Project Manual
including Specifications
for construction of

- Freshwater Boat Ramp Facility Improvements -

Olney Pond, Lincoln Woods State Park

State of Rhode Island
Department of Environmental Management
Division of Planning and Development
235 Promenade Street
Providence, Rhode Island

Date of Issue: April 2020

SECTION 00002
PROJECT DIRECTORY

OWNER:

State of Rhode Island and Providence Plantations
Department of Administration
One Capitol Hill
Providence, Rhode Island 02908

USER AGENCIES:

State of Rhode Island and Providence Plantations
Department of Environmental Management
Division of Fish and Wildlife
277 Great Neck Road
West Kingston, Rhode Island 02891

State of Rhode Island and Providence Plantations
Department of Environmental Management
Division of Parks and Recreation
1100 Tower Hill Road
North Kingstown, Rhode Island 02852

ENGINEER:

State of Rhode Island and Providence Plantations
Department of Environmental Management
Division of Planning and Development
235 Promenade Street
Providence, Rhode Island 02908

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Solicitation #:_____
Solicitation Title: Freshwater Boat Ramp Improvements: Olney Pond /Lincoln Woods State Park

BID FORM

To: The State of Rhode Island Department of Administration
Division of Purchases, 2nd Floor
One Capitol Hill, Providence, RI 02908-5855

Bidder: _____
Legal name of entity

_____
Address (street/city/state/zip)

_____
Contact name Contact email

_____
Contact telephone Contact fax

1. BASE BID PRICE

The Bidder submits this bid proposal to perform all of the work (including labor and materials) described in the solicitation for this Base Bid Price (*including the costs for all Allowances, Bonds, and Addenda)*:

$_____
(base bid price *in figures* printed electronically, typed, or handwritten legibly in ink)

_____
(base bid price *in words* printed electronically, typed, or handwritten legibly in ink)

- **Allowances**

  Additional project signage: $5,000

- **Bonds**

  The Base Bid Price ***includes*** the costs for all Bid and Payment and Performance Bonds required by the solicitation.

- **Addenda**

  The Bidder has examined the entire solicitation (including the following Addenda), and the Base Bid Price ***includes*** the costs of any modifications required by the Addenda.

Solicitation #:_____
Solicitation Title: Freshwater Boat Ramp Improvements: Olney Pond /Lincoln Woods State Park

All Addenda must be acknowledged.

Addendum No. 1 dated: _____

Addendum No. 2 dated: _____

Addendum No. 3 dated: _____

2. ALTERNATES (*Additions/Subtractions* to Base Bid Price)

NONE

3. UNIT PRICES

NONE

4. CONTRACT TIME

The Bidder offers to perform the work in accordance with the timeline specified below:

Start of construction:	Issuance of PO or September 8, 2020, whichever is later
Substantial completion:	140 Calendar Days from Start of Construction
Final completion:	160 Calendar Days from Start of Construction

5. LIQUIDATED DAMAGES

The successful bidder awarded a contract pursuant to this solicitation shall be liable for and pay the State, as liquidated damages and not as a penalty, the following amount for each calendar day of delay beyond the date for substantial completion, as determined in the sole discretion of the State: $__800.00_____.

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Solicitation #:_____
Solicitation Title: Freshwater Boat Ramp Improvements: Olney Pond /Lincoln Woods State Park

This bid proposal is irrevocable for 60 days from the bid proposal submission deadline.

If the Bidder is determined to be the successful bidder pursuant to this solicitation, the Bidder will promptly: (i) comply with each of the requirements of the Tentative Letter of Award; and (ii) commence and diligently pursue the work upon issuance and receipt of the purchase order from the State and authorization from the user agency.

The person signing below certifies that he or she has been duly authorized to execute and submit this bid proposal on behalf of the Bidder.

BIDDER

Date:_____

_____
Name of Bidder

_____
Signature in ink

_____
Printed name and title of person signing on behalf of Bidder

#_____
Bidder's Contractor Registration Number

Sections 500 and 700
CONTRACT DOCUMENTS

Please refer to the RI Dept. of Administrations Centralized Templates and Forms website
https://www.ridop.ri.gov/agency-resources/centralized-template.php
for the most updated versions of the applicable contracts:

AIA A101 Standard Form of Agreement Between Owner and Contractor

AIA A201 General Conditions of the Contract for Construction

SECTION 01010
SUMMARY OF THE WORK

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included:

1. The "Project," of which the "Work" of this Contract is a part, is titled Freshwater Boat Ramp Facility Improvements, Olney Pond. The contract includes boat ramp reconstruction at this site, located on Les Pawson Loop in Lincoln Woods State Park.

2. The "Work" of this Contract is defined in the Contract Documents to include, but not necessarily to be limited to furnishing all labor, materials and equipment necessary to perform the following:

   a. Install all sediment and erosion controls shown in the drawings.

   b. Install all necessary water control structures including cofferdams, pumps, and sediment control measures.

   c. Remove and properly dispose of the existing concrete boat ramps. Remove all necessary underwater sediment at boat ramp toe. Clear and grub as necessary.

   d. Install cast-in-place concrete abutment and backfill.

   e. Install boat ramp base and all precast boat ramp components.

   f. Construct and install timber floating dock.

   g. Furnish and install ADA-compliant kayak launch system.

   h. Furnish and install ADA-compliant asphalt walkway and parking area.

   i. Improve gravel parking lot as shown in the drawings.

3. Alternatives:
   a. None.

**********END OF SECTION**********

SECTION 01015
CONTRACTOR'S USE OF THE PREMISES

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: this section applies to situations in which the contractor or their representatives including, but not limited to, suppliers, subcontractors, employees, and field engineers, enter upon the Owner's property.

1.2 QUALITY ASSURANCE:

A. Promptly upon award of the contract, notify all pertinent personnel regarding requirements of this section.
B. Require that all personnel who will enter upon the Owner's property certify their awareness of and familiarity with the requirements of this section.

1.3 SUBMITTALS:

A. Maintain an accurate record of the names and identification of all persons entering upon the Owner's property in connection with the Work of this Contract, including times of entering and times of leaving, and submit a copy of the record to the Owner every two (2) weeks.

1.4 STORAGE AND PARKING:

A. Truck, equipment and contractor's vehicle access:
   1. Provide adequate protection for curbs and sidewalks and parking areas over which trucks and equipment pass to reach the job site.
   2. Do not permit contractor's vehicles to park in any area of the Owner's property except where the Owner has designated as the "Contractor's Parking Area".
   3. Areas to be used by the Contractor for storage of equipment and materials will be designated by the Owner.

**********END OF SECTION**********

SECTION 01045
CUTTING AND PATCHING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: This section establishes general requirements pertaining to cutting (including excavating), fitting, and patching of the Work required to:
   1. Make the several parts fit properly;
   2. Uncover work to provide for installing, inspecting, or both, of ill-timed work;
   3. Remove and replace work not conforming to requirements of the Contract Documents;
   4. Remove and replace defective work;
   5. Fitting of new work to existing work to remain;

B. Related work:
   1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. In addition to other requirements specified, upon the Engineer's request uncover work to provide for inspection by the Engineer of covered work and remove samples of installed materials for testing.
   3. Do not cut or alter work performed under separate contracts without the Engineer's written permission.
   4. Section 02070 - Selective Demolition

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.3 SUBMITTALS:

A. Request for Engineer's consent:
   1. Prior to cutting which effects structural safety, submit written request to the Engineer for permission to proceed with cutting.
   2. Should conditions of the Work, or schedule, indicate a required change of materials or methods for cutting and patching, notify the Engineer and secure his/her written permission and the required Change Order approval prior to proceeding.

B. Notices to the Engineer:
   1. Submit written notice to the Engineer designating the time the Work will be uncovered, to provide for the Engineer's observation.

PART 2 - PRODUCTS:

2.1 MATERIALS:

A. For replacement of items removed, use materials complying with pertinent sections of these specifications.
B. For replacement of concrete, duplicate existing structure in accordance with RIDOT Standard Specifications for Road and Bridge Construction.

2.2 PAYMENT FOR COSTS:

A. The Owner will reimburse the Contractor for cutting and patching performed pursuant to the written Change Order, after claim for such reimbursement is submitted by the Contractor. Perform other cutting and patching needed to comply with the Contract Documents at no additional cost to the Owner.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Inspection:
   1. Inspect existing condition, including elements subject to movement or damage during cutting, excavating, patching, and backfilling.
   2. After uncovering the work, inspect conditions affecting installation of new work.

B. Discrepancies:
   1. If uncovered conditions are not as anticipated, immediately notify the Engineer and secure needed directions.
   2. Do not proceed until unsatisfactory conditions are corrected.

3.2 PREPARATION PRIOR TO CUTTING:

A. Provide required protection including, but not necessarily limited to, shoring, bracing, and support to maintain structural integrity of the Work.

3.3 PERFORMANCE:

A. Perform required excavating and backfilling as required under pertinent other sections of these Specifications.
   1. Perform cutting and demolition by methods which will prevent damage to other portions of the Work and provide proper surfaces to receive installation of repair and new work.
   2. Perform fitting and adjusting of products to provide finished installation complying with the specified tolerances and finishes.

**********END OF SECTION**********

SECTION 01050
FIELD ENGINEERING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Provide such field engineering services as required for proper completion of the Work including, but not necessarily limited to:
   1. Establishing and maintaining lines and levels;
   2. Structural design of shores, forms, and similar items provided by the Contractor as part of their means and methods of construction.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Additional requirements for field engineering also may be described in other Sections of these specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340.

B. Upon request of the Engineer, submit:
   1. Data demonstrating qualifications of persons proposed to be engaged for field engineering services.
   2. Documentation verifying accuracy of field engineering work.

1.4 PROCEDURES:

A. In addition to procedures directed by the Contractor for proper performance of the Contractor's responsibilities:
   1. RIDEM will be available to provide the contractor with the necessary layout points and vertical benchmarks upon request by the contractor.
   2. Locate and protect control points before starting work on the site.
   2. Preserve permanent reference points during progress of the work.
   3. Do not change or relocate reference points or items of the Work without specific approval from the Engineer.
   4. Promptly advise the Engineer when a reference point is lost or destroyed, or requires relocation because of other changes in the Work.

**************END OF SECTION**************

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Architect/Engineer will conduct project meetings throughout the construction period.

B. Related Work:

1. Documents affecting work of this section include, but not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
2. The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and normally are not part of project meetings content.

1.2 QUALITY ASSURANCE:

A. For those persons designated by the Contractor to attend and participate in project meetings, provide required authority to commit the Contractor to solutions agreed upon in the project meetings.

1.3 SUBMITTALS:

A. Agenda items: To the maximum extent practicable, advise the Architect/Engineer at least twenty-four (24) hours in advance of project meetings regarding items to be added to the agenda.

B. Minutes:

1. The Contractor will compile minutes of each project meeting and will furnish electronic copies to the Architect/Engineer and to the Owner.
2. Recipients of copies may distribute as they wish.

PART 2 - PRODUCTS:

(No products are required in this Section)

PART 3 - EXECUTION:

3.1 PROJECT MEETINGS:

A. Attendance:
1. To the maximum extent practicable, assign the same person or persons to represent the Contractor at project meetings throughout progress of the Work.
2. The Owner's Representative and the Architect/Engineer's Representative shall also be in attendance at these meetings.

3. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.

B. Minimum agenda:

1. Review, revise as necessary, and approve minutes of previous meetings.
2. Review progress of the Work since last meeting, including status of submittals for approval. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule.
3. Identify problems which impede planned progress.
4. Develop corrective measures and procedures to regain planned schedule.
5. Complete other current business.

C. Revisions to minutes:

1. Unless published minutes are challenged in writing prior to the next regularly scheduled project meeting, they will be accepted as properly stating the activities and decisions of the meeting.
2. Persons challenging published minutes shall reproduce and distribute copies of the challenge to all indicated recipients of the particular set of minutes.
3. Challenge to minutes shall be settled as priority portion of "old business" at the next regularly scheduled meeting.

**********END OF SECTION**********

SECTION 01201

PRECONSTRUCTION CONFERENCE

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: To help clarify construction contract administration procedures, the Architect/Engineer will conduct a Preconstruction Conference prior to start of the Work. Provide attendance by the designated personnel

B. Related work:

1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. For those persons designated by the Contractor, his subcontractors, and suppliers to; attend the Preconstruction Conference, provide required authority to commit the entities they represent of solutions agreed upon in the Conference.

1.3 SUBMITTALS:

A. To the maximum extent practicable, advise the Engineer at least 24 hours in advance of the conference as to items to be added to the agenda.

