



**BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND**

REQUEST FOR PROPOSALS

Item Description: RE-BID SITE IMPROVEMENTS AT GANO ST PARK

Procurement/MinuteTraq #: 52270

Date to be opened: 3/9/2026

Issuing Department: Parks

QUESTIONS

- Please direct questions related to the process, how to fill out forms, and how to submit an application(Pages 1-8) to the Purchasing Department.
 - Email: purchasing@providenceri.gov
 - Please use the subject line “**Solicitation Question**”
- Please direct questions relative to the Minority and Women’s Business Enterprise Program and the corresponding forms (Pages 10-11) to the MBE/WBE Outreach Director for the City of Providence, Grace Diaz
 - Email: gdiaz@providenceri.gov
 - Please use subject line “**MBE WBE Forms**”
- Please direct questions relative to the specifications outlined (beginning on page 14) to the issuing department’s subject matter expert:
 - Name: Sam Greenwood
 - Title: Senior Landscape Architect
 - Email Address: sgreenwood@providenceri.gov

Pre-submission Conference

There will be a Non-Mandatory Pre-Bid Conference

Date of Pre-Bid Conference: 2/24/2026 Time: 11:00 AM

Other details: **Project Site – 87 Fremont St, Providence, RI 02906 (meet at the entrance of Gano and Power Streets)**

Deadline for questions submissions:

Five business days before bid opening date. March 02, 2026

INSTRUCTIONS FOR SUBMISSION

Bid Opening Date: 3/9/2026

Bids may be submitted up to **2:15 P.M.** on the above meeting date at the **Department of the City Clerk, Room 311, City Hall, 25 Dorrance Street, Providence.** At 2:15 P.M. all bids will be publicly opened and read at the Board of Contract Meeting in Conference Room 305, on the 3rd floor of City Hall.

- Bidders must submit **2 copies** of their bid in sealed envelopes or packages labeled with the captioned **Item Description** and the **City Department to which the solicitation and bid are related and must include the company name and address on the envelope as well.** (On page 1).
- If required by the Department, please keep the original bid bond and check in only one of the envelopes.
- Communications to the Board of Contract and Supply that are not competitive sealed bids (i.e. product information/samples) should have “**NOT A BID**” written on the envelope or wrapper.
- Only use form versions and templates included in this solicitation. If you have an old version of a form **do not recycle it for use in this bid.**
- The bid envelope and information relative to the bid must be addressed to:

**Board of Contract and Supply
Department of the City Clerk – City Hall, Room 311
25 Dorrance Street
Providence, RI 02903**

****PLEASE NOTE:** This bid may include details regarding information that you will need to provide (such as proof of licenses) to the issuing department before the formalization of an award.

*This information is **NOT** requested to be provided in your initial bid by design.*

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city’s Open Meetings Portal and made available as a public record. The City has made a conscious effort to avoid the posting of sensitive information on the City’s Open Meetings Portal, by requesting that such sensitive information be submitted to the issuing department only at their request.

BID PACKAGE CHECKLIST

Digital forms are available in the City of Providence Purchasing Department Office or online at <http://www.providenceri.gov/purchasing/how-to-submit-a-bid/>

The bid package **MUST** include the following, in this order:

- **Bid Form 1:** Bidder's Blank as the cover page/ 1st page (*see page 6 of this document*)
- **Bid Form 2:** Certification of Bidder as 2nd page (*see page 7 of this document*)
- **Bid Form 3:** Certificate Regarding Public Records (*see page 8 of this document*)
- **Bid Form 4:** Affidavit of City Vendor (*see pages 9 and 10 of this document*)
- **Forms from the Minority and Women Business Enterprise Program:** Based on Bidder Category. *See forms and instructions enclosed (pages 10-11) or on:*

<https://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/>

***Please note: MBE/WBE forms must be completed for EVERY bid submitted and must be inclusive of ALL required signatures. Forms without all required signatures will be considered incomplete.**

- **Supplemental Bid Form:** Formal response to the specifications outlined in this RFP, including pricing information and details related to the good(s) or service(s) being provided. Please be mindful of formatting responses as requested to ensure clarity.
- **Financial Assurance, *if requested*** (*as indicated on page 5 of this document under "Bid Terms"*)

All of the above listed documents are REQUIRED. (With the exception of financial assurances, which are only required if specified on page 5.)

******Failure to meet specified deadlines, follow specific submission instructions, or enclose all required documents with all applicable signatures will result in disqualification, or in an inability to appropriately evaluate bids.***

NOTICE TO VENDORS

1. The Board of Contract and Supply will make the award to the lowest qualified and responsible bidder.
2. In determining the lowest responsible bidder, cash discounts based on preferable payment terms will not be considered.
3. Where prices are the same, the Board of Contract and Supply reserves the right to award to one bidder, or to split the award.
4. No proposal will be accepted if the bid is made in collusion with any other bidder.
5. Bids may be submitted on an “equal in quality” basis. The City reserves the right to decide equality. Bidders must indicate brand or the make being offered and submit detailed specifications if other than brand requested.
6. A bidder who is an out-of-state corporation shall qualify or register to transact business in this State, in accordance with the Rhode Island Business Corporation Act, RIGL Sec. 7-1.2-1401, et seq.
7. The Board of Contract and Supply reserves the right to reject any and all bids.
8. Competing bids may be viewed in person at the Department of the City Clerk, City Hall, Providence, immediately upon the conclusion of the formal Board of Contract and Supply meeting during which the bids were unsealed/opened. Bids may also be accessed electronically on the internet via the City’s [Open Meetings Portal](#).
9. As the City of Providence is exempt from the payment of Federal Excise Taxes and Rhode Island Sales Tax, prices quoted are not to include these taxes.
10. In case of error in the extension of prices quoted, the unit price will govern.
11. The contractor will **NOT** be permitted to: a) assign or underlet the contract, or b) assign either legally or equitably any monies or any claim thereto without the previous written consent of the City Purchasing Director.
12. Delivery dates must be shown in the bid. If no delivery date is specified, it will be assumed that an immediate delivery from stock will be made.
13. A certificate of insurance will normally be required of a successful vendor.
14. For many contracts involving construction, alteration and/or repair work, State law provisions concerning payment of prevailing wage rates apply ([RIGL Sec. 37-13-1 et seq.](#))
15. No goods should be delivered, or work started without a Purchase Order.
16. **Submit 2 copies of the bid to the City Clerk, unless the specification section of this document indicates otherwise.**
17. Bidder must certify that it does not unlawfully discriminate on the basis of race, color, national origin, gender, gender identity or expression, sexual orientation and/or religion in its business and hiring practices and that all of its employees are lawfully employed under all applicable federal, state and local laws, rules and regulations. (See Bid Form 2.)

BID TERMS

1. Financial assurances may be required in order to be a successful bidder for Commodity or Construction and Service contracts. If either of the first two checkboxes below is checked, the specified assurance must accompany a bid, or the bid will not be considered by the Board of Contract and Supply. The third checkbox indicates the lowest responsible bidder will be contacted and required to post a bond to be awarded the contract.
 - a) A certified check for \$_____ must be deposited with the City Clerk as a guarantee that the Contract will be signed and delivered by the bidder.
 - b) A bid bond in the amount of **5** per centum (%) of the proposed total price, must be deposited with the City Clerk as a guarantee that the contract will be signed and delivered by the bidder; and the amount of such bid bond shall be retained for the use of the City as liquidated damages in case of default. Any person signing a bid bond as an attorney-in-fact shall include with the bid bond an original, or a photocopy or facsimile of an original, power of attorney.
 - c) A performance and payment bond with a satisfactory surety company will be posted by the bidder in a sum equal to one hundred per centum (100%) of the awarded contract.
 - d) No financial assurance is necessary for this item.
2. Awards will be made within **ninety (90) days of bid opening**. All bid prices will be considered firm, unless qualified otherwise. Requests for price increases will not be honored.
3. Failure to deliver within the time quoted or failure to meet specifications may result in default in accordance with the general specifications. It is agreed that deliveries and/or completion are subject to strikes, lockouts, accidents, and Acts of God.

The following entry applies only for COMMODITY BID TERMS:

4. Payment for partial delivery will not be allowed except when provided for in blanket or term contracts.

The following entries apply only for CONSTRUCTION AND SERVICE BID TERMS:

5. Only one shipping charge will be applied in the event of partial deliveries for blanket or term contracts.
6. Prior to commencing performance under the contract, the successful bidder shall attest to compliance with the provisions of the Rhode Island Worker's Compensation Act, [RIGL 28-29-1, et seq.](#) If exempt from compliance, the successful bidder shall submit a sworn Affidavit by a corporate officer to that effect, which shall accompany the signed contract.
7. Prior to commencing performance under the contract, the successful bidder shall, submit a certificate of insurance, in a form and in an amount satisfactory to the City.

BID FORM 1: Bidders Blank

1. Bids must meet the attached specifications. Any exceptions or modifications must be noted and fully explained.
2. Bidder’s responses must be in ink or typewritten, and all blanks on the bid form should be completed.
3. The price or prices proposed should be stated both in **WRITING** and in **FIGURES**, and any proposal not so stated may be rejected. **Contracts exceeding twelve months must specify annual costs for each year.**
4. Bids **SHOULD BE TOTALED** so that the final cost is clearly stated (unless submitting a unit price bid), however **each item should be priced individually**. Do not group items. Awards may be made on the basis of *total* bid or by *individual items*.
5. All bids **MUST BE SIGNED IN INK.**

Name of Bidder (Firm or Individual): _____

Contact Name: _____

Business Address: _____

Business Phone #: _____

Contact Email Address: _____

Agrees to bid on (Write the “Item Description” here): _____

If the bidder’s company is based in a state *other than Rhode Island*, list name and contact information for a local agent for service of process that *is located within Rhode Island* _____

Delivery Date (if applicable): _____

Name of Surety Company (if applicable): _____

Total Amount in Writing*: _____

Total Amount in Figures*: _____

****Include allowance in total***

Use additional pages if necessary for additional bidding details.

Signature of Representation

Title

BID FORM 2: Certification of Bidder

(Non-Discrimination/Hiring)

Upon behalf of _____ (Firm or Individual Bidding),

I, _____ (Name of Person Making Certification),

being its _____ (Title or "Self"), hereby certify that:

1. Bidder does not unlawfully discriminate on the basis of race, color, national origin, gender, sexual orientation and/or religion in its business and hiring practices.
2. All of Bidder's employees have been hired in compliance with all applicable federal, state and local laws, rules and regulations.

I affirm by signing below that I am duly authorized on behalf of Bidder, on

this _____ day of _____ 20____.

Signature of Representation

Printed Name

BID FORM 3: Certificate Regarding Public Records

Upon behalf of _____ (Firm or Individual Bidding),

I, _____ (Name of Person Making Certification),

being its _____ (Title or "Self"), hereby certify an

understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on

this _____ day of _____ 20_____.

Signature of Representation

Printed Name

BID FORM 4: Affidavit of City Vendor

Per our Code of Ordinances [Sec. 21.-28.1 \(e\)](#), this form applies to a) the business, b) any political action committee whose name includes the name of the business, c) all persons holding ten (10) percent or greater equity interest or five thousand dollars (\$5,000.00) or greater cash value interest in the business at any time during the reporting period, d) all executive officers of the business entity, e) any spouse or dependent child of any individual identified in a) though d) above.

Executive officers who are not residents of the state of Rhode Island are exempted from this requirement.

Per [R.I.G.L. § 36-14-2](#), “Business” means a sole proprietorship, partnership, firm, corporation, holding company, joint stock company, receivership, trust, or any other entity recognized in law through which business for profit or not for profit is conducted.

Name of the person making this affidavit: _____

Position in the “Business” _____

Name of Entity _____

Address: _____

Phone number: _____

The number of persons or entities in your entity that are required to report under [Sec. 21.-28.1 \(e\)](#): _____

Read the following paragraph and answer one of the options:

Within the 12 month period preceding the date of this bid submission with the City of Providence, or with respect to the contracts that are not in writing within the 12 month period preceding the date of notification that the contract has reached the \$100,000 threshold, have you made campaign contributions within a calendar year to (please list all persons or entities required under [Sec. 21.-28.1 \(e\)](#)).

a. Members of the Providence City Council? Yes No

- If Yes, please complete the following:

Recipient(s) of the Contribution:

Contribution Date(s):

Contribution Amount(s):

b. Candidates for election or reelection to the Providence City Council? Yes No

- If Yes, please complete the following:

Recipient(s) of the Contribution:

Contribution Date(s):

Contribution Amount(s):

c. The Mayor of Providence? Yes No

- If Yes, please complete the following:

Recipient(s) of the Contribution:

Contribution Date(s):

Contribution Amount(s):

d. Candidates for election or reelection to the office of Mayor of Providence? Yes No

- If Yes, please complete the following:

Recipient(s) of the Contribution:

Contribution Date(s):

Contribution Amount(s):

Signed under the pains and penalties of perjury.

Position

MBE/WBE Participation Plan

Please complete separate forms for each MBE/WBE subcontractor/supplier to be utilized on the solicitation.

Bidder's Name:					
Bidder's Address:					
Point of Contact:					
Telephone:					
Email:					
Procurement #:					
Project Name:					
Which one of the following describes your business' status in terms of Minority and/or Woman Owned Business Enterprise certification with the State of Rhode Island? (Check all that apply).	<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> Neither MBE nor WBE		
<p>This form is intended to capture commitments between the prime contractor/vendor and MBE/WBE subcontractors and suppliers, including a description of the work to be performed and the percentage of the work as submitted to the prime contractor/vendor. Please note that all MBE/WBE subcontractors/suppliers must be certified by the Office of Diversity, Equity and Opportunity at the time of bid. The MBE/WBE Directory can be found here. Please visit, the City's MBE/WBE page for details of the program (e.g. instructions and requirements).</p> <ul style="list-style-type: none"> • Nonprofit organizations are not required to complete the rest of this form. • Construction projects unable to identify subcontractors prior to bid submission (e.g. Design Build) are required to provide updates to the MBE/WBE Outreach Office 					
Name of Subcontractor/Supplier:					
Type of RI Certification:	<input type="checkbox"/> MBE	<input type="checkbox"/> WBE	<input type="checkbox"/> Neither		
Address:					
Point of Contact:					
Telephone:					
Email:					
Detailed Description of Work to Be Performed by Subcontractor or Materials to be Supplied by Supplier Per the Scope of Work provided in the RFP					
Total Contract Value (\$):		Subcontract Value (\$):		Participation Rate (%):	
Anticipated Date of Performance:					
I certify under penalty of perjury that the forgoing statements are true and correct.					
Prime Contractor/Vendor Signature		Title		Date	
Subcontractor/Supplier Signature		Title		Date	

***If you did not meet the 20% MBE/WBE combined participation goal, submit a Waiver Request Form.**

MBE/WBE Waiver Request Form

Fill out this form only if you did not meet the 20% MBE/WBE participation goal.

State-certified MBE or WBE Prime Bidders are NOT REQUIRED to fill out this form.

Submit this form to the City of Providence MBE/WBE Outreach Director, Grace Diaz, at gdiaz@providenceri.gov, for review **prior to bid submission**. This waiver applies only to the current bid which you are submitting to the City of Providence and does not apply to other bids your company may submit in the future. **In case a waiver is needed, City Department Directors should not recommend a bidder for an award if this form is not included, absent or is not signed by the city of Providence MBE/WBE director.**

Prime Bidder: _____ Contact Email and Phone _____
 Company Name, Address: _____ Trade _____
 Project /Item Description (as seen on RFP): _____

To receive a waiver, you must list the certified MBE and/or WBE companies you contacted, the name of the primary individual with whom you interacted, and the reason the MBE/WBE company could not participate on this project.

MBE/WBE Company Name	Individual's Name	Company Name	Why did you choose not to work with this company?

I acknowledge the City of Providence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am requesting a waiver of _____ % MBE/WBE (20% minus the value of **Box F** on the Subcontractor Disclosure Form). If an opportunity is identified to subcontract any task associated with the fulfillment of this contract, a good faith effort will be made to select MBE/WBE certified businesses as partners.

 Signature of Prime Contractor /
 or Duly Authorized Representative

 Printed Name

 Date Signed

 Signature of City of Providence
 MBE/WBE Outreach Director /
 or Duly Authorized Representative

 Printed Name of City of Providence
 MBE/WBE Outreach Director

 Date Signed

FOR CONSTRUCTION PROJECTS

APPRENTICE REQUIREMENTS (Construction Projects Valued at \$100,000 or More).

Attention of prospective bidders is called to the fact that this project is to be bid upon and executed under the City of Providence Code of Ordinances Chapter 21 Art. II [Section 21-28.1](#) c(1) and (2) related to utilizing apprentices in the contract. This ordinance outlines requirements for utilizing not less than 15% of total hours worked by apprentices. The City may lower this percentage only if it determines in writing that compliance is not feasible or that it would be unduly cost prohibitive to the project. The attention of prospective bidders is also called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in a format to be specified by the City. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to apprenticeship requirements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed and agreed upon for the execution of the contract.

“FIRST SOURCE” REQUIREMENTS.

Attention of prospective bidders is called to the fact that this project is to be bid upon and executed under the City of Providence Code of Ordinances [Chapter 21 Art. III 1/2 First Source Agreements](#) Sec. 21-91 through 21-96. This ordinance outlines requirements for hiring Providence residents to work on this project. The City may waive this requirement only upon a determination in writing that qualified residents of Providence are not available for the project, pursuant to Sec. 21-94(e). The attention of prospective bidders is called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in a format to be specified by the City. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to the First Source Agreements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed, and agreed upon for the execution of the contract.



**BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND**

SUPPLEMENTAL BID FORM

To whom it may concern:

1. The undersigned, having familiarized (himself) (themselves) (itself) with the **Improvements at Gano Street Park – 2nd Re-Bid** bid affecting the cost of work, and with the Contract Documents (which includes the Invitation for Bids, Instructions to Bidders, Form of Bid Bond, Form of Agreements, form of Non-Collusive Affidavit, Addenda (if any), Drawings, Technical Specification, Form of Surety Bond(s); as prepared by the Providence Parks Department, and on file in the office of the City Clerk 3rd Floor, City Hall, Providence, RI 02903, hereby proposes to furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and services including utility and transportation services, and to perform such other required work for the **Improvements at Gano Street Park – 2nd Re-Bid** and such other required and incidental work, complete, all in accordance with the above listed documents and for the unit prices for work in-place for the following items and quantities.

2. In submitting this Bid, the bidder understands that the right is reserved by The Providence Parks Department to reject any and all Bids, If written notice of acceptance of this Bid is mailed, telegraphed or delivered to the undersigned within (90) days after the opening thereof, or at any time thereafter before this Bid is withdrawn, the undersigned agrees to execute and deliver an Agreement in the prescribed form and furnish the required bond within (10) days after the Agreement is presented to him/her for signature.

Herewith in accordance with the instructions to Bidders.

3. Attached hereto is an affidavit in proof that the undersigned has not colluded with any person in respect to this. Bid or any bids for the Contractor for which this Bid is submitted. Also attached is a Statement of Bidder's Qualifications.

4. application unit prices are contained in the Agreement (established as the result of either a Unit Price Bid or a Supplemental Schedule of Unit Prices), the City of Providence may order the Contractor to proceed with desired changes in the work, the value of such changes to be determined by the measured quantities involved and the application unit prices specified in the Contract.

5. The City of Providence reserves the right to determine the lowest responsible Bidder based on past experience with the City and/or recommendations by City and/or state agencies with an interest in this procurement. The City reserves the right to award the project to the appropriate bidder in the best interest of the City of Providence.

CERTIFICATION OF NON-SEGREGATED FACILITIES

The Bidder certifies that he/she does not maintain or provide for his/her employees any segregated facilities at any of his establishments, and that he/she does not permit his/her employees to perform their services at any location, under his/her control, where segregation facilities are maintained. The Bidder agrees that a breach of this certification will be a violation of the Equal Opportunity Clause in any contract resulting from acceptance of this Bid. As used in this certification, term "segregation facilities" means any waiting rooms, work rooms, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation and housing facilities provided for employee which are segregated by explicit directive or are in fact segregated on basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that (except where he/she has obtained identical certification from proposed subcontractors for specific time periods) he/she will obtain identical certification from proposed subcontractor prior to the award of subcontracts exceeding \$10,000.00 which are not exempt from provisions of the Equal Opportunity Clause, and that he /she will retain such certifications in his/her files.

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. & 1001.

DATE _____, 20__

Name of Bidder and Official Address:

Name of Authorized Representative (Contact):

By _____
(Signature)
Title _____

E-Mail: _____

Phone: _____

Bidder shall indicate, in space provided,
the earliest possible Project Start-up Date: _____, 20 ____

ADDENDA: The undersigned acknowledges receipt of the following Addenda, if any, and has included the provisions thereof in this Bid (If Any):

<u>Addendum No.</u>	<u>Date</u>	<u>Addendum No.</u>	<u>Date</u>
_____	_____, 20 ____	_____	_____, 20 ____
_____	_____, 20 ____	_____	_____, 20 ____

Sub-Contractors (If Any):

Name: _____ **Scope of Work:** _____ **MBE / WBE**

Name: _____ **Scope of Work:** _____ **MBE / WBE**

Name: _____ **Scope of Work:** _____ **MBE / WBE**



**BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND**

BID PACKAGE SPECIFICATIONS

Project Description:

Located in the Fox Point neighborhood of Providence, Gano Street Park is situated along the west bank of Providence River. The scope of work for this project includes the installation of a new Little League Baseball Field and a rehabilitation of existing Basketball Courts.

BASE BID: The Base Bid scope of work for this project shall include, but not be limited to the following:

- Strip & regrade Little League Baseball field
- F&I Irrigation system w/ new water meter & backflow preventer
- F&I infield mix, bases, sod infield and hydroseeded outfield
- D&I 4-pole Musco lighting system and connect to ex. electric service
- F&I chain link dugouts with corrugated rooves, on new & existing concrete pads, D&I player benches
- F&I 3" Asphalt pavement at basketball courts with 2" striping for 84' & 94' courts
- D&I basketball backboards and hoops
- F&I shade trees

ADD ALTERNATES include:

- #1 - F&I asphalt paths between Power St, concession stand, & baseball field
- #2 - R&D and F&I section of asphalt roadway at Power St entrance
- #3 - F&I 12' vehicular gate
- #4 - F&I new scoreboard on ex. posts
- #5 - F&I 4" concrete pads for ex. bleachers
- #6 - F&I basketball court coating in 3 color design

In addition to stating the Total Base Bid, the bidder shall state Unit Prices for related work listed under each bid item which represents the work items included in the Total Base Bid. The Unit Prices are quoted for computing adjustments to the Base Bid prior to Contract award, as well as during the course of construction, based upon extra work ordered by the City or for work countermanded, reduced or omitted by the City in order to stay within the Project budget.

Base Bid Items and Unit prices are to be Completed prices to be added or deducted on the basis of quantities of work involved, for each item in place in the unit indicated.

All Work Included in this Project Shall be Completed for the lump sum of:

_____ Dollars
(\$ _____), **TOTAL BASE BID**

ALLOWANCE: \$25,000.00

BASE BID W/ ALLOWANCE: \$ _____

ABBREVIATIONS

R&S	Remove & Stockpile	EA	Each
R&D	Remove & Dispose	LF	Linear Foot
D&I	Deliver & Install, owner provided	SF	Square Foot
F&I	Furnish & Install	CY	Cubic Yard
LS	Lump Sum	TN	Ton

ADD ALTERNATES:

1. Add Alt #1 – F&I 3” Asphalt Paths/Move Granite Blocks/Loam & Hydroseed, complete - Per Lump Sum

_____ LS \$ _____
price in writing

2. Add Alt #2 – R&D Ex. Asphalt/F&I 3” Asphalt Paving/Reset Granite Paving, complete - Per Lump Sum

_____ LS \$ _____
price in writing

3. Add Alt #3 – F&I 12’W Steel Bar Gate, complete - Per Lump Sum

_____ LS \$ _____
price in writing

4. Add Alt #4 – F&I New Scoreboard on Ex. Posts, complete - Per Lump Sum

_____ LS \$ _____
price in writing

5. Add Alt #5 – F&I 4” Concrete Pads, complete - Per Lump Sum

_____ LS \$ _____
price in writing

6. Add Alt #6 – F&I 3-Color Coating for Basketball Courts, complete- Per Lump Sum

_____ LS \$ _____
price in writing

UNIT PRICES – BASE BID:

1. F&I Temporary Tree Protection, complete. – Per Linear Foot

_____ LF \$ _____
price in writing

2. F&I Silt Sock Erosion Control, complete. – Per Linear Foot

_____ LF \$ _____
price in writing

3. R&D Ex. Water Meter & Backflow Preventer, complete. – Per Lump Sum

_____ LS \$ _____
price in writing

4. R&D Ex. Turf @ Western Baseball Field, complete. – Per Square Foot

_____ SF \$ _____
price in writing

7. Rough Grading, complete. – Per Cubic Yard

_____ CY \$ _____
price in writing

Please note that the list above is not intended to include all items required to complete the base bid scope of work but can and shall be used to adjust the contract prior to or after award – in the best interest of the City of Providence.

BIDDER: _____

8. Fine Grading, complete. – Per Cubic Yard

_____ CY \$ _____
price in writing

9. F&I 2” Water Meter & Backflow Preventer w/ Enclosure, complete – Per Lump Sum

_____ LS \$ _____
price in writing

10. F&I Irrigation System for Western Baseball Field – Per Lump Sum

_____ LS \$ _____
price in writing

11. F&I Ball Valves and Reconnect Ex. Waterlines to new Meter, complete – Per Lump Sum

_____ LS \$ _____
price in writing

12. F&I 4” Infield Mix, complete – Per Cubic Yard

_____ CY \$ _____
price in writing

13. F&I Break-Away Bases, Homeplate, and Pitchers’ Rubber, complete – Per Lump Sum

_____ LS \$ _____
price in writing

14. F&I 55 Gal Trash Receptacles on 4” Concrete Pads, complete – Per Each

_____ EA \$ _____
price in writing

15. Adjust Ex. 6’ Chain Link Outfield Fencing to New Grades, complete – Per Lump Sum

_____ LS \$ _____
price in writing

16. Furnish & Deliver Boring Logs & Geo-Technical Report for Lightpole Footings, complete – Per Lump Sum

_____ LS \$ _____
price in writing

17. D&I Musco 4-Pole Lighting System & Controller, Connect to Ex. Electrical Service, complete – Per Lump Sum

_____ LS \$ _____
price in writing

18. F&I 4” Concrete Pad @ Dugout Enclosure, complete – Per Square Foot

_____ SF \$ _____
price in writing

19. D&I 10’x24’ Dugout Roof Structure, complete – Per Each

_____ EA \$ _____
price in writing

Please note that the list above is not intended to include all items required to complete the base bid scope of work but can and shall be used to adjust the contract prior to or after award – in the best interest of the City of Providence.

BIDDER: _____

20. F&I Chain Link Fencing around Dugout, complete – Per Each

_____ EA \$ _____
price in writing

21. D&I Players’ Benches, surface mount on concrete pads, complete – Per Each

_____ EA \$ _____
price in writing

22. F&I 6' Chain Link Fence on Ex. Posts, complete – Per LF

_____ LF \$ _____
price in writing

23. F&I Fine Fescue Sod to Limits Shown, complete – Per Square Foot

_____ SF \$ _____
price in writing

24. F&I Loam and Hydroseed with Athletic Field Mix, complete – Per Square Foot

_____ SF \$ _____
price in writing

25. F&I Asphalt Paving and Base, Complete. – Per Square Foot

_____ SF \$ _____
price in writing

26. D&I Truebounce Basketball Posts, Backboards, & Rims, complete. – Per Each

_____ EA \$ _____
price in writing

27. F&I 2” Waterborne Striping for Basketball Courts, complete – Per Lump Sum

_____ LS \$ _____
price in writing

28. Remove & Reset Ex. Granite Blocks in Parking Lot, complete. – Per Each

_____ EA \$ _____
price in writing

29. F&I Shade Trees – 2.5-3” Caliper, complete. – Per Each

_____ EA \$ _____
price in writing

30. F&I Loam and Hydroseed all Disturbed Areas w/ Parks Seed Mix, complete – Per Square Foot

_____ SF \$ _____
price in writing

Please note that the list above is not intended to include all items required to complete the base bid scope of work but can and shall be used to adjust the contract prior to or after award – in the best interest of the City of Providence.

