. Bridge 2-021A - North/South bridge orientation and the control house is located at the northwest corner of the movable span.
5. Bridge 3-151 - North/South bridge orientation and the control house is located at the northwest corner of the movable span.
6. Bridge 3-164 - East/West bridge orientation and the control house is located at the southwest corner of the movable span.

B. Bridge Access.

Any access methods required for the maintenance work (including but not limited to lane closures, under bridge inspection vehicles, barge/boat) is incidental to each maintenance item.

C. Coordinate with Bridge Operations.

The Contractor shall perform the work of this Contract knowing a bridge opening can occur at any time. Refer to "Construction Methods" section, "Bridge Openings" subsection of this Special Provision for the USCG specified bridge opening requirements.

D. Maintenance Bridge Openings.

With 10 working days' notice, the Contractor can request, from DelDOT, bridge operations for maintenance activities between the hours of 10 am and 3 pm Monday through Thursday. The allowable opening frequency and duration will be dependent upon traffic conditions during the opening. Maintenance openings cannot be performed in the rain/snow, traffic incidents and congestion, or as determined by the DelDOT.

E. Working Hours.

In general, working hours at the bridges shall be limited to 8 am to 4 pm, unless otherwise approved by DelDOT.

F. Lane Closures and Bridge Closures.

All shoulder or travel lane closures shall be performed at times directed by the District Engineer with direction from the District Safety Officer. Any deviation from the time restriction must be approved the District Engineer and District Safety Officer prior to the commencement of work. No lane or shoulder closures will be permitted on holidays or holiday weekends, unless approved by the District Engineer with consultation with DelDOT Safety Section.

Several bridge closures (to pedestrian and vehicular traffic) will be necessary to perform several of the initial repairs (including but not limited to span lock shimming at Bridges 1-688 and 1-693, live load bearing repairs at Bridge 2-021A, and air buffer removal/installation at Bridge 2-021A). All bridge closure requests shall also be coordinated and approved by the District Engineer and District Safety Officer.

Signs and/or Portable Changeable Message Signs (PCMS) shall be used (as specified by the District Engineer and District Safety Officer) to warn traffic of any bridge closure to pedestrian and/or vehicular traffic. The location and setup of all PCMS shall be approved by DelDOT and in compliance with the DE MUTCD.

Damaged and Replacement Parts.

In the event the Contractor determines a component is worn, broken or damaged and can no longer provide reliable service, the Contractor shall perform the following:

A. Notify the Engineer with an immediate phone call.
B. Submit notification in writing to the Engineer within 24 hours.
C. The Contractor shall identify the equipment that has failed, with sufficient information to identify the part, including at a minimum the location, alphanumeric tag, part description, manufacturer, part number, size, rating, and photos.

The Contractor shall inspect equipment as part of the maintenance work. Individual components or pieces of equipment may be identified and determined to have worn, broken, failed or be in poor condition, such that failure is imminent. This equipment shall be identified to the Engineer and included in the Maintenance Checklists.

The Engineer shall determine whether this work is a maintenance scope item or whether it is a new repair. The Engineer will provide direction to the Contractor in writing and determine when the force accounts will be used for performing the repairs.

If the Engineer determines it is a new repair, the Contractor shall be either directed to use identical existing replacement spare parts on site or directed to purchase new identical replacement parts. If identical replacement parts are not available, the Contractor shall recommend 'or equal' parts and submit complete catalog cuts to the Engineer for review. The Contractor and the Engineer shall discuss and agree to complete testing requirements and scope of work. All work shall be done in accordance with AASHTO and the NEC.

The Contractor shall test the equipment upon completion of a repair and notify the Engineer 24 hours prior to testing. The work shall be completed and the finished product tested to the satisfaction of the Engineer.

Materials:

Operations and Maintenance Materials.

The Contractor shall furnish all materials to maintain the existing equipment as specified in the O&M Manuals. Materials shall include but not be limited to the following items: grease fittings, pipe plugs, gasket material, sealant, lubricants, oil absorbent pads/material, hygroscopic breathers, rags, cleaner, paint, temporary rigging, light bulbs, batteries, filters, fuses, miscellaneous fasteners, etc. The Contractor shall supply all tools, material, and equipment required to maintain the existing equipment in a safe and secure manner. The cost of the required maintenance materials shall be included in the bid prices for each maintenance interval for each bridge.

The Contractor shall field verify maintenance materials prior to submitting catalog cut sheets of all material to be used for maintaining the bridge equipment for acceptance. The Contractor shall add a copy of each approved catalog cut sheet to the O&M manual stored at each bridge.

Replacement Parts.

All replacement parts, except those required as part of the cyclical maintenance work, shall not be included in the maintenance sections of this document but shall be documented and paid through force accounts. Replacement parts must be submitted to the Engineer for acceptance prior to ordering. The Contractor shall add a copy of each approved catalog cut sheet to the O&M manual stored at each bridge.

Auxiliary System Testing.

Where maintenance tasks specify that the bridge shall be operated using a portable generator (Bridges 1-687, 1-688, 2-021A, and 3-151) or a portable air compressor (Bridge 3-151), the Contractor shall be responsible for furnishing all necessary equipment to perform the test operations. The costs for the Contractor to furnish and operate the equipment (including any incidental material required such as fuel, cords, additional hoses, etc.) shall be included in the bid prices for each applicable maintenance interval for each bridge. Refer to Volume 1 of the Operations and Maintenance manuals for additional information including operating requirements, procedures for connecting the components to the bridge systems, etc. The minimum sizes listed below shall supersede any information provided in the O&M manuals unless otherwise noted. Lane closures may be required to connect and operate the generator or air compressor.

Bridge	Component	Requirements (Per Volume 1 of O&M Manuals
1-687	Portable Generator	480 Volt, 3 Wire, 3 Phase 100 KVA minimum, 90 KW minimum
1-688	Portable Generator	480 Volt, 3 Wire, 3 Phase 100 KVA minimum, 90 KW minimum
2-021A	Portable Generator	240 Volt, 3 Wire, 3 Phase 75 KVA minimum, 50 KW minimum, NEMA 15-50P Receptacle
3-151	Portable Generator	240/120 Volt, 4 Wire, 3 Phase, 242 Amps Start-Up (minimum), 53.5 Amps Continuous (minimum), 30 KVA minimum 20 KW minimum
	Portable Air Compressor	100 PSI, 185 CFM

*The portable generator sizes specified assumes one leaf motor operating at a time under ideal operating conditions (no ice, snow or wind loads) and all ancillary loads turned off where not required.

Construction Methods:

Maintenance Sequence & Procedures.

A. Maintenance Sequence.

Refer to the Bridge Maintenance Schedule included herein for the required maintenance frequencies to be performed during each month of the Contract. Prior to starting maintenance, the Contractor may submit a modified schedule to the Engineer for approval. Any specific monthly maintenance task performed at a specific bridge for different monthly checklists must be performed at least 3 weeks apart.

Bridge Maintenance schedules have been provided in this Special Provision for Years 3, 4, and 5 of this contract to show the expected maintenance activities. Two additional bridges (3-153 and 3-154) are expected to be added to this maintenance Contract starting in Year 3 of the Contract (if DelDOT chooses to extend the Contract). If DelDOT chooses to extend this Contract beyond Year 2, the Contractor will be provided with an updated Bridge Maintenance Schedule (including when maintenance should start for the additional bridges) and updated Operations and Maintenance manuals for those bridges. The Contractor shall submit maintenance interval bid prices to DelDOT for review prior to starting maintenance at the additional bridges. Note that submission of bid prices for the additional bridges does not guarantee that the Contractor will be awarded any or all of the additional work.

B. Maintenance Procedures.

1. Submit the maintenance schedule to the Engineer as defined in the "Submissions" Section of this Special Provision.
2. The Contractor shall notify the Engineer and DelDOT Operations 3 days prior to performing maintenance to confirm the maintenance schedule.
3. The Contractor shall perform the maintenance activities specified in the Maintenance Checklists in accordance with the maintenance frequencies identified within this Contract. If the Contractor identifies a discrepancy with the maintenance activities, follow the direction identified in Section "Field Verification & Revisions to Maintenance Items".
4. The Contractor shall provide and install a white board at each bridge near the entrance of the control house to identify areas of the bridge where maintenance personnel is currently working and which components are locked out for maintenance. DelDOT's bridge operators will rely on the white board to confirm where work is being performed before bridge openings. The Contractor is required to keep the white board up to date at all times throughout the Contract.
5. The Contractor shall notify the Engineer when all work for a specific maintenance interval (or bridge) is completed. The Engineer will be on-site to verify the checklist items have been correctly completed for each component. The Engineer will complete a checklist independent of the Contractor.
6. The Contractor shall complete each Maintenance Checklist at the end of each day to identify the maintenance items completed.
7. The Contractor shall identify, within the "Notes" section of the Maintenance Checklists, bridge components and items that may require additional attention. If a bridge component is worn, damaged, or failed, the Contractor shall call the Engineer immediately to report the issue and submit a written notification to the Engineer as defined within this Special Provision under the "Description" section, "Damaged and Replacement Parts" subsection.
8. The Contractor shall submit the Maintenance Checklists monthly for invoicing as defined within this Contract. The Engineer will submit independent Maintenance Checklists based on their observations of maintenance activities completed. If the Contractor and Engineer's checklists do not agree, the Contractor will need to resolve the issue, complete the necessary maintenance activities, and submit invoice with completed Maintenance Checklists. Refer to the "Method of Measurement" and "Basis of Payment" sections of the Special Provision.

C. Bridge Openings.

In the event of a bridge opening occurring while maintenance activities are being performed, the Contractor will be required to stop all maintenance activities and restore the bridge to a proper and safe

operating condition. The cost to stop work as a result of bridge openings is incidental to the Contract unit prices to perform maintenance.

1. DelDOT shall notify the Contractor of any requested bridge openings as soon as possible. Due to United States Coast Guard bridge opening requirements, notice of a bridge opening more than a few hours in advance may not be possible. Notice of a bridge opening may require the Contractor to stop with minimal notice.
2. The Contractor shall stop all work a minimum of 30 minutes prior to a scheduled bridge opening.
3. The Contractor shall provide a temporary power source (portable generator or air compressor) if the Contractor's maintenance activities will require the primary power source to be turned off and if an alternate power source (generator or manual operation system) is not already available on-site, unless the Contractor will be able to restore the bridge to a proper and safe operating condition prior to an opening.
4. The Contractor shall identify a point of contact for maintenance personnel that are responsible for verifying all work has been stopped, all equipment has been relocated to permit a bridge opening, all lockout/tagouts have been removed, all personnel are clear, and notify the DelDOT bridge operators the Contractor is clear and the operators may proceed with the opening using the standard operating procedures. Bypass and other "workarounds" are not permitted unless approved by the Engineer.
5. The Contractor's point of contact shall update the white board within the control house to confirm all components are back in operation prior to the arrival of the DelDOT bridge operators.
6. In general, maintenance openings should be schedule and performed Monday through Thursday between 10:00 a.m. and 3:00 p.m.
7. Refer to the table below for the bridge opening requirements as per the United States Coast Guard regulations.

Canal District Bridge Opening Log Summary													
Bridge	2017												Total
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
Bridge 1-687	0	0	0	22	52	124	93	107	40	11	0	0	449
Bridge 1-688	2	2	0	11	21	37	59	85	50	55	7	1	330
Bridge 1-693	0	0	0	13	11	29	51	95	46	47	2	0	294

South District Bridge Opening Log Summary													
Bridge	2017								2018				Total
	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Bridge 2-021A	1	1	1	1	1	1	1	1	1	1	1	1	12
Bridge 3-151	125	172	162	165	111	12	30	0	0	1	2	65	845
Bridge 3-153	1	2	5	6	6	2	0	0	0	0	0	0	22
Bridge 3-154	1	1	0	0	1	2	0	0	0	0	0	2	7
Bridge 3-164	143	108	112	124	105	112	40	26	22	43	52	86	973
Notes: The number of openings shown for Bridge 2-021A are estimated.													

D. Field Verification and Revisions to Maintenance Items.

During Month 1 Year 1 maintenance work, the Contractor shall field verify and document all equipment. Future repairs or modifications to equipment may modify the quantities and/or locations of equipment as identified in this Contract. During the field verification, if the Contractor determines there is a discrepancy in the quantity or location, then the Contractor shall submit a request for revision in writing to the Engineer.

Refer to the bridge specific Operations and Maintenance Manuals for the general location and quantity of the bridge components to be maintained. If there is any equipment whose general location area is not clear, submit a request for verification in writing to the Engineer.

Material Handling & Protection.

A. Material Disposal.

The Contractor shall dispose of all material in accordance with Local, State and Federal regulations.

Disposal of all "waste oil" will be the responsibility of the Contractor. Waste oil will constitute any petroleum, oils, and lubrications (POL) removed from any piece of equipment that is be maintained or repaired as part of this Contract. Since the all POL removed from serviced equipment will be classified as "waste oil", and shall be disposed of within the guidelines of DNREC (Department of Natural Resources and Environmental Control) and EPA regulations. This includes all reports and manifests associated with tracking the waste oil to its final deposition.

B. Material Storage.

Any maintenance material stored at the bridge shall be kept within a locked container or cabinet that is labeled and can only be accessed by the Contractor in a location approved by DelDOT. Materials or equipment not stored within a locked container or cabinet are not the responsibility of DelDOT. The Contractor shall replace any missing material and/or equipment at no cost to DelDOT. Flammable material shall not be stored on-site unless approved by the Engineer.

C. Protection of Existing Equipment.

Existing bridge equipment shall be protected at all times from possible damage or defacement caused by the Contractor's work operations. Any such damage or defacement shall be promptly repaired or cleaned to the satisfaction of the Engineer at no cost to DelDOT. If, in the opinion of the Engineer, the Contractor's operations require the temporary removal of existing equipment for proper protection, such removal and remounting shall be done at no cost to DelDOT.

D. Maintaining Equipment.

All work to maintain existing equipment shall be performed. Material used to maintain the equipment shall be compatible with the existing material and new as far as practicable. Application of new components shall be in accordance with the manufacturer's recommendations.

Replacement Work and Procedures.

Removal of equipment shall not commence until all new equipment and parts to be installed are delivered to the site, unless otherwise approved by the Engineer. The Contractor shall supply all tools, material, and equipment required to remove the existing failed equipment in a safe and secure manner. All remaining material and equipment demolished under this item shall become the property of the Contractor unless otherwise noted by the Engineer, and shall be removed from the site and disposed of properly. In general, all apparatus to be demolished shall be disconnected by removing existing bolts, nuts and screws. The work shall include demolition of all brackets, hangers, clamps, fittings and other hardware no longer needed as a result of the replacement parts.

Upon completion of the replacement work, the Contractor shall repair all damaged or defaced areas exposed by the demolition of equipment, or caused by his operations, in a workmanlike manner, to the satisfaction of the Engineer. The Contractor shall patch any concrete that was cut for removal of equipment. Small bolt holes in concrete surfaces shall be filled with epoxy mortar. Holes in the walls, ceilings or floors

of the house shall be filled with grout and finished to match the existing surfaces. Any damage to windows, window framing, sash, sills, frames or any other architectural trim shall be repaired, and painted surfaces shall be repainted after being repaired. Touch-up painting of structural steel shall be performed.

All installation work required to replace damaged or broken parts (not caused by the Contractor's work) that are not included in the maintenance work referenced in this document shall be negotiated with DelDOT and paid through force accounts.

Generator Maintenance.

In general, most of the generator maintenance will be performed under a separate Generator Repair and Maintenance Contract, however several generator maintenance items are included within the O&M Manuals and Checklists which shall be performed as part of this Contract.

Electrical Safety When Performing Maintenance.

As-built drawings (including electrical schematics) are available on-site for the Contractor to reference while performing maintenance work. Since the development or last update of the As-built drawings, modifications may have been made to the electrical systems that may not be reflected in the As-drawings on-site.

At the time of development of this Contract, one disconnect switch in the south electrical/mechanical room at Bridge 1-693 does not fully deenergize some components as intended. It is anticipated that this condition will be repaired by others prior to the start of this Contract.

Another known instance where the existing conditions have been changed since the Bridge 1-693 As-builts were created involves the automatic circuit breaker actuators. When performing the initial repair work involving the automatic circuit breaker actuators, the Contractor shall verify the field wiring of the actuators and update the As-built drawings accordingly.

The Contractor shall be responsible for verifying that all equipment has been safely deenergized and isolated prior to performing any maintenance activities at any of the bridges. Any differences found between the As-Built drawings and existing field conditions during maintenance or repair work should be reported to the Engineer.

Speed Reducer Drain Valves and Breathers.

During the initial speed reducer oil replacement, furnish and install a new bronze ball valve at the drain port of the speed reducer housings. The ball valve shall have a hand operated lever than can be locked in the closed position and a threaded end plug. Furnish and install any piping, adaptors, supports, etc. necessary to securely connect the valve to the speed reducer housing. The end of the ball valve / drain pipe shall be located at a point where it can be easily accessible for future oil draining or oil sample collection. Notify the Engineer if there is not sufficient space to install or operate the drain valve.

The costs of the drain valve, fittings, etc. shall be included in the maintenance interval (5 year) where the oil speed reducer oil is replaced at the specified bridge.

The drain valves shall be installed at the following speed reducers:

A. Bridge 1-687 - Span drive reducers and span lock reducers (4 total)
B. Bridge 1-693 - Span drive reducers and span lock reducers (4 total)
C. Bridge 3-164 - Turning machinery reducer and end screw jack reducer (2 total)

Existing speed reducer non-desiccant breathers shall be replaced with desiccant type breathers at the specified reducers. New breathers shall be a Des-Case standard series desiccant breather or approved equal. Furnish and install any fittings, piping etc. needed to connect the breather to the housing and ensure that oil does not contaminate the breather during operation of the machinery. Initial costs for the breathers, piping, etc. shall be included in the 5 year maintenance interval cost for the specified bridges. Notify the Engineer if there is not sufficient space to install new desiccant breathers.

The new desiccant breathers shall be installed at the following speed reducers:

A. Bridge 1-687 - Span drive reducer (2 total)
B. Bridge 1-693 - Span drive reducer (2 total)
C. Bridge 3-164 - Turning machinery reducer (1 total)

Method of Measurement:

Cyclical bridge maintenance work will be paid per each occurrence for each individual bridge where the maintenance is being performed. The Contractor will perform maintenance work on a monthly, quarterly, semi-annually, annually, 2 year or 5 year interval as specified.

Basis of Payment:

All cost and expense incurred by the Contractor in complying with the conditions stated above shall be included in the Contract unit prices bid per each for the pertinent maintenance bid item at each bridge.

9/14/2018

615606 - INITIAL REPAIRS AT BRIDGE 1-688

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

S1 Clean and flush the bascule pits to remove debris and pigeon waste. Remove dirt and sediment that has accumulated on the superstructure in the main span. Properly dispose of wash water and debris.

S2 Repaint areas of chipped paint in metal rails.

The work under this item shall include the following:

A. Remove loose paint from the railings
B. Clean and prepare the exposed railing surface
C. Paint the railing to match the existing

S3 Repair spall with exposed reinforcement at south counterweight, north face, east end of bottom edge.

The work under this item shall be in accordance with Section 628 of the DelDOT Standard Specifications and include the following:

A. Coordinate temporary bridge closure with DelDOT and USCG if proposed access means will interfere with bridge operation schedule.
B. Install scaffolding or other means of access inside the counterweight pit.
C. Remove to sound concrete, 1" minimum behind the exposed reinforcing steel and 4" maximum.
D. Saw cut 1" depth on rectangular shape around the spall.
E. Repair and or replace any damaged reinforcing steel.
F. Apply bonding agent.
G. Patch the spall with concrete mix.
H. Remove scaffolding or other means of access from inside the counterweight pit.

S4 Seal cracks in concrete near rack supports.

The work under this item shall include the following:

A. Insert injection ports and apply surface seal.
B. Pressure inject cracks.
C. Remove injection ports and surface seal.

M1 Replace seals and gaskets at the south main motor coupling, south auxiliary motor coupling, and south enclosed bevel speed reducer input shaft coupling.

The work under this item shall include the following:

A. Temporarily disassemble span drive machinery couplings as needed to field verify existing coupling models prior to ordering seal, gasket, and bolt kits from the coupling manufacturer(s).
B. Schedule a temporary outage to navigation with DelDOT and the USCG.
C. Install temporary support for shafts.
D. Disassemble couplings. Furnish and replace seals, gaskets, fasteners, and lubricant.
E. Reassemble couplings with new bolts and fill with new lubricant. Torque bolts per manufacturer's specifications.
F. Spot paint new fasteners.

M2 Clean debris, grease, and bird waste at the trunnion bearing assemblies, shafts, bearings, couplings, reducers, and gears. Clean and paint gear frame components on the counterweights.

The work under this item shall include the following:

A. Clean the debris from the machinery components.
B. Furnish paint, prepare surfaces, and paint the gear frame components on the counterweight, including the support, reducer, bearings, shafts, and open gearing.

M3 Shim the span lock receiving sockets and live load bearings.

The work under this item shall include the following:

A. Coordinate temporary bridge closure to perform span lock and live load bearing work.
B. Furnish and install new shim packs and turned studs for the span lock receiving socket shoes.
C. Furnish and install new shim packs and high strength bolts for the live load bearings.
D. Clean and paint new fasteners after installation.

E1 Repair the fender pier lights.

The work under this item shall include the following:

A. Properly adjust the pier lights to align with the navigational channel in accordance with USCG requirements.

E2 Configure the warning lights at each warning gate such that they are compliant with the MUTCD.

The work under this item shall include the following:

A. Disconnect the existing flexible SOOW cable and wiring from the flasher and arm lights.
B. Furnish and install new wiring and SOOW cable for the arm lights to allow for two (2) flashing circuits and one steady circuit.
C. Furnish and install new cable bushing and supports as required.
D. Coordinate removal of the gate arm for the purpose of connection and wiring of the arm with DelDOT.
E. Connect new wiring and SOOW cable to existing flasher and test for correct operation.

E3 Replace the damaged conduit and fittings in the West Span Lock area.

The work under this item shall include the following:

A. Disconnect associated wiring at local terminal box and disconnect switch on the west span lock platform.
B. Remove wiring from the damaged flexible conduit.
C. Disconnect and remove damaged flexible conduit.
D. Furnish and install new liquid tight flexible conduit and fittings.
E. Re-install and re-connect existing wiring in the same phase orientation.
F. Perform a normal bridge opening to test for proper operation.

E4 Replace the damaged conduit fitting feeding South Brake 1.

The work under this item shall include the following:

A. Disconnect associated wiring for the South Brake No. 1 motor.
B. Remove and dispose damaged conduit fitting at the conduit feeding the south brake 1.
C. Furnish and install new liquid tight conduit fitting, bushing and lock nut as required.
D. Reconnect existing wiring in the same phase orientation.
E. Perform a normal bridge opening to test for proper operation.

E5 Repair or replace the damaged bonding conductor mounted to the Northeast bascule girders.

The work under this item shall include the following:

A. Remove the existing connection to the bascule span and disconnect bonding cable.
B. Furnish and install new bonding connection to the bascule span and verify location will allow for proper movement of cable during a bridge opening.
C. Re-terminate cable on new bonding connector/lug.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Metal Railing Paint.

The paint system shall be selected from NEPCOAT Qualified Products List B and shall satisfy the requirements in Section 616 of the Standard Specification. The finish coat shall match the existing railing.

Spall Repairs.

Concrete Class A mix satisfying the requirements of Section 1023 of the Standard Specification shall be used to patch the spall.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Cleaning the Counterweight Pits and Spans.

The Contractor shall collect and dispose of debris in the counterweight pits and on the span. Debris on the span or in the pit shall not be dumped into the waterway. Water used to clean the counterweight pits shall be contained and disposed of properly. Waste shall be disposed of in accordance with local, state, and federal regulations.

Repaint Metal Bridge Railing.

All work associated with the painting of the metal bridge railing shall be performed in accordance to Section 616 of the Standard Specification.

Spall Repair.

All work associated with the spall repair on the counterweight shall be performed in accordance to Section 628.03E of the Standard Specification.

Crack Repair.

All work associated with sealing cracks near the rack supports shall be performed in accordance to Section 628.03A of the Standard Specification.

Suggested Procedure for Shimming the Live Load Bearings and Span Locks.

A. Prior to shimming the live load bearings and the span lock receiving sockets, the Contractor shall field verify bolt dimensions and bolt spacings for the fabrication of the new bolts and shims.
B. Schedule temporary bridge closure to perform work. No vehicles or heavy equipment shall be permitted on the span while the receiving sockets and/or live load bearings are shimmed.
C. With the live load bearings at both leafs in hard contact and the span locks pulled, check the alignment of the leaf heel joints and the toe joint. If either of the heel joints or the toe joint are not aligned within 1/8", live load bearing shim adjustments will be required.
D. Partially raise both leafs and temporarily remove the live load bearing sole plates and shims.
E. Lower the leafs until the heel joints and toe joint are aligned within 1/8" at the crown of the roadway. Measure the live load bearing location clearances (between the live load bearing anchorage adjustment screw and the bascule girder) to determine the amount of shims needed for the live load bearings to be in hard contact.
F. Partially raise the leafs and reinstall the live load bearing sole plates and shims (as needed) with undersized bolts.
G. Lower the leafs until the live load bearings are in hard contact. Verify the deck joints are properly aligned. Adjust shims as needed until the joints are properly aligned when the live load bearings are in hard contact. Adjust the fully seated limit switches to stop the leafs when in the new seated position.
H. With the leaf joints aligned and live load bearings in hard contact, replace the shims at the span lock receiving sockets. Adjust shims as needed to provide the clearances specified in the Contract Drawings.
I. Perform a bridge operation. Upon seating the leafs, verify the contact at the live load bearings and the clearances at the span locks. Readjust shims if needed.
J. Replace the undersized bolts at the live load bearing sole plates with full-sized bolts.
K. Install the safety wire at the span lock receiving socket turned studs.
L. Clean and paint new fasteners.

Temporary Bridge Closure.

Shimming of the live load bearings and span locks shall be performed during a temporary bridge closure. No vehicular traffic shall be permitted on the bascule span if the live load bearings are not fully assembled, if the receiving sockets are not fully assembled, or if the span locks are not driven. Refer to "Lane Closures and Bridge Closures" section of the "Common Provisions for Bridge Maintenance" for bridge closure restrictions and requirements.

Method of Measurement:

Item 615606 - Initial Repairs at Bridge 1-688 will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615606 - Initial Repairs at Bridge 1-688. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615606 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

9/13/2018

615613 - INITIAL REPAIRS AT BRIDGE 1-693

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

S1 Repair damaged handrails, posts, planks and connections on the fenders. Timber fender repairs shall be in accordance with Section 621 and 1041 of the Standard Specification.

The work under this item shall include the following:

A. Replace the warped top rail at 3 locations as indicated on the drawings.
B. Repair the connection between the post and the top rail at 3 locations as indicated on the drawings.
C. Replace the post in 1 location as indicated on the drawings.
D. Repair the connection between the post and kicker board at 3 locations as indicated on the drawings.
E. Replace the walkway planking at 2 locations as indicated on the drawings.

M1 Replace shims and shoe fasteners at both span lock assemblies (rear guides, front guides, and receiving sockets). Shim live load bearings. Replace 1 loose turned bolt at the east front guide.

The work under this item shall include the following:

A. Coordinate temporary bridge closure to perform span lock and live load bearing work.
B. Furnish and install new shims at the span lock rear guides, front guides, and receiving sockets.
C. Furnish and install new turned bolts and studs for the span lock rear guide, front guide, and receiving socket shoes.
D. Furnish and install new turned bolt to replace loose fastener at east front guide.
E. Furnish and install new live load bearing shims and slotted head countersunk turned bolts.
F. Paint new turned bolts and new turned studs after installation.
G. Lubricate span lock guides, receiving sockets, and lock bars.

M2 Realign shims at the east span lock speed reducer and replace 1 loose turned bolt.

The work under this item shall include the following:

A. Realign the shims under the east span lock speed reducer.
B. Furnish and install new shims under the foot of the reducer to eliminate soft foot.
C. Furnish and install a new high strength turned bolt to replace the turned bolt where shims are loose.
D. Paint new turned bolt after installation.

