INVITATION TO BID #198995

OSU SOFTBALL FIELD CONVERSION

ISSUE DATE: April 22, 2019

ITB CLOSING (DUE) DATE: May 2, 2019 at 2:00 PM Pacific Time

MANDATORY PRE-BID CONFERENCE: April 25, 2019 at 1:00 PM Pacific Time at the OSU Softball Complex (220 SW Western Blvd., Corvallis, OR 97333).

QUESTION DEADLINE: April 26, 2019 at 5:00 PM Pacific Time

PROJECT NUMBER: 2185-19

CONTRACT ADMINISTRATOR:
Matt Hausman, Construction Contract Officer
Construction Contract Administration
Oregon State University
644 SW 13th Ave.
Corvallis, OR 97333
Phone: (541) 737-3401
FAX: (541) 737-5546
Email: matt.hausman@oregonstate.edu

AWARD DECISION APPEALS:
Hanna Emerson, Construction Contracts Manager
Construction Contract Administration
Oregon State University
644 SW 13th Ave.
Corvallis, OR 97333
Phone: (541) 737-7342
FAX: (541) 737-5546
Email: hanna.emerson@oregonstate.edu

P R O J E C T M A N U A L
TABLE OF CONTENTS

Division 31 - Earthwork

Division 32 – Site Improvements

Division 33 - Utilities

PROJECT DRAWINGS

Prepared by D.A. Hogan dated April 12, 2019

Available for Download at the following link:

https://drive.google.com/drive/folders/1F4PtOWedCOpjfAdA6K6rcdxxMZKNPw1H?usp=sharing

END OF TABLE OF CONTENTS

OREGON STATE UNIVERSITY

NOTICE OF OPPORTUNITY – RESERVE INVITATION TO BID

OSU SOFTBALL FIELD CONVERSION

Oregon State University ("Owner") is accepting sealed bids from Contractors on the OSU Reserve list for a public improvement project at Construction Contracts Administration, Oregon State University, 644 SW 13th Street, Corvallis, Oregon, until 2:00 PM local time, May 2, 2019 for the OSU Softball Field Conversion project located on the campus of Oregon State University, Corvallis, Oregon.

A **MANDATORY PRE-BID CONFERENCE** and examination of the site and conditions will take place on April 25, 2019 at 1:00 PM Pacific Time at the OSU Softball Complex (220 SW Western Blvd., Corvallis, OR 97333). Attendance will be documented through a sign-in sheet prepared by the Owner's Representative. Prime bidders who arrive more than 5 minutes after start time of the meeting or after the discussion portion of the meeting (whichever comes first) shall not be permitted to sign in and will not be permitted to submit a bid on the project.

Plans and specifications for this bid along with the Request for Qualifications for the 2019-2023 Construction Related Services Reserve Contracting Program are available at the following website: https://bid.oregonstate.edu/

All bidders must comply with requirements of the prevailing wage law in ORS 279C.800 through ORS 279C.870. All bidders must be registered with the Construction Contractor's Board at the time of bid submission. No bid will be considered unless fully completed in the manner provided in the "Instructions to Bidders" upon the Bid Form provided. OSU encourages bids from Minority, Women, and Emerging Small Businesses.

OREGON STATE UNIVERSITY

By:
BY: Matt Hausman
Construction Contracts Officer
Oregon State University

DATE OF POSTING:
Monday, April 22, 2019

OREGON STATE UNIVERSITY

INSTRUCTIONS TO BIDDERS

Table of Contents

INSTRUCTIONS TO BIDDERS
OSU Policies and Standards govern this OSU procurement process. Those standards can be viewed at: http://policy.dev.acquia.cws.oregonstate.edu/policy-standards-manual

Article 1. Definitions

1.1. Capitalized words used herein but not defined shall have the meaning set forth in the OSU General Conditions and OSU Policies and Standards. The following terms used herein shall have the meaning set forth below:

"Bid Form"- refers to OSU form provided by Owner to be completed by Bidder.

"Project Manual"- The Project Manual includes, but is not necessarily limited to, the following: the Advertisement for Bids or Notice of Contracting Opportunity, these Instructions to Bidders, Supplemental Instructions to Bidders, Bid Form, Bid Bond, OSU General Conditions, Supplemental General Conditions (if any), Sample Supplement or Agreement, Performance Bond, Payment Bond, and the Plans and Specifications.

Article 2. Scope of Work

2.1 The Work contemplated in this document shall be for the Owner in connection with the Project described in the Project Manual.

Article 3. Examination of Site and Conditions

3.1 Before making a Bid, the Bidder shall examine the Work site to ascertain its physical condition. The Bidder shall be responsible for being fully informed as to the quality, quantity and sources of supply of the materials listed on the Project Manual. Failure to comply with this Section will not release Contractor from entering into the Contract nor excuse Contractor from performing the Work in strict accordance with the terms of the Contract Documents.

3.2 The Owner will not be responsible for any loss or unanticipated costs which may arise as a result of Contractor's failure to be fully informed in advance with regard to all conditions pertaining to the Work and the character of the Work required.

3.3. No statement made by any officer, agent, or employee of the Owner in relation to the physical conditions pertaining to the Work site or quality, quantity, and supply of materials will be binding on the Owner, unless included in writing in the Project Manual or an Addendum.

Article 4. Substitute Materials Approval Process

4.1 Prior to submitting a Bid including a Substitution, the Bidder must first seek approval of the Substitution from the Architect (or Engineer, as appropriate hereafter) by submitting a written request for approval at least 10 calendar days prior to the Closing Date and Time. The Bidder submitting the request shall be responsible for its timely delivery.

4.2 Substitution approval requests shall be accompanied by samples, records of performance, certified copies of tests by impartial and recognized laboratories, and such other information as the Architect may request.

4.3 Within a reasonable time after receiving such a request the Owner (or Architect if so designated) will consider whether the Substitution sought by Bidder is of equal value, utility, as the designated product in the Project Manual. If the requested Substitution is approved an Addendum to the Project Manual shall be issued. A copy of each

Addendum shall become a part of the Project Manual.
4.4 When the Architect approves a Substitution by Addendum, it is with the understanding that the Contractor guarantees the substituted article or material to be equal or better than the one specified.

Article 5. Interpretation of Project Manual

5.1 A Bidder in doubt as to the meaning of any part of the Project Manual may submit a written request for an interpretation to the Architect at any time prior to 10 calendar days prior to the Closing Date and Time.

5.2 Any interpretation of the Project Manual will be made only by a duly issued Addendum. The Owner will not be responsible for any other explanation or interpretation of the Project Manual nor for any other approval of a particular manufacturer's process or item.

5.3 To establish a basis of quality, certain processes, types of machinery and equipment or kinds of materials may be specified in the Project Manual either by description of process or by designating a manufacturer by name and referring to a brand or product designation or by specifying a kind of material. Whenever a process is designated or a manufacturer named, brand or item designation given, or whenever a process or material covered by patent is designated or described, it shall be understood that the words "or approved equal" follow such name, designation or description, whether they do so or not.

Article 6. Execution of the Bid Form

6.1 The Bid Form relates to Bids on a specific Project Manual. Only the amounts and information asked for on the Bid Form furnished by the Owner will be considered as the Bid. Each Bidder shall Bid upon the Work exactly as set forth in the Bid Form. The Bidder shall include in the Bid a sum to cover the cost of all items contemplated by the Project Manual. Bids that fail to address alternates set forth on the Bid Form may be considered non-responsive.

6.2 Each Bid Form must: 1) Be completed in accordance with these instructions; 2) Include the appropriate signatures as noted on the Bid Form; 3) Include numbers pertaining to base Bids stated both in writing and in figures; and 4) Include the Bidder's typed or clearly printed address.

6.3 When Bidding on an alternate for which there is no charge, the Bidder shall write the words "No Charge" in the space provided on the Bid Form. If one or more alternates is shown on the Bid Form, the Bidder shall indicate whether each is "add" or "deduct."

Article 7. Prohibition of Alterations to Bid

7.1 Bids which are incomplete, or contain ambiguities or conditions not provided for in the Bid Form, may be rejected.

Article 8. Submission of Bid

8.1 Each Bid shall be sealed in an envelope, properly addressed to the appropriate project representative of the Owner, showing on the outside of the envelope the name of the Bidder and the name of the project. Bids will be received at the time and place stated in the Advertisement for Bids.

Article 9. Bid Closing and Opening of Bids

9.1 All Bids must be received by the Owner before the Closing Date and Time. Any Bids received after the Closing Date and Time will be rejected and returned to the Bidder unopened.

9.2 At the time of opening and reading of Bids, each Bid received, irrespective of any irregularities or informalities, will be publicly opened and read aloud.

Article 10. Acceptance or Rejection of Bids by Owner

10.1 Unless all Bids are rejected, the Owner will award the Contract based on the lowest responsive Bid from a responsible Bidder. If that Bidder does not execute the Contract, the Contract will be awarded to the next lowest responsible Bidder or Bidders in succession.

10.2 The procedures for Contract awards shall be in compliance with the provisions of OSU Standards adopted by the Owner.

10.3 The Owner reserves the right to reject all Bids and to waive minor informalities.

10.4 The Owner reserves the right to hold the Bid and any required Bid security, of the three lowest Bidders for a period of 30 calendar days from the time of Bid opening pending award of the Contract. Following award of the Contract, any Bid security furnished by the three lowest Bidders may be held 20 calendar days pending execution of the Contract. All other Bids will be rejected and Bid security returned.

10.5 In determining the lowest Bidder, the Owner reserves the right to take into consideration any or all authorized base Bids as well as alternates or combinations indicated in the Bid Form.

10.6 If Owner has not accepted a Bid within 30 calendar days after the opening of the Bids, each of the three lowest Bidders may withdraw the Bid submitted and request the return of any Bid security then held.

Article 11. Withdrawal of Bid

11.1 At any time prior to the Closing Date and Time a Bidder may withdraw its Bid. This will not preclude the submission of another Bid by such Bidder prior to the Closing Date and Time.

11.2 After the Closing Date and Time, no Bidder will be permitted to withdraw its Bid within the time period specified in Article 10 for award and execution, except as provided for in that Article.

Article 12. Execution of Contract, Agreement, Performance Bond and Payment Bond

12.1 The Owner will provide the successful Bidder with Contract Documents within 10 calendar days after the award of the Contract. The Bidder shall be required to execute the Contract as provided, including a Performance Bond and a Payment Bond from a surety company licensed to do surety business in the State of Oregon, within 20 calendar days after the award of the Contract. The Contract Documents shall be delivered to the Owner in the manner stated in the Notice of Award.

Article 13. Recyclable Products

13.1 Contractors must use recyclable products to the maximum extent economically feasible in the performance of the Contract.

OREGON STATE UNIVERSITY

BID FORM

PROJECT: OSU SOFTBALL FIELD CONVERSION

BID DUE DATE/TIME: MAY 2, 2019 AT 2:00 PM PACIFIC TIME

FROM: _____
Name of Contractor

TO: Oregon State University ("Owner")
Construction Contract Administration
3015 SW Western Blvd.
Corvallis, Oregon 97333

1. The Undersigned (*check one of the following and insert information requested*):

____a. An individual doing business under an assumed name registered under the laws of the State of _____; or

____b. A partnership registered under the laws of the State of _____; or

____c. A corporation organized under the laws of the State of _____; or

____d. A limited liability corporation/company organized under the laws of the State of _____;

hereby proposes to furnish all material and labor and perform all work hereinafter indicated for the above project in strict accordance with the Contract Documents for the Base Bid as follows:

_____ Dollars ($_____)

and the Undersigned agrees to be bound by the following documents:

- Notice of Opportunity
- Supplemental Instructions to Bidders
- Performance Bond and Payment Bond
- Supplemental OSU General Conditions
- Prevailing Wage Rates
- Plans and Specifications
- Instructions to Bidders
- Sample Contract
- OSU General Conditions
- Payroll and Certified Statement Form
- Drawings and Details

- ADDENDA numbered ____ through____, inclusive *(fill in blanks)*

2. The Undersigned proposes to add to or deduct from the Base Bid indicated above the items of work relating to the following Alternate(s) as designated in the Specifications:

ALTERNATE 1: Add alternating green ("mow pattern") synthetic turf panels as shown and described. Green 1 will be a 1:1 blend of Field Green and Lime Green Athletic Yarns spun from the approved fiber. Green 2 will be entirely Field Green Athletic Yarn spun from the approved fiber.

ADD/DEDUCT: $_____

ALTERNATE 2: Add a Synthetic Turf Graphics Package in the form of a central logo to be installed as shown and described, and as approved in the field by the Architect at the time of installation. Vectorized Art will be provided to the Contractor by the Architect prior to the Contractors production of shop drawings. fiber.

ADD/DEDUCT: $_____

ALTERNATE 3: Add a Synthetic Turf Graphics Package in the form of large foul territory lettering, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

ADD/DEDUCT: $_____

ALTERNATE 4: Add a Synthetic Turf Graphics Package in the form of a smaller version foul territory lettering described in Alternate 3, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

ADD/DEDUCT: $_____

3. The work shall be completed within the time stipulated and specified in Division 1, Section 01 11 00, of the Specifications.

4. The Undersigned certifies that: (1) This Bid has been arrived at independently and is being submitted without collusion with and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment or services described in the invitation to bid designed to limit independent bidding or competition; and (2) The contents of the Bid have not been communicated by the Undersigned or its employees or agents to any person not an employee or agent of the Undersigned or its surety on any Bond furnished with the Bid and will not be communicated to such person prior to the official opening of the Bid.

5. The undersigned **HAS, HAS NOT** (*circle applicable status*) paid unemployment or income taxes in Oregon within the past 12 months and **HAS, HAS NOT** (*circle applicable status*) a business address in Oregon.

6. The Undersigned agrees, if awarded a contract, to comply with the provisions of ORS 279C.800 through 279C.870 pertaining to the payment of the prevailing rates of wage.

7. Contractor's CCB registration number is _____. As a condition to submitting a bid, a Contractor must be registered with the Oregon Construction Contractors Board in accordance with ORS 701.035 to 701.055, and disclose the registration number. Failure to register and disclose the number will render the bid unresponsive and it will be rejected, unless contrary to federal law.

8. The successful Bidder hereby certifies that all subcontractors who will perform construction work as described in ORS 701.005(2) were registered with the Construction Contractors Board in accordance with ORS 701.035 to 701.055 at the time the subcontractor(s) made a bid to work under the Contract.

9. The successful Bidder hereby certifies that, in compliance with the Worker's Compensation Law of the State of Oregon, its Worker's Compensation Insurance provider is _____,

Policy No. _____, and that Contractor shall submit Certificates of Insurance as required.

10. Contractor's Project Manager for this project is: _____,
Office Phone: _____ Cell Phone: _____.

11. The Undersigned certifies that it has not discriminated against minority, women, or emerging small businesses in obtaining any subcontracts for this project.

12. The Undersigned agrees, if awarded the Contract, to execute and deliver to Owner, within twenty (20) calendar days after receiving the Contract Documents, an Agreement Form and a satisfactory Performance Bond and Payment Bond, each in an amount equal to one hundred (100) percent of the Contract sum, using forms provided by the Owner. The surety requested to issue the Performance Bond and Payment Bond will be: _____.
(name of surety company - not insurance agency) The Undersigned hereby authorizes said surety company to disclose any information to the Owner concerning the Undersigned's ability to supply a Performance Bond and Payment Bond each in the amount of the Contract.

By signature below, Contractor agrees to be bound by this Bid.

NAME OF FIRM _____

ADDRESS _____

_____

FEDERAL TAX ID _____

TELEPHONE NO _____

FAX NO _____

SIGNATURE 1) _____
Sole Individual - Signature

_____
Sole Individual - Printed Name

or 2) _____
Partner

or 3) _____
Authorized Officer of Corporation - Signature

_____
Authorized Officer of Corporation Printed Name

(SEAL)

_____
Attested: Secretary of Corporation

Payment information will be reported to the IRS under the name and taxpayer ID # provided above. Information not matching IRS records could subject Contractor to 31 percent backup withholding.

***** END OF BID *****

OSU RESERVE CONTRACT SUPPLEMENT
OSU RESERVE CONTRACT FOR CONSTRUCTION
RELATED SERVICES
SUPPLEMENT NO.: OSU-xxx-C-18-xx
PROJECT NAME

This OSU Reserve Contract Supplement dated XXXX (the "Supplement") is entered into between:

"Contractor":

and "Owner": Oregon State University
Construction Contract Administration
644 SW 13th Ave
Corvallis, OR 97333

(collectively the "Parties") pursuant to the OSU Reserve Contract for Construction Related Services between the Parties (the "Reserve Contract"). Capitalized terms have the meaning defined in the General Conditions unless otherwise defined in the Reserve Contract or herein.

1. DESCRIPTION OF THE PROJECT. The project to which this Supplement pertains is described as follows: (the "Project").

2. WORK TO BE PERFORMED. Contractor shall perform the following work on the Project: (the "Work"). Contractor will perform the Work according to the terms and conditions of this Supplement and the Contract Documents, which are incorporated herein by this reference.

3. SCHEDULE. Contractor shall perform the Work according to the following schedule: (the "Schedule").

4. COMPENSATION. Owner shall compensate Contractor for Work in the firm, fixed-price amount of $XXX.XX in accordance with the requirements of the General Conditions.

The cost of the Work under this Supplement, even if this Supplement is later amended to include additional work, must not exceed the greater of $2,000,000 or the maximum allowable under OSU standards and policies.

5. TERM. This Supplement is effective on the date it has been signed by every Party hereto (the "Supplement Effective Date"). No Work shall be performed or payment made prior to the Supplement Effective Date. Contractor shall perform its obligations in accordance with the Contract Documents, unless this Supplement is earlier terminated or suspended.

Contractor hereby agrees that the Work set forth in this Supplement may continue beyond the Term of the Reserve Contract and will be performed through final completion of Contractor's Work, including completion of all warranty work. The Parties expressly agree that they may execute a Supplement Amendment and extend the date which Contractor's Work may be completed, which may include a date beyond the Term of the Reserve Contract.

Termination or suspension does not extinguish or prejudice Owner's right to enforce the Supplement with respect to any breach by the Contractor that has not been cured.

6. PERFORMANCE AND PAYMENT BONDS. The performance and payment bond requirements for this Project are as follows (check one of the following):

☐ As a condition precedent to the effectiveness of this Supplement and to Owner's obligation to make payment for the Work, Contractor shall provide the Owner with a performance bond and a separate payment bond in a sum equal to the Contract Price stated in Section 4 of this Supplement.

☐ This Project has a Contract price of $150,000 or less, and Owner has determined that performance and payment bonds will not be required for this Project.

7. PREVAILING WAGE RATES.

Prevailing Wage Rates requirements apply to this Project. Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates and the required public works bond, as outlined in Sections C.1, C.2 and G.2.3 of the General Conditions. The Bureau of Labor and Industries (BOLI) wage rates and requirements set forth in the following BOLI booklet (and any listed amendments to that booklet), which are incorporated herein by reference, apply to the Work authorized under this Supplement:

PREVAILING WAGE RATES for Public Works Contracts in Oregon, *XXXX*, as amended *XXXX*, which can be downloaded at the following web address:

[http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_book.shtml]

The Work will take place in XXX County, Oregon.

8. INSURANCE REQUIREMENTS.

☐ Contractor shall comply with and obtain the insurance coverage amounts stated in the General Conditions.

☐ The Owner has determined that the Contractor shall obtain insurance in the amount described in the Supplemental General Conditions, attached hereto.

9. OTHER TERMS. Except as specifically modified by this Supplement, all terms of the Reserve Contract remain unchanged.

10. EXECUTION AND COUNTERPARTS. This Supplement may be executed in several counterparts, each of which shall be an original, all of which shall constitute but one and the same instrument.

Contractor hereby confirms and certifies that the representations, warranties, and certifications contained in the Reserve Contract remain true and correct as of this Supplement Effective Date.

IN WITNESS HEREOF, the Parties have duly executed this Supplement as of the dates indicated below.

, Contractor	Oregon State University, Owner
Print Name: _____	Print Name: Anita Nina Azarenko
Signature: _____	Signature: _____
Title: _____	Title: Associate Vice President for University Facilities, Infrastructure and Operations
Date: _____	Date: _____

OREGON STATE UNIVERSITY

PERFORMANCE BOND

Bond No._____
Solicitation _____
Project Name _____

_____(Surety #1)	Bond Amount No. 1:	$_____
_____(Surety #2)*	Bond Amount No. 2:*	$_____
* *If using multiple sureties*	Total Penal Sum of Bond:	$_____

We, _____as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Oregon State University (OSU), the sum of (Total Penal Sum of Bond)

_____

(Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into contract No. _____with the OSU, the plans, specifications, terms and conditions of which are contained within the Contract resulting from the above-referenced Solicitation;

WHEREAS, the terms and conditions of the Contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of Contract prices, are made a part of this Performance Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and all authorized modifications of the Contract which increase the amount of the work, the amount of the Contract, or constitute an authorized extension of the time for performance, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal herein shall (1) faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, (2) shall well and truly and fully do and perform all matters and things undertaken by Contractor to be performed under the Contract, upon the terms set forth therein, and within the time prescribed therein, or as extended as provided in the Contract, with or without notice to the Sureties, (3) shall save, defend, indemnify and hold harmless OSU and its officers, board members, employees, agents and other representatives, against any direct or indirect damages or claim of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by

the Principal or its subcontractors, and (4) shall in all respects perform said contract according to law, then this obligation is to be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond, nor shall OSU be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 352, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES.

Dated this _____ day of _____, 20__.

PRINCIPAL: _____

By_____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: __ _____
[Add signatures for each surety if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each surety bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____ _____
Phone Fax

OREGON STATE UNIVERSITY

PAYMENT BOND

Bond No. _____
Solicitation _____
Project Name _____

_____(Surety #1)	Bond Amount No. 1:	$ _____
_____(Surety #2)*	Bond Amount No. 2:*	$ _____
* *If using multiple sureties*	Total Penal Sum of Bond:	$ _____

We, _____, as Principal, and the above identified Surety(ies), authorized to transact surety business in Oregon, as Surety, hereby jointly and severally bind ourselves, our respective heirs, executors, administrators, successors and assigns firmly by these presents to pay unto Oregon State University (OSU) the sum of (Total Penal Sum of Bond) _____ _____ (Provided, that we the Sureties bind ourselves in such sum "jointly and severally" as well as "severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety), and

WHEREAS, the Principal has entered into contract No. _____ with OSU, the plans, specifications, terms and conditions of which are contained within the Contract resulting from the above-referenced Solicitation;

WHEREAS, the terms and conditions of the contract, together with applicable plans, standard specifications, special provisions, schedule of performance, and schedule of contract prices, are made a part of this Payment Bond by reference, whether or not attached to the contract (all hereafter called "Contract"); and

WHEREAS, the Principal has agreed to perform the Contract in accordance with the terms, conditions, requirements, plans and specifications, and schedule of contract prices which are set forth in the Contract and any attachments, and all authorized modifications of the Contract which increase the amount of the work, or the cost of the Contract, or constitute authorized extensions of time for performance of the Contract, notice of any such modifications hereby being waived by the Surety:

NOW, THEREFORE, THE CONDITION OF THIS BOND IS SUCH that if the Principal shall (1) faithfully and truly observe and comply with the terms, conditions and provisions of the Contract, in all respects, (2) shall well and truly and fully do and perform all matters and things by it undertaken to be performed under said Contract and any duly authorized modifications that are made, upon the terms set forth therein, and within the time prescribed therein, or as extended therein as provided in the Contract, with or without notice to the Sureties, (3) shall save, defend, indemnify and hold harmless OSU, and its officers, board members, employees, agents and other representatives, against any claim for direct or indirect damages of every kind and description that shall be suffered or claimed to be suffered in connection with or arising out of the performance of the Contract by the Contractor or its subcontractors, (4) shall promptly pay all persons supplying labor, materials or both to the Principal or its subcontractors for prosecution of the work provided in the Contract; (5) shall promptly pay all contributions due the State Industrial Accident Fund and the State Unemployment Compensation Fund from the Principal or its

subcontractors in connection with the performance of the Contract; (6) shall pay over to the Oregon Department of Revenue all sums required to be deducted and retained from the wages of employees of the Principal and its subcontractors pursuant to ORS 316.167;(7) shall permit no lien nor claim to be filed or prosecuted against the State or OSU on account of any labor or materials furnished; and (8) shall do all things required of the Principal by the laws of this State, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Nonpayment of the bond premium will not invalidate this bond, nor shall OSU be obligated for the payment of any premiums.

This bond is given and received under authority of ORS Chapters 279C and 352, the provisions of which hereby are incorporated into this bond and made a part hereof.

IN WITNESS WHEREOF, WE HAVE CAUSED THIS INSTRUMENT TO BE EXECUTED AND SEALED BY OUR DULY AUTHORIZED LEGAL REPRESENTATIVES:

Dated this _____day of _____, 20__.

PRINCIPAL: _____

By _____
Signature

_____
Official Capacity

Attest: _____
Corporation Secretary

SURETY: _____
[Add signatures for each if using multiple bonds]

BY ATTORNEY-IN-FACT:
[Power-of-Attorney must accompany each bond]

_____
Name

_____
Signature

_____
Address

_____
City State Zip

_____
Phone Fax

As indicated in the General Conditions of your contract(s) Section E.2.9, OSU requires that we gather MWESB (Minority, Women's Emerging Small Business) Contractor/Subcontractor information. This is an Oregon State University requirement and the information will be gathered annually and at time of final payment.

