

PROJECT MANUAL
SOUTH SALT LAKE
FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE

3045 S 300 E
South Salt Lake City, UT 84115

January 8, 2019

BIDDING REQUIREMENTS

- 00 10 00 Invitation to Bid
- 00 20 00 Instructions to Bidders
- 00 40 00 Bid
- 00 41 00 Bid Schedule
- 00 45 20 Bidder Status Report
- 00 45 30 Subcontractor and Supplier Report

CONTRACTING REQUIREMENTS

- 00 50 00 Agreement
- 00 60 50 E-Verify Form
- 00 61 00 Performance Bond
- 00 62 00 Payment Bond
- 00 65 00 Certificates of Insurance
- Certificate of Non-Collusion and Non-Discrimination

CONSTRUCTION DOCUMENTS

- Construction Specifications
- Construction Documents
- Geotechnical Engineering Report

VERIFY THAT ALL PAGES HAVE BEEN RECEIVED

DOCUMENT 00 10 00
INVITATION TO BID

PART I: GENERAL

1.1 CONSTRUCTION CONTRACT

- A. Bidders are invited to bid on Construction Contract known as FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.
- B. The location of the work is: 3045 S 300 East in South Salt Lake.
- C. The work to be performed consists of furnishing and installing the equipment, facilities, services and appurtenances thereto as included in the Contract Documents. The Work generally includes, but is not limited to, the following:
Park and construction, including but not limited to grading, pedestrian bridge, trail, fitness and play equipment, pavement, irrigation, lighting, soil, and seeding.
- D. This project is federally funded through HUD Section 3. Section 3 contract requirements are included herein and provided at the pre-bid meeting. Project compliance is by Nancy Kessel, Salt Lake County, nkessel@slco.org or at (385) 468-4904.
- E. For information about the award of this Construction Contract, contact
 SHAREN HAURI at 801-464-6771 .

1.2 BID LOCATION AND OPENING

- A. Sealed bids will be received until 3:00 p.m., on Friday January 31, 2019 at South Salt Lake City Hall located at 220 East Morris Avenue, South Salt Lake City, Utah 84115. Sealed bids will be received local prevailing time, as conclusively established by the clock at the Bid opening location. Bids received after 3:00 p.m. will not be accepted. Bids will be publicly opened and read at that time by the OWNER.
- B. On the outside of the envelope, the bidder shall indicate the Construction Contract title, the name and address of the Bidder, and the date and time of Bid opening and the Bidder's return mailing address.

1.3 BID SECURITY

- A. Bid security in the amount of 5.0 percent of the Bid must accompany each Bid in accordance with the Instructions to Bidders. Bid Security will be returned to each unsuccessful Bidder after tabulation and award of the Construction Contract.

1.4 PRE-BID CONFERENCE

- A. A mandatory pre-bid conference will be held at the west entrance to FITTS PARK located at 3045 S 300 East at 3:00 p.m. on Tuesday January 22, 2019.

1.5 BASIS OF BIDS

- A. Bids shall be on a unit price basis. The low bidder is based on Base Bid total.
- B. Unsealed or segregated Bids will not be accepted.

1.6 CONTRACT TIME

- A. The CONTRACTOR shall begin work on a date mutually agreed upon by the CONTRACTOR, and the Owner, but no later than the dates shown below.
 - 1. Begin work no later than 03/01/2019, and complete work within 120 calendar days.

1.7 EXAMINATION AND PROCUREMENT OF DOCUMENTS

- A. Complete printed sets of Contract Documents may be examined and obtained from:

South Salt Lake City Hall – City Recorder
220 East Morris Avenue, Suite 200 (Finance Department)
South Salt Lake City, Utah 84115
cburton@sslc.com 801.483.6027

\$30.00 will be required for each complete set. Advance notice is required.

- B. Complete digital set of Contract Documents may be obtained from:

Utah's Supplier Portal (SciQuest):
<https://purchasing.utah.gov/for-vendors/>

1.8 RIGHT TO REJECT BIDS

- A. The OWNER reserves the right to reject any or all bids or to waive any informality or technicality in any bid if deemed to be in the best interest of the OWNER.

1.9 VALIDITY PERIOD FOR BIDS

- A. Bids shall remain valid for 45 days after the day of Bid opening. Bidders, who withdraw their bid after Bid opening, but before expiration of said period, shall forfeit their bid security if Notice of Intent to Award to the successful Bidder is made by OWNER.

1.10 GOVERNING LAWS AND REGULATIONS

- A. This project will be a FEDERALLY FINANCED COMMUNITY DEVELOPMENT PROJECT. All rules and regulations governing such projects will be applicable. The contract is to be awarded to the lowest responsible and responsive bidder, whose bid meets the requirements and criteria set forth in the request for bids. Requirements for prevailing wage rates and certified payrolls apply as it is subject to the Davis-Bacon Act.

Also, work to be completed under this project is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, the purpose of which is to ensure employment and other economic opportunities generated by HUD-assisted projects shall, to the greatest extent feasible, be directed to low- and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

All prime contractors participating in this project must have a Data Universal Numbering System (DUNS) number and be registered on the federal System for Award Management (SAM) at sam.gov.

- B. Bidders on this Work will be subject to the applicable provisions of all federal rules, laws and regulations or orders.
- C. A building permit is required from the City of South Salt Lake. The building permit fee is waived for city-owned projects.
- D. In compliance with Americans with Disabilities Act, (ADA) the following information is provided: FAX Number 801-483-6060, TDD Number 801-467-1147, Contact person: Sharen Hauri.

**DOCUMENT 00 20 00
INSTRUCTIONS TO BIDDERS**

PART 1 GENERAL

1.1 DESCRIPTION OF THE WORK

1.1 DESCRIPTION OF THE WORK

- A. The Work to be performed consists of furnishing and installing the equipment, facilities, services, and appurtenances thereto as included in the Contract Documents. A general description of the Work is set forth in the Invitation to Bid (Document 00 10 00).
- B. General Conditions: as published in Document 00 72 00 in the 2017 Edition of the Manual of Standard Specifications by the Utah Chapter of the American Public Works Association.

1.2 COPIES OF BID DOCUMENTS

- A. Bidders must use complete sets of Bid Documents in preparing Bids. OWNER maintains a complete set on file at the address set forth in the Notice to Bidders, and bidders may review the file copy upon request during regular business hours. Bidders are solely responsible to verify whether their sets of Bid Documents are complete.
- B. Bid Documents are made available to bidders only for the purpose of obtaining Bids on the Work. No license or grant for any other use is given.
- C. Bidding Document copyrights shall remain with the OWNER.
- D. All provisions of the Manual of Standard Specifications and Manual of Standard Plans published by the Utah Chapter of the American Public Works Association that are applicable to the Work are hereby made a part of the Contract Documents by reference. The publications may be purchased separately from the Sandy City Public Works 8775 South 700 West Sandy, UT 84070.

1.3 PRE-BID CONFERENCE

- A. The time, place and nature of the conference will be stated in the Invitation to Bid. Representatives of OWNER and ENGINEER will be present to discuss the Project. The OWNER shall not be bound by any statements, representations, conclusions, or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum by the ENGINEER to all prospective bidders.

1.4 PHYSICAL CONDITIONS

- A. **In General:** Prior to submitting a Bid, each Bidder is responsible to review all available explorations, tests and data concerning surface conditions, subsurface conditions and Underground Facilities at or contiguous to the site, or otherwise, which may affect cost, progress, performance or furnishing of the Work in accordance with the time, price and

other terms and conditions of the Contract Documents.

- B. **Surface and Subsurface Conditions:** Provisions concerning surface and subsurface conditions, if any, are set forth in a document titled Geotechnical Report. The document provides the identification of:
1. those reports of explorations and tests of subsurface conditions at the site which have been utilized in preparing the Contract Documents; and
 2. those drawings of physical conditions in or relating to existing surface and subsurface structures (except Underground Facilities) which are at or contiguous to the site which have been utilized in preparing the Contract Documents.
- C. **Underground Facilities:** Information and data indicated in the Contract Documents regarding Underground Facilities at or contiguous to the site is based upon information and data furnished to OWNER and ENGINEER by owners of such Underground Facilities. The OWNER does not assume responsibility for the accuracy or completeness thereof other than as provided in paragraph 4.3A-of the General Conditions or unless expressly provided in the Modifications to General Conditions (Document 00810 - 1).
- C. **Additional Explorations and Tests:** If feasible as determined by OWNER, the OWNER will provide each Bidder access to the site to conduct any explorations and tests as each Bidder deems necessary for submission of a Bid. Bidder shall obtain permits, fill all holes, clean up and restore the site to its former condition upon completion of such explorations. By requesting such an exploration or test, Bidder agrees to release, indemnify, defend, and save the OWNER harmless from all costs damages and liabilities of any kind whatsoever, including reasonable attorneys' fees, which may arise in connection with or as a result of the performance of such explorations or tests.

1.5 COMPENSATION AND QUANTITIES

- A. **In General:** The bid price for any lump sum or unit price contract includes all labor, materials, and incidental work to fully complete the Work in a satisfactory manner under the terms of the Contract Documents. Bidders are responsible to inform themselves of the character of the Work to be performed.
- B. **Lump Sum Work:** If the Work is to be paid for on a lump sum basis, the lump sum will be the only sum paid.
- C. **Unit Price Work:** If any portion of the Work is to be paid for on a unit price basis, payment will cover only work actually performed and materials actually supplied at the unit prices bid and on the terms set forth in the Contract Documents, irrespective of any quantity approximations in the Bid Documents. Any quantity approximations in the Bid Documents are stated as a basis for determining bids, and do not fix the amount of Work to be done or materials to be furnished. Stated quantities are estimates for the purpose of doing the class of work required. Actual quantities will vary. The OWNER may deviate in either direction from any indicated quantities. The Bidder shall have no claim for any variation in quantity, except to the extent permitted in the Invitation to bid.

1.6 EXAMINATION OF SITE AND CONTRACT DOCUMENTS

- A. **In General:** The OWNER shall not be bound by any statements, representations, conclusions, or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum.
- B. **Access:** The Contract Documents designate the site for performance of the Work. Bidder is responsible to investigate the site and understand all access requirements. All additional off site lands and access thereto required for temporary construction facilities or storage of materials and equipment are to be provided by Bidder.
- C. **Bidder's Obligations:** In addition to Bidder's other responsibilities and obligations in connection with submitting a Bid, it is the responsibility of the Bidder before submitting a Bid, to:
1. Examine the Contract Documents thoroughly;
 2. Visit the site to become familiar with local conditions that may affect cost, progress, performance or furnishing of the Work;
 3. Investigate all applicable construction and labor conditions, quantities, and the character of the Work as they affect cost, progress, performance, or furnishing of the Work;
 4. Consider federal, state and local Laws and Regulations that may affect cost, progress, performance or furnishing of the Work;
 5. Study and carefully correlate Bidder's observations with the Contract Documents;
 6. Attend any pre-bid conference, which shall be mandatory if so designated in the Notice to Bidders;
 7. Review all available explorations and data concerning surface and subsurface conditions as set forth in Section 1.4 above; and
 8. Identify and notify OWNER in writing in the manner set forth in article 2.1 below of all specific conflicts, omissions, errors, or discrepancies in the Contract Documents, or if Bidder doubts their meanings.

The failure or omission of any Bidder to take any of the foregoing actions shall not in any way relieve Bidder of its Bid, or its obligation to furnish all material, equipment, labor and services necessary to carry out the provisions of the Contract Documents and to complete the contemplated Work for the consideration set forth in its Bid. Submission of a Bid shall constitute prima facie evidence of compliance with these instructions.

- D. **Deviations from the Terms of the Contract Documents:** OWNER will not accept any deviations whatsoever from the printed terms of the Agreement and the Contract Documents, except by Addendum or Change Order.

1.7 EFFECT OF SUBMITTING A BID.

- A. Bidders are responsible to carefully examine the Contract Documents, visit the site, and fully inform themselves so as to include in the Bid a sum to cover the cost of all items. Bidder's failure or omission to receive or examine any form, instrument, addendum or other document, visit the site and become acquainted with existing conditions, or attend any pre-Bid Conference, shall in no way relieve Bidder from any obligations with respect to Bidder's Bid or the Construction Contract.
- B. By submitting a Bid, Bidder represents that Bidder has complied with all requirements of the Bid Documents; that the Bid is premised on properly performing and furnishing the Work required by the Contract Documents within the times specified; that the Bidder is informed of the conditions to be encountered and the character, quality and quantities of the Work; and that the Bidder believes the Contract Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
- C. Submission of a Bid constitutes a promise that the Bidder will enter the Contract Documents in the form presented in the Contract Documents. Bidders should carefully examine all Contract Documents, including the required Bonds and insurance to be provided by the Bidder.
 - 1. The Performance Bond is a guarantee of faithful performance of the requirements of the Contract Documents, including all applicable warranties. The Payment Bond is a guarantee of payment of all labor, materials, or supplies used directly or indirectly in the prosecution of the Work provided in the Construction Documents.
 - 2. The sum of the Performance Bond and the Payment Bond shall be increased or decreased during the course of the Work in the event that Contract Modifications, Change Orders or Addenda increase or decrease the total contract price. The sum of each bond shall be in an amount equal to the completed contract price at the completion of the Work.
 - 3. OWNER does not provide any release of Performance Bonds or Payment Bonds. The bonds are in effect throughout all periods during which a suit may be brought under the provisions of applicable law.
- D. By submitting a Bid, Bidder represents that the matters stated therein are true and correct.

PART 2 BIDDING PROCEDURES

2.1 INTERPRETATIONS AND ADDENDA

- A. All requests for interpretation of the Contract Documents shall be made in writing and delivered to the OWNER no later than five (5) calendar days prior to opening of Bids. In the OWNER's discretion, OWNER will send the written interpretation to all persons receiving a set of Bid Documents in the form of an Addendum. If the OWNER does not

respond to a Bidder's request for interpretation the Bidder shall comply with the intent and terms of the Contract Documents.

- B. No oral interpretations shall be made to any Bidder. The OWNER shall not be responsible for or bound by any statements, interpretations, explanations, representations, conclusions or assumptions made by any party, whether oral or written, except for written statements that are issued in an Addendum by the ENGINEER to all prospective bidders.
- C. Each statement made in an Addendum is part of the Contract Documents at the location designated in the Addendum. A statement issued in an Addendum shall have the effect of modifying a portion of the Bid Documents when the statement in the Addendum specifies a particular section, paragraph or text and states that it is to be so modified. Only the specified section, paragraph or text shall be so modified, and all other portions of the Bid Documents shall remain in effect.
- D. Bidders shall sign to acknowledge their receipt of all Addenda issued. Bidders shall also acknowledge receipt of all Addenda in the space provided in the Bid.
- E. Except to postpone the Bid opening, no Addenda shall be issued within 48 hours of the Bid opening.

2.2 EQUIPMENT AND MATERIAL OPTIONS PRIOR TO BID OPENING

- A. If a Bidder or Supplier wishes to supply a product other than that identified in the Contract Documents, said Bidder or Supplier shall submit a written request for approval to the ENGINEER at least seven (7) calendar days prior to the date set for opening of bids.
- B. The procedure for submission of any such product option shall be as set forth in Article 6.4 of the General Conditions. It is the sole responsibility of the Bidder or Supplier to submit complete descriptive and technical information so that ENGINEER can make a proper appraisal.
- C. ENGINEER's failure to act upon such a request within three (3) days after receipt shall be deemed a denial thereof.
- D. Any such approval is at the sole discretion of the ENGINEER and will be in the form of an Addendum issued to all Bidder's holding Bid Documents indicating that the additional equipment or materials are approved as equal to those specified for the Project.
- E. The Construction Contract, if awarded, will be on the basis of materials and equipment specified in the Drawings and Specifications and any changes permitted in any Addenda.

2.3 BID SECURITY

- A. **Amount of Bid Security:** A Bid Security must accompany each Bid. The total amount of the Bid on which Bid security is to be based shall be the sum of all items of the Bid

constituting the maximum amount of the possible award to the Bidder. The Bid Security amount must equal at least five (5) percent of the total amount of the Bid.

- B. **Form of Bid Security:** The Bid Security may be in the form of a certified check, cashier's check, cash, or Bid Bond. No other form of Bid Security will be accepted. A Bid Bond must be issued by a licensed Utah agency on behalf of a surety company licensed to do business in the State of Utah. A cashier's check must be drawn on a bank doing business in the State of Utah and made payable to OWNER. If a cashier's check is used in lieu of a Bid Bond, or if the Bid Bond does not specifically so provide, a certificate from an approved surety company guaranteeing execution of performance and payment bonds in the full amount of the bid must accompany the bid.
- C. **Purpose of Submission.** By submitting a Bid Bond Bidder assures OWNER it will take all steps necessary to properly execute the Contract Documents.
- D. **Return of Bid Security:** OWNER will return Bid securities to Bidder within 7 days after award of the Construction Contract. Bid Bonds and cashier's checks of all Bidders will be held until the Construction Contract is awarded or all bids have been rejected. The liability of OWNER in regards to the checks shall be limited only to the return of the checks.
- E. **Default:** In the event of failure or refusal of the Bidder to enter into the Construction Contract and the delivery to the OWNER a Performance Bond, Payment Bond and any other Bonds or documents required by the Contract Documents after Notice of Intent to Award by the OWNER, the Bidder forfeits the sum of the Bid Bond or cashier's check as liquidated damages to the OWNER.

2.3 COMPLETING BID DOCUMENTS

- A. The General Conditions identify all forms comprising the Bid Documents. Additional copies may be obtained from the OWNER. The Bidder shall make no stipulations or alterations on the Bid forms. The Bidder must use and execute only the Bid Form and Bid Schedules bound in the Contract Documents. The complete Contract Documents (excluding the Drawings) should be submitted as the Bidder's Bid, and Bidder shall complete and submit all forms included in the Bid Form, Document No. 00 40 00.
- B. The Bidder must fill in all items in the Bid Form in ink, typewriter, or digital printer. If applicable, furnish both the unit and total costs for each item. The total Bid price is the full price for the performance of all Work under the Contract Documents. Bidder shall initial in ink any corrections, interlineations, alterations, or erasures made by the Bidder on Bidder's entries in the Bid Documents.
- C. Any work or material which is specified in the Contract Documents or which is necessary because of the nature of the Work, but which is not listed separately in the Bid Form shall not be measured or paid for separately. The cost of such work or material shall be considered as included in the Contract Price.

- D. Bids by corporations must be executed in the corporate name by a corporate officer authorized to sign and must be properly attested to as an official act of the corporation. At the OWNER's request, authority to sign shall be submitted.
- E. Bids by partnerships or joint ventures must be executed in the partnership or joint venture name and signed by a partner or joint venture whose title and official address must be shown. If a partnership or joint venture is the low bidder, the partnership or joint venture must also submit evidence to the OWNER of the responsibility of the partnership or joint venture as a bidder in the manner directed by the ENGINEER.
- F. Where the Bidder is wholly owned subsidiary of another company, the Bid must so state, and the owner or parent corporation also must agree to sign and be bound with the Bidder.
- G. All names must be typed or printed under or near the signature. Signatures shall be in longhand.
- H. The Bid shall contain an acknowledgment of receipt of all Addenda. The Addenda numbers must be filled in on the Bid Form.
- I. The Bidder's address, telephone number, and facsimile number for communications regarding the Bid must be shown on the first page of the Bid Form.
- J. The divisions and sections of the specifications, and the identifications of any Drawings, shall not control Bidder in dividing the Work among subcontractors or suppliers, or delineating the Work to be performed by any specific trade.
- K. The Base Bid and Add Alternates shall include all Work required to be performed by the Contract Documents.

2.4 CONFLICT OF INTEREST, SUBCONTRACTORS

- A. Conflict of interest pertaining to Subcontractors is described in paragraph 6.5H of the General Conditions.
- B. Bidder shall not subcontract more than 75 percent of the dollar value of the total contemplated Work (exclusive of the supply of materials and equipment to be incorporated in the Work) without OWNER's prior written approval.

