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for

TECHNICAL SPECIFICATIONS

TRANSFER STATION RETROFIT

Frederick County, Maryland Transfer Station

TECHNICAL SPECIFICATIONS

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SECTION 01100

SUMMARY OF WORK

PART 1 GENERAL

1.01 SUMMARY OF WORK

A. The general categories of Work that are to be performed under this Contract include, but are not limited to, the following:
   1. install new metal rod cross-bracing and support system, including concrete piers;
   2. remove existing metal rod cross-bracing;
   3. demolish portions of the existing push wall, metal siding, and metal screen at the western side of the facility;
   4. install new roll-up door systems at the push wall;
   5. install bump guards at the remaining push wall;
   6. construct bollards;
   7. import, place and compact structural fill and subbase aggregate to the lines and grades shown on the Drawings;
   8. remove, regrade, and pave portions of the asphalt access road as shown on the Drawing;
   9. installing a new exterior lighting system;
   10. topsoil, seed, and stabilize disturbed areas not designated for asphalt pavement; and
   11. performing all other Work that is not specifically defined in this Section, but shown on the Drawings and described in these Technical Specifications.

B. CONTRACTOR is responsible to provide all materials, labor, equipment, supervision, testing, and coordination required for execution of the Work.

C. CONTRACTOR shall perform Work during the construction period and shall coordinate the construction schedule and operations with OWNER and other contractors performing Work listed under Part 1.01.A of this Section. CONTRACTOR is responsible for scheduling construction activities in a manner such that all activities are completed by the scheduled project completion date.

1.02 OWNER SUPPLIED MATERIALS AND SERVICES

A. CONTRACTOR shall provide all materials necessary to complete the Work.

B. Demolition debris created during completion of the Work may be disposed of at OWNER's transfer station at no charge to CONTRACTOR. CONTRACTOR is responsible for reducing size of debris to no more than 3 feet in any dimension, segregating recyclable materials from debris requiring disposal, and coordinating with transfer station staff to place debris in appropriate locations within the facility.

1.03 CONTRACTOR USE OF SITE AND PREMISES

A. CONTRACTOR's access to OWNER's property is limited to the project work area and includes:
   1. the western portion of the existing transfer station;
   2. the paved area immediately in front of the future waste transfer loading bays;
   3. site access roads; and
   4. interior transfer station when disposing of the project's demolition waste.

1.04 OWNER OCCUPANCY

A. The transfer station will be fully operational throughout the construction period. CONTRACTOR shall cooperate with OWNER to minimize conflict with OWNER's operations at the Site.

1.05 DATES FOR SUBSTANTIAL AND FINAL COMPLETION

A. The date for Substantial Completion of the Work items identified in Part 1.01.A of this Section shall be **180** calendar days after issuance of Notice to Proceed. The date of Substantial Completion is defined herein as the date when ENGINEER gives its approval of Substantial Completion of the Work as described in Section 01775.

B. The date for Final Completion of the Work shall be no more than **30** calendar days following issuance of Substantial Completion.

1.06 WORK PLAN SUBMITTALS

A. In addition to information regarding materials, equipment, and shop drawings, CONTRACTOR is required to provide a number of Work Plan submittals associated with the project. These submittals include, but are not limited to, the following:
   1. Construction Schedule;
   2. Health and Safety Plan; and
   3. Construction Quality Control Subconsultant (Section 01450).

B. The purpose of the Work Plan submittals is for CONTRACTOR to:
   1. demonstrate CONTRACTOR's understanding of the scope of work;
   2. demonstrate CONTRACTOR's understanding of the schedule dependence between various components of the Work;
   3. define CONTRACTOR's activities to ensure the project is completed without safety incidents or worker injuries; and
   4. identify the specific testing and certifications required to document conformance of finished work with the requirements of the Drawings and the Technical Specifications.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 GENERAL

A. CONTRACTOR shall execute all Work in accordance with the requirements of the Project Manual.

3.02 FAMILIARIZATION

A. Prior to implementing any Work described in the Project Manual, CONTRACTOR shall become thoroughly familiar with the site, the existing site conditions, and all portions of the Work falling within the appropriate section of the Technical Specifications.

B. Prior to implementing any Work, CONTRACTOR shall carefully inspect the previously installed Work to verify that the previous Work is complete to the point where the installation of succeeding Work may properly commence without adverse impact.

C. If CONTRACTOR has any concerns regarding the previously installed Work, then CONTRACTOR should immediately notify OWNER and ENGINEER verbally and in writing (within 48 hours of the site visit). Failure to notify OWNER and ENGINEER or continuance with Work will be construed as CONTRACTOR's acceptance of the previous Work.

3.03 PROTECTION OF WORK

A. CONTRACTOR shall use all means necessary to protect all prior Work, including all materials and completed Work of other sections.

B. In the event of damage to Work performed by CONTRACTOR prior to OWNER's acceptance of the Work, CONTRACTOR shall immediately make all repairs and replacements necessary, to the approval of ENGINEER, and at no additional cost to OWNER.

[END OF SECTION]

SECTION 01270

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 DESCRIPTION

A. This Section describes the methods for Measurement and Payment for the Work of this Contract.

B. As noted below, Measurement and Payment of Work will be made, and payment for Work will be taken to be included in, and covered by, the Contract unit prices and lump sum payment methods for the various proposal items listed in CONTRACTOR's Price Proposal.

C. CONTRACTOR shall provide necessary equipment, workers, Construction Quality Control testing, and survey personnel as required.

1.02 ENGINEER'S ESTIMATE OF QUANTITIES

A. Price Proposal items and estimated quantities (per unit installed basis - Items 9, 11, and 12) are identified in CONTRACTOR's Price Proposal Schedule of the Contract Documents. The estimated quantities for unit price pay items are approximate only and are included solely for the purpose of comparison of Price Proposals. For unit rate items, CONTRACTOR shall be paid only for the quantity of actual work completed.

B. If the actual Work requires a quantity different from those quantities indicated on CONTRACTOR's Price Proposal Schedule, then CONTRACTOR shall provide the required quantities at the contract unit prices. If the actual final quantity varies by more than 25% of the quantities indicated on the Price Proposal Schedule, then CONTRACTOR and OWNER shall negotiate a revised unit rate to reflect either the loss or gain in price efficiency.

C. During the progress of the Work, CONTRACTOR shall monitor the estimated final quantity of work to be performed for each proposal item. If the estimated final quantity exceeds the quantity indicated on the Price Proposal Schedule by more than 10%, then CONTRACTOR shall notify OWNER of the discrepancy and shall not construct units beyond the quantity found on the Price Proposal Schedule without prior approval.

1.03 PRICE PROPOSAL ITEMS

General Site Development

A. Proposal Item 1 – Mobilization/Demobilization

1. Measurement for payment will not be made for this item.
2. Payment will be made at the lump sum price listed in the proposal for this proposal item.
3. The price shall include and cover the furnishing of all materials, labor, tools, and equipment necessary for the assembling and setting up for the project, including: the initial movement of personnel and equipment to the project site; application, fee payment and acquisition for all necessary permits; the establishment of the CONTRACTOR's shops, plants, storage areas, field office, temporary water, electrical, telephone, sanitary and other temporary facilities; insurance; and other initial expenses required for the start of Work. The price shall also include and cover the furnishing of all materials, labor, tools, and equipment necessary for final project closeout, including: demobilizing all materials, labor, tools, and personnel and equipment from the project site; dismantling of CONTRACTOR's shops, plants, storage areas, field office, temporary water, electrical, telephone, sanitary, and all other activities required for the project closeout, as described in Specification Section 01775.
4. The lump sum price shall include, but is not limited to, the following:
   a. preparation of a project schedule;
   b. preparation of a Site Specific Health and Safety Plan; and
   c. preparing and maintaining all project safety and other records required by this Contract.

B.Item Number 2 – Performance Bonds1.See Section 2.4 and Exhibit 4 to RFP

Demolition

C. Proposal Item Number 3 – Demolition – Upper 8 ft of Existing Concrete Push Wall Section

1. Measurement for payment will not be made for this Proposal Item.
2. Payment will be made at the lump sum price listed in the Price Proposal.
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to demolish the upper 8 ft of the existing concrete push wall section at the location shown on the Drawings. This work includes removing the existing metal plate on the inside of the push wall and placing a new bent plate. The unit price includes, but is not limited to, transporting demolition debris to an on-site location for disposal.
4. No payment will be made for stored materials.

D. Proposal Item Number 4 – Demolition – Lower Portion of Existing Metal Siding Section and Metal Screen Section

1. Measurement for payment will not be made for this Proposal Item.
2. Payment will be made at the lump sum price listed in the Price Proposal.
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to demolish existing Z-purlins, as well as the lower 4.5 ft of the existing metal siding section and metal screen section at the location shown on the Drawings. The unit price includes, but is not limited to, transporting demolition debris to an on-site location for disposal.
4. No payment will be made for stored materials.