- **You must do this step first or the report will not let you add any information: In Row 1 Column B there is a drop down menu. You must select yearend (if the job has not been completed) or final (if the job is completed and you have submitted for retention). Once you choose yearend or final in the drop down menu there will be areas highlighted in light green and red. Those are the areas that you are required to fill out. If you did not use or planning to use any MWESB then the left side of the report (Light Green area) still needs to be filled out and the red area needs to remain blank.**

- **If your agency is an MWESB or if you are using/used an MWESB subcontractor then you need to fill out the information in the report that is highlighted in light green and red (see instructions in the next bullet). If you are not an MWESB or used a Subcontractor that is an MWESB then you need to fill out the left side of the form (Light Green areas) and leave the red area blank.**

- **In row 2 Column B there is another drop down menu, click the drop down menu and choose Fiscal Year 2015.**

- **In Row 4 Column B there is another drop down menu, click there and choose OSU.**

Oregon University System

CapCon MWESB Subcontractor Report

REPORT BEING SUBMITTED	

OVERALL PROJECT DATA

Reporting Period	2011
Campus	
General Contractor's Name	
Contract Number	
Project Name	
Contract Execution Date (Date Contract was Signed by the Owner)	
Date of Final Payment Application	
Initial Total Contract Value	
Total Contract Value billed within the fiscal year (July 1 - June 30)	
Final Total Contract Value	
Total Number of Subcontractors/Suppliers Used on Project	
Total Number of First-Tier Subcontractors/Suppliers Used on Project	
Number of First-Tier MWESB Subcontractors/Suppliers	

CALCULATED REPORTING DATA (Self Calculating - No Data Entry)

Number of MWESB Subcontractors/Suppliers	0
% MWESB Subcontractors/Suppliers	
% First-Tier MWESB Subcontractors/Suppliers	

CERTIFIED MWESB TOTALS

Value Awarded to MWESB Contractors/Suppliers	$0.00
% Value Awarded to MWESB Contractors/Suppliers	
Value - **minority-owned** MWESB subcontractors/suppliers	$0.00
% - **minority-owned** MWESB subcontractors/suppliers	
Value - **women-owned** MWESB subcontractors/suppliers	$0.00
% - **women-owned** MWESB subcontractors/suppliers	
Value - **emerging small business** MWESB subcontractors/suppliers	$0.00
% - **emerging small business** MWESB subcontractors/suppliers	

SELF-IDENTIFIED or OTHER CERTIFIED MWESB TOTALS

Value - **self-identified or other certified** subcontractors/suppliers	$0.00
% - **self-identified or other certified** subcontractors/suppliers	

OVERALL PROJECT CONTRACT HISTORY

% Value Awarded to MWESB Contractors/suppliers at Initial Contract	#DIV/0!
% Value Awarded to MWESB Contractors/suppliers at Final Contract	#DIV/0!

FOR OFFICIAL USE ONLY:

Date Received by the Campus	
Initials of Campus staff who checked the document	

Individual Contractor/Sub-Contractor/Supplier Data Entry Matrix

Name of MWESB General/ Subcontractor/ Supplier	State of Oregon MWESB Certification Number	Self-Identified or Other Certified	Initial Sub-Contract Value	Sub-Contract value billed within the fiscal year (July 1-June 30)	Final Sub-Contract Value	Minority-Owned	Women-Owned	Emerging Small Business

In compliance with Oregon Prevailing Wage Law, the following is incorporated into this Invitation to Bid:

The Contractor and all subcontractors shall comply with the provisions of ORS 279C.800 through 279C.870, relative to Prevailing Wage Rates as outlined in Sections C.1 and C.2 of the General Conditions. This Purchase Order is subject to the following BOLI wage rate requirements, which are incorporated herein by reference:

- April1, 2019 PWR Apprenticeship Rates
- April1, 2019 PWR Amendments
- January 1, 2019 Prevailing Wage Rates for Public Works Contracts in Oregon
- July 1, 2018 Definitions of Covered Occupations for Public Works Contracts in Oregon

These BOLI wage rates are available on line at:
http://www.boli.state.or.us/BOLI/WHD/PWR/pwr_state.shtml

SECTION 01 01 00
SUMMARY OF WORK

1.01 GENERAL

A. PROJECT IDENTIFICATION:

(1) Project Name: Softball Field Conversion

(2) Address: 220 SW Western Blvd

(3) City/St/Zip: Corvallis, OR 97333

B. CONSULTANTS

(1) Project Architect: D.A. Hogan & Associates, Inc.

119 1st Avenue South, Suite 110
Seattle, WA 98104

(2) Civil Engineer: Pillar Consulting, LLC

Corvallis, OR

C. ABBREVIATED WRITTEN SUMMARY – BASE BID

(1) General Description of the Work: The project replaces the existing grass, clay/silt, and cinder playing surfaces at the Softball Field with new vertically draining synthetic turf surfaces and a new engineered soil infield. The work requires removal of the existing field sections to a new subgrade; decommissioning and removal of an existing automatic irrigation system; removal of a quantity of existing subsurface drainage aggregate to selectively expose and inspect the existing system laterals, and import of new drainage aggregate; shaping and fine grading of the existing subgrade to conform to the normalized grading plan; installation of a new washwater mainline and hose swivel system; installation of a limited quantity of new subsurface drainage and collector; installation of new geotextile separator fabric; installation of various specified permeable aggregates; installation of synthetic turf edge anchors; supply and installation of specialty engineered infield soils; supply and install select equipment and furnishings – specifically base anchors and plates; and installation of approved synthetic turf surfacing.

(2) Schedule and Duration of the Work

The Contractor shall achieve Substantial Completion within Fifty-Five (55) Working Days of the Notice to Proceed (Administrative), Forty (40) Working Days of Site Occupancy, and Final Completion

no less than Sixty (60) Working Days from the Date of Notice to Proceed / Date of Execution of the Form Agreement. The Owner may make the Site available any time after the anticipated Notice to Proceed and Date of Site Occupancy Date without adjustment to the Substantial Completion.

Notice to Proceed with Administrative and Long-Lead Manufacturing is anticipated on or about June 10, 2019.
Site Occupancy is anticipated to be granted July 1, 2019.
Contract Substantial Completion is anticipated on or about August 27, 2019

Final Completion is anticipated on or about September 4, 2019.
All Dates are contingent on the timely execution of the Contract Agreement and will be adjusted accordingly.

D. ABBREVIATED WRITTEN SUMMARY – ALTERNATE BID ITEM 1

(1) General description of the work – Alternate Bid Item 1 adds alternating green (“mow pattern”) synthetic turf panels as shown and described. Green 1 will be a 1:1 blend of Field Green and Lime Green Athletic Yarns spun from the approved fiber. Green 2 will be entirely Field Green Athletic Yarn spun from the approved fiber.

(2) No additional time is associated with Award of this Alternate.

E. ABBREVIATED WRITTEN SUMMARY – ALTERNATE BID ITEM 2

(1) General description of the work – Alternate Bid Item 2 adds a Synthetic Turf Graphics Package in the form of a large central logo to installed as shown and described, and as approved in the field by the Architect at the time of installation. Vectorized Art will be provided to the Contractor by the Architect prior to the Contractors production of Shop Drawings.

(2) No additional time is associated with Award of this Alternate.

F. ABBREVIATED WRITTEN SUMMARY – ALTERNATE BID ITEM 3

(1) General description of the work – Alternate Bid Item 3 adds a Synthetic Turf Graphics Package in the form of large foul territory lettering, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

(2) No additional time is associated with Award of this Alternate.

G. ABBREVIATED WRITTEN SUMMARY – ALTERNATE BID ITEM 4

(1) General description of the work – Alternate Bid Item 4 adds a Synthetic Turf Graphics Package in the form of a smaller version foul territory lettering described as Alternate 3, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation.

(2) No additional time is associated with Award of this Alternate.

H. SELF-PERFORMED WORK REQUIREMENT

(1) “Self Performed”, for the purposes of this requirement, shall indicate that the labor component only, of work elements totaling the percentage of the total Contract Value required, is performed by payrolled employees of the Bidder/General Contractor to whom the Contract is Awarded.

(2) The General Contractor must Self-Perform a minimum 30% of the Total Contract Value Awarded. Alternates may or may not be included in this calculation depending on the scope of the Awarded work, and at the discretion of the Owner.

I. CONTRACTOR QUALIFICATIONS

(1) The Qualifications of the Contractor responsible for field subgrade establishment, field subsurface drainage, and field permeable aggregate placement and compaction shall be submitted to the Architect for review within 24 hours of written request by the Owner. Specific qualification requirements that must be demonstrated within the Contractors response are as follows:

a. Contractor shall be and shall have been actively and directly engaged in constructing similar natural or synthetic field projects, operating under the current Business Name and UBC Number for a period of five (5) or more years, and shall provide proof of ten (10) or more full sized Athletic Field installations completed in the past five (5) years. For the purposes of enumerating the Contractors experience, “full sized Athletic Field” shall refer to a vertically draining natural or artificial playing surface of no less than 70,000sf.

b. The facilities listed shall include no less than 3 collegiate athletic fields.

c. All facilities listed shall include subgrade establishment, subsurface drainage systems, and permeable aggregate or root zone field section installation as the completed scope directly attributable to the Contractor in question.

d. For each included facility, include Project Name, Completion Date, a brief description of the size and scope of work of work performed, and up-to-date Contact information for the Owner's Representative and/or Facility Manager at the time of completion. Projects for whom the named Contact cannot be located may be removed from the list.

(2) The Contractor must have a documented knowledge of the performance requirements of professional athletic facilities.

1.02 CONTRACTOR USE OF PREMISES

A. BUILDING ACCESS: Contractor shall coordinate all necessary building access with University Staff, and shall be responsible for building lock-up for all off-hours Work. All after-hours Work shall be scheduled with the Owner in advance.

(1) Contractor will be allowed access to the Project site during the following times: Work shall be generally performed during normal working hours of 7:00 AM to 7:00 PM, Monday through Friday, and Saturdays 9am – 5pm, except as otherwise indicated.

(2) Access to the Project site during times outside of the above time must be authorized by the University. If access is authorized, keys will be issued to the Contractor and procedures explained for proper coding in and out of building security systems. Contractor shall be responsible for security of the building.

(3) All keys must be returned to the University prior to Substantial Completion of the Project. Charges for unreturned keys shall be based on the actual costs necessary to re-key all locks affected by the loss.

(4) Contractor shall reimburse the University for all costs associated with inadequate security or locking up procedures and for false alarms due to after-hours Work.

B. SITE ACCESS: The Contractor's access to the Project site shall be limited as shown on the Contract Documents unless otherwise approved by the Owner.

(1) Construction staging area: All construction equipment and supplies shall be stored in this area.

(2) Parking: There is limited parking on the site. The Contractor and its employees shall park only in the areas designated on the Site Plan.

C. Contractor shall keep driveway and entrances clear at all times. Contractor shall not use these areas for parking or storage of materials. Contractor will schedule deliveries to minimize requirements for storage materials on site.

D. Contractor shall protect all existing properties, equipment, structures, and finishes in the building and on the site from any damage related to construction. Contractor is responsible for replacement should any damage occur.

E. ENCLOSURE FENCE: Contractor shall install an enclosure fence with lockable entrance gates to enclose equipment, materials and the construction area as required to ensure safety of persons using the site after hours. The enclosure fence shall be constructed of portable chain link fence panels, or fence posts driven into the ground, with chain link fabric attached to the posts.

1.03 OWNER OCCUPANCY

A. PARTIAL OWNER OCCUPANCY: The Owner reserves the right to place and install equipment as necessary in completed areas of the building/site and to occupy such completed areas prior to Substantial Completion.

B. The University campus will be occupied during the University year as defined by the Owner and the University calendar. The Contractor and its Subcontractors shall take this into account in their bids and coordinate their Work as required, taking into consideration the following:

(1) Access and safety for students, University employees, and others involved in the operation;

(2) Access to existing buildings and public safety as required by governing agencies;

(3) Time required for notice to schedule Work in occupied areas (48 hours minimum);

(4) Coordination and cooperation in all phases of the Work with the Architect, and University staff;

(5) Students will have full access to the site outside of the construction areas which will be fenced in by the Contractor. It will be the Contractor's responsibility to provide gate operators and spotters to avoid conflicts between student access and movement of equipment, materials, vehicles, personnel, etc.; and

(6) No overhead Work shall be allowed in any area where students or staff will be circulating or congregating.

(7) In addition to conforming to the noise ordinance of the authority having jurisdiction, the contractor shall limit noise to a decibel level of dBA 35 measured inside occupied classrooms during student testing periods, as defined by the Owner.

1.04 OWNER FURNISHED ITEMS

A. Certain items, designated by the Drawings by the abbreviation, "FOIC" and "NIC"—"furnished by Owner and installed by Contractor," and "not in Contract," respectively—will be furnished by the Owner. Items for installation by the Contractor will be furnished to the Project site for consignment to the Contractor. Owner shall assume responsibility for delivery in accordance with the construction schedule, obtaining installation drawings and instructions, submitting claims for transportation damages and arranging for guarantees and warranties. Contractor shall designate required delivery dates and shall assume responsibility of newly delivered items upon delivery to the site. Installation for all Owner furnished items shall include delivery to installation location, setting in place, building-in, leveling and attaching to walls, floors and/or ceilings, making mechanical and/or electrical connections and leaving items completely installed in operable condition satisfactory to the Owner and Architect.

END OF SECTION

SECTION 01 24 76

APPLICATIONS FOR PAYMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Work of this Section includes forms and procedures for progress payments.

B. Related work specified elsewhere.
   1. For the primary discussion of payments, refer to OSU General Conditions, Section E, as supplemented.
   2. In compliance with OSU General Conditions, Section K, no payments beyond 75% will be made by the Owner before two complete copies of the draft Operation and Maintenance Manuals have been received for review by the Owner.

1.02 APPLICATION FORMS

A. For applications for payment, use sample contract payment request on company letterhead, or AIA Document G702, supported by AIA Document G703, Continuation Sheet, or similar document.

B. Prepare the Schedule of Values in such a manner that each major item of Work and each subcontracted item of Work is shown as a line item broken down in terms of material and labor costs on AIA Document G703, Application Certification of Payment, Continuation Sheet or similar format. The sample continuation sheet shall be the minimum Schedule of Values breakdown.

C. The Schedule of Values shall be submitted for review by the Owner prior to the first application for payment; and may be used when, and only when, accepted in writing by the Owner.

D. Payment request is to include the Contractor's Federal Tax Identification number and return address.

1.03 PAYMENTS

A. The Owner will make progress payments on account of the Contract once monthly for the scheduled duration of the project (i.e. three (3) payments on a three-month project), based on the value of work accomplished or materials on the job site, as stated in the Schedule of Values on the Application and Certificate Payment.

B. Notwithstanding the foregoing, as this project is scheduled to take approximately two (2) months to complete, Owner will only make two (2) payments, plus a final retainage payment, as applicable.

C. Complete and forward Application to the Owner on or about the 15th day of each month for work performed the previous month and include certified payroll

statements as specified in the OSU General Conditions.

D. Submit one (1) copy of forms requesting payment to the Owner.

E. Payments will be made on protected materials on hand at the job site properly stored, protected, and insured.

F. Estimated quantities shall be subject to the Owner's review and judgment.

1.04 EARLY PURCHASE AND PAYMENT OF MATERIALS AND EQUIPMENT

A. Order materials and equipment requiring a long lead or waiting time early so as not to delay progress of the Work.

B. The Contractor will be reimbursed for early order materials or equipment upon receipt and verification of quality and quantity against submittals and shipping documents by the Owner's Authorized Representative.

C. Receipt shall be to the job site or stored at Owner's other premises in an orderly and safe manner, secured from normal weather damage.

D. Security remains the responsibility of the Contractor.

END OF SECTION

CONTRACT PAYMENT REQUEST

DATE: _____

TO: Administrative Services Accounting
Oregon State University
3015 SW Western Blvd
Corvallis, OR 97333

Payment Request No. _____Contract No. _____ Period from _____ to _____

Project: _____

Original Contract Amount ..... $_____

Change Orders (Net Amount) ..... $_____

Contract Total to Date ..... $_____

==========

Total Completed and Stored to Date ..... $_____

Less Retainage (5%), if applicable ..... $_____

Total Earned, Less Retainage (if applicable) ..... $_____

Less Previous Payments ..... $_____

Net Amount Due this Request ..... $_____

The undersigned Contractor certifies that, to the best of his/her knowledge, information, and belief, the Work covered by this request has been completed in accordance with the Contract Documents, that all amounts have been paid for Work for which previous applications for Payment were issued and payments received from the Owner, and that the amount shown herein is now due.

Contractor:_____

By: _____Date: _____

Federal Tax ID Number:_____

Address:_____

_____

CONTINUATION SHEET

Project Name:

Application No.:

Date:

Period To:

WRN No.:

NOTES:

Amounts are stated to the nearest penny.
Use Column I on Contracts where variable retainage for line items may apply, or if retainage is required.

Change Orders are usually listed as the last items of the basic schedule.

A	B	C	D	E	F	G		H	I
Item No.	**Description of work**	**Scheduled Value**	**Work Completed**		**Materials Presently Stored (Not in D or E)**	**TOTAL Completed & Stored (D+E+F)**	**% Completed (G/C)**	**Balance to Finish (C-G)**	**Retainage**
			From Previous Applications	This Period					
TOTALS									

SECTION 01 25 00

PRODUCT SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General requirements for the Work in relation to substitutions and product options.

B. Submit to the Owner's property insurance carrier shop drawings, samples, and product data (such as manufacturer's standard schematic drawings and other literature) when required by individual Specifications sections.

C. Related Work Specified Elsewhere
   1. Instructions to Bidders.
   2. OSU General Conditions.

1.02 REQUESTS FOR SUBSTITUTIONS

A. Requests for substitution of products in place of those specified shall be in accordance with Instructions to Bidders, and as specified herein.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Investigate proposed products and determine that they are equal or superior in all respects to products specified.

B. Provide same guarantee for accepted substitutions as for products specified.

C. Coordinate installation of accepted substitutions into the Work, making such changes as may be required for the Work to be complete in all respects.

1.04 SUBSTITUTIONS DURING BIDDING

A. Substitution Requests will not be considered prior to the Award of the Contract.

1.05 SUBSTITUTIONS DURING CONSTRUCTION

A. Substitutions will normally not be considered after date of Contract except when required due to unforeseen circumstances.

B. Within a period of thirty (30) days after date of Contract, the Owner may, at its option, consider formal written requests for substitution of products in place of those specified, when submitted in accordance with the requirements stipulated herein.

C. One or more of the following conditions must be documented in any such request:
   1. Required for compliance with final interpretation of code or insurance requirements.
   2. Required due to unavailability of a specified product.
   3. Required because of the inability of the specified product to perform

properly or to fit in the designated space.

4. Substitution would be substantially in the best interest of the Owner in terms of cost, time, or other considerations.

1.06 SUBSTITUTIONS NOT PERMITTED

A. If implied on submittals without first requesting approval thereof.

B. If acceptance will require substantial revision of the Contract Documents.

END OF SECTION

SUBSTITUTION REQUEST FORM

TO: _____

PROJECT: _____

SPECIFIED ITEM:

_____	_____	_____	_____
Section	Page	Paragraph	Description

The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION: _____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct:

1. The proposed substitution does not affect dimensions shown on Drawings.

2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.

3. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.

4. Maintenance and service parts will be locally available for the proposed substitution.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

Submitted by:

Signature _____

Firm _____

Address _____

_____

Date _____

Telephone _____

Attachments:

For use by Design Consultant:

☐ Accepted ☐ Accepted as noted

☐Not Accepted ☐ Received too late

By _____

Date _____

Remarks _____

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.01 PRE-CONSTRUCTION MEETING

A. Architect/Engineer/Designer, Contractor and Owner will meet prior to start of the Work (within seven (7) days after notice to proceed) to discuss at least the following topics and any others of mutual interest.
   1. Schedule of Values
   2. Permit Status/tree protection/erosion control
   3. List of sub-contractors
   4. Job inspections.
   5. Early purchase of, and/or lead time requirements for material and equipment/prepurchase of equipment
   6. Monthly payment date/SOP for pay requests
   7. Portion of site to be occupied by construction.
   8. Parking/Staging areas
   9. Non-smoking campus requirements
   10. Maintenance of access and safety.
   11. Processing of field decisions and change orders
   12. Labor provisions/labor rates for subs
   13. Material submittals/deferred submittals
   14. Owner access during construction.
   15. Review of Contract Documents/review ADA requirements/cross-slopes
   16. Coordination procedures and separate contracts.
   17. Progress schedules.
   18. Critical Work sequencing.
   19. Safety and emergency procedures/24 hour contact numbers
   20. Security procedures.
   21. Hazardous materials.
   22. Progress meetings.
   23. Contract close-out.

B. Location of Meeting: Project site

1.02 PROGRESS MEETINGS

A. The Contractor will schedule and administer progress meetings and will:
   1. Prepare agendas.
   2. Schedule progress meetings, frequency, time and day to be determined during pre-construction meeting.
   3. Make physical arrangements for and preside at meetings.
   4. Record minutes and include decisions.
   5. Distribute copies of minutes to participants within four (4) days after meetings.

B. Location of Meetings: Project site.

C. Attendance:
   1. The Owner or Owner's Authorized Representative.
   2. Contractor.
   3. Subcontractors affected by agenda.
   4. Project Architect/Engineer/as necessary.
   5. Owner will attend meeting to ascertain Work is expedited consistent with progress schedule and with Contract Documents.

D. Minimum Agenda:
   1. Review and approve minutes from previous meeting.
   2. Review Work progress since previous meeting.
   3. Discuss field observations, and problems.
   4. Review delivery schedules, construction schedule, and identify problems which impede planned progress.
   5. Review proposed changes.
   6. Material submittals.
   7. Note all new subcontractors performing Work at the job site.

END OF SECTION

SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA, SAMPLES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submit to the Owner shop drawings, samples, and product data (such as manufacturer's standard schematic drawings and other literature) when required by individual Specifications sections.

B. Related Work Specified Elsewhere
   1. Instructions to Bidders.
   2. OSU General Conditions.

1.02 SUBMITTAL SCHEDULING

A. For items requiring review by the Owner only, submittals shall be sent to the Owner at least 15 calendar days before the date each is required for fabrication or installation.

B. Submittals to be reviewed by Owner's consultants shall be sent to the Owner at least 20 calendar days before the date each is required for fabrication or installation.

C. Submittals to be reviewed by Owner's property insurance carrier shall be sent to Owner as directed in individual specification sections.

D. Submittals involving Substitution requests or other modifications requiring review by the Owner and/or the Owner's consultants shall be sent to the Owner at least 20 calendar days before the date each is required for fabrication or installation.

1.03 SUBMITTAL CONTENT AND FORMAT

A. General Requirements:
   1. Shop Drawings: Submit in electronic format and, if requested by Owner's Authorized Representative, submit one reproducible transparency and 1 print of each drawing.
   2. Product Data: Submit electronically, and if requested by Owner's Authorized Representative, up to 6 hard copies.
   3. Samples: Submit the number and type stated in each Specification Section. Submit a minimum of three sets of color samples where color selection is required.
   4. Submittals shall include:
      a. Date and revision dates return date requested.
      b. Project title and number.
      c. The names of the Contractor, subcontractor, supplier, and manufacturer.
      d. Identification of product or material, with Specification Section number.

e. Relation to adjacent critical features of work or materials.
f. Field dimensions, clearly identified as such.
g. Applicable standards, such as ASTM number or Federal Specification.
h. Identification of deviations from Contract Documents, and for products accompanied by Substitution request as required by Section 01 25 00.
i. Contractor's stamp legibly signed, essentially as follows:
   1) The undersigned, acting on behalf of the Contractor, certifies that this submittal has been reviewed and is approved; products have been verified as being as specified, field measurements and field construction criteria have been or will be coordinated, and the submittal is in compliance with Contract Documents.

5. Re-submission Requirements:
   a. Revise initial drawings as required and resubmit as specified for initial submittal.
   b. Indicate on drawings any changes which have been made other than those requested by the Owner or the owner's consultants.
6. The Owner may return without review any submittal not meeting the requirements listed above.

B. Shop Drawings:
1. Present data in a clear and thorough manner.
2. Details shall be identified by reference to sheet and detail, schedule or room numbers shown on Contract Documents.
3. Structural items shall be identified by location in the completed structure. Identify details by reference to contract sheet and detail numbers.
4. Minimum sheet Size: 8 ½ x 11".

C. Product Data:
1. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:
   a. Clearly mark each copy to identify pertinent product or models.
   b. Show dimensions, weights, and clearances required.
   c. Show performance data consisting of capabilities, ROM, KW, pressure drops, design characteristics and consumption; conforming as closely as possible to the test methods referenced in the Plans and Specifications.
   d. Show wiring or piping diagrams and controls.
2. Manufacturer's standard schematic drawings and diagrams:
   a. Modify to delete information which is not applicable.
   b. Supplement standard information to provide information specifically applicable to the Work.

D. Samples:
1. Insure that samples are of sufficient size to indicate the general visual effect or color.
2. Where samples must show a range of color, texture, finish, graining, or

other property, submit sets of pairs illustrating the full scope of this range.

3. One (1) sample or one (1) set of approved samples will be retained by the Owner; final work will be measured against approved samples.

1.04 QUALITY ASSURANCE

A. Process submittals in ample time for review, as applicable, so as to not delay the Work. All submittals shall be received by the Owner within ten (10) days after pre-construction.

1.05 DEFINITIONS

A. The Owner will mark reviewed materials as follows:
   1. “No Exception Taken,” which means fabrication, manufacture and/or installation may proceed.
   2. “Make Revisions Noted,” which means fabrication, manufacture and/or installation may proceed with revisions as noted.
   3. “Revise and Resubmit,” which means that fabrication, manufacture and/or installation may not proceed.
   4. “Rejected,” which means do not proceed; make arrangements for the review of the proposed Work with the Owner as soon as possible.

1.06 PROCESSING

A. Review submittals, make necessary corrections, and become familiar with the content of the submittals.

B. Mark each item with Contractor’s stamp.

C. Accompany submittals with a transmittal letter bearing the project name, Contractor’s name, number of items, and other pertinent data.

D. Keep one copy of each reviewed submittal on the job site at all times.

E. Be responsible for obtaining and distributing prints of shop drawings to the various suppliers, and the Owner once review process has been completed. Make prints of reviewed shop drawings only from transparencies which carry the appropriate stamp and endorsement.