2.5 SUBMISSION OF BIDS

- A. Bids shall be submitted at the time and place indicated in the Invitation to Bid and should be enclosed in an opaque sealed envelope, marked with the Construction Contract name and number, the name and address of the Bidder, and the date and the opening time for Bids. If the Bid is sent through the mail or other delivery system, the sealed envelope should be enclosed in a separate envelope with the notation "BID ENCLOSED" on the face of it. It is the sole responsibility of the Bidder to deliver the Bid before the scheduled time.
- B. The complete Contract Documents must be submitted with the Bid. Bidder will make no

recapitulations, stipulations, alterations, alternate submissions, or modifications in any manner to any of the Contract Documents.

- C. Bidder must submit a Bid by completing all of the Bid Form documents, which are:
 - 1. The Bid portion of the Bid Form which is included in these Contract Documents, which shall be in the form of a lump sum, or in the form of unit pricing pursuant to the Bid Schedule, as called for in the Bid Form.
 - 2. The Bid Security.
- D. Alternate bids, other than those called for in the Bid form, will not be considered.
- E. No oral, telegraphic, telephonic, facsimile or modified bids will be considered.

2.6 MODIFICATION AND WITHDRAWAL OF BIDS

- A. At any time prior to the opening of Bids, Bids may be modified or withdrawn if a written notice of modification or withdrawal is signed by Bidder and delivered to the place where Bids are to be submitted. Bid Security will be returned upon proper withdrawal of a Bid prior to the time for Bid opening.
- B. Within 24 hours after Bids are opened, any Bidder may file written notice with OWNER that there was a substantial mistake made in the preparation of its Bid. Bidder must thereafter promptly demonstrate Bidder's mistake. The OWNER has sole discretion to determine whether to permit any modification or withdrawal or the return of any Bid Security.
- C. When it appears a mistake has been made, or when the OWNER desires an assurance of any matter, the OWNER may request a Bidder to confirm the Bid in writing.

2.7 OPENING OF BIDS

- A. Bids will be opened and read aloud publicly unless obviously non-responsive. An abstract of the amounts of the base schedule of prices and any alternate schedules will be made available for review after the opening of Bids.
- B. Any Bids received after the time specified in the Invitation to Bid will be returned unopened.

2.8 BIDS SUBJECT TO ACCEPTANCE FOR 45 DAYS

- A. All bids remain subject to acceptance for 45 days after the day of the Bid opening. OWNER may, in its sole discretion, release any Bid and return the Bid security prior to that date.

PART 3 EVALUATION AND AWARD

3.1 SUBMITTALS REQUIRED FOR EVALUATION

- A. After Bid opening, the Bidder, whose Bid is under consideration, must submit the following at the times specified:
1. **Bidder Status Report:** Document 00 45 20. One completed form shall be submitted after Bidder receives Notice of Intent to Award.
 2. **Subcontractor and Supplier Report:** Document 00 45 30. The Bidder shall submit this report form within 24 hours of ENGINEER's request.

3.2 EVALUATION OF BIDDER'S QUALIFICATIONS

- A. Within seven (7) calendar days of OWNER's request, a Bidder, whose Bid is under consideration for award shall submit to the OWNER the following information for the Bidder. OWNER may request like information on Bidder's Subcontractors, Bidder's Suppliers or any other information the OWNER may require.
1. A current financial statement for the Work (as provided to bonding company);
 2. A chronological list of "in progress" and "completed" construction work done by Bidder during the last 3 years; including project name, address, owner, contract name, and current telephone number;
 3. Present construction commitments other than items listed in paragraph 2 above;
 4. Proposed organizational structure such as firm ownership, project manager, progress scheduler, and superintendent for the Work of this Project;
 5. Owned and rented equipment which is to be used to do the Work;
 6. Investigations, arbitration, litigation or claims which are pending, threatened, settled or otherwise disposed of within the last three (3) years;
 7. Evidence of ability to perform and complete the Work in a manner and within the time limit specified. As a minimum, identify specific experience on projects similar to the Work in physical size, cost, and commercial nature. If the work experiences of the project manager and superintendent designated to construct this project are different than that of the company, provide resumes of their work history. Include their actual project titles and indicate their actual responsibilities on each given project;
 8. All matters consistent with federal, state and local Laws and Regulations;
 9. Such other data as may be called by the OWNER.
- B. If Bidder believes any information should be held confidential for business reasons, Bidder must submit a written claim of business confidentiality for that particular information and include a specific statement of the reasons supporting the claim pursuant to Utah Code Ann. 63-2-308.
- C. Untimely response or failure to provide the requested information by Bidder will release OWNER of any obligation to further consider the Bidder's Bid.

3.3 EVALUATION OF BIDS

- A. OWNER reserves the right: to reject any and all Bids or any part thereof; to waive any informalities in the Bid Schedule and elsewhere; to negotiate and agree to contract terms with the successful Bidder; to disregard non-conforming, non-responsive, unbalanced or conditional Bids; and to withhold the award for any reason deemed in the best interests of the OWNER.
- B. OWNER reserves the right to reject any Bid if OWNER believes that it would not be in the best interest of the Project or the OWNER. Without limitation, such rejection may be because the Bid is not responsive, or the Bidder is unqualified or of doubtful ability or the Bid or Bidder fails to meet any other pertinent standard or criteria established by OWNER.
- C. If the OWNER intends to make an award to a Bidder, a Notice of Intent to Award will be issued.
- D. OWNER may consider all information which OWNER believes is relevant when evaluating a Bid, including, without limitation:
 - 1. The qualifications and experience of the Bidder and of the Subcontractors, Suppliers, and other persons and organizations proposed (whether or not the Bid otherwise complies with the prescribed requirements).
 - 2. Such alternates, unit prices and other data, as may be requested in the Bid Form, Bid Schedule, or written requests issued prior to OWNER's Notice of Intent to Award the Construction Contract.
 - 3. Operating costs, maintenance requirements, performance data, and guarantees of ability to provide the required materials and equipment.
 - 4. Corporate organization and capacity for any party.
 - 5. Ability to perform and complete the Work in the manner and within the time specified.
 - 6. Pending litigation.
 - 7. The amount of the Bid.
 - 8. Proper licensing to do the Work in compliance with licensing laws of the State of Utah for contractors and subcontractors.
 - 9. All other relevant matters, consistent with OWNER's procurement code and administrative rules, OWNER's ordinances and program policies.
- E. To establish qualifications of Bidder, OWNER may request such data indicated in the Bid Documents, conduct such investigations as OWNER deems appropriate, and consider any other information (whether obtained from the Bid, the Bidder, or any other source).
- F. If the Construction Contract is to be awarded, it will be awarded to the most responsive qualified, and responsible Bidder as determined by the OWNER. Alternates may be

accepted depending upon availability of OWNER's funds and as determined by the OWNER. Accepted alternates will be considered in determining the most responsive, qualified, and responsible Bidder.

G. Bid Schedules will be evaluated as follows:

1. Discrepancies in the multiplication of quantities of Work items and unit prices will be resolved in favor of the unit prices. OWNER may correct Bid Schedule calculation errors accordingly.
2. Prices written out in words shall govern over prices written out in numbers.
3. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.
4. Bids shall not contain any recapitulations of or changes in the work to be done.

H. The OWNER, in the OWNER's sole discretion, shall make determinations as to disqualification of Bidders or rejection of Bids. Such matters may include, without limitation, submission of more than one Bid by the Bidder (whether under the same or different names); evidence of collusion among Bidders; other commitments of Bidder which, in the OWNER's sole judgment, might hinder the Work; previous defaults; Bid irregularities when not waived in the best interests of the OWNER; delays or poor performance by Bidder on any project; official action against Bidder; and any other cause which, in the OWNER's sole discretion and judgment, is sufficient to justify disqualification of a Bidder or rejection of a Bid.

I. The following firms have been under contract to the OWNER in the design phase of the Work. They shall not be used as subcontractors by the CONTRACTOR.

1. Design Consultant: Kimley-Horn.
2. Geotechnical Consultant: Terracon.
3. Landscape Architecture Consultant: Io Design.
4. Lighting and Electrical Consultant: Spectrum Engineering.

3.4 ADJUSTMENTS TO THE COST OF THE WORK AFTER OPENING OF BIDS

- A. The Contract Price identified in the Agreement represents the cost of the work which is to be paid by the OWNER to the CONTRACTOR.
- B. Adjustments to the Contract Price which are agreed to between the OWNER and the successful Bidder shall be affected by signing an Agreement Supplement.

3.5 SUBSTITUTIONS

- A. The Construction Contract, if awarded, will be on the basis of materials and equipment described in the Drawings, Specifications and any Addenda.

- B. After the Effective Date of the Construction Contract, the procedure for submitting an application for substitution is set forth in Article 6.4 of the General Conditions.

3.6 SUBMITTALS REQUIRED FOR AWARD OF CONTRACT

- A. **Performance and Payment Bonds:** The OWNER's requirements as to Performance and Payment Bonds are as set forth in the Modifications to General Conditions (Document 00 80 10). Specific requirements are set forth in the Performance Bond (Document 00 61 00) and the Payment Bond (Document 00 62 00).
 1. The form of the Bonds should be carefully examined by the Bidder.
 2. When the successful Bidder delivers the executed Construction Contract to OWNER, it must be accompanied by the required Performance and Payment Bonds.
- B. **Other Information:** When a determination has been made to award the Construction Contract, Bidder is required, prior to the award or after the award, or both, to furnish such other information as the ENGINEER requests.

3.7 SIGNING OF AGREEMENT

- A. Within five (5) days after OWNER gives Notice of Intent to Award the Construction Contract to the successful Bidder, the Bidder shall pick up, sign and return to OWNER, the required number of copies of the Construction Contract, bonds and insurance. A minimum of six (6) originals will be signed and returned to the OWNER. One executed original will be returned to the Bidder. Bidder shall comply with all execution requirements.
- B. All of Bidder's executions and submittals must be delivered to the OWNER before OWNER will execute the Construction Contract. The Construction Contract will not be deemed awarded and shall not be binding on the OWNER until it has been approved and executed by the OWNER, and a fully executed copy is formally delivered to the CONTRACTOR. The OWNER reserves the right to rescind its Notice of Intent to Award without liability, except for the return of Bidder's Bid Security, at any time before the Construction Contract has been fully executed by all parties and delivered to the CONTRACTOR.
- C. Transfers, delegations or assignments of interests in the Contract Documents are prohibited, unless prior written authorization is received from the OWNER.
- D. At the time of Bidding, and the signing of the Agreement, and at all times during the Work, Bidder shall be properly licensed to do the Work and shall be in compliance with the license laws of the State of Utah, South Salt Lake City and Salt Lake County. The Bidder shall also require all Subcontractors to do the same.
- E. If a Bidder fails to fully and properly execute the Construction Contract and provide all submittals required therewith within five (5) days after the date of the Notice of Intent to Award, the OWNER may elect to rescind the Notice of Intent to Award, and the OWNER shall be entitled to the full amount of Bidder's Bid Security, not as a penalty, but in liquidation of and compensation for damages sustained. In the OWNER's sole

discretion, a Notice of Intent to Award may then be provided to another bidder whose Bid is most advantageous to the OWNER, price and other factors considered.

END OF DOCUMENT

**DOCUMENT 00 40 00
BID**

PART 1 GENERAL

1.1 BID PROPOSAL

- A. After having personally and carefully examined all conditions surrounding the Work and the Contract Documents, the undersigned proposes to furnish all labor, equipment, tools and machinery and to furnish and deliver all materials not specifically mentioned as being furnished by the OWNER, which is required in and about the construction of the Construction Contract known as
FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.
- B. The undersigned proposes to complete the Work for the price or prices listed in the Bid Schedule (Document 00 41 00) and understands that quantities for Unit Price Work are not guaranteed.
- C. The undersigned proposes to furnish bonds with the Contract, signed by a surety company satisfactory to the OWNER, in an amount equal to the Contract amount conditioned to insure compliance with all requirements of the Contract Documents.
- D. The undersigned encloses a certified check, cashier's check, cash, or a Bid Bond for _____ Dollars (\$ _____) which is (five (5) percent of the Bid amount) payable to the OWNER, as a guarantee of good faith, and which it is agreed will be forfeited to the OWNER as liquidated damages in the event of the failure of the undersigned to enter into a contract and furnish satisfactory bonds to the OWNER.
- D. The undersigned proposes to execute the attached contract within five (5) days after the Notice of Intention to Award, and to begin work within ten (10) days after being notified to do so by the OWNER.
- E. If OWNER finds it necessary to further define the Work, Contract Price, Contract Time or some other portion of the Construction Contract, after Bid opening, the Bidder promises to execute an Agreement Supplement prior to or concurrent with the execution of the Agreement, if the Agreement Supplement is acceptable to the Bidder.
- F. It is understood that the OWNER has the right to reject this proposal or to accept it at the prices listed in the Bid Schedule.
- H. During the contracting process, the following shall be submitted:
- a. Performance and Payment Bonds
 - b. Proof of Liability and Workman's Compensation Insurance
 - c. Proof of employment eligibility through the E-Verify system.

PART 2 EXECUTION

2.1 BIDDER

A. The Bidder is as follows

Name: _____

Address: _____

Telephone number: _____

Facsimile number: _____

Tax identification number: _____

B. Bidder holds license number _____, issued on the _____ day of _____, 20____, by the Utah State Department of Commerce, Division of Occupational and Professional Licensing. Bidder is licensed to practice as a _____ Contractor. License renewal date is the _____ day of _____, _____.

C. The undersigned hereby acknowledges receipt of the following Addenda:

Addenda # _____ Addenda name _____ Initial _____

Addenda # _____ Addenda name _____ Initial _____

Addenda # _____ Addenda name _____ Initial _____

Addenda # _____ Addenda name _____ Initial _____

2.2 BIDDER'S SUBSCRIPTION

A. Date: _____

B. Bidder's Signature: _____

C. Please print Bidder's name here: _____

D. Title: _____

2.3 REFERENCES

Please provide 3 references for similar work completed within the last year, with the same project manager/foreman.

1. Owner:

Contact Name:

Project Location:

Project Description:

Phone number:

Email:

2. Owner:

Contact Name:

Project Location:

Project Description:

Phone number:

Email:

3. Owner:

Contact Name:

Project Location:

Project Description:

Phone number:

Email:

END OF DOCUMENT

**DOCUMENT 00 41 00
BID SCHEDULE**

PART 1 GENERAL

1.1 DOCUMENT INCLUDES

- A. Price schedules.
- B. Measurement and payment provisions.

1.2 CONSTRUCTION CONTRACT

- A. The Construction Contract is known as
FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.

1.3 REFERENCES

- A. APWA 01 29 00: Payment Procedures.
- B. Document 00 50 00: Agreement.

1.4 SCHEDULE TO BE ADDED TO THE AGREEMENT

- A. Submit bid in format of the table on the following page. Write all prices in numerical format. This document will be added to the Agreement by reference.

1.5 MILESTONES / SCHEDULE

- A. Attach a schedule with milestones for initiating and completing the project.

PART 2 PRICE SCHEDULES

2.1 BASE BID and ADDITIVE ALTERNATES

- A. The Base Bid covers Park, Trail and Bridge construction.
- B. Additive Alternates covers asphalt color coating west of the bridge.

PART 3 MEASUREMENT AND PAYMENT

3.1 GENERAL

- A. Units of measurement are listed above in the Bid Schedule
- B. Measurement and payment procedures follow APWA Section 01 29 00.
- C. ENGINEER will take all measurements and compute all quantities.
- D. CONTRACTOR will provide all equipment, workers, and survey crews to assist ENGINEER in making measurements.
- E. CONTRACTOR will verify measurement and quantities.
- F. Award of Contract will be based on Base Bid price not including Additive Alternates.

END OF DOCUMENT

BID SCHEDULE - FITTS PARK EXPANSION AND MILL CREEK BRIDGE AND TRAIL

		QTY	UNITS	UNIT PRICE	TOTAL
SECTION 1: WEST FITTS					
1	EXCAVATE APTS + HOME FOUNDATIONS AND BACKFILL	1	LS		
2	DEMOLISH ASPHALT	9100	SF		
3	ASPHALT PATCH / REPAIR	9000	SF		
4	ASPHALT SEAL COAT	19425	SF		
5	COMPACTED GRAVEL PATH AND EDGE	1500	SF		
6	LIGHTING AND ELECTRICAL	1	LS		
7	CARPORT AND PAINTING	1	LS		
8	GATE	1	LS		
9	TURF AREAS	3261	SF		
10	MEADOW AREAS	22079	SF		
11	STREAMBANK AREAS	32523	SF		
12	NORTH SHRUB BED AREAS	3620	SF		
13	IRRIGATION	94006	LS		
14	ZIP LINE PLAYGROUND AND SURFACE	1	LS		
15	FITNESS COURSE AREA AND SURFACE	1	LS		
SUBTOTAL					
SECTION 2: BRIDGE AND TRAIL					
16	BRIDGE AND ABUTMENTS	1	LS		
17	APSHALT TRAIL WEST FROM BRIDGE	5370	SF		
SUBTOTAL					
SECTION 3: OTHER					
18	MOBILIZATION	1	LS		
19	BONDS	1	LS		
20	INSURANCE	1	LS		
21	MATERIALS TESTING	1	LS		
22	CONTRACTOR MISC	1	LS		
SUBTOTAL					
BASE BID TOTAL					
ADD ALTERNATIVES					
23	ASPHALT PAVEMENT PAINTING FOR RECREATION	11416	SF		

**DOCUMENT 00 45 20
BIDDER STATUS REPORT**

PART 1 GENERAL

1.1 BIDDER

A. Name: _____

B. Address: _____

C. Telephone number: _____

1.2 CONSTRUCTION CONTRACT

A. The Construction Contract is known as
FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE .

**PART 2 REPORT TRAIL AND
BRIDGE**

2.1 BIDDER STATUS REPORT

A. Bidder affirms the following information is true and correct.

1. Number of employees: _____

2. Bidder's firm is: (check the following as applicable)

[___] Independently owned and operated.

[___] An affiliate of*

[___] A subsidiary of*

[___] A division of*

[___] A business with gross revenue in excess of \$ _____

[___] A business with gross revenue below \$ _____

* PARENT COMPANY:

Name: _____

Address: _____

Telephone Number: _____

Facsimile Number: _____

PART 3 EXECUTION

3.1 EFFECTIVE DATE

- A. Bidder executes this status report and declares it to be a supplement to the Bid and in effect as of _____, _____.

3.2 BIDDER'S SUBSCRIPTION

- A. Bidder's Signature: _____
- B. Please print Bidder's name here: _____
- C. Title: _____

END OF DOCUMENT

DOCUMENT 00 45 30
SUBCONTRACTOR AND SUPPLIER REPORT

PART 1 GENERAL

1.1 BIDDER

A. Name: _____

Address: _____

B. Telephone Number: _____

1.2 CONSTRUCTION CONTRACT

A. The Construction Contract is known as FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.

PART 2 REPORT

2.1 SUBCONTRACTOR AND SUPPLIER REPORT

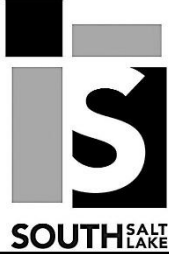
- A. Failure of the Bidder to specify a Subcontractor for any portion of the Work constitutes an agreement by the Bidder that the Bidder is fully qualified to perform that portion, and that Bidder shall perform that portion.
- B. Bidder will be fully responsible to OWNER for the acts and omissions of Subcontractors and Suppliers and of persons either directly or indirectly employed by them, as Bidder is for the acts and omissions of persons employed by Bidder directly.
- C. Nothing contained in the Contract Documents shall create any contractual relationship between any Subcontractor or Supplier and the OWNER. Bidder agrees each subcontract with Bidder's Subcontractor will disclaim any third party or direct relationship between OWNER and any Subcontractor or Supplier.
- D. The names and addresses of the Subcontractors and Suppliers who will work under the terms of the Contract Documents and the estimated dollar amount of each subcontract (in excess of 2 percent of the Bid sum) are set forth in Table 1, which follows.

