PROJECT MANUAL

TIBBETS ATHLETIC FIELDS
UNIVERSITY OF RHODE ISLAND
KINGSTON CAMPUS

July 2015

URI: Project No. KC.M.MISC.2010.005

UNIVERSITY OF RHODE ISLAND
OFFICE OF CAPITAL PROJECTS
Paul M. DePace, P.E., Director

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PROJECT MANUAL

TIBBETS ATHLETIC FIELD
University of Rhode Island
Kingston Campus

July 2015

URI: Project No. KC.M.MISC.2010.005

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END OF DOCUMENT

DOCUMENT 00430 - BID SECURITY FORM

Know all men by these presents, that we _____
(insert name and address or legal title of Contractor)
as Principal, hereinafter called the Principal, and
_____
_____
(insert name and address or legal title of surety)
a corporation duly organized under the laws of the State of _____ as Surety, hereinafter called the Surety, are held and firmly bound unto the Owner as defined in the Contract Documents for URI Project # _____ as Obligee, hereinafter called the Obligee, in the sum of _____($_____) for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal has submitted a bid for
_____
_____
_____
(insert full name, address and description of project)

Now, therefore, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____,

_____ _____
Principal Title

_____ _____
Witness Title

_____ _____
Witness Surety

END OF DOCUMENT

DOCUMENT 00210 – SUPPLEMENTAL INSTRUCTIONS TO BIDDERS

TABLE OF ARTICLES

ARTICLE 1 – FEDERAL REQUIREMENTS.

Deleted.

ARTICLE 2 – STATE REQUIREMENTS

2.1 Bidders are advised to review and make themselves aware of RIGL 37-2-18 (PL 221) and the related Purchasing Rules and Regulations section 5.4.6.1.1 effective January 11,2011 and as amended, as they pertain to the requirement for a public copy of bids for Public Works contracts.

2.2 Bidders are also subject to the terms, conditions, and provisions of the latest versions of Chapters 2, 12, 13 and 14 of Title 37, general laws of the State of Rhode Island, 1956, as amended, including apprentice requirements of 13-3.1 and regulations promulgated there under which require that ten percent (10%) of the dollar value of work performed on the project be performed by minority business enterprises, and prevailing wage rates to be paid under the Contract for this project must be in accordance with those prevailing wages on file in the Rhode Island Department of Labor, Office of the Director.

2.3 In accordance with Purchasing Rules and regulations effective Jan. 11, 2011, at the time that a proposal is submitted, a bidder must also submit a redacted copy of the bid proposal in a PDF file format on a read only CD-R Media Disk (hereinafter referred to as a "CD"). Vendors are required to provide all documents submitted in response to the bid solicitation on the CD.

a. The acceptable media is a CD-R. Media that is read/writable (CD RW) will not be accepted.
b. Only readable, not writeable bedia is acceptable.
c. Vendor is responsible for supplying their own CD-R media.
d. Vendor is responsible for the integrity of the CD.

Failure of the bidder to submit a public copy on a readable CD as required by RIGL 37-2-18 as amended, shall result in the disqualification of said bid.

ARTICLE 3 – BID BOND AMOUNT

3.1 A certified check or **Bid Bond** payable to the University of Rhode Island in an amount equal to Five Percent (5%) of the proposal shall be submitted with the bid.

ARTICLE 4 – BIDDER CERTIFICATION FORM

4.1 Bids shall be submitted on the forms included with the Bidding Documents, covered by a properly completed BOG/URI certification form which is provided as part of the Bidding Documents download package.

END OF DOCUMENT

DOCUMENT 00430 - BID SECURITY FORM

Know all men by these presents, that we _____
(insert name and address or legal title of Contractor)
as Principal, hereinafter called the Principal, and
_____
_____
(insert name and address or legal title of surety)
a corporation duly organized under the laws of the State of _____ as Surety, hereinafter called the Surety, are held and firmly bound unto the Owner as defined in the Contract Documents for URI Project # _____ as Obligee, hereinafter called the Obligee, in the sum of _____($_____) for the payment of which sum well and truly to be made, the said Principal and the said Surety, bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the Principal has submitted a bid for
_____
_____
_____
(insert full name, address and description of project)

Now, therefore, if the Obligee shall accept the bid of the Principal and the Principal shall enter into a Contract with the Obligee in accordance with the terms of such bid, and give such bond or bonds as may be specified in the bidding or Contract Documents with good and sufficient surety for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof, or in the event of the failure of the Principal to enter such Contract and give such bond or bonds, if the Principal shall pay to the Obligee the difference not to exceed the penalty hereof between the amount specified in said bid and such larger amount for which the Obligee may in good faith contract with another party to perform the Work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect.

Signed and sealed this _____ day of _____,

_____ _____
Principal Title

_____ _____
Witness Title

_____ _____
Witness Surety

END OF DOCUMENT

DOCUMENT 00450 - BIDDER'S QUALIFICATION FORM

This Bidder's Qualification Form is included as an integral part of the Bid documents, for use in evaluating the qualifications of Contractors, but is not a part of the Bid submission itself.

When a pre-award meeting is scheduled, the apparent low bidder may be asked to submit this form. Failure of the announced low numerical bidder to respond with relevant information to the stated requirements of this Document 00450 may disqualify that bidder from further consideration as a bidder on this Project.

The Undersigned certifies under oath that the information provided herein is true and sufficiently complete so as not to be misleading.

SUBMITTED TO: Owner at Pre-Award meeting if requested.

SUBMITTED BY:

NAME:

ADDRESS:

PRINCIPAL OFFICE:

___ Corporation

___ Partnership

___ Individual

___ Joint Venture

___ Other

NAME OF PROJECT:

TYPE OF WORK (file separate form for each classification of work)

___General Construction ___ HVAC

___ Plumbing ___ Electrical

___ Other(please specify)

1. ORGANIZATION

How many years has your organization been in business as a Contractor?

How many years has your organization been in business under its present name?

Under what other or former names has your organization operated?

If your organization is a corporation, answer the following:

Date of incorporation:
State of incorporation:
President's name:
Vice-president's name(s):

Secretary's name:
Treasurer's name:

If your organization is a partnership, answer the following:

Date of organization:
Type of partnership(if applicable):
Name(s) of general partners:

If your organization is individually owned, answer the following:

Date of organization:
Name of owner:

If the form of your organization is other than those listed above, describe it and name the principals:

2. LICENSING

List jurisdictions and trade categories in which your organization is legally qualified to do business, and indicate registration or license numbers, if applicable:

List jurisdictions in which your organization's partnership or trade name is filed.

3. EXPERIENCE

List the categories of work that your organization normally performs with its own forces.

Claims and suits. (If the answer to any of the questions below is YES, please attach details)

Has your organization ever failed to complete any work awarded to it?

Are there any judgments, claims, arbitration proceedings or suits pending or outstanding against your organization or its officers?

Has your organization filed any law suits or requested arbitration with regard to construction contracts within the last 5 years?

Within the last 5 years, has any officer or principal or your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is YES, please attach details).

On a separate sheet, list major construction projects your organization has in progress, giving the name of project, owner, architect, contract amount, percent complete and scheduled completion date.

State total worth of work in progress and under contract.

On a separate sheet, list the major projects your organization has completed in the past 5 years, giving the name of project, owner, architect, contract amount, date of completion and percentage of the cost of the work performed with your own forces.

State average annual amount of construction work performed during the past 5 years.

On a separate sheet, list the construction experience and present commitments of the key individuals of your organization.

4. REFERENCES

Trade References:

Bank References:

Surety:

Name of bonding company:

Name and address of agent:

5. FINANCING

Financial Statement

Attach a financial statement, preferably audited, including your organization's latest balance sheet and income statement showing the following items:

Current assets (e.g., cash, joint venture accounts, accounts receivable, notes receivable, accrued income, deposits, materials inventory, and prepaid expenses);

Net fixed assets;

Other assets;

Current liabilities (e.g., accounts payable, notes payable, accrued expenses, provision for income taxes, advances, accrued salaries, and accrued payroll taxes);

Other liabilities (e.g., capital, capital stock, authorized and outstanding shares par values, earned surplus and retained earnings).

Name and address of firm preparing attached financial statement, and date thereof:

Is the attached financial statement for the identical organization named on Page 1?

If not, explain the relationship and financial responsibility of the organization whose financial statement is provided (e.g., parent-subsidiary).

Will the organization whose financial statement is attached act as guarantor of the contract for construction?

6. SIGNATURE

6.1 Dated at this day of

Name of Organization:

By:

Title:

6.2 Mr. or Mrs.

being duly sworn deposes and says that the information provided herein is true and sufficiently complete so as not to be misleading.

Subscribed and sworn to before me in _____ this_____day of _____, 20___.

Notary Public:_____(Printed Name)

_____(Signature)

My Commission Expires:

END OF DOCUMENT

DOCUMENT 00520 - AGREEMENT FORM

Agreement made as of the date of issue of the Purchase Order for this Work.

Between the Owner:
See SUPPLEMENTAL GENERAL CONDITIONS, Article 1.

And the Contractor:
As defined in the Purchase Order.

The Project is:
See SUPPLEMENTAL GENERAL CONDITIONS, Article 1.

The Design Agent is:
See SUPPLEMENTAL GENERAL CONDITIONS, Article 1.

The Owner and Contractor agree as follows.

ARTICLE 1 THE CONTRACT DOCUMENTS

1.1 See GENERAL CONDITIONS, Article 1 as amended for enumeration of Contract Documents.

ARTICLE 2 THE WORK OF THIS CONTRACT

2.1 The Contractor shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

3.1 The Date of Commencement of the Work shall be the issue date of the Purchase Order from the University of Rhode Island for this Work.

3.2 The Contract Time shall be measured from the Date of Commencement.

3.3 The Contractor shall achieve Substantial Completion of the entire Work as follows: See SUPPLEMENTAL GENERAL CONDITIONS, Article 2, subject to adjustments of this Contract Time as provided in the Contract Documents.

3.4 Liquidated Damages: See SUPPLEMENTAL GENERAL CONDITIONS, Article 3.

ARTICLE 4 CONTRACT SUM

4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be as shown on the Purchase Order, subject to additions and deductions as provided for in the Contract Documents.

4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
As per Purchase Order.

4.3 Unit prices, if any, are as follows:
As per pricing noted on Bid Form, referenced in Purchase Order.

ARTICLE 5 PAYMENTS

5.1 PROGRESS PAYMENTS

5.1.1 Based upon Applications for Payment submitted to the Design Agent by the Contractor and Certificates for Payment issued by the Design Agent, the Owner shall make progress payments on account of the Contract Sum to the Contractor as detailed in the General Conditions as amended, in Sections 01200 and 01201 of the Specifications, and elsewhere in the Contract Documents.

5.2 FINAL PAYMENT

5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when:

5.2.1.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of SECTION 00700-GENERAL CONDITIONS, and to satisfy other requirements, if any, which extend beyond final payment; and

5.2.1.2 a final Certificate of Payment has been issued by the Design Agent.

5.2.2 The Owner's final payment to the Contractor, less warranty retainage, shall be made no later than (1) when the Contractor has fully performed the Work of the Contract as provided in Subparagraph 5.2.1 above, and (2) 30 days after the issuance of the Design Agent's final Certificate of Payment.

ARTICLE 6 TERMINATION OR SUSPENSION

6.1 The Contract may be terminated by the Owner of the Contractor as provided in Article 14 of SECTION 00700-GENERAL CONDITIONS.

6.2 The Work may be suspended by the Owner as provided in Article 14 of SECTION 00700-GENERAL CONDITIONS.

ARTICLE 7 MISCELLANEOUS PROVISIONS

7.1 Where reference is made in this Agreement to a provision of SECTION 00700-GENERAL CONDITIONS another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

7.2 Payments due and unpaid under the Contract shall bear interest from the date payment is due as proscribed by the State of Rhode Island Prompt Payment Act.

7.3 See Section 00710-SUPPLEMENTAL GENERAL CONDITIONS for a listing of Owner and other defined entities.

7.4 The Contractor's representative is: As stated in minutes of the Pre-Award meeting.

7.5 In the absence of an emergency, neither the Owner's nor the Contractor's representative shall be changed without 10 days written notice to the other party.

7.6 If the Contractor fails to achieve Final Completion of the Project by the time established in 00710-SUPPLEMENTAL GENERAL CONDITIONS due to inaction or negligence on the part of the Contractor or their agents, then the Owner reserves the right to complete the Work in accordance with SECTION 00700-GENERAL CONDITIONS, Paragraph 4.2-Owner's Right to Carry Out the Work.

This Agreement is entered into as of the date of the applicable Purchase Order and is assumed as executed once the Purchase Order is issued.

END OF DOCUMENT

DOCUMENT 00610 - PERFORMANCE BOND; PAYMENT BOND

PERFORMANCE BOND

CONTRACTOR (Name and Address): SURETY(Name and Address):

OWNER (Name and Address):

CONSTRUCTION CONTRACT:
Date:
Amount:
Description(Name and Location):

BOND
Date(Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond('None' or 'See Last Page'):

CONTRACTOR AS PRINCIPAL SURETY
Company: (corporate seal) Company: (corporate seal)

Signature_____ Signature_____
Name and title: Name and title:

(Any additional signatures appear on last page)

(FOR INFORMATION ONLY – Name, address and telephone)

AGENT OR BROKER:

OWNER'S REPRESENTATIVE:

1. The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 3.1.

3. If there is no Owner Default, the Surety's obligation under this Bond shall arise after:

   3.1 The Owner has notified the Contractor and the Surety at its address described in Paragraph 10 that the Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with the Contractor and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Construction Contract. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default; and
   3.2 The Owner has declared a Contractor Default and formally terminated the Contractor's right to complete the contract. Such Contractor Default shall not be declared earlier than twenty days after the Contractor and the Surety have received notice as provided in Subparagraph 3.1; and
   3.3 The Owner has agreed to pay the balance of the Contract Price to the Surety in accordance with the terms of the Construction Contract or to a contractor selected to perform the Construction Contract in accordance with the terms of the contract with the Owner.

4. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

   4.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Construction Contract; or
   4.2 Undertake to perform and complete the Construction Contract itself, through its agents or through independent contractors; or
   4.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and the contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 6 in excess of the balance of the Contract Price incurred by the Owner resulting from the Contractor's default; or
   4.5 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:
   4.6 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, tender payment therefore to the Owner; or
   4.7 Deny liability in whole or in part and notify the Owner citing reasons therefore.

5. If the Surety does not proceed as provided in Paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

If the Surety proceeds as provided in Subparagraph 4.4, and the Owner refuses the payment tendered or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

6. After the Owner has terminated the Contractor's right to complete the Construction Contract, and if the Surety elects to act under Subparagraph 4.1, 4.2, or 4.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the balance of the Contract Price to mitigation of costs and damages on the Construction Contract, the Surety is obligated without duplication for:

   6.1 The responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
   6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4;
   6.3 Liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

7. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. Not right of action shall accrue on this Bond to any person or entity other than the Owner its heirs, executors, administrators or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after Contractor Default or within two years after the Contractor eased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here form and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. DEFINITIONS

12.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

12.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

12.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Construction Contract.

12.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	(corporate seal)	Company:	(corporate seal)
Signature_____		Signature_____	
Name and title:		Name and title:	

PAYMENT BOND

CONTRACTOR (Name and Address): SURETY(Name and Address):

OWNER (Name and Address):

CONSTRUCTION CONTRACT:
Date:
Amount:
Description(Name and Location):

BOND
Date(Not earlier than Construction Contract Date):
Amount:
Modifications to this Bond('None' or 'See Last Page'):

CONTRACTOR AS PRINCIPAL SURETY
Company: (corporate seal) Company: (corporate seal)

Signature_____ Signature_____
Name and title: Name and title:

(Any additional signatures appear on last page)

(FOR INFORMATION ONLY – Name, address and telephone)

AGENT OR BROKER:

OWNER'S REPRESENTATIVE:

1. The Contractor and the Surety, jointly and severally bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference.

2. With respect to the Owner, this obligation shall be null and void if the Contractor:

   2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and
   2.2 Defends, indemnifies and holds harmless the Owner from claims, demands, liens or suites by any person or entity whose claim, demand, lien or suit is for the payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, provided the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if the Contractor promptly makes payment, directly or indirectly, for all sums due.

4. The Surety shall have no obligation to Claimants under this Bond until:

   4.1 Claimants who are employed by or have a direct contract with the Contractor have given notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
   4.2 Claimants who do not have a direct contract with the Contractor:
   - Have furnished written notice to the Contractor and sent a copy, or notice thereof, to the Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
   - Have either received a rejection in whole or in part from the Contractor, or not received within 30 days of furnishing the above notice any communication from the Contractor by which the Contractor has indicated the claim will be paid directly or indirectly; and
   - Not having been paid within the above 30 days, have sent a written notice to the Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to the Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the Contractor.

5. If a notice required by Paragraph 4 is given by the Owner to the Contractor or to the Surety, that is sufficient compliance.

6. When the Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:

6.1 Send an answer to the Claimant, with a copy to the Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
6.2 Pay or arrange for payment of any undisputed amounts.

7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

8. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any Construction Performance Bond. By the contractor furnishing and the Owner accepting this bond, they agree that all funds earned by the contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and the Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

9. The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction contract. The Owner shall not be liable for payment of any costs or expenses of any Claimant under this bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. The Surety hereby waives notice of any change, including changes of time, to the construction Contract or to related subcontracts, purchase orders and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the work or part of the work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Subparagraph 4.1 or Clause 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the signature page. Actual receipt of notice by Surety, the Owner or the Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

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

15. DEFINITIONS

15.1 Claimant: An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contraction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

15.2 Construction Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Construction Contract or to perform and complete or comply with the other terms thereof.

MODIFICATIONS TO THIS BOND ARE AS FOLLOWS:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL		SURETY	
Company:	(corporate seal)	Company:	(corporate seal)
Signature_____		Signature_____	
Name and title:		Name and title:	

END OF DOCUMENT

DOCUMENT 00614 - WAIVER OF LIEN FORM

U. R. I. Document Waiver of Lien Form is included, following this page, as an integral part of the Contract documents. A copy with completed information must be submitted with the second and each succeeding Application for Payment.

UNIVERSITY OF RHODE ISLAND

Construction Project Title: _____

General Contractor: _____

Subcontractor/Supplier: _____

DUNS No.: _____

Application and Certificate for Payment No: _____
(prior to Application accompanying this form)

Schedule of Values Line Item No.: _____

DESCRIPTION OF WORK Heading: _____

Total payment Received, Including Current Payment: $ _____

The undersigned Representative of the above Subcontractor/Supplier has been contracted by the above General Contractor to furnish materials, or labor, or both, as included in the approved Schedule of Values under the Line Item No.___, and DESCRIPTION OF WORK heading indicated above, for the Construction Project listed above.

The undersigned acknowledges receipt of payment, under this Line Item No., and DESCRIPTION OF WORK heading, and hereby waives and releases any and all lien, or claim or right to lien, on the Construction Project listed above, and premises, under the statutes of the State of Rhode Island, relating to Mechanics Liens, on account of materials, or labor, or both, furnished, or which may be furnished, by the undersigned to, or on account of, the above numbered Application and Certificate for Payment.

Signed on this _____ day of _____, 20__.

_____ _____
(signature) (firm name)

END OF DOCUMENT

DOCUMENT 00700 - GENERAL CONDITIONS

TABLE OF ARTICLES

ARTICLE 1 - GENERAL PROVISIONS

1.1 BASIC DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Purchase Order including its Terms and Conditions and referenced documents, the Agreement between Owner and Contractor (hereinafter Agreement), Conditions of the Contract (General, Supplemental and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Supplemental General Conditions and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Design Agent. Unless specifically referenced in the Purchase Order or Supplemental General Conditions, the Contract Documents do not include other documents such as bidding requirements (advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or portions of Addenda relating to bidding requirements) .

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. Nothing in the Contract Documents shall be construed to create a contractual relationship of any kind (1) between the Design Agent and Contractor, (2) between the Owner and a Subcontractor or Sub-subcontractor, (3) between the Owner and Design Agent or (4) between any persons or entities other than the Owner and Contractor. The Design Agent shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Design Agent's duties.

1.1.3 THE WORK

The term "Work" means the construction services required by the Contract Documents, including all labor necessary to produce such construction, and all materials and equipment incorporated, or to be incorporated, therein. The Work may constitute the whole or a part of the Project.

1.1.4 THE PROJECT

The Project is the total construction described in the Agreement of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

1.1.7 THE PROJECT MANUAL
The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

1.1.8 ADDITIONAL DEFINITIONS
See the Supplemental General Conditions for definitions of entities to these Contract Documents, including the Owner, Purchaser, Design Agent, Consultants and their roles, and Representatives for same. The Contractor is defined in the Purchase Order issued by URI.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

1.2.1.1 In the event of conflicts or discrepancies among the Contract Documents, interpretations will be based on the following priorities:

1. The Purchase Order.
2. The Agreement.
3. Addenda, with those of a later date having precedence over those of an earlier date.
4. The General Conditions of the Contract for Construction as amended by the Supplemental General Conditions.
5. Drawings and Specifications. In the event of inconsistencies between the Drawings and Specifications not covered by 1.2.1.3 below, the Design Agent shall be consulted and shall issue a determination.

1.2.1.2 All Work mentioned in contract Documents shall be performed by the Contractor as part of this Contract unless it is specifically indicated in the Contract Documents that such Work is to be done by others.

1.2.1.3 In the event of a conflict or inconsistency in or among the Contract documents, or between the Contract Documents and applicable codes in effect at the time the Contract Sum is bid or negotiated, the Contractor shall, unless directed otherwise in writing by the Owner, provide the greatest quantity, highest quality, highest degree of safety, and most stringent material, equipment or Work.

1.2.1.4 The Contractor shall refer, and shall direct all Subcontractors to refer, to all of the Drawings, including those showing primarily the Work of the Mechanical, Electrical, and other specialized trades, and to all Sections of the Specifications. with particular attention to the Sections of Division 1 - General Requirements, and shall perform all Work reasonably inferable therefrom as being necessary to produce the indicated results.

1.2.1.5 Sections of Division 1 - General Requirements govern the execution of all Sections of the Specifications..

1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

1.2.3 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

1.3 CAPITALIZATION

1.3.1 Terms capitalized in these General Conditions include those which are (1) specifically defined or (2) the titles of numbered articles and identified references to Paragraphs, Subparagraphs and Clauses in the document.

1.4 INTERPRETATION

1.4.1 In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.5 EXECUTION OF CONTRACT DOCUMENTS

1.5.1 The Contract Documents shall be considered as executed by the Owner and Contractor once a Purchase Order is issued.

1.5.2 Submittal of a bid by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

1.6 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

1.6.1 The Drawings, Specifications and other documents, including those in electronic form, prepared by the Design Agent and the Design Agent's consultants, describe the Work to be executed by the Contractor. Unless the Owner fails to pay the Design Agent, the Owner shall be deemed to have a license to utilize the Drawings, Specifications and other documents for the execution of this project and shall have and retain all rights to use them and reproduce them for the production and maintenance of the Work detailed therein. In the event the Owner is adjudged to have failed to pay the Design Agent, licensing of such Drawings, Specifications and other documents, and all rights therein, shall revert to the Design Agent and its consultants. Neither the Contractor nor any Subcontractor, Sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Design Agent or the Design Agent's consultants. The Drawings, Specifications and other documents prepared by the Design Agent and the Design Agent's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, Sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner and Design Agent. The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Design Agent and the Design Agent's consultants appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Design Agent and the Design Agent's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Design Agent's or Design Agent's consultants' copyrights or other reserved rights.

ARTICLE 2 - OWNER

2.1 GENERAL

2.1.1 The Owner is the person or entity identified as such in the Supplemental General Conditions and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have authority to represent the Owner with respect to all matters requiring the Owner's representation. Except as otherwise provided in Subparagraph 4.2.1, the Design Agent does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

2.2.1 The Owner shall furnish surveys describing physical characteristics, and utility locations for the site of the Project unless survey work is included in the scope of the Work. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

2.2.2 Information or services required of the Owner by the Contract Documents shall be furnished by the Owner with reasonable promptness.

2.2.3 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, an electronic copy of Drawings and Project Manuals necessary for execution of the Work.

2.3 OWNER'S RIGHT TO STOP THE WORK

2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents or fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Constructive Change Directive shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Design Agent's additional services and expenses made necessary by such default, neglect or failure.

ARTICLE 3 - CONTRACTOR

3.1 GENERAL

3.1.1 The Contractor is the person or entity identified as such in the Purchase Order for this work issued by URI and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative.

3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Design Agent in the Design Agent's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

3.2.1 Since the Contract Documents are complementary, before starting each portion of the Work, the Contractor shall carefully study and compare the various Drawings and other Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Subparagraph 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. Any errors, inconsistencies or omissions in the Contract Documents discovered by the Contractor shall be reported promptly to the Design Agent and the Owner in writing as a request for information in such form as the Design Agent or Owner may require.

3.2.2 While the Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, any nonconformity discovered by or made known to the Contractor shall be reported promptly to the Design Agent and the Owner in writing.

3.2.3 If the Contractor believes that additional cost or time is involved because of clarifications or instructions issued by the Design Agent in response to the Contractor's notices or requests for information pursuant to Subparagraphs 3.2.1 and 3.2.2, the Contractor shall make Claims as provided in Subparagraphs 4.3.6 and 4.3.7. If the Contractor fails to

perform the obligations of Subparagraphs 3.2.1 and 3.2.2, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. The Contractor shall not be liable to the Owner or Design Agent for damages resulting from errors, inconsistencies or omissions in the Contract Documents or for differences between field measurements or conditions and the Contract Documents unless the Contractor recognized, or in the exercise of ordinary care, reasonably should have recognized, such error, inconsistency, omission or difference and failed to report it in writing to the Design Agent and the Owner.

3.2.4 The Contractor shall give the Design Agent timely notice of any additional Drawings, Specifications, or instructions required to define the Work in greater detail to permit the proper progress of the Work.

3.2.5 The Contractor shall not proceed with any Work not clearly and consistently defined in detail in the Contract Documents, but shall request additional Drawings, Specifications. or instructions from the Design Agent as provided in Subparagraph 3.2.4. If the Contractor proceeds with such Work without obtaining further Drawings, Specifications, or instructions, the Contractor shall correct the Work incorrectly performed at the Contractor's own expense.

3.2.6 Lack of indication on the Drawings or in the Specifications of items obviously needed to properly perform the Work of the Project such as attachments, bolts, hangers, and other fastening devices, shall not relieve the Contractor from furnishing and installing these items.

3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract

3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor, the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing or supplying the Work, or portions thereof, for or on behalf of the Contractor or any of its Subcontractors.

3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

3.4 LABOR AND MATERIALS

3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. The word "provide" shall mean furnish and install complete, including connection, unless otherwise specified.

3.4.2 The Contractor may make substitutions only in accordance with Product Substitution Requirements, Paragraph 1.06 of Section 01600 of the Specifications, with the consent of the Owner, after evaluation by the Design Agent and in accordance with a Change Order. The cost of the Design Agent’s time to evaluate substitution requests not provided for in the Specifications shall be included as a part of the Change Order.

3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall also enforce strict adherence by the Contractor’s employees and Subcontractors on site with the URI Sexual Harassment Policies.

3.4.4 The Contractor shall not permit unlicensed persons to perform Work for which licensing is required, or to operate equipment for which licensing to operate is required by the State of Rhode Island. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

3.5 WARRANTY

3.5.1 The Contractor warrants to the Owner and Design Agent that materials and equipment furnished under the Contract will be new and of recent manufacture, unless otherwise specified, and that all Work will be of good quality, non-hazardous to physical health and to the environment, asbestos free, free from faults and defects, and in conformance with the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Design Agent or the Owner, the Contractor shall furnish evidence satisfactory to URI as to the kind and quality of materials and equipment.

3.6 TAXES

3.6.1 The Owner is exempt from payment of sales taxes for materials directly incorporated into the Work of this Project.

3.7 PERMITS, FEES AND NOTICES

3.7.1 The Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work which are customarily secured after execution of the Contract and which are legally required when bids are received or, negotiations concluded, and for necessary approvals, easements. assessments, and charges required for construction, use, or occupancy of permanent structures or of permanent changes in existing facilities.

3.7.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work.

3.7.3 While it is not the Contractor's responsibility to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations, if the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Design Agent and Owner in writing, and necessary changes shall be accomplished by appropriate Modification.

3.7.4 If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Design Agent and Owner, the Contractor shall assume responsibility for correction of such Work and shall bear the costs attributable to correction.

3.8 ALLOWANCES

3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

3.8.2 Unless otherwise provided in the Contract Documents:

- **.1** All allowances shall cover the cost to the Contractor of materials and equipment delivered at the site, less applicable trade discounts. URI will not pay sales taxes.
- **.2** All Contractor's costs for unloading and handling at the site, protection, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances.
- **.3** The Contractor shall carry in the Contract Sum, but not in the Allowances, all Bond costs, permit and other fees, etc. contemplated for the amount of the Allowances.
- **.4** Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Clause 3.8.2.1 and (2) changes in Contractor's costs and other expenses under Clause 3.8.2.2.

3.8.3 Materials and equipment under an allowance shall be selected by the Owner in sufficient time to avoid delay in the Work.

3.8.4 See Section 01200 of the Specifications as amended for listing of allowances and additional requirements.

3.9 SUPERVISOR FORM

3.9.1 See 00710 for selected form of supervisor – two are provided below. Only one will be used.

3.9.2 SUPERINTENDENT

.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall be satisfactory to the Owner. So long as the superintendent remains employed by the Contractor or any related entity, the superintendent shall not be replaced without the Owner's prior written consent. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

.2 The superintendent shall not work with tools, or perform actual trades Work, but shall be dedicated to the on site management of the Project. The Contractor shall provide additional staff as required for Project Management, or as may be specified in the Specifications.

3.9.3 PROJECT MANAGER AND SUPERINTENDENT

.1 The Contractor shall employ a competent Project Manager, superintendent, and necessary assistants, all of whom shall be in full-time attendance at the Project site during performance of the Work. The Project Manager shall be assigned full-time by the Contractor to Project management responsibilities, and shall not be assigned by the Contractor to assume managerial, or other responsibilities for any other project of the Contractor. The Project Manager and the superintendent shall be satisfactory to the Owner, and shall remain on-site full time, and shall be present on-site whenever the Work is in progress. So long as the Project Manager and the superintendent remain employed by the Contractor or any related entity, the Project Manager and the superintendent shall not be replaced without the Owner's prior written consent. The Project Manager and the superintendent shall represent the Contractor, and such communications as may be given to either of them shall be as binding as if given to the Contractor. Important communications shall be subsequently confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

.2 The Project Manager and the superintendent shall not work with tools, or perform actual trades Work, but shall be dedicated to the on site management of the Project. The Contractor shall provide additional staff as required for Project Management, or as may be specified in the Specifications.

3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

3.10.1 The Contractor, within 20 working days of issue date of the Purchase Order, shall prepare and submit for the Owner's and Design Agent's information a Contractor's construction schedule for the Work in accordance with requirements in Section 01330 of the Specifications. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at least monthly as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

3.10.2 The Contractor shall prepare and keep current, for the Design Agent's approval, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the Design Agent reasonable time to review submittals. See Section 01330 of the Specifications for additional requirements.

3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Design Agent.

3.11 DOCUMENTS AND SAMPLES AT THE SITE

3.11.1 The Contractor shall maintain at the site for the Owner one record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record field changes and selections made during construction, and one record copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Design Agent and shall be delivered to the Design Agent for submittal to the Owner upon completion of the Work in accordance with Section 01780 of the Specifications.

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Design Agent is subject to the limitations of Subparagraph 4.2.6. Informational submittals upon which the Design Agent is not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Design Agent without action.

3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Design Agent Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Design Agent without action.

3.12.6 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Design Agent.

3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Design Agent's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Design Agent in writing of such deviation at the time of submittal and (l) the Design Agent has, with prior approval of the Owner, given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Design Agent's failure to catch such errors or omissions prior to giving approval thereof.

3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Design Agent on previous submittals. In the absence of such written notice the Design Agent's approval of a resubmission shall not apply to such revisions.

3.12.10 The Contractor shall not be required to provide professional services which constitute the practice of professional services required to be provided by a Design Agent unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Design Agent will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others; shall bear such professional's written approval when submitted to the Design Agent. The Owner and the Design Agent shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Design Agent have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Subparagraph 3.12.10, the Design Agent will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

3.13 USE OF SITE

3.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment. See Division 1 of the Specifications for additional requirements.

3.14 CUTTING AND PATCHING

3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

3.14.3 See Section 01700 of the Specifications for additional requirements.

3.15 CLEANING UP

3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

3.15.2 See Sections 01500 and 01780 for additional cleaning requirements.

3.15.3 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

3.16 ACCESS TO WORK

3.16.1 The Contractor shall provide the Owner and Design Agent and Design Agent’s consultants access to the Work in preparation and progress wherever located.

3.17 ROYALTIES, PATENTS AND COPYRIGHTS

3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of patent rights and shall hold the Owner and Design Agent harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Design Agent. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such belief is promptly furnished in writing to the Design Agent and the Owner.

3.18 INDEMNIFICATION

3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Design Agent, Design Agent's consultants, and agents and employees of any of them from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

3.18.2 In claims against any person or entity indemnified under this Paragraph 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Subparagraph 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 - ADMINISTRATION OF THE CONTRACT

4.1 DESIGN AGENT

4.1.1 The Design Agent is the person lawfully licensed to practice their profession or an entity lawfully practicing their profession identified as such in the Supplemental General Conditions and is referred to throughout the Contract Documents as if singular in number. The term "Design Agent" means the Design Agent or the Design Agent's authorized representative.

4.1.2 Duties, responsibilities and limitations of authority of the Design Agent as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Design Agent. Consent shall not be unreasonably withheld.

4.1.3 If the employment of the Design Agent is terminated, the Owner shall employ a new Design Agent against whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the former Design Agent.

4.2 DESIGN AGENT'S ADMINISTRATION OF THE CONTRACT

4.2.1 The Design Agent will provide administration of the Contract as described in the Contract Documents, and will be an Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Paragraph 12.2. The Design Agent will advise and consult with the Owner. The Design Agent will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

4.2.2 The Design Agent, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations or as otherwise agreed by the Owner and the Design Agent (1) to become familiar with and to

keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine if the Work is being performed in accordance with the Contract Documents.

4.2.3 Communications Facilitating Contract Administration: Except as otherwise provided in the Contract Documents, the Owner and Contractor shall endeavor to communicate with each other through the Design Agent about matters arising out of or relating to the Contract. Communications by and with the Design Agent's consultants shall be through the Design Agent. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

4.2.4 Based on the Design Agent's evaluations of the Work as provided in Subparagraph 4.2.2 and the data comprising the Contractor's Applications for Payment, the Design Agent will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

4.2.5 The Design Agent will reject Work that does not conform to the Contract Documents. Whenever the Design Agent considers it necessary or advisable, the Design Agent will have authority to require inspection or testing of the Work in accordance with Subparagraphs 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Design Agent nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Design Agent or the Owner to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

4.2.6 The Design Agent will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Design Agent's action will be taken with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors, while allowing sufficient time in the Design Agent's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Design Agent's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Paragraphs 3.3, 3.5 and 3.12. The Design Agent's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Design Agent, of any construction means, methods, techniques, sequences or procedures. The Design Agent's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

4.2.7 The Design Agent will prepare Change Orders and Construction Change Directives, and may, with prior approval of the Owner, authorize minor changes in the Work as provided in Paragraph 7.4.

4.2.8 The Design Agent will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion, will receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor in accordance with Section 01780 of the Specifications, and will issue a Final Certificate for Payment upon compliance with the requirements of the Contract Documents.

4.2.9 If the Owner and Design Agent agree, the Design Agent will provide one or more project representatives to assist in carrying out the Design Agent's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

4.2.10 The Design Agent will initially interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Design Agent's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations required of the Design Agent shall be furnished in compliance with this Paragraph 4.2, then delay shall not be recognized on account of failure by the Design Agent to furnish such interpretations until 15 days after written request is made for them.

4.2.11 Initial interpretations and decisions of the Design Agent will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such initial interpretations and decisions, the Design Agent will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of initial interpretations or decisions so rendered in good faith.

4.2.12 The Design Agent's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

4.3 CLAIMS AND DISPUTES

4.3.1 Definition: A Claim is a demand or assertion by one of the parties seeking, as a matter of right, adjustment of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. Claims shall be initiated by written notice and shall be expressly stated to be a claim under this Paragraph 4.3. The responsibility to substantiate Claims shall rest with the party making the Claim.

4.3.2 Time Limits on Claims: Claims by either party shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later. Claims shall be initiated by written notice to the Design Agent and the other party.

4.3.3 Continuing Contract Performance: Pending final resolution of a Claim except as otherwise agreed in writing or as provided in Subparagraph 9.7.1 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

4.3.4 Claims for Concealed or Unknown Conditions. If conditions are encountered at the site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Design Agent will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the conditions at the site are not materially different from those indicated in the Contract Documents and do not justify changes in the terms of the Contract, the Design Agent shall so notify the Owner and Contractor in writing, stating the reasons. Claims by either party in opposition to such findings must be made within 21 days after the Design Agent has given notice of the finding. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and Contractor cannot agree that the conditions are materially different or cannot agree on an adjustment in the Contract Sum or Contract Time, the matter shall subject to further proceedings pursuant to Paragraph 4.4.

4.3.5 Claims for Additional Cost: If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Such notice shall include, to the extent then known by Contractor, full details and substantiating data to permit evaluation by the Owner and Design Agent. If further, or other, information subsequently becomes known to the Contractor, it shall be promptly furnished to the Owner and the Design Agent in writing. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Paragraph 10.6. See Section 01200 of the Specifications for additional requirements and process instructions.

4.3.6 If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Design Agent, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Design Agent, (4) failure of payment by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with this Paragraph 4.3. Failure to file any such Claim in accordance with this Paragraph 4.3 shall constitute a waiver thereof. See Section 01200 of the Specifications for additional requirements and process instructions.

4.3.7 Claims for Additional Time. If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary.

4.3.7.1 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions at the Project site were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

4.3.8 Injury or Damage to Person or Property: If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 2 l days after discovery. The notice shall provide sufficient time to enable the other party to investigate the matter.

4.3.9 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

4.3.10 Waiver of Claims: The Contractor waives Claims against the Owner for principal office expenses including the compensation of personnel stationed there, except those directly assigned to the Project to the extent of such assignment.

4.3.11 In no event shall a Contractor have a claim for damages against the Owner, the Design Agent, or the Owner's Project Manager, on account of a delay in the commencement of the Work, and/or a hindrance, delay, or suspension of a portion thereof, whether such delay is caused by the Owner, the Design Agent, or the Owner's Project Manager, or otherwise, except as provided for under State of Rhode Island General Laws. The Contractor's sole remedy shall be extension of time to complete the project.

4.4 RESOLUTION OF CLAIMS AND DISPUTES

4.4.1 Decision of the Design Agent: Claims, including those alleging an error or omission by the Design Agent but excluding those arising under Paragraphs 10.3 through 10.5, may, upon request of both the Owner and the Contractor, be referred initially to the Design Agent for a recommendation.

4.4.2 The Design Agent will review all Claims referred and within ten days of the receipt of the Claim take one or more of the following actions: (l) request additional supporting data from the claimant or a response with supporting data from the other party, (2) recommend rejecting the Claim in whole or in part, (3) recommend approval of the Claim, (4) recommend a compromise, or (5) advise the parties that the Design Agent is unable to make a recommendation if the Design Agent lacks sufficient information to evaluate the merits of the Claim or if the Design Agent concludes that, in the Design Agent's sole discretion, it would be inappropriate for the Design Agent to make a recommendation.

4.4.3 In evaluating Claims, the Design Agent may, but shall not be obligated to, consult with or seek information from either party.

4.4.4 If the Design Agent requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either provide a response on the requested supporting data, advise the Design Agent when the response or supporting data will be furnished or advise the Design Agent that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Design Agent will take one of the last four (4) numbered actions contemplated in Subparagraph 4.4.2, in writing, stating the reasons therefore.

4.4.5 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to final resolution of the Claim.

4.5 MEDIATION

4.5.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for in Subparagraphs 4.3.10, 9.10.3 and 9.10.4 shall be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party.

4.5.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Request for mediation shall be filed in writing with the other party to the Contract and with the American Arbitration Association. The request may be made concurrently with the filing of a demand for arbitration but, in such event, mediation shall proceed in advance of arbitration or legal or equitable proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

4.5.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

4.6 ARBITRATION

4.6.1 Any Claim arising out of or related to the Contract, except Claims relating to aesthetic effect and except those waived as provided for in Subparagraphs 4.3.10, 9.10.3 and 9.10.4, shall, after decision by the Design Agent or 30 days after submission of the Claim to the Design Agent, be subject to arbitration. Prior to arbitration, the parties shall endeavor to resolve disputes by mediation in accordance with the provisions of Paragraph 4.5.

4.6.2 Claims not resolved by mediation shall be decided by arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand for arbitration shall be filed in writing with the other party to the Contract and with the American Arbitration Association, and a copy shall be filed with the Design Agent.

4.6.3 A demand for arbitration shall be made within the time limits specified in Subparagraphs 4.5.2 and 4.6.1 as applicable, and in other cases within a reasonable time after the Claim has arisen, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations as determined pursuant to Paragraph 13.7.

4.6.4 Limitation on Consolidation or Joinder: No arbitration arising out of or relating to the Contract shall include, by consolidation or joinder or in any other manner, the Design Agent, the Design Agent's employees or consultants, except by written consent containing specific reference to the Agreement and signed by the Design Agent, Owner, Contractor and any other person or entity sought to be joined. No arbitration shall include, by consolidation or joinder or in any other manner, parties other than the Owner, Contractor, a separate contractor as described in Article 6 and other persons substantially involved in a common question of fact or law whose presence is required if complete relief is to be accorded in arbitration. No person or entity other than the Owner, Contractor or a separate contractor as described in Article 6 shall be included as an original third party or additional third party to an arbitration whose interest or responsibility is insubstantial. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described therein or with a person or entity not named or described therein. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

4.6.5 Claims and Timely Assertion of Claims: The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

4.6.6 Judgment on Final Award: The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

ARTICLE 5 - SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable but not less than 60 calendar days after issuance of a Purchase Order or 30 calendar days prior to the start of that section of Work whichever is sooner, shall furnish in writing to the Owner through the Design Agent the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Design Agent will promptly reply to the Contractor in writing stating whether or not the Owner or the Design Agent, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or Design Agent to reply promptly shall constitute notice of no reasonable objection.

5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Design Agent has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

5.2.3 If the Owner or Design Agent has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Design Agent has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Design Agent makes reasonable objection to such substitute.

5.3 SUBCONTRACTUAL RELATIONS

5.3.1 By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Design Agent. Each subcontract agreement shall preserve and protect the rights of the Owner and Design Agent under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.3.2 In the event that the General Contractor or a sub-contractor to the General Contractor, employees independent contractors. as well as payroll labor, to discharge its responsibilities and obligations, the General Contractor acknowledges and understands that is does so, or allows it's subcontractors to do so, at it's own risk and that federal, state, and / or local agencies may dispute the independent contractor status and assess penalties, fines and costs should there be a determination to reclassify such workers. In that event, the General Contractor agrees that it will defend, indemnify, and hold harmless the Owner from any fines, costs, damages, claims, penalties, attorney's fees, and causes of action, including without limitation, personal injury or property damage, arising out of or relating in any way to such a determination.

5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Paragraph 14.2 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost, if any, resulting from the suspension.

ARTICLE 6 - CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation.

6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules and performance requirements when directed to do so. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights which apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, l l and 12.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Design Agent apparent discrepancies or defects in such other construction that would render it unsuitable for such

proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

6.2.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or separate contractors as provided in Subparagraph 10.2.5.

6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Subparagraph 3.14.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Design Agent will allocate the cost among those responsible.

ARTICLE 7 - CHANGES IN THE WORK

7.1 GENERAL

7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Design Agent; a Construction Change Directive requires agreement by the Owner and Design Agent and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Design Agent alone.

7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

7.2 CHANGE ORDERS

7.2.1 A Change Order is a written instrument prepared by the Design Agent and signed by the Owner, Contractor and Design Agent, stating their agreement upon all of the following:

.1 change in the Work;
.2 the amount of the adjustment, if any, in the Contract Sum; and
.3 the extent of the adjustment, if any, in the Contract Time.

7.2.2 Methods used in determining adjustments to the Contract Sum may include those listed in Subparagraph 7.3.3.

7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.1 A Construction Change Directive is a written order prepared by the Design Agent and signed by the Owner and Design Agent, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.l mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 unit prices stated in the Contract Documents or subsequently agreed upon;
.3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 as provided in Subparagraph 7.3.6.

7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Design Agent in writing of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including any adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Design Agent on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, in accordance with Clauses 7.3.9.1 through 7.3.9.6 below. In such case, and also under Clause 7.3.3.3, the Contractor shall keep and present, in such form as the Design Agent or the Owner may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Subparagraph 7.3.6 shall be limited to the following:

.1 costs of labor, including social security, old age and unemployment insurance, and fringe benefits required by agreement or custom;
.2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
.3 rental value of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others; and
.4 costs of permit fees, and sales, use or similar taxes related to the Work.

7.3.7 Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Design Agent will make an interim determination for purposes of monthly certification for payment for those costs. That determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a claim in accordance with Article 4.

7.3.8 When the Owner and Contractor agree concerning the adjustments in the Contract Sum and Contract Time, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

7.3.9 In Subparagraph 7.3.6, the allowance for the combined overhead and profit included in the total cost to the Owner shall be based on the following schedule:

.1 For the Contractor, for Work performed by the Contractor's own forces, 10 percent of the cost.
.2 For the Contractor, for Work performed by the Contractor's Subcontractor, 6 percent of the amount due the Subcontractor.
.3 For each Subcontractor or Sub-subcontractor involved, for Work performed by that Subcontractor's, or Sub-subcontractor's, own forces, 10 percent of the cost.
.4 For each Subcontractor. for Work performed by the Subcontractor's Sub-subcontractors. 6 percent of the

amount due the Sub-subcontractor.

.5 Cost to which overhead and profit is to be applied shall be determined in accordance with Subparagraph 7.3.6.

.6 In order to facilitate checking of quotations for extras and credits, all proposals, except those so minor their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials, and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over $50.00 be approved without such itemization.

7.3.10 Cost as referred to throughout this Article 7, shall be limited to the following: Cost of materials, including cost of delivery; cost of labor, including Social Security, old age and unemployment insurance; fringe benefits required by agreement or custom; and rental value of tools, equipment, and machinery.

7.3.11 Overhead, as referred to in this Article 7. shall include the following: Bond premiums for cost amounts over and above the Contract Sum; insurance premiums; supervision; superintendence; wages of time keepers, watch people, and clerks; small tools; incidentals; general office expense; and other expenses not included in "Costs".

7.3.12 The amount of credit to be allowed by the Contractor to the Owner for any deletion or change that results in a net decrease in the Contract sum will be in the amount of the net cost as confirmed by the Design Agent. When both additions and credits covering related Work, or substitutions, are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.

7.3.13 Subsequent to the approval of a Change Order, whether involving a change in Contract sum, Contract time, or both, no additional claim related to that matter will be considered by the Owner. A change incorporated into a Change Order is, therefore, all inclusive, and includes such factors as Project impact, schedule "ripple" effect, or other items which may pertain to such change.

7.3.14 Refer to Section 01200 of the Specifications for additional requirements.

7.4 MINOR CHANGES IN THE WORK

7.4.1 The Design Agent will have authority, upon prior approval of the Owner, to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly

ARTICLE 8 - TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

8.1.2 The date of commencement of the Work is the issuance date of the Purchase Order from URI.

8.1.3 The date of Substantial Completion is the date certified by the Design Agent in accordance with Paragraph 9.8.

8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

8.2 PROGRESS AND COMPLETION

8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.2.2 The Contractor shall not, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the

Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by the Contract Documents or a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five days or other agreed period before commencing the Work.

8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 If the Contractor is materially delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Design Agent, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by fire, unavoidable casualties or other causes beyond the Contractor's control, then the Contract Time shall be extended by Change Order for a reasonable time.

8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Paragraph 4.3.

ARTICLE 9 - PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

9.1.1 The Contract Sum is stated in the Purchase Order and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

9.2 SCHEDULE OF VALUES

9.2.1 Within 20 days of the issuance of a Purchase Order, and if necessitated by Change Orders, from time to time thereafter, the Contractor shall submit to the Design Agent and the Owner a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Design Agent and the Owner may require. This schedule, when, and only when approved in writing by the Design Agent and the Owner, shall be used as a basis for reviewing the Contractor's Applications for Payment.

9.2.2 See Section 01200 of the Specifications for additional requirements.

9.3 APPLICATIONS FOR PAYMENT

9.3.1 At ten days, or less, before the end of the current pay period the Contractor shall, with the Design Agent, review for accuracy an itemized draft copy of the current Application for Payment, accompanied by a current schedule of values. A formal Application for Payment cannot be approved without an accompanying schedule of values that has been approved by both the Owner and the Design Agent. The Contractor shall promptly proceed to prepare a formal Application for Payment, incorporating modifications made to the draft copy as needed. The Contractor shall then submit to the Design Agent an Application for Payment for operations completed in accordance with the most recently approved schedule of values. Such application shall be notarized, and supported by such data substantiating the Contractor's right to payment as the Owner or Design Agent may require, such as copies of requisitions from Subcontractors and material suppliers, and reflecting retainage if provided for in the Contract Documents. The form of Application for Payment shall be AIA Document G702 - Application and Certification for Payment, supported by AIA Document G703 – Continuation Sheet, the Schedule of Values.

9.3.1.1 As provided in Subparagraph 7.3.8, such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives, or by interim determinations of the Design Agent, but not yet included in Change Orders.

9.3.1.2 Such applications shall not include requests for payment for portions of the Work for which the Contractor does not promptly intend to pay to a Subcontractor or material supplier, unless such Work has been performed by the Contractor or by others whom the Contractor intends to pay promptly.

9.3.1.3 Until the Work is 50 percent complete, the Owner will pay 90 percent of the amount due the Contractor on account of progress payments. After the Work is 50 percent complete, Owner may pay 95 percent of the amount due on subsequent progress payments if so recommended by the Design Agent.

9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in writing in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site. Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

9.3.4 Immediately satisfy any lien or encumbrance which because of any act or default of the Contractor is filed against the premises, and indemnify and save the Owner harmless against all resulting loss and expenses, including attorney's fees, in addition, monies due under this Contract, as may be considered necessary by the Owner, may be retained by the Owner until all such suits, claims for damages, or expenses as aforesaid shall have been settled and paid.

9.4 CERTIFICATES FOR PAYMENT

9.4.1 The Design Agent will, within seven days after receipt of the Contractor's Application for Payment, either review, approve, sign, and date the original Application for Payment, and copies, and deliver them to the Owner, for such amount as the Design Agent determines is properly due, or notify the Contractor and Owner in writing of the Design Agent's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.2 The Owner will within 7 days, after receipt of the approved Certificate for Payment from the Design Agent, either review, approve, sign, and date the document, with copies sent to the Design Agent and the Contractor, or notify Contractor and Design Agent in writing of the Owner's reasons for withholding certification in whole or in part as provided in Subparagraph 9.5.1.

9.4.3 The issuance of a Certificate for Payment will constitute a representation by the Design Agent to the Owner, based on the Design Agent's evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Design Agent's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Design Agent. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Design Agent has 1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum

9.5 DECISIONS TO WITHHOLD CERTIFICATION

9.5.1 The Design Agent will withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Design Agent's opinion the representations to the Owner required by Subparagraph 9.4.2 cannot be made. If the Design Agent is unable to certify payment in the amount of the Application, the Design Agent will

notify the Contractor and Owner as provided in Subparagraph 9.4.1. If the Contractor and Design Agent cannot agree on a revised amount, the Design Agent will promptly issue a Certificate for Payment for the amount, if any, for which the Design Agent is able to make such representations to the Owner. The Design Agent may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Design Agent's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Subparagraph 3.3.2, because of:

.1 defective Work not remedied;
.2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
.3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or another contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
.7 failure to carry out the Work in accordance with the Contract Documents;
.8 failure to maintain as current, "Record Drawings";
.9 failure to provide filings required by Document 00200 in timely fashion;
.10 failure to provide submittals in a timely fashion as may be specified in the Specifications; or
.11 failure to meet requirements stipulated in Supplemental General Conditions.

9.5.2 The Owner can decide to withhold a Certificate of Payment in whole or in part, to the extent necessary for self-protection, for the same reasons described in 9.5.1 above

9.5.3 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

9.6 PROGRESS PAYMENTS

9.6.1 After the Design Agent and the Owner have signed and dated a Certificate for Payment, the Owner shall make payment in the manner and within the time period provided in the Contract Documents, and shall so notify the Design Agent. The specified time period provided shall start with the date of the Owner’s signing of the Certificate of Payment.

9.6.1.1 The Owner reserves the right to withhold payment to the Contractor, in whole or in part, for any and all of the reasons cited in Clauses 9.5.1.1 through 9.5.1.10.

9.6.2 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.6.3 The Design Agent will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Design Agent and Owner on account of portions of the Work done by such Subcontractor.

9.6.4 Neither the Owner nor Design Agent shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

9.6.5 Payment to material suppliers shall be treated in a manner similar to that provided in Subparagraphs 9.6.2, 9.6.3 and 9.6.4.

9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner.

9.7 FAILURE OF PAYMENT

9.7.1 If, through no fault of the Contractor, the Design Agent does not issue a Certificate for Payment, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within the specified time period after approving the Certification for Payment, the amount certified by the Design Agent or awarded by arbitration, then the Contractor may make claim for additional payment as provided under terms of the State of Rhode Island Prompt Payment Act.

9.8 SUBSTANTIAL COMPLETION

9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Design Agent a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

9.8.3 Upon receipt of the Contractor's list, the Design Agent will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Design Agent's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Design Agent. In such case, the Contractor shall then submit a request for another inspection by the Design Agent to determine Substantial Completion.

9.8.4 When the Work or designated portion thereof is substantially complete, the Design Agent will prepare a Certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall reduce the retainage withheld, if and as provided elsewhere in the Contract Documents.

9.8.5.1 The payment shall be sufficient to maintain, or increase, the total payments to 95 percent of the Contract sum, less such amounts as the Design Agent shall determine for incomplete Work and unsettled claims.

9.9 PARTIAL OCCUPANCY OR USE

9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Clause l 1.3.1.3 and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Design Agent as provided

under Subparagraph 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Design Agent.

9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Design Agent shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Design Agent will promptly make such inspection and, when the Design Agent finds the Work acceptable under the Contract Documents and the Contract fully performed, the Design Agent will promptly issue a final Certificate for Payment stating that to the best of the Design Agent's knowledge, information and belief, and on the basis of the Design Agent's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance, less the amount of Warranty Inspection Retainage, found to be due the Contractor and noted in the final Certificate is due and payable. The Design Agent's final Certificate for Payment will constitute a further representation that conditions listed in Subparagraph 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to Design Agent in a form and substance satisfactory to the Owner (l) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall promptly pay to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees. See Document 00710 for warranty retainage amount.

9.10.3 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from:

- **.1** liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents; or
- **.3** terms of special warranties required by the Contract Documents.

9.10.4 Acceptance of final payment by the Contractor, a Subcontractor, a Sub-subcontractor, and equipment or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

.1 employees on the Work and other persons who may be affected thereby;

.2 the materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

10.2.2 The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Design Agent or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Paragraph 3.18.

10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Design Agent.

10.2.7 The Contractor shall not load or permit any part of the construction or site to be loaded so as to endanger its safety.

10.3 HAZARDOUS MATERIALS

10.3.1 If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB),or other state or federally regulated hazardous substance encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop any ongoing Work in the affected area and report the condition to the Owner in writing.