B. The Engineer will compile minutes of the Conference and will furnish electronic copies of the minutes to the Contractor and required copies to the Owner. The Contractor may distribute copies as he/she wishes.

1.4 PRECONSTRUCTION CONFERENCE:

A. The Conference will be scheduled to be held within 15 working days after the Owner has issued the Notice to Proceed, but prior to actual start of the Work.

B. Attendance:

1. Provide attendance by authorized representatives of the Contractor and major subcontractors.
2. The Engineer will advise other interested parities, including the Owner, and request their attendance.

C. Minimum agenda: Data will be distributed and discussed on:

1. Organizational arrangement of the Contractor's forces and personnel, and those of subcontractors, materials suppliers, and the Engineer;
2. Channels and procedures for communication;
3. Construction schedule, including sequence of critical work;
4. Contract Documents, including distribution of required copies of Drawings and revisions;
5. Processing of Shop Drawings and other data submitted to the Engineer for review;
6. Processing of field decisions and Change Orders;
7. Rules and regulations governing performance of the Work; and
8. Procedures for safety and first aid, security, quality control, housekeeping, and related matters.

**************END OF SECTION**************

SECTION 01310
CONSTRUCTION SCHEDULES

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: To assure adequate planning and execution of the Work so that the Work is completed within the number of calendar days allowed in the Contract, and to assist the Architect/Engineer in appraising the reasonableness of the proposed schedule and in evaluating progress of the Work, prepare and maintain the schedule and reports described in this Section.

B. Related work:
   1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Requirements for progress schedule: General Conditions.
   3. Construction period: Form of Agreement.

C. Definitions:
   1. "Day," as used throughout the Contract unless otherwise stated, means "calendar day."

1.2 QUALITY ASSURANCE:

A. Employ a scheduler who is thoroughly trained and experienced in compiling construction data, and in preparing and issuing reports as required below.

B. Perform data preparation, analysis, charting, and updating in accordance with standards approved by the Architect/Engineer.

C. Reliance upon the approved schedule:
   1. The construction schedule as approved by the Architect/Engineer will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract.
   2. Should any activity not be completed within 15 days after the stated scheduled date, the Owner shall have the right to require the Contractor to expedite completion of the activity by whatever means the Owner deems appropriate and necessary, without additional compensation to the Contractor.
   3. Should any activity be 30 days or more behind schedule, the Owner shall have the right to perform the activity or have the activity performed by whatever method the Owner deems appropriate.
   4. Costs incurred by the Owner and by the Architect/Engineer in connection with expediting construction activity under this Article shall be reimbursed by the Contractor.
   5. It is expressly understood and agreed that failure by the Owner to exercise the option either to order the Contractor to expedite an activity or to expedite the activity by other means shall not be considered to set a precedent for any other activities.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340.

B. Preliminary analysis: Within ten calendar days after the Contractor has received the Owner's Notice to

Proceed, submit one reproducible copy of a preliminary construction schedule prepared in accordance with Part 3 of this Section.

C. Construction schedule: Within 30 calendar days after the Contractor has received the Owner's Notice to Proceed, submit one reproducible copy of a construction schedule prepared in accordance with Part 3 of this Section.

D. Periodic reports: On the first working day of each month following the submittal described in Paragraph 1.3-C above, submit an electronic copy of the construction schedule updated as described in Part 3 of this Section.

PART 2 - PRODUCTS:

2.1 CONSTRUCTION ANALYSIS:

A. Graphically show by bar-chart the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent in coordination with all subcontractors whose work is shown on the diagram.

B. Include, but not necessarily limit indicated activities to:
   1. Project mobilization;
   2. Submittal and approval of Shop Drawings and Samples;
   3. Procurement of equipment and critical materials:
   4. Fabrication of special material and equipment, and its installation and testing.
   5. Final cleanup;
   6. Final inspecting and testing; and
   7. All activities by the Architect/Engineer that effect progress, required dates for completion, or both, for all and each part of the Work.

C. The schedule shall focus on completing the work in a steady and coordinated effort that minimizes the extent that the site is closed to the public.

PART 3 - EXECUTION:

3.1 PRELIMINARY ANALYSIS:

A. Contents:
   1. Show all activities of the Contractor under this Work for the period between receipt of the Notice to Proceed and submittal of construction schedule required under Paragraph 1.3-C above;
   2. Show the Contractor's general approach to remainder of the Work;
   3. Show cost of all activities scheduled for performance before submittal and approval of the construction schedule.

B. Submit in accordance with Paragraph 1.3-B above.

3.2 CONSTRUCTION SCHEDULE:

A. As soon as practicable after receipt of Notice to Proceed, complete the construction analysis in preliminary form, meet with the Architect/Engineer, review contents of the proposed construction schedule, and make all revisions agreed upon.

B. Submit in accordance with Paragraph 1.3-C above.

3.3 PERIODIC REPORTS:

A. As required under Paragraph 1.3-D above, update the approved construction schedule.
   1. Indicate "actual" progress in percent completion for each activity;
   2. Provide written narrative summary of revisions causing delay in the program, and as explanation of corrective actions taken or proposed.

3.4 REVISIONS:

A. Make only those revisions to approved construction schedule as are approved in advance by the Architect/Engineer.

**********END OF SECTION**********

SECTION 01340
SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Make submittals required by the Contract Documents, and revise and resubmit as necessary to establish compliance with the specified requirements.

B. Related Work:
   1. Documents affecting work of this section include, but not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Individual requirements for submittals also may be described in pertinent Sections of these Specifications.

C. Work not included:
   1. Non-required submittals will not be reviewed by the Architect/Engineer.
   2. The Contractor may require her/his subcontractors to provide drawings, setting diagrams, and similar information to help coordinate the Work, but such data shall remain between the Contractor and her/his subcontractors and will not be reviewed by the Architect/Engineer.

1.2 QUALITY ASSURANCE:

A. Coordination of submittals:
   1. Prior to each submittal, carefully review and coordinate all aspects of each item being submitted.
   2. Verify that each item and the submittal for it conform in all respects with the specified requirements.
   3. By affixing the Contractor's signature to each submittal, certify that her/his coordination has been performed.

B. Substitutions:
   1. See “Division of Purchases Instruction to Bidders, Public Works Construction.”

C. "Or equal":
   1. Where the phrase "or equal," or "or equal as approved by the Architect/Engineer," occurs in the Contract Documents, do not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically so approved for this Work by the Architect/Engineer.
   2. The decision of the Architect/Engineer on the technical merits of a submittal or substitution shall be final.

1.3 SUBMITTALS:

A. Make submittals of Shop Drawings, Samples, substitution requests, and other items in accordance with the provisions of this Section.

PART 2 - PRODUCTS:

2.1 SHOP DRAWINGS:

A. Scale and measurements: Make Shop Drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the Work.

B. Submit electronic copies in PDF format.
   1. Shop drawings may be blue-line or black-line
   2. Blueprints are not acceptable.

C. Review comments of the Architect/Engineer will be shown on the shop drawing when it is returned to the Contractor. The Contractor may make and distribute such copies as are required for her/his purposes.

2.2 MANUFACTURERS' LITERATURE:

A. Where contents of submitted literature from manufacturers includes data not pertinent to the submittal, clearly show which portions of the contents are being submitted for review.

B. Submit the number of copies which are required to be returned, plus one copy which will be retained by the Architect/Engineer.

2.3 SAMPLES:

A. Provide Sample or Samples identical to the precise article proposed to be provided. Identify as described under "Identification of submittals" below.

B. Number of Samples required:
   1. Unless otherwise specified, submit Samples in the quantity which is required to be returned, plus one which will be retained by the Architect/Engineer.
   2. By prearrangement in specified cases, a single Sample may be submitted for review and, when approved, be installed in the Work at a location agreed upon by the Architect/Engineer.

PART 3 - EXECUTION:

3.1 IDENTIFICATION OF SUBMITTALS:

A. Consecutively number all submittals.
   1. When material is resubmitted for any reason, transmit under a new letter of transmittal and with a new submittal number.
   2. On resubmittals, cite the original submittal number for reference.

B. Accompany each submittal with a letter of transmittal showing all information required for identification and checking.

C. On at least the first page of each submittal, and elsewhere as required for positive identification, show the submittal number in which the item was included.

D. Maintain an accurate submittal log for the duration of the Work, showing current status of all submittals at all times. Make the submittal log available to the Architect/Engineer for her/his review upon request.

3.2 GROUPING OF SUBMITTALS:

A. Unless otherwise specified, make submittals in groups containing all associated items to assure that information is available for checking each item when it is received.
   1. Partial submittals may be rejected as not complying with the provisions of the Contract.
   2. The Contractor may be held liable for delays so occasioned.

3.3 TIMING OF SUBMITTALS:

A. Make submittals far enough in advance for scheduled dates for installation to provide time required for reviews, for securing necessary approvals, for possible revisions and re submittals, and for placing orders and securing delivery.

B. In scheduling, allow at least ten (10) working days for review by the Architect/Engineer following her/his receipt of the submittal.

3.4 ARCHITECT/ENGINEER'S REVIEW:

A. Review by the Architect/Engineer does not relieve the Contractor from responsibility for errors which may exist in the submitted data.

B Revisions:
   1. Make revisions required by the Architect/Engineer.
   2. If the Contractor considers any required revision to be a change, they shall so notify the Architect/Engineer as provided for in Paragraph 12.3 of the General Conditions.
   3. Make only those revisions directed or approved by the Architect/Engineer.

**********END OF SECTION **********

SECTION 01370
SCHEDULE OF VALUES

1.1 DESCRIPTION:

A. Work included: Provide a detailed breakdown of the agreed contract sum showing values allocated to each of the various parts of the Work, as specified herein and in other provisions of the Contract Documents.

B. Related work:
   1. Documents affecting work of the Section include, but are not necessarily limited to General Conditions, Supplementary Conditions, and Section in Division 1 of these Specifications.
   2. Schedule of values is required under Paragraph 9.2 of the General Conditions.
   3. Schedule of values is required to be compatible with the "continuation sheet" accompanying applications for payment, as described in Section 01152.

1.2 QUALITY ASSURANCE:

A. Use required means to assure arithmetical accuracy of the sums described.

B. When so required by the Architect/Engineer, provide copies of the subcontracts or other data acceptable to the Architect/Engineer.

1.3 SUBMITTALS:

A. Prior to first application for payment, submit a proposed schedule of values to the Architect/Engineer.
   1. Meet with the Architect/Engineer and determine additional data, if any, required to be submitted.
   2. Secure the Architect/Engineer's approval of the schedule of values prior to submitting first application for payment.

**********END OF SECTION**********

SECTION 01500
TEMPORARY FACILITIES AND CONTROLS

1.1 RELATED DOCUMENTS:

The General Conditions (Special Provisions) and applicable portions of Division 1 of the specifications are a part of this section, which shall consist of all labor, equipment and materials necessary to complete all quality control work indicated on the drawings and herein specified.

1.2 ACCESS:

A. Block public access to the work area for the prosecution of the work.

B. Provide all necessary scaffolding, platforms, ladders, ramps, chutes, temporary stairs, and all other access items. Maintain in a safe condition throughout the construction process.

1.3 HOISTING FACILITIES:

A. Provide hoisting facilities as required for the vertical movement of all materials.

B. Comply with OSHA and other governing codes for all hoists, conveyors, and elevators and maintain the facilities in compliance with the law.

1.4 GUARDRAILS, DECK AND OTHER OPENINGS:

A. Provide guardrails, barricades, handrails, and covers for decks and other openings.

1.5 TRASH:

A. Provide sufficient trash receptacles.

B. Collect and deposit debris in such collection facilities.

C. Remove all debris from the job site on a regular basis. Do not allow trash and debris to accumulate or remain on site for longer than 48 hours.

1.6 SANITATION FACILITIES:

A. Provide adequate temporary toilet facilities.

B. Maintain such facilities in a clean sanitary condition.

1.7 WEATHER PROTECTION AND TEMPORARY HEAT/VENTILATION:

A. During construction, provide weather protection for materials which could be damaged by adverse weather conditions.

1.8 OTHER TEMPORARY FACILITIES AND CONTROLS:

A. Protection of Work-In-Place:
   1. Thoroughly protect all completed work and all stored materials.
   2. Provide boards, cloths, planks, waterproof paper, canvas or other approved protection and use as necessary to prevent any damage.
   3. Replace or rectify work or materials damaged by workers, by the elements or by any other cause, to the satisfaction of the Architect/Engineer and at no additional expense to the Owner.
   4. Do not allow workers, including those of any subcontractor or supplier to mark finish surfaces with marking pens or other such devices which are not readily erasable.