E. Proposal Item Number 5 – Demolition – Portion of Existing Access Road and Parking Area

1. Measurement for payment will not be made for this Proposal Item..
2. Payment will be made at the lump sum price listed in the Price Proposal.
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to demolish a portion of the existing asphalt access road and parking area at the location shown on the Drawings. The price includes, but is not limited to, transporting demolition debris to an on-site location for disposal.
4. No payment will be made for stored materials.

Access Road and Parking Area

F. Proposal Item Number 6 –Access Road and Parking Area Subgrade Preparation

1. Measurement for payment will not be made for this Proposal Item.
2. Payment will be made at the lump sum price listed in the Bid Price Proposal.
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to regrade subgrade to design grades and remove and replace unsuitable subgrade if encountered. The unit price includes, but is not limited to, the following:
   a. remove and salvage topsoil
   b. import fill
   c. grade, smooth, and compact subgrade soils
   d. conduct required CQC; and
   e. re-seed after grading in unpaved areas.
4. No payment will be made for stored materials.

G. Proposal Item Number 7 –Access Road and Parking Area Subbase Placement

1. Measurement for payment will not be made for this Proposal Item.
2. Payment will be made at the lump sum price listed in the Price Proposal..
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to place and compact subbase for the access road

and parking area in front of the portals, as shown in the drawings. The price shall include perforating or breaking up the existing asphalt if it is present below the new subbase. The unit price includes, but is not limited to, the following:
   a. supply, place, and compact aggregate subbase; and
   b. conduct CQC necessary to document field moisture-density testing of fill.
4. No payment will be made for stored materials.

H. Proposal Item Number 8 –Access Road and Parking Area Paving
1. Measurement for payment will not be made for this Bid Item.
2. Payment will be made at the lump sum price listed in the Price Proposal.
3. The lump sum proposal price shall include all labor, tools, equipment, supervision, materials, and testing necessary to supply and pave the access road and parking area following subgrade and subbase preparation, as shown on the Drawings. The unit price includes, but is not limited to, the following:
   a. supply and place asphalt; and
   b. conduct CQC testing necessary to document compaction of asphalt.
4. No payment will be made for stored materials.

I. Proposal Item Number 9 – Construct Bollards
1. Measurement for payment will be made on a per unit installed basis.
2. Payment of the unit price listed in the Price Proposal Form for this Proposal Item will be based on the as-built number of units accomplished as listed in the Price Proposal Schedule.
3. The unit sum price shall include all labor, tools, equipment, supervision, materials, and testing necessary to construct bollards as described in the Drawings.
4. No payment will be made for stored materials.

Transfer Station Modifications

J. Proposal Item Number 10 – Install New Metal Cross-Bracing and Support System, including Concrete Piers
1. Measurement for payment will not be made for this item.
2. Payment will be made at the lump sum price listed in the proposal for this proposal item.
3. The price shall include all labor, tools, equipment, supervision, materials, and testing necessary to install the new metal cross-bracing and support system, including concrete piers as described in the Drawings and Specifications.
4. No payment will be made for stored materials.

K. Proposal Item Number 11 – Install Roll-Up Door System
1. Measurement for payment will be made on a per unit installed basis.

2. Payment of the unit price listed in the Price Proposal Form for this Proposal Item will be based on the as-built number of units accomplished as listed in the Price Proposal Schedule.
3. The unit sum price shall include all labor, tools, equipment, supervision, materials, and testing necessary to install roll-up doors and all appurtenances as described in the Drawings. The price shall include installation of Hollow Structural Sections (HSS), structural and electrical connections, and all items detailed in Specification 08330.
4. No payment will be made for stored materials.

L. Proposal Item Number 12 – Install Bumper Guards

1. Measurement for payment will be made on a per unit installed basis.
2. Payment of the unit price listed in the Price Proposal Form for this Proposal Item will be based on the as-built number of units accomplished as listed in the Price Proposal Schedule.
3. The unit sum price shall include all labor, tools, equipment, supervision, materials, and testing necessary to install the horizontal dock bumper guard system as described in the Drawings.
4. No payment will be made for stored materials.

M. Proposal Item Number 13 – Install Exterior Lighting System

1. Measurement for payment will not be made for this item.
2. Payment will be made at the lump sum price listed in the proposal for this proposal item.
3. The price shall include all labor, tools, equipment, supervision, materials, and testing necessary to install the lighting system as described in the Drawings.
4. No payment will be made for stored materials.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 APPLICATION FOR PAYMENT FORM

A. Contractor shall use the Application for Payment Form provided in this Section.

3.02 SUPPORT DOCUMENTATION FOR APPLICATIONS FOR PAYMENT

A. CONTRACTOR is responsible to obtain and submit all documentation, including all measurement and quantity computations, required for verification of pay applications. ENGINEER shall verify measurements and quantities for payment.

B. Should ENGINEER determine that insufficient data has been submitted to accurately verify a pay application, ENGINEER shall notify CONTRACTOR of deficiencies. CONTRACTOR shall address identified deficiencies prior to further review of the portions of the pay application impacted by insufficient data.

C. In the event that survey data provided by CONTRACTOR is not sufficient to determine actual pay quantity, and the status of Work prevents additional data from being obtained, ENGINEER shall attempt to reasonably estimate the pay quantity based upon available information. ENGINEER's estimate shall be final.

APPLICATION FOR PAYMENT

TRANSFER STATION REPAIRS AND IMPROVEMENTS CONSTRUCTION PROJECT

CONTRACTOR: _____
_____
_____

CONTRACT DESCRIPTION:

Agreement by and between
_____
and the Northeast Maryland Waste Disposal Authority as thereafter amended or changed pursuant to the terms and conditions of such Agreement (herein referred to as the "Agreement") for the satisfactory performance of all necessary and/or related Work to properly complete construction of the project at the Site.

OWNER: Northeast Maryland Waste Disposal Authority
Tower II – Suite 402
100 South Charles Street
Baltimore, Maryland 21201

PROJECT: Frederick County Transfer Station Retrofit Project
Contract Number

PERIOD: From: _____ To: _____

AGREEMENT PRICE SUMMARY:

ORIGINAL AGREEMENT PRICE $ _____
Net change by Change Orders $ _____
REVISED AGREEMENT PRICE $ _____

PAYMENT CALCULATION:

TOTAL COMPENSATION FOR WORK COMPLETED TO DATE
$_____
(completed work is detailed in this application)
LESS: RETAINAGE (10%) $ (_____)
TOTAL COMPENSATION AMOUNT $ _____

LESS: Amounts previously paid by OWNER $ (_____)
LESS: Previous approved Payment Applications which have not yet been paid by OWNER $ (_____)
LESS: Disputed amounts $ (_____)
CURRENT PAYMENT APPLICATION AMOUNT $ _____

Supplemental Information:
SUBCONTRACTOR'S VALUE OF WORK

Total Value of All Subcontractor's Work Completed to Date $ _____
Total Value of All Subcontractor's Work for this Payment Application $ _____

CERTIFICATION:

CONTRACTOR certifies that the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by CONTRACTOR to its subcontractors, materialmen, and suppliers for Work for which previous Applications for Payment were submitted by CONTRACTOR.

CONTRACTOR:

By: _____ STATE OF _____)

Printed Name: _____ COUNTY OF _____)

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public:
My commission expires:

APPLICATION FOR PAYMENT

ITEMIZED PAYMENT SUMMARY

Item No.	Description	Unit	Unit Price ($)	Completed This Period	Amount Requested This Period ($)	Completed To Date	Amount Completed To Date ($)
1	Mobilization / Demobilization	LS					
2	Performance Bond per Section 2.4 and Exhibit 4 of RFP						
3	Demolition – Upper 8 ft of Existing Concrete Push Wall Section	LS					
4	Demolition – Lower Portion of Existing Metal Siding Section and Metal Screen Section	LS					
5	Demolition – Portion of Existing Access Road and Parking Area	LS					
6	Access Road and Parking Area Subgrade Preparation	LS					
7	Access Road and Parking Area Subbase Preparation	LS					
8	Access Road and Parking Area Paving	LS					
9	Construct Bollards	Each					
10	Install New Metal Cross-Bracing and Support System, Including Concrete Piers	LS					
11	Install Roll-Up Door System	Each					
12	Install Bumper Guards	Each					
13	Install Exterior Lighting System	LS					

[END OF SECTION]

SECTION 01310

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 ORGANIZATION

A. OWNER's Project Manager shall be John Schott, Senior Project Manager of the Northeast Maryland Waste Disposal Authority.

B. ENGINEER shall be Meena Viswanath, P.E. (MD), of Geosyntec Consultants.

C. CONTRACTOR shall identify its Project Manager as the primary contact for the performance of the Work.

1.02 PRECONSTRUCTION MEETING

A. OWNER shall schedule a Preconstruction Meeting at the Site or other convenient location prior to commencement of construction activities.

B. OWNER, ENGINEER, and CONTRACTOR and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the meeting by persons familiar with, and authorized to, conclude matters relating to the Work.