10.3.2 The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to verify that it has been rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner, and, in the event of an objection, the specific reasons therefor. If the Contractor has a reasonable objection to a person or entity proposed by the Owner and fully complies with the next preceding sentence, the Owner shall propose another to whom the Contractor has no reasonable objection. If the absence

of the material or substance is verified, Work shall immediately resume without adjustment to the Contract Time or Contract Sum. If the presence of material or substance is verified, when the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. The Contract Time shall be extended if and as appropriate and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional and incurred costs of shut-down, delay and start-up, which adjustments shall be accomplished as provided in Article 7.

10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Design Agent, Design Agent's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Subparagraph 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) and provided that such damage, loss or expense is not due to the sole negligence of a party seeking indemnity. To the fullest extent permitted by law, the Contractor, Subcontractors, Design Agent, Design Agent's consultants and agents and employees shall indemnify and hold harmless the Owner from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Subparagraph 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) and provided that such damage, loss or expense is not due to the sole negligence of a party seeking indemnity.

10.3.4 Provisions of Subparagraph 10.3.1 and 10.3.2 cannot be employed to govern the Contractor's operations that involve the documenting and removal of indicated asbestos, polychlorinated biphenyl (PCB), or other state or federally regulated hazardous substance, as may be clearly and specifically specified under terms of this Contract.

10.4 The Owner shall not be responsible under Paragraph 10.3 for materials and substances brought to the site by the Contractor unless such materials or substances were expressly required by the Contract Documents.

10.5 If, without negligence on the part of the Contractor or a breach of relevant provisions of the Contract Documents, the Contractor is held liable for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

10.6 EMERGENCIES

10.6.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Paragraph 4.3 and Article 7.

ARTICLE 11 - INSURANCE AND BONDS

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- **.1** claims under workers' compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
- **.2** claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- **.3** claims for damages because of bodily injury, sickness or disease, or death of any person other than the

Contractor's employees;

.4 claims for damages insured by usual personal injury liability coverage;
.5 claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
.6 claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
.7 claims for bodily injury or property damage arising out of completed operations; and
.8 claims involving contractual liability insurance applicable to the Contractor's obligations under Paragraph 3.18
.9 liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:
1. Premises Operation (including X, C. and U coverages as applicable).
2. Independent Contractor's Protective.
3. Products and completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Contractual, including specified provision for Contractor's obligation under Paragraph 3.18.
6. Owner, non-owned and hired motor vehicles.
7. Broad Form Property Damage, including Completed Operations.
.10 If the general liability coverages are provided by a General Liability Policy on a claims-made basis, the policy date or retroactive date shall predate the Contract; the termination date of the policy, or applicable extended reporting period shall be a minimum of five (5) years after completion of construction.

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment.

11.1.2.1 Certificates of insurance, and endorsements thereof, shall provide additional insured status to the following entities: "The Rhode Island Board of Governors for Higher Education, The University of Rhode Island, and The State of Rhode Island." The University of Rhode Island through its Risk Manager reserves the right to accept alternative forms and limits of insurance. The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits, or greater, if required by law:

1. Workers' Compensation:
a. State - Statutory;
b. Employer's Liability - $100,000.
2. Comprehensive General Liability (including Premises/Operations; Independent Contractor's Protective; Products and Completed Operations; Broad Form Property Damage):
a. Bodily Injury: $1,000,000 - Each Occurrence; $1,000,000 - Annual Aggregate.
b. Property Damage: $1,000,000 - Each Occurrence; $1,000,000 - Annual Aggregate.
c. Products and Completed Operations to be Maintained for five (5) Years After completion of construction.
d. Property Damage Liability Insurance to Provide X, C. or U Coverage as Applicable.
3. Contractual Liability:
a. Bodily in jury: $1,000,000 - Each Occurrence; $1,000,000 - Annual Aggregate.
4. Personal Injury. with Employment Exclusion Deleted:
a. $1,000,000 - Annual Aggregate.
5. Comprehensive Automobile Liability:
a. Bodily Injury: $500,000 - Each person; $1,000,000 - Each Occurrence.
b. Property Damage: $500,000 - Each Occurrence.

11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work, and shall include those entities identified in the Supplemental General Conditions as Additional Insureds. These certificates and the insurance policies required by this Paragraph l 1.1 shall contain a provision that coverage's afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

11.1.3.1 The Contractor shall furnish one copy of each Certificate of Insurance herein required for each copy of the Agreement which shall specifically set forth evidence of coverage required by Subparagraphs 11.1.1, 11.1.2, and 11.1.3. If this insurance is written on a Comprehensive General Liability policy form, ACCORD Form 25S will be acceptable. The Contractor shall furnish copies of endorsement to the Owner that are subsequently issued amending coverage or limits.

11.2 OWNER'S LIABILITY INSURANCE

11.2.1 The Contractor shall furnish the Owner, through the Design Agent, an insurance certificate providing Owner's Protective Liability extended to include the interests of the Design Agent, and to protect the Owner and Design Agent from any liability which might be incurred against them as a result of any operation of the Contractor or Contractor's Subcontractors or their employees. Such insurance shall be written for the same limits as the Contractor's liability insurance and shall include the same coverage

11.3 PROPERTY INSURANCE

11.3.1 The Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Paragraph 9.l0 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project. The form of policy for this coverage shall be Completed Value. If the Owner is damaged by failure of the Contractor to maintain such insurance. then the Contractor shall bear all reasonable costs properly attributed thereto.

11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Design Agent's and Contractor's services and expenses required as a result of such insured loss.

11.3.1.2 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

11.3.1.3 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property

insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 11.3.4 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

11.3.3 Before an exposure to loss may occur, the Contractor shall file with the Owner two certified copies of the policy or policies providing this Property Insurance coverage, each containing these endorsements specifically related to the Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days prior written notice has been given to the contractor.

11.3.4 Waivers of Subrogation: The Owner and Contractor waive all rights against (l) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Design Agent, Design Agent's consultants, separate contractors described in Article 6, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Paragraph 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Contractor as fiduciary. The Owner or Contractor, as appropriate, shall require of the Design Agent, Design Agent's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

11.3.5 A loss insured under this property insurance shall be adjusted by the Contractor as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph l 1.3.7. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

11.3.6 If required in writing by a party in interest, the Contractor as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Contractor's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Contractor shall deposit in a separate account proceeds so received, which the Contractor shall distribute in accordance with such agreement as the parties in interest may reach, or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.6. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

11.3.7 The Contractor as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Contractor's exercise of this power; if such objection is made, the dispute shall be resolved as provided in Paragraphs 4.5 and 4.6. The Contractor as fiduciary shall, in the case of arbitration, make settlement with insurers in accordance with directions of the arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.

11.4 PERFORMANCE BOND AND PAYMENT BOND

11.4.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual source and the cost thereof shall be included in the Contract sum. The amount of each bond shall be equal to 100 percent of the Contract sum.

11.4.1.1 The Contractor shall deliver the required bonds to the Owner on or before the date of the Purchase Order.

11.4.1.2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

11.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

ARTICLE 12 - UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 If a portion of the Work is covered contrary to the Design Agent's request or to requirements specifically expressed in the Contract Documents, it shall, if required in writing by the Design Agent, be uncovered for the Design Agent's examination and be replaced at the Contractor's expense without change in the Contract Time or Contract Sum.

12.1.2 If a portion of the Work has been covered which is not contrary to requirements specifically expressed in the Contract Documents and which the Design Agent has not specifically requested to examine prior to its being covered, the Design Agent and the Owner may in writing request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

12.2 CORRECTION OF WORK

12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

12.2.1.1 The Contractor shall promptly correct Work rejected by the Design Agent or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such Work, including additional testing and inspections and compensation for the Design Agent's services and expenses made necessary thereby, shall be at the Contractor's expense.

12.2.2 AFTER SUBSTANTIAL COMPLETION

12.2.2.1 In addition to the Contractor's obligations under Paragraph 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Subparagraph 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor at Contractor's expense shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written express acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. If any of the Work is found to be not in accordance with the requirements of the Contract Documents during the one-year period for correction of Work, and the Owner fails to promptly thereafter notify the Contractor and give the Contractor an opportunity to make correction, the Owner waives the right to require correction by the Contractor. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Design Agent, the Owner may correct it in accordance with Paragraph 2.4.

12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of performance of the Work.

12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Paragraph 12.2.

12.2.2.4 The Contractor and the major Sub-Contractors shall meet with the Owner, if so notified by the Owner, and re-inspect the Work ten months after Substantial Completion as a follow-up procedure. Upon correction of warranty Work within a reasonable time, the Contractor shall be paid the full amount of the Warranty Inspection Retainer, withheld by the Owner.

12.2.3 The Contractor shall remove from the site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

12.2.5 Nothing contained in this Paragraph 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the one-year period for correction of Work as described in Subparagraph 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

12.3 ACCEPTANCE OF NONCONFORMING WORK

12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 - MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.1 The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Subparagraph 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.2.2 The Owner may, without consent of the Contractor, assign the Contract to an institutional lender providing construction financing for the Project. In such event, the lender shall assume the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

13.3 WRITTEN NOTICE

13.3.1 Written notice shall be deemed to have been duly served if delivered in person to the individual or a member of the firm or entity or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

13.4.2 No action or failure to act by the Owner, Design Agent or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TESTS AND INSPECTIONS

13.5.1 Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Design Agent timely notice of when and where tests and inspections are to be made so that the Design Agent may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded unless such test, inspections or approvals replace or modify pre-existing requirements in which event the Owner shall bear any additional costs thereof.

13.5.2 If the Design Agent, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Subparagraph 13.5.1, the Design Agent will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Design Agent of when and where tests and inspections are to be made so that the Design Agent may be present for such procedures. Such costs, except as provided in Subparagraph 13.5.3, shall be at the Owner's expense.

13.5.3 If such procedures for testing, inspection or approval under Subparagraphs 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Design Agent's services and expenses shall be at the Contractor's expense.

13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents' be secured by the Contractor and promptly delivered to the Design Agent.

13.5.5 If the Design Agent is to observe tests, inspections or approvals required by the Contract Documents, the Design Agent will do so promptly and, where practicable, at the normal place of testing.

13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

13.6 INTEREST

13.6.1 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as prescribed by provisions of the State of Rhode Island Prompt Payment Act..

13.7 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

13.7.1 As between the Owner and Contractor:

.1 Before Substantial Completion. As to acts or failures to act occurring prior to the relevant date of Substantial Completion, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than such date of Substantial Completion;

.2 Between Substantial Completion and Final Certificate for Payment. As to acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to issuance of the Final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the date of issuance of the final Certificate for Payment; and

.3 After Final Certificate for Payment. As to acts or failures to act occurring after the relevant date of issuance of the final Certificate for Payment, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued in any and all events not later than the

date of any act or failure to act by the Contractor pursuant to any Warranty provided under Paragraph 3.5, the date of any correction of the Work or failure to correct the Work by the Contractor under Paragraph 12.2, or the date of actual commission of any other act or failure to perform any duty or obligation by the Contractor or Owner, whichever occurs last.

13.8 EQUAL OPPORTUNITY

13.8.1. The Contractor shall maintain policies of employment as follows:

13.8.1.1 The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, sexual persuasion, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex, sexual persuasion, or national ordain. Such action shall include, but not be limited to the following: employment upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

13.8.1.2 The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, sexual persuasion, or national origin.

13.8.1.3 The Contractor shall be a signatory to the requirements of the State of Rhode Island Equal Employment office.

13.9 PREVAILING WAGE SCALES ON PUBLIC WORKS PROJECTS

13.9.1 In accordance with Chapter 290 of the General Laws of the State of Rhode Island, 1938 as amended. the Department of Labor determined the customary and prevailing rate of wages paid to craftspersons, teamsters, and laborers in the constructing of public works by the State. and by cities and towns, and by persons contracting therewith for such construction. Violators are subject to fines for each offense

13.9.2 The wage rates as ascertained by the Department of Labor are uniform for the State of Rhode Island and, as they may be updated, apply to the life of this Contract. Current wage rates prevailing in the construction industry in the State of Rhode Island are available online from the RI State Department of Labor. Under no conditions shall the wages paid be less than those designated in the general classification. This Clause does not relieve the Contractor or his or her Subcontractors from respecting any other union regulations to which the Contractor ordinarily subscribes.

13.9.3 Bulletin No. 3 State Labor Laws, issued by the State of Rhode Island Department of Labor, pertaining to Public Works Projects (General laws of Rhode Island, Revision of 1956, Chapter 37-12 as amended. and Chapter 77, Public Laws of 1965) are hereby made a part of this Project. These Laws include, but are not limited to:

.1 weekly payment of employees;
.2 provisions applicable to public works contracts:
.3 payment of prevailing wages;
.4 posting of prevailing wage rates:
.5 overtime compensation; and
.6 apprenticeship programs.

ARTICLE 14 - TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 issuance of an order of a court or other public authority having jurisdiction which requires all Work to be stopped;
.2 an act of government, such as a declaration of national emergency which requires all Work to be stopped.

14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Paragraph 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

14.1.3 If one of the reasons described in Subparagraph 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Design Agent, terminate the Contract and recover from the Owner payment for Work properly executed and for payment of costs directly related to Work thereafter performed by the Contractor in terminating the Contract, including reasonable demobilization and cancellation charges, proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead and profit therefrom.

14.1.4 If all of the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has persistently failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Design Agent, terminate the Contract and recover from the Owner as provided in Subparagraph 14.1.3.

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may terminate the Contract if the Contractor:

.1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
.2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
.3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
.4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

14.2.2 When any of the above reasons exist, the Owner, upon certification by the Design Agent that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

.1 take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
.2 accept assignment of subcontracts pursuant to Paragraph 5.4; and
.3 finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor an accounting of the costs incurred by the Owner in finishing the Work.

14.2.3 When the Owner terminates the Contract for one of the reasons stated in Subparagraph 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Design Agent's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Design Agent, upon application, and this obligation for payment shall survive termination of the Contract.

14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

14.3.2 The Contract Sum and Contract Time shall be adjusted for any increases in the cost and time caused by suspension, delay or interruption as described in Subparagraph 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:

- **.1** that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

- **.1** cease operations as directed by the Owner in the notice;
- **.2** take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- **.3** except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed in accordance with the Contract Documents, and costs incurred by reason of such termination, along with reasonable overhead and profit thereon.

14.4.4 Upon a determination by a court of competent jurisdiction that termination of the Contractor pursuant to Paragraph 14.2 was wrongful or otherwise improper, such termination shall be deemed a termination for convenience pursuant to Paragraph 14.4, and the provisions of Subparagraph 14.4.3 shall apply.

ARTICLE 15 – SUPPLEMENTAL GENERAL CONDITIONS

14.1 AMENDED TERMS OF THESE CONDITIONS

14.1.1 The following Document 00710 – Supplemental General Conditions amends this section as necessary for specific project requirements and provides additional project information referenced in these General Conditions. It also includes by reference various other documents that apply to the work of this Contract.

END OF DOCUMENT

DOCUMENT 07100 – SUPPLEMENTAL GENERAL CONDITIONS

TABLE OF ARTICLES

ARTICLE 1 – DEFINITION OF ENTITIES

1.01 OWNER:

The Rhode Island Board of Education,
University of Rhode Island, and the State of Rhode Island
Office of Capital Projects, URI
Sherman Building, 423 Plains Road, Kingston, RI 02881
Attn: Mr. Paul DePace, 401.874.2725

1.02 PURCHASER:

University of Rhode Island, Purchasing Department
581 Plains Road, Kingston, RI 02881
Attn: Ms. Tracey Angell, 401.874.2326

1.03 DESIGN AGENT:

Office of Capital Projects, University of Rhode Island

1.04 CONSULTANTS:

Gordon R. Archibald, Inc. Civil and Environmental Engineers
Creative Environment Corp. Consulting Engineers

1.05 PROJECT:

Tibbets Athletic Fields

ARTICLE 2 – TIME OF COMPLETION

2.01 The length of time available for construction shall be 90 calendar days. This is the date to which liquidated damages apply and may only be adjusted as provided for in the Contract Documents. Contractor shall be responsible for completing the submittals required for issue of a Purchase Order in a timely manner. No extension will be granted for Purchasing delays.

ARTICLE 3 – LIQUIDATED DAMAGES

3.01 The amount payable by the Contractor to the Owner in liquidated damages shall be:

$250 per calendar day.

ARTICLE 4 – MBE REQUIREMENTS

4.01 This project is subject to terms, conditions and provisions of the Rhode Island General Laws Chapter 37-14.1 et. Seq, and regulations promulgated there under, which require that ten percent (10%) of the dollar value of work performed on the project be performed by minority business enterprises.

ARTICLE 5 – LABOR LAWS

5.01 Attention is called to a new requirement within RIGL 37 for apprenticeship training. RIGL 37-13-3.1 State public works contract apprenticeship requirements states:

> "(a) Notwithstanding any laws to the contrary, all general contractors and subcontractors who perform work on any public works contract awarded by the state after passage of this act and valued at one million dollars ($1,000,000) or more shall employ apprentices required for the performance of the awarded contract. The number of apprentices shall comply with the apprentice to journeyman ratio for each trade approved by the Apprenticeship Council of the Department of Labor and Training."

ARTICLE 6 – WAGE RATES

6.01 Prevailing wage rates to be paid under the Contract for this project must be in accordance with those prevailing wages on file in the Rhode Island Department of Labor, Office of the Director. Labor rates that are revised by the Dept. of Labor during the course of this project must be utilized for succeeding work on this project.

ARTICLE 7 – ADDITIONAL CONTRACT DOCUMENTS

7.01 The URI Standard Documents as referenced in Document 00 7200, will apply to all of the work of this project and are hereby incorporated.

7.02 The Purchase Order from URI for this work is also a Contract Document, including its Terms and Conditions and other documents referenced therein, such as the Bid Form from the Contractor.

ARTICLE 8 – BONDING REQUIRMENTS

8.01 100% Payment and Performance Bonds will be required for this Project. The Contractor shall furnish bonds covering the faithful performance of the Contract and Payment of all obligations arising thereunder. Bonds may be secured through a federally-listed surety company licensed to do business in the State of Rhode Island.

8.02.1 The Bidder shall deliver the required bonds to the Owner prior to the date of execution of the Contract.

8.03 Unless otherwise provided, the bonds should be written on the Owner's version of Performance Bond and Payment Bond, a copy of which is bound herein in Document 00 6100 – Performance Bond; Payment Bond. Both bonds shall be written in the full amount of the Contract Sum.

8.04 The bonds shall be dated before the date of the Contract.

8.05 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

ARTICLE 9 – PROJECT MANAGER FORM

9.01 This project will use the Superintendent form of project management as described in paragraph 3.9.2 of the General Conditions.

ARTICLE 10 – INSURANCE REQUIREMENTS

10.01 No Changes

ARTICLE 11 – OTHER REQUIREMENTS

11.01 Anywhere within the documents that references "The Rhode Island Board of Governors of Higher Education" shall be changed to "The Rhode Island Board of Education".

END OF DOCUMENT

DOCUMENT 00720 – URI SEXUAL HARASSMENT POLICY

PART 1 – GENERAL

1.1 The policy following applies to the Contract for Construction and is a part of the Contract Documents:

3.01 Sexual Harassment Policy

The University of Rhode Island prohibits all forms of sexual harassment. Sexual harassment is sex discrimination and is unlawful according to Title VII Civil Rights Act of 1964, Title IX of the 1972 Education Amendments, Executive Order 11246, Rhode Island General Laws and University of Rhode Island Policy. This prohibition applies equal to male and female staff, faculty, students, to all other persons on the premises subject to University control and to those engaged to further the interests of the University. Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature, constitute sexual harassment when:

1. Submission to such conduct is made either explicitly or implicitly a term or condition of instruction, employment, or otherwise full participation in University life;

2. Submission to or rejection of such conduct by an individual is used as a basis for decisions related to employment or academic performance or progress; or

3. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance, or creating an intimidating, hostile, or offensive work, residential or academic environment.

Sexual harassment includes verbal and physical behaviors that range from sexual gestures or teasing to sexual assault. Verbal sexual harassment may include, but is not limited to, sexual remarks, comments, jokes and innuendoes, whistles and cat calls, crude and offensive language, comments on physical attributes, use of demeaning or inappropriate terms, discussion of sexual activities, the posing of personal questions, the spreading of stories about someone's social or sexual life, and propositions or pressure for social or sexual contact. Physical sexual harassment may include, but is not limited to, unwanted touching, patting, grabbing, pinching or hugging, stares, leers or sexual gestures, following someone or blocking their path, the display of sexually explicit or suggestive pictures, sexual assault and rape.

Members of the campus community who believe they have been the victim of sexual harassment and wish further information, advice or assistance in the filing of a complaint, should contact:

Affirmative Action, Equal Opportunity and Diversity Office
University of Rhode Island

201 Carlotti Administrative Building
Kingston, Rhode Island 02881
PHONE: (401) 874-2442
FAX: (401) 874-2995
TDD:(401) 874-2120

The University will investigate complaints of sexual harassment pursuant to the Non-Discrimination Complaint Procedures. Those who are found to have engaged in sexual harassment will be subject to disciplinary action which may range from remedial education to suspension and termination. Retaliatory action of any kind by any member of the University community against individuals who bring complaints of sexual harassment or individuals who are cooperating in the investigation of a complaint is prohibited and shall be regarded as a separate and distinct violation of community standards and the University's Nondiscrimination Policy.

The University recognizes that some persons may, for a variety of reasons, be reluctant to file a complaint without the advice or counsel of a sympathetic party. The following resources are available to provide assistance and information to anyone concerned about incident(s) of sexual harassment:

Please note: the links below open in new windows

Campus Police
(874-2121)

Health Services
(874-2246)

Counseling Center
(874-2288)

Office of Student Life
(874-2101)

CCE Department of Student Services
(277-5000)

Women's Center
(874-2097)

Office of the President
(874-2444)

Members of the University community who believe they are the victim of sexual harassment may also choose to seek redress through any of the following outside agencies:

Office of Civil Rights, Region I
US Department of Education
33 Arch Street, Suite 900
Boston, Massachusetts 02110-1491
(617) 289-0111
United States Department of Labor
Employment Standards Administration

Office of Federal Contract Compliance Programs
J.F.K. Federal Building, Room E-235
15 New Sudbury Strreet
Boston, Massachusetts 02203
(617) 624-6780

Rhode Island Commission for Human Rights
180 Westminster Street, 3rd Floor
Providence, Rhode Island 02903
(401) 222-2662
TDD (401) 222-2664

Equal Employment Opportunity Commission
Boston Area Office
J.F.K. Federal Building
475 Government Center
Boston, Massachusetts 02203
Toll Free 1-866-408-8075
(617) 565-3200

URL: http://www.uri.edu/affirmative_action/univ_policies.html

END OF DOCUMENT

DOCUMENT 00730 – MANUAL FOR CONSTRUCTION PROJECT SAFETY PROCEDURES

PART 1 – GENERAL

1.1 The 96-page document following this page titled, “Manual for Construction Project Safety Procedures 2010”, updated to 10/29/10, applies to the Contract for Construction and is a part of the Contract Documents.

END OF DOCUMENT

MANUAL

for

CONSTRUCTION PROJECT SAFETY PROCEDURES

Office of Capital Projects
Paul M. DePace, P. E. – Director

University of Rhode Island

2010

Updated 10/29/10- Hot Work Section

01. INTRODUCTION

A. Management Commitment

The University of Rhode Island is committed to providing a jobsite that is free of all recognizable hazards. Safety and health issues will be addressed on site by continuous evaluation of contractor/subcontractor work methods, equipment and work areas.

The information in this manual constitutes written policies and descriptions explaining systematic methods/procedures and assigning responsibilities for reducing the risk of personal injury, death or property damage. While the University of Rhode Island cannot anticipate every jobsite hazard, this manual is expected to guide the conduct of all employees in order to promote uninterrupted production and employment, and to protect life, health, and property.

The provisions of this safety program are well within requirements set forth by local, state and federal regulations, as well as standard industrial practices. The elements of the program are intended to increase the level of employees' awareness concerning potential workplace hazards and encourage safe work practices. These elements will be implemented uniformly and no safety violations will be tolerated. **Compliance with the provisions of this manual does not relieve any contractor of their contractual or other regulatory obligations**.

This program will be updated periodically to ensure compliance with all applicable regulations and continuous protection of all personnel on site.

B. Contractor Employee Involvement

All contractor employees are expected to perform their duties safely and comply with all applicable laws and regulations (local, state and federal).

Employees are encouraged to freely discuss their safety concerns with their immediate supervisors or the University of Rhode Island's Safety Representative.

All employees are charged with personal responsibility for safe behavior. Unsafe acts will not be tolerated.

C. Training

Safety training is an integral part of this safety program. Contractors are expected to educate their employees on the basic elements of this manual as well as other applicable regulatory requirements.

D. Injury Management/Early Return-to-Work

All contractors/subcontractors are expected to return any injured employee to a productive environment as soon as possible after an injury. Contractors must evaluate each lost-time injury and review the restrictions placed on each injured employee by his/her medical provider. If modified work can be found within the assigned restrictions on site, contractors/subcontractors must provide employment within those restrictions. The University of Rhode Island's Claims Representatives will work closely with each injured employee's treating physician and rehabilitation specialist, which in return will enable a program of this nature to be successful.

02. SAFETY ORIENTATION

A. General Requirements

All contractors shall ensure that their employees receive safety orientation prior to starting work on this project.

Each contractor shall maintain, and make available for inspection, records of such safety orientation and training.

The orientation shall consist of the written format specified on the attachment on the next page in addition to any job specific information.

All contractors shall ensure that each employee receives a copy of this orientation and signs the acknowledgement page at the end.

B. Safety Orientation

It is our intention to provide and maintain a totally safe site. **Your commitment to safety is a condition for continuous employment on this project**.

After you have reviewed these guidelines, sign the last page where indicated and return that page to your superintendent or foreman.

1. **Evacuation:** In the event of a fire or any time project evacuation is required, all personnel onsite will be informed via a radio signal, or other method as designated by the Owner or the owner's designated representative.

YOU SHALL IMMEDIATELY:

- Cease all work and shut off all electrical equipment, including welding machines, air compressors, etc.
- Close valves on gas cylinders.
- Walk! (*DO NOT RUN OR JUMP FROM ELEVATED POSITIONS*) to the designated assembly points. Remain at the assembly point until the all-clear signal is sounded. Be prepared to follow the directions from your supervisor.

2. **First Aid:** All injuries are to be reported to the general contractor's representative immediately.

DO NOT LEAVE THE SITE WITHOUT REPORTING AN INJURY, REGARDLESS HOW MINOR YOU MAY THINK IT IS.

- Injuries requiring a doctor's care will require a drug screen and a medical authorization form from your supervisor.
- If we have an employee injured on our job we want the best medical care possible. However, if we have an injury that we suspect is fraudulent we will spare no expense investigating and prosecuting.

3. Protective Equipment:

Head Protection: Hardhat must be worn at all times (with the bill to the front) once entering the work area. Areas of exception are offices, equipment with fully enclosed cabs, lunch and break periods provided no work is going on in the immediate area.

Eye And Face Protection: Appropriate eye protection (ANSI Z87) with side shields is required to be worn by all personnel on the construction site at all times. Prescription glasses must be approved safety glasses, approved glasses and frames, or approved eye protection.

- When grinding or buffing, a face shield with approved safety glasses will be required.
- When cutting or burning, goggles will be required.
- When welding, a welding hood and lens with an appropriate number filter.
- Chemical goggles are required to be worn when working with corrosive or toxic material.

Respiratory And Hearing Protection: Respiratory and/or hearing protection is required in designated areas and or when performing specific tasks.

- Employees must be clean-shaven prior to using a respirator.

4. Barricades:

- Barricade tape is not to be used in lieu of physical barricades for floor, hole, wall openings or when permanent handrails have been removed.
- Yellow barricade tape indicates to use caution when approaching or entering the area.
- Red barricade tape requires authorization to enter area. Anyone entering area without authorization is subject to disciplinary action.

5. Fall Protection/Tie-Off:

- A 100% tie-off policy is in effect anytime you are exposed to a potential of fall in more than 6 feet to a lower level.

An approved fall arrest system will be worn when working from unprotected elevations greater then 6 feet and when working in powered man-lifts.

- Approved fall arrest system consists of a full body harness, two shock absorbing lanyards, each with double action or positive locking snap hooks**.**
- Any lifeline, safety harness, or lanyard actually subjected to fall loading shall be removed from service.

6. Lockout/Tagout: Lockout/Tagout the power source prior to making adjustments or repairs to any equipment. *DO NOT DEPEND* on the control switch on drills, grinders etc. ***UNPLUG THEM.***

7. Electrical Tools, Cords:

- Tools are to be visually inspected by the employee prior to use. Take out of service any tool or cord found to be defective immediately.
- Use approved ground fault circuit interrupters, for all temporary wiring, that are not part of the permanent wiring of the building or structure.
- When using existing building power that is not protected by ground fault circuit interrupters, the Contractor shall supply and utilize in-line (pigtail) ground fault circuit interrupters.
- Use an Assured Grounding Conductor Program in tandem with all ground fault circuit interrupters.
- Check the RPM rating of grinding wheels or discs. The RPM rating must be greater than that of the driver.
- Do not alter tools and guards.
- maintain electrical cords and welding leads at a 7-foot level, avoiding pinch points and creating trip hazards.
- Do not tie electric cords to metal rods or nails.

8. <u>Ladders</u>:

- Ladders must be free from defects.
- Place the ladder so that its base is out 1/4 the distance of the height.
- Tie ladders at the top or secure at the base.
- Do not extend extension ladder its full length; overlap at least 3 rungs.
- Do not use stepladders as extension ladders.
- Fully extend stepladders and lock in position.
- Only one employee, at a time, shall work off a stepladder.
- Do not stand or sit on the top or top two rungs of a stepladder.

9. <u>Scaffolds</u>:

- Completely deck all scaffolds, platforms, and staging, with decking secured, and built with standard handrails and toe boards on open sides and ends.
- The footing for scaffolds shall be sound and capable of carrying the maximum intended load.
- Do not erect, move, dismantle or alter any scaffold except under the supervision of a competent person.

10. <u>Explosive Actuated Tools</u>: Employees must be trained/certified before they may use these tools.

11. <u>Clothing</u>:

- Employees will work fully clothed.
- Sleeve-less shirts, tank tops, half shirts <u>are not</u> permitted.

- All employees shall wear sturdy work-boots while on the project. Some tasks may require additional foot protection.

12. **Jewelry:** Use good judgment as to what type of jewelry will not constitute hazard. For instance, earrings or chains that could get caught in machinery are not allowed.

13. **Compressed Gas Cylinders:**

- Cap, tie-off, or otherwise properly store compressed gas cylinders when not in use.
- Cylinders must remain in the upright position at all times.
- Keep protective caps in place.
- Do not use oil or grease on valves or gauges.
- Separate oxygen cylinders in storage from fuel-gas cylinders by at least 20 feet, or by a 5-foot wall with a 30-minute fire rating.

14. **Lift Carefully:** Like everything else, the right way to lift is easier and safer. If the load is too heavy, ***GET HELP.*** Do not lift with your back, bend your knees.

15. **Lifting And/Or Swinging Loads:**

- Do not walk under a suspended load or permit others to do so.
- Barricade the lift area to control access into the area.
- Never pick up a load in excess of the capacity of the equipment
- Only one person at a time will give hand signals to operator.
- Use tag lines to control loads.
- Never leave a suspended load unattended.
- Never ride on a load, crane hook, headache ball, or forks of a lift truck.

16. **Rigging:**

- Never use hands or feet to guide cable or line onto a drum or hoist. Use a bar as a guide.
- When it is necessary to stretch cables or lines across roads or walks, block the road or walk if the cable or line is lower then 14 feet above roads or less than 7 feet above walks.
- Seat chain links into a hook by hand pressure only. Never hammer a chain link onto a hook.
- Use approved method to fasten hoisting equipment together.
- Follow the manufacturer's recommendations in determining the safe working loads of hooks. Test all hooks for which no applicable manufacturer's recommendations are available to twice the intended safe working load before they are initially put into use.

17. **Chain Blocks:**

- When using chain blocks, inspect and check for proper operation using a test load before making a critical lift.

- Know how much you are lifting and the chain block limitations.
- No more then one person at a time shall pull on the chain of a block.
- Never use a load chain as a sling for lifting.
- Do not use chains for rigging purposes, with the exception of chain falls with the capacity plate intact.
- Straighten chains and make every link seat before lifting. Never jerk or put any strain on a kinked chain.
- Use appropriate or rated material to suspend or anchor chain blocks.

18. Equipment Operations:

- Operators must be trained for the type of equipment being operated. The Contractor shall provide proof of competency for all individuals operating heavy equipment.
- Passengers are not allowed to ride on equipment with operators.

19. Access: Climbing, sliding down columns or diagonal bracing is not permitted. Walking elevated beams and pipe without being tied off is not permitted.

20. Permits: There are various permits required on the project. The general contractor will issue appropriate permits and maintain records. Commonly used permits include:

- Hot Work: Any work, tool, or equipment (welding, burning, grinding, vehicles, portable welders, etc.) which might provide a source of ignition in areas where combustibles are present.
- Confined Space: The authorization required to enter any vessel, pipe, confined space, excavation etc., for any reason.
- Lock And Tag: Prevents operation of a valve, switch or piece of equipment when injury or property damage could result from the operation.
- Excavation: Authorization to excavate anywhere on campus. An excavation permit shall not be issued until a Dig-Safe number is issued and active.
- Scaffold: Permission to use a scaffold that has been erected. A scaffold permit shall be secured by each new Contractor or Subcontractor that seeks to use a scaffold, following a review of their proposed operation.
- **Failure to follow instructions on a tag or permit will constitute grounds for removing the employee from the site. If you see a tag that you do not understand, ask your supervisor**.

21. Hazard Communication: Handling and storage are the two most common causes of accidents with chemicals. There are several ways that the information is relayed to the employee, these being:

- Container labeling - labels give you information about immediate hazards associated with the chemical.
- Material Safety Data Sheets (MSDS) give you detailed information about the chemical - physical and health hazards, First Aid, fire fighting, protective equipment, etc.

- Know what you are handling, read the label, and if there is any doubt, consult the Material Safety Data Sheet.

22. <u>Parking And Motor Vehicles</u>:

- Employees shall park personal vehicles in designated areas only.
- Posted regulations governing the use of the parking lot shall be followed.
- All vehicles on the University of Rhode Island's premises will be at the risk of the vehicle owner and the University accepts no responsibility for damage to or theft of or from such vehicles.

23. <u>General</u>:

- Drink water only from approved drinking water containers or dispensers.
- Proper housekeeping is essential and will be part of every job.
- Clean up all spills or leaks promptly. The Contractor is responsible for containing and cleaning up all spills caused by its workforce.
- Obey all posted speed limit signs.
- Pedestrians will have the right-of-way.
- Yield right-of-way to emergency vehicles.
- Smoking is permitted in designated areas only.
- No firearms or weapons are allowed on the job site.
- Riding on any equipment that is not designed for personnel transport is prohibited.
- Ride in vehicles with seats firmly attached.
- Employees must obey all danger and caution signs.
- Correct all unsafe conditions when possible. Report all unsafe conditions to your immediate supervisor or safety personnel.
- No running is permitted on the job site.
- All material raised and lowered from any height must be done by rope (No dropping or throwing).
- No horseplay will be tolerated.
- No fighting. All involved will be subject to being removed from the site.

24. <u>Drug Screening/Substance Abuse Policy</u>:

- Drugs, alcohol, and any form of non-prescription medications shall be prohibited, as well as reporting to work under their influence. Those involved in distributing or accepting any form of illegal drugs or alcohol on the job site will be terminated.
- An employee on any type of prescription medication must notify his/her supervisor before starting work for the day.
- All employees on the jobsite are subject to drug testing for reasonable suspicion, as determined by the Contractor or the University of Rhode Island. The Contractor is responsible for administering drug tests. Employees testing positive in a drug test will be dismissed from the site.

- Refusal by any employee to submit for reasonable suspicion testing will be interpreted as a positive test result. The employee will be dismissed from this site.

25. <u>Acknowledgement</u>:

- This is to acknowledge that I have received and read the University of Rhode Island's General Requirements and Safety Orientation Guidelines. The requirements and guidelines in this section of the Manual are not intended to cover all possible situations.
- I understand that I shall not engage in any activity that could create a safety hazard.
- I agree to abide by the general Requirements and Safety Orientation Guidelines including the drug screening procedures.
- I further understand that any violation of the general Requirements and Safety Orientation Guidelines may be grounds for dismissal from the project.

Print full name:_____

Signed:_____

Date:_____

Craft :_____

Company :_____

Please return this page to your supervisor.

03. CONTRACTOR RESPONSIBILITIES

All Contractors working on the University of Rhode Island's property shall have in effect a safety plan and shall designate a person responsible for safety, whether as a full-time position, or in addition to other duties.

A. General

1. **Authorization to Start Work:** Contractors shall not start work until all necessary insurance coverage paperwork has been submitted and approved by the University of Rhode Island. All contractor employees must receive a safety orientation prior to starting work.

2. **Job Hazard Analysis:** Prior to the start of work activities, each Trade Contractor shall submit to the University of Rhode Island's Safety Representative, in writing, a detailed Job Hazard Analysis of every task to be performed for each construction work activity. This analysis shall be ongoing and shall be submitted for new tasks prior to the start of work activity.

3. **Safety Coordinator:** Each Contractor or Subcontractor shall designate an on-site Site Safety Coordinator, who shall be responsible for supervising safety activities on the site. This individual may be the superintendent or other party located full-time on the site. Site Safety Coordinators are required to attend or to provide proof of completion of an OSHA 10 Hour Hazard Recognition Course, or approved equivalent.

4. **HAZCOM Library:** Each Contractor and Subcontractor shall submit Hazard Communication Plans and Material Safety Data Sheets to the General Contractor, who shall maintain a library of Hazard Communications for all employees at the site.

5. **Contractor's Equipment:** All equipment (owned, leased or rented) brought onto The University of Rhode Island's property by Contractors must be in safe operating condition. The University of Rhode Island's personnel shall have the right but not an obligation at any time to inspect contractors' equipment. Such inspections or failure to inspect shall not relieve contractors of their responsibilities for the safe condition of their equipment.

6. **Emergency:** Contractor shall instruct employees to report emergencies to their immediate supervisors and to the general contractor's superintendent, or, if not **available, by calling 911. Contractor employees are not to go to the scene of the** emergency. Contractor employees are to report to the designated assembly area, do manpower accounting, and remain on standby.

7. **Smoking:** Smoking is prohibited, except at locations approved by the University.

8. **Hot Work:**

. "Hot Work" is defined as any work requiring the use of burning or welding equipment, brazing equipment, explosives, open fires, portable grinders, explosion-activated tools, or any other flame or spark producing equipment.

. Contractors shall not use open fires or spark-producing equipment or do any "Hot Work" when there are combustibles in the area without the knowledge and consent of the

General Contractor.

9. **Connecting into Existing Pipelines, Sewers, or Equipment: C**ontractor shall not open or tie its work into the University of Rhode Island's existing pipelines or equipment without a written permit from the University. After a tie-in has been made to the University's existing lines or equipment, the whole piping or equipment system involved shall be considered the same as the University's existing lines and equipment; a written approval must be obtained from the University before additional work can be done on any of these lines or equipment, unless a blind, approved by the University, has been installed separating the lines and equipment being worked on from the remainder of the system. This permit to open or blind does not constitute a permit to do "Hot Work" on the lines or equipment. Permission must be obtained from the University prior to the use of site utilities; such as, but not limited to, water, steam, and air systems, and fire hydrants. Connections to fire hydrants must have the University's approval before connections are made.

10. **Work on, Adjacent to, or Connecting into Existing Electrical Power Circuits and Work on Electrically Operated Equipment:** Under no circumstances shall contractors work on or connect into The University of Rhode Island's electrical system or work on the University's electrically operated equipment without securing prior written permission from the University. Contractors must have in place approved "Electrical Tag/Lockout Procedure". The procedure shall be administered and supervised by the General Contractor.

11. **Entering Pits, Excavations, and Tanks:**

- Contractors shall not enter any closed container, as defined below, without a confined space entry permit. The general contractor shall issue the permit, and it is valid for only the times and dates specified on the application.
- The spaces referred to above include excavations, open top containers and sewers where the head of a person working therein is below the top of the vessel, excavation or sewer.

12. **Working in the Vicinity of Electric Lines:** When it is necessary for a Contractor to operate cranes or derricks, or perform other work within 20 feet of electric lines (vertically or horizontally), Contractor shall consult The University of Rhode Island to determine whether the electric lines can be de-energized.

13. **Excavations:** All excavations made by the Contractor shall meet OSHA Standards. No excavation work shall be performed without a permit listing an active Dig-Safe number. The Dig-Safe number shall be requested by the contractor and reported in writing to the University's Assistant Director of Facilities Services for Lands & Grounds.

14. **Moving Suspended Loads:** Contractor shall not move loads suspended from mobile equipment without load being secured to prevent swinging. All chains, cables, ropes, etc., suspended from mobile equipment shall be properly fastened. Use tag lines for all loads handled by lifting equipment.

15. **Damage to The University of Rhode Island's Property:** If Contractor damages any of the University of Rhode Island's property, or property of any other Contractor or Subcontractor, the damage shall immediately be reported to the University of Rhode Island and accident report is to be completed.

16. **Warning and Caution Signs:** Contractors shall obey all safety warning signs posted by the University and shall require and monitor that safety equipment required by signs is used.

17. **Fire Extinguishers:** Welding machines, burning rigs and tar pots shall have either a 10BC rated CO_2 or a 20 BC rated dry chemical fire extinguisher in proper working condition located adjacent to the equipment. An extinguisher supplied by the Contractor shall be located at each point where "Hot Work" is being performed.

18. **Compressed Gas Cylinders: Transportation, Storage and Use:**

- Compressed gas cylinders, empty or full, shall be adequately secured in an upright, vertical position when in transportation, storage, or use. Do not store cylinders under pipe or power lines.
- Protective caps must be kept in place.
- Use holders, chains, or keepers to prevent overturning.
- Secure cylinders in a vertical position with a suitable keeper while connected to equipment.
- Do not allow oxygen to come in contact with hydrocarbon in any form.
- Avoid any rough-type handling.
- Contractor shall not use oxygen or acetylene for testing purposes.
- Contractor shall not take any cylinders inside a vessel.
- Contractor must label its gas cylinders with the company name so that they can be identified.

19. **Guarding:**

- Contractor shall guard or place appropriate barricades around temporary openings in floors, handrails, etc., to prevent accidents. Contractor shall replace permanent handrails and guardrails immediately after need for opening has ended. Guards on moving machinery shall be in place or other protection provided before such machinery is operated.
- Contractor shall guard or protect any area into which materials or tools are to be stored.

20. **Electrical Tools and Equipment:**

- Contractor shall ground portable electrical tools, metal buildings and equipment.
- Use explosion-proof, approved portable lights (Underwriters Laboratory or Bureau of Mines Approved) "Hot Work" is not authorized.
- Inspect all lighting equipment before use, especially mercury vapor lights, to insure covers are not broken or missing.
- Only 12-volt or less electrical systems can be used during entry situations.

- Contractor must conform to established Control of Hazardous Energy requirements.

21. Welding and Burning:

- Contractor shall not leave welding and/or burning torches unattended at any time on the University of Rhode Island's premises.
- Whenever there are combustible materials present, sparks from welding must be contained to welding area and there must be a standby person, properly trained and equipped.
- Contractor shall not weld from a personnel cage without an insulated link between the bail and hook.
- Contractor must use flash back prevention in the gas-supplied torches on both oxygen and fuel lines.
- Contractor shall not weld on oil or gas lines or equipment in service unless there is an internal cooling agent to remove heat, such as flowing liquid or gas, and/or unless there is sufficient metal, as approved by a qualified party, to prevent a burn-through.

22. Compressed Air: Contractor shall not use compressed air for cleaning purposes unless the airflow is regulated to 30 psi or less. Compressed air may not be used on personnel for cleaning purposes.

23. Refueling Vehicles and Equipment: Whenever possible, gasoline and fuel shall be dispensed through a pump and hose from an approved fueling tank. If not possible, approved Underwriter or Factor Mutual safety cans with flexible spout may be used. Transfer of fuel in non-approved cans, open containers and glass containers is prohibited. Vehicles and equipment engines must be turned off during refueling. Do not transport gas cans in truck beds with bed liners.

24. Clothing and Grooming Rules:

- Long pants or coveralls are required.
- A well-constructed boot/shoe that provides ankle protection, with a substantial flexible sole, must be worn. Exposure to hazard dictates whether a protective toe guard will be required. Sandals, tennis shoes, or any other street type shoes will not be permitted.
- Wear clothing that covers and protects the body when working or visiting in areas where the probability of exposure to hot liquids, flash fires, or skin irritants exists. This includes some type of arm covering.
- Do not wear loose clothing, such as loose sleeves, neckties, or gloves where there is a probability of it getting caught in moving machinery.
- Hard hats meeting specifications contained in the most current edition of ANSI Z89.1 and/or Z89.2 are required for all personnel requiring access to the job site. "Bump caps" are prohibited.
- Facial hair is not allowed for employees whose work requires the use of respiratory protection devices.
- Wear ear plugs and/or earmuffs while working in areas posted with noise warning signs,

or while working with or near tools or equipment which generate sufficient noise to make normal conversation difficult.

- All employees must meet the requirements of the "Material Safety Data Sheets" for use and wearing of additional protective equipment when working on or with chemicals.

25. **Reporting Requirements:** Contractor must report to The University of Rhode Island:

- All safety-related actions by local, state, or federal government. These include but are not limited to OSHA, EPA, etc. (Contractor shall advise the University of Rhode Island of any planned inspections by any of these agencies. Contractor shall provide copy of all correspondence with any government agencies to the University.).
- Any safety-related complaints to government agencies by employees, union or third parties.
- Any injury or near-miss injury, or any equipment damage or near miss equipment damage in the workplace. Submit reports within 24 hours.

26. **OSHA Records:** Each Contractor or subcontractor must have available OSHA Forms 200 at the site or have this information readily available for inspection by The University of Rhode Island.

27. **Safety Rule Violations:** Safety rule violations by contractor employees noted by the University of Rhode Island's supervisors or employees shall be addressed immediately. Unsafe operations that represent an immediate safety hazard or endanger the safety of site employees shall be stopped immediately and brought to the attention of the University. At the discretion of either the University or the Contractor, employees violating safety rules may be dismissed from the site.

28. **Safety Inspections:** Safety inspections shall be conducted by the General Contractor's Safety Coordinator to ensure Contractors and subcontractors are performing assigned activities in a safe manner. Any problems found shall be brought to the attention of the University of Rhode Island.

29. **Housekeeping:** At all times, keep the job site clean and free from debris, trash, and rubbish. Contractor shall store all materials in a neat and orderly fashion. Dismantled or surplus materials, trash, and debris (including earth, clay, lumber, concrete, metal, insulation, paper, etc.) that falls from Contractor's vehicles shall be promptly cleaned up by Contractor.

30. **Breathing Air:** All air used for breathing purposes must be bottled, compressed breathing air meeting the Grade D breathing air as described in the Compressed Gas Association Commodity Specification G-7.1966.

31. **Ladders:** Ladders that are defective in any way shall be taken out of service. The following requirements pertain to serviceable ladders:

- Straight or extension ladders require non-skid safety feet.
- Secure all ladders at the top whenever they are in use.
- Employees working around energized lines shall use wooden ladders.

- Metal ladders are not allowed.

32. **Scaffolds:** Construct scaffolds to meet OSHA Standards. All scaffolds must meet the following requirements:

- Ladders must be provided for safe access.
- All scaffold planking shall be free of knots and cracks (Class A Scaffold Lumber) and shall completely cover the work platform. Only planking that has been inspected and has had its ends color-coded "green" is permissible for use as scaffold plank. Un-inspected or damaged planking shall be color-coded "red" and cannot be used for scaffold work platforms.
- Scaffolds over 4 feet in height, having a minimum horizontal direction of less than 45 inches, shall have standard guardrails installed on all open sides and ends of the platform. If standard guardrails are not feasible, then personal fall arrest systems (harness/lanyard/anchor) shall be provided by the Contractor and used for fall protection.
- The use of "stilts" is prohibited on this project.
- Maintain an approved scaffold inspection and tagging system.

33. **Safety Harness:**

- A safety harness is required for anyone working in areas exposed to a potential fall of more than 6 feet.
- Secure lanyards whenever handrails or a complete deck does not protect the employee.
- Provide a lifeline, if the employee has nothing with which to secure him/her.
  - The lifeline shall be in compliance with the minimum requirements of OSHA regulations.
  - Check lifelines periodically.
  - Remove from service any lifeline, safety harness, or lanyard actually subjected to fall loading.

34. **Supervisory Responsibility:**

- ***Set a Good Example:*** Contractor supervisory personnel shall at all times set a good example for Contractor employees in order to encourage compliance with these safety rules and regulations.
- ***Provide Adequate Instruction:*** Contractor Supervisory personnel shall provide adequate instruction in and require compliance with:
  - Accident prevention aspects of each job;
  - Use or application of appropriate protective equipment and devices;
  - Use or application of tools and equipment

35. **Cooperate with The University of Rhode Island's Designated Representative:** Contractor Supervisory personnel shall cooperate with The University's designated representatives where the safety aspects of a job require coordination.

36. Site Protection Regulations:

- **Parking Locations:** The University of Rhode Island will designate parking locations for Contractor. All vehicles on the University's premises will be at the risk of the vehicle owner; the University accepts no responsibility for damage to or theft of or from such vehicles.
- **Entrance Gate:** The University may designate a gate for the use of the Contractor and for the delivery of its material and supplies. The Contractor and vehicles serving the Contractor shall use only the designated gate for entrance and exit to and from the job site. The Contractor will make arrangements so that vehicle drivers will know which gate to enter and the appropriate job site location.
- **Use of Subcontractors:** The Contractor shall give the names of subcontractors in writing to the University prior to starting work.
- **Gambling:** All forms of gambling are prohibited on the University's property.
- **Ambulance Service:** Contractor, when working on site, shall coordinate with the General Contractor to make any necessary arrangements for ambulance service. See Section 04. of this Manual.
- **Liquor, Drugs, Firearms:**
  - Any person possessing intoxicating liquors or drugs, or who is under the influence of such, will not be permitted to enter the site or loiter on the site premises.
  - Firearms, alcoholic beverages, or narcotics will not be permitted on the University's property or on the job.
- **Visiting and Loitering:** Visiting and loitering by the Contractors' employees at or around entrance gates or other places on the University's property will not be permitted. Contractor must stay in assigned work areas.

37. Traffic Regulations:

- **Motor Vehicles:** All motor vehicles on site must be in safe operating condition. When entering the site, all motor vehicles must display a valid state inspection sticker on the windshield.
- **Driver's License:** Motor vehicle drivers shall be qualified in accordance with driver's license regulations of any state in the US.
- **Warning Flags:** Use red flags on any load that extends beyond the front, side, or rear of any vehicle.
- **Traffic Signs:** Obey all traffic signs and signals, whether fixed or portable, and cooperate with representatives appointed to direct traffic.
- **Speed Limit:** Operate all vehicles within the site's posted speed limits.

04. EMERGENCY MANAGEMENT

A. Reporting an Emergency During Normal Working Hours

Immediately report any emergency condition the University of Rhode Island Project Manager, or if he cannot be reached, the Office of Capital Projects at (401) 874-2725.

B. Reporting an Emergency During Off Hours

Dial 911 for immediate assistance or emergency response. Attempt to contact Owner's representatives, and inform them as soon as possible of the incident.

C. Off-Hours Emergency Phone List

To be developed when work commences on site.

D. Emergency Access to the Site

To be developed when work commences on site.

05. FIRE PREVENTION/PROTECTION

Contractors and subcontractor shall ensure that their employees comply with all Fire Safety rules and regulations established on this project. Review the applicable OSHA standards under Subpart F—Fire Protection and Prevention; 1926.150, 151, 152, 153, 154, 155.

This section of the Manual pertains to those fire prevention and protection regulations that all construction organizations, contractors, subcontractors, vendors, and others shall observe while working on the project. All contractors'/subcontractors' supervisors and their employees must practice the highest level of fire prevention and protection at all times, but in no case less than required by the OSHA Standards and the specific guidelines that follow.

A. General Requirements

1. The employer is responsible for the development of a fire protection program to be followed throughout all phases of the construction and demolition work, and shall provide for the fire fighting equipment as specified in this subpart. As fire hazards occur, there shall be no delay in providing the necessary equipment.

2. Conspicuously locate all fire fighting equipment and make clearly accessible.

3. Inspect all fire fighting equipment periodically and maintain in operating condition.

4. Make available a temporary or permanent water supply as soon as combustible materials accumulate.

5. Conspicuously mark tanks and containers with the name of the product they contain, and "**FLAMMABLE - KEEP FIRE AWAY**."

B. Fire Extinguishers

1. Travel distance to any fire extinguisher will not exceed 100 feet.

2. Provide a fire extinguisher rated not less than 2A for each 3,000 square feet of building area.

3. Locate one or more fire extinguishers rated not less than 2A on each floor of a multi-story building.

4. Locate at least one fire extinguisher rated not less than 2A adjacent to each stairway in a multi-story building.

5. Extinguishers must be clearly accessible, conspicuously located and be periodically inspected and maintained in operating condition.

6. Provide fire extinguishers rated not less than 10B no less than 50 feet from any area in which more than 5 gallons of flammable or combustible liquids or 5 pounds of a flammable gas are being used or stored.

7. Substitutions for 2A Fire Extinguishers - The following may be substituted for each required 2A extinguisher:

- One water hose of not less than ½" diameter, of not more than 100 feet in length and with a discharge capacity of at least 5 gallons per minute. Hose must have sufficient length and stream range to reach all areas of coverage.

C. Ignition Hazards:

1. Install electrical wiring and components in compliance with OSHA subpart K, to prevent fire hazards.

2. Keep exhaust from engines away from combustible materials.

3. Smoking will be prohibited in the vicinity of operations that are likely fire hazards; post "No Smoking" signs.

4. Use only "approved for use in" lighting equipment in flammable or hazardous locations.

D. Temporary Buildings

1. Do not block any exits with a temporary building.

2. Temporary buildings, when located inside of another structure must be made of either noncombustible material or have a minimum one-hour flame resistance.

3. Keep 10 feet of access around sides of temporary building.

NOTE: This includes change shanties inside of a building.

E. Open Yard Storage

1. Keep the entire storage site clean of combustible debris, and also maintain an access way of at least 15 feet width.

2. Store materials in an orderly fashion, in no case higher than 20 feet, and not within 10 feet of any building or structure.

3. Protect tanks and dispensing units against collision damage.

4. Provide a fire extinguisher of at least 2A rating 25 feet and no more than 75 feet from any storage area.

F. Indoor Storage (combustible materials)

1. Storage shall not obstruct exits.

2. Separate non-compatible materials by a one-hour fire rated barrier.

3. Keep materials piled neatly and with regard to the possibility of fire, maintain an open access way for fire fighting.

4. Maintain at least 36 inches clearance between materials and sprinkler heads. Keep materials at least 36 inches away from fire doors.

G. Flammable and Combustible Liquids

1. Use only approved containers and portable tanks for storage and handling of flammable and combustible liquids. Use only approved metal safety cans for the handling and use of flammable liquids. Do not store flammable and combustible liquids in areas of exits, stairways, or other areas used for the safe passage of people.