BIDDER: _____



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ADDITIONAL BID DOCUMENTS

The complete set of Bid Documents includes the pages above & the following:

- **PREVAILING WAGE DECISION**
- **TECHNICAL SPECIFICATIONS:**
 - **01 00 00 GENERAL REQUIREMENTS**
 - **01 56 39 TEMPORARY TREE AND PLANT PROTECTION**
 - **02 41 19 SELECTIVE DEMOLITION**
 - **03 30 00 CAST-IN-PLACE CONCRETE**
 - **11 68 33 ATHLETIC FIELD EQUIPMENT**
 - **31 20 00 EARTH MOVING**
 - **31 22 13 ROUGH GRADING**
 - **31 23 16.13 TRENCHING**
 - **31 25 00 EROSION AND SEDIMENTATION CONTROLS**
 - **32 12 16 ASPHALT PAVING**
 - **32 13 13 CONCRETE PAVING**
 - **32 18 23.16 NATURAL BASEBALL FIELD SURFACING**
 - **32 31 13 CHAIN LINK FENCES AND GATES**
 - **32 33 00 SITE FURNISHINGS**
 - **32 84 00 PLANTING IRRIGATION**
 - **32 91 19 LANDSCAPE GRADING**
 - **32 92 00 TURF AND GRASSES**
 - **32 93 00 PLANTS**
 - **33 14 13 WATER UTILITY TRANSMISSION AND DISTRIBUTION**
- **PROVIDENCE PARKS DEPT DRAWINGS:**
 - **L-1 COVER**
 - **L-2 EXISTING CONDITIONS/DEMOLITION PLAN**
 - **L-3 GRADING PLAN**
 - **L-4 MATERIALS PLAN**
 - **L-5 IRRIGATION PLAN**
 - **L-6 LAYOUT PLAN**
 - **L-7 CONSTRUCTION DETAILS 1**
 - **L-8 CONSTRUCTION DETAILS 2**
 - **L-9 IRRIGATION DETAILS**
 - **L-10 ADD/ALTERNATE DETAILS**
- **MUSCO LIGHTING DRAWINGS:**
 - **DESIGN DRAWINGS (6 SHEETS)**
 - **TYPICAL FOUNDATION DETAIL**
 - **CONTROL SYSTEM SUMMARY (3 PAGES)**

ADDITIONAL INFORMATION REQUIRED WITH BID:

- Qualifications to Perform Work – See Form Below for Information Required
- Addenda (If Any) - Must Be Acknowledged on Bid Form (Page 14)

- Product Information for Items Submitted as ‘Or Equal’ to Specified Materials

PROVISIONS OF THIS PROJECT:

- Upon the Issuance of the Award from the Board of Contract – the City shall issue a Contract to be executed by the City and the vendor incorporating the bid specifications. All Provisions of the Specifications are binding.
- Any Permits Required by the City of Providence and/or State of Rhode Island Shall be Obtained by the Vendor – Permit Fees by the City of Providence Shall be Waived – the State ADA Fee Must be Paid
- The Davis Bacon Act Applies (HUD Projects) – Prevailing Wages Must Be Paid for On Site Hours – On-Site Interviews will be Conducted During the Project – Employees Shall be Advised of the Prevailing Wage Rates Prior to Mobilization on Site
- Certified payrolls Must be Submitted With Pay Requests Including Monthly Utilizations Form
- Performance and Payment Bonds (If Required) Must be Submitted within 10 Days of Award or Bid Bond Will be Forfeited
- An Insurance Certificate Shall be Submitted to the City Within 10 Days of Award
- A Copy of the Vendors Contractor’s License Must be Submitted within 10 Days of Award
- All On-Site Personnel Shall be Licensed (If Required) and Shall have Proof of All Licenses Required by the State of Rhode Island to Perform the Work Required
- Pay Requests Must be Submitted on Approved AIA Billing Documents (City will Provide if Needed)
- All Subcontractors Shall be Listed on the Bid Form – All Insurance & Payroll Requirements Apply
 - General Contractor Shall be the Insurance Certificate Holder and the City Shall be Named as ‘Additionally Insured’ with Respect to Liability Insurance
- A Submittal Log Must be Submitted within 10 Days of Award

CLOSE OUT DOCUMENTS:

- Prior to Final Payment the Vendor Shall Provide the Following:
 - Copies of Permits Signed off and Approved (If Any)
 - Operating Manuals and Warranties Shall Be Transferred and/or Delivered
 - Full and Completed As-Built Drawings Shall be Submitted for Approval
 - Training Shall be Provided to City Personnel (If Required)
 - Certification by Manufactures Representative (If Required)

QUALIFICATIONS:

Qualifications will be evaluated on the basis of similar project experience for:

- a. Completion of at least 3 similar projects within the past five years.
- b. Size and dollar value of similar completed projects.
- c. Contractor’s performance with similar projects. (references will be checked)
- d. Relevant experience of individuals assigned to the project.

Questions regarding this bid package shall be submitted via e-mail to Purchasing at purchasing@providenceri.gov and **Sam Greenwood, Senior Landscape Architect, sgreenwood@providenceri.gov**, no later than five (5) working days before the bid opening date.

SUPPLEMENTAL INFORMATION

If the issuing department for this RFP determines that your firm's bid is best suited to accommodate their need, you will be asked to provide proof of the following prior to formalizing an award.

An inability to provide the outlined items at the request of the department may lead to the disqualification of your bid.

*This information is **NOT** requested to be provided in your initial bid that you will submit to the City Clerk's office by the "date to be opened" noted on page 1. This list only serves as a list of items that your firm should be ready to provide on request.*

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record.

You must be able to provide:

- Business Tax ID will be requested after an award is approved by the Board of Contract and Supply.
- Proof of Insurance.
- Certificate of Good Standing with the Rhode Island Secretary of State.



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CITY OF PROVIDENCE STANDARD TERMS & CONDITIONS

1. The terms “you” and “your” contained herein refer to the person or entity that is a party to the agreement with the City of Providence (“the City”) and to such person’s or entity’s employees, officers, and agents.
2. The Request For Proposals (“RFP”) and these Standard Terms and Conditions together constitute the entire agreement of the parties (“the Agreement”) with regard to any and all matters. By your submission of a bid proposal or response to the City’s RFP, you accept these Standard Terms & Conditions and agree that they supersede any conflicting provisions provided by bid or in any terms and conditions contained or linked within a bid and/or response. Changes in the terms and conditions of the Agreement, or the scope of work thereunder, may only be made by a writing signed by the parties.
3. You are an independent contractor and in no way does this Agreement render you an employee or agent of the City or entitle you to fringe benefits, workers’ compensation, pension obligations, retirement or any other employment benefits. The City shall not deduct federal or state income taxes, social security or Medicare withholdings, or any other taxes required to be deducted by an employer, and this is your responsibility to yourself and your employees and agents.
4. You shall not assign your rights and obligations under this Agreement without the prior written consent of the City. Any assignment without prior written consent of the City shall be voidable at the election of the City. The City retains the right to refuse any and all assignments in the City’s sole and absolute discretion.
5. Invoices submitted to the City shall be payable sixty (60) days from the time of receipt by the City. Invoices shall include support documentation necessary to evidence completion of the work being invoiced. The City may request any other reasonable documentation in support of an invoice. The time for payment shall not commence, and invoices shall not be processed for payment, until you provide reasonably sufficient support documentation. In no circumstances shall the City be obligated to pay or shall you be entitled to receive interest on any overdue invoice or payment. In no circumstances shall the City be obligated to pay any costs associated with your collection of an outstanding invoice.
6. For contracts involving construction, alteration, and/or repair work, the provisions of applicable state labor law concerning payment of prevailing wage rates (R.I. Gen. Laws §§ 37-13-1 et seq., as amended) and the City’s First Source Ordinance (Providence Code of Ordinances §§ 21-91 et seq., as amended) apply.
7. With regard to any issues, claims, or controversies that may arise under this Agreement, the City shall not be required to submit to dispute resolution or mandatory/binding arbitration. Nothing prevents the parties from mutually agreeing to settle any disputes using mediation or non-binding arbitration.
8. To the fullest extent permitted by law, you shall indemnify, defend, and hold harmless the City, its employees, officers, agents, and assigns from and against any and all claims, damages, losses, allegations, demands, actions, causes of action, suits, obligations, fines, penalties, judgments, liabilities, costs and expenses, including but not limited to attorneys’ fees, of any nature whatsoever arising out of, in connection with, or resulting from the performance of the work provided in the Agreement.
9. You shall maintain throughout the term of this Agreement the insurance coverage that is required by the RFP or, if none is required in the RFP, insurance coverage that is considered in your industry to be commercially reasonable, and you agree to name the City as an additional insured on your general liability policy and on any umbrella policy you carry.
10. The City shall not subject itself to any contractual limitations on liability. The City shall have the time permitted within the applicable statute of limitations, and no less, to bring or assert any and all causes of action, suits, claims or demands the City may have arising out of, in connection with, or resulting from the performance of the work provided in the Agreement, and in no event does the City agree to limit your liability to the price of the Agreement or any other monetary limit.
11. The City may terminate this Agreement upon five (5) days’ written notice to you if you fail to observe any of the terms and conditions of this Agreement, or if the City believes your ability to perform the terms and conditions of this Agreement has been materially impaired in any way, including but in no way limited to loss of insurance coverage, lapsing of a surety bond, if required, declaration of bankruptcy, or appointment of a receiver. In the event of termination by the City, you shall be entitled to just and equitable compensation for any satisfactory work completed and expenses incurred up to the date of termination.
12. Written notice hereunder shall be deemed to have been duly served if delivered in person to the individual or member of the



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firm or entity or to an officer of the entity for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known by the party providing notice.

13. In no event shall the Agreement automatically renew or be extended without a writing signed by the parties.
14. You agree that products produced or resulting from the performance of the Agreement are the sole property of the City and may not be used by you without the express written permission of the City.
15. For any Agreement involving the sharing or exchange of data involving potentially confidential and/or personal information, you shall comply with any and all state and/or federal laws or regulations applicable to confidential and/or personal information you receive from the City, including but not limited to the Rhode Island Identity Theft Protection Act, R.I. Gen. Laws § 11-49.3-1, during the term of the Agreement. You shall implement and maintain appropriate physical, technical, and administrative security measures for the protection of, and to prevent access to, use, or disclosure of, confidential and/or personal information. In the event of a breach of such information, you shall notify the City of such breach immediately, but in no event later than twenty-four (24) hours after discovery of such breach.
16. The Agreement is governed by the laws of the State of Rhode Island. You expressly submit yourself to and agree that any and all actions arising out of, in connection with, or resulting from the performance of the Agreement or relationship between the parties shall occur solely in the venue and jurisdiction of the State of Rhode Island or the federal court located in Rhode Island.
17. The failure of the City to require performance of any provision shall not affect the City's right to require performance at any time thereafter, nor shall a waiver of any breach or default of this Agreement constitute a waiver of any subsequent breach or default or a waiver of the provision itself.
18. If any term or provision of this Agreement, or the application thereof to any person or circumstance shall, in any extent, be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each term and provision shall be valid and enforceable to the fullest extent permitted by law.



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ARPA REQUIREMENTS ADDENDUM

Federal and State Contract and Purchasing Requirements

The following terms and conditions apply to all contractors, vendors, or subrecipients of the City of Providence and all subrecipients of subrecipients of the City of Providence and all contractors or vendors hired by the subrecipient, according to the City's Award Terms and Conditions; by ARPA and its implementing regulations; and as established by the Treasury Department.

1. Equal Opportunity.

Contractor shall comply with Executive Order 11246, "Equal Employment Opportunity," as amended by EO 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

2. Minority and Women Business Enterprises (if applicable to this Contract)

Contractor hereby agrees to comply with the following when applicable: The requirements of Executive Orders 11625 and 12432 (concerning Minority Business Enterprise), and 12138 (concerning Women's Business Enterprise), when applicable. Accordingly, the Contractor hereby agrees to take affirmative steps to assure that women and minority businesses are utilized when possible as sources of supplies, equipment, construction, and services. Affirmative steps shall include the following:

- a) Including qualified women's business enterprises and small and minority businesses on solicitation lists;
- b) Assuring that women's enterprises and small and minority businesses are solicited whenever they are potential sources;
- c) When economically feasible, dividing total requirements into smaller tasks or quantities so as to permit maximum participation by small and minority business, and women's business enterprises;
- d) Where the requirement permits, establishing delivery schedules which will encourage participation by women's business enterprises and small and minority business;
- e) Using the services and assistance of the Small Business Administration, and the U.S. Office of Minority Business Development Agency of the Department of Commerce; and
- f) If any subcontracts are to be let, requiring the prime Contractor to take the affirmative steps in a through e above.

For the purposes of these requirements, a Minority Business Enterprise (MBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by members of the following groups: Black, Hispanic, Asian or Pacific Islander, Native American, or Alaskan Natives. Women Business Enterprise (WBE) is defined as an enterprise that is at least 51 percent owned and controlled in its daily operation by women.

3. Suspension and Debarment. (Applies to all purchases.)

(A) This contract is a covered transaction for purposes of 2 CFR pt. 180 and 2 CFR pt. 3000. As such, the Contractor is required to verify that none of Contractor's principals (defined at 2 CFR § 180.995) or its affiliates (defined at 2 CFR § 180.905) are excluded (defined at 2 CFR § 180.940) or disqualified (defined at 2 CFR § 180.935).

(B) The Contractor must comply with 2 CFR pt. 180, subpart C and 2 CFR pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.



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(C) This certification is a material representation of fact relied upon by the City of PROVIDENCE. If it is later determined that the contractor did not comply with 2 CFR pt. 180, subpart C and 2 CFR pt. 3000, subpart C, in addition to remedies available to the City, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(D) The Contractor agrees to comply with the requirements of 2 CFR pt. 180, subpart C and 2 CFR pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The Contractor further agrees to include a provision requiring such compliance in its lower tier covered transactions.

4. Byrd Anti-Lobbying Amendment, 31 U.S.C. § 1352, as amended. (Applies to all purchases.)

Contractor certifies that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant, or any other award covered by 31 U.S.C. § 1352. Contractor shall also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

Purchases over \$100,000 - Contractors must sign the certification on the last page of this addendum

5. Access to Records. (Applies to all purchases.)

A. The Contractor agrees to provide the City of PROVIDENCE, the U.S. Department of Treasury, the Comptroller General of the United States, or any of their authorized representatives access to any books, documents, papers, and records of the Contractor which are directly pertinent to this contract for the purposes of making audits, examinations, excerpts, and transcriptions. The Contractor agrees to permit any of the foregoing parties to reproduce by any means or to copy excerpts and transcriptions as reasonably needed and agrees to cooperate with all such requests.

B. The Contractor agrees to provide the Treasury Department or authorized representatives access to construction or other work sites pertaining to the work being completed under the contract.

C. No language in this contract is intended to prohibit audits or internal reviews by the Treasury Department or the Comptroller General of the United States.

6. Rights to Inventions Made Under a Contract or Agreement.

Contracts or agreements for the performance of experimental, developmental, or research work shall provide for the rights of the Federal Government and the recipient in any resulting invention in accordance with 37 CFR part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any applicable implementing regulations.

7. Contract Work Hours and Safety Standards Act (40 U.S.C. 327 through 333) (applies only to purchases over \$100,000, when laborers or mechanics are used.)

Where applicable, all contracts in excess of \$100,000 that involve the employment of mechanics or laborers shall include a provision for compliance with 40 U.S.C. 3702 and 3704 of the Contract Work Hours and Safety Standards Act, as supplemented by Department of Labor regulations (29 CFR part 5). Under Section 3702 of the Act, each contractor shall be required to compute the wages of every mechanic and laborer on the basis of a standard workweek of 40 hours. Work in excess of the standard workweek is permissible provided that the worker is compensated at a rate of not less than 1 1/2 times the basic rate of pay for all hours worked in excess of 40 hours in the workweek. The requirements of 40 U.S.C. 3704 are applicable to construction work and provides that no laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous. These requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.



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8. Clean Air Act & Federal Water Pollution Control Act (applies to purchases of more than \$150,000.)

- A. The Contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.
- B. The Contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
- C. The Contractor agrees to report each violation of the Clean Air Act and the Water Pollution Control Act to the City of PROVIDENCE
- D. and understands and agrees that the City will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
- E. Contractor agrees to include these requirements in each subcontract exceeding \$150,000 financed in whole or in part with Federal assistance.

9. Prohibition on certain telecommunications and video surveillance services or equipment (Huawei and ZTE)

Contractor is prohibited from obligating or expending loan or grant funds to:

1. Procure or obtain;
 2. Extend or renew a contract to procure or obtain; or
 3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115-232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- I. For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- II. Telecommunications or video surveillance services provided by such entities or using such equipment.
- III. Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

10. Buy USA - Domestic Preference for certain procurements using federal funds.

Contractor should, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). The requirements of this section must be included in all subawards including all contracts and purchase orders for work or products under this award. For purposes of this section:

1. "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
2. "Manufactured products" means items and construction materials composed in whole or in part of non-ferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.



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11. Procurement of Recovered Materials: (applies only if the work involves the use of materials)

A. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired:

- I. Competitively within a timeframe providing for compliance with the contract performance schedule;
- II. Meeting contract performance requirements; or
- III. At a reasonable price.

B. Information about this requirement, along with the list of EPA - designated items, is available at EPA's Comprehensive Procurement Guidelines web site, <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program>.

C. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act.

12. Publications.

Any publications produced with funds from this award must display the following language: "This project [is being] [was] supported, in whole or in part, by federal award number [enter project FAIN] awarded to [name of Recipient] by the U.S. Department of the Treasury."

13. Increasing Seat Belt Use in the United States.

Pursuant to Executive Order 13043, 62 FR 19217 (Apr. 18, 1997), Contractor is encouraged to adopt and enforce on-the-job seat belt policies and programs for your employees when operating company-owned, rented or personally owned vehicles.

14. Reducing Text Messaging While Driving.

Pursuant to Executive Order 13513, 74 FR 51225 (Oct. 6, 2009), Contractor is encouraged to adopt and enforce policies that ban text messaging while driving, and establish workplace safety policies to decrease accidents caused by distracted drivers.

15. Iran Divestment Act.

Pursuant to the North Carolina General Assembly (S.L. 2015-118; SB455), The Iran Divestment Act is to implement the authority granted to states by federal law to impose state-level sanctions against companies that engage in certain investment activities in the energy sector of Iran.

Additional Federal Regulations Applicable to ARPA (is hereby incorporated by reference):

1. Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, 2 C.F.R. Part 200, other than such provisions as Treasury may determine are inapplicable to this Award and subject to such exceptions as may be otherwise provided by Treasury. Subpart F – Audit Requirements of the Uniform Guidance, implementing the Single Audit Act, shall apply to this award.
2. Universal Identifier and System for Award Management (SAM), 2 C.F.R. Part 25, pursuant to which the award term set forth in Appendix A to 2 C.F.R. Part 25 is hereby incorporated by reference
3. Reporting Subaward and Executive Compensation Information, 2 C.F.R. Part 170, pursuant to which the award term set forth in Appendix A to 2 C.F.R. Part 170 is hereby incorporated by reference.
4. OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Non-procurement), 2 C.F.R. Part 180, including the requirement to include a term or condition in all lower tier covered transactions (contracts and subcontracts described in 2 C.F.R. Part 180, subpart B) that the award is subject to 2 C.F.R. Part 180 and Treasury's implementing regulation at 31 C.F.R. Part 19.



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5. Recipient Integrity and Performance Matters, pursuant to which the award term set forth in 2 C.F.R. Part 200, Appendix XII to Part 200 is hereby incorporated by reference.
6. Governmentwide Requirements for Drug-Free Workplace, 31 C.F.R. Part 20.
7. New Restrictions on Lobbying, 31 C.F.R. Part 21.
8. Uniform Relocation Assistance and Real Property Acquisitions Act of 1970 (42 U.S.C. §§ 4601-4655) and implementing regulations.
9. Generally applicable federal environmental laws and regulations.

Statutes and regulations prohibiting discrimination applicable to ARPA awards include, without limitation, the following:

1. Title VI of the Civil Rights Act of 1964 (42 U.S.C. §§ 2000d et seq.) and Treasury's implementing regulations at 31 C.F.R. Part 22, which prohibit discrimination on the basis of race, color, or national origin under programs or activities receiving federal financial assistance;
2. The Fair Housing Act, Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§ 3601 et seq.), 4 which prohibits discrimination in housing on the basis of race, color, religion, national origin, sex, familial status, or disability;
3. Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. § 794), which prohibits discrimination on the basis of disability under any program or activity receiving federal financial assistance;
4. The Age Discrimination Act of 1975, as amended (42 U.S.C. §§ 6101 et seq.), and Treasury's implementing regulations at 31 C.F.R. Part 23, which prohibit discrimination on the basis of age in programs or activities receiving federal financial assistance; and

Title II of the Americans with Disabilities Act of 1990, as amended (42 U.S.C. §§ 12101 et seq.), which prohibits discrimination on the basis of disability under programs, activities, and services provided or made available by state and local governments or instrumentalities or agencies thereto.



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PREVAILING WAGE

This project qualifies for prevailing wages per the Prevailing Wages Statute or the Davis Bacon Act (HUD). Certified payrolls will need to be submitted to the owner for all hours worked on site for this project.

The Wage Decision for this project shall be as recorded on the Bid Date and is available on the RI Department of Labor website.

Federal Labor Standards

U.S. Department of Housing & Urban Development

Applicability

The Project of Program to which the Construction work covered by this contract pertains is being assisted by the United States of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

- A.1. (i) **Minimum Wages.** All laborers and mechanics employed or working up on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction of development of the project) will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification or work actually performed, without regard to skill, excepts as provided in 29 CFR Part 5.5 (a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFT part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.
- (ii) (a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contact shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (2) The classification is utilized in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a relationship to the wage rates contained in the wage determination.
- (b) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and HUD or its designee on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of labor, Washington, D.C. 20210. The Administrator,



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or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

- (c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)
- (d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
- (iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
- (iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)
2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much that the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract. HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.
3. (i) Payrolls and basic records. Payrolls and basic record relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of labor has found under 29 CFR 5.5 (a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonable anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) or the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits ins enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage



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rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

- (ii) (a) The contractor shall submit weekly for each in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-34 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), Government Printing Office, Washington, Dc 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)
- (b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
- (1) That the payroll for the payroll period contains the information required to be maintained under 20 CFR Part 5.5 (a)(3)(i) and that such information is correct and complete;
- (2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;
- (3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
- (c) The weekly submission of a property executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph AA.3. (ii)(b) of this section.
- (d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code. (iii)
The contractor or subcontractor shall make the records required under paragraph A.3. (i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.
4. (i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprentice program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a



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percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the even the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirement of Executive Order 11246, s amended, and 29 CFR Part 30.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.
6. Subcontracts. The contractor or subcontractor will insert in any subcontract the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all contract clauses in 29 CFR Part 5.5
7. Contracts termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor as provided in 29 CFR 5.12
8. Compliance with Davis-Bacon and Related Act Requirements. All ruling and interpretations of the Davis-Bacon and Related Act contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees or their representatives.
10. (i) Certification of Eligibility. By entering in to this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR part 24.
(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act of 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD



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programs pursuant to 24 CFR Part 24.

(iii) The penalty to making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transaction", provides in part: "Whoever, for the purpose of ...influencing in any way the action of such Administration...makes, utter or publishes any statement, knowing the same to be false...shall be fined not more than \$5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this Contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

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

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) or this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of \$25 for each calendar day on which such individual was required or permitted to work in excess of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

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

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

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surrounding or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly Part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54, 83 Stat. 96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the Secretary of Labor shall direct as a means of enforcing such provisions.

"General Decision Number: RI20250001 12/12/2025

Superseded General Decision Number: RI20240001

State: Rhode Island

Construction Types: Building, Heavy (Heavy and Marine) and Highway

Counties: Rhode Island Statewide.

BUILDING CONSTRUCTION PROJECTS (does not include residential construction consisting of single family homes and apartments up to and including 4 stories) HEAVY, HIGHWAY AND MARINE CONSTRUCTION PROJECTS

Modification Number	Publication Date
0	01/03/2025
1	03/07/2025
2	03/14/2025
3	05/16/2025
4	06/13/2025
5	07/04/2025
6	07/25/2025
7	08/08/2025
8	08/22/2025
9	09/05/2025
10	10/03/2025
11	11/21/2025
12	12/12/2025

ASBE0006-006 09/01/2024

	Rates	Fringes
HAZARDOUS MATERIAL HANDLER (Includes preparation, wetting, stripping, removal scrapping, vacuuming, bagging & disposing of all insulation materials, whether they contain asbestos or not, from mechanical systems).....	\$ 49.91	36.63

ASBE0006-008 09/01/2024

	Rates	Fringes
Asbestos Worker/Insulator Includes application of all insulating materials, protective coverings, coatings & finishes to all types of mechanical systems.	\$ 49.91	36.63

BOIL0029-001 01/01/2025

	Rates	Fringes
BOILERMAKER.....	\$ 50.62	28.82

BRR0003-001 06/01/2022

	Rates	Fringes
Bricklayer, Stonemason, Pointer, Caulker & Cleaner.....	\$ 46.86	29.14

BRR10003-002 09/01/2022

	Rates	Fringes
Marble Setter, Terrazzo Worker & Tile Setter.....	\$ 46.54	30.34

BRR10003-003 09/01/2022

	Rates	Fringes
Marble, Tile & Terrazzo Finisher.....	\$ 38.78	29.61

CARP0330-001 06/02/2025

	Rates	Fringes
CARPENTER (Includes Soft Floor Layer).....	\$ 47.88	30.50
Diver Tender.....	\$ 48.68	30.50
DIVER.....	\$ 60.83	30.50
Piledriver.....	\$ 41.53	29.35
WELDER.....	\$ 48.68	30.50

FOOTNOTES:

When not diving or tending the diver, the diver and diver tender shall receive the piledriver rate. Diver tenders shall receive \$1.00 per hour above the pile driver rate when tending the diver.

Work on free-standing stacks, concrete silos & public utility electrical power houses, which are over 35 ft. in height when constructed: \$.50 per hour additional.

Work on exterior concrete shear wall gang forms, 45 ft. or more above ground elevation or on setback: \$.50 per hour additional.

The designated piledriver, known as the ""monkey"": \$1.00 per hour additional.

CARP1121-002 04/21/2025

	Rates	Fringes
MILLWRIGHT.....	\$ 45.72	31.50

ELEC0099-002 06/01/2025

	Rates	Fringes
ELECTRICIAN.....	\$ 56.11	44.10%
Teledata System Installer.....	\$ 42.09	10.45%+15.31

FOOTNOTES:

Work of a hazardous nature, or where the work height is 30 ft. or more from the floor, except when working OSHA-approved lifts: 20% per hour additional.

Work in tunnels below ground level in combined sewer outfall: 20% per hour additional.

ELEV0039-001 01/01/2025

	Rates	Fringes
ELEVATOR MECHANIC.....	\$ 64.52	38.435+a+b

FOOTNOTES:

a. PAID HOLIDAYS: New Years Day; Memorial Day; Independence Day; Labor Day; Veterans' Day; Thanksgiving Day; the Friday after Thanksgiving Day; and Christmas Day.

b. Employer contributes 8% basic hourly rate for 5 years or more of service of 6% basic hourly rate for 6 months to 5 years of service as vacation pay credit.

ENGI0057-001 06/01/2025

	Rates	Fringes
Operating Engineer: (power plants, sewer treatment plants, pumping stations, tunnels, caissons, piers, docks, bridges, wind turbines, subterranean & other marine and heavy construction work)		
GROUP 1.....	\$ 50.30	29.70
GROUP 2.....	\$ 48.30	29.70
GROUP 3.....	\$ 43.92	29.70
GROUP 4.....	\$ 41.07	29.70
GROUP 5.....	\$ 47.35	29.70
GROUP 6.....	\$ 38.15	29.70
GROUP 7.....	\$ 32.15	29.70
GROUP 8.....	\$ 44.00	29.70
GROUP 9.....	\$ 47.92	29.70

a. BOOM LENGTHS, INCLUDING JIBS:

- 150 feet and over + \$ 2.00
- 180 feet and over + \$ 3.00
- 210 feet and over + \$ 4.00
- 240 feet and over + \$ 5.00
- 270 feet and over + \$ 7.00
- 300 feet and over + \$ 8.00
- 350 feet and over + \$ 9.00
- 400 feet and over + \$10.00

a. PAID HOLIDAYS:

New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day, Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

a. FOOTNOTES:

Hazmat work: \$2.00 per hour additional.
Tunnel/Shaft work: \$5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks

GROUP 2: Digging machine, Ross Carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, graders, front end loader (3 yds. and over), vibratory hammer & vacuum truck, roadheaders, forklifts, economobile type equipment, tunnel boring machines, concrete pump and on site concrete plants.

GROUP 3: Oilers on cranes.

GROUP 4: Oiler on crawler backhoe.

GROUP 5: Bulldozer, bobcats, skid steer loader, tractor, scraper, combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile-powered sweeper (3-yd. capacity), 8-ft. sweeper minimum 65 HP).

GROUP 6: Well-point installation crew.

GROUP 7: Utility Engineers and Signal Persons

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator and light plant, gas and electric driven pump and air compressor.

GROUP 9: Boat & tug operator.

ENGI0057-003 06/01/2025

BUILDING CONSTRUCTION

	Rates	Fringes
Power Equipment Operator		
GROUP 1.....	\$ 49.57	29.50
GROUP 2.....	\$ 47.57	29.50
GROUP 3.....	\$ 47.35	29.50
GROUP 4.....	\$ 43.35	29.50
GROUP 5.....	\$ 40.50	29.50
GROUP 6.....	\$ 46.65	29.50
GROUP 7.....	\$ 46.65	29.50
GROUP 8.....	\$ 43.54	29.50

a. BOOM LENGTHS, INCLUDING JIBS:

150 ft. and over: + \$ 2.00
180 ft. and over: + \$ 3.00
210 ft. and over: + \$ 4.00
240 ft. and over: + \$ 5.00
270 ft. and over: + \$ 7.00
300 ft. and over: + \$ 8.00
350 ft. and over: + \$ 9.00
400 ft. and over: + \$10.00

a. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day,

Veterans Day, Thanksgiving Day & Christmas Day. a: Any employee who works 3 days in the week in which a holiday falls shall be paid for the holiday.

- a. FOOTNOTE: Hazmat work: \$2.00 per hour additional.
Tunnel/Shaft work: \$5.00 per hour additional.

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Cranes, lighters, boom trucks and derricks.

GROUP 2: Digging machine, Ross carrier, locomotive, hoist, elevator, bidwell-type machine, shot & water blasting machine, paver, spreader, front end loader (3 yds. and over), vibratory hammer and vacuum truck

GROUP 3: Telehandler equipment, forklift, concrete pump & on-site concrete plant

GROUP 4: Fireman & oiler on cranes

GROUP 5: Oiler on crawler backhoe

GROUP 6: Bulldozer, skid steer loaders, bobcats, tractor, grader, scraper, combination loader backhoe, roller, front end loader (less than 3 yds.), street and mobile powered sweeper (3 yds. capacity), 8-ft. sweeper (minimum 65 hp)

GROUP 7: Well point installation crew

GROUP 8: Heater, concrete mixer, stone crusher, welding machine, generator for light plant, gas and electric driven pump & air compressor

ENGI0057-005 05/01/2025

	Rates	Fringes
Power Equipment Operator (highway construction projects; water and sewerline projects which are incidental to highway construction projects; and bridge projects that do not span water)		
GROUP 1.....	\$ 45.45	29.70
GROUP 2.....	\$ 43.45	29.70
GROUP 3.....	\$ 38.15	29.70
GROUP 4.....	\$ 24.75	29.70
GROUP 5.....	\$ 32.15	29.70
GROUP 6.....	\$ 38.73	29.70
GROUP 7.....	\$ 42.43	29.70
GROUP 8.....	\$ 37.70	29.70

- a. FOOTNOTE: a. Any employee who works three days in the week in which a holiday falls shall be paid for the holiday.

b. PAID HOLIDAYS: New Year's Day, President's Day, Memorial Day, July Fourth, Victory Day, Labor Day, Columbus Day, Veterans Day, Thanksgiving Day & Christmas Day.

