THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY
TWO MONTGOMERY STREET - 1st FLOOR
JERSEY CITY, NJ 07302

February 12, 2018

ADDENDUM NO. 4

TO PROSPECTIVE BIDDERS ON CONTRACT **EWR-154.396** – NEWARK LIBERTY INTERNATIONAL AIRPORT – TERMINAL A REDEVELOPMENT PROGRAM BRIDGE N64 AND HOTEL ROAD WIDENING

The following changes are hereby made in the Contract Documents for the subject Contract.

This communication should be physically annexed to back cover of the book and initialed by each bidder before submitting his bid.

In case any bidder fails to conform to these instructions, his Bid will nevertheless be construed as though this communication had been so physically annexed and initialed.

CHANGES IN THE CONTRACT BOOKLET

Page iv - Immediately following the fifth line, insert the following new line:

"83A. BUILDING INFORMATION MODELING REQUIREMENTS.....107"

Page 41 - Make the following changes to the clause entitled "UNIT PRICES AND LUMP SUM":

A. In the twelfth paragraph (beginning "In the case of Item No. 7A"), at the end of the paragraph insert "Off-site transportation and disposal of surcharge fill will not be included in this item of Classified Work."

B. In the thirteenth paragraph (beginning "In the case of Item No. 7B"), at the end of the paragraph insert "Off-site transportation and disposal of surcharge fill will not be included in this item of Classified Work."

Page 42 - At the end of the fourteenth paragraph (beginning "In the case of Item No. 7C") of the clause entitled "UNIT PRICES AND LUMP SUM", insert "Off-site transportation and disposal of surcharge fill will not be included in this item of Classified Work."

Page 107 - Immediately preceding clause 84 entitled "SUBSTITUTION", insert the following new clause:

"83A. BUILDING INFORMATION MODELING REQUIREMENTS

The Contractor shall use a BIM (Building Information Modeling) methodology to develop and submit a "Construction Model" and a "4D/5D Model". Together these Models shall be used for spatial coordination, quantity takeoff reports, submittals, scheduling construction

phasing and logistics, tracking work progress and completion, and cost tracking. The Construction Model shall be comprised of multiple linked model files (Autodesk Revit .RVT files, Autodesk Civil 3D .DWG files, or any Port Authority approved file type). A 4D/5D Model shall be developed by linking events in the construction schedule to elements in the Construction Model. During construction, the Contractor shall continuously incorporate revisions to the Construction Model and the 4D/5D Model to reflect the current level of completed Work.

Construction Model Requirements:

A. Within 45 calendar days of the acceptance of the Contractor's Bid, the Contractor shall prepare and submit to the Engineer a Construction Model developed from and based on the Contract Drawings, including underground utilities. In the event existing BIM models or CAD files in support of the Contract Drawings are provided for reference, these files shall not relieve the Contractor of their sole responsibility for verifying accuracy of conditions indicated within these files. For project geometry and layout, the Construction Model shall be the only source of information (single coordinated database). For performance requirements, finishes, and additional product information, Contractor shall refer to other Contract documents.

B. The bi-weekly Construction Model updates shall reflect all approved shop drawing changes, RFIs, Change Orders, approved submittals, and accurate geometry/locations for all constructed elements. All disciplines, sub-consultants, and subcontractors shall deliver their portion of work using BIM without exception unless specifically approved in writing by the Engineer. The Construction Model shall be submitted two days prior to each bi-weekly progress meeting with the Engineer.

C. The Contractor shall use the most-current version of Autodesk's Revit and Navisworks software in use by the Authority at the time of acceptance of Bids as identified in the BIM Standard Manual. The Contractor shall provide the software, hardware and training required to comply with the BIM Requirements in the Authority's "E/A Design Division BIM Standard Manual" (hereinafter called "the BIM Standard Manual". The Contractor shall develop and maintain the Construction Model in compliance with the version of the BIM Standard Manual in use on the date of acceptance of Bids, as made available online at http://www.panynj-cadstandards.com. Modeling shall follow these additional guidelines:

1.) A control model shall be created for levels, grids, and shared coordinates. All model authors shall use this to establish a common baseline. An Autodesk Revit Site Model ("SM") will be created by the Port Authority BIM/CAD Support Group and delivered to the Contractor. This file holds the project coordinate system and controls the location, rotation, and elevation of all Revit-based Models (Architectural, Civil, Electrical, Electronics, HVAC, Plumbing, Fire Protection, and Structural) linked to it. All Models shall be linked by Shared Coordinates and coordinated with the SM, as identified in the BIM Standard Manual.