M3 Seal oil leaks at the housing split line, cover plates, and inspection hatch at both span drive machinery speed reducers.

The work under this item shall include the following:

A. Schedule a temporary outage to navigation with DelDOT and USCG.
B. Seal leaks at the span drive machinery speed reducers according to the manufacturer's recommended procedure and witnessed by a representative of the manufacturer.
C. Flush reducer housing and fill with new oil.
D. Furnish all material needed to seal the oil leakage, including sealant, gaskets, and new oil.

E1 Clean and paint both the East and West span lock motors.

The work under this item shall include the following:

A. With a wire brush, clean corrosion and loose debris on the motor housing.
B. Apply paint to motor housing.
C. Clean and remove paint on the motor data nameplate. Provide new nameplate if cleaning does not make them legible.

E2 Properly splice and terminate the conductors within the West span lock motor disconnect switch.

The work under this item shall include the following:

A. Disconnect splice and remove load side feeders to motor.
B. Replace corroded conduit fittings and bodies. Furnish and install supports for flexible conduit.
C. Furnish and install ground lug inside motor disconnect switch.
D. Furnish and install 3#10 AWG and 1#10 AWG GND conductors from disconnect switch to west span lock motor.
E. Test, tag and terminate conductors in the west span lock motor and disconnect switch.

E3 Provide warning labels at the span motors and disconnect switches indicating that they are fed from multiple sources and all circuits feeding them should be switched off for service.

The work under this item shall include the following:

A. Clean the surface of each enclosure prior to installing the label.
B. Provide label in a clear and visible location.

E4 Organize wiring and add labels on conductors inside the motor control cabinets.

The work under this item shall include the following:

A. Organize all wiring inside the motor control cabinets, drive cabinets and control desk.
B. Remove inline compression (butt splices) and connected wiring where unused.
C. Use plastic straps or ties to secure wiring.
D. Reroute wiring within wiring ducts where possible and secure with new covers as needed.
E. Remove debris and spare parts inside the control cabinet.
F. Trace existing wiring and install labels on conductors per as-built drawings. Relabel all wiring that is unlabeled, illegible or missing a tag on either end of the conductor.

E5 Remove wire nut splices and terminate the spliced and unconnected wiring inside the motor control cabinets, drive cabinets and submarine cable terminal cabinets.

The work under this item shall include the following:

A. Identify wire nut splices and disconnected wiring in the motor control cabinets, drive cabinets, submarine cable termination cabinets and control enclosures.
B. For spare conductors which contain wire nuts, properly label as spare and secure connection to a terminal block.
C. For active or inactive wire nut splices, remove the existing wire nut connection and terminate the connection to a terminal block (preferred).
D. Where existing conductor length is insufficient to reach existing or new terminal blocks an inline compression splice is required and label at splice connection.
E. Trace wire number S2211 in the submarine cable cabinet and relabel.

E6 Clean and paint the exterior of the rotary cam limit switches, position transmitters and span lock limit switches and install missing fasteners.

The work under this item shall include the following:

A. Furnish and install fasteners where missing.
B. With a wire brush, clean corrosion and debris on the limit switch enclosures.
C. Apply paint on the enclosures and protect moving parts, grease fittings, nameplates and bearings.
D. Any limit switches damaged as a result of painting operations shall be replaced.

E7 Add fireproofing insulation between each floor penetration.

The work under this item shall include the following:

A. Remove any debris from existing openings in walls and floors in the control house and bascule piers.
B. Furnish and install fire proof grommet around existing pipes and conduits.
C. Where installing grommets are not feasible due to size of opening or accessibility, provide fire proof spray or sealant.

E8 Replace conduit fittings throughout the fender system.

The work under this item shall include the following:

A. Temporarily disconnect wiring and conduit on fender.
B. Furnish and install new stainless steel conduit fittings throughout the fender system.
C. Reconnect wiring, terminations and new conduit. Provide new labels where missing or illegible.

E9 Rehabilitate South warning gates and controls.

The work under this item shall include the following:

A. Disconnect wiring for existing south warning gates (2).
B. Remove warning gate arms and store.
C. Remove and dispose of warning gate housing and assembly.
D. Replace existing grout pads (2).
E. Furnish and install new warning gates as shown on the drawings and specified.
F. Furnish and install existing arms on the new south gates and adjust counterweight as required.
G. Furnish and install new relay contacts and reconnect warning gate wiring as shown on the drawings.
H. Furnish and install on-coming and off-going safety interlocking as shown on the drawings.
I. Adjust warning gate limit switch settings per as-built drawings and existing limit switches.
J. Test warning gates and further adjust as required.

E10 Relocate the pump/tank for the generator day tank such that fuel does not have to be fed from the lower level to replenish the day tank supply.

The work under this item include the following:

A. Remove existing tank on lower level and associated fuel lines and wiring.
B. Remove existing day tank adjacent to the generator and associated fuel lines and wiring.
C. Furnish and install new generator fuel tank and fuel lines in the generator room.

E11 Clean, seal the contactor and drive cabinets. Remove corrosion on components inside the contactor cabinet.

The work under this item shall include the following:

A. Apply seals and overhead shield over the drive and contactor cabinets.
B. Clean corrosion from the terminations, relays, contactors, terminal blocks, etc. Remove equipment for cleaning if required and re-install and reconnect.
C. Replace hardware lugs and connectors on corroded components.

E12 Replace drive cabinet conductors with high temperature conductors to feed resistors.

The work under this item shall include the following:

A. Remove existing wiring to the primary and secondary resistors.
B. Furnish and install new wiring of the same size with high temperature wiring.
C. Test, tag and terminate conductors per the as-built drawings.
D. Perform test opening to verify bridge operation using both main and emergency drive systems.

E13 Repair the emergency drive system.

The work under this item shall include the following:

A. Replace existing remote switch contactors with ASCO 170 or approved equal as shown on the plans.
B. Furnish and install new ASCO 175 switch with associated circuit breakers and control desk pilot lights as shown on the plans.
C. Furnish and install (2) new circuit breakers to replace the existing equipment to automatically turn the normal and emergency drive system on or off through the control system as shown on the plans.
D. Furnish and install a new transformer with fuses to connect to a new control relay and contacts as shown on the plans.
E. Replace control desk pilot devices as shown on the plans.
F. Perform test operations on normal and emergency systems.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Timber Fender Repairs.

The top rail, post and planking replacements shall meet the requirements of section 1041 of the Standard Specification.

Warning Gate Manufacturer Requirements.

It is the intent of this specification to specify and select a warning gate manufacturer and product that can provide long term reliable service and has the following features:

A. The model and equipment will be supported by the manufacturer for a minimum of ten years from the date of order and fabrication. This includes manufacturer's service and spare parts past the specified warranty period.
B. Experience with the selected model on at least five movable bridge applications.
C. Experience with traffic safety systems for a minimum of 10 years.
D. Nationally recognized manufacturer for traffic equipment.

The following requirements shall be confirmed by the manufacturer in writing at the time of order but prior to production of any related shop drawings. Objections to any of the requirements stated above can be submitted in writing for consideration.

Manufactures not meeting the above criteria will be considered but may be subjected to additional testing and inspection requirements not specified herein and at no additional cost to DelDOT.

The specified warning gate system shall be approved equal to VW-4 as manufactured by B&B Roadway.

Warning Gate Housing and Assembly.

The warning gate operating mechanism and main control components shall be contained in a weatherproof housing. The housing shall be constructed of .188" carbon steel, hot dip galvanized after fabrication. Exterior surfaces shall be painted aluminum. All fasteners shall be corrosion resistant. Arm shaft openings shall incorporate O-ring seals.

The front and rear access doors shall be mounted on full cross bronze straps. Hinges shall be of the slip-off type and shall have stainless steel pins. Door handles, two per door, shall use a vise action to compress a neoprene bulb-type gasket to seal the door openings. The contractor shall arrange and fabricate the warning gate for routine maintenance access from the back of each gate.

The gate shall be fixed to the existing foundation, using the existing anchor bolts. The gate housing base shall be provided with four 1.00" holes on a 20 1/4" square pattern. The mounting holes in standard base shall be slotted to allow for a 19 1/2" x 20 1/4" mounting pattern to accommodate the existing bolt patterns.

The warning arm shall pivot in the vertical plane via a mechanical 4-bar linkage. The linkage shall utilize cranks keyed to the main arm shaft and transmission shaft and an adjustable connecting rod between a pair of self-aligning spherical rod ends. The connecting rod shall be of 1" diameter AISI 4150. The linkage shall be driven by a fully enclosed, double reduction, worm gear speed reducer. Gear ratio used shall produce an operation time of 11 seconds.

The velocity of the arm shall follow a sinusoidal pattern to provide smooth operation. The arm shall begin and end its full motion path with zero velocity and accelerate smoothly to maximum velocity at mid-travel.

An internal heater with thermostat shall be furnished and installed in the housing, sized by the manufacturer to prevent condensation inside the gate.

Warning Gate Arm Lights and Flasher.

The existing warning gate lights mounted on the arm of each gate shall be reused. Each light shall be high impact plastic double-faced with lenses units. The lights shall be interconnected with a new four conductor plus ground portable cord using watertight connectors at the fixtures.

The existing lights shall be connected so that adjacent units flash alternately while the headlamp burns steady through a new 120 volt flasher. The flasher shall contain two alternating circuits, and one steady circuit and shall be rated for 10 amperes. Fuses for the warning lights and flasher shall be midget cartridge fuses, rated for 250 volt and sized base on the load.

Warning Gate Arms.

Each existing warning gate arm shall be reused and modified as required to fit on the new gate assembly. The arms shall operate through an angle of 90 degrees from the horizontal to the vertical.

The connection of the existing arm to the housing shall be a shear pin type connection as recommended by the manufacturer. Each gate arm shall be modified as required to be adequately braced transverse to its motion to resist wind loads and to reduce whipping and shall be guyed to prevent sagging. Each assembled gate and arm shall be designed for a 75 miles-per-hour wind load. A bumper rod with compression spring shall be provided near the end of each gate arm to stop the travel at the closed position without undue shock. Gate arms shall be equipped with guy wires configured in such a way that they do not project beyond the gate housing into the sidewalk when the gate is in the vertical position.

Warning Gate Motor Disconnect Switch.

A new disconnect switch shall be furnished and installed in each warning gate housing. The switches shall be capable of disconnecting motor and brake incoming power and heating power. The mechanism shall utilize a rotary switch or lever and the status of the switch shall be easily identifiable from the face of the unit.

Motor disconnect switches shall have a minimum rating of 10 amperes and include 3 poles and auxiliary contacts as shown on the plans in a common disconnect switch enclosure.

Warning Gate Door Safety Limit Switches.

New safety interlock limit switches shall be installed on each access door to the warning gate housings with one normally open and one normally closed contacts. Opening of a housing door shall disable the electrical motor and controls, and cancel any warning gate operation and group operation, as specified in this Special Provision.

The limit switches shall be metallic, watertight units rated NEMA 4X and rated for 10A at 120 volts and have a side rotary arm to engage the door and associated strike plate when the unit is mounted in the horizontal position. The arm and body shall be outdoor rated with corrosion resistant hardware.

Warning Gate Terminal Blocks and Connectors.

All terminations in the warning gate shall be made using modular, DIN rail mounted, corrosion resistant, feed through clamp type screw connection terminal blocks with vibration proof pressure plates. Terminal blocks shall be designed to be used with insulated wire ferrule terminal connectors.

Ground terminals shall be provided where required and shall clamp the system ground with the enclosure. All paint shall be removed in the section where the ground terminal is installed.

Terminal blocks shall have a minimum rating of 600 Volts, 32 amperes and shall be provided with jumper connectors where required to connect circuits and reduce wiring. Conducting parts shall be nickel plated copper and insulating material shall be flame retardant thermoplastic. Corrosion resistant marking strips shall be provided for conductor identification. At least ten- percent spare terminals shall be provided.

Terminal blocks shall be provided with factory printed labels for each connection point which correspond to the as-built drawings. The labels shall be installed on the top and bottom of each terminal block.

Wire Ferrules Connectors shall be seamless, heavy-duty insulated wire ferrules terminal lugs. Terminal lugs shall be installed per lug manufacturer recommendations using the proper tools approved by the manufacturer.

All internal wiring to and from the terminal blocks shall be a minimum of No. 12 AWG.

Warning Gate Circuit Breakers.

Circuit breakers shall be provided as shown on the plans or as otherwise required for heating, flasher and gong circuits.

Circuit breakers shall be single pole miniature type and meet the requirements of UL 489. The miniature circuit breakers shall be din railed mounted in the control panels and shall have a trip curve of C or higher.

Warning Gate Limit Switches.

Each gate limit switch assembly shall be a self-contained unit. The assembly shall provide 8 independent SPDT control switches. Switches shall be rated for 15 amps at 480 VAC. Switches shall be controlled by individually adjustable cams. The limit switch assembly design shall permit adjustment of all cams with the gate in any position. The limit switch assembly shall have a removable cover to help prevent accidental contact with switch terminals. Shaft, cams, bushings and housing pieces shall be of non-ferrous corrosion resistant materials.

Each warning gate shall also be provided with a hand crank limit switch installed on the output shaft of the motor. Each limit switch shall be watertight and rated NEMA 4X. Insertion of the hand crank mechanism or drill shall disable gate operation. The hand crank limit switch shall have a plunger style head and limit switch body.

Warning Gate Motor.

Each warning gate shall be provided with a TENV squirrel cage motor with size as recommended by the gate manufacturer. The motor shall be a C-face design and shall be mounted directly to the transmission. The motor shall be instantly reversing and be provided with an internal motor winding heater. The motor shall be provided with a solenoid release, automatic braking unit attached to the back end of the motor. The brake shall be provided with a manual release lever to permit manual operation of the gate.

Remote Control Switch/Contactor.

The contactor shall furnish and install two new remote-control switches in the motor control cabinets to replace the existing units for the emergency operating system (34A and 34B) as shown on the plans.

The new contactor shall be rated 200A and operate at 3 phase, 480VAC. The switch shall be double-throw, mechanically held contactor to switch capable of switching between two loads from a common supply. The control voltage to the coil shall be 120VAC and shall include auxiliary contacts as shown on the plans or otherwise required.

The remote-control switch shall be the ASCO 175 or approved equal and designed for motor load circuits.

Circuit Breaker Motor Operator.

The contractor shall furnish and install a new circuit breaker as specified under "Common Provisions for Electrical Work" and shall include a motor operator meeting the requirements below.

The motor operator shall be capable of operating the required circuit breakers (CB18 and CB19) automatically from the new and existing controls and shall be compatible with the selected circuit breaker. The motor operator shall operate at 120VAC and shall be connected as shown on the plans and include the necessary auxiliary contacts.

The motor operator shall be an Eaton EOP solenoid unit or approved equal.

Generator Diesel Fuel Lines.

Diesel fuel piping shall be replaced in-kind where specified and as required to relocate the fuel tank(s). In general, new fuel lines shall be black iron or flexible fuel hose rated for this service. No galvanized piping will be permitted. Flexible fuel lines shall be minimally rated for 300 degrees F and 100 psi.

Coupling and fitting shall be welded to the tank for connections to vent line, tank fill, low level fuel alarm, high level fuel alarm, engine fuel supply, engine fuel return, basin alarm, control sensor and fuel gauge.

The end of the suction line in the tank shall be provided with a double-poppet, brass foot valve and strainer located 3 inches clear above the bottom of the tank. Connection of both lines at the engine shall be made with bronze, flexible fuel hose with brazed-on brass couplings and threaded terminal fittings. The hose shall be approved equal to Anaconda Type S-1-H, Atlantic Metal Hose Type A-IP or Flexonics Series 300.

The connection in the fuel suction line shall be made with forged steel, plain-faced, slip-on welding flanges conforming to the requirements of ANSI B16.5-1968. The flanges shall be welded back and front to the connecting pipes. Gaskets shall be suitable for the intended use.

Standard steel piping shall conform to the requirements of the current ASTM A53, Type S-Grade A. All piping shall be complete with all valves, fitting, supports, supports and clamps necessary for a complete installation. Drain plugs shall be provided at all low points in the fuel lines.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Timber Fender Repairs.

All repairs to the timber fenders shall be performed in accordance to Section 621 of the Standard Specification.

Suggested Procedure for Shimming the Live Load Bearings and Span Locks.

A. Prior to shimming the live load bearings and the span locks (rear guides, front guides, and receiving sockets), the Contractor shall field verify bolt dimensions and bolt spacings for the fabrication of the new turned bolts, turned studs, and shims.
B. Schedule temporary bridge closure to perform work. No vehicles or heavy equipment shall be permitted on the span during the shimming of the live load bearings and span locks.
C. With the live load bearings at both leafs in hard contact and the span locks pulled, check the alignment of the leaf heel joints and the toe joint. If either of the heel joints or the toe joint are not aligned within 1/8", live load bearing shim adjustments will be required.

D. Partially raise both leafs and temporarily remove the live load bearing sole plates and shims.
E. Lower the leafs until the heel joints and toe joint are aligned within 1/8" at the crown of the roadway. Measure the live load bearing location clearances (between the live load bearing anchorage strike plate and the bascule girder) to determine the amount of shims needed for the live load bearings to be in hard contact.
F. Partially raise the leafs and reinstall the live load bearing sole plates and shims (as needed) with undersized countersunk bolts.
G. Lower the leafs until the live load bearings are in hard contact. Verify the deck joints are properly aligned. Adjust shims as needed until the joints are properly aligned when the live load bearings are in hard contact. Adjust the fully seated limit switches to stop the leafs when in the new seated position.
H. With the leaf joints aligned and live load bearings in hard contact, replace the shims at the span lock front guide, rear guide, and receiving sockets. Adjust shims as needed to provide the clearances specified in the Contract Drawings.
I. Perform a bridge operation. Upon seating the leafs, verify the contact at the live load bearings and the clearances at the span locks. Readjust shims if needed.
J. Replace the undersized bolts at the live load bearing sole plates with full-sized slotted head countersunk turned bolts.
K. Install the safety wire at the span lock rear guide, front guide, and receiving socket turned studs.
L. Clean and paint new turned bolts and turned studs.

Temporary Bridge Closure.

Shimming of the live load bearings and span locks shall be performed during a temporary bridge closure. No vehicular traffic shall be permitted on the bascule span if the live load bearings are not fully assembled, if any of the span lock guides or sockets are not fully assembled, or if the span locks are not driven. Refer to "Lane Closures and Bridge Closures" section of the "Common Provisions for Bridge Maintenance" for bridge closure restrictions and requirements.

Span Drive Machinery Speed Reducers.

The Contractor shall contact the reducer manufacturer for procedures to eliminate oil leaking at the housing split lines and shaft cover plates in the field. The Contractor shall submit the procedure to the Engineer for review prior to proceeding with the repairs. The Contractor shall furnish the necessary material needed and have a representative of the reducer manufacturer on-site to perform the repairs. The Contractor shall also furnish and install new inspection hatch gaskets for the reducers.

The span drive machinery will not be operational while speed reducer leaks splits lines and shaft cover plates are sealed. The Contractor shall coordinate with DelDOT and United States Coast Guard for any temporary bridge closures needed to perform the speed reducer repairs.

Method of Measurement:

Item 615613 - Initial Repairs at Bridge 1-693, will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615613 - Initial Repairs at Bridge 1-693. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615613 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

9/13/2018

615619 - INITIAL REPAIRS AT BRIDGE 2-021A

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

S1 Strengthen the steel railing post to timber sidewalk connection on the north end of the bascule span.

The work under this item shall include the following:

A. Field verify all dimensions.
B. Remove existing base plate screws. Drill holes in timber sidewalk decking.
C. Install new support angle on the underside of the sidewalk and fasten it with new bolts to the railing post and the sidewalk support channel.

S2 Trim the east steel curb at the south pier where it interferes with the concrete curb on the fixed span. Eliminate the handrail interference and reattach the handrail post.

The work under this item shall include the following:

A. Trim the end of the curb channel flush with the roadway grid deck, grind smooth as needed. Repaint.
B. Remove bascule span railing end cap and trim handrail to establish a 1" gap. Furnish new weldable cap cover for handrail post and weld into place.
C. Clean the detached handrail post and plate in accordance to the SSPC-SP3 specifications. Weld the post back onto plate.
D. Open the bridge and verify the 1" gap has been established.
E. Touch up paint where paint is disturbed.

S3 Repair the east and west bascule girder bottom flanges at the live load bearings.

The work under this item shall include the following:

A. Remove the rivets attaching the vertical web stiffener angles and bottom flange angles at the live load bearings.
B. Remove the sole plate and bottom L5x3.5x.375 a minimum of 24" for both east and west bascule girders. Contractor to verify length of repair needed to ensure any deformations in the angle are removed and repaired accordingly.
C. Replace the sole plate and angles as shown on drawing details. Drill and ream girders and angles at the existing rivet locations and replace the 7/8" diameter rivets with 1" diameter bolts.
D. Replace missing anchor at the west live load bearing and the loose inboard anchor specified on the east live load bearing with two new 1" diameter adhesive anchors at each masonry plate location.
E. Shim both live load bearings as needed to align the toe joints while maintaining the existing gap between the sole plate and centering guide for both bascule girders.
F. Adjust fully seated limit switch as needed for proper indication.

M1 Rehabilitate the air buffer.

The work under this item shall include the following:

A. Remove air buffer from the bridge and transport to shop.
B. Furnish and install temporary balance weight at the end of the span.
C. Disassemble and inspect air buffer components. Machine the inside of the housing to remove corrosion, scoring, or other damage.
D. Apply electroless nickel plating to the inside surface of the housing.
E. Replace piston rings. Install new check valve and needle valve.
F. Reassemble air buffer.
G. Replace the piston rod guide bushing. Inspect the piston rod for damage and polish to remove any scoring or corrosion.
H. Remove the temporary balance weight material.
I. Reinstall the air buffer with new high strength turned bolts.
J. Test the operation of air buffer and adjust valves.

M2 Replace the missing span lock pin.

The work under this item shall include the following:

A. Furnish and install a new span lock pin, mounting bracket, and fasteners.
B. Secure the pin to the existing span lock base.

M3 Modify the machinery brake cover. Inspect and adjust the hand release linkage.

The work under this item shall include the following:

A. Remove the existing cover and modify as shown on the Contract Drawings.
B. Install new brake cover supports.
C. Inspect machinery brake hand release linkage and adjust if needed for proper operation of the hand release mechanism.
D. Reinstall modified machinery brake cover.

M4 Trim keys at west pinion G1. Install cover plate over the keys.

The work under this item shall include the following:

A. Verify that west pinion G1 keys are secure and are not loose.
B. Cut the keys flush with the end of the shaft and pinion.
C. Drill and tap the end of the shaft for mounting of the new cover plate.
D. Furnish and install new shaft cover plate.
E. Paint new components.

E1 Clean and paint the span motor, motor brake and machinery brake. Install missing fasteners on the span motor access cover.

The work under this item shall include the following:

A. Contact the motor brake and machinery brake manufacturers for a procedure to paint the brakes.
B. With a wire brush, clean corrosion and debris on the span motor, motor brake, and machinery brake.
C. Clean and remove any existing paint on the motor nameplates.
D. Apply paint on the motor housing and protect nameplates.
E. Furnish and install fasteners on the span motor access cover.
F. Paint the motor brake and machinery brake per the manufacturer's procedures.
G. Verify proper operation of the motor brake and machinery brake after paint has cured.

E2 Terminate uncapped conductors inside the control desk, motor control panel, north and south submarine cable terminal boxes. Replace the south submarine cable terminal box.

The work under this item shall include the following:

A. Identify all disconnected and unterminated wiring within the control desk, motor control panel and north submarine cable terminal box.
B. Remove any existing wire nut connections and terminate the conductors to a terminal block.
C. For spare conductors properly label as spare and secure connection to a terminal block.
D. Provide and install new terminal blocks as necessary.
E. Where existing conductor length is insufficient to reach existing or new terminal blocks, an inline compression splice as specified is acceptable.
F. Disconnect existing submarine cable from far side termination box
G. Remove existing submarine cable termination box.
H. Provide 12" concrete pad, extend conduit as required.
I. Furnish and install a new south submarine cable terminal box.

E3 Replace the junction box routed to the machinery brake. Replace the missing conduit box cover for lighting on the counterweight.

The work under this item shall include the following:

A. Remove existing junction box and disconnect wiring.
B. Furnish and install a new junction box at the machinery platform.
C. Connect existing conduits and wiring to the new junction box.
D. Replace all corroded fittings and hardware at the junction box.
E. Furnish and install a new conduit box cover of the same kind and size for the conduit box on the counterweight.
F. Furnish and install conduit fitting for the conduit box on the counterweight.

E4 Provide an identifiable marking on all existing ground conductors inside the motor control panel and contactor panel.

The work under this item shall include the following:

A. Identify all ground conductors inside the motor control and contactor panels.
B. Furnish and properly mark all ground conductors with green tape.

E5 Clean and paint corrosion at the motor control panel.

The work under this item shall include the following:

A. With a wire brush, clean corrosion and debris at the base of the motor control panel.
B. Replace corroded hardware.
C. Apply paint at the base of the enclosure.

E6 Replace the door latch for the contactor panel.

The work under this item shall include the following:

A. Replace the door latch for the contactor panel with a new slotted flush latch type.

E7 Clean and paint the north traffic signal heads.

The work under this item shall include the following:

A. With a wire brush clean debris on the north traffic signal heads.
B. Apply paint on the traffic signal heads and protect the lenses.

E8 Replace the missing conduit clamp at the machinery platform. Install missing fasteners for the junction box cover to the southwest pier light.

The work under this item shall include the following:

A. Furnish and install a new stainless steel conduit clamp at the machinery platform.
B. Furnish and install missing fasteners on the junction box cover to the southwest pier light.
C. Replace existing corroded hardware.

E9 Clean and paint the motors at both the north and south warning gates. Replace the motor disconnect switch in the south warning gate. Replace the door handle at the south warning gate, clean and paint behind the door hinges of the south warning gate housing.

The work under this item shall include the following:

A. With a wire brush, clean corrosion on the both warning gate motors and behind door hinges at the south warning gate.
B. Apply paint on the warning both the south and north warning gate motors and behind the door hinges of the south warning gate. Protect gates and other moving parts during painting.
C. Protect all nameplates while applying paint.
D. Clean and remove any existing paint on the motor nameplates.
E. Replace the door handle at the south warning gate.
F. Disconnect all wiring connected to the existing disconnect switch.
G. Remove existing disconnect switch.
H. Furnish and install a new motor disconnect switch inside the south warning gate.
I. Reconnect all wiring to the disconnect switch.
J. Perform testing to demonstrate that the operation is interrupted when the disconnect switch is in the off/trip position.

E10 Replace the striping at both the north and south warning gate arms. Replace the pedestrian gate arm at the north gate with a longer arm to restrict the walkway passage. Replace the SOOW cable for the warning lights at the south warning gate.

The work under this item shall include the following:

A. Disconnect the existing SOOW cable and wiring from the flasher and arm lights at south warning gate.
B. Furnish and install new wiring and SOOW cable for the arm lights to allow for two (2) flashing circuits and one steady circuit.
C. Furnish and install new cable bushing and supports as required.
D. Connect new wiring and SOOW cable to existing flasher and test for correct operation.
E. Remove both gate arms from the existing warning gates and provide temporary means of stopping traffic.
F. Coordinate the removal of the warning gate arms with DelDOT.
G. Remove existing discolored stripes on both warning gate arms. Contact B&B roadway for procedures.
H. Cover both the front and rear arm surfaces with alternating red and white high intensity reflective sheeting.
I. Remove the existing pedestrian arm for north warning gate.
J. Furnish and install a new extended pedestrian gate arm.
K. Verify that the arm restricts the walkway passage when the gate is in the lowered position.

E11 Replace the conduit support located on the north span, under the sidewalk.

The work under this item shall include the following:

A. Remove the existing conduit supports.
B. Furnish and install new conduit support.
C. Adjust conduit, box and wire to accommodate new supports.
D. Coordinate the work with repair item E12.

E12 Install support for the conduit routed below the northwest sidewalk and fasten the droop cables to the support on the span.

