

SPOKANE TRANSIT AUTHORITY

**Plaza HPT Platforms – Phase 2 (Riverside Ave
and Wall Street)**

PROJECT #2019-10434



PROJECT MANUAL

BID SET

April 13, 2020

Prepared By:



10 NORTH POST STREET, SUITE 500
SPOKANE, WA 99201
509.328.2994

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ADVERTISEMENT FOR BIDS

Sealed bid proposals will be accepted for the following project:

PROJECT NO.: 2019-10434

TITLE: Plaza HPT Platforms – Phase 2 (Riverside Ave and Wall St)

AGENCY: Spokane Transit Authority

PROJECT MANAGER: Robert Bielaski, Project Manager

PRE-BID MEETING: **9:00 A.M., Tuesday, April 21, 2020 Spokane Transit Authority (Owner)**
701 W. Riverside Ave, Spokane, WA 99201
Meeting Location: Southwest Corner of Riverside Ave and Wall St

All distancing requirements and other recommendations/guidance from the CDC and SRHD will be enforced

PUBLIC BID OPENING: **3:00 P.M., Thursday, May 7, 2020**
Spokane Transit Authority (Owner)
1230 W Boone Avenue, Spokane, WA 99201

Contractors may obtain electronic copies of plans and specifications from the Project Manager, Robert Bielaski by phone at (509)344-1868 or email at rbielaski@spokanetransit.com. Plans and specifications may also be viewed at several local plan centers.

The minimum prevailing wage provisions for Washington State law apply to this locally funded project.

Use of DBE/MBE/WBE/MWBE contractors and suppliers is encouraged but not mandatory. Contractors submitting bids may contact the Washington State Office of Minority and Women's Business Enterprise to obtain information on certified firms.

The Owner reserves the right to reject or accept any or all bids and to waive minor informalities in the process. No contractor submitting may withdraw his or her bids after hour set for opening thereof unless contract award is delayed for a period exceeding ninety (90) days.

STA is an Equal Employment Opportunity (EEO) organization which does not discriminate against any prospective supplier on the basis of race, color, creed, national origin, sex, sexual orientation, gender identity, or presence of any sensory, mental, or physical disability in the consideration of contract award. The successful proposer will be required to comply with all EEO federal, state, and local laws and regulations.

Spokane Transit assures nondiscrimination in accordance with Title VI of the Civil Rights Act of 1964. For more information, see www.spokanetransit.com.

Upon request, alternative formats of this information will be produced for people who are disabled. The meeting facility is accessible for people using wheelchairs. For other accommodations, please call (509) 325-6094 (TTY WA Relay 711) or email ombudsman@spokanetransit.com at least forty-eight (48) hours in advance.

SECTION 002100 – INSTRUCTIONS TO BIDDERS

DEFINITIONS

- A. **Addenda** are written or graphic instruments, approved and issued by the Owner prior to the time designated for opening of bids, which amend, modify or interpret the solicitation documents by identifying additions, deletions, clarifications or corrections.
- B. **Alternate** or **Alternate Bid** is the amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in project scope or materials or methods of construction described in the solicitation documents is accepted.
- C. **Architect, Engineer** or **A/E** means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.
- D. **Base Bid** is the sum stated in the Bid for which the Bidder offers to perform the work described as the Base, to which work may be added or deducted from sums stated in Alternate Bids (if any).
- E. **Bid** is the submission of a complete and properly signed Bid Proposal Form together with a bid guarantee, when applicable, and the certifications and representations required to comply with this solicitation.
- F. **Bidder** is one who submits a Bid for a Contract with the Owner for the Work described in the construction documents.
- G. **Bid Proposal Form** is the form provided in Section 004213 of this solicitation.
- H. **Contract** is the formal written executed agreement between Owner and Contractor authorizing Contractor to perform the Work in accordance with the Contract Documents.
- I. **Contractor** is the Bidder who has been awarded a Contract to perform the Work in accordance with the Contract Documents.
- J. **Contract Documents** means the Advertisement for Bids, Instructions to Bidders, executed Bid Proposal Form and Bidder certifications, Contract, General Conditions, Modifications to the General Conditions, Supplemental Conditions, Federal Terms & Conditions, Drawings, Specifications, any addenda and/or modifications thereof, any or all supporting documentation required by the above, special forms, or as requested by Owner.
- K. **Federal Assistance** means project funding provided, in whole or in part, by the US Department of Transportation, Federal Transit Administration (“FTA”).
- L. **Non-responsive Bid** means any Bid which fails to conform in all respects to the material requirements of this solicitation, imposes conditions which would modify requirements of this solicitation, or would limit a Bidder's liability to the Owner so as to give the Bidder an advantage over other Bidders as determined by the Owner.
- M. **Owner** means the Spokane Transit Authority, “STA” or its authorized representative with the authority to enter into, administer and/or terminate the Work in accordance with the Contract Documents, and make related determinations and findings.
- N. **Responsible Bidder** means a contractor who meets the criteria listed in RCW 39.04.350.
- O. **Unit Price** is an amount stated in the Bid as a price per unit of measurement or materials or services as described in the construction documents as defined in the General Conditions of the Contract.

PART 1 - GENERAL

1.1 INTRODUCTION

- A. Scope of Work. The general description and scope of work for the project can be found in Section 003100 of this solicitation.
- B. Schedule. Work may begin when the Contractor receives a formal “Notice to Proceed.” Contractor shall proceed with promptness. **Work shall not begin before June 29, 2020 and must be substantially complete on or before September 11, 2020.**
- C. Liquidated Damages. The Contractor agrees to pay to STA liquidated damages in the amount of \$390.00 for each day the Contractor fails to provide services or respond to an STA request for services hereinafter provided. These liquidated damages are for the purpose of any delay or impact caused to STA by virtue of the Contractor’s acts or omissions and do not cover any other actual or consequential damages other than delay. STA and the Contractor agree that such damage cannot be reasonably determined at this time. Such damages are very difficult to accurately estimate because of numerous factors, including, but not limited to inconvenience to STA. Further, the parties agree this is a reasonable forecast of all factors now known and available for consideration relating to the delay caused by failure to perform. Liquidated damages shall be deducted from the contract by change order.
- D. Public Records. Materials submitted in response to this competitive procurement shall become the property of Spokane Transit Authority. All received Bids shall be deemed public records as defined in Chapter 42.56 RCW *Public Records Act*. Any information in the Bid that the Bidder desires to claim as confidential and exempt from disclosure under the provisions of state law shall be clearly designated as “Confidential”. Each page claimed to be exempt from disclosure must be clearly identified by the word “Confidential” printed on it. Marking the entire Bid exempt from disclosure will not be honored. STA will consider a Bidder’s request for exemption from disclosure; however, STA will make a decision predicated upon state law and regulations. If any information is marked as Confidential in the Bid, it will not be made available until the affected Bidder has been given a reasonable opportunity to seek a court injunction against the requested disclosure. STA assumes no liability for disclosure of Confidential material submitted by Bidders. Bid submittals shall be considered public documents under applicable Washington state law and shall be available for inspection and copying by the public, except to the extent portions of the submittals are otherwise protected under applicable law. Each Bidder will be responsible for protecting any disclosure of its submittal under applicable law.
- E. Request for Information. Any prospective Bidder desiring an explanation or interpretation of this solicitation, drawings, specifications, etc., must submit a request in writing to the Owners representative seven (7) calendar days before the bid due date. Oral explanations or instructions given before the award of Contract will not be binding. Any information given a prospective Bidder concerning a solicitation will be furnished promptly to all other prospective Bidders by addendum to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective Bidders.

- F. Disadvantaged Business Enterprise. STA is committed to ensuring that all firms regardless of race, color, sex or national origin have equal opportunity to participate in STA contracts. Therefore, STA has established an annual agency goal for Disadvantaged Business Enterprise (DBE) participation in its contracting opportunities. In accordance with the legislative findings and policies set forth in Chapter 39.19 RCW, STA encourages participation in all of its contracts by Minority Business Enterprises (MBE), Women Owned Business Enterprise (WBE), and Minority Women Owned Business Enterprise (MWBE) firms certified by the Office of Minority and Women’s Business Enterprises (OMWBE). Participation may be either on a direct basis in response to this solicitation or as a subcontractor to a contractor submitting bids. However, unless required by federal statutes, regulations, grants or contract terms referenced in the Contract Documents, no preference will be included in the evaluation of Bids, no minimum level of DBE/MBE/WBE/MWBE participation shall be required as a condition for receiving an award, and Bids will not be rejected or considered non-responsive on that basis. Any affirmative action requirements set forth in federal regulations or statutes included or referenced in the Contract Documents will apply.

1.2 PREPARATION OF BIDS – CONSTRUCTION

- A. Bids must be: (1) submitted on the Bid Proposal Form, or copies thereof, furnished by Owner or Owner’s agent, and (2) signed in ink. The person signing a Bid must initial each change appearing on any Bid Proposal Form. If the Bid is made by a corporation, it shall be signed by the corporation’s authorized designee. The address of the Bidder shall be typed or printed on the bid form in the space provided.
- B. The Bid Proposal Form may require Bidders to submit bid prices for one or more items on a varying basis, including: (1) lump sum base bid; (2) lump sum bid alternate prices; (3) unit prices; or (4) any combination of items 1 through 3 above.
- C. If the solicitation includes alternate bid items, failure to provide a price on any Alternates may disqualify the Bid. If bidding on all items is not required, Bidders should insert the words “No Bid” in the space provided for any item on which no price is submitted.
- D. Substitute bid proposals will not be considered unless this solicitation authorizes their submission.

1.3 BID PRICES

- A. The bid prices shown for each item on the Bid Proposal Form shall include all labor, material, equipment, overhead and compensation to complete all of the work for that item.
- B. The actual cost of building permit (only) and the public utility hookup fees will be a direct reimbursement to the Contractor or paid directly to the permitting agency by the Owner. Fees for these permits should not be included by the Bidder in the bid amount.
- C. The Bidder agrees to hold all Bid prices for ninety (90) days from date of bid opening.

1.4 ADDITIVE OR DEDUCTIVE BID ITEMS

- A. The low Bidder, for purposes of award, shall be the responsive Bidder offering the low aggregate amount for the Base Bid, plus Alternates selected by the Owner, and within funds available for the project.
- B. The Bidder agrees to hold all Alternate prices for ninety (90) days from date of bid opening.

1.5 TAXES – RULE 171

- A. This project qualifies as “public road construction” as described in Rule 171, WAC 458-20-171, and therefore only materials used or consumed by Contractor will be subject to Washington State sales tax. The Contractor’s charges for labor, profit, overhead, etc., to STA are not subject to retail sales tax.

The Contractor shall pay all taxes, including sales tax, for the work or portions thereof provided by the Contractor and these taxes shall be included in the Contract amount.

State of Washington sales tax is payable on the “selling price” or “gross proceeds of sale” of the “tangible personal property” as these terms are defined in WAC 458-20-107 (Rule 107) except as excluded by WAC 458-20-171 (Rule 171).

Contractors are advised that they are considered the end consumers of all material, including prefabricated and pre-cast items, equipment and supplies used or consumed by them in performing the work, and must pay any applicable retail sales tax/use tax to their material men and suppliers. In order to maximize the sales tax exemption. Contractors are encouraged to have all material delivered to the job site for consumption. Work performed away from the job site should be minimized in order to maximize the sales tax exemption. If the Contractor has questions about the application of Rule 171, the Contractor is advised to contact the Department of Revenue. However, any such communications must be communicated to STA’s Director of Finance, prior to making contact with the Department of Revenue.

The Contract Amount must include labor, overhead, profit and applicable sales tax on materials, pursuant to Washington State Department of Revenue Rule 171. Contractors are cautioned against paying sales tax more than once on materials used or consumed, such as by paying sales tax to material men or suppliers, and again remitting sales tax to the state on total costs.

All applicable taxes which the Contractors are required to pay, including retail sales/use tax as specified above, shall be included by them in their proposed prices for the work under their proposal. No adjustment will be made in the amount to be paid by STA under the contract because of any misunderstanding by or lack of knowledge of the bidder/contractor as to their liability for, or the amount of any taxes or because of any increases in tax rates imposed by any federal, state or local government

- B. NOTE: Contractor must bond for total contract amount.

1.6 BID GUARANTEE

- A. When the sum of the Base Bid plus all Alternates is \$35,000.00 or less, a bid guarantee is not required. When the sum of the Base Bid plus all Alternates is greater than \$35,000.00, a bid guarantee in the

amount of five percent (5%) of the Base Bid amount is required. Failure of the Bidder to provide a bid guarantee when required shall render the Bid non-responsive.

- B. Acceptable forms of bid guarantee are: A bid bond, U. S. postal money order, or certified check or cashier's check made payable to Spokane Transit Authority. The Owner will return bid guarantees (other than bid bond) to unsuccessful Bidders as soon as practicable, but not sooner than the execution of a contract with the successful Bidder. The bid guarantee of the successful Bidder will be returned to the successful Bidder with its official notice to proceed with the Work.
- C. The Bidder will allow ninety (90) days from the bid opening date for acceptance of its Bid by the Owner. The Bidder will return to Owner a signed Contract, insurance certificate and requisite bond(s) or bond waiver within fifteen (15) days after receipt of the Contract. If the apparent successful Bidder fails to sign all contract documents, provide the bond and insurance as required, or return the documents within fifteen (15) days after receipt of the Contract, the Owner may terminate the award of the Contract.
- D. In the event a Bidder discovers an error in its Bid following the bid opening, the Bidder may request to withdraw its Bid under the following conditions:
 - 1. Written notification is received by the Owner within twenty-four (24) hours following bid opening.
 - 2. The Bidder provides written documentation of the claimed error to the satisfaction of the Owner within seventy-two (72) hours following the bid opening.

The Owner will approve or disapprove the request for withdrawal of the Bid in writing. If the Bidder's request for withdrawal of its Bid is approved, the Bidder will be released from further obligation to the Owner without penalty. If it is disapproved, the Owner may retain the Bidder's bid guarantee.

1.7 ACKNOWLEDGEMENT OF ADDENDA

Bidders shall acknowledge receipt of all addenda to this solicitation by identifying the addenda numbers in the space provided for this purpose on the Bid Proposal Form. Failure to do so may result in the bid being declared non-responsive.

1.8 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK

- A. The Bidder acknowledges that it has taken steps necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling and storage of materials; (2) the availability of labor, water, electric power and road; (3) uncertainties of weather, river stages, tides or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during the work. The Bidder also acknowledges that it has satisfied itself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner, as well as from the drawings and specifications made a part of this solicitation. Any failure of the Bidder to take the actions described and acknowledged in this

paragraph will not relieve the Bidder from responsibility for estimating properly the difficulty and cost of successfully performing the work.

- B. If Bidder is unable to attend the scheduled pre-bid meeting, please contact STA to arrange a separate site visit. Bids submitted by Bidders that have not either attended a pre-bid meeting or inspected the sites in the presence of STA staff may be considered non-responsive.

1.9 PREVAILING WAGE

- A. The Work for this project constitutes a public work under RCW 39.04 *Public Works*. In accordance with RCW 39.12 *Prevailing Wages on Public Works*, the Contractor shall pay the highest prevailing wage rate by trade or occupation as specified by the State of Washington, Department of Labor and Industries.

1.10 SUBMISSION OF BIDS

- A. Bids must be submitted on or before the time specified in the Advertisement for Bids or as extended by written addenda to this solicitation.
- B. Bids shall be submitted in a sealed envelope addressed to the office specified in the Advertisement for Bids. Oral, telephonic, electronic or facsimile bids are invalid and will not receive consideration. The envelope shall have printed on the outside:
 - 1. The project number and description.
 - 2. The name and address of the Bidder.
 - 3. Identification as Bid Proposal.
- C. Prior to the bid opening, the Owner's representative will designate the official bid clock. Any part of the Bid or Bid modification not received prior to the times specified, per the designated bid clock, will not be considered and the Bid will be returned to the Bidder unopened.
- D. A Bid may be withdrawn in person by the authorized representative of the Bidder before bid opening. The representative of the Bidder will be required to show ID and sign the bid summary sheet before the Bid will be released to Bidder.
- E. Individuals with disabilities who wish to request special accommodation, (e.g., sign language interpreters, Braille, etc.) need to contact the Owner ten (10) working days prior to the scheduled bid opening.

1.11 CONSIDERATION OF BIDS

- A. Owner shall have the right to reject any or all Bids, to reject Bids considered non-responsive, including but not limited to, Bids not accompanied by any required bid guarantee, Bidder certifications or data required by the solicitation, or a Bid not signed by the Bidder's authorized representative.

- B. The Owner shall have the right to waive any informality or irregularity in any Bid received.
- C. In the event that a single Bid is received, Owner will conduct a cost/price analysis of the Bid. This analysis will compare the price and quality of the proposed equipment with that involved in recent similar purchases with similar specifications made by this or other governmental agencies in an attempt to determine the competitive integrity of the submitted Bid.

1.12 BID RESULTS

After the bid opening, Bidders may obtain bid results from the Owner.

1.13 RESPONSIBLE BIDDER

- A. To be considered a “Responsible Bidder”, at the time of Bid submittal, Bidders must meet all requirements specified in Section 004512 *Bidder Responsibility Criteria*.
- B. Supplemental Responsibility Criteria: In addition to the mandatory Bidder responsibility criteria, the Owner may adopt relevant supplemental criteria for determining Bidder responsibility applicable to a project which the Bidder must meet. Where applicable, such supplemental criteria shall be attached to this solicitation.
 - 1. At least seven (7) days prior to the bid submittal deadline, a potential Bidder may request the Owner modify the supplemental responsibility criteria. The Owner will evaluate the information submitted by the potential Bidder and respond before the Bid submittal deadline. If the evaluation results in a change of the supplemental responsibility criteria, the Owner will issue an addendum to this solicitation identifying the new and/or modified criteria.
 - 2. Upon Owner’s request, the apparent low Bidder must supply the requested responsibility information within two (2) business days of request by Owner. Withholding information or failure to submit all the information requested within the time provided may render the Bid non-responsive.
 - 3. Upon request of the Owner, a Bidder whose Bid is under consideration for award of Contract shall submit promptly satisfactory evidence of his/her financial resources, experience, organization, and equipment available for performance of the Contract on AIA Form A305 “Contractor’s Qualification Statement” or similar form approved by the Owner.
- C. Not-responsible Bidder Notification.
 - 1. If the Owner determines that the apparent low Bidder is not responsible, the Owner will notify the Bidder of its preliminary determination in writing.
 - 2. Within three (3) days after receipt of the preliminary determination, the Bidder may withdraw its Bid or request a hearing where the Bidder may appeal the preliminary determination and present additional information to the Owner.
 - 3. The Owner will schedule a hearing within three (3) working days of receipt of the Bidder’s request. The hearing members will include a STA Executive or their designee, and Project Manager.

4. The Owner will issue a final determination after reviewing information presented at the hearing.
5. If the Owner determines a Bidder to be not responsible, the Owner will provide, in writing, the reasons for the determination. If the final determination affirms that the Bidder is not responsible, the Owner will not execute a Contract with any other responsible Bidder until two (2) business days following submittal of the final determination to the not responsible Bidder.
6. The Owner's final determination is specific to this project and will have no effect on other or future projects.

1.14 CONTRACT AWARD

- A. The Owner will evaluate Bid responsiveness and responsibility.
 1. A Bid will be considered responsive if it meets the following requirements:
 - a. It is received at the proper time and place.
 - b. It meets the stated requirements of this solicitation.
 - c. It is accompanied by a bid guarantee, when required.
 2. A Bid will be considered responsible if it meets the following requirements:
 - a. It is submitted by a licensed/registered contractor within the state of Washington at the time of bid opening and is not banned from bidding on Public Works projects as determined by the Department of Labor and Industries; and
 - b. It meets the mandatory responsibility criteria established in RCW 39.04.350 for prime contractors and subcontractors and an overall accounting of the supplemental responsibility criteria established for the project.
- B. The Owner reserves the right to accept or reject any or all Bids and to waive informalities.
- C. The Owner may negotiate Bid price adjustments with the low responsive Bidder, including changes in the Contract Documents, to bring the Bid within the available funding per RCW 39.04.015.
- D. The apparent low Bidder, for purpose of award, shall be the responsive and responsible Bidder offering the low aggregate amount for the Base Bid plus selected Alternates and meeting all other bid submittal requirements.
- E. The Contract will only become effective when signed by the Owner. Prior to the Owner's signature, any and all costs incurred shall be the sole responsibility of the Bidder.
- F. The Contractor must purchase and maintain insurance coverages as stated in Section 007200.1 *General Conditions*.
- G. Note: AIA Payment Bond and Performance Bond forms (A312) are required. These forms will not be provided by the Owner.

1.15 CONTRACT DOCUMENTS

- A. The Contract Documents under which it is proposed to execute this work consists of all material bound herein, plus any addenda incorporated into the documents.
- B. The Contract Documents are intended to be mutually cooperative and to provide all details reasonably required for the execution of the Work. Any person contemplating the submission of a Bid shall have thoroughly examined all of the various parts of the Contract Documents, and should there be any doubt as to the meaning or intent of the Contract Documents, the Bidder should request in writing to the A/E at least seven (7) working days prior to bid opening, an interpretation thereof. Any interpretation or change in the Contract Documents will be made only in writing, in the form of an addendum to the Contract Documents and will be furnished to all prospective Bidders receiving a set of documents, who shall indicate receipt of same in the space provided on the Bid Proposal Form. The Owner will not be responsible for any other explanation or interpretation of said documents.

1.16 DISCREPANCIES & CONTRACT DOCUMENT REVIEW

- A. The intent of the Project Contract Documents is to describe a complete Project. These Contract Documents are complimentary. What is required by one part of the Contract Documents shall be binding as if required by all.
- B. In the event of a discrepancy between Project Contract Documents, the Contractor will use the Contract Document that imparts the highest cost to their Bid and/or longest delay in their schedule. It is the responsibility of the Contractor to bring these discrepancies to the attention of the Owner representative as soon as they are discovered.

1.17 PROTEST PROCEDURES

STA maintains a set of protest procedures. If any Bidder desires this information, it may be obtained by calling Jacqueline Tjards, Purchasing Manager, at (509) 325-6032.

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION (Not used)

END OF SECTION 002100

SECTION 003100 – STA PROJECT DESCRIPTION AND SCOPE OF WORK

PROJECT DESCRIPTION

This locally funded public works project consists of re-constructing the curb and sidewalk along Zones 4 and 5 of the STA Plaza on Riverside Avenue and Wall Street. These improvements will include traffic control, demolition, installation of conduit, and construction of footings, curblines, and sidewalk. Work also includes demolition of several zone marker signs around the perimeter of the Plaza, installation of conduit and footings for new zone markers, and extending communication and electrical wiring from inside the Plaza to handhole locations.

Project Location: STA Plaza – 701 W. Riverside Ave in Spokane, WA

Schedule: Work may begin when the Contractor receives a formal “Notice to Proceed.” Contractor shall proceed with promptness and dispatch and shall be substantially complete on or before September 11, 2020. Notice to Proceed is expected to be given during the week beginning June 29, 2020.

Exclusions: Property corner survey & marking, locks for each gate, and signage.

PROJECT GENERAL SCOPE OF WORK

The work shall generally consist of however is not limited to the following:

1. Mark and call for public utility locates.
2. Obtain and pay for all required fees and permitting for each jurisdiction.
3. Establish and maintain jobsites safety, security and traffic control measures.
4. Establish and maintain temporary erosion control measures.
5. Perform work as detailed by plans and specifications.
6. Record all “as-built” information for delivery to Agency as required for final closeout

All work shall meet/exceed all codes, utility locating, rules and regulations, as set forth by the City, County and State of Washington. Contractor shall perform work in accordance with the Washington State Department of Labor and Industries Safety Standards.

Contractor is responsible for the supply of all equipment, materials, and labor necessary to complete the project. Contractor shall be responsible for the removal of all trash and waste materials from this project. Damages resulting from Contractor negligence shall be repaired immediately at no cost to STA. The Contractor shall take all precautions necessary to protect private property and the public during the construction period.

All work will be subject to inspection and acceptance by STA’s project manager or designee prior to payment.

STA reserves the right to increase or decrease the amount of related services listed in the scope of work for a fairly negotiated price.

END OF SECTION 003100

SECTION 004200 STA BID SUBMITTAL CHECKLIST

BID CHECKLIST- 2019-10434 Plaza HPT Platforms – Phase 2 (Riverside Ave and Wall St)

To be ***included with*** Bid Proposal Form when you submit your Bid. Failure of the contractor submitting a bid to submit these forms with the bid shall render the bid non-responsive and shall be grounds for rejection of said bid.

Check off each of the following as completed, and included with this proposal:

- Section 004200 – STA Bid Submittal Checklist - Statement of Compliance, signed and dated below.
- Section 004213 – Bid Proposal Form: Submitted on appropriate form, filled out legibly and completely.
- Section 004215 – Bid Response: Submitted on appropriate form, filled out legibly and completely.
- Section 004512 – STA Responsibility Criteria: Submit filled out legibly and completely.
- Section 004546.C – FTA DBE Participation List: Submit filled out legibly and completely.
- Section 004546.D – FTA Debarment & Suspension: Submit filled out legibly and completely.
- Section 004546.E – Certificate of Wage Compliance: Submitted filled out legibly and completely.
- Bid Security attached in the Amount of 5% of Total Bid (Base Bid including applicable WSST), see instructions to contractors.
- Work Plan: The Contractor submitting a bid must provide the following required information with the bid form. Failure to submit such information to the satisfaction of the Owner may render the bid non-responsive.

The Contractor’s work plan is to include with description the following minimum elements:

- a. Installation of safety barriers and traffic control plans
- b. Phasing
- c. Project coordination meetings
- d. Final cleanup and closeout

- Bid is submitted in a sealed opaque envelope, identified with the following:
 - Project Name: Plaza HPT Platforms – Phase 2 (Riverside Ave and Wall St)
 - Project Number: 2019-10434
 - Contractor’s Name:
 - Contractor’s Address:

NOTE: If mailed, enclose sealed bid in a separate mailing envelope with the notation “Sealed Bid Enclosed”.

STATEMENT OF COMPLIANCE

The undersigned has reviewed, read and fully understands these Bid Documents and this checklist, fully complies therein, and certifies that all required elements, as marked herein and contained within the specification are included in this Bid Proposal.

Authorized Signature: _____ Date: _____

END OF SECTION 004200

**SPOKANE TRANSIT AUTHORITY
 1230 W. BOONE AVE
 SPOKANE, WASHINGTON 99201**

BID PROPOSAL – PLAZA HPT PLATFORMS – PHASE 2 (RIVERSIDE AVE AND WALL STREET)

Name of Firm (Contractor submitting bid): _____
 Each bid shall constitute an offer to STA as outlined herein and no bidder may withdraw his/her bid after the hour set for the bid opening thereof except under the conditions explained in the Instructions to Contractors Section.

In compliance with the contract documents, the following bid proposal is submitted:

TOTAL BASE BID:		
(Please print dollar amount in space above)		\$
		(Total for all work, INCLUDING WSSST)
UNIT PRICES (INCLUDING SALES TAX)		
Provide unit prices for the following items:		
(There are no unit prices on this project)		N/A

Basis of Award: The lowest bid shall be the lowest Total Base Bid. If the Agency awards a contract it will go to the responsive and responsible bidder who submitted the lowest bid as determined by this basis of award.

Unit Prices: The unit price shall include full compensation for the cost of labor, materials, equipment, applicable sales tax, overhead, profit, and any additional cost associated with the unit price.

The Owner reserves the right to accept or reject any or all bid prices within ninety (90) days of the bid date. Bidder agrees and understands that any additional taxes, permits, bonds, prevailing wage certifications, etc. Applicable to this project, have been included in the above Bid Amounts.

NOTE: Any deviation from technical specifications provided in bid document must be approved in advance by Owner.

Bidder Name & Signature: _____

END OF SECTION 004213

TO: SPOKANE TRANSIT
PLANNING & DEVELOPMENT DEPARTMENT
1230 West Boone Avenue
Spokane, Washington 99201-2686

RE: **Project Number: 2019-10434**

NAME OF FIRM SUBMITTING BID: _____

Each bid shall constitute an offer to STA as outlined herein and no bidder may withdraw his bid after the hour set for the bid opening thereof except under the conditions explained in the Instructions to Bidders Section.

EXAMINATION OF DOCUMENTS:

- A. Having carefully examined all Bidding Documents entitled “**Plaza HPT Platforms – Phase 2 (Riverside Ave and Wall St)**” by the Spokane Transit Authority, **as well as the site and local conditions affecting the work**, the undersigned proposes to perform all work in accordance with the Contract Documents for compensation to be computed from the enclosed bid amounts.
- B. Receipt of the following Addenda to the Specifications and Drawings is hereby acknowledged:
Addendum No. _____ Date _____
Addendum No. _____ Date _____
Addendum No. _____ Date _____

REJECTION: STA reserves the right to reject any or all bid proposals, portions or parts thereof and to waive minor irregularities in bidding. Special attention will be directed to the qualifications of the bidders when considering an award of contract.

TIME FOR COMPLETION: Work may begin when the Contractor receives a formal “Notice to Proceed.” Contractor shall proceed with promptness and dispatch and shall be substantially complete on or before September 11, 2020. Notice to Proceed is expected to be given during the week beginning June 29, 2020. Notice to Proceed may be delayed if a Stay-At-Home order is in effect in the State of Washington.

LIQUIDATED DAMAGES: Per the STA Instructions to Contractors Submitting Bids

SUBMITTAL: The “Bid Response Documents”, “Bid Proposal Form”, and “Responsibility Criteria” constitute the Bid Proposal when completed and submitted. Please **do not** submit the entire Invitation for Bid manual.

PRICES: Each bid item will be priced unless stated otherwise.

UNIT PRICE: Unit prices, if requested, shall govern in case of extension error.

Bidder Name: _____

FREIGHT: Bid price(s) to include all freight costs to the project site.

COMPLETION OF BID PROPOSAL FORM:

All bidding procedures and other requirements of Instructions to Bidders and all Contract Documents have been followed.

ATTACHMENTS:

- A. Bid security as required by the Bidding Documents in the amount of 5% of the Base Bid.
- B. Detailed Work Plan based on project plans, pre-bid walk-through, project summary and specifications.

AWARD OF CONTRACT:

- A. If written notice of acceptance of all or part of this submittal is mailed, sent electronically, or delivered to undersigned within ninety (90) days after opening of proposals, the undersigned will, within **fifteen (15) days** after date of such notice, execute and deliver the Form of Agreement as specified and furnish Insurance Certificates, Performance Bonds, and Labor and Material Payment Bonds as required.
- B. If the undersigned fails to complete the above requirements, amount of Bid Security shall be forfeited to the Owner.

Bidder Name: _____ Date: _____

I CERTIFY that no final determination of violation of RCW 50.12.070(1)(b), or 82.32.070(1)(b) has been made by the Washington State Departments of Employment Security, Labor and Industries or Revenue respectively dated within two (2) years of the date of the opening of this bid. I understand further that no bid may be submitted, considered or contract awarded for a public work to any person or entity that has a determination of violation of the above reference statutes within two (2) years from the date that a violation is finally determined and the date of this bid opening.

ANTI-KICKBACK: No officer or employee of STA, having the power or duty to perform an official act or action related to this submittal, shall have or acquire any interest in this submittal, or have solicited, accepted or granted a present or future gift, favor, service, or other thing of value from or to any person involved in this submittal.

DEBARRED BIDDERS: The undersigned represents that the Bidder and all officers with a controlling interest herein are not currently and have not previously been on any debarred bidders list maintained by the United States Government.

I CERTIFY that to the best of my knowledge, the information contained in this proposal is accurate and complete and that I have the legal authority to commit this Firm to a contractual agreement. I realize the final funding for any service is based upon budget levels and the approval of the Spokane Transit Authority's Board of Directors.

SUBMITTED BY:

BIDDER NAME _____

(As registered with the State of Washington)

BY (Signature) _____

PRINTED NAME & TITLE _____

DATE: _____

BIDDER ADMINISTRATIVE INFORMATION

BIDDER NAME: _____
(as registered with the State of Washington)

PHYSICAL ADDRESS: _____

MAILING ADDRESS: _____

CITY, STATE, ZIP: _____

TELEPHONE and FAX NUMBERS, including area code: _____

WASHINGTON STATE CONTRACTORS REGISTRATION NUMBER: _____

WASHINGTON STATE ELECTRICAL CONTRACTOR'S LICENSE NUMBER: _____

FEDERAL TAX IDENTIFICATION NUMBER: _____

WASHINGTON STATE UBI NUMBER: _____

STATE INDUSTRIAL ACCOUNT IDENTIFICATION NUMBER: _____

** NOTE: If a corporation, write State of Incorporation under signature. If a partnership, give full names of all partners.

INSURANCE COMPANY:

Name of company: _____

Mailing Address including zip code: _____

Name of Insurance Agent: _____

Telephone number including area code: _____

Fax number including zip code: _____

BONDING COMPANY:

Name of Surety: _____

Mailing Address including zip code: _____

Name of Bonding Agent: _____

Telephone number including area code: _____

BIDDER QUALIFICATION STATEMENT

The following statements of experience, personnel, equipment, and general qualifications of the Bidder are submitted with the assurance that the owner can rely on its accuracy and truthfulness. If more space is required for your answers, please attach a continuation sheet(s) to the corresponding bid response page referencing the item number.

1. The company has been in business continuously from (month and year) _____.
2. The company has had experience comparable to that required under the proposed contract:
 - a. As a prime contractor for ____ years.
 - b. As a subcontractor for _____ years.
3. The following is a partial list of work completed that was on an order of magnitude equal to or greater in scope and complexity to that required under the proposed contract.

<u>Year</u>	<u>Owner & Contact Person</u>	<u>Phone No.</u>	<u>Location</u>	<u>Contract Value</u>
-------------	-----------------------------------	------------------	-----------------	-----------------------

4. A list of supervisory personnel and/or the project manager currently employed by the Bidder that will be responsible for work on this project. Please attach a brief (1 page maximum) resume for each person listed. If a resume(s) is not included in the bid documents, the bidder agrees to furnish a resume(s) within 24 hours of notice by STA.

<u>Name</u>	<u>Title</u>	<u>Years of Experience</u>
-------------	--------------	----------------------------

5. Following is a listing of all projects the company has undertaken in the last five (5) years which have resulted in:
 - a. Arbitration or litigation.
 - b. Claims or violations being filed by the Federal Government or the Washington State Departments of L&I, Employment Security, or Revenue.
 - c. Liens being filed by suppliers or subcontractors.

Person/Entity Name: _____ Signature of Bidder: _____

BIDDER COMPLIANCE CERTIFICATION

PROJECT COMPLIANCE

In compliance with the Invitation for Bid, bidder hereby proposes to perform all work for this project in strict accordance with the contract documents, within the time set forth therein, and at the prices bid.

SPECIFICATION COMPLIANCE

The bidder certifies below that his bid complies in all respects with the attached specification documents, including the minimum specifications.

YES _____ NO _____

If NO, list below, in detail, any and all deviations.

LIST DEVIATIONS:

Person/Entity Name: _____ Signature of Bidder _____

SUBCONTRACTOR LIST

Project Number: 2019-10434

The Bidder will provide a list of all subcontractors anticipated to be used on this project.

Use a copy of this page as a master for attachment if necessary.

If no subcontractors are listed, it will be considered the bidder's affirmation that it does not intend to use any subcontractors on this project.

Type of work - _____
Name of Firm (please print): _____ (as registered with the State of Washington)
Physical Address: _____
City, State, Zip: _____
Telephone/Fax Numbers: _____
Washington State Contractors Registration Number: _____
Washington State Electrical or Plumbers License Number: _____
Federal Tax Identification Number: _____
Washington State UBI Number: _____
State Industrial Account Identification Number: _____
**Note: If a corporation, write State of Incorporation under signature. If a partnership, give full names of all partners.

Person/Entity Name: _____ Signature of Bidder _____

SECTION 004512 – BIDDER RESPONSIBILITY CRITERIA

In accordance with RCW 39.04.350, a Bidder must meet the following responsibility criteria to be considered a responsible bidder and qualified to be awarded a public works project. The Bidder must at the time of bid submittal:

1. Have a certificate of registration in compliance with chapter 18.27 RCW;
2. Have a current state unified business identifier (UBI) number;
3. If applicable, have industrial insurance coverage for the Bidder’s employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a state excise tax registration number as required in Title 82 RCW;
4. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter [39.12](#) RCW. The training must be provided by the Department of Labor and Industries or by a training provider whose curriculum is approved by the Department. Bidders that have completed three (3) or more public works projects, have had a valid business license in Washington for three (3) or more years, and are listed on the Department of Labor and Industries exemption list are exempt from this training requirement;
5. Within the three (3) year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, or through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, as defined in RCW [49.48.082](#), any provision of chapter [49.46](#), 49.48, or [49.52](#) RCW; and
6. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).