2.) Grids shall be to the nearest 5mm increment apart to 10 decimal places, and shall be orthogonal to 10 decimal places, or if not orthogonal at an angle with no more than 2 decimal places.

3.) Correct "Categories" and "Types" shall be used to identify each model element.

4.) All model elements in the authoring models shall be in the authoring BIM software format. Imported geometry of a format different from authoring software shall not be used.

5.) All 3D models shall be consistent with the 2D details and information, and all model elements shall match issued schedules.

6.) Where appropriate, typical groups of elements can be grouped and copied around the model. There should be no groups with only one occurrence.

7.) Elements, including groups and nested components, shall not be mirrored where doing so creates a different product. (e.g., a dishwasher with an outlet on the left is a different product to a dishwasher with an outlet on the right). Mirrored versions shall be a separate element, group, or nested component than the original.

8.) All dimension entities shall be rounded to the nearest 1 millimeter, no higher (or rounding errors may occur in strings of dimensions). Dimension values shall not be overridden.

9.) All tags and identifying marks on drawings shall match parameter data within the objects being tagged or identified.

10.) Deliver 3D models as separate files per discipline with the Base Point in each set to the same coordinates.

11.) All 2D drawings and 3D models used as references and appearing in issued drawings shall be provided with the host file. Pathing of linked files shall be relative and not absolute.

12.) When requested by the Engineer, editable 3D geometry and data shall be issued in native authoring formats (e.g. RVT, DWG, DGN, Moss Genio, ASCII etc.) as well as published formats (i.e. PDF, NWC, DWF etc.).

13.) Ensure that the exported models retain unique element identifiers (i.e. that there is a globally unique identifier associated to each element that is not duplicated by another element in the model). Ensure consistent use of IFC GUIDs across exports (same model). If the same model is exported multiple times, the IFC GUIDs for the same objects shall stay the same.

14.) Ensure that all elements are modeled as individual selectable items rather than multiple elements modeled as one element (e.g. don't model a row of columns as a single column element).

15.) Modeling of Civil components shall be completed using the version of Autodesk Civil 3D currently in use at the Port Authority. Modeling of Civil components shall include, at a minimum, all underground utilities (ductbanks, piping networks, and associated fixtures such as manholes and catch basins), profiles of roadways, and any existing utilities that are tied into (manholes, valves, etc.). Internal components such as conduits in ductbanks need not be modeled.

D. Within 30 calendar days of the acceptance of the Contractor's Bid, the Contractor shall prepare and submit to the Engineer a BIM Execution Plan

(hereinafter called the "BEP"). The BEP shall be revised throughout the Contract to adjust for necessary changes in standards, staff/roles, workflows, and schedules, and shall be submitted for approval as requested by the Engineer. A template is included in the BIM Standard manual (Appendix A – BIM Execution Plan Template) for use by the Contractor as a basis for their BEP. The BEP shall include, at a minimum, the following:

1.) The name and contact information for the Contractor's designated BIM Coordinator, and each subcontractor's designated BIM Coordinator. BIM Coordinators shall have experience in coordinating the adoption of BIM processes in similar construction Contracts from bid stage through construction and handover, and experience in using BIM authoring software herein specified.

2.) How BIM will be used for coordination meetings with the Engineer during construction. Coordination/clash detection process including provision of a matrix template of clashes to be analyzed.

3.) The coordination process among all contributing parties involved in construction.

4.) List, description and scope of BIM Models to be developed (Construction Model, 4D Model, As-Constructed Model).

5.) Detailed Model Breakdown Structure and articulation of Level of Development (LOD) compliance (including strategy for all discipline Models and approach for detailing, accessories, landscaping features, furniture, etc.).

6.) Process for collecting information required in the Port Authority issued Shared Parameter file.

7.) Development procedures for schedule (4D) and cost (5D) analysis, including workflow procedures for the 4D/5D Model.