B. Special Openings:
   1. Early in the work, confer with all parties providing apparatus of various kinds. Should any be of a size and character than cannot properly be taken into the indicated position through openings shown, make necessary arrangements for the installation of such items in a manner satisfactory to those providing them and to the Owner. Make good any damage that may be caused thereby.

C. Project Identification:

   1. Request sketch of sign language and graphics from the Owner in sufficient time that sign can be fabricated and erected at start of construction.
   2. The Contractor shall provide one 3 foot high by 5 foot wide project sign indicating the project title, contract number, and Wetlands permit number.
   3. Sign shall be lettered by a professional sign painter, in accordance with the general layout provided. Lettering shall be gloss vinyl, size, and color as indicated. Surfaces and edges of sign shall receive two coats of exterior primer and two coats of exterior gloss enamel.
   4. Submit a shop drawing indicating sign construction and lettering for approval by the Engineer and Owner.
   5. The official project title and an electronic file in Autocad drawing format can be provided to the Contractor by the Owner and Engineer upon request.
   6. Locate and install the sign at location as specified by the Owner or Engineer.
   7. At the completion of the Project, remove the sign and supports completely and restore surface to original condition.

1.9 REMOVAL OF TEMPORARY FACILITIES:

A. Remove all items indicated above and other construction of a temporary nature from the site as soon as the progress of the work will permit.

B. Recondition the portions of the site so occupied and restore to conditions acceptable to the

Architect/Engineer.

**********END OF SECTION**********

SECTION 01640
PRODUCT HANDLING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Protect products scheduled for use in the Work by means including, but not necessarily limited to, those described in this Section.

B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Sections in Division 1 of these Specifications.
   2. Additional procedures also may be prescribed in other Sections of these Specifications.

1.2 QUALITY ASSURANCE:

A. Include within the Contractor's quality assurance program such procedures as are required to assure full protection of work and materials.

1.3 MANUFACTURERS' RECOMMENDATIONS:

A. Except as otherwise approved by the Architect/Engineer, determine and comply with manufactures' recommendations on product handling, storage, and protection.

1.4 PACKAGING:

A. Deliver products to the job site in their manufacturer's original container, with labels intact and legible.
   1. Maintain packaged materials with seals unbroken and labels intact until time of use.
   2. Promptly remove damaged material and unsuitable items for the job site, and promptly replace with material meeting the specified requirements, at no additional cost to the Owner.

B. The Architect/Engineer may reject as non-complying such material and products that do not bear identification satisfactory to the Architect/Engineer as to manufacturer, grade quality, and other pertinent information.

1.5 PROTECTION:

A. Maintain finished surfaces clean, unmarred, and suitably protected until accepted by the Owner.

B. Provide protection for finished floor surfaces in traffic areas prior to allowing equipment or materials to be moved over such surface.

1.6 REPAIRS AND REPLACEMENTS:

A. In the event of damage, promptly make replacements and repairs to the approval of the Architect/Engineer and at no additional cost to the Owner.

B. Additional time required to secure replacements and to make repairs will not be considered by the Architect/Engineer to justify an extension in the Contract Time of Completion.

**********END OF SECTION**********

SECTION 01700
CONTRACT CLOSEOUT

1.1 DESCRIPTION:

A. Work included: Provide an orderly and efficient transfer of the completed Work to the Owner.
B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. "Substantial Completion" is defined in Paragraph 9.8.1 of the General Conditions.

1.2 QUALITY ASSURANCE:

A. Prior to requesting inspection by the Architect/Engineer, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

1.3 PROCEDURES:

A. Substantial Completion:
   1. Prepare and submit the list required by the first sentence for Paragraph 9.8.2 of the General Conditions.
   2. Within a reasonable time after receipt of the list, the Architect/Engineer will inspect or determine status of completion.
   3. Should the Architect/Engineer determine that the Work is not substantially complete:
      a. The Architect/Engineer promptly will so notify the Contractor, in writing, giving the reasons therefore.
      b. Remedy the deficiencies and notify the Architect/Engineer when ready for reinspection.
      c. The Architect/Engineer will reinspect the Work.
   4. When the Architect/Engineer concurs that the Work is substantially complete:
      a. The Architect/Engineer will prepare a "Certificate of Substantial Completion" on AIA form G704, accompanied by the Contractor's list of items to be completed or corrected, as verified by the Architect/Engineer.
      b. The Architect/Engineer will submit the Certificate to the Owner and to the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

B. Final Completion:
   1. Prepare and submit the notice required by the first sentence of Paragraph 9.10.1 of the General Conditions.
   2. Verify that the Work is complete including, but not necessarily limited to, the items mentioned in Paragraph 9.10.2 of the General Conditions.
   3. Certify that:
      a. Contract Documents have been reviewed;
      b. Work has been inspected for compliance with the Contract Documents;
      c. Work has been completed in accordance with the Contract Documents;
      d. Equipment and systems have been tested as required, and are operational;
      e. Work is completed and ready for final inspection.
   4. The Architect/Engineer will make an inspection to verify status of completion.

5. Should the Architect/Engineer determine that the Work is incomplete or defective:
    a. The Architect/Engineer promptly will so notify the Contractor, in writing, listing the incomplete or defective work.
    b. Remedy the deficiencies promptly, and notify the Architect/Engineer when ready for reinspection.
6. When the Architect/Engineer determines that the Work is acceptable under the Contract Documents, she/he will request the Contractor to make closeout submittals.

C. Closeout submittals include, but are not necessarily limited to:
1. Operation and maintenance data for items so listed in pertinent other Sections of these Specifications, and for other items when so directed by the Architect/Engineer;
2. Warranties and bonds;
3. Keys and keying schedule;
4. Spare parts and materials extra stock.
5. Evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
    a. Certificates of Inspection;
    b. Certificates of Occupancy;
6. Certificates of Insurance for products and completed operations;
7. Evidence of payment and release of liens;
8. List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.
9. As-built drawings clearly indicating major deviations from original design and specification.

D. Final adjustment of accounts:
1. Submit a final statement of accounting to the Architect/Engineer, showing all adjustments to the Contract Sum.
2. If so required, the Architect/Engineer will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.

1.4 INSTRUCTION:

A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

**************END OF SECTION**************

SECTION 01710
CLEANING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Throughout the construction period, maintain the structures and site in a standard of cleanliness as described in this Section.

B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Section of these Specifications.

1.2 QUALITY ASSURANCE:

A. Conduct daily inspection, and more often if necessary, to verify that requirements for cleanliness are being meet.

B. In addition to the standards described in this Section, comply with pertinent requirements agencies having jurisdiction.

PART 2 - PRODUCTS:

2.1 CLEANING MATERIALS AND EQUIPMENT:

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.2 COMPATIBILITY:

A. Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 - EXECUTION:

3.1 PROGRESS CLEANING:

A. General:
   1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic and providing required protection of materials.
   2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
   3. At least twice each month, and more often if necessary, completely remove all scrap, debris, and waste material from the job site.

4. Provide adequate storage or containment for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site:
   1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
   2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements of stored items to meet the requirements of subparagraph 3.1-A-1 above.
   3. Maintain the site in a neat and orderly condition at all times.

C. Structures:
   1. Weekly, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
   2. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using equipment and materials required to achieve the necessary cleanliness.
   3. Follow the installation of finish floor materials, clean the finish floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials are installed.
      a. “Clean” for the purpose of the subparagraph, shall be interpreted as meaning free from foreign material which, in the opinion of the Architect/Engineer, may be injurious to the finish floor material.

3.2 FINAL CLEANING:

A. "Clean," for the purposed of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials and appropriate to the nature of the site.

B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.1 above.

C. Site:
   1. Unless otherwise specifically directed by the Architect/Engineer, broom clean paved areas on the site and public paved areas adjacent to the site.
   2. Completely remove resultant debris.

D. Structures:
   1. Exterior
      a. Visually inspect exterior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
      b. Remove all traces of splashed materials from adjacent surfaces.
      c. If necessary to achieve a uniform degree of cleanliness, hose down the exterior of the structure.
      d. In the event of stubborn stains not removable with water, the Architect/Engineer may require light sandblasting or other cleaning at no additional cost to the Owner.

2. Interior:
    a. Visually inspect interior surfaces and remove all traces of soil, waste materials, smudges, and other foreign matter.
    b. Remove all traces of splashed materials from adjacent surfaces.
    c. Remove paint droppings, spots, stains, and dirt from finished surfaces.

E. Schedule final cleaning as approved by the Architect/Engineer to enable the Owner to accept a completely clean Work.

3.3 CLEANING DURING OWNER'S OCCUPANCY:

A. Should the Owner occupy the Work or any portion thereof prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning shall be as determined by the Architect/Engineer in accordance with the General Conditions of the Contract.

**************END OF SECTION**************

SECTION 01720
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included:
   1. Throughout progress of the Work, maintain an accurate record of changes in the Contract Documents, as described in Part 3.1 below.
   2. Upon completion of the Work, transfer the recorded changes to a set of Record Documents, as described in Part 3.2 below.

B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE:

A. Delegate the responsibility for maintenance of Record Documents to one person on the Contractor's staff as approved by the Architect/Engineer.

B. Accuracy of records:
   1. Thoroughly coordinate changes within the Record Documents, making adequate and proper entries on each page of the Specification and each sheet of the Drawings and other Documents where such entry is required to show the change properly.
   2. Accuracy of records shall be such that future search for items shown in the Contract Documents may rely reasonably on information obtained form the approved Project Record Documents.

C. Make entries within twenty-four (24) hours after receipt of information that the change has occurred.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340.

B. The Architect/Engineer's approval of the current status of Project Record Documents may be a prerequisite to the Architect/Engineer's approval of requests for progress payment and request for final payment under the Contract.

C. Prior to submitting each request for progress payment, secure the Architect/Engineer's approval of the current status of the Project Record Documents.

D. Prior to submitting request for final payment, submit the final Project Record Documents to the Architect/Engineer and secure his approval.

1.4 PRODUCT HANDLING:

A. Maintain the job set of Record Documents completely protected from deterioration and from loss and damage until completion of the Work and transfer of all recorded data to the final Project Record Documents.

B. In the event of loss of recorded data, use means necessary to again secure the data to the Architect/Engineer's approval.
   1. Such means shall include, if necessary in the opinion of the Architect/Engineer, removal and replacement of concealing materials.
   2. In such case, provide replacements to the standards originally required by the Contract Documents.

PART 2 - PRODUCTS:

2.1 RECORD DOCUMENTS:

A. Job Set: Promptly following receipt of the Owner's Notice to Proceed, secure from the Architect/Engineer at no charge to the Contractor one complete set of all Documents comprising the Contract.

B. Final Record Documents: At a time nearing the completion of the Work, secure from the Architect/Engineer at no charge to the Contractor one complete set of sepia transparencies of all Drawings in the Contract.

PART 3 - EXECUTION:

3.1 MAINTENANCE OF JOB SET:

A. Immediately upon receipt of the job set described in Paragraph 2.1-A above, identify each of the Documents with the title, **"RECORD DOCUMENTS - JOB SET."**

B. Preservation:
   1. Considering the Contract completion time, the probable number of occasions upon the job set must be taken out for new entries and for examination, and the conditions under which these activities will be performed, devise a suitable method for protecting the job set to the approval of the Architect/Engineer.
   2. Do not use the job set for any purpose except entry of new data and for review by the Architect/Engineer, until start of transfer to date to final Project Record Documents.
   3. Maintain the job set at the site of Work as that site is designated by the by the Architect/Engineer.

C. Making entries on Drawings:
   1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe the change by graphic line and note as required.
   2. Date all entries.
   3. Call attention to the entry by a **"cloud"** drawn around the area or areas affected.
   4. In the event of overlapping changes, use different colors for the overlapping changes.

D. Make entries in the pertinent other Documents as approved by the Architect/Engineer.

E. Conversion of Schematic Layouts:
   1. In some cases on the Drawings, arrangements of conduits, piping, ducts and similar items, is shown schematically and is not intended to portray precise layout.
      a. Final physical arrangement is determined by the Contractor, subject to the Architect/Engineer's approval.
      b. However, design of future modifications of the facility may require accurate information as to the final physical layout of items which are shown only schematically on the Drawings.
   2. Show on the job set of Record Drawings, by dimension accurate to within one inch, the centerline of each run of items such as are described in subparagraph 3.1-E-1 above.
      a. Clearly identify the item by accurate note such as "cast iron drain," "galv. water," and the like.
      b. Show, by symbol or note, the vertical location of the item ("under slab," "exposed," and the like).
      c. Make all identification sufficiently descriptive that it may be related reliably to the Specifications.
   3. The Architect/Engineer may waive the requirements for conversion of schematic layouts where, in the Architect/Engineer's judgment, conversion serves no useful purpose. However, do not rely upon waivers being issued except as specifically issued in writing by the Architect/Engineer.