2. Do not store more than 25 gallons of flammable and combustible liquids in a room outside of an approved storage locker. Store no more than 60 gallons in a single approved storage cabinet. *Note: See specific OSHA standards 1926. 152 (b) for details concerning approved storage lock/cabinet for flammable and combustible liquids.*

H. Flammable and Combustible Liquids Storage (outside)

1. Post danger/hazard signage (No Smoking or Ignition)

2. Do not exceed 1,100 gallons of individual containers of not more than 60 gallons each in any pile or group, and keep them separated from each other by at least 5 feet. Keep containers at least 20 feet from any building.

3. Grade or dike storage areas to divert spills away from buildings.

4. Separate individual portable tanks exceeding 1,100 gallons from each other by at least feet. Keep tanks at least 20 feet from any building. Vent all tanks per NFPA codes.

5. Maintain all areas of outside storage free of debris, excessive weeds, and other combustibles, and provide a 12-foot access way for fire personnel within 200 feet of storage area.

6. Locate a fire extinguisher rated of not less than 20B not less than 25 feet and not more than 75 feet from the storage area.

I. Dispensing Flammable Liquids

1. Dispense flammable liquids through a closed system.

2. Transfer liquids from one container to another only if containers are bonded.

3. Post "no smoking" signs in area.

4. Use only approved safety cans for minor equipment refueling. Mark can contents such as gasoline, diesel, kerosene, etc.

5. Dispose of flammable and combustible liquids in accordance with governing EPA requirements.

06. CONFINED SPACES

This procedure outlines the requirements for working in Confined Spaces. The purpose is to establish procedures and controls for employees who enter confined spaces that may contain hazardous atmospheres. No contractor or subcontractor employee will be permitted to enter any confined space until the appropriate entry procedures are complete.

A. Responsibilities

The General Contractor shall ensure compliance with this procedure and administer all necessary permitting requirements.

B. Identification of Confined Space Workers

1. Qualified Person: An employee who by virtue of training and/or experience is capable of authorizing Confined Space entry, determining atmospheric conditions, and validating an entry permit. Authorization is delegated by site management and must include the authority to cancel or terminate entry at his / her discretion if hazardous conditions arise or are suspected.

2. Confined Space Attendant (also referred to as "standby personnel"): An employee trained in basic rescue techniques, hazard recognition, communication methods, and control of Confined Space entrants.

3. Confined Space Worker/Entrant: An employee authorized to work in a Confined Space who has received appropriate training to perform his / her assigned duties under the entry permit program.

4. Rescue Team: A team of rescue personnel, either onsite or members of an outside organization, with the responsibility to respond to Confined Space emergencies and perform advanced rescue if and when required.

C. Confined Spaces

1. A confined space is one by which by design, construction, or configuration, has limited means of access and egress, has inadequate natural ventilation, contains or could produce dangerous air contaminants, and which is not designed for continuous occupancy.

2. Each contractor is responsible for determining if the places they work will fall under the confined space requirements.

D. Confined Space Types/Classes

1. **Class "A"** - Presents a situation which is immediately dangerous to life or health (IDLH). These include, but are not limited to, oxygen deficient, explosive or flammable atmospheres, and/or concentrations of toxic substances.

2. **Class "B"** - Has the potential for causing injury and/or illness if preventative measures are not used, but is not considered immediately dangerous to life and health.

3. **Class "C"** - Has had the hazards or potential hazards eliminated or controlled through the use of preventative measures. A Class "C" is considered safe but may be entered only after the Contractor has met the following requirements:

a. Report to the confined space location.

1) Test the confined space for the presence or absence of hydrogen sulfide gas, oxygen, and carbon monoxide.

2) Approve entry based on testing results.

3) Issue an approved confined space entry permit for each confined space entered.

b. Provide standby person for emergency purposes.

c. Have emergency retrieval equipment at the location. e.g. tripod, full body harness, retrieval line, etc.

d. Provide continuous forced air ventilation during the time work is being performed and at least 30 minutes prior to confined space entry.

E. Training and Responsibilities of Designated Employees

1. Qualified Person:

a. Persons to authorize or be in charge of entry will be trained in and perform assigned duties as follows:

1) Ensure that required procedures, practices, and equipment for safe entry are in effect before allowing entry.

2) Conduct appropriate atmospheric evaluation of the Confined Space via the use of testing equipment on which he or she has been trained to operate.

3) Determine that all requirements of the entry permit have been met before allowing entry.

4) Ensure that operations remain consistent with the terms of the entry permit at all times.

5) Cancel entry authorization at any time conditions are inconsistent with the guidelines of this procedure.

6) Terminate entry authorization upon completion of the work.

7) Prohibit unauthorized personnel from entry at all times.

b. Specific training/instruction for Qualified Persons will include:

1) Use of Monitoring Equipment.

2) Hazard Communication.

3) Respiratory Protection.

4) Permit Authorization and Termination

5) Hazard Recognition

6) Contacting Advanced Rescue Personnel

2. Confined Space Attendant

a. Persons authorized as attendants will be trained in and perform assigned duties as follows:

1) Remain stationed outside the Confined Space at all times during entry operations.

2) Maintain an accurate count of all persons inside Confined Spaces.

3) Ensure that permits specifically required by certain projects will be used as required.

4) Recognize potential hazards and monitor conditions to ensure that a safe atmosphere remains.

5) Maintain continuous communication with authorized entrants.

6) Authorize evacuation of Confined Spaces when hazardous conditions or permit violations exist.

7) Prevent entry of unauthorized personnel.

8) Contact advanced rescue personnel if required.

b. Specific training/instruction for Confined Space Attendants will include:

1) Hazard Communication

2) Respiratory Protection

3) Hazard Recognition

4) Communication Techniques

5) Basic Rescue

6) Evacuation Authority

3. Authorized Entrants

a. Employees who work as authorized entrants will be trained in and perform assigned duties as follows:

1) Be aware of Confined Space hazards that may be encountered.

2) Recognize hazard exposure symptoms.

3) Understand exposure hazards and their results.

4) Maintain contact with the attendant.

5) Recognize the need and initiate self-evacuation when necessary or when they perceive that danger is present.

6) Hazard Recognition:

- Communication Techniques
- Use of Personal Protection Equipment
- Self-rescue
- Hazard Communication

F. Permit Requirements

1. The General Contractor will be responsible for issuing permits and ensure compliance with the requirements of this program.

2. Contractor and subcontractor employees will be required to work within the provisions outlined in Confined Space Entry Permit Form CS1. The Qualified Person will complete all portions of the permit. The completed permit will be posted at the Confined Space entrance and will then become the responsibility of the attendant. Upon completion of the shift or the work (whichever is the first to occur), the attendant will sign the permit to indicate that all entrants have safely exited the Confined Space and return the permit to the Qualified Person for retention.

3. Upon placement of the permit, the attendant is responsible for control of the work area and has full authority to cease operations or terminate entry at any time. These actions will be reported to the Qualified Person immediately following their occurrence.

4. A blanket Confined Space Entry Permit may be requested for spaces opened for extended periods of time and in which permanent or temporary/portable ventilation equipment is utilized. Ventilation equipment should be capable of maintaining suitable atmosphere in the space when utilized.

G. Rescue Operations

1. No employee is allowed to make an entry into a confined space for rescue purposes unless properly trained and equipped to do so. If no personnel are authorized for rescue entry, the contractor and/or subcontractor shall secure outside assistance for rescue operations prior to entry into a confined space.

CONFINED SPACE ENTRY PERMIT

Date and Time Issued: _____

Job Site/Space I.D.:_____

Equipment to be worked on:_____

Date and Time Expires:

Job Supervisor:_____

Work to be performed_____

Stand-by Personnel:_____

1. Atmospheric Checks: Time: _____

Oxygen: _____%

Explosive: _____% LFL

Toxic: _____ PPM

2. Tester's Signature_____

3. Source Isolation (No Entry): N/A YES NO

Pumps or lines blinded	( )	( )	( )
disconnected, or blocked	( )	( )	( )

4. Ventilation Modification N/A YES NO

Mechanical	( )	( )	( )
Natural Ventilation Only	( )	( )	( )

5. Atmospheric Check after isolation and ventilation:

Oxygen _____% 19.5 %

Explosive _____% LFL 10 %

Toxic _____ PPM 10 PPM H2S

Time _____

Testers Signature _____

6. Communication Procedures: _____

_____

_____

7. Rescue procedures: _____

_____

8. Entry, standby, and back up persons: YES NO

successfully completed required training?	( )	( )
Is it current?	( )	( )

9. Equipment: N/A YES NO

Direct reading gas monitor tested	( )	( )	( )
Safety harness and lifelines for entry and standby persons:	( )	( )	( )
Hoisting Equipment:	( )	( )	( )
Communication line established:	( )	( )	( )
SCBA for entry, standby persons:	( )	( )	( )
Protective Clothing:	( )	( )	( )
All Electric equipment listed Class I Division I, Group D and non-sparking tools:	( )	( )	( )

10.Periodic atmospheric tests:

Oxygen _____% Time_____ Oxygen _____% Time_____

Oxygen _____% Time_____Oxygen _____% Time_____

Explosive _____% Time_____Explosive ____% Time_____

Explosive _____% Time_____ Explosive ____% Time_____

Toxic _____% Time_____Toxic _____% Time_____

Toxic _____% Time_____ Toxic _____% Time_____

We have reviewed the work authorized by this permit and the information contained here-in. Written instructions and safety procedures have been received and are understood. Entry cannot be approved

if any squares are marked in the "no" column. This permit is not valid unless all appropriate items are completed.

Permit Prepared By PRINT NAME_____ SIGNATURE_____

Approved By: PRINT NAME_____ SIGNATURE_____

Reviewed By: PRINT NAME_____ SIGNATURE_____

THIS PERMIT IS TO BE KEPT POSTED AT THE JOB SITE. RETURN COPY TO SAFETY OFFICE FOLLOWING JOB COMPLETION.

07. COMPRESSED GAS CYLINDERS

The purpose of this procedure is to prevent injury to personnel and damage to property caused by the mishandling of compressed gas cylinders. This procedure applies to all employees, contractors, and visitors who handle compressed gas cylinders.

A. Responsibility:

All contractors will ensure that their affected employees are trained in the proper use and inspection of gas cylinders.

B. General Requirements

1. Secure all cylinders upright and store in assigned places.

2. Never drop cylinders or permit them to strike each other.

3. Replace the valve caps on cylinders when regulators are removed. Do not transport cylinders without valve caps in place.

4. Do not use cylinders for rollers, supports, or any purpose other than to contain gas.

5. Keep sparks and flame away from cylinders. Never place or store cylinders near furnaces, boilers, or other high-temp sources.

6. Identify all compressed gas cylinders by a legibly marked label. Do not accept for use any cylinder that is not identified by a legible label and notify shipping personnel to retrieve the cylinder.

7. Open cylinder valves slowly. Stand to one side of the glass-covered gauge faces when opening cylinder valves. Close cylinder valves when stopping work, moving cylinders, or when cylinders are empty.

8. Mark empty cylinders "**EMPTY**" or "**MT**". Ensure all valves are closed and caps installed.

9. Never tamper with safety devices on valves or cylinders.

10. Cylinders must be equipped with the proper regulators. Inspect all connections and seating surfaces when applying regulators.

11. Contractors are responsible for ensuring that all pressure regulators are inspected/tested.

12. Contractors shall maintain inspection/test records onsite.

13. Contractors will ensure the integrity of each cylinder.

14. Cylinders must not be taken inside tanks or vessels where work is to be performed.

C. Special Rules For Oxygen Cylinders

1. Keep oxygen cylinders clean. Prevent oil or grease from contacting valves, regulators, gauges, fittings, hose lines, pipelines, blowpipes, and any connections.

2. Open the cylinder valve fully when cylinder is in use.

3. Never use oxygen as a pressure medium to blow out obstructed pipelines.

4. Hoses must be equipped with backflow controls and flame arrestors.

5. Oxygen cylinders in storage must be separated from fuel-gas cylinders by a minimum distance of 20 feet or by a 5-foot barrier having a fire rating of at least 30 minutes.

D. Special Rules For Acetylene Cylinders

1. Do not ever use Acetylene at a pressure exceeding 15 pounds per square inch.

2. Do not open an acetylene cylinder valve more than one full turn; then, in case of fire, the valve can be closed immediately.

3. Move acetylene cylinders to open air away from possible sources of ignition if leak occurs that cannot be stopped.

4. Never test for acetylene leaks with an open flame. Use leak detector or soapy water.

08. DRILLING AND BLASTING OPERATIONS

In order to minimize the risk of injury to employees or anyone on this site, the following conditions will set forth the requirements for drilling and blasting operations.

A. Scope

These requirements apply to all activities involving drilling, blasting and hauling of debris on this project.

B. Responsibilities

1. **All Contractors** shall be responsible for implementing the requirements of this plan and directing the activities of their employees and other sub- contractors to ensure compliance. **NOTE: Use of Personal Protective Equipment, i.e. hard hats, safety glasses and safety shoes, are required in all drilling and blasting areas.**

C. Drilling

1. A competent person shall inspect all drilling and associated equipment prior to each use. Correct equipment defects affecting safety before the equipment is used.

2. Inspect the drilling area for hazards before starting the drilling operation.

3. Do not allow employees on a drill mast while the drill bit is in operation or the drill machine is being moved.

4. When a drill machine is being moved from one drilling area to another, secure drill steel, tools, and other equipment, and place the mast in a safe position.

5. Do not drill blasting holes through blasted rock (muck) or water.

D. Haulage of Debris

1. A competent person shall inspect haulage equipment before each shift.

2. Correct equipment defects affecting safety and health before using the equipment.

3. Safely remove debris from all surrounding areas immediately after each blast.

E. Blasting - Use of Explosives

1. Only authorized and qualified persons will be allowed to handle and use explosives on this project.

2. Smoking, firearms, matches, open flame lamps, and other fires, flame or heat producing devices and sparks shall be prohibited in or near explosive magazines or while explosives are being handled, transported or used.

3. No person shall be allowed to handle or use explosives while under the influence of intoxicating liquors, narcotics, or other dangerous drugs.

4. Account for all explosives at all times. Keep explosives not being used in a locked magazine, unavailable to persons not authorized to handle them. Keep an inventory and record of all explosives used onsite at all times. **Notify the University of Rhode Island upon discovery of any loss, theft, or unauthorized entry into a magazine**.

5. Do not abandon explosives or blasting agents.

6. Do not fight any fire where the fire is in imminent danger of contact with explosives. Remove all employees to a safe area and guard the fire area against intruders.

7. Use only original containers, or magazines, for taking detonators and other explosives from storage magazines to the blasting area.

8. When blasting is done in congested areas or in proximity to a structure or highway, or any other installation that may be damaged, the blaster shall take special precautions in the loading, delaying, initiation, and confinement of each blast with mats or other methods so as to control the throw of fragments, and thus prevent bodily injury to employees.

9. Employees authorized to prepare explosive charges or conduct blasting operations shall use every reasonable precaution including, but not limited to, visual and audible warning signals, flags, or barricades, to ensure employee safety.

10. Insofar as possible, conduct blasting operations above ground between sunrise and sundown.

11. Empty boxes and paper and fiber packing materials, which have previously contained high explosives, shall not be used again for any purpose, but shall be destroyed by burning at an approved location.

12. Do not use explosives, blasting agents, and blasting supplies that are obviously deteriorated or damaged.

13. Delivery and issue of explosives shall only be made by and to authorized persons and into authorized magazines or approved temporary storage or handling areas.

14. Do not carry on blasting operations in the proximity of overhead power lines, communication lines, utility services, or other services and structures until the operators and/or owners have been notified and measures for safe control have been taken.

15. The use of black powder on this project is prohibited.

16. Direct and supervise all loading and firing by competent persons thoroughly experienced in this field.

F. Transportation of explosives

1. Transportation of explosives shall meet the provisions of Department of Transportation regulations contained in 49 CFR Parts 171-179, Highways and Railways; and 49 CFR Parts 390-397, Motor Carriers.

2. Motor vehicles or conveyances transporting explosives shall only be driven by, and be in the charge of, a licensed driver who is physically fit. He/she shall be familiar with the local, State, and Federal regulation governing the transportation of explosives.

3. No person shall smoke, or carry matches or any other flame-producing device, nor shall firearms or loaded cartridges be carried while in or near a motor vehicle or conveyance transporting explosives.

4. Do not transport explosives, blasting agents, and blasting supplies with other materials or cargoes. Do not transport blasting caps (including electric) in the same vehicle with other explosives.

5. Vehicles used for transporting explosives shall be strong enough to carry the load without difficulty, and shall be in good mechanical condition.

6. When a vehicle with an open body transports explosives, secure the original manufacturer's container to the bed to contain the cargo.

7. All vehicles used for the transportation of explosives shall have tight floors and any exposed spark-producing metal on the inside of the body shall be covered with wood, or other nonsparking material, to prevent contact with containers of explosives.

8. Every motor vehicle or conveyance used for transporting explosives shall be marked or placarded on both sides, the front, and the rear with the word "Explosives" in red letters, not less than 4 inches in height, on white background. In addition to marking or placarding, the vehicle or conveyance may display, in a manner that will be readily visible from all directions, a red flag 18 inches by 30 inches, with the word "Explosives" painted, stamped, or sewed thereon, in white letters, at least 6 inches in height.

9. Equip each vehicle used for transportation of explosives with a fully charged fire extinguisher, in good condition. An Underwriters Laboratory-approved extinguisher of not less than 10-ABC rating will meet the minimum requirement. Train the driver in the use of the extinguisher on his vehicle.

10. Do not allow vehicles or conveyances carrying explosives, blasting agents, or blasting supplies, inside a building for repairs or servicing.

11. Every motor vehicle transporting explosives shall be **attended to at all times**.
NOTE: **Attended** means the driver or authorized person is physically on the vehicle or can see the vehicle and reach it quickly without any kind of interference.

G. Storage of explosives and blasting agents.

1. Store explosives and related materials in approved facilities required under the applicable provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 55; State and Local regulations.

2. Do not store blasting caps, detonating primers and primed cartridges in the same magazine with other explosives or blasting agents.

3. Do not permit smoking and open flames within 50 feet of explosives and detonator storage magazine.

4. Slope ground around magazines away for drainage. Keep the land surrounding magazines clear of brush, dried grass, leaves, and other materials for a distance of at least 25 feet.

5. Explosives and blasting agents storage area must be secured and inaccessible to unauthorized persons.

H. Blaster Qualifications

1. A blaster shall be able to understand and give written and oral orders.

2. A blaster shall be in good physical condition and not be addicted to narcotics, intoxicants, or similar types of drugs.

3. A blaster shall be qualified, by reason of training, knowledge, or experience, in the field of transporting, storing, handling, and use of explosives, and have a working knowledge of State and local laws and regulations which pertain to explosives.

4. Blasters shall be required to furnish satisfactory evidence of competency in handling explosives and performing in a safe manner the type of blasting that will be required.

5. The blaster shall be knowledgeable and competent in the use of each type of blasting method used.

I. Loading of explosives or blasting agents

1. Establish procedures that permit safe and efficient loading before loading is started.

2. All drill holes shall be sufficiently large to admit freely the insertion of the cartridges of explosives.

3. Tamping shall be done only with wood rods or plastic tamping poles without exposed metal parts, but nonsparking metal connectors may be used for jointed poles. Avoid violent tamping. Do not tamp primer.

4. No holes shall be loaded except those to be fired in the next round of blasting. After loading, immediately return all remaining explosives and detonators to an authorized magazine.

5. Do not start drilling until all remaining butts of old holes are examined for unexploded charges. Refire any that are found before work proceeds.

6. No person shall be allowed to deepen drill holes, which have contained explosives or blasting agents.

7. Do not leave explosives or blasting agents unattended at the blast site.

8. Remove machines, and all tools not used for loading explosives into borehole, from the immediate location of holes before explosives are delivered. **Do not operate** e**quipment within 50 feet of loaded holes**.

9. Do not permit activity of any nature other than that which is required for loading holes with explosives in a blast area.

10. Check holes prior to loading to determine depth and conditions. Do not perform drilling within 50 feet of a hole that has been loaded with explosives and the explosives have failed to detonate.

11. When loading a long line of holes with more than one loading crew, separate the crews by practical distance consistent with efficient operation and supervision of crews.

12. Do not load or use explosives underground in the presence of combustible gases or combustible dusts.

13. Stem all blast holes in open work to the collar or to a point, which will confine the charge.

14. Maintain warning signs, indicating a blast area, at all approaches to the blast area. Use minimum 4 inches high warning sign lettering on a contrasting background.

15. Never spring a borehole when it is adjacent to or near a hole that is loaded. Do not use flashlight batteries for springing holes.

16. Allow drill holes to cool, which have been sprung or chambered, and which are not water-filled, before explosives are loaded.

17. Do not leave loaded holes unattended or unprotected.

18. The blaster shall keep an accurate, up-to-date record of explosives, blasting agents, and blasting supplies used in a blast and shall keep an accurate running inventory of all explosives and blasting agents stored on the operation.

J. Inspection after Blasting

1. Immediately after the blast has been fired, disconnect the firing line from the blasting machine.

2. Allow sufficient time, not less than 15 minutes in tunnels, for the smoke and fumes to leave the blasted area before returning to the shot. Have the blaster perform an inspection of the area and the surrounding rubble to determine if all charges have been exploded before employees are allowed to return to the operation, and in tunnels, after the muck pile has been wetted down.

K. Misfires

1. If a misfire is found, the blaster shall provide proper safeguards for excluding all employees from the danger zone.

2. No other work shall be done except that necessary to remove the hazard of the misfire and only those employees necessary to do the work shall remain in the danger zone.

3. Do not attempt to extract explosives from any charged or misfired hole; put in a new primer and reblast the hole. If refiring of the misfired hole presents a hazard, the explosives may be removed by washing out with water or, where the misfire is under water, blown out with air.

4. If there are any misfires while using cap and fuse, keep all employees away from the charge for at least 1 hour. Handle misfires under the direction of the person in charge of the blasting. Carefully trace all wires and search for unexploded charges.

5. Do not permit drilling, digging, or picking until all missed holes have been detonated or the authorized representative has approved that work can proceed.

09. EXCAVATIONS

Every contractor performing excavation work on site must have a properly trained and designated competent person. Contractors shall maintain on site all required excavation documentation in accordance with the provisions of 29 CFR 1926 Subpart P. All such records shall be available for inspection upon request.

A. General Requirements

1. Utility companies and owners shall be contacted, advised of the proposed work, and asked to establish the location of the utility underground installations prior to the start of actual excavation

2. Do not permit employees underneath loads handled by lifting or digging equipment.

3. Employees shall be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials

B. Protection/Barricade

1. Excavations must be barricaded to alert pedestrians and vehicle traffic.

2. Spoil dirt may be used to barricade one side of an excavation.

3. The spoil pile must be at least three (3) feet high and also must be piled at least three (3) feet from the edge of the excavation.

C. Access/Egress

1. Provide access and egress for all excavations. Provide ladders at intervals no greater than 25 feet. Ladders must extend at least three (3) feet above the top of the excavation and must be secured at top and bottom.

D. Fall Protection

1. Provide walkways where employees or equipment are required or permitted to cross over excavations. Provide guardrails, which comply with 1926.502(b), where walkways are 6 feet (1.8 m) or more above lower levels.

2. Provide adequate barrier physical protection at all remote excavations. Barricade or cover all wells, pits, shafts, etc.

3. Upon completion of tasks, excavation must be back-filled.

E. Sloping/Shoring

1. Excavations must be sloped or shored when deeper than five (5) feet.

2. A competent person must check all sloping prior to anyone entering the excavation. See Table (1) for slope requirements.

3. Sloping or benching for excavations greater than 20 feet shall be designed by a registered professional engineer. The approved contract drawing must be kept on site.

F. Inspections

1. The competent person shall conduct an inspection prior to the start of work and as needed throughout the shift.

2. Daily inspections of excavations, the adjacent areas, and protective systems shall be made by a competent person for evidence of a situation that could result in possible cave-ins, failure of protective systems, hazardous atmospheres, or other hazardous conditions.

3. Conduct inspections after every rainstorm or other hazard-increasing occurrence. These inspections are only required when employee exposure can be reasonably anticipated.

4. Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, remove exposed employees from the hazardous area until the necessary precautions have been taken to ensure their safety.

G. Water Accumulation

1. Employees shall not work in excavations in which there is accumulated water, or in excavations in which water is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by water accumulation.

2. If water is controlled or prevented from accumulating by the use of water removal equipment, a competent person shall monitor the water removal equipment and operations to ensure proper operation

TABLE 1.
Maximum Allowable Slopes

Soil or Rock Type	Maximum Allowable Slopes (H : V)* For Excavations Less Than 20 Feet Deep**
Stable Rock	Vertical (90 Degrees)
Type A ***	3/4:1 (53 Degrees)
Type B	1:1 (45 Degrees)
Type C	1 1/2:1 (34 Degrees)

Notes:

* Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

****** Sloping or benching for excavations greater than 20 feet shall be designed by a registered professional engineer.

******* A short-term maximum allowable slope of 1/2H:1V (63 degrees) is allowed in excavations in type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4H:1V (53 degrees).

10. CRANE OPERATIONS

All cranes must be inspected by qualified persons prior to being used on this jobsite. Affected contractors shall maintain a copy of annual inspection records of such cranes on the jobsite all the time.

A. Set Up

1. Ground/Crane Condition

a. Do not set cranes on unstable ground, backfill or buried pipes.

b. Do not set up cranes where the crane cannot be made level.

2. Overloading

a. Do not use crane to lift more than the rated capacity.

b. Do not ignore or misinterpret load chart.

c. If load computer is used, correctly program the computer.

B. Responsibilities for Crane Operations

1. Affected Contractors/Subcontractors shall ensure that:

a. Personnel involved in maintaining, repairing, transporting, preparing, and assembling the equipment are well trained.

b. Employees clearly understand their responsibilities and the authority necessary to operate cranes safely.

c. Maintenance and inspection program is established and maintained through a written program or ensure that the crane owner has the program in place.

d. Ensure that site supervisors are aware of their responsibilities.

e. Crane and associated equipment are in accordance with the manufacturer's requirements.

2. Crane Operators are responsible for:

a. Knowing the machine functions and limitations

b. Being familiar with crane operating manual

c. Understanding the crane's load chart

d. Inspecting and maintaining the crane regularly

e Informing supervisor of problems, needed maintenance, or necessary repairs (**in writing**)

f. Completing inspections in accordance with the manufacturer's requirements

g. Being aware of site conditions that could affect crane operations

h. Finding out the weight of the load and where the load is to be placed

i. Ensuring adequate rigging

j. Considering all factors that may reduce cranes capacity

k. Knowing basic load rigging procedures

l. Shutting down and securing the machine when leaving unattended.

3. Contractor site supervisor is responsible for:

a. Supervising all work involving the crane, including planning meetings in advance of critical lifts

b. Determining the correct load weight and radius

c. Ensuring the rigging crew is experienced and competent

d. Ensuring the load is properly rigged

e. Ensuring the signalmen are competent and capable of directing the crane

f. Designating signalmen and identifying them to the operator

g. Keeping the public and non-essential personnel clear of working radius

h. Ensuring that all safety precautions are taken when working in the vicinity of power lines.

i. Ensuring all personnel involved in the operation understand their job responsibilities and safety related aspects

C. Pre-Job Planning Requirement

1. Operator – All crane operators shall be properly licensed to operate in the State of Rhode Island. Certification records shall be maintained on the job site by the Contractor and made available to the University of Rhode Island on request.

2. Load charts – Provide and attach a legible load chart in a location accessible to the operator while at the control.

D. Inspections

1. The crane operator shall perform inspections on each crane, in accordance with the requirements of its manufacturer.

2. A thorough, annual inspection of hoisting machinery (cranes and derricks) shall be made by a Government or private agency recognized by the U.S. Department of Labor or the University of Rhode Island. The Contractor must post the most current inspection certificates in the cab or operator's station of the hoisting machinery and provide the University, upon request, a copy of the inspection certificate results.

3. A qualified person shall inspect Cranes not in regular use.

E. Wire Rope: Out of Service Criteria – Take cranes out of service with wire ropes that meet the following criteria:

1. In running ropes – six randomly distributed broken wires in one lay or three broken wires in one stand, in one lay

2. One outer wire broken at the point of contact with the core of the rope which has worked its way out of the rope structure and protrudes, or loops, out from the rope structure

3. Wear of one-third of the original diameter of outside individual wires

4. Kinking, crushing, bird-caging, or any other damage resulting in distortion of rope structure

5. Evidence of heat damage

6. Reduction of nominal diameter from 1/64" to 3/32" depending on rope diameter

11. HOUSEKEEPING

This procedure is designed to outline the project housekeeping requirements for all contractors in order to maintain a safe and clean work environment.

A. Introduction

All contractors are required to maintain their respective work areas in clean, sanitary and orderly condition at all times.

B. Housekeeping

1. Each contractor is responsible for arranging for the removal of all scrap material generated during each project.

2. During the course of construction, renovation, alteration, or repairs, keep all construction debris clear from all work areas and do not allow to accumulate.

3. Properly dispose of all materials according to federal, state and local guidelines.

4. Contractors shall ensure that enough trash receptacles are located within their respective work areas.

5. Clearly mark containers for the contents to be disposed of. (e.g. oily rags, metal, paper waste, etc.)

6. Provide covers for containers used to collect garbage, solvents and other flammable wastes, hazardous wastes such as acids or caustics.

7. Arrange building materials so that they do not pose a hazard to personnel in or around the area.

8. Maintain walking and working surfaces clear of materials and or debris. Cords and hoses must be out of walkways or elevated 7 feet above floor level.

9. Glass containers are not allowed on site.

10. Under no circumstances is the Contractor to leave the jobsite for the day until each of the above Housekeeping requirements is fully complied with. The Contractor shall provide periodic cleanup during the day as necessary to provide working conditions that are clean, sanitary, orderly, and safe.

C. Sanitation

1. Contractors shall ensure that there is adequate supply of drinking water for their employees.

2. Contractors shall provide single use cups.

3. Water containers must be tightly closed and equipped with a tap.

4. The water dispenser shall have the lid taped with the date and time the water was prepared.

5. Provide a trash receptacle near each water dispenser.

6. Water containers must be cleaned daily.

7. Contractors must provide sufficient toilet facilities for their personnel onsite.

12. HAZARD COMMUNICATION PROGRAM

All contractors involved with this project are required to obtain information on any chemicals that are intended to be used onsite, take steps to reduce exposures, substitute less hazardous materials, and establish proper work practices. These efforts will help prevent the occurrence of work-related illnesses and injuries caused by chemicals. Most chemicals/substances used in the workplace have some hazard potential, and thus will be covered by this requirement.

REQUIREMENTS

A. Written Program

1. Each contractor on site must have a written hazard communication program that addresses how information on hazardous chemicals will be provided to their exposed employees.

2. The written program must describe how the requirements for labels and other forms of warning, material safety data sheets, and employee information and training, are going to be met.

B. Identify Responsible Staff

All contractors must identify their employees who will be responsible for conducting Hazard Communication training on site.

C. Identify Hazardous Chemicals/Substances

1. All contractors must prepare a list of hazardous chemicals/substances they plan to bring to the site as part of the written HazCom program.

2. A copy of the list must be supplied to the general contractor.

D. Labels and Other Forms of Warning

1. Label, tag, or mark all containers of hazardous chemicals with the identity of the material and appropriate hazard warnings.

2. If the contractor subsequently transfers the material from a labeled container to another container, the contractor will have to label that container unless the material is for immediate use during the shift period.

E. Material Safety Data Sheets

1. Contractors must have an MSDS for each hazardous chemical that they use on site.

2. Contractors shall use the information contained in the MSDS to design protective programs for their workers.

3. MSDS's must be readily accessible to employees when they are in their work areas during their work shifts.

4. Employees shall not use any chemicals for which the contractor has not received an MSDS. The MSDS provides information needed to ensure proper protective measures are implemented prior to exposure.

5. Copies of all MSDS must be furnished to the general contractor.

F. Employee Information and Training

Each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes. "Exposure" or "exposed" means "an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.) and includes potential (e.g., accidental or possible) exposure."

In reviewing the written program with regard to information and training, the following items need to be considered:

1. Designation of person(s) responsible for conducting training;

2. Format of program to be used (audiovisuals, classroom instruction, etc.);

3. Elements of the training program;

4. Procedure to train new employees at the time of their initial assignment to work with a hazardous chemical, and to train employees when a new hazardous chemical is brought to site.

In general, the most important aspects of training required in this section are to ensure that employees are informed if they are exposed to hazardous chemicals, that they know how to read and use labels and material safety data sheets, and that, as a consequence of learning this information, they are following the appropriate protective measures established by the contractor.

G. Other Requirements

In addition to the above specific requirements, all contractors shall ensure that their programs address the following:

1. Outline of methods the contractor will use to inform employees of the hazards of non-routine tasks;

2. Availability of the written program to employees and their designated representatives; and

3. Established procedures to evaluate program effectiveness.

13. ELECTRICAL SAFETY

Contractors shall ensure that electrical equipment is free from recognized hazards that are likely to cause death or serious physical harm to employees. Electrical equipment and installations used to provide electric power and light at the jobsite shall meet all OSHA and NEC regulations.

A. Examination, Installation and Use of Equipment

Before installation or use, examine electrical equipment to ensure that its operation shall not constitute a safety hazard to employees. Examine such equipment for the following characteristics:

1. Suitability for installation and use in conformity with the provisions of all applicable regulations. Suitability of equipment for an identified purpose may be evidenced by a listing, by labeling, or by certification for the identified purpose.

2. Mechanical strength and durability. For parts designed to enclose and protect other equipment, this includes the adequacy of the protection thus provided.

3. Electrical insulation.

4. Heating effects under conditions of use.

5. Arcing effects.

6. Classification by type, size, voltage, current capacity, and specific use.

7. Other factors that contribute to the practical safeguarding of employees who use or are likely to come in contact with the equipment.

B. Guarding

Guard live parts of electric equipment operating at 50 volts or more against accidental contact. Accomplish guarding of live parts as follows:

1. Location in a cabinet, room, vault, or similar enclosure accessible only to qualified persons.

2. Use of permanent, substantial partitions or screens to exclude unqualified persons.

3. Location on a suitable balcony, gallery, or platform elevated and arranged to exclude unqualified persons.

4. Elevation of eight feet or more above the floor.

5. Entrance to rooms and other guarded locations containing exposed live parts must be marked with conspicuous warning signs forbidding unqualified persons to enter.

6. Electric installations that are over 600 volts and that are open to unqualified persons must be made with metal-enclosed equipment or enclosed in a vault or area controlled by a lock. In additional, equipment must be marked with appropriate caution signs.

C. Grounding of Equipment Connected by Cord and Plug

All non-current carrying parts of electrical equipment must be grounded or have an approved double-insulated setup. Grounded circuits must have enough capacity to carry all of the currents likely to be imposed upon it.

D. Safety-Related Work Practices

1. Protection of Employees

a. Contractor shall determine before operations start if there is any energized equipment or electrical circuit in the work area that might have risk to the worker. Identify equipment and conductors that must be de-energized to the University of Rhode Island Project Manager who will authorize de-energizing the Equipment under the Lockout/Tagout procedure/system. The contractor shall use the project Lockout/Tagout procedure and strictly adhere to these requirements. The University will monitor adherence to the procedures on a regular basis.

b. Where the exact location of underground electric power lines is known, provide employees using jack hammers or hand tools that may contact a line with insulated protective gloves.

c. Even before work is begun, the contractor must determine by inquiry, observation, or instruments where any part of an exposed or concealed energized electric power circuit is located. This is necessary because a person, tool or machine could come into physical contact with the electric power circuit.

d. Contractors shall advise their employees of the location of such lines, the hazards involved and protective measures to be taken as well as to post and maintain proper warning signs.

2. Passageways and Open Spaces

Contractors shall provide barriers or other means of guarding to ensure that workspace for electrical equipment will not be used as a passageway during the time when energized parts of electrical equipment are exposed. Walkways and similar working spaces must be kept clear of electric cords.

3. Lockout and Tagging of Circuits

Contractors shall place locks and tags on controls that are to be deactivated during the course of work on energized or de-energized equipment or circuits. Render equipment or circuits inoperative that are de-energized, and have locks and tags attached at all points where such equipment or circuits can be energized.

4. Testing

a. All electrical work, installation and wire capacities shall be in accordance with the pertinent provisions of the National Electrical Code, ANSI and OSHA standards.

b. All tools, cords and power sets shall have an assured equipment inspection program maintained on a quarterly basis. The color codes for identifying inspected and tested equipment on the project are:

January, February, March	White
April, May, June	Green
July, August, September	Red
October, November, December	Orange

NOTE: The cycle of colors repeats annually.

c. Portable tools will have the appropriate color code affixed to the male (plug) end. Extension cords will have the appropriate color code affixed to both ends (plug and receptacle). The previous quarter's color code will be removed to avoid confusion.

d. Immediately destroy all electrical tools and extension cords found to be defective (examples: missing or broken ground pins, exposed internal conductors), etc.) by cutting off the plug end.

5. Temporary Wiring

a. All necessary open wiring must be made inaccessible to unauthorized employees and visitors. Encase lighting on barricades, fences, or sidewalk coverings in metal raceways. Temporary lighting must have guards to prevent accidental contact with the bulb unless the bulb is deeply recessed in the reflector. Do not suspend temporary lighting by the cord unless the fixture was specifically designed in that manner, as with trouble lights. Operate portable electric lighting used in moist or other hazardous locations such as drums, tanks, vessels, bins, bunkers, etc. at a maximum of 12 volts (non-explosive).

b. Extension cords used with portable tools must be of a heavy duty 3-witre type. Flat extension cords are prohibited. Do not use damaged electrical cords.

c. Suspend all extension cords seven feet (7') above finish floor or work platform. Do not fasten extension cords with staples, hung from nails, or suspended by non-insulated wire.

d. All temporary power panels shall have covers installed at all times. All open or exposed breaker spaces shall be adequately covered or labeled.

e. All electrical equipment and wiring in hazardous locations must conform with the National Electric Code standards. Ground the frames of all cutting, and welding (arc, heli-arc, gas-plasma arc) machines.

f. Fish tapes or lines made of metal or any other conductive material are prohibited. Use nonconductive tapes and lines in their place.

g. All temporary wiring shall be effectively grounded in accordance with the national Electric Code (Articles 305 and 310). All wiring used for temporary lighting shall be non-metallic sheathed cable (NM) or the equivalent as approved by the University of Rhode Island.

E. Ground-Fault Circuit Interrupters

1. Contractors shall use approved ground-fault circuit interrupters for all 120-volt, single-phase, 15-and 20-ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure, and which are in use by their employees.

2. Receptacles on the ends of extension cords are not part of the permanent wiring and, therefore, must be protected by GFCI's whether or not the extension cord is plugged into a permanent wiring.

3. These GFCI's monitor the current-to-the-load for leakage to ground. When this leakage exceeds 5 mA±1mA, the GFCI interrupts the current. They are rated to trip quickly enough to prevent electrocution.

4. Contractors shall have in place approved program for testing GFCI's. All records shall be made available for inspection at any time.

This protection is required in addition to, not as a substitute for, the grounding requirements of OSHA safety and health rules and regulations as specified in 29 CFR 1926.

14. LOCKOUT AND TAGOUT

This procedure establishes the minimum requirements for the isolation of energy sources to ensure the safety and health of employees where unexpected start-up or release of stored or residual energy could cause injury. The following principles must apply to energy isolation tasks to ensure an appropriate level of safety and compliance with Safety Standards.

A. Lockout

1. Use only individually keyed locks.

2. A lockout hasp that allows the use of more than one lock may be needed.

3. A piece of chain or cable may be necessary to complete a lockout on some valves or controls and shall be used wherever needed.

4. When voltage exceeds 600 volts, components must be grounded.

B. Danger Tags

1. Danger tags, on the spot warning of dangerous conditions, shall conform to OSHA specification. **Note: Use the danger tags for lockout purposes only.**

2. Tags will be supplied by the contractors and shall be clearly marked to show their purpose.

C. Procedure

If a device, valve, switch, control or piece of equipment is locked out, attach a danger tag. **Note: Do not operate any device, valve, switch, control or piece of equipment with a danger tag and/or lockout attached regardless of circumstances!**

Contractors are required to check, lock or tag all systems prior to any work. If any of the above methods shows failure of the lockout, stop work and notify the superintendent.

1. Panel Boards (switch gear, etc.)

- **a.** Where placing of lock is not feasible, disconnect the circuit conductor from the breaker and tag out.
- **b.** The panel cover must be of the type that shall cover all breakers when closed and must be equipped with a fastener in order to secure a lock to prevent the panel door from being opened.
- **c.** If the panel cover is of a type that cannot be locked closed, secure a locked, closed and tagged cover over the panel while any work is being performed on any of those circuits.

Note: If the above cannot be accomplished, tag out each circuit as prescribed and post an employee by the panel board to prevent breakers from being tampered with. Assign this physical presence daily until the work is complete.

2. All danger tags shall be dated and signed by the employee who is working on the system. Also, the intended work and equipment for which the tag has been placed must be shown.

3. If employees of more than one contractor or crew are to work on a system, circuit, machinery, or component, the lead man from the craft shall place his or her individual lock and tag; and verify that the system, circuit, machinery or component being tagged, is indeed the system that is to be worked on.

4. Only the person who placed the lock and tag shall remove it without special authorization from the contractor's safety representative.

5. If the lock must remain after one shift, the incoming lead person will assume the responsibility of securing a new issue lock and tag. Secure the tagged system until all work is accomplished.

6. Remove from the Project any employee(s) or person(s) found to have removed another's lock and/or tag without authorization.

D. Operating Equipment

All systems covered under this section (e.g., electrical, mechanical, or others),are considered to be systems in the care/custody/control of the General Contractor.

Contractor's Responsibility:

1. Contractor/sub-contractor shall ensure that fuses and breakers have been removed, when applicable.

2. Contractor/sub-contractor shall tag, lock and try system to ensure that the system cannot be accidentally re-energized.

E. Lock Cutting/Removal

In the event it becomes necessary to remove an employee's lock, due to his/her absence from the project with a family emergency, or sudden illness, Strictly adhere to the following procedures:

1. Contact the employee's immediate supervisor and inform of the reason for the request.

2. Alternatives shall be considered, for example, rescheduling the work if possible. The contractor's safety representative must take precautions to ensure the safety of all employees in the affected work area.

15. BARRICADE TAPE PROGRAM

Use barricade tape for a visual warning only. Do not use it as a physical protection for floor edges, roof edges, floor openings, etc. For physical protection, barricades capable of supporting 200# must be erected

Listed below are various types of barricade tape and their proper usage.

A. Yellow/Black Caution Tape

Use this type of barricade tape to warn individuals of a hazard that can be seen and avoided. Personnel may enter this type of barricade if they are wearing the appropriate required personal protective equipment. Personnel may enter without permission from contractor. Use this barricade tape for, but not limited to, the following:

1. General material storage area.
2. General work area.
3. Identification of slip/trip hazards.

B. Red "Danger" Tape

Use this type of barricade tape to identify areas where entry of employees is restricted due to the nature of the hazard. No one may enter this area without first obtaining permission from the contractor responsible for erecting the barricade. Use this barricade tape for, but not limited to, the following:

1. Around counterweight of equipment.
2. Overhead works where materials may fall to lower levels.
3. High-pressure water cleaning, sand blasting, etc.

16. HOT WORK

Refer to* Document 00740 – HOT WORK PROCEDURE *in the applicable Project Manual for requirements for safe work practices to be used when performing hot work on the project. Hot work is to be defined as an open flame, welding arc, non-explosion proof electrical tools or equipment and any heat source capable of causing ignition.

17. LADDERS

The purpose of this safety regulation is to outline the proper use and care of portable ladders on site. Scaffold ladders are addressed in the scaffolding procedure.

A. Responsibility

All contractors and subcontractors are responsible for ensuring the portable ladders used by their employees are in good working condition.

B. General Requirements

1. Personnel using ladders will be responsible for inspecting them before use and reporting any defective ladders to their supervisor**. These ladders will be taken out of service immediately and destroyed if repair is not feasible.**

2. Contractors shall inspect ladders prior to use. The inspection will include the rungs, feet, lanyard (for extension ladders), side rails, and rivets.

3. Do not use ladders with broken or missing steps, rungs or cleats, broken side rails or other faulty parts. A **"DANGER, DO NOT USE"** tag must be attached.

4. All personnel shall face the ladder while ascending or descending.

5. All personnel shall have their hands free of material while climbing ladders. Use handlines to raise or lower materials as needed.

6. **No portable metal ladders are permitted on the project**. Use fiberglass ladders for electrical work when there is danger of electrical shock.

7. Portable ladders classification:

a. Portable Ladders: Can be either straight (fixed heights, not taller than 12 feet), or extension (two sections or more combined to reach maximum height).

b. Stepladders: Scissors-type opening ladders that are self-supporting.

8. Identify all portable ladders **by contractor name**, properly stored at their assigned location when not in use, and kept in good, clean condition.

9. Equip all ladders with safety feet. Both feet of extension ladders and stepladders shall rest on solid support and be at the same level.

10. Do not place ladders in front of doors unless the door is locked, roped off, or guarded.

11. Do not use tops of ordinary types of stepladders as steps or work platforms. All ladders shall be of sufficient length so that work can be performed while at or below the fourth rung of the ladder from the top or as recommended by the ladder manufacturer (as labeled on ladder).

12. Place all portable ladders, other than stepladders, on the ground or other support so that the distance from the base of the ladder to a line dropped vertically from the top support is approximately one-fourth of the length of the ladder. Example: Place a 16-foot ladder so that the bottom is four feet away from the wall.

13. Secure all portable ladders before starting a job. Another employee shall hold the bottom of the extension ladder while the ladder is being tied off or secured.

14. All ladders used for access to another level shall be of sufficient length so that the top is at least 3 feet above the upper landing.

15. Ladders shall rest on solid support and the feet shall be level. Do not use boxes, barrels or other unstable bases to obtain additional height.

16. Makeshift ladders are **PROHIBITED**.

17. Do not use stepladders (folding ladders) as straight ladders. When using a stepladder, make sure the spreader braces are locked to prevent collapse.

18. Only one employee shall be on a ladder at a time, except in extreme emergency.

19. Keep rungs of ladders free of grease and oil.

20. Do not lean to outside with a shoulder being more than 12 inches beyond the side rail while on a ladder.

21. When it is necessary to do work requiring the release of both hands from an extension ladder, use fall protection. Secure fall protection to a structure of adequate strength for the purpose. Do not secure to the ladder. When ladders are used as a work platform (meaning not just for access/egress) they must meet the minimum requirements of 100% fall protection over six feet.

22. Do not use tools in a position that will transmit an extensive downward force to the ladder, causing rung or step failure.

23. Adjustment of extension ladders shall only be made by the user when standing at the base of the ladder.

24. At the end of the workday, move ladders from the work areas so as not to create a tripping or bumping hazard. Return the ladders to proper storage areas.

C. Job-Built Ladders

1. Use other means such as stairways, scaffold stair towers, or extension ladders before building job ladder if at all possible.

2. Use the following charts and measurements in constructing the ladder; (Ladder Table 2, 3 and Figures 1 through 14).

18. SCAFFOLDING

Inspect all scaffolds, erected and/or dismantled under the supervision of a competent person. No contractor on this site shall allow any employee to erect or use as scaffold without being properly trained.

Contractors are required to comply with all requirements of OSHA regulations dealing with scaffold erection, inspection and training. Use the following provisions as a guide only. Contractors shall maintain a comprehensive program on scaffold erection and use.

A. General Requirements

1. The footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement. Unstable objects such as barrels, boxes, loose brick, or concrete blocks, shall not be used to support scaffolds or planks.

2. No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent persons.

3. Guardrails and toe boards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor, except needle beam scaffolds and floats. Scaffolds 4 feet to 10 feet in height, having a minimum horizontal dimension in either direction of less than 45 inches, shall have standard guardrails installed on all open sides and ends of the platform.

4. Guardrails shall be 2 x 4 inches or equivalent, approximately 42 inches high, with a mid rail, when required. Supports shall be at intervals not to exceed 8 feet. Toe boards shall be a minimum of 4 inches in height.

5. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toe board and the guardrail, extending along the entire opening, consisting of No. 18 gauge U.S.Standard wire ½ inch mesh, or the equivalent.

6. Scaffolds and their components shall be capable of supporting without failure at least 4 times the maximum intended load.

7. Any scaffold including accessories such as braces, brackets, trusses, etc., weakened from any cause shall be immediately repaired or replaced.

8. All load-carrying timber members of scaffold framing shall be a minimum of 1,500 psi. fiber (Stress Grade) construction grade lumber. All dimensions are nominal sizes as proved in the American Lumber Standards, except that where rough sizes are noted, only rough or undressed lumber of the size specified will satisfy the minimum requirements.

9. All planking shall be scaffold grades, or equivalent, as recognized by approved grading rules for the species of wood used.

10. All planking of platforms shall be overlapped (minimum 12 inches), or secured from movement.

11. An access ladder or equivalent safe access shall be provided.

12. Scaffold planks shall extend over their end supports not less than 6 inches or more than 12 inches.

13. The poles, legs, or uprights of scaffolds shall be plumb, and securely and rigidly braced to prevent swaying and displacement.

14. Overhead protection shall be provided for men on a scaffold exposed to overhead hazards.

15. Slippery conditions on scaffolds shall be eliminated as soon as possible after they occur.

16. No welding, burning, riveting, or open flame work shall be performed on any staging suspended by means of fiber or synthetic rope. Only treated or protected fiber or synthetic ropes shall be used for or near any work involving the use of corrosive substances or chemicals. Specific requirements for boatswain's chairs and float or ship scaffolds are contained in the OSHA manual.

17. Wire, synthetic, or fiber rope used for scaffold suspension shall be capable of supporting at least 6 times the rated load.

18. The use of shore or lean-to-scaffolds in prohibited.

B. Tube and Coupler Scaffolds

1. A light duty tube and coupler scaffold shall have all posts, bearers, runners, and bracing of nominal 2-inch O.D. steel tubing. The posts shall be spaced no more than 6 feet apart by 10 feet along the length of the scaffold. Other structural metals when used must be designed to carry an equivalent load. No dissimilar metals shall be used together.

2. A medium duty tube and coupler scaffold shall have all posts, runners, and bracing of nominal 2-inch O.D. steel tubing. Posts spaced not more than 6 feet apart by 8 feet along the length of the scaffold shall have bearers of nominal 2 ½-inch O.D. steel tubing. Posts spaced not more than 5 feet apart by 8 feet along the length of the scaffold shall have bearers of nominal 2-nch O.D. steel tubing. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

3. A heavy-duty tube and coupler scaffold shall have all posts, runners, and bracing of nominal 2-inch O.D. steel tubing, with the posts spaced not more than 6 feet by 6 feet-6 inches. Other structural metals, when used, must be designed to carry an equivalent load. No dissimilar metals shall be used together.

4. Tube and coupler scaffolds shall be limited in heights and working levels to those permitted in Tables L-10, 11 and 12 (enclosed). Drawings and specifications of all tube and coupler scaffolds above the limitations in Tables L-10, 11 and 12 shall be designed by a qualified engineer competent in this field.

5. All tube and coupler scaffolds shall be constructed and erected to support four times the maximum intended load, as set forth in Tables L-10, 11, and 12, or as set forth in the specifications by a licensed professional engineer competent in this field.

6. Posts shall be accurately spaced, erected on suitable bases, and maintained plumb.

7. Runners shall be erected along the length of the scaffold, located on both the inside and the outside posts at even height. Runners shall be interlocked to the inside and the outside posts at even heights. Runners shall be interlocked to form continuous lengths and coupled to each post. The bottom runners shall be located as close to the base as possible. Runners shall be placed not more than 6 feet-6 inches on centers.

8. Bearers shall be installed transversely between posts and shall be securely coupled to the posts bearing on the runner coupler. When coupled directly to the runners, the coupler must be kept as close to the posts as possible.

9. Bearers shall be at least 4 inches but not more than 12 inches longer than the post spacing or runner spacing.

10. Cross bracing shall be installed across the width of the scaffold at least every third set of posts horizontally and every fourth runner vertically. Such bracing shall extend diagonally from the inner and outer runners upward to the next outer and inner runners. Longitudinal diagonal bracing on the inner and outer rows of poles shall be installed at approximately a 45 degree angle from near the base of the first outer post upward to the extreme top of the scaffold. Where the longitudinal length of the scaffold permits, such bracing shall be duplicated beginning at every fifth post. In a similar manner, longitudinal diagonal bracing shall also be installed from the last post extending back and upward toward the first post. Where conditions preclude the attachment of this bracing to the posts, it may be attached to the runners.

11. The entire scaffold shall be tied and securely braced against the building at intervals not to exceed 30 feet horizontally and 26 feet vertically.

C. Tubular Welded Frame Scaffolds

1. Metal tubular frame scaffolds, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., shall be designed, constructed and erected to safely support four times the maximum rated load.

2. Spacing of panels or frames shall be consistent with the loads imposed.

3. Scaffolds shall be properly braced by cross bracing or diagonal braces, or both, for securing vertical members together laterally, and the cross braces shall be of such length as will automatically square and align vertical members so that the erected scaffold is always plumb, square, and rigid. All brace connections shall be made secure.

4. Scaffold legs shall be set on adjustable bases or plain bases placed on mud sills or other foundations adequate to support the maximum rated load.

5. The frames shall be placed one on top of the other with coupling or stacking pins to provide proper vertical alignment of the legs.

6. Where uplift may occur, panels shall be locked together vertically by pins or other equivalent suitable means.

7. To prevent movement, the scaffold shall be secured to the building or structure at intervals not to exceed 30 feet horizontally and 26 feet vertically.

8. Drawings and specifications for all frame scaffolds over 125 feet in height above the base plates shall be designed and stamped by a registered professional engineer.

9. Guardrails made of lumber, not less than 2 x 4 inches (or other material providing equivalent protection), and approximately 42 inches high, with a mid rail of 1 x 6 inch lumber (or other material providing equivalent protection), and toe boards, shall be installed at all open sides and ends on all scaffolds more than 10 feet above the ground or floor. Toe boards shall be a minimum of 4 inches in height.

D. Manually Propelled Mobile Scaffolds

1. When free-standing mobile scaffold towers are used, the height shall not exceed four times the minimum base dimension.

2. Casters shall be properly designed for strength and dimensions to support four times the maximum intended load. All casters shall be provided with a positive locking device to hold the scaffold in position.

3. Scaffolds shall be properly braced by cross bracing and horizontal bracing.

4. Platforms shall be tightly planked for the full width of the scaffold except for any necessary entrance opening. Platforms shall be secured in place.

5. A ladder or stairway shall be provided for proper access and exit, and shall be affixed or built into the scaffold and so located that when in use, it will not have a tendency to tip the scaffold. A landing platform must be provided at intervals not to exceed 35 feet.

6. The force necessary to move the mobile scaffold shall be applied near or as close to the base as practicable and provision shall be made to stabilize the tower during movement from one location to another. Scaffolds shall only be moved on level floor, free of obstructions and openings.

7. The employer shall not allow employees to ride on manually propelled scaffolds unless the following conditions exist:

a. The floor or surface is within 3 degrees of level, and free from pits, holes or obstructions;

b. The minimum dimension of the scaffold base when ready for rolling, is at least one-half of the height. Outriggers, if used, shall be installed on both sides of staging;

c. The wheels are equipped with rubber or similar resilient tires; and all tools and material are secured or removed from the platform before the mobile scaffold is moved.

d. Scaffolds in use by any persons shall rest upon a suitable footing and shall stand plumb. The casters or wheels shall be locked to prevent any movement.

e. Guardrails made of lumber not less than 2 x 4 inches (or other material providing equivalent protection), approximately 42 inches high, with a mid rail of 1 x 6 inch lumber (or other material providing equivalent protection) and toe boards, shall be installed at all open sides and ends on all scaffolds more than 10 feet above the ground or floor. Toe boards shall be a minimum of 4 inches in height.