In accordance with RCW 39.06, a public works contractor must verify responsibility criteria for each first-tier subcontractor, and a subcontractor of any tier that hires other subcontractors must verify responsibility criteria for each of its subcontractors. Verification shall include that each subcontractor, at the time of subcontract execution, meets the responsibility criteria and possesses an electrical contractor license, if required by RCW 19.28, or an elevator contractor license, if required by RCW 70.87. This verification requirement, as well as the responsibility criteria, must be included in every public works contract and subcontract of every tier.

Providing the following information is **MANDATORY** in order to meet “Responsible Bidder” requirements. Failure to provide this information may disqualify your bid as being “**Non-Responsive**”. *If your business is not required to have one of the following numbers, provide an explanation.*

1. State of Washington Contractor Registration No. _____
2. State of Washington Unified Business Identifier No. _____
3. Employment Security Department No. _____
4. State Excise Tax Registration No. _____
5. Is the payment of Worker’s Comp (Industrial Insurance) Premiums current? If your business does not have a Worker’s Comp account with the WA State Dept of L&I, please explain why.
 Yes
 No (If No, you are not eligible to bid on this project)
 No Account – Explain why: _____
6. Are you disqualified from bidding on public works projects in the State of Washington?
 Yes (If Yes, you are not eligible to bid on this project)
 No

END OF SECTION 004512

SECTION 004546.C – DISADVANTAGED BUSINESS ENTERPRISE (DBE) PARTICIPATION

DBE Participation: STA is committed to ensuring that all firms regardless of race, color, sex or national origin have equal opportunity to participate in STA contracts. Therefore, STA has established an annual agency goal for DBE participation in its contracting opportunities. It shall be understood that no specific goal has been assigned to this contract; however, contractors and subcontractors are required to comply with the following:

Non-Discrimination Assurances:

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

A copy of 49 CFR part 26 may be obtained by contacting STA’s DBE Liaison, Spokane Transit Authority, 1230 W. Boone, Spokane, WA 99201, (509) 325-6032.

Prompt Payment:

The contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than thirty days from the receipt of each payment the prime contractor receives from STA. The prime contractor agrees further to return retainage payments to each subcontractor within thirty days after the subcontractor’s work is satisfactorily completed. Any delay or postponement of payment from the above time frames may occur only for good cause following written approval of STA. This clause applies to both DBE and non-DBE subcontractors.

DBE Bidders List:

STA is required to create and maintain a bidders list of all firms bidding on prime contracts and bidding or quoting on subcontracts on Department of Transportation-assisted contracts. To assist STA in compliance with this provision of the regulation, please complete and return with your proposal.

Instructions:

1. List the names and addresses of DBE firms that will participate in this contract;
2. A description of the work each DBE will perform;
3. The dollar amount of the participation of each DBE firm participating;

Name & Address of DBE Firm	Description of Work to perform	\$ Amount
---------------------------------------	---------------------------------------	------------------

1.

2.

3.

END OF SECTION 004546.C

SECTION 004546.D

CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND
VOLUNTARY EXCLUSION IN A LOWER TIER COVERED TRANSACTION

This contract is a covered transaction for purposes of 2 CFR Parts 1200 and 180. As such, the CONSULTANT is required to comply with 2 CFR Part 180, Subpart C and must include the requirement to comply with 2 CFR Part 180, Subpart C in any lower tier covered transaction it enters into. As such, the Contractor shall verify that its principals, affiliates, and subcontractors are eligible to participate in this federally funded contract and are not presently declared by any Federal department or agency to be:

- a. Debarred from participation in any federally assisted Award;
- b. Suspended from participation in any federally assisted Award;
- c. Proposed for debarment from participation in any federally assisted Award;
- d. Declared ineligible to participate in any federally assisted Award;
- e. Voluntarily excluded from participation in any federally assisted Award; or
- f. Disqualified from participation in any federally assisted Award.

By signing and submitting its bid or proposal, the bidder or proposer certifies as follows:

The certification in this clause is a material representation of fact relied upon by Spokane Transit Authority. If it is later determined that the bidder or proposer knowingly rendered an erroneous certification, in addition to remedies available to Spokane Transit Authority, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment. The bidder or proposer agrees to comply with the requirements of 2 CFR Part 180, Subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

Company Name of Respondent: _____

Company Address: _____

Telephone Number: _____

Fax Number: _____

Email Address: _____

Authorized Signature: _____

Printed Name and Title: _____

Date Signed: _____

END OF SECTION 004546.D

SECTION 004546.E – CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (April 13, 2020), the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

Bidder’s Business Name

Signature of Authorized Official*

Printed Name

Title

Date

City

State

Check One:

Sole Proprietorship Partnership Joint Venture Corporation

State of Incorporation, or if not a corporation, State where business entity was formed:

If a co-partnership, give firm name under which business is transacted:

** If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

END OF SECTION 004546.E

Form of Contract Between Owner and Contractor

For Spokane Transit Authority Public Works Construction Projects

Agreement is made as of the day of in the year 2020.

Between the Owner: Spokane Transit Authority, a public agency,

Located at: 1230 West Boone Avenue,
Spokane, Washington, 99201-2686

And the Contractor:

Located at: (address)

State Contractor Registration Number:

UBI Number:

For the following project: (project name, location, and description)

The design professional: (architect or engineer)

Located at: (address)

The owner and contractor agree as follows:

1. The Contract Documents include:

- A. This agreement signed by the Owner and the Contractor
- B. The Advertisement for Bids and all Bid Documents
- C. The General Conditions, Supplemental Conditions [and Special Conditions]
- D. The drawings and specifications prepared by the design professional
(list the drawing number range from page 1 to ___ and the date[s])

(list the specifications number range from page 1 to ___ and the date)

- E. The Invitation for Bid (IFB)
- F. The addenda: (list any/all addenda by number, date and quantity of pages)

<u>Number</u>	<u>Date</u>	<u>Quantity of pages</u>
---------------	-------------	--------------------------

G. Changes in the work issued after execution of the agreement

H. Other documents identified as follows:

2. **Contract sum:** (list base individually the bid amount plus any/all alternates taken)

3. **Unit prices:** (list items by description, the units and limits and the price per unit)

<u>Item(s)</u>	<u>Units/limits</u>	<u>Price per unit</u>
----------------	---------------------	-----------------------

4. **Allowances included in contract sum:** (list any allowances included in the contract sum)

<u>Item</u>	<u>Price</u>
-------------	--------------

5. **Other terms or conditions not otherwise covered in the noted previous documents.**

6. **In cases where communication is required between the Contractor and STA, such as further information, furnishing of specifications, or obtaining approval of proposed work, such communications from the Contractor shall be forwarded directly to:**

**Robert Bielaski
Capital Projects Manager
Spokane Transit Authority
1230 W. Boone Ave.
Spokane, WA 99201
(509) 344-1868**

7. **If any provision of this contract is held invalid, the remainder of this contract shall not be affected thereby, if such remainder would then continue to conform to the terms and requirements of applicable law.**

8. **This Agreement may be executed in one or more counterparts, each of which shall constitute an original Agreement but all of which together shall constitute one and the same instrument.**

Owner:

Contractor:

(signature and title of authorized agent)

(signature and title of authorized agent)

E. Susan Meyer

(printed name)

(printed name)

Chief Executive Officer

(title)

(title)

SAMPLE

The following Public Works General Conditions (“GC”) are incorporated into the contract to which they are attached. Although these GC are organized consistent with the General Conditions for Washington State Facility Construction, the provisions herein are not identical. Please review these GC carefully.

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PART 1: GENERAL PROVISIONS

1.01 DEFINITIONS

Capitalized terms included in these GC which are not defined herein shall have the same meaning as defined in the document(s) to which these GC are attached.

- A. **Application for Payment** means a written request submitted by Contractor to Owner or, if applicable, A/E for payment of Work completed in accordance with the Contract Documents and approved Schedule of Values, supported by such substantiating data as Owner or, if applicable, A/E may require.
- B. **Architect, Engineer or A/E** means a person or entity lawfully entitled to practice architecture or engineering, representing Owner within the limits of its delegated authority.
- C. **Award** means the formal decision by the Owner notifying a responsible Bidder with the lowest responsive bid of the Owner's acceptance of the bid and intent to enter into a contract with the Bidder.
- D. **Bidder** means an individual, partnership, firm, corporation or joint venture submitting a bid with the intent to enter into a contract with Owner for the completion of the Work.
- E. **Change Order** means a written instrument signed by Owner and Contractor stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Sum, if any, and (3) the extent of the adjustment in the Contract Time, if any.
- F. **Claim** means Contractor's exclusive remedy for resolving disputes with Owner regarding the terms of a Change Order or a request for equitable adjustment, as more fully set forth in Part 8.
- G. **Contract Award Amount** is the sum of the Base Bid and any accepted Alternates.
- H. **Contract Documents** means the Advertisement for Bids, Instructions for Bidders, executed Bid Proposal Form and Bidder certifications, Contract, General Conditions, Modifications to the General Conditions, Federal Terms & Conditions, Drawings, Specifications, all addenda and modifications thereof, all supporting documentation required by any of the above, or as requested by the Owner.

- I. **Contract Sum** is the total amount payable by Owner to Contractor for performance of the Work in accordance with the Contract Documents. Except as described below, the Contract Sum includes all taxes imposed by law and properly chargeable to the Work. The Contract Sum does not include Washington State sales tax.
- J. **Contract Time** is the number of calendar days allotted in the Contract Documents for achieving Substantial Completion of the Work.
- K. **Contractor** means the person or entity who has agreed with Owner to perform the Work in accordance with the Contract Documents. Contractor's duties and obligations flow down and become duties and obligations of Subcontractors.
- L. **Day(s)**. Unless otherwise specified, day(s) shall mean calendar day(s).
- M. **Drawings** are the graphic and pictorial portions of the Contract Documents showing the design, location, and dimensions of the Work, and may include plans, elevations, sections, details, schedules and diagrams.
- N. **Final Acceptance** means the written acceptance issued to Contractor by Owner after Contractor has completed the requirements of the Contract Documents, as more fully set forth in Section 6.09.E.
- O. **Final Completion** means that the Work is fully and finally complete in accordance with the Contract Documents, as more fully set forth in Section 6.09.D.
- P. **Force Majeure** means those acts entitling Contractor to request an equitable adjustment in the Contract Time, as more fully set forth in Section 3.05.A.
- Q. **L&I** means the State of Washington Department of Labor and Industries.
- R. **Notice** means a written notice which has been delivered to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended or, if delivered or sent by registered or certified mail, to the last business address known to the party giving notice.
- S. **Notice to Proceed** means a written notice from Owner to Contractor that defines the date on which the Contract Time begins to run.

- T. **Owner** means the Spokane Transit Authority, STA or its authorized representative with the authority to enter into, administer and/or terminate the Work in accordance with the Contract Documents and make related determinations and findings.
- U. **Person** means a corporation, partnership, business association of any kind, trust, company or individual.
- V. **Prior Occupancy** means Owner's use of all or parts of the Project before Substantial Completion, as more fully set forth in Section 6.08.A.
- W. **Progress Schedule** means a schedule of the Work, in a form satisfactory to Owner, as further set forth in Section 3.02.B.
- X. **Project** means the total construction of which the Work performed in accordance with the Contract Documents may be the whole or a part and which may include construction by Owner or by separate contractors.
- Y. **Project Manual** means the volume usually assembled for the Work which may include the bidding requirements, sample forms, and other Contract Documents.
- Z. **Project Record** means the separate set of Drawings and Specifications as further set forth in Section 4.02.A.
- AA. **Schedule of Values** means a written breakdown allocating the total Contract Sum to each principal category of Work, in such detail as requested by Owner.
- BB. **Specifications** are that portion of the Contract Documents consisting of the written requirements for materials, equipment, construction systems, standards and workmanship for the Work, and performance of related services.
- CC. **Subcontract** means a contract entered into by Subcontractor for the purpose of obtaining supplies, materials, equipment or services of any kind for or in connection with the Work.
- DD. **Subcontractor** means any person, other than Contractor, who agrees to furnish or furnishes any supplies, materials, equipment or services of any kind in connection with the Work.
- EE. **Substantial Completion** means that stage in the progress of the Work when the construction is sufficiently complete, as more fully set forth in Section 6.07.
- FF. **Work** means the construction and services required by the Contract Documents, and includes, but is not limited to, labor, materials, supplies, equipment, services, permits and the manufacture and fabrication of components, performed, furnished or provided in accordance with the Contract Documents.
- 1.02 ORDER OF PRECEDENCE
- A. Any conflict or consistency in the Contract Documents shall be resolved by giving the documents precedence in the following order:
1. Federal Terms & Conditions, if applicable.
 2. Executed Change Order(s), in descending order.
 3. Executed Form of Contract.
 4. Supplemental Conditions, if applicable.
 5. Modifications to the General Conditions, if applicable.
 6. General Conditions.
 7. Specifications. Provisions in Division 1 shall take precedence over provisions of any other Division.
 8. Drawings. In case of conflict within the Drawings, large scale drawings shall take precedence over small scale drawings.
 9. Signed and Completed Bid Form.
 10. Instructions to Bidders.
 11. Advertisement for Bids.
- 1.03 EXECUTION AND INTENT
- Contractor makes the following representations to Owner:
- A. **Contract Sum Reasonable.** The Contract Sum is reasonable compensation for the Work and the Contract Time is adequate for the performance of the Work, as represented by the Contract Documents;
- B. **Contractor Familiar with Project.** Contractor has carefully reviewed the Bid Documents, Contract Documents, visited and examined the Project site, become familiar with the local conditions in which the Work is to be performed, and satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods, supplies, work, services and other items to be furnished and all other requirements of the Contract Documents,

as well as the surface and subsurface conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof;

- C. **Contractor Financially Capable.** Contractor is financially solvent, able to pay its debts as they mature, and possesses sufficient working capital to complete the Work and perform Contractor's obligations required by the Contract Documents; and
- D. **Contractor Can Complete Work.** Contractor is able to furnish the plant, tools, materials, supplies, equipment and labor required to complete the Work and perform the obligations required by the Contract Documents and has sufficient experience and competence to do so.

PART 2: INSURANCE AND BONDS

2.01 GENERAL INSURANCE REQUIREMENTS

At the Contractor's own expense, the Contractor shall procure and maintain for the duration of the Contract commercial insurance against claims for injuries to persons or damages to property that may arise from or in connection with the Contractor's own work, including the work of the Contractor's agents, representatives, employees, and Subcontractors of any tier. Contractor shall include in its bid the cost of all insurance and bond costs required to complete the base bid work and accepted alternates.

- A. **Evidence of Insurance.** Within ten (10) days of execution of a contract or prior to commencement of the Work, whichever occurs earlier, Contractor shall obtain, and provide evidence to Owner, the minimum insurance coverages and limits specified hereunder. If the Contractor maintains higher limits than those specified herein, the Owner shall be entitled to the higher limits maintained by the Contractor. Owner reserves the right to receive a certified and complete copy of all of the Contractor's insurance policies and the Contractor shall furnish such copies within ten (10) days of request by Owner. All insurance certificates shall name Owner's Contract number, Project number and Project title.
- B. **Insurer Minimum Requirements.** All insurance policies shall be written with insurance companies licensed to do business in the State of Washington and shall have a rating of not less than A:VII according to the A.M. Best Company.

- C. **Deductible.** The Contractor is responsible for declaring to the Owner and paying any deductible or self-insured retention that is required by any of the Contractor's insurance. If the Owner is required to contribute to the deductible or self-insured retention under any of the Contractor's insurance policies, the Contractor shall reimburse the Owner the full amount of the deductible or self-insured retention.

- D. **Self-insured Retention.** Any Contractor self-insured retentions must be declared to and approved in writing by Owner prior to execution of a Contract. Owner reserves the right to require that self-insured retentions be eliminated, lowered or replaced by a deductible. Self-insurance or self-insured retentions will not be considered to comply with these insurance requirements unless specifically approved in writing by Owner.

- E. **Owner as Additional Insured.** Owner shall be named as an additional insured on the Contractor's commercial general liability, umbrella liability and business auto liability policies and shall contain, or be endorsed to contain, that the Owner, its officers, officials, employees and volunteers, are to be covered as insureds with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Contractor, and with respect to liability arising out of work or operations performed by or on behalf of the Contractor including material, parts or equipment furnished in connection with such work or operations. The Owner shall be endorsed as a loss payee on the Contractor's builders' risk and boiler and machinery policies.

- F. **Primary and Non-contributory.** It is the intent of the Contract for the Contractor's insurance to be considered primary in the event of a loss, damage or suit. The Owner's own comprehensive general liability policy will be considered excess coverage in respect to the Owner, its officers, officials, employees, and volunteers, and shall not contribute to the Contractor. Additionally, the Contractor's commercial general liability policy must provide cross-liability coverage as would be achieved under a standard ISO separation of insureds clause.

- G. **Notification.** The Contractor shall request from its insurer modification of the ACORD certificates to include language that written notification will be given to the Owner for any cancellation, suspension or material change in the Contractor's coverages at least thirty (30) days in advance of such cancellation, suspension or material change.

- H. **Term of Insurance Coverage.** Contractor shall maintain insurance coverages herein during the Work and for two (2) years after Final Acceptance. Contractor shall also maintain such insurance coverage during the performance of any corrective Work required by Section 5.16.
- I. **Subcontractor Coverage.** Contractor shall require and verify all Subcontractors maintain insurance meeting all of the requirements stated herein.
- J. **Waiver of Subrogation Rights.** Owner and Contractor waive all subrogation rights against each other, any Subcontractors, A/E, A/E's subconsultants, separate contractors, if any, and any of their subcontractors, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Section or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by Owner as fiduciary. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.
- C. **Industrial Insurance.** Contractor shall comply with the Washington State Industrial Insurance Act and, if applicable, the Federal Longshoremen's and Harbor Workers' Act and the Jones Act.
- D. **Employer's Liability Insurance.** Employer's liability or "stop gap" coverage with minimum limits of \$1,000,000 each accident, \$1,000,000 each employee bodily injury by disease, and \$1,000,000 policy limit injury by disease.
- E. **Builder's Risk.** Builder's Risk coverage on a replacement-cost basis, at an amount equal to the initial Contract Sum and any subsequent Change Orders, plus twenty-five percent (25%) for additional architectural and engineering services. This property insurance shall cover, at a minimum, malicious mischief, false work, temporary buildings, debris removal including demolition occasioned by enforcement of any applicable legal requirements, reasonable compensation for Owner's and, if applicable, A/E's services and expenses required as a result of an insured loss, perils insured under the ISO special cause of loss form CP 10 30 and shall be endorsed to provide full coverage for loss or damage from collapse, including collapse resulting from design error. The policy shall cover reasonable compensation for architects' and/or engineers' services and expenses made necessary by an insured loss. Insured property shall include portions of the Work located away from the work site, but intended for use at the work site, and shall cover portions of the Work in transit. The policy shall cover the cost of removing debris, including demolition as may be legally necessary by any law, ordinance or regulation.

2.02 MINIMUM INSURANCE COVERAGES

- A. **General Liability Insurance.** Commercial General Liability (CGL) insurance on a project-occurrence basis, with coverage at least as broad as ISO form CG 00 01 with minimum limits of \$2,000,000 per occurrence and \$4,000,000 in the aggregate. Coverage shall include, but not be limited to:
1. Premise/operations;
 2. Contractual liability;
 3. Products & completed operations;
 4. Independent contractors
 5. Property damage; and
 6. Personal injury/advertising injury
- B. **Automobile Liability Insurance.** Commercial automobile liability insurance on a Combined Single Limit basis at least as broad as ISO form CA 00 01 with minimum limits of \$2,000,000 per occurrence.

The builders risk policy shall be maintained in effect, unless otherwise provided for in the Contract Documents, until the earliest of the following dates: (a) the date on which all persons and organizations who are insureds on the policy agree it shall be terminated; (b) the date on which final payment has been made; (c) the date on which the insurable interests in the property of all insureds other than the Owner have ceased.

For projects not involving New Building Construction, an "Installation Floater" is an acceptable substitute for the Builder's Risk Insurance. The insurance shall cover the interest of Owner, Contractor and any Subcontractors, as their interests may appear.

- F. **Boiler & Machinery.** When applicable, Contractor shall purchase and maintain boiler and machinery coverage covering insured objects during installation and until final acceptance by Owner. This insurance shall name as insureds the Owner, Contractor, and all Subcontractors of any tier.

2.03 PAYMENT AND PERFORMANCE BONDS

- A. Payment and performance bonds for one hundred percent (100%) of the Contract Award Amount plus state sales tax, shall be furnished for the Work, using the Payment Bond and Performance Bond form published by and available from the American Institute of Architects (AIA) – form A312 (or current version of the same). Prior to execution of a Change Order that, cumulatively with previous Change Orders, increases the Contract Award Amount by fifteen percent (15%) or more, the Contractor shall provide either new payment and performance bonds for the revised Contract Sum, or riders to the existing payment and performance bonds increasing the amount of the bonds. The Contractor shall likewise provide additional bonds or riders when subsequent Change Orders increase the Contract Sum by fifteen percent (15%) or more.
- B. No payment or performance bond is required if the Contract Sum is \$150,000 (one-hundred fifty thousand dollars) or less and Contractor agrees in writing that Owner may, in lieu of the bond, retain ten percent (10%) of the Contract Sum for the period allowed by RCW 39.08.010.
- C. **Alternative Surety.** Contractor shall promptly furnish payment and performance bonds from an alternative surety as required to protect Owner and persons supplying labor or materials required by the Contract Documents if:
1. Owner has a reasonable objection to the surety; or
 2. Any surety fails to furnish reports on its financial condition if requested by Owner.

PART 3: TIME AND SCHEDULE

3.01 PROGRESS AND COMPLETION

Contractor shall diligently execute the Work, with adequate forces, achieve Substantial Completion within the Contract Time, and achieve Final Completion within a reasonable period thereafter.

3.02 CONSTRUCTION SCHEDULE

- A. **Preliminary Progress Schedule.** Unless otherwise provided in the Contract, Supplemental Conditions, or Modifications to GC, Contractor shall, within fourteen (14) Days after issuance of the Notice to Proceed, submit a preliminary Progress Schedule. The Progress Schedule shall show the sequence in which Contractor proposes to perform the Work, and the dates on which Contractor plans to start and finish major portions of the Work, including dates for shop drawings and other submittals, and for acquiring materials and equipment.
- B. **Form of Progress Schedule.** The Progress Schedule shall be created, maintained and edited using MS Project software or similar software identified and agreed to by and between the parties. The scheduling of construction is the responsibility of the Contractor and is included in the Contract to assure adequate planning and execution of the Work. The schedule will be used to evaluate progress of the Work for payment based on the Schedule of Values. The schedule shall show the Contractor's planned order and interdependence of activities, and sequence of work. At a minimum, the schedule shall include:
- Date of Notice to Proceed;
 - Activities (resources, durations, individual responsible for activity, early starts, late starts, early finishes, late finishes, etc.);
 - Utility Shutdowns;
 - Interrelationships and dependence of activities;
 - Planned vs. actual status for each activity;
 - Substantial Completion;
 - Punch list;
 - Final inspection;
 - Final Completion, and
 - Float time.

The Schedule Duration shall be based on the Contract Time of Completion listed on the Bid Proposal Form. The Owner shall not be obligated to accept any Early Completion Schedule suggested by the Contractor. The Contract Time for Completion shall establish the Schedule Completion Date.

If the Contractor feels that the Work can be completed in less than the specified Contract

Time, then the surplus time shall be considered Project Float. This Project Float time shall be shown on the Project Schedule. It shall be available to accommodate changes in the Work and unforeseen conditions.

Neither the Contractor nor the Owner have exclusive right to this Float Time. It belongs to the Project.

- C. **Owner Comments on Progress Schedule.** Owner shall return comments on the preliminary Progress Schedule to Contractor within fourteen (14) Days of receipt. Review by Owner of Contractor's schedule does not constitute an approval or acceptance of Contractor's construction means, methods or sequencing, or its ability to complete the Work within the Contract Time. Contractor shall revise and resubmit its schedule, as necessary. Owner may withhold a portion of progress payments until a Progress Schedule has been submitted which meets the requirements of this Section.
- D. **Monthly Updates and Compliance with Progress Schedule.** Contractor shall utilize and comply with the Progress Schedule. On a monthly basis, or as otherwise directed by Owner, Contractor shall submit an updated Progress Schedule at its own expense to Owner indicating actual progress. If, in the opinion of Owner, Contractor is not in conformance with the Progress Schedule for reasons other than acts of Force Majeure as identified in Section 3.05, Contractor shall take such steps as are necessary to bring the actual completion dates of its work activities into conformance with the Progress Schedule, and if directed by Owner, Contractor shall submit a corrective action plan or revise the Progress Schedule to reconcile with the actual progress of the Work.
- E. **Contractor to Notify Owner of Delays.** Contractor shall promptly notify Owner in writing of any actual or anticipated event which is delaying or could delay achievement of any milestone or performance of any critical path activity of the Work. Contractor shall indicate the expected duration of the delay, the anticipated effect of the delay on the Progress Schedule, and the action being or to be taken to correct the problem. Provision of such notice does not relieve Contractor of its obligation to complete the Work within the Contract Time.

3.03 OWNER'S RIGHT TO SUSPEND THE WORK FOR CONVENIENCE

- A. **Owner May Suspend Work.** Owner may, at its sole discretion, order Contractor, in writing, to suspend all or any part of the Work for up to ninety (90) Days, or for such longer period as mutually agreed.
- B. **Compliance with Suspension; Owner's Options.** Upon receipt of a written notice suspending the Work, Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of cost of performance directly attributable to such suspension. Within a period up to ninety (90) Days after the notice is delivered to Contractor, or within any extension of that period to which the parties shall have agreed, Owner shall either:
1. Cancel the written notice suspending the Work; or
 2. Terminate the Work covered by the notice as provided in the termination provisions of Part 9.
- C. **Resumption of Work.** If a written notice suspending the Work is cancelled or the period of the notice or any extension thereof expires, Contractor shall resume Work.
- D. **Equitable Adjustment for Suspensions.** Contractor shall be entitled to an equitable adjustment in the Contract Time, or Contract Sum, or both, for increases in the time or cost of performance directly attributable to such suspension, provided Contractor complies with all requirements set forth in Part 7.

3.04 OWNER'S RIGHT TO STOP THE WORK FOR CAUSE

- A. **Owner May Stop Work for Contractor's Failure to Perform.** If Contractor fails or refuses to perform its obligations in accordance with the Contract Documents, Owner may order Contractor, in writing, to stop the Work, or any portion thereof, until satisfactory corrective action has been taken.
- B. **No Equitable Adjustment for Contractor's Failure to Perform.** Contractor shall not be entitled to an equitable adjustment in the Contract Time or Contract Sum for any increased cost or time of performance attributable to Contractor's failure or refusal to perform or from any reasonable remedial action taken by Owner based upon such failure.

- C. **Opportunity to Cure.** Owner, in its sole discretion, may, in the case of termination for breach or default, allow the Contractor an appropriate period of time, as determined by Owner, in which to cure the defect of goods or service. In such case, the notice of termination will state the nature of the breach or default, the time period in which cure is permitted and other appropriate conditions. If the Contractor fails to remedy to Owner's satisfaction the breach or default of any of the terms, covenants or conditions of the Contract Documents within the stated period of time for remedy, Owner shall have the right to terminate the Contract without any further obligation to the Contractor. Any such termination for default shall not in any way operate to preclude Owner from also pursuing all available legal remedies against the Contractor and its sureties for said breach or default.
- D. **Waiver of Remedies for Any Breach.** In the event that Owner elects to waive its remedies for any breach by the Contractor of any covenant, term or condition of this Contract, such waiver by Owner shall not limit Owner's legal remedies for any succeeding breach of that or of any other term, covenant, or condition of this contract.

3.05 DELAY

- A. **Force Majeure Actions Not A Default; Force Majeure Defined.** Any delay in or failure of performance by Owner or Contractor, other than the payment of money, shall not constitute a default hereunder if and to the extent the cause for such delay or failure of performance was unforeseeable and beyond the control of the party ("Force Majeure"). Acts of Force Majeure include, but are not limited to:
1. Acts of God or the public enemy;
 2. Acts or omissions of any government entity;
 3. Fire or other casualty for which Contractor is not responsible;
 4. Quarantine or epidemic;
 5. Strike or defensive lockout;
 6. Unusually severe weather, in excess of weather conditions experienced within the area any time in the preceding ten (10) years:
 - a. Monthly rainfall in excess of the highest monthly rainfall experienced for the same month.
 - b. Annual rainfall in excess of the highest annual rainfall experienced.
 - c. Monthly snowfall in excess of the highest monthly snowfall experienced for the same month.
 - d. Annual snowfall in excess of the highest annual snowfall experienced.
 - e. Average high temperatures, for the summer months, in excess of the highest temperatures experienced.
 - f. Average low temperatures for the winter months, lower than the lowest average temperatures experienced.
7. Unusual delay in receipt of supplies or products which were ordered and expedited and for which no substitute reasonably acceptable to Owner was available.
- B. **Contract Time Adjustment For Force Majeure.** Contractor shall be entitled to an equitable adjustment in the Contract Time for changes in the time of performance directly attributable to an act of Force Majeure, provided it makes a request for equitable adjustment according to Section 7.03. Contractor shall not be entitled to an adjustment in the Contract Sum resulting from an act of Force Majeure.
- C. **Contract Time or Contract Sum Adjustment If Owner at Fault.** Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of Contractor's performance is changed due to the fault or negligence of Owner, provided the Contractor makes a request according to Sections 7.02 and 7.03.
- D. **No Contract Time or Contract Sum Adjustment If Contractor at Fault.** Contractor shall not be entitled to an adjustment in Contract Time or in the Contract Sum for any delay or failure of performance to the extent such delay or failure was caused by Contractor or anyone for whose acts Contractor is responsible.
- E. **Contract Time Adjustment Only for Concurrent Fault.** To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, provided it makes a request for equitable adjustment according to

Section 7.03, but shall not be entitled to an adjustment in Contract Sum.

- F. **Contractor to Mitigate Delay Impacts.** Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay, whether occasioned by an act of Force Majeure or otherwise.

3.06 NOTICE TO OWNER OF LABOR DISPUTES

- A. **Contractor to Notify Owner of Labor Disputes.** If Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay timely performance in accordance with the Contract Documents, Contractor shall immediately give notice, including all relevant information, to Owner.
- B. **Pass Through Notification Provisions to Subcontractors.** Contractor agrees to insert a provision in its Subcontracts and to require insertion in all sub-subcontracts, that in the event timely performance of any such contract is delayed or threatened by delay by any actual or potential labor dispute, the Subcontractor or Sub-subcontractor shall immediately notify the next higher tier Subcontractor or Contractor, as the case may be, of all relevant information concerning the dispute.

3.07 DAMAGES FOR FAILURE TO ACHIEVE TIMELY COMPLETION

- A. **Liquidated Damages**
1. **Reason for Liquidated Damages.** Timely performance and completion of the Work is essential to Owner and time limits stated in the Contract Documents are of the essence. Owner will incur serious and substantial damages if Substantial Completion of the Work does not occur within the Contract Time. However, it would be difficult if not impossible to determine the exact amount of such damages. Consequently, provisions for liquidated damages are included in the Contract Documents.
 2. **Calculation of Liquidated Damages Amount.** The liquidated damage amounts set forth in the Contract Documents will be assessed not as a penalty, but as liquidated damages for breach of the Contract Documents. This amount is fixed and agreed upon by and between the Contractor and Owner because of the impracticability and

extreme difficulty of fixing and ascertaining the actual damages the Owner would in such event sustain. This amount shall be construed as the actual amount of damages sustained by the Owner and may be retained by the Owner and deducted from periodic payments to the Contractor.

3. **Contractor Responsible Even If Liquidated Damages Assessed.** Assessment of liquidated damages shall not release Contractor from any further obligations or liabilities pursuant to the Contract Documents.

B. **Actual Damages**

1. **Calculation of Actual Damages.** Actual damages will be assessed for failure to achieve Final Completion within the time provided. Actual damages will be calculated on the basis of direct architectural, administrative, and other related costs attributable to the Project from the date when Final Completion should have been achieved, based on the date Substantial Completion is actually achieved, to the date Final Completion is actually achieved. Owner may offset these costs against any payment due Contractor.

PART 4: SPECIFICATIONS, DRAWINGS, AND OTHER DOCUMENTS

4.01 DISCREPANCIES AND CONTRACT DOCUMENT REVIEW

- A. **Specifications and Drawings Are Basis of The Work.** The intent of the Specifications and Drawings is to describe a complete Project to be constructed in accordance with the Contract Documents. Contractor shall furnish all labor, materials, equipment, tools, transportation, permits and supplies, and perform the Work required in accordance with the Drawings, Specifications and other provisions of the Contract Documents.
- B. **Parts of The Contract Documents Are Complementary.** The Contract Documents are complementary. What is required by one part of the Contract Documents shall be binding as if required by all. Anything mentioned in the Specifications and not shown on the Drawings or shown on the Drawings and not mentioned in the Specifications, shall be of like effect as if shown or mentioned in both.

- C. **Contractor to Report Discrepancies in Contract Documents.** Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by Owner. If, during the performance of the Work, Contractor finds a conflict, error, inconsistency or omission in the Contract Documents, it shall promptly and before proceeding with the Work affected thereby, report such conflict, error, inconsistency or omission to Owner and, if applicable, A/E in writing.
- D. **Contractor Knowledge of Discrepancy in Documents – Responsibility.** Contractor shall do no Work without applicable Drawings, Specifications or written modifications, or Shop Drawings where required, unless instructed to do so in writing by Owner. If Contractor performs any construction activity and it knows or reasonably should have known that any of the Contract Documents contain a conflict, error, inconsistency or omission, Contractor shall be responsible for the performance and shall bear the cost for its correction.
- E. **Contractor to Perform Work Implied by Contract Documents.** Contractor shall provide any work or materials the provision of which is clearly implied and is within the scope of the Contract Documents even if the Contract Documents do not mention them specifically.
- F. **Interpretation Questions Referred to Owner.** Questions regarding interpretation of the requirements of the Contract Documents shall be referred to the Owner and, if applicable, the A/E.

4.02 PROJECT RECORD

- A. **Contractor to Maintain Project Record Drawings and Specifications.** Contractor shall legibly mark in ink on a separate set of the Drawings and Specifications all actual construction which differ from the project Drawings and Specifications, including, but not limited to, depths of foundations, horizontal and vertical locations of internal and underground utilities and appurtenances referenced to permanent visible and accessible surface improvements, field changes with dimensions and details, actual suppliers, manufacturers and trade names, models of installed equipment, and Change Order Proposals (“COP”). This separate set of Drawings and Specifications shall be the “Project Record”.

- B. **Update Project Record Weekly and Keep on Site.** The Project Record shall be maintained on the Project site throughout the construction and shall be clearly labeled “PROJECT RECORD”. The Project Record shall be updated at least weekly noting all changes and shall be available to Owner at all times.
- C. **Final Project Record to Owner Before Final Acceptance.** Contractor shall submit the completed and finalized Project Record to Owner prior to Final Acceptance.

4.03 SHOP DRAWINGS

- A. **Definition of Shop Drawings.** “Shop Drawings” means documents and other information required to be submitted to Owner and by Contractor pursuant to the Contract Documents, showing in detail: the proposed fabrication and assembly of structural elements; and the installation (i.e. form, fit, and attachment details) of materials and equipment. Shop Drawings include, but are not limited to, drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data, samples and similar materials furnished by Contractor to explain in detail specific portions of the Work required by the Contract Documents. For materials and equipment to be incorporated into the Work, Contractor submittal shall include the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature and rating of the item. When directed, Contractor shall submit all samples at its own expense. Owner may duplicate, use and disclose Shop Drawings provided in accordance with the Contract Documents.
- B. **Approval of Shop Drawings by Contractor and Owner.** Contractor shall coordinate all Shop Drawings and review them for accuracy, completeness and compliance with the Contract Documents, and shall indicate its approval thereon as evidence of such coordination and review. Where required by law, Shop Drawings shall be stamped by an appropriate professional licensed by the state of Washington. Shop Drawings submitted to Owner without evidence of Contractor’s approval shall be returned for resubmission. Contractor shall review, approve and submit Shop Drawings with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of Owner or separate contractors. Contractor’s submittal schedule shall allow a reasonable time for Owner and, if applicable, A/E review. Owner and, if

applicable, A/E, will review, approve or take other appropriate action on the Shop Drawings. Contractor shall perform no portion of the Work requiring submittal and review of Shop Drawings until the respective submittal has been reviewed and the Owner and, if applicable, A/E, has approved or taken other appropriate action. Owner and, if applicable, A/E, shall respond to Shop Drawing submittals with reasonable promptness. Any Work by Contractor shall be in accordance with reviewed Shop Drawings. Submittals made by Contractor which are not required by the Contract Documents may be returned without action.

