BIDDING REQUIREMENTS, CONTRACT DOCUMENTS

and

TECHNICAL SPECIFICATIONS

FOR THE CONSTRUCTION OF

SHEEHAN-BASQUIL PARK RENOVATION – PHASE II

for the

City of Manchester, Department of Public Works
Manchester, NH

August 2020

Prepared by:

Hoyle, Tanner & Associates, Inc.

150 Dow Street
Manchester, New Hampshire 03101
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ADVERTISEMENT FOR BIDS
(EJCDC C-111 Modified)

Sheehan-Basquil Park Renovation – Phase II
City of Manchester – Department of Public Works
Manchester, NH

Sealed Bids for the construction of the Sheehan-Basquil Park Renovation – Phase II Project will be received by the City of Manchester – Department of Public Works, Attn. KC Moran, PE, Project Manager, at the office of the Department of Public Works, 475 Valley Street, Manchester, until 2:00 p.m. local time on Thursday, September 3, 2020, at which time the Bids received will be publicly opened and read. Bids submitted after this time will not be accepted. The anticipated project schedule is to start construction fall 2020 and complete construction fall 2020.

Bids shall be on a lump sum basis as indicated in the Bid Form, for the completion of all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construction of a splash pad, playground, including associated utility services, amenities and site improvements at Sheehan-Basquil Park in Manchester, New Hampshire. Lump sum Bids shall NOT include the cost for purchase and delivery of playground equipment, splash pad equipment, or benches. These items will be purchased by the City of Manchester, and bidding shall include delivery acceptance and installation only. Furthermore, bids shall not include the purchase and installation of the Surface America Poured In Place (PIP) Rubber Safety surface product. Bids shall include the asphalt base and coordination with Surface America for installation.

All individuals, firms, partnerships or corporations intending to bid, must be pre-qualified for the project with the City of Manchester, Department of Public Works. Pre-qualifications for this project are due by 12:00 PM on August 13, 2020 to the Department of Public Works office.

Bidding Documents may be obtained after August 10, 2020 and will be made available on the City's website at: http://www.manchesternh.gov/bids.

All questions with regard to the Contract Documents should be addressed (in writing only) to the attention of Donna Akerley at dakerley@hoyletanner.com.

The deadline for all questions shall be 12:00 PM on August 25, 2020.

Hard copies of the Bidding Documents may be obtained after August 10, 2020 at the office of Hoyle, Tanner & Associates, Inc., 150 Dow Street, Manchester, NH 03101, upon receipt of a non-refundable payment of $90.00 for each set. All requests for delivery of bid documents shall include a $20.00 non-refundable shipping and handling charge in addition to the $90.00 purchase price. Partial sets of bidding documents will not be made available. Make checks payable to “Hoyle, Tanner & Associates, Inc.” The contact person for obtaining bidding documents is Donna Akerley, 603-669-5555, ext. 185 dakerley@hoyletanner.com.

A non-mandatory pre-bid conference will be held at 2:00 p.m. local time on August 19, 2020 meeting at the Maple Street parking lot at Sheehan-Basquil Park, in Manchester, NH 03101. All interested, pre-qualified bidders are strongly encouraged to attend in order to prepare acceptable bid submissions.
Bid security shall be furnished in accordance with the Instructions to Bidders.

Owner: City of Manchester – Department of Public Works
By: KC Moran, PE
Title: Civil Engineer II

The City of Manchester is an equal opportunity / affirmative action agency. All qualified bidders will receive consideration without regard to race, color, religion, creed, age, sex, or national origin. The OWNER reserves the right to waive any informalities, to negotiate with any Bidder and to reject any or all Bids. No Bidder may withdraw his Bid within 90 days after the actual date of the opening thereof.

Questions regarding this Invitation to Bid should be directed to KC Moran, at (603) 624-6444.

END OF SECTION
## INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. Issuing Office—The office from which the Bidding Documents are to be issued, and which registers plan holders.

ARTICLE 2—BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder’s responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.04 Electronic Documents

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in PDF (Portable Document Format) (.pdf). It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor’s means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.04.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information.
that is not explicitly contained in printed paper versions of the documents, and for Bidder’s reliance upon such derived information.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 Bidders shall be prequalified by the City of Manchester prior to Bidding.

ARTICLE 4—PRE-BID CONFERENCE

4.01 A non-mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Access to buildings will only be provided during the pre-bid conference.

4.02 Information presented at the pre-bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER’S SAFETY PROGRAM; OTHER WORK AT THE SITE

5.01 Site and Other Areas

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 Existing Site Conditions

A. Subsurface and Physical Conditions; Hazardous Environmental Conditions

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site, if applicable:

   a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

   b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

   c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

   d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion...
Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

4. **Geotechnical Baseline Report/Geotechnical Data Report:** The Bidding Documents contain a Geotechnical Baseline Report (GBR) and Geotechnical Data Report (GDR), if applicable.
   
   a. As set forth in the Supplementary Conditions, the GBR describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations (“Baseline Conditions”). The GBR is a Contract Document.
   
   b. The Baseline Conditions in the GBR are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GBR, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.
   
   c. Nothing in the GBR is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.
   
   d. As set forth in the Supplementary Conditions, the GDR is a Contract Document containing data prepared by or for the Owner in support of the GBR.

B. **Underground Facilities:** Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5. **Other Site-related Documents**

   A. In addition to the documents regarding existing Site conditions referred to in Paragraph 5.02.A, the following other documents relating to conditions at or adjacent to the Site are known to Owner and made available to Bidders for reference:

   1. No site-related documents are available.

      Owner will make copies of these other Site-related documents available to any Bidder on request.

   B. Owner has not verified the contents of these other Site-related documents, and Bidder may not rely on the accuracy of any data or information in such documents. Bidder is responsible for any interpretation or conclusion Bidder draws from the other Site-related documents.

   C. The other Site-related documents are not part of the Contract Documents.
D. Bidders are encouraged to review the other Site-related documents, but Bidders will not be held accountable for any data or information in such documents. The requirement to review and take responsibility for documentary Site information is limited to information in (1) the Contract Documents and (2) the Technical Data.

E. No other Site-related documents are available.

5.04 Site Visit and Testing by Bidders

A. Bidder may visit the Site and conduct a thorough visual examination of the Site and adjacent areas during normal hours of operation. During the visit the Bidder must not disturb any ongoing operations at the Site. Access to buildings will only be provided at the pre-bid conference.

B. Bidders visiting the Site are required to arrange their own transportation to the Site.

C. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

D. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

5.05 Owner’s Safety Program

A. Site visits and work at the Site may be governed by an Owner safety program. If an Owner safety program exists, it will be noted in the Supplementary Conditions.

5.06 Other Work at the Site

A. Reference is made to Article 8 of the Supplementary Conditions for the identification of the general nature of other work of which Owner is aware (if any) that is to be performed at the Site by Owner or others (such as utilities and other prime contractors) and relates to the Work contemplated by these Bidding Documents. If Owner is party to a written contract for such other work, then on request, Owner will provide to each Bidder access to examine such contracts (other than portions thereof related to price and other confidential matters), if any.

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 Express Representations and Certifications in Bid Form, Agreement

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder’s examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.
ARTICLE 7—INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

A. Donna Akerley at dakerley@hoyletanner.com

7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received after 12:00PM on August 25, 2020 may not be answered.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of five percent (5%) of Bidder’s maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner’s damages in the case of a damages-form bond. Such forfeiture will be Owner’s exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the
8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

9.02 Provisions for liquidated damages, if any, for failure to timely attain a Milestone, Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND “OR EQUAL” ITEMS

10.01 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents without consideration during the bidding and Contract award process of possible substitute or “or-equal” items. In cases in which the Contract allows the Contractor to request that Engineer authorize the use of a substitute or “or-equal” item of material or equipment, application for such acceptance may not be made to and will not be considered by Engineer until after the Effective Date of the Contract.

10.02 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 A Bidder must be prepared to retain specific Subcontractors and Suppliers for the performance of the Work if required to do so by the Bidding Documents or in the Specifications. If a prospective Bidder objects to retaining any such Subcontractor or Supplier and the concern is not relieved by an Addendum, then the prospective Bidder should refrain from submitting a Bid.

11.02 The apparent Successful Bidder, and any other Bidder so requested, must submit to Owner a list of the Subcontractors or Suppliers proposed for the following portions of the Work within five days after Bid opening:

A. Electrical work
B. Plumbing work
C. Concrete work
D. Splash Pad equipment
E. Playground equipment
F. Irrigation
G. Landscaping
11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each section, Bid item, alternate, adjustment unit price item, and unit price item listed therein.

B. If the Bid Form expressly indicates that submitting pricing on a specific alternate item is optional, and Bidder elects to not furnish pricing for such optional alternate item, then Bidder may enter the words “No Bid” or “Not Applicable.”

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.

12.06 A Bid by an individual must show the Bidder’s name and official address.
12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.08 All names must be printed in ink below the signatures.

12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.

12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder’s licensure, or Bidder must certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder’s state contractor license number, if any, must also be shown on the Bid Form.

ARTICLE 13—BASIS OF BID

13.01 *Lump Sum*

A. Bidders must submit a Bid on a lump sum basis as set forth in the Bid Form.

ARTICLE 14—SUBMITTAL OF BID

14.01 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation “BID ENCLOSED.” A mailed Bid must be addressed to the location designated in the Advertisement.

14.02 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted.
prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.02 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.03 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.04 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.05 Evaluation of Bids

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a “Base Bid plus alternates” budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After
determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, and other factors set forth in these Instructions, the award may be made to said Successful Bidder on its base Bid and any combination of its additive alternate Bids for which Owner determines funds will be available at the time of award.

C. For determination of the apparent low Bidder(s) when sectional bids are submitted, Bids will be compared on the basis of the aggregate of the Bids for separate sections and the Bids for combined sections that result in the lowest total amount for all of the Work.

D. For the determination of the apparent low Bidder when unit price bids are submitted, Bids will be compared on the basis of the total of the products of the estimated quantity of each item and unit price Bid for that item, together with any lump sum items.

E. For the determination of the apparent low Bidder when cost-plus-fee bids are submitted, Bids will be compared on the basis of the Guaranteed Maximum Price set forth by Bidder on the Bid Form.

F. Bid prices will be compared after adjusting for differences in time of Substantial Completion (total number of calendar days to substantially complete the Work) designated by Bidders. The adjusting amount will be determined at the rate set forth in the Agreement for liquidated damages for failing to achieve Substantial Completion, or such other amount that Owner has designated in the Bid Form.

1. The method for calculating the lowest bid for comparison will be the summation of the Bid price shown in the Bid Form plus the product of the Bidder-specified time of Substantial Completion in calendar days times the rate for liquidated damages in dollars per day.

2. This procedure is only used to determine the lowest bid for comparison and contractor selection purposes. The Contract Price for compensation and payment purposes remains the Bid price shown in the Bid Form.

18.06 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.07 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

18.08 Award will be made in the best interest of the City taking into consideration factors set forth in the City of Manchester Procurement Code. Upon making an award, or giving notice of intent to award, the City will place appropriate notice on the Purchasing website: www.manchesternh.gov/bids.

18.09 Due to the limited funding for this work, the City reserves the right to delete any part of the work in order to keep expenditures within the limits of available funds.

ARTICLE 19—BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner’s requirements as to performance and payment bonds, other required bonds (if any),
and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions.

ARTICLE 21—SALES AND USE TAXES

21.01 Not Used.
BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to: City of Manchester Department of Public Works, 475 Valley Street, Manchester, NH 03103

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:
   A. Required Bid security;
   B. List of Proposed Subcontractors;
   C. List of Proposed Suppliers;
   D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
   E. Contractor’s license number as evidence of Bidder’s State Contractor’s License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;

ARTICLE 3—BASIS OF BID—LUMP SUM BID

3.01 Lump Sum Bids
   A. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s).
      1. Lump Sum Price (Single Lump Sum)
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>ITEM DESCRIPTION &amp; UNIT PRICE BID WRITTEN IN WORDS</th>
<th>UNIT PRICE</th>
<th>EST’D QUANTITY</th>
<th>UNIT</th>
<th>TOTAL PRICE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mobilization and Administration as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Install Playground described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Install Splash Pad described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Construction of Plumbing &amp; Electrical to manifold described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Construction of Site Lighting described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Construction of Site Work &amp; Drainage described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Construction of Asphalt Pavement described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8</td>
<td>Furnish and install Landscaping &amp; Irrigation described in the contract documents as Lump Sum of</td>
<td>$__________</td>
<td>1</td>
<td>LS</td>
<td>$__________</td>
</tr>
<tr>
<td></td>
<td>_________________________ dollars.</td>
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</tbody>
</table>

1. *BIDS shall include all applicable taxes and fees.*
TOTAL CONTRACT PRICE BASE BID: BIDDER agrees to perform all of the work described in the Contract Documents, including Allowances, for the following lump sum

_____________________________________________ dollars

(words)

and _________________________________ cents.

(words)

TOTAL LUMP SUM BID $______________________________.

(numbers)

The Owner hopes to construct the entire project, but recognizes that the funding may not become available, or the bids may exceed the available funds. Bids will be considered valid regardless of options, within the flexibility of the listed items. The Owner reserves the right to delete the entire project, items, or portions thereof, from any bids.

ARTICLE 4—TIME OF COMPLETION

4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER’S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 Receipt of Addenda

A. Bidder hereby acknowledges receipt of the following Addenda:

<table>
<thead>
<tr>
<th>Addendum Number</th>
<th>Addendum Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ARTICLE 6—BIDDER’S REPRESENTATIONS AND CERTIFICATIONS

6.01 Bidder’s Representations

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.

EJCDC® C-410, Bid Form for Construction Contract.

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2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder’s (Contractor’s) safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder’s Certifications

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
   a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
   b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
   c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
   d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.
BIDDER hereby submits this Bid as set forth above:

Bidder:

(typed or printed name of organization)

By: ____________________________  (individual’s signature)

Name: ____________________________  (typed or printed)

Title: ____________________________  (typed or printed)

Date: ____________________________  (typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: ____________________________  (individual’s signature)

Name: ____________________________  (typed or printed)

Title: ____________________________  (typed or printed)

Date: ____________________________  (typed or printed)

Address for giving notices:

________________________________________

Bidder’s Contact:

Name: ____________________________  (typed or printed)

Title: ____________________________  (typed or printed)

Phone: ____________________________

Email: ____________________________

Address:

________________________________________

________________________________________

Bidder’s Contractor License No.: (if applicable) ____________________________
# BID BOND (PENAL SUM FORM)

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: [Full formal name of Bidder]</td>
<td>Name: [Full formal name of Surety]</td>
</tr>
<tr>
<td>Address (principal place of business):</td>
<td>Address (principal place of business):</td>
</tr>
<tr>
<td>[Address of Bidder’s principal place of business]</td>
<td>[Address of Surety’s principal place of business]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner</th>
<th>Bid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: City of Manchester, Department of Public Works</td>
<td>Project (name and location): Sheehan-Basquil Park Renovation – Phase II</td>
</tr>
<tr>
<td>Address (principal place of business): 475 Valley Street Manchester, NH 03103</td>
<td>299 Maple Street Manchester, NH 03103</td>
</tr>
<tr>
<td>Bid Due Date: September 3, 2020</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penal Sum: [Amount]</td>
</tr>
<tr>
<td>Date of Bond: [Date]</td>
</tr>
</tbody>
</table>

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Full formal name of Bidder) (corporate seal)</td>
<td>(Full formal name of Surety) (corporate seal)</td>
</tr>
<tr>
<td>By: (Signature)</td>
<td>By: (Signature) (Attach Power of Attorney)</td>
</tr>
<tr>
<td>Name: (Printed or typed)</td>
<td>Name: (Printed or typed)</td>
</tr>
<tr>
<td>Title:</td>
<td>Title:</td>
</tr>
<tr>
<td>Attest: (Signature)</td>
<td>Attest: (Signature)</td>
</tr>
<tr>
<td>Name: (Printed or typed)</td>
<td>Name: (Printed or typed)</td>
</tr>
<tr>
<td>Title:</td>
<td>Title:</td>
</tr>
</tbody>
</table>

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.
1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder’s and Surety’s liability. Recovery of such penal sum under the terms of this Bond will be Owner’s sole and exclusive remedy upon default of Bidder.

2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation will be null and void if:
   
   3.1. Owner accepts Bidder’s Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or
   
   3.2. All Bids are rejected by Owner, or
   
   3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions does not in the aggregate exceed 120 days from the Bid due date without Surety’s written consent.

6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond will be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.
# BID BOND (DAMAGES FORM)

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>Address (principal place of business):</td>
<td>Address (principal place of business):</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Owner</th>
<th>Bid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: City of Manchester, Department of Public Works</td>
<td>Project (name and location): Sheehan-Basquil Park Renovation – Phase II 299 Maple Street Manchester, NH 03103</td>
</tr>
<tr>
<td>Address (principal place of business): 475 Valley Street Manchester, NH 03103</td>
<td>Address (principal place of business): 475 Valley Street Manchester, NH 03103</td>
</tr>
</tbody>
</table>

Bid Due Date: **September 3, 2020**

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth in this Bid Bond, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

<table>
<thead>
<tr>
<th>Bidder</th>
<th>Surety</th>
</tr>
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<tbody>
<tr>
<td>(Full formal name of Bidder)</td>
<td>(Full formal name of Surety) (corporate seal)</td>
</tr>
<tr>
<td>By:</td>
<td>By:</td>
</tr>
<tr>
<td>(Signature)</td>
<td>(Signature) (Attach Power of Attorney)</td>
</tr>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>(Printed or typed)</td>
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<tr>
<td>Title:</td>
<td>Title:</td>
</tr>
</tbody>
</table>

Attest:

<table>
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<tr>
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<th>Surety</th>
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<tbody>
<tr>
<td>(Signature)</td>
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<td>(Printed or typed)</td>
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<td>Title:</td>
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</tbody>
</table>

Notes: (1) Note: Addresses are to be used for giving any required notice. (2) Provide execution by any additional parties, such as joint venturers, if necessary.
1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder any difference between the total amount of Bidder’s Bid and the total amount of the Bid of the next lowest, responsible Bidder that submitted a responsive Bid, as determined by Owner, for the work required by the Contract Documents, provided that:

1.1. If there is no such next Bidder, and Owner does not abandon the Project, then Bidder and Surety shall pay to Owner the bond amount set forth on the face of this Bond, and

1.2. In no event will Bidder’s and Surety’s obligation hereunder exceed the bond amount set forth on the face of this Bond.

1.3. Recovery under the terms of this Bond will be Owner’s sole and exclusive remedy upon default of Bidder.

2. Default of Bidder occurs upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation will be null and void if:

3.1. Owner accepts Bidder’s Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2. All Bids are rejected by Owner, or

3.3. Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions will not in the aggregate exceed 120 days from Bid due date without Surety’s written consent.

6. No suit or action will be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety, and in no case later than one year after the Bid due date.

7. Any suit or action under this Bond must be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder must be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Postal Service registered or certified mail, return receipt requested, postage pre-paid, and will be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond will be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute governs and the remainder of this Bond that is not in conflict therewith continues in full force and effect.

11. The term “Bid” as used herein includes a Bid, offer, or proposal as applicable.
NOTICE OF AWARD

Date of Issuance: City of Manchester
Owner: Department of Public Works Owner’s Project No.: 
Engineer: Hoyle, Tanner & Associates, Inc Engineer’s Project No.: 111121
Project: Sheehan-Basquil Park Renovation – Phase II
Contract Name: 
Bidder: 
Bidder’s Address: 

You are notified that Owner has accepted your Bid dated [ ] for the above Contract, and that you are the Successful Bidder and are awarded a Contract for:

Sheehan-Basquil Park Renovation – Phase II

The Contract Price of the awarded Contract is $[ ]. Contract Price is subject to adjustment based on the provisions of the Contract, including but not limited to those governing changes, Unit Price Work, and Work performed on a cost-plus-fee basis, as applicable.

[ ] unexecuted counterparts of the Agreement accompany this Notice of Award, and one copy of the Contract Documents accompanies this Notice of Award, or has been transmitted or made available to Bidder electronically.

☐ Drawings will be delivered separately from the other Contract Documents.

You must comply with the following conditions precedent within 15 days of the date of receipt of this Notice of Award:

1. Deliver to Owner [ ] counterparts of the Agreement, signed by Bidder (as Contractor).
2. Deliver with the signed Agreement(s) the Contract security (such as required performance and payment bonds) and insurance documentation, as specified in the Instructions to Bidders and in the General Conditions, Articles 2 and 6.
3. Other conditions precedent (if any): [ ]

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within 10 days after you comply with the above conditions, Owner will return to you one fully signed counterpart of the Agreement, together with any additional copies of the Contract Documents as indicated in Paragraph 2.02 of the General Conditions.

Owner: City of Manchester, Department of Public Works
By (signature): 
Name (printed): 
Title: 
Copy: Engineer
AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

This Agreement is by and between the City of Manchester, Department of Public Works (“Owner”) and __________________________ (“Contractor”).

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

Owner and Contractor hereby agree as follows:

ARTICLE 1—WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows: Construction of a splash pad, playground, including associated utility services, amenities and site improvements at Sheehan-Basquil Park in Manchester, New Hampshire.

ARTICLE 2—THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Construction of a splash pad, playground, including associated utility services, amenities and site improvements at Sheehan-Basquil Park in Manchester, New Hampshire.

ARTICLE 3—ENGINEER

3.01 The Owner has retained Hoyle, Tanner & Associates, Inc. (“Engineer”) to act as Owner’s representative, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract.

3.02 The part of the Project that pertains to the Work has been designed by Engineer.

ARTICLE 4—CONTRACT TIMES

4.01 Time is of the Essence

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 Contract Times: Days

A. The Work will be substantially complete within 60 days after the date when the Contract Times commence to run as provided in Paragraph 4.01 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within 90 days after the date when the Contract Times commence to run.

4.03 Milestones

A. Parts of the Work must be substantially completed on or before the following Milestone(s):

1. Milestone 1: Concrete in place within 60 days
2. Milestone 2: Asphalt in place within 60 days
3. Milestone 3: Rubber play surface in place within 60 days

4.04 Liquidated Damages

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial and other losses if the Work is not completed and Milestones not achieved within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. **Substantial Completion:** Contractor shall pay Owner $500 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.

2. **Completion of Remaining Work:** After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, Contractor shall pay Owner $500 for each day that expires after such time until the Work is completed and ready for final payment.

3. **Milestones:** As listed in 4.03 by substantial completion.

4. Liquidated damages for failing to timely attain Milestones, Substantial Completion, and final completion are not additive, and will not be imposed concurrently.

B. If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner’s sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

C. **Bonus:** Not applicable.

4.05 Special Damages

A. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor’s failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

B. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified in Paragraph 4.02 for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

C. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.
ARTICLE 5—CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

A. For all Work, a lump sum of $\[ \text{ ]}. All specific cash allowances are included in the above price in accordance with Paragraph 13.02 of the General Conditions.

ARTICLE 6—PAYMENT PROCEDURES

6.01 Submittal and Processing of Payments

A. Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 Progress Payments; Retainage

A. Owner shall make progress payments on the basis of Contractor’s Applications for Payment on or about the 15th day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

a. 100% percent of the value of the Work completed.

1) If 50 percent or more of the Work has been completed, as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no retainage.

6.03 Final Payment

A. Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price in accordance with Paragraph 15.06 of the General Conditions.

6.04 Consent of Surety

A. Owner will not make final payment, or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.
ARTICLE 7—CONTRACT DOCUMENTS

7.01 Contents
   A. The Contract Documents consist of all of the following:
      1. This Agreement.
      2. Bonds:
         a. Performance bond (together with power of attorney).
         b. Payment bond (together with power of attorney).
      3. General Conditions.
      4. Supplementary Conditions.
      5. Specifications as listed in the table of contents of the project manual (copy of list attached).
      6. Drawings (not attached but incorporated by reference) consisting of 16 sheets with each sheet bearing the following general title: Sheehan-Basquil Park Renovation – Phase II
      8. Addenda (inclusive).
      9. Exhibits to this Agreement (enumerated as follows):
         a. None
      10. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
          a. Notice to Proceed.
          b. Work Change Directives.
          c. Change Orders.
          d. Field Orders.
          e. Warranty Bond, if any.
   B. The Contract Documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).
   C. There are no Contract Documents other than those listed above in this Article 7.
   D. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

ARTICLE 8—REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

8.01 Contractor’s Representations
   A. In order to induce Owner to enter into this Contract, Contractor makes the following representations:
      1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.

4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.

5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.

6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor’s safety precautions and programs.

7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. Contractor’s entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

8.02 Contractor’s Certifications

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.02:
1. “corrupt practice” means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. “fraudulent practice” means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.03 Standard General Conditions

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or “track changes” (redline/strikeout), or in the Supplementary Conditions.
IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

This Agreement will be effective on ______________________ (which is the Effective Date of the Contract).

Owner:

City of Manchester
Department of Public Works

[typed or printed name of organization]

By: ________________________________
    (individual’s signature)

Date: ______________________________
    (date signed)

Name: ______________________________
    (typed or printed)

Title: ______________________________
    (typed or printed)

Attest: ______________________________
    (individual’s signature)

Title: ______________________________
    (typed or printed)

Address for giving notices:

Designated Representative:

Name: ______________________________
    (typed or printed)

Title: ______________________________
    (typed or printed)

Address:

Phone: ______________________________
Email: ______________________________

(If [Type of Entity] is a corporation, attach evidence of authority to sign. If [Type of Entity] is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

Contractor:

[typed or printed name of organization]

By: ________________________________
    (individual’s signature)

Date: ______________________________
    (date signed)

Name: ______________________________
    (typed or printed)

Title: ______________________________
    (typed or printed)

Attest: ______________________________
    (individual’s signature)

Title: ______________________________
    (typed or printed)

Address for giving notices:

Designated Representative:

Name: ______________________________
    (typed or printed)

Title: ______________________________
    (typed or printed)

Address:

Phone: ______________________________
Email: ______________________________
License No.: _________________________
    (where applicable)
State: ____________________________________________
OWNER: City of Manchester
Department of Public Works

ENGINEER: Hoyle, Tanner & Associates, Inc.

CONTRACTOR: 

PROJECT: Sheehan-Basquil Park Renovation – Phase II

Contract Name: 

Effective Date of Contract: 

Owner hereby notifies Contractor that the Contract Times under the above Contract will commence to run on [ ] pursuant to Paragraph 4.01 of the General Conditions.

On that date, Contractor shall start performing its obligations under the Contract Documents. No Work will be done at the Site prior to such date.

In accordance with the Agreement:

The number of days to achieve Substantial Completion is [number of days, from Agreement] from the date stated above for the commencement of the Contract Times, resulting in a date for Substantial Completion of [date, calculated from commencement date above]; and the number of days to achieve readiness for final payment is [number of days, from Agreement] from the commencement date of the Contract Times, resulting in a date for readiness for final payment of [date, calculated from commencement date above].

Before starting any Work at the Site, Contractor must comply with the following:

Owner: City of Manchester, Department of Public Works

By (signature): 

Name (printed): 

Title: 

Date Issued: 

Copy: Engineer
## PERFORMANCE BOND

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>Address (principal place of business):</td>
<td>Address (principal place of business):</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th>Owner</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:  City of Manchester  Department of Public Works</td>
<td>Description (name and location):</td>
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<tr>
<td>Mailing address (principal place of business):</td>
<td></td>
</tr>
<tr>
<td>475 Valley Street</td>
<td>475 Valley Street</td>
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<tr>
<td>Manchester, NH 03103</td>
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<th>Bond</th>
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<tr>
<td>Bond Amount:</td>
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<tr>
<td>Date of Bond:</td>
</tr>
<tr>
<td>(Date of Bond cannot be earlier than Effective Date of Contract)</td>
</tr>
<tr>
<td>Modifications to this Bond form:</td>
</tr>
<tr>
<td>☐ None ☐ See Paragraph 16</td>
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</table>

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Performance Bond, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

<table>
<thead>
<tr>
<th>Contractor as Principal</th>
<th>Surety</th>
</tr>
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<tbody>
<tr>
<td>(Full formal name of Contractor)</td>
<td>(Full formal name of Surety) (corporate seal)</td>
</tr>
<tr>
<td>By:</td>
<td>By:</td>
</tr>
<tr>
<td>(Signature)</td>
<td>(Signature) (Attach Power of Attorney)</td>
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Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.
1. The Contractor and 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 when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety’s obligation under this Bond will arise after:
   
   3.1. The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice may indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor’s performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner’s notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 will be held within ten (10) business days of the Surety’s receipt of the Owner’s notice. 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 does not waive the Owner’s right, if any, subsequently to declare a Contractor Default;
   
   3.2. The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
   
   3.3. The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 does not constitute a failure to comply with a condition precedent to the Surety’s obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. 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:
   
   5.1. Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;
   
   5.2. Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;
   
   5.3. 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 a contractor selected with the Owners 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 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or
   
   5.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven 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 Paragraph 5.4, and the Owner refuses the payment, 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.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner will not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety will not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1. the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2. 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 5; and

7.3. 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.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. 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 will not be reduced or set off on account of any such unrelated obligations. No right of action will accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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. Any proceeding, legal or equitable, under this Bond must be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and must be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased 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 periods of limitations available to sureties as a defense in the jurisdiction of the suit will be applicable.

12. Notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears.

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 will be deemed deleted therefrom and provisions conforming to such
statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1. *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 for the Contractor for 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.

14.2. *Construction Contract*—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3. *Contractor Default*—Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4. *Owner Default*—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5. *Contract Documents*—All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

16. Modifications to this Bond are as follows:
# WARRANTY BOND

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>Address <em>(principal place of business)</em>:</td>
<td>Address <em>(principal place of business)</em>:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner</th>
<th>Construction Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name: City of Manchester&lt;br&gt;Department of Public Works</td>
<td>Description <em>(name and location)</em>:</td>
</tr>
<tr>
<td>Address <em>(principal place of business)</em>: 475 Valley Street&lt;br&gt;Manchester, NH 03103</td>
<td>Contract Price:</td>
</tr>
<tr>
<td></td>
<td>Effective Date of Contract:</td>
</tr>
<tr>
<td></td>
<td>Contract’s Date of Substantial Completion:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond Amount:</td>
</tr>
<tr>
<td>Date of Bond:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Modifications to this Bond form:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ None ☐ See Paragraph 9</td>
</tr>
</tbody>
</table>

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth herein, do each cause this Warranty Bond to be duly executed by an authorized officer, agent, or representative.

<table>
<thead>
<tr>
<th>Contractor as Principal</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Full formal name of Contractor)</em></td>
<td><em>(Full formal name of Surety) (corporate seal)</em></td>
</tr>
<tr>
<td>By:</td>
<td>By: <em>(Signature) (Attach Power of Attorney)</em></td>
</tr>
<tr>
<td>Name:</td>
<td>Name: <em>(Printed or typed)</em></td>
</tr>
<tr>
<td>Title:</td>
<td>Title:</td>
</tr>
<tr>
<td>Attest:</td>
<td>Attest: <em>(Signature)</em></td>
</tr>
<tr>
<td>Name:</td>
<td>Name: <em>(Signature)</em></td>
</tr>
<tr>
<td>Title:</td>
<td>Title: <em>(Printed or typed)</em></td>
</tr>
</tbody>
</table>

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.
The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract’s Correction Period Obligations. The Construction Contract is incorporated herein by reference.

1. If the Contractor performs the Correction Period Obligations, the Surety and the Contractor shall have no obligation under this Warranty Bond.

2. If Owner gives written notice to Contractor and Surety during the Bond Period of Contractor’s obligation under the Correction Period Obligations, and Contractor does not fulfill such obligation, then Surety shall be responsible for fulfillment of such Correction Period Obligations. Surety shall either fulfill the Correction Period Obligations itself, through its agents or contractors, or, in the alternative, Surety may waive the right to fulfill the Correction Period Obligations itself, and reimburse the Owner for all resulting costs incurred by Owner in performing Contractor’s Correction Period Obligations, including but not limited to correction, removal, replacement, and repair costs.

3. The Surety’s liability is limited to the amount of this Warranty Bond. Renewal or continuation of the Warranty Bond will not modify such amount, unless expressly agreed to by Surety in writing.

4. The Surety shall have no liability under this Warranty Bond for obligations of the Contractor that are unrelated to the Construction Contract. No right of action will accrue on this Warranty Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

5. Any proceeding, legal or equitable, under this Warranty 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 must be instituted within two years after the Surety refuses or fails to perform its obligations under this Warranty Bond.

6. Written notice to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown in this Warranty Bond.

7. Definitions

7.1. Construction Contract—The agreement between the Owner and Contractor identified on the cover page of this Warranty Bond, including all Contract Documents and changes made to the agreement and the Contract Documents.

7.2. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.

7.3. Correction Period Obligations—The duties, responsibilities, commitments, and obligations of the Contractor with respect to correction or replacement of defective Work, as set forth in the Construction Contract’s Correction Period clause, EJCDC® C-700, Standard General Conditions of the Construction Contract (2018), Paragraph 15.08, as duly modified.

7.4. Substantial Completion—As defined in the Construction Contract.

7.5. Work—As defined in the Construction Contract.

8. Modifications to this Bond are as follows: None
# PAYMENT BOND

<table>
<thead>
<tr>
<th>Contractor</th>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name:</td>
<td>Name:</td>
</tr>
<tr>
<td>Address <em>(principal place of business)</em>:</td>
<td>Address <em>(principal place of business)</em>:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>City of Manchester</strong></td>
<td><strong>Description <em>(name and location)</em>:</strong></td>
</tr>
<tr>
<td>Name: <strong>Department of Public Works</strong></td>
<td></td>
</tr>
<tr>
<td>Mailing address <em>(principal place of business)</em>: 475 Valley Street Manchester, NH 03103</td>
<td>Contract Price:</td>
</tr>
<tr>
<td>Effective Date of Contract:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bond</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bond Amount:</td>
<td></td>
</tr>
<tr>
<td>Date of Bond:</td>
<td></td>
</tr>
<tr>
<td><em>(Date of Bond cannot be earlier than Effective Date of Contract)</em></td>
<td></td>
</tr>
<tr>
<td>Modifications to this Bond form:</td>
<td></td>
</tr>
<tr>
<td>☐ None ☐ See Paragraph 18</td>
<td></td>
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</table>

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth in this Payment Bond, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

## Contractor as Principal

<table>
<thead>
<tr>
<th>Surety</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>(Full formal name of Contractor)</em></td>
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<tr>
<td>By:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Title:</td>
</tr>
<tr>
<td>Attest:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Title:</td>
</tr>
</tbody>
</table>

Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party is considered plural where applicable.
1. The Contractor and 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, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety’s obligation to the Owner under this Bond will arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner’s property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety’s expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety’s obligations to a Claimant under this Bond will arise after the following:
   5.1. Claimants who do not have a direct contract with the Contractor
       
       5.1.1. have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

       5.1.2. have sent a Claim to the Surety (at the address described in Paragraph 13).

   5.2. Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant’s obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety’s expense take the following actions:
   7.1. Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

   7.2. Pay or arrange for payment of any undisputed amounts.

   7.3. The Surety’s failure to discharge its obligations under Paragraph 7.1 or 7.2 will not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney’s fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety’s total obligation will not exceed the amount of this Bond, plus the amount of reasonable attorney’s fees provided under Paragraph 7.3, and the amount of this Bond will be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract will 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 satisfying obligations of the Contractor and Surety under this Bond, subject to the Owner’s priority to use the funds for the completion of the work.

10. 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 the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. 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.

12. No suit or action will be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, 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 will be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor must be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, will be sufficient compliance as of the date received.

14. 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 will be deemed deleted here from and provisions conforming to such statutory or other legal requirement will be deemed incorporated herein. When so furnished, the intent is that this Bond will be construed as a statutory bond and not as a common law bond.

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

16. Definitions

16.1. Claim—A written statement by the Claimant including at a minimum:

16.1.1. The name of the Claimant;

16.1.2. The name of the person for whom the labor was done, or materials or equipment furnished;

16.1.3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;

16.1.4. A brief description of the labor, materials, or equipment furnished;
16.1.5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;

16.1.6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;

16.1.7. The total amount of previous payments received by the Claimant; and

16.1.8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2. 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 Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic’s lien or similar statute against the real property upon which the Project is located. The intent of this Bond is to include without limitation in the terms of “labor, materials, or equipment” that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction 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.

16.3. Construction Contract—The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4. Owner Default—Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5. Contract Documents—All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond will be deemed to be Subcontractor and the term Owner will be deemed to be Contractor.

18. Modifications to this Bond are as follows: None
Contractor's Application for Payment

<table>
<thead>
<tr>
<th>Owner:</th>
<th>City of Manchester, Dept of Public Works</th>
<th>Owner's Project No.:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineer:</td>
<td>Hoyle, Tanner &amp; Associates, Inc.</td>
<td>Engineer’s Project No.:</td>
</tr>
<tr>
<td>Contractor:</td>
<td></td>
<td>Contractor’s Project No.:</td>
</tr>
<tr>
<td>Project:</td>
<td>Sheehan-Basquil Park Renovation - Phase II</td>
<td></td>
</tr>
<tr>
<td>Contract:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Application No.: __________  Application Date: __________

Application Period: From __________ to __________

1. Original Contract Price $ -
2. Net change by Change Orders $ -
3. Current Contract Price (Line 1 + Line 2) $ -
4. Total Work completed and materials stored to date (Sum of Column G Lump Sum Total and Column J Unit Price Total) $ -
5. Retainage
   a. _______ X $ _______ - Work Completed $ -
   b. _______ X $ _______ - Stored Materials $ -
   c. Total Retainage (Line 5.a + Line 5.b) $ -
6. Amount eligible to date (Line 4 - Line 5.c) $ -
7. Less previous payments (Line 6 from prior application) $ -
8. Amount due this application $ -
9. Balance to finish, including retainage (Line 3 - Line 4) $ -

Contractor's Certification
The undersigned Contractor certifies, to the best of its knowledge, the following:
(1) All previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor’s legitimate obligations incurred in connection with the Work covered by prior Applications for Payment;
(2) Title to all Work, materials and equipment incorporated in said Work, or otherwise listed in or covered by this Application for Payment, will pass to Owner at time of payment free and clear of all liens, security interests, and encumbrances (except such as are covered by a bond acceptable to Owner indemnifying Owner against any such liens, security interest, or encumbrances); and
(3) All the Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Contractor: ____________________________
Signature: ____________________________ Date: __________

Recommended by Engineer
By: ____________________________
Title: ____________________________ Date: __________

Approved by Owner
By: ____________________________
Title: ____________________________ Date: __________

Approved by Funding Agency
By: ____________________________
Title: ____________________________ Date: __________

EJCDC C-620 Contractor’s Application for Payment
(c) 2018 National Society of Professional Engineers for EJCDC. All rights reserved.
### Progress Estimate - Lump Sum Work

**Contractor's Application for Payment**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Original Contract Totals</th>
<th>Work Completed</th>
<th>Materials Currently Stored (not in D or E)</th>
<th>Work Completed and Materials Stored to Date (D + E + F)</th>
<th>% of Scheduled Value (G / C)</th>
<th>Balance to Finish (C - G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

**Application No.:**

**Application Period:**

**From**

**to**

**Application Date:**

---

**Original Contract Totals**

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Original Contract Totals</th>
<th>Work Completed</th>
<th>Materials Currently Stored (not in D or E)</th>
<th>Work Completed and Materials Stored to Date (D + E + F)</th>
<th>% of Scheduled Value (G / C)</th>
<th>Balance to Finish (C - G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

---

**Materials Currently Stored (not in D or E)**: $0

**Work Completed and Materials Stored to Date (D + E + F)**: $0

**% of Scheduled Value (G / C)**: 0%

**Balance to Finish (C - G)**: $0

---

**Original Contract Totals**:

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Original Contract Totals</th>
<th>Work Completed</th>
<th>Materials Currently Stored (not in D or E)</th>
<th>Work Completed and Materials Stored to Date (D + E + F)</th>
<th>% of Scheduled Value (G / C)</th>
<th>Balance to Finish (C - G)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
<td>G</td>
<td>H</td>
</tr>
</tbody>
</table>

---

**Materials Currently Stored (not in D or E)**: $0

**Work Completed and Materials Stored to Date (D + E + F)**: $0

**% of Scheduled Value (G / C)**: 0%

**Balance to Finish (C - G)**: $0
# Progress Estimate - Lump Sum Work

<table>
<thead>
<tr>
<th>Application No.:</th>
<th>Application Period: From</th>
<th>to</th>
<th>Application Date:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Scheduled Value ($</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
</tr>
</thead>
</table>

### Work Completed

- (D + E) From Previous Application ($)
- This Period ($)
- Materials Currently Stored (not in D or E) ($)
- Work Completed and Materials Stored to Date (D + E + F) ($)
- % of Scheduled Value (G / C) (%)
- Balance to Finish (C - G) ($)

### Change Orders

| Change Order Totals | $ | - | $ | - | $ | - | $ | - |

### Original Contract and Change Orders

| Project Totals | $ | - | $ | - | $ | - | $ | - |
## Progress Estimate - Unit Price Work

**Contractor's Application for Payment**

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bid Item No.</strong></td>
<td><strong>Description</strong></td>
<td><strong>Item Quantity</strong></td>
<td><strong>Units</strong></td>
<td><strong>Unit Price ($)</strong></td>
<td><strong>Value of Bid Item (C X E) ($)</strong></td>
<td><strong>Estimated Quantity Incorporated in the Work</strong></td>
<td><strong>Value of Work Completed to Date (E X G) ($)</strong></td>
<td><strong>Materials Currently Stored (not in G) ($)</strong></td>
<td><strong>Work Completed and Materials Stored to Date (H + I) ($)</strong></td>
<td><strong>% of Value of Item (J / F) (%)</strong></td>
<td><strong>Balance to Finish (F - J) ($)</strong></td>
</tr>
<tr>
<td><strong>Original Contract</strong></td>
<td>-</td>
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**Application No.:**

**Application Period:** From ______ to ______

**Application Date:**

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**Contractor's Application for Payment**

**Owner:** City of Manchester, Dept of Public Works

**Engineer:** Hoyle, Tanner & Associates, Inc.

**Contractor:**

**Project:** Sheehan-Basquil Park Renovation - Phase II

---

**Unit Price**

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<th>Value of Bid Item (E X F) ($/G)</th>
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**Contract Information**

**Work Completed**

**Change Orders**

**Change Order Totals**

**Original Contract and Change Orders**

**Project Totals**
### Stored Materials Summary

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<th>to</th>
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<th>Supplier Invoice No.</th>
<th>Submittal No. (with Specification Section No.)</th>
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### Contractor’s Application for Payment

Owner: City of Manchester, Dept of Public Works

Engineer: Hoyle, Tanner & Associates, Inc.

Contractor: Sheehan-Basquil Park Renovation - Phase II

Owner’s Project No.: 

Engineer’s Project No.: 111121

Contractor’s Project No.: 

Contract: 

Application No.:

Application Period: From to 

Application Date:

---

EJCDC C-620 Contractor’s Application for Payment

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CERTIFICATE OF SUBSTANTIAL COMPLETION

Owner: City of Manchester
Department of Public Works
Owner’s Project No.: 111121

Engineer: Hoyle, Tanner & Associates, Inc.
Engineer’s Project No.: 111121

Contractor: Hoyle, Tanner & Associates, Inc.
Contractor’s Project No.: 111121

Project: Sheehan-Basquil Park Renovation – Phase II

Contract Name:

This ☐ Preliminary ☐ Final Certificate of Substantial Completion applies to:

☐ All Work ☐ The following specified portions of the Work:

Date of Substantial Completion:
The Work to which this Certificate applies has been inspected by authorized representatives of Owner, Contractor, and Engineer, and found to be substantially complete. The Date of Substantial Completion of the Work or portion thereof designated above is hereby established, subject to the provisions of the Contract pertaining to Substantial Completion. The date of Substantial Completion in the final Certificate of Substantial Completion marks the commencement of the contractual correction period and applicable warranties required by the Contract.

A punch list of items to be completed or corrected is attached to this Certificate. This list may not be all-inclusive, and the failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

Amendments of contractual responsibilities recorded in this Certificate should be the product of mutual agreement of Owner and Contractor; see Paragraph 15.03.D of the General Conditions.

The responsibilities between Owner and Contractor for security, operation, safety, maintenance, heat, utilities, insurance, and warranties upon Owner's use or occupancy of the Work must be as provided in the Contract, except as amended as follows:

Amendments to Owner’s Responsibilities: ☑ None ☐ As follows:

Amendments to Contractor’s Responsibilities: ☑ None ☐ As follows:

The following documents are attached to and made a part of this Certificate:

This Certificate does not constitute an acceptance of Work not in accordance with the Contract Documents, nor is it a release of Contractor's obligation to complete the Work in accordance with the Contract Documents.

Engineer

By (signature):

Name (printed):

Title:
NOTICE OF ACCEPTABILITY OF WORK

Owner: City of Manchester
Department of Public Works
Owner’s Project No.:  

Engineer: Hoyle, Tanner & Associates, Inc.
Engineer’s Project No.: 111121

Contractor: 
Contractor’s Project No.:  

Project: Sheehan-Basquil Park Renovation – Phase II

Contract Name: 
Notice Date:  
Effective Date of the Construction Contract:  

The Engineer hereby gives notice to the Owner and Contractor that Engineer recommends final payment to Contractor, and that the Work furnished and performed by Contractor under the Construction Contract is acceptable, expressly subject to the provisions of the Construction Contract’s Contract Documents (“Contract Documents”) and of the Agreement between Owner and Engineer for Professional Services dated [ ] (“Owner-Engineer Agreement”). This Notice of Acceptability of Work (Notice) is made expressly subject to the following terms and conditions to which all who receive and rely on said Notice agree:

1. This Notice has been prepared with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.

2. This Notice reflects and is an expression of the Engineer’s professional opinion.

3. This Notice has been prepared to the best of Engineer’s knowledge, information, and belief as of the Notice Date.

4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor’s Work) under the Owner-Engineer Agreement, and applies only to facts that are within Engineer’s knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Owner-Engineer Agreement.

5. This Notice is not a guarantee or warranty of Contractor’s performance under the Construction Contract, an acceptance of Work that is not in accordance with the Contract Documents, including but not limited to defective Work discovered after final inspection, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents, or to otherwise comply with the Contract Documents or the terms of any special guarantees specified therein.

6. This Notice does not relieve Contractor of any surviving obligations under the Construction Contract, and is subject to Owner’s reservations of rights with respect to completion and final payment.

Engineer  

By (signature): ____________________________ 

Name (printed): ____________________________

Title: ____________________________
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ARTICLE 1—DEFINITIONS AND TERMINOLOGY

1.01 Defined Terms

A. Wherever used in the Bidding Requirements or Contract Documents, a term printed with initial capital letters, including the term’s singular and plural forms, will have the meaning indicated in the definitions below. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. Addenda—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. Agreement—The written instrument, executed by Owner and Contractor, that sets forth the Contract Price and Contract Times, identifies the parties and the Engineer, and designates the specific items that are Contract Documents.

3. Application for Payment—The document prepared by Contractor, in a form acceptable to Engineer, to request progress or final payments, and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. Bid—The offer of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

5. Bidder—An individual or entity that submits a Bid to Owner.

6. Bidding Documents—The Bidding Requirements, the proposed Contract Documents, and all Addenda.

7. Bidding Requirements—The Advertisement or invitation to bid, Instructions to Bidders, Bid Bond or other Bid security, if any, the Bid Form, and the Bid with any attachments.

8. Change Order—A document which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, or other revision to the Contract, issued on or after the Effective Date of the Contract.

9. Change Proposal—A written request by Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment in Contract Price or Contract Times; contesting an initial decision by Engineer concerning the requirements of the Contract Documents or the acceptability of Work under the Contract Documents; challenging a set-off against payments due; or seeking other relief with respect to the terms of the Contract.

10. Claim

a. A demand or assertion by Owner directly to Contractor, duly submitted in compliance with the procedural requirements set forth herein, seeking an adjustment of Contract Price or Contract Times; contesting an initial decision by Engineer concerning the
requirements of the Contract Documents or the acceptability of Work under the Contract Documents; contesting Engineer’s decision regarding a Change Proposal; seeking resolution of a contractual issue that Engineer has declined to address; or seeking other relief with respect to the terms of the Contract.

b. A demand or assertion by Contractor directly to Owner, duly submitted in compliance with the procedural requirements set forth herein, contesting Engineer’s decision regarding a Change Proposal, or seeking resolution of a contractual issue that Engineer has declined to address.

c. A demand or assertion by Owner or Contractor, duly submitted in compliance with the procedural requirements set forth herein, made pursuant to Paragraph 12.01.A.4, concerning disputes arising after Engineer has issued a recommendation of final payment.

d. A demand for money or services by a third party is not a Claim.

11. Constituent of Concern—Asbestos, petroleum, radioactive materials, polychlorinated biphenyls (PCBs), lead-based paint (as defined by the HUD/EPA standard), hazardous waste, and any substance, product, waste, or other material of any nature whatsoever that is or becomes listed, regulated, or addressed pursuant to Laws and Regulations regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

12. Contract—The entire and integrated written contract between Owner and Contractor concerning the Work.

13. Contract Documents—Those items so designated in the Agreement, and which together comprise the Contract.

14. Contract Price—The money that Owner has agreed to pay Contractor for completion of the Work in accordance with the Contract Documents.

15. Contract Times—The number of days or the dates by which Contractor shall: (a) achieve Milestones, if any; (b) achieve Substantial Completion; and (c) complete the Work.

16. Contractor—The individual or entity with which Owner has contracted for performance of the Work.

17. Cost of the Work—See Paragraph 13.01 for definition.

18. Drawings—The part of the Contract that graphically shows the scope, extent, and character of the Work to be performed by Contractor.

19. Effective Date of the Contract—The date, indicated in the Agreement, on which the Contract becomes effective.

20. Electronic Document—Any Project-related correspondence, attachments to correspondence, data, documents, drawings, information, or graphics, including but not limited to Shop Drawings and other Submittals, that are in an electronic or digital format.

21. Electronic Means—Electronic mail (email), upload/download from a secure Project website, or other communications methods that allow: (a) the transmission or communication of Electronic Documents; (b) the documentation of transmissions, including sending and receipt; (c) printing of the transmitted Electronic Document by the
recipient; (d) the storage and archiving of the Electronic Document by sender and recipient; and (e) the use by recipient of the Electronic Document for purposes permitted by this Contract. Electronic Means does not include the use of text messaging, or of Facebook, Twitter, Instagram, or similar social media services for transmission of Electronic Documents.

22. **Engineer**—The individual or entity named as such in the Agreement.

23. **Field Order**—A written order issued by Engineer which requires minor changes in the Work but does not change the Contract Price or the Contract Times.

24. **Hazardous Environmental Condition**—The presence at the Site of Constituents of Concern in such quantities or circumstances that may present a danger to persons or property exposed thereto.
   
   a. The presence at the Site of materials that are necessary for the execution of the Work, or that are to be incorporated into the Work, and that are controlled and contained pursuant to industry practices, Laws and Regulations, and the requirements of the Contract, is not a Hazardous Environmental Condition.
   
   b. The presence of Constituents of Concern that are to be removed or remediated as part of the Work is not a Hazardous Environmental Condition.
   
   c. The presence of Constituents of Concern as part of the routine, anticipated, and obvious working conditions at the Site, is not a Hazardous Environmental Condition.

25. **Laws and Regulations; Laws or Regulations**—Any and all applicable laws, statutes, rules, regulations, ordinances, codes, and binding decrees, resolutions, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

26. **Liens**—Charges, security interests, or encumbrances upon Contract-related funds, real property, or personal property.

27. **Milestone**—A principal event in the performance of the Work that the Contract requires Contractor to achieve by an intermediate completion date, or by a time prior to Substantial Completion of all the Work.

28. **Notice of Award**—The written notice by Owner to a Bidder of Owner’s acceptance of the Bid.

29. **Notice to Proceed**—A written notice by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work.

30. **Owner**—The individual or entity with which Contractor has contracted regarding the Work, and which has agreed to pay Contractor for the performance of the Work, pursuant to the terms of the Contract.

31. **Progress Schedule**—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising Contractor’s plan to accomplish the Work within the Contract Times.

32. **Project**—The total undertaking to be accomplished for Owner by engineers, contractors, and others, including planning, study, design, construction, testing, commissioning, and start-up, and of which the Work to be performed under the Contract Documents is a part.
33. **Resident Project Representative**—The authorized representative of Engineer assigned to assist Engineer at the Site. As used herein, the term Resident Project Representative (RPR) includes any assistants or field staff of Resident Project Representative.

34. **Samples**—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and that establish the standards by which such portion of the Work will be judged.

35. **Schedule of Submittals**—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements for Engineer’s review of the submittals.

36. **Schedule of Values**—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor’s Applications for Payment.

37. **Shop Drawings**—All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Contract Documents.

38. **Site**—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements, and such other lands or areas furnished by Owner which are designated for the use of Contractor.

39. **Specifications**—The part of the Contract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work.

40. **Subcontractor**—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work.

41. **Submittal**—A written or graphic document, prepared by or for Contractor, which the Contract Documents require Contractor to submit to Engineer, or that is indicated as a Submittal in the Schedule of Submittals accepted by Engineer. Submittals may include Shop Drawings and Samples; schedules; product data; Owner-delegated designs; sustainable design information; information on special procedures; testing plans; results of tests and evaluations, source quality-control testing and inspections, and field or Site quality-control testing and inspections; warranties and certifications; Suppliers’ instructions and reports; records of delivery of spare parts and tools; operations and maintenance data; Project photographic documentation; record documents; and other such documents required by the Contract Documents. Submittals, whether or not approved or accepted by Engineer, are not Contract Documents. Change Proposals, Change Orders, Claims, notices, Applications for Payment, and requests for interpretation or clarification are not Submittals.

42. **Substantial Completion**—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms “substantially complete” and “substantially completed” as applied to all or part of the Work refer to Substantial Completion of such Work.
43. **Successful Bidder**—The Bidder to which the Owner makes an award of contract.

44. **Supplementary Conditions**—The part of the Contract that amends or supplements these General Conditions.

45. **Supplier**—A manufacturer, fabricator, supplier, distributor, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or a Subcontractor.

46. **Technical Data**

   a. Those items expressly identified as Technical Data in the Supplementary Conditions, with respect to either (1) existing subsurface conditions at or adjacent to the Site, or existing physical conditions at or adjacent to the Site including existing surface or subsurface structures (except Underground Facilities) or (2) Hazardous Environmental Conditions at the Site.

   b. If no such express identifications of Technical Data have been made with respect to conditions at the Site, then Technical Data is defined, with respect to conditions at the Site under Paragraphs 5.03, 5.04, and 5.06, as the data contained in boring logs, recorded measurements of subsurface water levels, assessments of the condition of subsurface facilities, laboratory test results, and other factual, objective information regarding conditions at the Site that are set forth in any geotechnical, environmental, or other Site or facilities conditions report prepared for the Project and made available to Contractor.

   c. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data, and instead Underground Facilities are shown or indicated on the Drawings.

47. **Underground Facilities**—All active or not-in-service underground lines, pipelines, conduits, ducts, encasements, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or systems at the Site, including but not limited to those facilities or systems that produce, transmit, distribute, or convey telephone or other communications, cable television, fiber optic transmissions, power, electricity, light, heat, gases, oil, crude oil products, liquid petroleum products, water, steam, waste, wastewater, storm water, other liquids or chemicals, or traffic or other control systems. An abandoned facility or system is not an Underground Facility.

48. **Unit Price Work**—Work to be paid for on the basis of unit prices.

49. **Work**—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction; furnishing, installing, and incorporating all materials and equipment into such construction; and may include related services such as testing, start-up, and commissioning, all as required by the Contract Documents.

50. **Work Change Directive**—A written directive to Contractor issued on or after the Effective Date of the Contract, signed by Owner and recommended by Engineer, ordering an addition, deletion, or revision in the Work.
1.02 Terminology

A. The words and terms discussed in Paragraphs 1.02.B, C, D, and E are not defined terms that require initial capital letters, but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. Intent of Certain Terms or Adjectives: The Contract Documents include the terms “as allowed,” “as approved,” “as ordered,” “as directed” or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives “reasonable,” “suitable,” “acceptable,” “proper,” “satisfactory,” or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Article 10 or any other provision of the Contract Documents.

C. Day: The word “day” means a calendar day of 24 hours measured from midnight to the next midnight.

D. Defective: The word “defective,” when modifying the word “Work,” refers to Work that is unsatisfactory, faulty, or deficient in that it:

1. does not conform to the Contract Documents;
2. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or
3. has been damaged prior to Engineer’s recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 15.03 or Paragraph 15.04).

E. Furnish, Install, Perform, Provide

1. The word “furnish,” when used in connection with services, materials, or equipment, means to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.
2. The word “install,” when used in connection with services, materials, or equipment, means to put into use or place in final position said services, materials, or equipment complete and ready for intended use.
3. The words “perform” or “provide,” when used in connection with services, materials, or equipment, means to furnish and install said services, materials, or equipment complete and ready for intended use.
4. If the Contract Documents establish an obligation of Contractor with respect to specific services, materials, or equipment, but do not expressly use any of the four words “furnish,” “install,” “perform,” or “provide,” then Contractor shall furnish and install said services, materials, or equipment complete and ready for intended use.
F. **Contract Price or Contract Times**: References to a change in “Contract Price or Contract Times” or “Contract Times or Contract Price” or similar, indicate that such change applies to (1) Contract Price, (2) Contract Times, or (3) both Contract Price and Contract Times, as warranted, even if the term “or both” is not expressed.

G. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

**ARTICLE 2—PRELIMINARY MATTERS**

2.01 **Delivery of Performance and Payment Bonds; Evidence of Insurance**

A. **Performance and Payment Bonds**: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner the performance bond and payment bond (if the Contract requires Contractor to furnish such bonds).

B. **Evidence of Contractor’s Insurance**: When Contractor delivers the signed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner, with copies to each additional insured (as identified in the Contract), the certificates, endorsements, and other evidence of insurance required to be provided by Contractor in accordance with Article 6, except to the extent the Supplementary Conditions expressly establish other dates for delivery of specific insurance policies.

C. **Evidence of Owner’s Insurance**: After receipt of the signed counterparts of the Agreement and all required bonds and insurance documentation, Owner shall promptly deliver to Contractor, with copies to each additional insured (as identified in the Contract), the certificates and other evidence of insurance required to be provided by Owner under Article 6.

2.02 **Copies of Documents**

A. Owner shall furnish to Contractor four printed copies of the Contract (including one fully signed counterpart of the Agreement), and one copy in electronic portable document format (PDF). Additional printed copies will be furnished upon request at the cost of reproduction.

B. Owner shall maintain and safeguard at least one original printed record version of the Contract, including Drawings and Specifications signed and sealed by Engineer and other design professionals. Owner shall make such original printed record version of the Contract available to Contractor for review. Owner may delegate the responsibilities under this provision to Engineer.

2.03 **Before Starting Construction**

A. **Preliminary Schedules**: Within 10 days after the Effective Date of the Contract (or as otherwise required by the Contract Documents), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work
into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.04 Preconstruction Conference; Designation of Authorized Representatives

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work, and to discuss the schedules referred to in Paragraph 2.03.A, procedures for handling Shop Drawings, Samples, and other Submittals, processing Applications for Payment, electronic or digital transmittals, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit and receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.05 Acceptance of Schedules

A. At least 10 days before submission of the first Application for Payment a conference, attended by Contractor, Engineer, and others as appropriate, will be held to review the schedules submitted in accordance with Paragraph 2.03.A. No progress payment will be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of the Work, nor interfere with or relieve Contractor from Contractor’s full responsibility therefor.

2. Contractor’s Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor’s Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to the component parts of the Work.

4. If a schedule is not acceptable, Contractor will have an additional 10 days to revise and resubmit the schedule.

2.06 Electronic Transmittals

A. Except as otherwise stated elsewhere in the Contract, the Owner, Engineer, and Contractor may send, and shall accept, Electronic Documents transmitted by Electronic Means.

B. If the Contract does not establish protocols for Electronic Means, then Owner, Engineer, and Contractor shall jointly develop such protocols.

C. Subject to any governing protocols for Electronic Means, when transmitting Electronic Documents by Electronic Means, the transmitting party makes no representations as to long-term compatibility, usability, or readability of the Electronic Documents resulting from the recipient’s use of software application packages, operating systems, or computer hardware differing from those used in the drafting or transmittal of the Electronic Documents.
ARTICLE 3—CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE

3.01 Intent
A. The Contract Documents are complementary; what is required by one Contract Document is as binding as if required by all.
B. It is the intent of the Contract Documents to describe a functionally complete Project (or part thereof) to be constructed in accordance with the Contract Documents.
C. Unless otherwise stated in the Contract Documents, if there is a discrepancy between the electronic versions of the Contract Documents (including any printed copies derived from such electronic versions) and the printed record version, the printed record version will govern.
D. The Contract supersedes prior negotiations, representations, and agreements, whether written or oral.
E. Engineer will issue clarifications and interpretations of the Contract Documents as provided herein.
F. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and Contractor, which agree that the Contract Documents will be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.
G. Nothing in the Contract Documents creates:
   1. any contractual relationship between Owner or Engineer and any Subcontractor, Supplier, or other individual or entity performing or furnishing any of the Work, for the benefit of such Subcontractor, Supplier, or other individual or entity; or
   2. any obligation on the part of Owner or Engineer to pay or to see to the payment of any money due any such Subcontractor, Supplier, or other individual or entity, except as may otherwise be required by Laws and Regulations.

3.02 Reference Standards
A. Standards Specifications, Codes, Laws and Regulations
   1. Reference in the Contract Documents to standard specifications, manuals, reference standards, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, means the standard specification, manual, reference standard, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Contract if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.
   2. No provision of any such standard specification, manual, reference standard, or code, and no instruction of a Supplier, will be effective to change the duties or responsibilities of Owner, Contractor, or Engineer from those set forth in the part of the Contract Documents prepared by or for Engineer. No such provision or instruction shall be effective to assign to Owner or Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility
inconsistent with the provisions of the part of the Contract Documents prepared by or for Engineer.

3.03 Reporting and Resolving Discrepancies

A. Reporting Discrepancies

1. Contractor’s Verification of Figures and Field Measurements: Before undertaking each part of the Work, Contractor shall carefully study the Contract Documents, and check and verify pertinent figures and dimensions therein, particularly with respect to applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy that Contractor discovers, or has actual knowledge of, and shall not proceed with any Work affected thereby until the conflict, error, ambiguity, or discrepancy is resolved by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

2. Contractor’s Review of Contract Documents: If, before or during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation, (b) actual field conditions, (c) any standard specification, manual, reference standard, or code, or (d) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 7.15) until the conflict, error, ambiguity, or discrepancy is resolved, by a clarification or interpretation by Engineer, or by an amendment or supplement to the Contract issued pursuant to Paragraph 11.01.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. Resolving Discrepancies

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the part of the Contract Documents prepared by or for Engineer take precedence in resolving any conflict, error, ambiguity, or discrepancy between such provisions of the Contract Documents and:

   a. the provisions of any standard specification, manual, reference standard, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference as a Contract Document); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 Requirements of the Contract Documents

A. During the performance of the Work and until final payment, Contractor and Owner shall submit to the Engineer in writing all matters in question concerning the requirements of the Contract Documents (sometimes referred to as requests for information or interpretation—RFIs), or relating to the acceptability of the Work under the Contract Documents, as soon as possible after such matters arise. Engineer will be the initial interpreter of the requirements of the Contract Documents, and judge of the acceptability of the Work.
B. Engineer will, with reasonable promptness, render a written clarification, interpretation, or decision on the issue submitted, or initiate an amendment or supplement to the Contract Documents. Engineer’s written clarification, interpretation, or decision will be final and binding on Contractor, unless it appeals by submitting a Change Proposal, and on Owner, unless it appeals by filing a Claim.

C. If a submitted matter in question concerns terms and conditions of the Contract Documents that do not involve (1) the performance or acceptability of the Work under the Contract Documents, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, then Engineer will promptly notify Owner and Contractor in writing that Engineer is unable to provide a decision or interpretation. If Owner and Contractor are unable to agree on resolution of such a matter in question, either party may pursue resolution as provided in Article 12.

3.05 Reuse of Documents

A. Contractor and its Subcontractors and Suppliers shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media versions, or reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer; or

2. have or acquire any title or ownership rights in any other Contract Documents, reuse any such Contract Documents for any purpose without Owner’s express written consent, or violate any copyrights pertaining to such Contract Documents.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein precludes Contractor from retaining copies of the Contract Documents for record purposes.

ARTICLE 4—COMMENCEMENT AND PROGRESS OF THE WORK

4.01 Commencement of Contract Times; Notice to Proceed

A. The Contract Times will commence to run on the 30th day after the Effective Date of the Contract or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Contract. In no event will the Contract Times commence to run later than the 60th day after the day of Bid opening or the 30th day after the Effective Date of the Contract, whichever date is earlier.

4.02 Starting the Work

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work may be done at the Site prior to such date.

4.03 Reference Points

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer’s judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the
established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.04 Progress Schedule

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.05 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.05) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times must be submitted in accordance with the requirements of Article 11.

B. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work will be delayed or postponed pending resolution of any disputes or disagreements, or during any appeal process, except as permitted by Paragraph 16.04, or as Owner and Contractor may otherwise agree in writing.

4.05 Delays in Contractor’s Progress

A. If Owner, Engineer, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times.

B. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delay, disruption, or interference caused by or within the control of Contractor. Delay, disruption, and interference attributable to and within the control of a Subcontractor or Supplier shall be deemed to be within the control of Contractor.

C. If Contractor’s performance or progress is delayed, disrupted, or interfered with by unanticipated causes not the fault of and beyond the control of Owner, Contractor, and those for which they are responsible, then Contractor shall be entitled to an equitable adjustment in Contract Times. Such an adjustment will be Contractor’s sole and exclusive remedy for the delays, disruption, and interference described in this paragraph. Causes of delay, disruption, or interference that may give rise to an adjustment in Contract Times under this paragraph include but are not limited to the following:

1. Severe and unavoidable natural catastrophes such as fires, floods, epidemics, and earthquakes;

2. Abnormal weather conditions;

3. Acts or failures to act of third-party utility owners or other third-party entities (other than those third-party utility owners or other third-party entities performing other work at or adjacent to the Site as arranged by or under contract with Owner, as contemplated in Article 8); and

4. Acts of war or terrorism.
D. Contractor’s entitlement to an adjustment of Contract Times or Contract Price is limited as follows:

1. Contractor’s entitlement to an adjustment of the Contract Times is conditioned on the delay, disruption, or interference adversely affecting an activity on the critical path to completion of the Work, as of the time of the delay, disruption, or interference.

2. Contractor shall not be entitled to an adjustment in Contract Price for any delay, disruption, or interference if such delay is concurrent with a delay, disruption, or interference caused by or within the control of Contractor. Such a concurrent delay by Contractor shall not preclude an adjustment of Contract Times to which Contractor is otherwise entitled.

3. Adjustments of Contract Times or Contract Price are subject to the provisions of Article 11.

E. Each Contractor request or Change Proposal seeking an increase in Contract Times or Contract Price must be supplemented by supporting data that sets forth in detail the following:

1. The circumstances that form the basis for the requested adjustment;

2. The date upon which each cause of delay, disruption, or interference began to affect the progress of the Work;

3. The date upon which each cause of delay, disruption, or interference ceased to affect the progress of the Work;

4. The number of days’ increase in Contract Times claimed as a consequence of each such cause of delay, disruption, or interference; and

5. The impact on Contract Price, in accordance with the provisions of Paragraph 11.07.

Contractor shall also furnish such additional supporting documentation as Owner or Engineer may require including, where appropriate, a revised progress schedule indicating all the activities affected by the delay, disruption, or interference, and an explanation of the effect of the delay, disruption, or interference on the critical path to completion of the Work.

F. Delays, disruption, and interference to the performance or progress of the Work resulting from the existence of a differing subsurface or physical condition, an Underground Facility that was not shown or indicated by the Contract Documents, or not shown or indicated with reasonable accuracy, and those resulting from Hazardous Environmental Conditions, are governed by Article 5, together with the provisions of Paragraphs 4.05.D and 4.05.E.

G. Paragraph 8.03 addresses delays, disruption, and interference to the performance or progress of the Work resulting from the performance of certain other work at or adjacent to the Site.

ARTICLE 5—SITE; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS

5.01 Availability of Lands

A. Owner shall furnish the Site. Owner shall notify Contractor in writing of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work.
B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which permanent improvements are to be made and Owner’s interest therein as necessary for giving notice of or filing a mechanic’s or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

5.02 Use of Site and Other Areas

A. Limitation on Use of Site and Other Areas

1. Contractor shall confine construction equipment, temporary construction facilities, the storage of materials and equipment, and the operations of workers to the Site, adjacent areas that Contractor has arranged to use through construction easements or otherwise, and other adjacent areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and such other adjacent areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for (a) damage to the Site; (b) damage to any such other adjacent areas used for Contractor’s operations; (c) damage to any other adjacent land or areas, or to improvements, structures, utilities, or similar facilities located at such adjacent lands or areas; and (d) for injuries and losses sustained by the owners or occupants of any such land or areas; provided that such damage or injuries result from the performance of the Work or from other actions or conduct of the Contractor or those for which Contractor is responsible.

2. If a damage or injury claim is made by the owner or occupant of any such land or area because of the performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible, Contractor shall (a) take immediate corrective or remedial action as required by Paragraph 7.13, or otherwise; (b) promptly attempt to settle the claim as to all parties through negotiations with such owner or occupant, or otherwise resolve the claim by arbitration or other dispute resolution proceeding, or in a court of competent jurisdiction; and (c) to the fullest extent permitted by Laws and Regulations, indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against any such claim, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused directly or indirectly, in whole or in part by, or based upon, Contractor’s performance of the Work, or because of other actions or conduct of the Contractor or those for which Contractor is responsible.

B. Removal of Debris During Performance of the Work: During the progress of the Work the Contractor shall keep the Site and other adjacent areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris will conform to applicable Laws and Regulations.

C. Cleaning: Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor shall remove from the Site and adjacent areas all tools, appliances, construction equipment
and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. **Loading of Structures**: Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent structures or land to stresses or pressures that will endanger them.

### 5.03 Subsurface and Physical Conditions

**A. Reports and Drawings**: The Supplementary Conditions identify:

1. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data;

2. Those drawings of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data; and

3. Technical Data contained in such reports and drawings.

**B. Underground Facilities**: Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05, and not in the drawings referred to in Paragraph 5.03.A. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

**C. Reliance by Contractor on Technical Data**: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely upon the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b.

**D. Limitations of Other Data and Documents**: Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings;

3. the contents of other Site-related documents made available to Contractor, such as record drawings from other projects at or adjacent to the Site, or Owner’s archival documents concerning the Site; or

4. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions, or information.
5.04 **Differing Subsurface or Physical Conditions**

A. *Notice by Contractor:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed at the Site:

1. is of such a nature as to establish that any Technical Data on which Contractor is entitled to rely as provided in Paragraph 5.03 is materially inaccurate;
2. is of such a nature as to require a change in the Drawings or Specifications;
3. differs materially from that shown or indicated in the Contract Documents; or
4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except with respect to an emergency) until receipt of a written statement permitting Contractor to do so.

B. *Engineer’s Review:* After receipt of written notice as required by the preceding paragraph, Engineer will promptly review the subsurface or physical condition in question; determine whether it is necessary for Owner to obtain additional exploration or tests with respect to the condition; conclude whether the condition falls within any one or more of the differing site condition categories in Paragraph 5.04.A; obtain any pertinent cost or schedule information from Contractor; prepare recommendations to Owner regarding the Contractor’s resumption of Work in connection with the subsurface or physical condition in question and the need for any change in the Drawings or Specifications; and advise Owner in writing of Engineer’s findings, conclusions, and recommendations.

C. *Owner’s Statement to Contractor Regarding Site Condition:* After receipt of Engineer’s written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the subsurface or physical condition in question, addressing the resumption of Work in connection with such condition, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer’s written findings, conclusions, and recommendations, in whole or in part.

D. *Early Resumption of Work:* If at any time Engineer determines that Work in connection with the subsurface or physical condition in question may resume prior to completion of Engineer’s review or Owner’s issuance of its statement to Contractor, because the condition in question has been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

E. *Possible Price and Times Adjustments*

1. Contractor shall be entitled to an equitable adjustment in Contract Price or Contract Times, to the extent that the existence of a differing subsurface or physical condition, or any related delay, disruption, or interference, causes an increase or decrease in
Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:

a. Such condition must fall within any one or more of the categories described in Paragraph 5.04.A;

b. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03; and,

c. Contractor’s entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times with respect to a subsurface or physical condition if:

a. Contractor knew of the existence of such condition at the time Contractor made a commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract, or otherwise;

b. The existence of such condition reasonably could have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas expressly required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor’s making such commitment; or

c. Contractor failed to give the written notice required by Paragraph 5.04.A.

3. If Owner and Contractor agree regarding Contractor’s entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

4. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner’s issuance of the Owner’s written statement to Contractor regarding the subsurface or physical condition in question.

F. Underground Facilities; Hazardous Environmental Conditions: Paragraph 5.05 governs rights and responsibilities regarding the presence or location of Underground Facilities. Paragraph 5.06 governs rights and responsibilities regarding Hazardous Environmental Conditions. The provisions of Paragraphs 5.03 and 5.04 are not applicable to the presence or location of Underground Facilities, or to Hazardous Environmental Conditions.

5.05 Underground Facilities

A. Contractor’s Responsibilities: Unless it is otherwise expressly provided in the Supplementary Conditions, the cost of all of the following are included in the Contract Price, and Contractor shall have full responsibility for:

1. reviewing and checking all information and data regarding existing Underground Facilities at the Site;

2. complying with applicable state and local utility damage prevention Laws and Regulations;
3. verifying the actual location of those Underground Facilities shown or indicated in the Contract Documents as being within the area affected by the Work, by exposing such Underground Facilities during the course of construction;

4. coordination of the Work with the owners (including Owner) of such Underground Facilities, during construction; and

5. the safety and protection of all existing Underground Facilities at the Site, and repairing any damage thereto resulting from the Work.

B. Notice by Contractor: If Contractor believes that an Underground Facility that is uncovered or revealed at the Site was not shown or indicated on the Drawings, or was not shown or indicated on the Drawings with reasonable accuracy, then Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 7.15), notify Owner and Engineer in writing regarding such Underground Facility.

C. Engineer’s Review: Engineer will:

1. promptly review the Underground Facility and conclude whether such Underground Facility was not shown or indicated on the Drawings, or was not shown or indicated with reasonable accuracy;

2. identify and communicate with the owner of the Underground Facility; prepare recommendations to Owner (and if necessary issue any preliminary instructions to Contractor) regarding the Contractor’s resumption of Work in connection with the Underground Facility in question;

3. obtain any pertinent cost or schedule information from Contractor; determine the extent, if any, to which a change is required in the Drawings or Specifications to reflect and document the consequences of the existence or location of the Underground Facility; and

4. advise Owner in writing of Engineer’s findings, conclusions, and recommendations.

During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

D. Owner’s Statement to Contractor Regarding Underground Facility: After receipt of Engineer’s written findings, conclusions, and recommendations, Owner shall issue a written statement to Contractor (with a copy to Engineer) regarding the Underground Facility in question addressing the resumption of Work in connection with such Underground Facility, indicating whether any change in the Drawings or Specifications will be made, and adopting or rejecting Engineer’s written findings, conclusions, and recommendations in whole or in part.

E. Early Resumption of Work: If at any time Engineer determines that Work in connection with the Underground Facility may resume prior to completion of Engineer’s review or Owner’s issuance of its statement to Contractor, because the Underground Facility in question and conditions affected by its presence have been adequately documented, and analyzed on a preliminary basis, then the Engineer may at its discretion instruct Contractor to resume such Work.

F. Possible Price and Times Adjustments

1. Contractor shall be entitled to an equitable adjustment in the Contract Price or Contract Times, to the extent that any existing Underground Facility at the Site that was not shown
or indicated on the Drawings, or was not shown or indicated with reasonable accuracy, or any related delay, disruption, or interference, causes an increase or decrease in Contractor’s cost of, or time required for, performance of the Work; subject, however, to the following:

a. With respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraph 13.03;

b. Contractor’s entitlement to an adjustment of the Contract Times is subject to the provisions of Paragraphs 4.05.D and 4.05.E; and

c. Contractor gave the notice required in Paragraph 5.05.B.

2. If Owner and Contractor agree regarding Contractor’s entitlement to and the amount or extent of any adjustment in the Contract Price or Contract Times, then any such adjustment will be set forth in a Change Order.

3. Contractor may submit a Change Proposal regarding its entitlement to or the amount or extent of any adjustment in the Contract Price or Contract Times, no later than 30 days after Owner’s issuance of the Owner’s written statement to Contractor regarding the Underground Facility in question.

4. The information and data shown or indicated on the Drawings with respect to existing Underground Facilities at the Site is based on information and data (a) furnished by the owners of such Underground Facilities, or by others, (b) obtained from available records, or (c) gathered in an investigation conducted in accordance with the current edition of ASCE 38, Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data, by the American Society of Civil Engineers. If such information or data is incorrect or incomplete, Contractor’s remedies are limited to those set forth in this Paragraph 5.05.F.

5.06 Hazardous Environmental Conditions at Site

A. Reports and Drawings: The Supplementary Conditions identify:

1. those reports known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site;

2. drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site; and

3. Technical Data contained in such reports and drawings.

B. Reliance by Contractor on Technical Data Authorized: Contractor may rely upon the accuracy of the Technical Data expressly identified in the Supplementary Conditions with respect to such reports and drawings, but such reports and drawings are not Contract Documents. If no such express identification has been made, then Contractor may rely on the accuracy of the Technical Data as defined in Paragraph 1.01.A.46.b. Except for such reliance on Technical Data, Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, with respect to:

1. the completeness of such reports and drawings for Contractor’s purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures
of construction to be employed by Contractor, and safety precautions and programs incident thereto;

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any Technical Data or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for removing or remediating any Hazardous Environmental Condition encountered, uncovered, or revealed at the Site unless such removal or remediation is expressly identified in the Contract Documents to be within the scope of the Work.

D. Contractor shall be responsible for controlling, containing, and duly removing all Constituents of Concern brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible, and for any associated costs; and for the costs of removing and remediating any Hazardous Environmental Condition created by the presence of any such Constituents of Concern.

E. If Contractor encounters, uncovers, or reveals a Hazardous Environmental Condition whose removal or remediation is not expressly identified in the Contract Documents as being within the scope of the Work, or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, then Contractor shall immediately: (1) secure or otherwise isolate such condition; (2) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by Paragraph 7.15); and (3) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 5.06.F. If Contractor or anyone for whom Contractor is responsible created the Hazardous Environmental Condition in question, then Owner may remove and remediate the Hazardous Environmental Condition, and impose a set-off against payments to account for the associated costs.

F. Contractor shall not resume Work in connection with such Hazardous Environmental Condition or in any affected area until after Owner has obtained any required permits related thereto, and delivered written notice to Contractor either (1) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work, or (2) specifying any special conditions under which such Work may be resumed safely.

G. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, as a result of such Work stoppage, such special conditions under which Work is agreed to be resumed by Contractor, or any costs or expenses incurred in response to the Hazardous Environmental Condition, then within 30 days of Owner’s written notice regarding the resumption of Work, Contractor may submit a Change Proposal, or Owner may impose a set-off. Entitlement to any such adjustment is subject to the provisions of Paragraphs 4.05.D, 4.05.E, 11.07, and 11.08.

H. If, after receipt of such written notice, Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special
conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work, following the contractual change procedures in Article 11. Owner may have such deleted portion of the Work performed by Owner’s own forces or others in accordance with Article 8.

I. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition (1) was not shown or indicated in the Drawings, Specifications, or other Contract Documents, identified as Technical Data entitled to limited reliance pursuant to Paragraph 5.06.B, or identified in the Contract Documents to be included within the scope of the Work, and (2) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.I obligates Owner to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

J. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the failure to control, contain, or remove a Constituent of Concern brought to the Site by Contractor or by anyone for whom Contractor is responsible, or to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 5.06.J obligates Contractor to indemnify any individual or entity from and against the consequences of that individual’s or entity’s own negligence.

K. The provisions of Paragraphs 5.03, 5.04, and 5.05 do not apply to the presence of Constituents of Concern or to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 6—BONDS AND INSURANCE

6.01 Performance, Payment, and Other Bonds

A. Contractor shall furnish a performance bond and a payment bond, each in an amount at least equal to the Contract Price, as security for the faithful performance and payment of Contractor’s obligations under the Contract. These bonds must remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 15.08, whichever is later, except as provided otherwise by Laws or Regulations, the terms of a prescribed bond form, the Supplementary Conditions, or other provisions of the Contract.