The work under this item shall include the following:

A. Furnish and install stainless steel U-bolts to support to the conduit below the northwest sidewalk.
B. Tighten loose fasteners and install new fasteners where missing.
C. Install new stainless steel, U-bolts or clamp (oversized), support and fasteners (loosely) to the droop cables.

E13 Repair the advanced warning signal at the south approach and install an operational sign. Repair the gong at the north traffic signal pole.

The work under this item shall include the following:

A. Troubleshoot the warning signal for its functionality.
B. Perform repairs to restore proper operation of the warning signal.
C. Replace damaged and or nonfunctional components as necessary.
D. Reconnect all wiring prior to testing being performed.
E. Perform testing after all modifications to demonstrate a properly restored operation.
F. Clean warning signal heads and apply paint as necessary. Protect the lenses.
G. Furnish and install Draw Bridge Ahead sign (W3-6) on the warning signal pole.
H. Remove and disconnect the gong at the north traffic signal pole.
I. Rehabilitate and replace damaged and or nonfunctional components as necessary.
J. Re-install the gong and reconnect all wiring prior to testing being performed.
K. Perform testing after all modifications to demonstrate a properly restored operation.

E14 Replace the emergency lights in both the operator's house main and lower levels.

The work under this item shall include the following:

A. Replace both emergency light fixtures in the operator's house main and lower levels.
B. Verify successful operation of both emergency lights after installation.

E15 Remove excessive lubrication within the span motor housing and both warning gate housings.

The work under this item shall include the following:

A. De-energize, lockout all power and control to the warning gates and span motor.
B. Clean and remove excessive lubrication inside the span motor housing.
C. Clean and remove excessive lubrication on components inside both gate housings.

E16 Adjust the control circuit for the fully closed proximity sensor such that the motor brake sets when the lower contact is energized.

The work under this item shall include the following:

A. Field verify existing wiring and connections for the fully closed, lower relay and brake circuits.
B. Modify the control circuit as shown on the plans.
C. Perform testing after all modifications to demonstrate proper operation.
D. Field adjust timers and fully closed proximity sensor setting as required.

E17 Repair the fender pier lights. Tighten the east span navigation light fixture to prevent water infiltration.

The work under this item shall include the following:

A. Properly adjust the pier lights to align with the navigational channel in accordance with USCG requirements.
B. Clean and remove water pooling in the east span navigation light system.
C. Secure and firmly tighten loose connections to prevent water penetration in the span navigation light system.
D. Replace gaskets and damaged components as necessary.

E18 Replace the handle and operating mechanism for the motor control panel circuit breaker. Properly secure and mount the timer relays in the control desk and provide labels.

The work under this item shall include the following:

A. Furnish and replace all defective parts associated with the circuit breaker operator and handle.
B. Verify that the motor control panel circuit breaker can be operated by means of the operator and handle.
C. Secure the existing timer relays for motor off and brake in the control desk.
D. Provide each timer relay with non-handwritten labels as "Motor Off Timer" and "Brake Timer".

E19 Replace the missing electrical box cover under the southwest cantilevered sidewalk.

The work under this item shall include the following:

A. Furnish and install a new electrical box cover of the same kind and size.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Timber Railing Connection Strengthening.

The steel angle used to strengthen the post connection shall satisfy the requirements of Section 1039.01 of the Standard Specification. The steel bolts used to fasten the new steel angle to the sidewalk shall satisfy the requirements of Section 1039.02 of the Standard Specification.

Bascule Girder Repair.

All steel used to repair the east and west bascule girder at the live load bearing shall satisfy the requirements of Section 1039.01 of the Standard Specification. The steel bolts used to connect the new steel members shall satisfy the requirements of Section 1039.03 of the Standard Specification.

Countersunk Bolts.

The heads of the countersunk bolts for the live load bearing repair shall be in accordance with ANSI Standard B18.5, Round Head Bolts. Countersunk bolts shall meet the material requirements of ASTM A449. The heads of countersunk fasteners shall be recessed 1/16" from the bottom of the sole plate.

Temporary Balance Material.

The Contractor shall furnish and install 5 steel temporary balance plates (15" x 18" x 1" each with a total weight of approximately 375 lbs). Balance material shall meet the requirements of ASTM A36 steel. The Contractor may adjust the dimensions of plates provided that the total weight installed remains the same and the Contractor verifies that the proposed balance material will not interfere with operation of the span.

Warning Gate Motor Disconnect Switches.

A new disconnect switch shall be furnished and installed in the south warning gate housing. The new unit shall be either 4 pole or 3 pole, non-fusible and shall have an auxiliary contact capable of disconnecting the motor and brake incoming and heating power. Install in a location that is easily seen and accessible. The mechanism shall utilize a rotary switch or lever and status of the switch shall be easily identifiable from the face of the unit. The disconnect switch shall be the R5 series as manufactured by Eaton or approved equal with three pole rotary switch with auxiliary contact and terminal shrouds.

Emergency Lights.

Emergency Lighting units shall be furnished and installed in the operator's house main and lower levels. The new units shall consist of three 12-watt, H-lamp, halogen lamps with a solid-state dropout circuit for instantaneous load transfer on A-C failure. The emergency power source shall consist of two sealed, long-life, 10-year minimum, lead-acid batteries that shall be kept at full charge by a solid-state, pulse type battery charger. The battery shall have sufficient capacity to operate the specified lamps for a period of not less than 5 hours.

All components shall be furnished in a sheet-steel housing suitable for wall mounting and provided with a permanent conduit connection. Emergency lighting units conforming to the specified requirements are manufactured by Exide Electronics, Emergi-Lite, Dual-Lite, or Engineer approved equal.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Bridge Roadway Closures.

Night time roadway bridge closures will be needed to perform the bascule girder repairs and removal / installation of the air buffer. At the bascule girder where work is being performed, new components must be installed wherever existing components were removed, all new fasteners must be properly torqued, and both live load bearings must be in hard contact prior to allowing traffic to cross the span.

The Contractor shall coordinate with DelDOT for all bridge closures and lane closures required to complete initial the repairs.

Timber Railing Connection Strengthening.

All work involving the strengthening of the sidewalk railing shall be performed in accordance to Sections 615 and 626 of the Standard Specifications as applicable.

Trim the Curb Channel and Modify Handrail.

All work involving trimming the curb channel shall be performed in accordance to Section 615 of the Standard Specifications. The Contractor shall open the bridge after trimming the channel to check for interference.

Bascule Girder and Anchor Repair.

All work involving the repair of the east and west bascule girder at the live load bearing shall be performed in accordance to Section 615 of the Standard Specifications. Contractor shall field verify all dimensions prior to fabricating replacement angles and plates. The removal of rivets is to be performed by mechanical methods. Burning, arc-gouging or oxygen lancing are prohibited in order to protect the structural integrity of the bascule girder.

Temporary Span Balance Adjustments.

After removal of the air buffer, the Contractor shall add 375 lbs of balance weight to the toe of the span at the air buffer location. Balance plates installed at the span shall be secured to the floorbeam using the existing holes for the air buffer. No new holes shall be drilled into the floorbeam unless approved by the Engineer. The Contractor shall remove the temporary balance weight when the air buffer is reinstalled.

Method of Measurement:

Item 615619 - Initial Repairs at Bridge 2-021A will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615619 - Initial Repairs at Bridge 2-021A. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615619 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

615625 - INITIAL REPAIRS AT BRIDGE 3-151

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

S1 Replace the broken hinge on the counterweight pit west side access hatch.

The work under this item shall include the following:

A. Furnish and install new hinge for the counterweight pit access hatch.

S2 Remove debris from the pier caps of piers 2 & 3 and properly dispose of it.

The work under this item shall include the following:

A. Clean and dispose of debris from the pier caps of pier 2 (rest pier) and pier 3 (bascule pier).

M1 Install a debris shield over P2/G2 gearsets.

The work under this item shall include the following:

A. Furnish and install debris shields over both P2/G2 gearsets

M2 Replace the west trunnion hub turned bolts. Clean and spot paint the trunnion assemblies, main pinion bearing bolts, and the rack bolts.

The work under this item shall include the following:

A. Remove existing west trunnion hub turned bolts. Perform material testing on one existing trunnion hub turned bolt. Furnish and install new turned bolts.
B. Clean and paint both trunnion assemblies.
C. Clean and spot paint main pinion bearing bolts.
D. Clean and spot paint the portion of the rack bolts inside the rack supports.

E1 Provide warning label at the span motor disconnect switch indicating that it is fed from multiple sources and all circuits feeding the disconnect switch should be switched off for service.

The work under this item shall include the following:

A. Clean the surface of the enclosure prior to installing the label
B. Provide a phenolic red engraved nameplate with white text in a clear and visible location.

E2 Replace the motor overload dashpot relays.

The work under this item shall include the following:

A. Replace 3 existing motor overload relays
B. Furnish, install, and adjust 3 new motor overload relays.

E3 Place an identifiable marking on the ground conductor in the control desk. Install wire duct covers inside the control desk.

The work under this item shall include the following:

A. Identify the ground conductor inside the control desk.
B. Furnish and properly mark the ground conductor with green tape.
C. Furnish and install wiring duct covers inside the control desk.

E4 Replace the missing fasteners for conduit clamp at the northwest approach, the junction box on the south wall of the machinery platform, and the west droop cable junction box.

The work under this item shall include the following:

A. Furnish and install missing fasteners for the conduit clamp at the northwest approach, the junction box on the south wall of the machinery platform and the west droop cable junction box.
B. Tighten loose fasteners and replace corroded hardware as necessary.

E5 Terminate all disconnected conductors in the junction box at the southwest approach.

The work under this item shall include the following:

A. Identify all disconnected and unterminated wiring in the junction box at the southwest approach.
B. Remove any existing wire nut connection and terminate the connection to a terminal block.
C. For spare conductors, properly label as spare and secure connection to a terminal block.
D. Provide and install new terminal blocks on a new backpanel.
E. Where existing conductor length is insufficient to reach existing or new terminal blocks, an inline compression splice as specified is acceptable.

E6 Clean and paint the rotary cam limit switch enclosure.

The work under this item shall include the following:

A. With a wire brush, remove corrosion and debris on the rotary cam limit switch enclosure.
B. Protect all moving parts from paint.
C. Apply paint on the enclosures.

E7 Adjust the fender pier lights and relocate span mounted navigation lights.

The work under this item shall include the following:

A. Properly adjust the location of the pier lights and the span navigation lights to align with the navigational channel in accordance with the USCG requirements.
B. Submit for review the mounting of span navigation lights at the new location.
C. Furnish and install new conduit, fittings, and wire to be routed to the new location of the span navigation lights. Do not splice existing conductors.

E8 Clean and lubricate the limit switch assembly and chain in the north warning gate. Clean and paint the north warning gate housing and clean the interior.

The work under this item shall include the following:

A. With a wire brush, remove corrosion on the limit switch assembly and chain in the north warning gate.
B. Apply lubrication on the chain.
C. With a wire brush, clean and remove corrosion on the north warning gate housing.
D. Apply primer and galvanizing paint on the housing.
E. Clean the interior of the north warning gate. Remove excessive lubrication on components.

E9 Replace the mounting clamp for the warning bell at the north traffic signal pole.

The work under this item shall include the following:

A. Furnish and install a new stainless steel mounting clamp for the existing warning bell at the north traffic signal pole.

E10 Replace the safety door limit switch at the north warning gate. Replace corroded hardware at the north warning gate strap.

The work under this item shall include the following:

A. Disconnect existing door switches.
B. Furnish and install safety door limit switch with new hardware at the north warning gate and reconnect all existing wiring.
C. Perform testing after modifications to ensure proper operation.
D. Remove corroded hardware at the north warning gate door strap.
E. Furnish and install new hardware.

E11 Secure droop cables on the west side of the span.

The work under this item shall include the following:

A. Field verify movement of the span and location of the droop cables. Take measurements as required.
B. Cut back and re-terminate excess cables if determined excess cable length is installed.
C. Furnish and install new stainless-steel bracket hangers to support the droop cables and prevent the cable from being submerged into the water.
D. Perform test operations to verify.

E12 Replace the existing manual transfer switch (MTS) with a new safety switch for the portable generator.

The work under this item shall include the following:

A. Coordinate all work with DelDOT and Delmarva Power for switching power off.
B. With the service power switched to the off position, disconnect the existing safety switch and all wiring connections.
C. Furnish and install a new double pole-double throw safety switch with a receptacle for the portable generator at the base of the enclosure.
D. Reconnect all wiring.
E. Rent or temporarily furnish a portable generator with cord set to perform testing after installation of the new safety switch to ensure proper operation. The portable generator shall be capable of operating the bridge under full load.

E13 Replace the "Fully Closed" limit switches.

The work under this item shall include the following:

A. Provide component cut sheets and mounting details related to the "Fully Closed" limit switch and submit for review and approval.
B. Remove existing fully closed limit switches.
C. Furnish and install 2 new "Fully Closed" limit switch as specified and shown on the plans.
D. Furnish and install new junction box, flexible liquid tight conduit and associated conduit fittings to limit switches.
E. Adjust the limit switches to achieve the settings to make/break per as-built drawings and existing limit switches.
F. Test limit switches and further adjust as required for proper operation.

E14 Configure the warning lights on the north warning gate arm such that they are compliant with the MUTCD. Replace the SOOW cable for the north warning gate warning lights.

The work under this item shall include the following:

A. Disconnect the existing SOOW cable and wiring from the flasher and arm lights for the north warning gate.
B. Properly adjust the warning lights and or warning gate flasher wire connections on the north warning gate arm to meet the standard gate arm lights operation in accordance with the MUTCD requirements.
C. Furnish and install new wiring and SOOW cable for the arm lights to allow for alternating flashing circuits and one steady circuit at the tip of the gate arm.
D. Coordinate removal of the gate arm for connection and wiring of the arm with DelDOT.
E. Connect new wiring and SOOW cable to existing flasher and test for correct operation.
F. Perform test operations to verify.

E15 Modify the span operation control logic to integrate the motor brake and machinery brake "Hand Released" limit switches. Install a new hand released indicating light on the control desk.

The work under this item shall include the following:

A. Integrate the existing "Hand Released" limit switches and the new indicating light for the motor and machinery brakes into the control circuit as shown on the plans.
B. Furnish and install a new indicating light and nameplate on the control desk for the hand released limit switches.
C. Furnish and install new relay as shown on the plans.
D. Furnish and install new ¾" conduit from control desk to bridge control cabinet with 4#12 AWG and 1#12 AWG GND.
E. Perform testing after all modifications to demonstrate that the hand-released limit switches prevent span operation when disengaged and the pilot indicator light on the control desk is illuminated when active.

E16 Review and modify the push-to-test circuit.

The work under this item shall include the following:

A. Field verify existing wiring for the control desk indicating light circuits.
B. Revise and modify the push-to-test circuit to prevent illumination of the "Green Traffic Lights" and "Far Gate Open" indicating lights when the "Near Gate Open" indicating light push to test is engaged.
C. Adjust all wiring connections and perform testing to ensure proper operation.

E17 Replace the rear door at the north warning gate. Tighten loose anchor in the south warning gate.

The work under this item shall include the following:

A. Detach and remove the existing north rear warning gate door.
B. Furnish and install a new galvanized warning gate door.
C. Furnish and install new fasteners and hardware for the new warning gate door.
D. Tighten and secure the loose anchor in the south warning gate.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Access Hatch Hinge.

Contractor shall field verify the access hatch product identification and hinge size and shall select a compatible replacement hinge based on the manufacture's recommendations.

Door Switches.

New warning gate door switch shall be furnished and installed on the north warning gate access door to open the control circuit and de-energize the motor controls when the door is open. Opening of the housing door shall disable electrical motor and controls and cancel any warning gate operation and group operation. The new door switch shall be E19-00M with 1 NO/1NC contact.

Limit Switches.

A total of two seated limit switches shall be furnished and installed for the bridge as shown in the Plans to replace the existing. The switches shall trip when the respective corner of the span is fully seated on its bearing in the fully closed position.

Each limit switch shall be a track type, lever actuated, spring return, two circuit limit switch in a bronze, watertight NEMA 4X enclosure and shall be provided with a straight bronze lever with roller, size to match the existing.

Each fully seated limit switch shall be installed in such a way to permit field adjustment of the trip point in order to optimally sense the actual fully seated position of the leaf. The bracket mounted on the leaf to trip the switch shall also be field adjustable.

The plunger type fully seated limit switches shall be approved equal to the NAMCO EA780 NEMA 4X series.

Manual Transfer Switch for Portable Generator.

New quick-connect safety switch for portable generator with a receptacle at the base of the enclosure shall be furnished and installed to replace the existing switch adjacent to the main breaker. The new switch shall be an unfused safety switch, for use as a disconnect, and shall be capable of switching between the normal power, the generator and off positions.

The new unit shall be 3 pole, non-fusible, double-throw, 240 VAC, safety switch in watertight and dust-tight NEMA 3R enclosure with a rating of 200 amperes. A generator receptacle easily seen and accessible shall be provided at the base of the enclosure with a rating of 200A. The new safety switch shall be equal to Eaton DT324URK.

Indicating Lights.

Indicating lights shall be heavy-duty NEMA type, 1.2 inch diameter base, oil-tight sockets provided with 6-watt lamps rated 120 volts AC. All lenses shall be glass, with color and escutcheon plates.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Method of Measurement:

Item 615625 - Initial Repairs at Bridge 3-151 will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615625 - Initial Repairs at Bridge 3-151. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615625 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

9/13/2018

615641 - INITIAL REPAIRS AT BRIDGE 3-164

Description:

This work shall consist of the furnishing, refurbishing, installing, testing, and adjusting new and existing portions of the bridge structural, electrical, and mechanical systems, as specified herein, by the Contractor and/or qualified Subcontractor(s) (refer to "Project Scope of Work" Special Provision).

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for general requirements and common specified materials. The sections of "Common Provisions for Bridge Maintenance", including (but not limited to) Maintenance Schedule, Safety Procedures, Bridge Information & Access, and Maintenance Sequence & Procedures, shall also apply to the initial repair work.

Any incidental apparatus, appliance, access equipment, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Repair ID Repair / Scope of Work

M1 Clean and paint the turning machinery, end screw jack machinery, balance wheels, balance wheel tracks, and pivot bearing assembly.

The work under this item shall include the following:

A. Furnish paint and clean and paint the turning machinery, end lift machinery, the balance wheel assemblies, balance wheel track at the pivot pier, and the pivot bearing assembly.

M2 Shim and paint the passive live load bearings.

The work under this item shall include the following:

A. Field verify shim dimensions.
B. Furnish and install shims at the passive live load bearings to reduce clearances as noted on the Plans.
C. Clean and spot paint passive live load bearings.

M3 Replace the lubrication lines.

The work under this item shall include the following:

A. Field verify lubrication fitting sizes and required length of each lubrication line.
B. Furnish and install new balance and pivot bearing lubrication lines and all necessary fittings.

M4 Replace end screw jack machinery coupling seals.

The work under this item shall include the following:

A. Temporarily disassemble end lift machinery couplings as needed to field verify coupling models prior to ordering seal, gasket, and bolt kits from the coupling manufacturer(s).
B. Schedule a temporary outage to navigation and/or bridge closure with DelDOT and the USCG.
C. Install temporary support for shafts.
D. Disassemble couplings. Furnish and replace seals, gaskets, fasteners, and lubricant.
E. Reassemble couplings with new bolts and fill with new lubricant. Torque bolts per manufacturer's specifications.
F. Spot paint new fasteners.

E1 Clean debris from the end screw jack motor and span motor disconnect switches. Secure the end screw jack motor disconnect switch.

The work under this item shall include the following:

A. With a wire brush, remove all debris on the end screw jack motor and span motor disconnect switches.
B. Replace corroded conduit fittings feeding the end screw jack motor and span motor disconnect switches.
C. Replace broken/damaged parts attached to the end jack screw motor disconnect switch.
D. Furnish and install hardware as necessary and tighten all loose parts.

E2 Clean and paint the incoming service meter box and clean inside the east aerial cable terminal cabinet. Terminate uncapped conductors inside the east aerial cable terminal cabinet.

The work under this item shall include the following:

A. With a wire brush, remove corrosion and debris on the meter box and inside the east aerial cable terminal cabinet.
B. Apply paint on the meter enclosure.
C. Identify all unterminated wiring inside the east aerial cable terminal cabinet.
D. Terminate the connection to a terminal block.
E. For spare conductors, properly label as spare and secure connection to a terminal block.
F. Provide and install additional terminal blocks as necessary.
G. Where existing conductor length is insufficient to reach existing or new terminal blocks, an inline compression splice as specified is acceptable.

E3 Replace the missing turned bolt for the turning machinery motor and remove excess lubricant inside the turning machinery motor. Replace corroded access cover fasteners at the turning machinery motor.

The work under this item shall include the following:

A. Replace the missing turned bolt for the turning machinery motor.
B. Clean and remove excessive lubricant inside the motor.
C. Replace corroded access cover fasteners at the turning machinery motor.

E4 Clean and paint the frame supporting the motor starter enclosures. Secure/tighten loose fasteners, clean all corroded terminal connections, and replace corroded fasteners in the secondary resistor bank and motor control enclosures. Clean and paint the wireway feeding the motor starter enclosures.

The work under this item shall include the following:

A. With a wire brush, remove corrosion on the motor starter enclosures supporting frame and apply paint.
B. Apply paint on the supporting frame
C. Replace damaged/corroded hardware in the secondary resistor and motor control enclosures.
D. Install new hardware and tighten loose components within the enclosure.
E. With a wire brush, clean the wireway feeding the motor control enclosures and all corroded terminal connections within the enclosures.
F. Apply paint on the wireway.
G. Replace corroded conduit fittings at the wireway.

E5 Replace the liquid tight conduit fitting feeding the span lock motor disconnect switch. Replace the liquid tight conduit fittings feeding the turning machinery motor junction box.

The work under this item shall include the following:

A. Remove the existing liquid tight conduit fitting for the span lock motor disconnect switch.
B. Furnish and install new liquid tight conduit fitting
C. Furnish and install new conduit fittings and supports as required.
D. Replacing the missing fastener at the span lock motor disconnect switch.

E6 Replace the liquid tight conduit and fittings feeding the end screw jack motor junction box.

The work under this item shall include the following:

A. Remove the existing liquid tight conduit and fittings feeding the end screw jack motor.
B. Furnish and install a new liquid tight conduit for the end screw jack motor.
C. Furnish and install new liquid tight conduit fittings.

E7 Replace the emergency light in the control house. Replace the missing globe for the light fixture in the generator area.

The work under this item shall include the following:

A. Furnish component cut sheet related to the emergency light for review and approval.
B. Replace the emergency light fixture in the control house.
C. Verify successful operation of light after installation.
D. Furnish and install a new globe foe the light fixture in the generator area.

E8 Secure the service entry conduit fittings at the center of the pier and replace the strain relief fittings for the drag cables.

The work under this item shall include the following:

A. Clean and paint the conduit fittings at the service entry cables
B. Tighten and secure all loose components.
C. Remove and replace all corroded hardware.
D. Disconnect existing drag cables.
E. Furnish and install new strain relief fittings on the drag cables in the pivot pier.
F. Reconnect existing drag cables.
G. Furnish and install new hardware as necessary.

E9 Replace the missing handhole cover at the east aerial cable pole. Clean and paint the northwest traffic signal.

The work under this item shall include the following:

A. Furnish and install a new cover at the east aerial cable pole.
B. Furnish and install new fasteners to secure the cover.
C. With a wire brush, clean corrosion and debris on the traffic signal heads
D. Apply paint on the northwest traffic signal heads and protect the lenses.

E10 Replace the gasket at each motor starter enclosure.

The work under this item shall include the following:

A. Remove existing gaskets for the motor starter enclosures.
B. Furnish and install new gaskets for the motor starter enclosures.
C. Verify that the new gasket prevents any water entry inside the motor starter enclosure.

E11 Terminate uncapped conductors inside the drag cable terminal boxes, the aerial cable terminal cabinet in the lower level of the control house, the control desk, and both warning gates.

The work under this item shall include the following:

A. Identify all disconnected and unterminated wiring in the drag cable terminal boxes, control desk, aerial cable terminal cabinet in the lower level of the control house and both warning gates.
B. Remove any existing wire nut connections and terminate the connection to a terminal block (new or existing).
C. For spare conductors, properly label as spare and secure connection to a terminal block.
D. Provide and install new terminal blocks as necessary.
E. Where existing conductor length is insufficient to reach existing or new terminal blocks an inline compression splice as specified is acceptable.

E12 Clean and paint the warning gates and remove excessive lubrication on components inside the warning gate housings. Secure the terminal blocks inside the west warning gate. Replace corroded door handles at both warning gates.

The work under this item shall include the following:

A. Clean and remove excessive lubrication on components inside the warning gates.
B. Secure/fasten the terminal block inside the warning gates.
C. Replace corroded hardware.
D. Tighten loose connections.
E. Furnish and install new door handles for the warning gates.
F. Clean and paint the warning gate housings.

E13 Replace the motor overload protection for the span lock motor with an appropriately sized device. Configure the motor overload in the northeast warning gate starter enclosure to align with the reset button on the starter enclosure.

The work under this item shall include the following:

A. Provide component cut sheet related to the motor overload protection for the span lock motor and submit for review and approval.
B. Furnish and install the new motor overload protection device.
C. Reconnect all wiring connections.
D. Adjust the motor overload reset button for the northeast warning gate to align with the reset pushbutton on the enclosure of the motor starter.
E. Perform test operations.

E14 Replace the drain and conduit knockout plugs at the movable drag cable terminal box.

The work under this item shall include the following:

A. Replace the conduit knockout plugs at the movable drag cable terminal box.
B. Remove all corrosion on the drag cable terminal box.
C. Replace corroded drain fitting at the drag cable terminal box.
D. Replace corroded drag cable fittings at the drag cable terminal box.

E15 Properly mount and secure the base of the fender light fixtures.

The work under this item shall include the following:

A. Furnish and install new stainless steel hardware to secure the base of the fender light fixtures.
B. Furnish and install new support as necessary.

Materials:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common specified materials.

Construction Methods:

The Contractor shall refer to the requirements of "Common Provisions for Electrical Work" and "Common Provisions for Mechanical Work" for common construction method requirements.

Turning Machinery Motor Turned Bolt.

The Contractor shall field verify the size of the missing turned bolt at the northeast corner of the turning machinery motor. If the turned bolt can not be replaced without removing the motor and/or motor mounting plate, the Contractor shall notify the Engineer.

Temporary Bridge Closures.

Shimming of the passive live load bearings and replacement of the end screw jack coupling seals shall be performed during a temporary bridge closure. No vehicular traffic shall be permitted on the swing span if the passive live load bearings are disassembled or if any of the end screw jack couplings are disassembled. Refer to "Lane Closures and Bridge Closures" section of the "Common Provisions for Bridge Maintenance" for bridge closure restrictions and requirements.

Method of Measurement:

Item 615641 - Initial Repairs at Bridge 3-164 will not be measured.

Basis of Payment:

The work will be paid for at the contract bid lump sum price for Item 615641 - Initial Repairs at Bridge 3-164. This price shall include all labor, tools, equipment, material and incidentals necessary to satisfactorily complete the work in accordance with the Contract Plans and Special Provisions.

The lump sum bid for Item 615641 shall be the sum of the cost for all the repairs listed above. The breakout sheets must be submitted with the Bid Proposal or within seven (7) calendar days following the bid due date by the lowest apparent bidder. Failure to complete and submit the breakout sheets as specified will result in the Bid Proposal being declared non-responsive and rejected.

9/13/2018

615647 - COMMON PROVISIONS FOR ELECTRICAL WORK

Description:

This section shall give the general requirements and common materials which apply to all electrical work listed in the initial repairs. It is the intent and purpose of the Contract Documents to cover and include all apparatus and appliances to properly furnish, install, wire, connect, equip, test, adjust, and put into approved working order the respective portions of the electrical work. Any incidental apparatus, appliance, material, or labor not specifically mentioned or included in the Contract Documents that may be found necessary to comply with the requirements of the related documents and referenced standards or codes shall be furnished by the Contractor at no additional cost to the Delaware Department of Transportation (DelDOT).

Standards.