END OF SECTION

SECTION 01 42 13

ABBREVIATIONS AND SYMBOLS

PART 1 GENERAL

1.01 REQUIREMENTS INCLUDED

A. Words which may be found elsewhere in the Project Manual and Drawings are abbreviated in accordance with the standards set forth in the following table:

A/C	air conditioning
AB	anchor bolt
AC	asphaltic concrete
ACT	acoustical tile
AD	area drain
ADD	addendum
ADD'L	additional
ADH	adhesive
AFF	above finish floor
AGG	aggregate
AL	aluminum
ALLOW	allowable
ALT	alternate
ANOD	anodized
AP	access panel
APPRX	approximate
ARCH	architect(ural)
ASPH	asphalt
AUTO	automatic
AVE	avenue
BD	board
BIT	bituminous
BLDG	building
BLKG	blocking
BM	bench mark, beam(s)
BOT	bottom
BRZ	bronze
BS	both side
CB	catch basin
CEM	cement
CF	cubic foot
CFOI	contractor furnished owner installed
CG	corner guard
CH	ceiling height
CI	cast iron
CJ	control joint
CKBD	chalkboard
CL	centerline
CLG	ceiling
CLR	clear(ance)
CM	construction manager
CMT	ceramic mosaic (tile)
CMU	concrete masonry unit
COL	column
COM	communications
CONC	concrete
CONN	connect(ion)
CONST	construction
CONT	continuous or continue
CONTR	contract(or)
CPT	carpet
CRS	course(s)
CS	countersink
CSMT	casement
CT	ceramic tile
CTR	center
CVG	clear vertical grain
CW	cold water
CWT	ceramic wall tile
CY	cubic yard
D	depth
DEMO	demolish, demolition
DEP	depressed

DF	drinking fountain
DIA	diameter
DIAG	diagonal
DIM	dimension
DISP	dispenser
DIV	division
DL	dead load
DMT	demountable
DN	down
DP	dampproofing
DR	door
DS	downspout
DT	drain tile
DTL	detail
DW	dumbwaiter
DWG	drawing(s)
DWR	drawer
EA	each
EB	expansion bolt
EF	each face
EJ	expansion joint
EL	elevation
ELEC	electric(al)
EMBED	embedment
EMER	emergency
ENCL	enclose(ure)
EP	electrical panel board
EQ	equal
EQUIP	equipment
EST	estimate
EVT	equiviscious temperature
EW	each way
EWC	electric water cooler
EX.EXIT	existing
EXH	exhaust
EXP	exposed
EXT	exterior
FA	fire alarm
FAF	fluid applied flooring
FARF	fluid applied resilient floor
FAS	fasten, fastener
FBD	fiberboard
FBT	finished blowing temperature
FD	floor drain, fire damper
FE	fire extinguisher
FEC	fire extinguisher cabinet
FF	factory finish
FGL	fiberglass
FHMS	flathead machine screw
FHWS	flathead wood screw
FIN	finish(ed)
FLCO	floor cleanout
FLR	floor(ing)
FLUR	fluorescent
FND	foundation
FOC	face of concrete
FOIC	furnished by owner/installed by contractor
FOIO	furnished by owner/installed by owner
FOM	face of masonry
FP	fireproofing, flash point
FPHB	freeze-proof hose bib
FR	fire resistive, fire rated
FRM	frame(d), (ing)
FS	full size
FSS	finished structural slab
FT	foot
FTG	footing
FTS	finished topping slab
GA	gage, gauge
GALV	galvanized
GB	grab bar or gypsum board
GC	general contractor
GI	galvanized iron
GL	glass, glazing
GLS	glass resin wall surfacing
GP	gypsum
HB	hose bib
HBD	hardboard
HC	hollow core
HD	heavy duty
HDR	header
HDW	hardware
HM	hollow metal
HOR	horizontal

HP	high point
HR	hour
HT	height
HTG	heating
HVAC	heating, ventilating, air conditioning
HWD	hardwood
HWH	hot water heater
ID	inside diameter, identification
IN	inch
INCIN	incinerator
INCL	include(d), ion)
INT	interior
INV	invert
JB	junction box
JC	janitor's closet
JT	joint
KD	kiln dried
KCP	Keene's cement plaster
KO	knockout
KP	kick plate
LAB	laboratory
LAM	laminate(d)
LAV	lavatory
LBS	pounds
LH	left hand
LL	live load
LONGIT	longitudinal
LP	low point
LW	lightweight
MAX	maximum
MB	machine bolt
M. MECH	mechanic(al)
MFR	manufacture(r)
MH	manhole
Min	minimum, minute
MISC	miscellaneous
MO	masonry opening
MO#	model number
MOD	modular
MPH	miles per hour
MS	machine screw
MTL	metal
MULL	mullion
MWP	membrane waterproofing
NAT	natural, natural finish
NIC	not in contract
NO	number
NOM	nominal
NTS	not to scale
OA	overall
OBS	obscure
OC	on center(s)
OD	outside diameter
OF	overflow
OFCI	owner furnished contractor installed
OFOI	owner furnished owner installed
OHMS	ovalhead machine screw
OHWS	ovalhead wood screw
OPG	opening
OPP	opposite
OZ	ounce(s)
P	paint(ed)
PB	push button
PCF	pounds per cubic foot
PCP	putting coat plaster
PERF	perforate(d)
PL	plate, property line
PLAM	plastic laminate
PLAS	plaster
PNL	panel
PP	push plate
PR	pair
PREP	prepare
PSF	pounds per square foot
PSI	pounds per square inch
PT	point, pressure treated
PTN	partition

PVC	polyvinyl chloride
PWD	plywood
QT	quarry tile
R	rise
RA	return air
RAD	radius
RCP	reflected ceiling plan
RD	roof drain
REF	reference
REFR	refrigerator
REINF	reinforce(ing)
REQ	required
RET'G	retaining
REV	revision(s), revised
RH	right had
RM	room
RO	rough opening
RSF	resilient sheet flooring
SC	solid core
SCHED	schedule
SEC	section
SF	square feet (foot)
SHT	sheet
SHTHG	sheathing
SIM	similar
SL	sleeve
SOG	slab on grade
SPEC	specification(s)
SQ	square
SS	storm sewer
S4S	finished 4 sides
SD	storm drain
ST	steel, street
ST ST	stainless steel
STD	standard
STR	structural
SUPP	supplement
SUPT	support
SUSP	suspended
SV	sheet vinyl
T	tread
TBM	top bench mark
T&G	tongue and groove
TB	towel bar
TC	top of curb
TEL	telephone
TEMP	tempered
THK	thickness
TKBD	tackboard
TO	top of
TP	top of paving
TRANS	transverse
TS	top of slab
TV	television
TW	top of wall
TYP	typical
UNO	unless noted otherwise
VAT	vinyl asbestos tile
VB	vapor barrier
VCT	Vinyl Composition Tile
VERT	vertical
VG	vertical grain
VIF	verify in field
VWC	vinyl wall covering
W	width, wide, water
W/	with
W/O	without
WC	water closet
WD	wood, wood finish
WP	waterproof(ing)
WNS	wainscot
WR	water resistant
WS	waterstop
WW	window wall
WWC	wood wall covering
WWF	woven wire fabric

B. Words which may be found elsewhere in the Project Manual and Drawings are abbreviated in accordance with the standards set forth in the following table:

& and
λ angle
@ at
ι diameter, round
" inches
: is, shall b
' feet
ζ perpendicular
/ per
% percent
# pound, number
X by (as in 2 by 4)

END OF SECTION

SECTION 01 42 16

DEFINITIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Words which may be found elsewhere in the Contract Documents are defined in accordance with the standards set forth in the following table:

Approve:

Where used in conjunction with Architect's response to submittals, requests, applications, inquiries, reports and claims by Contractor, the meaning of term "approved" will be limited to the Architect's responsibilities and duties as specified in General and Supplementary Conditions. In no case will "approval" by Architect be interpreted as a release of Contract requirements.

As Detailed, As Shown:

Where “as detailed”, “as shown” or words of similar importance are used, it shall be understood that reference to the Drawings accompanying the Specifications is made unless otherwise stated.

As Directed, As Required, As Authorized, As Reviewed, As Accepted:

Where “as directed”, “as required”, “as authorized”, “as reviewed”, “as accepted” or words of similar importance are used, it shall be understood that the direction, requirement, permission, authorization, review, or acceptance of the Architect is intended, unless otherwise stated.

As Indicated:

Where “as indicated” is used it shall be understood that reference to Drawings and/or Specifications is made unless otherwise stated.

Directed, Requested, etc.:

Terms such as "directed," "requested," "authorized," "selected," will be understood as "directed by Architect," "requested by Architect," and similar phrases shall not be interpreted to extend Architect's responsibility into Contractor's responsibility for construction supervision.

Furnish:

Except as otherwise defined in greater detail the term "furnish" is used to mean supply and deliver to project site, ready for unloading, unpacking, assembly, installation, etc., as applicable in each instance.

Indicated:

The term "indicated" is a cross-reference to graphic representations, notes or

schedules on drawings, to other paragraphs or schedules in the specifications and to similar means of recording requirements in Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used in lieu of "indicated," it is for purpose of helping reader locate cross-reference and no limitation of location is intended except as specifically noted.

Install:

Except as otherwise defined in greater detail, the term "install" is used to describe operations at project site including unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning and similar operations, as applicable in each instance.

Installer:

The term "installer" is defined as the entity (person or firm) engaged by Contractor, or its subcontractor or sub-subcontractor for performance of a particular unit of Work at project site, including installation, erection, application and similar required operations. It is a general requirement that such entities (Installers) be expert in operations they are engaged to perform.

Provide:

Except as otherwise defined in greater detail, term "provide" means furnish and install, complete and ready for intended use, as applicable in each instance.

END OF SECTION

SECTION 01 42 19

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Quality Assurance.

B. Location of References.

C. Schedule of References.

1.02 QUALITY ASSURANCE

A. For products or quality of work specified by association, trade, or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of Contract Documents.

C. General Applicability of Standards: Except where Contract Documents include more stringent requirements, applicable standards of the construction industry have the same force and effect as if bound or copied directly into Contract Documents.

D. Such standards are made a part of the Contract Documents by reference.

E. Individual sections indicate which codes and standards the Contractor must keep at the project site, available for reference.

F. Referenced industry standards take precedence over standards which are not referenced but recognized in industry as applicable.

G. Non-referenced standards are not directly applicable to the Work, except as a general requirement of whether the Work complies with standards recognized in the construction industry.

1.03 LOCATION OF REFERENCES

A. Valley Library, Oregon State University.

1.04 SCHEDULE OF REFERENCED ASSOCIATIONS

AIA American Institute of Architects
WWW.AIA.ORG

AISC	American Institute of Steel Construction WWW.AISC.ORG
AISI	American Iron and Steel Institute WWW.STEEL.ORG
ANSI	American National Standards Institute WWW.ANSI.ORG
APA	American Plywood Association WWW.APAWOOD.ORG
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers WWW.ASHRAE.ORG
ASTM	American Society for Testing and Materials WWW.ASTM.ORG
AWPA	American Wood Protection Association WWW.AWPA.COM
AWS	American Welding Society WWW.AWS.ORG
BIA	Masonry Institute of America WWW.MASONRYINSTITUTE.ORG
BOLI	Oregon Bureau of Labor and Industries WWW.BOLI.STATE.OR.US
CCB	Construction Contractors Board WWW.OREGON.GOV.CCB/
CDA	Copper Development Association WWW.COPPER.ORG
CISPI	Cast Iron Soil Pipe Institute WWW.CISPI.ORG
CSI	Construction Specification Institute WWW.CSINET.ORG
DEQ	Department of Environmental Quality (Oregon) WWW.OREGON.GOV/DEQ/
DHI	Door and Hardware Institute WWW.DHI.ORG

DOT	Department of Transportation WWW.DOT.GOV
EPA	U.S. Environmental Protection Agency WWW.EPA.GOV
FM	Factory Mutual System WWW.FMGLOBAL.COM
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS) WWW.GSA.GOV/PORTAL/CONTENT/103856
IBC	International Building Code WWW.ICCSAFE.ORG
ICBO	International Conference of Building Officials PUBLICECODES.CITATION.COM/ICOD/IBG/INDEX.HTM
IRS	Internal Revenue Service WWW.IRS.GOV
ISA	Instrumentation Systems and Automation Society WWW.ISA.ORG
NAAMM	National Association of Architectural Metal Manufacturers WWW.NAAMM.ORG
NBFU	National Board of Fire Underwriters WWW.NFPA.ORG
NEC	National Electric Code WWW.NECPLUS.ORG
NEMA	National Electrical Manufacturers' Association WWW.NEMA.ORG
NESC	National Electrical Safety Code WWW.IEEE.ORG
NFPA	National Fire Protection Association WWW.NFPA.ORG
NRCA	National Roofing Contractors' Association WWW.NRCA.NET
OAR	Oregon Administrative Rules ARCWEB.SOS.STATE.OR.US/404.HTML

OESP	State of Oregon Electrical Specialty Code http://www.bcd.oregon.gov/programs/online_codes.html
ORS	Oregon Revised Statutes LANDRU.LEG.STATE.OR.US/ORS/
OSHA	Occupational Safety and Health Administration WWW.OSHA.GOV
OSSC	Oregon Structural Specialty Code http://www.bcd.oregon.gov/programs/online_codes.html
PS	Product Standard STANDARDS.GOV/STANDARDS.CFM
SDI	Steel Door Institute WWW.STEELDOOR.ORG
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association WWW.SMACNA.ORG
SPRI	Single Ply Roofing Institute WWW.SPRI.ORG
SSPC	Steel Structures Painting Council WWW.SSPC.ORG
SWRI	Sealing, Waterproofing and Restoration Institute WWW.SWIRONLINE.ORG
UBC	Uniform Building Code (See ICBO)
UFC	Uniform Fire Code WWW.NFPA.ORG
UL	Underwriters' Laboratories, Inc. WWW.UL.COM
UMC	Uniform Mechanical Code WWW.UBC.COM
UPC	Uniform Plumbing Code WWW.UBC.COM
WHL	Warnock Hersey Laboratories WWW.INTEK.COM/MARKS/WH/
WCLIB	West Coast Lumber Inspection Bureau

WWW.WCLIB.ORG

WWPA Western Wood Products Association
WWW.WWPA.ORG

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Codes, regulations and permits.

B. Procedures for quality control.

1.02 OWNER RESPONSIBILITIES

A. Owner will employ and pay for services of an independent testing laboratory to perform inspection, sampling and testing as required by local building authority.

B. Owner's Authorized Representative will provide on-site observation during construction.

1.03 CODES, REGULATIONS AND PERMITS

A. All Work shall conform with the Oregon Structural Specialty Code (OSSC) based on the International Building Code (IBC), as amended by the State of Oregon Building Codes Division and the edition designated by the governing authority.

B. Contractor shall comply with all applicable state and local construction codes.

C. References to codes, Specifications and standards referred to in the Contract Documents shall mean, and are intended to be, the latest edition, amendment or revision of such reference standard in effect as of the date of these Contract Documents.

D. The Owner shall be responsible for all permits and City of Corvallis plan review fees; the Contractor shall be responsible for all licenses and associated fees required for the Project.

E. Contractor shall arrange and attend all required permit inspections and furnish evidence of approved City inspection reports per Section 01 77 00.

1.04 QUALITY OF WORK

A. It is the true and specific intent of these Specifications that quality of Work on all phases of the construction and embracing all the trade sections shall be of high quality performed by workers skilled in their trade and performing their Work only according to the standard of best practice of the trade.

B. All manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with manufacturer's directions unless otherwise specified.

C. If Work is required in a manner to make it impossible to produce first quality Work, or should discrepancies appear among Contract Documents, request interpretation from Architect before proceeding with Work.

D. Failure to secure interpretation may cause rejection by Architect or owner of installation.

1.05 LAYOUT

A. Be responsible for properly laying out the Work and for lines and measurements for the Work.

B. Verify the figures shown on the drawings before laying out the Work and report errors or inaccuracies to the Architect before commencing Work.

C. Strict compliance with maximum slopes is required. Accessible parking spaces and adjacent access aisles with slope exceeding 2% in any direction, as determined by OSU, shall be removed and replaced by the contractor at their expense.

D. Strict compliance with maximum slopes is required. New sidewalks exceeding 1:20 slope or with cross slope exceeding 2%, as determined by OSU, shall be removed and replaced by the contractor at their expense. Ramps exceeding 1:16 slope or with cross slope exceeding 2%, as determined by OSU, shall be removed and replaced by the contractor at their expense.

1.06 SUPERVISION

A. The Contractor shall maintain effective supervision on the project at all times Work is being performed.

B. The superintendent shall be the same person throughout the project and shall attend the preconstruction conference.

1.07 INSPECTIONS AND TESTING

A. Contractor shall notify the Owner at least twenty-four (24) hours in advance of any required progress inspection or final inspection including final punch list inspection.

B. Cooperate with laboratory personnel, provide access to Work and furnish incidental equipment material and labor required for field testing and sample taking.

1.08 EVALUATION OF TESTS AND INSPECTIONS

A. Results of laboratory and/or field control tests and inspections shall be the principal basis upon which satisfactory completion of Work shall be judged.

B. If results of tests and inspections indicate Work is below requirements of Contract Documents, that portion of Work is subject to rejection.

1.09 ADJUSTMENTS

A. Remove and replace Work so rejected at Contractor’s expense including costs of subsequent tests and inspections until Work meets requirements of Contract Documents.

B. The Owner reserves the right to perform any testing as may be required to

determine compliance with the Contract Documents.

C. Costs for such testing will be the Owner's responsibility unless testing indicates noncompliance. Cost for such testing indicating noncompliance shall be borne by the Contractor.

D. Noncomplying Work shall be corrected and testing will be repeated until the Work complies with the Contract Documents.

E. Contractor will pay costs for retesting noncomplying Work.

END OF SECTION

SECTION 01 51 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

1.02 REQUIREMENTS OF REGULATORY AGENCIES

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction.

B. Standards: Comply with NFPA Code 241, "Building Construction and Demolition Operations", ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition".

C. Electrical Service: Comply with NEMA, NEC and UL standards and regulations for temporary electric service; install service in compliance with National Electric Code (NFPA 70).

D. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use; obtain required certifications and permits if required.

1.03 PROTECTION

A. Protect sidewalks, asphalt paving, concrete, trees, shrubs, and lawn areas at all times from damage resulting from construction activities.

B. Prevent materials from clogging catch basins and yard drains; leave drains clean and in proper working condition.

C. Protect Existing Irrigation Systems:
   1. In the event damage occurs to an underground irrigation system as a direct result of a Contractor's activities, the Contractor shall repair/replace or be assessed a charge at the discretion of the Owner.
   2. If repairs are to be made by the Contractor, the repairs will be inspected by the Owner’s Authorized Representative prior to backfilling.
   3. Any galvanized pipe that requires repair shall be repaired at a threaded coupling, not by use of a compression coupling.

D. Protect Existing Air Handling Systems:
   1. Contractor shall be responsible for protection of the cleanliness of the existing air handling system at all times. This protection shall include:
      a. During site work or building demolition, prefilters shall be provided and maintained on all building outside air intakes at all times throughout the construction duration.
      b. During any interior work that may create dust in the interior space and

adjacent corridor/hallways, air filters shall be provided and maintained on all affected air return and exhaust grilles. Where air flow in or out of the space is not required, all air duct openings shall be temporarily blanked off with plywood or sheet metal.

c. Prior to starting any work, the Contractor shall record and submit to the Owner's Authorized Representative, pressure readings across all existing air handler air filter banks before installation of new prefilters.
d. Upon completion of all Work affecting existing air handling systems, the Contractor shall remove all temporary filters, covers and associated parts and restore the system to its original operating condition unless otherwise stated elsewhere in the Contract Documents

E. Clean, repair, resurface, or restore existing surfaces to their original, or better, condition, or completely replace such surfaces to match existing, where damaged by construction operations.

F. Security is the responsibility of the Contractor.

G. Construction Debris:
1. Debris shall not be allowed to remain around the buildings during performance of Work, but shall be disposed of as rapidly as it accumulates.
2. On completion of Work, the buildings and grounds shall be left in a condition that is equal to or better than original condition.
3. In case of failure to do so, the Owner may remove rubbish and charge the cost to the Contractor.

H. The Contractor shall manage a safe job environment for both the safety of all the people around the Work site as well as the safety of the Owner's and general public's property.

I. The Contractor shall provide and maintain suitable barricades, shelters, lights, and danger signals during the progress of the Work; they shall meet the requirements of the local building code and OSHA.

1.04 DRAINAGE

A. Verify that all rain drains in the construction areas are in working order and notify the Owner's Authorized Representative in writing of any rain drains that are plugged, prior to the start of the Work.

B. Start of Work will be considered as acknowledgment that all drains are clear and in good working order.

C. All drains shall be left in a clean and proper working condition.

1.05 CONSTRUCTION PROJECT SAFETY FORM

A. Contractor shall submit to the Owner, prior to signing the Contract, the completed "Construction Project Safety Form", which is provided with instructions at the end of this Section.

1.06 TEMPORARY UTILITIES

A. Temporary Utilities:
   1. Prepare a schedule indicating dates for implementation and termination of each temporary utility.
   2. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use:
   1. Keep temporary services and facilities clean and neat in appearance.
   2. Operate in a safe and efficient manner.
   3. Take necessary fire prevention measures.
   4. Do not overload facilities or permit them to interfere with progress.
   5. Do not allow hazardous, dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

C. Electrical Service:
   1. Service limited to 20 amp 120V circuits will be paid for by the Owner.
   2. Connection to the service shall be the responsibility of the Contractor, with the Owner's approval.
   3. Coordinate with the Owner's Authorized Representative.

D. Water Service:
   1. Service in reasonable quantities for the Project will be paid for by the Owner.
   2. Connection to the service shall be the responsibility of the Contractor, with the Owner's approval.
   3. Coordinate with the Owner's Authorized Representative.

1.07 TEMPORARY SUPPORT FACILITIES

A. Temporary Sanitary Facilities:
   1. Provide and maintain an adequate number of facilities for the use of all persons employed on the Work during construction.
   2. Provide enclosed, weatherproof facilities with heat as required.
   3. Use of new or existing Owner's facilities will not be permitted.

B. Temporary Heat and Ventilation:
   1. As necessary, provide temporary heat and ventilation required by construction activities, for curing or drying of completed installations or protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

C. Telephone Equipment: Provide telephone communications at project site.

D. Existing Services:
   1. Do not interrupt any existing service.

2. Prior request and approval of the Owner's Representative will enable the Owner to shut down any utility required by the Work.
3. Contractor shall not shut down utilities.

1.08 TEMPORARY BARRIERS AND ENCLOSURES

A. Provide barriers and fencing to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage.

B. Provide Commercial grade chain link fence construction.

C. Provide 6 foot high fence around construction site as directed by Owner’s Authorized Representative; equip with vehicular and pedestrian gates with lock.

D. Exterior Closures: Provide temporary secured, weather-tight closures at exterior openings, to permit acceptable working conditions and protection of the Work.

E. Interior Closures:
1. Provide temporary floor to ceiling partitions (not plastic sheeting) and ceilings as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, to reduce construction noise, and to prevent damage to existing materials and equipment.
2. Paint surfaces exposed to view from Owner occupied areas.

1.09 ODORS

A. Work that causes excessive odors shall be performed only after coordination with the Owner’s Authorized Representative. Filtering of air intakes to units may be required to prevent odors and vapors from entering the buildings.

B. Contractor shall provide 7 days advance notice to the Owner’s Authorized Representative in order for advance notice to be forwarded to building occupants. Work stoppage may occur if advance notification has not been coordinated or odors and vapors from the work are found to generate complaints from building occupants.

1.10 FIRE SAFETY

A. Ensure that required exit routes remain unobstructed while building is occupied.

B. Abide by all fire safety requirements for buildings under construction, alteration or demolition as required by Article 87, of the Uniform Fire Code as adopted by the State of Oregon.

C. An emergency telephone shall be provided on site. Cellular telephone equipment is acceptable.

D. Fire Suppression Equipment:
1. Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers", and NFPA 241 "Standard for Safeguarding Construction, Alterations and

Demolition Operations".

2. Maintain equipment in working condition with current inspection certificate attached to each.
3. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.
4. Store combustible materials in containers in fire-safe locations.
5. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for fighting fires.
6. Provide continual supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
7. When possible, relocate hot work to a designated hot work area.
8. If the materials or equipment cannot be relocated to a designated hot work area, use the least hazardous form of hot work that will get the job done and prepare the area properly.
9. Manage mobile hot work using the formal hot work permit system. (mentioned in the next bullet point and also a directive in the OSU Hot Work Safety Program)
10. Make sure both fire protection and hot work equipment work properly.
11. Train all personnel involved in hot work operations and activities so that they have the understanding, knowledge, and skills necessary to safely perform their jobs.

1.11 CONSTRUCTION AIDS

A. Scaffolding: comply with applicable OSHA requirements.

B. Material Handling Equipment:
   1. Provide necessary cranes, hoists, towers, or other lifting devices.
   2. Use only experienced operators.
   3. Remove equipment as soon as possible after task is ended.
   4. Coordinate placement of such equipment with Owner’s Authorized Representative.
   5. Obtain required permits and meet requirement of governing authorities regarding applicable regulations.

C. Materials or debris shall not be allowed to free fall from building.

D. The use of chutes or conveyors must be approved by Owner.

1.12 TEMPORARY CONTROLS

A. Water Control:
   1. Maintain excavations free of water.
   2. Provide, operate, and maintain necessary pumping equipment.

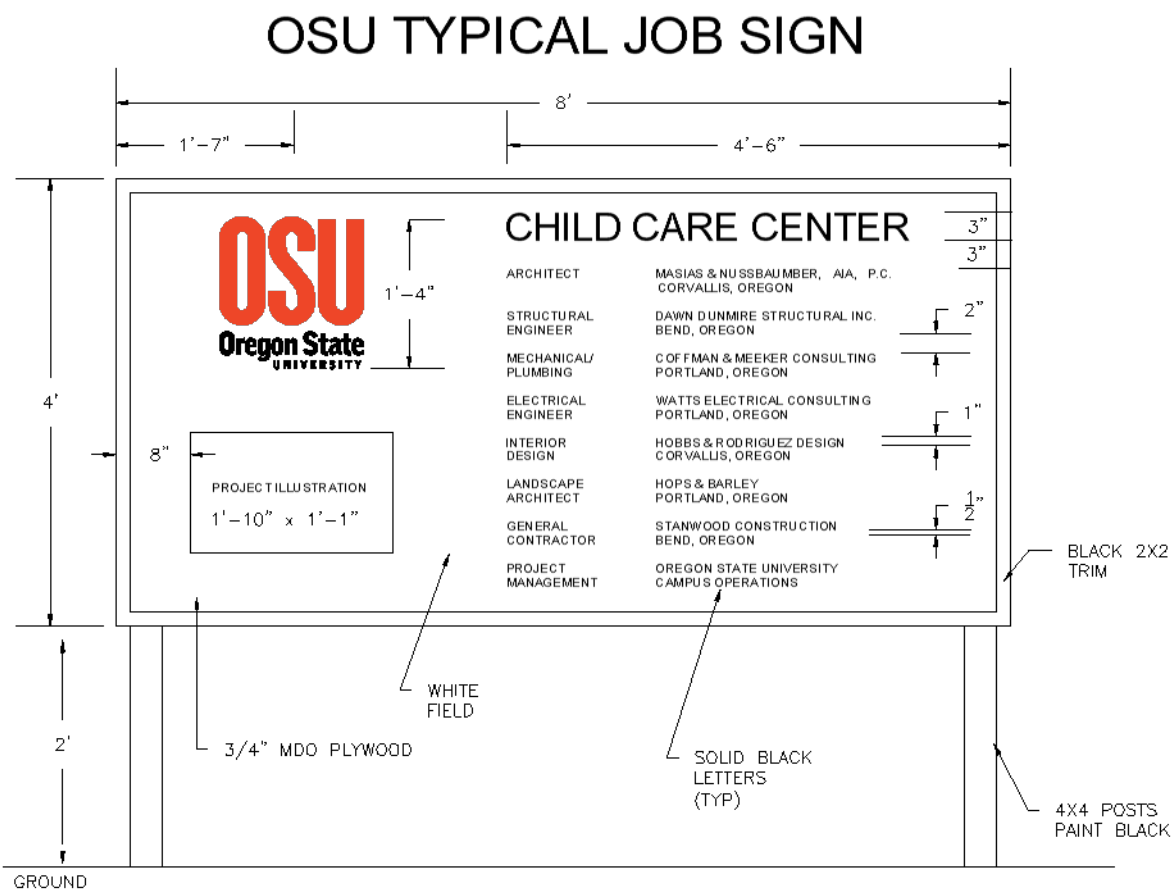
B. Protection:
   1. Protect installed Work and provide special protection where specified in individual specification sections.
   2. Prohibit traffic or storage upon waterproofed or roofed surfaces.