B. Contractor shall also furnish such other bonds (if any) as are required by the Supplementary Conditions or other provisions of the Contract.

C. All bonds must be in the form included in the Bidding Documents or otherwise specified by Owner prior to execution of the Contract, except as provided otherwise by Laws or
Regulations, and must be issued and signed by a surety named in “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies” as published in Department Circular 570 (as amended and supplemented) by the Bureau of the Fiscal Service, U.S. Department of the Treasury. A bond signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual’s authority to bind the surety. The evidence of authority must show that it is effective on the date the agent or attorney-in-fact signed the accompanying bond.

D. Contractor shall obtain the required bonds from surety companies that are duly licensed or authorized, in the state or jurisdiction in which the Project is located, to issue bonds in the required amounts.

E. If the surety on a bond furnished by Contractor is declared bankrupt or becomes insolvent, or the surety ceases to meet the requirements above, then Contractor shall promptly notify Owner and Engineer in writing and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which must comply with the bond and surety requirements above.

F. If Contractor has failed to obtain a required bond, Owner may exclude the Contractor from the Site and exercise Owner’s termination rights under Article 16.

G. Upon request to Owner from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Owner shall provide a copy of the payment bond to such person or entity.

H. Upon request to Contractor from any Subcontractor, Supplier, or other person or entity claiming to have furnished labor, services, materials, or equipment used in the performance of the Work, Contractor shall provide a copy of the payment bond to such person or entity.

6.02 Insurance—General Provisions

A. Owner and Contractor shall obtain and maintain insurance as required by the OWNER and as listed at the following link: https://www.manchesternh.gov/departments/highway/permits-and-records/insurance-and-bonding

B. All insurance required by the Contract to be purchased and maintained by Owner or Contractor shall be obtained from insurance companies that are duly licensed or authorized in the state or jurisdiction in which the Project is located to issue insurance policies for the required limits and coverages. Unless a different standard is indicated in the Supplementary Conditions, all companies that provide insurance policies required under this Contract shall have an A.M. Best rating of A-VII or better.

C. Alternative forms of insurance coverage, including but not limited to self-insurance and “Occupational Accident and Excess Employer’s Indemnity Policies,” are not sufficient to meet the insurance requirements of this Contract, unless expressly allowed in the Supplementary Conditions.

D. Contractor shall deliver to Owner, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Contractor has obtained and is maintaining the policies and coverages required by the Contract. Upon request by Owner or any other insured, Contractor shall also furnish other evidence of such required insurance, including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, full disclosure of all relevant
exclusions, and evidence of insurance required to be purchased and maintained by Subcontractors or Suppliers. In any documentation furnished under this provision, Contractor, Subcontractors, and Suppliers may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those applicable to this Contract.

E. Owner shall deliver to Contractor, with copies to each additional insured identified in the Contract, certificates of insurance and endorsements establishing that Owner has obtained and is maintaining the policies and coverages required of Owner by the Contract (if any). Upon request by Contractor or any other insured, Owner shall also provide other evidence of such required insurance (if any), including but not limited to copies of policies, documentation of applicable self-insured retentions (if allowed) and deductibles, and full disclosure of all relevant exclusions. In any documentation furnished under this provision, Owner may block out (redact) (1) any confidential premium or pricing information and (2) any wording specific to a project or jurisdiction other than those relevant to this Contract.

F. Failure of Owner or Contractor to demand such certificates or other evidence of the other party’s full compliance with these insurance requirements, or failure of Owner or Contractor to identify a deficiency in compliance from the evidence provided, will not be construed as a waiver of the other party’s obligation to obtain and maintain such insurance.

G. In addition to the liability insurance required to be provided by Contractor, the Owner, at Owner’s option, may purchase and maintain Owner’s own liability insurance. Owner’s liability policies, if any, operate separately and independently from policies required to be provided by Contractor, and Contractor cannot rely upon Owner’s liability policies for any of Contractor’s obligations to the Owner, Engineer, or third parties.

H. Contractor shall require:

1. Subcontractors to purchase and maintain worker’s compensation, commercial general liability, and other insurance that is appropriate for their participation in the Project, and to name as additional insureds Owner and Engineer (and any other individuals or entities identified in the Supplementary Conditions as additional insureds on Contractor’s liability policies) on each Subcontractor’s commercial general liability insurance policy; and

2. Suppliers to purchase and maintain insurance that is appropriate for their participation in the Project.

I. If either party does not purchase or maintain the insurance required of such party by the Contract, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage.

J. If Contractor has failed to obtain and maintain required insurance, Contractor’s entitlement to enter or remain at the Site will end immediately, and Owner may impose an appropriate set-off against payment for any associated costs (including but not limited to the cost of purchasing necessary insurance coverage), and exercise Owner’s termination rights under Article 16.

K. Without prejudice to any other right or remedy, if a party has failed to obtain required insurance, the other party may elect (but is in no way obligated) to obtain equivalent insurance to protect such other party’s interests at the expense of the party who was required to provide such coverage, and the Contract Price will be adjusted accordingly.
L. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor or Contractor’s interests. Contractor is responsible for determining whether such coverage and limits are adequate to protect its interests, and for obtaining and maintaining any additional insurance that Contractor deems necessary.

M. The insurance and insurance limits required herein will not be deemed as a limitation on Contractor’s liability, or that of its Subcontractors or Suppliers, under the indemnities granted to Owner and other individuals and entities in the Contract or otherwise.

N. All the policies of insurance required to be purchased and maintained under this Contract will contain a provision or endorsement that the coverage afforded will not be canceled, or renewal refused, until at least 10 days prior written notice has been given to the purchasing policyholder. Within three days of receipt of any such written notice, the purchasing policyholder shall provide a copy of the notice to each other insured and Engineer.

6.03 Contractor’s Insurance

A. Required Insurance: Contractor shall purchase and maintain Worker’s Compensation, Commercial General Liability, and other insurance pursuant to the specific requirements of the Supplementary Conditions.

B. General Provisions: The policies of insurance required by this Paragraph 6.03 as supplemented must:

1. include at least the specific coverages required;
2. be written for not less than the limits provided, or those required by Laws or Regulations, whichever is greater;
3. remain in effect at least until the Work is complete (as set forth in Paragraph 15.06.D), and longer if expressly required elsewhere in this Contract, and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work as a warranty or correction obligation, or otherwise, or returning to the Site to conduct other tasks arising from the Contract;
4. apply with respect to the performance of the Work, whether such performance is by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable; and
5. include all necessary endorsements to support the stated requirements.

C. Additional Insureds: The Contractor’s commercial general liability, automobile liability, employer’s liability, umbrella or excess, pollution liability, and unmanned aerial vehicle liability policies, if required by this Contract, must:

1. include and list as additional insureds Owner and Engineer, and any individuals or entities identified as additional insureds in the Supplementary Conditions;
2. include coverage for the respective officers, directors, members, partners, employees, and consultants of all such additional insureds;
3. afford primary coverage to these additional insureds for all claims covered thereby (including as applicable those arising from both ongoing and completed operations);
4. not seek contribution from insurance maintained by the additional insured; and
5. as to commercial general liability insurance, apply to additional insureds with respect to liability caused in whole or in part by Contractor’s acts or omissions, or the acts and omissions of those working on Contractor’s behalf, in the performance of Contractor’s operations.

6.04 Builder’s Risk and Other Property Insurance

A. Builder’s Risk: Unless otherwise provided in the Supplementary Conditions, Contractor shall purchase and maintain builder’s risk insurance upon the Work on a completed value basis, in the amount of the Work’s full insurable replacement cost (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). The specific requirements applicable to the builder’s risk insurance are set forth in the Supplementary Conditions.

B. Property Insurance for Facilities of Owner Where Work Will Occur: Owner is responsible for obtaining and maintaining property insurance covering each existing structure, building, or facility in which any part of the Work will occur, or to which any part of the Work will attach or be adjoined. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, providing coverage consistent with that required for the builder’s risk insurance, and will be maintained until the Work is complete, as set forth in Paragraph 15.06.D.

C. Property Insurance for Substantially Complete Facilities: Promptly after Substantial Completion, and before actual occupancy or use of the substantially completed Work, Owner will obtain property insurance for such substantially completed Work, and maintain such property insurance at least until the Work is complete, as set forth in Paragraph 15.06.D. Such property insurance will be written on a special perils (all-risk) form, on a replacement cost basis, and provide coverage consistent with that required for the builder’s risk insurance. The builder’s risk insurance may terminate upon written confirmation of Owner’s procurement of such property insurance.

D. Partial Occupancy or Use by Owner: If Owner will occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work, as provided in Paragraph 15.04, then Owner (directly, if it is the purchaser of the builder’s risk policy, or through Contractor) will provide advance notice of such occupancy or use to the builder’s risk insurer, and obtain an endorsement consenting to the continuation of coverage prior to commencing such partial occupancy or use.

E. Insurance of Other Property; Additional Insurance: If the express insurance provisions of the Contract do not require or address the insurance of a property item or interest, then the entity or individual owning such property item will be responsible for insuring it. If Contractor elects to obtain other special insurance to be included in or supplement the builder’s risk or property insurance policies provided under this Paragraph 6.04, it may do so at Contractor’s expense.

6.05 Property Losses; Subrogation

A. The builder’s risk insurance policy purchased and maintained in accordance with Paragraph 6.04 (or an installation floater policy if authorized by the Supplementary Conditions), will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against
Engineer or its consultants, or their officers, directors, members, partners, employees, agents, consultants, or subcontractors.

1. Owner and Contractor waive all rights against each other and the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from any of the perils, risks, or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Engineer, its consultants, all individuals or entities identified in the Supplementary Conditions as builder’s risk or installation floater insureds, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, under such policies for losses and damages so caused.

2. None of the above waivers extends to the rights that any party making such waiver may have to the proceeds of insurance held by Owner or Contractor as trustee or fiduciary, or otherwise payable under any policy so issued.

B. Any property insurance policy maintained by Owner covering any loss, damage, or consequential loss to Owner’s existing structures, buildings, or facilities in which any part of the Work will occur, or to which any part of the Work will attach or adjoin; to adjacent structures, buildings, or facilities of Owner; or to part or all of the completed or substantially completed Work, during partial occupancy or use pursuant to Paragraph 15.04, after Substantial Completion pursuant to Paragraph 15.03, or after final payment pursuant to Paragraph 15.06, will contain provisions to the effect that in the event of payment of any loss or damage the insurer will have no rights of recovery against any insureds thereunder, or against Contractor, Subcontractors, or Engineer, or the officers, directors, members, partners, employees, agents, consultants, or subcontractors of each and any of them, and that the insured is allowed to waive the insurer’s rights of subrogation in a written contract executed prior to the loss, damage, or consequential loss.

1. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, for all losses and damages caused by, arising out of, or resulting from fire or any of the perils, risks, or causes of loss covered by such policies.

C. The waivers in this Paragraph 6.05 include the waiver of rights due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner’s property or the Work caused by, arising out of, or resulting from fire or other insured peril, risk, or cause of loss.

D. Contractor shall be responsible for assuring that each Subcontract contains provisions whereby the Subcontractor waives all rights against Owner, Contractor, all individuals or entities identified in the Supplementary Conditions as insureds, the Engineer and its consultants, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, for all losses and damages caused by, arising out of, relating to, or resulting from fire or other peril, risk, or cause of loss covered by builder’s risk insurance, installation floater, and any other property insurance applicable to the Work.
6.06 Receipt and Application of Property Insurance Proceeds

A. Any insured loss under the builder’s risk and other policies of property insurance required by Paragraph 6.04 will be adjusted and settled with the named insured that purchased the policy. Such named insured shall act as fiduciary for the other insureds, and give notice to such other insureds that adjustment and settlement of a claim is in progress. Any other insured may state its position regarding a claim for insured loss in writing within 15 days after notice of such claim.

B. Proceeds for such insured losses may be made payable by the insurer either jointly to multiple insureds, or to the named insured that purchased the policy in its own right and as fiduciary for other insureds, subject to the requirements of any applicable mortgage clause. A named insured receiving insurance proceeds under the builder’s risk and other policies of insurance required by Paragraph 6.04 shall maintain such proceeds in a segregated account, and distribute such proceeds in accordance with such agreement as the parties in interest may reach, or as otherwise required under the dispute resolution provisions of this Contract or applicable Laws and Regulations.

C. If no other special agreement is reached, Contractor shall repair or replace the damaged Work, using allocated insurance proceeds.

ARTICLE 7—CONTRACTOR’S RESPONSIBILITIES

7.01 Contractor’s Means and Methods of Construction

A. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction.

B. If the Contract Documents note, or Contractor determines, that professional engineering or other design services are needed to carry out Contractor’s responsibilities for construction means, methods, techniques, sequences, and procedures, or for Site safety, then Contractor shall cause such services to be provided by a properly licensed design professional, at Contractor’s expense. Such services are not Owner-delegated professional design services under this Contract, and neither Owner nor Engineer has any responsibility with respect to (1) Contractor’s determination of the need for such services, (2) the qualifications or licensing of the design professionals retained or employed by Contractor, (3) the performance of such services, or (4) any errors, omissions, or defects in such services.

7.02 Supervision and Superintendence

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who will not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

7.03 Labor; Working Hours

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall maintain good discipline and order at the Site.
B. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of Contractor’s employees; of Suppliers and Subcontractors, and their employees; and of any other individuals or entities performing or furnishing any of the Work, just as Contractor is responsible for Contractor’s own acts and omissions.

C. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site will be performed during regular working hours, Monday through Friday. Contractor will not perform Work on a Saturday, Sunday, or any legal holiday. Contractor may perform Work outside regular working hours or on Saturdays, Sundays, or legal holidays only with Owner’s written consent, which will not be unreasonably withheld.

7.04 Services, Materials, and Equipment

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start up, and completion of the Work, whether or not such items are specifically called for in the Contract Documents.

B. All materials and equipment incorporated into the Work must be new and of good quality, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications will expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment must be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

7.05 “Or Equals”

A. Contractor’s Request; Governing Criteria: Whenever an item of equipment or material is specified or described in the Contract Documents by using the names of one or more proprietary items or specific Suppliers, the Contract Price has been based upon Contractor furnishing such item as specified. The specification or description of such an item is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or “or equal” item is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material, or items from other proposed Suppliers, under the circumstances described below.

1. If Engineer in its sole discretion determines that an item of equipment or material proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, Engineer will deem it an “or equal” item. For the purposes of this paragraph, a proposed item of equipment or material will be considered functionally equal to an item so named if:

   a. in the exercise of reasonable judgment Engineer determines that the proposed item:

      1) is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;
2) will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole;

3) has a proven record of performance and availability of responsive service; and

4) is not objectionable to Owner.

b. Contractor certifies that, if the proposed item is approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) the item will conform substantially to the detailed requirements of the item named in the Contract Documents.

B. Contractor’s Expense: Contractor shall provide all data in support of any proposed “or equal” item at Contractor’s expense.

C. Engineer’s Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each “or-equal” request. Engineer may require Contractor to furnish additional data about the proposed “or-equal” item. Engineer will be the sole judge of acceptability. No “or-equal” item will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an “or-equal,” which will be evidenced by an approved Shop Drawing or other written communication. Engineer will advise Contractor in writing of any negative determination.

D. Effect of Engineer’s Determination: Neither approval nor denial of an “or-equal” request will result in any change in Contract Price. The Engineer’s denial of an “or-equal” request will be final and binding, and may not be reversed through an appeal under any provision of the Contract.

E. Treatment as a Substitution Request: If Engineer determines that an item of equipment or material proposed by Contractor does not qualify as an “or-equal” item, Contractor may request that Engineer consider the item a proposed substitute pursuant to Paragraph 7.06.

7.06 Substitutes

A. Contractor’s Request; Governing Criteria: Unless the specification or description of an item of equipment or material required to be furnished under the Contract Documents contains or is followed by words reading that no substitution is permitted, Contractor may request that Engineer authorize the use of other items of equipment or material under the circumstances described below. To the extent possible such requests must be made before commencement of related construction at the Site.

1. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is functionally equivalent to that named and an acceptable substitute therefor. Engineer will not accept requests for review of proposed substitute items of equipment or material from anyone other than Contractor.

2. The requirements for review by Engineer will be as set forth in Paragraph 7.06.B, as supplemented by the Specifications, and as Engineer may decide is appropriate under the circumstances.
3. Contractor shall make written application to Engineer for review of a proposed substitute item of equipment or material that Contractor seeks to furnish or use. The application:
   a. will certify that the proposed substitute item will:
      1) perform adequately the functions and achieve the results called for by the general design;
      2) be similar in substance to the item specified; and
      3) be suited to the same use as the item specified.
   b. will state:
      1) the extent, if any, to which the use of the proposed substitute item will necessitate a change in Contract Times;
      2) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item; and
      3) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty.
   c. will identify:
      1) all variations of the proposed substitute item from the item specified; and
      2) available engineering, sales, maintenance, repair, and replacement services.
   d. will contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including but not limited to changes in Contract Price, shared savings, costs of redesign, and claims of other contractors affected by any resulting change.

B. Engineer’s Evaluation and Determination: Engineer will be allowed a reasonable time to evaluate each substitute request, and to obtain comments and direction from Owner. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No substitute will be ordered, furnished, installed, or utilized until Engineer’s review is complete and Engineer determines that the proposed item is an acceptable substitute. Engineer’s determination will be evidenced by a Field Order or a proposed Change Order accounting for the substitution itself and all related impacts, including changes in Contract Price or Contract Times. Engineer will advise Contractor in writing of any negative determination.

C. Special Guarantee: Owner may require Contractor to furnish at Contractor’s expense a special performance guarantee or other surety with respect to any substitute.

D. Reimbursement of Engineer’s Cost: Engineer will record Engineer’s costs in evaluating a substitute proposed or submitted by Contractor. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.
E. **Contractor’s Expense**: Contractor shall provide all data in support of any proposed substitute at Contractor’s expense.

F. **Effect of Engineer’s Determination**: If Engineer approves the substitution request, Contractor shall execute the proposed Change Order and proceed with the substitution. The Engineer’s denial of a substitution request will be final and binding, and may not be reversed through an appeal under any provision of the Contract. Contractor may challenge the scope of reimbursement costs imposed under Paragraph 7.06.D, by timely submittal of a Change Proposal.

7.07 **Concerning Subcontractors and Suppliers**

A. Contractor may retain Subcontractors and Suppliers for the performance of parts of the Work. Such Subcontractors and Suppliers must be acceptable to Owner. The Contractor’s retention of a Subcontractor or Supplier for the performance of parts of the Work will not relieve Contractor’s obligation to Owner to perform and complete the Work in accordance with the Contract Documents.

B. Contractor shall retain specific Subcontractors and Suppliers for the performance of designated parts of the Work if required by the Contract to do so.

C. Subsequent to the submittal of Contractor’s Bid or final negotiation of the terms of the Contract, Owner may not require Contractor to retain any Subcontractor or Supplier to furnish or perform any of the Work against which Contractor has reasonable objection.

D. Prior to entry into any binding subcontract or purchase order, Contractor shall submit to Owner the identity of the proposed Subcontractor or Supplier (unless Owner has already deemed such proposed Subcontractor or Supplier acceptable during the bidding process or otherwise). Such proposed Subcontractor or Supplier shall be deemed acceptable to Owner unless Owner raises a substantive, reasonable objection within 5 days.

E. Owner may require the replacement of any Subcontractor or Supplier. Owner also may require Contractor to retain specific replacements; provided, however, that Owner may not require a replacement to which Contractor has a reasonable objection. If Contractor has submitted the identity of certain Subcontractors or Suppliers for acceptance by Owner, and Owner has accepted it (either in writing or by failing to make written objection thereto), then Owner may subsequently revoke the acceptance of any such Subcontractor or Supplier so identified solely on the basis of substantive, reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor or Supplier.

F. If Owner requires the replacement of any Subcontractor or Supplier retained by Contractor to perform any part of the Work, then Contractor shall be entitled to an adjustment in Contract Price or Contract Times, with respect to the replacement; and Contractor shall initiate a Change Proposal for such adjustment within 30 days of Owner’s requirement of replacement.

G. No acceptance by Owner of any such Subcontractor or Supplier, whether initially or as a replacement, will constitute a waiver of the right of Owner to the completion of the Work in accordance with the Contract Documents.
H. On a monthly basis, Contractor shall submit to Engineer a complete list of all Subcontractors and Suppliers having a direct contract with Contractor, and of all other Subcontractors and Suppliers known to Contractor at the time of submittal.

I. Contractor shall be solely responsible for scheduling and coordinating the work of Subcontractors and Suppliers.

J. The divisions and sections of the Specifications and the identifications of any Drawings do not control Contractor in dividing the Work among Subcontractors or Suppliers, or in delineating the Work to be performed by any specific trade.

K. All Work performed for Contractor by a Subcontractor or Supplier must be pursuant to an appropriate contractual agreement that specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract for the benefit of Owner and Engineer.

L. Owner may furnish to any Subcontractor or Supplier, to the extent practicable, information about amounts paid to Contractor for Work performed for Contractor by the Subcontractor or Supplier.

M. Contractor shall restrict all Subcontractors and Suppliers from communicating with Engineer or Owner, except through Contractor or in case of an emergency, or as otherwise expressly allowed in this Contract.

7.08 Patent Fees and Royalties

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If an invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights will be disclosed in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.
7.09 **Permits**

A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits, licenses, and certificates of occupancy. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of the submission of Contractor’s Bid (or when Contractor became bound under a negotiated contract). Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

7.10 **Taxes**

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

7.11 **Laws and Regulations**

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Neither Owner nor Engineer shall be responsible for monitoring Contractor’s compliance with any Laws or Regulations.

B. If Contractor performs any Work or takes any other action knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all resulting costs and losses, and shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such Work or other action. It is not Contractor’s responsibility to make certain that the Work described in the Contract Documents is in accordance with Laws and Regulations, but this does not relieve Contractor of its obligations under Paragraph 3.03.

C. Owner or Contractor may give written notice to the other party of any changes after the submission of Contractor’s Bid (or after the date when Contractor became bound under a negotiated contract) in Laws or Regulations having an effect on the cost or time of performance of the Work, including but not limited to changes in Laws or Regulations having an effect on procuring permits and on sales, use, value-added, consumption, and other similar taxes. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times resulting from such changes, then within 30 days of such written notice Contractor may submit a Change Proposal, or Owner may initiate a Claim.

7.12 **Record Documents**

A. Contractor shall maintain in a safe place at the Site one printed record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, written interpretations and clarifications, and approved Shop Drawings. Contractor shall keep such record documents in good order and annotate them to show changes made during construction. These record documents, together with all approved Samples, will be available to Engineer for reference. Upon completion of the Work, Contractor shall deliver these record documents to Engineer.
7.13 Safety and Protection

A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations.

B. Contractor shall designate a qualified and experienced safety representative whose duties and responsibilities are the prevention of Work-related accidents and the maintenance and supervision of safety precautions and programs.

C. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to:

1. all persons on the Site or who may be affected by the Work;
2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, other work in progress, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

D. All damage, injury, or loss to any property referred to in Paragraph 7.13.C.2 or 7.13.C.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor at its expense (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

E. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

F. Contractor shall notify Owner; the owners of adjacent property; the owners of Underground Facilities and other utilities (if the identity of such owners is known to Contractor); and other contractors and utility owners performing work at or adjacent to the Site, in writing, when Contractor knows that prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property or work in progress.

G. Contractor shall comply with the applicable requirements of Owner’s safety programs, if any. Any Owner’s safety programs that are applicable to the Work are identified or included in the Supplementary Conditions or Specifications.

H. Contractor shall inform Owner and Engineer of the specific requirements of Contractor’s safety program with which Owner’s and Engineer’s employees and representatives must comply while at the Site.
I. Contractor’s duties and responsibilities for safety and protection will continue until all the Work is completed, Engineer has issued a written notice to Owner and Contractor in accordance with Paragraph 15.06.C that the Work is acceptable, and Contractor has left the Site (except as otherwise expressly provided in connection with Substantial Completion).

J. Contractor’s duties and responsibilities for safety and protection will resume whenever Contractor or any Subcontractor or Supplier returns to the Site to fulfill warranty or correction obligations, or to conduct other tasks arising from the Contract Documents.

7.14 Hazard Communication Programs

A. Contractor shall be responsible for coordinating any exchange of safety data sheets (formerly known as material safety data sheets) or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

7.15 Emergencies

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused by an emergency, or are required as a result of Contractor’s response to an emergency. If Engineer determines that a change in the Contract Documents is required because of an emergency or Contractor’s response, a Work Change Directive or Change Order will be issued.

7.16 Submittals

A. Shop Drawing and Sample Requirements

1. Before submitting a Shop Drawing or Sample, Contractor shall:
   a. review and coordinate the Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;
   b. determine and verify:
      1) all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect to the Submittal;
      2) the suitability of all materials and equipment offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and
      3) all information relative to Contractor’s responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto;
   c. confirm that the Submittal is complete with respect to all related data included in the Submittal.

2. Each Shop Drawing or Sample must bear a stamp or specific written certification that Contractor has satisfied Contractor’s obligations under the Contract Documents with respect to Contractor’s review of that Submittal, and that Contractor approves the Submittal.
3. With each Shop Drawing or Sample, Contractor shall give Engineer specific written notice of any variations that the Submittal may have from the requirements of the Contract Documents. This notice must be set forth in a written communication separate from the Submittal; and, in addition, in the case of a Shop Drawing by a specific notation made on the Shop Drawing itself.

B. **Submittal Procedures for Shop Drawings and Samples:** Contractor shall label and submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals.

1. **Shop Drawings**
   
   a. Contractor shall submit the number of copies required in the Specifications.
   
   b. Data shown on the Shop Drawings must be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide, and to enable Engineer to review the information for the limited purposes required by Paragraph 7.16.C.

2. **Samples**
   
   a. Contractor shall submit the number of Samples required in the Specifications.
   
   b. Contractor shall clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the Submittal for the limited purposes required by Paragraph 7.16.C.

3. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer’s review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. **Engineer’s Review of Shop Drawings and Samples**

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the accepted Schedule of Submittals. Engineer’s review and approval will be only to determine if the items covered by the Submittals will, after installation or incorporation in the Work, comply with the requirements of the Contract Documents, and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer’s review and approval will not extend to means, methods, techniques, sequences, or procedures of construction, or to safety precautions or programs incident thereto.

3. Engineer’s review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

4. Engineer’s review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 7.16.A.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer will
document any such approved variation from the requirements of the Contract Documents in a Field Order or other appropriate Contract modification.

5. Engineer’s review and approval of a Shop Drawing or Sample will not relieve Contractor from responsibility for complying with the requirements of Paragraphs 7.16.A and B.

6. Engineer’s review and approval of a Shop Drawing or Sample, or of a variation from the requirements of the Contract Documents, will not, under any circumstances, change the Contract Times or Contract Price, unless such changes are included in a Change Order.

7. Neither Engineer’s receipt, review, acceptance, or approval of a Shop Drawing or Sample will result in such item becoming a Contract Document.

8. Contractor shall perform the Work in compliance with the requirements and commitments set forth in approved Shop Drawings and Samples, subject to the provisions of Paragraph 7.16.C.4.

D. Resubmittal Procedures for Shop Drawings and Samples

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous Submittals.

2. Contractor shall furnish required Shop Drawing and Sample submittals with sufficient information and accuracy to obtain required approval of an item with no more than two resubmittals. Engineer will record Engineer’s time for reviewing a third or subsequent resubmittal of a Shop Drawing or Sample, and Contractor shall be responsible for Engineer’s charges to Owner for such time. Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges.

3. If Contractor requests a change of a previously approved Shop Drawing or Sample, Contractor shall be responsible for Engineer’s charges to Owner for its review time, and Owner may impose a set-off against payments due Contractor to secure reimbursement for such charges, unless the need for such change is beyond the control of Contractor.

E. Submittals Other than Shop Drawings, Samples, and Owner-Delegated Designs

1. The following provisions apply to all Submittals other than Shop Drawings, Samples, and Owner-delegated designs:

   a. Contractor shall submit all such Submittals to the Engineer in accordance with the Schedule of Submittals and pursuant to the applicable terms of the Contract Documents.

   b. Engineer will provide timely review of all such Submittals in accordance with the Schedule of Submittals and return such Submittals with a notation of either Accepted or Not Accepted. Any such Submittal that is not returned within the time established in the Schedule of Submittals will be deemed accepted.

   c. Engineer’s review will be only to determine if the Submittal is acceptable under the requirements of the Contract Documents as to general form and content of the Submittal.
d. If any such Submittal is not accepted, Contractor shall confer with Engineer regarding the reason for the non-acceptance, and resubmit an acceptable document.

2. Procedures for the submittal and acceptance of the Progress Schedule, the Schedule of Submittals, and the Schedule of Values are set forth in Paragraphs 2.03, 2.04, and 2.05.

F. Owner-delegated Designs: Submittals pursuant to Owner-delegated designs are governed by the provisions of Paragraph 7.19.

7.17 Contractor’s General Warranty and Guarantee

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer is entitled to rely on Contractor’s warranty and guarantee.

B. Owner’s rights under this warranty and guarantee are in addition to, and are not limited by, Owner’s rights under the correction period provisions of Paragraph 15.08. The time in which Owner may enforce its warranty and guarantee rights under this Paragraph 7.17 is limited only by applicable Laws and Regulations restricting actions to enforce such rights; provided, however, that after the end of the correction period under Paragraph 15.08:

1. Owner shall give Contractor written notice of any defective Work within 60 days of the discovery that such Work is defective; and

2. Such notice will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the notice.

C. Contractor’s warranty and guarantee hereunder excludes defects or damage caused by:

1. abuse, or improper modification, maintenance, or operation, by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

D. Contractor’s obligation to perform and complete the Work in accordance with the Contract Documents is absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents, a release of Contractor’s obligation to perform the Work in accordance with the Contract Documents, or a release of Owner’s warranty and guarantee rights under this Paragraph 7.17:

1. Observations by Engineer;

2. Recommendation by Engineer or payment by Owner of any progress or final payment;

3. The issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. Use or occupancy of the Work or any part thereof by Owner;

5. Any review and approval of a Shop Drawing or Sample submittal;

6. The issuance of a notice of acceptability by Engineer;

7. The end of the correction period established in Paragraph 15.08;

8. Any inspection, test, or approval by others; or
9. Any correction of defective Work by Owner.

E. If the Contract requires the Contractor to accept the assignment of a contract entered into by Owner, then the specific warranties, guarantees, and correction obligations contained in the assigned contract will govern with respect to Contractor’s performance obligations to Owner for the Work described in the assigned contract.

7.18 Indemnification

A. To the fullest extent permitted by Laws and Regulations, and in addition to any other obligations of Contractor under the Contract or otherwise, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, from losses, damages, costs, and judgments (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising from third-party claims or actions relating to or resulting from the performance or furnishing of the Work, provided that any such claim, action, loss, cost, judgment or damage is attributable to bodily injury, sickness, disease, or death, or to damage to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable.

B. In any and all claims against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 7.18.A will not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor, Supplier, or other individual or entity under workers’ compensation acts, disability benefit acts, or other employee benefit acts.

7.19 Delegation of Professional Design Services

A. Owner may require Contractor to provide professional design services for a portion of the Work by express delegation in the Contract Documents. Such delegation will specify the performance and design criteria that such services must satisfy, and the Submittals that Contractor must furnish to Engineer with respect to the Owner-delegated design.

B. Contractor shall cause such Owner-delegated professional design services to be provided pursuant to the professional standard of care by a properly licensed design professional, whose signature and seal must appear on all drawings, calculations, specifications, certifications, and Submittals prepared by such design professional. Such design professional must issue all certifications of design required by Laws and Regulations.

C. If a Shop Drawing or other Submittal related to the Owner-delegated design is prepared by Contractor, a Subcontractor, or others for submittal to Engineer, then such Shop Drawing or other Submittal must bear the written approval of Contractor’s design professional when submitted by Contractor to Engineer.
D. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy, and completeness of the services, certifications, and approvals performed or provided by the design professionals retained or employed by Contractor under an Owner-delegated design, subject to the professional standard of care and the performance and design criteria stated in the Contract Documents.

E. Pursuant to this Paragraph 7.19, Engineer’s review, approval, and other determinations regarding design drawings, calculations, specifications, certifications, and other Submittals furnished by Contractor pursuant to an Owner-delegated design will be only for the following limited purposes:
   1. Checking for conformance with the requirements of this Paragraph 7.19;
   2. Confirming that Contractor (through its design professionals) has used the performance and design criteria specified in the Contract Documents; and
   3. Establishing that the design furnished by Contractor is consistent with the design concept expressed in the Contract Documents.

F. Contractor shall not be responsible for the adequacy of performance or design criteria specified by Owner or Engineer.

G. Contractor is not required to provide professional services in violation of applicable Laws and Regulations.

ARTICLE 8—OTHER WORK AT THE SITE

8.01 Other Work

A. In addition to and apart from the Work under the Contract Documents, the Owner may perform other work at or adjacent to the Site. Such other work may be performed by Owner’s employees, or through contracts between the Owner and third parties. Owner may also arrange to have third-party utility owners perform work on their utilities and facilities at or adjacent to the Site.

B. If Owner performs other work at or adjacent to the Site with Owner’s employees, or through contracts for such other work, then Owner shall give Contractor written notice thereof prior to starting any such other work. If Owner has advance information regarding the start of any third-party utility work that Owner has arranged to take place at or adjacent to the Site, Owner shall provide such information to Contractor.

C. Contractor shall afford proper and safe access to the Site to each contractor that performs such other work, each utility owner performing other work, and Owner, if Owner is performing other work with Owner’s employees, and provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work.

D. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others’ work with the written consent of Engineer and the others whose work will be affected.
E. If the proper execution or results of any part of Contractor’s Work depends upon work performed by others, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor’s Work. Contractor’s failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor’s Work except for latent defects and deficiencies in such other work.

F. The provisions of this article are not applicable to work that is performed by third-party utilities or other third-party entities without a contract with Owner, or that is performed without having been arranged by Owner. If such work occurs, then any related delay, disruption, or interference incurred by Contractor is governed by the provisions of Paragraph 4.05.C.3.

8.02 Coordination

A. If Owner intends to contract with others for the performance of other work at or adjacent to the Site, to perform other work at or adjacent to the Site with Owner’s employees, or to arrange to have utility owners perform work at or adjacent to the Site, the following will be set forth in the Supplementary Conditions or provided to Contractor prior to the start of any such other work:

1. The identity of the individual or entity that will have authority and responsibility for coordination of the activities among the various contractors;

2. An itemization of the specific matters to be covered by such authority and responsibility; and

3. The extent of such authority and responsibilities.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

8.03 Legal Relationships

A. If, in the course of performing other work for Owner at or adjacent to the Site, the Owner’s employees, any other contractor working for Owner, or any utility owner that Owner has arranged to perform work, causes damage to the Work or to the property of Contractor or its Subcontractors, or delays, disrupts, interferes with, or increases the scope or cost of the performance of the Work, through actions or inaction, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times. Contractor must submit any Change Proposal seeking an equitable adjustment in the Contract Price or the Contract Times under this paragraph within 30 days of the damaging, delaying, disrupting, or interfering event. The entitlement to, and extent of, any such equitable adjustment will take into account information (if any) regarding such other work that was provided to Contractor in the Contract Documents prior to the submittal of the Bid or the final negotiation of the terms of the Contract, and any remedies available to Contractor under Laws or Regulations concerning utility action or inaction. When applicable, any such equitable adjustment in Contract Price will be conditioned on Contractor assigning to Owner all Contractor’s rights against such other contractor or utility owner with respect to the damage, delay, disruption, or interference that is the subject of the adjustment. Contractor’s entitlement to an adjustment of the Contract Times or Contract Price is subject to the provisions of Paragraphs 4.05.D and 4.05.E.
B. Contractor shall take reasonable and customary measures to avoid damaging, delaying, disrupting, or interfering with the work of Owner, any other contractor, or any utility owner performing other work at or adjacent to the Site.

1. If Contractor fails to take such measures and as a result damages, delays, disrupts, or interferes with the work of any such other contractor or utility owner, then Owner may impose a set-off against payments due Contractor, and assign to such other contractor or utility owner the Owner’s contractual rights against Contractor with respect to the breach of the obligations set forth in this Paragraph 8.03.B.

2. When Owner is performing other work at or adjacent to the Site with Owner’s employees, Contractor shall be liable to Owner for damage to such other work, and for the reasonable direct delay, disruption, and interference costs incurred by Owner as a result of Contractor’s failure to take reasonable and customary measures with respect to Owner’s other work. In response to such damage, delay, disruption, or interference, Owner may impose a set-off against payments due Contractor.

C. If Contractor damages, delays, disrupts, or interferes with the work of any other contractor, or any utility owner performing other work at or adjacent to the Site, through Contractor’s failure to take reasonable and customary measures to avoid such impacts, or if any claim arising out of Contractor’s actions, inactions, or negligence in performance of the Work at or adjacent to the Site is made by any such other contractor or utility owner against Contractor, Owner, or Engineer, then Contractor shall (1) promptly attempt to settle the claim as to all parties through negotiations with such other contractor or utility owner, or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law, and (2) indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against any such claims, and against all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such damage, delay, disruption, or interference.

ARTICLE 9—OWNER’S RESPONSIBILITIES

9.01 Communications to Contractor
   A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

9.02 Replacement of Engineer
   A. Owner may at its discretion appoint an engineer to replace Engineer, provided Contractor makes no reasonable objection to the replacement engineer. The replacement engineer’s status under the Contract Documents will be that of the former Engineer.

9.03 Furnish Data
   A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

9.04 Pay When Due
   A. Owner shall make payments to Contractor when they are due as provided in the Agreement.
9.05 Lands and Easements; Reports, Tests, and Drawings
   A. Owner’s duties with respect to providing lands and easements are set forth in Paragraph 5.01.
   B. Owner’s duties with respect to providing engineering surveys to establish reference points are set forth in Paragraph 4.03.
   C. Article 5 refers to Owner’s identifying and making available to Contractor copies of reports of explorations and tests of conditions at the Site, and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

9.06 Insurance
   A. Owner’s responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 6.

9.07 Change Orders
   A. Owner’s responsibilities with respect to Change Orders are set forth in Article 11.

9.08 Inspections, Tests, and Approvals
   A. Owner’s responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 14.02.B.

9.09 Limitations on Owner’s Responsibilities
   A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

9.10 Undisclosed Hazardous Environmental Condition
   A. Owner’s responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 5.06.

9.11 Evidence of Financial Arrangements
   A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner’s obligations under the Contract (including obligations under proposed changes in the Work).

9.12 Safety Programs
   A. While at the Site, Owner’s employees and representatives shall comply with the specific applicable requirements of Contractor’s safety programs of which Owner has been informed.
   B. Owner shall furnish copies of any applicable Owner safety programs to Contractor.
ARTICLE 10—ENGINEER’S STATUS DURING CONSTRUCTION

10.01 Owner’s Representative

A. Engineer will be Owner’s representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner’s representative during construction are set forth in the Contract.

10.02 Visits to Site

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe, as an experienced and qualified design professional, the progress that has been made and the quality of the various aspects of Contractor’s executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer’s efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer’s visits and observations are subject to all the limitations on Engineer’s authority and responsibility set forth in Paragraph 10.07. Particularly, but without limitation, during or as a result of Engineer’s visits or observations of Contractor’s Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

10.03 Resident Project Representative

A. If Owner and Engineer have agreed that Engineer will furnish a Resident Project Representative to represent Engineer at the Site and assist Engineer in observing the progress and quality of the Work, then the authority and responsibilities of any such Resident Project Representative will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in the Supplementary Conditions and in Paragraph 10.07.

B. If Owner designates an individual or entity who is not Engineer’s consultant, agent, or employee to represent Owner at the Site, then the responsibilities and authority of such individual or entity will be as provided in the Supplementary Conditions.

10.04 Engineer’s Authority

A. Engineer has the authority to reject Work in accordance with Article 14.

B. Engineer’s authority as to Submittals is set forth in Paragraph 7.16.

C. Engineer’s authority as to design drawings, calculations, specifications, certifications and other Submittals from Contractor in response to Owner’s delegation (if any) to Contractor of professional design services, is set forth in Paragraph 7.19.

D. Engineer’s authority as to changes in the Work is set forth in Article 11.
10.05 Determinations for Unit Price Work
A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor as set forth in Paragraph 13.03.

10.06 Decisions on Requirements of Contract Documents and Acceptability of Work
A. Engineer will render decisions regarding the requirements of the Contract Documents, and judge the acceptability of the Work, pursuant to the specific procedures set forth herein for initial interpretations, Change Proposals, and acceptance of the Work. In rendering such decisions and judgments, Engineer will not show partiality to Owner or Contractor, and will not be liable to Owner, Contractor, or others in connection with any proceedings, interpretations, decisions, or judgments conducted or rendered in good faith.

10.07 Limitations on Engineer’s Authority and Responsibilities
A. Neither Engineer’s authority or responsibility under this Article 10 or under any other provision of the Contract, nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer, will create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor’s means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor’s failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer’s review of the final Application for Payment and accompanying documentation, and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Contractor under Paragraph 15.06.A, will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals, that the results certified indicate compliance with the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 10.07 also apply to the Resident Project Representative, if any.

10.08 Compliance with Safety Program
A. While at the Site, Engineer’s employees and representatives will comply with the specific applicable requirements of Owner’s and Contractor’s safety programs of which Engineer has been informed.
ARTICLE 11—CHANGES TO THE CONTRACT

11.01 Amending and Supplementing the Contract

A. The Contract may be amended or supplemented by a Change Order, a Work Change Directive, or a Field Order.

B. If an amendment or supplement to the Contract includes a change in the Contract Price or the Contract Times, such amendment or supplement must be set forth in a Change Order.

C. All changes to the Contract that involve (1) the performance or acceptability of the Work, (2) the design (as set forth in the Drawings, Specifications, or otherwise), or (3) other engineering or technical matters, must be supported by Engineer’s recommendation. Owner and Contractor may amend other terms and conditions of the Contract without the recommendation of the Engineer.

11.02 Change Orders

A. Owner and Contractor shall execute appropriate Change Orders covering:

1. Changes in Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive;

2. Changes in Contract Price resulting from an Owner set-off, unless Contractor has duly contested such set-off;

3. Changes in the Work which are: (a) ordered by Owner pursuant to Paragraph 11.05, (b) required because of Owner’s acceptance of defective Work under Paragraph 14.04 or Owner’s correction of defective Work under Paragraph 14.07, or (c) agreed to by the parties, subject to the need for Engineer’s recommendation if the change in the Work involves the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters; and

4. Changes that embody the substance of any final and binding results under: Paragraph 11.03.B, resolving the impact of a Work Change Directive; Paragraph 11.09, concerning Change Proposals; Article 12, Claims; Paragraph 13.02.D, final adjustments resulting from allowances; Paragraph 13.03.D, final adjustments relating to determination of quantities for Unit Price Work; and similar provisions.

B. If Owner or Contractor refuses to execute a Change Order that is required to be executed under the terms of Paragraph 11.02.A, it will be deemed to be of full force and effect, as if fully executed.

11.03 Work Change Directives

A. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the modification ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order, following negotiations by the parties as to the Work Change Directive’s effect, if any, on the Contract Price and Contract Times; or, if negotiations are unsuccessful, by a determination under the terms of the Contract Documents governing adjustments, expressly including Paragraph 11.07 regarding change of Contract Price.
B. If Owner has issued a Work Change Directive and:

1. Contractor believes that an adjustment in Contract Times or Contract Price is necessary, then Contractor shall submit any Change Proposal seeking such an adjustment no later than 30 days after the completion of the Work set out in the Work Change Directive.

2. Owner believes that an adjustment in Contract Times or Contract Price is necessary, then Owner shall submit any Claim seeking such an adjustment no later than 60 days after issuance of the Work Change Directive.

11.04 Field Orders

A. Engineer may authorize minor changes in the Work if the changes do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such changes will be accomplished by a Field Order and will be binding on Owner and also on Contractor, which shall perform the Work involved promptly.

B. If Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, then before proceeding with the Work at issue, Contractor shall submit a Change Proposal as provided herein.

11.05 Owner-Authorized Changes in the Work

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work. Changes involving the design (as set forth in the Drawings, Specifications, or otherwise) or other engineering or technical matters will be supported by Engineer’s recommendation.

B. Such changes in the Work may be accomplished by a Change Order, if Owner and Contractor have agreed as to the effect, if any, of the changes on Contract Times or Contract Price; or by a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved; or, in the case of a deletion in the Work, promptly cease construction activities with respect to such deleted Work. Added or revised Work must be performed under the applicable conditions of the Contract Documents.

C. Nothing in this Paragraph 11.05 obligates Contractor to undertake work that Contractor reasonably concludes cannot be performed in a manner consistent with Contractor’s safety obligations under the Contract Documents or Laws and Regulations.

11.06 Unauthorized Changes in the Work

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents, as amended, modified, or supplemented, except in the case of an emergency as provided in Paragraph 7.15 or in the case of uncovering Work as provided in Paragraph 14.05.C.2.

11.07 Change of Contract Price

A. The Contract Price may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Price must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment of Contract Price must comply with the provisions of Article 12.

B. An adjustment in the Contract Price will be determined as follows:
1. Where the Work involved is covered by unit prices contained in the Contract Documents, then by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 13.03);  

2. Where the Work involved is not covered by unit prices contained in the Contract Documents, then by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 11.07.C.2); or  

3. Where the Work involved is not covered by unit prices contained in the Contract Documents and the parties do not reach mutual agreement to a lump sum, then on the basis of the Cost of the Work (determined as provided in Paragraph 13.01) plus a Contractor’s fee for overhead and profit (determined as provided in Paragraph 11.07.C).  

C. Contractor’s Fee: When applicable, the Contractor’s fee for overhead and profit will be determined as follows:  

1. A mutually acceptable fixed fee; or  

2. If a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:  
   a. For costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2, the Contractor’s fee will be 15 percent;  
   b. For costs incurred under Paragraph 13.01.B.3, the Contractor’s fee will be 5 percent;  
   c. Where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 11.07.C.2.a and 11.07.C.2.b is that the Contractor’s fee will be based on: (1) a fee of 15 percent of the costs incurred under Paragraphs 13.01.B.1 and 13.01.B.2 by the Subcontractor that actually performs the Work, at whatever tier, and (2) with respect to Contractor itself and to any Subcontractors of a tier higher than that of the Subcontractor that actually performs the Work, a fee of 5 percent of the amount (fee plus underlying costs incurred) attributable to the next lower tier Subcontractor; provided, however, that for any such subcontracted Work the maximum total fee to be paid by Owner will be no greater than 27 percent of the costs incurred by the Subcontractor that actually performs the Work;  
   d. No fee will be payable on the basis of costs itemized under Paragraphs 13.01.B.4, 13.01.B.5, and 13.01.C;  
   e. The amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in Cost of the Work will be the amount of the actual net decrease in Cost of the Work and a deduction of an additional amount equal to 5 percent of such actual net decrease in Cost of the Work; and  
   f. When both additions and credits are involved in any one change or Change Proposal, the adjustment in Contractor’s fee will be computed by determining the sum of the costs in each of the cost categories in Paragraph 13.01.B (specifically, payroll costs, Paragraph 13.01.B.1; incorporated materials and equipment costs, Paragraph 13.01.B.2; Subcontract costs, Paragraph 13.01.B.3; special consultants costs, Paragraph 13.01.B.4; and other costs, Paragraph 13.01.B.5) and applying to each such cost category sum the appropriate fee from Paragraphs 11.07.C.2.a through 11.07.C.2.e, inclusive.
11.08 Change of Contract Times

A. The Contract Times may only be changed by a Change Order. Any Change Proposal for an adjustment in the Contract Times must comply with the provisions of Paragraph 11.09. Any Claim for an adjustment in the Contract Times must comply with the provisions of Article 12.

B. Delay, disruption, and interference in the Work, and any related changes in Contract Times, are addressed in and governed by Paragraph 4.05.

11.09 Change Proposals

A. Purpose and Content: Contractor shall submit a Change Proposal to Engineer to request an adjustment in the Contract Times or Contract Price; contest an initial decision by Engineer concerning the requirements of the Contract Documents or relating to the acceptability of the Work under the Contract Documents; challenge a set-off against payment due; or seek other relief under the Contract. The Change Proposal will specify any proposed change in Contract Times or Contract Price, or other proposed relief, and explain the reason for the proposed change, with citations to any governing or applicable provisions of the Contract Documents. Each Change Proposal will address only one issue, or a set of closely related issues.

B. Change Proposal Procedures

1. Submittal: Contractor shall submit each Change Proposal to Engineer within 30 days after the start of the event giving rise thereto, or after such initial decision.

2. Supporting Data: The Contractor shall submit supporting data, including the proposed change in Contract Price or Contract Time (if any), to the Engineer and Owner within 15 days after the submittal of the Change Proposal.
   a. Change Proposals based on or related to delay, interruption, or interference must comply with the provisions of Paragraphs 4.05.D and 4.05.E.
   b. Change proposals related to a change of Contract Price must include full and detailed accounts of materials incorporated into the Work and labor and equipment used for the subject Work.

The supporting data must be accompanied by a written statement that the supporting data are accurate and complete, and that any requested time or price adjustment is the entire adjustment to which Contractor believes it is entitled as a result of said event.

3. Engineer’s Initial Review: Engineer will advise Owner regarding the Change Proposal, and consider any comments or response from Owner regarding the Change Proposal. If in its discretion Engineer concludes that additional supporting data is needed before conducting a full review and making a decision regarding the Change Proposal, then Engineer may request that Contractor submit such additional supporting data by a date specified by Engineer, prior to Engineer beginning its full review of the Change Proposal.

4. Engineer’s Full Review and Action on the Change Proposal: Upon receipt of Contractor’s supporting data (including any additional data requested by Engineer), Engineer will conduct a full review of each Change Proposal and, within 30 days after such receipt of the Contractor’s supporting data, either approve the Change Proposal in whole, deny it in whole, or approve it in part and deny it in part. Such actions must be in writing, with a copy provided to Owner and Contractor. If Engineer does not take action on the Change
Proposal within 30 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of Engineer’s inaction the Change Proposal is deemed denied, thereby commencing the time for appeal of the denial under Article 12.

5. **Binding Decision**: Engineer’s decision is final and binding upon Owner and Contractor, unless Owner or Contractor appeals the decision by filing a Claim under Article 12.

C. **Resolution of Certain Change Proposals**: If the Change Proposal does not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters, then Engineer will notify the parties in writing that the Engineer is unable to resolve the Change Proposal. For purposes of further resolution of such a Change Proposal, such notice will be deemed a denial, and Contractor may choose to seek resolution under the terms of Article 12.

D. **Post-Completion**: Contractor shall not submit any Change Proposals after Engineer issues a written recommendation of final payment pursuant to Paragraph 15.06.B.

11.10 **Notification to Surety**

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor’s responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

**ARTICLE 12—CLAIMS**

12.01 **Claims**

A. **Claims Process**: The following disputes between Owner and Contractor are subject to the Claims process set forth in this article:

1. Appeals by Owner or Contractor of Engineer’s decisions regarding Change Proposals;
2. Owner demands for adjustments in the Contract Price or Contract Times, or other relief under the Contract Documents;
3. Disputes that Engineer has been unable to address because they do not involve the design (as set forth in the Drawings, Specifications, or otherwise), the acceptability of the Work, or other engineering or technical matters; and
4. Subject to the waiver provisions of Paragraph 15.07, any dispute arising after Engineer has issued a written recommendation of final payment pursuant to Paragraph 15.06.B.

B. **Submittal of Claim**: The party submitting a Claim shall deliver it directly to the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto; in the case of appeals regarding Change Proposals within 30 days of the decision under appeal. The party submitting the Claim shall also furnish a copy to the Engineer, for its information only. The responsibility to substantiate a Claim rests with the party making the Claim. In the case of a Claim by Contractor seeking an increase in the Contract Times or Contract Price, Contractor shall certify that the Claim is made in good faith, that the supporting data are accurate and complete, and that to the best of Contractor’s knowledge
and belief the amount of time or money requested accurately reflects the full amount to which Contractor is entitled.

C. **Review and Resolution**: The party receiving a Claim shall review it thoroughly, giving full consideration to its merits. The two parties shall seek to resolve the Claim through the exchange of information and direct negotiations. The parties may extend the time for resolving the Claim by mutual agreement. All actions taken on a Claim will be stated in writing and submitted to the other party, with a copy to Engineer.

D. **Mediation**

1. At any time after initiation of a Claim, Owner and Contractor may mutually agree to mediation of the underlying dispute. The agreement to mediate will stay the Claim submittal and response process.

2. If Owner and Contractor agree to mediation, then after 60 days from such agreement, either Owner or Contractor may unilaterally terminate the mediation process, and the Claim submittal and decision process will resume as of the date of the termination. If the mediation proceeds but is unsuccessful in resolving the dispute, the Claim submittal and decision process will resume as of the date of the conclusion of the mediation, as determined by the mediator.

3. Owner and Contractor shall each pay one-half of the mediator’s fees and costs.

E. **Partial Approval**: If the party receiving a Claim approves the Claim in part and denies it in part, such action will be final and binding unless within 30 days of such action the other party invokes the procedure set forth in Article 17 for final resolution of disputes.

F. **Denial of Claim**: If efforts to resolve a Claim are not successful, the party receiving the Claim may deny it by giving written notice of denial to the other party. If the receiving party does not take action on the Claim within 90 days, then either Owner or Contractor may at any time thereafter submit a letter to the other party indicating that as a result of the inaction, the Claim is deemed denied, thereby commencing the time for appeal of the denial. A denial of the Claim will be final and binding unless within 30 days of the denial the other party invokes the procedure set forth in Article 17 for the final resolution of disputes.

G. **Final and Binding Results**: If the parties reach a mutual agreement regarding a Claim, whether through approval of the Claim, direct negotiations, mediation, or otherwise; or if a Claim is approved in part and denied in part, or denied in full, and such actions become final and binding; then the results of the agreement or action on the Claim will be incorporated in a Change Order or other written document to the extent they affect the Contract, including the Work, the Contract Times, or the Contract Price.

**ARTICLE 13—COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK**

**13.01 Cost of the Work**

A. **Purposes for Determination of Cost of the Work**: The term Cost of the Work means the sum of all costs necessary for the proper performance of the Work at issue, as further defined below. The provisions of this Paragraph 13.01 are used for two distinct purposes:

1. To determine Cost of the Work when Cost of the Work is a component of the Contract Price, under cost-plus-fee, time-and-materials, or other cost-based terms; or
2. When needed to determine the value of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price. When the value of any such adjustment is determined on the basis of Cost of the Work, Contractor is entitled only to those additional or incremental costs required because of the change in the Work or because of the event giving rise to the adjustment.

B. Costs Included: Except as otherwise may be agreed to in writing by Owner, costs included in the Cost of the Work will be in amounts no higher than those commonly incurred in the locality of the Project, will not include any of the costs itemized in Paragraph 13.01.C, and will include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor in advance of the subject Work. Such employees include, without limitation, superintendents, foremen, safety managers, safety representatives, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work will be apportioned on the basis of their time spent on the Work. Payroll costs include, but are not limited to, salaries and wages plus the cost of fringe benefits, which include social security contributions, unemployment, excise, and payroll taxes, workers’ compensation, health and retirement benefits, sick leave, and vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on Saturday, Sunday, or legal holidays, will be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers’ field services required in connection therewith. All cash discounts accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts will accrue to Owner. All trade discounts, rebates, and refunds and returns from sale of surplus materials and equipment will accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, which will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor’s Cost of the Work and fee will be determined in the same manner as Contractor’s Cost of the Work and fee as provided in this Paragraph 13.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed or retained for services specifically related to the Work.

5. Other costs consisting of the following:
   a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor’s employees incurred in discharge of duties connected with the Work.
   b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, which are
consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

1) In establishing included costs for materials such as scaffolding, plating, or sheeting, consideration will be given to the actual or the estimated life of the material for use on other projects; or rental rates may be established on the basis of purchase or salvage value of such items, whichever is less. Contractor will not be eligible for compensation for such items in an amount that exceeds the purchase cost of such item.

c. Construction Equipment Rental

1) Rentals of all construction equipment and machinery, and the parts thereof, in accordance with rental agreements approved by Owner as to price (including any surcharge or special rates applicable to overtime use of the construction equipment or machinery), and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs will be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts must cease when the use thereof is no longer necessary for the Work.

2) Costs for equipment and machinery owned by Contractor or a Contractor-related entity will be paid at a rate shown for such equipment in the equipment rental rate book specified in the Supplementary Conditions. An hourly rate will be computed by dividing the monthly rates by 176. These computed rates will include all operating costs.

3) With respect to Work that is the result of a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price ("changed Work"), included costs will be based on the time the equipment or machinery is in use on the changed Work and the costs of transportation, loading, unloading, assembly, dismantling, and removal when directly attributable to the changed Work. The cost of any such equipment or machinery, or parts thereof, must cease to accrue when the use thereof is no longer necessary for the changed Work.

d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of builder’s risk or other property insurance established in accordance with Paragraph 6.04), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses will be included in the Cost of the Work for the purpose of determining Contractor’s fee.
g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as communication service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance that Contractor is required by the Contract Documents to purchase and maintain.

C. Costs Excluded: The term Cost of the Work does not include any of the following items:

1. Payroll costs and other compensation of Contractor’s officers, executives, principals, general managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediter, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor’s principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 13.01.B.1 or specifically covered by Paragraph 13.01.B.4. The payroll costs and other compensation excluded here are to be considered administrative costs covered by the Contractor’s fee.

2. The cost of purchasing, renting, or furnishing small tools and hand tools.

3. Expenses of Contractor’s principal and branch offices other than Contractor’s office at the Site.

4. Any part of Contractor’s capital expenses, including interest on Contractor’s capital employed for the Work and charges against Contractor for delinquent payments.

5. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

6. Expenses incurred in preparing and advancing Claims.

7. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraph 13.01.B.

D. Contractor’s Fee

1. When the Work as a whole is performed on the basis of cost-plus-a-fee, then:

a. Contractor’s fee for the Work set forth in the Contract Documents as of the Effective Date of the Contract will be determined as set forth in the Agreement.

b. for any Work covered by a Change Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work, Contractor’s fee will be determined as follows:

   1) When the fee for the Work as a whole is a percentage of the Cost of the Work, the fee will automatically adjust as the Cost of the Work changes.

   2) When the fee for the Work as a whole is a fixed fee, the fee for any additions or deletions will be determined in accordance with Paragraph 11.07.C.2.

2. When the Work as a whole is performed on the basis of a stipulated sum, or any other basis other than cost-plus-a-fee, then Contractor’s fee for any Work covered by a Change
Order, Change Proposal, Claim, set-off, or other adjustment in Contract Price on the basis of Cost of the Work will be determined in accordance with Paragraph 11.07.C.2.

E. Documentation and Audit: Whenever the Cost of the Work for any purpose is to be determined pursuant to this Article 13, Contractor and pertinent Subcontractors will establish and maintain records of the costs in accordance with generally accepted accounting practices. Subject to prior written notice, Owner will be afforded reasonable access, during normal business hours, to all Contractor’s accounts, records, books, correspondence, instructions, drawings, receipts, vouchers, memoranda, and similar data relating to the Cost of the Work and Contractor’s fee. Contractor shall preserve all such documents for a period of three years after the final payment by Owner. Pertinent Subcontractors will afford such access to Owner, and preserve such documents, to the same extent required of Contractor.

13.02 Allowances

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. Cash Allowances: Contractor agrees that:

1. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

2. Contractor’s costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment for any of the foregoing will be valid.

C. Owner’s Contingency Allowance: Contractor agrees that an Owner’s contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor for Work covered by allowances, and the Contract Price will be correspondingly adjusted.

13.03 Unit Price Work

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Payments to Contractor for Unit Price Work will be based on actual quantities.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor’s overhead and profit for each separately identified item.

D. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer’s preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer’s written decision
thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, and the final adjustment of Contract Price will be set forth in a Change Order, subject to the provisions of the following paragraph.

E. Adjustments in Unit Price

1. Contractor or Owner shall be entitled to an adjustment in the unit price with respect to an item of Unit Price Work if:
   a. the quantity of the item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and
   b. Contractor’s unit costs to perform the item of Unit Price Work have changed materially and significantly as a result of the quantity change.

2. The adjustment in unit price will account for and be coordinated with any related changes in quantities of other items of Work, and in Contractor’s costs to perform such other Work, such that the resulting overall change in Contract Price is equitable to Owner and Contractor.

3. Adjusted unit prices will apply to all units of that item.

ARTICLE 14—TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK

14.01 Access to Work

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and authorities having jurisdiction have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor’s safety procedures and programs so that they may comply with such procedures and programs as applicable.

14.02 Tests, Inspections, and Approvals

A. Contractor shall give Engineer timely notice of readiness of the Work (or specific parts thereof) for all required inspections and tests, and shall cooperate with inspection and testing personnel to facilitate required inspections and tests.

B. Owner shall retain and pay for the services of an independent inspector, testing laboratory, or other qualified individual or entity to perform all inspections and tests expressly required by the Contract Documents to be furnished and paid for by Owner, except that costs incurred in connection with tests or inspections of covered Work will be governed by the provisions of Paragraph 14.05.

C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.
D. Contractor shall be responsible for arranging, obtaining, and paying for all inspections and tests required:

1. by the Contract Documents, unless the Contract Documents expressly allocate responsibility for a specific inspection or test to Owner;

2. to attain Owner’s and Engineer’s acceptance of materials or equipment to be incorporated in the Work;

3. by manufacturers of equipment furnished under the Contract Documents;

4. for testing, adjusting, and balancing of mechanical, electrical, and other equipment to be incorporated into the Work; and

5. for acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor’s purchase thereof for incorporation in the Work.

Such inspections and tests will be performed by independent inspectors, testing laboratories, or other qualified individuals or entities acceptable to Owner and Engineer.

E. If the Contract Documents require the Work (or part thereof) to be approved by Owner, Engineer, or another designated individual or entity, then Contractor shall assume full responsibility for arranging and obtaining such approvals.

F. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation. Such uncovering will be at Contractor’s expense unless Contractor had given Engineer timely notice of Contractor’s intention to cover the same and Engineer had not acted with reasonable promptness in response to such notice.

14.03 Defective Work

A. Contractor’s Obligation: It is Contractor’s obligation to assure that the Work is not defective.

B. Engineer’s Authority: Engineer has the authority to determine whether Work is defective, and to reject defective Work.

C. Notice of Defects: Prompt written notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor.

D. Correction, or Removal and Replacement: Promptly after receipt of written notice of defective Work, Contractor shall correct all such defective Work, whether or not fabricated, installed, or completed, or, if Engineer has rejected the defective Work, remove it from the Project and replace it with Work that is not defective.

E. Preservation of Warranties: When correcting defective Work, Contractor shall take no action that would void or otherwise impair Owner’s special warranty and guarantee, if any, on said Work.

F. Costs and Damages: In addition to its correction, removal, and replacement obligations with respect to defective Work, Contractor shall pay all claims, costs, losses, and damages arising out of or relating to defective Work, including but not limited to the cost of the inspection, testing, correction, removal, replacement, or reconstruction of such defective Work, fines levied against Owner by governmental authorities because the Work is defective, and the costs of repair or replacement of work of others resulting from defective Work. Prior to final payment, if Owner and Contractor are unable to agree as to the measure of such claims, costs,
losses, and damages resulting from defective Work, then Owner may impose a reasonable set-off against payments due under Article 15.

14.04 Acceptance of Defective Work

A. If, instead of requiring correction or removal and replacement of defective Work, Owner prefers to accept it, Owner may do so (subject, if such acceptance occurs prior to final payment, to Engineer’s confirmation that such acceptance is in general accord with the design intent and applicable engineering principles, and will not endanger public safety). Contractor shall pay all claims, costs, losses, and damages attributable to Owner’s evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness), and for the diminished value of the Work to the extent not otherwise paid by Contractor. If any such acceptance occurs prior to final payment, the necessary revisions in the Contract Documents with respect to the Work will be incorporated in a Change Order. If the parties are unable to agree as to the decrease in the Contract Price, reflecting the diminished value of Work so accepted, then Owner may impose a reasonable set-off against payments due under Article 15. If the acceptance of defective Work occurs after final payment, Contractor shall pay an appropriate amount to Owner.

14.05 Uncovering Work

A. Engineer has the authority to require additional inspection or testing of the Work, whether or not the Work is fabricated, installed, or completed.

B. If any Work is covered contrary to the written request of Engineer, then Contractor shall, if requested by Engineer, uncover such Work for Engineer’s observation, and then replace the covering, all at Contractor’s expense.

C. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, then Contractor, at Engineer’s request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, and provide all necessary labor, material, and equipment.

1. If it is found that the uncovered Work is defective, Contractor shall be responsible for all claims, costs, losses, and damages arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and pending Contractor’s full discharge of this responsibility the Owner shall be entitled to impose a reasonable set-off against payments due under Article 15.

2. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, then Contractor may submit a Change Proposal within 30 days of the determination that the Work is not defective.

14.06 Owner May Stop the Work

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, then Owner may order Contractor to stop the Work,
or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work will not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

14.07 **Owner May Correct Defective Work**

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace defective Work as required by Engineer, then Owner may, after 7 days’ written notice to Contractor, correct or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 14.07, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor’s services related thereto, and incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner’s representatives, agents and employees, Owner’s other contractors, and Engineer and Engineer’s consultants access to the Site to enable Owner to exercise the rights and remedies under this paragraph.

C. All claims, costs, losses, and damages incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 14.07 will be charged against Contractor as set-offs against payments due under Article 15. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor’s defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner’s rights and remedies under this Paragraph 14.07.

**ARTICLE 15—PAYMENTS TO CONTRACTOR; SET-OFFS; COMPLETION; CORRECTION PERIOD**

15.01 **Progress Payments**

A. **Basis for Progress Payments**: The Schedule of Values established as provided in Article 2 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments for Unit Price Work will be based on the number of units completed during the pay period, as determined under the provisions of Paragraph 13.03. Progress payments for cost-based Work will be based on Cost of the Work completed by Contractor during the pay period.

B. **Applications for Payments**

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents.

2. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment must also be accompanied by: (a) a bill of sale, invoice, copies of subcontract or purchase order payments, or other documentation...
establishing full payment by Contractor for the materials and equipment; (b) at Owner’s request, documentation warranting that Owner has received the materials and equipment free and clear of all Liens; and (c) evidence that the materials and equipment are covered by appropriate property insurance, a warehouse bond, or other arrangements to protect Owner’s interest therein, all of which must be satisfactory to Owner.

3. Beginning with the second Application for Payment, each Application must include an affidavit of Contractor stating that all previous progress payments received by Contractor have been applied to discharge Contractor’s legitimate obligations associated with prior Applications for Payment.

4. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

C. Review of Applications

1. Engineer will, within 10 days after receipt of each Application for Payment, including each resubmittal, either indicate in writing a recommendation of payment and present the Application to Owner, or return the Application to Contractor indicating in writing Engineer’s reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer’s recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer’s observations of the executed Work as an experienced and qualified design professional, and on Engineer’s review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer’s knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 13.03, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor’s being entitled to such payment appear to have been fulfilled in so far as it is Engineer’s responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.
4. Neither Engineer’s review of Contractor’s Work for the purposes of recommending payments nor Engineer’s recommendation of any payment, including final payment, will impose responsibility on Engineer:
   a. to supervise, direct, or control the Work;
   b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto;
   c. for Contractor’s failure to comply with Laws and Regulations applicable to Contractor’s performance of the Work;
   d. to make any examination to ascertain how or for what purposes Contractor has used the money paid by Owner; or
   e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer’s opinion, it would be incorrect to make the representations to Owner stated in Paragraph 15.01.C.2.

6. Engineer will recommend reductions in payment (set-offs) necessary in Engineer’s opinion to protect Owner from loss because:
   a. the Work is defective, requiring correction or replacement;
   b. the Contract Price has been reduced by Change Orders;
   c. Owner has been required to correct defective Work in accordance with Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;
   d. Owner has been required to remove or remediate a Hazardous Environmental Condition for which Contractor is responsible; or
   e. Engineer has actual knowledge of the occurrence of any of the events that would constitute a default by Contractor and therefore justify termination for cause under the Contract Documents.

D. Payment Becomes Due

1. Ten days after presentation of the Application for Payment to Owner with Engineer’s recommendation, the amount recommended (subject to any Owner set-offs) will become due, and when due will be paid by Owner to Contractor.

E. Reductions in Payment by Owner

1. In addition to any reductions in payment (set-offs) recommended by Engineer, Owner is entitled to impose a set-off against payment based on any of the following:
   a. Claims have been made against Owner based on Contractor’s conduct in the performance or furnishing of the Work, or Owner has incurred costs, losses, or damages resulting from Contractor’s conduct in the performance or furnishing of the Work, including but not limited to claims, costs, losses, or damages from workplace injuries, adjacent property damage, non-compliance with Laws and Regulations, and patent infringement;
b. Contractor has failed to take reasonable and customary measures to avoid damage,
delay, disruption, and interference with other work at or adjacent to the Site;

c. Contractor has failed to provide and maintain required bonds or insurance;

d. Owner has been required to remove or remediate a Hazardous Environmental
Condition for which Contractor is responsible;

e. Owner has incurred extra charges or engineering costs related to submittal reviews,
evaluations of proposed substitutes, tests and inspections, or return visits to
manufacturing or assembly facilities;

f. The Work is defective, requiring correction or replacement;

g. Owner has been required to correct defective Work in accordance with
Paragraph 14.07, or has accepted defective Work pursuant to Paragraph 14.04;

h. The Contract Price has been reduced by Change Orders;

i. An event has occurred that would constitute a default by Contractor and therefore
justify a termination for cause;

j. Liquidated or other damages have accrued as a result of Contractor’s failure to
achieve Milestones, Substantial Completion, or final completion of the Work;

k. Liens have been filed in connection with the Work, except where Contractor has
delivered a specific bond satisfactory to Owner to secure the satisfaction and
discharge of such Liens; or

l. Other items entitle Owner to a set-off against the amount recommended.

2. If Owner imposes any set-off against payment, whether based on its own knowledge or
on the written recommendations of Engineer, Owner will give Contractor immediate
written notice (with a copy to Engineer) stating the reasons for such action and the
specific amount of the reduction, and promptly pay Contract or any amount remaining
after deduction of the amount so withheld. Owner shall promptly pay Contractor the
amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, if
Contractor remedies the reasons for such action. The reduction imposed will be binding
on Contractor unless it duly submits a Change Proposal contesting the reduction.

3. Upon a subsequent determination that Owner’s refusal of payment was not justified, the
amount wrongfully withheld will be treated as an amount due as determined by
Paragraph 15.01.D.1 and subject to interest as provided in the Agreement.

15.02 Contractor’s Warranty of Title

A. Contractor warrants and guarantees that title to all Work, materials, and equipment furnished
under the Contract will pass to Owner free and clear of (1) all Liens and other title defects,
and (2) all patent, licensing, copyright, or royalty obligations, no later than 7 days after the
time of payment by Owner.

15.03 Substantial Completion

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify
Owner and Engineer in writing that the entire Work is substantially complete and request that
Engineer issue a certificate of Substantial Completion. Contractor shall at the same time
submit to Owner a
nd Engineer an initial draft of punch list items to be completed or corrected before final payment.

B. Promptly after Contractor’s notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a preliminary certificate of Substantial Completion which will fix the date of Substantial Completion. Engineer shall attach to the certificate a punch list of items to be completed or corrected before final payment. Owner shall have 7 days after receipt of the preliminary certificate during which to make written objection to Engineer as to any provisions of the certificate or attached punch list. If, after considering the objections to the provisions of the preliminary certificate, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the preliminary certificate to Owner, notify Contractor in writing that the Work is not substantially complete, stating the reasons therefor. If Owner does not object to the provisions of the certificate, or if despite consideration of Owner’s objections Engineer concludes that the Work is substantially complete, then Engineer will, within said 14 days, execute and deliver to Owner and Contractor a final certificate of Substantial Completion (with a revised punch list of items to be completed or corrected) reflecting such changes from the preliminary certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of receipt of the preliminary certificate of Substantial Completion, Owner and Contractor will confer regarding Owner’s use or occupancy of the Work following Substantial Completion, review the builder’s risk insurance policy with respect to the end of the builder’s risk coverage, and confirm the transition to coverage of the Work under a permanent property insurance policy held by Owner. Unless Owner and Contractor agree otherwise in writing, Owner shall bear responsibility for security, operation, protection of the Work, property insurance, maintenance, heat, and utilities upon Owner’s use or occupancy of the Work.

E. After Substantial Completion the Contractor shall promptly begin work on the punch list of items to be completed or corrected prior to final payment. In appropriate cases Contractor may submit monthly Applications for Payment for completed punch list items, following the progress payment procedures set forth above.

F. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the punch list.

15.04 Partial Use or Occupancy

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without
significant interference with Contractor’s performance of the remainder of the Work, subject to the following conditions:

1. At any time, Owner may request in writing that Contractor permit Owner to use or occupy any such part of the Work that Owner believes to be substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 15.03.A through 15.03.E for that part of the Work.

2. At any time, Contractor may notify Owner and Engineer in writing that Contractor considers any such part of the Work substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 15.03 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 6.04 regarding builder’s risk or other property insurance.

15.05 Final Inspection

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work, or agreed portion thereof, is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

15.06 Final Payment

A. Application for Payment

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, annotated record documents (as provided in Paragraph 7.12), and other documents, Contractor may make application for final payment.

2. The final Application for Payment must be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents;
   b. consent of the surety, if any, to final payment;
   c. satisfactory evidence that all title issues have been resolved such that title to all Work, materials, and equipment has passed to Owner free and clear of any Liens or other title defects, or will so pass upon final payment.
d. a list of all duly pending Change Proposals and Claims; and

e. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of the Work, and of Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 15.06.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (a) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (b) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien, or Owner at its option may issue joint checks payable to Contractor and specified Subcontractors and Suppliers.

B. **Engineer’s Review of Final Application and Recommendation of Payment**: If, on the basis of Engineer’s observation of the Work during construction and final inspection, and Engineer’s review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor’s other obligations under the Contract have been fulfilled, Engineer will, within 10 days after receipt of the final Application for Payment, indicate in writing Engineer’s recommendation of final payment and present the final Application for Payment to Owner for payment. Such recommendation will account for any set-offs against payment that are necessary in Engineer’s opinion to protect Owner from loss for the reasons stated above with respect to progress payments. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. **Notice of Acceptability**: In support of its recommendation of payment of the final Application for Payment, Engineer will also give written notice to Owner and Contractor that the Work is acceptable, subject to stated limitations in the notice and to the provisions of Paragraph 15.07.

D. **Completion of Work**: The Work is complete (subject to surviving obligations) when it is ready for final payment as established by the Engineer’s written recommendation of final payment and issuance of notice of the acceptability of the Work.

E. **Final Payment Becomes Due**: Upon receipt from Engineer of the final Application for Payment and accompanying documentation, Owner shall set off against the amount recommended by Engineer for final payment any further sum to which Owner is entitled, including but not limited to set-offs for liquidated damages and set-offs allowed under the provisions of this Contract with respect to progress payments. Owner shall pay the resulting balance due to Contractor within 30 days of Owner’s receipt of the final Application for Payment from Engineer.

15.07 **Waiver of Claims**

A. By making final payment, Owner waives its claim or right to liquidated damages or other damages for late completion by Contractor, except as set forth in an outstanding Claim,
appeal under the provisions of Article 17, set-off, or express reservation of rights by Owner. Owner reserves all other claims or rights after final payment.

B. The acceptance of final payment by Contractor will constitute a waiver by Contractor of all claims and rights against Owner other than those pending matters that have been duly submitted as a Claim, or appealed under the provisions of Article 17.

15.08 Correction Period

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the Supplementary Conditions or the terms of any applicable special guarantee required by the Contract Documents), Owner gives Contractor written notice that any Work has been found to be defective, or that Contractor’s repair of any damages to the Site or adjacent areas has been found to be defective, then after receipt of such notice of defect Contractor shall promptly, without cost to Owner and in accordance with Owner’s written instructions:

1. correct the defective repairs to the Site or such adjacent areas;
2. correct such defective Work;
3. remove the defective Work from the Project and replace it with Work that is not defective, if the defective Work has been rejected by Owner, and
4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others, or to other land or areas resulting from the corrective measures.

B. Owner shall give any such notice of defect within 60 days of the discovery that such Work or repairs is defective. If such notice is given within such 60 days but after the end of the correction period, the notice will be deemed a notice of defective Work under Paragraph 7.17.B.

C. If, after receipt of a notice of defect within 60 days and within the correction period, Contractor does not promptly comply with the terms of Owner’s written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. Contractor shall pay all costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others). Contractor’s failure to pay such costs, losses, and damages within 10 days of invoice from Owner will be deemed the start of an event giving rise to a Claim under Paragraph 12.01.B, such that any related Claim must be brought within 30 days of the failure to pay.

D. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

E. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this paragraph, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
F. Contractor’s obligations under this paragraph are in addition to all other obligations and warranties. The provisions of this paragraph are not to be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

ARTICLE 16—SUSPENSION OF WORK AND TERMINATION

16.01 Owner May Suspend Work

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by written notice to Contractor and Engineer. Such notice will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be entitled to an adjustment in the Contract Price or an extension of the Contract Times directly attributable to any such suspension. Any Change Proposal seeking such adjustments must be submitted no later than 30 days after the date fixed for resumption of Work.

16.02 Owner May Terminate for Cause

A. The occurrence of any one or more of the following events will constitute a default by Contractor and justify termination for cause:

1. Contractor’s persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment, or failure to adhere to the Progress Schedule);
2. Failure of Contractor to perform or otherwise to comply with a material term of the Contract Documents;
3. Contractor’s disregard of Laws or Regulations of any public body having jurisdiction; or
4. Contractor’s repeated disregard of the authority of Owner or Engineer.

B. If one or more of the events identified in Paragraph 16.02.A occurs, then after giving Contractor (and any surety) 10 days’ written notice that Owner is considering a declaration that Contractor is in default and termination of the Contract, Owner may proceed to:

1. declare Contractor to be in default, and give Contractor (and any surety) written notice that the Contract is terminated; and
2. enforce the rights available to Owner under any applicable performance bond.

C. Subject to the terms and operation of any applicable performance bond, if Owner has terminated the Contract for cause, Owner may exclude Contractor from the Site, take possession of the Work, incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere, and complete the Work as Owner may deem expedient.

D. Owner may not proceed with termination of the Contract under Paragraph 16.02.B if Contractor within 7 days of receipt of notice of intent to terminate begins to correct its failure to perform and proceeds diligently to cure such failure.

E. If Owner proceeds as provided in Paragraph 16.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds the cost to complete the Work, including all related claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects,
attorneys, and other professionals) sustained by Owner, such excess will be paid to Contractor. If the cost to complete the Work including such related claims, costs, losses, and damages exceeds such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

F. Where Contractor’s services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue, or any rights or remedies of Owner against Contractor or any surety under any payment bond or performance bond. Any retention or payment of money due Contractor by Owner will not release Contractor from liability.

G. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 6.01.A, the provisions of that bond will govern over any inconsistent provisions of Paragraphs 16.02.B and 16.02.D.

16.03 Owner May Terminate for Convenience

A. Upon 7 days’ written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses; and

3. other reasonable expenses directly attributable to termination, including costs incurred to prepare a termination for convenience cost proposal.

B. Contractor shall not be paid for any loss of anticipated profits or revenue, post-termination overhead costs, or other economic loss arising out of or resulting from such termination.

16.04 Contractor May Stop Work or Terminate

A. If, through no act or fault of Contractor, (1) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (2) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (3) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon 7 days’ written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the contract and recover from Owner payment on the same terms as provided in Paragraph 16.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, 7 days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The
provisions of this paragraph are not intended to preclude Contractor from submitting a Change Proposal for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor’s stopping the Work as permitted by this paragraph.

ARTICLE 17—FINAL RESOLUTION OF DISPUTES

17.01 Methods and Procedures

A. Disputes Subject to Final Resolution: The following disputed matters are subject to final resolution under the provisions of this article:
   1. A timely appeal of an approval in part and denial in part of a Claim, or of a denial in full, pursuant to Article 12; and
   2. Disputes between Owner and Contractor concerning the Work, or obligations under the Contract Documents, that arise after final payment has been made.

B. Final Resolution of Disputes: For any dispute subject to resolution under this article, Owner or Contractor may:
   1. elect in writing to invoke the dispute resolution process provided for in the Supplementary Conditions;
   2. agree with the other party to submit the dispute to another dispute resolution process; or
   3. if no dispute resolution process is provided for in the Supplementary Conditions or mutually agreed to, give written notice to the other party of the intent to submit the dispute to a court of competent jurisdiction.