- C. **Contractor Not Relieved of Responsibility When Shop Drawings Approved.** Approval, or other appropriate action with regard to Shop Drawings, by Owner and, if applicable, A/E, shall not relieve Contractor of responsibility for any errors or omissions in such Shop Drawings, nor from responsibility for compliance with the requirements of the Contract Documents. Unless specified in the Contract Documents, review by Owner and, if applicable, A/E, shall not constitute an approval of the safety precautions employed by Contractor during construction, or constitute an approval of Contractor's means or methods of construction. If Contractor fails to obtain approval before installation, and the item or work is subsequently rejected, Contractor shall be responsible for all costs of correction.
- D. **Variations Between Shop Drawings and Contract Drawings.** If Shop Drawings show variations from the requirements of the Contract Documents, Contractor shall describe such variations in writing, separate from the Shop Drawings, at the time it submits the Shop Drawings containing such variations. If Owner and, if applicable, A/E, approves any such variation, an appropriate Change Order will be issued. If the variation is minor and does not involve an adjustment in the Contract Sum or Contract Time, a Change Order need not be issued; however, the modification shall be recorded upon the Project Record.
- E. **Contractor to Submit Shop Drawings.** Unless otherwise provided in Division 1, Contractor shall submit to Owner and, if applicable, A/E, for approval three (3) original paper copies and an electronic copy in PDF format of all Shop Drawings. Unless otherwise indicated, one (1) original copy of all Shop Drawings shall be retained by Owner; one (1) original copy shall be

retained by A/E; and one (1) original copy shall be returned to Contractor.

4.04 ORGANIZATION OF SPECIFICATIONS

- A. **Specification Organization by Trade.** Specifications are prepared in sections which conform generally with trade practices. These sections are for Owner and Contractor convenience and shall not control Contractor in dividing the Work among the Subcontractors or in establishing the extent of the Work to be performed by any trade.

4.05 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS, AND OTHER DOCUMENTS

- A. **Owner Or, If Applicable, A/E, Not Contractor, Owns Copyright of Drawings and Specifications.** The Drawings, Specifications and other documents prepared by Owner or, if applicable, A/E, (the "Preparer") are instruments of Preparer's service through which the Work to be executed by Contractor is described. Neither Contractor nor any Subcontractor shall own or claim a copyright in the Drawings, Specifications and other documents prepared by Preparer, and Preparer shall be deemed the author of them and will, along with any rights of Owner, retain all common law, statutory and other reserved rights, in addition to the copyright. All copies of these documents, except Contractor's set, shall be returned or suitably accounted for to Owner or, if applicable, A/E, on request, upon completion of the Work.
- B. **Drawings and Specifications to Be Used Only for This Project.** The Drawings, Specifications and other documents prepared by the Owner or, if applicable, A/E, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner and, if applicable, A/E. Contractor and Subcontractors are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by Owner or, if applicable, A/E, appropriate to and for use in the execution of their Work.
- C. **Shop Drawing License Granted to Owner.** Contractor and all Subcontractors grant a non-exclusive license to Owner, without additional

cost or royalty, to use for its own purposes (including reproduction) all Shop Drawings, together with the information and diagrams contained therein, prepared by Contractor or any Subcontractor. In providing Shop Drawings, Contractor and all Subcontractors warrant that they have authority to grant to Owner a license to use the Shop Drawings, and that such license is not in violation of any copyright or other intellectual property right. Contractor agrees to defend and indemnify Owner pursuant to the indemnity provisions in Sections 5.03 and 5.22 from any violations of copyright or other intellectual property rights arising out of Owner's use of the Shop Drawings hereunder, or to secure for Owner, at Contractor's own cost, licenses in conformity with this Section.

- D. **Shop Drawings to Be Used Only for This Project.** The Shop Drawings and other submittals prepared by Contractor, Subcontractors of any tier, or its or their equipment or material suppliers, and copies thereof furnished to Contractor, are for use solely with respect to this Project. They are not to be used by Contractor or any Subcontractor of any tier, or material or equipment supplier, on other projects or for additions to this Project outside the scope of the Work without the specific written consent of Owner. The Contractor, Subcontractors of any tier, and material or equipment suppliers are granted a limited license to use and reproduce applicable portions of the Shop Drawings and other submittals appropriate to and for use in the execution of their Work under the Contract Documents.

PART 5: PERFORMANCE

5.01 CONTRACTOR CONTROL AND SUPERVISION

- A. **Contractor Responsible for Means and Methods of Construction.** Contractor shall supervise and direct the Work, using its best skill and attention, and shall perform the Work in a skillful manner. Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the Work, unless the Contract Documents give other specific instructions concerning these matters. Contractor shall disclose its means and methods of construction when requested by Owner.
- B. **Competent Superintendence Required.** Performance of the Work shall be directly supervised by a competent superintendent who

has authority to act for Contractor. The superintendent must be satisfactory to the Owner and shall not be changed without the prior written consent of Owner. Owner may require Contractor to remove the superintendent from the Work or Project site, if Owner reasonably deems the superintendent incompetent, careless or otherwise objectionable, provided Owner has first notified Contractor in writing and allowed a reasonable period for transition.

- C. **Contractor Responsible for Acts and Omissions of Self and Agents.** Contractor shall be responsible to Owner for acts and omissions of Contractor, Subcontractors and their employees and agents.
- D. **Contractor to Employ Competent and Disciplined Workforce.** Contractor shall enforce strict discipline and good order among all of the Contractor's employees and other persons performing the Work. Contractor shall not permit employment of persons not skilled in tasks assigned to them. Contractor's employees shall at all times conduct business in a manner which assures fair, equal and nondiscriminatory treatment of all persons. Owner may, by written notice, request Contractor to remove from the Work or Project site any employee Owner reasonably deems incompetent, careless or otherwise objectionable.
- E. **Contractor to Keep Project Documents on Site.** Contractor shall keep on the Project site a copy of the Drawings, Specifications, addenda, reviewed Shop Drawings and permits, permit drawings and life safety plans as may be required by federal, state and local agencies.
- F. **Contractor to Comply with Ethical Standards.** Contractor shall ensure that its owner(s) and employees, and those of its Subcontractors, comply with the Ethics in Public Service Act, RCW 42.52, which, among other things, prohibits state employees from having an economic interest in any public works contract that was made by, or supervised by, that employee. Contractor shall remove, at its sole cost and expense, any of its, or its Subcontractors' employees if they are in violation of this act.

5.02 PERMITS, FEES, AND NOTICES

- A. **Contractor to Obtain and Pay for Permits.** Unless otherwise provided in the Contract Documents, Contractor shall pay for and obtain all permits, licenses and inspections necessary for proper execution and completion of the Work.

Upon issuance of a permit or license, a copy shall be provided to the Owner. Prior to Final Acceptance, the original approved and signed permits shall be delivered to Owner.

- B. **Allowances for Permit Fees.** If allowances for permits or utility fees are called for in the Contract Documents and set forth in Contractor’s bid, and the actual costs of those permits or fees differ from the allowances in the Contract Documents, the difference shall be adjusted by Change Order.
- C. **Contractor to Comply with All Applicable Laws.** Contractor shall comply with and give notices required by all federal, state and local laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work.

5.03 PATENTS AND ROYALTIES

- A. **Payment, Indemnification and Notice.** Contractor is responsible for and shall pay all royalties and license fees. Contractor shall defend, indemnify and hold Owner harmless from any costs, expenses and liabilities arising out of the infringement by Contractor and/or its Subcontractors, of any tier, of any patent, copyright or other intellectual property right used in the Work; however, provided that Contractor gives prompt notice, Contractor shall not be responsible for such defense or indemnity when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents. If Contractor has reason to believe that use of the required design, process or product constitutes an infringement of a patent or copyright, it shall promptly notify Owner of such potential infringement in writing.

5.04 PREVAILING WAGES

- A. **Contractor to Pay Prevailing Wages.** Contractor and Subcontractors of any tier shall pay the prevailing rate of wages to all workers, laborers or mechanics employed in the performance of any part of the Work in accordance with RCW 39.12 *Prevailing Wages on Public Works*, the rules and regulations of L&I, and where applicable, the Davis-Bacon and Related Acts. The schedule of prevailing wage rates for the locality or localities of the Work is determined by the Industrial Statistician of L&I. Such schedule is located at:
<https://fortress.wa.gov/lni/wagelookup/prvwagelookup.aspx>

Contractor shall use the Bid proposal due date as the effective date and Spokane County as the locality of work when determining applicable prevailing wage rates. A copy of applicable prevailing wage rates is available for viewing upon request at Spokane Transit Authority, 1230 W. Boone Ave., Spokane, WA 99201. It is the Contractor’s responsibility to verify the applicable state and federal prevailing wage rates for all job classifications.

- B. **Statement of Intent to Pay Prevailing Wage.** Before payment is made by the Owner to the Contractor for any work performed by the Contractor and subcontractors whose work is included in the Application for Payment, the Contractor shall submit, or shall have previously submitted to the Owner for the Project, a Statement of Intent to Pay Prevailing Wages (“Intent”), approved by L&I, certifying the rate of hourly wage to be paid to each classification of laborers, workers or mechanics employed upon the Work by Contractor and Subcontractors of any tier. Such rates of hourly wage shall not be less than the prevailing wage rate.
- C. **Affidavit of Wages Paid.** Prior to release of retainage or, where applicable, bond, the Contractor shall submit to the Owner an Affidavit of Wages Paid (“Affidavit”), approved by L&I, for the Contractor and every subcontractor, of any tier, that performed work on the Project.
- D. **Statement with Pay Application.** Each Application for Payment submitted by Contractor shall state that prevailing wages have been paid in accordance with the pre-filed and approved Intent.
- E. **Post Statements of Intent at Job Site.** Copies of the approved Intent(s) shall be posted on the job site with the address and telephone number of the Industrial Statistician of L&I where a complaint or inquiry concerning prevailing wages may be made.
- F. **Contractor to Pay for Statements of Intent and Affidavits.** In compliance with chapter 296-127 WAC, Contractor shall pay to L&I the currently established fee(s) for each Intent and/or Affidavit submitted to L&I for certification.
- G. **Certified Payrolls.** Consistent with RCW 39.12.120(2) and WAC 296-127-320, the Contractor and Subcontractors of any tier shall submit certified payroll records as required.

H. **Dispute Resolution.** Any dispute regarding prevailing wage rates that cannot be resolved between the parties shall be referred to the Director of L&I and such decision of the Director of L&I shall be final and conclusive and binding on the parties.

5.05 HOURS OF LABOR

A. **Overtime.** Contractor shall comply with all applicable provisions of RCW 49.28, which are incorporated herein by reference. Pursuant to that statute, no laborer, worker or mechanic employed by Contractor, any Subcontractor, or any other person performing or contracting to do the whole or any part of the Work, shall be permitted or required to work more than eight (8) hours in any one (1) calendar day, provided, that in cases of extraordinary emergency, such as danger to life or property, the hours of work may be extended, but in such cases the rate of pay for time employed in excess of eight (8) hours of each calendar day shall be not less than one and one-half (1-1/2) times the rate allowed for this same amount of time during eight (8) hours of service.

B. **4-10 Agreements.** Notwithstanding the preceding Section, RCW 49.28 permits a contractor or subcontractor in any public works contract subject to those provisions, to enter into an agreement with its employees in which the employees work up to ten (10) hours in a calendar day. No such agreement may provide that the employees work ten-hour days for more than four (4) calendar days a week. Any such agreement is subject to approval by the employees. The overtime provisions of RCW 49.28 shall not apply to the hours, up to forty (40) hours per week, worked pursuant to any such agreement.

5.06 NONDISCRIMINATION

A. **Discrimination Prohibited by Applicable Laws.** Discrimination in all phases of employment is prohibited by, among other laws and regulations, Title VI of the Civil Rights Act, Title VII of the Civil Rights Act of 1964, the Vietnam Era Veterans Readjustment Act of 1974, Sections 503 and 504 of the Vocational Rehabilitation Act of 1973, the Equal Employment Act of 1972, the Age Discrimination Act of 1975, Section 202 of the Americans with Disabilities Act of 1990, the Civil Rights Act of 1991, Presidential Executive Order 11246, Executive Order 11375, Executive Order 13672, Federal Transit law at 49 U.S.C. § 5332, the Washington State Law Against Discrimination,

RCW 49.60, and Gubernatorial Executive Order 85-09. These laws and regulations establish minimum requirements for affirmative action and fair employment practices which Contractor and Subcontractors must meet.

B. During performance of the Work:

1. **Protected Classes.** Contractor shall not discriminate against any employee or applicant for employment because of race, creed, religion, color, national origin, sex, age, marital status, sexual orientation, gender identity, or the presence of any physical, sensory or mental disability, Vietnam era veteran status, or disabled veteran status, nor commit any other unfair practices as defined in RCW 49.60 and prohibited under state and federal law.

2. **Advertisements to State Nondiscrimination.** Contractor shall, in all solicitations or advertisements for employees placed by or for it, state that all qualified applicants will be considered for employment, without regard to race, creed, religion, color, national origin, sex, age, marital status, sexual orientation, gender identity, or the presence of any physical, sensory, or mental disability.

3. **Contractor to Notify Unions and Others of Nondiscrimination.** Contractor shall send to each labor union, employment agency, or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice advising the labor union, employment agency, or workers' representative of Contractor's obligations according to the Contract Documents, RCW 49.60, and state and federal prohibitions against discrimination.

4. **Owner and Government Access to Contractor Records.** Contractor shall permit access to its books, records and accounts, and to its premises by Owner, the Equal Employment Opportunity Commission, and the Washington State Human Rights Commission, for the purpose of investigation to ascertain compliance with this Section of the Contract Documents.

5. **Pass Through Provisions to Subcontractors.** Contractor shall include the provisions of this Section in every Subcontract and shall require Subcontractors to include the provisions of this Section in all contracts for the Project.

5.07 SAFETY PRECAUTIONS

- data sheets required by chapter 296-62 WAC.
- A. **Contractor Responsible for Safety.** Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Work.
 - B. **Contractor Safety Responsibilities.** In carrying out its responsibilities according to the Contract Documents, Contractor shall protect the lives and health of employees performing the Work and other persons who may be affected by the Work; prevent damage to materials, supplies and equipment whether on site or stored off-site; and prevent damage to other property at the site or adjacent thereto. Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss; shall erect and maintain all necessary safeguards for such safety and protection; and shall notify owners of adjacent property and utilities when prosecution of the Work may affect them.
 - C. **Contractor to Maintain Safety Records.** Contractor shall maintain an accurate record of exposure data on all incidents relating to the Work resulting in death, traumatic injury, occupational disease or damage to property, materials, supplies or equipment. Contractor shall immediately report any such incident to Owner. Owner shall, at all times, have a right of access to all records of exposure.
 - D. **Contractor to Provide Hazmat Information and Training.** Contractor shall provide all persons working on the Project site with information and training on hazardous chemicals in their work at the time of their initial assignment, and whenever a new hazard is introduced into their work area.
 1. **Information.** At a minimum, Contractor shall inform persons working on the Project site of:
 - a. **WAC Requirements.** The requirements of chapter 296-62 WAC, General Occupational Health Standards;
 - b. **Presence of Hazardous Chemicals.** Any operations in their work area where hazardous chemicals are present; and
 - c. **Hazard Communications Program.** The location and availability of written hazard communication programs, including the required list(s) of hazardous chemicals and material safety
 2. **Training.** At a minimum, Contractor shall provide training for persons working on the Project site which includes, but is not limited to:
 - a. **Detecting Hazardous Chemicals.** Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
 - b. **Hazards of Chemicals.** The physical and health hazards of the chemicals in the work area;
 - c. **Protection from Hazards.** The measures such persons can take to protect themselves from these hazards, including specific procedures Contractor, its Subcontractors or others have implemented to protect those on the Project site from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures and personal protective equipment to be used; and
 - d. **Hazard Communications Program.** The details of the hazard communications program developed by Contractor, or its Subcontractors, including an explanation of the labeling system and the material safety data sheet, and how employees can obtain and use the appropriate hazard information.
 - E. **Hazardous, Toxic or Harmful Substances.** Contractor's responsibility for hazardous, toxic or harmful substances shall include the following duties:
 1. **Illegal Use of Dangerous Substances.** Contractor shall not keep, use, dispose, transport, generate or sell on or about the Project site, any substances now or hereafter designated as, or which are subject to regulation as, hazardous, toxic, dangerous or harmful by any federal, state or local law, regulation, statute or ordinance (hereinafter collectively referred to as "hazardous substances") in violation of any such law,

regulation, statute or ordinance, but in no case shall any such hazardous substance be stored more than ninety (90) Days on the Project site.

2. Contractor Notifications of Spills, Failures, Inspections, Citations and Fines.

Contractor shall promptly notify Owner of all spills or releases of any hazardous substances which are otherwise required to be reported to any regulatory agency and pay the cost of cleanup. Contractor shall promptly notify Owner of all failures to comply with any federal, state or local law, regulation or ordinance; all inspections of the Project site by any regulatory entity concerning the same; any citation; all regulatory orders or fines; and all responses or interim cleanup actions taken by or proposed to be taken by any government entity or private party on the Project site.

F. **Public Safety and Traffic.** All Work shall be performed with due regard for the safety of the public. Contractor shall perform the Work so as to cause a minimum of interruption of vehicular traffic or inconvenience to pedestrians. All arrangements to care for such traffic shall be Contractor's responsibility. All expenses involved in the maintenance of traffic by way of detours shall be borne by Contractor.

G. **Contractor to Act in an Emergency.** In an emergency affecting the safety of life or the Work or of adjoining property, Contractor is permitted to act, at its discretion, to prevent such threatened loss or injury, and Contractor shall so act if so authorized or instructed.

H. **No Duty of Safety by Owner or A/E.** Nothing provided in this Section shall be construed as imposing any duty upon Owner and, if applicable, A/E, with regard to, or as constituting any express or implied assumption of control or responsibility over, Project site safety, or over any other safety conditions relating to employees or agents of Contractor or any of its Subcontractors, or the public.

5.08 OPERATIONS, MATERIAL HANDLING, AND STORAGE AREAS

A. **Limited Storage Areas.** Contractor shall confine all operations, including storage of materials, to Owner-approved areas.

B. **Temporary Buildings and Utilities at Contractor Expense.** Temporary buildings (e.g.,

storage sheds, shops, offices) and utilities may be provided by Contractor only with the consent of Owner and without expense to Owner. The temporary buildings and utilities shall be removed by Contractor at its expense upon completion of the Work.

C. **Roads and Vehicle Loads.** Contractor shall use only established roadways or temporary roadways authorized by Owner. When materials are transported in prosecuting the Work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by federal, state or local law or regulation.

D. **Ownership and Reporting by Contractor of Demolished Materials.** Ownership and control of all materials or facility components to be demolished or removed from the Project site by Contractor shall immediately vest in Contractor upon severance of the component from the facility or severance of the material from the Project site. Contractor shall be responsible for compliance with all laws governing the storage and ultimate disposal. Contractor shall provide Owner with a copy of all manifests and receipts evidencing proper disposal when required by Owner or applicable law.

E. **Contractor Responsible for Care of Materials and Equipment On-Site.** Contractor shall be responsible for the proper care and protection of its materials and equipment delivered to the Project site. Materials and equipment may be stored on the premises subject to approval of Owner. When Contractor uses any portion of the Project site as a shop, Contractor shall be responsible for any repairs, patching or cleaning arising from such use.

F. **Contractor Responsible for Loss of Materials and Equipment.** Contractor shall protect and be responsible for any damage or loss to the Work, or to the materials or equipment until the date of Substantial Completion, and shall repair or replace without cost to Owner any damage or loss that may occur, except damages or loss caused by the acts or omissions of Owner. Contractor shall also protect and be responsible for any damage or loss to the Work, or to the materials or equipment, after the date of Substantial Completion, and shall repair or replace without cost to Owner any such damage or loss that might occur, to the extent such damages or loss are caused by the acts or omissions of Contractor, or any Subcontractor.

5.09 PRIOR NOTICE OF EXCAVATION

- A. **Excavation Defined.** “Excavation” means an operation in which earth, rock, or other material on or below the ground is moved or otherwise displaced by any means, except the tilling of soil less than twelve (12) inches in depth for agricultural purposes, or road ditch maintenance that does not change the original road grade or ditch flow line.
- B. **Use of Locator Services.** Before commencing any excavation, Contractor shall provide notice of the scheduled commencement of excavation to all owners of underground facilities or utilities, through locator services.

5.10 UNFORESEEN PHYSICAL CONDITIONS

- A. **Notice Requirement for Concealed or Unknown Conditions.** If Contractor encounters conditions at the site which are subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents, or unknown physical conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then Contractor shall give written notice to Owner promptly and in no event later than seven (7) Days after the first observance of the conditions. Conditions shall not be disturbed prior to such notice.
- B. **Adjustment in Contract Time and Contract Sum.** If such conditions differ materially and cause a change in Contractor’s cost of, or time required for, performance of any part of the Work, the Contractor may be entitled to an equitable adjustment in the Contract Time or Contract Sum, or both, provided it makes a request therefore as provided in Part 7.

5.11 PROTECTION OF EXISTING STRUCTURES, EQUIPMENT, VEGETATION, UTILITIES, AND IMPROVEMENTS

- A. **Contractor to Protect and Repair Property.** Contractor shall protect from damage all existing structures, equipment, improvements, utilities and vegetation at or near the Project site; and on adjacent property of a third party, the locations of which are made known to or should be known by Contractor. Contractor shall repair any damage,

including that to the property of a third party, resulting from failure to comply with the requirements of the Contract Documents or failure to exercise reasonable care in performing the Work. If Contractor fails or refuses to repair the damage promptly, Owner may have the necessary work performed and charge the cost to Contractor.

- B. **Tree and Vegetation Protection.** Contractor shall only remove trees when specifically authorized to do so and shall protect vegetation that will remain in place.

5.12 LAYOUT OF WORK

- A. **Advanced Planning of The Work.** Contractor shall plan and lay out the Work in advance of operations so as to coordinate all work without delay or revision.
- B. **Layout Responsibilities.** Contractor shall lay out the Work from Owner-established baselines and benchmarks indicated on the Drawings and shall be responsible for all field measurements in connection with the layout. Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials and labor required to lay out any part of the Work. Contractor shall be responsible for executing the Work to the lines and grades that may be established. Contractor shall be responsible for maintaining or restoring all stakes and other marks established.

5.13 MATERIAL AND EQUIPMENT

- A. **Contractor to Provide New and Equivalent Equipment and Materials.** All equipment, material and articles incorporated into the Work shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in the Contract Documents. References in the Specifications to equipment, material, articles or patented processes by trade name, make or catalog number, shall be regarded as establishing a standard quality and shall not be construed as limiting competition. Contractor may, at its option, use any equipment, material, article or process that, in the judgment of A/E, is equal to that named in the specifications, unless otherwise specifically provided in the Contract Documents.
- B. **Contractor Responsible for Fitting Parts Together.** Contractor shall do all cutting, fitting or patching that may be required to make its several parts fit together properly or receive or be

received by work of others set forth in, or reasonably implied by, the Contract Documents. Contractor shall not endanger any work by cutting, excavating or otherwise altering the Work and shall not cut or alter the work of any other contractor unless approved in advance by Owner.

- C. **Owner May Reject Defective Work.** Should any of the Work be found defective, or in any way not in accordance with the Contract Documents, the Work, in whatever stage of completion, may be rejected by Owner.

5.14 AVAILABILITY AND USE OF PREMISES AND UTILITY SERVICES

- A. **Use of Premises.** Contractor's use of Owner's premises is limited to Project activities within the areas identified.
- B. **Owner's Occupation of Site.** The Owner may occupy the site and existing building(s) during the entire work period. Contractor agrees to cooperate with Owner during operation to minimize conflicts and facilitate Owner usage. Contractor agrees to perform the work so as not to interfere with the Owner's operations.
- C. **Contractor Must Allow Owner Access.** Contractor must at all times provide for and allow Owner access. Contractor shall not store or stage vehicles or materials on driveways or at entrances and must keep these access points serving the premises clear and available to the Owner at all times.
- D. **Owner to Provide and Charge for Utilities.** Owner shall make all reasonable utilities available to Contractor from existing outlets and supplies, as specified in the Contract Documents. Unless otherwise provided in the Contract Documents, the utility service consumed shall be charged to or paid for by Contractor at prevailing rates charged to Owner or, where the utility is produced by Owner, at reasonable rates determined by Owner. Contractor will carefully conserve any utilities furnished.
- E. **Contractor to Install Temporary Connections and Meters.** Contractor shall, at its expense and in a skillful manner satisfactory to Owner, install and maintain all necessary temporary connections and distribution lines, together with appropriate protective devices, and all meters required to measure the amount of each utility used for the purpose of determining charges. Prior to the date of Final Acceptance, Contractor shall remove all

temporary connections, distribution lines, meters and associated equipment and materials.

5.15 TESTS AND INSPECTION

- A. **Owner to Provide for All Testing and Inspection of Work.** Owner shall maintain an adequate testing and inspection program and perform such tests and inspections as are necessary or required to ensure that the Work conforms to the requirements of the Contract Documents. Contractor shall be responsible for quality surveillance of all its Work and all Work performed by any Subcontractor. Unless otherwise provided, Owner shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. Contractor shall give Owner timely notice of when and where tests and inspections are to be made. Contractor shall maintain complete inspection records and make them available to Owner.
- B. **Owner May Conduct Tests and Inspections.** Owner may, at any reasonable time, conduct such inspections and tests as it deems necessary to ensure that the Work is in accordance with the Contract Documents. Owner shall promptly notify Contractor if an inspection or test reveals that the Work is not in accordance with the Contract Documents. Unless the subject items are expressly accepted by Owner, such Owner inspection and tests are for the sole benefit of Owner and do not:
1. Constitute or imply acceptance;
 2. Relieve Contractor of responsibility for providing adequate quality control measures;
 3. Relieve Contractor of responsibility for risk of loss or damage to the Work, materials or equipment;
 4. Relieve Contractor of its responsibility to comply with the requirements of the Contract Documents; or
 5. Impair Owner's right to reject defective or nonconforming items, or to avail itself of any other remedy to which it may be entitled.
- C. **Inspections or Inspectors Do Not Modify Contract Documents.** Neither observations by an inspector retained by Owner, the presence or absence of such inspector on the site, nor inspections, tests or approvals by others, shall

relieve Contractor from any requirement of the Contract Documents, nor is any such inspector authorized to change any term or condition of the Contract Documents.

- D. **Contractor Responsibilities on Inspections.** Contractor shall promptly furnish, without additional charge, all facilities, labor, material and equipment reasonably needed for performing such safe and convenient inspections and tests as may be required by Owner. Owner may charge Contractor any additional cost of inspection or testing when Work is not ready at the time specified by Contractor for inspection or testing, or when prior rejection makes reinspection or retest necessary. Owner shall perform its inspections and tests in a manner that will cause no undue delay in the Work.

5.16 CORRECTION OF NONCONFORMING WORK

- A. **Work Covered by Contractor Without Inspection.** If a portion of the Work is covered contrary to the requirements in the Contract Documents, it must, if required in writing by Owner, be uncovered for Owner's observation and be replaced at the Contractor's expense and without change in the Contract Time.
- B. **Payment Provisions for Uncovering Covered Work.** If, at any time prior to Final Completion, Owner desires to examine the Work, or any portion of it, which has been covered, Owner may request to see such Work and it shall be uncovered by Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an adjustment in the Contract Sum for the costs of uncovering and replacement, and, if completion of the Work is thereby delayed, an adjustment in the Contract Time, provided it makes such a request as provided in Part 7. If such Work is not in accordance with the Contract Documents, the Contractor shall pay the costs of examination and reconstruction.
- C. **Contractor to Correct and Pay for Non-Conforming Work.** Contractor shall promptly correct Work found by Owner not to conform to the requirements of the Contract Documents, whether observed before or after Substantial Completion and whether or not fabricated, installed or completed. Contractor shall bear all costs of correcting such nonconforming Work, including additional testing and inspections.
- D. **Contractor's Compliance with Warranty Provisions.** If, within one (1) year after the date

of Substantial Completion of the Work or designated portion thereof, or within one (1) year after the date for commencement of any system warranties established under Section 5.16.D, 5.21, 6.08.B, or within the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, Contractor shall correct it promptly after receipt of written notice from Owner to do so. Owner shall give such notice promptly after discovery of the condition. This period of one (1) year shall be extended, with respect to portions of Work first performed after Substantial Completion, by the period of time between Substantial Completion and the actual performance of the Work. Contractor's duty to correct with respect to Work repaired or replaced shall run for one (1) year from the date of repair or replacement. Obligations under this Section shall survive Final Acceptance.

- E. **Contractor to Remove Non-Conforming Work.** Contractor shall remove from the Project site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by Contractor nor accepted by Owner.
- F. **Owner May Charge Contractor for Non-Conforming Work.** If Contractor fails to correct nonconforming Work within a reasonable time after written notice to do so, Owner may replace, correct or remove the nonconforming Work and charge the cost thereof to the Contractor.
- G. **Contractor to Pay for Damaged Work During Correction.** Contractor shall bear the cost of correcting destroyed or damaged Work, whether completed or partially completed, caused by Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.
- H. **No Period of Limitation on Other Requirements.** Nothing contained in this Section shall be construed to establish a period of limitation with respect to other obligations which Contractor might have according to the Contract Documents. Establishment of the time period of one (1) year as described in Section 5.16.D relates only to the specific obligation of Contractor to correct the Work, and has no relationship to the time within which the Contractor's obligation to comply with the Contract Documents may be sought to be enforced, including the time within which such proceedings may be commenced.

- I. **Owner May Accept Non-Conforming Work and Charge Contractor.** If Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, Owner may do so instead of requiring its removal and correction, in which case the Contract Sum may be reduced as appropriate and equitable.

5.17 CLEAN UP

- A. **Contractor to Keep Site Clean and Leave It Clean.** Contractor shall at all times keep the Project site, including hauling routes, infrastructures, utilities and storage areas, free from accumulations of waste materials. Before completing the Work, Contractor shall remove from the premises its rubbish, tools, scaffolding, equipment and materials. Upon completing the Work, Contractor shall leave the Project site in a clean, neat and orderly condition satisfactory to Owner. If Contractor fails to clean up as provided herein, and after reasonable notice from Owner, Owner may do so, and the cost thereof shall be charged to Contractor. Contractor further agrees:

1. To comply with regulations of authorities having jurisdiction and safety standards for cleaning;
2. To not burn waste materials;
3. To not bury debris or excess materials on the Owner's property;
4. To not discharge volatile, harmful or dangerous materials into drainage systems; and
5. To remove waste materials from the site and dispose of in a lawful manner.
6. Where extra materials of value remaining after completion of associated work have become the Owner's property, arrange for disposition of these materials as directed.

5.18 ACCESS TO WORK AND COMMUNICATIONS REGARDING PROJECT STATUS

- A. **Owner and A/E Access to Work Site.** Contractor shall provide Owner and, if applicable, A/E, access to the Work in progress wherever located.
- B. **Pre-Project Conference.** Owner shall conduct a pre-project conference after execution of the Contract and prior to commencement of Contractor's performance. The parties to the

Agreement shall review their respective responsibilities and personnel assignments.

1. **Attendees.** The Owner, the Contractor and its superintendent, subcontractors, suppliers, manufacturers and other concerned parties shall be represented by persons authorized to conclude matters relating to the Work.
2. **Agenda.** Discuss significant items that could affect progress, including the tentative project progress schedule, critical sequencing, use of the premises and procedures for processing Change Orders and equipment deliveries.
3. Minutes of the meeting shall be taken by the Owner. The Owner shall promptly distribute the meeting minutes to everyone concerned. Contractor is required to distribute the meeting minutes to affected subcontractors and prime suppliers.

- C. **Progress Meetings at Regular Intervals.** Contractor should attempt to coordinate meeting dates with preparation of payment requests.

1. **Agenda.** Review minutes of the previous progress meeting. Review significant items that could affect progress. Include topics appropriate to the current status of the Project.
2. **Review Project Progress Schedule Since the Last Meeting.** Determine where each activity is in relation to the schedule, and whether on time, ahead of, or behind the schedule. Determine how areas that are behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether revisions are required to ensure that current and subsequent activities will be completed within the Contract time.

- D. **Reporting.** No later than three (3) days after each meeting, distribute copies of minutes of the meeting to each party present and to parties who should have been present. Include a summary, in narrative form, of progress since the previous meeting.

5.19 OTHER CONTRACTS

Owner may undertake or award other contracts for additional work at or near the Project site. Contractor shall reasonably cooperate with the other contractors and with Owner's employees and shall carefully adapt scheduling and perform the Work in accordance with these Contract Documents to reasonably accommodate the other work.

5.20 SUBCONTRACTORS AND SUPPLIERS

A. **Subcontractor Responsibilities.** The Contractor shall include the language of this Section in each of its first-tier Subcontracts and shall require each of its Subcontractors to include the same language of this Section in each of their subcontracts, adjusting only as necessary the terms used for the contracting parties. Upon request of the Owner, the Contractor shall promptly provide documentation to the Owner demonstrating that the Subcontractor meets the subcontractor responsibility criteria below. The requirements of this Section apply to all subcontractors regardless of tier. At the time of subcontract execution, the Contractor shall verify that each of its first-tier subcontracts meet the following bidder responsibility criteria:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of subcontract bid submittal;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. Have a Washington Employment Security Department number, as required in Title 50 RCW;
4. Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
5. Maintain Industrial Insurance (workers' compensation coverage) for the subcontractor's employees working in Washington, as required in Title 51 RCW;
6. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The training must be provided by L&I or by a training provider whose curriculum is approved by L&I. Contractors that have completed three (3) or more public works projects, have had a valid business license in Washington for three (3) or more years, and are listed on the L&I exemption list are exempt from this training requirement;
7. Within the three (3) year period immediately preceding the date of the bid solicitation, not have been determined by a final and binding citation and notice of assessment issued by L&I, or through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, as defined in

RCW [49.48.082](#), any provision of chapter [49.46](#), 49.48, or [49.52](#) RCW;

8. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3); and
9. If applicable, have:
 - a. An electrical contractor license, if required by Chapter 19.28 RCW; and/or
 - b. An elevator contractor license, if required by Chapter 19.28, RCW.

B. **Provide Names of Subcontractors and Use Qualified Firms.** Before submitting the first Application for Payment, Contractor shall furnish in writing to Owner the names, addresses and telephone numbers of all Subcontractors, as well as suppliers providing materials in excess of \$2,500 (two thousand five-hundred dollars). Contractor shall utilize Subcontractors and suppliers which are experienced and qualified, and meet the requirements of the Contract Documents, if any. Contractor shall not utilize any Subcontractor or supplier to whom the Owner has a reasonable objection and shall obtain Owner's written consent before making any substitutions or additions.

C. **Subcontracts in Writing and Pass Through Provision.** All Subcontracts must be in writing. By appropriate written agreement, Contractor shall require each Subcontractor, so far as applicable to the Work to be performed by the Subcontractor, to be bound to Contractor by terms of the Contract Documents, and to assume toward Contractor all the obligations and responsibilities which Contractor assumes toward Owner in accordance with the Contract Documents. Each Subcontract shall preserve and protect the rights of Owner in accordance with the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. However, nothing in this Section shall be construed to alter the contractual relations between Contractor and its Subcontractors with respect to insurance or bonds.

D. **Coordination of Subcontractors; Contractor Responsible for Work.** Contractor shall schedule, supervise, and coordinate the operations of all Subcontractors. No Subcontracting of any of the Work shall relieve Contractor from its

responsibility for the performance of the Work in accordance with the Contract Documents or any other obligations of the Contract Documents.

E. **Automatic Assignment of Subcontracts.** Each subcontract agreement for a portion of the Work is hereby assigned by Contractor to Owner provided that:

1. **Effective Only After Termination and Owner Approval.** The assignment is effective only after termination by Owner for cause pursuant to Section 9.01 and only for those Subcontracts which Owner accepts by notifying the Subcontractor in writing; and
2. **Owner Assumes Contractor's Responsibilities.** After the assignment is effective, Owner will assume all future duties and obligations toward the Subcontractor which Contractor assumed in the Subcontract.
3. **Impact of Bond.** The assignment is subject to the prior rights of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.

5.21 WARRANTY OF CONSTRUCTION

- A. **Contractor Warranty of Work.** In addition to any special warranties provided elsewhere in the Contract Documents, Contractor warrants that all Work conforms to the requirements of the Contract Documents and is free of any defect in equipment, material, or design furnished, or workmanship performed by Contractor.
- B. **Contractor Responsibilities.** With respect to all warranties, express or implied, for Work performed or materials furnished according to the Contract Documents, Contractor shall:
1. **Obtain Warranties.** Obtain all warranties that would be given in normal commercial practice;
 2. **Warranties for Benefit of Owner.** Require all warranties to be executed, in writing, for the benefit of Owner;
 3. **Enforcement of Warranties.** Enforce all warranties for the benefit of Owner, if directed by Owner; and
 4. **Contractor Responsibility for Subcontractor Warranties.** Be responsible to enforce any subcontractor's, manufacturer's, or supplier's warranties

should they extend beyond the period specified in the Contract Documents.