Table 1: Subcontractors and Suppliers

SUBCONTRACTORS		
Name and Address	Nature and Extent of Work to be Sublet	Amount
1.		
2.		
3.		
4.		
5.		
6.		
SUPPLIERS		
Name and Address	Nature and Extent of Work to be Sublet	Amount
1.		
2.		
3.		
4.		
5.		
6.		
7.		

DOCUMENT 00 50 00
AGREEMENT

AGREEMENT ON FOLLOWING PAGES



City of South Salt Lake
220 E. Morris Ave., Suite 200
South Salt Lake City, Utah 84115
Phone: (801) 483-6000

AGREEMENT

2019 South Salt Lake _____ Project

ON this ____ day of _____, 2019, this Agreement (“Agreement”) is entered into between the City of South Salt Lake (“CITY”) and _____ (“CONTRACTOR”) regarding the “_____” (“Project”). CITY and CONTRACTOR agree as follows:

1. THE PROJECT.

CONTRACTOR shall complete the Project that is generally described as:

The CONTRACTOR responded to an Invitation to Bid with a Bid Schedule, both of which are attached to this Agreement as **Exhibit A**, and which are incorporated into this Agreement by this reference.

2. TIME TO COMPLETION OF AGREEMENT

The Project shall be completed by _____. The Project shall begin upon execution of this Agreement.

3. TIME OF THE ESSENCE/LIQUIDATED DAMAGES.

Time is of the essence to complete the Project. CITY will suffer financially if the Project is not completed on time. Due to the difficulty to quantify the damage to CITY if the Project is not completed on schedule, CONTRACTOR agrees to pay CITY **\$500.00** as liquidated damages for each day the Project continues beyond the date set forth in paragraph 2 without substantial completion (unless the date is extended by amendment to this Agreement).

4. CONTRACT PRICE/PAYMENT.

The contract price is \$_____. CITY reserves the right, pursuant to Utah Code Ann. § 13-8-5 to hold as retainage up to five percent (5%) of the contract price until all work is completed to its satisfaction. The Contractor agrees to receive payment only upon completion of the Project.

5. CONTRACTOR’S AWARENESS OF CONTRACT TERMS AND SITE CONDITIONS.

CONTRACTOR acknowledges the following: (1) it has reviewed this Agreement with all its addenda and agrees that it is generally sufficient to furnish understanding of all terms and conditions necessary to perform the Project; (2) it understands the rising and falling price of goods and materials, and by accepting the contract price above, it accepts the risk or the benefit of such market shifts; (3) it has visited the Project site, is familiar with it and is satisfied with site conditions and weather conditions that may affect the cost, progress or performance of the Project; (4) it is familiar with all local, state and federal laws and regulations that may affect the cost, progress or performance of the Project; (5) it has performed any explorations or tests necessary to become familiar with the subsurface conditions at the site that may affect the cost, progress or performance of the Project; and (6) it is familiar with all physical conditions relating to existing surface and subsurface conditions, including utilities, which are at or contiguous to the site that may affect the cost, progress or performance of the Project and assumes all responsibility for timely and accurate location of all underground facilities.

6. INSURANCE & BONDS.

A. Before the Project is initiated CONTRACTOR shall deliver to CITY a certificate of insurance demonstrating that CONTRACTOR has in effect liability and other insurance appropriate to provide protection from claims arising from the Project resulting from the acts or omissions of CONTRACTOR, its agents or employees and all subcontractors or suppliers as well as their agents or employees, for whom CONTRACTOR may be liable. The certificate of insurance will demonstrate that CONTRACTOR has, at minimum the following types of insurance coverage:

- i. workers' compensation;
- ii. liability insurance providing protection for claims arising from bodily injury, sickness or disease, death, damage to property, damage from business interruption and motor vehicle accidents. CONTRACTOR shall maintain coverage in the minimum amount of one million dollars (\$1,000,000.00) per occurrence and two million dollars (\$2,000,000.00) in the aggregate, and must include a waiver of subrogation and name the City as an additional insured.

The insurance shall be provided by an insurance carrier with a rating of A- or better as rated by AM Best. The certificate(s) of insurance shall be attached to this Agreement as **Exhibit B** and incorporated by this reference.

B. CONTRACTOR shall be required to post a Payment Bond and Performance Bond to cover this project, in the event of non-performance by CONTRACTOR, or non-payment by CONTRACTOR to a supplier or subcontractor. Bonds are attached to this Agreement as **Exhibit C** and incorporated by this reference.

7. CITY'S DUTY TO PROVIDE THE SITE.

CITY shall furnish the site. CITY will notify CONTRACTOR of any encumbrances or restrictions specifically related to the use of the site with which CONTRACTOR must comply. CITY will obtain any necessary easements. CITY will obtain permission required for CONTRACTOR to have access to the site.

8. PROTECTION OF PERSON AND PROPERTY.

CONTRACTOR is solely responsible for safety measures in connection with the Project. CONTRACTOR shall take appropriate measures to prevent damage, injury or loss to: (1) all persons on the site or who may be affected by the Project; (2) all labor, materials and equipment to be incorporated into the Project; (3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and underground facilities. CONTRACTOR shall comply with all applicable laws and regulations relating to the safety and protection of persons or property. CONTRACTOR shall erect and maintain all necessary safeguards for such safety and protection. If CONTRACTOR must enter a confined space, it shall have all personnel and monitoring equipment on site necessary to comply with all Federal, State, Local and any other applicable regulatory agency's safety guidelines (such as OSHA). A Confined Space Entry Permit shall be properly completed before entering a confined space. CONTRACTOR shall be responsible to erect and maintain all necessary traffic barricades and to provide all necessary traffic control. CONTRACTOR shall notify owners of adjacent property, including Blue Stakes notification to underground utility owners and shall cooperate with them in the protection, removal, relocation or replacement of their property. Any damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by CONTRACTOR, any subcontractor, supplier, individual or entity performing the Project, shall be remedied by CONTRACTOR.

9. SUPERVISION/LABOR/SUBCONTRACTORS.

CONTRACTOR shall supervise the Project competently, devoting such attention and applying such skill and expertise as may be necessary to perform the Project in accordance with the Agreement. CONTRACTOR is responsible for the means, methods, techniques, sequences and procedures of performing the Project. CONTRACTOR shall assign a competent superintendent who will be its representative at the site and shall have the authority to act on its behalf. All communications given to or received from the superintendent shall be binding on CONTRACTOR. CONTRACTOR shall provide qualified and competent personnel to complete the Project. CONTRACTOR shall at all times maintain good discipline and order at the site. CONTRACTOR shall not employ any subcontractor or supplier if CITY reasonably objects. CONTRACTOR shall be fully responsible to CITY for its own acts and

omissions as well as the acts and omissions of all subcontractors and suppliers performing the Project. This Agreement does not create a contractual relationship between CITY and any subcontractor or supplier. CITY's only payment obligation under this Agreement is to CONTRACTOR. CONTRACTOR shall require all subcontractors and suppliers to communicate with the CITY through CONTRACTOR.

10. MATERIAL AND EQUIPMENT/WARRANTY.

All materials and equipment incorporated into the Project shall be as specified or, if not specified, shall be of good quality and new, unless otherwise provided in this Agreement. CONTRACTOR warrants and guarantees to CITY that all workmanship, material and equipment will be in accordance with this Agreement and will not be defective. In recognition of the difficulties that may arise in proving the cause of a defect in materials or workmanship, CITY and CONTRACTOR agree that any such defect which manifests itself within one year of completion of this Agreement will have been caused by the improper workmanship, material or equipment of CONTRACTOR.

11. INDEMNIFICATION.

To the fullest extent permitted by law, CONTRACTOR agrees to indemnify and hold harmless CITY from and against all claims, costs, losses and damages, including attorney fees, arising out of the performance of this Agreement, provided that any such claim, cost, loss, or damage: (1) is attributable to bodily injury, sickness, disease, death, injury to tangible property, loss of use of property, including interruption of business; and (2) is caused in whole or in part by any negligent act or omission of CONTRACTOR, any subcontractor or supplier for whom CONTRACTOR is responsible, regardless of whether caused in part by any negligent act or omission of CITY.

12. CITY REPRESENTATIVE.

CITY will assign a project supervisor to oversee the daily progress of the Project. CONTRACTOR may communicate with CITY through the assigned project supervisor; however, only the City Mayor shall have authority to approve a Change Order.

13. VARIATIONS IN THE PROJECT.

CITY's project supervisor may authorize minor variations in the Project from this Agreement that do not involve adjustment in the contract price or time and that are consistent with the intended design of the completed Project.

14. CHANGE ORDERS.

CITY may order additions, deletions, or revisions to the Project by a written amendment to this Agreement or by Change Order. Upon receipt of such document, CONTRACTOR shall promptly perform the work involved. There will be no increase in the contract price or time for any work performed that is not required by this Agreement, written modification to this Agreement, or Change Order. Change Orders shall be in writing, signed by CITY's Mayor and CONTRACTOR, specify the precise change and any adjustment in the contract price and/or time.

15. DELAYS.

CONTRACTOR shall not be responsible for delays due to neglect of utility owners, fire, floods, epidemics, abnormal weather conditions or acts of God. The contract time shall not be extended due to delays within the control of CONTRACTOR, subcontractors or suppliers. Where CONTRACTOR is prevented from completing any part of the Project within the contract time due to delay beyond the control of CONTRACTOR, an extension of the contract time in an amount equal to the time lost due to the delay shall be the sole remedy.

16. INSPECTIONS.

CITY's representatives shall have access to the site and the Project at all reasonable times. CONTRACTOR shall give CITY timely notice of readiness of the Project for all required tests and inspections. CITY will not charge CONTRACTOR a fee for tests and inspections it performs itself unless requested after normal work hours or on Saturdays or Sundays. If any work that is to be inspected, tested or approved is covered by CONTRACTOR without the approval of CITY it must, if requested, be uncovered for inspection at CONTRACTOR's expense.

17. STOPPING THE PROJECT.

CITY, at its sole discretion, may order CONTRACTOR to stop the Project if any of the following occur: (1) workmanship, material or equipment is defective; (2) CONTRACTOR fails to supply sufficient skilled workers or suitable materials or equipment; or (3) CONTRACTOR fails to perform the Project in such a way that the completed Project will conform to this Agreement.

18. DEFECTIVE WORK.

CITY's representative will have authority to reject workmanship, material, or equipment which CITY reasonably concludes: (1) is defective; (2) will not produce a completed Project that conforms to this Agreement; or (3) will prejudice the integrity of the Project as a functioning whole. CONTRACTOR shall correct all defective workmanship or, if rejected by CITY, remove it from the project and replace it with workmanship, material or equipment that is not defective.

19. COMPLETION.

When CONTRACTOR considers the Project ready for its intended use, it shall notify CITY that the Project is substantially complete. Promptly upon receiving notice, CITY shall make an inspection. If CITY does not agree that the Project is substantially complete, it will notify CONTRACTOR giving the specific reasons. If CITY does consider the Project substantially complete, it will so certify in writing and provide a written list of items that remain to be corrected or completed. Upon notice from CONTRACTOR that the entire Project is complete, CITY will promptly make a final inspection with CONTRACTOR and will notify CONTRACTOR in writing of any aspect of the Project that remains incomplete or defective. CONTRACTOR shall immediately take such steps as are necessary to make such corrections.

20. STATUS VERIFICATION SYSTEM.

CONTRACTOR hereby certifies that it is registered and participates in a Status Verification System, as defined by Utah Code Ann. § 63G-12-301, in order to verify the work eligibility of its employees. CONTRACTOR is solely responsible for ensuring registration and participation in the Status Verification System. CONTRACTOR also certifies that any subcontractor employed by CONTRACTOR is also enrolled and participates in a Status Verification System. CONTRACTOR will provide, within five days of request by the CITY, proof of enrollment and participation in the system.

21. FINAL PAYMENT.

After CONTRACTOR has satisfactorily completed all corrections identified during the final inspection, it may make application for final payment. Upon receipt of the application for final payment, if CITY verifies that all corrections identified in the final inspection have been completed, final payment will become due within thirty (30) days of the application.

22. ELECTRONIC COPIES.

The Parties agree that electronic copies of this Agreement, including the signature page, shall be sufficient evidence of the contents of this Agreement, without reference to the original, signed copy.

23. RESOLVING DISPUTES.

This Agreement shall be governed by the laws of the state of Utah.

24. THE AGREEMENT.

This Agreement shall consist of the following documents:

- (1) Agreement;
- (2) Bid Documents (Exhibit A);
- (3) Certificate(s) of Insurance (Exhibit B); and
- (4) Bonds (Exhibit C).

If there are any conflicting provisions between the Agreement and the Exhibits, then the Agreement controls.

[Signatures appear on next page]

WHEREFORE, CITY and CONTRACTOR, through their duly authorized representatives, execute this Agreement:

For CONTRACTOR:

For CITY:

Dated: _____

Dated: _____

By: _____
(signature)

By: _____
(signature)

(type or print)

Cherie Wood, Mayor

Title: _____

Witness: _____
(signature)

Attest: _____
(signature)

(type or print)

Craig Burton, City Recorder

Approved as to form:

Hannah Vickery, Deputy City Attorney

Bid Documents
Exhibit A

**Insurance Certificate(s)
Exhibit B**

**Performance & Payment Bonds
Exhibit C**

DOCUMENT 00 60 50

E-VERIFY CERTIFICATION

WHEREAS, the undersigned proposes to furnish labor and materials under a contract to provide Engineering, Design and Construction services for The City of South Salt Lake, in the South Salt Lake, County of Salt Lake, State of Utah of which the City of South Salt Lake is the Owner.

NOW THEREFORE, this ____ day of _____, 20__, the undersigned contractor, verifies its compliance with Utah Code Ann. § 63G-12-301 and 13-47-201, stating affirmatively that the individual, firm, or corporation which is contracting with the City of South Salt Lake has registered with and is participating in a federal work authorization program in accordance with the applicability provisions and deadlines established in Utah Code Ann. § 63G-12-301 and 13-47-201.

The undersigned contractor further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to the contract with the City of South Salt Lake, of which this certification is a part, the undersigned contractor will secure from such subcontractor(s) similar verification of _____ compliance with Utah Code Ann. § 63G-12-301 and 13-47-201. The undersigned contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the City of South Salt Lake at the time the subcontractor(s) is retained to perform such service.

E-Verify Number _____

{AFFIX} Contractor (Name of sole ownership, corporation
{CORPORATE} or partnership)

{SEAL}
{HERE} (Signature of Authorized Representative)

Title: _____

END OF DOCUMENT

**DOCUMENT 00 61 00
PERFORMANCE BOND**

PART 1 GENERAL

1.1 BOND

A. Number: _____.

B. Amount: _____

_____ dollars (\$ _____).

1.2 SURETY

A. Name: _____

B. Address: _____

C. Telephone number: _____.

D. Facsimile number: _____.

1.3 CONTRACTOR

A. Name: _____

B. Address: _____

C. Telephone number: _____.

D. Facsimile number: _____.

1.4 OWNER

A. The City of South Salt Lake.

1.5 CONSTRUCTION CONTRACT

A. The Construction Contract is known as FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.

1.6 DEFINED TERMS

- A. Terms used in this Performance Bond which are defined in Article 1.1 of the General Conditions will have the meanings indicated in the General Conditions.

PART 2 COVENANTS

2.1 SURETY'S AND CONTRACTOR'S RELATIONSHIP

- A. Surety as surety, and CONTRACTOR as principal, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER as obligee, for the performance of the Construction Contract, whether awarded or about to be awarded.
- B. If CONTRACTOR performs the Construction Contract, the Surety and the CONTRACTOR shall have no obligation under this Bond, except to participate in conferences indicated in Article 2.3.

2.2 NOTICE

- A. Notice to the Surety, the OWNER or the CONTRACTOR shall be sent by certified mail, facsimile, or hand delivered to the address shown on this Bond agreement.
- B. Notices sent as required by paragraph 2.2A shall be effective on the date on which such notice was sent.
- C. If any notice requires a period of less than seven (7) days for response, the notice shall be sent by facsimile.
- F. If the time for response to any notice expires on a Saturday, Sunday or a legal holiday in the State of Utah, the time shall be extended to the next working day.

2.3 PROCEDURE TO INVOKE SURETY'S OBLIGATION

- A. If the CONTRACTOR fails to perform or to comply with the terms of the Construction Contract, and such failure to perform or to comply has not been waived by the OWNER, the OWNER may notify the CONTRACTOR and the Surety, at their addresses described above, that the OWNER is considering declaring the CONTRACTOR in default.
- B. Before declaring the default, the OWNER shall request and attempt to arrange a conference with the CONTRACTOR and the Surety to be held at a time and place required by the OWNER to discuss methods of performing the Work.
- C. If the CONTRACTOR does not attend the conference or agree to cure any deficiencies in the CONTRACTOR's performance of the Work to the satisfaction of the OWNER, the

OWNER may declare the CONTRACTOR in default and formally terminate the CONTRACTOR's right to complete the Work. Such default shall not be declared earlier than 10 days after the CONTRACTOR and the Surety have received notice as provided in article 2.2.

- D. If the Contract with the CONTRACTOR is terminated, the OWNER agrees to pay the unpaid Balance of the Contract Price to the Surety for completion of the Work in accordance with the terms of the Construction Contract or to a contractor selected by the Surety to perform the Work in accordance with the terms of the Construction Contract.

2.4 SURETY'S OPTIONS AT CONTRACTOR TERMINATION

- A. Surety Completes the Work: The Surety may undertake to perform and complete the Work itself, through its agents or through independent contractors.
- B. Surety Obtains Bids or Proposals: The Surety may obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Work.
 - 1. Such bids or proposals shall be prepared by the Surety for execution by the OWNER and the completion contractor selected.
 - 2. Surety shall secure the contract with Performance and Payment Bonds executed by a qualified surety equivalent to this Performance Bond and the Payment Bond (Document 00 62 00); and
 - 3. Surety shall pay to the OWNER the amount of damages as described in paragraph 2.6 in excess of the balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR's default.
- C. Surety to Pay OWNER: Surety may determine the amount not to exceed the amount of this bond specified in paragraph 1.1B, for which Surety believes it may be liable to pay, and tender payment therefor to the OWNER. OWNER has sole discretion to accept payment. If the OWNER refuses the payment tendered, or the Surety has denied liability in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

2.5 PROCEDURE FOR OWNER TO DECLARE SURETY IN DEFAULT

- A. The OWNER may declare the Surety to be in default upon the following procedures.
 - 1. The OWNER shall issue an additional written notice to the Surety, after declaring the CONTRACTOR in default as provided in Article 2.3, demanding that the Surety perform its obligations under this Bond.

2. Surety shall respond to the OWNER within 15 days after receipt of the OWNER's additional notice, either denying the claim or accepting liability and exercising its' options under Article 2.4.

2.6 SURETY'S OBLIGATIONS

- A. After the OWNER has terminated the CONTRACTOR's right to complete the Construction Contract, and if the Surety elects to complete the Construction Contract as provided in Article 2.4, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Construction Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Construction Contract.
- B. To the limit of the amount of this Bond, but subject to commitment by the OWNER to pay all valid and proper payments made to or on behalf of the CONTRACTOR under the Construction Contract, the Surety is obligated, without duplication, for:
 1. the responsibilities of the CONTRACTOR for correction of Defective Work and completion of the Construction Contract;
 2. design professional and delay costs resulting from the CONTRACTOR's default, and resulting from the actions or failure to act of the Surety under article 2.4; and
 3. liquidated damages which are or may become due for any reason.

2.7 UNRELATED OBLIGATIONS OF THE CONTRACTOR

- A. The Surety and the OWNER shall not be liable to others for obligations of the CONTRACTOR that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or changed on account of any such unrelated obligations.
- B. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

2.8 SURETY WAIVES NOTICE OF ANY CHANGE

- A. Surety hereby waives notice of any change, including changes of Contract Time, Contract Price and scope of Work, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

2.9 VENUE

- A. Any suit or action commenced by OWNER under this Bond shall be for action in a court of competent jurisdiction in the State of Utah.