ARTICLE 18—MISCELLANEOUS

18.01 Giving Notice

A. Whenever any provision of the Contract requires the giving of written notice to Owner, Engineer, or Contractor, it will be deemed to have been validly given only if delivered:
   1. in person, by a commercial courier service or otherwise, to the recipient’s place of business;
   2. by registered or certified mail, postage prepaid, to the recipient’s place of business; or
   3. by e-mail to the recipient, with the words “Formal Notice” or similar in the e-mail’s subject line.

18.02 Computation of Times

A. When any period of time is referred to in the Contract by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.
18.03 Cumulative Remedies

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract. The provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

18.04 Limitation of Damages

A. With respect to any and all Change Proposals, Claims, disputes subject to final resolution, and other matters at issue, neither Owner nor Engineer, nor any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, shall be liable to Contractor for any claims, costs, losses, or damages sustained by Contractor on or in connection with any other project or anticipated project.

18.05 No Waiver

A. A party’s non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Contract.

18.06 Survival of Obligations

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract, as well as all continuing obligations indicated in the Contract, will survive final payment, completion, and acceptance of the Work or termination of the Contract or of the services of Contractor.

18.07 Controlling Law

A. This Contract is to be governed by the law of the state in which the Project is located.

18.08 Assignment of Contract

A. Unless expressly agreed to elsewhere in the Contract, no assignment by a party to this Contract of any rights under or interests in the Contract will be binding on the other party without the written consent of the party sought to be bound; and, specifically but without limitation, money that may become due and money that is due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract.

18.09 Successors and Assigns

A. Owner and Contractor each binds itself, its successors, assigns, and legal representatives to the other party hereto, its successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

18.10 Headings

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.
WORK CHANGE DIRECTIVE NO.:

Owner: City of Manchester
Engineer: Hoyle, Tanner & Associates, Inc.
Contractor: Contractor
Project: Sheehan-Basquil Park Renovation – Phase II

Contract Name:
Date Issued:

Owner’s Project No.: Owner’s Project No.:
Engineer’s Project No.: 111121
Contractor’s Project No.:

Contractor is directed to proceed promptly with the following change(s):

Description:

Attachments:

Purpose for the Work Change Directive:

Directive to proceed promptly with the Work described herein, prior to agreeing to change in Contract Price and Contract Time, is issued due to:

☐ Non-agreement on pricing of proposed change. ☐ Necessity to proceed for schedule or other reasons.

Estimated Change in Contract Price and Contract Times (non-binding, preliminary):

Contract Price: $ \[\text{[increase]} \ [\text{decrease}] \ [\text{not yet estimated}].
Contract Time: \[\text{days}\] \[\text{[increase]} \ [\text{decrease}] \ [\text{not yet estimated}]\.

Basis of estimated change in Contract Price:

☐ Lump Sum ☐ Unit Price ☐ Cost of the Work ☐ Other

Recommended by Engineer

Authorized by Owner

By: _______________________________
Title: _______________________________
Date: _______________________________
CHANGE ORDER NO.:  
City of Manchester
Owner: Department of Public Works  
Owner’s Project No.:  
Engineer: Hoyle, Tanner & Associates, Inc.  
Engineer’s Project No.: 111121  
Contractor:  
Contractor’s Project No.:  
Project: Sheehan-Basquil Park Renovation – Phase II  
Contract Name:  
Date Issued:  
Effective Date of Change Order:  
The Contract is modified as follows upon execution of this Change Order:
Description:

Attachments:

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<th>Change in Contract Times</th>
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Recommended by Engineer (if required)  
By: __________________________  
Title: __________________________  
Date: __________________________

Accepted by Contractor  
By: __________________________  
Title: __________________________  
Date: __________________________

Authorized by Owner  
By: __________________________  
Title: __________________________  
Date: __________________________

Approved by Funding Agency (if applicable)  
By: __________________________  
Title: __________________________  
Date: __________________________

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FIELD ORDER NO.: [Number of Field Order]

Owner: City of Manchester

Department of Public Works

Owner’s Project No.:

Engineer: Hoyle, Tanner & Associates, Inc.

Engineer’s Project No.: 111121

Contractor: Hoyle, Tanner & Associates, Inc.

Contractor’s Project No.:

Project: Sheehan-Basquil Park Renovation – Phase II

Contract Name: Sheehan-Basquil Park Renovation – Phase II

Date Issued: 

Effective Date of Field Order: 

Contractor is hereby directed to promptly perform the Work described in this Field Order, issued in accordance with Paragraph 11.04 of the General Conditions, for minor changes in the Work without changes in Contract Price or Contract Times. If Contractor considers that a change in Contract Price or Contract Times is required, submit a Change Proposal before proceeding with this Work.

Reference:

Specification Section(s):

Drawing(s) / Details(s):

Description:

Attachments:

Issued by Engineer

By: 

Title: 

Date: 

EJCDC® C-942, Field Order.
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PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of Article V of the CONTRACT AND GENERAL CONDITIONS.

1.2 REQUIREMENTS INCLUDED

A. Work under this Contract.
B. Examination of Site and Documents.
C. Contract Method.
D. Definitions.
E. Work Sequence.
F. Supervision of Work.
G. Contractor’s Use of Premises.
H. Coordination.
I. Field Engineering.
J. Reference Standards.
K. Preconstruction Conference.
L. Project Meetings.
M. Permits, Inspection, and Testing Required by Governing Authorities.
N. Cutting, Coring, Patching, Unless Otherwise Indicated.
O. Debris Removal.
P. Field Measurements.
Q. Emergency Procedures.
R. Safety Regulations.
S. OSHA Safety and Health Course Documentation.
T. Damage Responsibility.
U. Owner Furnished Products.
V. Owner Occupancy.
W. Asbestos and Hazardous Materials Discovery.
X. Special Requirements.
1.3 WORK UNDER THIS CONTRACT

A. The entire work provided for in these technical specifications and on the drawings shall be constructed and finished in every respect in a good workmanlike and substantial manner. All parts necessary for the proper and complete execution of the work, whether the same may have been specifically mentioned or not or indicated on the drawings, shall be done and furnished and installed in a manner corresponding with the rest of the work as if the same were particularly described and specifically provided for herein. It is not intended that the drawings shall show every detailed piece of material or equipment, but such parts and pieces as may be necessary to satisfactorily complete any system in accordance with the best practices and regulatory requirements, even though not shown, shall be furnished and installed. All materials and equipment shall be new unless specifically stated otherwise in these Contract Documents.

B. The scope of work, without limiting the generality thereof, includes the construction of a splash pad, playground, including associated utility services, amenities and site improvements at Sheehan-Basquil Park in Manchester, New Hampshire. The work required by these specifications shall include furnishing all labor, skill, supervision, tools, equipment and materials and performing all operations necessary for the properly completed contract work as shown on the drawings, as mentioned in these specifications, and as evidently required with all incidental work necessary and customarily done to the complete satisfaction of the Owner and their authorized representative.

C. Work will include all site removal and new construction for the Sheehan-Basquil Park Renovation – Phase II Project Design including but not limited to construction of a splash pad, playground, including associated utility services, amenities and site improvements at Sheehan-Basquil Park in Manchester, New Hampshire. Lump sum Bids shall NOT include the cost for purchase and delivery of playground equipment, splash pad equipment, or benches. These items will be purchased by the City of Manchester, and bidding shall include delivery acceptance and installation only. Furthermore, bids shall not include the purchase and installation of the Surface America Poured In Place (PIP) Rubber Safety surface product. Bids shall include the asphalt base and coordination with Surface America for installation. The Contractor will provide a schedule for completion of the project to OWNER within the required construction period.

D. All work shall be performed in accordance with the Technical Specifications contained within Section III of the City of Manchester Standard Specifications for Road, Drain & Sewer Construction, approved & adopted January 2019, https://www.manchesternh.gov/Portals/2/Departments/public_works/City%20of%20Manchester%20Standard%20Specs.pdf which is considered part of the Contract Documents. Payment for all work will be on a lump sum basis which shall supersede any payment instructions contained in the above referenced Technical Specifications.

E. All designs must meet OWNER standards. Contractors to submit plans and receive acceptance prior to starting any work. Where applicable, OWNER approved equipment is to be used.

1.4 EXAMINATION OF SITE AND DOCUMENTS

A. A pre-bid conference will be held at the time and location indicated in the Ad for Bid.
B. Bidders will have access to the site and buildings during the pre-bid conference, at the time specified in the advertisement and the bid documents.

C. The bidders are expected to examine and to be thoroughly familiar with all contract documents and with the conditions under which the work is to be carried out. OWNER or ENGINEER will not be responsible for errors, omissions, and/or charges for extra work arising from the Contractors failure to familiarize themselves with the contract documents. The Contractor acknowledges that they are familiar with the conditions and requirements of the contract documents where they require, in any part of the work a given result to be produced, and that the contract documents are adequate and will produce the required results.

D. Contact: The ENGINEER will be present at the pre-bid conference. This will be the only time available for guided viewing of the site; any further questions preceding the submission of the bid shall be directed to: Donna Akerley at dakerley@hoyletanner.com

E. No questions from Bidders will be accepted after 12:00PM on August 25, 2020. Questions will be answered in the form of an addendum which will be emailed to all registered plan holders. Any information provided by other than the designated contact person identified above should be disregarded in the preparation of Bids.

1.5 CONTRACT METHOD

A. Work under this contract shall be lump sum price, for the scopes of work as described in these specifications and shown on the Drawings.

1.6 DEFINITIONS - AWARDING AUTHORITY, CONTRACTOR, AND ENGINEER

A. Wherever the terms “Awarding Authority” and "Owner" are used in this Project Manual, they refer to:

City of Manchester, Department of Public Works
475 Valley Street, Manchester, NH 03103

1. The terms “Awarding Authority” and “Owner” as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. Both terms refer to the same entity representing the interest of the City of Manchester.

2. Important Tax Note: Awarding Authority is exempt from certain taxes. It is therefore required that the Contractor and all Subcontractors purchasing taxable goods or services make known to suppliers that tax-exempt status of OWNER, in order that such taxes will not be applied to the goods under Contract.

   a. Fines and Penalties: Contractor, Trade Contractors, and subcontractors are fully responsible for payment of all penalties and fines accessed by authorities having jurisdiction for improper and illegal use of Awarding Authority’s tax exemption certificate number.

3. All papers required to be delivered to OWNER shall, unless otherwise specified in writing to the contrary, be delivered to the office of the ENGINEER.
B. Wherever the term "Contractor" is used in the Contract Documents, they refer to the Contract award bidder.

1. The terms “Contractor” and “CM” as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. All terms refer to the same entity.

C. Wherever the terms "Architect", “ENGINEER”, “Engineer” or “Architect/Engineer”, are used in the Contract Documents, they refer to:

Hoyle, Tanner & Associates, Inc.
150 Dow Street
Manchester, NH 03101

D. For a list of additional basic contract definitions utilized in the contract documents, refer to Section 014200 – REFERENCES

1.7 WORK SEQUENCE

A. The Work will be conducted in the following sequence of demolition/construction as shown in the Drawings and as provided by the Contractor.

B. The Contractor shall submit a detailed construction for schedule to OWNER and Engineer indicating the dates he intends to begin and complete each part of the work. The Contractor shall submit the schedule to the Engineer at the Pre-Construction Conference. The schedule shall be approved by OWNER and Engineer prior to the commencement of any work.

C. The Contractor is fully responsible for preparing his detailed construction schedule and completing the work as shown and specified in the Contract Documents.

D. The Contractor shall perform his work within the hours of 7:00 a.m. to 6:00 p.m. during the regular work week (i.e., Monday through Friday). Work shall not interfere with the work of other Contractors or OWNER.

E. If the Contractor should expect to encounter winter conditions during the construction period. Weather conditions encountered shall not be grounds for a Contract time extension.

F. The Contractor shall submit fencing, detour, traffic management plans and pedestrian management, as necessary, for approval by OWNER and Engineer at the Pre-Construction Conference.

G. No extension will be granted, and liquidated damages will be assessed if the project is completed after the Substantial Completion Deadline.

H. If conditions are such that the work must be suspended at any time, it will be suspended only on written authorization from OWNER and only or such period of time approved. Depending on the reason, the period of such suspension of work may be excluded from the time limits established. During such suspensions, or during any period of general inactivity on the project,
all material and equipment delivered to the site of the work shall be properly stored and protected.

I. The Contractor shall keep a copy of the Contract Documents on the premises at all times.

1.8 SUPERVISION OF WORK

A. The Contractor shall be held directly responsible for the correct installation of all work performed under this Contract. The Contractor must make good repair, without expense to the City, of any part of the new work, or existing work to remain, which may become inoperative on account of leaving the work unprotected or unsupervised during construction of the system or which may break or give out in any manner by reason of poor workmanship, defective materials or any lack of space to allow for expansion and contraction of the work during the Contractor's warranty period, from the date of final acceptance of the work by the Awarding Authority. The Contractor shall furnish a competent Foreman. The Foreman shall supervise all work under this contract and who shall remain on duty at the site throughout the Contract period while work is in progress.

1.9 CONTRACTOR’S USE OF PREMISES

A. Use of the Site: Limit use of the premises to work in areas indicated within the construction fence shown on the site drawing(s). Coordinate work of all Subcontractors required outside the construction fence boundary shown on the site drawing(s). Confine operations to areas within contract limits indicated. Do not disturb portions of the site beyond the areas in which the Work is indicated.

1. Owner Occupancy: Allow for Owner occupancy as necessary.
2. Driveways and Entrances: Keep driveways and entrances serving the premises clear and available to OWNER, OWNER’s employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
3. Areas outside the Construction Fence or Immediate Work Area: The Contractor is responsible for clean-up of all debris, dirt and sediment resulting from the construction work.

B. Schedule and perform work to afford a minimum of interruption to normal and continuous operation of utility systems. The Contractor shall submit to OWNER and the ENGINEER for approval, proposed schedule for performing work; including construction of new utilities, re-routing of existing utilities and final connection of new work to existing work. Schedule shall indicate shutdown time required for each operation if any.

1. Work includes checking all safety devices to verify that they have come back on-line after interruption. This requirement will not be waived.

C. The Contractor shall schedule as per Section 015000 - Temporary Facilities and Controls, the shutting down or interrupting any utilities, services or facilities which may affect the operation of the building outside the area of work or other buildings, services or facilities of OWNER.
D. Coordinate with OWNER, and the ENGINEER, work in connection with adjacent driveways, walks, or other facilities which would prevent access thereto or interrupt, restrict, or otherwise infringe upon the City’s use thereof.

E. The Contractor shall be aware of the sensitivity of the park to noise, dust, debris, vibration, and site maintenance and take appropriate precautions to avoid conflict.

F. Damage to existing work, if caused by the Contractor’s operations under this Contract, shall be repaired at the Contractor’s expense.

1. An existing conditions survey shall be conducted at which existing conditions will be videotaped by the Contractor. A copy of the videotape will be provided to OWNER Project Manager.

G. Trenching and other work outside construction limits shall be expedited to fullest extent and carried out with minimum of inconvenience to normal operation of the City and public traffic. Walks, paved or landscaped areas over which temporary driveways cross, shall upon completion of the work, be restored to their original condition. Temporary roadways shall be bridged over trenched areas. Filing is required for a trench permit.

H. The Contractor can gain access to the premises during the hours specified below. In addition, the Contractor and his personnel will limit themselves only within the working premises during working hours. If work needs to be scheduled during times other than those listed below, Contractor shall inform OWNER Project Manager one week prior to work.

1. Deliveries: 7:00 AM to 6:00 PM
2. General Access: 7:00 AM to 6:00 PM during the regular work week

I. Confine operations at the site to areas permitted by:

1. Laws
2. Ordinances
3. Permits
4. Contract Documents
5. OWNER’s Park Regulations

J. If required by OWNER or OWNER Project Manager, workers will be required to wear identifying name badges.

K. Contractor shall supervise the use of the site related to construction and be responsible for correcting any damage identified by OWNER Project Manager to the Awarding Authority’s satisfaction.

L. All available existing utilities adjacent to the construction site will be available for use during construction unless indicated otherwise. Temporary connections to these utilities, all metering, transformers, removal, usage, and their associated costs will be the responsibility of the appropriate Subcontractor.
The Contractor shall verify that Subcontractors have visited the site and included all costs associated with the location of the project, and any restriction or limitations the location of the project may pose.

The Subcontractors shall at all times conduct their operations in a courteous, professional manner while on the project or in the vicinity of the project. Harassment, offensive language or behavior will not be permitted on the site.

The City of Manchester can neither accept nor assume responsibility for the security of the Contractor’s material or equipment which is lost, stolen or vandalized. The Contractor is advised to exert caution in placement and storage of his equipment and material.

Parking: Parking spaces are very limited and the City will not provide designated parking lot spaces near the construction site for the Contractor’s use. The Contractor will be required to pay all fees for parking. The Contractor shall state his/her parking and staging area requirements during the Pre-construction Meeting. The area(s) for materials storage will then be agreed to between the Contractor and OWNER. The limits of material storage will be delineated by the Contractor with construction fencing and enforced throughout the Contract. Refer to Section 015000 - Temporary Facilities and Controls for additional requirements.

Areas not to be used for storage include the areas under the “drip line” of trees, planting beds, and sidewalks. Install temporary fencing around the drip line of trees and protect vegetation from construction damage. Trailers or storage piles shall not be located over utility lines or their access points.

Radios, tape players, “boom boxes”, or other audio entertainment equipment, including personal entertainment devices, shall not be allowed on the project site.

The City prohibits tobacco use inside buildings and throughout the grounds. For the purpose of this policy, ‘tobacco’ refers to any and all tobacco products, whether inhaled or ingested, as well as electronic cigarettes.

When any person enters the grounds of the park, any smoking material shall be extinguished and disposed of in an appropriate receptacle at the perimeter of the grounds of the park.

The Contractor shall not allow the use of intoxicating beverages or non-prescription controlled substance drugs upon or about the work site.

The Contractor shall provide and maintain in good serviceable condition at all times, warning signs and non-combustible barriers, forms and fire resistive tarps or plastic, each of which shall be approved by OWNER, shall be suitable for the purpose, and shall be installed adjacent to each work area, for complete enclosure and/or isolation of all excavations, wells, pits, manholes, shafts, overhead areas, etc., which are associated with the work under the contract. Barriers shall be a secure fence, guardrail, cover, or similar assembly designed and erected to provide protection for concrete, protection from the weather, and to prevent accidental access. Barrier tape and/or sawhorses shall not be used as a means of such access protection.
1.10 COORDINATION

A. The Contractor shall be responsible for the proper fitting of all the work and for the coordination of the operations of all Subcontractors or material and persons engaged upon the work. The Contractor shall do, or cause his agents to do, all cutting, fitting, adjusting, and repair necessary in order to make the several parts of the work come together properly.

1. Examine Contract Documents in advance of start of construction and identify in writing questions, irregularities or interference to OWNER Project Manager in writing. Failure to identify and address such issues in advance becomes the sole responsibility of the Contractor.

B. Execute the work in an orderly and careful manner with due regard to the occupants of the facility, the public, the employees, and the normal function of the facility.

C. The work sequence shall follow planning and schedule established by the Contractor as approved by the ENGINEER and OWNER Project Manager. The work upon the site of the project shall commence promptly and be executed with full simultaneous progress. Work operations which require the interruption of utilities, service, and access shall be scheduled so as to involve minimum disruption and inconvenience, and to be expedited so as to insure minimum duration of any periods of disruption or inconvenience.

D. The Contractor shall review the tolerances established in the specifications for each type of work and as established by Subcontractor organizations. The Contractor shall coordinate the various Subcontractors and resolve any conflicts that may exist between Subcontractor tolerances without additional cost to OWNER. The Contractor shall provide any chipping, leveling, shoring or surveys to ensure that the various materials align as detailed by the ENGINEER and as necessary for smooth transitions not noticeable in the finished work.

1.11 FIELD ENGINEERING

A. Provide field engineering services; establish grades, lines and levels, by use of recognized engineering survey practices. All field engineering surveying shall be performed by a licensed Land Surveyor registered in the State of New Hampshire.

B. The Contractor shall survey and submit exact dimensional layouts as required. Engage and pay for the services of a New Hampshire Registered Surveyor acceptable to OWNER Project Manager to locate and protect control and reference points.

1.12 REFERENCE STANDARDS

A. For products specified by association or trade standards, comply with requirements for the standard, except where more rigid requirements are specified or are required by codes. Refer to Section 014200 - REFERENCES.

B. Where reference is made in the Contractual Documents to Publications and Standards issued by Associations or Societies, the intent shall be understood to specify the current edition of such
Publications or Standards (including tentative revision) in effect on the date of the contract advertisement notwithstanding any reference to a particular date.

1.13 PRE-CONSTRUCTION CONFERENCE

A. A Pre-construction conference to review the work will be conducted by OWNER Project Manager.

B. Representatives of the following shall be required to attend this conference:

1. OWNER
2. ENGINEER
3. Contractor
4. All Subcontractors

C. The Contractor shall have a responsible representative at the pre-construction conference to be called by OWNER Project Manager following the award of the contract, as well as representatives of field or office forces and major Subcontractors. All such representatives shall have authority to act for their respective firms. The pre-construction conference is to be held within five days of the NOTICE OF AWARD, or as otherwise determined by OWNER.

D. Contact List: The Contractor shall provide to the ENGINEER and OWNER Project Manager a list containing the following:

1. Contractor’s name, address, office and cell phone number, fax number, e-mail address and after-hours emergency phone number.
2. Contractor’s Superintendent or Foreman name, email address and cell phone number.
3. Each Sub-Contractor’s name, email address, address, office and cell phone number, fax number and description of the products or services they will provide to the project.

E. Agenda: Discuss items of significance that affect progress, including the following:

1. Tentative construction schedule.
2. Phasing.
3. Critical work sequencing.
4. Designation of responsible personnel. The Contractor shall identify a contractor safety representative to interface with the OWNER. This person may also fill other roles within the Contractor’s project area e.g. project manager, superintendent, foreman, etc.
5. Procedures for processing field decisions and Change Orders.
6. Procedures for processing Applications for Payment.
8. Submittal procedures.
9. Preparation of Record Documents.
10. Use of the premises.
11. Safety. The OWNER will attend the pre-construction meeting for the purpose of orienting the Contractor to policies specific to the City or park, discuss the Contractor’s site-specific safety plan, as well as to emphasize recognized safety practices expected on campus. The Contractor Safety Representative is responsible for ensuring this information is disseminated to all contractor / subcontractor employees. If the OWNER
is unable to attend, the OWNER may send a designee to cover this portion of the meeting or the OWNER and OWNER Project Manager will schedule a separate time when this review may be completed.

12. Responsibility for temporary facilities and controls.
14. Office, work, and storage areas.
15. Equipment deliveries and priorities.
16. First aid.
18. Progress cleaning.
19. Working hours.
20. Emergency phone numbers.
21. Payment procedures and Schedule of Values.
22. Material deliveries.

F. Reporting: Minutes of the meeting shall be prepared by a designated OWNER’s representative and shall be distributed to each party present. The Contractor shall be responsible for distributing the minutes to allFiled-Sub Contractor Form.

1.14 PROJECT MEETINGS

A. Project meetings shall be held as required, subject to the discretion of the OWNER Project Manager.

B. Attendees: In addition to the OWNER Project Manager, and ENGINEER, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review present and future needs of each entity present, including the following:

   a. Interface requirements.
   b. Sequence of operations.
   c. Status of submittals.
   d. Deliveries.
   e. Off-site fabrication.
   f. Access.
   g. Site utilization.
h. Temporary facilities and controls.
i. Manpower.
j. Hazards and risks.
k. Progress cleaning.
l. Quality and work standards.
m. Change Orders.
n. Documentation of information for payment requests.

D. As a prerequisite for monthly payments, ordering schedules, shop drawing submitted schedules, and coordination meeting schedules shall be prepared and maintained by the Contractor and shall be revised and updated on a monthly basis, and a copy shall be submitted to the OWNER Project Manager and ENGINEER.

E. In order to expedite construction progress on this project, the Contractor shall order all materials immediately after the approval of shop drawings and shall obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress. The Contractor shall present a list and written proof of all materials and equipment ordered (through purchase orders). Such list shall be presented at the meetings and shall be continuously updated.

F. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the Contractor, which shall reflect construction completion not being deferred or foreshortened. Identify critical long-lead items and other special scheduling requirements. The project schedule is to include time for submission of shop drawing submittals, time for review, and allowance for resubmittal and review.

G. Project meetings shall be chaired by OWNER’s Project Manager.

H. Minutes of the project meetings shall be prepared by OWNER’s representative and shall be distributed to all present. OWNER’s meeting minutes shall be the only official meeting record. Minutes shall enumerate each topic item, and each topic shall be updated at each progress meeting. Actions to be taken for each topic shall be recorded, along with identification of the party responsible for each action item. Items shall not be removed from the Minutes until all issues with each item have been resolved.

1.15 PERMITS, INSPECTION, AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having any jurisdiction require any portion of the Work to be inspected, tested, or approved, the Contractor shall give the ENGINEER, the OWNER Project Manager or his/her designated representative, and such Authority timely notice (5 business days minimum) of its readiness so the ENGINEER may observe such inspecting, testing, or approval.

B. Prior to the start of construction, the Contractor shall complete application to the applicable Building Code enforcement authority for a Building, Demolition, Electrical, Plumbing and/or other permit as required. Such Permit shall be displayed in a conspicuous location at the project site. All permit fees shall be paid by the Contractor.
C. Unless otherwise specified under the Sections of the Specifications, the Contractor shall pay such proper and legal fees to public officers and others as may be necessary for the due and faithful performance of the work and which may arise incidental to the fulfilling of this Contract. As such, all fees, charges, and assessments in connection with the above shall be paid by the Contractor.

D. The Contractor shall maintain at the site, for the duration of construction operations, at least one (1) up-to-date copy of all relevant codes and standards listed in the Contract Documents or determined to be applicable to the work. One (1) copy of such codes shall be for the exclusive use of OWNER and the ENGINEER and its Consultants and shall be kept in the Contractor’s site office.

E. The Contractor shall furnish and install all information required by the building official and shall secure the general building permit for the work promptly on award of the Contract. The Contractor shall conform to all conditions and requirements of the permit and code enforcement authority. The Contractor shall provide names and license numbers of its responsible representatives to complete the application for permit and shall receive the permit and promptly distribute copies to OWNER and the ENGINEER. The OWNER may provide permits that are needed through DPW at no cost to the contractor.

F. Contractor and specialized Subcontractors as applicable shall identify all permits (other than general building permit) required from Authorities having jurisdiction over the Project for the construction and occupancy of the work. The Contractor shall prepare the necessary applications and submit required plans and documents to obtain such permits in a timely manner and shall furnish the required information to the Building Official and obtain the required permits as early as practicable after award of the Contract.

1. The Contractor shall display all permit cards as required by the Authorities and shall deliver legible photocopies of all permits to OWNER’s Project Manager and the ENGINEER promptly upon their receipt.
2. The Contractor shall arrange for all inspections, testing and approvals required for all permits, and shall notify the ENGINEER and OWNER’s Resident Engineer of such inspections at least three (3) business days in advance (longer if so required in the various Sections of the Specifications), so they may arrange to observe.
3. The Contractor shall comply with all conditions and provide all notices required by all permits.
4. The Contractor shall perform and/or arrange for and pay all testing and inspections required by the Governing Codes and Authorities, other than those provided by OWNER, and shall notify the ENGINEER and OWNER’s Resident Engineer of such inspections at least three (3) business days in advance of all such testing or inspection, so they may arrange to observe.
5. Where Inspecting Authorities require corrective work for conformance with applicable Codes and Authorities, the Contractor shall promptly comply with such requirements, except in cases where such requirements clearly exceed the requirements of the Contract Documents, in which case the Contractor shall proceed in accordance with the procedures for modifications or changes in the work established in the Contract Documents, as amended.

G. Prior to the start of construction, the Contractor shall complete applicable applications, permits, and pay the required fees. These forms must be submitted at least 10 working days in advance.
of any regulated activity on the site. Demolition permits must be submitted for any work involving demolition, new construction and renovation. The OWNER must be provided copies of any and all notifications.

H. Building permits may be required for the installation of office trailers. Trailers must be securely anchored to prevent displacement due to wind.

I. Metal dumpsters of 6 cubic yard aggregate capacity or more, and containing combustible materials, must have a Local Fire Department Permit issued for each location. If the containers are delivered and removed on the same day, no permit is required.

J. Storage of more than 2500 cubic feet gross volume of combustible or flammable materials in a building will require a permit from the Local Fire Department.

K. Use and storage of more than 10 gal or 42 lbs of Liquefied Propane Gas (LPG) containers on site must be approved by and a permit must be secured through the local Fire Department.

L. Any work involving existing fire protection systems or related equipment (fire alarm, sprinkler, fixed extinguishing system) will require the Contractor to obtain a permit from the local Fire Department. Any work that affects Fire Protection Systems shall require the Contractor to notify the OWNER. Any work which disables part or all of a fire protections system for more than 8 hours shall submit an impairment plan to the OWNER Project Manager.

M. The Contractor shall obtain any required trenching permits for excavations three working days prior to start of work.

N. The Contractor shall be required to keep a copy of the State Building Code (with latest amendments) at the job site at all times.

O. Any construction sites disturbing greater than one acre require a notice of intent to the EPA and will require a written a stormwater pollution prevention plan. A Notice of Termination must then be filed when sediment controls are no longer required.

1.16 CUTTING, CORING, AND PATCHING, UNLESS OTHERWISE INDICATED

A. The Contractor shall coordinate all cutting, coring, fitting and patching of the work that may be required to make its several parts come together properly and fit it to receive or be received by work of the Subcontractors shown on the Drawings and Specifications. The Subcontractor shall perform all cutting, coring or patching.

B. The Contractor shall coordinate that the work of the Subcontractor is not endangered by any cutting, coring, excavating, or otherwise altering of the work and shall not allow the cutting or altering the work of any Subcontractor except with the written consent of the ENGINEER.

C. Submit a written request to ENGINEER at least three (3) business days in advance of executing any cutting or alteration which affects:

1. Work of OWNER or separate Contractor.
2. Structural value or integrity of any element of the Project.
3. Integrity or effectiveness of weather-exposed or moisture-resistant elements or systems.
4. Efficiency, operational life, maintenance, or safety of operational elements.
5. Visual qualities of sight-exposed elements.
6. Request shall include:
   a. Identification of the Project.
   b. Description of affected work.
   c. The necessity for cutting, alteration, or excavation.
   d. Effect on work of OWNER or any separate Contractor, or on structural or weatherproof integrity of Project.
   e. Description of proposed work:
   f. Alternatives to cutting and patching.
   g. Cost proposal, when applicable.
   h. Written permission of any separate Contractor whose work will be affected.

7. Should conditions of Work or the schedule indicate a change of products from original installation, Contractor shall submit request for substitution.
8. Submit written notice to ENGINEER designating date and time the work will be uncovered a minimum of three business days in advance.

D. Performance:

1. Execute cutting and patching by methods which will prevent damage to other work and will provide proper surfaces to receive installation of repairs.
   a. In general, where mechanical cutting is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
   b. Prior to cutting and structural steel or concrete work, contact ENGINEER and Project Structural Engineer in writing. Do not cut any structural steel and concrete work until approval has been granted by the ENGINEER and the Project Structural Engineer.

2. Employ original installer or fabricator to perform cutting and patching for:
   a. Weather-exposed or moisture-resistant elements.
   b. Sight-exposed finished surfaces.

3. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes.
4. Restore work which has been cut or removed; install new products matching existing to provide completed Work in accordance with requirements of Contract Documents.
5. Fit work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
6. Patch with seams which are durable and as invisible as possible. Flash and seal all penetration of exterior work. Comply with specified tolerances for the work.
7. Restore exposed finishes of patched areas; and, where necessary extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.
   a. Where patch occurs in a smooth painted surface, extend final paint coat over the entire unbroken surface containing the patch.
8. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
   a. For continuous surfaces, refinish to nearest intersection.
   b. For an assembly, refinish entire unit.

E. Existing Utilities Services:

1. Interruptions to critical existing utility services will not be allowed except as scheduled per Section 015000 - Temporary Facilities and Controls.
   a. Sanitary sewer, storm drainage, and water changeovers as affecting existing services shall be done with no disruptions of existing services and scheduling of such work will require approval in writing by the OWNER.
   b. All relocation of existing electrical, telephone, and gas services that are utility company owned shall be performed by the respective utility company, and the cost of any charges for such work shall be paid by the Contractor. All utility installations and relocation shall be the responsibility of the Contractor. Coordination of all of the aforesaid work is the responsibility of the Contractor.

2. The Contractor shall locate and record on Drawings all existing utilities along the course of the work by such means as the ENGINEER and the OWNER Project Manager may approve and shall preserve such marked locations until the work has progressed to the point where the encountered utility is fully exposed and protected as required. It shall be the Contractor’s responsibility to notify the proper authorities and/or utility company before interfering therewith.

3. Existing utilities that are indicated on the Drawings or whose locations are made known to the Contractor prior to excavations, though accuracy and information as to grades and elevations may be lacking, shall be protected from damage during the excavation and backfilling operations and, if damaged by the Contractor, it shall be repaired by the Contractor at his/her own expense.

4. All exposed conduits, wires, and/or cables shall be provided with sufficient protection and support to prevent failure, fraying, or damage due to backfilling or other construction operations.

5. The Contractor shall not obstruct access to existing active utility system manholes and catch basins which continue to serve facilities other than the project construction site. The Contractor shall exercise measures as necessary to prevent the placement of impediments that limit continuous access by authorized utility company or OWNER maintenance personnel and shall be required to reimburse the utility company or OWNER for any expense incurred as a result of need to remove any such impediments to access.

F. Dig-Safe:

1. If excavation, staking or any other scarifying existing grade to a depth greater than 6 inches is required, the Contractor shall follow the standard DIG-SAFE procedures as required by the State of New Hampshire. Contractor shall review the following procedures with the OWNER Project Manager prior to initiating DIG-SAFE procedures to ensure that there have not been changes.
2. The Contractor shall pre-mark all areas to the full extent of proposed excavation(s) with white paint. Use fluorescent pink paint when snow cover is present. Maintain complete visibility of paint for entire DIG-SAFE period.

3. After marking the site, apply for a DIG-SAFE permit.

4. After marking the site, and at least 7 days before an excavation, the Contractor shall notify DIG-SAFE by calling 811 or online at http://www.digsafe.com.

5. On the same day as the DIG-SAFE request is made, the Contractor shall deliver to the OWNER a site plan indicating the DIG-SAFE Quick-Ticket Number and displaying all relevant areas and pre-marked limits of the proposed excavation(s).

6. If the Contractor is informed of issues regarding the proposed excavation, the Contractor shall resolve those issues to the satisfaction of the OWNER Project Manager. Issues that may require changes in the project design shall be brought to the attention of the ENGINEER and OWNER Project Manager immediately for resolution. If no issues are raised by the DIG-SAFE Coordinator that require the design of the project to change, the Contractor may proceed with the proposed excavation(s) commencing seven (7) working days after submission of the site plan and Quick-Ticket Number to the DIG-SAFE Coordinator.

7. Prior to the “Dig-Safe” notification, OWNER requires Contractors to provide their Foreman with current “Dig-Safe” regulations.

1.17 DEBRIS REMOVAL

A. The Contractor shall coordinate the removal of all demolition and construction waste by the Subcontractor from the job site on a daily basis. Waste shall be segregated for recycling. Comply with requirements of Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

B. Debris shall be legally disposed of in a DES approved disposal site. The site to be used shall be submitted to and approved by the OWNER Project Manager prior to the start of construction. All required dumping permits shall be obtained prior to start of construction. Contractor shall submit receipts from the disposal site(s) as evidence of legal disposal. The Subcontractor shall pay the cost of any charges for debris removal.

C. The Contractor shall bear responsibility for maintaining the building and site clean and free of debris, leaving all work in clean and proper condition satisfactory to OWNER and the ENGINEER. The Contractor shall ensure that each of the Subcontractors clean up during and immediately upon completion of their work. Clean up includes the following tasks:

1. Remove all rubbish, waste, tools, equipment, appurtenances caused by and used in the execution of work.

D. Prevent the accumulation of debris at the construction site, storage areas, parking areas, and along access roads and haul routes.

E. Provide containers for deposit of debris and schedule periodic collection and disposal of debris.

F. Prohibit overloading of trucks to prevent spillage on access and haul routes.
G. The Contractor shall be responsible for proper disposal of all construction debris leaving the site.

1.18 FIELD MEASUREMENTS

A. Although care has been taken to ensure their accuracy, the dimensions shown for existing items and structures are not guaranteed. It is the responsibility of the Contractor to verify these dimensions in the field before fabricating any construction component. No claims for extra payment due to incorrect dimensions will be considered by the City.

1.19 EMERGENCY PROCEDURES

A. Emergencies: In the event of an emergency on-site, telephone for emergency services (ambulance, fire department or police assistance) by calling 911.

B. Make the scene safe.

C. Render First-Aid if possible.

D. Preserve evidence.

E. Call the OWNER Project Manager.

F. Call the OWNER Project Manager for significant incidents/injuries beyond first aid, including situations that have the potential to cause significant personal injury or damage to OWNER’s property. All spills of hazardous materials regardless of quantity shall be reported to the OWNER. The OWNER is responsible for notifying NHDES if appropriate, and any necessary outside responders, unless the Contractor has specified their own responder.

G. Contact the appropriate outside agencies as required by law, including OSHA for fatalities or injuries requiring hospitalization of three or more individuals (by Contractor). All regulatory notifications required for environmental events shall be made by OWNER. Contractors shall report any incident involving a radiographic source to OWNER, the New Hampshire Dept of Public Health (DPH) and The US Nuclear Regulatory Commission (NRC). Ensure the OWNER’s office is contacted as well for any of these circumstances.

1.20 SAFETY REGULATIONS

A. This project is subject to compliance with Public Law 91 596 "Occupational Safety and Health Act" latest edition (OSHA 29 CFR 1926), with respect to all rules and regulations pertaining to construction, including Volume 36, numbers 75 and 105, of the Federal Register, as amended, and as published by the U.S. Department of Labor.

B. Submit the name of the Contractor's safety officer to the OWNER Project Manager. Submit copies of safety reports to the OWNER Project Manager monthly.
C. Each Contractor/ subcontractor will be responsible to submit a written Safety Program, prior to starting construction, outlining measures they take to cover their operations and protect their employees. Construction Projects will also submit a Site-Specific Safety Plan specific to their operations at the project site and which address their plan of action for identified and potential environmental, health and safety issues that may arise prior to start of construction. Maintain a written hazard communication program in accordance with OSHA 29CFR 1910.1200. Keep MATERIAL SAFETY DATA SHEETS (MSDS) on site and upon request provide MSDS sheets for materials used in the construction.

D. All accident reports are to be transmitted to the OWNER within 24 hours of occurrence.

E. The Contractor shall immediately notify the OWNER if an OSHA, DES or EPA regulator visits the site.

F. The OWNER shall have the authority to exercise on-site compliance audits on the construction site. Deficiencies discovered during site inspections and visits will be relayed to the Contractor’s company safety representative and the OWNER Project Manager. The Contractor will communicate back to the OWNER Project Manager on the course of corrective action to be taken and the timeline for completion. If during such an audit, in his or her professional opinion, there exists an imminent danger or serious violation of established environment, health and safety standards that could lead to death or serious physical harm, damage to university property or the environment, the OWNER representative has the right to request the immediate halt of such operations.

G. Hazardous Waste Generation: Any work generating Hazardous Wastes will comply with all requirements of the State of New Hampshire. The proper storage, use and disposal of any hazardous chemicals or substances brought on site by the Contractor are the responsibility of the Contractor. The City will not be responsible for any hazardous materials left on site, the cost to remove these materials will be the Contractor’s responsibility. All hazardous wastes generated as a result of demolition and remodeling shall be contained, collected, segregated, labeled per all applicable federal EPA, NHDES, and Federal DOT regulations or other applicable local, state or federal hazardous waste regulations, pending the appropriate disposition. Contractor shall provide for properly packaging hazardous waste, preparing the proper shipping papers, identifying a permitted disposal site, and contacting the OWNER at least 24 hours prior to shipment of the waste. The Owner will review the hazardous waste shipment and sign the paperwork. The Owner must keep the “Generator” copies of the manifest on file in their office.

H. The Contractor must inform OWNER if they intend to store any type of oil in 55 gallons or larger quantities so that such storage can be included in the OWNERs SPCC plan, this includes oil for equipment, form oil, cutting oil, diesel, gasoline, etc. Spills of any oil outside to soil, water or ambient air shall be reported to OWNER. Oil is also considered to be a hazardous waste in the state of NH when it is disposed. All waste oil must be managed in accordance with the hazardous waste section of this document.

I. Non-Destructive Testing: The Contractor shall notify the OWNER Project Manager 3 days prior to the use of a radiography or x-ray equipment. The Contractor shall demonstrate safety procedures acceptable to the City and also provide sufficient personnel to maintain the safety zone perimeter as required by code. The OWNER must be contacted to review all radiography to be performed on the project site before it takes place. In the event of a failed source, it is the Contractor’s responsibility to recover a damaged radiography source, moisture density gauge or
other radioactive source used in the construction industry and to decontaminate any soil, equipment or other university property contaminated by a failed source.

J. Any salamanders used must exhibit an approval tag from the New Hampshire State Fire Marshal and any Contractor intending to utilize a salamander shall meet the requirements of the State of New Hampshire and obtain a permit from the local Fire Department.

K. All Hot Works, including cutting, welding, brazing, etc., requires a permit. A Hot Works permit is not required for work performed outside (unless it is in a temporary enclosure such as a tent). Contractor must provide a minimum of one operable fire extinguisher approved by a recognized testing laboratory and rated for the intended purpose near each Hot Work operation. At least one employee of the Contractor shall remain on the site for one hour after the hot work has ceased to ensure against the outbreak of fire.

L. Use of Liquefied Propane Gas (LPG) and containers on site must be approved by and a permit must be secured through the local Fire Department.

2. Contractor must provide a minimum of one operable 20 BC rated fire extinguisher approved by a recognized testing laboratory near each LPG operation.

M. Use of torches or other flame producing devices for the removal of paint from buildings, or the application or removal of roofing materials must conform with the State Fire Marshal's regulations.

1. Permit must be secured through the local Fire Department and OWNER.
2. An approved and operable fire extinguisher must be kept in the work area
3. At least one (1) workman must remain at the work area for (1) hour after the use of the torch or flame producing device has ceased.

N. All construction will comply strictly with the New Hampshire State Building Code. Required fencing, sidewalk sheds, storage of flammables, portable fire extinguishers, fire standpipe operation and rubbish removal will be enforced by the OWNER.

O. Contractors intending to use a device labeled as a CLASS 3 or 4 laser, in the services required under the contract, shall notify the OWNER at least two (2) working days prior to the intended date of use. Utilization of such a device shall meet New Hampshire State Regulations.

P. Prior to entry for review or work, in any areas storing or using radioactive material, the Contractor shall submit a written request for clearance, to the Owner. No work shall be performed in such areas until a “Radiation Area Job Permit” has been approved, signed, and issued to the Contractor and such areas have the appropriate signs and labels posted at each entrance.

1.21 OSHA SAFETY AND HEALTH COURSE DOCUMENTATION

A. OSHA Safety and Health Course Documentation Records: Everyone employed at the jobsite must complete a minimum 10-hour long course in construction safety and health approved by
the U.S. Occupational Safety and Health Administration (OSHA) prior to working at the jobsite. Compliance is required of Contractors’ and Subcontractors’ on-site employees at all levels whether stationed in the trailer or working in the field. Unless the New Hampshire Attorney General’s office indicates otherwise, this requirement does not apply to home-office employees visiting the site or to suppliers’ employees who are making deliveries.

B. Documentation records shall be initially compiled by the Contractor and Subcontractors as part of their certified payrolls, and the Contractor shall create and maintain a copy of the documentation on site at all times. On-site documentation shall be filed in alphabetical order and immediately available to OWNER’s Project Manager and OSHA inspectors. Fines imposed for non-compliance shall be promptly paid by the Contractor at no additional expense to OWNER. Delays in the progress of the Work caused by such non-compliance will not be acceptable as the basis for an extension of contract time or change order request.

1.22 DAMAGE RESPONSIBILITY

A. The Contractor shall repair, at no cost to OWNER, any damage to building elements, site appurtenances, landscaping, utilities, etc. caused during demolition operation and work of this Contract.

1.23 OWNER FURNISHED PRODUCTS

A. Products indicated “N.I.C.” (Not in Contract), or “E. O.” (Equipment by Owner), or “O.F.O.I.” (Owner Furnished Owner Installed), or other similar acronyms as defined in the contract documents will be furnished and installed by OWNER. Coordination and provision of service lines for such products shall be included under these Construction Contract Documents, if indicated. Final connections from service lines to equipment will be by OWNER, unless otherwise indicated.

1.24 OWNER OCCUPANCY

A. Use and Occupancy: When the project is Substantially Complete (with all work affecting health, safety, and function totally completed, and with less than one percent (<1%) of the contract value remaining) and ready for Use and Occupancy as determined by the ENGINEER, the OWNER Project Manager and the Operating Agency, then the OWNER will take control of their building area(s) and be responsible for operating costs and security.

1.25 ASBESTOS AND HAZARDOUS MATERIALS DISCOVERY

A. If unanticipated asbestos-containing materials or other Hazardous Materials not included in Contract are discovered at any time during the course of work, the Contractor shall cease work in the affected areas only and continue work in other areas, at the same time notify OWNER, OWNER and the ENGINEER of such discovery. Do not proceed with work in such affected areas until written instructions are received. If removal is required, payment will be made in accordance with the contract unit prices bid for each respective material. In the absence of unit
prices, costs shall be negotiated or otherwise established prior to commencement of removal, in accordance with provisions of the Contract.

B. The OWNER Project Manager will work with the Contractor to initiate removal or encapsulation of the asbestos. An extension of the completion date may be granted equal to the time lost. Proper notification must be made to the NHDES and the OWNER.

1.26 SPECIAL REQUIREMENTS

A. The Contractor shall prepare a Health and Safety Plan that addresses protection of employee and public health and safety. The minimum contents of the Plan are specified in Section 013300 – SUBMITTAL REQUIREMENTS.

B. The Contractor shall be solely responsible for implementing the procedures specified in the Plan.

C. The Contractor shall make available complete sets of personal protective equipment and clothing to OWNER for use during site observations/inspections by OWNER and the ENGINEER. These shall be supplied and maintained at no cost to OWNER and the ENGINEER, and shall be returned to the Contractor upon the completion of work, except for disposable protective clothing.

   1. The Contractor shall provide a repository for collection and disposal of health and safety materials. Collection and disposal of contaminated disposable supplies shall be at no additional cost.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Unit-cost allowances.
3. Quantity allowances.
4. Contingency allowances.

C. Where allowances are based on unit prices or quantities, submit summary of quantities and costs to Engineer.

D. Provide additive and deductive unit prices for all unit quantity allowance items.

E. Work under and allowance shall not exceed the allowance specified unless approved in advance by Engineer.

F. Prior to final application for payment, submit a statement of accounts with project closeout documents, summarizing actual costs.

1.2 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Engineer of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

B. At Engineer’s request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Engineer from the designated supplier.

1.3 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.
1.4 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 DESCRIPTION OF ALLOWANCES

A. No proposed allowances for this project.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012100
PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 REQUIREMENTS INCLUDED

A. Definition: "Alternates" are alternate products, materials, equipment, systems, methods, units of work or major elements of the construction, which may, at the Awarding Authority's option and under the terms established by the Contract or Agreement, be selected for the work in lieu of the corresponding requirements of the Contract Documents.

B. Alternate Requirements: A Schedule of Alternates is included at the end of this Section. Each alternate is defined using abbreviated language, recognizing that the Contract Documents define the requirements. Coordinate related work to ensure that work affected by each alternate is complete and properly interfaced with work of each selected alternate.

C. Provide written proposals for each alternate on the Form of Proposal for the Awarding Authority’s consideration. Each proposal amount shall include the entire cost of the alternate portion of the work including overhead, profit, taxes, insurance, and other costs including cost of interfacing and coordinating the alternate with related and adjacent work.

D. Selection of Alternates: Selection of alternates to be included in the work will be by the Awarding Authority. Alternates must be taken in order. The first alternate before the second alternate, etc.

E. Notification: Prepare and distribute to each entity a notification of status of each alternate. Indicate which alternates have been accepted or rejected, or when such decision is anticipated.

1.3 DESCRIPTION OF ADD ALTERNATES

A. No proposed alternates for this project.
PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
PART 1 – GENERAL

1.1 SUMMARY

A. Related Requirements Section 016000 – Product Requirements

B. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 PRODUCT OPTIONS

A. Product selections: Comply with the following for selection of products:

1. Products specified by reference standards or by description only: Provide any acceptable product meeting those standards or description.

2. Products specified by performance requirements only: Provide any acceptable product which has been tested to show compliance with specified requirements, including indicated performances.

3. Products specified by naming one or more manufacturers: Provide products of manufacturers named or submit a request for substitution.

B. Visual matching: Where Specifications require matching a sample, the Designer’s decision on whether a proposed product matches is final. Where no product matches and complies with other requirements, comply with provisions for “substitutions” for selection of a matching product in another category.

1.3 PRODUCT SUBSTITUTION PROCEDURES

A. Products are specified by reference standards, performance and manufacturer's name and model number or trade name.

1. When specified only by reference standard or performance, Contractor may select any product meeting specified standards or performance requirements, by any manufacturer.

2. When several products or manufacturers are specified as being acceptable, Contractor has the option of choosing among those named.

3. When one product or manufacturer is specified or indicated as the “basis of design”, "basis of selection" or "scheduled", Contractor shall bear costs associated with changes required for application or installation of other products or assemblies.

4. When proprietary products are specified, substitutions will be allowed only by substitution provisions specified herein, unless it is specifically stated that no substitutions are allowed.
B. Where products or materials are prescribed by manufacturer name, trade name or catalog reference, or indicated as proprietary, the word “or approved equal” shall be implied. The Designer will evaluate the proposed “equal” item on the following criteria:

1. The submitted “equal” item is at least equal in quality, durability, appearance, strength and design.
2. The submitted “equal” item is at least equal in function for the purpose intended by the design of the Work.
3. The submitted “equal” item conforms substantially to the detailed requirements for the items as indicated by the specifications.

C. If it is desired to use products different from those indicated in the Contract Documents, the party requesting the substitution shall make written application on form provided at the end of this section and as described herein. The burden of proving equality of proposed substitutions rests with the party making the request for substitution.

1. Requests for substitution will be considered by Engineer and OWNER in accord with the following:
   a. Requests will be considered from Contractor only, following contract award.
   b. Contract sum shall be based only on products and systems specified in the Contract Documents.
   c. Requests for substitution shall be made in a timely manner such that progress of the Work will not be adversely affected if substitution is unacceptable.
   d. Substitution requests shall precede and shall not be made as a part of shop drawings or product data submittals.

2. Requests for substitution shall be accompanied by research and/or test reports evidencing compliance with building code in effect for Project, from ICC-ES or other independent testing laboratory located in the United States.

3. Requests for substitution shall be accompanied by such technical data and samples as the party making the request desires to submit. Engineer will consider reports from independent testing laboratories, verified experience records from previous users, and other printed or written information valid in the circumstances.

4. Requests for substitution shall indicate in what respects proposed materials or products differ from those specified and the effect on interfacing or related work.

5. Requests for substitution shall be accompanied by the manufacturer's dated product data describing the installation, use and care, as applicable, of proposed substitution. Include reference standards, test data and clarification drawings.

6. Requests for substitution shall be accompanied by complete cost data indicating material cost, installed cost and savings, if any, resulting from proposed substitution.

7. Determination as to acceptability of proposed substitutions will be made based only on data submitted.
8. Contractor shall coordinate installation of accepted substitutions with interfacing work, bearing re-design costs and making approved changes in the Work to properly incorporate the substitutions, and shall waive all claims for additional costs related to use of acceptable substitutions which become apparent following acceptance.

9. Contractor shall be responsible for payment of time for research, evaluation, selection and re-design costs incurred by Engineer and his consultants for substitutions.

D. The appropriate contract modification will be issued to Contractor if a proposed substitution is accepted by Engineer. Response regarding non-acceptance will also be given Contractor. Contractor shall furnish materials and products in accord with the Contract Documents unless requests for substitutions are received and accepted as described above.

E. In the event that specified items cannot be delivered to the job site and incorporated into the Work at such times and in such quantities as to cause no delay, then Contractor may request a substitution in the manner described above. Should the accepted substitution provide a cost savings, the Contract price will be adjusted by Change Order, with Owner receiving the benefit of the net savings. No increase in the Contract price will be allowed on substitutions made after the award of Contract, except where the Contractor can verify a timely placement of orders appropriate to the materials and conditions involved.

F. Inability to obtain specified items due to Contractor's failure to place timely orders will not be considered reason for authorizing substitutions.

G. All designs are to meet OWNER standards. Contractors must receive acceptance on submitted plans prior to starting any work.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION
(Substitution Request Form attached)
Substitution Request Form

NOTE: This form is for use by Prime Construction Contractor only. Submittals by others will be returned with no response.

PROJECT: __________________________________________________________
LOCATION: __________________________________________________________
OWNER: _____________________________________________________________
DATE: _______________________________________________________________

We hereby submit for your consideration the following substitution instead of the item specified or shown on the drawings:

Section: __________________ Paragraph: __________________ Specified Item: __________________

Proposed Substitution:

______________________________________________________________________________

Submit research and/or test reports evidencing compliance with building code in effect for Project, from ICC-ES independent testing laboratory located in the United States.

Submit manufacturer’s certification that products to be supplied to this project have been manufactured in accord with the product requirements contained in the Product Requirements section of the Project Manual.

Attach complete product data, drawings and descriptions of product, with fabrication and installation details. Provide laboratory tests if applicable.

Provide sample, if applicable. Indicate if sample will be provided under separate cover.

Include complete information on changes to drawings and/or specifications that proposed substitution will require for its proper installation.

Fill in blanks below: (Include attachments if space is insufficient. Failure to provide information will void submittal.)

A. Reason(s) for proposed substitution: (check all that apply):

1. Request is equivalent to product/material/assembly specified. (Note: Attach technical documentation.)

2. Specified product or method cannot be provided within the Contract Time. (Note: This request will not be considered if the product or method cannot be provided as a result of the Contractor’s failure to pursue the work promptly, or to coordinate the various activities properly, or if the Contractor fails to place timely orders.)

3. Specified product or method cannot receive necessary approval by a governing authority, and the Contractor certifies that the requested substitution can be approved.
4. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting redesign and evaluation costs and the increased cost of other work by the Owner or separate contractors, and similar considerations.

5. Specified product or method cannot be provided in a manner which is compatible with other materials of the work, and the Contractor certifies that the substitution will overcome the incompatibility.

6. Specified product or method cannot be properly coordinated with other materials in the work, and the Contractor certifies that the proposed substitution can be properly coordinated.

7. Specified product or method cannot receive a warranty as required by the Contract Documents, and the Contractor certifies that the proposed substitution can receive the required warranty.

B. Does the substitution affect dimensions or details shown on drawings:
   ___ No.
   ___ Yes.  (Attach marked up prints of drawings showing changes required.)

C. What effect does the substitution have on other trades?

____________________________________________________________________
____________________________________________________________________

D. Compare significant qualities of proposed substitution with those of work or product originally specified or shown on drawings. Include elements such as size, weight, durability, performance, visual effect, etc.

____________________________________________________________________
____________________________________________________________________

E. Coordination information. Include all changes required in other elements of the work in order to accommodate the substitution, including work performed by the Owner or separate contractors.

____________________________________________________________________
____________________________________________________________________

F. State effect the substitution will have on the work schedule in comparison to the schedule which would prevail without the proposed substitution. State the effect of the proposed substitution on the Contract Time.

____________________________________________________________________
____________________________________________________________________

____________________________________________________________________
G. Provide complete cost information, including a proposal of any net change in the Contract Amount.

______________________________________________________________

______________________________________________________________

______________________________________________________________

H. Manufacturer's warranties of the proposed and specified items are: ___ Same ___ Different
(explain on attachment)

The Undersigned Contractor certifies its opinion that, after thorough evaluation, the proposed substitution will result in work that in every significant respect will be equivalent to or superior to the work required by the original Contract Documents and that it will perform adequately in the application indicated. Rights to additional payment or time because of failure of the substitution to perform adequately are hereby waived.

The Undersigned hereby agrees to pay in full for any changes to design, including detailing and engineering costs caused by the requested substitution.

Submitted by: NOTE: Submittal void and will be discarded if unsigned or if signed by entity other than
General Construction Contractor.

Signature: __________________________________________________________

(Contractor's Authorized Representative)

______________________________________________________________

(Title)

Contractor's Firm Name: ____________________________________________

Date: ______________________________

For use by Engineer:

___ Accepted   ___ Accepted as Noted   ___ Not Accepted   ___ Received Too Late

By: ________________________________________________________________

(Signature and printed name)

Date: ______________________________

Remarks: __________________________________________________________

______________________________________________________________

______________________________________________________________

END OF FORM
PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies administrative and procedural requirements for handling requests for information and interpretations.

1.2 DEFINITIONS

A. Request for Information (RFI):

1. A request from the Construction Supervisor, or one of its subcontractors through the Construction Supervisor, to the Engineer, seeking an interpretation or clarification of some requirement of the Contract Documents. The Construction Supervisor shall clearly and concisely set forth the issue for which it seeks clarification or interpretation and why a response is needed from the Engineer.

B. Improper RFI’s:

1. RFI’s that are not properly prepared, as required in this section. Improper RFI’s will be processed by the Designer at the Designer’s standard hourly rate and Designer will charge the Construction Supervisor, and such costs will be deducted from monies due the Construction Supervisor. The Construction Supervisor will be notified by the Designer through the Construction Supervisor of the “back charge” amounts.

D. Frivolous RFI’s:

1. RFI’s that request information that is clearly shown on the Contract Documents.
2. Frivolous RFI’s will be returned unanswered.

1.2 PROCEDURES

A. In the event that the Construction Supervisor or subcontractor determines that some portion of the Contract Documents requires clarification or interpretation by the Engineer, the Construction Supervisor shall submit a Request for Information (RFI) in writing to the Engineer, using the Request for Information (RFI) Form following this section.

1. The Construction Supervisor shall clearly and concisely set forth the issue for which clarification or interpretation is sought and why a response is needed from the Engineer.
2. In the Request for Information, the Construction Supervisor shall set forth his interpretation or understanding of the requirement along with reasons why such an understanding was reached.
B. The Engineer will review Requests for Information to determine whether they are Requests for Information as defined herein. If the Engineer determines that the document is not a Request for Information, it will be returned to the Construction Supervisor unreviewed.

C. Responses from the Engineer do not change Contract Document requirements.

1. In the event the Construction Supervisor believes that a response to a Request for Information will cause a change to the Contract Document requirements, the Construction Supervisor shall immediately submit a Change Order Proposal to the Engineer stating why the Construction Supervisor considers the Engineer’s response to be a Change Order.

2. Construction Supervisor’s claim shall be in accord with the requirements of the General Conditions.

3. Failure to give such immediate written notice shall waive the Construction Supervisor’s right to seek additional time or cost.

1.3 REQUEST FOR INFORMATION (RFI) REQUIREMENTS

A. General: Submit request for information in compliance with Request for Information Form section and as specified herein.

B. Engineer will review properly prepared, timely requests by Construction Supervisor for additional information about Contract Documents.

1. However, information which is discernable from the Contract Documents; information which is available to Construction Supervisor from a careful study and comparison of Contract Documents, field conditions, other Owner-provided information; Construction Supervisor-prepared coordination drawings, or prior Project correspondence or documentation, will not be addressed in an RFI response;

2. Response by Engineer will not address construction means or methods, or construction site safety issues; and

3. The use of the RFI process is limited to clarification of the Contract Documents and Engineer will not review RFI’s used for the following purposes:
   a. To request approval of submittals.
   b. To request approval of substitutions.
   c. To request changes which entail additional cost or time.
   d. To request different methods of performing work than those drawn or specified.

C. Request for Information (RFI) shall be in format included in Request for Information (RFI) Form following this section, and shall include, as a minimum, the following:

1. Detailed written statement indicating specific Drawings and/or Specifications in need of clarification.

2. Detailed written statement regarding the nature of clarification requested.

3. RFI Form shall include:
a. Chronological number of the RFI;
b. Name of requester;
c. Name of Contractor making request;
d. Specification section and page number to which RFI pertains, when applicable;
e. Drawing name and sheet number, when applicable;
f. Clear and concise statement of request for information identifying the conflict, error, discrepancy, or ambiguity giving rise to the RFI; and
g. Whether an increase in Construction Amount or Construction Time will result from the RFI.

D. The RFI Process and RFI Form format shall be discussed at Pre-Construction Meeting.

E. In the events the Construction Supervisor believes that a clarification by the Designer results in additional cost or time, Construction Supervisor shall not proceed with the Work indicated by the RFI without a written authorization from the Designer. RFI’s shall not automatically justify a cost increase in the Work or a change in the Schedule.

1. Answered RFI’s shall not be construed as approval to perform extra work.

2. Unanswered RFI’s will be returned with a stamp or notation: Not Reviewed.

F. Construction Supervisor will prepare and maintain a log of RFI’s and provide updated copies at the weekly Construction Progress Meetings showing outstanding RFI’s.

G. RFI Response: The Designer will endeavor to respond in a timely fashion to RFI’s, however, the following minimum time periods are required. RFI’s which are received by the Designer after 1PM local time shall be considered received on the following working day.

1. Contractor shall allow up to 14 calendar days review and response time for RFI’s, however, the Designer will endeavor to respond in a timely fashion to RFI’s.

2. RFI’s which require Designer’s and Engineering or Consultant Response: Construction Supervisor shall allow up to Four (4) full work days review and response time.

1.4 DESIGNER’S RESPONSE TO RFI’s

A. Designer will respond to RFI’s on one of the following forms:

1. Properly prepared RFI’s:
   a. Response on the RFI form
   b. Designer’s Supplemental Instruction
   c. Request for Proposal

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 012614

REQUEST FOR INFORMATION (RFI) FORM

<table>
<thead>
<tr>
<th>Project:</th>
<th>R.F.I. Number:</th>
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<td>To:</td>
<td>Contractor’s Name:</td>
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<td>Re:</td>
<td>From:</td>
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<td>Attn:</td>
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<td>Architect’s Project Number:</td>
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<td>Contract For:</td>
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| Specification Section Name and No.: |
| Specification Section Paragraph No. and Page No.: |
| Drawing Sheet Name and No.: |
| Drawing Detail No.: |

Request:

Signed by:

Response:

[ ] Attachments

Response From: ___________________________ To: ___________________________

Date Received: ___________________________ Date Returned: ___________________________

Signed by: ___________________________ Date: ___________________________

Copies:[ ] Owner [ ] Consultants [ ] _________ [ ] _________ [ ] File _________
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General Conditions and other Specification Sections apply to this Section.

1.2 SUMMARY
A. Application for Payment Form to be used by the Contractor shall be submitted for approval to the Engineer at least ten (10) days prior to first payment application.
B. For each item, by specification section number and title, provide a column for the following:
   1. Preparation of applications.
   2. Submission procedure.
   3. Direct payments by Owner.
C. For specification sections covering more than one work item, list each item separately as a sub-listing to the section.
D. The Contractor shall submit a schedule of values at the Pre-Construction Conference which shall provide the basis for progress payments once approved.
E. Work associated with this Section is found in other Sections of the Contract. The Contractor shall comply with all Sections of the Contract in construction of the elements of this Section.
F. All work shall be performed in accordance with the Technical Specifications contained within Section III of the City of Manchester Standard Specifications for Road, Drain & Sewer Construction, approved & adopted January 2019, https://www.manchesternh.gov/Portals/2/Departments/public_works/City%20of%20Manchester%20Standard%20Specs.pdf which is considered part of the Contract Documents. Payment for all work will be on a lump sum basis which shall supersede any payment instructions contained in the above referenced Technical Specifications.

1.3 PREPARATION OF APPLICATIONS
A. Application shall be reviewed with the Engineer.
B. Required information shall be type-written. Application shall be signed in ink by an authorized representative of the Contractor.

C. Executed payment applications shall be submitted to the Engineer for review approval. Each application for payment shall be consistent with previous applications and payments made by the Owner.

D. Provide dollar values in each column for each line item for portion of work performed and for stored materials.

E. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount on the same as for an original item of work.

1.4 SUBMISSION PROCEDURE

A. Submit six (6) copies of each application for payment on a monthly basis at times to be established at the Pre-Construction Conference. Applications for payment submitted more frequently than on a monthly basis will not be considered.

B. The Engineer may require or request substantiating information. The Contractor shall submit data justifying line item amounts in question.

1.5 DIRECT PAYMENTS BY OWNER

A. Upon receipt of a written claim, the Owner has the right to pay directly costs incurred in the performance of this Contract, which the Contractor has failed to pay.

PART 2 - PRODUCTS (Not Used)

PART 3 - PRODUCTS (Not Used)

END OF SECTION
SECTION 013233

PHOTOGRAPH DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Provisions of this section are mandatory procedures for preparing and submitting construction photographs.

1.2 PHOTOGRAPH REQUIREMENTS

A. Contractor shall take photographs of type specified here, to show progress of the Work.

B. Take photographs on a monthly basis. Schedule photography to allow submittal of photographs with each Application for Payment.

C. Take photographs beginning at first month of construction activity and terminating at Date of Final Completion.

D. Take photographs on same day each month, weather permitting, and at same time of day.

E. Four photograph locations will be selected by Engineer. Take photographs of same standard locations each month, unless otherwise directed by Engineer. Assign a number to each standard photograph location, for comparison with previous and future submittals.

F. In addition to photographs of standard locations, take eight photographs which best show significant elements of the Work. Locations for these photographs shall be selected by Contractor. Assign a number to each non-standard photograph location, for comparison with previous and future submittals.

1.3 SUBMITTALS

A. Submit photographs with each Application for Payment.

B. Submit photographs in high resolution digital format. Submit monthly and periodic photographs via DVD. At end of project, submit entire project photograph archive in high resolution format on DVD.

C. Label each photograph with project name, date, description and photograph number of location or element of the Work and Contractor's name.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)
SECTION 013300

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Submittal coordination.
B. Construction Supervisor’s Responsibilities
C. Submittal procedures and grading.
D. Owner’s environmental policy.
E. Shop drawings, product data and samples.
F. Manufacturer’s instructions.
G. Manufacturer’s certificates.
H. Emergency addresses.
I. Erosion and sediment control program.
J. Schedule of Values

1.3 SUBMITTAL COORDINATION

A. If submittals are rejected or returned to the Construction Supervisor two (2) times, the Construction Supervisor shall take appropriate action to provide an approvable final third submission. The Designer shall have no obligation to review any submittal rejected or returned three (3) times.

B. General: The Construction Supervisor is fully responsible for delay in the delivery of materials, progress of the Work and damages incurred due to Construction Supervisor’s failure to submit, revise and resubmit submissions in accordance with the requirements herein, in adequate time to allow the Designer checking and processing of each submission or resubmission.

C. Make submittals in a proper and timely fashion, allowing for administrative procedures, Designer’s review, corrections to submissions and resubmittal, if necessary, and fabrication of products without delaying the project. Minimum processing times required by the Designer are as follows:
   1. Review for Designer’s Office only: Allow a minimum of 10 working days for review and processing. Some submittals may require additional time.
a. Simultaneous submission of a large number of shop drawings and product data may require longer than 10 working days for review.

b. Complex Systems (mechanical, electrical) may require longer than 10 working days for review each time shop drawings, layout drawings, and product data are submitted or resubmitted.

2. Review by Designer and its consultant(s): Allow 10 working days for review and processing of submittals by Designer plus an additional 5 working days for review by each consultant as applicable.

3. Reprocessing of submittals: For submittals requiring resubmittal, re-processing time required shall be the same as first submittal.

4. No extension of Contract Time will be authorized due to failure to transmit submittals sufficiently in advance of scheduled performance of Work.

D. Make submittals of similar items, systems, or those specified in a single specification section together.

E. Make submittals for products which other products are contingent upon, first.

1.4 CONSTRUCTION SUPERVISOR’S RESPONSIBILITIES

A. Construction Supervisor is responsible to review ALL Shop Drawings, Product Data and Samples prior to submission. Verify the following:

1. Proper title, original date, drawing number (which shall be changed if resubmitted), revision numbers and dates, designation of project Construction Supervisor, Trade Contractor, subcontractor and/or supplier.

2. Identification of Shop Drawings, Product Data or Samples by Specification Section and subsection or paragraph where appropriate and identification of Contract Drawings by number and detail.

3. On each submittal, as a minimum, Construction Supervisor shall identify the following:

   a. Errors, inconsistencies, and omissions discovered in the contract documents and field conditions must be reported at once to the Designer.

   b. Any variations from code requirements contained in the contract documents must be reported promptly in writing to both the Designer and owner.

   c. Promptly report to the Designer information that any design, process, or product infringes on a patent.

   d. Names of Trade Contractor, subcontractor and suppliers must be given in writing to the Designer as soon as practicable after award of the Contract, preferably at the pre-construction meeting. (Note: If objection is made, a change order is possible.) List shall include name(s) of contact person(s), address, telephone and fax number(s).
4. Field measurements are on Shop Drawings, and Construction Supervisor has verified field measurements.

5. Field construction criteria.

6. Catalog numbers and similar data.

7. Conformance with Specifications.
   a. Is the product an equal to the product specified or a substitution? If either of these occur a comparison sheet must be submitted comparing the proposed product to the product specified.

8. Quantities.

9. Integration with adjoining work.

10. Delivery schedule.

B. All shop submittals prepared by Trade Contractors and subcontractors shall be processed through the Construction Supervisor. The Construction Supervisor shall check all the shop submittals for conformity with the Contract Documents and particularly for field measurements and proper fit with adjoining work prior to submitting same to the Designer for approval. Certification shall appear on each shop drawing stating that the Construction Supervisor has made his/her check. Format and content of the Construction Supervisor’s certification stamp shall be subject to approval by the OWNER’s Project Manager and the Designer and shall include, but not be limited to:

1. The Term "By Others" shall not be used on shop submittals, the Construction Supervisor shall state by whom related items are to be furnished and/or installed.

2. The Designer reserves the right to reject and return to the Construction Supervisor, without examination, any shop drawings which have not been previously checked and certified as outlined above, which carry the term "by other" or such vague reference, which are difficult to read, or which in any way are obviously not in conformity with Contract Requirements.

3. Shop drawings shall show materials, design, dimensions, connections and other details necessary to ensure that they accurately interpret the Contract Documents and shall also show adjoining work in such detail as required to provide proper connection with same.

4. The Designer will check and approve shop drawings only for conformance with the Contract Documents. Approval of shop drawings by the Designer will not release the Construction Supervisor from his responsibility for furnishing same of proper dimensions, size quantity and quality to effectively perform the work and carry out the requirements and intent of Contract Documents.

5. Such approval will not relieve the Construction Supervisor from responsibility for errors of any sort in the shop drawings, nor for the proper coordination of any submittal with all other work. If the shop drawings deviate, or are intended to deviate, from the Contract Documents, the Construction Supervisor shall so advise the Designer in writing at the time the shop drawings are submitted,
stating the difference in value between the Contract requirements and that denoted by said shop drawings.

6. The Construction Supervisor shall assume full liability for delay attributed to insufficient time for delivery and/or installation of material or performance of the work when approval of pertinent shop drawing is withheld due to the failure of the Construction Supervisor to submit, revise, or resubmit shop drawings in adequate time to allow the Designer and the OWNER’s Project Manager not to exceed the specified timeframe for normal checking, and processing of each submission or resubmission.

C. The Construction Supervisor’s responsibility for errors and omissions in submittals is not relieved by the Designer’s review and approval of submittals, unless Designer gives tentative written acceptance of specific deviations identified as such by the Construction Supervisor, subject to written concurrence by the OWNER’s Project Manager.

D. Notify the Designer in writing at the time of submission, of deviations in submittals from requirements of Contract Documents or previous submissions.

E. Work that requires submittals shall not commence unless submitted with Designer’s stamp and initials or signature indicating review and approval, and OWNER’s Project Manager’s initials or signature of concurrence indicate review and approval.

1. No work shall be started in the shop or on the job, or materials delivered to the site, until pertinent shop drawings have been approved by the Designer and the OWNER’s Project Manager.

F. After aforesaid review and approval, distribute copies.

G. Maintain two hardcopies of each approved submittal at the project site. One for the Construction Supervisor and one for the OWNER’s Project Manager.

1.5 SUBMISSION REQUIREMENTS AND QUANTITIES

A. General Protocol for Shop Submittals:

1. Submittal for Review: Construction Supervisor submits to Designer, with copies directly to OWNER’s Project Manager, OWNER’s designated representative and relevant design consultant(s).

2. Unapproved submittals returned as “Revise and Resubmit”, or “Rejected”: Designer returns electronic submittal to Construction Supervisor, and Designer copies OWNER’s Project Manager, OWNER’s designated representative.

3. Approved submittals returned as “Approved” or “APPROVED AS NOTED”

a. Designer returns electronic submittal to Construction Supervisor, and Designer copies OWNER’s Project Manager, OWNER’s
designated representative.

b. Construction Supervisor issues submittal to appropriate trades and subcontractors.

c. Construction Supervisor issues one paper copy (hard copy) of submittal to OWNER’s Project Manager.

1) At end of Project, OWNER’s Project Manager will submit submissions to OWNER for record.

B. Documentation: Furnish electronic files through the Adobe Acrobat Portable Document Format (PDF) files, for each of the following submittal types:

1. Schedules, including, but not limited to:
   a. Construction Schedule.
   b. Schedule of Values.
   c. Schedule of shop drawings, product data, and samples.
   d. Schedule of Environmental Submissions.

2. Shop drawings.

3. Product data, manufacturer’s instructions and certificates and similar submissions.

4. Erosion control program.

5. Waste Management reports.

6. Emergency addresses.

C. Samples: Furnish Designer with the following quantities of the following physical submittals (samples) with transmittal form. On transmittal form, identify Project, Construction Supervisor, Trade Contractor, subcontractor, installer, or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate. Transmittals received by the Designer from sources other than the Construction Supervisor will be returned without any action taken:

1. Samples: Sets of TWO identical samples of each submission required.
   a. Deliver one copy to Designer
   b. Deliver one sample to OWNER’s Project Manager

D. Transmit all submittals with transmittal form or cover. identify Project, Construction Supervisor, Trade Contractor, subcontractor, installer, or supplier, pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.

1. Construction Supervisor shall number submittals sequentially by Specification Section prior to submittal. Resubmitted items shall retain number and be noted as resubmitted (example 260000-1 R1).

2. Transmittals received by the Designer from sources other than the Construction Supervisor will be returned without any action taken.
1.6 OWNER’S ENVIRONMENTAL POLICY

A. Schedule: Immediately after being awarded the Contract, meet with the Designer and OWNER’s Project Manager to discuss the schedule of environmental policy submissions and then prepare and submit within 14 calendar days for approval a schedule of submissions related to the Owner’s Environmental Policy.

1. The “Schedule of Environmental Submissions” shall be related to the entire Project, including commissioning, and as a minimum contain the following items.
   a. Waste Management Plan (as specified under Section 01 74 19).
   b. Affidavit letters.
   c. Construction Indoor Air Quality (IAQ) plan.
   d. Manufacturer’s product information and MSDS sheets.

2. Update schedule throughout progress of the Project, coordinated with scheduling changes in the Work, and redistribute monthly in conjunction with submittal of Application for Payment.

1.7 SUBMITTAL PROCEDURES AND GRADING

A. Prepare and to the Designer, and OWNER’s Project Manager, all specified and requested submittals, as specified herein.

B. Provide space for Construction Supervisor, Designer and engineering consultant review stamps, on the front page of each item's submittal copy. Apply Construction Supervisor's stamp, signed or initialed certifying that review, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and the Contract Documents. The Designer will insert the date of action taken and an identification of the person taking the action.

1. Submittal grading:
   a. APPROVED - No corrections, no marks.
   b. APPROVED AS NOTED - Resubmission not required. Minor amount of corrections; all items can be fabricated without further corrections to original submission; checking is complete, and all corrections are deemed obvious without ambiguity.
   c. APPROVED AS NOTED – RESUBMIT FOR RECORD - Resubmission is required for proof of corrections to original submission. Moderate amount of corrections; all items can be fabricated with corrections and resubmission, and without re-approval. Checking is complete, and all corrections are deemed obvious without ambiguity.
   d. REVISE AND RESUBMIT - Resubmission required. Minor amounts of
corrections; checking is not complete; details of items noted by checker are to be clarified further before full review can be given. Correct and resubmit, do not fabricate noted items requiring correction.

e. REJECTED - Submittal is rejected as not in accord with the Contract Documents, too many corrections, or other justifiable reasons. When returning submission, Designer will state reasons for rejection. Correct and resubmit, do not fabricate.

2. Review/approval neither extends nor alters any contractual obligations of the Designer, Engineer or Construction Supervisor.

C. Identify all variations from Contract Documents, and product or system limitations which may be detrimental to successful performance of the completed work.

D. Transmit samples to Designer with individual transmittal forms for each submission as specified herein above in the Article entitled “SUBMISSION REQUIREMENTS AND QUANTITIES”.

E. Revise and resubmit submittals as required, identify all changes made since previous submittal. Distribute copies of reviewed submittals to concerned parties; instruct parties to promptly report any inability to comply with provisions.

1.8 SHOP DRAWINGS

A. General: Provide accurately prepared, large scale and detailed shop drawings prepared specifically for this Project. Shop drawings shall include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Standard information prepared without specific reference to Project are not considered shop drawings.

1. Show adjacent conditions and related work. Show accurate field dimensions where appropriate.

2. Identify materials and products shown. Note all conditions where require coordination with other trades and special installation procedures.

3. Show gage and thickness of materials.

4. Indicate welding details and joint types.

5. Show every component of fabricated items, notes regarding manufacturing process coatings and finishes, identifying numbers conforming to the Contract Documents (i.e. stair numbers, door numbers and similar items), dimensions, and appropriate trade names.

6. Show anchorage and fastening details, including type, size and spacing.

7. Review each submittal for conformity with the Contract requirements prior to submittal, certify such review on each shop drawing with Construction Supervisor’s stamp, signature and date. Reference on shop drawings to other sections, installers, suppliers, or trade(s) shall designate the appropriate
specification sections, and the term "by others" shall not be used.

B. Size of Format: Not less than 8-1/2 by 11 inches, and no larger than 30 by 42 inches, except for templates, patterns and similar full-size drawings.

C. The Designer's comments and corrections will be made on the electronic submission (PDF) and returned to the Construction Supervisor. If necessary, the Construction Supervisor then shall make the necessary corrections on the original drawings and resubmit the corrected drawings in electronic format (PDF) as specified. Prints of any submittals required for the Designer's own use, and those of engineering consultants, will be made without cost to the Construction Supervisor. The Construction Supervisor is responsible to distribute and furnish (at no additional cost to Owner) all shop documents needed for use by the Construction Supervisor, Trade Contractors, subcontractors, installers, vendors and suppliers.

D. The Designer's comments and corrections will be made on the original and returned to the Construction Supervisor. If necessary, the Construction Supervisor then shall make the necessary corrections on the original drawings and resubmit the corrected drawings in manner specified. All additional prints required for the Designer's own use, and those of engineering consultants, will be made without cost to the Construction Supervisor. The Construction Supervisor is responsible to furnish (at no additional cost to Owner) all prints needed for use by the Construction Supervisor, Trade Contractors, subcontractor, installers, vendors and suppliers.

1. Shop Drawings returned with stamp "APPROVED", or "APPROVED AS NOTED": Construction Supervisor shall obtain and distribute adequate prints for construction, including one print of each for the Owner's project representative, and then return the originals to the subcontractor or supplier from whom he originally received them.

2. Shop Drawings returned with stamp “APPROVED AS NOTED – RESUBMIT FOR RECORD”: Construction Supervisor or its subcontractor or supplier shall make necessary corrections prior to distribution. After corrections are made, obtain and distribute adequate prints for A/E record and for construction, including one print of each for the Owner's project representative, and then return the transparencies to the subcontractor or supplier from whom he originally received them.

3. Shop Drawings returned with stamp "REJECTED" or "REVISE AND RESUBMIT": Construction Supervisor shall first obtain a record print and then forward them to source for correction of original drawings, and resubmission of a new transparency and prints as above.

E. Each drawing shall have a title block on the right-hand side including the following information: Name of Project, Project Number, Designer, Construction Supervisor, Trade Contractor/subcontractor, Vendor/Supplier, Date of Submission.
F. Each submittal shall have a clear space for review stamps of both the Designer and Construction Supervisor.