C. **Warranties Beyond Final Acceptance.** The obligations under this Section shall survive Final Acceptance.

5.22 INDEMNIFICATION

- A. In performing work and services hereunder, the Contractor, its employees, agents and representatives, shall be acting as independent contractors, and shall not be deemed or construed to be employees or agents of STA in any manner whatsoever. The Contractor shall not hold itself out as, nor claim to be, an officer or employee of STA by reason hereof, and will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of STA. The Contractor shall be solely responsible for any claims for wages or compensation by the Contractor's employees, agents and representatives, and shall save and hold STA harmless therefrom.
- B. To the maximum extent permitted by law, the Contractor shall indemnify and hold harmless STA and all of STA's officers, employees, and agents from and against all claims, demands, suits, penalties and liability of any kind, including injuries to persons or damages to property, which arise out of or are due to any acts, errors, or omissions of the Contractor, or the Contractor's employees, agents, and representatives in performing work and services under this Agreement. In the event that any claims, investigations, demands, suits, actions, and lawsuits arise out of any of the aforesaid acts, errors, or omissions, the Contractor shall assume all costs of defending such claims, suits, actions, or lawsuits, including legal fees incurred by STA, any penalties imposed on STA or the Contractor, and all judgments that may be obtained against STA, or any of its officers, agents, or employees in such suits. Further, the Contractor waives immunity under the Industrial Insurance Act and assumes all liability for actions brought by him or his employees against STA for injuries in the performance of this Agreement. The Contractor represents this provision has been negotiated with STA.
- C. To the maximum extent permitted by law, STA shall indemnify and hold harmless the Contractor and all of Contractor's officers, employees, and agents from and against all claims, demands, suits, penalties and liability of any kind, including injuries to persons or damages to property, which

arise out of or are due to any acts, errors, or omissions of STA, or STA's employees, agents, and representatives while engaged in the business of public transportation and with respect to its duties and obligations as fee owner of the real property which Contractor has been engaged to manage. In the event that any claims, investigations, demands, suits, actions, and lawsuits arise out of any of the aforesaid acts, errors, or omissions, STA shall assume all costs of defending such claims, suits, actions, or lawsuits, including legal fees incurred by Contractor, any penalties imposed on Contractor or STA, and all judgments that may be obtained against Contractor, or any of its officers, agents, or employees in such suits. STA represents this provision has been negotiated with Contractor.

PART 6: PAYMENTS AND COMPLETION

6.01 CONTRACT SUM

- A. **Owner Shall Pay Contract Sum.** Owner shall pay Contractor the Contract Sum plus state sales tax for performance of the Work, in accordance with the Contract Documents.

6.02 SCHEDULE OF VALUES

- A. **Contractor to Submit Schedule of Values.** Before submitting its first Application for Payment, Contractor shall submit to Owner for approval a Schedule of Values. The Schedule of Values shall include appropriate amounts for mobilization and demobilization, record drawings, Operations & Maintenance manuals, and any other requirements for Project closeout, and shall be approved and used by Owner as the basis for progress payments. Project closeout costs should be scheduled independent of any retainage amount. Payment for Work shall be made only for and in accordance with those items included in the Schedule of Values.

6.03 APPLICATION FOR PAYMENT

- A. **Statement of Intent to Pay Prevailing Wages.** The Statement of Intent to Pay Prevailing Wages for the Contractor and each Subcontractor must be on file with the Owner before commencement of work and before the first payment can be made.
- B. **Monthly Application for Payment with Substantiation.** At monthly intervals, unless determined otherwise by Owner, Contractor shall submit to Owner an itemized Application for

Payment for Work completed in accordance with the Contract Documents and the approved Schedule of Values.

1. Each Application for Payment must include a statement that prevailing wages have been paid by the contractor in accordance with the pre-filed statement or statements of Intent to Pay prevailing wages on file.
 2. If federally funded, certified weekly payrolls must be submitted with Application for Payment.
 3. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by the Owner.
 4. **Payment Application Times.** Progress payments will be made only for actual work performed or materials delivered.
 5. **Payment Application Forms.** Use the Form for Applications for Payment included in the addenda or preapproved format.
 6. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
 7. **Transmittal.** Submit one (1) executed copy of each Application for Payment to the Owner by means ensuring receipt within twenty-four (24) hours; one (1) copy shall be complete, including waivers of lien and similar attachments, when required.
 8. Transmit each copy with a transmittal form listing attachment(s), and recording appropriate information related to the application in a manner acceptable to the Owner.
 9. **Waivers of Mechanics Lien.** With each Application for Payment, submit waivers of lien from every entity who may lawfully be entitled to file a lien arising out of the Contract, and related to the work covered by the payment.
 10. The Contractor shall be paid, upon the submission of proper applications for payment, within thirty (30) days after STA's approval of the Contractor's application.
- C. **Contractor Certifies Subcontractors Paid.** By submitting an Application for Payment, Contractor is certifying that all Subcontractors have been paid, less earned retainage in

accordance with RCW 60.28.011, as their interests appeared in the last preceding certificate of payment. By submitting an Application for Payment, Contractor is recertifying that the representations set forth in Section 1.03 are true and correct, to the best of Contractor's knowledge, as of the date of the Application for Payment.

D. **Reconciliation of Work with Progress Schedule.** At the time it submits an Application for Payment, Contractor shall analyze and reconcile, to the satisfaction of Owner, the actual progress of the Work with the Progress Schedule.

E. **Payment for Material Delivered to Site or Stored Off-Site.** If authorized by Owner, the Application for Payment may include request for payment for material delivered to the Project site and suitably stored, or for completed preparatory work. Payment may similarly be requested for material stored off the Project site, provided Contractor complies with or furnishes satisfactory evidence of the following:

1. **Suitable Facility or Location.** The material will be placed in a facility or location that is structurally sound, dry, lighted and suitable for the materials to be stored;
2. **Facility or Location Within 10 Miles of Project.** The facility or location is located within a ten (10) mile radius of the Project. Other locations may be utilized, if approved in writing, by Owner;
3. **Facility or Location Exclusive to Project's Materials.** Only materials for the Project are stored within the facility or location (or a secure portion of a facility or location set aside for the Project);
4. **Insurance Provided on Materials in Facility or Location.** Contractor furnishes Owner a certificate of insurance extending Contractor's insurance coverage for damage, fire, and theft to cover the full value of all materials stored, or in transit;
5. **Facility or Location Locked and Secure.** The facility or location (or secure portion thereof) is continuously under lock and key, and only Contractor's authorized personnel shall have access;
6. **Owner Right of Access to Facility or Location.** Owner shall at all times have the right of access in company of Contractor;

7. **Contractor Assumes Total Responsibility for Stored Materials.** Contractor and its surety assume total responsibility for the stored materials; and

8. **Contractor Provides Documentation and Notice When Materials Moved to Site.** Contractor furnishes to Owner certified lists of materials stored, bills of lading, invoices, and other information as may be required, and shall also furnish Notice to Owner when materials are moved from storage to the Project site.

6.04 PROGRESS PAYMENTS

A. **Owner to Pay Within Thirty (30) Days.** Owner shall make progress payments, in such amounts as Owner determines are properly due, within thirty (30) Days after receipt of a properly executed and complete Application for Payment. Owner shall notify Contractor in accordance with chapter 39.76 RCW if the Application for Payment does not comply with the requirements of the Contract Documents.

B. **Withholding Retainage; Options for Retainage.** When allowed by law, Owner shall retain five percent (5%) of the amount of each progress payment until forty-five (45) Days after Final Acceptance and receipt of all documents required by law or the Contract Documents, including, at Owner's request, consent of surety to release of the retainage. In accordance with chapter 60.28 RCW, Contractor may request that monies reserved be retained in a fund by Owner, deposited by Owner in a bank or savings and loan, or placed in escrow with a bank or trust company to be converted into bonds and securities to be held in escrow with interest to be paid to Contractor. Owner may permit Contractor to provide an appropriate bond in lieu of the retained funds.

C. **Title Passes to Owner Upon Payment.** Title to all Work and materials covered by a progress payment shall pass to Owner at the time of such payment free and clear of all liens, claims, security interests, and encumbrances. Passage of title shall not, however, relieve Contractor from any of its duties and responsibilities for the Work or materials, or waive any rights of Owner to insist on full compliance by Contractor with the Contract Documents.

D. **Interest on Unpaid Balances.** Payments due and unpaid in accordance with the Contract

Documents may bear interest as specified in Chapter 39.76 RCW.

6.05 PAYMENTS WITHHELD

A. **Owner’s Right to Withhold Payment.** Owner may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any payment to such extent as may be necessary to protect Owner from loss or damage for reasons including but not limited to:

1. **Non-Compliant Work.** Work not in accordance with the Contract Documents;
2. **Remaining Work to Cost More Than Unpaid Balance.** Reasonable evidence that the Work required by the Contract Documents cannot be completed for the unpaid balance of the Contract Sum;
3. **Owner Correction or Completion Work.** Work by Owner to correct defective Work or complete the Work in accordance with Section 5.16;
4. **Contractor’s Failure to Perform.** Contractor’s failure to perform in accordance with the Contract Documents; or
5. **Contractor’s Negligent Acts or Omissions.** Cost or liability that may occur to Owner as the result of Contractor’s fault or negligent acts or omissions.

B. **Owner to Notify Contractor of Withholding for Unsatisfactory Performance.** In any case where part or all of a payment is going to be withheld for unsatisfactory performance, Owner shall notify Contractor in accordance with Chapter 39.76 RCW.

6.06 RETAINAGE AND BOND CLAIM RIGHTS

A. **Chapters 39.08 RCW and 60.28 RCW Incorporated by Reference.** Chapters 39.08 and 60.28 RCW, concerning the rights and responsibilities of Contractor and Owner with regard to the performance and payment bonds and retainage, are made a part of the Contract Documents by reference as though fully set forth herein.

6.07 SUBSTANTIAL COMPLETION

A. **Substantial Completion Defined.** Substantial Completion is the stage in the progress of the Work (or portion thereof designated and approved by Owner) when the construction is sufficiently

complete, in accordance with the Contract Documents, so Owner has full and unrestricted use and benefit of the facilities (or portion thereof designated and approved by Owner) for the use for which it is intended. All Work other than incidental corrective or punch list work shall be completed. Substantial Completion shall not have been achieved if all systems and parts are not functional, if utilities are not connected and operating normally, if all required occupancy permits have not been issued, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The date Substantial Completion is achieved shall be established in writing by Owner. Contractor may request an early date of Substantial Completion which must be approved by Change Order. Owner’s occupancy of the Work or designated portion thereof does not necessarily indicate that Substantial Completion has been achieved.

6.08 PRIOR OCCUPANCY

A. **Prior Occupancy Defined; Restrictions.** Owner may, upon written notice thereof to Contractor, take possession of or use any completed or partially completed portion of the Work (“Prior Occupancy”) at any time prior to Substantial Completion. Unless otherwise agreed in writing, Prior Occupancy shall not: be deemed an acceptance of any portion of the Work; accelerate the time for any payment to Contractor; prejudice any rights of Owner provided by any insurance, bond, guaranty, or the Contract Documents; relieve Contractor of the risk of loss or any of the obligations established by the Contract Documents; establish a date for termination or partial termination of the assessment of liquidated damages; or constitute a waiver of claims.

B. **Damage; Duty to Repair and Warranties.** Notwithstanding anything in the preceding Section, Owner shall be responsible for loss of or damage to the Work resulting from Prior Occupancy. Contractor’s one (1) year duty to repair any system warranties shall begin on building systems activated and used by Owner as agreed in writing by Owner and Contractor.

6.09 FINAL INSPECTION, FINAL COMPLETION, ACCEPTANCE, AND PAYMENT (PROJECT CLOSE-OUT)

- A. **Final Inspection.** On receipt of a request for inspection, the Owner will either proceed with inspection or advise the Contractor of unfilled requirements. The Owner will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
- B. The Owner will repeat the inspection once when requested and assured that the work has been substantially completed. Subsequent inspections necessary to assure that the work has been substantially completed will be charged at the Owner representative's normal billing rate and a Construction Change Directive will be prepared to deduct the representative's charges from the Contract Sum.
1. The Owner will reinspect the work upon receipt of notice that the work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner.
 2. Upon completion of reinspection, the Owner will prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
- C. Before requesting final inspection for certification of final acceptance and final payment, Contractor must complete the following:
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes, if applicable, to the Contract Sum.
 3. Submit a certified copy of the Owner's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Owner.
 4. Submit a consent of surety to final payment.

5. Submit a final liquidated damages settlement statement, if applicable.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 7. Closeout and final payment of this project may be contingent upon completion and resolution of a Davis-Bacon Prevailing Wage audit.
 8. Remove temporary protection and facilities installed for protection of the work during construction.
 9. Assurance that unsettled claims will be settled.
 10. Assurance that work not complete and accepted will be completed without undue delay.
 11. Transmittal of required project construction records to Owner.
 12. Proof that taxes, fees, and similar obligations have been paid.
 13. Removal of surplus materials (not belonging to STA), rubbish and similar elements.
 14. Affidavit of Wages Paid certification.
 15. If federally funded, submit final certified weekly payrolls.
 16. All required warranties have been written and submitted.
- D. **Final Completion Defined.** Final Completion shall be achieved when the Work is fully and finally complete in accordance with the Contract Documents. The date Final Completion is achieved shall be established by Owner in writing, but in no case shall constitute Final Acceptance which is a subsequent, separate, and distinct action.
- E. **Final Acceptance Defined.** Final Acceptance shall be achieved when the Contractor has completed the requirements of the Contract Documents. The date Final Acceptance is achieved shall be established by Owner in writing. Prior to Final Acceptance, Contractor shall, in addition to all other requirements in the Contract Documents, submit to Owner a written notice of any outstanding disputes or claims between Contractor and any of its Subcontractors, including the amounts and other details thereof. Neither Final Acceptance, nor final payment, shall release Contractor or its sureties from any

obligations of these Contract Documents or the payment and performance, or constitute a waiver of any claims by Owner arising from Contractor's failure to perform the Work in accordance with the Contract Documents.

1. Final payment (retainage or release of bond where applicable) cannot be made until Release of Lien Notices have been received from the Washington State Department of Revenue, Employment Security Department, and L&I, if applicable.

F. **Final Payment Waives Claim Rights.** Acceptance of final payment by Contractor, or any Subcontractor, shall constitute a waiver and release to Owner of all claims by Contractor, or any such Subcontractor, for an increase in the Contract Sum or the Contract Time, and for every act or omission of Owner relating to or arising out of the Work, except for those Claims made in accordance with the procedures, including the time limits identified in the Contract Documents.

G. **Prior to and/or contemporaneous with, Final Acceptance the following must be complete:**

1. Contractor must submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents;
2. Contractor must obtain and submit releases enabling the Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificates, and similar releases as applicable;
3. Contractor must complete final clean up requirements; and
4. Contractor must arrange for each installer of equipment that requires regular maintenance to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives.

PART 7: CHANGES

7.01 CHANGE IN THE WORK

A. **Changes in Work, Contract Sum, And Contract Time by Change Order.** Owner may, at any time and without notice to Contractor's surety, order additions, deletions, revisions, or other changes in the Work. These changes in the

Work shall be incorporated into the Contract Documents through the execution of Change Orders. If any change in the Work ordered by Owner causes an increase or decrease in the Contract Sum or the Contract Time, an equitable adjustment shall be made as provided in Section 7.02 or 7.03, respectively, and such adjustment(s) shall be incorporated into a Change Order.

B. **Owner May Request COP from Contractor.** If Owner desires to order a change in the Work, it may request a written Change Order Proposal (COP) from Contractor. Contractor shall submit a Change Order Proposal within fourteen (14) Days of the request from Owner, or within such other period as mutually agreed. Contractor's Change Order Proposal shall be full compensation for implementing the proposed change in the Work, including any adjustment in the Contract Sum or Contract Time, and including compensation for all delays in connection with such change in the Work and for any expense or inconvenience, disruption of schedule, or loss of efficiency or productivity occasioned by the change in the Work.

C. **COP Negotiations.** Upon receipt of the Change Order Proposal, or a request for equitable adjustment in the Contract Sum or Contract Time, or both, as provided in Sections 7.02 and 7.03, Owner may accept or reject the proposal, request further documentation, or negotiate acceptable terms with Contractor. Pending agreement on the terms of the Change Order, Owner may direct Contractor to proceed immediately with the Change Order Work. Contractor shall not proceed with any change in the Work until it has obtained Owner's approval. All Work done pursuant to any Owner-directed change in the Work shall be executed in accordance with the Contract Documents.

D. **Change Order as Full Payment and Final Settlement.** If Owner and Contractor reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, such agreement shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of all claims for time and for direct, indirect, and consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity, related to any Work either covered or affected by the Change Order, or related to the events giving rise to the request for equitable adjustment.

- E. **Failure to Agree Upon Terms of Change Order; Final Offer and Claims.** If Owner and Contractor are unable to reach agreement on the terms of any change in the Work, including any adjustment in the Contract Sum or Contract Time, Contractor may at any time in writing, request a final offer from Owner. Owner shall provide Contractor with its written response within thirty (30) Days of Contractor's request. Owner may also provide Contractor with a final offer at any time. If Contractor rejects Owner's final offer, or the parties are otherwise unable to reach agreement, Contractor's only remedy shall be to file a Claim as provided in Part 8.
- F. **Field Authorizations.** The Owner may direct the Contractor to proceed with a change in the Work through a written "Field Authorization" (also referred to as a "Field Order") when the time required to price and execute a Change Order would impact the Project.

The Field Authorization shall describe and include the following:

1. The Scope of change to the Work;
2. An agreed upon maximum not-to-exceed amount;
3. Any estimated change to the Contract Time;
4. The method of final cost determination in accordance with the requirements of Part 7 of the General Conditions; and
5. The supporting cost data to be submitted in sufficient detail satisfactory to the Owner.

Upon satisfactory submittal by the Contractor and approval by the Owner of supporting cost data a Change Order will be executed. The Owner will not make payment to the Contractor for Field Authorization Work until that work has been incorporated into an executed Change Order.

7.02 CHANGE IN THE CONTRACT SUM

A. General Application

1. **Contract Sum Changes Only by Change Order.** The Contract Sum shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Sum in its Change Order Proposal.
2. **Owner Fault or Negligence as Basis for Change in Contract Sum.** If the cost of Contractor's performance is changed due to the fault or negligence of Owner, or anyone for whose acts Owner is responsible,

Contractor shall be entitled to make a request for an equitable adjustment in the Contract Sum in accordance with the following procedure. No change in the Contract Sum shall be allowed to the extent: Contractor's changed cost of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible; the change is concurrently caused by Contractor and Owner; or the change is caused by an act of Force Majeure as defined in Section 3.05.

- a. **Notice and Record Keeping for Equitable Adjustment.** A request for an equitable adjustment in the Contract Sum shall be based on written notice delivered to Owner within seven (7) Days of the occurrence of the event giving rise to the request. For purposes of this part, "occurrence" means when Contractor knew, or in its diligent prosecution of the Work should have known, of the event giving rise to the request. If Contractor believes it is entitled to an adjustment in the Contract Sum, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such records and, if requested shall promptly furnish copies of such records to Owner.
- b. **Content of Notice for Equitable Adjustment; Failure to Comply.** Contractor shall not be entitled to any adjustment in the Contract Sum for any occurrence of events or costs that occurred more than seven (7) Days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Sum; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Sum requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

- c. **Contractor to Provide Supplemental Information.** Within thirty (30) Days of the occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with sub Section a. above with additional supporting data. Such additional data shall include, at a minimum: the amount of compensation requested, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the damages claimed, but that the damages claimed were actually a result of the act, event, or condition complained of and that the Contract Documents provide entitlement to an equitable adjustment to Contractor for such act, event, or condition; and documentation sufficiently detailed to permit an informed analysis of the request by Owner. When the request for compensation relates to a delay, or other change in Contract Time, Contractor shall demonstrate the impact on the critical path, in accordance with Section 7.03.C. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are-prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.
 - d. **Contractor to Proceed with Work as Directed.** Pending final resolution of any request made in accordance with this paragraph, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.
 - e. **Contractor to Combine Requests for Same Event Together.** Any requests by Contractor for an equitable adjustment in the Contract Sum and in the Contract Time that arise out of the same event(s) shall be submitted together.
3. **Methods for Calculating Change Order Amount.** The value of any Work covered by a Change Order, or of any request for an equitable adjustment in the Contract Sum, shall be determined by one of the following methods:
 - a. **Fixed Price.** On the basis of a fixed price as determined in Section 7.02.B.
 - b. **Unit Prices.** By application of unit prices to the quantities of the items involved as determined in Section 7.02.C.
 - c. **Time and Materials.** On the basis of time and material as determined in Section 7.02.D.
 - d. **Fixed Price Method Is Default; Owner May Direct Otherwise.** When Owner has requested Contractor to submit a Change Order Proposal, Owner may direct Contractor as to which method in sub Section 3 to use when submitting its proposal. Otherwise, Contractor shall determine the value of the Work, or of a request for an equitable adjustment, on the basis of the fixed price method.
- B. **Change Order Pricing -- Fixed Price**
- Procedures.** When the fixed price method is used to determine the value of any Work covered by a Change Order, or of a request for an equitable adjustment in the Contract Sum, the following procedures shall apply:
1. **Breakdown and Itemization of Details on COP.** Contractor's Change Order Proposal, or request for adjustment in the Contract Sum, shall be accompanied by a complete itemization of the costs, including labor, material, subcontractor costs, and overhead and profit. The costs shall be itemized in the manner set forth below and shall be submitted on breakdown sheets in a form approved by Owner.
 2. **Use of Industry Standards in Calculating Costs.** All costs shall be calculated based upon appropriate industry standard methods of calculating labor, material quantities, and equipment costs.
 3. **Costs Contingent on Owner's Actions.** If any of the Contractor's pricing assumptions are contingent upon anticipated actions of Owner, Contractor shall clearly state them in the proposal or request for an equitable adjustment.
 4. **Markups on Additive and Deductive Work.** The cost of any additive or deductive changes in the Work shall be calculated as set forth below, except that overhead and profit shall not be included on deductive changes in

- the Work. Where a change in the Work involves additive and deductive work by the same Contractor or Subcontractor, small tools, overhead, profit, bond and insurance markups will apply to the net difference.
5. **Breakdown Not Required If Change Less Than \$1,000.** If the total cost of the change in the Work or request for equitable adjustment does not exceed \$1,000, Contractor shall not be required to submit a breakdown if the description of the change in the Work or request for equitable adjustment is sufficiently definitive for Owner to determine fair value.
 6. **Breakdown Required If Change Between \$1,000 And \$2,500.** If the total cost of the change in the Work or request for equitable adjustment is between \$1,000 and \$2,500, Contractor may submit a breakdown in the following level of detail if the description of the change in the Work or if the request for equitable adjustment is sufficiently definitive to permit the Owner to determine fair value:
 - a. lump sum labor;
 - b. lump sum material;
 - c. lump sum equipment usage;
 - d. overhead and profit as set forth below; and
 - e. insurance and bond costs as set forth below.
 7. **Components of Increased Cost.** Any request for adjustment of Contract Sum based upon the fixed price method over \$1,000 shall include only the following items:
 - a. **Craft Labor Costs.** These are the labor costs determined by multiplying the estimated or actual additional number of craft hours needed to perform the change in the Work by the hourly labor costs. Craft hours should cover direct labor, as well as indirect labor due to trade inefficiencies. The hourly costs shall be based on the following:
 - (1) **Basic Wages and Benefits.** Hourly rates and benefits as stated on the L&I approved Intent or Davis-Bacon prevailing wages, or a higher amount if approved by the Owner. Direct supervision shall be a reasonable percentage not to exceed fifteen percent (15%) of the cost of direct labor. No supervision markup shall be allowed for a working supervisor's hours.
 - (2) **Worker's Insurance.** Direct contributions to the state of Washington for industrial insurance; medical aid; and supplemental pension, by the class and rates established by L&I.
 - (3) **Federal Insurance.** Direct contributions required by the Federal Insurance Compensation Act; Federal Unemployment Tax Act; and the State Unemployment Compensation Act.
 - (4) **Travel Allowance.** Travel allowance and/or subsistence, if applicable, shall be consistent with Owner's policy allowing reimbursement or allotment of amounts actual, reasonable, and necessary. Owner's full policy regarding Travel is available on request.
 - (5) **Safety.** Cost incurred due to the Washington Industrial Safety and Health Act, which shall be a reasonable percentage not to exceed two percent (2%) of the sum of the amounts calculated in (1), (2), and (3) above.
 - b. **Material Costs.** This is an itemization of the quantity and cost of materials needed to perform the change in the Work. Material costs shall be developed first from actual known costs, second from supplier quotations or if these are not available, from standard industry pricing guides. Material costs shall consider all available discounts. Freight costs, express charges, or special delivery charges shall be itemized.
 - c. **Equipment Costs.** This is an itemization of the type of equipment and the estimated or actual length of time the construction equipment appropriate for the Work is or will be used on the change in the Work. Costs will be allowed for construction equipment only if used solely for the changed Work, or for additional rental costs actually incurred by the Contractor. Equipment charges shall be computed on the basis of actual

invoice costs or if owned, from the current edition of one of the following sources:

- (1) Associated General Contractors - Washington State Department of Transportation (“AGC WSDOT”) Equipment Rental Agreement current edition, on the Contract execution date.
- (2) The state of Washington Utilities and Transportation Commission for trucks used on highways.
- (3) The National Electrical Contractors Association for equipment used on electrical work.
- (4) The Mechanical Contractors Association of America for equipment used on mechanical work.
- (5) The EquipmentWatch Rental Rate (Blue Book) shall be used as a basis for establishing rental rates of equipment not listed in the above sources. The maximum rate for standby equipment shall not exceed that shown in the AGC WSDOT Equipment Rental Agreement, current edition on the Contract execution date.

d. **Allowance for Small Tools, Expendables & Consumable Supplies.** Small tools consist of tools which cost \$250 or less and are normally furnished by the performing contractor. The maximum rate for small tools shall not exceed the following:

- (1) **3% For Contractor.** For Contractor, three percent (3%) of direct labor costs.
- (2) **5% For Subcontractors.** For Subcontractors, five percent (5%) of direct labor costs.

Expendables and consumable supplies directly associated with the change in Work must be itemized.

e. **Subcontractor Costs.** This is defined as payments Contractor makes to Subcontractors for changed Work performed by Subcontractors of any tier. The Subcontractors’ cost of Work shall be calculated and itemized in the same

manner as prescribed herein for Contractor.

f. **Allowance for Overhead.** This is defined as costs of any kind attributable to direct and indirect delay, acceleration, or impact, added to the total cost to Owner of any change in the Contract Sum. If the Contractor is compensated under Section 7.03.D, the amount of such compensation shall be reduced by the amount Contractor is otherwise entitled to under this Subsection (f). This allowance shall compensate Contractor for all non-craft labor, temporary construction facilities, field engineering, schedule updating, as-built drawings, home office cost, B&O taxes, office engineering, estimating costs, additional overhead because of extended time, and any other cost incidental to the change in the Work. It shall be strictly limited in all cases to a reasonable amount, mutually acceptable, or if none can be agreed upon to an amount not to exceed the rates below:

(1) **Projects Less Than \$3 Million.** For projects where the Contract Award Amount is under \$3 million, the following shall apply:

(a) **Contractor Markup on Contractor Work.** For Contractor, for any Work actually performed by Contractor’s own forces, shall not exceed sixteen percent (16%) of the first \$50,000 of the cost, and four percent (4%) of the remaining cost, if any.

(b) **Subcontractor Markup for Subcontractor Work.** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, shall not exceed sixteen percent (16%) of the first \$50,000 of the cost, and four percent (4%) of the remaining cost, if any.

- (c) **Contractor Markup for Subcontractor Work.** For Contractor, for any work performed by its Subcontractor(s), shall not exceed six percent (6%) of the first \$50,000 of the amount due each Subcontractor, and four percent (4%) of the remaining amount if any.
 - (d) **Subcontractor Markup for Lower Tier Subcontractor Work.** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, shall not exceed four percent (4%) of the first \$50,000 of the amount due the sub-Subcontractor, and two percent (2%) of the remaining amount if any.
 - (e) **Basis of Cost Applicable for Markup.** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02.B 7a.- e.
- (2) **Projects More Than \$3 Million.** for projects where the Contract Award Amount is equal to or exceeds \$3 million, the following shall apply:
- (a) **Contractor Markup on Contractor Work.** For Contractor, for any Work actually performed by Contractor's own forces, shall not exceed twelve percent (12%) of the first \$50,000 of the cost, and four percent (4%) of the remaining cost, if any.
 - (b) **Subcontractor Markup for Subcontractor Work.** For each Subcontractor (including lower tier subcontractors), for any Work actually performed by its own forces, shall not exceed twelve percent (12%) of the first \$50,000 of the cost, and four percent (4%) of the remaining cost, if any.
 - (c) **Contractor Markup for Subcontractor Work.** For Contractor, for any Work performed by its Subcontractor(s), shall not exceed four percent (4%) of the first \$50,000 of the amount due each Subcontractor, and two percent (2%) of the remaining amount if any.
 - (d) **Subcontractor Markup for Lower Tier Subcontractor Work.** For each Subcontractor, for any Work performed by its Subcontractor(s) of any lower tier, shall not exceed four percent (4%) of the first \$50,000 of the amount due the sub-Subcontractor, and two percent (2%) of the remaining amount if any.
 - (e) **Basis of Cost Applicable for Markup.** The cost to which overhead is to be applied shall be developed in accordance with Section 7.02.B 7a.- e.
- g. **Allowance for Profit.** This allowance for profit is an amount to be added to the cost of any change in contract sum, but not to the cost of change in Contract Time for which contractor has been compensated pursuant to the conditions set forth in Section 7.03. It shall be limited to a reasonable amount, mutually acceptable, or if none can be agreed upon, to an amount not to exceed the rates below:
- (1) **Contractor/Subcontractor Markup for Self-Performed Work.** For Contractor or Subcontractor of any tier for work performed by their forces, six percent (6%) of the cost developed in accordance with 7.02B 7a.-e.
 - (2) **Contractor/Subcontractor Markup for Work Performed at Lower Tier.** For Contractor or Subcontractor of any tier for work performed by a subcontractor of a lower tier, shall not exceed four percent (4%) of the subcontract cost developed in accordance with 7.02B 7a. - h.
- h. **Insurance and Bond Premiums.** Cost

of change in insurance or bond premium.
This is defined as:

- (1) **Contractor’s Liability Insurance.**
The cost of any changes in Contractor’s liability insurance arising directly from execution of the Change Order; and
- (2) **Payment and Performance Bond.**
The cost of the additional premium for Contractor’s bond arising directly from the changed Work.

The cost of any change in insurance or bond premium shall be added after overhead and allowance for profit are calculated in accordance with sub Section f. and g. above.

C. Change Order Pricing -- Unit Prices

1. **Content of Owner authorization.**
Whenever Owner authorizes Contractor to perform Work on a unit-price basis, Owner’s authorization shall clearly state:
 - a. **Scope.** Scope of work to be performed;
 - b. **Reimbursement Basis.** Type of reimbursement including pre-agreed rates for material quantities; and
 - c. **Reimbursement Limit.** Cost limit of reimbursement.
2. **Contractor Responsibilities.** Contractor shall:
 - a. Cooperate with owner and assist in monitoring the work being performed. As requested by Owner, Contractor shall identify workers assigned to the Change Order Work and areas in which they are working;
 - b. Leave access as appropriate for quantity measurement; and
 - c. Not exceed any cost limit(s) without Owner’s prior written approval.
3. **Cost Breakdown Consistent with Fixed Price Requirements.** Contractor shall submit costs in accordance with Section 7.02.B and satisfy the following requirements:
 - a. **Unit Prices Must Include Overhead, Profit, Bond and Insurance Premiums.** Unit prices shall include reimbursement for all direct and indirect

costs of the Work, including overhead, profit, bond, and insurance costs; and

- b. **Owner Verification of Quantities.**
Quantities must be supported by field measurement statements approved by Owner.

D. Change Order Pricing -- Time-and-Material Prices

1. **Content of Owner Authorization.**
Whenever Owner authorizes Contractor to perform Work on a time-and-material basis, Owner’s authorization shall clearly state:
 - a. **Scope.** Scope of Work to be performed;
 - b. **Reimbursement Basis.** Type of reimbursement including pre-agreed rates, if any, for material quantities or labor; and
 - c. **Reimbursement Limit.** Cost limit of reimbursement.
2. **Contractor responsibilities.** Contractor shall:
 - a. **Identify Workers Assigned.** Cooperate with Owner and assist in monitoring the Work being performed. As requested by Owner, identify workers assigned to the Change Order Work and areas in which they are working;
 - b. **Provide Daily Timesheets.** Identify on daily time sheets all labor performed in accordance with this authorization. Submit copies of daily time sheets within two (2) working days for Owner’s review;
 - c. **Allow Owner to Measure Quantities.** Leave access as appropriate for quantity measurement;
 - d. **Perform Work Efficiently.** Perform all Work in accordance with this Section as efficiently as possible; and
 - e. **Not Exceed Owner’s Cost Limit.** Not exceed any cost limit(s) without Owner’s prior written approval.
3. **Cost Breakdown Consistent with Fixed Price Requirements.** Contractor shall submit costs in accordance with Section 7.02.B and additional verification supported by:
 - a. **Timesheets.** Labor detailed on daily time sheets; and

- b. **Invoices.** Invoices for material.

7.03 CHANGE IN THE CONTRACT TIME

A. **COP Requests for Contract Time.** The Contract Time shall only be changed by a Change Order. Contractor shall include any request for a change in the Contract Time in its Change Order Proposal.

B. **Time Extension Permitted If Not Contractor's Fault.** If the time of Contractor's performance is changed due to an act of Force Majeure, or due to the fault or negligence of Owner or anyone for whose acts Owner is responsible, Contractor shall be entitled to make a request for an equitable adjustment in the Contract Time in accordance with the following procedure. No adjustment in the Contract Time shall be allowed to the extent Contractor's changed time of performance is due to the fault or negligence of Contractor, or anyone for whose acts Contractor is responsible.

1. **Notice and Record Keeping for Contract Time Request.** A request for an equitable adjustment in the Contract Time shall be based on written notice delivered within seven (7) Days of the occurrence of the event giving rise to the request. If Contractor believes it is entitled to adjustment of Contract Time, Contractor shall immediately notify Owner and begin to keep and maintain complete, accurate, and specific daily records. Contractor shall give Owner access to any such record and if requested, shall promptly furnish copies of such record to Owner.
2. **Timing and Content of Contractor's Notice.** Contractor shall not be entitled to an adjustment in the Contract Time for any events that occurred more than seven (7) Days before Contractor's written notice to Owner. The written notice shall set forth, at a minimum, a description of: the event giving rise to the request for an equitable adjustment in the Contract Time; the nature of the impacts to Contractor and its Subcontractors of any tier, if any; and to the extent possible the amount of the adjustment in Contract Time requested. Failure to properly give such written notice shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.
3. **Contractor to Provide Supplemental Information.** Within thirty (30) Days of the

occurrence of the event giving rise to the request, unless Owner agrees in writing to allow an additional period of time to ascertain more accurate data, Contractor shall supplement the written notice provided in accordance with Subsection 7.03.B.2 with additional supporting data. Such additional data shall include, at a minimum: the amount of delay claimed, itemized in accordance with the procedure set forth herein; specific facts, circumstances, and analysis that confirms not only that Contractor suffered the delay claimed, but that the delay claimed was actually a result of the act, event, or condition complained of, and that the Contract Documents provide entitlement to an equitable adjustment in Contract Time for such act, event, or condition; and supporting documentation sufficiently detailed to permit an informed analysis of the request by Owner. Failure to provide such additional information and documentation within the time allowed or within the format required shall, to the extent Owner's interests are prejudiced, constitute a waiver of Contractor's right to an equitable adjustment.

4. **Contractor to Proceed with Work as Directed.** Pending final resolution of any request in accordance with this Section, unless otherwise agreed in writing, Contractor shall proceed diligently with performance of the Work.

- C. **Contractor to Demonstrate Impact on Critical Path of Schedule.** Any change in the Contract Time covered by a Change Order, or based on a request for an equitable adjustment in the Contract Time, shall be limited to the change in the critical path of Contractor's schedule attributable to the change of Work or event(s) giving rise to the request for equitable adjustment. Any Change Order Proposal or request for an adjustment in the Contract Time shall demonstrate the impact on the critical path of the schedule. Contractor shall be responsible for showing clearly on the Progress Schedule that the change or event: had a specific impact on the critical path, and except in case of concurrent delay, was the sole cause of such impact; and could not have been avoided by resequencing of the Work or other reasonable alternatives.
- D. **Cost of Change in Contract Time.** Contractor may request compensation for the cost of a change in Contract Time in accordance with this Section, 7.03.D, subject to the following conditions:

1. **Must Be Solely Fault of Owner Or A/E.** The change in Contract Time shall solely be caused by the fault or negligence of Owner or A/E;
2. **Procedures.** Contractor shall follow the procedure set forth in Section 7.03.B;
3. **Demonstrate Impact on Critical Path.** Contractor shall establish the extent of the change in Contract Time in accordance with Section 7.03.C; and
4. **Limitations on Daily Costs.** The daily cost of any change in Contract Time shall be limited to the items below, less the amount of any change in the Contract Sum the Contractor may otherwise be entitled to pursuant to Section 7.02.B.7.f for any change in the Work that contributed to this change in Contract Time:
 - a. **Non-Productive Supervision of Labor.** Cost of nonproductive field supervision or labor extended because of the delay;
 - b. **Weekly Meetings and Indirect Activities.** Cost of weekly meetings or similar indirect activities extended because of the delay;
 - c. **Temporary Facilities or Equipment Rental.** Cost of temporary facilities or equipment rental extended because of the delay;
 - d. **Insurance Premiums.** Cost of insurance extended because of the delay;
 - e. **Overhead.** General and administrative overhead in an amount to be agreed upon, but not to exceed three percent (3%) of the Contract Award Amount divided by the originally specified Contract Time for each Day of the delay.