PART 3 EXECUTION

3.1 EFFECTIVE DATE

A. Surety and CONTRACTOR execute this Bond agreement and declare it to be in effect as of the _____ day of _____, _____.

3.2 CONTRACTOR'S SUBSCRIPTION AND ACKNOWLEDGMENT

A. Type of organization: _____
(corporation, partnership, individual, etc.)

B. If CONTRACTOR is a corporation, attach a corporate resolution evidencing CONTRACTOR's authority to sign.

C. CONTRACTOR's signature: _____

D. Please print name here: _____

E. Title: _____

F. Notary Acknowledgement: In the County of _____,
State of _____, on the _____ day of _____, 20____,
the foregoing instrument was acknowledged before me

(person acknowledging and title or representative capacity, if any).

Notary's signature

Residing at

My commission expires:

Notary's seal

3.3 SURETY'S SUBSCRIPTION AND ACKNOWLEDGMENT

- A. Attach evidence of Surety's corporate authority to sign.
- B. Surety's signature: _____
- C. Please print name here: _____
- D. Title: _____
- E. **Acknowledgment:** In the County of

_____, State of _____, on
the _____ day of _____, _____, before me, the undersigned
notary, personally appeared _____, who proved to me his/her
identity through documentary evidence in the form of a _____ -
_____ to be the person whose name is signed
as the authorized Surety and acknowledged to me that this document was signed
voluntarily for its stated purpose.

Notary Public signature

Notary Public seal

END OF DOCUMENT

**DOCUMENT 00 62 00
PAYMENT BOND**

PART 1 GENERAL

1.1 BOND

A. Number: _____.

B. Amount: _____
_____ dollars (\$ _____).

1.2 SURETY

A. Name: _____

B. Address: _____

C. Telephone number: _____.

D. Facsimile number: _____.

1.3 CONTRACTOR

A. Name: _____

B. Address: _____

C. Telephone number: _____.

D. Facsimile number: _____.

1.4 OWNER

A. The City of South Salt Lake _____.

1.5 CONSTRUCTION CONTRACT

A. The Construction Contract is known as FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE.

1.6 DEFINED TERMS

- A. Terms used in this Payment Bond, which are defined in article 1.1 of the General Conditions, will have the meanings indicated in the General Conditions.

PART 2 COVENANTS

2.1 SURETY'S AND CONTRACTOR'S RELATIONSHIP

- A. Surety as surety, and CONTRACTOR as principal, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER as obligee, for the performance of the Construction Contract, whether awarded or about to be awarded.
- B. If CONTRACTOR performs the Construction Contract, the Surety and the CONTRACTOR shall have no obligation under this Bond.

2.2 NOTICE

- A. Notice to the Surety, the OWNER or the CONTRACTOR shall be sent by certified mail, facsimile, or hand delivered to the address shown on this Bond agreement.
- B. Notices sent as required by paragraph 2.2A shall be effective on the date on which such notice was sent.
- C. Notice may be sent by facsimile. Facsimile notice shall be effective on the date of transmission provided that a confirmation establishing the successful transmission of the notice is sent by first-class mail, postage prepaid, along with a copy of the notice transmitted, no later than twenty-four (24) hours after the facsimile notice is transmitted.
- D. If any notice requires a period of less than seven (7) days for response, the notice shall be sent by facsimile.
- E. If the time for response to any notice expires on a Saturday, Sunday or a legal holiday in the State of Utah, the time shall be extended to the next working day.

2.3 CONDITIONS OF SURETY'S LIABILITY

- A. With respect to the OWNER, this Bond agreement shall be null and void if the CONTRACTOR promptly takes the following actions:
 - 1. promptly makes payment, directly or indirectly, for all sums due Claimants, and
 - 2. defends, indemnifies and saves harmless the OWNER from all claims, demands, Liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Work, provided the OWNER has tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety.

2.4 PROCEDURE TO INVOKE SURETY'S OBLIGATION

- A. **Concerning Claimants who have a Direct Contract with the CONTRACTOR:** The

Surety shall have no obligation to Claimants under this Bond who are employed by or have a direct contract with the CONTRACTOR until Claimants have given notice to the Surety at the address shown on this Bond agreement and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

B. Concerning Claimant who does not have a Direct Contract with the CONTRACTOR: The Surety shall have no obligation to Claimant under this Bond who does not have a direct contract with the CONTRACTOR until Claimant takes the following actions.

1. The Claimant shall furnish written notice to the CONTRACTOR and send a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed.
2. The Claimant shall have either received a rejection in whole or in part from the CONTRACTOR, or not received within 15 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR has indicated the claim will be paid directly or indirectly.
3. Not having been paid within the above 15 days, the Claimant shall have sent a written notice to the Surety at the address described on this Bond agreement and sent a copy, or notice thereof, to the OWNER stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.

2.5 SURETY'S OPTION TO SETTLE CLAIMS

- A. When the Claimant has satisfied the conditions of article 2.4, the Surety shall promptly and at the Surety's expense take the following actions.
1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and
 2. Pay or arrange for payment of any undisputed amounts.

2.6 SURETY'S OBLIGATION

- A. Surety's total obligations under this bond shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

2.7 USE OF FUNDS

- A. Amounts owed by OWNER to CONTRACTOR under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, against the Performance Bond (Document 00610). By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Work are dedicated as follows:
1. The OWNER has first priority to use the funds for the completion of the Work.

2. The CONTRACTOR and the Surety have second priority to use the funds to satisfy the obligations of the CONTRACTOR and the Surety under this Bond.

2.8 UNRELATED OBLIGATIONS OF THE CONTRACTOR

- A. The Surety and the OWNER shall not be liable to Claimants or others for obligations of the CONTRACTOR that are unrelated to the Construction Contract.
- B. The OWNER shall not be liable for payment of any damages, costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

2.9 SURETY WAIVES NOTICE OF ANY CHANGE

- A. Surety hereby waives notice of any change to the Construction Contract including changes of Contract Time, Contract Price, and scope of Work, or to related subcontracts, purchase orders or other obligations.

2.10 VENUE

- A. Any suit or action commenced by a Claimant under this Bond shall be for action in a court of competent jurisdiction in the State of Utah.

2.11 COPIES OF THIS BOND

- A. Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR or OWNER shall promptly furnish a copy of this Bond or shall permit a copy to be made.

PART 3 EXECUTION

3.1 EFFECTIVE DATE

- A. Surety and CONTRACTOR executed this Bond agreement and declared it to be in effect as of the _____ day of _____, _____.

3.2 CONTRACTOR'S SUBSCRIPTION AND ACKNOWLEDGMENT

- A. Type of organization: _____
(corporation, partnership, individual, etc.)
- B. If CONTRACTOR is a corporation, attach a corporate resolution evidencing CONTRACTOR's authority to sign.
- C. CONTRACTOR's signature: _____
- D. Please print name here: _____

E. Title: _____

F. Notary Acknowledgement: In the County of _____,
State of _____, on the _____ day of _____, 20____,
the foregoing instrument was acknowledged before me

(person acknowledging and title or representative capacity, if any).

Notary's signature

Residing at

My commission expires:

Notary's seal

3.3 SURETY'S SUBSCRIPTION AND ACKNOWLEDGMENT

A. Attach evidence of Surety's corporate authority to sign.

B. Surety's signature: _____

C. Please print name here: _____

D. Title: _____

E. Notary Acknowledgment: In the County of _____,
State of _____, on the _____ day of _____, 20____,
before me, the undersigned notary, personally appeared _____,
who proved to me his/her identity through documentary evidence in the form of a
_____ to be the
person whose name is signed as the authorized Surety and acknowledged to me that
this document was signed voluntarily for its stated purpose.

Notary's signature

Residing at

My commission expires:

Notary's seal

END OF DOCUMENT

PAYMENT BOND

00 62 00 - 5

**DOCUMENT 00 65 00
CERTIFICATE OF INSURANCE**

PART 1 GENERAL

1.1 PROCEDURE

- A. For filing purposes, add Certificates of Insurance to the Contract Documents following this page.

END OF DOCUMENT



CERTIFICATE OF NON-DISCRIMINATION AND NON-COLLUSION
SALT LAKE COUNTY HOUSING & COMMUNITY DEVELOPMENT

This certificate must be completed and attached to project contract.

PROJECT NAME _____ **PROJECT NUMBER** _____

As a condition precedent to the award by _____

of the Project identified above, I, _____,
(PRINT NAME OF AUTHORIZED AGENT)

of _____,
(PRINT NAME OF FIRM)

do certify that neither I, nor to the best of my knowledge, any member or members of my firm or company discriminates against any employee or applicant for employment of the firm, because of race, religion, color, sex, ancestry, age, disability or national origin. I will take necessary action to ensure the process of employment and application for employment is free from discrimination on these bases. Such action shall include, but not be limited to the following: hiring, upgrading, promotion, discipline, transfer, recruitment or recruitment advertising, layoffs, terminations, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

I agree to post in a conspicuous place, available to employees and applicants for employment, notices provided by appropriate government agencies setting forth the provisions of this certificate. Further, I will, in all solicitations or advertisement for employment placed by or on behalf of myself and my company, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, ancestry, age, disability or national origin.

Furthermore, I do certify that neither I, nor to the best of my knowledge, any member or members of my firm or company have either directly or indirectly restrained free and competitive bidding on this project by entering into any agreement, participating in any collusion, scheme, or otherwise taking any action in violation of law or regulations, or doing any act otherwise prohibited by Salt Lake County.

I am aware that any contract awarded my firm for this project may be terminated in the event of a finding of non-compliance by Salt Lake County with any requirements of this certificate.

Under UCA Section 78B-5-705, *I declare under criminal penalty of the State of Utah that the foregoing is true and correct. **Initials [____].***

Further, under 28 U.S.C. Section 1746, *I declare under penalty of perjury that foregoing is true and correct. **Initials [____].***

Certified By _____

Title _____ **Date** _____

FITTS PARK EXPANSION AND MILL CREEK TRAIL AND BRIDGE CONSTRUCTION SPECIFICATIONS

January 8, 2019

3045 S 300 East
South Salt Lake, Utah 84115

GENERAL NOTES:

1. All work and materials shall conform to the latest editions of the Manual of Standard Plans and Manual of Standard Specifications prepared by the Utah Chapter of the American Public Works Association unless noted otherwise.
2. Supplementary specifications supersede APWA plans and specifications where noted.
3. Specifications and notes on the drawings replace the APWA plans and specifications.

TABLE OF CONTENTS

All Divisions and sections refer to the latest edition of the Utah APWA Manual of Standard Specifications except where otherwise specified or noted.

Division *Section Title*

DIVISION 01 GENERAL REQUIREMENTS

DIVISION 02 EXISTING CONDITIONS

DIVISION 03 CONCRETE

DIVISION 26 ELECTRICAL

DIVISION 31 EARTHWORK

DIVISION 32 EXTERIOR IMPROVEMENTS

SUPPLEMENTARY SPECIFICATIONS

00 81 00 MODIFICATIONS TO GENERAL CONDITIONS

015639 TEMPORARY TREE AND PLANT PROTECTION

050150 PREFABRICATED STEEL TRUSS BRIDGE

099113 EXTERIOR PAINTING

116813 FITNESS AND PLAYGROUND EQUIPMENT

311000 SITE CLEARING

321816.13 PLAYGROUND PROTECTIVE SURFACING

321823.53 ASPHALT SURFACE COLOR COATING

323119 DECORATIVE METAL FENCES AND GATES

328400 PLANTING IRRIGATION

329113 SOIL PREPARATION

329200 TURF AND GRASSES

329300 PLANTS

END OF TABLE OF CONTENTS

DOCUMENT 00 81 00
MODIFICATIONS TO GENERAL CONDITIONS
(Supplementary Conditions)

This document changes provisions specified in the General Conditions in the Manual of Standard Specifications published by the Utah Chapter of the American Public Works Association.

Add the following paragraphs to Article 2.2 (page 20).

2.2 COPIES OF DOCUMENTS

- B. OWNER shall not furnish to CONTRACTOR published Contract Documents which include the Manual of Standard Plans and the Manual of Standard Specifications. Such documents shall be purchased separately by the CONTRACTOR.
- C. Copies of all Contract Documents including the Manual of Standard Plans and the Manual of Standard Specifications shall be provided on site by the CONTRACTOR.

Modify paragraph 2.5C of the General Conditions (page 21) to read as follows.

2.5 BEFORE STARTING CONSTRUCTION

- C. Field Office: An on-site field office is not required, however, CONTRACTOR shall provide and maintain a telephone in the field during performance of the Work such that ENGINEER may always contact CONTRACTOR for transmittal of plans, instructions and dissemination of project information.

Modify Article 5.1 (page 28) to read as follows.

5.1 PERFORMANCE, PAYMENT AND OTHER BONDS

- A. Prior to OWNER executing the Agreement, CONTRACTOR shall file with the OWNER a good and sufficient performance Bond and a payment Bond, each in the sum of not less than 100 percent of the Contract Price.
- B. The Bonds shall be executed by the CONTRACTOR and secured by a company duly and regularly authorized to do a general surety business in the State of Utah and either (i) named in the current U.S. Treasury Department's listing of approved sureties (Department Circular 570) (as amended) with an underwriting limitation equal to or greater than the Contract Price which the Bond guarantees, or (ii) with a current "A-" rating or better in A.M. Best Co., Inc's. Best Insurance Reports, Property and Casualty Edition.
- C. The Performance Bond shall guarantee the faithful performance of the Construction Contract by the CONTRACTOR and the payment Bond shall guarantee the payment of labor and materials. The Bonds shall inure by their terms to the benefit of the OWNER. Neither this nor

any other provision requiring a performance Bond shall be construed to create any rights in any third party Claimant as against the OWNER for performance of the Work under the Construction Contract.

- D. If the surety on any Bond furnished by CONTRACTOR is subject to any proceeding under the Bankruptcy Code (Title 11, United States Code) or becomes insolvent or its right to do business is terminated in the State of Utah or it ceases to meet the requirements of this Article, CONTRACTOR shall, within 15 days thereafter, substitute another Bond and surety, both of which must be acceptable to OWNER.

Modify Article 5.2 (page 28) to read as follows.

5.2 INSURANCE

- A. In General: All policies of insurance provided shall be issued by insurance companies qualified to do business in the State of Utah and listed on the U.S. Treasury Department's current listing of approved sureties (Department of Circular 570) (as amended), or having a general policy holder's rating of not less than "A-" in the most current available A.M. Best Co, Inc.'s, Best Insurance Report. Except in the case of worker's compensation insurance, the City shall be included as an additional named insured in all insurance policies. CONTRACTOR shall furnish copies of certificates of insurance concurrent with or prior to the signing of the Agreement. The certificates shall name the OWNER as the certificate holder and as an additional insured (except in the case of workers compensation insurance). If requested, CONTRACTOR shall also furnish copies of the insurance policies secured for the Work.
- B. Worker's Compensation Insurance: In addition to other required insurance, the CONTRACTOR shall obtain and maintain during the life of the Construction Contract worker's compensation insurance as required by Laws and Regulations for all of CONTRACTOR's employees employed at the site of the Work, and in case any Work is subcontracted, the CONTRACTOR shall require the Subcontractor similarly to provide worker's compensation insurance for all of the latter's employees, unless such employees are covered by protection as required by Laws and Regulations.
- C. Public Liability and Property Damage Insurance: CONTRACTOR shall secure and maintain during the life of the Construction Contract and at all times thereafter when CONTRACTOR may be correcting, removing or replacing Defective Work, a comprehensive general public liability and property damage insurance policy. The policy shall protect the CONTRACTOR, the OWNER, the ENGINEER, and any Subcontractor performing work covered by the Construction Contract from claims for damages for personal injury, including accidental death, and from claims for property damage which may arise from CONTRACTOR's operations under this Construction Contract, whether such operations be by the CONTRACTOR itself or by any Subcontractor or by anyone directly or indirectly employed by either of them. Unless specified otherwise in the Supplementary Conditions, the minimum amounts of such insurance shall be \$1,000,000 for each occurrence, and \$2,000,000 general aggregate and \$2,000,000 products/completed operations aggregate. **The insurance for this Project is not required to include specific insurance for environmental liabilities.**

- D. **Automotive Public Liability Insurance:** Whenever CONTRACTOR or any Subcontractor shall use and operate owned, hired, or non-owned automobiles, trucks or other vehicles on public streets and highways in complying with the terms and conditions of the Construction Contract, CONTRACTOR or each Subcontractor shall carry automobile public liability insurance with limits not less than \$1,000,000.00 per occurrence.
- E. **Insurance Non-cancelable for 30 Days:** Each policy of insurance provided pursuant to the Contract Documents shall be absolutely non-cancelable for a period of not less than 30 days after notice of cancellation and shall contain the following provision or one substantially the same as the following:
- "This policy shall not be subject to cancellation, change, or reduction of coverage by the other party or parties hereto, unless notice, as defined herein, is sent to the OWNER, with a copy to the ENGINEER and the OWNER's attorney."
- F. **Builder's Risk:** CONTRACTOR agrees to and assumes the risk of loss for any damage or loss to the Work and Project by any means or occurrence until Substantial Completion. CONTRACTOR further agrees to obtain builder's risk or course of construction insurance in the total amount of the Contract Price.

END OF DOCUMENT

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

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 SUMMARY

- A. Section includes general protection and pruning of existing trees and plants that are affected by execution of the work, whether temporary or permanent construction.
- B. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for temporary site fencing.
 - 2. Section 311000 "Site Clearing" for removing existing trees and shrubs.

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by or the average of the smallest and largest diameters at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by the average of the smallest and largest diameters at a height 54 inches above the ground line for trees with caliper of 8 inches or greater as measured at a height of 12 inches above the ground.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Shop Drawings:

1. Include plans, elevations, sections, and locations of protection-zone fencing and signage, showing relation of equipment-movement routes and material storage locations with protection zones.
2. Detail fabrication and assembly of protection-zone fencing and signage.
3. Indicate extent of trenching by hand or with air spade within protection zones.

1.6 INFORMATIONAL SUBMITTALS

- #### A. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.
- #### B. Quality-control program.

1.7 QUALITY ASSURANCE

- #### A. Arborist Qualifications: Certified Arborist as certified by ISA.
- #### B. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the work without damaging trees and plantings. Include dimensioned diagrams for placement of protection zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.8 FIELD CONDITIONS

- #### A. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
 2. Moving or parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- #### B. Do not direct vehicle or equipment exhaust toward protection zones.
- #### C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Backfill Soil: Stockpiled soil mixed with planting soil of suitable moisture content and granular texture for placing around tree; free of stones, roots, plants, sod, clods, clay lumps, pockets of coarse sand, concrete slurry, concrete layers or chunks, cement, plaster, building debris, and other extraneous materials harmful to plant growth.
 - 1. Mixture: Well-blended mix of two parts stockpiled soil to one part planting soil.
 - 2. Planting Soil: Planting soil as specified in Section 329113 "Soil Preparation"
- B. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements: Previously used materials may be used when approved by Landscape Architect.
 - 1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless-steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.
 - a. Height: 48 inches.
 - b. Color: High-visibility orange, nonfading.
 - 2. Gates: Single- swing access gates matching material and appearance of fencing, to allow for maintenance activities within protection zones; leaf width 24 inches.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches above the ground.

- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Landscape Architect.
 - 2. Access Gates: Install where indicated; adjust to operate smoothly, easily, and quietly; free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Maintain protection zones free of weeds and trash.
- C. Maintain protection-zone fencing and signage in good condition as acceptable to Landscape Architect and remove when construction operations are complete and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.4 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones according to requirements in Section 312000 "Earth Moving" unless otherwise indicated.
- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not

practical, cut roots approximately 3 inches back from new construction and as required for root pruning.

- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.5 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Do not paint cut root ends.
 - 3. Temporarily support and protect roots from damage until they are permanently redirected and covered with soil.
 - 4. Cover exposed roots with burlap and water regularly.
 - 5. Backfill as soon as possible according to requirements in Section 312000 "Earth Moving."
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.6 REGRADING

- A. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with backfill soil. Place backfill soil in a single uncompacted layer and hand grade to required finish elevations.

3.7 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.8 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Landscape Architect.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours according to arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Landscape Architect.
- B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition or are damaged during construction operations that Landscape Architect determines are incapable of restoring to normal growth pattern.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Disposal: Remove excess excavated material, displaced trees, trash, and debris and legally dispose of them off Owner's property.

END OF SECTION 015639

SECTION 050150 - PREFABRICATED STEEL TRUSS BRIDGE

PART 1 - GENERAL

1.1 SUMMARY

1.2 DESCRIPTION OF WORK

- A. Procurement of the prefabricated metal truss pedestrian bridge, including design, detailing, shop drawings, fabrication, and delivery to the project site of the fabricated components of the bridge. This phase will be procured through the contractor with a bridge fabricator. The bridge fabricator must deliver the bridge between April 1st and April 12th.
- B. The contractor will be responsible for placement of the pre-fabricated bridge and for placement of the concrete deck. All components needed to support the bridge including structure excavation, abutments, trail installation and final grading.

1.3 QUALIFIED SUPPLIERS

- A. The following suppliers of the prefabricated steel truss are pre-approved:
 - 1. ConTech Engineered Solutions, LLC, 1109 West 2300 North – Salt Lake City, UT 84116. PH 801-851-0420 <https://www.conteches.com>
 - 2. Big R Bridge, 19060 County Road 66, Greeley, CO 80631 PH 404-309-6871 www.bigrbridge.com
 - 3. Excel Bridge Manufacturing Co. 12001 Shoemaker Ave, CA 90670 PH 320-762-1368 www.excelbridge.com

1.4 SUBMITTALS

- A. Schematic drawings and diagrams shall be submitted to the customer for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done. All relative design information such as member sizes, bridge reactions, and general notes shall be clearly specified on the drawings. Drawings shall have cross referenced details and sheet numbers. All drawings shall be signed and sealed by a Professional Engineer who is licensed in the State of Utah.
- B. Structural calculations for the bridge superstructure shall be submitted by the bridge manufacturer and reviewed by the approving engineer. All calculations shall be signed and sealed by a Professional Engineer. The calculations shall include all design information necessary to determine the structural adequacy of the bridge. The calculations shall include the following:
 - 1. All AASHTO LRFD stress checks for axial, bending and shear forces in the critical member of each truss member type (i.e. top chord, bottom chord, floor beam, vertical, etc.).
 - 2. Checks for the critical connection failure modes for each truss member type (i.e. vertical, diagonal, floor beam, etc.). Special attention shall be given to all welded tube on tube connections (see section 1.6.B for design check requirements).

3. All bolted splice connections.
4. Main truss deflection checks.
5. U-Frame stiffness checks (used to determine K factors for out-of-plane buckling of the top chord) for all half through or "pony" truss bridges.
6. Deck design.

C. Welder certifications in compliance with AWS standard qualification tests

D. Welding procedures in compliance with Section 3.1

1.5 DESIGN LOADS

A. Structural design of the bridge structure(s) shall be performed by or under the direct supervision of a Licensed Professional Engineer and done in accordance with recognized engineering practices and principles. The Licensed Professional Engineer is to hold a current P.E. or S.E. license in Utah.

B. In considering design and fabrication issues, this structure shall be assumed to be statically loaded. No dynamic analysis shall be required nor shall fabrication issues typically considered for dynamically loaded structures be considered for this bridge.

1. Dead Load

- a. The bridge structure shall be designed considering its own dead load (superstructure and original decking) only. Consider the load of 4 inches of concrete flatwork for decking.

2. Live Load

- a. AASHTO 90 psf pedestrian live load or H-10 (20,000 pound) maintenance vehicle without impact. Whichever loading combination produces the greater stresses shall govern the design.

C. Wind Load

1. Horizontal Forces

- a. The bridge shall be designed for the wind load per code requirements. The wind load shall be applied horizontally at right angles to the longitudinal axis of the structure.
- b. The wind loading shall be considered both in the design of the lateral load bracing system and in the design of the truss vertical members, floor beams and their connections.

2. Overturning Forces

- a. The effect of forces tending to overturn structures shall be calculated assuming that the wind direction is at right angles to the longitudinal axis of the structure. In addition, an upward force shall be applied at the windward quarter point of the transverse superstructure width. This force shall be 20 pounds per square foot of deck.

D. Top Chord/Railing Loads

1. The top chord, truss verticals, and floor beams shall be designed for lateral wind loads (per section 1.4.D.1) and for any loads required to provide top chord stability as outlined in Section 1.6.C; however, in no case shall the load be less than 50 pounds per lineal foot or a 200 pound point load, whichever produces greater stresses, applied in any direction at any point along the top chord or at the top of the safety system if higher than the top chord.

E. Load Combinations

1. Consider loads in accordance with the latest Edition of the AASHTO LRFD Bridge Design Specifications, all current interims, the AASHTO LRFD Guide Specifications for the Design

of Pedestrian Bridges.

1.6 DESIGN LIMITATIONS

A. Deflection

1. The superstructure design shall comply with the recommended deflection and vibration limitations prescribed in the AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges.

B. Minimum Thickness of Metal

1. All structural steel members shall be in accordance with the AISC Manual of Steel Constructions' "Standard Mill Practice Guidelines". A minimum material thickness of 1/4 inch is required on all structural members.

1.7 GOVERNING DESIGN CODES / REFERENCES

Structural members shall be designed in accordance with recognized engineering practices and principles as follows:

A. Structural Steel Design

1. American Institute of Steel Construction (AISC).
2. Structural steel design shall be in accordance with those sections of the AISC "Manual of Steel Construction: LRFD; (Load Resistance Factor Design) related to design requirements and ultimate capacities.

B. Welded Tubular Connections

1. American National Standards Institute / American Welding Society (ANSI/AWS) and the Canadian Institute of Steel Construction (CISC).
2. All welded tubular connections shall be checked, when within applicable limits, for the limiting failure modes outlined in the ANSI/AWS D1.1 Structural Welding Code or in accordance with the "Design Guide for Hollow Structural Section Connections" as published by the Canadian Institute of Steel Construction (CISC).
3. When outside the "validity range" defined in these design guidelines, the following limit states or failure modes must be checked:
 - a. Chord face plastification
 - b. Punching shear (through main member face)
 - c. Material failure
 - 1) Tension failure of the web member
 - 2) Local buckling of a compression web member
 - d. Weld failure
 - 1) Allowable stress based on "effective lengths"
 - 2) "Ultimate" capacity
 - e. Local buckling of a main member face
 - f. Main member failure:
 - 1) Web or sidewall yielding
 - 2) Web or sidewall crippling
 - 3) Web or sidewall buckling
 - 4) Overall shear failure
4. All tubular joints shall be plain unstiffened joints (made without the use of reinforcing plates)

except as follows:

- a. Floor beams hung beneath the lower chord of the structure may be constructed with or without stiffener (or gusset) plates, as required by design.
- b. Floor beams which frame directly into the truss verticals (H-Section bridges) may be designed with or without end stiffening plates as required by design.
- c. Where chords, end floor beams and in high profiles the top end struts weld to the end verticals, the end verticals (or connections) may require stiffening to transfer the forces from these members into the end vertical.
- d. Truss vertical to chord connections.

NOTE: The effects of fabrication tolerances shall be accounted for in the design of the structure. Special attention shall be given to the actual fit-up gap at welded truss joints.

C. Top Chord Stability

1. The top chord shall be considered as a column with elastic lateral supports at the panel points. The critical buckling force of the column, so determined, shall exceed the maximum force from dead load and live load (uniform or vehicular) in any panel of the top chord by not less than 50 percent for parallel chord truss bridges.
2. In addition, for the dead load plus vehicle load combination, the spring constant "C" furnished by the transverse "U-Frames" shall not be less than "C" required as defined by:

$$C \text{ required} = \frac{1.46 P_c}{L}$$

where P_c is the maximum top chord compression due to dead load plus the vehicle load times the appropriate safety factor (1.5 for parallel chord truss bridges) and L is the length in inches of one truss panel or bay.

3. For uniformly loaded bridges, the vertical truss members, the floor beams and their connections (transverse frames) shall be proportioned to resist a lateral force of not less than 1/100k times the top chord compressive load, but not less than .004 times that top chord load, applied at the top chord panel points of each truss. The top chord load is determined by using the larger top chord axial force in the members on either side of the "U-frame" being analyzed. For end frames, the same concept applies except the transverse force is 1% of the axial load in the end post member.
4. The lateral force applied at the top chord elevation for design of the transverse frames shall not be less than 1% of the top chord compression due to dead load plus any vehicle loading
5. The bending forces in the transverse frames, as determined above, act in conjunction with all forces produced by the actual bridge loads as determined by an appropriate analysis which assumes that the floor beams are "fixed" to the trusses at each end.

PART 2 - PRODUCTS

2.1 SPAN

- A. Bridge spans shall be defined in the Drawings (straight line dimension) and shall be as measured

from each end of the bridge structure (out to out dimension).

2.2 WIDTH

- A. Bridge width shall be defined in the Drawings and shall be as measured from the inside face of the elements comprising the Safety system or truss structural members (chords or verticals).

2.3 BRIDGE SYSTEM TYPE

- A. Bridge(s) shall be designed as a Half-Through Pony System that has one (1) diagonal per panel and plumb end vertical members.
 - 1. Bridge(s) shall be designed utilizing an under-hung floor beam (top of floor beam welded to the bottom of the bottom chord) or be designed utilizing an H-Section configuration where the floor beams are placed up inside the trusses and attached to the truss verticals.
 - 2. The bridge manufacturer shall match the distance requirements from the top of the deck to the top and bottom truss members as detailed in drawing (Pedestrian Bridge General Plan & Elevation, transverse section.)
 - 3. The top of the top chord shall not be less than 42 inches above the deck (measured from the high point of the riding surface) on bike path structures.

2.4 MEMBER COMPONENTS

- A. All members of the vertical trusses (top and bottom chords, verticals, and diagonals) shall be fabricated from square and/or rectangular structural steel tubing. Other structural members and bracing shall be fabricated from structural steel shapes or square and rectangular structural steel tubing.
- B. Unless the floor and fastenings are specifically designed to provide adequate lateral support to the top flange of open shape stringers (W-shapes or channels), a minimum of one stiffener shall be provided in each stringer at every floor beam location.

2.5 ATTACHMENT

- A. Safety Rails – Horizontal system
 - 1. Horizontal safety rails shall be placed on the structure to a minimum height of 3'-0" above the deck surface. The pickets shall be spaced so as to prevent a 4" sphere from passing through the truss. Rails may be placed on the inside or outside of the structure at the bridge fabricators option unless specified otherwise by the Customer.

2.6 CAMBER

- A. The bridge shall have a vertical camber dimension at mid-span equal to 125% of the full dead load deflection.

2.7 ELEVATION DIFFERENCE

- A. The bridge abutments shall be constructed at the same elevation on both ends of the bridge.

2.8 STEEL

A. Unpainted Weathering Steel

1. Bridges shall be fabricated from high strength, low alloy, atmospheric corrosion resistant ASTM A847 cold-formed welded square and rectangular tubing and/or ASTM A588, or ASTM A242, ASTM A606 plate and structural steel shapes ($F_y = 50,000$ psi).

2.9 DECKING

A. Concrete Bridge Deck

1. Galvanized form deck supplied by bridge supplier.
2. Concrete and reinforcing supplied by others.

PART 3 - EXECUTION

3.1 WELDING

- A. Welding and weld procedure qualification tests shall conform to the provisions of ANSI/AWS D1.1 "Structural Welding Code", 2010 Edition.

3.2 WELDERS

- A. Welders shall be properly accredited operators, each of whom shall submit certification of satisfactorily passing AWS standard qualification tests for all positions with unlimited thickness of base metal, have a minimum of 6 months experience in welding tubular structures and have demonstrated the ability to make uniform sound welds of the type required.

3.3 FABRICATION

A. Drain Holes

1. When the collection of water inside a structural tube is a possibility, either during construction or during service, the tube shall be provided with a weep hole at its lowest point to let water out.

B. Welds

1. Special attention shall be given to developing sufficient weld throats on tubular members. Fillet weld details shall be in accordance with AWS D1.1.
2. The fabricator shall have verified that the throat thickness of partial joint penetration groove welds (primarily matched edge welds or the flare-bevel-groove welds on under-hung floor beams) shall be obtainable with their fit-up and weld procedures. Matched edge welds shall be "flushed" out when required to obtain the full throat or branch member wall thickness.
3. For full penetration butt welds of tubular members, the backing material shall be fabricated prior to installation in the tube so as to be continuous around the full tube perimeter, including corners.
4. Backing may be of four types:
 - a. A "box" welded up from four (4) plates.
 - b. Two "channel" sections, bent to fit the inside radius of the tube, welded together with full penetration welds.
 - c. A smaller tube section which slides inside the spliced tube.
 - d. A solid plate cut to fit the inside radius of the tube.

5. Corners of the “box” backing, made from four plates, shall be welded and ground to match the inside corner radii of the chords. The solid plate option shall require a weep hole either in the chord wall above the “high side” of the plate or in the plate itself. In all types of backing, the minimum fit-up tolerances for backing must be maintained at the corners of the tubes as well as across the “flats”.

3.4 QUALITY CERTIFICATION

- A. Bridge shall be fabricated by a fabricator who is currently certified by the American Institute of Steel Construction to have the personnel, organization, experience, capability, and commitment to produce fabricated structural steel for the category “Intermediate (IBR)” as set forth in the AISC Certification Program. Quality control shall be in accordance with procedures outlined for AISC certification.

3.5 BLAST CLEANING

- A. All exposed surfaces of steel shall be cleaned in accordance with steel structures painting council surfaces preparation specifications No. 7 brush-off blast cleaning SSPC-SP7 Latest Edition.

3.6 DELIVERY AND ERECTION

- A. Delivery is made to a location nearest the site which is easily accessible to normal over-the-road tractor/trailer equipment. All trucks delivering bridge materials will need to be unloaded at the time of arrival.
- B. The manufacturer will provide detailed, written instruction in the proper lifting procedures.
- C. The bridge manufacturer shall provide written inspection and maintenance procedures to be followed by the bridge owner.

3.7 BEARING DEVICES

- A. Bridge bearings shall consist of a steel setting or slide plate placed on the abutment or grout pad. The bridge bearing plate which is welded to the bridge structure shall bear on this setting plate. Bearing assemblies shall be tightened as required by the manufacturer’s installation requirements.
- B. The bridge bearings shall sit on the seat of the concrete abutment. Minimum 28-day strength for the abutment concrete shall be a minimum of 3,000 PSI. The bearing seat shall be a minimum of 16" wide. The step height (from bottom of bearing to top-of-deck) shall be determined by the bridge manufacturer.

3.8 FOUNDATIONS

- A. Unless specified otherwise, the bridge manufacturer shall determine the number, diameter, minimum grade and finish of all anchor bolts. The anchor bolts shall be designed to resist all horizontal and uplift forces to be transferred by the superstructure to the supporting foundations. The design of necessary anchor bolt embedments are the responsibility of the bridge manufacturer. The contractor shall provide all materials for (including anchor bolts) and construction of the bridge supporting foundations. The contractor shall install the anchor bolts in accordance with the manufacturer's anchor bolt spacing and embedment dimensions.

- B. Information regarding bridge support reactions and anchor bolt locations will be furnished by the bridge manufacturer after receipt of order and after the bridge design is complete.

3.9 WARRANTY

- A. The bridge manufacturer shall warrant their steel structure(s) to be free of design, material and workmanship defects for a period of ten years from the date of delivery.
- B. This warranty shall not cover defects in the bridge caused by abuse, misuse, overloading, accident, improper maintenance, alteration or any other cause not the result of defective materials or workmanship. This warranty shall be void unless owner's records can be supplied which shall indicate compliance with the minimum guidelines specified in the inspection and maintenance procedures.
- C. Repair or replacement shall be the exclusive remedy for defects under this warranty. The bridge manufacturer shall not be liable for any consequential or incidental damages for breach of any express or implied warranty on their structure.

END OF SECTION 050150

SECTION 099113 - EXTERIOR PAINTING

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 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel and iron.
 - 2. Aluminum (not anodized or otherwise coated).
- B. Related Requirements:
 - 1. Section 051213 "Architecturally Exposed Structural Steel Framing" for shop priming of metal substrates.
 - 2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
 - 3. Section 055116 "Metal Floor Plate Stairs" for shop priming metal floor plate stairs.
 - 4. Section 055119 "Metal Grating Stairs" for shop priming metal grating stairs.
 - 5. Section 055213 "Pipe and Tube Railings" for shop priming painting pipe and tube railings.
 - 6. for shop priming metal gratings.
 - 7. Section 099300 "Staining and Transparent Finishing" for surface preparation and the application of wood stains and transparent finishes on exterior wood substrates.
 - 8. Section 099600 "High-Performance Coatings" for tile-like coatings.

1.3 DEFINITIONS

- A. MPI - Master Painters Institute
- B. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect from manufacturer's full range Dark Brown.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

- C. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.
 - 1. SSPC-SP 2.
 - 2. SSPC-SP 3.
 - 3. SSPC-SP 7/NACE No. 4.
 - 4. SSPC-SP 11.
- D. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- E. Aluminum Substrates: Remove loose surface oxidation.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Paint entire exposed surface of window frames and sashes.
 - 5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

A. Steel and Iron Substrates:

- 1. Water-Based Light Industrial Coating System MPI EXT 5.1C:
 - a. Prime Coat: Primer, rust inhibitive, water based MPI #107.
 - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.

B. Aluminum Substrates:

- 1. Water-Based Light Industrial Coating System:
 - a. Prime Coat: Primer, quick dry, for aluminum, MPI #95.
 - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6), MPI #164.

END OF SECTION 099113

SECTION 116813- FITNESS AND PLAYGROUND EQUIPMENT

1. QUALITY ASSURANCE

A. **INSTALLER QUALIFICATIONS** - A certified, experienced installer familiar with local building codes and with the latest safety guidelines, who has completed installation of playground structures similar in material, design, and extent to that indicated for this project, and whose work has resulted in construction with a record of successful in-service performance.

B. **ACCEPTABLE MANUFACTURERS** - Provide play structure/components as specified from the following manufacturers:

1. BCI Burke Company, LLC, P.O. Box 549, 600 Van Dyne Road, Fond du Lac, Wisconsin 54936-0549, Tel: (920) 921-9220, Fax: 920-921-9566, Toll Free: 800-266-1250, www.bciburke.com.
2. Kompan Inc., 605 W Howard Ln – Suite 101; Austin, TX 78753; Tel: 800-426-9788; <https://www.kompan.us>

C. **QUALITY STANDARDS:** Certified Playground Safety Inspector (CPSI), Consumer Product Safety Commission (CPSC), ASTM, the Americans with Disabilities Act (ADA) and industry regulations shall be followed.

2. **PRODUCT** - Drawing indicates size, components and dimensional requirements of playground structure and is based on the specific system indicated.

A. KoreKonnnect Direct Bolt System

1. KoreKonnnect™ clamp castings shall be cast aluminum heat-treated alloy A356-T6 with a tensile strength of at least 34,000 psi, yield strength of at least 24,000 psi, shear of 20,700 psi, and elongation of 3.50% minimum. Each casting shall clamp to the post with two connection bolts. Clamp casting shall encapsulate the component attached to support surge loads, preventing surge loads being supported by only the hardware. Clamp shall be finished with a baked on powder coating

B. Fasteners

1. Button head cap screws and socket head cap screws shall be 302HQ corrosion resistant, passivated, stainless steel, tamper resistant, and pretreated with a locking/sealing adhesive.
2. Other stainless steel hardware shall be 302HQ corrosion resistant stainless steel
3. Non stainless steel hardware shall be zinc plated grade 5 steel.
4. Threaded Post Nut Inserts [Nucleus, Voltage, Little Buddies] shall be a corrosion resistant threaded insert crimped into post. Inserts shall be precision CNC located and factory installed for all attachment points.