19. SITE SAFETY MANAGEMENT

Project safety is a primary responsibility of all management and supervisors and all employees on this site. Each Contractor represented has overall responsibility for safety for their employees.

A. Functions and Responsibilities

The Owner's Safety Representative is responsible for the following functional operations of the project safety programs:

1. Develop applicable safety standards for the project in accordance with The University of Rhode Island's policies and procedures, and any other applicable government regulations.

2. Participate in work-site layouts to assure adequate work areas, traffic control, parking areas, lighting levels, receiving areas, etc. Assure that location of offices, shops, maintenance areas, medical, and sanitation facilities reflect safety considerations.

3. Maintain liaison with appropriate client personnel, insurers, federal and state inspectors and others in matters of safety.

The General Contractor has the overall responsibility for:

1. Implement applicable safety standards for the project in accordance project policies and procedures, and any other applicable government regulations.

2. Ensuring that all new hires receive appropriate training and orientation before working on the project.

3. Review work schedules as they are planned to be aware of the number of contractors and craft workers working in the various areas; anticipate hazards and implement supporting safety activities.

4. Maintaining surveillance of job-site working conditions and safety practices bring findings to the attention of Owner.

B. Practices and Procedures

1. The General Contractor safety representative monitors orientation for all contractor personnel.

2. Owner's representative may periodically audit contractor files to review the safety programs' contents.

3. Each contractor is expected to conduct Tool Box/safety meetings at a minimum of once per week. More frequent meetings are recommended. Copies of topic discussed must be kept on file for review upon request.

C. Safety Equipment

1. Contractor employees are expected to provide their own safety equipment prior to arriving on site.

2. Approved safety equipment as required by the Federal and State Safety and Health Regulations must be available at all times, and strict enforcement of its proper use is exercised by project supervision.

D. Safety Hazards

The Contractor Safety representative shall conduct written safety inspections of work areas and evaluate conditions as they relate to safe work practices. In any area that the representative identifies as dangerous to personnel or property, work shall be stopped to correct hazards immediately.

E. Safety Inspections & Reports

1. Each contractor is required to conduct frequent, at the minimum, daily inspections of their work areas in order to ensure that their employees are working in a safe manner.

2. The Owner's Safety Representative will also perform periodic safety inspections of the site. Affected contractor(s) shall promptly correct any infractions or poor safety practices uncovered by these inspections.

20. STEEL AND PRE-CAST CONCRETE ERECTION

This procedure provides guidelines for the steel erection process and the protection of personnel during steel erection. The steel erecting contractor is required to submit a fall protection plan for the different phases of erection. The plan shall be presented and discussed with The University of Rhode Island before signing contract documents.

A. Planning

1. The potential for serious injury is high for workers engaged in steel erection. Persons performing this type of work must be adequately trained concerning the procedures and hazards prior to beginning steel erection work.

2. Thorough planning is essential and is required for all steel erection. The steel erection contractor must submit a safety program that will, at the minimum, address the following factors:

- Rigging hardware
- Permit requirements
- Training of personnel
- Scheduling (identify responsibilities, procedures, timing, etc.)
- Equipment (cranes, aerial lifts)
- Erection sequence to decrease exposure
- Barricades and warning signs for personnel and equipment protection
- Availability and location of emergency equipment
- Means of access, e.g. stairs, scaffolds, ladders
- Tools appropriate for the task
- Proper personal protective equipment for each worker
- Detailed pre-lift meetings with specific safety instructions
- Method of fall protection/arrest
- Adjacent structures, high voltage lines, transformers

3. An erection plan will be prepared by the Erection Contractor and reviewed with the University of Rhode Island Project Manager prior to the start of work. The Erection Contractor shall have a qualified person prepare a site-specific safety erection plan prior to the start of erection. This erection plan shall be provided to the University Project Manager.

4. An Erection Contractor qualified person shall approve all changes in the safety erection plan. A copy of the erection plan shall be maintained at the job site showing all approved changes.

5. The implementation of the erection plan shall be under the supervision of a competent person.

B. Flooring

1. Permanent floors shall be installed as the erection of the structural members progresses. At no time shall there be more than four floors or 48 feet of unfinished bolting or welding above the foundation or uppermost permanently secured floor. Where skeletal steel erection is being done, temporary and/or permanent flooring shall be maintained within two stories or 30 feet, whichever is less, below and directly under that portion of each tier of beams on which any work is being performed. Planking shall not be less than two inches thick, full size undressed, and shall be laid tight and secured against movement.

2. On buildings or structures not adaptable to temporary floors, and where scaffolds are not used, safety nets shall be installed and maintained wherever the potential fall distance exceeds two stories or 25 feet. The nets shall be hung with sufficient clearance to prevent contacts with the surface of structures below.

C. Floor Periphery

1. A guardrail system of two (2) ½ inch diameter wire rope cables shall be erected at approximately 42 inches from the floor deck and at the intermediate point immediately following the erection of beams and columns that are connected to provide adequate strength. All sequence breaks will require a two-cable assembly.

2. All connections will require a minimum of tow wire rope clamps. Three wire rope clamps must be installed if the cable is to be used as an anchorage for a fall arrest system.

3. Turnbuckles will be installed at suitable intervals to maintain the tightness of the wire ropes, but in no instance less than one per perimeter side.

4. All anchorage for the wire rope cable will be capable of withstanding a minimum of 200 pounds force if the wire rope is used as a guardrail system or a minimum of 5000 pounds force per person attached if the wire rope is used as an anchorage for a fall arrest system.

D. Bolting, Riveting, Fitting-up, and Plumbing-up

1. When connecting steel, do not release the hoisting line until the steel member is secured with no less than two bolts or the equivalent at each connection and drawn up wrench tight.

2. Containers shall be provided for storing and carrying rivets, bolts, and drift pins, and shall be secured against displacement while aloft. When bolts or drift pins are being knocked out, means shall be provided to keep them from falling. Impact wrenches shall be provided with a locking device for retaining the socket.

E. Personnel Protection

1. In all structures, safety harnesses with shock absorbing lanyards with self-locking hooks must be worn by all employees where exposed to a potential fall of greater than six (6) feet. Static lines shall be installed where needed.

2. Barricades or signs must be placed on lower levels where steel is being erected. All personnel are required to remain outside of the swing radius at all times during lifts. Tag lines shall be used to control all loads.

3. Ladders, stairways, scaffolds, or other means of safe access shall be provided as the work progresses. Climbing or sliding down columns is prohibited. Walking steel must be addressed prior to beginning work. Employees will use 100% fall protection during all phases of steel erection.

F. Safe Work Practices

1. The following guidelines apply to this type of work and shall be part of all pre-job planning safety meetings:

- Use tag lines to control loads
- Provide containers, buckets, bags, etc. for storing or carrying bolts or rivets. When bolts, drift pins or rivet heads are being removed, provide a means to prevent accidental displacement. Secure tools in such a manner as to prevent accidental falling.
- Do not overload bolt bags
- Hoist bolt bags and tools with lines
- When climbing ladders, keep both hands free
- Keep hands and fingers clear of pinch points
- Never work directly over personnel where possible. Where required, provide protection for workers below
- Always inspect all equipment prior to use
- Protect wire rope by using softeners
- Perform no welding or burning operation on scaffolding or staging suspended by synthetic rope
- If working above reinforcing rods, employees must be protected from impalement hazards
- Maintain a safe means of access to the level being worked on. Climbing and sliding on columns and diagonals is not allowed.
- Consider lifeline attachments, dynamic fall restraints and other fall protection provisions during shop drawing preparation, incorporate in fabricated pieces, and anchor safety lines or devices prior to erection whenever possible.
- For the protection of other crafts on the project, post “Danger – Men Working Above” signs in the erection area.
- When loads are being hoisted, prevent all personnel from working under the lift.
- Do not permit anyone to ride a lifting load under any circumstances
- When setting structural steel, secure each piece with not less than two bolts drawn up tight at each connection before the load is released.
- Do not hoist material to a structure unless it is ready to be put into place and secured.
- Secure bundles of sheets or small material so as to prevent their falling from the rigging.
- Rigorously enforce the use of personal fall arrest systems during steel and precast concrete erection.

- Provide all employees engaged in steel and precast concrete erection activities including connecting, bolting up, welding, or other activity that exposes them to a fall of six feet or greater with and use 100% tie-off as the primary means of fall protection. The exception contained within OSHA standard 1926.501.b.12 allowing for a written fall protection program in lieu of this requirement is not acceptable for this project and is prohibited.

21. CONCRETE AND MASONRY

Review the applicable OSHA standards under *Subpart Q- Concrete and Masonry---1926. 700, 701, 702, 703, 704, 706.* ***OSHA lists the full standards; included below are reviews of selected text from the standards and the requirements for our program. If you have any questions regarding the standards or interpretation of a section, notify the safety department for clarification.***

A. General Requirements

1. Do not place construction loads on a concrete structure or portion of a concrete structure unless the employer determines, based on information received from a person who is qualified in structural design, that the structure or portion of the structure is capable of supporting the loads.

2. Guard all protruding reinforcing steel, onto and into which employees could fall, to eliminate the hazard of impalement.

3. Do not permit any employees (except those essential to the post-tensioning operations) to be behind the jack during tensioning operations.

4. Erect signs and barriers to limit employee access to the post-tensioning area during tensioning operations.

5. Do not permit employees to ride concrete buckets.

6. Do not permit employees to work under concrete buckets while buckets are being elevated or lowered into position.

7. To the extent practical, route elevated concrete buckets so that no employee, or the fewest number of employees, are exposed to the hazards associated with falling concrete buckets.

8. Do not permit any employee to apply a cement, sand, and water mixture through a pneumatic hose unless the employee is wearing protective head and face equipment.

9. Do not permit any employee to place or tie reinforcing steel more than six feet above any adjacent working surface unless the employee is protected by the use of a safety belt or equivalent fall protection.

B. Equipment and Tools

1. Equip concrete mixers with one cubic yard or larger loading skips with a mechanical device to clear the skip of materials; and guardrails installed on each side of the skip.

2. Equip powered and rotating type concrete troweling machines that are manually guided with a control switch that will automatically shut off the power whenever the hands of the operator are removed from the equipment handles.

3. Concrete buggy handles shall not extend beyond the wheels on either side of the buggy. Provide concrete pumping systems using discharge pipes with pipe supports designed for 100 percent overload.

4. Provide compressed air hoses used on concrete pumping systems with positive fail-safe joint connectors to prevent separation of sections when pressurized.

5. Install positive safety latches or similar devices on concrete buckets equipped with hydraulic or pneumatic gates to prevent premature or accidental dumping.

6. Use concrete buckets designed to prevent concrete from hanging up on the top and the sides.

7. Secure sections of tremies and similar concrete conveyances with wire rope (or equivalent materials) in addition to the regular couplings or connections.

8. Construct bull float handles, used where they might contact energized electrical conductors, of nonconductive material or insulated with a nonconductive sheath whose electrical and mechanical characteristics provide the equivalent protection of a handle constructed of nonconductive material.

9. Guard masonry saws with a semicircular enclosure over the blade.

10. Do not permit any employee to perform maintenance or repair activity on equipment (such as compressors, mixers, screens or pumps used for concrete and masonry construction activities) where the inadvertent operation of the equipment could occur and cause injury, unless all potentially hazardous energy sources have been locked out and tagged.

C. Cast-In-Place Concrete

1. Design, fabricate, erect, support, brace, and maintain formwork so that it will be capable of supporting without failure all vertical and lateral loads that may reasonably be anticipated to be applied to the formwork.

2. Drawings or plans, including all revisions, for the jack layout, formwork (including shoring equipment), working decks, and scaffolds, shall be available at the job-site.

3. Inspect all shoring equipment (including equipment used in reshoring operations) prior to erection to determine that the equipment meets the requirements specified in the formwork drawings.

4. Immediately reinforce shoring equipment that is found to be damaged or weakened after erection, such that its strength is reduced to less than that required.

5. The sills for shoring shall be sound, rigid and capable of carrying the maximum intended load.

6. All base plates, shore heads, extension devices, and adjustment screws shall be in firm contact with the foundation and the form, and secured when necessary.

7. Prohibit eccentric loads on shore heads and similar members unless these members have been designed for such loading.

8. Whenever single post shores are used one on top of another (tiered), the employer shall comply with the following specific requirements in addition to the general requirements for formwork:

a. Have the shoring designed by a qualified designer and the erected shoring inspected by an engineer qualified in structural design.

b. Align the single post shores vertically.

c. Splice the single post shores to prevent misalignment.

d. Adequately brace the single post shores in two mutually perpendicular directions at the splice level. Also, diagonally brace each tier in the same two directions.

e. Do not adjust single post shores to raise formwork after the placement of concrete.

f. Erect reshoring , as the original forms and shores are removed, whenever the concrete is required to support loads in excess of its capacity.

D. Vertical slip form

1. The steel rods or pipes on which jacks climb or by which the forms are lifted shall be specifically designed for the purpose; and adequately braced where not encased concrete.

2. Design forms to prevent excessive distortion of the structure during the jacking operation.

3. Provide all vertical slip forms with scaffolds or work platforms where employees are required to work or pass.

4. Position jacks and vertical supports in such a manner that the loads do not exceed the rated capacity of the jacks.

5. Provide the jacks or other lifting devices with mechanical dogs or other automatic holding devices to support the slip forms whenever failure of the power supply or lifting mechanism occurs.

6. Maintain the form structure within all design tolerances specified for plumbness during the jacking operation.

7. Do not exceed the predetermined safe rate of lift.

E. Reinforcing steel

1. Adequately support reinforcing steel for walls, piers, columns, and similar vertical structures to prevent overturning and to prevent collapse.

2. Employers shall take measures to prevent unrolled wire mesh from recoiling. Such measures may include, but are not limited to, securing each end of the roll or turning over the roll.

F. Removal of formwork

1. Do not remove forms and shores (except those used for slabs on grade and slip forms) until the employer determines that the concrete has gained sufficient strength to support its weight and superimposed loads. Base such determination on compliance with one of the following:

a. The plans and specifications stipulate conditions for removal of forms and shores, and such conditions have been followed, or

b. The concrete has been properly tested with an appropriate ASTM standard test method designed to indicate the concrete compressive strength, and the test results indicate that the concrete has gained sufficient strength to support its weight and any superimposed loads.

2. Do not remove reshoring until the concrete being supported has attained adequate strength to support its weight and all loads in place upon it.

G. Pre-cast Concrete

1. Adequately support pre-cast concrete wall units, structural framing, and tilt-up wall panels to prevent overturning and to prevent collapse until permanent connections are completed.

2. Use lifting inserts embedded or otherwise attached to tilt-up pre-cast concrete members capable of supporting at least two times the maximum intended load applied or transmitted to them.

3. Use lifting inserts embedded or otherwise attached to pre-cast concrete members, other than the tilt-up members, capable of supporting at least four times the maximum intended load applied or transmitted to them.

4. Use lifting hardware capable of supporting at least five times the maximum intended load applied or transmitted to the lifting hardware.

5. Do not permit any employee under pre-cast concrete members being lifted or tilted into position except those employees required for the erection of those members.

H. Masonry Construction

Establish a limited access zone whenever a masonry wall is being constructed. The limited access zone shall conform to the following:

1. Establish the limited access zone prior to the start of construction of the wall.

2. The limited access zone shall be equal to the height of the wall to be constructed plus four feet, and shall run the entire length of the wall.

3. Establish the limited access zone on the side of the wall which will be unscaffolded.

4. Restrict the limited access zone to entry by employees actively engaged in constructing the wall. Do not permit any other employees to enter the zone.

5. Maintain the limited access zone in place until the wall is adequately supported to prevent overturning and to prevent collapse unless the height of wall is over eight feet, in which case, the limited access zone shall remain in place.

6. Adequately brace all masonry walls over eight feet in height to prevent overturning and to prevent collapse unless the wall is adequately supported so that it will not overturn or collapse. Maintain the bracing in place until permanent supporting elements of the structure are in place.

22. HAND AND PORTABLE POWERED TOOLS AND EQUIPMENT

The purpose of this regulation is to provide procedures that will prevent injuries resulting from the use of hand tools. This procedure applies to all hand tools used on site by contractor personnel.

A. Responsibilities

1. Contractors and subcontractors shall ensure only approved tools and equipment are used.

2. All personnel using hand or portable power tools and equipment shall inspect them prior to use.

B. General Requirements

1. Contractors and subcontractors are responsible for the safe conditions of tools and equipment including those furnished by employees.

2. Do not use compressed air for cleaning purposes except when reduced to less than 30 PSI and then only with effective chip guarding and PPE.

3. Tool handles shall be intact and securely attached.

4. Keep cutting tools sharp.

5. Remove any worn or deformed tool shall be removed from service. Repair or discarded it.

6. Secure tools in pouches, sheaths or scabbards to avoid self-inflicted cuts or dropping them on someone else.

7. Do not use "Cheaters" to increase leverage.

8. Use the correct tool for the job.

9. Use the tool properly. Example: When tightening a nut, make sure that the wrench is the proper size, brace yourself and pull on the wrench. Always pull if at all possible. Push only if absolutely necessary.

C. Portable Power Tools

1. Equip circular saws with guards above and below the base plate or shoe.

a. The guards shall cover the saw to the depth of the teeth.

b. The lower guard shall automatically and instantly return to the covering position.

2. Switches: controls

a. Equip all hand held circular and chain saws and precision tools without accessory holding areas with constant pressure switches or controls that turn off when the pressure is released.

b. Hand held power drills, toppers, fastener drivers, disc sanders, grinders, reciprocating saber, scroll and jig saws and other similarly operating tools may have a lock-on control provided that turnoff can be accomplished by a single motion of the same finger or fingers that turn it on.

c. Locate the operating control on hand held power tools so located as to minimize the possibility of its accidental operation.

3. Grounding: Electric tools shall meet all electrical safety requirements.

4. Pneumatic Tools:

a. Install a tool retainer on each piece of equipment where, without such, a blade, bit, wheel or other tool may be ejected.

b. Use air hoses and connections designed for the pressure and service to which they are subjected.

5. Grinders - Portable, Bench and Post

a. General

1) Wear safety glasses and face shields or safety goggles when using grinders. All bench grinders, post grinders, or portable grinders shall have a clean face shield available to this equipment. Clean face shields and leave at the piece of equipment immediately after use.

2) Wheels and drivers must show their rated RPM. The RPM rating of the wheel must be equal to or in excess of the RPM rating of the driver on which it is used.

3) Do not side grind on a wheel unless it is specifically designed for that purpose. Cup grinding wheels and nylon-reinforced wheels are designed for side grinding. Side grinding on a nylon-reinforced wheel

4) Newly mounted wheels must be run at operating speed for at least one minute with the guard in place before beginning grinding. Do not stand in front of the wheel at this time.

5) Keep grinders and buffers in good, safe working condition. Inspect all grinders prior to use. Check face shields for cleanliness and availability.

6) Only a qualified employee shall install abrasive wheels on grinders.

7) Always check to see that grinding wheels, saw blades, sanding and grinding discs are designed to operate at or within intended rotating speed limits.

8) Ensure that protective covers and guards are installed, intact and operational.

9) Check all blades, bits and wheels before every use to insure they are:
- Not cracked (includes ring test for grinding wheels).
- Not out of round
- **N**ot excessively worn.
- Not dull, pitted or caked with clinging bits of material from a previous job.

b. Portable Grinders

1) Equip portable grinders with an operating trigger or handle that automatically stops the power to the wheel when the operator removes his hand.

2) Equip grinding wheels 2" or more in diameter with a safety guard exposing a maximum of 180 degrees of the grinding wheel. Do not remove guards except to change the grinding wheel.

3) Use portable welding shields where portable grinders are in service when the work area is accessible to other people who might be hit by flying sparks, particles, etc.

4) Nylon reinforced wheels shall be limited to a maximum 8-inch diameter.

c. Bench and Post Grinders

1) Equip grinder wheels with wheel guards exposing a maximum of 90 degrees of the grinding wheel, and with an operating light illuminating the grinding wheel work surface.

2) Do not use bench and post grinders for grinding aluminum unless specifically designated for this purpose.

3) Work rests shall be rigid and adjusted within 1/8 inch of the grinding wheel. The tongue guard gap may not exceed 1/4 inch. Do not make adjustments while the wheel is in motion.

d. Cut-Off Saws

1) The automatic raising mechanism shall be in good working order before using a cut-off saw.

2) A hood, which encloses the top half of the cutting wheel, shall be in place before using a cut-off saw.

D. Table Saws

1. Equip all table saws with appropriate blade guards, spreaders and anti-kickback fingers. Equip all other saws with appropriate blade guards. The accessories must be in service while saws are in operation.

2. Only qualified personnel are allowed to operate power saws.

3. Under no circumstances shall adjustments of any kind be made to power saws while in operation.

4. Hand feeding of material near the cutting blade is prohibited. When this work action is required, a push stick must be used.

5. Set a table saw's cutting blade no higher than is necessary to cut through the stock.

6. Keep cutting blades sharp and in good repair.

7. Keep saw tables and work areas clear of scrap and waste.

E. Drill Presses

1. Each drill press must have an approved table work vise on clamps. When the vise is being used, it must be secured to the table with tie-down bolts.

2. **T**he wearing of cloth gloves is prohibited when using this machine.

F. Radial Arm Saws

1. Provide each radial arm saw with an effective device to return the saw automatically to the back of the table when released. Check this device for proper operation before the saw is used.

2. Install the front end of a radial arm saw slightly higher than the back in order to facilitate the cutting head returning to its starting position when released by the operator.

G. Tool Bit Safety

1. Always check to see that grinding wheels, saw blades, sanding and grinding discs are designed to operate at or within intended rotating speed limits.

2. Be sure protective covers and guards are installed, intact and operational.

3. Check that tool rests and tongue guards are the following distances from the grinding sheet, etc.

a. Tool rest gap may not exceed 1/8".

b. Tongue guard gap may not exceed 1/4".

H. Training

1. Contractors and subcontractors are responsible for training employees on proper use of tools, required personal protective equipment and safe work practices that apply to the task/operation to be performed.

2. Conduct Training prior to the use of tools upon initial assignment, when there are changes in associated tooling or previous hazards, and when there is reason to believe the employee does not possess or demonstrate the knowledge or skills required to safely operate or work with a specific tool.

I. Recordkeeping

1. Inspection and training records shall be maintained by each Contractor and subcontractor and shall be available on site.

23. MATERIAL HANDLING AND STORAGE

Review the applicable OSHA standards under Subpart H-Material and storage; 1926, 250, 251. OSHA lists the full standards; included below are reviews of selected text from the standards and the requirements for our program . ***The proper storage and handling of materials will provide for control of material and equipment, increase productivity, and reduce the number of material handling accidents and injuries usually associated with this function.***

A. Requirements for Storage (General)

1. Block, stack, and rack, or otherwise secure all materials to prevent sliding, falling, or collapse.

2. Do not exceed maximum safe loading (pounds per foot) on any elevated floor.

3. In areas of material handling, maintain good access for employees and equipment.

4. Materials stored inside of buildings must not be closer than 6 feet to any floor opening.

5. Materials shall not be stored on scaffolds in excess of supplies needed for immediate use.

B. Bricks

1. Brick stacks shall not be more than 7 feet in height.

2. When a loose brick stack reaches a height of 4 feet, taper it back 2 inches in every additional foot.

3. When masonry blocks are stacked higher than 6 feet, taper the stack back one-half block per tier above 6 feet.

C. Lumber

1. Used lumber shall have the nails withdrawn before stacking.

2. Stack Lumber on level and supported sills and so stacked as to be wholly stable.

3. Lumber piles shall not exceed 20 feet in height.

D. Pipe, Steel

1. Structural steel, poles, pipes, must be racked or stacked and blocked to prevent spreading or falling.

E. Disposal of Waste Materials

1. Whenever materials are dropped more than 20 feet to any point lying outside the exterior walls of the building, use an enclosed (all sides) chute.

2. When debris is dropped inside of a building without a chute, a barricade at least 42 inches high and not closer than 6 feet from the projected edge of the opening must be used. Signs warning of falling material must be posted at each level. Removal of waste material must wait until above operations cease. All scrap lumber, waste material, and rubbish shall be removed from the immediate work area as the work progresses.

24. SAFETY AUDIT

In order to ensure compliance with The University of Rhode Island's safety procedures manual as well as all applicable safety and health regulations, the activities of all contractors and their subcontractors will be audited as often as necessary. The following checklist will be a guide for such an audit. The University of Rhode Island's Safety representative will coordinate this audit with the affected contractor/subcontractor representative.

SAFETY AUDIT CONSTRUCTION SITE SAFETY CHECKLIST

SAFETY BULLETIN BOARD

1. Is there a designated safety bulletin board? Yes_____ No_____

2. Is the OSHA Job Safety and Health Poster on this board? Yes_____ No_____

Corporate Safety Policy Statement? Yes_____ No_____

EEO Poster? Yes_____ No_____

Hazard Communications Poster? Yes_____ No_____

3. Are "Days Without a Lost Time Accident" posted? Yes_____ No_____

4. Are the final totals from OSHA Form 200 posted from Feb 1 to Mar 1 following the year to which they relate? Yes_____ No_____

MEDICAL SERVICES, FIRST AID

1. Is a facility for the treatment of an injured employee reasonably accessible? Yes_____ No_____

2. Is the project provided with an industrial nurse? Yes_____ No_____

3. Are first aid supplies adequate and readily accessible? Yes_____ No_____

4. Are stretchers available throughout the site and easily accessible? Yes_____ No_____

SANITATION

1. Are potable (drinking) water and adequate toilet facilities available at the construction site? Yes_____ No_____

PERSONAL PROTECTION EQUIPMENT

1. Are hard hats worn at all times on the construction site? Yes_____ No_____

Are employees provided with eye and face protection as needed?
Yes_____ No_____

Is this equipment used? Yes_____ No_____

Are employees working more than six (6) feet above any adjacent Working surface provided with safety belt or equivalent? Yes_____ No_____

3. Are safety nets provided when work places are more than (25) feet above ground or water surface where use of ladders, scaffolds etc. are impractical?
Yes_____ No_____

4. Do employees wear all necessary personal protective equipment?
Yes_____ No_____

FIRE PROTECTION AND PREVENTION

1. Has a fire protection program been developed? Yes_____ No_____

2. Is a fire fighting equipment conspicuously located? Yes_____ No_____

3. Is a water supply available and of sufficient volume and pressure to operate fire fighting equipment? Yes_____ No_____

4. Do all fire extinguishers meet requirements established? Yes_____ No_____

5. Are requirements for storage of flammable and combustible liquids being complied with? Yes_____ No_____

MATERIALS STORAGE, HANDLING, AND DISPOSAL

1. Are materials which are stored in tiers either stacked, racked, blocked, interlocked, or otherwise secured so as to prevent sliding, falling, or collapsing?
Yes_____ No_____

2. Are maximum safe load limits of floors posted? Yes_____ No_____

3. Are aisles and passageways clear and in good repair? Yes_____ No_____

4. Are waste materials disposed of properly? Yes_____ No_____

5. Comment on general housekeeping for the entire project.

_____
_____
_____

TOOLS – HAND AND POWER

1. Are hand and power tools maintained in safe conditions? Yes_____ No_____

2. Are power tools, belts, gears, shafts, pulleys, sprockets, spindles, drums, flywheels, and chains properly guarded? Yes_____ No_____

3. Are electric power operated tools equipped with proper ground or double insulated? Yes_____ No_____

WELDING AND CUTTING

1. When transporting or storing compresses gas cylinders, are cylinders secured and valve protected caps in place? Yes_____ No_____

2. Are cylinders secured in a vertical position when transported by powered vehicles? Yes_____ No_____

3. Are flame arrestors in use on all welding hooks ups? Yes_____ No_____

4. Are employees instructed in the safe use of fuel gas? Yes_____ No_____

5. Are torches inspected at the beginning of each work shift for leaking shutoff valves, hose couplings, and tip connections? Yes_____ No_____

6. Are oxygen and fuel gas pressure regulators in proper working order? Yes_____ No_____

7. Are oxygen cylinders and fittings kept away from oil or grease? Yes_____ No_____

8. Are frames of all arc welding and cutting machines grounded either through a third wire in the cable containing the circuit conductor or through a separate wire which is grounded at the source of the current? Yes_____ No_____

9. Are employees instructed in safe means of arc welding and cutting? Yes_____ No_____

10. Are welding and cutting operations shielded by noncombustible or flameproof screens whenever practicable? Yes_____ No_____

ELECTRICAL

1. Are employees who work near electric power circuits protected against electrical shock? Yes_____ No_____

2. Is sufficient space provided to permit safe operation and maintenance of electrical equipment? Yes_____ No_____

3. Do all 120 volt, single-phase 15- and 20- ampere receptacle outlets on site, which are not a part of the permanent wiring of the building or structure and which are in use by employees, have approved ground fault circuit interrupters, or has an assured equipment grounding conductor program been established?

Yes_____ No_____

4. Are the grounding circuits or equipment checked periodically for effective grounding?

Yes_____ No_____

When? By Whom?

Attach documentation.

5. Are branch circuits and feeders protected by over current devices (fuses, circuit breakers) in accordance with their current carrying capacity? Yes_____ No_____

6. Are switches, circuit breakers, and disconnecting means, identified as to their function? Yes_____ No_____

7. Are receptacles and plugs non-interchangeable when used where different voltages and types of current (AC/DC) are used? Yes_____ No_____

8. Are extension cords used with portable electric tools and appliance of three-wire type?

Yes_____ No_____

9. Have equipment or circuit that are energized been rendered inoperative and have tags been attached to all points where such equipment or circuits can be energized?

Yes_____ No_____

10. Are temporary light equipped with guards to prevent accidental contact with the bulbs? Yes_____ No_____

11. Is it ensured that portable electric lighting used in moist and/or other hazardous locations do not exceed 12 volts? Yes_____ No_____

12. Are flexible cords used only in continuous lengths without splices?

Yes_____ No_____

13. Are extension cords fastened with staples, hung from nails, or suspended by wire?

Yes_____ No_____

14. Are boxes for disconnecting means securely and rigidly fastened to the surface on which they are mounted and fitted with covers? Yes_____ No_____

15. Are boxes and disconnecting means that are installed in damp or wet locations waterproof? Yes_____ No_____

16. Are non-current carrying metal parts or portable and/or plug-connected equipment grounded or double insulated? Yes_____ No_____

LADDERS AND SCAFFOLDING

1. Are defective ladders - broken of missing rungs or steps, broken or splits side rails immediately withdrawn from service? Yes_____ No_____

2. Are scaffold guardrails and toe boards installed on all open sides and ends of platforms more than four (4) feet above ground of floor? Yes_____No_____

3. Do scaffolds four (4) to ten (10) feet in height having a minimum horizontal dimension in either direction of less than 45 inches have standard guardrails on all open sides and ends of platform? Yes_____ No_____

4. Are scaffolds capable of supporting at least four (4) times their maximum intended load? Yes_____ No_____

FLOOR AND WALL OPENINGS, STAIRWAYS

1. Are floor and wall openings properly guarded with standard railing and toe boards? Yes_____ No_____

2. Are skylight openings guarded by fixed standard railings on exposed sides, or are covers capable of holding a 200-pound force? Yes_____ No_____

3. Are wall openings four (4) feet above ground properly guarded? Yes_____ No_____

4. Are extension platforms outside a wall opening properly guarded with side rails or equivalent guards? Yes_____ No_____

5. Are open sided floors or platforms four (4) feet or more above ground? Yes_____ No_____

6. Are runways higher than four (4) feet and on which tools, machine parts, or material are likely to be used, guarded by standard railing and toe board? Yes_____ No_____

7. Are flights of stairs with four (4) or more risers equipped with standard stair railings or standard handrails as required? Yes_____ No_____

CRANES, DERRICKS, HOISTS, ELEVATORS

Prior to operating a crane on the construction site, an up-to-date Certificate of Inspection must be presented to the project safety manager/coordinator for review. The certificate must be signed by a government or by a private agency recognized by the U.S. Department of Labor.

1. Is use of equipment in compliance with the manufacturer's specifications and limitations? Yes_____ No_____

2. Are rated load capacities, recommended operation speeds, and special hazard warnings posted on all equipment and visible from operator's station? Yes_____ No_____

3. Is equipment inspected before each use? Yes_____ No_____

4. Are copies of current inspections on file in the safety office? Yes_____ No_____

5. Are accessible areas within the swing radius of any revolving superstructure barricaded? Yes_____ No_____

6. Before leaving crane unattended, is the load lowered to ground level? Yes_____ No_____

7. Are booms which are being assembled or disassembled on the ground with or without support of the boom harness securely blocked to prevent dropping of the boom and boom sections? Yes_____ No_____

8. Are hoist way entrances on material hoists protected by substantial gates or bars? Yes_____ No_____

9. Are hoist way doors or gates on personal hoists at least six (6) feet, six (6) inches high? Are they provided with mechanical locks which cannot be operated from landing side and are accessible only to persons on the car? Yes_____ No_____

10. Are overhead protective coverings provided on top of hoist cages or platforms? Yes_____ No_____

MOTOR VEHICLES, MECHANIZED EQUIPMENT

1. Are all vehicles, which are left unattended at night, equipped with lights or reflectors, or barricades with lights or reflectors? Yes_____ No_____

2. Are tire racks, cages (or equipment protective devices) provided and used when inflating, mounting, or dismounting tire installed on split rims or rims equipped with licking rings? Yes_____ No_____

3. Are vehicles in use inspected at beginning of each shift to assure that all parts, equipment, and accessories, affecting sage operation are free of defects?
Yes_____ No_____

4. Are bulldozers and scraper blades, dump bodies, etc., fully lowered or blocked when being repaired or not in use? Yes_____ No_____

5. Are parking brakes set on parked equipment, and are wheels chocked when parked on an incline? Yes_____ No_____

6. Are operating levers equipped with latch? Are tailgate handles on dump trucks arranged to keep operator clear? Yes_____ No_____

EXCAVATION, TRENCHING, AND SHORING

1. Are excavation permits filed prior to any excavation? Yes_____ No_____

2. Are excavations inspected daily? Yes_____ No_____

3. Are air quality tests performed daily prior to allowing workers into excavation?
Yes_____ No_____

4. Are walkways, runways, and sidewalks clear of excavated material?
Yes_____ No_____

5. Are sidewalks shored to carry minimum live load of 125 pounds per square foot in undermining is required? Yes_____ No_____

6. Are underground utilities located and protected prior to excavating?
Yes_____ No_____

7. Are walls and faces of all excavations in which employees are exposed to danger from moving ground and trenches four (4) feet or more in depth guarded by shoring system, sloping of ground, or equivalent? Yes_____ No_____

8. Is a registered professional used to design all shoring systems? Yes_____ No_____

9. Is a competent person used to determine soil classification? Yes_____ No_____

10. In excavations which employees may be required to enter, is excavated or other material stored and retained at least two feet from edge of excavation?
Yes____ No_____

11. Do trenches more than four (4) feet deep have ladders or steps located so no more than twenty-five (25) feet of lateral travel is required to reach them?
Yes____ No_____

12. Where employees or equipment are required or permitted to cross over excavations, are walkways or bridges with standard guardrails provided? Yes_____ No_____

CONCRETE, CONCRETE FORMS AND SHORING

1. Do bulk storage bins or silos have conical or tapered bottoms with mechanical or pneumatic means or starting the flow of material? Yes_____ No_____

2. Are concrete mixers equipped with one-yard or larger loading skips equipped with mechanical clearing device and guardrails? Yes_____ No_____

3. Is formwork and shoring capable of supporting all vertical and lateral loads during placement of concrete? Yes_____ No_____

4. Are drawings or plans showing jack layout, formwork, shoring working decks, and scaffolding available at job-sites? Yes_____ No_____

5. Is vertical and horizontal reinforcing steel, guarded to eliminate the hazard of impalement? Yes_____ No_____

6. Is a limited access zone established prior to construction of any masonry wall? This zone shall be established on the unscaffolded side of the wall and shall equal the height of the wall plus four (4) feet and shall run the full length of the wall? Yes_____ No_____

STEEL ERECTION

1. Is permanent flooring installed as erection progresses? Yes_____ No_____

2. Temporary flooring/skeleton steel construction in tiered buildings:

Is the erection floor solidly planked except for access openings?

Is the planking or decking of proper thickness to carry workload?

Is planking two-inch minimum full size undressed, laid tight and secured? Yes_____No_____

3. Are safety nets used when the work area is more than twenty-five (25) feet above ground, water surface, or other surfaces where ladders, scaffolds, catch platforms, temporary floors, safety lines, and safety belts are impractical? Yes_____No_____

4. Where long span joists or trusses forty (40) feet or longer are used, is a center row of bolted bridges installed? Yes_____ No_____

5. Are tag lines used for controlling loads? Yes_____ No_____

6. Bolting, riveting, fitting-up, plumbing-up: Are pneumatic hand tools disconnected and pressure lines released before adjustments or repairs? Yes_____ No_____

7. Are locking devices provided on impact wrenches to retain socket? Yes_____ No_____

8. When riveting in vicinity of combustible material, are precautions taken to prevent fires? Yes_____ No_____

9. Are turnbuckles secured to prevent unwinding while under stress? Yes_____ No_____

10. Are plumbing-up guys and related equipment placed so that employees can reach the connections points? Yes_____ No_____

11. In plumbing-up, so the planks overlap the bearing on each end by a minimum of twelve (12) inches? Yes_____ No_____

12. Is wire mesh placed around columns where planks do not fit tight? Yes_____ No_____

13. Are unused openings in floors planked over or guarded? Yes_____ No_____

14. Are employees who work on float scaffolds provided with safety belt? Yes_____ No_____

ROLLOVER PROTECTIVE STRUCTURES (ROPS)

1. Are rubber tire, self-propelled scrapers, rubber tire dozers, wheel-type agricultural and industrial tractors, crawler tractors, crawler-type loaders, and motor graders (with or without attachments) equipped with rollover protective structures? Yes_____ No_____

2. Do ROPS meet minimum performance criteria? Yes_____ No_____

3. Do operators wear their seat belts at all times while operating the equipment? Yes_____ No_____

OCIP SAFETY AUDIT RECOMMENDATIONS

CONTRACTOR_____

AUDIT DATE_____

RECOMMENDATIONS

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

25. ILLEGAL SUBSTANCE USE & ALCOHOL ABUSE PROGRAM

This document will outline and explain the policies and procedures of this project concerning the use of drugs and abuse of alcohol on this project.

A. Introduction

1. Drugs, alcohol, and any form of non-prescription medications shall be prohibited, as well as reporting to work under their influence. Those involved in distributing or accepting any form of illegal drugs or alcohol on the job site will be terminated.

2. An employee on any type of prescription medication must notify his/her supervisor before starting work for the day.

3. All employees on the jobsite are subject to drug testing for reasonable suspicion, as determined by the Contractor or The University of Rhode Island. The Contractor is responsible for administering drug tests. Employees testing positive in a drug test will be dismissed from the site.

4. Refusal by any employee to submit for reasonable suspicion testing will be interpreted as a positive test result. The employee will be dismissed from this site.

B. Purpose

The policies and procedures set forth herein are adopted for the following purposes:

1. To protect employees from injury to themselves;

2. To protect fellow employees and third parties from injury and, generally, to ensure a safe working environment for all employees;

3. To protect property and equipment of The University of Rhode Island and others from damage;

4. To protect The University of Rhode Island from possible legal liability caused by improper acts of contractor employees/workers on this project; and

5. To prevent/prohibit employees from working under the influence of drugs or alcohol.

C. Policies

The term **"illegal drugs"** as used in the policy refers to drugs which are **"controlled substances"** under federal or state laws, the possession or use of which, without proper prescription therefore, constitutes a violation of law.

In furtherance of the above general policies, the following specific prohibitions shall be in effect and shall be enforced:

1. No one shall report to work on this project or perform any work for The University of Rhode Island while under the influence of illegal drugs or alcohol.

2. No one shall engage in any activity pertaining to the manufacture, distribution, sale, possession or use of illegal drugs. Nor shall anyone possess or consume alcohol while on the project premises, in any company/contractor vehicles, or while engaged in the performance of work for The University of Rhode Island.

3. No one shall use The University of Rhode Island property or equipment, or one's position with project to facilitate any illegal activity pertaining to the manufacture, distribution, sale, possession or use of illegal drugs.

D. Sanctions For Violating This Policy

Violation of this policy by any employee/worker will furnish grounds for immediate removal from the project.

E. Prescription Medication

Any employee/worker who is using prescribed medication which might impair the ability of the employee/worker to perform his or her duties, or which might create a safety hazard to the employee or others, should report to their supervisor. The Supervisor must determine, in consultation with the employee's physician or other medical consultants, if it is safe for the employee/worker to perform his or her regular duties while taking the medication in question. If not, the employee/worker will be directed to perform other duties (if available) or will be directed not to report to work, until it is determined that it is safe to do so.

26. PERSONAL PROTECTIVE EQUIPMENT (PPE)

Contractors are required to utilize appropriate engineering and administrative controls to protect their employees from all recognizable hazards on this project. When implementation of these controls are not feasible, contractors shall issue appropriate personal protective equipment for their employees such as hard hats, eye protection, gloves, body harnesses, and respirators.

Each contractor is responsible for assuring that their employees are properly trained on each type of personal protective equipment (PPE) used.

Contractors are responsible for ensuring that their vendors and visitors abide by all project safety rules.

A. Head Protection

Hard hats must be in good condition, meet ANSI Z89.1 standards, and shall be worn at all times on the jobsite, with the exception of the office trailers.

B. Eyes and Face

Approved safety glasses with rigid side shields that meet ANSI Z87.1 standards must be worn by employees in work areas per OSHA regulations. Office areas are excluded.

Additional eye and/or face protection shall be worn in the following situations:

1. Goggles or a full-face shield shall be worn for chipping, overhead work, and drilling above shoulder height.

2. Full-face shields shall be worn for grinding and abrasive wheel operations, circular saw use or any other tool/equipment that discharges solid material, and when transferring chemicals between two containers.

3. Burning goggles with a minimum shade of 4 shall be worn for all gas welding and burning.

4. Welding hoods will cover all exposed areas of the face and have a minimum shade 10-filter lens.

5. A face-shield and splash-proof goggles must be worn when using a chemical that could splash into the face and/or eyes.

C. Hearing Protection

1. Hearing protection must be worn in all posted areas and around any high noise level producing machines, tools, equipment or operations.

2. High noise areas are defined as areas where employee noise exposure may exceed 90 dBA for an 8-hour Time Weighted Average.

3. Contractors are required to initiate a Hearing Conservation Program for their employees exposed to noise levels beyond 85 dBA.

D. Fingers and Hands

1. Gloves suitable for the job being performed shall be worn unless the use of the gloves creates or increases the hazard.

2. Use the appropriate glove for the task performed (e.g. rubber coated gloves for solvents or chemically treated material; leather gloves for handling rough or sharp material).

3. Do not use gloves around rotating equipment.

4. Electricians shall wear specially designed rubber gloves meeting ANSI standards when working on high voltage.

5. Cut resistant gloves are required on the free hand when using knives or similar type cutters.

6. Keep hands and fingers away from all pinch points.

7. Use tool holders to keep hands out of strike zones.

8. Rings are not to be worn in the work area at any time.

E. Toes, Feet and Legs

1. Sturdy leather work-boots are required on all projects.

2. Steel-toed boots that cover the ankle are strongly suggested and may be required on some projects.

3. Sneakers, sandals, or any other shoe of similar kinds are not allowed to be worn on site.

4. Additional foot protection (foot guards) must be worn when using jackhammers or tampers.

5. Rubber non-slip boots must be worn in slippery areas or in areas where a chemical exposure is possible.

6. Guards, chaps, etc. shall be worn while using equipment such as chainsaws or in areas where snakebites are possible.

F. Fall Protection – Body Harnesses

Fall protection devices include body harnesses, shock-absorbing lanyards, and other equipment that prevent or arrest falls from heights. When exposed to a fall of greater than six (6) feet and not protected by standard handrails, or working under guidelines of an approved Fall Protection Plan, all personnel shall use a body harness. **A fall arresting device is required in the following situations:**

1. Sloping roofs.

2. Flat roofs without handrails within six feet of roof edge or floor opening.

3. Elevated work areas greater than six feet unless employees are protected from falling by standard handrails.

4. Scaffolding that has components missing (e.g. handrails, mid-rails)

5. Steel erection, except for ironworkers doing connecting work.

6. Every employee issued a fall arresting device shall be properly trained on proper use, care, and inspection prior to use.

7. Safety belts shall not be used for fall arresting purposes. They shall only be used as a secondary means of fall protection.

8. 100% fall protection is required in all situations where employees are required to move while in elevated areas.

9. Harnesses shall be equipped with two shock-absorbing lanyards, or as required by additional project rules.

10. Any lifeline, safety harness, or lanyard actually subjected to fall loading shall be removed from service.

G. Respiratory Protection

1. The contractor shall provide respirators where employees' exposure to fumes, dusts, gases or other respiratory hazards are present or reasonably expected.

2. Each affected contractor must have a respiratory protection program in writing that meets or exceeds all OSHA standards.

3. Employees who use respirators must be clean-shaven at the time of use.

4. Respirators must be selected to protect against the appropriate hazard.

5. Respiratory protective equipment shall be regularly inspected and maintained in good condition.

6. Respirators shall be stored in a convenient, clean, and sanitary location.

7. Employees shall not be assigned to tasks requiring a respirator until it has been determined that they are physically able to perform the work and use the equipment.

8. The local physician shall determine what health and physical conditions are pertinent.

9. Contractors shall fit test their employees before allowing them to use respirator.

10. Contractors shall maintain all fit test records on the jobsite.

H. Hearing Protection

1. When employees are subject to sound levels exceeding those specified in OSHA table D-2, ear protective devices must be provided and used.

2. Protective devices inserted in the ear shall be fitted or determined individually by a competent person.

3. Plain cotton is not acceptable to use as hearing protection.

4. When employees are subject to sound levels exceeding those listed in table D-2, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of the table, then personal protective equipment shall be provided and used to reduce the sound levels.

Table D-2

Duration per day, hours	**Sound Levels DBA**
8	**90**
6	**92**
4	**95**
3	**97**
2	**100**
1 ½	**102**
1	**105**
½	**110**
¼ or less	**115**

When the daily noise levels of exposure are composed of different levels, their combined effect should be considered, rather than the individual effect. Each project varies as to the actual noise level that is generated; included are examples of sound levels for various equipment:

60 lb. Jackhammer	@ 10 ft.	104-108 DBA
15 lb. Chipping Hammer	@ 10 ft.	92-96 DBA
Concrete Saw	@ 10 ft.	101-103 DBA
Steel Grinder	@ 10 ft.	94-98 DBA
Circular Saw	@ 10 ft.	95-100 DBA

By checking Table D-2, you can see that these operations would have to include either hearing protection or a limited time of use to prevent overexposure. Use these as guides, and if in doubt, have employees use hearing protection. For specific site "*noise level testing"*, contact the safety department for further information.

27. SAFETY MANUAL MANAGEMENT PROCESS

This Safety Procedures Manual management process is designed to ensure effective review of existing procedures and implementation of new or revised procedures so that compliance and prevention requirements are maintained on site.

A. Responsibilities

Manual Holders shall ensure:

1. Their manual is up to date.

2. All revision forms shall be forwarded to the Safety Representative of The University of Rhode Island.

The University of Rhode Island Safety Representative shall ensure that:

1. All procedures meet the regulatory and The University of Rhode Island's performance requirements.

2. All new/revised procedures and associated implementation plans are reviewed and approved by the site Management before being issued to Manual Holders

3. All completed implementation plans and updated versions are maintained for the most recent iteration of each procedure.

4. This management system and all procedures are reviewed as often as necessary, but at least annually from the latest revision date.

5. All revision suggestions are reviewed and the originator is given feedback, whether or not the suggestion is adopted.

6. A master copy of this manual is maintained at all times.

Contractors/Subcontractors shall ensure that:

1. The coordination of all proposed procedures and implementation plans within their assigned work areas.

2. All implementation requirements are fulfilled and documented.

3. Availability of their manual to their employees and subcontractors.

4. All affected employees are trained on new/revised policies, practices and procedures.

5. Tracking the implementation of each procedure or policy.

B. Manual Update Process

The University of Rhode Island Safety Representative shall maintain the master copy of the safety manual.

1. Manual Holders, including contractor employees, may make suggestions for new or revised procedures by forwarding the suggestion to their supervisor or The University of Rhode Island Safety Representative.

2. The originator of each suggested revision shall be given written feedback on the actions planned or taken for each suggestion.

3. Each new or revised procedure shall have an implementation plan attached that includes all steps required for effective implementation.

4. The plan shall contain:

a. The name and revision date of the procedure/policy to be implemented.

b. Each action required for effective implementation (including all affected procedures and policies).

c. Certification that the procedure or policy has been implemented and the date signed.

5. The University of Rhode Island Safety Representative shall develop all new/revised procedures and implementation plans, and forward them to site management for draft review.

6. Comments shall be reviewed by The University of Rhode Island Safety Representative and incorporated as appropriate. Any conflicts shall be resolved in the appropriate forums.

7. Upon receipt of new or revised procedures, manual holders shall update their manuals.

8. In the event that an immediate procedural change is warranted, an interim change memo may be issued to all manual holders by The University of Rhode Island, which may be used in lieu of formal revision.

C. Manual Distribution

Each contractor and subcontractor on the project is entitled to a copy of this manual

1. Other manual holders shall be as determined by The University of Rhode Island.

END OF MANUAL

DOCUMENT 00740 – HOT WORK PROCEDURE

PART 1 – GENERAL

1.1 The following procedure applies to the Contract for Construction and is a part of the Contract Documents:

Welding, Cutting and Brazing
Hot Work Procedure

A. Purpose

To establish regulations and rules for the safe uses of open flames and spark producing equipment in state owned or leased facilities. Applicable regulations pertinent to this guide include OSHA 29 CFR 1910.252-.255 and NFPA 51B, and FM Global Hot Work Requirements.

B. Policy

1. Fire Protection

a. Contractors and employees shall comply with the regulations set forth in this policy to ensure the safe use of open flames and spark producing equipment.

b. When performing work within a state facility with a cutting torch or when using welding, brazing or soldering equipment an FM Global hot work permit is required to be filled out and precautions followed. The FM Global Hot Work Permits are available (free of charge) directly from the state's property insurer by contacting your local FM Global Engineer or maybe ordered on-line at www.fmglobal.com.

c. The individual assigned responsibility to inspect and/or maintain the fire alarm system will deactivate that portion of the alarm system necessary to prevent false alarms prior to the start of the hot work operation.

d. Upon completion of the project the fire alarm system will be restored to operational status.

e. During the hot work operation the following precautions will be followed:

1.) A fire watch will be required by the individual responsible for authorizing the hot work operation.

2.) Welding leads and burning hoses are to be kept out of walkways as much as possible

3.) Inspect all leads, grounds, clamps, torches and cylinders before use. Be sure all fittings, couplings and connections are tight.

4.) In gas welding and cutting, mixtures of fuel gas and air or oxygen must not be permitted except prior to consumption.

5.) Only approved apparatus must be used, and portable cylinders of compressed gas must be properly secured to prevent upset.

6.) Use proper ventilation in the work area.
7.) All exposed combustible and flammable material within 35 feet of the point of operation should be removed where possible. Otherwise, protect with FM Approved welding pads, blankets and curtains, fire resistive tarpaulins or metal shields.
    a.) Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.
8.) All hoses and leads will be inspected frequently and will be replaced as necessary.
9.) A cutting or welding prohibition will be required whenever an area contains or may contain flammable/explosive vapors. The prohibition can only be lifted when the area has been purged and cleaned and the area has been tested and shown to be free of a flammable/explosive mix.

C. Responsibility

1. Supervisor

a. Supervisor will train their employees in the potential fire hazards associated with hot work.
b. Supervisor will initiate a hot work permit prior to assigning work. (A free online training course is available from State of RI property insurer FM Global at: http://training.fmglobal.com.
c. The supervisor will obtain confirmation that:

1.) Available sprinklers, hose streams and extinguishers are in service and operable.
2.) Hot work equipment is in good working condition.
3.) The following requirements within 35 feet of hot work shall be adhered to:
    a.) Flammable liquid, dust, lint and oily deposits have been removed.
    b.) Explosive atmosphere has been eliminated.
    c.) The floors have been swept clean.
    d.) Combustible floors have been wet down, covered with damp sand or fire resistive sheets are in place.
    e.) All exposed combustible and flammable material within 35 feet of the point of operation should be removed where possible. Otherwise, protect with FM Approved welding pads, blankets and curtains, fire resistive tarpaulins or metal shields.
    f.) All wall and floor openings are covered.
    g.) FM approved welding pads, blankets and curtains installed under and around work.
    h.) Protect or shut down ducts and conveyors that might carry sparks to distant combustible material.

4.) The supervisor is responsible for assuring that a 60 minute fire watch is maintained at the completion of all hot work assignments, that a hot work permit has been acquired for work involving open flames or spark producing tools and for assuring all fire prevention procedures and precautions are followed for protection of people and property including a fire watch, deactivation of the fire alarm.

5.) The supervisor will require that the area be monitored periodically for three hours after the fire watch is completed.

6.) The supervisor will confirm that employees are trained in use of fire extinguishers and hoses, and that the employees are familiar with emergency procedures in the event of a fire.

7.) At least once while the permit is in effect, the area should be inspected by the individual responsible for authorizing, cutting or welding operations to ensure that it is a fire safe area. (See article 3 above for fire safe conditions.)

8.) Proper personnel protective equipment including helmets, eye wear, face and hand shields applicable to the equipment used will be provided by the supervisor.

a.) The equipment will be maintained and fit tested by management.

9.) Personal protective clothing consistent with OSHA standards will be worn.

10.) Tarps or fire resistant coverings sufficient to cover combustible materials within 35 feet of the operation will be provided.

2. Employees

a. The employee shall be responsible to work in a safe manner and follow all safety precautions as trained by the supervisor.

b. The employee charged with performing the hot work will initiate part 2 of the hot work permit and verify that a 60 minute fire watch has been maintained.

c. Employees performing hot work will be required to either properly remove or cover combustible materials in the 35 foot area surrounding the hot work operation.

3. Fire Safety Officer

a. The state employee charged with maintaining or inspecting the fire alarm system will deactivate the system.

b. The area will be evaluated by this individual to identify fire hazards and provide required suppression equipment.

c. The fire safety officer will ensure that combustible materials within 35 feet of the hot work operation are properly tarped or moved a safe distance.

d. In addition, this officer will ensure that personnel in close proximity to this work area are properly protected against heat, sparks and slug.

4. Management

a. Maintain a log of hot work permits.
b. Provide safety training for supervisors.
c. Confirm that all contractors follow all requirements of this protocol.

END OF DOCUMENT

DOCUMENT 00750 – MANAGING FIRE PROTECTION SYSTEM IMPAIRMENT

PART 1 – GENERAL

1.1 The following management procedure applies to the Contract for Construction and is a part of the Contract Documents.

Managing Fire Protection System Impairment

Impairment to fire protection equipment is a situation in which the system is shut off, either in whole or in part. The impairment may be necessary to conduct scheduled maintenance of equipment or to make emergency repairs. Impairment may also be due to new construction. Normal system tests and inspections are not considered impairment.

Regardless of the reason, impairment results in the sprinkler system and/or fire alarm system being temporarily out of service, such a condition may result in severe property loss in the event of a fire. Locations protected by automatic sprinkler systems must have an impairment handling program to control situations when sprinkler systems must be shut down.

Whenever a sprinkler system has been impaired all hot work in the area of the impaired system should be prohibited.
A periodic fire watch should be established when either the sprinkler system or the fire alarm system is out of service.