3.2 FINAL PROJECT RECORD DOCUMENTS:

A. The purpose of the final Project Record Documents is to provide information regarding all aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.

B. Approval of recorded data prior to transfer:
   1. Following receipt of the transparencies described in Paragraph 2.1-B above, and prior to start of transfer of recorded data thereto, secure the Architect/Engineer's approval for all required revisions.

C. Transfer of data to Drawings:
   1. Carefully transfer change data shown on the job set of Record Drawings to the corresponding transparencies, coordinating the changes as required.
   2. Clearly indicate at each affected detail and other Drawing a full description of changes made during construction, and the actual location of items described in subparagraph 3.1-E-1 above.
   3. Call attention to each entry by drawing a "cloud" around the area or areas affected.
   4. Make changes neatly, consistently, and with the proper media to assure longevity and clear reproduction.

D. Transfer of data to other Documents:
   1. If the Documents other than the Drawings have been kept clean during progress of the Work, and if entries thereon have been orderly to the approval of the Architect/Engineer, the job set of those Documents other than the Drawings will be accepted as final Record Documents.
   2. If any such Document is not so approved by the Architect/Engineer, secure a new copy of that Document from the Architect/Engineer at the Architect/Engineer's usual charge for reproduction and handling, and carefully transfer the change data to the new copy to the approval of the Architect/Engineer.

E. Review and Submittal:

1. Submit the completed set of Project Record Documents to the Architect/Engineer as described in Paragraph 1.3-D above.
2. Participate in review meetings as required.
3. Make required changes and promptly deliver the final Project Record Documents to the Architect/Engineer.

3.3 CHANGES SUBSEQUENT TO ACCEPTANCE:

A. The Contractor has no responsibility for recording changes in the Work subsequent to Final Completion, except for changes resulting from work performed under Warranty.

**********END OF SECTION **********

SECTION 02070
SELECTIVE DEMOLITION

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Carefully demolish and remove from the site those items scheduled to be demolished and removed.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Section 01045: Cutting and patching.
   3. Section 01010: Summary of the Work

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. All work performed under this section shall be done in a cautious manner. Any debris which falls into the waterway shall be immediately and completely removed.

PART 2 - PRODUCTS:

(NO PRODUCTS ARE REQUIRED IN THIS SECTION)

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 DEMOLITION:

A. By careful study of the Contract Documents, determine the location and extent of selective demolition to be performed.

B. In company with the Architect/Engineer, visit the site and verify the extent and location of selective demolition required.
   1. Carefully identify limits of selective demolition.
   2. Mark interface surfaces as required to enable workmen also to identify items to be removed and

items to be left in place intact.

C. Prepare and follow an organized plan for demolition and removal of items.
   1. Completely remove items scheduled to be so demolished and removed, leaving surfaces clean, solid, and ready to receive new materials specified elsewhere.
   2. In all activities, comply with pertinent regulations of governmental agencies having jurisdiction.

D. Demolished material shall be considered to be property of the Contractor and shall be completely removed from the job site. All demolition debris shall be removed from the site and disposed at a facility licensed to accept such material.

3.3 REPLACEMENTS:

A. In the event of demolition of items not so scheduled to be demolished, promptly replace such items to the approval of the Architect/Engineer and at no additional cost to the Owner.

**************END OF SECTION**************

SECTION 02220
EXCAVATING, BACKFILLING, AND COMPACTING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Excavate, backfill, compact, and grade the site to the elevations shown on the Drawings, as specified herein, and as needed to meet the requirements of the construction shown in the Contract Documents.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Architect/Engineer.

1.3 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640.

PART 2 - PRODUCTS:

2.1 SOIL MATERIALS:

A. Fill and backfill materials:
   1. Use crushed stone as specified below and shown on the Drawings.
   2. Provide fill material including gravel borrow (Section M.01.02) and special graded aggregate for shaping and trimming driveways complying with the latest edition of the Rhode Island Department of Transportation, Standard Specifications for Road and Bridge Construction.

2.2 CRUSHED STONE

A. Provide crushed stone under the slabs as indicated on the Drawings. The stone used shall be durable crushed rock consisting of the angular fragments obtained by breaking and crushing solid or shattered natural rock and free from thin, flat, elongated, or other objectionable pieces. All stone shall be clean, washed stone of sizes as indicated in the Drawings, and shall be free of fines, soils, stone dust or debris.

2.3 RIP-RAP

Riprap shall be provided where indicated on the Plans, and in accordance with Section 920 of the RIDOT Standard Specification for Road and Bridge Construction, for a complete and proper installation.

A. Riprap shall be composed of a well graded mixture down to the 1 inch size particle such that 50 percent of the mixture by weight shall be larger than the d-50 gradation as specified below. A well-graded mixture as used herein is defined as a mixture composed primarily of large stone sizes but with a sufficient mixture of other sizes to fill the progressively smaller voids between the stones.

B. The material of riprap shall consist of broken stone produced from sound ledge or large boulders with at least three fractured faces on each particle and shall be free from overburden, spoil, shale, or organic material. The stone shall have a minimum density of 160 pounds per cubic foot. It shall be rectangular in shape with its minimum dimension not less than one third of the maximum dimension. The stone shall be hard, durable, angular, of such quality that it will not disintegrate on exposure to water or weathering, be chemically stable and it shall be suitable in all other respects for the purpose intended.

C. Riprap shall have the following properties:

NSA No.	Size Inches (square openings)		
	100% Passing	0-50% Passing	0-15% Passing
R-1	2	1	No. 4
R-2	4	2	1
R-3	8	4	2
R-4	14	7	4
R-5	20	10	6
R-6	26	13	8
R-7	34	18	14
R-8	50	24	18

D. Bedding stone for Riprap as shown on the plans shall conform to the quality requirements of subsection M.10.03 in the RI Standard Specifications for Road and Bridge Construction, and shall conform to one of the following designations:

NSA No.	Size Inches (square openings)		
	100% Passing	0-50% Passing	0-15% Passing
FS-1	½	No. 16	No. 50
FS-2	2	No. 4	No. 16
FS-3	6½	2.5	No. 4

2.5 OTHER MATERIAL:

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect/Engineer.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FINISH ELEVATIONS AND LINES:

A. Comply with pertinent provisions of Section 01050.

3.3 PROCEDURES:

A. Utilities:
   1. Unless shown to be removed, protect active utility lines shown on the Drawings or otherwise made known to the Contractor prior to excavating. If damaged, repair or replace at no additional cost to the Owner.
   2. If active utility lines are encountered, and are not shown on the Drawings or otherwise made known to the Contractor, promptly take necessary steps to assure that service is not interrupted.
   3. If service is interrupted restore service by repairing the damaged utility at no additional cost to the Owner.
   4. If existing utilities are found to interfere with the permanent facilities being constructed under this Section, immediately notify the Architect/Engineer and secure his instructions.
   5. Do not proceed with permanent relocation of utilities until written instructions are received from the Architect/Engineer.

B. Protection of persons and property:
   1. Barricade open holes and depressions occurring as part of this Work, and post warning lights on property adjacent to or with public access.
   2. Place traffic barrels with operating warning lights during hours from dusk to dawn each day from the time the existing ramp is removed and the new ramp is not yet complete. Traffic barrels shall also be installed at all times when the contractor's forces are not present on site.
   3. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, washout, and other hazards created by operations under this Section.

C. Dewatering:
   1. Do not conduct any dewatering without prior written authorization from the Owner and governmental agencies having jurisdiction.

D. Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the site.

E. Maintain access to adjacent areas at all times.

3.4 EXCAVATION:

A. Perform excavating of every type of material encountered within the limits of the Work to the lines, grades, and elevations indicated and specified herein.

B. Satisfactory excavated materials:
   1. Transport to, and place in, fill or embankment areas within the limits of the Work.

C. Unsatisfactory excavated materials:
   1. Excavate to a distance below grade as directed by the Architect/Engineer, and replace with satisfactory materials.
   2. Include excavation of unsatisfactory materials, and replacement by satisfactory materials, as parts of the work of this Section.

D. Excavation of rock:
   1. Where rocks, boulders, granite, or similar material is encountered, and where such material cannot be removed or excavated by conventional earth moving or ripping equipment, take required steps to proceed with the general grading operations of the Work, and remove or excavate such materials by means which will neither cause additional cost to the Owner nor endanger buildings or structures whether on or off the site.
   2. ***Do not*** use explosives without written permission from the Architect/Engineer.

E. Excavate and backfill in a manner and sequence that will provide proper drainage at all times.

F. Borrow:
   1. Obtain material required for fill or embankment in excess of that produced within the grading limits of the Work from borrow areas selected and paid for by the Contractor and approved by the Architect/Engineer.

G. Unauthorized excavation:
   1. Unauthorized excavation consists of removal of materials beyond indicated subgrade elevations or dimensions without specific instruction from the Architect/Engineer.
   2. Under footings, foundations, or retaining walls:
      a. Fill unauthorized excavation by extending the indicated bottom elevation of the footing or base to the excavation bottom, without altering the required top elevation.
      b. When acceptable to the Architect/Engineer, lean concrete fill may be used to bring bottom elevations to the proper position.
   3. Elsewhere, backfill and compact unauthorized excavations as specified for authorized excavations, unless otherwise directed by the Architect/Engineer.

H. Excavation for structures:
   1. In excavating for ramp slabs, take care not to disturb bottom of excavation.

I. Cold weather protection:
   1. Protect excavation bottoms against freezing when atmospheric temperature is less than 35 degrees F.

3.5 FILLING AND BACKFILLING:

A. General:
   1. For each classification listed below, place acceptable soil material in layers to required subgrade elevations.
   2. In excavations:
      a. Use satisfactory excavated or borrow material.

B. Backfill excavations as promptly as progress of the Work permits, but not until:
   1. Acceptance of construction below finish grade;
   2. Inspecting, testing, approving, and recording locations of underground utilities;
   3. Concrete formwork is removed;
   4. Shoring and bracing are removed, and voids have been backfilled with satisfactory materials;
   5. Trash and debris have been removed; and
   6. Horizontal bracing is in place on horizontally supported walls.

C. Placing and compacting:
   1. Place crushed stone as specified in Section 03400 of these Specifications.

3.6 GRADING:

A. General:
   1. Grade crushed stone as specified in Section 03400 of these Specifications.

3.7 COMPACTING:

A. Provide not less than the following maximum density of soil material compacted at optimum moisture content for the actual density of each layer of soil material in place, and as approved by the Architect/Engineer.
   1. Pavements:
      a. Compact the top 8" of subgrade and each layer of fill material or backfill material at 95% of maximum density for cohesive soil material.

3.8 FIELD QUALITY CONTROL:

A. Secure the Architect/Engineer's inspection and approval of subgrades and fill layers before subsequent construction is permitted thereon.

********** **END OF SECTION** **********

SECTION 02275
FILTER FABRIC

PART 1 - GENERAL

1.1 DESCRIPTION

All labor, materials, equipment and incidentals necessary to furnish and install all filter fabric as indicated on the plans and specified herein.

1.2 SUBMITTALS

Submit manufacturer's literature in accordance with the requirements as specified elsewhere.

PART 2 - PRODUCTS

2.1 NONWOVEN GEOTEXTILE

Filter fabric shall be Mirafi 140N, or approved equal. It shall be a nonwoven geotextile composed of polypropylene fibers which are formed into a stable network such that the fibers retain their relative position. The fabric shall be inert to biological degradation and naturally encountered chemicals, alkalies, and acids. The fabric shall meet or exceed the typical property values listed herein.

2.2 WOVEN GEOTEXTILE

Woven Geotextile shall be Mirafi HP570, or approved equal. It shall be composed of high-tenacity polypropylene yarns, which are woven into a network such that the yarns retain their relative position. The fabric shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids. The fabric shall meet or exceed the typical property values listed herein.

PART 3 - EXECUTION

A. Unroll the fabric over the prepared subgrade. Overlaps shall be complete in accordance with the manufacturer's recommendations but in no case shall they be less than 3'-0".

B. Backdump aggregate onto the fabric, taking care not to drive equipment directly on the fabric.

C. Spread the aggregate as required.

********** **END OF SECTION** **********

SECTION 02490
LOAM AND SEED

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. The work covered in these specifications shall consist in furnishing all labor, equipment, supplies and materials, and performing all operations in connection with the finish grading, loaming, seeding as indicated on the Contract Drawings, and all other operations and incidental work pertaining thereto, all to be in accordance with these Specifications and with applicable Contract Drawings.