PART 8: CLAIMS AND DISPUTE RESOLUTION

8.01 CLAIMS

- A. **A Claim is Contractor's Remedy.** If the parties fail to reach agreement on the terms of any Change Order for Owner-directed Work as provided in Section 7.01, on the resolution of any request for an equitable adjustment in the Contract Sum as provided in Section 7.02, the Contract Time as provided in Section 7.03, or any dispute interpretation of the parties respective obligations and duties under the Contract

documents Contractor's only remedy shall be to file a Claim with Owner as provided in this Section.

- B. **Claim Filing Deadline for Contractor.** Contractor shall file its Claim within one-hundred-twenty (120) Days from Owner's final offer made in accordance with Section 7.01.E or by the date of Final Acceptance, whichever occurs first.
- C. **Claim Must Cover All Costs and Be Documented.** The Claim shall be deemed to cover all changes in cost and time (including direct, indirect, impact, and consequential) to which Contractor may be entitled. It shall be fully substantiated and documented. At a minimum, the Claim shall contain the following information:
 1. **Factual Statement of Claim.** A detailed factual statement of the Claim for additional compensation and time, if any, providing all necessary dates, locations, and items of Work affected by the Claim;
 2. **Dates.** The date on which facts arose that gave rise to the claim;
 3. **Owner and A/E Employee's Knowledgeable About Claim.** The name of each employee of Owner or A/E knowledgeable about the Claim;
 4. **Support from Contract Documents.** The specific provisions of the Contract Documents which support the Claim;
 5. **Identification of Other Supporting Information.** The identification of any documents and the substance of any oral communications that support the Claim;
 6. **Copies of Supporting Documentation.** Copies of any identified documents, other than the Contract Documents, that support the Claim;
 7. **Details on Claim for Contract Time.** If an adjustment in the Contract Time is sought: the specific days and dates for which it is sought; the specific reasons Contractor believes an extension in the Contract Time should be granted; and Contractor's analysis of its Progress Schedule to demonstrate the reason for the extension in Contract Time;

8. **Details on Claim.** for adjustment of Contract Sum: If an adjustment in the Contract Sum is sought, the exact amount sought and a breakdown of that amount into the categories set forth in, and in the detail as required by Section 7.02; and
9. **Statement Certifying Claim.** A statement certifying, under penalty of perjury, that the Claim is made in good faith, that the supporting cost and pricing data are true and accurate to the best of Contractor's knowledge and belief, that the Claim is fully supported by the accompanying data, and that the amount requested accurately reflects the adjustment in the Contract Sum or Contract Time for which Contractor believes Owner is liable.
- D. **Response to Claim Filed.** After Contractor has submitted a fully documented Claim that complies with all applicable provisions of Parts 7 and 8, Owner's Contract Compliance Specialist ("CCS"), or their designee, shall respond, in writing, to Contractor as follows:
1. **Response Time for Claim Less Than \$50,000.** If the Claim amount is less than \$50,000, with a decision within sixty (60) Days from the date the Claim is received; or
 2. **Response Time for Claim Of \$50,000 Or More.** If the Claim amount is \$50,000 or more, with a decision within sixty (60) Days from the date the Claim is received, or with notice to Contractor of the date by which it will render its decision. Owner will then respond with a written decision in such additional time.
- E. **Review of Claim and Finality of Decision.** To assist in the review of Contractor's Claim, Owner's CCS, or their designee, may visit the Project site, or request additional information, in order to fully evaluate the issues raised by the Claim. Contractor shall proceed with performance of the Work pending final resolution of any Claim. Owner's CCS' written decision as set forth above shall be final and conclusive as to all matters set forth in the Claim, unless Contractor follows the procedure set forth in Section 8.02.
- F. **Waiver of Contractor Rights for Failure to Comply with This Section.** Any Claim of the Contractor against the Owner for damages, additional compensation, or additional time, shall be conclusively deemed to have been waived by the Contractor unless made in accordance with the requirements of this Section.
- G. **Finality of Decision.** The CCS' decision shall be final and conclusive unless within ten (10) calendar days from the date of receipt of its copy, the Contractor mails or otherwise furnishes a written appeal to the Chief Executive Officer ("CEO") of STA. STA's CEO review of the Contracting Officer's decision is limited to a review and decision issued on the same record presented to the Contracting Officer.
- H. **Appeal Procedure.** In connection with appeal to CEO, the Contractor shall be afforded an opportunity to be heard and to offer evidence in support of its position. Pending final decision of a dispute hereunder, the Contractor shall proceed diligently with the performance of this Contract while matters in dispute are being resolved. The final decision of the CEO shall be binding upon the Contractor and the Contractor shall abide by the decision. The only available review is by an arbitrator as provided below and the applicable standard of review is whether the CEO's decision was arbitrary and capricious.

8.02 ARBITRATION

- A. **Timing of Contractor's Demand for Review of CEO's Decision by Third-Party Neutral (Arbitration).** If Contractor disagrees with CEO's decision rendered in accordance with Section 8.01 H above, Contractor shall provide Owner with a written demand for review by a third-party neutral (arbitration). No demand for arbitration of any such Claim shall be made later than thirty (30) Days after the date of the CEO's decision on such Claim. Failure to demand arbitration within said thirty (30) Day period shall result in the CEO's decision being final and binding upon Contractor and its Subcontractors.
- B. **Selection of The Third-Party Neutral (Arbitrator).** The parties shall mutually select a third-party neutral to review the parties' claims within the confines of the decision issued by the CEO. If the parties are unable to mutually select a third-party neutral, they shall each appoint a neutral and the two appointed neutrals shall agree to the appointment of the third-party neutral who will preside over the matter.

- C. **Standard of Review.** The arbitrator’s review shall be limited to determining whether the CEO acted arbitrarily and capriciously in issuing its decision. Decisions issued under the Administrative Procedures Act may guide the arbitrator in determining whether the CEO acted arbitrarily and capriciously.
- D. **Costs of Arbitration.** The costs of arbitration will be borne by the party against whom judgment is issued. To the extent neither party substantially prevails at arbitration, the parties will split equally the costs associated with the arbitration.
- E. **Arbitration is Forum for Resolving Claims Other Than Those Identified Under Part 8 Above.** All Claims arising out of the Work shall be resolved by arbitration. The judgment upon the arbitration award may be entered, or review of the award may occur, in the superior court having jurisdiction thereof. No independent legal action relating to or arising from the Work shall be maintained.
- F. **Owner May Combine Claims into Same Arbitration.** Claims between Owner and Contractor, Contractor and its Subcontractors, Contractor and A/E, and Owner and A/E shall, upon demand by Owner, be submitted in the same arbitration or mediation.
- G. **Settlement Outside of Arbitration to Be Documented in Change Order.** If the parties resolve the Claim prior to arbitration judgment, the terms of the resolution shall be incorporated in a Change Order. The Change Order shall constitute full payment and final settlement of the Claim, including all claims for time and for direct, indirect, or consequential costs, including costs of delays, inconvenience, disruption of schedule, or loss of efficiency or productivity.
- 8.03 CLAIMS AUDITS
- A. **Owner May Audit Claims.** All Claims filed against Owner shall be subject to audit at any time following the filing of the Claim. Failure of Contractor, or Subcontractors of any tier, to maintain and retain sufficient records to allow Owner to verify all or a portion of the Claim or to permit Owner access to the books and records of Contractor, or Subcontractors of any tier, shall constitute a waiver of the Claim and shall bar any recovery.
- B. **Contractor to Make Documents Available.** In support of Owner audit of any Claim, Contractor shall, upon request, promptly make available to Owner the following documents:
1. Daily time sheets and supervisor’s daily reports;
 2. Collective bargaining agreements;
 3. Insurance, welfare, and benefits records;
 4. Payroll registers;
 5. Earnings records;
 6. Payroll tax forms;
 7. Material invoices, requisitions, and delivery confirmations;
 8. Material cost distribution worksheet;
 9. Equipment records (list of company equipment, rates, etc.);
 10. Vendors’, rental agencies’, Subcontractors’, and agents’ invoices;
 11. Contracts between Contractor and each of its Subcontractors, and all lower-tier Subcontractor contracts and supplier contracts;
 12. Subcontractors’ and agents’ payment certificates;
 13. Cancelled checks (payroll and vendors);
 14. Job cost report, including monthly totals;
 15. Job payroll ledger;
 16. Planned resource loading schedules and summaries;
 17. General ledger;
 18. Cash disbursements journal;
 19. Financial statements for all years reflecting the operations on the Work. In addition, the Owner may require, if it deems it appropriate, additional financial statements for 3 years preceding execution of the Work;
 20. Depreciation records on all company equipment whether these records are maintained by the company involved, its accountant, or others;
 21. If a source other than depreciation records is used to develop costs for Contractor’s internal purposes in establishing the actual cost of owning and operating equipment, all such other source documents;

22. All nonprivileged documents which relate to each and every Claim together with all documents which support the amount of any adjustment in Contract Sum or Contract Time sought by each Claim;
 23. Work sheets or software used to prepare the Claim establishing the cost components for items of the Claim including but not limited to labor, benefits and insurance, materials, equipment, Subcontractors, all documents which establish the time periods, individuals involved, the hours for the individuals, and the rates for the individuals; and
 24. Work sheets, software, and all other documents used by Contractor to prepare its bid.
- C. **Contractor to Provide Facilities for Audit and Shall Cooperate.** The audit may be performed by employees of Owner or a representative of Owner. Contractor, and its Subcontractors, shall provide adequate facilities acceptable to Owner, for the audit during normal business hours. Contractor, and all Subcontractors, shall make a good faith effort to cooperate with Owner's auditors.

PART 9: TERMINATION OF THE WORK

9.01 TERMINATION BY OWNER FOR CAUSE

- A. **Seven (7) Day Notice to Terminate for Cause.** Owner may, upon seven (7) Days written notice to Contractor and to its surety, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for cause upon the occurrence of any one or more of the following events:
1. **Contractor Fails to Prosecute Work.** Contractor fails to prosecute the Work or any portion thereof with sufficient diligence to ensure Substantial Completion of the Work within the Contract Time;
 2. **Contractor Bankrupt.** Contractor is adjudged bankrupt, makes a general assignment for the benefit of its creditors, or a receiver is appointed on account of its insolvency;
 3. **Contractor Fails to Correct Work.** Contractor fails in a material way to replace or correct Work not in conformance with the Contract Documents;
4. **Contractor Fails to Supply Workers or Materials.** Contractor repeatedly fails to supply skilled workers or proper materials or equipment;
5. **Contractor Failure to Pay Subcontractors or Labor.** Contractor repeatedly fails to make prompt payment due to Subcontractors or for labor;
6. **Contractor Violates Laws.** Contractor materially disregards or fails to comply with laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction; or
7. **Contractor in Material Breach of Contract.** Contractor is otherwise in material breach of any provision of the Contract Documents.
- B. **Owner's Actions Upon Termination.** Upon termination, Owner may at its option:
1. **Take Possession of Project Site.** Take possession of the Project site and take possession of or use all materials, equipment, tools, and construction equipment and machinery thereon owned by Contractor to maintain the orderly progress of, and to finish, the Work;
 2. **Accept Assignment of Subcontracts.** Accept assignment of subcontracts pursuant to Section 5.20; and
 3. **Finish the Work.** Finish the Work by whatever other reasonable method it deems expedient.
- C. **Surety's Role.** Owner's rights and duties upon termination are subject to the prior rights and duties of the surety, if any, obligated under any bond provided in accordance with the Contract Documents.
- D. **Contractor's Required Actions.** When Owner terminates the Work in accordance with this Section, Contractor shall take the actions set forth in Section 9.02.B and shall not be entitled to receive further payment until the Work is accepted.
- E. **Contractor to Pay for Unfinished Work.** If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation for A/E's services and expenses made necessary thereby and any other extra costs or damages incurred by Owner in completing the Work, or as a result of Contractor's actions, such excess shall be paid to Contractor. If such costs exceed the unpaid balance, Contractor shall pay

the difference to Owner. These obligations for payment shall survive termination.

- F. **Contractor and Surety Still Responsible for Work Performed.** Termination of the Work in accordance with this Section shall not relieve Contractor or its surety of any responsibilities for Work performed.
- G. **Conversion Of “Termination for Cause” To “Termination for Convenience”.** If Owner terminates Contractor for cause, and it is later determined that none of the circumstances set forth in Section 9.01.A exist, then such termination shall be deemed a termination for convenience pursuant to Section 9.02.

9.02 TERMINATION BY OWNER FOR CONVENIENCE

- A. **Owner Notice of Termination for Convenience.** Owner may, upon written notice, terminate (without prejudice to any right or remedy of Owner) the Work, or any part of it, for the convenience of Owner.
- B. **Contractor Response to Termination Notice.** Unless Owner directs otherwise, after receipt of a written notice of termination for either cause or convenience, Contractor shall promptly:
1. **Cease Work.** Stop performing Work on the date and as specified in the notice of termination;
 2. **No Further Orders or Subcontracts.** Place no further orders or subcontracts for materials, equipment, services or facilities, except as may be necessary for completion of such portion of the Work as is not terminated;
 3. **Cancel Orders and Subcontracts.** Cancel all orders and subcontracts, upon terms acceptable to Owner, to the extent that they relate to the performance of Work terminated;
 4. **Assign Orders and Subcontracts to Owner.** Assign to Owner all of the right, title, and interest of Contractor in all orders and subcontracts;
 5. **Take Action to Protect the Work.** Take such action as may be necessary or as directed by Owner to preserve and protect the Work, Project site, and any other property related to this Project in the possession of Contractor in which Owner has an interest; and

6. **Continue Performance Not Terminated.** Continue performance only to the extent not terminated.

7. **Owner’s Property.** If the Contractor has any property in its possession belonging to STA, the Contractor will account for the same, and return it to STA or dispose of it in the manner STA directs.

- C. **Terms of Adjustment in Contract Sum If Contract Terminated.** If Owner terminates the Work or any portion thereof for convenience, Contractor shall be entitled to make a request for an equitable adjustment for its reasonable direct costs incurred prior to the effective date of the termination, plus a reasonable allowance for overhead and profit on Work performed prior to termination, plus the reasonable administrative costs of the termination, but shall not be entitled to any other costs or damages, whatsoever, provided however, the total sum payable upon termination shall not exceed the Contract Sum reduced by prior payments. Contractor shall be required to make its request in accordance with the provisions of Part 7.
- D. **Owner to Determine Whether to Adjust Contract Time.** If Owner terminates the Work or any portion thereof for convenience, the Contract Time shall be adjusted as determined by Owner.

PART 10: MISCELLANEOUS PROVISIONS

10.01 GOVERNING LAW & VENUE

The Contract Documents and the rights of the parties herein shall be governed by the laws of the state of Washington. Venue shall be in the Superior Court of Spokane County, Washington.

10.02 SUCCESSORS AND ASSIGNS

Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Neither party shall assign the Work without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations set forth in the Contract Documents.

10.03 MEANING OF WORDS

Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings. Reference to standard specifications, manuals, or codes of any technical society, organization, or association, or to the code of any governmental authority, whether such reference be specific or by implication, shall be to the latest standard specification, manual, or code in effect on the date for submission of bids, except as may be otherwise specifically stated. Wherever in these Drawings and Specifications an article, device, or piece of equipment is referred to in the singular manner, such reference shall apply to as many such articles as are shown on the drawings or required to complete the installation.

10.04 EMPLOYEE SOLICITATION

Contractor, without the written consent of Owner, shall not directly or indirectly solicit, influence, entice or hire or attempt to solicit, influence, entice or hire any employee of Owner to: (a) cease employment with Owner; or (b) do business related to a business connected with the Contractor's business during this Agreement and for a period of three (3) years from the date on which the Agreement terminates, or the Work is accepted by Owner, whichever is earlier. Owner's employees shall be deemed to be related to or connected with a Contractor if such Owner employee becomes (a) a partner in a general or limited partnership or employee of a partnership; or (b) a shareholder, officer, employee or director of a corporation, member, consultant or agent for the Contractor or any of Contractor's affiliates, subsidiaries or connected business. This Section shall survive the termination of the Contract. This Contract is not restricted to any geographical area.

Contractor recognizes and acknowledges that Owner's employees may receive training and other benefits from its contractual relationship with Owner because of Owner's assignment of employees to work in connection with the Contract. Contractor agrees the restrictions on soliciting, influencing, enticing or hiring Owner employees are reasonable.

10.05 RIGHTS AND REMEDIES

No action or failure to act by Owner or A/E shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall action or failure to act constitute approval or an acquiescence in a breach therein, except as may be specifically agreed in writing.

10.06 CONTRACTOR REGISTRATION

Pursuant to RCW 39.06, Contractor shall be registered or licensed as required by the laws of the State of Washington, including but not limited to RCW 18.27.

10.07 TIME COMPUTATIONS

When computing any period of time, the day of the event from which the period of time begins shall not be counted. The last day is counted unless it falls on a weekend or legal holiday, in which event the period runs until the end of the next day that is not a weekend or holiday.

10.08 PUBLIC RECORDS ACT

Each Party to the Contract understands and acknowledges the Owner is a municipal corporation of the State of Washington subject to the Public Records Act, RCW 42.56 *et seq.*

10.09 RECORDS RETENTION

The wage, payroll and cost records of Contractor, and its Subcontractors created or used for the Project, shall be retained for a period of not less than six (6) years after the date of Final Acceptance.

10.10 THIRD-PARTY AGREEMENTS

The Contract Documents shall not be construed to create a contractual relationship of any kind between: A/E and Contractor; Owner and any Subcontractor, or any persons other than Owner and Contractor.

10.11 HEADINGS AND CAPTIONS

All headings and captions used in these General Conditions are only for convenience of reference, and shall not be used in any way in connection with the meaning, effect, interpretation, construction or enforcement of the General Conditions, and do not define the limit or describe the scope or intent of any provision of these General Conditions.

10.12 ANTITRUST ASSIGNMENT

Owner and Contractor recognize that in actual economic practice, overcharges resulting from antitrust violations

are in fact usually borne by the purchaser. Therefore, Contractor hereby assigns to Owner any and all claims for such overcharges as to goods, materials and equipment purchased in connection with the Work performed in accordance with the Contract Documents, except as to overcharges which result from antitrust violations commencing after the Contract Sum is established and which are not passed on to Owner under a Change Order. Contractor shall put a similar clause in its Subcontracts, and require a similar clause in its sub-Subcontracts, such that all claims for such overcharges on the Work are passed to Owner by Contractor.

10.13 CONFLICT OF INTEREST

No employee, officer or agent of Owner shall participate in the selection, award or administration of the Contract if a conflict of interest, real or apparent, would be involved. Such conflict would arise when:

- A. The employee, officer or agent;
 - B. any member of his or her immediate family;
 - C. his or her partner; or
 - D. an organization which employs, or is about to employ, an employee, officer or agent of STA
- has a financial interest in the firm, Contractor or Subcontractors, of any tier, selected for Award.

10.14 COUNTERPARTS

The Contract may be executed in one or more counterparts, each of which shall constitute an original Contract, but all of which together shall constitute one and the same instrument.

10.15 ELECTRONIC SIGNATURES

A signed copy of this Agreement or any other ancillary agreement transmitted by facsimile, email or other means of electronic transmission shall be deemed to have the same legal effect as delivery of any original executed copy of this Agreement or such other ancillary agreement for all purposes.

END OF SECTION 007200

Spokane Transit Authority Public Works Construction Project
Special Conditions
Public Works Contract # 2019- 10434

1. CONFLICT OF INTEREST

No employee, officer, or agent of STA shall participate in selection, or in the award or administration of a contract if a conflict of interest, real or apparent, would be involved. Such a conflict would arise when:

- A. the employee, officer, or agent;
- B. any member of his immediate family;
- C. his or her partner; or
- D. an organization which employs, or is about to employ an employee, officer, or agent of STA

has a financial or other interest in the firm, Contractor or subcontractor selected for award.

2. EMPLOYEE SOLICITATION

Vendor, without the consent of STA, shall not directly or indirectly solicit, influence, entice or hire or attempt to solicit, influence, entice or hire any employee of STA to: (a) cease employment with STA; or (b) do business related to a business connected with the Vendor's business during this Agreement and for a period of three (3) years from the date on which the Agreement terminates, or the work is accepted by STA, whichever is earlier. STA's employee shall be deemed to be related to or connected with a Vendor if such STA employee becomes (a) a partner in a general or limited partnership or employee of a partnership, (b) a shareholder, officer, employee or director of a corporation, member, consultant or agent for the Vendor or any of Vendor's affiliates, subsidiaries or connected business. This subparagraph shall survive the termination of this Agreement. This Agreement is not restricted to any geographical area.

Vendor recognizes and acknowledges that STA's employees may receive training and other benefits from the contractual relationship with STA because of STA's assignment of employees to work in connection with Vendor's contract. Vendor

agrees the restrictions on soliciting, influencing, enticing or hiring STA employees are reasonable.

3. “MOST FAVORED NATION” STATUS

The Vendor represents and warrants that the cost of goods and services provided and the hourly and overhead rates that it will charge to STA are no greater than the costs and rates charged to any other public entity for a federally funded project for similar services.

END OF SECTION 007300

Washington State Prevailing Wages For Spokane County, City of Spokane

In the preparation of its bid, based on these specifications, the bidder is solely responsible to:

1. use the prevailing wage schedule in effect at the bid opening date and time; and determine the appropriate labor classification(s); and utilize the appropriate and correct prevailing wage and benefit rate(s).

The State of Washington Department of Labor and Industries issues revised wage schedules twice per year (every 6 months) which become effective approximately the first of March and the last of August. The wage schedule that will apply to this bid will be the schedule in effect at the time and date of the actual bid opening (the published date including any changes made through the issue of addenda). Therefore the bidder is cautioned to be mindful that addendum changing the bid opening date could make the enclosed schedule obsolete. The bidder is solely responsible to determine what schedule is applicable to the bid and to use that schedule in the preparation of its bid.

The Prevailing Wage Documents for Public Works from the Washington State Department of Labor and Industries for Spokane County may be found on the Department of Labor and Industries website located at: <https://fortress.wa.gov/lni/wagelookup/prvWagelookup.aspx>

Questions should be referred to the State of Washington Department of Labor & Industries, 901 North Monroe, Suite 100, Spokane, Washington, phone (509) 324-2600 or to PO Box 44540, Olympia WA 98504-4540, phone (360) 902-5335 or Fax (360) 902-5300. Printed copies of the current prevailing wage forms are available upon request.

It is the responsibility of the bidder to ensure that the appropriate labor classification(s) are identified and that the applicable wage and benefit rates are taken into consideration when preparing their bid according to these specifications.

END OF SECTION 007346.1

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Purchase contracts.
5. Owner-furnished products.
6. Contractor-furnished, Owner-installed products.
7. Access to site.
8. Coordination with occupants.
9. Work restrictions.
10. Specification and drawing conventions.
11. Miscellaneous provisions.

- B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Plaza HPT Platform Phase 2

1. Project Location: Spokane, WA.

- B. Agency: Spokane Transit Authority.

1. Owner's Representative: Rob Bielaski

- C. Engineer: Coffman Engineers, 10 N. Post Street, Suite 500, Spokane WA 99201.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Curb, sidewalk, signal pole installation, and electrical conduit improvements to Zones 4 & 5 at the STA Plaza. Zone signage and communication conduit extensions to Zones 1, 2, 3, and 9 at the STA Plaza.
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.5 AGENCY-FURNISHED PRODUCTS

- A. Agency will furnish products indicated. The Work includes receiving, unloading, handling, storing, protecting, and installing Agency-furnished products.
- B. Agency-Furnished Products:
 - 1. None

1.6 ACCESS TO SITE

- A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- B. Adjacent Public Streets: Contractor shall maintain travel along the adjacent streets at all times. The Contractor is responsible for appropriate traffic control and flaggers, per City and MUTCD standards, to temporarily reduce streets to one lane and one bus boarding and alighting lane for construction methods.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to areas indicated in the drawings.
 - 2. Keep dumpster enclosure serving the Plaza building clear and available to the Agency and Owner, Agency and Owner's employees, and emergency vehicles at all times.

1.7 COORDINATION WITH OCCUPANTS

- A. Partial Agency Occupancy: Cooperate with Agency during construction operations to minimize conflicts and facilitate Agency usage. Perform the Work so as not to interfere with Agency's operations.

1. Maintain access to existing walkways, parking and driveways. Do not close or obstruct walkways without written permission from Agency and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Agency of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to normal business working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, unless otherwise allowed or restricted by City of Spokane.
 1. Weekend Hours: Limit work to normal business working hours of 8:00 a.m. to 4:00 p.m., Monday through Friday, except as otherwise allowed or restricted by City of Spokane.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Engineer not less than ten days in advance of proposed utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to neighboring businesses and traffic operation.
 1. Notify Owner not less than ten days in advance of proposed disruptive operations.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections include the following:
 - 1. Division 01 Section "Summary" for limitations on utility interruptions and other work restrictions.
 - 2. Division 01 Section "Execution" for progress cleaning requirements.

1.3 DEFINITIONS

- A. Permanent Enclosure: As determined by Engineer, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Engineer, occupants of Project, testing agencies, and authorities having jurisdiction.

1.5 SUBMITTALS

- A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.6 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Pavement: Comply with Construction Documents.
- B. Portable Chain-Link Fencing: Minimum 2-inch (50-mm), 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet (1.8 m) high with galvanized steel pipe posts; minimum 2-3/8-inch- (60-mm-) OD line posts and 2-7/8-inch- (73-mm-) OD corner and pull posts, with 1-5/8-inch- (42-mm-) OD top and bottom rails. Provide concrete bases for supporting posts.

2.2 TEMPORARY FACILITIES – NOT USED

2.3 EQUIPMENT – NOT USED

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
 - 3. Maintain traffic along adjacent streets. Traffic control and flaggers shall be provided for temporary one lane closure to install proposed improvements. Traffic control shall adhere to City of Spokane standards.
- C. Parking: Use designated public parking areas for construction personnel.
- D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- E. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.
 - 1. Provide temporary, directional signs for construction personnel and visitors.
 - 2. Maintain and touchup signs so they are legible at all times.
- F. Waste Disposal Facilities: Comply with local codes and ordinances.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction and the construction documents.
 - 1. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- C. Stormwater Control: Comply with authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

END OF SECTION 015000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For land surveyor.
- B. Certificates: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.

2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 4. Dates: Indicate when cutting and patching will be performed.
- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with requirements in Division 01 sustainable design requirements Section.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Engineer for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - 1. Description of the Work.
 - 2. List of detrimental conditions, including substrates.
 - 3. List of unacceptable installation tolerances.
 - 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control

of Contractor, submit a request for information to Engineer according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Engineer promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish limits on use of Project site.
 - 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 4. Inform installers of lines and levels to which they must comply.
 - 5. Check the location, level and plumb, of every major element as the Work progresses.
 - 6. Notify Engineer when deviations from required lines and levels exceed allowable tolerances.
 - 7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Engineer. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Engineer before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
 - 1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 - 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

3.7 OWNER-INSTALLED PRODUCTS – NOT USED

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- D. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."
- E. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- F. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- G. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Coordinate with factory-authorized representative for commissioning of restroom facility.

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 017300

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Demolition and removal of selected site elements.
- B. Work and materials shall comply with the requirements and standards of the authorities having jurisdiction. If a standard is not provided by the authorities having jurisdiction, work and materials shall comply with the most current edition of the Standard Specifications for Road, Bridge, and Municipal Construction as jointly promulgated by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works Association.
- C. Related Sections include the following:
 - 1. Division 31 Section "Site Clearing" for site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

- A. Demolish: Completely remove and legally dispose of off-site.
- B. Recycle: Recovery of demolition waste for subsequent processing in preparation for reuse.
- C. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- D. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- E. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- F. Existing to Remain: Existing facilities, utilities, or other improvements to be protected and that are not otherwise indicated to be recycled, removed, removed and salvaged, or removed and reinstalled.

- G. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- H. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.
- I. Agency: Spokane Transit Authority (STA)

1.4 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.
 - 1. Coordinate with Owner, who will establish procedures for removal and salvage.

1.5 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- C. Standards: Comply with ANSI A10.6 and NFPA 241.
- D. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- E. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
- F. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.6 PROJECT CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

- C. Hazardous Materials: It is unknown whether hazardous materials will be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Agency. Owner will remove hazardous materials under a separate contract.
- D. Storage or sale of removed items or materials on-site is not permitted.
- E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.7 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. Satisfactory Soils: Comply with requirements in Division 31 Section “Earth Moving”.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting demolition operations.
- B. Field verify existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. If unanticipated elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND SYSTEMS

- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and systems serving areas to be selectively demolished.
 - 1. Arrange to shut off indicated utilities with utility companies.
 - 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building and existing facilities.
 - 3. Cut off pipe or conduit to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to existing construction to remain.
 - 3. Protect existing facilities, utilities, and other improvements that are to remain or that are exposed during selective demolition operations.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.

2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Concrete or Asphalt: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 5. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations. Fire watch duration shall conform with regulations of the governing fire department.
 6. Maintain adequate ventilation when using cutting torches.
 7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 10. Dispose of demolished items and materials promptly.
 11. Proceed with patching after construction operations requiring cutting are complete.
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Restore damaged pipe covering to its original condition.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Agency's or Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.

2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - B. Burning: Do not burn demolished materials.
 - C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01 Specification Sections and Division 00 STA Project Description and Scope of Work, apply to this Section. In the event of a conflict between information in this section and Division 00, the information provided in Division 00 governs.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Do not add water to concrete mix on site.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Form materials and form-release agents.
 - 4. Steel reinforcement and accessories.
 - 5. Fiber reinforcement.

6. Curing compounds.
 7. Floor and slab treatments.
 8. Bonding agents.
 9. Adhesives.
 10. Vapor retarders.
 11. Semirigid joint filler.
 12. Joint-filler strips.
 13. Repair materials.
- C. Floor surface flatness and levelness measurements indicating compliance with specified tolerances.
- D. Field quality-control reports.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
 2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

1.9 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and ACI 305.1 (ACI 305.1M), and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301 (ACI 301M).
 2. ACI 117 (ACI 117M).

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. High-density overlay, Class 1 or better.
 - b. Medium-density overlay, Class 1 or better; mill-release agent treated and edge sealed.
 - c. Structural 1, B-B or better; mill oiled and edge sealed.
 - d. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.

3. Overlaid Finnish birch plywood.
 - B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
 - C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
 - D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
 - E. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
 - F. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
 - G. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 1. Furnish units that leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
 2. Furnish ties that, when removed, leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.
 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), deformed.
- B. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.
- C. Deformed-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, flat sheet.

2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.
- B. Epoxy-Coated Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 (Grade 420), plain-steel bars, ASTM A 775/A 775M epoxy coated.
- C. Epoxy Repair Coating: Liquid, two-part, epoxy repair coating; compatible with epoxy coating on reinforcement and complying with ASTM A 775/A 775M.

- D. Zinc Repair Material: ASTM A 780/A 780M.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
 - 1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 - 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
 - 3. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire bar supports.

2.5 CONCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- B. Cementitious Materials:
 - 1. Portland Cement: ASTM C 150/C 150M, Type II gray
 - 2. Fly Ash: ASTM C 618, Class F.
 - 3. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
 - 4. Blended Hydraulic Cement: ASTM C 595/C 595M, Type IS, portland blast-furnace slag cement.
 - 5. Silica Fume: ASTM C 1240, amorphous silica.
- C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 1 inch (25 mm) nominal unless noted otherwise.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Air-Entraining Admixture: ASTM C 260/C 260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- F. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing

chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.

- G. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
- H. Water: ASTM C 94/C 94M.

2.6 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. BASF Corp. - Construction Chemicals.
 - b. Bon Tool Co.
 - c. Brickform; a division of Solomon Colors.
 - d. ChemMasters, Inc.
 - e. Dayton Superior.
 - f. Euclid Chemical Company (The); an RPM company.
 - g. Kaufman Products, Inc.
 - h. L&M Construction Chemicals, Inc.
 - i. Lambert Corporation.
 - j. Metalcrete Industries.
 - k. Nox-Crete Products Group.
 - l. Sika Corporation.
 - m. SpecChem, LLC.
 - n. TK Products.
 - o. Vexcon Chemicals Inc.
 - p. W.R. Meadows, Inc.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Anti-Hydro International, Inc.
 - b. BASF Corp. - Construction Chemicals.
 - c. ChemMasters, Inc.

- d. Dayton Superior.
- e. Euclid Chemical Company (The); an RPM company.
- f. Kaufman Products, Inc.
- g. L&M Construction Chemicals, Inc.
- h. Lambert Corporation.
- i. Nox-Crete Products Group.
- j. Right Pointe.
- k. SpecChem, LLC.
- l. TK Products.
- m. Vexcon Chemicals Inc.
- n. W.R. Meadows, Inc.

2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C 1059/C 1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
 - 1. Types I and II, nonload bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than **4100 psi (29 MPa)** at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150/C 150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.

3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than **5000 psi (34.5 MPa)** at 28 days when tested according to ASTM C 109/C 109M.

2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).
 1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 1. Fly Ash: 25 percent.
 2. Combined Fly Ash and Pozzolan: 25 percent.
 3. Slag Cement: 50 percent.
 4. Combined Fly Ash or Pozzolan and Slag Cement: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
 5. Silica Fume: 10 percent.
 6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
 7. Combined Fly Ash or Pozzolans, Slag Cement, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
- D. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.

2.10 CONCRETE MIXTURES FOR PLATFORM ELEMENTS

- A. Footings: Normal-weight concrete.
 1. Minimum Compressive Strength: See General Structural Notes.
 2. Maximum W/C Ratio: See General Structural Notes.
 3. Slump Limit: See General Structural Notes.
 4. Air Content: See General Structural Notes.

- B. Slabs-on-Grade: Normal-weight concrete.
 - 1. Minimum Compressive Strength: See General Structural Notes.
 - 2. Maximum W/C Ratio: See General Structural Notes.
 - 3. Slump Limit: See General Structural Notes.
 - 4. Air Content: See General Structural Notes.

2.11 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For mixer capacity of 1 cu. yd. (0.76 cu. m) or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For mixer capacity larger than 1 cu. yd. (0.76 cu. m), increase mixing time by 15 seconds for each additional 1 cu. yd. (0.76 cu. m).
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 - 1. ¼ inch for smooth-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.

- E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC 303.
 - 2. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
 - 3. Install dovetail anchor slots in concrete structures as indicated.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.

1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
1. Weld reinforcing bars according to AWS D1.4/D 1.4M, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.
- G. Zinc-Coated Reinforcement: Repair cut and damaged zinc coatings with zinc repair material according to ASTM A 780/A 780M. Use galvanized-steel wire ties to fasten zinc-coated steel reinforcement.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Engineer.
1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 5. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 6. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least **one-fourth** of concrete thickness as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- (3.2-mm-) wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
 2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.

- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M).
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

3.7 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces to receive trowel finish.

- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighthen until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
 - 2. Finish and measure surface, so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch (6 mm).
- D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces exposed to view. While concrete is still plastic, slightly scarify surface with a fine broom.
 - 1. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.8 MISCELLANEOUS CONCRETE ITEM INSTALLATION

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations:
 - 1. Coordinate sizes and locations of concrete bases with actual equipment provided.
 - 2. Construct concrete bases 4 inches (100 mm) high unless otherwise indicated, and extend base not less than 6 inches (150 mm) in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated or unless required for seismic anchor support.
 - 3. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
 - 4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
 - 5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.

6. Prior to pouring concrete, place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
7. Cast anchor-bolt insert into bases. Install anchor bolts to elevations required for proper attachment to supported equipment.

3.9 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 (ACI 305.1M) for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies does not interfere with bonding of floor covering used on Project.
 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall

within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

- a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.

3.10 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.11 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 - 7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.12 FIELD QUALITY CONTROL

- A. Special Inspections: The owner will employ an ICC certified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Inspections:
 - 1. Steel reinforcement placement.
 - 2. Headed bolts and studs.
 - 3. Verification of use of required design mixture.