FM Global the State's property insurance carrier has an impairment handling kit. FM Global's ***Red Tag Permit System*** consists of four key elements:

- A Red Tag Permit
- Fire Protection Equipment Decals
- Reusable Impairment Tag for Fire Service Connections
- Red Tag Permit System Wall Hanger

The Fire Protection Equipment Decals are to be affixed to fire protection equipment as a reminder that authorization is needed before any shut down can occur.
The Red Tag Permit System Wall Hanger contains pockets to keep other elements of the system organized and within reach; also the Hanger lists steps to be taken before, during and after impairment. The Wall Hanger also lists the FM Global office to be notified of the impairment. The FM Global Customer Service Desk number is (888) 606-4570. The Fax number is
(888) 381-4267. There is space on the notification tag for the phone numbers of the Fire department, Alarm Company and the local Water Department as well. In the absence of the Customer Service listing, the FM Global Office closest to you may be found at the

following web site www.fmglobal.com/contact. An engineer and/or client service representative can advise you on how to proceed and follow up until protection has been restored. In addition this representative may be able to help minimize downtime, if possible, reduce fire exposure to the area, arrange for temporary protection and determine how to restore protection as quickly as possible.

For scheduled maintenance of fire alarm systems, vendors must as prescribed in Rhode Island Fire Codes notify the building owner 48 hours in advance of pending maintenance.

FM Global has online training. Of particular interest will be ***Managing Impairments Using FM Global's Red Tag Permit System,*** which provides instructions on impairments to fire protection equipment/systems and how to use FM Global's ***Red Tag Permit System*** to properly manage those impairments. One can access this less than one hour course at training.fmglobal.com.

END OF DOCUMENT

DOCUMENT 00760 – URI WATER SYSTEM REGULATIONS/POLICIES

PART 1 – GENERAL

1.1 The 9-page document following this page titled, "University of Rhode Island Water System Regulations/Policies" last updated 7/11/2013, applies to the Contract for Construction and is a part of the Contract Documents.

END OF DOCUMENT

University of Rhode Island
Water System Work Specifications

1. **Water System Authorization**
   a. Only authorized URI employees or approved contractors shall be allowed to make water service repairs, connections or disconnections of service from a URI water main.

   b. Approved contractors shall consult with URI Utilities Department and receive written permission, prior to beginning work.

2. **Operation of Water Valves**
   a. Only URI employees or designated personnel are authorized to operate URI Water System valves. URI's valves are defined as all water system valves upstream or before the point of delivery to a building to the backflow preventer.

3. Temporary Connections
   a. Filling of tank trucks for any purpose shall only be done at designated locations with approved backflow prevention devices under the direction/supervision of URI Water System personnel.

   b. Any Hydrant use other than fire emergencies shall be coordinated with Water System personnel. Prior to any connection the user must have an approved backflow prevention device with throttling valve attached to the hydrant port.

4. System Design and Modification
   a. No connection/modification shall be permitted to the URI Water System unless reviewed and approved by the Utilities Department.

   b. Specification development shall include a Utility Department review of existing/proposed utility modifications in accordance with these specifications. Separations.

   c. Water distribution system CAD or GIS drawn as-builts must be supplied on every project where modifications have been made to the URI water system. Drawings shall be prepared under the direction of a registered professional engineer or professional land surveyor in the State of Rhode Island and so stamped and signed.

   d. Procedures for installation of water system pipe and connection to the Water System shall conform to all applicable Rules and Regulations of the AWWA Standards, NFPA 24 for fire service mains, NSF 61 for domestic water service, and State regulations and as governed by the RIDOH.

e. Restraining devices shall be utilized on all mains under the following conditions:
    - Pipeline direction changes (tees, bends), vertical and horizontal
    - Dead end lines (caps or plugs)
    - Transition pieces (reducers)
    - Valves on dead end lines
    - Hydrants
    - Tapping sleeves

f. Thrust blocks shall be designed to withstand the force imparted by the hydraulic influence encountered within the main. Minimum 1-1/2 times the anticipated working pressure of the main, but not less than 150 PSI. Maximum lateral bearing capacity shall be 1500 lb/sf.

g. All thrust blocks shall be constructed from concrete 3000 PSI. at 28 days, sized according to the size of pipeline, type of fitting, water pressure and the characteristics of the soil. Bearing surface shall be against undisturbed solid earth for the required bearing area. The concrete shall be properly formed as to slope for the given application and bearing width. The concrete shall be in contact only with the fitting, not with the pipe itself, fasteners or the joint. Curing time shall be a minimum of 7 days.

h. Stone, timber, concrete block or any materials that deteriorate are strictly forbidden to use as a permanent thrust block or restraint.

i. Optional thrust restraint shall be via restrained joint, ductile iron pipe meeting ANSI/AWWA C151/A21.51 and ANSI/AWWA C11/A21.11 and approved by the Utilities Department. Restrained joint pipe lengths (restrained length) shall be sufficient to restrain thrust imparted by 1-1/2 times the anticipated working pressure, but not less than 150 psi with a 1.5 factor of safety.

j. The use of tie rods may be allowed by written permission of the Utilities Department. This type of restraint configuration will only be considered in situations where approved types of restraint systems cannot be used. If allowed, they shall be of sufficient strength to withstand forces imparted to them. A factor of safety shall be 2.0 for all rod thickness calculations. All rods shall be stainless steel or protected from corrosion with two coats of epoxy paint.

k. Approved thrust restraint shall be by an approved restraining gland system utilizing in combination with mechanical joint pipe and fittings. All calculations must be provided and shall be in conformance with the manufacturing requirements for length, fitting and type of restraint.

l. Blocking under the pipe shall not be permitted except where a concrete cradle is proposed.

m. Water Distribution mains shall be designed in a grid or loop type system to prevent the occurrence of dead end lines. When the potential for dead end lines exist, the contractor shall make <u>every</u> effort to pass the main through to the next existing distribution line.

n. Water mains shall be laid with a minimum of ten-foot horizontal clearance from any existing sewer facilities. The distance shall be measured edge to edge. Water mains crossing under sewers shall be forbidden. Water mains crossing over sewers shall be laid to provide a minimum, vertical separation of eighteen-inches between the invert of the water main and the crown of the sewer. Re-alignment of an existing water main or relocation of the sewer may be necessary to achieve this vertical separation. The Water Manager must approve any deviation from these requirements. Concrete encasement shall not be allowed in the design for sewer and water main crossings.

5. **Contamination prevention requirements:**
    a. All piping, valves, fittings, etc. delivered for installation shall be kept elevated above the ground and protected from exposure to the elements such as dust, rain and debris.
    b. All piping fittings and valves shall be thoroughly cleaned of any dust, dirt or deposits prior to installation.
    c. Work on mains and services shall include protection of all open ended pipes any time pipe ends are to be exposed for any period of time. Protection shall include approved new watertight plug and/or necessary steps to prevent foreign debris from entering the exposed pipe.

6. **Fire Protection Lines**
    a. Dedicated fire protection service lines shall follow all the requirements set forth in this construction section for main or service connections, including but not limited to NFPA 24.
    b. All dedicated fire protection service lines shall have a flush port installed at the building for water system maintenance line flushing.
    c. Backflow prevention shall follow requirements set for in Paragraph 8 of section D.
    d. All fittings and pipe connections upstream of the fire protection backflow preventer must meet the URI requirements for approved materials for potable water distribution pipe, fittings, connections and valves.

7. **Fire Hydrants**
    a. All fire hydrants shall be Kennedy, American Darling or Muller brand and meet or exceed the current AWWA C502 Dry-Barrel Fire Hydrant specifications for compression type main valve, traffic model, dry-barrel hydrants.
    b. In addition to the standards, fire hydrants shall meet or exceed the following specifications. Hydrant manufacturer's specifications shall be reviewed and pre-approved by URI for installation into the water system:
        - National Standard Specification threads
        - Operation nut 1-1/2 inch point to flat
        - Opens counter clockwise (Left)
        - 2 each 2-1/2 inch NST hose ports
        - 1 each 4-1/2 inch NST steamer port
        - All ports shall have cast iron caps
        - All ports shall be mechanically attached
        - All exposed portions of the hydrants shall be painted red with (Rust Olium Safety Red). Hydrants shall be the "High Profile" configuration
    c. Filter fabric shall be wrapped around the drain holes of the boot. Prior to backfilling and compaction, one cubic yard of 1/2" to 1" crushed stone shall be packed around the boot and hydrant valve up to the base of the valve box. Stone shall be wrapped in filter fabric, hole backfilled and compacted.
    d. Hydrant isolation valves shall be connected directly to the swivel or anchor tee. An approved restrained gland style fitting shall be utilized on the hydrant boot side for restraint. Rodding of hydrants is strictly forbidden and the use of positive mechanical restraints, such as an approved restrained gland style fitting, is the only restraint system authorized. A thrust block shall be installed on the backside

of the anchor tee. The manufacturer shall permanently coat all mechanical restraints against corrosion. The installer, prior to backfilling, shall repair any damage to the hydrant coating system.

8. Services

a. Services shall be sized appropriately to the demand application with a minimum of ¾ inch size. Isolation ball valves shall be provided on the inlet and outlet side of the meter. A reduced pressure zone backflow device shall be installed directly after the outlet valve on the meter before the first tap to any appliance or pumping equipment. All material shall meet the current AWWA C800 *Underground Service Line Valves and Fittings* specifications.
b. All fittings shall be compression type “CTS” brass material.
c. All direct tap fittings shall have CC threads for 1 inch only.
d. All services 1 1/2" or 2" require a saddle unless direct tapping equipment is available. Any service being installed on AC or plastic P.V.C. mains require a service saddle regardless of size.
e. Approved Teflon joint compound or triple wrap Teflon tape shall be used on all threaded pipe fittings.
f. NPT threads shall be used on corporation stops when a tapping saddle is used. (This applies to two inch services only.)
g. All 1 and 2 inch diameter pipe service lines shall be ASTM B88, Type K soft copper.
h. Each service shall be equipped with a curb stop, which shall be installed two (2) feet behind the face of curb or edge of pavement. Curb stop shall be bronze compression fitted and of no drip configuration. Direction of opening shall be open left.
i. All service boxes shall be “Buffalo Style” and installed to finish grade. In installations where does not occur within a paved or concrete sidewalk area a 1' x 6" concrete ring or slab shall be installed to support the upper box.
j. Depth of services shall be at a minimum of five feet to finished grade throughout installation.
k. All fittings and pipe shall be swabbed with approved chlorine solution and cleaned of all foreign material prior to installation. The service pipe shall be disinfected and pressure tested prior to meter installation.
l. Identification tape as specified in the material fact sheet shall be utilized for the full length of services and set to a depth from finished grade of no more than 2'-0".
m. Services 4” and above shall be ductile iron and conform to the requirements for main and valve installation.
n. Service size shall remain consistent with the service tap size up to the point before the meter where service enters the building or meter pit.

9. Standard Water Distribution Pipe Material

a. All standard water distribution pipe installed shall be cement mortar lined Ductile Iron Pipe. Brass wedges shall be installed at all gasket joints. URI may deviate from this standard depending upon the design considerations and service requirements. All Ductile Iron Pipe 4 inches and larger shall meet or exceed the current *AWWA C151* specification, be cement mortar lined, and be "push on" joint, bell and plain spiget end, unless grooved or flanged ends are approved. Listed below are the specific pipe specifications for water distribution system pipe:

b. All 4 inch and greater diameter pipes shall be a minimum of Class 52.
c. Cement mortar lining shall meet or exceed current *AWWA C104 Cement Mortar Lining Standards*.
d. Rubber Gasket Joints must meet or exceed current *AWWA C111 Rubber Gasket Joints Standards*.
e. The following is the approved list of pipe manufacturers:
    - Pacific States Cast Iron Pipe Company
    - United States Pipe Company
    - Griffin Pipe Products Company
    - American Cast Iron Pipe Company

10. Fittings

a. All fittings shall be ductile iron and meet or exceed the current *AWWA C153 Ductile Iron Compact Fittings* standards.
b. Fittings shall be mechanical joint with rubber gaskets that meet or exceed current *AWWA C111 Rubber Gasket Joints* specifications. In addition, all fittings shall meet the following URI specifications:
    - The exterior of all fittings shall have a petroleum-asphaltic coating.
    - The interior of all fittings shall be cement/mortar petroleum-asphaltic lined in accordance with current *AWWA Specification C104 Cement Mortar Lining for Ductile Iron Pipe.*

11. Gate Valves

a. All gate valves shall be resilient-seated gate valves and shall meet or exceed current *AWWA C509 Resilient-Seated Gate Valves* specifications or *AWWA C515 Reduced-Wall Resilient-Seated Gate Valves* specifications. Valves shall open in a counterclockwise direction.
b. All distribution valves 2 inch diameter through 10 inch shall be resilient-seated gate valves.
c. All valve boxes shall be installed to finish grade.
d. All tapping valves regardless of size must be resilient-seated gate valves. In addition, all gate valves shall meet or exceed the following URI specifications:
    - The valve body interior shall have epoxy coating.
    - All operating nuts shall be 2 inch square nuts as specified in current *AWWA C509* specifications or *AWWA C515* specifications.
    - All valves shall **open in a counterclockwise** direction.
    - The stem seals shall be O rings as specified in current *AWWA C509* specifications or *AWWA*

12. Tapping Valve and Sleeve:

a. A visual inspection and air test of the assembled tapping valve and sleeve shall occur prior to cutting into the pipe. A final inspection of the assembled valve shall occur prior to backfill. An authorized representative of the URI Utilities Department shall witness all tests.
b. Tapping sleeves shall be utilized in all cases where the main cannot be shut down for installation of a standard "T" connection.

c. All size on size tapping sleeves shall be full size cast iron or ductile iron, mechanical joint with stainless steel fasteners made in the North America, as approved by the URI Utilities Department.
d. Sleeve couplings and accessories shall be pressure rated to at least equal that of the pipe. Couplings shall be ductile iron. The interior of the coupling shall be epoxy-coated in accordance with American Water Works Association ASTM & ANSI standards. Coating shall be thermosetting epoxy with a minimum dry film thickness of 10 mils and a maximum of 20 mils. Fabricated sleeves will be allowed only on ductile iron mains, cast iron mains or PVC mains with prior approval by the URI Utilities Department.
e. All sleeves shall be installed in strict compliance with the manufacturer's recommendations; copies of the installation guidance shall be available on site during installation.
f. Water main on branch side of tapping sleeve shall be restrained in accordance with pertinent sections of the rules and regulations.

13. Installation of Pipe and Appurtenances

a. Installation of all water conveyances, mains, pipes or lines shall be in accordance with the Ductile Iron Pipe Research Association's installation manual and ANSI/AWWA C600 .
b. Depth of services shall be at a minimum of five feet to finished grade throughout installation unless approved by the Utilities Department.
c. Each length of pipe and or fitting shall be inspected for cracks, defects in coating on lining, cleanliness or any other evidence of unsuitability.
d. Metalized detectable identification tape 2" in width or greater, blue in color and printed with "CAUTION WATER LINE BURIED BELOW" shall be utilized over the full length of all mains and services. Tape shall be set two feet below finished grade.
e. Line valves shall be installed at all intersections in a configuration that allows for isolation in all directions. On long lengths of main, valves shall be installed at a minimum of 800 feet intervals and at all dead end sections.
f. Pipe may be deflected in order to make MINOR adjustments in the alignment. All deflections shall be a maximum of 75% of the manufacturer's safe allowable deflection per pipe length as indicated in the following tables. It is required that bends in the pipe be accomplished by fittings wherever possible.

Allowable Deflection For
18-Foot Lengths Pipe

SIZE OF PIPE (In.)	PUSH-ON JOINT (In.)	MECH. JOINT (In.)
4	14	23
6	14	20
8 – 12	14	15
14 – 16	8	10
18 – 20	8	8
24 – 30	8	7

Allowable Deflection For
20-Foot Lengths Pipe

SIZE OF PIPE (In.)	PUSH-ON JOINT (In.)	MECH. JOINT (In.)
4	16	26
6	16	23
8 – 12	16	17
14 – 16	9	11
18 – 20	9	9
24 – 30	9	8

g. Whenever pipe requires cutting to fit the line, the work shall be done only by experienced (State of Rhode Island, licensed contractor) or plumber, and in such a manner as to leave a smooth end at right angles to the axis of the pipe and on pipe that is center rounded designed specifically for field cutting. The cut ends shall be beveled to conform to the manufactured spigot end. Particular care shall be exercised to prevent damaging the lining when cutting cement-lined cast or ductile iron pipe. Jointing of pipe or fittings shall be made only by persons thoroughly skilled in this work. For pipe diameters 16" and larger, pipe cutting shall be done by machine.

h. Water main and services shall be installed with a minimum cover of 5 feet to the crown of the pipe in an American Water Works Association "Type 5 Trench". Where unsuitable material is found at or below the grade of the placement of the pipe or fitting, the undesirable material shall be removed to the required width and depth and replaced with thoroughly compacted bank run gravel above the crown of the pipe.

i. Material shall be deposited across the full width and length of the trench in layers of not more than 12" in depth before compaction. Each layer, to within 12" of sub-grade of the permanent patch, shall be compacted to 95% Standard Proctor. The final 12" shall be processed gravel compacted in two (2) equal courses to 95% Standard Proctor.

j. A temporary patch shall be installed over the freshly backfilled trench in an existing street or sidewalk using hot bituminous concrete. It shall be at least 3" thick consisting of equal thickness layers of Modified Binder and Type I-1 Wearing Course. After 60 days, the temporary patch shall be removed and replaced with a permanent patch.

13. Pressure and Leakage Testing

a. URI personnel shall be present during the test.

b. All water mains and services shall be pressure tested and pass a pressure test in accordance with current ANSI/AWWA C600 Hydrostatic Testing prior to acceptance and being placed into service.

c. New mains and services shall be kept isolated from the system and protected with reduced pressure zone valves during filling, pressure testing and disinfection.

d. Prior to pressure testing, all appurtenances to the water system shall be in place, including concrete thrust blocks.

e. The duration of the hydrostatic test shall be for a minimum of 2 hours with allowable loss as determined by the Utilities Department.

f. All tests shall be performed or observed by the Utilities Department or its authorized representative.

g. Provide a written report of test results to URI Utilities Department.

14. Disinfection

a. URI personnel shall be present during the disinfection process.
b. Disinfection of all areas affected by construction is mandatory.
b. All water main replacements, extensions, fire lines and services shall be disinfected pursuant to AWWA Specification C651 Disinfection of Water Mains, prior to being placed into service. URI will accept the Continuous Feed Method of chlorination for all water mains as specified by AWWA C651. These include but are not limited to:
    - Mains
    - Service Piping
    - Buildings served
c. New mains and services shall be kept isolated from the system and protected with reduced pressure zone valves during flushing, disinfection and purging of chlorinated water.
d. Mains less than 16 inches in diameter shall be flushed to clear debris. Velocities of 2.5 ft/sec should be reached.
e. The initial free chlorine concentration shall be at least 25 ppm and not more than 100 ppm. The free chlorine concentration after 24 hours must be at least 10 ppm.
f. After proper disinfection, chlorine shall be purged to background levels.
g. Super-chlorinated water shall be neutralized prior to release to the environment. Disposal of all water used in the disinfection process shall be the responsibility of the contractor performing the disinfection procedure. Approval for discharge into the sanitary sewer system must be obtained from the South Kingstown Wastewater Authority.

15. Bacterialgocal Testing

a. It is required that an authorized representative of URI be present during the chlorination process and once complete, witness the sampling procedure for bacteriological testing.
b. Coliform samples must be collected from locations determined by the Water System Manager. Samples will be collected after the water/fire main has been flushed to chlorine levels similar to other parts of the distribution system. A second set of samples must be collected 24 hours after the first set.
c. URI will not accept a new water main, service or fire protection connection until a certified bacteriological test indicating the absence of coliform organisms is received.
d. When construction work being performed is an emergency repair, the isolated portion of the main shall be disinfected and flushed per AWWA C651 "Disinfection Procedures When Cutting into or Repairing Existing Mains". This procedure will be done as thoroughly as possible prior to the main being put back into service. Authorized URI personnel must be present for inspection of the procedures prior to any reconnection to the water system.

Any deviations from the above information shall only be allowed upon prior approval from the URI Utilities Department. If material is not noted above then all items not referenced in the above paragraphs will need prior approval of the URI Utilities Department before use/installation.

University of Rhode Island Water System

Regulations/Policies

Definitions

Backflow Prevention Device: Device designed to prevent the flow of water back into the system in the event of a low pressure situation.

Cross Connection Control Device: A Rhode Island Department of Health approved device for the prevention of backflow of a potentially contaminated water source into the water system.

Main: A water pipe owned, operated and maintained by the water system, which is used for the purpose of transmission or distribution of water.

Curb Stop: A shut off valve on the water service line generally located at the curb or where the service connects to the main water line.

Customer: Person(s) served by the water system responsible for the property and its use.

RIDOH: Rhode Island Department of Health

Fire Service Line: A water service pipe used exclusively for fire protection.

Service Connection: The service pipe, including the corporation stop, from the main to the building, including any valves or fittings the water system may require for normal operation.

Tap: The fittings installed at the main to which the service pipe is connected.

Utilities Department: URI Facilities Services Department in charge of all aspects of the URI water system.

Water System: The University of Rhode Island water system that serves the Kingston Campus.

End

DOCUMENT 00850 - PREVAILING WAGE RATES

The State of Rhode Island Department of Labor, Division of Professional Regulation General Decision Modification document is an integral part of the Bid Documents for use in fulfilling prevailing wage rate requirements. A copy is available linked to the web site of the State of Rhode Island Department of Administration, Division of Purchases. Contractors working on RI Prevailing Wage projects must adjust employee' hourly rates every July 1 in accordance with updated Davis Bacon rates. Useful websites through which to obtain this information are as follows:

The Division of Purchases Web Site Address is:

http://www.purchasing.ri.gov/RIVIP/Info.asp

The link for the US Government prevailing wage tables is:

http://www.purchasing.ri.gov/bidinfo/geninfo/geninfo.aspx

Applicable Rhode Island labor laws may be found at:

http://www.dlt.ri.gov/pw/

END OF DOCUMENT

DOCUMENT 00900 - ADDENDA AND MODIFICATIONS

PART 1 – GENERAL

1.1 As of the time of publication of this Project Manual, no Addenda had been issued.

1.2 Should Addenda be issued during the Bid Period, they will augment this Document and become a part of the Project Manual.

1.3 Such Addenda and Modifications when issued, with reference to the Project Manual, the General Conditions, Supplemental General Conditions, Drawings or Specifications, shall be inserted following this page and become integral parts of the Contract Documents.

END OF DOCUMENT 00900

SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.01 PROJECT

A. See Supplemental General Conditions for official Project Information.

B. The Project consists of the following types of work:
   1. Site mobilization and demolition
   2. Erosion controls
   3. Trench Excavation
   4. Cast-in-place concrete
   5. Bituminous concrete pavement
   6. Loam and seed
   7. Electrical conduit and services
   8. Sports field lighting
   9. Chain link fence
   10. Police Protection by the University Police and Town of South Kingstown

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 00520 - Agreement.

1.03 DESCRIPTION OF WORK

A. Scope of alterations work is shown on drawings and/or as specified herein.

1.04 OWNER OCCUPANCY/SCHEDULE

A. Owner intends to partially occupy the parking facility. Work areas will be made available as mutually agreed to during project scheduling.

B. Work to begin within 7 days of receipt of Purchase Order.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings. Coordinate with Attachment A following this section. Include all costs of this coordination, including all premium time wages that may be required to meet these requirements, in the Base bid and any Alternates.

B. Arrange use of site and premises to allow:
   1. Adjacent projects to progress as planned for the Owner.
   2. Use of street and adjacent properties by the Public.
   3. Continued operation of the facility in accordance with Attachment A.

C. Provide access to and from site as required by law and by Owner:
   1. Maintain appropriate egress for workforce and users of the facility.

2. Do not obstruct roadways, sidewalks, or other public ways without permit. Provide necessary signage and barriers to direct pedestrians around work areas.

D. Time Restrictions:
   1. Night and weekend work is not allowed.

E. Utility Outages and Shutdown:
   1. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 day notice to Owner and authorities having jurisdiction.
   2. Prevent accidental disruption of utility services to other facilities.
   3. Contractor to provide written notification on Fire Sprinkler and Alarm System Impairment Notification Form following this section as Attachment B.

1.06 ITEMS TO BE SALVAGED

A. Deleted.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION – NOT USED

1.03 DESCRIPTION OF WORK

A. Scope of work is shown on drawings and/or described in the specifications.

B. Site modifications: As shown on drawings and/or as specified herein.

C. Architectural modifications: Cut and patch as necessary for new work.

1.04 OWNER OCCUPANCY/SCHEDULE

A. The owner is expected to have use of the facility while the new line is being installed, utilizing the temp generator as is currently done.

B. The contractor shall notify the owner in writing 30 days in advance, of when he proposes to:

   a. Perform work within the building and

   b. Provide the final connection for final tie in to the new feeder.

   Note: The contractor shall do this work during regular hours but at a time that is convenient for the user(s).

B. Work to begin within 7 days of receipt of Purchase Order.

D. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

1.05 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: To be coordinated with the owner but can be assumed to be local to the work being performed. Include all costs of this coordination, including all premium time wages that may be required to meet these requirements, in the Base bid.

B. Arrange use of site and premises to allow:
   1. Use of street and adjacent properties by the Public.
   3. Continued access and use as required of the facility to the extent possible.

C. Provide access to and from site as required by law and by Owner:
   1. Maintain appropriate egress for workforce and users of the facility.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit. Provide necessary signage and barriers to direct pedestrians around work areas.

D. Time Restrictions:
   1. None. Night and weekend work is allowed.

E. Utility Outages and Shutdown:
   1. Do not disrupt or shut down systems without 7 day notice to Owner and authorities having jurisdiction. Shut downs to be in off-hours only.
   2. Prevent accidental disruption of utility services to other facilities.

END OF SECTION

Section 01101 - Attachment A

Contractor shall conform to the following conditions:

1. Parking is restricted to areas designated by the University.

2. Complete closure of Plains Road and Flagg Road shall not be permitted.

3. Roadways shall be restored to provide two-way traffic during non-working hours.

4. Contractor shall be responsible for securing and for compensation of all required police protection with the Town of South Kingstown.

5. All utility interruptions shall be done off hours. Coordinate with Owner to schedule these activities at times when the campus will be without classes, regular staff hours, and meetings.

END OF SECTION

THE UNIVERSITY OF RHODE ISLAND
DIVISION OF ADMINISTRATION AND FINANCE
THINK BIG WE DO
OFFICE OF CAPITAL PROJECTS
Sherman Building, 523 Plains Road, Kingston, RI 02881 USA p: 401.874.2725 f: 401.874.5599

Fire Sprinkler and Alarm System Impairment Notification Form

To: URI Office of Capital Projects

Date _____

Start of Planned Impairment: _____
End of Planned Impairment: _____
Building occupied during impairment: Yes:_____ No:_____
Any hot work to be performed: Yes:_____ No:_____

Description of Work to be performed: _____

URI Manager of Alarms, Mike Suriani, can also be directly contacted at 401-639-2268.

Contractor supervisory personnel shall remain in the building for the entire duration of the impairment.

Name:_____

Company:_____

Phone:_____

SECTION 01200 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Allowances.

B. Testing and inspection allowances.

C. Schedule of values.

D. Applications for payment.

E. Warranty inspection retainage.

F. Sales tax exemption.

G. Change procedures.

H. Defect assessment.

I. Unit prices.

J. Alternates.

1.02 ALLOWANCES

A. See General Conditions Article 3.8 for Allowance provisions.

B. Design Agent Responsibility:
   1. Consult with Contractor for consideration and selection of products, suppliers, and Installers.
   2. Select products in consultation with Owner and transmit decision to Contractor.
   3. Prepare Change Order to adjust final cost.

C. Contractor Responsibility:
   1. Assist Design Agent or its Consultants in selection of products, suppliers and installers.
   2. Obtain proposals from suppliers and installers, and offer recommendations.
   3. On notification on selection by Design Agent, execute purchase agreement with designated supplier and installer.
   4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
   5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

D. Schedule of Allowances: See Attachment A.

1.03 TESTING AND INSPECTION ALLOWANCE

A. All costs of testing are included in the Base Bid. There is no testing allowance.

1.04 SCHEDULE OF VALUES

A. Submit Schedule of Values in duplicate, one copyrighted original and one copy.

B. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the major specification Section. Identify site mobilization, bonds, insurance and closeout.

C. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.

D. Include separately for each line item, a direct proportional amount of Contractor's overhead and profit.

E. Revise schedule to list approved Change Orders, with each Application for Payment.

1.05 APPLICATIONS FOR PAYMENT

A. Submit each application on an original AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet, accompanied by three copies.
   1. Prepare a draft version “pencil copy” of each application and distribute via email 5 days prior to due date for review by Design Agent and Owner’s representative.
   2. After making agreed revisions, individually sign and notarize and emboss with notary's official seal, the original and each of the three copies. Deliver to Owner’s representative for further processing and distribution.
   3. Applications not including original copyrighted AIA G702, and G703 Forms, will be rejected, and returned for re-submittal.
   4. Applications not properly signed and notarized will be rejected, and returned for re-submittal.
   5. Applications submitted without the following items described in this section will be returned for resubmittal.

B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.

C. Provide one hard copy and one copy in disc form of the updated construction schedule with each Application for Payment submission, prepared per Section 01330.
   1. Provide a statement signed by the Contractor's firm principal certifying that there are no unidentified outstanding claims for delay.

D. Include with each monthly Application for Payment, following the first application, Certified Monthly Payroll Records with proper compliance cover sheet for the previous month's pay period. See Attachment A this section for current State and Federal requirements.

E. Submit with transmittal letter as specified for Submittals in Section 01330.

F. Beginning with the second Application for Payment, Contractor's right to payment must be substantiated by documenting, on a copy of the URI Waiver of Lien Form included in Document 00614 - Waiver of Lien Form in this Project Manual, that payment monies due, less retainage not exceeding ten percent, have been paid in full to subcontractor and suppliers for work, materials, or rental of equipment billed for under specific line item numbers in the immediately preceding application.

G. Substantiating Data: When the Owner or Design Agent requires additional substantiating information from the review of the "pencil copy", submit data justifying dollar amounts in question.

H. In addition to the items above, include the following with the Application for Payment :
   1. Record Documents as specified in Section 01780, for review by the Owner which will be returned to the Contractor.
   2. Affidavits attesting to off-site stored products with insurance certificates as requested.
   3. Digital Photographs as specified in Section 01330. Include on same disc with construction schedule.

I. Payment Period: Submit at monthly intervals unless stipulated otherwise in the Supplemental General Conditions.

1.06 WARRANTY INSPECTION RETAINAGE

A. A percentage of job cost as defined in Attachment A will be retained from Final Payment for a duration of ten months. If, after ten months, all systems including mechanical and electrical, are determined by the Owner to be properly functioning, the Warranty Inspection Retainage will be released.

B. If, after ten months, there are found to be modifications, adjustments, or corrections necessary to be made to address any system or product malfunction, in order to fulfill specified performance or requirements of such systems or products, release of the warranty inspection retainage will be delayed until such malfunctions are rectified.

C. If, after twelve months from the date of Final Completion, all systems have not been fully addressed, the Owner may utilize the Warranty Inspection Retainage to hire others to execute necessary modifications, adjustments, or corrections.

1.07 SALES TAX EXEMPTION

A. Owner is exempt from sales tax on products permanently incorporated in Work of the Project.
   1. Obtain sales tax exemption certificate number from Owner.

2. Place exemption certificate number on invoice for materials incorporated in the Work of the Project.
3. Furnish copies of invoices to Owner.
4. Upon completion of Work, file a notarized statement with Owner that all purchases made under exemption certificate were entitled to be exempt.
5. Pay legally assessed penalties for improper use of exemption certificate number.

1.08 CHANGE PROCEDURES

A. Submittals: Submit name of the individual authorized to receive change documents, and be responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. The Design Agent will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time by issuing supplemental instructions on AIA Form G710.

C. The Design Agent may issue a Proposal Request which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required, and the period of time during which the requested price will be considered valid. Contractor will prepare and submit an estimate within 15 days.

D. The Contractor may propose changes by submitting a request for change to the Design Agent, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation, and a statement describing the effect on Work by separate or other Contractors. Document any requested substitutions in accordance with Section 01600.

E. Stipulated Sum Change Order: Based on Proposal Request, and Contractor's fixed price quotation, or Contractor's request for a Change Order as approved by Design Agent.

F. Unit Price Change Order: For contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of work which are not pre-determined, execute the Work under a Construction Change Directive. Changes in the Contract Sum or Contract Time will be computed as specified for a Time and Material Change Order.

G. Construction Change Directive: Design Agent may issue a directive, on AIA Form G713 Construction Change Directive signed by the Owner, instructing the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work, and designate method of determining any change in the Contract Sum or Contract Time. Promptly execute the change.

H. Time and Material Change Order: Submit an itemized account and supporting data after completion of the change, including timeslips signed by Owner’s representative, within the time limits indicated in the Conditions of the Contract. The Design Agent will determine the change

allowable in the Contract Sum and Contract Time as provided in the Contract Documents. Only Owner-representative-signed timeslips will be considered.

I. Maintain detailed records of work done on a Time and Material basis. Submit timeslips daily for verification and sign-off by Owner's representative on-site. Provide full information required for an evaluation of the proposed changes, and to substantiate costs for the changes in the Work.

J. Document each quotation for a change in cost or time with sufficient data to allow an evaluation of the quotation. Provide detailed breakdown of costs and estimates for labor and materials including a detailed breakdown for subcontractor's or vendor's Work. Include copies of written quotations from subcontractors or vendors.

K. Change Order Forms: AIA G701 Change Order.

L. Execution of Change Orders: The Design Agent will issue Change Orders for signatures of the parties as provided in the Conditions of the Contract.

M. Correlation Of Contractor Submittals:
1. Promptly revise the Schedule of Values and the Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum. Promptly revise progress schedules to reflect any change in the Contract Time, revise sub-schedules to adjust times for any other items of work affected by the change, and resubmit.
2. Promptly enter changes in the Project Record Documents.

1.09 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of the Design Agent, it is not practical to remove and replace the Work, the Design Agent will direct an appropriate remedy or adjust payment.

C. The defective Work may remain, but the unit sum will be adjusted to a new sum at the discretion of the Design Agent.

D. The defective Work will be partially repaired to the instructions of the Design Agent, and the unit sum will be adjusted to a new sum at the discretion of the Design Agent.

E. The individual Specification Sections may modify these options or may identify a specific formula or percentage sum reduction.

F. The authority of the Design Agent to assess the defect and identify a payment adjustment, is final.

G. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from the transporting vehicle.
4. Products placed beyond the lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

1.10 UNIT PRICES

A. See Attachment A.

1.11 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at the Owner's option. Accepted Alternates will be identified in the Purchase Order.

B. Coordinate related work and modify surrounding work as required.

C. Schedule of Alternates: See Attachment A.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

Attachment A – 01201

A. Allowance

Summary

Include an allowance of $22,000.00 in the Base Bid for use for the following items of work:

Allowance Rock Excavation	$10,000.00
Allowance Utility Conflicts	$10,000.00
Allowance Material Testing	$2,000.00

Allowance Rock Excavation

An allowance of $10,000.00 is listed in Section 00410 - Bid Form. This allowance allows the Contractor with the approval of the Owner, to perform the removal of rock or ledge which may be encountered during installation of the lighting foundations.

Allowance Rock Excavation	$10,000.00

Allowance Utility Conflicts

An allowance of $10,000.00 is listed in Section 00410 - Bid Form. This allowance allows the Contractor with the approval of the Owner, to perform unanticipated utility repairs and/or relocations which may be required during the installation of the electrical service.

Allowance Utility Conflicts	$10,000.00

Allowance Material Testing

An allowance of $2,000.00 is listed in Section 00410 - Bid Form. This allowance allows the Contractor with the approval of the Owner, to retain the services of a qualified Materials Testing Company to conduct various soil tests and concrete tests.

The scope of the testing program will be developed by the Engineer. The Contractor will transmit the scope of the testing program to the Materials Testing Company together with a request for a firm quotation for the work. When the Contractor receives the quotation from the Materials Testing Company and he finds it fair and reasonable, he shall provide to the Owner. The Owner will review the Contractor's submission and if satisfaction, the Contractor shall notify the Materials Testing Company to proceed forthwith.

B. Cash Allowances

1. None.

C. Unit Prices

1. None

D. Alternates

1. None

E. Payroll Reporting

1. Forms for the submission of Certified Payroll Records may be found from the Rhode Island Prevailing Wage Website in either PDF or Excel formats. These forms must be used on monthly submittals.

2. Identify Apprenticeship hours required under RIGL 37-13-3.1 for all contracts over $1 million in value.

3. A Minority Utilization Report for minority subcontractors must be included. Use the form provided as Attachment B.

F. Warranty Inspection Retainage

1. One-half of one percent of the cost of the Work will be retained from Final Payment for this purpose.

END OF ATTACHMENT

SECTION 01300 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Site administration

B. Coordination and project conditions.

C. Preconstruction meeting.

D. Site mobilization meeting.

E. Progress meetings.

F. Pre-installation meetings.

1.2 SITE ADMINISTRATION

A. Maintain a daily attendance log to include the names of all project employees and guests to the site. Each guest signing the log should indicate a brief description of the reason for the visit, the guest's employer or organization. The log sheet, or sheets, must clearly indicate the Project Name, and the name of the general Contractor. Each line in the log should allow for the name of that employee, the employee's job title (use terminology used by prevailing wage job title), and the name of that employee's employer. This log shall be kept on a uniform form prescribed by the Director of Labor and Training. Such log shall be available for inspection on the site at all times by the Purchaser, Owner, and/or the Director of the Department of Labor and Training and his or her designee. Provide copies when requested. The log shall comply with requirements of RIGL 37-12-12(c.).

1.3 COORDINATION AND PROJECT CONDITIONS

A. Coordinate the scheduling, submittals, and the Work of the various Sections of the Project Manual to ensure an efficient and orderly sequence of the installation of interdependent construction elements.

B. Verify that the utility requirements and characteristics of the operating equipment are compatible with the building utilities. Coordinate the Work of the various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

C. Coordinate the space requirements, supports and installation of the mechanical and electrical Work, which are indicated diagrammatically on the Drawings. Follow the routing shown for the pipes, ducts, and conduit, as closely as practicable; place runs parallel with the lines of the building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. Coordinate the completion and clean up of the Work of the separate Sections in preparation for Substantial Completion and for portions of the Work designated for the Owner's partial occupancy.

E. After the Owner's occupancy of the premises, coordinate access to the site for correction of defective Work and the Work not in accordance with the Contract Documents to minimize disruption of the Owner's activities.

1.4 PRECONSTRUCTION MEETING

A. The Design Agent will schedule a meeting after a Purchase Order is issued to the Contractor.

F. Attendance Required: Owner's Representative, Design Agent, and Contractor.

G. Agenda:
1. Distribution of the Contract Documents.
2. Submission of a list of Subcontractors, a list of products, schedule of values, and a progress schedule.
3. Designation of the personnel representing the parties in the Contract and the Design Agent.
4. The procedures and processing of the field decisions, submittals, substitutions, applications for payments, proposal requests, Change Orders, and Contract closeout procedures.
5. Scheduling.

H. Contractor shall record the minutes and distribute copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, other participants, and those consultants affected by the decisions made.

1.5 SITE MOBILIZATION MEETING

A. The Design Agent will schedule a meeting at the Project site prior to the Contractor's occupancy and may occur at the same time as the Preconstruction meeting noted above.

B. Attendance Required: The Owner, Design Agent, Contractor, the Contractor's Superintendent, and major Subcontractors.

C. Agenda:
1. Use of the premises by the Owner and the Contractor.
2. The Owner's requirements and partial occupancy.
3. Construction facilities and controls provided by the Owner.
4. Temporary utilities provided by the Owner.
5. Security and housekeeping procedures.
6. Schedules.
7. Application for payment procedures.
8. Procedures for testing.

9. Procedures for maintaining the record documents.
10. Requirements for the start-up of equipment.
11. Inspection and acceptance of the equipment put into service during the construction period.

D. Contractor shall record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, other participants, and those consultants affected by the decisions made.

1.6 PROGRESS MEETINGS

A. Schedule and administer the meetings throughout the progress of the Work at weekly intervals while work is in process.

I. Make arrangements for the meetings, prepare the agenda with copies for the participants, and preside at the meetings.

J. Attendance Required: The job superintendent, major subcontractors and suppliers, the Owner, Design Agent, and Consultants as appropriate to agenda topics for each meeting.

K. Agenda:
1. Review the minutes of previous meetings.
2. Review of the Work progress.
3. Field observations, problems, and decisions.
4. Identification of the problems which impede the planned progress.
5. Review of the submittals schedule and status of the submittals.
6. Review of delivery schedules.
7. Maintenance of the progress schedule.
8. Corrective measures to regain the projected schedules.
9. Planned progress during the succeeding work period.
10. Coordination of the projected progress.
11. Maintenance of the quality and work standards.
12. Effect of the proposed changes on the progress schedule and coordination.
13. Other business relating to the Work.

L. Contractor shall record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Consultants, Owner, participants, and others affected by the decisions made.

1.7 PREINSTALLATION MEETINGS

A. When required in the individual specification Sections, convene a pre-installation meeting at the site prior to commencing the Work of the Section.

M. Require attendance of the parties directly affecting, or affected by, the Work of the specific Section.

N. Notify the Design Agent four days in advance of the meeting date.

O. Prepare an agenda and preside at the meeting:
   1. Review the conditions of installation, preparation and installation procedures.
   2. Review coordination with the related work.

P. Record the minutes and distribute the copies within two days after the meeting to the participants, with copies to the Design Agent, Owner, participants, and those Consultants affected by the decisions made.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

Attachment A – 01301

A. The following amendments are made to this Section in order to facilitate execution of smaller projects at URI. They apply to the work of this project. All portions of the specification Section not deleted or amended remain in full force and effect for this project.

B. Delete headings 1.1 D and F.

C. Delete paragraphs 1.5 and 1.7.

END OF ATTACHMENT

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Submittal procedures.

B. Construction progress schedules.

C. Proposed products list.

D. Product data.

E. Shop drawings.

F. Design Data.

G. Samples.

H. Test reports.

I. Certificates.

J. Manufacturer's instructions.

K. Manufacturer's field reports.

L. Digital Photographs.

M. Erection drawings.

N. Construction photographs.

1.02 SUBMITTAL PROCEDURES

A. Master List Submittal:
   1. Submit a master list of the required submittals with a proposed date for each item to be submitted.
   2. Show the date submittal was sent, days since submittal was sent, status of submittal, date submittal was received in return, and any date associated with resubmittals.
   3. Up date master list with each submission and response.
   4. Issue copy of master list at least monthly to the Design Agent.

B. Transmit each submittal with a dated Design Agent-accepted transmittal form.

C. Transmit printed copies and electronic PDF copy of each submittal to the Design Agent for review and comment as outlined in each section below.

D. Sequentially number the transmittal form. Mark revised submittals with an original number and a sequential alphabetic suffix.

E. Identify the Project, Contractor, subcontractor and supplier; the pertinent drawing and detail number, and the specification Section number, appropriate to the submittal.

F. Apply a Contractor's electronic stamp certifying that the review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of the information is in accordance with the requirements of the Work and the Contract Documents.

G. Schedule submittals to expedite the Project, and deliver to the Design Agent’s FTP site. Coordinate the submission of related items.

H. For each submittal, allow 15 days for review.

I. Identify all variations from the Contract Documents and any Product or system limitations which may be detrimental to a successful performance of the completed Work.

J. Allow space on the submittals for the Contractor's, Design Agent’s, and Consultant's electronic review stamps.

K. When revised for resubmission, identify the changes made since the previous submission.

L. Distribute copies of the reviewed submittals as appropriate. Reproduce as necessary to inform subcontractors without internet download capabilities. Instruct the parties to promptly report any inability to comply with the Contract requirements.

M. Produce additional copies as required for the Record Document purposes as described in Section 01780.

1.03 CONSTRUCTION PROGRESS SCHEDULES

A. Submit initial progress schedule in duplicate within 20 days after Date of Commencement for Design Agent to review. After a review, submit detailed schedules within 15 days modified to accommodate the revisions recommended by the Design Agent and Owner.

B. Distribute copies of the reviewed schedules to the Project site file, subcontractors, suppliers, and other concerned parties. Instruct the recipients to promptly report, in writing, the problems anticipated by the projections indicated in the schedules

C. Submit updated schedules with each Application for Payment, identifying changes since previous version as follows:
   1. Indicate the progress of each activity to the date of submittal, and the projected completion date of each activity.
   2. Identify the activities modified since the previous submittal, major changes in the scope, and other identifiable changes.
   3. Provide a narrative report to define the problem areas, the anticipated delays, and impact on the Schedule. Report the corrective action taken, or proposed, and its effect including the effect of changes on the schedules of separate contractors.

D. Submit a computer-generated horizontal bar chart with separate line for each major portion of the Work or operation, identifying the first work day of each week.

E. Show a complete sequence of construction by activity, identifying the Work of separate stages and other logically grouped activities. Indicate the early and late start, the early and late finish, float dates, and duration.

F. Indicate an estimated percentage of completion for each item of the Work at each submission.

G. Provide a separate schedule of submittal dates for shop drawings, product data, and samples, including Owner-furnished Products and Products identified under Allowances, if any, and the dates reviewed submittals will be required from the Design Agent. Indicate the decision dates for selection of the finishes.

H. Indicate the delivery dates for Owner furnished Products, and for Products identified under Allowances.

1.04 PROPOSED PRODUCTS LIST

A. Within 20 days after the Date of Commencement, submit a list of major products proposed for use, with the name of the manufacturer, the trade name, and the model number of each product.

B. For the products specified only by reference standards, give the manufacturer, trade name, model or catalog designation, and reference standards.

C. With each product listed, indicate the submittal requirements specified to be adhered to, and an indication of relevant "long-lead-time" information , when appropriate.

1.05 PRODUCT DATA

A. Product Data: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Provide copies and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01780.

B. Submit one (1) printed copy and one (1) electronic PDF copy for review. The Design Agent will retain the reviewed printed copy for record and return the reviewed electronic PDF copy to the Contractor for distribution.

C. Mark each copy to identify the applicable products, models, options, and other data. Supplement the manufacturers' standard data to provide the information specific to this Project.

D. Indicate the product utility and electrical characteristics, the utility connection requirements, and the location of utility outlets for service for functional equipment and appliances.

E. After a review distribute in accordance with the Submittal Procedures article above and provide copies for record documents described in Section 01780.

1.06 SHOP DRAWINGS

A. Shop Drawings: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01780.

B. Submit two (2) printed copies and one (1) electronic PDF copy for review. The Design Agent and /or Consultants will retain the reviewed printed copies for record and return the reviewed electronic PDF copy to the Contractor for distribution.

C. Indicate the special utility and electrical characteristics, the utility connection requirements, and the location of utility outlets for service for functional equipments and appliances.

1.07 SAMPLES

A. Samples: Submit to the Design Agent for review for the limited purpose of checking for conformance with the information given and the design concept expressed in the Contract Documents. Produce duplicates and distribute in accordance with the

SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01780.

B. Samples for Selection as Specified in Product Sections:
   1. Submit to the Design Agent for aesthetic, color, or finish selection.
   2. Submit samples of the finishes in the colors selected for the Design Agent's records.
   3. After review, produce duplicates and distribute in accordance with the SUBMITTAL PROCEDURES article and for the record documents purposes described in Section 01780.

C. Submit samples to illustrate the functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate the sample submittals for interfacing Work.

F. Include identification on each sample, with the full Project information.

G. Submit at least the number of samples specified in the individual specification Sections; the Design Agent will retain two samples.

H. Reviewed samples, which may be used in the Work, are indicated in the individual specification Sections.

I. Samples will not be used for testing purposes unless they are specifically stated to be in the specification Section.

1.08 TEST REPORTS

A. Submit (1) printed and (1) electronic PDF lab reports in accordance with Section 01400.

B. Submit test reports for information for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.09 DESIGN DATA

A. Submit (1) printed and (1) electronic PDF data for the Design Agent’s knowledge as contract administrator for the Owner.

B. Submit information for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.10 CERTIFICATES

A. When specified in the individual specification Sections, submit (1) printed and (1) electronic PDF certification by the manufacturer, installation/application subcontractor, or the Contractor to the Design Agent in the quantities specified for the Product Data.

B. Indicate that the material or product conforms to or exceeds the specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

A. Certificates may be recent or previous test results on the material or product, but must be acceptable to the Design Agent and its Consultants.

1.10 MANUFACTURER'S INSTRUCTIONS

A. When specified in the individual specification Sections, submit (1) printed and (1) electronic PDF copy of instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, to the Design Agent for delivery to the Owner in the quantities specified for Product Data.

B. Indicate the special procedures, and the perimeter conditions requiring special attention, and the special environmental criteria required for application or installation.

1.11 MANUFACTURER'S FIELD REPORTS

A. Submit (1) printed and (1) electronic PDF of reports for the Design Agent's benefit as contract administrator for the Owner.

B. Submit the report within 30 days of observation to the Design Agent for the limited purpose of assessing conformance with the information given and the design concept expressed in the Contract Documents.

1.12 DIGITAL PHOTOGRAPHS

A. Submit minimum 12 digital photographs of construction progress each month on the same CD as the project schedule submittal. Include both jpg. and reduced-size pdf versions for email use.

B. Include an additional minimum of 12 photographs documenting underground utilities when installed in relationship to visible site features.

C. Include photographs of important in-wall or ceiling utilities before close-in at appropriate stages of construction.

D. See Section 01780 for close-out copy requirements of these files.

1.13 ERECTION DRAWINGS

A. When specified in the individual Specification sections, the trade contractors shall submit (1) printed and (1) electronic PDF copy of erection drawings for review prior to proceeding with fabrication and/or construction.

B. Erection drawings shall be prepared in accordance with the latest edition of the respective trades' codes of standard practice.

C. All erection drawings shall be fully developed by the trade contractors or by agents of the contractors. CAD files, photocopies, or other reproductions of the contract drawings in whole or in part shall not be used by the trade contractors or their agents for the preparation and development of erections drawings without the expressed written consent of the Design Agent.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

Attachment A – 01331

A. Required Submittals

1. Bituminous pavement
2. Fill and embankment materials, gravel borrow, crushed stone, loam, common borrow, etc.
3. Fence
4. Electrical Materials and Structures.
5. Electrical lighting and foundation design (reference Section 10100)

The following amendments are made to this Section in order to facilitate execution of smaller projects at URI. They apply to the work of this project. All portions of the specification Section not deleted or amended remain in full force and effect for this project.

B. Delete headings 1.01 C, F, L, M, and N. Submittal requirements are reduced for small projects.

C. Replace subparagraph 1.02 A with the following: "A. Submit all information listed in the Master List provided in Attachment A."

D. Delete paragraphs 1.12 and 1.13.

E. Documents required in Purchasing provisions, such as MBE plan, bonds, insurance certificates, etc., are in addition to these requirements.

END OF ATTACHMENT

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT of ADMINISTRATION
DIVISION OF CAPITAL ASSET MANAGEMENT & MAINTENANCE
BUILDING CODE COMMISSION
One Capitol Hill
Providence, RI 02908-5859
(401)-222-1129 **WWW.RIBCC.RI.GOV**

August 5, 2015

Project Approval Letter

RISBC Project Numerical Code	**15-08.25-32**	
DESIGN CONSULTANT:	**AGENCY:**	
Gordon R. Archibald, Inc. Professional Engineers Todd Ravenelle, P.E., travenelle@graengs.com 200 Main Street Pawtucket, RI 02860	URI Paul DePace, pauld@uri.edu Sherman Building 523 Plains Rd. So. Kingstown, RI	
PROJECT:	**DISTRIBUTION:**	
Tibbets Athletic Fields Lighting Project Only 358 Plains Road South Kingstown, RI	Designer	travenelle@graengs.com
	Agency	pauld@uri.edu
	Purchasing	John.OHara@purchasing.ri.gov; Lisa.hill@purchasing.ri.gov; Thomas.Bovis@purchasing.ri.gov; David.Cadorel@purchasing.ri.gov; gary.mosca@purchasing.ri.gov
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	W. Palazini	Wade.Palazini@sfm.dps.ri.gov
	J. Leyden	John.Leyden@doa.ri.gov

Dear Sirs:

Plans and Specifications submitted for the above-referenced project have been reviewed and approved. Please be advised that permits will be issued upon application and payment of fees by the selected Contractor.

This approval letter does not constitute permission to proceed to reproduce documents required by the agency or purchasing division for bidding purposes. Such authorization can only be granted by the User Agency or Department, who you should contact for authorization to proceed.

The User, Department, or Agency, is advised by copy of this notice that documents required for bidding purposes must be in a format designated by the Division of Purchasing. The contract recipient will submit a copy of this document and a copy of an approved requisition for the project to proceed to permitting, along with any conditions of this approval to be accepted by the Building Code Commission.

Very truly yours,

John P. Leyden, CBO
State Building Commissioner

JPL:
cc: Approval File

SECTION 01400 – QUALITY REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Quality control and control of installation.

B. Verification of Credentials and Licenses.

C. Tolerances

D. References.

E. Testing and inspection services.

F. Manufacturers' field services.

G. Mock-up Requirements.

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

A. Monitor a quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of the specified quality.

B. Comply with all manufacturers' instructions and recommendations, including each step in sequence.

C. When the manufacturers' instructions conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

D. Comply with the specified standards as a minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Perform the Work by persons qualified to produce the required and specified quality.

F. Verify that field measurements are as indicated on the Shop Drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 VERIFICATION OF CREDENTIALS AND LICENSES

A. The Owner has implemented a project management oversight process and is applying it to current construction projects at URI.

B. An element of this oversight process is the verification that persons employed on the project site have appropriate and current credentials and licenses in their possession, at the project site, for the work they are performing.

C. Be forewarned that state resident inspectors will be checking for verification of credentials and licenses of both union and non-union persons, in their onsite inspections.

D. State resident inspectors will also be reviewing Contractor's Certified Monthly Payroll Records for conformance with RI State Prevailing Wage Rate requirements.

E. Those persons without the appropriate credentials and licenses will be subject to dismissal from the project site.

1.04 TOLERANCES

A. Monitor the fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with the manufacturers' tolerances. When the manufacturers' tolerances conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.05 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus 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 the date of issue current on the date of the Contract Documents, except where a specific date is established by code.

C. Obtain copies of the standards where required by the product specification Sections.

D. When the specified reference standards conflict with the Contract Documents, request a clarification from the Design Agent before proceeding.

E. Neither the contractual relationships, duties, or responsibilities of the parties in the Contract, nor those of the Design Agent, shall be altered from the Contract Documents by mention or inference otherwise in reference documents.

1.06 TESTING AND INSPECTION SERVICES

A. The Contractor will submit the name of an independent firm to the Design Agent for approval by the Owner, to perform the testing and inspection services. The Contractor shall pay for all the services.

B. The independent firm will perform the tests, inspections and other services specified in the individual specification Sections and as required by the Design Agent or its Consultants.
   1. Laboratory: Authorized to operate in the location in which the Project is located.
   2. Laboratory Staff: Maintain a full time registered Engineer on staff to review the services.
   3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either the National Bureau of Standards or to the accepted values of natural physical constants.

C. Testing, inspections and source quality control may occur on or off the project site. Perform off-site testing as required by the Design Agent or the Owner.

D. Reports will be submitted by the independent firm to the Design Agent, the Consultant for that trade, and the Contractor, in duplicate, indicating the observations and results of tests and indicating the compliance or non-compliance with Contract Documents.

E. Cooperate with the independent firm; furnish samples of the materials, design mix, equipment, tools, storage, safe access, and the assistance by incidental labor as requested.
   1. Notify the Design Agent and Engineer and the independent firm 24 hours prior to the expected time for operations requiring services.
   2. Make arrangements with the independent firm and pay for additional samples and tests required for the Contractor's use.