C. Security:
   1. Provide security and facilities to protect Work and existing facilities and Owner's operations from unauthorized entry, vandalism, or theft.
   2. Coordinate operations with Owner's Authorized Representative.

D. Temporary Traffic Control /Pedestrian Accessibility
   1. A continuous route for all pedestrians, including persons with disabilities and bicyclists, shall be maintained at all times. When existing pedestrian facilities are disrupted, closed, or relocated in a construction zone, temporary pedestrian facilities shall be provided.
   2. Temporary pedestrian facilities should be safe and accessible. There should be no curbs or abrupt changes in grade that could cause tripping or be a barrier to wheelchair use.
   3. Signage shall be provided directing people to the temporary accessible route. The signage shall include the International Symbol of Accessibility.
   4. Contractors shall not block temporary walkways with vehicles, equipment, construction materials, signs, trash, or other objects that might prohibit pedestrian passage.
   5. Construction equipment and equipment operation must be separated from any open walkways. At construction zones, pedestrian fences or other protective barriers shall be provided to prevent access into the construction zone.

1.13 PROJECT SIGNAGE

A. Contractor is permitted to post only one project identification sign based on the following example:



1.14 PREPARATION

A. Consult with Owner to review jobsite areas required for field offices, material storage and stockpiles, equipment storage, access to different locations, etc.

1.15 PERFORMANCE

A. Confine equipment, apparatus, and storage of material to work limits. The Owner will not be responsible for protection of materials and equipment from damage, pilfering, etc.

B. Install temporary facilities in such a manner that the installed work will not be damaged.

C. Do not use facilities of existing building unless authorized in writing by the Owner.

D. Effective September 1, 2012, OSU became a non-smoking campus and smoking is prohibited on all Campus property.

E. Keep facilities well maintained.

F. Relocate temporary facilities as required during job progress.

G. At Substantial Completion, clean and renovate permanent facilities that have been used during the construction period, including but not limited to:
   1. Replace air filters and clean inside of ductwork and housings.
   2. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
   3. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION

Oregon State University Construction and Maintenance Safety Requirements

EH&S, 130 Oak Creek Building, Corvallis, OR 97331-7405, (541) 737-2505, FAX (541) 737-9090

Complete OSU Construction and Maintenance Safety Form - Send completed documents (including Site Safety Plan and all separate answer pages) to Construction Contract Administration along with the signed contract and bonds.

Project Isolation - All construction and remodeling activities regardless of size and/or scope must be fenced, barricaded, or otherwise protected to restrict entrance and to ensure the safety of those in the general area. See isolation requirements.

Site Safety Plan - A site safety plan will be required and will address:

- General Information
- Emergency Information
- Key Organization Personnel
- Hazard Evaluation/Facility Impact
- Emergency Procedures
- Work Zones
- Security Measures
- Fire Protection

A model plan is attached. This form can be used if another plan has not already been prepared. Contact OSU Environmental Health & Safety for more information 737-2505.

Isolation Requirements

General: All construction, maintenance, and remodeling activities, regardless of size or scope, must be fenced, barricaded, or otherwise isolated to restrict entrance and to ensure the safety of those in the general area.

Outdoor Activities: Outdoor projects require the following perimeter isolation:

- A six foot chain-link fence, with controlled access points, extending in all directions around the excavation or building site such that no area of the construction is accessible to pedestrians or unauthorized personnel or vehicles.
- Isolation area will include vehicle loading and unloading areas.
- At the University's option, other barricading plans may be accepted. These may apply to projects such as road resurfacing, parking lot striping, exterior building water proofing, deliveries, etc. Contact EH&S regarding other barricading plans.

Overnight: Any excavation across or adjacent to sidewalks or pathways which must be left open overnight, must be identified with working, blinking construction lights in addition to solid barricades

Indoor Activities: Indoor construction or maintenance projects which will create dust, potentially hazardous fumes or vapors, or offensive odors are subject to the following isolation:

- Areas where existing doors can provide isolation will be labeled "Construction Area-- Authorized Personnel Only ".

- All other areas will be isolated by a solid barrier. The minimum barrier allowed is 4 mil poly sheeting sealed to prevent migration of dust.
- Mechanical ventilation may be required.
- A solid wall is required if building envelope is opened to the outside.

Contractor Responsibilities

- The contractor will provide all barricading, isolation, and fencing material. OSU will not provide any materials.
- The contractor will also provide all appropriate warning and detour signs when sidewalks, exits, or roads are closed.
- Contractor will provide all other construction area signs.

OSU Construction and Maintenance Safety Form

Send completed safety documents to Construction Contract Administration with contract and bonds.

Date: _____ Project: _____

Start Date: _____ Completion date: _____

Contractor: _____ Contact: _____

Work # _____ 24 hr #: _____

OSU Project Mgr: _____ Work / 24hr #'s: _____

Dept Contact: _____ OSU EH&S Contact: _____

Preconstruction meeting? **Y** **N** Date/Time/Location: _____

For the following items, prepare answers on a separate sheet for all items marked "Yes". Precede each answer with the appropriate item number. All boxes need to be checked

Y	N	For This Project	If YES, then:
		1 Will any confined spaces be accessed?	Describe location of entry Specify location of permit Notify EH&S prior to entry See SAF 209
		2 Will hot work be performed (welding, cutting, brazing, etc.)?	Provide min. 5# 2A10BC extinguisher within 10 ft If indoors - provide and describe ventilation See SAF 214
		3 Any products brought to campus?	Provide MSDS on site prior to first use; Make available to OSU on request
		4 Will lead paint be impacted?	Describe plan to limit contamination
		5 Will asbestos-containing-material be impacted?	Coordinate with OSU asbestos manager
		6 Will <u>any</u> materials (construction debris, soil, water, etc) be removed from campus?	Describe in detail identity and disposition of material (how, where)
		7 Any open trenches or holes?	Describe isolation procedures (see Page 1)
		8 Will a crane be used?	Describe crane safety plan (include plan to prevent loads above occupied areas)
		9 Is this project building a new facility, a major remodel?	Provide Site Safety plan Describe isolation procedures (see Page 1)
		10 Is this a minor remodeling project?	Provide, or fill out model Site Safety Plan form (see Page 3) Describe isolation procedures (see Page 1)
		11 Will air contamination be produced (e.g. dust, CO, solvent vapors, VOCs, odors)?	Describe project ventilation and isolation Indicate position of building air intake(s)
		12 Will there be noise > 85 dB?	Describe noise minimization plan
		13 Will this project use a scaffold or an external chute?	Describe isolation, dust control, installation
		14 Will this project involve a working surface >6' above a lower level	Describe fall protection
		15 Will any "blind" saw-cuts or penetrations be made in existing foundations, floors, ceilings and/or walls?	Describe plan for detecting and protecting power lines or other building utility lines.

EH&S Review: _____ Date: _____

Model Site Safety Plan

1. General Information

Contractor name_____
Address_____
City, State, Zip_____
Site Safety Officer_____ Project Dates_____
Project Name_____

2. Emergency Information

Emergency Response	911	OSU EH&S and OSU Facilities Services must be notified in the event of an emergency
Hazardous Materials Spill		
MSDS on-site location		
OSU EH&S	(541) 737-2505	
Facilities Services	(541) 737-2969	

3. Contractor Key Personnel

	Name	Phone	Emergency Contact
Company Owner			
Project Manager			
Job Supervisor			
Site Safety Officer			
Other Responsible Individual			
24 Hour Notification			

List of employees on site _____

4. Hazard Evaluation/ Facility Impact	
Physical	**Yes / No**
Heavy Equipment	
Noise	
Heat	
Elevation	
Radiation Materials	
Excavations	
Underground Utilities	
Confined Spaces	
Fire Prevention	
Electrical	

5. Emergencies
Services
Evacuation Route
First Aid Location
Hazardous Materials Spill Procedure

6. Work Zones

Material Storage_____
Parking locations_____
Individuals with OSU keys_____
Access issues_____

7. Security measures_____

8. Fire protection _____

SECTION 01 56 39

TREE AND PLANTING PROTECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Section includes temporary fencing, barricades, and guards to protect trees, plants and groundcovers not indicated to be removed, as necessary and required to prevent damage above and below grade.

1.02 DEFINITIONS

A. Dripline: Outer perimeter of branches of any tree or plant.

B. Groundcover: Includes but not limited to plants and grass.

1.03 PERFORMANCE REQUIREMENTS

A. The Contractor shall exercise utmost care to protect existing trees and plants designated to remain and shall comply with all protection requirements provided by Owner and City of Corvallis as conveyed through the Owner's Authorized Representative.

B. The Contractor shall install tree protection fencing as detailed and shall prevent damage to shrubs, groundcover, trees, root systems, soil, bark, foliage, branches and limbs due to construction activities, including but not limited to:
   1. Soil contamination, erosion, and compaction.
   2. Excessive wetting, and ponding due to storm water, and construction run-off.
   3. Alteration of grade, stockpiling of soil, debris, and materials.
   4. Damage to soil, roots, bark, trunk, limbs, branches, and foliage.
   5. Prevent unauthorized cutting, breaking, skinning and bruising of roots, branches, and bark.

1.04 SUBMITTALS

A. Procedural proposal for tree and plant protection, describe methods of protection, and stabilization, provide drawings and supporting documentation as directed.

B. Contractor's Condition Inspection; include written report and color photographs.

1.05 PROJECT CONDITIONS

A. Install protection during initial mobilization at the Work site, and maintain until substantial completion.

B. If, in the opinion of the Owner's arborist, additional protection is required, the Contractor shall install additional fencing as directed and without cost to the Owner.

C. The location and requirements for additional fencing shall be determined by the

Owner's arborist prior to, and at any time during the course of the Work.

D. Fencing:
   1. Fencing shall be installed at the tree and plant protection areas as detailed on Plans, or as directed by the Owner's Authorized Representative.
   2. Tree and plant protection fences shall remain in place until all Work is completed and shall not be removed or relocated without the approval of the Owner's Authorized Representative.

E. Driving and Parking:
   1. Not permitted off paved surfaces without the approval of the Owner's Authorized Representative.
   2. When approved, the Contractor shall place plywood of sufficient thickness and width to support vehicles and prevent rutting on the area to be driven on.
   3. Care shall also be taken with respect to existing lawn sprinkler systems.

F. Storage of materials and Debris: Not permitted off paved surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURED COMPONENTS

A. Chain Link Fencing: 11 gage galvanized chain link, six feet. tall, and 1.5 inch inside diameter galvanized steel line posts and 2.5 inch inside diameter corner posts, provide lockable gates as necessary.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions: Inspect trees, plants, and groundcovers, document existing conditions prior to installation of protection.

3.02 EXECUTION

A. Pruning and Cutting of Roots, Branches and Foliage:
   1. Review conditions with Architect or Owner prior to need for work, and proceed as directed.
   2. All pruning to be done by Owner's landscape maintenance personnel or ISA Certified arborist under the direction of Owner's Landscape Management Department.

   3. Perform pruning and cutting with sharp instruments intended for the purpose; do not break or chop.

B. Root Cuttings:
   1. Carefully and cleanly cut roots and branches of trees indicated to be left standing where such roots and branches obstruct new construction.

2. Protect exposed roots with wet burlap until they can be covered with soil.

C. Excavation and Trenching Within Drip Lines:
   1. Permitted where indicated, and at other specifically approved locations.
   2. Tunnel under or around roots by hand digging or boring.
   3. Do not cut main lateral roots and tap roots over one inch diameter; cut smaller roots which interfere with installation of new Work.
   4. Do not allow exposed roots to dry out before permanent backfill is placed; provide temporary earth cover, or pack with peat moss and wrap with burlap.
   5. Water and maintain roots in moist condition and temporarily support and protect from damage until permanently relocated and covered with backfill.

D. Existing Grading: Maintain within drip line of trees and plants unless otherwise indicated on the drawing and approved by the Owner's Authorized Representative.

E. Tree Protection:
   1. Provide temporary fence complying with Section 01 51 00 for protection of trees to remain.
   2. Extend fencing ten feet beyond dripline, except where greater distance is required for protection of Elm trees.
   3. Prevent entry into protected areas except as authorized in writing by the Owner's Authorized Representative.

3.03 REPAIR AND REPLACEMENT OF TREES AND PLANTS

A. Repair trees or shrubs damaged by construction operations as directed by the Owner.

B. Make repairs promptly after damage occurs to prevent progressive deterioration of damaged trees.

C. Damaged Trees, Shrubs and Groundcover:
   1. Replace where Owner's Authorized Representative determines restoration to normal growth pattern is not possible; plant and maintain as directed.
   2. Replacement trees up to 13 inches caliper and shrubs up to 4 feet tall: Same size as damaged tree or shrub, species selected by the Owner's Authorized Representative.
   3. Trees over 13 inch caliper and shrubs greater than 4 feet tall: Compensate Owner as determined by an acceptable consulting arborist registered with the American Society of Consulting Arborists.
   4. Replacement groundcovers: Same size and quality as damaged species selected by Owner's Authorized Representative.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Summary:
   1. Product options.
   2. Owner-furnished products.
   3. Product delivery, storage and handling.

1.02 PRODUCTS

A. Products:
   1. New material, machinery, components, equipment, fixtures, and systems forming the Work, but does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work.
   2. Products may also include existing materials or components specifically identified for reuse.

B. Use interchangeable components of the same manufacture for similar components.

C. Unless otherwise specified, all material and equipment shall be new; free from defects impairing strength, durability, and appearance; of current manufacture.

D. Items specified shall be considered minimum as to quality, function, capacity, and suitability for application intended.

E. Items incorporated into the Work shall conform to applicable specifications and standards designated, and shall be of size, make, type, and quality specified.

F. Design, fabricate, and assemble in accordance with current best engineering, industry, and shop practices.

G. Manufacture like parts of duplicate units to standard size and gauge to make them interchangeable.

H. Two or more items of the same kind shall be identical and made by the same manufacturer.

1.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

C. Products Specified by Naming One [or More] Manufacturer[s]: Products of manufacturer[s] named and meeting specifications, no options or substitutions

allowed.

D. Substitution Procedure: Under Section 01 25 00.

1.04 REUSE OF EXISTING PRODUCTS

A. Except as specifically indicated or specified, materials and equipment removed from existing construction shall not be used in the completed Work.

B. For material and equipment specifically indicated or specified to be reused in the Work:
   1. Use care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
   2. Arrange for transportation, storage, and handling of products which require off-site storage, restoration, or renovation.
   3. Remove and reinstall mechanical units, vents, guys, antennae, and electrical and grounding wires or conduits.

1.05 OWNER FURNISHED PRODUCTS

A. Designate delivery dates of Owner-furnished items in the construction schedule.

B. Receive, unload, store and handle Owner-furnished items at the site; protect from damage.

1.06 DELIVERY, STORAGE AND HANDLING

A. Transport, handle, store and protect products in accordance with manufacturer's instructions.

B. Arrange deliveries in accordance with construction schedules; coordinate to avoid conflict with Work and site conditions.

C. Deliver and store products in undamaged condition in manufacturer's original containers or packaging with identifying labels intact and legible.

D. Inspect shipments to assure compliance with Contract Documents and reviewed submittals, and that products are undamaged.

E. Prevent soiling or damage to products or packaging.

F. Interior Storage: Maintain required temperature and humidity ranges. Verify that Owner furnished storage meets product manufacturer's requirements.

G. Exterior Storage:
   1. Store materials above ground to prevent soiling and/or moisture infiltration.
   2. Cover materials with waterproof breathable sheet coverings; provide adequate ventilation.
   3. All storage locations to be approved in advance by the Owner.

H. Arrange storage to provide access for inspection.

I. Coordinate with Owner’s Authorized Representative all on-site storage activities.

J. Provide for security of stored products.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements and limitations for cutting and patching of Work.

1.02 RELATED SECTIONS

A. Section 01 25 00, Product Substitution Procedures.

B. Section 01 33 23, Shop Drawings, Product Data, Samples

1.03 SUBMITTALS

A. Submit written request in advance of cutting or alteration which affects:
   1. Structural integrity of any element of the Work.
   2. Efficiency, maintenance, or safety of any operational element.
   3. Visual qualities of sight exposed elements.
   4. Work of Owner or separate contractor.

B. Include in request:
   1. Identification of project.
   2. Location and description of affected work.
   3. Necessity for cutting or alteration.
   4. Description of proposed work, and products to be used.
   5. Alternatives to cutting and patching.
   6. Effect on work of Owner or separate contractor.
   7. Written permission of affected separate contractor.
   8. Date and time work will be executed.

PART 2 PRODUCTS

2.01 MATERIALS

A. Primary Products: Those required for original installation.

B. Product Substitution: For any proposed change in materials, submit request for substitution under provisions of Section 01 25 00.

PART 3 EXECUTION

3.01 EXAMINATION

A. Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching.

B. After uncovering existing work, inspect conditions affecting performance of Work.

C. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Provide temporary supports to ensure structural integrity of the Work.

B. Provide devices and methods to protect other portions of the Work from damage.

C. Provide protection from elements for areas which may be exposed by uncovering work.

3.03 CUTTING AND PATCHING

A. Execute cutting, fitting and patching to complete work.

B. Fit products together, to integrate with other work.

C. Remove and replace defective or non-conforming work.

D. Provide openings in the work for penetration of mechanical and electrical work.

3.04 PERFORMANCE

A. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

B. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not allowed without prior approval from Owner's Authorized Representative.

C. Restore work with new products in accordance with requirements of Contract Documents.

D. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with approved fire rated material, to full thickness of the penetrated element.

E. Refinishing:
   1. Refinish surfaces to match adjacent finish.
   2. For continuous surfaces, refinish to nearest intersection or natural break.
   3. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01 74 00

CLEANING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Related requirements specified elsewhere, cleaning for specific products or work: Specification section for that work.

B. Maintain premises and public properties free from accumulations of waste, debris, and rubbish, caused by operations.

C. At completion of Work remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

1.02 QUALITY ASSURANCE

A. Standards: Maintain project in accord with applicable safety and insurance standards.

B. Hazard Control:
   1. Store volatile wastes in covered metal containers.
   2. Provide adequate ventilation during use of volatile or noxious substances.

1.03 MATERIALS

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.04 DURING CONSTRUCTION:

A. Wet down dry materials and rubbish to lay dust and prevent blowing dust.

B. At reasonable intervals during progress of Work clean site and public properties, and dispose of waste materials, debris and rubbish.

C. Provide on-site containers for collection of waste materials, debris and rubbish.

D. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.

E. Vacuum clean interior building areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until project is ready for Substantial Completion or occupancy.

F. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

1.05 FINAL CLEANING

A. Employ experienced workers, or professional cleaners, for final cleaning.

B. In preparation for Substantial Completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.

C. Remove grease, dust, dirt, stains, labels, and other foreign materials from exposed interior and exterior finished surfaces.

D. Remove putty, paint, labels, lubricants, etc., from windows, mirrors, and sash, and then polish, taking care not to scratch glass.

E. Vacuum carpeting (shampoo where required), removing debris and excess nap.

F. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

G. Replace air filters where units were operated during construction.

H. Maintain cleaning until project, or portion thereof, is occupied by Owner.

END OF SECTION

SECTION 01 77 00

CONTRACT CLOSEOUT

PART 1 GENERAL

1.01 DESCRIPTION

A. The requirements specified in this section relate to all Contractors individually performing under these Contract Documents:
   1. Project Record Documents.
   2. Final review and payment.

B. Related work specified elsewhere:
   1. OSU General Conditions.
   2. Shop Drawings, Product Data and Samples, Section 01 33 23.

1.02 PROJECT RECORD DOCUMENTS

A. The Project Record Documents shall be organized to include the following information:
   1. Table of Contents
   2. Project Team List
   3. Specifications (Including Addenda and Change Orders)
   4. Drawings
   5. Inspection Reports, as applicable
   6. Signed Warranty(ies)
   7. Maintenance Instructions

B. Two sets of the Project Record Documents shall be submitted for review upon 75% completion of the Work.

C. Project Record Documents shall be submitted electronically to the Owner. Hard copies will not be accepted.

D. The project team list shall include the name, address, and phone number of the Owner, Contractor, Inspector, Subcontractors, and the materials manufacturers.

E. Legibly mark each Specification section to indicate actual as-built condition indicating changes in the Work made by addenda or change order or actual materials used and actual manufacturer(s) used.

F. Maintain current and accurate as-built mark-ups during construction and make available to Owner’s Authorized Representative upon request.

G. Legibly mark the drawings to indicate actual as-built conditions indicating changes in the Work made by addenda or change order or actual conditions which differ from the drawings.

H. Redraw or provide new drawings as required for a complete as-built set of drawings. The Contractor shall maintain current and accurate as-built mark-ups during construction and make available to Owner’s Authorized Representative.

I. Include inspection reports if applicable.

J. Include, in a single section, all copies of the Project's labor and material warranties clearly marked to identify the Owner's responsibilities under the terms of each warranty and the section of Work that each warranty covers. One set must be clearly marked as containing original documents.

K. In the case of an elevator installation, the Contractor's and manufacturer's warranty shall provide for the Owner's right to respond to emergency/car failure situations for the purpose of extricating individuals trapped in the elevator.

L. Include maintenance instructions complete with technical information and name, address, and phone number of the Contractor(s) and manufacturer(s) of each material and product.

1.03 FINAL REVIEW AND PAYMENT

A. Prior to completion, the Contractor shall inspect the Work and make a Punch-list noting all items that are incomplete and/or incorrect.

B. The Contractor shall notify all Subcontractors in writing of incomplete and/or incorrect items. Notify far enough in advance of the completion date that the Work can be completed on schedule. Said Work shall be immediately corrected.

C. Should conditions prevail which prohibit some elements of the Work from being accomplished, but the work-in-place will perform the primary function (i.e., painting cannot be completed due to high moisture content of masonry walls.) the Contractor shall record the reason with this Punch-list item requesting temporary delay in completion from the Owner in writing.

D. Notify the Owner in writing that all items are completed and ready for final review or else that the Work product is fully usable, but some listed deficiencies remain to be completed. Submit all record documents at this time.

E. The Owner will review all documents. When the documents include a Contractor's request for delay in completion, the Owner will review all Work which is certified as complete to the best knowledge of the Contractor. The Owner will also review the listed incomplete Work and assign a value to such uncompleted work.

F. The Contractor shall make the required corrections to the Work expeditiously. A letter will be addressed to the Contractor informing the Contractor of the project status.

G. When Contract closeout procedures are completed and all Punch-list deficiencies have been corrected, provide Owner with final corrected Project Record Documents based on Owner's preliminary review. Correct Project Record Documents shall be in electronic format.

H. Final Completion by the Owner will be documented and the Contractor will receive written notice of acceptance of the Work and notification that final

payment may be billed and released.

I. All warranties shall commence and become effective beginning on the date of Substantial Completion.

END OF SECTION

SECTION 02 10 00
SITE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. Prepare existing athletic facility and surfaces to receive new work in compliance with State and Local requirements and as shown and specified.

B. Work specified in this section includes, but is not necessarily limited to, the following:

1. Temporary Erosion & Sediment Controls must be installed and maintained as required by Permit & per local code.
2. Preservation and protection of all surrounding improvements to remain.
3. Selective demolition of existing utilities including irrigation and field subsurface drainage systems.
4. Stripping, stockpiling, and off-site disposal of sod organics.
5. Excavation, outhaul, and off-site disposal of cinder warning track and clay-silt infield.
6. Excavation, outhaul, and off-site disposal of existing root zone sand / base sand and drainage aggregate materials.
7. Removal of existing geotextile subgrade separator fabric as encountered.
8. Hand-excavation and removal of existing subsurface drainage aggregate for Engineers inspection of existing subsurface drainage laterals, and installation of the necessary make up volume of specified aggregates.
9. Preparation of the subgrade adequate to begin shaping/grading and Subgrade Establishment.

C. Coordinate with the work of all other specifications.

1.2 RELATED WORK SPECIFIED IN OTHER SECTIONS

31 00 00 Earthwork
31 22 16 Subgrade Establishment
31 46 23 Field Permeable Aggregate
33 46 16 Subsurface Drainage

1.3 EXISTING SITE CONDITIONS

A. In March 2019 a series of shallow excavations, approximating the anticipated maximum excavation depth required for the work, was made on site to identify existing subsurface field section conditions and generally analyze materials. The resulting field report is appended to Section 31 00 00 Earthwork.

B. Bidders shall physically observe existing conditions in and around the subject Facility including surrounding streets and sidewalks, vehicular and pedestrian traffic patterns, access onto the playing field, and the playing surface itself prior to bidding.

C. The work is located within the existing Oregon State University Beavers Softball Stadium. Existing surfaces include a cinder-like warning track surfacing over aggregate base with agricultural lime amendment, a clay-silt infield over silty-sand base with a heavy agricultural lime amendment, and a natural grass outfield with a substantial organic component over a stable, free-draining sand base. An automatic irrigation provides regularly scheduled watering. An existing subsurface drainage system provides hydraulic relief below the playing surface section(s).

D. The Contractor shall contact the appropriate utility agencies for identification of underground utility locations. The contractor shall contact "Call Before You Dig" service at 1-800-424-5555.

There are known private utilities owned by the University, although these are limited to the field-related drainage and irrigation system source and conveyance.

E. The Contractor shall document all improvements encountered that are not otherwise represented on the drawings.

1.4 TEMPORARY EROSION AND SEDIMENT CONTROLS

A. While somewhat limited within the Project Limit of Disturbance, the Contractor shall be aware of all downstream storm drainage inlets and drainage swales that may be affected by work, and whether these are shown in the drawings, provide adequate protections from sediment laden waters leaving the site.

1.5 PROTECTION OF EXISTING SURFACES

A. The Project intends to replace all surfaces inside the walls and fences of the Stadium except those associated with the dugouts. The Contractor

may utilize pavements around and adjacent to the work, but not without protecting same from damage, with particular attention paid to edges and transitions.

B. Access will be by way of existing gates on the first base side of the facility, crossing through a bullpen area adjacent to the facility parking lot. The Contractor shall protect from any damage all surfaces, fences, curbs, signage, utilities, equipment, and vehicles from damage, disturbance, or soiling and repair or replace to the Owner's satisfaction as necessary.