C. Panels

1. HDPE plastic panel parts shall be precision cut from a single solid sheet of either .50” or .75” thick UV-stabilized extruded high-density polyethylene with colors molded in, with a durable matte finish. The material will have a density of 59.6 lbs/ cu.ft. and a tensile strength of 4000psi. All edges shall be rounded or chamfered for safe play.

D. Posts, steel [Nucleus, Voltage, Little Buddies]

1. Posts shall be cold-formed steel tubing with a yield test of at least 42,000 psi and a tensile strength of at least 58,000 psi. Tube members shall comply with ASTM A-135 and ASTM A-500 Grade B minimum and shall be tested according to ASTM E-8.
2. Tubing Exteriors shall be triple coated for maximum exterior protection: galvanized, then coated with a chromate conversion coating and finished with a baked-on powder coat.
3. Tubing interiors shall be coated with a corrosion resistant zinc-rich coating.
4. Tubing and cap finished with a baked-on powder coating.
5. Standard posts shall be an assembly consisting of the galvanized steel tubing with a cast aluminum cap factory installed in the post with 1/8" x 15/32" stainless steel pinned aluminum drive rivets.
6. Posts [Nucleus, Intensity] shall be 5" OD x 11 GA galvanized steel tubing.
7. Posts [Little Buddies] shall be 2 3/8" OD x 12 GA galvanized steel tubing.
8. Posts [Voltage] Post shall be 3 1/2" OD x 11 GA galvanized steel tubing.

E. Coatings

A. PVC Coating (Poly-Vinyl Chloride): Prior to coating, each part shall be chemically washed, submerged in a heat-activated primer and dried. After drying, each part shall be pre-heated to a temperature no less than 350° F and immersed in liquid PVC. Play/usage surfaces shall have coating thickness of .085-.150 in. Park and site surfaces (i.e. benches, picnic tables) shall have coating thickness of .050-.080 in. PVC shall comply with California Assembly Bill #1108 by having a concentration that does not exceed 0.1% of the following phthalates; DINP, DIDP, DnOP, DEHP, or BBP. This formulation is also free of heavy metals such as Lead and Cadmium. The PVC shall have:

1. Tensile strength of no less than 1830 psi per ASTM 412.
2. Elongation of no less than 350% per ASTM 412.
3. Tear strength of no less than 250 lb./in. per ASTM 624.
4. Hardness of 75 +/- 3 (Durometer, Shore A) per ASTM 2240.
5. UV stabilizer shall be added to PVC to withstand one year in a QUV panel tester without any significant color drift.
6. Burn Rate will meet or exceed Federal Safety Standard MVSS 302. This is the same as a UL 94 HB rating.

B. Powder Coating - Super Durable: Prior to powder coating, all parts shall be cleaned, and pretreated with a non-phosphate and non-chromic process. A polyester/TGIC powder coating with superior color-, gloss-, and UV-stabilizing qualities shall be 3.0 – 6.0 mils thick and shall be cured in an oven at temperatures no less than 356° F and no more than 392° F. The powder-coat shall have the following properties:

1. Adhesion: No less than 5B [The edges of the cuts are completely smooth; none of the squares of the lattice is detached.] (cross hatch/tape adhesion test per ASTM D3359 Method B).
2. Hardness: No less than 2H (pencil hardness test per ASTM B3363).
3. Resistance to Impact: Cracking at the perimeter of the concave area, but no cracking pick off from 80 in/lb direct or reverse impact (ASTM D2794).
4. Resistance to Bending: No visible cracking (1/8" bending test per ASTM 522).
5. Resistance to Acid Salt Spray: No more than 1/32" undercutting and no blistering in 3000 hours (salt spray test per ASTM G85 Annex 5).
6. Resistance to Humidity: No more than 1/32" undercutting and no blistering in 3000 hours (humidity test per ASTM D2247)
7. Degree of Gloss: No less than 80% reflected (specular gloss test at 60° per ASTM D523).
8. Weathering: No less than 4 (tested per EN 20105-A02)

9. Light fastness: No less than Grade 7 (tested per EC ISO 105-B02)

C. Equipment

1. Frog Hop [Nucleus] Insert made of $\frac{3}{4}$ " Extruded HDPE. Rope Assembly consists 6 right hand, regular lay strands, closed around synthetic fiber core, with each preformed strand consisting of 8 galvanized steel wires tightly covered with polyester fibers. Aluminum end connectors and ferrules with stainless steel screws. Block Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " OD x 12 GA galvanized steel tubing and 10 GA galvanized sheet steel. Finished with a baked on powder coating. Block cap consists of one piece all welded construction consisting of 12 Ga galvanized sheet steel with studs welded into place. PVC coated after fabrication. Step Frame Shall be one piece all welded construction consisting of 1.029" x 14 GA galvanized steel tubing, 10 GA galvanized steel sheet with studs welded into place. Finished in a baked on powder coating. Beams shall be one piece all welded construction consisting of formed 2 $\frac{3}{8}$ " x 10 GA galvanized steel tubing, 7 GA stainless steel sheet and 8 GA galvanized steel plate. Arched Beam shall be one piece all welded construction consisting of formed 2 $\frac{3}{8}$ " x 10 GA galvanized steel tubing, 7 GA stainless steel sheet. Finished with a baked on powder coating. Hardware shall consist of stainless steel and black thermoplastic.
2. Block Up 8"-16" [Burke Basics] Insert made of $\frac{3}{4}$ " extruded HDPE. Cap shall be one piece all welded construction consisting 12 GA sheet steel with studs welded into place. PVC coated after fabrication. Block Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " OD x 12 GA galvanized steel tubing and 8 GA galvanized steel sheet. Finished with a baked on powder coating. Hardware shall be stainless steel.
3. Block Up 20"-24" [Burke Basics] Insert made of $\frac{3}{4}$ " extruded HDPE. Cap shall be one piece all welded construction consisting 12 GA sheet steel with studs welded into place. PVC coated after fabrication. Block Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " OD x 12 GA galvanized steel tubing and 8 GA galvanized steel sheet. Finished with a baked on powder coating. Hardware shall be stainless steel.
4. Jungle Pipeline [Nucleus] Parallel Bar shall be one piece all welded construction consisting of formed 1.900" OD x 11 GA galvanized steel tubing and 7 GA galvanized steel sheet. Hardware shall be stainless steel.
5. Lava Leap [Burke Basics] Large Insert made from $\frac{3}{4}$ " extruded HDPE. Large Cap shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " OD x 12 GA galvanized steel plate. PVC coated after fabrication. Block Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " OD x 12 GA galvanized steel tubing and 10 GA galvanized steel sheet.
6. Mighty Max [Nucleus] Cap made of $\frac{1}{2}$ " extruded HDPE. Rope Assembly consists of 6 right hand, regular lay strands, closed around a synthetic fiber core, with each preformed strand consisting of 8 galvanized steel wires tightly covered in polyester fibers. Aluminum end connectors and ferrules with stainless steel screws. Horizontal Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " x 12 GA galvanized steel tubing and 8 GA galvanized steel plating. Finished with a baked on powder coating. Vertical Support shall be one piece all welded construction consisting of 2 $\frac{3}{8}$ " x 12 GA galvanized steel tubing, 2 $\frac{3}{8}$ " x 12 GA galvanized steel

swaged tubing, and 10 and 12 GA galvanized steel plating. Finish with a baked-on powder coating. Hardware shall consist of stainless steel. Aluminum rivets and stainless-steel pins. Stainless steel button head cap screws, washers. Brass tube. Black thermoplastic shim.

7. Mighty Might [Nucleus] Cap made of ½” extruded HDPE. Pipe Climber Shall be one piece all welded construction consisting of 2 3/8” x 12 GA galvanized steel tubing, 1.315” embossed steel tubing, and 12 GA galvanized steel plating. Finished with a baked-on powder coating. Hardware shall be stainless steel.
8. Over Under [Nucleus] Panels made of ¾” extruded HDPE. High and Low Over Under should be one piece all welded construction consisting of 1.900” x 11 GA galvanized steel tubing and 10 GA galvanized steel plating. Finish with baked on powder coat. Hardware shall be stainless steel.
9. Summit Bridge [Nucleus] Rope Assembly consists of 6 right hand, regular lay strands, closed around a synthetic fiber core, with each preformed strand consisting of 8 galvanized steel wires tightly covered in polyester fibers. Aluminum end connectors and ferrules with stainless steel screws. Bracket consists of one piece all welded construction consisting of 7 GA SS sheet and 8 GA galvanized steel plate. Finished with a baked on powder coating. Support shall be one piece all welded construction consisting of 7 GA SS, 8 GA and 10 GA galvanized plating, and 1.990” OD x 11 galvanized steel tubing. Finished with a baked on powder coating. Formed Tube made of 1.660” OD x 12 GA galvanized tubing. Finished with a baked on powder coating. Rope Wall and Platform Panels made of ¾” extruded HDPE. Anchor tube to be made of 1.315” OD x 12 GA galvanized steel tubing. Chain shall be 3/8” diameter, 4/0 straight coil chain. PVC coated after fabrication. S-Tube shall be one piece all welded construction consisting of 7 GA SS, 8 GA and 10 GA galvanized plating, and 1.660” OD x 12 GA galvanized steel tubing. Finished with a baked on powder coating. Rope Climb and Platform Cap shall be one piece all welded construction consisting of 12 GAHRPO steel sheet. PVC coated with textured traction surface after fabrication. Rail shall consist of one piece all welded construction consisting of 7 GA SS plate and 1.900” OD x 11 GA galvanized tubing. Finished with a baked on powder coating. Arched Beam shall be one piece all welded construction consisting of 7 GA SS plate and 1.660” OD x 12 GA galvanized tubing. Finished with a baked on powder coating. Brass Spacer made from Brass Tube 7/16” OD x .028” Wall. Hardware shall consist of stainless steel and black thermoplastic.
10. Twinkle Toes [Nucleus] Rope Assembly consists of 6 right hand, regular lay strands, closed around a synthetic fiber core, with each preformed strand consisting of 8 galvanized steel wires tightly covered in polyester fibers. Aluminum end connectors and ferrules with stainless steel screws. Bracket consists of one piece all welded construction consisting of a formed 7 GA stainless steel plate and 8 GA galvanized steel sheet. Finished with a baked on powder coating. Hardware shall be stainless steel and consist of stainless steel button head cap screws, washers. Brass tube. Black thermoplastic shim.
11. Wall Clinger [Nucleus] Plank shall be ¾” extruded HDPE. Tube shall consist of 1.660” x 12 GA galvanized tubing. Finished with a baked on powder coating. Plank Cap shall be one piece all welded construction consisting of 12 GA galvanized sheet steel and a plank cap. Finished with a PVC coating. Beams shall be one piece all welded construction consisting of 1.900” x 11 GA galvanized steel tubing and 7 GA galvanized steel sheet. Finished with a baked-on powder coating. Spider Walls shall be one piece all welded construction consisting of 1.660” x 12 GA galva-

all welded construction consisting of 12 GA galvanized sheet steel and a plank cap. Finished with a PVC coating. Beams shall be one piece all welded construction consisting of 1.900" x 11 GA galvanized steel tubing and 7 GA galvanized steel sheet. Finished with a baked-on powder coating. Spider Walls shall be one piece all welded construction consisting of 1.660" x 12 GA galvanized steel tubing, 1.315" OD x 12 GA galvanized steel tubing, and 7 GA galvanized sheet steel. Finished with a baked-on powder coating. Panel Assembly made of 1/2" extruded HDPE and zinc-plated alloy steel. Hardware shall be stainless steel.

12. Arms N' Back [Nucleus] Climbing Walls shall be one piece all welded construction consisting of 10 GA x 2.375" OD galvanized tubing, 7 GA and 10 GA galvanized steel sheet. Finished with a baked-on powder coating. Overhead shall be one piece all welded construction consisting of 10 GA x 2.375" OD galvanized tubing, 1.315" OD x 14 GA galvanized embossed steel tubing, 7 GA and 10GA galvanized steel sheet and eight threaded inserts. Finished with a baked-on powder coating. Panels made of 3/4" extruded HDPE. Bracket shall be one piece all welded construction consisting of 7 GA and 8 GA galvanized steel sheet. Finished with a baked-on powder coating. Fitness Grip to be made from machined 6061 aluminum, finished with a baked on powder coating. Hardware shall be stainless steel.
13. Fitness Signs [Burke Basics] Post shall be one piece all welded construction consisting of 2 3/8" OD x 12 GA galvanized steel tubing and 10 GA galvanized steel plate. Finished with a baked-on powder coating. Sign shall be 12 GA galvanized sheet steel finished with a baked-on powder coating
14. Double Zip Line Metal [Kompan M88102-3817] Galvanized metal frame. Primary Support posts shall be constructed of 100mm x 100mm square steel pipe with 3mm wall thickness and shall be hot-dip galvanized per ISO1461. Secondary Support Posts shall be constructed of 60.3mm O.D. pipe with 2.9mm wall thickness and shall be hot-dip galvanized per ISO1461. Cable shall be constructed of 12mm diameter galvanized steel cable. Cable Support Cross Member shall be a welded assembly constructed of (2) 76mm O.D. steel pipes with 3.25mm wall thickness, with a 6mm flange welded between and brackets at either end for connection to the main posts. Following welding, the assembly shall be hot-dip galvanized per ISO1461. Trolley shall be constructed of 2 rows of pulleys utilizing lifetime lubricated, maintenance free ball bearings. Pulleys shall be secured within a cover constructed of 19mm thick HDPE (high-density polyethylene), encapsulated on all sides. Seat shall be constructed of silicon rubber with a steel core, suspended from the trolley via a 30mm O.D., steel reinforced polyester cable with a central spring steel core. All Hardware shall be constructed of stainless steel or Delta coated for corrosion protection. PVC (vinyl, plastisol) shall not be present on any portion of the play equipment.

3. SUBMITTALS

- A. Schematic drawings and diagrams shall be submitted to the owner for their review after receipt of order. Submittal drawings shall be unique drawings, prepared to illustrate the specific portion of the work to be done.

4. INSTALLATION

- A. Install per manufacturer's specification.
- B. Concrete on all foundations shall have a minimum compressive strength of 3000 psi at 28 days unless a higher standard is directed by manufacturer.

END OF SECTION 116813

SECTION 311000 - SITE CLEARING

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 SUMMARY

- A. Section Includes:

1. Protecting existing vegetation to remain.
2. Removing existing vegetation.
3. Clearing and grubbing.
4. Stripping and stockpiling topsoil.
5. Removing above- and below-grade site improvements.
6. Disconnecting, capping or sealing, and.
7. Temporary erosion and sedimentation control.

- B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

- C. Related Requirements:

1. Section 01500 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.

- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- E. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- F. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

- A. Topsoil stripping and stockpiling program.
- B. Burning: Documentation of compliance with burning requirements and permitting of authorities having jurisdiction. Identify location(s) and conditions under which burning will be performed.

1.7 QUALITY ASSURANCE

- A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the work. Include dimensioned diagrams for placement and protection of stockpiles.

1.8 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- C. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.

- D. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- E. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXISTING UTILITIES

- A. Locate, identify, disconnect, and seal or cap utilities indicated to be removed.
 - 1. Arrange with utility companies to shut off indicated utilities.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Landscape Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Landscape Architect's written permission.
- C. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Grind down stumps and remove roots larger than 3 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
 - 3. Use only hand methods or air spade for grubbing within protection zones.
 - 4. Chip removed tree branches and dispose of off-site.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth of 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.

1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
1. Limit height of topsoil stockpiles to 72 inches.
 2. Do not stockpile topsoil within protection zones.
 3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

3.7 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated.
1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.

3.8 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.

END OF SECTION 311000

SECTION 321816.13 - PLAYGROUND PROTECTIVE SURFACING

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 SUMMARY

- A. Section Includes:
 - 1. Organic loose-fill surfacing.
 - 2. Synthetic Grass

1.3 DEFINITIONS

- A. Definitions in ASTM F 2223 apply to work of this Section.
- B. Critical Height: Standard measure of shock attenuation according to ASTM F 2223; same as "critical fall height" in ASTM F 1292. According to ASTM F 1292, this approximates "the maximum fall height from which a life-threatening head injury would not be expected to occur."

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of protective surfacing.
 - 1. Include plans, sections, placement and penetration details, and attachment to substrates.
 - 2. Include accessories and edge terminations.
 - 3. Include patterns made by varying colors of surfacing.
 - 4. Include fall heights and use zones for equipment and structures specified in Section 116800 "Play Field Equipment and Structures," coordinated with the critical heights for protective surfacing.
- C. Samples for Initial Selection: For each type of exposed finish.
 - 1. Include Samples of accessories involving color selection.
 - 2. Samples: Submit samples of synthetic grass, infill, pad underlayment.
- D. Samples for Verification: For each type of protective surfacing and exposed finish.

1. Include Samples of accessories to verify color and finish selection.
2. Loose-Fill Surfacing: Minimum 1 quart.
3. Edging: 6 inches long by full width and cross section.
4. Drainage/Separation Geotextile: Minimum 12 by 12 inches.
5. Drainage Panel: Minimum 6 by 6 inches.

E. Product Schedule: For protective surfacing. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer and testing agency.
- B. Material Certificates: For each type of loose-fill surfacing.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For playground protective surfacing to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Loose Fill: Amount equal to 1 percent of amount installed, but no fewer than 3 units
 2. Edging Units: 3 full-size units.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain protective surfacing materials, including loose-fill accessories, from single source from single manufacturer.
 1. Provide geosynthetic accessories of each type from source recommended by manufacturer of protective surfacing materials.

2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Minimum surfacing performance according to ASTM F 1951.

2.3 ORGANIC LOOSE-FILL SURFACING

- A. Engineered Wood Fiber: ASTM F 2075; containing no bark, leaves, twigs, or foreign or toxic materials; tested for accessibility according to ASTM F 1951.
1. See drawings for manufacturer and product type
 2. Critical Height: 4 feet.
 3. Uncompressed Material Depth: Not less than as required for critical height indicated.

2.4 SYNTHETIC GRASS SAFETY SURFACE

1. Aggregate Base – Crushed angular hard stone, 3/4” minus compactible stone (not clean) or clean stone with top layer of compacted fines. (Refer to Section 3.2-4).
2. Synthetic grass: 1.55” XGrass[®] Prime Synthetic Turf from XGrass, 1224 Riverbend Dr. Dalton, GA 30721, Phone (877) 881-8477
 - a. Face Weight: 53 oz/sy
 - b. Face Yarn Type: Polyethylene
 - c. Yarn Size: 10800/7300
 - d. Pile Height: 1.55”
 - e. Color: Summer Blend (Heat Block)
 - f. Construction: Broadloom tufted
 - g. Stitch Rate: 8 per 3 inches
 - h. Tufting Gauge: 3/8”
 - i. Tuft Bind: 13.1 lbs
 - j. Permeability: 405.7 inches/hour
 - k. Primary Backing: Stabilized dual layered woven polypropylene
 - l. Secondary Backing: 10 oz. DuraFlo
 - m. Total Product Weight: 72.7 oz/sy
 - n. Finished Roll Width: 180” untrimmed
 - o. Warranty: 10 Year
 - p. Manufactured in the USA, Internationally manufactured products will not be accepted
3. Pad Underlayment System: SofPad[™] 100% recycled, non-contaminated, Post industrial cross-link, closed cell Polyethylene – polyolefin foam pad from XGrass.
 - a. Foam Type: Polyethylene – Polyolefin
 - b. Bulk Density: 5.0-8.0 lb/cu ft
 - c. Effective Size: 24 sq ft (net coverage)
 - d. Tensile Strength: 34-36 psi
4. Synthetic Grass Infill: EnviroFill[®] from XGrass, 1224 Riverbend Dr. Dalton, GA 30721, Phone (877) 881-8477. Coating: Priority acrylic with Microban[®], iron oxide and chromi-

um oxide.