1. The Construction Supervisor’s Review and Action Stamp: Provide suitable space on label or title block for Construction Supervisor’s review and action stamp. Stamp and sign each submittal to show Construction Supervisor’s review and approval prior to transmittal Designer. Submittals not signed and stamped by Construction Supervisor will be returned without action.
   a. Only submittals received from the Construction Supervisor will be considered for review by the Designer. Construction Supervisor shall review each submittal for accuracy and conformance with the requirements of the Contract Documents, and particularly for field measurements and proper fit with adjoining work. Modify submittals as required to show interface with adjacent work and attachment to Building.
   b. The Construction Supervisor’s Review and Action Stamp shall contain the following language or similar:

   | APPROVED FOR CONFORMANCE |
   | WITH THE CONTRACT DOCUMENTS. |
   | All dimensions and quantities have been reviewed and are accepted by |
   | XX Construction Company |
   | All dimensions and field conditions have been or will be verified prior to fabrication of the items described herein. |

   c. Submittals received from the Construction Supervisor shall be signed and comply with review requirements. Submittals not certified or improperly certified (stamped but not reviewed) will be returned to the Construction Supervisor without Designer’s review. Claims due to the return of uncertified, improperly prepared or inadequately reviewed submittals will be rejected.

1.9 PRODUCT DATA

A. Submit Product data as specified, and as the Designer may additionally prescribe. Product data includes, but is not limited to:

1. Catalog cuts.
2. Complete specifications.
4. Performance data.
   a. Compliance with recognized trade association standards.
   b. Compliance with recognized testing agency standards, labels and seals.
5. Environmental data including, but not limited to:
   a. Chemical composition.
   b. Recycled (pre- and post-consumer) content.
c. Locations of material extraction/harvest and manufacture, with respective distances to site.
d. VOC content.
e. Material certifications as applicable to product.

6. Certified laboratory test report data.


8. Illustrated capacities, characteristics, wiring diagrams, controls, and other pertinent information for complete product and product use description.

B. If more than one size or type is shown on any printed sheet, indicate clearly intended item(s).

1.10 SAMPLES

A. Submit samples clearly labeled as to its material, type or make, manufacturer, size or gauge, and other pertinent data, accompanied by an appropriate transmittal form. Samples shall show full range of color and texture variation that can be expected.

1. When accepted or not accepted, the Designer will retain one set of samples and return the other to the Construction Supervisor. Samples will not be permitted for use in the project.

1.11 MANUFACTURER’S INSTRUCTIONS

A. When specified in individual specification Sections, submit manufacturer’s printed instructions for delivery, handling, storage, assembly, installation, start-up, adjusting, and finishing.

B. Identify conflicts between manufacturer’s instructions and Contract Documents.

1.12 MANUFACTURER’S CERTIFICATES

A. When specified in individual specification Sections, submit manufacturer’s certificates and installer certificates to Designer for review.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product but must be acceptable to Designer.

1.13 EMERGENCY ADDRESSES

A. Within 15 days of Notice to Proceed, submit in writing, the name, addresses and telephone numbers of key members of their organization including Construction Supervisor’s Superintendent and personnel at the site, to be contacted in the event
of emergencies at the building site, which may occur during non-working hours.

1.14 EROSION AND SEDIMENT CONTROL PROGRAM

A. Provide erosion and sediment controls as shown on the Plans and as required by site conditions. Contractor to prepare and administer SWPPP.

1.15 SCHEDULE OF VALUES

A. The Contractor shall submit the Schedule of Values to the Engineer for review and acceptance within ten (10) days of award of the Contract. If revisions to the Schedule of Values are deemed necessary during the progress of the work, the Contractor shall submit an approved revised Schedule of Values along with the next following monthly payment requisition. Submittal of the revised Schedule of Values shall be a condition for approval of said payment requisition. The General Construction Supervisor shall submit to the Designer and the OWNER’s Project Manager, a Schedule of Values of the various portions of the Work in sufficient detail to reflect various major components of each Trade Contractor and subcontractor, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section. The schedule shall be prepared in such form as specified, or as the Designer, or the OWNER’s Project Manager may approve, and it shall include data to substantiate its accuracy. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule, including breakdown and values, requires the approval of the Designer and the OWNER’s Project Manager and shall be used only as a basis for the General Construction Supervisor's request for payment.
SECTION 014000
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 REQUIREMENTS INCLUDED

A. Construction Supervisor’s Quality Assurance.
B. Construction Supervisor’s Testing Responsibilities.
C. Awarding Authority’s independent agencies.
D. Duties of the Construction Supervisor’s testing agencies.
E. Welding.
F. Field engineering.
G. Examination of substrate.

1.3 RELATED SECTIONS

A. Section 014325 – TESTING AGENCY SERVICES:
   1. Testing to be performed by the Owner’s Independent Testing Laboratory, exclusive of testing to be performed by the Construction Supervisor.

1.4 CONSTRUCTION SUPERVISOR’S QUALITY ASSURANCE

A. Qualifications for Service Agencies: Engage inspection and testing services agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which specialize in the types of inspections and tests to be performed.

B. Each independent inspection and testing agency engaged on the project shall be authorized by authorities having jurisdiction to operate in the State of New Hampshire.

1.5 CONSTRUCTION SUPERVISOR’S TESTING RESPONSIBILITIES

A. The Construction Supervisor shall provide inspections, tests and quality control services specified in individual specification Sections and required by governing authorities, except where they are specifically indicated to be solely the responsibility of a Subcontractor in the respective specification section or solely the responsibility
B. Engage and pay for the services of an independent agency acceptable to the OWNER’s Project Manager to perform the specified inspections, testing, and quality control. Submit qualifications to the OWNER’s Project Manager. Construction Supervisor’s testing agency/laboratory shall be licensed by the State of New Hampshire Department of Public Safety.

C. Re-testing: The Construction Supervisor is responsible for re-testing where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Documents requirements, regardless of whether the original test or service was the Construction Supervisor’s responsibility.

D. Substitutions, Suspicious Issues and Designer Initiated Testing: The Construction Supervisor is responsible for inspections, tests and similar services for substitutions, suspicious issues identified by the Construction Supervisor or OWNER’s Project Manager, and testing initiated by the Designer.

E. Associated Services: The Construction Supervisor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as required. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:

1. Provide access to the work and furnish incidental labor and facilities necessary to facilitate inspections and tests.
2. Take adequate quantities or representative samples of materials that require testing or assist the agency in taking samples.
3. Provide facilities for storage and curing of test samples and delivery of samples to testing laboratories.
4. Provide the agency with a preliminary design mix proposed for use for material mixes that require control by the testing agency.
5. Provide security and protection of samples and test equipment at the project site.

F. The Construction Supervisor shall prepare and submit to the OWNER’s Project Manager for approval a Quality Assurance and Quality Control Plan within 30 days from Notice to Proceed. A Quality Assurance and Quality Control (QA/QC) Plan shall promote completion of all work in accordance with the Contract Documents including Contract, Construction Drawings, Specifications, Project Procedures, Approved Submittals and Shop Drawings, Approved Changes, Applicable Codes and Regulations, Referenced Industry Standards, and similar items. The primary purpose of this quality plan is to ensure that all in place work by the Construction Supervisor and all Subcontractors is performed correctly the first time and is turned over and represented as complete and defect free in accordance with the Contract Documents.

G. If required by the Contract, the Construction Supervisor shall assign a dedicated
Quality Assurance and Quality Control Manager for the duration of the project. If the Contract does not require a dedicated Quality Assurance and Quality Control Manager, the Construction Supervisor shall prepare and submit to the OWNER’s Project Manager their QA/QC Plan as discussed in Par. E above. In addition, if this Contract does not require a dedicated QA/AC Manager, the duties of the QA/AC Manager as delineated in Par. 1.5F6 shall be carried out by another qualified member of the Construction Supervisor’s onsite staff.

1. The purpose of a QA/QC Manager shall be to prepare and submit the Quality Assurance and Quality Control Plan for approval and to be responsible for and to manage adherence to the plan throughout the construction process. The QA/QC Manager shall be designated for the project from the initial notice to proceed through system acceptances by both the designer and OWNER’s Project Manager. The QA/QC Manager shall at all times instill an expectation that all work will be completed correctly and in an expeditious manner and shall be responsible for enforcement of the Construction Supervisor’s Staff and all Subcontractors to this plan.

2. Have extensive experience in building construction, project controls, and previous QA/QC training and practical knowledge.

3. Have excellent communication and writing skills, be highly organized and be able to work with both management and Subcontractors.

4. Have a working knowledge of project scheduling.

5. The Construction Supervisor shall submit substantiating documentation attesting to the proposed QA/QC Manager’s capabilities to the OWNER’s Project Manager and the Designer for approval.

6. Duties of the QA/QC Manager:
   a. Prepare and submit QA/QC Plan for approval.
   b. Conduct and submit minutes for all requisite Quality Meetings.
   c. Coordinate and report on all daily quality activities.
   d. Verify accurate documentation by Subcontractors and Vendors.
   e. Oversee final project records pertaining to quality.
   f. Report, photograph and distribute evidence of deficient and/or defective construction conditions or materials that cannot be corrected within three work days of observation. When such conditions or materials are remedied report, photograph and distribute evidence of remedial work prior to concealing. Photographs shall be dated, and defects and/or deficiencies shall be clearly labeled on the photographs.

1.6 AWARDING AUTHORITY’S INDEPENDENT TESTING AGENCIES

A. Awarding Authority will engage an independent testing agency at its own expense to perform certain tests and similar services as set forth in Section 014325. Information provided by Awarding Authority’s Independent Testing Agency shall be for the sole use of Awarding Authority’s Project Manager and shall not relieve the Construction
Supervisor of its responsibilities to provide its own quality control, to meet all requirements of the Contract and to provide a completed project free from construction defects.

B. It is the Construction Supervisor’s responsibility to provide and pay for its own inspection and testing to assure quality control. Construction Supervisor shall be responsible for coordinating its work with requirements of Awarding Authority’s testing agencies and shall provide reasonable services in support of facilitating work of Awarding Authority’s testing agencies as required.

1.7 DUTIES OF THE CONSTRUCTION SUPERVISOR’S TESTING AGENCIES

A. The Construction Supervisor’s independent testing agency engaged to perform inspections, sampling and testing of materials and construction shall cooperate with the Designer and Construction Supervisor in performing its duties, and shall provide qualified personnel to perform required inspections and tests.

B. The testing agency shall notify the Designer and Construction Supervisor promptly of irregularities or deficiencies observed in the work during performance of its services.

C. The testing agency shall not perform any duties of the Construction Supervisor.

D. The Construction Supervisor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.8 CONSTRUCTION SUPERVISOR’S QUALITY CONTROL REQUIREMENTS, GENERAL

A. Maintain quality control over suppliers, manufacturers, products, services, site conditions, and workmanship to produce work of the quality as specified.

B. Comply fully with manufacturer's instructions, including each step-in-sequence.

C. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

D. Perform work by persons qualified to produce workmanship of specified quality.

E. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortions, or disfigurement. Anchorage devices shall be labeled to allow for visual inspection and verification of type of anchorage device.

1.9 WELDING

A. Certified Welders:
1. Structural welds shall be made only by operators who have been qualified by tests, as prescribed in the "Standard Qualification Procedure" of the American Welders Society, to perform the type of work required. Operators shall be certified welders; certification must be shown to the Resident Engineer and must be current. Provide a copy of certification(s) to the Resident Engineer.

2. Pipe welds shall be made by operators who have been qualified by the National Certified Pipe Welding Bureau and each operator's qualification record shall be submitted to the Designer before any work is performed. Welders' certification card must be shown to the Resident Engineer. Provide a copy of certification(s) to the Resident Engineer.

3. Shop welding shall be in accordance with the "Code for Welding in Building Construction."

4. Welders shall provide their own portable generating equipment for electric welding. Use of the Commonwealth's electrical system for welding will not be permitted.

B. Welding and Cutting:

1. Where electric or gas welding or cutting work is done above or within ten (10) feet of combustible material or above a space that may be occupied by persons, use interposed shields of incombustible material to protect against fire damage or injury due to sparks and hot metal.

2. Place tanks supplying gases for gas welding or cutting at no greater distance from the work than is necessary for safety, securely fastened and maintained in an upright position in accordance with applicable codes. Store such tanks in a locked enclosure remote from any combustible material and free from exposure to the rays of the sun or high temperatures.

3. Maintain suitable fire extinguishing equipment near all welding and cutting operations. When operations cease for the noon hour or at the end of the day, thoroughly wet down the surroundings adjacent to welding and cutting operations.

4. Station a workman equipped with suitable fire extinguishing equipment near welding and cutting operations to see that sparks do not lodge in floor cracks or pass through floor or wall openings or lodge in any combustible material. Keep the workman at the source of work which offers special hazards for thirty (30) minutes after the job is completed to make sure that smoldering fires have not been started.

5. Place a qualified electrician in charge of installing and maintaining electric and arc welding equipment. Remove damaged electric, arc or gas welding equipment from the site.

1.10 MANUFACTURER’S REPRESENTATIVES

A. If required by specific Specification Sections, manufacturer’s representative shall be present at the job site for supervision of work during installation of materials. Such
representative shall be present during all aspects of construction to ensure proper installation of all applicable items. Refer to other sections of these specifications for additional requirements.

1.11 FIELD ENGINEERING

A. Survey work through the course of all phases of construction shall conform to the following guidelines:

1. Construction Supervisor shall employ a competent Civil Engineer or Land Surveyor, registered in the State of New Hampshire, who will establish permanent benchmarks. Maintain all established bounds and benchmarks and replace as directed any which are destroyed or disturbed.

2. Prior to the installation of permanent construction (foundations, slab-on-grade, utilities, etc.) Construction Supervisor shall provide a certification signed by Engineer/Surveyor warranting the principal lines, levels, and overall dimensions are accurately established in accordance with the Contract Documents.

3. Establish all lines and grades for the work, and verify all locations, property lines, work lines and other dimensioned points indicated on the Drawings for the project site.

4. Submit to the Designer a written confirmation of locations of all lines, and any discrepancies between conditions and locations as they actually exist and those indicated on the Drawings. Construction Supervisor shall not commence any excavation or construction work until verification has been received and approved by the Designer. Upon receipt of approval from the Designer, provide one (1) copy of that approval to the Resident Engineer.

5. Construction Supervisor shall be held responsible for any damage incurred thereby to the Commonwealth, due to incorrect laying out of the work. In the event that errors or discrepancies are discovered on the Drawings, the Construction Supervisor shall immediately notify the Designer and no further work shall be performed until the discrepancy has been corrected by the Designer.

1.12 EXAMINATION OF SUBSTRATE

A. Installers of materials, products or equipment shall:

1. Examine base surfaces upon which materials, products or equipment are to be installed.

2. Examine conditions upon which materials, products or equipment are to be installed.

3. Where there is any question as to the dryness of a surface, test with a modern moisture-indicating machine.

4. Notify the Construction Supervisor, in writing, with a copy to the Designer, if conditions are detrimental to proper and timely construction and completion of the work.
B. Do not proceed with work until unsatisfactory substrate, or not acceptable conditions have been corrected. Commencement of installation constitutes acceptance of substrate or base surfaces, and the cost of any corrective work due shall be borne by the installer applying his/her materials, products or equipment thereon.

1.13 CONSTRUCTION SUPERVISOR’S QUALITY ASSURANCE AND QUALITY CONTROL PLAN

A. The Construction Supervisor’s Quality Assurance and Quality Control Plan shall instill an expectation that all work will be completed correctly and in an expeditious manner. In all instances the Construction Supervisor shall be responsible for the adherence to and enforcement of the Construction Supervisor’s Staff and all Subcontractors to this plan.

1. Submit the Construction Supervisor’s Quality Assurance and Quality Control Plan to the OWNER’s Project Manager within 30 days from the Notice to Proceed. Submit in format acceptable to Awarding Authority’s Project Manager. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Construction Supervisor’s quality-assurance and quality-control responsibilities. Coordinate with Construction Supervisor's construction schedule.

B. The Plan shall include specific procedures for conducting formalized inspections of predetermined selected work items at the time the Construction Supervisor first starts new work. These inspections are performed by a designated QA/QC Inspection Team composed of authorized representatives from OWNER, OWNER, the Construction Supervisor, Designer, Trade Contractor(s) (whose work is being inspected) and others as may be required.

C. The Quality Assurance and Quality Control Plan shall be created as a Construction Supervisor Project Specific Quality Plan addressing at a minimum the following components:

1. Quality meetings.
   a. Pre-construction conference.
   b. Pre-installation review meetings.
   c. Coordination meetings.

2. Regular Daily Inspections.


4. First Delivery of Material / Equipment Inspections.

5. First Equipment in Place Inspections.

6. Mock-up Inspections.

7. Bench Mark Inspections.
8. Follow-Up Bench Mark Inspections.
9. Below Grade / In-Wall and Above Ceiling Inspections.

D. Quality Meetings:

1. Pre-construction Conference:
   a. A conference held to discuss all aspects of the construction project such as the schedule, payment procedures, change order procedures and much more. This meeting is held immediately after contract award.
   b. The OWNER’s Project Manager, Designer, Design Consultants, Construction Supervisor and Subcontractors will attend these meetings.

2. Pre-Installation Review Meetings:
   a. A review meeting shall be held for certain kinds of work requiring special coordination efforts between Subcontractors, a better understanding of how the work is to be performed by one or more Subcontractors, sequencing of work between the Subcontractors, or a review of special requirements pertaining to the work to be performed. This type of meeting is conducted just prior to starting the actual work. The meeting is scheduled and run by the Construction Supervisor on an as needed basis.
   b. The OWNER’s Project Manager, Designer, Construction Supervisor and all applicable Subcontractors will attend these meetings.
   c. The Construction Supervisor’s Staff and Subcontractor’s actual supervisory people who will be performing the work in the field are to attend these meetings.
   d. Safety precautions relating to the work to be performed are also to be discussed as part of this meeting.

3. Coordination Meetings:
   a. The Construction Supervisor shall conduct project Coordination Meetings at regular intervals. Project Coordination Meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings. An example would be regularly scheduled MEP coordination meetings to monitor the progress of the MEP coordination process.
   b. Construction Supervisor shall request representation by every party currently involved in coordination or planning for the construction activities involved.
   c. Construction Supervisor shall record meeting results and distribute copies to everyone in attendance and others affected by decisions or actions resulting from each meeting. The OWNER’s Project Manager and the Designer are to be on the Distribution List.
E. Regular Daily Inspections:

1. The Construction Supervisor will monitor the quality of the in-place construction work daily, to ensure that it complies with the requirements of the Contract Documents, Pre-Construction Meetings, Pre-Installation Meetings and Coordination Meetings.

2. The Construction Supervisor shall log, record and distribute daily record of quality monitoring as a component of daily reporting and provide notification on a regular basis during construction of currently observed items requiring corrective action.

3. The QA/QC Inspection Team will inspect work periodically based on observations noted in Construction Supervisor’s reporting to verify completion and compliance.

F. Building Exterior Envelope Review:

1. Awarding Authority will engage and pay for an independent testing firm to perform a review of the exterior envelope building design.

2. The design review will be performed by an independent consulting firm experienced with this type of work.

3. The scope of services for the building exterior envelope review shall include a documented review of the exterior building envelope design details and specifications, review of proposed product and material submittals prior to material acquisition, and on-site quality control inspections as deemed appropriate by the Construction Supervisor and OWNER’s Project Manager.

4. Physical inspections shall include on-site meetings with project personnel, including the OWNER’s Project Manager, Designer, Construction Supervisor and Subcontractors at various stages of installation.

5. The scope of the building envelope inspection, or review, should include, but is not limited to exterior building materials, flashings, bracing, anchors, weep holes and other water removal systems from with-in cavity walls, roofing systems, caulking and other sealants, parapet wall cap details, mullion details at openings, waterproofing below grade, and other abutting materials or systems.

6. The Construction Supervisor will coordinate with and support the exterior envelope review inspections to include coordination of first delivery inspections, mock-ups and benchmarks called for within envelope system or specific materials specifications to which the design review of this section may apply.

G. First Delivery of Material/Equipment Inspection:

1. The Construction Supervisor shall manage and keep current an anticipated delivery schedule for all materials and equipment to be delivered to the site and provide regular updates or upon request to the OWNER’s Project Manager and QA/QC Inspection Team.
2. The Construction Supervisor shall log, record and distribute any account on the first delivery of each type of material or equipment as a component of daily reporting and provide notification on a regular basis during construction of currently observed items requiring corrective action.

3. First deliveries will be verified against the requirements of the design documents and the approved submittals. Nonconforming materials and/or equipment will not be allowed to be set into place and will be removed from the site.

4. This inspection establishes the basis for judging all future deliveries of like material/equipment.

H. First Equipment in Place Inspection:

1. The Construction Supervisor shall manage, and keep current, an anticipated schedule for all materials and equipment to be inspected in place and provide regular updates or upon request to the OWNER’s Project Manager and QA/QC Inspection Team.

2. Construction Supervisor and QA/QC Inspection Team will inspect and document the first setting of equipment to verify it is in conformance with the requirements of the Contract Documents.

3. The installation and assembly will be verified against the requirements of the design documents and the approved shop drawings.

4. The Construction Supervisor shall log, record and distribute any account for each type of first in place equipment inspection as a component of daily reporting and provide notification on a regular basis during construction of currently observed items requiring corrective action or pending inspection.

5. Upon acceptance of the equipment in place, the Construction Supervisor can proceed with permanently anchoring it into place by the means prescribed in the Contract Documents.

6. This inspection establishes the basis for judging all future setting of like equipment.

I. Mock-Up Inspections:

1. The Construction Supervisor will note all Mock-Ups required by the Contract Documents and include the activity in their construction schedule and submit for review and approval of the OWNER’s Project Manager, the Designer and the QA/QC Inspection Team.

2. The Construction Supervisor shall log, record and distribute any account of Mock-Up(s) as a component of daily reporting and provide notification on a regular basis during construction of currently observed items in process, requiring corrective action, or follow up, and inspection.

3. Construction Supervisor will benchmark each work type within the Mock-Up for conformance with the requirements and review with the QA/QC Inspection Team.

4. The QA/QC Inspection Team shall review, comment that the work appears in
conformance to the requirements. Comments are documented and distributed by the Construction Supervisor. Non-conforming work will be corrected at no additional cost to the Commonwealth.

5. The approved Mock-Up establishes a basis for judgment for all later like construction.

6. The Mock-Up process and inspection(s) does not take away from the responsibility of the Construction Supervisor and installing contractors to provide a finished and fully functioning product and to maintain the construction schedule.

J. Benchmark Inspections (In Sequence Work):

1. The Construction Supervisor in consultation with the OWNER’s Project Manager, Designer and QA/QC Inspection Team will establish which work will be scheduled for benchmarking during the normal course of construction.

2. The Construction Supervisor shall log, record and distribute any account of Benchmark(s) as a component of daily reporting and provide notification on a regular basis during construction of currently observed items in process, requiring corrective action, or follow up, and that require inspection.

3. Construction Supervisor shall note that the work to be inspected has been started and if found to be acceptable shall call for a benchmark inspection to be conducted by the QA/QC Inspection Team.

4. The QA/QC Inspection Team shall review, comment that the work appears in conformance to the requirements. Comments are documented and distributed by the Construction Supervisor. Non-conforming work will be corrected at no additional cost to the Commonwealth.

5. This inspection establishes the basis for judging all future work of a like type, none of which shall commence until the benchmark is approved.

6. The Benchmark process and inspection(s) does not take away from the responsibility of the Construction Supervisor and installing contractors to provide a finished and fully functioning product and to maintain the construction schedule.

K. Follow-Up Benchmark Inspections:

1. The Construction Supervisor shall ensure that all subsequent work being built of the same type of work that was previously benchmarked will be built in conformance to the Benchmarked work without deviation.

2. The Construction Supervisor and QA/QC Inspection Team will randomly inspect subsequent work being built of the same type of work that was previously benchmarked to ensure the work is being built in conformance with the benchmarked work.

3. The Construction Supervisor shall log, record and distribute any account of follow-up benchmark(s) as a component of daily reporting and provide
notification on a regular basis during construction of currently observed items in
process, requiring corrective action, or follow up, and that require inspection.

L. Below Grade / In Wall and Above Ceiling Inspections:

1. It is the intent of this section to mandate inspection of as much of the work that
   is to be enclosed before it has been covered over to avoid having to reopen
closed spaces to complete or correct work therein.

2. The Construction Supervisor shall verify that all work is complete within the
   concealed space and is ready to be inspected before it is enclosed.

3. The Construction Supervisor and all Subcontractors who have work installed
   within the work area shall sign a closure form stating that their work has been
   completed and has been inspected by all applicable code officials. Construction
   Supervisor will be responsible for all costs to have the space reopened later to
   complete or correct any work within the space, and to have the space closed
   again, including all costs incurred for any schedule impacts due to this work.

4. Photographs of areas to be permanently enclosed will be taken by Construction
   Supervisor and retained as a part of the project record.

5. The Construction Supervisor shall log, record and distribute account of below
   grade, in wall or above ceiling inspections as a component of daily reporting and
   provide notification on a regular basis during construction of currently observed
   items in process, requiring corrective action, or follow up.

6. No closure or covering of work shall proceed until all requirements are met and
   approval given by the QA/QC Inspection Team where such inspections are to be
   conducted.

M. Utility Activation and Start-Up Inspection Procedures for Equipment/Systems Prior
to Validation.

1. Activation Inspection:

   a. The Activation Inspection is required when the Construction Supervisor has
      verified that system work meets the contract document requirements and
      has completed the static installation of equipment/systems and is ready to
      place it into dynamic operation for the purposes of shakedown, debugging,
      check-out and similar activities.

   b. The Construction Supervisor shall log, record and distribute any account of
      pending activations as a component of daily reporting and provide separate
      individual notification at a minimum of 48-hour notice prior to the
      scheduled time for placing specific equipment into dynamic operation.

   c. The Construction Supervisor will notify the QA/QC Inspection Team who
      will inspect the work, the surroundings and provide comment that the
      installation is safe and appears meets the requirements for operation.

   d. Any deficiencies noted shall be corrected immediately

   e. The Construction Supervisor will then place the equipment/systems into
operation for his use, shakedown, debugging, check-out, and similar activities.

2. Start-Up Inspection:

   a. The Construction Supervisor shall log, record and distribute any account of pending startups as a component of daily reporting and provide separate individual notification at a minimum of 48-hour notice prior to the scheduled time for placing specific equipment into final operation.

   b. The Construction Supervisor shall coordinate with the QA/QC Inspection Team to ensure that the installation operates as required.

   c. All non-conforming work will be corrected immediately.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
SECTION 014100

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. This Section consists of:
   1. Applicable codes and regulations.

1.3 DEFINITIONS

A. Regulations include laws, ordinances, statutes and lawful orders issued by authorities having jurisdiction, and rules, conventions and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.

1.4 APPLICABLE CODES AND REGULATIONS

A. All work shall be performed in accordance with the latest version, by DATE OF ISSUE for Contract Documents, current on date of Owner-Contractor Agreement, except as indicated otherwise, of all applicable codes including the following:
   3. AWWA C600 Installation of Ductile-Iron Mains and Their Appurtenances
   5. United States Occupational Safety and Health Administration (OSHA): Standard N°. 29-CFR-1926.59 - HAZARD COMMUNICATION STANDARD.
   7. All applicable building, electrical and plumbing codes.

B. Publication Dates: Where the date of issue of a code or regulation is not
specified, comply with the standard in effect as of date of Contract Documents, or as otherwise required by authorities having jurisdiction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 014200

REFERENCES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Abbreviations and Acronyms.

B. Definitions

C. Reference Standards.

1.3 ABBREVIATIONS AND ACRONYMS

A. The following list of common abbreviations are referenced in individual specification sections. This list is provided for convenience to the Contractor and is not intended to define all abbreviations use in the Contract Documents.

1. Abbreviations for contract and specifications.

   AWWA       American Water Works Association
   CM         Construction Manager
   EPA        United States Environmental Protection Agency
   HVAC       Heating, ventilating, and air conditioning
   IAQ        Indoor Air Quality
   IEQ        Indoor Environmental Quality
   NHDES      New Hampshire Department of Environmental Services
   NHDOT      New Hampshire Department of Transportation
   MSDS       Material Safety Data Sheet
   NIC        Not in Contract
REFERENCES

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1.4 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract including, but not limited to, the following:

1. OWNER
2. The Designer (the Architect-of-Record or Engineer-of-Record as applicable).
3. The General Contractor.

B. Definitions for terms utilized in the Contract Documents:

1. "As necessary," "as directed," "when directed," "satisfactory," "good and sufficient," "approved," or other general qualifying terms are used on the Drawings: These terms are deemed to be followed by the words, "in the opinion of the Designer," or "by the Designer," as the case may be.

2. “Addenda”: written or graphic instruments issued prior to the execution of the Contract which modify or interpret the Bidding Documents, including the Drawings and Specifications, by additions, deletions, clarifications or corrections.

3. “Approval," "approved, “approved equal," "or equal," or "other approved" means as approved by the Designer."
4. The terms “Contractor”, “General Contractor”, and “Construction Manager” as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. These terms refer to the same entity.

5. The term “Trade Contractor:” A subcontractor for designated portions of work, which require a regulated selection process.

6. The term “Day”: is defined as the following:
   a. The term “calendar day” is a full 24-hour period, starting from 12 AM (midnight), and includes all weekends and legal holidays.
   b. The term “working day” shall mean any calendar day except Saturdays, Sundays, and legal holidays at the place of the building.
   c. Where the term “day” is used without the adjective of “calendar” or “working”, it shall mean “calendar day”.

7. The terms “Designer”, “Architect”, and “Architect/Engineer” as used in the Project Manual have the same meaning and are interchangeable in Contract Documents. These terms refer to the same entity.

8. "Reviewed": When used to convey Designer's action on General Contractor's submittals, applications, and requests, "reviewed" is limited to Designer's duties and responsibilities as stated in the Conditions of the Contract.

9. "Directed": A command or instruction by Designer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."

10. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

11. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

12. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

13. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

14. “Furnish and Install” or “Provide”: items identified shall be furnished and installed under this Contract. The term “Furnish”, when used separately, shall mean that the items referred to shall be furnished, only. Similarly, the term “install”, when used separately, shall mean that the items referred to shall be installed, only.

15. “Knowledge,” “recognize” and “discover,” their respective derivatives and similar terms in the Contract Documents, as used in reference to the Contractor, shall be interpreted to mean that which the Contractor knows (or should know), recognizes (or should recognize) and discovers (or should discover) in exercising the care, skill and diligence required by the Contract Documents.
Analogously, the expression “reasonably inferable” and similar terms in the
Contract Documents shall be interpreted to mean reasonably inferable by a
Contractor familiar with the Project and exercising the care, skill and diligence
required of the contractor by the Contract Documents.

16. “Not in Contract” or “N.I.C.”: equipment, furnishings, or other materials
not included as a part of this Contract.

17. “Product”: materials, systems and equipment.

18. "Project Site": Space available for performing construction activities subject to
Owner approval. The extent of Project site is shown on Drawings and may or
may not be identical with the description of the land on which Project is to be
built.

1.5 REFERENCE STANDARDS

A. For products or workmanship specified by association, trade, or Federal Standards,
comply with requirements of the standard, except when more rigid requirements are
specified or are required by applicable codes.

B. Where reference is made in the Contractual Documents to Publications and Stand-
ards issued by Associations or Societies, the intent shall be understood to specify
the current edition of such Publications or Standards (including tentative revision) in
effect on the date of the contract advertisement notwithstanding any reference to a
particular date.

C. Obtain copies of standards when required by Contract Documents.

D. Should specified reference standards conflict with Contract Documents, request
clarification from Designer before proceeding.

E. The contractual relationship to the parties to the Contract shall not be altered from
the Contract Documents by mention or inference otherwise in any reference doc-
ument.

F. Schedule of References

1. Listed below are abbreviations for the names and titles of trade association
names, federal government agencies and similar organizations which are ref-
erenced in the individual specification sections. The addresses and URL’s
(Uniform Resource Locators) provided are for the Contractor’s convenience
and are believed to be current and accurate, however addresses and URL’s
frequently change, and no assurance is made on their accuracy:

AA Aluminum Association
900 19th Street N.W., Suite 300 Washington, DC 20006
www.aluminum.com
ABAA  Air Barrier Association of America  
1600 Boston-Providence Highway Walpole, MA 02081  
www.airbarrier.org

AAMA  American Architectural Manufacturer’s Association  
1827 Walden Office Sq., Suite 104 Schaumburg, IL 60173-4268  
www.aamanet.org

AATCC  American Association of Textile Chemists and Colorists  
PO Box 12215, 1 Davis Drive, Research Triangle Park, NC 27709-2215  
www.aatcc.org

ACI  American Concrete Institute, International  
38800 Country Club Drive, Farmington Hills, Michigan  
48331  www.aci-int.org

ACP A  American Concrete Pipe Association  
222 West Las Colinas Boulevard, Suite 641, Irving  
TX  www.concrete-pipe.org

ADC  Air Diffusion Council  
104 S. Michigan Ave, Suite 1500, Chicago, IL 60603  
www.flexibleduct.org

AFPA  American Forest & Paper Association  
(Formerly NFPA National Forest Products Association) 1111 19th St. N.W., Suite 800, Washington, DC 20036  
www.afandpa.org

AGA  American Gas Association Inc.  
1515 Wilson Blvd. Arlington, VA 22209-2469  
www.agagas.com

AGAI  American Galvanizers Association Inc.  
12200 E.Lliff Ave, Suite 204, Aurora, CO 80014-1252  
www.galvanizeit.org

AIA  American Institute of Architects  
1735 New York Avenue, N.W., Washington, DC 20006-5292  
www.aia.org

AIHA  American Industrial Hygiene Association  
2700 Prosperity Ave, Suite 250, Fairfax VA 22031  
www.aiha.org

AISC  American Institute of Steel Construction  
1 E. Wacher Dr., Suite 3100, Chicago, IL 60601-2001  
www.aisc.org

AMCA  Air Movement and Control Association  
30 W. University Drive, Arlington Heights, IL 60004-1893  
www.amca.org

ANSI  American National Standards Institute  
11 W. 42nd Street, 13 Floor, New York, NY 10036  
www.ansi.org
REFERENCES

APA - The Engineered Wood Association
(formerly APA - American Plywood Association)
P.O. Box 11700, Tacoma, WA 98411-0070
www.apawood.org

ARI - Air-Conditioning and Refrigeration Institute
4301 N. Fairfax Dr., Suite 425, Arlington, VA 22203
www.ari.org

ASCA - Architectural Spray Coaters Association
230 West Wells Street, Suite 311, Milwaukee WI 53203
www.aecinfo.com

ASCE - American Society of Civil Engineers
1015 15th St. N.W., Washington, DC 20005
www.asce.org

ASHRAE - American Society of Heating, Refrigerating, and Air-Conditioning Engineers
1791 Tullie Circle NE, Atlanta GA 30329
www.ashrae.org

ASME - American Society of Mechanical Engineers
345 East 47th Street, New York, NY 10017-2392
www.asme.org

ASTM - American Society for Testing and Materials
100 Barr Harbor Drive, West Conshohocken, PA 19428
www.astm.org

AWI - Architectural Woodwork Institute
46179 Westlake Drive, Suite 120, Potomac Falls, VA 20165
www.awinet.org

AWMAC - Architectural Woodwork Manufacturers Association of Canada
Unit 02A 4803 Centre St. NW, Calgary, Alberta, Canada
www.awmac.com

AWPA - American Wood Preservers’ Association
P.O. Box 286, Woodstock, MD 21163-0286
www.awpa.com

AWPI - American Wood Preservers’ Institution
1945 Old Gallows Rd., Suite 150, Vienna, VA 22182
www.oas.org

AWS - American Welding Society
550 LeJeune Road, N.W., Miami, FL 33126
www.aws.org

BHMA - Builders Hardware Manufacturers Association,
Inc. 355 Lexington Ave., 17 Floor New York, NY 10017
www.buildershardware.com

BIA - Brick Industry Association
City of Manchester, Department of Public Works
Sheehan-Basquil Park Renovation – Phase II
Manchester, New Hampshire

11490 Commerce Park Drive, Reston, VA 22091-1525
www.bia.org

CSA  Canadian Standards Assoc. International, Forest Products
Group Sussex Centre, Suite 402, 90 Burnhamthorpe Road West,
Mississauga, Ontario, Canada
www.csa.ca

CDA  Copper Development Association
260 Madison Ave., 16th Floor, New York, NY 10016
www.copper.org

CISCA  Ceilings & Interior Systems Construction Association
579 W. North Ave., Suite 301, Elmhurst, IL 60126 www.cisca.org

CRI  Carpet and Rug Institute
310 Holiday Ave, Dalton, GA
30720 www.carpet-rug.com

CRSI  Concrete Reinforcing Steel Institute
933 N. Plum Grove Road, Schaumburg, IL 60173-4758
www.crsi.org

CPSC  Consumer Product Safety Commission
5401 Westbard Ave., Bethesda, MD 20816-1469
www.cpsc.gov

CTIOA  Ceramic Tile Institute of America
12061 W.Jefferson BLVD, Culver City, CA 90230-6219
www.ctioa.org

DHI  Door and Hardware Institute
14170 Newbrook Dr., Chantilly, VA 22021-2223
www.dhi.org

FM  Factory Mutual Engineering & Research Corp.
1151 Boston-Providence Turnpike
Norwood, MA 02062
www.fmglobal.com

GA  Gypsum Association
6525 Belcrest Road, Suite 480, Hyattsville, MD 20782
www.gypsum.org

GANA  Glass Association of North America
2945 S.W. Wanamaker Dr., Suite A, Topeka, KS 66612-5321
www.glass.org

GICC  Glazing Industry Code Committee
3310 Harrison St., Topeka, KS 66611-2279
www.glazingcodes.net

IGCC  Insulating Glass Certification Council
REFERENCES

3933 US Route 11, PO Box 2040, Cortland, NY 13045
www.igcc.org

IPA
Industrial Perforators Association
710 N. Plankinton Ave., Suit 622 Milwaukee, WI 53203
www.iperf.org

ILI
Indiana Limestone Institute of America, Inc.
Stone City Bank Building, Suite 400, Bedford, IN 47421
www.ili.ai.com

IPCI
International Polished Concrete Institute Norris TN
www.ipcaonline.org

LSGA
Laminators Safety Glass Association
3310 Harrison Street, Topeka KS 66611-2279 www.glass.org

MCAA
Mason Contractors Association of America
1910 S. Highland Ave. Suite 101, Lombard, IL 60148
www.masoncontractors.org

MFMA
Maple Flooring Manufacturers Association
60 Revere Drive, Suite 500, Northbrook, IL 60062
www.maplefloor.org

MIA
Marble Institute of America, Inc.
33505 State Street, Farmington, MI 48335
www.marble-institute.com

MIL
Military Specifications and Standards Naval Publications and Forms Center
5801 Tabor Avenue, Philadelphia, PA 19120
www.milspec.com

NAAMM
National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603 www.naamm.org

NCMA
National Concrete Masonry Association
2302 Horse Pen Road, Herndon, VA 20171-3499
www.ncma.org

NEBB
National Environmental Balancing Bureau
8575 Government Circle, Gaithersburg, MD 20877-4121
www.nebb.org

NEMA
National Electrical Manufacturers’ Association 1300 N. 17th St., Suite 1846, Rosslyn, VA 22209 www.nema.org

NFPA
National Fire Protection Association
REFERENCES

1 Battery March Park, PO Box 9101, Quincy, MA 02269
www.nfpa.org

NFRC  National Fenestration Rating Council
6305 Ivy Lane, Greenbelt MD
20770 www.nfrc.org

NOFMA  National Oak Flooring Manufacturers Association, Inc.
PO Box 3009, Memphis, TN 38173-0009
www.nofma.org

NRCA  National Roofing Contractors Association
10255 W. Higgins Road, Suite 600, Rosemont, IL 60018-5607
www.nrca.net

NSF  NSF International
789 N. Dixboro Road, PO Box 130140. Ann Arbor, MI 48105
www.nsf.org
(formerly National Sanitation Foundation)

NTMA  National Terrazzo and Mosaic Association
110 E. Market St., Suite 200A, Leesburg, VA 20176
www.ntma.com

PCA  Portland Cement Association
5420 Old Orchard Road, Skokie, IL 60077-1083
www.cement.org

PEI  Porcelain Enamel Institute
4004 Hillsboro Pike, Suite 224B, Nashville, TN 37215
www.porcelainenamel.com

PS  Product Standard
U. S. Department of Commerce
www.omg.org

SDI  Steel Deck Institute
P.O. Box 25, Fox River Grove, IL 60021-0025 www.sdi.org

SDI  Steel Door Institute
30200 Detroit Road, Cleveland, OH 44145-1967
www.steeldoor.org

SEI  Structural Engineering Institute
of the American Society of Civil Engineers
1801 Alexander Bell Drive
Reston VA 20191
www.seinstitute.org

SGCC  Safety Glass Certification Council
RMS, P.O. Box 9 Henderson Harbor, NY 13651
www.sgcc.org
SIGMA  Sealed Insulating Glass Manufacturers Association 401 N. Michigan Ave., Suite 2400, Chicago, IL 60611 www.glasschange.com

SJI  Steel Joist Institute 3127 10th Ave. N., Myrtle Beach, SC 29577 www.steeljoist.org

SMACNA  Sheet Metal and Air Conditioning Contractors’ National Association 4201 Lafayette Center Dr., Chantilly, VA 22022-1209 www.smacnana.org

SPIB  Southern Pine Inspection Bureau 4709 Scenic Highway, Pensacola, FL 32504-9094 www.spib.org

SSMA  Steel Stud Manufacturer’s Association 8 South Michigan Avenue, Chicago IL 60603 www.ssma.com

SSPC  The Society for Protective Coatings 40 24th Street, 6th Floor, Pittsburgh PA 15222-4623 www.sspc.org

SWRI  Sealant, Waterproofing & Restoration Institute 2841 Main Street, Suite 585, Kansas City, MO 64108 www.swrionline.org


TMS  The Masonry Society 3970 Broadway, Suite 201D, Boulder CO 80304 www.masonrysociety.org

UL  Underwriters’ Laboratories, Inc. 333 Pfingston Road, Northbrook, IL 60602 www.ul.com

WDMA  Window & Door Manufacturers Association (formerly National Wood Window & Door Association, NWWDA) 205 E. Touhy Avenue, Suite G-54, Des Plaines, IL 60018 www.nwwda.org

WI  Woodwork Institute PO Box 980247 West Sacramento, CA 95798 www.woodworkinstitute.com

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 014325  
TESTING AGENCY SERVICES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Awarding Authority will engage an independent testing agency at its own expense to perform certain testing, to confirm compliance with contract requirements and criteria described in the various Specification Sections and as the Owner’s Project Manager deems appropriate. It is the Construction Supervisor’s responsibility to provide and pay for its own inspection and testing. See Section 014000.

B. Refer also the list of testing below, and to individual Specification Sections for the types and frequency of testing to be performed by Awarding Authority’s independent testing laboratory.

1.3 RELATED SECTIONS

A. GENERAL CONDITIONS
   1. Inspections and testing required by laws, ordinances, rules, regulations, or orders of public authorities.

B. Section 014000 – QUALITY REQUIREMENTS
   1. Construction Supervisor’s responsibility for testing services to maintain quality control.

1.4 OWNER TESTING AGENCY SERVICES

A. OWNER’s Testing agency services may include, but not be limited to, the following:
   1. Soils; in-place and fill.
   2. Paving.
   3. Loam and seed.
   4. Concrete.
   5. Others as required to demonstrate compliance with Contract requirements.

B. Each independent inspection and testing agency engaged on the project shall be authorized by authorities having jurisdiction to operate in the State of New Hampshire.

1.5 ENGAGEMENT OF INDEPENDENT TESTING LABORATORY

TESTING AGENCY SERVICES  
014325  
08/10/2020
A. Awarding Authority will engage and pay for the services of independent inspectors and an independent testing laboratory to perform the services specified under various Sections of the Specifications.

B. The services of a testing laboratory as specified in this Section is intended for the OWNER’s Project Manager's verification of the Construction Supervisor’s compliance with the requirements of the Contract Documents. This shall in no way relieve the Construction Supervisor of its responsibilities to provide its own quality control, to meet all requirements of the Contract and to provide a completed project free from construction defects.

C. Services and quantities of testing as specified herein are approximate and may vary. Actual services and quantities of testing will be determined by the OWNER’s Project Manager and the Designer during the construction period.

D. Locations for taking sample specimens for testing shall be as directed by the OWNER’s Project Manager and the Designer-of-Record.

1.6 CONSTRUCTION SUPERVISOR’S RESPONSIBILITIES

A. Cooperate with laboratory personnel and provide access to the work and to fabricator’s facilities as required for the performance of their testing.

B. Provide Casual Labor and Facilities:
   1. To provide access to the work to be inspected or tested.
   2. To obtain and handle specimens at the site.
   3. To facilitate inspections and tests.
   4. To construct a storage box, on the site, of sufficient size to store cylinders which will afford protection required by ASTM C31.

C. Shop Drawings: Provide a complete set of construction documents and shop and/or erection drawings for the items being inspected and tested.

D. Samples:
   1. Provide the laboratory with preliminary representative samples of materials to be tested, in requested quantities.
   2. When the source, quality, or characteristic of an approved source changes or indicates lack of compliance with contract requirements, submit additional samples of materials to testing laboratory.

E. Miscellaneous Reports, Lists: When requested by the Designer or testing laboratory, the Construction Supervisor shall immediately provide copies of mill reports, cutting lists, shipping bills, material bills, time and place of shipment of materials to shop and field, and any relevant data on pressure testing and investigations of materials.
F. Notification:
   1. To facilitate the timely sequence of inspection and testing, the Construction Supervisor shall give advanced notification to the testing laboratory and the Designer that work has progressed to the point where inspection and testing may proceed.
   2. Advanced notification shall be 48 business hours (minimum) prior to commencement of activity requiring testing and inspection.

1.7 CONSTRUCTION SUPERVISOR’S QUALITY CONTROL

A. Services of testing laboratory retained by Awarding Authority is for verification of Construction Supervisor’s compliance and, if such tests or inspection indicates failure to comply with these Contract Documents, the Construction Supervisor shall bear all costs associated with additional testing and inspection after the work has been corrected, to verify compliance.

B. Provide a Quality Control Program, to the OWNER’s Project Manager and the Designer for their approval that includes monitoring and enforcement of the quality programs of all Trade Contractors and subcontractors. Refer to Section 01 40 00 Quality Requirements.

1.8 PATCHING

A. Areas where samples are taken for purposes of testing shall be patched by the Construction Supervisor to the satisfaction of the OWNER’s Project Manager and the Designer.

1.9 REPORTING OF RESULTS

A. The testing laboratory shall document the values obtained in all tests and shall indicate degree of compliance with the requirements of the Contract Documents. Test reports shall include the following information:
   1. Designer’s project name and number.
   2. Type and location of test sample and time and date obtained.
   3. Type of test, ASTM or other appropriate designation.
   4. Result of test and degree of compliance with Contract Documents.

B. Testing laboratory shall, on a weekly basis, distribute results of all tests as follows:
   1. OWNER – 1 copy
   2. Designer – 1 copy
   3. Consulting Engineers (as designated by the Designer) – 1 copy
   4. Construction Supervisor – 1 copy
   5. Trade Contractor – 1 copy
C. Notify all parties immediately in the event that test results indicate that strengths, required by the Contract Documents, will not be attained.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 015000

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 REQUIREMENTS INCLUDED

A. Temporary Facilities and Controls including the following:
   1. Temporary Water.
   2. Weather Protection.
   3. Heating During Construction.
   4. Temporary Power.
   5. Hoisting Equipment and Machinery.
   8. Dust Control.
   10. Indoor Air Quality (IAQ) Management.
   11. Enclosures.
   12. Cleaning During Construction.
   13. Field Offices.
   15. Sanitary Facilities.
   17. First Aid and Fire Extinguishers.
   18. Construction Barriers.
   20. Debris Control and Removal.
   22. Vehicle and Equipment Protection.
   23. Shoring.
27. Construction Cores.
28. Excavations and Field Survey Requirements.
29. Underground Steam Vaults.

1.3 TEMPORARY WATER

A. Water will be furnished by the Construction Supervisor up to the point indicated on the Drawings for the permanent connection to the water supply system.

B. Water shall be distributed by means of connections to the permanent service lines that are to be installed at the expense of the Construction Supervisor.

C. Any temporary hoses and pipe lines and connections from the permanent service lines either outside or within the building, necessary for the use of the Construction Supervisor and his Subcontractors shall be installed, protected, and maintained at the expense of the Plumbing Subcontractor.

D. Temporary hoses and temporary pipe lines used for transporting water shall not be run unattended or unprotected across parking areas, parking area entrance, walkways, plazas, or steps. Temporary hoses and temporary pipelines shall not be permitted to be installed along, through or across corridor and occupied rooms or spaces.

E. The Construction Supervisor shall provide an adequate supply of drinking water from approved sources of acceptable quality, satisfactorily cooled, for his employees and those of his Subcontractors.

F. Use of the water may be discontinued by the City if, in the opinion of the OWNER’s Project Manager, it is wastefully used.

1.4 WEATHER PROTECTION

A. Weather Protection Standards: The following weather protection standards pursuant to Sections 44F and G of Chapter 149 of the General Laws, are hereby incorporated into this specification, and shall be considered supplementary to the temporary heating and temporary enclosure requirements specified elsewhere in this Section and in individual specification Sections.

1. Within 30 calendar days after his award of contract, the Construction Supervisor shall submit in writing to the Designer for approval, of its proposed methods for "Weather Protection."
2. Limitation of Weather Protection Standards: Construction Supervisors are required to provide weather protection to allow building construction to be carried on between the dates of November 1 to March 31 (inclusive).
   a. Under no circumstances shall the Construction Supervisor suspend any work during the months of November through March because of their reluctance to provide and pay for temporary weather protection. These Specifications are not to be construed as requiring enclosures or heat for operations that are not economically feasible to protect in the judgment of the Designer. Included in the preceding category, without limitation, are such items as site work, excavation, steel erection, erection of certain “exterior” wall panels, roofing, and similar operations.
   b. These standards do not require enclosures for heat for operations that are not economically feasible to protect in the judgment of the Awarding Authority; including for example, site work, excavation, pile driving, steel erection, erection of certain exterior panels, roofing and the similar construction elements.

3. Definition of Weather Protection: “Weather Protection” means temporary protection of work which may be adversely affected by moisture, cold, heat, and wind by the use of temporary covers, enclosures, and heat. Maintain at least the minimum temperatures specific. Comply with specific requirements which are specified within individual Specification Sections.
   a. Temperature at the working surface shall be at least forty degrees Fahrenheit (40 degrees F). This provision does not supersede any specific greater requirements for methods of construction of curing of materials.

4. Construction Supervisor’s Responsibilities:
   a. The Construction Supervisor shall furnish and install all “weather protection” Both (exterior and interior) during the time period from November 1 to March 31 (inclusive). The Construction Supervisor is responsible to ensure that protection is provided for the building INTERIOR and all materials and equipment from weather at all times (year-round).
   b. At completion of work, the Construction Supervisor shall remove temporary weather protection and restore all surfaces to first class condition.

5. Trade Contractors Responsibilities: Individual Trade Contractors are responsible for all tarpaulins and similar protective measures necessary to cover scaffolding for inclement weather conditions during NON-WINTER months. NON-WINTER period is from April 1 to October 31 (inclusive).

6. Proposed Plan: The Construction Supervisor shall within 30 calendar days after Award of Contract, submit three copies of a typewritten proposed plan for “Weather Protection” and obtain the Designer’s and Owner’s written approval.

7. Reporting Requirements:
   a. Within thirty calendar days after Contract award, the Construction Supervisor shall submit in writing to the Owner for approval, three copies of its proposed plan for weather protection.
   b. The Construction Supervisor shall furnish and install accurate Fahrenheit thermometers at places designated by the Owner to determine whether the
required temperature is being maintained.

8. Weather protection materials, equipment, and the installation thereof, shall comply with all the safety rules and regulations including provisions for adequate ventilation and fire protection devices.

9. Use of Permanent Heating System(s): The Construction Supervisor may choose, if the Owner approves, to use the permanent heating system for temporary heat after the building is enclosed and the system has been tested and is ready to operate.
   a. The Construction Supervisor shall thoroughly clean and restore to first class condition, acceptable to the Owner, all portions of the permanent heating system that are used for heating during construction.
   b. Use of the permanent heating system for weather protection shall not affect any heating system guarantee that may be due to the Owner; such guarantee shall begin to run only when the Owner accepts the building.

B. Additional weather protection requirements: The Construction Supervisor is responsible to ensure that the protection is provided by for the building interior and all materials and equipment from weather at all times (year-round).
   1. Where removal of existing roofing, roof sheathing, windows, doors, and other items is necessary to accomplish work, have materials and workmen ready to provide adequate and approve temporary covering of exposed areas.
   2. Temporary coverings shall be attended as necessary to insure effectiveness and to prevent displacement.
   3. Construction Supervisor shall repair or replace all elements of the building damaged by failure to properly protect them from the weather to the satisfaction of the Designer at no additional cost to the Owner.

C. Installation of weather protection and heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection devices. Heating devices which may cause damage to finish surfaces shall not be used.

D. The Construction Supervisor shall furnish and install one accurate Fahrenheit thermometer at each work area as designated by the Designer. However, one additional accurate Fahrenheit thermometer shall be provided for every 2,000 square feet of floor space where the work areas exceed 2,000 square feet.

1.5 HEATING DURING CONSTRUCTION

A. Within 30 calendar days after the commencement of work under this Contract, the Construction Supervisor shall submit in writing to the Designer for approval, three copies of his method and time schedule for heating during construction which shall concur with his general progress schedule hereto before submitted as required under Article V of the CONTRACT AND GENERAL CONDITIONS.

B. After the building or portion thereof is completely enclosed by either permanent construction or substantial temporary materials having a comparable resistance as the
specified permanent construction. The Construction Supervisor shall pay and provide heat therein of not less than 50 degrees F., nor more than 75 degrees F., which shall be continuously maintained in the enclosed area to the extent necessary to properly progress and protect the work until the project is accepted.

C. The Construction Supervisor shall furnish and install one accurate recording Fahrenheit thermometer at a place designated by the Designer, and one additional accurate thermometer for every 2,000 square feet of floor space, located as directed by the Designer in order to determine if the specified temperatures are maintained. The Construction Supervisor or his authorized agent shall furnish daily to the Resident Engineer three copies of a signed statement of temperatures recorded every three hours.

D. The Construction Supervisor, with the approval of the Designer and OWNER, may use the permanent heating system as specified for the project once it has been tested, flushed out and chemically treated, thoroughly cleaned of all construction dust and dirt, and is ready to operate. The Construction Supervisor shall pay all energy costs for heating during construction and provide meters if required. The Construction Supervisor and the HVAC and/or Electrical Subcontractor shall coordinate their work so that the permanent heating system for the building will be available and ready to provide heat as soon as the building is closed in. In case the Contract includes more than one building, the heating shall be provided for each building in accordance with the above provision.

1. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section “Closeout Procedure”.

E. Operating labor shall be provided for continuous direct attendance, for frequent inspection of the system, emergency repairs, and keeping of temperature records. Continuous direct attendance shall mean direct attendance for twenty-four hours each day, seven days per week, Saturdays, Sundays and holidays included, throughout the progress of the work.

F. It shall be the sole responsibility of the Construction Supervisor to arrange for and pay the HVAC and/or Electrical Construction Supervisor to operate and to put in first-class condition all portions of the permanent heating system used for Heating During Construction. The City will require the discharge of inexperienced or unsatisfactory operating labor.

G. If the system is electric heat, the foregoing requirements shall equally apply to all the comparable components thereof.

H. The installation and operation of heating devices shall comply with all safety regulations including provisions for adequate ventilation and fire protection. Heating devices which may cause damage to finish surfaces shall not be used.

1.6 TEMPORARY POWER
A. The utility company will provide electrical energy required for temporary light and power. The Electrical Subcontractor is required under Division 26 - ELECTRICAL, to provide temporary feeders of sufficient capacity from the local utility company, or from the institution power lines, at the point designated on the drawings, to provide for the electric light and power requirements of the Project while under construction and until the permanent feeders have been installed and are in operation. It is not the intent of the above statement to relieve the Construction Supervisor of the responsibility of payment for energy consumed during construction, but rather to afford him use of permanent feeder, etc. for electric distribution during construction. Payment for energy consumed during construction shall be the responsibility of the Construction Supervisor until either Use and Occupancy or Final Acceptance has occurred.

B. The Construction Supervisor shall pay for the cost of electric energy consumed by himself and by all of his Subcontractors. Any temporary wiring of a special nature, other than that specified in Division 26 - ELECTRICAL, shall be paid for by the Subcontractor requiring it, such as:
   1. Special circuits required by electric welders, elevators, lifts or other special equipment requiring high-amperage and/or special voltage service, etc.
   2. Exterior lighting circuits for protection against vandalism, public warning lights, lights for advertising, and similar items.

C. The Construction Supervisor and all Trade Contractors, individually, shall furnish all extension cords, sockets, motors, and accessories required for their work. They shall also pay for all temporary wiring of construction offices and buildings used by them. The Construction Supervisor shall pay for the offices of the Construction Supervisor and the OWNER specified in the Contract Form.

D. All temporary wiring installed by the Electrical Trade Contractor shall be removed after it has served its purpose. Use copper wire only.

E. All relocations of temporary service to meet construction and/or phasing requirements shall be performed at no additional cost to the City.

1.7 HOISTING EQUIPMENT AND MACHINERY

A. All hoisting equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the individual Trade Contractors and is so stated in each appropriately related Section of the Specifications. All costs for hoisting operating services shall be borne by the Trade Contractors unless specifically excepted in the Contract Documents.
   1. A licensed equipment manufacturer’s representative shall be present at all times, to witness the erection and dismantling of all hoisting equipment and machinery, whenever such equipment is being erected or dismantled. No such work will be
performed without the presence of such representative.

2. Hoisting equipment and machinery erection and dismantling shall be performed only by trained, certified, and experienced riggers qualified to perform such work.

3. Copies of such licenses and/or certifications, clearly indicating qualifications, shall be provided to the Owner prior to commencement of such erecting and dismantling work.

B. Review Drawings for hoisting requirements and openness of traffic access routes to installed destinations of specified equipment and furnishings.

1.8 STAGING

A. All staging, planking and scaffolding, exterior and interior, required for the proper execution of the work and over eight feet in height, shall be furnished, installed, and maintained by the Construction Supervisor.

1. Erection and dismantling of staging shall be performed only by trained, certified, and experienced staging personnel qualified to perform such work.

2. Copies of such certifications, clearly indicating qualifications, shall be provided to the Awarding Authority prior to commencement of such erecting and dismantling work.

B. All staging up to eight feet in height shall be provided by the individual Trade Contractors and subcontractors as applicable to their work.

1.9 MAINTENANCE OF ACCESS

A. The Construction Supervisor shall provide and maintain for the duration of his contract, a means of access to, around and within the site, as indicated on the Contract Drawings, for vehicular traffic and authorized personnel. This means of access shall be construed to sustain the weight of equipment customarily engaged for use in construction projects of this type and magnitude. The Construction Supervisor shall, without additional compensation from the City, furnish labor and materials as may be required from time to time to maintain this means of access in an acceptable condition as determined by the Designer. Pedestrian access shall provide adequate protection against falling debris, slippage, adequate lighting, warning and directional signs, and protection against construction activities.

1.10 DUST CONTROL

A. The Construction Supervisor shall have all Subcontractors provide adequate means for the purpose of preventing dust caused by construction operations from creating a hazard, nuisance, and from entering adjacent occupied areas throughout the period of the construction contract.
B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the Contract Articles with added regard to performance obligations of the Construction Supervisor.

1.11 NOISE CONTROL

A. Work must be scheduled and performed in such a manner as to not interfere with the operations of the Owner. Construction work that is deemed by the Owner Project Manager to be excessively noisy may be required to be done during non-normal working hours and at no additional expense to the Owner.

B. Comply with requirements of authorities having jurisdiction. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

C. Execute construction work by methods and by use of equipment which will reduce excess noise.
   1. Equip air compressors with silencers, and power equipment with mufflers.
   2. Manage vehicular traffic and scheduling to reduce noise.
   3. No heavy equipment may be started or idled before 7 A.M.

1.12 EROSION AND SEDIMENT CONTROL

A. General: Comply with requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, and requirements specified in Division 31 – EARTHWORK and as specified herein. The more stringent requirements shall apply.
   1. Obtain all required permits from authorities having jurisdiction regarding erosion control and silt fence.
   2. Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements of 2003 EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

B. Erosion and sediment control: Provide an erosion and sediment control program for minimizing erosion and siltation during the term of construction. The following minimum erosion control principles shall apply to the land grading and construction phases:
   1. Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation.
      a. Stripping of vegetation, grading, or other soil disturbance shall be done in a manner which will minimize amount of bare soil exposed at one time. Whenever feasible, natural vegetation shall be retained and protected.
      b. Erosion control devices shall be installed as early as possible in the construction
sequence prior to start of clearing and grubbing operations and excavation work.

c. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.

2. Sediment shall be retained on-site. Temporary erosion protection shall be accomplished by covering land with erosion protection materials, as appropriate for prevailing conditions.
   a. Use baled hay or straw to trap sediment and prevent sediment from clogging drainage systems. Handle baled units in manner to prevent from breaking apart.
   b. Locate baled hay or straw where required and as directed by the Designer and stake bales to prevent overturning, flotation, or displacement.
   c. Remove deposited sediment periodically.
   d. Temporary seeding, mulching, or other suitable stabilization measures, shall be used to protect exposed critical areas during prolonged construction or other land disturbance, where the period of exposure will be greater than two (2) months.

3. Drainage provisions shall accommodate increased runoff resulting from modifications of soil and surface conditions during and after development or disturbance. Such provisions shall be in addition to existing requirements.
   a. Provide temporary measures such as berms, dikes, and drains, to prevent water flow.

4. Cut and fill slopes and stockpiled materials shall be protected to prevent erosion. Slopes shall be protected with permanent erosion protection when erosion exposure period is expected to be greater than or equal to six months, and temporary erosion protection when erosion exposure period is expected to be less than six months.
   a. Except where specified slope is indicated on Drawings, fill slopes shall be limited to a grade of 2:1 (horizontal:vertical) cut slopes shall be limited to a grade of 1-1/2:1.
   b. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays.

5. Inspect and adjust erosion and sediment control devices twice each month and after each heavy rain. Remove silt if greater than 6 inches deep. Replace damaged or deteriorated items devices.
   a. Hay bales shall be inspected frequently and maintained or replaced as required to maintain both their effectiveness and essentially their original condition. Underside of bales shall be kept in close contact with the earth below at all times, as required to prevent water from washing beneath bales.
   b. Sediment deposits shall be disposed to off-site, in a location and manner which will not cause sediment nuisance elsewhere.

1.13 INDOOR AIR QUALITY (IAQ) MANAGEMENT

A. Minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to environmental tobacco smoke. At a minimum, take the
following measures:

1. Prohibit smoking in the building or on campus.

B. Construction Indoor Air Quality Management Plan Submittal:

1. Within 21 calendar days after receipt of Notice to Proceed, the Construction Supervisor shall submit to the OWNER’s Project Manager a finalized Construction IAQ Management Plan.

2. The proposed Plan shall include, but not be limited to, the following:
   a. Protection of ventilation system components during construction.
   b. Cleaning and replacing contaminated ventilation system components after construction, including filtration media.
   c. Temporary ventilation.
   d. Protection of absorptive materials from moisture damage when stored on-site and after installation, including exterior wall rain protection.
   e. Sequence of finish installation plan.
   f. Selection of cleaning products and procedures to be used during construction and final cleaning.
   g. Schedule of emission test data recorded by Construction Supervisor’s testing laboratory.

C. Take special care to prevent accumulation of moisture on materials and within packaging during delivery, storage, and handling to prevent development of mold and mildew inside packaging and on products.

D. Immediately remove from site and properly dispose of materials showing signs of mold and mildew, including materials with moisture stains.

E. IAQ Plan Implementation:

1. IAQ Manager: The Construction Supervisor shall designate an on-site person responsible for instructing workers and overseeing and documenting results of the Construction IAQ Management Plan for the Project.

2. Distribution: The Construction Supervisor shall distribute copies of the Construction IAQ Management Plan to the jobsite foreman, each Subcontractor, OWNER’s Project Manager, and the Designer.

3. Instruction: The Construction Supervisor shall provide on-site instruction of appropriate procedures and methods to be used by all parties at the appropriate stages of the Project.

4. Preconditioning: Allow products, which have odors and significant VOC emissions, to off-gas in a dry, well-ventilated space for sufficient period to dissipate odors and emissions prior to delivery to Project.

5. Remove containers and packaging from materials prior to conditioning to maximize off-gassing of VOCs.
6. Condition products in ventilated warehouse or other building.

1.14 ENCLOSES

A. Provide temporary, insulated, weather tight closures of openings in exterior surfaces for providing acceptable working conditions and protection for materials, allowing for heating during construction, and preventing entry of unauthorized persons. Provide doors with self-closing hardware and locks.

B. All utilities including electric ducts, conduits, telephone lines, sprinklers, and other utilities shall be protected against damage from construction activity. The Construction Supervisor shall be responsible for all damage to the utilities from construction and shall repair all such damage at no additional cost to OWNER.

C. Provide temporary partitions and ceiling as required to separate work areas from occupied areas, to prevent penetration of dust and moisture into occupied areas, to prevent damage to existing areas and equipment. Construction shall be framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces; (STC rating 35 in accordance with ASTM E900. Flame Spread Rating of 25 in accordance with ASTM E84. Paint surfaces exposed to view in occupied areas.)

1.15 CLEANING DURING CONSTRUCTION

A. Unless otherwise specified under the various Sections of the Specifications, the Construction Supervisor shall perform clean-up operations during construction as herein specified.
   1. Refer to Section 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL for additional requirements.

B. Control accumulation of waste materials and rubbish; periodically dispose of off-site in a legal manner. The Construction Supervisor shall bear all costs, including fees resulting from such disposal.

C. Clean interior areas prior to start of finish work and maintain areas free of dust and other contaminants during finish operations.

D. Maintain project in accordance with all local, State, and Federal Regulatory Requirements.

E. Store volatile wastes in covered metal containers and remove from premises.

F. Prevent accumulation of wastes which create hazardous conditions.

G. Provide adequate ventilation during use of volatile or noxious substances.
H. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
   1. Do not burn or bury rubbish and waste materials on site.
   2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
   3. Do not dispose of wastes into streams or waterways.
   4. Identify potential sources of cleaning water runoff and propose abatement procedures.

I. Use only those materials which will not create hazards to health or property and which will not damage surfaces.

J. Use only those cleaning materials and methods recommended by manufacturer of surface materials to be cleaned.

K. Execute cleaning to ensure that the buildings, the sites, and adjacent properties are maintained free from accumulations of waste materials and rubbish and windblown debris, resulting from construction operations.

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

M. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal dump site (DES approved).

N. Handle material in a controlled manner with as few handlings as possible. Do not drop or throw materials from heights.

O. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not damage surrounding surfaces.

1.16 FIELD OFFICES

A. The Construction Supervisor shall provide and maintain temporary field offices.

B. The Construction Supervisor shall provide a suitable field office on site for its own use. The location shall be at the discretion of the OWNER.

C. One digital camera capable of recording images on an external memory card.
   1. Camera shall be capable of minimum 10.0 Megapixels photos with a minimum 3X Optical Zoom.
   2. Camera shall also be capable of recording video with sound.
   3. Provide four (4) compatible 4-Gigabyte memory cards.
   4. Provide two (2) sets of compatible rechargeable lithium ion batteries with battery charger.
5. Any piece of equipment that becomes inoperable shall be replaced with new equipment within 10 business days.

D. One 2-foot-long electronic ‘smart level’ with an accuracy of 0.1 degree.

1.17 SANITARY FACILITIES

A. The Construction Supervisor shall provide suitable toilet facilities for its staff, Representatives of OWNER and OWNER, the Engineer(s), and additional facilities for the workmen on the job, including personnel of Trade Contractors.

B. Sanitary facilities: Provide self-contained single-occupant chemical toilet units, wash facilities and drinking water fixtures, and in quantities required by OSHA regulations.
   1. Existing facilities located in OWNER buildings may not be used by the Contractor’s personnel.
   2. Locate sanitary facilities within the fenced construction zone.
   3. Permanent facilities located in completed work may not be used by the Contractor’s personnel.
   4. Chemical toilets and their maintenance shall meet requirements of state and local health regulations and ordinances and shall be subject to the approval of the Resident Engineer and Designer.
   5. Upon completion of new toilet facilities, the Awarding Authority’s Project Manager may at its discretion, designate a specific toilet area to be used for the Construction Supervisor and Trade Contractors engaged in the Work. However, Construction Supervisor shall take responsibility for maintenance and cleaning of such areas and shall leave them in first class condition equal to the accepted conditions of toilet facilities not used for construction personnel.

1.18 FIRST AID AND FIRE EXTINGUISHERS

A. First aid supplies: Comply with governing regulations.

B. Fire extinguishers: Provide and maintain on site, adequate fire extinguishers UL rated for A-B-C type fires. Provide red-painted plywood standards for each extinguisher. Additionally, provide a dry chemical fire extinguisher at each location where welding, torch cutting, and other similar hazardous work is in progress.
   1. At welding and heat cutting work: Provide not less than a Multi-purpose dry chemical type (mono ammonium phosphate) fire extinguisher, 20-pound capacity, multi-purpose rated “2A, 120 B:C”.

1.19 CONSTRUCTION BARRIERS

A. Proper construction barriers shall be provided around the contract work areas as
defined by the Contract Drawings or as directed by the Resident Engineer.

B. Construction barriers shall consist of traffic cones, ribbons, tapes, secure fencing, trench covers, wood barriers, warning signs, directional signs, and other traffic materials to keep traffic and people from area of construction and maintain ongoing operations.

C. Barriers shall be erected at such approved locations as are necessary, sufficiently cross-braced and supported adequately from floors and ceilings as required.

1.20 PARKING

A. Parking: Parking spaces limited and the Owner will not provide designated parking lot spaces near the construction site for the Construction Supervisor’s use. The Construction Supervisor will be required to pay all fees for parking. The Construction Supervisor shall state his/her parking and staging area requirements during the Pre-construction Meeting. The area(s) for materials storage will then be agreed to between the Construction Supervisor and OWNER. The limits of material storage will be delineated by the Construction Supervisor with construction fencing and enforced throughout the Contract.

1.21 DEBRIS CONTROL AND REMOVAL

A. Debris shall not be permitted to accumulate or migrate, and the work shall at all times be kept satisfactorily clean. Facility trash receptors shall not be used for the disposal of debris. Dumpster shall be provided by the Construction Supervisor for removal of debris for all Subcontractors.

B. Remove debris from the work site on a daily basis and dispose of same at any (private or public) DES approved dump that the Construction Supervisor may choose providing that the Construction Supervisor shall make all arrangements and obtain all approvals and permits necessary from the owner or officials in charge of such dumps. Proposed dump site shall be submitted to be approved by Designer and OWNER prior to start of demolition. During disposal process, copies of daily receipts from dumpsite shall be submitted on a regular basis.

1.22 SAFETY PROTECTION

A. At no time shall the work be left unattended without proper safety protection and shall not be left unprotected to the weather and accessible to the public. It is the responsibility of the Construction Supervisor to maintain proper safety protection for the public while work is in progress or unattended.

1.23 VEHICLE AND EQUIPMENT PROTECTION

A. All construction activities shall be performed in such a manner so as not to dust, stain or damage any building elements, equipment, vehicles, etc. within general vicinity of the construction work area. Any damage to these items shall be cleaned and repaired at the expense of the Construction Supervisor.
1. All construction vehicles and equipment on site shall be effectively disabled and secured when not in use.

1.24 SHORING

A. The Subcontractors shall provide all temporary shoring and bracing as required for the proposed work. Comply with all applicable codes and standards.

1.25 CONSTRUCTION FENCE

A. A construction fence shall be provided along the entire perimeter of the contract limit lines and shall be kept in good repair at all times and shall be arranged to maintain ongoing operation’s access and egress.

B. Construction fence: Provide an 8-foot-high commercial grade chain link fence around construction site; equip with vehicular and pedestrian gates and locks.

1. Relocation of all fences and gates as required due to construction phasing. Relocations shall be provided at no additional cost to the Owner.

2. Vehicular and Pedestrian Gates: Build into fence at approved locations. Provide gates with cross-bracing and hung on heavy strap hinges with post and hook for double gates. Provide heavy hasps and padlocks.

   a. Provide a set of three keys for each lock to OWNER’s Project Manager and Resident Engineer to facilitate emergency access.

C. Emergency Key Cabinet: Provide emergency access key cabinet (“Knox Box”): medium duty, surface mounted. Locate emergency key cabinet in readily-accessible location outside of fence line. Provide keys for emergency key cabinet to Owner’s designated representative(s).

   1. Inside emergency key cabinet maintain keys for fence entrance gates, and construction core keys for building, once it is closed in.

D. Fence, General: Fence shall be industrial-grade, heavy-duty construction: Galvanized fabric with galvanized frame.

   1. Chain link fabric shall be made of coated-steel, 9 gage (0.148 inch) core wire woven in 2-inch uniform mesh, height (roll width) to suit fence height, with bottom selvage knuckled, top selvage twisted, with woven fabric having a minimum breaking strength of 1290 pounds.

      a. Construction privacy and containment mesh: 80 to 85 percent privacy (15 to 20 percent open) 100 percent polyethylene mesh having weight of approximately 5.1 ounces per square yard, color green. Provide with four-ply sewn hems, reinforced with 2-inch-wide 18-ounce vinyl-coated UV resistant polyester tape. Finish hem width is 1 inch. Furnish with number 2 size brass grommets at 12 to 18 inches on-center, along hemmed edges.

      1) No advertising signage, logos or graphics are permitted on screening.
2. Framework: Posts and rails shall be sized as detailed on the drawings, Type 1 seamless steel pipe, ASTM A-120, standard weight schedule 40, hydrostatic testing waived.

3. Gate Posts: Standard weight pipe 2-7/8 inches OD nominal weight, 5.79 pounds per foot.

4. Gate Frames: 2 inches OD standard weight pipe, 2.73 pounds per foot with heavy malleable iron or pressed steel corner fittings securely riveted. Fabric to match the fence shall be installed in the frame by means of tension bars and hook bolts. Each frame to be equipped with 3/8 inches diameter adjustable truss rods.

5. Bottom hinges to be ball and socket type designed to carry the weight of the gate on the post footing. Upper hinge to be wrap around adjustable type. All gates to be equipped for padlocking and with semi-automatic outer catches to secure gates in opened position.

6. Fittings: Pressed steel or malleable iron, hot-dipped galvanized conforming to the requirements of ASTM A153. Tie wires shall be minimum nine-gage galvanized wire. Attachment bolts shall be galvanized.

7. Post Settings: Driven into ground. Temporary concrete bases may be considered where fencing is scheduled for relocation.

E. Fencing shall be removed by the Construction Supervisor at no cost to the City at such time before final completion as the Designer directs. Restore site to acceptable condition after removing fence.

1.26 DELIVERY OF MATERIALS

A. All Materials shall be delivered to the Construction Supervisor’s or Trade Contractor’s Manager’s warehouse or may be delivered to the site if the Construction Supervisor’s representative is present to receive them.

B. No materials will be received by Owner personnel, either on site or at the Owner’s shipping and receiving dock.

1.27 SHUT DOWN NOTICE

A. The Construction Supervisor shall notify the Designer, OWNER’s Project Manager, and designated OWNER staff, at least fourteen (14) Working Days in advance, of the need for Owner personnel to shut down or modify any utilities or building systems. If, due to Owner emergencies or staffing shortages, the Physical Plant personnel are unable to provide the required shut down or modifications, the Construction Supervisor shall reschedule their work at no cost to the Awarding Authority.

1.28 EXCAVATIONS AND FIELD SURVEY REQUIREMENTS

A. Prior to the backfill of any underground utility, the Construction Supervisor shall notify the Engineer, 24 hours prior to any such activity. The Construction Supervisor shall
provide all survey services required for the work, including establishing and reestablishing construction control, resetting of stakes and monuments and performing surveys needed for restoration of public and private improvements and monumentation that have been damaged, destroyed or relocated by the Construction Supervisor.

B. The Awarding Authority and OWNER reserve the right to request Survey Field data and as-built field data on an as needed basis during the construction contract and at no additional cost to the Awarding Authority.

C. All site and utility work, including as-built documentation, shall incorporate the use of N.V.D 1988 and NH State Plan Coordinate System per the City of Manchester Standard Specifications. The Construction Supervisor shall deliver a comma delineated as-built file or files designating each individual utility being as-built. Each point as-built shall have five fields, point number, northing, easting, elevation and descriptor.

1.29 FIRE PREVENTION MEASURES

A. Prior to commencement of work at the site, the Owner's Representative, Construction Supervisor, and Construction Supervisor shall meet with the Local Fire Marshal to plan site and building access in the event of fire.
   1. Access paths for heavy firefighting equipment shall be laid out and maintained.
   2. Free access from streets to fire hydrants and to outside connections for standpipes, sprinklers or other fire extinguishing equipment shall be provided and maintained.

B. The Construction Supervisor shall take all necessary precautions for the prevention of fire during construction. Install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes. Ascertain and comply with requirements of Project insurance carrier, local fire department and the state fire marshal.
   1. Maintain the area within contract limits orderly and clean.
      a. Remove combustible rubbish promptly from the site and when required, store combustible materials in containers in fire-safe locations.
   2. Maintain clear access to exits from within the building.
   3. Smoking is not permitted in the building or adjacent areas.

C. Establish procedures for fire protection for welding, cutting and open torch work, and other potentially hazardous operations. Obtain permission from local authorities having jurisdiction for such work as required by law. Provide special fire extinguishers at welding and torch cutting work.
   1. After Owner occupancy or partial occupancy: Maintain a fire watch when fire protection and warning systems have been temporarily de-activated. Maintain watch during all working hours for full period of de-activation.
   2. The Construction Supervisor will assign personnel to inspect all construction
areas at the end of each day’s work for fire hazards prior to lock-up.

D. Provide for outside storage of gas tanks, sufficiently clear of any structure. Promptly remove welding and cutting equipment from the building when no longer required. Do not store welding or cutting materials within the building when work is not being performed.

E. Permanent fire protection system may be activated to meet these requirements. Replace fusible link heads and other expended or discharged components at time of Substantial Completion.

1.30 REMOVAL OF TEMPORARY UTILITIES, CONTROLS, AND FACILITIES

A. Remove temporary materials and construction prior to Substantial Completion.
   1. Do not remove erosion control devices until after all disturbed earth has been paved or vegetated.

B. Remove underground work and compacted materials to a depth of 2 feet; fill and grade site as specified.

C. Restore existing facilities used during construction to original conditions. Restore permanent facilities used during construction to specified condition.

D. Clean and repair damage caused by installation or use of temporary work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION
SECTION 015726
SITE WATERING FOR DUST CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General Conditions and other Specification Sections apply to this Section.

1.2 SUMMARY
A. Section Includes:
   1. Materials.
   2. Construction methods.
B. The work to be done under this Section consists of furnishing all materials, labor, tools and equipment, and performing all operations necessary to complete all calcium chloride applications for dust control.
C. Work associated with this Section is found in other Sections of the Contract. The Contractor shall comply with all Sections of the Contract in construction of the elements of this Section.

PART 2 - PRODUCTS

2.1 MATERIALS
A. CALCIUM CHLORIDE shall conform to AASHTO Standard Specification M 144, Type I or Type II. The calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
B. Calcium chloride failing to meet the requirements of the aforementioned specifications or that which has become caked or sticky during shipment may be rejected by the Engineer.
PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

A. Calcium chloride shall be applied when ordered by the Engineer or Owner and only in areas which will not be adversely affected by the application.

B. Calcium chloride shall be uniformly applied at the rate of 1-1/2 pounds per square yard or at any other rate as directed by the Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be determined by the Engineer.

C. Care shall be taken to avoid application of calcium chloride on any paved surfaces. If calcium chloride is applied to paved surfaces, the affected surfaces shall be immediately cleaned of all calcium chloride.

END OF SECTION
SECTION 015813
TEMPORARY PROJECT SIGNAGE

PART 1 - GENERAL

1.1 GENERAL PROVISIONS
A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY
A. Furnish and install temporary signage for duration of Project until Substantial Completion. Temporary signage includes:
   1. Project identification sign.
   2. Project informational and wayfinding signs.
   3. Warning and safety signage.
B. Install project identification banners on construction fence.

1.3 RELATED REQUIREMENTS
A. Section 01 50 00 – Temporary Facilities and Controls.

1.4 QUALITY ASSURANCE
A. Design sign and structure to withstand 50 miles/hr wind velocity.
B. Sign Painter: Experienced as a professional sign painter for minimum three years.
C. Finishes, Painting: Adequate to withstand weathering, fading, and chipping for duration of construction.