8.) Flow diagrams demonstrating how the model will be used in the field, including process for capturing As-Constructed conditions with laser scans.

9.) Unique Element Identifier (UEI) Execution Strategy defining the approach, the elements included and excluded from this effort, resources, timeframe, and other necessary considerations

10.) File naming and versioning in accordance with the BIM Standard Manual.

E. The Contractor shall develop and maintain a 4D/5D Model. The 4D/5D Model shall be created by integrating the construction schedule into the Construction Model with Autodesk Navisworks. This integration shall be accomplished by linking Construction Model elements to discrete activities in the cost-loaded Primavera P6 Project Schedule. Model components shall be created in accordance with the project's Work Breakdown Structure (WBS). The Contractor shall maintain the 4D/5D Model to be up-to-date throughout the duration of construction and submit the 4D/5D Model with the Construction Model for each bi-weekly progress meeting with the Engineer. The Contractor shall prepare 4D/5D simulations to show construction sequencing and any schedule changes. The 4D/5D Model shall include the approved baseline

schedule and the latest updated schedule including two-week look-ahead. Submissions for the 4D/5D Model shall be in Autodesk Navisworks .NWD file format and all files used in its creation shall be included in each submission. The first 4D/5D model submission shall take place two weeks prior to the date on which the first activity on the construction site begins. The 4D/5D Model shall demonstrate the planning and staging of construction, cost breakdown, and shall include, at a minimum, the following:

1.) Demonstrate the planning and staging/sequence of construction, planned vs. actual progress, cost breakdown, and demolition and logistics activities (including delivery of and movement around the site of any major construction equipment that may impact facility operations).

2.) Cost-load the schedule to provide quantity-based, installed cost breakdown of labor and material for major elements of all Models.

3.) All activities from the Project Schedule, including those that are not linked to objects shall be imported into Navisworks. All activities linked to 3D objects shall be linked by Activity ID to corresponding Autodesk Navisworks Selection or Search Sets with the same name. The naming of Activity IDs and matching Navisworks Selection or Search Sets shall begin with the project's contract ID number as a prefix. Activity ID shall be assigned as a parameter to objects in Revit to allow for cost integration of each Model object and Search Set creation within Navisworks.

4.) Activities shall be logically grouped and linked to the Model, and the process for accomplishing this shall be defined in the BEP. If Level of Effort activities are used, all predecessor/successor relationships must remain intact in order to accurately simulate the schedule, and no activities shall be duplicated for the sole purpose of linking to an object. All activities in the 4D/5D Model shall come directly from the schedule developed in Primavera P6, and task creation within Autodesk Navisworks is prohibited, unless authorized by the Engineer.

5.) For easy identification of activities linked to geometries in the 4D/5D model, the Contractor shall use an Activity Code in Primavera P6. This Activity Code shall be labeled "BIM.ContractID#", and it shall contain the value "BIM.ContractID" for all activities linked to objects in the Model.

6.) The Activity Codes from Primavera P6 shall be mapped to User Defined Fields in Autodesk Navisworks when importing the schedule into the 4D/5D Model.

7.) Appearance definitions shall include at a minimum task types and colors for the following:

   a. Demolition
   b. Temporary Construction
   c. Construction
   d. Staging

8.) The 4D/5D Model shall initially be submitted with the Original Baseline Schedule submission and subsequently align with all monthly Progress Schedule submissions. Both the Baseline Schedule and most recent Progress Schedule generated in Primavera P6 shall be integrated into the

4D/5D Model for each monthly submission.

F. The Contractor shall make required model update submissions for review, including a BIM Standards compliance review by posting files to the Contract's Livelink web site. Submissions shall include the current Construction Model and current 4D/5D Model, description of updates made to the Models and all necessary linked files to ensure a comprehensive, coordinated submission (including .RVT, .NWD, and .XER schedule files).

G. Prior to issuance of the Certificate of Final Completion, the Contractor shall submit to the Engineer a final As-Constructed Model. The Authority will have thirty (30) days to review the final model submission, and the Contractor shall have an additional thirty (30) days to incorporate all comments to the satisfaction of the Engineer to complete this requirement.