B. Without limiting the generality thereof, the scope of work under this Section shall include the performing of all operations in connection with the following items:
   1. Finish Grading
   2. Loaming
   3. Fine Grading
   4. Fertilizing
   5. Seeding
   6. Maintenance

C. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. The following is a list of related work items that shall be performed or furnished under other sections of these specifications as indicated:
      a. Excavating, Backfilling, and Compacting. See Section 02220

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

C. In addition to complying with requirements of governmental agencies having jurisdiction, comply with the directions of the Architect/Engineer.

1.3 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640.

PART 2 - PRODUCTS:

2.1 TOPSOIL:

A. Topsoil used shall be a friable soil possessing the characteristics of representative soils in the vicinity that produce a heavy growth of crops, grass, or other vegetation, and shall be obtained from naturally well drained areas. Topsoil shall be free from subsoil, clay lumps, brush, objectionable weeds, and other litter and shall be free from stones, stumps, sticks, roots, slag, cinders, refuse and other objects larger than 2 inches in diameter, from toxic substances, and from any other material or substance that might be harmful to life, or plant growth, or be a hindrance to grading, planting, and maintenance operations. The topsoil acidity shall be ph 6.5.

B. The topsoil shall be obtained from previously stripped and stockpiled areas shall be used. It shall be made free of debris, roots and branches. Any deficiency in quantities stockpiled to meet the above requirements shall be made up by obtaining necessary topsoil from off-site supplies at the Contractor's expense.

C. Representative samples shall be tested for acidity, fertility, general texture, soluble salts and toxic substances by a recognized commercial or governmental agency and copies of the testing agency's report of their findings and recommendations shall be furnished to the Architect/Engineer 30 working days prior to the use, or delivery of topsoil material.

2.2 LIME:

A. Lime shall be ground limestone which contains at least 50% total oxides [calcium oxide plus magnesium oxide]. Ground limestone shall be of such fineness that at least 50% shall pass through a 100 mesh sieve, and 100% shall pass through a 20 mesh sieve.

2.3 FERTILIZER:

A. Fertilizer shall contain not less than the percentage by weight of the ingredients as follows: 20% Nitrogen, 10% Phosphorous, 10% Potash [20-10-10]. At least 25% by weight of the Nitrogen content of fertilizer shall be derived from organic materials, while the remaining 75% shall be obtained from slow release Ureaform.

2.4 SEED:

A. Seed shall be fresh, clean and new crop seed. Seed may be mixed by an approved method on the site, or may be mixed by the vendor. If seed is mixed on the site, each variety shall be delivered in original containers which shall bear the vendor's guaranteed analysis. If seed is mixed by the vendor, the Contractor shall furnish to the Architect/Engineer the vendor's guaranteed

statement of seed composition of the mixture and percentage of purity and germination of each variety.

B. SEEDED AREAS: Unless otherwise noted, seed shall be composed of the following varieties which shall be mixed in the proportions and shall test to a minimum percentage of purity and germination specified. Seed shall be tested and certified for the current growing season.

COMMON NAME	WEIGHT	PURITY	GERMINATION
Merion Kentucky Bluegrass (Poa pratensis "Merion")	10%	90%	80%
Delta Kentucky Bluegrass (Poa pratensis "Delta")	07%	85%	80%

COMMON NAME	WEIGHT	PURITY	GERMINATION
Pennlawn Creeping Fescue (Festuca ruba "Pennlawn")	30%	98%	90%
Manhatten Perennial Ryegrass (Lolium perenne "Manhatten")	25%	98%	85%
Chewing Fescue (Festuca ruba commutata)	25%	98%	90%
Inert Material	02%	---	---
Weed [Maximum]	01%	---	---

The seed mixture shall be sown at a rate of four (4) [64 oz.] pounds per 1,000 square feet of area.

PART 3 - EXECUTION:

3.1 FINISH GRADING:

A. As soon as practicable after rough grading has been completed and approved, the subgrade shall be scarified to a depth of three [3"] inches and a six [6"] layer of topsoil shall be uniformly spread over the area to be seeded.

B. All areas within the contract limits, except as are indicated on the plans, shall be topsoiled and seeded. Topsoil shall be prepared to receive seed by removing stones and grading to eliminate water pockets and irregularities prior to placing seed.

C. Shape slopes to the lines and grades indicated on the Drawings. The Contractor's attention is directed to the schedule of loam and seed of graded slopes to permit sufficient time for stabilization of slopes. Contractor shall be responsible for maintenance of slopes, swales and ditches during construction, and shall regrade, loam and reseed any damaged areas at no additional expense to the Owner.

3.2 FINE GRADING:

A. All large stiff clods, lumps, brush, roots, stumps, litter and other foreign material and stones over two [2"] inches in diameter shall be removed from loam and disposed of as directed by the Architect/Engineer, and loam shall then be raked smooth and even.

3.3 FERTILIZING:

A. After topsoil is placed, all areas to be seeded shall be brought to the proper finished grade and fertilizer shall be uniformly spread over the entire area.

B. Fertilizer shall be lightly raked into the topsoil prior to seeding.

3.4 SEEDING:

A. After topsoil is placed, as directed by the Architect/Engineer, areas to be seeded shall be sown with grass seed. Seeding shall be done between the dates of August 20th through October 15, or early in the Spring after a killing frost [around April 15] through [start of hot days and nights [around May 31st] , unless otherwise approved by the Engineer.

B. Seed shall be delivered to the site in standard sealed containers. Seed that has become wet, moldy or otherwise damaged shall not be used.

C. Seeding shall consist of soil preparation, seeding, raking, rolling, weeding, watering, mulching, and all other operations, labor and materials necessary to secure establishment of an acceptable turf.

D. Once the soil surface is smooth, friable, and of a uniformly fine texture and all admixtures have been applied as specified, seeding shall proceed.

E. Seeding shall not be done during windy or inclement weather. Seeding shall be done in two [2] directions at right angles to one another. Sow seed evenly by hand or with approved seed spreading devices in the proportions, and at the rate per unit of area as specified. Seeding with a hydraulic seeding device shall not be acceptable for fine seeding.

F. The seed shall be lightly raked into the topsoil and rolled with a hand roller weighing not more than one hundred [100] pounds per foot of width.

G. A mulch of clean straw or marsh hay may be used only where grass seed is likely to wash from steep slopes.

3.6 MAINTENANCE:

A. The Contractor shall be responsible for the maintenance of seeded areas, including watering, weeding, mowing, and replanting, as necessary, for as long as is necessary to

establish a uniform stand of the specified grasses and until acceptance of the work. After the grass has started, all areas and parts of areas which fail to show a uniform stand of the specified grass, for any reason what-so-ever, shall be reseeded, and such areas and parts of areas shall be then reseeded repeatedly until all areas are covered with a satisfactory growth of grass. At the time of first cutting, keep mower blades not less than 2 1/2 inches high. Grassed areas shall not have scattered bare spots, larger than 72 square inches, up to a maximum of 2 percent of the seeded area.

B. Maintenance shall include providing protection against traffic, reseeding, weeding, refertilizing, watering and mowing as necessary to produce a completely established lawn, satisfactory to the Architect/Engineer.

**********END OF SECTION**********

SECTION 02513
ASPHALT CONCRETE PAVING

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Provide Bituminous concrete pavements, with appropriate preparation where indicated on the Plans, and in accordance with Part 400 of the RIDOT Standard Specifications, for a complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Obtain all asphalt mix products from a facility approved by the Rhode Island Department of Transportation to produce such materials.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within thirty (30) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:
   1. Materials list of items proposed to be provided under this Section;
   2. Certificates, signed by the materials producer(s) and the asphalt paving subcontractor, stating that materials meet or exceed the specified requirements, and the design mix for this project for approval.
   3. Name and address of asphalt supplier along with their DOT certification.

1.4 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640 and Part 400 of the RIDOT Standard Specifications.

PART 2 - PRODUCTS:

All products shall meet the requirements of the RIDOT Standard Specification for Road and Bridge Construction, latest edition, as a minimum. Provide design mix formula to produce the expected finish pavements.

2.1 AGGREGATES:

A. Provide base aggregates consisting of crushed stone, gravel, sand, or other sound, durable, mineral materials processed and blended, and naturally combined in accordance with Part 300 of the RIDOT Standard Specifications. Aggregates for **Gravel Borrow** shall be mixed in such proportions that the percentage by weight will be within:

Sieve sizes:	Percentage passing:
3"	60-100%
1/2"	50 - 85%
3/8"	45 - 80%
No. 4 mesh	40 - 75%
No. 40 mesh	0 - 45%
No. 200 mesh	0 - 10%

B. Aggregates for bituminous concrete paving **Class I-1**: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

Sieve sizes:	Percentage passing:
3/4"	100%
1/2"	80 - 95%
3/8"	70 - 90%
No. 4 mesh	50 - 70%
No. 8 mesh	35 - 50%
No. 30 mesh	18 - 29%
No. 50 mesh	13 - 23%
No. 200 mesh	3 - 8%
Asphalt by weight	5.5% to 7%
Marshall Stability	1000
% Voids	Min. 5
Flow (0.01in.)	8-16
Mixing Temperature (F)	300
Compaction #blows at ea. end	50

C. Aggregates for bituminous concrete paving **Base Course**: Provide a mixture of sand, mineral aggregate, and liquid asphalt mixed in such proportions that the percentage by weight will be within:

Sieve sizes:	Percentage passing:
1 ¼"	100%
3/4"	70-100%
3/8"	46-74%
#8	22-52%
#30	10-34
#50	6-26%
#200	3-8%
Asphalt by weight	4.0% to 6.5%
Marshall Stability	1600
% Voids	3-8
VFA	60-75
Flow (0.01in.)	8-16
Mixing Temperature (F)	300
Compaction #blows at ea. end	75

No Recycled Asphalt Products (RAP) or other recycled bituminous, contaminated soils, or similar products shall be incorporated into the pavement mix.

2.2 ASPHALTS:

A. Comply with provisions of AASHTO M 20
   1. Asphalt cement: RIDOT Standard Specifications Section M.03.06.

2.3 MIXING BITUMINOUS CONCRETE MATERIALS:

A. Provide hot plant mixed Bituminous concrete paving materials.
   1. Temperature leaving the plant: 290 degrees F minimum, 320 degrees F maximum.
   2. Temperature at time of placing: 280 degrees F minimum.
   3. Mix in accordance with Part 400 of the RIDOT Standard Specifications.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FINAL PREPARATION OF SUBGRADES:

A. After preparation of subgrade, thoroughly prepare the entire area to be paved, and then compact soils

to smooth, hard, even surface of 95% of proctor density compaction to receive the aggregates and plant mix at soils areas. At areas of existing pavement to be overlaid prepare existing pavements and all areas of defective cracking and sub base settlement to provide a firm structural base for the finish pavement application. All work to be completed in accordance with the RI Standard Specification.

3.3 PLACEMENT OF BASE COURSES:

A. Subbase (when required):
   1. Spread the specified subbase material to a thickness providing the compacted thickness shown on the drawings. Subbase Material shall be as shown on the Drawings or as specified herein.
   2. Compact subbase to 95% of proctor density at all areas.

B. Base:
   1. Spread the specified base material to a thickness providing the compacted thickness shown on the Drawings. Gravel base shall be compacted in six inch (6") layers to grade or sub grade as applicable.
   2. Compact gravel to 95% of proctor density at all areas.

C. Thickness tolerance: Provide the compacted thickness shown on the Drawings within a tolerance of minus 0.0" to plus 0.5".

D. Smoothness tolerance: Provide the lines and grades shown on the Drawings within a tolerance of 1/4" in twelve feet.
   1. Deviations: Correct by removing materials, replacing with new materials, and reworking or recompacting as required.

E. Moisture content: Use only the amount of moisture needed to achieve the specified compaction.

3.4 APPLICATION OF TACK COAT:

A. Prepare and clean the surfaces to be paved. Prepare the material and distribution equipment for application. Apply in accordance with the manufacturer's recommendations, Asphalt Institute Recommendations, And RI Standard Specifications, as approved by the Architect/Engineer.

B. Apply one coat of the specified tack coat, that may be covered on the same day with paving finishes.

C. Achieve a finished surface coat which, when dry and thoroughly set, is smooth, tough, resilient, of uniform black color, and free from coarse textured areas, lap marks, ridges, and other surface irregularities. Assure that the tack coat is fully compatible with the pavement surfaces to be applied.