1.6 TRAFFIC REGULATION

A. Conduct operations in such a manner to avoid unnecessary interference to existing traffic. Minimize heavy vehicle traffic to and from site during peak traffic hours. Do not park or queue vehicles in traffic lanes. Provide flaggers as required. Conform to City traffic control requirements.

B. Contractor shall be responsible for all traffic control and emergency call outs resulting from Contractor operations.

C. Maintain fire lanes, roadways and alleys to existing buildings continuously, as required by the fire department having jurisdiction.

D. Existing walkways and roadways leading past the construction shall remain clear and safe at all times. Provide barriers, flashing lights, walkways, guardrails and night lighting as required for safety and control.

E. Coordinate use of the site with the Owner's scheduled uses.

1.7 DIMENSIONS AND LAYOUT

A. The Contractor shall be responsible for furnishing, setting and marking all line, grade, and location stakes, including offsets and general construction staking.

B. The Contractor is responsible for preserving all benchmarks and stakes and replacing any that are displaced or missing as a result of the Contractor's operations.

C. The Contractor is responsible for review of all Owner and city records relative to the existing underground utilities. The Contractor is responsible to avoid damaging these facilities and shall repair all recorded utilities at no additional cost to the Owner.

D. The Contractor shall to notify the Owner's Representative immediately of underground utilities encountered, which are not shown on the Owner's record.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FIELD LAYOUT AND ENGINEERING

A. The General Contractor shall be responsible for the layout of all the preparation and demolition work required to construct all work in accordance with the drawings and specifications.

B. Point-of-Beginning (POB): Home Plate

The Contractor shall *not* assume that the current and existing location of the home plate apex and its relationship to the existing foul poles is true and accurate. The engineering documents find some minor discrepancy, and attempt to correct this. Regardless of the existing condition, drawings, or electronic media, the Contractor shall establish the true and accurate placement of the apex of home plate as the absolute intersection, at ninety degrees, of lines projected into the playing field from the outside face of the foul poles or painted marker.

C. Bases and Pitchers Plate

The Contractor shall establish the placement of base anchors and stakes utilizing the POB established previously and the installation instructions provided by the manufacturer with the approved product, and generally per the Contract plans and details.

D. Underground Utilities

1. Drainage work shall be located as shown on the plans. Notify the Engineer immediately of all conflicts or inaccuracies encountered.
2. Irrigation piping is shown diagrammatically. Sprinkler heads are shown literally. The Contractor may adjust head locations as required to achieve the intended coverage with advanced notice and approval. Piping shall be laid out in the most efficient manner possible approximating the routing described, with proper pipe clearances accounted for.

3.2 NOT USED

3.3 EXCAVATION

A. Sod and underlying Root Zone Sand may be separated or excavated and exported together at the Contractors option, however the existing subgrade below the geotextile covering shall not be disturbed in the course of excavation of these elements.

B. Existing Native Subgrade excavation shall be undertaken in a manner that protects the integrity of the drainage aggregate to remain.

C. All loose bulk soils, aggregates, and other materials in excess of that required to install the designed field section shall be selectively removed and disposed of properly by the Contractor.

3.4 DISPOSAL OF MATERIALS

A. The Contractor in a manner consistent with all government regulations shall dispose the refuse resulting from selective demolition.

1. Remove and dispose of material daily. Do not stockpile refuse on site.
2. Maintain hauling routes clean and free of debris resulting from work of this section.

END OF SECTION 02 10 00

SECTION 03 30 00
SITEWORK CONCRETE

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, material and equipment for the concrete work indicated below and shown on the drawings. Work includes but is not limited to:

1. Assist Engineer in acquiring test cylinders for compression testing where required or directed, including;
   a. Foundation concrete for Fence Posts over 6’
   b. Basketball Goal foundations
2. Coordinate construction of formwork with the Layout & Construction Staking Surveyor
3. Construct concrete curbing, paving, slabs, and embedments as shown in the plans.
4. Install concrete footings for fencing, basketball goals, soccer goal anchors, etc.

1.2 STANDARD SPECIFICATIONS

A. Standard Specifications for Road, Bridge and Municipal Construction, American Public Works Association (APWA)

B. American Concrete Institute (ACI)

C. American Society of Testing and Materials (ASTM)

1.3 RELATED WORK IN OTHER SECTIONS

31 00 00 Earthwork
31 22 16 Subgrade Establishment
31 46 23 Field Permeable Aggregate

PART 2 - PRODUCTS

2.1 CONCRETE

A. Refer to APWA Standard Specifications Section 5-05, "Cement Concrete Pavement."

B. Expansion Joints: Provide expansion joints at 10' o.c. maximum, equally spaced unless otherwise shown in the drawings.

C. Joint Filler: Use non-staining, non-extruding, compressible and resilient, closed cell joint filler of neoprene foam conforming to ASTM D1752, Type RE-42. Joint fillers which contain or have been treated with oil, grease or bituminous materials are prohibited. Test joint fillers for compatibility with proposed sealant.

1. Acceptable joint filler: Neoprene Sponge Rubber joint Filler by the Burke Company, or other accepted by Project Representative.
2. Joint Sealant: ASTM C920, Grade NS, Class 25, Type M; multi-component, chemical curing, non-staining, non-bleeding, capable of continuous water immersion, non-sagging type; color to be selected.

D. Preformed Expansion Joint Strips: Vinylex Corporation “VP 1391”, or approved 1/2 inch wide vinyl joint strip with removable cap.

E. Control Joints: Provide control joints midway between expansion joints unless otherwise called for in the plans. Control Joints shall be sawn including a machined eased edge on each side of the joint.

F. Reinforcing: Utilize reinforcing as specified in the details.

G. Cast-in-place Concrete components

1. Aggregate: Clean, hard, durable particles of natural sand conforming to ASTM C33 for fine aggregate. Clean, uniformly hard, durable particles of gravel or crushed stone conforming to ASTM C33 for coarse aggregate.
2. Cement: Conform to requirements of ASTM C150. Use Type I or, at Contractor's option, Type III. Any change in type or admix use shall be at approved locations.
3. Ready-mixed Concrete: Conform to requirements of ASTM C94 Alternative #3.
4. Maximum Size of Coarse Aggregate: Conform to requirements of ACI 301, Paragraph 3.6.
5. Minimum Cement Content: Six sacks per cubic yard (540lb).
6. Admixtures: Conform to requirements of ACI 301 and ASTM C260 for air entrainment. Use of accelerators or water-reducing retarders is prohibited.
7. Maximum Water Content: Six gallons of water per sack of cement. Free of injurious amounts of oil, acids, alkali, salts, vegetable matter, and fit to drink.

8. Minimum Concrete Compressive Strengths: A minimum compressive strength of 3,000 PSI shall be achieved in 28 days using Type I cement and in seven days using Type III cement, unless otherwise shown on drawings.
9. Slump in Inches: Unless otherwise shown on drawings, conform to ASTM C143 procedures for concrete to be vibrated: Maximum = 4", Minimum = 1".
10. Control Joints: Not less than 3/8" thick x 3/8" minimum depth with tooled edges.

2.2 FORMWORK

A. Forms: Wood, plywood, metal, other verified material to provide continuous, straight, structurally sound formwork and to produce specified concrete finish. Wood to be defect-free or properly corrected to provide straight lines and smooth, even surfaces.

B. Form-coating compound: Commercial formulation form-coating compound that will not bond with, stain, nor adversely affect concrete surfaces requiring bond or adhesion, nor impede the wetting of surfaces to be cured with water or curing compounds, nor interfere with subsequent applications of finish such as paints or stains.

C. Miscellaneous: Verified-type material and hardware for forming chamfers, recesses, openings, control joints, etc.

D. Design of Formwork

1. Design of formwork is Contractor's responsibility. Conform to shape, lines, and dimensions shown on the drawings. Design for adequate strength to sustain all construction loads without deformation or deflection.
2. Make joints tight to prevent leakage of mortar. Properly brace and tie together to maintain position and shape. Truss for support if adequate foundation for shores cannot be provided. Fabricate accurately to minimize development of irregularities at panel joints. Construct to accommodate control, expansion, or other type joints shown on the drawings or as specified.
3. Coordinate with all other trades to accommodate their work.

PART 3 - EXECUTION

3.1 SUBGRADE ESTABLISHMENT

A. Establish subgrade at elevations required to achieve the slopes and finish grade elevations designated on the drawings. The Contractor shall schedule the Engineer for a subgrade inspection prior to installation of the concrete.

B. The subgrade shall be compacted to a minimum of 95% maximum dry density. The subgrade shall be moistened to minimize absorption of water from fresh concrete.

3.2 FORMWORK INSTALLATION

A. Conform to the requirements of each area of work including tolerances for horizontal and vertical dimension control, specifically as described for areas requiring conformance to referenced standards.

B. Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Prepare form surfaces by coating the contact surfaces of forms with a form-coating compound before reinforcement is placed.

C. The form-coating compounds shall be thinned only with thinning agent of type, and in amount and under conditions of the form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in the forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

D. Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

E. Place and secure forms to correct location, dimension and profile. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

F. Place joint fillers vertical in position, in straight lines. Secure to formwork during concrete placement.

3.3 CONCRETE MIXING AND PLACING

A. Conform to the requirements of ACI 301, Chapters 7 and 8, and ACI 304. Clean and free of all foreign matter, and all mixing and transporting equipment and subgrade and forms to receive concrete. Clean reinforcement of deleterious coatings.

B. Notice of intention to place concrete shall be given to the Engineer at least 24 hours before an intended pour.

C. Conform to ACI 305 "Recommended Practice for Hot Weather Concreting". Take steps to reduce concrete temperature and water evaporation by proper attention to ingredients, production methods, handling, placing, protection and curing.

D. Conveying: Conform to ACI 301, Paragraph 8.2. Convey concrete from mixer to place of final deposit by methods preventing separation or loss of materials. Use pump, crane bucket, wheelbarrow, or buggies to deliver concrete to placing location. Chuting permitted only by methods to ensure a practically continuous flow of concrete at delivery end to prevent material separation.

E. For walkways, curbing and slabs provide light broom finish and provide chamfer edges as shown in the details.

F. Curing Materials

1. Absorptive Cover: Burlap cloth made from jute or kenaf weighing approximately 9 oz. per square yard, complying with AASHO M182, Class 3.
2. Moisture-retaining Cover: Either waterproof paper, Polyethylene film, or Polyethylene-coated burlap, complying with ASTM C171.
3. Membrane-forming Curing Compound: ASTM C309, Type I, unless other type acceptable to the Engineer.

3.4 FORMWORK REMOVAL

A. All formwork shall be removed after proper curing of concrete. Protect surfaces of concrete during removal operations.

B. Formwork not supporting weight of concrete may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations and provided curing and protection operations are maintained.

3.5 REUSE OF FORMWORK

A. Clean and repair surfaces of forms to be reused in work. Split, frayed, delaminated or otherwise damaged form-facing materials will not be acceptable for reuse. Apply new form-coating material as necessary, as specified for new formwork.

3.6 REPAIR OF SURFACE DEFECTS

A. General: Conform to ACI 301, Chapters 9 and 13. After removal of forms, repair or patch concrete not formed as shown, out of alignment or level beyond required tolerances or that shows surface defects, to condition as verified by Engineer. Immediately after form removal, patch all tie holes and repairable defective areas.

B. Honeycombed areas shall be removed to sound concrete but not less than 1" minimum depth. Dampen area and to 6" width around same; let evaporate only to loss of sheen. Provide a bond of neat cement and water slurry well brushed into area to be patched. Provide patching mixture of 1:2 (cement:sand) or verified proprietary patching mixture or color to match adjacent surfaces; use water quantity only as required for mixing and placing. Leave patched surface slightly high; after one hour, float to level with adjacent surface. Keep patched areas damp for seven days.

3.7 PROTECTION

A. Protect freshly-placed concrete from premature drying and excessive cold or hot temperature, and maintain without drying at a relatively constant temperature for a period of time necessary for hydration of cement and proper hardening. Provide protection from vandalism.

B. Protect all concrete during curing period from all damaging mechanical disturbances, more especially load stresses, heavy shock and excessive vibration. Protect finish surfaces from all damage.

3.8 TOLERANCES

A. The surface elevation, in the finished condition, shall not deviate more than 1/8" from specified elevations. Trueness measurement to be taken from 10' long straight edge placed in all directions.

3.9 CLEANUP

A. At project completion, leave all work clean, defect-free, with uniform finish and color.

END OF SECTION 32 13 00

SECTION 11 68 24
EQUIPMENT AND FURNISHINGS

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. The work consists of supply, shipping, installation, technical support, and warranty service of various athletic equipment components as further specified and approved.

B. Where specifically stated, it is the responsibility of the Contractor to certify that the products or assemblies supplied meet or exceed the reference standards when installed per the manufacturers printed instructions.

C. The Contractor is responsible for transport of all equipment to the Contract site in a new condition. Products received in a condition that is in any way deficient shall be replaced.

D. The Contractor shall provide technical support to the Owner where necessary and as requested.

E. Equipment includes the following, as further described elsewhere;

1. Furnish and install one (1) home plate
2. Furnish and Install one (1) pitching rubber
3. Furnish and Install one (1) set base anchors, including plugs and bases.

1.2 REFERENCE STANDARDS

NOTE: Standards apply only to the vertical and horizontal layout of game plates, bases, and pitching mound replaced by the work.

A. Major League Baseball/ MiLB Official Baseball Rules (most current edition)

B. NCAA Softball Rules (most current edition)

1.3 QUALITY ASSURANCE

A. Equipment supplied must be as per the previously approved Product Submittal.

B. Dimensional Accuracy

1. It is the Vendors responsibility to ensure that the dimensions of any product supplied meet those required by the Reference Standard claimed and the Contract layout plan.
2. Unit Conversion: Where not otherwise stated, 1 meter shall be converted as 3.280839'.

C. Products must be received in a like new condition. Any materials that are scratched, dented, misshapen, missing parts or otherwise deficient upon unpacking shall be replaced by the vendor within 72 hours of notice by the Contractor.

PART 2 - PRODUCTS

2.1 HOME PLATE

A. Pre-molded, all-rubber single-piece design, waffle bottom pattern, minimum weight 24lb.

B. Hollywood "Bury-All" Home Plate, Schutt # 12908170 (SRHP)

2.2 PITCHERS PLATE

A. Four-sided, "reversible" pre-molded rubber with aluminum pipe core, 6" x 24" installed.

B. Hollywood 4-Sided Professional Pitching Rubber, Schutt #12909180 (BBPB).

2.3 BASES AND ANCHORS

A. Anchor Post to be 8" female ground anchor - 1 3⁄4" square steel, Schutt #12916550 (BBP-44).

B. Baseball bases to be Schutt 12906030 Impact Kwik-release base.

C. Anchor Post Plugs to be orange, molded rubber "mushroom" style plug (Schutt).

PART 3 - EXECUTION

3.1 SHIPPING

A. All products must be received in their original manufacturers shipping packaging, in new condition. Products found to be scratched, dented, marred, discolored, or otherwise defective shall be re-shipped within 72 hours of notice.

B. Return shipping of defective items will be paid for by the Contractor.

3.2 LAYOUT & FIELD ENGINEERING

A. Layout for all embedded equipment is to be performed by a Licensed Professional Land Surveyor in coordination and cooperation with the Contract Documents, Approved Manufacturers Printed Installation Instructions, and the applicable NFHS Rule(s) (most recent edition).

B. Conform to MLB Requirements for horizontal and vertical tolerance.

3.3 INSTALLATION & ASSEMBLY

A. All products shall be assembled and installed in accordance with the Contract Documents, Approved Manufacturers Printed Installation Instructions, and the applicable Referenced Standard.

3.4 WARRANTY

A. All products shall be covered by a minimum 1 year warranty covering replacement, shipping, and assembly/installation.

END OF SECTION

SECTION 31 00 00
EARTHWORK

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, material and equipment for the earthwork indicated. Work includes but is not limited to the following:

1. Surface water and erosion control and management;
2. Layout and Engineering;
3. Management of the construction sequencing and scheduling relative to soil moisture content;
4. Stripping and stockpile of selected sod or grass and other organic material from project areas; load, haul, and offsite disposal of excess;
5. Onsite excavation and fills;
6. Trenching and controlled backfills for all utilities as may occur, specifically including subsurface drainage and water systems;
7. Removal of all excess and unsuitable soil materials and legally dispose of offsite;
8. Compaction and establishment of subgrade;
9. Alert the Owner's Representative / Engineer immediately upon encountering unforeseen conditions or conditions detrimental to the intent of the work.

B. Classification of Excavated Materials

1. Excavated materials are generally not classified.
2. Excavation and trenching includes the removal and subsequent handling of all materials excavated or otherwise removed in performance of the work, regardless of the type character, composition or condition thereof.
3. Materials in excess of that required to complete the work become the property of the Contractor.

C. Native On-Site Materials in excess of that required to establish line and grade as shown and described elsewhere and specified herein, if any, and materials found to be unsuitable for that purpose shall be legally disposed of offsite.

D. Related Work in Other Sections:

03 30 00 Sitework Concrete
11 68 24 Equipment & Furnishings

31 22 16 Subgrade Establishment
32 84 23 Field Washwater Systems
33 46 16 Subsurface Drainage

1.2 STANDARD SPECIFICATIONS

A. All sections of the standard specifications applicable to any and all parts of this project shall govern, except as specifically modified in these contract documents.

1. American Society for Testing and Materials
2. APWA - Standard Specifications for Road, Bridge and Municipal Construction, current edition.
3. AASHTO T176 - Plastic Fines in Graded Aggregates and Soils by use of the Sand Equivalent Test.
4. ASTM D1556-90 - Test Method for Density of Soil in Place by the Sand-Cone Method.
5. ASTM C136 - Standard Method for Sieve Analysis of Fine and Coarse Aggregate.
6. ASTM D1557-91 - Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lb/cu ft).
7. ASTM D6938-08a - Standard Test methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.3 EXISTING SITE CONDITIONS

A. Refer to drawings for topographical survey and existing condition information.

B. Owner not responsible for changes in the topography after survey record drawing verification was made or for accuracy of survey information.

C. Carefully maintain benchmarks, monuments and other reference points. If disturbed or destroyed, replace as directed. It is the responsibility of the Contractor to familiarize themselves with all records of existing utilities in area of site work.

D. The Contractor shall contact the appropriate utility agencies for identification of underground utility location. The contractor shall contact "Call Before You Dig" service at 1-800-424-5555.

1.4 SUBMITTALS

A. The Contractor shall submit a written earthwork plan to the Engineer for approval prior to commencing with any mass excavation or filling. The plan must be coordinated with the Contractor's construction schedule and shall

reflect and address the historical weather conditions during the proposed scheduling of the earthwork and grading phases. The plan shall also include:

1. Sequencing of the earthwork and grading activities;
2. Proposed equipment to be utilized;
3. Surface water diversion and control;
4. Proposed protection methods for exposed soils, excavated stockpiled fill materials and trenches;
5. Soil drying procedures;
6. Phasing of the earthwork activities;
7. Any other information pertinent to the manner in which the earthwork and grading will be performed.

B. The Contractor shall submit a sieve analysis of each type of imported soil, sand, or aggregate material from an independent testing agency. Report must be current within reason as determined by the Architect. Review and acceptance of a sieve analysis does not constitute approval of the actual product installed, which may be subject to additional testing at any time.

C. Samples; Within 48 hours of direction by the Architect submit physical soil, sand, or aggregate samples (or provide on-site as agreed). Deliver in clearly labeled, secure, durable containers. Labeling to include product supplier, product code or trade name, geographical source (pit, quarry WSDOT id number and location), and the specification that the material is being submitted as satisfying, i.e., “31 00 00 2.3.B Pipe Bedding”.

1.5 EXISTING UTILITIES

A. It is the responsibility of the Contractor to familiarize themselves with all records of existing utilities in area of site work.

B. The Contractor will expose and verify size and, location and elevation of underground utilities and structures where conflicts might exist. This work shall be done sufficiently in advance to permit changes in the event of conflict without affecting the project schedule.

C. Should uncharted piping or other utilities be encountered, consult the Utility Purveyor and Owner immediately for instructions. Repair all damaged utilities to the satisfaction of the Engineer. The Contractor is responsible for all costs for damage to utilities shown on the drawings or identified by location service.

D. The Contractor shall carefully review the proposed site drawings, the topography and survey drawings, and shall confer with the Consultant concerning scheduling of removal or alteration of these lines.

E. If weekend work or overtime work is scheduled, it shall be the Contractor's responsibility to contact the Consultant prior to commencing such work. If the Consultant deems it necessary, Contractor, at his/her own expense, shall employ plumbing and electrical personnel on a standby basis to secure and repair any utility lines which might be broken during the scheduled override period.

1.6 DUST CONTROL

A. Contractor shall provide dust control such that it prevents wind transport of dust from the disturbed soil surfaces onto roadways, drainage ways, and surface waters and protects persons and property from damage and discomfort caused by dust. Employ Dust control BMPs per DEQ. Water may be used as necessary to quell dust but to not cause runoff, puddling, soil erosion or pollution of surface waters.

1.7 ROADWAY PROTECTION

A. Provide construction entrances and wheel-cleaning stations to clean wheels and undercarriage of trucks before leaving site, as necessary to prevent dirt from being carried onto public streets. If streets are fouled, they must be cleaned immediately in conformance with Local Code requirements, as applicable. This requirement applies to all vehicle movements for the entire period of construction.

1.8 TRAFFIC REGULATION

A. Conduct operations in such a manner to avoid unnecessary interference to existing traffic. Minimize heavy vehicle traffic to and from site during peak traffic hours. Do not park vehicles in traffic lanes. Provide flagmen as required. Conform to Local Code for traffic control requirements.

B. Contractor shall be responsible for all traffic control and emergency call outs resulting from Contractor operations.

C. Maintain fire lanes, roadways and alleys to existing buildings continuously, as required by the fire department having jurisdiction.

D. Existing walkways and roadways leading past the construction shall remain clear and safe at all times. Provide barriers, flashing lights, walkways, guardrails and night lighting as required for safety and control.

E. The school campus is congested with student, faculty and staff throughout most of the year. Contractor shall perform excavation and hauling so as to provide the least impact to public safety and daily operations. Haul

scheduling shall be coordinated to avoid the beginning and end of the school day while school is in session. All haul routes and scheduling shall be submitted to the Owner's Representative for review and approval prior to commencement of hauling operations.

F. Trucks shall be equipped with proper sidewalls and/or covers to assure total containment of debris in transit to the dump site. Haul routes are subject to review and acceptance by the Permitting Authority.

G. The Contractor shall, when hauling over existing roadways, be responsible for maintenance during use of roadway and for restoration to original condition upon completion. Also, if city streets and/or state highways are used, require Contractor to make all necessary arrangements with city and/or state. Dust and mud control shall be in compliance with City, County, State and Federal requirements.

1.9 QUALITY CONTROL

A. Testing

1. The Contractor is responsible for verifying compliance with the specifications, and shall perform their own quality control measures throughout the progress of the work. The Contractor agrees to proceed with the work at their own risk in the absence of timely independent testing and inspection reports.
2. The Owner's Representative's Testing Agency will perform compaction and density tests to verify compliance with these specifications.
3. The Owner's Representative may require that an independent testing laboratory test imported materials at any time. Where any material is found to be non-compliant with the Contract, the Contractor shall bear the cost of testing, removal of all non-compliant materials from the Project Site, and replacement of the materials with materials meeting the requirements of the Contract. If the materials tested are found to be compliant with the requirements of the Contract, the Owner will reimburse the Contractor for costs incurred by testing plus mark-ups as allowed for elsewhere in the Contract.
4. The Owner's Representative's Testing Agency presence does not include supervision or direction of the actual work by the Contractor, his employees or agents. Neither the presence of the Owner's Representative's Testing Agency, nor any observations and testing performed by him shall excuse the Contractor from defects discovered in his work.

B. It is the responsibility of the Contractor to verify the accuracy of all survey

information provided by the Owner prior to commencing excavations or filling operations. Commencement of these operations constitutes acceptance of the survey information as appropriate to meet the intent of the Contract.

PART 2 - MATERIALS

2.1 FILL MATERIAL

A. STRUCTURAL FILL: Structural Fill Shall consist of granular material free of organics, demolition waste and other deleterious materials, with 100 percent passing the 4 inch sieve, and with no more than 5 percent by dry weight passing the US No. 200 Sieve, based on that fraction passing the US No. 4 Sieve. WSDOT 9-03.12(4) Gravel Backfill for Drains or approved equivalent.

B. COMMON FILL: For use in the development of landscape subgrade or as approved in larger, bulk import operations, common native soils generally devoid of rocks larger than 8” in any diameter with a soil fraction passing the #200 screen not exceeding 15%. The Contractor shall have any such materials tested for optimum moisture and maintain responsibility for managing moisture content throughout the work.

C. CRUSHED SURFACING BASE COURSE (CSBC): Shall be manufactured from ledge rock, talus, or gravel. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material and shall meet the following gradation:

Sieve Size	Percent Passing
1-1/4” square	100
5/8” square	50-80
¼” square	30-50
U.S. No. 40	3-18
U.S. No 200	7.5 max.
% Fracture	75 min.
Sand Equivalent	32 min

All percentages are by weight. The fracture requirement shall be at least one fractured face for each particle and will apply to material retained on each specification sieve size U.S. No. 10 and above if that sieve retains more than 5 percent of the total sample. The portion of crushed surfacing retained on a ¼ inch sieve shall not contain more than 0.15 percent wood waste.

D. CRUSHED SURFACING TOP COURSE (CSTC): Shall be manufactured

from ledge rock, talus, or gravel. The materials shall be uniform in quality and substantially free from wood, roots, bark, and other extraneous material and shall meet the following gradation:

Sieve Size	Percent Passing
1 ¼" square	100
¾" square	100
5/8" square	50-80
¼" square	55-75
#40	8-24
#200	10.0 max.
% Fracture	75 min.
Sand Equivalent	32 min.

All percentages are by weight. The fracture requirement shall be at least one fractured face and will apply to material retained on each specification sieve size U.S. No. 10 and above if that sieve retains more than 5 percent of the total sample. The portion of crushed surfacing retained on a ¼ inch sieve shall not contain more than 0.15 percent wood waste.

2.2 SAFETY, MONITORING, AND RESPONSE EQUIPMENT

A. The Contractor shall provide barricades, safety guards, temporary fencing, signage and/or other methods to secure trenches, open excavations, and other unsafe conditions resulting from this construction. Undertake work in full compliance with all applicable regulatory requirements.