H. During construction, the Contractor shall produce 3D laser scans of the construction to capture existing conditions in addition to site survey requirements from the Contract documents. The Contractor shall ensure that all laser scanning is performed before any of the work becomes hidden or concealed. The Contractor shall match the Construction Model geometry to the resultant laser scan point cloud as items are installed and throughout construction. The resultant model created by matching the Construction Model geometry to the laser scan point cloud shall be known as the "As-Constructed Model". The Contractor shall submit copies of the latest laser scan point cloud files with every bi-weekly submission to allow the Engineer to review the accuracy of the Models as compared to the laser scans throughout construction.

I. Level of Development (LOD) as defined in the American Institute of Architects (AIA) Document E203-2013 shall mean the level of completeness to which a Model is developed along with its minimum requirements. The Contractor shall deliver a final As-Constructed Model at LOD 400. The As-Constructed Model shall be developed with an accuracy tolerance of not more than +/- 1/8". The Contractor shall ensure all field condition changes are accurately documented in the As-Constructed Model, including underground utilities. Elements in the As-Constructed Model shall be accurate in terms of their field verified quantity, size, shape, location, and orientation, and shall include complete fabrication, assembly, detailing information, specifications, and other relevant information as approved by the Engineer. The Contractor shall capture values for all attributes found in the latest Shared Parameter file issued by the Port Authority and include in the BIM Execution Plan the methodology anticipated for collecting this information. Attributes shall be assigned to model elements in accordance with the PANYNJ Asset Attributes List.

J. For Bridge projects only, the Contractor shall implement and include in the final As-Constructed Model the UEI (Unique Element Identifier) as defined within the Port Authority UEI Guidelines provided as a reference document. Necessary parameters for constructing the UEI will be provided in the Port Authority Shared Parameters file. The Contractor shall prepare a UEI Execution Strategy defining their approach, the elements included and excluded from this effort, resources, timeframe, and other necessary

considerations, and submit to the Engineer as part of the BIM Execution Plan within 30 calendar days of the acceptance of the Contractor's Bid.

K. The Authority may deny a progress payment request and/or withhold money, or modify any previous progress payment, as necessary to protect the Authority from loss due to or affecting enforcement of failure to keep current as-constructed records at the construction site, including the BIM. Prior to monthly payments, the Engineer shall review the Contractor's models to verify that all revisions are up-to-date. In the event the Contractor's deliverables are not updated, the Authority may withhold the monthly payment until the Models are revised to reflect the correct information."

Pages 277 through 288 - Delete these pages in their entireties and substitute therefor new pages 277 through 288 (12 pages), which are attached hereto and made a part hereof.

Page 596 - Make the following changes:

A. In 2.01 M., delete "Fender and Pipe Guard" with no substitution therefor.

B. Delete the text of 2.01 M.1.a. and substitute therefor "Not used."

THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

James Starace, P.E.
Chief Engineer/Director

INITIALLED BY THE BIDDER:

_____

DIVISION 5

SECTION 051300

BEARINGS

PART 1. GENERAL

1.01 SUMMARY

This Section specifies requirements for the following types of bearings as shown on the Contract Drawings:

A. Elastomeric Bearings

Elastomeric bearings furnished under this Section shall be adequate for the specified design load, and provide for the thermal expansion and contraction, rotation, camber changes, and creep and shrinkage of structural members.

1.02 REFERENCES

A. The following is a listing of the publications referenced in this Section:

AASHTO	LRFD Bridge Construction Specifications, 3rd Edition
NYSDOT	Steel Construction Manual, 3rd Edition with Addendums 1 & 2.
ASTM A36	Standard Specification for Carbon Structural Steel
ASTM A240	Standard Specification for Chromium and Chromium Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications ASTM 1008/A1008/M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM A1008	Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable
ASTM 1011/A1011/M	Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
ASTM D412	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
ASTM D746	Brittleness Temperature of Plastics and Elastomers
ASTM D4894	Standard Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials

ASTM E29	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications
ASTM F436	Standard Specification for Hardened Steel Washers
ASTM F1554	Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength
ASME B46.1	Surface Texture (Surface Roughness, Waviness, and Lay)
AWS QC1	Specification for AWS Certification of Welding Inspectors – 6th Edition

1.03 DESIGN AND PERFORMANCE REQUIREMENTS

A. General

1. Ensure that the materials and fabrication of bridge bearing assemblies conform to Section 18 of the AASHTO "LRFD Bridge Construction Specifications".