C. OWNER shall prepare the agenda for the meeting, which shall include items of significance that could affect progress including such topics as:
   1. Health and Safety;
   2. Tentative construction schedule;
   3. Critical work sequencing;
   4. Designation of responsible personnel;
   5. Construction quality control requirements;
   6. Procedures for processing field decisions and change orders;
   7. Procedures for processing applications for payment;
   8. Distribution of Contract Documents;
   9. Submittal of shop drawings, product data, and samples;
   10. Preparation of record documents;
   11. Use of the premises;
   12. Office, work, and storage areas;
   13. Equipment deliveries and priorities;
   14. Security;
   15. Housekeeping; and

16. Working days and hours.

D. Prior to the Preconstruction Meeting, CONTRACTOR shall provide, in a manner satisfactory to OWNER and ENGINEER, the following preconstruction submittals:
   1. Health and Safety Plan;
   2. construction progress schedule;
   3. preliminary schedule of construction submittals (i.e., material certifications, concrete mix, CQC test data, etc.);
   4. the Schedule of Values with completed quantities and unit pricing for use in CONTRACTOR Applications for Payment;
   5. evidence of insurance required by Section 2.5 of Request for Proposals; and
   6. performance bond or letter of credit as required by Section 2.4 of Request for Proposals.

1.03 PROGRESS MEETINGS

A. At a minimum, monthly construction progress meetings will be facilitated by OWNER or ENGINEER at the Site or other convenient location. OWNER will notify CONTRACTOR and ENGINEER of scheduled meeting dates. More frequent meetings shall be held at OWNER's discretion.

B. In addition to OWNER, ENGINEER, and CONTRACTOR, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. No later than seven (7) days after each progress meeting date, OWNER or ENGINEER will distribute copies of the meeting minutes to each party present and to other parties who ought to have been present. The minutes will include a brief summary, in narrative form, of progress since the previous meeting. Any party disagreeing with the accuracy or completeness of such minutes shall notify ENGINEER within ten (10) days of receipt of minutes or otherwise be deemed to agree with the minutes as prepared.

1.04 PROBLEM OR WORK DEFICIENCY MEETING

A. A special meeting shall be held when and if a problem or deficiency is present or likely to occur. At a minimum, OWNER, ENGINEER, and CONTRACTOR shall attend the meeting, along with any affected subcontractors. The purpose of the meeting is to define and resolve the problem or work deficiency.

B. OWNER or ENGINEER shall document the meeting and shall transmit minutes to the meeting attendees and others as appropriate.

1.05 PROGRESS SCHEDULES

A. The progress schedule shall be furnished at within fourteen (14) days prior to the Preconstruction Meeting and shall be updated and submitted to ENGINEER no less than two (2) days before each biweekly progress meeting throughout the duration of the Contract. Throughout the Project, CONTRACTOR shall furnish in duplicate, graphic type construction progress schedules, listing trade divisions and all parts of Work, and showing the planned start date and completion time for each part of the Work.

1.06 ADMINISTRATION OF CONTRACT

A. CONTRACTOR shall follow the Drawings strictly and execute all Work in accordance therewith, and with the kind and quality of materials set forth in the Technical Specifications, using the figured dimensions marked on the Drawings and not scaled measurements, unless approved by ENGINEER.

B. The Drawings and the Technical Specifications shall be coordinated, so that any Work shown on the Drawings and not mentioned in the Technical Specifications, and vice-versa, shall be executed in the same manner as though mentioned in the Technical Specifications and shown in the Drawings.

C. CONTRACTOR shall furnish and install such Work and material as may be proper and suitable preparation, basis, support, or finish for the Work that is shown or specified, whether or not the same is specifically mentioned in the Technical Specifications or shown on the Drawings. CONTRACTOR shall be required to make plural and complete Work that is shown single or partially indicated to avoid needless repetition, for the sake of brevity, and for reasons of clarity. In all cases, the intent and meaning of the Drawings and Technical Specifications, as defined herein, shall be followed.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

[END OF SECTION]

SECTION 01330

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

A. CONTRACTOR shall submit shop drawings, record documents, working drawings, supplier's certificates of compliance, manufacturer's warranties, and manufacturer's operations and maintenance information, in accordance with the relevant Section of the Technical Specifications.

1.02 DEFINITIONS

A. Shop drawings are all drawings, diagrams, illustrations, brochures, schedules, and other data prepared by CONTRACTOR, subcontractor, manufacturer, fabricator, supplier, or distributor, that illustrates how specific portions of the Work shall be fabricated or installed.

B. Record documents include drawings, diagrams, or illustrations that are prepared by CONTRACTOR during construction to illustrate the final work product to ENGINEER and OWNER. Record documents include, but are not limited to: (i) as-built surveys, which are drawings prepared by a Professional Land Surveyor licensed in the State of Maryland; (ii) working drawings, which shall be used to communicate Work progress or status while Work is underway, but not yet complete; and (iii) red-line drawings, which are edits made by CONTRACTOR to the design drawings to illustrate deviations between the original design and as-built conditions

C. Supplier's certifications of compliance are information provided by the material supplier to CONTRACTOR to document that the material or equipment supplied meets the required physical properties and quality control.

D. Manufacturer's warranties are material and/or performance guarantees covering specific materials and/or assembled equipment, provided by manufacturer to CONTRACTOR, for a specified period.

E. Manufacturer's operations and maintenance information are drawings, diagrams, illustrations, schedules, and other data provided by manufacturer to CONTRACTOR describing the proper assembly, use, shut-down, disassembly, and maintenance required for equipment provided by the manufacturer.

1.03 IDENTIFICATION

A. The shop and working drawings shall have the following identification data contained thereon: (i) project name; (ii) contract number; and (iii) description of the item.

B. The shop and working drawings shall reference the particular Technical Specification section or Drawing sheet number. Each revised submission shall be numbered sequentially in order of the original submission. Resubmittals shall include the original submittal number and be lettered sequentially (i.e., A, B, C, etc.).

1.04 SUBMITTALS

A. At least seven (7) days prior to Preconstruction Meeting, CONTRACTOR shall submit to ENGINEER a list of all project submittals that will be made and the tentative dates that they will be submitted for review. ENGINEER and CONTRACTOR will use the submittal list throughout the Project to communicate submittal requirements and responsibilities.

B. CONTRACTOR shall maintain the submittal log in current and correct condition. CONTRACTOR shall provide to ENGINEER, an updated submittal log with each submittal submission.

C. Submittals shall be submitted in an electronic format to ENGINEER for review and acceptance. Coordinate with ENGINEER for submittal addresses.

D. For the convenience of CONTRACTOR, the following listing enumerates submittal requirements stipulated herein and specified within other sections of the Technical Specifications. The listing may not include certain submittal requirements found elsewhere in these Technical Specifications. All such submittal requirements stipulated elsewhere in the Project Manual must be complied with. Items to be submitted include, but are not necessarily limited to, the following:

Administrative:

1. Health and Safety Plan;
2. Construction progress schedule (Section 01310);
3. Performance bond or letter of credit;
4. Certificates of insurance;
5. Submittal log (Section 01330);
6. Schedule of values (Section 01270); and
7. CQC Consultant qualifications (Section 01450).

Supplier’s Certificates of Compliance:

1. Cement (see structural drawings);
2. Aggregates for concrete (see structural drawings);

3. Concrete admixtures (see structural drawings);
4. Aggregates (Section 02060);
5. Structural Fill (Section 02055);
6. Structural Steel (see structural drawings); and
7. Asphalt (Section 02740).

Miscellaneous:

1. Shop Drawings for Roll-Up Door System;
2. Design mixes for concrete (see structural drawings);
3. Concrete reinforcing;
4. Shop drawings for openings in existing metal building wall;
5 Shop drawings for proposed new permanent metal cross-bracing and support system including concrete piers; and
6. Concrete delivery batch tickets (see structural drawings).

1.05 SHOP DRAWINGS

A. Shop drawings shall be submitted for all materials, equipment, accessories, and appurtenances as specified or shown on the drawings prior to the fabrication, installation, or incorporation of the specified materials, equipment, accessories, and appurtenances in the Work.

B. All shop drawings shall be prepared to scale, shall be accurate and distinct, and shall give all dimensions required for the fabrication, installation, and incorporation of the specified items in the Work. Wherever the location of any of the materials, equipment, accessories, and appurtenances is not shown on the Drawings, CONTRACTOR shall furnish prints of shop drawings for the purpose of giving the exact location in plan and in elevation of the said materials, equipment, accessories, and appurtenances.

C. At the time of submission, CONTRACTOR shall call to OWNER's and ENGINEER's attention, in writing, any deviations that the shop drawings may have from the requirements of the Drawings and the Technical Specifications.

1.06 RED-LINE DRAWINGS

A. CONTRACTOR shall be responsible for maintaining red-line drawings indicating deviations from design drawings.

B. CONTRACTOR shall submit red-line drawings within 30 days of completion of the Project.

1.07 SUBMITTAL REVIEW

A. CONTRACTOR shall make diligent effort to provide complete, accurate, and responsive submittals requiring minimal or no revision. Contract times provided in the Agreement shall not be extended as a result of late or rejected submittals or for time required by ENGINEER to review CONTRACTOR submittals.