POWER EQUIPMENT OPERATOR CLASSIFICATIONS

GROUP 1: Cranes, pile drivers, lighters, boom trucks, hoists, derricks

GROUP 2: Digging machines, excavators, locomotives, John Henry's, directional drilling machines, cold planers, reclaimers, pavers, spreaders, graders, front-end loaders (3yds & over), vacuum truck, drill/boring machine operators, vermeer saw, water blaster, hydraulic-demolition robot, Ross Carriers, concrete pump operators, asphalt/material transfer machines, rotating telehandlers, SPMT type equipment

GROUP 3: Wellpoint installation and drill/boring machine assistants

GROUP 4: Utility engineers

GROUP 5: Signal persons

GROUP 6: Oilers on cranes and deckhands

GROUP 7: Combination loader / backhoes, front-end loaders (less than 3 yds.), forklift, bulldozers, scrapers, boats, rollers, skid steer loaders (regardless of attachments), street sweepers, mechanics, welders, operators in materials yards, shops and garages

GROUP 8: Gas and electric drive heaters, concrete mixers, light plants, welding machines, pumps and compressors

IRON0037-001 09/16/2025

	Rates	Fringes
IRONWORKER.....	\$ 43.03	33.53

LABO0271-001 12/03/2023

BUILDING CONSTRUCTION

	Rates	Fringes
LABORER		
GROUP 1.....	\$ 37.00	26.90
GROUP 2.....	\$ 37.00	26.90
GROUP 3.....	\$ 37.00	26.90
GROUP 4.....	\$ 37.00	26.90
GROUP 5.....	\$ 39.00	26.90

LABORERS CLASSIFICATIONS

GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems]

GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator

GROUP 3: Pre-Cast Floor & Roof Plank Erectors

GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered

Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster

GROUP 5: Toxic Waste Remover

LABORERS CLASSIFICATIONS

GROUP 1: Laborer, Carpenter Tender, Mason Tender, Cement Finisher Tender, Scaffold Erector, Wrecking Laborer, Asbestos Removal [Non-Mechanical Systems]

GROUP 2: Asphalt Raker, Adzemen, Pipe Trench Bracer, Demolition Burner, Chain Saw Operator, Fence & Guard Rail Erector, Setter of Metal Forms for Roadways, Mortar Mixer, Pipelayer, Riprap & Dry Stonewall Builder, Highway Stone Spreader, Pneumatic Tool Operator, Wagon Drill Operator, Tree Trimmer, Barco-Type Jumping Tamper, Mechanical Grinder Operator

GROUP 3: Pre-Cast Floor & Roof Plank Erectors

GROUP 4: Air Track Operator, Hydraulic & Similar Self-Powered Drill, Block Paver, Rammer, Curb Setter, Powderman & Blaster

GROUP 5: Toxic Waste Remover

LAB00271-002 11/27/2022

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
LABORER		
COMPRESSED AIR		
Group 1.....	\$ 55.40	24.15
Group 2.....	\$ 52.93	24.15
Group 3.....	\$ 42.45	24.15
FREE AIR		
Group 1.....	\$ 46.00	24.15
Group 2.....	\$ 45.00	24.15
Group 3.....	\$ 42.45	24.15
LABORER		
Group 1.....	\$ 33.05	24.05
Group 2.....	\$ 35.75	24.85
Group 3.....	\$ 36.50	24.85
Group 4.....	\$ 29.00	24.85
Group 5.....	\$ 37.50	24.85
OPEN AIR CAISSON, UNDERPINNING WORK AND BORING CREW		
Bottom Man.....	\$ 41.50	24.15
Top Man & Laborer.....	\$ 35.60	24.15
TEST BORING		
Driller.....	\$ 41.95	24.15
Laborer.....	\$ 41.95	24.15

LABORER CLASSIFICATIONS

GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries

GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator;

Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer

GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster

GROUP 4: Flagger & signaler

GROUP 5: Toxic waste remover

LABORER - COMPRESSED AIR CLASSIFICATIONS

GROUP 1: Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air

GROUP 2: Change house attendant, powder watchperson, top person on iron

GROUP 3: Hazardous waste work within the ""HOT"" zone

LABORER - FREE AIR CLASSIFICATIONS

GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator

GROUP 2: Change house attendant, powder watchperson

GROUP 3: Hazardous waste work within the ""HOT"" zone

LABORER CLASSIFICATIONS

GROUP 1: Laborer; Carpenter tender; Cement finisher tender; Wrecking laborer; Asbestos removers [non-mechanical systems]; Plant laborer; Driller in quarries

GROUP 2: Adzeperson; Asphalt raker; Barcotype jumping tamper; Chain saw operators; Concrete and power buggy operator; Concrete saw operator; Demolition burner; Fence and guard rail erector; Highway stone spreader; Laser beam operator; Mechanical grinder operator; Mason tender; Mortar mixer; Pneumatic tool operator; Riprap and dry stonewall builder; Scaffold erector; Setter of metal forms for roadways; Wagon drill operator; Wood chipper operator; Pipelayer; Pipe trench bracer

GROUP 3: Air track drill operator; Hydraulic and similar powered drills; Brick paver; Block paver; Rammer and curb setter; Powderperson and blaster

GROUP 4: Flagger & signaler

GROUP 5: Toxic waste remover

LABORER - COMPRESSED AIR CLASSIFICATIONS

GROUP 1: Mucking machine operator, tunnel laborer, brake person, track person, miner, grout person, lock tender, gauge tender, miner: motor person & all others in compressed air

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GROUP 3: Hazardous waste work within the ""HOT"" zone

LABORER - FREE AIR CLASSIFICATIONS

GROUP 1: Grout person - pumps, brake person, track person, form mover & stripper (wood & steel), shaft laborer, laborer topside, outside motorperson, miner, conveyor operator, miner welder, heading motorperson, erecting operator, mucking machine operator, nozzle person, rodperson, safety miner, shaft & tunnel, steel & rodperson, mole nipper, concrete worker, form erector (wood, steel and all accessories), cement finisher (this type of work only), top signal person, bottom person (when heading is 50' from shaft), burner, shield operator and TBM operator

GROUP 2: Change house attendant, powder watchperson

GROUP 3: Hazardous waste work within the ""HOT"" zone

PAIN0011-005 06/01/2025

	Rates	Fringes
PAINTER		
Brush and Roller.....	\$ 39.57	26.60
Epoxy, Tanks, Towers, Swing Stage & Structural Steel.....	\$ 41.57	26.60
Spray, Sand & Water Blasting.....	\$ 42.57	26.60
Taper.....	\$ 38.82	25.80
Wall Coverer.....	\$ 38.57	25.80

PAIN0011-006 06/01/2024

	Rates	Fringes
GLAZIER.....	\$ 41.63	26.15

FOOTNOTES:

SWING STAGE: \$1.00 per hour additional.

PAID HOLIDAYS: Labor Day & Christmas Day.

PAIN0011-011 06/01/2024

	Rates	Fringes
Painter (Bridge Work).....	\$ 57.85	26.40

PAIN0035-008 06/01/2011

	Rates	Fringes
Sign Painter.....	\$ 24.79	13.72

 PLAS0040-001 01/01/2025

BUILDING CONSTRUCTION

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 44.75	29.10

FOOTNOTE: Cement Mason: Work on free swinging scaffolds under 3 planks width and which is 20 or more feet above ground and any offset structure: \$.30 per hour additional.

 PLAS0040-002 01/01/2025

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
CEMENT MASON/CONCRETE FINISHER...	\$ 44.75	29.10

 PLAS0040-003 01/01/2025

	Rates	Fringes
PLASTERER.....	\$ 45.52	29.43

 PLUM0051-002 08/25/2025

	Rates	Fringes
Plumbers and Pipefitters.....	\$ 54.34	34.50

 ROOF0033-004 08/01/2025

	Rates	Fringes
ROOFER.....	\$ 53.53	35.69

 SFRI0669-001 04/01/2025

	Rates	Fringes
SPRINKLER FITTER.....	\$ 53.76	33.44

 SHEE0017-002 06/01/2025

	Rates	Fringes
Sheet Metal Worker.....	\$ 44.42	41.94

 TEAM0251-001 05/01/2025

HEAVY AND HIGHWAY CONSTRUCTION

	Rates	Fringes
TRUCK DRIVER GROUP 1.....	\$ 31.86	34.51+a+b

GROUP 2.....	\$ 32.01	34.51+a+b
GROUP 3.....	\$ 32.06	34.51+a+b
GROUP 4.....	\$ 32.11	34.51+a+b
GROUP 5.....	\$ 32.21	34.51+a+b
GROUP 6.....	\$ 32.61	34.51+a+b
GROUP 7.....	\$ 32.81	34.51+a+b
GROUP 8.....	\$ 32.31	34.51+a+b
GROUP 9.....	\$ 32.56	34.51+a+b
GROUP 10.....	\$ 32.36	34.51+a+b

FOOTNOTES:

A. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, plus Presidents' Day, Columbus Day, Veteran's Day & V-J Day, providing the employee has worked at least one day in the calendar week in which the holiday falls.

B. Employee who has been on the payroll for 1 year or more but less than 5 years and has worked 150 Days during the last year of employment shall receive 1 week's paid vacation; 5 to 10 years - 2 weeks' paid vacation; 10 or more years - 3 week's paid vacation.

C. Employees on the seniority list shall be paid a one hundred dollar (\$100.00) bonus for every four hundred (400) hours worked, up to a maximum of five hundred dollars (\$500.00)

All drivers working on a defined hazard material job site shall be paid a premium of \$2.00 per hour over applicable rate.

TRUCK DRIVER CLASSIFICATIONS

GROUP 1: Pick-up trucks, station wagons, & panel trucks

GROUP 2: Two-axle on low beds

GROUP 3: Two-axle dump truck

GROUP 4: Three-axle dump truck

GROUP 5: Four- and five-axle equipment

GROUP 6: Low-bed or boom trailer.

GROUP 7: Trailers when used on a double hook up (pulling 2 trailers)

GROUP 8: Special earth-moving equipment, under 35 tons

GROUP 9: Special earth-moving equipment, 35 tons or over

GROUP 10: Tractor trailer

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

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Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the

Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

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

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

----- WAGE DETERMINATION APPEALS PROCESS

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

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

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

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

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

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

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

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

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END OF GENERAL DECISION"

DOCUMENT 000110

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END OF SECTION

SECTION 010000
GENERAL REQUIREMENTS

PART 1 GENERAL

1.1 SUMMARY

A. SCOPE OF WORK.

1. The general summary of work to be done under this contract consists of, but shall not be limited, to the following as shown in the Contract Documents:

B. WORK COVERED BY CONTRACT DOCUMENTS.

- C. The Contractor shall execute the scope of work indicated on Plans and Specifications to enhance the use and operations of the site as shown within the project limits.

- D. Work shall be as specifically indicated, shown or described in the Drawings, Technical Specifications, and other Contract Documents.

E. PROJECT INFORMATION.

1. OWNER.

- a. City of Providence Parks Department, Roger Williams Park, Dalrymple Boathouse, 1000 Elmwood Avenue, Providence, RI 02907, Telephone: 401.680.7200.
- b. Superintendent of Parks: Wendy Nilsson.

2. OWNER'S REPRESENTATIVE.

- a. Sam Greenwood
Landscape Architect
sgreenwood@providenceri.gov
401-749-6314.

1.2 PROJECT LOCATION

- A. 87 Fremont St.,
Providence, RI 02906.

PART 2 PRODUCTS

2.1 CONTRACTOR USE OF PREMISES

- A. The Contractor's use of premises shall be within the limits shown on the Drawings and as defined in the Standard Form of Agreement, for the performance of the Work.
 - 1. The Contractor shall maintain vehicular access and utility service to the abutting properties at all times throughout the course of the construction.
 - 2. The Contractor shall assume full responsibility for security of all materials and equipment on the site, including those of the subcontractors.
 - 3. If directed by the Owner's Representative, the Contractor shall relocate or move any stored items that interfere with operations of the Owner.
 - 4. The Contractor may elect to obtain (at no cost to the Owner) additional storage or work areas off-site if needed to perform the work.

2.2 OWNER OCCUPANCY REQUIREMENTS

- A. The Owner (City) anticipates that site inclusive of all on-site amenities beyond the Limit of Work will remain open throughout the course of construction.
- B. Contractor shall provide the Owner's Representative with a written plan describing the sequences and durations anticipated for the execution of the Work.

2.3 MOBILIZATION, SITE PREPARATION, & DEMOLITION

- A. THE WORK SPECIFIED IN THIS SECTION INCLUDES:
 - 1. Mobilization of all personnel and equipment;
 - 2. Preparing the construction site for construction operations;
 - 3. Materials to be removed and legally disposed of off site.
 - 4. When applicable, verifying and utilizing survey control points as shown on the Drawings.
 - 5. Protecting existing site features to remain, such as fences, trees, shrubs and grassed areas outside the limit of work.
 - 6. Protecting underground and overhead utilities and other existing facilities from damage.
 - 7. Where applicable, provisions for site access and of traffic control.
 - 8. At cessation of site improvement operations: Site clean-up.
 - 9. De-mobilization of all personnel and equipment.

2.4 CONSTRUCTION STAGING/STOCKPILE AREAS

- A. Staging areas within the Park is permitted as shown on the Plans with the prior consent of and coordination with the Owner.
- B. Restoration of the site to pre-existing condition shall be the sole responsibility of the Contractor.

2.5 MATERIALS AND EQUIPMENT:

- A. Materials to be Removed and Stockpiled.
 - 1. Materials directed to be removed and stockpiled shall be removed, transported to and stacked in a location directed by the Owner's Representative. All materials shall be neatly stacked as directed.
 - 2. If the Owner's Representative determines that any part of the materials identified to be stockpiled are unsuitable for re use on the site or by the Owner elsewhere, such materials shall be evaluated for legal disposal by Owner's Representative and Contractor.
- B. Signs: Conform to requirements of Temporary Facilities and Controls.
- C. Temporary Site Protection: Temporary chain-link fence, if so desired shall be furnished, installed and maintained at no additional cost to the Owner. At the completion of all work at the site, the Contractor shall remove all temporary fencing and restore the site to its original condition at no additional cost to the Owner.

2.6 TEMPORARY CONSTRUCTION FACILITIES AND UTILITIES

- A. Make arrangements with the Owner's Representative for storage of materials and equipment in designated locations at the construction site. If staged on site, materials shall be secured from vandalism and or theft.
- B. Plastic construction fence or snow fencing if installed shall be maintained in good condition. Provide barricades, barrels, fencing and/or other barriers around excavations and trenches as required for safety. Upon completion, temporary fencing shall be removed and the affected area restored existing condition.

2.7 SITE MAINTENANCE

- A. Control dust from Contractor operations in accordance with specified dust control measures.
- B. Maintain the Site during construction in a manner that will not obstruct use on neighborhood

streets. Proceed with the work in an orderly manner, maintaining the construction site free of debris and unnecessary equipment or materials.

- C. Legally dispose of all debris, rubbish, hazardous materials, oil, and grease in accordance with local ordinances.
- D. Maintain safety and security of the construction site and any stockpiled or staged materials or equipment if left on site.

2.8 TRAFFIC CONTROL

- A. For all of his operations, the Contractor shall provide appropriate traffic control in accordance with, TEMPORARY FACILITIES AND CONTROLS. The purposes of the traffic control are 1) to ensure that operations in the project area are performed in a safe and orderly manner, and 2) to minimize the impact of truck and equipment traffic and noise on adjacent homes near the project area. The Contractor shall be responsible for obtaining any and all required permits and approvals.
- B. Police Details, if required by the City, shall be paid directly to and coordinated with Providence Public Safety by the Owner.

2.9 DEMOBILIZATION

- A. Contractor shall be responsible for site security and safety at all times. Upon substantial completion of the work, Contractor shall remove all excess materials, equipment, construction debris, temporary facilities and construction measures (fencing, signs, barriers, etc.) from the project area, and shall leave the site in suitable condition for full occupancy and use by the Owner. The sedimentation and erosion controls installed as part of the Work may not necessarily be removed at this time (see below).
- B. The Owner's Representative shall be the sole judge of whether the site has been suitably cleaned.
- C. Upon suitable stabilization of all disturbed "erodible" areas (e.g. acceptable level of grass growth in loamed and seeded areas, mulch applied and stable in planting areas, etc.), contractor shall remove and legally dispose of all sedimentation and erosion control measures (silt fence, hay bales, catch basin inserts, etc.). See Section 024119 Selective Demolition and 329200 Turf and Grasses for directives and procedures.

PART 3 EXECUTION

3.1 GENERAL REQUIREMENTS

- A. The construction site entrance shall be as indicated on the plans. The Owner will provide access to any locked gate. Any tracked debris from the site present on adjacent roadways shall be removed and the roads swept daily to remove any excess mud, dirt, or rock originating from the site. Trucks hauling material shall be covered and equipped with gates that prevent material from falling out. If present, catch basins within 100 feet of site entry and exit locations shall be protected with inlet sediment control devices and maintained for the duration of the work.
- B. Identify, clearly mark and protect all survey monuments, temporary bench marks as well as any adjacent contractors' work and facilities (if applicable). Repair or replacement shall be at Contractor's sole expense if damaged by Contractor.
- C. Protect existing culverts, sewers, and all other utilities including gas, telecommunications, electricity, and water. Repair or replace at Contractor's sole expense if damaged by Contractor.
- D. Utilize or install drum or sawhorse barricades or backfill all open excavations, holes, trenches, and depressions occurring at construction sites or occurring as part of this work.

3.2 CHANGE ORDER PROCEDURE

- A. DESCRIPTION.
 - 1. The Contractor shall comply with this procedure in the process of giving notification of change and preparing and submitting a proposal for adjustment due to a desired, perceived, or actual change in the work. Changes in the work, or period of performance of the work, may be directed in writing by the Owner's Representative or may be requested by the Contractor. In either case, payment for work accomplished under a modification may not be made until a formal contract modification, incorporating the change into the contract, has been issued and executed. Therefore, it is incumbent upon the Contractor to comply fully with this procedure and to expedite the resolution of changes.

3.3 CHANGE SUBMITTALS

- A. When requested, the Contractor shall submit the following to the Owner's Representative in accordance with the Submittals procedures described in these specifications:
 - 1. Proposal cover letter on Contractor's letterhead;
 - 2. Detailed price proposal;

3. Drawings or other explanatory data; and.
4. Time extension statement with justification if any time extension is requested.

3.4 COMPLIANCE

- A. The Contractor shall take such measures as needed to assure familiarity and compliance by its staff with these procedures. If change proposals are incomplete, unclear, or ambiguous or are not supported by adequate documentation, the data will be returned and the Contractor shall resubmit or supplement the proposal as requested by the Owner's Representative. Delay resulting from the Contractor's noncompliance with this procedure shall not in itself constitute the basis for an extension in the time of performance under the contract.

3.5 PROCESSING CHANGES INITIATED BY THE OWNER'S REPRESENTATIVE

- A. The Owner's Representative will initiate changes only in writing. The Owner will sign any Request for Proposal (RFP). This will establish an Extra Work Order (EWO) number, by which the change will be identified until such time as it may be incorporated into the contract by formal Change Order (CO).
- B. The Contractor may or may not be authorized to proceed with the changed work pending resolution of changes in the contract price or time of performance. If the work described in the RFP becomes critical to the timely performance of the Contractor's work, a written request for a Notice to Proceed must be forwarded to the Owner immediately. The Owner will issue any Notice to Proceed. This unilateral modification to the contract may be subject to further negotiation regarding price and time for completion.
- C. Payment for changed work, covered by an authorized modification, will not be made until a notice to proceed covering the changed work has been executed.
- D. The Contractor shall prepare and submit its proposal for change to include at a minimum:
 1. A cover letter referencing the EWO number and citing the attachments, if any, which constitute the Contractor's total proposal.
 2. A detailed price proposal showing labor, construction equipment, and material quantities and prices at the lowest practical level of each element of the work.
 3. Any drawings, sketches, catalog cuts, samples, certifications, or other data required to be submitted by the Owner's Representative that is required to fully document.
 4. A statement of the proposed change in the time of completion of the contract, together with all required justification for such a change.
 5. A statement to the effect that there is "no change in price and/or time of completion of the work under this contract as a result of this proposed change", if that is the case.
- E. The Owner may accept the Contractor's proposal without negotiation. Alternatively, upon

receipt of a proposal which is satisfactory in form, the Owner's Representative may require negotiation with the Contractor to arrive at a fair and equitable change in the contract price and time of completion. Upon agreement, a contract modification will be issued by the Owner for Contractor's execution.

3.6 PROCESSING CHANGES INITIATED BY THE CONTRACTOR

- A. Should the Contractor feel that a change to the work under the contract, or to the contract itself, is necessary or desirable, it shall propose such a change to the Owner's Representative. This proposed change shall include a clear and concise description of the proposed change, along with that information cited in above.
- B. Within a reasonable time, the Owner's Representative will review the Contractor's proposal and determine if the proposed change is in the Owner's best interest. If so, Contractor will be advised of this and a an EWO number will be assigned to Contractor's proposal.

3.7 EXECUTING CHANGED WORK

- A. The Contractor is cautioned not to proceed with the work described in a proposed change until it is authorized to do so in writing by the Owner's Representative.

3.8 TERMINATIONS AND DELAYS

- A. Termination of Contract: If the Contractor or any of his/her subcontractors refuses or fails to prosecute the work with such diligence as will insure its completion within the time specified in these Contract Documents, or as modified, as provided for in these Contract Drawings, or violates any other Provisions of this Contract, the Local Public Agency, Local Public Agency, City, by written notice to the Contractor, may terminate the Contractor's right to proceed with the Work. Upon such termination, the City of Providence may take over the work and prosecute the same to completion, by contract or otherwise, and the Contractor and his/her sureties shall be liable to the City of Providence for any additional cost incurred by the City of Providence in its completion of the work and they shall also be liable to the City of Providence for liquidated damages for any delay in the completion of the work as provided below. work and they shall also be liable to the City of Providence for liquidated damages for any delay work. in the completion of the work as provided below. work. If the Contractor's right to proceed is so terminated, the Local Public Agency Local Public Agency City may take possession of and utilize in completing the work such materials, tools, equipment, and plants as may be on the site of the work and necessary thereof. Project work must commence 30 days after award of Contract or as mutually agreed upon by the Contractor and the Owner. The Contractor is required to submit a Work Schedule including all items included in the scope of work. The Work Schedule shall mirror the Schedule of Values which should be in

chronological order. Both items are identified in the standard Pre-Bid and Pre-Construction Meeting Minutes as required. The work shall be continuous and the Contractor shall staff the project appropriately to meet the agreed upon work schedule. De- Mobilization from the project, prior to completion, must be agreed upon in writing by the Owner.

3.9 INSPECTION OF WORK

A. DESCRIPTION.

1. Work included in this Section consists of periodic observation of construction of the project. The Contractor's work shall be monitored periodically by the Owner's Representative.
2. The Owner's Representative presence on site or construction observation work is inspectional in nature and will not include supervision or direction of the actual work of the contractor.
3. In no event will the Owner's Representative be responsible or liable for the contractor's use or administration of personnel, machinery, staging, or other temporary or precautionary construction, safety precautions or procedures, or for compliance by the contractor with the provisions, terms, or specifications of the contract. Observation services provided by the Owner's Representative are solely for the benefit of the Owner.
4. The Contractor shall keep the Owner's Representative informed concerning the work status and projected work schedule through regular communications.
5. The Contractor shall not cover any work related to the required field visits until one of the following occurs:
 - a. The Contractor is authorized by the Owner's Representative to proceed after the field visit.
 - b. The field visit is re-scheduled by the Owner's Representative to a later construction event.
 - c. The field visit is waived in writing by the Owner's Representative.
6. The Contractor shall request a Final Inspection seven calendar days in advance of the planned completion date. After review of the Notice of Completion, the Owner's Representative may reject the Notice for cause or schedule the Final Inspection. The Owner's Representative will perform its Final Inspection on all phases of the work and develop a comprehensive punch list, which will be provided to the Contractor.
7. The Final Inspection will be scheduled when the punch list items discovered during the Final Inspection have been corrected. If discovered, the Owner's Representative may add new items to the punch list at this inspection.
8. The Contractor is advised that the Owner's Representative will not accept the work until the Owner's Representative determines Substantial Completion has been achieved. Therefore, to minimize its risk, the Contractor should schedule its work to be substantially complete in time to allow the Final Inspection and punch list work to occur in advance of the Project Close Out Date. Due to the construction time period and the anticipated weather conditions, substantially complete will be defined as the completion of construction for all item and the temporary stabilization of all disturbed areas,

excluding planting and final seeding. Planting and final seeding is to occur during the time periods specified.

9. Nothing in this Section shall be construed to limit the Owner's Representative right to inspect the work at any time.

3.10 CONSTRUCTION SCHEDULES

A. DESCRIPTION.

1. Work included in this Section consists of preparation, submittal, and updating of the project.

3.11 CONSTRUCTION SCHEDULE

A. Submit the following to the Owner's Representative in accordance with the Submittals Section. Submittals are for the record or approval as indicated.

1. The proposed construction schedule shall be submitted for approval within five (5) calendar days after receipt of Notice to Proceed.
2. Submit contract Weekly Summary Reports to the Owner's Representative for the record at weekly site meeting at request by the Owner.
3. Submit construction progress schedule including a two week look ahead as back up to progress invoices.

B. The construction schedule shall show all work activities for completion of the work to be performed under this contract and will reflect Contractor's general sequential approach to the work. The construction schedule will be in a bar chart format. The minimum level of detail (number of activities) shall include the activities described in the Schedule of Values and the Scope of the Work. The construction schedule shall demonstrate completion of all work within the period of performance of the contract in a reasonable and achievable manner.

3.12 PERIODIC SCHEDULE UPDATES

A. The Contractor shall support monthly payment requests with an approved construction schedule marked to indicate progress. Submit updated schedule as necessary.

B. When in the opinion of the Owner's Representative changes in the work occur that significantly affect the schedule, the Contractor shall submit a revised construction schedule for approval. The revised construction schedule shall be submitted within 10 calendar days after it is requested by the Owner's Representative. The current approved construction schedule shall be used as a baseline for progress reporting.

C. Acts of God: Claims for additional compensation for 'Acts of God' will be reviewed by the

Owner. It is the Contractor's responsibility to secure the work site daily and failure to provide adequate provisions to do so may result in repairs to the site at the Contractor's expense. Documented 'Acts of God' such as the state issuing a 'State of Emergency' may result in the Owner's authorization to proceed repair funded by the Owner. No work shall proceed without written authorization by the Owner.

3.13 SUBMITTAL PROCEDURES

A. DESCRIPTION.

1. This Specification Section covers the preparation and submission of all work plans, drawings, samples, manufacturer's literature and brochures, installation instructions, and operation and maintenance manuals as specified herein and in the various sections of these Specifications.
2. A Submittal Schedule shall be submitted for approval within five (5) calendar days after receipt of Notice to Proceed.

3.14 DRAWINGS

- A. The term "drawings" as used herein includes 'Shop Drawings' as required for fabrication, erection and installation, layout, and setting of proposed improvements; lists or schedules of materials and catalogues and brochures; performance and test data; and all other drawings and descriptive data pertaining to materials and methods of construction as may be required to show that the materials, equipment, or systems and the positions thereof conform to the requirements of the Contract Documents.
- B. Where specified and if so directed by the Owner's Representative provide shop drawings that are accompanied by design computations.
- C. Sheet sizes of drawings shall not exceed 24 in. by 36 in. The title block on all drawings shall bear the name of the Owner, the name of the project, and the project location.
- D. The Contractor's drawings shall be submitted electronically in PDF format to the Owner's Representative for review and approval.
- E. The Contractor shall maintain a complete set of construction drawings at the jobsite, clearly marked to reflect as-built conditions. Upon completion of the work, the Contractor shall submit these Record Drawings to the Owner's Representative.
- F. The Owner's Representative will review drawings and schedules only for conformance with the design of the Project and for compliance with the Contract Documents and Contract Drawings. The Contractor shall make any and all updates and corrections required by the Owner's Representative.

- G. Drawings shall be reviewed and returned within ten (10) working days of receipt of drawings at jobsite. Drawings and all supporting data, catalogs, or similar information shall be prepared by the Contractor or his suppliers and subcontractors but shall be submitted as instruments of the Contractor.
- H. The Owner's Representative review of drawings will be of a general nature and shall not relieve the Contractor from responsibility for errors and omissions of any sort, for deviations from Drawings or Specifications, or for conflict with the work of others that may result from such deviations. The Owner's Representative review of drawings will not relieve the Contractor of responsibility to complete the work in accordance with the requirements of the Contract Documents.
- I. After Notice of Award, the Contractor shall submit a Submittal Schedule to the Owner's Representative. The Contractor's schedule shall be brought up to date from time to time to show the latest changes, omissions, and additions. The Schedule will be based on the Contractor's Construction Schedule and will show when the Contractor will submit the drawings and when he/she expects them to be returned so that construction activities shown on the Construction Schedule are not interrupted. There will be a minimum of three weeks between these two activities. Specific methods and routines for handling drawing reviews shall be established in advance within the general framework of the Contract Documents.
- J. Work for which the Contractor's submittals are required shall not be started until the submittals have been reviewed and accepted in writing by the Owner or Landscape Architect. Owner or Landscape Architect. Owner or Landscape Architect. Owner's Representative. Any revision by the Contractor of a previously accepted submittal must be accepted in writing by the Owner's Representative before implementation.

3.15 SAMPLES

- A. The Contractor shall, at their expense, furnish the Owner's Representative with samples of the various materials as specified in these Specification and Drawings. Samples shall be delivered to the office of the Owner's Representative at the Contractor's expense.