- a. Grain shape: Hardness: 6-8 Mohs
 - b. Curvature: 0.7+
 - c. Specific Gravity: 1.76 g/cm³
 - d. Bulk Density: 110 lb/cu ft
 - e. Uniform Coefficient: 1.10 to 1.40
 - f. Effective Size: .84 –1.68 mm
5. Splicing Material: 1000 denier coated nylon (Cordura®) 12” wide minimum.
 6. Adhesive: Synthetic Turf Adhesive (from XGrass)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for subgrade elevations, slope, and drainage and for other conditions affecting performance of the work.
 1. Verify that substrates are sound and without high spots, ridges, holes, and depressions.
- B. Hard-Surface Substrates: Verify that substrates are satisfactory for loose-fill surfacing, protective surfacing installation and that substrate surfaces are dry, cured, and uniformly sloped to drain within recommended tolerances according to protective surfacing manufacturer's written requirements for cross-section profile.
 1. Asphalt Substrates: Verify that substrates are dry, sufficiently cured to bond with adhesive, and free from surface defects, dust, dirt, loose particles, grease, oil, and other contaminants incompatible with protective surfacing or that may interfere with adhesive bond.
 2. Concrete Substrates: Verify that substrates are dry and free from surface defects, laitance, glaze, efflorescence, curing compounds, form-release agents, hardeners, dust, dirt, loose particles, grease, oil, and other contaminants incompatible with protective surfacing or that may interfere with adhesive bond. Determine adhesion, dryness, and acidity characteristics by performing procedures recommended in writing by protective surfacing manufacturer.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates to receive surfacing products according to protective surfacing manufacturer's written instructions.
- B. Hard-Surface Substrates: Clean surface free of laitance, efflorescence, curing compounds, and other contaminants incompatible with protective surfacing.

1. Repair: Fill holes and depressions in unsatisfactory surfaces with leveling and patching material.
 2. Treatment: Mechanically abrade or otherwise prepare concrete substrates according to protective surfacing manufacturer's written instructions to achieve adequate roughness.
 3. Terminal Edges: Saw cut concrete for terminal edges of protective surfacing.
 4. Treat control joints and other nonmoving substrate cracks to prevent telegraphing through protective surfacing.
- C. Ground Preparation:
1. General: The ground area to receive synthetic grass safety surface is indicated on the Drawings.
 2. Leveling and Site Preparation: All organic material and organic debris to be removed. Soil to be graded level and stabilized (compacted) 6-7" below grade, per site requirements. Compaction shall be done with mechanical compactors, including vibratory compactors, and/or powered tampers, and rollers.

3.3 INSTALLATION OF LOOSE-FILL SURFACING

- A. Apply components of loose-fill surfacing according to manufacturer's written instructions to produce a uniform surface.
- B. Edging: Place and permanently secure edging in place, and attach units to each other.
- C. Loose Fill: Place loose-fill materials to required depth after installation of playground equipment support posts and foundations. Include manufacturer's recommended amount of additional material to offset natural compaction over time.
- D. Stabilizing Mats: Coordinate installation of mats and mat anchoring system with placing and compacting loose fill.
- E. Grading: Uniformly grade loose fill to an even surface free from irregularities.
- F. Compaction: After initial grading, mechanically compact loose fill before finish grading.
- G. Finish Grading: Hand rake to a uniformly smooth finished surface and to required elevations.

3.4 INSTALLATION OF SYNTHETIC GRASS AND BASE

- A. General: The area to be smooth and graded to allow for proper drainage. Refer to engineered grading plan if available. The overall grade of the playground is not to exceed 3%.

- B. Nailer Board: Installation of pressure treated or composite board per site requirements.
 - 1. Concrete edges: Nailer board attached directly to vertical concrete edge with a Tapcon hardware situated 3/4" below concrete grade.
 - 2. Non-concrete edges: Nailer board installed with round, steel stake, 3 per 10' board. Top of nailer boards to be situated 3/4" below grade.
- C. Optional layer of geotextile fabric
- D. Compacted Aggregate Base: Place 4" of 3/4" clean aggregate base and 1/2" of screening as leveling layer compacted to 90% of max density per AASHTO T99 or 3/4" minus compactible stone. Compaction shall be done with mechanical compactors, including vibratory compactors, and/or powered tampers, and rollers.
- E. Underlayment Pad: Lay underlayment pad with seam staggered, trimming edge to fit flush against the nailer board.
- F. Synthetic Grass: Place turf and cut to fit configuration as shown on Drawings. Splice seams. All seams must be attached with splicing film/fabric and adhesive as approved by the manufacturer for this type of installation of their product.
- G. Anchoring/Edging: Edges of turf will be secured to nailer board perimeter.
- H. Infill: Apply layers of synthetic grass infill evenly with a drop spreader and broom the turf fibers with stiff bristle broom to stand fibers up and allow infill to settle into the bottom. Broom in infill round quartz silica sand approximately 3 pounds per square foot.

3.5 PROTECTION

- A. Prevent traffic over surfacing for not less than 48 hours after installation.

END OF SECTION 321816.13

SECTION -321823.53 ASPHALT SURFACE COLOR COATING

PART 1 – GENERAL

1.1 QUALIFICATIONS

- A. Contractor shall have experience with minimum 3 comparable projects of similar scope, size and materials on an asphalt surface.

1.2 SUBMITTALS

- A. Submit manufacturer's product information stating that materials comply with specified requirements and are suitable for intended application.
- B. Submit manufacturer's color samples of color coating.
- C. Submit manufacturer's standard warranty.

1.3 MATERIALS

- A. Crack filler and sealer: Acrylic material designed to fill and seal cracks, colored to match surface.
- B. Primer coat: Acrylic resurface coating designed to promote sealing of asphalt and adhesion of surface coating.
- C. Surface coat: Acrylic surface coating designed specifically for durability to withstand skating, bicycling and other wheeled recreation.
- D. Striping: Acrylic line primer designed specifically to minimize bleeding. Acrylic line paint designed specifically for painting sharp lines.
- E. Submit all product information and color selections to architect for approval prior to purchasing materials.

1.4 SURFACE PREPARATION

- A. Protect adjacent surfaces and landscaping from contact with concrete surface color coating system.
- B. Prepare surfaces in accordance with manufacturer's instructions to ensure a good, solid substrate onto which the acrylics can adhere.
 - 1. Cure new asphalt surfaces a minimum of 14 to 30 days before application of asphalt tennis court surface color coating system.
 - 2. Remove dirt, dust, debris, oil, grease, sealers, curing compounds, vegetation, loose coatings, loose materials, and other surface contaminants which could adversely affect application of sur-

facing system. Clean out cracks to 1" minimum a depth, removing all organic material, and debris. Pressure wash entire surface.

2. Repair cracks, depressions, and surface defects with a crack fill and seal product, and in accordance with manufacturer's instructions. Ensure surface repairs are flush and smooth to adjoining surfaces. This includes patching, filling and grinding to remove debris and impurities. Up to 1,000 lf of crack repair shall be included in base bid.
3. Repair spalled areas and level depressions 1/8 inch and deeper with patch binder in accordance with manufacturer's instructions.

1.4 APPLICATION

- A. Do not apply asphalt surface color coating system when air or surface temperatures are below 50 degrees F during application or within 24 hours after application.
- B. Do not apply asphalt surface color coating system when rain is expected during application or within 24 hours after application.
- C. Apply resurfacing coating products across recreation area, as shown on drawings. Do not apply to areas outside defined recreation area. Minimum one coat at rate recommended by manufacturer.
- D. Apply surface color coating system in accordance with manufacturer's instructions at locations indicated on the Drawings. Minimum two coats at rate recommended by manufacturer.
- E. Apply line surface primer and coating in accordance with manufacturer's instructions at locations indicated on the Drawings. Minimum one coat of primer and one coat of paint at rate recommended by manufacturer. Remove masking tape promptly after paint has dried.
- F. Mix materials in accordance with manufacturer's instructions.
- G. Allow material drying times in accordance with manufacturer's instructions before applying other materials or opening completed surface to foot traffic.
- H. Protect applied surface color coating system to ensure that, except for normal weathering, coating system will be without damage or deterioration at time of Substantial Completion.

1.5 MARKINGS

- A. Lay out bike course markings as shown on construction drawings.
- B. Apply line markings primer, after masking tape has been laid, to seal voids between masking tape and bike course surface to prevent bleed-under when line paint is applied.
- C. Apply a minimum of 1 coat of line paint in accordance with manufacturer's instructions.
- D. Lines should match the texture of the adjacent painted surface.

1.6 PROTECTION

- A. Protect surfaces for the minimum curing time to avoid damage.

1.7 WARRANTY

- A. Contractor shall guarantee their respective work against defective materials or faulty workmanship for a period of one year from the date of completion, and that the paint does not wear through for a period of two (2) years

END OF SECTION -321823.53

.

SECTION 323119 - DECORATIVE METAL FENCES AND GATES

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 SUMMARY

- A. Section Includes:
 - 1. Swing gates.
- B. Related Requirements:
 - 1. Section 033053 "Miscellaneous Cast-in-Place Concrete" for concrete post concrete fill.

1.3 PREINSTALLATION MEETINGS

- A. Pre-installation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.1 SWING GATES

- A. Gate Configuration: Double leaf.
- B. Gate Frame Height: As indicated.
- C. Gate Opening Width: As indicated.
- D. Steel Frames and Bracing: Fabricate members from square steel tubing with wall thickness as indicated on drawings.
- E. Galvanized-Steel Frames and Bracing: Welded wire mesh as indicated on drawing.
- F. Frame Corner Construction: Welded.
- G. Hardware: Latches permitting operation from both sides of gate, hinges, and keepers for each gate leaf more than 5 feet wide. Provide center gate stops and cane bolts for pairs of gates. Fabricate latches with integral eye openings for padlocking; padlock accessible from both sides of gate.

- H. Spring Hinges: BHMA A156.17, Grade 1, suitable for exterior use.
 - 1. Function: 320 - Gate spring pivot hinge. Adjustable tension.
 - 2. Material: Malleable iron; galvanized.
- I. Exit Hardware: BHMA A156.3, Grade 1, Type 1 (rim exit device), with push pad actuating bar, suitable for exterior use.
 - 1. Function: 01 - Exit only, no trim or blank escutcheon.
 - 2. Mounting Channel: Bent-plate channel formed from 1/8-inch- thick, steel plate. Channel spans gate frame. Exit device is mounted on channel web, recessed between flanges, with flanges extending 1/8 inch beyond push pad surface.
- J. Cane Bolts: Provide for inactive leaf of pairs of gates. Fabricated from 3/4-inch- diameter, round steel bars, hot-dip galvanized after fabrication. Finish to match gates. Provide galvanized-steel pipe strikes to receive cane bolts in both open and closed positions.
- K. Galvanizing: For items other than hardware that are indicated to be galvanized, hot-dip galvanize to comply with ASTM A 123/A 123M. For hardware items, hot-dip galvanize to comply with ASTM A 153/A 153M.
- L. Finish exposed welds to comply with NOMMA Guideline 1, Finish #2 - completely sanded joint, some undercutting and pinholes okay.
- M. Steel Finish: Powder coating.

2.2 STEEL AND IRON

- A. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Tubing: ASTM A 500/A 500M, cold-formed steel tubing.

2.3 COATING MATERIALS

- A. Shop Primers for Steel: Provide primers that comply with Section 099600 "High-Performance Coatings."
- B. Shop Primer for Steel: Manufacturer's standard lead- and chromate-free, non-asphaltic, rust-inhibiting primer complying with MPI#79 and compatible with topcoat.

2.4 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
 - 1. For aluminum, provide type and alloy as recommended by producer of metal to be welded and as required for strength and compatibility in fabricated items.

- B. Concrete: Normal-weight, air-entrained, ready-mix concrete complying with requirements in Section 033000 "Cast-in-Place Concrete" with a minimum 28-day compressive strength of 3000 psi, 3-inch slump, and 1-inch maximum aggregate size or dry, packaged, normal-weight concrete mix complying with ASTM C 387/C 387M mixed with potable water according to manufacturer's written instructions.
- C. Non-shrink Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M and specifically recommended by manufacturer for exterior applications.

2.5 STEEL FINISHES

- A. Surface Preparation: Clean surfaces according to SSPC-SP 5/NACE No. 1, "White Metal Blast Cleaning." After cleaning, apply a conversion coating compatible with the organic coating to be applied over it.
- B. Powder Coating: Immediately after cleaning, apply manufacturer's standard two-coat finish consisting of epoxy primer and TGIC polyester topcoat to a minimum total dry film thickness of not less than 8 mils. Comply with coating manufacturer's written instructions.
 - 1. Color and Gloss: As selected by Landscape Architect from manufacturer's full range Dark Brown with Matte.
- C. Primer Application: Apply zinc-rich epoxy primer immediately after cleaning, to provide a minimum dry film thickness of 2 mils per applied coat, to surfaces that are exposed after assembly and installation, and to concealed surfaces.
- D. Shop-Painted Finish: Comply with Section 099600 "High-Performance Coatings."
- E. High-Performance Coating: Apply intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.
 - 1. Match approved Samples for color, texture, and coverage. Remove and refinish, or recoat work that does not comply with specified requirements.

2.6 METALLIC-COATED-STEEL FINISHES

- A. Galvanized Finish: Clean welds, mechanical connections, and abraded areas and repair galvanizing to comply with ASTM A 780/A 780M.
- B. Surface Preparation: Clean surfaces of oil and other contaminants. Use cleaning methods that do not leave residue. After cleaning, apply a zinc-phosphate conversion coating compatible with the organic coating to be applied over it. Clean welds, mechanical connections, and abraded areas and apply galvanizing repair paint, complying with SSPC-Paint 20, to comply with ASTM A 780/A 780M.

- C. Powder Coating: Immediately after cleaning and pretreating, apply manufacturer's standard TGIC polyester powder-coat finish to a minimum dry film thickness of 2 mils.
 - 1. Color and Gloss: As selected by Landscape Architect from manufacturer's full range Dark Brown with Matte.
- D. Powder Coating: Immediately after cleaning and pretreating, apply manufacturer's standard two-coat finish consisting of zinc-rich epoxy prime coat and TGIC polyester topcoat to a minimum dry film thickness of 2 mils. Comply with coating manufacturer's written instructions to achieve a minimum total dry film thickness of 4 mils.
 - 1. Color and Gloss: As selected by Landscape Architect from manufacturer's full range Dark Brown with Matte.
 - 2. Comply with surface finish testing requirements in ASTM F 2408.
- E. High-Performance Coating: Apply epoxy primer, polyurethane intermediate coat, and polyurethane topcoat to prepared surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.
 - 1. Match approved Samples for color, texture, and coverage. Remove and refinish, or recoat work that does not comply with specified requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, construction layout, and other conditions affecting performance of the work.
- B. Do not begin installation before final grading is completed unless otherwise permitted by Landscape Architect.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of gates, and terminal posts. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.
 - 1. Construction layout and field engineering are specified in Section 017300 "Execution."

3.3 GATE INSTALLATION

- A. Install gates according to drawings, level, plumb, and secure for full opening without interference. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.4 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 323119

SECTION 328400 - PLANTING IRRIGATION

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 SUMMARY

- A. Section Includes:

1. Piping.
2. Encasement for piping.
3. Pressure-reducing valves.
4. Automatic control valves.
5. Sprinklers.
6. Drip irrigation specialties.
7. Controllers.
8. Boxes for automatic control valves.

- B. Related Sections:

1. Section 220519 "Meters and Gages for Plumbing Piping" for water metering requirements.
2. Section 230923.14 "Flow Instruments" for water metering equipment.

1.3 DEFINITIONS

- A. Circuit Piping: Downstream from control valves to sprinklers, specialties, and drain valves. Piping is under pressure during flow.
- B. Drain Piping: Downstream from circuit-piping drain valves. Piping is not under pressure.
- C. ET Controllers: EvapoTranspiration Controllers. Irrigation controllers which use some method of weather based adjustment of irrigation. These adjusting methods include use of historical monthly averages of ET; broadcasting of ET measurements; or use of on-site sensors to track ET.
- D. Main Piping: Downstream from point of connection to water distribution piping to, and including, control valves. Piping is under water-distribution-system pressure.
- E. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control, signaling power-limited circuits.

1.4 PERFORMANCE REQUIREMENTS

- A. Irrigation zone control shall be automatic operation with controller and automatic control valves.
- B. Minimum working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:
 - 1. Irrigation Main Piping: 70 psi.
 - 2. Circuit Piping: 50 psi.

1.5 ACTION SUBMITTALS

1.6 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Irrigation systems, drawn to scale, on which components are shown and coordinated with each other, using input from Installers of the items involved. Also include adjustments necessary to avoid plantings and obstructions such as signs and light standards.
- B. Zoning Chart: Show each irrigation zone and its control valve.
- C. Controller Timing Schedule: Indicate timing settings for each automatic controller zone.

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For sprinklers controllers and automatic control valves to include in operation and maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- B. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.10 PROJECT CONDITIONS

- A. Interruption of Existing Water Service: Do not interrupt water service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water service according to requirements indicated:

1. Notify Landscape Architect no fewer than two days in advance of proposed interruption of water service.
2. Do not proceed with interruption of water service without Landscape Architect's written permission.

PART 2 - PRODUCTS

2.1 PIPES, TUBES, AND FITTINGS

- A. Comply with requirements in the piping schedule for applications of pipe, tube, and fitting materials, and for joining methods for specific services, service locations, and pipe sizes.
- B. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.
 1. PVC Socket Fittings: ASTM D 2466, Schedule 40.
 2. PVC Threaded Fittings: ASTM D 2464, Schedule 80.
 3. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket ends.
- C. PVC Pipe, Pressure Rated: ASTM D 2241, PVC 1120 compound, SDR 21 and SDR 26.
 1. PVC Socket Fittings: ASTM D 2467, Schedule 80.
 2. PVC Socket Unions: Construction similar to MSS SP-107, except both headpiece and tailpiece shall be PVC with socket or threaded ends.

2.2 PIPING JOINING MATERIALS

- A. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to ASTM F 656.
- B. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 PRESSURE-REDUCING VALVES

- A. Water Regulators:
 1. See drawings for manufacturer and product type.
 2. Description:
 - a. Standard: ASSE 1003.
 - b. Body Material: Bronze for NPS 2 and smaller; cast iron with interior lining complying with AWWA C550 or that is FDA approved for NPS 2-1/2 and NPS 3.
 - c. Pressure Rating: Initial pressure of 150 psig.
 - d. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and NPS 3.

2.4 AUTOMATIC CONTROL VALVES

A. Plastic, Automatic Control Valves:

1. See drawings for manufacturer and product type.
2. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

2.5 SPRINKLERS

A. General Requirements: Designed for uniform coverage over entire spray area indicated at available water pressure.

B. Plastic, Pop-up, Gear-Drive Rotary Sprinklers:

1. See drawings for manufacturer and product type.
2. Description:
 - a. Body Material: ABS.
 - b. Nozzle: ABS.
 - c. Retraction Spring: Stainless steel.
 - d. Internal Parts: Corrosion resistant.

C. Plastic, Pop-up Spray Sprinklers:

1. See drawings for manufacturer and product type.
2. Description:
 - a. Body Material: ABS.
 - b. Nozzle: ABS.
 - c. Retraction Spring: Stainless steel.
 - d. Internal Parts: Corrosion resistant.
 - e. Pattern: Fixed, with flow adjustment.

2.6 DRIP IRRIGATION SPECIALTIES

A. See drawings for manufacturer and product type.

B. Drip Tubes with Direct-Attached Emitters:

1. Tubing: Flexible PE or PVC with plugged end.
2. Emitters: Devices to deliver water at approximately 20 psig.
 - a. Body Material: PE or vinyl, with flow control.
 - b. Mounting: Inserted into tubing at set intervals.