2. Ensure that the fabricating plant is certified under the AISC "Quality Certification for Simple Steel Bridge Structures".

3. Enclose a copy of the materials, fabrication, and testing compliance certifications with each shipment. Supply a separate sheet showing the materials, critical dimensions, and clearances for each bearing.

4. Submit to the Engineer certifications of compliance and material test reports.

B. Material Requirements

1. Elastomeric Bridge Bearings

   a. Elastomeric bridge bearings with external load plates shall be composed of either plain elastomeric or laminated elastomeric bearings with external steel load bearing plates. The steel load bearing plates shall be bonded to the elastomer by vulcanization during the primary molding process. These bearings may be used for both fixed and expansion applications with appropriate changes in details, as shown on the Contract Drawings. The bearings shall accommodate longitudinal, transverse, and rotational movements.

   b. Provide reinforced elastomeric bearings conforming to the requirements shown on the Contract Drawings. Reinforced elastomeric bearing assemblies consist of circular or rectangular reinforced elastomeric bearings that are Grade 3 with a durometer hardness of 50.

2. Non-Shrink Grout. In accordance with Section 036115 of the Specifications entitled "Grouting (Non-Metallic)"

C. Shop Drawings

1. Submit shop drawings prepared by the bearing manufacturer for approval.

2. Verify that the bearing manufacturer notes the following on all shop drawings:
   a. The Contract number, bridge number, the type, size and quantity of bearings being produced.

b. The design load (dead load plus live load with applicable dynamic allowance) for each type and size bearing. If bearings of the same type and size are designed for differing load conditions the maximum design load shall be noted.
c. The effective rubber thickness, typical laminate thickness, compressive area, shear area and shape factor.
d. The manufacturer's name, the location of the fabrication plant and the name and phone number of the manufacturer's representative who will coordinate production, inspection, and sampling and testing with the Engineer.
e. The specification references and grades of steel to be used.
f. All welding procedures to be used in the manufacture of the bearings.

D. Welding Procedure

1. Obtain from the bearing manufacturer and submit a Welding Procedure for each welding process to be used in the manufacture of the bearings. No welding shall be performed until the Engineer approves the Welding Procedure.

2. During any welding, the temperature of the steel adjacent to the elastomer shall not exceed 200 degrees F. Temperature shall be controlled by welding procedures and temperature indicating crayons, or other devices approved by the Engineer.

E. Bearing Tolerances

1. Elastomeric Bearings

Finished elastomeric bearings shall conform to the design dimensions, with the tolerances listed in the table below and the following details:

a. Internal Steel Plates

Check the internal steel plates for parallelism by measuring the distance between each individual steel plate, and between the top or bottom edge of the bearing to the first adjacent steel plate. For rectangular bearings, take measurements for each plate along the vertical surface of the bearing, located 1 inch from the edge of the four alternate corners. For round bearings, take measurements at four points located at 90degree intervals around the perimeter. The smallest of the four measurements shall be recorded for each plate. The cumulative total of these measurements shall not be less than 75% of the design effective rubber thickness.

b. Elastomeric Laminae

The average thickness of individual layers of elastomer in steel laminated elastomeric bearings shall not vary more than plus or minus 20% of the design thickness and in no case exceed the design thickness by 1/8 inch. Average thickness shall be calculated from measurements taken at four points, located at 1 inch from the edge of the four alternate corners for rectangular bearings and at 90degree intervals around the perimeter for round bearings.

Bearing Tolerances	
Dimension	Tolerance
Overall Vertical	-0, +1/8 inch
Overall Horizontal	-0, +1/4 inch
Position of Holes and Slots centerline	+1/16 inch from centerline
Size of Holes, Slots and Internal Steel Plates	-0, +1/16 inch
Edge Cover over External Steel Plates	1/8 inch min.
Bedding Surface (top and bottom) over Internal Steel Plates	¼ inch min.