4. Concrete placement, including conveying and depositing.
 5. Curing procedures and maintenance of curing temperature.
- C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172/C 172M shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231/C 231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.
 5. Unit Weight: ASTM C 567/C 567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 6. Compression Test Specimens: ASTM C 31/C 31M.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 7. Compressive-Strength Tests: ASTM C 39/C 39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 8. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 9. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
 10. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.

11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
12. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42/C 42M or by other methods as directed by Architect.
13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 033000

SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions, Division 01 Specification Sections and Division 00 STA Project Description and Scope of Work, apply to this Section. In the event of a conflict between information in this section and Division 00, the information provided in Division 00 governs.

1.2 SUMMARY

- A. Section Includes:
 - 1. Structural steel.
 - 2. Prefabricated building columns.

1.3 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."

1.4 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.5 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.

- C. 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, including the following:
 - 1. Power source (constant current or constant voltage).
 - 2. Electrode manufacturer and trade name, for demand critical welds.
- D. Delegated-Design Submittal: For structural-steel connections indicated to comply with design loads, include analysis data.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator and shop-painting applicators.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Mill test reports for structural steel, including chemical and physical properties.
- E. Product Test Reports: For the following:
 - 1. Bolts, nuts, and washers including mechanical properties and chemical analysis.
 - 2. Shop primers.
 - 3. Nonshrink grout.
- F. Survey of existing conditions.
- G. Source quality-control reports.
- H. Field quality-control reports.

1.7 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.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector.
- C. Shop-Painting Applicators: Qualified according to SSPC-QP 3, "Standard Procedure for Evaluating Qualifications of Shop Painting Applicators."
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 1. Welders and welding operators performing work on bottom-flange, demand-critical welds shall pass the supplemental welder qualification testing, as required by

AWS D1.8/D1.8M. FCAW-S and FCAW-G shall be considered separate processes for welding personnel qualification.

- E. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC 303.
 - 2. AISC 341 and AISC 341s1.
 - 3. AISC 360.
 - 4. RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.
 - 1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.
- B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.
 - 1. Fasteners may be repackaged provided Agency's testing and inspecting agency observes repackaging and seals containers.
 - 2. Clean and relubricate bolts and nuts that become dry or rusty before use.
 - 3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F 1852 fasteners and for retesting fasteners after lubrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Connections: Provide details of connections required by the Contract Documents to be selected or completed by structural-steel fabricator to withstand loads indicated and comply with other information and restrictions indicated.
 - 1. Select and complete connections using AISC 360.
 - 2. Use Load and Resistance Factor Design; data are given at factored-load level.

2.2 STRUCTURAL-STEEL MATERIALS

- A. Plate and Bar: ASTM A 36/A 36M.
- B. Corrosion-Resisting Structural-Steel Shapes, Plates, and Bars: ASTM A 588/A 588M, Grade 50 (345).
- C. Steel Pipe: ASTM A 53/A 53M, Type E or Type S, Grade B.

1. Weight Class: Standard.
 2. Finish: Black except where indicated to be galvanized.
- D. Welding Electrodes: Comply with AWS requirements.

2.3 RAILINGS

- A. Hand railings at the step in the concrete platform as shown on the plans shall be of welded steel pipe construction, galvanized or painted in an approved manner as shown on the Plans.
- B. Welds: Welds shall be made by experienced welders as described in this specification. Each weld shall be ground and buffed to a smooth surface. Unless otherwise specified, field welds shall not be allowed and construction joints if required, shall be mechanical.
- C. The installed railing shall be in true alignment, of proper grade, and the posts plumb.
- D. Steel handrails shall be the size and grade as indicated on plan.
- E. Handrails shall be shop primed and painted with a complete Rustoleum coating system. Color shall be as directed by the owner. Prior to painting the railings, the surface shall be prepared in accordance with the recommendations of the paint manufacturer. The welds shall be ground smooth and weld spatter removed. After installation, the welded/ground areas shall be touched up with the complete Rustoleum system. Nicked or bruised areas shall be touched up with Rustoleum.
- F. When performing field touch-up, the Contractor shall ensure that no overspray or drips occur on the permanent surface. If necessary, the contractor shall remove overspray or drips in a manner which does not harm the permanent surface and such work shall be performed at no cost to the Contracting Agency.

2.4 PRIMER

- A. Primer: Comply with Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- B. Primer: Fabricator's standard lead- and chromate-free, nonasphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.5 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. Camber structural-steel members where indicated.
 2. Fabricate beams with rolling camber up.
 3. Identify high-strength structural steel according to ASTM A 6/A 6M and maintain markings until structural steel has been erected.
 4. Mark and match-mark materials for field assembly.

5. 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.
 1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted according to SSPC-SP 1, "Solvent Cleaning."
- F. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.
- G. 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.

2.6 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/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in AISC 303 for mill material.

2.7 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 (50 mm).
 2. Surfaces to be field welded.
 3. Surfaces of high-strength bolted, slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).

5. Galvanized surfaces.
 6. Surfaces enclosed in interior construction.
- 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 3, "Power Tool Cleaning."
 2. SSPC-SP 7/NACE No. 4, "Brush-off Blast 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 (0.038 mm). Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.
- D. Painting: Prepare steel and apply a one-coat, nonasphaltic primer complying with SSPC-PS Guide 7.00, "Painting System Guide 7.00: Guide for Selecting One-Coat Shop Painting Systems," to provide a dry film thickness of not less than 1.5 mils (0.038 mm).

2.8 SOURCE QUALITY CONTROL

- A. Testing Agency: Agency will engage a 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. Welded Connections: Visually inspect shop-welded connections according to AWS D1.1/D1.1M 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.
- C. In addition to visual inspection, test and inspect shop-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
1. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
 2. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.
- D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete -bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 - 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- 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.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Baseplates: Clean concrete -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.
- C. Maintain erection tolerances of structural steel within AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.

- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.
- H. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

3.4 FIELD CONNECTIONS

- A. Weld Connections: Comply with AWS D1.1/D1.1M 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. Remove backing bars or runoff tabs, back gouge, and grind steel smooth.
 - 3. 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.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Agency 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.
- B. Testing Agency: Agency will engage a qualified testing agency to perform tests and inspections.

3.6 REPAIRS AND PROTECTION

- A. Galvanized Surfaces: Clean areas where galvanizing is damaged or missing and repair galvanizing to comply with ASTM A 780/A 780M.
- 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.
 - 1. Clean and prepare surfaces by SSPC-SP 2 hand-tool cleaning or SSPC-SP 3 power-tool cleaning.
- C. Touchup Painting: Cleaning and touchup painting are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

- D. Touchup Priming: Cleaning and touchup priming are specified in Section 099600 "High-Performance Coatings."

END OF SECTION 051200

SECTION 055213 - PIPE AND TUBE RAILINGS

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related work specified in other sections:
 - 1. Anchor and Base Plate (Section 051200)

1.2 SUMMARY

- A. Section Includes:
 - 1. Custom fabricate and install steel pipe and tube railings. Custom modify pipe and tube to configurations indicated on the structural plans.
 - 2. Design Assistance: Provide design assistance through the submittal process that improves the final appearance, performance, durability, maintainability and constructability of this scope of work. Design presented in the contract documents is a baseline minimum standard. Material cost and construction schedule neutral refinements resulting from your experience that meets above criteria are welcome.

1.3 COORDINATION

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, anchor bolts. Deliver such items to project site for installation.
- B. Schedule installation so attachments are made only to completed construction. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Fasteners
 - 2. Welding procedures
 - 3. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.

1. Custom Formed Sections of each distinctly different linear railing member including handrails, top rails, posts and baluster.
2. Fittings and brackets.
3. Assembled Sample of railing system, made from full-size components, including top rail, lean rail, posts, and railing. Sample need not be full height.
4. Show method of connecting and finishing members at intersections,

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Welding certificates.
- C. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- D. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.
- E. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.
- F. Evaluation Reports: For post-installed anchors, from ICC-ES.

1.6 QUALITY ASSURANCE

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

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of curbs and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

2.2 PERFORMANCE REQUIREMENTS

- A. All railings shall be supplied to conform to applicable sections of the following codes:
 - 1. International Building Code 2015
 - 2. ADAAG
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F ambient; 180 deg F material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

2.3 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.

2.4 STEEL AND IRON

- A. Tubing: ASTM A 500.
- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
 - 1. Provide galvanized finish for exterior installations and where indicated.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.5 FASTENERS

- A. General: Provide the following:
 - 1. Steel Railings: Type 316 stainless-steel tamper resistant stainless-steel fasteners where indicated. Head design as approved by the Spokane Transit Authority.
 - 2. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.
- B. Fasteners for Anchoring Railings to Other Construction: Select (unless otherwise indicated) Spokane Transit Authority approved tamper resistant fasteners of type, grad, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:
 - 1. Provide concealed Spokane Transit Authority approved tamper resistant fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. For steel railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- C. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- E. Shop Primers: Provide primers that comply with paint manufacturers recommendations for High Performance Coatings.
- F. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.
- G. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- H. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- I. Intermediate Coats and Topcoats: Provide products that comply with paint manufacturer's recommendations for high performance coatings.
- J. Polyurethane Topcoat: Complying with MPI #72 and compatible with undercoat.

- K. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- L. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- M. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.

2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with either welded or nonwelded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- J. Form Changes in Direction as Follows:
1. By bending or by inserting prefabricated elbow fittings.
- K. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- L. Close exposed ends of railing members with prefabricated end fittings.
- 2.8 STEEL AND IRON FINISHES
- A. Galvanized Railings:
1. Hot-dip galvanize exterior steel railings, including hardware, after fabrication.
 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
 4. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
 5. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.
- D. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- E. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
1. Shop prime uncoated railings with high performance coating per manufacturer's recommendations.
 2. Do not apply primer to galvanized surfaces.
- F. High-Performance Coating: Apply epoxy intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements

in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.

1. Color: Contractor to coordinate color with Spokane Transit Authority.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.

- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
 - 1. For steel pipe railings, weld flanges to post and bolt to concrete supporting surfaces.

3.5 ADJUSTING AND CLEANING

- A. Clean steel by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

3.6 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

3.7 Measurement

- A. "Handrails" will be measured per linear foot, and shall be full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all the work involved in providing Handrails, as shown on the Drawings, as specified in these technical specifications. The Work includes fabrication, assembly, welding, anchoring posts, all connections, high-performance coating, and all other accessories, attachments and appurtenances.

3.8 Payment

- A. “Handrails” per linear foot.

END OF SECTION 055213

SECTION 260500 - COMMON WORK RESULTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Refer to Division 01 for submittal requirements and formats.

1.2 OUTLINE OF WORK

- A. Scope: The work under this division includes furnishing all materials, equipment, labor, supervision, tools and items necessary for the construction, installation, connection, testing and operation of all electrical work for this project as shown on the Electrical Drawings and/or defined in Division 26 of the specifications.
- B. Contract Requirements: Comply with the requirements of the General Conditions, the Supplementary Conditions, and Division 01 as they apply to the work in this section. Comply with the requirements of the other specification divisions that have additional requirements for this work as referenced under Division 26 sections.
- C. Related Work Described Elsewhere: Where other divisions require electrical materials or installations under this division of the specifications, comply with all applicable requirements herein. Provide all electrical materials and installation work required to connect, test and operate equipment described in other divisions of these specifications as shown on the Electrical Drawings or specified hereinafter. Electrical installations required by other divisions but not shown on the Electrical Drawings or specifically called out in this division of the specifications shall be provided by the trade requiring the electrical work.
- D. Itemized Schedule of Costs: Furnish a contract cost breakdown by specification section to the Architect with a copy to the Engineer to allow evaluation of partial payment requests. Refer to Division 01 for requirements.
- E. Warranty: The Contractor shall guarantee all work installed under this specification and make good, repair or replace at his own expense, any defective work, materials or parts within the warranty period, if, in the opinion of the Architect, said defect is due to imperfection in material, design or workmanship. The warranty period shall be in accordance with Division 01 but not less than one year. Lamps are not warranted but all shall be operating at time of final acceptance. Warranty shall be submitted in writing as required in Division 01.

1.3 REGULATIONS

- A. Codes and Ordinances: Comply with all applicable codes, ordinances and regulations including the National Electrical Code, the Washington Administrative Code, National Electrical Safety

Code, WISHA, NFPA, and all other national, state and local codes and ordinances. Notify the Architect of any non-compliance in contract documents to applicable codes and regulations prior to installation of the work. Changes in the work after initial installation due to requirements of code enforcing agencies shall be at no additional cost to the Owner.

- B. Permits: Provide and pay for all permits and fees required for this project. In addition to paying for all permits and fees, the Contractor shall be responsible for contacting the various Approving Authorities, arranging for review of shop drawings where appropriate, scheduling inspections in a timely manner, and making necessary corrections as required by the Approving Authorities.
- C. Approving Authority: It is the Contractor's responsibility to ascertain and contact the appropriate "Approving Authorities" for this project. Approving Authorities will include, but not be limited to the local Fire Marshal and the local authority having jurisdiction.
- D. Certificate of Inspection: Obtain a Certificate of Electrical Inspection from the local inspecting authority indicating final acceptance. Submit to the Owner upon completion of the project as part of project closeout.
- E. Safety Measures to be Taken: The Architect and Engineer have not been retained or compensated to provide design and construction review services relating to the Contractor's safety precautions or to means, methods, techniques, sequences or procedures required for the Contractor to perform his work. The Contractor will be solely and completely responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The duty of the Architect and Engineer to conduct construction observations of the Contractor's performance is not intended to include review of the adequacy of the Contractor's safety measures, in, on or near the construction site. It shall be the Contractor's responsibility to comply with "Safety and Health Regulations for Construction," Volume 36, No. 75, Part II of the Federal Register by the U.S. Department of Labor. Contractor shall be responsible for providing all such safety measures and shall consult with the state or federal safety inspector for interpretation whenever in doubt as to whether safe conditions do or do not exist or whether he is or is not in compliance all with state or federal regulations.

1.4 DRAWINGS AND SPECIFICATIONS

- A. Intent: The Electrical Drawings and specifications are intended to include all labor and materials necessary to provide a complete and operating facility. Any materials shown and called for on the drawings but not mentioned in the specifications, or vice versa, which are necessary for the proper completion of the installation or operation of the equipment, shall be furnished the same as if specifically called for in both. By submitting a bid, the Contractor is acknowledging that he has made a thorough examination of the contract documents, existing site conditions, and has determined that these documents and conditions do sufficiently describe the scope of construction work required under this contract. Any questions regarding interpretation of the contract documents shall be made in writing in a timely manner prior to the bid date to allow reasonable time for resolution of the questions.

- B. Diagrammatic Drawings: The Electrical Drawings are diagrammatic and do not show exact or complete raceway and wiring configurations, routing, rating or the necessary number and types of raceway fittings, junction boxes and pull boxes. Provide all labor and materials required to execute the work specified herein or described on the Electrical Drawings.
- C. Any minor changes (less than 6'-6" horizontal or vertical) in the location of the raceways, outlets, boxes, devices, wiring, etc., from those shown on the drawings shall be made without extra charge, where coordination requires or if so directed by the Architect prior to rough-in.

1.5 SUBMITTALS AND SHOP DRAWINGS

- A. Submittals, General: All equipment must be submitted for review prior to installation. Provide submittals in accordance with Division 01. The remaining instructions in this paragraph are intended to supplement and amplify the requirements of Division 01. Bind submittals in three-ring binder. Open catalog sheets will not be accepted. Shop drawings shall consist of one reproducible drawing and a maximum of four blueprint sets. Index to the applicable specification section with a transmittal letter bound as the first sheet. Provide an index with each section of equipment indicating exact catalog numbers of products provided. In addition, identify the specific products by catalog number within the submittal documents. Submittals will not be accepted unless they conform to these requirements.
- B. Shop Drawings: Provide shop drawings, descriptive bulletins, data sheets, diagrams, catalog cuts or other additional information as required for all specified materials including the following:

	Submittal Number	Date Reviewed
Raceways and Fittings	_____	_____
Cable Tray	_____	_____
600-Volt Wire and Cable	_____	_____
Outlet, Junction and Pullboxes	_____	_____
Wiring Devices	_____	_____
Electrical Identification	_____	_____
Lighting Controls	_____	_____
Motor Controls & Misc. Equipment Connections	_____	_____
Emergency Generator	_____	_____
Switchboards	_____	_____
Disconnect Switches	_____	_____
Fuses	_____	_____
Grounding	_____	_____
Panelboards	_____	_____
Transient Voltage Surge Suppressors	_____	_____
Automatic Transfer Switches	_____	_____
Lighting	_____	_____
Dry-type transformers	_____	_____
Fire Alarm System	_____	_____
Intercom and Master Clock System	_____	_____
Telecommunications System	_____	_____
Sound Reinforcement System	_____	_____

- C. Submittal Format: Submittals must be sent in complete "sets," including all specified material. Submission of individual materials will not be accepted.
- D. Review: The review of a manufacturer's name or product by the Architect does not relieve the Contractor of the responsibility for providing materials and equipment which comply in all details with the requirements of the contract documents. Contractor shall be solely responsible for submitting materials at such a time to allow a minimum of two weeks for Engineer's review.
- E. It is the Contractor's responsibility to thoroughly review vendor-assembled shop drawings, catalog cuts, etc. to ensure that these documents are complete and comply with the specifications. If this coordination effort is not done, the Architect reserves the right to reject the complete submittal without review. To insure compliance with the Architect's review comments and communication of these comments through the Contractor and supplier to the manufacturer, all corrections to shop drawings shall be done by the manufacturer and resubmitted as requested by the Architect. "Local" mark-ups of the manufacturer's shop drawings will not be accepted.

1.6 OPERATIONS AND MAINTENANCE MANUALS

- A. Provide operations and maintenance manuals for all electrical equipment installed on this project in accordance with Division 01.
- B. Items described shall include, but not be limited to, the equipment listed under "Shop Drawings" in this division of the specifications. Provide table of contents at front of manual indicating general content of each section. Provide index for each section of the manual with complete equipment catalog item or identification.
- C. The information and diagrams included must be on the specific equipment installed for this project. General "product line" information is not acceptable. The equipment model and catalog numbers with appropriate prefixes and suffixes must be clearly indicated on the data sheets. Manuals shall contain shop drawings, schematic and wiring diagrams (showing all external connections), parts lists, operating and maintenance information. Any modifications to equipment in the field shall be updated on the drawings, diagrams, etc., to reflect the "as-built" conditions.
- D. Binding: Bind with three-screw post-type binder with heavy-duty hardboard cover and cloth backing. Imprint edge of volume with name of the building, year of completion and the words "Electrical Equipment." Front of manual shall be imprinted with the words "Electrical Equipment" the name of the project, the name of the Owner, year completed, name of the Architect, Engineer and Contractor. All printing in gold lettering. If the thickness of the manual exceeds approximately 2", provide separate volumes, each approximately 2" thick with each volume imprinted as described above and with the addition of the volume number. The back edge shall be imprinted with the name of the project, name of the Owner and year of completion.

- E. Provide one preliminary copy to the Commissioning Authority for review 30 days prior to scheduled training or project completion, whichever is first. One preliminary copy shall be submitted to the Engineer for review 30 days prior to completion of the project. Placeholders are to be used for information that is not available at the time of draft manual submission. Preliminary copy shall include proposed wording for cover and back edge of the manual. Submit final bound copies for distribution as required by Division 01.

1.7 RECORD DRAWINGS

- A. **Maintained on Site:** A record shall be made during the progress of the project indicating the work as actually installed. Corrections and changes shall be kept up to date at all times on a separate set of record drawings kept at the job site for review by the Architect. Mark-ups may be schematic as related to interior raceway systems, however, all raceways shall be shown in proper relationship with junction boxes, panelboards, devices, and equipment. Raceways installed below grade shall be shown with both horizontal and vertical dimensions at an accuracy of ± 6 inches.
- B. **Project Closeout:** Provide one set of prints indicating work as revised, detailed and actually installed, and submit to the Architect as part of the Project Closeout documentation. Panel schedules and fixture/equipment schedules shall also be updated.
- C. **Additional Record Drawings:** Refer to Signal and Communication Systems section for additional record drawing requirements. AutoCAD production requirements also apply to all signal and communications system drawings.

1.8 CONSTRUCTION SCHEDULING AND SEQUENCING

- A. Construction will occur in numerous phases. At the completion of each phase the electrical systems shall be tested and the Owner trained in the use of the systems. Refer to Architectural Drawings and the specifications for construction schedules and sequencing requirements.

1.9 ABBREVIATIONS AND DEFINITIONS

- A. **Provide:** To furnish and install.
- B. **Wiring:** Raceway, conductors and connections.
- C. **Exposed:** Visible from occupied areas.
- D. **Install:** To set in position and make fully operational.
- E. **Furnish:** Purchase and deliver to the job site.
- F. **Required:** As required by code, authority having jurisdiction or contract documents for the

system and/or installation to be fully operational.

PART 2 - PRODUCTS

2.1 STANDARD OF QUALITY

- A. General: Whenever any material or equipment is specified by patent or proprietary name or by the name of the manufacturer, such specification shall establish the standard of quality in that particular field of manufacture. The Architect shall be the sole and final judge as to quality and acceptability of substitutions, no exceptions.
- B. Substitutions:
 - 1. Unless otherwise noted on the drawings or other sections of the specifications, the Contractor may offer material or equipment with equal or better qualities than those specified. Reference is made particularly to Instructions to Bidders related to prior approval requirements.
 - 2. When the substitute equipment or material necessitates revisions to the plans or involves other trades, the Contractor shall include drawings and details showing all such changes, and coordinate and assume any liability and costs from the affected trades. Also, if a change required engineering or mechanical services or other equipment modifications, these services shall be billable to the Contractor.

2.2 PRODUCT LISTING OR LABELING

- A. All electrical equipment and materials shall have Underwriters' Laboratories, Inc., or other approved testing facility label whenever published standards exist. Equipment in compliance with UL standards but not bearing their label is not acceptable. If the manufacturer cannot arrange for labeling of an assembled unit at the factory, the necessary inspection and acceptance by the testing facility shall be performed in the field at no additional cost to the Owner, and be acceptable to the authority having jurisdiction.

PART 3 - EXECUTION

3.1 GENERAL

- A. All materials shall be new, free from defects and arrive at the job site in original unopened containers.

3.2 MATERIAL STORAGE

- A. Make all necessary provisions for storing materials and equipment at site so as to insure the quality and fitness of the items to be incorporated in the work. Equipment shall be stored to prevent damage and corrosion.

3.3 WORKMANSHIP AND COORDINATION

- A. General: Workmanship shall be the best quality as recognized by the electrical construction industry and satisfactory to the Owner and Architect. Remove and replace lesser quality work as directed at no additional cost to the Owner. The Architect, or his designated representative, shall be the judge of the required quality of workmanship.
- B. Work of Other Trades: The Electrical Drawings do not show complete details of the building construction. Refer to the Architectural, Structural, Civil Landscape and Mechanical Drawings for those details which may affect the execution of this work. Specific locations of construction features shall be obtained from the reference drawings, field measurements, or the trade providing the material or equipment. No extra payments will be allowed for failure to obtain this information.
- C. The Contractor will not be paid for work requiring reinstallation due to lack of coordination prior to installation i.e., removing, replacing, relocating, cutting, patching or finishing. Special attention is called to the following items and all conflicts shall be coordinated prior to installation:
 - 1. Light switches will be located on the "strike" side of the door.
 - 2. All electrical outlets, lighting fixtures, signal and communications devices, and other electrical devices and equipment are installed to avoid conflict with grilles, pipes, sprinkler heads, ducts and other mechanical equipment.
 - 3. Electrical outlets, lighting fixtures, signal and communications devices and equipment are to be installed in proper relation to cabinets, counters, doors and other Architectural appurtenances.
 - 4. Electrical characteristics (HP, KVA, voltage, phase, fusing, overload protection) of actual equipment furnished under other divisions being different from that shown on the electrical drawings.
- D. Cooperation: Plan and execute work in cooperation with all other trades and utility companies. Every reasonable effort shall be made to provide all concerned with timely notice of work affecting other trades, and to prevent conflicts or interference as to space requirements, dimensions, openings, block-outs, sleeving or other matters which will cause delays or necessitate work-around methods.
- E. General Construction:
 - 1. Cutting and Patching: Provide all cutting, demolition and patching required for the installation of the electrical work on this project. Patching shall be accomplished by utilizing the general construction trades normally providing materials and labor needed

for restoration of floor, ceiling or walls. Penetrations through existing structural walls, ceiling or floor slabs shall be core drilled. Spillage from core drilling shall be contained by diking, vacuuming and covering with protective plastic sheeting as required. In no case shall structural members be penetrated without prior approval of the Architect. After installation of raceways, provide approved fire sealing materials to close spaces around raceways.

2. Sleeves and openings required through floors and walls for electrical work shall be the responsibility of the Contractor. This work shall be carefully coordinated with the General Contractor and other trades involved. All openings around conduits in sleeves shall be sealed with a material of equal fire rating as the material penetrated.
3. Painting: Touch up electrical equipment with factory finished surfaces as required using factory furnished paint. Coordinate field painting requirements with the Architect prior to final trim and cover installation. Do not paint screw heads, hinges, nameplates, hardware, etc. All surface-mounted raceways in finished areas will be painted as directed under the "Painting" division of the specifications. Coordinate timing of installation to minimize conflicts with painting requirements.
4. Cleaning: Promptly remove waste material and rubbish resulting from electrical work. Prior to energizing equipment, remove all chipping materials, construction dirt and debris, vacuum and wipe-down all internal areas. At completion of the project, clean all equipment and fixtures installed under this Contract.
5. All penetrations through building roofing shall be flashed by a qualified roofing contractor normally in the business of commercial roofing. Flashing shall be in accordance with NRCA standard practices.
6. No penetrations shall occur in beams with internal pre-stressed cable design or concrete floor slabs with pre-stressed cabling will be allowed without prior written analysis by a structural engineer.
7. Prevent spillage during hauling operations. In cas of spills (including trenching materials) clean streets, walkways, courtyards, etc. by means of proper sweepers or other approved methods.
8. School dumpsters shall not be used by the contractor.

F. Existing Conditions:

1. General: Specific scope of demolition work and operating conditions to be encountered shall be verified by on-site review prior to submitting bid. Demolition work in general is noted or shown on the documents based upon available "drawings of record" and may not show the actual conditions as they presently exist. The Contractor shall be responsible for removing or modifying the existing electrical installation as required by the building alterations. The Contractor shall be responsible for protection of existing equipment and wiring to be retained or reinstalled and shall replace any equipment damaged during the process of removal and reinstallation.
2. Owner Retained Equipment: The Owner may wish to retain certain specific items scheduled for demolition. The Contractor shall carefully remove these items, provide protection and packaging as may be required to protect the equipment and turn over said equipment to the Owner at a place designated on the jobsite. Any equipment that the Owner does not desire to retain shall become the property of the Contractor and be removed from the site.
3. Existing Conduit and Wiring: No existing conduit or wiring shall be reused.
4. Unused Conduit and Wiring: All unused conductors in existing buildings shall be removed. All unused conduit shall be removed except where located in or above existing

construction which is not being altered and would require removal and replacement of the existing construction.

G. Continuity of Service To and In Existing Building:

1. Continuity of Service: The Contractor shall temporarily reroute or relocate existing wiring and/or equipment which is in conflict with existing building alterations and which is required to be maintained in use during construction. The Contractor's bid shall include intercepting and relocating existing raceways in 20 different locations throughout the building. Each location shall be assumed to have four ¾" EMT raceways (100 L.F. each), each containing seven AWG conductors which must be intercepted and relocated.
2. Premium Pay: Any overtime work required by this project to maintain the facility in continuous service without reducing its efficiency shall be included as a part of this contract. No additional payments will be authorized for work performed on weekends, holidays or other-than-normal working hours.

3.4 REMOVAL AND REPLACEMENT OF EXISTING MATERIAL:

- A. Ceiling Panels: Remove and reinstall all necessary panels in existing accessible ceilings, as required for the installation of electrical work. Where existing ceiling panels are damaged, they shall be replaced with new units. After ceiling removal and reinstallation is complete, the ceiling system appearance shall match adjacent similar ceilings that have not been removed.
- B. Work Caused by Removal and Reinstallation of Existing Material: Existing electrical work which is to be removed and reinstalled as a result of the installation of work by other trades shall be performed by the Electrical Contractor at no additional expense to the Owner.
- C. Existing fluorescent fixture ballasts to be removed may contain PCB's and are to be treated as hazard materials. Removal and disposal of these fixtures are to comply with all local, state, and federal agency requirements. Provide documentation as required by the regulating agency as proof of proper disposal.
- D. Openings in walls and floors resulting from removal of conduits and/or devices are to be patched with materials equivalent to adjacent surfaces. Materials used for patching shall maintain the fire rating of the existing area.

3.5 MISCELLANEOUS

A. Equipment Anchorage, Support and Bracing:

1. General: Provide complete seismic anchorage and bracing for the lateral and vertical support of conduit and electrical equipment, as required by the Uniform Building Code.
2. Conduit Crossing Structural Separations: Conduit that crosses structural or seismic separations between building units shall be installed with flexible connections, suitable to accommodate longitudinal and transverse displacements. Secure raceways each side of joint and provide minimum of 36" length flexible conduit between building units.

- B. Phase Relationship: Maintain consistent phase relationship and rotation throughout the project. Check and identify proper rotation of equipment prior to energizing said equipment.
- C. Housekeeping Pads: Coordinate size and location of housekeeping pads for all floor-mounted electrical equipment. Pads shall be 4 inches thick (nominal) x 2 inches larger than plan view dimensions of equipment. Provide 1-inch x 1-inch chamfer at top edges of pads.

3.6 CONSTRUCTION OBSERVATION AND FINAL ACCEPTANCE

- A. Site Review: On-site meetings or reviews of construction by the Architect, Engineer or Owner shall not be construed as acceptance by these parties as related to quantities, rough-in locations, and compliance with code enforcing authorities unless specific exceptions have been brought to the attention of the Architect or Engineer and have been accepted in writing.
- B. Testing: The Contractor shall test all wiring and all electrical equipment to verify absence of grounds and short circuits and verify proper operation, rotation, and phase relationship. Contractor will be responsible for scheduling of tests and demonstrations at times mutually acceptable to the Owner. All equipment shall be demonstrated to operate in accordance with the requirements of this specification and the manufacturer's recommendations. Operate every device manually and automatically in accordance with its purpose. Tests shall be performed in the presence of the Owner or his designated representative. All instruments and personnel required to conduct the test shall be provided by the Contractor. Any test not witnessed by the Owner shall be waived by written document. All such documents must become the property of the Owner upon completion of construction.
- C. Commissioning:
 - 1. Selected equipment and systems are to be commissioned per Section 019100 "General Commissioning Requirements" and Section 260816 "Commissioning for Electrical Systems." The contractor has specific responsibilities for scheduling, coordination, startup, test development, testing and documentation. Coordinate all commissioning activities with the Commissioning Authority.
 - 2. Provide copies of all start up documents for systems being commissioned to the Commissioning Authority prior to start of commissioning testing.
 - 3. Provide assistance to the Mechanical Contractor and Commissioning Agent as specified in Section 019113 "General Commissioning and Section 230816 "Commissioning of Mechanical Support Sections."
- D. Instruction for Owner's Personnel:
 - 1. Scope: Following initial operation of all electrical equipment and prior to acceptance of the electrical work, conduct demonstrations of equipment operation and instruction periods for the Owner's representatives.
 - 2. Initial Instruction Periods: Shall include preliminary discussion and presentation of information from maintenance manuals with appropriate references to drawings, followed by tours of equipment spaces explaining maintenance requirements, access methods, servicing and maintenance procedures, settings and available system and equipment adjustments.

3. Final Instruction Periods: 30 days after the initial instruction, a second instruction period shall be scheduled. The format and duration of the instruction periods shall be identical to the initial instruction periods.
4. Contractor's representatives, in general, who conduct these instructions and demonstrations shall be qualified foremen or superintendents acquainted with this project and from the trade involved. For major equipment, the representative shall be the manufacturer's representatives with operating experience and substantial design experience on this project. Their qualifications shall be submitted to the Architect and Engineer before conducting the instruction period.
5. Minimum Duration of Instruction Periods:
 - a. Electrical Distribution System: 4 Hours
 - b. Lighting System: 4 hours
 - c. Signal and Communications Systems: 4 Hours each
 - d. Refer to other section of the specification for additional testing requirements.
6. Scheduling of Instruction Periods: Provide notice of Contractor's readiness to conduct such instruction and demonstration periods to the Owner at least two weeks prior to each instruction period and reach agreement on the date of each instruction period.
7. Attendance sheets shall be filled out for each training session listing all participants. Copies of the attendance sheets shall be provided to the Commissioning Authority.
8. Prepare a written statement of acceptance for the Owner's signature. The statement shall be substantially as follows:
9. "I (the Contractor), the associated factory representatives and the subcontractor, have thoroughly tested each of the following systems and have proved their normal operation to the Owner's representative and have instructed him in the operation and maintenance thereof."

<u>Owner's System</u>	<u>Demonstrator</u>	<u>Representative</u>	<u>Date</u>
Electrical Distribution	_____	_____	_____
Telecommunications	_____	_____	_____
_____ Owner's Representatives		_____ Date	
_____ Contractor		_____ Date	

10. Send copies of this acceptance to the Architect and the Engineer and place one copy in each maintenance manual.
- E. Completion of Work: When requesting final inspection, provide ten day notice. Submit written certifications that the work has been fully completed in strict accordance with the plans and specifications.

- F. Final Documentation: See STA General Conditions. All manuals, test results, and acceptances by the inspecting authorities shall be included in this final documentation.

END OF SECTION 260500

SECTION 260529 - HANGERS AND SUPPORTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.

1.2 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. IMC: Intermediate metal conduit.
- C. RMC: Rigid metal conduit.

1.3 SUBMITTALS

- A. Product Data: Submit for each of the products provided.

PART 2 – PRODUCTS

2.1 SUPPORT, ANCHORAGE AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper B-Line
 - 2. Thomas & Betts
 - 3. Unistrut
- C. Metallic Coatings: Hot-dip galvanized after fabrication.
- D. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating.
- E. Painted Coatings: Manufacturer's standard painted coating.

- F. Channel Dimensions: Selected for applicable load criteria.
- G. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- H. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.
- I. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened Portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used. Subject to compliance with requirements, provide products by one of the following manufacturers:
 - a. Hilti
 - b. ITW Ramset/Red Head
 - c. Simpson Strong-Tie
 - 2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used. Subject to compliance with requirements, provide products by one of the following manufacturers:
 - a. Cooper B-Line
 - b. Hilti
 - c. ITW Ramset/Red Head
 - 3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
 - 4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
 - 5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
 - 6. Toggle Bolts: All-steel springhead type.
 - 7. Hanger Rods: Threaded steel.

PART 3 – EXECUTION

3.1 APPLICATION

- A. Conduit Crossing Structural Separation: Conduit that crosses structural or seismic separations between building units shall be installed with flexible connections, suitable to accommodate longitudinal and transverse displacements. Secure raceways each side of joint

and provide minimum of 36 inches length flexible conduit between building units.

- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 3/8 inch in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits. Secure raceways and cables to these supports with two-bolt conduit clamps.
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch and smaller raceways serving branch circuits and low-voltage systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb.
- B. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
 - 1. To Wood: Fasten with lag screws or through bolts.
 - 2. To New Concrete: Bolt to concrete inserts.
 - 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 - 4. To Existing Concrete: Expansion anchor fasteners. In lieu of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete four inches thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than four inches thick.
 - 5. To Steel: Beam clamps.
 - 6. To Light Steel: Sheet metal screws.
- C. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate.
- D. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

- A. Provide four-inch high concrete pads with chamfered edges for all floor-mounted equipment including switchboards, distribution panels, transformers, motor control centers and unit substations.
- B. Construct concrete bases of dimensions indicated but not less than four inches larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- C. Use 3000-psi, 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section.
- D. Anchor equipment to concrete bases.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND FITTINGS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Refer to Division 01 for submittal requirements and formats.

1.2 SCOPE

- A. Provide complete raceway systems as shown on the drawings and/or as required for proper installation of the various electrical systems being installed under this project. Minimum raceway size shall be ½” for power and ¾” for systems and data unless noted otherwise.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Raceways: Allied, Carlon, Western or equal.
- B. Fittings: Appleton, Carlon, T&B, Steel City, O-Z/Gedney or equal.
- C. Conduit Straps: Appleton, Carlon, T&B, Steel City, O-Z/Gedney or equal.
- D. Low-Voltage Cable Supports: Caddy or equal.

2.2 RACEWAYS

- A. Rigid Aluminum Conduit: Not Permitted.
- B. Rigid Metallic Conduit: Zinc-coated steel with full threaded connections.
- C. Electrical Metallic Tubing (EMT): Zinc-coated steel.
- D. Rigid Nonmetallic Conduit: Rigid PVC, Schedule 40, UL listed for direct burial or concrete encasement.
- E. Flexible Metallic Conduit: Galvanized steel, securely interlocked.