B. ENGINEER shall review submittals within fourteen (14) days of receipt, with the exception of substitution and "or-equal" submittals, which shall have a twenty-one (21) day review time.

C. After review, ENGINEER shall mark submittals as either: (i) No Exceptions Taken; (ii) Amend – Resubmit; (iii) Rejected – Resubmit; or (iv) Not Reviewed – For Information Only.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

[END OF SECTION]

SECTION 01450

CONSTRUCTION QUALITY CONTROL AND QUALITY ASSURANCE

PART 1 GENERAL

1.01 SUMMARY

A. CONTRACTOR shall assign one person as the Quality Control Manager for the Project. The Quality Control Manager shall be responsible for preparing and submitting quality control certifications and test results to ENGINEER, as applicable.

B. CONTRACTOR shall maintain an appropriate frequency of contact with ENGINEER and OWNER to ensure that Work quality is being maintained.

C. CONTRACTOR shall perform Construction Quality Control (CQC) field and laboratory testing as required by the Drawings and the Technical Specifications. If CONTRACTOR is unable to self-perform these tasks, CONTRACTOR shall retain a CQC Consultant to complete the required CQC field and laboratory testing.

D. Field and laboratory testing of cast-in-place concrete shall be performed by Quality Control Manager or CQC Consultant currently accredited by one or more of the following:
   1. Concrete Materials Engineering Council; and/or
   2. Other accreditation authority of equivalent standing to the above, on the basis of its compliance with the requirements of American Concrete Institute (ACI) 301.

E. Field and laboratory testing of structural welding shall be performed only by welders currently accredited by the American Welding Society (AWS) in accordance with the "Standard Code" for Arc and Gas Welding in Building Construction using E70XX Electrodes.

1.02 DEFINITIONS

A. Construction Quality Control (CQC) and Construction Quality Assurance (CQA) actions are those that provide a means to measure and regulate the characteristics of an item or service to contractual and regulatory requirements.

B. CQC refers to those actions taken by the manufacturers, fabricators, installers, or CONTRACTOR to ensure that the materials and the workmanship meet the requirements of the Drawings and the Technical Specifications.

C. CQA refers to those actions taken by the OWNER or ENGINEER to ensure that the materials and the workmanship meet the requirements of the Drawings and the Technical Specifications.

1.03 SUBMITTALS

A. At least seven (7) days prior to the Preconstruction Meeting, CONTRACTOR shall: (i) identify the Quality Control Manager; and (ii) identify CONTRACTOR's CQC Consultant.

B. At least seven (7) days prior to the Preconstruction Meeting, CONTRACTOR shall submit information to ENGINEER describing the qualifications and capabilities of the CQC Consultant. The CQC Consultant shall be acceptable to both OWNER and ENGINEER.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

3.01 GENERAL

A. CONTRACTOR shall be responsible for obtaining quality control documentation or performing quality control tests as described in the Technical Specifications.

B. Quality control testing procedures and frequencies for individual products and material are described in the Technical Specifications.

3.02 SAMPLING AND TESTING

A. CONTRACTOR shall perform all testing during construction and shall promptly provide all test results to ENGINEER and OWNER. CONTRACTOR shall be responsible for cooperating with ENGINEER and OWNER during all testing activities and in resolving all problems identified during CQC testing. CONTRACTOR shall provide all equipment and labor for all required testing. CONTRACTOR shall repair any damage to finished Work caused by sampling or testing activities.

B. Material sampling and testing for asphalt and concrete is the responsibility of CONTRACTOR and shall be performed by the CQC Consultant. CONTRACTOR and its subcontractor(s) shall provide equipment and labor for all testing. CONTRACTOR and its subcontractor(s) shall repair any damage to finished Work caused by sampling or testing activities. ENGINEER shall monitor the testing activities.

C. CONTRACTOR shall be responsible for geometric control of the Work. Any surveying that may be performed by OWNER or ENGINEER does not relieve CONTRACTOR of its responsibility to lay out, control, and document its Work. Any additional CQC surveying that is required, if the initial CQC survey shows that the Work has not yet been completed to the lines and grades shown on the Drawings, shall be performed at the expense of CONTRACTOR.

D. CONTRACTOR shall abide by all qualification requirements identified in these Technical Specifications (for subcontractors, suppliers, manufacturers, etc.).

E. The work shall at all times be subject to the observation of OWNER and/or ENGINEER. Observation or non-observation by OWNER and/or ENGINEER shall not relieve CONTRACTOR from his contractual obligation to furnish work and materials as required, and properly complete the Work in accordance with these Contract Documents. If OWNER or ENGINEER considers that the Work is not being properly accomplished, he may condemn or reject all or any part of the Work and any materials or equipment incorporated into the Work. If any material, equipment, or the Work is condemned or rejected by OWNER or ENGINEER, CONTRACTOR shall bear all expenses for removal and proper replacement of such material, equipment, or Work required to be provided by Contract Documents. The expense of replacing any Work performed by others that is adversely affected by removal and proper replacement of improper Work performed by CONTRACTOR shall be borne by CONTRACTOR.

F. ENGINEER’s presence does not include supervision or direction or the actual work by CONTRACTOR, his employees, or agents. Neither the presence of ENGINEER nor any observations and testing performed by either party shall excuse CONTRACTOR from defects discovered in his work.

G. ENGINEER or OWNER has the right to perform CQA testing and to observe the Work at any time.

3.03 PROTECTION

A. CONTRACTOR shall use all means necessary to protect all prior Work, including all materials and completed Work of other sections.

3.04 SUBSTANDARD WORK OR MATERIALS

A. Any defective or substandard Work or materials furnished by CONTRACTOR that is discovered before the final acceptance of the Work, as established by ENGINEER’s Certificate of Substantial Completion, or during the subsequent guarantee period, shall be removed immediately by CONTRACTOR even if it had been initially overlooked by ENGINEER and recommended for payment. Satisfactory work or materials shall be substituted by CONTRACTOR for that rejected.

B. ENGINEER may order tests on substandard or damaged Work, equipment, or materials to determine the required functional capability for possible acceptance, if there is no other reason for rejection. The cost of such tests shall be borne by CONTRACTOR, and the nature, extent, and supervision of the tests will be as determined by ENGINEER. If the results of the tests indicate that the required functional capability of the Work, equipment, or material is not impaired, consistent with the final general appearance of same, the Work, equipment, or materials may be deemed substandard and shall be replaced by CONTRACTOR. CONTRACTOR may elect to replace the substandard work or material in lieu of performing the tests.

[END OF SECTION]

SECTION 01510

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. This section includes descriptions of temporary facilities and controls necessary for the Work.

B. Temporary facilities and controls that are addressed in this Section include:
   1. field office and telephone;
   2. temporary potable water service;
   3. temporary sanitary and first aid facilities;
   4. noise control;
   5. dust control;
   6. fire prevention control;
   7. pollution control;
   8. roads, access and parking areas;
   9. protection of personnel, Work, and property;
   10. temporary signs;
   11. temporary pumping;
   12. trucking;
   13. relocation or removals;
   14. CONTRACTOR's use of premises;
   15. security; and
   16. clean-up during construction.

1.02 FIELD OFFICE AND TELEPHONES

A. CONTRACTOR may, at its own discretion, provide a field office for its own use and for meetings with OWNER and ENGINEER. If provided, CONTRACTOR shall coordinate the location of the trailer with OWNER.

B. CONTRACTOR shall provide mobile telephone service to its superintendent for the purpose of contacting CONTRACTOR during the Project.

1.03 TEMPORARY POTABLE WATER SERVICE

A. CONTRACTOR shall make arrangements for supply of potable water to its employees during construction.

1.04 TEMPORARY SANITARY AND FIRST AID FACILITIES

A. CONTRACTOR shall provide temporary toilet accommodations and first aid supplies for workers on the Project, including all workers employed by subcontractors. Toilets shall be located in an area approved by OWNER and shall be maintained in a sanitary condition. Sanitary and first aid requirements include:
   1. Provide at least one unit for every 20 persons, or fraction thereof.
   2. Provide first aid stations at Work areas and in CONTRACTOR's field office.
   3. Post telephone numbers of emergency services and hospitals at conspicuous locations at the Site.
   4. Provide facilities and fixtures in compliance with OSHA regulations and all other applicable Federal, State, and local laws and regulations.
   5. Enforce proper use of sanitary facilities, including preventing the committing of nuisances in buildings on the Site. Employees who violate this rule shall be discharged. Dispose of all wastes in conformance with applicable regulations.

1.05 NOISE CONTROL

A. CONTRACTOR's vehicles and equipment shall be configured in a manner that minimizes noise to the greatest degree practicable. Noise levels shall conform to the latest OSHA standards and in no case shall noise levels be permitted to interfere with the Work of OWNER or others.