2.3 UTILITY PIPE BEDDING

A. Pipe bedding for storm drainage pipe shall be CSTC bedding and backfill to the pipe springline at a minimum for double-walled corrugated polyethylene pipe. Bed and backfill to ½ the pipe diameter above the crown for smooth-exterior walled pvc pipe.

B. Bedding for perforated pipes other than those specified as "Field Subsurface Drainage (refer to Section 33 46 16)", such as PVC wall drains or Infiltration Facilities as required by Permit, shall be Type 4 aggregate, 1-1/2" washed drain rock. Perforated pipe bedding shall consist of well-graded mineral aggregate meeting the particle gradation as follows:

Sieve Size	Percent Passing
1 1/2" square	100
1 ¼" square	90-100
¾" square	0-20
3/8" square	0-2

2.4 UTILITY PIPE BACKFILL

A. Utility Pipe including storm drainage, sanitary sewer, water distribution piping, and electrical conduit shall be backfilled above the bedding with approved native soil meeting the following requirements;

1. Beneath landscape areas, use Common Fill.
2. Beneath all pavements, synthetic turf, and rubberized surfacing use Structural Fill.

2.5 ENGINEERED INFIELD SOIL

A. Blended proprietary materials approximately 67% sand, 15% silt, and 18% clay particles, for use as the surface lift of the infield playing surface.

B. Additional amendments as specified by the manufacturer for the application.

B. Dura-Edge “Collegiate” available from Ewing Irrigation & Landscape, Portland OR, www.ewingirrigation.com or www.duraedge.com.

PART 3 - EXECUTION

3.1 FIELD LAYOUT AND ENGINEERING

A. The General Contractor shall be responsible for the vertical and horizontal layout of all work and control points required to construct all work in accordance with the drawings and specifications.

B. Horizontal and Vertical Layout and Staking of the following elements must be performed by a licensed professional land surveyor;

1. POB Home Plate Apex
2. Infield Edge Anchor layout

3.2 SEQUENCING AND SCHEDULING

A. Submit proposed sequencing schedule for Engineer's review and verification. Refer to Submittals section.

B. All new cut and fill areas shall be roller-sealed or compacted at the end of each day to minimize moisture penetration.

C. Frozen Conditions:

1. Do not backfill or construct fills or embankments during freezing weather.
2. Do not place backfill or construct fills or embankments on frozen surfaces.
3. Do not place frozen materials, snow or ice in backfill or embankment.

3.3 SHEETING AND SHORING

A. All excavation and trenching operations are to be conducted in accordance with WAC 296-155 Part N. The Contractor shall protect all persons entering and working in excavations and trenches through the use of sloping, shoring and shield systems.

B. Where the stability of adjoining buildings, wall or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning shall be provided to ensure the stability of such structures in accordance with WAC 296-155, Part N.

C. The general public is to be protected from open excavations and trenches by means of barricades and fences clearly marked or identified by flagging or warning signs.

3.4 UNDERGROUND OBSTRUCTIONS

A. All known underground structures have been shown on the drawings. However the possibility exists that these may prove inaccurate and that obstructions not known to the survey, etc., may be encountered.

B. The Contractor shall call the Local Utilities' locating services 48 hours prior to commencing excavation activities.

C. The Contractor shall immediately notify the Engineer and Owner's Representative in the event any underground obstruction or uncharted utility is encountered.

D. The Contractor will expose and verify size and, location and elevation of underground utilities and structures where conflicts might exist. This work shall be done sufficiently in advance to permit changes in the event of conflict without affecting the project schedule.

E. The Contractor is responsible for all costs for damage to utilities shown on the drawings or identified by location service.

F. Unforeseen encounters with Underground Storage Tanks (UST) of any kind requires immediate notification of the Owner’s Representative or

Engineer and an immediate cessation of disturbance in the immediate vicinity until an evaluation has been undertaken and further direction provided.

3.5 EXCAVATED MATERIALS

A. All items of concrete, debris, piping, etc., are to be legally disposed of off-site at Contractor's expense. The Contractor shall make efforts to have the concrete and asphalt concrete paving recycled.

3.6 EXCAVATION AND FILL

A. Place soils in loose, horizontal lifts of 9 inches. Fill soils shall be moisture conditioned to efficiently achieve the required compaction. Each lift should be spread evenly and be thoroughly compacted prior to placement of subsequent lifts.

B. Structural Fill, Crushed Surfacing Base Course and all other fills beneath hardscapes, paved or synthetic turf surfaces shall be compacted to at least 95 percent of maximum dry density (MDD), as determined by test method ASTM D 1557. All fills that will not be overlain by pavement shall be compacted to at least 90 percent of MDD, as determined by test method ASTM D 1557.

C. Machine slope banks as required, and compact as specified. Cut and fill slopes shall not exceed 3H:1V unless specifically designated as such.

D. Suitable bearing stratum shall be verified by the Engineer. If suitable bearing stratum is not encountered at the design elevation shown on the plans, over excavate and replace the unsuitable soil with imported structural fill to the depth determined necessary by the geotechnical engineer.

E. Correct unauthorized excavation as directed, at no cost to Owner.

F. Do not disturb soil within branch spread of existing trees or shrubs that are to remain.

G. If determined necessary by the Engineer to excavate through roots of trees to remain, perform work by hand and cut roots with a sharp ax.

H. Ensure areas to be backfilled are free from debris, snow, ice and water, and that ground surfaces are not in a frozen condition.

I. Do not fill or backfill over existing surfaces that are porous, wet or spongy, or exhibit pumping, rutting, or deflection under maximum construction loading, or have not been relieved of organic overburden.

J. Rework and compact existing sub-grade surfaces if the degree of compaction (percent of maximum dry density) of these materials is not equal to the degree of compaction required for backfill materials described above.

K. Backfill systematically and as early as possible to allow maximum time for natural settlement and compaction.

L. Maintain moisture content of backfill materials so as to attain required compaction density.

3.7 WET WEATHER CONDITIONS

A. The Contractor acknowledges that the Project will require a consistent, coordinated effort in order to achieve the efficiency necessary to accomplish the work within the designated Contract Duration for either Awarded schedule.

B. The Contractor further acknowledges a comprehensive understanding of all information made available regarding the work, the requirements, and the site conditions including the drawings and specifications, Geotechnical Report, Stormwater Pollution Prevention Plan (SWPPP), and local Development Code as it applies to construction activities.

C. The Contractor shall be knowledgeable in local area climatic conditions and Schedule work in all areas for dry weather periods wherever practical. If wet weather is encountered and earthwork is unavoidable, Contractor shall proceed as follows at no additional cost to the Owner.

D. Earthwork shall be accomplished in small sections to minimize exposure to wet weather. Excavation or the removal of unsuitable soil shall be followed promptly by the placement and compaction of a suitable thickness of clean structural fill. The size and type of construction equipment used may have to be limited to prevent soil disturbance.

E. Imported soils used to recover volume resulting from the over-excavation of excessively wet soils shall be Structural Fill as classified herein, or alternative soils approved by the Geotechnical Engineer of record.

F. Protect stockpiled soils by covering with plastic sheeting. The plastic sheeting should be anchored with sandbags or staked in place to protect the materials.

G. The ground surface within the construction area should be sloped and sealed with a smooth drum vibratory roller to promote rapid runoff of

precipitation, to prevent surface water from flowing into excavations and to prevent ponding of water.

H. The near-surface soils contain a significant amount of fine-grained particles, and are considered highly moisture sensitive. The use of these soils as structural fill should be limited to extended periods of dry weather. Even during periods of dry weather, some disking for drying and watering may by necessary to achieve the required compaction. The near-surface soils are to be used for fill only if construction takes place during the drier summer months.

I. No soil should be left un-compacted so it can absorb water. All soils which become too wet for compaction should be removed and replaced with imported structural fill at no additional cost to the owner.

J. Accomplish excavation, placement and compaction of structural fill material in cooperation with the Owner's Testing Laboratory and technical representative to determine that all work is being accomplished in accordance with the Project Specifications.

3.8 COMPACTION

A. Compact all fill and backfill to prevent subsequent settlement.

B. Water settling or jetting will not be permitted as a means of compaction.

C. Furnish heavy rollers or compactors except as follows:

1. Use pneumatic hand tampers for trenches and areas not accessible to heavy equipment.
2. Compact areas within 5’ of footings, foundations, walls, and slopes exceeding 3:1 gradient with hand vibrators.

D. Required compaction: Compact fills and backfills to the following minimum relative compaction (percentage of maximum dry density determined in accordance with ASTM D1557).

Locations	Required Minimum Relative Compaction
Utility Trenches: (under non roadway/non-structural conditions)	90%
Utility Trenches: (under all structural conditions including roadways, walks, pavements, playfields,	

walls, and foundations)	95%
Subgrade, all Fields & Track areas	95%
Under Slabs on Grade	95%
Under Walks and Paving	95%
Against Walls (face of wall)	92%
Bedding adjacent to Utility Lines	95%
Subgrade in Planting and Landscape areas	85%
Planting soils	85%
Structural fills	95%
Fills on slopes steeper than 3:1	90%
Other	95%

3.9 SUBGRADE PREPARATION

A. This Section specifies the requirements for the preparation of subgrade to receive additional coverage by materials specified elsewhere. Where the following surfaces are scheduled and the subgrade has been exposed, the requirements below are predecessors to Section 31 22 16 Subgrade Establishment, which identifies a higher standard of quality for planarity than this section does for general construction activities.

B. After site stripping and prior to embankment fill placement, compact subgrade to a minimum of 95% of maximum per ASTM D-1557-91 or as directed by the Owner's Representative or Engineer.

C. Soft, pumping, or rutting areas identified during subgrade preparation by the Owner's Representative must be overexcavated a minimum of 12" (one foot) to firm and unyielding material. Resulting voids to be backfilled with Structural Fill as classified herein and compacted per the location compaction schedule above.

D. If existing utilities not shown on the plans are encountered in the area of work, stop work in that area and notify the Engineer.

E. Do not perform cut and fill work in weather that will not allow reuse of site materials using wet weather methods described in Paragraph 3.07 C of this Section. Use no frozen material in fills.

F. Use normal construction methods generally, but if weather will not allow working of site soils, use wet weather methods as noted below at no additional cost to the Owner.

G. Provide temporary ditching as needed so that no areas of the site will have standing water during rainfall. Fill or pump continuously all low areas that cannot otherwise be drained.

H. All fields, pavements, and surfaced areas are to be compacted to 95% of maximum density per ASTM D-1557-91 by mechanical means. The Contractor shall be responsible for maintaining appropriate soil moisture prior to and during compaction activities, the cost of which is to be included in the contract price.

I. Care must be exercised during grading of the subgrade so as to achieve a uniform, true surface relative to finish grade.

J. Finish subgrade for all fields, tracks, field events, and paved areas, shall be established to within the tolerance of +0.00' or - 0.10' of the design subgrade elevation for these areas or as specified in Section 31 22 16 Field Subgrade Establishment, whichever is more restrictive.

K. Upon completion of the subgrade establishment and Contractor confirmation for conformance with the tolerance, the Contractor shall notify the Engineer and schedule an inspection for approval. The Contractor shall have a laser plane system with slope control available to the Engineer for the inspections. The Contractor shall not be authorized to install the subsurface drainage system until the subgrade has been inspected and approved by the Engineer.

L. All other areas shall be compacted to a 85% maximum density. These areas shall be established to within the tolerance of +0.05' or - 0.15' of the design elevations and grades. All perimeter and swale areas shall be sloped in accordance with the grading plan. Swale grades shall include a constant slope between the designated high point and any catch basin rim elevations. Areas of ponding water in the swales will not be accepted.

M. Cement Soil Treatment

1. Where the Engineer, in coordination with the Owner’s Geotechnical Engineer, have determined a need, stake or mark the limit of work to be measured and authorized. Proceed with no work until an agreed estimate of the limit of the work has been determined.
2. Perform standard Base Bid dewatering and moisture controls. Achieve optimal moisture as defined by the Geotechnical Report and/or the Engineer by ripping, disking, or scarifying as appropriate.
3. Place approved Portland Cement on the prepared surface at the rate specified. Do not use compressed air to deliver powder cement over long distances without hoses or where environmental conditions may result in fugitive dust.
4. Incorporate cement into the subgrade soils to a depth of 12” such that the percentage Portland Cement is equal to 5% by volume or 6.5-7lbs cubic foot (loose weight).
5. Rough grade the uniformly blended treated soil to lines and grades

as required and apply such compactive effort as appropriate given the conditions. Establish full density within 4 hours. Add moisture if necessary.

6. Allow amended soil to set for 24 hours.

3.10 ENGINEERED INFIELD SOIL PLACEMENT

A. Blending must be performed off-site and materials shall be uniformly mixed to a homogenous mixture. Blending procedure and the finished mix shall be as approved by the Field Landscape Architect. Foreign soil or other material will not be permitted in the mix.

B. Installation shall be as directed by the approved supplier.

C. Roll to achieve consolidated settled depth. Add material as necessary to achieve the designed finished grade. Apply moisture as necessary to settle for stabilization.

D. Finished Grade tolerance is +0.05' and -0.00' relative to the grading plan and 1/4 inch maximum as measured by a 10 foot straight edge. In all areas, constant relative surface is to be maintained. No depressions will be permitted. Finish grade of infield mix must be flush with the top of the settled infill of the bordering synthetic turf areas.

END OF SECTION 31 00 00

SECTION 31 22 16
FIELD SUBGRADE ESTABLISHMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish all labor, material and equipment for the earthwork and the subgrade establishment for the synthetic turf athletic field. Work includes but is not limited to the following:

1. Layout and engineering;
2. Reserved
3. Surface water and erosion control;
4. Management of the construction sequencing and scheduling relative to soil moisture content and the use of onsite material as fill;
5. Excavation, filling, back filling and compacting;
6. Subgrade scarification, mixing, drying, and re-compaction as required;
7. Compaction, compaction testing, and establishment of subgrade;

B. Related Sections

31 00 00	Earthwork
31 46 23	Field Permeable Aggregate
33 46 16	Subsurface Drainage

1.2 EXISTING SITE CONDITIONS

A. Refer to drawings for topographical and existing condition information and the geotechnical report for site soil conditions.

B. Carefully maintain benchmarks, monuments and other reference points. If disturbed or destroyed, replace as directed. It is the responsibility of the Contractor to familiarize themselves with all records of existing utilities in area of site work.

C. The Contractor shall contact the appropriate utility agencies for identification of underground utility location. The contractor shall contact "CALL BEFORE YOU DIG" service at 1-800-424-5555.

1.3 TEMPORARY EROSION AND SILTATION CONTROL

A. All work shall conform to the Erosion and Sedimentation Control plan

requirements including installation of siltation control such as filter fabric fences, check dams, sedimentation basins, etc.

1.4 EXISTING UTILITIES

A. The Contractor shall coordinate all existing utilities prior to proceeding with demolition and earthwork activity. Protect any active pipes encountered; notify Engineer of their existence and record on "as-built" drawings.

B. Should uncharted piping or other utilities be encountered, consult the utility or Owner immediately for instructions.

C. Repair all damaged utilities to the satisfaction of the Engineer. Contact Engineer for determination of responsibility.

1.5 DUST CONTROL

A. Protect persons and property from damage and discomfort caused by dust. Water as necessary to quell dust.

1.6 ROADWAY PROTECTION

A. Provide wheel-cleaning stations to clean wheels and undercarriage of trucks before leaving site, as necessary to prevent dirt from being carried onto public streets. If streets are fouled, they must be cleaned immediately in conformance with City of Corvallis requirements, as applicable. This requirement applies to all vehicle movements for the entire period of construction.

1.7 TRAFFIC REGULATION

A. Conduct operations in such a manner to avoid unnecessary interference to existing traffic. Minimize heavy vehicle traffic to and from site during peak traffic hours. Do not park vehicles in traffic lanes. Provide flagmen as required. Conform to City of Corvallis traffic control requirements.

B. Contractor shall be responsible for all traffic control and emergency call outs resulting from Contractor operations.

C. Maintain fire lanes, roadways and alleys to existing buildings continuously, as required by the fire department having jurisdiction.

D. Existing walkways and roadways leading past the construction shall remain clear and safe at all times. Provide barriers, flashing lights, walkways, guardrails and night lighting as required for safety and control.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FIELD LAYOUT AND ENGINEERING

A. The General Contractor shall be responsible for the vertical and horizontal layout of all work and control points required to construct all work in accordance with the drawings and specifications.

3.2 NOT USED

3.3 SUBGRADE ESTABLISHMENT

A. All areas are to be compacted to 95% of maximum density by mechanical means.

1. The Contractor shall be responsible for maintaining appropriate soil moisture prior to and during compaction activities, the cost of which is to be included in the contract price.
2. If the Contractor finds the subsurface soils to be unsuitable, the Engineer is to be notified immediately.
3. Should extraordinary means become necessary, including amending the soil with fly ash or cement, the contractor will be notified as to the specifics required and shall proceed immediately as so directed. The Contractor shall submit all associated costs for compensation at the agreed rate.

B. Care must be exercised during grading of the subgrade so as to achieve a uniform, true surface relative to finish grade.

C. Fill must be select material to be free of organic matter, clay, concrete and other extraneous material, compactable to a minimum of 95% density. Fill shall be placed and compacted in lifts of 12" maximum loose depth.

D. Finish subgrade for the all field areas shall be compacted to a 95% maximum density. Subgrade shall be established to within the tolerance of +0.00' or - 0.10' of the design subgrade elevation for these areas.

E. Upon completion of the subgrade establishment and Contractor confirmation for conformance with the tolerance, the Contractor shall notify the Engineer and schedule an inspection for approval. The Contractor shall have a laser plane system with slope control available to the Engineer for the inspections. The Contractor shall not be authorized to

install the subsurface drainage system lateral lines until the subgrade has been inspected and approved by the Engineer.

END OF SECTION

SECTION 33 46 23
FIELD PERMEABLE AGGREGATE

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Include all labor, material, transportation and services to complete installation of the permeable aggregate base for the synthetic turf field and rubberized track surfacing as shown on the drawings including:

1. Acceptance of Final Subgrade Establishment
2. Structural Soil-Bearing Fabric
3. Base Course Permeable Aggregate
4. Top Course Permeable Aggregate
5. Synthetic Turf Edge Anchor

1.2 STANDARD SPECIFICATIONS

A. All sections of the standard specifications applicable to any and all parts of this project shall govern, except as specifically modified in these contract documents.

1. Specifications for Municipal Public Works Construction, (APWA), latest edition.
2. American Society for Testing and Materials (ASTM)
3. American Association of State Highway and Transportation Officials, (AASHTO).

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

31 00 00 Earthwork
31 22 16 Field Subgrade Establishment
32 18 24 Infilled Synthetic Turf

1.4 SUBMITTALS

A. Submit to the Engineer for approval:

1. Soil-bearing structural fabric product information
2. Base course permeable aggregate sieve analysis
3. Top course permeable aggregate sieve analysis
4. Base course permeable aggregate infiltration rate (for material compacted to a minimum density of not less than 98% of maximum dry density as determined by ASTM D698)

5. Base Course Permeable Aggregate, report on the analysis of the mineral composition of the material, and relative compressive strength.
6. Top course permeable aggregate infiltration rate (for material compacted to a minimum density of not less than 98% of maximum dry density as determined by ASTM D698)
7. Top Course Permeable Aggregate, if sourced from a parent material differing from the approved base Course Permeable Aggregate, report on the analysis of the mineral composition of the material, and relative compressive strength.
8. Equipment and procedures to be utilized for the permeable aggregate installation.

PART 2 - MATERIALS

2.1 SOIL-BEARING STRUCTURAL FABRIC

A. Fabric

1. Material: Fabric to be 100% Polypropylene, non-woven, needle-punched engineering fabric with a minimum weight of 4.0 oz/sy.
2. Physical Properties:

Tensile Strength, lbs., (ASTM D-4632):	100
Elongation (%), (ASTM D4632):	50
Puncture Strength, (lbs), (ASTM D4833):	65
Mullen Burst Strength (PSI), (ASTM D3786):	200
Trapezoidal Tear, (lbs), (ASTM D4533):	45
Abrasion Res. % Str. Ret., (ASTM D4886):	80
Coefficient. of Perm., cm/sec., (ASTM D4491):	0.22
Flow Rate Gal./Min./Sq. Ft.) (ASTM D4491):	140

2.2 BASE COURSE PERMEABLE AGGREGATE

A. The base course permeable aggregate shall be installed below the top course permeable aggregate in areas to receive synthetic turf.

B. Aggregate to be open-graded, fractured, friction course.

1. To ensure free drainage, material to be clean with minimal fines.
2. The compacted base course permeable aggregate shall have a minimum infiltration rate of 40 inches per hour when the material is compacted to a density of not less than 98% of the maximum dry density as determined by ASTM D698 (98% Proctor).
3. Material Strength and Durability

a. The material shall demonstrate a compressive strength sufficient to support the anticipated construction loading without significant breakage of individual particles, or significant alteration of the particle gradation as approved.
b. Where the compressive strength is suspect, the Engineer will remove a sample of the material that has been placed by the Contractor at the specified density and perform a particle gradation, the results of which will be compared to previous production test results (approved baseline values). If the results of this test indicate higher passing values for any given screen exceeding 10% of the baseline, the material may be considered noncompliant.

C. Base course material to be a minimum of 75% fractured with at least one fractured face by mechanical means on each individual particle larger than 1/4". A sand and gravel source may acceptable for this material. Gradation: Aggregate to generally meet the following particle size range:

Sieve Size	Percent Passing by Weight
1-1/4"	100
1"	90 - 100
3/4"	80 - 100
1/2"	50 - 80
3/8"	40 - 60
No. 4	15 - 40
No. 8	10 - 25
No. 30	5 - 15
No. 100	0 – 3.0
No. 200 (wet sieve)	0 - 2.0

2.3 TOP COURSE PERMEABLE AGGREGATE

A. The top course permeable aggregate shall be installed over the base course permeable aggregate in the synthetic turf.

B. Aggregate to be open-graded, fractured, friction course. To ensure free drainage, material to be clean with minimal fines. The compacted top course permeable aggregate shall have a minimum infiltration rate of 20 inches per hour when the material is compacted to a minimum density of not less than 98% of maximum dry density as determined by ASTM D698.

C. Material Strength and Durability

1. The material shall demonstrate a compressive strength sufficient to support the anticipated construction loading without significant

breakage of individual particles, resulting in a significant alteration of the particle gradation as approved.

2. Where the compressive strength is suspect, the Engineer will remove a sample of the material that has been placed by the Contractor at the specified density and perform a particle gradation, the results of which will be compared to previous production test results (approved baseline values). If the results of this test indicate higher passing values for any given screen exceeding 10% of the baseline, the material may be considered noncompliant.

D. Top course material to be 100% fractured crushed rock material. A quarry source is required for this material.

E. Gradation: Aggregate to generally meet the following particle size range:

Sieve Size	Percent Passing by Weight
3/4"	100
1/2"	90 - 100
3/8"	80 - 100
No. 4	55 - 75
No. 8	30 - 50
No. 30	5 - 25
No. 100	2 - 10
No. 200 (Wet Sieve)	0 - 2.0
No. 270 (Wet Sieve)	0 – 1.0

2.4 RECYCLED PLASTIC EDGE ANCHOR

A. The Contractor may choose to Substitute Pressure Treated Lumber (PTL) for the recycled product specified at no additional cost to the Owner. PTL must be intended for soil-contact applications and must submitted and approved for use by the Architect prior to commencing the installation.

B. Includes all materials required to provide a secure recycled plastic edge for establishment of Permeable Aggregate grade and anchoring of synthetic turf.

C. A recycled plastic lumber nailer board shall be installed per the details to secure the turf. Product shall be manufactured from 100% recycled materials, consisting of HDPE Plastic Lumber. Material should be dimensional lumber in lengths no shorter than 6’.

1. Where attachment is scheduled to concrete curbing, provide minimum 2”x4” nominal dimensional lumber.
2. Manufacturer’s reference: Product is available from RESCO Plastics, Inc., Coos Bay, Oregon. (800) 266-5097.

3. Concrete Anchoring: Concrete wedge anchor, zinc plated, 3/8” x5” length, partially threaded, with zinc plated washer and nut.

2.5 TESTING

A. The Owner will be performing testing of materials delivered to the job site for the purpose of verifying compliance with the contract documents. The Owner’s testing is for this purpose only and not for construction quality control by the Contractor.

B. The Contractor shall coordinate directly with the Owner’s testing firm relative to the delivery schedules of the imported materials. Sampling will be scheduled each day deliveries occur.

C. The Contractor shall provide testing and surveillance as required to assure materials and work fully comply with contract requirements.

D. The Contractor at a price equal to the Owner’s contract testing agreement shall pay for owner’s tests that do not meet specifications. The Contractor shall pay directly to the testing organization upon invoice to the owner, which has been approved by the Engineer.

PART 3 - EXECUTION

3.1 SUBGRADE ESTABLISHMENT

A. No work shall be performed in this section until subgrade is 100% completed and accepted by the Engineer as being in compliance with Section 31 22 16 Field Subgrade Establishment

B. Finished subgrade shall be compacted to a minimum 95% maximum dry density at optimum moisture and +/-2% optimum moisture.

C. Subgrade shall be established to within the tolerance of +0.00' or -0.10' of the design subgrade elevation.

3.2 STRUCTURAL SOIL-BEARING FABRIC INSTALLATION

A. No loose material is allowed on subgrade prior to placement of structural fabric. Loose material is to be removed prior to placement.

B. Fabric to be laid on smooth, compacted, subgrade surface between drainage trenches, or, where flat drains are specified, continuously across the entire subgrade.

C. All fabric seams shall overlap 12” minimum and include a steel pin or staple to secure the seam until it is backfilled.

D. Fabric shall not be folded or turned up along the edges.

E. In no instance shall fabric cover any inlet trench, lie against aggregate or pea gravel backfill, or extend vertically above subgrade except at perimeter curbing.

F. Stabilization: Immediately upon laying, the fabric is to be covered with base aggregate. No loaded trucks are to be permitted to move over fabric-covered surfaces until a minimum of 4" of aggregate has been placed, except if specifically approved by the Engineer. The Contractor must execute strict, direct - 100% - control of all vehicle movement on site.

3.3 EQUIPMENT MOVEMENT

A. No trucks or equipment will be allowed to drive over the top of drain trenches or flat drains except track-equipped machinery utilized in spreading base aggregate materials, or where a 12" depth base aggregate temporary roadway has been established. Backfilled trenches and covered flat drains are to be staked and "flagged" 3' above grade at 20' minimum intervals for identity.

B. In the event non-track traffic is observed or evidenced to cross trenches or flat drains, the Contractor shall, at their own expense, expose the drainpipe in the area directed for observation by the Engineer, repair or replace any damage promptly and reinstall backfill per specifications.