- F. Liquidtight Flexible Metallic Conduit: Galvanized steel, interlocked, with integral ground conductor and PVC jacket overall.
- G. Surface Raceway – Steel wiremold product (or approved), ivory in color

2.3 FITTINGS

- A. Rigid Metallic Conduit:
 - 1. Couplings: Threaded metallic type of the same material as the conduit.
 - 2. Locknuts: Steel up to 2 inches, malleable iron for 2-1/2 inches and larger.
 - 3. Bushings: Bakelite or plastic up to 2 inches, malleable iron with insulating collar for 2-1/2 inches and larger.
 - 4. Unions: Zinc plated malleable iron, 3 piece conduit coupling. Running threads are not acceptable.
- B. Electrical Metallic Tubing (EMT): Fittings shall be raintight type steel set screw type containing dual setscrews on each side of coupling. Set screws shall be steel. Cast metal will not be accepted.
- C. Rigid Nonmetallic Conduit: Slip-on, nonthreaded type of same material as conduit. Provide rigid steel bends in conduit runs.
- D. Flexible Metallic Conduit: Galvanized steel, one- or two-screw clamp type. All fittings shall be steel.
- E. Liquidtight Flexible Metallic Conduit: PVC waterproof cover over steel conduit, steel compression type. PVC waterproof flex without steel core is prohibited.
- F. Expansion Fittings: Provide expansion fittings for all rigidly fastened conduits spanning a building expansion joint, and for all runs 1-1/2" or larger exceeding 150 feet in length. Fittings shall be hot-dipped galvanized malleable iron with a packing ring to exclude water, a pressure ring, and a separate external copper bonding jumper.

2.4 CONDUIT STRAPS

- A. Heavy-duty one- or two-hole pressed steel straps. "Nail-in" style straps shall not be used.

2.5 SURFACE RACEWAY ANCHORS

- A. 2-hole strips shall utilize Powers Poly-Toggle Cat #2305.

2.6 LOW VOLTAGE OPEN CABLING SUPPORTS

- A. J-Hooks: Shall comply with TIA requirements for structured cabling system. Galvanized finish. Caddy #CAT21 with CATHBA angled hanger bracket. Provide all hardware necessary for secure mounting to the structure. Follow manufacturer's recommendations for quantity of cables supported.
- B. Adjustable Cable Support: Shall comply with TIA requirements for structured cabling system. Caddy #CAT425. Follow manufacturer's recommendations for quantity of cables supported.
- C. Provide all accessories and mounting hardware required for a complete and working installation of open cabling supports.

PART 3 – EXECUTION

3.1 COORDINATION

- A. The Contractor shall review all drawings, details and elevations and coordinate with the Architect prior to rough-in, all installations of wiring devices and equipment. Where equipment is furnished by others, the Contractor shall ascertain the proper voltage, load and connection requirements prior to rough-in.

3.2 MATERIALS

- A. All materials of a specific type shall be provided by the same manufacturer throughout the project. These products shall be identical to those submitted for review.

3.3 RACEWAY INSTALLATION

- A. Raceway Types: Install raceway types and sizes as listed below:
 1. Rigid Metallic Conduit: In concrete, masonry, exposed exteriors and exposed interiors where subject to physical damage and as required by code enforcing agencies.
 2. Electrical Metallic Conduit (EMT): All areas other than above. May be used for feeders with integral green ground conductor.
 3. Flexible Metallic Conduit: Recessed fixture connections, interior concealed equipment connections, expansion and seismic joints and sound control. Not to be used for exposed installations within the building.
 4. Liquidtight Flexible Metallic Conduit: Exterior equipment connections and exposed installation within the building.
 5. Rigid Nonmetallic Conduit: Exterior underground installations; direct buried for lighting raceways,. 90° elbows to be rigid galvanized steel. Service raceways are to be concrete encased. Underground feeders; concrete encased with rigid steel conduit elbows.

6. Surface mounted raceway: Shall be used only where other routes are unavailable and where it is mutually agreed to be desirable by the contractor and owner.
7. See referenced Signal and Communications specification sections for raceways associated with these systems.

B. Installation:

1. Planning: The layout of all raceways shall be carefully planned by the Contractor to ensure an installation which is neatly done and workmanlike. Any work showing improper care in planning will be ordered removed by the Architect, and shall be replaced in a neat and proper manner, without any additional cost to the Owner.
2. Concealment: All raceways shall be concealed in finished areas unless approved otherwise by the Architect. Where existing wall surfaces are inaccessible, surface metal raceways for these exceptions may be provided when approved by the Architect. Raceways may be surface mounted in unfinished equipment spaces such as mechanical rooms, electrical rooms, elevator machine rooms, and attic spaces.
3. Cutting and Bending: Raceways shall have smooth interior, ends cut square and reamed. Bends shall be carefully made to avoid injuring or flattening raceways (no "Hickey" bends).
4. Exposed Raceways: Install exposed raceways as high as possible, above ductwork, parallel or at right angles to building lines.
5. Expansion and Earthquake Joints:
 - a. Raceways shall not be installed in concrete slab or wall construction when passing through an expansion or earthquake joint.
 - b. Raceways shall be installed in furred or suspended ceiling spaces with a minimum of 36 inches of flexible conduit crossing the expansion or earthquake joints. Secure raceways each side of joint.
6. Routing: All raceways shall be installed parallel or at right angles to the building construction unless prohibited by a physical obstruction. This applies to all exposed raceways as well as all raceways above suspended ceiling.
7. Raceway Supports: Raceways shall be supported with heavy-duty, one- or two-hole, pressed steel straps on interior surfaces. Support pendant-mounted raceways on 3/8-inch rod with pear-shaped hanger or trapeze-type hanger with 3/8-inch rod (minimum) and 1-5/8-inch square preformed channel and pipe clamps. Parallel, surface-mounted raceways shall be supported from 1-5/8-inch square preformed channel and pipe clamps. All fittings and supports shall be hot-dip galvanized in exterior areas. Preformed channel in areas above suspended ceilings may be standard painted finish. Multiple conduit runs shall be grouped and neatly racked on trapeze hangers.
8. Anchorage: Anchor to metal stud structures by means of sheet metal screws or manufactured spring steel clips. Fasten individual raceways supports to structural walls or slabs with steel expansion shells and bolts. Provide flush concrete insert for multiple raceway support system. Fasten to structural steel with heavy-duty beam clamps. Fasten to architectural or masonry walls with toggle bolts or molley screws.
9. Independent Support: Conduits shall not be supported from the ceiling suspension system, ducts, pipes or other systems foreign to the electrical installation. The entire electrical installation shall be kept independent from any other trade.

10. Suspended Ceiling: Branch circuit raceways and outlet boxes installed above suspended ceilings may be secured to No. 9 AWG or larger support wires that are independent of the ceiling suspension system under the following conditions:
 - a. Raceways and cables are not larger than 3/4" trade size.
 - b. No more than two raceways or cables are supported by a support wire.
 - c. Raceways and cables are secured to the support wires by fittings designed and manufactured for the purpose.
 - d. The support wires are securely fastened to the structural ceiling and to the ceiling grid system.
 - e. The raceways or cables serve equipment that is located within the ceiling cavity or is mounted on or supported by the ceiling grid system.
 - f. Where not prohibited by the building code officials.
11. Conduit Location: Conduit shall not be run under heavy equipment, footings or other structural elements that might adversely affect the integrity of the raceways system or building footing. All raceways installed above suspended ceilings must be kept a minimum of 6" clear above top of ceiling system.
12. Floor Slabs and Columns: Conduits installed in structural floor slabs shall be coordinated with structural steel and shall be routed to provide a maximum concrete cover. In general, conduit shall not be installed in structural columns, unless special permission is granted by the Architect.
13. Pullboxes with Covers: Shall be provided as shown on the drawings or as required by Code. All pullboxes shall be located so as to be accessible.
14. Flexible Conduit: Shall be used only for lighting fixture pigtails in accessible ceilings, flush-mounted speaker pigtails in accessible ceilings, sound control, motor connections and at building expansion joints as specified. Installations shall not exceed 6'0" in length. Any other proposed use of flexible conduit must be approved by the Architect's representative.
15. Metallic raceway shall be continuous and bonded/grounded. Transitions to ceiling, crawl or tunnel spaces are to be made from a junction box on the "concealed space" side of the penetration.
16. Conduit Stubs: Conduit which stub-up through the floor shall be installed at such a depth that none of the curved section of the elbow is visible.
17. Sealing: All conduit, sleeves, blockouts or openings around raceway and cable systems that penetrate building walls, floors and ceilings shall be sealed. Sealing materials shall be fire-rated, non-combustible type, specifically designed for this type of installation and shall be approved by the authority having jurisdiction.
18. Penetrations: Raceways which pass through building roof, exterior walls of building above or below grade and floor slabs on grade shall be sealed on the interior side of the building using non-hardening sealing compound after all conductors have been installed in the raceway. Sealing material shall be specifically designed for electrical wiring systems.
19. Conduit Passing Through Building Roof: Provide a 4 lb. lead plumbing vent flashing with a counterflashing attached above using a galvanized steel clamp. Flashing shall be in accordance with NRCA standards practices.
20. Conduit Penetrating Membranes: All conduits penetrating walls or slabs with membranes shall be installed with approved membrane clamping devices in order to provide necessary seal.
21. Exterior Walls: Conduits passing through exterior walls below grade and/or bridging an area which was previously excavated and backfilled shall be rigidly supported by a

- structurally reinforced concrete duct bank spanning between the building wall and a bearing surface on undisturbed earth.
22. Cleaning of Raceways: The interior and exterior of all conduits and other raceways shall be thoroughly cleaned of all material. All conduits shall be capped or plugged after installation to ensure that they remain clean.
 23. No section of conduit shall be longer than 100 feet or contain more than three (3) 90 degree bends between pull points or pull boxes.
 24. Rigid non-metallic conduit shall not be used in above grade floor slabs, or in wall or open spaces of any type.
 25. Electrical metallic tubing (EMT): EMT shall be used in concealed spaces. EMT may not be used in finished areas unless indicated on the drawings. EMT may be used for exposed work in unfinished areas where not exposed to physical damage. Raceways in traffic areas shall be considered exposed to physical damage where within 10 feet of floor. If used in finished areas, must be painted to match existing wall/surface color.
 26. Multiple rows of suspended conduits shall be supported from Trapeze style hangers, providing 20% spare room for future raceways.
 27. Rigid non-metallic conduit installed underground shall be buried a minimum of 24" and a maximum of 30" under grade.
 28. Utilize rigid steel conduit below all roadways. Installed at depths less than 24" conduit shall be encased in conduit. Over 24" depth, wrap with scotch insulation tape, or utilize conduit with factory applied PVC coating.
 29. Raceway shall be installed with a minimum separation of 12 inches of free air from steam and hot water piping and a minimum separation of 3 inches of free air space from all other mechanical piping.
- C. Dissimilar Materials: Keep electrical conduits free from contact with all other piping runs of different systems or of dissimilar metals.

3.4 RACEWAYS AND CABLE INSTALLATION PATHWAYS FOR LOW VOLTAGE SYSTEMS

- A. Installation of Raceways/Pathways for intercom, clock, telecommunications and CATV systems shall be in accordance with the applicable portions of ANSI/TIA/EIA-569-A, Commercial Building Standards for Telecommunications Pathways and Spaces.
- B. Conduits above lay-in ceilings: Do not install cables in conduits that are supported from the ceiling suspension system. All conduits shall be supported independently of the ceiling support system.
- C. Minimum size is 3/4" for systems and data, unless noted otherwise. Conduit fill shall not exceed 40%.
- D. Bend radii for conduits shall meet the following requirements:
 1. If the conduit has an internal diameter of 2 inches or less, the bend radius must be at least 6 times the internal conduit diameter.
 2. If the conduit has an internal diameter of more than 2 inches, the bend radius must be at least 10 times the internal conduit diameter.

- E. There shall be no more than two 90 degree bends between pull points in telecommunications conduit, without derating of the conduit capacity. For each additional 90 degree bend the conduit capacity shall be derated by 15 percent. Increase conduit size as required to meet conduit fill requirements of this section with the derated capacity accounted for. Or, provide pull boxes to eliminate 90 degree bends as necessary to avoid having to derate conduit. Offsets shall be considered as equivalent to a 90 degree bend. Pull boxes added to conduit runs as of result of this requirement shall be in accordance with this section.
- F. Conduits which are terminated at cable trays shall be supported from structure with a maximum distance of 24” from the tray. Conduits terminated at cable trays shall be bonded to the tray.
- G. Exterior conduit shall be Schedule 40 PVC for Service Entrances. Interior conduit for vertical riser cable shall be GRC, sized per ANSI/TIA/EIA-568-A-5 or as indicated on the Contract Drawings. Interior conduit for horizontal cable shall be EMT, sized per ANSI/TIA/EIA-568-A-5 standards or as indicated on the Contract Drawings.
- H. Use of flexible conduit for telecommunications shall be kept to a minimum and shall be at the discretion of the Contracting Agency. Obtain prior written approval for the use of flexible conduit. Where required due to physical considerations, flexible metal conduit may be allowed in lengths not exceeding 4 feet. If used, flexible metal conduit shall be increased by one trade size for the application used.
- I. Conduits entering the MDF room through the floor shall be terminated 4 inches above finished floor. Conduits entering the MDF room from above shall be terminated 4 inches below the finished ceiling, but in no case shall the conduits terminate greater than 12 inches above the cable tray or distribution frame.
- J. Conduits and cut-out openings between floors shall be sealed with firestopping material which is removable and reusable, to accommodate adds, moves and changes in the cabling system.
- K. All conduits used for routing of low voltage cables shall have bushings at all stubouts.

3.5 OPEN CABLE SUPPORT AND INSTALLATION PATHWAYS

- A. Where cables are indicated to be installed as “Open Cabling”, cable supports (D-rings, J-hooks, adjustable straps, and saddles as appropriate) shall be installed to allow cabling to be grouped and run along a common path. Cables shall be run parallel or at right angles to the building structure, and shall not be looped diagonally across the ceiling space. Cables shall be loosely bundled with cable ties at minimum every 30 inches on center. Provide cable ties at closer intervals where called for on drawings. Provide plenum rated Teflon cable ties in spaces used to handle environmental air.
- B. Do not support cables from ductwork, sprinkler piping, water piping, waste piping or electrical conduit.

- C. Fire seal around all cables running through rated floors and walls in accordance with Section 260500 “Common Work Results.”

END OF SECTION 260533

SECTION 260540 - OUTLET, JUNCTION AND PULL BOXES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Refer to Division 01 for submittal requirements and formats.

1.2 SCOPE

- A. Provide all outlet, junction and pull boxes required for proper installation of electrical equipment being installed under this work.

1.3 COORDINATION

- A. The Contractor shall review all drawings, details and elevations and coordinate with the Architect and equipment supplier prior to rough-in, all installations of wiring devices and equipment. Where equipment is furnished by others, the Contractor shall ascertain the proper voltage, load and connection requirements prior to rough-in.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- A. Boxes: Appleton, Circle AW, Crouse-Hinds, Raco, Steel City, Wiremold or equal.
- B. Fittings: Appleton, Circle AW, Crouse-Hinds or equal.
- C. Floor Boxes: Wiremold, FSR, or equal.

2.2 OUTLET AND DEVICE BOXES

- A. Interior Surface-Mounted in Unfinished Areas: One-piece pressed steel, electro-galvanized, size and depth required by Code, except 4-inch square or 4-inch octagonal minimum. Minimum 14 U.S. gauge, with return flange and screw retained cover.
- B. Interior Flush-Mounted: Galvanized pressed steel, knockout type, not less the 4" square, 2-1/8" deep, minimum 14 U.S. gauge, with return flange and screw retained cover. Provide extension rings for all flush boxes. Boxes which occur in concrete block walls shall be equipped with 1 1/2" square cornered tile extensions.

- C. Interior Surface-Mounted, Finished Areas: Wiremold No. 5700 Series sized to fit standard wiring device, covers specified below.
- D. Outlet boxes installed in surface metallic raceway systems shall be shallow boxes manufactured as part of the system.
- E. Exterior Mounted: Cast, non-ferrous metal with threaded hubs required. Manufacturers as listed above.
- F. Prohibited Materials: Sectional outlet boxes shall not be utilized.

2.3 JUNCTION AND PULL BOXES

- A. 100 cubic inches or smaller: Standard outlet box with stamped knockouts.
- B. 150 cubic inches or larger: Code gauge steel with sides formed and welded, with screw covers unless shown to have hinged doors. Hinged doors shall have locking device same as furnished for panelboards.
- C. Knockouts shall be factory stamped, or formed in the field with a cutting tool to provide a clean symmetrically-cut hole.
- D. Interior Areas: Steel, screw cover, Code gauge and size, baked enamel finish.
- E. Exterior or Wet areas: Weatherproofed galvanized steel construction with proper gaskets and corrosion resistant fasteners.
- F. Device outlets shall be a minimum of 2-1/8" inches deep, minimum 4 inches square.
- G. For existing walls, use 2 1/2" deep min. cut in box.
- H. Prohibited materials: "Handy Boxes"

2.4 FITTINGS

- A. Junction boxes or elbows may be cast conduit fittings at Contractor's option. Provide one size larger than raceway for feeders - "mogul-type." Openings accessible at all times. Exterior areas to be cast aluminum with gasketed non-ferrous covers.

2.5 LIBRARY/MULTI-PURPOSE ROOM FLOOR BOXES

- A. Recessed steel floor box with all accessories and gangs required to mount the receptacle and communications outlets shown on the drawings. Floor box cover shall be flush with top of finished floor. Cover shall be suitable for floor covering in room. Manufacturer: Wiremold RFB Series with metallic mop-tight flush cover. For tile floors provide plywood filler panel inside cover such that tile is flush with top of the cover. Secure plywood to coverplate with construction adhesive.

2.6 KITCHEN FLOOR BOXES

- A. Above-floor, heavy-duty, die-cast aluminum frame, brushed aluminum housing, stainless steel faceplate pedestal-style fitting mounted on a floor box cover with all accessories required to mount receptacles shown on the drawings. Supporting floor box shall be as described in Section 2.5. Manufacturer: Hubbell SC3098A.

PART 3 – EXECUTION

3.1 GENERAL

- A. Boxes shall be supported securely and independently. Mount boxes on building surfaces or support with trapeze hanger as described in Raceway Installation. Junction boxes shall not be used unless the number of bends, pulling length, or circuit requirements necessitate their installation. Junction or pullbox openings must be accessible. All boxes must be supported independently of any other building system.
- B. Coordinate and locate boxes to ensure accessibility of electrical wiring.

3.2 DEVICE BOXES

- A. Outlet and device boxes mounted in stud walls shall be attached to two adjacent wall studs using blocking material behind the box to ensure that the box will remain square to the finished wall surface.
- B. Outlet and device boxes mounted in masonry walls shall be set at the bottom or top of a masonry unit course.
- C. Plaster rings shall be provided for all devices in walls with finished materials such as gypsum wallboard, plaster, etc. Plaster ring shall extend outlet box to within 1/8-inch of finished wall surface including all wall coverings. Coordinate with Architectural finishes prior to rough-in.
- D. Grout around all outlet boxes to seal space between box and wall or ceiling materials.

- E. Exterior Wall Outlets: Conduit shall not enter the bottom of exterior wall outlet boxes. Conduit shall enter the sides and top only.
- F. Multiple Gang Outlet: Install two or more wiring devices shown in one location under a common plate except when outlets are of a different voltages such as telephone and duplex receptacles. Install plates with all edges in continuous contact with finished wall surfaces. Install plates vertically with alignment tolerance of 1/16-inch. Sectional plates are not permitted. No more than one device shall be installed in a single-gang position.
- G. Device Locations: Locate switches 6 inches from door casing unless otherwise shown. Outlets mounted above one another shall be on the same centerline. Coordinate exact locations of any special devices with Architect. All outlet heights must comply with all handicap accessibility requirements. Heights to center of outlet mounted vertically shall be as follows unless otherwise shown:
 - 1. Convenience Outlets: +18"
 - 2. Above Counter Outlets: Verify height. Minimum clearance one inch above backsplash or counter as applicable.
 - 3. Switches: 4'-0"
 - 4. Electric Water Coolers: Conceal outlet behind equipment housing.
 - 5. Where different type devices occur adjacent to each other, space outlet boxes so that finish plates will be spaced a minimum of one inch apart at same height.

3.3 BLANK COVERS

- A. Provide blank covers or plates over all boxes that do not contain devices or are not part of an equipment connection.

3.4 LABELING

- A. All junction and pull boxes in accessible ceiling spaces and exposed in unfinished areas shall be identified to indicate the branch circuit numbers, feeders, or signal and communication system contained within. Use permanent label. Fire Alarm System shall be red color. Refer to Section 270500 "Common Work Results for Communications" for requirements pertaining to Signal and Communication System.

3.5 JUNCTION OR PULL BOXES

- A. No box shall be secured to the ceiling system, HVAC ductwork, or mechanical piping.

- B. Pull and junction boxes shall be installed as shown or as necessary to facilitate pulling of wire and to limit the number of bends within code requirements. Boxes shall be permanently accessible and shall be placed only at locations approved by the Architect. Secure boxes rigidly to the building element on which they are mounted, or solidly embed boxes in concrete or masonry. Identify all pull and junction boxes with a permanent label, neatly showing the individual feeder or electrical system. Installations shall only be above accessible ceiling, crawl spaces, tunnels and in unfinished areas only.

3.6 SOUND CONTROL

- A. General: The installation of outlet boxes and conduit shall utilize installation methods which minimize sound transmission from one room to adjacent rooms or areas.
- B. Installation: Where boxes are mounted in a common wall, they shall wherever possible, be offset horizontally so that they are not mounted back to back. Connect offset boxes with EMT conduit not to exceed 18 inches in length. Where it is not practical to offset boxes, with permission they may be mounted back to back with a minimum clearance of 1/4-inch between boxes and with a sheet of high-density fiberglass between boxes.

3.7 EXTENSION RINGS

- A. A maximum of one extension ring shall be provided on each junction box.

END OF SECTION 260540

SECTION 260553 - IDENTIFICATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Refer to Division 01 for submittal requirements and formats.

1.2 SCOPE

- A. Provide proper identification of all electrical work specified. This shall include but not be limited to the following items: service and distribution equipment, starters, disconnects, cabinets, terminal boxes, device junction boxes, danger signs, maintenance access points, and fused switches including fuse size and type.
- B. Install nameplates on all main and distribution switchboards, panelboards, disconnect switches, and miscellaneous systems junction boxes and cabinets installed under this contract.
- C. Install bakelite nameplates at each protective device in switchboard and distribution centers, showing circuit service.
- D. Install circuit directory cards in all panelboards. Cards shall be typed or computer printed.
- E. All wiring in all outlet and junction boxes shall be properly identified as to circuit number. Type of marker shall be made with Brady ID Pro printer/labeler with 3/4" lables, or approved equal. Locate label on inside of device box. Label shall be black letters on white background using Brady #42019 tape and #42011 ribbon.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Prohibited Materials
 - 1. Dymo (or equivalent) labels shall not be utilized, unless specifically noted.
- B. Schedules – provide typewritten directory for each panel, on heavy card stock, showing all circuit numbers.

2.2 EQUIPMENT NAMEPLATES

- A. Nameplates shall be fabricated from white bakelite, with 3/8” engraved black letters.
- B. Mounting: Nameplates shall be attached with a minimum of two 6-32 roundhead screws, lockwasher and nuts in exterior locations and contact-type permanent self-adhesive in indoor locations.

2.3 SWITCHBOARDS AND DISTRIBUTION PANELBOARDS

- A. General: Provide nameplate which identifies the switchboard/distribution panel and the source panel. (Example: Distribution Panel No. 1/Fed from Main Service Switchboard - Bkr. No. 1.)
- B. Overcurrent Devices: Provide nameplate at each overcurrent device that identifies the device number and the load served. (Example: Bkr. No. 1/Panel A.)

2.4 PANELBOARDS

- A. Provide nameplate on the front of the panel room which identifies the panel. (Example: Panel A.) Provide a nameplate concealed behind the door which identifies the panel, and the source panel. (Example: Panel A, Fed from Distribution Panel 1-Bkr. No. 2)

2.5 DISCONNECT SWITCHES AND MOTOR STARTERS

- A. Provide nameplate which identifies the source panel, load served and the fuse size where applicable. (Example: Panel A-1,3,5/Exhaust Fan No. 1/10 amp, RK1 fuses.)

2.6 JUNCTION AND PULL BOX IDENTIFICATION

- A. Mark the cover of all junction boxes and pull boxes to identify the system, circuits, or feeders contained within the box. Use red color for fire alarm. Circuits shall be identified by panelboards and specific circuit numbers contained within the junction box. Refer to specification Section 260540 “Outlet, Junction and Pull Boxes” and Section 270500 “Common Work Results for Communications.”

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Clean all surfaces prior to installing labels. Where identification is to be applied to surfaces which require finish, install identification after completion of painting.

B. Nameplates

1. Panelboards: Mount inside door, on dead front, above circuit breakers, unless panelboard is located in a utility-type room, then install nameplate on outside of panelboard above door.
2. Disconnect switches: Mount nameplate on outside of cabinet, near top. Omit nameplate from disconnect switches if located adjacent to equipment.

C. Schedules

1. Panelboards: Mount in frame under plastic cover, on back side of door. Schedule shall be typed or printed and show circuit service for each circuit breaker, using room numbers. Spares and spaces shall be written in pencil.

3.2 REGULATIONS

- A. Comply with governing regulations and requests of governing authorities for identification of electrical work.

3.3 DANGER AND WARNING SIGNS

- A. General: In addition to installation of danger signs required by governing regulations and authorities, Contractor shall be responsible for installing appropriate danger signs at locations constituting danger for persons in or about project.
- B. High Voltage: Install danger signs wherever it is possible, under any circumstances, for persons to come into contact with electrical power.

END OF SECTION 260553

SECTION 270500 - COMMON WORK RESULTS FOR COMMUNICATIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 specification sections, apply to this section.
- B. Comply with all requirements of Division 26.
- C. Comply with the following applicable standards and codes:
 - 1. National Fire Protection Agency (NFPA) 70: National Electric Code (NEC) 2008
 - 2. ANSI/TIA/EIA-568-B.1 and addenda
 - 3. ANSI/TIA/EIA-568-B.2 and addenda
 - 4. ANSI/TIA/EIA-568-B.3 and addenda
 - 5. ANSI/TIA/EIA-569-A and addenda
 - 6. ANSI/TIA/EIA-606 and addenda
 - 7. ANSI/TIA/EIA-607 and addenda
 - 8. Building Industries Consulting Services International (BICSI) Telecommunications Distribution Methods Manual (TDMM) 12th Edition.
- D. When conflict exists between local or national codes or regulations, the most stringent codes or regulations shall be followed.

1.2 DEFINITION

- A. Telecommunications Spaces:
 - 1. Equipment Rooms (ER)
 - 2. Telecommunication Rooms (TR)
- B. Cross-connects / Distribution Frames:
 - 1. Main Cross-Connect / Main Distribution Frame (MC / MDF)
 - 2. Horizontal Cross-connect / Intermediate Distribution Frame (HC / IDF)
- C. Pathway: Conduit, wall rack, cable runway, sleeves, saddle bags, and J-hooks.
- D. EMI: Electromagnetic Interference.
- E. RFI: Radio Frequency Interference.

1.3 SUMMARY

A. Pathway System:

1. In general, only devices have been shown on the drawings. The Contractor shall provide a complete pathway system.
2. Minimum raceway size shall be 1".
3. Provide metallic raceway from all outlet boxes. This raceway may be stubbed above ceiling except where raceway is required to be provided all the way to the telecommunications rack.
4. Provide metallic raceways for cables in walls, above inaccessible ceilings, exposed, where subject to physical damage, or where subject to potentially high EMI or RFI.
5. Use J-hooks spaced no greater than 5 ft apart for open ceiling cabling between metallic raceway stubbed above ceiling and wall rack system shown in corridors.

1.4 WIRE AND CABLE:

1. Comply with all requirements of Division 26 and other provisions of this section.
2. Unless specified otherwise, all cabling shall be plenum rated.
3. Provide wire and cable for each system according to the manufacturers requirements.
4. Underground cabling shall be UL listed for direct build.

1.5 SUBMITTALS

A. Product Data: Submit for each type of product provided.

B. Shop Drawings:

1. Raceway Riser Diagrams: Provide detailed raceway layout. Include designation of devices connected by raceway, raceway type and size, and type and size of wire and cable fill for each raceway run.
2. Site and Floor Plans: Indicate final outlet and device locations, routing of raceways, and cables inside and outside the building.
3. Device Identification: Identify each device by its address or identification number.
4. System Wiring Diagrams: Include system diagrams unique to project. Show connections for all devices, components, and auxiliary equipment. Include diagrams for equipment and for system with all terminals and interconnections identified.
5. Shop drawings shall utilize the final room numbers established by the Owner, not the room and building numbers shown on the architectural floor plans.

1.6 QUALITY ASSURANCE

A. Contractor Qualifications:

1. Possess those licenses/permits required to perform telecommunications installations in the specified jurisdiction.

2. Personnel trained and certified to install products.
3. Provide references of the type of installation provided in this specification.
4. Personnel to be competent in Termination, Splicing, Testing, Trouble Shooting Fiber and Copper Products.
5. Be in business a minimum of 5 years and successfully engaged in the routine installation of structured cabling systems (i.e. voice, data, fiber, video, etc.) of similar size and complexity.
6. Possess current liability insurance certificates.
7. Personnel knowledgeable in local, state, province and national codes, and regulations. All work shall comply with the latest revision of the codes or regulations.

B. Warranty: Materials and workmanship hereinafter specified and furnished shall be fully guaranteed by the vendor for 20 years from acceptance and transfer of title against any defects and shall promptly correct or re-perform (including modifications or additions as necessary) any nonconforming or defective work that may occur during this period as a result of faulty materials or workmanship at no additional cost to the customer.

1. The period of the vendor's warranty (ies) for any items herein are not exclusive remedies, and the customer has recourse to any warranties of additional scope given by the vendor to the customer and all other remedies available at law or in equity.
2. The vendor shall pass along to the customer any additional warranties offered by the manufacturers, at no additional costs should said warranties extend beyond the 20 year period specified herein.
3. This warranty shall in no manner cover equipment that has been damaged or rendered unserviceable due to negligence, misuse, acts of vandalism, or tampering by the customer or anyone other than employees or agents of the vendor. The vendor's obligation under its warranty is limited to the cost of repair of the warranted item or replacement thereof, at the vendor's option. Insurance covering said equipment from damage or loss is to be borne by the vendor until full acceptance of equipment and services.
4. If the vendor procures equipment or materials under the Contract, the vendor shall obtain for the benefit of the customer equipment and materials warranties against defects in materials and workmanship to the extent such warranties are reasonably obtainable.
5. All non-consumable products to have a 20-year guarantee. In order to qualify for the guarantee, the structured cabling system must be installed per the following:
 - a. Meet all TIA/EIA commercial building wiring standards.
 - b. Use products purchased from authorized distributors.
 - c. Products must be installed per manufacturers instructions by a Certified Installer.

C. All Networks shall be installed per applicable standards and manufacturer's guidelines.

D. All manufacturers and part numbers are for performance standards only. Other manufacturers meeting the same performance standards as well as a minimum 20-year warranty will be accepted with prior approval via the formal RFI process.

1.7 COORDINATION

A. Coordinate arrangement, mounting, and support of communications equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
 2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
 3. To allow right of way for piping and conduit installed at required slope.
 4. So connecting pathways, cables, wireways, wall rack, and busways will be clear of obstructions and of the working and access space of other equipment.
- B. Coordinate installation with mechanical, plumbing, structural, electrical and other disciplines throughout all stages of construction.

PART 2 – PRODUCTS

2.1 GENERAL

- A. Comply with all requirements of Division 26.
- B. Material purchased for this project are to be turned over to owner upon completion of the project.

2.2 PATHWAYS

- A. General Requirements: Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.
- B. Only devices and telecommunications racks have been shown on the drawings. The Contractor is responsible for providing a complete pathway system. The shop drawings shall contain a fully-designed pathway system.
- C. Cable routes shall not run through areas in which flammable materials may be stored or over or adjacent to boilers, incinerators, hot water lines, or steam lines. Proper distances shall be provided between cable routes and sources of heat, EMI, and RFI. Electromagnetic compatibility must be maintained for the cable system.
- D. Cable supports NRTL labeled for support of Category 6A cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 1. Comply with NFPA 70 and UL 2043 for fire-resistant and low-smoke-producing characteristics.
 2. Support brackets with cable tie slots for fastening cable ties to brackets.
 3. Lacing bars, spools, saddle bags, and J-hooks.
 4. Properly-rated Velcro straps. Plastic cable ties are not allowed.
 5. Shall not be attached to drop ceiling grid.
 6. Cables shall not be attached directly to grid wire. Grid wire shall not be wrapped around a cable bundle.

7. Shall not be utilized through areas where EMI and RFI may cause interference or degrade system performance. Electromagnetic compatibility for the supporting system must be maintained throughout.

E. Ladder Cable Runways: Nominally 12 inches wide and a rung spacing of 12 inches.

1. For cabling routing within Equipment Rooms and Telecommunication Rooms to rack mounted termination hardware.
2. Mount and secure to walls and racks so as to provide vertical brace for racks.
3. Shall be black in color.
4. All cable trays and wall racks shall be grounded end-to-end to an approved building ground as described in TIA-942.

F. Conduit and Boxes: Comply with requirements in Section 260533, "Raceway and Boxes."

1. Flexible metal conduit and PVC conduit and sleeves shall not be used.
2. LB type fittings are not to be used.
3. Conduit runs shall follow the most direct route possible with no more than 180 degree bends between pull boxes and contain no continuous sections longer than 100 feet.
4. Pull boxes must be accessible (after all mechanical systems are in place) and used for runs that exceed 100 feet in length and after every cumulative 180 degree changes in direction. All pull boxes must have the insulated bushing installed before cable is pulled.
5. When multiple conduits are pulled to one box, the minimum box size should be 24 inches by 24 inches by 6 inches. All conduits must maintain run direction through the pull box (i.e. no changing of direction inside the box). The size of pull boxes is determined by the size of conduit leaving and entering the pull box.
6. A pull string shall be provided in all conduits. Pull a new pull string separate of cabling.
7. Conduit must be bonded to ground on one or both ends.
8. Label all pull and junction boxes.
9. Device boxes shall be 4" square, deep type.

2.3 FIRESTOPPING

- A. Comply with BICSI TDMM, "Firestopping Systems" Article.
- B. Comply with TIA/EIA-569-A, Annex A, "Firestopping."

2.4 GROUNDING

- A. Comply with requirements in Section 260526 "Grounding and Bonding" for grounding conductors and connectors.
- B. Comply with ANSI-J-STD-607-A.

2.5 SOURCE QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to evaluate cables.
- B. Factory test cables on reels according to TIA/EIA-568-B.1.
- C. Factory test UTP cables according to TIA/EIA-568-B.2.
- D. Factory test multimode and single mode optical fiber cables according to TIA/EIA-526-14-A and TIA/EIA-568-B.3.
- E. Factory-sweep test coaxial cables at frequencies from 5 MHz to 1 GHz. Sweep test shall test the frequency response or attenuation over frequency, of a cable by generating a voltage whose frequency is varied through the specified frequency range and graphing the results.
- F. Cable will be considered defective if it does not pass tests and inspections.
- G. Prepare test and inspection reports.

PART 3 – EXECUTION

3.1 GENERAL

- A. The Contractor shall review all drawings, details and elevations and coordinate with the architect and mechanical contractor prior to installation.
- B. Install systems according to manufacturer's written instructions and shop drawings.
- C. Provide all raceways, wiring and ancillary equipment necessary for a complete and operational system.
- D. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.
- E. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both communications equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.
- F. The contractor shall maintain the owner's facility in a neat and orderly manner during the installation of the communications cabling system. At the completion of work in each area, the contractor will perform a final cleaning of debris prior to moving the installation crew to the next work area.

- G. The contractor shall establish a single point of contact with the General Contractor who will be responsible for reporting progress and updating the owner's representative with issues that the owner must address to facilitate the cabling system installation. The contractor's point of contact (POC) shall provide weekly written reports detailing progress.

3.2 GROUNDING

- A. Comply with ANSI-J-STD-607-A.
- B. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- C. Grounding system components shall be installed as described in TIA-942, meet the National Electrical Code (NEC), and comply with all local codes.
- D. Ground cable shields and equipment to eliminate shock hazard and to minimize ground loops, common-mode returns, noise pickup, cross talk, and other impairments.
- E. Signal Ground Terminal: Locate at each equipment cabinet. Isolate from power system and equipment grounding.
- F. Bond metallic equipment to the grounding bus bar, using not smaller than No. 6 AWG equipment grounding conductor.
- G. Bond the shield of shielded cable to the grounding bus bar in communications rooms and spaces.
- H. Connect all Telecommunications Ground Bus Bars (TGB) to the Telecommunications Main Ground Bus Bar (TMGB) through the use of a Telecommunications Bonding Backbone (TBB). The TBB shall be installed independent of the building electrical and building ground per ANSI/TIA/EIA-607-A.
- I. All vaults must be grounded back to the TMGB.