1.06 DUST CONTROL

A. CONTRACTOR shall be responsible for controlling objectionable dust caused by operation of vehicles and equipment, or any other activities within the Work area. CONTRACTOR shall keep dust in the air to a minimum. CONTRACTOR shall control dust by spraying water as described in the latest version of "*Maryland Erosion and Sediment Control Handbook*".

1.07 FIRE PREVENTION CONTROL

A. CONTRACTOR shall take all precautions necessary to prevent fires and explosions. CONTRACTOR is advised that flammable and explosive gases are naturally generated at landfills and may be present in and adjacent to the Work area.

B. Fuel for cutting and heating torches shall be contained in containers approved by the Underwriter's Laboratory.

C. CONTRACTOR shall furnish and maintain a 20-pound maximum capacity dry chemical type fire extinguisher in the immediate vicinity of the Work when welding tools or torches of any type are in use.

1.08 POLLUTION CONTROL

A. CONTRACTOR shall provide methods, means and facilities required to prevent contamination of soil, water, or atmosphere by discharges from construction operations.

B. CONTRACTOR shall provide the methods, means and facilities required to prevent contamination of soil, water, or atmosphere from discharges of waste, leachate, or landfill gas resulting from damage to existing structures and/or equipment by CONTRACTOR.

C. CONTRACTOR's equipment used during construction shall conform to current Federal, State, and local laws and regulations regarding pollution control.

1.09 ROADS, ACCESS AND PARKING AREAS

A. Use of existing site access roads will be permitted to CONTRACTOR's personnel who lawfully frequent the Project Site. CONTRACTOR's vehicles shall in all cases yield to waste hauling or other trucks or equipment when operating on Site access roads.

B. Existing roads shall be kept open by CONTRACTOR for the passage of vehicular traffic and pedestrians during the construction period unless otherwise approved by OWNER.

C. CONTRACTOR shall provide signs, signals, barricades, lights, and personnel to regulate all traffic and to warn vehicles and personnel of hazards. Routes of ingress and egress to the location of the Work shall be clearly marked by CONTRACTOR and approved by OWNER.

D. CONTRACTOR's personnel shall use only those parking areas designated for the Work. Storage of materials or parking of vehicles or equipment in areas not approved by OWNER is prohibited.

E. CONTRACTOR shall maintain storage and Work areas free of debris and obstructions.

1.10 PROTECTION OF PERSONNEL, WORK, AND PROPERTY

A. CONTRACTOR shall follow the requirements of the Health and Safety Plan.

B. CONTRACTOR shall protect all existing structures and utilities not marked for removal and shall make all necessary repairs at its own expense to same, where CONTRACTOR is required, to disturbed existing structures or utilities or existing structures or utilities become damaged from activities associated with the new construction Work.

C. CONTRACTOR shall provide equipment with proper safety devices as required by Federal, State, and local laws and regulations.

D. CONTRACTOR shall provide all scaffolding, staging, platforms, temporary flooring, railing, stairs, shoring, bracing, sheet, and fall protection, etc. for safe and proper execution of the Work as required by Federal, State, and local laws and regulations for the protection of personnel and the public. Temporary safety measures shall be removed when the Work is completed.

E. Any Work damaged by failure to provide the protection required shall be removed and replaced with new Work at CONTRACTOR's expense.

F. The location of any construction fencing, and areas for on-site storage of equipment and other facilities required by CONTRACTOR shall be subject to approval by OWNER and ENGINEER.

1.11 TEMPORARY SIGNS

A. No sign or advertisement shall be displayed without OWNER's approval. Should directional signs be required, such signs shall be of size, color, and lettering that meets ENGINEER's approval.

1.12 TEMPORARY PUMPING

A. CONTRACTOR shall install and maintain all necessary temporary drainage structures and shall perform temporary pumping as necessary to keep excavations and other areas within the limits of disturbance free from standing water and other liquids, regardless of the source.

B. Temporary stormwater management or dewatering activities proposed by CONTRACTOR shall be subject to ENGINEER's approval.

1.13 TRUCKING

A. All trucks bringing to or removing earth, loose materials, or debris from the Project Site shall be loaded in a manner to prevent dropping of materials on access roads or public streets.

B. Earth, loose materials, or debris deposited on the access roads or streets due to trucking activities shall be removed daily by CONTRACTOR, regardless of the source of the debris.

1.14 RELOCATION OR REMOVALS

A. Should a change in location of a temporary facility be necessary in order to continue progress of the Work, CONTRACTOR shall remove and relocate such items as directed without additional cost to OWNER.

B. CONTRACTOR shall remove temporary facilities when they are no longer required and restore permanent facilities to their original or better condition.

1.15 CONTRACTOR'S USE OF PREMISES

A. Areas for CONTRACTOR storage and execution of the Work is limited to areas in the immediate vicinity of the transfer station building. CONTRACTOR must obtain prior approval by OWNER for use of any other areas of the Site.

B. CONTRACTOR shall:
   1. not unreasonably encumber the Site with materials or equipment;
   2. not load or surcharge existing structures or other facilities with equipment or supplies having a weight that will endanger the integrity of the structures;
   3. assume full responsibility for protection and safekeeping of CONTRACTOR's equipment, products or materials stored on the premises;
   4. move any stored products or equipment that interferes with operations of OWNER or other contractors;
   5. coordinate and cooperate with other contractors on Site;
   6. not restrict access to the Site by others; and
   7. stockpile materials removed from excavations within the Work area as directed by OWNER.

1.16 SECURITY

A. CONTRACTOR shall protect completed Work, existing premises, and OWNER's operations against theft, vandalism, and unauthorized entry.

B. CONTRACTOR shall coordinate Project Site security with OWNER's existing security system.

C. CONTRACTOR shall restrict entrance of persons and vehicles into Project Site to only those working on the Project.

D. CONTRACTOR shall allow entrance only to authorized persons with proper identification.

1.17 CLEAN-UP DURING CONSTRUCTION

A. Clean-up shall be performed daily to prevent accidents to personnel, protect all Work in place, and to effect completion of the Work in an orderly manner. Trash containers or roll-off boxes shall be emptied promptly after becoming full. All construction debris must be placed in trash barrels or roll-off containers at the end of the working day.

B. Construction clean-up shall consist of the removal of all mud, oil, grease, sand, gravel, dirt, trash, scrap, debris, and excess materials, from any floor space, ground, or walking surface, that may cause the tripping or sliding of Workers, ladders, or equipment. Particular attention shall be given to the removal of water from areas where electrical power tools are to be used.

C. Burning of waste material is prohibited.

D. All waste materials disposed of at the Reichs Ford Road Landfill & Recycling Center must be trucked across the on-site scale facility for weighing prior to hauling to the working face.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

[END OF SECTION]

SECTION 01650

PRODUCT DELIVERY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Delivery of products shall be clearly labeled for this Project.

B. Prior notice shall be given to OWNER for product deliveries.

C. Products shall be stored in designated areas only.

D. CONTRACTOR is solely responsible to direct product deliveries to the appropriate location at the Site.

E. CONTRACTOR is solely responsible for unloading, storing, and protecting delivered materials.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

[END OF SECTION]

SECTION 01775

PROJECT CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 CLOSEOUT PROCEDURES

A. When CONTRACTOR considers the entire Work ready for its intended use, CONTRACTOR shall notify OWNER and ENGINEER in writing that the entire Work is substantially complete (except for items specifically listed by CONTRACTOR as incomplete) and request that ENGINEER issue a certificate of Substantial Completion. Within a reasonable time thereafter, OWNER, CONTRACTOR, and ENGINEER shall inspect the Work to determine the status of completion. If ENGINEER does not consider the Work substantially complete, ENGINEER will notify CONTRACTOR in writing giving the reasons for its decision. If ENGINEER considers the Work substantially complete, ENGINEER will prepare and deliver to OWNER a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected in order to reach Final Completion (e.g., a "Punch List").

1.02 FINAL CLEANING

A. Upon Substantial Completion of Work and prior to Final Completion, CONTRACTOR shall remove its equipment, signs, facilities, construction materials, and trash, and shall perform any other reasonable clean-up activities requested by OWNER and ENGINEER. All disturbed areas shall be revegetated or otherwise put into a condition satisfactory to OWNER and ENGINEER. Stabilization of disturbed areas shall be carried out in accordance with the Technical Specifications.

1.03 SUBSTANTIAL COMPLETION AND FINAL COMPLETION

A. The Work will be considered Substantially Complete based on ENGINEER's review of the Work to establish that all the components necessary to operate the repaired transfer station have been completed and are operational. The 28-day cure time for concrete, including concrete cylinder testing indicating satisfactory compressive strengths have been reached, must be complete prior to substantial completion.

B. Final Completion shall be reached when: (i) all CQC testing for soils, asphalt, steel, and concrete required for the Project have been completed and acceptable results have been obtained; and (ii) ENGINEER has completed final inspection of the Work and CONTRACTOR has completed all noted deficiencies from the Punch List to the

satisfaction of OWNER and ENGINEER; and (iii) CONTRACTOR has submitted red-line drawings indicating deviations between design and as-built conditions for the Work.