3.4 AGGREGATE PLACEMENT

A. Moisture Content: Aggregate to contain 3.5% to 4.0% moisture content to ensure that fines do not migrate and to facilitate proper compaction. Contractor must ensure that aggregate leaving the source plant meets this requirement and is required to apply water to aggregate on site to attain and maintain this minimum moisture content in stockpile and during all placement operations.

B. Prior to aggregate placement, remove any foreign material or contamination from the surface of the structural fabric and drainage trench pea gravel.

C. Surface must be free of standing water and subgrade stabilized with structural fabric in place prior to placement.

D. Materials to be placed in layers not exceeding 8" compacted in depth. Each layer must be spread uniformly with equipment that will not cause perceptible separation in gradation (segregation), preferably a self-propelled paving machine.

E. Should there occur, during any stage of the spreading or stockpiling, a separation of the material particles, the Contractor must immediately remove and dispose of segregated material and correct or change handling procedures to prevent any further separation.

3.5 AGGREGATE COMPACTION

A. Each layer shall be compacted to a minimum density of not less than 95% of maximum dry density as determined by ASTM D698 and measured using a nuclear method.

B. Use Static Tandem Drum-type roller of not less than five tons weight.

C. The Contractor shall monitor compaction levels to insure the aggregate materials are not over-compacted resulting in infiltration rates that are less than the specified minimum rates.

D. The Contractor shall monitor the condition of all aggregate during compaction to insure that the material has not fractured or broken down, resulting in a changes to the particle gradation that may otherwise effect other specified properties including maximum dry density and infiltrative capacity.

3.6 AGGREGATE TOLERANCES

A. The Contractor shall utilize a laser plane system for grade control.

B. The surface of the base course permeable aggregate in areas to be covered with top course aggregate shall not deviate from designated compacted grade within the range of –0.50" and +0.00".

C. The surface of the top course permeable aggregate shall not deviate from designated compacted grade within the range of –0.00" and +0.25" and shall not deviate more than ¼” as measured by a 10 foot straight edge.

D. Upon completion of the fine grading, compaction, and Contractor confirmation of conformance with the tolerances, the Contractor shall notify the Engineer and schedule an inspection for approval. The Contractor shall have a laser plane system available to the Engineer for the inspections. The Contractor shall not be authorized to pave over the

permeable aggregate until it has been inspected and approved by the Engineer.

END OF SECTION 31 46 23

SECTION 32 18 24
INFILLED SYNTHETIC TURF

PART 1 – GENERAL

1.1 SCOPE OF WORK

A. Scope of work to include all labor, material, equipment, transportation and services to install complete new vertical draining in-filled synthetic turf surfacing system for the Softball facilities at Oregon State University. System to be as herein specified including, but not specifically limited to the following:

1. Provide all described submittals, samples, shop drawings, mock ups, and testing in the sequence described.
2. Provide synthetic turf surfacing as shown and described.
3. Warrant the materials and installation under a single 8-year warranty serviceable by the approved vendor.
4. Provide post-installation service and maintenance as described.

B. Alternate Bid Items

1. Alternate Bid Item 1 incorporates a second “green” to achieve a “mow pattern” effect in the outfield as shown and described. Green 1, which is as specified for the Base Bid, will be a 1:1 blend of Field Green and Lime Green Athletic Yarns spun from the approved fiber. Green 2 will be entirely Field Green Athletic Yarn spun from the approved fiber. No additional time will be added to the Contract if this Alternate is Awarded.
2. Alternate Bid Item 2 adds a Synthetic Turf Graphics Package in the form of a large central logo to be installed as shown and described, and as approved in the field by the Architect at the time of installation. Vectorized Art will be provided to the Contractor by the Architect prior to the Contractors production of Shop Drawings. No additional time will be added to the Contract if this Alternate is Awarded.
3. Alternate Bid Item 3 adds a Synthetic Turf Graphics Package in the form of large foul territory lettering, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time of installation. No additional time will be added to the Contract if this Alternate is Awarded.
4. Alternate Bid Item 4 adds a Synthetic Turf Graphics Package in the form of a smaller version foul territory lettering described as Alternate 3, to be installed on both the first and third base sides as shown and described, and as approved by the Architect at the time

of installation. No additional time will be added to the Contract if this Alternate is Awarded.

1.2 SYNTHETIC TURF SURFACING

A. The following Vendors and corresponding products are pre-approved for the Synthetic Turf Field(s):

1. FieldTurf “Revolution” (2.5”/40oz. fiber length/finished weight)
2. FieldTurf “Classic” (2.0”/30oz. and 2.5”/36oz. fiber length/finished weights)

B. The Vendor shall provide the following products and colors;

WARNING TRACK areas as 2.0” FieldTurf Classic (Brick)
OUTFIELD areas as 2.5” FieldTurf Revolution (1:1 Lime/Field Green)

1.3 APPROVED FIBER MANUFACTURERS

A. The following fiber manufacturers are pre-approved for the In-filled Synthetic Turf Systems for the Synthetic Turf Field:

1. Fieldturf “Revolution” Monofilament Polyethylene (substitute CORE at no additional cost to the Owner)
2. FieldTurf “Classic” Parallel Fibrillated Slit Film Polyethylene

B. The synthetic turf vendor shall provide written documentation in the form of a signed affidavit certifying the source of the fiber used for the field including both green and any other colors used for the lines and markings.

C. Fiber shall be certified to have less than 50 ppm or less of lead from both the fiber supplier and the turf vendor.

1.4 MINIMUM QUALIFICATIONS

A. The manufacturer of the synthetic turf system must have produced a minimum of one hundred (100) successful full-sized in-filled synthetic turf fields within the past three (3) years with product that includes the same infill composition to that proposed for this project. The manufacturer shall also have a minimum of 5 years of installation history with sand and rubber in-filled synthetic turf systems. Installer of the synthetic turf system must have installed a minimum of twenty (20) successful in-filled synthetic turf fields of full size within the past three (3) years with the product to that proposed for this project.

B. Installer of the synthetic turf system must have installed a minimum of twenty (20) successful full-sized in-filled synthetic turf fields within the past two (2) years.

1.5 RELATED WORK SPECIFIED IN OTHER SECTIONS

A. The Project Manual and Drawings which constitute the description of work of the Contract responsible for the Site Work package is available upon request.

1.6 STANDARD SPECIFICATIONS

A. Comply with the NCAA Rulebook (latest edition) for each sport including but not limited to baseball and softball.

B. For standards: Applicable American Society for Testing Materials (ASTM), (latest edition).

1.7 POST AWARD SUBMITTALS

A. Shop Drawings: Submit five (5) copies of complete and detailed drawings showing all component parts of the synthetic turf system to the Engineer for review. The shop drawings shall be drawn to scale (1”=30’ minimum) and shall include:

1. edging details
2. insert details including backing material
3. seam details
4. seam layout
5. gluing patterns
6. dimensional shop drawing for all field lines, markings and boundaries

B. Synthetic Turf Samples:

1. Two 1-pound samples of the proposed In-fill materials.

C. Manufacturer's Specifications and Warranty:

1. Submit five (5) copies each of selected manufacturer’s material specifications and installation instructions to the Engineer. Include detailed specifications of manufacturer’s provisions for achieving permeability, stating rate in infiltration and permeability in inches per hour of system materials for the vertical draining system.
2. Submit five (5) sample copies of warranty package herein specified for review.

D. Testing and Quality Control: Submit the following test results for the system specified to the Engineer. An independent testing laboratory experience with testing of synthetic turf or carpeting materials shall certify these tests. The qualifications of the testing laboratory to be utilized for the submittal and the pre-shipment testing shall be submitted to the Engineer for approval.

1. Applicable minimum material ASTM tests:
   a. Dynamic Cushion Test - ASTM F355, Procedure A, (system); ASTM F355 procedure A at the 24” drop.
   b. Yarn and fabric characteristics plus pad composition and performance.
   c. Pill Burn Test – ASTM D2859
2. Maintenance and Operating Data:
   a. Prior to Substantial Completion, furnish five (5) copies in hard cover form of maintenance and operating data with imprinted Project, Owner, Engineer, Contractor and Turf Subcontractor names, and date of turf system installation.
   b. In addition, provide descriptions of any equipment recommended for maintenance and repair, citing specific vendors for each unit.
   c. Use and Limitations - Provide a separate page stating approved activity usage for the turf and activities not recommended relative to warranty.
   d. Index - Index with tab dividers for data as follows: Contact information; Materials installed with their characteristics; General maintenance; Small repair procedures; Minor seam repair; Discussion of precautions to be practiced, general maintenance, and uses to avoid to protect turf surface and to maintain installation's warranty.
   e. Include firm name, contract name, address, telephone number, and email address for each firm identified on the Manual cover.

1.8 PRE-SHIPMENT SUBMITTALS

A. Prior to shipment of the synthetic turf materials to the job site, synthetic turf material from every sixth roll shall be randomly sampled and the tested by an independent testing laboratory experience with testing synthetic turf materials. The testing laboratory shall be completely independent with no ties to the turf manufacturer. The testing shall include the following:

Item	ASTM	Property
1.	FTIR Spectrograph	Pile Composition

2.	D418	Pile Weight
3.	D418	Total Weight
4.	D418	Pile Height
5.	D1335	Tuft Bind (without infill)
6.	D1682	Grab/Tear Strength.

B. Copies of the test results shall be transmitted to the Owner and Engineer directly from the testing laboratory. The synthetic turf materials shall not be shipped to the site without written authorization from the Engineer after the Owner and Engineer have approved the test results.

C. Samples of the synthetic turf material tested from every sixth roll shall also be transmitted to the Engineer for approval by the independent testing laboratory prior to shipment of the synthetic turf materials to the job site.

D. All fees and costs associated with the pre-shipment sampling and testing shall be paid by the Contractor.

1.9 CERTIFICATION OF THE BASE

A. The Synthetic Turf Surfacing Contractor shall furnish to the Engineer, prior to the synthetic turf installation, a written certification of the acceptability by the turf vendor of the permeable aggregate base (as applicable) for installation and warranty validation.

1.10 TURF SYSTEM HOLD HARMLESS

A. The synthetic turf manufacturer and installer shall not infringe upon any current or pending patents held by other synthetic turf manufacturers or installers.

B. The Contractor, their synthetic turf subcontractor, and the synthetic turf manufacturer shall hold the Owner, Owner’s Representative, the Engineer and their sub-consultants harmless from infringement of any current or future patent issued for the synthetic turf surfacing system, installation methods and vertical draining characteristics.

1.11 WARRANTY OF SYNTHETIC TURF

A. Warranty shall cover, in general, the usability of the turf surface, accessories, use characteristics, and suitability of the installation. All items covered by warranty are to be replaced or repaired with new materials, including installation at the sole expense of the warranting contractor for the period of eight (8) years to the Owner, for the designated uses enumerated as follows:

1. Baseball
2. Softball
3. Soccer
4. Football Practice
5. Marching band
6. Physical exercises
7. Physical education activities
8. Pneumatic rubber-tired maintenance and service vehicles
9. Pedestrian traffic and other similar uses
10. Ceremonial and Entertainment Events

B. A principal of the applicable firm, duly-authorized to make contracts, shall sign the turf vendor warranty. If the turf vendor is not the manufacturer, the manufacturing firm shall also sign the warranty. The term "Contractor" contained herein means the firm furnishing warranty. "Owner" is Oregon State University. Warranty period shall be a minimum of eight years from date of acceptance of the installed system by the Owner.

C. The synthetic turf vendor shall also furnish copies of the warranties supplied by the fiber supplier.

D. The synthetic turf vendor shall secure the warranty to the Owner with an insurance policy of not less than $300,000 per claim and an aggregate of $5,000,000.

1.12 FORM OF WARRANTY OF SYNTHETIC TURF SYSTEM

A. Provide the following language as a supplement to the Vendor warranty:

"Contractor hereby warrants to Owner, subject to the limitations and conditions set forth below, that its synthetic turf system consisting of synthetic turf described as _____, and the adhesives used in the installation, is free from defects in material and workmanship and shall, for a period of eight years as applicable from the date of Substantial Completion, remain serviceable for multiple sports activities."

"Contractor warrants to the Owner that its synthetic turf materials shall not fade, fail, shrink, wrinkle, or reflect excessive wear. Contractor shall, at their sole expense and cost, replace such areas of the synthetic turf system not performing to these standards for the life of the warranty."

B. Definitions

1. The term "not fade" in the context of this warranty shall mean that the synthetic turf material shall remain a uniform shade of green, or other colors installed, with no significant loss of color.
2. The term "not fail" or "excessive wear" as used in the context of this warranty shall mean that the length and weight of the face yarn or pile material in the synthetic turf surface shall not have been decreased by more than 10% per year according to ASTM D418, nor exceed 50% during the warranty period. In the event that the synthetic turf system does not retain its fiber height or shock absorbency and is consequently no longer serviceable during the warranty period, the Contractor shall, at their sole expense, replace such portion of the system that is no longer serviceable.
3. The term "serviceable" in the context of this warranty shall mean that the synthetic turf system shall have a maximum "G" value according to ASTM F1936-98 and Procedure A, ASTM F355, not to exceed 130G's at any location upon installation and shall not exceed 175G's throughout life of the warranty period. This shall be determined by conducting dynamic cushioning tests at the locations designated in ASTM F1936-98 and at corners of the soccer penalty boxes at opposite sides of the field. Any increase from 130G's to allowable 175G's maximum shall be at a relative uniform rate not to exceed 15 G's in any single yearly period.

C. Where applicable, the fabric seams shall remain attached to the underlying surface over the warranty period and shall not separate or become unglued or unattached, as applicable.

D. Contractor warrants to the Owner that the permeable synthetic system shall drain vertically a minimum of 20 inches precipitation per hour without visible surface ponding.

E. Contractor shall replace with new materials, at their sole expense, any damage to the synthetic turf system that extends more than 3 feet beyond the location of foreign combustibles, which may ignite and fire-damage the synthetic turf system. The Contractor shall not be held liable for any incidental or consequential damages. These warranties and the Contractor's obligations here-under are expressly conditioned upon;

1. The Owner making all minor repairs to the synthetic turf system upon the discovery of the need for such repairs;
2. The Owner maintaining and properly caring for the synthetic turf system in accordance with the Contractor's maintenance manual and instructions;
3. The Owner complying with the dynamic and static load specifications established by the Contractor.

F. The warranty is not to cover any defect, failure, damage or undue wear in or to the synthetic turf system caused by or connected with abuse, neglect, deliberate acts, act of God, casualty, static or dynamic loads exceeding Contractor's recommendations, footwear having metal cleats, spikes, or similar projections other than conventional baseball, football, soccer, or rugby shoes having cleats of not more than 1/2" in length, and other conventional running track shoes having spikes of not more than 1/4" in length, or use of improper cleaning methods.

G. Contractor shall be allowed to examine the synthetic turf system regarding any claim that the Owner makes to be present at any time, to analyze the results of all tests conducted by the Owner or others, and to conduct such tests of their own. Contractor shall not be responsible for any costs or expenses incurred by the Owner or others with respect to such tests, except the Contractor shall pay for costs of all tests and analysis conducted or directed by their representative.

H. In the event the Contractor does not respond to the Owner's written notice within 10 days of receipt of notice or does not submit, schedule and execute corrective work within 30 days, the Owner has the option of having the work performed at the expense of the Contractor.

I. Sample form of warranty herein set forth is a suggested form for use for the work under this section. Manufacturer's standard form of warranty may be used provided all conditions specified are incorporated. All claims by the Owner under this warranty must be made in writing to Contractor's address at_____ within 30 days after the Owner learns of the defect giving rise to the claim. This warranty shall constitute a contract made in the State of Washington and shall be governed by the laws thereof.

(End of Warranty Form Supplemental Information)

1.13 WARRANTY TESTING

A. The turf is to be tested for dynamic cushioning ("G" Test) by an experienced independent testing laboratory acceptable to the Engineer and Owner at the completion of the installation shortly prior to acceptance inspection by the Owner and Engineer, at the anniversary date of the second year after the installation and one year prior to the anniversary date of the warranty expiration. If conditions of the Specifications and Warranty are not met, the Contractor has the option of corrective work or replacement. In the event corrective work does not meet the requirements of the Specifications after a second attempt to bring the system within these limits, then the Contractor is to replace non-conforming areas or sections solely at the Owner's discretion and direction.

B. Tests shall be performed in accordance with ASTM F-1936-98 and F355.

C. Test locations as designated in F-1936-98, Paragraph 8.1. Included in the report shall be the measured depth of the infill material at all test locations.

D. All costs for the stated testing shall be paid by the Contractor.

E. If the Contractor does not have the tests performed within 10 days of specified times listed, the Owner has the option of ordering the testing work at the expense of the Contractor.

PART 2 – MATERIALS

2.1 GENERAL

A. Infilled Synthetic Turf: The turf system shall be a vertical-draining permeable synthetic turf system. The turf system shall consist of a synthetic grass like surface pile, which shall be tufted into a synthetic backing.

B. All backing layers and coatings shall be firmly bonded together. Coating materials must be completely cured and bonded to the other backing layers. Synthetic turf panels or rolls that do not meet this requirement will be rejected.

C. The entire system shall be resistant to weather, insects, rot, mildew, and fungus growth, and be non-allergenic and non-toxic. The entire system shall be constructed to maximize dimensional stability, to resist damage and normal wear and tear from its designated use, and to minimize ultraviolet degradation.

D. All adhesives used in bonding the system together shall be resistant to moisture, bacterial and fungus attacks, and resistant to ultraviolet rays at any location upon installation.

2.2 DYNAMIC CUSHIONING REQUIREMENTS

A. The dynamic cushioning of the system shall not exceed a maximum value of 125 G's per ASTM F1936-98 and ASTM F355, procedure A at any location upon installation.

2.3 PERMEABILITY REQUIREMENTS OF THE SYNTHETIC TURF SYSTEM

A. The system shall drain vertically a minimum of 20 inches precipitation per hour without visible surface ponding.

2.4 SYNTHETIC TURF PILE SURFACE

A. The pile surface shall provide good traction in all types of weather with the use of conventional "sneaker-type shoes" and composition, molded-sole athletic shoes.

B. The pile surface shall be suitable for both temporary and permanent line markings using rubber-base paint where applicable.

C. Pile surface shall be nominally uniform in length for all portions of the field (as specified). Synthetic turf panels or rolls with irregular pile heights or with “J hooked” fibers that extend more than 1/4 inch above the surrounding fibers will be rejected.

2.5 SYNTHETIC TURF FABRIC SURFACE

A. The fabric surface shall be constructed and installed in minimum 15-foot widths with no longitudinal or transverse seams, except for head or tee seams at field boundaries and inlaid lines within a finished roll assembly. The seams shall be 15'-0" spacing.

B. Rolls that do not lay evenly and with full dimension width will be rejected. No fitted pieces will be allowed to true alignment.

C. The color shall be uniform with no visible deviations in shade permitted. Rolls that do not meet this requirement will be rejected.

2.6 SYNTHETIC TURF SYSTEM MATERIAL COMPONENTS

A. Pile fibers shall resemble freshly-grown natural grass in appearance, texture and colors.

B. Fabric backing for the in-filled synthetic turf systems can be loose laid and anchored at the perimeter of the fields as shown in the details or adhered to the base.

C. All turf seams shall be sewn with high strength polyester fiber cord or nylon.

2.7 SYNTHETIC TURF DRAINAGE

A. The synthetic turf shall include partially coated backing providing permeability without the use of perforations. Certified independent test

results indicating a minimum drainage rate of 40 inches per hour for the permeable backing must be provided.

2.8 LINES AND MARKINGS

A. A complete field lining, marking and field boundary system with team area limits, etc., shall be provided with the initial installation of the surfacing system. Layouts shall be accurately surveyed and marked prior to installation.

B. All lines and field markings are to be tufted in or installed as synthetic turf inlays. Wherever possible, lines shall be tufted into the turf panels in lieu of inlays. All markings shall be uniform in color, providing a sharp contrast with the turf color, and shall have sharp and distinct edges. Markings shall be true and shall not vary more than 7/32” from specified width and location.

C. Manufacturer is to guarantee that synthetic turf is adaptable to painted lines in the event painting is utilized in the future.

D. Minimum Lining and Marking Requirements: All lines, numbers and field markings are to be tufted in or installed as synthetic turf inlays without the use of paint.

Foul Lines
Base Path
Coaches Boxes

2.9 MINIMUM SPECIFICATIONS FOR SYNTHETIC TURF SYSTEM MATERIALS

A. The minimum material specification requirements will be verified and enforced and will be the basis for Owner's testing. Material that fails to meet these minimum specifications will be rejected. The material specifications in this section are minimums. The manufacturer of the synthetic turf fiber and fabric may elect to exceed these specifications to insure compliance with all requirements and the warranty as specified in this section.

B. Color of synthetic turf shall be green. Additional turf colors shall be as called for in Section 2.08 for the lines and markings. The fiber used for the lines and markings shall be of the same composition in all respects except for color as that used for the green field areas.

2.10 MINIMUM TURF MATERIAL SPECIFICATIONS

A. Pile fiber shall be true monofilament fiber, 100% polyethylene athletic quality yarn designed specifically for outdoor use and stabilized to resist the effects of ultra-violet degradation, heat, wear, water and airborne pollution. Fiber shall be certified to have less than 100 ppm or less of lead from both the fiber supplier and the turf vendor.

	ASTM	Property	Minimum Specifications
1.	D1577	Yarn Denier	10800
2.	D1577	Filament thickness	235 Micron
3.	D2256	Yarn Breaking Strength	20 lbs
4.	D2256	Yarn Elongation to Break	70%
5.	D789	Yarn Melting Point	240F

B. Fiber Wear Simulation: Fiber shall exhibit no splitting or appreciable degradation after a minimum of 20,000 cycles of simulated Lisport wear testing.

C. Fabric Composition: Shall consist of 100% polyethylene true monofilament or parallel fibrillated film yarn as specified, tufted into polypropylene backings coated with high-grade polyurethane. Coating and backing materials shall assure suitable tuft bind strength, dimensional stability, and long-term wearing properties.

2.11 MINIMUM SPECIFICATIONS FOR SYNTHETIC TURF SYSTEMS

A. Pile Yarn shall be 100% polyethylene athletic quality yarn designed specifically for outdoor use and stabilized to resist the effects of ultra-violet degradation, heat, wear, water and airborne pollution.

B. Fabric Composition: Shall consist of monofilament polyethylene yarn tufted into polypropylene backings coated with high-grade polyurethane to assure suitable tuft bind strength, dimensional stability, and long-term wearing properties. The following minimum specifications shall apply:

1. FieldTurf Revolution 2.5”/40oz. product:

ASTM	Property	Minimum Specification
D418	Pile Weight	40 oz/sq yard
D418	Primary Backing	7 oz/sq yard total
D418	Back Coating	13 oz/sq yard
D418	Total Weight	60 oz/sq yard
D418	Pile Height	2.50”
D1335	Tuft Bind (without infill)	8 lbs.
D1682	Grab/Tear Strength	200 lbs.
D2859	Pill Burn Test	Pass

2. FieldTurf Classic 2.0”/30oz. product:

ASTM	Property	Minimum Specification
D418	Pile Weight	30 oz/sq yard
D418	Primary Backing	7 oz/sq yard total
D418	Back Coating	16 oz/sq yard
D418	Total Weight	53 oz/sq yard
D418	Pile Height	2.00”
D1335	Tuft Bind (without infill)	9 lbs.
D1682	Grab/Tear Strength	200 lbs.
D2859	Pill Burn Test	Pass

C. The synthetic turf shall be Fieldturf Revolution and/or FieldTurf Classic as specified herein.

2.12 SAND & RUBBER INFILL MATERIALS

A. The synthetic turf shall utilize a combination of sand and cryogenic rubber infill materials. The minimum sand content shall be 30% by volume and the maximum sand content shall not exceed 50% by volume. The exact in-fill material ratio may be altered to provide strength, shock attenuation, and to provide permeability by the vendor/installer as approved by the Engineer.

B. The rubber shall be 100% SBR cryogenically processed free of any tire cord and steel materials. SBR rubber shall be manufactured from North American automotive or truck tires. The rubber infill material gradation shall meet the following size requirements:

2.0 – 1.5 mm	0% - 10%
1.5 – 1.0 mm	10% - 30%
1.0– 0.5 mm	40% - 80%
0.5– 0.0 mm	0% - 10%

C. SBR rubber shall be certified to have less than 50 ppm or less of lead from both the rubber supplier and the turf vendor.

D. The sand infill material shall be graded silica sand, sub-round to round, compaction resistant, washed and dried. The sand shall meet the following criteria:

Shape	Round to Sub-round
Sphericity	0.65 – 0.85
Roundness	0.60 – 0.70
Hardness (Moh)	7

E. The sand gradation shall meet the following wet sieve analysis:

Sieve Size	Percent Retained
#16	0% – 5%
#20	10% – 20%
#30	50% – 70%
#40	15% – 25%
#50	0% – 10%
#100	0% – 5%
Pan	0% – 2%

F. Infill material shall be applied in a dried condition when the turf is dry. It shall be applied in uniform layers effectively dragged to distribute the material uniformly to the backing of the turf. The layers shall be installed to provide a profile with 100% sand at the bottom, a blend of sand and rubber in the center, and 100% rubber on the surface.

G. The application shall provide a total minimum weight of 7.0 lbs of rubber and sand infill materials per square foot of turf area.

PART 3 – EXECUTION

3.1 CERTIFICATION OF FIELD BASE INSTALLATION

A. The Synthetic Turf Contractor shall perform an inspection of the permeable aggregate base and submit written certification of acceptance of the base for the installation of the synthetic turf system.

B. Summary of certification shall include, but not be limited to:

1. Acceptance of the base construction "finish surfaces" as totally suitable for the application of work specified under this section.
2. Verification and certification of the infiltration and permeability rates of the permeable aggregate as applying to the warranty.

C. All discrepancies between the required materials, application and tolerance requirements noted by the Synthetic Turf Contractor shall be brought immediately to the attention of the Site Work Contractor, Engineer and Owner. Failure of the Synthetic Turf Contractor to immediately inform the Site Work Contractor, Engineer, and Owner of any prior work that does not meet the required specifications will result in the Synthetic Turf Contractor being required to perform any work needed to bring the base to acceptable condition.

3.2 SYNTHETIC TURF INSTALLATION

A. Perform all work in strict accordance to the drawings, specifications, shop drawings and manufacturer's specifications and instructions.

B. Verification: The Synthetic Turf Contractor is responsible for inspecting, verifying, and accepting all installed work of this section.

C. Environmental Conditions: Do not apply adhesive materials or infill material when:

1. Ambient air temperature is below 50 degrees F.
2. Material temperatures are below 50 degrees F.
3. Rain is falling or pending
4. Conditions exist, or are pending, that will be unsuitable to the installation of the system.