3.16 PRODUCT DATA

- A. The Contractor shall submit to the Owner's Representative all required Material Safety Data Sheets (MSDS) and all Product Data Sheets and any other relevant product information for all items identified in the Technical Specifications and Drawings. All data shall be furnished by the Contractor in accordance with the approved schedule.
- B. SUBMITTAL LOG.
 - 1. Contractor to provided the following information:

- a. An I.D. number for each item.
- b. Specification Section, Paragraph Number and Line Item Number (ie. 321313 / 1.3 / A).
- c. Item Name.
- d. Description of the Item.
- e. Date Submitted.
- f. Status: Approved / Approved As Noted / Rejected.
- g. Sub-Contractor (If any) providing the material.
- h. Comments.

3.17 QUALITY CONTROL DESCRIPTION

- A. This Section provides the requirements for Contract quality control (QC) pertaining to the Work, including:
 1. QC of products and workmanship;
 2. Manufacturer's instructions; and.
 3. Manufacturer's certificates and field services.

3.18 WORKMANSHIP

- A. The Contractor shall comply with industry standards of the region, except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.
- B. The Contractor shall provide suitably-qualified personnel to produce work of specified quality.
- C. The Contractor shall secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.
- D. The Contractor shall provide materials to match approved samples.

3.19 MANUFACTURER'S INSTRUCTIONS

- A. The Contractor shall require compliance with instructions in full detail, including each step in sequence. Should instructions conflict with the Contract Documents, the Contractor shall request clarification from the Owner's Representative before proceeding.

3.20 MANUFACTURER'S CERTIFICATES

- A. When required in individual Specifications sections, the Contractor shall submit

manufacturer's certificates, in duplicate, certifying that products meet or exceed specified requirements.

3.21 TESTING LABORATORY SERVICES (NIC)

- A. Not Utilized in this Contract.
- B. (Modify as Required).

3.22 MANUFACTURER'S FIELD SERVICES

- A. When required by the manufacturer or Owner's Representative, the Contractor shall have the manufacturer provide a qualified representative to observe field conditions, conditions of surfaces and installation, and quality of workmanship as applicable and to make written report of observations and recommendations to the Owner's Representative.

3.23 AUTHORITY OF OWNER'S REPRESENTATIVE

- A. The Owner's Representative will decide all questions that may arise as to the quality and acceptability of materials furnished. All questions that may arise as to the interpretation of the Contract Drawing and Specifications shall be determined by the Owner's Representative.
- B. The Owner and Owner's Representative shall not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions and programs incident thereto, and the Owner's Representative will not be responsible for the Contractor's failure to perform the work in accordance with the Contract Documents.
- C. The Owner's Representative will not be responsible for the acts or omissions of the Contractor or any subcontractors, of the agents or employees of any Contractor or subcontractor, or of any other persons at the site or otherwise performing any of the work.

3.24 COORDINATION OF DRAWINGS AND SPECIFICATIONS

- A. The Contractor shall take no advantage of any apparent error or omission in the Contract Drawings or Specifications. In the event the Contractor discovers such a discrepancy, error or omission, he shall immediately notify the Owner's Representative. After review and consultation with the Owner's Representative the Owner's Representative will issue clarifications, provide interpretations and make such corrections as may be deemed necessary for the Contractor to proceed with fulfilling the intent of the Contract Drawings and Specifications.
- B. When general reference is made on the Contract Drawings or within the Specifications to any cited Standard Specifications, it shall refer to the current edition of such Specifications or the latest revision thereof or interim Specifications adopted and in effect on the date of Effective Date of Agreement. In the event of a conflict between the Contract Drawings and the specifications, the Owner's Representative shall be notified to provide a clarification to the Contractor.

3.25 COOPERATION WITH UTILITIES

- A. The Contractor will notify all utility companies, all pipeline owners, or other parties affected and endeavor to have all necessary adjustments of the public or private utility fixtures, pipelines, and other appurtenances within or adjacent to the limits of construction made as soon as practical.
- B. Water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be crossed, relocated or adjusted are to be moved by the Contractor or its designated agents, except as otherwise noted on the Contract Drawings. In the case of utility lines, the Contractor shall coordinate with the respective utilities for their removal and relocation.
- C. Attention is directed to the possible existence of underground facilities not known to the Owner's Representative or in a location different from that which is shown on the Contract Drawings. The Contractor shall take steps to ascertain the exact location of all underground facilities prior to doing work that may damage such facilities or interfere with their service.

3.26 INDEPENDENT TESTING AND INSPECTION (NIC)

- A. Not Applicable under this Contract.

3.27 REQUIREMENTS

- A. The requirements for sampling and testing or inspection are specified in the Specifications and Drawings. The Contractor shall maintain a complete and up-to-date file of all quality control documentation at the jobsite.

3.28 MATERIAL AND EQUIPMENT

A. DESCRIPTION.

- 1. This Specification Section includes the requirements for the transportation, handling, storage, and protection of materials and equipment as specified herein and in the various Sections of these Specifications. This Section also addresses the procedure for Contractor-proposed product substitutions.

3.29 MANUFACTURER REQUIREMENTS

- A. In general, the Contractor shall receive, handle, and store materials and equipment in accordance with manufacturer's recommendations and in a manner which will protect such items from damage or deterioration.
- B. GENERAL.
- C. Products include the material, equipment, and systems used on this Project. Comply with the Specifications, Drawings and referenced standards as minimum requirements.

3.30 TRANSPORTATION AND HANDLING

- A. The Contractor shall receive, handle, and store materials and equipment supplied by him/her in a manner that will protect such items from damage or deterioration in accordance with procedures provided by product manufacturers and the Owner.
- B. Promptly inspect the shipments to assure that the products comply with requirements, the quantities are correct, and the products are undamaged.

3.31 STORAGE AND PROTECTION

- A. Materials and equipment shall be stored off the ground on blocking or pallets and shall be covered for protection from vandalism and weather damage.
- B. Materials and equipment shall be stored, tested, and cleaned prior to use, in accordance with the Specification and all specific manufacturers' requirements. Damaged or nonconforming

items shall be removed immediately to a separated storage area for expeditious removal from site.

- C. The Contractor shall provide a secure outside storage area in the vicinity of the site.

3.32 SUBSTITUTIONS

- A. Substitutions will be considered only when a product becomes unavailable due to no fault of the Contractor or when deemed appropriate by the Owner's Representative.
- B. Document each request with complete data substantiating the compliance of the proposed substitution with the Contract Documents.
- C. The requested substitution proposed constitutes a representation that the Contractor:
 - 1. Has investigated the proposed product and determined that it meets or exceeds, in all respects, the specified product.
 - 2. Will provide the same warranty for substitution as for the specified product.
 - 3. Will coordinate installation and make other changes which may be required for the Work to be complete in all respects.
 - 4. Waives claims for additional costs which may subsequently become apparent.
- D. Substitutions will be considered when they are indicated or implied on shop drawings or product data submittals without separate written request, or when acceptance will require substantial revision of the Contract Documents.
- E. The Owner's Representative will determine acceptability of the proposed substitution, and will notify the Contractor of acceptance or rejection in writing within a reasonable time. Only one request for the substitution will be considered for each product. When substitution is not accepted, the Contractor shall provide the specified product.

3.33 REJECTED MATERIALS AND DEFECTIVE WORK

- A. Materials furnished by the Contractor and rejected by the Owner's Representative as unsuitable or not in conformity with the specifications shall forthwith be removed from the job-site and work area by the Contractor, and shall not be made use of elsewhere in the work.
- B. Any errors, defects, or omissions in the execution of work or in the materials furnished by the Contractor, even though they may have been passed or overlooked or have appeared after the completion of the work, discovered at any time before the final payment is made hereunder, shall be forthwith rectified and made good by and at the expense of the Contractor and in a manner satisfactory to the Owner or Owner's Representative.

- C. The Contractor shall reimburse the Owner for any expense, losses or damages incurred in consequence of any defect error, omission or act of the Contractor or his employees, as determined by the Owner's Representative, occurring previous to the final payment.

3.34 PROJECT CLOSEOUT

A. DESCRIPTION.

1. This Section specifies administrative and procedural requirements for the project closeout including, but not limited to:
 - a. Project record document (As-Built drawings) submittal. Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 - b. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Upon completion of work, submit record drawings to the Owner's Representative.
2. Record Specifications.
 - a. Maintain one complete copy of the Project Manual, including addenda. Mark these documents to show substantial variations in actual Work performed in comparison with the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data. Upon completion of the Work, submit record Specifications.
3. Test Results.
 - a. Not Applicable this project.
4. REMOVAL OF PROTECTION.
 - a. Remove temporary protection and facilities installed for protection of the Work during construction. Fencing and erosion and sediment control measures and best management practices can be removed after permanent measures have been established.

3.35 WARRANTIES

A. DESCRIPTION.

1. This Section specifies general administration and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.
 - a. Refer to the General Conditions for terms of the Contractor's special warranty of workmanship and materials;
 - b. General closeout requirements are included in Section "Project Closeout"; and.
 - c. Specific requirements for warranties for the Work and products and installations that are specified to be warranted are included in the specifications and Drawings.
2. Disclaimers and Limitations.
 - a. Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

B. DEFINITIONS.

1. Standard Warranties.
 - a. Standard product warranties are pre-printed written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.
2. Special Warranties.
 - a. Special warranties are written required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

C. WARRANTY REQUIREMENTS.

1. Related Damages and Losses.
 - a. When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for corrections of warranted Work.
2. Reinstatement of Warranty.
 - a. When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
3. Replacement Cost.
 - a. Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner's Representative has benefited from use of the Work through a portion of its anticipated useful service life.
4. Owner's Recourse.
 - a. Written warranties made to the Owner are in addition to implied warranties, and

shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights and remedies.

5. Rejection of Warranties.

- a. The Owner's Representative reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents. The Owner's Representative reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to counter sign such commitments are willing to do so.
- b. All warranties shall be submitted to the Owner in accordance with conditions of the Contract and the Submittals.

D. WARRANTY PERIOD.

1. All warranties required by the Contract documents shall commence on the date of Final Acceptance.
2. Warranty period is one (1) year from date of Final Acceptance unless otherwise specified.

END OF SECTION

SECTION 015639

TEMPORARY TREE AND PLANT PROTECTION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Requirements, 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 312213 - Rough Grading.

1.3 DEFINITIONS

- A. (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.
- B. Plant-Protection Zone: Area surrounding individual trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- C. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- D. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PRE-CONSTRUCTION MEETINGS

- A. Pre-construction Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including,

but not limited to, the following:

- a. Tree-service firm's personnel, and equipment needed to make progress and avoid delays.
- b. Arborist's responsibilities.
- c. Coordination of Work and equipment movement with the locations of protection zones.
- d. Trenching by hand or with air spade within protection zones.
- e. Field quality control and maintenance.
- f. Coordination by Parks Department City Forester and Forestry crews.

1.5 ACTION SUBMITTALS

- A. Contractor shall arrange site visit with City Forester prior to mobilization to determine the scope of pruning by the Parks Department Forestry Division or Contractor as indicated on the drawings.

1.6 QUALITY ASSURANCE

- A. Arborist Qualifications: Licensed arborist in jurisdiction where Project is located.

1.7 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. 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.
- B. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:
 - 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: 72 inches.
 - b. Color: High-visibility orange, nonfading.

PART 3 EXECUTION

3.1 PREPARATION

- A. 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.

3.2 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 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.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a

manner approved by Owner's Representative. Install one sign on protection-zone fencing. Sign to read "Tree Protection Zone - Do not Disturb". Sign to be printed on 24"x 36" white panel with black lettering at a minimum of 3" height lettering.

- C. Maintain protection zones free of trash.
- D. Maintain protection-zone fencing in good condition as acceptable by Owner's Representative 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 Owner's Representative if a root buffer effective against soil compaction is constructed as directed by Owner's Representative. Maintain root buffer so long as access is permitted.

3.3 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 as directed by Owner's Representative. Do not cut main lateral tree roots or taproots larger than 2" without direction from Owner's Representative; 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 and wrap with dampened burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil or as directed by Owner's Representative.

3.4 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. No roots larger than two (2) inches in diameter may be cut without permission of the City Forester. Cuts must be made with hand-pruner, handsaws, or chainsaws.
 - 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 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.

3.5 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Lowering Grade within Protection Zone: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by Owner's Representative unless otherwise indicated.
 - 1. Root Pruning: Prune tree roots exposed by lowering the grade. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots as required for root pruning.
- C. 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.

3.6 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 Owner's Representative.
 - 1. Submit details of proposed pruning and repairs.

Temporary Tree and Plant
Protection

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 Owner's Representative. Replacement trees to be equal to the total diameter of mature tree by multiple equal diameter specimens.
- B. Trees: Remove and replace trees tha damaged during construction operations that Owner's Representative determines are incapable of restoring to normal growth pattern.
1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 4" or smaller in caliper size.
 2. Large Trees: Provide multiple trees of 2-1/2" - 3" caliper size to equal total diameter of tree being replaced.
 - a. Species: As determined by Owner's Representative.
 3. Plant and maintain new trees as specified in Section 329300 "Plants."
- C. Soil Aeration: Where directed by Owner's Representative, aerate surface soil compacted during construction. Aerate to loosen soil 10 feet beyond drip line and no closer than 36" to tree trunk with air spade.

3.7 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

SECTION 024119

SELECTIVE DEMOLITION

PART 1 GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected site elements.
 - 2. Salvage of existing items to be reused or recycled.
- B. Related Requirements:
 - 1. Section 015639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.

1.3 DEFINITIONS

- A. Remove and Dispose: Detach items from existing construction and legally dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Stockpile: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner, ready for reuse or store on a per project basis.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
 - 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PRE-CONSTRUCTION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.
 - 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structures.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site uses are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Coordination of Owner's continuing use of portions of existing site and of Owner's partial use of completed Work.
- C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Comply with Section 013233 "Photographic Documentation." Submit before Work begins.
- D. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 FIELD CONDITIONS

- A. Owner will occupy portions of the site immediately adjacent to selective demolition area. Conduct selective demolition so Owner's use will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 1. Before selective demolition, Owner will remove the items specifically indicated on the drawings.
- C. Notify Owner's Representative of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
 - 3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.
- F. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection.
- G. Storage or sale of removed items or materials on-site is not permitted.
- H. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding.
- B. Notify Owner on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's use.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
 - 1. Contact Dig Safe-Provide Dig Safe number to Owner prior to mobilization.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
 - 1. Meet with Owner's Representative to identify local utilities prior to mobilization.
- C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs. measured drawings.
 - 1. Comply with requirements specified in Section 013233 "Photographic Documentation."

2. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations. Notify Owner of damaged items.
3. Before selective demolition or removal of existing elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 2. Arrange to shut off utilities with utility companies.
 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of the site.
 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and

- to and from occupied portions of the site.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Maintain adequate ventilation when using cutting torches.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Dispose of demolished items and materials promptly and legally off site.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Work in Historic Areas: Selective demolition may be performed only in areas of Project that

are not designated as historic. In historic spaces, areas, and rooms, or on historic surfaces, the terms "demolish" or "remove" shall mean historic "removal" or "dismantling."

- D. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Store items in a secure area until delivery to Owner.
 - 3. Transport items to location designated by Owner's Representative.
 - 4. Protect items from damage during transport and storage.
- E. Removed and Reinstalled Items:
 - 1. Clean and repair items to functional condition adequate for intended reuse.
 - 2. Protect items from damage during transport and storage.
 - 3. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Owner's Representative, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- E. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.
 - 1. Remove existing roof membrane, flashings, copings, and roof accessories.
 - 2. Remove existing roofing system down to substrate.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of legally.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Burning: Do not burn demolished materials.

3.7 CLEANING

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

END OF SECTION

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Requirements apply to this Section.

1.2 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, concrete materials, mixture design, placement procedures, and finishes.
- B. Related Requirements:
 - 1. Section 260000 - Electrical.
 - 2. Section 321313 - Concrete Paving, for concrete pavement and walks.

1.3 DEFINITIONS

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

1.4 PRE CONSTRUCTION MEETINGS

- A. Pre-construction Conference: Conduct conference at Project site.
 - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Concrete Subcontractor.
 - 2. Review concrete repair procedures, and concrete protection.

1.5 ACTION SUBMITTALS

- A. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- B. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - 1. Location of construction joints is subject to approval of the Landscape Architect.

1.6 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Admixtures.
 - 2. Form materials and form-release agents.
 - 3. Fiber reinforcement.
 - 4. Joint-filler strips.

1.7 QUALITY ASSURANCE

- A. Mockups: Cast concrete formed-surface panels to demonstrate typical joints, surface finish, texture, tolerances, floor treatments, and standard of workmanship.
 - 1. Build panel approximately 100 sq. ft. for formed surface in the location indicated or, if not indicated, as directed by Architect.
 - 2. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:
 - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

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

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
 - 2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
 - a. Structural 1, B-B or better; mill oiled and edge sealed.
 - b. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
 - 3. Overlaid Finnish birch plywood.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- D. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.

2.3 CONCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

- B. Cementitious Materials:
 - 1. Portland Cement: ASTM C 150/C 150M, Type I.
 - 2. Blended Hydraulic Cement: ASTM C 595/C 595M, Type IS, portland blast-furnace slag Type IL, portland-limestone cement.
- C. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 1N coarse aggregate or better, graded. Provide aggregates from a single source.
 - 1. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Lightweight Aggregate: ASTM C 330/C 330M, 3/4-inch nominal maximum aggregate size.
- E. Water: ASTM C 94/C 94M and potable.

2.4 FIBER REINFORCEMENT

- A. Synthetic Micro-Fiber: Fibrillated polypropylene micro-fibers engineered and designed for use in concrete, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

2.5 STEEL REINFORCEMENT

- A. Steel Rebar shall be in conformance with the requirements of Section 600 of the RIDOT Standard Specifications for Road & Bridge Construction.

2.6 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- B. Water: Potable.
- C. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating.

2.7 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

- B. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- C. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a w/c ratio below 0.50.
 - 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.

2.8 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Normal-weight concrete.
 - 1. Minimum Compressive Strength: 4000 psi at 28 days.
 - 2. Maximum W/C Ratio: 0.45.
 - 3. Slump Limit: 4 inches, plus or minus 1 inch.
 - 4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 3/4-inch nominal maximum aggregate size.

2.9 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M and ASTM C 1116/C 1116M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.

- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

3.2 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view.

3.3 FINISHING FLOORS AND SLABS

- A. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighen until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 - 1. Apply a trowel finish to surfaces indicated.
 - 2. Finish and measure surface, so gap at any point between concrete surface and an unlevelled, freestanding, 10-ft.- long straightedge resting on two high spots and placed anywhere on the surface does not exceed 1/4 inch.

- B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish

with Architect before application.

3.4 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 for hot-weather protection during curing.
- B. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

END OF SECTION

SECTION 116833
ATHLETIC FIELD EQUIPMENT

PART 1 GENERAL

1.1 SUMMARY

- A. Provide all equipment, materials, and do all work necessary to furnish and install the athletic equipment, as indicated on the drawings and as specified herein. Athletic equipment shall include, but not be limited to:
 - 1. Baseball base sets.
 - 2. Basketball Posts, Backboards, and Rims.

1.2 RELATED DOCUMENTS

- A. Drawings and General Requirements apply to the Work of this section.
- B. Examine Contract Documents for requirements and all other Sections of the Specifications for requirements therein affecting the Work specified herein.

1.3 RELATED WORK UNDER OTHER SECTIONS

- A. Section 033000 - Cast-in-Place Concrete.
- B. Section 321823.16 - Natural Baseball Field Surfacing.

1.4 REFERENCES

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1.5 SUBMITTALS

- A. Shop Drawings.
 - 1. Provide drawings of manufacturers recommended installation and foundation requirements prior to actual field installation work for Architect or Owner's

Representative review and approval.

1.6 QUALITY ASSURANCE

- A. Manufacturers warranties shall pass to the Owner and certification made that the product materials meet all applicable grade trademarks or conform to industry standards and inspection requirements.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Materials delivered to the site shall be examined for concealed damage or defects in shipping. Any defects shall be noted and reported to the Owner's Representative.
- B. Replacements, if necessary, shall be immediately re-ordered, so as to minimize any conflict with the construction schedule.
- C. Sound materials shall be stored above the ground under protective cover or indoors so as to provide proper protection.

PART 2 PRODUCTS

2.1 BASEBALL EQUIPMENT

- A. Bases.
 - 1. Hollywood Kwik-Release Base item #301-675-319.
 - 2. Or approved equal.
 - 3. Accessories:
 - a. 1-1/2" All Steel Anchor item #301-505-460.
 - b. Or approved equal.
- B. Home Plate.
 - 1. Bulldog Double-sided Home Plate item #301-210-300.
 - 2. Or approved equal.
- C. Pitching Rubber.
 - 1. Bulldog Pitching Rubber - 3" Solid Core item #335-210-200.
 - 2. Or approved equal.
- D. All items manufactured by Beacon Athletics, 901 Eming Way Ste 101, Madison, WI, 53717, 800.747.5985, www.beaconathletics.com.

2.2 BASKETBALL EQUIPMENT (PROVIDED BY OWNER)

- A. TrueBounce 14' ht. 6x6" SQ Powder Coated Steel Pole and Pole Cap, Model #PA666.
- B. TrueBounce Polycarbonate Backboard, Model #XL7042.
- C. TrueBounce Breakaway Rim, Model #RB100.
- D. All items manufactured by TrueBounce Inc., 56 Conduit St, New Bedford, MA 02745, (508) 999-3020.

PART 3 EXECUTION

3.1 INSPECTION

- A. Examine the areas and conditions where equipment and systems are to be installed and notify the contractor of conditions detrimental to the proper and timely installation and completion of the work.
- B. Do not proceed with the work until unsatisfactory conditions have been corrected by the contractor in a manner acceptable and to the satisfaction of the Architect/Engineer or Owner's Representative.

3.2 INSTALLATION

- A. All Equipment and Accessories shall be installed as recommended per manufacturer's written instructions and as indicated on the drawings. Concrete anchoring foundations to be determined by others based on local soil conditions and building codes. Installer should have a minimum of five (5) Athletic Field equipment installations or similar experience in the previous three (3) years.
- B. Provide operating and maintenance instructions to Owner's Representative for the proper operation and care of equipment.

3.3 CLEANING

- A. Upon completion of work in any given area, remove all trash and debris from the work area and leave in clean condition. All pipe, concrete, fabric and miscellaneous parts shall be removed from site.

- B. Dispose of excessive material to certified landfill.
- C. Grade to within 1" of finish grade after work is completed.

END OF SECTION

SECTION 260000

ELECTRICAL

PART 1 GENERAL

1.1 SUMMARY

- A. The work under this Section shall consist of installing all conduit, wire and associated equipment required to furnish and install various components for field lighting.
- B. The work consists of furnishing and installing a complete lighting system as specified on the drawings which will include the underground system and all electrical components necessary to make the system totally operational. The complete system shall include poles, luminaires, lamps, fixtures, and associated accessories, all wire and connections, and pole mounted receptacles along with any other equipment required to complete the installation.
- C. All work performed under this Section shall be as specified herein, as shown on the plans. The Owner Representative shall have the final decision regarding all disputes on materials and workmanship.
- D. All underground installations, including any required wiring, must be complete before the finished surface is placed on walkways. All excavations required for the installation of conduit, light pole bases, lighting control cabinet, and panelboard shall be completed prior to placing and compacting gravel subbases.

1.2 RELATED DOCUMENTS

- A. Work under this section to be in accordance with RISBC-5 Rhode Island Electrical Code and and the City of Providence Code of Ordinance.

1.3 DESCRIPTION OF WORK

- A. Work to be Performed: The scope of work consists of the installation of all materials to be furnished under this Section, and without limiting the generality thereof, includes:
 - 1. Light Fixtures.
 - 2. Light Poles.
 - 3. Conduit and Wire.

4. Lighting Control Cabinet.
 5. Panelboards.
- B. Reference to Drawings: Work to be done under this Section is shown on Drawings and specified herein.
- C. Related Work: The following is not included in this Section and is specified under the designated section:
1. All sections under Division 31 Earthwork.
 2. Section 033000 - Cast-in-Place Concrete: Light pole bases.

1.4 SUBMITTALS

- A. Samples of all materials, along with the certified engineering data and written notification that the proposed materials meet these Specifications must be furnished. Upon approval of the samples and test data, delivery of the proposed materials will be made and no changes or modifications, with the exception of minor changes not affecting operation or appearance will be allowed.
- B. In the event that a modification or change to the approved materials, or the development of new material to replace approved materials is announced by the supplier, written notification must be given to the Engineer. An option to accept delivery of the modified or new material or continued delivery of the approved material must be given. In no case shall the delivery of the new or modified material result in any additional expense to the Contract.
- C. A Geo-Technical report shall be obtained prior to installation of the poles for the little league baseball field lighting. This report shall be used to determine the pole footing detail.
- D. Shop Drawings shall be submitted for approval to the City Representative for the following materials:
1. Light poles.
 2. Light pole footings (adjusted as necessary per geo-technical report).
 3. Luminaires and accessories.
 4. Panelboards.
 5. Conduit and wire.
- E. A written full one year complete replacement guarantee against defects in materials and workmanship for a period of one year from date of final acceptance of this Contract shall be furnished with all material. Defects in any material shall be replaced at the expense of the Contractor.

1.5 QUALITY ASSURANCE

- A. The Contractor shall comply with the regulations of all authorities having jurisdiction over electrical work, shall arrange for all inspections that may be required by the City of Providence, shall obtain all permits and certificates at his own expense, and shall deliver to the Owner Representative certificates of acceptance of work.
- B. The Contractor shall comply with all standards and regulations of all utilities involved governing all materials and methods of construction. All work, materials and construction methods shall be in accordance with all utilities involved, except as otherwise specified herein.
- C. Trade names and catalog numbers mentioned on the Drawing, or in these Specifications, are used for the purpose of furnishing a brief description of the material. Similar materials will be accepted if, in the opinion of the Owner Representative, they are equal in quality and operation to those specifically mentioned. Only materials approved by the National Board of Fire Underwriters, and so labeled, will be considered for approval for the services indicated.
- D. All material must have the name or trademark of the manufacturer stamped thereon, where such identification is customary. All electrical equipment shall be designed, manufactured, tested and rated in accordance with the latest applicable standards of the National Electric Manufacturers Association (NEMA), the American Institute of Engineers (AIEE), American National Standards Institute (ANSI), and the American Society for Testing and Materials (ASTM).

1.6 ACCEPTANCE

- A. All systems shall be complete-in-place to the satisfaction of the Owner Representative (complete systems must be totally operational) prior to the final acceptance of this work. Payment for any unit does not constitute final acceptance of that unit. The Contractor shall familiarize themselves with the requirements for testing and final acceptance of completed underground utilities, electric vehicle charging stations, and lighting systems as called for in the Contract Specifications, under the appropriate items.
- B. The Contractor is responsible for all equipment until final acceptance of the Contract and for all damage from any cause whatsoever.
- C. The Contractor shall anticipate the problems inherent in coordination of his work with required issuance of work orders to all utilities involved, and the subsequent scheduling by the utilities.
- D. It should be noted that the Electrical drawings are schematic and the Contractor shall coordinate actual locations of equipment.

- E. No payments will be made for relocation's required because of improper installation by the Contractor.

1.7 NAMEPLATES

- A. The Contractor shall furnish and install on the panelboards a typed directory in factory installed frame protected with plastic.

1.8 CODES, STANDARDS AND REFERENCES

- A. All materials and workmanship shall comply with all applicable Codes, specifications, Local and State Ordinances, Industry Standards and Utility Company regulations, latest editions.
- B. In case of difference between building codes, State Laws, Local Ordinances, Industry Standards and Utility Company regulations and the Contract Documents, the Contractor, where such conflict exists shall promptly notify the Engineer in writing of any such difference.
- C. In case of conflict between the Contract Documents and the requirements of any Code or Authorities having jurisdiction, the most stringent requirements of the aforementioned shall govern.
- D. Should the Contractor perform any work that does not comply with the requirements of the applicable Building Codes, State Laws, Local Ordinances, Industry Standards and Utility Company regulations, he shall bear all costs arising in correcting the deficiencies, as approved by the Engineer.
- E. Applicable Codes and Standards shall include all State Laws, Local Ordinances, Industries and Utility Company regulations, and the applicable requirements of the following accepted Codes and Standards, without limiting the number, as follows:
 - F. Building Codes:
 - 1. National Electrical Code.
 - 2. Occupational Safety and Health Standards.
 - 3. National Fire Protection Association.
 - 4. Americans with Disabilities Act.
 - G. In these Specifications, references made to the following Industry Standards and Code bodies are intended to indicate the latest volume or publication of the Standard. All equipment, materials and details of installation shall comply with the requirements and latest revisions of the following bodies, as applicable:
 - 1. ANSI American National Standards Institute.
 - 2. ASTM American Society of Testing Materials.

3. UL Underwriters' Laboratories.
4. NEMA National Electrical Manufacturers Association.
5. FM Factory Mutual.
6. NEC National Electrical Code.
7. ADA Americans with Disabilities Act.

H. The Contractor for work under his Contract shall give all necessary notices, obtain all permits, pay all taxes, fees and other costs in connection with his work; file for necessary approvals with the jurisdiction under which the work is to be performed. The Contractor shall obtain all required Certificates of Inspection for his respective work and deliver same to the Engineer before request for acceptance of his portion of work is made and before final payment.

1.9 GUARANTEE

- A. Attention is directed to provisions regarding guarantees and warranties for work under each Trade.
- B. Manufacturers shall provide their standard guarantees for work under the Electrical Trade. However, such guarantees shall be in addition to and not in lieu of all other liabilities which the manufacturer and/or Contractor may have by law or by other provisions of the Contract Documents.
- C. All materials, equipment and workmanship furnished by Electrical Trade shall carry the standard warranty against all defects in material and workmanship. Any fault due to defective or improper material, equipment, workmanship or design which may develop, shall be made good, forthwith, by and at the expense of the responsible Trade under which the work was provided, including all other damage done to areas, materials and other systems resulting from this failure.
- D. The Contractor shall guarantee that all elements of the systems which are to be provided under his Contract, are of sufficient capacity to meet the specified performance requirements as set forth herein or as indicated on the drawings.
- E. Upon receipt of notice from the Owner Representative of failure of any part of the systems or equipment during the guarantee period, the affected part or parts shall be replaced by the Contractor.
- F. The Contractor shall furnish, before the final payment is made, a written guarantee covering the above requirements.