F. Testing and employment of the testing agency or laboratory shall not relieve the Contractor of an obligation to perform the Work in accordance with the requirements of the Contract Documents.

G. Re-testing or re-inspection required because of a non-conformance to the specified requirements shall be performed by the same independent firm on instructions by the Design Agent or its Consultant. Payment for the re-testing or re-inspection will be charged to the Contractor by deducting the testing charges from the Contract Sum.

H. Agency Responsibilities:
   1. Test samples of mixes submitted by the Contractor.
   2. Provide qualified personnel at the site. Cooperate with the Design Agent or its Consultant and the Contractor in performance of services.
   3. Perform specified sampling and testing of the products in accordance with the specified standards.
   4. Ascertain compliance of the materials and mixes with the requirements of the Contract Documents.
   5. Promptly notify the Design Agent, Consultant and the Contractor of observed irregularities or non-conformance of the Work or products.
   6. Perform additional tests required by the Design Agent or its Consultants.

7. Attend the preconstruction meetings and the progress meetings.

I. Agency Reports: After each test, promptly submit two copies of the report to the Design Agent, appropriate Consultant, and to the Contractor. When requested by the Design Agent, provide an interpretation of the test results. Include the following:
   1. Date issued.
   2. Project title and number.
   3. Name of inspector.
   4. Date and time of sampling or inspection.
   5. Identification of product and specifications section.
   6. Location in the Project.
   7. Type of inspection or test.
   8. Date of test.
   9. Results of tests.
   10. Conformance with Contract Documents.

J. Limits On Testing Authority:
   1. Agency or laboratory may not release, revoke, alter, or enlarge on the requirements of the Contract Documents.
   2. Agency or laboratory may not approve or accept any portion of the Work.
   4. Agency or laboratory may not assume any duties of the Contractor.
   5. Agency or laboratory has no authority to stop the Work.

1.08 MANUFACTURERS' FIELD SERVICES

A. When specified in the individual specification Sections, require the material or Product suppliers, or manufacturers, to provide qualified staff personnel to observe the site conditions, the conditions of the surfaces and installation, the quality of workmanship, the start-up of equipment, or test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit the qualifications of the observer to the Design Agent 30 days in advance of the required observations. Observer is subject to approval of the Design Agent.

C. Report the observations and the site decisions or instructions given to the applicators or installers that are supplemental or contrary to the manufacturers' written instructions.

D. Refer to Section 01330 - SUBMITTAL PROCEDURES, MANUFACTURERS' FIELD REPORTS article.

1.09 MOCK-UP REQUIREMENTS

A. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

B. Accepted mock-ups shall be a comparison standard for the remaining Work.

C. Where mock-up has been accepted by Architect and is no longer needed, remove mock-up and clear area when directed to do so.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not used.

END OF SECTION

Attachment A – 01401

A. Base Bid Testing Requirements List

1. Testing requirements for each piece of equipment as well as trades are included within the individual specification sections. Include all costs of testing in the Base Bid amount with the exception of soil and material tests.

B. Additional Owner-Authorized Testing Requirements List

1. None.

C. Delete header 1.01 G. Delete paragraph 1.09. No mock-ups required.

END OF ATTACHMENT

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Temporary Utilities:
   1. Temporary electricity.
   2. Temporary lighting for construction purposes.
   3. Temporary heating.
   4. Temporary cooling.
   5. Temporary ventilation.
   6. Telephone service.
   7. Temporary water service.
   8. Temporary sanitary facilities.

B. Construction Facilities:
   1. Field offices and sheds.
   2. Hoisting.
   3. Parking/Traffic.
   4. Progress cleaning and waste removal.
   5. Project identification.
   6. Traffic regulation.

C. Temporary Controls:
   1. Barriers.
   2. Enclosures and fencing.
   3. Security.
   4. Fire detection.
   5. Water control.
   6. Dust control.
   7. Erosion and sediment control.
   8. Noise control.
   9. Pest control.
   10. Pollution control.
   11. Rodent control.

D. Removal of utilities, facilities, and controls with reseeding and repair of grounds.

E. See Attachment A for any modifications.

1.02 TEMPORARY ELECTRICITY

A. The Owner will pay the cost of energy used. Exercise measures to conserve energy. Utilize the Owner's existing power service.
B. Complement the existing power service capacity and characteristics as required for construction operations.

C. Provide power outlets, with branch wiring and distribution boxes located at each floor or as required for construction operations. Provide flexible power cords as required for portable construction tools and equipment. All flexible power cords shall be suspended with hangers to eliminate trip hazards.

D. Provide main service disconnect and over-current protection at a convenient location, or a feeder switch at the source distribution equipment or meter.

F. Permanent convenience receptacles may not be utilized during construction.

G. Provide distribution equipment, wiring, and outlets to provide single-phase branch circuits for power. Provide 20-ampere duplex outlets, single-phase circuits for power tools.

1.03 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

A. Provide and maintain incandescent lighting for construction operations to achieve a minimum lighting level of 2 watt/sq ft (21 watt/sq m).

B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

C. Maintain lighting and provide routine repairs.

D. Permanent building lighting may be utilized during construction where not removed.

1.04 TEMPORARY HEATING

A. Existing facilities will be occupied and heated by the University when temperatures require. Take care to avoid leaving doors open in exterior walls that could compromise heating operations. For new construction, the cost of energy will be borne by the Contractor. Provide temporary heating as necessary for construction operations.

B. Supplement with temporary heat devices if needed to maintain the specified conditions for construction operations even in existing buildings.

C. Maintain a minimum ambient temperature of 50 degrees F in the areas where construction is in progress, unless indicated otherwise in the product Sections.

D. In areas of work with mechanical hot-air heating, clean units and replace filters after Substantial Completion.

E. Do not use new equipment for heating after replacement during construction.

1.05 TEMPORARY COOLING

A. Existing facilities are not available.

B. Provide and pay for cooling devices and cooling as needed to maintain the specified conditions for construction operations.

C. Maintain a maximum ambient temperature of 80 degrees F in the areas where construction is in progress, unless indicated otherwise in the specifications.

1.06 TEMPORARY VENTILATION

A. Ventilate the enclosed areas to achieve a curing of materials, to dissipate humidity, and to prevent the accumulation of dust, fumes, vapors, or gases.

B. If existing ventilation fans are used during construction, clean fans in areas of work after Substantial Completion.

1.07 TELEPHONE SERVICE

A. Provide, maintain, and pay for cell phone service to the field supervisor at the time of project mobilization.

1.08 TEMPORARY WATER SERVICE

A. The Owner will pay the cost of temporary water. Exercise measures to conserve energy. Utilize the Owner's existing water system, extend and supplement with temporary devices as needed to maintain the specified conditions for construction operations.

B. Extend branch piping with outlets located so that water is available by hoses with threaded connections. Provide temporary pipe insulation if needed to prevent freezing.

1.09 TEMPORARY SANITARY FACILITIES

A. Contractor needs to provide and maintain temporary toilet facilities for use by all construction personnel. Trades people will not be permitted to use existing facilities within the building.

1.10 FIELD OFFICES AND SHEDS

A. Do not use existing facilities for storage. Job meetings will be held on campus at a location to be chosen by the University.

B. Storage Areas and Sheds: Size to the storage requirements for the products of the individual Sections, allowing for access and orderly provision for the maintenance and for the inspection of Products to the requirements of Section 01600. Containers will be permitted within the project limit line.

C. Preparation: Fill and grade the sites for the temporary structures to provide drainage away from the buildings.

D. Removal: At the completion of the Work remove the buildings, foundations, utility services, and debris. Restore the areas.

1.11 HOISTING

A. Contractor is responsible for all hoisting required to facilitate, serve, stock, clean, and complete the Work. Include all costs for Operating Engineers, fuel, delivery and removal, mobilization, staging, protection of grades and surfaces, and equipment.

1.12 PARKING/TRAFFIC

A. Workers must park in lots assigned by the University with daily permits. See Site Utilization Plan.

B. Use of designated existing on-site streets and driveways for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.

C. Do not allow heavy vehicles or construction equipment in parking areas.

D. Do not allow vehicle parking on existing sidewalks.

E. Provide and maintain access to fire hydrants and control valves free of obstructions.

F. Remove mud from construction vehicle wheels before entering streets. Cleanup dirt, rocks, and debris left on street from construction vehicles.

G. Use designated existing on-site roads for construction traffic.

H. Maintenance:
   1. Maintain the traffic and parking areas in a sound condition free of excavated material, construction equipment, products, mud, snow, and ice.
   2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain the paving and drainage in original, or specified, condition.

I. Removal, Repair:
   1. Remove temporary materials and at Substantial Completion.
   2. Remove underground work and compacted materials to a depth of 2 feet; fill and grade the site as specified.
   3. Repair existing and permanent facilities damaged by use, to the original or specified condition.

1.13 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain the site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other remote spaces, prior to enclosing the space.

C. Broom and vacuum clean the interior areas prior to the start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and rubbish from the site daily, as necessary to prevent an on-site accumulation of waste material, debris, and rubbish, and dispose off-site.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.14 PROJECT IDENTIFICATION

A. Project Identification Sign: One painted sign, 32 sq ft area, bottom 6 feet above the ground.
   1. Content:
      a. Project title, and name of the Owner as indicated on the Contract Documents.
      b. Names and titles of the authorities.
      c. Names and titles of the Design Agent and Consultants.
      d. Name of the Design Agent Contractor.
   2. Graphic Design, Colors, and Style of Lettering: 3 colors, as designated by the Design Agent during construction.

B. Project Informational Signs:
   1. Painted informational signs of same colors and lettering as the Project Identification sign, or standard products; size lettering to provide legibility at 100-foot distance.
   2. Provide sign at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as the Work progress requires.
   3. No other signs are allowed without the Owner's permission except those required by law.

C. Design all signs and their structures to withstand a 60-miles/hr-wind velocity.

D. Sign Painter: Experienced as a professional sign painter for a minimum of three years.

E. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for the duration of construction.

F. Show content, layout, lettering, color, foundation, structure, sizes, and grades of members.

G. Installation:
   1. Install the project identification sign within 15 days after the date of receipt of the Purchase Order from State of Rhode Island Department of Administration, Division of Purchases.
   2. Erect at the designated location.
   3. Erect the supports and framing on a secure foundation, rigidly braced and framed to resist wind loadings.
   4. Install the sign surface plumb and level, with butt joints. Anchor securely.
   5. Paint exposed surfaces of the sign, supports, and framing.

H. Maintenance: Maintain the signs and supports clean, repair deterioration and damage.

I. Removal: Remove the signs, framing, supports, and foundations at the completion of the Project and restore the area.

1.15 TRAFFIC REGULATION

A. Signs, Signals, And Devices:
   1. Post Mounted and Wall Mounted Traffic Control and Informational Signs: As approved by local jurisdictions.
   2. Traffic Cones and Drums, Flares and Lights: As approved by local jurisdictions.
   3. Flag person Equipment: As required by local jurisdictions.
   4. Police Details: Provide all police details as required by local jurisdictions, including payment directly to officers.

B. Flag Persons: Provide trained and equipped flag persons to regulate the traffic when construction operations or traffic encroach on the public traffic lanes.

C. Flares and Lights: Use flares and lights during the hours of low visibility to delineate the traffic lanes and to guide traffic.

D. Haul Routes:
   1. Consult with the authority having jurisdiction, establish the public thoroughfares to be used for haul routes and site access.

E. Traffic Signs and Signals:
   1. At approaches to the site and on site, install at crossroads, detours, parking areas, and elsewhere as needed to direct the construction and affected public traffic.
   2. Install and operate automatic traffic control signals to direct and maintain the orderly flow of traffic in areas under the Contractor's control, and areas affected by the Contractor's operations.
   3. Relocate as the Work progresses, to maintain effective traffic control.

F. Removal:
   1. Remove equipment and devices when no longer required.
   2. Repair damage caused by installation.
   3. Remove post settings to a depth of 2 feet .

1.16 BARRIERS

A. Provide barriers to allow for the Owner's use of the site and to protect existing facilities and adjacent properties from damage from the construction operations, or demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way, or for public access to the building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.17 ENCLOSURES AND FENCING

A. Construction: Provide 6-ft. high commercial grade chain link fence around on-site equipment or areas of site disturbance for the period required to protect work and the public. Equip with vehicular and pedestrian gates with locks. Provide one set of keys to all gates and door locks to the Owner.

A. Perform adjustment to the proposed layout as may be directed by the Owner.

B. Interior Enclosures:
   1. Provide temporary partitions and ceilings as indicated to separate the work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to the existing materials and equipment.
   2. Construction: Framing and reinforced polyethylene, plywood, or gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces, as agreed with the Owner:
      a. Maximum flame spread rating of 75 in accordance with ASTM E84.

1.18 SECURITY

A. Security Program:
   1. Protect the Work, the existing premises, or the Owner's operations from theft, vandalism, and unauthorized entry.
   2. Initiate the program in coordination with the Owner's existing security system at mobilization.
   3. Maintain the program throughout the construction period until Owner occupancy of each designated area.

B. Entry Control: Coordinate the access of the Owner's personnel to the site in coordination with the Owner's security forces.

1.19 FIRE DETECTION

A. Before beginning any construction operation that can potentially trigger the existing fire alarm detection system, notify the Owner through use of the form provided in Section 01100.

B. Failure to so notify the Owner will subject the Contractor to a monetary fine for each occurrence, should the fire detection system be activated inadvertently by a construction activity.

C. Comply with FM Global insurance underwriting standards and insurer recommendations for Hot Work, sprinkler impairment, and site maintenance.

1.20 WATER CONTROL

A. Grade the site to drain. Maintain excavations free of water. Provide, operate, and maintain the pumping equipment.

B. Protect the site from puddling or running water. Provide water barriers as required to protect the site from soil erosion.

1.21 DUST CONTROL

A. Execute the Work by methods to minimize raising dust from construction operations.

B. Provide positive means to prevent air-borne dust from dispersing into the atmosphere.

1.22 EROSION AND SEDIMENT CONTROL

A. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.

B. Minimize the amount of bare soil exposed at one time.

C. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

D. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

E. Periodically inspect the earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

1.23 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by the construction operations.

1.24 PEST CONTROL

A. Provide methods, means, and facilities to prevent pests and insects from damaging the Work, or entering the facility.

1.25 POLLUTION CONTROL

A. Provide methods, means, and facilities to prevent the contamination of soil, water, and the atmosphere from discharge of noxious, toxic substances, and pollutants produced by the construction operations.

1.26 RODENT CONTROL

A. Provide methods, means, and facilities to prevent rodents from accessing or invading the premises.

1.27 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials, prior to Substantial Completion.

B. Remove the underground installations to a minimum depth of 2 feet. Grade the site as indicated.

C. Clean and repair the damage caused by installation or use of temporary work.

D. Restore the existing and new facilities used during construction to their original condition.

E. Restore any temporary exterior laydown or storage areas to the original condition. After each use, regrade and reseed as required to meet this requirement.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

SECTION 01501 - TEMPORARY FACILITIES AND CONTROLS

ATTACHMENT A

1.01 SECTION INCLUDES

A. Police Protection: Provide South Kingstown police officers to regulate traffic when construction operations or traffic encroach on the public traffic lanes of Flagg Road and Plains Road.

B. There are no existing utilities available. All water, power, lighting, and other services must be provided by the Contractor.

C. Contractor must provide sanitary facilities for his own workers, including port-o-john and drinking water.

END OF ATTACHMENT

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

E. Product substitution procedures.

1.02 PRODUCTS

A. Products: Means new material, machinery, components, fixtures, or systems forming the Work; but does not include the machinery or equipment used for the preparation, fabrication, conveying, or erection of the Work. Products may include the existing materials or components required or specified for reuse.

B. Furnish products of qualified manufacturers suitable for the intended use. Furnish products of each type by a single manufacturer unless specified otherwise.

C. Do not use materials and equipment removed from the existing premises, except as specifically permitted by the Contract Documents.

D. Furnish interchangeable components of the same manufacturer for the components being replaced.

1.03 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products in accordance with the manufacturer's instructions.

B. Promptly inspect shipments to ensure that the products comply with the requirements, the quantities are correct, and the products are undamaged.

C. Provide equipment and personnel to handle the products by methods to prevent soiling, disfigurement, or damage.

1.04 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect the products in accordance with the manufacturers' instructions.

B. Store with seals and labels intact and legible.

C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to the product.

D. For exterior storage of fabricated products, place on sloped supports above the ground.

E. Provide bonded off-site storage and protection when the site does not permit on-site storage or protection.

F. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent the condensation and degradation of products.

G. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

H. Provide equipment and personnel to store the products by methods to prevent soiling, disfigurement, or damage.

I. Arrange storage of the products to permit access for inspection. Periodically inspect to verify that the products are undamaged and are maintained in acceptable condition.

1.05 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: Products of one of the manufacturers named and meeting the specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named in accordance with the following article.

1.06 PRODUCT SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify the time restrictions for submitting requests for Substitutions during the bidding period to requirements specified in this section.

B. Substitutions may be considered after the bid only in the following circumstances:
1. when a product becomes no longer in production following the date of receipt of the Purchase Order for this Contract. Submit certification both that specified product was carried in Bid, and is no longer obtainable. Provide cost change documentation.
2. there is a significant cost savings offered to the Owner. Provide price comparison of both bid and offered substitution products as well as all collateral costs of the change.

3. Code changes or site conditions require a different item from that bid. Submit as for 2 above.

C. Document each request with complete data substantiating the compliance of a proposed Substitution with the Contract Documents.

D. A request constitutes a representation that the Bidder:
   1. Has investigated the proposed Product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the Substitution as for the specified Product.
   3. Will coordinate the installation and make changes to other Work which may be required for the Work to be complete with no additional cost to the Owner, including redesign.
   4. Waives claims for additional costs or time extension which may subsequently become apparent.
   5. Will reimburse the Owner and the Design Agent for review or redesign services, including those associated with re-approval by the authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on the Shop Drawing or Product Data submittals, without a separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure, If Permitted Following Contract Award:
   1. Submit three copies of a request for Substitution for consideration, no later than 20 working days following date of receipt of the Purchase Order for this Contract. Limit each request to one proposed Substitution.
   2. Submit the Shop Drawings, Product Data, and the certified test results attesting to the proposed product equivalence. The burden of proof is on the proposer.
   3. The Design Agent will notify the Contractor in writing of a decision to accept or reject the request. Costs for review time on unsuccessful requests will be included in the next change order.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

Attachment A – 01601

A. No variations in this section for this Project.

END OF ATTACHMENT

SECTION 01700 - EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Examination.

B. Preparation.

C. Field Engineering.

D. Protection of adjacent construction.

E. Cutting and patching.

F. Special procedures.

G. Starting and adjusting of systems.

H. Demonstration and Instructions.

I. Testing, adjusting and balancing.

J. Protecting Installed Construction.

1.02 EXAMINATION

A. Acceptance of Conditions:
   1. Verify that existing applicable site conditions, substrates, or substrate surfaces are acceptable or meet specific requirements of individual specifications Sections, for subsequent Work to proceed.
   2. Verify that existing substrate is capable of structural support or attachment of new Work being applied or attached.
   3. Examine and verify specific conditions described in individual specifications Sections.
   4. Verify that utility services are available, of correct characteristics, and in correct locations.
   5. Beginning of new Work, that relies upon the quality and proper execution of Work of a preceding trade, means acceptance of that preceding Work as appropriate for the proper execution of subsequent Work.
   6. Acceptance of preceding Work that can be shown later to have adversely affected proper performance of new Work may result in removal and repeat performance of all Work involved at no cost to the Owner.

1.03 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply substrate primer, sealer, or conditioner, required or recommended by manufacturer, prior to applying any new material or substance in contact or bond.

D. Prior to the application, installation, or erection of any products and product components, perform any other preparatory operations, or surface or substrate modifications, as may be specified or directed by product manufacturers.

1.04 FIELD ENGINEERING

A. Employ a Land Surveyor registered in the State of Rhode Island and acceptable to Design Agent and the Owner if required by subgrade work.

B. Locate and protect survey control and reference points. Promptly notify Design Agent of any discrepancies discovered.

C. Control Datum for survey is to be agreed to with the Design Agent.

D. Verify setbacks and easements, if any; confirm drawing dimensions and elevations.

E. Provide field-engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.

F. Submit a copy of site drawings and certificate signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

G. Maintain a complete and accurate log of control and survey work as it progresses.

H. If required by the Owner, on completion of foundation walls and major site improvements, prepare a certified survey illustrating dimensions, locations, angles, and elevations of construction and site work.

I. Protect survey control points prior to starting site work; preserve permanent reference point during construction.

J. Promptly report to Design Agent the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

K. Replace dislocated survey control point based on original survey control. Make no changes without prior written notice to Design Agent.

1.05 PROTECTION OF ADJACENT CONSTRUCTION

A. Protect existing adjacent properties and provide special protection where specified in individual Specification Sections.

B. Provide protective coverings at wall, projections, jambs, sills, and soffits of existing openings.

C. Protect existing finished floors, stairs, and other existing surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

D. Cover and protect furnishings, materials and equipment within the spaces receiving new work. Move items as necessary to install new work and return them to original locations at the close of construction in that area.

E. Repair adjacent properties damaged by construction operations to original condition to the satisfaction of the Owner.

F. Prohibit unnecessary traffic from existing landscaped areas.

G. Restore grassed landscaped areas damaged by construction operations to full healthy growth, by installing loam and sod to the requirements, and under the supervision of, the University's Associate Director of Lands and Grounds.

1.06 CUTTING AND PATCHING

A. Employ skilled and experienced installers to perform cutting and patching.

B. Submit written request in advance of cutting or altering elements which affect:
   1. Structural integrity of element.
   2. Integrity of weather-exposed or moisture-resistant elements.
   3. Efficiency, maintenance, or safety of element.
   4. Visual qualities of sight-exposed elements.
   5. Existing construction, or Work of separate contractor.

C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
   1. Fit the several parts together, to integrate with other Work.
   2. Uncover Work to install or correct ill-timed Work.
   3. Remove and replace defective and non-conforming Work.
   4. Remove samples of installed Work for testing.
   5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.

D. Execute Work by methods that will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.

E. Cut masonry, concrete, and other rigid materials using masonry saw or core drill.

F. Remove ceiling tiles as necessary to access areas of work. Store and replace carefully to avoid damage. Replace all ceiling tiles damaged during the work with new tiles to match. Repair ACT grid damaged during the work in accordance with this section.

G. Restore Work with new Products in accordance with requirements of Contract Documents.

H. Fit Work tight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.

I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

J. At penetration of fire rated partitions, ceiling, or floor construction, completely seal voids with fire rated or fire resistant material in accordance with Specifications, to full thickness of the penetrated element.

K. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for an assembly, refinish entire unit.

L. Identify any hazardous substance or conditions exposed during the Work to the Owner and Design Agent for decision or remedy.

M. See General Conditions for additional requirements.

1.07 SPECIAL PROCEDURES

A. Materials: As specified in product Sections; match existing with new products, or salvaged products as appropriate, for patching and extending work.

B. Employ skilled and experienced installer to perform alteration work.

C. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

D. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work.

E. Remove debris and abandoned items from area and from concealed spaces.

F. Prepare surface and remove surface finishes to provide installation of new Work and finishes.

G. Close openings in exterior surfaces to protect existing Work from weather and extremes of temperature and humidity.

H. Remove, cut, and patch Work in a manner to minimize damage and to provide means of restoring products and finishes to original or specified condition.

I. Refinish existing visible surfaces to remain in renovated rooms and spaces to specified condition for each material, with a neat transition to adjacent finishes.

J. Where new Work abuts or aligns with existing, provide a smooth and even transition. Patch Work to match existing adjacent Work in texture and appearance.

K. When finished surfaces are cut so that a smooth transition with new Work is not possible, terminate existing surface along a straight line at a natural line of division and submit recommendation to Design Agent for review.

L. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition to Design Agent for review.

M. Trim existing doors as necessary to clear new floor finish. Refinish trim as required.

N. Patch or replace portions of existing surfaces which are damaged, or showing other imperfections.

O. Finish surfaces as specified in individual product Sections, or as indicated on the Drawings.

1.08 STARTING AND ADJUSTING OF SYSTEMS

A. Coordinate schedule for starting and adjusting of various equipment and systems.

B. Notify Design Agent and Owner seven days prior to starting and adjusting of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.

D. Verify that tests, meter readings and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify wiring and support components for equipment are complete and tested.

F. Execute starting and adjusting under supervision of responsible Contractor's personnel or manufacturer's representative, in accordance with manufacturer's instructions.

G. Adjust operating Products and equipment to ensure smooth and unhindered operation.

H. When specified in individual specifications Section, require manufacturer to provide authorized representative to be present at the site to inspect, check, and approve equipment or system installation prior to starting, and to supervise placing of equipment or system in operation.

I. Submit a written report in accordance with Section 01400 that equipment or system has been properly installed and is functioning correctly.

1.09 DEMONSTRATION AND INSTRUCTIONS

A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.

B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manuals with Owner's personnel in detail to explain all aspects of operation and maintenance.

D. Demonstrate start-up, operation, control, adjustment, trouble shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled or agreed upon times, at equipment or system location.

E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.10 TESTING, ADJUSTING, AND BALANCING

A. Submit, for the Owner's approval, the name of an independent firm to perform testing of fire systems. The independent firm's services will be paid for by the Contractor.

B. The independent firm will perform services specified in individual specifications Sections.

C. Reports will be submitted by the independent firm to the Design Agent and the Owner indicating observations and test results, indicating compliance or non-compliance with specified requirements and with the requirements of the Contract Documents.

1.11 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

E. Repair or replace installed Work damaged by construction operations, as directed by the Design Agent.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION

01701 EXECUTION REQUIREMENTS - Attachment A

A. Daily Attendance Form

1. Maintain Daily Attendance Form acceptable to the Department of Labor and Training for all projects with a contract value over $1 Million. Submit as requested.

B. In subparagraph 1.04A, add “or pole placement” to the end of the sentence.

C. In paragraph 1.06, delete subparagraphs F and J.

D. Delete paragraph 1.10 and all its subsections.

ND OF ATTACHMENT

SECTION 01732

WASTE MANAGEMENT

PART 1 GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Owner requires that this project generate the least amount of trash and waste possible.

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
   1. Aluminum and plastic beverage containers.
   2. Corrugated cardboard.
   3. Wood pallets.
   4. Clean dimensional wood: May be used as blocking or furring.
   5. Land clearing debris, including brush, branches, logs, and stumps.
   6. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   7. Glass.
   8. Gypsum drywall and plaster.
   9. Plastic buckets.
   10. Paper, including wrapping, newsprint, and office.

E. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, incineration, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports. Submit in accordance with Section 01330.

F. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

G. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.

H. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 RELATED REQUIREMENTS

A. Section 01300 - Administrative Requirements: Additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. Section 01500 - Temporary Facilities and Controls: Additional requirements related to trash/waste collection and removal facilities and services.

C. Section 01600 - Product Requirements: Waste prevention requirements related to delivery, storage, and handling.

D. Section 01700 - Execution Requirements: Trash/waste prevention procedures related to

demolition, cutting and patching, installation, protection, and cleaning.

1.03 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.04 SUBMITTALS

A. See Section 01330 for submittal procedures.

B. Waste Management Plan: Include the following information:
   1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
   2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
   4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.

5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging.
6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.

C. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
2. Submit Report on a form acceptable to Owner.
3. Landfill Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
   c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
4. Incinerator Disposal: Include the following information:
   a. Identification of material.
   b. Amount, in tons or cubic yards, of trash/waste material from the project delivered to incinerators.
   c. State the identity of incinerators, total amount of fees paid to incinerator, and total disposal cost.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
5. Recycled and Salvaged Materials: Include the following information for each:
   a. Identification of material, including those retrieved by installer for use on other projects.
   b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
   c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
   d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
6. Material Reused on Project: Include the following information for each:
   a. Identification of material and how it was used in the project.
   b. Amount, in tons or cubic yards.
   c. Include weight tickets as evidence of quantity.
7. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 PRODUCTS (not used)

PART 3 EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01100 for list of items to be salvaged from the existing building for relocation in project or for Owner.

B. See Section 01300 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

C. See Section 01500 for additional requirements related to trash/waste collection and removal facilities and services.

D. See Section 01600 for waste prevention requirements related to delivery, storage, and handling.

E. See Section 01700 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Owner, Owner's Recycling and Solid Waste Coordinator, and Design Agent.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

Attachment A – 01733

A. No variations in this section for this Project.

END OF ATTACHMENT

SECTION 01780 - CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Closeout procedures.

B. Quality assurance.

C. Maintenance service.

D. Operations and maintenance manuals.

E. Materials and finishes manuals.

F. Equipment and systems manuals.

G. Spare parts and maintenance materials.

H. Product warranties and product bonds.

I. Project Record documents.

1.02 CLOSEOUT PROCEDURES

A. Submit a written certification that the Contract Documents have been reviewed, the Work has been inspected, and that the Work is complete in accordance with the Contract Documents and is ready for the Owner's review.

B. Provide submittals to Design Agent that are required by governing or other authorities, including
abatement invoices correctly prepared as proscribed in the abatement plan. Failure to include correctly prepared abatement invoices will delay issuing of final payment.

C. Provide submittals to Design Agent that are required by the governing or other authorities, including
the following closeout documents:
1. AIA Document G706 - Contractor's Affidavit of Payment of Debts and Claims
2. AIA Document G706A - Contractor's Affidavit of Release of Liens
3. AIA Document G707 - Consent of Surety to Final payment

D. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.

E. The Owner will occupy all portions of the building after Substantial Completion as specified in Section 01100.

1.03 QUALITY ASSURANCE

A. Employ personnel assembling submittals experienced in the maintenance and the operation of the described products and systems.

1.04 MAINTENANCE SERVICE

A. Submit a contract for furnishing service and maintenance of the components indicated in the specification Sections for one year from date of Substantial Completion, or during the warranty period, whichever period of time is the longest.

B. Provide for an examination of the system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

C. Include a systematic cleaning, examination, adjustment, and lubrication of the components. Repair or replace the parts whenever required. Use the parts produced by the manufacturer of the original component.

D. Do not assign or transfer the maintenance service to an agent or Subcontractor without the prior written consent of the Owner.

1.05 OWNER'S MANUALS

A. Submit the data for Operations and Maintenance, Materials and Finishes, and Equipment and Systems Manuals bound in 8-1/2 x 11 inch text pages, in minimum 2 inch size three D side ring commercial quality binders with durable cleanable plastic covers.

B. Prepare binder covers with the printed title of the manual, title of the project, and the subject matter of binder. Label each spine with the following: Building, project or facility name, OCP project number, submission date.

C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide with reinforced punched binder tab. Bind in with the text; fold the larger drawings to the size of the text pages.

E. Submit two copies of a preliminary draft of the proposed formats and outline of the contents before the start of work. The Design Agent and its consultants will review drafts and return one copy with comments.

F. Submit one copy of the completed volumes 15 days prior to final inspection for final review. This copy will be reviewed and returned after final inspection, with the Design Agent's comments. Revise the content of the document sets as required prior to final submission.

G. Submit three sets of revised final volumes plus electronic copy in final form within ten days after final inspection.

1.06 OPERATIONS AND MAINTENANCE MANUALS

A. Contents: Prepare the Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. **Part 1:** Directory, listing the names, addresses, and telephone numbers of the Design Agent, its Consultants, Contractor, Subcontractors, and major equipment suppliers.
   2. **Part 2:** Operation and maintenance instructions, arranged by system and subdivided by the specification Section. For each category, identify the names, addresses, and telephone numbers of the Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for [special] finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
   3. **Part 3:** Project documents and certificates, including the following:
      a. Shop drawings and product data.
      b. Air and water balance reports.
      c. Certificates.
      d. Originals of warranties and bonds.
   4. **Part 4:** Scan entire manual and provide 3 copies on disc in electronic PDF format.

1.07 MATERIALS AND FINISHES MANUALS

A. Building Products, Applied Materials, and Finishes: Include product data, with the catalog number, size, composition, and the color and texture designations. Include information for re-ordering custom manufactured products.

B. Instruction for Care and Maintenance: include manufacturer's instructions for cleaning agents and methods, precautions against detrimental agents and methods, and a recommended schedule for cleaning and maintenance.

C. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

D. Additional Requirements: As specified in the individual product specification Sections.

E. Include a listing in the Table of Contents for design data, with a tabbed flysheet and a space for the insertion of data.

1.08 EQUIPMENT AND SYSTEMS MANUALS

A. For equipment, or component parts of equipment put into service during construction and operated by the Owner, submit documents within 10 days after acceptance.

B. Each Item of Equipment and Each System: Include a description of the unit or system, and the component parts. Identify the function, normal operating characteristics, and limiting conditions. Include performance curves, with Design Agenting data and tests, and complete nomenclature and model number of replaceable parts.

C. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

D. Include color-coded wiring diagrams as installed.

E. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.

F. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

G. Include a servicing and lubricating schedule, and a list of lubricants required.

H. Include the manufacturer's printed operation and maintenance instructions.

I. Include sequence of operation by the controls manufacturer.

J. Include the original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

K. Include control diagrams by the controls manufacturer as installed.

L. Include the Contractor's coordination drawings, with color-coded piping diagrams as installed.

M. Include charts of valve tag numbers, with the location and function of each valve, keyed to the flow and control diagrams.

N. Include a list of the original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

O. Include test and balancing reports as specified in Section 01400.

P. Additional Requirements: As specified in the individual product specification Sections.

1.09 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products (attic stock) in the quantities specified in the individual specification Sections.

B. Deliver to the Project site and place in a location as directed by the Owner; obtain a receipt prior to final payment.

1.10 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in duplicate by the responsible subcontractors, suppliers, and manufacturers, within 10 days after the completion of the applicable item of work.

B. Execute and assemble the transferable warranty documents and bonds from the subcontractors, suppliers, and manufacturers.

C. Verify that the documents are in the proper form, contain full information, and are notarized.

D. Co-execute the submittals when required.

E. Include in the Operations and Maintenance Manuals within the appropriate material specification section.

F. Submit prior to the final Application for Payment. For items of Work for which acceptance is delayed beyond the Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty or bond period.

1.11 PROJECT RECORD DOCUMENTS

A. Maintain on the site one set of the following record documents; record actual revisions of the Work for all trades:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed Shop Drawings, Product Data, and Samples.
   6. Manufacturer's instructions for assembly, installation, and adjusting.

B. Ensure the entries are complete and accurate, enabling future reference by the Owner.

C. Store the record documents separate from the documents used for construction.

D. Record information concurrent with the construction progress, not less than weekly.

E. Specifications: Legibly mark and record at each product Section description of the actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record the actual construction including:
   1. Measured horizontal and vertical locations of the underground utilities and appurtenances, referenced to permanent surface improvements. Include the locations and description of any existing utility lines and other existing installations of any kind or description encountered during construction. Note all changes in size, material, location, and elevation of all new or abandoned underground utility lines and pertinent work, including site grading. Document topography and drainage changes. Show the location of all valves, manholes, etc. and include dimensions to permanent features such as building corners. Note direction of each new valve opening. Show clearances between new utilities and existing crossed lines. Locate all bends, thrust blocks, and other restraints.
   2. The placement, size, and type of any fire extinguishers.
   3. Measured locations of internal utilities and appurtenances concealed in the construction.
   4. Field changes of dimension and detail.
   5. Details not on the original Contract drawings.

G. Legibly marked Specifications, and legibly marked Record Drawings and Shop Drawings shall constitute the Project Record Documents in paper form.

H. At completion of the Work of the Contract, the Contractor shall retain competent drafting personnel to transfer the information from the Project Record Documents in paper form to editable electronic formats to create “As-Built” Documents on base files provided by the Design Agent. The record construction drawings shall be in both AutoCAD format plus a record PDF copy of each drawing. AutoCAD files shall include all XREF, font, image, shape, and plot files. PDF files shall be saved full sheet size. The record Project Manual shall be in Microsoft Word form plus a record PDF of the entire manual. The electronic media containing this information will constitute the Project Record Documents in digital form, sometimes referred to as the “As-Built” Documents. Acceptable media are write-protected CD-R format discs or flash drives. Submit one full size printed set of drawings and specifications on 20 lb. white bond made from the As-Built files in addition to the electronic media.

I. Associated materials including but not limited to the following are also required to be submitted at project close-out: shop drawings and cut sheets, RFIs, correspondence and meeting minutes, LEED scorecards, construction progress photographs, DEM permits including generator permits, certificates including Final Certificate of Occupancy, boiler and elevator certificates, easement rights, National Grid Rebate Applications, test and inspection documentation including fire pump test data, asbestos abatement plans and manifests. These materials may be

submitted in either paper or PDF digital format, organized by specification number, and clearly labeled. If paper copies are submitted, each box must be clearly labeled as to specific contents.

J. If the project required geotechnical, archeological, or other miscellaneous studies or other reports, these shall also be submitted as Record Document in either paper or digital format.

K. Labeling: In all cases, paper or digital submissions must contain the following information: Building, project or facility name, OCP Project number, submission date, and specific content index.

L. The Design Agent and its Consultants will review the Project Record Documents and compare them for accuracy and completeness, and if necessary return them to the Contractor for final correction. At the time of final submission, submit a claim for the final Application for Payment.

M. Abatement Invoices: Application for Payment must be accompanied with shipping documents for disposal of the abated material in compliance with the Abatement Plan.

N. No review or receipt of Project Record Documents by the Design Agent or the Owner shall be interpreted as a waiver of any deviation from the Contract Documents or Shop Drawings, or in any way relieve the Contractor from responsibility to perform the Work in accordance with the Contract Documents and the Shop Drawings.

O. Update the on-site Project Record Documents on a regular basis. Monthly payments will not be processed if Project Record Documents are not maintained up to date.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

01781 CLOSEOUT REQUIREMENTS - Attachment A

A. The following amendments are made to this Section in order to facilitate execution of smaller projects at URI. They apply to the work of this project. All portions of the specification Section not deleted or amended remain in full force and effect for this project.

B. Delete subparagraph 1.02 A. Additional certification is not required.

C. Delete lines1.02 C.1 and 3. Only the final release of liens remains as a requirement from this paragraph.

D. Delete paragraph 1.03. General knowledge of construction is sufficient.

E. Delete subparagraph 1.05 E. No preliminary submittal is required.

F. In subparagraph 1.11 F, end the first sentence after “construction”, and delete the lines 1 thru 5. Record changes to the work as clearly as possible to facilitate future work.

END OF ATTACHMENT

DIVISION 2 CONSTRUCTION

SECTION 02110

SITE PREPARATION AND DEMOLITION

PART 1 – GENERAL

1.1 Description

1.1.1 In general this work consists of the performance of actions that are required to clear and prepare the site for subsequent construction operations. These actions all have a common characteristic; they involve the removal and legal disposal of both designated vegetative materials and man-made objects and facilities. These actions include, but are not limited to, the following: clearing and grubbing; cutting and removing isolated trees and stumps; partial or complete removal of isolated tree stumps; trimming tree roots; masonry; pipe; rigid and flexible pavement; granite, concrete and bituminous curbing; fences and railings; guardrail of all types; underground and above-ground structures, miscellaneous items such as signs; and other obstructions or undesirable materials within the limits of disturbance. All such materials, objects and facilities shall be removed and legally disposed of.

PART 2 - PRODUCT

2.1 Materials. Not applicable

PART 3 – EXECUTION

3.1 Construction Methods

3.1.1 Refer to the applicable subsections of Section 201.03 of the R.I. Standard Specifications for guidance on removal and disposal of the various site preparation actions.

PART 4 – MEASUREMENT Not applicable

Part 5 – PAYMENT

5.1 Basis of Payment.

5.1.1 Site Preparation and Demolition for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for the construction of this project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02110 constitutes full and complete compensation for all labor, materials and equipment, for removing and legally disposing of all debris generated by site preparation and demolition actions, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

EROSION CONTROLS

PART 1 – GENERAL

1.1 Description. This work includes the provision of temporary perimeter erosion controls; and storm drainage protection erosion controls. Also included is the maintenance and cleaning and subsequent removal of all erosion controls. These controls shall be placed in reasonably close conformity with the layout and details indicated on the Plans, and as directed by the Engineer, all in accordance with these Specifications.

1.1.1 Perimeter Controls

.1 Baled Hay Erosion Checks consist of baled hay placed in line, each bale of which is embedded in the ground with a wood stake.

.2 Baled Hay Erosion Check and Silt Fence Combined consists of baled as described above with the addition of a silt fence. The silt fence consists of oak fence posts to which is fastened heavy duty plastic mesh.

1.1.2 Baled Hay Catch Basin Inlet Protection consists of placing baled hay around the inlets of catch basins.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Baled Hay Erosion Checks: Subsection 206.02.1.

2.1.2 Baled Hay Catch Basin Inlet Protection: Subsection 209.02.3.

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply:

3.1.1 Baled Erosion Checks; Subsection 206.03.1 and R.I. Standard 9.1.0.

3.1.3 Baled Hay Catch Basin Inlet Protection; Subsection 209.03.3, and R.I. Standard 9.8.0.

3.2 Cleaning and Maintaining Erosion Controls. The following, references to the R.I. Standard Specifications apply:

3.2.1 Baled Hay Erosion Checks, Silt Fence, and Baled Hay Erosion Checks and Silt Fence Combined: Subsection 212.03.1a

3.2.2 Baled Hay Ditch and Swale Erosion Checks: Subsection 212.01.2, and 212.03.1b (1)

3.2.3 Baled Hay Catch Basin Inlet Protection: Subsection 212.01.2, and 212.03.1d (3)

PART 4 – MEASUREMENT. Not applicable

PART 5 – PAYMENT

5.1 Basis of Payment.

5.1.1 Erosion Controls for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of this project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02130 constitutes full and complete compensation for all labor, materials and equipment for providing the various erosion controls, and for maintaining and cleaning the erosion controls, and for the subsequent removal of erosion controls; and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

EXCAVATION AND EMBANKMENT

PART 1 - GENERAL

1.1 Description. This work consists of excavation and the satisfactory placement and compaction of all materials encountered within the limits of the work and which are necessary for the construction of the project. Such excavation shall be in reasonably close conformity with the dimensions and sections indicated on the Plans or as directed by the Engineer. The Contractor shall be responsible for control of groundwater and all dewatering and control of operations.

1.1.1 Earth Excavation. Earth excavation shall include the removal of suitable and unsuitable soils and the removal of boulders and rock fragments less than 1 cubic yard in volume , from the following areas:

1.1.2 Excavation of Unsuitable Soils. Unsuitable soils shall include and are hereby defined as those soils, other than muck, which due to their consolidation properties, degree of saturation, graduation, or other deleterious characteristics will not provide a stable subgrade or side slopes; cannot be used as, or support embankment, or cannot be placed and compacted as backfill, or do not otherwise conform to the requirements of these Specifications.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Common Borrow; Subsection M.01.01

2.1.2 Gravel Borrow; Subsection M.01.02

2.1.3 Crushed Stone; Subsection M.01.09, Table I, Column II. Crushed stone shall be clean, washed, coarse aggregate consisting of 100% crushed bedrock, produced by crushing bedrock extracted from a single-source quarry location. Crushed quarry rock aggregate shall be processed separately from overburden soil deposits, and shall not contain crushed or uncrushed gravel, and shall be free of deleterious material, or soft, friable particles.

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply:

3.1.1 Excavation –General: Subsection 202.03.1. First three paragraphs.

3.1.2 Excavation of Unsuitable Materials: Subsection 202.03.1 (b).

3.1.3 Embankment Construction – General: Subsection 202.03.2.

3.1.4 Compaction – General: Subsection 202.03.3.

PART 4 - MEASUREMENT. Not applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Excavation and Embankment for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of the Project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02210 constitutes full and complete compensation for all labor, materials and equipment for making excavations and placing and compaction of embankments, dewatering, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

TRENCH AND MISCELLANIOUS EXCAVATION

PART 1 - GENERAL

1.1 Description. This work consists of excavation, dewatering, trench protection, and backfill, of all materials required for the construction of utility services and any other miscellaneous constructions in reasonably close conformity with the dimension and details indicated on the Plans or as directed by the Engineer, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials. Not applicable

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply.

3.1.1 Excavation of Trench: Subsection 205.03.1

3.1.2 Trench Protection: Subsection 205.03.2

3.1.3 Dewatering: Subsection 205.03.4

3.1.4 Backfill and Compaction: Subsection 205.03.5

PART 4 - MEASUREMENT. Not applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Trench and Miscellaneous Excavation for Tibbetts Athletic Field will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of the Project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02220 constitutes full and complete compensation for all labor, materials and equipment for making all trench and miscellaneous excavations, backfill and compaction thereof, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

EXCAVATION AND REMOVAL OF UNSUITABLE MATERIALS

PART 1 - GENERAL

1.1 Description. This work consists of the excavation of unsuitable soils and their subsequent removal to an approval off-site location, all as directed and approved by the Engineer.

1.1.1 Unsuitable soils shall include and are hereby defined as those soils, other than muck, which due to their consolidation properties, degree of saturation, gradation, or other deleterious characteristics will not provide a stable subgrade or side slopes; cannot be used as, or support embankment, or cannot be placed and compacted as backfill, or do not otherwise conform to the requirements of these Specifications.

PART 2 - PRODUCT

2.1 Not Applicable

PART 3 - EXECUTION

3.1 Where unsuitable soils are encountered within an excavated section, such excavation shall be suspended to allow to the removal of said unsuitable material. Removal shall proceed until a stable base is reached or as otherwise directed by the Engineer.

PART 4 – MEASUREMENT

4.1 Not applicable

Part 5 – PAYMENT

5.1 Basis of Payment

5.1.1 Excavation and Removal of Unsuitable Materials for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of this Project, complete. **Caveat** That part of the lump sum price that represents payment for the work of this Section 02230 constitutes full and complete compensation for all labor, materials and equipment for removal of such material and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

PAVED WATERWAYS

PART 1 – GENERAL

1.1 DESCRIPTION. This work consists of the removing and replacing paved waterways with gravel borrow base courses and bituminous concrete surfaces. Paved waterways shall be located at those locations indicated on the Plans and as directed by the Engineer, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Bituminous Concrete: Subsection M.03.01 for Class I-2 mix

2.1.2 Gravel Borrow: Subsection M.01.02.1

2.1.3 Bedding for Riprap: Subsection M.10.03.1; FS-2

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Bituminous Mixture Paving: A layer of gravel borrow shall be placed upon a prepared subgrade. This course shall be 6 inches thick such that it conforms to the proper grade and cross section after compaction.

The bituminous mixture shall be spread on the gravel borrow base prepared as herein specified and compacted by tamping or rolling to a finished depth of 3 inches, or such other depth as may be indicated on the Plans. The finished surface shall reasonably conform to the proposed lines, grades and cross sections. Refer to the details of Paved Waterways on the Plans.

PART 4 - MEASUREMENT. Not applicable

PART 5 – PAYMENT

5.1 Basis of Payment.

5.1.1 Paved Waterways for Tibbets Athletic Field will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of this project, complete. **Caveat:** The part of the lump sum price that represents payment for the work of this Section 02330 constitutes full and complete compensation for all labor, materials and equipment for providing all of the paved waterways indicated as the Plans, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

CAST-IN-PLACE REINFORCED CONCRETE

PART 1 - GENERAL

1.1 Description. This work consists of the provision of cast-in-place reinforced concrete for concrete pads, foundations, and miscellaneous structures at the locations and details indicated on the Plans and as directed by the Engineer, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Reinforcing Steel: Subsection M.05.01, Grade 60 and shall be epoxy coated

2.1.2 Concrete Subsection 601.01.1, Class XX.

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply:

3.1.1 Reinforcing Steel; Applicable requirements of: Subsection 810.03.01 (Schedules) 810.03.3 (Fabrication), 810.03.4 (Placing), and 810.03.5 (Drill and Grout Reinforcing Dowels).

3.1.2 Proportioning Concrete: Subsection 601.03.1 Table 2 for Class XX and HP.

3.1.3 Portland Cement Concrete: Applicable requirements of Subsection 808.03.2 (Footings), 808.03.4 (Forms), 808.03.5 (Placing Concrete) and 808.03.9 (curling).

PART 4 - MEASUREMENT. Not applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Cast-in-Place Reinforced Concrete for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of this Project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02410 constitutes full and complete compensation for all labor, materials and equipment for providing the reinforced concrete, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

BORROW AND AGGREGATES

PART 1 - GENERAL

1.1 Description. This work consists of providing borrows and aggregates for the various use in the construction of the Tibbetts Athletic Fields all according to the grades and details indicated on the Plans, and as directed by the Engineer, all according to these Specifications.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Common Borrow; Subsection M.01.01

2.1.2 Gravel Borrow shall conform to the requirements of Subsection M.01.02 and M.01.09, Col. 1 of the R.I. Standard Specifications.

2.1.3 Crushed Stone; Subsection M.01.09, Table I, Column II. Crushed stone shall be clean, washed, coarse aggregate consisting of 100% crushed bedrock, produced by crushing bedrock extracted from a single-source quarry location. Crushed quarry rock aggregate shall be processed separately from overburden soil deposits, and shall not contain crushed or uncrushed gravel, and shall be free of deleterious material, or soft, friable particles.

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Gravel Borrow Subbase Course shall conform to the requirements of Subsection 302.03 of the R.I. Standard Specifications.

PART 4 - MEASUREMENT. Not applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Borrow and Aggregates for Subbase Courses for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of the Project, complete. **Caveat;** That part of the lump sum price that represents payment for the work of this Section 02510 constitutes full and complete compensation for all labor, materials and equipment for providing the subbase materials, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

BITUMINOUS CONCRETE PAVEMENTS

PART 1 - GENERAL

1.1 Description. This work consists of providing temporary and permanent bituminous concrete base and surface courses on a prepared gravel subbase along those areas indicated on the Plans, as directed by the Engineer, all according to these Specifications.

PART 2 – PRODUCT

2.1 Materials. The following references to the R.I. Standard Specifications apply:

2.1.1 Bituminous Concrete Surface Course: Subsection M.03.01; Col. “Class I-1”

2.1.2 Bituminous Concrete Base Course: Subsection M.03.01, Col. “Base Course”.

PART 3 – EXECUTION

3.1 Construction Methods. The following references to the R.I. Standard Specifications apply:

3.1.1 Bituminous Concrete Pavements: Subsection 401.03.1

3.1.2 Trimming and Fine Grading: Subsections 204.01 and 204.03

PART 4 - MEASUREMENT.

4.1 Method of Measurement. Not Applicable.

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Bituminous Concrete Pavements for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum prices listed in the Bid Proposal Form for this project, complete. **Caveat**; That part of the lump sum price that represents payment for the work of this Section 02520 constitutes full and complete compensation for all labor, materials and equipment for placing bituminous pavement and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

CURBING

PART 1 - GENERAL

1.1 Description. This work consists of providing concrete and granite curbs of the various types, and removing and resetting existing curb at the locations indicated on the Plans and as directed by the Engineer, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials.

2.1.1 Granite and Concrete curb shall conform to the requirements of Section 906 Curbing for Roadways and Section M.09 Curbing of the R.I. Standard Specifications.

PART 3 – EXECUTION

3.1 Construction Methods. Conform to Section 906.03 of the R.I. Standard Specifications apply:

PART 4 - MEASUREMENT. Not Applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Curb for Tibbets Athletic Fields will not be paid for separately, but payment will included in the Lump Sum prices listed in the Bid Proposal Form for this Project, complete. **Caveat;** That part of the lump sum price that represents payment for the work of this Section 02530 constitutes full and complete compensation for all labor, materials and equipment for providing curbing work, and all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 Description. This work consists of furnishing and re-establishing impacted pavement markings at the widths and locations indicated on the Plans, and as directed by the Engineer, all in accordance with these Specifications.

1.1.1 Waterborne Pavement Markings shall be utilized for temporary pavement markings.

1.1.2 Epoxy Resin Pavement Markings shall be utilized for permanent pavement markings.

PART 2 – PRODUCT

2.1 Materials.

2.1.1 Temporary Waterborne Pavement Markings; Refer to Subsection M.17.02 of the R.I. Standard Specifications.

2.1.2 Epoxy Resin Pavement Markings: Refer to Subsection M.17.04 of the R.I. Standard Specifications.

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Temporary Waterborne Pavement Markings: Refer to Subsection T.20.03.3 of the R.I. Standard Specifications.

3.1.2 Epoxy Resin Pavement Markings: Refer to Subsection T.20.03.6 of the R.I. Standard Specifications.

PART 4 - MEASUREMENT. Not applicable

PART 5 – PAYMENT.

5.1 Basis of Payment.

5.1.1 Pavement Markings for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for this Project, complete. **Caveat;** That part of the lump sum price that represents payment for the work of this Section 02620 constitutes full and complete compensation for all labor, materials and equipment for providing pavement markings, including the removal of the temporary markings and all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

LOAM AND SEED

PART 1 - GENERAL

1.1 Description. This work consists of placing loam to the indicated lines, grades and depths, then preparing the seed bed, furnishing and spreading seed and establishing and maintaining grassed areas at the locations indicated on the Plans and as directed by the Engineer, all in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials.

2.1.1 Loam and/or Plantable Soil: Refer to Subsections M.18.01 and M.18.02 of the R.I. Standard Specifications.

2.1.2 Seed: The required seed mixtures shall be an athletic field mix Allen's Athletic 50/50 mix provided by Allens Seed, Exeter, Rhode Island or an approved equal.

PART 3 – EXECUTION

3.1 Construction Methods. Refer to the following subsection of the R.I. Standard Specifications.

3.1.1 Loam and/or Plantable Soil: Subsection L.01.03.1

3.1.2 Seed Dates: Subsection L.02.03.1

3.1.3 Preparation of Seed Beds: Subsection L.02.03.2 (a) and (e)

3.1.4 Sowing of Seed: Subsection L.02.03.5 (a)

3.1.5 Care during Construction Subsection L.02.03.7

PART 4 - MEASUREMENT. Not applicable

PART 5 - PAYMENT

5.1 Basis of Payment.

5.1.1 Loam and Seed for Tibbets Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of this project, complete. **Caveat;** That part of the lump sum price that represents payment for the work of this Section 02810 constitutes full and complete compensation for all labor, materials and equipment for establishing the grassed areas, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

CHAIN LINK FENCE

PART 1 - GENERAL

1.1 Description. This work consists of providing woven wire fence of the chain link design, including gates, posts and post foundations, hardware and appurtenances, of various types and configurations at the transformer pad all as directed by the Engineer and in accordance with these Specifications.

PART 2 – PRODUCT

2.1 Materials.

2.1.1 Chain link fence and required fittings and hardware shall conform to the requirements of Subsection M.08.02 of the R.I. Standard Specifications.

2.1.2 Steel posts shall conform to the requirements of Subsection M.08.07.2 of the R.I. Standard Specifications.

PART 3 – EXECUTION

3.1 Construction Methods.

3.1.1 Chain link fence shall be galvanized and shall conform to the details of R.I. Standard 31.2.0.

3.1.2 General. Construction of chain link fences shall conform to the following Subsections of Section 903 of the R.I. Standard Specifications.

- **.1** General, Subsection 903.03.1
- **.2** Installing Post; Subsection 903.03.2
- **.3** Installing Fabric; Subsection 903.03.3
- **.4** Braces; Subsection 903.03.4
- **.5** Gates; Subsection 903.03.5

PART 4 - MEASUREMENT. Not applicable

PART 5 – PAYMENT.

5.1 Basis of Payment.

5.1.1 Chain Link Fence for Tibbet's Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of the Project, complete. **Caveat;** That part of the lump sum price that represents payment for the of this Section 02910 constitutes full and complete compensation for all labor, materials and equipment for providing the chain link fences and gates, and for all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

BASIC ELECTRICAL MATERIALS AND METHODS

PART 1 - GENERAL

1.1 Summary

1.1.1 This Section includes the following:

- **.1** Work that applies to all sections of DIVISION 16
- **.2** Temporary electrical wiring
- **.3** Supporting devices for electrical components
- **.4** Electrical metering components
- **.5** Electrical services

1.2 Related Documents

1.2.1 The General Conditions, Supplementary Conditions, and applicable portions of Division 1 of the specification are part of this section which shall consist of all labor, equipment, materials and other costs necessary to complete all **BASIC ELECTRICAL MATERIALS AND METHODS** work indicated on the drawings, herein specified or both.