All electrical equipment and its installation shall conform to the requirements of the latest revision of the following codes and standards, except as may be otherwise provided herein:

A. American Association of State Highway and Transportation Officials (AASHTO)
B. National Electrical Code (NEC)
C. American Society for Testing and Materials (ASTM)
D. American National Standards Institute (ANSI)
E. National Electrical Manufacturers Association (NEMA)
F. National Electrical Contractors Association (NECA)
G. InterNational Electrical Testing Association (NETA)
H. Underwriters Laboratories, Inc. (UL)
I. National Fire Protection Association (NFPA)
J. Institute of Electrical and Electronic Engineers (IEEE)
K. Occupational Safety and Health Administration (OSHA)
L. Insulated Power Cable Engineers Association (IPCEA)

Materials:

All electrical equipment and its installation shall conform to the requirements of the latest revision of the following codes and standards, except as may be otherwise provided herein:

A. American Association of State Highway and Transportation Officials (AASHTO)
B. National Electrical Code (NEC)
C. American Society for Testing and Materials (ASTM)
D. American National Standards Institute (ANSI)
E. National Electrical Manufacturers Association (NEMA)
F. Underwriters Laboratories, Inc. (UL)
G. National Fire Protection Association (NFPA)

General Requirements.

The Contractor shall obtain any and all required permits and approvals of all Departments or Agencies having jurisdiction.

All equipment and materials to be furnished shall be new unless otherwise specified elsewhere. All equipment, materials, and workmanship shall be first class in every particular and shall be manufactured and erected to the satisfaction of the Engineer. Any piece of equipment which is found to be defective or damaged in any way must be replaced at no additional cost to DelDOT.

The Contractor shall warrantee the in service working of the electrical installations for one year or the manufacturer's warranty period, whichever is greater, following acceptance by DelDOT of all repairs on a specified bridge location. If the Contractor has any objection to any feature of the electrical equipment as designed or arranged, he must state his objection in writing to the Engineer prior to submittal of shop drawings, otherwise his objection will not be accepted if offered as an excuse for malfunctioning of the equipment or for defective or broken apparatus. Changes shall be made at the discretion of the Engineer.

Prior to installation, electrical equipment shall be stored in a humidity controlled environment. Damage to electrical equipment caused by moisture and/or weather conditions will require replacement. Once the equipment is installed but prior to acceptance by DelDOT, the Contractor will be responsible for monitoring the equipment in like-new condition. Equipment which is damaged in any way shall require replacement at the Engineers discretion at no additional cost to DelDOT.

Each piece of electrical equipment and apparatus shall have a corrosion resisting metal nameplate screwed in place on which is stamped the name of the manufacturer, rating or capacity of the equipment or apparatus, catalog number, serial number, etc.

All metal parts of the installation, except structural steel, shall be of corrosion resisting material, such as bronze or stainless steel. Cast iron, malleable iron or steel with a hot-dip galvanized finish shall be used where specified herein. Structural steel shall conform to the requirements given under "Section 1039 - Structural Steel" of the Standard Specifications.

In general, all mounting hardware and all wire and cable terminals shall be vibration resistant. If any departures from the Contract Plans or Specifications are deemed necessary by the Contractor, details of such departures, and the reasons for such departures shall be submitted for approval as soon as practicable, but prior to the first submittal. No such departures shall be made nor work started without the written approval of the Engineer. In general, all initial repairs specified shall be made safe by the contractor prior to the start of any repair or work including but not limited to lockout procedures, tagout procedures, disconnection/removal of equipment, de-energizing and turning off equipment. Safety procedures shall be in accordance with NFPA 70E and other relevant standards.

Any piece of equipment that requires to be electrically disconnected to perform the repair shall be done at no additional cost to DelDOT.

Control Apparatus and Miscellaneous Equipment.

Circuit Breakers: All branch circuits from the buses shall be protected by molded case circuit breakers. All breakers shall have quick-make, quick-break contacts and the mechanism shall be trip-free and trip indicating. Frame sizes shall be not less than 100 amperes. The breakers shall be equipped with thermal-magnetic trips or adjustable instantaneous magnetic trip units. The main circuit breakers of all control and lighting and power panels shall match the existing interrupting capacity rating. Molded case circuit breakers shall meet the requirements of NEMA Standard AB1, latest revision unless otherwise specified. Instantaneous magnetic trip circuit breakers, when used, shall only be used for motors and shall be part of a listed combination controller per NEC Article No. 430 52.

Motor Starters and Magnetic Contactors: The continuous current rating of contactors and starters shall be adequate for the connected loads, and no starter shall be smaller than NEMA Size 1. All contact poles shall be provided with arc chutes, and contactors rated 150-amperes and above shall be equipped with magnetic blowouts. Three-element overload relays shall be provided for motor protection. Overload relays shall be of the automatic reset, melting alloy type thermal overload relays unless otherwise specified. The overload relays shall be provided with the associated heaters, sized per manufacturers requirement based on the motor full load value. Contactors and overload relays shall be provided with the required auxiliary contacts as shown on the Contract Plans. Reversing contactors shall be electrically and mechanically interlocked.

Industrial Control Relays shall be multi-contact magnetic relays with contacts rated at 10 amperes, 600 volts on a continuous basis. All relays shall be provided with surge suppressors. Time delay relays shall be provided through a delay attachment to the specified control relays. The time delays shall be electronic type providing time delay intervals as required with a linear timing range in the ratio of 1:10. The number and type of poles shall be as shown on the Contract Plans.

Terminal Blocks: Terminal blocks for conductors of Size No. 2 AWG and smaller shall be screw type din rail mountable terminals rated for a maximum voltage of 690 VAC/115 Amperes. Each terminal requiring a splice or jumper shall be provided with pin jumper connectors which are mountable to the terminal block. The terminal blocks assembly shall be provided with ground terminals, screw terminals, din rail, end plates, separators, pin connectors and any other required accessory. The terminal blocks shall wire connections for use insulated wire ferrule connectors. Factory printable corrosion resistant marking strips shall be provided for conductor identification. At least ten percent spare terminals shall be provided. Terminal blocks shall be Phoenix Contact UT4 or approved equal.

Power Distribution Terminal Blocks: Power distribution blocks shall be used for conductor sizes No. 6 and larger and shall be UL listed. Terminal blocks shall be suitable for use with copper wire and shall provide a withstand voltage rating of 750 volts per IEEE switchgear standards. Corrosion resistant marking strips shall be provided for conductor identification. At least ten percent spare terminals shall be provided. Terminal blocks shall be approved equal to Gould Shawmut Power Distribution Blocks - Heavy Duty Series 68000.

Terminal Connectors: Connectors shall be seamless, heavy-duty insulated wire ferrules or flanges fork tongue terminal lugs. Bare wire shall not be terminated to lugs or terminals unless otherwise approved by DelDOT. Terminal lugs shall be installed per lug manufacturer recommendations using the proper tools approved by the manufacturer. Under no circumstance will splicing of wires be permitted without the use of a terminal block.

Ground Lugs: Ground lugs to connect equipment grounding conductors shall be copper with a minimum size of ¼". The lugs shall be bonded to existing or new enclosures as specified.

Connectors shall be seamless, heavy-duty insulated wire ferrules terminal lugs. Terminal lugs shall be installed per lug manufacturer recommendations using the proper tools approved by the manufacturer. Under no circumstance will splicing of wires be permitted without the use of a terminal block.

Nameplates: Nameplates, where required, shall be made of laminated phenolic plastic with white font and back and black core and shall be not less than 0.094 inches thick. Warning signs or labels shall be similar expect made of red phenolic plastic with white font. The lettering shall be etched through the front layer to show black engraved letters on a white background. Lettering shall be not less than ¼ inch high, unless otherwise detailed on the Contract Plans. Nameplates shall be securely fastened to the equipment with stainless steel screws.

Proximity Limit Switches.

Proximity limit switches hall be furnished and installed as shown on the Plans for the fully closed position for interlocking and indication.

The proximity limit switches shall be inductive type, barrel type, stainless steel and rated NEMA 4X. Each limit switch shall be provided with mounting brackets, hardware, shims, and supports as shown on the plans and required for proper operation. The sensing range shall be a minimum of 20mm (0.784") unless otherwise noted.

The fully closed limit switch shall close its normally open contact between 0.5 and 0 degrees and shall be field adjusted during startup and commissioning.

Each unit shall include a LED indicating light and M16 (1/2") NPT with ¾" conduit adapter. Each unit shall be 120VAC and connected to the existing control relays as shown on the as-built drawings.

Proximity limit switches shall be approved equal to the Turk NI40-G47S unless otherwise noted on the plans.

Wire and Cable.

Except where otherwise noted, wiring in conduits shall be single conductor. All wire and cable shall conform to the requirements of NEMA Pub. No. WC70-1999. The minimum number of conductors provided in each cable shall be as shown on the Contract Plans. The cable installation in conduit, wireway and troughs shall conform to the latest edition of NEC and according to any other applicable code under local jurisdiction.

All conductors shall be soft annealed copper wire conforming to the requirements of NEMA Pub. No. WC70. All conductors shall have Class K stranding.

The insulation shall be a chemically cross linked polyethylene compound conforming to the requirements of Part 3.6 of NEMA Pub. No. WC70. The wire type for all conductors except shop wiring installed within the confines of the control cabinets or control desk shall be XHHW-2 as listed under NEC Table 310-13. "Conductor Application and Insulations". The wire type for all shop-wired conductors installed within the confines of the control cabinets and control desk shall be SIS as listed under NEC Table 310-13. "Conductor Application and Insulations".

All wire and cable shall be of a nationally recognized brand, acceptable to the Engineer, and shall have marks always used on the particular brand for identifying it. Acceptable manufacturers are as follows Houston Wire and Cable, Service Wire Company, Clifford of Vermont, Alpha Wire Company, Allied Wire and Cable, Okonite Company, General Wire and Cable, Draka USA, or other approved vendor.

Equipment ground conductors shall be bare, stranded, coated copper conforming to the requirements of NEMA Pub. No. WC70, Part 2. When required by the National Electrical Code (NEC), equipment ground conductors shall be provided with approved insulation.

Flexible cable for specified connections shall be rubber insulated, multiple-conductor portable cords conforming to the requirements of NEMA Pub. No. WC3, Part 7.7 or NEMA Pub. No.WC8, Part 7.4 for hard service. Each cable shall be provided with a heavy-duty neoprene jacket conforming to the requirements NEMA Pub. No. WC3, Part 7.7.5.1 or NEMA Pub. No.WC8, Part 7.4.5.1. Flexible cables shall conform to the National Electrical Code, Article 400 for hard service.

The flexible control cables shall be Type SOOW portable cord rated 600 volts, 90-degree C. Conductors shall be flexible stranded bare annealed copper provided with ethylene propylene rubber (EPR) insulation. Cable jacket shall be chlorinated polyethylene (CPE).

Wire markings and tags shall be provided for all new and existing conductors modified as part of this work and shall be factory-applied heavy duty, waterproof, permanently marked, and resistant to ultraviolet light deterioration. Numbers and letters shall be black or blue on a white background. Each wire and cable shall be preprinted with labels for each wire and/or cables entire length. Each preprinted label should match the interconnection diagram shop drawing. The Contractor shall submit the proposed wire marking system and a sample of the wire markers to be installed to the Engineer for approval. The labels shall be polyolefin heat shrink tubing, approved equal to Panduit LS5 labeling system.

When it becomes necessary to connect a cable and/or wire No. 8 AWG or smaller insulated wire ferrules shall be used. The ferrules shall be attached to the wire using the manufacturers approved tool.

Strain relief bushings shall grip the cable jacket to provide a watertight seal at the point of cable entry. Strain relief bushings shall be OZ Gedney Type SR or approved equal.

Strain relief devices shall grip the cable jacket with an entwining cable mesh to support the weight of the cable where it enters the terminal box. Strain relief devices shall be Kellem cable grips or approved equal.

Conduit and Fittings.

All new conduits and fittings as shown on the plans shall be as noted herein. All conduit shall be rigid steel galvanized conduit or PVC coated galvanized rigid steel unless otherwise noted.

New conduit shall be of type and size to match the existing. Where existing PVC coated galvanized steel conduit is installed and the repairs specify replacement, the Contractor shall match the manufacturer and type installed. Where the product is obsolete, no longer manufactured or the manufacturer no longer in business the Contractor shall propose an alternate brand, model and/or type.

In general, conduits shall not be less than ¾ inches in diameter. Where existing conduit is smaller than ¾" and the repairs specified requires connection to these conduits a reducer/enlarger fitting shall be used. Sections of conduit shall be connected to each other with screw couplings made up so that the ends of both conduits will butt squarely against each other inside of the coupling.

All female threads on fittings and couplings shall be protected by urethane coating. Right angle beam clamps and U bolts shall be specially formed and sized to snugly fit the outside diameter of the coated conduit. All U bolts will be supplied with plastic encapsulated nuts that cover the exposed portions of the thread.

Flexible conduit where required shall be liquid tight steel conduit conforming to the requirements of UL 360. Fitting and connectors used in conjunction with flexible conduit shall also be steel liquid tight fitting with hot dipped galvanized finish.

Unless otherwise noted the conduit supports shall match the existing. All bracket hangers shall be provided with medium-series lock washers and hexagonal nuts. Where replacement of PVC coated steel fittings are required, the contractor shall replace these with type 316 S.S. supports

In general, conduit fittings shall be of the same type and material as the associated conduit.

Conduit expansion fittings shall be provided with flexible bonding jumpers to maintain the electrical continuity across the joints. The fittings shall permit a total conduit movement of 4 or 8 inches as may be required.

Conduit expansion/deflection fittings shall permit a movement of ¾ inch from the normal in any direction. Flexible bonding jumpers shall be required to maintain bonding integrity whenever expansion fittings are required.

Where required, conduit bodies shall be galvanized rigid steel with threaded hubs and integral bushings. Covers shall be fully gasketed, weatherproof galvanized steel or cast iron screw-on type. Install drain fittings in all enclosures and conduit systems that are required to be new. Fittings shall be fabricated of stainless steel and shall be capable of passing 25 cc of water per minute.

Conduit hubs shall be provided with a ground bushing to connect the equipment ground conductors and enclosure ground lugs. The hubs shall be PVC coated when used in conjunction with PVC coated conduit.

Boxes.

All junction boxes, pull boxes, terminal boxes, and cabinets shall be NEMA 4X, 14-gauge, stainless steel enclosures with hinged, 14 gauge, stainless steel doors supported by a continuous stainless steel hinge with removable pin unless otherwise noted on the plans. Seams shall be continuously welded and ground smooth. Each enclosure shall be provided with stainless steel fast operating door clamp assemblies and oil resistant gasket to insure a watertight seal. No box shall be drilled for more conduits or cables than actually enter it.

Boxes and cabinets shall be Bulletin A51S and A4S with clamp assemblies A L23SS as manufactured by Hoffman Engineering Company, equivalent manufactured by Henessey or Wiegmann or approved equal.

Terminal boxes shall be of sufficient size to provide ample room for the terminal blocks and interior wiring, and for the installation of conduit terminations and multi-conductor cable fittings. Interior mounting buttons with tapped holes shall be provided for mounting the terminal blocks.

Terminal blocks shall be feed-through type screw connection modular terminals sized for the required conductor being terminated and shall be din rail mounted. Double stack terminals are not permitted. Each terminal shall be suitably marked using factory printed terminal markers with the associated wire number. Hand written markers are not acceptable. Terminal connections to the associated conductor shall be achieved using insulated wire ferrules. Bare wire connections are not acceptable. At least ten percent spare terminals shall be provided. Terminal blocks shall be type UT4 as manufactured by Phoenix Contact or approved equal.

Power distribution blocks shall be used for conductor sizes No. 6 and larger and shall be UL listed. Terminal blocks shall be suitable for use with copper wire and shall provide a withstand voltage rating of 750 volts per IEEE switchgear standards. Corrosion resistant marking strips shall be provided for conductor identification. At least ten percent spare terminals shall be provided. Terminal blocks shall be Gould Shawmut Power Distribution Blocks - Heavy Duty Series 68000 or approved equal.

The interior of all boxes shall be provided with insulated supports from which bundled cables may be supported.

Hardware and Supports.

Mounting bolts, nuts, washers and other detail parts used for fastening boxes, disconnect switches, limit switches, conduit clamps, cable/conduit supports, brackets and other electrical equipment shall be of stainless steel conforming to the requirements of ASTM A276, Type 316. Bolt heads and nuts shall be hexagonal, and shall be provided with medium series lock washers. Bolts smaller than ½ inch in diameter shall not be used except as may be necessary to fit the mounting holes in small limit switches, boxes and similar standard devices.

Unless fabricated from type 316 stainless steel, which has a minimum thickness of 5/16 inch, supports for conduits, cables, boxes, cabinets, disconnect switches, limit switches and other separately mounted items of electrical equipment shall be fabricated from structural steel not less than 3/8 inch in thickness. Channels, angles, bent plates, clip angles, other structural steel supporting members, hardware and gaskets for supporting electrical equipment shall be paid for under this item. Structural steel supporting members detailed under this item shall conform to the requirements specified elsewhere in this Contract.

Full neoprene gasket shall be furnished and installed for each box not less than 1/8-inch thick, between the equipment and the surface of the concrete.

Anchoring system for fastening equipment or brackets to concrete surfaces shall consist of stainless steel threaded rods and adhesive epoxy. All parts of the anchors shall be of Type 316 stainless steel. The Contractor is also responsible for furnishing any installation tools as required by the manufacturer to properly install the anchoring system. Threaded rods shall be HAS type 316 stainless steel threaded rods as manufactured by Hilti Corporation or approved equal, epoxy shall be HIT RE 500 Adhesive Epoxy as manufactured by Hilti Corporation or approved equal.

Construction Methods:

Working Drawings, Samples and Submittals.

Certified dimension prints of the apparatus shall state in the certification the name of the job, the application of the apparatus, device designation, number required, right hand or left hand assembly, electrical rating, number of poles or contacts, material, finish, and any other pertinent data to show that the apparatus meets the specified requirements.

In general, the contract plans, working drawings and submittals shall follow industry and DelDOT standards for symbols, common practice and electrical work submittals. Line weights shown on the contact plans and working drawings shall depict new equipment as a parker line weight and existing equipment as a lighter line weight. Dashed lines shall indicate field wiring whereas solid wiring shall indicate wiring internal to the control cabinets.

Upon completion of the work, the Contractor shall correct all electrical shop or working drawings to show the work as constructed and provide one (1) set of 11X17 pdf drawings, as well as the associated CAD files.

The Contractor shall submit for inspection and test, if directed by the Engineer, samples of any apparatus or device that he proposes to use as a part of the electrical installation

The Contractor shall prepare and submit working drawings and shop drawings to the Engineer in accordance with section "105.04 Plans and Working Drawings" of the standard specifications prior to ordering and fabricating material. Within 30 days after the award of the Contract a completed schedule of electrical submissions that outline when all of the electrical submittals will be made. No more than 90 days shall pass between the award of the contract and the Contractor's first submission of the following submittals:

A. Control System Vendor Submittals:

1. Certified dimension prints of all new equipment to be provided including limit switches, proximity sensors and other electrical apparatus external to the control desk and cabinets, are required. All pertinent electrical data, ratings, calculations and mounting details are to be included on the prints.

2. A complete updated schematic diagram and wiring diagram, including all power, and control connections. Each electrical device and each wire between devices shall be identified by an individual designation of letters, numbers, or a combination of both; and such designations shall be used wherever the devices or wires appear on other drawings. Electronic mark-up on existing drawing are acceptable provided that the document remains legible, otherwise CAD related updates shall be made on the Microstation files which will be made available to the Contractor by DelDOT.

3. Updated layout drawings and internal connection wiring diagrams of the control desk, control cabinets and drive cabinets.

4. A schedule of electrical apparatus for new equipment to be mounted in each existing cabinet or enclosure which shall list each electrical device by its manufacturers designation as shown on the schematic wiring diagram and shall state for each device its rating, number of poles or contacts, function, catalog number, and location. A complete set of catalog cuts for materials furnished shall be included for each piece of apparatus.

5. Shop and field testing procedures, including test forms with acceptance criteria, and schedule of testing of all equipment shall be furnished by the vendor.

B. Contractor Installation Work Submittals:

The Contractor shall be fully responsible for developing all point-to-point electrical conduits and wiring runs for modifications to the electrical system. Coordination with all other disciplines is required as part of the development of the drawings. The required drawings shall include, but not be limited, to:

1. Layout and installation drawings for the electrical work showing the location and installation, including support and mounting details, of all electrical apparatus and equipment. These drawings shall be made to scale and shall show the exact location of all conduits, supports, cables, boxes, limit switches and other electrical equipment and the method of supporting them on the structure.

2. Construction drawings of all multi conductor droop and flexible cables, including the sizes of conductors, type and thickness of insulation, jackets and other components, and giving the outer diameter of each finished cable.

3. Test results from all factory and field test specified.

4. Outline drawings, catalog cut sheets and mounting details shall be submitted for the following equipment:
   a. Wiring Devices
   b. Grounding Equipment
   c. Conduit
   d. Wireway
   e. Boxes
   f. Wire and Cable
   g. Lugs
   h. Wire and Conduit Tags
   i. Limit Switches and Proximity Sensors
   j. Traffic Gate Equipment
   k. Service Lighting and Heating Fixtures
   l. Navigation Lights
   m. Fuel Tanks

5. Any other drawings, which may, in the opinion of the Engineer, be necessary to show the electrical work.

Field Testing.

Upon completion of the electrical work and repairs, the Contractor shall arrange for and provide all the necessary field tests, as directed and approved by the Engineer, to demonstrate that proper operation of the entire electrical system for the bridge is achieved and in accordance with the Contract Plans and Specifications.

Removal of Existing Equipment.

The removal work of the existing equipment under this subsection shall be done in conformance with all requirements governing the sequencing and scheduling of construction. Removal of electrical equipment shall not commence until all new equipment and parts to be installed are delivered to the site or an approved storage facility unless otherwise approved by the Engineer.

All equipment scheduled for replacement shall be removed, disconnected and made safe. Temporary means to operate the bridge may be required during repairs and upgrades unless otherwise approved by DelDOT and the USCG.

Any existing conduit encased in concrete, which are to be abandoned, shall be cut back to the concrete surface, threaded and capped with steel pipe caps.

In general, all apparatus to be removed shall be disconnected by removing existing bolts, nuts and screws. The work shall include removal of all brackets, hangers, clamps, fittings and other hardware no longer needed.

All existing facilities, apparatus, cables, wiring and other equipment which are to remain in place on the bridge, shall be protected at all times from damage or defacement caused by the Contractor's operations. Any such damage or defacement shall be promptly repaired or cleaned to the satisfaction of the Engineer at no extra cost. If, in the opinion of the Engineer, the Contactor's operations require the temporary removal of existing equipment for proper protection, such removal and remounting shall be done at no extra cost.

Upon completion of the work, the Contractor shall repair all damaged or defaced areas exposed by the removal of equipment, or caused by his operations, in a workmanlike manner satisfactory to the engineer. Small bolt holes in concrete surfaces shall be filled with epoxy mortar. Holes in the walls ceilings or floors of the houses shall be filled with grout and finished to match the existing surfaces. Any damage to windows, window framing, sash, sills, frames or any other architectural trim shall be repaired, and painted surfaces shall be repainted after being repaired. Any holes in the ground shall be filled with earth top soil and suitably landscaped to match the surrounding areas.

All existing materials and equipment removed under this item shall become the property of the Contractor unless otherwise specified and shall be removed from the site and disposed of properly.

Wire and Cable.

The size of all new conductors shall be as indicated on the Plans or as otherwise noted. If no size is indicated or the conductor size and number as shown on the approved electrical schematics vary from that shown on the Plans, conductors of sufficient size and number shall be provided to accommodate the circuits to be installed. These conductors shall be sized in conformance with the National Electrical Code and any other applicable codes. The Contractor shall provide wiring and cables of sufficient ampacity and number as may be required for the installation in accordance with the wiring diagrams on his approved working drawings and these specifications without extra cost to the Delaware Department of Transportation.

In each new conduit and multi-conductor cable, at least two spare conductors shall be provided for every ten conductors of control wire and at least one conductor shall be provided for every ten conductors of power (or fraction thereof) actually used.

Internal shop wiring for control cabinets and the control stations shall not be smaller than No. 14 AWG. External control wiring shall not be smaller than No. 12 AWG.

Wiring shall not be installed in any conduit before all joints are made up tightly and the conduits rigidly secured in place. The drawing of conductors into conduits shall be done without injury to the wire, insulation or jacket.

For all conductors No. 8 AWG or smaller, approved wire ferrules terminal lugs shall be installed on each end of said conductors. Terminal lugs shall be installed per lug manufacturer recommendations using the proper tools approved by the manufacturer. The terminal lugs for all outgoing wires (No. 8 AWG or smaller) in terminal boxes, control cabinets, control stations and other enclosures shall be connected to terminal blocks herein after specified. Each terminal of all terminal blocks shall be permanently marked to show the same number or designation as appears on the wire connected thereto. Under no circumstance will splicing of wires be permitted without the use of a terminal block. Wherever it becomes necessary to join or branch conductors, terminal blocks shall be used and wires shall be clearly tagged.

Sufficient slack shall be left in all cables to permit proper connections in boxes, cabinets and enclosures. Conductors inside terminal boxes, control cabinets, control stations and other enclosures shall be neatly formed into cables and laced with approved cable ties with the individual conductors leaving the bundled cable at their respective termination points. Each conductor shall be looped to allow not less than three (3) inches of free conductor when disconnected from its respective terminal. The bundled cables shall be held securely away from the terminals and from contact with the enclosure by means of approved insulating supports and ties.

Equipment ground conductors shall be installed in all conduits and multi-conductor cables per the National Electrical Code latest edition, and all other applicable local codes.

Both ends of every single length of conductor shall be permanently and clearly tagged in accordance with the same numbers or designations appearing on the approved wiring diagrams.

All wiring shall be carefully tested after installation. The Contractor shall administer continuity tests, insulation resistance tests and any other required test for any conductor run as directed by the Engineer at no additional cost to the Delaware Department of Transportation.

The Contractor shall follow the testing guidelines as specified, and all applicable paragraphs under this Section. For general material and installation requirements the Contractor is directed to the requirements as listed herein.

Conduit Systems.

For new or existing conduit system where wire shall be furnished and installed, the interior surfaces of the conduit shall have a smooth finish and be free of burrs, blisters, cracks, injurious defects, or projections, which might cause injury to the cables. Each conduit shall be reamed at each end after being threaded prior to the installation of wire. Conduits shall be installed to be continuous and watertight between boxes or equipment. Conduits shall be protected at all times from the entrance of water or other foreign matter by being well-plugged overnight or when the work is temporarily suspended.

All bends shall be made with factory-bent, standard or large radius conduit elbows. When approved by the Engineer, bends and offsets can be made with a hydraulic or power pipe bender, provided with standard shoes for conduit as required. Field bends shall be made without kinking or damaging the exterior surface or smooth bore of the conduit. The radius of curvature of pipe bends made in the field shall not be less than eight times the inside diameter of conduit. All bends shall be long sweep, free from kinks, and of such easy curvatures as to permit the drawing of conductors without injury. The use of a pipe tee or vise for bending conduit will not be permitted. Conduit that has been crushed, deformed or damaged shall be discarded. Conduit runs shall be made with as few couplings as standard lengths will permit, and the total angle of all bends between any two boxes or cabinets shall not exceed 270 degrees, unless otherwise approved by the Engineer. Long running threads will not be permitted. Pull boxes shall be used whenever necessary to facilitate the installation of the wire.

The use of condulets or conduit bodies for pulling conductors, for making turns in conduit runs, or for branching conductors shall only be permitted for lighting and heating conduit unless otherwise noted.

After the conduits are installed, the openings shall be caulked with an elastic compound and escutcheon plates provided on the interior walls, ceilings, and floors. Conduits shall be securely clamped and supported at intervals not exceeding 5 feet in length.

Conduit runs exposed on the steel structure shall be securely clamped to the steelwork. Supports shall be arranged so that conduits rest on top of the support and conduit U-bolts rest on top of the conduits. The use of J-bolts to fasten structural supports or to clamp conduits will not be permitted.

Where conduits are to be mounted exposed on non-steel surfaces, they shall be securely clamped to the surface using bent plate pipe supports with back spacers held by not less than two bolts.