1.5 SUBMITTALS
A. Information and Review Submittals: Submit the following under provisions of Section 01 33 00 - SUBMITTAL PROCEDURES:
   1. Shop Drawings: Indicated sign construction, sign content, layout, and lettering. Indicate all colors used.
PART 2 - PRODUCTS

2.1 SIGN MATERIALS - GENERAL

A. Structure and Framing: New, wood or metal, structurally adequate.

B. Sign Surfaces: Exterior grade plywood with medium density overlay, minimum 3/4-inch-thick, standard large sizes to minimize joints.

C. Rough Hardware: Galvanized, aluminum, or brass.

D. Paint and Primers: Exterior quality, two coats; sign background of color as selected.

E. Lettering: Pre-cut vinyl self-adhesive products, colors as selected.

2.2 PROJECT IDENTIFICATION SIGN

A. Sign design request: Construction Supervisor shall obtain from Designer electronic files having layout, language and graphics required for the Project Identification Sign. Request from Designer in sufficient time that sign can be fabricated and erected at start of on-site construction.

1. At Owner’s option, the Owner may furnish project identification banners to be installed by the Construction Supervisor, on the construction fence.

B. Project Sign: If requested, provide 8-foot-wide by 6-foot-high foot project sign of exterior grade MDO plywood and wood frame construction, painted, and having self-adhesive color film facing, with printed text and reproduction of project rendering, and Owner logo.

1. Sign Construction:

   a. Sign shall be fabricated from 1-inch thick MDO exterior grade plywood laminated with waterproof glue (Exposure 1).

   b. Edge band sign with 1 inch by 1/2-inch pressure preservative treated wood.

   c. Sign shall be supported by two 4 by 4-inch post supports set in 12-inch diameter concrete footings to a below-grade depth of four feet. Posts shall be of length such that sign bottom is raised 4 feet above grade.

      1) Securely fasten sign to posts with four 5/16-inch diameter bolts per post, with washer at front and back of each bolt.

      2) Provide alternative method of support if required by site conditions and approved by the Designer.

   d. Nails, bolts, and connecting hardware shall be hot-dipped galvanized.

   e. Paint sign prior to application of graphic film. Surfaces and edges of sign
shall receive two (2) coats of exterior primer and two (2) coats of exterior gloss enamel – color white.

2. Graphic Film:
   a. Color prints for rendering and graphics shall be 3M Scotchprint marking film series 8640 or equal, 4 mil thickness, “ControlTac” vinyl film as manufactured by 3M company having a positionable pressure activated pigmented adhesive.
   b. Overlay protecting film, Scotchprint Film, clear overlaminating film, as manufactured by 3M company.

C. Locate and install the Project sign at location directed by the Designer.

2.3 PROJECT INFORMATIONAL AND WAYFINDING SIGNS

A. General: Painted informational signs of same colors and lettering as Project Identification sign, or standard products; size lettering to provide legibility at 100-foot distance.

B. Information and wayfinding signage: Provide at each field office, storage shed, and directional signs to direct traffic into and within site. Relocate as Work progress requires.
   1. Signage at perimeter of construction site: Provide clear and visible warning signage with appropriate language such as: “Prohibited Access – Hard Hat Only – No Admittance – Authorized Personnel Only”.

C. Traffic signage: Provide municipal; state traffic agency directional traffic signs to and within site. Sign materials, sizes, and components shall comply with the Manual of Uniform Traffic Control Devices (MUTCD).
   1. Provide temporary project signage as needed to direct construction vehicles to and around the project site, and for improving safety and productivity on the site.

D. Conservation sign: Provide painted white sign not less than two square feet or more than three square feet in size bearing the words “NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICE, FILE NUMBER 000-000”. Locate sign where directed.

2.4 ADVERTISING SIGNAGE

A. General: Advertising signage identifying any company is prohibited from placement on cranes, or any other temporary or permanent structures, unless expressly authorized by Owner.

PART 3 - EXECUTION
3.1 INSTALLATION - GENERAL

A. Install project identification sign prior to commencement of on-site work.

B. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.

C. Install signs with surfaces plumb and level. Anchor securely.

D. Paint exposed surfaces of signs, supports, and framing.

3.2 MAINTENANCE

A. Maintain signs and supports clean, repair deterioration and damage.

3.3 REMOVAL

A. Remove all temporary signs, framing, supports, and foundations immediately prior to Project Substantial Completion, and restore site where ground mounted, restore substrates where mounted to building components.

END OF SECTION
SECTION 016000
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
1. Definition of terms
2. Basic product requirements
3. Recycled content of materials
4. Regional materials
5. Owner furnished products
6. Product delivery and handling requirements
7. Product storage and protection requirements
8. Mold protection
9. Manufacturer’s instructions
11. Installation
12. Standard products and substitutions
13. Electrolytic corrosion protection (if applicable).
14. Openings, sleeves and chases
15. Guarantees

B. All equipment, materials, instruments, or devices incorporated in this project shall be new and unused, unless indicated otherwise in the Contract Documents.

C. Materials and equipment to be incorporated in the work shall be delivered sufficiently in advance of their installation and use to prevent delay in the execution of the work, and they shall be delivered as nearly as feasible in the order required for executing the work.

D. Work associated with this Section is found in other Sections of the Contract. The Contractor shall comply with all Sections of the Contract in construction of the elements of this Section.

1.3 DEFINITION OF TERMS

A. “Products” is defined as new material, machinery, components, equipment, fixtures, and systems used in the Work. Products do not include machinery and equipment used
for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for re-use.

B. "Materials" are products that are shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

C. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

D. “Fasteners” include all products required for mechanical connections and include, but are not limited to: nails, screws, bolts, expansion bolts, chemical bolts, epoxy anchors, pins, powder-actuated devices, and similar fasteners, anchors, and connections.

E. Definitions in this article are not intended to negate the meaning of other terms used in Contract Documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", "special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

1.4 BASIC PRODUCT REQUIREMENTS

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

1. Where possible utilize materials harvested and manufactured regionally, within a 500-mile radius of the project site. Refer to Regional Materials Article herein this Section.

2. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

B. To the fullest extent possible, provide products of the same kind, from a single source.

C. Provide interchangeable components of the same manufacturer, for similar components.

D. When the Contractor has the option of selecting two or more products, ensure that products selected shall be compatible with products previously installed or approved.

E. Provide all products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.

F. Galvanic Corrosion: Install materials in manner which will effectively isolate dissimilar metals which may potential for galvanic corrosion. Use non-absorptive dielectric material, isolation coatings, or other protective isolator approved by Architect.
G. Fasteners, Anchors, and Connections: Provide all fasteners, anchors, and connections needed to safely, securely, and appropriately secure all Work permanently in place.

1. General: The Contractor is solely responsible for the capacity, suitability, adequacy, and safety of all welded, fastened and anchored connections.
   a. Comply with applicable code requirements regarding fastener selection and installation.
   b. Provide at least two fasteners for each individual item being fastened.
   c. Utilize fastener manufacturer’s published load tables for working loads to assist in determining fastener size and space. Do not use ultimate load capacity in determining fastener selections.
   d. Provide a minimum safety factor of 4.
   e. Select and utilize fasteners having minimum galvanic corrosion factor.
   f. Hydrogen embrittlement prevention:
      1) Do not use high-strength and low-alloy fasteners which have been subjected to an acid pre-treatment (because they can become brittle and fail), utilize instead equivalent capacity and size bi-metal, stainless steel or high strength aluminum fasteners, as appropriate to the conditions and materials where being used.
      2) Utilize low-hydrogen electrodes for welding high-strength steels to prevent hydrogen embrittlement.

2. To permit the Contractor control over means and methods, some fastener conditions may not be fully defined in the Contract Documents. In particular, individual specification sections that require delegated independent engineering. In such instances the Contractor is fully responsible to determine method of fastening appropriate for each condition. The Contractor shall take into consideration substrate material(s) and product(s) being fastened, live and dead loading, and both atmospheric and visual exposure considerations. Contractor is responsible to determine fastener type, material, finish, size, diameter, length and spacing.

3. Torque structural fasteners as recommended by fastener manufacturer, or as otherwise specified in the Contract Documents.

H. Permanent Labels and Nameplates:

1. Restrictions:
   a. Do not provide exposed-to-view labels, nameplates, or trademarks which are not required by code, or regulations.
   b. Do not expose manufacturers, suppliers, or installer's name, logo, or trade names on normally visible surfaces.
   c. Do not provide labels, nameplates or trademarks when individual specification sections specifically exclude them.
   d. All exposed-to-view advertising and name-brand labels shall be fully
removed without damage to substrate finish.

2. Location for required labels: Required labels, approval plates and stamps shall be located on a concealed surface, or where required for observation after installation on accessible non-conspicuous surface.

3. Data Plates: Provide permanent data plate on each item of service-connected or power-operated equipment.
   a. Data Plate Information: Include manufacturer, model, serial number, date of manufacture, capacity, ratings, power requirements, and all other similar essential data.
   b. Locate data plates on easily accessible surface that is inconspicuous in occupied spaces.

I. General: Prohibit the use of or incorporation into the work of materials which contain toxic, hazardous and harmful materials.

1.5 OWNER FURNISHED PRODUCTS

A. Owner Furnished Products: As provided in the General Conditions, the Owner will provide products by others under a separate agreement.

1. Owner’s responsibilities regarding Owner furnished products:
   a. Arrange for and deliver Owner reviewed shop drawings, product data, and samples to Contractor.
   b. Arrange and pay for product delivery to site.
   c. On delivery, inspect products jointly with Contractor.
   d. Submit claims for transportation damage, and replace damaged, defective, or deficient items.
   e. Arrange for manufacturers’ warranties, inspections, and service agreements.

2. Contractor’s responsibilities regarding Owner furnished products:
   a. Review Owner reviewed shop drawings, product data, and samples to Contractor.
   b. Handle, store, and provide temporary protection.
   c. Repair or replace items damaged after receipt.
   d. Provide protection of installed work.
   e. When not installed under this Contract, the Contractor shall coordinate Owner installed work with interfacing work of this Contract. The Contractor shall provide temporary protection and final cleaning of Owner installed products, except as directed otherwise.

3. Items noted in Drawings as “Not in Contract” or “N.I.C.”, identify work or products which either exist, or are furnished by Owner; such work requires coordination with the Work of this Contract and may even require installation by
B. The Contractor has coordinating responsibility for Testing laboratory services as identified under Section 014529 - TESTING LABORATORY SERVICES and as specified under individual specification sections.

1.6 PRODUCT DELIVERY AND HANDLING REQUIREMENTS

A. General: Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to transportation and handling of materials and equipment.

B. Transport and handle products in accordance with manufacturer’s instructions and as specified in individual specification sections.

1. Packing: Arrange for the return of packing materials, such as wood pallets, where economically feasible.

2. Ductwork: All ductwork shall be sealed from time of manufacture, with seals intact upon delivery to construction site, and remain so, until ready for installation. Contractor is jointly responsible with HVAC&R subcontractor to ensure ducts are properly sealed and maintained.
   a. Store ductwork in clean dry conditions and keep sealed while it is stored.

C. Packaging: Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or reusable blankets, which will be reclaimed by supplier or manufacturer for recycling.

1. General: Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.
   a. Unacceptable Packaging Materials: Polyurethane, polyisocyanurate, polystyrene, polyethylene, and similar plastic materials such as “foam” plastics and “shrink-fit” plastics.
   b. Reusable Blankets: Deliver and store materials in reusable blankets and mats reclaimed by manufacturers or suppliers for reuse where program exists or where program can be developed for such reuse.
      1) Non-returnable containers should be donated to local and community organizations to the greatest extent possible to reduce quantity of disposed materials.
   c. Pallets: Where pallets are used, suppliers shall be responsible to ensure pallets are removed from site for reuse or for recycling.
   d. Corrugated Cardboard and Paper: Where paper products are used, recycle as part of construction waste management recycling program, or return to material’s manufacturer for use by manufacturer or supplier.
   e. Sealants, Paint, Primers, Adhesives, and Coating Containers: Return to supplier or manufacturer for reuse where such program is available.

2. Purchase materials in bulk where possible. Take measures to avoid individual
packaging for volume purchases.

D. Schedule deliveries to avoid delays in installation of products, to minimize long-term storage, to prevent overcrowding of construction spaces and to limit potential damage to stored materials. Coordinate with installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.

E. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.

F. Provide equipment and personnel to handle and store products by methods to prevent soiling, disfigurement, or damage.

1.7 STORAGE AND PROTECTION

A. All materials and equipment at the job site that are to be incorporated in the contract work and that are the responsibility of the Contractor, shall be adequately stored and protected from damage until completion of the contract work.

B. The Contractor shall be responsible for protecting all materials and equipment furnished by him and for protecting materials and equipment for the contract work which are furnished by the Owner or Others. Responsibility shall be vested in the Contractor for materials and equipment furnished by the Owner when they have been delivered to the job site by the transporting vehicle. The Contractor shall report in writing to the Owner, within 24 hours after receipt at the job site of the materials and equipment, whether there is any shortage or damage. Unless specified otherwise in these specifications, responsibility shall be vested in the Contractor for materials and equipment furnished by Others when such items are ready to be incorporated in or connected to the work of the Contractor.

C. The Contractor shall be responsible for all damage to any of the work covered by the Contract Documents before the final acceptance of the work.

D. Any materials, equipment, instruments, or devices of whatever kind which may have become damaged or deteriorated from any cause, shall be removed and replaced by good and satisfactory items at the Contractor’s expense for both labor and materials.

E. In general, equipment and materials awaiting installation shall be stored on a dry base at least six inches above ground or floor and shall be properly covered and secured to prevent damage from wind, rain, snow, or flooding. Equipment with moving parts and/or subject to moisture damage such as electrical and instrumentation devices, motors, etc., shall be stored in a dry, heated enclosure, and in accordance with the manufacturer's recommendations.

F. All equipment shall be stored fully lubricated with oil, grease, etc., unless otherwise instructed by the manufacturer.
G. Moving parts on stored equipment shall be rotated a minimum of once weekly to insure proper lubrication and to avoid metal-to-metal "welding". Upon installation of the equipment, the Contractor shall start the equipment and operate it at least half load once each week for an adequate period of time so as to ensure that the equipment does not deteriorate from lack of use.

H. Lubricants shall be changed upon completion of installation and as frequently as required thereafter, according to manufacturer's recommendations, during the period between installation and final acceptance. New lubricants, oil, grease, etc., shall be put into the equipment at the time of acceptance.

I. Prior to the Owner’s acceptance of equipment, the Contractor shall have the manufacturer inspect the equipment and certify that its condition has not been detrimentally affected by a long storage period. Such certifications by the manufacturer shall be deemed to mean that the equipment is judged by the manufacturer to be in a condition equal to that of equipment that has been shipped, installed, tested, and accepted in a minimum time period. As such, the manufacturer will guarantee the equipment equally in both instances. If such a certification is not given, the equipment shall be judged to be defective. It shall be removed and replaced at the Contractor’s expense.

J. General: Refer to the Contract and General Conditions and Specifications Sections for requirements pertaining to storage and protection of materials and equipment.

K. Store and protect products in accordance with manufacturer’s instructions and as specified in individual specification sections.
   1. Provide all necessary equipment and personnel to store products by methods to prevent soiling, disfigurement and damage.
   2. Avoid excessive material handling and potential product damage, locate storage areas convenient to work areas.
   3. Store and protect products with seals and labels intact and legible.
   4. Store and handle materials in a manner as to prevent loss from weather and other damage.

L. For exterior storage of fabricated products, place on sloped supports, above ground.

M. Provide off-site storage and protection when site does not permit on-site storage or protection.
   1. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation.
   2. Store sensitive products in weather-tight, climate-controlled enclosures.
   3. Prevent contact with material that may cause corrosion, discoloration, or staining.

N. Store loose granular materials on solid flat surfaces in a well-drained area; prevent mixing with foreign matter.
O. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

P. Store heavy materials in locations and in a manner that will not damage or disfigure existing, or new construction.

1.8 MOLD PROTECTION OF PRODUCTS PRIOR TO INSTALLATION

A. General:

1. Keep building materials dry to prevent the growth of mold and bacteria, including, but not limited to: gypsum wallboard, wood, porous insulation, paper, and fabric.

2. Cover materials to prevent rain damage, and if resting on the ground, use spacers to allow air to circulate between the ground and the materials.

3. Thoroughly dry all water damaged materials within 24 hours from time of moisture damage. Materials that have been damp or wet for more than 24 hours shall not be incorporated into the Work.
   a. Review moisture damaged materials for signs of mold and mildew, including any with moisture stains, from the site and properly dispose of them.
   b. Replace water damaged and moldy materials with new, undamaged materials.

1.9 MANUFACTURER’S INSTRUCTIONS

A. When work is specified to comply with manufacturers’ instructions, submit copies as specified in Section 013300 - SUBMITTAL PROCEDURES, distribute copies to persons involved, and maintain one set in field office.

B. Perform work in accordance with details of instructions and specified requirements.

1.10 CONSTRUCTION WASTE MANAGEMENT/DISPOSAL OF UNDESIRABLE MATERIALS

A. Source separation: Separate, store, protect, and handle at the site identified recyclable and salvageable waste products in order to prevent contamination of materials and to maximize recyclability and salvaging of identified materials. Refer to the Waste Management Requirements Plan specified under Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

B. Return: Set aside and protect misdelivered and substandard products and materials and return to supplier for credit.
C. Reuse and Salvage: Set aside, sort, and protect separated products and materials for collection, re-use by Owner, as designed for re-use on-site or designated for salvage by Owner’s separate waste recycling contractor.

D. Recycling: Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials. Refer to the Waste Management Requirements and Plan specified under Section 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL.

E. All unsuitable and waste materials shall be disposed of, off the Owner’s property in approved locations, in accordance with all rules, regulations, and ordinances governing such disposal, at no cost to the Owner. All excess materials that are not the property of the Contractor shall be disposed as directed by the Owner, and all excess materials belonging to the Contractor shall be removed from the Owner's property. Unsuitable, waste, excess, or other undesirable material shall not be disposed of in a manner so as to become a nuisance to other property users or owners, shall not be disposed of so as to cause a health hazard or ecological damage, and shall not be disposed of so as to cause an eyesore to the public.

F. All excess fill is the property of the Owner. It is the Contractor’s responsibility to contact the Owner to determine whether or not the Owner wishes to retain possession of the excess fill and where it shall be hauled to. If the Owner does not wish to retain possession of any or all of the fill, it shall be the Contractor’s responsibility to dispose of it in a legally approved and acceptable manner, at no cost to the Owner.

1.11 INSTALLATION

A. All materials and equipment shall be installed in accordance with the recommendations of the manufacturer and in accordance with the requirements of these specifications, to perform properly in the completed contract work, and to the satisfaction of the Owner and the Engineer.

B. All systems shall be completed and left in working order by the Contractor. All requirements of the Owner and the Engineer shall be satisfied by the Contractor.

C. The Contractor shall obtain written installation manuals from the equipment manufacturer prior to installation. A copy of all installation instructions shall be furnished to the Engineer’s field representative at least one week prior to installation of the equipment.

D. The contract prices for equipment shall include the cost of furnishing a competent and experienced engineer or mechanic who shall represent the manufacturer and provide help and guidance at the project site during installation of the equipment. For equipment such as pumping units, which require field alignment and connections, the Contractor shall provide the services of the manufacturer's qualified mechanic, millwright, or machinist to align the pump and motor prior to making piping connections or anchoring the pump base.
1.12 STANDARD PRODUCTS AND SUBSTITUTIONS

A. Unless otherwise mentioned in these specifications or shown on the drawings, the materials, fixtures, and equipment to be furnished for the contract work shall be standard products of those manufacturers regularly engaged in the production of such equipment and shall be the manufacturer's latest design. All materials, fixtures, and equipment shall comply with the requirements of these specifications and shall be suitable for proper performance in the completed contract work.

B. No request for substitutions will be considered after submission of proposals except for written emergency request made because of no availability of specified items, delay in delivery, or to adjust to unforeseen field conditions. The written emergency request for substitutions shall be accompanied with a photocopy of the letters from the supplier and manufacturer stating the reasons that they are unable to furnish the specified materials. No substitutions for those items mentioned in these specifications or shown on the plans shall be incorporated in the finished work unless written approval is received from the Engineer before purchase of those items and at least thirty days prior to the scheduled time the item is to be incorporated in the work.

C. Whenever in the Plans and Specifications any item of equipment or material is designated by reference to a particular brand, manufacturer, or trade name, it is understood that an approved equal product, acceptable to the Engineer and the Owner, may be substituted by the bidder or Contractor. The Engineer shall be the sole judge of whether a substituted product is equal to the specified product. In the event of acceptance of any alternate or substitution, it shall be the responsibility of the Contractor to coordinate such alternate or substitute items with all other items to be furnished to assure the proper fitting together of all items. Any additional cost incident to the coordination and/or fitting together of alternate or substitute items shall be borne by the Contractor at no extra cost to the Owner. Similar responsibility applies to items which are left to the Contractor’s option.

1.13 ELECTROLYTIC CORROSION PREVENTION (IF APPLICABLE)

A. In the course of the contract, the Contractor shall install the work to prevent galvanic action, bimetallic corrosion, anodic or cathodic action, and electrolysis at all electrical grounds and for all piping. The contact of dissimilar metals further apart than 0.3 on the galvanic scale (electromotive series or table of oxidation potentials) shall be avoided.

B. For convenience, common metals in this type of construction are listed below in their order on the galvanic scale.

<table>
<thead>
<tr>
<th>Electrode Potential</th>
<th>Volts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Magnesium</td>
<td>+2.37</td>
</tr>
<tr>
<td>Aluminum</td>
<td>+1.70</td>
</tr>
<tr>
<td>Zinc</td>
<td>+0.76</td>
</tr>
<tr>
<td>Chromium</td>
<td>+0.56</td>
</tr>
<tr>
<td>Iron and Steel</td>
<td>+0.44</td>
</tr>
<tr>
<td>Cadmium</td>
<td>+0.40</td>
</tr>
</tbody>
</table>
C. Unless otherwise indicated or required, dielectric insulators between ferrous and nonferrous pipe and equipment shall be provided.

D. The Contractor shall comply with all requirements in the technical section of these specifications and on the drawings to prevent such corrosion.

1.14 OPENINGS, SLEEVES AND CHASES

A. The Contractor shall provide all openings, channels, sleeves, chases, inserts, etc. and install anchor bolts and other items to be embedded in concrete, as required to complete the contract work, including that which is required in the work of all other prime contractors (subcontractors). All such openings or chases shown on the Contract Drawings, or reasonably implied thereby, or as confirmed or modified by shop, setting, or erection drawings approved by the Engineer, shall be provided by the Contractor. The Contractor shall do all cutting and patching, except cutting and patching of materials of a specified trade and as stated otherwise in these specifications.

B. Where pipes or conduits are to pass through slabs or walls, or where equipment frames or supports are to be installed as an integral part of an opening, the sleeves, opening forms, or frames shall be furnished by the subcontractor responsible for installing the pipes, conduits, or equipment; but shall be placed by the Contractor. Subcontractors shall furnish all sleeves, inserts, hangers, supports, anchor bolts, etc., required for the execution of their work. It shall be the responsibility of each subcontractor, before the work of the Contractor is begun, to furnish the Contractor with the above items and with templates, drawings, or written information covering chases, sleeves, openings, etc., which they require. Each subcontractor shall follow up the work of the Contractor as it progresses, making sure that their written instructions and drawings are followed. When such items are secured in position, and prior to construction of the surrounding slab or wall, the subcontractor for whom the items are installed shall inspect and ascertain the proper number, locations, and settings thereof, and the Contractor shall schedule his operations so as to provide a reasonable opportunity and ample time for such inspection.

C. Any cost resulting from correction of defective, ill-timed, or mislocated work, or for subsequent work which becomes necessary because of omitted openings, chases, sleeves, frames, inserts, etc., shall be borne by the subcontractor responsible for such items. No Contractor shall arbitrarily cut, drill, alter, damage, or otherwise endanger the work of another Contractor. The nature and extent of any corrective or additional work shall be subject to the approval of the ENGINEER following consultation with the Contractors involved. In no case, shall beams, lintels, or other structural members be cut without the approval of the Engineer.
1.15 TIME OF DELIVERY

A. The Contractor shall notify all manufacturers or suppliers of materials, equipment, machinery, motors, etc., that they shall be required to state and guarantee a firm delivery date for all equipment which they offer to furnish. Delivery dates shall be as required by the Contractor to meet the approved progress schedule.

1.16 GUARANTEES

A. All equipment shall be guaranteed in accordance with the requirements of the General Conditions of these Specifications. Guarantee requirements may be added to or modified in the detailed equipment specifications in other sections of these Specifications.

PART 1 - PRODUCTS (Not Used)

PART 2 - PRODUCTS (Not Used)

END OF SECTION
PART 1 - GENERAL

1.1 SUMMARY

A. Work of this section includes Contractor's responsibilities for verifying existing grades indicated on the drawings, establishing and maintaining bench marks and reference lines, laying out buildings and appurtenances and coordinating locations of various trades work within the Work.

B. Related work specified elsewhere:
   1. Site preparation.
   2. Earthwork.
   3. Concrete.
   5. Mechanical.
   6. Fire protection.
   7. Electrical.

1.2 DUTIES

A. Contractor shall engage a licensed land surveyor or engineer, acceptable to Owner, to provide services and execute duties as specified.

B. General:
   1. Verify existing grades prior to beginning site preparation. If existing grades are at variance with drawings, notify Architect and receive instructions prior to proceeding.
   2. Verify limits of site preparation and earthwork operations. Locate adjacent buildings, appurtenances and trees to remain.
      a. Record lines and depths of rock, prior to rock excavation.
      b. Re-establish permanent monuments disturbed during construction.
   3. Verify locations and levels of buildings and appurtenances, including structural and facing components. Note variation from indicated locations and levels.
   4. Verify batter boards at building corners.
   5. Verify utility locations and pipe sizes, including new construction, existing utilities to which a tap-on is required, and other existing active and inactive utilities encountered during construction activity.
   6. Verify outside building lines to ensure correct position of buildings and appurtenances on project site. Make required surveys to fix and verify foundation locations and elevations, column centerlines, piers, walls, pits and trenches.
   7. Measure settlement of building during construction operations.
   8. Measure deflection in structural members.
9. Coordinate work of all trades where work is concealed above finish ceilings, below finish floors or within walls, particularly where contract drawings are diagrammatic. Coordinate locations of piping, ductwork, conduit, lighting fixtures and similar items.

C. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Construction Supervisor. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Supervisor before proceeding.

2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

D. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

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

E. Log: During the course of the Work, prepare a log containing all data observed as a result of field engineering. Maintain log for reference by the Owner and Architect.

F. Variances: Notify Architect, in writing, of on-site conditions which are at variance with the Contract Documents. Compare variations in locations, level, plumb and deflection with allowable tolerances given in the Contract Documents.

G. Certified Survey: On completion of foundation walls, major site improvements, and other work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

H. Final Property Survey: Engage a land surveyor to prepare a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey.

1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a site corner to a legal point.
2. Recording: At Substantial Completion, have the final property survey recorded by or with authorities having jurisdiction as the official "property survey."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 017329

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. Examination of existing conditions and acceptance of conditions.

1. Construction Supervisor shall appoint, employ, and pay for services of an independent firm (third party) to perform non-destructive survey and to locate and map all concealed utilities and reinforcement located within in situ concrete and structural concrete masonry.

B. Administrative and procedural requirements for cutting and patching, including attendant excavation and backfill as required to complete the Work. Construction Supervisor is responsible for coordinating all cutting and patching work, including but not limited to:

1. Perform non-destructive survey assessment prior to performing chipping, saw cutting, or core drilling through concrete and structural concrete masonry.

2. Perform all cutting, altering, patching, and fitting of the Work (new and existing) as necessary for the Work and the existing improvements. Fully integrate with existing and new construction, all cutting, alterations and patching, to present the visual appearance of an entire, completed, and unified project.
   a. Make all products and their components of the work fit together properly.

3. Provide openings in elements of the Work, and the patching of same, for penetrations required by all trades, including but not limited to mechanical, plumbing, fire protection and electrical work.
   a. Individual Trade Contractors are responsible for designated types of coring and drilling penetrations for piping, conduit, ducts and other penetrations as defined elsewhere in this Section.

4. Uncover work to provide for installing, inspecting, or both, of ill-timed work;

5. Remove and replace work not conforming to requirements of the Contract Documents or as otherwise determined to be defective.

6. Patch and match all surfaces and products disturbed or damaged by the Work.

7. Remove samples of installed work as specified for testing.
1.3 RELATED REQUIREMENTS

A. Section 024119 - SELECTIVE DEMOLITION

B. Individual product specification Sections
   1. Cutting and patching of not-exposed-to-view materials incidental to work of the Section.
   2. Core drilling (up to 8 inches in diameter) of interior building components, incidental to work of individual Sections.
   3. Cutting and Patching work of particular exposed-to-view finish work, performed by trades as specified herein.

1.4 REFERENCES

A. Referenced Standards: Comply with applicable requirements of the following standards and those others referenced in this Section, under the provisions of Section 014200 - REFERENCES. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.

1.5 SUBMITTALS

A. Submit written proposals to perform cutting and patching under provisions of Section 013300 - SUBMITTAL PROCEDURES. Describe cutting and patching procedures in advance of the time cutting and patching.
   1. Prior to start of Work, submit and obtain approval for concealed conditions survey company. Include name of company, address, and telephone number, and names of full time registered Engineers, specialists, and responsible officer.
   2. Submit a written request when cutting work at least three (3) business days in advance of executing any cutting or alteration which affects the following:
      a. Work of OWNER, or work being performed under separate Contracts.
      b. Structural integrity of any element in the project.
      c. Integrity of weather-exposed or moisture-resistant elements or systems.
      d. Integrity of any fire suppression, fire alarm, or life safety system.
      e. Interruption or disturbance of utilities service. List utilities that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
      f. Efficiency, maintenance, or safety of operational elements and systems.
g. Aesthetic and visual qualities of exposed-to-view elements.

h. Efficiency, operational life, maintenance, or safety of operational elements.

i. OWNER’s on-going operations,

j. OWNER’s schedule.

3. Include in the request:
   a. Identification of project.
   b. Location and description of affected work.
   c. Necessity for cutting, alteration, or excavation.
   d. Alternatives to cutting and patching.
   e. Effect on in situ structural, air barriers, or weatherproof integrity.
   f. Scope of proposed cutting, patching, alteration or excavation.
   g. List of tradespeople who will execute the work.
   h. Description of products to be used.
   i. Extent of refinishing and cleaning to be performed.
   j. Effect on work by OWNER, or work performed under separate Contract, and written permission of affected party.
   k. Date and time cutting and patching is scheduled to be executed.
   l. Cost proposal, when applicable.
   m. Written permission of separate contractor(s) whose work will be affected.

4. Review by the Designer does not waive the Designer's right to later require complete removal and replacement of Work found to be unsatisfactory.

5. Should conditions of Work or the schedule indicate a change of products from original installation, Construction Supervisor shall submit a request for substitution in accordance with Section 012513 - PRODUCT SUBSTITUTION PROCEDURES.

1.6 QUALITY ASSURANCE

A. Only tradespersons skilled and experienced in cutting and patching shall perform such Work.

B. Concealed Survey Company: Maintain a full-time specialist on staff to perform testing, and review concealed conditions mapping services.

   1. Concealed Survey Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either the National Bureau of Standards (NBS) Standards or accepted values of natural physical constraints.

C. In performing Work which requires cutting, fixing, or patching, Construction Supervisor shall oversee and ensure contractor(s) and subcontractors utilize best efforts to protect and preserve the visual appearance and aesthetics of the Project to the reasonable satisfaction of both Owner and Designer.
1.7 PERFORMANCE REQUIREMENTS

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

B. Structural elements: Do not cut and patch structural elements in a manner that would reduce the load-carrying capacity or load deflection ratio. Always obtain written approval of the cutting and patching proposal before cutting and patching structural elements.
   1. Do not drill through structural beams, slabs or columns. Core drilling through concrete block walls and stair platforms must be approved by the Designer.
   2. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.

C. Exposed elements:
   1. Employ original installer of new construction to perform cutting and patching for weather exposed and moisture resistant elements, and sight exposed surfaces.
   2. Employ an appropriate tradesperson to perform cutting and patching of existing weather-exposed and moisture-resistant construction, and exposed-to-view surfaces.

D. Penetrating elements: Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.

E. Visual requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would, in the Designer's opinion, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.
   1. General: Restore work with new products in accordance with the requirements of the Contract Documents.
   2. Engage a firm recognized and experienced in the trade or specialty operation required to cut and patch the exposed-to-view work listed below.
      a. Processed concrete finishes, including pre-cast concrete.
      b. Concrete masonry and brick masonry concrete
      c. Stonework concrete
      d. Preformed metal panels.
      e. HVAC enclosures
   3. Engage a firm recognized and experienced in firestopping for patching of existing firestopping, smoke seals and firesafing in compliance with applicable codes and as additionally required by authorities having jurisdiction. Comply with re-
F. Operational and safety limitations: Do not cut and patch operating elements or safety components in a manner that would reduce their capacity to perform as intended, or would increase maintenance, or decrease operational life or safety.

1. Obtain approval of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
   a. Primary operational systems and equipment.
   b. Fire resistance rated barriers and smoke barriers.
   c. Water, moisture, or vapor barriers.
   d. Membranes and flashings.
   e. Fire protection systems.
   f. Noise and vibration control elements and systems.
   g. Control systems.
   h. Communication systems.
   i. Conveying systems.
   j. Electrical wiring systems.

1.8 WARRANTY

A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void existing applicable warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Patching Materials: Use patching materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible. Use materials whose installed performance will equal or surpass that of the existing materials. Comply with specifications and standards for each specific product involved.

1. All materials used shall be approved by the Designer for consistency with the existing surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Pre-bid examination: Construction Supervisor and Trade Contractors shall inform themselves of existing conditions before submitting Contract Price and are fully responsible for carrying out all work required to completely and properly execute the
work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed on account of actual conditions which are inconsistent with those assumed, except for fully concealed conditions.

B. Examination - General: Inspect existing conditions prior to commencing Work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, inspect conditions affecting performance of work. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered.

C. Examination and Mapping of Concealed Conditions: Perform concealed conditions assessment prior to the start of demolition and cutting work. This includes all work involving chipping, saw cutting, or core drilling through designated building elements specified herein.

1. Independent Services: Construction Supervisor shall appoint, employ, and pay for services of an independent (third party) firm to perform non-destructive survey and to locate and map all concealed utilities and reinforcement.

2. Designated building elements requiring concealed conditions survey include, but are not limited to the following:
   a. Concrete suspended slabs and slabs-on-grade.
   b. Structural concrete walls and beams.
   c. Structural concrete masonry unit walls and partitions.
   d. Structural precast concrete building elements.
   e. Architectural precast concrete building envelope panels.

3. Survey shall identify concealed reinforcing and utility locations and identify depths from surface. Submit shop drawings of concealed conditions for chipping, saw cutting, and core drilling locations.
   a. Survey methods must employ the use of Ground Penetrating Radar (GPR), for all coring work.
      1) Perform GPR tests in accordance with ASTM D 6432.
   b. Additional survey methods may include X-ray, bore scope, or ultrasound.

4. Identify locations by marking slabs and identify all coring locations; review survey mapping and coring locations with both Designer and Owner prior performing Work.

5. The use of historical drawings does not alleviate the Construction Supervisor from meeting this requirement.

D. Layout of cutting and patching in masonry construction. After Construction Supervisor identifies areas requiring cutting and patching work. Masonry Trade Contractor shall indicate on walls the extent of masonry cutting work which will be performed by the Construction Supervisor. Necessary patching of openings will be performed by the Masonry Trade Contractor.
3.2 PREPARATION

A. Protection:
   1. Provide temporary supports to ensure structural integrity of the Work.
   2. Protect existing construction during cutting and patching to prevent damage.
   3. Provide protection from adverse weather conditions.
   4. Provide protection from elements for areas which may be exposed by uncovering work.

3.3 GENERAL CUTTING AND PATCHING

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

B. Execute cutting, fitting, and patching, including excavation and fill, to complete the work.
   1. Cut rigid materials using masonry saw or core drill. Pneumatic tools are not permitted without prior approval, from Designer
   2. Fit products together, to integrate with other work.
   3. Uncover work to install ill-timed work.
   4. Remove and replace defective or non-conforming work.
   5. Remove samples of installed work for testing, when requested.
   6. Provide openings in the work for penetration of mechanical and electrical work.

C. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining construction. Where possible, review proposed procedures with the original Installer; comply with the original Installer's recommendations.
   1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
   3. Cut through concrete and masonry using a cutting machine, such as a Carborundum saw or a diamond-core drill.
   4. Comply with requirements of applicable Division 31 - EARTHWORK Sections where cutting and patching requires excavating and backfilling.
   5. Where services are required to be removed, relocated, or abandoned, by-pass utility services, such as pipe or conduit, before cutting. Cut-off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
3.4 FINISHING OF PATCHED AREAS

A. General: Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break; for assemblies, refinish entire unit.

1. Patching: Patch with durable seams that are as invisible as possible, showing no evidence of patching and refinishing. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction Comply with specified tolerances.
   a. At penetrations of fire rated walls, partitions, ceiling or floor construction, completely seal voids with fire rated materials in accordance to applicable codes and regulations, and compatible to surrounding construction.
   b. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Provide vapor and air seal when penetrating existing vapor and air seals.
   c. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.

2. Where removing walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform color and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, extend final paint coat over entire unbroken surface containing the patch after the area has received primer and second coat. Extend re-painting to entire surface plane up to where plane changes direction.

3. Patch, repair, or rehang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

4. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:
   a. For continuous surfaces, refinish to nearest intersection.
   b. For an assembly, refinish entire unit.

5. Construction Supervisor is responsible to perform concealed conditions survey and review with Designer prior to performing coring and drilling work as specified under the Article “EXAMINATION”.

3.5 CORING AND DRILLING

A. Coring and Drilling of holes incidental to work of individual sections shall be performed by the trade requiring the penetration, except as follows:

1. Construction Supervisor is responsible to perform concealed conditions survey and review with Designer prior to performing coring and drilling work as specified under the Article “EXAMINATION”.

2. Coring and Drilling of holes greater than 8 inches in diameter in concrete decks and slabs.
3. Coring and drilling requiring patching of existing surfaces shall be performed by the Construction Supervisor with patching performed by the appropriate Trade Contractor or subcontractor.

4. The Construction Supervisor is responsible for coordinating core drilling in wall and roof surfaces leading to, or from, the outside of the Building.

5. The Construction Supervisor is responsible for coordination of all coring and drilling and resultant patches necessary for the completion of this Contract and for the quality and appearance of all patch Work in exposed-to-view finished materials.

3.6 CLEANING

A. Cleaning patched areas: Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove paint, mortar, oils, putty and similar items.

END OF SECTION
SECTION 017700
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 GENERAL PROVISIONS

   A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

   A. Closeout of incomplete work (punch list) requirements.
   B. Landscape repairs.
   C. Project Record Documents.
   D. As-Built Drawings.
   E. Operating and Maintenance Requirements
   F. Materials and Finishes Manual
   G. Closeout Requirements and Submittals.
   H. Conferences occurring after Substantial Completion.

1.3 RELATED REQUIREMENTS

   A. Section 017836 - WARRANTIES

1.4 PUNCH LIST REQUIREMENTS AND PROCEDURES

   A. Definitions:

   1. Contractor’s Punch List: Complete list of incomplete and incorrect Work prepared by the Contractor prior to request of Designer’s inspection for Certification of Substantial Completion. As a minimum the List shall include the following information for each work item:

      a. Location identification organized by Building, Area, Room Number, or combination thereof as appropriate to project.
      b. Clear identification of each incomplete work item, including all
subcontractor’s work.

c. Estimated value of each incomplete work item.

d. A short statement of why work is not complete.

e. Identify subcontract responsibility, as appropriate to each item.

2. Designer’s Punch List: A list of incomplete and incorrect Work prepared by the Designer, which modifies the Contractor’s Punch List, following review and acceptance of the Contractor’s Punch List.

B. Pre-Closeout requirements: Prior to requesting initial Designer’s inspection for Certification of Substantial Completion, submit to the Designer a full and complete list of all incomplete work items (Contractor’s Punch List).

C. Punch list procedures at Substantial Completion:

1. Designer will review submitted Contractor’s Punch List and determine whether it is suitable to proceed with the Substantial Completion Process.

   a. If the Designer determines that the amount of completed work is insufficient to be considered for Substantial Completion, the Designer will not proceed with the Punch List process until sufficient completion of the Project is achieved.

   b. The Designer will review the Contractor’s Punch List and if the Designer determines that it does not reflect proper identification of the incomplete and incorrect work, he/she will request a revision and resubmission of the Contractor’s Punch List.

   c. If the Designer determines that the amount of work indicated on the Contractor’s Punch List is excessive, the Designer will suspend its review until the scope of work identified in the Contractor’s Punch List is reduced to a level satisfactory to the Designer.

   d. When the Designer reviews and accepts the Contractor’s Punch List as being an accurate reflection of incomplete and incorrect work; the Designer will prepare and issue to the Contractor the “Designer’s Punch List”.

      1) The “Designer’s Punch List” will be based on the Contractor’s Punch List with modifications and additions as may be required.

      2) The “Designer’s Punch List” includes work which must be completed and corrected prior to final completion.

2. Upon receipt of the “Designer’s Punch List”, the Contractor shall immediately distribute the list to all subcontractors.

D. Completion of Punch List Work: Make reasonable efforts to ensure that all “Designer’s Punch List” items are completed or corrected within 14 calendar days from the date of the Designer’s Punch List” or within the Contract Time, whichever comes first.

E. Designer’s Final Inspection and review of Punch List Work:

1. After Contractor certification that all Punch List Work has been properly completed
the Designer will then perform the Final Inspection.

a. Incomplete Items: If the Designer discovers any incomplete or incorrect “Designer’s Punch List” items or any other deficiency in the work, the Designer will prepare a “Revised Punch List” which may also include other incomplete Contract requirements such as record documents, owner’s operation and maintenance manuals, warranties, and other Contract requirements. Designer’s site reviews of the Work for this “Revised Punch List” and any subsequent revised Punch Lists shall be performed as additional service to Owner, back-charged to the Contractor.

b. The Designer may assign a dollar value for each item of incomplete or incorrect work remaining.

F. Additional Inspections and related additional services fee: The Designer and the Designer’s consultants will provide two site inspections, one at Substantial Completion, and one to confirm that the “Designer’s Punch List” has been completed.

1. “Revised Punch List: If the Designer prepares and issues a “Revised Punch List: because of the Contractor’s failure to complete the Work, then the Owner shall compensate the Designer and the Designer’s consultants for their additional services and additional inspections. The payment for additional services and inspections will be back-charged to Contractor. The Owner will deduct the amount of the Designer’s additional services fee from final payment to the Contractor by Change Order.

1.5 GLASS REPAIRS

A. All broken or defective glass not required to be replaced under the provisions of Section 088000 - GLAZING, shall be replaced at the expense of the Construction Supervisor.

1.6 LANDSCAPE REPAIRS

A. All lawn areas used for contractor parking and material storage shall have the topsoil removed, the subsoil shall be loosened to 12” below finished grade, the topsoil shall be replaced and amended with a complete, slow release fertilizer, proof rolled and seeded with a restoration seem mix consisting of:

<table>
<thead>
<tr>
<th>PURE SEED</th>
<th>GERM.</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.72% KENTUCKY BLUE GRASS 85/80</td>
<td>95%</td>
</tr>
<tr>
<td>24.68% CREEPING RED FESCUE</td>
<td>85%</td>
</tr>
<tr>
<td>19.82% OMEGA III PERENNIAL RYE GRASS</td>
<td>95%</td>
</tr>
<tr>
<td>19.78% SATURN PERENNIAL RYEGRASS</td>
<td>95%</td>
</tr>
</tbody>
</table>

B. All lawn areas damaged by pedestrian or vehicular traffic due to the contractor’s operations shall be aerated. Aeration shall consist of 9”-10” deep infraction at areas free of tree roots and at areas within tree drip lines shall be aerated 1”-3” with a tow behind 3- point hitch aerator. If in the opinion of the Landscape Designer, the lawn areas require over-seeding or restoration, the following seed mixture shall be used at a rate to be determined:
1.7 PROJECT RECORD DOCUMENTS

A. General: Record documents shall reflect actual “as-built” condition and the products installed. Include all changes and deviations from original Contract Documents, and incorporate information from:
   1. Original Contract Documents
   2. Addenda
   3. Change orders
   4. Construction change directives
   5. Field directives, and instructions from the Owner, Architect or regulatory authorities having jurisdiction

B. Project Record Documents shall include products, systems and equipment which have been incorporated into the Work. Do not include generic manufacturers information, or information for equipment and materials which were not incorporated as part of the Work. Record Documents shall include, but are not limited to:
   1. Record Project Manual
   2. Project record drawings (as built drawings)
   3. Final Site Survey
   4. Operation and maintenance data, preventive maintenance instructions
   5. Materials and finishes manual
   6. Product warranties and bonds
   7. Maintenance contracts
   8. Record of all test reports and inspections
   9. Wall charts and data such as valve diagrams, electrical panel board directories, and similar information

C. Labeling and identification of Record Documents
   1. Clearly label all record documents with name of Project and the words “Record Document”.
   2. Date progressive entries of information as appropriate.
   3. Date Record Documents with the final submission date.

1.8 AS-BUILT DRAWINGS
A. As-built Drawings shall consist of all the Contract Drawings. As-built Drawings shall be kept up-to-date. Information from on-going Work shall be recorded on As-built Drawings within 48 hours of Work being performed.

B. The Construction Supervisor and each Trade Contractor shall be required to maintain one set of As-built Drawings, as the work relates to their Sections of the Specifications, at the site.

C. The As-built Drawings shall be stored and maintained in the Construction Supervisor’s field office apart from other documents used for construction. The As-built Drawings shall be maintained in a clean, dry, and legible condition and shall not be used for construction purposes.

D. As-built Drawings, as submitted by the Construction Supervisor shall be verified in the field by the Designer, or his Consultants. Verification by the Designer shall occur during the construction process and prior to the related work being completed and covered up.

E. The As-built Drawings shall be available at all time for inspection by the Awarding Authority, and Designer. All deficiencies noted shall be promptly corrected.

F. The following information shall be indicated on the As-Built Drawings:
   1. Record all changes, including change orders, in the location, size, number and type both horizontally and vertically of all elements of the project which deviate from those indicated on all the Contract Drawings.
   2. The tolerance for the actual location of utilities and appurtenances within the building to be marked on the As-built Drawings shall be plus or minus two (2) inches.
   3. The location of all underground utilities and appurtenances referenced to permanent surface improvements, both horizontally and vertically at ten (10) foot intervals and at all changes of direction.
   4. The location of all internal utilities and appurtenances, concealed by finish materials, including but not limited to valves, coils, dampers, vents, cleanouts, strainers, pipes, junction boxes, turning vanes, variable and constant volume boxes, ducts, traps and maintenance devices. The location of these internal utilities, appurtenances, and devices shall be shown by offsets to the column grid lines on the Drawings.
   5. Each of the utilities and appurtenances shall be referenced by showing a tag number, area served and function on the As-built Drawings.

G. At the end of each month and before payment for materials installed, the Construction Supervisor, each Trade Contractor, and agents of the State of New Hampshire shall review As-built Drawings for purpose of payment.
   1. If the changes in location of all installed elements are not shown on the As-Built Drawings and verified in the field, then the material shall not be considered as installed, and payment will be withheld.
H. Prior to the installation of all finish materials, a review of the As-built Drawings shall be made to confirm that all changes have been recorded. All costs to investigate such conditions shall be borne by the applicable party as determined by the Designer.

I. At the completion of the contract, each Trade Contractor shall submit to the Construction Supervisor a complete set of his respective As-built Drawings indicating all changes.
   1. Submit As-Built Drawings for review by Designer prior to Date of Project Substantial Completion.
      a. After checking the above drawings, the Construction Supervisor shall certify in writing on the title sheet of the drawings that they are complete and correct and shall submit the As-built Drawings to the Designer.
      b. As-Built Drawings shall be submitted electronically to the Designer, in a format which can be added to the complete plans as constructed.

J. The Designer will review As-Built Drawings and shall verify by letter to the Awarding Authority that the work is accurate and copy OWNER’s Project Manager. The Construction Supervisor shall incorporate all changes on the original drawings; thus, creating Record Drawings. The Designer shall submit to the Awarding Authority, electronic files in Autocad with two (2) sets of prints to be used for the final inspection of the project. Inaccuracies in As-built Drawings, as determined by the Designer and the Awarding Authority, may be grounds for postponement of the final inspection or delay the processing of final payment until such inaccuracies are corrected by the Construction Supervisor.
   1. Submit FINAL As-Built Documents to the Awarding Authority within 30 calendar days from Date of Project Substantial Completion

1.9 OPERATING AND MAINTENANCE REQUIREMENTS

A. General: Prepare data in the form of an instructional manual. Furnish manuals which contain all of the following groups of equipment:
   1. Special equipment and systems.
   2. Utilities and plumbing systems.
   3. Electrical systems.

B. Standards:
   1. Measurements: Provide all measurements in U.S. standard units such as feet and inches, pounds, and cfm; provide additional measurements in the "International System of Units" (SI).
   2. Abbreviations: Provide complete nomenclature of all parts of all equipment; include part numbers of all replaceable parts.

C. Schedule: At least three weeks (21 Calendar Days) prior to the time of turning over this contract to the Operating Agency for Use and Occupancy, or Final Acceptance, the
Construction Supervisor shall secure and deliver to Designer, three (3) complete, indexed files and three (3) CD or DVD copies, containing approved operating and maintenance manuals, shop drawings, and other data.

1. A copy will be returned after final inspection with Designer’s comments; Revise and resubmit all volumes to Awarding Authority within 30 Calendar days.

D. Furnish bound and properly identified Manuals prior to request for Final Acceptance.

1. Manuals shall be in 8-1/2 by 11-inch pages and bound in three “D ring” capacity binders with durable plastic covers. Internally subdivide the binder contents with permanent page dividers.
   a. Arrange content by section number and systems, process flow, under section numbers and sequence as listed in the Table of Contents of this Project Manual.
   b. Drawings: Preferable 11 inches in height bound in with text with reinforced punched binder tab. Fold drawings larger than 8-1/2 by 11 inches to size of text pages. Provide a drawing pocket for Drawings larger than 11 by 17 inches; locate pocket inside rear cover or bound in with text.

2. Each manual shall include the same following minimum information:
   a. Table of Contents.
   b. Directory of Construction Supervisor, Trade Contractors, subcontractors, and major equipment vendors listing addresses, phone numbers and appropriate emergency phone numbers.
      1) Include local sources of supplies and replacement parts.
   c. Directory of Architect and consultants listing addresses and phone numbers.
   d. Operation and maintenance instructions. Provide schematic diagrams of control systems, circuit directories for each electric panel and charts showing the tagging of all valves.
   e. Air and water test and balancing reports.
   f. Maintenance and cleaning instructions for finishes.
   g. Product and manufacturer’s Certificates.
   h. Photocopies of all extended warranties and bonds.

3. Edit Manufacturer’s information to limit operation and maintenance information for systems products and components which have been incorporated into the Work. Do not include information for systems, products, and components which are not incorporated as part of the Work.

E. For each model and type of equipment in each of the building systems, include description of equipment, component parts and accessories. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts. Additionally, provide the following for each item:
1. Panelboard circuit directories: Provide electrical service characteristics, controls and communications.

2. Include color coded wiring diagrams as installed.

3. Operating procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.
   a. Include seasonal and weekend operations and special requirements.
   b. Description of controls and sequence of operations.
   c. Include operating instructions for systems integrating several pieces of equipment.
   d. Include manufacturer’s printed operation and maintenance instructions.

4. Provide control diagrams by controls manufacturer as installed.

5. Provide Contractor’s coordination drawings, with color coded piping diagrams as installed.

6. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

7. Provide original manufacturer’s parts (OEM) list, illustrations assembly drawings, and diagrams required for maintenance.
   a. Provide list of original manufacturer’s spare parts (OEM), current prices, and recommended quantities to be maintained in storage.
   b. Include local source of supplies and replacement parts, and any other data pertinent for procurement procedures.

8. Catalog data sheets for each item of mechanical or electrical or equipment actually installed including performance curves, rating data and parts lists.

9. Catalog sheets, maintenance manuals, and approved shop drawings of all mechanical or electrical equipment controls and fixtures with all details clearly indicated, including size of lamps and other maintenance supplies.

10. Maintenance requirements: Include routine procedures and guide for trouble-shooting; disassembly, repair, and re-assembly instructions; alignment, adjusting, balancing, and checking instructions.
   a. Maintenance drawings: Supplement product data to illustrate relation of component parts of equipment and systems, to show control and flow diagrams. Do not use project Record Documents as maintenance drawings.
   b. Provide Maintenance Data which includes, but is not limited to:
      1) Provide servicing and lubrication schedule, and list of lubricants required.
      2) Manufacturer's information, including list of spare parts.
      3) Name, address, and telephone number of Installer or supplier.
      4) Maintenance procedures.
      5) Maintenance and service schedules for preventive and routine maintenance.
6) Maintenance record forms.
7) Sources of spare parts and maintenance materials.
8) Copies of maintenance service agreements.
9) Copies of warranties and bonds.
10) Name, address and telephone numbers of repair and service companies for each of the systems installed.

11. Names, addresses and telephone numbers of all Subcontractors and suppliers, together with repair and service companies for each of the major systems installed under this contract.

12. Additional requirements: As specified in individual specification Sections.

F. Non-Availability of operating and maintenance manuals or inaccuracies therein may be grounds for cancellation and postponement of any scheduled final inspection by the Awarding Authority until such time as the discrepancy has been corrected.

1.10 MATERIALS AND FINISHES MANUAL

A. Furnish bound and properly identified manuals for all materials and finishes prior to request for Substantial Completion review.

1. Manuals shall be in 8-1/2 by 11-inch pages and bound in three “D ring” capacity binders with durable plastic covers. Internally subdivide the binder contents with permanent page dividers and logically organized.

2. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.
   a. Arrange content by section number and systems, process flow, under section numbers and sequence as listed in the Table of Contents of this Project Manual.
   b. Drawings: Preferable 11 inches in height bound in with text with reinforced punched binder tab. Fold drawings larger than 8-1/2 by 11 inches to size of text pages. Provide a drawing pocket for Drawings larger than 11 by 17 inches larger drawings; locate pocket inside rear cover or bound in with text.

B. Manuals shall include the following:

1. Product data, with catalog number, size, composition, and color and texture designations for all building products, applied materials, and finishes. Provide information for re-ordering custom manufactured products.

2. Instructions for care and maintenance: Include manufacturer’s recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.


4. Additional requirements: As specified in individual specification Sections.
1.11 CLOSEOUT REQUIREMENTS AND SUBMITTALS

A. Procedural Requirements Prior to Use and Occupancy: Punch List:

1. During the finishing stages of the project, the Construction Supervisor shall make frequent inspections with Subcontractors, the Designer, and the Resident Engineer, so as to progressively check for and correct faulty work.

2. When the Construction Supervisor determines that he/she is Substantially Complete*, he/she shall prepare for submission to the Designer a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Construction Supervisor to complete all work in accordance with contract Documents.
   
   a. *NOTE: Substantially Complete means that less than one percent (1%) of all contract work, including change orders, remains to be done, and that none of the remaining work will affect health, safety, or function.

3. Upon receipt of the Construction Supervisor’s list of items to be completed or corrected, the Designer will promptly make a thorough inspection, together with OWNER’s Project Manager, and prepare a “punch list”, setting forth in accurate detail any items on the Construction Supervisor’s list and additional items that are not acceptable. Concurrently, the Construction Supervisor will arrange for a DPS inspection, and other required inspections through OWNER as otherwise directed by Awarding Authority.

4. When the punch list has been prepared, and any DPS Inspector comments* have been included, the Designer will arrange a meeting with the Construction Supervisor, Trade Contractors, the Awarding Authority and OWNER’s Project Manager, to identify and explain all punch list items and answer questions on the Work that must be done before Final Acceptance.

5. The Construction Supervisor shall immediately correct all punch list items that affect health, safety or function (as determined by the Designer, completion of which is required before issuance of a OWNER Certificate of Agency Use and Occupancy).

6. Before preparation of Punch List, ensure the following items are addressed:
   
   a. Complete or, by agreement, schedule personnel training.
   b. Final cleaning.
   c. Assure that floors drain properly.
   d. As-built marked-up drawings should be completed and transferred over to the Designer.
   e. Perform landscape repairs.

B. Evidence of compliance with requirements of governing authorities including, without limitations, the following:

   a. Certificate of Inspection, in form of signed permits from the electrical, plumbing, gas, fire department, boiler, and any other required inspectors.
   b. Certification from the local fire department to the effect that all detection,
alarm and suppression systems, and other equipment or systems under fire
department jurisdiction are approved.
c. A letter from the Plumbing Trade Contractor that the potable water supply has
been sanitized.

C. Prerequisites for Certificate of Final Inspection, Release, and Acceptance: Final Certificate
of Final Inspection, Release, and Acceptance. Upon receipt of the Certificate of Agency
Use and Occupancy, and its adjunct monetized punch list, the Construction Supervisor shall
cause the completion of all of the other punch list items within timeframe required by said
certificate, but not more than 45 calendars days if the timeframe is not indicated on the said
certificate.

1. If the Construction Supervisor fails to pursue completion of the remaining monetized
punch list work, on a continual basis, within the timeframe required by the certificate,
OWNER may, after seven (7) calendar days written notice, elect to complete the work
with separate forces and charge the work against the Construction Supervisor.

2. At the end of the Construction Supervisor’s one (1) year guarantee period, the
Construction Supervisor shall transfer manufacturers’ equipment and material
warranties that are still in force to the Operating Agency.

1.12 CONFERENCES AFTER SUBSTANTIAL COMPLETION

A. The Owner reserves the right to call for conferences commencing with the date of
Substantial Completion and continuing for one year thereafter, for purposes of inspecting
the Work and to plan correction of any deficiencies or failures discovered during this
period.

1. Attendance is required by Construction Supervisor’s Project Manager, Designer,
OWNER’s Project Representative, OWNER’s representative(s) and each applicator,
installer, and supplier as the Owner may direct or the Construction Supervisor may
wish to have present. All representatives attending such meetings shall be the same
persons, or shall have the same powers and authority, as those attending progress
meetings occurring prior to the Date of Substantial Completion.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
PART 1 – GENERAL

1.1 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1.2 SUMMARY

A. General: This Section specifies general administrative and procedural requirements for warranties, guarantees and bonds required by the Contract Documents, including manufacturers standard warranties on products and special warranties. Warranty, Guarantee and Bond requirements of this Section are applicable to all trades, all Divisions of the Specifications, and applies to all Work performed under this Contract.

1. Warranty required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law.

2. Warranties required under the Contract are not a waiver of the State of New Hampshire’s legal rights, nor do issued warranties relieve the Construction Supervisor from obligation assumed under other provisions of the Contract.

3. All guarantees and warranties furnished shall be enforceable in the State of New Hampshire and subject to interpretation in accordance with the laws of the State of New Hampshire.

B. Construction Supervisor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for material or units of work for project where a special project warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

1.3 RELATED REQUIREMENTS

A. Certifications and other commitments and agreements for continuing services to the State of New Hampshire are specified elsewhere in the Contract Documents.

B. Individual Specification Sections contain additional specific requirements for warranties and bonds.

1.4 DISCLAIMERS AND LIMITATIONS

A. General Limitations: It is recognized that specific warranties are intended primarily to protect the State of New Hampshire against failure of the work to perform as required, and against deficient, defective, and faulty materials and workmanship, regardless of sources.
B. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Construction Supervisor of the warranty on the work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Construction Supervisor.

1. Pro-rating of warranties: Except where explicitly specified otherwise, each warranty issued shall cover the full cost of warranty-related repairs throughout the full term of the warranty.

1.5 DEFINITIONS

A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 1 through 33 of these Specifications, the Supplemental Specifications, the City of Manchester for Road, Drain & Sewer Construction, latest editions, and the Plans.

1. Construction Supervisor's Comprehensive Warranty: The Construction Supervisor shall provide a comprehensive one-year warranty covering all labor, materials, equipment and work related to the entire Contract, and shall promptly repair or replace defective and deficient work.

2. Special Project Warranty (Guaranty): A warranty specifically written and signed by Construction Supervisor for a defined portion of the work; and, where required, countersigned by Trade Contractor, subcontractor, installer, manufacturer or other entity engaged by Construction Supervisor. Special Warranties extend time limits provided by standard warranties or to provide greater rights for the State of New Hampshire.

3. Specified Product Warranty: A warranty which is required by Contract Documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work or has written and executed a special project warranty as a direct result of Contract Document requirements.

   a. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

4. Coincidental Product Warranty: A warranty not specifically required by Contract Documents (other than as specified in this Section), but which is available on a product incorporated into the work, by virtue of the fact that manufacturer or product has published warranty in connection with purchases and use of product without regard for specific applications except as otherwise limited by terms of warranty.

1.6 WARRANTY REQUIREMENTS

A. Warranty Period Commencement Date: Effective stating date for Warranty periods is the Date of Substantial Completion for Project.

1. Equipment and systems start-up, operation and use, occurring prior to Project Substantial Completion, will not be considered commencement of warranty period under any
terms of this Contract.

2. Guarantees and warranties which start at the date of shipment from the factory, or from the completion date of an individual portion of the project, are not acceptable.

3. Exceptions: Starting dates for warranties prior to the Project Date of Substantial Completion are not permitted, except for the two conditions below:
   a. Warranty requirements specified in individual specification sections explicitly specify that a required warranty or guarantee shall be effective on date of shipment, date of manufacturer, or date of installation.
   b. Warranties for Incomplete work: The effective date for warranty of work which has not been completed prior to the Date of Substantial Completion, shall be effective on the date of Final Completion and Owner’s acceptance of the Work.

B. Related Damages and Losses: In connection with Construction Supervisor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.

1. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.

C. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement starting on date of acceptance of replaced or restored work.

1. Reinstated warranty value: The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

2. Reinstated warranty period: A period of time ending upon date original warranty would have expired, if there had been no failure, but not less than half of original warranty period of time.

D. Warranties are Irrevocable: Warranties issued to the Owner are irrevocable.

1. Non-Payment: If warrantor refuses to issue warranty or attempts to revoke warranty due to lack of payment by any party other than the Awarding Authority, the Construction Supervisor shall resolve the payment conflict, and cause the warranty to be issued or reinstated.

2. Incomplete or incorrect Installation: If warrantor refuses to issue warranty or attempts to revoke warranty due to improper installation or other deficiency, the Construction Supervisor shall correct the deficiency and cause the warranty to be issued or reinstated.

E. Transferable Warranties: All warranties shall permit Owner to transfer or assign warranties to future owners or other assignors at no additional cost to the Owner for the full warranty period.
F. Replacement Cost: Upon determination that work covered by a warranty has failed, replace or rebuild the work to an acceptable condition complying with requirements of Contract Documents. The Construction Supervisor is responsible for the cost of replacing or rebuilding defective work regardless of whether the Owner has benefited from use of the work through a portion of its anticipated useful service life.

1. Work repairs or replaced under warranty shall be warranted for the full duration of the original warranty.

G. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

H. Rejection of Warranties:

1. Owner reserves the right, at time of substantial completion or thereafter, to reject coincidental product warranties submitted by Construction Supervisor, which in opinion of Owner tend to detract from or confuse interpretation of requirements of Contract Documents.

2. Owner reserves the right to reject warranties and to limit selection to products with warranties which are not in conflict with the requirements of the Contract Documents.

I. The State of New Hampshire’s right to refuse Work: OWNER reserves the right to refuse to accept work for the project where a special warranty, certification, or similar commitment is required on such work or part of the work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.7 COMPREHENSIVE WARRANTY

A. Comprehensive Warranty: In addition to all other warranties, the Construction Supervisor shall issue a Comprehensive Total Contract Warranty which shall include all work of this Contract, without limitation including consequential damages.

1. Duration of Comprehensive Warranty: One full year from date of Substantial Completion, or the date of issue of Certificate of Use and Occupancy for the building or portion thereof, whichever occurs first.

2. Consequential damages: Warranty includes consequential damages which relate to a warranty claim, these include without limitation:

   a. All costs required to uncover and repair all work related to warranty claim.

   b. All costs relating to repair and restoration of damaged property, resulting from warranty claim.

   c. All costs resulting from failure to conform to the Contract Documents, and for required rebuilding, construction or reconstruction to correct work.

   d. Perform to the satisfaction of the Owner all repairs, reconstruction, and restoration to original condition of adjacent and related work affected by damage under a warranty claim.
B. Warranty Claims: Owner will notify Construction Supervisor in writing of each warranty claim. Warranty repairs shall be completed within 30 days of written notice, except as pre-approved by Owner.

1. In the event of an emergency condition, where in the reasonable opinion of the Owner an immediate repair under warranty is necessary, warranty repairs shall be completed within 14 calendar days from date of notice.

2. Owner’s right to correct: In the event the Construction Supervisor fails to respond to a warranty claim within the specified time limits, the Owner reserves the right to make the necessary corrections or repairs and recover all costs and expenses from the Construction Supervisor.

C. Construction Supervisor’s responsibilities under Comprehensive Warranty:

1. Notify in writing each affected warrantor and original Trade Subcontractor, subcontractor, installer, vendor as appropriate to the warranty claim.

2. Manage the warranty claim for the Awarding Authority.

3. Assist OWNER in obtaining warranty satisfaction.

4. Arrange and manage all warranty related work including work relating to consequential damages.

1.8 SUBMITTALS

A. Submit written warranties to the Designer prior to the date certified for Substantial Completion. In compliance with requirements specified under Section 017700 – CLOSEOUT PROCEDURES.

1. When a designated portion of the Work is completed and occupied or used by the Owner by separate agreement with the Construction Supervisor during the construction period, submit properly executed warranties to the Awarding Authority within 14 calendar days of completion of the designated portion of Work.

2. Refer to individual section of Divisions 2 through 33 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).

3. Specific Warranty Forms: Where a special project warranty (guaranty) or specified product warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution by all required parties (including manufacturers, vendors, Construction Supervisor(s) and subcontractors). Submit draft to OWNER’S Project Manager (through Construction Supervisor) for approval prior to final executions.

B. Form of Submittal: At Final Completion, compile three (3) copies of each required warranty and bond properly executed by the Construction Supervisor, or by the Construction Supervisor, subcontractor, supplier or manufacturer. Organize the warranty documents into an orderly sequence based on the Table of Contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring vinyl-
covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2" by 11" paper.

2. Provide heavy paper dividers with celluloid-covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address and telephone number of the installer.

3. Identify each binder on the front and the spine with the typed or printed title "WARRANTIES AND BONDS", the project title or name, and the name of the Construction Supervisor.

4. When operating and manuals are required for warrantied construction, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 WARRANTY REPAIRS

A. Repairs: If, within any guarantee period, repairs or changes are required in connection with guaranteed work, Construction Supervisor shall promptly upon receipt of notice from OWNER, and without additional expense to OWNER, within ten business days:

1. Place in satisfactory condition in every particular all guaranteed work and correct all defects.

2. Make good all damage to building, site equipment, or contents thereof, including redecoration which, in the opinion of the Designer, results from the use of material, equipment or workmanship which are inferior, defective or not in accord with the terms of the Contract.

B. Failure to Comply: If Construction Supervisor, after such notice, fails to proceed immediately to comply with terms of guarantee, OWNER may correct defects and hold Construction Supervisor liable for all expenses incurred.

3.2 SCHEDULE

A. Provide warranties on products and installations as specified in individual specification Sections in Divisions 1 through 33 of the Project Manual, the Supplemental Specifications, the City of Manchester Standard Specifications for Road, Drain & Sewer Construction, latest edition, and the Plans.

END OF SECTION
PART 1 - GENERAL

1.1 RELATED DOCUMENTS
A. Drawings and general provisions of the Contract, including General Conditions and other Specification Sections apply to this Section.

1.2 SUMMARY
A. Section includes administrative and procedural requirements for project record documents, including the following:
   1. Record Drawings.
B. Work associated with this Section is found in other Sections of the Contract. The Contractor shall comply with all Sections of the Contract in construction of the elements of this Section.

1.3 RECORD DRAWINGS
A. Record drawings shall be maintained and stored by the Contractor separately from other documents used during construction. Record drawings shall be kept in a clean, dry, and legible condition and shall not be used for construction purposes.
B. Record drawings shall be available for inspection by the Engineer and Owner at all times. All deficiencies identified shall be promptly corrected.
C. Record Drawings shall comply with the following:
   1. Record all changes of all elements of the project deviating from those indicated on the Contract Drawings. Include change orders and changes in location, size, number and type of both horizontal and vertical elements installed.
   2. Record locations of all horizontal and vertical changes in direction of buried utilities with respect to permanent above-grade features.
   3. Record locations of all facilities installed within buried structures.
D. Record Specifications: Submit one paper copy and annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.
E. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities.
F. Reports: Submit written report weekly indicating items incorporated into project record documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

G. Before payment for materials installed is made, the Engineer and Owner reserve the right to review the record drawings to-date. If changes in location of all installed elements are not shown on the record drawings and verified in the field, the material may not be considered as installed and payment may be withheld by the Owner.

H. Prior to the installation of all finish materials, the Engineer and Owner may review the record drawings to confirm that all changes have been recorded. The cost of investigating such conditions shall be the responsibility of the applicable party as determined by the Engineer.

I. Subcontractors shall submit to the General Contractor a complete set of record drawings showing their respective work indicating all changes. The General Contractor shall certify in writing on the title sheet of the drawings that they are complete and correct and shall submit the record drawings to the Engineer.

J. The Engineer shall review the record drawings and shall verify in writing to the Owner that the work is accurate. Inaccuracies in record drawings, as determined by the Owner, may be grounds for postponement of the final inspection until such accuracies are corrected.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 017900

DEMONSTRATION AND TRAINING

PART 1 – GENERAL

1.1 SUMMARY

A. Demonstrating equipment.

B. Instruction and training of Owner’s personnel.

1.2 DEMONSTRATING EQUIPMENT

A. Demonstrate operation and maintenance of Products to Owner personnel not greater than 14 calendar days prior to date of Substantial Completion.

1. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

B. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners’ personnel in detail to explain all aspects of operation and maintenance.

C. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.

D. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

1.3 INSTRUCTION AND TRAINING OF OWNER’S PERSONNEL

A. Before final inspection, instruct Owner-designated personnel in operation, adjustment, and maintenance of products, equipment, and systems, at agreed upon times.

B. For equipment requiring seasonal operation, perform instructions for other seasons within six (6) months.

C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

E. Provide sufficient formal instructional time for training Owner’s personnel, so that the Owner’s personnel will fully comprehend operation and maintenance of the facility’s
equipment and systems. Contractor’s personnel designated for Owner training shall be competent and knowledgeable and have good communication skills.

1. Training sessions shall be pre-arranged directly with the Owner.
   a. Coordinate instructors, including providing notification of dates, times, length of instruction, and course content.
   b. Instructors shall arrive at pre-scheduled training sessions on-time and be fully prepared to teach using a preplanned training program.
   c. All instructors are subject to the Owner's approval. Replace unacceptable instructors and reschedule training as directed by the Owner at no increased cost to the Owner.

2. Training shall include the following groups of equipment and systems:
   a. Splash Pad systems and equipment.
   b. Playground systems and equipment.

3. Program structure shall include the following:
   a. System design and operational philosophy.
   b. General overview of Record Documents:
      1) Record Drawings.
      2) Record Project Manual.
      3) Operation and Maintenance Manuals.
      4) Finishes.
      5) Warranty and maintenance agreements.
      6) Test reports and inspections.
   c. Operations.
   d. Adjustments.
   e. Troubleshooting.
   f. Maintenance.
   g. Repair.

F. Video Training Record: The Owner may, at its sole option, video record the instruction and training of the Owner's personnel. The Contractor and its subcontractors shall cooperate with the Owner.

PART 2 – PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION
SECTION 018000

SURVEY STANDARDS

PART 1 - GENERAL

1.1 DATUMS

A. All surveys completed at the project site will be based off of the New Hampshire State Plane Coordinate System, Mainland Zone, North American datum of 1983 and the North American Vertical datum of 1988.

1.2 ACCURACY

A. A relative horizontal Control accuracy of the Federal Geodetic Control Committee (FGCC) Second Order Class One (1:50000), and a Vertical Control accuracy standard of third order (2.0mm x the square root of “k”) where “k” is the distance between benchmarks in kilometers are required. Electronic distance Measuring instruments shall have a minimum accuracy of +5mm + 5ppm. These control standards will be incorporated for all control networks established for the University.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SURVEY CONTROL

A. Primary Control

1. Horizontal and vertical control networks established prior to any construction project using the above stated accuracy standards. All projects will require a minimum of three horizontal and two vertical control points prior to the start of any project.

B. Secondary Control

1. Control established for each phase of a construction project and based on the primary control network. Secondary control shall be tied to and close upon the primary control. Secondary control networks shall be adjusted prior to use in developing subsequent control or in laying out construction control or construction stakes.

C. Construction Control

1. Temporary points to control the construction based upon the secondary or primary control including offset stakes and slope stakes.

3.2 FIELD SURVEYS
A. General

1. All field surveys will be based off of three horizontal and two vertical control points. Two of the three horizontal points will be used for a set-up and backsight, while the third will be used as an angle and distance check prior to commencing the survey. A recorded backsight and elevation check is required prior to leaving any survey set-up.

2. When real time kinematics GPS equipment is being employed, a recorded check shot on a control point with known NAD83 and NAVD88 values is required prior to commencing the survey.

3.3 CONSTRUCTION

A. General

1. Construction surveys establish base line and grade for the control of a project and are used to ensure contract compliance.

B. Fieldwork

1. Slope stakes for rough excavation may be set to the nearest 0.1 foot, horizontally and vertically.

2. Trench subgrade shall be established to within 0.1 foot of plan subgrade.

3. Pipe subgrade and joint stakes shall be set to within 0.02 foot of plan subgrade at joint stations.

4. Construction Contractors shall provide all survey services required for the work, including but not limited to: as-buils; establishing and reestablishing construction control; resetting of stakes and monuments; and performing surveys needed for restoration of public and private improvements and monumentation that have been damaged, destroyed, or relocated by the Contractor.

3.4 AS-BUILT RECORD DRAWINGS

A. General

1. As-Built surveys are conducted before, during and after construction. As-built surveys ensure the accuracy of the placement of above ground and underground structures and utilities. They are also used to identify and avoid disrupting utilities and historical or environmentally sensitive areas. As-built surveys provide information on daily progress, and permanent records of the as-constructed utilities or facilities. The City reserves the right to request Survey Field data and as-built field data on an as needed basis during a survey or construction contract.

B. Field Procedures

1. As-built surveys will be conducted on all structures and utilities that are either above ground or buried below ground. Utilities will be as-built at every horizontal and vertical location where direction and or elevation changes but no greater than twenty feet between as-built shots. Prior to the backfill of any underground utility, the contractor shall notify the resident engineer 24 hours prior to any such activity.
C. Deliverables

1. Electronic as-built drawings shall be 100% compatible with the version of AutoCAD currently in use by the Facilities Planning Division. All as-built drawings and other related deliverable work shall incorporate the use of New Hampshire State Plane Coordinate System, Mainland Zone, North American datum of 1983 and the North American Vertical datum of 1988.

2. The contractor shall also deliver an electronic comma delineated as-built file or files designating each individual utility being as-built. Each point as-built shall have five fields: point #, northing, easting, elevation, and descriptor\code.

3.5 MONUMENTATION

A. General

1. When setting monuments by or on behalf of the City, ensure that the following requirements will be met.

2. Choose a monument of substance, one that will last, do not use wood for any permanent control. One-and-a-half-inch Iron pipe 18” long with a brass tag is a minimum requirement on soil ground unless approve by the Owner. If a monument is to be set in asphalt concrete, or any other resistant surface, the appropriate nails and washer will be acceptable. Where a monument could be disturbed, it should be set at least 6” below the surface. Record swing ties to all set monuments for easy recovery at a later date.

3. Monuments are to have a brass tag or washer containing the following information unless otherwise approved by the Owner.

4. Along the top of the tag, the calendar date that the monument was set (MMDDYY format) appears.

5. Following the date along the bottom of the tag is a single letter code starting with “A” for the first point set on that date, “B” for the second, and so on in sequence.

3.6 RECORDING FIELD DATA

A. GENERAL

1. Handwritten field notes are prepared to serve as an interpretable, filed record of every step of the survey. When properly prepared and filed, field notes:

   a. Show the basis of the survey including new lines, new points established, or old points recovered and verified.

   b. Document oral evidence from others about locations of lines or corners.

   c. Provide data that is used to perform computations and make drawings.
d. Provide a means to check the accuracy of the survey, adjust the survey, and derive best values.

e. Retrace the footsteps of the survey party.

f. Perpetuate a survey when stakes have rotted and monuments are obliterated.

g. Are evidence of the survey and are sometimes introduced as court evidence.

h. Serves as valid testimony if litigation occurs.

2. Electronic field notes are the resulting files from electronic data collectors. Formats vary for collection of each data type. Codes and descriptors entered into the files are considered to be of the same status as entries made into hand-written field notes. Electronic field notes will be supplemented by hand-written notes when additional detail and sketches are necessary. Field notes, both electronic and hand drawn are an integral part of the survey, and a survey is not complete until field notes are submitted for review and filing.

END OF SECTION
SECTION 331113

POTABLE WATER UTILITY PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Submittals.
   2. Reference standards.
   3. Quality assurance.
   4. Delivery, storage and handling.
   5. Materials.
   6. Installation.
   7. Connections to structures.
   8. Testing.
   10. Disinfection.

B. Furnish all labor, materials, equipment and incidentals required, install, disinfect and test ductile iron pipe and fittings as shown on the Drawings and as specified herein.

C. Piping shall be located substantially as shown on the Drawings. The Engineer reserves the right to make such modifications in locations as may be found desirable to avoid interference between pipes or for other reasons. Pipe fitting notation is for the Contractor’s convenience and does not relieve him/her from installing and jointing different or additional items where required to achieve a complete piping system.

D. Where the word "pipe" is used it shall refer to pipe, fittings, or appurtenances unless otherwise noted.

E. These specifications shall apply to ductile iron pipe installed for potable and reclaimed water utilities except as noted.

F. Work associated with this Section is found in other Sections of the Contract. The Contractor shall comply with all Sections of the Contract in construction of the elements of this Section.
1.3 SUBMITTALS

A. Shop drawings and product data shall be submitted in accordance with Section 013300 for Engineer’s review.

B. Submit anticipated production and delivery schedule.

C. Prior to shipment of pipe, submit a certified affidavit of compliance from the manufacturer stating that the pipe, fittings, gaskets, linings and exterior coatings for this project have been manufactured and tested in accordance with ANSI/AWWA and ASTM standards and requirements specified herein.

1.4 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)


B. American Water Works Association (AWWA)/ American National Standards Institute (ANSI)

3. AWWA C110/ANSI A21.10 - Ductile-Iron and Gray-Iron Fittings, 3-In Through 48-In (75 mm Through 1200 mm) for Water and Other Liquids.
6. AWWA C151/ANSI A21.51 - Ductile-Iron Pipe, Centrifugally Cast, for Water or Other Liquids.
8. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.
9. AWWA C651 - Disinfecting Water Mains.

C. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.5 QUALITY ASSURANCE

A. Inspection of the pipe and fittings will also be made by the Engineer or representative of the Owner after delivery. The pipe shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though sample pipes may have been accepted.
as satisfactory at the place of manufacture. Pipe rejected after delivery shall be marked for identification and shall be removed from the job immediately.

1.6 DELIVERY, STORAGE AND HANDLING

A. Care shall be taken in loading, transporting, and unloading to prevent injury to the pipe. Under no circumstances shall the pipe be dropped or skidded against each other. Slings, hooks, or pipe tongs shall be used in pipe handling.

B. Materials, if stored, shall be kept safe from damage. The interior of all pipe, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times.

C. Pipe shall not be stacked higher than the limits recommended by its manufacturer. The bottom tier shall be kept off the ground on timbers, rails, or concrete. Stacking shall conform to manufacturer's recommendations.

D. Gaskets for mechanical and push-on joints to be stored shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first-in, first-out basis.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Potable Water Distribution Piping

1. Ductile iron pipe shall conform to AWWA C151/ANSI A21.51. Pipe shall be supplied in standard lengths as much as possible.
2. Ductile iron pipe shall be Thickness Class 54 unless otherwise specified.
3. Ductile iron pipe shall be as manufactured by U.S. Pipe and Foundry Company, Inc., Atlantic States, Griffin or equal.