D. Preparation:

1. Accept base onto which the synthetic turf surfacing system and the anchoring system are to be applied, as specified above.
2. Immediately prior to application of the synthetic turf, the base shall be thoroughly cleaned of all foreign material, soil, or any other substances that may be detrimental to permeability and the installation of the turf system.

3.3 INSPECTION OF MATERIALS

A. Prior to installation, and immediately upon delivery of synthetic turf system materials to the project site, the Synthetic Turf Contractor shall inspect material as follows:

1. For damaged or defective items;
2. Measure turf pile height and thickness of each roll;
3. Reject damaged materials and all materials out of tolerance with this specification.

B. After installation, inspect project area for acceptable seaming, adhesive bonding, uniformity of color of turf, bubble-free surface smoothness as laid, field lines and markings, insert installations, edge details. Remove or repair deficient workmanship prior to requesting the Engineer’s inspection pursuant to completion and acceptance of the work.

3.4 OWNER'S TEST

A. Owner may have samples of the turf submitted and tested for verification of conformance to specifications. Turf system acceptance is subject to the results of these tests.

B. Any material so tested and found not conforming to specification will be rejected and replaced with material conforming to the specification at Synthetic Turf Contractor's expense. Re-submittal will be required.

3.5 TURF INSTALLATION

A. Bonding of Material Surfaces: The bonding or fastening of all system material components shall provide a permanent, tight, secure and hazard-free, athletic playing surface. System material components include:

1. Bonding all seams and inlaid line and markings
2. Bonding and seaming must maintain their integrity for total length of warranty period.

B. Seams (Joint)

1. All turf seams shall be sewn with high strength polyester fiber cord or nylon.
2. The seam gaps between fiber courses shall not exceed the tufting gauge for the material.
3. All sewn seams shall be brushed to provide full coverage of fiber over the thread.

C. Turf Edges: Turf edges to be as shown on the edge fastening detail and specified herein.

3.6 SYNTHETIC TURF EDGE ANCHOR INSTALLATION

A. Anchor synthetic turf along the sides and ends to the nailer as shown in the details.

3.7 LINING / MARKING INSTALLATION

A. Complete field markings shall be provided with the initial installation of the surfacing system. Provide lines and markings in conformance with these specifications. Layouts shall be accurately surveyed and marked prior to installation.

B. If overlapping backing materials are utilized for the inlaid lines and markings resulting in a non-permeable surface in excess of 8 inches wide, the backing materials shall be perforated after gluing and prior to installation of the infill material.

C. If overlapping backing materials are not utilized, all corners of the inlays shall be stitched to the adjacent turf.

3.8 IN-FILL INSTALLATION

A. The rubber and sand in-fill material shall be applied in uniform layers with a minimum of 8 applications. The applications shall be sequenced to include 2 initial layers of sand, alternating layers of sand and rubber, and 2 top layers of rubber. The infill installation shall not result in fiber material trapped below the surface of the infill material. If fiber is trapped below the surface, a portion or all of the infill material must be removed and reinstalled.

B. The infill material shall be installed at a uniform depth across the entire field area. Infill depths shall not vary by more than 10mm across the field area.

C. The In-fill material shall be applied in a dry condition and when the synthetic turf is dry. The In-fill material shall be applied in uniform layers with a minimum of 8 applications. The infill installation shall not result in fiber material trapped below the surface of the infill material. If fiber is trapped below the surface, a portion or all of the infill material must be removed and reinstalled.

D. The in-fill materials shall be water settled to provide accelerated consolidation of the in-fill material prior to use by the Owner. Water is available from quick coupling valves located around the field. The Synthetic Turf Contractor shall utilize portable sprinkler heads to evenly apply a minimum of 1 inch of water over the entire field area for water settlement. Upon completion of the initial water settlement, the surface will be inspected the Owner and Engineer for footing stability and in-fill consolidation. The Synthetic Turf Contractor shall provide any additional water settling as required by the Owner and Engineer to achieve the desired level of in-fill stability and consolidation.

3.9 CLEANING

A. Remove all excess materials of all types, equipment, debris, etc., from the site immediately after completion of the work. Remove all stains and other blemishes from all finished surfaces. Leave work in clean, new appearing condition, ready for use by Owner.

B. The Synthetic Turf Contractor shall inspect the entire field area with a hand held metal detector to identify any construction materials or tools left

on the field. All such materials shall be removed prior to Substantial Completion.

3.10 PROTECTION

A. Adequate protection of materials and work from damage will be the responsibility of the Synthetic Turf Contractor during installation and until acceptance of their work. All material damaged prior to acceptance by the Owner shall be replaced at no cost to the Owner.

3.11 EXTRA MATERIALS

A. Deliver to Owner all extra materials herein specified. Receive Owner's written receipt for all materials. Deliver receipt to Owner's Representative.

B. Infill Materials: Provide four (4) 33 gallon rubber trash containers (with lids) of rubber infill, and 4 5-gallon buckets (with lids) sand.

C. Turf for Future Repairs: Material may be roll ends or cutoffs; however, each piece of fabric shall be at least 5' x 10'. At least one green turf piece shall be at least 10' x 15'. The following are minimum areas for the extra synthetic turf materials to be provided by the Synthetic Turf Contractor to the Owner:

Minimum Quantities:

1. 2.5" FieldTurf Revolution, 500sf Green, 25lf x4" wide White
2. 2.0" FieldTurf Classic, 1,000sf Brown, 100lf x4" White
3. Alternate Bid Graphics, Orange, fiber as approved, 25sf.

END OF SECTION 32 18 24

SECTION 32 84 23
FIELD WASHWATER SYSTEMS

PART 1 – GENERAL

1.1 SCOPE OF WORK

A. Field locate existing irrigation water supply main shut-off to isolate the work area. Coordinate access and temporary system shut-down with the Owner

B. Work to include selective demolition, layout, trenching, pipe installations, backfill, quick coupling valves and riser assemblies, valve boxes, and related items.

C. Furnish and install mainline isolation valve, quick coupling valves and boxes at the synthetic turf field and rubberized track surfacing as shown. Connect new work to existing where indicated.

D. Provide a single zone of pop-up rotor heads for moisture management of the engineered infield soils.

1.2 STANDARD SPECIFICATIONS

A. All sections of the standard specifications applicable to any and all parts of this project shall govern, except as specifically modified in these contract documents.

1. The Standard Specifications for Municipal Public Works Construction, Washington State Chapter (latest edition).
2. American Water Works Association
3. American Society for Testing and Materials
4. National Electrical Code
5. Local water district standards and regulations
6. OSU Standard Irrigation Specifications

1.3 RELATED WORK IN OTHER SECTIONS

A. 31 00 00 Earthwork

1.4 FIELD DIMENSION AND LAYOUT

A. The Contractor will be responsible for furnishing, setting, and marking of all line, grade, and location stakes, including offsets and general construction staking. The Engineer will provide reference points.

B. There shall be onsite at all times when work requiring control is being performed, all necessary equipment, supplies and instruments related thereto. A qualified layout specialist must be assigned to the Contractor's crew for this work. This equipment and specialist must be available at no additional cost to the Engineer for the purpose of approving layout and certifying work progress onsite.

C. The Engineer, prior to commencing construction and on a continuing basis, must approve all layout work, materials and methods for each phase requiring accuracy control.

1.5 SUBMITTALS

A. Product Information: The Contractor shall submit copies of catalog information of all equipment for approval.

B. As-Built Drawings: Contractor shall furnish accurate as-built drawings of the complete irrigation and washwater systems. The drawing shall be a blueprint to scale. Drawings shall show installed manufacturer's name and catalog number. The as-built drawing shall be turned over to the Engineer for review at or before the professional review (punchlist) of the project.

PART 2 – PRODUCTS

2.1 PVC IRRIGATION PIPING

A. Pipe for the irrigation main shall be Schedule 40 PVC and shall conform to ASTM D2241, SDR 21 Standard Specifications.

B. Plastic pipe shall be extruded from 100% virgin Polyvinyl chloride (PVC) Pipe to conform to ASTM D2241, F477, D1784 Cell Class 12454-A,B.

C. Pipe Sizing: Schedule 40 PVC.

Size	O.D.(In)	Min. Wall (In)
2”	2.375	0.154
1 ½”	1.900	0.145

D. Pipe shall be guaranteed to be free from manufacturing defects in material and workmanship in accordance with the section of specifications covering warranties. The pipe is to be guaranteed to operate within the limits of pressure and temperatures recommended by the manufacturer and as required in these specifications.

2.2 BACKFLOW PREVENTION DEVICE

A. The double check valve is existing.

2.3 PLASTIC PIPE FITTINGS AND CONNECTIONS

A. Fittings to be PVC except as noted on riser, valve assemblies, details, etc.

B. Connections shall be solvent weld, except at valves, risers, etc. that require threaded connections.

C. Threaded connections shall be of male adapter type.

D. Couplings and fittings to be taper-molded, Schedule 40, except where indicated in details to be Schedule 80.

E. Threaded nipples must be Schedule 80.

F. Fittings shall conform to ASTM D2466-76a and D1484-75.

2.4 JOINING MATERIALS

A. All joining materials used will be manufactured by I.P.S. or equal, and will be used in accordance to the manufacturer's written specifications and safety recommendations.

B. All threaded connections (PVC) shall be sealed by using Teflon tape or Teflon paste.

C. All galvanized threads shall be sealed with an approved Teflon base pipe compound.

D. PVC solvent compounds shall be IPS “Weld-On” P-70 purple primer and “Weld-On” P-711 heavy-bodied gray cement or approved equal.

2.5 MANUAL ISOLATION GATE VALVES

A. Valves to conform to the latest revision of AWWA Standard C-509.

B. All parts shall be accessible for repair or maintenance without removing the body from the line.

C. The body, bonnet, and seal plate shall have a factory applied thermoplastic epoxy coating on all interior and exterior surfaces. The wedge shall be cast iron completely encapsulated with a resilient elastomer material permanently bonded to the wedge and shall have a

rubber tearing bond that meets ASTM D429.

D. The gate valve shall be rated for 200 psi WWP.

E. Gate valves shall be M+H 4067-07 with hand operated wheel handle or approved equal.

F. Two valve operating keys are to be furnished.

2.6 QUICK COUPLING VALVES

A. Quick-coupling valves shall be bronze two-piece construction or iron body, bronze mounted, globe pattern. Pressure rating to be 150 psi. Connections shall be iron pipe, threaded. The cover shall designate non-potable water. Valves to be Rainbird 44 LRC.

B. Quick-coupling valves shall be connected to Schedule 40 main line with a Lasco Swing Joint #G332-212.

C. Contractor is to furnish to the Owner two couplers with either 1 " x 1" or 1" x 3/4" hose swivel (per Owner's option). Hose swivels shall be attached to coupler keys.

D. Valves to be housed in pre-fabricated aluminum box and cover assembly manufactured to accommodate the specified quick coupler assembly and synthetic turf surfacing or rubberized surfacing, Sportsfield Specialties TurfCool box

E. Work to include layout, trenching, pipe installations, backfill, quick coupling valves, valve boxes, riser assemblies, and related items.

2.7 VALVE BOXES

A. Valve boxes for perimeter locations shall be Carson 1419 valve box with locking lid.

B. The quick coupling valve boxes in the synthetic turf or track shall be Sportsfield Specialties (888) 975-3343 TurfCool Quick Connect Valve Box TC-3700-QCV or approved equal.

C. The box shall include pipe clamps to anchor the quick coupling valve and prevent rotation during use.

D. The box shall include leveling bolts at the base to allow for setting the top flush with the surrounding grades.

2.8 SLEEVING

A. All pipe and wire sleeves shall be schedule 40 PVC. Valve control wires shall be installed in a separate sleeve. All sleeving shall be installed 24 inches below finish grade.

2.9 MARKING TAGS

A. All appurtenances shall be installed with polyurethane warning tags manufactured by T. Christy Enterprises or approved equal. Tags shall read valve number, which shall match the zone valve designation at the controller. Tags shall be purple, with black ink.

2.10 DETECTABLE WARNING TAPE

A. Magnetic Pipe Locating Tape: Polyethylene or polyester tape, 4” width, purple in color with metallic interlayer that is detectable from the ground surface by a metal detector. Brady Identoline Underground Warning Tape or equal.

PART 3 – EXECUTION

3.1 TRENCH EXCAVATION

A. Trenches shall be excavated to the line and grade indicated in the plans and specifications. Except for unusual circumstances where approved by the Engineer, the trench site shall be excavated to only such width as is necessary for adequate working space. The top width of the trench will generally not exceed 18" for sizes 2-1/2" and smaller. The trench shall be kept free from water until all connections are completed. No water is to be permitted in the trenches until jointing material has set in the case of solvent and weld joints. Surface water shall be diverted so as not to enter the trench. Boulders, rocks, roots and other obstructions shall be entirely removed or cut out to the width of the trench and to a depth 6" below the bottom of the pipe.

B. Coordinate trench depths to provide a minimum of 8" clearance below the subsurface drainage system.

C. Trenches, where applicable, shall be excavated to a depth to provide 12" cover minimum below finish subgrade over piping.

D. Install metallic detectable tape 6” above all main line piping.

3.2 NOT USED

3.3 INSTALLATION OF PLASTIC PIPING

A. Pipe couplings and fittings shall be handled and installed in accordance with the recommendations of the pipe manufacturer. The chemical used in solvent welding are intended to penetrate the surface of both pipe and fitting, which after curing, result in a complete fusion at the joint. Use solvent and cement only as recommended by the pipe manufacturer.

B. Procedure for solvent welds:

1. Wipe off all dust, dirt and moisture from the surface to be welded.
2. With a non-synthetic bristle brush in the following sequence, apply an even coating of cement to the outside of the pipe. Then apply solvent to the inside of the fitting, and then reapply a light coating of cement to the outside of the pipe and inside of the fitting, making certain that coated area on the pipe is equal to the depth of the fitting socket.
3. Insert pipe quickly into the fitting. Hold joint for a minimum of 15 seconds so that pipe does not recede from fitting. Clean off any bead of excess cement that appears at the outer shoulder of the fitting.
4. Allow at least 15 minutes set up (curing) time for each welded joint before moving or handling.
5. Check all fittings for correct position before solvent weld sets.

C. Plastic to Metal Connections: On plastic to metal connections, work the metal connection first. Use Perma-Tex No. 2, Teflon tape, or similar non-hardening material on threaded connections. Liquid Teflon is not acceptable. Light wrench pressure is all that should be used. Connections between metal and plastic are to be threaded adapters, except where indicated in the Details.

D. Curing: Prior to introducing water into the piping, a minimum of two hours curing time for the plastic joint connections shall transpire.

3.4 QUICK COUPLING VALVE (QCV) & BOX INSTALLATION

A. All piping shall be thoroughly flushed through extended risers before quick coupling valves (QCV) are attached.

B. Quick coupling valves shall be installed as indicated in the details, perpendicular to the surface. Valve top to be between 1" to 1-1/2" below inside surface of box lid.

C. Quick coupling valve box shall be installed with their respective enclosure

consistent with the approved manufacturers printed installation instructions. Cover of valve box including rubberized or synthetic turf surfacing cover shall meet and match adjacent finish surface condition. Box shall be adjusted so as to not impact existing running lanes of track.

D. Valves to be housed in coupling as shown in the details, for installation adjacent to or within concrete turf anchor.

3.5 BACKFILLING

A. Sand or select soil backfill material shall be placed and compacted around and under the piping and risers by hand tools to height of 6" above the top of all piping. Backfill is to be compacted to 95% minimum density by mechanical tamping. Trench must be free of water during backfilling operation.

B. All backfill around quick coupling valves and sprinkler risers shall be mechanically compacted to 95% minimum density with moisture added.

3.6 TESTING

A. Before testing, all piping is to be thoroughly flushed.

B. Prior to acceptance of work, all pressure piping and fittings shall be subjected to a hydrostatic pressure test of 150 psi. This test shall include all mainline and lateral piping for a minimum of one hour. Leaks and/or imperfections developing under said pressure shall be remedied by the Contractor before final acceptance of the work. Pressure shall be maintained while the entire installation is inspected. The Contractor shall provide all work connected with the tests. Including temporary above ground piping to connect a riser from each lateral so that the entire system can be tested simultaneously.

C. Blocking shall be in place at the time of testing. Insofar as practical, tests shall be made with valves and risers exposed for inspection.

D. Allowable leakage in gallons per 1,000 lineal feet of pipe is as follows:

2-1/2" and 2"	2.0 gallons per hour
1-1/2" and 1"	1.5 gallons per hour

E. The Contractor shall perform all tests to satisfactory results prior to requesting test approval by the Engineer.

F. An operational test of the completed system shall be scheduled with the Engineer.

G. The Contractor shall perform all tests to satisfactory results prior to requesting test approval by the Engineer.

3.7 INSTRUCTIONS AND LITERATURE

A. Contractor is to conduct training sessions to demonstrate and instruct school personnel on operation and maintenance of all equipment installed.

B. Where applicable, Contractor shall have equipment manufacturers' representatives participate in this session.

C. Contractor is to supply four (4) sets of descriptive literature and parts lists for all equipment furnished.

3.8 RECORD DRAWINGS

A. The contractor shall maintain a daily record of all pipe and equipment installed that varies from the original design, as approved by Owner’s Representative.

B. All valve boxes and splice boxes shall be dimensioned from two permanent structures upon completion of project.

END OF SECTION 32 84 23

SECTION 33 46 16
FIELD SUBSURFACE DRAINAGE

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. Furnish and install complete subsurface drainage system for synthetic turf field as indicated on the drawings.

B. Locate and selectively demolish existing subsurface drainage systems to remain and connect to new conveyance with compatible materials.

C. Coordinate this work with that of Sections 31 00 00 Earthwork and 31 22 16 Subgrade Establishment.

D. The work includes locating and exposing existing perforated, corrugated HDPE pipe and tubing to very operation and manage or remediate deficiencies. The specification includes complete installation instruction. Utilize those portions of the described work to accomplish tasks as described by the drawings or as directed by the Architect.

E. Trench to line and grade as shown on the drawings utilizing laser controlled equipment.

F. Dispose of excavated trench material.

G. Collector Tubing:

1. For non-perforated collector under 12” in diameter, install corrugated polyethylene (CPEP) collector tubing. Backfill with select site soil, 8" maximum lifts, compacted to 95%.
2. For perforated collector, install corrugated polyethylene (CPEP) collector tubing. Bed and Backfill with pea gravel.

H. Remove all loose material from collector and lateral trench bottom.

I. For round pipe perforated lateral drainage piping, place a minimum 2" depth of specified washed pea gravel bedding for perforated lateral piping.

J. Install perforated corrugated tubing lateral system plumbed to collector piping.

K. Bed and backfill round perforated tubing trenches with specified washed pea gravel. Backfill over corrugated tubing in jump pits with pea gravel.

L. Upon completion of this work, restore subgrade to specified condition and tolerances, compacted to 95% density with no loose material on surface.

J. Furnish and install trench drain and trench drain catch basins around the perimeter of the playing field as shown on the plans.

1.2 STANDARD SPECIFICATIONS

A. American Public Works Association, Washington State Chapter, Standard Specifications for Municipal Public Works Construction (APWA) (latest edition).

B. Standard Specifications for Road, Bridge, and Municipal Construction, ODOT, American Public Works Association (APWA)

C. United States Department of Agriculture, Soil Conservation Service, Engineering Standard 606.

1.3 RELATED WORK IN OTHER SECTIONS

31 00 00 Earthwork
31 22 16 Subgrade Establishment
33 40 00 Storm Drainage

1.4 SUBMITTALS

A. Submit to the Field Landscape Architect for approval:

1. Pea gravel sieve analysis
2. Product data for perforated and non-perforated tubing
3. Product data for all fittings and connections

1.5 QUALIFICATIONS

A. The Contractor (or Subcontractor) responsible for field base establishment, field subsurface drainage, and field permeable aggregate placement and compaction shall be submitted to the Field Landscape Architect for approval. Specific qualification requirements are included as follows:

1. Contractor shall be and has been actively and directly engaged in constructing similar natural or synthetic field projects for a period of five (5) or more years and shall provide proof of five (5) or more full size (minimum 75,000 SF) field base installations completed in the past five (5) years.
2. The Contractor’s experience shall include completion of high school

or collegiate competition fields, or professional level practice or competition fields. The qualifying playing field systems shall include earthwork, washwater or irrigation systems, drainage and subsurface drainage systems and base aggregate placement and compaction.

3. If so directed, provide a listing of all construction contracts (whether completed or in progress) entered into or performed by the Contractor within the past five years for projects similar in scope, time and complexity to the work called for under this Contract; include the names of the contracts, and the names and contact information of the owners.

PART 2 - PRODUCTS

2.1 PERFORATED AND NON-PERFORATED TUBING

A. The piping shall be corrugated polyethylene drainage tubing. The perforated and non-perforated collector tubing shall be smooth interior wall CPEP, ADS N-12 or approved equal.

B. Flat-drains shall be ADS “AdvanEdge” system without geotextile wrap.

C. Material shall conform to requirements of Type III, Grade 4, Class "C" polyethylene as specified in ASTM D1248.

D. Dimensions:

1. Inside diameter variance shall not exceed -0.0% or +5%.
2. Lengths shall be in coiled configuration with a -0.0% tolerance.

E. Tubing shall conform to U.S. Department of Agriculture Soil Conservation Service, Engineering Standard 606.

F. Perforated tubing

1. For round pipe, utilize single wall, perforated drainage tubing. Water inlet areas shall be slotted with a width of 1/16" "0.020" to a maximum of 3/32” “0.030” uniformly spaced circumferential slots located on the inner depression of the corrugation, totaling a minimum of 1.25 square inches per lineal foot. The perforations shall provide a clear opening. Tubing with perforations that are punched with a flap type opening or that are not uniform will be rejected.
2. For Flat or Panel-type Drainage Tubing, ADS “AdvanEdge” system and all necessary pre-molded fittings, couplers, and caps.

G. Fittings and Connections:

1. Fittings shall be as furnished by the manufacturer of the pipe.
2. Connections of tubing lengths shall be with split coupling or snap-in-type couplings utilizing polyethylene or construction tape.
3. Tubing is to be inserted into sockets for the full socket length. "Slip-fit" connections will not be permitted.
4. All split coupling connections are to be fully taped. All connections at fittings and connections are to be taped at interface of exposed joint.

2.2 PEA GRAVEL

A. Pea-gravel bedding and backfill for perforated pipe subdrainage systems, and as backfill for un-piped infiltration trenches, shall be clean, washed, uniformly graded 3/8" to 1/8". The pea gravel material graduation must meet the following sieve analysis:

Sieve Size	Percent Passing
1/ 2”	100
3/ 8"	80 - 100
# 4	0 - 50
# 8	0 - 10
# 100	0 - 0.6
# 200 (wet sieve)	0 - 0.5
# 270 (wet sieve)	0 - 0.3

2.3 TESTING

A. The Owner will be performing testing of materials delivered to the job site for the purpose of verifying compliance with the contract documents. The Owner’s testing is for this purpose only and not for construction quality control by the Contractor.

B. The Contractor shall coordinate directly with the Owner’s testing firm relative to the delivery schedules of the imported materials.

C. The Contractor shall provide testing and surveillance as required to assure materials and work fully comply with contract requirements.

D. The Contractor at a price equal to the Owner’s contract testing agreement shall pay for owner’s tests that do not meet specifications. The Contractor shall pay directly to the testing organization upon invoice to the owner, which has been approved by the Field Landscape Architect.

PART 3 - EXECUTION

3.1 TRENCHING

A. Coordination: It is the responsibility of the Contractor to ensure that electrical conduits and wash water piping are installed at a sufficient depth below subgrade before the trenching for the subsurface drainage system to avoid conflicts between systems.

B. Excavation shall be made to the alignment, elevation, grade and slope as indicated on the drawings.

C. Trenching shall be accomplished utilizing equipment with slope and depth control, such as "Laser Plane Control System", so as to ensure accuracy in the bottom of the trench.

D. No high points above designated invert or calculated trench bottom elevation will be permitted. No sloughing of site material or loose excavated soil will be permitted to remain in the trenches.

E. Surplus excavated soil shall be removed from the field area. Excavated material may not remain on subgrade. Excess soil material shall be disposed of off-site or in District controlled site directly adjacent to the project work area.

F. Provide a smooth, even subgrade after removal of the trench material. Subgrade to be compacted to 95% density. Leave no loose material on the subgrade.

3.2 PLACEMENT

A. Excavation below invert grade must be established to a depth so as to provide for specified placement of pea gravel bedding at bottom of pipe elevation prior to laying the tubing.

B. Pea-gravel bedding for perforated pipe shall be clean, washed, uniformly graded 3/8" to 1/8".

C. No foreign material will be permitted inside, alongside, under, or on top of, installed tubing.

D. All joints and connections shall be with manufacturers snap type fittings and taped secure.

E. Coordinate installation of structural soil bearing fabric to be continuous through trenches, however never placed over the surface of the pipe.

F. For round pipe perforated lateral drainage piping, place a minimum 2" depth of specified washed pea gravel bedding for perforated lateral piping.

3.3 BACKFILL

A. The backfill for all round perforated pipe shall be clean washed pea gravel, uniformly graded 3/8" to 1/8".

B. All trenches to have backfill material "crowned" a minimum of 2" above subgrade to protect from foreign material and provide for ease of location identification. Crowns with foreign material contamination shall be removed prior to placement of base aggregate.

C. Specified bedding shall not be placed until Field Landscape Architect approves the trench.

D. Trench backfill shall not be placed before Field Landscape Architect approves perforated pipe placement.

E. During placement of specified trench backfill, pipe must be held in place with a hand device to prevent displacement and provide for achieving specified invert elevation. Do not damage pipe or allow pipe to be displaced by placement of backfill material.

3.4 CONNECTIONS

A. Includes all new work and connection to existing subdrainage pipe.

B. All connections are to be made with approved fittings as recommended by the tubing manufacturer and approved by the Field Landscape Architect.

C. Tubing is to be inserted into sockets for the entire length. Tape all connections utilizing polyethylene or construction tape. Tape alone shall not be acceptable when connecting separate pieces of pipe together.

D. No foreign material will be permitted inside the installed tubing.

E. Cap the ends of all lateral runs as shown on the drainage plan. All open ends during construction are to be temporarily capped or plugged. Tape shall not be used in lieu of end caps.

F. Connection of laterals to collector drains shall be made with a combination reducing tee and reducing saddle tee or end tee as applicable, utilizing

snap connections.

3.5 EQUIPMENT MOVEMENT

A. No trucks or equipment will be allowed to drive over the top of the trenches except track-equipped machinery utilized in spreading imported granular materials. Backfilled trenches are to be staked and "flagged" 3' above grade a maximum 20' spacing for identity.

END OF SECTION 33 46 16