Exposed conduits shall be installed parallel to, or at right angles to ceilings, walls and partitions. Where changes in direction of exposed conduit cannot be made with neat and orderly bends, pull boxes shall be used. Exposed conduits shall be securely clamped and supported at intervals not exceeding five (5) feet in length. All boxes and fixtures shall be provided with structural supports independent of associated conduit. No boxes nor fixtures shall be cantilevered from nor supported by conduit. The conduit supports shall be as specified elsewhere under this item.

At any point where a conduit crosses an expansion joint longitudinally or where movement between adjacent sections of conduit can be expected, conduit expansion fittings shall be installed. The fittings shall be bronze expansion fittings and shall be provided with flexible bonding jumpers to maintain the electrical continuity across the joints. The fittings shall permit a total conduit movement of 8 inches.

At any point where a conduit crosses a joint laterally or where an offsetting type movement between adjacent sections of conduit can be expected, expansion and deflection fittings shall be installed. The fittings shall permit a movement of ¾ inch from the normal in any direction. Flexible bonding jumpers shall be required to maintain bonding integrity whenever expansion fittings are required.

Flexible conduits for the connections between the rigid conduit system and all limit switches, motors, and other equipment subject to vibration shall be made with sections of approved flexible conduit. Approved liquid-tight connectors shall be provided for connections between rigid and flexible conduit. Each flexible, liquid-tight conduit section shall not exceed eighteen (18) inches in length without prior approval of the Engineer.

All conduit embedded in concrete, insofar as possible, shall be completely encased by concrete of not less than 3 inches, measured in any direction, and shall be securely held in place during pouring and construction operations. A group of conduits terminating together shall be held in place by a template.

All cutting and threading of conduit shall be performed as recommended by the conduit manufacturer. After being threaded, conduits shall be reamed at each end. All threads shall be degreased and then liberally coated with a zinc-rich sealer/de-oxidizer before connection. The sealer/de-oxidizer shall not damage the specified conductor insulation. All field cut threads shall be National Pipe Taper. Running threads will not be permitted.

Conduit lengths shall be connected to each other with approved screw couplings assembled hand-tight and then, using strap wrenches, tightened two more turns. Wrench marks or chuck marks shall be touched up with the appropriate touch up compound. Conduit runs shall be made with as few couplings as standard lengths will permit. No conduit runs with a total angle of bends between any two boxes shall exceed (270) two hundred and seventy degrees, unless otherwise approved by the Engineer.

Ends of conduits left empty including stubs shall be capped during construction, and care shall be taken to ensure that no moisture or other matter is in or enters the conduits.

Conduit hubs shall be provided at the ends of all conduits entering boxes and enclosures furnished with slip holes.

The ends of all conduits projecting into boxes and equipment enclosures shall be provided with insulated grounding bushings or hubs. All bushings or hubs in any box or enclosure shall be bonded together to the ground lugs in each box with No. 8 AWG bare copper wire.

All conduit, enclosures, and fittings shall be mechanically joined and electrically bonded together to form a continuous electrical conductor to provide effective electrical continuity. An equipment ground conductor shall be provided in every conduit and enclosure throughout the raceway. Conduits shall be installed so as to be continuous and watertight between boxes or equipment.

Conduits shall be protected at all times from the entrance of water or other foreign matter by being well plugged overnight or when the work is temporarily suspended. End of abandon conduits, spare conduits, and empty conduits and stubs shall be capped during and after construction, and care shall be taken to ensure that no moisture or other matter is in or enters the conduit.

All conduits and fittings shall be carefully examined and cleaned both before and after installation. Upon completion of the conduit and box installation, the Contractor shall clear each conduit by snaking with a nonabrasive mandrel of a diameter not less than 85 % of the nominal inside diameter of the conduit, and shall then draw in the cables. All conduits shall be free from blisters, cracks, deformations and defects. Conduits with any damage or injurious defects as judged by the Engineer shall be removed from the site and replaced by the Contractor at no extra cost to DelDOT.

The minimum size of conduits shall be as indicated on the Contract Plans. If no size is indicated or conduit fill varies from that shown on the Plans, conduit shall be sized to accommodate the conductors to be installed therein in conformance with the National Electrical Code. No conduit smaller than ¾ inch shall be installed.

Boxes.

Boxes shall be furnished and installed where required and shown on the plans.

Pull boxes shall be used whenever necessary to facilitate the installation of the wire. Conduit bodies shall not be used for pulling conductors, for making turns in conduit runs, nor for branching conductors, unless for lighting and heating conduit runs or if otherwise shown on the Plans.

Surface mounted interior and exterior boxes shall be provided with external mounting lugs. No box shall be drilled for more conduits or cables than actually enter it. Exterior boxes shall be provided with ½ inch combination drain and breather fittings.

Terminal blocks shall be provided in each terminal box for the connection of all conductors including spare conductors entering the box plus at least twenty percent spare terminals for any control conductors and ten percent for any power conductors. All terminal blocks and boards shall be mounted on suitable straps or structural steel brackets in such a manner as to permit routing the conductors behind the terminal blocks. Terminal blocks shall be one-piece blocks suitable for use in highly corrosive atmospheres and shall conform to the requirements hereinbefore specified.

Each power distribution block shall be constructed of one-piece molded phenolic compound and shall conform to the requirements hereinbefore specified. A cover of insulating material shall be provided for each block.

All manholes, junction boxes, pull boxes, and terminal boxes shall be inspected for proper duct entries, terminators, bell ends, pulling-in-irons, concrete seal around ducts, caps or plugs, pull lines, ladders, grout seals between the frame and chimney.

Hardware and Supports.

The Contractor is responsible for developing all conduit details consistent with applicable codes and these specifications. Structural steel brackets, boxes and other equipment mounted on concrete surfaces shall be provided with a full neoprene gasket as specified.

The anchoring system shall be used to fasten all electrical equipment to concrete as specified. The Contractor is required to use all accessories for installing the anchoring system as recommended by the manufacturer including but not limited to wire brush, air nozzle with air compressor and epoxy dispenser.

Motors, brakes, and limit switches shall be fastened to structural steel supports with approved shim packs and fasteners as specified under the machinery specifications.

The Contractor shall prepare and submit details of all electrical equipment supports to the Engineer for approval.

Each electrical device and enclosure shall be provided with a rigid structural steel support. No enclosure or device shall be permitted to cantilever from conduit unless specifically permitted in writing by the Engineer.

All Enclosures shall be mounted to concrete floor using stainless steel bolts as required.
If the Contractor elects to field drill certain electrical supports, the Engineer prior to any installation actually taken place must approve all details and locations.

Painting of Electrical Equipment.

New electrical equipment (unless otherwise noted), such as conduits, non-stainless boxes, device enclosures, supporting clips and brackets, and other devices, and existing electrical components specified in the Contract Documents, shall be given two coats of paint as specified under the requirements for painting structural steel. Before applying the two coats, all surfaces shall be cleaned free of all grease, oil, dirt, and foreign material. Galvanized surfaced shall be etched with copper sulfate solution, after which two coats of paint shall be applied. In lieu of etching, the Contractor may use galvanizing primer as a first coat for galvanized surfaces followed by two coats of paint. The final coat of paint on equipment mounted on the steel work shall be of a color and type of paint to match the structural steel. The final coat of paint on equipment shall be of a color and type of paint to match the bridge.

Where repairs indicate that span drive machinery (turning machinery) motor or span lock motors are the painted, the paint system specified in the "Common Provisions for Mechanical Work" shall be used. Where any brake is to be painted, the Contractor shall contact the manufacturer for the recommended painting procedure and the recommended paint system. The recommended painting procedure and paint system for the brakes shall be submitted to the Engineer for review.

Stainless steel enclosures, PVC coated conduit, liquid tight conduit, and fittings and die cast zinc limit switch enclosures shall not be field painted. These devices shall be adequately protected from all field-painting operations. Equipment not to be painted shall be carefully masked with polyethylene to prevent accidental paint coverage. If any coating material is applied to the surfaces indicated, as not to be painted, the paint shall be completely removed.

Cleaning Motors of Excess Lubricant.

Where repairs specify that motors should be cleaned of excess lubricant, the intent of the repair is to carefully clean purged grease from the inside of the motors to the extent possible via the inspection hatches in the motor housing.

Method of Measurement:

"Common Provisions for Electrical Work" will not be measured for payment but the cost will be considered incidental to all bid items related to the electrical work included in the Contract Documents.

Basis of Payment:

Payment for "Common Provisions for Electrical Work" will be incidental to all related bid items.

9/12/2018

615648 - COMMON PROVISIONS FOR MECHANICAL WORK

Description:

The Contractor shall provide all required materials, equipment, and labor to complete the work indicated on the Contract Drawings and as specified herein. This specification shall apply to all applicable mechanical initial repair details included within the Contract as well as related electrical and structural initial repair details (including but not limited to limit switch couplings and live load bearing shims).

Submittal Requirements.

Submittals shall comply with Section 105 of the DelDOT Standard Specifications for Road and Bridge Construction (2016 Edition) and the following:

A. The Contractor shall coordinate the work of the machinery component manufacturers where components interface. The Contractor shall review and approve all shop and working drawings prepared by those manufacturers for coordination prior to submittal of shop drawings to the Engineer for review.

B. Shop drawings shall show all parts completely detailed and dimensioned. The Contractor shall clearly identify any field verified dimensions on the shop drawings. Reproduction of the Plans shall be permitted provided all references to the design are removed and independent nomenclature specific to the project is used and coordinated with all other related shop and erection drawings.

C. Materials and material specifications shall be stated for each part. Where ASTM or the standard specifications are used, the applicable numbers of such specifications shall be given.

D. Required finish machining shall be shown including grade of finish in accordance with ANSI B46.1, Surface Texture, and dimensional tolerances and allowances for specific fits in accordance with ANSI B4.1, Preferred Limits and Fits for Cylindrical Parts.

E. Submittals for each manufactured item shall be manufacturer's descriptive literature, drawings, diagrams, performance and characteristic curves, and catalog cuts, and shall include the manufacturer's name, trade name, catalog model or number, nameplate data, size, certified layout dimensions, capacity, specification reference, including ASTM, ANSI, Federal Military Specification and any other applicable references, and all other information necessary to establish Contract compliance.

F. Complete Shop, Erection, Working and Assembly drawings shall be furnished and show all external dimensions and clearances necessary for installation and operation of all new bridge structural, mechanical, and electrical components. These drawings shall give part numbers, match marks, and essential dimensions for locating each part or assembled unit with respect to the bridge structure or foundation.

G. For all assemblies and parts, the Contractor shall furnish complete assembly drawings or diagrams showing each part contained therein and the manufacturer's part number assigned to each part. The drawings or diagrams shall be sufficient to enable complete disassembly and reassembly of the assemblies covered. In the event that any part is modified in any manner from the way it is described or delivered by its original manufacturer, the Contractor shall furnish a drawing which details each modification and the part shall be assigned a unique part number to assure the furnishing of replacement parts modified in similar fashion.

H. Certified prints of each manufactured assembly shall be furnished. Certified prints are manufacturer's drawings of proprietary products on which the manufacturer or supplier states mounting dimensions, ratios, speeds, ratings, and any other critical parameters for use on this specific project. In addition to identifying and describing each part, they shall show:

1. Dimensions of all principal parts comprising the assembly.
2. Certified external dimensions affecting clearances and required for installation.
3. Capacity and normal operating ratings.

4. Recommended lubrication, including location of lubrication fittings and provisions for adding, draining and checking the level of lubricants.
5. Inspection openings, seals and vents.
6. Details or description of all fasteners required to mount the assembly.
7. Gross weight.

I. Certified prints shall be signed by an officer of the manufacturing company.

J. Complete shop bills of materials shall be made for all machinery parts. If the bills are not shown on the shop drawings, prints of the bills shall be furnished for approval in the same manner as specified for the shop drawings.

K. The weight of each piece of machinery shall be stated on the shop drawing upon which it is detailed or billed.

L. Marks or indentations of any type shall be clearly shown and detailed on the drawings. In general, die-stamping or scoring shall be avoided unless otherwise called for on the plans. All components and assemblies shall be detailed separately to assure correct fabrication, assembly, and erection. Use of mirror image or opposite hand erection drawings will not be allowed.

M. Each shop drawing shall be given a suitable title to describe the parts detailed thereon and shall state any applicable shop assembly or testing procedures to be performed.

N. As used herein, factory tests refer to tests required to be performed on the actual materials or equipment proposed for use. Test results shall be submitted for review.

O. If any departures from the Contract Documents are deemed necessary by the Contractor, details of such departures and the reasons therefore shall be submitted to the Engineer in writing as soon as practicable for approval. No departures from Contract Drawings shall be made without the Engineer's acceptance.

P. If the Contractor has any objection to any feature of the machinery as designed or required by the Plans, he shall state his objection in writing to the Engineer at the time of submitting shop drawings or prior thereto; otherwise his objection will not be considered if offered later as an excuse for malfunctioning, defective or broken machinery or for improper or inadequate operation or functioning of machinery.

Q. It is the Contractor's responsibility to manufacture and install suitable functioning machinery. Review of shop drawings by the Engineer does not relieve the Contractor of this responsibility.

Summary of Initial Repairs and Expected Submittals.

The repair descriptions below (and used throughout the Contract) generally describe the extent of the work to be performed, but may not specify all aspects required for the specified item. Refer to the bridge specific initial repair special provisions (including repair drawings) for additional scope of work which may not be listed in the general repair description.

The following list of submittals is intended as a guide and does not relieve the Contractor from furnishing the required information and working drawings as described within this Contract or as otherwise required for a successful project. Any additional submittals not included in the list below shall be at no extra cost to the Department.

A. Bridge 1-687, Walnut Street Bridge

1. Repairs
   a. M1 - Replace span drive machinery coupling seals.
   b. M2 - Clean accumulation of debris from all trunnion bearing assemblies.
   c. E6 - Replace the north and south rotary cam limit switches.
2. Submittals
   a. Submit all catalog cut sheets, shop drawings, etc. defined within the scope of work
   b. Submit new coupling alignment requirements and final alignment measurements.

B. Bridge 1-688, South Market Street Bridge

1. Repairs

a. M1 - Replace coupling seals and gaskets at the south main motor coupling, south auxiliary motor couplings, and the south enclosed bevel speed reducer input shaft couplings.
b. M2 - Clean debris, grease, and bird waste at the trunnion bearing assemblies, shafts, bearings, couplings, reducers, and gears. Clean and paint gear frame components on the counterweights.
c. M3 - Shim the span lock receiving sockets and live load bearings.

2. Submittals
a. Submit all catalog cut sheets, shop drawings, etc. defined within the scope of work.
b. Submit initial and final receiving socket clearance measurements.
c. Submit all catalog cut sheets, shop drawings, etc. of the proposed paint system.
d. Submit live load bearing and span lock shimming procedure.

C. Bridge 1-693, Third Street Bridge

1. Repairs
a. M1 - Replace shims and shoe fasteners at both span lock assemblies (rear guides, front guides, and receiving sockets). Shim live load bearings. Replace 1 loose turned bolt at the east front guide.
b. M2 - Realign shims at the east span lock speed reducer and replace 1 loose turned bolt.
c. M3 - Seal oil leaks at the housing split line, cover plates, and inspection hatch at both span drive speed reducers.

2. Submittals
a. Submit all catalog cut sheets, shop drawings, etc. defined within the scope of work.
b. Submit initial and final span lock measurements (including rack and pinion backlash, tip to root clearance, and clearances at the guides and receiving sockets).
c. Span drive speed reducer oil leak repair procedure from the manufacturer.
d. Submit live load bearing and span lock shimming procedure.

D. Bridge 2-021A, Rehoboth Boulevard Bridge

1. Repairs
a. M1 - Rehabilitate the air buffer.
b. M2 - Replace the missing span lock pin.
c. M3 - Modify the machinery brake cover. Inspect and adjust the hand release linkage.
d. M4 - Trim keys at west pinion G1. Install cover plate over the keys.

2. Submittals
a. Submit all catalog cut sheets, shop drawings, etc. defined within the scope of work.
b. Air buffer shop inspection results and repair procedure.
c. Submit all catalog cut sheets, shop drawings, etc. of the proposed paint system.

E. Bridge 3-151, Front Street Bridge

1. Repairs
a. M1 - Install a debris shield over P2/G2 gearsets.
b. M2 - Replace the west trunnion hub bolts. Clean and spot paint trunnion assemblies, main pinion bearing bolts, and the rack bolts.

2. Submittals
a. Submit all catalog cut sheets, shop drawings, material test reports, trunnion hub turned bolt and bolt hole measurements, etc. defined within the scope of work.
b. Submit all catalog cut sheets, shop drawings, etc. of the proposed paint system.

F. Bridge 3-164, Cedar Creek Bridge

1. Repairs
a. M1 - Clean and paint the turning machinery, end screw jack machinery, balance wheels, balance wheel tracks, and pivot bearing assembly.
b. M2 - Shim and paint the passive live load bearings.
c. M3 - Replace lubrication lines.
d. M4 - Replace end screw jack machinery coupling seals.
e. E3 - Replace the missing turned bolt for the turning machinery motor and remove excess lubricant inside the turning machinery motor. Replace corroded access cover fasteners at the turning machinery motor.

2. Submittals
a. Submit all catalog cut sheets, shop drawings, etc. defined within the scope of work.
b. Submit all catalog cut sheets, shop drawings, etc. of the proposed paint system.
c. Submit initial and final passive live load bearing clearance measurements.

Materials:

General.

Work as described shall comply with, but not be limited to, all applicable requirements of the following codes and standards and their abbreviations used in this Special Provision shall be as shown:

A. American Association of State Highway and Transportation Officials (AASHTO)
B. American Gear Manufacturers Association (AGMA)
C. American Bearing Manufacturers Association (ABMA)
D. American Iron and Steel Institute (AISI)
E. American National Standards Institute (ANSI)
F. American Society for Testing and Materials (ASTM)
G. American Welding Society (AWS)
H. National Lubricating Grease Institute (NLGI)
I. Steel Structures Painting Council (SSPC)

The work shall meet the requirements of all other codes and standards as specified elsewhere in these Special Provisions. Where codes and standards are mentioned for any pay item, it is intended to call particular attention to them; it is not intended that any other codes and standards shall be assumed to be omitted if not mentioned.

Standard Products.

Products used in the work described shall be produced by manufacturers regularly engaged in the manufacture of the specified products. Materials and equipment shall be essentially the standard products of manufacturers regularly engaged in production of such materials or equipment and shall be manufacturer's latest standard design that complies with the Contract specification requirements. Materials and equipment shall essentially duplicate items that have been in satisfactory commercial or industrial use at least 3 years prior to bid opening. Where two units of the same class of equipment are required, these units shall be products of a single manufacturer. Each major component of equipment shall have the manufacturer's name and address and the model and serial number on a stainless steel nameplate, securely affixed in a conspicuous place. The name plate of the distributing agent will not be acceptable.

Substitutions.

Where a particular product is specified by a manufacturer's name and catalog or part number in this Specification or on the Contract Drawings, it is so specified to establish quality, configuration, and arrangement of parts. An equivalent product made by another manufacturer may be substituted for the specified product subject to the approval of the Engineer; however, all necessary changes required by the substitution in related machinery, structural, architectural and electrical parts, shall be made by the Contractor at no additional cost.

Prior to the Contractor's ordering of any substitute product, the Engineer's approval of the equivalence of the substitute product shall be obtained in writing. The acceptance of the substitute products is at the sole discretion of the Engineer who will establish the basis for equivalence and will review the quality of the materials and products described in detail on the submitted shop drawings and product data.

Upon return of Engineer rejected shop drawings, the Contractor shall resubmit the shop drawing showing the specified product. Rejection shall not in any way result in any extra cost.

Approval by the Engineer of any substitute products submitted by the Contractor shall not relieve the Contractor of responsibility for the proper operation, performance, or function of that product.

Quality Assurance and Facilities.

Products used in the work described shall be produced by manufacturers regularly engaged in the manufacture of the specified products.

Provide adequate plant facilities and all necessary tools and instruments required for the proper performance of the personnel engaged in the execution of the specified work.

Fasteners.

High strength bolts shall meet the requirements of ASTM F3125 Grade A325 or ASTM A449. Unless noted otherwise, high strength bolts shall be installed into holes with diameters no more than 1/16" larger than the bolt diameter.

High strength turned bolts (hex head and slotted countersunk head) and turned studs shall have turned shanks and cut threads. Turned bolts shall have semi-finished, washer faced, hexagonal heads and nuts. All finished shanks of turned fasteners shall be 1/16" larger in diameter than the diameter of the thread, which shall determine the head and nut dimensions. Unless noted otherwise, the shanks of all turned fasteners shall have a Class LC6 fit in the finished hole in accordance with ANSI Standard B4.1. The material shall meet the requirements of ASTM A449.

Bolts and studs shall be secured with heavy hex nuts meeting the requirements of ASTM A563 Grade DH or ASTM A194 Grade 2H.

High strength turned bolts shall be installed with a hardened plain washer at each end meeting ASTM F436 Type 1.

All fasteners shall be of United States manufacture and shall be clearly marked with the manufacturer's designation.

The dimensions of all bolt heads and nuts shall be in accordance with ANSI Standard B18.2, Square and Hexagon Bolts and Nuts or ANSI Standard B18.5, Round Head Bolts.

Threads for bolts, nuts and cap screws shall conform to the coarse thread series and shall have a Class 2 tolerance for bolts and nuts or Class 2A tolerance for bolts and Class 2B tolerance for nuts in accordance with the ANSI Standard B1.1, Unified Inch Screw Threads.

Bolt holes through unfinished surfaces shall be spot faced for the head and nut, square with the axis of the hole.

Unless otherwise called for, all bolt holes in new machinery parts or connecting these parts to the support steel work shall be subdrilled at least 1/8" smaller in diameter than the bolt diameter and shall be reamed assembled for the proper fit at assembly or at erection with the steel work after the parts are correctly assembled and aligned.

If double nuts are used, they shall be used for all connections requiring occasional opening or adjustment.

Refer to the "Construction Methods" section, "Fasteners" subsection for bolt tightening requirements.

Shims.

Where shown on the drawings, all machinery shims required for leveling and alignment of equipment shall be neatly trimmed to the dimensions of the assembled parts and drilled for all bolts that pass through the shims. Shims used with mounting fasteners greater than 5/8" diameter shall be provided with bolt holes 1/4" larger in diameter than the connecting fastener shank diameter. Shims used with smaller size fasteners shall be provided with bolt holes 1/8" larger in diameter than the connecting fastener shank diameter. Bolt holes shall not be punched to prevent distortion of the shims.

Shims shall be shown and fully dimensioned as details on the working drawings. Shims with open side or U-shaped holes for bolts will not be permitted. Unless noted otherwise, no shims shall have less than two holes for bolts.

The contractor shall provide all shims required to align all new, rehabilitated, or existing components to be realigned. In general, sufficient thicknesses shall be furnished to secure 1/64" variations of the shim allowance plus one shim equal to the full allowance. Depending upon component alignment requirements, thinner shims and/or tapered shims may be required. Shim stacks greater than 1/2" shall include one solid plate of thickness equal to 1/2" less than the total shim thickness.

Shim material shall be ASTM A240 type 316 stainless steel.

The use of peelable laminated shims with solder or resin bonding will be permitted. Plastic or other non-metallic shims will not be permitted.

Castings and Forgings.

Take all necessary precautions to fabricate the castings true to pattern in form and dimensions, free of pouring faults, cracks, cold shuts, blow holes and other defects in positions affecting their strength and value for the service intended.

Clean all castings of loose scale and sand; remove all fins, seams, gates, risers and other irregularities. All unfinished edges of castings shall be neatly cast with rounded corners and all inside angles shall have ample fillets. The casting shall be provided with raised bosses at the bolt hole locations.

Visually examine all castings in accordance with ASTM A802, meeting visual inspection acceptance criteria Level II. Castings that do not pass this test may be rejected. Submit test results, whether positive or negative, to the Engineer. Test records meeting Level III may be considered for weld repair, provided the manufacturer submits a procedure to the Engineer for review and approval.

All castings that have solid sections 2 inches (50.8 mm) thick or greater in the as-cast condition shall be ultrasonically tested in accordance with ASTM A609, Method A, meeting Quality Level 2. Castings that do not pass this test may be rejected. Test results, whether positive or negative, shall be submitted to the Engineer. Test records meeting Quality Level 3 may be considered for weld repair, provided the manufacturer submits a procedure to the Engineer for review and approval.

All casting surfaces shall be magnetic particle examined in accordance with ASTM E125, meeting the following acceptable levels of discontinuities:

A. Type I	Cracks/Hot Tears	¼-inch max
B. Type II	Shrinkage	Degree 3
C. Type III	Inclusions	Degree 3
D. Type IV	Chaplets	Degree 2
E. Type V	Porosity	Degree 1

Submit test results, whether positive or negative, to the Engineer. All surface discontinuities may be considered for weld repair, provided the manufacturer submits a procedure to the Engineer for review and approval.

All repair procedures shall include details of the areas to be repaired and a means to qualify the repair method. Perform approved repair procedures prior to final heat treatment, so that no weld repairs will be needed after final machining. In addition, perform all surface defect removal by rough machining prior to final heat treatment.

Replace all castings that fail to meet the established acceptance criteria.

All carbon and alloy steel forgings shall meet the requirements of AASHTO Specification M102 (ASTM A668) unless otherwise indicated or approved by the Engineer.

All forgings shall be reduced to size from a single bloom or ingot until homogeneity is secured. The blooms or ingots shall have a cross-sectional area at least three times that of the final forged component. No forging shall be done at less than a red-heat.

All forgings shall be ultrasonically examined in accordance with ASTM A388 by the foundry. All finish machined forging surfaces shall be magnetic particle examined in accordance with ASTM A275. The maximum permissible indication on any surface shall be ¼-inch. Indications greater than ¼-inch may be cause for rejection. Submit test results, whether positive or negative, to the Engineer.

Coatings.

The bolt shanks and threads of turned bolts shall be coated with an anti-seize compounds before assembly of the nuts to prevent corrosion and allow for future removal if necessary.

Paint for Machinery Components.

The paint system of machinery components shall consist of a modified aluminum epoxy mastic primer and an aliphatic urethane finish coat. The following manufacturers and paint systems shall be used or an approved equal submitted for review.

A. Manufacturer: Carboline Company - Carbomastic 15 Primer, Carbothane No. 134 VOC Finish Coat
B. Manufacturer: Sherwin Williams - Epoxy Mastic Aluminum II Primer, Hi-Solids Polyurethane 250 Finish Coat
C. Manufacturer: PPG Protective and Marine Coatings - Amerlock 400 Primer, Amercoat 450H Finish Coat

Coupling Seals and Gaskets.

After field verification, the Contractor shall furnish and install new seal, gasket, and bolt kits for each coupling where seal replacement is specified.

Construction Methods:

Machinery Dimensional Tolerances.

Unless otherwise indicated on the Contract Documents or required for proper assembly of parts, dimensional tolerances of machinery, in general shall be as follows:

Surface	Tolerance
Machined (to 1")	+/- 0.015"
Machined (over 1")	+/- 0.030"
Rolled	+/- 0.030"
Component Locations	+/- 0.030"
Bolt Hole Locations	+/- 0.030"
Angular	+/- 0.5 degree

Machinery Fits and Finishes.

The general machinery finish, unless otherwise indicated on the Contract Documents, is 125 micro inches. All transitions shall be blended smooth. All surfaces of forgings and bushings shall be machined to dimensions shown on the plans. All mating surfaces of machinery parts, supports, and external edges shall be machined.

Fits and finishes for machinery shall be as follows:

Surface	Fits	Finish (in micro inches)
Machinery Base on Structural Steel	-	250
Shaft Journals / Piston Rod Sliding Surfaces	-	8
Bushings (Sliding Surfaces)	-	16
Solid Bushing in Base (Over ¼" Wall)	FN2	63
Turned Bolts in Finished Holes (General)	LC6	63
Keys and Keyways	LC3	63
Machinery Parts in Fixed Contact	-	125
Pins	-	63

The above fits for cylindrical parts shall also apply to the major dimensions of non-cylindrical parts.

Personnel.