B. Joints

1. Ductile iron pipe shall have rubber-gasket push-on joint or rubber-gasket mechanical joint. Rubber-gasket joints shall conform to AWWA C111/ANSI A21.11. Gasket shall be of SBR.
2. Mechanical joints for fittings shall be furnished with retaining glands as specified herein.

C. Fittings

1. Pipe fittings shall be ductile iron with pressure rating of 350 psi. Fittings shall meet the requirements of AWWA C110/ANSI A21.10 or AWWA C153/ANSI A21.53 as applicable. Fittings shall have the same pressure rating, as a minimum, of the connecting pipe. All fittings shall be furnished with mechanical joints.
2. Closures shall be made with mechanical joint ductile iron solid sleeves and shall be located in straight runs of pipe at minimum cover outside the limits of restrained joint sections. Location of closures shall be subject to approval of the ENGINEER.

D. Interior Lining

1. Ductile iron pipe and fittings shall be double thickness cement lined in accordance with AWWA C104/ANSI A21.4
2. Ductile iron pipe and fittings shall have a cement mortar lining and asphaltic seal coat in accordance with AWWA C104. The cement shall be centrifugally spun with a uniform thickness of not less than 1/8-inch.

E. Retainer Glands

1. Retainer glands shall be designed to impart multiple wedging action against the pipe, increasing its resistance as the pressure increases. Glands shall be manufactured of ductile iron conforming to ASTM A536-80. Restraining devices shall be manufactured of ductile iron heat-treated to a minimum hardness of 370 BHN. Twist-off nuts shall be used to insure proper actuating of the retainer gland. Dimensions of the gland shall be such that it can be used with the standard mechanical joint bell and tee-headed bolts conforming to ANSI A21.1/AWWA C110 and ANSI A21.5/AWWA C153. The retainer gland shall have a working pressure of 250 psi with a minimum safety factor of 2:1 and shall be certified by the manufacturer to be compatible with the pipe class and pipe manufacturer for all sizes provided on the job. The retainer gland shall be Mega-Lug as manufactured by EBAA Iron, Inc., or approved equal.

F. Polyethylene Encasement

1. All ductile iron pipe and fittings installed for reclaimed water lines shall be encased in polyethylene. Polyethylene shall be in accordance with AWWA C105/ANSI 21.5-10. Polyethylene film shall be 8-mil, Class C tubes or sheets, color purple. Black polyethylene encasement shall not be allowed.
2. Ductile iron pipe and fittings installed for potable water lines shall not be encased in polyethylene.

2.2 MAGNETIC LOCATING TAPE

A. Magnetic locating tape shall be installed on pipe runs.

B. Detectable tracer tape shall consist of a continuous aluminum foil core inseparably bonded on both sides with tough high density cross-laminated plastic films, pigmented in orange, blue or other warning colors. Bond strength of the tracer tape must be such as to prevent pitting or degradation after 300 hours of continuous testing as per ASTM B-117.

C. Detectable tracer tape shall be the type that can be located by the inductive method and does not require electrical connection to be made to the tape itself.
D. Magnetic Locating Tape shall be installed on all sewer pipe installed on this project, without exception.

E. The tape shall be six (6) inches in width and shall have the words “Buried Water Line Below” permanently and indelibly printed on it.

F. Prior to purchase of the tape and acceptance by the Engineer, a sample of the tape shall be furnished to the Owner and field tested by the Owner. No tape is to be purchased until it has been approved by both the Owner and the Engineer.

PART 3 - EXECUTION

3.1 GENERAL

A. Care shall be taken in loading, transporting and unloading to prevent injury to the pipe or coatings. Pipe and fittings shall not be dropped. All pipe and fittings shall be examined before laying and no piece shall be installed which is found to be defective. Damage to the pipe coatings shall be repaired per manufacturer's recommendations.

B. If any defective pipe is discovered after it has been laid, it shall be removed and replaced with a sound pipe in a satisfactory manner. All pipe and fittings shall be thoroughly cleaned before laying, shall be kept clean until they are used in the work and when installed or laid, shall conform to the lines and grades required.

3.2 INSTALLATION

A. Ductile iron pipe and fittings shall be installed in accordance with requirements of AWWA C600, except as otherwise provided herein. A firm, even bearing throughout the length of the pipe shall be provided by digging bell holes at each joint and by tamping backfill materials at the side of the pipe to the springline per details shown on the Drawings. BLOCKING WILL NOT BE PERMITTED.

B. All pipe shall be sound and clean before laying. When laying is not in progress, open ends of the pipe shall be closed by a watertight plug or other approved means. Sufficient backfill shall be placed to prevent flotation. The deflection at joints shall not exceed 50 percent of allowable deflection recommended by manufacturer.

C. All ductile iron pipe laid underground shall have a minimum of 5’ of cover unless otherwise specified or shown on the Drawings. Pipe shall be laid such that the invert elevations shown on the Drawings are not exceeded.

D. Fittings, in addition to those shown on the Drawings shall be provided, where required, in crossing utilities which may be encountered upon opening the trench. Solid sleeve closures shall be installed at locations approved by the Engineer.

E. The pipe interior shall be maintained dry and broom clean throughout the construction period.
F. When cutting pipe is required, the cutting shall be done by machine, leaving a smooth cut at right angles to the axis of the pipe. Cut ends of pipe to be used with a bell shall be beveled to conform to the manufactured spigot end. Cement lining shall be undamaged. Field cut ends shall be sealed with Protecto 401 (or approved epoxy) in accordance with manufacturer's instructions. Cutting of restrained joint pipe will not be allowed, unless approved at specific joints in conjunction with the use of restrainer glands by EBAA Iron or field adaptable restrained joints.

G. Jointing Ductile-Iron Pipe

1. Push-on joints shall be made in strict accordance with manufacturer's instructions and AWWA C600. Pipe shall be laid with bell ends looking ahead. A rubber gasket shall be inserted in the groove of the bell end of the pipe. The joint surfaces shall be cleaned and lubricated, and the plain end of the pipe shall be aligned with the bell of the pipe to which it is to be joined and pushed home.

2. Mechanical joints shall be assembled in strict accordance with the manufacturer's instructions and AWWA C600. Pipe shall be laid with bell ends looking ahead. To assemble the joints in the field, thoroughly clean and lubricate the joint surfaces and rubber gasket. Bolts shall be tightened to the specified torques. Under no condition shall extension wrenches or pipe over handle of ordinary ratchet wrench be used to secure greater leverage.

3. Bolts in mechanical or restrained joints shall be tightened alternately and evenly.

4. Restrained joints shall be installed according to pipe manufacturer's instructions.

H. All blow-offs, outlets, valves, fittings, and other appurtenances required shall be set and jointed as indicated on the Drawings in accordance with the manufacturer's instructions.

I. Potable water mains shall be laid at least 10-feet horizontally from any existing or proposed sewer. The distance shall be measured edge to edge. In cases where it is not practical to maintain a ten foot separation, it is permissible to install a water main closer to a sewer, provided that the water main is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer at such an elevation that the bottom of the water main is at least 18-inches above the top of the sewer.

J. Potable water mains crossing sewers shall be laid to provide a minimum vertical distance of 18-inches between the outside of the water main and the outside of the sewer. It is preferred that the water main cross above the sewer. At crossing, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Where vertical separation is less than 18-inches or where sewer lines cross over water lines, a 6-inch minimum concrete encasement of the sewer line is to be provided 10-feet either side of the crossing.

K. All reclaimed water mains shall be installed by a licensed plumber in accordance with New Hampshire State Law.

3.3 CONNECTIONS TO STRUCTURES

A. Wherever a pipe 3-inch in diameter or larger passes from concrete to earth horizontally, two flexible joints spaced from 2-ft to 4-ft apart depending on pipe size shall be installed, within 2-ft of the exterior face of the wall, whether or not shown on the Drawings.
B. Wall pipes shall have a thrust collar located at mid-depth of wall.
C. Piping underneath structures shall be concrete encased.

3.4 TESTING

A. After installation, the pipe shall be tested for compliance with the Specifications. Furnish all necessary equipment and labor for the pressure test and leakage test on the pipelines.
B. Submit detailed test procedures and method for Engineer’s review. In general, testing shall be conducted in accordance with AWWA C600.
C. Pressure pipelines shall be subjected to a hydrostatic pressure of 200 psig or 1.5 times the working pressure at the highest point along the test segment. This test pressure shall be maintained for a minimum of two hours. The leakage rate shall not exceed those indicated in AWWA C600. Provide suitable restrained bulkheads as required to complete the hydrostatic testing specified.
D. All valves and valve boxes shall be properly located and installed and operable prior to testing. Bulkheads shall be provided with a sufficient number of outlets for filling and draining the line and for venting air.
E. Hydrostatic pressure and leakage tests shall conform with Section 4 of AWWA C600. Furnish gages, meters, pressure pumps and other equipment needed to fill the line slowly and perform the required hydrostatic pressure leakage tests.
F. The Contractor shall provide a quantity of potable water for use in filling and testing the lines. The line shall be slowly filled with water and the specified test pressure shall be maintained in the pipe for the entire test period by means of a pump furnished by the CONTRACTOR. Provide accurate means for measuring the quantity of water required to maintain this pressure. The amount of water required is a measure of the leakage.
G. Duration of pressure test shall not be less than 2 hours. The leakage test shall be a separate test following the pressure test and shall not be less than 2 hours duration. All leaks evident at the surface shall be repaired and leakage eliminated regardless of the total leakage as shown by test. Lines which fail to meet tests shall be repaired and retested as necessary until test requirements are complied with. Defective materials, pipes, valves and accessories shall be removed and replaced.
H. Submit plan for testing to the Engineer for review at least 10 days before starting the test.

3.5 CLEANING

A. At the conclusion of the work, thoroughly clean the entire pipe by flushing with water or other means to remove all dirt, stones, pieces of wood, or other material which may have entered during the construction period. All debris shall be removed from the pipeline. The lowest segment outlet shall be flushed last to assure debris removal.
3.6 DISINFECTION

A. Ductile iron pipe used for potable water service shall be disinfected after cleaning. Provide all necessary equipment and labor for the disinfection.

B. Disinfection shall be in accordance with AWWA C651 standard.

C. Discharge of chlorinated water shall comply with all Federal, State and local standards. Provide sodium bisulfite for dechlorination prior to discharge.

D. The potable water main installation must be approved by the Owner prior to connecting to the public water system. City personnel shall be present while the water main is being chlorinated and again prior to being activated.

E. Disinfection shall be in accordance with City Standard Specifications for Disinfecting Water Mains:

1. SCOPE:

   a. This specification becomes a standard part of the disinfecting and flushing of water mains within the City distribution system. Unless specified otherwise, all procedures apply to new mains, cleaned mains, cleaned and relined mains, repaired mains, and mains which have been out of service for fourteen (14) days or longer.

   b. In certain circumstances, the Owner or designee may waive or alter the requirements in this specification where it is determined that no reasonable threat of contamination constituting a health hazard or aesthetic deterioration exists in the water main in question.

2. KEEPING PIPE CLEAN AND DRY: Precautions shall be taken by the Contractor to protect the interiors of pipes, fittings, and valves against contamination:

   a. Pipe delivered for construction shall be strung and protected so as to prevent entrance of any foreign material.

   b. Pipe shall not be laid in water, or when trench conditions or weather conditions are unsuitable for such work.

   c. All openings in the pipeline shall be closed with watertight plugs when pipe laying is stopped at the close of the day’s work or for other reasons.

   d. Joints of all pipes in the trench shall be completed before work is stopped.

   e. The surface of the joint rings shall be thoroughly cleaned with an approved soap solution and all foreign matter removed from the pipe and fittings before the pipe is lowered in the trench.
f. If dirt enters the pipe, it shall be removed and the interior of all affected pipe and fittings shall be swabbed with a 5% Hypochlorite solution or other commercially available household bleach immediately before they are installed.

g. Pipes and services in the ground shall be closed off when not under construction.

3. PRE-FLUSHING:

a. The University shall flush the source water, as near the shut off as possible prior to tying-in to ensure that contaminants or debris are not introduced into the new pipe.

4. FLUSHING:

a. The main shall be flushed through a hydrant at the end of the main at a velocity not less than 2.5 ft./sec. If no hydrant is installed at the end of the main, the Contractor shall provide a tap large enough to develop a velocity in the main of at least 2.5 ft./sec. The gallons per minute to achieve 2.5 ft./sec velocities for different diameter pipes are provided in Table 1.

<table>
<thead>
<tr>
<th>Main Size (in)</th>
<th>Gallons per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>200</td>
</tr>
<tr>
<td>8</td>
<td>400</td>
</tr>
<tr>
<td>12</td>
<td>900</td>
</tr>
<tr>
<td>16</td>
<td>1600</td>
</tr>
</tbody>
</table>

b. City water at no cost to the Contractor will be available to the work site for use in disinfection and flushing mains. The Contractor shall furnish all necessary pipe and hose connections. The Contractor shall exercise care in the use of the water to prevent contamination of the existing water supply. Measures shall be taken prior to flushing to provide adequate drainage during flushing. Drainage shall be away from the main, and flooding of the trench shall be prevented. The volume of water flushed shall be measured or calculated and reported to the Owner’s Project Manager.

c. Wherever the conditions allow, the new water main shall be kept isolated from the active distribution system using a physical separation until satisfactory bacteriological testing has been completed and the disinfectant water flushed out. Water required to fill the new main for hydrostatic pressure testing, disinfection, and flushing shall be supplied through a temporary connection between the distribution system and the new main. The temporary connection shall include a RPZ assembly backflow preventer and shall be disconnected (physically
separated) from the new main during the hydrostatic pressure test. It will be necessary to reestablish the temporary connection after completion of the hydrostatic pressure test to flush out the disinfectant water prior to final connection of the new main to the distribution system.

5. METHODS OF DISINFECTION:
   a. The Contractor shall disinfect all portions of the water main that was worked on as well as any portion(s) of the network that was taken out-of service to allow completion of the contract. The form of chlorine to be used may be Calcium or sodium Hypochlorite. The Director of Physical Plant or designee shall approve the form of chlorine to be used, and the method of application.

   NOTE – The use of Calcium Hypochlorite granules left in the main to be dissolved on filling of the main is not an approved method.

   b. The Contractor must completely fill out a non-standard discharge form with the City. In addition, a sketch must be supplied to the Owner that shall clearly illustrate:

      i. The section, size, and location of the pipeline for which the request for sanitary release is made;

      ii. The existing main where the new main is to be connected;

      iii. The point of application of the chlorine-water solution;

      iv. The location, type, and size of the sampling points;

      v. Which valves connected to the new location of pipeline is to be open and/or closed during the sampling;

   NOTE- The Contractor shall obtain a signature of approval from the Director of Physical Plant or designee. The Contractor is to give the form with the sketch to the sample collector at time of sampling.

6. CONTINUOUS FEED METHOD:
   a. The continuous feed method consists of completely filling the main to remove all air pockets, flushing the completed main to remove particulates, and filling the main with chlorinated potable water so that after a 24 (+/-4) hour holding period in the main there will be a free chlorine residual of not less than 10 mg/L at all locations of the main.

   b. Prior to being chlorinated, the main shall be filled to eliminate air pockets and shall be flushed to remove particulates. The flushing velocity in the main shall be not less than 2.5ft./sec unless the Director of Physical Plant or designee determines that conditions do not permit the required flow to be discharged to waste.
NOTE - Flushing is no substitute for preventative measures during construction.

c. At the point not more than 10ft downstream from the beginning of a new main, water entering the new main shall receive a dose of chlorine pumped at a constant rate such that the water at any location will have not less than 25mg/L of chlorine. To assure that this concentration is provided, the University representative shall measure the chlorine concentration at regular intervals at available blow-offs or hydrants in accordance with procedures described in the current editions of “Standard Methods of the Examination of Water and Wastewater” or using an appropriate chlorine test kit.

d. Table 2 give the amount of chlorine requires for each 1000 ft. of pipe of various diameters. Solutions of 1% chlorine may be prepared with Sodium Hypochlorite or Calcium Hypochlorite. During the application of chlorine, valves shall be closed so that the strong chlorine solution in the main being treated will not flow into water main in active service. Chlorine application shall not cease until the entire main is filled with heavily chlorinated water. The chlorinated water shall be retained in the main for at least 24 +/- 4 hours, during which time all valves and hydrants in the section treated shall be operated in order to disinfect the appurtenances. At the time of this 24 +/-4-hour period, the treated water in all the portions of the main shall have a residual of not less than 10 mg/L of free chlorine.

Table 2 - Chlorine Requires to Produce 25 mg/L Concentration if 100 feet of Pipe by diameter.

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Volume (gals in 100)</th>
<th>15% Chlorine</th>
<th>1% Chlorine</th>
</tr>
</thead>
</table>

POTABLE WATER UTILITY PIPING
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08/10/2020
### Solution gals per 100 ft. of Pipe

<table>
<thead>
<tr>
<th>feet of Pipe</th>
<th>solution gals per 100 ft. of pipe</th>
<th>Solution gals per 100 ft. of Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>65</td>
<td>2 oz.</td>
</tr>
<tr>
<td>6</td>
<td>150</td>
<td>3 oz.</td>
</tr>
<tr>
<td>8</td>
<td>260</td>
<td>5 oz.</td>
</tr>
<tr>
<td>10</td>
<td>410</td>
<td>1 Cup</td>
</tr>
<tr>
<td>12</td>
<td>590</td>
<td>1 Pint</td>
</tr>
<tr>
<td>16</td>
<td>920</td>
<td>1 Quart</td>
</tr>
<tr>
<td>24</td>
<td>2350</td>
<td>1 1/2 Quarts</td>
</tr>
<tr>
<td>30</td>
<td>3680</td>
<td>2 1/2 Quarts</td>
</tr>
<tr>
<td>36</td>
<td>5290</td>
<td>0.9</td>
</tr>
<tr>
<td>42</td>
<td>7200</td>
<td>1.2</td>
</tr>
<tr>
<td>48</td>
<td>9400</td>
<td>1.5</td>
</tr>
<tr>
<td>54</td>
<td>11900</td>
<td>2.0</td>
</tr>
<tr>
<td>60</td>
<td>14690</td>
<td>2.5</td>
</tr>
</tbody>
</table>

**NOTE** - To make 1% chlorine solution using HTH granular Calcium Hypochlorite add 1 pound of Calcium Hypochlorite to 8 gallons of water. Using Sodium Hypochlorite, dilute the hypochlorite according to the percent available chlorine on the container. For example, if you have 5% household bleach, place 1 gallon in 4 gallons of water. You then have 5 gallons of 1% solution.

**e. Slug Method** - (Emergency Use Only) At a point not more than 10 ft. downstream from the beginning of the new main, water entering the new main shall receive a dose of chlorine fed at a constant rate such that the water will have not less than 100 mg/L of free chlorine. To assure that this concentration is provided, the University representative shall measure the chlorine concentration at regular interval along the main where taps and/or hydrants have been provided. The chlorine shall be applied continuously and for sufficient period to develop a solid column or ‘slug’ of chlorinated water that will, as it moves through the main, expose all interior surfaces to a concentration of approximately 100 mg/L for at least 3 hours.
The free chlorine residual shall be measured in the slug as it moves through the main. If at any time it drops below 50 mg/L, the Contractor shall stop the flow, chlorination equipment shall be relocated at the head of the slug, and as flow is resumed, chlorine shall be applied to restore the free chlorine in the slug to not less than 100 mg/L.

As the chlorinated water flows past fittings and valves, related valves and hydrants shall be operated so as to disinfect appurtenances and pipe branches.

7. FLUSHING AFTER DISINFECTION:

a. After the applicable retention period, the heavily chlorinated water shall be flushed from the main into the sewer until chlorine measurements show that the concentration in the water leaving the main is no higher than that generally prevailing in the system. Where domestic sewers are not available, the heavily chlorinated water shall be dechlorinated. The replacement water shall be allowed to remain in the pipeline at least overnight prior to sampling for physical, bacteriological, and chemical testing.

8. ANALYTICAL TEST:

a. After the appropriate retention time (24 +/- 4 hours or 3 hours for the slug method), after flushing and before the water main is placed into service, a sample or samples shall be collected for sanitary analysis by a University representative. Suitable sample piping shall be furnished by the Contractor to all sample collection. The sampling point or points shall provide samples, which are representative of the water in all sections of the main for which sanitary approval is requested. All samples shall be collected in a manner as to avoid contamination from the environment surrounding the main. Rubber or synthetic hose shall not be connected to the main to collect a representative sample. The area around the sampling point of the main shall not be filled with water. At least one sample shall be taken from each main, and in the case where a main is greater than 1000 feet, one sample from each 500 feet of line. The samples shall be submitted to the Water Resources Laboratory for bacteriological, chemical and physical analysis. The following analyses shall be complete and reported on the appropriate forms. Total chlorine residual, Total Coliform (Membrane Filtration Method), pH, and turbidity.

9. FINAL FLUSHING:

a. Disinfected water main shall be flushed within 4 hours of being placed into service. Flushing shall be designed to restore water quality to that of the source water, immediately prior to being placed into service. The length of time of flushing shall depend on the size and length of the water main, however at least three volumes of water should flow through the entire length of the main. Pipe volumes can be calculated by using Table 2 and adjusting for the full length of the main.
a. If the initial disinfection and flushing fail to produce satisfactory analytical results, the main may be flushed and shall be resampled. If check samples show the presence of coliform organisms, then the main shall be rechlorinated by the Contractor using the continuous feed or ‘slug’ method of chlorination until satisfactory results are obtained.

11. MISCELLANEOUS:

a. Two sets of samples will be analyzed by the Water Resources Laboratory at no expense to the Contractor. However, should the initial disinfection fail to produce satisfactory samples, a charge will be made to the Contractor of $100.00 for each set of additional samples required.

12. FINAL CONNECTION:

a. Water mains and appurtenances must be completely installed, flushed, tested for leakage, disinfected, and satisfactory bacteriological sample results received prior to permanent connections being made to the active distribution system where the new main was isolated from the existing system. Sanitary construction practices must be followed during installation of the final connection to insure that there is no contamination of the new or existing water main with foreign material or groundwater.

b. The new pipe, fittings, and valve(s) required for the connection will be spray-disinfected or swabbed with a minimum 1-5% solution of chlorine just prior to being installed.

13. DECHLORINATION:

a. The discharge of water with chlorine concentrations greater than the ambient distribution system chlorine residual is prohibited. After a main has been disinfected with chlorine the highly chlorinated discharge water will be dechlorinated. The method of dechlorination is at the discretion of the contractor as long as the procedure does not cause harm to the environment.

END OF SECTION
SUPPLEMENTAL SPECIFICATIONS
SECTION 116813

PLAYGROUND INSTALLATION

PART 1 – GENERAL

1.1 REFERENCES

A. The City of Manchester STANDARD SPECIFICATIONS for ROAD, DRAIN & SEWER CONSTRUCTION General Requirements, shall be included in and made a part of this Section.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 SCOPE

A. The work of this Section consists of delivery acceptance and Playground Installation work and related items as indicated on the Drawings and/or specified herein. Purchase of playground equipment will be by others. The work includes, but is not limited to, delivery and installation of the following items, all manufactured by Landscape Structures, Inc.:
   1. Interactive Panels
   2. Hill Loops
   3. Play Booster
   4. Rope Pull
   5. WeSaw
   6. Double Oodle Swing
   7. 72” Slide and Tri-Deck

1.3 RELATED WORK

A. Examine all Drawings and all other Sections of the Specifications for requirements affecting the work described below.

1.4 SUBMITTALS

A. Request for Deviations from the Specifications: If any deviations from the specifications are proposed, include written description and reasons for deviations.

B. Shop Drawings: Prior to ordering the below listed materials, submit Shop Drawings to Owner’s Representative showing:
   1. Dimensioned layout of playground equipment relative to adjacent work by other trades.
2. Manufacturer-supplied fall zones and concrete footing locations.

1.5 QUALITY ASSURANCE

A. Source Limitations: Provide products of the same kind, from a single source.

B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project; the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT HANDLING AND STORAGE

A. Deliver materials in original sealed containers marked with name of manufacturer and identification of contents. Store materials under waterproof covers on planking clear of ground and protect from handling damage, dirt, stain, water and wind.

B. Take all necessary precautions to prevent all items from chipping, cracking, or other damage during the transportation of these materials to the project, unloading and storage on the site. Do not use pinch or wrecking bars without protecting edges of stone, concrete masonry units, and brick with wood or other rigid materials. Lift with wide-belt type slings or vacuum lifts wherever possible; do not use wire rope or ropes containing tar or other substances that might cause staining. If required, use wood rollers and provide cushion at end of wood slides. Damaged items shall not be installed, and should any damaged items be found in constructed work, such items shall be removed immediately and replaced, and the Contractor shall assume all expenses incurred therefrom.

C. Stored materials shall be adequately protected against moisture by (1) stacking in such a manner as to allow a complete circulation of air under each stack, and (2) covering each stack, top and sides with a waterproof paper or membrane. Coverings shall remain in place always, when not working from the stack.

1.7 EXAMINATION OF CONDITIONS

A. The Contractor shall fully inform himself/herself of existing conditions of the site and shall be fully responsible for carrying out all work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed because of actual conditions inconsistent with those assumed.

B. The Contractor shall be solely responsible for judging the potential need for storing materials temporarily and/or re-handling items prior to final installation.
1.8 Standards

A. Except as modified by governing code and by the Contract Documents, comply with applicable provisions and recommendations of the following:
1. City of Manchester, NH STANDARD SPECIFICATIONS for ROAD, DRAIN & SEWER CONSTRUCTION, latest edition
3. ADA: Americans with Disabilities Act, latest edition

1.9 Qualifications

A. Site improvement work shall be assigned to experienced and qualified subcontractors with a minimum of five years’ experience installing Landscape Structures playgrounds, employing experienced workmen who will work under the full-time supervision of a qualified foreman with a minimum of five years of experience on playground installations comparable to this project. Submit references for subcontractors for approval of Owner’s Representative.

1.10 Accessibility Codes and Building Codes

A. From time to time there are changes made in the Federal and/or State accessibility and building codes or it is determined that different codes are applicable to a site. Such determinations or changes may occur during the course of the construction of this project. If changes become necessary to meet codes a change order shall be issued by the Town to cover statutory requirements.

Part 2 – Products

2.1 General Requirements

A. All items shall be manufactured and supplied by:

Landscape Structures
601 7th Street South
Delano, MN 55328
www.playsi.com

Local Representative:
Joel St. Pierre, O’Brien & Sons
207-642-5713
www.obrienandsons.com

B. Refer to Appendix 1 Playground Specifications for playground components including parts lists, installation instructions, installation details, and specifications.
C. Concrete footings shall be 3500 PSI and meet all the requirements noted in the Playground Specifications.

PART 3 – EXECUTION

3.1 EXECUTION

A. Locate and install all playground components, complete, in locations shown on the Drawings in accordance with manufacturer's written instructions and in accordance with approved Shop Drawings.

B. Refer to Appendix 1 Playground Specifications for playground components including parts lists, installation instructions, installation details, and specifications.

C. Touch-up and Repair: At factory-primed or factory-finished surfaces, touch up finish in conformance with coating manufacturer's recommendations. Provide touch-up such that repair is not visible from 6 feet.

END OF SECTION
SECTION 116814

SPLASH PAD INSTALLATION

PART 1 – GENERAL

1.1 REFERENCES

A. The City of Manchester STANDARD SPECIFICATIONS for ROAD, DRAIN & SEWER CONSTRUCTION General Requirements, shall be included in and made a part of this Section.

B. Examine all Drawings and all other Sections of the Specifications for requirements therein affecting the work of this trade.

C. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.2 SCOPE

A. The work of this Section consists of delivery acceptance and all Splash Pad Installation, including installing spray features, in-ground jets, activators, as well as all mechanical equipment, electrical equipment, and plumbing. Splash Pad equipment will be purchased by others.

1.3 RELATED WORK

A. Examine all Drawings and all other Sections of the Specifications for requirements affecting the work described below.

1.4 SUBMITTALS

A. Request for Deviations from the Specifications: If any deviations from the specifications are proposed, include written description and reasons for deviations.

B. Shop Drawings: Prior to ordering the below listed materials, submit Shop Drawings to Owner’s Representative showing:
   1. Dimensioned layout of splash pad equipment relative to adjacent work by other trades.
   2. Manufacturer-supplied splash zones and concrete footing locations.

1.5 PRODUCT HANDLING AND STORAGE

A. Deliver materials in original sealed containers marked with name of manufacturer and identification of contents. Store materials under waterproof covers on planking clear of ground and protect from handling damage, dirt, stain, water and wind.
B. Take all necessary precautions to prevent all items from chipping, cracking, or other damage during the transportation of these materials to the project, unloading and storage on the site. Do not use pinch or wrecking bars without protecting edges of stone, concrete masonry units, and brick with wood or other rigid materials. Lift with wide-belt type slings or vacuum lifts wherever possible; do not use wire rope or ropes containing tar or other substances that might cause staining. If required, use wood rollers and provide cushion at end of wood slides. Damaged items shall not be installed, and should any damaged items be found in constructed work, such items shall be removed immediately and replaced, and the Contractor shall assume all expenses incurred therefrom.

C. Stored materials shall be adequately protected against moisture by (1) stacking in such a manner as to allow a complete circulation of air under each stack, and (2) covering each stack, top and sides with a waterproof paper or membrane. Coverings shall remain in place always, when not working from the stack.

1.6 EXAMINATION OF CONDITIONS

A. The Contractor shall fully inform himself/herself of existing conditions of the site and shall be fully responsible for carrying out all work required to fully and properly execute the work of the Contract, regardless of the conditions encountered in the actual work. No claim for extra compensation or extension of time will be allowed because of actual conditions inconsistent with those assumed.

B. The Contractor shall be solely responsible for judging the potential need for storing materials temporarily and/or re-handling items prior to final installation.

1.7 STANDARDS

A. Except as modified by governing code and by the Contract Documents, comply with applicable provisions and recommendations of the following:
   1. City of Manchester, NH STANDARD SPECIFICATIONS for ROAD, DRAIN & SEWER CONSTRUCTION, latest edition
   3. ADA: Americans with Disabilities Act, latest edition

1.8 QUALIFICATIONS

A. Splash Pad installation work shall be assigned to an experienced and qualified Vortex Certified Installer or a subcontractor who has experience with this manufacturer on at least five (5) similar installations. Submit references for subcontractors for approval of Owner’s Representative.
1.9 ACCESSIBILITY CODES AND BUILDING CODES

A. From time to time there are changes made in the Federal and/or State accessibility and building codes or it is determined that different codes are applicable to a site. Such determinations or changes may occur during the course of the construction of this project. If changes become necessary to meet codes a change order shall be issued by the Town to cover statutory requirements.

PART 2 – PRODUCTS

2.1 GENERAL REQUIREMENTS

A. All items shall be manufactured and supplied by:

Vortex Aquatic Structures International.
7800 Trans-Canada Hwy
Pointe-Claire, Quebec
Canada H9R 1C6

www.vortex-intl.comLocal Representative:
Joel St. Pierre, O'Brien & Sons
207-642-5713
www.obrienandsons.com

B. Refer to Appendix 2 Splash Pad Specifications for splash pad components including parts lists, installation instructions, installation details, and specifications.

C. Concrete footings shall be 3500 PSI and meet all the requirements noted in the Splash Pad Specifications.

PART 3 – EXECUTION

3.1 EXECUTION

A. Locate and install all splash pad components, complete, in locations shown on the Drawings in accordance with manufacturer's written instructions and in accordance with approved Shop Drawings.

B. Refer to Appendix 2 Splash Pad Specifications for splash pad components including parts lists, installation instructions, installation details, and specifications.

C. Touch-up and Repair: At factory-primed or factory-finished surfaces, touch up finish in conformance with coating manufacturer’s recommendations. Provide touch-up such that repair is not visible from 6 feet.

END OF SECTION
MANCHESTER WATER WORKS

TECHNICAL SPECIFICATIONS

Ductile Iron Pipe
Unless otherwise specified, ductile iron pipe shall be class 52 and manufactured in the United States of America and shall conform to ANSI 21.51 (AWWA C-151) for "pipe centrifugally cast in metal molds for water". Cement linings shall be double the standard thickness and shall conform to ANSI A21.4. Seal coating shall be applied inside and out. All pipe shall be push-on type joint, in accordance with ANSI A21.11.
In addition, all pipe purchased may be subject to inspection and acceptance by the Manchester Water Works or its agent. The supplier and/or manufacturer shall be responsible for such accommodations and handling as are required to allow for proper inspection, if so requested by the Manchester Water Works.

Additional Requirements
The pipe and fittings, in addition to meeting all of the appropriate requirements of ANSI and AWWA, shall conform to the following:
1.) All pipe and fittings shall be free of all significant casting flaws both inside and out, including slag holes, slag inclusions, laps, lamination, mold splash, and pin holes.
2.) All linings shall be of uniform thickness with no significant wavering and/or roughness.
3.) Bell ends shall be cleaned of cement and excess seal coat material.
4.) Spigot ends shall be properly tapered and cut ends shall be ground.

Fittings
Unless otherwise specified, all mechanical joint fittings shall be complete with accessories and shall conform to AWWA C104/ANSI A21.4, C111/A21.11 or C153/A21.53. All fittings shall be pressure rated for 350 psi, ductile iron with double cement-lining thickness and seal coated inside and out, or two-part epoxy coated, and shall be manufactured in the United States of America. Fittings 4"-12" shall be compact pattern per AWWA C153. In addition, all fittings purchased may be subject to inspection and acceptance by the Manchester Water Works or its agent. The supplier and/or manufacturer shall be responsible for such accommodations and handling as are required to allow for proper inspection if so requested by the Manchester Water Works.

Additional Requirements
The fittings, in addition to meeting all of the appropriate requirements of ANSI and AWWA, shall conform to the following:
1.) All fittings shall be free of all significant casting flaws both inside and out, including slag holes, slag inclusions, laps, lamination, mold splash, and pin holes.
2.) All linings shall be of uniform thickness with no significant wavering and/or roughness.
3.) Mechanical joint bells and glands shall be dimensionally correct and free of all slag and rough edges at bolt holes.
4.) All fittings shall arrive with their appropriate mechanical joints accessories.

Butterfly Valves
General: All butterfly valves shall be manufactured in the United States of America and shall be open right with mechanical joint end connection, complete with accessories for buried service. Valve shall be of tight closing rubber seat type with seats bonded or mechanically retained into the valve body. Valves shall have a full uninterrupted 360 degree sealing surface and shall be bubble tight at rated pressure in both
directions. Valves shall be designed for use in either throttling application or for very infrequent operation after extended periods of inactivity. Valves shall be in full compliance with AWWA specification C-504, class 150B, with the following exceptions:

1.) **All valve bodies** shall be of cast iron conforming to ASTM A-126, class B with integral cast ends as required to meet application requirements. All exposed ferrous surfaces shall be coated with an 8 mil thickness of a two-part epoxy coating, holiday free, conforming to AWWA C-550 and NSF-61 standards. **Exposed bolts and nuts shall be stainless steel.**

   The manufacturer shall furnish an affidavit that all requirements contained in this section have been met.

2.) **All valve discs** shall be streamlined and present the smallest profile possible consistent with the structural requirements of the pressure class. The valve discs shall be of offset or flow through design and material composition of cast or ductile iron. Disc sealing edge shall have a continuous uninterrupted 360 degree sealing surface of 18-8 stainless steel.

3.) **Valve shafts** shall be of 18-8 type 304 stainless steel or carbon steel with stainless steel journals. Shaft design shall be of “thru” or “stub” type construction with at least 1” shaft diameter engagement into disc. Shaft to disc connection shall be of a rigid, non-slip type connection.

4.) **Valve seats** shall be a rubber material bonded or mechanically retained.

5.) **Valve Bearings** shall have a significant difference in hardness from the valve shaft.

6.) **Valve actuators** shall be designed as an integral part of the valve and shall meet or exceed all the requirements of AWWA C-504. Actuators shall be of rack and pinion, link and lever, or travelling design. All moving parts penetrating into the actuator shall have corrosion resistant surfaces in contact with the housing seals. All actuator types, in a given size, to be interchangeable and fastened to valves with readily accessible bolts. All actuators must fit on the valves they are designed to operate in any mounted position or rotational direction without any special preparation to either valve or the actuator.

Manufacturers of butterfly valves shall be M&H, Clow, Kennedy, Pratt Groundhog.

**Tapping Sleeves**

Tapping sleeves 4” through 12” sizes shall be U.S. Pipe and Foundry ductile iron T-28, dual compression. Tapping sleeves 16” through 24” sizes shall be US Pipe and Foundry T-9 or Mueller ductile iron mechanical joint.

**Resilient Seated Valves, 4” through 12”**

Mechanical joint resilient seated gate valves shall be manufactured in the United States of America and tested in full compliance with the latest revision of AWWA standard C-509-01 or AWWA C515-01 (reduced wall, resilient seated). Valves shall have a minimum design working pressure of 200 psi and a minimum test pressure of 400 psi. The pressure rating shall be cast on the outside of the valve. Valve body and bonnet shall be of cast or ductile iron coated on all exterior and interior surfaces with a two-part fusion bonded epoxy conforming to the latest revision of AWWA standard C-550, applied with a minimum thickness of eight (8) mils. The manufacturer shall certify that the coating is suitable for use in a potable water system, and the interior coating certified to be holiday-free.

The gate shall be completely covered with rubber over all ferrous surfaces. The rubber shall be securely bonded to the gate body. The "O" ring stem seal shall be replaceable with the valve under pressure in the full open position. Valves shall be full port opening, open to the right (clockwise) and be the non-rising stem type with standard accessories for buried application. **Exposed bolts and nuts shall be stainless steel.**
Manufacturers of valves shall be Clow, Kennedy, U.S. Pipe, M&H, Meuller, AFC.

**Tapping Valves - Resilient Seated**
Tapping valves shall have enlarged ports, open right, and end connections of mechanical joint x flange with lip, and shall be manufactured in the USA and tested in full compliance with the latest revision of AWWA standard C-509-01 or AWWA C515-01. The valves shall meet all the requirements listed in the previous paragraph "Resilient Seat Valves 4" through 12".

Manufacturers of valves shall be Clow, Kennedy, U.S. Pipe, M&H, Meuller, AFC.

**Copper Meter Setter and Check Valves (No lead brass)**
*Copper meter setter* shall be *Ford Copperhorn, McDonald Series 40 "C" style* or equal and shall be furnished with one male and female IP union inlet/outlet connectors. Solder connections on the setter, if required, shall be "lead free", and meet the "Reduction of Lead in Drinking Water Act" limit of 0.25% lead content.

*Dual check valves* shall be *Ford HH C11 or A.Y. McDonald 711*. Check assemblies shall be made of acetal plastic with stainless steel springs and both cartridges are to be identical and interchangeable. Inlet and outlet are to be FIP. Dual check valves shall meet ASSE std. 1024-1988, NSF61 and ASTM B62-93-B05.05. Brass shall meet the "Reduction of Lead in Drinking Water Act" limit of 0.25% lead content.

Dual check valves shall be cast from red brass composition Cu-86.91%, Sn-4.6%, Zn-2.6%, Bi-1.7-2%, Pb-.09% max. Check valve specifications and a sample must be furnished with the bid for valves claimed to be equal to those identified as acceptable in these specifications.

**Service and Repair Saddles**
Service and repair saddles shall have bodies of ductile iron, fusion bonded epoxy coating and the outlet shall be tapped with CC female thread per AWWA C800. Gaskets shall provide a tight seal by both mechanical and hydrostatic pressure. Saddles shall have stainless steel straps, bolts and hex nuts. Nominal sizes which are required are for ductile iron pipe and cast iron pipe. The service saddles shall be Smith Blair model 317 and repair saddles shall be Smith Blair model 331.

**Repair Clamps**
The full circle repair clamps shall be made of a type 304 (18-8) stainless steel. They shall be a minimum of 15” in width, except clamps for 2” pipe.

The lugs shall be made of a high strength ductile iron per ASTM A536 GR 80-55-06 and have a fusion bonded epoxy coating.

The gasket shall be made of nitrile (Buna N) a special compound to resist water, oil, acids, alcalis, hydrocarbon fluids and many other chemicals.

All bolts, nuts and washers shall be 304 stainless steel. At least one 5/8”x 6 7/8” bolt with a taller nut shall be furnished to help facilitate installation of the clamps.

Repair clamps shall be Smith Blair 226.

**Couplings**
Couplings shall be *Hymax Coupling*. The body and rings shall be carbon steel with a fusion bonded
epoxy coating. The bolts and nuts shall be stainless steel with the nuts coated with an anti-seize compound. The gasket shall be made in two layers with a removable inner layer that allows for diameter range expansion. Gasket shall be rubber recommended for water and have superior resistance to set. Gasket performance shall not be affected within a temperature range of -40F to +140F. OD range for nominal pipe sizes shall be sufficient for use with cast and class 52 ductile iron pipe.

**Gate Valve Boxes**

Special Note: A typical sample of a complete gate valve box must be available for evaluation within 48 hours of bid opening, if requested.

Gate valve boxes shall be cast iron and for water use only (marked "water"), and shall have the following characteristics:

a. Flange shall be located at top of top section.
b. Bottom section shall be bell base.
c. Boxes shall be two-piece with covers; thirty-six (36) inch bottoms and twenty (26) inch tops.
d. Boxes shall have slip-tight shaft; five and one-quarter (5-1/4) inches.
e. Gate box covers shall fit properly and seat flush in the gate valve box top section.
f. Gate box extensions shall properly fit the gate valve box top section and be Buffalo #B-5181 or equal.
g. Gate box shall be made in the United States of America or Canada.
h. Gate box extensions shall accept standard gate box cover.

**Curb Boxes, Small**

Special Note: A typical sample of the curb box and rod must be available for evaluation within 48 hours of bid opening, if requested. Curb boxes shall be manufactured in United States of America or Canada.

Adjustment: Twelve (12) inches.
Cover: Heavy duty, slotted, with counter sunk pentagon solid brass plug, coarse thread.
Length: Adjustable, 5ft. to 6ft.
Pattern: Arch type to be used with curb stop sizes three-quarter (3/4) and one (1) inch.
Rod: One-half (1/2) inch offset stainless steel rod with stainless steel yoke, thirty (30) inches in length.
Upper Extension: One (1) inch.

**Service Box Extensions (3” and 6” extensions)**

The service box extensions shall have three (3) set screws for proper centering over the existing curb box. The service box extensions shall be a General Foundries Inc. or approved equal.

**Wedge Action Retainer Glands**

a.) Glands shall be of ductile iron.
b.) Set screws shall be of ductile iron and must be designed for 70 ft lbs. of torque.
c.) Retainer glands shall be UL approved.
d.) M.J. bolts and gaskets are not included.
e.) Retainer glands shall be **EBBAA Iron Sales Inc. Megalug or Uni-Flange Series 1400.**
f.) Retainer glands shall be manufactured in the USA.
g.) Glands shall be free of excess bituminous coating.

**Copper Tubing**

Copper tubing shall be TYPE "K" soft, manufactured in the United States of America.
Delivery: Copper tubing shall be delivered in sixty (60) foot coils in sizes 3/4” and 1” and 20 ft. straight lengths in sizes 1 1/2” and 2”.

Manufacturer: The manufacturer’s name and place of manufacture shall be declared. The manufacturer must be a member of the Copper Development Inc., 405 Lexington Avenue, New York, New York.

Measurements: OD Measurements Wall Thickness

<table>
<thead>
<tr>
<th>Size</th>
<th>Od</th>
<th>Wall Thickness</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4&quot;</td>
<td>.875</td>
<td>.065</td>
</tr>
<tr>
<td>1&quot;</td>
<td>1.125</td>
<td>.065</td>
</tr>
<tr>
<td>1 1/2&quot;</td>
<td>1.63</td>
<td>.072</td>
</tr>
<tr>
<td>2&quot;</td>
<td>2.13</td>
<td>.083</td>
</tr>
</tbody>
</table>

Polyethylene Tubing
Tubing sizes 1” through 2” shall be copper tube size (CTS) designed for 200psi working pressure and shall conform to AWWA C901. Insert stiffeners shall be furnished for use on all compression joint connections. PE tubing shall be supplied in 100 ft. coils with four stiffeners per coil.

Curb Stops (No Lead Brass)
Curb stops shall be compliant with AWWA C800 and shall be cast with No Lead Brass, with PTFE coated ball, double O-ring design and CTS pack joint fittings for use with Type K copper tubing. Upper extension shall be one inch in diameter.

Curb stops shall be 300 Ball Curb Valve by Mueller Company of Decatur, Illinois; Model 76000-22 by A.Y. McDonald Manufacturing Company of Dubuque, Iowa; Series B44-NL by Ford Meter Box Company Inc. of Wabash, Indiana; no substitutions.

Corporations (No Lead Brass)
Corporation stop shall be compliant with AWWA C800 and shall be cast with No Lead Brass, with PTFE coated ball type and double O-ring design. The inlet side shall have AWWA tapered threads. The outlet side shall have CTS pack joint fittings for use with Type K copper tubing. The corporation shall be adaptable to the drill and tap combinations used in the Mueller A-3, B-100 and D-5 type tapping machines, or the Reed CDTM 1000.

Corporation stops shall be 300 Ball Type Corporation Valve by Mueller Company of Decatur, Illinois; Series FB1000-NL by Ford Meter Box Company Inc. of Wabash, Indiana; or equal as determined by MWW.

3-Piece Unions (No Lead Brass)
3-piece unions shall be equipped with CTS pack joint fittings: body shall be heavy cast brass and compatible with copper tubing (type K soft). Unions shall be McDonald MAC-PAK 74758-22, Ford C44 or approved equal. See additional requirements below.

NOTE: Additional Requirements (For No Lead Brass)
Casting: Curb stops and corporations shall meet the requirements set in the “Reduction of Lead in Drinking Water Act” and are to be cast from red brass having the following compositions: Cu-86-91%, Sn-4-6%, Zn-2-6%, Bi-1.7-2.7%, Pb-.09% max. **
Tests: All curb stops and corporations shall be tested for tightness, and have the ability to withstand one hundred fifty (150) pounds working pressure.
Threads: Shall be standard threads and finished in a workmanlike manner, i.e., free of
excessive burrs. Nuts shall start freely in assembly.

**Fittings:** Compression type fittings on all copper connections unless otherwise specified.

**Trademark:** The manufacturer’s identifying mark shall be stamped on the brass service material.

**Other:** The corporations shall be adaptable to the drill and tap combinations used in the Mueller B-100 and A-3 type tapping machines, and Reed TM 1000 tapping machine.

**ASTM specifications allow 86% to 90% copper content. AWWA C-800**

**Hydrants**

**Color:** **YELLOW**

**Approved Types:** Hydrants to be Clow Corp. "Eddy", or U.S. Pipe and Foundry Inc. "Metropolitan"

**Flange:** Break type

**Head:** Swivel

**Opening:** Hydrants shall open right (clockwise).

**Inlet Connection:** Mechanical joint 6"- shoe casting shall be coated with a fusion bonded epoxy coating.

**Nozzle:** Hose: (2) 2½"

**Pump:** (1) 4½"

**Threads:** National Standard Thread (NST)

**Operating Nut:** Pentagon MWW approved size

**Main Valve Opening:** 5¼"

**Size:** Hydrant sizes represent "depth of trench" measurement, that is to say, the distance from the bottom of the trench to ground line just below the break flange.

**Delivery:** Hydrants are to be delivered no later than June 1, 2014. 

*Notification is required 48 hours prior to delivery.*

**Note:** All hydrant risers and break flange kits shall be original manufactured parts. Any after market material will not be acceptable.

**Polyethylene Wrap for Ductile Iron Pipe**

Polyethylene wrap shall be 8 mil minimum, lineal low density, flat tube virgin polyethylene film. Polyethylene film shall prevent contact between the pipe and any potentially corrosive soils. The film shall be marked showing trademark, year of manufacture, type of resin, specification conformance, applicable pipe size and a corrosion protection warning. The polyethylene wrap shall meet or exceed the AWWA C105-10, ANSI A21.5-10, ASTM D4976 and NT 4112-10.
Requirement:

- Tensile Strength: 3600 psi, minimum - ASTM D882
- Elongation: 800%, minimum - ASTM D882
- Dielectric Strength: 800 v/mil, minimum - ASTM D149
- Impact Resistance: 600g minimum - ASTM D1709-B
- Propagation Tear Resistance: 2550 gf. Minimum - ASTM D1922

Affidavit of Compliance

The manufacturer shall furnish an affidavit stating that all delivered material complies with the requirements of these standards and of the purchaser.
APPENDICES
APPENDIX 1
APPENDIX 1

PLAYGROUND EQUIPMENT INSTALLATION INSTRUCTIONS

1. This document is provided by the manufacturer for bidder reference only. All products referenced herein will be purchased by the City of Manchester. Contractor shall accept delivery and install.

2. Installation hours have been provided by manufacturer for information only and are not to be assumed to be the actual time required to install parts. The Contractor will not be compensated to discrepancies between estimated install hours and the Contractor’s actual install hours.

3. Footing plans provided by the manufacturer may not reflect the correct placement of the play structure relative to the other playground elements. Refer to site plans for placement of components on site. Footing plans are provided for reference only.

4. The following items will be custom orders. Installation drawings and specifications will be provided by manufacturer after product is ordered.
   001153    Hill Loop
   006233    Double Ooodle Swing with One Bay for Standard Swing Seats
   016786    PB Rope Pull Climber for 5' Elevation Change Hill
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
**PlayBooster® Tee Clamp Assembly**

### Parts List

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>105327-01</td>
<td>5” Half Clamp, Specify Color</td>
<td>2</td>
</tr>
<tr>
<td>100198-00</td>
<td>3/8” x 1 1/8” BHCS w/Pin, SST</td>
<td>4</td>
</tr>
<tr>
<td>100351-00</td>
<td>3/8” Tee Nut, SST</td>
<td>4</td>
</tr>
<tr>
<td>100610-00</td>
<td>1/4” x 5/8” Drive Rivet, SST</td>
<td>2</td>
</tr>
</tbody>
</table>

### Specifications

**Tee/Beam:** 356 alloy treated to T-6 hardness and welded to 5” aluminum beams or mechanically fastened to 5” steel beams. Finish: Powdercoat, color specified.

**Half Clamps:** Cast aluminum. Finish: Powdercoat, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 1/4 man hour

**Weight:** 2 lbs.

---

**Installation Instructions**

1. Locate and mark center of clamp location on 5” pipe.
2. With beam in position, fasten 5” half clamps to tee clamp using 1/4” x 1 1/4” BHCS w/Pin and tee nuts as shown. Tighten cap screws evenly.
3. **IMPORTANT:** Install drive rivets in half clamps by drilling holes in clamps and into 5” pipe using a 1/4” or “F” (only) drill bit. Insert rivet in hole, and hammer rivet pin in until it is flush with head.
115176 is a hard surface label

Not an Install doc.
NOTE:
Surface mounting will not work in all applications. Consult Landscape Structures Inc. for your particular requirements.

### CONCRETE SLAB SPECS
- Base under slab to be 4" - 6" of sand over a stable subgrade.
- Depth of concrete slab to be 4" - 6" with a wire mesh support.
- Minimum of 7 days curing time full cure after 30 days.
- Surface of concrete to be trowled smooth and acid etched.
- Concrete: 3000 PSI (Min)
  - 30 Days 3500 PSI
  - 3/4" Minus Crushed Rock

NOTE:
Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

### NOTE:
Drill 3" deep hole using hammer drill and 1/2" masonry bit. Tap anchors into concrete and secure with 1/2" standard hex nuts and 1/2" flat washers.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487, SECTION 9.)

Enclosures or components are required on any decks higher than 28" as indicated on your plan drawing.

Dimension indicates center to center spacing of concrete footings.

Number indicates height of deck above finished grade.

Letter indicates post length as indicated on your plan drawing.

Enclosures/Components - Refer to your plan drawing for locations and their respective spec sheets for installation.

Vertical Ladders - Refer to your plan drawing for locations and the Vertical Ladder spec sheet for installation.

Decks - Refer to your plan drawing for heights and orientation. Refer to the appropriate deck spec sheet for installation.

Deck Hanger Clamp Assembly - Refer to the appropriate Deck Assembly spec sheet for installation.

Concrete Footings - Refer to the Typical Concrete Footing spec sheet for installation.

Kick Plates - Refer to your plan drawing for locations and the Kick Plate spec sheet for installation.
Installation Instructions

Before Starting, Read the General Construction Guidelines, Installation Hints, All Typical Detail Sheets and Specific Installation Instructions for Each Component Labeled on Your Plan.

1) Dig footing holes spaced as shown on the plan and spec sheets. Refer to the Typical Concrete Footing Spec Sheet.

2) Note the post lengths as shown on the plan and set in their appropriate footing holes. The post length is indicated on the finished grade sticker on each post.

3) Mark the appropriate posts for the deck heights you are installing and attach decks to posts at marked height. Refer to the appropriate deck spec sheet for installation.

4) After all the posts are at proper heights and plumb, and the decks are at proper height and level, pour the concrete footings per the Typical Concrete Footing Spec Sheet.

5) Continue installing enclosures and components and pour concrete footings as you progress, making sure everything is plumb and level.

6) When installation is complete, install Drive Rivets in all clamps per the Typical Offset Hanger Clamp Spec Sheet.

7) Install protective surfacing under and around all equipment before users are allowed to play on the structure.
The Offset Hanger Clamp allows rails to be installed at the same height for special applications, like at 90° to each other as shown, or when there are clamp conflicts, offset can be positioned upward.

NOTE: A drive rivet is not required in all applications. See General Rules for Use of Drive Rivets for more information.

NOTE: Position with offset facing down as shown. See Detail for special applications.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
## Parts List

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>100198-00</td>
<td>3/8&quot; x 1 1/8&quot; BHCS w/Pin, SST</td>
<td>2</td>
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<tr>
<td>100351-00</td>
<td>3/8&quot; Tee Nut, SST</td>
<td>2</td>
</tr>
<tr>
<td>100610-00</td>
<td>1/4&quot; x 5/8&quot; Drive Rivet, AL/SST</td>
<td>1</td>
</tr>
<tr>
<td>103527-01</td>
<td>5&quot; Half Clamp, Specify Color</td>
<td>1</td>
</tr>
<tr>
<td>113729-00</td>
<td>Offset Hanger Clamp, Specify Color</td>
<td>1</td>
</tr>
<tr>
<td>100203-00</td>
<td>1/4&quot; x 2 1/4&quot; BHCS w/Pin, SST</td>
<td>1</td>
</tr>
</tbody>
</table>

### Specifications

**Clamp:** Cast aluminum. Finish: Powdercoat, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 1/4 man hour

**Weight:** 3 lbs.

### Installation Instructions

1. Locate and mark position of clamp on 5" post.
2. Position clamp in proper direction and assemble with 3/8" x 1 1/8" BHCS w/pin and 3/8" tee nuts as shown and lightly tighten. Position rail against clamp and screw in 1/4" x 2 1/4" BHCS w/pin until rail bottoms out on clamp. Final tighten all fasteners.
3. **IMPORTANT:** Drill through hole in 5" half clamp and into 5" post with a 1/4" or "F" (only) drill bit, insert rivet in hole and hammer rivet pin in until it is flush with head.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487)

Minimum 1.2 Cubic Feet of Concrete Required per Support.

Typical Component Support

Loose Fill Protective Surfacing

Subgrade

Concrete

Crushed Rock

Minimum 1.2 Cubic Feet of Concrete Required per Support.

* An Example: If you are using 12" of loose fill material, your concrete footing will be 22" deep.
PlayBooster Installation

1) Before starting installation, study your PlayBooster plan drawing and all installation instructions carefully for location of posts, deck heights, components and safety enclosures. Make sure slides are oriented away from the afternoon sun and that the structure is visible (easily supervised) and accessible.

2) Clear an area large enough for your PlayBooster and at least the required minimum use zone around it, as shown on your plan drawing. The subsurface must be well drained. If the soil does not drain naturally it must be tiled or sloped at 1/8” to 1/4” per foot to a storm sewer or a "French Drain". If your PlayBooster is over 30’ in length it is recommended to install more than one "French Drain" or similar system to allow drainage from the center of the play area and decrease the overall slope. If this is not possible, the structure may need to be "stepped" to take up the grade change.

3) Overhead Obstructions: Overhead obstructions within the use zones of playground equipment that are not part of the play structure (for example, tree limbs) shall be at least 84 in. (2130 mm) above each designated play surface or 84 in. (2130 mm) above the pivot point of swings. All overhead utility line clearances above the use zone areas shall comply with all local, state, and national codes, such as the National Electrical Safety Code.

4) Locate all mainstructure post footing holes according to the dimensions shown on your PlayBooster plan. This can be accomplished by laying a deck on the ground and measuring from it; by laying out a base line string grid or using a builders transit. This step is very important and worth taking extra time to be precise. Location of component footings such as slide supports can be done at a later time.

5) Refer to the Typical Concrete Footing installation sheet. Dig holes to the proper width and depth as shown. (Only dig enough holes for one day’s construction. Do not leave holes open over night.) Pour crushed rock in each hole level with each other and at least 4” deep as shown. This can be easily accomplished either with a builders transit or by laying out hole locations with a string grid, leveling the grid, and measuring down from the grid for each footing. Tamp the crushed rock down until compacted and at proper level. This step is important to ensure all posts will be at the proper height relative to each other, and it greatly simplifies installation. If the soils are loose or unstable, larger diameter holes may be necessary. Check with a local engineer if in doubt.

6) Start with the lowest deck and work your way to the highest deck following instructions on the installation sheets for typical post/deck assembly. Install barriers and roofs as located on the plan for stability.

7) After the posts are at proper heights and plumb, and the decks are at proper height and level, pour the concrete footings per the Typical Concrete Footing Detail.

8) During construction, the site and all the material on it must be secured when unattended to prevent children from playing on them. Do not leave decks with unprotected openings when unattended-use temporary barricades if necessary.

9) Install all other play components per the installation instructions. After all components and enclosures are properly attached, pour the remaining concrete footings per the Typical Concrete Footing Detail.

10) Install protective surfacing material.

11) Attach play hardware such as ‘D’ rings and swing seats last, after protective surfacing is in place and footings have cured at least 3 days.

12) Carefully and thoroughly inspect the entire PlayBooster to be sure all fastening hardware is tight. According to ASTM F1487, section 6.2 sharp points, edges and protrusions; any exposed bolt ends should not protrude beyond the face of the nut more than two (2) threads. This condition is not planned, but may exist in some applications because materials and finishes will vary. To remedy this situation, add a second nut or washer(s), extras have been added to the spare parts kit. See illustrations on reverse side of this sheet. Children should not be allowed on the structure until this inspection is complete.

13) Before children are allowed on the structure, the site must be cleaned and free of all construction debris and packaging material. Do not burn on the site.
Tools Required
Tools required for installation are an auger, or other equipment for digging 14" diameter footing holes; shovels, rubber mallet, drill (with 1/8", 7/32", 9/32", 11/32" and 3/16" drill bits), tape measure, hex keys or allen wrenches, level, 9/32" socket set, hammer, open end wrench set, screw driver, for surface mount a hammer drill, 3/8" and 1/2" masonry bits and transit or string line to aid in layout. Some washable felt tip pens are also useful for marking clamp locations.

Materials Required
All PlayBooster materials are supplied except concrete for footings, protective surfacing material, and curbing or edging material. With the exception of the special wrenches required (for the pinned hex fasteners) no other tools are supplied.

Recycling
Many of our packaging materials can be recycled, please take the time to separate and deliver them to a recycler. Thank You.

Installation Times
Installation times, as noted on the back of the installation sheets, are approximate and will vary depending on soil conditions, installer's equipment and ability. Times indicated do not include unloading or unpacking equipment. The man hours given are for one person installing (unless otherwise noted). Cut time in half for two people.

Technical Services
If you have any questions or concerns about the installation of your structure, call our Technical Services Department at: 1-800-328-0035 (7:30 - 5:30p.m. CST/M-F).

Illustrations For Note 10, (Reverse Side Of This Sheet)
1.) Determine the highest accessible part - by definition.

2.) Determine the type of surfacing material desired:
   • *Unitary* - Bound rubber type materials for the accessible areas.
   • *Loose-fill* - Sand, wood chips, etc. for non-accessible areas.

3.) Select a material that has a Critical Height value of at least the height of the highest accessible part.
   • According to the CPSC, Critical Height is defined as the maximum height from which the instrumented metal headform, upon impact, yields both a peak deceleration of no more than 200 G's and a HIC value of no more than 1,000 when tested in accordance with the procedure described in the ASTM Test Method F1292.
   • Request independent laboratory test results showing the critical height of each product per the above procedures for commercially available products. The CPSC has tested some common loose-fill materials that are commonly not tested as a protective surfacing. (See back page.)

4.) Cover the designated use zone with the desired materials. If a different type of material is used for the accessible route of travel, make sure the surfaces are maintained flush.
Critical Heights (in Feet)

<table>
<thead>
<tr>
<th>Material</th>
<th>Uncompressed Depth</th>
<th>Compressed Depth *</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6&quot;</td>
<td>9&quot;</td>
</tr>
<tr>
<td>* Wood Mulch</td>
<td>7'</td>
<td>10'</td>
</tr>
<tr>
<td>* Double Shredded Bark Mulch</td>
<td>6'</td>
<td>10'</td>
</tr>
<tr>
<td>* Uniform Wood Chips</td>
<td>6'</td>
<td>7'</td>
</tr>
<tr>
<td>* Fine Sand</td>
<td>5'</td>
<td>5'</td>
</tr>
<tr>
<td>* Coarse Sand</td>
<td>5'</td>
<td>5'</td>
</tr>
<tr>
<td>* Fine Gravel</td>
<td>6'</td>
<td>7'</td>
</tr>
<tr>
<td>* Medium Gravel</td>
<td>5'</td>
<td>5'</td>
</tr>
</tbody>
</table>

NA = Not Available

* **NOTE:** Compressed depths most accurately depict conditions on a playground.
* An approximation of the maximum fall height from which a life-threatening head injury would not be expected to occur, based on tests in which a headform yielded both a peak deceleration of less than 200 G's and a HIC of less than 1000 upon impact.

SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487)

SPECIFICATIONS:

Arch formed from 5" O.D. 6005-T5 aluminum tubing with 1/8" wall thickness. Unit is coated with a baked-on polyester powder-coating, color specified.

Key:

<table>
<thead>
<tr>
<th>Deck Height</th>
<th>Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>32&quot;/810</td>
<td>92 1/2'/2350</td>
</tr>
<tr>
<td>40&quot;/1020</td>
<td>98 1/2'/2502</td>
</tr>
<tr>
<td>48&quot;/1220</td>
<td>90 1/2'/2299</td>
</tr>
<tr>
<td>56&quot;/1420</td>
<td>98 1/2'/2502</td>
</tr>
<tr>
<td>64&quot;/1630</td>
<td>90 1/2'/2299</td>
</tr>
<tr>
<td>72&quot;/1830</td>
<td>90 1/2'/2299</td>
</tr>
<tr>
<td>At Grade (No Deck)...</td>
<td>97 1/4'/2470</td>
</tr>
</tbody>
</table>

NOTE:
Refer To Your Plan For Location Of Arches.

Standard Concrete Footings Required w/ 34"/860 Bury
"How to distribute your hardware *Headache Free*

We have received feedback from you, our customers, that the most common delay in completing your playground installation is lost or misplaced hardware.

Some of our most successful installations have used a *check-out* system with one person appointed to distribute the various hardware packages. Installation sheets are provided for each component that indicate hardware packages/items required to assemble that component. Refer to these sheets to determine which hardware items to request from the designated *check-out* person.

HELPFUL HINTS:
Read installation sheets.

Be sure to use the correct length hardware as specified on the installation sheets.

Be sure to use clamps in the correct location as indicated on the installation sheets.
Warning

Your playground may include equipment containing moving parts. Moving parts are more vulnerable to wear, mis-use and abuse than other non-moving parts. It is critical these parts be inspected and maintained according to our recommendations.

As the owner, it is your responsibility to perform preventative maintenance and record your findings. Failure to do so may create a hazard and cause serious injury or death.
IMPORTANT SAFETY NOTES!

According to the U.S. Consumer Product Safety Commission (CPSC) nearly 70% of all playground injuries are caused by falls to the surface.

PLEASE INSTALL AND MAINTAIN ADEQUATE PROTECTIVE SURFACING UNDER AND AROUND YOUR PLAYSTRUCTURE!

Never let children play on the equipment before protective surfacing is installed.

Consult the CPSC's Handbook for Public Playground Safety, the ASTM F1487 Standard or your Landscape Structures representative for more information.
Recycling of packaging materials

Did you know that most of the packaging materials you receive on a Landscape Structures order are recyclable? Do you reuse or recycle everything you can from your playground sites? We're making it easier for you to do the right thing and keep these materials out of landfills!

**FOAM/SCRIM SHEETS**

Landscape Structures has partnered with our supplier to recycle foam/scrim material, the grey and white sheets that are layered between the large painted parts. This material is not usually accepted at general recycling facilities but this supplier will re-use it in their manufacturing of new packaging materials. It's easy! Just put the foam/scrim from your installation site in a box and ship it to the facility closest to you.

Here is a list of participating facilities throughout the U.S.:

<table>
<thead>
<tr>
<th>Foam/Scrim Products Only</th>
<th>Foam/Scrim, Plastic Banding, Shrink Wrap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregis Plant</td>
<td>Anchor Facility</td>
</tr>
<tr>
<td>159 N San Antonio Ave.</td>
<td>480 Broadway St.</td>
</tr>
<tr>
<td>Pomona, CA 91767</td>
<td>St Paul, MN 55101</td>
</tr>
<tr>
<td>Pregis Plant</td>
<td>Anchor Facility</td>
</tr>
<tr>
<td>8201 W Elowin Ct.</td>
<td>1501 Swasey Rd.</td>
</tr>
<tr>
<td>Visalia, CA 93291</td>
<td>Hudson, WI 54016</td>
</tr>
<tr>
<td>Pregis Plant</td>
<td></td>
</tr>
<tr>
<td>7574 Presidents Dr.</td>
<td></td>
</tr>
<tr>
<td>Orlando, FL 32809</td>
<td></td>
</tr>
<tr>
<td>Pregis Plant</td>
<td></td>
</tr>
<tr>
<td>1411 Pidco Dr.</td>
<td></td>
</tr>
<tr>
<td>Plymouth, IN 46563</td>
<td></td>
</tr>
<tr>
<td>Pregis Plant</td>
<td></td>
</tr>
<tr>
<td>300 Harris Rd.</td>
<td></td>
</tr>
<tr>
<td>Wurtland, KY 41144</td>
<td></td>
</tr>
</tbody>
</table>

Don't stop here! Most of the other packaging materials can also be recycled, reused or repurposed.

- **CORRUGATED CARDBOARD**: Boxes can be broken down and recycled at a local recycler, or reused for other storage.
- **SHRINK WRAP**: Contact your local plastic recycler and ask if they accept polyethylene plastic.
- **PLASTIC BANDING**: Contact your local plastic recycler and ask if they accept polypropylene.

If you have suggestions for recycling, reusing or repurposing other materials, please email them to: info@playlsi.com. Just one more way Landscape Structures is building healthy, sustainable communities.
182212 is an entanglement label

Not an Install doc.
182213 is a hot surface label

Not an Install doc.
Look for compliance to the following guidelines and standards whenever you install playground equipment. It's your assurance that the products you install meet the most rigorous safety and quality assurance standards.

Landscape Structures is a member in good standing of IPEMA, the International Play Equipment Manufacturers Association. IPEMA is a member-driven, international trade organization that represents and promotes an open market for manufacturers of play equipment.

In the interest of playground safety, IPEMA provides a Third Party Certification Service whereby a designated independent laboratory validates a participant’s certification of conformance to ASTM F1487, Standard Consumer Safety Performance Specification for Playground Equipment for Public Use, except sections 7.1.1, 10 and 12.6.1; CAN/CSA Z614, Children’s Playspaces and Equipment Standards, except clauses 9.8, 10 and 11; or both. The use of the corresponding logo in the Landscape Structures Inc. catalog signifies that Landscape Structures Inc. has received written validation from the independent laboratory that the product(s) associated with the use of the logo conforms with the requirements of the indicated standards. Check the IPEMA website (www.ipema.org) to confirm product certification. The use zone and fall height requirements in this publication are shown to ASTM standards. The requirements for other standards may be different.

American Society for Testing and Materials
100 Barr Harbor Dr.
P.O. Box C700
West Conshohocken, PA 19428
www.astm.org

The Consumer Product Safety Commission (CPSC) is a governmental organization that provides technical safety guidelines for designing, constructing, operating and maintaining public playgrounds.


The Canadian Standards Association
Nearly all equipment developed by Landscape Structures is certified to meet CAN/CSA-Z614-07, the Children’s Playspaces and Equipment Standard, through IPEMA.

The European Standard was developed by the European Committee for Standardization. The majority of Landscape Structures products have been designed to be TUV certified by a third-party validator to EN 1176: 2008, the European Standard for Playground Equipment.

ISO 9001:2008 has a process-orientated structure, is customer focused and emphasizes continuous improvement in quality.

ISO 14001:2004 drives us toward operating in a manner that is environmentally conscious.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

---

**Rail/Handloop Assembly**

- **Typical Offset Hanger Clamp Assembly**
  - 5/8" x 2 1/4" BHCS w/Pin

- **Typical Handloop**

- **Typical Deck (32" Shown)**

- **32" Deck - Use 2 Rails (Shown)**
  - 40 7/16" Rail

- **40" Deck - Use 3 Rails**
  - 5/8" x 2 1/4" BHCS w/Pin

---

PlayBooster®

Document #19437600
## Parts List

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H11275</td>
<td>Handloop Assembly</td>
<td>1</td>
</tr>
<tr>
<td>108542</td>
<td>Handloop, Specify Color</td>
<td></td>
</tr>
<tr>
<td>100198</td>
<td>3/4&quot; x 1 1/8&quot; BHCS w/Pin, SST</td>
<td>4</td>
</tr>
<tr>
<td>100203</td>
<td>5/8&quot; x 2 1/4&quot; BHCS w/Pin, SST</td>
<td>2</td>
</tr>
<tr>
<td>100351</td>
<td>3/8&quot; Tee Nut, SST</td>
<td>4</td>
</tr>
<tr>
<td>100610</td>
<td>1/4&quot; x 5/8&quot; Drive Rivet, SST</td>
<td>2</td>
</tr>
<tr>
<td>105327</td>
<td>5&quot; Half Clamp, Specify Color</td>
<td>2</td>
</tr>
<tr>
<td>113729</td>
<td>Offset Hanger Clamp, Specify Color</td>
<td>2</td>
</tr>
<tr>
<td>H11276</td>
<td>Rail Assembly</td>
<td>1</td>
</tr>
<tr>
<td>108569</td>
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<tr>
<td>100198</td>
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<td>4</td>
</tr>
<tr>
<td>100203</td>
<td>5/8&quot; x 2 1/4&quot; BHCS w/Pin, SST</td>
<td>2</td>
</tr>
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<td>3/8&quot; Tee Nut, SST</td>
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<td>1/4&quot; x 5/8&quot; Drive Rivet, SST</td>
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<tr>
<td>105327</td>
<td>5&quot; Half Clamp, Specify Color</td>
<td>2</td>
</tr>
<tr>
<td>113729</td>
<td>Offset Hanger Clamp, Specify Color</td>
<td>2</td>
</tr>
</tbody>
</table>

## Specifications

**Handloop:** Weldment comprised of 1.125" O.D. 11 GA (.120") steel tubing with 203 or 303 stainless steel inserts, with 5/8" internal thread. Finish: TenderTuff™, color specified.

**Rail:** Weldment comprised of 1.125" O.D. 11 GA (.120") steel tubing with 203 or 303 stainless steel inserts, with 3/8" internal thread. Finish: TenderTuff™, color specified.

**Offset Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield®, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamper-proof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 1/4 man hour

**Weight:**
- 111275-00 (One) 11 lbs.
- 111276-00 (One) 11 lbs.

Specifications are subject to change without notice.
Post Specifications: Post length shall vary depending upon the intended use and shall be a minimum of 42" above the deck height. All posts shall be powdercoated to specified color. All posts shall have a “finished grade marker” positioned on the post identifying the 34” bury line (or 44” bury line for posts for 96” decks) required for correct installation and the top of the loose fill protective surfacing. Top caps for posts shall be aluminum die cast from 369.1 alloy and powdercoated to match the post color. All caps shall be factory installed and secured in place with (3) self sealing rivets. A molded low density polyethylene cap, with drain holes, shall be pressed onto the bottom end of the post to increase the footing area.

Steel Posts: All steel PlayBooster posts are manufactured from 5" O.D. tubing with a wall thickness of .120" and shall be galvanized after rolling and shall have both the I.D. and the cut ends sprayed with a corrosion resistant coating.

Aluminum Posts: All aluminum PlayBooster posts are manufactured from 6005-T5 extruded tubing conforming to ASTM B-221. Posts shall have a 5" outside diameter with a .125" wall thickness.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>251714</td>
<td>5i Formed Play Safe Plate 6-23 Months w/Attaching HDW</td>
</tr>
<tr>
<td>251736</td>
<td>5i Formed Play Safe Plate 2-5 Years w/Attaching HDW</td>
</tr>
<tr>
<td>251712</td>
<td>5i Formed Play Safe Plate 2-12 Years w/Attaching HDW</td>
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<td>251713</td>
<td>5i Formed Play Safe Plate 5-12 Years w/Attaching HDW</td>
</tr>
<tr>
<td>251715</td>
<td>5i Formed Play Safe Plate 1.5-5 Years w/Attaching HDW</td>
</tr>
<tr>
<td>251716</td>
<td>5i Formed Play Safe Plate 1.5-12 Years w/Attaching HDW</td>
</tr>
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<td>251720</td>
<td>3.5i Formed Play Safe Plate 6-23 Months w/Attaching HDW</td>
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<td>251717</td>
<td>3.5i Formed Play Safe Plate 2-5 Years w/Attaching HDW</td>
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<td>251724</td>
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<tr>
<td>251733</td>
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</tr>
</tbody>
</table>
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

Warning Labels
Large flat plate mounts to flat surfaces

5" formed plate mounts to 5" posts.
3.5" formed plate mounts to 3.5" posts

To attach to post
1) Hold plate on post in location
2) Mark holes
3) Drill 3/16" holes for installation
4) Use (2) 3/16 x 3/16 Drive Rivet (253266) to secure to post

To attach to permalene
1) Hold plate on surface in location
2) Mark holes
3) Drill 1/8" x 1/2" deep holes for installation
4) Use (2) TorX #14 x 1/2 Cap Screw (129671) to attach to panel
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

INSTRUCTIONS:
Surface must be clean and dry prior to applying sticker. Peel backing sheet away from back of sticker and place sticker in position. Using backing sheet, rub over face of sticker to burnish down into place. Choose a location visible to adults in a conspicuous location on product. Stickers work best on painted parts. Where possible, avoid placing on rotationally-molded plastic parts, TenderTuff-coated parts or where children may step and wear off sticker. This applies to both Freestanding Play items and Composite Playstructures. Apply sticker adjacent to or visible from the primary entrance to the structure. Apply 4'-5' above the surface. Apply at least (1) one to every structure and (2) two to large Composite Playstructures.