3.5 PLACEMENT OF BITUMINOUS CONCRETE SURFACE COURSE:

A. Remove all loose materials from the compacted base.

B. Apply the specified tack coat where required, and allow to dry, in accordance with the manufacturer's recommendations, the Asphalt Institute Recommendations, and RIDOT Standard Specifications, as approved by the Architect/Engineer.

C. Receipt of Bituminous concrete materials:
   1. Do not accept material unless it is covered with a tarpaulin until unloaded, and unless the material has a temperature of not less than 280 degrees F.
   2. Do not commence placement of Bituminous concrete materials when the atmospheric temperature is below 50 degrees F, nor during fog, rain, or other unsuitable conditions.

D. Spreading:
   1. Spread material in a manner which requires the least handling. Spread only with an approved mechanical spreader.
   2. Where thickness of finished paving will be 3" or less, spread in one layer.

E. Rolling:
   1. After the material has been spread to the proper depth, roll until the surface is hard, smooth, unyielding, and true to the thickness and elevations shown on the Drawings.
   2. Roll in at least two directions until no roller marks are visible.
   3. Finish paving smoothness tolerance:
      a. Free from birdbath.

F. General Procedures:
   1. Install in full conformance with Part 400 of the RIDOT Standard Specification. Alter tolerances to these specifications as follows:
   2. Surface tolerance shall be 1/4" in twelve feet.
   3. Thickness tolerance shall be minus 1/4" to plus 1/4".
   4. Note material changes to proposed pavement design mix herein noted, for approval.

G. Pavement Thickness:
   1. Install all pavements in accordance with the plans at areas and courses as indicated. Cross-slopes shall be no more than 2%.
      All pavement thicknesses are to be finished in place full layers. Base Course shall be placed to finish at a thickness of 2" (two inches), and the Class I-1 Course will be placed to finish at a thickness of 2" (two inches) unless otherwise noted on the plans.

H. Payment for all pavement shall be on a tonnage basis in place to the proper design mix and associated yield.

3.6 PROTECTION:

A. Protect the Bituminous concrete paved areas from traffic until the pavement layers are fully cured, and does not pick up under foot or wheeled traffic. Provide necessary sealers or surface materials to accelerate to curing process, as approved by the Architect/Engineer. Payment included in the pavement item being applied.

3.7 PAYMENT

C. Payment for work under this section shall be as follows:

1. Base course and Class I-1 Course shall be paid by the ton under their respective unit price set forth in the Bid Proposal. The prices so stated constitute full and complete compensation for all labor, materials, and equipment and for all other incidentals required to finish the work, complete and accepted by the Architect/Engineer. The contractor shall furnish to the Architect/Engineer or his designee the 3 copies of **computer generated** delivery tickets with the following information:
   a. Name of customer
   b. Date and time
   c. Name of project and project number
   d. Project location
   e. Truck identification
   f. Type of mixture
   g. Additives

2. It is the contractor's responsibility to provide adequate documentation for the delivery and installation of bituminous concrete. Payment will only be issued for slips received and approved with all information requested above.

**********END OF SECTION**********

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included:
   1. Provide cast-in-place concrete, including formwork and reinforcement, where shown on the Drawings, as specified herein and as needed for a complete and proper installation.

B. Related Work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
   2. Other requirements affecting Project Record Documents may appear in pertinent other Sections of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workers, who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the method needed for proper performance of the work of this Section.

B. Comply with the latest recommendations of the following standards:
   1. ACI #301 - Structural Concrete for buildings
   2. ACI #315 - Detailing Reinforcing Steel
   3. ACI #347 - Formwork
   4. ACI #318 - Building Code Requirements for Reinforced Concrete

C. Provide access for and cooperation with the inspection of all aspects of this section.

D. Do not commence placement of concrete until mix designs have been reviewed and approved by the Architect/Engineer and all governmental agencies having jurisdiction, and until copies of the approved mix designs are at the job site and the batch plant.

E. Concrete Testing
   1. Employ testing laboratory acceptable by the Architect/Engineer, to perform materials evaluation, testing, and design of concrete mixes.
   2. Perform sampling and testing during the concrete placement, which may include the following, as directed by the Architect/Engineer. *This testing does not relieve the Contractor of the responsibility of providing concrete in compliance with these Specifications*. Contractor may provide additional testing as necessary to ensure the quality of concrete.
      a. Sampling: ASTM C172
      b. Slump: ASTM C143, one test for each load at point of discharge.
      c. Air Content: ASTM C173, one for each set of compressive strength specimens.
      d. Compressive Strength: ASTM C39, one set for each truckload or each fraction thereof of each class of concrete; one specimen tested at 7 days, one specimen tested at 28 days, one specimen retained for later testing if required, and one specimen retained at the job site. All

specimens must be clearly labeled with permanent markings.

e. When the total quantity of concrete is less than one truckload, the Architect/Engineer may waive testing requirements at his discretion.

f. Test results will be reported to the Architect/Engineer and concrete producer, in writing no greater than 24 hours after the tests have been made.

F. Contractor may forgo concrete testing requirements by submitting a RIDOT pre-approved mix.

1.3 SUBMITTALS:

A. Secure approved concrete mix designs from the testing laboratory in accordance with provisions of Section 01410, and submit to the Architect/Engineer for review and approval.

B. Distribute approved mix designs to testing laboratory, batch plant, and job site.

C. Concrete Testing:

1. Submit manufacturer's data with installation instructions for proprietary materials including reinforcement and forming accessories, admixtures, joint materials, hardeners, curing materials and others as requested by the Architect/Engineer.
2. Laboratory test or evaluation reports for concrete materials and mix designs.

D. Reinforcing Steel: Placement drawings shall conform to the recommendations of ACI 315. All reinforcement in a concrete placement shall be included on a single placement drawing. This drawing shall include the additional reinforcement (around openings, at corners, etc.) shown on the standard detail sheets. Bars to have special coatings and/or to be of special steel or special yield strength are to be clearly identified.

Bar bending details: The bars shall be referenced to the same identification marks shown on the placement drawings.

PART 2 - PRODUCTS:

2.1 FORMS

A. Design, erect, support, brace, and maintain formwork so it will safely support vertical and lateral loads which may be applied until such loads can be supported safely by the concrete structure.

B. Construct forms to the exact sizes, shapes, lines and dimensions shown, and as required to obtain accurate alignment, location, grades, and level and plumb work in the finished structure.

C. Smooth plywood forms for exterior vertical surfaces. Earth forms permitted only when approved by the Architect/Engineer.

D. All exposed concrete edges shall be formed with a 1” chamfer strip.

2.2 REINFORCEMENT

A. Fabricate reinforcement to the required shapes and dimensions, within fabrication tolerances stated in the CRSI "Manual of Standard Practices."

B. Do not use reinforcement having any of the following defects:
   1. Bar lengths, depths of bends exceeding the specified fabricating tolerances;
   2. Bends or kinks not indicated on the Drawings or required for this Work;
   3. Bars with cross section reduced due to excessive rust or other causes.

C. All steel reinforcement shall be epoxy coated. Fabrication and handling shall conform to ASTM D3963. All damage to the epoxy coating shall be patched in the field using a two-part epoxy repair material, approved by the coating manufacturer.

2.3 CONCRETE

A. Comply with pertinent provisions of ACI 301-72, except as may be modified by supplemental requirements stated in Part 3 of this Section.

B. All concrete shall be 3"-4" slump, 5,000 psi, ¾" course aggregate mix as specified below.

2.4 OTHER MATERIALS

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until all unsatisfactory conditions are corrected.

3.2 REINFORCING

A. Comply with the following, as well as the specified standards, for details and methods of reinforcing placement and supports.
   1. Clean reinforcement and remove loose dust and mil scale, earth and other materials which reduce bond or destroy bond with concrete.
   2. Position, support, and secure reinforcement against displacement by forms, construction, and the concrete placement operations.
   3. Place reinforcement to obtain the required coverages for concrete protection.
   4. Unless otherwise shown on the Drawings, or required by governmental agencies having jurisdiction, lap bars 48 bar diameters minimum.

3.3 EMBEDDED ITEMS

A. Set bolts, inserts, and other required items in the concrete, accurately secured so they will not be displaced, and in the precise locations needed. Anchor bolts for float attachment shall be set before

concrete is placed. Chemical anchors will not be allowed.

3.4 MIXING CONCRETE

A. Transit mix the concrete in accordance with provisions of ASTM C94.

B. Mixing Water:
1. At the batch plant, withhold 2.5 gallons of water per cubic yard of concrete.
2. Upon arrival at the job site, add all or part of the withheld water (as required for proper slump) before the concrete is discharged from the mixer.
3. Mix not less than five minutes after the withheld water has been added, and not less than one minute of that time immediately prior to discharge of the batch.
4. Unless otherwise directed, provide 15 minutes total mixing time per batch after first addition of water.

C. Do not use concrete that has stood for over 30 minutes after leaving the mixer, or concrete that is not placed within 60 minutes after water is first introduced.

3.5 PLACING CONCRETE

A. Preparation:
1. Remove foreign matter accumulated in the forms.
2. Rigidly close openings left in the formwork.
3. Wet wood forms sufficiently to tighten up cracks. Wet other material sufficiently to maintain workability of the concrete.
4. Use only clean tools.
5. Do not use petroleum based products to lubricate forms.

B. Conveying:
1. Perform concrete placing at such a rate that concrete which is being integrated with fresh concrete is still plastic.
2. Deposit concrete as nearly as practicable in its final location so as to avoid separation due to rehandling and flowing.
3. Do not use concrete which becomes non-plastic and unworkable, or does not meet required quality control limits, or has been contaminated by foreign materials.
4. Remove rejected concrete from the job site.

C. Placing concrete in forms:
1. Deposit concrete in horizontal layers not deeper than 24 inches.
2. Remove temporary spreaders in forms when concrete has reached the elevation of the spreaders.

D. Placing concrete slabs:
1. Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed. Vibrate all slab concrete.
2. Bring slab surfaces to the correct level with a straight edge, then strike off.
3. Use bullfloats or darbies to smooth the surface, leaving the surface free from bumps and hollows.
4. Do not sprinkle water on the plastic surface. Do not disturb the slab surface prior to start of finishing operations.
5. Do not pour concrete on frozen or wet ground, pour on prepared surface only.

3.6 CONSOLIDATION

A. General:
1. Consolidate each layer of concrete immediately after placing, by use of internal concrete vibrators supplemented by hand spading, rodding, or tamping.
2. Do not vibrate forms or reinforcement.
3. Do not use vibrators to transport concrete inside the forms.

3.7 JOINTS

A. Construction joints:
1. Apply construction joints only where specified in the drawings.

B. Control Joints:
1. Provide hand tooled transverse contraction joints at approximately five feet on center for all concrete walkways. Location of joints shall be reviewed and approved by the Engineer prior to pouring.

3.8 CONCRETE FINISHING

A. All cast-in-place concrete shall bear an exposed aggregate finish on all exposed faces unless otherwise specified in plan set.

3.9 REMEDIAL WORK

A. Repair or replace deficient work as directed by the Architect/Engineer and at no additional cost to the Owner.

3.10 SUPPLEMENTAL REQUIREMENTS:

A. Where consistent with the design shown on the Drawings and in these Specifications, provide the products and activities described in ACI 301-72 except as modified below. Item numbers cited below are items numbers contained in ACI 301.
1. 1.1.3: Definitions:
   a. Delete the definition of "Contract Documents" and refer to the definition given in the General Conditions of the Contract.
2. 3.2: Strength of concrete:
   a. 5,000 psi - 3" slump
3. 3.8: Method of proportioning concrete:
   a. Secure and submit proposed design mixes prepared by the selected testing agency described in Part 1.2(F) of Section 03300 of these Specifications.
   b. Note that under item 12.1 below, admixtures will not be permitted in certain concrete.
6. 4.1.4: Shop Drawings for formwork:
   a. Design of formwork is the responsibility of the Contractor.
   b. Shop Drawings for formwork may be required on the job site for coordination of the work of various subcontractors, but will not be reviewed by the Architect/Engineer.
7. 4.5.5: Minimum strengths of concrete to be reached before weight-supporting formwork and shoring

may be removed:

a. Formwork not supporting concrete (such as sides of beams, walls, columns, or similar parts of the Work) may be removed after cumulatively curing at not less than 50 degrees F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided that curing and protection operations are maintained.

b. Formwork supporting weight of concrete (such as beam soffits, joists, slabs, and other structural elements) may not be removed in less than fourteen (14) days after placing of concrete and not until concrete has attained design minimum 28-day compressive strength. Determine potential compressive strength of in-place concrete by testing field-cured specimens representative of the concrete location or members.

c. Form facing materials may be removed four days after placing of concrete, only if shores and other vertical supports have been arranged to permit removal of form facing material without loosening or disturbing shores and supports.