For the fabrication, installation, cleaning, aligning, testing and all other work required as described, use adequate numbers of skilled, trained, and experienced mechanics and millwrights who are thoroughly familiar with the requirements and methods specified for the proper execution of the specified work. Refer to "Project Scope of Work" special provision for anticipated personnel required to complete maintenance and repair work.

Verification of Dimensions.

Dimensions shown on Plans are nominal and are intended for guidance only. Dimensions shall be field verified prior to fabrication of new components. All variations from the nominal dimensions shown shall be noted on the shop drawings.

Fasteners.

Unless otherwise noted, ASTM A449 high strength bolts installed with 1 nut and used to connect machinery components to supports or structural steel shall be pretensioned to the values for an ASTM F3125 Grade A325 high strength bolt with equal thread size, as specified by the Research Council on Structural Connections' Specification for Structural Joints Using High-Strength Bolts.

Torques for high strength turned bolts installed with single nuts shall be proportioned to develop a preload of 65% of their yield strength, unless otherwise noted.

For high strength turned bolts/studs installed with double nuts at the span lock shoes, the first nut shall be tightened enough to fully compress the shim packs without damaging the tapped threads in the bronze shoes. The top nut shall be torqued to 65% of the yield strength of an ASTM F3125 Grade A325 high strength bolt with equal thread size.

Navigation Restriction.

Refer to "Common Provisions for Bridge Maintenance" Special Provision for the existing United States Coast Guard (USCG) regulations for bridge openings. If the Contractor requires longer notice to perform the work, a temporary deviation must be requested from the USCG. The Contractor will need to request and receive approval from the USCG prior to starting work requiring the temporary deviation at no extra cost to the Department.

Delivery and Storage; Protection for Shipment.

Machined surfaces shall be cleaned of dirt, chips, grit, and all other injurious materials prior to shipping and shall be given a coat of corrosion-inhibiting preservative.

Finished metal surfaces and unpainted metal surfaces that would be damaged by corrosion shall be coated as soon as practicable after finishing with a rust-inhibiting preservative. This coating shall be removed from all surfaces prior to painting, after erection, and prior to operation.

New and rehabilitated components shall be completely protected from weather, dirt, and all other injurious conditions during manufacture, shipment, and storage.

Assembled units shall be mounted on skids or otherwise crated for protection during handling and shipment.

Machinery Installation Tolerances.

Machinery installation tolerances shall be in accordance with the coupling or connected component's manufacturer requirements, whichever installation requirements are more stringent. The Contractor shall submit an installation procedure with the installation tolerances specified within the procedure. After installation of the components is complete, the Contractor shall document the final alignment and submit the measurements to the Engineer for review.

If the base fasteners for a mechanical component (such as a motor, speed reducer, or bearing) are removed to perform repair work, initial alignment measurements at the coupling(s) shall be recorded and submitted to the Engineer for review. Unless noted otherwise, these measurements shall set the minimum realignment requirements when the component is reinstalled. The final alignment measurements shall also be submitted to the Engineer for review.

Cleaning and Painting.

Where possible, new or rehabilitated components should be painted in the shop. Unless noted otherwise, new or rehabilitated components, including fasteners, that are not painted in the shop shall be field painted after installation. Where existing paint is damaged to perform the work specified within this Contract, (such as when existing fasteners are removed and reinstalled for coupling seal replacement), the component shall be cleaned and spot painted.

The existing and new machinery to be painted shall be cleaned in accordance with SSPC-SP1 to remove all dirt, debris, and oil on the machinery components prior to field painting. The existing machinery components shall be prepared in accordance with SSPC-SP2 to prepare the machinery steel for field painting. At the discretion of the Engineer, power hand tools may be used to remove corrosion from mechanical components.

The Contractor shall take special care to avoid painting of machinery surfaces which are in normal rubbing contact, including but not limited to gear teeth, bearing journals, shaft seals, and balance wheel / track rolling surfaces. All nameplates, legend plates, seals, etc. on machinery shall be masked for protection from paint.

Brake frames and thrusters shall only be coated with the manufacturer's recommended paint system according to the manufacturer's specified procedure. The Contractor shall submit the manufacturer's recommended paint system and procedure to the Engineer for review.

At each bridge where painting existing components is specified, prior to field painting existing machinery components, the contractor shall test the proposed paint system primer to ensure proper adhesion to the existing paint system. The test surface shall be selected by the Engineer and will be an approximately 1 square foot area of the machinery where the existing paint system is in good condition and tightly adhered to the component. The test surface shall be prepared for painting and a coat of the proposed primer shall be applied. After the test area has fully cured per the manufacturer's recommended duration, the area shall be inspected by the Engineer to ensure proper adhesion. If the proposed paint system does not adhere to the test area to the satisfaction of the Engineer, the testing shall be repeated with a different paint system.

After preparing the machinery component surfaces, one field coat of the primer shall be applied after the mechanical work is completed. Where necessary, apply a second touch up coat of the primer where the primer was damaged. Apply two field coats of the finish coat.

The prime and finish coats shall be applied by hand brushing, which shall color code the machinery to distinguish between fixed and moving parts. Paint for the finish coat shall be high gloss and conform to OSHA color requirements of the Safety Color Code for Marking Physical Hazards, ANSI Z53.1. The following colors shall be used:

Federal Safety Orange: For all moving parts of the machinery such as couplings, shafting, and the side of gears and brakewheels.

Federal Safety Green: For all stationary parts of the machinery including fasteners.

Coupling Seal Replacement.

New coupling seals shall be installed in accordance with the manufacturers recommended procedure. Seals shall be protected from damage (nicks, cuts, etc.) during installation. Furnish and install new coupling fasteners for all couplings where the seals and gaskets are replaced.

When couplings are disassembled for seal replacement, the internal components shall be cleaned of old grease. Hand pack couplings with new grease prior to reassembly. After reassembly of the coupling, finish filling the coupling with grease using a grease gun.

Shafts must be supported when any coupling is disassembled.

Prior to disassembling couplings, the Contractor shall matchmark the coupling components as needed to ensure that the couplings are reassembled with the same relative shaft orientation.

Span Lock Guide and Receiving Socket Shim Replacement.

With the live load bearings in hard contact, the span lock receiving sockets shall be shimmed to provide the total clearance specified in the Contract Drawings. With no traffic or equipment on the bascule span, the receiving socket shoes shall not be in contact with the lock bars. Where span lock guides are to be shimmed, the shoes should be shimmed to provide the specified clearance when the lock bars are in the driven position.

Span lock guide and receiving socket shim replacement and adjustment work shall be performed with no equipment or vehicles on the span. Shim replacement work shall be performed at night during a temporary bridge closure or with traffic temporarily held and the warning gates lowered.

The Contractor shall coordinate all barge work that will obstruct the navigable channel with the United States Coast Guard.

Where lock bars have a rack bolted to the bottom side and are driven by a pinion (Bridge 1-693), the Contractor shall measure the backlash and tip to root clearance on both sides of the rack/pinion with the lock bar in the driven and pulled positions. The measurements shall be recorded prior to performing any span lock shimming and shall set the baseline requirement for final lock bar rack alignment after the span locks shims have been replaced and adjusted. The Contractor shall submit initial and final rack/pinion measurements to the Engineer for review.

Guarantee and Warranties.

A. Manufacturers' Warranties.

Manufacturer's warranties or guarantees on equipment, materials or products purchased for use under this Contract which are consistent with those provided as customary trade practice, shall be obtained by the Contractor and, upon acceptance of the Contract, the Contractor shall assign to the State, all manufacturer's warranties or guarantees on all such equipment, material or products furnished for or installed as part of the Work.

B. Contractor's Warranty.

The Contractor's warranty for all machinery work within this Item shall extend for a period of one year following the date of final acceptance of all repairs at the specified bridge.

Method of Measurement:

"Common Provisions for Mechanical Work" will not be measured for payment but the cost will be considered incidental to all bid items related to the machinery work included in the Contract Documents.

Basis of Payment:

Payment for "Common Provisions for Mechanical Work" will be incidental to all related bid items.

9/12/2018

615649 - PROJECT SCOPE OF WORK

Description:

The Delaware Department of Transportation (DelDOT) has developed these Contract Documents for the preventative maintenance (also referred to as cyclical maintenance) on the eight movable bridges owned and operated by DelDOT. Maintenance to six of the bridges is included in the initial portion of the Contract, with the possibility of two additional bridges being added at a future date. Refer to "Common Provisions for Bridge Maintenance" for additional details.

These contract documents will provide the Contractor with the information necessary to perform the routine preventative maintenance of the mechanical and electrical components on each bridge as well as general housekeeping within the control house and bascule piers. The Contract Documents also include details for performing repairs of various known defects. The Contractor will perform these initial repairs during the first year of the Contract.

The Contract will be administered by DelDOT's Maintenance and Operations (M&O) Division and with support from DelDOT's Bridge Management Division. The Canal and South District's M&O staff will each be involved in administering and monitoring the Contractor's work on the bridges within their district. Additionally, DelDOT's ongoing Structure Maintenance Contracts (SMC) and biennial bridge safety inspection contracts will remain active and the Contractor's initial repair and maintenance work activities must be coordinated through DelDOT.

The work to be performed under this Contract is Statewide at the movable bridges that are owned and maintained by DelDOT. The eight movable bridges include the following:

District	Bridge No.	Bridge Name(s)	General Location	Waterway Crossed	Movable Bridge Type
Canal	1-687	Walnut Street	Wilmington	Christina River	Double Leaf Bascule
	1-688	South Market Street	Wilmington	Christina River	Double Leaf Bascule
	1-693	Third Street (Winchester)	Wilmington	Christina River	Double Leaf Bascule
South	2-021A	Rehoboth Boulevard (Mispillion)	Milford	Mispillion River	Single Leaf Bascule
	3-151	Front Street (Seaford)	Seaford	Nanticoke River	Single Leaf Bascule
	3-153	Rehoboth Avenue	Rehoboth	Lewes-Rehoboth Canal	Single Leaf Bascule
	3-154	Savannah Road (Lewes)	Lewes	Lewes-Rehoboth Canal	Double Leaf Bascule
	3-164	SR-36 (Cedar Creek)	Slaughter Beach	Cedar Creek	Swing

Any required lane closures or MOT costs (signs, cones/barrels, TMA's, flaggers, etc.), as well as any access equipment costs required to perform cyclical maintenance work shall be included in the unit bid price for the appropriate bid item. The MOT for initial repair work or additional work that is outside the preventative maintenance contract shall be provided by DelDOT or negotiated and paid through a separate force account or through approved unit prices.

The scope of work includes providing labor, equipment, materials, etc. necessary to perform the preventative maintenance on the mechanical and electrical systems as well as performing initial repairs of selected known defects in the movable span(s) of these bridges.

Bridge maintenance shall be primarily limited to the movable span(s) of the bridge structures and is not intended to include the entire bridge length, from abutment to abutment. However, the maintenance and initial repair work may include ancillary support systems for the movable bridge, such as advanced warning systems, traffic equipment, etc. which may be located on the approach spans or the approach roadways prior to each bridge.

Maintenance work includes providing general housekeeping, mechanical, and electrical maintenance of the bridges. Preventative Maintenance items may include but is not limited to the following:

General Housekeeping:
- Clean debris from bascule pier
- Maintain control house and bascule pier heating and AC systems
- Maintain sump pumps and remove debris from the pits

Mechanical:
- Lubricate and maintain all machinery components. Machinery components include but are not limited to the following:
  - Motors, open gearing, speed reducers, bearings, couplings, brakes, lock bars, guides, and receiving sockets
- Remove and dispose of existing grease and oil from machinery
- Check oil levels at speed reducers
- Check and adjust brake settings
- Check machinery component fasteners
- Observe machinery during operations

Electrical:
- Verify proper function and maintain all electrical system components. Electrical components include but are not limited to the following:
  - Control consoles, control enclosures, drive systems, circuit breakers, relays, contactors, overloads, disconnect switches, air horns, limit switches, position transmitters, tachometers, overspeed switches, resistors, transformers, generators, navigation lights, advanced warning sign lights, traffic signals, warning gates, warning gongs, service lighting, photo electric sensors, power receptacles, transfer switches, uninterrupted power supplies (UPS), conduit, wire, flexible cables and all terminations.
- Check and replace control house, bascule pier, and navigation light bulbs
- Check and tighten electrical wire and terminations
- Check conduit, fittings, junction, terminal and pull boxes
- Check hardware and steel components for corrosion and clean/paint
- Maintain roadway traffic signals and advanced warning signs
- Verify proper operation of electrical components

The initial repairs of known defects in the movable span(s) may include mechanical and electrical components and any associated structural steel and concrete work. Initial repair items may include, but is not limited to, the following:

- Limit switch replacement and/or adjustment
- Fabrication of limit switch trip plates and/or other miscellaneous supports
- Replace wiring connections
- Painting of corroded components and equipment
- Span lock and live load bearing shimming
- Replacing coupling seals and gaskets
- Railing repairs
- Replacement of various conduit fittings, supports, and sections of conduit.

Work on Historical Bridges.

Bridges 1-687, 1-688, 2-021A, and 3-151 are eligible for listing on the National Register of Historic Places. DelDOT Environmental Studies must be notified at 302-760-4887 if there are any proposed changes to the project methods, footprint, materials, or designs to allow the department to coordinate with the

appropriate resources agency for approval. In the event that a component must be replaced and cannot be replaced with identical parts on Bridges 1-687, 1-688, 2-021A, and 3-151, DelDOT Environmental Studies must also be notified. If unforeseen damage occurs to the bridge (as a direct result of the undertaking) DelDOT Qualified Staff must be contacted immediately to ensure that the DE SHPO, FHWA, and/or others are consulted on ways to repair the damage consistent with the Secretary of the Interior's standards.

Qualifications and Experience Requirements.

The Prime Contractor, and any Subcontractors, as a company shall have at least five (5) years of experience performing repair work on movable bridges, similar to the work items listed above (structural, mechanical and electrical as listed in the Project Scope of Work). Experience of individual personnel in the company shall not count towards meeting the required 5 years of experience for the company. Pertinent work experience shall be submitted at the time of bid on the Contractor Experience Questionnaire Forms located in Appendix A.

The Prime Contractor, and any Subcontractors, as a company shall have at least three (3) years of experience performing cyclical maintenance work on movable bridges, similar to the work items listed above (general housekeeping, mechanical and electrical as listed in the Project Scope of Work). Experience of individual personnel in the company shall not count towards meeting the required 3 years of experience for the company. Pertinent work experience shall be submitted at the time of bid on the Contractor Experience Questionnaire Forms located in Appendix A.

Contractor Qualifications.

The following qualifications for the Contractor shall be submitted on the Contractor Experience Questionnaire Forms located in Appendix A, which shall be submitted with the Contractor's Bid. Documentation shall include the following items:

A. Number of years of recent, relevant experience in performing repairs of structural, mechanical and electrical equipment similar to those required within this Contract.

B. Number of years of recent, relevant experience in performing maintenance of mechanical and electrical equipment similar to those required within this Contract.

C. List of successfully completed or ongoing projects demonstrating the Contractor's ability to perform movable bridge repairs and maintenance activities. List shall include a description of projects, start/end dates, description(s) of work performed, and Agency contact information including the Agency's project manager's phone and email address.

Maintenance Personnel Qualifications.

In addition to the experience requirements for the Contractor, the Contractor or Subcontractor's personnel shall also meet certain experience requirements specified below for key positions. The key positions are: project manager, master electrician, control system expert, and mechanical maintenance personnel. The personnel are not required to be an employee of the prime Contractor unless indicated.

Pertinent work experience for these individuals shall be submitted on the Contractor Experience Questionnaire Forms at the time of bid. Resumes shall include, but not be limited to, educational information, relevant licensing and/or certifications and number of years of experience. Provide relevant project information including: start/end dates, description of individual's role and responsibilities, and Agency contact information including the Agency's project manager's phone and email address.

A. Project Manager - The project manager shall have a minimum of 5 years of experience with managing/maintaining mechanical and electrical equipment. This person is the single point of contact, shall be an employee of the prime Contractor and will manage all work, personnel, submittals, and scheduling associated with this contract. If the Contractor requests to transition the Project Manager off the project, the Contractor shall submit a new, qualified personnel to the Engineer for approval at least 30 days prior to the date of the requested transition.

B. Master Electrician - This classification must be licensed as a Master Electrician in the State of Delaware. The Master Electrician is responsible for independently performing or supervising the electrical maintenance, installation, connection, and repair work in compliance with Federal, State, and Local regulations and standard practices. Master Electricians work with electric circuits carrying 60 - 600 volts (including 120V, 240V and 480/277V), in accordance with the National Electrical Code (NFPA 70 and 70E) and DelDOT standards for electrical wiring and installation. Electrical work for the project performed or supervised by a master electrician includes, but is not limited to, installation of all equipment, wiring, materials, fittings, devices, appliances, fixtures, and apparatus used for the production, modification, regulations, control, distribution, utilization or safeguarding of electrical energy for the purposes of operating any DelDOT equipment. The Master Electrician shall have all the necessary tools to do his/her job on site (i.e., tools are carried on the truck), which include but are not limited to the following:

- Circuit tracer device for locating faults and wiring
- Electrical Megger megohmmeter 500/1000V testing device
- Electrical multimeter (true RMS)
- Current Clamp and Ammeter (True RMS)
- Phase Rotation Meter
- Infrared Temperature Sensor
- Three phase power monitoring device
- Other basic tools routinely used at the job site, including shop vacuum, small air compressor, etc.

The Master Electrician shall have a minimum of 5 years of experience with maintaining industrial electrical systems. Any electrical work required to maintain, adjust, disassemble, clean, connect and terminate the electrical equipment shall be performed by or supervised by a Master Electrician, except the work required to be performed by the Control System Expert as defined below.

C. Control Systems Expert/Vendor (CSV) - The control system expert shall have a minimum of 5 years of experience with movable bridges including swing and bascule type movable bridges. All work related to the relay control and drive system shall be performed by the Control System Expert unless otherwise approved in writing by the Engineer. The CSV shall have the ability to assemble control panels and cabinets at an Underwriters Laboratory approved facility in accordance with UL 508.

The CSV shall be responsible for the detailed updated schematics and fabricating portions of the control and power distribution system for all repairs, including tuning and testing of any part of the electrical system. The vendor shall provide supervisory assistance in the installation of equipment at the bridge site to ensure correct field wiring, maximum reliability and ease of maintenance. Work may include but not limited to the following:

- Procure and furnish all related control equipment which may include (but is not limited to) relays, contacts, selector switches, meters, push-buttons, indicating lights, motors, panelboards, circuit breakers, overloads, limit switches, drives and controllers.
- Adjustment, replacement or repair of relay logic, interlocking and associated wiring.
- Adjustment, replacement or repair of the span drive systems and associated equipment including wound rotor stepped resistance control systems and Hubbell primary thyristor drive systems.
- Adjustment, replacement or repair of limit switches, position transmitters, resolvers, speed switches and tachometers.
- Provide updated as-built schematics and wiring diagrams for any work performed.

Vendors likely to meet these requirements are listed below.

1. Panatrol Corporation (708-496-3080)
2. TSR Electric (410-355-8700)
3. EHM (954-981-0023)
4. Other qualified vendors (must be submitted in writing)

D. Mechanical Maintenance Personnel - The personnel performing the mechanical maintenance shall have a minimum of 3 years of experience with maintaining electric motors, reducers, open gearing, bearings, couplings, brakes, and linear actuators.

Additional Personnel.

In addition to the experience requirements for the Contractor and individuals listed above, the Contractor or Subcontractor's personnel may also include the following classifications. It is anticipated that while the initial repairs are being performed, the following qualified labor may be needed.

A. Foreman. This worker should have experience as a foreman working on movable bridges. The foreman will supervise and oversee the skilled laborers, welders, electricians, control systems expert, and boat captain.

B. Skilled Laborer. This item includes all workers that are not a foreman, welder, electrician, electrician's helper, control system expert, field superintendent, boat captain, or millwright. The workers shall be skilled laborers as defined by the U.S. Department of Labor such as carpenters, deck hands, concrete finishers, laborers for rigging, structural steel iron workers and reinforcing steel iron workers, etc., or as agreed upon by the Engineer in writing. These workers shall have familiarity with movable bridge mechanical and electrical components and shall be able to perform other duties as necessary to complete repairs.

C. Welder. This item is for an AWS D1.5 Certified Welder and shall include all equipment (welding machine, leads, hot box, welding shields, grinders, etc.) necessary to perform the work. The welders' Delaware State certification shall be on-site. Welder work may include field measuring, cutting, fitting, fabrication, torch cutting, air arcing, and welding (in shop, in field on the ground, in field up on the bridge structure, etc.).

D. Electrician's Helper. The electrician's helper is a worker under the direct supervision of a licensed Master Electrician.

E. Boat Captain. A Boat Captain is responsible for the Contractor's activities in the water and those that may affect navigational activities. The captain shall ensure that all applicable US Coast Guard regulations are met during repair or maintenance activities.

F. Millwright Foreman. This worker shall oversee the installation and alignment of new and rehabilitated bridge machinery components and shall have a minimum of three movable bridge projects as previous experience in the installation of bridge machinery.

Basis of Payment:

For cyclical maintenance work, the cost of all necessary labor (including travels costs), materials, and equipment shall be included in the Contractor's unit price bid for each of the indicated maintenance intervals at each bridge.

For initial repairs, the cost of all necessary labor (including travel costs), materials, and equipment shall be included in the Contractor's lump sum bid price for the initial repairs at each bridge. Any variation in minor items shall be adjusted according to Section 104.05 of DelDOT Standard Specification.

Any labor costs (skilled, unskilled, specialized, etc.) that the Contractor may need to perform work directed by DelDOT other than cyclical maintenance work or the initial repair work, will be negotiated with DelDOT and paid through use of force accounts.

Any MOT, flaggers, access equipment, etc. that the Contractor may need to perform work other than the cyclical maintenance work, will be negotiated with DelDOT and paid through use of force accounts.

DelDOT will make payments to the Contractor following successful completion of the work and upon submission and approval of the Inspector's Maintenance Checklist where applicable. These forms are contained in Appendix B.

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

25 July 2018
UTILITY STATEMENT
STATE CONTRACT # T201707005
F.A.P # NONE
P6#17-07005
CYCLICAL BRIDGE MAINTENANCE FOR
MOVABLE BRIDGES
STATEWIDE

LOCATIONS:

Location #1 – BR 1-688 – South Market Street Bridge (Wilmington) over Christina River
Location #2 – BR 1-687 - Walnut Street Bridge (Wilmington) over Christina River
Location #3 – BR1-693 - 4th Street (Winchester Bridge) (Wilmington) over Christina River
Location #4 – BR2-021A - Rehoboth Boulevard (Milford) over Mispillion River
Location #5 – BR3-151 - Front Street (Seaford) over Nanticoke River
Location #6 – BR3-153 - Rehoboth Avenue (Rehoboth) over Lewes - Rehoboth Canal
Location #7 – BR3-154 - Savannah Road (Lewes) over Lewes - Rehoboth Canal
Location #8 – BR3-164 - SR-36 (Slaughter Beach) over Cedar Creek

General Scope of work – The Delaware Department of Transportation (DelDOT) has developed this contract for the cyclical maintenance contract (CMC) on the eight movable bridges owned and operated by DelDOT. This contract will perform routine maintenance of the mechanical and electrical components on each bridge as well as general housekeeping within the control house and bascule piers.

The following utility companies may own and/or maintain facilities within the project limits:

ARTESIAN WATER COMPANY
CHESAPEAKE UTILITIES
CITY OF MILFORD
CITY OF SEAFORD
COMCAST
DELDOT
DELMARVA POWER
DELMARVA POWER GAS
EASTERN SHORE NATURAL GAS
FIBERTECH (CROWN CASTLE)
LEVEL3 COMMUNICATION
LEWES BOARD OF PUBLIC WORKS

MCI TELECOMMUNICATIONS
NEW CASTLE COUNTY SPECIAL SERVICES (SANITARY SEWER)
QWEST COMMUNICATIONS
REHOBOTH WATER DEPARTMENT
SUSSEX COUNTY ENGINEERING
TIDEWATER UTILITIES
TOWN OF BLADES
VERIZON

Utility adjustments and/or relocations shall be performed as narrated, but are not limited to the following: no utility relocations or adjustments are expected.

ARTESIAN WATER COMPANY:

The Contractor must use care when working in these areas where Artesian Water Company facilities are present. The Contractor is not permitted to draw water from any hydrant for any use, without the written permission of the Artesian Water Company and proper metering and backflow prevention equipment in place. Any adjustments, including valve risers, to Artesian Water Company facilities shall be performed by the utility after a fourteen (14) calendar day notice from the contractor. The time to complete any relocations/adjustments will depend on the nature of the work.

No working/existing Artesian Water Company facilities can be taken out of service. These facilities will remain in place and active during the duration of this contract.

CHESAPEAKE UTILITIES:

Chesapeake Utilities maintains facilities within the project limits of locations #2, 3, and 4 with no anticipated impacts. No relocations are anticipated. There are no valves in the pavement and no relocations are anticipated. The contractor is advised to use caution when working in this area to avoid disturbing the existing gas facilities.

Requirements while near Chesapeake Utilities' Pipeline

The contractor shall be aware that Chesapeake Utilities has requirements while working near Chesapeake Utilities pipelines. These requirements are general in nature and not specific. These requirements are not intended to be all-inclusive. Actual field conditions may change the requirements. Contractor should contact Chesapeake Utilities and consult with their engineer prior to initiating construction and abide by all Federal, State, and Local rules and regulations.

Please coordinate construction activity with your assigned line locator according to the general guidelines below. Your line locator can help determine if additional contacts are required with Chesapeake Utilities Engineering Department before start of excavation activity.

1. It shall be the contractor's responsibility to use the Miss Utility One Call System.
2. It shall be the contractor's responsibility to contact and coordinate with Chesapeake Utilities before staring any construction above or near the pipeline. Chesapeake Utilities may elect to have standby personnel on the job site during construction activity.
3. It shall be the contractor's responsibility to contact and coordinate with Chesapeake Utilities before moving heavy equipment above or near the pipeline. Chesapeake Utilities may require extra cover, berm or ramp, timber mats, etc. These measures are to be determined by Chesapeake Utilities Depending on field conditions.
4. If the pipeline is exposed and suspended, it shall be the responsibility of the contractor to coordinate with Chesapeake Utilities the appropriate supporting measures. These measures are to be determined by Chesapeake Utilities depending on field conditions.
5. If the pipeline is exposed, it shall be the responsibility of the contractor to protect the pipeline from construction activity and the traveling public.
6. A minimum clearance of 12" shall be maintained between Chesapeake Utilities' pipeline and other underground utilities and structures. If this cannot be maintained, Chesapeake Utilities shall determine an appropriate means of protection to the pipeline.

IN EVENT OF PIPELINE EMERGENCY, CALL TOLL FREE 1-800-427-2883

CITY OF MILFORD:

The City of Milford maintains Electric, Water and Waste Water facilities. Any adjustments to any City of Milford Electric facilities shall be made by City forces. Any adjustments to any City of Milford, Water and Waste Water facilities shall be performed by the State's contractor in accordance with the Standard Specifications as directed by the District Engineer.

No working/existing City of Milford facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
EMERGENCY AFTER HOURS: 302-422-8081

CITY OF SEAFORD:

The City of Seaford maintains Electric, Water and Waste Water facilities. Any adjustments to any City of Seaford Electric facilities shall be made by City forces. Any adjustments to any City of Seaford facilities shall be performed by the State's contractor in accordance with the Standard Specifications as directed by the District Engineer.

No working/existing City of Seaford facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
EMERGENCY AFTER HOURS: Seaford Police Dept. 302-629-6644 / 4550

COMCAST:

No working/existing Comcast facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
Comcast emergency 24 hour hotline customer service: 1-800-934-6489.

DELDOT:

Del Dot maintains ITMS, fiber, lighting and/or signal systems within the project limits of all locations. The Contractor must use care when working in these areas. Any adjustments to Del DOT facilities shall be performed by the State's contractor in accordance with the Standard Specifications as directed by the District Engineer. The contractor shall report any impacts to any vehicle detection system to the Traffic Management Center (TMC) (Cell #77) (24 HR 302-659-4600), seven (7) calendar days before the loop system is impacted by construction activities.