PART 2 PRODUCTS

Not used.

PART 3 EXECUTION

Not used.

[END OF SECTION]

SECTION 02055

STRUCTURAL FILL

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all labor, tools, supervision, transportation, and installation equipment necessary to place and compact structural fill as specified in this Section and as shown on the Drawings.

B. Structural fill described in this Section shall be used for construction of the asphalt access road and parking lot as described in Drawings.

C. CONTRACTOR shall be prepared to place and compact soil in conjunction with the construction of other components of the Work.

D. The Work of this Section shall include, but not necessarily be limited to:
   1. loading, transporting, placing, and compacting soil;
   2. laboratory pre-qualification of soil; and
   3. disposal of surplus soil.

E. Soil placed and compacted shall conform to the dimensions, lines, grades, and sections indicated on the Drawings.

F. CONTRACTOR is responsible for obtaining suitable Structural Fill.

G. CONTRACTOR shall perform the required laboratory CQC tests described in this Section.

1.02 SUBMITTALS

A. At least seven (7) days prior to starting structural fill placement and compaction, CONTRACTOR shall provide ENGINEER with prequalification laboratory test data as required by Part 2.01.B. As soon as the information is available, CONTRACTOR shall provide ENGINEER the results of field and laboratory tests performed on soil. Test reports of field tests are to be submitted by the following morning.

C. If Work is interrupted for reasons other than inclement weather, then CONTRACTOR shall notify ENGINEER a minimum of 24 hours prior to the resumption of Work.

PART 2 PRODUCTS

2.01 GENERAL

A. CONTRACTOR shall perform the following pre-qualification tests on structural fill that is proposed for use and shall provide the test results to ENGINEER and OWNER.
   1. Particle-Size Analysis, with hydrometer - ASTM D 422; and
   2. Atterberg Limits - ASTM D 4318

2.02 STRUCTURAL FILL

A. Structural fill shall consist of relatively homogeneous soil that is free of debris, foreign objects, roots, and organics.

B. Structural fill shall meet the Unified Soil Classification System (USCS) classification for GC, GM, SW, SP, SM, or combinations of these classifications (e.g. SP-SM), according to ASTM D 2487, and shall have a maximum plasticity index of 15, as determined in accordance with ASTM D 4318.

C. Structural fill shall have no particles larger than 4 in. in largest dimension.

2.03 EQUIPMENT

A. CONTRACTOR shall furnish, operate, and maintain grading equipment as is necessary to produce uniform layers, sections, and smoothness of grade for compaction.

B. CONTRACTOR shall furnish, operate and maintain compaction equipment as is necessary to produce the required in-place soil density and moisture content.

PART 3 EXECUTION

3.01 GENERAL

A. Upon demolition of a portion of the existing asphalt access road and parking lot, CONTRACTOR shall remove existing soil fill which is unsuitable due to debris or organics, exhibits excessive moisture, or is pumping. The final limits of soil removal shall be confirmed by ENGINEER prior to placing Structural Fill.

B. Structural Fill shall be placed and compacted to the lines and grades shown on the Drawings.

C. Structural Fill shall be placed only on dry, unfrozen subgrade surfaces.

D. Structural Fill shall be placed in loose lifts that result in a compacted lift thickness of 9 in. or less. Compaction shall be performed using a vibratory smooth-drum roller or

padded-foot compactors. Hand compaction of material shall be used in locations where larger compaction is inappropriate due to limited area.

E. Each soil lift shall be compacted using at least three passes of compaction equipment. A single pass is defined as traveling both forward and backward over a particular location. The compacted fill shall be firm and unyielding based on visual observation.

F. CONTRACTOR shall finish the Structural Fill surface with a smooth-drum roller to create a smooth surface, free from ruts or indentations, which will provide a uniform surface for geotextile placement.

3.02 FIELD QUALITY CONTROL

A. Defective Areas:
   1. If a defective area is discovered in the compacted soil, CONTRACTOR shall determine the extent and nature of the defect (i.e. poor compactor or pumping due to overly wet or dry soils, incomplete compaction, etc.).
   2. After the extent and nature of a defect has been determined, CONTRACTOR shall correct the deficiency to the satisfaction of ENGINEER. The cost of corrective actions shall be borne by CONTRACTOR.
   3. Additional observation will be performed by ENGINEER to verify that the defect has been corrected.

[END OF SECTION]

SECTION 02060

AGGREGATE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all labor, materials, tools, supervision, transportation, and installation equipment necessary for the supply and placement of aggregate as specified in this Section and as shown on the Drawings.

B. CONTRACTOR shall be prepared to place aggregate in conjunction with other components of the Work.

C. The Work of this Section shall include procurement, testing, and placement of all aggregate.

D. Aggregate placed shall conform to the dimensions, lines, grades, and sections indicated on the Drawings.

E. Aggregate described in this Section shall be used for construction of the paved access road and parking area indicated on the Drawings.

1.02 SUBMITTALS

A. At least ten (10) days prior to the delivery of any aggregate, CONTRACTOR shall provide ENGINEER the following information:
   1. the proposed source(s) for aggregate;
   2. the results of a grain-size analysis on the proposed aggregate performed in accordance with Section 901.01 of the MDOT Standards (2024) for graded aggregate base (GAB).

B. The tests identified in Part 1.02.A shall be carried out by CONTRACTOR's aggregate supplier for each proposed material source and type of aggregate.

PART 2 PRODUCTS

2.01 AGGREGATE

A. Aggregate shall conform to Section 901.01 of the MDOT Standards (2024) for graded aggregate base (GAB).

B. Existing aggregate from demolished areas of pavement may be reused with approval by OWNER or ENGINEER.

PART 3 EXECUTION

3.01 FAMILIARIZATION

A. Prior to placing any aggregate, CONTRACTOR shall carefully inspect the subgrade surface and verify that the surface is smooth, firm, and dry, and it is graded to an elevation that allows the necessary minimum thickness of aggregate and pavement to be installed.

3.02 INSTALLATION

A. Aggregate shall be placed and compacted to the lines and grades shown on the Drawings.

B. Aggregate shall be placed only on dry, unfrozen subgrade surfaces in a manner that does not displace the underlying geotextile separator.

C. Aggregate shall be placed in loose lifts that result in a compacted lift thickness of 9 in. or less. Compaction shall be performed using a vibratory smooth-drum roller. Hand compaction of material shall be used in locations where larger compaction is inappropriate due to limited area.

D. Each lift shall be compacted using at least three passes of compaction equipment. A single pass is defined as traveling both forward and backward over a particular location. The compacted aggregate shall be firm and unyielding based on visual observation.

3.03 PRODUCT PROTECTION

A. CONTRACTOR shall use all means necessary to protect all prior Work and materials and completed Work of other Sections.

[END OF SECTION]

SECTION 02071

GEOTEXTILE

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all geotextile, labor, incidental materials, tools, supervision, transportation, and installation equipment necessary for the installation of geotextile, as specified herein, and as shown on the Drawings.

B. CONTRACTOR shall obtain the geotextile from a Geotextile Manufacturer that has demonstrated experience with geotextile manufacturing.

C. CONTRACTOR shall install all geotextile and shall be responsible for field handling, storing, deploying, seaming or connecting, temporary restraining, anchoring, and other aspects of geotextile installation.

D. CONTRACTOR shall be prepared to install geotextile in conjunction with the other components of the project.

1.02 SUBMITTALS

A. At least 14 days prior to geotextiles being shipped, CONTRACTOR shall provide ENGINEER with the following documentation on the proposed geotextile:

1. Manufacturer and product name
2. Product cut sheets
3. Minimum property values of the proposed geotextile and corresponding test procedures

PART 2 PRODUCTS

2.01 GEOTEXTILE PROPERTIES

A. Unless otherwise noted on the Drawings, the Geotextile Manufacturer shall furnish materials whose “Minimum Average Roll Values”, as defined by the Federal Highway Administration (FHWA), meet or exceed the criteria specified in Table 02071-1.

2.02 PACKING AND LABELING

A. Geotextile shall be supplied by the Geotextile Manufacturer in rolls wrapped in relatively waterproof and opaque protective covers.

B. Geotextile rolls shall be marked or tagged with the following information:
   1. manufacturer's name;
   2. product identification;
   3. lot number;
   4. roll number; and
   5. roll dimensions.

C. Geotextile rolls which cannot be identified per 2.03.B because of missing or damaged labels will be removed from the job site and replaced at no additional expense to the OWNER.

2.03RESERVED2.04HANDLING AND STORAGE

A. CONTRACTOR shall be responsible for handling, unloading, storage, and care of the geotextile prior to, during, and following installation.

B. CONTRACTOR shall be responsible for storage of the geotextile at the Site after the material is delivered and shall protect the geotextile from moisture, long-term direct exposure to sunlight, puncture, or other damaging or deleterious conditions (e.g., mud, dirt, and dust). CONTRACTOR shall be responsible for any additional storage procedures required by the Geotextile Manufacturer.