8. 5.1.1: Shop Drawings for reinforcing steel and accessories:
   a. Submit in accordance with Section 01340.
9. 5.2: Types and grades of reinforcing steel:
   a. Comply with ASTM A165:
      (1) All steel: Use grade 60.
10. 5.2.5: Welded wire fabric:
    a. As specified in the plans
11. 5.5.3: Reinforcement supports:
    a. Provide plastic-tipped chairs and accessories for work exposed to view, exposed to weather, or where rust would impair applied finish, so that finished surface will not be marred or stained.
12. 6.2.2: Expansion joint materials:
    a. Comply with ASTM D994 and ASTM D1751 as appropriate.
    b. Use asphalt expansion joints.
13. 6.3.1: Waterstops:
    a. NONE
14. 12.1: Method of curing and protecting:
    a. Submit directly to the Architect/Engineer for review.
    b. Where elastomeric deck coating or fluid-applied waterproofing is specified, cure the surface by water only; do not use admixture or curing agent.

********** **END OF SECTION** **********

SECTION 03400
PRECAST BOAT RAMP SLABS

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Provide precast concrete boat ramp slabs where shown on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Qualifications of manufacturer: Demonstrate capability to make and provide the specified quality products by attestation of the Precast Concrete Institute under the Plant Certification Program.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340.

B. Product data: Within 5 days after the Contractor has the Owner' Notice to Proceed, submit:
   1. Materials list of items proposed to be provided under this Section;
   2. Manufacturers' specifications and other data needed to prove compliance with the specified requirements;
   3. Manufacturers' certifications and laboratory tests reports as required;
   4. Shop Drawings, prepared in accordance with pertinent provisions of Section 01500 of these Specifications and showing complete information for fabrication and erection of the work of this Section including, but not necessarily limited to:
      a. Member dimensions and cross sections; locations, size, and type of reinforcement, including special reinforcement and lifting devices necessary for handling and erection;
      b. Erection procedures, sequence of erection, and required handling equipment;
      c. Layout, dimensions, and identification of each precast unit corresponding to the sequence and procedure of installation;
      d. Details of inserts, connections, and joints, including accessories and construction at openings in the precast units;
      e. Location and details of anchorage devices that are to be embedded in other construction.

1.4 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640.

B. Delivery, storage, and handling:
   1. Deliver the work of this Section to the job site in such quantities and at such times as to assure the continuity of construction.
   2. Store units at the job site in a manner to prevent cracking, distortion, warping, staining, and other physical damage, and in a manner to keep markings visible.
   3. Lift and support the units only at designated lifting points or supporting points as shown on the approved Shop Drawings.

PART 2 - PRODUCTS:

2.1 FORMWORK:

A. The Owner will provide the contractor with three sets of forms for the precast slabs. All surfaces of forms and embedded items shall be thoroughly cleaned of all accumulated mortar or grout from previous concreting and of all other material before concrete is placed.

E. Form Removal
   1. Forms shall be stripped when the concrete strength attains a minimum compressive strength of 2,500 psi.
   2. Stripping time shall be established during the test placement when test cylinders, field curing along with the concrete they represent have reached the minimum strength specified, 2,500 psi.
   3. Care must be exercised at all times during removal of forms to prevent chipping of the corners and damage to the smooth finish of the slabs. Do not wedge pry bars and/or other stripping tools against the concrete. Damage caused by improper form removal shall result in the slabs being rejected.
   4. Store removed forms in a manner that surfaces to be in contact with fresh concrete will not be damaged.

F. References - ACI 347 Guide to Formwork for Concrete.

2.2 REINFORCEMENT AND CONNECTION MATERIALS:

A. Provide reinforcement, accessories, and connection materials required in accordance with the final design as approved by the Architect/Engineer.

B. Standards:
   1. Meet or exceed the quality specified for similar materials under other Sections of these Specifications.
   2. For materials not specified under other Sections of these Specifications, but required for a complete and proper installation, provide new materials, first quality of their respective kinds, as selected by the Contractor subject to the approval of the Architect/Engineer.

C. Materials:

1. Reinforcing steel shall be grade 60, deformed billet-steel bars. All reinforcing shall be furnished in the full lengths indicated on the drawings. No welding or splicing will be allowed. All steel reinforcement shall be epoxy coated. Fabrication and handling shall conform to ASTM D3963. All damage to the epoxy coating shall be patched using a two-part epoxy repair material, approved by the coating manufacturer.
   a. Use coated tie wires.
   b. Bar supports, spacers, etc shall be submitted for approval to the Architect/Engineer prior to use.
2. Lifting inserts shall be Richmond (LP-4) stainless steel coil lifting inserts. Minimum insert height shall be 5½ inches with a minimum base width of 7½ inches. The lifting insert must accept a 3/4 inch diameter x 5½ inch long lift lag and be compatible with Richmond Duo Swivel Lifting Plates (LDLP).

2.3 CONCRETE

A. Design mix:

1. The contractor shall submit for approval a design mix that conforms to the following:

Cement	705 lbs
3/8” Coarse Aggregate	1850 lbs
Fine Aggregate	1300 lbs
Design Water	33 gal
Slump	3” - 6”
Air Content	6% ± 1%
Air Admixture MBVR	7 oz/cy
Glemium 3000	46 oz/cy
Rheocrete C.N.I.	4 gal/cy

B. Design strength:

1. Design of concrete shall be based on concrete placed in severe exposure conditions including resistance to freeze-thaw, abrasion, chloride resistance and durability. Concrete shall meet or exceed a compressive strength of 5,000 psi at 28 days.

C. Contractor may forgo concrete testing below by submitting a pre-approved RIDOT mix meeting the above requirements.

2.4 CONCRETE TESTING

A. Procedures for obtaining representative samples of fresh concrete as delivered to the forms on which tests are to be performed to determine compliance with quality requirements of the specifications

shall be in accordance with ASTM C172.

B. In accordance with ASTM standards, the following tests shall be performed on each batch produced:
   1. ASTM C138 Unit Weight/Yield
   2. ASTM C143 Slump
   3. ASTM C231 Air Content of Freshly Mixed Concrete by the Pressure Method
   4. ASTM C1064 Temperature of Freshly Mixed Portland Cement Concrete
   5. Ambient air temperature shall be recorded at the time of each placement.

C. A total of fourteen (14) test cylinders shall be molded and cured throughout the project as follows in conformance with ASTM C31 and shall be tested by a certified independent laboratory.

D. During the test placement, six (6) cylinders shall be molded, cured, and tested as follows.
   1. Two (2) cylinders shall be field cured along with the concrete they represent and tested to establish a time for stripping the forms.
   2. Four (4) cylinders shall be cured under normal conditions, two (2) tested at 7 days and two (2) tested at 28 days.

E. The remaining eight (8) cylinders shall be molded and tested at a time and frequency determined by the Architect/Engineer. Four (4) cylinders shall be made at each test, one (1) tested at 7 days, two (2) tested at 28 days, and one retained for later testing at 56 days if both 28 day breaks do not conform the specified 28 day strength. If the 56 day test yields a compressive strength less than 4,500 psi, the slab(s) which the defective concrete was placed shall be rejected and recast.

F. Field storage of cylinders before delivery, and the methods of delivery to the testing laboratory shall be in accordance with the laboratory's recommendations.

G. Test cylinders shall have identification tags with the following information recorded:
   1. Date cast;
   2. Concrete batch number;
   3. Slab numbers which the cylinders represent;
   4. Results of the field tests;

2.5 TEST PLACEMENT

A. Prior to beginning scheduled concrete placement and after approval of the proposed mix proportions, the Contractor shall conduct a test placement of two (2) units.

B. The Contractor shall use the test placements for the following:
   1. Demonstrating the placing, consolidating, finishing, evaporation protection, curing, and form stripping techniques proposed for use on the project.
   2. Establishing a time for stripping forms as specified herein.
   3. Providing an objective on-site standard for judging the acceptability of the finished slabs when observed by the Architect/Engineer.

C. These techniques and the final finishing appearance of the slabs shall be reviewed by the Architect/Engineer. If approved, the Contractor may use these two units in the final construction of the boat ramp.

D. Subsequent placements shall not begin until the test placements have been approved by the Architect/Engineer.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 FABRICATION:

A. General:
   1. Fabricate the work of this Section to the sizes and shapes indicated, and of texture matching the approved Samples.
   2. Provide finished units which are straight, true to size and shape, and within the specified casting tolerances.
   3. Make exposed edges sharp, straight, and square. Make flat surfaces in a true plane except where rounded edges are called for on the Drawings.
   4. Warped, cracked, broken, spalled, stained, and otherwise defective units will not be acceptable.
   5. Place and secure in the forms all anchors, clips, stud bolts, inserts, lifting devices, shear ties, and other devices required for handling and installing the slabs and for attachment of subsequent items as indicated or specified.

B. Casting tolerances: Maintain casting, bowing, warping, and dimension tolerance within the following maximums:
   1. Overall dimensions for height and width of units:
      a. Plus zero of unit dimension to minus 3/32".
   2. Make thickness of units plus or minus 1/8" maximum.
   3. Bowing or warping:
      a. Do not exceed 1/360 of the span.
   4. Insert locations:
      a. Place within plus or minus 1/4" in each direction.
   5. Opening dimensions to figured dimensions:
      a. Accurate within a tolerance of plus 1/8" to minus zero.

3.3 CONCRETE PLACEMENT

A. Notify the Architect/Engineer a minimum of 24 hours in advance of the test placement and the initial

scheduled placements.

B. Place concrete in accordance with ACI 304, ACI 305R, and ACI 306R.

C. Deposit and consolidate concrete in a continuous operation until the placing of a unit is completed.

D. Deposit concrete continuously or in layers of such thickness that no concrete shall be placed on concrete which has hardened sufficiently to cause the formation of cold joints, seams or planes of weakness.

E. Deposit concrete, as nearly as possible, to its final location to avoid segregation.

F. Do not interrupt successive placements.

G. Do not permit cold joints to occur.

3.4 CONSOLIDATION

A. Consolidate concrete in accordance with ACI 309.

B. Concrete shall be vibrated either externally or internally to achieve maximum density concrete.

3.5 FINISH

A. Surface finish of slabs shall conform to the dimensions detailed on the Drawings.

B. Immediately after form removal, concrete shall be repaired and cleaned as follows:
   1. All concrete surfaces shall have bugholes greater than 1/8" in diameter and honeycomb areas patched;
   2. Any bulges or offsets which shall interfere with the proper setting of the slabs shall be leveled to the correct dimension.
   3. All exposed edges shall have fins carefully removed and all rough spots, mortar, grout, or other projections rubbed with Carborundum or abrasive stone to provide a smooth even finish.
   4. All stains shall be removed.

C. The date cast (mm/dd/yy) shall be stenciled on at least one end of each slab.

3.6 PATCHING AND/OR REPAIRING CONCRETE

A. No patching or pointing of concrete work shall be done until the work has been examined by the Architect/Engineer.

B. Patching material shall be a proprietary cementitious non-shrink grout of similar color as approved by the Architect/Engineer.

C. A sample patch of grout shall be required to insure blending with adjacent concrete.

3.7 CURING AND PROTECTION

A. Curing of concrete shall be in conformance with ACI 308.

B. Immediately after placement, protect concrete from premature drying, excessive hot or cold temperatures, and from mechanical injury.

C. Slabs shall be cured with the approved curing method for a minimum of seven (7) days.

D. Maintain concrete with minimal moisture loss at relatively constant temperature for designated curing period.

E. Approved liquid curing and evaporative agents shall be compatible with the agents and shall be applied in conformance with the manufacturer's recommendations.

3.8 HANDLING, STORAGE, AND TRANSPORTATION

A. The Owner will supply the contractor with four lift lags and four double swivel lifting hooks for use during casting and installation. All lifting accessories shall be returned to the Owner along with the forms at the completion of the project.

B. Slabs shall be handled only be means of approved devices at designated locations.

C. Storage areas for precast slabs shall be stabilized, and a suitable foundation provided, so the differential settlement or twisting of slabs will not occur.

D. Stacked members shall be separated and supported by battens placed across the full width of each bearing point.
   1. Battens shall be arranged in vertical planes at a distance not greater than the depth of the member from designated pickup point (or directly over lifting insert locations).
   2. Batten material shall be carefully selected to avoid staining.
   3. When stacking slabs, battens shall not be continuous over more than one stack of precast units.