NOTE: The Playstructure design will determine which Play It Safe sticker will be supplied.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>251714</td>
<td>5i Formed Play Safe Plate 6-23 Months w/Attaching HDW</td>
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<td>251736</td>
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<tr>
<td>251712</td>
<td>5i Formed Play Safe Plate 2-12 Years w/Attaching HDW</td>
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<td>5i Formed Play Safe Plate 5-12 Years w/Attaching HDW</td>
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<tr>
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<td>Flat Small Play Safe Plate 1.5-12 Years w/Attaching HDW</td>
</tr>
</tbody>
</table>
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

Warning Labels

(3) Warning Labels

Finished Grade

Typical Main-Structure Post

Play it Safe Label

(3) Warning Labels

Play it Safe Label

Play it Safe Label
Large flat plate mounts to flat surfaces

To attach to post:
1) Hold plate on post in location
2) Mark holes
3) Drill 3/16" holes for installation
4) Use (2) 3/16 x 3/16 Drive Rivet (253266) to secure to post

To attach to permalene:
1) Hold plate on surface in location
2) Mark holes
3) Drill 1/8" x 1/2" deep holes for installation
4) Use (2) TorX #14 x 1/2 Cap Screw (129671) to attach to panel

5" formed plate mounts to 5" posts.
3.5" formed plate mounts to 3.5" posts
### Hex Cap Screws

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100206</td>
<td>3/8&quot; x 1&quot;</td>
<td>(9.5 x 25.4)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100208</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.5 x 38.1)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100209</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.4)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>135682</td>
<td>3/8&quot; x 3 1/8&quot;</td>
<td>(9.5 x 79.3)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>135683</td>
<td>3/8&quot; x 4 5/8&quot;</td>
<td>(9.5 x 117.5)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100214</td>
<td>3/8&quot; x 5&quot;</td>
<td>(9.5 x 127)</td>
<td>SST-PAT 15</td>
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<tr>
<td>121409</td>
<td>7/16&quot; x 1 3/4&quot;</td>
<td>(11.1 x 114.3)</td>
<td>SST-PAT 15</td>
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<tr>
<td>100216</td>
<td>1/2&quot; x 1 1/4&quot;</td>
<td>(12.7 x 31.7)</td>
<td>SST 15</td>
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<tr>
<td>131862</td>
<td>1/2&quot; x 2 1/4&quot;</td>
<td>(12.7 x 57.1)</td>
<td>SST-PAT 20</td>
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</table>

### Flat Head Cap Screws (FHCS)

<table>
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<tr>
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<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100035</td>
<td>5/16&quot; x 1 1/4&quot;</td>
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<td>(9.5 x 31.8)</td>
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<tr>
<td>100148</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.5)</td>
<td>SST-PAT 15</td>
</tr>
</tbody>
</table>

### Button Head Cap Screws BHCS w/ Pin

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>137277</td>
<td>1/4&quot; x 3/8&quot;</td>
<td>(6.4 x 9.5)</td>
<td>SST-PAT 10</td>
</tr>
<tr>
<td>131849</td>
<td>5/16&quot; x 1/2&quot;</td>
<td>(7.9 x 12.7)</td>
<td>SST-PAT 10</td>
</tr>
<tr>
<td>223807</td>
<td>5/16&quot; x 3/4&quot;</td>
<td>(7.9 x 19.0)</td>
<td>SST-PAT 10</td>
</tr>
<tr>
<td>132626</td>
<td>5/16&quot; x 7/8&quot;</td>
<td>(7.9 x 22.2)</td>
<td>SST-PAT 10</td>
</tr>
<tr>
<td>192071</td>
<td>M 8 x 24 mm</td>
<td>SST-PAT</td>
<td>10</td>
</tr>
<tr>
<td>100195</td>
<td>3/8&quot; x 5/8&quot;</td>
<td>(9.5 x 15.9)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100196</td>
<td>3/8&quot; x 7/8&quot;</td>
<td>(9.5 x 22.2)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100198</td>
<td>3/8&quot; x 1 1/8&quot;</td>
<td>(9.5 x 28.6)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>113027</td>
<td>3/8&quot; x 1 3/8&quot;</td>
<td>(9.5 x 34.9)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100171</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.5 x 38.1)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>123244</td>
<td>3/8&quot; x 1 11/16&quot;</td>
<td>(9.5 x 42.9)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100173</td>
<td>3/8&quot; x 2&quot;</td>
<td>(9.5 x 50.8)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100199</td>
<td>3/8&quot; x 2 1/4&quot;</td>
<td>(9.5 x 57.2)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100174</td>
<td>3/8&quot; x 2 1/2&quot;</td>
<td>(9.5 x 63.5)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100175</td>
<td>3/8&quot; x 2 3/4&quot;</td>
<td>(9.5 x 69.9)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100176</td>
<td>3/8&quot; x 3&quot;</td>
<td>(9.5 x 76.2)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100168</td>
<td>3/8&quot; x 3 1/4&quot;</td>
<td>(9.5 x 82.6)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100200</td>
<td>3/8&quot; x 3 1/2&quot;</td>
<td>(9.5 x 88.9)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>124460</td>
<td>3/8&quot; x 3 3/4&quot;</td>
<td>(9.5 x 95.2)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100201</td>
<td>5/8&quot; x 1 1/2&quot;</td>
<td>(15.9 x 38.1)</td>
<td>SST-PAT 50</td>
</tr>
<tr>
<td>127551</td>
<td>5/8&quot; x 1 1/2&quot;</td>
<td>(15.9 x 38.1)</td>
<td>SST-PAT 50</td>
</tr>
</tbody>
</table>

### Carriage Bolts

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000135</td>
<td>5/16&quot; x 1 1/4&quot;</td>
<td>(7.9 x 31.8)</td>
<td>SST-PAT 5</td>
</tr>
<tr>
<td>100147</td>
<td>3/8&quot; x 1 1/4&quot;</td>
<td>(9.5 x 31.8)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>116017</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.5 x 38.1)</td>
<td>SST-PAT 15</td>
</tr>
<tr>
<td>100148</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.5)</td>
<td>SST-PAT 15</td>
</tr>
</tbody>
</table>

### PS/PB/Evos/Weevos Common Parts/Torque Chart

**NOTE:** These are recommended torque applications per fastener size. When fasteners are used with plastic or wood products, the torque specifications will be excessive and we recommend that the installer apply some caution when tightening the fasteners. Plastic or wood products should begin to deform slightly. Fasteners indicated with “Pat” includes a locking patch type material and should cure for 72 hours for maximum strength.
**BHCS w/Pin Limited Thread Bolts**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque Ft./lbs</th>
<th>Kgm</th>
</tr>
</thead>
<tbody>
<tr>
<td>100290</td>
<td>3/8” x 7/8” (9.5 x 22.2) SST-PAT</td>
<td>21</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>100292</td>
<td>3/8” x 1 1/4” (9.5 x 31.8) SST-PAT</td>
<td>21</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>157704</td>
<td>7/16” x 2” (11,11 x 51) SST-PAT</td>
<td>40</td>
<td>5.5</td>
<td></td>
</tr>
<tr>
<td>127068</td>
<td>7/16” x 2 7/16” (11,1161,911) SST-PAT</td>
<td>40</td>
<td>5.5</td>
<td></td>
</tr>
</tbody>
</table>

**Expansion Anchors (Used To Secure Components To Concrete Slabs)**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque Ft./lbs</th>
<th>Kgm</th>
</tr>
</thead>
<tbody>
<tr>
<td>100263</td>
<td>3/8” x 2 3/4” (9.5 x 69,9) Alloy Steel</td>
<td>15</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>100266</td>
<td>1/2” x 2 3/4” (12,7 x 69,9) Alloy Steel</td>
<td>20</td>
<td>2.8</td>
<td></td>
</tr>
</tbody>
</table>

**Lag Screws**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Head Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>100127</td>
<td>5/16” x 1 1/4” (7.9 x 31.8) SST</td>
<td>Hex Head</td>
<td></td>
</tr>
<tr>
<td>168198</td>
<td>3/8” x 1 1/2” (9.5 x 38,1) SST</td>
<td>Button Head</td>
<td></td>
</tr>
<tr>
<td>139039</td>
<td>3/8” x 2” (9.5 x 50,8) SST</td>
<td>Button Head</td>
<td></td>
</tr>
</tbody>
</table>

**Drive Rivets**

*NOTE: For more detail see drive rivet detail page.*

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>100612</td>
<td>3/16” x 3/8” (4,7 x 9,5) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
<tr>
<td>100609</td>
<td>1/4” x 3/16” (6,4 x 4,8) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
<tr>
<td>100611</td>
<td>1/4” x 3/8” (6,4 x 9,5) Alum Rivet/SST Pin</td>
<td></td>
</tr>
<tr>
<td>113300</td>
<td>1/4” x 1/2” (6,4 x 12,7) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
<tr>
<td>100610</td>
<td>1/4” x 5/8” (6,4 x 15,9) Alum Rivet/SST Pin</td>
<td></td>
</tr>
<tr>
<td>139152</td>
<td>1/4” x 3/4” (6,4 x 19,05) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
<tr>
<td>100613</td>
<td>1/4” x 7/8” (6,4 x 22,2) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
<tr>
<td>118158</td>
<td>1/4” x 1” (6,4 x 25,4) Alum Rivet/Alum Pin</td>
<td></td>
</tr>
</tbody>
</table>

**Screw, Type AB Thread BHCS w/Pin**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>129671</td>
<td>#14 x 1/2”</td>
<td>SST</td>
</tr>
<tr>
<td>127872</td>
<td>#14 x 3/4”</td>
<td>SST</td>
</tr>
<tr>
<td>136232</td>
<td>#14 x 1”</td>
<td>SST</td>
</tr>
<tr>
<td>129672</td>
<td>#14 x 1 1/4”</td>
<td>SST</td>
</tr>
</tbody>
</table>

**Low Crown Cap Nut**

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>100349</td>
<td>3/8” -16 UNC</td>
<td>SST</td>
</tr>
</tbody>
</table>
### Flat Washers

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100326</td>
<td>5/16-18 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>100321</td>
<td>3/8-16 UNC</td>
<td>SST-Pat</td>
</tr>
<tr>
<td>100327</td>
<td>3/8-16 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>128296</td>
<td>3/8-16 UNC (Jam Nut)</td>
<td>SST</td>
</tr>
<tr>
<td>100328</td>
<td>7/16-14 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>145021</td>
<td>7/16-14 UNC (Jam Nut)</td>
<td>SST</td>
</tr>
<tr>
<td>100322</td>
<td>1/2-13 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>129692</td>
<td>1/2-13 UNC</td>
<td>SST-Pat</td>
</tr>
<tr>
<td>129693</td>
<td>1/2-13 UNC (Jam Nut)</td>
<td>SST</td>
</tr>
<tr>
<td>100323</td>
<td>5/8-11 UNC</td>
<td>SST</td>
</tr>
</tbody>
</table>

### Curved Spring Washer

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
<th>I.D.</th>
<th>O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100380</td>
<td>1/2&quot;</td>
<td>(12,7) SST</td>
<td>0.531</td>
<td>0.795</td>
</tr>
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</table>

### SAE Flat Washers

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
<th>I.D.</th>
<th>O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100364</td>
<td>1/4&quot;</td>
<td>(6,35) SST</td>
<td>0.281</td>
<td>0.625</td>
</tr>
<tr>
<td>223966</td>
<td>5/16&quot;</td>
<td>(7,92) SST</td>
<td>0.344</td>
<td>0.688</td>
</tr>
<tr>
<td>100365</td>
<td>3/8&quot;</td>
<td>(9,5) SST</td>
<td>0.411</td>
<td>0.816</td>
</tr>
<tr>
<td>113550</td>
<td>1/2&quot;</td>
<td>(12,7) SST</td>
<td>0.531</td>
<td>1.062</td>
</tr>
<tr>
<td>129500</td>
<td>5/8&quot;</td>
<td>(15,9) SST</td>
<td>0.686</td>
<td>1.342</td>
</tr>
</tbody>
</table>

### Flange Nut w/Pin

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>175006</td>
<td>5/16 x 18 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>192064</td>
<td>M 8 x 24 mm</td>
<td>SST</td>
</tr>
<tr>
<td>100353</td>
<td>3/8-16 UNC</td>
<td>SST</td>
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</table>

### Fender Washers

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
<th>I.D.</th>
<th>O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100378</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.53 x 38.1) SST</td>
<td>0.406</td>
<td>1.500</td>
</tr>
<tr>
<td>100379</td>
<td>1/2&quot; x 2&quot;</td>
<td>(12.7 x 50.8) SST</td>
<td>0.531</td>
<td>2.000</td>
</tr>
</tbody>
</table>

### Tee Nut (PlayBooster Clamps)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes Inches</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100351</td>
<td>3/8-16 UNC</td>
<td>SST</td>
</tr>
</tbody>
</table>
## Set Screw

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>mm</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100298</td>
<td>3/8&quot; x 7/16&quot;</td>
<td>(9.5 x 11.1)</td>
<td>SST</td>
</tr>
</tbody>
</table>

## Offset Hanger Clamp (PlayBooster)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>113729</td>
<td>Cast Aluminum</td>
</tr>
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</table>

## Bolt Link

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>138915</td>
<td>SST</td>
</tr>
</tbody>
</table>

## Half Clamp (PlayBooster)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>105327</td>
<td>Cast Aluminum</td>
</tr>
</tbody>
</table>

## Double Clevis

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>138917</td>
<td>SST</td>
</tr>
</tbody>
</table>

## Deck Hanger Clamp (PlayBooster)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>106022</td>
<td>Cast Aluminum</td>
</tr>
</tbody>
</table>
Swing Hanger Clamp

<table>
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<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>121289</td>
<td>Cast Aluminum</td>
</tr>
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</table>

Ring/Rail Hanger Clamp (PlayBooster)

<table>
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<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>105330</td>
<td>Cast Aluminum</td>
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</table>

Offset Bolt Bracket (PlayShaper)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>113895</td>
<td>Cast Aluminum</td>
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</table>

Hex-Pin Allen Wrench

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>100685</td>
<td>Hex-Pin Allen Wrench</td>
</tr>
<tr>
<td>100686</td>
<td>Hex-Pin Driver (Used With A 5/16&quot; Socket)</td>
</tr>
</tbody>
</table>

6-Lobe Wrench

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>148680</td>
<td>6-Lobe Wrench (T-40)</td>
</tr>
<tr>
<td>146017</td>
<td>6-Lobe Wrench (T-45)</td>
</tr>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
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Hex-Pin Driver

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
</tbody>
</table>
HOW TO DETERMINE BOLT LENGTHS

Example shows a 1 1/4" long plow bolt. Measurement method also applies to flathead cap screws.

Example shows a 1 1/4" long BH cap screw. Measurement method also applies to hex cap screws, limited thread bolts, lag screws and carriage bolts.

Rule: Measurements should be based on the part of the screw that penetrates the surface.
General Rules For Use Of Drive Rivets

- Rivets are used to provide additional assurance for load carry capacity.

- Refer to the Spec Sheet Parts List and follow Installation Instructions for each component.

- Decks and Overhead Events always need rivets.

**NOTE:** Use Only Bit Size "F" or 1/4" Drill Bit.

After Play Component Assembly is Complete, Drill Hole into Post Through Half Clamp, Insert Rivet in Hole, and Hammer Rivet Pin in Until it is Flush with Head.
**Drive Rivets Details**

**Drive Rivet**

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100609</td>
<td>1/4&quot; x 3/16&quot; GL (6.4 x 4.8)</td>
<td>1/4&quot; x 11/32&quot; OL (6.4 x 8, 7)</td>
<td>Alum Rivet/ Alum Pin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100611</td>
<td>1/4&quot; x 3/8&quot; GL (6.4 x 9.5)</td>
<td>1/4&quot; x 17/32&quot; OL (6.4 x 13, 5)</td>
<td>Alum Rivet/ SST Pin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100610</td>
<td>1/4&quot; x 5/8&quot; GL (6.4 x 15.9)</td>
<td>1/4&quot; x 51/64&quot; OL (6.4 x 20, 2)</td>
<td>Alum Rivet/ SST Pin</td>
</tr>
</tbody>
</table>

**Common Use**

- To plug holes in posts

**Other Speciality Drive Rivets**

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100613</td>
<td>1/4&quot; x 7/8&quot; GL (6.4 x 22.2)</td>
<td>1/4&quot; x 63/64&quot; OL (6.4 x 25, 4)</td>
<td>Alum Rivet/ Alum Pin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>118158</td>
<td>1/4&quot; x 7/8&quot; GL (6.4 x 25.4)</td>
<td>1/4&quot; x 1 5/32&quot; OL (6.4 x 29, 3)</td>
<td>Alum Rivet/ Alum Pin</td>
</tr>
</tbody>
</table>

**Other Speciality**

- 218924 Locking Clamp
- 192691 Post Topper
- 105327 5" Half Clamp
- 195922 Rope Clamp
- 156806 Pod Casting

---

GL = Grip Length
OL = Overall Length

---

Sheet 8 of 9
Document #26150400
1) **Drive Center Pin of Rivet Straight into Post Using 1/8" Diameter Punch and Hammer.**

2) **Unbolt BHCS w/Pin and Tee Nuts from Clamp Using Tamperproof Hex Wrench. Remove Offset Hanger Clamp. Lightly Tap on Half Clamp with Hammer Until Head of Drive Rivet Pulls Away From Half Clamp.**

3) **Pull Out Drive Rivet Using Claw End of Hammer.**

**Tools Needed:**
- Claw Hammer
- 1/8" Diameter Steel Punch
- Tamperproof Hex Wrench
### Button Head Cap Screws BHCS w/ Pin

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>137277</td>
<td>1/4&quot; x 3/8&quot;</td>
<td>(6.4 x 9.5)</td>
<td>SST-PAT</td>
<td>10 1.4</td>
</tr>
<tr>
<td>131849</td>
<td>5/16&quot; x 1/2&quot;</td>
<td>(7.9 x 12.7)</td>
<td>SST-PAT</td>
<td>10 1.4</td>
</tr>
<tr>
<td>223807</td>
<td>5/16&quot; x 3/4&quot;</td>
<td>(7.9 x 19.0)</td>
<td>SST-PAT</td>
<td>10 1.4</td>
</tr>
<tr>
<td>132626</td>
<td>5/16&quot; x 7/8&quot;</td>
<td>(7.9 x 22.2)</td>
<td>SST-PAT</td>
<td>10 1.4</td>
</tr>
<tr>
<td>192071</td>
<td>M 8 x 24 mm</td>
<td>(9.5 x 60)</td>
<td>SST-PAT</td>
<td>10 1.4</td>
</tr>
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</table>

### Hex Cap Screws

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100206</td>
<td>3/8&quot; x 1&quot;</td>
<td>(9.5 x 25.4)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100208</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.5 x 38.1)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100209</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.4)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>135682</td>
<td>3/8&quot; x 3 1/8&quot;</td>
<td>(9.5 x 79.3)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>135683</td>
<td>3/8&quot; x 4 5/8&quot;</td>
<td>(9.5 x 117.5)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100214</td>
<td>3/8&quot; x 5&quot;</td>
<td>(9.5 x 127)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>121409</td>
<td>7/16&quot; x 1 3/4&quot;</td>
<td>(11.1 x 114.3)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100216</td>
<td>1/2&quot; x 1 1/4&quot;</td>
<td>(12.7 x 31.7)</td>
<td>SST</td>
<td>15 2</td>
</tr>
<tr>
<td>131862</td>
<td>1/2&quot; x 2 1/4&quot;</td>
<td>(12.7 x 57.1)</td>
<td>SST-PAT</td>
<td>20 2.8</td>
</tr>
</tbody>
</table>

### Flat Head Cap Screws (FHCS)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100213</td>
<td>5/16&quot; x 1 1/4&quot;</td>
<td>(7.9 x 31.8)</td>
<td>SST-PAT</td>
<td>5 0.7</td>
</tr>
<tr>
<td>100147</td>
<td>3/8&quot; x 1 1/4&quot;</td>
<td>(9.5 x 31.8)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>116017</td>
<td>3/8&quot; x 1 1/2&quot;</td>
<td>(9.5 x 38.1)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100148</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.5)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
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</table>

### Carriage Bolts

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100135</td>
<td>5/16&quot; x 1 1/4&quot;</td>
<td>(7.9 x 31.8)</td>
<td>SST-PAT</td>
<td>5 0.7</td>
</tr>
<tr>
<td>100147</td>
<td>3/8&quot; x 1 1/4&quot;</td>
<td>(9.5 x 31.8)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
<tr>
<td>100148</td>
<td>3/8&quot; x 1 3/4&quot;</td>
<td>(9.5 x 44.5)</td>
<td>SST-PAT</td>
<td>15 2</td>
</tr>
</tbody>
</table>

### Common Parts/Torque Chart

**NOTE:** These are recommended torque applications per fastener size. When fasteners are used with plastic or wood products, the torque specifications will be excessive and we recommend that the installer apply some caution when tightening the fasteners. Plastic or wood products should begin to deform slightly. Fasteners indicated with "-Pat" include a locking patch type material and should cure for 72 hours for maximum strength.
### BHCS w/Pin Limited Thread Bolts

![Image of BHCS w/Pin Limited Thread Bolts](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100290</td>
<td>3/8” x 7/8”</td>
<td>(9.5 x 22.2) SST-PAT</td>
<td>21 3</td>
</tr>
<tr>
<td>100292</td>
<td>3/8” x 1 1/4”</td>
<td>(9.5 x 31.8) SST-PAT</td>
<td>21 3</td>
</tr>
<tr>
<td>157704</td>
<td>7/16” x 2”</td>
<td>(11.11 x 51) SST-PAT</td>
<td>40 5.5</td>
</tr>
<tr>
<td>127068</td>
<td>7/16” x 2 7/16”</td>
<td>(11.11x61.91) SST-PAT</td>
<td>40 5.5</td>
</tr>
</tbody>
</table>

### Expansion Anchors (Used To Secure Components To Concrete Slabs)

![Image of Expansion Anchors](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Recommended Torque</th>
</tr>
</thead>
<tbody>
<tr>
<td>100263</td>
<td>3/8” x 2 3/4”</td>
<td>(9.5 x 69.9) Alloy Steel</td>
<td>15 2</td>
</tr>
<tr>
<td>100266</td>
<td>1/2” x 2 3/4”</td>
<td>(12.7 x 69.9) Alloy Steel</td>
<td>20 2.8</td>
</tr>
</tbody>
</table>

### Lag Screws

![Image of Lag Screws](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
<th>Head Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>100127</td>
<td>5/16” x 1 1/4”</td>
<td>(7.9 x 31.8)</td>
<td>SST</td>
</tr>
<tr>
<td>168198</td>
<td>3/8” x 1 1/2”</td>
<td>(9.5 x 38.1)</td>
<td>SST</td>
</tr>
<tr>
<td>139039</td>
<td>3/8” x 2”</td>
<td>(9.5 x 50.8)</td>
<td>SST</td>
</tr>
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</table>

### Drive Rivets

![Image of Drive Rivets](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>100612</td>
<td>3/16” x 3/8”</td>
<td>(4.7 x 9.5) Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>100609</td>
<td>1/4” x 3/16”</td>
<td>(6.4 x 4.8) Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>100611</td>
<td>1/4” x 3/8”</td>
<td>(6.4 x 9.5) Alum Rivet/SST Pin</td>
</tr>
<tr>
<td>113300</td>
<td>1/4” x 1/2”</td>
<td>(6.4 x 12.7) Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>100610</td>
<td>1/4” x 5/8”</td>
<td>(6.4 x 15.9) Alum Rivet/SST Pin</td>
</tr>
<tr>
<td>139152</td>
<td>1/4” x 3/4”</td>
<td>(6.4 x 19.05) Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>100613</td>
<td>1/4” x 7/8”</td>
<td>(6.4 x 22.2) Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>118158</td>
<td>1/4” x 1”</td>
<td>(6.4 x 25.4) Alum Rivet/Alum Pin</td>
</tr>
</tbody>
</table>

### Screw, Type AB Thread BHCS w/Pin

![Image of Screw, Type AB Thread BHCS w/Pin](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>129671</td>
<td>#14 x 1/2”</td>
<td>SST</td>
</tr>
<tr>
<td>127872</td>
<td>#14 x 3/4”</td>
<td>SST</td>
</tr>
<tr>
<td>136232</td>
<td>#14 x 1”</td>
<td>SST</td>
</tr>
<tr>
<td>129672</td>
<td>#14 x 1 1/4”</td>
<td>SST</td>
</tr>
</tbody>
</table>

### Low Crown Cap Nut

![Image of Low Crown Cap Nut](image_url)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Size</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>100349</td>
<td>3/8” - 16 UNC</td>
<td>SST</td>
</tr>
</tbody>
</table>

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**NOTE:** For more detail see drive rivet detail page.

---

**Sheet 2 of 9**

Document #26150400
### Standard Hex Nuts

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100326</td>
<td>5/16-18 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>100321</td>
<td>3/8-16 UNC</td>
<td>SST-Pat</td>
</tr>
<tr>
<td>100327</td>
<td>3/8-16 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>128296</td>
<td>3/8-16 UNC (Jam Nut)</td>
<td>SST</td>
</tr>
<tr>
<td>145021</td>
<td>7/16-14 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>100322</td>
<td>1/2-13 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>129692</td>
<td>1/2-13 UNC</td>
<td>SST-Pat</td>
</tr>
<tr>
<td>129693</td>
<td>1/2-13 UNC (Jam Nut)</td>
<td>SST</td>
</tr>
<tr>
<td>100323</td>
<td>5/8-11 UNC</td>
<td>SST</td>
</tr>
</tbody>
</table>

### Flange Nut w/Pin

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>175006</td>
<td>5/16 x 18 UNC</td>
<td>SST</td>
</tr>
<tr>
<td>192064</td>
<td>M 8 x 24 mm</td>
<td>SST</td>
</tr>
<tr>
<td>100353</td>
<td>3/8-16 UNC</td>
<td>SST</td>
</tr>
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</table>

### Flat Washers

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>122039</td>
<td>1/4&quot;</td>
<td>(6,3) SST</td>
</tr>
<tr>
<td>100362</td>
<td>3/8&quot;</td>
<td>(9,5) SST</td>
</tr>
<tr>
<td>112793</td>
<td>7/16&quot;</td>
<td>(11,1) SST</td>
</tr>
<tr>
<td>100363</td>
<td>1/2&quot;</td>
<td>(12,7) SST</td>
</tr>
<tr>
<td>100366</td>
<td>5/8&quot;</td>
<td>(15,9) SST</td>
</tr>
<tr>
<td>123737</td>
<td>1 1/8&quot;</td>
<td>(28,6) SST</td>
</tr>
</tbody>
</table>

### Curved Spring Washer

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100380</td>
<td>1/2&quot;</td>
<td>(12,7) SST</td>
</tr>
</tbody>
</table>

### SAE Flat Washers

<table>
<thead>
<tr>
<th>Part #</th>
<th>Inches</th>
<th>mm</th>
<th>I.D.</th>
<th>O.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>100364</td>
<td>1/4&quot;</td>
<td>(6,35)</td>
<td>0.281</td>
<td>0.625</td>
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<tr>
<td>223956</td>
<td>5/16&quot;</td>
<td>(7,92)</td>
<td>0.344</td>
<td>0.688</td>
</tr>
<tr>
<td>100365</td>
<td>3/8&quot;</td>
<td>(9,5)</td>
<td>0.411</td>
<td>0.816</td>
</tr>
<tr>
<td>113550</td>
<td>1/2&quot;</td>
<td>(12,7)</td>
<td>0.531</td>
<td>1.062</td>
</tr>
<tr>
<td>129500</td>
<td>5/8&quot;</td>
<td>(15,9)</td>
<td>0.686</td>
<td>1.342</td>
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</table>

### Tee Nut (PlayBooster Clamps)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100351</td>
<td>3/8-16 UNC</td>
<td>SST</td>
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</table>
### Set Screw

<table>
<thead>
<tr>
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<th>Sizes</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>100298</td>
<td>3/8&quot; x 7/16&quot; (9.5 x 11.1)</td>
<td>SST</td>
</tr>
</tbody>
</table>

### Offset Hanger Clamp (PlayBooster)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
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<tbody>
<tr>
<td>113729</td>
<td>Cast Aluminum</td>
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</table>

### Bolt Link

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l or Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>138915</td>
<td>SST</td>
</tr>
</tbody>
</table>

### Half Clamp (PlayBooster)

<table>
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<tr>
<th>Part #</th>
<th>Mat'l</th>
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<tbody>
<tr>
<td>105327</td>
<td>Cast Aluminum</td>
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### Double Clevis

<table>
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</thead>
<tbody>
<tr>
<td>138917</td>
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### Deck Hanger Clamp (PlayBooster)

<table>
<thead>
<tr>
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<th>Mat'l</th>
</tr>
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<tbody>
<tr>
<td>106022</td>
<td>Cast Aluminum</td>
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</table>
Swing Hanger Clamp

<table>
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</tr>
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<tbody>
<tr>
<td>121289</td>
<td>Cast Aluminum</td>
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</table>

Ring/Rail Hanger Clamp (PlayBooster)

<table>
<thead>
<tr>
<th>Part #</th>
<th>Mat'l</th>
</tr>
</thead>
<tbody>
<tr>
<td>105330</td>
<td>Cast Aluminum</td>
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</table>

Offset Bolt Bracket (PlayShaper)

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>113895</td>
<td>Cast Aluminum</td>
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</table>

Hex-Pin Allen Wrench

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>100685</td>
<td>Hex-Pin Allen Wrench</td>
</tr>
<tr>
<td>100686</td>
<td>Hex-Pin Driver (Used With A 5/16&quot; Socket)</td>
</tr>
</tbody>
</table>

6-Lobe Wrench

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>146017</td>
<td>6-Lobe Wrench (T-45)</td>
</tr>
<tr>
<td>148680</td>
<td>6-Lobe Wrench (T-40)</td>
</tr>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
</tbody>
</table>

Hex-Pin Driver

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
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6-Lobe Driver

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
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</table>

Torx-Pin Driver

<table>
<thead>
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<th>Part #</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>146007</td>
<td>6-Lobe Driver (T-45) (Used With A 5/16&quot; Socket)</td>
</tr>
<tr>
<td>127463</td>
<td>Torx-Pin Driver (T-27) (Used With A 1/4&quot; Socket)</td>
</tr>
</tbody>
</table>
HOW TO DETERMINE BOLT LENGTHS

Example shows a 1 1/4" long plow bolt. Measurement method also applies to flathead cap screws.

Example shows a 1 1/4" long BH cap screw. Measurement method also applies to hex cap screws, limited thread bolts, lag screws and carriage bolts.

Rule: Measurements should be based on the part of the screw that penetrates the surface.
General Rules For Use Of Drive Rivets

• Rivets are used to provide additional assurance for load carry capacity.

• Refer to the Spec Sheet Parts List and follow Installation Instructions for each component.

• Decks and Overhead Events always need rivets.

NOTE: Use Only Bit Size "F" or ¼" Drill Bit.
After Play Component Assembly is Complete, Drill Hole into Post Through Half Clamp, Insert Rivet in Hole, and Hammer Rivet Pin in Until it is Flush with Head.
# Drive Rivets Details

**Drive Rivet**

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100609</td>
<td>1/4&quot; x 3/16&quot;</td>
<td>1/4&quot; x 11/32&quot;</td>
<td>Alum Rivet/Alum Pin</td>
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<tr>
<td>100611</td>
<td>1/4&quot; x 3/8&quot;</td>
<td>1/4&quot; x 17/32&quot;</td>
<td>Alum Rivet/SST Pin</td>
</tr>
<tr>
<td>100610</td>
<td>1/4&quot; x 5/8&quot;</td>
<td>1/4&quot; x 51/64&quot;</td>
<td>Alum Rivet/SST Pin</td>
</tr>
<tr>
<td>100613</td>
<td>1/4&quot; x 7/8&quot;</td>
<td>1/4&quot; x 63/64&quot;</td>
<td>Alum Rivet/Alum Pin</td>
</tr>
</tbody>
</table>

**Common Use**

- To plug holes in posts

**Other Speciality Drive Rivets**

<table>
<thead>
<tr>
<th>Code</th>
<th>Grip Length</th>
<th>Overall Length</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>100613</td>
<td>1/4&quot; x 7/8&quot;</td>
<td>1/4&quot; x 63/64&quot;</td>
<td>Alum Rivet/Alum Pin</td>
</tr>
<tr>
<td>113300</td>
<td>1/4&quot; x 1/2&quot;</td>
<td>1/4&quot; x 21/32&quot;</td>
<td>Alum Rivet/Alum Pin</td>
</tr>
</tbody>
</table>

**GL = Grip Length**

**OL = Overall Length**
1) Drive Center Pin of Rivet Straight into Post Using \( \frac{1}{8}'' \) Diameter Punch and Hammer.

2) Unbolt BHCS w/Pin and Tee Nuts from Clamp Using Tamperproof Hex Wrench. Remove Offset Hanger Clamp. Lightly Tap on Half Clamp with Hammer Until Head of Drive Rivet Pulls Away From Half Clamp.


Tools Needed:
- Claw Hammer
- \( \frac{1}{8}'' \) Diameter Steel Punch
- Tamperproof Hex Wrench
120688 is a danger
keep off sign

Not an Install doc.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE:
Install in conjunction with ramp. Refer to appropriate Bridge/Ramp installation sheet.

NOTE:
For applications where the transition from ramp to accessible route is level (± 2°).

PlayBooster
120325 Ramp Berm Exit Plate

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PlayBooster® 120325 Ramp Berm Exit Plate

Parts List

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
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<td>106022-00</td>
<td>5&quot; Deck Hanger Clamp, Specify Color</td>
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<td>120439-00</td>
<td>Berm Exit Hardware Package</td>
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<td>4</td>
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<tr>
<td>100321-00</td>
<td>3/8&quot; Hex Patch Nut, SST</td>
<td>2</td>
</tr>
<tr>
<td>100351-00</td>
<td>3/8&quot; Tee Nut, SST</td>
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<td>100602-00</td>
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<td>100362-00</td>
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<td>1/4&quot; Flat Washer, SST</td>
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<td>120441-00</td>
<td>Exit Plate (To Wood Berm) Hardware Package</td>
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<td>100362-00</td>
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</tr>
<tr>
<td>SM = Surface Mount</td>
<td></td>
<td></td>
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</tbody>
</table>

Specifications

Berm Exit Plate: Fabricated from 10 GA (.135") HRPO steel plate with 3/8" x 1" stainless steel mounting stud. Finish: TenderTuff, brown in color.


Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Time: Approx. 1 1/2 man hours

Weight: 30 lbs.

Installation Instructions

1) Install exit plate in conjunction with ramp. NOTE: If you are providing a berm with a wall at the Ramp Entrance/Exit, the height of the wall is critical and must be coordinated with the Playstructure Installation. See your plan for the proper height. This retaining wall must not encroach the use zone for the ramp.

2) Mark posts for the appropriate height of the exit plate you are installing.

3) Attach deck hanger clamps to marked position on posts using 3/8" x 1 1/8" BHCS w/pin with 3/8" tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

4) Attach ramp berm exit plate to deck hanger clamps using 3/8" hex patch nuts with 3/8" flat washers, as shown.

5) Attach berm exit plate to assembled ramp using 3/8" x 1 1/8" BHCS w/pin with 3/8" flat washers and 3/8" standard hex nuts with 3/8" flat washers, as shown.

6) (Surface Mount) Using a hammer drill and 1/4" masonry bit, drill anchor bolt holes into concrete slab 2" deep through holes in ramp exit plate. Tap 1/4" x 2" drive anchors into holes with 3/8" flat washers, as shown.

7) Secure ramp exit plate using 3/8" x 2" BHCS w/pin lag screws with 3/8" flat washers, as shown.

8) Install 3/8" x 5/8" drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Spec Sheet.

9) Install protective surfacing before users are allowed to play on the structure.

Eco #51184 Document #14432500 replaces #12931000. Replaced BH lag screw with hex-pin lag screw.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DETAIL
CLAMP ATTACHMENT

5" Half Clamp

(4) 1/4" x 9/16" Drive Rivet

(2) Guardrails

(8) 3/8" x 1 1/8" BHCS w/ 3/8" SAE Washer

(8) 3/8" T-Nut w/ 3/8" -16, SST Hex Jam Nut

(4) Curb Sections (Optional)

Deck

Bridge

 protects Surfacing
PlayBooster® 156230 Bridge, w/Guardrails

Parts List

<table>
<thead>
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<th>Description</th>
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<td>Bridge/Ramp Curb, Specify Color</td>
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<td>100365</td>
<td>3/8&quot; SAE Washer, SST</td>
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</table>

Specifications

**Bridge Guardrail:** Weldment comprised of 1.900" O.D. RS-20 (.090" - .100") galvanized steel tubing beam, 1.315" O.D. RS-20 (.080" - .090") and 1/4" x 1 1/2" steel half clamps. Finish: ProShield®, color specified.

**Bridge/Ramp:** Weldment comprised of 12 GA (.105") sheet HRPO steel conforming to ASTM A1011 and 1/8" x 1 1/2" steel half clamps. Finish: TenderTuff™, color specified.

**Curb:** Compression molded solid color 1/4" thick x 5" high U.V. stabilized high-density polyethylene with all edges eased, color specified.

**Half Clamp:** Cast aluminum. Finish: ProShield, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 2 3/4 man hours

**Weight:** 404 lbs. with Curbs

374 lbs. without Curbs

Installation Instructions

1) With posts and decks in proper position, set Bridge on decks. Fasten Bridge to decks using 3/8" x 1 1/4" BHCS w/pin with 3/8" flat washers and 3/8" standard hex nuts with 3/8" flat washers. Refer to the Bridge Attachment Detail. **NOTE:** If your having trouble attaching the 3/8" x 1 1/2" BHCS w/pin due to the thickness of the TenderTuff, use 3/8" x 1 1/2" BHCS w/pin, tighten then replace with 3/8" x 1 1/2" BHCS w/pin.

2) Attach guardrails to mainstructure posts at height shown, using 5" half clamps, 3/8" x 1 1/2" BHCS w/pin , 3/8" flat washers and 3/8" hex jam nuts with 3/8" flat washers and 3/8" T-Nuts. Refer to the Guardrail Attachment Detail.

3) (Optional) Attach (4) curb sections to faces of bridge in position shown using 3/8" x 3/4" BHCS w/pin with 3/8" flat washers and 3/8" flange nuts w/pin. Refer to the Curb Attachment Detail.

4) Install 3/8" x 5/8" drive rivets in all 5" half clamps. Refer to the Offset Hanger Clamp Spec Sheet.

5) Install protective surfacing before users are allowed to play on the structure.

Specifications are subject to change without notice.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: If your having trouble attaching the 3/8" x 1 1/8" BHCS w/Pin due to the thickness of the TenderTuff, use 1/4" x 1 3/8" BHCS w/Pin, tighten then replace with 3/8" x 1 1/8" BHCS w/Pin.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

ELEVATION

123"
3120
3 1/4"/83 Inside Dim. Between Rungs

NOTE: 8" Deck height difference.

DETAIL
BARRIER/CLAMP ATTACHMENT

(8) 5" Offset Hanger Clamps
Top of Clamp
(8) 5" Half Clamps
Top of Deck
(8) 3/8" Flange Nuts w/Pin

(8) 3/8" x 1 3/4" Carriage Bolts
(2) Ramp Handrails
Top of Deck

DETAIL
HANDRAIL ATTACHMENT

(2) Ramp Handrails

(2) Barriers

(8) 3/8" Flange Nuts w/Pin

(8) 3/8" Low Crown Cap Nuts w/ 3/8" Flat Washers

Typical PlayBooster Mainstructure Posts

Top of Handrail

Top of Deck

Deck

Ramp

Protective Surfacing

(2) Barriers

(8) Typical Offset Hanger Clamp Assemblies

Deck

PlayBooster® 156233 Ramp, w/ Barriers & Handrails

Sheet 1 of 2

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PlayBooster® 156233 Ramp, w/Barriers & Handrails

Parts List

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
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<td>113027</td>
<td>3/8&quot; x 1 1/2&quot; BHCS w/Pin, SST</td>
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</tbody>
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Specifications

- **Ramp Barrier:** Weldment comprised of 1.029” O.D. RS20 (.070" - .080" wall) galvanized steel vertical rungs, 1.900” O.D. RS20 (.085" - .095" wall) galvanized steel rails and 7 Ga. (.179") sheet HRPO steel. Finish: ProShield®, color specified.
- **Ramp Handrail:** Weldment comprised of 1.315” O.D. RS20 (.080" - .090" wall) galvanized steel tube and 1/4” x 2” HRPO steel sheet. Finish: ProShield, color specified.
- **Bridge/Ramp:** Weldment comprised of 12 GA (.105”) sheet HRPO steel conforming to ASTM A1011 and 1/4” HR flat steel. Standing surface is perforated with 1/16” diameter holes. Finish: TenderTuff™, color specified.
- **Clamps:** Cast aluminum. Finish: ProShield, color specified.
- **Fasteners:** Primary fasteners shall be socketed and pinned tamper-proof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Instructions

1) With posts and decks in proper position, set Ramp on decks. Fasten Ramp to decks using 3/8" x 1 1/4" BHCS w/pin with 3/8" flat washers and standard hex nuts with 3/8" flat washers. Refer to the Ramp Attachment Detail. **NOTE:** If your having trouble attaching the 3/8" x 1 1/4" BHCS w/pin due to the thickness of the TenderTuff, use 3/8" x 1 1/4" BHCS w/pin, tighten then replace with 3/8" x 1 1/4" BHCS w/pin.

2) Fasten an offset hanger clamp to the end of each barrier using 3/8" x 1 1/2" carriage bolt and 3/8" flange nut w/pin. Refer to Barrier/Clamp Attachment Detail. Attach barriers to posts at height shown, using 5" half clamps and 3/8" x 1 1/4" BHCS w/pin with 3/8" tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.


4) Install 3/8" x 3/4" drive rivets in all 5" half clamps. Refer to the Offset Hanger Clamp Spec Sheet.

5) Install protective surfacing before users are allowed to play on the structure.

Notes: This product is made of recycled materials.

Approx. 2 1/2 man hours
554 lbs.

Specifications are subject to change without notice.

Eco #0100287 Document #20797100 replaces #15948100. Added low crown cap nuts to handrail hdw. pkg.
NOTE: If you're having trouble attaching the 3/8" x 1 1/8" BHCS w/Pin due to the thickness of the TenderTuff, use 3/8" x 1 3/8" BHCS w/Pin, tighten, then replace with 3/8" x 1 1/8" BHCS w/Pin.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Refer to Site Plan for deck height.
## PlayBooster 171539 Deck Ramp Extension

### Parts

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty.</th>
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<tr>
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<tr>
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<td>Deck Hanger Clamp, Specify Color</td>
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<td>Support, DB, Specify Color</td>
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**SM** = Surface Mount  
**DB** = Direct Bury

### Specifications

#### Deck Ramp Ext.:
Flange formed from 11 GA (.120") sheet steel conforming to ASTM A1011. Standing surface is perforated with 5/16" diameter holes. Deck face has (4) slotted holes for face mounting components. The finished size measures 2 5/8" x 15 3/4" x 47". Finish: TenderTuff, color specified.

#### Support (DB):
Weldment comprised of 1.660" O.D. RS20 (.085"-.095" wall) galvanized steel tubing and 1 1/2" x 1 3/4" x 1/8" HR angle. Finish: ProShield, color specified.

#### Curb:
Permalene, color specified.

#### Clamps:
Cast aluminum. Finish: ProShield, color specified.

#### Fasteners:
Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

#### Installation Time:
Approx. 1 1/2 man hours (DB)  
Approx. 1 1/2 man hours (SM)

#### Weight:
- 50 lbs. (DB)  
- 44 lbs. (SM) 12" Deck  
- 45 lbs. (SM) 16" Deck

#### Concrete:
- 2.62 cu. ft. (DB)

#### Fall Height:
Deck Height

### Installation Instructions

1. **(Direct Bury)** Dig footings as shown. Refer to the Plan View/Footing Layout.

2. Fasten hanger clamp assemblies to posts. Refer to Site Plan for deck height.

3. Lift deck ramp extension into position, lining up studs underneath deck ramp extension with deck hanger clamps as shown. Attach with 3/8" flat washers and 3/8" hex patch nuts.

4. Attach curbs to deck ramp extension, using 1/4" x 1/4" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin.

5. Attach deck mount spacer and support to deck ramp extension, using 1/4" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" standard hex nuts with 3/8" SAE flat washers. Refer to Detail.

6. Level deck and plumb posts. Install 1/4" x 1/4" drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Spec Sheet.

7. **(Direct Bury)** Pour concrete footings per the Direct Bury Detail. Allow concrete footings to cure a minimum of 72 hours before users are allowed to play on the structure.

#### (Surface Mount) With support plumb, drill 3" deep holes into concrete slab through holes in support plates, use a 1/4" masonry bit and 1/4" hammer drill. Tap 1/4" x 2 3/4" expansion anchors into holes and secure using 1/4" standard hex nuts with 1/4" flat washers. Refer to the Surface Mount Detail.

8. Install protective surfacing before users are allowed to play on the structure.

---

Eco #0101346 Document 24598500 replaces 18278300. Longer screws added to hardware package.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.
**Specifications**

- **Loop Arch:** Weldment comprised of 1.660 (42.16 mm) O.D. RS-20, 0.085 - 0.095 (2.16 mm-2.41 mm) galvanized steel tubing, 1.315° O.D. RS-20, 0.080 - 0.090 (2.16 mm-2.41 mm) galvanized steel tubing and 1/4" (6.35 mm) flat steel. Finish: ProShield®, color specified.

- **Infill Panel:** Made from 7GA (.179") (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield, color specified.

- **Roto Handhold:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

- **Spacer Tube:** Made from 6061-T6 aluminum 1/4" (22.23 mm) O.D. x 1 1/4" (42.85 mm). Finish: ProShield, color specified.

- **Offset Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield, color specified.

- **Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

---

**Installation Instructions**

1. **(Direct Bury)** Dig footing holes spaced as shown.

2. Attach loop arch to deck using 3/8" x 3/8" BHCS w/pin with 3/8" SAE flate washers (small) and 3/8" standard hex nuts with 3/8" flat washers (large).

3. Attach roto handholds to handhold infill panels, using 3/8" x 3/8" BHCS w/pin with 3/8" SAE flate washers (small) and 3/8" standard hex nuts with 3/8" flat washers (large).

4. Attach handhold infill panels to deck, using 3/8" x 3/8" BHCS w/pin with 3/8" SAE flat washers (small) and 3/8" standard hex nuts with 3/8" flat washers (large).

5. Attach offset hanger clamps to handhold infill panels, using 3/8" x 3/8" BHCS w/pin, 3/8" SAE flat washers (small), spacer tubes and 3/8" flange nuts w/pin. Refer to the Panel Attachment Detail.

6. Attach offset hanger clamps to post, using 5" half clamps, 3/8" x 1 1/4" BHCS w/pin and 3/8" tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

7. Install snap rivets and o-rings through unused 1/2" diameter holes in handhold infill panels. Refer to the Snap Rivet Attachment Detail.

8. **(Direct Bury)** With loop arch in final position, pour concrete footings. Allow concrete footings to cure a minimum of 72 hours before users are allowed to play on the structure.

9. Install protective surfacing before users are allowed to play on the structure.

**Concrete Req.:** Approx. 2.6 cu. ft.

- **Fall Height:** Approx. 1 1/2 man hours
- **Concrete Req.:** Approx. 2.6 cu. ft.
- **Weight:** 32", 40" & 48" - 103 lbs.
- **56" - 108 lbs.
- **64" & 72" - 113 lbs.

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**Parts List**

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SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DETAIL
SNAP RIVET ATTACHMENT
(FOR FILLING UNUSED 1/2” DIAMETER HOLES)

(2) Handhold
Infill Panels

(2) Snap Rivets
Female

(2) Snap Rivets
Male

(2) O-Rings
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Summit Climber cannot be installed over a concrete slab off a 40" deck.
PlayBooster® 179011 Mini Summit Climber, w/ Vibe® Handholds, 40”-48”

**Specifications**

**Mini Summit Climber:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

**Infill Panel:** Made from 7GA (.179") (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield®, color specified.

**Roto Handhold:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

**Support (DB):** Weldment comprised of 2.375” (60.33 mm) O.D. RS-20, (0.95” - 1.05”) (2.41 mm-2.67 mm) galvanized steel tubing and 1/2” x 3” (6.35 mm x 76 mm) mounting plate. Finish: ProShield, color specified.

**Clamps:** Cast aluminum. Finish: ProShield, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Instructions**

1. **(Direct Bury) Dig footing as shown.** Refer to the Plan View & Direct Bury Details.

2. Attach roto handholds to handhold infill panels, using 1/4” x 1/2” BHCS w/pin and 1/4” SAE flat washers (small). Refer to the Panel Attachment Detail.

3. Attach handhold infill panels to deck, using 1/4” x 1/2” BHCS w/pin with 1/4” SAE flat washers (small) and 1/4” standard hex nuts with 1/4” flat washers (large).

4. Attach offset hanger clamps to handhold infill panels, using 1/4” x 3 1/4” BHCS w/pin, 1/4” SAE flat washers (small), spacer tubes and 1/4” flange nuts w/pin. Refer to the Panel Attachment Detail.

5. Attach offset hanger clamps to posts, using 5” half clamps, 1/4” x 1 1/4” BHCS w/pin and 1/4” tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

6. Attach support to Mini Summit Climber using 1/4” x 1 1/2” BHCS w/pin with 1/4” flat washers (large), as shown. Refer to the Direct Bury Detail.

7. Attach Mini Summit Climber to the face of the deck using 1/4” x 1 1/4” BHCS w/pin with 1/4” flat washers (large), as shown.

8. Install snap rivets and o-rings through unused 1/2” diameter holes in handhold infill panels. Refer to the Snap Rivet Attachment Detail.

9. **(Direct Bury)** With summit climber plum and level, pour concrete footing. Allow concrete footing to cure a minimum of 72 hours before users are allowed to play on the structure.

10. Install protective surfacing before users are allowed to play on the structure.

**Installation Time:**
- SM - Approx. 1/2 man hour
- DB - Approx. 3/4 man hour

**Concrete:** DB - Approx. 1.3 cu. ft.

**Weight:**
- 112 lbs. SM
- 112 lbs. DB

**Fall Height:** Deck Height
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

PLAYBOOSTER® 179011 MINI SUMMIT CLIMBER, w/VIBE® HANDHOLDS, 40"-48"

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SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: If there is a clamp conflict, use this hole to attach panel to clamp.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: If there is a clamp conflict, use this hole to attach panel to clamp.
PLAN VIEW/FOOTING LAYOUT

DETAIL
SURFACE MOUNT

1/2" Standard Hex Nuts w/ 1/2" Flat Washers

1/4" x 2 3/4" Expansion Anchors

Concrete

Crushed Rock

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

DETAIL
DIRECT BURY

Support/Handrail

Loose Fill Protective Surfacing

Subgrade

Crushed Rock

Concrete

Support/Handrail

20" Minimum

20" Minimum (Supports)

34"/860 (Handrail 32"Dk)

30"/760 (Handrail 40"Dk)

Crushed Rock

Concrete

12"

300

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DETAIL
SNAP RIVET ATTACHMENT
(FOR FILLING UNUSED 1/2" DIAMETER HOLES)

(2) Handhold Infill Panels

(6) Snap Rivets Male

(6) Snap Rivets Female

(6) O-Rings

(2) Handhold Infill Panels

(6) Snap Rivets Male

(6) Snap Rivets Female

(6) O-Rings
PlayBooster® 180098 Pod Climber®, w/ Vibe® Handholds, 32”-40”

Specifications

- **Disc:** Rotational molded from U.V. stabilized linear low density polyethylene, disc measures 14” (356 mm) in diameter x 7” (178 mm) high, color specified.
- **Infill Panel:** Made from 7GA (.179”) (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield®, color specified.
- **Roto Handhold:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.
- **Handrail:** Weldment comprised of 1.125” (28.58 mm) O.D. 11 GA (.120”) (3.05 mm) steel tubing with 203 or 303 stainless steel inserts, with ℓ/8” internal thread. Finish: TenderTuff®, color specified.
- **Support:** Weldment comprised of 1.900” O.D. RS-20 (.090” - .100”) wall galvanized steel tubing and 1.315” O.D. RS-20 (.080” - .090”) wall galvanized steel tubing and ℓ/8” x 5” (4.75 mm x 127 mm) diameter plate. Finish: ProShield, color specified.
- **Spacer Tube:** Made from 6061-T6 aluminum ℓ/8” (22.23 mm) O.D. x ℓ/4” (42.85 mm). Finish: ProShield, color specified.
- **Offset Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield, color specified.
- **Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).
- **Installation Time:** SM - Approx. 2 man hours
- **Concrete Req.:** Approx. 5.2 cu. ft.
- **Weight:**
  - 32”-40” Decks - 91 lbs. (DB) 2 Handholds
  - 32”-40” Decks - 94 lbs. (SM) 2 Handholds
  - 32”-40” Decks - 96 lbs. (DB) 2 Handholds & 1 Handrail
  - 32”-40” Decks - 99 lbs. (SM) 2 Handholds & 1 Handrail
  - 32”-40” Decks - 108 lbs. (DB) 2 Handholds & 1 Handrail
  - 32”-40” Decks - 112 lbs. (SM) 2 Handholds & 1 Handrail
  - 32”-40” Decks - 116 lbs. (SM) 2 Handholds, 1Handloop & 1 Handrail
- **Full Height:** Deck Height
Installation Instructions

1) **(Direct Bury)** Dig footings spaced as shown. See your Plan View/Footing Layout.

2) Attach discs to supports using \( \frac{3}{8} \times \frac{3}{8} \) BHCS w/pin with \( \frac{3}{8} \) SAE flat washers, as shown.

3) Attach roto handholds to handhold infill panels, using \( \frac{3}{8} \times \frac{3}{8} \) BHCS w/pin and \( \frac{3}{8} \) SAE flat washers (small). Refer to the Panel Attachment Detail.

4) Attach handhold infill panels to deck, using \( \frac{3}{8} \times \frac{3}{8} \) BHCS w/pin with \( \frac{3}{8} \) SAE flat washers (small) and \( \frac{3}{8} \) standard hex nuts with \( \frac{3}{8} \) flat washers (large).

5) Attach offset hanger clamps to posts at height shown using 5" half clamp, \( \frac{3}{8} \times 1 \frac{1}{8} \) BHCS w/pin and \( \frac{3}{8} \) tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

6) Attach handhold infill panels to the offset hanger clamp assemblies using \( \frac{3}{8} \times 3 \frac{1}{4} \) BHCS w/pin, \( \frac{3}{8} \) SAE flat washers (small), spacer tubes and \( \frac{3}{8} \) flange nuts w/pin. Refer to the Panel Attachment Detail.

7) Position handrail (Optional) and attach to handhold panel using \( \frac{3}{8} \) x \( \frac{3}{8} \) BHCS w/pin and \( \frac{3}{8} \) SAE flat washers (small).

8) Install snap rivets and o-rings through unused \( \frac{1}{2} \) diameter holes in handhold infill panels. Refer to the Snap Rivet Attachment Detail.

9) **(Direct Bury)** Position supports in footing holes and pour concrete footings. With support posts plumb, prop supports to hold in position. Allow concrete footings to cure a minimum of 72 hours before users are allowed to play on the structure.

**(Surface Mount)** Mark anchor bolt locations on concrete slab through holes in anchor plates. Remove supports with disc. Drill \( \frac{3}{8} \times 3 \) deep holes on marks into concrete using hammer drill and \( \frac{3}{8} \) masonry bit. Tap expansion anchors into drilled holes. Fasten anchor plates to expansion anchors using \( \frac{3}{8} \) standard hex nuts with \( \frac{3}{8} \) flat washers.

10) Install protective surfacing before users are allowed to play on the structure.
PlayBooster® 180101 Corkscrew Climber, w/ Vibe® Handholds, 32"-72"

Plan View/FOOTING LAYOUT

Typical PlayBooster Post

Corkscrew

Typical Concrete Footing

Deck

Concrete Subgrade

Loose Fill

Protective Surfacing

72" Deck Height Shown

Corkscrew

60"/1520 Clearance

(2) Infill Handhold Panels

(2) Roto Handholds

Top of Clamp

15" Max

Top of Deck

38 3/4" 38 1/2"

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

Concrete

Crushed Rock

Crudged Rock

(2) 1/2" x 2 3/4"
Expansion Anchors w/ 1/2" Flat Washers & 1/2" Standard Hex Nuts

(2) 3/8" Flange Nuts w/ Pin

(2) 3/8" x 3 3/4" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) Roto Handholds

Corkscrew

Concrete Footing

Crushed Rock

Defil ATTACHMENT

(2) Spacer Tubes (Align Spacer Tubes With Corkscrew)

(2) Handhold infill Panels

DETAIL

PANEL ATTACHMENT

(4) 3/8" x 1 3/8" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) Roto Handholds

Corkscrew

Concrete

Crushed Rock

DETAIL

SURFACE MOUNT

(2) 1/2" x 2 1/2" Expansion Anchors w/ 1/2" Flat Washers & 1/2" Standard Hex Nuts

Corkscrew

Typical Concrete Footing

(2) Handhold infill Panels

Concrete

Crushed Rock

DETAIL

DIRECT BURY

Loose Fill Protective Surfacing

Subgrade

Concrete

Corkscrew

Crushed Rock

20" Minimum

34" 864

305 508
**PlayBooster® 180101 Corkscrew Climber,**
**w/ Vibe® Handholds, 32"-72"**

### Parts List

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<tr>
<td>100363</td>
<td>1/2&quot; Flat Washer, SST</td>
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</table>

**DB = Direct Bury**

**SM = Surface Mount**

### Specifications

**Corkscrew:**
Weldment comprised of 1.900" O.D. RS40 (.120" - .130") galvanized steel tubing, and 1.315" O.D. RS20 (.080" - .090") galvanized steel tubing. Finish: ProShield®, color specified.

**Infill Panel:**
Made from 7GA (.179") (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield, color specified.

**Roto Handhold:**
Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

**Spacer Tube:**
Made from 6061-T6 aluminum. Finish: ProShield, color specified.

**Clamps:**
Cast aluminum. Finish: ProShield, color specified.

**Fasteners:**
Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

### Installation Instructions

1. **(Direct Bury)** Dig footing hole as shown. Refer to the Plan View/Footing Layout.
2. Attach roto handhold panels to handhold infill panels, using 3/4" x 3/4" BHCS w/pin and 1/4" SAE flat washers (small). Refer to the Panel Attachment Detail.
3. Attach offset hanger clamps to handhold infill panels using 3/4" x 1 3/4" BHCS w/pin with 3/8" SAE flat washers (small), and 1/4" flange nuts w/pin. Refer to the Panel Attachment Detail.
4. Attach offset hanger clamps to posts using 5" half clamps, 3/4" x 1 3/4" BHCS w/pin with 3/8" SAE flat washers (small) and 3" spacer tubes. **NOTE: Align 3" spacer tubes with loop pole.**
5. Attach corkscrew to handhold infill panels, using 3/4" x 3 1/2" BHCS w/pin with 3/8" SAE flat washers (small) and 3" spacer tubes. **NOTE: Align 3" spacer tubes with loop pole.**

6. **(Direct Bury)** With corkscrew plumbed, pour concrete footing. Allow concrete footing to cure a minimum of 72 hours before users are allowed to play on the structure.

**Surface Mount**

- Drill 1 1/2" x 3" deep holes through support plate using hammer drill and 1 1/2" masonry bit. Tap expansion anchors into drilled holes. Fasten support plates to expansion anchors using 1 1/2" standard hex nuts with 1/2" flat washers.

7. Install protective surfacing before users are allowed to play on the structure.

### Concrete Req.

- Approx. 1.3 cu. ft.

### Weight

- 93 lbs. (32"-48" Deck)
- 106 lbs. (56"-72" Deck)

### Fall Height

- Deck Height

**Specifications are subject to change without notice.**

ECO 01000494 Document 214363 replaces 18027500. Replaced spacers and pole hardware package.

Eco 0101186 Corkscrew Spec Change RS20 to RS40.
NOTE: The illustration shown is a left hand orientation. Refer to the site plan drawing for the specified orientation.

NOTE: Protective surfacing adjacent to the transfer deck must be accessible.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
PlayBooster® 152911 Transfer Module, 40", w/Handrails

Specifications

Deck: Flange formed from 12 GA (.105") sheet steel conforming to ASTM A1011. Standing surface is perforated with 3/8" diameter holes and measures 29" per (2) sides. Finish: TenterTuff®, color specified.

Railings: Weldment comprised of formed 1 1/2" O.D. x 11 GA (.120") stainless steel tubing with 203 or 303 stainless steel inserts with 1/8" internal threads. Finish: TenterTuff, color specified.

Step Sections: Formed from 12 GA (.105") sheet steel conforming to ASTM A1011. Standing surface is 24 1/2" wide x 14" deep and is perforated with 3/8" diameter holes. Finish: TenterTuff, color specified.

Spacer Tube: Made from 6061-T6 aluminum 3/4" O.D. x 1 1/16". Finish: ProShield®, color specified.

Panel: Solid color Permalene® panel, color specified.


Step Support: Weldment comprised of 1,600 O.D. RS20 (.080" -.095) and 1 1/2" x 1 1/2" x 1/4" HR angle. Finish: ProShield, color specified.

Clamps: Cast aluminum. Finish: ProShield, color specified.

Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Instructions

1) (Direct Bury)Dig footings as shown. Refer to your Plan View/Footing Layout.

2) Attach the deck support to the transfer deck using 3/8" x 1/2" BHCS w/pin and 3/8" low crown cap nuts with 3/8" SAE flat washers. NOTE: Make sure 3/8" rod on support is under support strap on deck as shown. Refer to the Deck Support Attachment Detail.

3) Attach the 2-step section to the transfer deck using 3/8" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" standard hex nuts with 3/8" SAE flat washers.

4) Attach the 2-step section to the face of the mainstructure deck using 3/8" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" standard hex nuts with 3/8" SAE flat washers.

5) Attach the step support to the 1 step section using 3/8" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" standard hex nuts with 3/8" SAE flat washers. Refer to the Step Support Attachment Detail.

6) Attach the 1-step section to the transfer deck using 3/8" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" standard hex nuts with 3/8" SAE flat washers.

7) Attach offset hanger clamps to posts at heights shown using 5" half clamps, 3/8" x 1 1/2" BHCS w/pin and 3/8" tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

8) Attach infill panels to the face of the mainstructure deck using 3/8" x 1 1/4" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin. Refer to the Deck Support Attachment Detail.

9) Attach infill panels to offset hanger clamp assemblies using 3/8" x 3/4" BHCS, spacer tubes and 3/8" flange nuts w/pin. See Panel Attachment Detail.

10) Attach the handrails to the 2-step section using 3/8" x 2" BHCS with 3/8" SAE flat washers and 3/8" low crown cap nuts with 3/8" fender washers. Refer to the Handrail Attachment Detail.

11) Attach the handrails to the infill panels using 3/8" x 1 1/4" BHCS w/pin with 3/8" SAE flat washers and 3/8" flange nuts w/pin.

12) Attach the lower rail to the transfer deck using 3/8" x 1 1/2" BHCS w/pin with 3/8" SAE flat washers and 3/8" low crown cap nuts with 3/8" fender washers. Refer to the Handrail Attachment Detail.

13) Attach the lower rail to the 1-step section using 3/8" x 2" BHCS with 3/8" SAE flat washers and 3/8" low crown cap nuts with 3/8" fender washers.

14) (Direct Bury) With transfer deck and steps level and supports plumbed, pour concrete footings. Allow concrete footings to cure a minimum of 72 hours before users are allowed to play on the structure.

15) Install 3/8" drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Spec Sheet.

16) Install protective surfacing before users are allowed to play on the structure.

Specifications are subject to change without notice.
NOTE: Refer to the site plan drawing for proper orientation.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

**Plan View Footing Layout**

**Right Hand Step**
- 40" Deck
- 1-Step Section
- 2-Step Section
- 18" 460
- 22 1/4" 575
- 3 3/4" 95
- Concrete Subgrade
- Typical Concrete Footing

**Left Hand Step**
- 40" Deck
- 1-Step Section
- 2-Step Section
- 18" 460
- 22 1/4" 575
- 3 3/4" 95
- Concrete Subgrade
- Typical Concrete Footing

**Detail**

**Surface Mount Deck Support**
- (4) 3/8" Standard Hex Nuts w/ 3/8" SAE Flat Washers
- (4) 3/8" x 2 3/4" Expansion Anchors

**Surface Mount Step Support**
- (2) 3/8" Step Support Bury
- (2) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

**Deck Support Bury**
- Loose Fill Protective Surfacing
- Concrete Subgrade

**Detail**

**Deck Support Attachment**
- (4) 3/8" x 1 1/4" BHCS w/ Pin w/ 3/8" SAE Flat Washers

**Step Support Attachment**
- (4) Standard Hex Nuts w/ 3/8" SAE Flat Washers

**NOTE:** Make sure 3/8" rod on support is under support strap on deck as shown.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: When using this deck, ALL enclosures and components are mounted on the OUTSIDE of the posts.

DETAIL

DECK HANGER CLAMP

(8) 3/8" x 1 1/8" BHCS w/Pin & 3/8" Tee Nuts

(8) 3/8" Flat Washers & 3/8" Hex Patch Nuts

(8) Deck Hanger Clamps

(8) 5" Half Clamps

Post

Deck

(8) Studs

Hex Deck Half

(16) 3/8" x 1 1/2" BHCS w/Pin

DETAIL

DECK BRACE

Outside 2 Holes Use (2) 3/8" x 7/8" BHCS w/Pin & 3/8" Flat Washers

(2) 3/8" Standard Hex Nuts

Deck Brace

Deck

(2) 3/8" x 1 1/8" BHCS w/Pin w/ 3/8" Flat Washers & 3/8" Standard Hex Nuts w/ 3/8" Flat Washers

NOTE: When using this deck, ALL enclosures and components are mounted on the OUTSIDE of the posts.

NOTE: Deck brace fits inside deck face.

Inside 2 holes Use (2) 3/8" x 1" Flat Head Cap Screws & Standard Hex Nuts w/ 3/8" SAE Flat Washers

(4) Deck Braces

(1) 42" / 1070

1848

72 3/4"

144

21" / 530

(4) Deck Braces

42" / 1070

Typical

PlayBooster®

154752 Hex Deck w/Extension

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PlayBooster® 154752 Hex Deck w/Extension

Parts List

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<th>Description</th>
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<td>1/4&quot; x 1&quot; Flat Head Cap Screw, SST</td>
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Installation Instructions

1) Mark posts for the appropriate height of the decks you are installing.
2) Lower deck assemblies and deck extension into position, lining up studs underneath deck with deck hanger clamps as shown. Attach using 3/8" hex patch nuts with 3/8" flat washers. Refer to the Deck Hanger Clamp Detail.
3) Fasten hex decks to hex deck extension using 3/8" x 1 1/4" BHCS w/pin with 3/8" flat washers and 3/8" standard hex nuts with 3/8" flat washers, as shown.
4) Fasten outside two holes of deck braces to hex deck and hex deck extension using 3/8" x 7/8" BHCS w/pin with 3/8" flat washers and 3/8" standard hex nuts. Fasten inside two holes of deck braces to hex deck half and hex deck extension using 3/8" x 1" flat head cap screws and 3/8" standard hex nuts with 3/8" SAE flat washers. **NOTE**: Deck braces fit inside deck face.
5) Level decks and plumb posts. Install the 1/4" x 3/8" drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Spec sheet.
6) After all enclosures/components are installed, pour concrete footings per the Typical Concrete Footing Spec Sheet. Allow concrete footings to cure a minimum of 72 hours before users are allowed to play on the structure.
7) Install protective surfacing before users are allowed to play on the structure.

Specifications

**Hex Deck Extension**: Flange formed from 12 GA (.105") sheet steel conforming to ASTM A1011. Standing surface is perforated with 1/8" diameter holes. Deck face has (4) slotted holes for face mounting components. The finished size measures 2 1/2" x 42" x 78". Finish: TenderTuff®, color specified.

**Hex Deck**: Flange formed from 12 GA (.105") sheet steel conforming to ASTM A1011. Standing surface is perforated with 1/8" diameter holes. Deck face has (4) slotted holes for face mounting components. The finished size measures 2 1/2" x 36" per each of the six sides for an overall dimension of 78" face to face or 87" point to point. Finish: TenderTuff, color specified.

**Deck Brace**: Fabricated from 1/4" x 1 1/2" x 28 1/2" long zinc plated steel strap. Finish: ProShield®, silver in color.

**Deck Hanger Clamp Assembly**: Cast aluminum. Finish: ProShield®, color specified.

**Fasteners**: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time**: Approx. 4 man hours.

**Weight**: 472 lbs.
NOTE: When using this deck, ALL enclosures and components are mounted on the OUTSIDE of the posts like the bubble panel shown below.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

PlayBooster®
178710 Hexagon Tenderdeck

NOTE: Deck brace fits inside deck face.
## Parts List

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<th>Part#</th>
<th>Description</th>
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## Specifications

**Hex Deck:** Flange formed from 12 GA (.105") (2.67 mm) sheet steel conforming to ASTM A1011. Standing surface is perforated with 3/16" (7.94 mm) diameter holes. Deck face has (4) slotted holes for face mounting components. The finished size measures 2 1/4" x 36" (66.68 mm x 914 mm) per each of the six sides for an overall dimension of 78" (1981 mm) face to face or 87" (2210 mm) point to point. Finish: TenderTuff™, color specified.

**Deck Brace:** Fabricated from 1/4" x 1 1/2" x 28 1/2" long zinc plated steel strap. Finish: ProShield®, silver in color.

**Deck Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield®, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 2 1/2 man hours

**Weight:** 284 lbs.

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Eco #0100264  Document #20738800 replaces #7936000. Changed brace part number.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
### Parts List

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### Specifications

**Deck:**
- Fabricated from 12 GA \((.105\)"") sheet steel conforming to ASTM A1011. Standing surface is perforated with \(\frac{5}{16}\)" diameter holes. The finished size measures 2 \(\frac{5}{8}\)" x 34" (straight edge) x 17" radius (curved edge). Finish: TenderTuff™, color specified.

**Barrier:**
- Weldment comprised of \(\frac{3}{4}\)" solid steel vertical rails, 1 \(\frac{3}{4}\)" O.D. steel horizontal rails with 203 or 303 stainless steel welded inserts with \(\frac{5}{16}\)" internal threads. Finish: TenderTuff, color specified.

**Offset Hanger Clamp Assembly:**
- Cast aluminum. Finish: ProShield®, color specified.

**Fasteners:**
- Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:**
- Approx. 1 \(\frac{1}{2}\) man hours

**Weight:**
- 121 lbs.

**Fall Height:**
- Deck Height

---

Eco #0100184 Document #20444000 replaces #14808000. Replaced hardware package.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: The large radius on the access clamp needs to face down, as shown.

Refer to Wheel Assembly Details on the back of sheet 2.

NOTE: Steering Wheel Infill Panel available. Refer to the Wheel Spec Sheet.
PlayBooster® 127439 Navigator, Reach Panel

Parts List

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Specifications

Panel: Two color Permalene® panel measures 34" wide x 13" high, color specified.

Panel Spacer: Permalene®, color specified.

Angle: Fabricated from formed 11 GA (.120") HRPO sheet steel. Finish: ProShield®, Black in color.


Access Clamp: Weldment comprised of 3/8" HRPO steel plate and 1/8" x 1 1/2" wide steel clamp. Finish: ProShield, color specified.

Half Clamp: Cast aluminum. Finish: ProShield, color specified.

Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Time: Approx. 1/2 man hour

Weight: 23 lbs.

Specifications are subject to change without notice.

Eco #0101223 Document #24038900 replaces #22325300. Replaced cap and spring pin.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DETAIL

PANEL ATTACHMENT

(4) 3/8" x 1 1/2" BHCS w/ Pin w/ 3/8" SAE Flat Washers

(2) 5" Half Clamps

(4) 3/8" Tee Nuts

(4) 3/8" Flange Nuts w/ Pin

(2) Access Panels

Panel

NOTE: The large radius on the access clamp needs to face down, as shown.

DETAIL

PANEL ATTACHMENT

(WITH BALCONY DECK)

(2) Access Panels

Panel

(4) 3/8" Tee Nuts

(2) Access Clamps

(2) 5" Half Clamps

(4) 3/8" x 7/8" BHCS w/ Pin w/ 3/8" SAE Flat Washers

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NOTE: If the Navigator Panel is located on a wheelchair accessible deck, a curb (Model #191031) is required.
NOTE: To assist in the alignment of the cap to the wheel bracket shaft, tap spring pin through cap approximately \( \frac{3}{16} \) in. Orient spring pin to groove on wheel bracket shaft. Slide cap in place and tap spring pin though cap and shaft until flush.

SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: The large radius on the frame needs to face down, as shown.

Typical PlayBooster Post

(2) 5" Half Clamps

Top of Clamp

Image Panel

Frame

Accessible Surface

Protective Surfacing

Adjust For Wheel Chair User
Verify Height With Owner/Operator

32 1/8"
**PlayBooster® 129043 Image, 75 Blocks, Reach Panel**

### Parts List

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**Specifications**

- **Image Panel:** Solid color Permalene® panel measures 34 1/4" wide x 13" high, color specified.
- **Pivot Block:** U.V. stabilized high-density polyethylene, tan on one side and brown on the other.
- **Frame:** Weldment comprised of 1/4" steel. Finish: ProShield®, color specified.
- **Half Clamp:** Cast aluminum. Finish: ProShield, color specified.
- **Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Instructions**

1. Assemble panel using frame, pivot blocks, 1/2" x 11 7/16" rods, front panel, back panel, and cover panels as shown. Refer to the Panel Assembly Detail.

2. Attach the assembled panel to the posts at the height shown using 5" half clamps, 1/4" x 7/8" BHCS w/pin with 1/8" SAE flat washers and 1/8" tee nuts. **NOTE:** The large radius on the frame needs to face down, as shown.

3. Install 1/4" x 5/8" drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Spec Sheet.

4. Install protective surfacing before users are allowed to play on the structure.

**Specifications are subject to change without notice.**
NOTE: If the Image Panel is located on a wheelchair accessible deck, a Curb (Model #191031) is required.

NOTE: The large radius on the frame needs to face down, as shown.

NOTE: If the Image Panel is located on a wheelchair accessible deck, a Curb (Model #191031) is required.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: The Color Splash Wheel Assembly is preassembled at the factory. Remove protective layer from lexan before installation.

DECK MOUNT

Deck

Top of Deck

40 1/2"

35 1/4"

908

Top of Clamp

3/8" x 3 1/4" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) Spacer Tubes

(2) 3/8" Flange Nuts w/ Pin

Roto Full Enclosure

(6) 3/8" x 3/8" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) Infill Panels

Deck Mount

Typical PlayBooster Post

Top of Clamp

Infill Narrow Panel

Infill Wide Panel

Color Splash Panel Assembly

(4) 3/8" Standard Hex Nuts w/ 3/8" Flat Washers (Large)

(4) 3/8" x 7/8" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

DETAIL
COLOR SPLASH PANEL
(BACK SIDE)

Roto Full Enclosure

(2) Typical Offset Hanger Clamp Assemblies

(2) Infill Panels

(6) 3/8" x 2 1/4" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) 3/8" x 3 1/4" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(6) 3/8" x 5/8" BHCS w/ Pin w/ 3/8" SAE Flat Washers (Small)

(2) Infill Panels

PlayBooster® 179044 Color Splash Vibe® Panel™

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### Parts List

<table>
<thead>
<tr>
<th>Part#</th>
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#### 179614 Full Vibe Panel Deck Mt. Hardware Package

- 100168 1/8” x 3 1/8” BHCS w/Pin, SST
- 100195 1/8” x 1 1/4” BHCS w/Pin, SST
- 100196 1/8” x 3 1/8” BHCS w/Pin, SST
- 100198 1/8” x 1 1/4” BHCS w/Pin, SST
- 100327 1/4” Standard Hex Nut, SST
- 100351 1/2” Tee Nut, SST
- 100353 1/2” Flange Nut w/Pin, SST
- 100362 1/2” Flat Washer, SST
- 100365 1/2” SAE Flat Washer, SST

#### 179680 Sensory Vibe Panel Hardware Package

- 100199 7/32” x 2 1/4” BHCS w/Pin, SST
- 100365 1/8” SAE Flat Washer, SST

#### 179615 Full Vibe Panel Below Deck Hardware Package

- 100195 1/8” x 3 1/8” BHCS w/Pin, SST
- 100198 1/8” x 1 1/4” BHCS w/Pin, SST
- 100351 1/2” Tee Nut, SST
- 100353 1/2” Flange Nut w/Pin, SST
- 100365 1/2” SAE Flat Washer, SST
- 123224 1/8” x 1 1/8” BHCS w/Pin, SST

#### 179680 Sensory Vibe Panel Hardware Package

- 100199 7/32” x 2 1/4” BHCS w/Pin, SST
- 100365 1/8” SAE Flat Washer, SST

### Specifications

**Color Splash Panel Assembly:**
- Assembly comprised of (Permanent® Panels), color specified. (Lexan Panel) 1/4” (6.35 mm) thick x 26 1/4” (679.45 mm) diameter. (Acrylic Panel) 1/4” (3.18 mm) thick x 26 1/4” (679.45 mm) diameter. (Color Wheel) 1/8” (3.18 mm) thick x 26 1/4” (679.45 mm) diameter. Finish: ProShield®, image is transferred into paint by the process of infusion. (Shaft) stainless steel. (Thrust Oilite Bearing) 0.125” (3.18 mm) thick x 2.875” (73.03 mm) diameter. (Sleeve Oilite Bearing) 1.25” (31.75 mm) diameter x 0.750” (19.05 mm) long.

**Infill Panel:**
- Made from 7GA. (.179”) (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield®, color specified.

### Installation Instructions

#### ABOVE DECK (See Sheet 1 of 2)

1. Attach offset hanger assemblies to posts at height shown, using half clamps and 1/8” x 1/4” BHCS w/pin with 1/4” tee nuts. Refer To The Typical Offset Hanger Clamp Assembly Sheet.
2. Attach infill panels to roto full enclosure, using 1/8” x 1/4” BHCS w/pin and 1/8” SAE flat washers. Refer to the Panel Attachment Detail.
3. Attach color splash panel assembly to roto full enclosure panel using 1/8” x 2 1/4” BHCS w/pin with 1/8” SAE flat washers (small). **NOTE:** Remove protective layer from lexan before installation.
4. Attach infill panels to deck, using 1/8” x 1/4” BHCS w/pin with 1/8” SAE flat washers (small) and 1/8” standard hex nuts with 1/8” flat washers (large).
5. Attach infill panels to offset hanger clamps, using 1/8” x 3 1/4” BHCS w/pin with 1/8” SAE flat washers, spacer tubes and 1/8” flange nuts w/ pin. Refer to the Panel Attachment Detail.
6. Install protective surfacing before users are allowed to play on the structure.

#### BELOW DECK (See Sheet 2 of 2)

1. Attach offset hanger clamp assemblies to posts at height shown, using half clamps and 1/8” x 1 1/4” BHCS w/pin with 1/8” tee nuts. Refer To The Typical Offset Hanger Clamp Spec Sheet.
2. Attach infill panels to roto full enclosure, using 1/8” x 1/4” BHCS w/pin and 1/8” SAE flat washers. Refer to the Panel Attachment Detail.
3. Attach color splash panel assembly to roto full enclosure panel using 1/8” x 2 1/4” BHCS w/pin with 1/8” SAE flat washers (small). **NOTE:** Remove protective layer from lexan before installation.
4. Attach infill panels to offset hanger clamps, using 1/8” x 3 1/4” BHCS w/pin with 1/8” SAE flat washers, spacer tubes and 1/8” flange nuts w/ pin. Refer to the Panel Attachment Detail.
5. Install 1/8” x 1/4” drive rivets in all 5” half clamps. Refer to the Typical Offset Hanger Clamp Assembly Sheet.
6. Install protective surfacing before users are allowed to play on the structure.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DECK MOUNT

NOTE:
The Marble Panel is preassembled at the factory.

PlayBooster® 179050 Marble Vibe® Panel™
# PlayBooster® 179050 Marble Vibe® Panel™

## Parts List

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## Specifications

### Marble Panel Assy.

(Panel) Two color Permeline®, color specified. (Poly Panel) Fabricated from .236" (5.99 mm) thick clear polycarbonate. (Marbles) 2" (50.8 mm) diameter glass.

### Infill Panel

Made from 7GA. (179") (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield®, color specified.

### Roto Full Enclosure

Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

### Spacer Tube

Made from 6061-T6 aluminum 3/8" (22.23 mm) O.D. x 1 11/16" (42.85 mm). Finish: ProShield, color specified.

## Installation Instructions

### ABOVE DECK (See Sheet 1 of 2)

1. Attach offset hanger assemblies to posts at height shown, using half clamps and 3/8" x 1 1/8" BHCS w/pin with 3/8" tee nuts. Refer To The Typical Offset Hanger Clamp Assembly Sheet.

2. Attach infill panels to roto full enclosure, using 3/8" x 1 1/8" BHCS w/pin and 3/8" SAE flat washers (small). Refer to the Panel Attachment Detail.

3. Attach marble panel assembly to roto full enclosure, using 3/8" x 1 1/8" BHCS w/pin and 3/8" SAE flat washers (small).

4. Attach infill panels to deck, using 3/8" x 1 1/8" BHCS w/pin with 3/8" SAE flat washers (small) and 3/8" standard hex nuts with 3/8" flat washers (large).

5. Attach infill panels to offset hanger clamps, using 3/8" x 3 1/8" BHCS w/pin, 3/8" SAE flat washers (small), spacer tubes and 3/8" flange nuts w/pin. Refer to the Panel Attachment Detail.

6. Install protective surfacing before users are allowed to play on the structure.

### BELOW DECK (See Sheet 2 of 2)

1. Attach offset hanger clamp assemblies to posts at height shown, using half clamps and 3/8" x 1 1/8" BHCS w/pin with 3/8" tee nuts. Refer To The Typical Offset Hanger Clamp Spec Sheet.

2. Attach infill panels to roto full enclosure, using 3/8" x 1 1/8" BHCS w/pin and 3/8" SAE flat washers (small). Refer to the Panel Attachment Detail.

3. Attach marble panel assembly to roto full enclosure, using 3/8" x 1 1/8" BHCS w/pin and 3/8" SAE flat washers (small).

4. Attach infill panels to offset hanger clamps, using 3/8" x 3 1/8" BHCS w/pin, 3/8" SAE flat washers (small), and 3/8" flange nuts w/pin. Refer to the Panel Attachment Detail.

5. Install 3/8" x 1/4" drive rivets in all 5 half clamps. Refer to the Typical Offset Hanger Clamp Assembly sheet.

6. Install protective surfacing before users are allowed to play on the structure.
PlayBooster® 179050 Marble Vibe® Panel™

DETAIL

PANEL ATTACHMENT

(6) 3/8" x 5/8" BHCS w/Pin w/ 3/8" SAE Flat Washers (Small)

(4) 3/8" Flange Nuts w/Pin

Top of Clamp

Finished Grade

Infill Below Deck Narrow Panel

Protective Surfacing

Roto Full Enclosure

48" or Higher Deck

(4) Typical Offset Hanger Clamp Assemblies

Marble Panel Assembly

Infill Below Deck Wide Panel

(4) Typical Offset Hanger Clamp Assemblies

(2) Infill Below Deck Panels

Top of Clamp

48" or Higher Deck

(4) Typical Offset Hanger Clamp Assemblies

(6) 3/8" x 1 1/16" BHCS w/Pin w/ 3/8" SAE Flat Washers (Small)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DECK MOUNT

Rain Sound Wheel Assembly

Roto Full Enclosure

Infill Wide Panel

Infill Narrow Panel

Deck

Top of Deck

Top of Clamp

Typical PlayBooster Post

DETAIL

PANEL ATTACHMENT

(2) 3/8" x 3 1/4" BHCS w/ Pin
w/ 3/8" SAE Flat Washers
(Small)

(2) Flange Nuts w/ Pin

(2) Typical Offset Hanger Clamp Assemblies

(6) 3/8" x 3/8" BHCS w/ Pin
w/ 3/8" SAE Flat Washers
(Small)

(2) Infill Panels

Infill Wide Panel

Infill Narrow Panel

(4) 3/8" Standard Hex Nuts w/ 3/8"
Flat Washers (Large)

(4) 5/8" x 5/8"
BHCS w/ Pin
w/ 5/8" SAE Flat Washers
(Small)

(2) Spacer Tubes

(2) 3/8" x 3 1/4"
BHCS w/ Pin
w/ 3/8" SAE Flat Washers
(Small)

Roto Full Enclosure

DETAIL

RAIN SOUND WHEEL PANEL
(BACK SIDE)

(6) 1/8" x 1 1/8"
BHCS w/ Pin
w/ 1/8" SAE Flat Washers
(Small)
## Parts List

<table>
<thead>
<tr>
<th>Part#</th>
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<th>Qty.</th>
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<tbody>
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<td>179614</td>
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<td>4</td>
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<tr>
<td>100198</td>
<td>3/16'' x 1 1/2'' BHCS w/ Pin, SST</td>
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<tr>
<td>100327</td>
<td>3/16'' Standard Hex Nut, SST</td>
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<td>100198</td>
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<tr>
<td>100365</td>
<td>1/8'' SAE Flat Washer, SST</td>
<td>6</td>
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</table>

## Specifications

**Rain Sound Wheel Panel Ass'y:**

- Assembly comprised of (Permalene® Panels), color specified. (Shaft) 1" (25 mm) diameter x 4 3/4" (120.65 mm) long stainless steel. (Inner & Outer Rings) 16 GA. (.059") (1.50 mm) HRPO sheet steel. Finish: ProShield®, color specified. (Bracket) 16 GA. (.059") (1.50 mm) HRPO sheet steel. Finish: Zinc plate with clear chromate finish. (Spacer) 3/16" (9.05 mm) diameter x 2 1/2" (53.98 mm) long stainless steel. (Flange Olive Bearing) 1.625" (41.28 mm) diameter x 1.000" (25 mm) long.

- **Infill Panel:** Made from 7GA. (.179") (4.55 mm) thick HRPO steel sheet zinc plated. Finish: ProShield, color specified.

**Roto Full Enclosure:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

- **Spacer Tube:** Made from 6061-T6 aluminum 3/8" O.D. x 1 11/16". Finish: ProShield, color specified.