1.10 THE CONTRACTOR

- A. The Contractor shall visit the site and make his bids from his own site examinations and estimates and shall not hold the Engineer, the Owner or his agents or employees responsible for, or bound by, any schedule, estimate or of any plan thereof.
- B. The Contractor shall faithfully execute his work according to the terms and conditions of the Contract and Specifications, and shall take all responsibility for and bear all losses resulting to him in the execution of his work.
- C. The Contractor shall be responsible for the location and performance of work provided under his Contract as indicated on the Contract Documents. All parties employed directly or indirectly by this Contractor shall perform their work according to all the conditions as set forth in these specifications.
- D. The Contractor shall furnish all materials and perform all work in accordance with these specifications, and any supplementary documents provided by the Owner Representative. The work shall include everything shown on the drawings and/or required by the specifications as interpreted by the Owner Representative. All work and materials furnished and installed shall be new and of the best quality and workmanship. The Contractor shall cooperate with the Owner Representative so that no error or discrepancy in the Contract Documents shall cause defective materials to be used or poor workmanship to be performed.

1.11 COORDINATION OF WORK

- A. The Contractor shall compare his respective drawings and specifications with those for other trades and report any discrepancies between them to the Owner Representative and obtain written instructions for any changes necessary in the electrical work. All work shall be installed in cooperation with other trades installing interrelated work. Before installation, all trades shall make proper provisions to avoid interference in a manner approved by the Owner Representative. All changes required in the work of the trades caused by their neglect shall be performed by them as herein before specified.
- B. Locations of conduit and equipment shall be adjusted to accommodate the work with interference anticipated and encountered. The Contractor shall determine the exact routing and location of the systems prior to fabrication or installation.
- C. The Contract Drawings are diagrammatic only intending to show general runs and locations of conduit, equipment, terminals and specialties and not necessarily showing all required offsets, details and accessories and equipment to be connected. All work shall be accurately laid out to avoid conflicts and to obtain a neat and workmanlike installation which will afford maximum accessibility for operation, maintenance and headroom. In case of conflict between conduit sizes shown on plans, details or diagrams, the larger conduit size shall be included under the

Contract where such discrepancy occurs.

1.12 GIVING INFORMATION

- A. The Contractor shall keep himself fully informed as to the shape, size and position of all openings required for his apparatus and shall give information to the other Contractors sufficiently in advance of the work so that all openings may be built in advance.

1.13 FAILURE

- A. The Contractor shall obtain detailed information from the manufacturer of apparatus which he is to furnish and/or install indicating the proper method of installing and connecting same.
- B. The Contractor shall obtain detailed information from the manufacturer of apparatus which he is to furnish and/or install indicating the proper method of installing and connecting same. The Contractor shall also obtain all pertinent information from the General Contractor and other Contractors which may be necessary to facilitate his work and the completion of the whole project.

1.14 DRAWINGS, INFORMATION AND INTERPRETATION OF SAME

- A. The Engineer shall interpret the specifications and the detailed developments and the drawings thereof. The Engineer's interpretation shall be final and binding.

1.15 CONCRETE WORK

- A. All concrete and masonry equipment bases and pads, curbs, chases, pockets and openings (except core-drilling) required for the proper installation of the work under this Contract, will be provided by the General Contractor using dimensions, templates, bolts, anchors, as shown on the drawings, or as required or recommended by the equipment manufacturers.
- B. Anchor bolts, sleeves, inserts and supports that may be required shall be furnished and installed by the Contractor for the items to be supported. Any expense resulting from the improper location or installation of anchor bolts, sleeves, inserts and supports provided under this Section shall be paid for by the Contractor.

1.16 USE OF PREMISES

- A. The Contractor shall confine his apparatus, storage of materials and construction to the limits directed by the Engineer and he shall not encumber the premises with his materials.

- B. In storing materials within areas (structure or ground) or when used as a shop the Contractor shall consult with the Engineer and will restrict his storage to space designated for such purposes. The Contractor will be held responsible for repairs, patching or cleaning arising from any unauthorized use of premises.
- C. Notwithstanding any approvals or instructions which must be obtained by the Contractor from the Engineer in connection with use of premises, the responsibility for the safe working conditions at the site shall remain that of the Contractor and the Engineer or Owner shall not be deemed to have any responsibility or liability in connection therewith.
- D. For additional requirements see also the requirements set forth in the General Requirements.

1.17 PROTECTION

- A. Materials, conduit shall be properly protected and all conduit openings shall be temporarily closed so as to prevent obstruction and damage as described herein before. Post notice prohibiting the use of all systems provided under the Contract prior to completion of work and acceptance of all systems by the Owner except otherwise instructed by the Engineer or herein before specified. Contractor shall take precautions to protect his materials from damage and theft.
- B. The Contractor shall furnish, place and maintain proper safety guards for the prevention of accidents that might be caused by the workmanship, materials, equipment or electrical systems provided by the Electrical Trade.

1.18 EQUIPMENT AND MATERIALS

- A. Equipment and materials shall be delivered to the site and stored in original sealed containers, suitably sheltered from the elements, but readily accessible for inspection by the Engineer until installed. All items subject to moisture damage shall be stored in dry, heated spaces.
- B. Equipment shall be tightly covered and protected against the completion of the work, equipment and materials shall be cleaned, polished thoroughly and turned over to the Owner in a condition satisfactory to the Owner Representative. Damage or defects developing before acceptance of the work shall be made good at the respective Contractor's expense as herein before specified.
- C. The Contractor shall make necessary field measurements to ascertain space requirements, for equipment and connections to be provided under his Trade and shall furnish and install such sizes and shapes of equipment to allow for the final installation to conform to the drawings and the intent of the specifications.

- D. Manufacturer's directions shall be followed completely in the delivery, storage, protection and installation of all equipment. Notify the Engineer in writing of any conflict between any requirements of the Contract Documents and the manufacturer's directions and shall obtain the Owner Representative's written instructions before proceeding with the work. Should the Contractor perform any work that does not comply with the manufacturer's directions or the written instructions issued by the Owner Representative, he shall bear all costs arising in correcting any deficiencies that should arise.
- E. The Contractor shall furnish and install all equipment, accessories, connections and incidental items necessary to fully complete the work under his contract for use, occupancy and operation by the Owner.
- F. Where equipment of the acceptable manufacturers require different arrangement or connections from those shown, it shall be the responsibility of the Contractor to install the equipment to operate properly and in harmony with the original intent of the drawings and specifications. When directed by the Owner Representative, the Contractor proposing substitutions shall submit drawings showing the proposed installation. If the proposed installation is approved, the Contractor shall make all necessary changes in all affected related work provided by other Trades, including location of roughing in connections by other trades and supports. All changes shall be made at no increase in the Contract amount nor additional cost to the Owner.
- G. All equipment and materials required for installation under these specifications shall be new and without blemish or defect. Equipment and materials shall be products which will meet with the acceptance of the Authorities having jurisdiction over the work and as specified herein before. Where such acceptance is contingent upon having the products listed or labeled by FM or UL or other testing laboratory, the products shall be so listed or labeled. Where no specific indication as to the type or quality of material or equipment is indicated, a first class standard article shall be provided.
- H. All equipment of one type (such as wiring devices, panelboards) shall be the products of one manufacturer.

1.19 DAMAGE TO OTHER WORK

- A. The Contractor shall be held responsible and shall pay for all damages caused by his work to the new and existing building structures, and new and existing equipment, conduit, systems and all work and finishes installed under this Contract in the existing building. Repair of such damage shall be done by the Contractor at his own expense, to Engineer's satisfaction.

1.20 CORRECTION OF WORK

- A. The Contractor shall promptly correct all work provided under his Contract and rejected by the Engineer as defective or as failing to conform to the Contract Documents whether observed before or after completion of work and whether or not fabricated, installed or completed. The Contractor responsible for defective work shall bear all costs of correcting such rejected work to Engineer's satisfaction.

1.21 TOUCHUP PAINTING

- A. All equipment and conduit systems shall be thoroughly cleaned of rust, splatters and other foreign matter of discoloration leaving every part of all systems in an acceptable prime condition. The Contractor for the work under his Contract shall refinish and restore to the original condition all equipment which have sustained damage to the manufacturer's prime and finish coats of Paint and/or enamel.

1.22 IDENTIFICATION OF MATERIALS

- A. All equipment used in the Electrical Systems shall have a permanently attached nameplate identifying the manufacturer, service, size, serial number or model number, etc. The nameplates shall be kept clean and readable at all times.

PART 2 PRODUCTS

2.1 SCHEDULE 40 PVC CONDUIT

- A. Conduits of the sizes shown on the plans shall be schedule 40 PVC construction with standard wall thickness. The conduit must be free from defects and foreign matter. All bends, fittings, and clamps shall be new and free from defects. Bends of all conduit must be made using a standard type commercial bending device.
- B. The schedule 40 PVC conduit must conform to and meet all the current requirements and testing procedures of the American Society for Testing and Materials whenever such standards and tests shall apply. The following ASTM standards shall apply as applicable:
 - 1. ASTM Specification A120-73 - Schedule 40 - PVC Conduit.
 - 2. All conduit shall bear distinctive marking of the type, size, manufacture, etc., to verify that the conduit meets the special conditions of the specifications. The Contractor must supply to the Landscape Architect a letter of compliance from the manufacturer stating that the conduit meets all specifications and conditions.

2.2 COUPLINGS AND FITTINGS

- A. Conduit couplings and fittings shall be constructed of polyvinyl chloride rigid plastic formed to fit the outside diameter of the conduit, to be used in conjunction with a heavy bodied solvent cement.
- B. ASTM D2564 - Specifications for Solvent Cements for Polyvinyl Chloride Plastic Pipe and Fittings.

2.3 POLES AND LUMINAIRES

- A. Owner shall provide lamp poles, luminaires, and controls manufactured by Musco Lighting as outlined in the project drawings.
- B. Contractor is responsible for delivering items above and installing them on-site per the Musco Lighting Plans.

2.4 ELECTRIC SERVICE CABINET

- A. Electrical service is available in the Concessions building and an exterior cabinet will not be necessary. However, if it is decided in the future to locate the service outside the building, the following standard will apply.
 - 1. Electric Service utility cabinet shall be a hinged, washdown enclosure with keyed entry, sized to house equipment as shown on the drawings manufactured by Hoffman Enclosures or approved equal.

2.5 ELECTRIC UTILITY METERS

- A. Contractor shall furnish and install electric utility meters in accordance with the local electrical provider standards and specifications and National Electrical Code Requirements.

2.6 PANELBOARDS

- A. Furnish and install the panelboard for lighting.
- B. The Panelboards shall be of hinged front ('door on door') type, dead front construction with thermal magnetic circuit breakers and shall conform to the requirements of NEMA and NEC. All panelboards shall be UL approved and labeled.
- C. The Panelboards shall consist of circuit breakers, code gauge steel cabinet or backbox, bus assembly, trim with code gauge galvanized steel doors. Gutter space shall be a minimum of 4"

on all sides.

- D. Circuit breakers shall be of the quickmake, quick break trip free thermal magnetic type with characteristics as scheduled. Automatic tripping shall be clearly indicated by the operating handle assuming a midposition between ON and OFF. Two and three pole breakers shall have common trip. All circuit breakers shall be bolt-on type.
- E. The panelboards shall be provided with solid neutrals. In addition, grounding bus with lugs shall be provided on all panelboards meeting UL and NEMA standards. Other special features shall be provided as required and as indicated. All bus work shall be copper.
- F. Two milled type keys shall be provided with each panel and all panel locks shall be keyed alike.
- G. Bus arrangements shall be sequence phased such that adjacent single pole breakers shall be connected to opposite phases in such a manner, such that any two or three pole breakers could be installed anywhere in the panelboard.

2.7 FEEDER AND BRANCH CIRCUIT CONDUCTORS

- A. All feeder, branch circuit, remote control, signal circuit and interlock wiring shall be manufactured of copper, rated 600 volts unless noted otherwise.
- B. Minimum size wire for branch circuit and power wiring shall be #12 AWG.
- C. Insulation type shall be XHHN for feeders and power wiring, THHN./THWN for lighting.
- D. All exterior wiring shall be Type XHHW.
- E. Color coding for phase identification shall be as per industry standards.
 - 1. Color coding shall be continuous on insulation for #6 AWG or smaller and continuous or marked with color tape at all connections for conductors larger than #6 AWG.
- F. All wiring shall conform to the National Electrical Code for construction and use.
 - 1. G. All wiring shall be installed in conduit.

2.8 SOLDERLESS LUGS AND CONNECTORS

- A. All lugs for feeder conductors and connectors for branch circuit joints shall be of the solderless type suitable for copper wire.

2.9 DEVICE PLATES

- A. Device plates shall be manufactured of stainless steel.
 - 1. Device plate screws shall match plates.

2.10 GROUNDING

- A. Provide grounding for all electrical equipment and devices in accordance with the applicable requirements of the Rhode Island Electrical Code and as indicated on the drawings.
- B. Bonding jumpers shall be installed at all locations required by RIEC.
- C. A green grounding conductor of proper size shall be installed and connected with the feeder circuit conductors to all panelboards, electrical equipment, etc. Connections to the equipment may be bolted or screwed using corrosion resisting bolts, screws. A green grounding conductor shall be installed in all branch and feeder circuits.
- D. All exposed connections shall be made by grounded grounding clamps.
- E. Grounding electrodes shall be driven, without bending or causing any damage to the rods.

PART 3 EXECUTION

3.1 INSTALLATION - GENERAL

- A. All work shall be installed in a neat and workmanlike manner and shall be done in accordance with all local and state codes.

3.2 INSTALLATION OF BOXES

- A. All boxes shall be rigidly mounted and shall be equipped with suitable screw fastened covers. Open knockouts or holes in boxes shall be plugged with suitable blanking devices.
- B. Mounting hangers, clamps, etc., for electrical equipment shall be as indicated on the drawing and as required.

3.3 INSTALLATION OF CONDUCTORS

- A. All wiring shall be installed and supported in accordance with the requirements of the Rhode Island Electrical Code.
- B. Splices, taps and lugs shall be electrically and mechanically secure and solderless lugs and connectors shall be used. Lugs shall be used for conductors sizes No. 8 AWG and larger. All lugs shall be of the proper size and in no case shall strands be cut from a conductor in order to fit the conductor into a lug.

3.4 INSTALLATION OF LIGHTING FIXTURES

- A. Furnish and install a complete lighting system, including conduit, wire, outlet boxes, poles, lighting fixtures with lamps and receptacles as shown on the drawings.
- B. Where job conditions require locations different from those shown to avoid equipment, etc., such changes shall be made without additional cost to the Owner.

3.5 BRANCH AND FEEDER CIRCUITS

- A. The branch and feeder circuit wiring shall be installed as indicated on the drawings.
- B. The number and size of conductors in each run of conduit is indicated on the drawings and where there is a conflict between the number wires indicated and the actual number required, the actual number and size shall be installed.
- C. All circuits shall be connected to breakers at the Contractor's discretion. The balancing of all loads shall be the Contractor's responsibility.

3.6 EQUIPMENT CONNECTIONS

- A. All equipment shown on the drawings shall be connected under this section.
- B. Before connecting any piece of equipment, check the nameplate rating against the information shown on the drawings and call to the attention of the Engineer any discrepancies.
- C. The Contractor shall carefully study all equipment manufacturer's wiring diagrams and make corrections accordingly.

3.7 IDENTIFICATION OF EQUIPMENT

- A. Identification shall be provided for all electrical equipment. The electrical system Identification shall clearly describe the equipment connected. Method of Identification shall be by laminated nameplate made of bakelite or similar material engraved letters at least 1 1/4" high and secured to the equipment by screws. A list of nameplates shall be submitted, to the Owner Representative for approval prior to fabrication.
- B. Panelboard directory cards shall be typewritten to indicate areas and/or devices served by each circuit.

3.8 TESTS

- A. This Section of the Specifications shall include the making of the necessary tests referred to herein in the presence of the Owner Representative to show that the particular system or equipment has been properly installed and is in good operating condition, as hereinafter specified. The Owner Representative shall be notified two (2) weeks in advance of the date for all tests so that he may be present to witness the tests.
- B. Complete test and inspection records shall be made and incorporated into a report for each piece of equipment tested. All readings, taken shall be recorded. Test reports shall be submitted to the Owner Representative for approval.
- C. Furnish necessary meters, instruments, temporary wiring and labor to perform all required tests and adjustments of equipment and wiring installed and/or connected under this Contract, including electrical equipment furnished by others, to determine proper polarity, phasing, freedom from ground and shorts and operation of equipment. All measuring instruments shall be properly calibrated.
- D. All materials and manner of installation shall be in strict accordance with the applicable requirements of state and local authorities, the utility company and the codes of National Board of Fire Underwriters.
- E. Wherever any of the aforementioned codes, laws, etc., require that any work be tested or approved, the Contractor shall provide proper facilities for access and for inspection, all at his own expense.
- F. Wiring.
 - 1. System and equipment grounds shall be checked for proper value of resistance using the Megger ground tester in accordance with manufacturer's standard instructions.
 - 2. The Contractor shall correct or replace any nominal currentcarrying circuit which is defective or grounded and he shall also correct all other troubles encountered by these tests. All defects whether through faulty workmanship or material furnished shall be

corrected under this Section at the Contractor's expense.

G. Lighting.

1. Check all lighting fixtures and receptacles for proper operation.

H. Branch Circuits:

1. The branch circuit wiring shall be installed as indicated on the drawings. No major changes in wiring shall be made without the approval of the Owner Representative in writing.
2. Number associated with each branch circuit outlet identifies the branch circuit to which the device served by the outlet is to be connected. The circuit number indicated is only for reference and guidance to this Contractor and is not intended to limit the panelboard circuitry. All branch circuits shall be connected to breakers at the Contractor's discretion, in accordance with circuit requirements. The balancing of all loads shall be this Contractor's responsibility.

3.9 FINAL INSPECTION

- A. A. When the work on this project has been completed and is ready for final inspection, such inspection will be made. At this time, the Contractor for the work of this SECTION shall demonstrate that the requirements of these specifications have been met. Written results for all tests shall be submitted to the Owner Representative.

3.10 END OF SECTION

END OF SECTION

SECTION 312000

EARTH MOVING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Requirements, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Excavating and filling for rough grading the Site.
 - 2. Preparing subgrades for playground protective surfacing and turf and grasses.
- B. Related Requirements:
 - 1. Section 312213 - Rough Grading.
 - 2. Section 312316.13 - Trenching.
 - 3. Section 329119 - Landscape Grading.

1.3 DEFINITIONS

- A. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Owner's Representative. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
 - 2. Bulk Excavation: Excavation more than 10 feet in width and more than 300 in length.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Owner's Representative. Unauthorized excavation, as well as remedial work directed by Owner's Representative, shall be without additional compensation.
- B. Fill: Soil materials used to raise existing grades.

- C. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- D. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- E. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 PRE CONSTRUCTION MEETINGS

- A. Pre Construction Meeting: Conduct meeting at Project site.
 - 1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
 - a. Personnel and equipment needed to make progress and avoid delays.
 - b. Coordination of Work with utility locator service.
 - c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
 - d. Extent of trenching by hand or with air spade.
 - e. Field quality control.

1.5 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving 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 traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify "Dig Safe System" for area where Project is located before beginning earth-moving operations.
- C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified Section 010000 General Requirements in and Section 311000 "Site Clearing" are in place.
- D. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. 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.
- E. Do not direct vehicle or equipment exhaust towards protection zones.
- F. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- C. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- D. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.
- E. Sand: ASTM C33/C33M; fine aggregate.

PART 3 EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 EXPLOSIVES

- A. Explosives: Do not use explosives.

3.3 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
- B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.
 - 1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.

3.4 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.5 SUBGRADE INSPECTION

- A. Notify Owner's Representative when excavations have reached required subgrade.
- B. If Owner's Representative determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.

- D. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.6 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.7 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.8 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Testing and inspecting underground utilities.
 - 3. Removing trash and debris.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.9 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
 - 1. Under grass and planted areas, use satisfactory soil material.
 - 2. Under walks and pavements, use satisfactory soil material.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.10 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.

3.11 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.12 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION

SECTION 312213
ROUGH GRADING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Excavating topsoil.
 - 2. Excavating subsoil.
 - 3. Cutting, grading, filling, rough contouring, compacting, site for stonedust & chip-seal paths and concrete pads.

- B. Related Sections:
 - 1. Section 312000 - Earth Moving.
 - 2. Section 329119 - Landscape Grading.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Topsoil Fill Type S4:
 - 1. Basis of Measurement: By Cubic Yard.
 - 2. Basis of Payment: Includes excavating existing soil, supplying soil materials, stockpiling, scarifying substrate surface, placing where required, and compacting.

- B. Subsoil Fill Type S2 :
 - 1. Basis of Measurement: By the cubic yard.
 - 2. Basis of Payment: Includes excavating existing subsoil, supplying subsoil materials, stockpiling, scarifying substrate surface, placing where required, and compacting.

1.3 REFERENCES

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

- B. ASTM International:
 - 1. ASTM C136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).

1.4 SUBMITTALS

- A. Materials Source: Submit name of imported materials suppliers.

1.5 CLOSEOUT SUBMITTALS

- A. Section 01000 - General Requirements: Requirements for submittals.
- B. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with RIDOT Standard Specifications for Road and Bridge Construction, latest edition.
- B. Maintain one copy of each document on site.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Subsoil Materials.
 1. Type S2.
 - a. Excavated and re-used material: shall be screened with 1/2" sieve. After screening, it should be inspected and any glass, metal, plastic or other foreign materials over 1/4" in size (in any dimension) shall be removed.
- B. Topsoil Materials.
 1. Type S4.
 - a. Imported material, see Section 329119 for more info.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify survey bench mark and intended elevations for the Work are as indicated on Drawings.

3.2 PREPARATION

- A. Call Local Utility Line Information service at 1-888-DIG-SAFE not less than three (3) working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum.
- C. Protect utilities indicated to remain from damage.
- D. Protect plant life, lawns, structures, and other features remaining as portion of final landscaping.
- E. Protect bench marks, survey control point, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.3 TOPSOIL EXCAVATION

- A. Excavate topsoil from areas to be further excavated, relandscaped, or regraded, in marked areas, without mixing with foreign materials for use in finish grading.
- B. Do not excavate wet topsoil.
- C. Stockpile in area designated on site to depth not exceeding 8 feet and protect from erosion. Stockpile material on impervious material and cover over with same material, until disposal.
- D. Remove excess topsoil not intended for reuse, from site.

3.4 SUBSOIL EXCAVATION

- A. Excavate subsoil from areas to be further excavated, relandscaped, or regraded. marked areas.
- B. Do not excavate wet subsoil.

- C. When excavating through roots, perform Work by hand and do not remove any roots over 2" in diameter.
- D. Stockpile excavated material in area designated on site in accordance with Section 310513.
- E. Benching Slopes: Horizontally bench existing slopes greater than 1: 4 to key placed fill material to slope to provide firm bearing.
- F. Stability: Replace damaged or displaced subsoil as specified for fill.

3.5 FILLING

- A. Fill areas to contours and elevations with unfrozen materials.
- B. Place material in continuous layers as follows:
 - 1. Subsoil Fill: Maximum 8 inches compacted depth.
 - 2. Granular Fill: Maximum 6 inches compacted depth.
- C. Maintain optimum moisture content of fill materials to attain required compaction density.
- D. Make grade changes gradual. Blend slope into level areas.
- E. Repair or replace items indicated to remain damaged by excavation or filling.
- F. Install Work in accordance with RIDOT Standard Specifications for Road and Bridge Construction, latest edition.

3.6 TOLERANCES

- A. Section 014000 - Quality Requirements: Tolerances.
- B. Top Surface of Subgrade: Plus or minus 1/10 foot from required elevation.

3.7 SCHEDULES

- A. Subsoil Fill:
 - 1. Fill Type S2 : To subgrade elevation. 6" thick.
 - 2. Compact uniformly to minimum 95% percent of maximum density.

- B. Topsoil Fill:
1. Fill Type S4 : To subgrade elevation. 6" thick.
 2. Compact uniformly to minimum 90 % percent of maximum density.

END OF SECTION

SECTION 312316.13

TRENCHING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches for utilities & stormwater conveyance.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Trenching:

1. Basis of Measurement: By cubic yard.
2. Basis of Payment: Includes excavating to required elevations, and Over Excavating: Payment is not made for over excavated work nor for replacement materials.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by

Nuclear Methods (Shallow Depth).

1.4 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.5 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Requirements for submittals.
- B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.6 QUALITY ASSURANCE

- A. Perform Work in accordance with RIDOT Standard Specifications for Road and Bridge Construction- latest edition.

1.7 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.8 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Architect/Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call Local Utility Line Information service at 1-888-DIG-SAFE not less than seven working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.
- C. Protect plant life, lawns, and other features remaining as portion of final landscaping.
- D. Protect bench marks, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.
- F. Establish temporary traffic control when trenching is performed in public right-of-way. Relocate controls as required during progress of Work.

3.3 TRENCHING

- A. Excavate subsoil required for utilities to irrigation system.
- B. Remove lumped subsoil, boulders, and rock above 3" diameter, remove larger material as specified in Section. 312213.
- C. Perform excavation in accordance with State & Local requirements.
- D. Do not advance open trench more than 200 feet ahead of installed pipe.
- E. Cut trenches sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.
- H. Trim excavation. Remove loose matter.
- I. Correct areas over excavated areas with compacted backfill as specified for authorized

excavation or replace with fill concrete as directed by Architect/Engineer.

- J. Remove excess subsoil not intended for reuse, from site.

3.4 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact.
- D. Maintain optimum moisture content of fill materials to attain required compaction density.
- E. Do not leave more than 50 feet of trench open at end of working day.
- F. Protect open trench to prevent danger to the public.

3.5 TOLERANCES

- A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

3.6 PROTECTION OF FINISHED WORK

- A. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION

SECTION 312500

EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

- A. Furnish all labor, materials, equipment and incidentals required and perform all installation, maintenance, removal and area cleanup related to erosion and sedimentation control work required to meet Federal, State, and local permit requirements and as shown on the Drawings and as specified herein. The work shall include, but not necessarily be limited to; installation of temporary access ways and staging areas, compost filter socks, catch basin sediment filters (silt sack), sediment removal and disposal, device maintenance, removal of temporary devices, and final cleanup.
- B. Section Includes:
 - 1. Compost Filter Sock.
- C. Related Sections:
 - 1. Section 312000 - Earth Moving.
 - 2. Section 312213 - Rough Grading.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

1.3 REFERENCES

- A. EPA document titled: "Stormwater Management for Construction Activities - Developing Pollution Prevention Plans and Best Management Practices" document number EPA 832-R-92-005, dated 1992, or most recent edition. State, County Conservation Districts or local Conservation Commission standards can be substituted for the EPA standard if the State, County or Local Conservation Commission standards is equal to, or more detailed than, the EPA standard.
- B. State of Rhode Island Department of Transportation Standard Specifications for Road and Bridge Construction, Current Edition with latest addenda.

1.4 SUBMITTALS

- A. Submit, in accordance with Division 01 10 00 - General Requirements: Submittal Procedures ten (10) days after award of Contract, technical product literature for all commercial products to be used for erosion and sedimentation control.
- B. If a NPDES General Permit is required, Contractor shall, prior to the start of construction:
 - 1. Prepare and submit the EPA NPDES Notice of Intent to Discharge to the applicable EPA office in accordance with EPA regulations. Submit one copy of the permit to Owner's Representative for informational purposes only.
 - 2. Prepare and submit a Stormwater Pollution Prevention Plan (SWPPP) in accordance with the U.S. Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) General Permit for this work. Submit one copy of the permit to Owner's Representative for informational purposes only.

1.5 QUALITY ASSURANCE

- A. Be responsible for the timely installation and maintenance of all erosion and sedimentation control devices necessary to prevent the movement of sediment from the construction site to off-site areas or into the stream system via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of the Contractor. No additional charges to the Owner will be considered.
- B. Where Contractor's efforts to control erosion and sediment have been demonstrated to be ineffective or potentially ineffective in the opinion of the Owner's Representative, the Owner's Representative may order that additional measures be implemented and constructed at no additional cost to the Owner.
- C. Perform Work in accordance with requirements of Section 310513, Section 312323, Section 312316, Section 312323,.
- D. Perform Work according to Municipality of Department of Public Works standards.

PART 2 PRODUCTS

2.1 MATERIALS

- A. When work is performed outside of normal seeding window straw mulch shall be utilized on all newly graded areas to protect areas against washouts and erosion. Straw mulch shall be comprised of threshed straw of oats, wheat, barley, or rye that is free from noxious weeds, mold or other objectionable material. The straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer. Straw shall be in an air-dry condition and suitable for placement with blower equipment.
- B. Compost Filter Sock.
 - 1. Machine produced.
 - 2. Straw filled tubes of compacted straw of rice, wheat or barley.
 - 3. Compost filter sock to be certified as weed free.
 - 4. Netting for tubes to be seamless, high density polyethylene with ultra violet inhibitors.
 - 5. Roll length to be 10.0 feet to 25.0 feet.
 - 6. Weight per linear foot, 12-inch: 2.5 lbs. minimum 9-inch: 1.5 lbs. minimum.
 - 7. Stakes shall be wooden, 1 1/8-inch x 1 1/8-inch x 2.5 feet long, with lower ends tapered to facilitate driving into compacted soil. Rebar may be substituted for wooden stakes.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Staging areas and stabilized construction entrance shall be surfaced with a minimum depth of 6 inches of crushed stone (if so directed by the Landscape Architect. Stabilized construction entrances shall be installed as shown on the Plans.

3.2 MAINTENANCE AND INSPECTION

- A. Inspections.
 - 1. Make a visual inspection of all erosion and sedimentation control devices once per week and promptly after every rainstorm. If such inspection reveals that additional measures are needed to prevent movement of sediment to offsite areas, promptly install additional devices as needed. Sediment controls in need of maintenance shall be repaired promptly.