C. Drip Tubes with Remote Discharge:

1. Tubing: Flexible PE or PVC with plugged end.
2. Emitters: Devices to deliver water at approximately 20 psig.

- a. Body Material: PE or vinyl, with flow control.
 - b. Mounting: Inserted into tubing at set intervals.
- D. Off-Ground Supports: Plastic stakes.
- E. Application Pressure Regulators: Brass or plastic housing, NPS 3/4, with corrosion-resistant internal parts; capable of controlling outlet pressure to approximately 20 psig.
- F. Filter Units: Brass or plastic housing, with corrosion-resistant internal parts; of size and capacity required for devices downstream from unit.
- G. Air Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.
- H. Vacuum Relief Valves: Brass or plastic housing, with corrosion-resistant internal parts.

2.7 CONTROLLERS

- A. See drawings for manufacturer and product type.
- B. Description:
- 1. Controller Stations for Automatic Control Valves: Each station is variable from approximately 5 to 60 minutes. Include switch for manual or automatic operation of each station.
 - 2. Exterior Control Enclosures: NEMA 250, Type 4, weatherproof, with locking cover and two matching keys; include provision for grounding.
 - a. Body Material: Molded plastic.
 - b. Mounting: Surface type for wall.
 - 3. Interior Control Enclosures: NEMA 250, Type 12, drip proof, with locking cover and two matching keys.
 - a. Body Material: Molded plastic.
 - b. Mounting: Surface type for wall.
 - 4. Control Transformer: 24-V secondary, with primary fuse.
 - 5. Timing Device: Adjustable, 24-hour, 14-day clock, with automatic operations to skip operation any day in timer period, to operate every other day, or to operate two or more times daily.
 - a. Manual or Semiautomatic Operation: Allows this mode without disturbing preset automatic operation.
 - b. Nickel-Cadmium Battery and Trickle Charger: Automatically powers timing device during power outages.
 - c. Surge Protection: Metal-oxide-varistor type on each station and primary power.
 - 6. Moisture Sensor: Adjustable from one to seven days, to shut off water flow during rain.
 - 7. Smart Controllers: Use ET, tested in accordance with IA SWAT Climatological Based Controllers 8th Draft Testing Protocol and compliant with ASHRAE Standard 189.1.
 - 8. Wiring: UL 493, Type UF multiconductor, with solid-copper conductors; insulated cable; suitable for direct burial.

- a. Feeder-Circuit Cables: No. 12 AWG minimum, between building and controllers.
 - b. Low-Voltage, Branch-Circuit Cables: No. 14 AWG minimum, between controllers and automatic control valves; color-coded different from feeder-circuit-cable jacket color; with jackets of different colors for multiple-cable installation in same trench.
 - c. Splicing Materials: Manufacturer's packaged kit consisting of insulating, spring-type connector or crimped joint and epoxy resin moisture seal; suitable for direct burial.
9. Concrete Base: Reinforced precast concrete not less than 36 by 24 by 4 inches thick, and 6 inches greater in each direction than overall dimensions of controller. Include opening for wiring.

2.8 BOXES FOR AUTOMATIC CONTROL VALVES

A. Plastic Boxes:

1. Description: Box and cover, with open bottom and openings for piping; designed for installing flush with grade.
 - a. Size: As required for valves and service.
 - b. Shape: Round, Square, or Rectangular.
 - c. Sidewall Material: PE, ABS, or FRP.
 - d. Cover Material: PE, ABS, or FRP.

- B. Drainage Backfill: Cleaned gravel or crushed stone, graded from 3/4 inch minimum to 3 inches maximum.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."
- B. Install warning tape directly above pressure piping, 12 inches below finished grades, except 6 inches below subgrade under pavement and slabs.
- C. Drain Pockets: Excavate to sizes indicated. Backfill with cleaned gravel or crushed stone, graded from 3/4 to 3 inches, to 12 inches below grade. Cover gravel or crushed stone with sheet of asphalt-saturated felt and backfill remainder with excavated material.
- D. Provide minimum cover over top of underground piping according to the following:
1. Irrigation Main Piping: Minimum depth of 30 inches below finished grade, or not less than 6" below average local frost depth, whichever is deeper.
 2. Circuit Piping: 18 inches.
 3. Drain Piping: 18".
 4. Sleeves: 24 inches.

3.2 PREPARATION

- A. Set stakes to identify locations of proposed irrigation system. Obtain Landscape Architect's approval before excavation.

3.3 PIPING INSTALLATION

- A. Location and Arrangement: Drawings indicate location and arrangement of piping systems. Install piping as indicated unless deviations are approved on Coordination Drawings.
- B. Install piping at minimum uniform slope of 0.5 percent down toward drain valves.
- C. Install piping free of sags and bends.
- D. Install groups of pipes parallel to each other, spaced to permit valve servicing.
- E. Install fittings for changes in direction and branch connections.
- F. Install unions adjacent to valves and to final connections to other components with NPS 2 or smaller pipe connection.
- G. Install flanges adjacent to valves and to final connections to other components with NPS 2-1/2 or larger pipe connection.
- H. Install underground thermoplastic piping according to ASTM D 2774 and ASTM F 690.
- I. Install expansion loops in control-valve boxes for plastic piping.
- J. Lay piping on solid subbase, uniformly sloped without humps or depressions.
- K. Install PVC piping in dry weather when temperature is above 40 deg F. Allow joints to cure at least 24 hours at temperatures above 40 deg F before testing.
- L. Install water regulators with shutoff valve and strainer on inlet and pressure gage on outlet. Install shutoff valve on outlet. Install aboveground or in control-valve boxes.
- M. Water Hammer Arresters: Install between connection to building main and circuit valves aboveground or in control-valve boxes.
- N. Install sleeves made of Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.

3.4 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs.
- B. Remove scale, slag, dirt, and debris from inside and outside of pipe and fittings before assembly.

- C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:
 - 1. Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is specified.
 - 2. Damaged Threads: Do not use pipe or pipe fittings with threads that are damaged. Do not use pipe sections that have cracked.
- D. PVC Piping Solvent-Cemented Joints: Clean and dry joining surfaces. Join pipe and fittings according to the following:
 - 1. Comply with ASTM F 402 for safe-handling practice of cleaners, primers, and solvent cements.
 - 2. PVC Pressure Piping: Join schedule number, ASTM D 1785, PVC pipe and PVC socket fittings according to ASTM D 2672. Join other-than-schedule-number PVC pipe and socket fittings according to ASTM D 2855.
 - 3. PVC Nonpressure Piping: Join according to ASTM D 2855.

3.5 VALVE INSTALLATION

- A. Pressure-Reducing Valves: Install in boxes for automatic control valves or aboveground between shutoff valves.
- B. Throttling Valves: Install in underground piping in boxes for automatic control valves.
- C. Drain Valves: Install in underground piping in boxes for automatic control valves.
- D. Underground Curb Valves: Install in curb-valve casings with tops flush with grade.

3.6 SPRINKLER INSTALLATION

- A. Install sprinklers after hydrostatic test is completed.
- B. Install sprinklers at manufacturer's recommended heights.
- C. Locate part-circle sprinklers to maintain a minimum distance of 4 inches from walls and 2 inches from other boundaries unless otherwise indicated.

3.7 DRIP IRRIGATION SPECIALTY INSTALLATION

- A. Install freestanding emitters on pipe riser to mounting height indicated.
- B. Install manifold emitter systems with tubing to emitters. Plug unused manifold outlets. Install emitters on off-ground supports at height indicated.
- C. Install multiple-outlet emitter systems with tubing to outlets. Plug unused emitter outlets. Install outlets on off-ground supports at height indicated.

- D. Install drip tubes with direct-attached emitters on ground.
- E. Install drip tubes with remote-discharge on ground with outlets on off-ground supports at height indicated.
- F. Install off-ground supports of length required for indicated mounted height of device.
- G. Install application pressure regulators and filter units in piping near device being protected, and in control-valve boxes.
- H. Install air relief valves and vacuum relief valves in piping, and in control-valve boxes.

3.8 AUTOMATIC IRRIGATION-CONTROL SYSTEM INSTALLATION

- A. Equipment Mounting: Install interior controllers on wall.
 - 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- B. Equipment Mounting: Install exterior freestanding controllers on precast concrete bases.
 - 1. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
- C. Install control cable in same trench as irrigation piping and at least 2 inches below or beside piping. Provide conductors of size not smaller than recommended by controller manufacturer. Install cable in separate sleeve under paved areas.

3.9 CONNECTIONS

- A. Comply with requirements for piping specified in Section 221113 "Facility Water Distribution Piping" for water supply from exterior water service piping, water meters, protective enclosures, and backflow preventers. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment, valves, and devices to allow service and maintenance.
- C. Connect wiring between controllers and automatic control valves.

3.10 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."
- B. Inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations.

- C. Warning Tapes: Arrange for installation of continuous, underground, detectable warning tapes over underground piping during backfilling of trenches. See Section 312000 "Earth Moving" for warning tapes.

3.11 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
 - 1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.
- B. Tests and Inspections:
 - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
 - 2. Operational Test: After electrical circuitry has been energized, operate controllers and automatic control valves to confirm proper system operation.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- C. Any irrigation product will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

3.12 ADJUSTING

- A. Adjust settings of controllers.
- B. Adjust automatic control valves to provide flow rate at rated operating pressure required for each sprinkler circuit.
- C. Adjust sprinklers and devices, except those intended to be mounted aboveground, so they will be flush with, or not more than 1/2 inch above, finish grade.
- D. Following construction and prior to issuing the approval for occupancy, a Water Audit will be conducted by a IA certified Landscape Irrigation Auditor. The auditor shall be independent of the contractor, design firm, and owner/developer of the project. The water performance audit will verify that the irrigation system complies with the minimum standards required by this ordinance. The minimum efficiency required for the irrigation system is 60% for the distribution efficiency for all fixed spray systems and 70% distribution efficiency for all rotor systems. The auditor shall furnish a certificate to the City, designer, installer, and owner/developer certifying compliance with the minimum distribution requirements, and an irrigation schedule. Compliance with this provision is required before the City will issue the letter of final acceptance.

3.13 PIPING SCHEDULE

- A. Install components having pressure rating equal to or greater than system operating pressure.
- B. Piping in control-valve boxes and aboveground may be joined with flanges or unions instead of joints indicated.
- C. Underground irrigation main piping, NPS 4 and smaller, shall be the following:
 - 1. Schedule 40, PVC pipe and socket fittings, and solvent-cemented joints.
- D. Circuit piping, NPS 2 and smaller, shall be the following:
 - 1. Schedule 40, PVC pipe and socket fittings; and solvent-cemented joints.
- E. Drain piping shall be the following:
 - 1. Schedule 40, PVC pipe and socket fittings; and solvent-cemented joints.

3.14 VALVE SCHEDULE

- A. Underground, Shutoff-Duty Valves: Use the following:
 - 1. NPS 2 and Smaller: Curb valve, curb-valve casing, and shutoff rod.
- B. Drain Valves:
 - 1. NPS 1/2 and NPS 3/4: Automatic drain valve.
 - 2. NPS 1/2 and NPS 3/4: ball valve.
 - 3. NPS 1 to NPS 2: ball valve.

END OF SECTION 328400

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes planting soils specified by composition of the mixes.
- B. Related Requirements:
 - 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.

1.2 DEFINITIONS

- A. Duff Layer: A surface layer of soil, typical of forested areas, that is composed of mostly decayed leaves, twigs, and detritus.
- B. Imported Soil: Soil that is transported to Project site for use.
- C. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- F. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- G. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- H. USCC: U.S. Composting Council.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 PLANTING SOILS SPECIFIED BY COMPOSITION

- A. Planting-Soil: Imported, naturally formed soil from off-site sources and consisting of sand, silt, and clay according to USDA textures; and modified to produce viable planting soil.
1. Sources: Take imported, unamended soil from sources that are naturally well-drained sites where topsoil occurs at least 4 inches deep, not from bogs, or marshes; and that do not contain undesirable organisms; disease-causing plant pathogens; or obnoxious weeds and invasive plants.
 2. Additional Properties of Imported Soil before Amending:
 - a. Soluble salts: < 2 dS/m.
 - b. pH: 5.5-7.5.
 - c. Sand < 70%, Silt < 70%, Clay <60%
 - d. Texture: Ideal soil texture shall consist of a loam(L), or silt loam (SiL). Also acceptable are sandy clay loam (SCL), sandy loam (SL), clay loam (CL), silty clay loam (SiCL).
 - e. Organic matter \geq 2%
 - f. Sodium Adsorption Ratio (SAR) < 3
 - g. Friable, and with sufficient structure to give good tilth and aeration.
 3. Unacceptable Properties: Clean soil of the following:
 - a. Unacceptable Materials: Concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
 - b. Unsuitable Materials: Stones, roots, plants, sod, clay lumps, and pockets of coarse sand that exceed a combined maximum of 2 percent by dry weight of the imported soil.
 - c. Large Materials: Stones, clods, roots, clay lumps, and pockets of coarse sand exceeding 2 inches in any dimension.
 4. Provide analysis of nutrient content of soil, specifically Nitrogen (N), Potassium (P), and Phosphorus (K) and amend as directed by the soil laboratory or the Landscape Architect.
 5. Planting Soil Composition: Blend soil with composted bark mulch at a ratio 1:4 by volume.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements the drawings and specifications.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.

3.2 APPLYING COMPOST TO SURFACE OF PLANTING SOIL

- A. Application: Apply 3 inches of composted bark mulch surface of in-place planting soil, following the installation of plant material.
- B. Finish Grading: Grade surface to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.3 PROTECTION AND CLEANING

- A. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.

END OF SECTION 329113

SECTION 329200 - TURF AND GRASSES

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 SUMMARY

- A. Section Includes:

1. Seeding.
2. Hydroseeding.
3. Sodding.
4. Meadow grasses and wildflowers.
5. Erosion-control material(s).

- B. Related Requirements:

1. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 INFORMATIONAL SUBMITTALS

- A. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
 - 1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.

1.5 CLOSEOUT SUBMITTALS

1.6 QUALITY ASSURANCE

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- C. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.8 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of planting completion.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

A. Product

1. Subject to compliance with requirements, provide the following:
 - a. Grass-Seed Mix by Granite Seed: Refer to Drawings.
 - b. Wildflower and Native-Grass Seed by Granite Seed: Refer to Drawing.

B. Seed Quality

1. Grass:
 - a. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
 - b. Seed of grass species as listed below for solar exposure, with not less than 85 percent germination, not less than 95 percent pure seed, and not more than 0.5 percent weed seed:
2. Wildflower and Native-Grass Seed:
 - a. Fresh, clean, and dry new seed, of mixed species.
 - b. Seed Carrier: Inert material, sharp clean sand or perlite.

2.2 TURFGRASS SOD

A. Product

1. Certified, complying with "Specifications for Turfgrass Sod Materials" in Turfgrass Producers International's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted. See drawings for sod type, species and source.

PART 3 - EXECUTION

3.1 EXAMINATION

- #### A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the work.
1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
3. Uniformly moisten excessively dry soil that is not workable or which is dusty.

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

C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Landscape Architect and replace with new planting soil.

3.2 PREPARATION

A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
2. Protect grade stakes set by others until directed to remove them.

B. Install erosion-control measures according to the SWPPP plan to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent waterways.

3.3 TURF AREA PREPARATION

A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."

B. Placing Planting Soil: Place and mix planting soil in place over exposed subgrade.

1. Reduce elevation of planting soil to allow for soil thickness of sod.

C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

D. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
2. Do not use wet seed or seed that is moldy or otherwise damaged.
3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

B. Sow seed according to suppliers specifications.

- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas from hot, dry weather or drying winds by applying within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.

3.5 HYDROSEEDING

- A. Hydroseeding: Mix specified seed and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
 - 1. Mix slurry with tackifier.
 - 2. Spray-apply slurry uniformly to all areas to be seeded in a one-step process. Apply slurry at a rate so that mulch component is deposited at not less than 1500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate.
 - 3. Spray-apply slurry uniformly to all areas to be seeded in a two-step process. Apply first slurry coat at a rate so that mulch component is deposited at not less than 500-lb/acre dry weight, and seed component is deposited at not less than the specified seed-sowing rate. Apply slurry cover coat of fiber mulch (hydromulching) at a rate of 1000 lb/acre.

3.6 SODDING

- A. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.
- B. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across slopes exceeding 1:3.
- C. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

3.7 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.

1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
1. Mow to a height of 2 to 3 inches.
- D. Protect turf from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged turf. Maintenance period shall last 30 days after installation.

3.8 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Landscape Architect:
1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
 2. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.9 MEADOW

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.

1. Before sowing, mix seed with seed carrier at a ratio of not less than two parts seed carrier to one part seed.
 2. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 3. Do not use wet seed or seed that is moldy or otherwise damaged.
- B. Sow seed according to suppliers specifications. Refer to drawing.
- C. Brush seed into top 1/16 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas from hot, dry weather or drying winds by applying mulch within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.
- E. Water newly planted areas and keep moist until meadow is established.

3.10 MEADOW MAINTENANCE

- A. Install meadow as per drawing specifications. See page PL -101 Seeding Notes.
- B. Watering: Install and maintain temporary piping, hoses, and meadow-watering equipment to convey water from sources and to keep meadow uniformly moist.
1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water meadow with fine spray at a minimum rate of 1/2 inch per week for four weeks after planting unless rainfall precipitation is adequate.
- C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings. Maintenance period shall last 30 days after installation.

3.11 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200

SECTION 329300 – PLANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plants.

1.2 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.
- C. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" for drawing designations for planting soils.
- D. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Landscape Architect shall approve plant material at the nursery prior to delivery to the site.

1.5 QUALITY ASSURANCE

- A. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver bare-root stock plants within 24 hours of digging. Immediately after digging up bare-root stock, pack root system in wet straw, hay, or other suitable material to keep root system moist until

planting. Transport in covered, temperature-controlled vehicles, and keep plants cool and protected from sun and wind at all times.

- B. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- C. Handle planting stock by root ball.
- D. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
- E. Deliver plants after preparations for planting have been completed, and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.

1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures including plantings falling or blowing over.
 - 2. Warranty Periods: From date of Substantial Completion.
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
 - b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
- B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- C. Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root

growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery.

2.2 MULCHES

- A. Organic Mulch. Composted bark mulch 3" deep.

PART 3 - EXECUTION

3.1 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."
- B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade.
- C. Before planting, obtain Landscape Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.2 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
 - 1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 - 2. Excavate approximately three times as wide as ball diameter.
 - 3. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 - 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
- B. Backfill Soil: Subsoil and topsoil removed from excavations may not be used as backfill soil unless otherwise indicated.

3.3 TREE, SHRUB, AND VINE PLANTING

- A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.

- C. Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 - 1. Backfill: Planting soil. For trees, use excavated soil for backfill.
 - 2. Stock: Carefully remove root ball from container without damaging root ball or plant.
 - 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 - 4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Bare-Root Stock: Place tablets beside soil-covered roots; do not place tablets touching the roots.
 - b. Quantity: Two per plant.
 - 5. Continue backfilling process. Water again after placing and tamping final layer of soil.

- D. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.4 TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Do not apply pruning paint to wounds.

3.5 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- E. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- F. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.6 PLANTING AREA MULCHING

- A. Install weed-control barriers before mulching according to manufacturer's written instructions. Completely cover area to be mulched, overlapping edges a minimum of and secure seams with galvanized pins.

- B. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Trees in Turf Areas: Apply mulch ring of average thickness, with radius around trunks or stems. Do not place mulch within of trunks or stems.
 - 2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.7 EDGING INSTALLATION

- A. Shovel-Cut Edging: Separate mulched areas from turf areas, curbs, and paving with a 45-degree, 4- to 6-inch- deep, shovel-cut edge.

3.8 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.
- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
- D. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.
- F. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings. Maintenance period shall last 30 days after installation.

END OF SECTION 329300