- **Offset Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield, color specified.

- **Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation specifications).

## Installation Instructions

**ABOVE DECK (See Sheet 1 of 2)**

1. Attach offset hanger assemblies to posts at height shown, using half clamps and 3/16'' x 1 1/4'' BHCS w/pin with 3/16'' tee nuts. Refer To The Typical Offset Hanger Clamp Assembly Sheet.

2. Attach infill panels to roto full enclosure, using 3/16'' x 3/8'' BHCS w/pin and 3/8'' SAE flat washers. Refer to the Panel Attachment Detail.

3. Attach rain sound wheel assembly to roto full enclosure panel using 3/8'' x 1 1/8'' BHCS w/pin with 3/8'' SAE flat washers (small).

4. Attach infill panels to deck, using 3/8'' x 1 1/4'' BHCS w/pin with 3/8'' SAE flat washers (small) and 5/8'' standard hex nuts with 3/8'' flat washers (large).

5. Attach infill panels to offset hanger clamps, using 3/8'' x 3 1/2'' BHCS w/pin with 5/8'' SAE flat washers, spacer tubes and 5/8'' flange nuts w/pin. Refer to the Panel Attachment Detail.

6. Install protective surfacing before users are allowed to play on the structure.

**BELOW DECK (See Sheet 2 of 2)**

1. Attach offset hanger clamp assemblies to posts at height shown, using half clamps and 3/16'' x 1 1/4'' BHCS w/pin with 3/16'' tee nuts. Refer To The Typical Offset Hanger Clamp Spec Sheet.

2. Attach infill panels to roto full enclosure, using 3/16'' x 3/8'' BHCS w/pin and 3/8'' SAE flat washers. Refer to the Panel Attachment Detail.

3. Attach rain sound wheel assembly to roto full enclosure panel using 3/8'' x 1 1/8'' BHCS w/pin with 3/8'' SAE flat washers (small).

4. Attach infill panels to offset hanger clamps, using 5/8'' x 3 1/2'' BHCS w/pin with 3/8'' SAE flat washers, spacer tubes and 3/8'' flange nuts w/pin. Refer to the Panel Attachment Detail.

5. Install 3/8'' x 3/8'' drive rivets in all 5" half clamps. Refer to the Typical Offset Hanger Clamp Assembly sheet.

6. Install protective surfacing before users are allowed to play on the structure.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
### Parts List

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<tr>
<td>100198</td>
<td>3/8” x 1 1/8” BHCS w/Pin, SST</td>
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</tr>
<tr>
<td>100327</td>
<td>3/8” Standard Hex Nut, SST</td>
<td>4</td>
</tr>
<tr>
<td>100365</td>
<td>3/8” SAE Flat Washer, SST</td>
<td>4</td>
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### Specifications

<table>
<thead>
<tr>
<th>Curb Accessible Panel: One-color Permalene®, color specified.</th>
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<tbody>
<tr>
<td>Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).</td>
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<tr>
<td>Installation Time: Approx. 1/4 man hour</td>
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<tr>
<td>Weight: 5 lbs.</td>
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### Installation Instructions

1) Attach curb accessible panel to the face of the deck using 3/8” x 1 1/8” BHCS w/pin and 3/8” standard hex nuts with 3/8” SAE flat washers.

2) Install protective surfacing before users are allowed to play on the structure.
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

PS = Playshaper

NOTE:
The Ball Maze Panel is pre-assembled at the factory.
PlayShaper® 111300/184868 Ball Maze Panel

Parts List

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<td>106480</td>
<td>Ball Maze Hardware Package</td>
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<tr>
<td>100195</td>
<td>$\frac{3}{8}$” x $\frac{3}{8}$” BHCS w/ Pin, SST</td>
<td>6</td>
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<tr>
<td>100353</td>
<td>$\frac{3}{8}$” Flange Nut w/ Pin, SST</td>
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</tbody>
</table>

Specifications

Permalene® Panel: Two color panel measures 39 $\frac{1}{2}$” wide x 30” high, color specified.

Cover: Made from .177” thick x 18 $\frac{3}{16}$” diameter clear polycarbonate.

Ball: $\frac{1}{2}$” Diameter, stainless steel.

Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Instructions

1) Attach panel to post flanges using $\frac{3}{8}$” x $\frac{3}{8}$” BHCS w/ pin and $\frac{3}{8}$” flange nuts w/ pin.

2) Install protective surfacing before users are allowed to play on the structure.

Eco #53666 Document #16545200 replaces #13757500. Changed panel height to 30”.
1/13/10 Removed color combinations block.
Eco #54656 Added new model number.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE:
The Hour Glass Panel is preassembled at the factory.

PS = Playshaper
PlayShaper® 124333/184881 Hourglass Panel

Parts List

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<tr>
<td>100353</td>
<td>3/8&quot; Flange Nut w/Pin, SST</td>
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</tbody>
</table>

Specifications

**Permalene® Panel:** Solid color panel measures 39 1/2" wide x 30" high, color specified.

**Hourglass:** Vacuum formed, clear polycarbonate.

**Hourglass Beads:** #40 stainless steel beads.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 1/4 man hour

**Weight:** 51 lbs.

Installation Instructions

1) Attach panel assembly to post flanges using 3/8" x 5/8" BHCS w/pin and 3/8" flange nuts w/pin as shown.

2) Install protective surfacing before users are allowed to play on the structure.
PS = Playshaper

NOTE:
The Optigear Panel is preassembled at the factory.
### Parts List

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<td>(\frac{3}{8})’ x (\frac{1}{2})’ BHCS w/Pin, SST</td>
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<tr>
<td>100353</td>
<td>(\frac{3}{8})’ Flange Nut w/Pin, SST</td>
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</table>

### Specifications

**Optigear Panel Assy.:** (Panels) Two color Permalene®, color specified. (Poly Panel) .236” thick clear polycarbonate, \(\frac{3}{8}\)’ threaded rod and \(\frac{3}{16}\)’ SST plate.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. \(\frac{1}{4}\) man hour

**Weight:** 49 lbs.

### Installation Instructions

1) Attach panel assembly to post flanges using \(\frac{3}{8}\)’ x \(\frac{1}{2}\)’ BHCS w/pin and \(\frac{3}{8}\)’ flange nuts w/pin as shown.

2) Install protective surfacing before users are allowed to play on the structure.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

PS = Playshaper

NOTE:
The Xylofun Panel is preassembled at the factory.

PlayShaper®
173570/184895 Xylofun Panel®

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Document #22732400
## Parts List

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<td>3/8&quot; Flange Nut w/Pin, SST</td>
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## Specifications


**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Time:** Approx. 1/4 man hour

**Weight:** 48 lbs.

---

## Installation Instructions

1) Attach panel to post flanges using 1/8" x 5/8" BHCS w/pin and 1/8" flange nuts w/pin as shown.

2) Install protective surfacing before users are allowed to play on the structure.
SAFETY NOTE
Choose a protective surfacing material that
has a Critical Height Value of at least the
height of the Highest Accessible Part/Fall
Height of the adjacent equipment. (Ref.
ASTM F1487.)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall HEIGHT of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Concrete footing should not be larger than outside dimensions of anchor cage. Concrete should be flush with top of anchor cage.

DETAIL
BUMPER FOOTER ATTACHMENT

(4) 5/8" x 1 1/2" BHCS w/ Pin
Grey Anti-Seize

(4) 5/8" x 3" Hex Head Bolts

Anchor Cage

DETAIL
WE-SAW ASSEMBLY ATTACHMENT

(8) 5/8" x 1 1/2" BHCS w/ Pin
w/ Orange Patch w/ 5/8" SAE Flat Washers

Anchor Cage

DETAIL
CONCRETE FOOTINGS
(WITH FOOTER GUIDE PLATES)

Concrete Footing

(4) Bumper Footer Guide Plates

(4) Rung Caps

Loose Fill Protective Surfacing

(4) Bumper Footers

(4) Footer Guide Plates

Anchor Cage

Concrete

Subgrade

36" 914

29" 737

36" 914

29" 737

1"

25

23" 554

25

635

4" 100

34" 864

20" 508

12" 305

DETAIL
RUNG CAP ATTACHMENT

(4) Rung Caps

(4) 5/8" x 1 1/2" BHCS w/ Pin
w/ Orange Patch

(4) Bumper Footers

Kids In Motion 186490 We-saw™
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

DETAIL

WE-SAW ASSEMBLY

(2) 3/8" x 1 3/8" BHCS w/Pin w/ 3/8" SAE Flat Washers

(8) 3/8" x 2" BHCS w/Pin w/ 3/8" SAE Flat Washers

(4) 3/8" x 7/8" BHCS w/Pin w/ 3/8" SAE Flat Washers

Platform Handhold

Teeter Pad

Insert

Center Pad

(4) Center Pad Edges

(12) #14 x 1 1/4" BHCS w/Pin

(4) Seats

(2) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

(2) 3/8" x 5/8" BHCS w/Pin, w/ 3/8" SAE Flat Washer

(2) 3/8" x 1 3/8" BHCS w/Pin w/ 3/8" SAE Flat Washers

(2) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

(2) Filler Plates

(4) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

We-saw Assembly

(12) Filler Plates

(12) Footman Loops

(24) #10-24 x 1/2" FHMS

(4) Seats

(12) Rung Caps

NOTE:

Flange needs to face down.

DETAIL

FILLER PLATE ATTACHMENT

(2) Filler Plates

(4) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

(2) Filler Plates

(4) 3/8" Low Crown Cap Nuts w/ 3/8" SAE Flat Washers

(12) #14 x 1 1/4" BHCS w/Pin

(24) #10-24 x 1/2" FHMS

(2) Filler Plates

(12) Footman Loops

(4) Seats

(12) Rung Caps

(24) #10-24 x 1/2" FHMS

(12) Footman Loops

(4) Seats

(24) #10-24 x 1/2" FHMS

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Document #27337600
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
Parts List

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249513  
We-saw Hardware Package .................................................. 1

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188123  
Bumper Guide Plate Hardware Package ................................1

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<td>188124</td>
<td>5/8&quot; x 3&quot; Hex Cap Screw, ZP</td>
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Specifications

We-saw Assembly: (Arm Assembly) Weldment comprised of 3,500" (88,9 mm) O.D. x 8 GA. (.162") (4,11 mm) wall galvanized steel tubing, 2,375" (60,33) O.D. RS40 (.130"-.140") (3,30 mm-3,56 mm) wall galvanized steel tubing, 1,900" (48,26 mm) O.D. RS40 (.120"-.130") (3,05 mm-3,30 mm) wall galvanized steel tubing .375" (9,52 mm) thick HRPO steel plate and .250" (6,35 mm) stainless steel plate. Finish: ProShield®, specify color. (Rocker Assembly) Weldment comprised. .250" (6,35 mm) HRPO steel plate and 2" (50 mm) x 5/8" (7,93 mm) wall steel tubing. Finish: ProShield, Black in color. (Base) Weldment comprised .375" (9,53 mm) HRPO steel plate and 2.500" (63,50 mm) O.D. x 1.150" (29,21 mm) I.D. stainless steel tubing. Finish: ProShield, Black in color. (Base Plate) Fabricated from .250" (6,35 mm) HRPO steel plate. Finish: ProShield, Black in color. (Spring) 5 5/8" (142,87 mm) diameter 1/16" (20,62 mm) tempered alloy steel coil. Finish: ProShield, Black in color. (Spring Wedge) Cast from ductile iron alloy. Finish: ProShield, Black in color. (Bearings) 1.145" (29,08 mm) I.D. oilite bronze. (Shaft) 1.14" (28,96 mm) O.D. stainless steel. (Cylinder) Chrome plated steel.

Kids In Motion 186490 We-saw™

Filler Plate: Fabricated from 5052 Sheet Aluminum. Finish: ProShield, color specified.

GripX Insert: 1/4" (19,05 mm) Thick Permalene®, black in color.

Teeter Pad & Edges: Permalene®, color specified.

Platform Handhold: Weldment comprised of 1,315" (33,4 mm) O.D. RS20 (.080"-.090") (2,03 mm - 2,28 mm) wall galvanized steel tubing, 10 GA (.135") (3, 42 mm) HRPO steel sheet and 7 GA (.179") (4,54 mm) HRPO steel sheet. Finish: ProShield®, color specified.

Anchor Cage: Weldment comprised of 1,029" (26,13 mm) O.D. RS20 (.070"-.080") (1,77 mm - 2,03 mm) wall galvanized steel tubing with 203 or 303 stainless steel welded inserts with 5/8" internal threads and 7 GA (.179") (4,54 mm) HRPO steel sheet. Finish: ProShield®, black in color.

Rung Cap: Molded from U.V. stabilized black EPDM rubber encapsulating .250" (6,35 mm) thick aluminum sheet and .125" (3,18 mm) thick aluminum plate.

Center Pad: Fabricated from .250" (6,35 mm) thick HRPO steel sheet plate. Finish: ProShield®, black in color.

Bumper Footer: Weldment comprised of 1,315" (33,40 mm) O.D. RS20 (.080"-.090") (2,03 mm - 2,29 mm) wall galvanized steel tubing with 203 or 303 stainless steel welded inserts with 5/8" internal threads and .250" (6,35 mm) thick stainless steel plate. Finish: ProShield®, color specified.

Seat: Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.

Fasteners: Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Time: Approx. 16 man hours

Fall Height: 54" (1,37 m)

Min. Use Zone: 6' (1,83 m)

Area Required: 16' 8" x 23' 5" (5,08 m x 7,14 m)

Concrete Req.: Approx. 17.82 cu. ft.

Weight: 783 lbs.

Eco #0101903 Document #27337600 replaces #25758800. Update assembly part number.
Installation Instructions

1) **(Direct Bury)** Dig footing holes for anchor cage and bumper footers. Build a form for anchor cage concrete footing. Concrete footing for anchor cage should not be larger than outside dimensions of anchor cage. Refer to Concrete Footing Details.

2) Attach rung caps and bumper footers to bumper footer guide plates using \( \frac{5}{16"} \times 3" \) hex head bolts. Refer to the Bumper Footer Attachment Detail.

3) Attach bumper footer guide plates to anchor cage using \( \frac{7}{16"} \times 1 \frac{1}{2"} \) BHCS w/pin and \( \frac{3}{8"} \times 7/8" \) BHCS w/pin. Refer to the Bumper Footer Attachment Detail.

4) Place anchor cage and bumper footers in footing holes, as shown. Top of anchor cage should be flush with finished grade. With anchor cage level and bumper footers plumb, pour concrete. Concrete should be flush with top of anchor cage. Allow concrete footing to cure for a minimum of 72 hours before continuing. Refer to the Concrete Footing Details.

5) Remove footer guide plates from anchor cage and bumper footers. Discard bumper guard plates and hardware. Attach rung caps to bumper footers using \( \frac{5}{16"} \times 1 \frac{1}{2"} \) BHCS w/pin. Refer to the Rung Cap Attachment Detail.

6) Set We-saw assembly onto anchor cage. Line up holes in We-saw assembly bottom plate with threaded inserts in anchor cage. Attach We-saw assembly to anchor cage using \( \frac{7}{16"} \times 1 \frac{1}{2"} \) BHCS w/pin with \( \frac{7}{16"} \) SAE flat washers. Refer to the We-saw Assembly Attachment Detail.

7) Attach filler plates to We-saw assembly using \#3/8 x 7/8" BHCS w/pin with \( \frac{3}{16"} \) SAE flat washers and \( \frac{3}{8"} \) low crown cap nuts with \( \frac{1}{8"} \) SAE flat washers. Refer to the Filler Plate Attachment Detail. Make sure flanges on filler plates are pointing downwards.

8) Attach center pad edges to teeter pad, using \#14 x 1 \( \frac{1}{4"} \) BHCS w/pin. Refer to the We-saw Assembly Detail.

9) Attach platform handhold, teeter pad, insert and center pad to We-saw assembly attachment plates, using \( \frac{3}{16"} \times 2" \) BHCS w/pin with \( \frac{3}{8"} \) SAE flat washers and \( \frac{1}{8"} \) low crown cap nuts with \( \frac{3}{8"} \) SAE flat washers. Refer to the We-saw Assembly Detail.

10) Attach teeter pad to center pad using \( \frac{7}{16"} \times 1 \frac{3}{8"} \) BHCS w/pin with \( \frac{7}{16"} \) SAE flat washers and \( \frac{7}{16"} \) low crown cap nuts with \( \frac{7}{16"} \) SAE flat washers. Refer to the We-saw Assembly Detail.

11) Attach rung caps to We-saw assembly using \( \frac{5}{16"} \times 1 \frac{1}{2"} \) BHCS w/pin. Refer to the Rung Cap Attachment Detail.

12) Attach seats to We-saw assembly using \( \frac{5}{16"} \times \frac{3}{8"} \) BHCS w/pin with \( \frac{5}{16"} \) SAE flat washers. Refer to the Seat Attachment Detail.

13) Attach footman loops, using \#10-24 x \( \frac{1}{2"} \) flat head screws, as shown. Footman loops are used for seat belts (not included).

14) Apply Play Safe and warning labels, as shown.

15) Install protective surfacing before users are allowed to play on the structure.

Specifications are subject to change without notice.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: Dimension from Top of Post to Top of Roof is 16 3/8"
PlayBooster® 179594 Vibe® Roof

Installation Instructions

1) Fasten infill panel to roof, using \( \frac{3}{8}'' \times \frac{7}{8}'' \) BHCS w/pin and \( \frac{3}{8}'' \) SAE flat washers.

2) Attach roof to posts at dimension shown, using roof clamps and \( \frac{3}{8}'' \times 1\frac{1}{8}'' \) BHCS w/pin.

3) Using the predrilled \( \frac{1}{4}'' \) holes in roof clamps as a guide, drill \( \frac{1}{4}'' \) holes into posts. Insert \( \frac{1}{4}'' \times \frac{5}{8}'' \) drive rivets into drilled holes and tap pin in until it is flush with rivet head.

4) Install protective surfacing before users are allowed to play on the structure.

Parts List

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<th>Qty.</th>
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<td>Roof Clamp, Specify Color</td>
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<td>100365</td>
<td>( \frac{1}{4}'' ) SAE Flat Washer, SST</td>
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Specifications

| Infill Panel: | Made from 12 GA, (.105") (3.18 mm) thick HRPO steel sheet zinc plated. Finish: ProShield®, color specified. |
| Roof:        | Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.                |
| Clamps:      | Cast aluminum. Finish: ProShield, color specified.                                                      |
| Fasteners:   | Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications). |

Installation Time: Approx. 2 man hours per roof

Weight: 81 lbs.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: When attaching two roofs back to back, slide roofs onto posts, fasten upper roof to posts at dimension shown, then slide lower roof up to upper roof and fasten to posts.

NOTE: Mark posts at dimensions shown, to ensure roofs are attached to posts at proper height.
**SAFETY NOTE**

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

---

**PLAN VIEW/FOOTING LAYOUT**

- 86 1/8" x 2191
- 40" Deck
- 99 1/2" x 2527
- 6'/1830 Minimum Use Zone

**ELEVATION**

- 17" x 430
- 39 1/4" x 1010
- 11" x 279
- 34" x 880

**Typical Concrete Footing**
- 5 3/8"/137
- 3 1/8"/794

**Hood** - See Detail 3

**Rollers** - See Detail 2

**Top Plate** - See Detail 2

**Supports** - See Detail 1

**Protective Surfacing**
PlayBooster®

123333 Rollerslide Details, 40"

NOTE: Slots in rails face inward to accommodate steel shafts of rollers.

DETAIL 1
SUPPORTS

(4) 3/8" Flange Nuts w/ Pin
(2) 3/8" Standard Hex Nuts w/ 3/8" Flat Washers
(4) 1/2" x 2 3/4" Expansion Anchors

DETAIL 2
TOP PLATE & ROLLERS

(4) 1/2" x 1 1/8" BHCS w/ Pin w/ 3/8" Flat Washers
(4) 1/2" Low Crown Cap Nuts w/ 1/8" Flat Washers
(43) Steel Shafts

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

DETAIL
DIRECT BURY

(2) Supports
Loose Fill Protective Surfacing
Subgrade
Concrete Footing

NOTE: Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
**DETAIL 3**

**ROLLERSLIDE HOOD**

- **(4) Typical Offset Hanger Clamp Assemblies**
- **(2) Typical PlayBooster Post**
- **(2) 1 7/16" O.D. x 1 11/16" Rail Spacers**
- **(2) 1/8" O.D. x 1 5/8" Tubes**
- **(2) 5/8" x 2 1/4" BHCS w/Pin**
- **(2) 3/8" x 3 1/2" BHCS w/Pin w/ 3/8" Flat Washers**

**HOOD - HANDLE DETAIL**

- **Handle**
- **Deck**
- **40 7/16" Rail**

---

**PlayBooster®**

**123333 Rollerslide, 40"**

Sheet 2 of 2
PlayBooster® 123333 Rollerslide, 40"

**Parts List**

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<tr>
<td>100363</td>
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| DB = Direct Bury (LH) = Left Hand (RH) = Right Hand  

**Specifications**

- **Hood:** Rotationally molded from U.V. stabilized linear low density polyethylene, color specified.
- **Rollers:** Fabricated from 1.900” O.D. x 16 GA (.060") galvanized steel tubing. Finish: TenderTuff™, color specified.
- **Roller Shafts:** Fabricated from 1/2” diameter CRS zinc-plated with yellow chromate finish.
- **Support Leg:** Fabricated from 1.900” O.D. RS-20 (.900” - .100") galvanized steel tubing. Finish: ProShield®, color specified.
- **Rails:** Extruded from 6005-T1 aluminum. Finish: ProShield, color specified.
- **Top Plate:** Formed from 10 GA (.135") 304-2B SST. Finish: TenderTuff, color specified.
- **Rail:** 1 1/8” O.D. 6005-T5 aluminum extrusion with 5/8” walls. Finish: ProShield, color specified.
- **Rail Spacers:** Fabricated from 1.3125 O.D. x 16 Ga. (.065) steel tubing. Finish: ProShield, color specified.

**Offset Hanger Clamp Assembly:** Cast aluminum. Finish: ProShield, color specified.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

**Installation Instructions**

1) (Direct Bury) Dig footing holes spaced as shown.

2) Attach the supports to bottom of rails as shown in Detail 1, using 3/8” x 1 1/8” BHCS w/Pin with 3/8” flange nuts w/Pin. **NOTE:** Insert flange nuts w/Pin through side facing deck.

3) Attach top plate to deck, as shown in Detail 2, using 3/8” x 1 1/4” BHCS w/Pin with 3/8” flat washers and 3/8” standard hex nuts with 3/8” flat washers.

4) Locate left and right rollerslide rails and attach to top plate using 3/8” x 1 1/8” BHCS w/Pins and 3/8” low crown cap nuts with 3/8” flat washers, as shown in Detail 2.

5) Insert the 30 3/8” steel roller shafts into the rollers. Starting at top, next to the top plate, attach all roller assemblies to rails, as shown in Detail 2, using 3/8” x 3/8” BHCS w/Pins.

6) Insert 40 3/8” rail through top of hood, place rail spacer tube on each end of the 40 3/8” rail and attach to posts at height shown using offset hanger clamp assemblies. Refer to the Typical Offset Hanger Clamp Spec Sheet. Fasten bottom of hood to offset hanger clamp assemblies using 3/8” x 3 1/2” BHCS w/Pins with 3/8” flat washers through clamp and 1 1/8” O.D. x 1 1/8” tubes and into threaded inserts in hood. Refer to Detail 3.

7) (Direct Bury) With supports plumb pour concrete footings. Allow concrete footings to cure for a minimum of 72 hours before users are allowed to play on the structure.

8) Install 3/8” x 3/8” drive rivets in all 5” half clamps. Refer to the Typical Offset Hanger Clamp Spec Sheet.

9) Install protective surfacing before users are allowed to play on the structure.

**Tube:** 1 1/8” O.D. x 1 1/4” long aluminum tube. Finish: ProShield, color specified.

**Installation Time:** Approx. 4 1/2 man hours

**Concrete Req.:** Approx. 2.6 cu. ft.

**Exit Req.:** 6’ (1.83 m) minimum use zone at exit

**Weight:** 36 lbs.

**Fall Height:** 40” (1.02 m)

---

PlayBooster® 123333 Rollerslide, 40"

Specifications are subject to change without notice.
NOTE: Refer to your plan drawing for location of footings and layout and direction of SlideWinder sections.

SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: If SlideWinder is off a 96" deck, 182" steel posts are required with a 44" bury.

DETAL
(2) Typical Offset Hanger Clamp Assemblies

(2) Spacer Tubes

40 7/16" Rail

(4) 3/8" x 7/8" BHCS w/ Pin w/ 3/8" Flat Washers
NOTE: Elbow sections will be marked (LH) for left hand and (RH) for right hand.

(2) $\frac{3}{8}'' \times 1 \frac{11}{16}''$ BHCS w/Pin w/ $\frac{3}{8}''$ Flat Washers

(3) $\frac{3}{4}'' \times 1 \frac{3}{8}''$ BHCS w/Pin w/ $\frac{3}{8}''$ Flat Washers

NOTE: Fasten top of slide section with pockets to bottom of slide section without pockets.

NOTE: Refer to your plan drawing for location of mid-supports and their footing depth (DB).

NOTE: DO NOT sandwich support between sections. Mount on outside.

(3) $\frac{3}{8}'' \times 1 \frac{3}{8}''$ BHCS w/Pin w/ $\frac{3}{8}''$ Flat Washers

(3) $\frac{3}{8}'' \times 1 \frac{3}{8}''$ BHCS w/Pin w/ $\frac{3}{8}''$ Flat Washers
**SAFETY NOTE**
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

---

**DETAIL**
DIRECT BURY / EXIT SECTION

- **Exit Section**
  - Top Of Sliding Surface
  - (2) $\frac{3}{8}"$ Flat Washers
  - (2) Rubber Bushings
  - (2) $\frac{3}{8}"$ Flat Washers
  - (2) $\frac{3}{8}" \times 1 \frac{1}{4}"$ BHCS w/ Pin Limited Thread Bolts

- **Subgrade**
  - Crushed Rock
  - 12"
  - 300

- **Loose Fill Protective Surfacing**
  - 34"

- **Concrete Footing**
  - 12"
  - 300

**NOTE:** Attach bolts in the center of the footer slots to allow for expansion and contraction. Snug bolts down only, do not overtighten!

**NOTE:** Thickness of unitary protective surfacing depends upon the slide deck height on slides above 48". The exit height shall be 7" minimum.

**NOTE:** Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

---

**DETAIL**
DIRECT BURY / MID-SUPPORTS

- **Mid-Support**
  - 30" or 38"
  - 760 or 970
  - 20" Minimum

- **Concrete Footing**

- **Subgrade**
  - Crushed Rock
  - 12"

- **Loose Fill Protective Surfacing**

**NOTE:** Exit Heights may vary if the protective surfacing is not level. Do not put pressure/tension on the entrance section when adjusting the exit height.

---

**DETAIL**
SURFACE MOUNT / MID-SUPPORTS

- **Mid-Support**
  - 30" or 38"
  - 760 or 970
  - 20" Minimum

- **Concrete Footing**

- **Subgrade**
  - Crushed Rock
  - 12"

- **Loose Fill Protective Surfacing**

- **Leg Base**

- **Unitary Protective Surfacing**

- **Concrete Slab**

- **Crushed Rock**

**NOTE:** Sufficient protective surfacing must cover hardware to satisfy fall height requirements.

---

**124863 SlideWinder2® Details**

**PlayBooster®**

Sheet 2 of 2

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PlayBooster® 124863 SlideWinder2®, 32"-96"

Specifications

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>124867</td>
<td>Right Elbow Section, Specify Color</td>
<td>*</td>
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<tr>
<td>124868</td>
<td>Left Elbow Section, Specify Color</td>
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<tr>
<td>125655</td>
<td>Straight Section (15/16&quot; Long), Specify Color</td>
<td>*</td>
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<tr>
<td>124864</td>
<td>Straight Section (30/16&quot; Long), Specify Color</td>
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<tr>
<td>100583</td>
<td>40 3/8&quot; Rail, Specify Color</td>
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</tr>
<tr>
<td>105327</td>
<td>5&quot; Half Clamp, Specify Color</td>
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<tr>
<td>113729</td>
<td>Offset Hanger Clamp, Specify Color</td>
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<tr>
<td>125562</td>
<td>Support Base (SM), Specify Color</td>
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<tr>
<td>128434</td>
<td>66&quot; Mid-Support (DB), Specify Color</td>
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</tr>
<tr>
<td>128077</td>
<td>82&quot; Mid-Support (DB), Specify Color</td>
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<td>Exit Fitter (SM), Specify Color</td>
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<td>Exit Section, Specify Color</td>
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<td>132443</td>
<td>Spacer Tube, Specify Color</td>
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<td>Entrance/Deck Mounting Hardware Package</td>
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<td>100196</td>
<td>1/2&quot; x 1/4&quot; BHCS w/Pin, SST</td>
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<tr>
<td>100362</td>
<td>3/8&quot; Flat Washer, SST</td>
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<tr>
<td>154942</td>
<td>SlideWinder Section Hardware Package</td>
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<td>100351</td>
<td>3/8&quot; Tee Nut, SST</td>
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<td>15670</td>
<td>Mid-Support Hardware Package (SM)</td>
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<tr>
<td>100266</td>
<td>1/2&quot; x 2 1/8&quot; Expansion Anchor</td>
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<td>100322</td>
<td>1/2&quot; Standard Hex Nut, SST</td>
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<tr>
<td>100353</td>
<td>1/2&quot; Flange Nut w/Pin, SST</td>
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<td>115813</td>
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<td>100362</td>
<td>1/2&quot; Flat Washer, SST</td>
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<tr>
<td>114442</td>
<td>Rubber Bushing</td>
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<td>1/2&quot; x 2 1/8&quot; Expansion Anchor</td>
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<td>100292</td>
<td>1/2&quot; x 1 1/2&quot; BHCS w/Pin Limited Thread Bolt, SST</td>
<td>2</td>
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<tr>
<td>100322</td>
<td>1/2&quot; Standard Hex Nut, SST</td>
<td>2</td>
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<tr>
<td>100323</td>
<td>1/2&quot; Flat Washer, SST</td>
<td>2</td>
</tr>
<tr>
<td>100363</td>
<td>1/2&quot; Flat Washer, SST</td>
<td>2</td>
</tr>
<tr>
<td>114442</td>
<td>Rubber Bushing</td>
<td>2</td>
</tr>
</tbody>
</table>
| DB = Direct Bury SM = Surface Mount * = Quantity Varies Per Deck Height

Fasteners: Primary fasteners shall be socketed and pinned tamper-proof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

Installation Time:
- 32" - 48": Approx. 3 man hours
- 72": Approx. 4 man hours
- 96": Approx. 5 man hours

Concrete Req.:
- 30" Depth - Approx. 1.3 cu. ft.
- 34" Depth - Approx. 1.5 cu. ft.
- 38" Depth - Approx. 1.8 cu. ft.

Weight:
- 32": 134 lbs.
- 40": 146 lbs.
- 48": 172 lbs.
- 56": 184 lbs.
- 64": 197 lbs.
- 72": 247 lbs.
- 96": 265 lbs.

Fall Height: Deck Height

Installation Instructions

1) Refer to your plan drawing for location of footings and direction of SlideWinder sections.

2) (Direct Bury) Dig footing holes spaced as shown, depending upon slide. Refer to the Direct Bury Exit Section and Direct Bury Mid-Support Details.

3) Place 40 7/16" rail in entrance section, place spacer tubes over each end of the 40 7/16" rail, attach offset hanger clamps using 9/16" x 2 1/2" BHCS w/Pin.

4) Fasten SlideWinder sections together loosely starting in the middle and working your way to the outside of each section, using 1/2" x 1 3/8" BHCS w/Pin with 9/16" flat washers on the inside holes and 9/16" x 1 1/8" BHCS w/Pin with 3/8" flat washers on the outside holes. When all bolts are started, pull the tops flush with each other and tighten. The left elbow section reads (LH) and the right elbow section reads (RH). Attach entrance and exit section last. Refer to the Typical Slide Section Detail.

5) (Direct Bury) If required attach mid-supports, refer to your plan drawing for locations. Attach mid-supports to slide using 9/16" x 1 3/4" BHCS w/Pin. Refer to the Typical Mid-Support Detail.

(Surface Mount) If required attach mid-supports, refer to your plan drawing for locations. Assemble mid-supports by placing support base inside mid-support and attach using 9/16" x 1 1/4" threaded rod and 9/16" flange nuts w/pin. Refer to the Surface Mount/Mid-Support Detail. Attach mid-supports to slide using 9/16" x 1 1/4" BHCS w/Pin. Refer to the Typical Mid-Support Detail.

6) Attach exit fitter to base of slide using 1/4" x 1 1/8" BHCS w/Pin limited thread bolts, 9/16" flat washers, rubber bushings and 3/32" flat washers. **NOTE:** Attach bolts in the center of the slots to allow for expansion and contraction. Snug bolts down only, do not overtighten. See Direct Bury/Exit Section Detail.

7) With SlideWinder fully assembled, attach entrance section to the face of the deck using 9/16" x 1 1/8" BHCS w/Pin and 9/16" flat washers.

8) Attach offset hanger clamps to posts using 5 1/2 half clamps, 9/16" x 1 1/8" BHCS w/Pin and 3/32" tee nuts. Refer to the Typical Offset Hanger Clamp Spec Sheet.

9) (Direct Bury) With supports plum pour concrete footings. Allow concrete footings to cure for a minimum of 72 hours before users are allowed to play on the structure.

(Surface Mount) Mark anchor bolt locations on concrete slab through holes in anchor plates. Drill 1/2" x 3" holes in concrete slab using a hammer drill and 1/2" masonry bit. Tap 3/32" x 3" expansion anchors into drilled holes and fasten using 1/4" standard hex nuts with 3/32" flat washers.

10) Install protective surfacing before users are allowed to play on the structure.

Specifications are subject to change without notice.
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

NOTE: When using ProGuard chain, use nylon chain spacers on each side of chain link.

NOTE: Do not use an impact wrench to tighten bolts. Hand tighten only!

176038 Full-Bucket Seat, w/Chains
**Swings 176038 Full-Bucket Seat, w/Chains**

### Parts List

<table>
<thead>
<tr>
<th>Part#</th>
<th>Description</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>186276</td>
<td>Full-Bucket Swing Seat, Black</td>
<td>1</td>
</tr>
<tr>
<td>147139</td>
<td>43 1/8&quot;, Chain, TenderTuff, Specify Color</td>
<td>2</td>
</tr>
<tr>
<td>175248</td>
<td>43 1/16&quot;, Chain, ProGuard</td>
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<tr>
<td>138414</td>
<td>Bucket Seat Hardware Package</td>
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<tr>
<td>100290</td>
<td>1/4&quot; x 1/4&quot; BHCS w/Pin Limited Thread, SST</td>
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<td>Chain Spacer (For ProGuard Chains Only)</td>
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<td>100290</td>
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<td>Chain Spacer (For ProGuard Chains Only)</td>
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<td>174881</td>
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<tr>
<td></td>
<td>Chain Spacer (For ProGuard Chains Only)</td>
<td>4</td>
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</tbody>
</table>

### Specifications

**Full-Bucket Seat:** Seat shall be molded of U.V. stabilized, high quality, black rubber, encapsulating a 24 gauge stainless steel reinforcement plate. Handle cast from 356-T6 aluminum alloy with black polyarmor paint finish. Handle attaches to seat with (3) 1/4" x 1 1/8" long stainless steel rivets. The finished size of the full bucket shall be 9" deep x 10 1/2" wide.

**Chain/Coated:** Steel 1/8" straight link chain, 800 lb. working load limit. Finish: TenderTuff, color specified.

**Chain/ProGuard:** Steel 3/8" straight link chain, 800 lb. working load limit. Finish: ProGuard.

**Fasteners:** Primary fasteners shall be socketed and pinned tamperproof in design, stainless steel (SST) per ASTM F 879 unless otherwise indicated (see specific product installation/specifications).

### Installation Instructions

**Swing Hangers with Double Clevis**

1) Attach chains to double clevis using 3/8" x 1 1/4" BHCS w/pin limited thread bolts, as shown.

2) Attach chains to full-bucket seat using 1/4" x 1/4" BHCS w/pin limited thread bolts. Be sure bolt heads face user. **NOTE:** Use chain spacers as shown when installing ProGuard chains.

3) Install protective surfacing before users are allowed to play on the structure.

**Anti-wrap Swing Hangers**

1) Attach chains to aluminum clevis using 3/8" x 1/8" BHCS w/pin limited thread bolts, as shown.

2) Attach chains to full-bucket seat using 1/4" x 1/4" BHCS w/pin limited thread bolts. Be sure bolt heads face user. **NOTE:** Use chain spacers as shown when installing ProGuard chains.

3) Install protective surfacing before users are allowed to play on the structure.

Specifications are subject to change without notice.
SAFETY NOTE

Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)
SAFETY NOTE
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

218671 Molded Bucket Seat 2-5, w/Harness Swings
Swings 218671 Molded Bucket Seat 2-5, w/Harness

### Parts List

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<thead>
<tr>
<th>Part#</th>
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<td>Molded Bucket Seat Assembly, Specify Color</td>
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<td>178679</td>
<td>7 Ft. High Beam - ProGuard Finished Chains</td>
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<td>allowed to play on the structure.</td>
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<tr>
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<td>Steel 3/16” (4,74 mm) straight link chain,</td>
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<tr>
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<td>insert (4) nylon spacers between chain links and</td>
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<td>(ProGuard Chain)</td>
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<td>Dbl. Pivot Block:</td>
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<tr>
<td>162462</td>
<td>(Anti-wrap Swing Hangers)</td>
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<td></td>
<td>Attach connector chain to back swing chains at</td>
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<tr>
<td></td>
<td>dimension shown, using 3/8” x 7/8” BHCS w/pin &amp;</td>
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<tr>
<td></td>
<td>3/8” jam nuts. Refer to Detail.</td>
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<tr>
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<td>(TenderTuff Chain)</td>
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<tr>
<td></td>
<td>Attach connector chain to back swing chains at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>dimension shown, using 3/8” x 1 1/8” BHCS w/pin &amp;</td>
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</tr>
<tr>
<td></td>
<td>3/8” standard hex nuts with 3/8” SAE Flat Washers</td>
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<tr>
<td></td>
<td>Refer to Detail.</td>
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</tr>
<tr>
<td></td>
<td>Attach footman loops, using #10-24 x 1/2” flat</td>
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</tr>
<tr>
<td></td>
<td>head screws, as shown.</td>
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<tr>
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<td>Footman loops are used for seat belts (not</td>
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<tr>
<td></td>
<td>included).</td>
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</tr>
<tr>
<td></td>
<td>Attach bumper plate and bumper to front of swing</td>
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</tr>
<tr>
<td></td>
<td>seat, using 3/8” x 7/8” BHCS w/pin with 3/8”</td>
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<tr>
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<td>SAE Flat Washers.</td>
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<tr>
<td></td>
<td>Specifications</td>
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<td>Bucket Seat Assy.: (Bucket Seat &amp; Yoke)</td>
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</tr>
<tr>
<td></td>
<td>Rotationally molded from U.V. stabilized linear</td>
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<tr>
<td></td>
<td>low density polyethylene, color specified.</td>
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<td>(Pipebolt) Made from 1.125” (28,57 mm) O.D.</td>
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<td>6005-T5 threaded anodized aluminum tube.</td>
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<td>(Bearings) UHMW PE lubricated. (Brackets) Made</td>
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<td>from 356-T6 aluminum.</td>
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<tr>
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<td>(Chain/Coated)</td>
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</tr>
<tr>
<td></td>
<td>Steel 3/16” (4,74 mm) straight link chain,</td>
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<td>brackets.</td>
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<tr>
<td></td>
<td>(Chain/ProGuard)</td>
<td></td>
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<tr>
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<td>Steel 3/16” (4,74 mm) straight link chain,</td>
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<td>insert (4) nylon spacers between chain links and</td>
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<td></td>
<td>brackets.</td>
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<td>Mounting Bracket:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cast from 535 aluminum magnesium.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bumper:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1/8” (3,17 mm) thick aluminum plate. Finish:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pro-Shield®, black in color.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bumper:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Molded from U.V. stabilized black EPDM rubber</td>
<td></td>
</tr>
<tr>
<td></td>
<td>encapsulating 11 GA (.120”) (3,04 mm) HRPO steel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Specifications are subject to change without</td>
<td></td>
</tr>
<tr>
<td></td>
<td>notice.</td>
<td></td>
</tr>
</tbody>
</table>
Choose a protective surfacing material that has a Critical Height Value of at least the height of the Highest Accessible Part/Fall Height of the adjacent equipment. (Ref. ASTM F1487.)

SWING HANGER OPTIONS

- Double Clevis (Not Included)
- 3/8" x 1 1/4" BHCS w/Pin Limited Thread (Not Included)
- (2) 3/8" x 7/8" BHCS w/Pin Limited Thread (Not Included)
- TenderTuff or ProGuard Chains

- Double Pivot Block
- 3/8" x 7/8" BHCS w/Pin Limited Thread (Not Included)
- (2) 3/8" x 7/8" BHCS w/Pin Limited Thread (Not Included)
- TenderTuff or ProGuard Chains

- Double Clevis (Not Included)
- 3/8" x 1 1/4" BHCS w/Pin Limited Thread (Not Included)
- (2) 3/8" x 7/8" BHCS w/Pin Limited Thread (Not Included)
- TenderTuff or ProGuard Chains

- Double Clevis (Not Included)
- 3/8" x 1 1/4" BHCS w/Pin Limited Thread (Not Included)
- (2) 3/8" x 7/8" BHCS w/Pin Limited Thread (Not Included)
- TenderTuff or ProGuard Chains
APPENDIX 2
SPLASHPAD SPECIFICATIONS
Part 1: GENERAL CLAUSES

The aquatic play products shall be suitable for installation in municipal and commercial aquatic facilities and public play areas.

Products shall be specifically designed for the use by children and adults and follow the ASTM F2461-09 norm. The manufacturer should have an ISO 9001:2015 Certified Quality Management System. In addition, products shall be manufactured by a company that has at least five (5) years of experience in the design and engineering of children’s aquatic play areas.

Any aquatic play product belonging to a new product line or series should demonstrate meeting the effective norm or show the conformity and resistance of the prescribed materials if it is proposed equivalency. The contractor or manufacturer must demonstrate meeting specifications by providing technical documents and drawings to be included in their bid proposal.

1.1 PRODUCT CONSTRUCTION

A. Play Products: All aquatic play products installed above and below grade shall be manufactured from 304/304L stainless steel. The anchoring system shall be manufactured from 304/304L stainless steel. Rigid centrifugal fiber reinforced (FRP) and/or molded fiberglass, PVC, filament wound tubing, Galvanized Steel, or Aluminum shall not be utilized for any above or below grade play product structures.

B. Mounting and Assembly Hardware: All hardware and anchoring systems shall be 304/304L or 316 stainless steel. All Play Products and Ground Spay systems shall include an integrated anchoring and leveling system facilitating installation and a flush surface finish. Exposed and accessible hardware shall be tamper resistant, requiring a special tool for removal to deter vandalism and theft.

C. Spray nozzles, caps and heads: Shall be manufactured from lead free brass, UHMWPE or Polyurethane and shall use tamper resistant tools for installation and removal. PVC, Nylon, and Delrin™, shall not be utilized. All grade level play products are to be furnished with appropriate winterization caps.

D. Painted Finish: Shall be a polyester smooth glossy heat-cured powder coat that is UV and chemical resistant and suitable for public spaces.

E. Material for Paneling, Signage, Water Deflection, and Toe Guards: All Polyethylene, Polyurethane, Elastomers and Seeflow Polymers used for paneling, signage or water deflection shall be resistant to chlorinated water and be ultraviolet stabilized to inhibit sunlight fading.

F. Safety & Craftsmanship: All accessible edges shall be machined to a rounded finish. All welds shall be watertight, buffed smooth or polished to a non-visible finish and factory pressure tested. Accessible nozzles and spray heads shall be recessed to ensure a completely safe play environment with no pinch points, head entrapments or protrusion hazards. All products shall be designed in accordance with ASTM F1487, ASTM F-2461 and CSA Z614-98 regulations for public playgrounds.

G. Lexan Polymer: The Lexan Polymer shall be specially selected for aquatic play products and shall have the following characteristics: translucent, highly resistant to shock and impact vandalism and must be non-flammable. The polymer shall present dimensional stability a high resistance towards chemical products, ultra violet rays and be transparent presenting crystal clear surface throughout.

H. Seeflow Polymer: The Seeflow Polymer shall be specially selected for aquatic play products and shall have the following characteristics: translucent, highly resistant to shock and impact vandalism and must be non-flammable. The polymer shall present dimensional stability a high resistance towards chemical products, ultra violet rays and be transparent presenting crystal clear surface throughout.
1.2 PLAY PRODUCT INSTALLATION

A. **Safeswap Anchoring and leveling Systems**: The Stainless Steel Safeswap Anchoring System shall provide the ability to add/remove/interchange select play products without having to incur any additional infrastructure costs. The anchoring system shall have an integrated leveling system facilitating installation and a flush finished to the activity deck surface without any protruding bolts or hardware. The Play Product shall be fastened directly to the Safeswap Anchoring system. The dead and live loads shall be distributed onto the Safeswap Anchoring system flange plate. A neoprene sealing gasket shall provide a water tight seal between the play product flange and Safeswap flange. Mechanical fastening of the Play Products to the activity deck slab shall be prohibited unless used on elevation with Toe Guards.

B. **Embedded Anchoring and leveling Systems**: The anchoring system shall have an integrated leveling system facilitating installation, ensuring product is plumb and installed at the desired height.

C. When applicable, templates shall be supplied to facilitate the installation of embedded anchoring equipment.

D. All play products shall have electrical grounding studs incorporated into their associated anchoring equipment. All play products shall be grounded by the installer per local codes.

E. All installation conduit wiring including electrical supply panel, PVC connections, piping, elbows, tees, play product assembly if required and other items relating to the installation shall be supplied by the general contractor.

F. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.

1.3 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All aquatic play products and associated equipment must be properly wrapped and secured in place while in transport to the project site. Care shall be observed during offloading and handling to prevent excessive stress and abrasions.

B. At the site, the play products and associated equipment are to be stored in safe areas, out of the way of traffic and other construction activities, until the actual time of installation. If required, safety barricades or other like precautions must be taken for the protection of public and adjacent property.

C. Protective wrapping on the aquatic play features must be left in place until construction work for the Splashpad is complete.

1.4 INSTALLATION

Vortex Certified Installer or experience with this manufacturer on at least five (5) similar installations is required.

1.5 COMMISSIONING OF THE SPLASHPAD

Upon completion of construction, the general contractor shall provide the owner/operator adequate training on facility operations and maintenance. The contractor may request that the equipment manufacturer and/or manufacturer’s representative provide on-site start-up and training for the owner/operator.
1.5 SPLASHPAD QUALITY ASSURANCE

Provide evidence of commitment of quality craftsmanship as demonstrated by the following:

Splashpad Manufacturer Qualifications:

A. The products shall be designed and produced at a facility owned and directly supervised by the supplier.
B. All products shall be shipped from a single source.
C. A full time licensed engineer must be on-staff
D. A full time quality control manager must be on-staff

1.6 EQUIVALENCIES CLAUSES

To enable all tenders to be judged equitably, they shall be based on the specified products in this document and shown on the drawings.

A. The proposal for any substitute products must be attached to the bid or tender separately, identifying the substitute product by its trade name along with any savings it may represent for the client.
B. Following the opening of the bid or tender, only those substitutes proposed by the lowest bidder of the specified products, will be considered.
C. All substitute approval requests shall be accompanied by manufacturing drawings, including spray zones, sequencing, plumbing and electrical schematics and complete salt spray resisting testing data produced by an independent laboratory for coatings and a written warranty from the manufacturer.

No substitution or equivalency submitted will be considered if products to be considered are not part of manufacturer standard existing product line or a written proof that product has manufactured previously by the substitute manufacturer. Please refer to General Clauses 1.1
D. Each substitute sample must be presented to the owner/consultant within seven days following the opening of tenders. The sample must be completely operational. After this time period, the bidder will be required to supply the original specified product.
E. The owner/consultant reserves the right to grant or deny approval for proposed substitutions without prejudice to his rights and his decision shall be final. The above conditions apply to this section independently of any other clauses on the subject found in this document.
F. If applicable the products must be interchangeable and of equivalent quality to the materials already installed.

1.7 SPLASHPAD EQUIPMENT WARRANTIES

Minimum Warranty periods

Splashpad Play Events/Products & Skid Mounted Water Quality Management System Equipment

A. A 25 Year Warranty on stainless steel Play Events/Products, stainless steel anchoring systems and aluminum spheres.
B. A 10 Year Warranty on the reinforced fiberglass skid, sand filter fiberglass tank and cartridge filter fiberglass tank.
C. A 5 Year Warranty on brass components including; spray nozzles, spray caps and spray heads. High-density polyethylene components, polyurethane components, and ultra high molecular weight polyethylene components. The Subterranean vault (enclosure and access hatches), stainless steel
automated water distribution manifold, drain boxes, strainers, electrical enclosures, and chemical controllers.

D. A 2 Year Warranty on color coatings, stainless steel hardware & moving parts, fiberglass products, Seeflow Polymers, Soft Touch Elastomers (Toe Guards), subterranean water containments system, circulation pumps, chemical injection pumps, chlorinator systems, acid feed systems, polyvinyl chloride (PVC); piping, fittings, ball valves, check valves, cartridge elements, pressure gauges, chemical sensing probes, motor starters, electrical relays, terminal blocks, actuated valves, programmable logic controller (PLC controller), time switches, manual switches, transformers, breakers, electrical wiring and connections.

E. All warranties are to be managed by the equipment supplier.
1.0 General Materials Specifications:

1.1. **Equipment Enclosures:** Shall be made from corrosion resistant hot compression moulded fiberglass reinforced polyester which do not contain halogenes. The enclosure shall be capable of withstanding continuous temperatures from -58°F (-50°C) up to 302°F (150° C) and shall provide indirect electrical contact protection for equipment and operators. Enclosures shall be UL listed per UL Standard 508 for NEMA 3, 3R, 4, 4X, 12 and 13; CSA Certified per Standard C22.2-0, 0.4, 0.7, 0.6, 94 Type 3, 3R, 4, 4X, 12 and 13.

2.0 **Maestro Main Controller –33907.0XXX:**

2.1. The Maestro Controller shall be sized according to the number of I/O it is required to control. The Maestro Controller shall be factory programmed with spray sequences designed according to the requirements of the project. It shall have the flexibility to user modify the sequences using either a transportable USB Key, with an internet connection or via the Touch screen user interface.

2.2. A 24hr/7day user programmable agenda, which shall allow the user to set the operational hours of the facility, shall be incorporated into the Maestro Controller. For any further details about user interface, please refer to the User Guide Manual provided by Vortex.

2.3. The operating system shall contain a 120V AC and 100VA to 350VA primary / 24 VAC secondary or 240V AC and 100VA to 350VA primary / 24 VAC secondary transformers with built-in electrostatic shield protection. Transformer’s power capacity shall vary according to the Splashpad size.

2.4. Controller shall control electrical solenoid valves for play features and bypass with a 24V AC max 250mA signal.

2.5. The operating system shall also contain a universal input 85-264 VAC primary / 12 VDC and 12.5A secondary power supplies with built-in electrostatic shield protection.

2.6. The operating system shall be housed in a corrosion resistant NEMA 4X rated enclosure.

2.7. The operating system shall have the capacity to receive signals from activation devices, operating on 6 to 24VDC/VAC.

2.8. The operating systems shall have the ability to provide a 24VAC auxiliary signal. This signal can be used to trigger a relay for Pumps, Chemical, UV system, or any other item following electrical specification.

2.9. The operating system shall have the capacity to operate based on a programmed sequence.

2.10. The operating system shall have the ability to soft-start ramp up the Splashpad to minimize potential water hammer.

2.11. The operating system shall have the capacity to operate a Rain Diverter Valve with a 24V AC max 250mA signal to prevent rain water to go into the sewer network when the Splashpad is not in function.

2.12. The operating system shall have the ability to control fast acting valves supplied by 24V AC max 1.5A each. For this, reference 33906.X1XX has to be chosen.

2.13. The operating system shall have the ability to automatically purge all water lines based on the user selected time and duration (i.e. every day at 5 am). It shall also, be configured to purge all lines after a user defined period of inactivity (i.e. after 4 hours of inactivity).

2.14. An option available in the interface lets the user modify easily the water consumption while keeping the sequence capability.

2.15. The operating system shall be supplied with a 10” touch screen user interface with controls for each output, activation device(s), and agenda. These selector settings allow the user to select the operational mode of the components (i.e. Manual, Off and Automatic).
7.2. The operating system shall have capability to be interconnected with any Maestro Expansion (33907.2XXX) or Maestro Light controller (33908.0XXX) or 3G Cellular Router (44900.0007) by using Ethernet RJ45 Cat6 cables. A maximum of 4 connections can be done in standard.

8.0 Installation Characteristics:

8.1. Electrical Connections: All main power electrical connections to the Splashpad Controller are to be preformed per local codes.

8.2. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.

9.0 Available configurations:

<table>
<thead>
<tr>
<th>Quantity of valves</th>
<th>Components:</th>
<th>Inlet details:</th>
<th>Controllers:</th>
<th>Valve type:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 10 valves</td>
<td>• BFP, PR</td>
<td>• 1 x 2&quot; inlet</td>
<td>• No controller</td>
<td>• Standard solenoid valve</td>
</tr>
<tr>
<td></td>
<td>• No BFP, No PR</td>
<td>• 1 x 2&quot; inlet with junction box</td>
<td>• FT MAESTRO Controller 120V</td>
<td>• Brass solenoid valve</td>
</tr>
<tr>
<td></td>
<td>• BFP out, PR</td>
<td>• 2 x 2&quot; inlets</td>
<td>• WR MAESTRO Controller 120V</td>
<td>• Standard Solenoid Valve</td>
</tr>
<tr>
<td></td>
<td>• No BFP, PR</td>
<td>• 1 x 3&quot; inlet</td>
<td>• FT MAESTRO Controller 240V</td>
<td>with Ball Valve</td>
</tr>
<tr>
<td></td>
<td>• Custom system</td>
<td>• 2 x 3&quot; inlets</td>
<td>• WR SmartTouch Controller 240V</td>
<td>• Custom system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 x 2&quot; inlets with junction box</td>
<td>• FT MAESTRO Logics Controller 120V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 1 x 3&quot; inlet with junction box</td>
<td>• FT SmartFlow Logics Controller 240V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• 2 x 3&quot; inlets with junction box</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FT : Flow trough
WR : Water reuse
BFR : Back flow preventer
PR : Pressure regulator
THIS SHEET COVERS ALL THE MANIFOLD RANGE WITH INTERVAL OF 5 VALVES

1 - 20 VALVES SEE TABLE A

1 - 15 VALVES SEE TABLE A

1 - 10 VALVES SEE TABLE A

1 - 5 VALVES SEE TABLE A

SEE NOTE # 3

SEE CONTROLLER INSTALL DRAWINGS FOR SPECIFIC INFORMATION AND DIMENSION SEE NOTE # 1

NOTE:
1. SEE PIPING AND ELECTRICAL SCHEMATIC DETAIL.
2. REFER TO SPECIFICATION FOR ADDITIONAL INFORMATION.
3. IF CONTROLLER IS REMOTE LOCATED, CONDUCTORS #18 AWG ARE PROVIDED FOR THE CONTROLLER BY VORTEX.
4. BRACKET PLACEMENT TO BE SELECTED WITH RESPECT TO MANIFOLD TYPE. DISTANCE BETWEEN BRACKETS: 2'-1" (635mm.) TYP.
5. BY INSTALLER/CONTRACTOR MAY REFER TO SERVICE PROVIDERS OTHER THAN THE EQUIPMENT MANUFACTURER. PLEASE REFER TO PROJECT SPECIFICATION FOR DETAILS OF RESPONSIBILITY.

Table A

<table>
<thead>
<tr>
<th>Valves</th>
<th>1-5</th>
<th>6-10</th>
<th>11-15</th>
<th>16-20</th>
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</thead>
<tbody>
<tr>
<td>Overall length</td>
<td>2'-01</td>
<td>2'-01</td>
<td>2'-01</td>
<td>2'-01</td>
</tr>
<tr>
<td>Manifold diameter</td>
<td>2&quot; (63mm)</td>
<td>2&quot; (63mm)</td>
<td>2&quot; (63mm)</td>
<td>2&quot; (63mm)</td>
</tr>
<tr>
<td>Inlet diameter</td>
<td>3&quot; (90mm)</td>
<td>3&quot; (90mm)</td>
<td>3&quot; (90mm)</td>
<td>3&quot; (90mm)</td>
</tr>
</tbody>
</table>

Table B

<table>
<thead>
<tr>
<th>Bracket</th>
<th>1-5 Valves</th>
<th>6-10 Valves</th>
<th>11-15 Valves</th>
<th>16-20 Valves</th>
</tr>
</thead>
<tbody>
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<td>A</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>B</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>C</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>D</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>E</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

PRODUCT NAME: WALL MOUNTED COMMAND CENTER WITH INTERVAL OF 5 VALVES POSITIONS, MAESTRO OR SMART FLOW CONTROLLER

PRODUCT NUMBER: D800.0000R01

DATE: 07/22/16

SHEET NO: 1/2

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0136.2008

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Super Wave, VOR-136.2008, shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 4½” (11.4cm) and a wall thickness of .237” (6mm). The Slide is constructed of 4” bended stainless steel pipe in each side of the structure. A 0.5” (1.27cm) ecoresin panels should be fixed on top of the two bended pipes. The wheel of the Super Wave is similar as an impeller. It is constructed with 11 gage stainless steel rolled panels and welded to each other to take the shape of the impeller and three (3) .5” (1.27cm) ecoresin panels are fixed in each side of the propeller. The SAFESWAP™ anchoring and leveling system shall be used.

1.2. **Overall play product dimensions:** The above ground height of the structure shall be no less than 248” (630 cm). The head clearance of the structure shall be no less than 101” (255 cm).

1.3. **Play Product Interactivity:** The Super Wave shall create visual interest and build anticipation as the wheel fills and then turn to release water in the immediate area.

1.4. **Hydraulic Activity/Components:** The wheel shall have a 2” (5 cm) pipe size fill spout, The Wheel container accepts 65 to 70 US gallons (246 to 265 liters) before dumping the water.

1.5. **Hydraulic Requirements:** The hydraulic requirements shall be 25-35 gpm (94-132 lpm) @ 5-10 psi (0.34 – 0.69 bar).
0303.4000

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Rooster Tail VOR-303.4000 shall be constructed of 304/304L stainless steel with an outside diameter of 4½" (11.4cm). The brass spray cap shall be fastened to the body using tamper-resistant fasteners. Tamper resistant brass winter cap shall be included. The anchoring system shall have an integrated levelling system facilitating installation and a plumb finished to the activity deck surface. Ground Sprays can be fitted with several interchangeable compatible spray head styles. However, the spray zone layouts between the different products must be similar or must be planned to accommodate the various spray effects. When multiple ground sprays are plumbed together on a single water line, the connected ground sprays must have similar hydraulic requirements.

1.2. **Overall play product dimensions:** The overall height of the Play Product shall be 0" (0 cm) above ground.

1.3. **Play Product Interactivity:** Users can enjoy the far-reaching double-fan spray effect of the rooster tail.

1.4. **Hydraulic Activity/Components:** The spray cap shall have a thirteen (13) hole-pattern angled at 33° and 45° from the vertical divided into two (2) rows. The upper row shall consist of seven (7) holes equally spaced and angled at 33°. The lower row shall consist of six (6) holes equally spaced and angled at 45°, thus creating a fan-like spray pattern.

1.5. **Hydraulic Requirements:** The hydraulic requirements shall be 10-15 gpm (38-57 lpm) @ 5-10 psi (0.3 – 0.7 bar). Low consumption nozzles that minimize water usage while maximizing spray effects are also available.
PLAN VIEW

FRONT ELEVATION VIEW

WATER LINE INLET 1 1/2" (38mm), NPT, MIN. 2° SLOPE BACK TO WATER SUPPLY. REFER TO CONSTRUCTION DOCUMENTS FOR LINE SIZE DETAILS. (LINE CONNECTION SUPPLIED BY INSTALLER)

7" [18cm]

3/8" (10mm) EARTH GROUNDING STUD

1/2" (10mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE.

3 X 1/4" (10mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE.

WATER LINE CONNECTION 1 1/2" (38mm) NPT FEMALE THREAD

CONCRETE SURFACE. VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS

7" [18cm]

1'-2" [36cm] TOP OF ANCHOR STUD

CONCRETE SLAB

SLOPE

WATER LINE AND CONNECTION

COMPACTED GRANULAR (SUPPLIED BY INSTALLER)

3" X 12" X 12" (0.076m X 0.3m X 0.3m) CONCRETE LEVELING BASE (SUPPLIED BY INSTALLER)

VOR-0303.4XXX ROOSTER TAIL (Construction Detail)
0611.2008

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and Installation information.

1.0 Play Product Specifications:

1.1. Play Product Structure: The Bollard Activator VOR-611.2008 shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 4½" (11.4cm) and a wall thickness of 0.120" (3mm). The upper part of the feature is constructed with a 45° elbow. The activator shall have no moving parts and run on a low voltage electrical supply. A capacitive sensorswitch to be used as an interface for processing user input activation. The activation cap shall consist of a high impact-resistant protective cap. The protective cap shall be constructed of 316 Stainless steel and powder coated, the steel button integrated and shall be secured in place using tamper-resistant fasteners. The SAFESWAP™ anchoring and leveling system shall be used.

1.2. Overall play product dimensions: The Bollard Activator shall have an overall height of 39" (99cm) above the final grade.

1.3. Play Product Interactivity: The Bollard Activator shall be the direct interface between the users of the aquatic play area and the aquatic Play Products. The pre-programmed sequences of the aquatic Play Products shall be activated only when the touch-activated button on the Bollard Activator is touched by the user. The Bollard Activator has a led light activation signal.

1.4. Hydraulic Activity/Components: not applicable

1.5. Hydraulic Requirements: not applicable
TYPICAL ANCHORING SAFESWAP N°1
FOR THIS APPLICATION, 2" NPT FEMALE COUPLING OF THE SAFESWAP N°1 WILL BE USED TO CONNECT THE ELECTRICAL CONDUIT, SUPPLIED BY INSTALLER, AND RUN THE ELECTRICAL CABLE.

ELECTRICAL CABLE SPECIFICATION
M12-SPIN CONNECTOR CABLE, 22AWG, MAXIMUM O.D.: 0.25"
(SUPPLIED UP TO 75M WITH ACTIVATOR BY VORTEX)

VOR-0611.2XXX BOLLARD ACTIVATOR Nº3 (Construction Detail)
1001.4000

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Playsafe Drain No1, VOR-1001.4000 consists of a frame and a removable cover. The frame shall be constructed of a stainless steel 1/8" thickness X 2" width X 30" outside diameter bent flat bar and a stainless steel 29 3/4" outside diameter bent square tube. The deckgrating cover shall be stainless steel and constructed with 29 1/2" diameter and 1/4" thickness. The open area of the playsafe drain is 134.5 sq.in. (867.7 sq. cm) and the gap of the openings is 1/4 in (0.6 cm). This removable cover has an antiskid surface. The Playsafe Drain No1 has also an optional strainer basket. A form with the playsafe drain which has the capabilities to be leveled shall be inserted in the hole to create concrete drain box pit. Once the drain box pit is created, the form shall be removed. The Playsafe Drain No1 allows for multi drain access points. Each water line outlet connected to the drain box shall be a maximum of 8" in diameter at a minimum slope of 1%. The maximum GPM will be 629 at a maximum of 1.5 ft/sec through the grating.

1.2. **Overall play product dimensions:** The overall height of the Play Product shall be 0" (0 cm) above ground. The diameter of this feature shall be no less than 30" (76.2 cm).

1.3. **Play Product Interactivity:** N.A.

1.4. **Hydraulic Activity/Components:** N.A.

1.5. **Hydraulic Requirements:** N.A.
EXPANDED POLYPROPYLENE DRAIN BOX FOAM (BY VORTEX)
ANCHORING SYSTEM TO BE INSTALLED LEVEL, PLUMB & FLUSH TO FINISHED GRADE (BY INSTALLER)
CONCRETE SURFACE, VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS (BY INSTALLER)

VOR-1001.4000 PLAYSAFE DRAIN, No1 (Construction Detail)

PRODUCT NUMBER: VOR-1001.4000
DATE: 07/29/11

PRODUCT INFORMATION
SHEET NO: 1/1
11"x17" SHEET SIZE
1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Bamboo Ring VOR-7787.2009 shall be constructed of 3.5" (8.9cm) outside diameter stainless steel structural tubing with a wall thickness of 0.120" (3mm). The unit is constructed into two sections. The upper section is a pivoting circle-shaped pipe with two (2) integrated nozzle housings welded into the inside of the circle. The housings shall be threaded to accept Stainless Steel spray nozzles which when directed against each other produce the Sparkle water effect. The bottom section is a fixed structural support for the top. A 3.5" (8.89cm) solid lead free brass TURNTEC™ joint consisting of a stainless steel bearing collar will allow the top to rotate 360° degrees. The TURNTEC™ joint shall be free of pinch points and protrusion hazards and contain no flexible hoses. The Bamboo Ring shall also have two (2) rounded SEEFLOW™ Polymer panels fastened to the post with tamper resistant hardware. The feature is anchored to the deck surface by means of the SAFESWAP™ Anchor.

1.2. **Overall play product dimensions:** It shall have an above ground height of 44" (111cm).

1.3. **Play Product Interactivity:** The Bamboo Ring creates a mesmerizing visual interest as the Sparkle water effect creates a cloud of fine water droplets for users to refresh themselves. The rotational joint allows users to rotate the product 360 degrees and temporarily stop the Sparkle cloud as they turn the circle and the movement, temporarily, un-aligns the jets.

1.4. **Hydraulic Activity/Components:** Water jets from two (2) nozzles shall collide in the center portion of the circular section of the Bamboo Ring, creating a cloud of fine water droplets.

1.5. **Hydraulic Requirements:** The hydraulic requirements shall be 1-3 gpm (3-11 lpm) @ 1-4 psi (0.1-0.3bar).
7236.xxx

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. Play Product Structure: The Hello no.1 VOR-7236 consists of a tubing made of 304/304L stainless steel with an outside diameter of 3.50” (8.9cm) and a wall thickness of 0.12” (3.0mm). A stainless steel shaft is welded to the end of the tubing section. One (1) molded polymer MEGA ORB is attached to the stainless steel shaft with stainless steel caps using tamper-resistant fasteners. The MEGA ORB spins by means of a mechanism of low friction polymer bushings. A resistance in the mechanism is used to limit the spinning speed of the MEGA ORB. The cap assembly on top of the ORB is machined to create a 360 degree laminar water effect and is mounted using tamper-resistant fasteners. All nozzles are free of finger entrapment hazards. The SAFESWAP™ anchoring and leveling system shall be used. The TOEGUARD™ will then be added to protect children’s toes from anchoring hardware.

1.2. Overall play product dimensions: The overall height of the Play Product shall be 50” (127 cm) above surface.

1.3. Play Product Interactivity: Kids can rotate the MEGA ORB 360 degrees alone or in a group and the laminar water dome. Kids can contemplate the bell shaped spray, touch the laminar texture of the water, and affect the shape of the dome by blocking the slot from where water exits.

1.4. Hydraulic Activity/Components: The water effect is a clear, laminar bell shaped, sheet descending from the top of the MEGA ORB.

1.5. Hydraulic Requirements: The hydraulic requirements shall be 43-50 gpm (162-189 lpm) @ 5-6 psi (0.3-0.4 bar).
7650.0000

Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Team spray N°4 VOR-7650 shall include one (1) Fountain Spray N°2 and three (3) PODSPRAY™ all hydraulically connected. The Team spray N°4 underground structure shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 2 7/8" (7.3cm) and a wall thickness of .120" (3mm). The Fountain Spray N°2 spray head housing shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3" (7.6cm) and a wall thickness of 0.120" (3mm). The spray cap shall have six (6) holes angled 3° (degrees) to produce six (6) particularized, soft stream spray effects. The interchangeable lead-free brass spray cap shall be fastened to the body using tamper-resistant tool. Tamper resistant brass winter cap shall be included. The nozzle system shall be free of finger entrapment hazards. Ground sprays are compatible with many nozzles each producing different water effects. The spray zone of each chosen nozzle varies according to its respective water effect. The three (3) PODSPRAY™ bodies shall be constructed of 2¾" (6cm) diameter 304/304L stainless steel tubing with a wall thickness of 0.154" (0.4cm). The PODSPRAY™ shall be constructed of Ultra-High Molecular Weight Polyethylene nozzle. The embedded anchoring and leveling system shall be used.

1.2. **Overall play product dimensions:** The overall height of the Play Product shall be 0" (0cm).

1.3. **Play Product Interactivity:** The Team spray N°4 encourages group play and collaboration. Users can interactively increase the height and length of the water by depressing one or all of the PODSPRAYSTM.

1.4. **Hydraulic Activity/Components:** Users can play with the three (3) hydraulically connected PODSPRAYSTM embedded and encompassing the fountain spray nozzle shall allow the user to interactively increase the height of the water when one, or all, PODSPRAYSTM are depressed by the user. Each PODSPRAYSTM housing shall produce three (3) particularized, soft stream spray effects.

1.5. **Hydraulic Requirements:** The combined hydraulic requirements shall be 15-20 gpm (57-76 lpm) @ 3-8 psi (0.2 – 0.6 bar).
PLAN VIEW

WATER LINE INLET 1 1/2" (38mm) NPT. MIN. 2° SLOPE BACK TO WATER SUPPLY. REFER TO CONSTRUCTION DOCUMENTS FOR LINE SIZE DETAILS. (LINE CONNECTION SUPPLIED BY INSTALLER)

FRONT ELEVATION VIEW

CONCRETE SURFACE. VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS

COMPACTED GRANULAR (SUPPLIED BY INSTALLER)

3" X 12" X 12" (0.076m x 0.3m x 0.3m) CONCRETE LEVELING BASE (SUPPLIED BY INSTALLER)

CONCRETE SLAB

8 X 3/8" (10mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE.

DRILL & EPOXY GROUT STUDS (DONE BY INSTALLER)

VOR-7650.0XXX TEAM SPRAY No.4 (Construction Detail)

PRODUCT NAME: TEAM SPRAY No.4

PRODUCT NUMBER: VOR-7650.0XXX

DATE: 08/26/16

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Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure:** The Water Jelly No. 1 VOR-7010.0002 shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 4½" (11.4cm) and a wall thickness of .120" (3mm). The brass spray head shall be threaded into the spray head body using a tamper-resistant tool. Tamper resistant brass winter cap shall be included. The Embedded anchoring and leveling system shall be used.

1.2. **Overall play product dimensions:** The overall height of the structure shall be no less than 5" (13cm)

1.3. **Play Product Interactivity:** Creates a soft, laminar spray with a unique texture that even young users can touch. A cone of water starts small and gently grows out and flows over in a soft, inviting cascade.

1.4. **Hydraulic Activity/Components:** The spray head shall produce an inverted laminar bell spray effect.

1.5. **Hydraulic Requirements:** The hydraulic requirements shall be 5-7 gpm (19-38 lpm) @ 3-5 psi (0.2–0.3 bar).
PLAN VIEW

7" [18cm]

3/4" (10mm) EARTH GROUNDING STUD

7" [18cm]

FRONT ELEVATION VIEW

3 X 3/4" (10mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE, DRILL & EPOXY GROUT STUDS (DONE BY INSTALLER)

CONCRETE SURFACE, VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS

COMPACTED GRANULAR (SUPPLIED BY INSTALLER)

WATER LINE INLET 1 1/2" (38mm), MNPT, MIN. 2° SLOPE BACK TO WATER SUPPLY, REFER TO CONSTRUCTION DOCUMENTS FOR LINE SIZE DETAILS, LINE CONNECTION SUPPLIED BY INSTALLER

3" X 12" X 12" (0.07m x 0.3m x 0.3m) CONCRETE LEVELING BASE (SUPPLIED BY INSTALLER)

PRODUCT NAME: WATER JELLY N°1
PRODUCT NUMBER: VOR-7010.0002
DATE: 03/20/18
SHEET NO: 1/1
11"x17" SHEET SIZE
1.0 Play Product Specifications:

1.1. **Play Product Structure:** SAFESWAP™ No1, 55000.0430, shall be constructed of 304/304L stainless steel. The SAFESWAP™ Anchoring System shall provide the ability to add/remove/interchange select play products without having to incur any additional infrastructure costs. The anchoring system shall have an integrated leveling system facilitating installation and a flush finish to the activity deck surface without any protruding bolts or hardware. The 4” pipe size play product shall be fastened directly to the SAFESWAP™ Anchoring system. The dead and live loads shall be distributed onto the SAFESWAP™ Anchoring system flange plate. A neoprene sealing gasket shall provide a water tight seal between the play product flange and the SAFESWAP™ flange. Mechanical fastening of the Play Products shall be used.

1.2. **Overall play product dimensions:** The overall height of the Product shall be 5 1/8” (13cm) with 11” (28cm) diameter.

1.3. **Play Product Interactivity:** Not applicable

1.4. **Hydraulic Activity/Components:** Not applicable

1.5. **Hydraulic Requirements:** Not applicable
SAFESWAP™ ANCHORING SYSTEM TO BE INSTALLED LEVEL, PLUMB & FLUSH TO FINISHED GRADE DIA.1" (279 mm)

$\frac{3}{8}$" (10mm) EARTH GROUNDING STUD

CONCRETE SURFACE. VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS

WATER LINE INLET 2" (51mm) NPT. (FEMALE) MIN. 2° SLOPE BACK TO WATER SUPPLY. REFER TO CONSTRUCTION DOCUMENTS FOR LINE SIZE DETAILS. (LINE CONNECTION SUPPLIED BY INSTALLER)

4 X $\frac{3}{8}$" (20mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE.

DRILL & EPOXY GROUT STUDS (DONE BY INSTALLER)

#5 (15M) REBAR
12" (30cm) C/C BOTH DIRECTIONS 3'/91cm LENGTH (SUPPLIED BY INSTALLER)

1'3" [38cm] MIN

9" [23cm] TOP OF ANCHOR STUD

SLOPE

WATER LINE AND CONNECTION

CONCRETE SLAB

COMPACTED GRANULAR (SUPPLIED BY INSTALLER)

3" x 24" x 24" (0.075x0.61x0.61) CONCRETE LEVELING BASE. (SUPPLIED BY INSTALLER)

3' [91cm]
Please refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

1.0 Play Product Specifications:

1.1. **Play Product Structure**: SAFESWAP™ No2, 55000.0570, shall be constructed of 304/304L stainless steel. The SAFESWAP™ Anchoring System shall provide the ability to add/remove/interchange select play products without having to incur any additional infrastructure costs. The anchoring system shall have an integrated leveling system facilitating installation and a flush finish to the activity deck surface without any protruding bolts or hardware. The 3” pipe size play product shall be fastened directly to the SAFESWAP™ Anchoring system. The dead and live loads shall be distributed onto the SAFESWAP™ Anchoring system flange plate. A neoprene sealing gasket shall provide a water tight seal between the play product flange and the SAFESWAP™ flange. Mechanical fastening of the Play Products shall be used.

1.2. **Overall play product dimensions**: The overall height of the Product shall be 5 1/8” (13cm) with 7.5” (19cm) diameter.

1.3. **Play Product Interactivity**: Not applicable

1.4. **Hydraulic Activity/Components**: Not applicable

1.5. **Hydraulic Requirements**: Not applicable
WATER LINE INLET 2" (51mm) NPT. (FEMALE) MIN. 2° SLOPE BACK TO WATER SUPPLY. REFER TO CONSTRUCTION DOCUMENTS FOR LINE SIZE DETAILS. (LINE CONNECTION SUPPLIED BY INSTALLER)

¾" (10mm) EARTH GroundING Stud

SAFESWAP™ ANCHORING SYSTEM TO BE INSTALLED LEVEL, PLUMB & FLUSH TO FINISHED GRADE DIA. 7 ¾" (191mm)

4 X ¾" (20mm) S.S. HEIGHT & LEVELING CONTROL ANCHOR STUDS WITH HARDWARE.

DRILL & EPOXY GROUT STUDS (DONE BY INSTALLER)

#5 (15M) REBAR
12" (30cm) C/C BOTH DIRECTIONS
3’ (91cm) LENGTH (SUPPLIED BY INSTALLER)

CONCRETE SURFACE. VERIFY LOCAL CODES FOR TYPE, THICKNESS & REINFORCEMENT REQUIREMENTS

1'-3" [38cm] MIN

9" [23cm] TOP OF ANCHOR STUD

WATER LINE AND CONNECTION

CONCRETE SLAB

3' [91cm]

SLOPE

COMPACTED GRANULAR (SUPPLIED BY INSTALLER)

3" x 24" x 24" (0.075x0.61m x0.61m) CONCRETE LEVELING BASE. (SUPPLIED BY INSTALLER)
APPENDIX 3

Manchester Water Works
Construction Notice
CONSTRUCTION WORK - OWNER/CONTRACTOR INFORMATION

SCHEDULING

Construction work cannot be scheduled until required documentation approvals have been accepted, contracts signed and all necessary deposits have been received by the Utility. Scheduling is contingent on sufficient advanced notice by the Contractor/Owner and the availability of material and construction/inspection personnel.

A. 1) Minimum lead time on Domestic Service work is three (3) working days.

2) Minimum lead time on Fire Service work is three (3) working days.

3) Minimum lead time on Main Extension work is two (2) weeks.

B. A pre-construction meeting and/or site inspection review shall be required between Utility personnel and contractor/Owner as a condition of final approval for scheduling purposes.

C. Any and all questions directed to this Utility regarding scheduling time for installation of your approved Main Extension, Fire Service, Domestic Water Service or availability of inspection personnel are to be directed to the following individuals:

**Main Extensions** (work to be done by Utility)
Mark Bourque        Tel: 603-792-2806

**Main Extensions** (work to be done by Contractor)
Michael Adams       Tel: 603-792-2802

**Domestic and/or Fire Services**
Mark Bourque        Tel: 603-792-2806

If contact person is not immediately available, your call will be returned as soon as possible.
EXCAVATION & INSTALLATION BY CONTRACTOR

The water main, domestic service or fire service shall be installed per the American Water Works Association C-600 Pipe Laying Standards, except where modified by this document and the standard detail sheets prepared by the Utility (enclosed).

All materials shall conform to the material specification sheet of the Utility (enclosed).

Note:  
A complete pipe installation per AWWA C-600 standards includes, but is not limited to:

- Pipe storage and handling
- Pipe laying
- Hydrostatic pressure testing
- Flushing
- Disinfection

The contractor shall be responsible for obtaining all required street opening permits and for pavement restoration. Dig Safe Call System must be notified in accordance with RSA 374:47-56, a minimum of three (3) working days prior to the scheduled excavation. Tel. #1-888-344-7233.

Additionally: The Utility requires all live tap connections to the municipal water system be made by Utility personnel at the Owner’s cost, within the Owner’s /Contractors excavation.

A. The trench must be at least 7’ in width, where straight pipe is exposed, or wider if necessary to place the tap a minimum of 1’-0” from any fitting or pipe bell. The pipe must be completely exposed, and clear from soil or ledge for 1’-0”, underneath. The trench wall must be at least 3’-0” from the pipe on the side opposite the tap to be made, and 8’-0” on the side to be tapped. It must be sufficient to perform the work under safe conditions in accordance with OSHA standards. Stable trench conditions may be obtained by sloping or shoring.

B. If the trench is wet, the Contractor shall provide a pump and stone to insure a stable trench condition.

C. Should the Utility arrive at the site at the designated time and find that the job has been canceled, delayed, or that the trench is unsafe, then the Customer shall be charged for the lost crew time and the work may not be rescheduled until an additional deposit has been made.

D. Under certain conditions such as but not limited to unstable soil, the Utility may require that digging of trench and/or ledge removal not take place until the Utility crew is present to begin work.

E. In certain situations, the utility may authorize the use of HDPE plastic piping on the Owner’s portion of the service. In these instances the connection shall be made at the property line by the
Owner’s contractor. Only 200 psi CTS/PE plastic tubing shall be allowed. Copper must be used in shallow trench conditions where insulation is required.

F. On long run services, i.e., those where the main is on the opposite side of the street from the property to be served, the excavation must proceed from the property line to the main, unless, authorization for street closure is obtained from the local highway department.

G. All main piping and all fire service piping regardless of diameter must be disinfected. Service will not be activated until bacteriological samples have passed and the results have been provided to the department.

H. All main piping regardless of diameter and all services, fire or domestic 4” and larger, shall be pressure tested. Mains and services will not be activated until the pressure test has passed and the results have been provided to the department.