F. Performance Characteristics

1. Compression Deflection.

   The compression deflection of each bearing shall not exceed 10.0% of the design effective rubber thickness at a compressive load equal to the actual design load. The compression deflection shall be determined by loading the bearings to 500 psi and 800 psi. At each load a deflection reading shall be taken and the readings used to calculate a slope between the two loads. The slope shall then be used to determine the deflection at the bearing's design load. The bearing and ambient temperature shall be 75 degrees F ± 5 degrees F at the time of testing.

2. Adhesion.

   The adhesion of the elastomer to the internal plates shall be determined by subjecting the bearing to a compressive load equal to 150% of the actual design load. Upon visual examination, the bearing shall be free of visual defects. The bearing and ambient temperature shall be 75F ± 5F at the time of testing.

For conformance to this Specification Section, an observed or calculated value shall be rounded off (in accordance with ASTM E29) to the nearest 0.1% for compression deflection.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications

1. Arrange for elastomeric bearing assemblies specified in this Section to be furnished by a manufacturer with minimum five (5) years experience in the fabrication of elastomeric bearing assemblies involving quantities and complexities equal to or greater than those required by this Contract.

B. Installer Qualifications

Arrange for bearing assemblies specified in this Section to be installed by an entity with minimum five (5) years experience in the installation of bearing assemblies involving quantities and complexities at least equal to those required by this Contract.

C. Single Source Responsibility

Obtain bearing assemblies furnished and installed under this Section from a single manufacturer.

D. Quality Control

1. Notify the Engineer, in writing, 15 days before the start of elastomeric bearing fabrication, so that arrangements for inspection by the Engineer may be made.
2. Ensure that quality control inspectors are AWS Certified Welding Inspectors, qualified according to the provisions of AWS QC1.
3. Test and inspect structural bearing assemblies according to Section 18 of the AASHTO "LRFD Bridge Construction Specifications". Provide test results to the Engineer at the time of inspection.
4. Provide to the Engineer the manufacturer's Certifications of Compliance stating that all the bearing materials and bearing assemblies fully comply with the requirements of the Contract. Include with the certifications mill test reports for all steels used and material test reports for all elastomeric components.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store bearing devices and components in an area at the Construction site that provides protection from environmental and physical damage. When in storage the High-Load Multirotational Bearings shall be kept banded, wrapped and secured in a condition suitable for shipment.

B. Mark each structural bearing in indelible ink on 2 sides with the structure number, location, orientation, order number, lot number, bearing identification number, and elastomer type and grade.

C. Ensure that the bearings are packaged to be protected against damage from handling, shipping, and storage. Securely bolt, strap, or otherwise fasten to prevent all relative movement. Wrap the bearings in moisture resistant and dust resistant material to protect them from weather.

D. Enclose a copy of the materials, fabrication, and testing compliance certifications with each shipment. Supply a separate sheet showing the materials, critical dimensions, and clearances for each bearing.

E. Inspect bearings within 1 week after the bearings arrive on the construction site. Following the inspection, re-wrap the bearings and keep the bearings clean until installation. Do not dismantle bearings at the Construction site unless necessary for inspection or installation. If it is necessary to open or dismantle bearings at the Construction site, obtain Engineer's approval and do so under the direct supervision of the manufacturer.

F. Bearings shall be handled from their bottom surfaces only. Do not lift bearings by their tops, sides and/or shipping bands.

1.06 WARRANTY

Submit written warranty executed by the Contractor, installer and the manufacturer, agreeing to provide materials and labor to repair or replace elastomeric bearing assemblies that fail in materials or workmanship within 5 years after date of issuance of the Certificate of Final Completion. This warranty shall not limit other rights the Authority may have under the Contract.

1.07 SUBMITTALS

See Appendix "A" for submittal requirements.