DELMARVA POWER – ELECTRIC:

No working/existing Delmarva facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
To report a downed wire, call 1-800-898-8042.

Delmarva Power has a written requirement regarding working near overhead power lines.

Customer/Contractor Acknowledgement

Performing Work within Dangerous Proximity of High Voltage Lines

"You are hereby notified by Delmarva Power that NO work can be performed at this location within dangerous proximity to Delmarva's overhead lines and that you are required by law to comply with applicable OSHA regulations and the applicable state High Voltage Safety Act. Performance of any activity or causing any person, equipment or things to come within dangerous proximity of Delmarva's overhead lines creates an extreme risk of severe injury or death. You are further notified that no activities may be conducted within dangerous proximity of Delmarva's overhead lines until mutually agreeable measures to prevent contact with overhead lines have been reached with Delmarva and Delmarva has provided you with written authorization to perform the activities.

Additionally any work involving the use of a crane with intentions to remain outside of dangerous proximity, but within 20 feet of the Company's overhead lines, requires an Encroachment Prevention Plan in order to satisfy OSHA"

DELMARVA POWER GAS:

No working/existing Delmarva Power–Gas facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
If you smell natural gas, leave the area immediately and then call 302-454-0317.

EASTERN SHORE NATURAL GAS:

No working/existing ESNG facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

Requirements while near Eastern Shore's Pipeline

Note: These requirements are general in nature and not specific. These requirements are not intended to be all-inclusive. Actual field conditions may change the requirements. Contractor should consult with their engineer prior to initiating construction and abide by all Federal, State, and Local rules and regulations.
Please coordinate construction activity with your assigned line locator according to the general guidelines below. Your line locator can help determine if additional contacts are required with Eastern Shore Engineering Department before start of excavation activity.

1. It shall be the contractor's responsibility to use the Miss Utility One Call System.
2. It shall be the contractor's responsibility to contact and coordinate with Eastern Shore before starting any construction above or near the pipeline. Eastern Shore may elect to have standby personnel on the job site during construction activity.
3. It shall be the contractor's responsibility to contact and coordinate with Eastern Shore before moving heavy equipment above or near the pipeline. Eastern Shore may require extra cover, berm or ramp, timber mats, etc. These measures are to be determined by Eastern Shore depending on field conditions.
4. If the pipeline is exposed and suspended, it shall be the responsibility of the contractor to coordinate with Eastern Shore the appropriate supporting measures. These measures are to be determined by Eastern Shore depending on field conditions.
5. If the pipeline is exposed, it shall be the responsibility of the contractor to protect the pipeline from construction activity and the traveling public.
6. A minimum clearance of 12" shall be maintained between Eastern Shore's pipeline and other underground utilities and structures. If this cannot be maintained, Eastern Shore shall determine an appropriate means of protection to the pipeline.

IN EVENT OF PIPELINE EMERGENCY CALL ESNG 24 HOUR GAS CONTROL CENTER AT 302-734-6720 or TOLL FREE AT 1-877-650-1257

FIBERTECH (CROWN CASTLE):

No working/existing Fibertech (Crown Castle), facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

LEVEL3 COMMUNICATION:

No working/existing Fibertech (Crown Castle), facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

LEWES BOARD OF PUBLIC WORKS:

The City of Lewes maintains Electric, Water and Waste Water facilities. Any adjustments to any City of Lewes Electric facilities shall be made by City forces. Any adjustments to any City of Lewes, Water and Waste Water facilities shall be performed by the State's contractor in accordance with the Standard Specifications as directed by the District Engineer.
No working/existing City of Lewes facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
EMERGENCY AFTER HOURS: 24 Hour Hotline 302-645-6228.

MCI TELECOMMUNICATIONS:
No working/existing MCI facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

NEW CASTLE COUNTY SPECIAL SERVICES (SANITARY SEWER):
Any adjustments and/or relocations of municipally owned sewer or water facilities shall be performed by the State's contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts with facility owners and provide adequate notice prior to performing work.
No working/existing New Castle County facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

QWEST COMMUNICATIONS:
No working/existing MCI facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

REHOBOTH WATER DEPARTMENT:
Any adjustments to any Rehoboth Water and Waste Water facilities shall be performed by the State's contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts with facility owners and provide adequate notice prior to performing work.
No working/existing Rehoboth Water Department facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
To report a Water or Sewer Emergency please call (302) 227-2577

TIDEWATER UTILITIES:
No working/existing Tidewater Utilities facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.

SUSSEX COUNTY ENGINEERING:
Any adjustments and/or relocations of municipally owned sewer or water facilities shall be performed by the State's contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts with facility owners and provide adequate notice prior to performing work.
No working/existing Sussex County facilities can be taken out of service.
These facilities will remain in place and active during the duration of this contract.
Sussex County Sewer & Water 24-hour Emergency contact, please call (302) 855-7379.

TOWN OF BLADES:

Any adjustments to any Town of Blades Water facilities shall be performed by the State's contractor in accordance with the respective agencies' standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts with facility owners and provide adequate notice prior to performing work.

No working/existing Town of Blades Water Department facilities can be taken out of service.

These facilities will remain in place and active during the duration of this contract.

VERIZON:

Verizon maintains overhead and underground facilities within all locations. The contractor must use care when working in these underground areas as well as overhead cable crossings. Any adjustments to Verizon facilities shall be performed by the utility after twenty 28 (28) calendar notice from the contractor. The time to complete any relocations/adjustments will depend on the nature of the work.

No working/existing Verizon facilities can be taken out of service.

These facilities will remain in place and active during the duration of this contract.

General Utility Notes

Outside of the companies and facilities discussed above, no additional utility involvement is anticipated. Should any conflicts be encountered as a result of the contractor's means and methods during construction requiring adjustment and/or relocation, the necessary relocation work shall be accomplished by the respective utility company and funded by the State's Contractor as directed by the District Engineer. The State Contractor shall coordinate any potential conflicts with utility companies and provide adequate notice prior to performing work.

Any utility conflicts that are not readily discernable shall be coordinated by the State Contractor once the conflict is recognized. The time to complete any relocations/adjustments found to be necessary during construction of the highway project will depend on the nature of the work. Once the State's contractor has given the Utility the advance notice required above, it is the responsibility of the State's contractor to have the work area prepared and accessible for the Utility to perform the tasks listed above. If the site conditions are not ready and the state contractor has given notice to the utility on when the work is to be accomplished, the State's Contractor shall be responsible for any extra cost incurred by the utility company and the State Contractor shall also be responsible for any time delays. Between when the required notice is given to the Utility and when the work is performed and completed, the coordination and scheduling of the Utility is the sole responsibility of the State's Contractor. All costs related to the coordination and scheduling of the utilities is incidental to the contract.

Any adjustments and/or relocations of municipally or county owned sewer or water facilities shall be performed by the State's Contractor in accordance with the respective agency's standard specifications as directed by the District Engineer. The State contractor shall coordinate any potential conflicts of municipally or county owned sewer or water facilities with facility owners

and provide adequate notice to the municipally or county and to the District Engineer prior to performing work.

General Notes

1. The Contractor's attention is directed to Section 105.09 Utilities, Delaware Standard Specifications, August 2016. The Contractor shall contact Miss Utility (1-800-282-8555) two working days prior to any excavation. The Contractor is responsible for the support and protection of all utilities when excavating. The Contractor is responsible for ensuring proper clearances, including safety clearances, from overhead utilities for construction equipment. The Contractor is advised to check the site for access and operating purposes for his equipment and, if necessary, make arrangements directly with the utility companies for field adjustments for adequate clearances.

2. The information shown in the Contract Documents, including the Utility Statement and the Utility Schedule contained herein, concerning the location, type and size of existing and proposed utilities, their locations, and construction timing has been compiled by the preparer based on information furnished by each of the involved Utility Companies. It shall be the responsibility of the State's Contractor to verify all information and coordinate with the Utility Companies prior to and during construction, as specified in Section 105.09 of the Standard Specifications.

3. It is understood and agreed that the Contractor has considered in his bid all permanent and temporary utility appurtenances in their present and relocated positions as shown on the plans or described in the Utility Statement or are readily discernible and that no additional compensation will be allowed for any delays, inconvenience, or damage due to any interference from the utility facilities and appurtenances or the operation of moving them, except that the Contractor may be granted an equitable extension of time unless the delay is caused by the Contractor's delay in having the site conditions ready for the utility relocation work after the Contractor has provided the advance notice that the site conditions would be ready for the utility relocation work. The contractor's means and method of construction are not taken into account when known utility conflicts are identified. If the Contractor's means and method of construction create a utility conflict the Utility Statement will prevail in discussions with the utility and the Contractor. The State's Contractor shall be responsible for any costs associated with any temporary outages; holding, bracing and shielding of utility facilities; temporary relocations; or permanent relocations that are not specifically identified in this utility statement or shown in the contract plan set.

4. Coordination and cooperation among the Utility Companies and the State's Contractor are of prime importance. Therefore, the Contractor is directed to contact the following Utility Company representatives with any questions regarding this work prior to submitting bids and work schedules. Proposed work schedules should reflect the Utility Companies' proposed relocations. The Utility Companies do not work on weekends, nights or legal holidays.

CONTACT	COMPANY	E-MAIL	PHONE
Wayne Tyler	Artesian Water Company	wtyler@artesianwater.com	302-453-6987
Garth Jones	Chesapeake Utilities	gjones@chpk.com	302-734-6797x6043
Rick Carmean	City of Milford – Electric	rcarmean@milford-de.gov	302-422-1110 x 137
Steve Ellingsworth	City of Milford - Water & Sewer	sellingsworth@milford-de.gov	302-422-6616 x 107
Rick Garner	City of Seaford – Electric	rgarnerseafordde@gmail.com	302-629-9841
Berley Meyers	City of Seaford – Water & Sewer	publicworks@seafordde.com	302-629-8307
Keith Allridge	Comcast - NCC	Keith@americomm-llc.com	717-776-1073
Knol McRae	Comcast - NCC	Knol_mcrae@cable.comcast.com	302-661-4462
Mike Sullivan	Comcast – Kent & Sussex	Mike_Sullivan2@Comcast.com	(302) 841-6316
James Bunting	DelDOT Traffic	Jim.bunting@state.de.us	302-760-4814
Angel Collazo	Delmar Power Electric - NCC	Angel.collazo@delmarva.com	302-454-4370
William J. Whitaker	Delmar Power Electric – Kent & Sussex	william.whitaker@delmarva.com	302-934-3356
Kristin Stanfil	Delmar Power Gas	Kristin.stanfil@delmarva.com	302-429-3706
Jason Scott	Eastern Shore Natural Gas	jscott@chpk.com	302-213-7273
Bill Muehlberger	Fibertech (Crown Castle) - Wilmington	bmuehlberger@fibertech.com	585-362-0019
Wayne Elmer	Fibertech (Crown Castle) Kent & Sussex	welmer@fibertech.com	585-445-5824
Nickey Worthington	Level 3 Communications	Nickey.Worthington@level3.com Relo@level3.com	720- 888-0336
Darrin E. Gordon	Lewes Public Works	dgordon@lewesbpw.com	302- 645-6228
John Alessandrini	MCI Communications	john.alessandrini@verizonbusiness.com	610-337-6707
Dave Clark	NCC Special Services	dclark@nccde.org	302-395-5705

CONTACT	COMPANY	E-MAIL	PHONE
George McElvain	Quest Communications	George.McElvain@CenturyLink.com	303-992-9931
Howard Blizzard	Rehoboth Water Department	waterdept@cityofrehoboth.com	302-227-3194
Brad Hawkes	Sussex County Sewer	bhawkes@sussexcountyde.gov	302-855-7717
Joshua Turner	Tidewater Utilities	jturner@tuiwater.com	302-734-7500 x1021
Vikki Prettyman	Town of Blades	vikkiprettyman@bladesde.com	302-856-7391
George Zang	Verizon Delaware Inc.	Geroge.w.zang@verizon.com	302-422-1238

5. As outlined in Chapter 3 of the DelDOT Utilities Manual, individual utility companies are responsible for obtaining all required permits from municipal, State and federal government agencies and railroads. This includes but is not limited to water quality permits/DNREC Water Quality Certification, DNREC Subaqueous Lands/Wetlands permits, DNREC Coastal Zone Consistency Certification, County Floodplain permits (New Castle County only), U.S. Coast Guard permits, US Army Corps 404 permits, sediment and erosion permits, and railroad crossing permits.

6. Individual utility companies are required to restore any areas disturbed in conjunction with their relocation work. If an area is disturbed by a utility company and is not properly restored, the Department may have the State's Contractor perform the necessary restoration. Any additional costs incurred as a result will be forwarded to the utility company.

7. 16 Del. C. § 7405B requires notification to and mutually agreeable measures from the public utility operating the electric line for any person intending to carry on any function, activity, work or operation within dangerous proximity of any high voltage overhead electric lines. All contractors/other utilities must also maintain a minimum distance of 10'- 0" from all overhead energized lines. Additional clearance may be required from high voltage transmission lines.

8. Any existing facilities that are comprised of hazardous materials will be removed by the Utility Company unless otherwise outlined in the contract documents or language above. Any existing facilities containing hazardous materials will be purged by the Utility Company unless otherwise outlined in the contract documents or language above.

DIVISION OF TRANSPORTATION SOLUTIONS

UTILITY COORDINATOR **DATE** 25 July 2018

Chuck.ferguson@state.de.us

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
PO BOX 778
DOVER, DELAWARE 19903

CERTIFICATE OF RIGHT-OF-WAY STATUS

STATE PROJECT NO. T201707005

F.A.P. NO. TBD

STATEWIDE MOVABLE BRIDGE PREVENTATIVE MAINTENANCE

STATE WIDE - COUNTY

Certificate of Right-of-Way Status – 100%

Level 1

As required by 23 CFR, Part 635, and other pertinent Federal and State regulations or laws, the following certifications are hereby made in reference to this highway project:

All project construction or work shall be performed within existing rights of way and permanent easements; and,

All necessary real property interests, including control of access rights when pertinent, were acquired as part of previous highway projects, and include legal and physical possession; and,

This project does not cause any persons to be displaced as defined in 49 CFR, Part 24; and,

The State has the right to remove, salvage, or demolish any improvements or personal property that may be located within project limits.

RIGHT OF WAY SECTION

Robert Cunningham
Chief, Right of Way

May 29, 2018

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

August 23, 2018

ENVIRONMENTAL REQUIREMENTS

FOR
State Contract No. T201707005
Federal FTA No.: EBHOS- 2018(36)

Contract Title: Statewide Moveable Bridge Preventative Maintenance

In accordance with the procedural provisions for implementing the National Environmental Policy Act of 1969, as amended, the referenced project has been processed through the Department's Environmental Review Procedures and has been classified as a Level C/ Class II Action.

Due to the nature of the proposed construction activities, permits are not required for this project. However, the following construction requirements and special provisions have been developed to minimize and mitigate impact to the surrounding environs. These requirements by DelDOT not specified within the contract, but listed below, are the responsibility of the contractor and are subject to risk of shut down at the contractor's expense if not followed.

GENERAL REQUIREMENTS:

1. All construction debris, excavated material, brush, rocks, and refuse incidental to such work shall be placed either on shore above the influence of flood waters or on some suitable dumping ground.

2. That effort shall be made to keep construction debris from entering adjacent waterways or wetlands. Any debris that enters those areas shall be removed immediately.

3. The disposal of trees, brush, and other debris in any stream corridor, wetland, surface water, or drainage area is prohibited.

4. Bridges 1-687, 1-688, 2-021A, 3-151 are historic and SHPO concurred with a Finding of No Adverse Effect dated 8/21/18.

5. DelDOT Environmental Studies Section (302) 760-2264 must be notified if there are any changes to the project methods, footprint, materials, or designs, to allow the Department to coordinate with the appropriate resource agencies (COE, DNREC, and SHPO), for approval.

STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. BOX 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

RAILROAD STATEMENT
For

State Contract No.: T201707005

Federal Aid No.: N/A

Project Title: Statewide Movable Bridge Preventative Maintenance

The following railroad companies maintain facilities within the contract limits:

- ☐ Amtrak
- ☐ CSX
- ☐ Delaware Coast Line
- ☐ East Penn
- ☐ Delmarva Central
- ☐ Maryland & Delaware
- ☐ Norfolk Southern
- ☐ Wilmington & Western
- ☑ None

DOT Inventory No.: N/A No. Trains/Day: N/A Passenger Trains (Y / N): N/A

In accordance with 23 CFR 635, herein is the railroad statement of coordination (check one):

☑ No Railroad involvement.

☐ Railroad Agreement unnecessary but railroad flagging required. The contractor shall follow requirements stated in the DelDOT Maintenance of Railroad Traffic Item in the Special Provisions. Contractor shall coordinate railroad flagging with DelDOT's Railroad Program Manager at (302) 760-2183.

☐ Railroad Agreement required. The necessary Railroad Agreement is pending. The Contractor cannot begin work untill the Agreement is complete and fully executed. Railroad related work to be undertaken and completed as required for proper coordination with physical construction schedules. The Contractor shall follow requirements stated in the DelDOT Maintenance of Railroad Traffic Item in the Special Provisions. Contractor shall coordinate railroad flagging with DelDOT's Railroad Program Manager at (302) 760-2183.

Approved As To Form:

Robert A. Perrihe
DelDOT Railroad Program Manager

25May18
DATE

BID PROPOSAL FORMS

CONTRACT T201707005.01

FEDERAL AID PROJECT EBHOS-2018(36)

UNLESS OTHERWISE DIRECTED, SUBMIT ALL FOLLOWING PAGES TO:

DEPARTMENT OF TRANSPORTATION
BIDDERS ROOM (B1.11.01)
800 BAY ROAD
DOVER, DELAWARE 19901

Identify the following on the outside of the sealed envelope:

- Contract Number T201707005.01
- Name of Contractor

CONTRACT ID: T201707005.01 PROJECT(S): EBHOS-2018(36)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
	SECTION 0001 STATEWIDE MOVEABLE BRIDGE PREVENTATIVE MAINTENANCE					
0010	615600 INITIAL REPAIRS AT BRIDGE 1-687	LUMP	LUMP			
0020	615601 MONTHLY MAINTENANCE AT BRIDGE 1-687	60.000 EACH				
0030	615602 QUARTERLY MAINTENANCE AT BRIDGE 1-687	20.000 EACH				
0040	615603 SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-687	10.000 EACH				
0050	615604 ANNUAL MAINTENANCE AT BRIDGE 1-687	5.000 EACH				
0060	615605 5 YEAR MAINTENANCE AT BRIDGE 1-687	1.000 EACH				
0070	615606 INITIAL REPAIRS AT BRIDGE 1-688	LUMP	LUMP			
0080	615607 MONTHLY MAINTENANCE AT BRIDGE 1-688	60.000 EACH				
0090	615608 QUARTERLY MAINTENANCE AT BRIDGE 1-688	20.000 EACH				

CONTRACT ID: T201707005.01 PROJECT(S): EBHOS-2018(36)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0100	615609 SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-688	10.000 EACH				
0110	615610 ANNUAL MAINTENANCE AT BRIDGE 1-688	5.000 EACH				
0120	615611 2 YEAR MAINTENANCE AT BRIDGE 1-688	3.000 EACH				
0130	615612 5 YEAR MAINTENANCE AT BRIDGE 1-688	1.000 EACH				
0140	615613 INITIAL REPAIRS AT BRIDGE 1-693	LUMP	LUMP			
0150	615614 MONTHLY MAINTENANCE AT BRIDGE 1-693	60.000 EACH				
0160	615615 QUARTERLY MAINTENANCE AT BRIDGE 1-693	20.000 EACH				
0170	615616 SEMI-ANNUAL MAINTENANCE AT BRIDGE 1-693	10.000 EACH				
0180	615617 ANNUAL MAINTENANCE AT BRIDGE 1-693	5.000 EACH				
0190	615618 5 YEAR MAINTENANCE AT BRIDGE 1-693	1.000 EACH				

CONTRACT ID: T201707005.01 PROJECT(S): EBHOS-2018(36)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0200	615619 INITIAL REPAIRS AT BRIDGE 2-021A	LUMP	LUMP			
0210	615620 MONTHLY MAINTENANCE AT BRIDGE 2-021A	60.000 EACH				
0220	615621 QUARTERLY MAINTENANCE AT BRIDGE 2-021A	20.000 EACH				
0230	615622 SEMI-ANNUAL MAINTENANCE AT BRIDGE 2-021A	10.000 EACH				
0240	615623 ANNUAL MAINTENANCE AT BRIDGE 2-021A	5.000 EACH				
0250	615624 5 YEAR MAINTENANCE AT BRIDGE 2-021A	1.000 EACH				
0260	615625 INITIAL REPAIRS AT BRIDGE 3-151	LUMP	LUMP			
0270	615626 MONTHLY MAINTENANCE AT BRIDGE 3-151	60.000 EACH				
0280	615627 QUARTERLY MAINTENANCE AT BRIDGE 3-151	20.000 EACH				
0290	615628 SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-151	10.000 EACH				

CONTRACT ID: T201707005.01 PROJECT(S): EBHOS-2018(36)

All figures must be typewritten.

CONTRACTOR :_____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE DOLLARS	UNIT PRICE CTS	BID AMOUNT DOLLARS	BID AMOUNT CTS
0300	615629 ANNUAL MAINTENANCE AT BRIDGE 3-151	5.000 EACH				
0310	615630 2 YEAR MAINTENANCE AT BRIDGE 3-151	3.000 EACH				
0320	615631 5 YEAR MAINTENANCE AT BRIDGE 3-151	1.000 EACH				
0330	615641 INITIAL REPAIRS AT BRIDGE 3-164	LUMP	LUMP			
0340	615642 MONTHLY MAINTENANCE AT BRIDGE 3-164	60.000 EACH				
0350	615643 QUARTERLY MAINTENANCE AT BRIDGE 3-164	20.000 EACH				
0360	615644 SEMI-ANNUAL MAINTENANCE AT BRIDGE 3-164	10.000 EACH				
0370	615645 ANNUAL MAINTENANCE AT BRIDGE 3-164	5.000 EACH				
0380	615646 5 YEAR MAINTENANCE AT BRIDGE 3-164	1.000 EACH				
	SECTION 0001 TOTAL					
	TOTAL BID					

BREAKOUT SHEET INSTRUCTIONS

BREAKOUT SHEET(S) MUST BE SUBMITTED EITHER WITH YOUR BID DOCUMENTS; OR WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE BID DUE DATE BY THE LOWEST APPARENT BIDDER.

BREAKOUT SHEETS ARE TO BE SUBMITTED TO DELDOT'S CONTRACT ADMINISTRATION AS SHOWN BELOW. BREAKOUT SHEETS CANNOT BE CHANGED AFTER AWARD. THE DEPARTMENT WILL REVIEW THE FIGURES SUBMITTED ON THE BREAKOUT SHEET(S) TO ENSURE THEY MATCH THE RESPECTIVE LUMP SUM BID AMOUNT(S). MATHEMATICALLY INCORRECT BREAKOUT SHEETS WILL BE RETURNED FOR IMMEDIATE CORRECTION.

BREAKOUT SHEETS MAY BE SUBMITTED;

VIA E-MAIL TO: DOT-ASK@STATE.DE.US
SUBJECT: **T201707005.01** Breakout Sheet

OR MAILED TO: DELDOT
CONTRACT ADMINISTRATION
PO BOX 778, DOVER, DE 19903

'BREAKOUT SHEET' AND THE PROJECT NUMBER MUST APPEAR ON THE ENVELOPE.

BREAKOUT SHEET - 1 **CONTRACT NO. T201707005.01**

Item 615600 - INITIAL REPAIRS AT BRIDGE 1-687

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
S1	131	LF	REPLACE THE RAILING AND POSTS IN THE COUNTERWEIGHT PITS AND BASCULE PIER WALKWAYS.	$	$
M1	1	LS	REPLACE SPAN DRIVE MACHINERY COUPLING SEALS (11 COUPLINGS).	$	$
M2	4	EA	CLEAN ACCUMULATION OF DEBRIS FROM ALL TRUNNION BEARING ASSEMBLIES.	$	$
E1	1	LS	REPLACE THE CONDUIT TEE AT THE NEAR AXIS (NAVIGATION) LIGHT. ADJUST THE NORTHWEST AND SOUTHEAST PIER LIGHTS.	$	$
E2	1	LS	INSTALL MISSING FASTENERS THROUGHOUT THE SPAN.	$	$
E3	4	EA	INSTALL GROUND CONDUCTORS IN THE SPAN MOTOR DISCONNECT SWITCHES.	$	$
E4	1	LS	SPOT CLEAN AND PAINT SMALL AREAS OF CORROSION AT MOTOR DISCONNECTS, JUNCTION BOXES, CONTROL PANELS, AND CONDUIT.	$	$
E5	4	EA	REPAIR AND ADJUST MOTOR BRUSHES	$	$
E6	1	LS	REPLACE THE NORTH AND SOUTH ROTARY CAM LIMIT SWITCHES.	$	$
E7	4	EA	CORRECT THE COLOR CODING INSIDE THE SPAN MOTOR DISCONNECT SWITCHES.	$	$
E8	1	LS	CLEAN AND PAINT CORRODED CONDUIT INSTALLED THROUGH THE FLOOR OF THE NORTH MACHINERY ROOM NEAR LEAF MOTOR 1 AND THE MOTOR 2 DISCONNECT.	$	$
E9	1	LS	CLEAN AND PAINT THE CONDUIT INSTALLED NEAR THE DROOP CABLE BOXES. INSTALL A STRIP OF PIGEON SPIKES IN THESE AREAS.	$	$

TOTAL ITEM 615600 - INITIAL REPAIRS AT BRIDGE 1-687 $_____

(LUMP SUM BID PRICE FOR ITEM 615600- Initial Repairs at Bridge 1-687)

BREAKOUT SHEET - 2 **CONTRACT NO. T201707005.01**

Item 615606 - INITIAL REPAIRS AT BRIDGE 1-688

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
S1	800	SF	CLEAN AND FLUSH THE BASCULE PITS TO REMOVE DEBRIS AND PIGEON WASTE. REMOVE DIRT AND SEDIMENT THAT HAS ACCUMULATED ON THE SUPERSTRUCTURE IN THE MAIN SPAN. PROPERLY DISPOSE OF WASH WATER AND DEBRIS.	$	$
S2	170	SF	REPAINT AREAS OF CHIPPED PAINT IN METAL RAILS.	$	$
S3	4	CF	REPAIR SPALL WITH EXPOSED REINFORCEMENT AT THE SOUTH COUNTERWEIGHT, NORTH FACE, EAST END OF BOTTOM EDGE.	$	$
S4	12	LF	SEAL CRACKS IN CONCRETE NEAR RACK SUPPORTS.	$	$
M1	1	LS	REPLACE COUPLING SEALS AND GASKETS AT THE SOUTH MAIN MOTOR COUPLING, SOUTH AUXILIARY MOTOR COUPLING, AND THE SOUTH ENCLOSED BEVEL SPEED REDUCER INPUT SHAFT COUPLING.	$	$
M2	2	EA	CLEAN DEBRIS, GREASE, AND BIRD WASTE AT THE TRUNNION BEARING ASSEMBLIES, SHAFTS, BEARINGS, COUPLINGS, REDUCERS, AND GEARS. CLEAN AND PAINT GEAR FRAME COMPONENTS ON THE COUNTERWEIGHTS.	$	$
M3	1	LS	SHIM THE SPAN LOCK RECEIVING SOCKETS AND LIVE LOAD BEARINGS.	$	$
E1	6	EA	REPAIR THE FENDER PIER LIGHTS.	$	$
E2	4	EA	CONFIGURE THE WARNING LIGHTS AT EACH WARNING GATE SUCH THAT THEY ARE COMPLIANT WITH THE MUTCD.	$	$
E3	1	LS	REPLACE THE DAMAGED CONDUIT AND FITTINGS IN THE WEST SPAN LOCK AREA.	$	$
E4	1	EA	REPLACE THE DAMAGED CONDUIT FITTING FEEDING SOUTH BRAKE 1.	$	$

BREAKOUT SHEET - 2 **CONTRACT NO. T201707005.01**

Item 615606 - INITIAL REPAIRS AT BRIDGE 1-688

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E5	1	LS	REPAIR OR REPLACE THE DAMAGED BONDING CONDUCTOR MOUNTED TO THE NORTHEAST BASCULE GIRDERS.	$	$