3.3 REMOVAL AND FINAL CLEANUP

- A. Once the site has been permanently stabilized against erosion, remove all sediment control devices and sediment. Dispose sediment and all waste materials in a proper manner.
- B. When sediment accumulation in sedimentation structures has reached a point one-third depth of sediment structure or device, remove and dispose of sediment.
- C. Do not damage structure or device during cleaning operations.
- D. Clean channels when depth of sediment reaches approximately one half channel depth.
- E. Clean channels when depth of sediment reaches approximately one half channel depth.

3.4 SITE STABILIZATION

- A. Incorporate erosion control devices indicated on the Drawings into the Project at the earliest practicable time.
- B. Construct, stabilize and activate erosion controls before site disturbance within tributary areas of those controls.
- C. Stockpile and waste pile heights shall not exceed 35 feet. Slope stockpile sides at 2: 1 or flatter.
- D. Stabilize any disturbed area of affected erosion control devices on which activity has ceased and which will remain exposed for more than 20 days.
 - 1. During non-germinating periods, apply mulch at recommended rates.
 - 2. Stabilize disturbed areas which are either at finished grade or will not be disturbed within one year in accordance with Section 329219 permanent seeding specifications.
- E. Stabilize diversion channels, sediment traps, and stockpiles immediately.

END OF SECTION

SECTION 321216

ASPHALT PAVING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General Requirements apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Hot-mix asphalt paving.
- B. Related Requirements:
 - 1. Section 024119 - Selective Demolition for demolition and removal of existing asphalt pavement.
 - 2. Section 312000 - Earth Moving for subgrade preparation, fill material, separation geotextiles, unbound-aggregate subbase and base courses, and aggregate pavement shoulders.
 - 3. Section 312316.13 - Trenching for Utility trenches through asphalt roads and walks.
 - 4. Section 321313 - Concrete Paving for concrete pavement and for separate concrete curbs, gutters, and driveway aprons.

1.3 UNIT PRICES

- A. Work of this Section is affected by square foot.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - a. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.

- b. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Include technical data and tested physical and performance properties.
 2. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For manufacturer.
- B. Material Certificates: For each paving material. Include statement that mixes containing recycled materials will perform equal to mixes produced from all new materials.
- C. Material Test Reports: For each paving material, by a qualified testing agency.

1.7 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the DOT of state in which Project is located.
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of of RIDOT Standards for Road & Bridge Construction for asphalt paving work.
 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

1.8 FIELD CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 1. Tack Coat: Minimum surface temperature of 60 deg F.
 2. Asphalt Base Course: Minimum surface temperature of 40 deg F and rising at time of placement.
 3. Asphalt Surface Course: Minimum surface temperature of 60 deg F at time of placement.

PART 2 PRODUCTS

2.1 AGGREGATES

- A. General: Use materials and gradations that have performed satisfactorily in previous installations.
- B. Coarse Aggregate: ASTM D 692/D 692M, sound; angular crushed stone, crushed gravel, or cured, crushed blast-furnace slag.
- C. Fine Aggregate: ASTM D 1073, sharp-edged natural sand or sand prepared from stone, gravel, cured blast-furnace slag, or combinations thereof.
 - 1. For hot-mix asphalt, limit natural sand to a maximum of 20 percent by weight of the total aggregate mass.
- D. Mineral Filler: ASTM D 242/D 242M, rock or slag dust, hydraulic cement, or other inert material.

2.2 ASPHALT MATERIALS

- A. Asphalt Binder: ASTM D 6373 binder designation PG 64-22.
- B. Asphalt Cement: ASTM D 3381/D 3381M for viscosity-graded material
ASTM D 946/D 946M for penetration-graded material.
- C. Cutback Prime Coat: ASTM D 2027/D 2027M, medium-curing cutback asphalt, MC-30 or MC-70.
- D. Emulsified Asphalt Prime Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397/D 2397M cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- E. Tack Coat: ASTM D 977 emulsified asphalt, or ASTM D 2397/D 2397M or cationic emulsified asphalt, slow setting, diluted in water, of suitable grade and consistency for application.
- F. Fog Seal: ASTM D 977 or emulsified asphalt, or ASTM D 2397/D 2397M or cationic emulsified asphalt, slow setting, factory diluted in water, of suitable grade and consistency for application.
- G. Water: Potable.

- H. Undersealing Asphalt: ASTM D 3141/D 3141M; pumping consistency.

2.3 AUXILIARY MATERIALS

- A. Recycled Materials for Hot-Mix Asphalt Mixes: Reclaimed asphalt pavement; reclaimed, unbound-aggregate base material; and recycled tires asphalt shingles from sources and gradations that have performed satisfactorily in previous installations, equal to performance of required hot-mix asphalt paving produced from all new materials.

2.4 MIXES

- A. Hot-Mix Asphalt: Dense-graded, hot-laid, hot-mix asphalt plant mixes; designed according to procedures in AI MS-2, "Asphalt Mix Design Methods"; and complying with the following requirements:
 - 1. Provide mixes with a history of satisfactory performance in geographical area where Project is located.
 - 2. Base Course: 12.5 HMA.
 - 3. Surface Course: 9.5 HMA.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that subgrade is dry and in suitable condition to begin paving.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protection: Provide protective materials, procedures, and worker training to prevent asphalt materials from spilling, coating, or building up on curbs, driveway aprons, manholes, and other surfaces adjacent to the Work.

3.3 SURFACE PREPARATION

- A. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared subgrade is ready to receive paving.
- B. Cutback Prime Coat: Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal, but not flood, surface. Allow prime coat to cure.
 - 1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 - 2. Protect primed substrate from damage until ready to receive paving.

3.4 PLACING HOT-MIX ASPHALT

- A. Machine place hot-mix asphalt on prepared surface, spread uniformly, and strike off. Place asphalt mix by hand in areas inaccessible to equipment in a manner that prevents segregation of mix. Place each course to required grade, cross section, and thickness when compacted.
 - 1. Place hot-mix asphalt base course in single lift.
 - 2. Place hot-mix asphalt surface course in single lift.
 - 3. Spread mix at a minimum temperature of 250 deg F.
 - 4. Begin applying mix along centerline of crown for crowned sections and on high side of one-way slopes unless otherwise indicated.
 - 5. Regulate paver machine speed to obtain smooth, continuous surface free of pulls and tears in asphalt-paving mat.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
 - 1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Overlap mix placement about 1 to 1-1/2 inches from strip to strip to ensure proper compaction of mix along longitudinal joints.
 - 2. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.

3.5 COMPACTION

- A. General: Begin compaction as soon as placed hot-mix paving will bear roller weight without excessive displacement. Compact hot-mix paving with hot, hand tampers or with vibratory-plate compactors in areas inaccessible to rollers.
 - 1. Complete compaction before mix temperature cools to 185 deg F.
- B. Breakdown Rolling: Complete breakdown or initial rolling immediately after rolling joints and outside edge. Examine surface immediately after breakdown rolling for indicated crown, grade, and smoothness. Correct laydown and rolling operations to comply with requirements.
- C. Intermediate Rolling: Begin intermediate rolling immediately after breakdown rolling while hot-mix asphalt is still hot enough to achieve specified density. Continue rolling until hot-mix asphalt course has been uniformly compacted to the following density:
 - 1. Average Density: 92 percent of reference maximum theoretical density according to ASTM D 2041/D 2041M, but not less than 90 percent or greater than 96 percent.
- D. Finish Rolling: Finish roll paved surfaces to remove roller marks while hot-mix asphalt is still warm.
- E. Edge Shaping: While surface is being compacted and finished, trim edges of pavement to proper alignment. Bevel edges while asphalt is still hot; compact thoroughly.
- F. Repairs: Remove paved areas that are defective or contaminated with foreign materials and replace with fresh, hot-mix asphalt. Compact by rolling to specified density and surface smoothness.
- G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.
- H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.6 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
 - 1. Base Course: Plus or minus 1/4 inch.
 - 2. Surface Course: Plus 1/8 inch, no minus.

- B. Pavement Surface Smoothness: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch.
 - 2. Surface Course: 1/8 inch.

3.7 SURFACE TREATMENTS

- A. Fog Seals: Apply fog seal at a rate of 0.10 to 0.15 gal./sq. yd. to existing asphalt pavement and allow to cure. With fine sand, lightly dust areas receiving excess fog seal.

3.8 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549/D 3549M.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

3.9 WASTE HANDLING

- A. General: Handle asphalt-paving waste according to approved waste management plan required in Section 017419 "Construction Waste Management and Disposal."

END OF SECTION

SECTION 321313
CONCRETE PAVING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. Related Sections:
 - 1. Section 312213 - Rough Grading.
 - 2. Section 321216 - Asphalt Paving.

1.2 SUMMARY

- A. Section Includes Concrete Paving Including the Following:
 - 1. Pads for trash receptacles.
 - 2. Pads for dugouts.

1.3 DEFINITIONS

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

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and concrete paving construction practices.
 - c. Best practices for concrete installation in hot/cold temperatures.
 - 2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:

- a. Contractor's superintendent.
- b. Ready-mix concrete manufacturer's representative (only for larger projects).
- c. Concrete paving Subcontractor.

1.5 PRODUCT SUBMITTALS

- A. Product Data: For each type of product.
- B. Sustainable Design Submittals:
 1. Ground Granulated Blast Furnace Slag (GGBFS).
- C. Samples for Initial Selection: For each type of product, ingredient, or admixture requiring color selection.
- D. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 1. Provide confirmation of mix design with each delivery of concrete to the project site.

1.6 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For the following, from manufacturer:
 1. Cementitious materials.
 2. Fiber reinforcement.
 3. Admixtures.
 4. Curing compounds.
 5. Joint fillers.

1.7 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Build mockups of full-thickness sections of concrete paving to demonstrate typical joints; surface finish, texture, and color; curing; and standard of workmanship.

2. Build mockups of concrete paving in the location and of the size indicated or, if not indicated, build mockups where directed by Architect and not less than 48"x48".
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 2. Do not use frozen materials or materials containing ice or snow.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
 4. Cover base material with thermal blankets prior to concrete pour in order to keep temperature of base material above 40 deg F.
 5. When temperatures are forecasted to drop below 40 deg F, cover concrete with plastic sheeting followed by thermal blankets for a minimum of 1 week or per mix design requirements.
- C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

- A. Form Materials: Plywood, plastic lumber, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C 150/C 150M, gray portland cement Type I/II.
 - 2. Slag Cement: ASTM C 989/C 989M, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 4S, uniformly graded. Provide aggregates from a single source.
 - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C 260/C 260M.
- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- E. Color Pigment: ASTM C 979/C 979M, synthetic mineral -oxide pigments or colored water-reducing admixtures; color stable, nonfading and resistant to lime and other alkalis.
 - 1. Manufacturer: Brickform by Solomon Colors, Ultra-M1x, or approved equal.
 - 2. Color: to be selected by Landscape Architect from manufacturer's full range of colors.

- F. Water: Potable and complying with ASTM C 94/C 94M.

2.4 FIBER REINFORCEMENT

- A. Synthetic Fiber: Fibrillated polypropylene fibers engineered and designed for use in decorative concrete paving, complying with ASTM C 1116/C 1116M, Type III, 1/2 to 1-1/2 inches long.

2.5 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry or cotton mats.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.

2.6 RELATED MATERIALS

- A. Joint Dowels:
 - 1. Smooth Dowel: 5/8" x 18" Steel, ASTM A 615 Grade 60 Steel & ACI 302.1 R-04 3.2.7.
 - 2. Speed Dowel system: Sika #4x9" Speed Dowel, PSD09/#4TX with base PSD/#4BX, or approved equal.
- B. Joint Fillers: ASTM D 1752, cork or self-expanding cork in preformed strips.

2.7 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.
- B. Cementitious Materials: use one of the following to reduce the amount of Portland cement needed.
 - 1. Ground Granulated Blast Furnace Slag (GGBFS): preferred, minimum 20 percent, maximum 60 percent.

2. Fly Ash or Pozzolan: minimum 15, maximum 25 percent.
 3. Slag Cement: minimum 20, maximum 50 percent.
 4. Combined Fly Ash or Pozzolan, and Slag Cement: minimum 20, maximum 50 percent, with fly ash or pozzolan not exceeding 25 percent.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
1. Air Content: 6 percent plus or minus 1-1/2 percent for 3/4-inch nominal maximum aggregate size.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing admixture high-range, water-reducing admixture high-range, water-reducing and retarding admixture plasticizing and retarding admixture in concrete as required for placement and workability.
 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- F. Synthetic Fiber: Uniformly disperse in concrete mixture at manufacturer's recommended rate, but not less than 1.0 lb/cu. yd.
- G. Color Pigment: Add color pigment to concrete mixture according to manufacturer's written instructions and to result in hardened concrete color consistent with approved mockup.
- H. Concrete Mixtures: Normal-weight concrete.
1. Compressive Strength (28 Days): 4000 psi.
 2. Maximum W/C Ratio at Point of Placement: 0.45.
 3. Slump Limit: 4 inches, plus or minus 1 inch.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Expansion Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 20 feet unless otherwise indicated.

2. Dowels:
 - a. Using Speed Dowels or similar, attach base anchors directly to edge form and insert sleeves.
 - b. Install at 12" on center or per manufacturer's recommendation.
 - c. After removing form, insert ungreased steel dowels into sleeves.
 3. Joint Fillers.
 - a. Extend joint fillers full width and depth of joint.
 - b. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - c. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - d. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - e. Cut holes in joint material as needed to accommodate dowels.
 - f. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- C. Control (Contraction) Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete within 4 to 12 hours after placing the slab to avoid contraction cracks.
 - a. Sawed Joint cannot be used for curved control joints.
 - b. Grooved joints are preferred, contractor to obtain approval for Sawed Joints from owner's representative before concrete is poured.
 3. Tolerances:
 - a. Depth: +/- 1/8 inch.
 - b. Horizontal: +/- 2 inches.
- D. Joining an existing slab, when joining existing paving, dowels should be drilled into in existing slab and epoxied in place.
1. Use 1/2" x 18" square dowels.
 2. Drill into existing slab +/- 2" from top of slab in a line parallel to the top of slab.
 3. Spacing should be 12" on center, starting 8" from the edge of the existing slab.
 4. Epoxy dowel in place, insuring it is square to the face of the joint both vertically and horizontally.
 5. Install speed dowel sleeve or grease the end of the dowel that will be covered by the new slab.

- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement dowels and joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

3.6 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface, perpendicular to line of traffic, to provide a uniform, fine-line texture.
 - 2. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.7 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture-retaining-cover curing curing compound or as follows:
 - 1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
 - 2. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.8 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 - 1. Elevation: 3/8 inch.
 - 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 - 3. Surface: Gap below 10-feet- long; unlevelled straightedge not to exceed 1/2 inch.
 - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
 - 5. Lateral Alignment and Spacing of Dowels: 1 inch.
 - 6. Vertical Alignment of Dowels: 1/4 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/16 inch per 12 inches of dowel.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: 1/8 inch,
 - 10. Joint Width: Plus 1/8 inch, no minus.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
- B. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- C. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.
- D. Concrete paving will be considered defective if it does not pass tests and inspections.
- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks

or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 321823.16

NATURAL BASEBALL FIELD SURFACING

PART 1 GENERAL

1.1 SUMMARY

- A. This section includes the material and labor requirements for construction of a complete infield skin surface using the following material:
 - 1. Native Premium Infield Mix or approved equal.
- B. Related Sections:
 - 1. Section 116833 - Athletic Field Equipment.
 - 2. Section 312000 - Earth Moving.
 - 3. Section 329119 - Landscape Grading.
 - 4. Section 329200 - Turf and Grasses.

1.2 SUBMITTALS

- A. Product Data: For the product specified, submit a 5-pound sample along with a private lab test result indicating the particle size analysis of the material specified. All tests shall be performed in accordance with ASTM F-1632.
- B. Approved Testing Lab.
 - 1. UMass Soil & Plant Nutrient Testing Lab
120 Paige Laboratory
161 Holdsworth Way
Amherst, MA 01003.
 - 2. Turf & Soil Diagnostics:
35 King Street
Trumansburg, NY 14886.

1.3 PROJECT/SITE CONDITIONS

- A. All site work and earthwork shall be performed in accordance with the preceding sections. Sub- base material shall compact to 90 percent. If conditions do not warrant such compaction then an imported select granular fill shall be installed. Furthermore, the compacted sub-grade

shall be installed in accordance with the final slope and shall mirror finish grade in order to ensure an even depth of material once placement has occurred.

- B. Under no circumstances are perforated pipe under drains necessary or recommended for use under any infield skin material. Geotextile fabric is not recommended between the compacted sub-base and the infield skin material.
- C. In certain instances, and where warranted, a survey of the sub-grade elevations shall occur prior to placement of the infield skin material.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Installers of materials specified shall have, at minimum, five successful installations of similar projects and materials. Installers shall be in possession of and demonstrate knowledge of the use of laser guided finishing equipment.
- B. Material: If quality control samples are specified, they shall be completed at a rate of one per 250 tons of material delivered to the jobsite. All tests shall be conducted by the lab specified in Section 1.2 (B). All testing will be compared to and be in accordance with the material specifications provided in Section 2.2.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. Native Premium Infield Mix is produced by.
 - 1. Read Custom Soils
158 Tihonet Road
Wareham, MA 02571
781-828-6300.
 - 2. Approved Equal.

2.2 MATERIALS

- A. Native Premium Infield Mix is an engineered soil product which is mechanically mixed offsite in a controlled environment using a pugmill-type mixer. This process ensures thorough mixing of the sand and clay components to exact specifications.
- B. Performance Specification.
 - 1. Infield mix shall be clean, dry clay mixed with washed mason-type sand resulting in a

weed-free mixture that is beige in color. The material possesses the following particle size analysis:

- a. Sand: 70-75%.
 - 1) 45-50% Medium-Very Coarse (.25-1mm).
- b. Silt: 15-20%.
- c. Clay: 10-15%.
- d. Less than .1% particles may be greater than 3mm.

2.3 EXCESS MATERIALS

- A. Provide the owners' authorized representative with a 5-ton stockpile of material for future use.

PART 3 EXECUTION

3.1 SUB-BASE PREPARATION

- A. Compact sub-base to 90% or greater. If that compaction cannot be achieved, a select granular fill must be imported and placed that will fulfill the compaction requirement.
- B. The compacted sub-grade should mirror finish grade to ensure that an even depth of material has been placed.

3.2 PLACEMENT

- A. Place the material in lifts of 2 to 3 inches and lightly compact until an optimum compaction between 85 and 90 percent is achieved on a standard proctor test (ASTM D 689-07). Scarify the surface to facilitate bonding of the next lift and repeat until finish grade elevation is achieved. Completing this process as described will minimize settling and improve the performance of the product. See diagram in 3.1.C.
- B. Depth of the material shall be 4 inches for new construction when finished and compacted. Achieve 85% to 90% compaction based on a standard proctor test (ASTM D 689-07).

3.3 WATERING

- A. In most cases, the material is delivered with optimum moisture and adding water is not necessary. If unable to achieve optimum compaction, a light application of water may be needed.

3.4 FINISH GRADING

- A. For best results the material shall be finish graded with a laser device that allows accuracy to +/- 1/8 inch. A slope of 1/2 percent to 1 percent shall be placed on the infield surface in order to facilitate surface drainage.

3.5 INSPECTION

- A. The finished surface of the infield shall be smooth and free from any visible dips, humps, bumps or other blemishes which would hinder the removal of water through positive surface drainage. Where warranted, a finished elevation survey shall be conducted to assure proper installation.

END OF SECTION

SECTION 323113

CHAIN LINK 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. Chain-link fences.
 - 2. Dugout enclosure.
 - 3. Dugout roof.
 - 4. Swing Gate.
- B. Related Requirements:
 - 1. Section 033000 - Cast-in-Place Concrete for cast-in-place concrete and post footings.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review Scope of Work for repairs and new installation of fences and gates.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories: Fence-top Protection Device.
 - d. Gates and hardware.
 - e. Metal corrugated roof panels.

1.5 INFORMATIONAL SUBMITTALS

- A. Shop Drawings.
 - 1. Dugout Enclosure.
 - 2. Dugout Roof.
 - 3. Swing Gate.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.7 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: 6' or to match existing.
 - 2. Steel Wire for Fabric: Wire diameter of 0.148 inch 9 Gauge.
 - a. Mesh Size: 2 inches.
 - b. Zinc-Coated Fabric: ASTM A 392, Type II, Class 2, 2.0 oz./sq. ft. with zinc coating applied after weaving.
 - 3. Selvage: Knuckled at both selvages.

2.2 FENCE/DUGOUT FRAMEWORK

- A. Posts and Rails : ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 or ASTM F 1083 based on the following:
 - 1. Fence Height: As indicated on Drawings.
 - 2. Horizontal Framework Members: top and bottom rails according to ASTM F 1043.
 - a. Top Rail: 1- 5/8" Diameter.
 - 3. Coating for Steel Framework:
 - a. Coatings: Zinc-coated.

2.3 TENSION WIRE

- A. Metallic-Coated Steel Wire: 7 Gauge diameter, marcelled tension wire according to ASTM A 817 or ASTM A 824, with the following metallic coating:
 - 1. Type II: Zinc coated (galvanized) by hot-dip process, with the following minimum coating weight:
 - a. Matching chain-link fabric coating weight.

2.4 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Post Caps: Provide for each post.
 - 1. Provide line post caps with loop to receive tension wire or top rail.
- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Rail Clamps: Line and corner boulevard clamps for connecting bottom rails to posts.
- E. Tension and Brace Bands: Pressed steel.
- F. Tension Bars: length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.
- G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.
- H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames,

according to the following:

- a. Hot-Dip Galvanized Steel: 9 Gauge diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.

I. Finish:

1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.

2.5 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

2.6 DUGOUT ROOF

- A. General.
 1. Welded steel frame.
 2. Corrugated or ribbed-panel roof.
 3. Bolted or welded to dugout posts.
 4. Basis-of-design: Poligon 8x24 Dugout (DUG 8x24)
Poligon: 4240 136th Avenue Holland, MI 49424.

2.7 SWING GATES

- A. General: ASTM F 900 for gate posts and swing gate types.
 1. Gate Leaf Width: 12'.
 2. Gate Height: 4'
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework.
 2. Gate Posts: 4" dia. round tubular steel.
 3. Gate Frames 2 1/2" dia. round tubular steel.
 4. Gate Bracing: 2" dia. round tubular steel.

- C. Frame Corner Construction: Welded.
- D. Hardware:
 - 1. Hinges: 90-degree inward swing.
 - 2. Latch: Permitting operation from both sides of gate.
 - 3. Padlock and Chain: provided by owner.

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
 - 1. Install fencing on established boundary lines inside property line.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete 2 inches below grade to allow covering

with surface material.

- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more as indicated on Drawings. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Tension Wire: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Pull wire taut, without sags. Fasten fabric to tension wire with 0.120-inch-diameter hog rings of same material and finish as fabric wire, spaced a maximum of 24 inches o.c. Install tension wire in locations indicated before stretching fabric. Provide horizontal tension wire at the following locations:
 - 1. As indicated on Drawings.
- H. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- I. Intermediate and Bottom Rails: Secure to posts with fittings.
- J. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
- K. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
- L. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches

o.c.

- M. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
- N. Fence-Top Protection: White Line Standard Fence Guard #01923 - Color: Yellow or approved equal.
 - 1. Install per manufacturer's recommendations using Fence Ties #03023.
 - 2. Provide Product Data Sheet and Sample if using alternate product.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 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

SECTION 323300

SITE FURNISHINGS

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. Seating.
 - 2. Trash receptacles.

1.3 ACTION SUBMITTALS

- A. Manufacturer's Literature: Submit copies of each of manufacturer's material descriptions, dimensions, details, and installation instructions for the following. Submit manufacturer's material descriptions for primer coat and finish coat.

1.4 INFORMATIONAL SUBMITTALS

- A. Complete Shop Drawings for the installation of 92" polyethylene-coated perforated metal bench w/ back.
- B. Complete Shop Drawings for the installation of trash receptacle with metal hood.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For site furnishings to include in maintenance manuals.
- B. The Contractor shall furnish and deliver standard written manufacturer's guarantee in Owner's name covering all materials and workmanship under this Section 323300, Site Furnishings, in addition to, and not in lieu of, guarantee requirements set forth under Section 010000,

GENERAL REQUIREMENTS, and other liabilities which the Contractor may have by law or other provisions of the Contract Documents.

- C. Supplier shall pay for repairs of any damage to any part of the project caused by defects in his work and for any repair to the materials or equipment caused by replacement. All repairs are to be done to the satisfaction of the Owner's Representative.
- D. Any part of the work installed under this contract requiring excessive maintenance shall be considered as being defective, and shall be replaced by the Supplier during the one year guarantee period at no cost to the Owner.

PART 2 PRODUCTS

2.1 SEATING

- A. 92" Tendertuff Bench w/ back, surface mount.
 - 1. Material: Steel.
 - 2. Finish: UV-stabilized HDPE (high-density polyethylene).
 - 3. Color: Blue.
 - 4. Manufactured By:
Landscape Structures
601 7th Street South
Delano, MN 55328.
 - 5. Or approved equal.

2.2 TRASH RECEPTACLES

- A. 55 Gal round black steel trash receptacle with dome lid, surface mount .
 - 1. Model #CN-R/R-55 as manufactured by Pilot Rock,
 - a. R.J. Thomas Mfg. Co. Inc.
PO Box 946
Cherokee, IA 51012-0946.
 - b. Phone: 1.800.762.5002.
 - c. Lid: CN-2755.
 - d. Cable Kit: CK-5 (Qty: 2).
 - 2. Or approved equal.

2.3 FABRICATION

- A. Factory Assembly: Factory assemble components to greatest extent possible to minimize field

assembly. Clearly mark units for assembly in the field.

2.4 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for correct and level finished grade, mounting surfaces, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with manufacturer's written installation instructions unless more stringent requirements are indicated. Complete field assembly of site furnishings where required.
- B. All metal inserts, anchor slots, anchors, anchor bolts, fastenings, and other fastening devices, for attachment of site improvement items to pavements, except as otherwise specified under other Sections of this Specification, shall be in specified, provided, delivered installed and paid for under the work of this Section 02800, Site Furnishings.
- C. Unless otherwise indicated, install site furnishings after landscaping and paving have been completed.
- D. Free-standing site improvement items shall be set plumb and horizontal regardless of the pitch of the finished surrounding grade unless otherwise shown on the Contract Documents.
- E. The Contractor shall be responsible for timing the delivery of site improvement items so as to minimize the on-site storage time prior to installation. All stored materials are the responsibility of the Contractor and shall be protected from weather, careless handling and vandalism.
- F. Contractor shall be responsible for the correct location of site improvement items. Take particular care to maintain shapes, plumb and level during the pouring of concrete.

- G. All Work shall be accurately set to established lines and elevations and rigidly set in place to supporting construction.
- H. Install site furnishings level, plumb, true, and positioned at locations after final approval in the field by Owner's Representative.
- I. Post Setting: Set cast-in support posts in concrete footing with smooth top, shaped to shed water. Protect portion of posts above footing from concrete splatter. Verify that posts are set plumb or at correct angle and are aligned and at correct height and spacing. Hold posts in position during placement and finishing operations until concrete is sufficiently cured.

END OF SECTION

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. Automatic control valves.
 - 4. Automatic drain valves.
 - 5. Transition fittings.
 - 6. Miscellaneous piping specialties.
 - 7. Quick couplers.
 - 8. Controllers.
 - 9. Boxes for automatic control valves.
 - 10. Sprinklers.
- B. Related Sections:
 - 1. Section 331400 - Water Utility Transmission and Distribution.

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 manual operation with manual valves.
- B. Location of Sprinklers and Specialties: Design location is approximate. Make minor adjustments necessary to avoid plantings and obstructions such as signs and light standards. Maintain 100 percent irrigation coverage of areas indicated.
- C. Minimum Working Pressures: The following are minimum pressure requirements for piping, valves, and specialties unless otherwise indicated:
 - 1. Irrigation Main Piping: 200 PSI.
 - 2. Circuit Piping: 150 PSI.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. Wiring Diagrams: For power, signal, and control wiring.

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. Qualification Data: For qualified Installer.
- C. Zoning Chart: Show each irrigation zone and its control valve.
- D. 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 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. Spray Sprinklers: 3 units of each type.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers that include a Licensed Master Irrigator.
- B. 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.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent -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.

1.11 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 Construction Manager no fewer than two days in advance of proposed interruption of water service.
 - 2. Do not proceed with interruption of water service without Owner'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. Soft Copper Tube:, water tube, annealed temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.
 - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.
- C. Hard Copper Tube: ASTM B 88, Type M, water tube, drawn temper.
 - 1. Copper Pressure Fittings: ASME B16.18, cast-copper-alloy or ASME B16.22, wrought-copper solder-joint fittings. Furnish wrought-copper fittings if indicated.
 - 2. Bronze Flanges: ASME B16.24, Class 150, with solder-joint end.
 - 3. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces and solder-joint or threaded ends.
- D. PE Pressure Pipe: AWWA C906, with DR of 7.3, 9, or 9.3 and PE compound number required to give pressure rating not less than 160 psig.
 - 1. PE Socket-Type Fittings: ASTM D 2683.
- E. PVC Pipe: ASTM D 1785, PVC 1120 compound, Schedule 40.
 - 1. PVC Socket Fittings: ASTM D 2466, Schedules 40 and 80.
 - 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.
- F. 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. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch thick unless otherwise indicated; full-face or ring type unless otherwise indicated.
- B. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.
- C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.
- D. Solvent Cements for Joining PVC Piping: ASTM D 2564. Include primer according to

ASTM F 656.

- E. Plastic, Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.3 MANUAL VALVES

- A. Bronze Ball Valves:
 - 1. Manufacturers:
 - a. Apollo Flow Controls; Conbraco Industries, Inc.
 - b. NIBCO INC.
 - c. WATTS.
 - d. Zurn Industries, LLC.
 - e. Or Approved Equal.
 - 2. Description:
 - a. Standard: MSS SP-110.
 - b. SWP Rating: 150 psig.
 - c. CWP Rating: 600 psig.
 - d. Body Design: Two piece.
 - e. Body Material: Bronze.
 - f. Ends: Threaded or solder joint if indicated.
 - g. Seats: PTFE or TFE.
 - h. Stem: Bronze.
 - i. Ball: Chrome-plated brass.
 - j. Port: Full or regular, but not reduced.