PART 3 EXECUTION

3.02 PLACEMENT

A. The geotextile shall be handled and placed in such a manner as to ensure that it is not damaged.

B. Precautions shall be taken to prevent loosening or rutting of underlying soils or aggregate during placement of the geotextile.

C. Geotextile shall not be placed on saturated or frozen subgrade or in standing water.

3.03 SEAMS AND OVERLAP

A. Geotextile panels shall be overlapped a minimum of 3 in.

3.04 REPAIR

A. Any geotextile panels with holes or tears greater than 2 inches shall be removed and replaced.

3.05 MATERIALS IN CONTACT WITH GEOTEXTILE

A. CONTRACTOR shall place aggregate on top of geotextile such that:
   1. the geotextile and underlying materials are not damaged; and
   2. excess stresses are not induced in the geotextile.

B. Equipment shall not be driven directly on the geotextile.

TABLE 02071-1

REQUIRED WOVEN GEOTEXTILE PROPERTIES(1)

PROPERTIES	QUALIFIERS	UNITS	VALUE	TEST METHOD
Construction Type	---	---	Slit film woven	---
Mass Per Unit Area	Minimum	oz/yd^2	5.8 (NOM 6)	ASTM D 5261
Grab Tensile Strength	Minimum	lb.	315	ASTM D 4632
Wide Width Tensile Strength	Minimum	lb/in	300 x 350	ASTM D 4595
Trapezoidal Tear Strength	Minimum	lb.	120	ASTM D 4533
CBR Puncture Strength	Minimum	lb.	950	ASTM D 6241

Note:

1. All values represent minimum average roll values (i.e., any roll in a lot should meet or exceed these values).

[END OF SECTION]

SECTION 02740

ASPHALT PAVEMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all labor, materials, tools, supervision, transportation, installation equipment, and incidentals required to install asphalt pavement (base and surface course, including tack coats) as specified herein and as shown on the Drawings.

B. CONTRACTOR shall place and compact structural fill and subbase aggregate in conjunction with asphalt paving.

C. Asphalt paving shall conform to the lines, grades, and sections indicated on the Drawings.

1.02 SUBMITTALS

A. At least 14 days prior to installing asphalt concrete, CONTRACTOR shall provide ENGINEER with the asphalt pavement plant mix formula for each course specified. Mix formula shall include the following information:

1. Subbase aggregate: material source, gradation, and standard Proctor (ASTM D698)
2. Asphalt base and surface course: supplier and source of aggregate, gradation of asphalt concrete aggregate; percentage of asphalt, and maximum design density (ASTM D2950)

B. CONTRACTOR shall provide ENGINEER with certificates from the asphalt pavement producer stating the following materials comply with the Maryland Department of Transportation, State Highway Association (MDOT) Standard Specifications:

1. Aggregate for asphalt base course: Section 901, Table 901 C, 9.5 mm
2. Aggregate for asphalt surface course: Section 901, Table 901 C, 4.75 mm
3. Asphalt cement: Section 904.02

C. Submit laboratory reports required for approval of the sources for all materials.

PART 2 PRODUCTS

2.01 MATERIALS

A. Asphalt pavement shall conform to Section 904.04 of the MDOT Standard Specifications for Superpave and M323.

B. Tack coat: A tack coat conforming to Section 904.03 of the MDOT Standard Specifications shall be used. The tack coat shall consist of CSS-1-h asphalt (diluted with 50% water) meeting the requirements of AASHTO M 208.

C. Joint sealer and crack filler shall conform to Section 911.01 of the MDOT Standard Specifications. The manufacturers' recommendations regarding heating and pouring temperatures shall be used when installing joint and crack sealer. If a range of temperatures is recommended, the midpoint will be used as the pour point.

2.02 EQUIPMENT

A. Equipment used for hauling, placing, and compacting structural fill and subbase aggregate during asphalt pavement construction shall conform to the requirements of Section 02055.

B. Equipment used for mixing, hauling, placing, and compacting asphalt pavement shall conform to the requirements stated in Section 504.03.01 of the MDOT Standard Specifications.

PART 3 EXECUTION

3.01 FAMILIARIZATION

A. Prior to implementing any of the Work described in this Section, CONTRACTOR shall become thoroughly familiar with all portions of the Work falling within this Section.

3.02 SUBGRADE PREPARATION

A. For locations with existing asphalt base, cracks in the existing asphalt between 0.12 and 0.5 inches shall be filled with hot pour rubberized crack filler. Wider cracks shall be repaired with hot mix asphalt.

B. For locations without existing asphalt pavement base, subgrade shall be prepared using structural fill in accordance with Section 02055.

3.03 SUBBASE AGGREGATE PLACEMENT

A. Subbase aggregate placement and compaction shall conform to the requirements of Section 02060.

B. Where subbase aggregate is placed over existing asphalt, the existing asphalt shall first be perforated or broken up prior to placement of new subbase aggregate.

3.04 PLACEMENT OF ASPHALT PAVEMENT

A. Prior to placement of asphalt paving, apply tack coat in accordance with Section 504.03.04 of the MDOT Standard Specifications. Tack coat shall be applied only as far

in advance as the day's placement of asphalt pavement. Where conditions permit, hauling trucks shall not track the tack coat onto newly completed surface courses.

B. Placement of asphalt pavement shall conform to Section 504.03.05 through 504.03.09 of the MDOT Standard Specifications. Final in-place density of compacted asphalt shall be a minimum 93% of maximum density.

C. Weather restrictions: Asphalt pavement shall not be placed when the temperature of the surface on which it is placed is below 50^{o}F for plant mixed seal, 40^{o}F for asphalt pavement courses having a nominal depth of less than 1.5 inches, or 32^{o}F for asphalt pavement courses having a nominal depth greater than 1.5 inches.

D. After rolling asphalt pavement, do not permit vehicular traffic on the pavement until it has cooled and hardened.

[END OF SECTION]

SECTION 08330

ROLL-UP DOORS

PART 1 GENERAL

1.01 SCOPE OF WORK

A. CONTRACTOR shall furnish all labor, tools, supervision, transportation, and installation equipment necessary to install roll-up service doors as specified in this Section and as shown on the Drawings.

B. CONTRACTOR shall provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Secondary components may be provided from source acceptable to manufacturer of primary components. Products requiring electrical connection shall be listed and classified as suitable for purpose specified.

1.02 REFERENCES

A. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

1.03 QUALIFICATIONS

A. The roll-up door manufacturer shall be a company specializing in performing Work of this section with a minimum of five years' experience in the fabrication and installation of security closures.

B. The roll-up door installer shall be a company specializing in performing Work of this section with a minimum of three years' experience and approved by manufacturer.

1.04 SUBMITTALS

A. At least fourteen (14) days prior to procurement of the roll-up doors, CONTRACTOR shall provide ENGINEER the following information:

1. Manufacturer's data sheets on each product to be used;
2. Preparation instructions and recommendations;
3. Storage and handling requirements and recommendations;
4. Details of construction and fabrication;
5. Installation instructions;
6. Sample warranty;
7. Two complete sets of color chips representing manufacturer's full range of available colors and patterns for each finish product specified; and
8. Operation and maintenance data, including lubrication requirements and frequency and required periodic adjustments.

B. At least fourteen (14) days prior to delivery of the roll-up doors, CONTRACTOR shall provide ENGINEER the following information:

1. Shop drawings, including detailed plans, elevations, details of framing members, anchoring methods, required clearances, hardware, and accessories, with detail on the relationship with adjacent construction

2. Two samples, minimum size 6 inches long, representing actual product, color, and patterns, for each finish product specified

1.05 DELIVERY, STORAGE, AND HANDLING

A. CONTRACTOR shall be responsible for handling, storing, and caring for the products in manufacturer's unopened packaging until ready for installation.

B. CONTRACTOR shall be liable for all damages to the products incurred prior to and following installation, prior to final acceptance by OWNER and ENGINEER.

C. CONTRACTOR shall be responsible for storage of the materials from exposure to moisture. Do not deliver until after wet work is complete and dry. Materials shall be stored in a dry, warm, ventilated, weathertight condition.

D. CONTRACTOR shall be responsible to maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. CONTRACTOR shall not install products under environmental conditions outside manufacturer's absolute limits.

1.06 COORDINATION

A. CONTRACTOR shall coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.07 WARRANTY

A. CONTRACTOR shall provide a manufacturer’s limited door system warranty to be free from defects in materials and workmanship for 2 years for all parts and components.

B. CONTRACTOR shall provide a manufacturer’s warranty on the finish applied to door, guides, bottom bar, and headplates for 2 years.

PART 2 PRODUCTS

2.01 ROLL-UP SERVICE DOORS

A. Qualified manufacturers include:

1. Overhead Door Company

B. The roll-up service doors shall be heavy duty industrial, with a curtain formed of interlocking roll-formed curved slats made of 20-gauge galvanized steel. Endlocks shall be attached to each end of alternate slats to prevent lateral movement. The doors shall be provided with a width as needed to match the wall opening width shown on the Drawings.