TOTAL ITEM 615606 - INITIAL REPAIRS AT BRIDGE 1-688 $_____

(LUMP SUM BID PRICE FOR ITEM 615606- Initial Repairs at Bridge 1-688)

BREAKOUT SHEET - 3 **CONTRACT NO. T201707005.01**

Item 615613 - INITIAL REPAIRS AT BRIDGE 1-693

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
S1	1	LS	REPAIR DAMAGED HANDRAILS, POSTS, PLANKS AND CONNECTIONS ON THE FENDERS.	$	$
M1	1	LS	REPLACE SHIMS AND SHOE FASTENERS AT BOTH SPAN LOCK ASSEMBLIES (REAR GUIDES, FRONT GUIDES, AND RECEIVING SOCKETS). SHIM LIVE LOAD BEARINGS. REPLACE 1 LOOSE TURNED BOLT AT THE EAST FRONT GUIDE.	$	$
M2	1	LS	REALIGN SHIMS AT THE EAST SPAN LOCK SPEED REDUCER AND REPLACE 1 LOOSE TURNED BOLT.	$	$
M3	2	EA	SEAL OIL LEAKS AT THE HOUSING SPLIT LINE, COVER PLATES, AND INSPECTION HATCH AT BOTH SPAN DRIVE SPEED REDUCERS.	$	$
E1	2	EA	CLEAN AND PAINT BOTH THE EAST AND WEST SPAN LOCK MOTORS.	$	$
E2	1	LS	PROPERLY SPLICE AND TERMINATE THE CONDUCTORS WITHIN THE WEST SPAN LOCK MOTOR DISCONNECT SWITCH.	$	$
E3	1	LS	PROVIDE WARNING LABELS AT THE SPAN MOTORS AND DISCONNECT SWITCHES INDICATING THAT THEY ARE FED FROM MULTIPLE SOURCES AND ALL CIRCUITS FEEDING THEM SHOULD BE SWITCHED OFF FOR SERVICE.	$	$
E4	1	LS	ORGANIZE WIRING AND ADD LABELS ON CONDUCTORS INSIDE THE MOTOR CONTROL CABINETS.	$	$
E5	12	EA	REMOVE WIRE NUT SPLICES AND TERMINATE THE SPLICED AND UNCONNECTED WIRING INSIDE THE MOTOR CONTROL CABINETS, DRIVE CABINETS AND SUBMARINE CABLE TERMINAL CABINETS.	$	$

BREAKOUT SHEET - 3 **CONTRACT NO. T201707005.01**

Item 615613 - INITIAL REPAIRS AT BRIDGE 1-693

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E6	1	LS	CLEAN AND PAINT THE EXTERIOR OF THE ROTARY CAM LIMIT SWITCHES, POSITION TRANSMITTERS, AND SPAN LOCK LIMIT SWITCHES AND INSTALL MISSING FASTENERS.	$	$
E7	1	LS	ADD FIREPROOFING INSULATION BETWEEN EACH FLOOR PENETRATION.	$	$
E8	1	LS	REPLACE CONDUIT FITTINGS THROUGHOUT THE FENDER SYSTEM.	$	$
E9	2	EA	REHABILITATE SOUTH WARNING GATES AND CONTROLS.	$	$
E10	1	LS	RELOCATE THE PUMP/TANK FOR THE GENERATOR DAY TANK SUCH THAT FUEL DOES NOT HAVE TO BE FED FROM THE LOWER LEVEL TO REPLENISH THE DAY TANK SUPPLY.	$	$
E11	1	LS	CLEAN, SEAL THE CONTACTOR AND DRIVE CABINETS. REMOVE CORROSION ON COMPONENTS INSIDE THE CONTACTOR CABINET.	$	$
E12	8	EA	REPLACE DRIVE CABINET CONDUCTORS WITH HIGH TEMPERATURE CONDUCTORS TO FEED HIGH WATTAGE RESISTORS.	$	$
E13	1	LS	REPAIR THE EMERGENCY DRIVE SYSTEM.	$	$

TOTAL ITEM 615613 - INITIAL REPAIRS AT BRIDGE 1-693 $_____

(LUMP SUM BID PRICE FOR ITEM 615613 - Initial Repairs at Bridge 1-693)

BREAKOUT SHEET - 4 **CONTRACT NO. T201707005.01**

Item 615619 - INITIAL REPAIRS AT BRIDGE 2-021A

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
S1	1	LS	STRENGTHEN THE STEEL RAILING POST TO TIMBER SIDEWALK CONNECTION ON THE NORTH END OF THE BASCULE SPAN.	$	$
S2	1	LS	TRIM THE EAST STEEL CURB AT THE SOUTH PIER WHERE IT INTERFERES WITH THE CONCRETE CURB ON THE FIXED SPAN. ELIMINATE THE HANDRAIL INTERFERENCE AND REATTACH THE HANDRAIL POST.	$	$
S3	1	LS	REPAIR THE EAST AND WEST BASCULE GIRDER BOTTOM FLANGES AT THE LIVE LOAD BEARINGS.	$	$
M1	1	LS	REHABILITATE THE AIR BUFFER.	$	$
M2	1	LS	REPLACE THE MISSING SPAN LOCK PIN.	$	$
M3	1	LS	MODIFY THE MACHINERY BRAKE COVER. INSPECT AND ADJUST THE HAND RELEASE LINKAGE.	$	$
M4	1	LS	TRIM KEYS AT WEST PINION G1. INSTALL COVER PLATE OVER THE KEYS.	$	$
E1	1	LS	CLEAN AND PAINT THE SPAN MOTOR, MOTOR BRAKE, AND MACHINERY BRAKE. INSTALL MISSING FASTENERS ON THE SPAN MOTOR ACCESS COVER.	$	$
E2	1	LS	TERMINATE UNCAPPED CONDUCTORS INSIDE THE CONTROL DESK, MOTOR CONTROL PANEL AND NORTH SUBMARINE CABLE TERMINAL BOX. REPLACE THE SOUTH SUBMARINE CABLE TERMINAL BOX.	$	$
E3	1	LS	REPLACE THE JUNCTION BOX ROUTED TO THE MACHINERY BRAKE. REPLACE THE MISSING CONDUIT BOX COVER FOR LIGHTING ON THE COUNTERWEIGHT.	$	$
E4	1	LS	PROVIDE AN IDENTIFIABLE MARKING ON ALL EXISTING GROUND CONDUCTORS INSIDE THE MOTOR CONTROL PANEL AND CONTACTOR PANEL.	$	$

BREAKOUT SHEET - 4 **CONTRACT NO. T201707005.01**

Item 615619 - INITIAL REPAIRS AT BRIDGE 2-021A

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E5	1	LS	CLEAN AND PAINT CORROSION AT THE MOTOR CONTROL PANEL.	$	$
E6	1	EA	REPLACE THE DOOR LATCH FOR THE CONTACTOR PANEL.	$	$
E7	1	LS	CLEAN AND PAINT THE NORTH TRAFFIC SIGNAL HEADS.	$	$
E8	1	LS	REPLACE THE MISSING CONDUIT CLAMP AT THE MACHINERY PLATFORM. INSTALL MISSING FASTENERS FOR THE JUNCTION BOX COVER TO THE SOUTHWEST PIER LIGHT.	$	$
E9	1	LS	CLEAN AND PAINT THE MOTORS AT BOTH THE NORTH AND SOUTH WARNING GATES. REPLACE THE MOTOR DISCONNECT SWITCH IN THE SOUTH WARNING GATE. CLEAN AND PAINT BEHIND THE DOOR HINGES OF THE SOUTH WARNING GATE.	$	$
E10	1	LS	REPLACE THE STRIPING AT BOTH THE NORTH AND SOUTH WARNING GATE ARMS. REPLACE THE PEDESTRIAN GATE ARM AT THE NORTH GATE WITH A LONGER ARM TO RESTRICT THE WALKWAY PASSAGE. REPLACE THE SOOW CABLE FOR THE WARNING LIGHTS AT THE SOUTH WARNING GATE.	$	$
E11	1	LS	REPLACE THE CONDUIT SUPPORT LOCATED ON THE NORTH SPAN, UNDER THE SIDEWALK.	$	$
E12	1	LS	INSTALL SUPPORT FOR THE CONDUIT ROUTED BELOW THE NORTHWEST SIDEWALK AND FASTEN THE DROOP CABLES TO THE SUPPORT ON THE SPAN.	$	$
E13	1	LS	REPAIR THE ADVANCED WARNING SIGNAL AT THE SOUTH APPROACH AND INSTALL AN OPERATION SIGN. REPAIR THE GONG AT THE NORTH TRAFFIC SIGNAL POLE.	$	$
E14	2	EA	REPLACE THE EMERGENCY LIGHTS IN BOTH THE OPERATOR'S HOUSE MAIN AND LOWER LEVELS.	$	$

BREAKOUT SHEET - 4 **CONTRACT NO. T201707005.01**

Item 615619 - INITIAL REPAIRS AT BRIDGE 2-021A

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E15	1	LS	REMOVE EXCESSIVE LUBRICATION WITHIN THE SPAN MOTOR HOUSING AND BOTH WARNING GATE HOUSINGS.	$	$
E16	1	LS	ADJUST THE CONTROL CIRCUIT FOR THE FULLY CLOSED LIMIT SWITCH SUCH THAT THE MOTOR BRAKE SETS WHEN THE LOWER CONTACT IS ENERGIZED.	$	$
E17	1	LS	REPAIR THE FENDER PIER LIGHTS. TIGHTEN THE EAST SPAN NAVIGATION LIGHT FIXTURE TO PREVENT WATER INFILTRATION.	$	$
E18	1	LS	REPLACE THE HANDLE AND OPERATING MECHANISM FOR THE MOTOR CONTROL PANEL CIRCUIT BREAKER. PROPERLY SECURE AND MOUNT THE TIMER RELAYS IN THE CONTROL DESK AND PROVIDE LABELS.	$	$
E19	1	EA	REPLACE THE MISSING ELECTRICAL BOX COVER UNDER THE SOUTHWEST CANTILEVERED SIDEWALK.	$	$

TOTAL ITEM 615619 - INITIAL REPAIRS AT BRIDGE 2-021A $_____

(LUMP SUM BID PRICE FOR ITEM 615619- Initial Repairs at Bridge 2-021A)

BREAKOUT SHEET - 5 **CONTRACT NO. T201707005.01**

Item 615625 - INITIAL REPAIRS AT BRIDGE 3-151

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
S1	1	LS	REPLACE THE BROKEN HINGE ON THE COUNTERWEIGHT PIT WEST SIDE ACCESS HATCH.	$	$
S2	1	LS	REMOVE DEBRIS FROM THE PIER CAPS OF PIERS 2 & 3 AND PROPERLY DISPOSE OF IT.	$	$
M1	2	EA	INSTALL A DEBRIS SHIELD OVER P2/G2 GEARSETS.	$	$
M2	1	LS	REPLACE WEST TRUNNION HUB BOLTS. CLEAN AND SPOT PAINT TRUNNION ASSEMBLIES, MAIN PINION BEARINGS BOLTS, AND RACK BOLTS.	$	$
E1	1	EA	PROVIDE WARNING LABEL AT THE SPAN MOTOR DISCONNECT SWITCH INDICATING THAT IT IS FED FROM MULTIPLE SOURCES AND ALL CIRCUIT FEEDING THE DISCONNECT SWITCH SHOULD BE SWITCHED OFF FOR SERVICE.	$	$
E2	3	EA	REPLACE THE MOTOR OVERLOAD DASHPOT RELAYS.	$	$
E3	1	LS	PLACE AN IDENTIFIABLE MARKING ON THE GROUND CONDUCTOR IN THE CONTROL DESK. INSTALL WIRE DUCT COVERS INSIDE THE CONTROL DESK.	$	$
E4	1	LS	REPLACE THE MISSING FASTENERS FOR CONDUIT CLAMP AT THE NORTHWEST APPROACH JUNCTION BOX, ON THE SOUTH WALL OF THE MACHINERY PLATFORM, AND THE WEST DROOP CABLE JUNCTION BOX.	$	$
E5	1	LS	TERMINATE ALL DISCONNECTED CONDUCTORS IN THE JUNCTION BOX AT THE SOUTHWEST APPROACH.	$	$
E6	1	LS	CLEAN AND PAINT THE ROTARY CAM LIMIT SWITCH ENCLOSURE.	$	$
E7	1	LS	ADJUST THE FENDER PIER LIGHTS AND RELOCATE SPAN MOUNTED NAVIGATION LIGHTS.	$	$

BREAKOUT SHEET - 5 **CONTRACT NO. T201707005.01**

Item 615625 - INITIAL REPAIRS AT BRIDGE 3-151

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E8	1	LS	CLEAN AND LUBRICATE THE LIMIT SWITCH ASSEMBLY AND CHAIN IN THE NORTH WARNING GATE. CLEAN AND PAINT THE NORTH WARNING GATE HOUSING AND CLEAN THE INTERIOR.	$	$
E9	1	LS	REPLACE THE MOUNTING CLAMP FOR THE WARNING BELL AT THE NORTH TRAFFIC SIGNAL POLE.	$	$
E10	1	LS	REPLACE THE SAFETY DOOR LIMIT SWITCH AT THE NORTH WARNING GATE. REPLACE CORRODED HARDWARE AT THE NORTH WARNING GATE STRAP.	$	$
E11	1	LS	SECURE DROOP CABLES ON THE WEST SIDE OF THE SPAN.	$	$
E12	1	LS	REPLACE THE EXISTING MANUAL TRANSFER SWITCH (MTS) WITH A NEW SAFETY SWITCH FOR THE PORTABLE GENERATOR.	$	$
E13	2	EA	REPLACE THE “FULLY CLOSED” LIMIT SWITCHES.	$	$
E14	1	LS	CONFIGURE THE WARNING LIGHTS ON THE NORTH WARNING GATE ARM SUCH THAT THEY ARE COMPLIANT WITH THE MUTCD. REPLACE THE SOOW CABLE FOR THE NORTH WARNING GATE WARNING LIGHTS.	$	$
E15	1	LS	MODIFY THE SPAN OPERATION CONTROL LOGIC TO INTEGRATE THE MOTOR BRAKE AND MACHINERY BRAKE “HAND RELEASED” LIMIT SWITCHES. INSTALL A NEW HAND RELEASED INDICATING LIGHT ON THE CONTROL DESK.	$	$
E16	1	LS	REVIEW AND MODIFY THE PUSH-TO-TEST CIRCUIT.	$	$
E17	1	LS	REPLACE THE REAR DOOR AT THE NORTH WARNING GATE. TIGHTEN LOOSE ANCHOR IN THE SOUTH WARNING GATE.	$	$

TOTAL ITEM 615625 - INITIAL REPAIRS AT BRIDGE 3-151 $_____

(LUMP SUM BID PRICE FOR ITEM 615625 - Initial Repairs at Bridge 3-151)

BREAKOUT SHEET - 6 **CONTRACT NO. T201707005.01**

Item 615641 - INITIAL REPAIRS AT BRIDGE 3-164

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
M1	1	LS	CLEAN AND PAINT THE TURNING MACHINERY, END SCREW JACK MACHINERY, BALANCE WHEELS, BALANCE WHEEL TRACKS, AND PIVOT BEARING ASSEMBLY.	$	$
M2	2	EA	SHIM AND PAINT THE PASSIVE LIVE LOAD BEARINGS.	$	$
M3	1	LS	REPLACE THE LUBRICATION LINES.	$	$
M4	1	LS	REPLACE END SCREW JACK MACHINERY COUPLING SEALS (5 COUPLINGS).	$	$
E1	1	LS	CLEAN DEBRIS FROM THE END SCREW JACK MOTOR AND SPAN MOTOR DISCONNECT SWITCHES. SECURE THE END SCREW JACK MOTOR DISCONNECT SWITCH.	$	$
E2	1	LS	CLEAN AND PAINT THE INCOMING SERVICE METER BOX AND CLEAN INSIDE THE EAST AERIAL CABLE TERMINAL CABINET. TERMINATE UNCAPPED CONDUCTORS INSIDE THE EAST AERIAL CABLE TERMINAL CABINET.	$	$
E3	1	LS	REPLACE THE MISSING TURNED BOLT FOR THE TURNING MACHINERY MOTOR AND REMOVE EXCESS LUBRICANT INSIDE THE TURNING MACHINERY MOTOR. REPLACE CORRODED ACCESS COVER FASTENERS AT THE TURNING MACHINERY MOTOR.	$	$

BREAKOUT SHEET - 6 **CONTRACT NO. T201707005.01**

Item 615641 - INITIAL REPAIRS AT BRIDGE 3-164

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E4	1	LS	CLEAN AND PAINT THE FRAME SUPPORTING THE MOTOR STARTER ENCLOSURES. SECURE/TIGHTEN LOOSE FASTENERS, CLEAN ALL CORRODED TERMINAL CONNECTIONS, AND REPLACE CORRODED FASTENERS IN THE SECONDARY RESISTOR BANK AND MOTOR CONTROL ENCLOSURES. CLEAN AND PAINT THE WIREWAY FEEDING THE MOTOR STARTER ENCLOSURES.	$	$
E5	1	LS	REPLACE THE LIQUID TIGHT CONDUIT FITTING FEEDING THE SPAN LOCK MOTOR DISCONNECT SWITCH. REPLACE THE LIQUID TIGHT CONDUIT FITTINGS FEEDING THE TURNING MACHINERY MOTOR JUNCTION BOX.	$	$
E6	1	LS	REPLACE THE LIQUID TIGHT CONDUIT AND FITTINGS FEEDING THE END SCREW JACK MOTOR JUNCTION BOX.	$	$
E7	1	LS	REPLACE THE EMERGENCY LIGHT IN THE CONTROL HOUSE. REPLACE THE MISSING GLOBE FOR THE LIGHT FIXTURE IN THE GENERATOR AREA.	$	$
E8	1	LS	SECURE THE SERVICE ENTRY CONDUIT FITTINGS AT THE CENTER OF THE PIER AND REPLACE THE STRAIN RELIEF FITTINGS FOR THE DRAG CABLES.	$	$
E9	1	LS	REPLACE THE MISSING HANDHOLE COVER AT THE EAST AERIAL CABLE POLE. CLEAN AND PAINT THE NORTHWEST TRAFFIC SIGNAL.	$	$
E10	7	EA	REPLACE THE GASKET AT EACH MOTOR STARTER ENCLOSURE.	$	$

BREAKOUT SHEET - 6 **CONTRACT NO. T201707005.01**

Item 615641 - INITIAL REPAIRS AT BRIDGE 3-164

ITEM NO.	APPROX. QTY.	UOM	DESCRIPTION	UNIT PRICE	AMOUNT
E11	1	LS	TERMINATE UNCAPPED CONDUCTORS INSIDE THE DRAG CABLE TERMINAL BOXES, THE AERIAL CABLE TERMINAL CABINET IN THE LOWER LEVEL OF THE CONTROL HOUSE, THE CONTROL DESK AND BOTH WARNING GATES.	$	$
E12	1	LS	CLEAN AND PAINT THE WARNING GATES AND REMOVE EXCESSIVE LUBRICATION ON COMPONENTS INSIDE THE WARNING GATE HOUSINGS. SECURE THE TERMINAL BLOCKS INSIDE THE WEST WARNING GATE. REPLACE CORRODED DOOR HANDLES AT BOTH WARNING GATES	$	$
E13	1	LS	REPLACE THE MOTOR OVERLOAD PROTECTION FOR THE SPAN LOCK MOTOR WITH AN APPROPRIATELY SIZED DEVICE. CONFIGURE THE MOTOR OVERLOAD IN THE NORTHEAST GATE STARTER ENCLOSURE TO ALIGN WITH THE RESET BUTTON ON THE STARTER ENCLOSURE.	$	$
E14	1	LS	REPLACE THE DRAIN AND CONDUIT KNOCKOUT PLUGS AT THE MOVABLE DRAG CABLE TERMINAL BOX.	$	$
E15	4	EA	PROPERLY MOUNT AND SECURE THE BASE OF THE FENDER LIGHT FIXTURES.	$	$

TOTAL ITEM 615641 - INITIAL REPAIRS AT BRIDGE 3-164 $_____

(LUMP SUM BID PRICE FOR ITEM 615641- Initial Repairs at Bridge 3-164)

"ATTENTION"

TO BIDDERS

BREAKOUT SHEET(S) MUST BE SUBMITTED EITHER WITH YOUR BID DOCUMENTS; OR WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE BID DUE DATE BY THE LOWEST APPARENT BIDDER.

BREAKOUT SHEETS ARE TO BE SUBMITTED TO DELDOT'S CONTRACT ADMINISTRATION AS SHOWN BELOW. BREAKOUT SHEETS CANNOT BE CHANGED AFTER AWARD. THE DEPARTMENT WILL REVIEW THE FIGURES SUBMITTED ON THE BREAKOUT SHEET(S) TO ENSURE THEY MATCH THE RESPECTIVE LUMP SUM BID AMOUNT(S). MATHEMATICALLY INCORRECT BREAKOUT SHEETS WILL BE RETURNED FOR IMMEDIATE CORRECTION.

BREAKOUT SHEETS MAY BE SUBMITTED;

VIA E-MAIL TO: DOT-ASK@STATE.DE.US
SUBJECT: **T201707005.01** Breakout Sheet

OR MAILED TO: DELDOT
CONTRACT ADMINISTRATION
PO BOX 778, DOVER, DE 19903

'BREAKOUT SHEET' AND THE PROJECT NUMBER
MUST APPEAR ON THE ENVELOPE.

AFFIDAVIT

OF

EMPLOYEE DRUG TESTING PROGRAM

4104 Regulations for the Drug Testing of Contractor and Subcontractor Employees Working on Large Public Works Projects requires that Contractors and Subcontractors implement a program of mandatory drug testing for Employees who work on Large Public Works Contracts funded all or in part with public funds.

We hereby certify that we have in place or will implement during the entire term of the contract a Mandatory Drug Testing Program for our employees on the jobsite, including subcontractors, that complies with this regulation:

Contractor Name: _____

Contractor Address: _____

_____

_____

Authorized Representative (typed or printed): _____

Authorized Representative (signature): _____

Title: _____

Sworn to and Subscribed before me this _____ day of _____ 20____.

My Commission expires _____. NOTARY PUBLIC _____.

THIS PAGE MUST BE SIGNED, NOTARIZED, AND RETURNED WITH YOUR BID.

(This form is required from the prime contractor only, not required from subcontractors)

CA 03/2018

CERTIFICATION

Contract No. T201707005.01
Federal Aid Project No. EBHOS-2018(36)

The undersigned bidder, _____

whose address is _____

and telephone number is _____hereby certifies the following:

I/We have carefully examined the location of the proposed work, the proposed plans and specifications, and will be bound, upon award of this contract by the Department of Transportation, to execute in accordance with such award, a contract with necessary surety bond, of which contract this proposal and said plans and specifications shall be a part, to provide all necessary machinery, tools, labor and other means of construction, and to do all the work and to furnish all the materials necessary to perform and complete the said contract within the time and as required in accordance with the requirements of the Department of Transportation, and at the unit prices for the various items as listed on the preceding pages.

Bidder's Certification Statement [US DOT Suspension and Debarment Regulation (49 CFR 29)]:

NOTICE: All contractors who hold prime contracts (Federal Aid) with DelDOT are advised that the prime contractor and subcontractors are required to submit to DelDOT a signed and notary attested copy of the Bidder Certification Statement for each and every subcontract that will be utilized by the prime contractor. This Certification **must** be filed with DelDOT prior to written approval being granted for each and every subcontractor. Copies of the Certification Form are available from the appropriate District Construction Office.

Under penalty of perjury under the laws of the United States, that I/We, or any person associated therewith in the capacity of (owner, partner, director, officer, principal, investigator, project director, manager, auditor, or any position involving the administration federal funds):

a. am/are not currently under suspension, debarment, voluntary exclusion, or determination of ineligibility by any federal agency;
b. have not been suspended, debarred, voluntarily excluded or determined ineligible by any federal agency within the past 3 years;
c. do not have a proposed debarment pending; and,
d. have not been indicted, convicted, or had a civil judgement rendered against (it) by a court of competent jurisdiction in any matter involving fraud or official misconduct within the past 3 years.

Exceptions will not necessarily result in denial of award, but will be considered in determining bidder responsibility. For any exception noted, indicate below to whom it applies, initiating agency, and dates of action. Providing false information may result in criminal prosection or administrative sanctions.

_____

_____

_____

(Insert Exceptions)

DBE Program Assurance:

NOTICE: In accordance with 49 CFR Part 26 the undersigned, a legally authorized representative of the bidder listed below, must complete this assurance.

By its signature affixed hereto, assures the Department that it will attain DBE participation as indicated:

Disadvantaged Business Enterprise _____ percent (blank to be filled in by bidder)

The foregoing quantities are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. Any such increase or decrease in the quantity for any item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided in the contract.

Accompanying this proposal is a surety bond or a security of the bidder assigned to the Department of Transportation, for at least ten (10) percentum of total amount of the proposal, which deposit is to be forfeited as liquidated damages in case this proposal is accepted, and the undersigned shall fail to execute a contract with necessary bond, when required, for the performance of said contract with the Department of Transportation, under the conditions of this proposal, within twenty (20) days after date of official notice of the award of the contract as provided in the requirement and specifications hereto attached; otherwise said deposit is to be returned to the undersigned.

By submission of this proposal, each person signing on behalf of the bidder, certifies as to its own organization, under penalty of perjury, that to the best of each signer's knowledge and belief:

1. The prices in this proposal have been arrived at independently without collusion, consultation, communication, or Agreement with any other bidder or with any competitor for the purpose of restricting competition.
2. Unless required by law, the prices which have been quoted in this proposal have not been knowingly disclosed and will not knowingly be disclosed by the bidder, directly or indirectly, to any other bidder or competitor prior to the opening of proposals.
3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

==========

I/We acknowledge receipt and incorporation of addenda to this proposal as follows:

No. Date No. Date No. Date No. Date No. Date

BIDDERS MUST ACKNOWLEDGE RECEIPT OF ALL ADDENDA

MUST INSERT DATE OF FINAL QUESTIONS AND ANSWERS ON WEBSITE: _____

==========

Sealed and dated this _____ day of _____ in the year of our Lord two thousand _____ (20___).

_____
Name of Bidder (Organization)

Corporate Seal

By: _____
Authorized Signature

Attest _____

_____
Title

SWORN TO AND SUBSCRIBED BEFORE ME this ___ day of _____, 20____.

Notary Seal

_____
Notary

BID BOND

TO ACCOMPANY PROPOSAL
(Not necessary if security is used)

KNOW ALL MEN BY THESE PRESENTS That:_____

of_____ in the County of _____and State of _____ as **Principal**, and _____ of _____ in the County of _____ and State of _____ as **Surety**, legally authorized to do business in the State of Delaware ("**State**"), are held and firmly unto the **State** in the sum of _____ _____Dollars ($_____), or _____ percent not to exceed _____ Dollars ($_____) of amount of bid on Contract No. T201707005.01, to be paid to the **State** for the use and benefit of its Department of Transportation ("**DelDOT**") for which payment well and truly to be made, we do bind ourselves, our and each of our heirs, executors, administrators, and successors, jointly and severally for and in the whole firmly by these presents.

NOW THE CONDITION OF THIS OBLIGATION IS SUCH That if the above bounden **Principal** who has submitted to the **DelDOT** a certain proposal to enter into this contract for the furnishing of certain materiel and/or services within the **State**, shall be awarded this Contract, and if said **Principal** shall well and truly enter into and execute this Contract as may be required by the terms of this Contract and approved by the **DelDOT**, this Contract to be entered into within twenty days after the date of official notice of the award thereof in accordance with the terms of said proposal, then this obligation shall be void or else to be and remain in full force and virtue.

Sealed with _____ seal and dated this _____ day of _____ in the year of our Lord two thousand and _____ (20___).

SEALED, AND DELIVERED IN THE
presence of

_____
Name of Bidder (Organization)

Corporate
Seal

By: _____
Authorized Signature

Attest _____

_____
Title

_____
Name of Surety

Witness:_____ By: _____

_____
Title