3.3 PATHWAYS

- A. Cable Runways and Wall Racks: Comply with NEMA VE 2 and TIA/EIA-569-A-7.
- B. Comply with requirements for demarcation point, pathways, cabinets, and racks specified in Section 271100 "Communications Equipment Room Fittings." Drawings indicate general arrangement of pathways and fittings.
- C. Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.

- D. Comply with requirements in Section 260533 "Raceway and Boxes" for installation of conduits and wireways.
- E. Comply with the material and installation requirements specified in Section 260529 "Hangers and Supports."
- F. Provide long-radius elbows for all underground raceways. Install manufactured conduit sweeps and long-radius elbows elsewhere whenever possible.
- G. Cable minimum bend radius shall not be exceeded in any pathway, in any transition between pathways, or when branching off of a pathway.
- H. Raceway, cable runway, and wall racks, and all other pathways systems shall not exceed a 40 percent fill rate.
- I. All cable pathways shall keep cable bundle a minimum of 6 inches off of the ceiling grid system. Ceiling grid shall in no way support any cable or cable pathway.
- J. Saddle bags or J-hooks shall be spaced no greater than 5 ft apart for open ceiling cabling. Cables shall be properly supported and not sag between supports. Sag indicates additional supports are required.
- K. All cables, whether individual or grouped, shall be supported by an approved pathway system.
- L. All cable pathways including saddle bags and J-hooks and the pathways they create shall follow building lines and allow access to cabling from hallway and open area locations. Pathways shall not be placed over other end user offices.
- M. Cables pathways may only run parallel with electrical conduits if within cable manufacturer's recommendations and electromagnetic compatibility can be maintained so that no EMI and RFI may cause interference or degrade system performance.
- N. Exposed conduit/surface-mount is not allowed and can only be used with written permission from the project manager.
- O. Entire length of cable pathway shall be cleaned by conclusion of project. No debris such as clipped cable ties, junk pull string, wall penetration packaging or pieces or other trash is to be left in the ceiling.
- P. Do not install any cabling prior to approval from owner provided field inspector.

3.4 WIRING

- A. Do not share raceways with other building wiring systems.

- B. Wiring Within Enclosures: Bundle, lace and train conductors to terminal points. Use lacing bars and distribution spools. Separate power-limited and nonpower-limited conductors as recommended in writing by manufacturer. Install conductors parallel with or at right angles to sides and back of enclosure. Connect conductors that are terminated, spliced, or interrupted in any enclosure associated with intrusion system to terminal blocks. Mark each terminal according to system's wiring diagrams. Make all connections with approved crimp-on terminal spade lugs, pressure-type terminal blocks, or plug connectors.
- C. Splices, Taps and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets, and equipment enclosures.
- D. Identification of Conductors and Cables: Color code conductors and apply wire markers. Coordinate with shop drawings.

3.5 SLEEVES

- A. Interior Penetrations of Nonrated Walls, Floors and Ceilings: Provide EMT sleeves. Seal space between the raceway and the wall or floor using joint sealant appropriate for the size, depth and location of the joint. Comply with requirements in Section 079200 "Joint Sealants."
- B. Extend sleeves installed in floors 1 to 3 inches above finished floor level.

3.6 FIRESTOPPING

- A. Communications penetrations occur when pathways, cables, wireways, or wall racks penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies. This includes both through (complete penetration) and membrane (through one side of hollow fire rated structure) penetrations.
- B. Provide firestopping to all penetrations of fire-rated assemblies to restore original fire-resistance rating of assembly including resistance to flame, heat, vapor, and water stream pressure. When penetrating corridor/chase walls, a minimum of 2 engineered firestop devices are required.
- C. Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- D. Comply with BICSI TDMM, "Firestopping Systems" Article.
- E. Contractor shall install appropriate size and quantity to maintain maximum 40 percent fill.
- F. Install approved mechanical fire-rated assemblies for corridor firewalls, Equipment Room and Telecommunication Room penetrations. Install sleeves and seal with appropriate fire materials for penetrations only where mechanical fire-rated assemblies cannot be installed per manufacturer's requirements.

- G. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.
- H. Sleeves in Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.
- I. Use type and number of sealing elements recommended by manufacturer for pathway or cable material and size. Position pathway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between pathway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.7 FIELD QUALITY CONTROL

- A. Perform tests and inspections to ensure all cables and termination hardware is 100 percent free of defects and meets performance standards under installed conditions. Test cables after termination but not cross-connection.
- B. All tests shall indicate the appropriate cable identification number, circuit, or pair number.
- C. Test instruments:
 - 1. Shall meet or exceed applicable requirements in TIA/EIA-568-B.1, TIA/EIA-568-B.2, and TIA/EIA-568-B.3. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex.
 - 2. Unless a more frequent calibration cycle is specified by the manufacturer, an annual calibration cycle is anticipated on all test equipment used for this installation.
 - 3. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
 - 4. For UTP Category 6 performance tests, use at minimum a Fluke DTX Level IV tester that has been factory-calibrated within the last 12 months. Submit copy of calibration certification. Category 6 cabling systems shall be performance verified using an automated test set capable for testing all specified parameters.
- D. Visual Inspections:
 - 1. Visually inspect UTP and optical fiber jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA/EIA-568-B.1
 - 2. Visually confirm Category 6A markings of outlets, cover plates, outlet/connectors, and patch panels.
 - 3. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
- E. UTP Cable Tests:

1. Wire map test showing:
 - a. Continuity on all pairs.
 - b. Shorts between any two conductors.
 - c. Reversed pairs.
 - d. Transposed pairs.
 - e. Split pairs.
 - f. Shield continuity (if applicable)
 - g. Grounded conductor
 - h. Pass/Fail Result
 2. DC loop resistance.
 3. Length (physical vs. electrical, and length requirements).
 - a. Use TDR type device.
 - b. Tested from patch panel to patch panel, block to block, patch panel to outlet, or block to outlet as appropriate.
 - c. Length shall conform to maximum distance set forth in ANSI/TIA/EIA-568-B.
 - d. Record length of longest pair.
 4. Insertion loss.
 5. Near-end crosstalk (NEXT) loss.
 6. Power sum near-end crosstalk (PSNEXT) loss.
 7. Equal-level far-end crosstalk (ELFEXT).
 8. Power sum equal-level far-end crosstalk (PSELFEXT).
 9. Return loss (RL).
 10. Propagation delay.
 11. Delay skew
- F. Optical Fiber Cable Tests:
1. Link End-to-End Attenuation Tests.
 - a. Multimode Fiber link measurements: Test at 850 and 1300 nm in 1 direction according to TIA/EIA-526-14-A, Method B, One Reference Jumper.
 - b. Attenuation test results for backbone links shall be less than 2.0 dB. Attenuation test results shall be less than that calculated according to equation in TIA/EIA-568-B.1.
 - c. Singlemode Fiber link measurement: Test at 1310 and 1550 nm in 1 direction.
 - d. Conversion from metric to US Standard measurement shall use 3.2808 as a constant with the result rounded to the next highest whole number.
 - e. The adjusted cable attenuation value shall be added to the manufacturers mean loss per mated pair of connectors multiplied by the number of mated pairs under test (the testing for this project measures the loss over the installed cable plus two jumpers which accounts for three mated pairs of connectors - subtract one mated pair for the equipment interface to arrive at a total of two mated pairs under test).
 - f. Where concatenated links are installed to complete a circuit between devices, the Contractor shall test each link from end to end to ensure the performance of the system. After the link performance test has been successfully completed, each link shall be concatenated and tested.

- K. Any defect in the cabling system installation including but not limited to cable, connectors, feed-through couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all installed cables. When repairs and re-tests are performed, the problem found and corrective action taken shall be noted. Only "Pass" results and not Marginal Pass* will be accepted.

3.8 IDENTIFICATION

- A. Identify system components, wiring, cabling and terminals according to Section 260553 "Identification."

3.9 AS-BUILT SHOP DRAWINGS

- A. At the completion of the project, provide a complete set of as-built shop drawings (hard copy and CD) showing the following as-built:
 - 1. Raceway layout
 - 2. Wiring
 - 3. Device locations
 - 4. Device identification numbers

END OF SECTION 270500

SECTION 329500 – ILLUMINATION, TRAFFIC SIGNAL SYSTEMS AND ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Modifications to the City of Spokane General Special Provisions Section 8-20. (See Included)

**SECTION 8-20 ILLUMINATION, TRAFFIC SIGNAL SYSTEMS,
INTELLIGENT TRANSPORTATION SYSTEMS, AND ELECTRICAL**

8-20.1 Description

(January 1, 2020 COS GSP)

Replace this section with the following:

This work consists of furnishing, installing and field testing all materials and equipment necessary to complete in place, fully functional system(s) of any or all of the following types including modifications to an existing system all in accordance with approved methods, the Plans, the Special Provisions, and these Specifications:

1. Traffic Signal System Retrofit

8-20.2 Materials

(August 1, 2015 COS GSP)

Add the following after the first paragraph:

Communication Conduit shall meet the requirements of Section 9-29.1(4)A.

Crushed surfacing top course shall meet the requirements of Section 9-03.9(3).

The items provided in the appendices are provided for the convenience of the Contracting Agency and the Contractor, and is not guaranteed to be complete. The Contractor shall assume the responsibility for the making of estimates of size, kind, and quantity of materials included in the work to be done under the contract.

8-20.3 Construction Requirements

8-20.3(2) Excavating and Backfilling

(August 1, 2010 COS GSP)

Add the following:

Nonmetallic conduit installed by excavation shall be placed on a minimum 2-inch thick bed of sand. A minimum cover of 6-inches of sand shall be installed over the top of nonmetallic conduit installed by trenching.

8-20.3(4) Foundations

(January 1, 2020 COS GSP)

Replace the second sentence in the first paragraph with the following:

Concrete for Type II, III, IV, V, and CCTV signal standards and light standard foundations shall be Class 3000 and does not require air entrainment.

Replace the third paragraph with the following:

Foundations shall be poured in one pour unless otherwise directed by the Engineer.

When curb and/or sidewalk is to be installed adjacent to the foundation for a signal standard or luminaire standard, the Contractor shall install a CMP of the correct diameter at the foundation location to allow backfilling of the corner and establishment of proper curb grades prior to pouring the signal or lighting foundation. After establishment of the curb grade and prior to pouring the foundation, the CMP shall be cut 1 ft below final grade, and a strippable 1 foot tall form shall be rigidly installed and securely braced.

The foundation shall be poured to the bottom of sidewalk grade or lower.

Add the following after the ninth paragraph:

The Contractor shall furnish and install four 5/8" x 8" x 1-1/2" hot-dipped galvanized anchor bolts with nuts for mounting each controller cabinet.

Add the following after the last paragraph:

Whenever the edge of a concrete foundation extends within 18-inches of an existing or proposed concrete improvement, a slab with minimum thickness of 4-inches shall be extended to meet the existing improvement. The cost of such work shall be included in other items of construction.

8-20.3(5) Conduit

8-20.3(5)A General **(January 1, 2020 COS GSP)**

Revise the first paragraph to read as follows:

The ends of all conduit, metallic and nonmetallic, shall be reamed to remove burrs and rough edges. Field cuts shall be made square and true. The ends of unused conduits shall be capped. Malleable duct sealant shall be installed in the cabinet end of all cable vault-to-cabinet conduit that contains conductors and or cable. Mechanical plugs shall be installed in the cabinet end of all empty cable vault-to-cabinet conduit. The threaded ends of metal conduit shall be provided with approved conduit bushings and non-metal conduit shall be provided with end bells. Reducing couplings will not be permitted.

Add after the last paragraph:

Flat pull tape shall be installed at the same time as conductors in the conduits. Locate wires are not considered conductors.

The minimum allowable radius of sweeps in communication conduit installation is 36-inches.

All PVC conduit installed shall be schedule 80.

One #14 AWG stranded THHN locator wire with orange insulation shall be placed in continuous lengths in empty conduits or where noted on the Plans.

8-20.3(5)B Conduit Type
(March 1, 2014 COS GSP)

Revise the fifth paragraph to read as follows:

Conduit runs, including outer-duct, which do not enter the traveled way or shoulders shall be Schedule 80 high-density polyethylene (HDPE) or Schedule 80 PVC.

8-20.3(5)B2 Non-Metallic Conduit
(March 1, 2014 COS GSP)

Revise the second paragraph to read as follows:

PVC conduit ends shall be terminated with end bell bushings. PVC or HDPE conduit entering cable vaults and pull boxes shall be extended one inch inside the structure to allow innerduct to be secured.

8-20.3(5)C Conduit Size
(November 1, 2019 COS GSP)

Replace the first paragraph with the following:

The size of conduit used shall be as shown in the Plans. Conduits smaller than 2-inch electrical trade size shall not be used unless otherwise specified, except that grounding conductors at service points may be enclosed in 3/4-inch electrical trade size conduit.

8-20.3(5)E1 Open Trenching
(January 1, 2020 COS GSP)

Add the following after the last paragraph

When open trenching is allowed, trench construction shall conform to the City of Spokane's Pavement Cut Policy.

8-20.3(6) Junction Boxes, Cable Vaults, and Pull Boxes
(January 1, 2020 COS GSP)

Revise the first paragraph with the following:

Junction boxes, cable vaults, and pull box details shall be installed at the locations shown in the Plans. The Contractor may install, at no expense to the Contracting Agency, such additional boxes as may be desired to facilitate the Work. Junction box installation shall conform to the details in the COS Standard Plans “J” series. Cable vaults and pull boxes shall include racking hardware as detailed in the COS Standard Plans. Special care shall be taken during the placement of the junction boxes to avoid interference with other street items and utilities.

Add the following after the last paragraph:

Conduit entering into a cable vault or pull box shall be located in the identical knock out location from the previous pull box or cable vault. Crossing of the conduit is not allowed.

Bell ends shall be placed on all conduits (do not glue in place). Openings around conduits shall be sealed and filled with grout to prevent water and debris from entering the vaults or pull boxes. The grout shall meet the specifications of the cable vaults and pull box manufacturers.

The Contractor shall provide and place a crushed base beneath the junction boxes, for an area the size of the junction box. The Contractor shall excavate to a 4-inch depth and install a compacted 4-inch depth of crushed surfacing top course material.

8-20.3(8) Wiring
(January 1, 2020 COS GSP)

Add the following after the first paragraph:

The copper communication (interconnect) cable shall be installed continuously without splices except where shown on the Plans. The required terminating and splicing of the communication (interconnect) cable will be performed by Contracting Agency forces.

The Contractor shall provide a re-enterable splice closure kit for each underground splice.

Replace the second paragraph with the following:

With the exception of induction loop circuits, magnetometer circuits and illumination circuits, the wiring shall be run continuously, without splices, from a terminal located in a cabinet, compartment, pedestrian push button assembly, signal head, disconnect or luminaire head, to a similarly located terminal. Terminals located below grade are strictly prohibited. Illumination circuits shall be spliced in only the pole base at the hand hole.

Replace the third paragraph with the following:

Splices in underground induction loop circuits shall be made in junction boxes. Splices will be permitted only where shown in the plans or contract provisions. Induction loop circuits shall be spliced, soldered, crimped and isolated with an approved crimp-type connector prior to encapsulation.

Splices shall be enclosed in a rigid body re-entenable splice closure. Splice closures for induction loops shall be factory filled with encapsulant.

Delete the fourth paragraph and the conductor sequence color code chart.

Add the following at the end of the fifth paragraph:

Street Lighting Disconnect. A fused disconnect, GLR-10A, shall be installed in the luminaire circuits in each standard base according to 9-29.7.

Power over Ethernet (POE) Extender. Power over Ethernet extenders shall be located in the signal standard hand hole.

8-20.3(9) Bonding, Grounding
(January 1, 2020 COS GSP)

Revise the tenth paragraph to read as follows:

The connection of the grounding electrode conductor(s) to grounding electrode(s) shall be made by the thermal-welding process.

8-20.3(14)E Signal Standards
(June 19, 2019 COS GSP)

Replace Item #1 and #6 with the following:

6. Any damage to the galvanized pole surface shall be repaired with approved zinc rich paint.

8-20.3(16) Reinstalling Salvaged Material
(January 1, 2020 COS GSP)

Add the following before the first paragraph:

The Contractor shall remove and legally dispose of the affected signal bases, foundations, controller bases, and the other non-salvageable signalization, communication equipment, and appurtenances as determined by the Engineer.

The Contractor shall also remove and preserve for salvage purposes the reusable signalization, communication, or interconnect equipment as determined by the Engineer. The Contractor shall exercise care when removing the reusable signalization, communication or interconnect equipment so as to maintain the reusable equipment's serviceability. For the purposes of this Specification, "Salvage" means that the Contractor shall provide the salvage items to the Contracting Agency.

The Contractor shall arrange an on-site preconstruction field inspection with the Engineer and a representative of the Signal and Lighting Division to determine salvageability of the reusable signalization, communication, or interconnect equipment scheduled for removal within this contract.

The Contractor shall provide a written, itemized list of equipment, including the type, quantity, location and condition of signal items to be salvaged, to the Engineer. The Engineer will forward the list to the Signal and Lighting Division Foreperson. The Contractor shall provide this list to the Engineer at least 5 working days after the on-site preconstruction field inspection. Each item listed shall be delivered on a normal Contracting Agency workday to the City of Spokane Signal and Lighting Division warehouse located at 901 N. Nelson Street between the hours of 8:00 A.M. and 2:00 P.M. In order for the warehouse to prepare for the delivery of the items, the Contractor shall contact the Signal and Lighting Division Foreperson at (509) 232-8801 at least 2 City business days prior to the delivery date.

Upon delivery, the Contracting Agency will inspect and determine if each salvageable item is in an acceptable condition.

The Contractor shall replace in-kind, repair (to the Engineer's satisfaction) or pay the Contracting Agency to replace the salvageable and in situ signalization, communication, and interconnect equipment that is damaged due to the Contractor's operation, at no cost to the Contracting Agency.

Salvageable items not delivered to the City of Spokane Signal and Lighting Division warehouse by the Contractor by the end of the contract, shall be charged to the Contractor for full replacement cost or required to be replaced by the Contractor in-kind irrespective of its condition prior to removal.

If there was no on-site pre-construction field inspection prior to its removal, each salvageable items removed by the Contractor, delivered to the City of Spokane Signal and Lighting Division warehouse, and deemed not acceptable by the Contracting Agency, shall be charged to the Contractor for full replacement costs or be required to be replaced by the Contractor in-kind, irrespective of its condition prior to removal.

Preservation of Existing Materials to Remain. The Engineer may conduct a pre-acceptance and a post-acceptance inspection of each salvageable item within the limits of this contract.

8-20.4 Measurement
(January 1, 2020 COS GSP)

Replace this Section in its entirety with the following:

All illumination system, signal system, intelligent transportation system, or other type of electrical system materials and performance of work called for in the plans will not be measured and shall be considered incidental to STA PLAZA HPT PLATFORMS – PHASE 2 of this contract.

8-20.5 Payment
(January 1, 2020 COS GSP)

Replace this Section in its entirety with the following:

Payment will be incidental to STA PLAZA HPT PLATFORMS – PHASE 2.

COS “**Traffic Signal System, N Wall St and W Riverside Ave**” shall be considered incidental to STA PLAZA HPT PLATFORMS – PHASE 2 of this contract. This includes but is not limited to furnishing the tools, labor, equipment, and materials necessary to perform the work as specified, including the removal and legal disposal of the non-salvageable traffic signal equipment and appurtenances, removal and delivery of the salvageable signal equipment and appurtenances to the City of Spokane Signal and Lighting Division warehouse and the pick-up and installation of owner-furnished materials per the plans and these special provisions.

Excavation, furnishing, and installing the crushed base material and compaction shall be considered incidental to the installation of the junction boxes and no separate payment will be made.

The Contractor, at own discretion, may substitute an equivalent concrete depth in place of the crushed surfacing top course but no additional payment will be made for such substitution.

END OF SECTION 329500

SECTION 329600 – ILLUMINATION, SIGNAL AND ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Modifications to the City of Spokane General Special Provisions Section 9-29. (See Included)

SECTION 9-29 ILLUMINATION, SIGNAL, ELECTRICAL

9-29.1 Conduit, Innerduct, and Outerduct

9-29.1(4) Non-Metallic Conduit

**9-29.1(4)A Rigid PVC Conduit
(March 1, 2014 COS GSP)**

Replace this section with the following:

Rigid PVC Conduit shall be Schedule 80 for all locations, unless detailed otherwise in the plans.

**9-29.1(5) Innerduct and Outerduct
(November 1, 2012 COS GSP)**

Delete this section in its entirety.

**9-29.1(5)A Rigid Galvanized Steel Outerduct With PVC or PE Innerduct
(April 6, 2009 COS GSP)**

Delete this section in its entirety.

**9-29.1(5)B Rigid PVC Outerduct With PVC or PE Innerduct
(April 6, 2009 COS GSP)**

Delete this section in its entirety.

**9-29.1(5)C Innerduct for Straight Sections of Galvanized Steel
Outerduct or PVC Outerduct
(April 6, 2009 COS GSP)**

Delete this section in its entirety.

**9-29.1(5)D Conduit with Innerducts Fittings and Appurtenances
(April 6, 2009 COS GSP)**

Delete this section in its entirety.

**9-29.1(5)D1 Bends for 4-Inch PVC Conduit With Innerducts or
Galvanized Steel Conduit With Innerducts
(April 6, 2009 COS GSP)**

Delete this section in its entirety.

9-29.1(5)D2 Prefabricated Fixed and Flexible Bends (for Innerducts)
(April 6, 2009 COS GSP)

Delete this section in its entirety.

Add the following new Section:
9-29.1(100) MaxCell Innerduct
(May 24, 2012 COS GSP)

MaxCell innerduct shall be of the size called out in the plans, contain the number of sleeves as called out in the plans, and be detectable by containing an 18 gauge solid copper core, green TFN insulated wire the entire length.

9-29.2 Junction Boxes, Cable Vaults, and Pull Boxes

9-29.2(1) Junction Boxes
(January 1, 2020 COS GSP)

Delete the second, third, and fourth paragraph.

9-29.2(1)A Standard Duty Junction Boxes
(November 1, 2012 COS GSP)

Add the following to the first paragraph:

Type 7 junction boxes shall meet all the requirements of a type 8 junction box but shall be supplied without the locking bolt.

9-29.2(1)A2 Non-Concrete Junction Boxes
(January 1, 2020 COS GSP)

Replace this section with the following:

Non-concrete junction boxes shall not be used.

9-29.2(5) Testing Requirements
(November 1, 2012 COS GSP)

Delete this section in its entirety.

Add the following new Section:
9-29.2(5)ZZ Slip-Resistant and Skid-Resistant Surfacing for Junction Boxes, Cable Vaults, and Pull Boxes
(January 1, 2020 COS GSP)

Where slip-resistant or skid-resistant junction boxes, cable vaults, or pull boxes are required, each box or vault shall have a slip-resistant or skid-resistant surfacing material applied to the steel lid and frame of the box or vault. Where the exposed portion of the frame is 1/4 inch wide or less, slip-resistant or skid-resistant surfacing material may be omitted from that portion of the frame.

The following materials are approved for application as slip-resistant or skid resistant material:

1. Harsco Industrial IKG, Mebac #1 - Steel
2. W.S. Molnar Co., SlipNOT Grade 3 – Coarse
3. Thermion, SafTrax TH604 Grade #1 – Coarse

9-29.3 Fiber Optic Cable, Electrical Conductors, and Cable

9-29.3(2) Electrical Conductors and Cable

9-29.3(2)A Single Conductor

9-29.3(2)A1 Single Conductor Current Carrying (November 1, 2012 COS GSP)

Replace this Section in its entirety with the following:

All current carrying single conductors shall be Type THWN, 600 V cable. Overhead service shall be Type THWN 600 V wire. Service conductors shall be copper of the size required by the Code.

9-29.3(2)A2 Grounding Electrode Conductor (November 1, 2012 COS GSP)

Replace this Section in its entirety with the following:

Grounding electrode conductor shall be bare stranded copper.

9-29.3(2)A3 Equipment Grounding and Bonding Conductors (March 1, 2014 COS GSP)

Replace this Section in its entirety with the following:

Equipment grounding and bonding jumpers shall be green insulated stranded copper with THHN 600 volt insulation of the size called out in the plans

9-29.3(2)B Multi-Conductor Cable (March 1, 2014 COS GSP)

Replace this Section in its entirety with the following:

Two-conductor through 20-conductor unshielded signal control cable shall have stranded copper conductors and shall conform to the International Municipal Signal Association (IMSA) signal cable 20-1.

9-29.3(2)D Pole and Bracket
(March 1, 2014 COS GSP)

Add the following:

Luminaires calling for 30 foot mounting heights according to Standard Plan J-105, J-105B, and J-105C shall be Type UF two-conductor with ground, nonmetallic sheathed, 600 V. The wire size shall be #12 AWG unless otherwise specified.

Add the following new Section:

9-29.3(2)ZZ Illumination Branch Cable
(March 1, 2014 COS GSP)

Illumination branch circuit cable shall be Type UF two-conductor with ground nonmetallic sheathed, 600 V cable. The wire size shall be #12 AWG unless otherwise specified.

9-29.6 Light and Signal Standards
(January 1, 2020 COS GSP)

Replace this Section in its entirety with the following:

The signal pole and luminaire arm have been procured by STA and will be available for the contractor to pick up at STA's storage facility at 608E. Holland Ave, Spokane, WA. Pick up shall be scheduled with Brian Bale contact phone number (509)-325-6038 at least 48 hours prior to pick up. The pole and luminaire arm shall be protected as necessary to ensure the materials arrive at the site from the STA storage site undamaged.

9-29.6(5) Foundation Hardware
(August 1, 2015 COS GSP)

Supplement this Section with the following:

Anchor bolts shall be furnished with two nuts and two washers. Anchor bolts shall be hot-dipped galvanized for their entire length. Bolts shall be designed in accordance with ASTM designation F1554 for bolts less than 1.75 inches in diameter and ASTM designation A449 for bolts equal to or greater than 1.75 inches.

9-29.9 Ballast, Transformers

9-29.9(1) Ballasts **(August 1, 2008 COS GSP)**

Replace this Section in its entirety with the following:

The ballast shall be capable of starting and operating one high pressure sodium lamp at the stated luminaire nominal voltage 60 Hz within the limits specified by the lamp manufacturer. The ballast including starting aid, must protect itself against normal lamp failure modes. The ballast shall be capable of operation with the lamp in an open or short circuit condition for 6 months without significant loss of ballast life.

The ballast shall be of the reactor type providing for a ± 5 percent input voltage range. The ballast design center will not vary more than 5 percent from rated lamp watts for nominal line voltage and nominal lamp voltage.

At any lamp voltage from nominal through life, lamp wattage regulation spread at that lamp voltage shall not exceed 2-1/2 percent or ± 1 line voltage variation.

The luminaire manufacturer will supply ballast electrical data and lamp operating volt-watt traces for nominal and ± 5 percent rated line voltage to verify ballast performance and compliance with lamp specifications, for the rated life of the lamp.

The ballast must reliably start and operate the lamp in ambient temperatures down to -30 degrees F for the rated life of the lamp.

The lamp current crest factor shall not exceed 1-1/2 for plus or minus ± 5 percent line voltage variation at any lamp voltage, from nominal through life. The power factor shall be 90 percent (nominal) or higher.

The ballast shall have a name plate attached permanently to the case, listing all electrical data.

9-29.10 Luminaires

9-29.10(1) Conventional Roadway Luminaires **(August 8, 2019 COS GSP)**

Replace this Section in its entirety with the following:

- A. All LED roadway luminaires shall be a Type III medium distribution with cutoff optics.
- B. LED light sources shall produce a light color temperature of 4,000 K \pm 300 K. The manufacturer shall submit fixture LM-79 and LM-80 reports in

conjunction with the luminaire cut sheet. Light sources will also meet or exceed the following efficiency and longevity benchmarks:

Light Emitting Diode (LED) Light Sources

Minimum Luminous Efficacy	Minimum Expected Lamp Life (hours)	Minimum Lumen Maintenance Factor (25°C) @ 50,000 hours
90 lumens/Watt	> 100,000	0.95

BUG Rating (Maximum)		
B: 2	U: 0	G: 2

- C. LED Drivers (Drivers) shall be Class 1 or 2 type, adequately sized for the luminaires designed light output. The Driver shall be an integral part of the luminaire unit. It shall be a prewired, built-in type mounted in the luminaire.

Provide a manufacturer's nameplate on the Driver housing. The nameplate shall have the manufacturer's name, model number, serial number, hook-up diagram, power supply data, LED type and operating wattage.

The Driver shall operate the lamp within the limits specified below throughout the rated life of the lamp:

1. The LED light source shall not vary more than 10% in light output.
2. The LED light source wattage shall not vary more than plus or minus 5% of nominal when the LED light source is at its rated nominal.
3. The minimum efficiency of the Driver (nominal LED light source watts/line watts) shall not be less than 80%.
4. The Driver shall not allow the LED light source to extinguish when a line voltage dip between 40-50% occurs for several seconds.
5. The power factor shall not drop below 90% and the total harmonic distortion shall be less than 20% for the line voltage with allowable fluctuations of +/- 10%.
6. Drivers shall be provided with integral 10kV surge suppression.

7. The line starting current shall not exceed normal line operating current.
8. The Driver shall start and operate the LED light source in ambient temperatures down to -20 °F.
9. The Driver shall conform to all ANSI Standards.

Unless otherwise shown or specified, operate Drivers on a multi-voltage type to be connected to 120 V, 208 V, 240 V, or 277 V.

D. Furnish LED roadway luminaires for horizontal slip fitter end mounting.

Luminaires shall have cast aluminum housings and shall attach to 2 inch pipe tenons on mast arms. The luminaire attachment fitting shall provide for a minimum of plus or minus 3 degree adjustment of the luminaire in the vertical direction.

The lens and doorframe assembly, when closed, shall exert pressure against a gasket. Gaskets shall be composed of material capable of withstanding the temperatures encountered and shall be securely held in place.

All luminaires shall have their components secured to the luminaire frame with corrosion-resistant mounting hardware. The housing, complete with integral Driver, shall be weather tight, IP 66.

If sand-cast, the aluminum housing shall be left in its natural finish. If die-cast, the housing shall be given a coat of aluminum paint.

All traffic signal luminaires shall be Cobra head style, sized according to the illumination requirements of the roadway and energized by 120-240 V.

All Street Luminaires shall be Cobra head style, sized according to the illumination requirements of the roadway and energized by 120-240V

E. One of the following preapproved luminaire series shall be used, or approved equal:

Manufacturer
American Electric
Philips

Series (200 W HPS Replacement)
ATBo, 30BLEDE10, MVOLT R3, NLPCSS
RFM-108W48LED4K-G2-R3M-UNV-
DMG-RCD-GY3

9-29.11 Control Equipment
(August 9, 2018 COS GSP)

Replace this Section in its entirety with the following:

Each luminaire shall be controlled by plug-in photoelectric control mounted on the luminaire housing.

9-29.11(2) Photoelectric Controls
(August 1, 2008 COS GSP)

Supplement this Section with the following:

The photoelectric control shall be a plug-in device, rated to operate on 120-240 volts, 60 Hz. The unit shall consist of a light sensitive element connected to necessary control relays. The light sensitive element shall have a spectral response such that it is especially sensitive to north sky illumination.

The unit shall be so designed that a failure of any electronic component will energize the lighting circuits.

The control shall be protected by a lightning arrestor to provide surge protection to a minimum of 10,000 amperes and shall be rated to switch on 1,000 watts incandescent.

The photoelectric receptacle shall be in accordance with EEI-NEMA Standards.

9-29.12 Electrical Splice Materials

9-29.12(1) Illumination Circuit Splices
(April 1, 2018 COS GSP)

Replace this Section in its entirety with the following:

Illumination circuit splices shall be either, wirenuts or solderless crimped connections to securely join the wires, both mechanically and electrically, as defined in 8-20.3(8). Splices shall be made in the pole base at the hand hole.

9-29.12(2) Traffic Signal Splice Material
(August 9, 2018 COS GSP)

Replace this Section in its entirety with the following:

Lead-in cable to loop wire or magnetometer sensing probe splices shall be rigid body, re-entenable type with encapsulating gel sealant.

Copper communication cable splices shall be housed in a 3M Better Buried 2" x 24" with 4441 encapsulate splice case or approved equal.

NEMA P, P+ and M Cabinets

Wiring

All wiring shall conform to NEMA TS2 Type 2 section 5.2.5 and table 5-1. Conductors shall conform to military specification MIL-W-16878D, Electrical insulated high heat wire, type B. Conductors #14 or larger shall be permitted to be UL type THHN. Main panel wiring shall conform to the following colors and minimum wire sizes:

Vehicle green load switch output	14 gauge brown
Vehicle yellow load switch output	14 gauge yellow
Vehicle red load switch output	14 gauge red
Pedestrian Don't Walk switch	14 gauge orange
Pedestrian Walk switch	14 gauge blue
Pedestrian Clearance load switch	14 gauge yellow
Vehicle green load switch input	22 gauge brown
Vehicle yellow load switch input	22 gauge yellow
Vehicle red load switch input	22 gauge red
Pedestrian Don't Walk input	22 gauge orange
Pedestrian Walk input	22 gauge blue
Pedestrian Clearance input	22 gauge yellow

Logic Ground	18 gauge gray
+24V DC	18 gauge red with white tracer
+12V DC	18 gauge pink
AC+ Line	14 gauge black
AC- Line	14 gauge white
Earth Ground	16 gauge green

AC line (load bay)	12/14 gauge black
AC neutral (load bay)	12/14 gauge white
Controller A, B and C cables	22 gauge blue <i>with the exception of power wires (AC+ Black, AC- White & Earth Ground Green)</i>
MMU A & B cables	22 gauge orange <i>with the exception of power wires (AC+ Black, AC- White & Earth Ground Green)</i>

The field terminal blocks shall have a screw Type No. 10 post capable of accepting no less than 3 No. 12 AWG wires fitted with spade connectors. Four (4) 12-position terminal blocks shall be provided in a single row across the bottom of the main panel. Spade lugs from internal cabinet wiring are not allowed on field terminal screws. The flash program shall be changeable from the front of the load-bay. All load switches, flasher, and flash transfer relay sockets shall be marked and mounted with screws. Rivets and clip-mounting is unacceptable.

Wire size 16 AWG or smaller at solder joints shall be hooked or looped around the eyelet or terminal block post prior to soldering to ensure circuit integrity. All wires shall have

lugs or terminal fittings when not soldered. Lap joint/tack on soldering is not acceptable. All soldered connections shall be made with 60/40 solder and non-corrosive, non-conductive flux. All wiring shall be run neatly and shall use mechanical clamps and conductors shall not be spliced between terminations. Cables shall be sleeved in braided nylon mesh and wires shall not be exposed.

Load-Bay and Panel Wire Termination

All wires terminated behind the main panel or on the back side of other panels shall be **SOLDERED**. No pressure or solder-less connectors shall be used.

9-29.16 Vehicular Signal Heads, Displays, and Housing **(October 1, 2017 COS GSP)**

Replace the second paragraph with the following:

Backplates shall be constructed of 5-inch-wide, .050-inch-thick corrosion-resistant flat black finish, be non-louvered, and be one-piece. Backplates shall be supplied with a 2 inch wide yellow (#3931) Type 4 High Intensity Prismatic retroreflective sheeting installed on the perimeter.

9-29.17 Signal Head Mounting Brackets and Fittings **(August 1, 2008 COS GSP)**

Delete the last paragraph.

9-29.25 Amplifier, Transformer, and Terminal Cabinets **(April 1, 2018 COS GSP)**

Replace this section in its entirety with the following:

Terminal cabinets shall be NEMA 3R and meet the following specifications:

1. Cabinets shall be constructed of 0.125 inch thick 5052-H32 aluminum using continuously welded construction.
2. Nominal cabinet dimensions shall be 8" d x 16" h x 12" w.
3. Cabinet doors shall have a full length, heavy gauge, stainless steel piano hinge.
4. All cabinets shall have a double flanged door with a closed cell neoprene door gasket.
5. Includes a drip shield.
6. Cabinet shall include 2 – 12 position Insulated terminal blocks (Marathon 1512DJ). The blocks shall be 600 volt, heavy-duty, barrier type. The terminal blocks shall be provided with a field-side and a control-side connector separated by a marker strip.
7. Main door lock is a Best CX series Green core lock with latch type locking bolt.
8. Mounting shall be as noted in the Contract.

Add the following new Section:
9-29.108 Racks and Cable Management
(November 1, 2014 COS GSP)

Racks

Equipment mounting racks in buildings shall be Siemon RS-07-S.

Cable Management

Vertical cable managers shall be Siemon RS-CNL.

Horizontal cable managers shall be Siemon WM-143-5, or WM-144-5, or WM-145-5, as noted in the plans.

END OF SECTION 329600