E. When transporting slabs, provision shall be made for supporting the slabs as described above.
   1. Stacks shall be braced to ensure they remain vertical and to dampen dangerous vibrations.
   2. Adequate padding material shall be provided between the concrete slabs and tie chains, cables or straps to prevent abrading or shipping of concrete.

F. Notify the Architect/Engineer 24 hours prior to delivering any slabs to the project area.

3.9 INSTALLATION

A. Install slabs in the direction and location shown on the Drawings.

B. Excavate to grades as shown on the Drawings. Stretch filter fabric and install on newly excavated ground.

C. Install 12" (min) of 2” crushed stone on top of filter fabric. Smooth traprock as required for grading by pulling an I-beam or similar device from a bull dozer across the stone. Set traprock to exact grades as much as possible.

D. Install railroad rails on crushed stone. A used railroad rail may be used subject to the approval of the Architect/Engineer. The rails shall be set to exact grades and slope. Adjust the stone as required to set the rails to grade.

E. After the rails are set to grade and slope, install 1/2" crushed stone on top of the 2” crushed stone. Drag the I-beam across the stone to level using the top of the rails as the guide. Drag the I-beam as many times as required to level the stone.

F. Lift the precast slabs into place using <u>all</u> the lifting inserts and drop in place as near to its final location as possible. Orient slabs as shown on the Drawings. Push slabs into final location with the blade of a bull dozer. Protect the slabs from direct contact with the blade of the bull dozer by placing a rubber protection device at the bottom of the blade. Any damage or chipping of the slabs during the installation will cause the slabs to be rejected.

**********END OF SECTION**********

SECTION 06500
TIMBER FLOATING DOCKS

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Provide a design and construct floating timber docks as shown on the plans.

B. Related work:
   1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

B. Codes and standards:
   1. In addition to complying with pertinent codes and regulations of governmental agencies having jurisdiction, unless otherwise specifically directed or permitted by the Architect/Engineer comply with:
      a. "Product Use Manual" of the Western Wood products Association for selection and use of products included in that manual;
      a. American Society of Testing Materials (ASTM)
   2. Shop drawings showing any changes to the floating docks specified in the plans shall be completed and stamped by a Professional Engineer licensed in Rhode Island showing the layout, materials, spacings, sizes, connections, etc. for the floats. Buoyancy calculations shall also be submitted to the Architect/Engineer. Otherwise shop drawings shall list the material specifications for each of the floating dock components.

1.3 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640.

B. Protection:
   1. Deliver the materials to the job site and store, in a safe area, out of the way of traffic, and shored up off the ground surface.
   2. Protect metals with adequate waterproof outer wrapping.
   3. Use extreme care in off loading of floats to prevent damage, splitting, and breaking of materials.

PART 2 - DESIGN:

2.1 GENERAL:

A. The floating docks shall be constructed of pressure treated timber and wood polymer decking and shall be buoyant enough to satisfy the loading criteria established on the drawings. Dimensions of the floats shall be as described on the drawings.

B. The floatation units shall be constructed of crossed linked rotationally-molded (CL200) high density polyethylene units filled with expanded polystyrene. Freeboard shall be as defined on the drawings.

C. The structural frame of the floats shall be constructed of #1 Southern Yellow Pine or better treated to 1.0 pcf CCA and be designed to withstand all loading forces and also be designed with adequate bracing to prevent racking and torsion when impacted by boats using the facility as well as three foot waves. Loading shall be as defined on the drawings.

D. Wood polymer decking shall be Trex Wood Polymer Decking as manufactured by Trex Company, LLC, of Winchester, VA or approved equal. Color shall be Winchester Gray. (Contact info: phone - 800-289-8739 or http://www.trex.com.

E. Except as otherwise noted herein, all fasteners used on the float construction shall be hot dipped galvanized according to the following:
   1. Bolts and Nuts - ASTM A-307
   2. Lag Screws - Federal Specification FF-B-56
   3. Nails and spikes - Federal Specification FF-M-101
   4. Steel Hardware - ASTM A-123 or ASTM A-153 as required

G. Stainless steel screws shall be used to secure the polymer decking to the wooden frame. Each hole shall be predrilled and the head of each screw shall be countersunk by drilling a slightly larger diameter hole than the diameter of the screw head into the polymer approximately the thickness of the head of the screw. Screws shall be square drive type 305 stainless steel.

H. Dock hardware shall be hot dipped galvanized and manufactured in accordance with ASTM A-36. Hardware shall be used to reinforce corners and connections so that the dock withstands the design forces. All washers shall be galv. dock washers.

I. Each floating dock shall include two 10” mooring cleats constructed of heavy duty hot dipped galvanized steel.

********** **END OF SECTION** **********

SECTION 10342
MARINE SPECIALTIES

PART 1 - GENERAL:

1.1 DESCRIPTION:

A. Work included: Provide accessories where indicated on the Drawings, as specified herein, and as needed for a complete and proper installation.

B. Related work:

1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, and Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.2 QUALITY ASSURANCE:

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS:

A. Comply with pertinent provisions of Section 01340, Submittals and Substitutions.

B. Product data: Within thirty-five (35) calendar days after the Contractor has received the Owner's Notice to Proceed, submit:

1. Materials list of items proposed to be provided under this Section;
2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements;
3. Manufacturers' data clearly defining the required support and other details of installation to enable proper interface with the work of other trades.
4. Manufacturer's recommended installation procedures which, when approved by the Architect/Engineer, will become the basis for accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING:

A. Comply with pertinent provisions of Section 01640, Product Handling.

PART 2 - PRODUCTS:

2.1 RUBRAIL:

A. Provide rub rail, style 02, such as that manufactured by American Muscle Docks (formerly Follansbee Dock Systems), 141 Sunset Avenue, Wellsburg, WV 26070; Phone: 1-800-223-3444;

www.americanmuscledocks.com. Or approved equal, where shown on the drawings and as needed for a complete installation, and having:

1. Containing UV stabilizers and fungicide,
2. Color = white.
3. Secure with stainless steel ring shank nails as specified by the manufacturer.

2.2 COVER PLATE:

A. Provide galvanized cover plates at each gap between floats, such as that manufactured by American Muscle Docks (formerly Follansbee Dock Systems), 141 Sunset Avenue, Wellsburg, WV 26070; Phone: 1-800-223-3444; www.americanmuscledocks.com. Or approved equal as needed for a complete installation, and having:

1. 4 ft. width min.

2.3 DOCK CLEATS:

A. Provide two galvanized dock cleats per 20 ft. floating dock section, such as those manufactured by American Muscle Docks (formerly Follansbee Dock Systems), 141 Sunset Avenue, Wellsburg, WV 26070; Phone: 1-800-223-3444; www.americanmuscledocks.com. Or approved equal as needed for a complete installation, and having:

1. 10” length

2.4 OTHER MATERIALS:

A. Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the Architect/Engineer.

2.5 ADA-COMPLIANT KAYAK LAUNCH

A. Provide one ADA-compliant kayak launch system, such as those manufactured by EZ Dock, Inc, 878 East Highway 60 Monett, MO 65708; 1-800-654-8168; www.ez-docks.com. Or approved equal as approved by Architect/Engineer.

PART 3 - EXECUTION:

3.1 SURFACE CONDITIONS:

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

3.2 INSTALLATION:

A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.

B. Install each item in its proper location, firmly anchored into position, and in accordance with the manufacturer's recommendations.

**************END OF SECTION**************

APPENDIX

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF WATER RESOURCES
235 Promenade Street
Providence, Rhode Island 02908

March 10, 2020

Rhode Island Department of Environmental Management
Division of Planning and Development
C/o Megan DiPrete, Chief
235 Promenade Street, Rm 310
Providence, RI 02980

Insignificant Alteration – Permit

Re: Application No. 19-0311 for the property and proposed project located:

approximately 430 feet west of Les Pawson Loop; approximately 2,420 feet south of the intersection of Lincoln Woods Road and Les Pawson Loop; Assessor's Plat 20, Lot 18, Lincoln, RI.

Dear Ms. DiPrete:

Kindly be advised that the Department of Environmental Management's ("DEM") Freshwater Wetlands Program ("Program") has completed its review of your **Request for Preliminary Determination** application. This review included a site inspection of the above referenced property ("subject property") and an evaluation of the proposed demolition of an existing boat ramp and the construction of a new boat ramp, a new floating courtesy dock, a new kayak launch, and improvements to the existing parking area, including the installation of permeable pavers at the Olney Pond Boat Launch in Lincoln Woods State Park, as illustrated and detailed on site plans submitted with your application. These site plans were received by the DEM on February 11, 2020 and on February 25, 2020 (sheet C4 only).

Our observations of the subject property, review of the site plans and evaluation of the proposed project reveals that alterations of freshwater wetlands are proposed. However, pursuant to 250-RICR-150-15-1.9 of the Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act, 250-RICR-150-15-1, this project may be permitted as an **insignificant alteration** to freshwater wetlands under the following terms and conditions:

Terms and Conditions for Wetlands Application No. 19-0311:

1. This letter is the DEM's permit for this project under the R.I. Fresh Water Wetlands Act, R.I. Gen. Laws § 2-1-18 et seq.

2. This permit is specifically limited to the project, site alterations and limits of disturbance as detailed on the site plans submitted with your application and received by the DEM on February 11, 2020 and on February 25, 2020 (sheet C4 only). A copy of the site plans stamped approved by the DEM is enclosed. Changes or revisions to the project that would alter freshwater wetlands are not authorized without a permit from the DEM.

3. Where the terms and conditions of the permit conflict with the approved site plans, these terms and conditions shall be deemed to supersede the site plans.

4. You must notify this Program in writing of the anticipated start date, and of your contractor's contact information, by submitting the Notice of Start of Construction Form prior to commencement of any permitted site alterations or construction activity. You must also notify this Program in writing upon completion of the project. The Start of Construction Form can be found on the webpage: dem.ri.gov/stormwaterconstruction

5. A copy of the stamped approved site plans and a copy of this permit must be kept at the site at all times during site preparation, construction, and final stabilization. Copies of this permit and the stamped approved plans must be made available for review by any DEM or city/town representative upon request.

6. The effective date of this permit is the date this letter was issued. This permit expires four (4) years from the date of this letter unless renewed pursuant to the Rules.

7. Any material utilized in this project must be clean and free of matter that could pollute any freshwater wetland.

8. Prior to commencement of site alterations, you shall erect or post a sign resistant to the weather and at least twelve (12) inches wide and eighteen (18) inches long, which boldly identifies the initials "DEM" and the application number of this permit. This sign must be maintained at the site in a conspicuous location until such time that the project is complete.

9. Temporary erosion and sediment controls detailed or described on the approved site plans shall be properly installed at the site prior to or commensurate with site alterations. Such controls shall be properly maintained, replaced, supplemented, or modified as necessary throughout the life of this project to minimize soil erosion and to prevent sediment from being deposited in any wetlands not subject to disturbance under this permit.

10. Upon permanent stabilization of all disturbed soils, temporary erosion and/or sediment controls must be removed.

11. You are obligated to install, utilize and follow all best management practices detailed or described on the approved site plans in the construction of the project to minimize or prevent adverse impacts to any adjacent freshwater wetlands and the functions and values provided by such wetlands.

Pursuant to the provisions in 250-RICR-150-15-1.7(A)(9) and 250-RICR-150-15-1.11(D), as applicable, any properly recorded and valid permit is automatically transferred to the new owner upon sale of the property.

You are required to comply with the terms and conditions of this permit and to carry out this project in compliance with the Rules at all times. Failure to do so may result in an enforcement action by this Department.

In permitting the proposed alterations, the DEM assumes no responsibility for damages resulting from faulty design or construction.

Kindly be advised that this permit is not equivalent to a verification of the type or extent of freshwater wetlands on site. Should you wish to have the types and extent of freshwater wetlands verified, you may submit the appropriate application in accordance with 250-RICR-150-15-1.8(C).

This permit does not remove your obligation to obtain any local, state, or federal approvals or permits required by ordinance or law and does not relieve you from any duties owed to adjacent landowners with specific reference to any changes in drainage.

Please contact Daniel Kowal of this office (telephone: 401-222-4700, ext. 7416) should you have any questions regarding this letter.

Sincerely,

Martin D. Wencek

Martin D. Wencek, Permitting Supervisor
Freshwater Wetlands Program
Office of Water Resources

MDW/DMK/dmk

Enclosure: Approved site plans

ec: Jillian Thompson, P.E., DEM/Planning & Development