PART 2. PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with the requirements of this Section, furnish and install products of one of the following, or approved equal:

AMSCOT Structural Products Corp., Dover, NJ
Cosmec Inc. / Dynamic Rubber, Athens, TX
D.S. Brown Company, North Baltimore, OH
R. J. Watson Inc., Alden, NY
Scougal Rubber Corporation, McCarran, NV
Seismic Energy Products, L.P. Athens, TX

2.02 MATERIALS

A. All materials shall be new with no reclaimed material incorporated in the finished bearing.

B. Elastomeric Bearings

1. Elastomeric Material

The elastomeric compound used in the construction of elastomeric bearings shall contain only virgin crystallization resistant polychloroprene (neoprene) or virgin natural polyisoprene (natural rubber) as the raw polymer. The resulting product shall be free of porous areas, weak sections, bubbles, foreign matter, or other defects affecting serviceability. The physical properties of the cured elastomeric compound shall be determined by using samples taken from bearings and shall meet the requirements of Table 1 below. Obtain elastomeric bearing manufacturer's certification that the elastomeric compound passes Grade 3 Low - Temperature Brittleness as determined by ASTM D746 - Brittleness Temperature of Plastics and Elastomers by Impact Procedure B.

Table 1 PROPERTIES OF ELASTOMERIC MATERIAL			
PHYSICAL PROPERTIES	ASTM TEST METHOD	REQUIREMENTS	
		NEOPRENE	NATURAL RUBBER
Tensile Strength, Min., (psi)	D412	2000	2000
Ultimate Elongation, Min., (%)	D412	400	400

2. Internal Steel Plates

   Steel plates for internal laminates shall be rolled mild steel conforming to the requirements of ASTM A36, or ASTM 1008/A1008/M, ASTM 1011/A1011/M (Grade 33, 36 and 40).

3. External Load Bearing Plates and Steel Backing Plates

   External load bearing plates shall conform to the requirements of ASTM A36 and to the requirements of the NYSDOT Steel Construction Manual (SCM), unless otherwise shown on the Contract Documents. Except as otherwise noted, all bearing surfaces of external load plates shall be finished or machined flat within 0.010 inch. Out-of-flatness greater than 0.010 inch on any plate, except the bottom surface of the lower external plates (masonry plates), shall be cause for rejection. The bottom surface of lower external load plates (masonry plates) shall not exceed an out-of-flatness value of 1/16 inch. Oxygen cut surfaces shall not exceed a surface roughness average of 1 mil as defined by ASME B46.1. External load bearing plate surfaces to be welded shall be painted with one coat of lacquer or other protective coatings approved by the Engineer. This coating shall be removed before welding. Cleaning, Preparation, and Painting of Steel Surfaces shall be in accordance with Section 099100.

2.03 FABRICATION

A. Each bearing shall be marked in indelible ink or flexible paint. The marking shall consist of the manufacturer's name, contract number, lot number, and individual bearing number. The marking shall be placed on at least one side or face that will be visible after erection and, if possible, on two sides or faces. The bearings shall be cast as a single unit in a mold and bonded and vulcanized under pressure and heat to the specified size and thickness. They shall be cast as a single unit with the external load plate(s) bonded to the elastomer by vulcanization during the primary molding process. The molds shall have standard shop practice mold finish. If internal steel plate(s) are required, they shall be commercially blast cleaned to a condition matching that of SSPC-Vis1 , Pictorial Standards A SP6, B SP6 or C SP6, and cleaned of all oil or grease before bonding.

PART 3. EXECUTION

3.01 EXAMINATION

Verify dimensions and conditions in field for Work fabricated to fit actual conditions.

3.02 PREPARATION

A. Do not place bearing plates on bridge seat bearing areas that are irregular or improperly finished or deformed. Ensure that the epoxy waterproofing has been applied and is cured before placing bearings. Immediately before placing the bedding material and installing bearings or masonry plates, clean the contact surfaces of the concrete and steel. Elevations of the bridge seat for reinforced elastomeric bearing pad assemblies shall be as shown on the Contract Drawings. The bearing pedestal elevations shown on the Contract Drawings for the High-Load Multirotational Bearings may vary depending on the actual bearings used. The Contractor shall submit shop drawings showing any required pedestal elevation changes to the Engineer for approval.

3.03 INSTALLATION

A. Allow for the effect of stress deformation and temperature changes when setting bearings. Use swedged or threaded anchor bolts to ensure a secure grip upon the material used to embed them in the holes.

3.04 CLEANING

When installing, ensure that the bearings are clean and free of all foreign substances.

3.05 PROTECTION

Protect the installation from damage by Work of other Sections.

END OF SECTION

PAGES
285 - 288
NOT USED