1.3 RELATED WORK SPECIFIED UNDER OTHER SECTIONS: (Read these DIVISIONS carefully. For purposes of bidding, assume that all work of the DIVISION referenced is to be performed under that DIVISION unless specifically indicated therein to be performed under the ELECTRICAL DIVISION.)

1.3.1 Excavation and backfilling - see DIVISION 2.

1.3.2 Concrete - see DIVISION 3.

1.3.3 Manholes and handholes - see DIVISION 3.

1.4 DEFINITIONS

1.4.1 Provide: Furnish and install.

1.4.2 Wiring: Wire, raceways, boxes and fittings.

1.5 SUBMITTALS

1.5.1 Product Data: For each product indicated

1.5.2 Shop Drawings: Wiring and connection diagrams

1.5.3 Manufacturers: Where the drawings or specifications list specific brands or catalog numbers, only these products may be used unless the words: “or approved equal” or “but are not limited to” are included.

1.5.4 Limitations of approval: The Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Engineer's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Engineer in writing of such deviation, in a separate cover letter on Contractor's letterhead, at the time of submittal and the Engineer has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Engineer's approval thereof.

1.5.5 Contractor's responsibility: It is the responsibility of the Contractor to check all dimensions and details on shop drawings, before submission to the Engineer, reject same if necessary and only forward to the Engineer shop drawings which he is reasonably certain fulfill the requirements of the contract documents and the work. The approval of shop drawings by the Engineer shall be general only in character and not mean dimensions on drawings have been checked, and will in no way relieve the Contractor of the responsibility for proper fitting and construction of the work, nor from the necessity of furnishing materials or doing the work required by the drawings and/or specifications, which may not be indicated on the shop drawings when approved. All shop drawings shall be checked by the Contractor, and must bear the Contractor's stamp of approval; drawings submitted without this stamp of approval will not be considered.

.1 Samples: Provide all samples requested by the Engineer.

1.5.6 Tests: Test the complete installation to prove it free from shorts, grounds, opens and faulty connections. Make any corrections necessary before acceptance.

.1 Test each function of each system including each device.

1.5.7 Fault Current/Coordination Study: Provide a "Fault Current" and "Coordination Study" for the electrical distribution equipment for this project. Submit as part of the shop drawing review.

1.5.8 Certification: Upon request, provide "Certification" (by a recognized testing agency or a Professional Engineer registered in the state where the project is located) that submitted items of equipment are suitable for their intended use.

1.5.9 Record of Addenda and Change Orders: To avoid overlooking addenda and change order modifications, mark all changes on all copies of drawings and specifications, in a manor acceptable to the Engineer. One method of accomplishing this is to make copies and tape them on the back of the preceding page (tape all edges). Also, circle the changed area and note: see addenda #1, etc. If whole pages or sheets change, either remove the superseded document or put a bold **"X"** through it.

1.5.10 Record Drawings: Owner's record drawings shall be updated as the project progresses. Maintain documents in a safe, dry location. Indicate clearly and accurately any changes necessitated by field conditions and dimension all raceways built into or under concrete slabs or buried under ground. Contractor to prepare as-built drawings in CAD format at contractor's expense. Contract drawings in CAD format to be furnished to contractor at no cost to

contractor. Contractor to provide two compact discs and two hard copies of final as-built drawings.

1.5.11 Operating Instructions and Manuals: Provide the Owner or his representative with complete operating instructions by qualified personnel of all electrical systems. Provide three (3) bound sets (indexed and bound in three sturdy three-ring binders) of operating and maintenance instructions of all electrical systems employed and all shop drawings.

1.5.12 Manuals: Provide one (1) extra bound set of all shop drawings. Bind in a sturdy 3-ring binder.

1.5.13 Letter of Confirmation: Include in the above manuals a letter confirming that the following items have been completed. Provide written receipt signed by the Owner or his representative indicating that the first 2 items listed below have been received.

- **.1** Keys have been provided for all locked electrical equipment.
- **.2** The provisions of the "Operating Instructions and Manuals" paragraph of these specifications have been met.
- **.3** Identification is complete and in accordance with these specifications.
- **.4** As-built electrical drawings have been completed and submitted.
- **.5** All tests are complete and in accordance with these specifications.
- **.6** All required shop drawings have been submitted and approved.
- **.7** The entire installation has been accepted by all authorities.

1.6 Quality Assurance

1.6.1 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.6.2 Do all wiring and provide all equipment in accordance with the prevailing issue of the National Electrical Code, State Building Code, State Fire Code, OSHA and any additional local rules or requirements.

1.6.3 Obtain and pay for all necessary permits, certificates, etc. Present satisfactory proof of final inspection and approval by all inspection authorities.

1.6.4 Consider the following Industry Standards as minimum requirements for all materials, equipment and systems where such standards are established for materials in question:

- **.1** National Electrical Manufacturers Association
- **.2** Institute of Electrical and Electronic Engineers
- **.3** A nationally recognized testing laboratory (UL, ETL, etc.)
- **.4** Factory Mutual

1.6.5 Where applicable, this installation shall comply with the following NECA (National Electrical Contractors Association) “National Electrical Installation Standards.” Except, if there is

a conflict between this specification and these standards, the requirements of this specification shall prevail.

.1 NECA 1-2000 Standard Practices for Good Workmanship in Electrical Contracting
.2 NECA 101-2001 Standard for Installing Steel Conduit (Rigid, EMT)
.3 NECA 400-1998 Recommended Practice for Installing and Maintaining Switchboards
.4 NECA/IESNA 501-2000 Recommended Practice for Installing Exterior Lighting Systems

1.7 Coordination

1.7.1 Coordinate chases, slots, inserts, sleeves, and openings for electrical supports, raceways, and cable with general construction work.

1.7.2 Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work. Coordinate installing large equipment that requires positioning before closing in the building.

1.7.3 Coordinate electrical service connections to components furnished by utility companies.

1.8 Scheduling and Shutdowns:

1.8.1 All work must be scheduled to allow the least interference with the normal operation of the existing facility. Schedule must be arranged to meet the approval of the Owner. All shutdowns of services (power) must be approved in writing by the Owner.

1.8.2 All "shutdowns" must be done at other than normal working hours without additional compensation.

1.9 Change Orders/Proposal Requests:

1.9.1 During the course of construction, changes in the work may occur. When a significant change is to be made, a Proposal Request will be issued.

1.9.2 Provide a complete cost breakdown when responding to each Proposal Request.

1.9.3 Each item of work to be priced separately.

1.9.4 Each line item to be broken down including quantities and listing separately labor and material.

1.9.5 Both credits and extras shall be separately and clearly quantified.

1.9.6 Allowances for overhead and profit shall be as listed in the supplementary conditions.

1.9.7 If you become aware of a field condition, code requirement, error, or omission that you feel should result in a change to the work, please contact the Engineer for discussion. The Engineer may be able to clarify the situation and avoid unnecessary paperwork.

1.9.8 It is recognized that the Owner benefits when the construction process is a cooperative effort instead of an adversarial relationship. Reasonable give-and-take allows the construction process to move smoothly. Your efforts in this regard will be appreciated by all parties.

1.10 Packaged Prices:

1.10.1 It is in the facility owner's interest, that all bidders receive the best possible quotes on all materials during bidding so that any savings can result in a lower bid price. It is the policy of this Engineer not to specify brands that will result in "packaged" prices. Therefore, manufacturers' representatives are hereby notified that "packaged prices" are prohibited on this project. Upon request, suppliers are to provide bidders with complete material breakdown including each lighting fixture, system, component of system, each piece of equipment, etc. In keeping with this policy, Contractors are hereby cautioned not to anticipate deep discounts after the contract is awarded.

1.11 Inspections/Site Observations

1.11.1 The authority having jurisdiction (usually the Municipal Electrical Inspector) shall be notified at periodic intervals that an inspection is requested.

1.11.2 Do not cover the work before the Engineer has had a chance to observe it in completed form. The electrical foreman shall request a meeting with the Engineer within 10 days after the start of electrical construction to assure that there is agreement on the scope of work and to answer questions.

1.11.3 The electrical foreman shall provide assistance to the Engineer during site observations:

- **.1** Describe the progress of the electrical work in detail.
- **.2** Accompany the Engineer on his tour of the site, upon request.
- **.3** Provide use of a suitable ladder, scaffolding or bucket truck to observe the work, upon request.
- **.4** Remove panel trims, junction box covers, etc. for observation of the work, upon request.
- **.5** Provide use of project drawings, specifications and shop drawings.

1.12 Guarantees/Warranties:

1.12.1 See other portions of the Project Manual for details on Guarantees and Warranties. However, minimum shall be one year from date of acceptance by the Engineer.

1.12.2 The Owner reserves the right to make appropriate modifications or extensions of systems and equipment furnished under this contract during the guarantee/warranty period without "voiding" or modifying the guarantee/warranty of equipment and wiring installed under this contract. If manufacturer voids guarantee, it shall not relieve this contractor of his responsibilities for guarantee/warranty period.

1.13 Miscellaneous

1.13.1 Provide all systems complete. Drawings and Specifications form complementary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both.

1.13.2 Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.

1.13.3 All wiring and connections to be done with associated circuit de-energized.

PART 2 - PRODUCTS

2.1 Materials - General:

2.1.1 All materials and equipment to be new unless specifically stated otherwise.

2.1.2 Materials and equipment shall be suitable for their intended use and for the environment in which they are installed. For example, equipment located outside shall be weatherproof and constructed of materials that will not rust. This includes brackets, screws, etc.

2.1.3 Coordinate all dimensions to make sure that boxes, raceways, equipment, fixtures, etc., fit properly in the finished construction. If special provisions, such as shallow boxes, are required, they shall be provided at no increase in contract price, regardless of catalog numbers listed in contract documents or on shop drawings.

2.1.4 As it is not practical to enumerate in these specifications (or show on the drawings) all details of fittings and accessory equipment required for proper operation of the various electrical systems herein described, it is understood that they will be supplied without extra compensation. Provide all fittings, terminations, relays, components of panels and equipment, etc., needed for the best performance possible at the present state-of-the-art.

2.2 Supporting Devices

2.2.1 Material: Cold-formed steel, with corrosion-resistant coating.

2.2.2 Metal Items for Use Outdoors or in Damp Locations: Hot-dip galvanized steel.

2.2.3 Slotted-Steel Channel: Flange edges turned toward web, and 9/16-inch- (14-mm-) diameter slotted holes at a maximum of 2 inches (50 mm) o.c., in webs. Strength rating to suit structural loading.

2.2.4 Slotted Channel Fittings and Accessories: Recommended by the manufacturer for use with the type and size of channel with which used.

.1 Materials: Same as channels and angles, except metal items may be stainless steel.

2.2.5 Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, ceiling trapeze hangers, wall brackets, and spring-steel clamps or click-type hangers.

2.2.6 Pipe Sleeves: ASTM A 53, Type E, Grade A, Schedule 40, galvanized steel, plain ends.

2.2.7 Cable Supports for Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug for nonarmored electrical cables in riser conduits. Plugs have number and size of conductor gripping holes as required to suit individual risers. Body constructed of malleable-iron casting with hot-dip galvanized finish.

2.2.8 Expansion Anchors: Carbon-steel wedge or sleeve type.

2.2.9 Toggle Bolts: All-steel springhead type.

2.3 Electrical Identification

2.3.1 Identification Device Colors: Use those prescribed by ANSI A13.1, NFPA 70, and these Specifications.

2.3.2 Colored Adhesive Marking Tape for Wires and Cables: Self-adhesive vinyl tape, not less than 1 inch wide by 3 mils thick (25 mm wide by 0.08 mm thick).

2.3.4 Tape Markers for Conductors: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

2.3.5 Underground Warning Tape: Permanent, bright-colored, continuous-printed, vinyl tape compounded for permanent direct-burial service, and with the following features:

.1 Not less than 6 inches wide by 4 mils thick (150 mm wide by 0.102 mm thick).
.2 Embedded continuous metallic strip or core.
.3 Printed legend that indicates type of underground line.

2.3.6 Engraved-Plastic Labels, Signs, and Instruction Plates: Engraving stock, melamine plastic laminate punched or drilled for mechanical fasteners 1/16-inch (1.6-mm) minimum thickness for signs up to 20 sq. in. (129 sq. cm) and 1/8-inch (3.2-mm) minimum thickness for larger sizes. Engraved legend in black letters on white background, unless otherwise indicated.

2.3.7 Warning and Caution Signs: Preprinted; comply with 29 CFR 1910.145, Chapter XVII. Colors, legend, and size appropriate to each application.

.1 Interior Units: Aluminum, baked-enamel-finish, punched or drilled for mechanical fasteners.
.2 Exterior Units: Weather-resistant, nonfading, preprinted, cellulose-acetate butyrate with 0.0396-inch (1-mm), galvanized-steel backing. 1/4-inch (6-mm) grommets in corners for mounting.

2.3.8 Fasteners for Nameplates and Signs: Self-tapping, stainless-steel screws or No. 10/32 stainless-steel machine screws with nuts and flat and lock washers.

2.4 Equipment For Electricity Metering

2.4.1 Provide a new meter socket and demand meter, with associated current transformers and associated wiring. Mount meter socket on pad mounted transformer.

2.5 Concrete Bases

2.5.1 Concrete Forms and Reinforcement Materials: As specified in Division 3 Section "Cast-in-Place Concrete.

2.5.2 Concrete: 3000-psi (20.7-MPa), 28-day compressive strength.

PART 3 - EXECUTION

3.1 Electrical Equipment Installation

3.1.1 Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom.

3.1.2 Materials and Components: Install level, plumb, and parallel and perpendicular to other building systems and components, unless otherwise indicated.

3.1.3 Equipment: Install to facilitate service, maintenance, and repair or replacement of components. Connect for ease of disconnecting, with minimum interference with other installations.

3.1.4 Right of Way: Give to raceways and piping systems installed at a required slope.

3.2 Layouts

3.2.1 The electrical system layouts indicated are generally diagrammatic and locations of equipment are approximate only; govern exact routing of wiring and equipment by existing conditions and obstructions. This is not to be construed to permit redesigning systems. Interconnect as shown.

3.2.2 Locate all equipment requiring maintenance and operation so that it will be readily accessible. The right is reserved to make any reasonable change in location of equipment prior to roughing-in without involving additional expense. This may involve slightly longer wiring runs, longer stems, additional mounting provisions, etc. Allow for this in your bid because additional compensation will not be provided. Items not specifically located on the plans shall (for the purposes of bidding) be assumed to be in the farthest, most difficult location. Exact location to be as directed in the field.

3.3 Electrical Service: (277/480V.)

3.3.1 Provide complete electrical service conforming to all requirements of the National Electric Code.

3.3.2 Service to be as indicated on the drawings.

3.3.3 Provide all terminations and torque as directed by Manufacturer's recommendations.

3.3.4 Service voltage to be 277/480 volts, 3 phase, 4 wire.

3.4 Electrical Service: (Existing)

3.4.1 Existing electrical service shall remain.

.1 Service voltage is 120/240 volts, single phase, three wire.
.2 Service voltage is 120/208 volts, three phase, four wire.
.3 Service voltage is 277/480 volts, three phase, four wire.

3.4.2 Conform to all requirements of the local electrical utility company, municipality and state.

3.5 Electrical Supporting Device Application

3.5.1 Damp Locations and Outdoors: Hot-dip galvanized materials, slotted channel system components.

3.5.2 Dry Locations: Steel materials.

3.5.3 Strength of Supports: Adequate to carry present and future loads, times a safety factor of at least four with, 200-lb (90-kg) minimum design load for each support element.

3.6 Support Installation

3.6.1 Secure electrical items and their supports to building structure, using the following methods unless other fastening methods are indicated:

.1 Wood: Wood screws or screw-type nails.
.2 New Concrete: Concrete inserts with machine screws and bolts.
.3 Structural Steel: Welded threaded studs or Spring-tension clamps.

a. Comply with AWS D1.1 for field welding.

.4 Fasteners for Damp, Wet, or Weather-Exposed Locations: Stainless steel.
.5 Light Steel: Sheet-metal screws.
.6 Fasteners: Select so load applied to each fastener does not exceed 25 percent of its proof-test load.

3.7 Identification Materials and Devices

3.7.1 Provide typewritten directories, not smaller than 5" x 7", mounted under clear plastic affixed to the inside surface of all door-in-trim panels. Information shall include circuit numbers, type of load served and location of load served. For example: #1 Receptacles in rooms 5 & 6.

3.7.2 Label the exterior of switchgear, power and lighting panels, and cabinets.

3.7.3 Coordinate names, abbreviations, colors, and other designations used for electrical identification with corresponding designations indicated in the Contract Documents or required by codes and standards. Use consistent designations throughout Project.

3.7.4 Tag and label circuits designated to be extended in the future. Identify source and circuit numbers in each cabinet, pull and junction box, and outlet box.

3.7.5 Install continuous underground plastic marker tape with foil back during trench backfilling, for exterior underground power, control, signal, and communication lines located directly above power and communication lines. Locate 12 inches above the underground installation. If width of multiple lines installed in a common trench or concrete envelope does not exceed 16 inches (400 mm), overall, use a single line marker.

3.7.6 Install warning, caution, and instruction signs where required to comply with 29 CFR 1910.145, Chapter XVII, and where needed to ensure safe operation and maintenance of electrical systems and of items to which they connect. Indoors install engraved plastic-laminated instruction signs with approved legend where instructions are needed for system or equipment operation. Install metal-backed butyrate signs for outdoor items.

3.8 Color Code:

3.8.1 Secondary service, feeders, and branch circuit conductors shall be color-coded as follows:

Phase	208/120 Volts	480/277 Volts
A	Black	Brown
B	Red	Orange
C	Blue	Yellow
Neutral	White	Gray
Ground	Green	Green

3.8.2 Permanently post at each panel.

3.9 Sequence and Balance:

3.9.1 Maintain correct phase sequence of all feeders and circuits by establishing phase identification and maintaining correct relationship throughout the system. Provide line balance within 10% of normal loads.

3.10 Cleaning and Refinishing:

3.10.1 Thoroughly clean all new electrical equipment, devices and enclosures upon completion of all work.

3.10.2 Refinish any new electrical equipment whose finish is damaged or rusted, as determined by the Engineer.

END OF SECTION

UNDERGROUND DUCTS AND UTILITY STRUCTURES

PART 1 – GENERAL

1.1 Summary

1.1.1 Scope of Specification

.1 This Section includes underground conduits and ducts, duct banks, pull boxes and handholes, manholes, and other underground utility structures.
.2 Products furnished but not installed under this Section include pulling eyes, cable stanchions, cable arms, and insulators.

1.1.2 Related Specifications

.1 Drawing and general provisions of the Contract, including general and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.
.2 Related Sections: The following Sections contain requirements that relate to this Section:

a. Division 2 Section for general requirements for excavation, backfill and related items for ducts, manholes, and handholes.
b. 03300 – “Cast-In-Place Concrete” for cast-in-place concrete requirements.
c. 07111 – “Sheet Applied Elastomeric Membrane Waterproofing” for waterproofing of manholes and handholes.
d. Division 7 Section for dampproofing of manholes and handholes.

1.1.3 Definitions

.1 Duct: Electrical conduit and other raceway, either metallic or nonmetallic, used underground, embedded in earth or concrete.
.2 Duct Bank: 2 or more conduits or other raceway installed underground in the same trench or concrete envelope.
.3 Handhole: An underground junction box in a duct or duct bank.
.4 Manhole: An underground utility structure, large enough for a person to enter, connecting with ducts to afford to facilities for installing and maintaining cables.
.5 Vault: An underground utility structure, large enough for a person to enter, connecting with ducts to afford facilities for installing, operating, and maintaining equipment and wiring.

1.1.4 Applicable Standards

.1 NFPA 70 – “National Electric Code”
.2 UL 1990 – “Underground Conduit, Non Metallic”
.3 ASTM C 858 – “Underground Precast Concrete Utility Structures”
.4 ASTM C1037 – “Inspection of Underground Precast Concrete Utility”

.5 ASTM C857- “Minimum Structural Design, Loading for Underground Precast Concrete Utility structures”
.6 Conduit Standards listing in Section 2.2

1.1.5 Submittals

.1 General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.
.2 Product data for metal accessories for manholes and handholes, conduit and duct, duct bank materials, and miscellaneous components.
.3 Shop drawings showing details and design calculations for precast manholes and handholes, including reinforcing steel. Stamp drawings with seal of registered professional structural engineer.
.4 Certificate for concrete and steel used in underground precast concrete utility structures, according to ASTM C 858.
.5 Inspection report for factory inspections, according to ASTM C 1037.
.6 Coordination drawings showing duct profiles and coordination with other utilities and underground structures. Include plans and sections drawn to accurate scale.
.7 Qualification data for firms and persons specified in “Quality Assurance” Article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architect and Owner, and other information specified.
.8 Field test reports indicating and interpreting test results relative to compliance with performance requirements of “Field Quality Control” Article in Part 3 of this Section.
.9 Record Documents: Show dimensioned locations of underground ducts, handholes, and manholes.

1.1.6 Quality Assurance

.1 Manufacturer Qualifications: Firm experienced in manufacturing underground precast concrete utility structures of types and sizes required and similar to those indicated for this project. Firm must have a record of successful in-service performance.
.2 Comply with NFPA 70 “National Electrical Code” and ANSI C2 “National Electrical Safety Code” for components and installation.
.3 Listing and Labeling: Provide products specified in this Section that are listed and labeled.

a. The Terms “Listed “ and “Labeled”: As defined in the “National Electrical Code,” Article 100.
b. Listing and Labeling Agency Qualifications: A “Nationally Recognized Testing Laboratory” (NRTL) as defined in OSHA Regulation 1910.7.

.4 Coordinate layout and installation of ducts, manholes, and handholes with final arrangement of other utilities ads determined in the field.
.5 Coordinate elevations of duct and duct bank entrances into manholes and handholes with final profiles of conduits as determined by coordination with other utilities and underground obstructions. Revise locations and elevations from those indicated as

required to suit field conditions and ensure duct runs drain to manholes and handholes, and as approved by the Architect.

1.1.7 Delivery, Storage and Handling

.1 Deliver ducts to site with ends capped. Store nonmetallic ducts with supports to prevent bending, warping, and deforming.
.2 Store precast concrete units at site as recommended by manufacturer to prevent physical damage. Arrange so identification markings are visible.
.3 Lift and support precast concrete units only at designated lifting or supporting points.

1.1.8 Extra Materials

.1 Furnish extra materials matching products installed, packaged with protective covering for storage and with identification labels clearly describing contents.
.2 Furnish cable stanchions, support arms, insulators, and associated fasteners each in quantities equal to 5 percent of quantities installed.

PART 2 - PRODUCTS

2.1 Manufacturers

2.1.1 Available Manufacturers: Subject to compliance with requirements, manufacturers offering the specified products that may be incorporated in the Work include, but are not limited to the following:

.1 Underground Precast Concrete Utility Structures:

a Precast Division; Carder Concrete Products.
b Christy Concrete Products, Inc.
c Elmhurst-Chicago Stone Co.
d Riverton Concrete Products.
e Rotondo & Sons, Inc.
f Rotondo/Penn-Cast, Inc.
g Smith-Midland Corp.
h Utility Vault Co.
i Wausau Concrete Co.

.2 Frames and Covers:

a Campbell Foundry Co.
b East Jordan Iron Works, Inc.
c McKinley Iron Works, Inc.
d Neenah Foundry Co.

.3 Nonmetallic Ducts:

a Arnco Corp.

b Breeze-Illinois, Inc.
c CANTEX, Inc.
d Carlon; Lamson & Sessions Company
e Pipe & Plastic Group; Certainteed Products Corp.
f Cole-Flex Corp.
g Electri-Flex Co.
h Spiraduct, Inc.

2.2 Conduit and Duct

2.2.1 Rigid Steel Conduit: ANSI C80.1, galvanized.

2.2.2 Plastic-Coated Rigid Steel Conduit and Fittings: NEMA RN 1.

2.2.3 Rigid Plastic Conduit: NEMA TC 2, Schedule 40 PVC, rated for use with 90 deg. C conductors under all installation conditions.

2.2.4 PVC Conduit and Tubing Fittings: NEMA TC 3.

2.2.5 Rigid Plastic Underground Conduit: UL 651A, Type A PVC.

2.2.6 Rigid Plastic Underground Conduit: UL 651A, Type EB PVC.

2.2.7 Rigid Plastic Underground Conduit: High-density polyethylene, Schedule 40.

2.2.8 Rigid Plastic Underground Conduit: Fiberglass-reinforced epoxy.

2.2.9 Plastic Utilities Duct: NEMA TC 6.

2.2.10 Plastic Utilities Duct Fittings: NEMA TC 9; match to duct type and material.

2.2.11 Plastic Communication Duct and Fittings: NEMA TC 10.

2.2.12 Manufactured Bends: Not less than 36-ich (900 mm) radius.

2.2.13 Coilable Plastic Duct: NEMA TC 12.

2.3 Handholes

2.3.1 Fiberglass Handholes: Molded fiberglass, sized as indicated on drawings. Provide heavy duty weatherproof cover with nonskid finish.

2.3.2 Cover Legend: ELECTRIC.

2.4 Underground Precast Concrete Utility Structures

2.4.1 Precast Units: Interlocking, mating sections, complete with accessory items, hardware, and features as indicated. Include concrete knockout panels for conduit entrance and sleeve for ground rod.

2.4.2 Design structure according to ASTM C 858.

2.4.3 Structural Design Loading: ASTM C 857, Class A-16.

2.4.4 Fabricate according to ASTM C 858.

2.4.5 Joint Sealant: Continuous extrusion of asphaltic butyl material with adhesion, cohesion, flexibility, and durability properties necessary to withstand the maximum hydrostatic pressures at the installation location with the ground water level at grade.

2.4.6 Source Quality Control: Inspect structures according to ASTM C 1037.

2.5 Accessories

2.5.1 General

- **.1** Furnish removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, for installation under another Contract. For each manhole/handhole furnish 1 stanchion for each 30 linear inches (750 mm) of interior floor perimeter. In addition, furnish 1 arm for each stanchion, 3 insulators for each arm, and a total of 3 pulling eyes. Furnish materials complete with associated fasteners, packaged with protective covering for storage and with identification labels clearly describing contents.
- **.2** Duct Supports: Rigid PVC spacers selected to provide minimum duct spacings and concrete cover depths indicated, while supporting ducts during concreting.
- **.3** Frames and Covers: Cast iron with cast-in legend ELECTRIC. Machine cover-to-frame bearing surfaces.
- **.4** Sump Frame and Grate: Comply with FS RR-F-621, Type VII for frame and Type I for cover.
- **.5** Pulling Eyes in Walls: Eyebolt with reinforcing bar fastening insert. 2-inch (50 mm) diameter eye, 1-inch (25 mm) by 4-inch (100 mm) bolt. Working load embedded in 6-inch (150 mm), 4000 psi (27.6 Mpa) concrete: 13,000 pounds minimum tension.
- **.6** Pulling and Lifting Irons in Floor: 7/8-inch-diameter (21 mm), hot-dipped galvanized, bent steel rod, stress relieved after forming, and fastened to reinforced rod. Exposed triangular opening. Ultimate yield strength: 40,000 pounds shear and 60,000 pounds tension.
- **.7** Bolting Inserts for Cable Stanchions: Flared, threaded inserts of noncorrosive, chemical resistant, nonconductive thermoplastic material; ½-inch (12 mm) internal diameter by 2-3/4 inches (68 mm) deep, flared to 1-1/4 inch (30 mm) minimum at base. Tested ultimate pull-out strength: 12,000 pound minimum.
- **.8** Expansion Anchors for Installation After Concrete is Cast: Zinc-plated carbon steel wedge type with stainless-steel expander clip ½-inch (12 mm) bolt size, 5300-pound rated pull-out strength, and 6800 –pound rated shear strength minimum.
- **.9** Cable Stanchions: Hot-rolled, hot-dipped galvanized “T” section steel, 2-1/4-iinch (56 mm) size, punched with 14 holes on 1-1/2-inch (35 mm) centers for cable arm attachment.

.10 Cable Arms: 3/16-inch (5 mm) thick hot-rolled, hot-dipped galvanized sheet steel pressed to channel shape, approximately two 12 inches (300 mm) wide by 14 inches (350 mm) long and arranged for secure mounting in horizontal position at any position on cable stanchions.

.11 Cable Support Insulators: High glaze, wet-process porcelain arranged for mounting on cable arms.

.12 Ground Roads: Solid copper clad steel, ¾-inch (18 mm) diameter by 10-feet (3 m) length.

.13 Ground Wire: Stranded bare copper, No.6 AWG minimum.

.14 Ladder: UL-listed, heavy-duty wood, specifically designed for electrical manhole use. Minimum length equal to the distance from the deepest manhole floor to grade plus 3 feet (1 m).

.15 Duct Sealing Compound: Non-hardening, safe for human skin contact, not deleterious to cable insulation, workable at temperatures as low s 35 deg. F (1 deg C), withstands temperature of 300 deg F (149 deg C) without slump, and adheres to clean surfaces of plastic ducts, metallic conduits, conduit coatings, concrete, masonry, lead, cable sheaths, cable jackets, insulation materials, and the common metals.

2.6 Construction Materials

2.6.1 Dampproofing: Conform to Division 7 Section “Bituminous Dampproofing”.

2.6.2 Waterproofing: Conform to 07111 “Sheet Membrane Waterproofing.”

2.6.3 Brick: Conform to ASTM C 55, concrete brick Type I, Grade N.

2.6.4 Mortar: Conform to ASTM C 270, Type M, except for quantities less than 2.0 cr. Ft. (60 L), where packaged mix complying with ASTM C 387, Type M may be used.

2.6.5 Concrete: Conform to Division 3 Section “Cast-In-Place Concrete” for concrete and reinforcing.

.1 Strength: 3000 psi (20.7 Mpa) minimum 28-day compressive strength.

.2 Aggregate For Duct Encasement: 3/8-inch (10 mm) maximum size.

PART 3 - EXECUTION

3.1 Application

3.1.1 Underground Ducts For Electrical Utility Service: Plastic conduit encased in “Red” concrete.

3.1.2 Underground Ducts For Electrical Feeders: Plastic conduit encased in “Red” concrete.

3.1.3 Underground Ducts For Telephone Utility Service: Plastic utilities duct encased in concrete.

3.1.4 Underground Ducts For Communication Circuits: Plastic underground conduit encased in concrete.

3.1.5 Handholes; Underground precast concrete utility structures.

3.1.6 Manholes: Underground Precast concrete utility structures.

3.2 Examination

3.2.1 Examine site to receive ducts, handholes and manholes for compliance with installation tolerances and other conditions affecting performance of the underground ducts and manholes. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.3 Earthwork

3.3.1 Excavation and Backfill: Conform to Division 2 Section “Earthwork,” but do not use heavy-duty, hydraulic-operated compaction equipment.

3.3.2 Restore surface features at areas disturbed by excavation, and reestablish original grades except as otherwise indicated. Replace removed sod as soon as possible after backfilling is complete. Restore all areas disturbed by trenching, storing of dirt, cable laying, and other work. Restore vegetation and include necessary topsoiling, fertilizing, liming, seeding, sodding, sprigging, or mulching. Perform according to Division 2 Section “Landscape Work.”

3.3.3 Restore disturbed paving. Refer to “Cutting and Patching” in Division 1.

3.4 Conduit And Duct Installation

3.4.1 Install nonmetallic conduit and duct as indicated according to manufacturer’s written instructions.

3.4.2 Slope: Pitch ducts minimum of 4 inches per 100 feet (1:300) to drain toward manholes and handholes and away from buildings and equipment. Slope ducts fro a high point in runs between 2 manholes to drain in both directions.

3.4.3 Curves and Bends: Use manufactured elbows for stub-ups at equipment and at building entrances. Use manufactured long sweep bends with a minimum radius of 25 feet (7.5 m) both horizontally an vertically at other locations.

3.4.4 Make joints in ducts and fittings watertight according to manufacturer’s instructions. Stagger couplings so those of adjacent ducts do not lie in the same plane.

3.4.5 Duct Entrances to Manholes and Handholes: Space end bells approximately 10 inches (250 mm) on center for 5-high (125 mm) ducts and varied proportionately for other duct sizes. Change from regular spacing to end-bell spacing 10 feet (3 m) from the end bell without reducing duct line slope and without forming a trap in the line. Grout end bells into manhole walls from both sides to provide watertight entrances.

3.4.6 Concrete-Encased Ducts: Install reinforcing in duct banks passing through disturbed earth near buildings and other excavations. Coordinate duct bank with structural design to support duct bank at wall without reducing structural or watertight integrity of building wall.

3.4.7 Direct-Buried, Nonencased Duct Entering Nonwaterproofed Walls: Install a Schedule 40 galvanized-steel pipe sleeve for each duct. Caulk space between conduit and sleeve wit duct-sealing compound on both sides for moisture-tight seal.

3.4.8 Waterproofed Wall and Floor Entrances: Install a watertight entrance-sealing device with the sealing gland assembly on the inside. Anchor device into masonry construction with 1 or more integral flanges. Secure membrane waterproofing to the device to make permanently watertight.

3.4.9 Separation Between Direct-Buried, Nonencased Ducts: 3 inches (75 mm) minimum for like services, and 12 inches (300 mm) minimum between power and signal ducts.

3.4.10 Concrete-Encased Nonmetallic Ducts: Support on plastic separators coordinated with duct size and required duct spacing, and install according to the following:

3.4.11 Separator Installation: Space separators close enough to prevent sagging and deforming of ducts, and secure separators to the earth and to ducts to prevent floating during concreting. Do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.

3.4.12 Concreting: Spade concrete carefully during pours to prevent voids under and between conduits and at exterior surface of envelope. So not use power-driven agitating equipment unless specifically designed for duct bank application. Pour each run of envelope between manholes or other terminations in 1 continuous operation. When more than one pour is necessary, terminate each pour in a vertical plane and install ¾-inch (18 mm) reinforcing rod dowels extending 18 inches (450 mm) into the concrete on both sides of joint near the corners of the envelope.

3.4.13 Reinforcing: Reinforce duct banks where they cross disturbed earth and where indicated.

3.4.14 Forms: All ductbanks shall be formed. Use the walls of the trench to form the side walls of the duct bank is unacceptable.

3.4.15 Minimum Clearances Between Ducts: 3 inches (75 mm) between ducts and exterior envelope wall and for like services, and 10 inches (250 mm) between power and signal ducts.

3.4.16 Depth: Except as otherwise indicated, install top of duct bank at least 24 inches (600 mm) below finished grade in nontraffic areas and at least 30 inches (750 mm) below finished grade in vehicular traffic areas.

3.4.17 Stub-Ups: Use rigid steel conduit or stub-ups to equipment. For equipment mounted on outdoor concrete pads, extend steel conduit a minimum of 5 feet (1.5 m) from edge of pad. Install insulated grounding bushings on the terminations. Couple steel conduits to the ducts with adapters designed for the purpose and then encase coupling with 3 inches (75 mm) of concrete.

3.4.18 Sealing: Provide temporary closure at terminations of ducts that are wired under this Project. Seal spare ducts at terminations. Use sealing compound and plugs to withstand at least 15 psi (1.03 Mpa) hydrostatic pressure.

3.4.19 Pulling Cord: Install 100-pound-test nylon cord in ducts, including spares.

3.5 Underground Utility Structure Installation

3.5.1 Elevation: Install manholes with rooftop at least 15 inches (375 mm) below finished grade. Install handholes with depth as indicated. Where indicated, cast handhole cover frame directly into roof of handhole and set roof surface 1 inch (25 mm) above grade.

3.5.2 Drainage: Install drains in bottom of units where indicated. Arrange to coordinate with drainage provisions indicated or specified.

3.5.3 Access: Install cast-iron frame and cover. For manholes, use 30-inch (750 mm) cover except as indicated. Use 30-inch (750 mm) cover for handholes, except use 24-inch (600 mm) covers for 24-inch (600 mm) by 24-incb (600 mm) handholes. Install brick chimney to support frame and cover and to connect cover with roof opening. Provide moisture-tight masonry joints and waterproof grouting for cast-iron frame to chimney. Set frames in paved areas and traffic ways flush with finished grade. Set other frames 1 inch (25 mm) above finished grade.

3.5.4 Waterproofing: Apply waterproofing to exterior surfaces of units after concrete has cured at least 3 day. Apply according to Division 7 Section “Sheet Membrane Waterproofing”. After ducts have been connected and grouted, and prior to backfilling, waterproof joints and connections and touch up abrasions and scars. Waterproof exterior of manhole/handhole chimneys after brick mortar has cured at least 3 days.

3.5.5 Dampproofing: Apply dampproofing to exterior surfaces of units after concrete has cured at least 3 days. Apply according to Division 7 Section “Bituminous Dampproofing”. After ducts have been connected and grouted, and prior to backfilling, dampproof joints and connections and touch up abrasions and scars. Dampproof exterior of manhole/handhole chimneys after brick mortar has cured at least 3 days.

3.5.6 Hardware: Install removable hardware, including pulling eyes, cable stanchions, cable arms, and insulators, as required for installation and support of cable and conductors and as indicated.

3.5.7 Field-Installed Bolting Anchors: Do not drill deeper than 3-7/8 inches (96 mm) for anchor bolts installed in the field. Use a minimum of 2 anchors for each cable stanchion.

3.5.8 Grounding: Install ground rod though floor in each structure with top protruding 4 inches (100 mm) above floor. Seal the floor opening against water penetration wit waterproof non-shrink grout. Ground exposed metal components and hardware with bare copper ground conductor. Train conductors neatly around corners. Install on walls and roof using cable clamps secured with expansion anchors.

3.5.9 Cast-In-Place Underground Structure installation: Conform to applicable requirements of Division 3 Section “Cast-In-Place Concrete.”

3.5.10 Finish interior surfaces with a smooth troweled finish.

3.5.11 Windows for Future Duct Connections: Form and pour concrete knock-out panels 1-1/2 to 2 inches (37 to 50 mm) thick, arranged as indicated.

3.5.12 Precast Concrete Underground Structure Installation: Install as indicated, according to manufacturer’s written instructions and ASTM C 891.

3.5.13 Install units plumb and level and with orientation and depth coordinated with arrangement of connecting ducts to minimize bends and deflections required for proper entrances.

3.5.14 Support units on a level bed of crushed stone or gravel, graded from the 1-inch (25 mm) sieve to the No. 4 sieve and compacted to same density as adjacent undisturbed earth.

3.6 Field Quality Control

3.6.1 Testing: Demonstrate capability and compliance with requirements upon completion of installation of underground duct and utility structures.

3.6.2 Grounding: Test manhole grounding to ensure electrical continuity of bonding and grounding connections. Measure ground resistance at each ground rod and report results. Use an instrument specifically designed for ground-resistance measurements.

3.6.3 Duct Integrity: Rod ducts with a mandrel ¼ inch (6 mm) smaller in diameter than internal diameter of ducts. Where rodding indicated obstructions in ducts, remove the obstructions and retest.

3.6.4 Water Tightness: Make internal inspection of manholes 3 months after completion of construction for indications of water ingress. Where leakage is noted, remove water and seal leak sources. Re-inspect after 2 months and reseal remaining leak sources. Repeat process at 2 month intervals until leaks are corrected.

3.6.5 Correct installation where possible, and retest to demonstrate compliance. Otherwise, remove and replace defective products and retest.

3.7 Cleaning

3.7.1 Pull brush through full length of ducts. Use round bristle brush with a diameter ½ inch (12 mm) greater than internal diameter of duct.

3.7.2 Clean internal surfaces of manholes including sump. Remove foreign material.

END OF SECTION

CONDUCTORS AND CABLES (copper only)

PART 1 - GENERAL

1.1 Summary

1.1.1 This Section includes building wires and cables and associated connectors, splices, and terminations for wiring systems rated 600 V and less.

1.2 Related Documents:

1.2.1 The General Conditions, Supplementary Conditions, and applicable portions of Division 1 of the specification are part of this section which shall consist of all labor, equipment, materials and other costs necessary to complete all **CONDUCTORS AND CABLES (copper only)** work indicated on the drawings, herein specified or both.

1.2.2 The applicable portions of section 16050 BASIC ELECTRICAL MATERIALS AND METHODS are hereby make a part of this section. It is important that you read that section carefully because it expands upon the requirements herein.

1.3 Quality Assurance

1.3.1 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.3.2 Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 Manufacturers

2.1.1 In other Part 2 articles where subparagraph titles below introduce lists, the following requirements apply for product selection:

.1 Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.

2.2 Conductors and Cables

2.2.1 Refer to Part 3 "Conductor and Insulation Applications" Article for insulation type, cable construction, and ratings.

2.2.2 Conductor Material: Copper complying with NEMA WC 5 solid conductor for No. 10 AWG and smaller, stranded for No. 8 AWG and larger.

2.2.3 Conductor Insulation Types: Type THHN-THWN or XHHW complying with NEMA WC 5.

2.2.4 Multiconductor Cable: Metal-clad cable, Type MC, Nonmetallic-sheathed cable, Type NM with ground wire.

2.3 Connectors and Splices

2.3.1 Description: Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 Installation

3.1.1 Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

3.1.2 Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

3.1.3 Support cables according to Division 16 Section "Basic Electrical Materials and Methods."

3.1.4 Identify and color-code conductors and cables according to Division 16 Section "Basic Electrical Materials and Methods."

3.2 Connections

3.2.1 Make all final connections required for a complete and fully operational facility.

3.2.2 Wiring connections to equipment shall include connections to all accessories.

3.2.3 Tighten electrical connectors and terminals according to manufacturer’s published torque-tightening values. If manufacturer’s torque values are not indicated, use those specified in UL 486A and UL 486 B.

3.2.4 Avoid splices and taps, where feasible. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

3.3 Field Quality Control

3.3.1 All cables installed under this contract are to be protected from damage prior to installation, during installation and after installation. Store cable in a dry area protected from physical damage. Before installing cable, raceway to be clear, dry and free from burs or sharp edges.

END OF SECTION

MEDIUM VOLTAGE EQUIPMENT AND WIRING

PART 1 - GENERAL

1.1 Summary

1.1.1 This Section includes the following:

- **.1** Pad mounted transformers
- **.2** Primary cable
- **.3** Primary cable splices and terminations
- **.4** Primary cable tests
- **.5** Work in manholes

1.2 Related Documents:

1.2.1 The General Conditions, Supplementary Conditions, and applicable portions of Division 1 of the specification are part of this section which shall consist of all labor, equipment, materials and other costs necessary to complete all **MEDIUM VOLTAGE EQUIPMENT AND WIRING** work indicated on the drawings, herein specified or both.

1.2.2 The applicable portions of section 16050 BASIC ELECTRICAL MATERIALS AND METHODS are hereby make a part of this section. It is important that you read that section carefully because it expands upon the requirements herein.

1.3 Submittals

1.3.1 Product Data: For each product indicated.

1.3.2 Shop Drawings: Wiring and connection diagrams.

1.3.3 Field quality control reports.

1.4 Quality Assurance

1.4.1 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4.2 Comply with the “National Electrical Safety Code”.

1.4.3 Comply with applicable sections of NFPA 70.

PART 2 - PRODUCTS

2.1 Pad-Mounted Transformers

2.1.1 Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers listed.

.1 Central Moloney Inc.
.2 Cutler-Hammer
.3 ITE
.4 Square D
.5 General Electric Co.

2.1.2 Rating:

.1 kVA rating: 500
.2 Three-phase
.3 Oil-immersed, self-cooled
.4 60 Hertz
.5 65 C rise
.6 Primary voltage: 4160 volts, 3 phase, delta
.7 Secondary voltage: 277/480 volts, 3 phase, WYE.
.8 Energy rated: TP1

2.1.3 Taps:

.1 Provide two 2-1/2% primary taps below nominal voltage and two 2-1/2% above.
.2 Electrical contractor to field adjust tap for optimum nominal system secondary voltage.

2.1.4 General Construction Features:

.1 Construct in accordance with ANSI Standard C57.12.26 (latest revision).
.2 All characteristics, definitions, terminology, and voltage designations and tests, except as otherwise specified herein, shall be in accordance with the following American National Standard Requirements, Terminology, and Test Code for Distribution, Power, and Regulating Transformers:

a. General Requirements, C57.12.00 (IEEE Std. 462) (latest revision).
b. Terminal Markings and Connections, C57.12.70 (latest revision).
c. Terminology, C57.12.80, including Supplement C57.12.80a (latest revision).
d. Test Code, C57.12.90 (IEEE Std. 262) (latest revision).

.3 The pad-mounted, compartmental-type transformer shall consist of the transformer tank with high-and low-voltage cable terminating compartment. The transformer tank and compartment shall be assembled as an integral unit for mounting on a pad. There shall be no exposed screws, bolts, or other fastening devices which are externally removable. There shall be no openings through which foreign objects such as sticks, rods, or wires might contact live parts. There shall be means for padlocking the compartment door(s). The construction shall limit the entry of water (other than flood water) into the compartment so as not to impair the operation of the transformer.
.4 Full-height, air-filled incoming and outgoing terminal compartments with hinged doors shall be located side-by-side separated by a steel barrier, with the incoming compartment on the left. The high-voltage (incoming) compartment will be accessible only after the door to the low-voltage (outgoing) compartment has been opened. To facilitate making connections and permit cable pulling, the doors and compartment

hood shall be removable. Removable door sill on compartments shall be provided to permit rolling or skidding of unit into place over conduit studs in foundation.

.5 The compartments will have hinged doors equipped for latching in the open position. The high-voltage compartment door will have a fastening device, which is accessible only through the low-voltage compartment.

.6 The hinge assemblies shall be made of corrosion-resistant material. Stainless-steel hinge pins of 3/8-inch minimum diameter will be provided.

.7 Both compartment doors must be capable of being secured with a single padlock having a maximum 1/2-inch diameter shackle.

.8 Lifting provisions in accordance with ANSI Standards shall be provided.

.9 Jacking and rolling provisions shall be provided.

.10 The instruction nameplate is to be located in the low-voltage portion of the compartment and shall be readable with cables in place. Where the nameplate is mounted on a removable part, the manufacturer's name and transformer serial number shall be permanently affixed to a non-removable part.

.11 Transformer tank shall be sealed-tank construction with a welded main cover.

.12 A bolted tamper-resistant handhole shall be provided in the tank cover for access to internal connections.

.13 Provisions for tank grounding shall be supplied in both the high-voltage and low-voltage compartments.

2.1.5 Accessories:

.1 One-inch filling provision.

.2 One-inch drain valve and sampler.

.3 Dial-type thermometer,

.4 Liquid-level gauge and

.5 Vacuum/pressure gauge.

2.1.6 Primary Compartment:

.1 Equip the incoming primary section with three 200 ampere loadbreak integrated bushings (combining the function of bushing well and switch module). Provide matching 200 ampere load break molded shield elbows.

.2 Provide an internal, oil-immersed, gang-operated, two position (on/off) loadbreak, manually operated switch. The switch must be capable of switching transformer full-load current. The switch handle shall be located in the primary compartment and must be hot-stick operable.

.3 Provide three current-limiting fuses in non-loadbreak, dry-well fuse holders. The fuse holder must accept either G.E. or McGraw Edison general-purpose, distribution current limiting fuses with an interrupting capacity of 50,000 amperes. The fuse holders shall be located in the primary compartment and be hot-stick operable for external replacement of the fuses.

.4 Provide three (3) 15Kv distribution class lightning arrestors.

2.1.7 Secondary Compartment:

.1 Low-voltage bushings shall be tinned, spade-type with 9/16-inch holes spaced on 1-3/4 inch centers in accordance with the Latest Revisions of ANSI.

2.1.8 Temporary Heating:

.1 Apply temporary heat according to manufacturer's written instructions within the enclosure, thorough periods during which equipment is not energized and when transformer is not in a space that is continually under normal control of temperature and humidity.

2.2 Primary Cable

2.2.1 Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the work including, but are not limited to, the manufacturers specified.

.1 KERITE (Metrowest Electric Sales Inc. (860) 480-2362)

2.2.2 Provide 5/8 KV shielded power cables, single conductor, UL listed as type MV-105, in accordance with UL 1072. The general characteristics shall be as listed below, the conductor size shall be as noted on the contract drawings or as directed. Include 600 volt insulated copper equipment ground.

.1 Conductor shall be uncoated copper, Class B stranded per ASTM B-496 compact.
.2 Strand screen shall be of the extruded semi-conducting type per electrical and physical requirements of ICEA S-68-516, AEIC CS6 and UL 1072.
.3 Insulation shall be an ethylene - propylene rubber (EPR) base, thermosetting compound for 133% insulation level, per electrical and physical requirements of ICEA S-68-516, AEIC CS6 and UL 1072.
.4 Insulation screen shall be of the extruded semi-conducting type applied directly over the insulation per electrical and physical requirements of ICEA.
.5 Shield shall be uncoated copper tape helically applied with 12.5% normal overlap.
.6 Jacket shall be of the polyvinylchloride (PVC) type per electrical and physical requirements of ICEA S-68-518 and UL 1072.

2.2.3 Care shall be used in the handling of all cable so that the sheathing will not become broken, scratched or bruised. No kinks, twists or sharp bends will be permitted to form in the cable during installation. If for any reason the sheath suffers damage, before or during installation, the cable shall be replaced by the Contractor at no cost to the Owner.

2.2.4 The ends of the cable shall be kept moisture-proof sealed at all times except when connections or splices are actually being made during low humid ambient conditions. All cable ends shall be sealed immediately after cutting.

2.3 Primary Cable Splices And Terminations

2.3.1 Make all splices and terminations under this contract, but this Contractor shall employ a subcontractor for this part of the work. This work shall be performed by a qualified high voltage cable splicing company. The company employed by this contractor must be approved by the Engineer. The cable splicing firm must have been in this business for at least ten years and must not be more than 1-1/2 hours travel time away from the job site.

2.3.2 The splicing contractor shall maintain dry and dust free conditions while splices are being made. Make all splices only on days with low humidity. Make splices for primary cable with cold shrink, pre-molded or heat shrink kits as manufactured by Raychem, 3M, Elastimold, or approved equal. Make splices so as to withstand complete immersion for indefinite period and guarantee for three (3) years. Neatly rack all cable and splices and tie with impregnated linen tape. Provide all stress cones where required. Tie wrap cable splices and stress cones. All splices shall conform to local utility company's standards.

2.4 Primary Cable Tests

2.4.1 General:

.1 After terminations are complete, disconnect primary cable from equipment, perform a hypotential test and submit written report to Engineer. Do not energize equipment if values are not as described herein.

2.4.2 Standards and Safety Precautions:

.1 National Electrical Testing Association "Acceptance Testing Specifications"
.2 Occupational Safety & Health Act
.3 National Safety Council "Accident Prevention Manual for Industrial Operations"
.4 Applicable State and Local Safety Operating Procedures

2.4.3 D.C. Hypotential Test:

.1 Each conductor shall be individually tested with all other conductors grounded. All shields shall be grounded.
.2 Terminations shall be properly corona suppressed by guard ring, field reduction sphere, or other suitable methods.
.3 A D.C. hypotential shall be applied in at least eight (8) equal increments until maximum test voltage is reached. D.C. leakage current shall be recorded at each step after a constant stabilization time consistent with system charging current decay.
.4 A graphic plot shall be made of leakage current (X axis) versus voltage (Y axis) at each increment.
.5 The test conductor shall be raised to a maximum test voltage and held for a total of ten (10) minutes. Readings of leakage current (Y axis) versus time (X axis) shall be recorded and plotted on thirty (30) second intervals for the first two (2) minutes and every minute thereafter.
.6 The applied conductor test potential shall be reduced to zero (0) and grounds applied for a period adequate to drain all insulation stored potential.

.7 Maximum test voltage shall be 25 KV for 5 KV cable and 55 KV for 15 KV cable.

2.4.4 Shield Continuity Test:

.1 Perform a shield continuity test by ohm meter method and record results.

2.4.5 Test Values:

.1 Step voltage slope should be reasonably linear.
.2 Absorption slope should be flat or negative. In no case should slope exhibit positive characteristic.
.3 Maximum leakage current should not exceed I_L corrected to 60 F where I_L = E_KLOG D/d

K = insulation specific resistance Megohm/MFT at 60 F.
D = diameter over insulation
d = diameter under insulation
E = maximum test voltage

2.5 Work In Manholes:

2.5.1 New Manholes:

.1 Provide new cable racks with cable hooks and insulators in new manholes. Tie all cables to racks (one cable per insulator). Fill all openings around conduits with concrete. Ground all metal parts to ground rod. Identify each cable in manhole as to feeder number, size, phase and destination. Tags shall be secured to cable with #14 ga. brass wire. Cap all spare ducts and provide duct seal around cables to seal all ducts. Slope all ducts toward manholes. Where this is not possible (or where indicated) provide inflatable duct sealing system equivalent to Rayflate (RDSS), properly sized and installed per manufacturers directions.

PART 3 - EXECUTION

3.1 Installation

3.1.1 Install transformers and accessories according to NEMA and NECA standards.

3.1.2 Temporary Lifting Provisions: After installation, remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from equipment and components.

3.1.3 Re-Torque: Once in final location, carefully re-torque all connections with a torque wrench, to match manufacturers' recommendations. If equipment is dismantled, it must be re-inspected and re-certified by a nationally recognized testing laboratory, acceptable to the Engineer and the Authority Having Jurisdiction.

3.2 Identification

3.2.1 Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section “Basic Electrical Materials and Methods”.

3.2.2 Switchboard nameplates: Label each switchboard compartment with engraved laminated plastic nameplate mounted with corrosion-resistant screws.

3.3 Field Quality Control

3.3.1 Perform the following visual and mechanical inspections stated in NETA ATS:

.1 Section 7.2 Liquid-Filled Transformers
.2 Section 7.1 Switchgear and Switchboard Assemblies

3.3.2 Perform the following electrical tests and visual and mechanical inspections stated in NEMA ATS. Certify compliance with test parameters. (Exclude optional tests.)

.1 Section 7.2 Liquid-Filled Transformers
.2 Section 7.1 Switchgear and Switchboard Assemblies

END OF SECTION

PANELBOARDS

PART 1 - GENERAL

1.1 Summary

1.1.1 This Section includes distribution panelboards and lighting and appliance branch-circuit panelboards.

1.2 Related Documents:

1.2.1 The General Conditions, Supplementary Conditions, and applicable portions of Division 1 of the specification are part of this section which shall consist of all labor, equipment, materials and other costs necessary to complete all PANELBOARDS work indicated on the drawings, herein specified or both.

1.2.2 The applicable portions of section 16050 BASIC ELECTRICAL MATERIALS AND METHODS are hereby make a part of this section. It is important that you read that section carefully because it expands upon the requirements herein.

1.3 Submittals

1.3.1. Product Data: For each type of panelboard, overcurrent protective device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

1.3.2 Shop Drawings: For each panelboard and related equipment.

.1 Dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings. Include the following:

a. Enclosure types and details for types other than NEMA 250, Type 1.
b. Bus configuration, current, and voltage ratings.
c. Short-circuit current rating of panelboards and overcurrent protective devices.
d. Features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.

.2 Wiring Diagrams: Power, signal, and control wiring.
.3 Field quality-control test reports.
.4 Operation and maintenance data.

1.3.3 When used as “Service Entrance Equipment”, it is the Contractor’s responsibility to submit all shop drawings to the electrical inspector and obtain their approval (including main circuit breakers characteristics) prior to fabrication.

1.4 Quality Assurance

1.4.1 Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.4.2 Comply with NEMA PB 1.