C. The slats and hood shall be galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6

mils thick baked-on gray polyester topcoat. Non-galvanized exposed ferrous surfaces shall receive one coat of rust-inhibitive primer.

D. A vinyl bottom weatherseal shall be provided.

E. The bottom bar shall be constructed of two galvanized steel angles.

F. Guides shall be constructed of three structural steel angles.

G. Brackets shall be constructed of hot rolled prime painted steel to support counterbalance, curtain and hood.

H. The counterbalance shall be a helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. The counterbalance shall be adjustable by means of an adjusting tension wheel.

I. The hood shall be constructed of 24-gauge galvanized steel with intermediate supports as required.

J. The door system shall be installed with a 115/230 single phase, 60 Hz electric motor. The motor shall be a UL listed electric operator, with the size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second. The motor shall be installed with an electric sensing edge and a push-button operated control station with open, close, and stop buttons on the interior of the building. The controls shall be surface mounted.

K. The door system shall be installed with a chain hoist for manual operation.

L. The door system shall be designed by the manufacturer to support a wind load of 20 pounds per square foot.

M. The door assembly, including the electric operator, shall be designed to operate for not less than 20,000 cycles.

N. The door assembly shall be provided with chain keeper locks (for the chain hoist) and an interior slide block lock with interlock switch (for electric operation).

PART 3 EXECUTION

3.01 EXAMINATION

A. CONTRACTOR shall verify opening sizes, tolerances, and conditions are acceptable.

B. CONTRACTOR shall examine the condition of substrates, supports, and other conditions under which this work is to be performed. If any non-conforming conditions are noted, ENGINEER shall be immediately notified.

3.02 PREPARATION

A. CONTRACTOR shall clean surfaces thoroughly prior to installation.

B. CONTRACTOR shall prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

A. CONTRACTOR shall install doors in accordance with manufacturer's instructions.

B. CONTRACTOR shall use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. CONTRACTOR shall install permanent replacement metal rod cross-bracing and associated components prior to removing existing metal rod cross-bracing.

D. CONTRACTOR shall securely and rigidly brace components suspended from structure. Guides shall be secured only to structural members.

E. CONTRACTOR shall fit and align assembly including hardware. Assembly shall be level and plumb to provide smooth operation.

F. CONTRACTOR shall coordinate installation of electrical service. Complete wiring from disconnect to unit components.

G. CONTRACTOR shall install perimeter trim and closures.

H. CONTRACTOR shall instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.04 ADJUSTING

A. CONTRACTOR shall test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. CONTRACTOR shall adjust hardware and operating assemblies for smooth and noiseless operation.

3.05 CLEANING

A. CONTRACTOR shall clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. CONTRACTOR shall remove labels and visible markings.

C. CONTRACTOR shall touch up, repair or replace damaged products before Substantial Completion.

3.06 PROTECTION OF WORK

A. CONTRACTOR shall protect installed products until completion of project.

[END OF SECTION]

SECTION 051200

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SUMMARY OF WORK

A. Section includes:
12. Structural steel; and
13. Grout.

1.02 DEFINITIONS

A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.03 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show fabrication of structural-steel components.
1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.

C. If requested by the design team, Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide according to AWS D1.1/D1.1M, "Structural Welding Code - Steel," for each welded joint whether prequalified or qualified by testing.

1.04 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and Fabricator.

B. Welding certificates.

C. Mill test reports for structural steel, including chemical and physical properties.

D. Product Test Reports for the following:

1. Bolts, nuts and washers;

2. Shop primers; and
3. Non-shrink grout.

E. Source quality-control reports.

F. Field quality-control and special inspection reports.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).

1. Alternately, Contractor Option: Comply with the following procedures instead of engaging an AISC-Certified Plant:
   a. Demonstrate that the fabricator has in place a quality control program for meeting IBC requirements and compliance with AISC recommendations and standards.
   b. Provide certified shop inspection reports signed by the fabricator and an independent inspection agency indicating that the steel, as fabricated, complies with requirements of Contract Documents.
2. Provide documentation that fabricator has provided material for and erected at least 3 projects within 15 percent of project size and complexity, in the last 5 years.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

C. Comply with applicable provisions of the following specifications and documents:

1. AISC 360.
2. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

PART 2 PRODUCTS

2.01 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: ASTM A 992 or ASTM A 572, Grade 50.

B. Channels, Angles, S-Shapes: ASTM A 36.

C. Plate and Bar: ASTM A 36 typical; Where noted provide ASTM A 572,Grade 50.

D. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.

E. Welding Electrodes: Comply with AWS requirements.

2.02 BOLTS, CONNECTORS, AND ANCHORS

A. High-Strength Bolts, Nuts, and Washers: ASTM A 325, Type 1, heavy-hex steel structural bolts; ASTM A 563, Grade C, heavy-hex carbon-steel nuts; and ASTM F 436, Type 1, hardened carbon-steel washers; all with plain finish.
   1. Direct-Tension Indicators: ASTM F 959, Type 325, compressible-washer type with plain finish.
   2. At connections exposed to weather, provide Zinc-Coated High-Strength Bolts, Nuts, and Washers: Finish: Hot-dip or mechanically deposited zinc coating.

B. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, heavy-hex or round head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
   1. Finish: Plain typical.
   2. At connections exposed to weather, provide Mechanically deposited zinc coating.

C. Headed or Unheaded Anchor Rods: ASTM F 1554, Grade 36 unless noted otherwise.
   1. Configuration: Straight.
   2. Finish: Plain.

D. Threaded Rods: ASTM A 36.
   1. Finish: Plain unless noted otherwise on drawings.

2.03 PRIMER

A. For steel exposed to view and to receive top coat, Primer to comply with Select one of the following after verifying compatibility with top coat paint:
   1. SSPC-Paint 25, zinc oxide, alkyd, linseed oil primer; or
   2. Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79.

B. Primer for all other steel: SSPC-Paint 25, zinc oxide, alkyd, linseed oil primer.

2.04 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.05 FABRICATION

A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," and to AISC 360.
   1. Fabricate beams with rolling camber up.

2. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.

B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.

C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.

D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.

E. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.

1. Cut, drill, or punch holes perpendicular to steel surfaces.
2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.06 SHOP CONNECTIONS

A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened.

B. Weld Connections: Comply with AWS D1.1 and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.07 SHOP PRIMING

A. Shop prime steel surfaces except the following:

1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
2. Surfaces to be field welded.
3. Surfaces of high-strength bolted, slip-critical connections.
4. Galvanized surfaces.

B. Surface Preparation: Clean surfaces to be painted. Remove loose rust and mill scale and spatter, slag, or flux deposits. Prepare surfaces according to the following specifications and standards:
   1. SSPC-SP 2, "Hand Tool Cleaning."
C. Priming: Immediately after surface preparation, apply primer according to manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of 1.5 mils. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.

2.08 GALVANIZING

A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123.
   1. Fill vent and drain holes that are exposed in the finished Work unless they function as weep holes, by plugging with zinc solder and filing off smooth.
   2. Galvanize all steel exposed to weather.

2.09 SOURCE QUALITY CONTROL

A. Testing Agency: Owner qualified testing agency to perform shop tests and inspections.

1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

B. Bolted Connections: Inspect shop-bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

C. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1 and the following inspection procedures, at testing agency's option:

1. Liquid Penetrant Inspection: ASTM E 165.
2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
3. Ultrasonic Inspection: ASTM E 164.
4. Radiographic Inspection: ASTM E 94.

D. Prepare test and inspection reports.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ERECTION

A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when

permanent structural steel, connections, and bracing are in place unless otherwise indicated.

B. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.

C. Baseplates, Bearing Plates and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.

1. Set plates for structural members on wedges, shims, or setting nuts as required.
2. Weld plate washers to top of baseplate.
3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
4. Promptly pack grout solidly between bearing surfaces and plates so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for shrinkage-resistant grouts.

D. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

3.03 FIELD CONNECTIONS

A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.

1. Joint Type: Snug tightened typical; use Slip critical only at connections indicated on the structural drawings.

B. Weld Connections: Comply with AWS D1.1 and AWS D1.8 for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
2. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303, "Code of Standard Practice for Steel Buildings and Bridges," for mill material.

3.04 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Verify structural-steel materials and inspect steel frame joint details.
2. Verify weld materials and inspect welds.
3. Verify connection materials and inspect high-strength bolted connections.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Bolted Connections: Inspect bolted connections according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

D. Welded Connections: Visually inspect field welds according to AWS D1.1/D1.1M.

1. In addition to visual inspection, test and inspect field welds according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
   a. Liquid Penetrant Inspection: ASTM E 165.
   b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
   c. Ultrasonic Inspection: ASTM E 164.
   d. Radiographic Inspection: ASTM E 94.

3.04 REPAIRS AND PROTECTION

A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780.

B. Touchup Painting: Immediately after erection, clean exposed areas where primer is damaged or missing and paint with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

[END OF SECTION]