2.4 AUTOMATIC CONTROL VALVES

- A. Plastic, Automatic Control Valves:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hunter Industries Incorporated.
 - b. Rain Bird PGA or Approved Equal.
 - 2. Description: Molded-plastic body, normally closed, diaphragm type with manual-flow adjustment, and operated by 24-V ac solenoid.

2.5 AUTOMATIC DRAIN VALVES

- A. Description: Spring-loaded-ball type of corrosion-resistant construction and designed to open for drainage if line pressure drops below 2-1/2 to 3 psig.

2.6 TRANSITION FITTINGS

- A. General Requirements: Same size as, and with pressure rating at least equal to and with ends compatible with, piping to be joined.
- B. Transition Couplings:
 - 1. HYPERLINK "<http://www.specagent.com/LookUp/?ulid=5283&mf=04&src=wd>"
Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Ford Meter Box Company, Inc. (The).
 - b. JCM Industries, Inc.
 - c. Smith-Blair, Inc.
 - d. Or Approved Equal.
 - 2. Description: AWWA C219, metal sleeve-type coupling for underground pressure piping.

2.7 MISCELLANEOUS PIPING SPECIALTIES

- A. Water Hammer Arresters: ASSE 1010 or PDI WH 201, with bellows or piston-type pressurized cushioning chamber and in sizes complying with PDI WH 201, Sizes A to F.
- B. Pressure Gages: ASME B40.1. Include 4-1/2-inch- diameter dial, dial range of two times system operating pressure, and bottom outlet.

2.8 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. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hunter Industries Incorporated.
 - b. Rain Bird Corporation.
 - c. Or Approved Equal.
 - 2. Description:
 - a. Body Material: Stainless Steel.
 - b. Nozzle: ABS.
 - c. Retraction Spring: Stainless steel.
 - d. Internal Parts: Corrosion resistant.

2.9 QUICK COUPLERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Rain Bird Corporation.
 - 2. Or Approved Equal.
- B. Description: Factory-fabricated, bronze or brass, two-piece assembly. Include coupler water-seal valve; removable upper body with spring-loaded or weighted, rubber-covered cap; hose swivel with ASME B1.20.7, 3/4-11.5NH threads for garden hose on outlet; and operating key.
 - 1. Locking-Top Option: Vandal-resistant locking feature. Include one matching key(s).

2.10 CONTROLLERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hunter Industries Incorporated.
 - 2. Rain Bird Corporation.
 - 3. Or Approved Equal.
- 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: Enameled-steel sheet metal.
 - b. Mounting: Freestanding type for concrete base.
 - 3. Interior Control Enclosures: NEMA 250, Type 12, dripproof, 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.

2.11 BOXES FOR AUTOMATIC CONTROL VALVES

A. Plastic Boxes:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Ametec.
 - b. Armorcast Products Company.
 - c. Carson.
 - d. Or Approved Equal.
2. 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: Rectangular.
 - c. Sidewall Material: PE, ABS, or FRP.
 - d. Cover Material: PE, ABS, or FRP.
 - 1) Lettering: " IRRIGATION."

- ### 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. 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.

- C. Provide minimum cover over top of underground piping according to the following:
 - 1. Irrigation Main Piping: Minimum depth of 18 inches below finished grade, or not less than.
 - 2. Circuit Piping: 12 inches.
 - 3. Drain Piping: 12 inches.
 - 4. Sleeves: 18 inches.

3.2 PREPARATION

- A. Set stakes to identify locations of proposed irrigation system. Obtain 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.
- 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 ductile-iron piping according to AWWA C600.
- L. 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.
- M. 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.

- N. Water Hammer Arresters: Install between connection to building main and circuit valves aboveground or in control-valve boxes.
- O. Install piping in sleeves under parking lots, roadways, and sidewalks.
- P. Install sleeves made of Schedule 40 PVC pipe and socket fittings, and solvent-cemented joints.
- Q. Install transition fittings for plastic-to-metal pipe connections according to the following:
 - 1. Underground Piping:
 - a. NPS 1-1/2 and Smaller: Plastic-to-metal transition fittings.
 - b. NPS 2 and Larger: AWWA transition couplings.
 - 2. Aboveground Piping:
 - a. NPS 2 and Smaller: Plastic-to-metal transition fittings.
 - b. NPS 2 and Larger: Use dielectric flange kits with one plastic flange.

3.4 JOINT CONSTRUCTION

- A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.
- 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 corroded or damaged. Do not use pipe sections that have cracked or open welds.
- D. Flanged Joints: Select rubber gasket material, size, type, and thickness for service application. Install gasket concentrically positioned. Use suitable lubricants on bolt threads.
- E. Ductile-Iron Piping Gasketed Joints: Comply with AWWA C600 and AWWA M41.
- F. Copper-Tubing Brazed Joints: Construct joints according to CDA's "Copper Tube Handbook," using copper-phosphorus brazing filler metal.
- G. Copper-Tubing Soldered Joints: Apply ASTM B 813 water-flushable flux to tube end unless otherwise indicated. Construct joints according to ASTM B 828 or CDA's "Copper Tube

Handbook," using lead-free solder alloy (0.20 percent maximum lead content) complying with ASTM B 32.

- H. PE Piping Fastener Joints: Join with insert fittings and bands or fasteners according to piping manufacturer's written instructions.
- I. PE Piping Heat-Fusion Joints: Clean and dry joining surfaces by wiping with clean cloth or paper towels. Join according to ASTM D 2657.
 - 1. Plain-End PE Pipe and Fittings: Use butt fusion.
 - 2. Plain-End PE Pipe and Socket Fittings: Use socket fusion.
- J. 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. Underground Curb Valves: Install in curb-valve casings with tops flush with grade.
- B. Underground Iron Gate Valves, Resilient Seat: Comply with AWWA C600 and AWWA M44. Install in valve casing with top flush with grade.
 - 1. Install valves and PVC pipe with restrained, gasketed joints.
- C. Aboveground Valves: Install as components of connected piping system.
- D. Pressure-Reducing Valves: Install in boxes for automatic control valves or aboveground between shutoff valves.
- E. Throttling Valves: Install in underground piping in boxes for automatic control valves.
- F. Drain Valves: Install in underground piping in boxes for automatic control valves.

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 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.

3.8 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.

3.9 IDENTIFICATION

- A. Identify system components. Comply with requirements for identification specified in Section 220553 "Identification for Plumbing Piping and Equipment."
- B. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplates and signs on each automatic controller.
 - 1. Text: In addition to identifying unit, distinguish between multiple units, 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.

3.10 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.

3.11 STARTUP SERVICE AND WINTERIZATION

- A. Perform startup service.
 - 1. Complete installation and startup checks according to manufacturer's written instructions.
 - 2. Verify that controllers are installed and connected according to the Contract Documents.
 - 3. Verify that electrical wiring installation complies with manufacturer's submittal.
- B. Perform winterization Service.
 - 1. Complete (1) system shut-down with training.
- C. Spring Start-up.
 - 1. Complete (1) start-up in the first spring following installation with training.

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 1/4 inch above, finish grade.

3.13 CLEANING

- A. Flush dirt and debris from piping before installing sprinklers and other devices.

3.14 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain automatic control valves and controllers.

3.15 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, 3 inch to 2-1/2 inch, shall be the following:
 - 1. Schedule 40, PVC Gasket Joint pipe and socket fittings.
- D. Circuit piping, 1 inch to 2 inch, shall be one of the following:
 - 1. PE, controlled ID pipe; insert fittings for PE pipe; and fastener joints.
 - 2. PE, controlled OD pipe; PE butt, heat-fusion, or PE socket-type fittings; and heat-fusion joints.
 - 3. Schedule 40, PVC pipe and socket fittings; and solvent-cemented joints.
 - 4. SDR 26, PVC, pressure-rated pipe; Schedule 40, PVC socket fittings; and solvent-cemented joints.
- E. Underground Branches and Offsets at Sprinklers and Devices: Schedule 80, PVC pipe; threaded PVC fittings; and threaded joints.
 - 1. Option: Plastic swing-joint assemblies, with offsets for flexible joints, manufactured for this application.
- F. Risers to Aboveground Sprinklers and Specialties: hard copper tube, wrought-copper fittings, and soldered joints.
- G. Risers to Aboveground Sprinklers and Specialties: Schedule 80, PVC pipe and socket fittings;

and solvent-cemented joints.

H. Drain piping shall be one of the following:

1. SDR 21, 26, or 32.5, PVC, pressure-rated pipe; Schedule 40, PVC socket fittings; and solvent-cemented joints.

3.16 VALVE SCHEDULE

A. Underground, Shutoff-Duty Valves: Use the following:

1. NPS 2 and Smaller: Curb valve, curb-valve casing, and shutoff rod.
2. NPS 3 and Larger: Iron gate valve, resilient seated; iron gate valve casing; and operating wrench(es).

B. Drain Valves:

1. NPS 1/2 and NPS 3/4: Plastic ball valve.
2. NPS 1 to NPS 2: Plastic ball valve.

END OF SECTION

SECTION 329119
LANDSCAPE GRADING

PART 1 GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Final grade topsoil for finish landscaping.
- B. Related Sections:
 - 1. Section 312200 - Earth Moving.
 - 2. Section 312213 - Rough Grading.
 - 3. Section 329200 - Turf and Grasses.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

- A. Topsoil:
 - 1. Basis of Measurement: By Cubic Yard (CY).
 - 2. Basis of Payment: Includes excavating existing topsoil, supplying topsoil materials, stockpiling, preparing and scarifying substrate surface, placing where required, and rolling.

1.3 SUBMITTALS

- A. Section 013300 - Submittal Procedures: Submittal procedures.
- B. Samples: Submit, in air-tight containers, 1 cup sample of loam to testing laboratory.
- C. Materials Source: Submit name of imported materials source.

1.4 QUALITY ASSURANCE

- A. Furnish each topsoil material from single source throughout the Work.
- B. Perform Work in accordance with RIDOT Standard Specifications for Road & Bridge Construction, latest edition.

PART 2 PRODUCTS

2.1 MATERIAL

- A. Topsoil:
 - 1. High quality loam, blended with compost and screened to be free of rocks and other debris with a 3/4 inch sieve.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Section 010000 - General Requirements: Verification of existing conditions before starting work.
- B. Verify substrate base has been contoured and compacted.

3.2 PREPARATION

- A. Protect landscaping and other features remaining as final Work.
- B. Protect existing structures, sidewalks, utilities, paving, and curbs.

3.3 SUBSTRATE PREPARATION

- A. Eliminate uneven areas and low spots.
- B. Remove debris, loose roots, branches, stones, in excess of 1/2 inch in size. Remove contaminated subsoil.
- C. Scarify surface to depth of 3 inches where topsoil is scheduled. Scarify in areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.4 PLACING TOPSOIL

- A. Place topsoil in areas where seeding, to thickness as scheduled. Place topsoil during dry weather.
- B. Fine grade topsoil to eliminate rough or low areas. Maintain profiles and contour of subgrade.

- C. Remove roots, weeds, rocks, and foreign material while spreading.
- D. Manually spread topsoil close to plant material, and path to prevent damage.
- E. Roll placed topsoil.
- F. Remove surplus subsoil and topsoil from site.
- G. Leave stockpile area and site clean and raked, ready to receive landscaping.

3.5 TOLERANCES

- A. Section 01000 - General Requirements: Tolerances.
- B. Top of Topsoil: Plus or minus 1/2 inch.

3.6 PROTECTION OF INSTALLED WORK

- A. Section 010000 - General Requirements: Requirements for protecting finished Work.
- B. Prohibit construction traffic over topsoil.

3.7 SCHEDULES

- A. Compacted topsoil thicknesses:
 - 1. Seeded Grass: 6 inches.
 - 2. When meeting existing grade, gradually reduce depth of topsoil so that an even gradient is achieved.

END OF SECTION

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. Hydroseeding.
 - 2. Sod.
- B. Related Requirements:
 - 1. Section 329119 - Landscape Grading for soil preparation prior to seeding/sodding.

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 PREINSTALLATION MEETINGS

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

1.5 INFORMATIONAL SUBMITTALS

- A. Certification of Seed: From seed vendor for each 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.
- B. Product Certificates: For fertilizers, from manufacturer.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf and meadows during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

1.8 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.

1.9 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 Substantial Completion.
 - 1. Spring: April 15th - June 1st.
 - 2. Fall: September 1st - October 15th.

- 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 MIXES

- A. Use the following seed mix for Lawn areas:
 - 1. Lawn/Disturbed Areas - Park Mix:
 - a. 30% Improved Perennial Rye.
 - b. 30% Turf Type Tall Fescue.
 - c. 35% Chewings Fescue.
 - d. 5% Miniature or Dutch White Clover.
 - 2. Available from:
 - a. Allen's Seed Store - 693 S County Trail Exeter, RI 02822 Phone: 401-294-2722.
 - b. Approved Equal.

- B. Use the following seed mix for Irrigated Sports Field in Full Sun:
 - 1. Athletic Mix.
 - a. 30% Improved Kentucky Blue Grass.
 - b. 35% Chewing Fescue.
 - c. 30% 3-way Perennial Rye.
 - d. 5% Micro Clover.
 - 2. Available from:
 - a. Allen's Seed Store - 693 S County Trail Exeter, RI 02822 Phone: 401-294-2722.
 - b. Approved Equal.

2.2 SOD

- A. Bluegrass/Fescue Blend.
 - 1. Available From:
Turf Inc.
550 South County Trail
North Kingstown, RI 02852.
 - 2. Or Approved Equal.

2.3 FERTILIZERS

- A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: fertilizer to have a ratio of 18 Nitrogen (N) - 0 Phosphorous (P) - 12 Potassium (K).

2.4 HYDROMULCH

- A. Wood Fiber or Wood/Cellulose Fiber Blend with tackifier.
 - 1. LESCO Hydrocover Blend w/ Tack: 70% wood/30% cellulose fiber blend w/ tackifier.
 - 2. LESCO Hydrocover Wood w/ Tack: 100% wood fiber w/ tackifier.
 - 3. Approved Equal.

2.5 EROSION-CONTROL MATERIALS

- A. Bedding Straw: clean, dry and free of weed seeds.
- B. Non-asphaltic tackifier: guar gum or approved equal.
- C. Erosion-Control Blankets: Double Net Straw/Coconut Biodegradable Rolled fiber mat, as manufactured by East Coast Erosion Control (www.eastcoasterosion.com, 443 Bricker Road Bernville, PA 19506, 1.800.582.4005 +1.610.488.8496 Fax +1.610.488.8494) or approved equal.
 - 1. The ECSC-2B™ is made with uniformly distributed 70% agricultural straw, 30% coconut fiber and two organic jute nets securely sewn together with biodegradable thread.
 - 2. Secure erosion control blankets with 6" steel landscape staples or approved equal.

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 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 to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329119 - Landscape Grading.
- 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 Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 HYDROSEEDING

- A. Hydroseeding: Mix specified seed, fertilizer, 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 fiber-mulch manufacturer's recommended 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 (5-7 lbs/1000 sq ft).

3.5 SODDING

- A. Moisten prepared surface immediately prior to laying sod.
- B. Lay sod immediately after delivery to Site and/or within 24 hours after harvesting to prevent deterioration.
- C. Joints:
 - 1. Lay sod tightly with no open joints visible and no overlapping.
 - 2. Stagger end joints minimum 12 inches.
 - 3. Do not stretch or overlap sod pieces.
- D. Lay smooth and align with adjoining grass areas.
- E. Watering.
 - 1. Water sodded areas immediately after installation.
 - 2. Saturate sod to 4 inch depth of soil.
- F. Rolling.
 - 1. After sod and soil have dried, roll sodded areas to bond sod to soil and to remove minor depressions and irregularities.

3.6 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. Mowing/Cutting:
 - 1. Turf areas (seeded or sodded):
 - a. 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 Lawn Areas to a height of 2 to 3 inches.

3.7 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by 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.

3.8 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

SECTION 329300

PLANTS

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. Plants.
 - 2. Tree stabilization.
 - 3. Tree-watering devices.
- B. Related Requirements:
 - 1. Section 015639 - Temporary Tree and Plant Protection.
 - 2. Section 329200 - Turf and Grasses.

1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
- C. Finish Grade: Elevation of finished surface of planting soil.
- D. 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.
- E. 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.

- F. Planting Area: Areas to be planted.
- G. 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.
- H. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- I. 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.
- J. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.
- K. 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 COORDINATION

- A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
 - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.5 PREINSTALLATION MEETINGS

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

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.
 - 2. Plant Photographs: Include color photographs in digital 3- by 5-inch print format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species

where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.
- B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:
 - 1. Manufacturer's certified analysis of standard products.
 - 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- C. Sample Warranty: For special warranty.

1.8 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.
 - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
 - 2. Experience: Five years' experience in landscape installation in addition to requirements in Section 014000 "Quality Requirements."
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Personnel Certifications: Installer's field supervisor or personnel assigned to the Work shall have certification in one or all of the following categories from the Professional Landcare Network:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Interior.
 - c. Landscape Industry Certified Horticultural Technician.
 - 5. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
 - 1. Selection of plants purchased under allowances is made by Architect, who tags plants at their place of growth before they are prepared for transplanting.

- C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
 - 1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches above the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
 - 2. Other Plants: Measure with stems, petioles, and foliage in their normal position.
- D. Plant Material Observation: Architect may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Architect may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
 - 1. Notify Architect of sources of planting materials seven days in advance of delivery to site.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. 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 if applicable.
- B. 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.
- C. 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.
- D. 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.
- E. Handle planting stock by root ball.

- F. Store bulbs, corms, and tubers in a dry place at 60 to 65 deg F until planting.
- G. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 - 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.
- H. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.
- I. 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. Heel-in bare-root stock. Soak roots that are in less than moist condition in water for two hours. Reject plants with dry roots.
 - 2. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 - 3. Do not remove container-grown stock from containers before time of planting.
 - 4. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.10 FIELD CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
- B. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: March 15 - May 15.
 - 2. Fall Planting: Sep 1-Nov 15.
- C. 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 and warranty requirements.

1.11 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.
 - c. Faulty performance of tree stabilization edgings and tree grates.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 2. Warranty Periods: From date of planting completion.
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
 - 3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 - c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
 - d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

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.
 - 1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.
 - 2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to

Architect, with a proportionate increase in size of roots or balls.

- C. 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.
- D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.
- E. If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.

2.2 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 - 1. Type: Ground or shredded bark Wood and bark chips.
 - 2. Size Range: 3 inches minimum.
 - 3. Color: Natural. No color dyed mulch.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through a 1-inch sieve; soluble-salt content of 2 to 5 dS/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.
 - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

2.3 TREE-STABILIZATION MATERIALS

- A. Trunk-Stabilization Materials:
 - 1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
 - 2. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing with brass grommets.
- B. Root-Ball Stabilization Materials:
 - 1. Tree Staple or Approved Equal.

2.4 TREE-WATERING DEVICES

- A. Slow-Release Watering Device: Standard product manufactured for drip irrigation of plants and emptying its water contents over one week; manufactured from UV-light-stabilized nylon-reinforced polyethylene sheet, PVC, or HDPE plastic.
 - 1. Manufacturers:
 - a. Tree Gator.
 - b. A.M. Leonard.
 - c. Approved Equal.
 - 2. Color: As selected by Architect from manufacturer's full range dark chocolate or green or.

2.5 MISCELLANEOUS PRODUCTS

- A. Mycorrhizal Fungi: Dry, granular inoculant containing at least 5300 spores per lb of vesicular-arbuscular mycorrhizal fungi and 95 million spores per lb of ectomycorrhizal fungi, 33 percent hydrogel, and a maximum of 5.5 percent inert material.
- B. Tree Watering Bag: provide each tree with a ARBORRAIN TOWER TREE AND PLANT HYDRATOR by AM Leonard (or Approved Equal) following planting. Contractor is responsible for filling bag when it becomes empty for during active growing seasons for 1 year following substantial completion.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plants, with Installer present, for compliance with requirements and 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. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.
 - 3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 4. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. 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 Architect and replace with new planting soil.

- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation." Section 329115 "Soil Preparation (Performance Specification)."
- B. Placing Planting Soil: Place and mix planting soil in-place over exposed subgrade Place manufactured planting soil over exposed subgrade Blend planting soil in place.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Application of Mycorrhizal Fungi: At time directed by Architect, broadcast dry product uniformly over prepared soil at application rate according to manufacturer's written recommendations.

3.4 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 for stock.
 3. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
 4. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
 5. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing

- improvements.
6. Maintain supervision of excavations during working hours.
 7. Keep excavations covered or otherwise protected overnight, after working hours, and when unattended by Installer's personnel.
 8. If drain tile is indicated on Drawings or required under planting areas, excavate to top of porous backfill over tile.
- B. Backfill Soil: Subsoil and topsoil removed from excavations may be used as backfill soil unless otherwise indicated.
- C. Obstructions: Notify Architect if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
1. Hardpan Layer: Drill 6-inch- diameter holes, 24 inches apart, into free-draining strata or to a depth of 10 feet, whichever is less, and backfill with free-draining material.
- D. Drainage: Notify Architect if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
- E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.5 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. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.
1. Backfill: Planting soil. For trees, use excavated soil for backfill.
 2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 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. Continue backfilling process. Water again after placing and tamping final layer of soil.

- D. and Stock: Set each plant plumb and in center of planting pit or trench with root flare 2 inches above adjacent finish grades.
 - 1. Backfill: Planting soil. For trees, use excavated soil for backfill.
 - 2. 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. Continue backfilling process. Water again after placing and tamping final layer of soil.
- E. 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.

3.6 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.

3.7 TREE STABILIZATION

- A. Trunk Stabilization by Upright Staking and Tying: Install trunk stabilization as follows unless otherwise indicated:
 - 1. Upright Staking and Tying: Stake trees with two stakes for trees up to high and 2-1/2 inches or less in caliper; three stakes for trees less than 14 feet high and up to 4 inches in caliper. Space stakes equally around trees.
 - 2. Support trees with bands of flexible ties at contact points with tree trunk. Allow enough slack to avoid rigid restraint of tree.
- B. Root-Ball Stabilization: Install at- or below-grade stabilization system to secure each new planting by the root ball unless otherwise indicated.
 - 1. Proprietary Root-Ball Stabilization Device: Install root-ball stabilization system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.8 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Trees and Treelike Shrubs in Turf Areas: Apply organic mulch ring of 3-inch average thickness, with 12-inch radius around trunks or stems. Do not place mulch within 6 inches of trunks or stems.

2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch extending 12 inches beyond edge of individual planting pit or trench and 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. Mineral Mulch in Planting Areas: Apply 3-inch average thickness of mineral mulch extending 12 inches beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.9 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 as indicated on Drawings.

3.10 INSTALLING SLOW-RELEASE WATERING DEVICE

- A. Provide one device for each tree.
- B. Place device on top of the mulch at base of tree stem and fill with water according to manufacturer's written instructions.

3.11 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, 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.

3.12 REPAIR AND REPLACEMENT

- A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Architect.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Architect.

3.13 CLEANING AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. 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. 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.
- D. After installation and before Substantial Completion, remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.
- 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.

END OF SECTION

SECTION 331400

WATER UTILITY TRANSMISSION AND DISTRIBUTION

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for public line, including piping to and from new water distribution pit.
2. Valves, valve boxes and related fittings.
3. Water Line Distribution Vault.
4. Bedding and cover materials.

B. Related Sections:

1. Section 312316.13 - Trenching: Execution requirements for trenching as required by this Section.
2. Section 329119 - Planting Irrigation.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Pipe and Fittings:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation and backfill; pipe, fittings, and appurtenances; bedding; connection and tap to Site service piping; connection to municipal utility water source.

B. Valves:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, bedding, backfill, valve, fittings, and accessories.

C. Valve Boxes:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, bedding, backfill, & grading.

1.3 REFERENCE STANDARDS

- A. American Association of State Highway and Transportation Officials:
 - 1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.
- B. ASTM International:
 - 1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³).
 - 2. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
 - 3. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
 - 4. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
 - 5. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
 - 6. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- C. Manufacturers Standardization Society of the Valve and Fittings Industry:
 - 1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.
- D. NSF International:
 - 1. NSF 61 - Drinking Water System Components - Health Effects.
 - 2. NSF 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

- A. Coordinate Work of this Section with termination of water main connection at Site boundary, connection to municipal water utility service, and trenching.

1.5 PREINSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing Work of this Section.

1.6 SUBMITTALS

- A. Product Data: Submit manufacturer information regarding pipe materials, pipe fittings, and valves and valve boxes.

- B. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- C. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.
- D. Preconstruction Photographs: Submit digital files of color photographs of Work areas and material storage areas.
- E. Qualifications Statements:
 - 1. Submit qualifications for manufacturer and installer.

1.7 CLOSEOUT SUBMITTALS

- A. Project Record Documents: Record actual locations of piping mains, valves, connections, and centerline elevations via production of As-built Drawings and deliver to scale Plan to the Owner's Representative.
- B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.8 QUALITY ASSURANCE

- A. Valves: Mark valve body with manufacturer's name and pressure rating.
- B. Perform Work according to Providence Water standards.

1.9 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three 3 years' documented experience.
- B. Installer: Company specializing in performing Work of this Section with minimum three 3 years' documented experience in installation of liner materials.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

- B. Storage:
 - 1. Store materials according to manufacturer instructions.
 - 2. Block individual and stockpiled pipe lengths to prevent moving.
 - 3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
 - 4. Store PE and PVC materials out of sunlight.
- C. Protection:
 - 1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
 - 2. Provide additional protection according to manufacturer instructions.

1.11 EXISTING CONDITIONS

- A. Field Measurements:
 - 1. Verify field measurements and topography shown on the plan. Report any discrepancies which will affect the work of this contract to the Owner's Representative in writing. Commencement of the work will be implied to mean acceptance. No adjustments will be made for discrepancies brought to the Owner's Representative's attention after work has begun.
 - 2. Indicate field measurements on Shop Drawings.
 - 3. The Contractor shall carefully protect from disturbance or damage all land monuments until an authorized agent has witnessed or otherwise referenced their location, and shall not remove or destroy them without proper authorization from the Owner's Representative.
 - 4. Existing buried utilities are indicated in the vicinity of new construction. The Contractor shall examine all contract drawings, and seek additional information if necessary of the existing site conditions. Take care to avoid damage to, or interruption of, utilities scheduled to remain.
 - 5. Should unexpected soil or subsurface conditions or discrepancies between plans and layout work occur, contact the Owner's Representative before proceeding with any work in the area.
 - 6. Protect open excavations with fencing, and/or other suitable safeguards.
 - 7. Contractor shall include in his/her Bid all fees required for installing and connection to water distribution system.

1.12 WARRANTY

- A. Furnish five 5 -year manufacturer's warranty for valves and hardware.

PART 2 PRODUCTS

2.1 TAPPING SLEEVES AND VALVES

- A. Copper or Brass piping, valves, couplings and adapters, per Providence Water Supply Board standards.
- B. Tapping Sleeves:
 - 1. Furnish materials according to Providence Water Supply Board standards.
- C. Tapping Valves:
 - 1. Furnish materials according to Providence Water Supply Board standards.

2.2 WATER METER

- A. Installed by Providence Water.

2.3 BACKFLOW PREVENTER

- A. Model 975XL3 By Zurn-Wilkins).
- B. Approved Equal (18" Max Length to fit in enclosure).

2.4 PIPES AND FITTINGS

- A. From Water Service to Backflow Preventer:
 - 1. Pipe: Soft Copper, per Providence Water Supply Board Standards.
 - 2. Fittings: Lead-free Brass.
- B. From Backflow Preventer to Irrigation.
 - 1. Pipe: Sch40 PVC.
 - 2. Fittings: Sch80 PVC.
 - 3. Valves: lead-free Brass.

2.5 ABOVE GRADE ENCLOSURE

- A. Strongbox Model# SBBC75ALHP.
- B. Safe-T-Cover Model# 300-AL.

- C. Approved Equal.

2.6 MATERIALS

- A. Bedding and Cover:
 - 1. Subsoil Backfill from above Pipe to 6" below finished grade:
 - a. Soil Type S2 as specified in Section 312213.
 - b. Subsoil with no rocks greater than 6 inches in diameter, frozen earth, or foreign matter.
 - 2. Topsoil Backfill, from subsoil to finished grade.
 - a. Soil Type S4 or as directed by owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

- A. Preconstruction Site Photos:
 - 1. Take photographs along centerline of proposed pipe trench; minimum one photograph for each of pipe trench.
 - 2. Show curbing, lawns, driveways, signs, culverts, and other existing Site features.
 - 3. Include Project description, date taken, and sequential number on back of each photograph.
- B. Pipe Cutting:
 - 1. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
- C. Remove scale and dirt on inside and outside before assembly.
- D. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

- A. Bedding:
 - 1. Excavation:

- a. Hand trim for accurate placement of pipe to elevations as indicated on Drawings.
 2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
 3. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding of compacted depth, and compact to 95 percent of maximum density.
- B. Piping:
1. Flanged Joints: Do not use in underground installations except within structures.
 2. Route pipe in straight line, and re-lay pipe that is out of alignment or grade.
 3. High Points:
 - a. Install pipe with no high points.
 4. Bearing:
 - a. Do not lay pipe in wet or frozen trench.
 5. Prevent foreign material from entering pipe during placement.
 6. Close pipe openings with watertight plugs during Work stoppages.
- C. Testing: After pipe has been laid, the joints completed and the trench partially backfilled, leaving the joints exposed for the examination, the newly laid piping, or any valved section of piping, shall unless otherwise specified, be subjected to hydrostatic pressure test of 150 pounds per square inch for one hour. Defective pipes, joints, fittings, valves and hydrants disclosed in the pressure test shall be replaced by the Contractor with sound material and the test shall be repeated until the rest results are satisfactory to Providence Water Standards.
- D. Backfilling:
1. Backfill around sides and to top of pipe with cover fill in minimum lifts of, tamp in place, and compact to 95 percent of maximum density.
 2. Maintain optimum moisture content of bedding material to attain required compaction density.
- E. Installation Standards: Install Work according to Providence Water standards.