1.4.3 Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 Manufacturers

2.1.1 Manufacturers: Subject to compliance with requirements, provide products by one of the following:

.1 Panelboards, Overcurrent Protective Devices, Controllers, Contactors, and Accessories:

a. Square D.

2.2 Manufactured Units

2.2.1 Enclosures: NEMA PB 1, Type 1.

.1 Rated for environmental conditions at installed location.

a. Outdoor Locations: NEMA 250, Type 3.
b. Kitchen Areas: NEMA 250, Type 4X, stainless steel.
c. Other Wet or Damp Indoor Locations: NEMA 250, Type 4.
d. Hazardous Areas Indicated on Drawings: NEMA 250, Type 7C.

.2 Door-In-Trim: Provide with piano hinge on left side of trim, so that trim (and door) can be swung open for easy access to wiring terminals (rather than removed).

.3 Equip door with spring latch and tumbler-lock with all locks keyed alike.

2.2.2 Phase and Ground Buses: Copper.

2.2.3 Conductor Connectors: Suitable for use with conductor material.

2.2.4 Service Equipment Label: UL labeled for use as service equipment for panelboards with main service disconnect breakers.

2.2.5 Future Devices: Mounting brackets, bus connections, and necessary appurtenances required for future installation of devices.

2.2.6 Panelboard Short-Circuit Rating:

.1 Fully rated to interrupt symmetrical short-circuit current available at terminals.
.2 Unless otherwise indicated, a “series-combination system” of interrupting capacity rating shall not be used.

2.2.7 Service Entrance Equipment: When used as service entrance equipment, so rate.

2.2.8 Provide typed circuit directory card mounted in frame with clear plastic covering.

2.3 Distribution Panelboards

2.3.1 Doors: Secured with vault-type latch with tumbler lock; keyed alike. Omit for fused-switch panelboards. See 2.2A2

2.3.2 Main Overcurrent Protective Devices: Bolt-on, circuit breakers.

2.3.3 Branch Overcurrent Protective Devices: Bolt-on, full size, circuit breakers.

2.4 Lighting and Appliance Branch-Circuit Panelboards

2.4.1 Branch Overcurrent Protective Devices: Bolt-on full size circuit breakers, replaceable without disturbing adjacent units.

2.4.2 Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike. See 2.2A2

2.5 Overcurrent Protective Devices

2.5.1 Provide circuit breakers, per Section 16410 “Enclosed switches and circuit breakers”.

PART 3 - EXECUTION

3.1 Installation

3.1.1 Install panelboards and accessories according to NEMA PB 1.1.

3.1.2 Comply with mounting and anchoring requirements specified in Division 16 Section "Seismic Controls for Electrical Work."

3.1.3 Mount top of trim 74 inches (1880 mm) above finished floor, unless otherwise indicated.

3.1.4 Mount plumb and rigid without distortion of box.

.1 Set field-adjustable and circuit-breaker trip ranges.

3.1.5 Install filler plates in unused spaces.

3.1.6 Identify field-installed conductors, interconnecting wiring, and components; provide warning signs as specified in Division 16 Section "Basic Electrical Materials and Methods”.

3.1.7 Panelboard Nameplates: Label each panelboard with engraved laminated-plastic nameplate mounted with corrosion-resistant screws.

3.1.8 Connect wiring according to Division 16 Section "Conductors and Cables."

3.1.9 Re-Torque: Once in final location, carefully re-torque all connections with a torque wrench, to match manufacturers recommendations. If equipment is dismantled, it must be re-inspected and re-certified by a nationally recognized testing laboratory, acceptable to the Engineer and the Authority Having Jurisdiction.

3.2 Circuit Breaker Adjustments

3.2.1 Adjust as described in section 16410 “Enclosed Switches and Circuit Breakers”.

3.3 Field Quality Control

3.3.1 Prepare for acceptance tests as follows:

.1 Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
.2 Test continuity of each circuit.

3.3.2 Perform the following inspections:

.1 Perform each visual and mechanical inspection stated in NETA ATS, section 7.6.

3.3.3 Perform the following field tests and inspections and prepare test reports:

.1 Perform each electrical test and visual and mechanical inspection stated in NETA ATS, Section 7.6 for molded-case circuit breakers. Certify compliance with test parameters.
.2 Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

END OF SECTION

SPORTS FIELD LIGHTING

PART 1 – GENERAL

1.1 SUMMARY

A. Work covered by this section of the specifications shall conform to the contract documents, engineering plans as well as state and local codes.

B. The purpose of these specifications is to define the performance and design standards for University of Rhode Island Tibbetts Field in Kingston, Rhode Island. The manufacturer / contractor shall supply lighting equipment to meet or exceed the standards set forth in these specifications.

C. The sports lighting will be for the following venues:
   1. Flag Football
   2. Future Fixture Accommodations on poles P2, P4 and P5 for future lighting of other fields.

D. The primary goals of this sports lighting project are:
   1. Guaranteed Light Levels: Selection of appropriate light levels impact the safety of the players and the enjoyment of spectators. Therefore light levels are guaranteed to not drop below specified target values for a period of 25 years. Life-cycle Cost: In order to reduce the operating budget, the preferred lighting system shall be energy efficient and cost effective to operate. All maintenance costs shall be eliminated.
   2. Control and Monitoring: To allow for optimized use of labor resources and avoid unneeded operation of the facility, customer requires a remote on/off control system for the lighting system including all costs to monitor for 25 years. Fields should be proactively monitored to detect fixture outages over a 25-year life cycle. All communication costs shall be included in the bid.

1. Environmental Light Control: It is the primary goal of this project to minimize spill light and glare to the players, spectators and adjoining properties.

1.2 LIGHTING PERFORMANCE

A. **Performance Requirements:** Playing surfaces shall be lit to an average target light level and uniformity as specified in the chart below. Lighting calculations shall be developed and field measurements taken on the grid spacing with the minimum number of grid points specified below. Average illumination level shall be measured in accordance with the IESNA LM-5-04. Light levels shall be guaranteed not to drop below desired target values from the first 100 hours of operation for the maximum warranty period of 25 years or 10,000 hours.

B. **Mounting Heights**: To ensure proper aiming angles for reduced glare and to provide better playability, minimum mounting heights shall be 70'. Higher mounting heights may be required based on photometric report and ability to ensure the top of the beam angle is a minimum of 10 degrees below horizontal.

C. **Lighting Methodology:** There are two methods that will be considered for calculation of the lighting designs for this project. The approved Lighting Method #1, automated timed power adjustments, as described in C.1 utilizes methodology that adjusts light levels through a series of programmed adjustments. The alternate Lighting Method #2, straight depreciation, as described in C.2 uses continuous lamp lumen depreciation which is recovered by relamping and cleaning lenses of the luminaires. Both methods must be at or above target light values throughout the 25 years of the contract/warranty provided by the manufacturer. Scans shall reflect initial design lumens, end of life design lumens, recoverable light loss factor (RLLF), and the Coefficient Utilization (CU) for the design. A +/- 10% design/testing allowance is not acceptable.

   1. **Lighting Method #1: Automated Timed Power Adjustments:**

      a. The lighting system shall use automated timed power adjustments to achieve a lumen maintenance control strategy as described in the IESNA Lighting Handbook 10th Edition, Lighting Controls Section page 16-8: "Lumen maintenance involves adjusting lamp output over time to maintain constant light output as lamps age and dirt accumulation reduces

luminaire output. With lumen maintenance control, either lamps are dimmed when new, or the lamp's current is increased as the system ages."

b. Independent Test Report: If lamp replacement interval is greater than 3,000 hours, manufacturer shall supply an independent test report with applicable recoverable light loss factors. Manufacturers bidding an automated timed power adjustment system must provide an independent test report certifying the system meets the lumen maintenance control strategy above and verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience. If report is not provided at least 10 days prior to bid opening, the manufacturer shall provide the initial and maintained designs called for in this specification under Lighting Method #2: Alternate Manufacturers, section 1.2.C.2.

c. Project References: Manufacturers bidding any form of Automated Timed Power Adjustment light system must provide a minimum of 10 project references within the state of Rhode Island that have been completed within the last 12 months utilizing this exact technology. Manufacturer will include project name, project city, and if requested, contact name and contact phone number for each reference.

Area of Lighting	**Average Target Light Levels**	**Maximum to Minimum Uniformity Ratio**	**Grid Points**	**Grid Spacing**
Flag Football	20 footcandles	2.5:1.0	195	20’ x 20’

2. **Lighting Method #2 – Straight Depreciation**

a. Light Level Requirements: Manufacturer shall provide computer models and guarantee target light levels on the field over 25 years. The specified maximum Recoverable Light Loss Factor of 0.65 and maintenance/group relamping schedule shall be provided in accordance with recommendations in the Leukos Abstract Volume 6, Number 3, January 2010, page 183-201: “Light Loss Factors for Sports Lighting”, and presented at the 2009 IESNA Annual Conference.

For Lighting Method #2, scans for both initial and target light levels are required.

1500w Fixture RLLF Requirements

Lamp Replacement Interval (hours)	Recoverable Light Loss Factor (RLLF)
3000	.65

b. Based on anticipated hours of usage (<Enter hours, F11>hours per year), Option #2 systems would require a minimum of <Enter # relamps, F11>group lamp replacements over the 25 years. Data would reflect the actual RLLF adopted by the designer

Area of Lighting	**Average Initial Light Levels**	**Average Target Light Levels**	**Maximum to Minimum Uniformity Ratio**	**Grid Points**	**Grid Spacing**
Flag Football	28.99 footcandles	20 footcandles	2.5:1.0	195	20’ x 20’

c. Revised Electrical Distribution: Manufacturer shall provide revised electrical distribution plans to include changes to service entrance, panel, and wire sizing if exceed specified design loads.

1.3 ENVIRONMENTAL LIGHT CONTROL

A. Spill Light Control: All fixtures shall utilize maximum spill light and glare control devices including, but not limited to, internal shields, louvers and external shields.

1.4 LIFE CYCLE ENERGY COSTS

25 Year Life Energy Cost: Manufacturer shall submit 25-year life energy cost calculations as follows. If lamp replacement interval is greater than 3000 hours, manufacturer shall supply an independent test report with applicable recoverable light loss factors.

Lamp replacement schedule per charts below:

			Lighting Method 1	**Lighting Method 2**
a.	**Luminaire energy consumption** ____ luminaires x 1.56 kW demand per luminaire x 0.13 kWh rate x 300 annual usage hours x 25 years			
b.	**Demand charges, if applicable**	+		
	TOTAL 25 -Year Life Energy Operating Cost	=		

Lighting Method 1 Lamp Replacement	**Lighting Method 2 Lamp Replacement**
5,000 hour intervals	3,000 hour intervals

PART 2 – PRODUCT

2.1 SPORTS LIGHTING SYSTEM CONSTRUCTION

A. Manufacturing Requirements: All components shall be designed and manufactured as a system. All luminaires, wire harnesses, ballast and other enclosures shall be factory assembled, aimed, wired and tested.

B. Durability: All exposed components shall be constructed of corrosion resistant material and/or coated to help prevent corrosion. All exposed carbon steel shall be hot dip galvanized per ASTM A123. All exposed aluminum shall be powder coated with high performance polyester or anodized. All exterior reflective inserts shall be anodized, coated, and protected from direct environmental exposure to prevent reflective degradation or corrosion. All exposed hardware and fasteners shall be stainless steel of 18-8 grade or better, passivated and coated with aluminum-based thermosetting epoxy resin for protection against corrosion and stress corrosion cracking. Structural fasteners may be carbon steel and galvanized meeting ASTM A153 and ISO/EN 1461 (for hot dipped galvanizing), or ASTM B695 (for mechanical galvanizing). All wiring shall be enclosed within the crossarms, pole, or electrical components enclosure.

C. System Description: Lighting system shall consist of the following:
   1. Galvanized steel poles and crossarm assembly.
   2. Non-approved pole technology. Square static cast poles will not be accepted. Direct bury steel poles which utilize the extended portion of the steel shaft for their foundation will not be accepted due to potential for internal and external corrosive reaction to the soils and long term performance concerns.
   3. Pre-stressed concrete base embedded in concrete backfill allowed to cure for 12-24 hours before pole stress is applied. Alternate may be an anchor bolt foundation designed such that the steel pole and any exposed steel portion of the foundation is located a minimum of 18 inches above final grade. The concrete for anchor bolt foundations shall be allowed to cure for a minimum of 28 days before the pole stress is applied.
   4. All luminaires shall be constructed with a die-cast aluminum housing or external hail shroud to protect the luminaire reflector system.
   5. Manufacturer will remote all ballasts and supporting electrical equipment in aluminum enclosures mounted approximately 10’ above grade. The enclosures shall be touch-safe and

include ballast, capacitor and fusing with indicator lights on fuses to notify when a fuse is to be replaced for each luminaire. Safety disconnect per circuit for each pole structure will be located in the enclosure. Integral ballast fixtures will not be accepted.

6. Wire harness complete with an abrasion protection sleeve, strain relief and plug-in connections for fast, trouble-free installation.
7. Controls and Monitoring Cabinet to provide on-off control and monitoring of the lighting system constructed of NEMA Type 4 aluminum. Communication method shall be provided by manufacturer. Cabinet shall contain custom configured contactor modules for 30, 60, and 100 amps, labeled to match field diagrams and electrical design. Manual Off-On-Auto selector switches shall be provided.
8. Lightning Protection: Manufacturer shall provide integrated lightning grounding via concrete encased electrode grounding system as defined by NFPA 780 and be UL Listed per UL 96 and UL 96A. If grounding is not integrated into the structure, the Manufacturer shall supply grounding electrodes, copper down conductors and exothermic weld kits. Electrodes and conductors shall be sized as required by NFPA 780. The grounding electrode shall be not less than 5/8 inch diameter and 8 feet long, with a minimum of 10 feet embedment. Grounding electrode shall be connected to the structure by a grounding electrode conductor with a minimum size of 2 AWG for poles with 75 feet mounting height or less, and 2/0 AWG for poles with more than 75 feet mounting height.

D. Safety: All system components shall be UL listed for the appropriate application.

2.2 ELECTRICAL

A. Electric Power Requirements for the Sports Lighting Equipment:
   1. Electric power: 480 Volt, 3 Phase
   2. Maximum total voltage drop: Voltage drop to the disconnect switch located on the poles shall not exceed three (3) percent of the rated voltage.

B. Energy Consumption: The average kW consumption for the field lighting system shall be 34.41 kW for metal halide fixtures in Lighting Method 1. Lighting Method 2 kW will be defined in Life Cycle calculation chart (1.4) using a RLLF of .65.

C. Revised Electrical Distribution: Manufacturer shall provide, at their cost, revised electrical distribution plans to include changes to service entrance, panel, and wire sizing if using Lighting Method 2.

2.3 STRUCTURAL PARAMETERS

A. Mounting Heights: To ensure proper aiming angles for reduced glare and to provide better playability, the minimum pole mounting heights from the playing field surface shall be as noted in Section 1.2.B. Higher mounting heights may be required based on photometric performance of manufacturer's luminaires to meet spill and glare requirements.

B. Support Structure Wind Load Strength: Poles and other support structures, brackets, arms, bases, anchorages and foundations shall be determined based on the IBC Building Code, wind speed of 110MPH, exposure category C. Luminaire, visor, and crossarm shall withstand 150mph winds and maintain luminaire aiming alignment.

C. Structural Design: The stress analysis and safety factor of the poles shall conform to AASHTO, Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

D. Soil Conditions: The design criteria for these specifications are based on soil design parameters as outlined in the geotechnical report. If a geotechnical report is not provided by the owner, the foundation design shall be based on soils that meet or exceed those of a Class 5 material as defined by IBC.

It shall be the contractor's responsibility to notify the owner if soil conditions exist other than those on which the foundation design is based, or if the soil cannot be readily excavated. Contractor may issue a change order request / estimate for the owner's approval / payment for additional costs associated with:

1. Providing engineered foundation embedment design by a registered engineer in the State of Rhode Island.

2. Additional materials required to achieve alternate foundation.
3. Excavation and removal of materials other than normal soils, such as rock, caliche, etc.

E. Foundation Drawings: Project specific foundation drawings stamped by a registered engineer in the state where the project is located are required. The foundation drawings must list the moment, shear (horizontal) force, and axial (vertical) force at ground level for each pole. These drawings must be submitted at time of bid to allow for accurate pricing.

2.4 CONTROLS AND MONITORING

A. Remote Monitoring System: System shall monitor lighting performance and notify manufacturer if individual luminaire outage is detected so that appropriate maintenance can be scheduled. The manufacturer shall notify the owner of outages within 24 hours, or the next business day. The controller shall determine switch position (Manual or Auto) and contactor status (open or closed)

B. Remote Lighting Control System: System shall allow owner and users with a security code to schedule on/off system operation via a web site, phone, fax or email up to ten years in advance. Manufacturer shall provide and maintain a two-way TCP/IP communication link. Trained staff shall be available 24/7 to provide scheduling support and assist with reporting needs.

The owner may assign various security levels to schedulers by function and/or fields. This function must be flexible to allow a range of privileges such as full scheduling capabilities for all fields, to only having permission to execute “early off” commands by phone.

Controller shall accept and store 7-day schedules, be protected against memory loss during power outages, and shall reboot once power is regained and execute any commands that would have occurred during outage.

C. Management Tools: Manufacturer shall provide a web-based database and dashboard tool of actual field usage and provide reports by facility and user group. Dashboard shall also show current status of lamp outages, control operation and service scheduling including relamping operations completed and scheduled.

Hours of Usage: Manufacturer shall provide a means of tracking actual hours of usage for the field lighting system that is readily accessible to the owner.

1. Cumulative hours: shall be tracked to show the total hours used by the facility
2. Current lamp hours: shall be tracked separately to reflect the amount of hours on the current set of lamps being used, so relamping can be scheduled accurately.

D. Communication Costs: Manufacturer shall include communication costs for operating the controls and monitoring system for a period of 25 years.

PART 3 – EXECUTION

3.1 FIELD QUALITY CONTROL

A. Delivery Timing Equipment On-Site: The equipment must be on-site 4-6 weeks from receipt of approved submittals and receipt of complete order information.

B. Illumination Measurements: Upon substantial completion of the project and in the presence of the Contractor, Project Engineer, Owner's Representative, and Manufacturer's Representative, illumination measurements shall be taken and verified. The illumination measurements shall be conducted in accordance with IESNA LM-5-04. For Lighting Method 1, Timed Power Adjustment systems, light levels must be measured and exceed the specified target levels. For Lighting Method 2, light levels must be measured and meet the specified initial light levels.

C. Field Light Level Accountability
1. Light levels are guaranteed not to fall below the target maintained light levels for the entire warrantee period of 25 Years.
2. The contractor/manufacturer shall be responsible for an additional inspection one year from the date of commissioning of the lighting system and will utilize the owner’s light meter in the presence of the owner.

3. The contractor/manufacturer will be held responsible for any and all changes needed to bring these fields back to compliance for light levels and uniformities. Contractor/Manufacturer will be held responsible for any damage to the fields during these repairs.

D. Correcting Non-Conformance: If, in the opinion of the Owner or his appointed Representative, the actual performance levels including foot-candles, uniformity ratios, and maximum kilowatt consumptions are not in conformance with the requirements of the performance specifications and submitted information, the manufacturer shall be liable to any or all of the following:
   1. Manufacturer shall at his expense provide and install any necessary additional fixtures to meet the minimum lighting standards. The Manufacturer shall also either replace the existing poles to meet the new wind load (EPA) requirements or verify by certification by a licensed structural engineer that the existing poles will withstand the additional wind load.
   2. Manufacturer shall minimize the Owner's additional long term fixture maintenance and energy consumption costs created by the additional fixtures by reimbursing the Owner the amount of $1,000.00 (one thousand dollars) for each additional fixture required.
   3. Manufacturer shall remove the entire unacceptable lighting system and install a new lighting system to meet the specifications

3.2 25 YEAR WARRANTY

A. Each manufacturer shall supply a signed warranty covering the entire system for 25 years or for the maximum hours of coverage based on the estimated annual usage, whichever occurs first. Warranty shall guarantee that the average light levels will not fall below target levels; lamp replacements; system energy consumption; monitoring, maintenance and control services, spill light control, and structural integrity. Manufacturer shall maintain specifically funded financial reserves to assure fulfillment of the warranty for the full term. Warranty may exclude fuses, storm damage, vandalism, abuse and unauthorized repairs or alterations.

B. Preventative and Spot Maintenance: Manufacturer shall provide all preventative and spot maintenance, including parts and labor for 25 years from the date of equipment shipment. Individual lamp outages shall be repaired when the usage of any field is materially impacted. Owner agrees to check fuses in the event of a luminaire outage.

3.3 PRE-BID SUBMITTAL REQUIREMENTS

A. Approved Product: Musco’s Green Generation Lighting® sports lighting system is the approved “Lighting Method 1” product. All submittal information at the end of this section must be submitted at least 10 days prior to bid for any alternates using Method #1 or any manufacture using Method #2. An addendum will be issued prior to bid, listing any approved alternate lighting manufacturers and the design method to be used.

B. Design Approval: The owner / engineer will review pre-bid submittals per section 3.3.A from all the manufacturers to ensure compliance to the specification. If the design meets the design requirements of the specifications, a letter and/or addendum will be issued to the manufacturer indicating approval for the specific design submitted.

C. Bidders are required to bid only products that have been approved by this specification or addendum by the owner or owner’s representative. Bids received that do not utilize an approved system/design, will be rejected.

REQUIRED SUBMITTAL INFORMATION ANY ALTERNATE MANUFACTURERS 10 DAYS PRIOR TO BID

All items listed below are mandatory, shall comply with the specification and be submitted according to pre-bid submittal requirements

Tab	Item	Description
A	Letter/ Checklist	Listing of all information being submitted must be included on the table of contents. List the name of the manufacturer's local representative and his/her phone number. Signed submittal checklist to be included.
B	Equipment Layout	Drawing(s) showing field layouts with pole locations
C	On Field Lighting Design	Lighting design drawing(s) showing: a. Field Name, date, file number, prepared by b. Outline of field(s) being lighted, as well as pole locations referenced to the center of the field (x & y), Illuminance levels at grid spacing specified c. Pole height, number of fixtures per pole, as well as luminaire information including wattage, lumens and optics d. Height of light test meter above field surface. e. Summary table showing the number and spacing of grid points; average, minimum and maximum illuminance levels in foot candles (fc); uniformity including maximum to minimum ratio, coefficient of variance (CV), coefficient of utilization (CU) uniformity gradient; number of luminaries, total kilowatts, average tilt factor; light loss factor. f. Manufacturer's using Lighting Method 2 shall provide both initial and maintained light scans using a maximum Recoverable Light Loss Factor (RLLF) as specified in section 1.2.C.2
D	Off Field Lighting Design	Lighting design drawing showing initial spill light levels along the boundary line (defined on bid drawings) in footcandles. Light levels shall be taken at 30-foot intervals along the boundary line. Readings shall be taken with the meter orientation at both horizontal and aimed towards the most intense bank of lights.
E	Structural Calculations	Pole structural calculations and foundation design showing foundation shape, depth backfill requirements, rebar and anchor bolts (if required). Pole base reaction forces shall be shown on the foundation drawing along with soil bearing pressures. Design must be stamped by a structural engineer in the state of Rhode Island, if required by owner. (May be supplied upon award).
F	Control & Monitoring System	Manufacturer of the control and monitoring system shall provide written definition and schematics for automated control system to include monitoring. They will also provide ten (10) references currently using proposed system in the state of Rhode Island.
G	Electrical Distribution Plans	Manufacturer using Lighting Method 2 must include a revised electrical distribution plan including changes to service entrance, panels and wire sizing, signed by a licensed Electrical Engineer in the state of Rhode Island.
H	Warranty	Provide written warranty information including all terms and conditions. Provide ten (10) references of customers currently under specified warranty in the state of Rhode Island.
I	Independent Testing Report	a. Lighting Method 1 is to provide an independent test report certifying the system meets the lumen maintenance control strategy defined in Section 1.2.C.1.a, verifying the field performance of the system for the duration of the useful life of the lamp based on lamp replacement hours. Report shall be signed by a licensed professional engineer with outdoor lighting experience. b. If Manufacturer using Lighting Method 2 desires to provide a recoverable light loss factor other than specified in section 1.2.C.2, Independent field test report from licensed professional engineer will be required to substantiate the ability to maintain light levels in accordance with section 1.7-A of the specification. Both initial and maintained light scans must still be provided. Independent Engineer conducting the report must have no affiliation with the manufacturer and report must be based on actual testing data. Testing must be done on the system as a whole, not on individual components.
J	Project References	Manufacturer to provide a list of 10projects where the technology and specific fixture proposed for this project has been installed in the state of Rhode Island. Reference list will include project name, project city, installation date, and if requested, contact name and contact phone number. Manufacturer bidding Lighting Method 2 must supply independent test report if lamp life relamping projection is greater than 3000 hours.

K	Product Information	Complete bill of material for all product being provided.
L	Non-Compliance	Manufacturer shall list all items that do not comply with the specifications. If in full compliance, tab may be omitted.
M	Life-cycle Cost Calculation	Document life-cycle cost calculations as defined in the specification. Identify energy costs for operating the luminaires, maintenance cost for the system including spot lamp replacement, and group relamping costs. All costs should be based on 25 Years. (complete table below)

			Lighting Method 1	**Lighting Method 2**
a.	**Luminaire energy consumption** _____ luminaires x 1.56kW demand per luminaire x 0.13 kWh rate x # annual usage hours x 25 years			
b.	**Demand charges, if applicable**	+		
c.	**Cost for spot relamping and maintenance over 25 years** Assume 7.5 repairs at $500 each if not included with the bid	+		
d.	**Cost to relamp all luminaires during 25 years** # annual usage hours x 25 years / 3000 hours x $125 lamp & labor x fixtures if not included with the bid	+		
e.	**Extra energy used without base bid automated control system** $ Energy consumption in item a. x 10% if control system not included with the bid	+		
	TOTAL 25 -Year Life-cycle Operating Cost	=		

The information supplied herein shall be used for the purpose of complying with the specifications for University of Rhode Island Tibbetts Field. By signing below I agree that all requirements of the specifications have been met and that the manufacturer will be responsible for any future costs incurred to bring their equipment into compliance for all items not meeting specifications and not listed in the Non-Compliance section.

Manufacturer: _____ **Signature:** _____

Contact Name: _____ **Date:** _____/_____/_____

PART 4 - MEASUREMENT. Not applicable

PART 5 – PAYMENT.

5.1 Basis of Payment.

5.1.1 Sports Field Lighting for Tibbett's Athletic Fields will not be paid for separately, but payment will be included in the Lump Sum price listed in the Bid Proposal Form for construction of the Project, complete. **Caveat;** That part of the lump sum price that represents payment for the work of this Section 16526 constitutes full and complete compensation for all labor, materials and equipment for providing lighting, foundations, electrical work, and all other incidentals required to finish this work, complete and accepted by the Engineer.

END OF SECTION

Appendix A
Soil Data

Geologic - Earth Exploration, Inc.

7 Sherwood Drive
TEL (508) 384-4434
Norfolk, MA 02056
FAX (508) 384-4452

CLIENT: Gordon R. Archibald
PROJECT: URI
LOCATION: Kingstown, Rhode Island

BORING #: B1
PAGE 1 OF 1

File #: 12080
Date Started: 4/2/12
Date Completed: 4/2/12
Driller: J.Boyd
Site Rep.: T.Plante

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	2"	
HAMMER	140#	140#	---
FALL	30"	30"	---

Surface Elevation:
Station:
Groundwater level readings
Date Depth
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	18	2-2-4-5	S-1 Loose dry medium SAND
5	S-2	4.0-6.0	24	13	15-21-30-37	S-2 Dense dry fine SAND with some Gravel
10	S-3	9.0-11.0	24	8	3-8-10-11	S-3 Loose dry brown fine SAND with some Gravel
15	S-4	14.0-16.0	24	8	13-11-11-12	S-4 Medium dense dry gray fine SAND and GRAVEL
20	S-5	19.0-21.0	24	7	9-9-8-9	S-5 Medium dense wet gray GRAVEL and little Sand
25	S-6	24.0-26.0	24	6	5-6-7-8	S-6 Medium dense wet brown SAND
						Bottom of exploration at 26.0'
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft				Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2	Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4	Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8	M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%					50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

BL ALL 12080 GRA KINGSTOWN, RI.GPJ GEOLOGIC.GDT 4/12/12

Geologic - Earth Exploration, Inc.

7 Sherwood Drive
TEL (508) 384-4434
Norfolk, MA 02056
FAX (508) 384-4452

CLIENT: Gordon R. Archibald
PROJECT: URI
LOCATION: Kingstown, Rhode Island

BORING #: B2
PAGE 1 OF 1

File #: 12080
Date Started: 4/2/12
Date Completed: 4/2/12
Driller: J.Boyd
Site Rep.: T.Plante

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	2"	
HAMMER	140#	140#	---
FALL	30"	30"	---

Surface Elevation:
Station:
Groundwater level readings
Date Depth
Date Depth

Depth ft	Sample No.	Sample Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	17	2-2-3-3	S-1 Loose dry brown/gray fine SAND
5	S-2	4.0-6.0	24	11	8-17-18-18	S-2 Dense dry gray SAND with some Gravel
10	S-3	9.0-11.0	24	11	9-11-13-22	S-3 Medium dense dry brown SAND with some Gravel
15	S-4	14.0-16.0	24	8	7-8-8-11	S-4 Medium dense dry brown SAND with some Gravel
20	S-5	19.0-21.0	24	4	4-3-3-3	S-5 Loose wet gray/brown GRAVEL with little Sand
25	S-6	24.0-26.0	24	5	2-4-5-7	S-6 Loose wet gray fine SAND
30						Bottom of exploration at 26.0'

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft				Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2	Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4	Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8	M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%					50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

BL ALL 12080 GRA KINGSTOWN, RI.GPJ GEOLOGIC.GDT 4/12/12

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FAX (508) 384-4452

CLIENT: Gordon R. Archibald
PROJECT: URI
LOCATION: Kingstown, Rhode Island

BORING #: B3
PAGE 1 OF 1

File #: 12080
Date Started: 4/2/12
Date Completed: 4/2/12
Driller: J.Boyd
Site Rep.: T.Plante

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	2"	
HAMMER	140#	140#	---
FALL	30"	30"	---

Surface Elevation:
Station:
Groundwater level readings
Date Depth
Date Depth

Depth ft	Sample No.	Sample Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	20	2-2-3-4	S-1 Loose dry brown fine silty SAND
5	S-2	4.0-6.0	24	3	13-20-26-34	S-2 Dense dry light brown silty SAND
10	S-3	9.0-11.0	24	8	11-15-19-22	S-3 Dense dry brown GRAVEL with some Sand
15	S-4	14.0-16.0	24	10	4-14-120/4"	S-4 Very dense dry brown GRAVEL wtih trace Sand, Refusal @ 14.8'
						Bottom of exploration at 14.8'
20						
25						
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft				Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2	Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4	Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8	M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%					50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

BL ALL 12080 GRA KINGSTOWN, RI.GPJ GEOLOGIC.GDT 4/12/12

Geologic - Earth Exploration, Inc.

7 Sherwood Drive
TEL (508) 384-4434
Norfolk, MA 02056
FAX (508) 384-4452

CLIENT: Gordon R. Archibald
PROJECT: URI
LOCATION: Kingstown, Rhode Island

BORING #: B4
PAGE 1 OF 1

		CASING	SAMPLER	CORE BARREL
File #:	12080			
Date Started:	4/3/12	TYPE: HW	SS	
Date Completed:	4/3/12	SIZE: 4"	2"	
Driller:	J.Boyd	HAMMER: 140#	140#	---
Site Rep.:	T.Plante	FALL: 30"	30"	---

Surface Elevation:
Station:
Groundwater level readings
Date Depth
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	14	2-2-3-3	S-1 Loose dry brown fine silty SAND
5	S-2	4.0-6.0	24	13	14-33-43-40	S-2 Very dense dry gray GRAVEL and SAND
10	S-3	9.0-11.0	24	11	14-19-24-29	S-3 Dense dry gray GRAVEL with some Sand
15	S-4	14.0-16.0	24	9	10-15-11-11	S-4 Medium dense dry light brown GRAVEL with some Sand
20	S-5	19.0-21.0	24	8	9-11-11-9	S-5 Medium dense wet light brown GRAVEL and SAND
25	S-6	24.0-26.0	24	6	4-5-6-7	S-6 Medium dense wet light brown SAND
30						Bottom of exploration at 26.0'

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft				Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2	Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4	Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8	M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%					50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

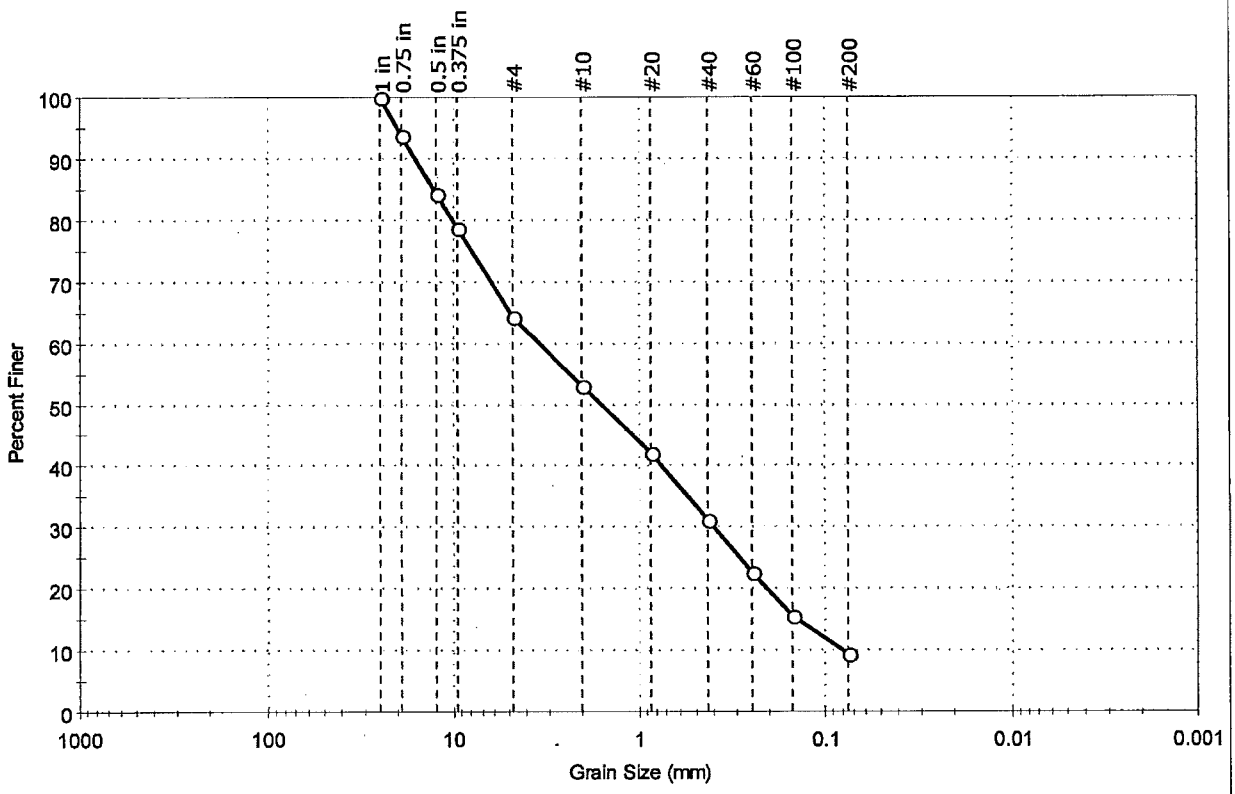
Remarks: NOTE: All soil descriptions are made in the field by the Drilling Foreman. No laboratory analyses were performed for this purpose.

BL ALL 12080 GRA KINGSTOWN, RI.GPJ GEOLOGIC.GDT 4/12/12

GeoTesting EXPRESS

Client:	Geologic-Earth Exploration Inc				
Project:	University of Rhode Island				
Location:	Tibbets Athletic Field			Project No:	GTX-11705
Boring ID:	B-4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-2	Test Date:	04/13/12	Checked By:	njh
Depth :	---	Test Id:	233957		
Test Comment:	---				
Sample Description:	Moist, light olive brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	35.8	54.8	9.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	94		
0.5 in	12.50	84		
0.375 in	9.50	79		
#4	4.75	64		
#10	2.00	53		
#20	0.85	42		
#40	0.42	31		
#60	0.25	23		
#100	0.15	16		
#200	0.075	9		

Coefficients

D_{85} =12.9060 mm	D_{30} =0.3943 mm
D_{60} =3.4137 mm	D_{15} =0.1400 mm
D_{50} =1.5614 mm	D_{10} =0.0801 mm
C_u =42.618	C_c =0.569

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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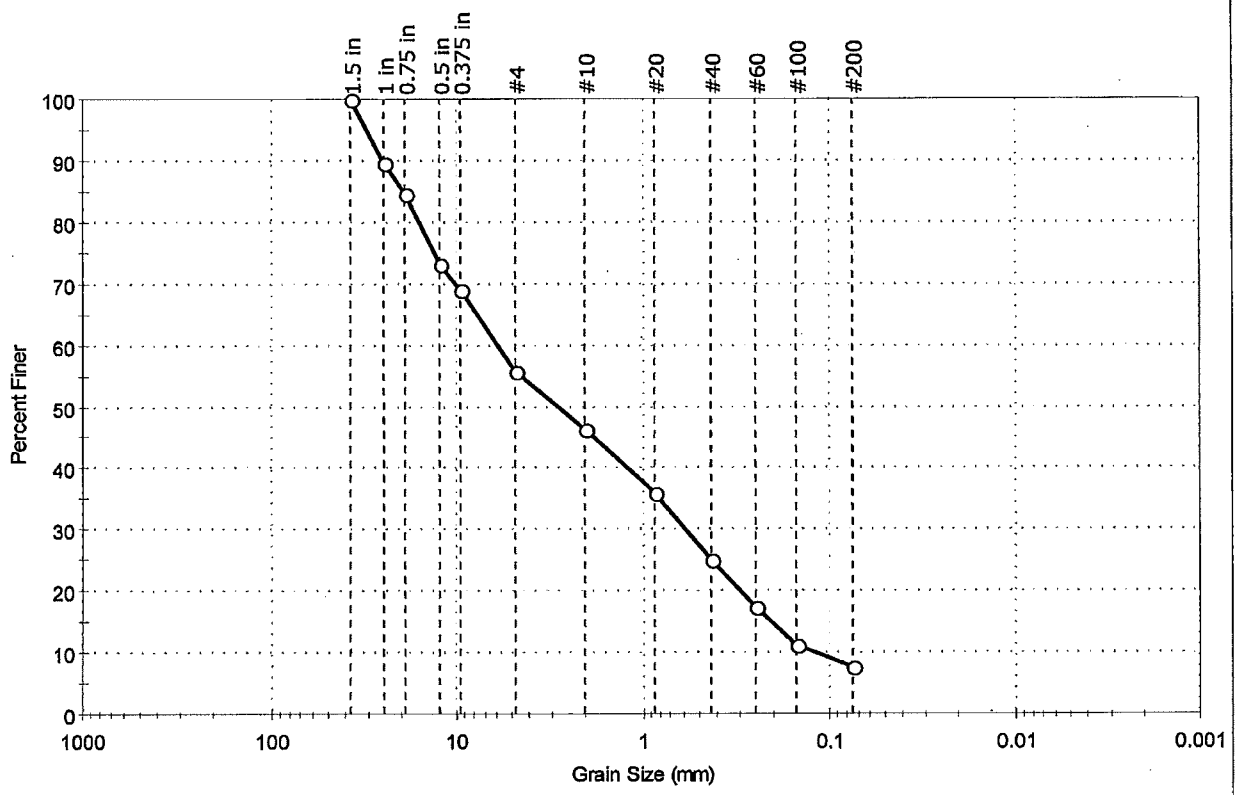
GeoTesting EXPRESS

Client:	Geologic-Earth Exploration Inc				
Project:	University of Rhode Island				
Location:	Tibbets Athletic Field			Project No:	GTX-11705
Boring ID:	B-4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-3	Test Date:	04/13/12	Checked By:	njh
Depth :	---	Test Id:	233958		
Test Comment:	---				
Sample Description:	Moist, light olive brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	44.3	48.2	7.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1 in	25.00	90		
0.75 in	19.00	85		
0.5 in	12.50	73		
0.375 in	9.50	69		
#4	4.75	56		
#10	2.00	46		
#20	0.85	36		
#40	0.42	25		
#60	0.25	17		
#100	0.15	11		
#200	0.075	8		

Coefficients

D_{85} =19.3336 mm D_{30} =0.5801 mm
D_{60} =5.9422 mm D_{15} =0.2045 mm
D_{50} =2.8086 mm D_{10} =0.1181 mm
C_u =50.315 C_c =0.480

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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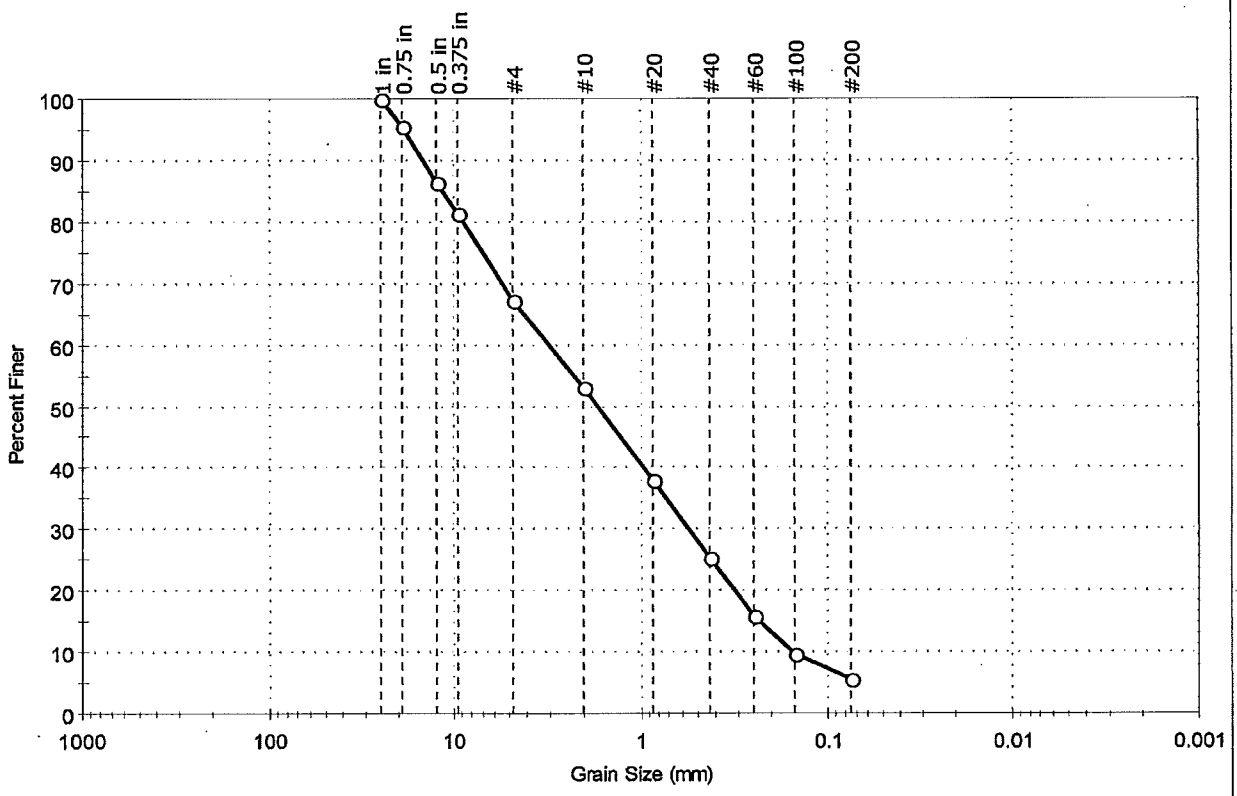
GeoTesting EXPRESS

Client:	Geologic-Earth Exploration Inc				
Project:	University of Rhode Island				
Location:	Tibbets Athletic Field			Project No:	GTX-11705
Boring ID:	B-4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-4	Test Date:	04/13/12	Checked By:	njh
Depth :	---	Test Id:	233959		
Test Comment:	---				
Sample Description:	Moist, light olive brown sand with silt and gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	32.8	61.5	5.7

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	96		
0.5 in	12.50	86		
0.375 in	9.50	81		
#4	4.75	67		
#10	2.00	53		
#20	0.85	38		
#40	0.42	25		
#60	0.25	16		
#100	0.15	10		
#200	0.075	6		

Coefficients

D_{85} = 11.5943 mm	D_{30} = 0.5509 mm
D_{60} = 3.0380 mm	D_{15} = 0.2303 mm
D_{50} = 1.6688 mm	D_{10} = 0.1532 mm
C_U = 19.830	C_c = 0.652

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

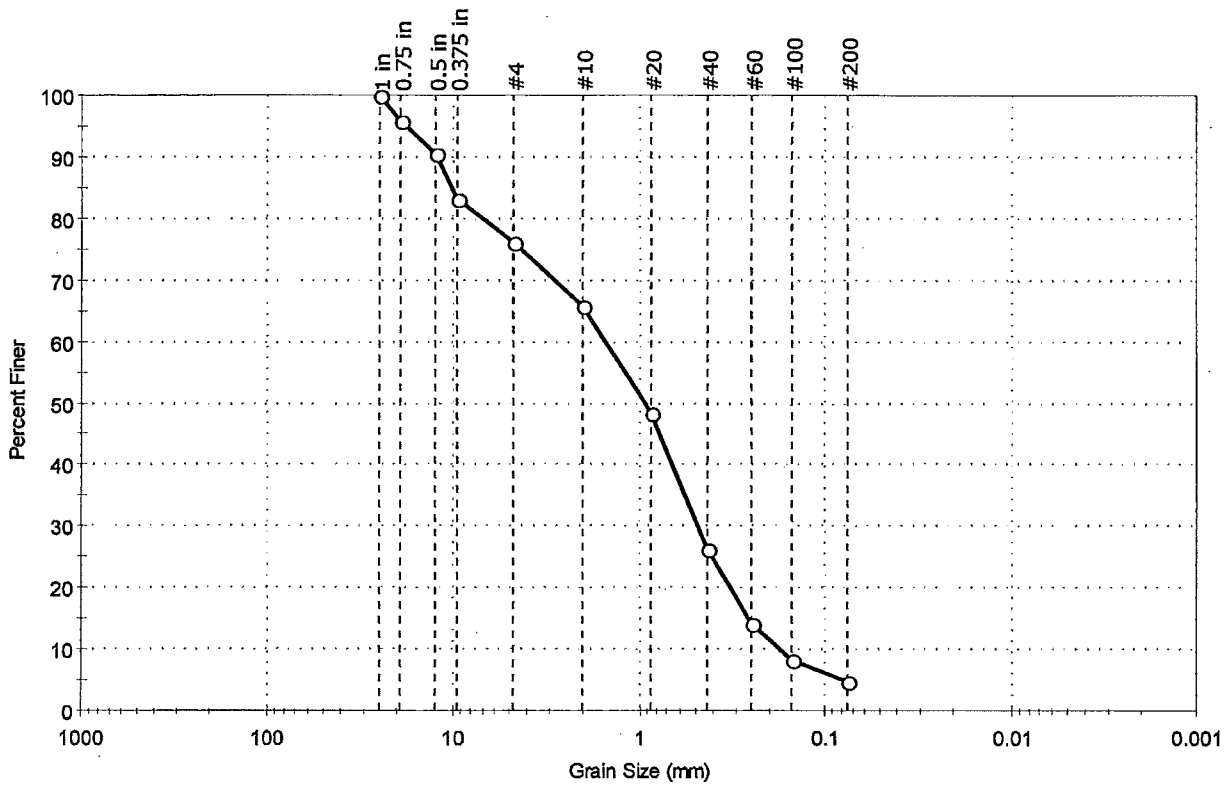
Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

Client:	Geologic-Earth Exploration Inc				
Project:	University of Rhode Island				
Location:	Tibbets Athletic Field			Project No:	GTX-11705
Boring ID:	B-4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-5	Test Date:	04/13/12	Checked By:	njh
Depth :	---	Test Id:	233960		
Test Comment:	---				
Sample Description:	Moist, olive brown sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	23.8	71.6	4.6

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1 in	25.00	100		
0.75 in	19.00	96		
0.5 in	12.50	90		
0.375 in	9.50	83		
#4	4.75	76		
#10	2.00	66		
#20	0.85	48		
#40	0.42	26		
#60	0.25	14		
#100	0.15	8		
#200	0.075	5		

Coefficients

D_{85} =10.2121 mm	D_{30} =0.4774 mm
D_{60} =1.5114 mm	D_{15} =0.2601 mm
D_{50} =0.9223 mm	D_{10} =0.1758 mm
C_u =8.597	C_c =0.858

Classification

ASTM Poorly graded sand with gravel (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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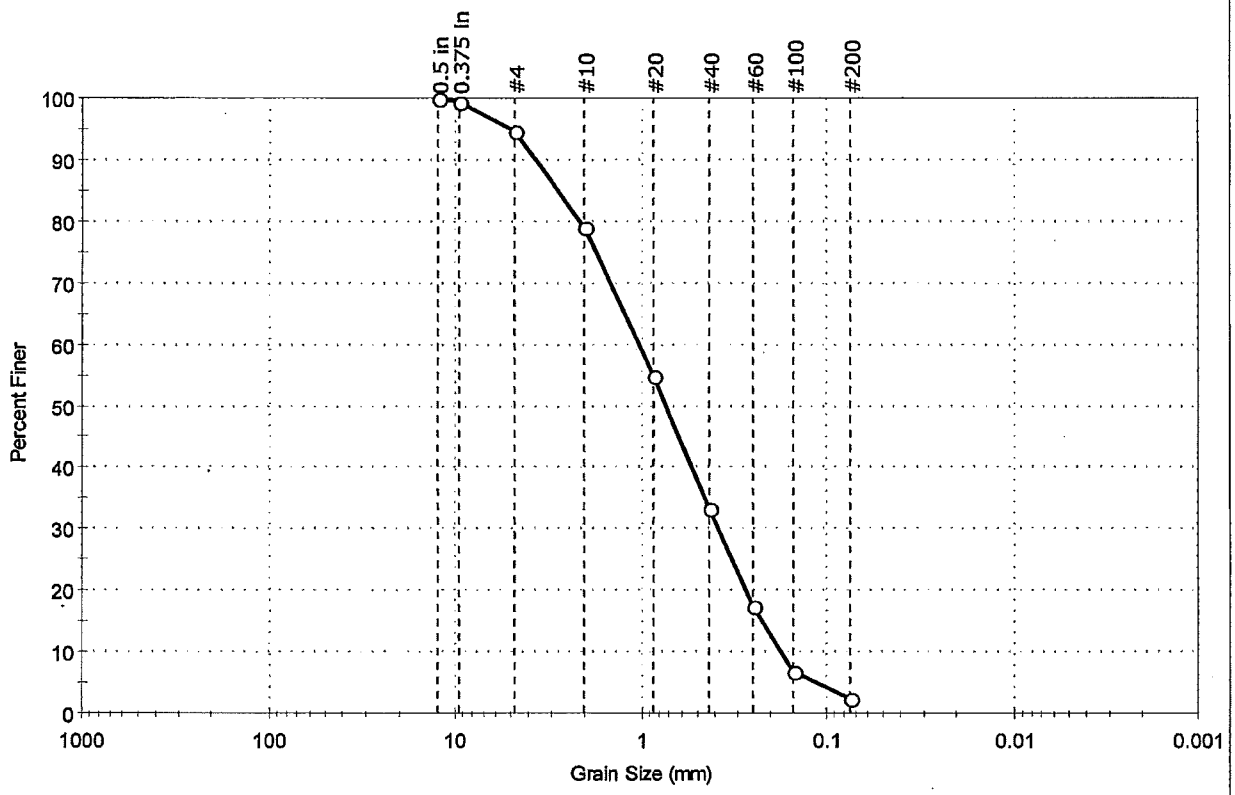
GeoTesting EXPRESS

Client:	Geologic-Earth Exploration Inc				
Project:	University of Rhode Island				
Location:	Tibbets Athletic Field			Project No:	GTX-11705
Boring ID:	B-4	Sample Type:	jar	Tested By:	jbr
Sample ID:	S-6	Test Date:	04/17/12	Checked By:	njh
Depth :	---	Test Id:	233961		
Test Comment:	---				
Sample Description:	Moist, olive brown sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D 422-63 (reapproved 2002)



% Cobble	% Gravel	% Sand	% Silt & Clay Size
—	5.4	92.1	2.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.5 in	12.50	100		
0.375 in	9.50	99		
#4	4.75	95		
#10	2.00	79		
#20	0.85	55		
#40	0.42	33		
#60	0.25	18		
#100	0.15	7		
#200	0.075	2		

Coefficients

D_{85} =2.7831 mm	D_{30} =0.3788 mm
D_{60} =1.0184 mm	D_{15} =0.2219 mm
D_{50} =0.7257 mm	D_{10} =0.1753 mm
C_u =5.809	C_c =0.804

Classification

ASTM Poorly graded sand (SP)

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample/Test Description

Sand/Gravel Particle Shape : ROUNDED

Sand/Gravel Hardness : HARD

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Geologic - Earth Exploration, Inc.

7 Sherwood Drive
TEL (508) 384-4434
Norfolk, MA 02056
FAX (508) 384-4452

CLIENT: Gordon R. Archibald
PROJECT: URI
LOCATION: Kingstown, Rhode Island

BORING #: B5
PAGE 1 OF 1

File #: 12080
Date Started: 4/3/12
Date Completed: 4/3/12
Driller: J.Boyd
Site Rep.: T.Plante

	CASING	SAMPLER	CORE BARREL
TYPE	HW	SS	
SIZE	4"	2"	
HAMMER	140#	140#	---
FALL	30"	30"	---

Surface Elevation:
Station:
Groundwater level readings
Date Depth
Date Depth

Depth ft	Sample No.	Depth ft	Pen. in	Rec. in	Blows/6"	Sample Description
	S-1	0.0-2.0	24	13	2-2-3-3	S-1 Loose dry brown silty SAND
5	S-2	4.0-6.0	24	7	10-15-23-33	S-2 Dense dry brown GRAVEL with little Sand
10	S-3	9.0-11.0	24	12	15-24-23-15	S-3 Dense dry gray/brown GRAVEL with little Sand
15	S-4	14.0-16.0	24	12	6-9-10-16	S-4 Medium dense dry brown GRAVEL with some Sand
20	S-5	19.0-21.0	24	14	11-11-15-14	S-5 Medium dense dry brown SAND with some Gravel
25	S-6	24.0-26.0	24	11	28-14-17-10	S-6 Dense wet brown SAND with some Gravel
						Bottom of exploration at 26.0'
30						

Ground Surface to _____ used _____ then _____

Proportions Used		Cohesive Consistency Blows/ft				Cohesionless Density Blows/ft		Sample Type
Trace	0 to 10%	0-2	Very Soft	9-15	Stiff	0-10	Loose	UP = Fixed Piston
Little	10 to 20%	3-4	Soft	16-30	V-Stiff	10-30	M-Dense	UT = Shelby Tube
Some	20 to 35%	5-8	M-Stiff	31+	Hard	30-50	Dense	OE = Open End Rod
And	35 to 50%					50+	V-Dense	* = 300# hammer

Notes:
1. The stratification lines represent the approximate boundary between soil types. The transition may be gradual.
2. Water level readings were made in the drill hole during or at the completion of drilling. The water level may fluctuate over time.

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BL ALL 12080 GRA KINGSTOWN, RI.GPJ GEOLOGIC.GDT 4/12/12