END OF SECTION

Gano Park Softball

Providence, RI

Lighting System

Pole/Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1-A2	60'	60'	1	TLC-LED-1200	1.17 kW	A
		60'	2	TLC-LED-900	1.76 kW	A
		16'	1	TLC-BT-575	0.57 kW	A
B1-B2	60'	60'	1	TLC-LED-1500	1.41 kW	A
		60'	3	TLC-LED-1200	3.51 kW	A
		16'	1	TLC-BT-575	0.57 kW	A
4			18		18.00 kW	

Circuit Summary			
Circuit	Description	Load	Fixture Qty
A	Baseball 1	18.00 kW	18

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>120,000	>120,000	>120,000	4
TLC-LED-1200	LED 5700K - 75 CRI	1170W	150,000	>120,000	>120,000	>120,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1410W	181,000	>120,000	>120,000	>120,000	2
TLC-LED-900	LED 5700K - 75 CRI	880W	104,000	>120,000	>120,000	>120,000	4

Single Luminaire Amperage Draw Chart							
Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage							
TLC-LED-1500	8.4	7.9	7.3	6.3	5.0	4.6	3.6
TLC-LED-1200	6.9	6.5	6.0	5.2	4.2	3.8	3.0
TLC-LED-900	5.2	4.9	4.5	3.9	3.1	2.9	2.3
TLC-BT-575	3.3	3.2	2.9	2.5	2.0	1.8	1.5

Light Level Summary

Calculation Grid Summary								
Grid Name	Calculation Metric	Illumination Ave					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Softball 1 (Infield)	Horizontal Illuminance	50.94	32	59	1.86	1.60	A	18
Softball 1 (Outfield)	Horizontal Illuminance	31.76	20	44	2.17	1.57	A	18
Softball 1 Spill @ 3ft.	Horizontal Illuminance	0.0191	0.00	0.06	107.315	33.498	A	18
Softball 1 Spill @ 5ft.	Max Candela Metric	3105.8455	354.09	7489.06	21.150	8.771	A	18
Softball 1 Spill @ 5ft.	Max Vertical Illuminance Metric	0.0566	0.00	0.16	84.949	29.962	A	18
Softball 1 Spill @ 5ft.	True Max Vert Illuminance Metric	0.0563	0.00	0.16	101.277	36.528	A	18

From Hometown to Professional



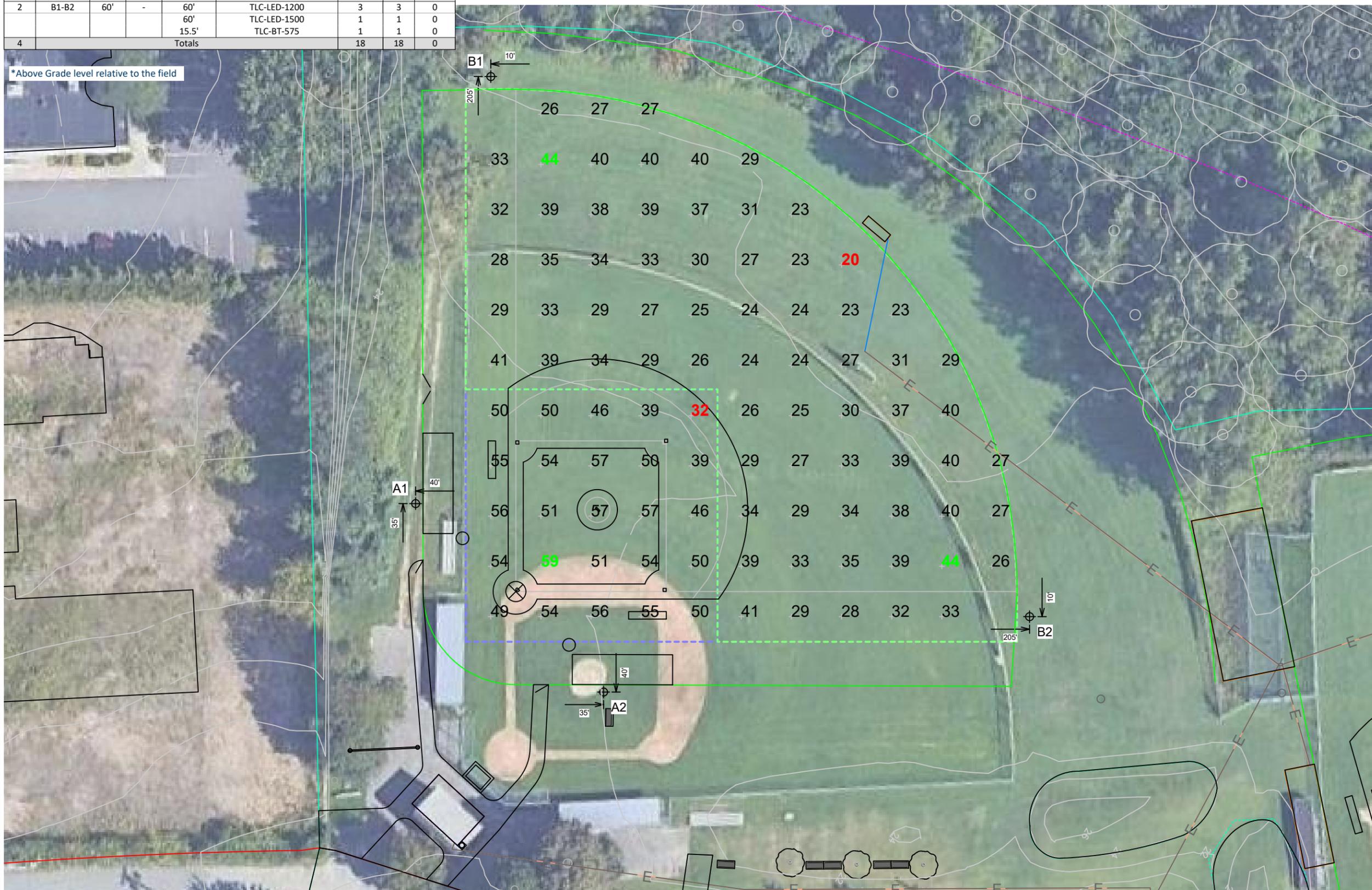
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Equipment List For Areas Shown

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE	THIS GRID	OTHER GRIDS
2	A1-A2	60'	-	60'	TLC-LED-1200	1	1	0
				60'	TLC-LED-900	2	2	0
				15.5'	TLC-BT-575	1	1	0
2	B1-B2	60'	-	60'	TLC-LED-1200	3	3	0
				60'	TLC-LED-1500	1	1	0
				15.5'	TLC-BT-575	1	1	0
4	Totals					18	18	0

*Above Grade level relative to the field



Gano Park Softball

Providence, RI

Grid Summary	
Name	Softball 1
Size	200'/200'/200' - basepath 60'
Spacing	20.0' x 20.0'
Height	3.0' above grade

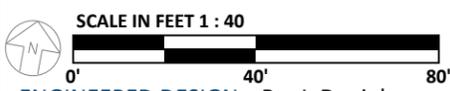
	MAINTAINED HORIZONTAL FOOTCANDLES	
	Infield	Outfield
Guaranteed Average	50	30
Scan Average	50.94	31.76
Maximum	59	44
Minimum	32	20
Avg/Min	1.60	1.57
Guaranteed Max/Min	2	2.5
Max/Min	1.86	2.17
UG (adjacent pts)	1.30	1.66
CU	0.66	
No. of Points	25	71
LUMINAIRE INFORMATION		
Applied Circuits	A	
No. of Luminaires	18	
Total Load	18.00 kW	

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: J. Danielson • File #237520E • 06-Jan-25

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Gano Park Softball

Providence, RI

Grid Summary	
Name	Softball 1 Spill @ 3ft.
Spacing	30.0'
Height	3.0' above grade

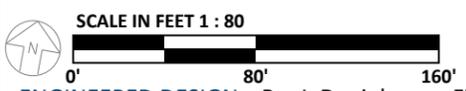
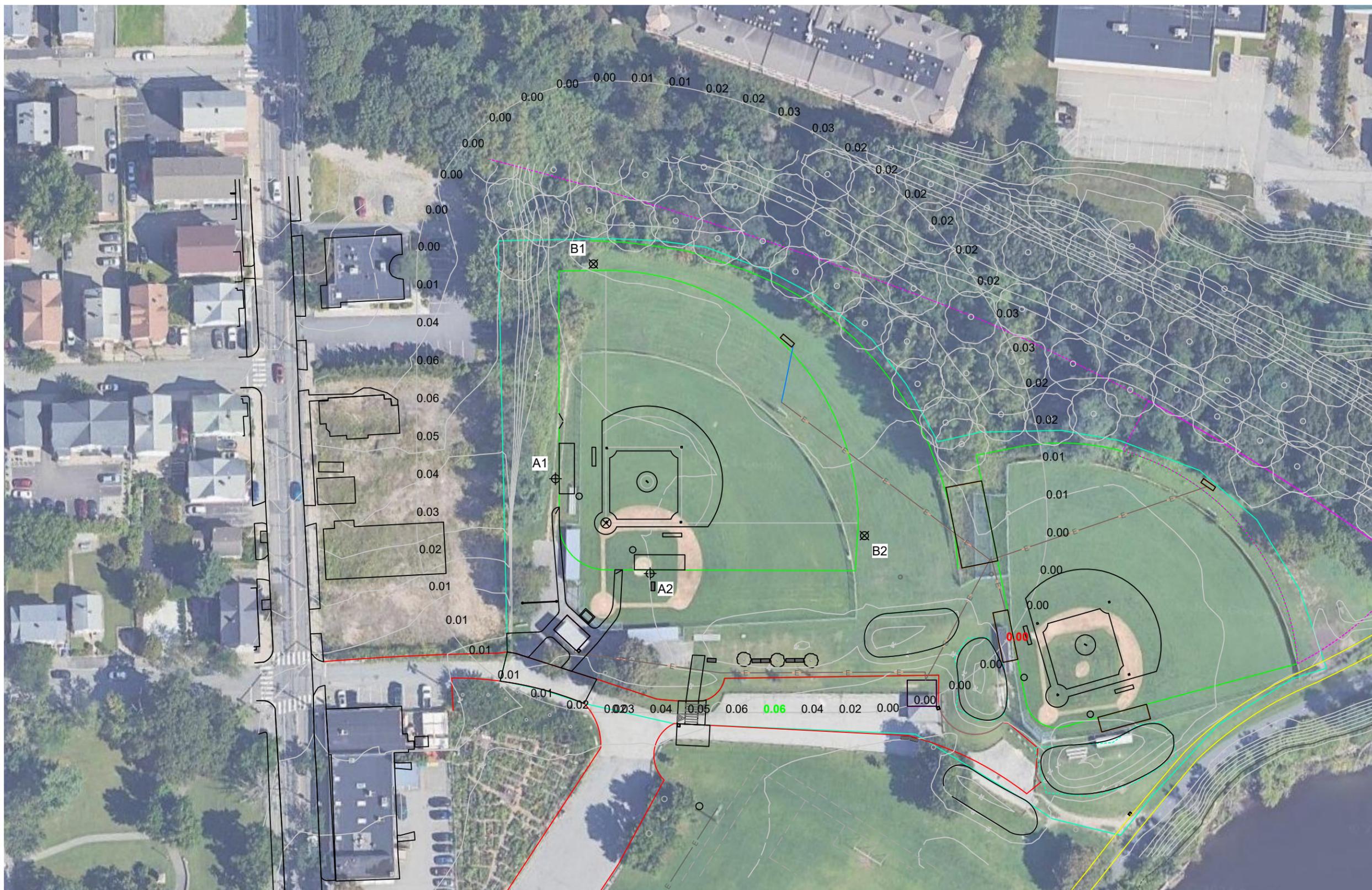
Illumination Summary	
INITIAL HORIZONTAL FOOTCANDLES	
Entire Grid	0.0191
Scan Average	0.0191
Maximum	0.06
Minimum	0.00
CU	0.00
No. of Points	56
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	18
Total Load	18.00 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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Gano Park Softball

Providence, RI

Grid Summary	
Name	Softball 1 Spill @ 5ft.
Spacing	30.0'
Height	5.0' above grade

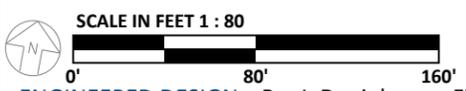
Illumination Summary	
INITIAL MAX VERTICAL FOOTCANDLES	
Entire Grid	0.0566
Scan Average	0.0566
Maximum	0.16
Minimum	0.00
CU	0.00
No. of Points	56
LUMINAIRE INFORMATION	
Applied Circuits	A
No. of Luminaires	18
Total Load	18.00 kW

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



ENGINEERED DESIGN By: J. Danielson • File #237520E • 06-Jan-25

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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ILLUMINATION SUMMARY

Gano Park Softball

Providence, RI

Equipment Layout

INCLUDES:

· Softball 1

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

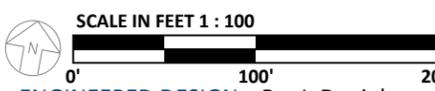
Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Equipment List For Areas Shown

QTY	LOCATION	Pole SIZE	GRADE ELEVATION	Luminaires		
				ABOVE GRADE LEVEL	LUMINAIRE TYPE	QTY/POLE
2	A1-A2	60'	-	60'	TLC-LED-1200	1
				60'	TLC-LED-900	2
				15.5'	TLC-BT-575	1
2	B1-B2	60'	-	60'	TLC-LED-1200	3
				60'	TLC-LED-1500	1
				15.5'	TLC-BT-575	1
4	Totals					18

Single Luminaire Amperage Draw Chart

Driver Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)					
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	480 (60)
Single Phase Voltage	8.4	7.9	7.3	6.3	5.0	4.6
TLC-LED-1500	6.9	6.5	6.0	5.2	4.2	3.8
TLC-LED-1200	5.2	4.9	4.5	3.9	3.1	2.9
TLC-LED-900	3.3	3.2	2.9	2.5	2.0	1.8
TLC-BT-575						

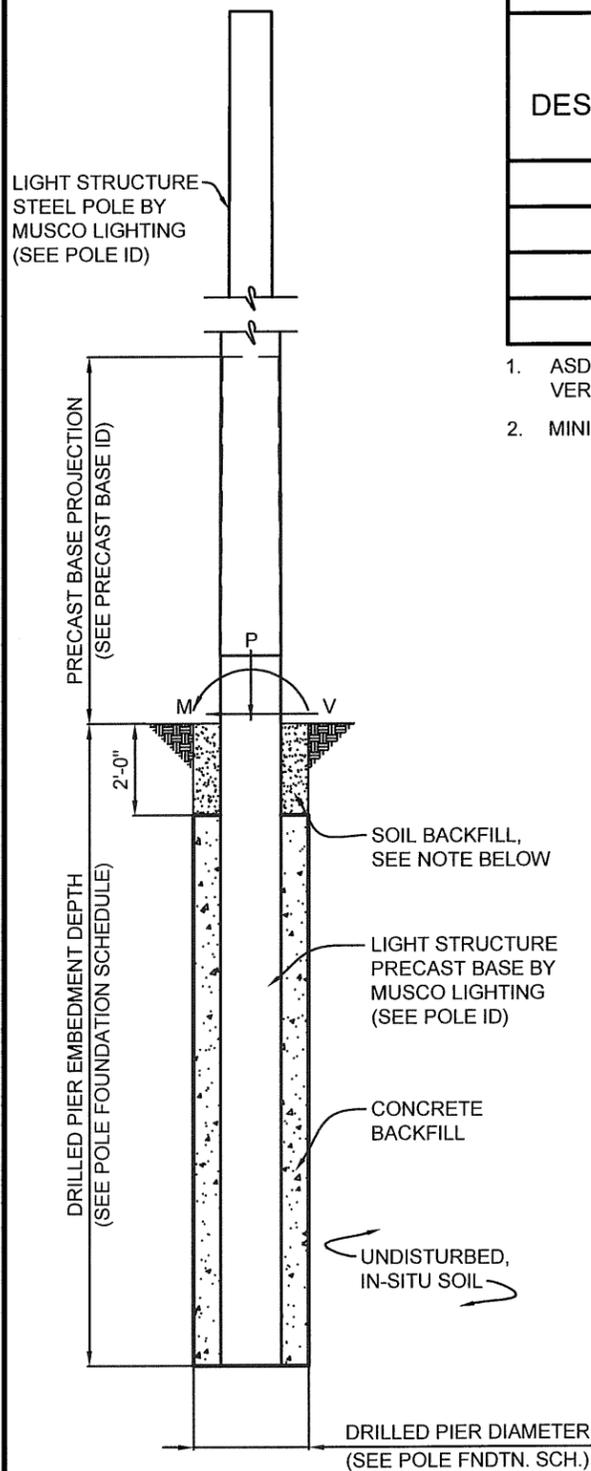


Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



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POLE FOUNDATION SCHEDULE						
POLE DESIGNATION	FORCES (1.)			DRILLED PIER		
	MOMENT (M) FT-LBS	SHEAR (V) LBS	VERTICAL (P) LBS	DIAMETER INCHES	EMBEDMENT DEPTH	CONCRETE BACKFILL YD ³ (2.)
A1, A2	38,036	1,043	981	30	10'-0"	1.3
B1, B2	42,457	1,121	1,152	36	10'-0"	1.9
A3, A4	39,146	1,060	981	30	10'-0"	1.3
B3, B4	39,399	1,069	1,064	30	10'-0"	1.3

- ASD LOAD COMBINATION D + 0.6W. VERTICAL FORCE IS WEIGHT OF DRESSED POLE (DOES NOT INCLUDE PRECAST BASE WEIGHT).
- MINIMUM CONCRETE BACKFILL VOLUME, SITE CONDITIONS MAY REQUIRE ADDITIONAL BACKFILL.

PRECAST BASE IDENTIFICATION					
PRECAST BASE TYPE	PRECAST BASE WEIGHT	PRECAST BASE LENGTH	PROJECTION ABOVE GRADE	STANDARD EMBEDMENT	OUTSIDE DIAMETER
2B	1,690 LBS	17'-3"	7'-3"	10'-0"	12.00"

POLE IDENTIFICATION				
POLE DESIGNATION	POLE TYPE	PRECAST BASE TYPE	FIXTURE CONFIGURATION (FIX. PER XARM)	FIXTURE AND ACCESSORIES EPA (FT ²)
A1, A2	LSS60AA	2B	4 (3)	10.2
B1, B2	LSS60AA	2B	5 (4)	11.1
A3, A4	LSS60AA	2B	4 (3)	10.8
B3, B4	LSS60AA	2B	5 (4)	10.3

- EACH POLE HAS (1) MUSCO LED FIXTURE AT 15'-6" AGL INCLUDED ABOVE.

POLE FOUNDATION ELEV.
SCALE: NOT TO SCALE

SOIL BACKFILL NOTE:
THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL, WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D698).

DESIGN NOTES

DESIGN PARAMETERS:
WIND: V = 125 MPH, V_{asd} = 97 MPH (EXPOSURE C, RISK CATEGORY II) PER INTERNATIONAL BUILDING CODE, 2018 EDITION (ASCE 7-16).

GEOTECHNICAL PARAMETERS:
ALLOWABLE END BEARING SOIL PRESSURE: 1,500 PSF OR SKIN FRICTION: 250 PSF
ALLOWABLE LATERAL SOIL BEARING PRESSURE:
100 PSF/FT (GRADE TO -2'-0"); 200 PSF/FT (BELOW -2'-0")
IN ACCORDANCE WITH THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE, CHAPTER 18. SEE TABLE 1806.2, SOIL MATERIAL CLASS 5 & SECTION 1806.3.4.

DESIGN SOIL PARAMETERS ARE AS NOTED. ACTUAL ALLOWABLE SOIL PARAMETERS MUST BE VERIFIED ON SITE.

A GEOTECHNICAL ENGINEER OR REPRESENTATIVE OF IS RECOMMENDED (NOT REQUIRED) TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.

ENCOUNTERING SOIL FORMATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS OR EXCAVATION PROCEDURES MAY OCCUR. POLE FOUNDATIONS WILL NEED TO BE ANALYZED ACCORDING TO THE SOIL CONDITIONS THAT EXIST. IF ANY DISCREPANCIES OR INCONSISTENCIES ARISE, NOTIFY THE ENGINEER OF SUCH DISCREPANCIES. FOUNDATIONS WILL THEN BE REVISED ACCORDINGLY. REVISIONS WILL BE ANALYZED PER RECOMMENDATIONS DIRECTED BY A REGISTERED ENGINEER.

ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT. TEMPORARY CASINGS OR DRILLERS SLURRY MAY BE USED TO STABILIZE THE EXCAVATION DURING INSTALLATION. CASINGS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION.

CONTRACTOR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS, AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR BRACING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.

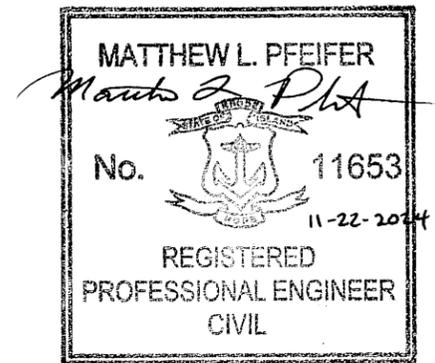
CONCRETE:
CONCRETE SHALL BE AIR-ENTRAINED AND HAVE A MINIMUM COMPRESSIVE DESIGN STRENGTH AT 28 DAYS OF 3,000 PSI. 3,000 PSI CONCRETE SPECIFIED FOR EARLY POLE ERECTION, ACTUAL REQUIRED MINIMUM ALLOWABLE CONCRETE STRENGTH IS 1,000 PSI. ALL PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM UNDISTURBED SOIL.

GENERAL NOTES:
FIXTURES MUST BE LOCATED TO MAINTAIN 10'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY OBSTRUCTION. ENGINEER MUST BE NOTIFIED IF FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN / NEAR ANY SLOPES STEEPER THAN 3H : 1V. POLES, FIXTURES, PRECAST BASES, ELECTRICAL ITEMS AND INSTALLATION PER MUSCO LIGHTING.

**GANO PARK
BASEBALL
FIELD LIGHTING
PROVIDENCE, RI**



STRUCTURAL ENGINEERS, P.C.
 114 NICHOLAS DRIVE
 MARSHALLTOWN, IOWA 50158
 PHONE NUMBER: 641-752-6334
 EMAIL: MSL.INFO@SEPC.BIZ



DRAWING TITLE: POLE AND FOUNDATION	SCALE: SEE PLAN	NOTES: SCAN #237520D
PROJECT NUMBER 237520	DATE 22 NOVEMBER 2024	DRAWING NUMBER C1
OF ONE		

System Requirements: Control System Summary

Project Name: Gano Park Baseball | Project #: 237520

Control System ID: 1 of 1

Distribution Panel Location/ID: Softball

Project Information

Control System

Control System ID: 1 of 1

Control System Type: Control-Link® Control and Monitoring System

Communication Type: PowerLine-ST

Power Requirements

Control cabinet(s):

Control voltage (phase to neutral) 120/60

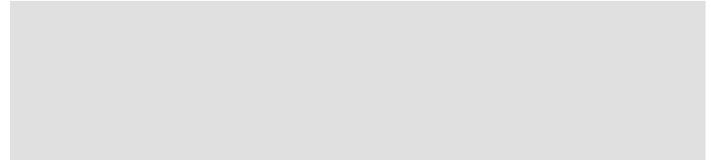
VA loading - Inrush 1553.0

VA loading - Sealed 180.0

Lighting Circuits:

Voltage/Hertz/Phase 208/60/3

Project Notes:



Equipment Listing

Description	Qty	Size (in)
Control and monitoring cabinet - primary	1	24 X 48
Contactors, 30 amperes	4	-
Off/On/Auto switches	1	-

Important Notes:

1. Please confirm that the lighting circuit voltage listed above is accurate for this facility. This is the voltage/phase being connected and utilized at each lighting pole's electrical components enclosure disconnect. Inaccurate voltage/phase can result in additional costs and delays. Contact your Musco sales representative to confirm this item.
2. In a 3 phase design, all 3 phases are to be run to each pole location. Musco's single phase luminaires come pre-wired to utilize all 3 phases across the entire facility.
3. One contactor is required for each circuit at each pole location. Contactors are 3 pole and 100% rated for the published continuous load.
4. If the lighting system will be fed from more than one distribution location, additional equipment may be required. Contact your Musco sales representative.
5. Size overcurrent devices using the full load amps column of the Circuit Summary by Switch chart (Minimum power factor is 0.9). Size conduit per code unless otherwise specified as larger to allow for harness connectors.
6. Avoid use of in-ground junction/pull boxes when possible. If used, all wire connectors must be UL listed for Wet Locations to prevent leakage current.
7. Control power wiring must be in separate conduit from line or load power wiring. Communication cables must be in separate conduit from any power wiring.
8. Refer to Installation Instructions for more details on equipment information and the installation requirements.

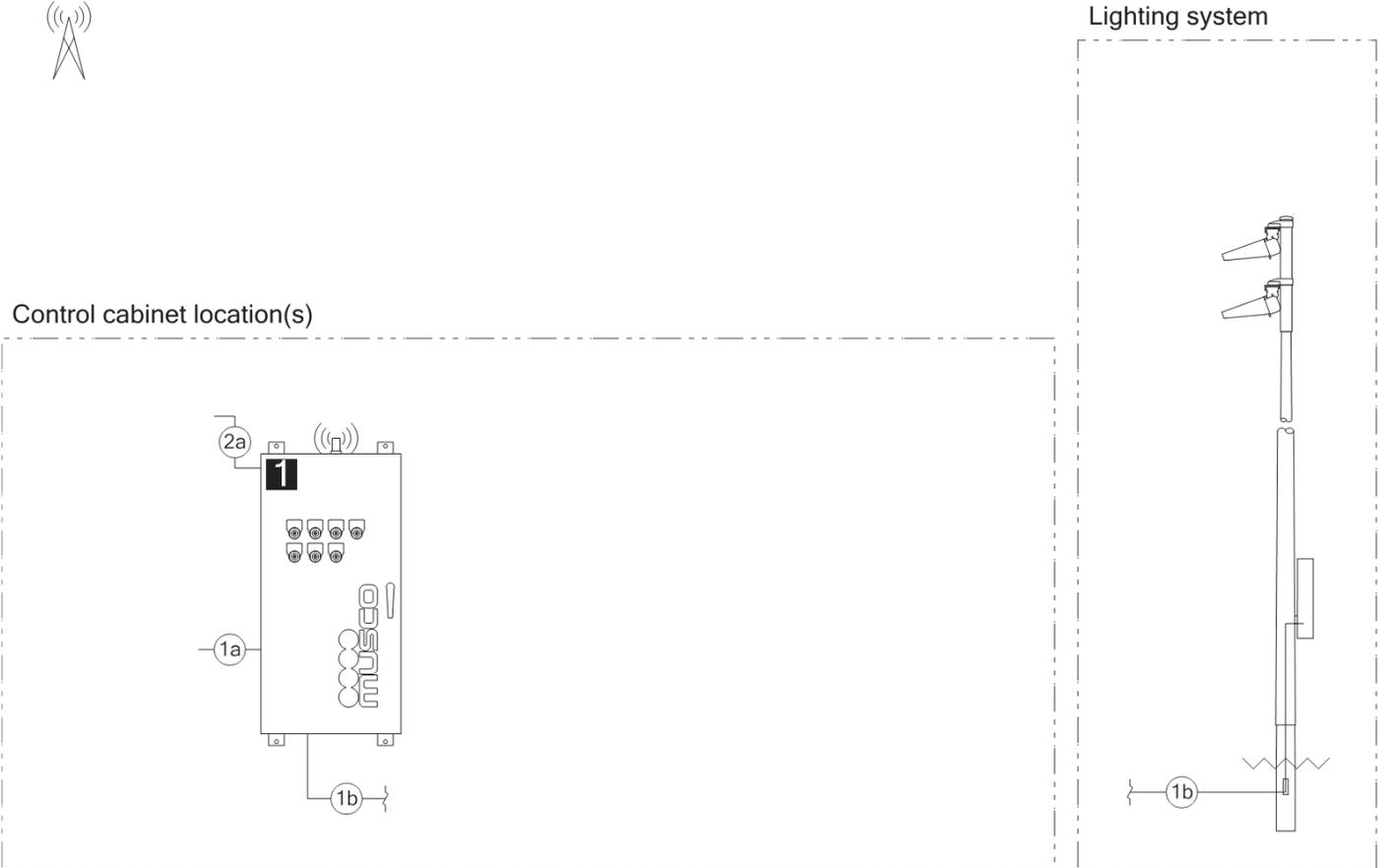
System Requirements: Control System Summary

Project Name: Gano Park Baseball | Project #: 237520

Control System ID: 1 of 1

Distribution Panel Location/ID: Softball

Equipment Layout and Connection Details



Connection Details

ID	Description
1a	Line power to contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
1b	Load power from contactors, and equipment grounding conductor. Requires one circuit per contactor, size wiring per load and voltage drop.
2a	Control power with equipment ground to control cabinet. Requires dedicated 20 A circuit. Provide transformer if control voltage not present.

Equipment

ID	Description
1	Control and monitoring cabinet - primary

System Requirements: Control System Summary

Project Name: Gano Park Baseball | Project #: 237520

Control System ID: 1 of 1

Distribution Panel Location/ID: Softball

Circuit Summary

Switching Schedule

Field/Switch Description	Switches
Softball 1	1

Control Module ID: 1

Lighting Circuit Voltage: 208/60/3

Circuit Summary by Switch

Switch	Zone Description	Pole ID	Qty of Fixtures	Full load amperes	Contactor Size (Amps)	Cabinet #	Contactor ID
1	Softball 1	A1	4	13.41	30	1	C1
	Softball 1	A2	4	13.41	30	1	C2
	Softball 1	B1	5	22.14	30	1	C3
	Softball 1	B2	5	22.14	30	1	C4